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POWERLINE AND VINEYARD FLOOD RETARDING STRUCTURES

23984-002-0000

March 2002

SPILLWAY INUNDATION STUDY

FCD NO. 98-33

Submitted to

Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009
(602) 506-1501

Submitted by
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Kofi Awumah

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

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SECTION 1.0 INTRODUCTION

1.1 PURPOSE OF STUDY

The purpose of this study is to determine and delineate the inundation limits of the 1/3, 2/3, and full spillway discharges from the emergency spillways of the Powerline and Vineyard Flood Retarding Structures (FRS); and, to determine the approximate travel time from the spillways to the downstream limit of study for each of the flow scenarios.

1.2 STUDY AREA

The Powerline and Vineyard FRSs are located in Pinal County, Arizona south of US 60 and the City of Apache Junction (see Exhibit 1, Location Map). The emergency spillway for the Powerline FRS is located at the southeastern end of the structure in Section 9 of Township 1 South (T1S), Range 8 East (R8E).

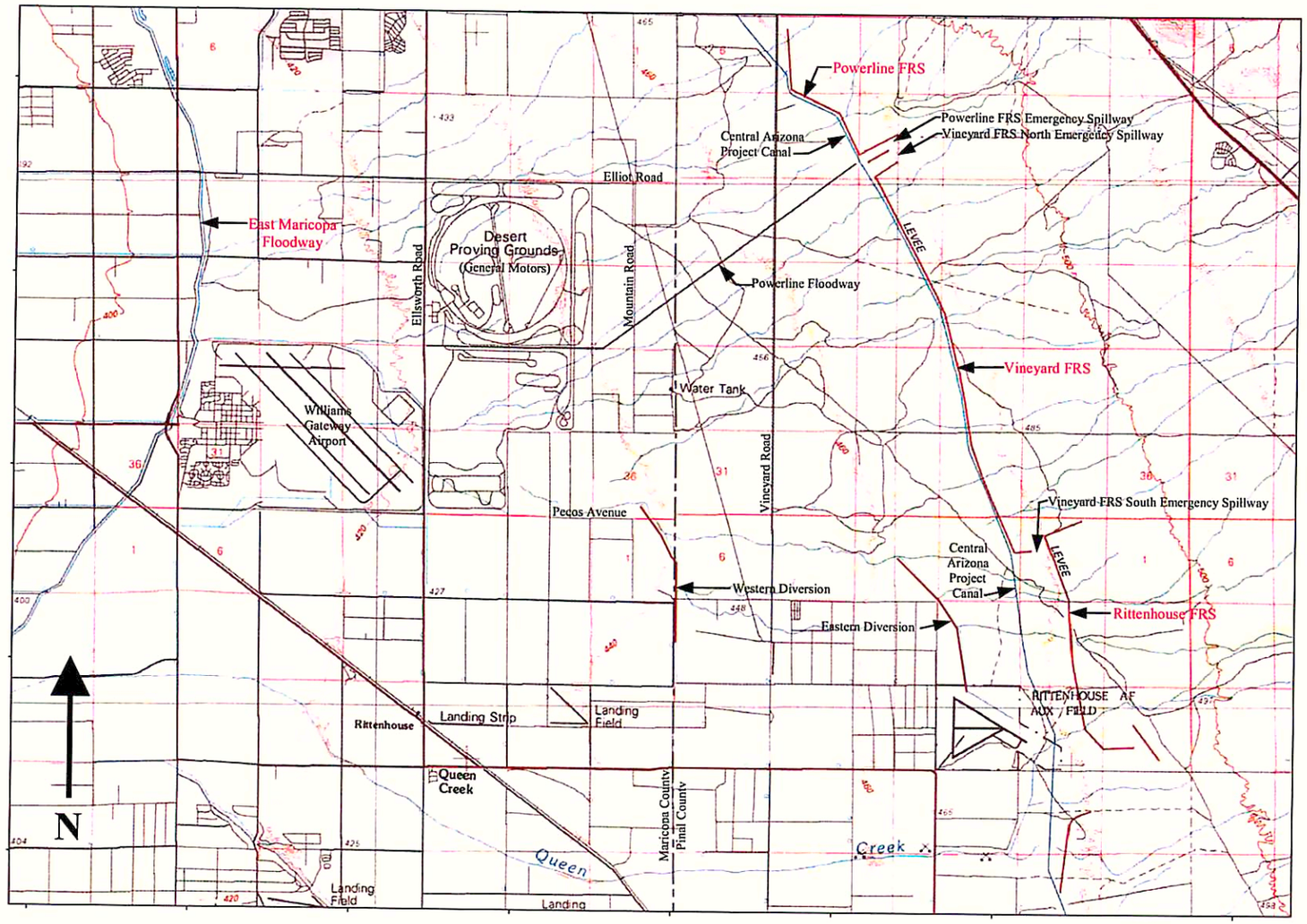
The Vineyard FRS has emergency spillways at both ends of the embankment structure. The northern spillway outfalls to the same location north of the CAP as the Powerline FRS. For this reason, flows have been combined for the two spillways and analyzed as one flow. Since analyzed as one flow, further discussion of the Powerline FRS in this report shall imply both the Powerline FRS spillway and the Vineyard FRS, north spillway.

The southern emergency spillway for the Vineyard FRS is located in Section 2 of Township 2 South (T2S), Range 8 East (R8E). Flows from this spillway and the Powerline spillway eventually combine just west of Signal Butte Road between Williams Field Road and Pecos Avenue.

The study limits are from the emergency spillways of the Powerline and Vineyard FRSs to the East Maricopa Floodway (EMF), a distance of approximately 11 miles for the Powerline FRS and the combined Powerline and Vineyard flows; and, a distance of 5.5 miles for the Vineyard flows to the confluence with the Powerline FRS flows.

Immediately below, and running perpendicular to, the Powerline and Vineyard north emergency spillways is a channel collecting the principal spillway outlet flows for both structures. This channel turns 90° and becomes the Powerline Floodway. The study begins at the upstream bank of the principal spillway outlet collection channel.

Flows from the Powerline spillway proceed in a typically southwesterly direction, to the General Motors (GM) Proving Grounds, then westerly along the southern edge of GM, and disperse to shallow flooding across Williams Air Force Base before entering the EMF. Flows from the Vineyard south spillway travel in a westerly direction and combine with Powerline flows in the vicinity of the intersection of Pecos Road and 222nd Street.



Location Map
(N.T.S.)

Exhibit 1

1.3 SURVEY AND MAPPING

This study utilized survey and mapping from several sources. The first was new survey and mapping developed specifically for this contract (FCD 98-33) and included the area generally described as an approximately 2 mile wide strip from the Powerline FRS spillway to the Maricopa and Pinal County line; and, an approximately 1 mile wide strip from the Vineyard FRS spillway to approximately one half mile east of the Maricopa and Pinal County line. M & B Aerial Mapping, LLC performed this new mapping (References 1 and 2) for this study under a subcontract with Michael Baker Jr., Inc. The new mapping utilized aerial data gathered on a flight date of November 30, 1999 for the Powerline FRS and a flight date of February 11, 2000 for the Vineyard FRS.

AZTEC Engineering provided field and ground control survey, for the contract.

Additional digital aerial mapping files from the South East Mesa Area Drainage Master Plan (ADMP) FCD #95-32 (Reference 3) were supplied to Baker by the FCDMC. A strip of this mapping was used from the western limit of the M & B mapping for the Vineyard FRS to the Queen Creek Area Drainage Master Study (ADMS) mapping (Reference 4). Approximately a one-quarter mile strip, centered along Pecos Road was also used from Mountain Road to the Maricopa and Pinal County line.

Topographic mapping prepared under FCD #86-23, the Queen Creek ADMS (Reference 4), was used for the area west of the Maricopa and Pinal County line except for the strip described above. This mapping was not available from the District in digital form. It was supplied to Baker as paper maps of scale 1" = 200' and as raster image files (.tif format) scanned by the District at a 1" = 200' scale.

SECTION 2.0 HYDRAULICS

2.1 METHODOLOGY

2.1.1 Modeling

All hydraulic analyses were performed by step backwater calculations using the USACE's HEC-RAS, version 2.2 (Reference 5). This version can perform only one-dimensional steady flow calculations.

Separate HEC-RAS models were developed for each of the three flow scenarios in order to specify different effective flow limits for the three discharges.

The HEC-RAS model for the Powerline FRS was started at Ellsworth Road. For the Vineyard FRS, the model was started approximately 1.1 mile upstream (east) of the intersection of Pecos Avenue and Crismon Road. The model terminated at the upstream embankment of the Powerline and Vineyard principal spillway outlet collection channel and at the centerline of the Vineyard FRS emergency spillway crest.

A HEC-RAS model was also developed for the shallow flooding area at the downstream limits of the study. This model consisted of 9 cross sections with cross section 9, the most upstream cross section, being the same as cross section 12.258 in the Powerline FRS model.

2.1.2 Discharges

Discharges for the three flow scenarios were determined and provided by the FCDMC. The discharges are:

Location	Full Flow (cfs)	2/3 Flow (cfs)	1/3 Flow (cfs)
Below Powerline FRS	20,000	13,333	6667
Below Vineyard FRS	9,700	6,467	3233
Below Confluence of Powerline FRS and Vineyard FRS	29,700	19,800	9900

2.1.3 Flow Regime

A mixed flow regime was assumed to account for both supercritical and subcritical flow conditions.

2.1.4 Starting Water Surface Elevation

The normal depth or slope-area method was used as the downstream boundary condition for the shallow flooding area and the Powerline model. Through the shallow flooding area at the downstream study limits, a slope of 0.0033 ft/ft was used as the downstream boundary condition. This slope was applied to all 3 flow scenarios.

Through the detailed study area, beginning at Powerline cross section 12.258, a slope of 0.00216 ft/ft was used for the downstream boundary condition. This slope was determined by combining the cross sections used to analyze the shallow flooding area at the downstream study limits with the Powerline HEC-RAS model. The HEC-RAS computed energy grade slope (0.00216 ft/ft) at cross section 12.258 for the full flow scenario was then used in the Powerline model. This slope was applied to all 3 flow scenarios.

The computed water surface elevation for cross section 14.691 of the Powerline model was used as a known starting water surface elevation for the Vineyard FRS. The Vineyard model includes cross sections 14.691 of the Powerline model. It is labeled as cross sections 3 in the model. Critical depth was assumed for the upstream boundary condition for both structures.

2.1.5 Cross Section Layout

For the new digital mapping developed for this study, cross sections for the HEC-RAS were developed from a digital terrain model (DTM) using BOSS International's RiverCAD, version 3.5, software (Reference 6). Cross sections in areas of existing mapping provided by the FCDMC were developed by manual interpolation of the topographic data. Spacing of cross sections was approximately every 500 ft except where topographical features warranted a deviation from this spacing and in the shallow flooding area.

Cross sections were oriented perpendicular to flow and stationed left to right looking downstream with the baseline being the 10,000 station.

The most upstream cross section was set at an arbitrary River Mile stationing of 20.000. Downstream cross section station IDs were then assigned based on the river mile distance, decreasing downstream, along the hydraulic baseline from this station 20.000.

2.1.6 Channel Stationing

Flows out the emergency spillway and over the CAP have never occurred. Therefore, there is no existing channel downstream of either the Powerline or the Vineyard FRSs formed from these flows. Channel stations have been estimated based on topographic features and engineering judgement.

Channel stations downstream of the Powerline FRS were developed as follows:

- As flows through the emergency spillway and overtopping the CAP will encounter low resistance (nearly bare ground), conveyance through the emergency spillway will be high. The full width of the spillway therefore, has been designated channel. This width has been maintained overtop of the CAP.
- From the CAP to cross section 19.100, the channel stationing has been transitioned from the width of the spillway into the Powerline Floodway. This transitioning was based on the inundation maps developed for the full flow scenario.

  The Powerline Floodway is an excavated concrete channel designed to convey principal spillway flows from the Powerline and Vineyard FRSs to the EMF. Channel banks are generally higher than the existing topography, thereby, causing flows adjacent to the channel to flow away from the channel and not into it. Downstream of cross section 19.100, under the full flow scenario, flows begin to markedly fall away from the Powerline Floodway.

  Additionally, as the distance away from the emergency spillway increases, the full force of the discharge over the spillway will decrease and flows will tend to spread out and act more as overbank flows than channel flow.
- Downstream of cross section 19.100, the Powerline Floodway has been designated the channel in the hydraulic model until it enters the GM Proving Ground.
- Downstream of the intersection of the Powerline Floodway and the GM Proving Ground, channel stations were set based on topographic features with the deepest portion of the cross section expected to be the area of greatest conveyance and concentrated flows designated as channel.

Channel stations downstream of the Vineyard FRS were developed as follows:

- Channel stations upstream of the CAP were developed based on the width of the emergency spillway.
- At the CAP channel stations were assigned based on the width of the emergency spillway and the effective flow limits.
- Downstream of the CAP, flows are expected to fall into existing washes. These washes would be anticipated to be high conveyance corridors. Therefore, the existing washes were used to designate the channel stations.

Channel stations remained the same for all three flow scenarios.

2.1.7 Hydraulic Baseline

The hydraulic baseline is located within the channel stations and follows the same path described in section *2.1.6 Channel Stationing*.

2.1.8 Manning's 'n' Values

Manning's 'n' value calculations are presented in Appendix C of this report.

The same 'n' values were used for all three flow scenarios.

2.1.9 Expansion Ratios

Expansion ratios were determined for the full flow scenario based on the methodology presented in the HEC-RAS Hydraulic Reference Manual, version 2.0 (Reference 7). Calculations may be found in Appendix C of this report.

For the 2/3 and 1/3 flow scenarios, the same expansion ratios computed for the full flow were used. In some areas, the expansion (effective flow) limits have been shifted in (toward the channel) to account for the reduced inundation area with the smaller discharges.

2.1.10 Contraction Ratios

Contraction ratios were assumed to be 1:1 in all cases for all flow scenarios.

2.1.11 Contraction/Expansion Coefficients

Contraction/Expansion (c/e) coefficients of 0.1 and 0.3, respectively, were used for most of the modeling. Downstream of the Powerline and Vineyard FRSs, c/e coefficients of 0.3/0.5 were used until flows had fully expanded.

2.1.12 Calibration

Flow has never occurred over the Powerline FRS or Vineyard FRS emergency spillways. Therefore, there are no high water marks or flood records to calibrate against so calibration is not possible.

2.2 SPECIAL PROBLEMS

2.2.1 Powerline Floodway at the CAP

The Powerline Floodway crosses through both banks of the CAP as a pair of concrete box culverts (see Photo 2.2.1.a). A concrete, open-topped, rectangular channel lies above the actual canal, connecting each pair of culverts (see Photo 2.2.1.b).

The capacity of the culverts at the CAP was analyzed using HY8 (Reference 8). The 1 third flow and full flow discharges were analyzed in separate HY8 models using constant tailwater elevations taken from the results of their respective HEC-RAS models. The HEC-RAS computed water surface elevation at cross section

19.879 was used as the tailwater elevation. For the 1/3 and full flow scenarios, the respective tailwater elevations then were 1561.30 and 1562.74. The slight difference between the two tailwater elevations yielded little difference in the culvert capacity at the 1/3 flow discharge (6667 cfs). The HY8 using the 1/3 flow tailwater resulted in a culvert capacity of 774.5 cfs. The HY8 rating table generated using the full flow discharge, showed the culvert capacity at the 1/3 discharge (6667 cfs) to be 774.2 cfs. (See Appendix C)) Since the tailwater elevation appears to have an insignificant effect on the culverts' hydraulic capacity, the HY8 model utilizing the full flow discharge/tailwater elevation (el. 1562.74) was considered adequate for all three flow scenarios.

The computed culvert capacities for the 3 flow scenarios based on the rating table generated in the HY8 were:

Flow Scenario	**Twin Box Culvert Capacity (cfs)**	**Culvert Capacity vs. Total Flow (%)**
Full Flow (20,000 cfs)	870	4.35
2 Thirds Flow (13,333 cfs)	829	6.22
1 Third Flow (6667 cfs)	774	11.61

Due to the small percentage of flow being carried by the culverts for each of the flow scenarios and the wide expanse of the flooding over the mapping area, the culverts at the CAP were not included in the HEC-RAS modeling.

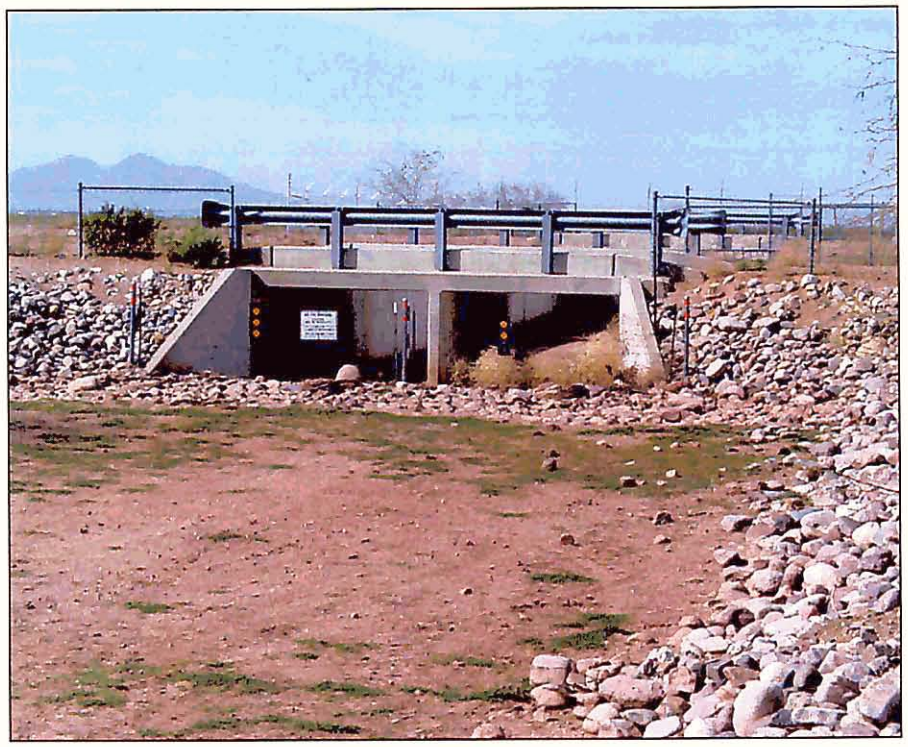


Photo 2.2.1.a. Looking downstream (southwest) through inlet of twin box culverts where Powerline Floodway crosses the CAP. (Photo date March 23, 2000)

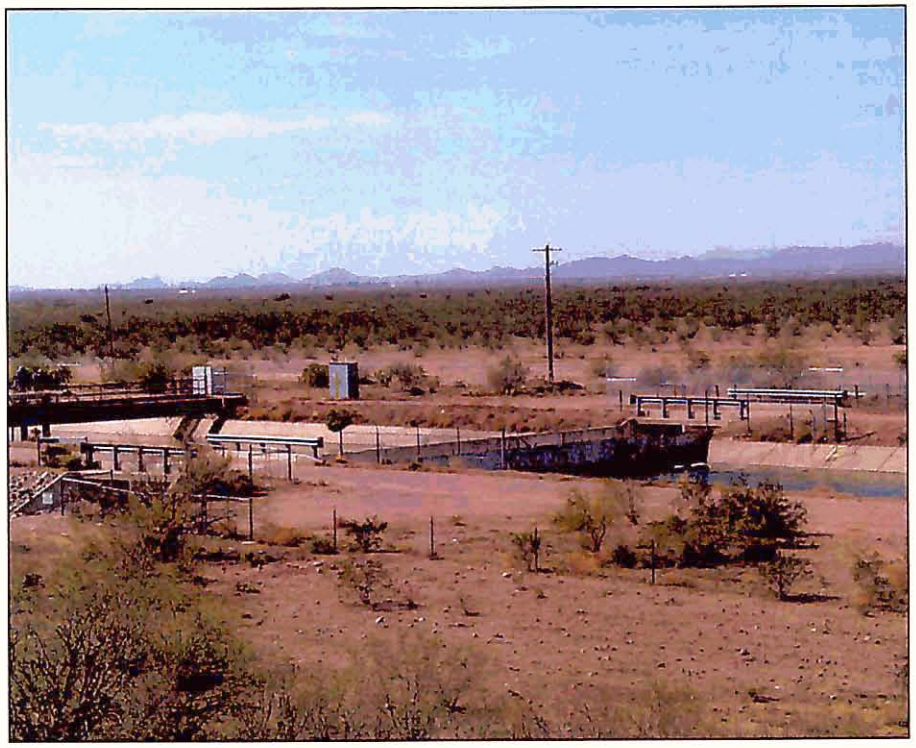


Photo 2.2.1.b. Looking downstream (southwest) from top of Powerline FRS dam at Powerline Floodway crossing of the CAP. (Photo date March 23, 2000)

2.2.2 Flows over the CAP at Powerline FRS

Cross sections 19.925 and 19.905 respectively reflect the east and west CAP top of embankment elevations. For cross section 19.925, ground elevation points beyond station 10956.44 are from topographic maps provided by the District for the Powerline FRS structure mapping prepared by McClain-Harbers (Reference 9). This mapping was prepared in NAVD 88 datum. Points were converted to NGVD 29 elevation by applying a –1.98 ft conversion factor. The same is true of points beyond station 11013.99 on cross section 19.905. Each of these cross sections are shown to their true length on the inundation maps. However, no attempt has been made to match the true alignment of these sections beyond the limit of the new mapping prepared by M&B specifically for this study.

Flows may occur to the north between the eastern CAP embankment and the Powerline FRS structure; and, to the south between the CAP embankment and the Vineyard FRS structure. An estimate of these flows to the north was determined using a normal depth calculation at a typical section taken perpendicular to the CAP. Based on the topographic data, the slope was assumed to be 0.00197 ft/ft. For flows to the south, there as an area of high ground across the flow path (see Photo 2.2.2.a). This area is included in cross section 19.925 (ground stations 2534.04 to 2722.07). Flows for this portion of the cross section were conservatively computed using critical depth. Since the CAP top of bank is not of a constant elevation, an average (typical) overtopping elevation was assumed to estimate the amount of flows which may be flowing between the FRS and the CAP at the time of overtopping. The hydraulic calculator feature of RiverCAD was used to determine the flow rates. The calculations for both the north and south flows are included in Appendix C.

Flows to the north and to the south are estimated at 169 cfs and 240 cfs respectively (see Appendix C) at a typical CAP overtopping elevation. At the full flow HEC-RAS model computed water surface elevation, flows are estimated at 1976 cfs and 775 cfs to the north and south respectively. These results reflect approximately 2% of the total full flow spillway discharge at a typical overtopping elevation travelling north and south along the CAP and approximately 14% at the full flow water surface elevation. A reasonable approximation of the actual flow along the CAP may lie somewhere in between. For the 1/3 and 2/3 spillway discharges, this flow along the eastern bank of the CAP will become more significant in comparison to the total spillway discharge.

Flows overtopping the eastern CAP embankment will likely continue down the CAP canal until the capacity of the CAP is reached. No attempt was made to estimate the magnitude of these flows or the capacity of the CAP.

Photo 2.2.2.a. Looking south at high ground between Vineyard FRS structure (left) and CAP (to right of fenceline). (Photo date September 12, 2000)

For the purposes of this study it was assumed that the entire spillway discharge for all three flow scenarios would overtop the CAP. Additionally, it was assumed that there would be no erosion or breach of the CAP embankments. Cross sections were taken along the east and west top of banks. Effective flow limits were set based on flow limits exiting the emergency spillway and a calculation of an expansion ratio (see Appendix C) based on the procedures detailed in the HEC-RAS Hydraulic Reference Manual (Reference 7). The expansion ratio was determined based on the full flow discharge but was applied to all three spillway discharges.

2.2.3 *Capacity of the Powerline Floodway*

The Powerline Floodway is a concrete channel, approximately 4'-9" deep with approximately 6" of additional earthen embankment above the concrete (see Photo 2.2.3.a). Capacity of the Powerline Floodway was evaluated based on normal depth calculations using Haestead's Flowmaster software (Reference 10) and As-Built drawings (Reference 11). Capacity calculations were performed at 3 major slope changes from the CAP to the eastern boundary of the GM proving ground. The 6" earthen fill above the concrete was included in the calculations as additional depth and was evaluated as if it were 6" of additional concrete.

The calculations showed the capacity of the floodway to be 1133 cfs from the CAP to approximately ¾ mile downstream of the CAP, 1260 cfs from ¾ mile downstream of the CAP to Vineyard Road, and 1229 cfs from Vineyard Road to

the eastern fenceline of the proving ground. (Complete input/output data is included in Appendix C.)

Results of these analyses were compared to the $Q_{channel}$ computed by the HEC-RAS for cross sections 15.913 through 19.100. (Cross sections upstream of 19.100 include additional area outside of the floodway.) Values in the HEC-RAS appeared to be reasonable. Values of $Q_{channel}$ are generally close to the computed capacity when flows are nearly bank full. $Q_{channel}$ values in excess of the computed capacity typically only occur where bankfull conditions have been exceeded for one or both of the floodway channel banks.

Photo 2.2.3.a. Looking upstream (northeast) at Powerline Floodway from Ironwood Road. Concrete channel with approximately 6" earthen embankment above concrete. (Photo date March 23, 2000)

2.2.4 *Powerline Floodway at Vineyard Road*

The Powerline Floodway crosses under Vineyard Road in a 10' X 5' CBC. With the area of the culvert opening being even smaller than that for the culverts at the CAP, the box culvert at Vineyard Road was assumed to carry an insignificant portion of flow and the culvert was not included in the HEC-RAS modeling.

2.2.5 *Powerline Floodway at the General Motors Proving Ground*

The Powerline Floodway passes through a concrete box culvert at the eastern property line and fenceline of the GM proving ground (see Photo 2.2.5.a). Dimensions of the box culvert are estimated at 8' X 5'. Due to the small size of the culvert, the culvert was not included in the HEC-RAS modeling.

Photo 2.2.5.a. Looking downstream (southwest) at Powerline Floodway at entrance to General Motors Proving Grounds (on east side of GM site). (Photo date March 23, 2000)

Approximately 1000 ft downstream of the culvert and fenceline, the Powerline Floodway crosses under one of the tracks on the grounds (see Photo 2.2.5.b). The track is considerably elevated at this location based on the topographic data shown on the Queen Creek ADMS mapping (Reference 4) provided by the District. The majority of the flows will be diverted to the south by the track. However, some flow will continue down the floodway.

As access to this location was not available, it was assumed that the floodway crosses under the track with a similar box culvert as provided at the eastern property line. Channel capacity was computed as approximately 593 cfs using Haestead's FlowMaster software. Using BPR Chart 8, the culvert capacity with HW = 6 ft (slightly higher than the actual water surface elevation in the full flow HEC-RAS model) the culvert capacity was calculated to be approximately 300 cfs (See Appendix C for FlowMaster and culvert capacity calculations.) Based on these figures, it is assumed that any flow continuing through the culvert in the Powerline Floodway will be insignificant. Therefore, the flows in the HEC-RAS model were not reduced to reflect flow continuing to the west down the Powerline Floodway.

Photo 2.2.5.b. Looking downstream (southwest) at Powerline Floodway at entrance to General Motors Proving Grounds (on east side of GM site). (Photo date March 23, 2000)

2.2.6 Flows over the CAP at the Vineyard FRS

There is a small pipe crossing the CAP at the outlet of the emergency spillway of the Vineyard FRS. Since this is a small pipe in a densely vegetated area, the pipe was assumed to carry an insignificant portion of the flows and was not considered in the HEC-RAS modeling.

Flows exiting the emergency spillway, for a time, will flow to the north between the CAP and the Vineyard FRS and to the south between the CAP and the Rittenhouse FRS before overtopping the CAP.

An estimate of these flows to the north and south was determined using a normal depth calculation at a typical section taken perpendicular to the CAP. Since flows along the CAP will be ineffective and the topography indicates extremely flat grades, the slope was assumed to be 0.00001 ft/ft. Since the CAP top of bank is not of a constant elevation, an average (typical) overtopping elevation was assumed to estimate the amount of flows which may be flowing between the FRS and the CAP at the time of overtopping. The hydraulic calculator feature of RiverCAD was used to determine the flow rates. The calculations are included in Appendix C.

Flows to the north and to the south are estimated at 156 cfs and 565 cfs respectively (see Appendix C) at a typical CAP overtopping elevation. At the full flow HEC-RAS model computed water surface elevation, flows are estimated at 322 cfs and 1575 cfs to the north and south respectively. These results reflect approximately 7% of the total full flow spillway discharge at a typical overtopping elevation travelling north and south along the CAP and approximately 20% at the

full flow water surface elevation. A reasonable approximation of the actual flow along the CAP may lie somewhere in between. For the 1/3 and 2/3 spillway discharges, this flow along the eastern bank of the CAP will become more significant in comparison to the total spillway discharge.

Flows overtopping the eastern CAP embankment will likely continue down the CAP canal until the capacity of the CAP is reached. No attempt was made to estimate the magnitude of these flows or the capacity of the CAP.

For the purposes of this study, however, it was assumed that the entire spillway discharge for all three flow scenarios would overtop the entire CAP. Additionally, it was assumed that there would be no erosion or breach of the CAP embankments. Cross sections were taken along the east and west top of banks. Effective flow limits were set based on flow limits exiting the emergency spillway and a calculation of an expansion ratio (see Appendix C) based on the procedures detailed in the HEC-RAS Hydraulic Reference Manual (Reference 7). The expansion ratio was determined based on the full flow discharge but was applied to all three spillway discharges. Effective flow limits, however, were determined based on flow limits exiting the emergency spillway and, therefore, vary for all three scenarios.

2.2.7 Blocked Obstructions

There are several earthen stock tank structures, irrigation ponds, and retention/detention ponds in the flow path. Blocked obstructions were used in the HEC-RAS modeling to remove ponding areas within these structures from the effective flow calculations.

As described in the 'n' value report (see Appendix C), blocked obstructions were used to remove structures in industrial areas from the topographic data.

Blocked obstructions were also used in the HEC-RAS modeling at the limits of the flooding to prevent HEC-RAS from showing ineffective flow areas in non-flow areas.

Photo 2.2.7.a. Tire recycling facility (industrial development) located on north side of Pecos Road, approximately ¼ mile east of intersection with Mountain Road. Blocked obstruction used in hydraulic model. (Photo date September 12, 2000)

2.2.8 Culverts under Vineyard Road

Numerous culverts are present under Vineyard Road within the inundation limits. The culverts are spaced approximately every 0.1 mile beginning at approximately 0.8 miles south of the crossing of the Powerline Floodway. Culverts are generally single, with a few double, 24" CMPs. Condition of the culverts is fair to poor with some partially clogged with debris and sediment and others showing damaged inlets/outlets (See Photos 2.2.8.a and 2.2.8.b).

Considering the discharges analyzed for this study, due to the small size and insignificant capacity of the culverts, the culverts have not been included in the HEC-RAS modeling.

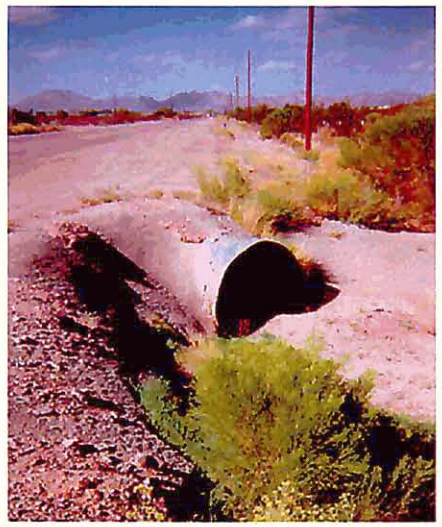


Photo 2.2.8.a. Inlet of typical pipe crossing under Vineyard Road. Sediment is reducing capacity of pipe. (Photo date September 25, 2000)

Photo 2.2.8.b. Outlet of typical pipe crossing under Vineyard Road. Dense vegetation is impeding flows immediately below pipe outlet. (Photo date September 25, 2000)

2.2.9 Diversion Structures

Two earthen diversion structures are located within the inundation area downstream of the Vineyard FRS prior to its confluence with the Powerline FRS flows. Blocked obstructions have been used to prevent flows from overtopping the diversion. This allows for evaluation of the maximum overtopping depth and maximum depth of water impounded against the diversion.

The first structure is located between cross sections 18.248 and 18.549 on the south side of the flooding. For ease in discussion, this will be referred to as the eastern diversion structure (see Exhibit 1, Location Map, and Plan Sheet 10 of 39). A summary of the overtopping depth and depth of flow against the structure for each flow scenario is provided in the table below.

Cross Section ID (mi)	Full Flow Scenario Overtopping Depth (ft)	Full Flow Maximum Impounded Depth (ft)	2/3 Flow Scenario Overtopping Depth (ft)	2/3 Flow Maximum Impounded Depth (ft)	1/3 Flow Scenario Overtopping Depth (ft)	1/3 Flow Maximum Impounded Depth (ft)
18.248	0	1.8	0	1.5	0	1.0
18.302	0.3	1.6	0	1.3	0	0.9
18.356	0	1.5	0	1.2	0	0.9
18.452	0	0.7	0	0.5	0	0.2
18.549	0	1.9	0	1.7	0	1.4

For the eastern diversion structure, the 0.3 ft overtopping of the diversion for the full flow scenario was considered insignificant in the modeling. If flows overtop the structure, flow depths will be less than 1 ft in depth below the structure. The inundation maps were prepared assuming no failure or overtopping of the earthen structure using the blocked obstruction feature in the HEC-RAS model to prevent flows from overtopping the diversion.

However, a second inundation area was identified assuming failure of the eastern diversion. This delineation considers the maximum extents of the flooding under the full flow scenario and is shown as a shallow flooding area on the inundation maps (see Plan Sheet 10 of 39).

For the second diversion structure, the western diversion (see Exhibit 1, Location Map), a blocked obstruction has been used for the area to the south of the diversion for Vineyard cross sections 15.181 to 15.366 and backwater elevations were used to map this area. Should the diversion fail or be removed, more flow area would be available and the water surface elevations would drop. Therefore, no additional flooding areas are shown for the *without diversion* conditions for the western diversion.

2.2.10 Flow Spill over GM Track – Crismon Road Alignment

A flow spill occurs over the GM track located immediately west of and parallel to the Crismon Road Alignment, north of Pecos Avenue, for all three flow scenarios. To determine the amount of spill discharge, an Excel spreadsheet was prepared to compute the spill using the weir equation. An initial computed water surface elevation (CWSEL) from the HEC-RAS model was used to determine the average spill depth (head) between the cross sections for use in the weir equation. Spill discharges were then determined and the HEC-RAS model was then re-run with the new discharges. A trial-and-error iterative process to balance the spill discharges and CWSELs between the Excel spreadsheet and the HEC-RAS model was performed. The spill was considered balanced when the CWSELs used in the spreadsheet and those in the HEC-RAS were within 0.01 ft of each other. See Appendix C for the final spreadsheet calculations.

SECTION 3.0 FINAL RESULTS

3.1 OVERTOPPING OF CAP

3.1.1 Powerline FRS

Based on the effective flow limits, the flooding will be contained within the mapping generated under this study for that area west, or downstream, of the CAP. Cross sections 19.925 and 19.905, located along the CAP's top of east and west banks, respectively, show the flows to be uncontained at the limit of the new mapping on the north side but contained with the additional topographic data from the McClain Harbers mapping (Reference 9). It was assumed for this study that flows are contained within the mapping area.

There is the potential for flooding to occur beyond the limits delineated on the plan sheets if flows overtop both CAP canal banks to the north and/or south beyond the limits of the mapping prepared under this study. Based on the topographic data shown on the USGS Quadrangle Map, Desert Well, Arizona (Reference 12), a speculative delineation is approximated on Exhibit 2, Potential Flooding Limits Due to Extensive Overtopping of the CAP. The Potential Flooding Limits shown on the exhibit are based on the topographic data from the quad map (see more detailed quad map in Appendix C) and the CAP top of bank elevations from the McLain Harbers mapping. This extension of the flooding limits will result in flow depths of less than one foot across the entire inundation area if flows are fairly uniformly distributed across the entire limits.

If spillway flows seek out a low point in the CAP banks and cross the CAP at that location and/or cause a breach in the CAP embankment, flooding could be concentrated in an area other than that identified under this study. Flow depths would depend on the particular topographic and land use conditions of that area and, therefore, could be greater or less than those computed in the models presented in this study. Identification of such potential locations was beyond the scope of this study.

(Note: Although every effort was made to align the USGS Quad Sheet with the detailed mapping files, there were still mismatches between the two. The quad sheet in Appendix C represents the best match attained using the AutoCAD mapping and delineation files. The limits on Exhibit 2 have been modified (stretched and/or compressed) from those shown on the Appendix C quad map in order to best match the topographic features on the underlying quad raster background.)

3.1.2 Vineyard FRS

Based on the effective flow limits, the flooding will be contained within the mapping generated under this study for that area west, or downstream, of the CAP. Cross sections 19.537 and 19.515, located along the CAP's top of east and

west banks, respectively, show the ground elevations to be falling as one moves away from the effective flow area in the cross section. In short, the effective flow limits on the top of bank cross sections are located at a relative high spot along the CAP banks. It was assumed for this study that flows are contained within the mapping area. Therefore, the flood limits at the CAP were delineated to the ends of cross sections 19.537 and 19.515.

There is the potential for flooding to occur beyond the limits delineated if flows overtop both CAP canal banks beyond the limits of these two cross sections. Based on the topographic data shown on the USGS Quadrangle Map, Desert Well, Arizona (Reference 12), a speculative delineation is shown on Exhibit 2, Potential Flooding Limits Due to Extensive Overtopping of the CAP. This delineation is based strictly on the topographic data from the quad map and assumes that the CAP top of bank elevations generally follow the contour with only a minimal drop in grade as they move to the south. This extension of the flooding limits would result in flow depths of less than one foot across the entire inundation area if flows are fairly evenly distributed across the entire limits. (See Note regarding quad map in previous *Section 3.1.1.*)

If spillway flows seek out a low point in the CAP banks and cross the CAP at that location and/or cause a breach in the CAP embankment, flooding could be concentrated in an area other than that identified under this study. Flow depths would depend on the particular topographic and land use conditions of that area and, therefore, could be greater or less than those computed in the models presented in this study. Identification of such potential locations was beyond the scope of this study.

3.2 FLOW DOWN VINEYARD AND MOUNTAIN ROADS

Vineyard and Mountain Roads basically follow the natural topography and drain in a southerly direction. It is expected that some flows which enter the road or roadside ditch will not cross over the road but rather will continue flowing in a southerly direction down the road or ditch. Areas where flows may be leaving the main flooding in this manner have been shown on the inundation maps with the following symbol: SF→.

3.3 FLOW OVER EMBANKMENT, RIGHT SIDE OF POWERLINE CROSS SECTIONS 15.913 – 16.185

The right sides of cross sections 15.913 to 16.185 are located within the boundaries and fenceline of the General Motors Proving Ground. This area was not accessible during the field investigation. It is not clear from the topographic data (Reference 4) whether the land immediately north of the Powerline Floodway and east of the track is drained by a pipe or if water will be impounded by the Powerline Floodway and the embankment adjacent to one of the tracks. It was

assumed for this study that the area will cause water to pond. This area was modeled as ineffective flow area in the HEC-RAS. For the delineation, a water surface equal to the top of embankment was shown. The top of north bank elevation for the Powerline Floodway is typically approximately 1439.0 in this area. The elevation of the top of the track is approximately elevation 1439.5 at the intersection with the Powerline Floodway. Moving northward, the track drops to a low point of 1437.5 approximately midway between the end points of cross sections 15.913 and 15.995 and then rises again up to an elevation of 1445.5 approximately 2000 ft north of cross section 16.087. Minor spills may occur over this embankment where elevations of the top of bank lie below elevation 1439.0.

3.4 FLOWS AT ELLSWORTH ROAD

Flows will be crossing Ellsworth Road at several locations:

- At Elliot Road: There may be shallow flooding at Elliot Road if there is extensive overtopping of the CAP to the north of the Powerline FRS emergency spillway;
- At the Powerline Floodway crossing: In the event of flows out the Powerline FRS emergency spillway, there will be flows in the Powerline Floodway. Under normal flow conditions, floodway flows would generally be free of debris. With debris-free flows, it would be expected that the water would be contained in the floodway and would continue under Ellsworth Road with no impact to the road. However, under the flow scenarios examined in this study, overbank flows may be flowing into the Powerline Floodway in the upper reaches. These flows may wash debris into the floodway and cause capacity restrictions at the road crossings. This may result in flooding over Ellsworth Road.
- South of Williams Field Road Alignment: A spill occurs over the GM track to the east approximately along the Crismon Road Alignment (see Section *2.2.10 Flow Spill over GM Track – Crismon Road Alignment*). Flow over the track will continue as shallow flooding until it reaches the basin/channel on the east side of Ellsworth Road. There it will recombine with the main flooding flow and spill across Ellsworth Road.

3.5 FLOWS DOWNSTREAM OF ELLSWORTH ROAD

The majority of the spillway flows for all three flow scenarios will be crossing Ellsworth Road approximately between the Williams Field Road Alignment and just north of German Road – a flow width of nearly 2 miles.

Flows spilling across Ellsworth Road south of Pecos Road will encounter first a berm and then a channel on approximately the Pecos Road Alignment. This berm and channel will prevent some flows from crossing over onto the former airport property.

Flows crossing north of Pecos Avenue will enter a channel, which parallels Ellsworth on the west side. The capacity of this channel is estimated at 8000 to 10,000 cfs (see Appendix C). Considering the magnitude of the discharges being analyzed in this study, the capacity of the channel will be quickly exceeded for the 2/3 and full flow scenarios. Flows will continue overland in a northwesterly direction across the former airport site and into the EMF.

To determine a precise flow distribution across this area was beyond the scope of this study. A HEC-RAS model, however, was prepared and a generalized shallow flooding area was shown on the plan sheets. The delineation on the plan sheets assumes a distribution of flows and one water surface elevation across the entire cross section. Depending on the capture ratio of the channel paralleling Ellsworth Road there may be a greater concentration of flows and higher water surface elevations within the channel. In that respect, the delineation is shown on the plan sheets reflect a conservative delineation. For the 1/3 flow scenario (9,900 cfs discharge), in particular, if the majority of flows are captured by the channel paralleling the west side of Ellsworth Road, the flow will be primarily contained within the channel and there will be very little overbank flooding.

Based on the results of the modeling, inundation depths in this area would be expected to be less than 1.5 ft except in the channel areas, which may be filled to capacity. Velocities would be expected to be less than 3.5 fps across the overbank areas and, typically, 7 to 10 fps in the channels.

3.6 INUNDATION LIMITS

Due to the nature of the topography of this area and the resulting broad, shallow flooding across the cross sections, there are some cross sections within the modeling which show flows within a natural swale whereas the section immediately downstream may not show flows within that same swale. For all three flow scenarios, the inundation limits have been reviewed for consistency of upstream inundation limits and topography. In areas where it appears that flows would continue over the natural topography, the inundation limits have been expanded to include these areas even though the HEC-RAS model may not show these as inundated areas. In these areas, notes have been added to the plan sheets indicating that the delineation has been "adjusted by hand" at individual cross sections. For areas where it appears that flows would continue down streets, the streets have been identified on the plan sheets as street flow areas (shown on maps as: SF→) and the inundation limits have not been expanded.

3.7 TRAVEL TIMES

Travel time is the time it takes flows to travel from the spillway to the specified cross section. In this study, two travel times have been computed and are shown in the *Hydraulic Data* table on the plan sheets.

The first, channel travel time, is the time it takes flows to travel in the channel. This time best represents flows in the main washes and serves as an indicator of when the Powerline Floodway and main wash below the Vineyard FRS will experience peak flooding.

The second, average channel time, is the time with consideration of the entire cross section. Since flows are primarily in the overbank for this study, this time best represents overbank travel time and when homes, businesses, etc. in the lower limits of the study may experience peak flooding.

APPENDIX A: REFERENCES

A.1 Data Collection Summary

With the exception of the new mapping generated under this study, the FCDMC provided the data used in this inundation study.

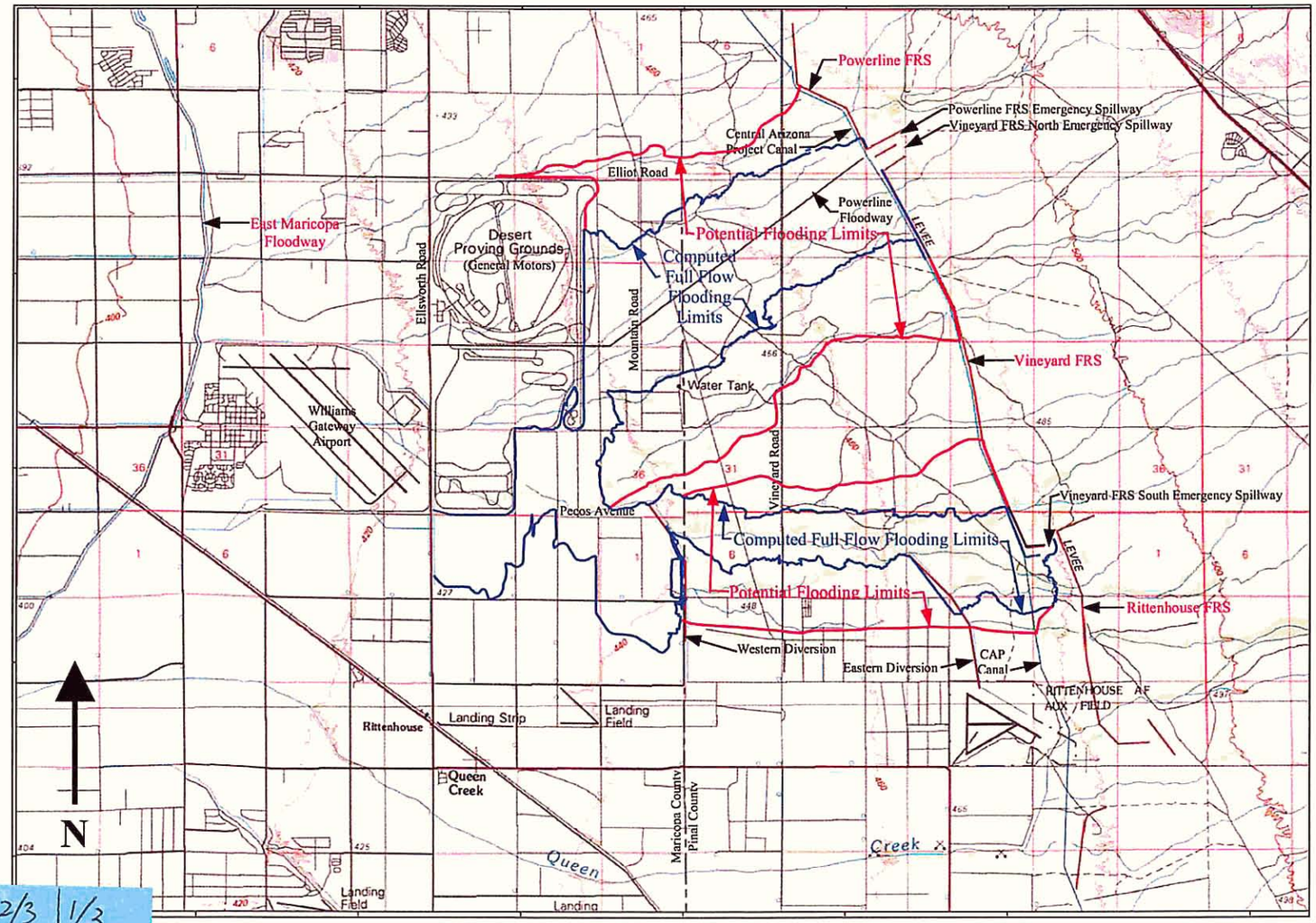
Data obtained from the District follows:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

- Dibble & Associates, East Mesa Area Drainage Master Plan (FCD 95-32), Recommended Design Report, July 23, 1998.
- McLain Harbers Co., Inc., Topographic Mapping prepared for the Flood Control District of Maricopa County (FCD 93-51), Powerline FRS, Index and Sheets 1 through 4 of 4, June 30, 1995.
- McLain Harbers Co., Inc., Topographic Mapping prepared for the Flood Control District of Maricopa County (FCD 93-51), Vineyard FRS, Index and Sheets 1 through 10 of 10, June 6, 1995.
- Project Engineering Consultants, Southeast Mesa ADMP, Survey Control, Pages 1 through 30, January 14, 1998.
- Southeast Mesa ADMP (FCD95-32) digital mapping files, Contour Interval 2 feet.
- U.S. Department of Agriculture, Soil Conservation Service, Powerline Floodway, Apache Junction-Gilbert Watershed Protection and Flood Prevention Project, As-Built Drawings, Sheets 1 through 49 of 49, March 1968.
- U.S. Department of Agriculture, Soil Conservation Service, Vineyard Road Floodwater Retarding Structure Drain, Williams-Chandler Watershed Protection and Flood Prevention Project, Construction Drawings, Sheets 1 through 6 of 6, June 1982.
- U.S. Department of Agriculture, Soil Conservation Service, Williams-Chandler Watershed, East Side Subsidence Survey, Vineyard Road FRS, July 1985.
- Wood & Associates, Inc., Aerial Photographs for Queen Creek Area Drainage Master Study prepared for the Flood Control District of Maricopa County (FCD 86-23), September 26, 1986.
- Wood & Associates, Inc., Topographic Mapping for Queen Creek Area Drainage Master Study prepared for the Flood Control District of Maricopa County (FCD 86-23), November 22, 1986.

A.2 Referenced Documents

1. M & B Aerial Mapping, LLC, Digital Files for Topographic Mapping of Area Downstream of Powerline FRS, Scale 1:2,400, Contour Interval 2 feet, Flight Date November 30, 1999.
2. M & B Aerial Mapping, LLC, Digital Files for Topographic Mapping of Area Downstream of Vineyard FRS, Scale 1:2,400, Contour Interval 2 feet, Flight Date February 11, 2000.
3. Digital Topographic Mapping Files for the Southeast Mesa ADMP (FCD95-32), Contour Interval 2 feet.
4. Topographic Mapping for Queen Creek Area Drainage Master Study, Scale 1:2,400, Contour Interval 2 feet, Flight Dates October 19 and November 22, 1986.
5. U.S. Department of the Army, Corps of Engineers, Hydrologic Engineering Center, Computer Program HEC-RAS: River Analysis System, Version 2.2, Davis, California, September 1998.
6. BOSS International, Inc., Computer Program RiverCAD, Version 3.5, Madison, Wisconsin, August 1998.
7. U.S. Department of the Army, Corps of Engineers, Hydrologic Engineering Center, HEC-RAS, River Analysis System, Hydraulic Reference Manual, Version 2.0, Davis California, April 1997.
8. FHWA Culvert Analysis, HY8, Version 6.0.
9. McLain Harbers Co., Inc., Topographic Mapping prepared for the Flood Control District of Maricopa County (FCD 93-51), Powerline FRS, Sheet 3 of 4, June 30, 1995.
10. Haestead, FlowMaster Computer Software
11. U.S. Department of Agriculture, Soil Conservation Service, Powerline Floodway, Apache Junction-Gilbert Watershed Protection and Flood Prevention Project, As-Built Drawings, Sheets 1 through 49 of 49, March 1968.
12. U.S.G.S. Quadrangle Map 7.5 Minute Series (Topographic), Desert Well, Arizona. Scale 1:24,000, Contour Interval 10 feet, 1956, Photo revised 1981.



	3/3	2/3	1/3
Power	20000	13333	6667
Viney	9700	6467	3233

Potential Flooding Limits If Extensive Overtopping of the CAP Occurs
(N.T.S.)

Exhibit 2

MICHAEL BAKER JR., INC.

PHONE CALL REPORT

PROJECT/LOCATION: SIS East Side Structures –Task B

S.O. NO.: 23984-002-0000
DATE: November 30, 2000
CONTRACT NO.:

From:	Felicia Terry	To:	Tim Murphy
Repres.:	Baker	Repres.:	FCD
Phone No.:		Phone No.:	602-506-4605

Subject: **Status of Review**

Talked to Tim about Baker's latest submittal (Portion of B1). He said that he has not had time to review it yet, But that Russ Cruff reviewed it and had no comments. Russ said the n-values looked fine. I told him we would then continue with the delineation using those n-values.

I told Tim that because we had 3 different mapping sources, that some of the mapping was not matching exactly. We have our mapping that was prepared by M&B and then we have some areas that are strip digital mapping that we received from the District and then there is the Topo from the Queen Creek ADMS mapping that was scanned. The problem areas are where the strip digital mapping is tying into the Queen Creek (scanned) mapping. M&B tied into the digital and those areas match but then the strip digital areas are then matched to the scanned sheets and in some areas they do not line up. Tim said he understood and that that was ok. He has seen that problem before. We are to document it in the TDN. Tim said we could show the different areas of mapping by using a key on the cover sheet. It would be the entire mapping area on the cover sheet with mile streets or some kind of references (GM, Williams Gateway) and to differentiate the areas of different mapping by using various kinds of shading. This would only need to be shown on the cover sheet and not on the mapping portion. He also said that this diagram could be put in the TDN to help show the problem areas that are being discussed.

Tim reiterated that the Queen Creek Wash mapping by Kenney Aerial still has not been approved. They did make a submittal but the FCD did not approve it. He will be giving Baker a time extension after the first of the year due to this.

PREPARED BY FTerry TITLE Assistant Eng. Manager PAGE 1 OF 1

[project #_____ -file# _____]

MICHAEL BAKER JR., INC.

PHONE CALL REPORT

PROJECT/LOCATION: Spillway Inundation Study East Side Task B

S.O. NO.: 23984-002-0000
DATE: 4/6/00
CONTRACT NO.:

To:	Al Reece	From:	Felicia Terry
Repres.:	AZTEC Engineering	Repres.:	Baker
Phone No.:	602-454-0402	Phone No.:	602-798-7564

Subject: **Determining the Control Points**

Received the Survey Report from AZTEC and called Al for clarification on the Control Points. They were using the control points from the FCD GIS data base. They were not able to find many of the control points but they did find some. For the horizontal control they were using NGS G-68 as the starting point. It is a B-order survey which means that it is more accurate and therefore felt is was more reliable. (MCDOT is updating their survey monuments to B-Order) For the vertical control, the starting point was 80455 because when the recorded survey (NGVD 29) and the measured survey (NAVD88) was compared, they differed by exactly 1.98 feet. From AZTEC's experience in the valley and with working with NAVD 88 and NGVD 29, the 1.98 feet is the conversion factor to use. Therefore they felt that this vertical control was more reliable. They established the GPS network using 3 points for the horizontal control and 6 points for the vertical control. This loop closed and they felt they had a good static network. The aerial panels were set and these were surveyed with constant checking of the control points. Al is confident that the survey meets the requirements of FEMA Guidelines.

I asked why they did not use more of the FCD control points and he said that they could not find them. He stated that they did not check for every single one but it took them a long time to find the ones that they did use. He said that there are a lot of ATV tracks over the place and most of the points had just been nails to hold the flight panels down. He said they took shots along the dike and detailed the spillway opening. Al also stated that using GPS, the accuracy is within 6-8 hundredths, which meets FEMA criteria. One of AZTEC's control points is behind the dike instead of on top of it and that was because they could not pick up a GPS signal so they had to place it where they did.

PREPARED BY Felicia Terry TITLE Assistant Eng Manager PAGE 1 OF 1

[project #_____ -file# _____]

v:\fcdspill\taskb\phone call\al4_6.doc
1/31/95

Baker

Michael Baker Jr., Inc.
A Unit of Michael Baker Corporation

1313 E. Osborn Road, Suite 150
Phoenix, Arizona 85014

(602) 279-1234
FAX (602) 279-1411

MEETING MINUTES

Date: March 14, 2000

Location: Michael Baker Jr., Inc.'s office

Project: Task A – Apache Junction FRS Inundation Study and Task B- FCD 98-33

Topic: Project Progress Meeting

Attendees: **Flood Control District of Maricopa County**
Tim Murphy

Michael Baker Jr., Inc.
Cathy Regester Felicia Terry

TASK A

The majority of the meeting was spent reviewing the comments from FCD and discussing Baker's response. Most of the comments were minor and will be easily resolved. The most significant comment was to make sure the start and end stations reported in the HEC-RAS model matched what was plotted on the map. In some instances Baker delineated based on the Topo and the amount of flow rather than start and end stations. Baker had used effective flow limits to restrict the flow in the cross sections. Tim instructed Baker to use blocked obstructions in the HEC-RAS model to allow the start and end stations in the HEC-RAS to match the delineation on the map. For those sections where the mapping start and end stations were not appropriate, Baker was told to note them on the plans and state "adjusted by hand". Baker agrees to make the changes to the plans and model.

TASK B

Discussed the progress of the Huitt Zollars mapping. It has not been checked yet. The FCD does not want Baker to start on mapping Task B3.

We have received the mapping for B1 and have shown it to Tim. Some of the control points used on the McLain Harbors project were not used. Will check with AZTEC on this. AZTEC is preparing a survey report, which will discuss what and why they used the control points.

Check surveys have been submitted, but have not been checked. One of the cross sections is along the top of the structure.

The discharge to use at this point is the 25,000-cfs. It is a combination of Powerline and Vineyard spillway discharges.

Baker

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MEETING MINUTES

Date: April 20, 2000

Location: Michael Baker Jr., Inc.'s office

Project: Task B – Powerline FRS Inundation Study - FCD 98-33

Topic: Check Surveys for the Aerial Mapping

Attendees: **M&B Aerial Mapping**
Robert Moon

Michael Baker Jr., Inc.
Cathy Regester Felicia Terry

Baker made comparisons between the aerial mapping and cross sections taken by AZTEC Engineering for the Powerline, or B1, area. There were a few places that seemed to be outside of the mapping tolerance, so this meeting was called to discuss the areas with M&B.

Overall the mapping looks good and is either right on the survey elevations or within tolerance. Baker showed Robert the areas that appeared to be outside of tolerance and asked his opinion. He noticed that the surveyed points at these locations did not quite make sense. One of the areas was a wash that showed one side of the wash 2.5' higher than the other side of the wash. The point looked out of place. Robert took notes on the locations of the out-of-tolerance places and was going to go back to his office and look at these areas in 3-D. He said that, with the stereoscopes, a mapper could easily see a .5 foot difference and the differences we were showing him would just jump out at him. He would call to let us know what he found.

Robert called later in the afternoon. After reviewing the photos, he feels confident that his mapping is within tolerance. When he checked the photos, they compared to what he had mapped. Therefore, no changes will be made to the mapping. Robert will write a letter on his findings and forward to Baker.

Baker

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MEETING MINUTES

Date: June 28, 2000

Location: Flood Control District Office

Project: Spillway Inundation Study Task B- FCD 98-33

Topic: Project Progress Meeting

Attendees:

Flood Control District of Maricopa County
Tim Murphy

Michael Baker Jr., Inc.
Felicia Terry

Item 1

Discussed the mapping issue for Task B. Baker is planning on submitting the mapping for Task B in ground coordinates. Mapping for Task A was submitted and basically accepted (minor comments still pending) with ground coordinates. Therefore Task B will be handled the same way. AZTEC will deliver the grid and the ground coordinates with the survey report.

Baker will write a letter to Tim Murphy concerning this issue.

Item 2

Baker showed Tim a problem that they are seeing with the scanned sheets from the Queen Creek ADMS. Using the grid ticks on the maps the topography sheets are matched to the adjacent sheets. There is a slight overlap between the sheets, and the contours do not match up. After trying several times to match the sheets, Baker concluded the mismatch, which is only off by approximately 11 feet (out of a 1"=200' scale), is due to the scanning process. The scanning machine used for this study was not a flat bed scanner, but had a roller instead. This process probably stretched the sheets, which caused a slight mismatch.

Tim compared the original mylars, which did match up correctly, so it is probably the scanner. This problem will be documented in the report.

Item 3

The final Apache Junction Study will be delivered after the July 4 holiday.

CC: Tim Murphy
Cathy Regester
Felicia Terry

Baker

Meeting Minutes

Project:	Task B –FCD 98-33 Powerline Vineyard and Rittenhouse FRS	**Date:**	August 2, 2000
		Date of Meeting:	July 24, 2000
Subject:	Aerial Mapping & Survey Deliveries	**Time:**	
By:	Felicia Terry	**Location:**	Flood Control District of Maricopa County

Attendees:

Name	Agency/Company	Phone	Email
Tim Murphy	Flood Control District of Maricopa County	602.506.1501	tmm@mail.maricopa.gov
Mark Brewer	Flood Control District of Maricopa County	602.506.1501	mrb@mail.maricopa.gov
Marta Dent	Flood Control District of Maricopa County	602.506.1501	mld@mail.maricopa.gov
John Stock	Flood Control District of Maricopa County	602.506.1501	?@mail.maricopa.gov
Cathy Regester	Michael Baker Jr., Inc.	602.279.1234	cregester@mbakercorp.com
Felicia Terry	Michael Baker Jr., Inc.	602.279.1234	fterry@mbakercorp.com
Al Reece	AZTEC Engineering	602.454.0102	areece@azteceng.com
Robert Moon	M&B Aerial Mapping	623.934.7200	unknown

1. Aerial Mapping

a) This meeting was held to discuss submitting the topographic mapping based on grid coordinates instead of ground coordinates.

b) Baker and M&B Aerial Mapping submitted Task A – Apache Junction FRS based on ground coordinates. AZTEC Engineering submitted survey notes for Task A, which included both ground and grid coordinates.

c) When the District opened the mapping for Task A into their system it did not match adjacent topographic mapping. This mismatch was due to the District's mapping based on grid coordinates and Baker's mapping based on ground coordinates. Using the survey notes, the District was able to convert Baker's mapping to grid coordinates so that the mapping lined up.

d) The District requested that the mapping be provided in grid coordinates. After discussing the issue at length, it was decided that Baker would continue to submit the mapping in ground coordinates and to have AZTEC submit the grid and ground coordinates in the survey report.

e) The District will perform the conversion to grid coordinates for incorporation of the data into GIS.

2. Task B1 Delineation

Cathy Regester, Tim Murphy and Felicia Terry continued the meeting to discuss delineation at the GM Proving Grounds (GM).

a) The Powerline Floodway continues through the GM but due to a dike around the GM most of the flow is diverted around.

b) The following question was asked:
How should the flow be depicted at this location?

The following alternatives were discussed:

1) Show an arrow in the location of the Powerline Floodway through the site and beyond.
2) Put in the width of the Powerline Floodway to show it conveys water through the GM site and beyond.
3) Model as though the culvert plugs and the entire flow goes around the GM.
4) Subtract the capacity of the Powerline Floodway from the total discharge and model the difference as flowing around the GM site.

c) Since the Queen Creek ADMS mapping does not include the entire length of the Floodway, depicting the Powerline Floodway through GM and beyond is a problem. The discussion leaned to using both "b" and "c" as solutions. Tim will check into it further.

d) Another area discussed was the location of a small berm. The berm is approximately 2-feet high and in some areas flows of close to 4-feet (for the full flow scenario) overtop the berm. Baker recommended modeling the berm as though it did not exist. Tim agreed with the discussion due to the fact that there was a significant amount of flow overtopping the berm and the berm would likely fail during high flows. If for the two-thirds and one-third scenarios, flows do not overtop the berm, a different baseline may be required for one or both of these flow scenarios.

Baker

Meeting Minutes

Project: Task B –FCD 98-33 Powerline Vineyard and Rittenhouse FRS

Date: September 6, 2000

Date of Meeting: August 24, 2000

Subject: Status of Task B

Time:

By: Felicia Terry
1313 E. Osborn Rd, Suite 150
Phoenix, AZ 85014
Tel (602)279.1234 Fax (602)279.1411
Email: fterry@mbakercorp.com

Location: **Michael Baker Jr., Inc. Annex Office**

Attendees:

Name	Agency/Company	Phone	Email
Tim Murphy	Flood Control District of Maricopa County	602.506.1501	tmm@mail.maricopa.gov
Cathy Regester	Michael Baker Jr., Inc.	602.279.1234	cregester@mbakercorp.com
Felicia Terry	Michael Baker Jr., Inc.	602.279.1234	fterry@mbakercorp.com

1. **Aerial Mapping**

   a) Delivered mapping on a CD from M&B Aerial Mapping for Task B1. Included the survey for ground and grid coordinates from AZTEC Engineering.

2. **Task B1 and B2 Delineation**

   Cathy Regester, Tim Murphy and Felicia Terry met to discuss delineation for B1 and B2.

   a) The CAP causes water from the spillway (of both B1 and B2) to pond behind it and spread out to the north and south. Baker is modeling the worst case scenario, where effective flow limits are placed to concentrate the flow over the CAP at the mouth of the spillway. Tim agreed with the modeling.

   b) Tim requested that the model with the effective flow limits be shown on the full size sheets and that a page be included in the report to show the area potentially inundated by flows diverted by the CAP. This would include the area that contains water beyond the mapping limits. Tim also mentioned that the water overtopping the CAP should be included in the Carto coverage for the HIS.

   c) There are berms located in the inundation area that Baker is modeling as a diversion. The berms continue to keep the flow concentrated. If water is shown to overtop a

berm, Baker will evaluate the water depth over the berm to determine if failure of the berm is possible.

d) Tim approved of modeling the berms as diversions and wants the assumptions written in the text and the likelihood of the berms failing addressed.

e) If needed, the flooding limits can be adjusted by hand.

f) Baker has almost completed delineation of the full flow scenario for B1 and B2.

g) Tim requested that a portion of the delineation be submitted to him for review. He would like to review the study in segments.

h) Baker said they would break out a portion of Task B1 and submit to Tim within the next 2 weeks.

3. Adjourn

Baker

Michael Baker Jr., Inc.
A Unit of Michael Baker Corporation

1313 E. Osborn Road, Suite 150
Phoenix, Arizona 85014

(602) 279-1234
FAX (602) 279-1411

MEETING MINUTES

Date: January 14, 2000

Location: Michael Baker Jr., Inc.'s office

Project: Task B – Powerline, Vineyard, Rittenhouse FRS Inundation Study - FCD 98-33

Topic: Kick-Off meeting

Attendees: **Flood Control District of Maricopa County**
Tim Murphy
Dave Degenerres
Joe Tram

Michael Baker Jr., Inc.
Cathy Regester Felicia Terry

Baker was given an update on the mapping for Queen Creek that is being prepared by Huitt-Zollars with Kenney Aerial as their subconsultant. They have discovered a bust in the topography. The new mapping is not able to tie in to the existing Queen Creek mapping. There is a discrepancy between the contours. Baker said that they would not be needing this mapping until the end of February or beginning of March. FCD will keep Baker apprised of the status of the mapping. Baker will let their subconsultant, M&B Aerial know of the situation and they can contact Kenney Aerial directly as it gets closer to the time when this mapping is needed.

Baker was given permission to manually-cut the cross sections on the existing mapping that was provided by FCD.

FCD gave Baker a list of documents that the District has in their library. Baker will review and research the documents from FCD.

It was discussed how the CAP was going to be modeled for the study. Currently the canal was to be assumed flowing full and the flow from the spillway would just continue to flow over it. FCD mentioned that this assumption needs to be stated in a Problem Section or an Assumption Section of the report. Just make sure somewhere it is documented in the report.

Baker

Meeting Minutes

Project: Task B –FCD 98-33 Powerline Vineyard and Rittenhouse FRS

Date: February 14, 2001

Date of Meeting: February 1, 2001

Subject: Status of Task B

Time of Meeting: 2:00 p.m.

By: Felicia Terry
1313 E. Osborn Rd, Suite 150
Phoenix, AZ 85014
Tel (602)279.1234 Fax (602)279.1411
Email: fterry@mbakercorp.com

Location: ***Flood Control District Office***

Attendees:

Name	Agency/Company	Phone	Email
Tim Murphy	Flood Control District of Maricopa County	602.506.1501	tmm@mail.maricopa.gov
Cathy Regester	Michael Baker Jr., Inc.	602.279.1234	cregester@mbakercorp.com
Felicia Terry	Michael Baker Jr., Inc.	602.279.1234	fterry@mbakercorp.com

1. **Delineation Downstream of Ellsworth Road**

   a) The detailed analysis is breaking down and the general approach is not as effective. The depths of flow are averaging less than 1-foot and there does not appear to be a need to continue placing cross sections every 500-feet. Baker recommends using 4 cross sections from Ellsworth Road to the East Maricopa Floodway (EMF) to show the limits of the flooding and to verify that the depths are still less than 1-foot. Tim Murphy said the 4 cross sections would be ok but to separate the channel and show how much flow the channel carries and the velocity and depth (Will need to check with Mark Brewer on what coverage to place the polygons). Tim also suggested adding a note that local depths and velocities may be higher.

   b) This downstream section will be placed on one sheet and will have a different scale than the previous sheets. This will show the flooding limits downstream on one sheet instead of 4. The starting water surface elevation of the HEC-RAS models will be compared to the water surface elevation obtained from the downstream cross section using Manning's equation.

   c) This downstream section will be discussed in the Technical Data Notebook (TDN).

2. Delineation in General

a) There are a few cross sections that show an extended cross section. The delineation in these areas is right on the edge of the mapping and show extended cross sections of less than half of a foot. These sections will be noted in the TDN and called out that it has been recognized but that the difference is minimal and would not change the delineation limits.

b) AZTEC used the same numbers for the ERM's for B1 and B2. Baker will check with AZTEC to see if they can be revised.

c) There are berms located in the inundation area that Baker is modeling as a diversion. The berms continue to keep the flow concentrated. A note will be added that if the berms fail then flow depths are less than 1-foot. The new flooding limits will also be shown. The TDN will discuss the possible shallow sheet flooding due to overtopping of the berms (Baker will need to talk to Mark Brewer about which coverage to use to show the expanded shallow flooding limits).

3. Adjourn

Baker

Michael Baker Jr., Inc.
A Unit of Michael Baker Corporation

1313 E. Osborn Road, Suite 150
Phoenix, Arizona 85014

(602) 279-1234
FAX (602) 279-1411

MEETING MINUTES

Date: May 3, 2000

Location: Michael Baker Jr., Inc.'s office

Project: Spillway Inundation Study Task B- FCD 98-33

Topic: Project Progress Meeting

Attendees: **Flood Control District of Maricopa County**
Tim Murphy

Michael Baker Jr., Inc.
Cathy Regester Felicia Terry

Item 1

The primary discussion of this meeting concerned the flooding that was shown to occur beyond the aerial mapping limits. This area is north of the mapping. Baker had put together maps showing the flooding using the 25,000-cfs with effective flow limits and one without. Baker also provided summary output data from the HEC-RAS models.

In both models flooding is beyond the mapping limits. When effective flow limits are not used the depth of flooding averages around 1 foot and a large amount of water spreads to the north. Water flows down between the dam and the CAP and then spills over the CAP.

The 25,000-cfs discharge needs to be investigated. That amount of water is the capacity of the spillway but not the designed discharge. The designed Q is closer to 15,000-cfs and the 25,000-cfs is not likely to ever occur.

It seems more reasonable to use: a) the design Q, b) effective limits; and, c) blocked obstructions. This would direct the water to flow in its natural path with a depth that would be significant to map. Ineffective flow that is beyond the aerial mapping could be depicted on Quad maps. Flows would be captured by the existing wash and taken to and around the GM Proving Grounds. Flow arrows could be used to show the flow path. Calculations could be made based on the wash capacity and information from the East Mesa ADMP which was prepared by Dibble and Associates. This would eliminate the need for additional mapping and should present a more realistic picture of what will occur during the flood event.

A suggestion made by Tim was to widen the channel. Currently the channel is just the width of the Powerline Floodway, which is approximately 30 feet. This will be widened to the width of the spillway opening to see what effect it would have.

The District may need to look at placing a berm on the north side of the Powerline FRS spillway between the CAP and the dam. This would prevent water from flowing to the north and eventually overtopping the CAP in the vicinity of Weekes Wash.

Item 2

Discussed the Check surveys for B1. Most of the aerial mapping is well within mapping tolerances. Showed Tim the areas that appeared to be out of tolerances. These areas have already been shown and discussed with M&B Aerial. M&B looked at the aerial photos again and are confident that the mapping is within tolerance. Therefore, Baker accepts the mapping.

Item 3

Discussed the status of the aerial mapping for Queen Creek (B3). Tim has received the mapping from Huitt-Zollars. He has not had a chance to look at it but will be sending us a copy. Baker requested a cost estimate from M&B to map the whole area instead of tying into Huitt-Zollars mapping. Baker has not received the cost estimate to date.

ACTIONS

Tim to investigate the 25,000 cfs.
Tim to forward a copy of the Queen Creek Mapping to Baker.
Baker to widen the channel width in the HEC-RAS model.
Baker to get mapping estimate from M&B Aerial.

CC: Tim Murphy
Cathy Regester
Felicia Terry

Baker

Michael Baker Jr., Inc.
A Unit of Michael Baker Corporation

1313 E. Osborn Road, Suite 150
Phoenix, Arizona 85014

(602) 279-1234
FAX (602) 279-1411

LETTER OF TRANSMITTAL

To: Flood Control District of Maricopa County
2801 West Durango
Phoenix, Arizona 85009

Attn. **Mr. Tim Murphy**

S.O. No. 23984-002
Project: East Side SIS – Powerline FRS
FCD 98-33 (Task B)
Date: August 24, 2000

We are forwarding the following: ☑ Attached Under Separate Cover

FILE NAME	NO. COPIES	TITLE OR DESCRIPTION	COMMENTS
Powerline FRS	1	CD containing HIS deliverables for Mapping	Files: 1116.lf1, 1116.lf2, 1116.lf3, 1116.pf1, cnl.dat, dq.xls, prj.xls, river.dat, river.xls, 1116topo.dwg
Powerline FRS	1	Diskette containing HIS deliverables for Survey (Grid and Ground Coordinates)	Grid Files: corners.xls, ctrl.xls, fpctlfcd.xls Ground Files: ground_ctrl.xls, ground_corners.xls, ground_fpctlfcd.xls

THESE ARE TRANSMITTED as checked below:

- ☐ As requested
- ☑ For review and comment
- ☐ For your information
- ☐ No exception taken
- ☐ Rejected - See remarks
- ☐ Proceed subject to corrections noted
- ☐ Revise and resubmit
- ☐ Submit specified items
- ☐ Final Submittal

GENERAL COMMENTS:

MICHAEL BAKER JR., INC.

By: **Felicia Terry, P.E.**
Title: Project Manager
Page 1 of 1

Baker

Michael Baker Jr., Inc.
A Unit of Michael Baker Corporation

1313 E. Osborn Road, Suite 150
Phoenix, Arizona 85014

(602) 279-1234
FAX (602) 279-1411

LETTER OF TRANSMITTAL

To: Flood Control District of Maricopa County
2801 West Durango
Phoenix, Arizona 85009

Attn. **Mr. Tim Murphy**

S.O. No. 23984-002
Project: East Side SIS – Vineyard FRS
FCD 98-33 (Task B)
Date: September 11, 2000

We are forwarding the following: ☑ Attached Under Separate Cover

FILE NAME	NO. COPIES	TITLE OR DESCRIPTION	COMMENTS
Vineyard FRS	1	CD containing HIS deliverables for Mapping	Files: 1109.lf1, 1109.lf2, 1109.lf3, 1109.pf1, cnl.dat, dq.xls, prjdat.xls, river.dat, river.xls, 1109topo.dwg
Vineyard FRS	1	Diskette containing HIS deliverables for Survey (Grid and Ground Coordinates)	Grid Files: corners.xls(B-2), ctrl.xls(B-2), fpctlfcd.xls(B-2) Ground Files: ground_ctrl.xls, ground_corners.xls, ground_fpctlfcd.xls

THESE ARE TRANSMITTED as checked below:

- ☐ As requested
- ☑ For review and comment
- ☐ For your information
- ☐ No exception taken
- ☐ Rejected - See remarks
- ☐ Proceed subject to corrections noted
- ☐ Revise and resubmit
- ☐ Submit specified items
- ☐ Final Submittal

GENERAL COMMENTS:

MICHAEL BAKER JR., INC.

By: **Felicia Terry, P.E.**
Title: Project Manager
Page 1 of 1

Baker

Michael Baker Jr., Inc.
A Unit of Michael Baker Corporation

1313 E. Osborn Road, Suite 150
Phoenix, Arizona 85014

(602) 279-1234
FAX (602) 279-1411

LETTER OF TRANSMITTAL

To: Flood Control District of Maricopa County
2801 West Durango
Phoenix, Arizona 85009

Attn. **Mr. Tim Murphy**

S.O. No. 23984-002
Project: East Side SIS – Vineyard FRS
FCD 98-33 (Task B)
Date: October 13, 2000

We are forwarding the following: ☑ Attached Under Separate Cover

FILE NAME	NO. COPIES	TITLE OR DESCRIPTION	COMMENTS
Powerline FRS	1	Diskette containing 1/3 and Full Flow Scenarios HEC-RAS Files	Pow1Thrd.zip PowFull.zip
Powerline FRS	1	Topo Sheets with 1/3 or Full Flow Scenario Delineation; 1" = 400'	2 Sheets for each delineation
Powerline FRS & Vineyard FRS	1	Preliminary Draft Technical Data Notebook & Preliminary Draft 'n' Value Report	Includes misc. calculations
Powerline FRS & Vineyard FRS	1	Draft Plan Sheet Layout with Sheets at 1" = 400' Scale	2 sheets
Powerline FRS & Vineyard FRS	1	HIS Survey Deliverables: 1 Diskette containing HIS deliverables for Survey (Grid and Ground Coordinates) for B-1; 1 Diskette containing HIS deliverables for Survey (Grid and Ground Coordinates) for B-2; Response to previous FCDMC Review Comments for Area B-1; Survey Report (certified)	Each Diskette contains the following files: Grid Files: corners.xls, ctrl.xls, fpctlfcd.xls Ground Files: ground_control.xls, ground_corners.xls, ground_fpctlfcd.xls

THESE ARE TRANSMITTED as checked below:

- ☐ As requested
- ☑ For review and comment
- ☐ For your information
- ☐ No exception taken
- ☐ Rejected - See remarks
- ☐ Proceed subject to corrections noted
- ☐ Revise and resubmit
- ☐ Submit specified items
- ☐ Final Submittal

GENERAL COMMENTS: **MICHAEL BAKER JR., INC.**

Tim,

Please take a look at the proposed plan sheet layout for the upper ends of the Powerline and Vineyard FRS Inundation Areas. If these look reasonable, we would like to get started on the remainder of the layout and start cutting the sheets. Also, we are working on a location map/exhibit for the TDN to aid the reader in locating the features discussed in the TDN.
If any questions, please feel free to call.

By: **Felicia Terry, P.E.**
Title: Project Manager
Page 1 of 1

Baker

Michael Baker Jr., Inc.
A Unit of Michael Baker Corporation

1313 E. Osborn Road, Suite 150
Phoenix, Arizona 85014

(602) 279-1234
FAX (602) 279-1411

LETTER OF TRANSMITTAL

To: Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009-6399

Attn. Mark Brewer

S.O. No. 23984-002-0000
Project: SIS (Eastside) – Powerline FRS
Date: February 22, 2001

We are forwarding the following: ☑ Attached Under Separate Cover

DWG. NO.	NO. COPIES	TITLE OR DESCRIPTION	COMMENTS
	1	Diskette containing the revisions to the GIS mapping deliverables for FCD 98-33, Powerline FRS	3 Files: MB_B2.xls, MB_Fcd-1.doc, and MB_Prj.dxf

THESE ARE TRANSMITTED as checked below:

- ☐ As requested
- ☑ For review and comment
- ☐ For your information
- ☐ No exception taken
- ☐ Rejected - See remarks
- ☐ Proceed subject to corrections noted
- ☐ Revise and resubmit
- ☐ Submit specified items
- ☐ Final Submittal

GENERAL COMMENTS:

MICHAEL BAKER JR., INC.

cc: Tim Murphy, P.E.

By: Catherine W. Regester for **Felicia Terry, P.E.**
Title: Project Manager
Page 1 of 1

23984 E10.1 V:\fcdspill\TaskB\Transmit\Brewer022101.doc

M&B AERIAL MAPPING, LLC
One W. Deer Valley Road #206 Phoenix, AZ 85027
(623) 580-9883 FAX (623) 580-5181
MBAERIAL@USWEST.NET

April 2[illegible]

Falicia Terry
Baker Engineering
1313 E. Osborn Rd #150
Phoenix, AZ. 85014

RE: Comments on cross-sections

Dear Felicia

After re-setting the models in question to review the ground shots provided by the surveyor [illegible] found that most of the ground shots agree with the mapping as shown by the cross-section co[illegible] produced by Baker Engineering. A few area's on the cross-section comparison plots do not m[illegible] standards. Those are the area's that we re-set and found that the ground shots in question de[illegible] with our setup. These shots are close to one's that read within mapping standards, the [illegible] 1.2' to 2.3'. Our ground readability from the flying hieght is from .2' to .4' therefore we [illegible] points are in error.

If you have any questions, please call.

Sincerely,

Robert J. Moon

Robert J. Moon/Owner-Operator
M&B Aerial Mapping, LLC

Letter of Transmittal

AZTEC ENGINEERING

To: Felicia Terry
Michael Baker Jr., Inc.
1313 East Osborn Road, Suite 150
Phoenix, Arizona, 85014

Date/Time: September 28, 2000
Subject: Survey Report

Project: Vineyard and Powerline F.R.S.
Project Number: Aztec Job No. 9918

From: Al Reece

Method of Delivery: U.S. Mail x Courier To Be Picked Up Hand Carry

We Are Sending You: x Attached ___ Under Separate Cover

___ Shop Drawings ___ Prints ___ Plans ___ Specifications ___ Submittal
___ Change Order ___ Reports ___ Letter ___ Review Comments ___ Other

Quantity	Doc Date	Doc No.	Description
1			Survey Report Revised per MCFCD Review Comments
2			Floppy diskettes with electronic files

The above transmitted as follows:

___ For Approval ___ Approved as Submitted ___ Resubmit Copies for Approval
___ For your use ___ Approved as noted ___ Submit ___ copies for distribution
___ As requested ___ Returned for Corrections ___ Return for ___ corrected prints
___ Other x For review and comment ___ Please sign and return one copy

Remarks: The following action has been taken in response to the MCFCD review comments for Area B-1:

CORNERS.XLS

1. Spread sheet has been re-formatted to conform to the original template file.
2. HIS 3.1 format was retained, however the columns were re-formatted as noted in item 1.
3. Grid and ground spread sheets have been checked for consistent relationship. Point No. 2 was inadvertently listed as the SW corner of Section 30 in the original survey report. The point was changed to No. 101, with coordinates corrected accordingly. All other coordinates appear to be good.
4. NGS control point G-68 is identified in the report as the basis of horizontal coordinates.
5. Spread sheets with corresponding LID's indicating the horizontal and vertical order of the survey have been signed and sealed in the revised report.
6. Point 2 has been replaced with point 101 as noted in item 3.

CTRL.XLS

Items 1 through 6 are the same as for Corners.xls.

7A. MNT_LID for point 2 has been changed to 3.

B. MNT_LID for point 50 has been changed to 3.

BAKER RECEIVED SEPT. 29, 2000

FPCTLFCD.XLS

Items 1 through 6 are the same as for Corners.xls.

c:

File Name and Path: F:\9918\Corr\092800t1adr.doc

3747 East Grove Street • Phoenix, Arizona 85040 • 602/454-0402 • FAX 602/454-0403

SURVEY REPORT
for
VINEYARD AND POWERLINE F.R.S.
SPILLWAY DELINEATION

This report will detail the results of a survey conducted by AZTEC Engineering during the month of December, 1999 to establish horizontal and vertical control for aerial mapping on the above project (FCD 98-33). The horizontal coordinates are NAD 83(1992) State Plane Coordinates and are based on data taken from Maricopa County Flood Control District GIS records for the Powerline/Vineyard/Rittenhouse FRS Project (FCD 93-51). Vertical control for the project is based on data taken from MCFCD GIS records for the Southeast Mesa Area Drainage Master Plan (FCD 95-32).

A static GPS network was established incorporating 3 horizontal/vertical control points from FCD 93-51 and 3 vertical control points from FCD 95-32. NGS B-Order control point G-68 was held as the basis of horizontal and Point No. 80455 (NGVD 29 elevation 1449.73) was held as the basis of vertical. Using NGS data, the shift from NGVD 29 to NAVD 88 was held at +1.98 feet. Network points were then used for RTK GPS observations on the aerial panel points. The table below shows the record and measured grid values for the primary control network.

POINT I.D.	XNAD83	YNAD83	NAVD88	NGVD29	SHIFT
G-68 (REC)	794086.092	815117.146	N/A	1424.69	2.23
G-68 (MEAS)	794086.092	815117.146	1426.92	1424.94	1.98
2009 (REC)	819069.850	850182.960	1584.42	N/A	N/A
2009 (MEAS)	819069.509	850183.178	1584.26	1582.28	1.98
3006 (REC)	808620.350	860733.210	1592.64	N/A	N/A
3006 (MEAS)	808619.917	860733.261	1592.58	1590.60	1.98
80439 (REC)	N/A	N/A	N/A	1441.98	2.10
80439 (MEAS)	799884.146	839250.944	1444.08	1442.10	1.98
80455 (REC)	N/A	N/A	N/A	1449.73	1.98
80455 (MEAS)	801864.753	823368.188	1451.71	1449.73	1.98
80456 (REC)	N/A	N/A	N/A	1436.40	1.91
80456 (MEAS)	797912.933	823376.731	1438.31	1436.33	1.98

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
25396
ALAN D.
REECE
Date Signed 9-26-2000
ARIZONA, U.S.A.

Alan D. Reece

CTRL.XLS
AREA B-1 (GRID COORDINATES)

CTLTYP_LID	CTLHOR_LID	CTLVER_LID	XNAD27	YNAD27	XNAD83	YNAD83	NGVD29	NAVD88	CTLMNT_LID	PNTNUM	DESC
6	7	13	0.000	0.000	801817.926	839522.769	1450.710	0.000	3	2	Set 1/2" rebar
6	7	13	0.000	0.000	801657.121	854606.149	1493.540	0.000	3	3	Set 1/2" rebar
6	7	13	0.000	0.000	813062.477	856866.269	1566.420	0.000	3	10	Set 1/2" rebar
6	7	13	0.000	0.000	817036.278	849991.387	1566.500	0.000	3	11	Set 1/2" rebar
6	7	13	0.000	0.000	804860.243	841596.706	1471.890	0.000	3	20	Set 1/2" rebar
6	7	13	0.000	0.000	807859.103	843666.661	1511.280	0.000	3	21	Set 1/2" rebar
6	7	13	0.000	0.000	811024.939	845790.358	1512.620	0.000	3	22	Set 1/2" rebar
6	7	13	0.000	0.000	814077.886	847891.903	1537.460	0.000	3	23	Set 1/2" rebar
6	7	13	0.000	0.000	815311.782	853139.432	1562.950	0.000	3	24	Set 1/2" rebar
6	7	13	0.000	0.000	798480.399	844366.557	1444.310	0.000	3	25	Set 1/2" rebar
6	7	13	0.000	0.000	800710.606	847626.946	1466.010	0.000	3	26	Set 1/2" rebar
6	7	13	0.000	0.000	804201.746	849060.416	1490.690	0.000	3	27	Set 1/2" rebar
6	7	13	0.000	0.000	807660.239	850637.011	1514.550	0.000	3	28	Set 1/2" rebar
6	7	13	0.000	0.000	804280.969	855463.096	1510.750	0.000	3	29	Set 1/2" rebar
6	7	13	0.000	0.000	810977.914	852212.828	1536.150	0.000	3	30	Set 1/2" rebar
6	7	13	0.000	0.000	808033.933	856593.324	1533.000	0.000	3	31	Set 1/2" rebar
6	7	13	0.000	0.000	802147.947	842279.278	1458.870	0.000	3	33	Set 1/2" rebar
6	7	13	0.000	0.000	800976.746	844018.244	1459.020	0.000	3	34	Set 1/2" rebar
6	7	13	0.000	0.000	805163.255	844373.362	1477.730	0.000	3	36	Set 1/2" rebar
6	7	13	0.000	0.000	803404.908	847040.292	1477.240	0.000	3	37	Set 1/2" rebar
6	7	13	0.000	0.000	801429.912	849737.932	1478.530	0.000	3	38	Set 1/2" rebar
6	7	13	0.000	0.000	800184.742	851454.322	1476.000	0.000	3	39	Set 1/2" rebar
6	7	13	0.000	0.000	808220.216	846472.737	1499.790	0.000	3	41	Set 1/2" rebar
6	7	13	0.000	0.000	806962.862	848348.424	1502.650	0.000	3	42	Set 1/2" rebar
6	7	13	0.000	0.000	804801.234	851545.115	1502.460	0.000	3	43	Set 1/2" rebar
6	7	13	0.000	0.000	803527.807	853369.776	1500.970	0.000	3	44	Set 1/2" rebar
6	7	13	0.000	0.000	810831.416	849171.148	1525.260	0.000	3	46	Set 1/2" rebar
6	7	13	0.000	0.000	807889.476	853435.321	1524.110	0.000	3	47	Set 1/2" rebar
6	7	13	0.000	0.000	814187.663	850812.502	1547.550	0.000	3	49	Set 1/2" rebar
6	7	13	0.000	0.000	811801.029	854288.808	1548.950	0.000	3	50	Set 1/2" rebar

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
25396
ALAN D.
REECE
Date Signed 9-26-2000
ARIZONA, U.S.A.

FPCTLFCD.XLS
AREA B-1 (GRID COORDINATES)

CTLHOR_LID	CTLVER_LID	XNAD27	YNAD27	XNAD83	YNAD83	NGVD29	NAVD88	CTLMNT_LID	PNTNUM	DESC
7	13	0.000	0.000	801815.920	839497.280	1450.880	0.000	7	ERM101	Found bent GLO Cap @ S.W. Cor Sec 30, T.1S., R8E.
7	13	0.000	0.000	801657.121	854606.149	1493.540	0.000	3	ERM3	Set 1/2" Rebar 1/2 mile East of Mountain Rd & 300' South of Elliott Rd
7	13	0.000	0.000	813062.477	856866.269	1566.420	0.000	3	ERM10	Set 1/2" Rebar 150 feet Northeast of the Powerline F.R.S. Spillway.
7	13	0.000	0.000	817036.278	849991.387	1566.500	0.000	3	ERM11	Set 1/2" Rebar 150 feet Southeast of the Vineyard F.R.S. Spillway.
7	13	0.000	0.000	808220.216	846472.737	1499.790	0.000	3	ERM41	Set 1/2" Rebar 300 feet East of Vineyard Rd & 6000 feet South of the Powerline Floodway
7	13	0.000	0.000	807889.476	853435.321	1524.110	0.000	3	ERM47	Set 1/2" Rebar 200 feet East of Vineyard Rd & 1200 feet North of the Powerline Floodway

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CTRL.XLS
AREA B-1 (GROUND COORDINATES)

CTLTYP_LID	CTLHOR_LID	CTLVER_LID	XNAD27	YNAD27	X-GROUND	Y-GROUND	NGVD29	NAVD88	CTLMNT_LID	PNTNUM	DESC
6	7	13	0.000	0.000	801946.217	839657.093	1450.710	0.000	3	2	Set 1/2" rebar
6	7	13	0.000	0.000	801785.386	854742.886	1493.540	0.000	3	3	Set 1/2" rebar
6	7	13	0.000	0.000	813192.567	857003.368	1566.420	0.000	3	10	Set 1/2" rebar
6	7	13	0.000	0.000	817167.004	850127.386	1566.500	0.000	3	11	Set 1/2" rebar
6	7	13	0.000	0.000	804989.021	841731.361	1471.890	0.000	3	20	Set 1/2" rebar
6	7	13	0.000	0.000	807988.360	843801.648	1511.280	0.000	3	21	Set 1/2" rebar
6	7	13	0.000	0.000	811154.703	845925.684	1512.620	0.000	3	22	Set 1/2" rebar
6	7	13	0.000	0.000	814208.138	848027.566	1537.460	0.000	3	23	Set 1/2" rebar
6	7	13	0.000	0.000	815442.232	853275.934	1562.950	0.000	3	24	Set 1/2" rebar
6	7	13	0.000	0.000	798608.156	844501.656	1444.310	0.000	3	25	Set 1/2" rebar
6	7	13	0.000	0.000	800838.720	847762.566	1466.010	0.000	3	26	Set 1/2" rebar
6	7	13	0.000	0.000	804330.418	849196.266	1490.690	0.000	3	27	Set 1/2" rebar
6	7	13	0.000	0.000	807789.465	850773.113	1514.550	0.000	3	28	Set 1/2" rebar
6	7	13	0.000	0.000	804409.654	855599.970	1510.750	0.000	3	29	Set 1/2" rebar
6	7	13	0.000	0.000	811107.670	852349.182	1536.150	0.000	3	30	Set 1/2" rebar
6	7	13	0.000	0.000	808163.218	856730.379	1533.000	0.000	3	31	Set 1/2" rebar
6	7	13	0.000	0.000	802276.291	842414.043	1458.870	0.000	3	33	Set 1/2" rebar
6	7	13	0.000	0.000	801104.902	844153.287	1459.020	0.000	3	34	Set 1/2" rebar
6	7	13	0.000	0.000	805292.081	844508.462	1477.730	0.000	3	36	Set 1/2" rebar
6	7	13	0.000	0.000	803533.453	847175.818	1477.240	0.000	3	37	Set 1/2" rebar
6	7	13	0.000	0.000	801558.141	849873.890	1478.530	0.000	3	38	Set 1/2" rebar
6	7	13	0.000	0.000	800312.772	851590.555	1476.000	0.000	3	39	Set 1/2" rebar
6	7	13	0.000	0.000	808349.531	846608.173	1499.790	0.000	3	41	Set 1/2" rebar
6	7	13	0.000	0.000	807091.976	848484.160	1502.650	0.000	3	42	Set 1/2" rebar
6	7	13	0.000	0.000	804930.002	851681.362	1502.460	0.000	3	43	Set 1/2" rebar
6	7	13	0.000	0.000	803656.371	853506.315	1500.970	0.000	3	44	Set 1/2" rebar
6	7	13	0.000	0.000	810961.149	849307.015	1525.260	0.000	3	46	Set 1/2" rebar
6	7	13	0.000	0.000	808018.738	853571.871	1524.110	0.000	3	47	Set 1/2" rebar
6	7	13	0.000	0.000	814317.933	850948.632	1547.550	0.000	3	49	Set 1/2" rebar
6	7	13	0.000	0.000	811930.917	854425.494	1548.950	0.000	3	50	Set 1/2" rebar

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AREA B-1 (GROUND COORDINATES)

CTLHOR_LID	CTLVER_LID	XNAD27	YNAD27	X-GROUND	Y-GROUND	NGVD29	NAVD88	CTLMNT_LID	PNTNUM	DESC
7	13	0.000	0.000	801944.211	839631.600	1450.880	0.000	7	ERM101	Found bent GLO Cap @ S.W. Cor Sec 30, T.1S., R8E.
7	13	0.000	0.000	801785.386	854742.886	1493.540	0.000	3	ERM3	Set 1/2" Rebar 1/2 mile East of Mountain Rd & 300' South of Elliott Rd
7	13	0.000	0.000	813192.567	857003.368	1566.420	0.000	3	ERM10	Set 1/2" Rebar 150 feet Northeast of the Powerline F.R.S. Spillway.
7	13	0.000	0.000	817167.004	850127.386	1566.500	0.000	3	ERM11	Set 1/2" Rebar 150 feet Southeast of the Vineyard F.R.S. Spillway.
7	13	0.000	0.000	808349.531	846608.173	1499.790	0.000	3	ERM41	Set 1/2" Rebar 300 feet East of Vineyard Rd & 6000 feet South of the Powerline Floodway
7	13	0.000	0.000	808018.738	853571.871	1524.110	0.000	3	ERM47	Set 1/2" Rebar 200 feet East of Vineyard Rd & 1200 feet North of the Powerline Floodway

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CTRL.XLS
AREA B-2 (GRID COORDINATES)

CTLTYP_LID	CTLHOR_LID	CTLVER_LID	XNAD27	YNAD27	XNAD83	YNAD83	NGVD29	NAVD88	CTLMNT_LID	PNTNUM	DESC
6	7	13	0.000	0.000	807890.396	834201.751	1471.090	0.000	31	50	Set 60d nail
6	7	13	0.000	0.000	801914.053	834242.243	1441.170	0.000	31	51	Set 60d nail
6	7	13	0.000	0.000	813233.253	834268.281	1504.210	0.000	31	52	Set 60d nail
6	7	13	0.000	0.000	818525.441	834264.551	1538.280	0.000	31	53	Set 60d nail
6	7	13	0.000	0.000	825554.903	834320.057	1588.030	0.000	31	54	Set 60d nail
6	7	13	0.000	0.000	801960.312	831489.995	1439.890	0.000	31	55	Set 60d nail
6	7	13	0.000	0.000	801994.892	828824.264	1442.940	0.000	31	56	Set 60d nail
6	7	13	0.000	0.000	807163.568	828825.648	1465.960	0.000	31	57	Set 60d nail
6	7	13	0.000	0.000	812461.918	828786.145	1494.810	0.000	31	58	Set 60d nail
6	7	13	0.000	0.000	817722.365	828911.526	1526.350	0.000	31	59	Set 60d nail
6	7	13	0.000	0.000	825614.933	828862.056	1578.870	0.000	31	60	Set 60d nail
6	7	13	0.000	0.000	807133.939	831528.318	1468.490	0.000	31	62	Set 60d nail
6	7	13	0.000	0.000	812373.748	831692.321	1493.330	0.000	31	63	Set 60d nail
6	7	13	0.000	0.000	817727.733	831616.113	1531.270	0.000	31	64	Set 60d nail
6	7	13	0.000	0.000	803893.295	832875.953	1450.520	0.000	31	66	Set 60d nail
6	7	13	0.000	0.000	805902.417	833001.865	1460.960	0.000	31	67	Set 60d nail
6	7	13	0.000	0.000	808921.014	832905.364	1476.310	0.000	31	68	Set 60d nail
6	7	13	0.000	0.000	811026.061	832977.712	1487.730	0.000	31	69	Set 60d nail
6	7	13	0.000	0.000	814224.107	832918.609	1506.710	0.000	31	70	Set 60d nail
6	7	13	0.000	0.000	816186.408	832946.403	1519.760	0.000	31	71	Set 60d nail
6	7	13	0.000	0.000	820261.756	832915.109	1547.940	0.000	31	72	Set 60d nail
6	7	13	0.000	0.000	822679.264	832967.606	1567.460	0.000	31	73	Set 60d nail
6	7	13	0.000	0.000	824804.127	831688.186	1576.460	0.000	7	74	Found MCFCD brass cap stamped "VYSLB 3/97"
6	7	13	0.000	0.000	804071.318	830220.289	1452.920	0.000	31	76	Set 60d nail
6	7	13	0.000	0.000	806113.868	830253.415	1459.600	0.000	31	77	Set 60d nail
6	7	13	0.000	0.000	809702.502	830150.192	1478.550	0.000	31	78	Set 60d nail
6	7	13	0.000	0.000	811665.424	830117.989	1489.750	0.000	31	79	Set 60d nail
6	7	13	0.000	0.000	815024.815	830201.601	1511.550	0.000	31	80	Set 60d nail
6	7	13	0.000	0.000	816958.859	830203.822	1524.850	0.000	31	81	Set 60d nail
6	7	13	0.000	0.000	821463.552	830235.796	1554.170	0.000	31	82	Set 60d nail
6	7	13	0.000	0.000	824231.003	830278.086	1570.080	0.000	31	83	Set 60d nail

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CORNERS.XLS
AREA B-2 (GRID COORDINATES)

CTLTYP_LID	CTLHOR_LID	CTLVER_LID	XNAD27	YNAD27	XNAD83	YNAD83	NGVD29	NAVD88	CTLMNT_LID	CNRNAME	TWNSHP	RNG	SCTN	AGENCY	PNTNUM	DESC
28	7	13	0.000	0.000	801878.280	833854.361	1441.980	0.000	7	SCOR SE	T01S	R07E	36	GLO	SE36	Found GLO brass cap
28	7	13	0.000	0.000	801874.673	834222.769	1441.450	0.000	7	SCOR NW	T02S	R08E	6	GLO	NW6	Found GLO brass cap
28	7	13	0.000	0.000	807958.531	834240.619	1472.730	0.000	7	SCOR NE	T02S	R08E	6	GLO	NE6	Found GLO brass cap
28	7	13	0.000	0.000	813242.261	834259.129	1504.420	0.000	7	SCOR SW	T01S	R08E	33	GLO	SW33	Found GLO brass cap
28	7	13	0.000	0.000	818524.306	834281.518	1539.330	0.000	7	SCOR SE	T01S	R08E	33	GLO	SE33	Found GLO brass cap

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FPCTLFCD.XLS
AREA B-2 (GRID COORDINATES)

CTLHOR_LID	CTLVER_LID	XNAD27	YNAD27	XNAD83	YNAD83	NGVD29	NAVD88	CTLMNT_LID	RMNUM	DESC
7	13	0.000	0.000	801878.280	833854.361	1441.980	0.000	7	ERM1	Found GLO brass cap @ SE Cor. Sec. 36, T.1S., R.7E.
7	13	0.000	0.000	801874.673	834222.769	1441.450	0.000	7	ERM2	Found GLO brass cap @ NW Cor. Sec. 6, T.2S., R.8E.
7	13	0.000	0.000	807958.531	834240.619	1472.730	0.000	7	ERM3	Found GLO brass cap @ NE Cor. Sec. 6, T.2S., R.8E.
7	13	0.000	0.000	813242.261	834259.129	1504.420	0.000	7	ERM4	Found GLO brass cap @ SW Cor. Sec. 33, T.1S., R.8E.
7	13	0.000	0.000	818524.306	834281.518	1539.330	0.000	7	ERM5	Found GLO brass cap @ SE Cor. Sec. 33, T.1S., R.8E.

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CTRL.XLS
AREA B-2 (GROUND COORDINATES)

CTLTYP_LID	CTLHOR_LID	CTLVER_LID	XNAD27	YNAD27	X-GROUND	Y-GROUND	NGVD29	NAVD88	CTLMNT_LID	PNTNUM	DESC
6	7	13	0.000	0.000	808019.658	834335.223	1471.090	0.000	31	50	Set 60d nail
6	7	13	0.000	0.000	802042.359	834375.722	1441.170	0.000	31	51	Set 60d nail
6	7	13	0.000	0.000	813363.370	834401.764	1504.210	0.000	31	52	Set 60d nail
6	7	13	0.000	0.000	818656.405	834398.033	1538.280	0.000	31	53	Set 60d nail
6	7	13	0.000	0.000	825686.992	834453.548	1588.030	0.000	31	54	Set 60d nail
6	7	13	0.000	0.000	802088.626	831623.033	1439.890	0.000	31	55	Set 60d nail
6	7	13	0.000	0.000	802123.211	828956.876	1442.940	0.000	31	56	Set 60d nail
6	7	13	0.000	0.000	807292.714	828958.260	1465.960	0.000	31	57	Set 60d nail
6	7	13	0.000	0.000	812591.912	828918.751	1494.810	0.000	31	58	Set 60d nail
6	7	13	0.000	0.000	817853.201	829044.152	1526.350	0.000	31	59	Set 60d nail
6	7	13	0.000	0.000	825747.032	828994.674	1578.870	0.000	31	60	Set 60d nail
6	7	13	0.000	0.000	807263.080	831661.363	1468.490	0.000	31	62	Set 60d nail
6	7	13	0.000	0.000	812503.728	831825.392	1493.330	0.000	31	63	Set 60d nail
6	7	13	0.000	0.000	817858.569	831749.172	1531.270	0.000	31	64	Set 60d nail
6	7	13	0.000	0.000	804021.918	833009.213	1450.520	0.000	31	66	Set 60d nail
6	7	13	0.000	0.000	806031.361	833135.145	1460.960	0.000	31	67	Set 60d nail
6	7	13	0.000	0.000	809050.441	833038.629	1476.310	0.000	31	68	Set 60d nail
6	7	13	0.000	0.000	811155.825	833110.988	1487.730	0.000	31	69	Set 60d nail
6	7	13	0.000	0.000	814354.383	833051.876	1506.710	0.000	31	70	Set 60d nail
6	7	13	0.000	0.000	816316.998	833079.674	1519.760	0.000	31	71	Set 60d nail
6	7	13	0.000	0.000	820392.998	833048.375	1547.940	0.000	31	72	Set 60d nail
6	7	13	0.000	0.000	822810.893	833100.881	1567.460	0.000	31	73	Set 60d nail
6	7	13	0.000	0.000	824936.096	831821.256	1576.460	0.000	7	74	Found MCFCD brass cap stamped "VYSLB 3/97"
6	7	13	0.000	0.000	804199.969	830353.124	1452.920	0.000	31	76	Set 60d nail
6	7	13	0.000	0.000	806242.846	830386.256	1459.600	0.000	31	77	Set 60d nail
6	7	13	0.000	0.000	809832.054	830283.016	1478.550	0.000	31	78	Set 60d nail
6	7	13	0.000	0.000	811795.290	830250.808	1489.750	0.000	31	79	Set 60d nail
6	7	13	0.000	0.000	815155.219	830334.433	1511.550	0.000	31	80	Set 60d nail
6	7	13	0.000	0.000	817089.572	830336.655	1524.850	0.000	31	81	Set 60d nail
6	7	13	0.000	0.000	821594.986	830368.634	1554.170	0.000	31	82	Set 60d nail
6	7	13	0.000	0.000	824362.880	830410.930	1570.080	0.000	31	83	Set 60d nail

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CORNERS.XLS
AREA B-2 (GROUND COORDINATES)

CTLTYP_LID	CTLHOR_LID	CTLVER_LID	XNAD27	YNAD27	X-GROUND	Y-GROUND	NGVD29	NAVD88	CTLMNT_LID	CNRNAME	TWNSHP	RNG	SCTN	AGENCY	PNTNUM	DESC
28	7	13	0.000	0.000	802006.580	833987.778	1441.980	0.000	7	SCOR SE	T01S	R07E	36	GLO	SE36	Found GLO brass cap
28	7	13	0.000	0.000	802002.973	834356.245	1441.450	0.000	7	SCOR NW	T02S	R08E	6	GLO	NW6	Found GLO brass cap
28	7	13	0.000	0.000	808087.804	834374.097	1472.730	0.000	7	SCOR NE	T02S	R08E	6	GLO	NE6	Found GLO brass cap
28	7	13	0.000	0.000	813372.380	834392.610	1504.420	0.000	7	SCOR SW	T01S	R08E	33	GLO	SW33	Found GLO brass cap
28	7	13	0.000	0.000	818655.270	834415.003	1539.330	0.000	7	SCOR SE	T01S	R08E	33	GLO	SE33	Found GLO brass cap

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FPCTLFCD.XLS
AREA B-2 (GROUND COORDINATES)

CTLHOR_LID	CTLVER_LID	XNAD27	YNAD27	X-GROUND	Y-GROUND	NGVD29	NAVD88	CTLMNT_LID	RMNUM	DESC
7	13	0.000	0.000	802006.580	833987.778	1441.980	0.000	7	ERM1	Found GLO brass cap @ SE Cor. Sec. 36, T.1S., R.7E.
7	13	0.000	0.000	802002.973	834356.245	1441.450	0.000	7	ERM2	Found GLO brass cap @ NW Cor. Sec. 6, T.2S., R.8E.
7	13	0.000	0.000	808087.804	834374.097	1472.730	0.000	7	ERM3	Found GLO brass cap @ NE Cor. Sec. 6, T.2S., R.8E.
7	13	0.000	0.000	813372.380	834392.610	1504.420	0.000	7	ERM4	Found GLO brass cap @ SW Cor. Sec. 33, T.1S., R.8E.
7	13	0.000	0.000	818655.270	834415.003	1539.330	0.000	7	ERM5	Found GLO brass cap @ SE Cor. Sec. 33, T.1S., R.8E.

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ARIZONA, U.S.A.
Alan D. Reece

AZTEC ENGINEERING

RECEIVED
MAR 08 2002
MICHAEL BAKER JR., INC

Letter of Transmittal

To: Wei Cui
Michael Baker Jr., Inc.
1313 East Osborn Road, Suite 150
Phoenix, Arizona, 85014

Date/Time: March 8, 2002
Subject: Revised Survey Report

Project: Powerline FRS
Project Number: Aztec Job No. 9918

From: Al Reece

Method of Delivery: U.S. Mail x Courier To Be Picked Up Hand Carry

We Are Sending You: x Attached ____ Under Separate Cover

____ Shop Drawings ____ Prints ____ Plans ____ Specifications ____ Submittal
____ Change Order ____ Reports ____ Letter ____ Review Comments ____ Other

Quantity	Doc Date	Doc No.	Description
2			Revised spread sheets

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x As requested ____ Returned for Corrections ____ Return for ___ corrected prints
____ Other ____ For review and comment ____ Please sign and return one copy

Remarks:

Attached are the revised spreadsheets for "Corners.xls" and "Ground_corners.xls". In each spreadsheet the description for point no. 102A has been changed from NW corner Section 21 to NE corner Section 21.

c:

File Name and Path: F:\9918\Corr\020802t1adr.doc

CORNERS.XLS
AREA B-1 (GROUND COORDINATES)

CTLTYP_LID	CTLHOR_LID	CTLVER_LID	XNAD27	YNAD27	X-GROUND	Y-GROUND	NGVD29	NAVD88	CTLMNT_LID	CNRNAME	TWNSHP	RNG	SCTN	AGENCY	PNTNUM	DESC
28	7	13	0.000	0.000	801944.211	839631.600	1450.880	0.000	7	SCOR SW	T01S	R08E	30	GLO	101	Found GLO brass cap (bent)
28	7	13	0.000	0.000	818587.036	850264.960	1577.680	0.000	7	SCOR NE	T01S	R08E	21	GLO	102A	Found GLO brass cap

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ARIZONA, U.S.A.

CORNERS.XLS
AREA B-1 (GRID COORDINATES)

CTLTYP_LID	CTLHOR_LID	CTLVER_LID	XNAD27	YNAD27	XNAD83	YNAD83	NGVD29	NAVD88	CTLMNT_LID	CNRNAME	TWNSHP	RNG	SCTN	AGENCY	PNTNUM	DESC
28	7	13	0.000	0.000	801815.920	839497.280	1450.880	0.000	7	SCOR SW	T01S	R08E	30	GLO	101	Found GLO brass cap (bent)
28	7	13	0.000	0.000	818456.083	850128.939	1577.680	0.000	7	SCOR NE	T01S	R08E	21	GLO	102A	Found GLO brass cap

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
25396
ALAN D.
REECE
Date Signed 3-8-2002
ARIZONA, U.S.A.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

SCOPE OF WORK

DELINEATION OF SPILLWAY FLOWS FOR FOUR EAST SIDE FLOOD RETARDING STRUCTURES

CONTRACT FCD 98-33

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
SCOPE OF WORK
DELINEATION OF SPILLWAY FLOWS FOR FOUR EAST SIDE FLOOD RETARDING STRUCTURES
FCD 98-33

GENERAL

The study is to delineate the inundation limits of the 1/3, 2/3, and full spillway discharge values for the Apache Junction, Powerline, Vineyard, and Rittenhouse Flood Retarding Structures (FRS). The combined delineation project consists of approximately 30 linear miles of emergency spillway delineations as depicted on exhibits 1 & 2. The consultant will determine the inundation limits using the U.S. Army Corps of Engineers HEC-RAS computer model. The consultant must use sound engineering judgement in the development of the inundation limits. The results of the HEC-RAS model must be analyzed carefully and refinements made to the input parameters in order to obtain the most realistic results.

All work must be completed within 690 days from Notice to Proceed, which includes a minimum of 120 days for District reviews.

TASK A – APACHE JUNCTION FLOOD RETARDING STRUCTURE

TASK A1 - COORDINATION

The consultant will submit a project schedule showing coordination meetings and completion dates for each of the tasks in the scope during the proposal stage. The consultant shall update and resubmit this project schedule whenever changes in the schedule occur.

The consultant shall submit a quarterly estimation of the projected billing within 14 days of Notice To Proceed. Thereafter, this estimation will be updated and submitted to the District's Project Manager at least 10 days prior to the end of each quarter.

The consultant will obtain any necessary Rights of Entry. The consultant will furnish the District with a list of all property owners notified and a sample Right of Entry letter.

The consultant shall meet with officials from ADOT, the Cities of Apache Junction and Mesa and other agencies in the study areas. The purpose of this meeting is to notify them about the study and obtain information on current or planned public works projects in the study area.

TASK A2 - DATA COLLECTION

The consultant will obtain Arizona Department of Transportation (ADOT) and Central Arizona Project (CAP) drainage calculations for hydraulic structures in the area as available. The District will provide the consultant with a copy of the Southeast Mesa ADMS and the East County ADMS. The consultant may utilize structural and hydraulic design data contained in the ADOT, CAP, and ADMS' for hydraulic modeling of structures within the study area.

The District will supply the 3 discharge values to be modeled. The consultant will conduct a field reconnaissance of the full study reach. This will include observation of channel and floodplain conditions for estimation of Manning's "n" values, photographic documentation of floodplain characteristics, determination of channel bank stations, observation of possible overflow and split flow areas. The results of the field reconnaissance will be included in the Final Report. However, a draft version of the field reconnaissance results will be submitted to the District prior to beginning the hydraulic modeling. The field reconnaissance section of the Final Report will present the determination of channel and overbank "n" values along with color photographs (or color photocopies) of these areas. Photo locations, structures and "n" values will be displayed on reduced (usually 11" x 17") scale exhibit.

The topographic mapping prepared for the Apache Junction FRS will be developed using a Digital Terrain Model (DTM). The DTM will be developed and a copy delivered to the District following the guidelines stated in the District's Data Delivery Specifications: The Hydrologic Information System, Revision 3.1, June 1, 1998. Topographic mapping will be provided at a scale of 1:2400 (1" = 200') with a contour interval of two (2) feet. Mapping will tie-in to the existing topographic mapping for the Signal Butte Flood Retarding Structure Spillway Inundation Study. The topographic mapping must meet the quality control called for in FEMA-37, Flood Insurance Study Guidelines and Specifications for Study Contractors, January 1995.

All mapping will be provided using the National Geodetic Vertical Datum of 1929 (NGVD 29). As-built mapping of the FRS is available based on the North American Vertical Datum of 1988 (NAVD 88). The consultant will include an Elevation Reference Mark (ERM) in its mapping common to the as-built mapping of the FRS so that the 2 datums may be tied together.

TASK A3 - HYDRAULIC ANALYSIS

The hydraulic analysis will be preformed using the U.S. Army Corps of Engineers HEC-RAS, Version 2.2, River Analysis System computer model.

The initial location and alignment of cross sections and channel centerline will be submitted for the District's review and approval prior to the initial digitizing of the cross section data and should closely parallel the existing flood insurance study. The usual spacing of cross sections will be approximately every 500 feet, unless geographic or structural constraints dictate closer spacing. The use of a different cross section spacing will require the approval of the District's Project Manager. Cross sections will extend the full width of the inundated area. The orientation of the cross sections may need to be altered after running the HEC-RAS model to ensure that cross sections are perpendicular to flow. Also, to ensure good hydraulic modeling of the spillway discharges, additional cross sections may need to be added, or the existing cross sections may need to be moved. Interpolated cross sections will not be used in the HEC-RAS model. Cross section stationing will be from left to right looking downstream with the thalweg at station 10,000.

Manning's n values are to be determined using the methodology in the USGS report, Estimated Manning's Roughness Coefficients for Stream Channels and Flood Plains in Maricopa County, Arizona, April 1991. In urbanized areas, the consultant may develop 'n' values to represent various densities of development. The use of high 'n' values to limit flows through areas of dense development and low conveyance is encouraged. The developed 'n' values may be applied to all flow scenarios.

Prior to the completion of the final hydraulic models all of the input data must be reviewed to ensure that it agrees with HEC-RAS model results. This includes: the location of the channel centerline, reach lengths, Manning's n values, ineffective flow limits, discharge values, etc.

The HEC-RAS models will be developed using a mixed flow regime. The HEC-RAS model will be started at the CAP canal based on the estimated discharge spillage high water elevation over the canal bank along the flow lines.

For braided channels, each branch should be modeled with its highest anticipated discharge value. This might require more then one HEC-RAS model to delineate the inundation limits in these areas. A rating curve must be determined and the discharge contained within the channel. The percentage of discharge in each overbank and the main channel must be closely assessed within the split flow area, as well as upstream and downstream of it.

The consultant is to setup the HEC-RAS models so that the cross sections are broken into as many segments as practical for determining the maximum depth and velocity along the cross section. The consultant will need to calculate the time it takes for flows to travel from the spillway to each cross section.

Cross sections shall be plotted showing, computed water surface profiles, ineffective flow areas, "n" values, encroachments, channel stationing, and other pertinent information. The consultant is to make refinements to the HEC-RAS model based on review of the model by the District and other interested Agencies. Adjustments to the input parameters for obtaining the most realistic results are considered normal to the scope of work.

TASK A4 - FINAL PRODUCTS

Develop an inundation limit exhibit using the supplied topographic data on 24" x 36" size sheets. The use of any larger size sheets will require approval from the District's Project Manager, and the maximum size allowed is 33" x 46". This exhibit will use the District's standard border, title block, and legend format. Shown on this exhibit will be the inundation limits for the three discharges, cross section locations, thalweg location, supplied topographic data, consultant developed topographic data or revisions, major and appropriate minor road names, and elevation reference marks. This exhibit will be plotted at the same scale as the originally supplied topographic data. The use of a different scale will require approval of the District's Project Manager. A table must be included on this exhibit showing the computed water surface elevation of each cross section for each discharge modeled, and other pertinent information such as maximum depth, velocity, and travel time from the spillway to each cross section. In the case of split or braided flow the maximum inundation limit should be shown and the maximum water surface elevation for each portion of the cross section listed. At the end of the study one complete set of inundation limit exhibits will be submitted on non-erasable mylar (3 mil or thicker), and will be sealed by the engineer. No sticky backs or other types of tape products shall be applied to the mylars.

An overall Final Report for the study will be developed. This report will include, a narrative description of the purpose of this study, what steps were undertaken to complete this study, any assumptions made, minutes of meetings with officials from ADOT and the Cities of Apache Junction and Mesa and other agencies, the field reconnaissance results, and a reduced size (11" x 17") copy of the inundation limit exhibit. Included as appendixes to this report should be printouts of the HEC-RAS models, plot of the cross sections, supporting calculations for any other hydraulic analysis done, and a copy of any supplemental survey work performed.

The electronic drawings developed for this study will be submitted in a CADD format that is suitable for translation into the District's Hydrologic Information System (HIS). The drawings will be prepared in conformance with the CADD Data Delivery Specifications portions (primarily Chapter 3 and Appendix C) of the District's HIS Data Delivery Specifications, Revision 3.1, for the following layers:

1. NDXPRJ (CP - 40)
2. PRJ (CP - 60)
3. DQ.TBL (CP - 410)
4. PRJDAT.TBL (CP - 430)
5. SPILLWAY BASELINE ROUTE SYSTEM (CP - 588)
6. SPILLWAY CROSS SECTION (CP - 590)
6. SPILLWAY ZONE (CP - 591)
8. HEC-RAS OUTPUT (CP - 599)

All topographic data developed for this study by the consultant will be prepared in conformance with the CADD Data Delivery Specifications portions of the District's HIS Data Delivery Specifications, Revision 3.1, for the following layers:

1. CARTOGRAPHIC FEATURES (CP - 110)
2. CORNERS (CP - 210)
3. MISCELLANEOUS CONTROL SURVEY POINTS (CP - 215)
4. STRUCTURE (CP - 360)
5. BRIDGE (CP - 608)
6. CANAL SYSTEM (CP - 610)
7. CULVERT (CP - 612)
8. FCD PROJECT FACILITY (CP - 620)
9. STREET DETAIL (CP - 660)
10. ELEVATION (LAND) (CP - 710)
11. RIVER SYSTEM (CP - 960)

The consultant is to only fill out those layers for which data is developed during the course of this study. If the consultant has data that doesn't fall into one of the above layers, the consultant shall contact the District in order to determine what to do with that data. The consultant must follow the applicable CADD specifications when developing their CADD files. The CADD files submitted by the consultant will be subject to a rigorous quality control (QC) check by District staff.

TASK A5 - DELIVERABLES

1. One set of the inundation limit exhibits (full size) on mylar sealed by the engineer.

2. 4 copies of the Final Report sealed by the engineer, inundation limit exhibits, and copies of the final HEC-RAS models on diskette.

3. All of the CADD data called for in the Final Products Section.

4. The Digital Terrain Model for the mapping developed for this study.

5. Two (2) sets of 9" X 9" contact prints.

TASK B – Rittenhouse, Vineyard and Powerline Flood Retarding Structures

No work is to begin on this Task until authorized in writing by the District's Project Manager.

TASK B1 - COORDINATION

After receiving authorization to proceed with this task, the consultant will update the project schedule showing coordination meetings and completion dates for each of the tasks in the scope. The consultant shall update and resubmit this project schedule whenever changes in the schedule occur.

The consultant shall submit an updated quarterly estimation of the projected billing within 14 days of Notice to Proceed on this task. Thereafter, this estimation will be updated and submitted to the District's Project Manager at least 10 days prior to the end of each quarter.

The consultant will obtain any necessary Rights of Entry. The consultant will furnish the District with a list of all property owners notified and a sample Right of Entry letter.

The consultant shall meet with officials from Central Arizona Project, the Cities of Mesa, Gilbert and Queen Creek and other agencies in the study area. The purpose of this meeting is to notify them about the study and obtain information on current or planned public works projects in the study area.

TASK B2 - DATA COLLECTION

The primary source for the topographic mapping data is the Queen Creek Drainage Master Study (DMS). This mapping was originally developed using aerial photogrammetry methods. The horizontal scale is 1" = 200' and the contour interval is two-feet. This mapping will need to be augmented by new data outside the County boundary. The supplemental topographic data and survey work will be at the same scale, and on the same horizontal and vertical datum as the supplied mapping.

The consultant will obtain CAP drainage calculations for hydraulic structures in the area as available. The District will provide the consultant with a copy of the Queen Creek DMS. The consultant may utilize structural and hydraulic design data contained in the CAP and DMS for hydraulic modeling of structures within the study area.

The District will supply the discharge values to be modeled. The consultant will conduct a field reconnaissance of the full study reach. This will include observation of channel and floodplain conditions for estimation of Manning's "n" values, photographic documentation of floodplain characteristics, determination of channel bank stations, observation of possible overflow and split flow areas. The results of the field reconnaissance will be included in the Final Report. However, a draft version of the field reconnaissance results will be submitted to the District prior to beginning the hydraulic modeling. The field reconnaissance section of the Final Report will present the determination of channel and overbank "n" values along with color photographs (or color photocopies) of these areas. Photo locations, structures and "n" values will be displayed on reduced (usually 11" x 17") scale exhibit

The topographic mapping prepared for the Powerline, Vineyard, and Rittenhouse FRS's will be developed using a Digital Terrain Model (DTM). The DTM will be developed and a copy delivered to the District following the guidelines stated in the District's Data Delivery Specifications: The Hydrologic Information System, Revision 3.1, June 1, 1998. Topographic mapping will be provided at a scale of 1:2400 (1" = 200') with a contour interval of two (2) feet. Mapping will tie-in to the existing mapping for the Queen Creek Area Drainage Master Study (ADMS), and the Queen Creek Hydraulic Master Plan. The topographic mapping must meet the quality control called for in FEMA-37, Flood Insurance Study Guidelines and Specifications for Study Contractors, January 1995.

All mapping will be provided using the National Geodetic Vertical Datum of 1929 (NGVD 29). As-built mapping of the FRS is available based on the North American Vertical Datum of 1988 (NAVD 88). The consultant will include an Elevation Reference Mark (ERM) in its mapping common to the as-built mapping of the FRS so that the 2 datums may be tied together.

TASK B3 - HYDRAULIC ANALYSIS

The hydraulic analysis will be preformed using the U.S. Army Corps of Engineers HEC-RAS, Version 2.2, River Analysis System computer model.

The initial location and alignment of cross sections and channel centerline will be submitted for the District's review and approval prior to the initial digitizing of the cross section data and should closely parallel the existing flood insurance study. The usual spacing of cross sections will be approximately every 500 feet, unless

geographic or structural constraints dictate closer spacing. The use of a different cross section spacing will require the approval of the District's Project Manager. Cross sections will extend the full width of the inundated area. The orientation of the cross sections may need to be altered after running the HEC-RAS model to ensure that cross sections are perpendicular to flow. Also, to ensure good hydraulic modeling of the spillway discharges, additional cross sections may need to be added, or the existing cross sections may need to be moved. Interpolated cross sections will not be used in the HEC-RAS model. Cross section stationing will be from left to right looking downstream with the thalweg at station 10,000.

Manning's n values are to be determined using the methodology in the USGS report, Estimated Manning's Roughness Coefficients for Stream Channels and Flood Plains in Maricopa County, Arizona, April 1991. In urbanized areas, the consultant may develop 'n' values to represent various densities of development. The use of high 'n' values to limit flows through areas of dense development and low conveyance is encouraged. The developed 'n' values may be applied to all flow scenarios.

Prior to the completion of the final hydraulic models all of the input data must be reviewed to ensure that it agrees with HEC-RAS model results. This includes: the location of the channel centerline, reach lengths, Manning's n values, ineffective flow limits, discharge values, etc.

The HEC-RAS models will be developed using a mixed flow regime. The HEC-RAS model should be started far enough downstream to eliminate the affects of the starting conditions on the downstream limit of the study area: and reflect a minimized hazard from spillway flows.

For the north Powerline FRS spillway, three (3) HEC-RAS models will be prepared using the one-third, two-third, and full spillway discharges as supplied by the District.

For the Vineyard FRS, five (5) HEC-RAS models will be prepared for the combination spillway flows from the south Powerline FRS spillway and the Vineyard FRS spillway as determined by the District. The District will provide the consultant with the five (5) spillway flows to be modeled.

For the Rittenhouse FRS, HEC-RAS models will be developed using the one-third, two-third, and full spillway discharges as supplied by the District. Depending on whether failure and non-failure scenarios are needed for the existing diversion dike immediately downstream of the spillway, a minimum of three (3) and as many as six (6) HEC-RAS models may need to be prepared.

For the area downstream of the Powerline and Vineyard FRS' where flows from the two structures combine, the District will supply the discharges to be used in the modeling.

The CAP will be modeled assuming a spillage overtop of the higher of the 2 canal banks along the spillway flowage lines. The CAP will be assumed full at the time of overtopping and, therefore, no reduction in spillway discharge will be made at the CAP.

Several diversion dikes are present in the watershed. Where diversion dikes are encountered in the flow path and are not overtopped, dikes will be analyzed based on the worst case scenarios, failed vs. not failed. Where dikes are overtopped, they will be analyzed assuming failure of the dike.

For the north Powerline FRS spillway, flows are assumed to be traveling in a southwesterly direction. If mapping, modeling, or surveying prepared under this study refutes this assumption and flows are determined to be moving northwesterly, additional mapping will be required under a separate contract or a Change Order to this contract.

For braided channels, each branch should be modeled with its highest anticipated discharge value. This might require more than one HEC-RAS model to delineate the inundation limits in these areas. A rating curve must be determined and the discharge contained within the channel. The percentage of discharge in each overbank and the main channel must be closely assessed within the split flow area, as well as upstream and downstream of it.

The consultant is to setup the HEC-RAS models so that the cross sections are broken into as many segments as practical for determining the maximum depth and velocity along the cross section. The consultant will need to calculate the time it takes for flows to travel from the spillway to each cross section.

Cross sections shall be plotted showing, computed water surface profiles, ineffective flow areas, "n" values, encroachments, channel stationing, and other pertinent information. The consultant is to make refinements to the HEC-RAS model based on review of the model by the District and other interested Agencies. Adjustments to the input parameters for obtaining the most realistic results are considered normal to the scope of work.

TASK B4 - FINAL PRODUCTS

Develop an inundation limit exhibit using the supplied topographic data on 24" x 36" size sheets. The use of any larger size sheets will require approval from the District's Project Manager, and the maximum size allowed is 33" x 46". This exhibit will use the District's standard border, title block, and legend format. Shown on this exhibit will be the inundation limits for the three discharges, cross section locations, thalweg location, supplied topographic data, consultant developed topographic data or revisions, major and appropriate minor road names, and elevation reference marks. This exhibit will be plotted at the same scale as the originally supplied topographic data. The use of a different scale will require approval of the District's Project Manager. A table must be included on this exhibit showing the computed water surface elevation of each cross section for each discharge modeled, and other pertinent information such as maximum depth, velocity, and travel time from the spillway to each cross section. In the case of split or braided flow the maximum inundation limit should be shown and the maximum water surface elevation for each portion of the cross section listed. At the end of the study one complete set of inundation limit exhibits will be submitted on non-erasable mylar (3 mil or thicker), and will be sealed by the engineer. No sticky backs or other types of tape products shall be applied to the mylars.

An overall Final Report for the study will be developed. This report will include, a narrative description of the purpose of this study, what steps were undertaken to complete this study, any assumptions made, minutes of meetings with officials from Central Arizona Project, the Cities, and agencies, reconnaissance results, and a reduced size (11" x 17") copy of the inundation limit exhibit. Included as appendixes to this report should be printouts of the HEC-RAS models, plot of the cross sections, supporting calculations for any other hydraulic analysis done, and a copy of any supplemental survey work performed.

The electronic drawings developed for this study will be submitted in a CADD format that is suitable for translation into the District's Hydrologic Information System (HIS). The drawings will be prepared in conformance with the CADD Data Delivery Specifications portions (primarily Chapter 3 and Appendix C) of the District's HIS Data Delivery Specifications, Revision 3.1, for the following layers:

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2. PRJ (CP - 60)
3. DQ.TBL (CP - 410)
4. PRJDAT.TBL (CP - 430)
5. SPILLWAY BASELINE ROUTE SYSTEM (CP - 588)
6. SPILLWAY CROSS SECTION (CP - 590)
7. SPILLWAY ZONE (CP - 591)
8. HEC-RAS OUTPUT (CP - 599)

All topographic data developed for this study by the consultant will be prepared in conformance with the CADD Data Delivery Specifications portions of the District's HIS Data Delivery Specifications, Revision 3.1, for the following layers:

1. CARTOGRAPHIC FEATURES (CP - 110)
2. CORNERS (CP - 210)
3. MISCELLANEOUS CONTROL SURVEY POINTS (CP - 215)

4. STRUCTURE (CP - 360)
5. BRIDGE (CP - 608)
6. CANAL SYSTEM (CP - 610)
7. CULVERT (CP - 612)
8. FCD PROJECT FACILITY (CP - 620)
9. STREET DETAIL (CP - 660)
10. ELEVATION (LAND) (CP - 710)
11. RIVER SYSTEM (CP - 960)

The consultant is to only fill out those layers for which data is developed during the course of this study. If the consultant has data that doesn't fall into one of the above layers, the consultant shall contact the District in order to determine what to do with that data. The consultant must follow the applicable CADD specifications when developing their CADD files. The CADD files submitted by the consultant will be subject to a rigorous quality control (QC) check by District staff.

TASK B5 - DELIVERABLES

1. One set of the inundation limit exhibits (full size) on mylar sealed by the engineer.

2. 4 copies of the Final Report sealed by the engineer, inundation limit exhibits, and copies of the HEC-RAS models on diskette.

3. All of the CADD data called for in the Final Products Section.

4. Digital Terrain Models for the new topographic mapping developed for this study

5. Two (2) sets of 9" X 9" contact prints.

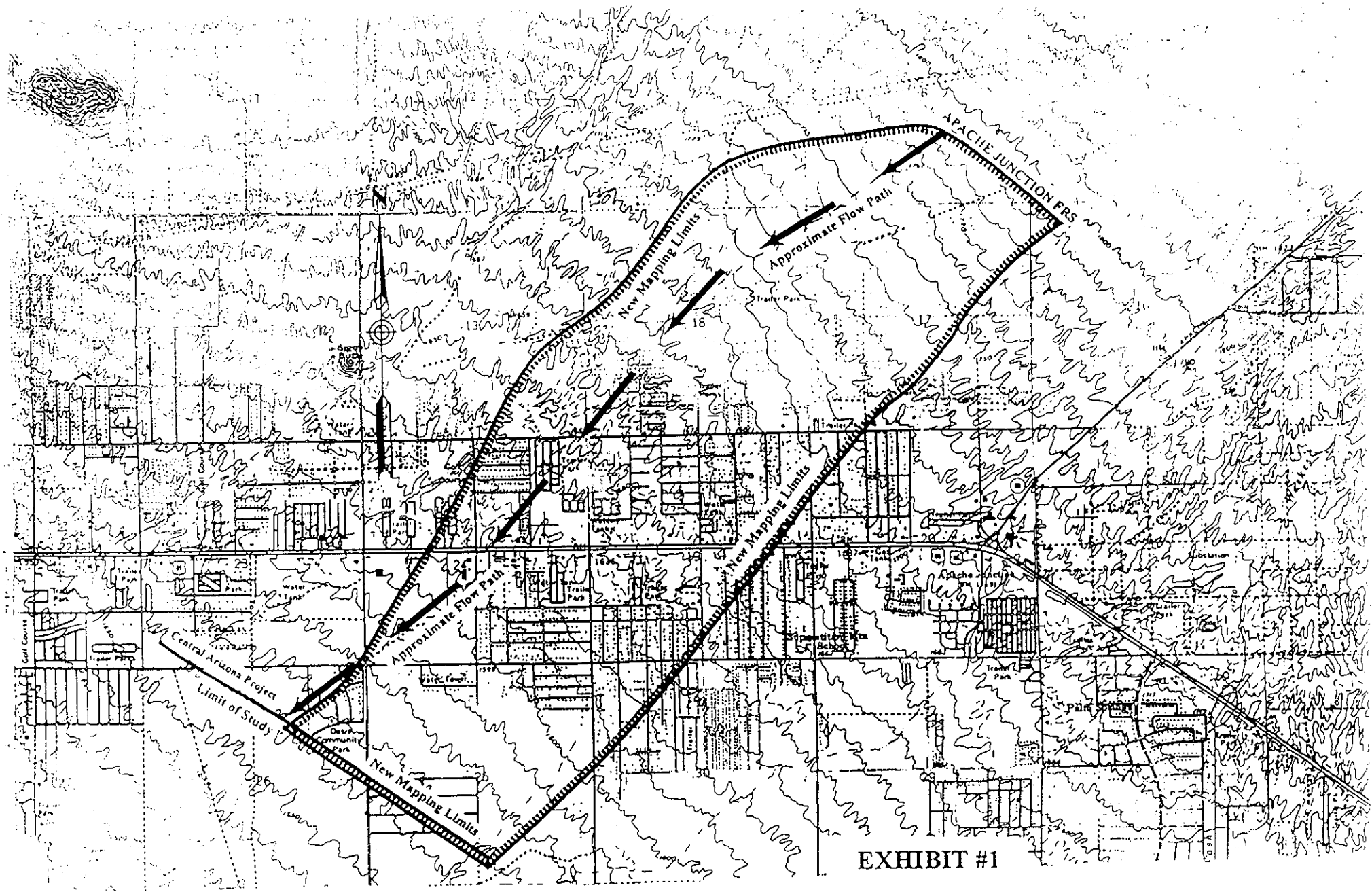
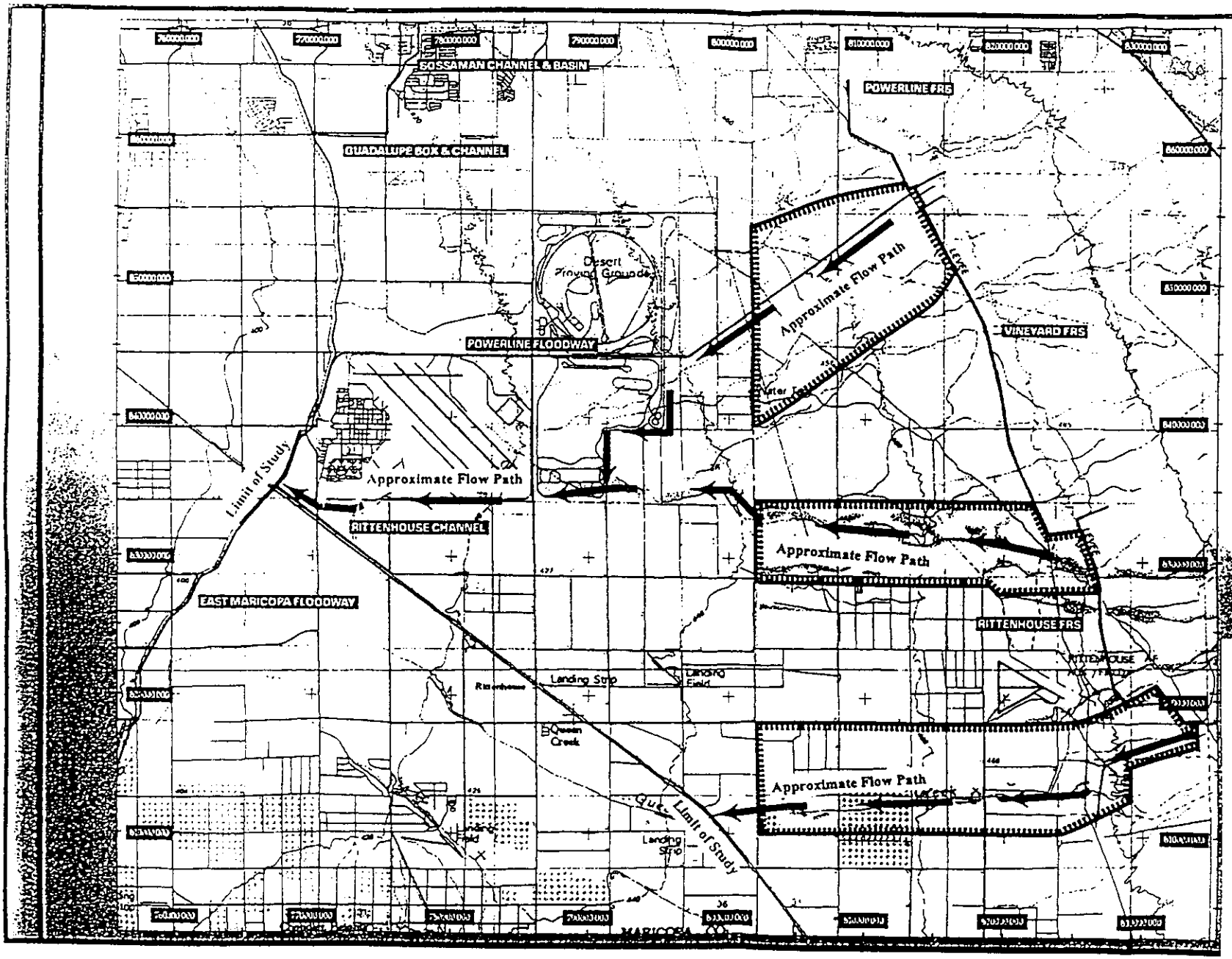

APACHE JUNCTION FRS
Approximate Flow Path
New Mapping Limits
Approximate Flow Path
New Mapping Limits
Approximate Flow Path
New Mapping Limits
Central Arizona Project
Limit of Study
Apache Junction
Palm Springs

EXHIBIT #1

EXHIBIT #2



New Mapping Limits

MANNING'S 'n' VALUE DETERMINATIONS

I. INTRODUCTION

A field reconnaissance investigation was conducted on March 23, 2000. The purpose of the trip was to gather data, including photographic documentation, for the estimation of Manning's 'n' values for the areas in the anticipated flow path downstream of the emergency spillway shared by Powerline and Vineyard Flood Retarding Structures. Those in attendance were a representative of the FCDMC and a Baker staff member.

A second field reconnaissance investigation was conducted on September 12, 2000. The purpose of this trip was to verify calculated estimated 'n' values for the computed flow area downstream of the joint Powerline/Vineyard emergency spillway; obtain additional photographic documentation; verify existing land use conditions; and, gather data, including photographic documentation, for the estimation of Manning's 'n' values for the areas downstream of the southern emergency spillway of the Vineyard Flood Retarding Structure. Those in attendance were two Baker staff members.

II. METHODOLOGY

Manning's 'n' values were assigned based on field observation using the methodology described in ***Estimated Manning's Roughness Coefficients for Stream Channels and Flood Plains in Maricopa County, Arizona***, a manual prepared by the U.S. Geological Survey for the FCDMC. A base 'n' value (n_b) was assigned according to the bed material. In accordance with the manual, adjustments to the n_b were then made to account for factors affecting the roughness characteristics such as degree of irregularity, effects of obstructions, and vegetation. Typical photographs and calculations for the 'n' values for the areas are included in this section.

The inundation area was basically divided into 3 land use conditions: concrete channel, natural desert, and agricultural land. Land use assignments are based on existing conditions and are shown on the *Land Use Map* included in this section.

Concrete Channel: The Powerline Floodway is a concrete lined channel carrying principal spillway discharges from the Powerline and Vineyard FRS's. For this spillway inundation study, the Powerline Floodway will carry a portion of spillway flows. It represents the maximum conveyance corridor and, therefore, was assigned main channel stationing. The 'n' value for concrete channel is 0.015.

Natural Desert: This land use includes the area immediately downstream of the Powerline/Vineyard emergency spillway and the Vineyard FRS southern emergency spillway, both in Pinal County, to the General Motors Proving Ground approximately one-half mile west of Mountain Road, north of Williams Field Road. The area consists of natural desert vegetation, predominantly brushy shrubs with a few scattered trees. Brushy vegetation is generally 2 to 4 ft in height. Bed material is a sandy silt. There are some scattered homes over the study area. Due to the spacing and small number of structures and the width of the floodplain, these were assumed to be only a minor obstruction to flow in the 'n' value calculations. The majority of homes located within the inundation area are located either on the very outside fringe of the flooding limits or within areas defined in the hydraulic model as ineffective flow areas. The 'n' value was determined to be 0.050 for the natural desert overbank areas. This 'n' value was also assigned to the area designated as channel below the Vineyard FRS south emergency spillway and for a small portion of the outfall channel for the Vineyard FRS south emergency spillway above the CAP.

Agricultural Land: This land use applies to the large crop fields and citrus groves which are present south of Williams Field Road. Field crops generally grown in this part of Maricopa County include small grain, corn/sorghum, and alfalfa. For this inundation study, it has been assumed that mature field crops and/or citrus groves with fairly dense grass undergrowth will be present on all of the crop fields at the time of peak flow over the spillway. In this case, due to the shallow depth of flooding, the crops will pose a major obstacle to flow. The 'n' value was determined to be 0.100 for agricultural land under mature crop conditions.

Industrial Land: Industrial growth is occurring in the vicinity of the intersection of Pecos and Mountain Roads. Structures include several large buildings and a tire recycling facility. Locations of these structures can be reasonably estimated from recent topographic data provided by the District and aerial photographs. Blocked obstructions have been used to represent the structures in the HEC-RAS modeling. An 'n' value of 0.016 has been assigned to paved asphalt parking/road areas immediately adjacent to the structures as appropriate.

Other data used in the 'n' value estimation included aerial contact photographs of the topographic mapping area supplied by M&B Aerial Mapping, LLC under this contract and the FCDMC's *Drainage Design Manual Volume II Hydraulics*.

III. PHOTOGRAPHS AND 'n' VALUE ASSIGNMENTS

Along with the calculations for the 'n' value assignments, photographs are provided for typical areas representing the concrete channel, natural desert, agricultural, and industrial land use conditions. Other 'n' values used in the study are:

Channel Material	'n' Value
Earthen Spillway (nearly bare ground)	0.022
Earthen Spillway (dense vegetation)	0.080
Asphalt	0.016

LOCATION: **Powerline FRS and north Vineyard FRS**

CROSS SECTION DESCRIPTION: Concrete Channel (Powerline Floodway) (Photographs 1 - 3).

'N' VALUE CALCULATION FOR POWERLINE FRS

Portion of Cross section	Components	Weighted and Composite Values
Channel	n_b = Concrete	
	$n_1 = 0$	
	$n_2 = 0$	
	$n_3 = 0$	**n = 0.015**
Left Overbank	$n_b = 0$	
	$n_1 = 0$	
	$n_2 = 0$	
	$n_3 = 0$	**n = N/A**
Right Overbank	$n_b = 0$	
	$n_1 = 0$	
	$n_2 = 0$	
	$n_3 = 0$	**n = N/A**

Photo 1. Looking upstream (northeast) at Powerline Floodway from Ironwood Road. Concrete channel with natural desert in overbank areas. (Photo date March 23, 2000)

Photo 2. Looking downstream (southwest) at Powerline Floodway from Ironwood Road. Concrete channel with natural desert in overbank areas. (Photo date March 23, 2000)

Photo 3. Looking upstream (southeast) at Powerline Floodway from east property line of General Motors Proving Ground. Concrete channel with natural desert in overbank areas. (Photo date March 23, 2000)

LOCATION: **Powerline FRS and north and south Vineyard FRS**

CROSS SECTION DESCRIPTION: **Natural Desert** (Photographs 4 - 8).

'N' VALUE CALCULATION FOR POWERLINE FRS

Portion of Cross section	Components	Weighted and Composite Values
Channel	$n_b = 0$	
	$n_1 = 0$	
	$n_2 = 0$	
	$n_3 = 0$	**n = N/A**
Left Overbank	$n_b = 0.025$	
	$n_1 = 0$	
	$n_2 = 0.005$	
	$n_3 = 0.020$	**n = 0.050**
Right Overbank	$n_b = 0.025$	
	$n_1 = 0$	
	$n_2 = 0.005$	
	$n_3 = 0.020$	**n = 0.050**

Photo 4. Looking downstream (southwest) across CAP and natural desert area from top of Powerline FRS. (Photo date March 23, 2000)

Photo 5. Looking northeast across natural desert overbank area along north side of Powerline Floodway between Mountain Road and eastern fenceline of General Motors Proving Ground. (Photo date March 23, 2000)

Photo 6. Looking east across natural desert overbank area along east side of 222nd Street immediately south of Williams Field Road. (Photo date September 12, 2000)

Photo 7. Looking southwest across CAP and natural desert overbank area below Vineyard FRS south spillway. (Photo date September 12, 2000)

Photo 8. Looking northeast at homes on the north side of Williams Field Road immediately west of the intersection with Mountain Road. (Photo date September 12, 2000)

LOCATION: **Powerline FRS and north and south Vineyard FRS**

CROSS SECTION DESCRIPTION: **Agricultural Land (mature crop)** (Photographs 9 - 11).

'N' VALUE CALCULATION FOR POWERLINE FRS

Portion of Cross section	Components	Weighted and Composite Values
Channel	$n_b = 0$	
	$n_1 = 0$	
	$n_2 = 0$	
	$n_3 = 0$	**n = N/A**
Left Overbank	$n_b = 0.025$	
	$n_1 = 0$	
	$n_2 = 0$	
	$n_3 = 0.075$	**n = 0.100**
Right Overbank	$n_b = 0.025$	
	$n_1 = 0$	
	$n_2 = 0$	
	$n_3 = 0.075$	**n = 0.100**

Photo 9. Looking downstream (southwest) across mature crop (small grain) field on south side of Williams Field Road just east of intersection of Williams Field and Crismon Roads. (Photo date March 23, 2000)

Photo 10. Looking upstream (southeast) across fallow crop field on south side of Williams Field Road just east of intersection of Williams Field and Crismon Roads and Photo 7. For 'n' value, mature crop assumed. (Photo date March 23, 2000)

Photo 11. Looking south at orchard on south side of Pecos Avenue at intersection of Pecos Avenue and Crismon Road. 'n' value of 0.10 assumed. (Photo date September 25, 2000)

Photo 12. Industrial development on west side of Mountain Road, north of intersection with Pecos Road. Blocked obstruction used in hydraulic model. (Photo date September 12, 2000)

Photo 13. Looking northeast across emergency spillway for Powerline FRS and north emergency spillway for Vineyard FRS from the Vineyard FRS embankment toward the Powerline FRS embankment. ('n' = 0.022) (Photo date September 12, 2000)

Photo 14. Looking east across south emergency spillway for Vineyard FRS. Values for 'n' transition from 0.022 in upper spillway (upper left corner of photo) to 0.050 (center of photo) to 0.080 for dense vegetation immediately upstream of the CAP. (Photo date September 12, 2000)

Photo 15. Looking south across outfall for south emergency spillway for Vineyard FRS. Dense vegetation located immediately upstream of the CAP. ('n' = 0.080) (Photo date September 12, 2000)

Project: Spillway Inundation Studies – Powerline FRS			
Subject: Expansion Ratio Calculations			
Filename: D:/fcdspill/B1/Engfiles/ExpCalcs1.doc			
Computed By: CWR	**Date:** 9/1/00	**Checked By:**	**Date:** 9/5/00

Expansion Ratio Calculations

Location: Powerline FRS - Immediately below emergency spillway outlet, downstream of the CAP

Using Equation B-2:

Cross Section 1 = Cross Section 18.429

Cross Section 2 = Cross Section 19.901 (This section has the highest channel Froude number at the start of the expansion. This will give the highest (most conservative expansion ratio.)

$$ER = 0.421 + 0.485\ (Fc^2/F_c^1) + 1.80 \times 10^{-5}\ (Q)$$

$$= 0.421 + 0.485\ (2.07/1.63) + 1.80 \times 10^{-5}\ (20{,}000)$$

$$= 1.20$$

Check Range in Table B.2:

$b/B = 1687/7377 = 0.23$	Use: $b/B = 0.25$
$n_{ob}/n_c = 0.05/0.015 = 3.33$	Use: $n_{ob}/n_c = 4$
$s = 54/8100 = 0.0067$ ft/ft = 35 ft/mi	Use: 10 ft/mi

Then, ER = 1.3 – 2.0

Use: **ER = 2.0**

Project: Spillway Inundation Studies – Powerline FRS			
Subject: Expansion Ratio Calculations			
Filename: D:/fcdspill/B1/Engfiles/PowExpCalcs2.doc			
Computed By: CWR	**Date:** 1/8/01	**Checked By:**	**Date:** 1/10/01

Expansion Ratio Calculations

Location: Below confluence of Powerline FRS and Vineyard FRS

Cross sections 14.410 to 12.481

Using Equation B-2:

Cross Section 1 = Cross Section 12.481

Cross Section 2 = Cross Section 14.410

$$ER = 0.421 + 0.485\ (Fc^2/F_c^1) + 1.80 \times 10^{-5}\ (Q)$$

$$= 0.421 + 0.485\ (0.38/0.41) + 1.80 \times 10^{-5}\ (29{,}700)$$

$$= 1.41$$

Check Range in Table B.2:

$b/B = 1000/4550 = 0.22$	Use: $b/B = 0.25$
$n_{ob}/n_c = 0.10/0.05 = 2.00$	Use: $n_{ob}/n_c = 2$
$s = 18/6250 = 0.0029$ ft/ft = 15 ft/mi	Use: 10 ft/mi

Then, ER = 1.3 – 2.0

Use: **ER = 1.5**

Note: After further modeling of this area, including analysis and calculation of the total loss of discharge from the spill, it was determined that an expansion of flows does not occur through this entire reach. The inundation area contracts at cross section 13.145. ER = 1.5, however, seems reasonable based on the downstream calculations and other calculations in the area. Therefore, ER = 1.5 was used in the modeling from cross section 14.410 to 13.355. The ER was recomputed from cross section 13.145 to 12.382, based on the after-spill discharge, and is shown on computations sheet PowExpCalcs3.

Project: Spillway Inundation Studies – Powerline FRS			
Subject: Expansion Ratio Calculations			
Filename: D:/fcdspill/B1/Engfiles/PowExpCalcs3.doc			
Computed By: CWR	**Date:** 1/12/01	**Checked By:**	**Date:** 1/12/01

Expansion Ratio Calculations

(using reduction of full flow discharge due to spill)

Location: Below confluence of Powerline FRS and Vineyard FRS

Cross sections 13.145 to 12.382

Using Equation B-2:

Cross Section 1 = Cross Section 12.382

Cross Section 2 = Cross Section 13.145

$$ER = 0.421 + 0.485\ (Fc^2/F_c^1) + 1.80 \times 10^{-5}\ (Q)$$

$$= 0.421 + 0.485\ (0.60/0.50) + 1.80 \times 10^{-5}\ (14{,}816)$$

$$= 1.23$$

Check Range in Table B.2:

$b/B = 1000/3700 = 0.27$	Use: $b/B = 0.25$
$n_{ob}/n_c = 0.10/0.05 = 2.00$	Use: $n_{ob}/n_c = 2$
$s = 12/41000 = 0.0029$ ft/ft = 15 ft/mi	Use: 10 ft/mi

Then, ER = 1.3 – 2.0

Use: **<u>ER = 1.5</u>**

Project: Spillway Inundation Studies – Vineyard FRS			
Subject: Expansion Ratio Calculations			
Filename: D:/fcdspill/B2/Engfiles/VinExpCalcs1.doc			
Computed By: CWR	**Date:** 11/13/00	**Checked By:**	**Date:** 11/13/00

Expansion Ratio Calculations

Location: Vineyard FRS - Immediately below emergency spillway outlet and downstream of the CAP

Using Equation B-2:

Cross Section 1 = Cross Section 4200

Cross Section 2 = Cross Section 9990

$$ER = 0.421 + 0.485\ (Fc^2/F_c^1) + 1.80 \times 10^{-5}\ (Q)$$

$$= 0.421 + 0.485\ (1.00/0.39) + 1.80 \times 10^{-5}\ (9{,}700)$$

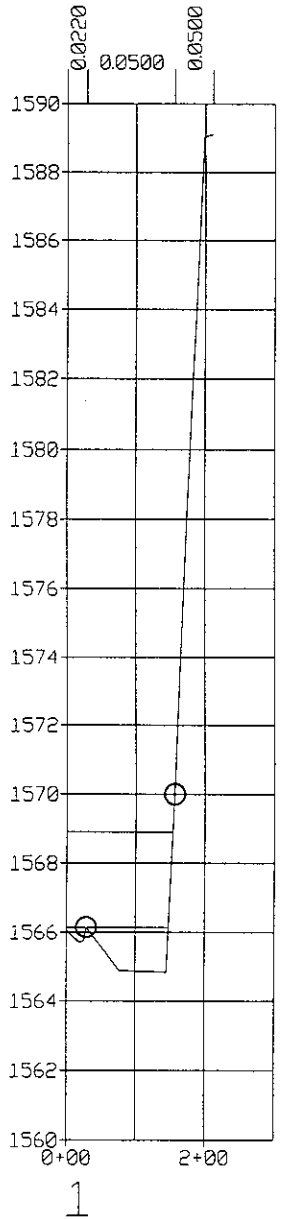
$$= 1.84$$

Check Range in Table B.2:

$b/B = 746/3967 = 0.19$	Use: $b/B = 0.25$
$n_{ob}/n_c = 0.05/0.05 = 1.00$	Use: $n_{ob}/n_c = 1$
$s = 33/5220 = 0.0063$ ft/ft = 33.5 ft/mi	Use: 10 ft/mi

Then, ER = 1.5 – 2.0

Use: **ER = 2.0**



POWERLINE FRS
FLOWS TO NORTH ALONG CAP

HEC-RAS FULL FLOW CHSEL

FlowCalc Normal Discharge Results

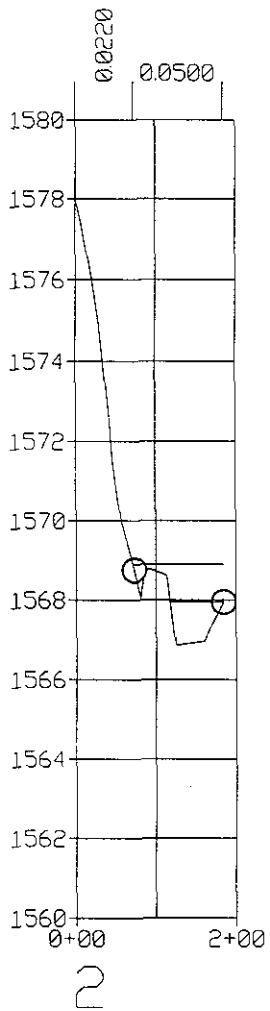
Cross-Section:	1	
Elevation:	1568.90	ft MSL
Depth:	4.06	ft
Discharge:	1975.52	cfs
Energy Gradient:	0.0019	ft/ft
Froude Number:	0.1006	
Flow Regime:	Subcritical	
Flow Area:	544.73	sq ft
Average Velocity:	3.63	ft/s
Maximum Velocity:	6.33	ft/s
Composite n:	0.0455	
Hydraulic Radius:	3.52	ft
Wetted Perimeter:	154.90	ft
Wetted Top Width:	153.98	ft
Critical Slope:	0.0228	ft/ft

CAP OVERTOPPING ELEV.

FlowCalc Normal Discharge Results

Cross-Section:	1	
Elevation:	1566.14	ft MSL
Depth:	1.30	ft
Discharge:	169.27	cfs
Energy Gradient:	0.0019	ft/ft
Froude Number:	0.0417	
Flow Regime:	Subcritical	
Flow Area:	128.09	sq ft
Average Velocity:	1.32	ft/s
Maximum Velocity:	1.34	ft/s
Composite n:	0.0453	
Hydraulic Radius:	0.86	ft
Wetted Perimeter:	148.27	ft
Wetted Top Width:	147.94	ft
Critical Slope:	0.0471	ft/ft

POWERLINE FRS
FLOWS TO SOUTH ALONG CAP



HEC-RAS FULL FLOW CWSEL

FlowCalc Critical Discharge Results

Cross-Section:	2	
Elevation:	1568.90	ft MSL
Depth:	2.04	ft
Discharge:	775.72	cfs
Flow Regime:	Critical	
Flow Area:	95.75	sq ft
Average Velocity:	8.10	ft/s
Hydraulic Radius:	1.07	ft
Wetted Perimeter:	89.27	ft
Wetted Top Width:	89.05	ft

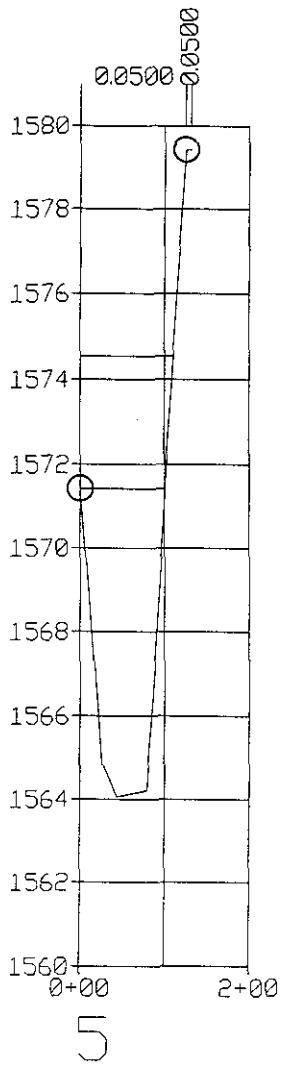
CAP OVERTOPPING ELEV.

FlowCalc Critical Discharge Results

Cross-Section:	2	
Elevation:	1567.95	ft MSL
Depth:	1.09	ft
Discharge:	240.11	cfs
Flow Regime:	Critical	
Flow Area:	40.54	sq ft
Average Velocity:	5.92	ft/s
Hydraulic Radius:	0.96	ft
Wetted Perimeter:	42.35	ft
Wetted Top Width:	42.27	ft

VINEYARD FRS

FLOWS TO NORTH ALONG CAP



HEC-RAS FULL FLOW CWSEL

FlowCalc Normal Discharge Results

Cross-Section:	5	
Elevation:	1574.54	ft MSL
Depth:	10.49	ft
Discharge:	322.31	cfs
Energy Gradient:	0	ft/ft
Froude Number:	0.0004	
Flow Regime:	Subcritical	
Flow Area:	873.01	sq ft
Average Velocity:	0.37	ft/s
Maximum Velocity:	0.37	ft/s
Composite n:	0.05	
Hydraulic Radius:	7.75	ft
Wetted Perimeter:	112.58	ft
Wetted Top Width:	110.07	ft
Critical Slope:	0.0247	ft/ft

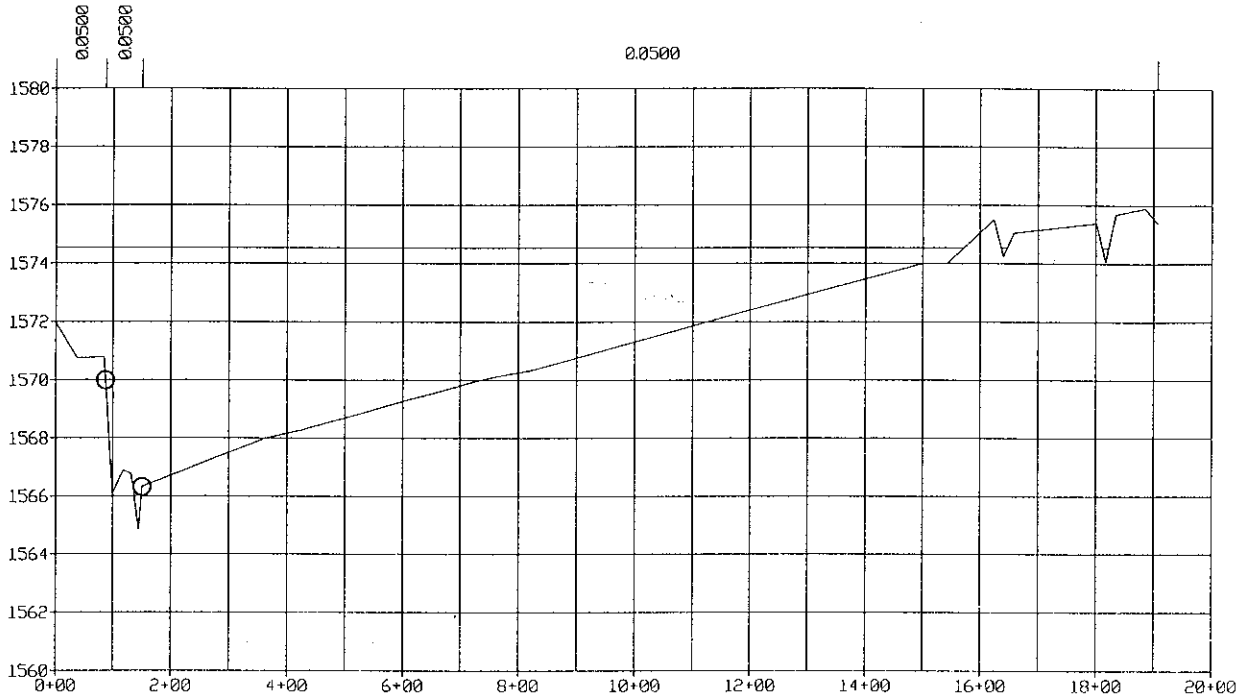
CAP OVERTOPPING ELEV.

FlowCalc Normal Discharge Results

Cross-Section:	5	
Elevation:	1571.43	ft MSL
Depth:	7.38	ft
Discharge:	156.11	cfs
Energy Gradient:	0	ft/ft
Froude Number:	0.0003	
Flow Regime:	Subcritical	
Flow Area:	545.02	sq ft
Average Velocity:	0.29	ft/s
Maximum Velocity:	0.29	ft/s
Composite n:	0.05	
Hydraulic Radius:	5.3	ft
Wetted Perimeter:	102.85	ft
Wetted Top Width:	100.85	ft
Critical Slope:	0.0289	ft/ft

VINEYARD FRS

FLOWS TO SOUTH ALONG CAP



6

HEC-RAS FULL FLOW CWSEL

FlowCalc Normal Discharge Results

Cross-Section:	6	
Elevation:	1574.54	ft MSL
Depth:	9.71	ft
Discharge:	1574.35	cfs
Energy Gradient:	0	ft/ft
Froude Number:	0.0001	
Flow Regime:	Subcritical	
Flow Area:	6455.83	sq ft
Average Velocity:	0.24	ft/s
Maximum Velocity:	0.37	ft/s
Composite n:	0.05	
Hydraulic Radius:	4.05	ft
Wetted Perimeter:	1594.61	ft
Wetted Top Width:	1593.37	ft
Critical Slope:	0.0545	ft/ft

CAP OVERTOPPING ELEV.

FlowCalc Normal Discharge Results

Cross-Section:	6	
Elevation:	1572.00	ft MSL
Depth:	7.17	ft
Discharge:	565.14	cfs
Energy Gradient:	0	ft/ft
Froude Number:	0.0001	
Flow Regime:	Subcritical	
Flow Area:	2986.68	sq ft
Average Velocity:	0.19	ft/s
Maximum Velocity:	0.29	ft/s
Composite n:	0.05	
Hydraulic Radius:	2.65	ft
Wetted Perimeter:	1125.41	ft
Wetted Top Width:	1124.25	ft
Critical Slope:	0.0707	ft/ft

Powerline Floodway at the CAP

Analysis using Full Spillway Flow (20,000 cfs)

1

CURRENT DATE: 10-03-2000 FILE DATE: 10-03-2000
CURRENT TIME: 10:29:33 FILE NAME: B1

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.1

CULVERT NO.	INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1559.00	1557.80	186.00	2 RCB	6.00	6.00	.012	CONVENTIONAL

SUMMARY OF CULVERT FLOWS (cfs) FILE: B1 DATE: 10-03-2000

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1562.74	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1566.88	2001.0	715.4	0.0	0.0	0.0	0.0	0.0	1274.09	9
1567.19	4002.0	745.1	0.0	0.0	0.0	0.0	0.0	3231.97	4
1567.43	6003.0	767.9	0.0	0.0	0.0	0.0	0.0	5221.77	4
1567.64	8004.0	786.8	0.0	0.0	0.0	0.0	0.0	7158.44	3
1567.83	10005.0	803.8	0.0	0.0	0.0	0.0	0.0	9152.90	3
1568.01	12006.0	819.2	0.0	0.0	0.0	0.0	0.0	11147.48	3
1568.18	14007.0	833.5	0.0	0.0	0.0	0.0	0.0	13144.06	3
1568.33	16008.0	846.7	0.0	0.0	0.0	0.0	0.0	15140.40	3
1568.48	18009.0	859.0	0.0	0.0	0.0	0.0	0.0	17135.38	3
1568.63	20000.0	870.2	0.0	0.0	0.0	0.0	0.0	19114.03	3
1566.50	678.1	678.1	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: B1 DATE: 10-03-2000

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1562.74	0.000	0.00	0.00	0.00
1566.88	-0.004	2001.00	11.55	0.58
1567.19	-0.003	4002.00	24.95	0.62
1567.43	-0.007	6003.00	13.33	0.22
1567.64	-0.005	8004.00	58.79	0.73
1567.83	-0.004	10005.00	48.26	0.48
1568.01	-0.003	12006.00	39.28	0.33
1568.18	-0.002	14007.00	29.46	0.21
1568.33	-0.001	16008.00	20.95	0.13
1568.48	-0.001	18009.00	14.68	0.08
1568.63	-0.001	20000.00	15.74	0.08

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 10-03-2000 FILE DATE: 10-03-2000
CURRENT TIME: 10:29:33 FILE NAME: B1

PERFORMANCE CURVE FOR CULVERT 1 - 2(6.00 (ft) BY 6.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1562.74	0.00	3.74	0-NF	0.00	0.00	0.00	4.94	0.00	0.00
715.36	1566.87	7.87	7.87	5-S2n	4.12	4.81	4.20	4.94	14.20	0.00
745.08	1567.18	8.18	8.18	5-S2n	4.26	4.94	4.33	4.94	14.34	0.00
767.89	1567.43	8.43	8.43	5-S2n	4.36	5.04	4.43	4.94	14.45	0.00
786.77	1567.63	8.63	8.63	5-S2n	4.44	5.12	4.51	4.94	14.53	0.00
803.84	1567.83	8.83	8.83	5-S2n	4.52	5.20	4.59	4.94	14.61	0.00
819.24	1568.00	9.00	9.00	5-S2n	4.59	5.26	4.66	4.94	14.64	0.00
833.47	1568.17	9.17	9.17	5-S2n	4.65	5.32	4.72	4.94	14.71	0.00
846.65	1568.33	9.33	9.33	5-S2n	4.71	5.38	4.78	4.94	14.77	0.00
858.95	1568.48	9.48	9.48	5-S2n	4.76	5.43	4.83	4.94	14.82	0.00
870.22	1568.62	9.62	9.62	5-S2n	4.81	5.48	4.88	4.94	14.87	0.00

El. inlet face invert 1559.00 ft El. outlet invert 1557.80 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	1559.00 ft
OUTLET STATION	186.00 ft
OUTLET ELEVATION	1557.80 ft
NUMBER OF BARRELS	2
SLOPE (V/H)	0.0065
CULVERT LENGTH ALONG SLOPE	186.00 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	BOX
BARREL SPAN	6.00 ft
BARREL RISE	6.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION	NONE

CURRENT DATE: 10-03-2000 FILE DATE: 10-03-2000
CURRENT TIME: 10:29:33 FILE NAME: B1

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CONSTANT WATER SURFACE ELEVATION
1562.74

ÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ ROADWAY OVERTOPPING DATA ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
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ROADWAY SURFACE	GRAVEL
EMBANKMENT TOP WIDTH	146.00 ft
CREST LENGTH	2065.00 ft
OVERTOPPING CREST ELEVATION	1566.50 ft

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Powerline Floodway at the CAP

Analysis using 1 Third Spillway Flow (6667 cfs)

1

CURRENT DATE: 10-03-2000 FILE DATE: 10-03-2000
CURRENT TIME: 10:53:35 FILE NAME: B1

FHWA CULVERT ANALYSIS
HY-8, VERSION 6.1

C U L V NO.	SITE DATA INLET ELEV. (ft)	OUTLET ELEV. (ft)	CULVERT LENGTH (ft)	CULVERT SHAPE, MATERIAL, INLET BARRELS SHAPE MATERIAL	SPAN (ft)	RISE (ft)	MANNING n	INLET TYPE
1	1559.00	1557.80	186.00	2 RCB	6.00	6.00	.012	CONVENTIONAL

SUMMARY OF CULVERT FLOWS (cfs) FILE: B1 DATE: 10-03-2000

ELEV (ft)	TOTAL	1	2	3	4	5	6	ROADWAY	ITR
1561.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	1
1566.46	700.0	675.2	0.0	0.0	0.0	0.0	0.0	0.00	30
1566.75	1400.0	703.7	0.0	0.0	0.0	0.0	0.0	689.33	7
1566.90	2100.0	717.4	0.0	0.0	0.0	0.0	0.0	1370.74	5
1567.01	2800.0	729.0	0.0	0.0	0.0	0.0	0.0	2049.62	4
1567.12	3500.0	739.0	0.0	0.0	0.0	0.0	0.0	2745.01	4
1567.22	4200.0	748.0	0.0	0.0	0.0	0.0	0.0	3440.21	4
1567.30	4900.0	755.9	0.0	0.0	0.0	0.0	0.0	4104.69	3
1567.38	5600.0	763.5	0.0	0.0	0.0	0.0	0.0	4797.71	3
1567.46	6300.0	770.8	0.0	0.0	0.0	0.0	0.0	5491.99	3
1567.51	6667.0	774.5	0.0	0.0	0.0	0.0	0.0	5869.64	3
1566.50	678.7	678.7	0.0	0.0	0.0	0.0	0.0	OVERTOPPING	

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: B1 DATE: 10-03-2000

HEAD ELEV (ft)	HEAD ERROR (ft)	TOTAL FLOW (cfs)	FLOW ERROR (cfs)	% FLOW ERROR
1561.30	0.000	0.00	0.00	0.00
1566.46	-0.005	700.00	24.83	3.55
1566.75	-0.003	1400.00	7.01	0.50
1566.90	-0.004	2100.00	11.83	0.56
1567.01	-0.008	2800.00	21.34	0.76
1567.12	-0.006	3500.00	15.94	0.46
1567.22	-0.005	4200.00	11.77	0.28
1567.30	-0.004	4900.00	39.43	0.80
1567.38	-0.004	5600.00	38.78	0.69
1567.46	-0.003	6300.00	37.26	0.59
1567.51	-0.010	6667.00	22.81	0.34

<1> TOLERANCE (ft) = 0.010 <2> TOLERANCE (%) = 1.000

CURRENT DATE: 10-03-2000 FILE DATE: 10-03-2000
CURRENT TIME: 10:53:35 FILE NAME: B1

PERFORMANCE CURVE FOR CULVERT 1 - 2(6.00 (ft) BY 6.00 (ft)) RCB

DIS-CHARGE FLOW (cfs)	HEAD-WATER ELEV. (ft)	INLET CONTROL DEPTH (ft)	OUTLET CONTROL DEPTH (ft)	FLOW TYPE <F4>	NORMAL DEPTH (ft)	CRIT. DEPTH (ft)	OUTLET DEPTH (ft)	TW DEPTH (ft)	OUTLET VEL. (fps)	TW VEL. (fps)
0.00	1561.30	0.00	2.30	0-NF	0.00	0.00	0.00	3.50	0.00	0.00
675.17	1566.46	7.46	7.46	5-S2n	3.94	4.63	4.02	3.50	14.01	0.00
703.66	1566.75	7.75	7.75	5-S2n	4.07	4.75	4.14	3.50	14.15	0.00
717.42	1566.89	7.89	7.89	5-S2n	4.13	4.82	4.21	3.50	14.21	0.00
729.04	1567.01	8.01	8.01	5-S2n	4.19	4.87	4.26	3.50	14.27	0.00
739.04	1567.11	8.11	8.11	5-S2n	4.23	4.91	4.30	3.50	14.31	0.00
748.02	1567.21	8.21	8.21	5-S2n	4.27	4.95	4.34	3.50	14.36	0.00
755.89	1567.29	8.29	8.29	5-S2n	4.31	4.99	4.38	3.50	14.39	0.00
763.51	1567.38	8.38	8.38	5-S2n	4.34	5.02	4.41	3.50	14.43	0.00
770.76	1567.46	8.46	8.46	5-S2n	4.37	5.05	4.44	3.50	14.46	0.00
774.54	1567.50	8.50	8.50	5-S2n	4.39	5.07	4.46	3.50	14.48	0.00

El. inlet face invert 1559.00 ft El. outlet invert 1557.80 ft
El. inlet throat invert 0.00 ft El. inlet crest 0.00 ft

***** SITE DATA ***** CULVERT INVERT **********

INLET STATION	0.00 ft
INLET ELEVATION	1559.00 ft
OUTLET STATION	186.00 ft
OUTLET ELEVATION	1557.80 ft
NUMBER OF BARRELS	2
SLOPE (V/H)	0.0065
CULVERT LENGTH ALONG SLOPE	186.00 ft

***** CULVERT DATA SUMMARY **********

BARREL SHAPE	BOX
BARREL SPAN	6.00 ft
BARREL RISE	6.00 ft
BARREL MATERIAL	CONCRETE
BARREL MANNING'S n	0.012
INLET TYPE	CONVENTIONAL
INLET EDGE AND WALL	SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION	NONE

CURRENT DATE: 10-03-2000 FILE DATE: 10-03-2000
CURRENT TIME: 10:53:35 FILE NAME: B1

ÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ TAILWATER ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄ
ÄÄ

CONSTANT WATER SURFACE ELEVATION
1561.30

ÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ ROADWAY OVERTOPPING DATA ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄ

ROADWAY SURFACE	GRAVEL
EMBANKMENT TOP WIDTH	146.00 ft
CREST LENGTH	2065.00 ft
OVERTOPPING CREST ELEVATION	1566.50 ft

ÄÄ

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: Powerline1

Comment: Powerline Floodway Capacity - STA 12+00 TO STA 50+00

Solve For Discharge

Given Input Data:

Bottom Width.....	6.00 ft
Left Side Slope..	1.50:1 (H:V)
Right Side Slope.	1.50:1 (H:V)
Manning's n.....	0.015
Channel Slope....	0.0059 ft/ft
Depth.....	5.25 ft

Computed Results:

Discharge.....	1132.93 cfs
Velocity.....	15.55 fps
Flow Area.....	72.84 sf
Flow Top Width...	21.75 ft
Wetted Perimeter.	24.93 ft
Critical Depth...	6.41 ft
Critical Slope...	0.0025 ft/ft
Froude Number....	1.50 (flow is Supercritical)

Open Channel Flow Module, Version 3.43 (c) 1991
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: Powerline1

Comment: Powerline Floodway Capacity - STA 50+00 TO STA 76+00

Solve For Discharge

Given Input Data:

Bottom Width.....	6.00 ft
Left Side Slope..	1.50:1 (H:V)
Right Side Slope.	1.50:1 (H:V)
Manning's n.....	0.015
Channel Slope....	0.0073 ft/ft
Depth.....	5.25 ft

Computed Results:

Discharge.....	1260.20 cfs
Velocity.....	17.30 fps
Flow Area.....	72.84 sf
Flow Top Width...	21.75 ft
Wetted Perimeter.	24.93 ft
Critical Depth...	6.76 ft
Critical Slope...	0.0025 ft/ft
Froude Number....	1.67 (flow is Supercritical)

Open Channel Flow Module, Version 3.43 (c) 1991
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: Powerline1

Comment: Powerline Floodway Capacity - STA 76+00 TO STA 214+25

Solve For Discharge

Given Input Data:

Bottom Width.....	6.00 ft
Left Side Slope..	1.50:1 (H:V)
Right Side Slope.	1.50:1 (H:V)
Manning's n.....	0.015
Channel Slope....	0.0057 ft/ft
Depth.....	5.50 ft

Computed Results:

Discharge.....	1228.59 cfs
Velocity.....	15.68 fps
Flow Area.....	78.38 sf
Flow Top Width...	22.50 ft
Wetted Perimeter.	25.83 ft
Critical Depth...	6.67 ft
Critical Slope...	0.0025 ft/ft
Froude Number....	1.48 (flow is Supercritical)

Open Channel Flow Module, Version 3.43 (c) 1991
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Rectangular Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: Powerline @ GM Track

Comment: Powerline @ GM Track

Solve For Discharge

Given Input Data:

Bottom Width.....	8.00 ft
Manning's n.....	0.015
Channel Slope....	0.0036 ft/ft
Depth.....	6.75 ft

Computed Results:

Discharge.....	593.07 cfs
Velocity.....	10.98 fps
Flow Area.....	54.00 sf
Flow Top Width...	8.00 ft
Wetted Perimeter.	21.50 ft
Critical Depth...	5.55 ft
Critical Slope...	0.0059 ft/ft
Froude Number....	0.74 (flow is Subcritical)

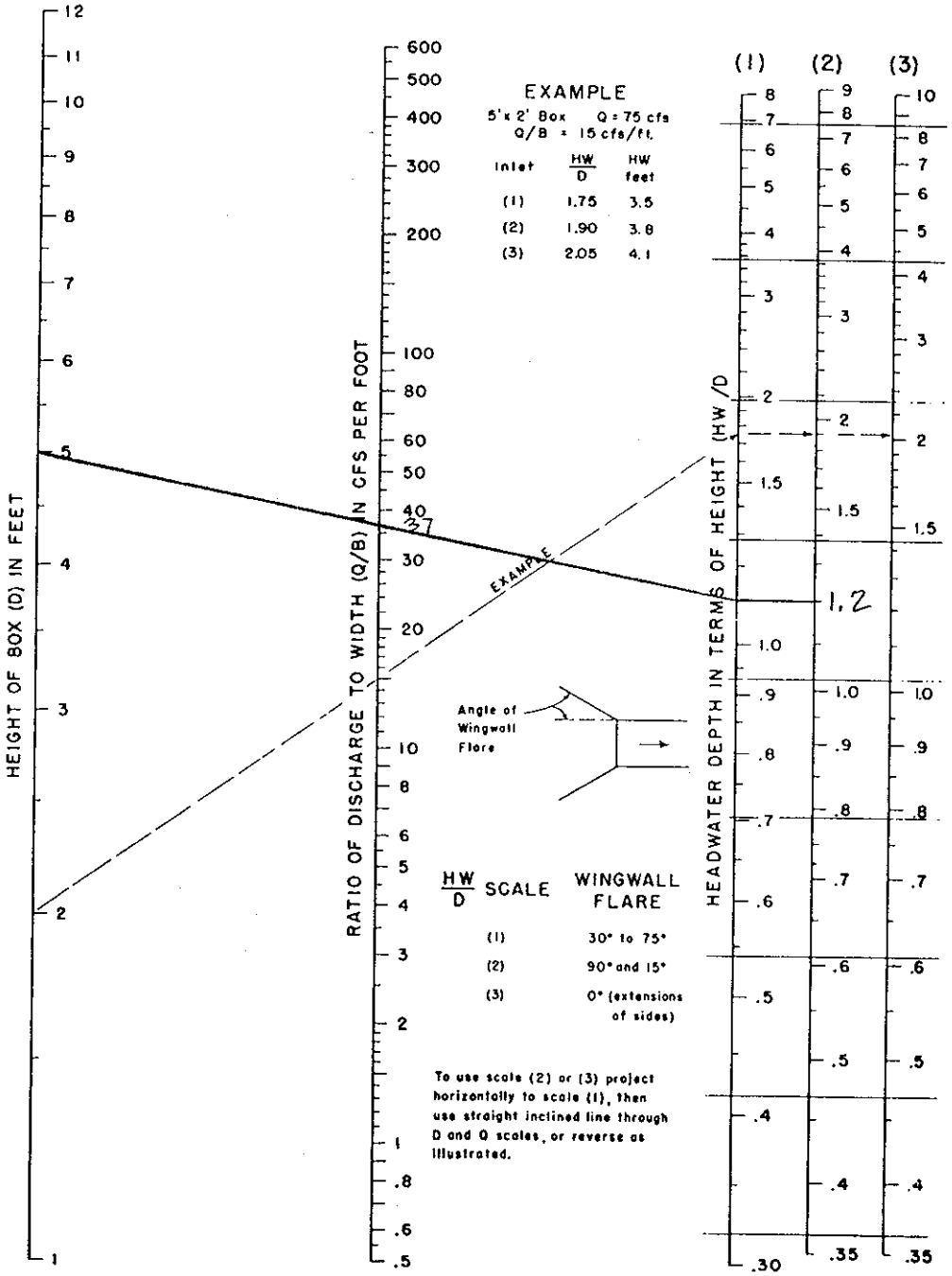
Open Channel Flow Module, Version 3.43 (c) 1991
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

CHART 8

POWERLINE FLOODWAY @ GM

8' X 5' CBC ASSUME HW = 6'

THEN, Q = 296 cfs SAY, Q = 300 cfs



HEADWATER DEPTH FOR BOX CULVERTS WITH INLET CONTROL

BUREAU OF PUBLIC ROADS JAN. 1963

Project: Spillway Inundation Study - Powerline FRS and Vineyard FRS

Baker

Subject: Calculate the Spill Over the GM Track - **Full Flow Scenario**

Location: X-Secs. 14.218 to 13.054 **File:** Spills.xls **Worksheet:** Full

Computed By: CWR **Date:** January 12, 2001 **Checked By:** **Date:** 1/15/01

FULL FLOW
Spill Over General Motors Proving Ground Track

Weir Equation ($Q = CLH^{3/2}$) will be used to compute spills over the track where:

Q = Discharge (cfs)
C = Coefficient of discharge (from Brater and King, "Handbook of Hydraulics", Table 5-3)
L = Length between cross sections
H = Average Head between cross sections

X-Sec.	End GR Point Elevation (ft)	CWSEL from HEC-RAS (ft)	Average Spill Depth (Head) (ft)	Length Between X-Secs (ft)	C	Spill Q (cfs)		Q (cfs) at X-Section
14.313	1408.8	1407.81						29700
			-0.37	500	2.68	0	(1)	
14.218	1406.2	1406.45						29700
			1.35	1500	2.64	6211		
13.940	1403.7	1406.15						23489
			1.485	1001	2.64	4782		
13.750	1405.5	1406.02						18706
			0.71	1003	2.67	1602		
13.560	1405.0	1405.9						17104
			0.83	1080	2.64	2156		
13.355	1405.0	1405.76						14948
			0.125	1114	2.68	132		
13.145	1404.8	1404.29						14816
			-0.61	179	2.68	0		
13.111	1404.2	1403.49						14816
			-0.795	285	2.68	0		
13.054	1403.7	1402.82						14816

(1) Spill between 14.218 and 14.313 occurs over a very short distance of the total length between the 2 cross sections and at a very shallow depth (0.25 ft) at cross section 14.218. Therefore, the spill between these 2 sections was assumed to be 0 cfs.

Project: Spillway Inundation Study - Powerline FRS and Vineyard FRS

Baker

Subject: Calculate the Spill Over the GM Track - **Full Flow Scenario**

Location: X-Secs. 14.218 to 13.054 **File:** Spills.xls **Worksheet:** 2Thirds

Computed By: CWR **Date:** January 12, 2001 **Checked By:** **Date:** 1/15/01

2/3 FLOW
Spill Over General Motors Proving Ground Track

Weir Equation ($Q = CLH^{3/2}$) will be used to compute spills over the track where:

Q = Discharge (cfs)
C = Coefficient of discharge (from Brater and King, "Handbook of Hydraulics", Table 5-3)
L = Length between cross sections
H = Average Head between cross sections

X-Sec.	End GR Point Elevation (ft)	CWSEL from HEC-RAS (ft)	Average Spill Depth (Head) (ft)	Length Between X-Secs (ft)	C	Spill Q (cfs)		Q (cfs) at X-Section
14.313	1408.8	1407.33						19800
			-0.85	500	2.68	0		
14.218	1406.2	1405.97						19800
			0.885	1500	2.63	3284		
13.940	1403.7	1405.7						16516
			1.045	1001	2.63	2812		
13.750	1405.5	1405.59						13703
			0.29	1003	2.69	421		
13.560	1405.0	1405.49						13282
			0.43	1080	2.70	822		
13.355	1405.0	1405.37						12460
			-0.13	1114	2.68	0	(1)	
13.145	1404.8	1404.17						12460
			-0.73	179	2.69	0		
13.111	1404.2	1403.37						12460
			-0.94	285	2.68	0		
13.054	1403.7	1402.65						12460

(1) Spill between 13.145 and 13.355 occurs over a very short distance of the total length between the 2 cross sections and at a very shallow depth (0.38 ft) at cross section 13.355. Therefore, the spill between these 2 sections was assumed to be 0 cfs.

Project: Spillway Inundation Study - Powerline FRS and Vineyard FRS

Baker

Subject: Calculate the Spill Over the GM Track - **Full Flow Scenario**

Location: X-Secs. 14.218 to 13.054 **File:** Spills.xls **Worksheet:** 1Third

Computed By: CWR **Date:** January 12, 2001 **Checked By:** **Date:** 1/15/01

1/3 FLOW
Spill Over General Motors Proving Ground Track

Weir Equation ($Q = CLH^{3/2}$) will be used to compute spills over the track where:

Q = Discharge (cfs)
C = Coefficient of discharge (from Brater and King, "Handbook of Hydraulics", Table 5-3)
L = Length between cross sections
H = Average Head between cross sections

X-Sec.	End GR Point Elevation (ft)	CWSEL from HEC-RAS (ft)	Average Spill Depth (Head) (ft)	Length Between X-Secs (ft)	C	Spill Q (cfs)		Q (cfs) at X-Section
14.313	1408.8	1406.66						9900
			-1.565	500	2.68	0		
14.218	1406.2	1405.21						9900
			0.13	1500	2.68	188		
13.940	1403.7	1404.95						9712
			0.285	1001	2.69	410		
13.750	1405.5	1404.82						9302
			-0.48	1003	2.67	0		
13.560	1405.0	1404.72						9302
			-0.345	1080	2.64	0		
13.355	1405.0	1404.59						9302
			-0.865	1114	2.68	0		
13.145	1404.8	1403.48						9302
			-1.38	179	2.69	0		
13.111	1404.2	1402.76						9302
			-1.53	285	2.68	0		
13.054	1403.7	1402.08						9302

Ellsworth Channel
Rating Table for Trapezoidal Channel

Project Description	
Worksheet	Ellsworth Chann
Flow Element	Trapezoidal Cha
Method	Manning's Form
Solve For	Discharge

Input Data		
Mannings Coeffic	0.030	
Depth	10.00	ft
Left Side Slope	2.00	H : V
Right Side Slope	2.00	H : V
Bottom Width	30.00	ft

Attribute	Minimum	Maximum	Increment
Slope (ft/ft)	0.002000	0.003000	0.000100

Slope (ft/ft)	Discharge (cfs)	Velocity (ft/s)	Flow Area (ft^2)	Wetted Perimeter (ft)	Top Width (ft)
0.002000	8,873.50	8.87	1,000.0	124.72	120.00
0.002100	9,092.63	9.09	1,000.0	124.72	120.00
0.002200	9,306.61	9.31	1,000.0	124.72	120.00
0.002300	9,515.77	9.52	1,000.0	124.72	120.00
0.002400	9,720.43	9.72	1,000.0	124.72	120.00
0.002500	9,920.88	9.92	1,000.0	124.72	120.00
0.002600	10,117.35	10.12	1,000.0	124.72	120.00
0.002700	10,310.08	10.31	1,000.0	124.72	120.00
0.002800	10,499.27	10.50	1,000.0	124.72	120.00
0.002900	10,685.11	10.69	1,000.0	124.72	120.00
0.003000	10,867.77	10.87	1,000.0	124.72	120.00

Notes: Rating table depicts changes in capacity resulting from varying the slope.

Ellsworth Channel
Rating Table for Trapezoidal Channel

Project Description	
Worksheet	Ellsworth Chann
Flow Element	Trapezoidal Cha
Method	Manning's Form
Solve For	Discharge

Input Data		
Mannings Coeffic	0.030	
Slope	002000	ft/ft
Left Side Slope	2.00	H : V
Right Side Slope	2.00	H : V
Bottom Width	80.00	ft

Attribute	Minimum	Maximum	Increment
Depth (ft)	1.00	10.00	1.00

Depth (ft)	Discharge (cfs)	Velocity (ft/s)	Flow Area (ft^2)	Wetted Perimeter (ft)	Top Width (ft)
1.00	178.08	2.17	82.0	84.47	84.00
2.00	568.62	3.38	168.0	88.94	88.00
3.00	1,124.97	4.36	258.0	93.42	92.00
4.00	1,830.09	5.20	352.0	97.89	96.00
5.00	2,674.98	5.94	450.0	102.36	100.00
6.00	3,654.41	6.62	552.0	106.83	104.00
7.00	4,765.29	7.24	658.0	111.30	108.00
8.00	6,005.87	7.82	768.0	115.78	112.00
9.00	7,375.33	8.36	882.0	120.25	116.00
10.00	8,873.50	8.87	1,000.0	124.72	120.00

Notes: Rating table depicts changes in capacity resulting from varying the depth.

S.O. No. 23984-002-0000

Subject: Potential Flooding Limits below Powerline FRS and Vineyard FRS

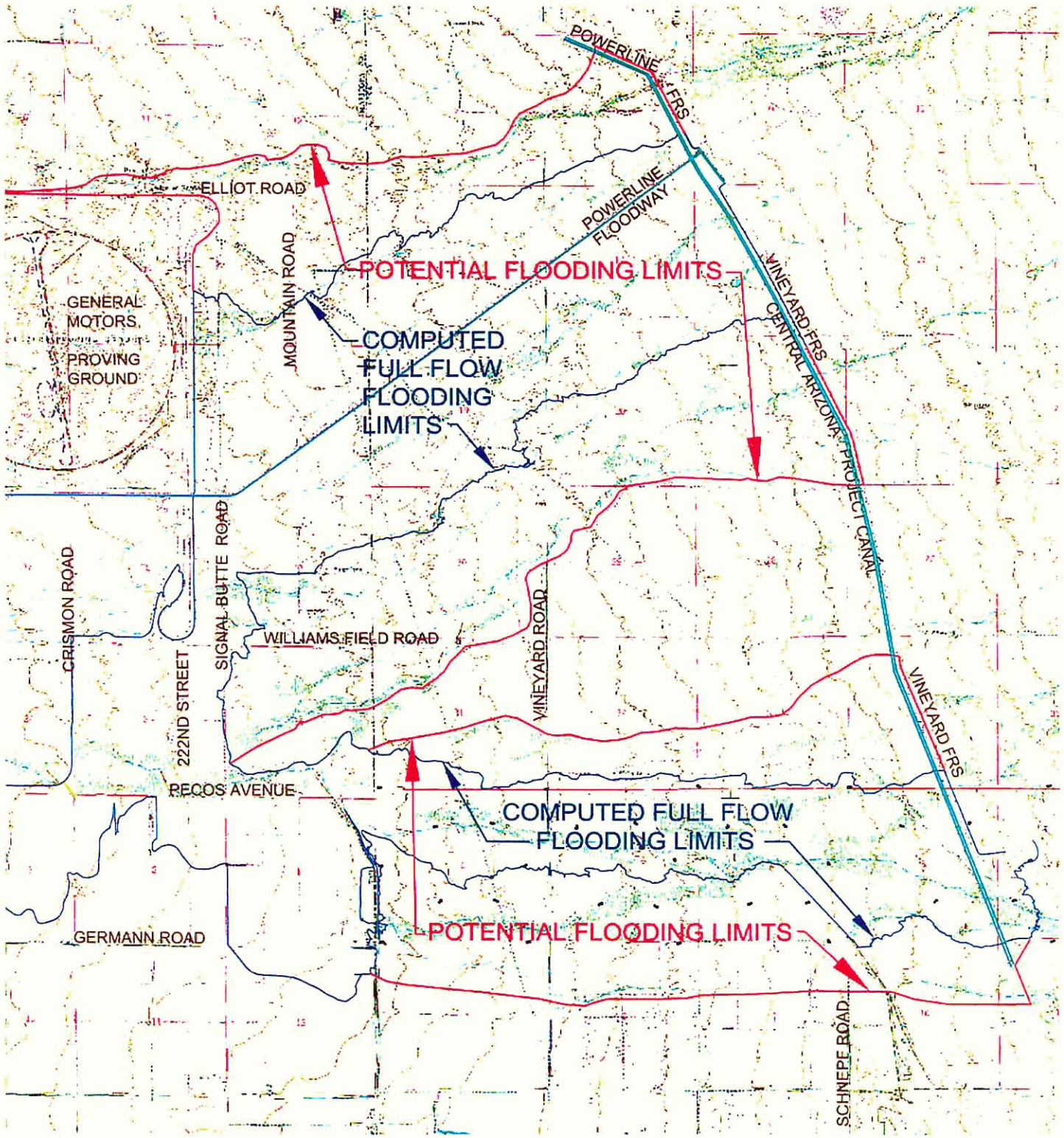
Approx. Scale: 1" = 5000'

Sheet No. 1 of 1

Drawing No.

Computed by CWR Checked By FT Date 3/1/01

Baker



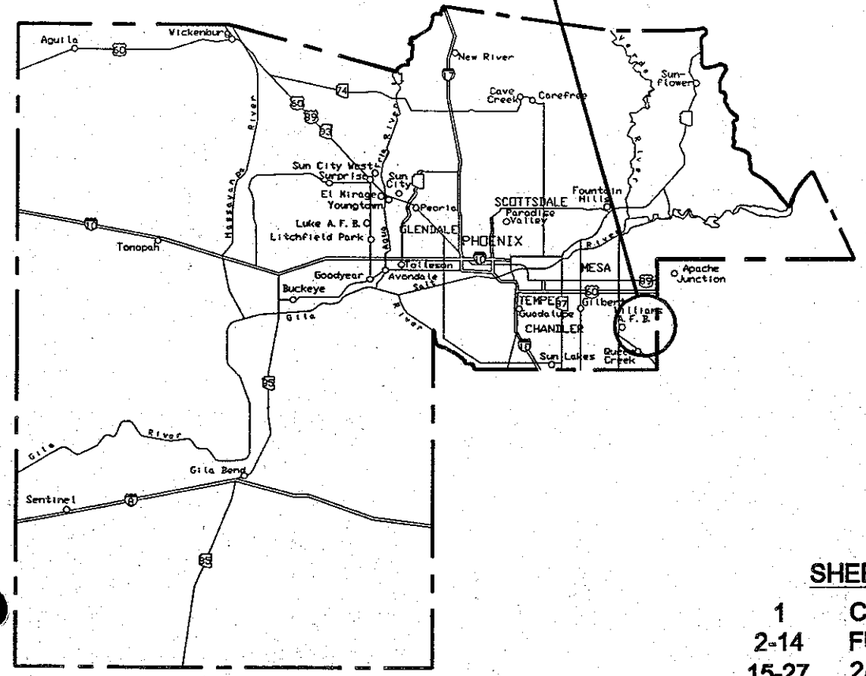
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD FLOOD RETARDING STRUCTURES SPILLWAY INUNDATION STUDY F.C.D. CONTRACT NO. 98-33

MICHAEL S. ELLEGOOD, P.E.
CHIEF ENGINEER AND GENERAL MANAGER

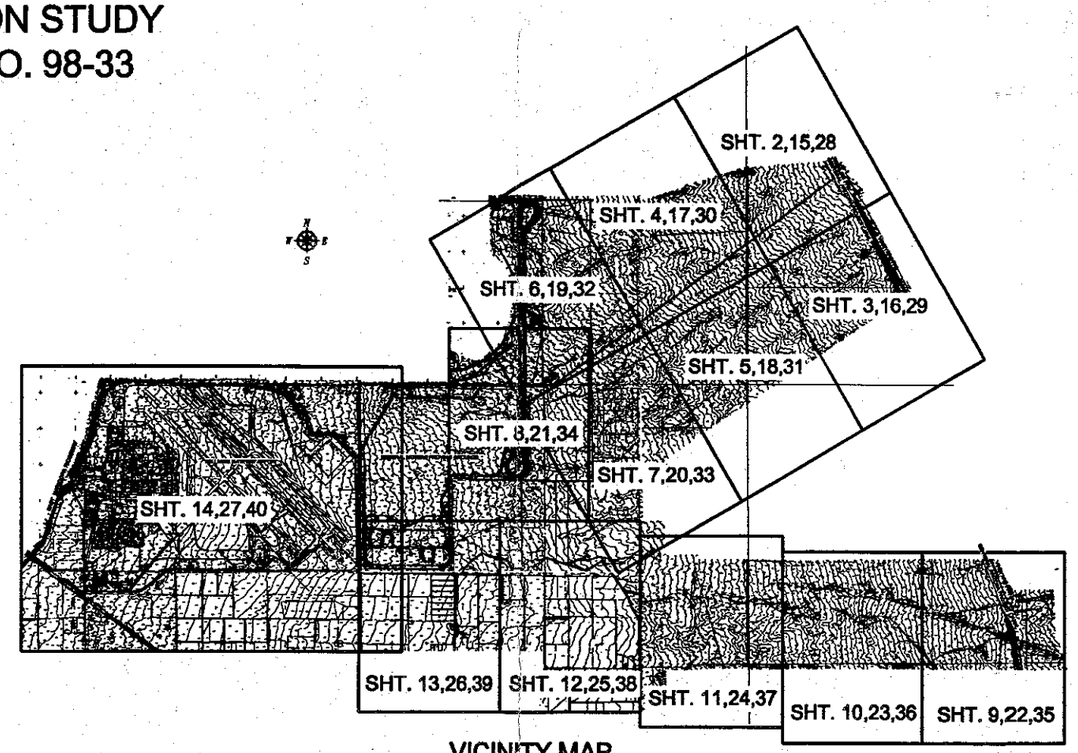
FLOOD CONTROL DISTRICT of MARICOPA COUNTY

PROJECT LOCATION



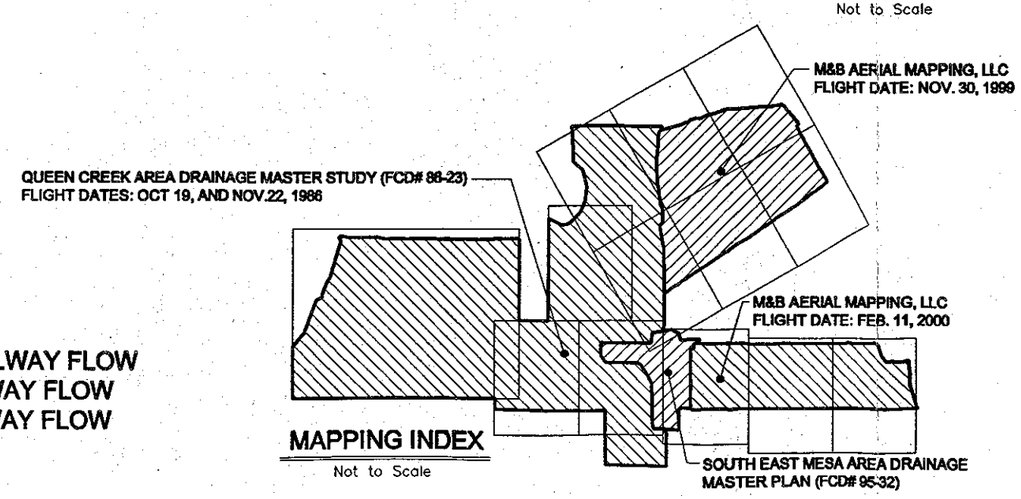
MARICOPA COUNTY

Not to Scale



VICINITY MAP

Not to Scale



MAPPING INDEX

Not to Scale

SHEET INDEX

1	COVER
2-14	FULL SPILLWAY FLOW
15-27	2/3 SPILLWAY FLOW
28-40	1/3 SPILLWAY FLOW

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURE
SPILLWAY INUNDATION STUDY

F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 26148 KOFI AWUMAH Date Signed 8/1/02 ARIZONA, U.S.A.

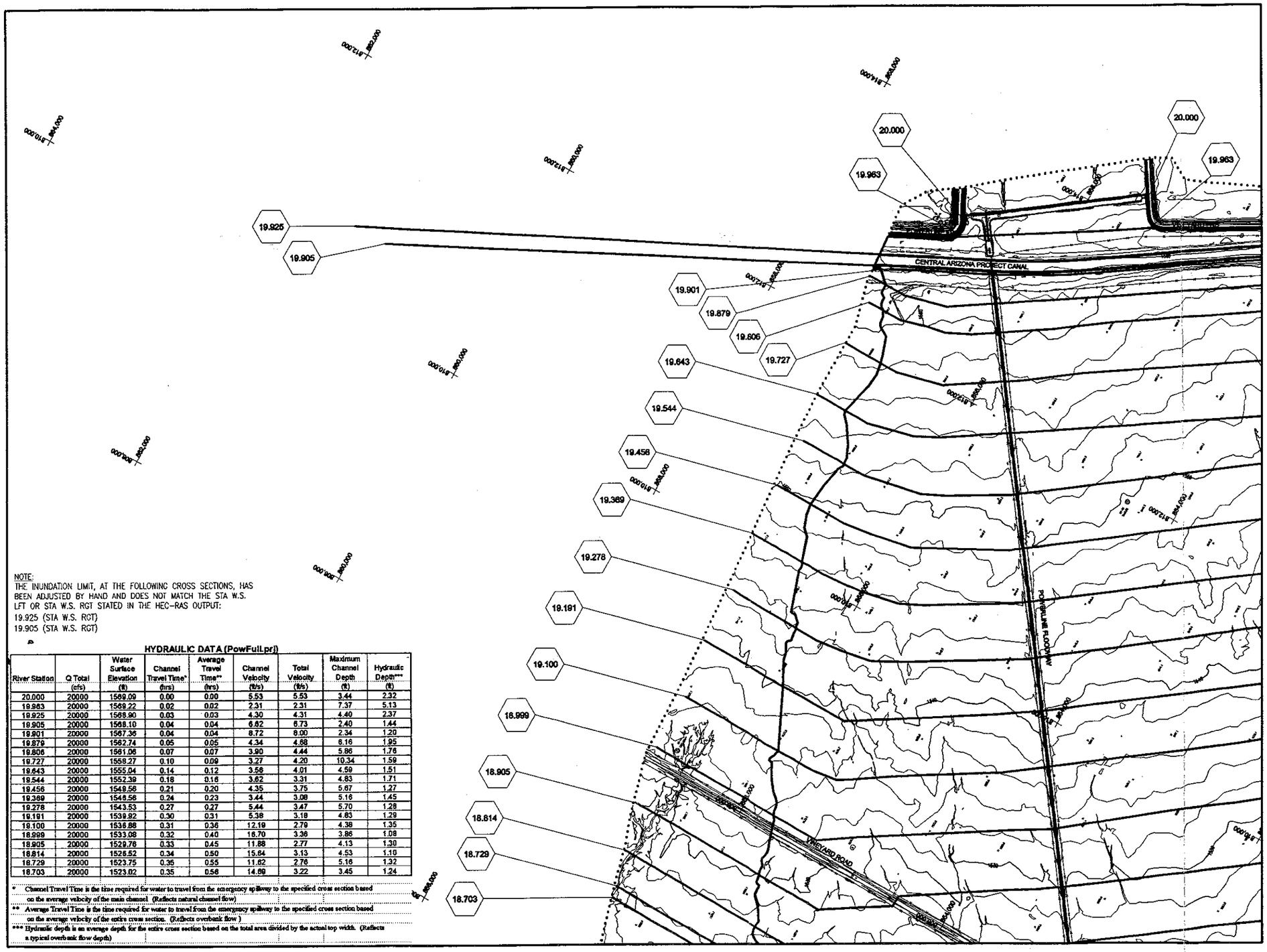
Baker

Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 1 OF 40

\Folders from YA\Caspian\Data\Powerline\Dwg\03/01/02 11:44:22 AM



NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
19.925 (STA W.S. RGT)
19.905 (STA W.S. RGT)

HYDRAULIC DATA (PowFull.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
20.000	20000	1569.09	0.00	0.00	5.53	5.53	3.44	2.32
19.963	20000	1569.22	0.02	0.02	2.31	2.31	7.37	5.13
19.925	20000	1569.90	0.03	0.03	4.30	4.31	4.40	2.37
19.905	20000	1568.10	0.04	0.04	6.62	6.73	2.40	1.44
19.901	20000	1567.36	0.04	0.04	8.72	8.00	2.34	1.20
19.879	20000	1562.74	0.05	0.05	4.34	4.68	6.16	1.95
19.806	20000	1561.06	0.07	0.07	3.90	4.44	5.86	1.76
19.727	20000	1558.27	0.10	0.09	3.27	4.20	10.34	1.59
19.643	20000	1555.04	0.14	0.12	3.56	4.01	4.59	1.51
19.544	20000	1552.39	0.18	0.16	3.62	3.31	4.83	1.71
19.456	20000	1549.56	0.21	0.20	4.35	3.75	5.67	1.27
19.389	20000	1546.56	0.24	0.23	3.44	3.08	5.16	1.45
19.278	20000	1543.53	0.27	0.27	5.44	3.47	5.70	1.28
19.181	20000	1539.92	0.30	0.31	5.38	3.18	4.83	1.29
19.100	20000	1536.88	0.31	0.36	12.19	2.79	4.38	1.35
18.999	20000	1533.08	0.32	0.40	18.70	3.36	3.86	1.08
18.905	20000	1529.76	0.33	0.45	11.88	2.77	4.13	1.30
18.814	20000	1526.52	0.34	0.50	15.64	3.13	4.53	1.10
18.729	20000	1523.75	0.35	0.55	11.62	2.76	5.16	1.32
18.703	20000	1523.02	0.35	0.56	14.69	3.22	3.45	1.24

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY
HYDRAULIC BASE LINE WITH RIVER MILE — 12.0 — 13.0
CROSS SECTION — 2.147 WSE 2.147
STREET FLOW — SF
ELEVATION REFERENCE MARK — ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary
PANEL POINT
MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

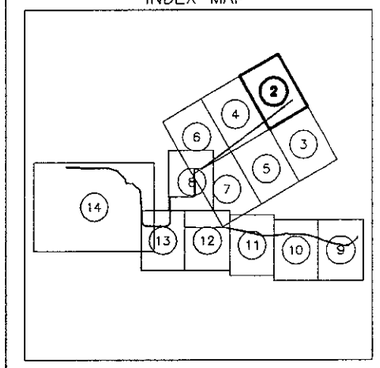
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
10	1566.420	SET ½" REBAR 150' NORTHEAST OF THE POWERLINE F.R.S. SPILLWAY. N: 857,003.368 E: 813,192.567

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ⟶ SYMBOL

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

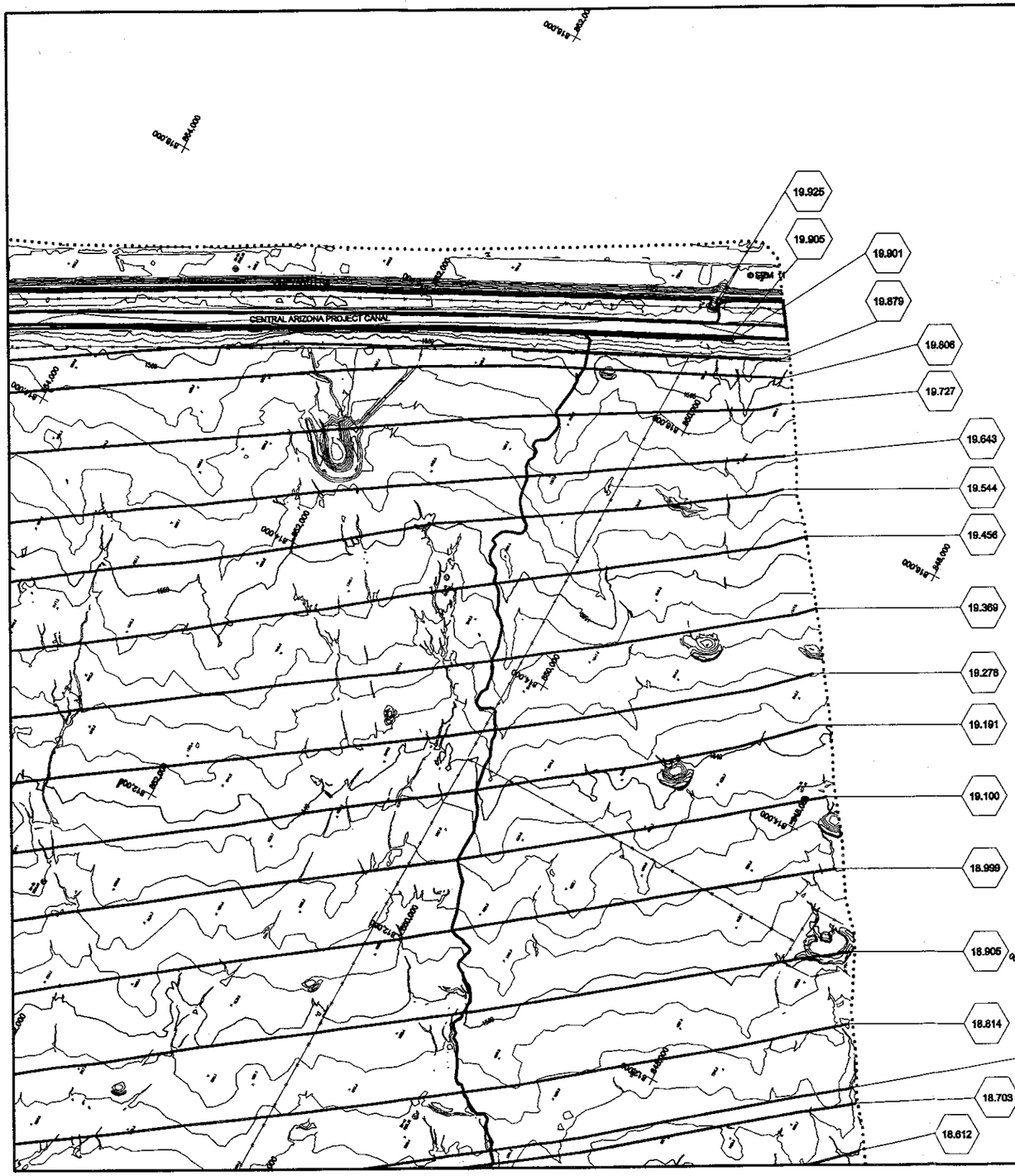
	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 2 OF 40

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

AERIAL MAPPING PROVIDED BY:
M&S AERIAL MAPPING, LLC.
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA PROVIDED BY: AZTEC ENGINEERING.
3747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA (PowFull.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
19.925	20000	1568.90	0.03	0.03	4.30	4.31	4.40	2.37
19.905	20000	1568.10	0.04	0.04	6.62	6.73	2.40	1.44
19.901	20000	1567.36	0.04	0.04	8.72	8.00	2.34	1.20
19.879	20000	1562.74	0.05	0.05	4.34	4.68	6.16	1.95
19.806	20000	1561.08	0.07	0.07	3.90	4.44	5.86	1.76
19.727	20000	1558.27	0.10	0.09	3.27	4.20	10.34	1.59
19.643	20000	1555.04	0.14	0.12	3.56	4.01	4.59	1.51
19.544	20000	1552.39	0.18	0.16	3.62	3.31	4.83	1.71
19.456	20000	1549.56	0.21	0.20	4.35	3.75	5.67	1.27
19.369	20000	1546.56	0.24	0.23	3.44	3.08	5.16	1.45
19.278	20000	1543.53	0.27	0.27	5.44	3.47	5.70	1.28
19.191	20000	1539.92	0.30	0.31	5.38	3.18	4.83	1.29
19.100	20000	1536.88	0.31	0.36	12.19	2.79	4.38	1.35
18.999	20000	1533.08	0.32	0.40	16.70	3.36	3.86	1.08
18.905	20000	1529.76	0.33	0.45	11.88	2.77	4.13	1.30
18.814	20000	1526.52	0.34	0.50	15.64	3.13	4.53	1.10
18.729	20000	1523.75	0.35	0.55	11.82	2.76	5.16	1.32
18.703	20000	1523.02	0.35	0.58	14.89	3.22	3.45	1.24
18.612	20000	1519.78	0.36	0.60	16.83	3.11	5.78	1.19

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
19.925 (STA W.S. LFT)
19.905 (STA W.S. LFT)

LEGEND

INUNDATION AREA BOUNDARY
HYDRAULIC BASE LINE WITH RIVER MILE — M13.0 — M13.0
CROSS SECTION — 2.147 WSE 2.147
STREET FLOW — SF
ELEVATION REFERENCE MARK — ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary
PANEL POINT
MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

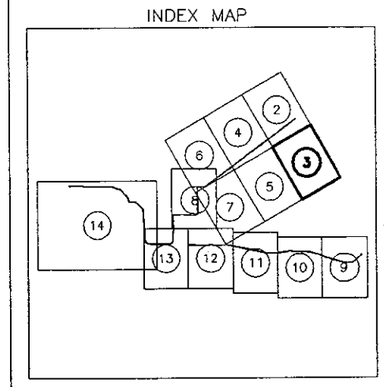
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
11	1566.500	SET ½" REBAR 150' SOUTHEAST OF THE VINEYARD F.R.S. SPILLWAY. N: 850,127.386 E: 817,167.004

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KORI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 3 OF 40

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

AERIAL MAPPING PROVIDED BY:
M&B AERIAL MAPPING, LLC,
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040

HYDRAULIC DATA (PowFull.prj)

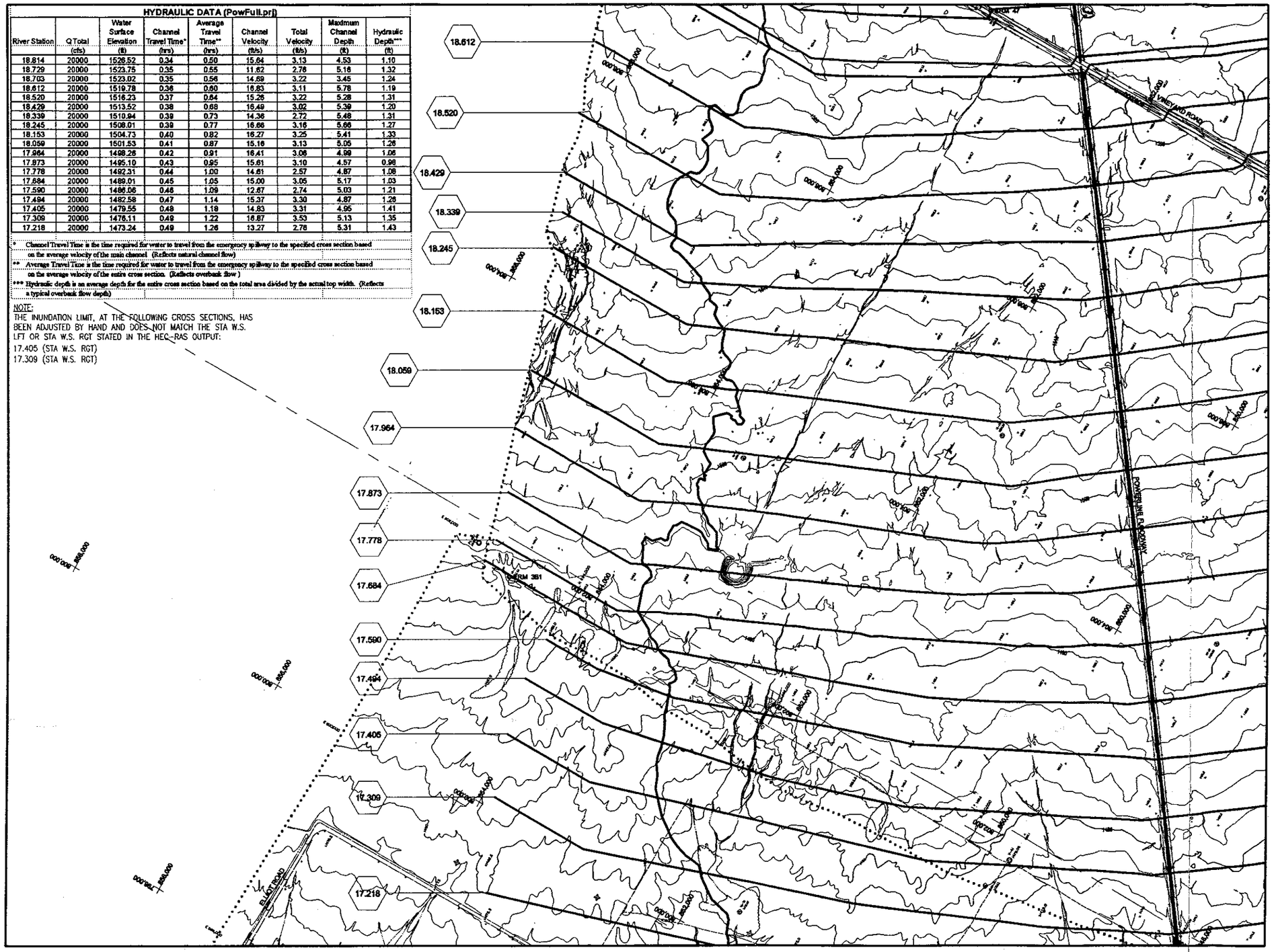
River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
18.814	20000	1526.52	0.34	0.50	15.64	3.13	4.53	1.10
18.729	20000	1523.75	0.35	0.55	11.62	2.76	5.16	1.32
18.703	20000	1523.02	0.35	0.56	14.69	3.22	3.45	1.24
18.612	20000	1519.78	0.36	0.60	16.83	3.11	5.78	1.19
18.520	20000	1516.23	0.37	0.64	15.26	3.22	5.28	1.31
18.429	20000	1513.52	0.38	0.68	16.49	3.02	5.39	1.20
18.339	20000	1510.94	0.39	0.73	14.36	2.72	5.48	1.31
18.245	20000	1508.01	0.39	0.77	16.66	3.16	5.66	1.27
18.153	20000	1504.73	0.40	0.82	16.27	3.25	5.41	1.33
18.059	20000	1501.53	0.41	0.87	15.16	3.13	5.05	1.26
17.964	20000	1498.26	0.42	0.91	16.41	3.06	4.99	1.06
17.873	20000	1495.10	0.43	0.95	15.61	3.10	4.57	0.96
17.778	20000	1492.31	0.44	1.00	14.61	2.57	4.87	1.08
17.684	20000	1489.01	0.45	1.05	15.00	3.05	5.17	1.03
17.590	20000	1486.06	0.46	1.09	12.87	2.74	5.03	1.21
17.494	20000	1482.58	0.47	1.14	15.37	3.30	4.87	1.28
17.405	20000	1479.55	0.48	1.18	14.83	3.31	4.95	1.41
17.309	20000	1476.11	0.49	1.22	16.87	3.53	5.13	1.35
17.218	20000	1473.24	0.49	1.26	13.27	2.78	5.31	1.43

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
17.405 (STA W.S. RGT)
17.309 (STA W.S. RGT)



LEGEND

INUNDATION AREA BOUNDARY
HYDRAULIC BASE LINE WITH RIVER MILE — MI 3.0 — MI 3.0
CROSS SECTION — 2.147 WSE 2.147
STREET FLOW — SF
ELEVATION REFERENCE MARK — ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary
PANEL POINT
MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

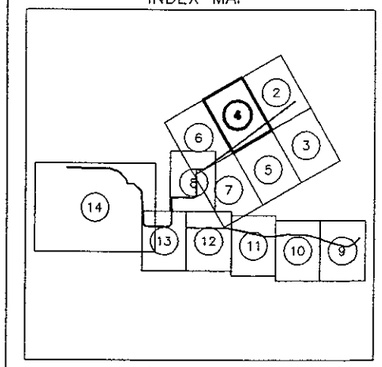
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
381	1493.540	SET ½" REBAR ½ MILE EAST OF MOUNTAIN RD & 300' SOUTH OF ELLIOTT RD. N: 854,742.886 E: 801,785.386
47	1524.110	SET ½" REBAR 200' EAST OF VINEYARD RD. & 1200' NORTH OF THE POWERLINE FLOODWAY. N: 853,571.871 E: 808,018.738

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

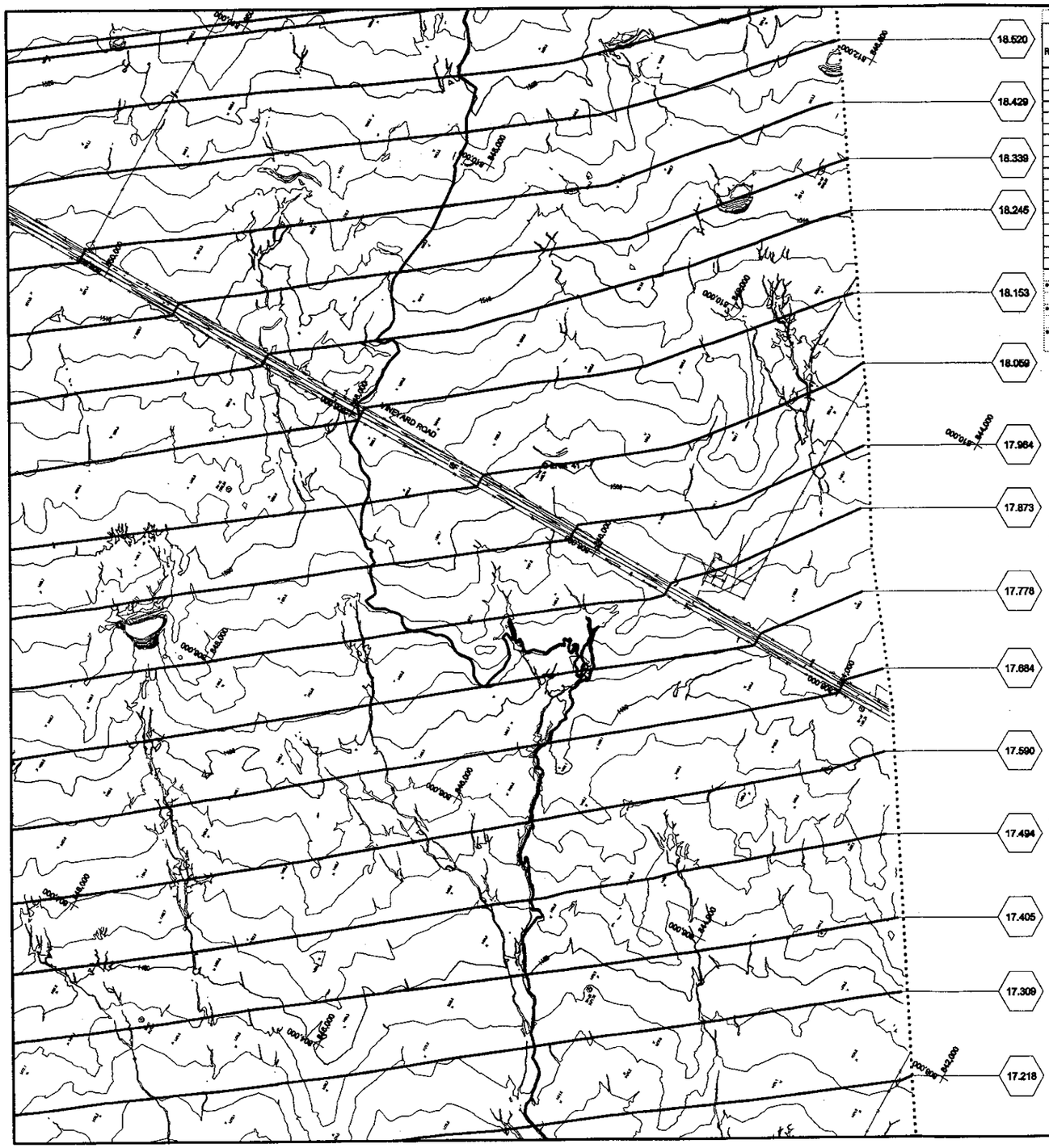
SHEET 4 OF 40

WEST SIDE AERIAL MAPPING
PROVIDED BY: FCDMC TO BAKER AS A RASTER IMAGE
(QUEEN CREEK ADMS TOPOGRAPHIC MAPS, FCD 86-23)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING PROVIDED BY:
M&B AERIAL MAPPING, LLC,
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA FOR EASTSIDE MAPPING
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA (PowFull.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
18.729	20000	1523.75	0.35	0.55	11.62	2.78	5.16	1.32
18.703	20000	1523.02	0.35	0.56	14.69	3.22	3.45	1.24
18.612	20000	1519.78	0.36	0.80	16.83	3.11	5.78	1.19
18.520	20000	1518.23	0.37	0.84	15.26	3.22	5.28	1.31
18.429	20000	1513.52	0.38	0.88	18.49	3.02	5.39	1.20
18.339	20000	1510.94	0.39	0.73	14.36	2.72	5.48	1.31
18.245	20000	1508.01	0.39	0.77	18.66	3.18	5.66	1.27
18.153	20000	1504.73	0.40	0.82	16.27	3.25	5.41	1.33
18.059	20000	1501.53	0.41	0.87	15.18	3.13	5.05	1.26
17.964	20000	1498.26	0.42	0.91	16.41	3.06	4.99	1.06
17.873	20000	1495.10	0.43	0.95	15.61	3.10	4.57	0.98
17.778	20000	1492.31	0.44	1.00	14.61	2.57	4.87	1.08
17.684	20000	1489.01	0.45	1.05	15.00	3.05	5.17	1.03
17.590	20000	1485.06	0.46	1.09	12.67	2.74	5.03	1.21
17.494	20000	1482.58	0.47	1.14	15.37	3.30	4.87	1.26
17.405	20000	1479.55	0.48	1.18	14.83	3.31	4.95	1.41
17.309	20000	1476.11	0.49	1.22	16.87	3.53	5.13	1.35
17.218	20000	1473.24	0.49	1.26	13.27	2.76	5.31	1.43

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
18.520 (STA W.S. LFT)
18.429 (STA W.S. LFT)
17.218 (STA W.S. LFT)

LEGEND

INUNDATION AREA BOUNDARY
HYDRAULIC BASE LINE WITH RIVER MILE — W130 — W130
CROSS SECTION — 2.147 — WSE — 2.147
STREET FLOW — SF →
ELEVATION REFERENCE MARK — ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary
PANEL POINT
MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

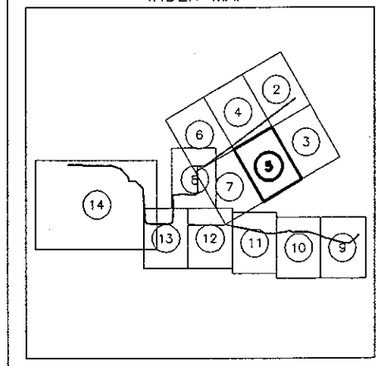
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
41	1499.790	SET ½" REBAR 300' EAST OF VINEYARD RD. & 6000' SOUTH OF THE POWERLINE FLOODWAY. N: 846,608.173 E: 808,349.531

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

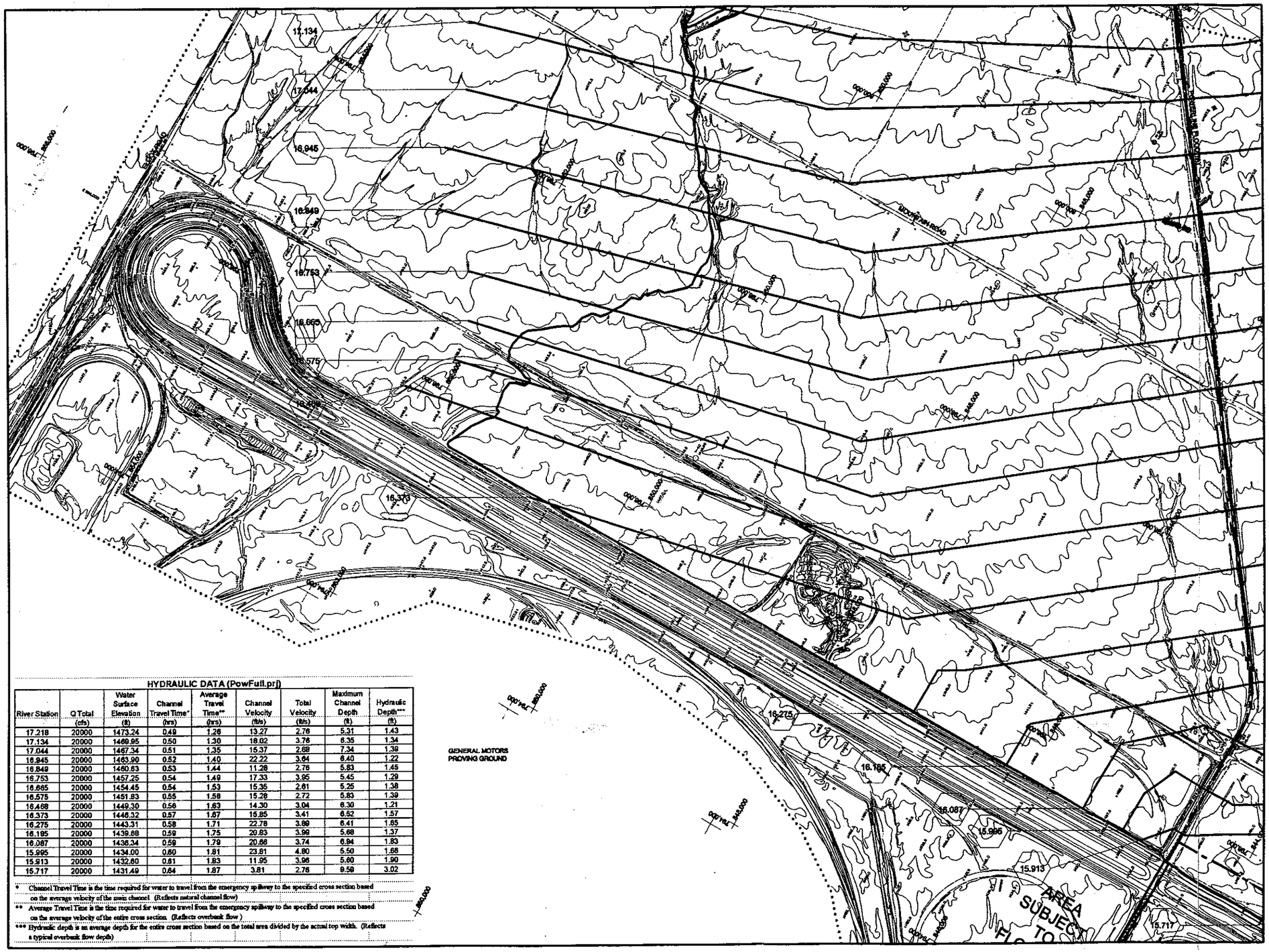
	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 5 OF 40

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

AERIAL MAPPING PROVIDED BY:
M&B AERIAL MAPPING, LLC.
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA (PowFull.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
17.218	20000	1473.24	0.49	1.26	13.27	2.76	5.31	1.43
17.134	20000	1469.95	0.50	1.30	18.02	3.76	6.35	1.34
17.044	20000	1467.34	0.51	1.35	15.37	2.68	7.34	1.39
16.945	20000	1463.90	0.52	1.40	22.22	3.64	6.40	1.22
16.849	20000	1460.63	0.53	1.44	11.28	2.78	5.83	1.45
16.753	20000	1457.25	0.54	1.49	17.33	3.95	5.45	1.29
16.665	20000	1454.45	0.54	1.53	15.35	2.61	5.25	1.38
16.575	20000	1451.83	0.55	1.58	15.28	2.72	5.83	1.39
16.468	20000	1449.30	0.56	1.63	14.30	3.04	6.30	1.21
16.373	20000	1446.32	0.57	1.67	15.95	3.41	6.52	1.57
16.275	20000	1443.31	0.58	1.71	22.78	3.89	6.41	1.65
16.185	20000	1439.88	0.59	1.75	20.83	3.99	5.68	1.37
16.087	20000	1436.34	0.59	1.79	20.66	3.74	6.94	1.83
15.995	20000	1434.00	0.60	1.81	23.81	4.80	5.50	1.68
15.913	20000	1432.60	0.61	1.83	11.95	3.96	5.60	1.90
15.717	20000	1431.49	0.64	1.87	3.81	2.78	9.59	3.02

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M13.0 — M13.0
CROSS SECTION	2.147 — WSE — 2.147
STREET FLOW	SF ⟶
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	△
MAPPING BOUNDARY	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

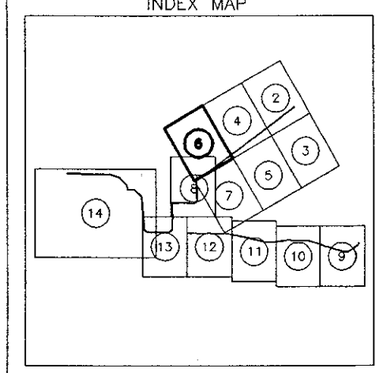
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000

2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ⟶ SYMBOL

INDEX MAP



400' 0' 400' 800'

SCALE: 1" = 400 FEET

CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker

Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

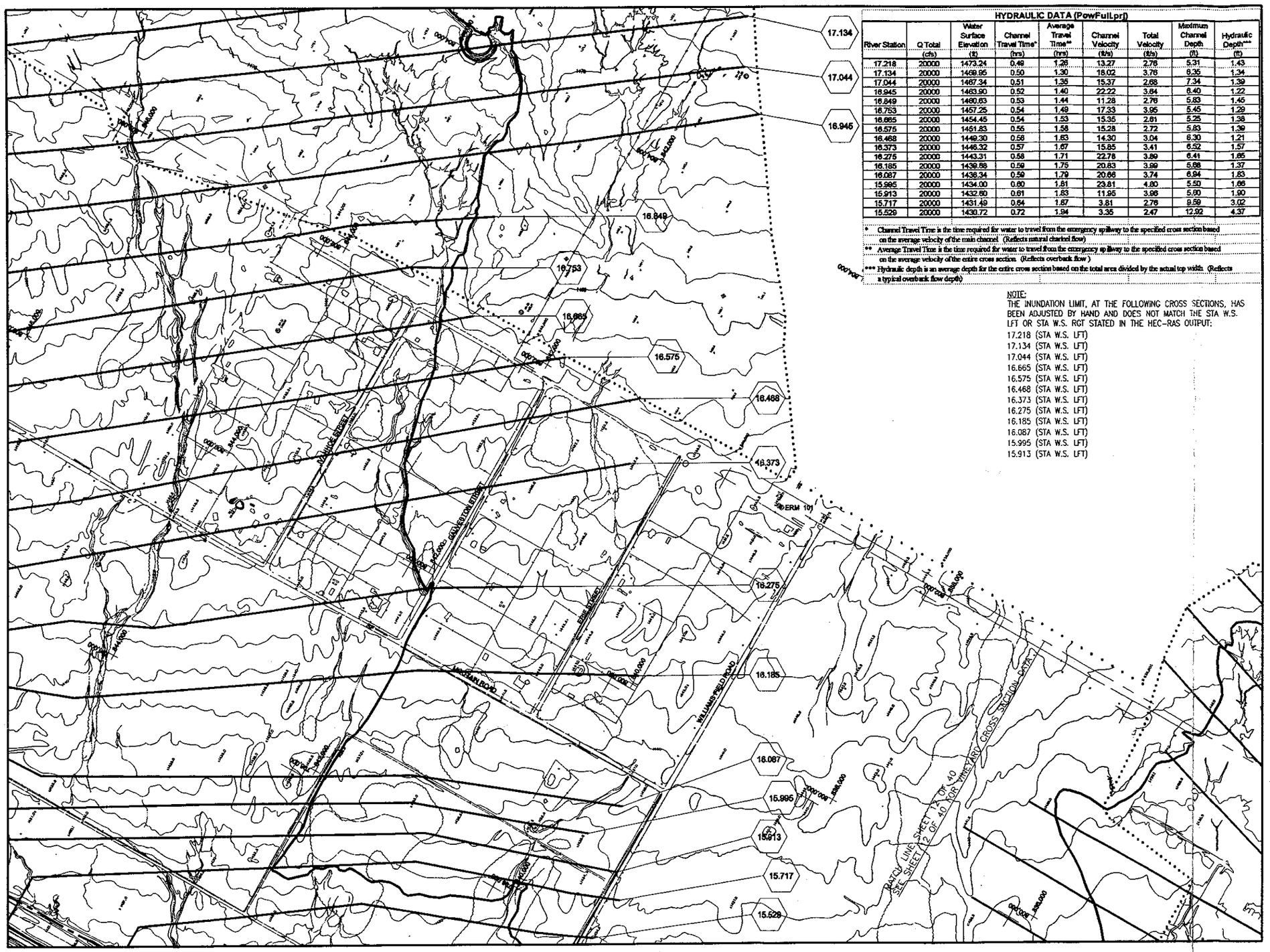
SHEET 6 OF 40

WEST SIDE AERIAL MAPPING
PROVIDED BY: FCDMC TO BAKER AS RASTER IMAGES
(QUEEN CREEK ADMS TOPOGRAPHIC MAPS, FCD 88-23)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING PROVIDED BY:
M&S AERIAL MAPPING, LLC.
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA FOR EAST SIDE MAPPING
PROVIDED BY: AZTEC ENGINEERING
3747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA (PowFullprj)

River Station	Q Total	Water Surface Elevation	Channel Travel Time*	Average Travel Time**	Channel Velocity	Total Velocity	Maximum Channel Depth	Hydraulic Depth***
	(cfs)	(ft)	(hrs)	(hrs)	(ft/s)	(ft/s)	(ft)	(ft)
17.218	20000	1473.24	0.49	1.28	13.27	2.78	5.31	1.43
17.134	20000	1469.95	0.50	1.30	18.02	3.76	6.35	1.34
17.044	20000	1467.34	0.51	1.35	15.37	2.68	7.34	1.39
16.945	20000	1463.90	0.52	1.40	22.22	3.84	6.40	1.22
16.849	20000	1460.63	0.53	1.44	11.28	2.76	5.83	1.45
16.753	20000	1457.25	0.54	1.49	17.33	3.95	5.45	1.29
16.665	20000	1454.45	0.54	1.53	15.35	2.61	5.25	1.38
16.575	20000	1451.83	0.55	1.58	15.28	2.72	5.83	1.39
16.468	20000	1449.30	0.56	1.63	14.30	3.04	6.30	1.21
16.373	20000	1446.32	0.57	1.67	15.85	3.41	6.52	1.57
16.275	20000	1443.31	0.58	1.71	22.78	3.80	6.41	1.65
16.185	20000	1439.88	0.59	1.75	20.83	3.99	5.88	1.37
16.087	20000	1436.34	0.59	1.79	20.66	3.74	6.94	1.83
15.995	20000	1434.00	0.60	1.81	23.81	4.80	5.50	1.66
15.913	20000	1432.60	0.61	1.83	11.95	3.96	5.00	1.90
15.717	20000	1431.49	0.64	1.87	3.81	2.76	9.59	3.02
15.529	20000	1430.72	0.72	1.94	3.35	2.47	12.92	4.37

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:

17.218 (STA W.S. LFT)
17.134 (STA W.S. LFT)
17.044 (STA W.S. LFT)
16.665 (STA W.S. LFT)
16.575 (STA W.S. LFT)
16.468 (STA W.S. LFT)
16.373 (STA W.S. LFT)
16.275 (STA W.S. LFT)
16.185 (STA W.S. LFT)
16.087 (STA W.S. LFT)
15.995 (STA W.S. LFT)
15.913 (STA W.S. LFT)

LEGEND

INUNDATION AREA BOUNDARY
HYDRAULIC BASE LINE WITH RIVER MILE — M13.0 — M13.0
CROSS SECTION — 2.147 WSE 2.147
STREET FLOW — SF
ELEVATION REFERENCE MARK — ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary
PANEL POINT
MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

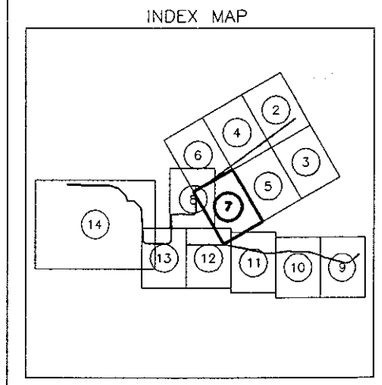
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
101	1450.880	FOUND BENT GLO CAP @ S.W. COR SEC 30 T.1S., R8E. N: 839,631.600 E: 801,944.211

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

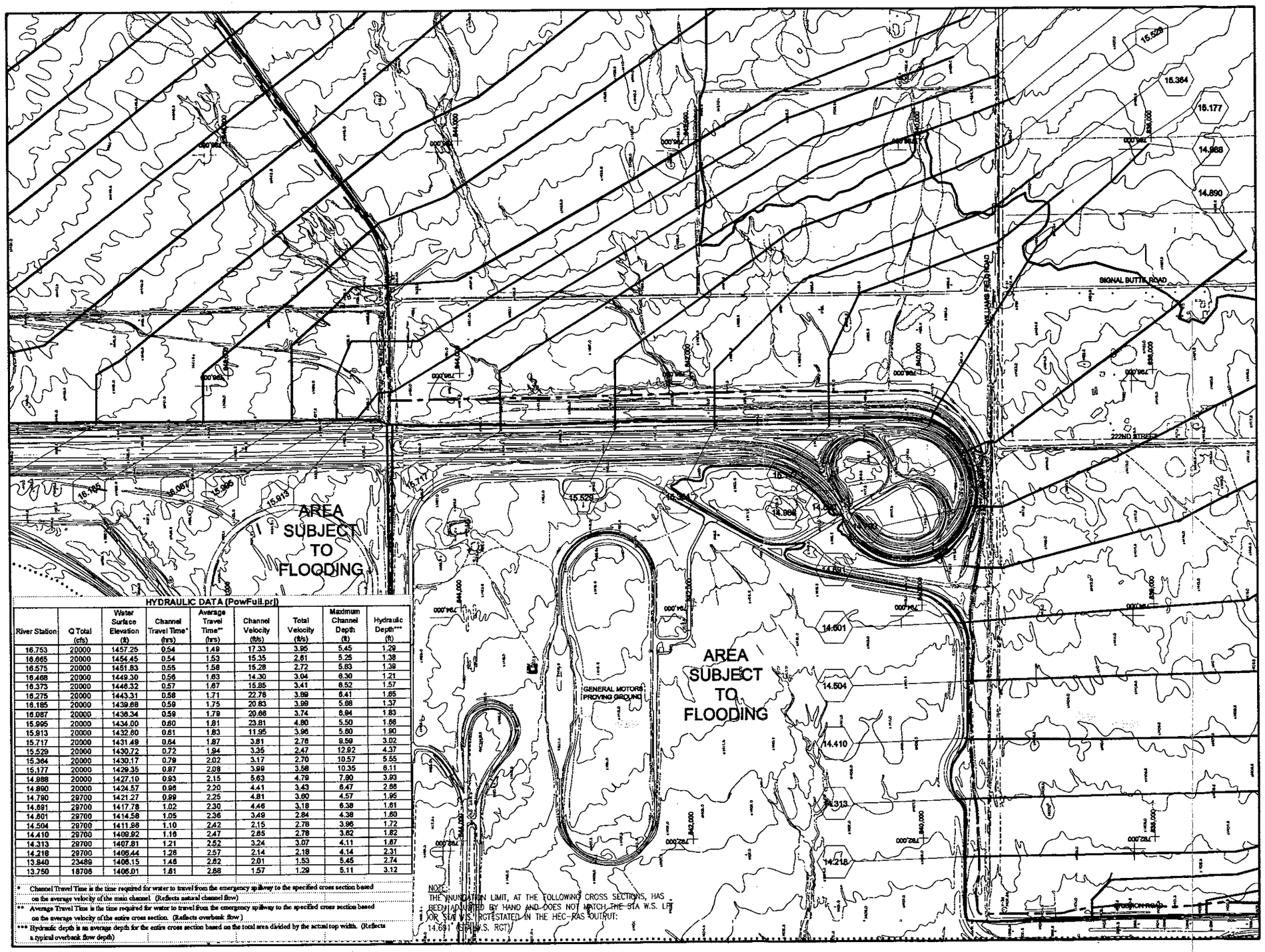
SHEET 7 OF 40

WEST SIDE AERIAL MAPPING
PROVIDED BY: FCDMC TO BAKER AS RASTER IMAGES
(QUEEN CREEK ADMS TOPOGRAPHIC MAPS, FCD 86-23)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING PROVIDED BY:
M&B AERIAL MAPPING, LLC.
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA FOR EAST SIDE MAPPING
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040



NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LIMIT FOR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
14.691' (STA W.S. RGT)

HYDRAULIC DATA (PowFull.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
16.753	20000	1457.25	0.54	1.49	17.33	3.95	5.45	1.29
16.665	20000	1454.45	0.54	1.53	15.35	2.61	5.25	1.38
16.575	20000	1451.83	0.55	1.58	15.28	2.72	5.83	1.39
16.468	20000	1449.30	0.56	1.63	14.30	3.04	6.30	1.21
16.373	20000	1446.32	0.57	1.67	15.85	3.41	6.52	1.57
16.275	20000	1443.31	0.58	1.71	22.76	3.89	6.41	1.65
16.185	20000	1439.68	0.59	1.75	20.83	3.99	5.68	1.37
16.087	20000	1436.34	0.59	1.79	20.66	3.74	6.84	1.83
15.995	20000	1434.00	0.60	1.81	23.81	4.80	5.50	1.66
15.913	20000	1432.60	0.61	1.83	11.95	3.96	5.60	1.90
15.717	20000	1431.49	0.64	1.87	3.81	2.76	8.59	3.02
15.529	20000	1430.72	0.72	1.94	3.35	2.47	12.92	4.37
15.364	20000	1430.17	0.79	2.02	3.17	2.70	10.57	5.55
15.177	20000	1429.35	0.87	2.08	3.99	3.58	10.35	6.11
14.988	20000	1427.10	0.93	2.15	5.63	4.79	7.80	3.93
14.890	20000	1424.57	0.96	2.20	4.41	3.43	6.47	2.66
14.790	29700	1421.27	0.99	2.25	4.81	3.60	4.57	1.95
14.691	29700	1417.78	1.02	2.30	4.46	3.18	6.38	1.61
14.601	29700	1414.58	1.05	2.36	3.49	2.84	4.38	1.60
14.504	29700	1411.86	1.10	2.42	2.15	2.78	3.96	1.72
14.410	29700	1409.92	1.16	2.47	2.85	2.78	3.62	1.82
14.313	29700	1407.81	1.21	2.52	3.24	3.07	4.11	1.67
14.218	29700	1405.44	1.26	2.57	2.14	2.18	4.14	2.31
13.840	23489	1406.15	1.46	2.82	2.01	1.53	5.45	2.74
13.750	18706	1406.01	1.61	2.88	1.57	1.29	5.11	3.12

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M13.0

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

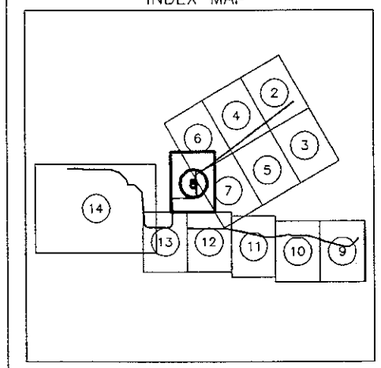
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000

2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL

INDEX MAP



400' 0' 400' 800'

SCALE: 1" = 400 FEET

CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW

F.C.D. CONTRACT NO. 98-33

Baker

Michael Baker Jr., Inc.

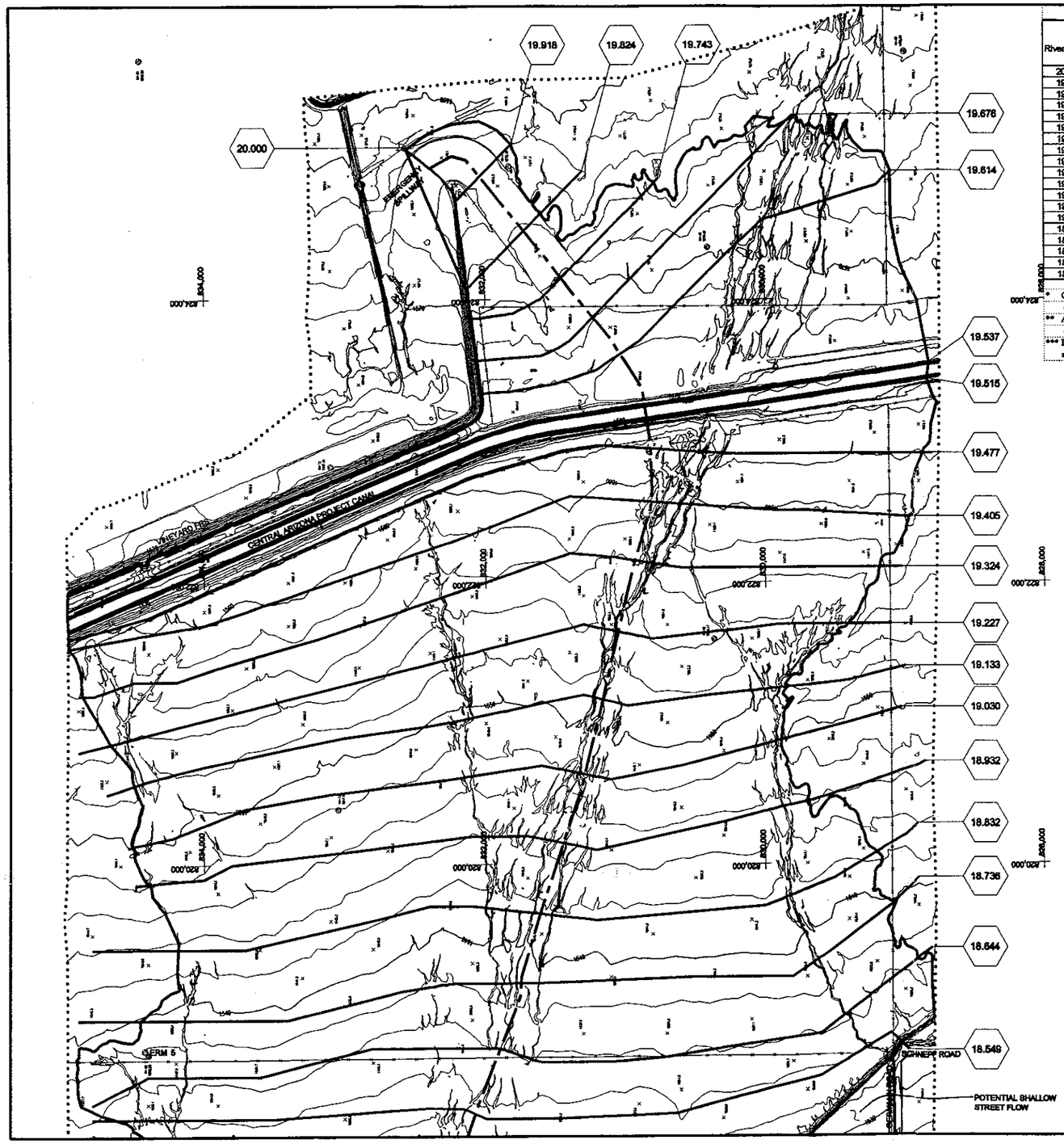
	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 28148 KOFI AWUMAH DATE Signed ARIZONA, U.S.A.

SHEET 8 OF 40

MAPPING PROVIDED BY:
FCDMC TO BAKER AS A RASTER IMAGE
(QUEEN CREEK ADMS TOPOGRAPHIC MAPS, FCD 86-23)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.



HYDRAULIC DATA (VinFull.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
20.000	9700	1578.82	0.00	0.00	4.76	4.76	5.91	4.44
19.918	9700	1577.35	0.02	0.02	8.32	8.32	3.93	3.58
19.824	9700	1575.05	0.03	0.04	9.69	9.69	3.90	2.94
19.743	9700	1574.79	0.05	0.05	3.29	3.09	8.18	4.02
19.676	9700	1574.77	0.09	0.10	1.39	1.37	7.71	6.20
19.614	9700	1574.74	0.18	0.17	0.85	0.84	9.40	8.08
19.537	9700	1574.54	0.25	0.26	2.36	2.39	3.39	1.69
19.515	9700	1574.02	0.26	0.27	3.73	4.59	2.95	0.80
19.477	9700	1561.98	0.26	0.27	19.94	19.20	3.68	0.66
19.405	9700	1560.49	0.27	0.28	4.22	2.92	5.79	1.10
19.324	9700	1557.49	0.30	0.32	3.80	3.05	5.83	1.13
19.227	9700	1554.42	0.34	0.37	2.62	2.73	5.29	1.22
19.133	9700	1551.74	0.40	0.42	2.21	2.93	4.87	1.28
19.030	9700	1549.10	0.46	0.46	3.04	2.98	4.85	1.21
18.932	9700	1545.84	0.50	0.50	3.74	3.01	3.91	1.02
18.832	9700	1542.80	0.55	0.56	2.73	2.22	4.05	1.11
18.736	9700	1539.75	0.60	0.62	2.68	2.43	3.78	0.88
18.644	9700	1536.83	0.65	0.68	2.16	2.09	3.39	0.96
18.549	9700	1534.34	0.71	0.73	3.04	2.35	4.78	0.89

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
19.030 (STA W.S. RGT)
18.932 (STA W.S. RGT)
18.832 (STA W.S. RGT)

LEGEND

INUNDATION AREA BOUNDARY
HYDRAULIC BASE LINE WITH RIVER MILE — MI 2.0 — MI 3.0
CROSS SECTION — 2.147 WSE 2.147
STREET FLOW — SF
ELEVATION REFERENCE MARK — ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary
PANEL POINT
MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

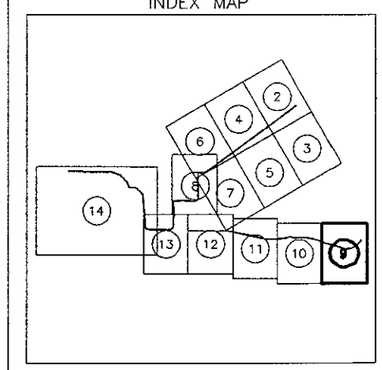
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
5	1539.330	FOUND GLO BRASS CAP SE COR. SEC. 33, T.1S., R.8E. N: 834,415.003 E: 816,655.270

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI ANKUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

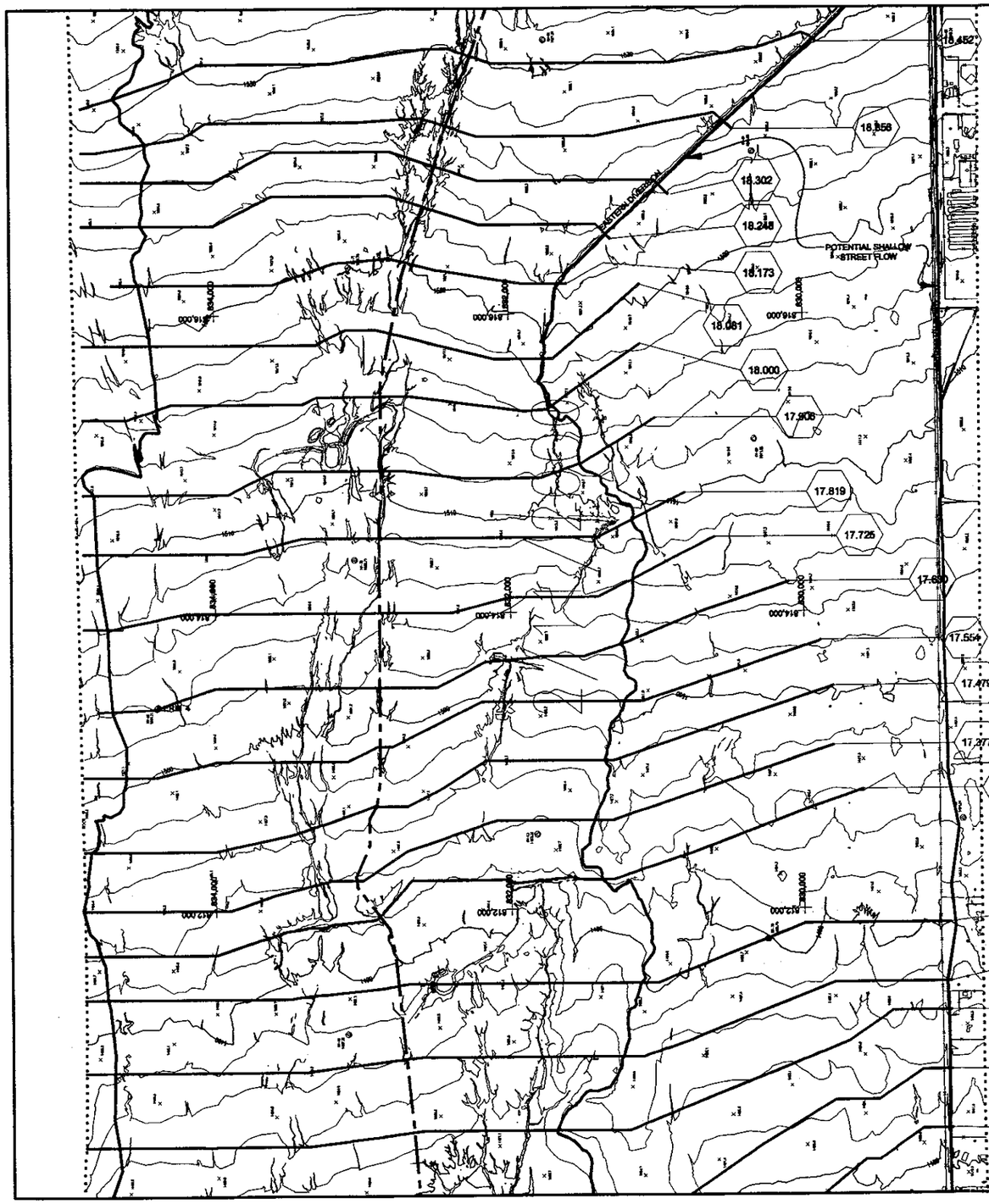
	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 8 OF 40

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

AERIAL MAPPING PROVIDED BY:
M&B AERIAL MAPPING, LLC,
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3737 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA (VinFullLpr)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
18.452	9700	1530.95	0.75	0.79	3.02	2.48	4.95	1.01
18.356	9700	1528.12	0.80	0.85	3.57	2.35	5.10	1.02
18.302	9700	1526.38	0.82	0.88	4.06	2.78	4.34	0.97
18.248	9700	1524.88	0.84	0.91	3.93	2.50	4.92	1.19
18.173	9700	1521.90	0.87	0.96	4.04	2.96	3.57	1.15
18.081	9700	1518.92	0.90	1.00	3.56	2.89	4.06	1.40
18.000	9700	1516.56	0.94	1.04	3.39	2.81	4.50	1.29
17.906	9700	1512.93	0.97	1.08	4.82	3.11	5.17	1.14
17.819	9700	1509.50	1.00	1.13	3.58	2.80	4.51	1.07
17.725	9700	1508.15	1.04	1.17	3.21	2.84	3.59	1.19
17.630	9700	1502.90	1.08	1.21	3.41	3.12	5.28	1.10
17.554	9700	1500.48	1.12	1.25	2.97	2.52	5.12	1.10
17.479	9700	1497.76	1.16	1.30	2.57	2.49	4.02	1.08
17.377	9700	1495.82	1.22	1.35	2.27	2.11	3.84	1.28
17.321	9700	1494.06	1.25	1.38	3.88	2.96	4.20	1.25
17.227	9700	1489.54	1.30	1.44	1.86	3.65	6.53	1.28
17.132	9700	1486.74	1.37	1.48	1.70	3.24	5.94	1.40
17.038	9700	1483.84	1.43	1.52	3.04	3.57	5.59	1.34
16.945	9700	1481.25	1.47	1.56	3.73	2.78	5.37	1.41
16.850	9700	1479.14	1.51	1.61	3.81	2.63	4.85	1.33

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
17.819 (STA W.S. RGT)
17.725 (STA W.S. RGT)
17.630 (STA W.S. RGT)
17.227 (STA W.S. RGT)
17.132 (STA W.S. RGT)
17.038 (STA W.S. RGT)

LEGEND

INUNDATION AREA BOUNDARY
HYDRAULIC BASE LINE WITH RIVER MILE — M120 — M130
CROSS SECTION — 2.147 WSE 2.147
STREET FLOW — SF
ELEVATION REFERENCE MARK — ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary
PANEL POINT
MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

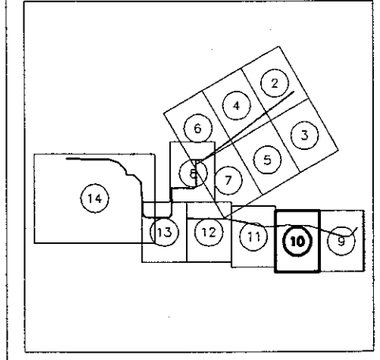
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
4	1504.420	FOUND GLO BRASS CAP SW COR. SEC. 33, T.1S., R.8E N: 828,653.28 E:762,457.54

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AMUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

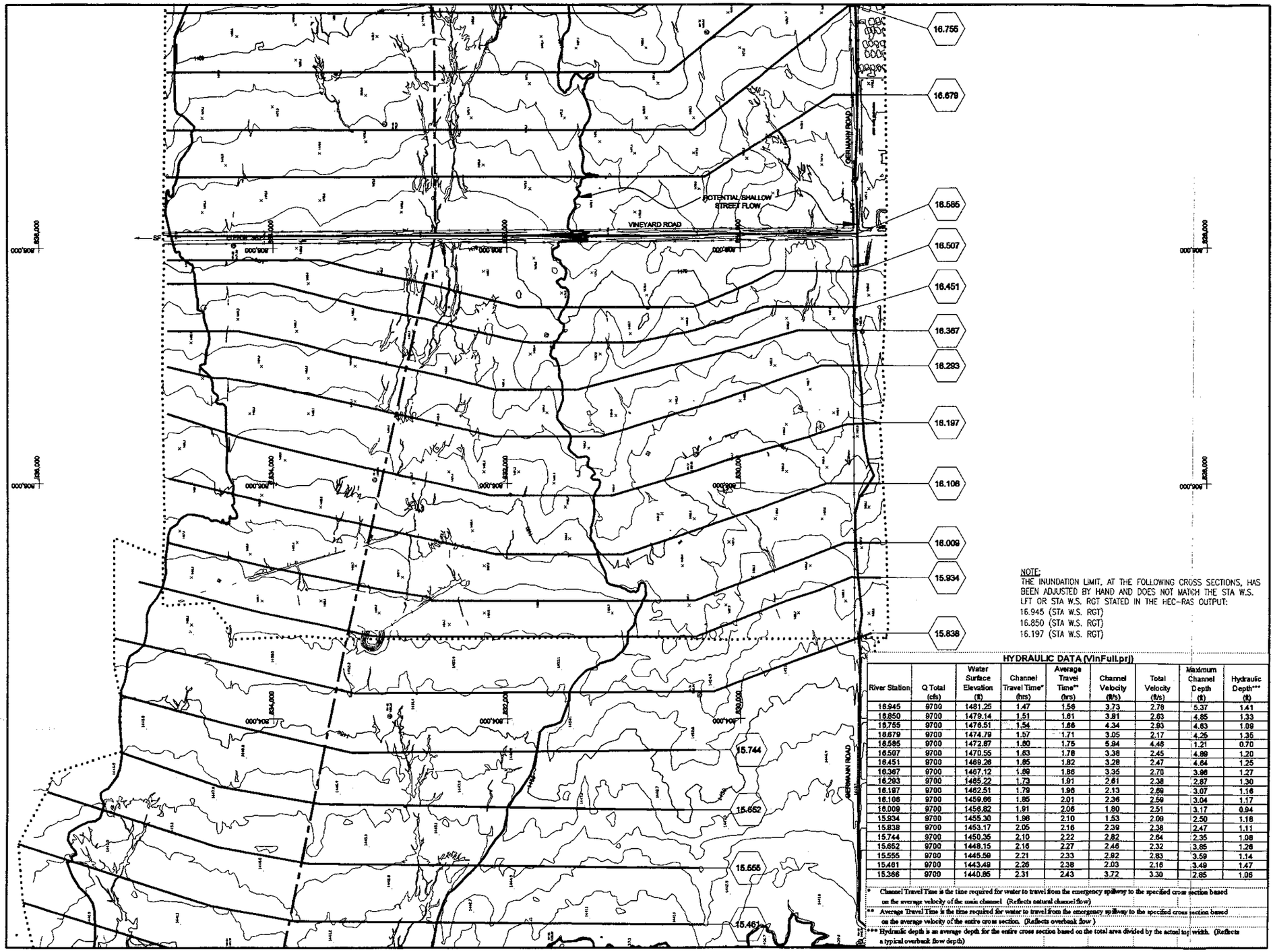
	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 10 OF 40

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

AERIAL MAPPING PROVIDED BY:
M&B AERIAL MAPPING, LLC,
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040



NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
16.945 (STA W.S. RGT)
16.850 (STA W.S. RGT)
16.197 (STA W.S. RGT)

HYDRAULIC DATA (VinFull.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
16.945	9700	1481.25	1.47	1.58	3.73	2.78	5.37	1.41
16.850	9700	1479.14	1.51	1.61	3.81	2.83	4.85	1.33
16.755	9700	1476.51	1.54	1.66	4.34	2.93	4.63	1.09
16.679	9700	1474.79	1.57	1.71	3.05	2.17	4.25	1.35
16.585	9700	1472.87	1.60	1.75	5.94	4.46	1.21	0.70
16.507	9700	1470.55	1.63	1.78	3.38	2.45	4.89	1.20
16.451	9700	1469.26	1.65	1.82	3.28	2.47	4.64	1.25
16.367	9700	1467.12	1.69	1.86	3.35	2.70	3.96	1.27
16.293	9700	1465.22	1.73	1.91	2.61	2.38	2.87	1.30
16.197	9700	1462.51	1.79	1.96	2.13	2.09	3.07	1.16
16.106	9700	1459.96	1.85	2.01	2.36	2.59	3.04	1.17
16.009	9700	1456.82	1.91	2.06	1.80	2.51	3.17	0.94
15.934	9700	1455.30	1.98	2.10	1.53	2.09	2.50	1.18
15.838	9700	1453.17	2.05	2.16	2.39	2.38	2.47	1.11
15.744	9700	1450.35	2.10	2.22	2.82	2.64	2.35	1.08
15.652	9700	1448.15	2.16	2.27	2.46	2.32	3.85	1.26
15.555	9700	1445.59	2.21	2.33	2.92	2.83	3.59	1.14
15.461	9700	1443.49	2.26	2.38	2.03	2.16	3.49	1.47
15.366	9700	1440.85	2.31	2.43	3.72	3.30	2.85	1.06

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 — M13.0
CROSS SECTION	2.147 — WSE — 2.147
STREET FLOW	SF →
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	△
MAPPING BOUNDARY	

ELEVATION REFERENCE MARKS

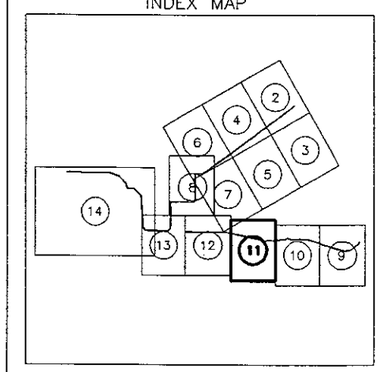
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
3B2	1472.730	FOUND GLO BRASS CAP @ NE COR. SEC. 6, T.2S., R.8E N: 834,374.097 E: 808,087.804

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



N

400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AKUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

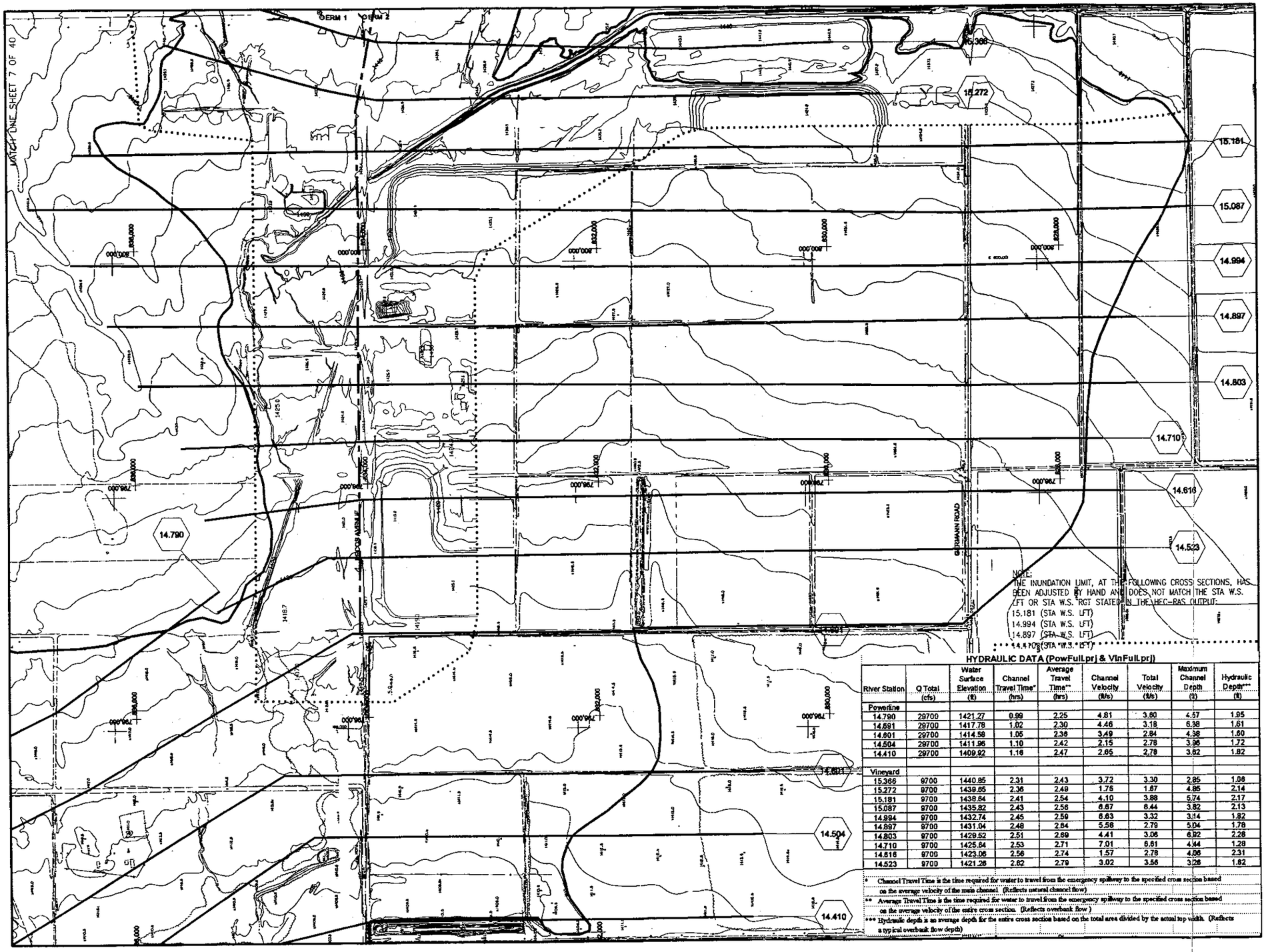
SHEET 11 OF 40

WEST SIDE AERIAL MAPPING PROVIDED BY: FCDMC TO BAKER (SE MESA ADMP FCD 95-32)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING PROVIDED BY: M&B AERIAL MAPPING, LLC. ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA FOR EAST SIDE MAPPING PROVIDED BY: AZTEC ENGINEERING, 3747 East Grove STreet, Phoenix, AZ 85040



HYDRAULIC DATA (PowFulLprj & VinFulLprj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
Powerline								
14.790	29700	1421.27	0.99	2.25	4.81	3.60	4.57	1.95
14.691	29700	1417.78	1.02	2.30	4.46	3.18	6.38	1.61
14.601	29700	1414.58	1.05	2.36	3.49	2.84	4.38	1.60
14.504	29700	1411.96	1.10	2.42	2.15	2.78	3.96	1.72
14.410	29700	1409.82	1.16	2.47	2.65	2.79	3.82	1.82
Vineyard								
15.366	9700	1440.85	2.31	2.43	3.72	3.30	2.85	1.06
15.272	9700	1439.65	2.36	2.49	1.75	1.67	4.85	2.14
15.181	9700	1438.64	2.41	2.54	4.10	3.88	5.74	2.17
15.087	9700	1435.82	2.43	2.56	6.67	6.44	3.82	2.13
14.994	9700	1432.74	2.45	2.59	6.63	3.32	3.14	1.92
14.897	9700	1431.04	2.48	2.64	5.58	2.79	5.04	1.78
14.803	9700	1429.52	2.51	2.69	4.41	3.06	6.92	2.28
14.710	9700	1425.64	2.53	2.71	7.01	6.61	4.44	1.28
14.616	9700	1423.06	2.56	2.74	1.57	2.78	4.06	2.31
14.523	9700	1421.26	2.62	2.79	3.02	3.56	3.26	1.82

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M13.0

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

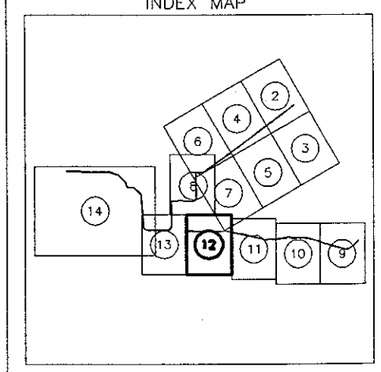
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
1	1441.980	FOUND GLO BRASS CAP @ SE COR. SEC. 36. T.1S., R.7E. N: 833,987.778 E: 802,006.580
2	1441.450	FOUND GLO BRASS CAP @ NW COR. SEC. 6. T.2S., R.8E. N: 833,987.778 E: 802,006.580

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000

2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL.

INDEX MAP



400' 0' 400' 800'

SCALE: 1" = 400 FEET

CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW

F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

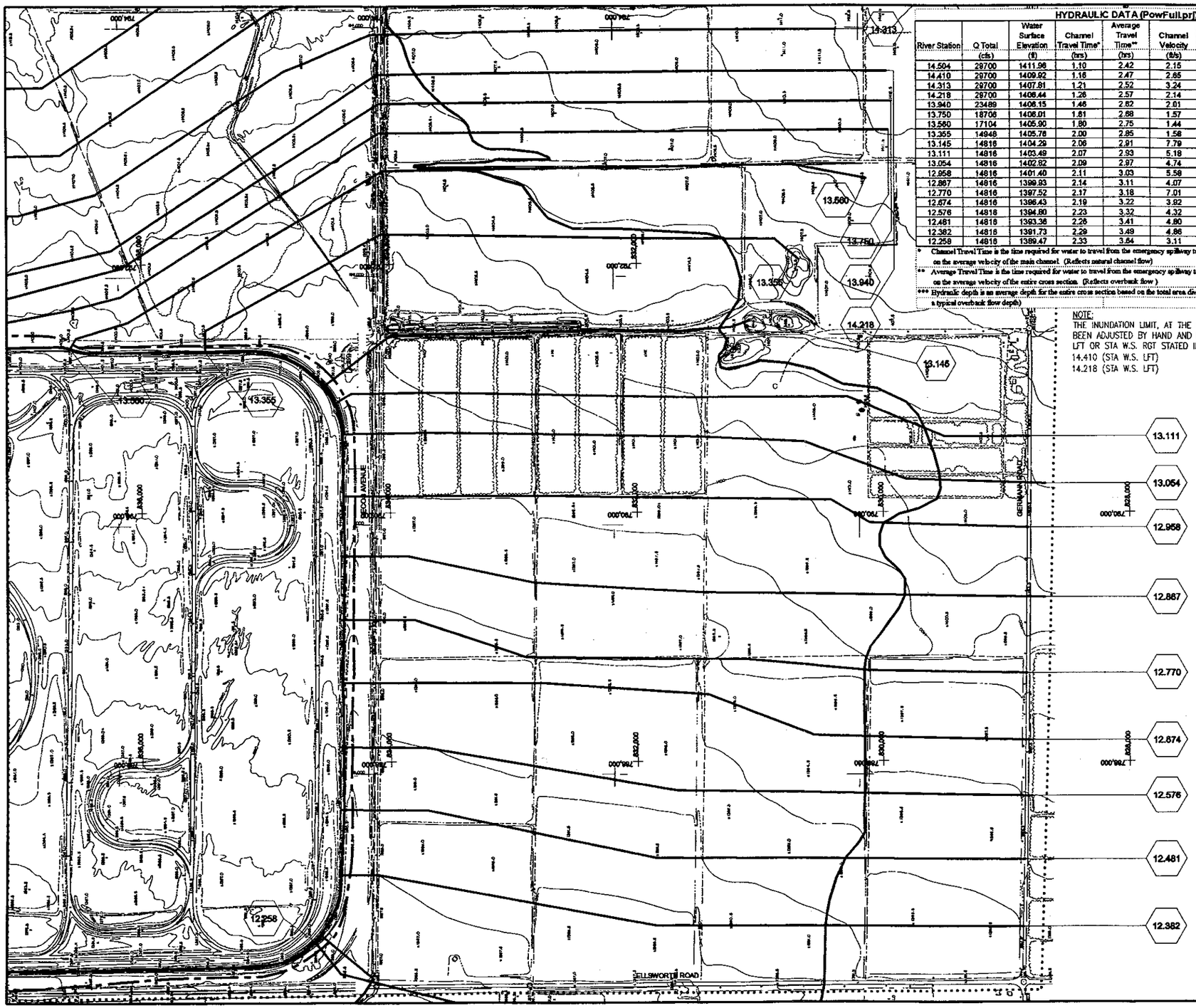
	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 12 OF 40

STRIP MAPPING ALONG PECOS AVENUE PROVIDED BY: FCDMC TO BAKER (SE MESA ADMP FCD 95-32)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

MAPPING PROVIDED BY: FCDMC TO BAKER AS A RASTER IMAGE (QUEEN CREEK ADMS TOPOGRAPHIC MAPS, FCD 86-23)



HYDRAULIC DATA (PowFull.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
14.504	29700	1411.96	1.10	2.42	2.15	2.78	3.86	1.72
14.410	29700	1409.92	1.16	2.47	2.65	2.78	3.62	1.82
14.313	29700	1407.81	1.21	2.52	3.24	3.07	4.11	1.67
14.218	29700	1406.44	1.26	2.57	2.14	2.18	4.14	2.31
13.940	23489	1406.15	1.46	2.82	2.01	1.53	5.45	2.74
13.750	18706	1406.01	1.61	2.88	1.57	1.29	5.11	3.12
13.560	17104	1405.90	1.80	2.75	1.44	1.37	5.20	3.55
13.355	14948	1405.76	2.00	2.85	1.58	1.21	7.76	3.96
13.145	14816	1404.29	2.06	2.91	7.79	6.81	6.79	2.98
13.111	14816	1403.49	2.07	2.93	5.18	2.67	7.49	3.49
13.054	14816	1402.82	2.09	2.97	4.74	2.23	7.32	3.81
12.958	14816	1401.40	2.11	3.03	5.58	2.37	7.10	2.98
12.887	14816	1399.93	2.14	3.11	4.07	1.77	6.53	3.25
12.770	14816	1397.52	2.17	3.18	7.01	2.74	5.22	1.85
12.674	14816	1396.43	2.19	3.22	3.92	1.67	5.73	2.87
12.576	14816	1394.80	2.23	3.32	4.32	1.66	5.80	2.44
12.481	14816	1393.36	2.26	3.41	4.80	1.70	6.01	2.20
12.382	14816	1391.73	2.29	3.49	4.86	1.73	5.46	2.15
12.258	14816	1389.47	2.33	3.84	3.11	1.40	4.67	2.53

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
14.410 (STA W.S. LFT)
14.218 (STA W.S. LFT)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — MI2.0 — MI3.0

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

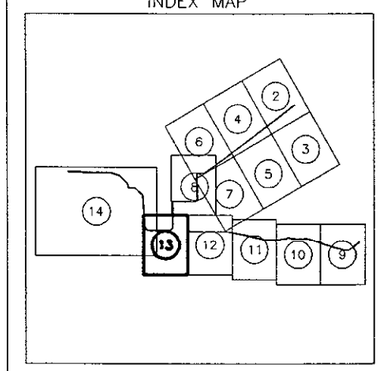
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
FULL SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

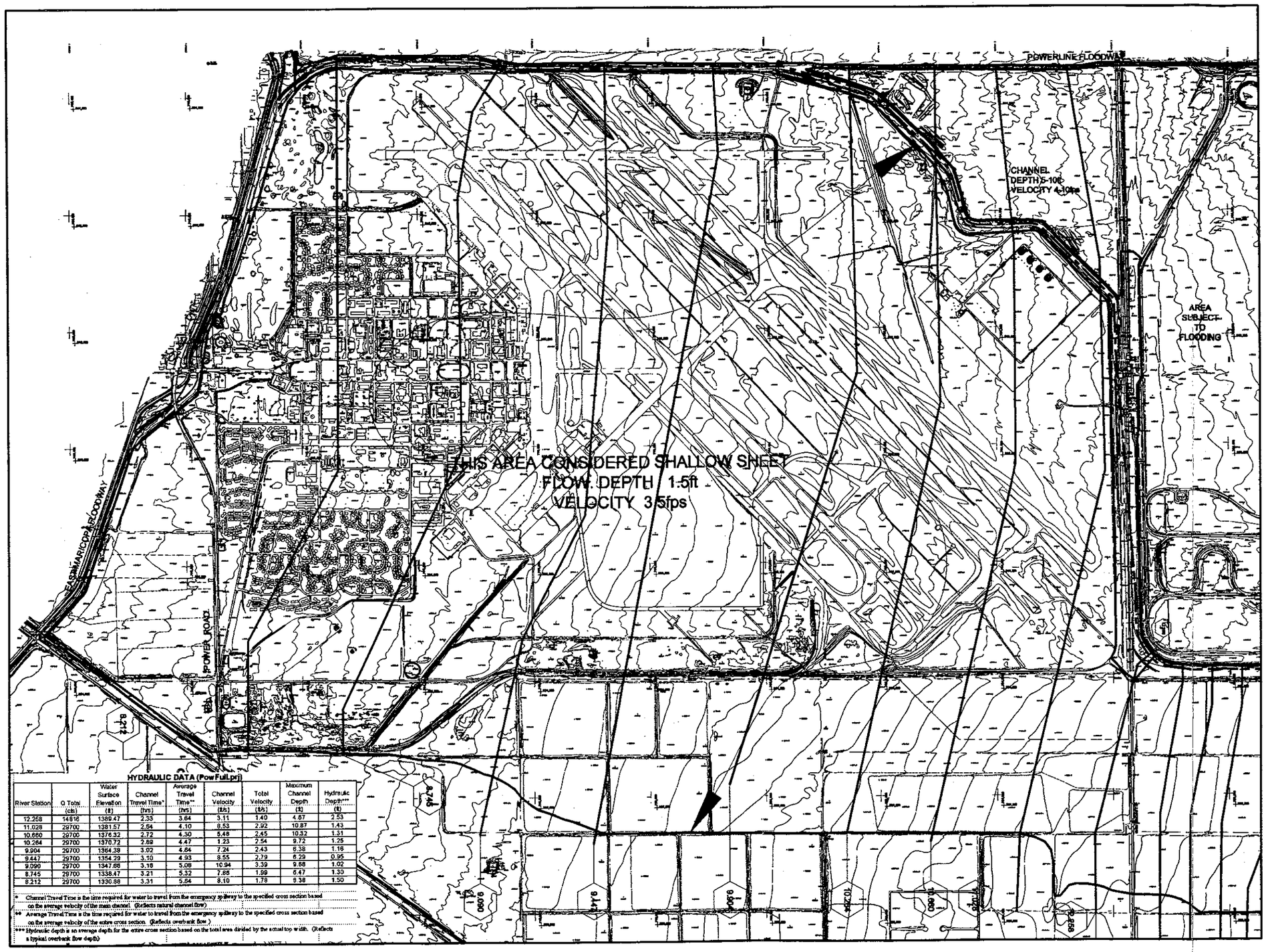
Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 13 OF 40

MAPPING PROVIDED BY:
FCDMC TO BAKER AS A RASTER IMAGE
(QUEEN CREEK ADWS TOPOGRAPHIC MAPS, FCD 86-23)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.



HYDRAULIC DATA (PowFullprj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
12.258	14816	1389.47	2.33	3.84	3.11	1.40	4.87	2.53
11.028	29700	1381.57	2.84	4.10	8.53	2.92	10.87	1.43
10.660	29700	1376.32	2.72	4.30	5.48	2.45	10.32	1.31
10.264	29700	1370.72	2.89	4.47	1.23	2.54	9.72	1.25
9.904	29700	1364.38	3.02	4.84	7.24	2.43	6.38	1.16
9.447	29700	1354.29	3.10	4.93	8.55	2.79	6.29	0.95
9.090	29700	1347.66	3.18	5.08	10.94	3.39	9.88	1.02
8.745	29700	1338.47	3.21	5.32	7.85	1.99	6.47	1.30
8.212	29700	1330.88	3.31	5.64	8.10	1.78	8.38	1.50

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow.)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	MI23.0 — MI33.0
CROSS SECTION	2.147 — WSE — 2.147
STREET FLOW	SF ⟶
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	△
MAPPING BOUNDARY	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

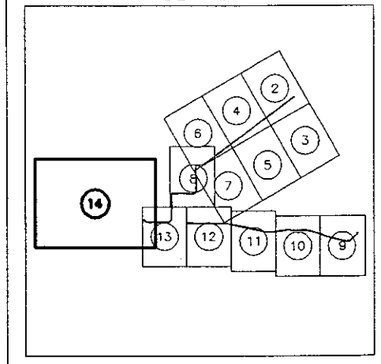
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000

2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ⟶ SYMBOL.

INDEX MAP



N

800' 0' 800' 1600'

SCALE: 1" = 800 FEET

CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
FULL SPILLWAY

F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker

Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 14 OF 40

MAPPING PROVIDED BY:
FCDMC TO BAKER AS A RASTER IMAGE
(QUEEN CREEK ADMS TOPOGRAPHIC MAPS, FCD 86-23)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

HEC-RAS September 1998 Version 2.2
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
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X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
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PROJECT DATA
Project Title: East Side SIS - Powerline FRS
Project File : PowFull.prj
Run Date and Time: 02/13/2002 2:09:56 PM

Project in English units

Project Description:
Spillway Inundation Study for Powerline FRS - Full Spillway Flow Scenario

Powerline FRS Emergency Spillway to Ellsworth Road

FCD
98-33
Michael Baker Jr., Inc.

PLAN DATA

Plan Title: Full Spillway Flow
Plan File : m:\Folders from V\Fcdspill\TaskB\Power\HECRAS\Dec1201\HEC-RAS\Power\full\PowFull.P01

Geometry Title: Existing Conditions Geometry
Geometry File : m:\Folders from V\Fcdspill\TaskB\Power\HECRAS\Dec1201\HEC-RAS\Power\full\PowFull.G01

Flow Title : Full Flow Profile (Mixed Flow Regime)
Flow File : m:\Folders from V\Fcdspill\TaskB\Power\HECRAS\Dec1201\HEC-RAS\Power\full\PowFull.F01

Plan Summary Information:

Number of:	Cross Sections	= 86	Mulitple Openings	=	0
	Culverts	= 0	Inline Weirs	=	0
	Bridges	= 0			

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

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

FLOW DATA

Flow Title: Full Flow Profile (Mixed Flow Regime)
Flow File : m:\Folders from V\Fcdspill\TaskB\Power\HECRAS\Dec1201\HEC-RAS\Power\full\PowFull.F01

Flow Data (cfs)

River	Reach	RS	PF 3
Powerline FRS	Powerline	20.000	20000
Powerline FRS	Powerline	14.790	29700
Powerline FRS	Powerline	14.218	29700
Powerline FRS	Powerline	13.940	23489
Powerline FRS	Powerline	13.750	18706
Powerline FRS	Powerline	13.560	17104
Powerline FRS	Powerline	13.355	14948
Powerline FRS	Powerline	13.169	14816
Powerline FRS	Powerline	13.111	14816
Powerline FRS	Powerline	13.054	14816
Powerline FRS	Powerline	11.028	29700

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Powerline FRS	Powerline	PF 3	Critical	Normal S = .0033

GEOMETRY DATA

Geometry Title: Existing Conditions Geometry
Geometry File : m:\Folders from V\Fcdspill\TaskB\Power\HECRAS\Dec1201\HEC-RAS\Power\full\PowFull.G01

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 20.000

INPUT
Description: Upstream embankment of the Powerline FRS and Vineyard FRS principal spillways outlet collection channel. The collection channel is the upper limit of the Powerline Floodway.

Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8586.53	1579.11	8612.94	1570	8616.46	1568.79	8653.31	1566.55	8665.91	1566.33
8679.32	1566.26	8714.95	1566.6	8765.61	1566.83	8779.71	1566.76	8800.87	1566.65
8846.99	1566.5	8918.05	1566.42	9017.36	1566.13	9100	1566.38	9146.88	1566.69
9160.05	1566.72	9196.55	1566.76	9270.7	1566.63	9357.22	1566.36	9414.93	1566.36
9438.01	1566.32	9480.48	1565.65	9577.62	1566.06	9628.69	1566.36	9656.18	1566.35
9678.11	1566.39	9722.53	1566.65	9765.27	1566.82	9813.13	1566.53	9855.52	1566.38
9900.42	1566.87	9941.96	1567.4	9983.41	1568.16	10007.63	1568.72	10067.75	1568.82
10091.17	1568.63	10111.04	1568.46	10128.2	1568.38	10147	1568.41	10151.71	1568
10155.55	1568.26	10182.13	1569.44	10183.61		1570	10209.22	1580	10231.82 1589.07

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8586.53	.022	8586.53	.022	10209.22	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8586.53	10209.22	194.05	193.94	194.05	.3	.5

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1569.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.48	Wt. n-Val.		0.022	
W.S. Elev (ft)	1569.09	Reach Len. (ft)	194.05	193.94	194.05
Crit W.S. (ft)		Flow Area (sq ft)		3615.70	
E.G. Slope (ft/ft)	0.002185	Area (sq ft)		3615.70	
Q Total (cfs)	20000.00	Flow (cfs)		20000.00	
Top Width (ft)	1558.77	Top Width (ft)		1558.77	
Vel Total (ft/s)	5.53	Avg. Vel. (ft/s)		5.53	
Max Chl Dpth (ft)	3.44	Hydr. Depth (ft)		2.32	
Conv. Total (cfs)	427892.9	Conv. (cfs)		427892.9	
Length Wtd. (ft)	193.94	Wetted Per. (ft)		1558.97	
Min Ch El (ft)	1565.65	Shear (lb/sq ft)		0.32	
Alpha	1.00	Stream Power (lb/ft s)		1.75	
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	8429.84	1286.83	2026.99
C & E Loss (ft)	0.20	Cum SA (acres)	5958.81	334.51	1581.94

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 8586.53	8911.07	3795.79	706.80	295.62	18.98	2.39	5.37
8911.07	9235.61	4976.70	863.17	324.54	24.88	2.66	5.77
9235.61	9560.14	5582.04	924.72	324.54	27.91	2.85	6.04
9560.14	9884.68	4883.19	853.41	324.54	24.42	2.63	5.72
9884.68	RB 10209.22	762.27	267.60	289.73	3.81	0.92	2.85

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.963

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8545.34	1578.97	8552.69	1578.6	8571.96	1570	8589.72	1562.07	8704.5	1562.04
9065.06	1563.19	9938.57	1565.57	9965.68	1566.98	9980.1	1562.2	9992.72	1562.01
10011.9	1561.85	10022.2	1562.08	10039.01	1566.98	10251.79	1565.63	10262.77	1570
10288.02	1580	10311.9	1589.52						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8545.34	.05	8571.96	.02	10288.02	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8571.96	10288.02	202.72	203.44	202.72	.3	.5

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1569.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.022	
W.S. Elev (ft)	1569.22	Reach Len. (ft)	202.72	203.44	202.72
Crit W.S. (ft)		Flow Area (sq ft)		8662.58	
E.G. Slope (ft/ft)	0.000132	Area (sq ft)		8662.58	
Q Total (cfs)	20000.00	Flow (cfs)		20000.00	
Top Width (ft)	1687.12	Top Width (ft)		1687.12	
Vel Total (ft/s)	2.31	Avg. Vel. (ft/s)		2.31	
Max Chl Dpth (ft)	7.37	Hydr. Depth (ft)		5.13	
Conv. Total (cfs)	1738788.6	Conv. (cfs)		1738788.6	
Length Wtd. (ft)	203.40	Wetted Per. (ft)		1690.86	
Min Ch El (ft)	1561.85	Shear (lb/sq ft)		0.04	
Alpha	1.00	Stream Power (lb/ft s)		0.10	
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	8429.84	1259.50	2026.99
C & E Loss (ft)	0.06	Cum SA (acres)	5958.81	327.29	1581.94

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 8571.96	8915.17	6280.06	2322.98	343.00	31.40	6.80	2.70
8915.17	9258.38	5121.67	2056.00	343.21	25.61	5.99	2.49
9258.38	9601.60	3840.41	1729.82	343.21	19.20	5.04	2.22
9601.60	9944.81	2724.76	1407.91	343.22	13.62	4.10	1.94
9944.81	RB 10288.02	2033.10	1145.86	318.21	10.17	3.63	1.77

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.925

INPUT
Description: Top of Bank, East Embankment of the CAP
Station Elevation Data num= 118

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2534.04	1578	2554.26	1576	2564.39	1574.69	2568.55	1574	2576.27	1572.57
2578.36	1572.05	2590.28	1570	2606.56	1568.74	2614.37	1568.03	2617.92	1568.5
2623.83	1568.79	2647.34	1568.62	2658.65	1566.87	2693.53	1566.96	2722.07	1567.94
2847.48	1567.82	3055.24	1567.67	3144.34	1566.88	3326.58	1566.71	3544.34	1566.96
3584.34	1567	3821.82	1567.18	4064.37	1566.92	4104.34	1566.88	4366.64	1566.83
4641.18	1567.08	4901.46	1567.03	5104.34	1567.03	5144.34	1567.01	5362.43	1566.85
5522.43	1567.23	5562.43	1567.3	5722.43	1567.39	5762.43	1567.41	5922.43	1567.23
5962.43	1567.16	6072.78	1566.98	6162.43	1567.08	6202.43	1567.13	6282.43	1567.29
6322.43	1567.28	6402.43	1567.18	6442.43	1567.21	6526.99	1567.29	6648.12	1567.32
6802.43	1567.01	6842.43	1566.88	6922.43	1566.55	6962.43	1566.5	7042.43	1566.84
7082.43	1566.81	7180.83	1566.22	7203.29	1566.1	7362.39	1566.38	7402.43	1566.06
7462.95	1565.53	7541.92	1566.04	7652.43	1565.9	7663.71	1565.87	7741.87	1565.47
7820.02	1565.5	7862.95	1565.64	7942.95	1565.71	8067.91	1565.77	8142.95	1565.77
8182.95	1565.78	8276.74	1566.07	8303.78	1566.14	8382.95	1566.1	8402.98	1566.1
8502.95	1566.27	8523.03	1566.26	8541.53	1565.93	8602.98	1566.09	8642.96	1566.06
8722.99	1566.11	8763	1566.14	8802.2	1566.17	8883.03	1566.22	8942.95	1566.25
9008.99	1566.29	9071.22	1566.43	9102.95	1566.48	9163.13	1566.46	9200.86	1566.46
9420.88	1566.5	9502.94	1566.65	9542.94	1566.72	9609.58	1566.69	9689.57	1566.5
9711.62	1566.48	9790.57	1566.47	9840.26	1566.58	9880.05	1566.89	9903.53	1567.11
9976.39	1567.2	9988.47	1567.2	10011.01	1566.72	10185.66	1566.96	10294.18	1566.83
10344.14	1566.74	10501.72	1566.41	10579.87	1566.24	10716.44	1565.94	10796.44	1565.81
10876.45	1565.71	10956.44	1565.62	11264.04	1567.41	1594.04	1566.81	1964.04	1565.7
12204.04	1565.51	2584.04	1564.51	2924.04	1565.41	3774.04	1565.81	4144.04	1566.4
14554.04	1566.71	5024.04	156	71548	4.04	1568.7			

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2534.04	.022	8541.53	.022	10294.18	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8541.53	10294.18	106	105.38	106	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2534.04	8463.16	1570	10420.88	15484.04	1570

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1569.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.	0.022	0.022	0.022
W.S. Elev (ft)	1568.90	Reach Len. (ft)	106.00	105.38	106.00
Crit W.S. (ft)	1568.00	Flow Area (sq ft)	210.41	4155.50	276.97
E.G. Slope (ft/ft)	0.001285	Area (sq ft)	12269.58	4155.50	13961.46
Q Total (cfs)	20000.00	Flow (cfs)	983.94	17886.68	1129.37
Top Width (ft)	12879.48	Top Width (ft)	5936.97	1752.65	5189.86
Vel Total (ft/s)	4.31	Avg. Vel. (ft/s)	4.68	4.30	4.08
Max Chl Dpth (ft)	4.40	Hydr. Depth (ft)	2.68	2.37	2.19
Conv. Total (cfs)	558015.1	Conv. (cfs)	27452.8	499051.9	31510.4
Length Wtd. (ft)	105.47	Wetted Per. (ft)	78.37	1752.66	126.70
Min Ch El (ft)	1565.93	Shear (lb/sq ft)	0.22	0.19	0.18
Alpha	1.00	Stream Power (lb/ft s)	1.01	0.82	0.71
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	8401.29	1229.57	1994.50
C & E Loss (ft)	0.13	Cum SA (acres)	5945.00	319.25	1569.87

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7940.78	8541.53	983.94	210.41	78.37	4.92	2.68	4.68
LB 8541.53	8892.06	4639.52	975.57	350.53	23.20	2.78	4.76
8892.06	9242.59	3929.97	883.09	350.53	19.65	2.52	4.45
9242.59	9593.12	3462.20	818.44	350.53	17.31	2.33	4.23
9593.12	9943.65	3217.22	783.18	350.53	16.09	2.23	4.11
9943.65	RB 10294.18	2637.77	695.22	350.54	13.19	1.98	3.79
10294.18	10813.17	1129.37	276.97	126.70	5.65	2.19	4.08

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.905

INPUT
Description: Top of Bank, West Embankment of the CAP
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2641.94	1568.65	2702.15	1568.46	2785.37	1568.2	2905.37	1568	3025.37	1567.9
3105.37	1567.24	3162.14	1566.94	3282.14	1567.12	3402.14	1567.24	3522.14	1567.39
3682.14	1567.63	3842.14	1567.74	4002.14	1567.59	4162.14	1567.52	4322.14	1567.49
4482.14	1567.44	4642.14	1567.38	4722.14	1567.4	5002.14	1567.55	5242.14	1567.36
5322.14	1567.28	5406.23	1567.11	5526.27	1567.01	5646.22	1567.1	5777.62	1567.18
5916.57	1567.24	6026.75	1567.07	6186.75	1566.99	6286.02	1567.04	6372.57	1567.08
6506.75	1567.53	6626.75	1567.71	6786.75	1567.16	6900.58	1566.51	7026.74	1566.28
7114.46	1566.25	7226.74	1566.29	7327.9	1566.34	7426.74	1566.2	7515.08	1566.22
7595.37	1566.32	7693.61	1566.32	7796.77	1566.35	7880.86	1566.43	8002.55	1566.41
8052.69	1566.35	8133.27	1566.26	8195.87	1566.23	8273.3	1566.21	8411.84	1566.23
8438.34	1566.24	8539.56	1566.38	8647.68	1566.5	8751.29	1566.65	8838.34	1566.55
8957.42	1566.48	9013.6	1566.61	9099.06	1566.73	9202.54	1566.82	9293.6	1566.8
9373.6	1566.62	9491.6	1566.4	9499.16	1566.4	9573.58	1566.28	9674.64	1566.25
9813.55	1566.86	9924.41	1567.22	9989.5	1567.23	10012	1567.06	10084.4	1567.07
10154.31	1567.08	10245.72	1566.85	10298.43	1566.57	10332	1566.66	10431.77	1566.6
10572	1566.52	10671.83	1566.47	10808.62	1566.37	10831.87	1566.35	10852	1566.33
10871.88	1566.32	10892	1566.31	10911.89	1566.29	10932	1566.27	10951.9	1566.25
10973.72	1566.24	10993.74	1566.22	11013.99	1566.21	11091.94	1567.21	11391.94	1566.9
11741.94	1566.51	11891.94	1567.21	12141.94	1566.41	12431.94	1565.81	12691.94	1565.7
13561.94	1566.21	13961.94	1566.51	14361.94	1566.61	14741.94	1567.21	15231.94	1568.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2641.94	.022	8539.56	.022	10298.43	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8539.56	10298.43	23	22.1	23	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2641.94	8424.31	1570	10492.73	15231.94	1570

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2641.94	3522.25	1568.57

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1568.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.71	Wt. n-Val.	0.022	0.022	0.022
W.S. Elev (ft)	1568.10	Reach Len. (ft)	23.00	22.10	23.00
Crit W.S. (ft)	1568.10	Flow Area (sq ft)	206.99	2478.25	288.47
E.G. Slope (ft/ft)	0.006085	Area (sq ft)	5469.03	2478.25	7645.75
Q Total (cfs)	20000.00	Flow (cfs)	1611.38	16410.67	1977.95
Top Width (ft)	11708.16	Top Width (ft)	5017.31	1758.87	4931.98
Vel Total (ft/s)	6.73	Avg. Vel. (ft/s)	7.78	6.62	6.86
Max Chl Dpth (ft)	2.40	Hydr. Depth (ft)	1.80	1.41	1.48
Conv. Total (cfs)	256385.8	Conv. (cfs)	20656.8	210373.1	25356.0
Length Wtd. (ft)	22.22	Wetted Per. (ft)	115.25	1758.87	194.30
Min Ch El (ft)	1566.25	Shear (lb/sq ft)	0.68	0.54	0.56
Alpha	1.01	Stream Power (lb/ft s)	5.31	3.54	3.87
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	8379.71	1221.54	1968.21
C & E Loss (ft)	0.01	Cum SA (acres)	5931.67	315.01	1557.55

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7949.80	8539.56	1611.38	206.99	115.25	8.06	1.80	7.78
LB 8539.56	8891.33	3870.87	550.02	351.77	19.35	1.56	7.04
8891.33	9243.11	3341.53	503.57	351.77	16.71	1.43	6.64
9243.11	9594.88	3822.02	545.85	351.77	19.11	1.55	7.00
9594.88	9946.66	3272.24	497.28	351.78	16.36	1.41	6.58
9946.66	RB 10298.43	2104.00	381.52	351.78	10.52	1.08	5.51
10298.43	10791.78	1977.95	288.47	194.30	9.89	1.48	6.86

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.901

INPUT
Description:
Station Elevation Data num= 83

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2624.53	1568.23	2703.99	1568.05	2898.29	1567.48	2944.62	1567.34	3141.6	1566.77
3221.78	1566.9	3325.26	1567.07	3448.94	1567.24	3649.7	1567.18	3780.75	1567.14
3882.25	1567.1	3930.55	1567.08	4380.88	1566.79	4503.41	1566.71	4710.72	1566.87
4822.8	1566.91	5085.96	1566.93	5187.47	1566.9	5351.49	1566.81	5533.16	1566.69
5681.12	1566.83	5740.29	1566.89	5825.37	1566.96	5950.1	1567	6103.9	1566.67
6193.95	1566.58	6408.13	1566.85	6511.22	1566.9	6621.43	1567.07	6731.19	1567.32
6800.5	1566.95	7107.91	1566.17	7185.6	1566.28	7227.07	1566.25	7466.96	1565.11
7503.73	1565.07	7538.43	1565.02	7566.71	1565.02	7650.62	1565.08	7722.07	1565.17
7758.23	1565.18	7872.09	1565.28	7946.29	1565.47	8087.3	1565.29	8108.37	1565.3
8239.04	1565.63	8264.94	1565.7	8318.01	1565.67	8522.59	1565.57	8541.31	1565.57
8584.35	1565.51	8659.82	1565.51	8749.34	1565.53	8842.72	1565.72	8887.55	1565.81
8932.47	1565.85	8988.3	1565.87	9056.33	1565.89	9161.33	1565.9	9223.05	1565.9
9284.16	1565.93	9363.74	1565.95	9414.5	1565.88	9500.55	1565.83	9587.34	1565.85
9610	1565.86	9616.46	1565.88	9711.26	1566.27	9789.54	1566.53	9861.02	1566.73
9946.52	1567.12	9968.28	1567.23	10016.08	1567.32	10025.22	1567.24	10075.85	1567.01
10300.3	1566.74	10325.06	1566.75	10422.72	1566.43	10521.18	1566.09	10559.82	1565.96
10705.28	1566.03	10826.01	1566.19	10887.02	1566.24				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2624.53	.05	8541.31	.022	10300.3	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8541.31	10300.3	213.82	249.12	282.84	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2624.53	8417.45	1570	10503.51	10887.02	1570

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2624.53	3591.44	1568

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1568.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.74	Wt. n-Val.	0.050	0.022	0.050
W.S. Elev (ft)	1567.63	Reach Len. (ft)	213.82	249.12	282.84
Crit W.S. (ft)	1567.63	Flow Area (sq ft)	252.21	2580.50	231.28
E.G. Slope (ft/ft)	0.006688	Area (sq ft)	5732.33	2580.50	826.91
Q Total (cfs)	20000.00	Flow (cfs)	984.75	18402.49	612.76
Top Width (ft)	7295.58	Top Width (ft)	4949.87	1758.99	586.72
Vel Total (ft/s)	6.53	Avg. Vel. (ft/s)	3.90	7.13	2.65
Max Chl Dpth (ft)	2.61	Hydr. Depth (ft)	2.04	1.47	1.14
Conv. Total (cfs)	244563.0	Conv. (cfs)	12041.7	225028.4	7492.9
Length Wtd. (ft)	243.93	Wetted Per. (ft)	123.86	1758.99	203.20
Min Ch El (ft)	1565.51	Shear (lb/sq ft)	0.85	0.61	0.48
Alpha	1.12	Stream Power (lb/ft s)	3.32	4.37	1.26
Frctn Loss (ft)	1.69	Cum Volume (acre-ft)	8376.75	1220.26	1965.97
C & E Loss (ft)	0.18	Cum SA (acres)	5929.04	314.11	1556.09

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7949.63	8541.31	984.75	252.21	123.86	4.92	2.04	3.90
LB 8541.31	8893.11	5991.87	719.09	351.80	29.96	2.04	8.33
8893.11	9244.91	4612.05	614.58	351.80	23.06	1.75	7.50
9244.91	9596.70	4588.72	612.71	351.80	22.94	1.74	7.49
9596.70	9948.50	2355.88	410.71	351.80	11.78	1.17	5.74
9948.50	RB 10300.30	853.97	223.41	351.80	4.27	0.64	3.82
10300.30	10358.97	120.66	53.52	58.67	0.60	0.91	2.25
10358.97	10417.64	161.15	63.67	58.67	0.81	1.09	2.53
10417.64	10476.32	212.69	75.21	58.67	1.06	1.28	2.83
10476.32	10534.99	118.26	38.88	27.18	0.59	1.43	3.04

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.879

INPUT
Description: Downstream Toe of the West Side Embankment of the CAP
Station Elevation Data num= 119

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2313.21	1561.86	2341.54	1561.94	2387.7	1562.05	2414.82	1562.13	2483.44	1562.72
2510.04	1562.66	2549.68	1562.23	2568.81	1562.07	2627.23	1561.61	2642.37	1561.66
2695.97	1561.88	2708.87	1561.74	2733.26	1561.31	2744.85	1561.2	2766.15	1561.9
2774.79	1562.17	2782.08	1562.21	2783.53	1561.73	2784.66	1562.11	2792.9	1562.36
2810.8	1562.55	2824.13	1562.57	2878.6	1562.62	2884.4	1562.61	2937.74	1562.28
2948.18	1562.26	2995.26	1562.62	3011.39	1562.67	3060.46	1562.79	3078.99	1562.58
3144.46	1561.75	3160.76	1561.62	3221.01	1561.45	3229.09	1561.43	3308.6	1561.21
3442.86	1560.78	3460.84	1560.8	3668.44	1561.39	3681.21	1561.42	3906.59	1560.85
3923.39	1560.87	4049.59	1561.26	4057.11	1561.28	4201.41	1561.02	4213.64	1560.98
4377.92	1560.13	4402.56	1560.01	4407.42	1560	4531.85	1559.84	4544.45	1559.81
4702.73	1559.41	4717.65	1559.36	4923.99	1558.42	4958.69	1558.29	5009.88	1558.13
5033.19	1558.13	5082.61	1558.27	5119.18	1558.32	5254.75	1558.36	5284.15	1558.37
5347.54	1558.37	5414.6	1558.36	5518.27	1558.31	5568.15	1558.19	5621.17	1557.99
5644.53	1557.94	5746.85	1558	5772.86	1558.07	5787.34	1558.12	5806.09	1558.19
5849.3	1558.35	5869.37	1558.45	5880.83	1558.52	5919.45	1558.73	5966.45	1559.02
5989.17	1559.15	6037.64	1559.45	6037.81	1559.45	6233.2	1559.98	6236.61	1560
6456.98	1560.48	6817.53	1560.3	7015.33	1560	7074.35	1560	7106.79	1560
7178.08	1559.52	7538.65	1558.73	7899.2	1558.12	8259.76	1558.65	8620.32	1559.09
8980.87	1559.68	9104.35	1560	9341.43	1562.02	9701.98	1561.75	9968.92	1561.75
9984.81	1561.85	9988.92	1560	9996.46	1556.66	10002.17	1556.58	10011.01	1560
10015.19	1561.63	10030.34	1561.23	10062.55	1560.91	0423.09	1561.95	10598.15	1561.92
10603.68	1561.15	10622.27	1560.94	10795.83	1562.76	10809.46	1562.44	10833.8	1561.48
10839.21	1560	10842.83	1559.36	10865	1560	10866.1	1560.04	10875.39	1561.84
10936.05	1561.65	11020.89	1563.47	11036.05	1564.08	11136.06	1565.3		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

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 2313.21      .05 9984.81     .01510015.19      .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       8620.3210423.09           215.31  249.97  212.05            .3        .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2313.21    8375    1568   1057011136.06    1568
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 2313.21 3664.43    1566
```

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1563.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.050	0.044	0.050
W.S. Elev (ft)	1562.74	Reach Len. (ft)	215.31	249.97	212.05
Crit W.S. (ft)	1562.22	Flow Area (sq ft)	931.09	3228.58	117.28
E.G. Slope (ft/ft)	0.007223	Area (sq ft)	16728.39	3228.58	549.60
Q Total (cfs)	20000.00	Flow (cfs)	5721.83	14023.25	254.92
Top Width (ft)	7318.88	Top Width (ft)	4955.89	1802.77	560.22
Vel Total (ft/s)	4.68	Avg. Vel. (ft/s)	6.15	4.34	2.17
Max Chl Dpth (ft)	6.16	Hydr. Depth (ft)	3.80	1.79	0.80
Conv. Total (cfs)	235334.1	Conv. (cfs)	67327.1	165007.5	2999.6
Length Wtd. (ft)	234.97	Wetted Per. (ft)	245.32	1804.84	146.91
Min Ch El (ft)	1556.58	Shear (lb/sq ft)	1.71	0.81	0.36
Alpha	1.10	Stream Power (lb/ft s)	10.52	3.50	0.78
Frctn Loss (ft)	1.69	Cum Volume (acre-ft)	8321.63	1203.65	1961.51
C & E Loss (ft)	0.01	Cum SA (acres)	5904.73	303.93	1552.37

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7989.61	8620.32	5721.83	931.09	245.32	28.61	3.80	6.15
LB 8620.32	8980.87	6134.67	1208.11	360.55	30.67	3.35	5.08
8980.87	9341.43	2874.92	766.67	360.56	14.37	2.13	3.75
9341.43	9701.98	624.50	306.73	360.55	3.12	0.85	2.04
9701.98	10062.54	3105.57	474.48	362.61	15.53	1.32	6.55
10062.54	RB 10423.09	1283.60	472.60	360.56	6.42	1.31	2.72
10423.09	10494.39	122.04	56.46	71.30	0.61	0.79	2.16
10494.39	10565.68	125.20	57.33	71.30	0.63	0.80	2.18
10565.68	10636.98	7.68	3.50	4.32	0.04	0.81	2.20

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.806

INPUT
Description:
Station Elevation Data num= 89

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2327.4	1559.77	2329.35	1560	2335.14	1560.65	2370.25	1560.56	2378.26	1560.14
2387.5	1560.47	2461.15	1560.38	2507.7	1561.29	2556.13	1562.09	2599.5	1562.03
2632.96	1560.1	2634.1	1560	2641.21	1559.41	2645.66	1560	2653.42	1561.02
2684.08	1560.91	2684.77	1560.6	2723.24	1560.59	2743.55	1561.06	2789.68	1560.13
2791.94	1560	2798.9	1559.09	2807.65	1560	2810.99	1560.36	2908.38	1561.55
3131.97	1561.58	3336.72	1560	3355.62	1559.93	3505.53	1558.88	3554.33	1557.14
3579.21	1558.51	3604.63	1558.93	3646.04	1560	3693.38	1561.41	3760.75	1560.37
3802.81	1560.4	3839.2	1560	3875.53	1559.69	3922.53	1559.42	3949.61	1559.45
4026.43	1559.69	4832.65	1558.25	4882.43	1558.09	4897.42	1559.76	4913.14	1558.22
5397.11	1557.71	5402.55	1557.13	5574.79	1557.05	5590.74	1555.46	5603.09	1557.6
5617.31	1557.65	5798.77	1557.63	6202.34	1559.08	6366.57	1559.06	6497.12	1559.01
6857.67	1559.4	7218.23	1558.06	7578.79	1557.31	7939.34	1556.77	8299.9	1557.26
8547	1557.61	8660.46	1557.82	9021.01	1559.07	9331.03	1560	9521	1560.85
9881.59	1560.72	9970.36	1560.39	9985.67	1560.32	9986.43	1560	9997.37	1555.33
10003.01	1555.2	10016.91	1560	10016.93	1560.01	10019.98	1560	10031.64	1559.64
10242.13	1559.26	10311.4	1559.28	10465.74	1558.87	10630.71	1560	10645.31	1560

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10828.92    156010828.94    156010840.24 1559.7710846.67    156010852.27 1560.21
10878.49 1560.14 10978.5 1560.6811078.49 1561.3111178.48 1561.46

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  2327.4     .05 9986.43    .01510019.98     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       8660.46 10311.4           420.97  416.55  422.34              .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  2327.4 8252.01    156410806.8711178.48    1564
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  2327.4 3701.69 1561.43
```

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1561.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.050	0.041	0.050
W.S. Elev (ft)	1561.06	Reach Len. (ft)	420.97	416.55	422.34
Crit W.S. (ft)	1560.43	Flow Area (sq ft)	1458.28	2288.14	760.53
E.G. Slope (ft/ft)	0.007102	Area (sq ft)	13830.79	2288.14	909.47
Q Total (cfs)	20000.00	Flow (cfs)	8531.46	8934.01	2534.52
Top Width (ft)	7322.46	Top Width (ft)	4944.32	1650.94	727.20
Vel Total (ft/s)	4.44	Avg. Vel. (ft/s)	5.85	3.90	3.33
Max Chl Dpth (ft)	5.86	Hydr. Depth (ft)	3.57	1.39	1.53
Conv. Total (cfs)	237323.6	Conv. (cfs)	101235.8	106012.6	30075.1
Length Wtd. (ft)	419.59	Wetted Per. (ft)	408.45	1652.78	495.47
Min Ch El (ft)	1555.20	Shear (lb/sq ft)	1.58	0.61	0.68
Alpha	1.16	Stream Power (lb/ft s)	9.26	2.40	2.27
Frctn Loss (ft)	2.80	Cum Volume (acre-ft)	8246.10	1187.82	1957.95
C & E Loss (ft)	0.01	Cum SA (acres)	5880.26	294.02	1549.24

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8027.15	8660.46	8531.46	1458.28	408.45	42.66	3.57	5.85
LB 8660.46	8990.65	3644.12	880.41	330.19	18.22	2.67	4.14
8990.65	9320.84	1531.86	523.43	330.19	7.66	1.59	2.93
9320.84	9651.02	215.87	161.53	330.19	1.08	0.49	1.34
9651.02	9981.21	132.94	120.76	330.19	0.66	0.37	1.10
9981.21	RB 10311.40	3409.23	602.01	332.02	17.05	1.82	5.66
10311.40	10398.11	604.36	164.21	86.71	3.02	1.89	3.68
10398.11	10484.82	720.37	182.46	86.71	3.60	2.10	3.95
10484.82	10571.52	535.41	152.70	86.71	2.68	1.76	3.51
10571.52	10658.23	281.35	103.80	86.71	1.41	1.20	2.71
10658.23	10744.94	229.27	91.80	86.71	1.15	1.06	2.50
10744.94	10831.65	163.75	65.57	61.93	0.82	1.06	2.50

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

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CROSS SECTION          RIVER: Powerline FRS
REACH: Powerline          RS: 19.727

INPUT
Description:
Station Elevation Data    num=      99
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 2380.67 1559.58 2522.09 1558.95 2564.88 1558.91 2573.68 1558.38 2584.42 1559.01
 2624.78    1560 2634.19 1560.35 2649.74    1560 2684.25 1559.13 2737.16 1558.48
 2742.24 1557.78 2755.77 1557.74 2762.22 1558.46 3105.17 1558.58 3595.61 1557.09
  3681.9 1558.15 3688.31 1558.37 3887.64 1559.24 3978.12    1558  4086.6 1556.98
 4214.43 1556.74  4271.4 1556.73 4631.94  1555.8 4987.29 1555.33 5036.91 1554.89
  5043.8 1554.18 5051.05  1554.8 5078.68 1554.64 5085.98 1554.32 5090.27 1554.74
 5126.76 1554.31 5132.92 1554.03 5136.22 1554.48 5312.41 1554.51  5340.8 1559.67
 5343.94    1560 5353.05 1560.96  5400.2 1560.15 5401.18    1560 5466.56    1550
 5480.46 1547.93 5568.39 1548.71  5573.9    1550 5600.96 1556.19 5636.66 1557.23
 5655.05    1560 5660.25 1560.79  5676.2 1560.57 5678.84    1560 5698.17 1556.15
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  5713.6 1555.91 5799.32 1554.73 5806.94 1553.76 5812.32 1554.31  5814.9 1554.25
 5819.66 1553.71 5846.35 1553.87 5862.64 1554.87 5880.74 1554.86 5890.23 1554.57
 5898.49 1554.74 5973.95 1555.56 6074.16 1555.17 6088.86 1555.31 6183.78 1556.01
 6253.58 1556.57 6316.57 1557.11 6434.71 1557.37 6439.91  1557.5 6553.25 1557.15
 6625.06 1557.12 6795.26 1556.08 7155.82 1554.88 7359.98 1555.33 7516.38 1555.19
 7876.94 1553.41 8237.49 1554.56 8546.94 1554.95 8598.05  1554.8 8822.67 1556.05
 8958.61  1556.9 9319.16 1557.46 9819.15 1557.81 9971.46 1557.45  9987.1 1557.69
 9997.59 1553.0710003.23 1552.9110016.06 1557.3910031.31 1556.8810070.74  1556.4
10179.72 1557.7410323.16 1556.9710540.27 1556.88 10956.5 1557.7411056.49 1558.06
 11156.5 1558.47 11256.5 1558.8711356.49 1558.72 11456.5  1558.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2380.67     .05  9987.1    .01510016.06     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       8822.6710323.16           479.98   444.3   444.2             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2380.67 8077.47    1562 11077.3 11456.5    1562
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2380.67    3888 1564.0411255.94 11456.5    1564

CROSS SECTION OUTPUT    Profile #PF 3

  E.G. Elev (ft)            1558.61   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.34   Wt. n-Val.                0.050      0.038      0.050
  W.S. Elev (ft)            1558.27   Reach Len. (ft)          479.98     444.30     444.20
  Crit W.S. (ft)            1557.77   Flow Area (sq ft)       2532.42    1501.92     729.69
  E.G. Slope (ft/ft)       0.006219   Area (sq ft)           14068.01    1501.92     731.49
  Q Total (cfs)            20000.00   Flow (cfs)             13414.90    4912.17    1672.93
  Top Width (ft)            7024.86   Top Width (ft)          4740.59    1500.49     783.78
  Vel Total (ft/s)             4.20   Avg. Vel. (ft/s)           5.30       3.27       2.29
  Max Chl Dpth (ft)           10.34   Hydr. Depth (ft)           3.40       1.00       0.97
  Conv. Total (cfs)        253615.4   Conv. (cfs)           170111.2    62290.1    21214.1
  Length Wtd. (ft)           467.44   Wetted Per. (ft)        745.20    1502.25     754.14
  Min Ch El (ft)            1552.91   Shear (lb/sq ft)           1.32       0.39       0.38
  Alpha                        1.24   Stream Power (lb/ft s)     6.99       1.27       0.86
  Frctn Loss (ft)              3.26   Cum Volume (acre-ft)    8111.29    1169.70    1950.00
  C & E Loss (ft)              0.03   Cum SA (acres)         5833.46     278.95    1541.91


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 3

  Left Sta     Right Sta       Flow       Area       W.P.    % Conv.   Hydr D.   Velocity
  (ft)         (ft)            (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  7534.27      8178.47       2433.99     409.66    101.00      12.17      4.06       5.94
  8178.47      8822.67      10980.88    2122.75    644.20      54.90      3.30       5.17
  LB 8822.67   9122.77       1313.17     447.03    300.10       6.57      1.49       2.94
  9122.77      9422.87        560.90     268.33    300.10       2.80      0.89       2.09
  9422.87      9722.96        312.27     188.82    300.10       1.56      0.63       1.65
  9722.96      10023.06      1911.28     262.07    301.84       9.56      0.87       7.29
  10023.06     RB 10323.16    814.60     335.68    300.12       4.07      1.12       2.43
  10323.16     10436.49       389.02     149.64    113.33       1.95      1.32       2.60
  10436.49     10549.83       411.85     154.85    113.33       2.06      1.37       2.66
  10549.83     10663.16       355.08     141.67    113.33       1.78      1.25       2.51
  10663.16     10776.50       251.31     115.13    113.33       1.26      1.02       2.18
  10776.50     10889.83       162.38      88.59    113.33       0.81      0.78       1.83
  10889.83     11003.16        86.74      60.81    113.33       0.43      0.54       1.43
  11003.16     11116.50        16.55      18.99     74.14       0.08      0.26       0.87


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

CROSS SECTION          RIVER: Powerline FRS
REACH: Powerline          RS: 19.643

INPUT
Description:
```

Station Elevation Data num= 92

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2406.87	1556.49	2660.44	1557.3	2737.02	1557.08	2767.41	1556.39	2812.91	1556.56
2820.39	1555.95	2825.32	1556.35	2852.28	1556.56	2894.16	1556.26	2970.57	1556.42
3036.58	1556.38	3127.97	1555.75	3150.3	1555.48	3488.55	1554.89	3586.29	1554.13
3843.29	1556.8	3849.11	1557.02	4051.24	1556.84	4133.87	1555.74	4199.43	1555.31
4209.65	1555.06	4307.22	1554	4570.21	1553.03	4930.75	1551.81	5097.11	1551.15
5102.31	1551.02	5109.19	1551.2	5291.32	1553.62	5651.85	1552.29	5655.84	1552.25
5662.89	1551.72	5673.87	1552.15	5806.96	1552.54	5817.14	1551.4	5823.22	1551.3
5827.82	1551.97	5834.96	1552.22	5839.71	1551.35	5842.63	1551.69	5967.39	1552.93
5974.41	1552.31	5979.4	1552.69	5990.81	1552.81	5993.63	1552.33	6021.46	1553.11
6288.92	1554.95	6382.5	1555.47	6512.08	1554.32	6872.63	1553.46	6939.13	1553.67
7004.15	1553.42	7163.49	1552.03	7168.01	1551.1	7173.71	1552.01	7174.03	1552.02
7178.51	1550.7	7184.47	1551.85	7205.7	1551.91	7219.3	1551.27	7225.24	1551.71
7345.64	1554.93	7383.02	1553.72	7732.87	1550.87	7821.88	1551.07	7897.81	1550.55
8093.43	1552.85	8453.99	1552.63	8542.26	1553.02	8814.55	1553.09	8879.06	1553.18
8938.83	1552.8	9026.03	1553.41	9175.1	1553.46	9535.66	1555.31	9896.22	1554.44
9972.31	1554.58	9987.06	1554.92	9997.05	1550.52	10002.87	1550.45	10015.11	1555.09
10031.34	1553.86	10055.57	1553.63	10256.77	1554.14	10332.96	1553.69	10617.34	1553.9
10840.93	1552.94	11253.24	1554.68	11353.25	1554.76	11453.25	1554.88	11553.24	1555.83
11653.23	1555.73	11753.24	1555.46						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2406.87	.05	9987.06	.01	10015.11	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9026.03	10256.77	447.66	524.77	489.6	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2406.87	7886.52	1558	11360.25	11753.24	1558

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2406.87	3842.51	1557.01	11577.66	11753.24	1555.8

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1555.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.	0.050	0.037	0.050
W.S. Elev (ft)	1555.04	Reach Len. (ft)	447.66	524.77	489.60
Crit W.S. (ft)	1554.52	Flow Area (sq ft)	2687.15	955.98	1347.02
E.G. Slope (ft/ft)	0.007862	Area (sq ft)	10292.03	955.98	1368.82
Q Total (cfs)	20000.00	Flow (cfs)	12544.72	3401.14	4054.15
Top Width (ft)	6971.43	Top Width (ft)	4690.09	1067.65	1213.70
Vel Total (ft/s)	4.01	Avg. Vel. (ft/s)	4.67	3.56	3.01
Max Chl Dpth (ft)	4.59	Hydr. Depth (ft)	2.36	0.90	1.22
Conv. Total (cfs)	225561.6	Conv. (cfs)	141480.3	38358.3	45723.0
Length Wtd. (ft)	466.09	Wetted Per. (ft)	1139.53	1069.47	1103.49
Min Ch El (ft)	1550.45	Shear (lb/sq ft)	1.16	0.44	0.60
Alpha	1.10	Stream Power (lb/ft s)	5.40	1.56	1.80
Frctn Loss (ft)	2.69	Cum Volume (acre-ft)	7977.08	1157.16	1939.29
C & E Loss (ft)	0.04	Cum SA (acres)	5781.50	265.85	1531.73

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7702.20	8364.11	6773.99	1320.49	477.61	33.87	2.76	5.13
8364.11	9026.03	5770.76	1366.67	661.92	28.85	2.06	4.22
LB 9026.03	9272.18	1140.82	369.34	246.15	5.70	1.50	3.09
9272.18	9518.33	180.03	114.81	211.55	0.90	0.54	1.57
9518.33	9764.47	10.89	16.91	118.39	0.05	0.14	0.64
9764.47	10010.62	1343.02	177.48	247.62	6.72	0.72	7.57
10010.62	RB 10256.77	726.33	277.42	245.76	3.63	1.13	2.62
10256.77	10406.42	513.23	183.43	149.65	2.57	1.23	2.80
10406.42	10556.06	526.10	186.17	149.65	2.63	1.24	2.83
10556.06	10705.71	540.84	189.29	149.65	2.70	1.26	2.86
10705.71	10855.36	1008.60	275.11	149.65	5.04	1.84	3.67
10855.36	11005.00	908.75	258.43	149.65	4.54	1.73	3.52
11005.00	11154.65	425.54	163.92	149.65	2.13	1.10	2.60
11154.65	11304.30	112.72	73.87	149.65	0.56	0.49	1.53

11304.30	11453.95	18.40	16.80	55.95	0.09	0.30	1.10

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.544

INPUT
Description:
Station Elevation Data num= 120

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2448.16	1554.41	2589.58	1554.58	2718.22	1555.99	2775.1	1555.41	2844.02	1554.53
2849.21	1553.77	2853.57	1554.73	3083.66	1554.15	3173.59	1551	3208.41	1551.04
3247.68	1556.35	3269.24	1553.22	3449.83	1552.98	3810.4	1553.42	3998.89	1555.29
4170.96	1553.67	4235.49	1552.98	4309.18	1552	4531.5	1550.83	4892.06	1550.64
4905.35	1550	4916.01	1549.49	4923.48	1547.93	4936.95	1550	4944.05	1551.02
4953.59	1550	4955.43	1549.83	4972.73	1549.34	4982.92	1549.32	5005.71	1549.82
5007.39	1550	5024.14	1551.97	5033.7	1550	5037.32	1549.14	5107.87	1550
5404.59	1551.06	5414.55	1550	5421.83	1549.16	5425.77	1549.97	5428.17	1550
5480.39	1550.67	5484.09	1550	5486.27	1549.58	5489.35	1550	5493.74	1550.6
5538.03	1550.24	5541.86	1550	5546.12	1549.74	5548.99	1550	5551.75	1550.38
5703.32	1550.72	5709.2	1550.16	5714.99	1550.67	5899.33	1550.31	5901.37	1550
5906.15	1549.25	5908.98	1550	5910.02	1550.29	6042.21	1551.43	6176.74	1551.42
6304.36	1552.3	6385.17	1552.1	6487.06	1550.94	6672.7	1551.07	7033.25	1550.97
7161.09	1550	7247.86	1550	7255.73	1550.06	7256.06	1550	7266.7	1547.72
7272.02	1548.89	7325.89	1549.99	7358.15	1550	7423.07	1551.03	7475.03	1550
7533.26	1548.85	7712.4	1548.57	7720.21	1547.76	7727.36	1548.48	7744.29	1548.61
7775.42	1548.16	7794.95	1548.55	7803.6	1547.91	7810.31	1548.14	7816.8	1548.33
7825.21	1548.49	7832.82	1548.37	8033.27	1549.26	8305.7	1550	8533.26	1550.12
8600.04	1550	8695.13	1550	8821.71	1550	8902.69	1550	9033.25	1550.51
9214.16	1551.44	9533.27	1552.95	9919.74	1551.61	9938.84	1551.2	9970.54	1551.84
9986.05	1552.07	9991.11	1550	9997.07	1547.58	10002.95	1547.56	10009.22	1550
10015.21	1552.33	10032.31	1551.52	10050.66	1551.16	10170.16	1551.33	10333.35	1550.85
10616.35	1550.52	10839.97	1550.55	11349.86	1551.99	11449.86	1552.06	11549.85	1552.41
11606.44	1552.93	11649.91	1552.91	11749.93	1552.87	11849.93	1552.94	11949.93	1552.85

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2448.16	.05	9991.11	.015	10015.21	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9214.16	10170.16	454.81	461.63	449.09	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2448.16	7732.34	1556	11649.91	11949.93	1556

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2448.16	3995.19	1555.27	11849.69	11949.93	1560

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1552.58	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.050	0.028	0.050
W.S. Elev (ft)	1552.39	Reach Len. (ft)	454.81	461.63	449.09
Crit W.S. (ft)	1551.72	Flow Area (sq ft)	3821.08	488.59	1735.97
E.G. Slope (ft/ft)	0.004434	Area (sq ft)	9908.18	488.59	1735.97
Q Total (cfs)	20000.00	Flow (cfs)	14219.43	1766.84	4013.73
Top Width (ft)	6986.55	Top Width (ft)	4934.49	677.39	1374.67
Vel Total (ft/s)	3.31	Avg. Vel. (ft/s)	3.72	3.62	2.31
Max Chl Dpth (ft)	4.83	Hydr. Depth (ft)	2.58	0.72	1.26
Conv. Total (cfs)	300338.1	Conv. (cfs)	213531.9	26532.5	60273.8
Length Wtd. (ft)	454.30	Wetted Per. (ft)	1481.87	679.21	1374.67
Min Ch El (ft)	1547.56	Shear (lb/sq ft)	0.71	0.20	0.35
Alpha	1.10	Stream Power (lb/ft s)	2.66	0.72	0.81
Frctn Loss (ft)	2.76	Cum Volume (acre-ft)	7873.29	1148.46	1921.84
C & E Loss (ft)	0.02	Cum SA (acres)	5732.05	255.34	1517.18

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7184.36	7860.96	2518.34	516.72	128.66	12.59	4.02	4.87
7860.96	8537.56	7287.11	1898.80	676.60	36.44	2.81	3.84
8537.56	9214.16	4414.03	1405.55	676.60	22.07	2.08	3.14
LB 9214.16	9405.36	117.46	95.62	191.20	0.59	0.50	1.23
9405.36	9596.56	0.04	0.24	10.09	0.00	0.02	0.16
9596.56	9787.76	8.83	15.22	93.70	0.04	0.16	0.58
9787.76	9978.96	180.44	123.72	191.21	0.90	0.65	1.46
9978.96	RB 10170.16	1460.06	253.78	193.00	7.30	1.33	5.75
10170.16	10348.14	505.22	235.49	177.98	2.53	1.32	2.15
10348.14	10526.11	739.87	296.06	177.98	3.70	1.66	2.50
10526.11	10704.09	877.57	327.98	177.98	4.39	1.84	2.68
10704.09	10882.07	871.59	326.64	177.98	4.36	1.84	2.67
10882.07	11060.04	603.61	262.02	177.98	3.02	1.47	2.30
11060.04	11238.02	300.92	172.57	177.98	1.50	0.97	1.74
11238.02	11416.00	97.49	87.76	177.98	0.49	0.49	1.11
11416.00	11593.98	17.42	27.44	128.83	0.09	0.21	0.63

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.456

INPUT
Description:
Station Elevation Data num= 120

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2326.78	1551.51	2468.2	1550.88	2609.62	1550.81	2819.09	1552.37	2932.31	1551.78
2936.87	1551.15	2941.23	1551.61	3109.62	1551.42	3609.63	1550.81	3738.03	1550.43
3741.86	1550	3746.37	1549.69	3749.04	1550	3753.61	1550.86	3840.98	1553.33
3905.76	1553.61	4109.64	1550.98	4280.02	1550	4366.5	1550	4435.63	1551.51
4510.91	1550	4609.64	1548.16	4745.8	1548.34	4791.42	1546.76	4800.31	1546.03
4802.85	1546.87	4817.26	1546.74	4824.37	1545.53	4829.48	1546.41	4936.75	1546.92
4947.32	1544.55	4954.36	1546.36	4964.42	1546.75	4973.42	1545.05	5002.55	1546.08
5007.53	1546.76	5109.64	1547.5	5353.31	1548.14	5361.57	1547.3	5365.81	1547.66
5390.84	1548.11	5401.92	1547.08	5412.04	1548.03	5621.83	1548.22	5629.2	1547.57
5632.38	1548.2	5749.94	1548.7	5789.77	1548.31	5795.27	1546.69	5801.13	1547.95
5826.82	1547.97	5830.34	1546.95	5833.66	1548.28	5845.44	1547.91	5849.92	1546.51
5859.09	1548.31	6125.15	1548.61	6249.94	1548.53	6384.67	1550	6424.21	1550.03
6498.76	1550.34	6524.47	1550	6706.44	1548.13	6714.43	1547.73	6722.08	1547.92
6890.25	1548.28	7149.52	1548.57	7390.25	1546.13	7432.9	1546	7440.72	1543.89
7447.01	1545.85	7567.61	1545.69	7573.73	1545.07	7579.82	1546.09	7592.7	1546.04
7595.81	1545.56	7600.99	1546.07	7690.53	1546.31	7697.87	1545.23	7702.83	1546.1
7745.56	1546.38	7805.65	1547.03	8250.48	1547.61	8544.46	1547.95	8730.36	1548.68
8750.47	1548.97	8834.84	1547.92	8901.47	1547.85	8954.29	1548.29	9250.49	1548.92
9750.5	1548.79	9885.78	1549.65	9914.89	1550	9922.74	1548.31	9928.71	1549.6
9970.72	1549.73	9986.01	1549.64	9997.42	1544.96	10002.98	1545.01	10015.65	1549.94
10031.7	1548.87	10048.69	1548.65	10061.23	1549.02	10117.2	1550	10120.79	1550.08
10123.16	1550	10146.67	1549.24	10366.36	1548.35	10696.21	1547.98	10734.33	1547.62
10796.91	1547.63	10877.54	1547.74	10973.48	1548.95	11334.79	1548.66	11583.68	1549.12
11589.9	1548.62	11594.64	1548.84	12123.08	1550.03	12231.88	1549.84	12248.6	1550

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2326.78	.05	9986.01	.01	10015.65	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9250.49	10123.16	471.43	458.83	474.45	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2326.78	7554.97	1554	11924.18	12248.6	1554

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2326.78	4430	1551	12128.76	12248.6	1550.04

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1549.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.	0.050	0.029	0.050
W.S. Elev (ft)	1549.56	Reach Len. (ft)	471.43	458.83	474.45
Crit W.S. (ft)	1549.22	Flow Area (sq ft)	3171.15	519.18	1649.58
E.G. Slope (ft/ft)	0.008751	Area (sq ft)	7872.35	519.18	1649.58
Q Total (cfs)	20000.00	Flow (cfs)	13380.64	2256.91	4362.45
Top Width (ft)	7003.06	Top Width (ft)	4493.16	732.04	1777.86
Vel Total (ft/s)	3.75	Avg. Vel. (ft/s)	4.22	4.35	2.64
Max Chl Dpth (ft)	5.67	Hydr. Depth (ft)	1.87	0.71	0.93
Conv. Total (cfs)	213801.3	Conv. (cfs)	143039.9	24126.5	46634.9
Length Wtd. (ft)	470.81	Wetted Per. (ft)	1695.87	734.11	1777.90
Min Ch El (ft)	1544.96	Shear (lb/sq ft)	1.02	0.39	0.51
Alpha	1.11	Stream Power (lb/ft s)	4.31	1.68	1.34
Frctn Loss (ft)	3.04	Cum Volume (acre-ft)	7780.46	1143.12	1904.39
C & E Loss (ft)	0.04	Cum SA (acres)	5682.83	247.87	1500.93

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7173.38	7865.75	5467.09	986.91	311.12	27.34	3.18	5.54
7865.75	8558.12	5689.74	1392.02	692.37	28.45	2.01	4.09
8558.12	9250.49	2223.76	792.22	692.38	11.12	1.14	2.81
LB 9250.49	9425.02	242.22	115.75	174.53	1.21	0.66	2.09
9425.02	9599.56	270.49	123.68	174.53	1.35	0.71	2.19
9599.56	9774.09	292.99	129.75	174.53	1.46	0.74	2.26
9774.09	9948.63	50.59	37.53	109.48	0.25	0.34	1.35
9948.63	RB 10123.16	1400.65	112.47	101.03	7.00	1.13	12.45
10123.16	10335.70	253.78	134.57	198.96	1.27	0.68	1.89
10335.70	10548.25	794.04	273.95	212.54	3.97	1.29	2.90
10548.25	10760.79	1138.08	339.99	212.55	5.69	1.60	3.35
10760.79	10973.34	1124.71	337.59	212.55	5.62	1.59	3.33
10973.34	11185.88	284.16	147.88	212.54	1.42	0.70	1.92
11185.88	11398.42	389.81	178.76	212.54	1.95	0.84	2.18
11398.42	11610.97	238.20	133.03	212.57	1.19	0.63	1.79
11610.97	11823.51	134.68	94.48	212.54	0.67	0.44	1.43
11823.51	12036.06	5.01	9.35	91.10	0.03	0.10	0.54

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.369

INPUT
Description:
Station Elevation Data num= 112

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2325.29	1547.13	2466.71	1547.01	3107.02	1547.2	3217.75	1546.81	3224.85	1545.77
3232	1546.82	3607.81	1546.73	3610.55	1546.34	3642.99	1546.56	3738.92	1547.9
3747.34	1547.65	3856.34	1547.76	4120.1	1547.12	4247.34	1545.99	4502.86	1548.34
4747.34	1544.64	4879.75	1543.59	4892.1	1542.6	4896.65	1543.47	4904.7	1543.64
4910.72	1542.65	4912.24	1543.37	4938.41	1542.98	4947.26	1541.77	4959.42	1543.37
5247.35	1544.76	5451.64	1544.98	5459.43	1544.32	5462.59	1545.22	5472.63	1544.84
5476.53	1544.42	5480.27	1545.36	5693.23	1544.38	5701.53	1542.93	5709.92	1544.82
6107.56	1545.69	6272.96	1546.36	6415.74	1546.95	6607.56	1546.06	6950.57	1544.5
7107.56	1545.28	7482.41	1544.3	7491.51	1541.68	7505.53	1543.93	7547.67	1543.06
7557.38	1542.09	7562.84	1542.74	7571.17	1542.1	7574.97	1541.4	7581.26	1542.72
7640.56	1542.97	7646.59	1541.44	7652.4	1543.52	7737.83	1543.53	7780.44	1543.17
7834.75	1543.77	7953.23	1542.5	8098.43	1544.35	8177.08	1545.39	8237.01	1544.88
8354.63	1544.83	8434.36	1546.05	8467.71	1546.68	8484.05	1546.76	8558.43	1546.06
8701.59	1545.19	8898.35	1545.13	8967.72	1545.07	9197.1	1544.72	9467.71	1544.97
9749.34	1545.83	9753.63	1545.02	9759.54	1545.65	9945.56	1547.26	9962.32	1547.56
9967.73	1547.54	9971.61	1547.29	9984.93	1547.53	9997.16	1542.63	10003.01	1542.48
10016.24	1547.3	10030.55	1546.46	10054.41	1545.23	10061.55	1546.12	10328.37	1545.8
10375.48	1545.74	10911.46	1544.72	10987.28	1544.96	11042.09	154	611060.67	1546
11089.43	1545.51	11135.07	1545.92	11467.74	1545.95	11522.26	1545.32	11530.15	1544.34
11535.16	1545.4	11611.54	1545.14	11619.82	1544.21	11624.18	1545.06	11843.17	1545.85
11943.17	1546.51	11957.88	1546.49	12044.01	1546.55	12088.56	1546.32	12144.08	1546.95

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12195.37 1546.6512244.16  1546.512293.26 1547.1712344.19 1547.0212444.19 1546.85
12469.02 1546.5912544.19 1545.86

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2325.29     .05 9984.93    .01510016.24     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9467.7110061.55           470.44  483.62  480.37             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 2325.29 7371.04    1549
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2325.29 4523.31 1548.33   1204412544.19 1546.98

CROSS SECTION OUTPUT    Profile #PF 3

  E.G. Elev (ft)            1546.73   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.17   Wt. n-Val.                0.050      0.033      0.050
  W.S. Elev (ft)            1546.56   Reach Len. (ft)          470.44     483.62     480.37
  Crit W.S. (ft)            1545.89   Flow Area (sq ft)       4168.87     474.91    1855.93
  E.G. Slope (ft/ft)       0.004983   Area (sq ft)            8181.55     474.91    1855.93
  Q Total (cfs)            20000.00   Flow (cfs)             14639.41    1635.09    3725.50
  Top Width (ft)            7062.48   Top Width (ft)          4623.73     456.30    1982.45
  Vel Total (ft/s)             3.08   Avg. Vel. (ft/s)           3.51       3.44       2.01
  Max Chl Dpth (ft)            5.16   Hydr. Depth (ft)           2.03       1.04       0.94
  Conv. Total (cfs)        283327.6   Conv. (cfs)            207387.5    23163.3    52776.9
  Length Wtd. (ft)           473.20   Wetted Per. (ft)        2053.93     457.99    1982.79
  Min Ch El (ft)            1542.48   Shear (lb/sq ft)           0.63       0.32       0.29
  Alpha                        1.13   Stream Power (lb/ft s)     2.22       1.11       0.58
  Frctn Loss (ft)              2.97   Cum Volume (acre-ft)    7693.59    1137.89    1885.30
  C & E Loss (ft)              0.01   Cum SA (acres)          5633.50     241.62    1480.45


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 3

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                (ft)      (ft/s)
  7324.98       8039.23        9305.58    2133.02     669.63      46.53      3.19       4.36
  8039.23       8753.47        2149.79     885.73     670.06      10.75      1.32       2.43
  8753.47       9467.71        3184.04    1150.11     714.24      15.92      1.61       2.77
  LB 9467.71    9586.48         422.56     167.11     118.77       2.11      1.41       2.53
  9586.48       9705.25         257.12     124.04     118.77       1.29      1.04       2.07
  9705.25       9824.01         144.34      87.75     118.88       0.72      0.74       1.64
  9824.01       9942.78           4.47       7.09      40.48       0.02      0.18       0.63
  9942.78       RB 10061.55     806.60      88.92      61.09       4.03      1.49       9.07
  10061.55      10309.81        194.83     145.79     248.26       0.97      0.59       1.34
  10309.81      10558.08        423.12     232.16     248.27       2.12      0.94       1.82
  10558.08      10806.34        831.04     348.09     248.26       4.16      1.40       2.39
  10806.34      11054.61        958.09     379.11     248.28       4.79      1.53       2.53
  11054.61      11302.87        253.72     170.82     248.27       1.27      0.69       1.49
  11302.87      11551.13        310.57     192.90     248.44       1.55      0.78       1.61
  11551.13      11799.40        687.02     310.60     248.40       3.44      1.25       2.21
  11799.40      12047.66         67.11      76.46     244.61       0.34      0.31       0.88


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

CROSS SECTION           RIVER: Powerline FRS
REACH: Powerline           RS: 19.278

INPUT
Description:
Station Elevation Data     num=     118
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 2398.85 1544.23 2540.26 1543.76 2681.68 1543.57  2823.1 1543.08 3463.45 1543.15
 3553.24  1543.2 3558.27 1542.35 3562.45 1542.94 3736.74 1544.97 3832.49  1543.6
 4103.76 1543.39 4576.88 1544.27 4603.76 1544.64 4690.95 1542.82 4995.02 1541.17
 5001.21    1540 5006.32 1539.41 5010.45    1540 5013.99 1540.55 5042.86 1540.43
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 5044.84    1540 5051.85 1538.67  5059.8 1539.81  5067.6    1540 5103.76  1540.9
 5115.04 1540.31  5117.4    1540 5121.79 1539.41 5124.26    1540 5124.61 1540.09
 5289.52 1540.29 5301.09 1540.17 5315.32 1540.41 5477.56 1541.37 5484.11 1540.82
 5491.06 1541.62 5508.69 1541.59 5512.05    1541 5516.98 1541.86  5563.3 1541.51
 5574.94 1541.61 5585.54 1541.85 5682.46 1541.77 5687.57 1541.05 5691.57 1541.71
 5963.98 1542.35 5983.81 1542.04 5990.12 1541.62 5993.85 1541.69 6182.68 1543.41
 6350.77 1542.53 6721.89 1542.66 6810.31 1543.33 6824.21 1543.15 7684.44 1541.78
 7767.77 1540.35 7769.41    1540 7780.08 1537.83  7791.7    1540  7795.5 1540.69
 7875.07    1540 7934.22 1539.75 7938.76 1538.81    7943 1539.71 7960.24 1539.39
 8008.74    1540 8068.91  1540.7 8074.77    1540  8081.1  1539.3 8085.97    1540
 8090.66 1540.85 8159.26 1541.42 8184.43 1542.24 8215.99 1542.86 8251.93  1542.7
 8290.41 1541.99 8350.06 1541.93 8446.86 1542.83 8527.99 1542.02 8618.35  1542.5
 8831.91 1542.84 9187.09 1541.43 9324.62 1542.19 9584.63 1542.21 9824.61 1543.65
 9952.54 1543.84 9971.73 1544.51 9986.02 1544.97 9996.76    1540 9996.82 1539.97
10002.87 1539.8110003.33    154010016.28 1545.1810030.82 1544.6610054.36 1543.54
10063.91 1544.0210393.35  1542.910546.68 1543.2111105.44  1542.211129.77 1543.09
 11152.1 1543.6111208.81 1541.9711385.33 1543.1711432.66 1542.4111559.37  1543.9
   11641 1542.2111770.74 1541.8911781.04  1541.711791.27 1541.3511798.79 1541.63
11926.31 1542.3212085.25 1543.1212192.72 1544.2312283.77 1543.0112390.15 1543.82
12496.02 1542.4712658.39 1542.8412772.52 1543.08

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2398.85     .05 9986.02    .01510016.28     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9584.6310063.91            479.41  456.95   473.4              .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 2398.85 7190.77    1545
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2398.85    4601  1544.5 12193.212772.52 1544.51

CROSS SECTION OUTPUT    Profile #PF 3

  E.G. Elev (ft)            1543.74   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.21   Wt. n-Val.                0.050      0.025      0.050
  W.S. Elev (ft)            1543.53   Reach Len. (ft)          479.41     456.95     473.40
  Crit W.S. (ft)            1543.17   Flow Area (sq ft)       4017.98     199.27    1549.48
  E.G. Slope (ft/ft)       0.008060   Area (sq ft)            7777.04     199.27    1549.48
  Q Total (cfs)            20000.00   Flow (cfs)             15136.10    1084.98    3778.91
  Top Width (ft)            7035.89   Top Width (ft)          4927.92     243.80    1864.17
  Vel Total (ft/s)             3.47   Avg. Vel. (ft/s)           3.77       5.44       2.44
  Max Chl Dpth (ft)            5.70   Hydr. Depth (ft)           1.68       0.82       0.83
  Conv. Total (cfs)        222776.6   Conv. (cfs)            168598.5    12085.5    42092.7
  Length Wtd. (ft)           477.05   Wetted Per. (ft)        2394.85     245.31    1864.27
  Min Ch El (ft)            1539.81   Shear (lb/sq ft)           0.84       0.41       0.42
  Alpha                        1.12   Stream Power (lb/ft s)     3.18       2.23       1.02
  Frctn Loss (ft)              3.64   Cum Volume (acre-ft)    7607.42    1134.14    1866.52
  C & E Loss (ft)              0.02   Cum SA (acres)          5581.92     237.73    1459.24


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 3

  Left Sta     Right Sta       Flow       Area       W.P.    % Conv.   Hydr D.   Velocity
  (ft)         (ft)            (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  6710.32      7428.90        751.64     275.75    238.13       3.76      1.16       2.73
  7428.90      8147.47       8916.61    1892.91    719.52      44.58      2.63       4.71
  8147.47      8866.05       2097.49     793.98    718.61      10.49      1.10       2.64
  8866.05      9584.63       3370.33    1055.33    718.58      16.85      1.47       3.19
  LB 9584.63   9680.49        260.42      99.41     95.86       1.30      1.04       2.62
  9680.49      9776.34         67.64      44.28     95.86       0.34      0.46       1.53
  9776.34      9872.20          1.27       2.53     29.05       0.01      0.09       0.50
  9872.20      9968.05
  9968.05      RB 10063.91    755.66      53.05     24.55       3.78      2.30      14.24
  10063.91     10334.77        25.19      27.90    128.10       0.13      0.22       0.90
  10334.77     10605.63       191.65     127.18    270.86       0.96      0.47       1.51
  10605.63     10876.49       351.90     183.13    270.86       1.76      0.68       1.92
  10876.49     11147.35       731.47     284.07    270.88       3.66      1.05       2.57
  11147.35     11418.21       534.57     233.31    265.05       2.67      0.88       2.29
  11418.21     11689.08       380.42     177.27    222.17       1.90      0.80       2.15
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11689.08	11959.94	1385.97	416.83	270.88	6.93	1.54	3.33
11959.94	12230.80	177.75	99.81	165.47	0.89	0.60	1.78

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.191

INPUT
Description:
Station Elevation Data num= 142

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2414.82	1541.18	2556.24	1541.52	2697.66	1541.25	2802.02	1540	2816.33	1539.77
2819.68	1540	2820.43	1540.06	2839.08	1540.04	2980.49	1540.21	3396.24	1540.74
3398.5	1540	3405.34	1537.81	3421.23	1540	3424.94	1540.48	3499.54	1540.79
3502.86	1540	3507.37	1538.63	3509.68	1540	3511.23	1540.74	3519.07	1540.97
3521.6	1540	3526.05	1538.4	3531	1540	3534.31	1540.89	3672.07	1540.8
3761.55	1540.75	3959.94	1540	4030.58	1539.92	4045.65	1539.38	4054.01	1539.97
4066.03	1540	4140.88	1540.26	4261.55	1540.43	4464.84	1540	4633.13	1540
4753.68	1541.64	4833.87	1540	4901.86	1538.6	5071.39	1538.23	5079.16	1537.91
5084.31	1538.52	5379.08	1538.45	5386.92	1536.83	5395.19	1538.23	5401.83	1538.61
5457.79	1538.35	5467.85	1537.69	5475.54	1538.54	5740.55	1539.13	5744.73	1537.73
5750.07	1539.15	5830.59	1539.5	5839.17	1538.66	5839.24	1538.69	5843.34	1538.89
5901.83	1539.63	6057.68	1540	6280.86	1540	6394.93	1538.99	6400.25	1538.29
6407.11	1538.57	6542.17	1538.49	7042.16	1538.27	7538.12	1537.29	7542.14	1537.05
7549.27	1536.88	7556.72	1537.09	7794.17	1536.76	7802.44	1535.09	7807.65	1536.37
7862.15	1536.89	7870	1535.54	7875.53	1536.53	8042.15	1539.12	8542.14	1539.25
9042.15	1538.92	9089.16	1538.2	9542.15	1538.87	9694.82	1539.67	9951.29	1539.7
9955.58	1540	9973.13	1541.19	9986.96	1541.74	9990.89	1540	9997.37	1537.11
10003.36	1536.91	10011.07	1540	10015.53	1542.14	10016.45	1542.15	10031.17	1542.05
10042.16	1540.96	10051.84	1540.29	10232.13	1540	10402.7	1539.02	10751.65	1538.86
10762.19	1538.11	10767.64	1538.75	10774.6	1538.48	10785.19	1537.65	10795.03	1538.86
10924.11	1538.62	11028.55	1539.42	11064.59	1540	11084.75	1540.24	11193.1	1540.1
11198.79	1540	11281.9	1539.23	11336.98	1538.13	11347.69	1537.35	11355.92	1537.49
11397.07	1538.67	11438.79	1538.75	11485.41	1537.52	11598.61	1536.12	11601.71	1535.26
11606.98	1536.48	11643.73	1536.32	11659.66	1535.31	11674.55	1536.31	11706.59	1537.05
11806.59	1538.79	11850.42	1539.17	11906.59	1539.88	12006.6	1539.5	12106.6	1539.9
12206.59	1539.91	12222.68	1539.83	12306.65	1539.92	12358.44	1540	12406.87	1540.14
12470.66	1540.53	12507.05	1539.71	12607.07	1539.68	12683.31	1540	12707.08	1539.33
12720.82	1539.07	12793.16	1539.23	12802.87	1539.02	12807.15	1538.72	12907.15	1538.54
13007.13	1539.26	13107.15	1539.36						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2414.82	.05	9986.96	.01	10015.53	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9694.82	10031.17	473.38	480.01	494.92	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
2414.82	7018.97	1542

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2414.82	4740	1540.5	12471.71	13107.15	1542

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1540.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.050	0.019	0.050
W.S. Elev (ft)	1539.92	Reach Len. (ft)	473.38	480.01	494.92
Crit W.S. (ft)	1539.41	Flow Area (sq ft)	4063.02	97.06	2134.55
E.G. Slope (ft/ft)	0.007239	Area (sq ft)	6363.20	97.06	2134.55
Q Total (cfs)	20000.00	Flow (cfs)	13569.52	522.31	5908.17
Top Width (ft)	6775.61	Top Width (ft)	4588.76	279.34	1907.51
Vel Total (ft/s)	3.18	Avg. Vel. (ft/s)	3.34	5.38	2.77
Max Chl Dpth (ft)	4.83	Hydr. Depth (ft)	1.52	0.35	1.12
Conv. Total (cfs)	235072.9	Conv. (cfs)	159491.3	6139.0	69442.6
Length Wtd. (ft)	480.88	Wetted Per. (ft)	2676.42	280.53	1908.13
Min Ch El (ft)	1536.91	Shear (lb/sq ft)	0.69	0.16	0.51
Alpha	1.05	Stream Power (lb/ft s)	2.29	0.84	1.40
Frctn Loss (ft)	3.01	Cum Volume (acre-ft)	7529.60	1132.59	1846.50
C & E Loss (ft)	0.01	Cum SA (acres)	5529.55	234.99	1438.75

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6782.82	7510.82	3879.98	1026.40	491.85	19.40	2.09	3.78
7510.82	8238.82	6384.28	1619.34	728.56	31.92	2.22	3.94
8238.82	8966.82	1076.16	556.24	728.00	5.38	0.76	1.93
8966.82	9694.82	2229.13	861.04	728.01	11.15	1.18	2.59
LB 9694.82	9762.09	15.98	16.28	67.27	0.08	0.24	0.98
9762.09	9829.36	15.12	15.75	67.27	0.08	0.23	0.96
9829.36	9896.63	14.28	15.22	67.27	0.07	0.23	0.94
9896.63	9963.90	11.11	12.31	57.76	0.06	0.21	0.90
9963.90	RB 10031.17	465.82	37.51	20.96	2.33	1.90	12.42
10031.17	10338.77	19.75	24.31	92.00	0.10	0.26	0.81
10338.77	10646.37	510.86	277.44	307.60	2.55	0.90	1.84
10646.37	10953.96	802.48	363.86	307.77	4.01	1.18	2.21
10953.96	11261.56	98.31	79.29	159.10	0.49	0.50	1.24
11261.56	11569.16	1730.11	576.86	307.68	8.65	1.88	3.00
11569.16	11876.76	2714.12	756.06	307.95	13.57	2.46	3.59
11876.76	12184.36	31.47	52.11	307.60	0.16	0.17	0.60
12184.36	12491.95	1.05	4.61	118.43	0.01	0.04	0.23

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.100

INPUT
Description:
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2416.22	1537.06	2422.25	1537.41	2425.33	1536.31	2435.89	1537.54	2943.21	1537.08
2947.83	1535.99	2952.97	1536.81	3197.24	1537.16	3232.92	1537.16	3241.3	1536.57
3245.76	1537.26	3280.21	1536.97	3573.83	1539.37	3788.05	1537.8	3837.54	1537.18
3859.52	1536.92	3865.97	1536.39	3869.89	1536.9	3873.7	1536.26	3878.57	1536.81
4281.13	1537.11	4287.82	1536.7	4295.82	1537.15	4477.86	1536.47	4768.6	1539.2
5118.17	1536.01	5411.16	1535.22	5419.85	1534.66	5426.73	1535.02	5511.78	1535.85
5517.51	1534.64	5526.41	1535.42	5608.35	1535.92	5615.85	1535.32	5625.36	1535.66
5673.66	1536.28	5679.71	1535.49	5685.74	1536.08	5811.87	1536.74	6118.19	1536.33
6132.81	1536.12	6141.14	1534.7	6149.09	1536.19	6618.18	1535.52	7258.47	1535.79
7689.33	1533.74	7696.4	1532.5	7704.07	1533.77	7758.48	1533.46	7789.07	1533.91
7841.83	1534.43	7869.27	1533.46	7875.51	1532.98	7883.17	1533.36	8398.79	1535.81
8543.15	1535.58	8898.8	1536.43	9398.8	1536.22	9487.2	1536.15	9497.73	1535.49
9501.29	1535.89	9657.63	1536.14	9898.81	1536.69	9948.38	1537.34	9972.03	1538.22
9986.3	1538.32	9996.84	1533.39	10003.24	1533.24	10016.16	1538.66	10031.56	1537.68
10053.12	1536.72	10398.79	1536.15	10742.07	1534.56	10748.66	1534.33	10753.85	1534.42
10820.21	1534.75	10824.63	1533.56	10830.93	1534.55	11031.97	1537.15	11342.19	1535.35
11381.08	1534.94	11702.76	1534.69	11830.04	1535.49	12023.46	1535.67	12071.89	1534.46
12124.56	1534.79	12224.56	1536.58	12238.37	1537.03	12324.56	1536.53	12424.56	1537.05
12523.06	1537.12	12566.87	1536.5	12624.9	1535.61	12679.07	1536.73	12724.92	1535.98
12824.92	1536.48	12924.92	1535.56	12936.81	1535.87	13025.74	1535.73	13125.74	1535.44
13225.74	1536.41	3325.74	1536.99						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2416.22	.05	9986.3	.015	10016.16	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.3	10016.16	498.88	532.81	502.11	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
2416.22	6844.13	1539.5

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2416.22	4768.6	1539.2	12521	13325.74	1539.2

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1537.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1536.88	Reach Len. (ft)	498.88	532.81	502.11
Crit W.S. (ft)	1536.36	Flow Area (sq ft)	4269.86	51.60	2858.86
E.G. Slope (ft/ft)	0.005473	Area (sq ft)	6013.53	51.60	2858.86
Q Total (cfs)	20000.00	Flow (cfs)	11697.89	629.26	7672.86
Top Width (ft)	7156.52	Top Width (ft)	4890.27	22.53	2243.72
Vel Total (ft/s)	2.79	Avg. Vel. (ft/s)	2.74	12.19	2.68
Max Chl Dpth (ft)	4.38	Hydr. Depth (ft)	1.39	2.29	1.27
Conv. Total (cfs)	270354.3	Conv. (cfs)	158128.7	8506.1	103719.5
Length Wtd. (ft)	501.50	Wetted Per. (ft)	3069.41	24.04	2244.03
Min Ch El (ft)	1533.24	Shear (lb/sq ft)	0.48	0.73	0.44
Alpha	1.53	Stream Power (lb/ft s)	1.30	8.94	1.17
Frctn Loss (ft)	3.58	Cum Volume (acre-ft)	7462.35	1131.77	1818.14
C & E Loss (ft)	0.05	Cum SA (acres)	5478.04	233.32	1415.17

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6201.26	6958.27	314.18	141.47	114.14	1.57	1.24	2.22
6958.27	7715.28	3806.77	1347.16	757.23	19.03	1.78	2.83
7715.28	8472.28	6059.65	1780.40	757.07	30.30	2.35	3.40
8472.28	9229.29	908.36	570.15	757.01	4.54	0.75	1.59
9229.29	9986.30	608.99	430.70	683.97	3.04	0.63	1.41
LB 9986.30	9992.27	9.09	1.95	3.19	0.05	0.68	4.65
9992.27	9998.24	188.64	15.98	6.45	0.94	2.68	11.80
9998.24	10004.22	316.02	21.24	6.06	1.58	3.56	14.88
10004.22	10010.19	113.57	11.81	6.48	0.57	1.98	9.62
10010.19	RB 10016.16	1.94	0.62	1.87	0.01	0.36	3.10
10016.16	10347.12	132.49	118.27	297.57	0.66	0.40	1.12
10347.12	10678.08	1018.91	419.67	330.96	5.09	1.27	2.43
10678.08	11009.03	1645.42	559.66	331.21	8.23	1.69	2.94
11009.03	11339.99	339.69	198.12	263.27	1.70	0.75	1.71
11339.99	11670.95	2197.07	665.47	330.96	10.99	2.01	3.30
11670.95	12001.91	1465.31	521.89	330.96	7.33	1.58	2.81
12001.91	12332.87	868.59	366.80	300.31	4.34	1.22	2.37
12332.87	12663.82	5.32	8.98	58.78	0.03	0.15	0.59

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.999

INPUT
Description:
Station Elevation Data num= 117

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2413.27	1534.17	2509.46	1532.71	2515.11	1531.86	2520.96	1532.99	2570.16	1532.79
2572.89	1531.98	2578.59	1533.07	2654.66	1533	2666.65	1532.47	2671	1532.94
3053.57	1534.48	3655.57	1534.31	3693.89	1535.17	3742.52	1535.59	4123.22	1535.22
4268.34	1536.55	4334.19	1535.44	4355.78	1535.41	4456.6	1535.64	4590.06	1533.35
4597.25	1532.53	4604.07	1532.94	4974.51	1534.07	5228.17	1532.36	5241.76	1532.48
5476.01	1532.3	5481.31	1530.86	5491.25	1532.52	5614.82	1533.14	6114.81	1533.48
6511.71	1532.73	6517.64	1532.26	6522.82	1532.7	6573.18	1532.21	6580.97	1532.3
6614.8	1532.62	6728.97	1532.16	6732.98	1531.69	6745.91	1532.5	7022.8	1531.05
7030.16	1530.33	7035.93	1531.06	7047.19	1531.26	7055.57	1530.34	7057.43	1531.15
7136.91	1531.37	7388.6	1533.46	7440.42	1532.15	7754.98	1531.09	7849.81	1530.63
7854.58	1530.45	7860.61	1530.74	7873.22	1530.56	7879.62	1529.97	7885.31	1530.49
8395.29	1531.61	8541.38	1531.39	8895.3	1533.04	9535.61	1532.97	9563.63	1532.67
9571.38	1532.2	9575.26	1532.85	9629.81	1533.1	9636.38	1531.65	9641.71	1532.68
9951.25	1533.05	9975.16	1533.94	9986.71	1534.55	9995.57	1530	9997.09	1529.22
10003.06	1529.32	10004.66	1530	10015.51	1534.61	10031.54	1533.32	10210.26	1532.8
10218.1	1531.99	10223.53	1532.65	10397.35	1532.51	10433.02	1532.25	10808.09	1531.67
10815.2	1530.91	10820.14	1531.64	10897.11	1531.87	10904.47	1530.44	10911.92	1531.25
11077.7	1533.39	11563.72	1530.21	11565.13	1530	11568.9	1529.29	11573.42	1529.95
11574.76	1530	11701.22	1531.16	12061.77	1531.83	12161.75	1532.43	12261.75	1533.12
12361.75	1532.72	12461.77	1532.8	12561.77	1533.92	12661.76	1534.17	12761.76	1533.94

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12861.76 1535.1112961.77 1534.0913061.76 1533.6913161.76 1533.0713261.76  1532.5
13298.29 1532.2113313.71 1529.9713355.96 1529.6913384.84 1530.4913409.42  1532.1
13418.21    153113440.39 1531.7513460.29 1532.5513475.13 1530.4713485.34    1532
13562.79 1533.9413662.79 1534.41

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2413.27     .05 9986.71    .01510015.51     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9986.7110015.51            550.8   497.5  512.71             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 2413.27 6654.45    1540
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2413.27    4965    1534 12862.213662.79 1535.97
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CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1533.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1533.08	Reach Len. (ft)	550.80	497.50	512.71
Crit W.S. (ft)	1532.88	Flow Area (sq ft)	3332.00	53.94	2573.92
E.G. Slope (ft/ft)	0.009685	Area (sq ft)	3714.20	53.94	2573.92
Q Total (cfs)	20000.00	Flow (cfs)	10356.06	900.87	8743.07
Top Width (ft)	6352.21	Top Width (ft)	4043.19	22.36	2286.67
Vel Total (ft/s)	3.36	Avg. Vel. (ft/s)	3.11	16.70	3.40
Max Chl Dpth (ft)	3.86	Hydr. Depth (ft)	1.03	2.41	1.13
Conv. Total (cfs)	203226.4	Conv. (cfs)	105231.2	9154.0	88841.1
Length Wtd. (ft)	530.86	Wetted Per. (ft)	3233.57	24.06	2287.19
Min Ch El (ft)	1529.22	Shear (lb/sq ft)	0.62	1.36	0.68
Alpha	2.01	Stream Power (lb/ft s)	1.94	22.64	2.31
Frctn Loss (ft)	3.40	Cum Volume (acre-ft)	7406.65	1131.12	1786.83
C & E Loss (ft)	0.08	Cum SA (acres)	5426.89	233.05	1389.05

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6199.99	6957.33	791.15	314.73	302.94	3.96	1.04	2.51
6957.33	7714.68	2705.14	918.45	697.05	13.53	1.32	2.95
7714.68	8472.02	6012.83	1533.26	757.41	30.06	2.02	3.92
8472.02	9229.37	750.66	439.97	757.35	3.75	0.58	1.71
9229.37	9986.71	96.17	125.58	718.83	0.48	0.17	0.77
LB 9986.71	9992.47	13.98	2.16	3.26	0.07	0.74	6.48
9992.47	9998.23	273.15	16.75	6.33	1.37	2.91	16.31
9998.23	10003.99	443.14	21.68	5.84	2.22	3.76	20.44
10003.99	10009.75	165.74	12.35	6.26	0.83	2.14	13.42
10009.75	RB 10015.51	4.85	1.00	2.36	0.02	0.46	4.82
10015.51	10380.24	143.11	101.23	266.66	0.72	0.38	1.41
10380.24	10744.97	1004.93	369.47	364.73	5.02	1.01	2.72
10744.97	11109.69	1127.22	370.47	309.09	5.64	1.20	3.04
11109.69	11474.42	1178.36	399.63	349.51	5.89	1.14	2.95
11474.42	11839.15	3877.76	830.83	364.87	19.39	2.28	4.67
11839.15	12203.88	1349.46	440.96	364.73	6.75	1.21	3.06
12203.88	12568.61	62.35	61.34	267.61	0.31	0.23	1.02

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.905

INPUT

Description:
Station Elevation Data num= 153

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2390.65	1535.78	2463.93	1530.55	2471.47	1530	2521.75	1526.86	2545.33	1526.93
2599.43	1530	2611.4	1533.1	2675.01	1534.67	2694.51	1533.11	2709.35	1530.33
2740.61	1530.53	2772.98	1532.3	2809.29	1531.98	2824.66	1530.44	2852.59	1530
2869.39	1529.85	2877.15	1528.96	2884.54	1529.08	2887.98	1529.94	2896.58	1530
3111.78	1530.68	3349.46	1530	3752.08	1529.48	4392.4	1529.6	4706.24	1530
5032.71	1530.86	5094.23	1530	5170.16	1529.29	5184.18	1527.79	5188.26	1528.24
5220.73	1529.52	5229.14	1528.42	5238.06	1529.01	5361.18	1529.38	5368.75	1528.33
5372.61	1529.13	5440.46	1529.46	5450.03	1528.57	5457.41	1529.54	5532.7	1529.51
6032.7	1529.43	6171.79	1528.75	6532.69	1529.36	6954.04	1530	7032.71	1528.79
7119.45	1528.12	7151.81	1527.92	7157.29	1526.97	7165.18	1528.08	7307.59	1528.28
7318.07	1527.68	7324.29	1527.98	7673	1527.83	7939.86	1526.99	7946.02	1527.56
8173.25	1527.58	8239.33	1527.18	8543.79	1528.42	8673.23	1529.02	9173.24	1529.41
9315.94	1530	9407.08	1530	9492.9	1529.08	9494.38	1528.67	9498.93	1529.01
9508.32	1528.8	9516.24	1527.11	9522.98	1529.43	9673.24	1529.75	9891.68	1529.16
9895.89	1528.69	9902.83	1529.11	9944.84	1529.61	9966.84	1530	9974.8	1530.13
9986.42	1530.57	9987.7	1530	9997.47	1525.63	10003.31	1525.66	10014.58	1530
10016.08	1530.58	10031.57	1530	10032.16	1529.98	10032.66	1530	10042.41	1530
10175.45	1529.43	10183.96	1528.43	10193.62	1529.53	10451.08	1528.62	10755.24	1528.46
10794.6	1528.34	10800.14	1527.06	10808.57	1528.51	10829.11	1528.08	10873	1530
10885.56	1530.67	10979.18	1530	11115.79	1528.39	11361.29	1527.34	11367.94	1527.28
11369.12	1526.91	11412.46	1527.81	11428.65	1525.71	11447.28	1529.34	11461.64	1530
11462.04	1530.02	11462.42	1530	11475.87	1529.31	11491.84	1526.42	11509.8	1527.18
11921.11	1527.21	11927.24	1526.4	11931.2	1527.21	12036.58	1527.31	12041.1	1527.01
12045.98	1527.38	12157.48	1528.15	12196.6	1528.59	12255.29	1530	12262.93	1530
12357.57	1529.14	12400.82	1529.42	12452.16	1529.11	12466.06	1528.58	12470.61	1528.96
12557.56	1529.09	12635.13	1530	12657.56	1530.26	12680.2	1530	12721.94	1529.52
12729.21	1528.85	12734.62	1529.68	12757.56	1529.94	12764.99	1530	12857.56	1530.76
12957.58	1530.34	13057.56	1531.06	13157.56	1531.85	13257.56	1530.93	13357.56	1530.56
13437.01	1530.09	13457.56	1530.01	13557.51	1530.37	13557.56	1530.39	13631.7	1530
13657.56	1529.86	13757.56	1528.35	13762.95	1527.34	13772.89	1524.89	13779.31	1527.65
13857.56	1529.81	13925.33	1530	13957.57	1530.09				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2390.65	.05	9986.42	.015	10016.08	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.42	10016.08	497.15	483.04	572.01	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
2390.65	6442.03	1534

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2390.65	5025	1530.5	13150	13957.57	1530.5

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1529.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1529.76	Reach Len. (ft)	497.15	483.04	572.01
Crit W.S. (ft)	1529.21	Flow Area (sq ft)	3734.57	65.02	3428.56
E.G. Slope (ft/ft)	0.004541	Area (sq ft)	4411.19	65.02	3428.56
Q Total (cfs)	20000.00	Flow (cfs)	9370.36	772.39	9857.25
Top Width (ft)	6891.21	Top Width (ft)	4492.56	25.74	2372.91
Vel Total (ft/s)	2.77	Avg. Vel. (ft/s)	2.51	11.88	2.88
Max Chl Dpth (ft)	4.13	Hydr. Depth (ft)	1.18	2.53	1.44
Conv. Total (cfs)	296809.5	Conv. (cfs)	139060.5	11462.7	146286.2
Length Wtd. (ft)	535.36	Wetted Per. (ft)	3170.96	27.38	2374.52
Min Ch El (ft)	1525.63	Shear (lb/sq ft)	0.33	0.67	0.41
Alpha	1.63	Stream Power (lb/ft s)	0.84	8.00	1.18
Frctn Loss (ft)	3.05	Cum Volume (acre-ft)	7355.28	1130.45	1751.50
C & E Loss (ft)	0.04	Cum SA (acres)	5372.92	232.77	1361.63

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6188.54	6948.11	74.03	97.14	356.35	0.37	0.27	0.76

6948.11	7707.69	3024.75	1204.41	738.47	15.12	1.63	2.51
7707.69	8467.27	5341.71	1713.44	759.61	26.71	2.26	3.12
8467.27	9226.84	772.65	537.09	759.58	3.86	0.71	1.44
9226.84	9986.42	157.19	182.48	556.96	0.79	0.33	0.86
LB 9986.42	9992.35	19.65	3.80	4.52	0.10	0.92	5.17
9992.35	9998.28	220.40	18.66	6.42	1.10	3.15	11.81
9998.28	10004.22	356.89	24.25	6.00	1.78	4.09	14.72
10004.22	10010.15	162.79	15.50	6.36	0.81	2.61	10.50
10010.15	RB 10016.08	12.66	2.81	4.09	0.06	0.74	4.51
10016.08	10410.23	203.47	161.15	312.75	1.02	0.52	1.26
10410.23	10804.38	1116.19	490.95	394.36	5.58	1.25	2.27
10804.38	11198.53	566.54	277.78	262.61	2.83	1.06	2.04
11198.53	11592.68	2853.59	853.54	384.47	14.27	2.22	3.34
11592.68	11986.83	3733.37	1013.04	394.28	18.67	2.57	3.69
11986.83	12380.97	1194.04	487.78	350.69	5.97	1.39	2.45
12380.97	12775.12	190.09	144.32	275.36	0.95	0.52	1.32

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.814

INPUT
Description:
Station Elevation Data num= 130

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2467.1	1526.69	2512.33	1525.41	2523.88	1524.04	2538.47	1525.32	2571.18	1526.14
2852.09	1526.65	2856.58	1526.07	2860.41	1526.46	2987.4	1526.91	2995.59	1525.96
3000.08	1526.42	3251.39	1526.95	3389.06	1526.15	4029.36	1525.29	4152.42	1525.33
4155.53	1524.65	4160.5	1525.32	4810.4	1528.28	5183.05	1526.85	5189.4	1525.68
5196.25	1526.79	5310.39	1527.1	5332.15	1527.09	5346.34	1527.11	5453.54	1526.42
5462.32	1525.32	5502.77	1525.77	5507.62	1526.23	5550.94	1526.6	5564.66	1526.46
5810.38	1526.41	6239.08	1525.24	6246	1524.64	6251.74	1525.31	6258.12	1525.31
6265.42	1524.22	6275.45	1525.36	6310.38	1525.77	7170.61	1525.88	7670.59	1524.67
7744.54	1524.32	7748.99	1523.41	7754.67	1524.21	7776.46	1524.83	7785.44	1523.79
7796.32	1524.42	7862.54	1524.67	7867.64	1523.8	7874.43	1524.52	7911.01	1524.41
7916.99	1523.89	7922.3	1524.79	8036.55	1524.89	8045.49	1523.99	8051.74	1524.45
8076.76	1524.63	8085.45	1524.06	8093.74	1524.38	8097.09	1524.48	8099.98	1524.24
8106.78	1524.51	8140.51	1524.48	8147.68	1524.43	8530.83	1525.83	9030.84	1526.72
9432.5	1526.24	9470.54	1526.73	9530.84	1526.55	9888.28	1526.24	9895.01	1525.65
9902.01	1525.73	9973.27	1527.03	9987.38	1527.34	9997.73	1521.9	10003.68	1522.33
10016.22	1527.1	10030.91	1526.2	10463.08	1525.38	10693.23	1525.24	10709.47	1523.29
10729.22	1526.53	10743.12	152	710757.86	1526.45	10773.83	1523.61	10789.93	1524.73
11354.37	1524.57	11360.44	1523.72	11365.5	1524.31	11739.01	1524.72	11807.74	1524.49
11939.61	1526.78	11962.62	1526.56	12071.05	1525.5	12142.08	1524.91	12145.24	1524.39
12150.04	1525.12	12175.54	1524.74	12178.9	1524.29	12185.48	1524.92	12366.58	1525.94
12402.13	1526.06	12409.92	1526.48	12509.91	1527.28	12565.58	1526.46	12609.92	1526.04
12689.44	1526.27	12695.93	1525.66	12700.14	1526.07	12709.92	1526.66	12809.92	1526.51
12909.91	1527.75	13009.91	1527.63	13109.93	1527.65	13209.93	1527.75	13309.93	1527.48
13409.91	1528.27	13509.91	1528.2	13609.93	1527.45	13686.42	1527.93	13709.93	1528.35
13809.91	1528.65	13871.42	1527.75	13881.42	1526.62	13887.64	1527.52	13909.91	1527.68
13993.42	1526.37	14044.99	1522.43	14053.74	1523.6	14077.26	1525.2	14109.92	1525.57

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2467.1	.05	9987.38	.015	10016.22	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9987.38	10016.22	468.36	449.54	498.59	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
2467.1	6228.77	1528.5

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2467.1	4811.27	1528.99	12910	14109.92	1527

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1526.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1526.52	Reach Len. (ft)	468.36	449.54	498.59
Crit W.S. (ft)	1526.43	Flow Area (sq ft)	3042.34	68.58	3277.26
E.G. Slope (ft/ft)	0.007365	Area (sq ft)	3404.42	68.58	3277.26

Q Total (cfs)	20000.00	Flow (cfs)	8020.91	1072.41	10906.69
Top Width (ft)	6600.33	Top Width (ft)	4103.74	25.61	2470.99
Vel Total (ft/s)	3.13	Avg. Vel. (ft/s)	2.64	15.64	3.33
Max Chl Dpth (ft)	4.53	Hydr. Depth (ft)	0.92	2.68	1.33
Conv. Total (cfs)	233050.3	Conv. (cfs)	93463.7	12496.3	127090.3
Length Wtd. (ft)	483.71	Wetted Per. (ft)	3321.89	27.49	2472.02
Min Ch El (ft)	1521.99	Shear (lb/sq ft)	0.42	1.15	0.61
Alpha	2.24	Stream Power (lb/ft s)	1.11	17.93	2.03
Frctn Loss (ft)	2.83	Cum Volume (acre-ft)	7310.68	1129.70	1707.47
C & E Loss (ft)	0.06	Cum SA (acres)	5323.87	232.49	1329.83

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6227.24	6979.27	1111.34	575.86	750.71	5.56	0.77	1.93
6979.27	7731.30	2195.43	867.01	752.03	10.98	1.15	2.53
7731.30	8483.32	4436.82	1322.77	752.58	22.18	1.76	3.35
8483.32	9235.35	200.10	170.69	469.98	1.00	0.36	1.17
9235.35	9987.38	77.14	105.99	596.58	0.39	0.18	0.73
LB 9987.38	9993.15	32.38	4.51	4.70	0.16	1.08	7.18
9993.15	9998.92	334.72	20.65	6.35	1.67	3.58	16.21
9998.92	10004.68	473.51	24.61	5.85	2.37	4.27	19.24
10004.68	10010.45	212.06	15.54	6.18	1.06	2.69	13.65
10010.45	RB 10016.22	19.73	3.27	4.42	0.10	0.79	6.04
10016.22	10425.59	498.80	261.10	398.95	2.49	0.65	1.91
10425.59	10834.96	1668.30	530.15	383.16	8.34	1.39	3.15
10834.96	11244.33	2916.28	761.07	409.37	14.58	1.86	3.83
11244.33	11653.70	3373.14	830.59	409.46	16.87	2.03	4.06
11653.70	12063.07	1318.93	452.59	367.04	6.59	1.23	2.91
12063.07	12472.44	1071.52	392.83	351.82	5.36	1.12	2.73
12472.44	12881.81	59.78	48.93	152.22	0.30	0.32	1.22

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.729

INPUT
Description: 10,000 Station located in the Powerline Floodway immediately upstream of the Vineyard Road crossing.
Station Elevation Data num= 123

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2485.03	1522.18	2494.25	1520.92	2503.17	1522.08	2543.19	1523.38	2574.88	1523.82
2677.2	1525.26	2801.54	1523.12	2804.3	1523.02	2810.91	1523.18	3324.56	1523.33
4105.58	1522.2	4413.21	1523.15	4493.82	1523.69	4618.48	1525.05	4746.45	1523.69
5045.1	1523.98	5060.2	1522.64	5067.09	1523.91	5233.59	1523.16	5268.47	1523.94
5275.81	1522.92	5300.19	1523.22	5304.51	1523.64	5362.5	1523.87	5371.44	1523.29
5377.18	1523.73	5418.5	1523.42	5427.73	1522.24	5436.14	1524.03	5886.63	1523.41
6386.65	1522.31	6886.64	1524.54	7386.61	1521.73	7515.74	1521.6	7521.89	1520.8
7532.34	1521.2	7542.88	1521.63	7553.77	1520.27	7561.91	1521.45	7652.52	1522.34
7688.69	1522.83	7730.23	1521.86	7886.62	1521.63	8386.63	1522.39	8543.89	1523
8796.29	1522.88	8804.49	1522.63	8818.19	1523.05	8886.62	1523.88	9247.17	1524.22
9405.25	1523.46	9415.99	1523.35	9421.75	1523.67	9593.49	1523.3	9599.19	1522.62
9606.26	1522.96	9625.53	1522.98	9629.39	1522.5	9630.29	1522.64	9640.37	1522.91
9658.45	1523.59	9677.35	1524.02	9697.61	1523.19	9824.89	1523.05	9971.08	1523.87
9985.83	1523.88	9993.89	1520	9996.81	1518.59	10003.18	1518.92	10005.8	1520
10014.58	1523.29	10026.55	1523.38	10043.33	1522.88	10061.36	1523.73	10075.6	1523.92
10090.2	1523.65	10104.61	1522.48	10122.05		1523	10422.64	1522.09	10511.65	1521.65
10646.24	1521.99	10763.82	1522.22	10773.4	1520.12	10780.39	1521.74	10869.86	1522.01
11504.09	1521.22	11693.36	1521.89	11816.73	1522.29	11899.45	1522.23	11984.67	1522.59
12123.05	1522.53	12176.13	1523.03	12339.27	1524.69	12346.65	1524.79	12446.64	1524.02
12546.64	1524.59	12646.66	1523.67	12659.49	1523.75	12746.66	1523.55	12846.66	1523.9
12946.64	1524.99	13046.64	1525.22	13146.66	1525.49	13246.66	1525.37	13346.64	1526.53
13446.64	1525.94	13546.64	1525.86	13646.66	1526.41	13746.66	1525.94	13846.65	1525.56
13946.65	1526.66	14046.64	1525.96	14091.17	1525.78	14114.07	1525.13	14128.12	1524.77
14129.43	1525.09	14164.9	1525.66	14179.62	1524.48	14197.48	1525.05	14227.73	1525.65
14245.74	1520.91	14246.65	1521.27	14255.59	1523.08				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2485.03	.05	9985.83	.01510026.55		.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.8310026.55		79.54	137.44	117.14	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
2485.03	6063.98	1528

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2485.03	5045.37	1525.68	1316014255.59		1524.5

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1523.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1523.75	Reach Len. (ft)	79.54	137.44	117.14
Crit W.S. (ft)	1523.39	Flow Area (sq ft)	3437.04	94.10	3708.37
E.G. Slope (ft/ft)	0.004758	Area (sq ft)	3676.22	94.10	3708.37
Q Total (cfs)	20000.00	Flow (cfs)	8149.61	1093.14	10757.24
Top Width (ft)	6216.24	Top Width (ft)	3812.30	40.45	2363.49
Vel Total (ft/s)	2.76	Avg. Vel. (ft/s)	2.37	11.62	2.90
Max Chl Dpth (ft)	5.16	Hydr. Depth (ft)	1.12	2.33	1.57
Conv. Total (cfs)	289958.4	Conv. (cfs)	118152.5	15848.3	155957.7
Length Wtd. (ft)	104.51	Wetted Per. (ft)	3080.37	42.45	2364.00
Min Ch El (ft)	1518.59	Shear (lb/sq ft)	0.33	0.66	0.47
Alpha	1.86	Stream Power (lb/ft s)	0.79	7.65	1.35
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	7272.61	1128.87	1667.49
C & E Loss (ft)	0.03	Cum SA (acres)	5281.31	232.15	1302.16

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5485.35	6235.43	295.80	157.41	171.45	1.48	0.92	1.88
6235.43	6985.51	785.47	424.75	473.94	3.93	0.90	1.85
6985.51	7735.59	2644.81	1033.60	708.54	13.22	1.46	2.56
7735.59	8485.67	3677.31	1288.64	750.08	18.39	1.72	2.85
8485.67	9235.75	487.78	295.27	390.20	2.44	0.76	1.65
9235.75	9985.83	258.50	237.38	586.16	1.29	0.41	1.09
LB 9985.83	9993.97	113.36	14.92	8.74	0.57	1.89	7.60
9993.97	10002.12	583.00	39.35	8.47	2.91	4.83	14.82
10002.12	10010.26	353.09	29.39	8.66	1.77	3.61	12.01
10010.26	10018.41	34.30	7.18	8.44	0.17	0.88	4.78
10018.41	RB 10026.55	9.41	3.26	8.14	0.05	0.40	2.89
10026.55	10449.45	972.46	454.46	400.98	4.86	1.13	2.14
10449.45	10872.36	2359.70	790.51	423.32	11.80	1.87	2.99
10872.36	11295.26	2655.84	848.29	422.90	13.28	2.01	3.13
11295.26	11718.17	3272.56	961.51	422.91	16.36	2.27	3.40
11718.17	12141.07	1417.29	581.97	422.91	7.09	1.38	2.44
12141.07	12563.97	73.09	56.44	105.76	0.37	0.53	1.30
12563.97	12986.88	6.26	15.19	165.22	0.03	0.09	0.41

Warning: Divided flow computed for this cross-section.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.703

INPUT
Description: 10,000 Station located in the Powerline Floodway immediately downstream of the Vineyard Road crossing.

Station Elevation Data num= 146

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2447.28	1521.7	2453.93	1520.4	2459.14	1521.35	2516.15	1523.48	2617.7	1524.14
2760.43	1522.4	2767.05	1521.7	2775.32	1522.25	2851.42	1523.42	3382.8	1522.08
3632.44	1521.39	4361.59	1522.57	4413.46	1522.42	4427.13	1523.29	4574.66	1524.31
4913.45	1524.49	5016.57	1523.38	5024.76	1522.01	5041.37	1522.01	5047.46	1523.05
5179	1523.17	5191.75	1522.6	5195.86	1522.83	5207.01	1522.98	5216.49	1522.17
5223.5	1522.85	5244.31	1523.63	5257.5	1523.57	5263.69	1522.27	5286.55	1522.58
5293.5	1522.96	5317.33	1523.2	5324.76	1522.35	5330.28	1522.99	5335.46	1523.38

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 5340.23 1523.17 5343.99 1522.73 5348.44 1523.24 5382.13 1523.46 5391.56 1521.71
 5398.21 1523.32 5413.47 1523.81 5913.46 1523.22 6105.16 1521.56 6113.43 1521.75
  6295.8 1521.69 6301.12 1521.07 6307.97 1521.55 6413.46 1522.36 6471.52  1521.6
 6475.71 1522.33 6913.45 1523.91 7413.45 1521.46 7472.12 1520.71 7477.76 1520.44
 7482.06 1520.81 7500.22 1521.02  7592.3 1521.76 7645.28 1522.29 7682.82 1521.67
 7913.45 1521.46 8413.44 1522.02 8513.38 1522.34 8730.96 1522.76 8745.88 1522.35
 8751.92 1522.54 8913.45 1523.98    9274 1523.48  9386.6 1523.04 9394.01 1522.42
 9400.73  1523.1 9608.31 1522.64 9634.55 1523.48 9653.06 1523.45 9689.43 1522.72
  9765.8 1522.35 9888.05 1523.17 9907.76 1522.65 9923.14 1523.12 9937.34 1523.67
 9951.97 1523.32 9962.45 1522.78 9985.85  1522.5 9991.17    152010008.41    1520
10013.23 1522.7510013.74 1522.9710024.63 1522.6910024.76  1522.610028.75 1521.42
10037.56    152310041.56 1522.45 10073.1 1521.9710078.22 1521.2510083.83 1522.06
10086.82 1522.2410447.39 1520.87   10484 1520.8110808.97 1521.5510817.49    1520
10819.75 1519.5710823.14    152010828.48 1520.7110841.94 1520.92 10849.4 1520.22
10854.75 1520.7511149.95 1520.93 11159.1 1520.4411195.38 1520.8111253.59 1521.05
11448.34 1520.7811453.91 1520.2911457.99 1520.3911623.02 1521.3111756.49 1521.66
12059.83 1522.4612062.37 1522.8412235.83 1524.4212283.46  1524.412289.74 1524.23
12383.45 1523.0512483.45 1523.1512583.44 1523.2312657.74 1522.8412683.44 1522.93
12783.46 1523.1312883.45 1524.4512983.45 1524.4513083.45  1524.313183.45 1524.64
13283.45 1525.1413383.45 1525.3913483.45 1525.4413583.45 1525.3213683.45 1525.66
13783.43 1524.8713883.45 1525.1213983.45 1525.9614083.46 1526.1214129.51 1526.18
14142.71 1526.1914183.46 1524.7714197.95 1523.6114246.99 1522.6214255.59 1523.32
14268.95 1523.51

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2447.28     .05 9985.85    .01510013.74     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9985.8510013.74             420.6  479.13  473.13              .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 2447.28 5998.42    1526
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2447.28 4911.23 1524.99   1288614268.95    1524

CROSS SECTION OUTPUT    Profile #PF 3

  E.G. Elev (ft)            1523.34   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.32   Wt. n-Val.                  0.050      0.015      0.050
  W.S. Elev (ft)            1523.02   Reach Len. (ft)            420.60     479.13     473.13
  Crit W.S. (ft)            1522.82   Flow Area (sq ft)         2597.81      69.52    3552.16
  E.G. Slope (ft/ft)       0.006928   Area (sq ft)              2679.72      69.52    3552.16
  Q Total (cfs)            20000.00   Flow (cfs)                6429.25    1021.42   12549.32
  Top Width (ft)            5229.16   Top Width (ft)            3027.18      27.89    2174.08
  Vel Total (ft/s)             3.22   Avg. Vel. (ft/s)             2.47      14.69       3.53
  Max Chl Dpth (ft)            3.45   Hydr. Depth (ft)             0.92       2.49       1.63
  Conv. Total (cfs)        240288.8   Conv. (cfs)              77243.9   12271.8   150773.1
  Length Wtd. (ft)           459.62   Wetted Per. (ft)          2822.46      29.22    2174.97
  Min Ch El (ft)            1520.00   Shear (lb/sq ft)             0.40       1.03       0.71
  Alpha                        2.01   Stream Power (lb/ft s)       0.99      15.12       2.50
  Frctn Loss (ft)              2.99   Cum Volume (acre-ft)      7266.81    1128.61    1657.73
  C & E Loss (ft)              0.06   Cum SA (acres)            5275.07     232.04    1296.06


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 3

  Left Sta     Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)             (cfs)    (sq ft)      (ft)                (ft)      (ft/s)
  5462.71      6216.56         655.43     250.72    218.15       3.28       1.15       2.61
  6216.56      6970.42         766.99     368.29    450.68       3.83       0.82       2.08
  6970.42      7724.28        1890.77     723.32    629.41       9.45       1.15       2.61
  7724.28      8478.14        2769.19     977.46    753.86      13.85       1.30       2.83
  8478.14      9231.99         216.61     151.84    327.73       1.08       0.46       1.43
  9231.99      9985.85         130.22     126.18    442.62       0.65       0.29       1.03
  LB 9985.85   9991.43         111.76      10.20      6.14       0.56       1.83      10.96
  9991.43      9997.01         274.95      16.85      5.58       1.37       3.02      16.32
  9997.01      10002.58        274.95      16.85      5.58       1.37       3.02      16.32
  10002.58     10008.16        274.95      16.85      5.58       1.37       3.02      16.32
  10008.16     RB 10013.74      84.82       8.76      6.35       0.42       1.57       9.68
  10013.74     10439.26       1640.00     568.75    426.02       8.20       1.34       2.88
```

10439.26	10864.78	3088.48	831.36	425.84	15.44	1.95	3.71
10864.78	11290.30	3687.07	924.33	425.54	18.44	2.17	3.99
11290.30	11715.82	3315.99	867.34	425.55	16.58	2.04	3.82
11715.82	12141.35	813.94	351.72	366.44	4.07	0.96	2.31
12141.35	12566.87						
12566.87	12992.39	3.90	8.67	105.59	0.02	0.08	0.45

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.612

INPUT
Description:
Station Elevation Data num= 175

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2433.14	1520	2449.33	1520.34	2495.4	1520.49	2527.68	1520	2542.27	1519.79
2550.24	1519.2	2557.1	1519.85	2574.12	1520	2839.75	1521.37	2847.43	1521
2857.49	1521.37	2886.21	1521.78	2919.42	1521.83	2948.16	1521.45	3035.69	1520.11
3036.08	1520	3041.33	1518.54	3047.18	1520	3047.26	1520.02	3227.95	1520
3693.2	1518.86	3728.25	1518.46	3736.93	1516.74	3739.41	1517.34	3743.68	1517.78
3754.12	1517.86	3834.6	1517.27	3922.54	1518.5	3954.41	1520	3956.29	1520.41
3957.23	1520	3970.94	1518.12	4024.18	1518.07	4054.97	1516.43	4075.24	1516.82
4086.27	1517.99	4114.77	1518.59	4123.89	1517.28	4186.16	1519.39	4258.87	1519.84
4265.32	1520	4318.83	1521.29	4400.3	1520.21	4900.28	1520.74	5144.49	1520.48
5147.92	1520	5152.22	1519.39	5158.06	1520	5159.4	1520.14	5197.22	1520
5217.3	1519.95	5227.59	1519.24	5233.35	1519.46	5260.97	1520	5295.27	1520.62
5298.94	1520	5302.84	1519.34	5308.53	1520	5309.27	1520.1	5760.51	1520.91
5863.57	1520	6121.07	1519.61	6250.2	1519.82	6258.27	1518.98	6263.32	1519.45
6481.62	1519.09	6584.62	1519.23	6589.07	1518.92	6594.38	1519.49	6659.11	1520
7180.29	1520	7206.55	1519.81	7233.82	1519.38	7241.56	1519.5	7282.03	1520
7341.86	1520.74	7384.23	1520	7480.9	1518.5	7488.12	1517.94	7494.16	1518.22
7548.35	1518.65	7557.74	1517.84	7562.01	1518.28	7588.42	1518.45	7592.57	1517.32
7597.89	1518.12	7841.84	1518.19	8341.85	1518.76	8504.9	1519.46	8580.83	1520
8592.37	1520.17	8593.26	1520	8596.11	1519.43	8602.2	1519.99	8605.43	1520
8705.66	1522.44	8757.94	1521.48	8841.84	1520.96	9256.14	1521.88	9267.66	1520
9275.38	1518.64	9284.39	1520	9291.11	1521.02	9305.74	1521.77	9320.08	1521.41
9335.84	1520.07	9355.79	1521.73	9444.24	1520.4	9629.17	1520	9663.91	1519.21
9667.68	1519.56	9676.15	1519.48	9684.59	1518.88	9944.69	1519.88	9966.55	1520
9966.71	1520	9972.66	1518.79	9986.55	1519.4	9997.4	1514	10003.52	1514.25
10018.11	1520	10018.21	1520.04	10018.95	1520	10032.82	1519.24	10049.11	1519.49
10060.1	1518.37	10069.04	1519.21	10079.04	1519.23	10305.36	1518.59	10495.1	1517.97
10888.46	1518.72	11150.07	1517.44	11160.33	1515.34	11166.48	1517.04	11188.81	1517.2
11197.46	1516.36	11201.53	1516.71	11213.51	1516.88	11219.83	1516.21	1226.51	1517.15
11249.01	1517.25	11430.75	1517.11	1436.85	1516.56	11442.45	1516.85	11832.13	1517.58
12065.1	1519.35	12192.68	1519.95	12286.85	1518.44	12731.18	1518.73	12954.81	1518.95
13054.8	1519.37	13154.8	1519.72	13254.79	1519.51	3329.61	1520	13354.79	1520.17
13454.8	1520.19	13539.41	1521.34	13554.8	1520.37	13654.8	1520.72	13754.8	1520.89
13791.75	1521.51	13797.56	1521.32	13806.95	1521.44	13854.8	1520.97	13954.8	1521.27
14054.79	1520.43	14154.8	1520.65	14239.46	1520	14254.79	1519.88	14265.98	1520
14333.77	1520.68	14339.14	1520	14343.66	1519.48	14354.79	1519.24	14425.34	1519.73

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2433.14	.05	9986.55	.015	10018.95	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.55	10018.95	439.72	484.69	514.43	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
2433.14	5824.6	1523

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2433.14	4319.57	1522.07	13530	14425.34	1521

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1520.30	Element			
Vel Head (ft)	0.52	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1519.78	Reach Len. (ft)	439.72	484.69	514.43
Crit W.S. (ft)	1519.78	Flow Area (sq ft)	1762.77	106.94	4566.60
E.G. Slope (ft/ft)	0.006103	Area (sq ft)	1772.81	106.94	4566.60
Q Total (cfs)	20000.00	Flow (cfs)	4179.89	1800.07	14020.04

Top Width (ft)	5433.73	Top Width (ft)	2174.05	31.01	3228.67
Vel Total (ft/s)	3.11	Avg. Vel. (ft/s)	2.37	16.83	3.07
Max Chl Dpth (ft)	5.78	Hydr. Depth (ft)	0.83	3.45	1.41
Conv. Total (cfs)	256018.1	Conv. (cfs)	53506.4	23042.5	179469.2
Length Wtd. (ft)		Wetted Per. (ft)	2131.67	33.34	3229.45
Min Ch El (ft)	1514.00	Shear (lb/sq ft)	0.32	1.22	0.54
Alpha	3.45	Stream Power (lb/ft s)	0.75	20.57	1.65
Frctn Loss (ft)		Cum Volume (acre-ft)	7245.31	1127.64	1613.64
C & E Loss (ft)		Cum SA (acres)	5249.95	231.72	1266.72

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5454.50	6209.84	9.06	19.00	203.54	0.05	0.09	0.48
6209.84	6965.19	278.69	194.38	399.36	1.39	0.49	1.43
6965.19	7720.53	1121.53	438.91	379.00	5.61	1.16	2.56
7720.53	8475.87	2558.33	948.56	755.34	12.79	1.26	2.70
8475.87	9231.21	17.71	19.58	80.24	0.09	0.24	0.90
9231.21	9986.55	194.57	142.35	314.19	0.97	0.45	1.37
LB 9986.55	9993.03	129.18	12.94	7.24	0.65	2.00	9.99
9993.03	9999.51	617.88	32.63	6.99	3.09	5.04	18.93
9999.51	10005.99	716.23	34.99	6.67	3.58	5.40	20.47
10005.99	10012.47	303.69	21.28	6.96	1.52	3.28	14.27
10012.47	RB 10018.95	33.09	5.11	5.47	0.17	1.00	6.48
10018.95	10459.59	1007.49	454.27	436.81	5.04	1.04	2.22
10459.59	10900.23	1778.95	641.19	440.64	8.89	1.46	2.77
10900.23	11340.87	3482.26	959.94	441.25	17.41	2.18	3.63
11340.87	11781.51	4779.64	1160.22	440.67	23.90	2.63	4.12
11781.51	12222.14	1037.76	444.16	394.96	5.19	1.12	2.34
12222.14	12662.78	1224.52	512.47	440.65	6.12	1.16	2.39
12662.78	13103.42	689.35	363.04	440.64	3.45	0.82	1.90
13103.42	13544.06	20.06	31.31	193.84	0.10	0.16	0.64

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.520

INPUT
Description:
Station Elevation Data num= 117

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2428.93	1518.08	2841.82	1518.29	2867.23	1517.93	2875.34	1518.04	2917.57	1518.91
3035.87	1518.8	3176.33	1516.61	3183.43	1516.07	3190.95	1516.97	3633.09	1515.33
3762.08	1515.2	3769.15	1513.82	3779.06	1515.27	3915.93	1515.41	4057.36	1517.42
4110.7	1518.57	4198.79	1517.56	4213.44	1517.75	4222.58	1517.1	4229.59	1517.51
4309.58	1518.56	4410.31	1518.94	4495.67	1518.64	4526.84	1517.31	4533.84	1516.85
4542.65	1517.67	4698.77	1518.15	5198.77	1517.99	5211.46	1517.76	5217.65	1517.25
5224.04	1517.54	5677.21	1517.68	5700.73	1517.72	6058.99	1517.2	6527.62	1515.5
6535.12	1514.72	6542.23	1516.4	6559.01	1516.24	6900.38	1517.05	6903.59	1516.78
6913.75	1516.85	7059.01	1517.89	7419.55	1516.98	7746.58	1515.84	7770.07	1515.28
7919.54	1515.7	8501.43	1516.58	8559.87	1517.13	8625.04	1518.12	8644.5	1515.01
8662.08	1517.76	8676.56	1518.29	8691.53	1517.67	8706.59	1516.22	8725.55	1518.67
8801.64	1518.74	9301.65	1517.92	9787.93	1515.04	9794.78	1514.5	9798.74	1515.27
9867.5	1515.92	9871.5	1515.53	9876.98	1515.68	9951.95	1517.71	9963.31	1517.76
9972.67	1515.45	9985.84	1516.07	9997.43	1510.95	10003.2	1511.12	10016.44	1516.2
10030.34	1515.37	10052.86	1515.59	10071.19	1515.93	10301.69	1515.17	10513.13	1514.31
10662.26	1514.81	11437.05	1513.83	11445.9	1511.93	11450.75	1513.26	11605.66	1513.61
11966.22	1514.15	12326.77	1513.9	12550.4	1515.1	12774	1514.48	12982.55	1516.34
12997.6	1516.32	13093.19	1515.48	13221.2	1515.21	13321.19	1515.32	13322.32	1515.21
13328.88	1514.69	13333.72	1515.03	13421.19	1516.24	13521.21	1516.02	13621.21	1516.56
13721.21	1516.96	13803.37	1517.67	13807.79	1516.83	13814.89	1517.6	13821.2	1517.67
13831.8	1517.47	13836.83	1517.07	13844.06	1517.58	13875.12	1517.63	13921.2	1518.07

13953.88 1518.22 14021.2 1518.42 14121.2 1518.29 14221.2 1517.3214223.88 1517.07
14321.2 1516.1114421.19 1516.2814437.86 1515.8514443.86 1515.3114447.64 1515.6
14521.2 1515.8114621.19 1515.98

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2428.93	.05	9985.84	.01510016.44		.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.8410016.44		522.38	479.05	425.04	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
2428.93	5673.51	1522

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2428.93	4409.03	1519.97	13798.814621.19		1518.2

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1516.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1516.23	Reach Len. (ft)	522.38	479.05	425.04
Crit W.S. (ft)	1516.11	Flow Area (sq ft)	538.93	95.65	5579.34
E.G. Slope (ft/ft)	0.005657	Area (sq ft)	538.93	95.65	5579.34
Q Total (cfs)	20000.00	Flow (cfs)	726.10	1459.96	17813.94
Top Width (ft)	4733.71	Top Width (ft)	1198.58	30.60	3504.53
Vel Total (ft/s)	3.22	Avg. Vel. (ft/s)	1.35	15.26	3.19
Max Chl Dpth (ft)	5.28	Hydr. Depth (ft)	0.45	3.13	1.59
Conv. Total (cfs)	265906.0	Conv. (cfs)	9653.8	19410.6	236841.6
Length Wtd. (ft)	444.75	Wetted Per. (ft)	1199.24	32.62	3505.01
Min Ch El (ft)	1510.95	Shear (lb/sq ft)	0.16	1.04	0.56
Alpha	2.52	Stream Power (lb/ft s)	0.21	15.80	1.80
Frctn Loss (ft)	2.67	Cum Volume (acre-ft)	7233.65	1126.51	1553.73
C & E Loss (ft)	0.00	Cum SA (acres)	5232.93	231.37	1226.96

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6207.38	6963.08	105.69	87.54	216.47	0.53	0.40	1.21
6963.08	7718.77	7.84	12.66	85.22	0.04	0.15	0.62
7718.77	8474.46	284.57	230.95	553.92	1.42	0.42	1.23
8474.46	9230.15	14.80	9.48	15.93	0.07	0.60	1.56
9230.15	9985.84	313.20	198.30	327.69	1.57	0.61	1.58
LB 9985.84	9991.96	74.98	9.28	6.69	0.37	1.52	8.08
9991.96	9998.08	412.82	25.72	6.63	2.06	4.20	16.05
9998.08	10004.20	605.26	31.49	6.19	3.03	5.15	19.22
10004.20	10010.32	314.83	21.76	6.56	1.57	3.56	14.47
10010.32	RB 10016.44	52.07	7.39	6.56	0.26	1.21	7.04
10016.44	10476.92	900.27	438.43	460.51	4.50	0.95	2.05
10476.92	10937.39	2248.60	759.31	460.48	11.24	1.65	2.96
10937.39	11397.87	3276.13	951.67	460.47	16.38	2.07	3.44
11397.87	11858.34	4748.15	1189.40	460.86	23.74	2.58	3.99
11858.34	12318.82	3626.24	1011.45	460.47	18.13	2.20	3.59
12318.82	12779.29	2146.17	738.36	460.48	10.73	1.60	2.91
12779.29	13239.77	590.01	329.12	423.78	2.95	0.78	1.79
13239.77	13700.24	278.36	161.62	317.96	1.39	0.51	1.72

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.429

INPUT
Description:
Station Elevation Data num= 145

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2491.01	1515.14	2632.44	1515.16	3017.12	1514.39	3022.22	1513.79	3029.09	1514.51

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 3272.75 1513.74 3414.15 1513.02 3563.18 1513.44 4195.23 1515.22 4337.66 1515.24
 4404.59 1514.74 4439.53 1512.64 4466.05 1512.78 4483.74 1513.27 4500.09 1516.36
 4518.35 1514.17 4695.23 1513.48 4723.38  1513.4  4732.7 1513.02 4735.77 1513.49
 5195.23 1514.58 5695.23  1514.3 5955.13 1514.81 5959.89 1513.88 5982.02 1514.41
 6114.64 1515.26 6195.23 1514.06 6423.16 1512.69 6461.98 1512.08 6479.02 1511.88
  6487.8  1510.2 6496.71  1511.7 6560.63 1511.79 6572.87    1510 6577.89 1509.26
 6583.26    1510 6586.33 1510.49 6695.24    1512 6767.91 1512.86 6779.82 1510.11
 6785.17 1511.42 6857.23 1512.59 6865.92 1512.12 6874.28 1512.43 7195.22 1513.32
 7555.78 1512.32 7946.41 1513.09 7966.73 1511.24 7983.53 1513.23 7998.17 1513.61
 8012.62 1513.33 8027.73 1511.83 8048.05 1512.76  8051.6 1512.36 8158.52 1512.06
 8540.08 1512.57 8655.25 1514.41 8658.52 1514.43 8779.29 1515.72 9158.52 1514.43
  9309.7 1515.29 9447.23 1516.64 9545.27 1514.88 9658.52 1514.63    9905 1515.35
 9915.83 1514.93 9919.32 1515.33 9927.47 1515.62 9965.76 1515.59 9971.96 1513.32
 9986.37 1513.36 9993.44    1510 9997.41 1508.1310002.96 1508.1310007.44    1510
 10016.7 1513.9210029.75 1513.7110197.45 1513.2610309.81 1512.8510326.65 1512.06
10333.96 1512.8510381.23 1512.9210526.56 1512.4610964.32 1511.8111547.41 1511.49
11691.15 1511.9611698.49    151011702.17 1509.07 11704.5    151011708.25 1511.49
11784.69 1511.7711793.36 1510.8911800.01 1511.4511930.36 1511.6211941.83 1510.96
11945.17 1511.4912353.63 1511.8412624.77 1512.1512629.02 1511.8712632.41 1512.22
 12638.1 1512.2212640.73 1512.1812640.87 1511.7512936.73 1514.1713081.85  1513.3
13185.94 1513.7213519.81 1513.3213619.83 1512.8913719.83 1514.2913819.84 1514.57
13919.83 1513.9213971.58 1513.6513976.36 1513.2713980.87  1513.713985.95 1513.68
13992.69 1513.4814001.13 1514.1314019.84    151414033.84 1514.0114107.76 1515.75
14119.83 1515.8114163.04 1514.8114219.83 1514.2914257.17 1513.8414319.83 1514.52
14419.83  1513.214479.34 1512.6514485.88 1511.8814493.03 1512.0314497.25 1512.86
14519.83 1512.7814544.55 1512.9314548.64 1512.4314557.91 1512.8514572.55 1512.66
14579.84 1511.9714586.03 1512.8414601.25 1513.2814609.57 1512.1814616.95 1512.44
14619.83 1513.0314719.83  1513.214750.64 1514.0714758.58 1513.3114765.68    1514

Manning's n Values         num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
 2491.01     .05 9986.37    .015 10016.7     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9986.37 10016.7           544.04  475.03  439.46             .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev
 2491.01 5366.01    1520
Blocked Obstructions     num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2491.01 5951.21 1515.2713805.3714765.68 1514.56

CROSS SECTION OUTPUT    Profile #PF 3

  E.G. Elev (ft)            1513.97   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.45   Wt. n-Val.                0.050      0.015      0.050
  W.S. Elev (ft)            1513.52   Reach Len. (ft)          544.04     475.03     439.46
  Crit W.S. (ft)            1513.51   Flow Area (sq ft)       2359.12      95.11    4177.23
  E.G. Slope (ft/ft)       0.006390   Area (sq ft)            2359.12      95.11    4177.23
  Q Total (cfs)            20000.00   Flow (cfs)              5690.97    1568.53   12740.50
  Top Width (ft)            5503.60   Top Width (ft)          2320.26      29.38    3153.96
  Vel Total (ft/s)             3.02   Avg. Vel. (ft/s)           2.41      16.49       3.05
  Max Chl Dpth (ft)            5.39   Hydr. Depth (ft)           1.02       3.24       1.32
  Conv. Total (cfs)        250197.9   Conv. (cfs)            71193.5    19622.2   159382.3
  Length Wtd. (ft)           473.90   Wetted Per. (ft)        2321.72      31.64    3155.34
  Min Ch El (ft)            1508.13   Shear (lb/sq ft)           0.41       1.20       0.53
  Alpha                        3.18   Stream Power (lb/ft s)     0.98      19.78       1.61
  Frctn Loss (ft)              2.66   Cum Volume (acre-ft)    7216.27    1125.46    1506.13
  C & E Loss (ft)              0.04   Cum SA (acres)          5211.83     231.04    1194.47


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 3

  Left Sta     Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  6238.69      6988.23        2742.18     967.90     703.69      13.71      1.38       2.83
  6988.23      7737.76         983.42     536.51     749.54       4.92      0.72       1.83
  7737.76      8487.30        1817.50     772.22     741.46       9.09      1.04       2.35
  8487.30      9236.83         146.05      79.89     112.05       0.73      0.71       1.83
  9236.83      9986.37           1.85       2.60      14.98       0.01      0.17       0.71
  LB 9986.37   9992.44          85.28       9.70       6.72       0.43      1.60       8.80
  9992.44      9998.50         471.48      26.84       6.59       2.36      4.43      17.56
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9998.50	10004.57	662.87	32.14	6.20	3.31	5.30	20.63
10004.57	10010.63	310.86	20.89	6.58	1.55	3.44	14.88
10010.63	RB 10016.70	38.04	5.53	5.55	0.19	1.08	6.87
10016.70	10491.60	298.80	204.80	389.89	1.49	0.53	1.46
10491.60	10966.50	1766.37	643.59	474.90	8.83	1.36	2.74
10966.50	11441.39	2935.80	872.96	474.90	14.68	1.84	3.36
11441.39	11916.29	3273.27	932.56	475.80	16.37	1.96	3.51
11916.29	12391.19	2966.93	878.54	474.96	14.83	1.85	3.38
12391.19	12866.09	1434.13	563.68	466.02	7.17	1.21	2.54
12866.09	13340.99	4.96	9.73	89.85	0.02	0.11	0.51
13340.99	13815.88	60.21	71.37	309.02	0.30	0.23	0.84

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.339

INPUT
Description:
Station Elevation Data num= 192

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2432.94	1514.21	2477.64	1512.91	2578.69	1512.35	2644.55	1512.18	2648.79	1511.56
2651.96	1512.42	2867.84	1511.68	2877.77	1510.98	2887.04	1511.69	3170.26	1511.4
3173.72	1510	3177.16	1508.44	3254.27	1508.6	3340.91	1508.79	3367.73	1509.14
3380.23	1510	3406.75	1513.53	3421.46	1514.76	3430.38	1511.32	3500.66	1510.26
3573.23	1510.19	3575.45	1510	3577.21	1509.75	3581.42	1510	3584.38	1510.6
4087.74	1512.46	4495.44	1510.69	4637	1510	4645.57	1509.79	4652.79	1508.78
4659.04	1509.36	4691.92	1509.88	4692.68	1509.04	4708.78	1510	4712.7	1510.19
4995.44	1511.64	5635.74	1512.01	5821.87	1510.35	5824.54	1510	5827.83	1509.6
5830.52	1510	5833.91	1510.5	5841.82	1510.17	5843.82	1510	5847.99	1509.79
5848.99	1510	5850.71	1510.35	5987.72	1511.27	5993.29	1510.71	6009.61	1511.06
6135.75	1511.75	6176.89	1511.54	6223.72	1510.84	6347.56	1512.54	6532.94	1510
6593.93	1508.82	6601.86	1507.89	6606.66	1508.68	6656.74	1508.9	6695.32	1508.61
6703.28	1506.59	6709.84	1508.57	6749.72	1508.44	6776.07	1508.52	6813.66	1508.49
6996.77	1510	7276.05	1510.29	7327.18	1510.71	7334.48	1510	7348.6	1508.62
7359.03	1510	7363.76	1510.63	7379.11	1510.95	7393.89	1510.84	7402.48	1510
7409.37	1509.33	7418.5	1510	7428.38	1510.71	7485.57	1510	7509.88	1509.5
7517.99	1508.95	7524.32	1509.58	7875.33	1509.79	8214.14	1509.64	8221.63	1508.9
8227.17	1509.39	8375.36	1509.69	8449.6	1510	8542	1510.32	8872.88	1512.21
8875.36	1512.31	9032.14	1512.64	9375.36	1511.86	9457.98	1512.18	9488.51	1513.11
9551.29	1512.06	9863.94	1511.8	9870.24	1511.58	9876.37	1511.96	9918.23	1513.85
9964.28	1512.73	9972.95	1510.49	9985.47	1510.7	9987.09	1510	9997.52	1505.46
10003.07	1505.46	10013.01	1510	10016.9	1510.92	10030.8	1510.68	10033.44	1512.13
10182.5	1512.99	10194.29	1513.35	10223.13	1511.97	10377.1	1510.53	10541.9	1510.27
10600.7	1510.26	10620.99	1510	10658.42	1509.53	10684.41	1510	10686.79	1510.02
10687.08	1510	10693.65	1509.51	10702.82	1509.68	10778.21	1509.51	0792.25	1507.8
10803.26	1509.14	10820.34	1509.72	10829.14	1508.36	10836.21	1508.78	11047.91	1509.29
11271.53	1509.12	11495.15	1509.34	11718.74	1509.15	11951.04	1509.27	11961.66	1507.02
11968.33	1508.24	11995.93	1509.09	12003.6	1508.03	12008.04	1509.23	12237.44	1508.95
12244.54	1508.22	12249.07	1508.72	12624.66	1509.32	12630.49	1508.82	12634.48	1509.06
12650.06	1509.11	12653.02	1508.61	12657.21	1508.86	12660.39	1509.24	12748.29	1509.26
12918.6	1510	12971.9	1510.25	13048.34	1510.49	13155.42	1510	13162.02	1509.96
13164.39	1510	13195.52	1510.57	13419.13	1510.17	13595.04	1512.18	13642.72	1512.21
13664.48	1512.57	13742.72	1511.71	13842.73	1511.96	13942.71	1512.06	14042.73	1512.7
14116.92	1512.22	14124.17	1511.57	14130.22	1512.18	14142.71	1512.53	14242.72	1513.13
14278.39	1513.29	14342.74	1513.65	14352.83	1513.26	14442.75	1511.84	14542.74	1510.87
14603.72	1510.73	14611.68	1510.54	14620.02	1510.76	14642.75	1510.89	14646.98	1511.37
14652.68	1510	14653.96	1509.72	14655.29	1510	14658.66	1510.78	14742.74	1511.31
14749.93	1511.41	4758.64	1511.26	14761.34	1511.65	14765.01	1511.79	14776.78	1511.29
14783.76	1512.36	14842.73	1512.46						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2432.94	.05	9985.47	.015	10016.9	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.47	10016.9	457.74	497.49	511.08	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2432.94	5635.36	1512.33	13643.34	14842.73	1512.57

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1511.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1510.94	Reach Len. (ft)	457.74	497.49	511.08
Crit W.S. (ft)	1510.84	Flow Area (sq ft)	2727.01	98.66	4532.27
E.G. Slope (ft/ft)	0.005002	Area (sq ft)	2727.01	98.66	4532.27
Q Total (cfs)	20000.00	Flow (cfs)	6461.35	1416.89	12121.76
Top Width (ft)	5608.56	Top Width (ft)	2409.33	31.43	3167.80
Vel Total (ft/s)	2.72	Avg. Vel. (ft/s)	2.37	14.36	2.67
Max Chl Dpth (ft)	5.48	Hydr. Depth (ft)	1.13	3.14	1.43
Conv. Total (cfs)	282775.6	Conv. (cfs)	91355.6	20033.1	171386.9
Length Wtd. (ft)	494.80	Wetted Per. (ft)	2410.77	33.62	3168.99
Min Ch El (ft)	1505.46	Shear (lb/sq ft)	0.35	0.92	0.45
Alpha	2.81	Stream Power (lb/ft s)	0.84	13.16	1.19
Frctn Loss (ft)	2.71	Cum Volume (acre-ft)	7184.51	1124.40	1462.20
C & E Loss (ft)	0.02	Cum SA (acres)	5182.30	230.71	1162.59

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5453.95	6209.21	73.28	71.53	196.37	0.37	0.36	1.02
6209.21	6964.46	2768.95	929.73	514.99	13.84	1.81	2.98
6964.46	7719.71	1344.47	702.00	754.03	6.72	0.93	1.92
7719.71	8474.96	2168.69	935.88	755.31	10.84	1.24	2.32
8474.96	9230.22	101.44	83.16	175.75	0.51	0.47	1.22
9230.22	9985.47	4.53	4.72	14.32	0.02	0.33	0.96
LB 9985.47	9991.76	77.95	10.09	6.85	0.39	1.60	7.73
9991.76	9998.04	409.65	27.22	6.81	2.05	4.33	15.05
9998.04	10004.33	620.40	34.09	6.41	3.10	5.42	18.20
10004.33	10010.61	280.45	21.82	6.91	1.40	3.47	12.85
10010.61	RB 10016.90	28.44	5.44	6.63	0.14	0.86	5.23
10016.90	10499.48	78.35	73.15	180.76	0.39	0.40	1.07
10499.48	10982.07	1715.59	690.49	482.92	8.58	1.43	2.48
10982.07	11464.65	2357.92	835.42	482.58	11.79	1.73	2.82
11464.65	11947.23	2305.39	824.20	482.58	11.53	1.71	2.80
11947.23	12429.82	3059.92	977.34	483.24	15.30	2.03	3.13
12429.82	12912.40	2109.02	781.40	482.69	10.55	1.62	2.70
12912.40	13394.98	442.55	306.17	482.59	2.21	0.63	1.45
13394.98	13877.56	53.02	44.10	91.62	0.27	0.48	1.20

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.245

INPUT
Description:
Station Elevation Data num= 185

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2450.58	1510.36	2587.39	1510	2592.01	1509.99	2732.07	1510	2733.9	1510
3124.46	1508.93	3127.48	1508.05	3132.89	1508.86	3157.33	1509.05	3171.5	1508.97
3443.02	1508.08	3490.04	1508.69	3491.54	1508.36	3496.24	1508.88	3655.38	1508.42
3667.03	1508.65	3675.42	1507.58	3681.09	1508.46	3796.77	1509.17	3863.76	1510
3938.21	1510.05	3948.73	1510.15	4022.09	1511.78	4079.62	1511.66	4221.04	1510.02
4226.23	1510	4362.47	1509.22	4494.68	1507.83	4498.02	1507.7	4503.62	1508
4568.61	1507.52	4573.86	1506.56	4579.4	1507.49	4645.3	1507.66	4786.73	1508.05
4928.15	1508.53	5069.56	1508.53	5211	1508.9	5352.41	1509.05	5852.41	1508.13
6046.71	1507.92	6053.46	1507.37	6058.22	1507.76	6071.84	1508.06	6091.74	1508.46
6352.42	1507.83	6392.18	1507.75	6395.71	1507.48	6416.18	1507.71	6507.64	1509.33
6592.19	1508	6743.21	1506.37	6761.1	1504.74	6778.69	1508.38	6793.89	1508.69
6808.63	1508.39	6832.99	1503.09	6845.32	1505.34	6932.95	1505.88	6951.97	1506.46
7001.52	1507.34	7108.95	1508.35	7194.61	1507.97	7279.4	1508.68	7332.74	1507.88
7454.24	1506.82	7466.84	1506.33	7476.16	1506.84	7592.26	1506.76	8092.28	1506.87
8174.39	1506.76	8182.77	1505.66	8191.04	1506.94	8286.57	1508.25	8544.38	1507.11
8732.6	1507.19	9372.9	1509.34	9399.14	1510	9403.96	1510.12	9411.72	1510
9493.27	1508.73	9939.42	1509.63	9957.91	1510	9966.31	1510.14	9966.65	1510
9973.18	1507.11	9985.58	1507.8	9997.83	1502.35	10003.38	1502.35	10017.89	1507.96
10031.18	1507.94	10034.3	1508.76	10172.57	1508.65	10369.15	1509.18	10424.24	1510

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10449.38 1510.4110467.27    151010513.12 1508.9510557.62 1508.3210748.33 1508.24
10782.51 1506.9110921.78 1505.9811252.12 1505.6111259.43 1504.8611264.01 1506.01
11370.07  1505.811385.08 1504.8311394.77 1505.8511498.02    150711721.61 1506.14
12310.26  1506.512318.58 1503.9212325.46 1505.4412339.13 1505.5312342.86 1504.81
12346.54 1505.3612393.43 1505.8112398.58  1505.612404.08 1506.1212483.18 1506.06
 12706.8 1506.3812711.17 1506.1612715.84 1505.6612720.68 1506.1812767.65  1506.4
12774.29 1505.7812779.36 1506.4212930.41  1507.113291.85 1507.4113295.98 1506.94
13299.78 1507.4213636.06    151013690.82 1510.8813691.99 1510.9413768.03    1510
13791.97  1509.713848.25    151013857.29 1510.0513891.99 1510.1513991.99 1510.62
14091.98 1510.2714191.98 1510.2514224.09 1510.4614231.54 1510.1814239.31 1510.52
14291.98 1510.3214343.48 1510.7714349.97 1510.1214355.53 1510.8614391.46 1511.41
14391.98 1511.0914401.34 1510.4714409.13 1510.9414428.53 1510.8914432.39 1511.36
14491.99 1511.4614591.98 1510.2614679.96    151014687.23 1507.0114691.99 1509.42
14694.36 1509.2214724.65    151014755.09 1510.35 14759.4    151014762.95 1509.73
14765.72    151014771.39 1510.5514791.99 1510.1914807.86 1510.6714810.68    1510
14814.55 1508.9914819.41 1509.73 14821.5    151014824.68 1510.41 14827.6    1510
14833.36 1509.1414838.19    1510   14843 1510.7914876.95 1510.8414880.67    1510
14891.98 1508.1414891.99 1507.3414911.72    151014911.86 1509.9114991.99 1510.05

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2450.58     .05 9985.58    .01510017.89     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9985.5810017.89            487.77  484.36  558.91              .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2450.58 5352.14 1509.9513695.6314991.99 1510.93
```

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1508.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1508.01	Reach Len. (ft)	487.77	484.36	558.91
Crit W.S. (ft)	1508.00	Flow Area (sq ft)	2040.36	108.80	4182.45
E.G. Slope (ft/ft)	0.006120	Area (sq ft)	2040.36	108.80	4182.45
Q Total (cfs)	20000.00	Flow (cfs)	4921.76	1812.85	13265.39
Top Width (ft)	4987.62	Top Width (ft)	2319.26	32.31	2636.05
Vel Total (ft/s)	3.16	Avg. Vel. (ft/s)	2.41	16.66	3.17
Max Chl Dpth (ft)	5.66	Hydr. Depth (ft)	0.88	3.37	1.59
Conv. Total (cfs)	255651.5	Conv. (cfs)	62912.8	23172.8	169565.9
Length Wtd. (ft)	534.01	Wetted Per. (ft)	2320.91	34.51	2637.25
Min Ch El (ft)	1502.35	Shear (lb/sq ft)	0.34	1.20	0.61
Alpha	3.33	Stream Power (lb/ft s)	0.81	20.07	1.92
Frctn Loss (ft)	3.31	Cum Volume (acre-ft)	7159.46	1123.22	1411.07
C & E Loss (ft)	0.01	Cum SA (acres)	5157.45	230.35	1128.54

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5464.58	6218.08	4.99	9.78	106.51	0.02	0.09	0.51
6218.08	6971.58	1676.03	597.14	503.13	8.38	1.19	2.81
6971.58	7725.08	1101.73	469.06	516.25	5.51	0.91	2.35
7725.08	8478.58	1554.96	644.74	682.02	7.77	0.95	2.41
8478.58	9232.08	571.24	311.85	498.36	2.86	0.63	1.83
9232.08	9985.58	12.84	7.80	14.64	0.06	0.54	1.65
LB 9985.58	9992.04	94.56	10.65	7.07	0.47	1.65	8.88
9992.04	9998.50	508.94	29.12	7.01	2.54	4.51	17.47
9998.50	10004.97	759.19	36.09	6.58	3.80	5.59	21.04
10004.97	10011.43	385.60	24.54	6.93	1.93	3.80	15.71
10011.43	RB 10017.89	64.55	8.40	6.93	0.32	1.30	7.69
10017.89	10515.30	0.28	0.81	13.57	0.00	0.06	0.34
10515.30	11012.71	1307.11	422.82	258.50	6.54	1.64	3.09
11012.71	11510.12	3788.38	1040.48	497.68	18.94	2.09	3.64
11510.12	12007.53	2544.76	819.33	497.41	12.72	1.65	3.11
12007.53	12504.94	3077.31	918.78	498.11	15.39	1.85	3.35
12504.94	13002.35	2152.82	741.17	497.54	10.76	1.49	2.90
13002.35	13499.76	394.71	239.06	374.44	1.97	0.64	1.65

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.153

INPUT
Description:
Station Elevation Data num= 170

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2510.78	1506.78	2566	1506.18	2574.14	1504.39	2582.64	1505.88	2652.21	1506.83
2930.56	1505.35	2945.13	1503.16	2951.78	1504.76	2977.33	1504.26	2981.94	1502.52
2987.91	1505.01	3029.06	1504.49	3033.22	1502.23	3039.84	1503.89	3061.78	1505.06
3074.97	1504.81	3084.82	1501.75	3094.11	1504.94	3258.04	1504.89	3265.7	1503.73
3278.32	1505.57	3331.48	1506.57	3362.63	1507.18	3574.16	1506.76	3641.9	1506.62
3647.98	1505.74	3654.43	1506.35	3715.57	1506.43	3781.09	1507.01	4079.66	1506.18
4425.04	1504.6	4720.55	1504.25	4728.96	1503.44	4735.2	1503.99	4925.04	1504.55
5064.81	1504.89	5069.99	1504.56	5075.85	1504.83	5565.34	1506.26	6065.34	1507.03
6107.66	1506.88	6128.21	1505.09	6142.44	1506.24	6158.09	1506.67	6172.48	1506.06
6189.79	1504.34	6207.32	1505.41	6357.6	1502.78	6366.4	1501.07	6375.09	1503.21
6417.98	1502.33	6428.69	1501.56	6436.9	1501.82	6449.01	1502.68	6541	1503.99
6694.15	1502.85	6698.57	1501.37	6705.63	1502.19	6724.98	1502.33	6732.72	1500.34
6766.43	1501.54	6770.24	1502.6	6800.82	1502.79	6806.27	1502.76	6911.43	1505
6996.04	1505.03	7095.93	1505.31	7139.42	1505.03	7215.84	1505.48	7294.98	1505.24
7446.59	1505.12	7543.7	1503.63	7552.79	1502.65	7563.01	1503.71	8086.92	1504.15
8137.36	1503.68	8142.8	1503.01	8148.37	1504.33	8478.44	1503.48	8553.66	1504.24
8727.19	1504.13	8849.76	1504.38	9019.48	1505.51	9120.71	1504.91	9147.78	1504.7
9242.97	1506.49	9367.51	1506.18	9426.62	1506.51	9867.51	1505.36	9964.42	1505.86
9969.45	1504.56	9982.52	1504.69	9993.78	1500	9995.42	1499.32	10000.97	1499.32
10002.75	1500	10015.69	1504.95	10028.86	1504.12	10031.41	1504.91	10051.37	1503.71
10055.33	1503.67	10056.82	1504.38	10367.51	1506.56	10586.39	1504.84	10850.32	1505.65
10938.32	1504.44	11023.69	1503.82	11072.25	1503.7	11086.3	1503.08	11089.95	1502.86
11444.05	1502.43	11453.56	1501.94	11458.91	1502.25	11484.14	1503	11594.14	1503.36
11737.15	1502.8	11746.09	1502.35	11749.85	1503.03	11851.52	1502.61	12390.03	1502.43
12615.71	1503.65	12624.3	1500.71	12645.27	1501.54	12650.33	1502.95	12916.79	1503.79
12922.39	1503.25	12928.55	1503.29	12968.6	1503.78	12975.65	1503.36	12981.91	1503.9
13036.13	1503.72	13040.12	1503.41	13044.74	1504.09	13151.61	1503.71	13375.23	1505.21
13567.84	1505.36	13672.89	1505.74	13913.74	1506.58	14013.73	1506.97	14113.73	1506.25
14213.75	1507.57	14313.73	1506.97	14413.74	1506.8	14441.92	1507.16	14449.46	1506.65
14451.95	1506.19	14455.27	1506.94	14513.73	1507.37	14613.74	1509.61	14713.74	1508.24
14718.95	1508.04	14725.42	1506.98	14731.62	1507.09	14799.09	1508.45	14813.73	1508.94
14862.32	1507.51	14869.04	1508.22	14913.73	1507	14914.3	1507.65	14929.93	1504.32
14944.51	1507.77	14993.16	1507.46	15000.82	1506.61	15008.73	1507.3	15013.74	1507.22
15032.6	1508.11	15042.17	1505.99	15047.87	1507.75	15112.47	1506.99	15113.73	1507.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2510.78	.05	9982.52	.01	15015.69	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9982.52	10015.69	560.42	500	528.17	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2510.78	6062.76	1507.02	14015.73	15113.73	1507

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1505.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.48	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1504.73	Reach Len. (ft)	560.42	500.00	528.17
Crit W.S. (ft)	1504.72	Flow Area (sq ft)	2098.86	103.31	3948.16
E.G. Slope (ft/ft)	0.006289	Area (sq ft)	2098.86	103.31	3948.16
Q Total (cfs)	20000.00	Flow (cfs)	5417.63	1681.22	12901.16
Top Width (ft)	4611.69	Top Width (ft)	2109.93	32.58	2469.18
Vel Total (ft/s)	3.25	Avg. Vel. (ft/s)	2.58	16.27	3.27
Max Chl Dpth (ft)	5.41	Hydr. Depth (ft)	0.99	3.17	1.60
Conv. Total (cfs)	252187.4	Conv. (cfs)	68312.9	21199.1	162675.4
Length Wtd. (ft)	534.28	Wetted Per. (ft)	2111.56	34.66	2470.45
Min Ch El (ft)	1499.32	Shear (lb/sq ft)	0.39	1.17	0.63
Alpha	2.93	Stream Power (lb/ft s)	1.01	19.05	2.05
Frctn Loss (ft)	3.26	Cum Volume (acre-ft)	7136.28	1122.04	1358.91
C & E Loss (ft)	0.03	Cum SA (acres)	5132.65	229.99	1095.79

Warning: Divided flow computed for this cross-section.

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5499.48	6246.65	1.51	1.96	10.43	0.01	0.19	0.77
6246.65	6993.82	3420.37	1058.99	653.14	17.10	1.62	3.23
6993.82	7741.00	508.97	236.72	268.80	2.54	0.88	2.15
7741.00	8488.17	1165.91	585.95	747.37	5.83	0.78	1.99
8488.17	9235.35	320.17	213.88	418.08	1.60	0.51	1.50
9235.35	9982.52	0.68	1.36	13.73	0.00	0.10	0.50
LB 9982.52	9989.15	76.41	9.40	7.19	0.38	1.42	8.13
9989.15	9995.79	464.23	27.70	7.16	2.32	4.18	16.76
9995.79	10002.42	729.22	35.46	6.74	3.65	5.34	20.57
10002.42	10009.06	361.34	23.77	7.10	1.81	3.58	15.20
10009.06	RB 10015.69	50.04	6.99	6.47	0.25	1.16	7.16
10015.69	10525.49	26.34	25.79	83.58	0.13	0.31	1.02
10525.49	11035.30	96.49	64.47	117.74	0.48	0.55	1.50
11035.30	11545.10	3436.00	988.34	509.86	17.18	1.94	3.48
11545.10	12054.91	3295.65	963.93	509.88	16.48	1.89	3.42
12054.91	12564.71	3915.71	1068.91	509.81	19.58	2.10	3.66
12564.71	13074.51	1888.92	690.66	510.63	9.44	1.35	2.73
13074.51	13584.32	242.05	146.06	228.95	1.21	0.64	1.66

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.059

INPUT
Description:
Station Elevation Data num= 225

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2481.22	1503.62	2704.81	1502.85	2901.04	1501.56	2906.83	1500	2909.02	1499.37
2911.76	1500	2916.31	1501.05	2920.15	1500.95	2924.29	1500	2928.39	1499
2932.1	1500	2937.55	1501.53	3004.31	1501.91	3009.44	1501.12	3016.94	1502.1
3085.4	1501.96	3093.89	1500	3094.11	1499.95	3094.49	1500	3108.49	1502.55
3204.81	1502.63	3305.88	1503.76	3374.81	1506.06	3486.42	1504.61	3650.35	1502.59
3660.41	1501.84	3666.58	1502.71	3680.5	1502.83	3687.06	1501.16	3691.98	1502.68
3845.11	1502.36	3986.54	1503.4	4533.59	1500	4552.1	1500	4626.85	1500.56
4803.7	1500	4914.84	1500	5126.85	1501.04	5328.28	1502.75	5347.95	1500.11
5362.85	1502.2	5376.9	1502.47	5390.23	1502.03	5405.67	1500.63	5425.91	1502.19
5726.01	1501.88	6199.32	1502	6366.33	1500	6366.7	1500	6664.88	1500
6756.59	1501.75	6866.34	1502.11	6883.14	1502.11	7076.24	1502.9	7222.94	1502.03
7289.04	1500.89	7366.34	1500.82	7429.44	1501.71	7584.84	1501.02	7640.92	1500.39
7642.77	1500	7647.56	1499.05	7651.71	1500	7651.94	1500.05	7653.57	1500
7654.77	1500	7723.95	1500.47	7727.28	1500	7729.68	1499.3	7735.3	1499.92
7738.17	1499.78	7742.81	1499.04	7751.4	1499.75	7760.12	1500	7781.49	1500.55
7783.66	1500	7788.98	1498.68	7797.79	1500	7797.8	1500	7866.35	1500.43
7943.38	1500.11	7943.97	1500	7947.32	1499.61	7951.98	1500	7954.39	1500.08
7974.03	1500.42	7976.5	1500	7982.19	1499.09	7990.52	1499.06	7999.95	1500
8001.17	1500.11	8022.84	1500.12	8024.03	1500	8030.35	1499.4	8039.34	1500
8039.81	1500.04	8039.97	1500	8044.91	1499.18	8050.54	1500	8055.71	1500.7
8366.33	1501.04	8469.7	1500	8472.19	1499.98	8473.85	1500	8494.96	1500.38
8537.1	1500.88	8760.95	1500.39	8866.33	1500.84	9096.89	1501.97	9305.05	1501.72
9366.33	1502.4	9866.33	1501.11	9966.74	1502.25	9970.08	1501.77	9984.11	1501.92
9988.88	1500	9997.67	1496.48	10003.23	1496.48	10012.23	1500	10017.78	1502.18
10031.44	1501.37	10054.34	1501.18	10062.47	1500.23	10070.34	1501.23	10366.35	1502.68
10581.39	1500.94	10885.83	1501.71	11006.67	1502.81	11079.29	1501.29	11219.18	1500.15
11231.71	1500	11637.64	1498.49	11642.89	1497.75	11661.46	1498.06	11673.41	1498.49
11686.92	1498.69	11690.79	1498.31	11698.36	1498.79	11745.21	1499.89	11768.24	1499.85
11831.84	1499.08	11850.32	1498.96	11854.49	1498.92	11869.81	1500	11875.13	1500.34
11983.99	1500.88	12004.19	1500	12010.73	1499.93	12126.57	1499.39	12131.35	1498.85
12134.4	1499.39	12157.32	1499.51	12163.09	1499.07	12167.6	1499.42	12295.76	1499.26
12314.62	1499.21	12459.44	1499.43	12468.24	1498.24	12476.64	1499.32	12529.8	1499.13
12609.04	1499.39	12616.23	1498.55	12622.99	1499.31	12884.03	1500	12933.86	1500.32
12934.69	1500	12941.73	1497.41	12949.17	1499.89	12977.97	1500	13016.9	1500.21
13019.7	1500	13023.36	1499.65	13025.93	1500	13029.1	1500.42	13178.31	1500.82
13181.88	1500	13182.08	1499.96	13182.29	1500	13185.87	1500.55	13242.14	1501.08
13248.72	1500.59	13258.46	1501.35	13291.38	1501.52	13347.38	1501.29	13434.18	1500.75
13730.64	1501.79	13736.15	1501.27	13742.38	1501.66	13833.73	1502.67	13884.46	1502.97

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14052.96 1503.1514084.54 1503.0214152.97 1503.2514246.91 1503.5614252.95 1503.23
14352.97  1503.314452.96 1503.7814552.96 1503.8314652.95 1504.0614752.95 1504.15
14852.96 1503.5814858.37 1502.8714952.96 1504.73 14959.7  1504.414964.99 1503.29
 14973.8 1504.0515052.95  1504.615070.54  1504.515075.23 1503.4115079.44 1504.48
15104.35 1504.4815152.97  1504.815169.61 1504.6115185.68 1501.6915193.49 1504.71
15217.66 1504.0415241.32 1504.1115248.51 1503.3315252.78 1504.8315252.96 1504.83
 15270.8 1503.4515275.37 1502.9415282.16 1503.7315298.96 1503.4415306.43 1502.19

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2481.22     .05 9984.11    .01510017.78     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9984.1110017.78           463.51  500.02  509.99             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 13292.415306.43 1503.66
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2481.22 6197.82 1502.74 13728.815306.43  1502.7

CROSS SECTION OUTPUT    Profile #PF 3

  E.G. Elev (ft)            1501.92   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.39   Wt. n-Val.                0.050      0.015      0.050
  W.S. Elev (ft)            1501.53   Reach Len. (ft)          463.51     500.02     509.99
  Crit W.S. (ft)            1501.42   Flow Area (sq ft)       2164.74      92.57    4139.45
  E.G. Slope (ft/ft)       0.005919   Area (sq ft)            2164.74      92.57    4278.27
  Q Total (cfs)            20000.00   Flow (cfs)              4848.37    1403.59   13748.04
  Top Width (ft)            5442.25   Top Width (ft)          2410.92      31.06    3000.26
  Vel Total (ft/s)             3.13   Avg. Vel. (ft/s)           2.24      15.16       3.32
  Max Chl Dpth (ft)            5.05   Hydr. Depth (ft)           0.90       2.98       1.57
  Conv. Total (cfs)        259962.5   Conv. (cfs)             63019.7    18244.0   178698.7
  Length Wtd. (ft)           498.95   Wetted Per. (ft)        2412.28      32.99    2637.35
  Min Ch El (ft)            1496.48   Shear (lb/sq ft)           0.33       1.04       0.58
  Alpha                        2.55   Stream Power (lb/ft s)     0.74      15.72       1.93
  Frctn Loss (ft)              3.21   Cum Volume (acre-ft)    7108.86    1120.92    1309.04
  C & E Loss (ft)              0.01   Cum SA (acres)          5103.57     229.62    1062.63


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 3

  Left Sta     Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)             (cfs)    (sq ft)      (ft)                (ft)      (ft/s)
  6232.67      6982.95        1595.60     617.05     506.84       7.98       1.22       2.59
  6982.95      7733.24         503.99     289.18     429.27       2.52       0.67       1.74
  7733.24      8483.53        1960.74     817.28     751.19       9.80       1.09       2.40
  8483.53      9233.82         753.93     398.82     524.08       3.77       0.76       1.89
  9233.82      9984.11          34.12      42.43     200.91       0.17       0.21       0.80
  LB 9984.11   9990.84          46.35       6.70       6.22       0.23       1.16       6.92
  9990.84      9997.58         367.86      24.69       7.25       1.84       3.67      14.90
  9997.58      10004.31        646.44      33.79       6.82       3.23       5.02      19.13
  10004.31     10011.05        311.10      22.30       7.23       1.56       3.31      13.95
  10011.05     RB 10017.78      31.84       5.08       5.46       0.16       1.00       6.27
  10017.78     10546.65         29.79      34.47     141.95       0.15       0.24       0.86
  10546.65     11075.51         87.11      85.71     276.76       0.44       0.31       1.02
  11075.51     11604.38       3182.61     962.01     528.87      15.91       1.82       3.31
  11604.38     12133.24       3577.15    1032.08     529.11      17.89       1.95       3.47
  12133.24     12662.11       4529.64    1189.16     529.15      22.65       2.25       3.81
  12662.11     13190.97       2275.32     787.24     530.01      11.38       1.49       2.89
  13190.97     13719.83         66.42      48.77     101.48       0.33       0.48       1.36


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

CROSS SECTION          RIVER: Powerline FRS
REACH: Powerline          RS: 17.964

INPUT
Description:
```

Station Elevation Data num= 182

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2554.85	1500.39	2701.88	1500	2876.58	1499.41	2890.29	1497.96	2899.1	1498.79
2954.85	1499.24	2963.09	1497.82	2967.23	1498.68	3028.42	1498.92	3054.85	1499.37
3055.39	1499.5	3291.97	1500	3554.86	1500.67	3696.27	1501.06	3857.85	1500
3946.8	1499.47	3952.91	1498.66	3956.72	1499.54	4196.27	1498.25	4696.27	1497.53
4721.96	1498.33	4734.76	1496.51	4752.13	1499.38	4764.88	1499.66	4778.1	1499.36
4798.05	1496.2	4806.78	1496.93	4814.61	1497.58	4937.72	1496.64	4949.51	1495.51
4956.59	1496.2	5419.6	1497.77	5423.44	1496.36	5433.48	1497.07	5446.4	1497.68
5633.17	1500	5942.14	1500.53	6075.44	1500	6267.84	1498	6442.15	1497.37
6558.7	1497.63	7082.47	1498.07	7582.47	1498.86	7602.01	1499.35	7656.53	1498.86
7673.33	1497.98	7692.76	1496.05	7706.21	1497	7750.64	1496.49	7801.26	1494.99
7810.41	1493.73	7813.98	1495.91	7941.38	1496.75	7946.01	1494.34	7955.46	1496.67
8059.01	1496.66	8066.73	1494.72	8074.31	1496.74	8075.78	1496.76	8081.51	1494.62
8088.67	1496.77	8110.92	1497.52	8118.71	1496.02	8124.23	1496.56	8227.27	1497.73
8233.92	1497.44	8237.45	1497.85	8534.75	1497.67	8722.93	1497.63	9161.19	1498.78
9246.93	1498.01	9290.48	1497.56	9297.6	1498.04	9363.23	1499.33	9386.32	1499.57
9863.23	1497.83	9942.27	1498.04	9970.85	1498.41	9984.52	1498.91	9997.68	1493.27
10003.23	1493.27	10017.96	1498.55	10031.78	1498.03	10052.3	1497.71	10061.99	1497.21
10069.46	1497.56	10101.32	1498.15	10108.74	1497.42	10116.6	1498.14	10363.24	1497.53
10588.69	1497.08	10712	1498.36	10775.36	1499.16	10863.25	1497.41	10880.26	1497.5
11015.17	1497.79	11192.21	1496.77	11197.23	1496.54	11204.67	1497.01	11223.81	1497.08
11278.66	1498.41	11447.4	1497.08	11807.31	1496.11	11814.47	1495.21	11816.29	1495.93
11919.88	1495.98	11928.64	1494.71	11933.59	1495.52	11985.93	1495.43	12048.43	1496.69
12072.67	1495.86	12081.56	1494.77	12089.47	1495.51	12360.57	1496.35	12364.8	1496.31
12367.76	1496.46	12524.45	1496.11	12822.44	1496.36	12828.47	1495.66	12834.04	1496.27
12849.44	1496.51	12857.06	1496.07	12865.38	1496.93	13062.96	1497.22	13190.61	1497.85
13197.59	1496.26	13202.9	1497.51	13215.18	1497.68	13221.26	1497.02	13282.08	1497.81
13286.19	1497.11	13289.07	1497.53	13357.35	1497.41	13361.37	1497.23	13364.44	1497.22
13427.55	1496.91	13433.12	1496.31	13437.67	1496.88	13469.84	1497	13474.65	1496.75
13482.76	1496.93	13587.43	1497.43	13704.26	1497	13785.48	1498.93	13824.54	1498.56
13968.9	1497.61	14138.91	1498.69	14146.84	1498.15	14148.27	1497.85	14153.88	1498.6
14183.44	1498.44	14185.98	1498.14	14194.18	1498.5	14271.74	1499.41	14349.87	1500
14371.74	1500.17	14445.85	1500	14471.74	1499.94	14571.73	1499.54	14629.74	1499.58
14637.69	1498.68	14642.84	1499.68	14671.75	1499.77	14771.74	1499.69	14867.49	1499.57
14871.73	1499.19	14874.38	1498.94	14881.62	1499.51	14913.02	1500	14971.73	1500.91
15021.9	1501.05	15052.57	1501.13	15071.74	1501.16	15113.1	1500.93	15171.74	1501.56
15195.22	1501.59	15201.31	1500.94	15206.28	1501.68	15271.73	1501.61	15371.75	1501.41
15471.74	1501.24	15506.81	1501.46						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2554.85	.05	9984.52	.015	10017.96	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9984.52	10017.96	490.55	480	439.57	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
13782.57	15506.81	1501.65

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2554.85	5933.56	1500.54	13786.41	15506.81	1499.9

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1498.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.44	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1498.26	Reach Len. (ft)	490.55	480.00	439.57
Crit W.S. (ft)	1498.26	Flow Area (sq ft)	1823.14	91.48	4614.45
E.G. Slope (ft/ft)	0.007047	Area (sq ft)	1823.14	91.48	4614.45
Q Total (cfs)	20000.00	Flow (cfs)	4028.42	1501.08	14470.50
Top Width (ft)	6148.08	Top Width (ft)	2558.77	31.12	3558.19
Vel Total (ft/s)	3.06	Avg. Vel. (ft/s)	2.21	16.41	3.14
Max Chl Dpth (ft)	4.99	Hydr. Depth (ft)	0.71	2.94	1.30
Conv. Total (cfs)	238249.5	Conv. (cfs)	47988.4	17881.6	172379.5
Length Wtd. (ft)		Wetted Per. (ft)	2561.96	33.01	3559.53
Min Ch El (ft)	1493.27	Shear (lb/sq ft)	0.31	1.22	0.57
Alpha	3.02	Stream Power (lb/ft s)	0.69	20.01	1.79
Frctn Loss (ft)		Cum Volume (acre-ft)	7087.64	1119.86	1256.98
C & E Loss (ft)		Cum SA (acres)	5077.13	229.26	1024.23

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5526.72	6269.68	2.38	3.74	26.87	0.01	0.14	0.64
6269.68	7012.65	595.66	387.85	742.97	2.98	0.52	1.54
7012.65	7755.62	239.58	151.55	277.96	1.20	0.55	1.58
7755.62	8498.59	2817.64	986.97	745.99	14.09	1.33	2.85
8498.59	9241.55	292.29	213.68	486.95	1.46	0.44	1.37
9241.55	9984.52	80.85	79.34	281.21	0.40	0.28	1.02
LB 9984.52	9991.21	41.70	5.73	5.63	0.21	1.11	7.27
9991.21	9997.90	393.37	24.40	7.26	1.97	3.65	16.12
9997.90	10004.58	683.08	33.05	6.77	3.42	4.94	20.67
10004.58	10011.27	338.64	22.11	7.10	1.69	3.31	15.32
10011.27	RB 10017.96	44.28	6.20	6.25	0.22	1.05	7.15
10017.96	10566.84	577.49	338.24	541.28	2.89	0.63	1.71
10566.84	11115.73	502.44	284.03	430.98	2.51	0.66	1.77
11115.73	11664.62	1435.57	576.48	523.73	7.18	1.10	2.49
11664.62	12213.50	5271.44	1282.43	549.37	26.36	2.34	4.11
12213.50	12762.38	4243.24	1125.49	548.89	21.22	2.05	3.77
12762.38	13311.27	1614.68	630.61	549.47	8.07	1.15	2.56
13311.27	13860.15	825.66	377.19	415.79	4.13	0.91	2.19

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.873

INPUT
Description:
Station Elevation Data num= 148

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2636.03	1497.66	2684.31	1497.52	2695.43	1496.63	2697.83	1497.17	2916.33	1497.42
2919.75	1496.88	2928.8	1497.5	2969.79	1497.34	2976.11	1496.43	2985.4	1497.36
3136.03	1497.58	3636.04	1497.83	3777.43	1498.57	3918.87	1497.03	4013.14	1496.37
4060.28	1496.71	4090.42	1497.28	4101.68	1496.08	4118	1497.37	4130.62	1497.9
4143.6	1497.38	4172.36	1496.36	4180.32	1497.43	4299.06	1496.31	4659.59	1494.54
4760.08	1494.72	4767.14	1493.29	4770.24	1493.99	4791.67	1494.5	4797.33	1492.86
4800.03	1493.89	5261.78	1494.58	5293.93	1493.4	5299.66	1492.28	5305.21	1493.37
5311.1	1493.92	5316.03	1492.83	5346.47	1494.15	5530.41	1496.92	5580.7	1497.15
5799.79	1495.49	6352.89	1494.41	6360.85	1490.87	6368.61	1494.34	6440.09	1494.84
6450.37	1494.73	6453.16	1494.65	6483.75	1494.68	6491.61	1492.82	6499.45	1494.43
6940.09	1494.71	7326.24	1494.77	7335.57	1494.41	7339.31	1494.8	7470.57	1495.8
7580.41	1496.92	7634.43	1497.46	7659.03	1497.57	7839.81	1492.9	7847.09	1492.22
7853.05	1493.06	7888.26	1492.19	7894.91	1491.85	7901.29	1492.49	7911.33	1492.57
7918.62	1492.23	7924.29	1492.54	7964.41	1493.63	7972.79	1493.04	7977.77	1493.65
8080.4	1494.81	8329.31	1496.15	8403.12	1495.06	8430.73	1494.87	8436.71	1494.19
8442.46	1494.85	8538.3	1494.33	8720.72	1494.14	9220.72	1494.74	9327.19	1495.03
9371.48	1496.11	9450.38	1495.07	9720.73	1494.44	9972.37	1495.49	9984.59	1495.84
9997.5	1490.6	310003.54	1490.67	10016.6	1496.2	10031.16	1495.14	10037.16	1495.26
10220.72	1494.2	10502.96	1494.59	10607.7	1494.04	10943.46	1493.51	1368.12	1495.11
11526.55	1494.39	11589.38	1494.51	1973.76	1492.59	12161.34	1493.35	12181.65	1492.71
12240.24	1494.2	12312.12	1493.99	12388.24	1493.85	12445.49	1494.37	12503.98	1494.27
12605.2	1493.08	12609.38	1492.82	12613.79	1493.04	12946.67	1493.74	12951.41	1492.66
12969.72	1492.45	12978.77	1493.51	3027.91	1493.86	13034.25	1492.16	13041.6	1493.11
13182.08	1493.78	13344.2	1494.62	13371.14	1500	13371.59	1500.09	13372.03	1500
13407.76	1493.08	13432.09	1490.53	13523.74	1490.53	13559.32	1493.01	13585.96	1500
13594.69	1502.23	13601.67	1500	13617.73	1494.7	14166.97	1494.4	14390.56	1495.75
14490.58	1495.4	14590.57	1495.9	14690.57	1497.05	14790.56	1496.85	14859.06	1496.37
14866.57	1495.43	14871.82	1496.29	14890.58	1496.78	14990.57	1496.85	15090.57	1496.85
15190.56	1497.17	15290.58	1497.1	15390.57	1497.12	15490.56	1497.6	15590.58	1497.5
15592.85	1497.8	15599.17	1497.13	15606.07	1497.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2636.03	.05	9984.59	.015	10016.6	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9984.59	10016.6	490.49	500	414.21	.1	.3

Ineffective Flow num= 1
Sta L Sta R Elev
1359515606.07 1504.01
Blocked Obstructions num= 1
Sta L Sta R Elev
2636.03 5581.57 1497.16

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1495.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1495.10	Reach Len. (ft)	490.49	500.00	414.21
Crit W.S. (ft)	1495.07	Flow Area (sq ft)	1838.54	74.67	4539.03
E.G. Slope (ft/ft)	0.007141	Area (sq ft)	1838.54	74.67	4878.75
Q Total (cfs)	20000.00	Flow (cfs)	3678.27	1165.86	15155.87
Top Width (ft)	7249.83	Top Width (ft)	3113.04	27.55	4109.23
Vel Total (ft/s)	3.10	Avg. Vel. (ft/s)	2.00	15.61	3.34
Max Chl Dpth (ft)	4.57	Hydr. Depth (ft)	0.59	2.71	1.32
Conv. Total (cfs)	236665.9	Conv. (cfs)	43526.1	13796.0	179343.8
Length Wtd. (ft)	437.84	Wetted Per. (ft)	3115.30	29.32	3444.92
Min Ch El (ft)	1490.63	Shear (lb/sq ft)	0.26	1.14	0.59
Alpha	2.43	Stream Power (lb/ft s)	0.53	17.73	1.96
Frctn Loss (ft)	2.84	Cum Volume (acre-ft)	7067.02	1118.94	1209.08
C & E Loss (ft)	0.02	Cum SA (acres)	5045.20	228.94	985.55

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5575.45	6310.31	105.12	92.82	308.34	0.53	0.30	1.13
6310.31	7045.17	708.05	413.02	736.73	3.54	0.56	1.71
7045.17	7780.02	141.96	118.01	358.12	0.71	0.33	1.20
7780.02	8514.88	1534.52	547.80	467.82	7.67	1.17	2.80
8514.88	9249.73	1008.45	510.13	734.86	5.04	0.69	1.98
9249.73	9984.59	180.19	156.78	509.43	0.90	0.31	1.15
LB 9984.59	9990.99	27.34	4.19	4.91	0.14	0.92	6.53
9990.99	9997.39	295.95	20.04	6.90	1.48	3.13	14.77
9997.39	10003.80	555.95	28.44	6.43	2.78	4.44	19.55
10003.80	10010.20	268.53	18.96	6.95	1.34	2.96	14.16
10010.20	RB 10016.60	18.08	3.05	4.12	0.09	0.80	5.93
10016.60	10575.55	556.09	317.54	509.85	2.78	0.62	1.75
10575.55	11134.49	2007.77	711.72	558.95	10.04	1.27	2.82
11134.49	11693.44	439.15	284.46	551.81	2.20	0.52	1.54
11693.44	12252.39	3867.96	1054.83	558.98	19.34	1.89	3.67
12252.39	12811.33	2335.10	779.24	558.97	11.68	1.39	3.00
12811.33	13370.28	2282.36	755.71	535.77	11.41	1.41	3.02
13370.28	13929.23	3667.44	635.53	170.60	18.34	3.74	5.77

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.778

INPUT
Description:
Station Elevation Data num= 174

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2712.36	1494.85	2731.79	1495.28	2739.09	1494.57	2743.51	1494.95	3352.66	1493.98
3495.09	1493.91	3508.51	1492.49	3529.39	1496.09	3543.14	1495.84	3555.78	1496.02
3576.97	1492.05	3592.13	1493.38	3735.47	1491.99	4320.46	1492.33	4375.77	1492.63
4762.6	1492.36	4769.05	1490.51	4774.49	1492.09	4797.58	1492.22	4803.37	1490
4804.18	1489.64	4805.81	1490	4811.47	1491.44	4823.91	1491.91	4829.13	1490.47
4837.38	1492.08	4875.77	1492.2	5007.49	1490.86	5019.44	1490	5021.66	1489.84
5024.77	1490	5028.22	1490.19	5054.78	1490.76	5061.11	1490	5069.31	1489.18
5078.55	1489.17	5086.27	1489.95	5089.6	1489.31	5093.47	1489.7	5115.93	1490
5148.46	1490.29	5149.52	1490	5154.2	1488.78	5163.2	1490	5166.82	1490.48
5361.4	1491	5516.09	1492.25	6156.39	1492.83	6354.21	1491.66	6359.71	1490
6363.71	1488.64	6369.52	1490	6374.98	1491.23	6796.71	1492.25	7095.94	1492.12

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 7151.12  1491.6 7157.74 1491.25 7164.74 1491.56 7437.03 1492.23 7853.48 1490.41
 7856.31     1490 7862.67 1489.07 7866.57 1489.96 7881.18    1490 7887.37    1490
 7924.79 1489.68 7931.95    1488 7937.69 1488.05  7945.2    1490 7946.55 1490.36
 7980.83 1490.13 7981.29    1490 7990.74 1487.55 7998.03 1489.26 8038.48    1490
 8077.33 1490.71 8093.66 1490.81 8098.68    1490 8099.34 1489.86 8100.37    1490
 8103.36 1490.41 8357.27 1492.67 8538.02 1491.83 8577.33 1491.84 8918.75 1490.32
 8924.64    1490 8925.51 1489.94 8926.66    1490 8935.53 1490.76 8954.35 1490.93
 8959.01    1490 8962.98 1489.16 8964.96 1489.72 8968.89    1490 8970.48  1490.1
 9217.65 1491.55 9717.66 1491.97 9784.22 1492.13 9787.64 1491.66 9792.51 1492.07
 9972.32 1492.59 9984.48 1492.87 9991.36    1490 9997.51 1487.4410002.92 1487.62
10008.79    149010016.74  1493.210029.91 1492.38 10034.4 1492.7510217.67 1491.85
10441.26  1492.310620.12 1490.4710801.86 1490.2210871.47    149011025.94 1489.85
11094.06    149011250.54 1490.3211474.13 1491.5111697.75 1491.7511921.37 1491.23
12144.96 1490.1212184.34 1490.2812188.34 1490.1312191.48 1490.5912282.11 1490.55
12369.13 1491.0212461.07 1491.2912578.25  1492.912688.49 1491.8912777.99 1490.95
12783.99 1490.4412789.98  1490.612925.07  1490.812928.21 1490.3512932.97 1491.02
13014.72 1491.2913023.88 1490.6513032.48 1491.1213108.82 1491.1413112.88    1490
13116.23 1489.0113120.62    149013124.61 1490.7513455.45 1491.7513646.52 1490.75
13654.42 1490.5413660.81 1490.7213767.64 1490.5313775.32 1490.0613780.18 1490.31
13893.96 1490.9714117.55 1491.6714174.27 1491.0814180.74 1490.6514187.87 1490.95
14341.75 1492.2614565.36 1492.5114665.35 1492.1614679.09 1492.1514688.62 1491.64
14693.53 1492.4314765.41 1493.3614865.41 1492.8114965.42 1493.5315062.47 1493.78
15065.56 1493.8315070.14 1493.3615165.65 1493.7615265.66 1493.6615365.67 1493.81
15465.65 1494.2615565.66 1494.3315665.66 1494.5815765.65 1494.56

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2712.36     .05 9984.48    .01510016.74     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9984.4810016.74            487.24  500.01   490.5              .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2712.36 6156.26 1494.95 13895.915765.65 1494.36
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2712.36 4373.31 1494.08 14566.815765.65 1493.16
```

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1492.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1492.31	Reach Len. (ft)	487.24	500.01	490.50
Crit W.S. (ft)	1492.16	Flow Area (sq ft)	2972.20	81.46	4717.94
E.G. Slope (ft/ft)	0.005895	Area (sq ft)	3924.19	81.46	5118.70
Q Total (cfs)	20000.00	Flow (cfs)	6065.35	1190.51	12744.14
Top Width (ft)	8511.74	Top Width (ft)	4329.87	28.70	4153.17
Vel Total (ft/s)	2.57	Avg. Vel. (ft/s)	2.04	14.61	2.70
Max Chl Dpth (ft)	4.87	Hydr. Depth (ft)	0.85	2.84	1.29
Conv. Total (cfs)	260485.2	Conv. (cfs)	78996.8	15505.4	165983.0
Length Wtd. (ft)	489.96	Wetted Per. (ft)	3514.53	30.59	3664.69
Min Ch El (ft)	1487.44	Shear (lb/sq ft)	0.31	0.98	0.47
Alpha	2.81	Stream Power (lb/ft s)	0.64	14.32	1.28
Frctn Loss (ft)	3.29	Cum Volume (acre-ft)	7034.58	1118.05	1161.55
C & E Loss (ft)	0.00	Cum SA (acres)	5003.29	228.62	946.26

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5621.21	6348.42	28.76	31.89	103.85	0.14	0.31	0.90
6348.42	7075.63	372.88	323.31	727.98	1.86	0.44	1.15
7075.63	7802.84	706.86	474.35	727.23	3.53	0.65	1.49
7802.84	8530.06	2436.35	929.07	610.15	12.18	1.53	2.62
8530.06	9257.27	2201.94	938.11	727.54	11.01	1.29	2.35
9257.27	9984.48	318.52	275.45	617.77	1.59	0.45	1.16
LB 9984.48	9990.93	35.32	5.44	5.53	0.18	1.07	6.49
9990.93	9997.38	320.14	22.41	6.99	1.60	3.47	14.28
9997.38	10003.84	561.96	30.58	6.54	2.81	4.74	18.38
10003.84	10010.29	252.80	19.42	6.96	1.26	3.01	13.02
10010.29	RB 10016.74	20.30	3.61	4.57	0.10	0.85	5.62

10016.74	10591.63	221.09	190.55	467.33	1.11	0.41	1.16
10591.63	11166.52	4430.32	1250.56	574.89	22.15	2.18	3.54
11166.52	11741.41	1543.14	664.18	574.89	7.72	1.16	2.32
11741.41	12316.30	2254.09	833.75	574.93	11.27	1.45	2.70
12316.30	12891.20	1082.49	494.20	467.31	5.41	1.06	2.19
12891.20	13466.09	1552.12	666.77	575.49	7.76	1.16	2.33
13466.09	14040.98	1660.91	617.93	429.85	8.30	1.44	2.69

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.684

INPUT
Description:
Station Elevation Data num= 152

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2639.94	1492.47	2781.35	1492.76	2922.78	1493.43	2930.04	1493.82	2946.49	1491.53
2966.34	1494.46	2979.7	1494.41	2992.51	1494.5	3011.08	1491.64	3029.74	1492.84
3169.81	1491.82	3508.56	1491.54	3550.58	1490.93	3665.41	1490	3950.83	1488.65
4360.77	1488.38	4377.91	1488.28	4591.15	1489.11	4978.22	1490	5084.95	1490.86
5112.98	1490	5181.21	1488.1	5204.3	1485.47	5213.57	1487.47	5231.45	1488.68
5344.81	1488.55	5350.82	1487.75	5354.03	1487.97	5871.78	1488.6	6292.61	1489.25
6299.59	1486.84	6308.4	1489.14	6496.28	1489.01	6501.02	1487.94	6506.09	1488.94
6512.09	1488.94	6662.46	1488.23	6671.3	1487.16	6677.85	1488.74	6768.62	1490
6853.19	1491.2	6860.78	1490.89	6869.24	1491.05	6956.38	1490	7130.53	1489.94
7293.1	1489.1	7580.29	1488.81	7584.3	1488.38	7588.78	1488.99	7861.06	1487.02
7871.77	1483.84	7884.94	1486.46	7921.2	1486.59	7927.85	1485.54	7933.28	1486.8
7933.43	1486.27	8121.83	1487.73	8132.66	1486.7	8139.14	1487.74	8536.01	1488.08
8573.73	1488.23	9003.37	1488.04	9010.77	1487.03	9019.11	1487.96	9073.71	1487.81
9714.03	1489.79	9824.75	1490	9852.07	1490.4	9942.32	1490	9953.61	1489.97
9960.05	1490	9970.68	1490.1	9984.08	1490.07	9984.27	1490	9997.46	1485.3
10003.39	1484.91	0015.24	1490	10016.24	1490.43	10022.68	1490	10030.07	1489.53
10037.89	1489.47	10214.02	1489.64	10350.23	1488.02	10437.64	1487.32	10629.65	1486.66
11243.87	1486.67	11467.47	1487.47	11691.08	1488.19	11902.81	1489.06	11914.69	1488.63
12743.45	1490	12758.36	1490.34	12769.08	1490.23	12782.24	1490	12956.07	1488.47
13085.3	1488.24	13111.41	1488.29	13117.83	1487.28	13121.44	1488.08	13192.38	1487.93
13198.4	1487.49	13203.1	1487.89	13239.24	1488.38	13247.28	1486.98	13253.83	1488.44
13352.19	1488.07	13356.8	1487.87	13360.91	1488.19	13393.52	1487.8	13400.6	1487.27
13405.41	1487.58	13451.42	1487.68	13456.65	1487.17	13461.12	1487.66	13599.9	1487.93
13785.6	1488.48	13819.67	1488.21	3827.09	1488.01	13837.33	1488.26	14107.41	1489.42
14116.14	1488.41	4122.26	1489.36	14255.77	1488.86	14361.85	1489.41	4367.66	1489.81
14426.85	1490	14572	1490.74	14660.64	1490.39	14668.3	1490	14669.77	1489.9
14672.01	1489.99	14672.08	1490	14680.86	1490.74	14772.01	1491.89	14872.01	1492.29
14972	1492.26	15072.03	1491.89	15172.01	1492.21	15196.08	1492.36	15203.71	1491.95
15209.19	1492.66	15272.02	1492.11	15372	1492.34	15472.01	1491.99	15572.01	1491.89
15672	1492.31	15772.02	1492.11	15780.91	1492.09	15790.78	1491.45	15795.62	1491.87
15872.01	1492.31	15972.01	1493.56						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2639.94	.05	9984.08	.01	15010016.24	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9984.08	10016.24	529.26	495.97	402.35	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2639.94	5090	1490

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1489.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1489.01	Reach Len. (ft)	529.26	495.97	402.35
Crit W.S. (ft)	1488.87	Flow Area (sq ft)	2777.06	62.10	3721.43
E.G. Slope (ft/ft)	0.007699	Area (sq ft)	2777.06	62.10	3721.43
Q Total (cfs)	20000.00	Flow (cfs)	6699.13	931.56	12369.31
Top Width (ft)	6365.88	Top Width (ft)	3281.85	25.89	3058.14
Vel Total (ft/s)	3.05	Avg. Vel. (ft/s)	2.41	15.00	3.32
Max Chl Dpth (ft)	5.17	Hydr. Depth (ft)	0.85	2.40	1.22
Conv. Total (cfs)	227941.4	Conv. (cfs)	76350.5	10617.1	140973.9
Length Wtd. (ft)	464.24	Wetted Per. (ft)	3285.12	27.39	3058.85
Min Ch El (ft)	1484.90	Shear (lb/sq ft)	0.41	1.09	0.58

Alpha	2.07	Stream Power (lb/ft s)	0.98	16.35	1.94
Frctn Loss (ft)	3.01	Cum Volume (acre-ft)	6997.10	1117.22	1111.78
C & E Loss (ft)	0.03	Cum SA (acres)	4960.72	228.31	905.66

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4843.18	5577.60	750.37	361.83	429.51	3.75	0.84	2.07
5577.60	6312.01	318.39	242.97	574.24	1.59	0.42	1.31
6312.01	7046.42	124.02	90.76	201.42	0.62	0.45	1.37
7046.42	7780.84	202.33	159.81	397.72	1.01	0.40	1.27
7780.84	8515.25	3743.23	1177.12	735.90	18.72	1.60	3.18
8515.25	9249.67	1484.16	675.21	734.54	7.42	0.92	2.20
9249.67	9984.08	76.60	69.35	211.79	0.38	0.33	1.10
LB 9984.08	9990.51	11.24	2.13	3.67	0.06	0.62	5.27
9990.51	9996.94	198.32	15.30	6.83	0.99	2.38	12.96
9996.94	10003.38	465.06	24.99	6.48	2.33	3.89	18.61
10003.38	10009.81	245.38	17.57	7.00	1.23	2.73	13.97
10009.81	RB 10016.24	11.57	2.11	3.41	0.06	0.67	5.49
10016.24	10611.82	1600.15	504.50	344.75	8.00	1.46	3.17
10611.82	11207.39	6059.66	1395.75	595.58	30.30	2.34	4.34
11207.39	11802.97	2643.40	848.47	595.58	13.22	1.42	3.12
11802.97	12398.55	49.18	61.14	327.19	0.25	0.19	0.80
12398.55	12994.13	49.96	38.31	99.30	0.25	0.39	1.30
12994.13	13589.70	1487.60	601.18	596.16	7.44	1.01	2.47
13589.70	14185.28	477.13	266.94	431.20	2.39	0.62	1.79
14185.28	14780.86	2.24	5.15	69.08	0.01	0.07	0.44

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.590

INPUT
Description:
Station Elevation Data num= 177

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2739.26	1490.58	2825.34	1490	2875.69	1489.67	2879.6	1489.44	2925.36	1490
2995.36	1490.7	3039.21	1490.72	3069.62	1490	3072.55	1489.92	3130.83	1490
3153.83	1490.23	3201.39	1490	3227.74	1489.55	3306.47	1489.03	3452.15	1487.12
3739.78	1488.3	3775.41	1487.93	3835.73	1487.27	3988.45	1486.65	4004.62	1485.63
4019.11	1486.42	4087.49	1486.34	4596.46	1486.3	4610.29	1485.82	4723.82	1486.7
4727.82	1486.52	4855.22	1489.14	5068.71	1486.67	5227.06	1487.6	5316.36	1486.37
5325.02	1482.64	5336.02	1486.27	5350.98	1485.72	5358.71	1484.1	5364.16	1485.64
5427.72	1485.2	5431.42	1484.6	5435.44	1485.37	5508.85	1485.33	5644.87	1484.81
5651.06	1484.26	5653.85	1484.83	5662.54	1484.68	5667.34	1483.93	5672.05	1484.72
5747.01	1484.92	5754.24	1483.19	5760.19	1484.86	6037.8	1485.55	6042.63	1483.94
6048.24	1485.6	6063.96	1485.04	6071.91	1482.89	6079.87	1485.42	6148.75	1485.65
6157.54	1484.46	6166.38	1486.12	6314.3	1485.07	6320.97	1484.31	6325.86	1484.22
6328.63	1484.88	6431.11	1485.8	6437.46	1484.26	6447.61	1485.97	6546.58	1487.17
6558.67	1487.58	6889.59	1488.21	6930.18	1487.48	7548.16	1484.59	7584.07	1483.18
7628.8	1484.04	7652.31	1484.61	7657.13	1483.46	7665.23	1484.29	7736.68	1484.01
7740.09	1483.45	7744.12	1483.83	7754	1484.02	7759.23	1482.83	7760.9	1483.5
7784	1484.29	7794.18	1481.03	7800.63	1482.89	7811.93	1483.27	7817.46	1481.79
7830.33	1483.23	7859.51	1483.7	7863.86	1483.41	7870.09	1483.77	7883.93	1483.55
7890.21	1482.62	7900.37	1484.46	8210.81	1484.38	8537.5	1484.33	8710.8	1484.17
8856.23	1484.45	8863.25	1483.71	8868.09	1484.3	8909	1484.4	8915.27	1483.52
8920.63	1484.13	8961.04	1484.44	8965.26	1483.82	8970.62	1484.44	9036.82	1484.85
9210.79	1485.05	9710.78	1486.43	9898.22	1487.27	9971.13	1486.93	9982.9	1487.16
9997.44	1482.24	10003.02	1481.95	10015.54	1487.54	10029.67	1486.51	10038.71	1486.6
10296.82	1485.41	10401.25	1484.85	10520.44	1484.93	10648.08	1484.21	0967.67	1483.55
11085.2	1483.25	11089.76	1482.23	11098.64	1483.31	11191.28	1483.96	11544.18	1485.11
11551.23	1484.26	11559.73	1485.29	11638.49	1485.43	11862.1	1486.74	11890.23	1487.56
12085.71	1487.15	12401.94	1486.33	12718.16	1485.94	12834.05	1486.37	12952.35	1488.38
13045.59	1486.76	13305.1	1484.99	13312.01	1485.35	13396.69	1484.79	13404.54	1482.8
13412.72	1485.11	13465.4	1485.58	13470.16	1485.39	13473.84	1485.59	13530.03	1485.66
13549.39	1485.53	13554.96	1485.04	13556.66	1485.73	13594.25	1485.63	13603.58	1484.67

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13623.49 1485.5113692.01 1485.9113767.47 1485.3513912.67  1486.113950.26 1486.38
14009.14 1485.8814029.68 1486.8814204.76 1486.0614254.61 1485.8514262.39 1487.58
14272.46 1487.77 14279.3 1486.4914629.26  1488.814854.26    149014899.26  1490.3
14974.26    149014989.26  1489.514999.26    149015029.26  1490.315054.26    1490
15099.26  1489.215134.26    149015164.26  1490.315189.26    149015219.26  1489.9
15259.26    149015414.26  1490.9

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2739.26     .05  9982.9    .01510015.54     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9982.910015.54            519.2  503.87  537.11              .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 2739.26    5230    1488

CROSS SECTION OUTPUT    Profile #PF 3

  E.G. Elev (ft)            1486.27   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.20   Wt. n-Val.                0.050      0.015      0.050
  W.S. Elev (ft)            1486.06   Reach Len. (ft)          519.20     503.87     537.11
  Crit W.S. (ft)            1485.71   Flow Area (sq ft)       4373.45      62.71    2865.01
  E.G. Slope (ft/ft)       0.005480   Area (sq ft)            4373.45      62.71    2865.01
  Q Total (cfs)            20000.00   Flow (cfs)             11543.90     794.73    7661.37
  Top Width (ft)            6057.09   Top Width (ft)          3469.35      26.10    2561.64
  Vel Total (ft/s)             2.74   Avg. Vel. (ft/s)           2.64      12.67       2.67
  Max Chl Dpth (ft)            5.03   Hydr. Depth (ft)           1.26       2.40       1.12
  Conv. Total (cfs)        270163.2   Conv. (cfs)            155936.8    10735.4   103491.0
  Length Wtd. (ft)           525.84   Wetted Per. (ft)        3475.77      27.61    2562.80
  Min Ch El (ft)            1481.95   Shear (lb/sq ft)           0.43       0.78       0.38
  Alpha                        1.75   Stream Power (lb/ft s)     1.14       9.85       1.02
  Frctn Loss (ft)              3.32   Cum Volume (acre-ft)    6953.66    1116.51    1081.36
  C & E Loss (ft)              0.01   Cum SA (acres)          4919.71     228.01     879.71


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 3

  Left Sta     Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  4912.35      5636.72         532.70     275.62     315.20       2.66       0.88       1.93
  5636.72      6361.08        1269.50     645.23     718.41       6.35       0.90       1.97
  6361.08      7085.44          86.15      57.09      94.64       0.43       0.61       1.51
  7085.44      7809.81        2196.97     822.10     578.26      10.98       1.42       2.67
  7809.81      8534.17        4130.15    1314.24     724.90      20.65       1.81       3.14
  8534.17      9258.54        3155.60    1118.09     724.62      15.78       1.54       2.82
  9258.54      9982.90         172.82     141.08     319.74       0.86       0.44       1.22
  LB 9982.90   9989.43           7.64       1.83       3.47       0.04       0.56       4.17
  9989.43      9995.96         151.61      14.48       6.89       0.76       2.22      10.47
  9995.96      10002.48        393.81      25.25       6.62       1.97       3.87      15.59
  10002.48     10009.01        230.47      18.83       7.10       1.15       2.89      12.24
  10009.01     RB 10015.54      11.19       2.32       3.53       0.06       0.72       4.83
  10015.54     10555.41        575.96     327.13     400.52       2.88       0.82       1.76
  10555.41     11095.28       4091.81    1195.52     540.03      20.46       2.21       3.42
  11095.28     11635.16       2311.73     848.72     540.01      11.56       1.57       2.72
  11635.16     12175.03         34.85      36.46     111.61       0.17       0.33       0.96
  12175.03     12714.90          1.82       5.87      97.59       0.01       0.06       0.31
  12714.90     13254.77         36.73      41.66     143.97       0.18       0.29       0.88
  13254.77     13794.64        578.54     369.85     540.69       2.89       0.69       1.56
  13794.64     14334.52         29.95      39.80     188.38       0.15       0.21       0.75


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

CROSS SECTION          RIVER: Powerline FRS
REACH: Powerline          RS: 17.494

INPUT
Description:
Station Elevation Data    num=     168
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Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2801.85	1487.14	2848.59	1488.16	2954.68	1488.84	3071.29	1487.19	3214.51	1486.7
3412.39	1484.8	3417.34	1483.97	3424.4	1484.72	3582.87	1484.48	3631.17	1484.22
3643.74	1483.34	3651.36	1483.78	3673.01	1484.34	3675.13	1483.89	3680.77	1484.38
3805.64	1486.02	4207.69	1483.65	4213.58	1482.8	4219.89	1483.16	4281.86	1483.19
4297.75	1481.7	4302.52	1482.88	4312.25	1483.09	4317.09	1481.18	4326.24	1483.29
4363.91	1482.89	4505.33	1483.35	4582.24	1484.76	4695.98	1485.58	4761.25	1485.13
4834.81	1484.94	4996.62	1482.65	5003.32	1482.98	5025.05	1482.52	5145.64	1483.03
5287.06	1482.74	5388.85	1482.77	5398.17	1480.27	5410.78	1482.88	5667.67	1481.46
5676.82	1480	5677.29	1479.9	5677.67	1480	5684.4	1481.86	5699.82	1482.06
5706.61	1480	5708.78	1479.34	5711.08	1480	5719.85	1482.14	5787.05	1481.89
6427.38	1483.18	6468.66	1483.4	6476.9	1482.84	6486.07	1483.16	7026.34	1485.09
7067.68	1484.24	7510.85	1482.29	7513.03	1481.39	7518.29	1481.99	7708.01	1481.58
7781.02	1480.85	7786.36	1480.33	7792.72	1480.64	7808.5	1481.3	7815.6	1480
7820.67	1479.01	7824.74	1480	7828.84	1480.89	8207.99	1480.32	8397.59	1480.75
8401.99	1480	8402.92	1479.83	8404.38	1480	8409.36	1480.56	8445.27	1480.24
8446.87	1480	8452.04	1479.26	8456.81	1480	8460.12	1480.54	8498.28	1480.27
8499.79	1480	8504.51	1479.19	8508.49	1479.89	8511.6	1480	8521.46	1480.38
8523.68	1480	8527.43	1479.54	8531.61	1480	8534.31	1480.19	8698	1480.42
8708	1480.76	8741.01	1481	8746.52	1480.08	8750.59	1481.08	8801.31	1480.67
8804.07	1480	8809.42	1478.63	8812.37	1478.44	8821.86	1480	8825.35	1480.57
9016.29	1481.63	9207.97	1482.07	9666.75	1482.46	9676.09	1481.93	9683.63	1482.56
9713.4	1483.27	9776.33	1483.78	9971.63	1483.25	9983.76	1483.13	9992.89	1480
9997.63	1478.38	10002.85	1478.11	10007.43	148	10016.02	1483.57	10031.15	1482.49
10042.06	1482.53	10057.73	1481.56	10067.11	1482.71	10112.34	1482.71	10207.98	1481.83
10431.58	1481.59	10655.2	1480.45	10878.8	1480.09	11020.1	148	11027.99	1479.64
11042.47	1478.61	11045.95	1479.52	11055.98	1479.81	11064.19	1477.71	11073.58	1479.72
11098.69	148	11102.42	1480.04	11326.03	1480.94	11549.63	1482.17	11773.24	1483.69
11996.85	1484.08	12220.46	1484.2	12536.7	1482.92	12852.9	1483.04	13000.41	1483.76
13040.17	1484.75	13102.58	1484.42	13205.88	1483.63	13329.55	1484.31	13390.28	1483.82
13485.18	1483.06	13536.48	1482.04	13542.33	1481.94	13716.85	148	13761.85	1482.6
13796.85	148	13806.85	1481.71	3816.85	148	13936.85	1483.31	4056.85	1484
14106.85	1484.31	4226.85	1484.31	4311.85	148	14671.85	148	14751.85	1485.8
14821.85	148	14946.85	1486.81	5081.85	1487.11	5201.85	1487.71	5281.85	1487.5
15366.85	1487.61	5416.85	148	15701.85	1489.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2801.85	.05	9983.76	.015	10016.02	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9983.76	10016.02	473.59	472.04	447.11	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2801.85	5140	1484

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1482.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1482.58	Reach Len. (ft)	473.59	472.04	447.11
Crit W.S. (ft)	1482.41	Flow Area (sq ft)	3397.48	72.58	2597.83
E.G. Slope (ft/ft)	0.007368	Area (sq ft)	3397.48	72.58	2597.83
Q Total (cfs)	20000.00	Flow (cfs)	10078.36	1115.43	8806.21
Top Width (ft)	4828.61	Top Width (ft)	2922.79	28.27	1877.55
Vel Total (ft/s)	3.30	Avg. Vel. (ft/s)	2.97	15.37	3.39
Max Chl Dpth (ft)	4.87	Hydr. Depth (ft)	1.16	2.57	1.38
Conv. Total (cfs)	233006.4	Conv. (cfs)	117416.1	12995.2	102595.1
Length Wtd. (ft)	460.88	Wetted Per. (ft)	2926.41	29.87	1878.32
Min Ch El (ft)	1478.10	Shear (lb/sq ft)	0.53	1.12	0.64
Alpha	2.09	Stream Power (lb/ft s)	1.58	17.18	2.16
Frctn Loss (ft)	3.00	Cum Volume (acre-ft)	6907.35	1115.73	1047.68
C & E Loss (ft)	0.00	Cum SA (acres)	4881.61	227.69	852.34

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4956.42	5674.61	250.21	147.70	229.77	1.25	0.64	1.69
5674.61	6392.80	309.54	220.64	455.47	1.55	0.49	1.40
6392.80	7111.00						

7111.00	7829.19	806.95	366.46	384.70	4.03	0.95	2.20
7829.19	8547.38	5522.39	1492.00	718.74	27.61	2.08	3.70
8547.38	9265.57	3066.89	1048.42	718.83	15.33	1.46	2.93
9265.57	9983.76	122.38	122.27	418.90	0.61	0.29	1.00
LB 9983.76	9990.21	25.19	4.02	5.12	0.13	0.83	6.26
9990.21	9996.66	249.19	17.85	6.82	1.25	2.77	13.96
9996.66	10003.12	534.10	27.72	6.54	2.67	4.30	19.27
10003.12	10009.57	285.52	19.55	6.99	1.43	3.03	14.60
10009.57	RB 10016.02	21.44	3.44	4.40	0.11	0.85	6.23
10016.02	10584.60	990.18	449.28	494.34	4.95	0.91	2.20
10584.60	11153.19	5952.26	1394.44	569.23	29.76	2.45	4.27
11153.19	11721.77	1619.44	584.68	456.61	8.10	1.28	2.77
11721.77	13427.52						
13427.52	13996.10	244.33	169.43	358.14	1.22	0.47	1.44

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.405

INPUT
Description:
Station Elevation Data num= 146

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2797.5	1485.45	2876.3	1486.42	2951.15	1485.07	3022.67	1483.64	3032.55	1482.9
3037.36	1483.36	3234.45	1483.06	3333.06	1484.24	3657.16	1481.17	3664.86	1480.41
3685	1481.25	3784.19	1480.41	3862.2	1480.75	3867.76	1480	3868.51	1479.9
3869.04	1480	3872.77	1480.64	4196.15	1480.58	4247.27	1481.02	4253.55	1480
4256.42	1479.52	4258.85	1480	4264.19	1481.06	4354.85	1480.21	4429.51	1483.24
4577.94	1482.65	4808.31	1481.11	4924.36	1480.05	4933.41	1480	5160.67	1479.23
5177.67	1479.12	5424.37	1479.86	5467.85	1480	5493.98	1480.09	5494.47	1480
5499.53	1479.17	5504.48	1479.76	5512.09	1479.91	5520.9	1477.93	5528.96	1479.82
5598.24	1479.34	5606.99	1477.35	5614.36	1479.49	5924.36	1479.5	6334.07	1479.9
6341.12	1479.58	6347.58	1479.72	6424.37	1479.69	6525.94	1480	6573.45	1480
6652.86	1480	6924.36	1482.35	6940.74	1481.62	7234.72	1480	7424.37	1478.87
7479.45	1478.82	7481.79	1477.76	7486.33	1478.61	7733.25	1478.35	7739.89	1477.29
7746.29	1478.04	7769.05	1478.3	7778.84	1476.86	7788.74	1477.78	8064.67	1477.54
8338.6	1476.84	8344.79	1474.96	8349.03	1476.51	8427.83	1477.43	8436.35	1475.6
8442.57	1477.43	8534.02	1477.74	8564.68	1477.56	8699.64	1478.34	8794.2	1478.48
8834.07	1478.63	8956.72	1478.97	8971.79	1478.63	9054.21	1478.39	9064.65	1478.35
9373.23	1480	9502.71	1480	9564.65	1479.65	9620.78	1479.5	9699.27	1479.57
9752.34	1478.86	9761.96	1478.79	9768.22	1479.25	9915.39	1478.73	9918.8	1478.45
9923.5	1478.92	9970.82	1479.62	9983.83	1479.78	9997.12	1474.74	10003.37	1474.6
10017.44	1479.92	10030.14	1479.15	10035.8	1478.94	10056.55	1477.66	10063.42	1478.22
10170.94	1477.71	10288.3	1477.77	10511.9	1476.51	10665.86	1476.77	10735.52	1476.97
10959.12	1477.51	11003.44	1477.22	11011.47	1475.64	11020.75	1477.26	11182.75	1477.94
11406.36	1478.59	11624.35	1480	11853.58	1480.98	12077.23	1480.98	12557.5	1480.9
12742.5	1480.6	12922.5	1480	12992.5	1479.9	13062.5	1480	13142.5	1480
13237.5	1479.8	13312.5	1480	13337.5	1480.2	13372.5	1480	13462.5	1480.6
13527.5	1480	13562.5	1479.8	13622.5	1480	13842.5	1480	13907.5	1480
13992.5	1479.7	14042.5	1480	14232.5	1480	14402.5	1482	14587.5	1484
14727.5	1484.3	14852.5	1484.9	15062.5	1484.8	15242.5	1483.1	15282.5	1482
15342.5	1483.2	15382.5	1484	15512.5	1485.3	15622.5	1486	15727.5	1485.5
15877.5	1486.7								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2797.5	.05	9983.83	.015	10017.44	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9983.83	10017.44	541.31	508.19	481.14	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2797.5	5495	1480

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1479.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1479.55	Reach Len. (ft)	541.31	508.19	481.14
Crit W.S. (ft)	1479.36	Flow Area (sq ft)	3018.87	93.33	2936.96
E.G. Slope (ft/ft)	0.005786	Area (sq ft)	3018.87	93.33	2936.96
Q Total (cfs)	20000.00	Flow (cfs)	8366.92	1384.15	10248.93

Top Width (ft)	4301.46	Top Width (ft)	2738.62	32.01	1530.83
Vel Total (ft/s)	3.31	Avg. Vel. (ft/s)	2.77	14.83	3.49
Max Chl Dpth (ft)	4.95	Hydr. Depth (ft)	1.10	2.92	1.92
Conv. Total (cfs)	262935.7	Conv. (cfs)	109998.1	18197.1	134740.5
Length Wtd. (ft)	506.89	Wetted Per. (ft)	2741.24	33.80	1531.21
Min Ch El (ft)	1474.60	Shear (lb/sq ft)	0.40	1.00	0.69
Alpha	2.26	Stream Power (lb/ft s)	1.10	14.79	2.42
Frctn Loss (ft)	3.27	Cum Volume (acre-ft)	6872.47	1114.83	1019.27
C & E Loss (ft)	0.02	Cum SA (acres)	4850.84	227.37	834.85

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4953.40	5672.03	35.27	37.65	124.28	0.18	0.31	0.94
5672.03	6390.67	3.85	14.21	301.09	0.02	0.05	0.27
6390.67	7109.30						
7109.30	7827.93	1069.55	516.11	517.87	5.35	1.00	2.07
7827.93	8546.56	5578.07	1585.89	719.65	27.89	2.21	3.52
8546.56	9265.20	1536.48	731.23	718.64	7.68	1.02	2.10
9265.20	9983.83	143.71	133.79	359.71	0.72	0.37	1.07
LB 9983.83	9990.55	48.70	7.08	6.53	0.24	1.16	6.88
9990.55	9997.27	353.55	24.14	7.18	1.77	3.59	14.65
9997.27	10004.00	612.00	32.77	6.77	3.06	4.87	18.68
10004.00	10010.72	328.91	23.13	7.19	1.64	3.44	14.22
10010.72	RB 10017.44	40.99	6.22	6.13	0.20	1.08	6.59
10017.44	10603.45	4398.55	1232.73	579.95	21.99	2.13	3.57
10603.45	11189.45	5126.24	1357.23	586.30	25.63	2.32	3.78
11189.45	11775.46	724.13	346.99	364.96	3.62	0.95	2.09

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.309

INPUT
Description:
Station Elevation Data num= 128

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2835.25	1481.06	2935.75	1480	3139.14	1478.49	3590.1	1479.09	3633.69	1479.83
3689.92	1479.35	3779.43	1477.81	4044.7	1477.89	4167.7	1477.84	4180.54	1476.87
4186.25	1477.66	4211.44	1478	4216.18	1477.96	4262.85	1478	4271.26	1475.68
4279.81	1477.91	4345.08	1479.51	4419.76	1478.19	4591.69	1477.88	4919.75	1476.61
5072.07	1476.19	5077.35	1475.64	5083.38	1476.27	5112.75	1476.31	5130.68	1475.4
5488.15	1477.54	5496.26	1475.69	5503.83	1477.28	5543.27	1477.49	5552.38	1475.93
5557.91	1477.78	6059.93	1476.01	6700.23	1476.81	6985.59	1479.78	7200.23	1477.37
7338.86	1475.3	7343.89	1475.12	7348.38	1475.26	7700.24	1474.93	7848.65	1475.16
7859.53	1473.91	7869.83	1475.1	8210.69	1474.02	8220.24	1471.72	8235.38	1474.02
8414.68	1474.07	8534.69	1474.91	8560.48	1475.02	9002.64	1475	9007.24	1474.59
9012.99	1474.5	9021.42	1475.22	9060.44	1475.22	9387.27	1475.71	9391.26	1475.37
9397.24	1475.74	9431.82	1475.45	9439.58	1475.18	9447.2	1475.61	9523.29	1476.42
9560.46	1476.39	9944.57	1475.53	9950.87	1474.74	9956.9	1475.61	9965.01	1476.03
9969.24	1476.57	9982.15	1476.43	9995.91	1471.28	10002.34	1470.98	10016.6	1476.06
10029.34	1475.12	10033.98	1475.23	10053.6	1474.24	10060.45	1474.64	10060.74	1474.55
10190.22	1474.28	10212.47	1474.31	10219.22	1473.71	10223.05	1474.34	10284.05	1474.02
10507.67	1472.93	10674.19	1473.56	10731.27	1473.77	10929.54	1473.95	10935.53	1472.73
10941.61	1474.35	10954.89	1474.11	11178.49	1474.53	11558.25	1476	11788.25	1477.1
11945.25	1477.31	12060.25	1478	12095.25	1478.51	12135.25	1478	12195.25	1477.7
12260.25	1478	12305.25	1477.51	12345.25	1477.71	12585.25	1477.11	12785.25	1478
12805.25	1478.51	12835.25	1478	12963.25	1477.81	13073.25	1477.41	13200.25	1477.3
13275.25	1477.21	13365.25	1477	13660.25	1476.31	13875.25	1476.81	14090.25	1476.8
14300.25	1478	14455.25	1480	14590.25	1476.81	14645.25	1480	14855.25	1481
14960.25	1480.91	15045.25	1481.11	15135.25	1481.41	15195.25	1481.21	15310.25	1480
15320.25	1479.91	15330.25	1480	15460.25	1480.61	15605.25	1480.91	15735.25	1481.6
15805.25	1482	15920.25	1481	16030.25	1481.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

2835.25 .05 9982.15 .015 10016.6 .05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9982.15	10016.6	501.66	476.06	493.7	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2835.25	5487.9	1477

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1476.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.54	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1476.11	Reach Len. (ft)	501.66	476.06	493.70
Crit W.S. (ft)	1476.11	Flow Area (sq ft)	2682.19	100.12	2881.48
E.G. Slope (ft/ft)	0.007236	Area (sq ft)	2682.19	100.12	2881.48
Q Total (cfs)	20000.00	Flow (cfs)	7369.16	1688.81	10942.03
Top Width (ft)	4201.93	Top Width (ft)	2603.66	33.59	1564.67
Vel Total (ft/s)	3.53	Avg. Vel. (ft/s)	2.75	16.87	3.80
Max Chl Dpth (ft)	5.13	Hydr. Depth (ft)	1.03	2.98	1.84
Conv. Total (cfs)	235110.6	Conv. (cfs)	86628.4	19852.9	128629.3
Length Wtd. (ft)		Wetted Per. (ft)	2604.63	35.35	1565.19
Min Ch El (ft)	1470.98	Shear (lb/sq ft)	0.47	1.28	0.83
Alpha	2.78	Stream Power (lb/ft s)	1.28	21.58	3.16
Frctn Loss (ft)		Cum Volume (acre-ft)	6837.05	1113.70	987.14
C & E Loss (ft)		Cum SA (acres)	4817.64	226.99	817.75

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4979.32	5694.01	0.69	0.95	5.57	0.00	0.17	0.73
5694.01	6408.70	1.74	5.43	108.50	0.01	0.05	0.32
6408.70	7123.39						
7123.39	7838.08	1240.10	535.73	553.48	6.20	0.97	2.31
7838.08	8552.77	4221.07	1237.87	715.28	21.11	1.73	3.41
8552.77	9267.46	1662.03	707.41	714.74	8.31	0.99	2.35
9267.46	9982.15	243.49	194.78	507.05	1.22	0.38	1.25
LB 9982.15	9989.04	51.77	6.82	6.44	0.26	1.13	7.60
9989.04	9995.93	398.35	24.44	7.36	1.99	3.55	16.30
9995.93	10002.82	730.89	34.35	6.93	3.65	4.98	21.28
10002.82	10009.71	434.95	25.71	7.31	2.17	3.73	16.92
10009.71	RB 10016.60	72.84	8.80	7.31	0.36	1.28	8.28
10016.60	10617.96	5597.79	1366.77	601.54	27.99	2.27	4.10
10617.96	11219.33	4847.25	1253.81	601.70	24.24	2.08	3.87
11219.33	11820.69	497.03	260.90	361.95	2.49	0.72	1.91

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.218

INPUT
Description:
Station Elevation Data num= 147

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2831.22	1476.97	2918.91	1476.58	2925.21	1475.85	2951.13	1476.63	2974.51	1476.75
3474.51	1475.44	3974.5	1474.74	4250.81	1474.83	4258.25	1472.58	4267.2	1474.77
4453.02	1475.31	4531.68	1477.33	4653.17	1475.97	4788.18	1474.45	4834.73	1474.14
4965.36	1473.24	4982.32	1473.16	5069.74	1473.24	5100.04	1472.95	5334.74	1473.93
5495.17	1474.92	5498.19	1473.94	5505.32	1475.07	5561.73	1475.22	5574.27	1473.33
5588.99	1475.51	5603	1474.95	5700.77	1474.28	5713.93	1473.54	5721.22	1474.27
5744.47	1473.92	5746.86	1473.66	5750.67	1474.08	5763.83	1474.23	5768.39	1473.61
5774.43	1474.19	5834.73	1473.61	6195.3	1472.76	6344.79	1472.61	6350.83	1472.22
6356.84	1472.81	6695.29	1473.02	6808.05	1474.9	6903.42	1476.42	7195.29	1474.59

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 7200.17 1474.45 7226.71 1473.59 7247.35 1474.01 7297.01 1473.74  7306.3 1472.81
 7600.92 1470.78 7607.85 1470.03 7613.54 1470.78 7695.28 1471.54 8062.55  1471.5
 8073.65 1470.39 8081.42 1470.88 8096.35 1470.93 8099.36    1470 8103.46 1468.72
 8107.48    1470 8110.66 1470.97 8144.54 1471.01 8151.69    1470    8152 1469.96
 8153.33    1470 8161.27    1470 8164.41 1470.64 8195.28 1470.74 8533.29 1472.19
 8555.84 1472.24 8746.22 1471.81 8766.28 1472.27  8770.7 1471.55 8774.26 1472.18
 9055.83 1472.22 9321.62  1471.7 9481.55 1473.06 9555.82 1472.15 9818.55  1470.7
 9916.38 1472.64 9946.06 1472.92 9952.36 1471.96 9957.08 1472.95 9964.49 1473.55
 9967.34 1472.68  9981.5 1473.06 9995.23 1467.9610000.92 1467.9310014.21  1473.2
10027.34 1472.73   10033 1472.9510050.53 1472.8310057.52 1472.9410173.02 1471.31
10346.22    147010401.22  1470.310456.22    147010606.22    147010816.22  1471.5
10916.22    147010926.22  1469.710936.22    147010991.22  1471.711036.22    1472
11326.22    147311586.22  1473.811706.22    147411826.22    147411976.22  1474.8
12051.22  1474.512221.22  1474.412341.22  1474.512761.22  1475.212856.22    1475
13016.22    147413061.22    147413101.22  1474.313206.22    147413301.22  1474.4
13411.22  1474.713611.22    147413761.22    147213776.22  1470.713786.22    1472
13851.22    147213856.22  1470.513861.22    147213971.22    147414191.22    1474
14206.22  1473.314216.22    147414491.22  1475.814626.22  1477.214741.22    1476
14781.22    147614846.22  1477.314991.22  1478.215091.22  1477.415171.22  1478.1
15296.22  1477.715381.22    147815436.22  1478.315481.22    147815556.22  1477.2
15691.22    147816066.22    1480

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2831.22     .05  9981.5    .01510014.21     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9981.510014.21              440  446.85     550             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 2831.22 5493.59    1476

CROSS SECTION OUTPUT    Profile #PF 3

  E.G. Elev (ft)            1473.53   Element                   Left OB    Channel   Right OB
  Vel Head (ft)                0.29   Wt. n-Val.                  0.050      0.015      0.050
  W.S. Elev (ft)            1473.24   Reach Len. (ft)            440.00     446.85     550.00
  Crit W.S. (ft)            1472.93   Flow Area (sq ft)         4226.76     103.16    2922.23
  E.G. Slope (ft/ft)       0.004189   Area (sq ft)              4226.76     103.16    2922.23
  Q Total (cfs)            20000.00   Flow (cfs)               10213.78    1369.23    8416.98
  Top Width (ft)            5075.36   Top Width (ft)            3391.45      32.71    1651.20
  Vel Total (ft/s)             2.76   Avg. Vel. (ft/s)             2.42      13.27       2.88
  Max Chl Dpth (ft)            5.31   Hydr. Depth (ft)             1.25       3.15       1.77
  Conv. Total (cfs)        309015.3   Conv. (cfs)              157810.7    21155.7   130048.8
  Length Wtd. (ft)           486.28   Wetted Per. (ft)          3392.94      34.63    1651.89
  Min Ch El (ft)            1467.93   Shear (lb/sq ft)             0.33       0.78       0.46
  Alpha                        2.44   Stream Power (lb/ft s)       0.79      10.34       1.33
  Frctn Loss (ft)              2.84   Cum Volume (acre-ft)      6797.26    1112.59     954.25
  C & E Loss (ft)              0.04   Cum SA (acres)            4783.12     226.62     799.53


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 3

  Left Sta     Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  5691.33      6406.36         162.83     161.70    414.72       0.81       0.39       1.01
  6406.36      7121.39          77.00      90.90    302.12       0.38       0.30       0.85
  7121.39      7836.42        2286.18     873.44    534.53      11.43       1.63       2.62
  7836.42      8551.44        3903.49    1353.30    715.92      19.52       1.89       2.88
  8551.44      9266.47        1700.57     821.66    715.15       8.50       1.15       2.07
  9266.47      9981.50        2083.71     925.77    710.49      10.42       1.30       2.25
  LB 9981.50   9988.04          61.03       9.13      6.98       0.31       1.39       6.69
  9988.04      9994.58         327.87      25.02      6.98       1.64       3.82      13.10
  9994.58      10001.13        582.49      34.55      6.60       2.91       5.28      16.86
  10001.13     10007.67        341.28      25.72      7.04       1.71       3.93      13.27
  10007.67     RB 10014.21      56.56       8.75      7.04       0.28       1.34       6.47
  10014.21     10619.41       4713.29    1459.00    605.23      23.57       2.41       3.23
  10619.41     11224.61       3234.46    1163.99    605.25      16.17       1.92       2.78
  11224.61     11829.81         40.29      51.54    179.60       0.20       0.29       0.78
  11829.81     13645.42
```

13645.42	14250.62	428.93	247.69	261.80	2.14	0.95	1.73

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.134

INPUT
Description:
Station Elevation Data num= 243

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2914.52	1474	3102.93	1473.7	3110.85	1472.18	3120.25	1473.69	3324.4	1473.19
3678.46	1472	3701	1471.73	3709.21	1471.21	3715.47	1471.68	3719.5	1471.56
3724.51	1470.8	3735.69	1471.07	3746.27	1471.4	3751.04	1470.82	3760.81	1471.25
3772.77	1471.27	3789.58	1470.61	3793.31	1470	3798.14	1469.39	3801.59	1470
3804.64	1470.58	3816.95	1470.5	3819.15	1470	3823.47	1469.07	3828.8	1470
3837.58	1471.47	3900.09	1470.64	3905.26	1470	3907.41	1469.74	3908.49	1470
3913.32	1471.05	3922.32	1471.01	3927.21	1470.09	3935.76	1470.91	3991.77	1471.63
3998.17	1470.42	4003.27	1471.44	4032.4	1471.26	4037.64	1470.41	4045.34	1471.48
4122.84	1472	4131.53	1472.06	4131.74	1472	4137.85	1470.36	4145.63	1472
4145.89	1472.06	4152.69	1472	4173.54	1472	4176.07	1472	4229.94	1472
4237.1	1472.04	4237.48	1472	4244.95	1471.07	4249.7	1472	4249.75	1472.01
4258.94	1472.15	4259.38	1472	4264.73	1470	4264.96	1469.92	4265.36	1470
4272.74	1471.36	4500.88	1472	4600.87	1472.69	4636.75	1474	4658.58	1474.82
4684.55	1475.21	4719.76	1474.41	4782.19	1474.41	4876.9	1474	4960.39	1472
4971.94	1471.76	4988.49	1471.27	5018.77	1471.35	5033.53	1470.93	5039.04	1471.89
5039.77	1472	5053.64	1474	5055.01	1474.18	5056.77	1474	5075.54	1472.24
5086.29	1472	5091.92	1471.81	5092.6	1472	5099.92	1474	5107.2	1476
5114.16	1477.96	5126.92	1476.8	5129.27	1476	5135.13	1474	5140.98	1472
5146.63	1470	5150.54	1468.6	5322.94	1468.6	5328.7	1470	5337.08	1472
5345.67	1474	5354.23	1476	5361.32	1477.78	5363.57	1478	5375.42	1479.31
5379.47	1478	5385.66	1476	5391.82	1474	5397.96	1472	5399.53	1471.49
5414.94	1470	5415.63	1469.89	5416.55	1470	5421.17	1470.39	5684.55	1471.26
5929.48	1470.8	5943.72	1470	5949.72	1469.18	5955.79	1470	5959.17	1470.43
5964.15	1470	5968.22	1469.67	5998.23	1469.8	6007.48	1468.53	6017.24	1469.76
6046.18	1469.92	6050.73	1468.17	6056.45	1469.74	6074.21	1469.6	6084.11	1468.31
6094.06	1469.84	6172.14	1469.66	6178.95	1468.98	6182.51	1469.66	6211.76	1469.8
6216.06	1468.96	6221.59	1469.89	6280.37	1469.77	6285.41	1468.51	6291.97	1469.9
6296.46	1470	6488.65	1472	6515.85	1472.27	6568.76	1472.02	6628.9	1472.69
6836.3	1472	6852.53	1471.97	6858.44	1471.59	6863.73	1471.88	7044.71	1470.62
7120.05	1470	7335.71	1469.06	7340.53	1468.4	7344.67	1468.99	7904.95	1468.15
7924.79	1468	7973.83	1467.62	8013.19	1468	8164.51	1468.62	8166.65	1468
8170.85	1466.88	8175.13	1467.85	8177.6	1468	8178.48	1468.05	8178.67	1468
8185.96	1466.05	8194.59	1468	8195.01	1468.15	8231.13	1468.95	8238.55	1468.33
8244.81	1468.88	8261.95	1468.65	8269.14	1468.04	8275.98	1468.4	8314.39	1468.03
8316.94	1468	8328.24	1467.89	8337.17	1468	8350.43	1468.4	8483.09	1468.4
8486.14	1468	8493.88	1467.5	8502.01	1468	8506.97	1468.2	8548.67	1468.48
8561.49	1468.01	8586.44	1469.05	8835	1470	8960	1470	9180	1470
9440	1470	9470	1470.2	9500	1470	9585	1468.8	9750	1468
9940	1468	9980	1470	10000	1463.6	10010	1468	10020	1469.6
10135	1468	10215	1469.9	10320	1468	10470	1467.7	10670	1468
10765	1468	10795	1467.9	10820	1468	10870	1468.6	11100	1468
11145	1467.8	11175	1468	11335	1469.4	11400	1470	11550	1471.8
11700	1472	11730	1472	12120	1471.5	12370	1471.4	12975	1471.7
13075	1471.7	13225	1470.3	13825	1470.7	14010	1470	14115	1470
14145	1470	14150	1469.5	14155	1470	14190	1470.6	14220	1470
14230	1469.1	14250	1470	14300	1471	14355	1472	14440	1473.4
14655	1471.7	14840	1472.7	15010	1474	15270	1474	15355	1474
15365	1473.9	15375	1472	15380	1471.9	15385	1472	15630	1474
16000	1475.4	16185	1476	16250	1476				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2914.52	.05	9980	.015	10020	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980	10020	500	476.47	600	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2914.52	5360	1473	14435	16250	1473.41

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1470.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.70	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1469.95	Reach Len. (ft)	500.00	476.47	600.00
Crit W.S. (ft)	1469.95	Flow Area (sq ft)	2998.56	116.20	2200.54
E.G. Slope (ft/ft)	0.008498	Area (sq ft)	2998.56	116.20	2200.54
Q Total (cfs)	20000.00	Flow (cfs)	9726.00	2094.36	8179.65
Top Width (ft)	3963.30	Top Width (ft)	2510.74	39.86	1412.70
Vel Total (ft/s)	3.76	Avg. Vel. (ft/s)	3.24	18.02	3.72
Max Chl Dpth (ft)	6.35	Hydr. Depth (ft)	1.19	2.92	1.56
Conv. Total (cfs)	216959.3	Conv. (cfs)	105507.3	22719.5	88732.5
Length Wtd. (ft)		Wetted Per. (ft)	2513.54	41.90	1412.87
Min Ch El (ft)	1463.60	Shear (lb/sq ft)	0.63	1.47	0.83
Alpha	3.16	Stream Power (lb/ft s)	2.05	26.52	3.07
Frctn Loss (ft)		Cum Volume (acre-ft)	6760.77	1111.47	921.91
C & E Loss (ft)		Cum SA (acres)	4753.31	226.25	780.19

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5034.16	5740.71	0.01	0.03	0.96	0.00	0.03	0.26
5740.71	6447.26	143.60	114.60	342.71	0.72	0.34	1.25
6447.26	7153.81	0.43	1.19	23.40	0.00	0.05	0.36
7153.81	7860.36	2253.96	798.66	706.64	11.27	1.13	2.82
7860.36	8566.90	4675.01	1237.93	707.59	23.38	1.75	3.78
8566.90	9273.45	222.64	132.73	256.30	1.11	0.52	1.68
9273.45	9980.00	2430.30	713.41	475.96	12.15	1.50	3.41
LB 9980.00	9988.00	86.32	9.88	8.25	0.43	1.26	8.74
9988.00	9996.00	553.81	30.36	8.40	2.77	3.79	18.24
9996.00	10004.00	1043.60	44.76	8.57	5.22	5.59	23.32
10004.00	10012.00	349.73	23.24	8.58	1.75	2.90	15.05
10012.00	RB 10020.00	60.92	7.96	8.10	0.30	0.99	7.65
10020.00	10643.00	3672.41	1002.07	623.05	18.36	1.61	3.66
10643.00	11266.00	4344.95	1108.43	623.01	21.72	1.78	3.92
11266.00	11889.00	141.84	75.79	129.11	0.71	0.59	1.87
11889.00	13758.00						
13758.00	14381.00	20.48	14.25	37.69	0.10	0.38	1.44

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.044

INPUT
Description:
Station Elevation Data num= 180

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2997.33	1472	3229.28	1470.48	3233.16	1470	3241.94	1469.12	3251.31	1470
3257.48	1470.46	3265.24	1470.31	3266.53	1470	3270.21	1468.95	3273.92	1470
3275.9	1470.41	3332.06	1470.87	3339.29	1470	3361.18	1468.98	3368.2	1469.78
3399.76	1469.77	3407.95	1468.4	3415.64	1469.62	3479.55	1470	3481.71	1470
3482.37	1470.03	3486.02	1469.46	3491.67	1470	3739.65	1470	3912.53	1468.23
3916.18	1468	3926.98	1467.42	3930.18	1468	3932.64	1468.18	3959.17	1468.49
3961.4	1468	3964.25	1467.37	3967.86	1468	3970.46	1468.41	4120.44	1468.75
4127.39	1468.14	4130.5	1468.75	4206.37	1469.43	4213.15	1468.03	4219.34	1469.36
4268.29	1468.97	4617.41	1470	4646.3	1470.24	4706.76	1472	4712.35	1472.17
4758.52	1472	4766.99	1471.91	4768.29	1471.74	4793.31	1470.75	4845.19	1470.55
4880.8	1470	4945.25	1469.62	4957.9	1468	4958.16	1467.97	4958.32	1468

4965.38	1469.42	5026.31	1470	5037.17	1470.1	5055.93	1470	5163.11	1469.3
5219.22	1469.21	5268.3	1469.2	5300.57	1468.68	5381	1468	5733.04	1466.25
5736.78	1466	5752.91	1464.64	5761.52	1466	5765.67	1466.47	5768.28	1466.66
5805.04	1467.09	5812.22	1466.43	5816.13	1467.01	5987.29	1466.07	5987.62	1466
5995.57	1464.67	6001.95	1466	6005.63	1466.77	6026.75	1466.73	6029.15	1466
6032.79	1464.59	6039.78	1466	6040.03	1466.05	6154.39	1468	6187.37	1468.96
6236.64	1470	6258.74	1470.49	6268.29	1470.11	6276.65	1470	6338.38	1469.15
6410.2	1468.23	6415.85	1468	6418	1467.91	6419.61	1468	6425.76	1468.42
6570.17	1470	6579.27	1470.14	6658.2	1471.14	6768.3	1471.18	6776.51	1470.6
6939.96	1470	7183.44	1468	7268.3	1467.06	7293.58	1466.86	7300.47	1467.05
7304.94	1467.04	7768.31	1466.08	7794.56	1466	7885.22	1466	7958.03	1466.13
7961.96	1466	7963.62	1465.95	7965.39	1466	7972.38	1466.13	8268.3	1466.88
8304.67	1466.66	8306.73	1466	8312.19	1464	8312.77	1463.79	8313.38	1464
8318.63	1466	8319.83	1466.52	8343.21	1466.65	8348.29	1466	8349.97	1465.8
8355.46	1466	8359.02	1466.13	8375	1464	8655	1466	8855	1467
8980	1466.9	9320	1466	9520	1466	9560	1466.2	9590	1466
9800	1465.6	9940	1466	9960	1466.1	9980	1466.9	9995	1460
10000	1460	10005	1460	10025	1466	10045	1464	10055	1463.7
10065	1464	10230	1465.4	10345	1464	10410	1463.6	10470	1464
11015	1465.1	11195	1466	11370	1467.6	11440	1468	11570	1468.1
11605	1468	11860	1467.9	12130	1468	12240	1468.6	12340	1468
12980	1468	13400	1468	13780	1466.9	13945	1467	14245	1466
14255	1465.5	14265	1466	14335	1468	14385	1468.8	14440	1468
14540	1467.7	14655	1468	14825	1469.2	14965	1469.2	15130	1470
15215	1471.3	15540	1469.6	15660	1468.9	15885	1470	16345	1471.8

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2997.33	.05	9980	.015	10025	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980	10025	500	522.73	550	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
15215	16345	1471.28

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1468.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.58	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1467.43	Reach Len. (ft)	500.00	522.73	550.00
Crit W.S. (ft)	1467.43	Flow Area (sq ft)	3905.80	222.78	3842.39
E.G. Slope (ft/ft)	0.002658	Area (sq ft)	3905.80	222.78	3842.39
Q Total (cfs)	20000.00	Flow (cfs)	6668.36	3192.65	10138.99
Top Width (ft)	5464.26	Top Width (ft)	3372.77	45.00	2046.48
Vel Total (ft/s)	2.51	Avg. Vel. (ft/s)	1.71	14.33	2.64
Max Chl Dpth (ft)	7.43	Hydr. Depth (ft)	1.16	4.95	1.88
Conv. Total (cfs)	387944.3	Conv. (cfs)	129347.6	61928.5	196668.2
Length Wtd. (ft)	532.49	Wetted Per. (ft)	3375.19	47.39	2046.67
Min Ch El (ft)	1460.00	Shear (lb/sq ft)	0.19	0.78	0.31
Alpha	5.92	Stream Power (lb/ft s)	0.33	11.18	0.82
Frctn Loss (ft)	1.37	Cum Volume (acre-ft)	6721.15	1109.61	880.29
C & E Loss (ft)	0.02	Cum SA (acres)	4719.55	225.79	756.36

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
3695.60	4393.86	0.00	0.02	1.01	0.00	0.02	0.12
4393.86	5092.13						
5092.13	5790.40	267.71	219.69	295.74	1.34	0.74	1.22
5790.40	6488.67	411.25	297.60	331.74	2.06	0.90	1.38
6488.67	7186.93						
7186.93	7885.20	832.49	594.86	650.66	4.16	0.91	1.40
7885.20	8583.47	2185.03	1092.53	699.49	10.93	1.56	2.00
8583.47	9281.73	920.04	649.74	698.27	4.60	0.93	1.42

9281.73	9980.00	2051.85	1051.35	698.29	10.26	1.51	1.95
LB 9980.00	9989.00	194.16	23.44	9.91	0.97	2.60	8.29
9989.00	9998.00	913.75	58.63	9.60	4.57	6.51	15.59
9998.00	10007.00	1163.94	66.31	9.09	5.82	7.37	17.55
10007.00	10016.00	695.96	49.36	9.40	3.48	5.48	14.10
10016.00	RB 10025.00	224.83	25.06	9.40	1.12	2.78	8.97
10025.00	10657.00	6059.89	1946.97	632.13	30.30	3.08	3.11
10657.00	11289.00	3491.25	1398.42	632.01	17.46	2.21	2.50
11289.00	11921.00	11.56	18.05	62.84	0.06	0.29	0.64
11921.00	13185.00						
13185.00	13817.00	46.16	68.58	221.45	0.23	0.31	0.67
13817.00	14449.00	530.13	410.36	498.24	2.65	0.82	1.29

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.945

INPUT
Description:
Station Elevation Data num= 155

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2930.15	1470	3352.26	1469.07	3576.27	1468	3631.81	1468	3646.22	1468
3654.7	1468	3656.76	1468.06	3657.48	1468	3668.88	1466.97	3675.79	1467.36
3707.31	1467.5	3718.14	1466.4	3727.85	1467.13	3844.51	1468	3846.21	1468.05
3937.15	1469.72	4065.57	1468.17	4070.72	1468	4123.12	1466.35	4125.22	1466
4133.9	1465.18	4140.15	1466	4143.81	1466.48	4492.44	1467.53	4661.01	1468
4724.29	1468.6	4781.24	1470	4803.68	1470.58	4834.6	1470	4840.67	1469.88
4846.97	1468.4	4858.48	1469.1	4925.74	1468	4952.32	1467.47	4983.62	1468
4992.44	1468.15	5006.68	1468.28	5054.68	1468	5283.05	1466	5302.47	1465.85
5320.11	1464.13	5325.01	1464	5325.4	1463.66	5327.67	1464	5334.71	1464.87
5481.92	1465.24	5489.39	1464	5496.21	1462.42	5505.3	1464	5507.13	1464.35
5521.22	1464.53	5523.63	1464	5528.43	1462.83	5535.09	1464	5539.53	1464.71
5578.75	1464.97	5600	1464.97	5737.17	1464.5	5827.66	1464	5857.58	1463.84
5862.66	1462	5862.99	1461.88	5863.37	1462	5868.45	1462	5871.74	1461.35
5874.39	1462	5882.38	1464	5883.36	1464.25	5992.43	1464.67	6508.35	1464.62
6632.75	1465.09	6712.14	1466	7108.06	1466	7132.73	1465.62	7148.62	1465.62
7152.7	1465.06	7159.27	1465.66	7470.96	1464.81	7501.44	1463.92	7518.58	1463.59
7524.61	1463.13	7530.75	1463.91	7632.74	1463.37	8132.74	1463.3	8160.56	1462.4
8164.81	1462.26	8168.31	1462.65	8200	1462	8330	1462	8345	1460.4
8360	1462	8755	1464	8790	1464.3	8825	1464	9135	1463.8
9325	1464.8	9510	1465	9675	1464	9835	1464.7	9965	1462
9970	1461.6	9975	1462	9995	1458	10000	1457.5	10005	1458
10015	1462	10030	1462.8	10045	1462	10145	1462.4	10305	1461.1
10725	1461.4	10970	1462	11115	1463.6	11565	1464	11835	1465.4
12015	1465.5	12235	1465.2	12595	1464.5	12765	1464	12780	1463.5
12795	1464	13560	1462.8	14020	1462	14040	1463.2	14070	1462
14135	1460.6	14160	1460	14170	1459.9	14180	1460	14225	1462.9
14280	1464	14405	1464	14510	1464	14665	1464	14745	1465.1
14830	1466	15045	1466	15105	1465.4	15170	1466	15255	1466.4
15320	1466	15365	1465.2	15485	1466	15645	1466.3	15705	1466
15835	1464	15841	1463	15847	1462	15853	1462	15859	1463
15865	1464	15930	1466	16420	1467.2	16585	1468	16625	1468.3

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2930.15	.05	9975	.015	10015	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9975	10015	500	506.37	550	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
15044	16625	1465.99

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1465.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.	0.050	0.015	0.050

W.S. Elev (ft)	1464.50	Reach Len. (ft)	500.00	506.37	550.00
Crit W.S. (ft)	1464.50	Flow Area (sq ft)	2485.18	202.67	6153.71
E.G. Slope (ft/ft)	0.002509	Area (sq ft)	2485.18	202.67	6153.71
Q Total (cfs)	20000.00	Flow (cfs)	4014.02	2908.17	13077.82
Top Width (ft)	6191.25	Top Width (ft)	2395.12	40.00	3756.12
Vel Total (ft/s)	2.26	Avg. Vel. (ft/s)	1.62	14.35	2.13
Max Chl Dpth (ft)	7.00	Hydr. Depth (ft)	1.04	5.07	1.64
Conv. Total (cfs)	399258.8	Conv. (cfs)	80131.5	58055.5	261071.7
Length Wtd. (ft)	534.43	Wetted Per. (ft)	2397.21	41.22	3756.39
Min Ch El (ft)	1457.50	Shear (lb/sq ft)	0.16	0.77	0.26
Alpha	6.53	Stream Power (lb/ft s)	0.26	11.05	0.55
Frctn Loss (ft)	1.64	Cum Volume (acre-ft)	6684.47	1107.06	817.19
C & E Loss (ft)	0.09	Cum SA (acres)	4686.44	225.28	719.73

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5043.60	5748.09	39.57	42.82	78.34	0.20	0.55	0.92
5748.09	6452.58	86.91	100.29	202.08	0.43	0.50	0.87
6452.58	7157.06						
7157.06	7861.54	531.98	382.96	380.19	2.66	1.01	1.39
7861.54	8566.03	2655.16	1286.10	704.70	13.28	1.83	2.06
8566.03	9270.51	453.49	444.92	702.78	2.27	0.63	1.02
9270.51	9975.00	246.89	228.07	329.11	1.23	0.69	1.08
LB 9975.00	9983.00	276.51	26.43	8.16	1.38	3.30	10.46
9983.00	9991.00	533.99	39.23	8.16	2.67	4.90	13.61
9991.00	9999.00	837.15	51.23	8.10	4.19	6.40	16.34
9999.00	10007.00	877.84	52.93	8.18	4.39	6.62	16.58
10007.00	RB 10015.00	382.67	32.83	8.62	1.91	4.10	11.65
10015.00	10676.00	5410.42	1948.07	661.05	27.05	2.95	2.78
10676.00	11337.00	2638.05	1265.98	661.01	13.19	1.92	2.08
11337.00	11998.00	138.38	162.60	325.25	0.69	0.50	0.85
11998.00	12659.00	1.78	6.30	66.20	0.01	0.10	0.28
12659.00	13320.00	638.53	540.47	661.02	3.19	0.82	1.18
13320.00	13981.00	2532.87	1235.44	661.00	12.66	1.87	2.05
13981.00	14642.00	1703.84	974.00	661.19	8.52	1.47	1.75
14642.00	15303.00	13.97	20.85	59.68	0.07	0.35	0.67

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.849

INPUT
Description:
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5288.27	1464	5458.83	1462	5478.35	1461.45	5517.9	1460.4	5557.35	1460
5558.9	1459.52	5561.45	1460	5606.97	1460.29	5787.83	1460	5791.12	1459.4
5794.24	1460	5898.97	1462	5977.4	1462	6175.48	1461.97	6225.4	1461.7
6312.19	1462	6346	1462	6526.33	1462	7220	1464.5	7580	1460
7595	1461.6	7610	1460	7960	1458	7975	1457.8	7990	1458
8000	1459	8010	1460	8030	1460.3	8060	1460	8170	1458
8185	1457.5	8200	1458	8495	1460	8565	1461.5	8630	1460
8720	1459	8930	1459.7	8995	1460	9055	1461.3	9110	1460
9195	1460	9265	1460.7	9325	1460	9340	1459.9	9355	1460
9530	1461.7	9970	1460	9990	1458	10000	1454.8	10010	1460.4

10020	1460	10110	1458	10400	1458	10465	1458.8	10495	1458
10630	1456	10645	1455.4	10660	1456	10895	1458	11035	1459
11285	1460	11715	1462	11775	1462.4	11835	1462	11945	1462
11995	1462.8	12035	1462	12080	1461.7	12220	1461.5	12390	1461.3
12500	1462	12685	1460.7	12800	1460.7	12940	1461.7	13165	1460
13295	1459.4	13525	1460	13595	1460.7	13665	1460	14205	1458
14220	1456.8	14230	1458	14390	1460	14505	1461.2	14625	1460
14845	1460	15045	1462	15115	1463.2	15185	1462	15335	1462
15435	1464	15480	1464	15665	1462	15865	1460	16150	1461.2
16425	1462	16530	1463	16750	1464.4				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5288.27	.05	9970	.015	10010	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9970	10010	480	507.71	530	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
14500	16750	1464.01

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1460.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1460.63	Reach Len. (ft)	480.00	507.71	530.00
Crit W.S. (ft)	1459.98	Flow Area (sq ft)	2261.51	105.19	4880.77
E.G. Slope (ft/ft)	0.003817	Area (sq ft)	2261.51	105.19	4880.77
Q Total (cfs)	20000.00	Flow (cfs)	4868.64	1186.14	13945.22
Top Width (ft)	5007.41	Top Width (ft)	2202.34	40.00	2765.06
Vel Total (ft/s)	2.76	Avg. Vel. (ft/s)	2.15	11.28	2.86
Max Chl Dpth (ft)	5.83	Hydr. Depth (ft)	1.03	2.63	1.77
Conv. Total (cfs)	323721.2	Conv. (cfs)	78804.2	19198.9	225718.1
Length Wtd. (ft)	519.61	Wetted Per. (ft)	2202.86	42.06	2765.31
Min Ch El (ft)	1454.80	Shear (lb/sq ft)	0.24	0.60	0.42
Alpha	1.89	Stream Power (lb/ft s)	0.53	6.72	1.20
Frctn Loss (ft)	3.06	Cum Volume (acre-ft)	6657.22	1105.27	747.52
C & E Loss (ft)	0.03	Cum SA (acres)	4660.06	224.81	678.56

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5288.27	5756.44	121.15	112.28	247.32	0.61	0.45	1.08
5756.44	6224.62	40.55	35.32	70.89	0.20	0.50	1.15
6224.62	7160.96						
7160.96	7629.13	32.49	32.68	81.40	0.16	0.40	0.99
7629.13	8097.31	1800.80	731.95	468.29	9.00	1.56	2.46
8097.31	8565.48	1860.98	719.55	427.12	9.30	1.68	2.59
8565.48	9033.65	823.72	438.86	421.38	4.12	1.04	1.88
9033.65	9501.83	145.56	139.55	323.45	0.73	0.43	1.04
9501.83	9970.00	43.40	51.33	163.00	0.22	0.31	0.85
LB 9970.00	9978.00	45.44	8.24	8.04	0.23	1.03	5.52
9978.00	9986.00	118.45	14.64	8.04	0.59	1.83	8.09
9986.00	9994.00	244.23	22.80	8.22	1.22	2.85	10.71
9994.00	10002.00	599.14	39.76	8.59	3.00	4.97	15.07
10002.00	RB 10010.00	178.88	19.76	9.17	0.89	2.47	9.05
10010.00	10684.00	6579.04	1872.01	674.09	32.90	2.78	3.51
10684.00	11358.00	3855.90	1358.52	674.01	19.28	2.02	2.84
11358.00	12032.00	4.45	9.06	62.40	0.02	0.15	0.49
12032.00	12706.00						
12706.00	13380.00	374.96	242.22	298.36	1.87	0.81	1.55
13380.00	14054.00	1244.89	683.62	659.97	6.22	1.04	1.82
14054.00	14728.00	1885.98	715.38	396.49	9.43	1.80	2.64

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

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.753

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5564.74	1460	5713.27	1458.29	5768.23	1458	5778.22	1456.35	5792.96	1458
6059.02	1460	6405	1459	6710	1460.4	7060	1462	7460	1459.3
7820	1456	7855	1455.7	7885	1456	8065	1456	8085	1455
8105	1454	8125	1456	8375	1457	8590	1457.6	8775	1456.5
9240	1458	9285	1458.6	9375	1458	9480	1457.2	9960	1458
9985	1458	10000	1451.8	10010	1456	10020	1457.7	10050	1456
10070	1456.7	10290	1456	10390	1455.5	10580	1454	10750	1455
10970	1456	11320	1456	11360	1457.6	11435	1458	11530	1457.5
11600	1458	11630	1458.6	11660	1458	11680	1457.6	11705	1458
12340	1458.6	12780	1458.2	12960	1458.4	13245	1458	13380	1457
13485	1456	13895	1456	14440	1455.1	14605	1456	14945	1456.7
15080	1456.8	15215	1457	15355	1457.7	15460	1458	15700	1458
15810	1457	16095	1457.1	16400	1458	16480	1459	16545	1460

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5564.74	.05	9985	.015	10020	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985	10020	500	461.9	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
14730	16545	1460

Blocked Obstructions num= 1

Sta L	Sta R	Elev
15500	16545	1459

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1457.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.51	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1457.25	Reach Len. (ft)	500.00	461.90	500.00
Crit W.S. (ft)	1457.24	Flow Area (sq ft)	876.98	74.04	4108.29
E.G. Slope (ft/ft)	0.010244	Area (sq ft)	876.98	74.04	4395.39
Q Total (cfs)	20000.00	Flow (cfs)	2345.62	1283.25	16371.14
Top Width (ft)	4463.29	Top Width (ft)	1190.50	30.54	3242.25
Vel Total (ft/s)	3.95	Avg. Vel. (ft/s)	2.67	17.33	3.98
Max Chl Dpth (ft)	5.45	Hydr. Depth (ft)	0.74	2.42	1.52
Conv. Total (cfs)	197603.7	Conv. (cfs)	23175.1	12678.7	161749.9
Length Wtd. (ft)	496.60	Wetted Per. (ft)	1190.79	32.58	2707.24
Min Ch El (ft)	1451.80	Shear (lb/sq ft)	0.47	1.45	0.97
Alpha	2.12	Stream Power (lb/ft s)	1.26	25.19	3.87
Frctn Loss (ft)	2.81	Cum Volume (acre-ft)	6639.93	1104.23	691.09
C & E Loss (ft)	0.00	Cum SA (acres)	4641.36	224.40	642.02

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5564.74	6006.77	9.48	6.08	13.62	0.05	0.45	1.56
6006.77	7332.84						
7332.84	7774.87	57.07	38.19	91.29	0.29	0.42	1.49
7774.87	8216.90	1944.11	596.28	442.18	9.72	1.35	3.26
8216.90	8658.92	144.72	101.15	258.01	0.72	0.39	1.43
8658.92	9100.95	190.03	134.36	348.73	0.95	0.39	1.41
9100.95	9542.97	0.21	0.93	36.95	0.00	0.03	0.23
9542.97	9985.00						
LB 9985.00	9992.00	46.04	5.56	5.61	0.23	1.07	8.28
9992.00	9999.00	465.93	25.13	7.57	2.33	3.59	18.54

9999.00	10006.00	638.44	30.39	7.59	3.19	4.34	21.01
10006.00	10013.00	125.97	11.35	7.38	0.63	1.62	11.10
10013.00	RB 10020.00	6.86	1.61	4.42	0.03	0.37	4.26
10020.00	10672.50	4864.75	1130.57	644.63	24.32	1.75	4.30
10672.50	11325.00	4068.93	1020.61	652.51	20.34	1.56	3.99
11325.00	11977.50	26.56	13.79	26.28	0.13	0.53	1.93
11977.50	13282.50						
13282.50	13935.00	2038.80	647.08	588.82	10.19	1.10	3.15
13935.00	14587.50	4844.90	1133.29	652.50	24.22	1.74	4.28
14587.50	15240.00	527.19	162.95	142.50	2.64	1.14	3.24

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.665

INPUT
Description:
Station Elevation Data num= 78

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5568.4	1459.7	5670	1458	5883.57	1454.79	6155	1456.6	6585	1456.2
6775	1458	6825	1458.4	6865	1458	6995	1457.3	7180	1457
7505	1456.6	7745	1456	7770	1455	7795	1454	8130	1452
8140	1450.5	8155	1452	8215	1452.9	8255	1454	8315	1454.3
8370	1454	8595	1454	8705	1453.1	8805	1454	8880	1454.3
8950	1454	9430	1453.6	9640	1453.8	9730	1454.7	9965	1454
9970	1453	9980	1452	9990	1450	10000	1449.2	10010	1450
10015	1452	10020	1452.4	10025	1452	10055	1452.4	10305	1452
10580	1453.8	10745	1452	11030	1451.4	11255	1452.4	11510	1454.2
11805	1455.6	12110	1455.7	12390	1455.4	12600	1454.7	12710	1454.2
12880	1457	12975	1455	13095	1456.5	13240	1455	13410	1454
13610	1452.7	13750	1452	14380	1452	14390	1451.6	14405	1452
14660	1453.8	14805	1454.1	14860	1453.5	14910	1453.6	14950	1453.1
15050	1454	15120	1454	15160	1454	15195	1453.5	15260	1454.1
15385	1453.2	15490	1453.4	15565	1452.8	15680	1453.6	15870	1453.7
16035	1454	16355	1455	16635	1457.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5568.4	.05	9980	.015	10015	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980	10015	480	477.33	480	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
15150	16635	1456

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1454.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.50	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1454.45	Reach Len. (ft)	480.00	477.33	480.00
Crit W.S. (ft)	1454.45	Flow Area (sq ft)	1647.84	148.79	5873.08
E.G. Slope (ft/ft)	0.003573	Area (sq ft)	1647.84	148.79	6694.70
Q Total (cfs)	20000.00	Flow (cfs)	2539.48	2284.06	15176.46
Top Width (ft)	6587.40	Top Width (ft)	2087.87	35.00	4464.53
Vel Total (ft/s)	2.61	Avg. Vel. (ft/s)	1.54	15.35	2.58
Max Chl Dpth (ft)	5.25	Hydr. Depth (ft)	0.79	4.25	1.71
Conv. Total (cfs)	334585.9	Conv. (cfs)	42483.7	38210.7	253891.5
Length Wtd. (ft)		Wetted Per. (ft)	2088.26	35.65	3435.26
Min Ch El (ft)	1449.20	Shear (lb/sq ft)	0.18	0.93	0.38
Alpha	4.75	Stream Power (lb/ft s)	0.27	14.29	0.99
Frctn Loss (ft)		Cum Volume (acre-ft)	6625.44	1103.05	627.44
C & E Loss (ft)		Cum SA (acres)	4622.55	224.05	597.78

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7774.20	8215.36	1476.02	689.34	431.85	7.38	1.60	2.14
8215.36	8656.52	215.03	218.87	441.18	1.08	0.50	0.98
8656.52	9097.68	296.48	265.39	441.17	1.48	0.60	1.12
9097.68	9538.84	413.14	323.85	441.16	2.07	0.73	1.28
9538.84	9980.00	138.80	150.38	332.91	0.69	0.45	0.92
LB 9980.00	9987.00	272.20	22.06	7.14	1.36	3.15	12.34
9987.00	9994.00	480.33	30.90	7.07	2.40	4.41	15.55
9994.00	10001.00	601.93	35.28	7.02	3.01	5.04	17.06
10001.00	10008.00	572.65	34.24	7.02	2.86	4.89	16.73
10008.00	RB 10015.00	356.96	26.32	7.39	1.78	3.76	13.56
10015.00	10677.00	2944.22	1193.88	662.05	14.72	1.80	2.47
10677.00	11339.00	5033.23	1646.94	662.01	25.17	2.49	3.06
11339.00	12001.00	197.15	152.81	223.94	0.99	0.68	1.29
12001.00	12663.00	0.02	0.16	8.27	0.00	0.02	0.12
12663.00	13325.00	3.90	8.70	62.25	0.02	0.14	0.45
13325.00	13987.00	2640.14	1112.64	653.71	13.20	1.70	2.37
13987.00	14649.00	3919.87	1417.54	662.02	19.60	2.14	2.77
14649.00	15311.00	437.93	340.42	501.01	2.19	0.68	1.29

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.575

INPUT
Description:
Station Elevation Data num= 82

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4814.46	1458	5330	1456.5	5870	1455.4	6195	1454	6255	1453.6
6290	1453	6310	1454	6615	1454	6625	1453.8	6635	1454
6720	1454.9	7370	1455.4	7530	1453.5	7700	1454	7780	1454.9
7920	1454	7965	1453	8010	1452	8030	1451	8050	1450
8058	1449	8066	1448	8074	1448	8082	1449	8090	1450
8120	1450	8125	1448.8	8130	1450	8150	1450	8157	1448
8163	1448	8170	1450	8260	1451.8	8510	1450.8	8800	1451.5
9350	1451.5	9590	1451	9715	1450	9940	1450	9960	1451.4
9980	1450	10000	1446	10005	1450	10040	1450	10045	1448.9
10050	1450	10220	1449.6	10270	1450.4	10365	1449.6	10475	1450.2
10845	1450	11035	1449.1	11120	1450	11195	1451.3	11270	1450
11320	1449.9	11320	1450	11595	1451.7	11765	1451.6	11895	1452
12155	1453.2	12345	1452.6	12645	1452	12835	1452.6	12920	1452
13085	1453.1	13525	1454	13670	1452	13825	1451	13940	1450
14425	1449.5	15460	1450.1	15680	1450.9	15770	1450	15850	1451
15930	1449.6	15970	1450	16090	1451.5	16220	1452	16485	1453.2
16775	1454	16850	1455.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4814.46	.05	9980	.015	10005	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980	10005	510	563.38	510	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
15170	16850	1454

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1452.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1451.83	Reach Len. (ft)	510.00	563.38	510.00
Crit W.S. (ft)	1451.61	Flow Area (sq ft)	1698.92	95.86	5561.94
E.G. Slope (ft/ft)	0.004348	Area (sq ft)	1698.92	95.86	6962.95
Q Total (cfs)	20000.00	Flow (cfs)	3018.53	1464.53	15516.94
Top Width (ft)	6309.11	Top Width (ft)	1966.69	25.00	4317.42
Vel Total (ft/s)	2.72	Avg. Vel. (ft/s)	1.78	15.28	2.79

Max Chl Dpth (ft)	5.83	Hydr. Depth (ft)	0.86	3.83	1.68
Conv. Total (cfs)	303300.4	Conv. (cfs)	45776.1	22209.7	235314.6
Length Wtd. (ft)	513.30	Wetted Per. (ft)	1967.95	26.80	3310.88
Min Ch El (ft)	1446.00	Shear (lb/sq ft)	0.23	0.97	0.46
Alpha	3.19	Stream Power (lb/ft s)	0.42	14.83	1.27
Frctn Loss (ft)	2.59	Cum Volume (acre-ft)	6607.00	1101.70	552.19
C & E Loss (ft)	0.02	Cum SA (acres)	4600.21	223.72	549.40

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7913.78	8430.34	919.26	481.74	418.18	4.60	1.16	1.91
8430.34	8946.89	398.08	317.27	516.56	1.99	0.61	1.25
8946.89	9463.45	163.64	186.12	516.55	0.82	0.36	0.88
9463.45	9980.00	1537.54	713.80	516.66	7.69	1.38	2.15
LB 9980.00	9985.00	126.85	11.67	5.10	0.63	2.33	10.87
9985.00	9990.00	229.80	16.67	5.10	1.15	3.33	13.78
9990.00	9995.00	355.80	21.67	5.10	1.78	4.33	16.42
9995.00	10000.00	502.88	26.67	5.10	2.51	5.33	18.85
10000.00	RB 10005.00	249.20	19.17	6.40	1.25	3.83	13.00
10005.00	10689.50	3582.15	1275.67	684.75	17.91	1.86	2.81
10689.50	11374.00	3550.57	1268.82	684.63	17.75	1.85	2.80
11374.00	12058.50	248.71	220.93	467.17	1.24	0.47	1.13
12058.50	13427.50						
13427.50	14112.00	1184.41	538.16	416.33	5.92	1.29	2.20
14112.00	14796.50	4732.12	1507.37	684.50	23.66	2.20	3.14
14796.50	15481.00	2218.99	751.01	373.50	11.09	2.01	2.95

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.468

INPUT
Description:
Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4226.41	1454	4690	1454	5220	1454	5230	1453	5240	1452
5245	1451.5	5250	1452	5360	1454	5400	1454.3	5450	1454
5680	1453.3	6100	1452	6130	1451	6170	1452	6220	1452.1
6250	1452	6260	1451	6280	1450	6285	1449.7	6290	1450
6390	1452	6420	1452.3	6445	1452	6465	1450.7	6725	1452
7020	1451.4	7255	1453.5	7470	1453	7560	1451.1	7990	1451
8225	1450	8305	1448	8315	1446.9	8325	1448	8675	1448.9
8955	1447.9	9135	1448.3	9240	1447.4	9420	1448.5	9790	1446.9
9970	1448	9975	1447.3	9980	1448	9985	1449	9995	1446
10000	1443	10010	1450	10020	1449	10025	1448	10030	1448
10035	1448	10040	1447	10045	1446	10050	1445.6	10055	1446
10070	1448	10180	1448	10545	1446	10580	1445	10610	1446
10955	1446.8	11205	1446.9	11670	1449	12050	1449.3	12450	1449.2
12520	1450.1	12690	1449.2	12885	1447.9	12960	1448.4	13935	1449.3
14320	1450	14690	1450.5	15210	1448.2	15730	1447.8	16150	1448.5
16545	1449.2	16800	1450	16920	1450.7	17025	1449.9	17135	1450.9
17315	1452	17355	1452	17362	1453	17370	1454	17395	1454.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4226.41	.05	9985	.015	10010	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985	10010	500	500.95	490	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
14000	17395	1452

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1449.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1449.30	Reach Len. (ft)	500.00	500.95	490.00
Crit W.S. (ft)	1448.91	Flow Area (sq ft)	2174.99	70.32	4325.38
E.G. Slope (ft/ft)	0.005887	Area (sq ft)	2174.99	70.32	5798.62
Q Total (cfs)	20000.00	Flow (cfs)	5771.95	1005.50	13222.55
Top Width (ft)	7067.51	Top Width (ft)	1731.95	24.00	5311.56
Vel Total (ft/s)	3.04	Avg. Vel. (ft/s)	2.65	14.30	3.06
Max Chl Dpth (ft)	6.30	Hydr. Depth (ft)	1.26	2.93	1.17
Conv. Total (cfs)	260662.4	Conv. (cfs)	75226.5	13104.8	172331.1
Length Wtd. (ft)	494.19	Wetted Per. (ft)	1732.30	27.25	3697.13
Min Ch El (ft)	1443.00	Shear (lb/sq ft)	0.46	0.95	0.43
Alpha	2.00	Stream Power (lb/ft s)	1.22	13.56	1.31
Frctn Loss (ft)	2.42	Cum Volume (acre-ft)	6584.32	1100.63	477.49
C & E Loss (ft)	0.05	Cum SA (acres)	4578.56	223.41	493.03

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7681.56	8257.42	0.08	0.24	4.38	0.00	0.05	0.32
8257.42	8833.28	915.01	475.42	576.00	4.58	0.83	1.92
8833.28	9409.14	1936.74	745.47	575.87	9.68	1.29	2.60
9409.14	9985.00	2920.15	953.87	576.06	14.60	1.66	3.06
LB 9985.00	9990.00	35.08	5.24	5.22	0.18	1.05	6.69
9990.00	9995.00	154.09	12.74	5.22	0.77	2.55	12.09
9995.00	10000.00	410.88	23.99	5.83	2.05	4.80	17.12
10000.00	10005.00	364.57	22.74	6.10	1.82	4.55	16.03
10005.00	RB 10010.00	40.88	5.60	4.88	0.20	1.40	7.31
10010.00	10748.50	6404.93	1773.40	732.00	32.02	2.42	3.61
10748.50	11487.00	5786.70	1674.53	738.50	28.93	2.27	3.46
11487.00	12225.50	155.46	190.49	732.08	0.78	0.26	0.82
12225.50	12964.00	311.36	252.97	524.87	1.56	0.48	1.23
12964.00	13702.50	552.99	409.32	738.50	2.76	0.55	1.35
13702.50	14441.00	11.11	24.66	231.18	0.06	0.11	0.45

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.373

INPUT
Description:
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4359.5	1452.4	4630	1452.5	4915	1451.6	5285	1451.5	5505	1450.3
5625	1450	5635	1448.5	5645	1450	5785	1450.4	5920	1449.8
6030	1450	6275	1448.4	6350	1448	6360	1446.6	6370	1448
6485	1449.4	6595	1448	6605	1447.9	6615	1448	6690	1449.3
7000	1449.1	7220	1448.7	7390	1448.6	7715	1448.7	7880	1448
8050	1447.5	8180	1448.4	8375	1447.7	8475	1445.8	8530	1446
8545	1445	8555	1446	8625	1446.4	8860	1445.3	9015	1444
9030	1443.2	9040	1444	9290	1445.4	9525	1444.5	9680	1444
9780	1443.4	9940	1444	9975	1445.1	9980	1444	9985	1442
9995	1440	10000	1439.8	10005	1440	10010	1442	10020	1444
10030	1444.7	10045	1444	10055	1443	10065	1444	10470	1443.3
10825	1443.4	11010	1444.5	11355	1445.5	11450	1446.6	11820	1446
11990	1445.8	12120	1446	12445	1446.4	12480	1446	12515	1446
12535	1444	12555	1444	12675	1445.1	12810	1445.8	12880	1446.2
12980	1445.6	13040	1446.5	13115	1445	13145	1446	13165	1446
13345	1447.5	13395	1446	13405	1444	13410	1442	13415	1440
13465	1430	13530	1428	13555	1428	13640	1430	13755	1440
13765	1444	13875	1446	13915	1447	13970	1446	13975	1445.4
13980	1446	13985	1448	14065	1444.9	14195	1446.3	14375	1443.8

14470	1445.1	14685	1444.8	14855	1443.3	15030	1444.6	15130	1444
15400	1444	16130	1446						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4359.5	.05	9975	.015	10030	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9975	10030	530	518.74	519	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
12480	16130	1450

Blocked Obstructions num= 1

Sta L	Sta R	Elev
13395	13915	1444

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1447.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.80	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1446.32	Reach Len. (ft)	530.00	518.74	519.00
Crit W.S. (ft)	1446.32	Flow Area (sq ft)	2288.32	222.34	3347.77
E.G. Slope (ft/ft)	0.004102	Area (sq ft)	2288.32	222.34	8342.96
Q Total (cfs)	20000.00	Flow (cfs)	6034.02	3523.87	10442.11
Top Width (ft)	7067.90	Top Width (ft)	1496.19	55.00	5516.71
Vel Total (ft/s)	3.41	Avg. Vel. (ft/s)	2.64	15.85	3.12
Max Chl Dpth (ft)	6.52	Hydr. Depth (ft)	1.53	4.04	1.54
Conv. Total (cfs)	312256.0	Conv. (cfs)	94208.0	55017.5	163030.5
Length Wtd. (ft)		Wetted Per. (ft)	1496.37	56.32	2180.99
Min Ch El (ft)	1439.80	Shear (lb/sq ft)	0.39	1.01	0.39
Alpha	4.41	Stream Power (lb/ft s)	1.03	16.03	1.23
Frctn Loss (ft)		Cum Volume (acre-ft)	6558.71	1098.95	397.95
C & E Loss (ft)		Cum SA (acres)	4560.03	222.95	432.13

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8290.35	8851.90	165.99	162.62	373.18	0.83	0.44	1.02
8851.90	9413.45	2118.60	882.61	561.61	10.59	1.57	2.40
9413.45	9975.00	3749.42	1243.09	561.57	18.75	2.21	3.02
LB 9975.00	9986.00	327.67	29.87	11.52	1.64	2.72	10.97
9986.00	9997.00	1114.26	61.50	11.18	5.57	5.59	18.12
9997.00	10008.00	1333.53	68.64	11.24	6.67	6.24	19.43
10008.00	10019.00	544.08	40.22	11.33	2.72	3.66	13.53
10019.00	RB 10030.00	204.33	22.12	11.04	1.02	2.01	9.24
10030.00	10640.00	6011.40	1676.51	610.12	30.06	2.75	3.59
10640.00	11250.00	4121.58	1336.68	610.00	20.61	2.19	3.08
11250.00	11860.00	182.76	176.36	413.04	0.91	0.43	1.04
11860.00	12470.00	124.41	155.60	537.83	0.62	0.29	0.80
12470.00	13080.00	1.97	2.63	10.00	0.01	0.26	0.75

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.275

INPUT
Description:
Station Elevation Data num= 93

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5390.3	1446.9	5575	1446	5725	1445.4	6030	1444.9	6145	1445.3

6215	1444	6220	1443.9	6225	1444	6245	1444.3	6275	1444
6285	1443.8	6295	1444	6420	1444	6490	1443.8	6535	1444
6685	1444.7	6815	1444	6895	1443.6	6970	1444	6995	1443.4
7015	1444	7060	1444.2	7100	1444	7150	1444	7195	1444.8
7235	1444	7270	1443.7	7320	1443.5	7400	1443.5	7525	1443.4
7580	1443.1	7670	1443.6	7750	1443.5	7785	1443.9	7885	1444
8005	1443.2	8055	1443.4	8130	1443.2	8190	1443.2	8310	1444
8360	1444.1	8430	1444	8540	1443.1	8620	1443.9	8820	1443.4
8860	1442	8870	1440	8890	1439.8	8950	1439.5	9010	1440
9030	1442	9135	1442.4	9210	1443	9300	1443	9400	1443.5
9630	1442	9780	1441.5	9990	1440	9995	1438	10000	1436.9
10005	1438	10010	1440	10130	1441.2	10250	1440.6	10375	1439.6
10435	1439.9	10580	1440.9	10670	1440	10690	1441.6	10725	1440
10965	1441.2	11015	1442	11090	1442.5	11170	1442	11480	1442.8
11730	1443.1	11750	1442	11760	1442.6	11970	1443.4	12090	1442
12100	1441.4	12110	1442	12290	1443.9	12365	1444	12450	1444.5
12510	1444	12560	1443.7	12630	1444	12670	1444.3	12790	1444
13040	1442	13065	1444	13080	1444.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5390.3	.05	9990	.015	10010	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9990	10010	630	472.49	490	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
11730	13080	1446

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1444.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.63	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1443.66	Reach Len. (ft)	630.00	472.49	490.00
Crit W.S. (ft)	1443.66	Flow Area (sq ft)	2359.02	108.69	3920.38
E.G. Slope (ft/ft)	0.003786	Area (sq ft)	2359.02	108.69	4568.90
Q Total (cfs)	20000.00	Flow (cfs)	5603.38	1981.73	12414.89
Top Width (ft)	4753.07	Top Width (ft)	2247.64	20.00	2485.43
Vel Total (ft/s)	3.13	Avg. Vel. (ft/s)	2.38	18.23	3.17
Max Chl Dpth (ft)	6.76	Hydr. Depth (ft)	1.05	5.43	2.28
Conv. Total (cfs)	325050.8	Conv. (cfs)	91069.2	32208.1	201773.5
Length Wtd. (ft)	532.22	Wetted Per. (ft)	2248.00	21.01	1720.13
Min Ch El (ft)	1436.90	Shear (lb/sq ft)	0.25	1.22	0.54
Alpha	4.16	Stream Power (lb/ft s)	0.59	22.29	1.71
Frctn Loss (ft)	1.98	Cum Volume (acre-ft)	6530.44	1096.98	321.03
C & E Loss (ft)	0.00	Cum SA (acres)	4537.25	222.51	384.46

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6770.21	7230.18	0.96	3.22	42.61	0.00	0.08	0.30
7230.18	7690.15	58.67	94.03	410.08	0.29	0.23	0.62
7690.15	8150.12	54.97	78.49	287.90	0.27	0.27	0.70
8150.12	8610.09	51.02	68.99	233.21	0.26	0.30	0.74
8610.09	9070.06	2038.94	745.44	354.24	10.19	2.11	2.74
9070.06	9530.03	458.54	338.04	459.98	2.29	0.73	1.36
9530.03	9990.00	2940.29	1030.81	459.98	14.70	2.24	2.85
LB 9990.00	9994.00	275.70	17.84	4.31	1.38	4.46	15.46
9994.00	9998.00	445.30	23.43	4.15	2.23	5.86	19.01
9998.00	10002.00	539.72	26.16	4.10	2.70	6.54	20.63
10002.00	10006.00	445.30	23.43	4.15	2.23	5.86	19.01
10006.00	RB 10010.00	275.70	17.84	4.31	1.38	4.46	15.46

10010.00	10317.00	3138.26	921.28	307.01	15.69	3.00	3.41
10317.00	10624.00	3966.83	1060.34	307.01	19.83	3.45	3.74
10624.00	10931.00	3377.13	962.86	307.11	16.89	3.14	3.51
10931.00	11238.00	1190.04	514.89	307.01	5.95	1.68	2.31
11238.00	11545.00	586.97	336.93	307.00	2.93	1.10	1.74
11545.00	11852.00	155.65	124.07	185.00	0.78	0.67	1.25

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.185

INPUT
Description:
Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4450.53	1444.6	4615	1444	4745	1443.7	4920	1443.2	5400	1443
5850	1442	6340	1441.6	6900	1440	6915	1439.2	6930	1440
6970	1440.2	7140	1439.3	7195	1440.2	7275	1439.8	7335	1440
7415	1441.4	7485	1440	7510	1439.5	7740	1439.2	8095	1439.2
8545	1438.8	9140	1438	9160	1436.3	9180	1438	9225	1438
9245	1437.4	9260	1438	9390	1439.2	9725	1438	9855	1439.8
9945	1438	9990	1438	9995	1436	10000	1434	10020	1436
10025	1438	10035	1439.1	10070	1438	10245	1436	10385	1436
10585	1437.3	10930	1438	11055	1438.4	11065	1438	11285	1439.7
11590	1438.6	11700	1440	11880	1440.9	12065	1440.2	12110	1440
12210	1439.5	12260	1439.6	12310	1439.4	12325	1440	12345	1441.7

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4450.53	.05	9990	.015	10025	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9990	10025	675	516.84	450	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
11055	12345	1442

Blocked Obstructions num= 1

Sta L	Sta R	Elev
11055	12345	1439

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1440.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.62	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1440.05	Reach Len. (ft)	675.00	516.84	450.00
Crit W.S. (ft)	1440.05	Flow Area (sq ft)	3345.03	156.88	2911.31
E.G. Slope (ft/ft)	0.003673	Area (sq ft)	3345.03	156.88	3541.22
Q Total (cfs)	20000.00	Flow (cfs)	7020.68	2501.13	10478.19
Top Width (ft)	4817.94	Top Width (ft)	2869.48	35.00	1913.46
Vel Total (ft/s)	3.12	Avg. Vel. (ft/s)	2.10	15.94	3.60
Max Chl Dpth (ft)	6.05	Hydr. Depth (ft)	1.17	4.48	2.83
Conv. Total (cfs)	329986.2	Conv. (cfs)	115836.3	41266.9	172882.9
Length Wtd. (ft)	589.16	Wetted Per. (ft)	2869.74	36.26	1030.69
Min Ch El (ft)	1434.00	Shear (lb/sq ft)	0.27	0.99	0.65
Alpha	4.13	Stream Power (lb/ft s)	0.56	15.82	2.33
Frctn Loss (ft)	1.89	Cum Volume (acre-ft)	6489.19	1095.54	275.42
C & E Loss (ft)	0.01	Cum SA (acres)	4500.25	222.21	359.72

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6666.32	7220.26	72.47	85.41	248.03	0.36	0.34	0.85
7220.26	7774.21	242.13	214.47	405.72	1.21	0.53	1.13
7774.21	8328.16	798.60	497.09	553.95	3.99	0.90	1.61
8328.16	8882.11	1584.91	749.96	553.95	7.92	1.35	2.11
8882.11	9436.05	2593.75	1007.97	554.12	12.97	1.82	2.57
9436.05	9990.00	1728.75	790.11	553.98	8.64	1.43	2.19
LB 9990.00	9997.00	306.66	24.18	7.54	1.53	3.45	12.68
9997.00	10004.00	721.67	39.78	7.25	3.61	5.68	18.14
10004.00	10011.00	656.44	37.13	7.03	3.28	5.30	17.68
10011.00	10018.00	518.49	32.23	7.03	2.59	4.60	16.09
10018.00	RB 10025.00	297.89	23.58	7.40	1.49	3.37	12.64
10025.00	10257.00	2261.44	650.71	232.09	11.31	2.80	3.48
10257.00	10489.00	3921.99	905.31	232.00	19.61	3.90	4.33
10489.00	10721.00	2258.13	650.04	232.00	11.29	2.80	3.47
10721.00	10953.00	1556.29	519.93	232.00	7.78	2.24	2.99
10953.00	11185.00	480.42	185.32	102.60	2.40	1.82	2.59

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.087

INPUT
Description:
Station Elevation Data num= 71

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4384.06	1438.4	4550	1438	4680	1436	4710	1434.9	4730	1436
5070	1437.3	5330	1436.7	5795	1436.7	5900	1437	6360	1436
6700	1435.7	6835	1435.7	6885	1436.1	6945	1435.7	6990	1436
7035	1436.3	7045	1436	7055	1435.3	7125	1435.2	7205	1436
7340	1438	7465	1436	7550	1435.5	7635	1436	7680	1437.8
7715	1436	7790	1434	7900	1434.7	8015	1434.1	8360	1434.5
8615	1434.6	9035	1434.2	9125	1434	9140	1433.5	9155	1434
9185	1434.6	9390	1433.6	9710	1433.7	9820	1434	9830	1435
9840	1436	9880	1436	9985	1434	9990	1432	9995	1430
10000	1429.4	10005	1430	10015	1432	10180	1437.5	10350	1436.5
10450	1436	10585	1438	10730	1436	10955	1438.1	11015	1438
11055	1436	11070	1435.5	11085	1436	11110	1437	11140	1436
11155	1435.5	11160	1436	11190	1437.2	11335	1436	11365	1435.9
11465	1435.8	11515	1436	11575	1436.2	11620	1436	11645	1438
11655	1438.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4384.06	.05	9985	.015	10015	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985	10015	260	486.13	485	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4384.06	7035	1439	10585	11655	1439

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4384.06	7035	1438

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1437.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.72	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1436.71	Reach Len. (ft)	260.00	486.13	485.00
Crit W.S. (ft)	1436.71	Flow Area (sq ft)	5878.92	174.21	398.52
E.G. Slope (ft/ft)	0.002837	Area (sq ft)	5878.92	174.21	762.02
Q Total (cfs)	20000.00	Flow (cfs)	16113.57	2902.84	983.58
Top Width (ft)	3714.36	Top Width (ft)	2733.32	30.00	951.04
Vel Total (ft/s)	3.10	Avg. Vel. (ft/s)	2.74	16.66	2.47
Max Chl Dpth (ft)	7.31	Hydr. Depth (ft)	2.15	5.81	1.23
Conv. Total (cfs)	375495.4	Conv. (cfs)	302528.6	54500.2	18466.6
Length Wtd. (ft)	295.80	Wetted Per. (ft)	2733.98	31.04	324.18
Min Ch El (ft)	1429.40	Shear (lb/sq ft)	0.38	0.99	0.22
Alpha	4.85	Stream Power (lb/ft s)	1.04	16.56	0.54
Frctn Loss (ft)	1.07	Cum Volume (acre-ft)	6417.72	1093.57	253.19
C & E Loss (ft)	0.02	Cum SA (acres)	4456.84	221.82	344.92

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6624.44	7184.53	349.64	190.11	149.97	1.75	1.27	1.84
7184.53	7744.62	329.30	255.47	343.47	1.65	0.74	1.29
7744.62	8304.72	3700.86	1326.55	560.11	18.50	2.37	2.79
8304.72	8864.81	3262.31	1229.84	560.09	16.31	2.20	2.65
8864.81	9424.91	4297.82	1451.08	560.12	21.49	2.59	2.96
9424.91	9985.00	4173.63	1425.87	560.21	20.87	2.55	2.93
LB 9985.00	9991.00	284.83	23.44	6.46	1.42	3.91	12.15
9991.00	9997.00	626.28	37.28	6.32	3.13	6.21	16.80
9997.00	10003.00	811.18	42.76	6.04	4.06	7.13	18.97
10003.00	10009.00	688.42	38.88	6.09	3.44	6.48	17.71
10009.00	RB 10015.00	492.13	31.84	6.12	2.46	5.31	15.46
10015.00	10179.00	927.05	332.32	141.29	4.64	2.35	2.79
10179.00	10343.00	0.70	2.34	28.18	0.00	0.08	0.30
10343.00	10507.00	55.84	63.86	154.72	0.28	0.41	0.87

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 15.995

INPUT
Description:
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4469.64	1435.4	5200	1435.2	5625	1435.5	6055	1435	6215	1434.6
6605	1434.6	6870	1434.8	6900	1435.2	6910	1434.3	6965	1435.2
7350	1434.6	7405	1433.7	7485	1434.9	7640	1432.9	8030	1433.1
8325	1433.3	8495	1432.8	8945	1431.5	9075	1431.4	9275	1431
9435	1432	9545	1432	9600	1431.4	9840	1432	9845	1431.7

9850	1432	9975	1434	9980	1435.1	9990	1430	10000	1428.5
10010	1430	10015	1432	10025	1435.1	10040	1432	10065	1438
10070	1439	10080	1438	10110	1434	10160	1434	10340	1435
10390	1435	10535	1435	10560	1434.1	10580	1435	10615	1434
10625	1433.5	10630	1434	10650	1435	10790	1434	10865	1433.8
10915	1434	11010	1436	11030	1438.4				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4469.64	.05	9975	.015	10015	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9975	10015	260	436.69	435	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10080	11030	1439

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1435.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1434.48	Reach Len. (ft)	260.00	436.69	435.00
Crit W.S. (ft)	1434.48	Flow Area (sq ft)	5217.45	142.25	37.65
E.G. Slope (ft/ft)	0.004793	Area (sq ft)	5217.45	142.25	198.80
Q Total (cfs)	20000.00	Flow (cfs)	17548.36	2363.95	87.69
Top Width (ft)	3052.84	Top Width (ft)	2570.48	35.97	446.39
Vel Total (ft/s)	3.71	Avg. Vel. (ft/s)	3.36	16.62	2.33
Max Chl Dpth (ft)	5.98	Hydr. Depth (ft)	2.03	3.95	1.24
Conv. Total (cfs)	288880.2	Conv. (cfs)	253468.7	34145.0	1266.6
Length Wtd. (ft)		Wetted Per. (ft)	2570.56	37.71	31.27
Min Ch El (ft)	1428.50	Shear (lb/sq ft)	0.61	1.13	0.36
Alpha	3.10	Stream Power (lb/ft s)	2.04	18.76	0.84
Frctn Loss (ft)		Cum Volume (acre-ft)	6384.60	1091.81	247.84
C & E Loss (ft)		Cum SA (acres)	4441.01	221.45	337.14

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6671.78	7222.32	0.47	1.19	13.10	0.00	0.09	0.39
7222.32	7772.86	649.03	341.46	355.27	3.25	0.96	1.90
7772.86	8323.39	1791.77	748.24	550.54	8.96	1.36	2.39
8323.39	8873.93	3352.70	1089.71	550.54	16.76	1.98	3.08
8873.93	9424.46	7073.02	1705.44	550.54	35.37	3.10	4.15
9424.46	9975.00	4681.37	1331.40	550.57	23.41	2.42	3.52
LB 9975.00	9983.00	3.84	1.34	4.25	0.02	0.34	2.86
9983.00	9991.00	276.23	23.43	8.87	1.38	2.93	11.79
9991.00	9999.00	772.25	41.85	8.09	3.86	5.23	18.45
9999.00	10007.00	842.67	44.10	8.09	4.21	5.51	19.11
10007.00	RB 10015.00	468.97	31.53	8.42	2.34	3.94	14.88
10015.00	10116.50	87.69	37.65	31.27	0.44	1.24	2.33

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 15.913

INPUT
Description: Most downstream cross section containing the Powerline Floodway.

The hydraulic baseline makes a 90 degree turn to the south downstream of this cross section.
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4019.39	1436.5	4070	1434	4525	1434	4600	1433.9	4645	1434
4840	1432.5	5070	1433.3	5260	1434	5560	1434.3	5760	1434.3
5910	1434	6330	1434.3	6800	1434.3	6825	1434.3	6860	1434
6890	1433.2	6900	1433.9	7215	1433	7330	1433	7435	1432
7490	1431.3	7575	1431.1	7685	1430	7785	1430.5	7935	1431.6
8340	1430	8800	1430.4	9130	1430	9310	1430	9320	1428.9
9330	1430	9460	1431	9890	1432	9990	1430	10000	1427
10010	1430	10025.21	1432	10035	1434	10070	1439.3	10100	1434
10210	1432.5	10250	1433	10360	1434	10390	1438.8		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4019.39	.05	9890	.015	10025.21	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9890	10025.21	280	1031.89	1240	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10070	10390	1440

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4019.39	6810	1436

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1433.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.51	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1432.60	Reach Len. (ft)	280.00	1031.89	1240.00
Crit W.S. (ft)	1432.20	Flow Area (sq ft)	4782.01	266.17	0.88
E.G. Slope (ft/ft)	0.005956	Area (sq ft)	4782.01	266.17	1.63
Q Total (cfs)	20000.00	Flow (cfs)	16819.14	3179.97	0.89
Top Width (ft)	2671.15	Top Width (ft)	2517.87	135.21	18.07
Vel Total (ft/s)	3.96	Avg. Vel. (ft/s)	3.52	11.95	1.01
Max Chl Dpth (ft)	5.60	Hydr. Depth (ft)	1.90	1.97	0.30
Conv. Total (cfs)	259157.1	Conv. (cfs)	217940.0	41205.6	11.5
Length Wtd. (ft)	468.05	Wetted Per. (ft)	2518.02	136.24	2.99
Min Ch El (ft)	1427.00	Shear (lb/sq ft)	0.71	0.73	0.11
Alpha	2.11	Stream Power (lb/ft s)	2.48	8.68	0.11
Frctn Loss (ft)	1.37	Cum Volume (acre-ft)	6354.76	1089.76	246.84
C & E Loss (ft)	0.11	Cum SA (acres)	4425.83	220.60	334.82

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6954.70	7541.76	276.15	141.37	169.63	1.38	0.83	1.95
7541.76	8128.82	3192.64	1008.87	587.07	15.96	1.72	3.16
8128.82	8715.88	5356.10	1376.10	587.06	26.78	2.34	3.89
8715.88	9302.94	5703.96	1429.05	587.06	28.52	2.43	3.99
9302.94	9890.00	2290.26	826.63	587.19	11.45	1.41	2.77
LB 9890.00	9917.04	151.26	23.50	27.05	0.76	0.87	6.44
9917.04	9944.08	338.77	38.13	27.05	1.69	1.41	8.88
9944.08	9971.13	581.98	52.76	27.05	2.91	1.95	11.03
9971.13	9998.17	1076.92	76.72	27.41	5.38	2.84	14.04
9998.17	RB 10025.21	1031.07	75.06	27.69	5.16	2.78	13.74
10025.21	10061.69	0.89	0.88	2.99	0.00	0.30	1.01

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 15.717

INPUT

Description:
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4681.97	1436.3	4860	1434	4870	1432.6	4880	1434	4985	1434.4
5050	1434	5070	1433.9	5090	1434	5155	1434.2	5260	1434
5340	1433.2	5460	1432	5505	1431.7	5615	1431	5630	1432
6450	1432.8	6750	1432	7220	1431	7540	1432	7740	1431.3
7750	1432.1	7870	1431.6	8065	1430	8485	1429	8620	1428
8630	1426.7	8650	1428	8855	1429.3	9250	1428	9265	1427.7
9280	1428	9425	1427.9	9750	1428.1	9805	1426.7	9865	1428
9910	1427.1	9955	1426	9965	1425	9975	1424	9980	1423
9990	1422	10000	1421.9	10010	1422	10030	1424	10040	1426
10110	1427	10190	1428	10250	1434	10275	1435		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4681.97	.05	9865	.05	10190	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9865	10190	430	996.46	996	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4681.97	7540	1434

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1431.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1431.49	Reach Len. (ft)	430.00	996.46	996.00
Crit W.S. (ft)		Flow Area (sq ft)	5438.64	1753.29	60.90
E.G. Slope (ft/ft)	0.001743	Area (sq ft)	5438.64	1753.29	60.90
Q Total (cfs)	20000.00	Flow (cfs)	13207.14	6683.69	109.17
Top Width (ft)	2398.20	Top Width (ft)	2038.29	325.00	34.90
Vel Total (ft/s)	2.76	Avg. Vel. (ft/s)	2.43	3.81	1.79
Max Chl Dpth (ft)	9.59	Hydr. Depth (ft)	2.67	5.39	1.75
Conv. Total (cfs)	479019.2	Conv. (cfs)	316323.7	160080.7	2614.8
Length Wtd. (ft)	671.08	Wetted Per. (ft)	2038.48	325.58	35.08
Min Ch El (ft)	1421.90	Shear (lb/sq ft)	0.29	0.59	0.19
Alpha	1.15	Stream Power (lb/ft s)	0.71	2.23	0.34
Frctn Loss (ft)	0.78	Cum Volume (acre-ft)	6321.91	1065.84	245.95
C & E Loss (ft)	0.01	Cum SA (acres)	4411.18	215.15	334.07

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7273.49	7791.79	1.33	5.39	56.69	0.01	0.10	0.25
7791.79	8310.09	822.36	572.03	426.71	4.11	1.34	1.44
8310.09	8828.39	3398.48	1448.69	518.44	16.99	2.80	2.35
8828.39	9346.70	3706.15	1525.87	518.31	18.53	2.94	2.43
9346.70	9865.00	5278.81	1886.65	518.33	26.39	3.64	2.80
LB 9865.00	9930.00	833.75	270.00	65.01	4.17	4.15	3.09
9930.00	9995.00	1854.55	436.84	65.26	9.27	6.72	4.25
9995.00	10060.00	2205.71	484.87	65.30	11.03	7.46	4.55
10060.00	10125.00	1040.19	308.31	65.01	5.20	4.74	3.37
10125.00	RB 10190.00	749.49	253.26	65.01	3.75	3.90	2.96
10190.00	10198.50	57.67	26.05	8.54	0.29	3.07	2.21
10198.50	10207.00	33.57	18.83	8.54	0.17	2.22	1.78
10207.00	10215.50	14.98	11.60	8.54	0.07	1.37	1.29
10215.50	10224.00	2.95	4.38	8.54	0.01	0.52	0.67
10224.00	10232.50	0.01	0.04	0.91	0.00	0.05	0.13

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 15.529

INPUT

Description:
Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5751.89	1434.5	5995	1432.7	6310	1432	6435	1431.1	6605	1430
6675	1429.7	6875	1430	7085	1430	7190	1430.3	7350	1430
7480	1430.4	7585	1430	7655	1429.7	7720	1430	7800	1430.3
7885	1430	8085	1428	8135	1428.4	8185	1428	8205	1426.4
8225	1428	8325	1428.3	8445	1428	8580	1427.2	8745	1428
8830	1428.6	8930	1428	9360	1426	9380	1425.5	9410	1426
9470	1426.9	9750	1426	9920	1424	9927	1423	9935	1422
9940	1421	9945	1420	10000	1417.8	10035	1420	10055	1424
10075	1424	10105	1426	10110	1426.5	10120	1426	10200	1426
10215	1430	10235	1432	10285	1435				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5751.89	.05	9750	.05	10105	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9750	10105	490	867.21	867	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
5751.89	8370	1434

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1430.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1430.72	Reach Len. (ft)	490.00	867.21	867.00
Crit W.S. (ft)	1427.82	Flow Area (sq ft)	4880.87	2730.17	488.07
E.G. Slope (ft/ft)	0.000841	Area (sq ft)	6897.41	2730.17	488.07
Q Total (cfs)	20000.00	Flow (cfs)	9763.94	9151.07	1084.99
Top Width (ft)	3728.51	Top Width (ft)	3256.31	355.00	117.20
Vel Total (ft/s)	2.47	Avg. Vel. (ft/s)	2.00	3.35	2.22
Max Chl Dpth (ft)	12.92	Hydr. Depth (ft)	3.54	7.69	4.16
Conv. Total (cfs)	689709.7	Conv. (cfs)	336714.1	315579.2	37416.4
Length Wtd. (ft)	665.78	Wetted Per. (ft)	1380.03	355.92	117.80
Min Ch El (ft)	1417.80	Shear (lb/sq ft)	0.19	0.40	0.22
Alpha	1.21	Stream Power (lb/ft s)	0.37	1.35	0.48
Frctn Loss (ft)	0.55	Cum Volume (acre-ft)	6261.03	1014.56	239.67
C & E Loss (ft)	0.00	Cum SA (acres)	4385.05	207.37	332.33

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8150.76	8550.57	882.05	517.17	180.57	4.41	2.86	1.71
8550.57	8950.38	1882.20	1120.02	399.82	9.41	2.80	1.68
8950.38	9350.19	3053.18	1497.19	399.82	15.27	3.74	2.04
9350.19	9750.00	3946.49	1746.46	399.83	19.73	4.37	2.26
LB 9750.00	9821.00	888.16	364.79	71.00	4.44	5.14	2.43
9821.00	9892.00	1141.63	424.09	71.00	5.71	5.97	2.69
9892.00	9963.00	2009.32	596.50	71.35	10.05	8.40	3.37
9963.00	10034.00	3660.09	853.62	71.10	18.30	12.02	4.29
10034.00	RB 10105.00	1451.90	491.17	71.46	7.26	6.92	2.96
10105.00	10123.00	181.84	81.21	18.04	0.91	4.51	2.24
10123.00	10141.00	196.32	84.96	18.00	0.98	4.72	2.31
10141.00	10159.00	196.32	84.96	18.00	0.98	4.72	2.31
10159.00	10177.00	196.32	84.96	18.00	0.98	4.72	2.31
10177.00	10195.00	196.32	84.96	18.00	0.98	4.72	2.31
10195.00	10213.00	115.53	62.43	18.45	0.58	3.47	1.85
10213.00	10231.00	2.33	4.57	9.31	0.01	0.50	0.51

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 15.364

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6449.56	1432.2	6520	1432	6550	1431	6570	1430	6690	1430
6785	1430	6955	1430	7015	1430.3	7090	1430	7300	1429.3
7470	1428	7690	1426	7695	1425.9	7715	1426	8155	1427
8605	1426	8635	1425.9	8665	1426	8695	1426.3	8735	1426

9170	1424.6	9815	1425.6	9950	1424	9955	1423	9960	1422
9965	1421	9970	1420	10000	1419.6	10045	1420	10055	1422
10110	1424	10120	1426	10130	1426.5	10135	1426	10150	1424
10205	1424	10255	1432	10305	1433.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6449.56	.05	9815	.05	10120	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9815	10120	350	990.02	990	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
6449.56	8910	1432

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6449.56	7015	1431

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1430.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1430.17	Reach Len. (ft)	350.00	990.02	990.00
Crit W.S. (ft)	1426.73	Flow Area (sq ft)	4605.10	2202.34	594.05
E.G. Slope (ft/ft)	0.000819	Area (sq ft)	10349.89	2202.34	594.05
Q Total (cfs)	20000.00	Flow (cfs)	11583.50	6982.59	1433.90
Top Width (ft)	3194.78	Top Width (ft)	2766.25	305.00	123.53
Vel Total (ft/s)	2.70	Avg. Vel. (ft/s)	2.52	3.17	2.41
Max Chl Dpth (ft)	10.57	Hydr. Depth (ft)	5.09	7.22	4.81
Conv. Total (cfs)	699058.9	Conv. (cfs)	404877.6	244062.1	50119.2
Length Wtd. (ft)	713.65	Wetted Per. (ft)	905.00	305.84	124.19
Min Ch El (ft)	1419.60	Shear (lb/sq ft)	0.26	0.37	0.24
Alpha	1.04	Stream Power (lb/ft s)	0.65	1.17	0.59
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	6164.02	965.46	228.90
C & E Loss (ft)	0.01	Cum SA (acres)	4351.18	200.80	329.93

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8805.37	9141.91	2977.77	1183.09	231.91	14.89	5.10	2.52
9141.91	9478.46	4666.35	1797.86	336.54	23.33	5.34	2.60
9478.46	9815.00	3939.35	1624.14	336.54	19.70	4.83	2.43
LB 9815.00	9876.00	712.80	300.52	61.00	3.56	4.93	2.37
9876.00	9937.00	895.53	344.62	61.00	4.48	5.65	2.60
9937.00	9998.00	1840.34	532.29	61.40	9.20	8.73	3.46
9998.00	10059.00	2324.32	611.55	61.20	11.62	10.03	3.80
10059.00	RB 10120.00	1209.62	413.36	61.23	6.05	6.78	2.93
10120.00	10138.50	148.22	74.12	18.57	0.74	4.01	2.00
10138.50	10157.00	265.53	105.24	18.60	1.33	5.69	2.52
10157.00	10175.50	304.74	114.05	18.50	1.52	6.17	2.67
10175.50	10194.00	304.74	114.05	18.50	1.52	6.17	2.67
10194.00	10212.50	283.99	109.55	18.60	1.42	5.92	2.59
10212.50	10231.00	116.79	64.47	18.74	0.58	3.49	1.81
10231.00	10249.50	9.92	12.56	12.69	0.05	1.00	0.79

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 15.177

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7092.18	1429.9	7380	1428.9	7570	1428	7635	1427.9	7720	1428
7745	1427.8	7765	1428	7790	1428.5	7820	1428	7940	1428.8
8110	1428	8220	1426.7	8400	1426	8680	1425.3	9080	1425
9680	1424	9750	1423.2	9925	1422	9940	1420	10000	1419
10035	1420	10080	1422	10105	1426	10120	1426.5	10125	1426
10145	1422	10180	1422	10245	1432	10300	1433.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7092.18	.05	9680	.05	10105	.05

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9680   10105             1120  997.61    880            .1        .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 7092.18    9315    1432
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 10119.6   10300  1422.5
```

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1429.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1429.35	Reach Len. (ft)	1120.00	997.61	880.00
Crit W.S. (ft)	1425.74	Flow Area (sq ft)	1842.13	3154.71	583.02
E.G. Slope (ft/ft)	0.001248	Area (sq ft)	7199.99	3154.71	583.02
Q Total (cfs)	20000.00	Flow (cfs)	5689.29	12590.26	1720.45
Top Width (ft)	2977.60	Top Width (ft)	2429.82	425.00	122.78
Vel Total (ft/s)	3.58	Avg. Vel. (ft/s)	3.09	3.99	2.95
Max Chl Dpth (ft)	10.35	Hydr. Depth (ft)	5.05	7.42	4.75
Conv. Total (cfs)	566242.5	Conv. (cfs)	161075.9	356456.9	48709.7
Length Wtd. (ft)	1019.96	Wetted Per. (ft)	365.00	425.53	123.69
Min Ch El (ft)	1419.00	Shear (lb/sq ft)	0.39	0.58	0.37
Alpha	1.05	Stream Power (lb/ft s)	1.21	2.30	1.08
Frctn Loss (ft)	2.04	Cum Volume (acre-ft)	6093.51	904.58	215.53
C & E Loss (ft)	0.02	Cum SA (acres)	4330.30	192.50	327.13

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9162.44	9421.22	1538.77	513.17	106.22	7.69	4.83	3.00
9421.22	9680.00	4150.51	1328.96	258.78	20.75	5.14	3.12
LB 9680.00	9765.00	1654.64	495.62	85.00	8.27	5.83	3.34
9765.00	9850.00	2006.32	556.36	85.00	10.03	6.55	3.61
9850.00	9935.00	2351.55	612.22	85.09	11.76	7.20	3.84
9935.00	10020.00	3964.73	837.46	85.06	19.82	9.85	4.73
10020.00	RB 10105.00	2613.03	653.06	85.37	13.07	7.68	4.00
10105.00	10124.50	122.65	60.36	19.53	0.61	3.10	2.03
10124.50	10144.00	287.15	101.21	19.85	1.44	5.19	2.84
10144.00	10163.50	461.54	133.60	19.50	2.31	6.85	3.45
10163.50	10183.00	461.54	133.60	19.50	2.31	6.85	3.45
10183.00	10202.50	307.01	105.09	19.73	1.54	5.39	2.92
10202.50	10222.00	79.14	46.60	19.73	0.40	2.39	1.70
10222.00	10241.50	1.42	2.57	5.85	0.01	0.44	0.55

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

```
CROSS SECTION          RIVER: Powerline FRS
REACH: Powerline          RS: 14.988

INPUT
Description:
Station Elevation Data     num=      36
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 7140.34  1433.2    7285  1432.8    7355    1432    7480    1431    7635    1430
    7795  1429.1    7965  1428.1    8085  1428.8    8170    1428    8370    1428
    8485  1428.5    8550    1428    8660  1426.3    8755    1426    9055    1426
    9115  1425.2    9185    1424    9210  1424.2    9245    1426    9395    1424
    9630    1424    9660  1424.6    9680    1424    9750  1422.7    9825    1422
    9940    1420   10000  1419.3   10043    1420   10075    1422   10100    1426
   10115  1426.3   10120    1426   10140    1420   10188    1420   10223    1430
10262.21  1437.3

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
```

7140.34	.05	9660	.05	10100	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9660	10100	920	519.08	450	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
7140.34	9150	1430

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10115.21	10262.21	1422.5

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1427.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.40	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1427.10	Reach Len. (ft)	920.00	519.08	450.00
Crit W.S. (ft)	1425.42	Flow Area (sq ft)	1371.73	2417.36	388.94
E.G. Slope (ft/ft)	0.003705	Area (sq ft)	1981.00	2417.36	388.94
Q Total (cfs)	20000.00	Flow (cfs)	4798.85	13606.88	1594.27
Top Width (ft)	1604.78	Top Width (ft)	1051.92	440.00	112.86
Vel Total (ft/s)	4.79	Avg. Vel. (ft/s)	3.50	5.63	4.10
Max Chl Dpth (ft)	7.80	Hydr. Depth (ft)	2.69	5.49	3.45
Conv. Total (cfs)	328559.7	Conv. (cfs)	78835.4	223533.7	26190.6
Length Wtd. (ft)	738.61	Wetted Per. (ft)	510.07	440.43	114.03
Min Ch El (ft)	1419.30	Shear (lb/sq ft)	0.62	1.27	0.79
Alpha	1.13	Stream Power (lb/ft s)	2.18	7.15	3.23
Frctn Loss (ft)	2.68	Cum Volume (acre-ft)	5975.48	840.78	205.71
C & E Loss (ft)	0.06	Cum SA (acres)	4285.54	182.60	324.75

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8904.10	9156.07	51.84	15.50	6.07	0.26	2.55	3.34
9156.07	9408.03	1827.85	583.53	252.03	9.14	2.32	3.13
9408.03	9660.00	2919.16	772.70	251.97	14.60	3.07	3.78
LB 9660.00	9748.00	1258.86	309.95	88.02	6.29	3.52	4.06
9748.00	9836.00	2108.82	422.38	88.01	10.54	4.80	4.99
9836.00	9924.00	3109.10	533.18	88.01	15.55	6.06	5.83
9924.00	10012.00	4336.84	651.01	88.01	21.68	7.40	6.66
10012.00	RB 10100.00	2793.27	500.83	88.38	13.97	5.69	5.58
10100.00	10116.22	24.18	15.31	16.23	0.12	0.94	1.58
10116.22	10132.44	120.26	40.59	16.74	0.60	2.50	2.96
10132.44	10148.66	339.17	74.65	16.22	1.70	4.60	4.54
10148.66	10164.88	339.17	74.65	16.22	1.70	4.60	4.54
10164.88	10181.11	339.19	74.66	16.22	1.70	4.60	4.54
10181.11	10197.33	338.49	74.61	16.24	1.69	4.60	4.54
10197.33	10213.55	93.79	34.46	16.15	0.47	2.22	2.72

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.890

INPUT
Description: 10,000 Station is in channel at southeast corner of GM property, just north of intersection of Williams Field Road and 222nd Street.

Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7134.44	1426.7	7295	1426	7735	1425.3	7995	1424	8085	1423.1
8155	1422	8355	1421.8	8625	1422	8840	1421.9	9025	1422
9160	1422	9190	1421.8	9230	1422	9360	1422	9460	1421.8
9545	1421.7	9620	1421.6	9870	1420	9880	1419.9	9890	1420
9905	1427.2	9935	1422	9950	1420	9975	1419.3	10000	1418.1
10020	1420	10045	1422	10075	1426.1	10085	1426	10105	1422
10115	1422	10140	1430	10180	1438.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7134.44	.05	9905	.05	10075	.05

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9905   10075              730  525.77     520          .1        .3
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
   10080   10180  1422.5
```

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1424.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1424.57	Reach Len. (ft)	730.00	525.77	520.00
Crit W.S. (ft)	1423.27	Flow Area (sq ft)	5212.37	565.70	46.42
E.G. Slope (ft/ft)	0.003562	Area (sq ft)	5212.37	565.70	46.42
Q Total (cfs)	20000.00	Flow (cfs)	17398.77	2494.35	106.88
Top Width (ft)	2192.31	Top Width (ft)	2017.86	143.59	30.86
Vel Total (ft/s)	3.43	Avg. Vel. (ft/s)	3.34	4.41	2.30
Max Chl Dpth (ft)	6.47	Hydr. Depth (ft)	2.58	3.94	1.50
Conv. Total (cfs)	335105.2	Conv. (cfs)	291521.0	41793.5	1790.7
Length Wtd. (ft)	695.37	Wetted Per. (ft)	2018.93	144.33	31.38
Min Ch El (ft)	1418.10	Shear (lb/sq ft)	0.57	0.87	0.33
Alpha	1.03	Stream Power (lb/ft s)	1.92	3.84	0.76
Frctn Loss (ft)	3.27	Cum Volume (acre-ft)	5899.52	823.00	203.46
C & E Loss (ft)	0.00	Cum SA (acres)	4253.12	179.12	324.01

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7688.55	7965.61	10.54	17.62	83.96	0.05	0.21	0.60
7965.61	8242.66	1155.89	476.04	277.07	5.78	1.72	2.43
8242.66	8519.72	2466.82	750.18	277.06	12.33	2.71	3.29
8519.72	8796.78	2314.85	722.10	277.06	11.57	2.61	3.21
8796.78	9073.83	2326.45	724.27	277.06	11.63	2.61	3.21
9073.83	9350.89	2293.69	718.14	277.06	11.47	2.59	3.19
9350.89	9627.94	2587.65	772.02	277.06	12.94	2.79	3.35
9627.94	9905.00	4242.90	1031.99	272.62	21.21	3.80	4.11
LB 9905.00	9939.00	66.73	30.34	19.06	0.33	1.61	2.20
9939.00	9973.00	683.30	154.61	34.11	3.42	4.55	4.42
9973.00	10007.00	1051.08	200.09	34.06	5.26	5.88	5.25
10007.00	10041.00	618.41	145.66	34.13	3.09	4.28	4.25
10041.00	RB 10075.00	74.82	35.01	22.97	0.37	1.54	2.14
10075.00	10085.50						
10085.50	10096.00	1.25	1.47	3.91	0.01	0.38	0.85
10096.00	10106.50	39.62	17.48	10.63	0.20	1.66	2.27
10106.50	10117.00	57.09	21.67	10.52	0.29	2.06	2.63
10117.00	10127.50	8.91	5.80	6.32	0.04	0.96	1.54

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.790

INPUT
Description: 10,000 Station is in channel just north of and paralleling Williams Field Road.

Confluence with Vineyard FRS Emergency Spillway flows. Q increased by 9700 cfs to include the Vineyard full flow discharge.

Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5215.53	1422.9	5475	1422	5815	1421.2	6215	1420	6375	1420.7
6505	1420	6535	1419.7	6565	1420	6845	1420.6	7305	1419.6
7460	1419.1	7660	1420	7730	1420.8	7810	1420	7900	1419.9
8540	1418	8555	1418	8580	1418.4	8600	1418	8845	1418
9025	1418	9175	1418	9400	1420	9480	1418	9495	1417.8
9625	1418.4	9690	1418	9760	1417	9840	1418	9847	1418.8

9855	1418	9895	1416.7	9960	1422	9965	1422.9	9970	1422
9980	1420	10000	1418.5	10035	1420	10040	1422	10050	1422.6
10060	1422	10067	1420.2	10075	1422	10100	1430	10115	1432

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5215.53	.05	9625	.05	10050	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9625	10050	650	523.64	525	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10049.5	10115	1424.01

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1421.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1421.27	Reach Len. (ft)	650.00	523.64	525.00
Crit W.S. (ft)	1420.35	Flow Area (sq ft)	7044.56	1211.70	
E.G. Slope (ft/ft)	0.005795	Area (sq ft)	7044.56	1211.70	4.81
Q Total (cfs)	29700.00	Flow (cfs)	23877.24	5822.75	
Top Width (ft)	4241.09	Top Width (ft)	3841.49	390.65	8.95
Vel Total (ft/s)	3.60	Avg. Vel. (ft/s)	3.39	4.81	
Max Chl Dpth (ft)	4.57	Hydr. Depth (ft)	1.83	3.10	
Conv. Total (cfs)	390135.6	Conv. (cfs)	313648.6	76487.0	
Length Wtd. (ft)	632.32	Wetted Per. (ft)	3841.56	391.42	
Min Ch El (ft)	1416.70	Shear (lb/sq ft)	0.66	1.12	
Alpha	1.06	Stream Power (lb/ft s)	2.25	5.38	
Frctn Loss (ft)	3.53	Cum Volume (acre-ft)	5796.82	812.28	203.16
C & E Loss (ft)	0.02	Cum SA (acres)	4204.03	175.90	323.77

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5656.48	6097.42	165.95	141.74	313.91	0.56	0.45	1.17
6097.42	6538.37	890.71	445.02	440.95	3.00	1.01	2.00
6538.37	6979.32	809.99	420.36	440.95	2.73	0.95	1.93
6979.32	7420.26	1650.47	644.31	440.95	5.56	1.46	2.56
7420.26	7861.21	1574.93	626.46	440.96	5.30	1.42	2.51
7861.21	8302.16	2594.03	845.12	440.95	8.73	1.92	3.07
8302.16	8743.11	5667.35	1350.71	440.95	19.08	3.06	4.20
8743.11	9184.05	6329.69	1443.32	440.95	21.31	3.27	4.39
9184.05	9625.00	4194.15	1127.54	440.98	14.12	2.56	3.72
LB 9625.00	9710.00	1267.29	268.15	85.00	4.27	3.15	4.73
9710.00	9795.00	1861.90	337.78	85.01	6.27	3.97	5.51
9795.00	9880.00	1485.49	295.11	85.10	5.00	3.47	5.03
9880.00	9965.00	825.49	193.25	71.29	2.78	2.72	4.27
9965.00	RB 10050.00	382.56	117.41	65.02	1.29	1.82	3.26

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.691

INPUT
Description: 10,000 Station is in channel just north of and paralleling Williams Field Road.
Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1502.9	1418	1780	1417.5	2785	1418.5	3470	1419	3930	1419.6
3980	1418	4030	1417.7	4200	1417.8	4290	1418	4430	1417.6
4515	1417.5	4615	1417.2	4670	1417.4	4770	1417	4845	1416
4890	1417.4	5000	1417.5	5100	1417.3	5180	1417.3	5250	1416.8
5335	1416.7	5410	1416	5430	1415.3	5440	1416	5490	1416.2
5710	1416.2	5745	1416.2	5785	1415.9	5955	1415.9	6020	1416
6060	1416.1	6155	1416	6565	1416.2	6685	1417	6725	1416.5

6950	1416.5	7020	1416	7030	1415.3	7040	1416	7090	1416.7
7175	1416	7255	1416.2	7310	1415.7	7455	1416.3	7615	1416
7715	1418	7740	1418	7879	1416	7999	1415.5	8069	1415.5
8194	1416	8264	1415.5	8399	1416	8469	1416.7	8549	1416
8594	1416	8620	1416	8749	1415	8887	1414.8	8987	1415.9
9057	1415.1	9295	1414.7	9513	1416	9568	1416.5	9623	1416
9643	1415.9	9688	1415.4	9708	1416	9770	1416	9780	1416.3
9790	1416	9825	1414.8	9865	1416	9880	1418	9890	1419
9905	1418	9930	1416	9980	1414	9985	1412	10000	1411.4
10005	1412	10020	1414	10080	1416	10100	1418	10115	1418.4

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1502.9	.05	9890	.05	10115	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9890	10115	640	474.31	475	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
1502.9	3930	1420

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1417.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1417.78	Reach Len. (ft)	640.00	474.31	475.00
Crit W.S. (ft)	1417.02	Flow Area (sq ft)	8777.50	557.93	
E.G. Slope (ft/ft)	0.005395	Area (sq ft)	8836.99	557.93	
Q Total (cfs)	29700.00	Flow (cfs)	27209.29	2490.71	
Top Width (ft)	6221.25	Top Width (ft)	6031.28	189.97	
Vel Total (ft/s)	3.18	Avg. Vel. (ft/s)	3.10	4.46	
Max Chl Dpth (ft)	6.38	Hydr. Depth (ft)	1.57	2.94	
Conv. Total (cfs)	404354.2	Conv. (cfs)	370444.2	33910.0	
Length Wtd. (ft)	629.31	Wetted Per. (ft)	5600.95	190.76	
Min Ch El (ft)	1411.40	Shear (lb/sq ft)	0.53	0.99	
Alpha	1.03	Stream Power (lb/ft s)	1.64	4.40	
Frctn Loss (ft)	3.22	Cum Volume (acre-ft)	5678.33	801.64	203.13
C & E Loss (ft)	0.01	Cum SA (acres)	4130.37	172.41	323.72

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
3180.32	4019.03	0.00	0.01	1.74	0.00	0.01	0.06
4019.03	4857.74	332.31	272.35	629.99	1.12	0.43	1.22
4857.74	5696.45	1858.89	857.99	838.77	6.26	1.02	2.17
5696.45	6535.16	4489.74	1456.30	838.71	15.12	1.74	3.08
6535.16	7373.87	3329.72	1217.24	838.78	11.21	1.45	2.74
7373.87	8212.58	3739.05	1272.10	787.01	12.59	1.62	2.94
8212.58	9051.29	6383.01	1798.61	838.73	21.49	2.14	3.55
9051.29	9890.00	7076.56	1902.89	827.22	23.83	2.30	3.72
LB 9890.00	9935.00	58.37	29.10	27.28	0.20	1.07	2.01
9935.00	9980.00	502.68	129.43	45.04	1.69	2.88	3.88
9980.00	10025.00	1352.66	235.51	45.57	4.55	5.23	5.74
10025.00	10070.00	497.93	128.68	45.02	1.68	2.86	3.87
10070.00	RB 10115.00	79.07	35.20	27.86	0.27	1.27	2.25

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.601

INPUT
Description: 10,000 Station is in channel just north of and paralleling Williams Field Road.
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
873.43	1416	1845	1414	2315	1413.6	2590	1414	4005	1414

4055	1414.2	4085	1412.9	4135	1412.6	4170	1412.4	4265	1412.9
4355	1412.9	4540	1413	4640	1414	4730	1414	4940	1414.3
4990	1414	5270	1413.6	5505	1412	5570	1412.5	5590	1412
5685	1412.9	5950	1413.2	6690	1412	6870	1411.6	7065	1412
7100	1412	7200	1411.5	7225	1411.3	7290	1412	7480	1414
7591	1415	7636	1414	7725	1412	7760	1411.8	7810	1412
7870	1412.5	8011	1412.5	8155	1412.8	8280	1414	8295	1414
8430	1413.1	8760	1412	8815	1412.1	8877	1412.2	9075	1412
9125	1412.8	9200	1414	9445	1414	9560	1412.8	9735	1414
9770	1414	9790	1414	9800	1412	9820	1413	9840	1412
9860	1413	9880	1414	9890	1413.3	9940	1413.5	9980	1412
10000	1410.2	10045	1412	10055	1414	10070	1416	10090	1416.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
873.43	.05	9880	.05	10055	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9880	10055	590	512.1	490	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
873.43	3450	1416

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1414.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1414.58	Reach Len. (ft)	590.00	512.10	490.00
Crit W.S. (ft)	1413.65	Flow Area (sq ft)	10069.41	383.47	1.26
E.G. Slope (ft/ft)	0.004869	Area (sq ft)	11230.72	383.47	1.26
Q Total (cfs)	29700.00	Flow (cfs)	28359.20	1339.66	1.14
Top Width (ft)	8430.48	Top Width (ft)	8251.13	175.00	4.35
Vel Total (ft/s)	2.84	Avg. Vel. (ft/s)	2.82	3.49	0.90
Max Chl Dpth (ft)	4.38	Hydr. Depth (ft)	1.58	2.19	0.29
Conv. Total (cfs)	425638.6	Conv. (cfs)	406423.3	19199.0	16.3
Length Wtd. (ft)	587.68	Wetted Per. (ft)	6364.90	175.37	4.39
Min Ch El (ft)	1410.20	Shear (lb/sq ft)	0.48	0.66	0.09
Alpha	1.01	Stream Power (lb/ft s)	1.35	2.32	0.08
Frctn Loss (ft)	2.62	Cum Volume (acre-ft)	5530.91	796.51	203.12
C & E Loss (ft)	0.00	Cum SA (acres)	4025.44	170.42	323.70

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
2674.74	3575.40	98.18	72.71	125.40	0.33	0.58	1.35
3575.40	4476.06	2089.61	1002.18	900.69	7.04	1.11	2.09
4476.06	5376.72	1248.42	735.73	900.67	4.20	0.82	1.70
5376.72	6277.37	4649.34	1619.34	900.67	15.65	1.80	2.87
6277.37	7178.03	8197.87	2275.73	900.66	27.60	2.53	3.60
7178.03	8078.69	4793.58	1600.22	835.16	16.14	1.92	3.00
8078.69	8979.34	4775.66	1645.59	900.67	16.08	1.83	2.90
8979.34	9880.00	2506.55	1117.92	900.98	8.44	1.24	2.24
LB 9880.00	9915.00	81.26	40.04	35.02	0.27	1.14	2.03
9915.00	9950.00	84.28	40.92	35.01	0.28	1.17	2.06
9950.00	9985.00	228.86	74.54	35.04	0.77	2.13	3.07
9985.00	10020.00	616.68	135.17	35.08	2.08	3.86	4.56
10020.00	RB 10055.00	328.57	92.79	35.22	1.11	2.65	3.54
10055.00	10058.50	1.13	1.21	3.53	0.00	0.35	0.93
10058.50	10062.00	0.01	0.05	0.86	0.00	0.06	0.28

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

CROSS SECTION *RIVER: Powerline FRS*
REACH: Powerline RS: 14.504

INPUT
Description: 10,000 Station is in channel just north of and paralleling

Williams Field Road.

Station Elevation Data num= 64

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
553.76	1414	1027	1413.5	1467	1412.9	1967	1412.8	2477	1411
2867	1410.5	3437	1410.6	4047	1412	4052	1412.2	4057	1412
4077	1411	4092	1410	4097	1410.1	4102	1410	4382	1412
4472	1412.3	4550	1412	4714	1412	4784	1412	5174	1410.9
5629	1410.9	6159	1410	6469	1409.3	6958	1408	7013	1409
7073	1410	7284	1410	7579	1409.5	7659	1409.2	7889	1410
7949	1410.3	8011	1410	8141	1409.6	8301	1410	8361	1411.3
8431	1410	8551	1409.9	8691	1410	8721	1410.1	8766	1410
8836	1409.6	8926	1410.3	8968	1410	9033	1410.7	9138	1410
9176	1410.5	9226	1410.2	9266	1410.4	9325	1410	9405	1409.6
9485	1410.3	9610	1410.7	9665	1410	9710	1410	9785	1409
9810	1410.3	9870	1412	9880	1411.1	9920	1411.2	9985	1410
10000	1410.6	10020	1410	10035	1412	10055	1412.4		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
553.76	.1	4052	.05	9870	.05	10035	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9870	10035	530	493.52	493.52	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
553.76	3350	1413

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1412.08	Element			
Vel Head (ft)	0.12	Wt. n-Val.	0.051	0.050	
W.S. Elev (ft)	1411.96	Reach Len. (ft)	530.00	493.52	493.52
Crit W.S. (ft)	1411.00	Flow Area (sq ft)	10499.89	198.03	
E.G. Slope (ft/ft)	0.004107	Area (sq ft)	11791.36	198.03	
Q Total (cfs)	29700.00	Flow (cfs)	29273.25	426.75	
Top Width (ft)	7382.65	Top Width (ft)	7218.32	164.33	
Vel Total (ft/s)	2.78	Avg. Vel. (ft/s)	2.79	2.15	
Max Chl Dpth (ft)	3.96	Hydr. Depth (ft)	1.73	1.21	
Conv. Total (cfs)	463468.7	Conv. (cfs)	456809.3	6659.4	
Length Wtd. (ft)	529.22	Wetted Per. (ft)	6072.48	164.53	
Min Ch El (ft)	1410.00	Shear (lb/sq ft)	0.44	0.31	
Alpha	1.00	Stream Power (lb/ft s)	1.24	0.66	
Frctn Loss (ft)	2.04	Cum Volume (acre-ft)	5374.99	793.10	203.11
C & E Loss (ft)	0.00	Cum SA (acres)	3920.68	168.42	323.67

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
3348.63	4280.26	1002.21	811.43	903.80	3.37	0.90	1.24
4280.26	5211.88	323.76	274.25	511.70	1.09	0.54	1.18
5211.88	6143.50	2597.44	1215.74	931.62	8.75	1.30	2.14
6143.50	7075.13	9882.37	2710.40	931.64	33.27	2.91	3.65
7075.13	8006.75	6099.17	2028.97	931.63	20.54	2.18	3.01
8006.75	8938.38	5123.52	1827.51	931.66	17.25	1.96	2.80
8938.38	9870.00	4244.80	1631.56	930.43	14.29	1.75	2.60
LB 9870.00	9903.00	33.79	23.35	32.64	0.11	0.72	1.45
9903.00	9936.00	45.20	27.93	33.00	0.15	0.85	1.62
9936.00	9969.00	100.09	45.00	33.01	0.34	1.36	2.22
9969.00	10002.00	147.51	56.80	33.02	0.50	1.72	2.60
10002.00	RB 10035.00	100.17	44.95	32.87	0.34	1.37	2.23

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.410

INPUT

Description: 10,000 Station is in channel just north of and paralleling
Williams Field Road.

Station Elevation Data num= 57

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
729.19	1412.1	1126	1411.6	1206	1411.5	1456	1411.2	1603	1411.1
2023	1410.9	2253	1410	2613	1410	3035	1413.5	3476	1413.5
3970	1413	4127	1410.3	4159	1409.8	4189	1409.5	4199	1409.2
4549	1409.1	4849	1409.4	5011	1408	5111	1408.8	5166	1408.8
5195	1409.6	5285	1410	5495	1408.8	6125	1407.6	6600	1406.5
6660	1406.9	6805	1406.3	6885	1407.6	6900	1407.5	7105	1408.4
7275	1408.4	7330	1408	7460	1407	7595	1408	7745	1408
7910	1407.6	8100	1408	8385	1408.5	8595	1408	8755	1407.4
8850	1408	8945	1407.2	9025	1408	9075	1408.8	9145	1408
9320	1407.3	9490	1408	9725	1408	9755	1408	9775	1406.7
9785	1408	9835	1408	9855	1410	10000	1406.4	10020	1408
10035	1410	10060	1410.5						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
729.19	.1	3035	.022	3970	.05	9855	.05	10035	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9855	10035	475	515.27	515.27	.1	.3

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1410.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1409.92	Reach Len. (ft)	475.00	515.27	515.27
Crit W.S. (ft)		Flow Area (sq ft)	10353.68	318.30	
E.G. Slope (ft/ft)	0.003629	Area (sq ft)	10353.68	318.30	
Q Total (cfs)	29700.00	Flow (cfs)	28855.99	844.01	
Top Width (ft)	5848.67	Top Width (ft)	5672.34	176.33	
Vel Total (ft/s)	2.78	Avg. Vel. (ft/s)	2.79	2.65	
Max Chl Dpth (ft)	3.62	Hydr. Depth (ft)	1.83	1.81	
Conv. Total (cfs)	493049.0	Conv. (cfs)	479037.6	14011.4	
Length Wtd. (ft)	476.25	Wetted Per. (ft)	5672.65	176.56	
Min Ch El (ft)	1406.40	Shear (lb/sq ft)	0.41	0.41	
Alpha	1.00	Stream Power (lb/ft s)	1.15	1.08	
Frctn Loss (ft)	2.08	Cum Volume (acre-ft)	5240.27	790.17	203.11
C & E Loss (ft)	0.00	Cum SA (acres)	3842.26	166.50	323.67

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
3466.93	4379.51	197.91	149.59	228.40	0.67	0.66	1.32
4379.51	5292.09	1260.77	782.26	888.21	4.25	0.88	1.61
5292.09	6204.68	3236.44	1388.35	906.22	10.90	1.53	2.33
6204.68	7117.26	8839.50	2544.09	912.60	29.76	2.79	3.47
7117.26	8029.84	5335.36	1879.20	912.59	17.96	2.06	2.84
8029.84	8942.42	4733.05	1748.88	912.59	15.94	1.92	2.71
8942.42	9855.00	5252.94	1861.29	912.05	17.69	2.04	2.82
LB 9855.00	9891.00	11.65	13.44	32.91	0.04	0.41	0.87
9891.00	9927.00	83.73	45.50	36.01	0.28	1.26	1.84
9927.00	9963.00	204.19	77.67	36.01	0.69	2.16	2.63
9963.00	9999.00	363.85	109.85	36.01	1.23	3.05	3.31
9999.00	RB 10035.00	180.61	71.84	35.61	0.61	2.03	2.51

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.313

INPUT
Description: 10,000 Station is in channel just north of and paralleling
Williams Field Road.
Station Elevation Data num= 81

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
444.97	1412	877	1411.5	1212	1411.4	1557	1410	2107	1409.6
2317	1409.7	2676	1409.5	3016	1408.9	3396	1408	3488	1408
3663	1408.4	3811	1408	3861	1407.9	3920	1408	3990	1408.3
4065	1408	4130	1407.7	4145	1408.2	4165	1408	4190	1408.6
4210	1408	4241	1408	4261	1408.4	4276	1408	4398	1407.2
4995	1407.4	5375	1406.3	5450	1406	5903	1406	6333	1405.1
6768	1406.1	6818	1406.4	6868	1406.4	6950	1406.7	7071	1406
7249	1405.5	7409	1406	7449	1406.2	7509	1406	7549	1406.1
7590	1406	7676	1406.4	7717	1406	7913	1405.6	8083	1406
8123	1406.2	8202	1406	8233	1406	8273	1406	8405	1406.5
8466	1406.3	8566	1406	8600	1405.9	8640	1406	8667	1406.1
8693	1406	8713	1405.9	8863	1405.7	8989	1405.5	9187	1405.8
9312	1405.6	9360	1406	9400	1406	9470	1406	9595	1405.8
9680	1406	9700	1406.1	9720	1406	9750	1406.3	9830	1406.2
9890	1406	9905	1407.4	9945	1406.5	9970	1406	9990	1404
10000	1403.7	10005	1404	10035	1406	10080	1408	10115	1408
10155	1408.8								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
444.97	.1	3663	.05	9905	.05	10115	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9905	10115	498.87	498.87	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
444.97	3990	1410

Blocked Obstructions num= 1

Sta L	Sta R	Elev
444.97	3990	1409

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1407.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1407.81	Reach Len. (ft)	498.87	498.87	500.00
Crit W.S. (ft)	1406.97	Flow Area (sq ft)	9363.74	310.71	
E.G. Slope (ft/ft)	0.005361	Area (sq ft)	9363.74	310.71	
Q Total (cfs)	29700.00	Flow (cfs)	28693.44	1006.56	
Top Width (ft)	5799.26	Top Width (ft)	5628.46	170.80	
Vel Total (ft/s)	3.07	Avg. Vel. (ft/s)	3.06	3.24	
Max Chl Dpth (ft)	4.11	Hydr. Depth (ft)	1.66	1.82	
Conv. Total (cfs)	405642.3	Conv. (cfs)	391894.7	13747.6	
Length Wtd. (ft)	498.87	Wetted Per. (ft)	5628.55	171.03	
Min Ch El (ft)	1403.70	Shear (lb/sq ft)	0.56	0.61	
Alpha	1.00	Stream Power (lb/ft s)	1.71	1.97	
Frctn Loss (ft)	1.42	Cum Volume (acre-ft)	5132.77	786.45	203.11
C & E Loss (ft)	0.02	Cum SA (acres)	3780.65	164.44	323.67

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
3282.98	4228.98	0.48	1.58	27.94	0.00	0.06	0.30
4228.98	5174.99	612.48	456.34	870.51	2.06	0.52	1.34
5174.99	6120.99	4865.41	1635.89	946.00	16.38	1.73	2.97
6120.99	7066.99	6316.37	1913.21	946.01	21.27	2.02	3.30
7066.99	8012.99	5853.23	1827.76	946.01	19.71	1.93	3.20
8012.99	8959.00	5212.55	1704.95	946.01	17.55	1.80	3.06
8959.00	9905.00	5832.90	1824.00	946.07	19.64	1.93	3.20
LB 9905.00	9947.00	64.11	37.20	42.01	0.22	0.89	1.72
9947.00	9989.00	273.62	88.92	42.10	0.92	2.12	3.08
9989.00	10031.00	582.07	139.82	42.08	1.96	3.33	4.16
10031.00	10073.00	86.72	44.60	42.05	0.29	1.06	1.94
10073.00	RB 10115.00	0.05	0.17	2.80	0.00	0.06	0.29

Warning: Divided flow computed for this cross-section.

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.218

INPUT
Description: 10,000 Station is in channel just north of and paralleling Williams Field Road.
Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1412.8	355	1412	565	1411.5	815	1411	1110	1410.3
1350	1410	1480	1409.2	1535	1408.9	1755	1409	2390	1408.7
2685	1408.5	2785	1408	2920	1407.6	3220	1407.3	3900	1406.6
4155	1406.8	4185	1408	4215	1406	4220	1406	4235	1406.5
4335	1406	4625	1405.6	4895	1405.8	5275	1405.4	5355	1404
5370	1403.8	5380	1405.4	5655	1404	5955	1403.2	6260	1403.1
6550	1402.3	6625	1404	6715	1404.4	6805	1404	7035	1403.5
7605	1404	7695	1404	7810	1404.2	7885	1404	8095	1403.3
8255	1404	8350	1404	8380	1404.2	8585	1404.2	8645	1404
9165	1403	9540	1404	9635	1403.5	9655	1404	9755	1404.8
9845	1404.2	9915	1406	9935	1406	9950	1404	10000	1402.4
10050	1404	10100	1406	10125	1406.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	4185	.05	9935	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9935	10125	225	1472.18	1500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
0	3750	1410

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1406.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1406.44	Reach Len. (ft)	225.00	1472.18	1500.00
Crit W.S. (ft)	1404.78	Flow Area (sq ft)	13182.37	426.62	
E.G. Slope (ft/ft)	0.001764	Area (sq ft)	13182.37	426.62	
Q Total (cfs)	29700.00	Flow (cfs)	28788.52	911.48	
Top Width (ft)	5903.47	Top Width (ft)	5713.47	190.00	
Vel Total (ft/s)	2.18	Avg. Vel. (ft/s)	2.18	2.14	
Max Chl Dpth (ft)	4.14	Hydr. Depth (ft)	2.31	2.25	
Conv. Total (cfs)	707229.8	Conv. (cfs)	685525.3	21704.5	
Length Wtd. (ft)	314.27	Wetted Per. (ft)	5713.71	190.47	
Min Ch El (ft)	1402.40	Shear (lb/sq ft)	0.25	0.25	
Alpha	1.00	Stream Power (lb/ft s)	0.55	0.53	
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	5003.66	782.23	203.11
C & E Loss (ft)	0.01	Cum SA (acres)	3715.70	162.38	323.67

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
3974.00	4967.50	395.22	462.53	746.00	1.33	0.62	0.85
4967.50	5961.00	3197.10	1818.40	993.65	10.76	1.83	1.76
5961.00	6954.50	7822.17	3110.36	993.52	26.34	3.13	2.51
6954.50	7948.00	5765.94	2590.19	993.50	19.41	2.61	2.23
7948.00	8941.50	5744.04	2584.29	993.50	19.34	2.60	2.22
8941.50	9935.00	5864.06	2616.59	993.54	19.74	2.63	2.24
LB 9935.00	9973.00	162.26	86.29	38.14	0.55	2.27	1.88
9973.00	10011.00	364.39	140.02	38.02	1.23	3.68	2.60
10011.00	10049.00	270.66	117.14	38.02	0.91	3.08	2.31
10049.00	10087.00	102.60	65.46	38.03	0.35	1.72	1.57
10087.00	RB 10125.00	11.56	17.71	38.25	0.04	0.47	0.65

Warning: Divided flow computed for this cross-section.

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.940

INPUT
Description: 6211 cfs flow reduction due to spill between this section and next upstream section.

10,000 Station located on approximately the Crismon Road alignment between the Williams Field Road alignment and Pecos Avenue.

Station Elevation Data num= 42

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
818.33	1412.5	1115	1412	1205	1411.3	1635	1410.5	1905	1410
2265	1408.6	2320	1408.4	3000	1408.5	3470	1408	4140	1406.5
4600	1406	4720	1406	4800	1405.9	4930	1405.9	4960	1406
5020	1405.9	5055	1406	5070	1406	5075	1404	5085	1404
5305	1405	5580	1404.9	5980	1404.7	6050	1404	6075	1402.4
6080	1404	6085	1404.8	6195	1404	6260	1404	6620	1402.7
6970	1402	7275	1401.3	7310	1402	7380	1404	7465	1403.9
7815	1402.6	8140	1402.9	8610	1403.5	8915	1402.5	9765	1402
10000	1400.7	10080	1403.7						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
818.33	.1	4960	.05	9765	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9765	10080	200	1001.12	1001.12	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
818.33	4370	1410

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1406.18	Element			
Vel Head (ft)	0.04	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1406.15	Reach Len. (ft)	200.00	1001.12	1001.12
Crit W.S. (ft)	1403.70	Flow Area (sq ft)	13958.31	1442.86	
E.G. Slope (ft/ft)	0.000606	Area (sq ft)	13958.31	1442.86	
Q Total (cfs)	23489.00	Flow (cfs)	20593.32	2895.68	
Top Width (ft)	5614.65	Top Width (ft)	5299.65	315.00	
Vel Total (ft/s)	1.53	Avg. Vel. (ft/s)	1.48	2.01	
Max Chl Dpth (ft)	5.45	Hydr. Depth (ft)	2.63	4.58	
Conv. Total (cfs)	954289.3	Conv. (cfs)	836646.3	117642.9	
Length Wtd. (ft)	294.92	Wetted Per. (ft)	5300.46	317.51	
Min Ch El (ft)	1400.70	Shear (lb/sq ft)	0.10	0.17	
Alpha	1.03	Stream Power (lb/ft s)	0.15	0.34	
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	4933.57	750.64	203.11
C & E Loss (ft)	0.00	Cum SA (acres)	3687.26	153.84	323.67

Warning: The cross-section end points had to be extended vertically for the computed water surface.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4397.00	5291.67	313.83	475.60	826.71	1.34	0.58	0.66
5291.67	6186.33	1121.03	1279.88	895.04	4.77	1.43	0.88
6186.33	7081.00	4554.91	2967.66	894.67	19.39	3.32	1.53
7081.00	7975.67	4722.92	3032.91	894.71	20.11	3.39	1.56
7975.67	8870.33	3965.20	2730.77	894.67	16.88	3.05	1.45
8870.33	9765.00	5915.45	3471.51	894.67	25.18	3.88	1.70
LB 9765.00	9828.00	522.64	272.20	63.00	2.23	4.32	1.92
9828.00	9891.00	594.77	294.16	63.00	2.53	4.67	2.02
9891.00	9954.00	670.59	316.11	63.00	2.85	5.02	2.12
9954.00	10017.00	727.07	331.85	63.01	3.10	5.27	2.19
10017.00	RB 10080.00	380.59	228.54	65.49	1.62	3.63	1.67

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.750

INPUT
Description: 4782 cfs flow reduction due to spill between this section and next upstream section.

10,000 Station located on approximately the Crismon Road alignment between the Williams Field Road alignment and Pecos Avenue

Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1967.85	1412.1	2100	1412	2200	1411.1	2380	1410.5	2510	1410.4
2810	1410	2910	1409.6	3090	1409.3	3345	1408.3	3385	1408.1
3420	1408	3435	1407.9	3810	1408	3940	1408	4305	1407.6
4730	1406.8	4950	1406.5	5370	1406	5685	1405.5	6015	1405.1
6070	1404	6080	1404	6100	1405.3	6150	1406	6170	1404
6180	1404	6195	1404.7	6250	1404	6315	1403.6	6475	1404
6510	1404.1	6570	1404	6830	1403.5	6935	1404	7025	1404
7045	1402	7060	1402	7070	1404	7100	1404	7315	1402.6
7585	1402	7785	1401.5	8295	1401.5	8415	1402	8505	1403.1
8685	1402.5	8825	1402	8890	1401.5	9190	1402	9495	1401.6
9650	1402	9750	1402	10000	1400.91	10020.88	1402	10095	1405.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1967.85	.1	6070	.05	9750	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9750	10020.88	215	1003.33	1003.33	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
1967.85	5450	1410

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1406.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1406.01	Reach Len. (ft)	215.00	1003.33	1003.33
Crit W.S. (ft)	1403.01	Flow Area (sq ft)	13080.83	1236.01	167.73
E.G. Slope (ft/ft)	0.000369	Area (sq ft)	13087.01	1236.01	167.73
Q Total (cfs)	18706.00	Flow (cfs)	16602.20	1939.74	164.06
Top Width (ft)	4735.87	Top Width (ft)	4390.87	270.88	74.12
Vel Total (ft/s)	1.29	Avg. Vel. (ft/s)	1.27	1.57	0.98
Max Chl Dpth (ft)	5.11	Hydr. Depth (ft)	3.04	4.56	2.26
Conv. Total (cfs)	974417.3	Conv. (cfs)	864827.9	101043.3	8546.1
Length Wtd. (ft)	331.68	Wetted Per. (ft)	4300.50	270.91	74.72
Min Ch El (ft)	1400.90	Shear (lb/sq ft)	0.07	0.10	0.05
Alpha	1.02	Stream Power (lb/ft s)	0.09	0.16	0.05
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	4871.48	719.85	201.19
C & E Loss (ft)	0.00	Cum SA (acres)	3665.01	147.11	322.82

Warning: The cross-section end points had to be extended vertically for the computed water surface.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5080.71	5858.92	29.66	184.25	408.93	0.16	0.45	0.16
5858.92	6637.14	918.32	1254.40	778.40	4.91	1.61	0.73
6637.14	7415.35	2081.77	2015.61	778.52	11.13	2.59	1.03
7415.35	8193.57	4844.46	3345.24	778.22	25.90	4.30	1.45
8193.57	8971.79	4100.29	3026.71	778.23	21.92	3.89	1.35
8971.79	9750.00	4627.70	3254.61	778.22	24.74	4.18	1.42
LB 9750.00	9804.18	328.18	223.86	54.18	1.75	4.13	1.47
9804.18	9858.35	360.34	236.77	54.18	1.93	4.37	1.52
9858.35	9912.53	393.69	249.69	54.18	2.10	4.61	1.58
9912.53	9966.70	428.20	262.60	54.18	2.29	4.85	1.63
9966.70	RB 10020.88	429.33	263.07	54.21	2.30	4.86	1.63
10020.88	10028.29	35.63	28.45	7.42	0.19	3.84	1.25
10028.29	10035.70	30.38	25.85	7.42	0.16	3.49	1.18
10035.70	10043.12	25.47	23.26	7.42	0.14	3.14	1.10
10043.12	10050.53	20.91	20.66	7.42	0.11	2.79	1.01
10050.53	10057.94	16.72	18.07	7.42	0.09	2.44	0.93
10057.94	10065.35	12.92	15.48	7.42	0.07	2.09	0.83
10065.35	10072.76	9.51	12.88	7.42	0.05	1.74	0.74
10072.76	10080.18	6.54	10.29	7.42	0.03	1.39	0.64

10080.18	10087.59	4.03	7.69	7.42	0.02	1.04	0.52
10087.59	10095.00	1.94	5.10	7.93	0.01	0.69	0.38

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.560

INPUT
Description: 1602 cfs flow reduction due to spill between this section and next upstream section.

10,000 Station located on approximately the Crismon Road alignment between the Williams Field Road alignment and Pecos Avenue.

Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3194.74	1410.5	3790	1410	4230	1408	4575	1407.9	4775	1407
5365	1407	6380	1406	6660	1405.8	6920	1405.6	7075	1404.8
7155	1404	7175	1402	7205	1404.6	7225	1404	7230	1403.5
7235	1404	7250	1404	7295	1403.2	7500	1402	7535	1401.6
7595	1402	7715	1401.7	7865	1401.9	7925	1402	7955	1402.4
8005	1402	8195	1401.6	8925	1400.7	9285	1401.1	9335	1402
9355	1402	9365	1402.3	9525	1402.3	9575	1402	9950	1400.9
10000	1400.8	10014.61	1402.33	10050	1405				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3194.74	.1	7155	.05	9525	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9525	10014.61	400	1080.06	1080.06	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
3194.74	6300	1410

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1405.92	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1405.90	Reach Len. (ft)	400.00	1080.06	1080.06
Crit W.S. (ft)	1402.58	Flow Area (sq ft)	10249.95	2169.70	78.92
E.G. Slope (ft/ft)	0.000323	Area (sq ft)	10249.95	2169.70	78.92
Q Total (cfs)	17104.00	Flow (cfs)	13907.72	3125.65	70.63
Top Width (ft)	3523.16	Top Width (ft)	2998.16	489.61	35.39
Vel Total (ft/s)	1.37	Avg. Vel. (ft/s)	1.36	1.44	0.89
Max Chl Dpth (ft)	5.20	Hydr. Depth (ft)	3.42	4.43	2.23
Conv. Total (cfs)	951843.4	Conv. (cfs)	773969.4	173943.7	3930.3
Length Wtd. (ft)	494.92	Wetted Per. (ft)	2998.47	489.69	36.39
Min Ch El (ft)	1400.80	Shear (lb/sq ft)	0.07	0.09	0.04
Alpha	1.00	Stream Power (lb/ft s)	0.09	0.13	0.04
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	4813.89	680.63	198.34
C & E Loss (ft)	0.00	Cum SA (acres)	3646.77	138.35	321.56

Warning: The cross-section end points had to be extended vertically for the computed water surface.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6359.87	6992.90	8.28	92.29	466.06	0.05	0.20	0.09
6992.90	7625.92	1783.45	1699.14	633.32	10.43	2.68	1.05
7625.92	8258.95	3442.42	2565.64	633.03	20.13	4.05	1.34
8258.95	8891.97	4507.09	3015.87	633.03	26.35	4.76	1.49
8891.97	9525.00	4166.45	2877.00	633.04	24.36	4.54	1.45
LB 9525.00	9622.92	493.15	377.29	97.92	2.88	3.85	1.31
9622.92	9720.84	564.73	409.25	97.92	3.30	4.18	1.38
9720.84	9818.77	630.89	437.38	97.92	3.69	4.47	1.44
9818.77	9916.69	699.94	465.51	97.92	4.09	4.75	1.50
9916.69	RB 10014.61	736.98	480.29	98.00	4.31	4.90	1.53
10014.61	10018.15	13.63	12.15	3.55	0.08	3.43	1.12
10018.15	10021.69	11.91	11.20	3.55	0.07	3.16	1.06
10021.69	10025.23	10.28	10.25	3.55	0.06	2.90	1.00
10025.23	10028.77	8.75	9.31	3.55	0.05	2.63	0.94

10028.77	10032.30	7.32	8.36	3.55	0.04	2.36	0.88
10032.30	10035.84	6.00	7.42	3.55	0.04	2.10	0.81
10035.84	10039.38	4.78	6.48	3.55	0.03	1.83	0.74
10039.38	10042.92	3.67	5.53	3.55	0.02	1.56	0.66
10042.92	10046.46	2.69	4.59	3.55	0.02	1.30	0.59
10046.46	10050.00	1.58	3.64	4.44	0.01	1.03	0.43

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.355

INPUT
Description: 2156 cfs flow reduction due to spill between this section and next upstream section.

10,000 Station located on approximately the Crismon Road alignment between the Williams Field Road alignment and Pecos Avenue.

Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4809.6	1413.5	4870	1412	4915	1410	4930	1408	5065	1407.2
5240	1406.1	5295	1406.3	5460	1406	5500	1405.6	5580	1405.5
6095	1405	6730	1405.5	6915	1405.1	7085	1404.6	7295	1404.4
7450	1404	7920	1403	8195	1402.5	8275	1402	8280	1400
8290	1400	8350	1402	8735	1400	8745	1400	8765	1400.9
8820	1400.4	9100	1400.4	9215	1400	9380	1399.8	9520	1400
9770	1400.1	9900	1400.5	9960	1400	10000	139810020.88		1400.45
10060	1405								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4809.6	.1	8280	.05	9900	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
990	10020.88	760	1112.17	1115	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4809.6	6950	1410

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1405.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.054	0.050	0.050
W.S. Elev (ft)	1405.76	Reach Len. (ft)	760.00	1112.17	1115.00
Crit W.S. (ft)	1401.66	Flow Area (sq ft)	11507.93	737.11	118.62
E.G. Slope (ft/ft)	0.000253	Area (sq ft)	12218.41	737.11	118.62
Q Total (cfs)	14948.00	Flow (cfs)	13670.71	1161.82	115.48
Top Width (ft)	4575.72	Top Width (ft)	4415.72	120.88	39.12
Vel Total (ft/s)	1.21	Avg. Vel. (ft/s)	1.19	1.58	0.97
Max Chl Dpth (ft)	7.76	Hydr. Depth (ft)	3.90	6.10	3.03
Conv. Total (cfs)	939701.5	Conv. (cfs)	859404.8	73037.3	7259.4
Length Wtd. (ft)	889.23	Wetted Per. (ft)	2950.45	121.08	40.14
Min Ch El (ft)	1398.00	Shear (lb/sq ft)	0.06	0.10	0.05
Alpha	1.02	Stream Power (lb/ft s)	0.07	0.15	0.05
Frctn Loss (ft)	0.63	Cum Volume (acre-ft)	4710.73	644.60	195.90
C & E Loss (ft)	0.08	Cum SA (acres)	3612.73	130.78	320.64

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6845.76	7354.80	125.76	479.21	404.80	0.84	1.18	0.26
7354.80	7863.84	408.55	1064.98	509.04	2.73	2.09	0.38
7863.84	8372.88	1197.65	1713.16	509.46	8.01	3.37	0.70
8372.88	8881.92	3434.39	2520.53	509.07	22.98	4.95	1.36
8881.92	9390.96	4187.82	2839.01	509.04	28.02	5.58	1.48
9390.96	9900.00	4316.53	2891.04	509.04	28.88	5.68	1.49

LB 9900.00	9924.18	186.40	129.53	24.18	1.25	5.36	1.44
9924.18	9948.35	198.23	134.40	24.18	1.33	5.56	1.47
9948.35	9972.53	218.56	142.55	24.19	1.46	5.90	1.53
9972.53	9996.70	289.97	168.94	24.21	1.94	6.99	1.72
9996.70	RB 10020.88	268.66	161.69	24.32	1.80	6.69	1.66
10020.88	10024.79	24.74	19.87	3.94	0.17	5.08	1.25
10024.79	10028.70	21.16	18.09	3.94	0.14	4.62	1.17
10028.70	10032.62	17.80	16.31	3.94	0.12	4.17	1.09
10032.62	10036.53	14.69	14.53	3.94	0.10	3.71	1.01
10036.53	10040.44	11.81	12.75	3.94	0.08	3.26	0.93
10040.44	10044.35	9.19	10.97	3.94	0.06	2.80	0.84
10044.35	10048.26	6.85	9.19	3.94	0.05	2.35	0.74
10048.26	10052.18	4.78	7.41	3.94	0.03	1.89	0.65
10052.18	10056.09	3.03	5.63	3.94	0.02	1.44	0.54
10056.09	10060.00	1.43	3.85	4.70	0.01	0.98	0.37

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.145

INPUT
Description: 132 cfs flow reduction due to spill between this section and next upstream section.

10,000 Station located in channel immediately northeast of intersection of Crismon Road alignment and Pecos Avenue.

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6492.7	1413.5	6665	1404.5	6870	1404	7720	1406	7860	1406
8585	1404.5	9215	1404.5	9435	1403.8	9555	1400.3	9605	1400
9670	1401	9850	1406.5	9880	1400	10000	1397.5	10070	1398
10095	1404.8								

Manning's n Values num= 2

Sta	n Val	Sta	n Val
6492.7	.022	9555	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9850	10095	475	178.89	180	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
6492.7	8600	1410

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1405.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.78	Wt. n-Val.	0.040	0.050	
W.S. Elev (ft)	1404.29	Reach Len. (ft)	475.00	178.89	180.00
Crit W.S. (ft)	1403.23	Flow Area (sq ft)	938.34	1238.43	
E.G. Slope (ft/ft)	0.007456	Area (sq ft)	974.12	1238.43	
Q Total (cfs)	14816.00	Flow (cfs)	5171.93	9644.07	
Top Width (ft)	974.99	Top Width (ft)	742.04	232.95	
Vel Total (ft/s)	6.81	Avg. Vel. (ft/s)	5.51	7.79	
Max Chl Dpth (ft)	6.79	Hydr. Depth (ft)	1.89	5.32	
Conv. Total (cfs)	171579.5	Conv. (cfs)	59894.5	111685.0	
Length Wtd. (ft)	287.68	Wetted Per. (ft)	497.72	234.28	
Min Ch El (ft)	1397.50	Shear (lb/sq ft)	0.88	2.46	
Alpha	1.08	Stream Power (lb/ft s)	4.84	19.16	
Frctn Loss (ft)	1.16	Cum Volume (acre-ft)	4595.64	619.38	194.38
C & E Loss (ft)	0.15	Cum SA (acres)	3567.74	126.27	320.13

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9178.54	9514.27	699.04	168.84	234.16	4.72	0.72	4.14
9514.27	9850.00	4472.89	769.51	263.57	30.19	2.92	5.81
LB 9850.00	9899.00	701.81	127.85	39.28	4.74	3.29	5.49
9899.00	9948.00	1910.51	254.75	49.01	12.89	5.20	7.50
9948.00	9997.00	2575.80	304.77	49.01	17.39	6.22	8.45
9997.00	10046.00	2870.18	325.19	49.00	19.37	6.64	8.83
10046.00	RB 10095.00	1585.78	225.87	47.98	10.70	4.79	7.02

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.111

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4379.27	1404.8	4515	1403.8	4680	1403.7	4900	1403.7	5130	1403.6
5330	1403.4	5635	1403.3	5960	1403.8	6375	1403.5	6620	1403.3
6835	1403.5	7090	1402.8	7190	1402	7755	1401.7	7810	1402.7
8290	1402	8430	1401.9	8450	1402	8475	1402	9370	1400
9700	1399.6	9755	1400	9800	1400	9810	1398	9910	1396.9
10000	1396.3	10050	1396	10069.59	1400.01	10095	1404.2		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4379.27	.1	9800	.05	10069.59	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9800	10069.59	325	301.73	270	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4379.27	8500	1406

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1403.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1403.49	Reach Len. (ft)	325.00	301.73	270.00
Crit W.S. (ft)	1401.68	Flow Area (sq ft)	3766.73	1743.11	36.70
E.G. Slope (ft/ft)	0.002525	Area (sq ft)	5925.56	1743.11	36.70
Q Total (cfs)	14816.00	Flow (cfs)	5716.39	9021.05	78.56
Top Width (ft)	4202.19	Top Width (ft)	3911.51	269.59	21.10
Vel Total (ft/s)	2.67	Avg. Vel. (ft/s)	1.52	5.18	2.14
Max Chl Dpth (ft)	7.49	Hydr. Depth (ft)	2.90	6.47	1.74
Conv. Total (cfs)	294836.4	Conv. (cfs)	113755.4	179517.8	1563.3
Length Wtd. (ft)	312.83	Wetted Per. (ft)	1300.00	270.20	21.38
Min Ch El (ft)	1396.00	Shear (lb/sq ft)	0.46	1.02	0.27
Alpha	2.41	Stream Power (lb/ft s)	0.69	5.26	0.58
Frctn Loss (ft)	0.74	Cum Volume (acre-ft)	4558.02	613.25	194.30
C & E Loss (ft)	0.03	Cum SA (acres)	3542.37	125.23	320.09

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8173.78	8715.85	411.47	385.48	215.85	2.78	1.79	1.07
8715.85	9257.93	1973.15	1427.08	542.07	13.32	2.63	1.38
9257.93	9800.00	3331.74	1954.14	542.08	22.49	3.60	1.70
LB 9800.00	9853.92	1370.82	296.55	54.12	9.25	5.50	4.62

9853.92	9907.84	1708.79	337.98	53.92	11.53	6.27	5.06
9907.84	9961.75	1935.04	364.15	53.92	13.06	6.75	5.31
9961.75	10015.67	2109.05	383.46	53.92	14.23	7.11	5.50
10015.67	RB 10069.59	1897.39	360.96	54.32	12.81	6.69	5.26
10069.59	10072.13	22.80	8.31	2.58	0.15	3.27	2.75
10072.13	10074.67	18.14	7.24	2.58	0.12	2.85	2.51
10074.67	10077.21	13.92	6.18	2.58	0.09	2.43	2.25
10077.21	10079.75	10.16	5.11	2.58	0.07	2.01	1.99
10079.75	10082.29	6.88	4.05	2.58	0.05	1.59	1.70
10082.29	10084.84	4.14	2.98	2.58	0.03	1.17	1.39
10084.84	10087.38	1.98	1.92	2.58	0.01	0.76	1.03
10087.38	10089.92	0.52	0.85	2.58	0.00	0.34	0.60
10089.92	10092.46	0.01	0.05	0.78	0.00	0.06	0.20

Warning: Divided flow computed for this cross-section.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.054

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.

Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4336.9	1404.1	4420	1404	4475	1404.1	4550	1403.1	4925	1403.3
5655	1402	5785	1401.6	6085	1402	6390	1402.6	6715	1402
6895	1401.4	7120	1401.9	7175	1401.8	7265	1401.2	7825	1401
7840	1402	7870	1402	8070	1401.5	8510	1401.2	8535	1402
8560	1400	8735	1399.7	9435	1398.3	9770	1399	9815	1398.3
9835	1398	9865	1400	9880	1398	9940	1396	10000	1395.5
10050	1396	10075.22	1400	10100	1403.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4336.9	.1	9865	.05	10075.22	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9865	10075.22	500	505.01	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4336.9	8350	1405

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1402.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1402.82	Reach Len. (ft)	500.00	505.01	500.00
Crit W.S. (ft)	1400.75	Flow Area (sq ft)	5306.27	1304.85	26.55
E.G. Slope (ft/ft)	0.002232	Area (sq ft)	8502.55	1304.85	26.55
Q Total (cfs)	14816.00	Flow (cfs)	8591.01	6178.50	46.48
Top Width (ft)	4897.09	Top Width (ft)	4668.02	210.22	18.86
Vel Total (ft/s)	2.23	Avg. Vel. (ft/s)	1.62	4.74	1.75
Max Chl Dpth (ft)	7.32	Hydr. Depth (ft)	3.50	6.21	1.41
Conv. Total (cfs)	313585.7	Conv. (cfs)	181831.7	130770.1	983.9
Length Wtd. (ft)	502.12	Wetted Per. (ft)	1515.17	210.71	19.07
Min Ch El (ft)	1395.50	Shear (lb/sq ft)	0.49	0.86	0.19
Alpha	2.18	Stream Power (lb/ft s)	0.79	4.09	0.34
Frctn Loss (ft)	1.35	Cum Volume (acre-ft)	4504.20	602.70	194.11
C & E Loss (ft)	0.01	Cum SA (acres)	3510.36	123.57	319.97

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8206.57	8759.38	1078.89	921.12	409.47	7.28	2.25	1.17
8759.38	9312.19	3364.14	2054.92	552.81	22.71	3.72	1.64
9312.19	9865.00	4147.97	2330.21	552.88	28.00	4.22	1.78
LB 9865.00	9907.04	780.51	199.66	42.19	5.27	4.75	3.91
9907.04	9949.09	1283.80	268.80	42.06	8.66	6.39	4.78
9949.09	9991.13	1517.36	297.11	42.05	10.24	7.07	5.11
9991.13	10033.18	1557.06	301.75	42.05	10.51	7.18	5.16

10033.18	RB 10075.22	1039.80	237.53	42.36	7.02	5.65	4.38
10075.22	10077.70	14.58	6.52	2.50	0.10	2.63	2.24
10077.70	10080.18	11.33	5.60	2.51	0.08	2.26	2.02
10080.18	10082.65	8.41	4.69	2.51	0.06	1.89	1.80
10082.65	10085.13	5.85	3.77	2.50	0.04	1.52	1.55
10085.13	10087.61	3.68	2.85	2.50	0.02	1.15	1.29
10087.61	10090.09	1.93	1.94	2.51	0.01	0.78	1.00
10090.09	10092.57	0.66	1.02	2.51	0.00	0.41	0.65
10092.57	10095.04	0.05	0.17	1.53	0.00	0.11	0.27

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.958

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.

Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4485.04	1403.1	4565	1402.4	4995	1403	5460	1402	5830	1400.9
6050	1400.6	6320	1400	6535	1399.8	6715	1399.6	7085	1399.6
7155	1399.5	7180	1399.7	7290	1399.9	8510	1400	8515	1400.2
8565	1400	8580	1398.8	8740	1398.1	9780	1398.1	9820	1398
9880	1398	9900	1396	10000	1394.3	10060	1396	10072.29	1398.01
10105	1403.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4485.04	.1	9880	.05	10072.29	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9880	10072.29	670	479.11	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4485.04	8000	1403

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1401.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1401.40	Reach Len. (ft)	670.00	479.11	500.00
Crit W.S. (ft)	1399.95	Flow Area (sq ft)	5062.94	1141.48	36.87
E.G. Slope (ft/ft)	0.003291	Area (sq ft)	8227.79	1141.48	36.87
Q Total (cfs)	14816.00	Flow (cfs)	8353.88	6373.53	88.59
Top Width (ft)	4431.30	Top Width (ft)	4217.24	192.29	21.77
Vel Total (ft/s)	2.37	Avg. Vel. (ft/s)	1.65	5.58	2.40
Max Chl Dpth (ft)	7.10	Hydr. Depth (ft)	2.69	5.94	1.69
Conv. Total (cfs)	258263.0	Conv. (cfs)	145619.4	111099.3	1544.3
Length Wtd. (ft)	601.55	Wetted Per. (ft)	1880.05	192.59	22.03
Min Ch El (ft)	1394.30	Shear (lb/sq ft)	0.55	1.22	0.34
Alpha	2.66	Stream Power (lb/ft s)	0.91	6.80	0.83
Frctn Loss (ft)	1.57	Cum Volume (acre-ft)	4408.18	588.52	193.74
C & E Loss (ft)	0.04	Cum SA (acres)	3459.37	121.24	319.73

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7722.02	8261.51	387.32	373.51	261.51	2.61	1.43	1.04
8261.51	8801.01	1498.44	1123.74	539.55	10.11	2.08	1.33
8801.01	9340.50	3221.98	1778.85	539.50	21.75	3.30	1.81
9340.50	9880.00	3246.16	1786.85	539.50	21.91	3.31	1.82
LB 9880.00	9918.46	934.33	190.46	38.56	6.31	4.95	4.91
9918.46	9956.92	1302.16	232.20	38.46	8.79	6.04	5.61
9956.92	9995.37	1545.55	257.35	38.46	10.43	6.69	6.01
9995.37	10033.83	1537.31	256.55	38.47	10.38	6.67	5.99
10033.83	RB 10072.29	1054.17	204.92	38.63	7.12	5.33	5.14
10072.29	10075.56	31.28	10.25	3.31	0.21	3.13	3.05
10075.56	10078.83	23.28	8.58	3.31	0.16	2.62	2.71

10078.83	10082.10	16.25	6.92	3.31	0.11	2.11	2.35
10082.10	10085.37	10.27	5.25	3.31	0.07	1.61	1.96
10085.37	10088.64	5.44	3.59	3.31	0.04	1.10	1.52
10088.64	10091.92	1.92	1.92	3.31	0.01	0.59	1.00
10091.92	10095.19	0.15	0.36	2.17	0.00	0.17	0.43

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.867

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.

Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4366.93	1401.7	4500	1401.5	4595	1400.6	5060	1401.7	5220	1401.3
5475	1400	6095	1398.7	6525	1398	6935	1397	7205	1397.1
7535	1397.2	8465	1397	8505	1398	8545	1396.9	8740	1396.4
9510	1396.6	9760	1396.6	9790	1397	9810	1396.6	9865	1398
9870	1396	10000	1393.4	10035	1394	10062.98	1397.99	10090	1402.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4366.93	.1	9865	.05	10062.98	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9865	10062.98	590	514.81	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4366.93	7500	1402

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1400.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1399.93	Reach Len. (ft)	590.00	514.81	500.00
Crit W.S. (ft)	1398.25	Flow Area (sq ft)	7331.03	1022.08	12.33
E.G. Slope (ft/ft)	0.002111	Area (sq ft)	10960.60	1022.08	12.33
Q Total (cfs)	14816.00	Flow (cfs)	10640.63	4159.02	16.36
Top Width (ft)	4565.84	Top Width (ft)	4355.13	197.98	12.73
Vel Total (ft/s)	1.77	Avg. Vel. (ft/s)	1.45	4.07	1.33
Max Chl Dpth (ft)	6.53	Hydr. Depth (ft)	3.10	5.16	0.97
Conv. Total (cfs)	322458.3	Conv. (cfs)	231584.7	90517.7	356.0
Length Wtd. (ft)	564.89	Wetted Per. (ft)	2365.05	198.68	12.88
Min Ch El (ft)	1393.40	Shear (lb/sq ft)	0.41	0.68	0.13
Alpha	1.96	Stream Power (lb/ft s)	0.59	2.76	0.17
Frctn Loss (ft)	2.15	Cum Volume (acre-ft)	4260.61	576.62	193.46
C & E Loss (ft)	0.02	Cum SA (acres)	3393.44	119.09	319.54

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7115.96	7665.77	604.67	454.07	165.77	4.08	2.74	1.33
7665.77	8215.58	2097.85	1547.24	549.81	14.16	2.81	1.36
8215.58	8765.39	2330.20	1647.93	549.83	15.73	3.00	1.41
8765.39	9315.19	2944.33	1896.21	549.81	19.87	3.45	1.55
9315.19	9865.00	2663.56	1785.58	549.83	17.98	3.25	1.49
LB 9865.00	9904.60	556.73	162.46	39.99	3.76	4.10	3.43
9904.60	9944.19	782.93	198.57	39.60	5.28	5.01	3.94
9944.19	9983.79	999.63	229.92	39.60	6.75	5.81	4.35
9983.79	10023.38	1157.98	251.13	39.60	7.82	6.34	4.61
10023.38	RB 10062.98	661.77	180.01	39.88	4.47	4.55	3.68
10062.98	10065.68	7.73	4.68	2.73	0.05	1.73	1.65
10065.68	10068.38	4.92	3.57	2.73	0.03	1.32	1.38
10068.38	10071.09	2.64	2.46	2.73	0.02	0.91	1.08
10071.09	10073.79	0.97	1.35	2.73	0.01	0.50	0.72

10073.79	10076.49	0.09	0.28	1.95	0.00	0.15	0.32

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.770

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4476.32	1398.7	4575	1398.7	4620	1398.2	5730	1398.2	5775	1398
5845	1396.8	6755	1396.5	7025	1396	7060	1395.4	7085	1396
8470	1396	8485	1396.2	8575	1396	8805	1395.6	9585	1395.7
9825	1395	9870	1396.8	9890	1394	10000	1392.3	10060	1394
10074.46	1396.82	10105	1401.4						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4476.32	.1	9870	.05	10074.46	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9870	10074.46	220	506.56	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4476.32	7150	1400

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1397.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1397.52	Reach Len. (ft)	220.00	506.56	500.00
Crit W.S. (ft)	1397.15	Flow Area (sq ft)	4596.19	815.26	1.62
E.G. Slope (ft/ft)	0.008823	Area (sq ft)	5950.29	815.26	1.62
Q Total (cfs)	14816.00	Flow (cfs)	9100.72	5713.05	2.23
Top Width (ft)	4275.95	Top Width (ft)	4066.84	204.46	4.65
Vel Total (ft/s)	2.74	Avg. Vel. (ft/s)	1.98	7.01	1.37
Max Chl Dpth (ft)	5.22	Hydr. Depth (ft)	1.69	3.99	0.35
Conv. Total (cfs)	157735.6	Conv. (cfs)	96889.0	60822.9	23.7
Length Wtd. (ft)	309.48	Wetted Per. (ft)	2720.04	204.96	4.70
Min Ch El (ft)	1392.30	Shear (lb/sq ft)	0.93	2.19	0.19
Alpha	2.85	Stream Power (lb/ft s)	1.84	15.35	0.26
Frctn Loss (ft)	1.26	Cum Volume (acre-ft)	4146.09	565.76	193.38
C & E Loss (ft)	0.07	Cum SA (acres)	3336.41	116.71	319.44

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6633.79	7173.16	64.30	35.14	23.16	0.43	1.52	1.83
7173.16	7712.53	1497.51	818.40	539.37	10.11	1.52	1.83
7712.53	8251.90	1497.51	818.40	539.37	10.11	1.52	1.83
8251.90	8791.26	1590.65	848.57	539.37	10.74	1.57	1.87
8791.26	9330.63	2148.44	1016.29	539.37	14.50	1.88	2.11
9330.63	9870.00	2302.27	1059.37	539.41	15.54	1.96	2.17
LB 9870.00	9910.89	662.33	119.20	41.09	4.47	2.92	5.56
9910.89	9951.78	1200.02	169.96	40.90	8.10	4.16	7.06
9951.78	9992.68	1519.26	195.79	40.90	10.25	4.79	7.76
9992.68	10033.57	1534.24	196.97	40.91	10.36	4.82	7.79
10033.57	RB 10074.46	797.25	133.34	41.17	5.38	3.26	5.98
10074.46	10077.51	2.11	1.43	3.09	0.01	0.47	1.48
10077.51	10080.57	0.11	0.19	1.61	0.00	0.12	0.59

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.674

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4432.83	1398	4490	1397.6	4630	1396.9	4825	1397.5	5505	1397
5740	1396.8	5780	1396.5	5795	1396	6130	1395	6890	1395.2
7020	1395.3	7205	1394	7215	1393.8	7225	1394	7245	1394
7290	1393.6	7950	1393.6	8485	1393.7	8505	1394	8545	1395.5
8560	1394	8580	1394	8635	1393.6	9520	1393.3	9770	1393.4
9835	1393.5	9875	1395.1	9885	1394	9915	1392	10000	1390.7
10060	139210076.21	1395.15	10105	1400.12					

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4432.83	.1	9875	.0510076.21		.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
987510076.21		690	518.48	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4432.83	7000	1400

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1396.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1396.43	Reach Len. (ft)	690.00	518.48	500.00
Crit W.S. (ft)	1394.90	Flow Area (sq ft)	7949.02	904.64	4.75
E.G. Slope (ft/ft)	0.002346	Area (sq ft)	9405.17	904.64	4.75
Q Total (cfs)	14816.00	Flow (cfs)	11269.23	3541.75	5.03
Top Width (ft)	4301.54	Top Width (ft)	4092.91	201.21	7.42
Vel Total (ft/s)	1.67	Avg. Vel. (ft/s)	1.42	3.92	1.06
Max Chl Dpth (ft)	5.73	Hydr. Depth (ft)	2.76	4.50	0.64
Conv. Total (cfs)	305901.3	Conv. (cfs)	232672.1	73125.3	103.8
Length Wtd. (ft)	645.39	Wetted Per. (ft)	2875.15	201.66	7.53
Min Ch El (ft)	1390.70	Shear (lb/sq ft)	0.40	0.66	0.09
Alpha	1.86	Stream Power (lb/ft s)	0.57	2.57	0.10
Frctn Loss (ft)	1.61	Cum Volume (acre-ft)	4107.31	555.76	193.34
C & E Loss (ft)	0.00	Cum SA (acres)	3315.80	114.36	319.37

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6609.70	7153.92	225.88	237.13	153.92	1.52	1.54	0.95
7153.92	7698.13	2077.02	1487.70	544.22	14.02	2.73	1.40
7698.13	8242.35	2181.89	1532.32	544.22	14.73	2.82	1.42
8242.35	8786.57	1962.85	1438.19	544.32	13.25	2.64	1.36
8786.57	9330.78	2390.15	1618.47	544.22	16.13	2.97	1.48
9330.78	9875.00	2431.45	1635.23	544.25	16.41	3.00	1.49
LB 9875.00	9915.24	362.84	122.79	40.37	2.45	3.05	2.96
9915.24	9955.48	758.06	190.82	40.25	5.12	4.74	3.97
9955.48	9995.73	929.03	215.58	40.25	6.27	5.36	4.31
9995.73	10035.97	935.19	216.45	40.25	6.31	5.38	4.32
10035.97	RB 10076.21	556.60	159.01	40.55	3.76	3.95	3.50
10076.21	10079.09	3.71	2.97	2.92	0.03	1.03	1.25
10079.09	10081.97	1.24	1.54	2.92	0.01	0.53	0.81
10081.97	10084.85	0.08	0.24	1.68	0.00	0.14	0.33

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

CROSS SECTION RIVER: Powerline FRS

REACH: Powerline RS: 12.576

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.

Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4455.26	1396.5	4470	1396	4520	1396	4540	1396	4785	1395.9
5510	1395.8	5750	1395.6	5785	1395.5	5815	1394.6	5920	1394.4
6215	1394.4	6365	1394.3	6665	1394	6770	1393.8	6915	1393.1
7115	1393.2	7160	1392.3	7175	1392.5	7345	1392.3	8455	1392.3
8495	1393.4	8525	1392	8820	1392.1	9420	1392	9755	1391.7
9785	1392	9805	1391.7	9855	1392.7	9870	1392	9895	1390
10000	1389	10040	1390	10056.98	1392.73	10075	1396	10085	1397.24

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4455.26	.1	9855	.05	10056.98	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9855	10056.98	490	502.49	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4455.26	6400	1397

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1394.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1394.80	Reach Len. (ft)	490.00	502.49	500.00
Crit W.S. (ft)	1393.52	Flow Area (sq ft)	7970.61	958.24	11.79
E.G. Slope (ft/ft)	0.002657	Area (sq ft)	8205.40	958.24	11.79
Q Total (cfs)	14816.00	Flow (cfs)	10658.02	4139.71	18.27
Top Width (ft)	4259.99	Top Width (ft)	4046.61	201.98	11.40
Vel Total (ft/s)	1.66	Avg. Vel. (ft/s)	1.34	4.32	1.55
Max Chl Dpth (ft)	5.80	Hydr. Depth (ft)	2.31	4.74	1.03
Conv. Total (cfs)	287451.3	Conv. (cfs)	206780.6	80316.3	354.4
Length Wtd. (ft)	493.56	Wetted Per. (ft)	3455.07	202.31	11.58
Min Ch El (ft)	1389.00	Shear (lb/sq ft)	0.38	0.79	0.17
Alpha	2.37	Stream Power (lb/ft s)	0.51	3.39	0.26
Frctn Loss (ft)	1.41	Cum Volume (acre-ft)	3967.83	544.67	193.25
C & E Loss (ft)	0.00	Cum SA (acres)	3251.33	111.96	319.26

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6075.18	6615.16	75.10	137.90	215.16	0.51	0.64	0.54
6615.16	7155.13	666.28	738.30	539.98	4.50	1.37	0.90
7155.13	7695.10	1777.63	1330.28	539.98	12.00	2.46	1.34
7695.10	8235.08	1819.55	1349.01	539.97	12.28	2.50	1.35
8235.08	8775.05	1888.37	1379.45	540.02	12.75	2.55	1.37
8775.05	9315.03	2118.22	1477.82	539.97	14.30	2.74	1.43
9315.03	9855.00	2312.87	1557.88	539.99	15.61	2.89	1.48
LB 9855.00	9895.40	445.61	133.59	40.49	3.01	3.31	3.34
9895.40	9935.79	887.30	201.76	40.40	5.99	4.99	4.40
9935.79	9976.19	1004.13	217.30	40.40	6.78	5.38	4.62
9976.19	10016.58	1088.52	228.09	40.40	7.35	5.65	4.77
10016.58	RB 10056.98	714.17	177.51	40.62	4.82	4.39	4.02
10056.98	10059.78	9.72	5.08	2.85	0.07	1.81	1.91
10059.78	10062.58	5.62	3.66	2.85	0.04	1.31	1.54
10062.58	10065.39	2.47	2.23	2.85	0.02	0.80	1.11
10065.39	10068.19	0.45	0.81	2.85	0.00	0.29	0.56
10068.19	10070.99	0.00	0.00	0.19	0.00	0.02	0.09

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.481

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.

Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4491.24	1394.6	4525	1395	4810	1395	5440	1394.3	5750	1394.3
5780	1394.3	5795	1394	5880	1393.5	6040	1393.2	6430	1392.9
6930	1392.4	7130	1392	7155	1393	7180	1391.4	7235	1391.2
7495	1391.5	8225	1391.5	8505	1392	8530	1390	8560	1389.9
8860	1390	9210.08	1389.48	9510	1390.4	9815	1390.2	9830	1390
9845	1389	9855	1390	9875	1390	9965	1388	10000	1387.35
10045	1388	10053.2	1390	10070	1394	10085	1395.8		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4491.24	.1	9875	.05	10053.2	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9875	10053.2	490	520.37	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4491.24	6100	1395.5

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1393.49	Element			
Vel Head (ft)	0.12	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1393.36	Reach Len. (ft)	490.00	520.37	500.00
Crit W.S. (ft)	1391.83	Flow Area (sq ft)	7828.90	883.60	23.76
E.G. Slope (ft/ft)	0.003092	Area (sq ft)	7847.25	883.60	23.76
Q Total (cfs)	14816.00	Flow (cfs)	10519.74	4241.74	54.52
Top Width (ft)	4114.62	Top Width (ft)	3922.29	178.20	14.13
Vel Total (ft/s)	1.70	Avg. Vel. (ft/s)	1.34	4.80	2.29
Max Chl Dpth (ft)	6.01	Hydr. Depth (ft)	2.07	4.96	1.68
Conv. Total (cfs)	266435.6	Conv. (cfs)	189176.2	76279.1	980.4
Length Wtd. (ft)	498.30	Wetted Per. (ft)	3775.24	178.47	14.52
Min Ch El (ft)	1387.35	Shear (lb/sq ft)	0.40	0.96	0.32
Alpha	2.75	Stream Power (lb/ft s)	0.54	4.59	0.72
Frctn Loss (ft)	1.64	Cum Volume (acre-ft)	3877.55	534.05	193.04
C & E Loss (ft)	0.00	Cum SA (acres)	3206.51	109.76	319.11

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5567.99	6106.37	0.35	1.35	6.37	0.00	0.21	0.26
6106.37	6644.74	95.58	232.38	538.38	0.65	0.43	0.41
6644.74	7183.12	370.26	523.74	538.45	2.50	0.97	0.71
7183.12	7721.50	1185.97	1053.02	538.38	8.00	1.96	1.13
7721.50	8259.87	1092.23	1002.26	538.38	7.37	1.86	1.09
8259.87	8798.25	1827.88	1365.17	538.46	12.34	2.54	1.34
8798.25	9336.62	3294.36	1943.81	538.38	22.24	3.61	1.69
9336.62	9875.00	2653.13	1707.16	538.46	17.91	3.17	1.55
LB 9875.00	9910.64	528.90	133.99	35.65	3.57	3.76	3.95
9910.64	9946.28	727.37	162.22	35.65	4.91	4.55	4.48
9946.28	9981.92	945.98	189.92	35.65	6.38	5.33	4.98
9981.92	10017.56	1110.23	209.07	35.65	7.49	5.87	5.31
10017.56	RB 10053.20	929.25	188.40	35.88	6.27	5.29	4.93
10053.20	10056.38	27.02	9.49	3.27	0.18	2.99	2.85
10056.38	10059.56	16.60	7.09	3.27	0.11	2.23	2.34
10059.56	10062.74	8.31	4.68	3.27	0.06	1.47	1.78
10062.74	10065.92	2.49	2.27	3.27	0.02	0.71	1.10
10065.92	10069.10	0.10	0.24	1.45	0.00	0.17	0.42

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.382

INPUT

Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.

Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4480.79	1393.6	4500	1393.7	4750	1393.6	5375	1393.5	5760	1393.2
5810	1392.3	5900	1392	6190	1391.6	6900	1390.5	7160	1390
7180	1389.5	7210	1390	7245	1389.6	7500	1389.8	8245	1389.8
8505	1390	8520	1390.8	8535	1390	8895	1388.6	9570	1388.3
9795	1388.1	9825	1388.2	9835	1388	9845	1387.9	9855	1388
9880	1388	10000	1386.27	10050	1388	10065	1390	10080	1394
10085	1395.21								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4480.79	.1	9880	.05	10050	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9880	10050	905	657.07	660	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4480.79	5700	1394

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1391.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1391.73	Reach Len. (ft)	905.00	657.07	660.00
Crit W.S. (ft)	1390.49	Flow Area (sq ft)	7712.04	781.37	46.59
E.G. Slope (ft/ft)	0.003494	Area (sq ft)	7712.04	781.37	46.59
Q Total (cfs)	14816.00	Flow (cfs)	10886.46	3793.96	135.58
Top Width (ft)	3976.71	Top Width (ft)	3785.22	170.00	21.49
Vel Total (ft/s)	1.73	Avg. Vel. (ft/s)	1.41	4.86	2.91
Max Chl Dpth (ft)	5.46	Hydr. Depth (ft)	2.04	4.60	2.17
Conv. Total (cfs)	250643.4	Conv. (cfs)	184167.0	64182.7	2293.6
Length Wtd. (ft)	852.27	Wetted Per. (ft)	3785.28	170.04	21.85
Min Ch El (ft)	1386.27	Shear (lb/sq ft)	0.44	1.00	0.47
Alpha	2.52	Stream Power (lb/ft s)	0.63	4.87	1.35
Frctn Loss (ft)	2.31	Cum Volume (acre-ft)	3790.03	524.11	192.64
C & E Loss (ft)	0.02	Cum SA (acres)	3163.16	107.68	318.91

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5560.63	6100.55	0.00	0.02	5.77	0.00	0.00	0.02
6100.55	6640.47	95.76	222.59	539.92	0.65	0.41	0.43
6640.47	7180.40	635.74	693.03	539.93	4.29	1.28	0.92
7180.40	7720.32	1310.43	1069.63	539.93	8.84	1.98	1.23
7720.32	8260.24	1255.81	1042.65	539.92	8.48	1.93	1.20
8260.24	8800.16	1336.79	1082.52	539.97	9.02	2.00	1.23
8800.16	9340.08	2884.43	1717.19	539.92	19.47	3.18	1.68
9340.08	9880.00	3367.50	1884.38	539.92	22.73	3.49	1.79
LB 9880.00	9914.00	592.80	135.20	34.00	4.00	3.98	4.38
9914.00	9948.00	719.53	151.86	34.00	4.86	4.47	4.74
9948.00	9982.00	855.89	168.53	34.00	5.78	4.96	5.08
9982.00	10016.00	945.49	178.92	34.01	6.38	5.26	5.28
10016.00	RB 10050.00	680.26	146.86	34.02	4.59	4.32	4.63
10050.00	10053.50	43.64	12.24	3.53	0.29	3.50	3.56
10053.50	10057.00	34.38	10.61	3.53	0.23	3.03	3.24
10057.00	10060.50	26.02	8.98	3.53	0.18	2.56	2.90
10060.50	10064.00	18.62	7.34	3.53	0.13	2.10	2.54
10064.00	10067.50	10.66	5.29	3.60	0.07	1.51	2.01
10067.50	10071.00	2.26	2.09	3.62	0.02	0.60	1.08
10071.00	10074.50	0.01	0.03	0.51	0.00	0.07	0.25

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.258

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.

Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5413	1390.6	5468	1390	5938	1389.4	6523	1388.6	6743	1388.2
6773	1389	6793	1388	6853	1388	7333	1387	7403	1386.7
7603	1386.8	8028	1386.5	8148	1386	8183	1386	8213	1386.4
8413	1386	8518	1386.1	9158	1386	9463	1385.7	9573	1386
9748	1385.5	9833	1386	9853	1389	9893	1386	10003	1384.8
10048	1386	10083	1390						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5413	.1	9853	.05	10083	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9853	10083	1310	6494.89	6504.89	.1	.3

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1389.52	Element			
Vel Head (ft)	0.04	Wt. n-Val.	0.100	0.050	
W.S. Elev (ft)	1389.47	Reach Len. (ft)	1310.00	6494.89	6504.89
Crit W.S. (ft)		Flow Area (sq ft)	9834.60	762.35	
E.G. Slope (ft/ft)	0.002163	Area (sq ft)	9834.60	762.35	
Q Total (cfs)	14816.00	Flow (cfs)	12443.74	2372.26	
Top Width (ft)	4195.25	Top Width (ft)	3969.89	225.36	
Vel Total (ft/s)	1.40	Avg. Vel. (ft/s)	1.27	3.11	
Max Chl Dpth (ft)	4.67	Hydr. Depth (ft)	2.48	3.38	
Conv. Total (cfs)	318540.6	Conv. (cfs)	267537.5	51003.1	
Length Wtd. (ft)	3619.69	Wetted Per. (ft)	3970.16	225.70	
Min Ch El (ft)	1384.80	Shear (lb/sq ft)	0.33	0.46	
Alpha	1.48	Stream Power (lb/ft s)	0.42	1.42	
Frctn Loss (ft)	7.25	Cum Volume (acre-ft)	3607.76	512.46	192.29
C & E Loss (ft)	0.06	Cum SA (acres)	3082.60	104.70	318.75

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5857.00	6301.00	30.88	117.47	417.89	0.21	0.28	0.26
6301.00	6745.00	226.11	397.38	444.00	1.53	0.90	0.57
6745.00	7189.00	641.27	742.77	444.04	4.33	1.67	0.86
7189.00	7633.00	1313.35	1141.94	444.00	8.86	2.57	1.15
7633.00	8077.00	1565.14	1268.66	444.00	10.56	2.86	1.23
8077.00	8521.00	2020.35	1478.67	444.00	13.64	3.33	1.37
8521.00	8965.00	2096.70	1511.94	444.00	14.15	3.41	1.39
8965.00	9409.00	2229.76	1568.80	444.00	15.05	3.53	1.42
9409.00	9853.00	2320.17	1606.99	444.23	15.66	3.62	1.44
LB 9853.00	9899.00	220.76	99.82	46.11	1.49	2.17	2.21
9899.00	9945.00	559.20	174.18	46.00	3.77	3.79	3.21
9945.00	9991.00	688.10	197.26	46.00	4.64	4.29	3.49
9991.00	10037.00	695.95	198.62	46.01	4.70	4.32	3.50
10037.00	RB 10083.00	208.25	92.47	41.56	1.41	2.24	2.25

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 11.028

INPUT

Description:

Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-892.5	1386.4	-847.5	1386	-737.5	1385.7	-607.5	1385.6	12.5	1385.8
387.5	1385.5	437.5	1386	532.5	1384.3	807.5	1384	1307.5	1384
1417.5	1383.9	1437.5	1384	1467.5	1384	1587.5	1384	1622.5	1383.7
1812.5	1382.9	1847.5	1383.7	2587.5	1382	3097.5	1380.3	3137.5	1382
3167.5	1382.3	3192.5	1382	3237.5	1380	3247.5	1379.6	3267.5	1382
3287.5	1382.2	3307.5	1382	3377.5	1380	3672.5	1382	4047.5	1382
4157.5	1382.7	4192.5	1382	4417.5	1381.9	4552.5	1380.4	4707.5	1380
4822.5	1380	4937.5	1382	5022.5	1383	5127.5	1382	5157.5	1380
5262.5	1378	5387.5	1376.5	5477.5	1378	5837.5	1380	6142.5	1381
6312.5	1380	6727.5	1381	7427.5	1380.5	7777.5	1380.6	7887.5	1380.7
7907.5	1382	7942.5	1382	7977.5	1380.3	8387.5	1380.5	8817.5	1380.5
9117.5	1380	9177.5	1379.8	9457.5	1380	9582.5	1380.6	9647.5	1380
9677.5	1380	9827.5	1382	9857.5	1382.3	9877.5	1382	9912.5	1380
9942.5	1370.7	10057.5	1370.7	10127.5	1380	10272.5	1380	10487.5	1381
11137.5	1381.6	11447.5	1380.3	11807.5	1382	11957.5	1382	12317.5	1381
12757.5	1381.8	13042.5	1381.5	13132.5	1380.8	13267.5	1382	13372.5	1382
13457.5	1383.1	13492.5	1382	13647.5	1381	13697.5	1380.5	13762.5	1382
13767.5	1382.9	13777.5	1382	13787.5	1378	13797.5	1378	13822.5	1382

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-892.5	.1	3167.5	.05	3287.5	.035	5127.5	.05	9857.5	.03
10127.5	.05	13767.5	.015						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9857.5	10127.5	1530	1945.05	1230	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
11147.1	13760.97	1384.5

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1382.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.63	Wt. n-Val.	0.049	0.030	0.032
W.S. Elev (ft)	1381.57	Reach Len. (ft)	1530.00	1945.05	1230.00
Crit W.S. (ft)	1381.57	Flow Area (sq ft)	7534.66	1894.80	730.11
E.G. Slope (ft/ft)	0.001935	Area (sq ft)	7534.66	1894.80	1412.81
Q Total (cfs)	29700.00	Flow (cfs)	12243.40	16161.28	1295.32
Top Width (ft)	8637.02	Top Width (ft)	5839.46	242.56	2554.99
Vel Total (ft/s)	2.92	Avg. Vel. (ft/s)	1.62	8.53	1.77
Max Chl Dpth (ft)	10.87	Hydr. Depth (ft)	1.29	7.81	0.71
Conv. Total (cfs)	675183.3	Conv. (cfs)	278334.7	367401.5	29447.1
Length Wtd. (ft)		Wetted Per. (ft)	5839.88	244.63	1028.61
Min Ch El (ft)	1370.70	Shear (lb/sq ft)	0.16	0.94	0.09
Alpha	4.78	Stream Power (lb/ft s)	0.25	7.98	0.15
Frctn Loss (ft)		Cum Volume (acre-ft)	3346.58	314.37	86.80
C & E Loss (ft)		Cum SA (acres)	2935.10	69.82	127.97

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
2332.50	3407.50	337.38	412.38	559.66	1.14	0.74	0.82
3407.50	4482.50	176.81	145.81	238.03	0.60	0.61	1.21
4482.50	5557.50	5034.48	2007.52	854.29	16.95	2.35	2.51
5557.50	6632.50	2327.71	1549.84	1075.01	7.84	1.44	1.50
6632.50	7707.50	998.38	932.62	1075.00	3.36	0.87	1.07
7707.50	8782.50	1356.18	1099.52	1024.76	4.57	1.07	1.23
8782.50	9857.50	2012.47	1386.97	1013.13	6.78	1.37	1.45
LB 9857.50	9911.50	32.98	20.15	26.60	0.11	0.76	1.64
9911.50	9965.50	3427.69	438.41	55.41	11.54	8.12	7.82
9965.50	10019.50	5675.72	587.24	54.00	19.11	10.87	9.67
10019.50	10073.50	5395.08	570.24	54.14	18.17	10.56	9.46
10073.50	RB 10127.50	1629.83	278.75	54.47	5.49	5.16	5.85
10127.50	10497.00	616.18	464.86	369.50	2.07	1.26	1.33
10497.00	10866.50	89.56	146.14	369.50	0.30	0.40	0.61

10866.50	11236.00	7.21	27.45	247.36	0.02	0.11	0.26
11236.00	13453.00						
13453.00	13822.50	582.35	91.66	42.25	1.96	2.22	6.35

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 10.660

INPUT
Description:
Station Elevation Data num= 71

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-727.5	1377.6	-597.5	1378	-587.5	1380	-562.5	1380	42.5	1378
447.5	1378	582.5	1377.5	822.5	1377.9	1032.5	1377	1422.5	1376
1902.5	1375	2187.5	1374.4	2192.5	1376	2252.5	1380	2272.5	1380
2292.5	1378	2317.5	1376	2572.5	1375.5	2922.5	1375.3	3162.5	1375
3262.5	1374.8	3372.5	1374	3462.5	1372.7	3542.5	1374	3632.5	1376
4102.5	1377	4297.5	1376	4812.5	1375.4	5052.5	1376	5202.5	1378
5287.5	1378.4	5357.5	1378	5477.5	1376	5592.5	1374	5637.5	1372.9
5812.5	1374	5992.5	1374	6412.5	1375	6947.5	1375	7522.5	1374.8
7942.5	1375	8482.5	1375	8857.5	1375	9422.5	1375	9722.5	1375
9832.5	1376	9912.5	1374	9957.5	1368	10042.5	1366	10062.5	1374
10252.5	1375.4	10432.5	1376	10562.5	1376	10767.5	1375.8	10842.5	1376
10972.5	1375.7	11142.5	1376	11302.5	1375.6	11352.5	1376	11572.5	1377.5
11672.5	1376	11882.5	1375	12252.5	1376	12392.5	1376	12487.5	1375
12662.5	1376	12692.5	1376	12697.5	1374	12712.5	1374	12717.5	1376
12732.5	1377.3								

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-727.5	.1	2252.5	.05	3632.5	.035	5287.5	.05	9832.5	.03
10432.5	.05	12692.5	.015						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9832.5	10432.5	1400	2089.32	1050	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10448.24	11591.81	1378.67

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1376.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.051	0.030	0.041
W.S. Elev (ft)	1376.32	Reach Len. (ft)	1400.00	2089.32	1050.00
Crit W.S. (ft)	1375.88	Flow Area (sq ft)	9648.36	1683.62	809.58
E.G. Slope (ft/ft)	0.003106	Area (sq ft)	9648.36	1683.62	1222.45
Q Total (cfs)	29700.00	Flow (cfs)	19084.22	9225.99	1389.79
Top Width (ft)	10223.07	Top Width (ft)	7585.87	600.00	2037.19
Vel Total (ft/s)	2.45	Avg. Vel. (ft/s)	1.98	5.48	1.72
Max Chl Dpth (ft)	10.32	Hydr. Depth (ft)	1.27	2.81	0.75
Conv. Total (cfs)	532881.5	Conv. (cfs)	342411.7	165534.0	24935.9
Length Wtd. (ft)	1501.86	Wetted Per. (ft)	7586.24	601.99	1086.65
Min Ch El (ft)	1366.00	Shear (lb/sq ft)	0.25	0.54	0.14
Alpha	2.00	Stream Power (lb/ft s)	0.49	2.97	0.25
Frctn Loss (ft)	5.65	Cum Volume (acre-ft)	3044.82	234.48	49.59
C & E Loss (ft)	0.02	Cum SA (acres)	2699.33	51.01	63.14

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
328.50	1384.50	1.83	9.75	87.21	0.01	0.11	0.19
1384.50	2440.50	791.29	927.79	940.10	2.66	0.99	0.85
2440.50	3496.50	2829.87	1429.24	1056.02	9.53	1.35	1.98
3496.50	4552.50	747.97	396.88	604.52	2.52	0.66	1.88

4552.50	5608.50	1003.35	548.28	674.37	3.38	0.81	1.83
5608.50	6664.50	5403.37	2106.89	1056.01	18.19	2.00	2.56
6664.50	7720.50	3008.76	1482.77	1056.00	10.13	1.40	2.03
7720.50	8776.50	2756.11	1406.76	1056.00	9.28	1.33	1.96
8776.50	9832.50	2541.66	1340.02	1056.00	8.56	1.27	1.90
LB 9832.50	9952.50	1048.19	305.19	120.38	3.53	2.54	3.43
9952.50	10072.50	7294.85	981.49	121.61	24.56	8.18	7.43
10072.50	10192.50	593.26	216.63	120.00	2.00	1.81	2.74
10192.50	10312.50	214.90	117.79	120.00	0.72	0.98	1.82
10312.50	RB 10432.50	74.79	62.53	120.00	0.25	0.52	1.20
10432.50	10662.50	3.79	5.05	15.74	0.01	0.32	0.75
10662.50	11582.50						
11582.50	11812.50	106.95	95.05	161.41	0.36	0.59	1.13
11812.50	12042.50	444.90	257.58	230.00	1.50	1.12	1.73
12042.50	12272.50	148.67	133.44	230.00	0.50	0.58	1.11
12272.50	12502.50	152.88	135.70	230.01	0.51	0.59	1.13
12502.50	12732.50	532.62	182.76	219.49	1.79	0.84	2.91

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 10.264

INPUT
Description:
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1765	1374	-1755	1372.7	-1710	1372.7	-1175	1372	-780	1371.9
-720	1371.8	-685	1371.8	-400	1371.4	-365	1371.5	-330	1370.9
255	1370	590	1369.7	850	1368.6	1020	1374	1070	1374
1125	1372	1200	1370	1305	1368	1310	1367.5	1330	1368
1350	1370	1460	1371.8	1545	1370	1635	1369.4	1770	1369.8
1960	1369.5	2010	1368	2060	1367.7	2120	1368	2205	1370
2355	1372	2395	1372.5	2440	1372	2590	1370	2735	1368
2750	1366.6	2820	1368	3065	1369.5	3255	1368.7	3305	1370
3345	1370	3405	1370	3655	1369.8	3795	1369.9	3880	1369
3940	1370	4005	1372	4190	1372.6	4320	1372	4400	1370
4490	1368.2	4545	1370	4640	1369.2	4775	1369	4800	1370
4815	1369.8	4825	1370	4935	1370.6	4965	1370	5035	1368.6
5185	1370	5225	1372	5365	1373.6	5460	1372	5600	1370
5685	1368	5735	1367.7	5815	1368	6145	1370	6305	1369
6485	1370	6865	1370	7090	1370.3	7235	1370	7865	1370.5
7940	1370	8085	1368.5	8135	1369.4	8500	1368.9	8855	1370
9285	1370	9305	1372	9405	1374	9790	1374.6	9895	1374
9965	1361	10075	1361	10115	1370	10165	1372	10335	1376
10480	1370	11365	1370	11455	1369.3	11465	1370	11485	1372.1
11505	1366	11520	1366	11535	1372				

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-1765	.1	1070	.05	1305	.035	5600	.05	9790	.3
10335	.05	11485	.015						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9790	10335	1450	1900.36	1480	.1	.3

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1370.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.043	0.300	0.029
W.S. Elev (ft)	1370.72	Reach Len. (ft)	1450.00	1900.36	1480.00
Crit W.S. (ft)	1370.22	Flow Area (sq ft)	9273.83	1538.95	888.58
E.G. Slope (ft/ft)	0.004683	Area (sq ft)	9273.83	1538.95	888.58
Q Total (cfs)	29700.00	Flow (cfs)	24604.34	1894.90	3200.76
Top Width (ft)	9369.36	Top Width (ft)	8097.45	220.35	1051.55
Vel Total (ft/s)	2.54	Avg. Vel. (ft/s)	2.65	1.23	3.60
Max Chl Dpth (ft)	9.72	Hydr. Depth (ft)	1.15	6.98	0.85
Conv. Total (cfs)	434016.5	Conv. (cfs)	359551.8	27690.8	46773.9
Length Wtd. (ft)	1509.61	Wetted Per. (ft)	8098.09	222.26	1053.24
Min Ch El (ft)	1361.00	Shear (lb/sq ft)	0.33	2.02	0.25
Alpha	1.14	Stream Power (lb/ft s)	0.89	2.49	0.89
Frctn Loss (ft)	6.19	Cum Volume (acre-ft)	2740.74	157.19	24.15
C & E Loss (ft)	0.01	Cum SA (acres)	2447.30	31.33	25.91

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
-609.50	546.00	272.83	416.26	759.29	0.92	0.55	0.66
546.00	1701.50	2046.98	1023.41	782.53	6.89	1.31	2.00
1701.50	2857.00	6052.97	1509.50	878.72	20.38	1.72	4.01
2857.00	4012.50	4316.66	1351.37	1106.46	14.53	1.22	3.19
4012.50	5168.00	3141.26	979.36	796.93	10.58	1.23	3.21
5168.00	6323.50	3885.06	1350.26	805.40	13.08	1.68	2.88
6323.50	7479.00	1291.81	825.81	1155.50	4.35	0.71	1.56
7479.00	8634.50	2651.34	1271.29	1155.52	8.93	1.10	2.09
8634.50	9790.00	945.43	546.58	657.74	3.18	0.83	1.73
9790.00	9899.00						
9899.00	10008.00	795.02	672.37	96.24	2.68	7.05	1.18
10008.00	10117.00	1099.11	861.45	110.00	3.70	7.90	1.28
10117.00	10226.00	0.78	5.13	16.02	0.00	0.32	0.15
10226.00	10455.00						
10455.00	10575.00	115.30	74.72	112.43	0.39	0.66	1.54
10575.00	10695.00	140.80	86.46	120.00	0.47	0.72	1.63
10695.00	10815.00	140.80	86.46	120.00	0.47	0.72	1.63
10815.00	10935.00	140.80	86.46	120.00	0.47	0.72	1.63
10935.00	11055.00	140.80	86.46	120.00	0.47	0.72	1.63
11055.00	11175.00	140.80	86.46	120.00	0.47	0.72	1.63
11175.00	11295.00	140.80	86.46	120.00	0.47	0.72	1.63
11295.00	11415.00	168.16	96.18	120.00	0.57	0.80	1.75
11415.00	11535.00	2072.53	198.96	100.81	6.98	2.01	10.42

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 9.904

INPUT
Description:
Station Elevation Data num= 92

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-2240	1364.5	-1930	1364	-1160	1363	-570	1362	-480	1362
-425	1362.2	-380	1362	-360	1362.6	-260	1366	-240	1366
-220	1364	-205	1363.5	-140	1364	35	1364.5	210	1364
275	1364	510	1362	810	1364	935	1364	1290	1363
1690	1364	1890	1364	1935	1362.2	1970	1364	2360	1363.4
2420	1364	2670	1365.6	2780	1364	2940	1362	2970	1361.4
3030	1362	3110	1363.5	3210	1362.8	3335	1362.9	3410	1364
3450	1364	3750	1362.5	3910	1363.6	4050	1362	4070	1361.9
4105	1362	4205	1364	4340	1366	4465	1364	4600	1362
4635	1361.6	4665	1362	4740	1363.8	4880	1363.6	4915	1363.9
5100	1363	5290	1364	5480	1366	5600	1366.9	5730	1366
5855	1364	5980	1362	6060	1361.1	6170	1362	6435	1363
6540	1364	6870	1364.4	7065	1364	7355	1362.8	7730	1362.7
7995	1362.9	8130	1364	8165	1366	8195	1366.5	8220	1366
8280	1364	8520	1363	8785	1362.6	8960	1364	9095	1363.7
9230	1364	9495	1365	9525	1365.5	9870	1366	9935	1366
9965	1358	10035	1358	10070	1362	10145	1364	10200	1364
10245	1363.3	10275	1364	10315	1366	10330	1366	10335	1360
10350	1360	10380	1365.6						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-2240	.1	-240	.05	1690	.035	5730	.05	9935	.03
10145	.05	10330	.015						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9935	10145	2840	2412.12	2422.12	.1	.3

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1364.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.	0.049	0.030	0.017
W.S. Elev (ft)	1364.38	Reach Len. (ft)	2840.00	2412.12	2422.12
Crit W.S. (ft)		Flow Area (sq ft)	11236.30	779.70	202.15
E.G. Slope (ft/ft)	0.003597	Area (sq ft)	11236.30	779.70	202.15
Q Total (cfs)	29700.00	Flow (cfs)	22485.19	5643.08	1571.73
Top Width (ft)	10563.20	Top Width (ft)	10179.56	203.92	179.71
Vel Total (ft/s)	2.43	Avg. Vel. (ft/s)	2.00	7.24	7.77
Max Chl Dpth (ft)	6.38	Hydr. Depth (ft)	1.10	3.82	1.12
Conv. Total (cfs)	495222.3	Conv. (cfs)	374921.5	94093.6	26207.2
Length Wtd. (ft)	2756.18	Wetted Per. (ft)	10179.95	205.02	182.19
Min Ch El (ft)	1358.00	Shear (lb/sq ft)	0.25	0.85	0.25
Alpha	2.74	Stream Power (lb/ft s)	0.50	6.18	1.94
Frctn Loss (ft)	10.09	Cum Volume (acre-ft)	2399.38	106.62	5.62
C & E Loss (ft)	0.00	Cum SA (acres)	2143.10	22.08	5.00

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
-2240.00	-1022.50	691.01	928.00	1143.03	2.33	0.81	0.74
-1022.50	195.00	2022.64	1529.98	1049.64	6.81	1.46	1.32
195.00	1412.50	2260.04	1278.43	1217.52	7.61	1.05	1.77
1412.50	2630.00	1167.19	697.26	1066.95	3.93	0.65	1.67
2630.00	3847.50	4456.63	1486.05	1093.67	15.01	1.36	3.00
3847.50	5065.00	3639.72	1273.27	1006.97	12.25	1.26	2.86
5065.00	6282.50	3187.77	1177.88	712.37	10.73	1.65	2.71
6282.50	7500.00	1416.44	957.44	1191.07	4.77	0.80	1.48
7500.00	8717.50	2975.22	1440.09	1085.57	10.02	1.33	2.07
8717.50	9935.00	668.56	467.88	613.18	2.25	0.76	1.43
LB 9935.00	9977.00	1007.80	152.88	36.76	3.39	4.26	6.59
9977.00	10019.00	2349.61	267.96	42.00	7.91	6.38	8.77
10019.00	10061.00	1807.81	229.33	42.17	6.09	5.46	7.88
10061.00	10103.00	381.35	90.06	42.07	1.28	2.14	4.23
10103.00	RB 10145.00	96.53	39.47	42.01	0.33	0.94	2.45
10145.00	10168.50	7.52	8.93	23.50	0.03	0.38	0.84
10168.50	10192.00	7.52	8.93	23.50	0.03	0.38	0.84
10192.00	10215.50	10.32	10.80	23.50	0.03	0.46	0.96
10215.50	10239.00	26.20	18.89	23.50	0.09	0.80	1.39
10239.00	10262.50	32.57	21.52	23.51	0.11	0.92	1.51
10262.50	10286.00	6.97	8.01	20.11	0.02	0.40	0.87
10286.00	10309.50						
10309.50	10333.00	6.45	1.63	2.58	0.02	0.99	3.95
10333.00	10356.50	1281.20	96.58	24.74	4.31	4.11	13.27
10356.50	10380.00	192.97	26.86	17.26	0.65	1.58	7.18

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline *RS: 9.447*

INPUT
Description:
Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-3505	1354.8	-3325	1356	-3310	1356	-3260	1354	-2875	1354
-2505	1353.8	-2005	1354	-1525	1354	-1325	1354	-895	1354.1
-725	1354	-685	1354.7	-520	1358	-505	1358	-490	1356
30	1354	45	1353.4	65	1354	335	1354.8	865	1354.4
1075	1354	1435	1353	1920	1352.5	2055	1352.4	2595	1354
2735	1354	3375	1353.5	3600	1353	3735	1354	3845	1353.1
3945	1353.3	4230	1353	4685	1353.3	5125	1353	5620	1353
6215	1352	6380	1354	6505	1356	6550	1356	6680	1354
6775	1352	6825	1350.9	6875	1352	6915	1354	6935	1352
6965	1350.1	6985	1352	7045	1354	7125	1354	7315	1353
7555	1354	7645	1356	7775	1356	7985	1354	8225	1352.8
8495	1354	8645	1353	8745	1352	8775	1350	8795	1348
8820	1348	8875	1352	9165	1353.5	9245	1354	9495	1354

9675	1353.6	9875	1354	9885	1356	9915	1357.8	9970	1348
10030	1348	10040	1354	10055	1355.9				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-3505	.1	-505	.05	3600	.035	9165	.05	9915	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9915	10055	1600	1887.23	1897.23	.1	.3

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1354.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.	0.039	0.030	
W.S. Elev (ft)	1354.29	Reach Len. (ft)	1600.00	1887.23	1897.23
Crit W.S. (ft)		Flow Area (sq ft)	10127.03	521.86	
E.G. Slope (ft/ft)	0.003733	Area (sq ft)	10127.03	521.86	
Q Total (cfs)	29700.00	Flow (cfs)	25236.90	4463.10	
Top Width (ft)	11181.65	Top Width (ft)	11074.04	107.62	
Vel Total (ft/s)	2.79	Avg. Vel. (ft/s)	2.49	8.55	
Max Chl Dpth (ft)	6.29	Hydr. Depth (ft)	0.91	4.85	
Conv. Total (cfs)	486074.3	Conv. (cfs)	413030.5	73043.8	
Length Wtd. (ft)	1653.88	Wetted Per. (ft)	11074.85	109.85	
Min Ch El (ft)	1348.00	Shear (lb/sq ft)	0.21	1.11	
Alpha	2.09	Stream Power (lb/ft s)	0.53	9.47	
Frctn Loss (ft)	6.36	Cum Volume (acre-ft)	1702.96	70.58	
C & E Loss (ft)	0.03	Cum SA (acres)	1450.26	13.45	

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
-3505.00	-2163.00	179.86	403.24	1104.30	0.61	0.37	0.45
-2163.00	-821.00	136.48	369.40	1342.00	0.46	0.28	0.37
-821.00	521.00	38.93	73.91	322.09	0.13	0.23	0.53
521.00	1863.00	1683.19	954.79	941.22	5.67	1.01	1.76
1863.00	3205.00	1953.07	1203.05	1342.00	6.58	0.90	1.62
3205.00	4547.00	3169.42	1357.27	1342.01	10.67	1.01	2.34
4547.00	5889.00	4932.53	1693.37	1342.00	16.61	1.26	2.91
5889.00	7231.00	5651.76	1684.33	1079.61	19.03	1.56	3.36
7231.00	8573.00	1714.70	784.27	955.80	5.77	0.82	2.19
8573.00	9915.00	5776.97	1603.45	1303.81	19.45	1.23	3.60
LB 9915.00	9943.00	13.97	6.15	8.44	0.05	0.74	2.27
9943.00	9971.00	774.21	111.23	28.43	2.61	3.97	6.96
9971.00	9999.00	1683.13	176.17	28.00	5.67	6.29	9.55
9999.00	10027.00	1683.13	176.17	28.00	5.67	6.29	9.55
10027.00	RB 10055.00	308.63	52.13	16.98	1.04	3.41	5.92

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 9.090

INPUT
Description:
Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-3460	1348.5	-3410	1348.2	-3385	1348.8	-3130	1348.5	-2820	1348
-2280	1347.5	-2150	1347.1	-2105	1348	-1975	1347.5	-1815	1347.3
-1775	1348	-1660	1348	-1240	1347	-910	1346	-560	1350.5
-460	1345.5	-230	1346	-30	1346	-15	1344	10	1342
20	1344	60	1346	370	1347.9	950	1348	1100	1348
1450	1347	1970	1347.1	2140	1347.8	2670	1346.8	3375	1348
3575	1348	4350	1347	4670	1347	4780	1347.7	5275	1347.7
5590	1347.7	5750	1347.5	5950	1347.2	6010	1348	6130	1348.3
6240	1348.3	6285	1348	6330	1347.2	6490	1347.1	6610	1346.8
7020	1346.9	7290	1346.9	7510	1346	7610	1345.8	7675	1346
7740	1346.5	7770	1346	7820	1344.7	7950	1346	8105	1348

8200	1348	8440	1346.9	8620	1346	8780	1344	8805	1345.6
8865	1344	9030	1344	9070	1346	9220	1344.6	9465	1346
9680	1347	9860	1348	9910	1350	9935	1350	9980	1338
10020	1338	10030	1348	10080	1349.4				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-3460	.1	-560	.05	2140	.035	9465	.05	9935	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9935	10080	2400	1819.85	1829.85	.1	.3

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1348.17	Element			
Vel Head (ft)	0.51	Wt. n-Val.	0.039	0.030	
W.S. Elev (ft)	1347.66	Reach Len. (ft)	2400.00	1819.85	1829.85
Crit W.S. (ft)	1347.66	Flow Area (sq ft)	8158.38	607.67	
E.G. Slope (ft/ft)	0.003885	Area (sq ft)	8158.38	607.67	
Q Total (cfs)	29700.00	Flow (cfs)	23053.41	6646.59	
Top Width (ft)	8628.66	Top Width (ft)	8542.79	85.87	
Vel Total (ft/s)	3.39	Avg. Vel. (ft/s)	2.83	10.94	
Max Chl Dpth (ft)	9.66	Hydr. Depth (ft)	0.96	7.08	
Conv. Total (cfs)	476470.6	Conv. (cfs)	369840.7	106629.8	
Length Wtd. (ft)	2304.13	Wetted Per. (ft)	8543.55	91.13	
Min Ch El (ft)	1338.00	Shear (lb/sq ft)	0.23	1.62	
Alpha	2.87	Stream Power (lb/ft s)	0.65	17.69	
Frctn Loss (ft)	8.75	Cum Volume (acre-ft)	1367.14	46.11	
C & E Loss (ft)	0.11	Cum SA (acres)	1089.99	9.26	

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
-3460.00	-2120.50	20.58	67.11	326.16	0.07	0.21	0.31
-2120.50	-781.00	415.68	626.13	955.14	1.40	0.66	0.66
-781.00	558.50	3270.11	1348.72	833.80	11.01	1.62	2.42
558.50	1898.00	396.12	349.81	677.56	1.33	0.52	1.13
1898.00	3237.50	655.85	487.31	1163.41	2.21	0.42	1.35
3237.50	4577.00	451.35	315.58	735.31	1.52	0.43	1.43
4577.00	5916.50	174.32	151.27	487.31	0.59	0.31	1.15
5916.50	7256.00	1377.76	702.50	1019.34	4.64	0.69	1.96
7256.00	8595.50	4399.64	1475.89	1142.80	14.81	1.29	2.98
8595.50	9935.00	11892.00	2634.03	1202.71	40.04	2.19	4.51
LB 9935.00	9964.00	285.33	54.46	20.92	0.96	2.69	5.24
9964.00	9993.00	2794.74	245.89	29.56	9.41	8.48	11.37
9993.00	10022.00	3408.93	278.02	29.83	11.48	9.59	12.26
10022.00	10051.00	157.58	29.31	10.83	0.53	3.83	5.38

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 8.745

INPUT
Description:
Station Elevation Data num= 69

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

-2355	1338.7	-2275	1338	-2255	1334	-2240	1334	-2200	1342
-2175	1342	-2005	1342	-1870	1342	-1835	1340	-1825	1338
-1720	1338	-1420	1337	-1105	1337.7	-1040	1337.5	-785	1337
325	1337.6	375	1338	445	1338	455	1336	480	1336
485	1338	685	1337	1295	1336	1750	1337.4	1815	1338
1865	1338	1895	1337.5	1925	1338	2115	1338	3195	1338
3525	1338	3595	1337.5	3755	1338	3775	1338	3935	1337
4445	1337.5	4495	1338	4755	1338	4825	1337	5535	1337
5550	1338	5575	1340	5695	1340	5825	1338	5885	1337
6255	1336	6855	1336.5	7555	1337	7705	1336	7845	1335.5
8075	1336	8170	1338	8375	1338.9	8495	1338	8725	1336
8755	1336	8995	1337.5	9275	1337.4	9325	1337.7	9455	1337
9485	1336.7	9645	1337.3	9835	1338	9865	1339.7	9870	1338.7
9945	1340	9985	1332	10015	1332	10055	1340		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-2355	.05	-1040	.05	685	.15	6855	.035	9945	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9945	10055	2100	2814.07	2824.07	.1	.3

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1338.62	Element			
Vel Head (ft)	0.15	Wt. n-Val.	0.061	0.030	
W.S. Elev (ft)	1338.47	Reach Len. (ft)	2100.00	2814.07	2824.07
Crit W.S. (ft)		Flow Area (sq ft)	14514.82	403.09	
E.G. Slope (ft/ft)	0.003716	Area (sq ft)	14514.82	403.09	
Q Total (cfs)	29700.00	Flow (cfs)	26531.04	3168.96	
Top Width (ft)	11480.59	Top Width (ft)	11385.92	94.67	
Vel Total (ft/s)	1.99	Avg. Vel. (ft/s)	1.83	7.86	
Max Chl Dpth (ft)	6.47	Hydr. Depth (ft)	1.27	4.26	
Conv. Total (cfs)	487191.7	Conv. (cfs)	435208.9	51982.8	
Length Wtd. (ft)	2174.14	Wetted Per. (ft)	11387.56	95.95	
Min Ch El (ft)	1332.00	Shear (lb/sq ft)	0.30	0.97	
Alpha	2.42	Stream Power (lb/ft s)	0.54	7.66	
Frctn Loss (ft)	7.59	Cum Volume (acre-ft)	742.53	25.00	
C & E Loss (ft)	0.00	Cum SA (acres)	540.99	5.49	

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
-2355.00	-1125.00	1587.21	854.19	813.89	5.34	1.05	1.86
-1125.00	105.00	2990.91	1473.63	1230.00	10.07	1.20	2.03
105.00	1335.00	2176.29	1842.63	1230.59	7.33	1.50	1.18
1335.00	2565.00	633.37	1122.47	1230.01	2.13	0.91	0.56
2565.00	3795.00	243.65	632.76	1230.00	0.82	0.51	0.39
3795.00	5025.00	791.18	1282.76	1230.01	2.66	1.04	0.62
5025.00	6255.00	1261.31	1556.61	991.23	4.25	1.57	0.81
6255.00	7485.00	5438.90	2427.28	1230.00	18.31	1.97	2.24
7485.00	8715.00	7122.71	1896.35	1073.55	23.98	1.77	3.76
8715.00	9945.00	4285.51	1426.16	1128.26	14.43	1.26	3.00
LB 9945.00	9967.00	69.20	20.55	14.62	0.23	1.43	3.37
9967.00	9989.00	852.49	109.87	22.36	2.87	4.99	7.76
9989.00	10011.00	1325.57	142.27	22.00	4.46	6.47	9.32
10011.00	10033.00	852.49	109.87	22.36	2.87	4.99	7.76
10033.00	RB 10055.00	69.20	20.55	14.62	0.23	1.43	3.37

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 8.212

INPUT
Description:
Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-2205	1334	-2190	1332	-2185	1330	-2170	1330	-2120	1336
-2090	1338	-1900	1338	-1785	1334	-1440	1332	-1055	1330
-1025	1332	-985	1332	-805	1330	-665	1330	-525	1329
-325	1329.5	-35	1329.5	355	1330	425	1330	1045	1329.5
1205	1330	1745	1330	1850	1329.7	1965	1330	2285	1329
2585	1329.7	2845	1329.5	2975	1330	3415	1330.5	3680	1330
3805	1330	3980	1330.5	4145	1330	4155	1329.6	4705	1329.5
5455	1328.5	5645	1328	5995	1329	6295	1329	6845	1328.5
7265	1328.5	7400	1328	7425	1324	7465	1324	7505	1328
7955	1329.5	8455	1329.5	9065	1330	9270	1329.5	9705	1329.5
9830	1329	9865	1329.7	9895	1328	9910	1326.6	9915	1328
9935	1328	9965	1330	9995	1322.5	10005	1322.5	10045	1332

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-2205	.05	-985	.035	355	.15	7400	.035	9965	.03

Bank Sta: Left	Right	Coeff Contr.	Expan.
9965	10045	.1	.3

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1331.02	Element			
Vel Head (ft)	0.14	Wt. n-Val.	0.068	0.030	
W.S. Elev (ft)	1330.88	Reach Len. (ft)			
Crit W.S. (ft)	1330.41	Flow Area (sq ft)	16289.66	370.81	
E.G. Slope (ft/ft)	0.003304	Area (sq ft)	16289.66	370.81	
Q Total (cfs)	29700.00	Flow (cfs)	26694.95	3005.05	
Top Width (ft)	11132.73	Top Width (ft)	11057.43	75.30	
Vel Total (ft/s)	1.78	Avg. Vel. (ft/s)	1.64	8.10	
Max Chl Dpth (ft)	8.38	Hydr. Depth (ft)	1.47	4.92	
Conv. Total (cfs)	516735.3	Conv. (cfs)	464451.9	52283.4	
Length Wtd. (ft)		Wetted Per. (ft)	11058.61	77.20	
Min Ch El (ft)	1322.50	Shear (lb/sq ft)	0.30	0.99	
Alpha	2.85	Stream Power (lb/ft s)	0.50	8.03	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
-2205.00	-988.00	94.18	98.47	208.16	0.32	0.47	0.96
-988.00	229.00	3674.47	1401.03	1113.53	12.37	1.26	2.62
229.00	1446.00	900.43	1280.45	1217.00	3.03	1.05	0.70
1446.00	2663.00	894.41	1489.03	1217.00	3.01	1.22	0.60
2663.00	3880.00	461.99	1001.75	1217.00	1.56	0.82	0.46
3880.00	5097.00	952.45	1546.27	1217.01	3.21	1.27	0.62
5097.00	6314.00	2416.82	2703.50	1217.00	8.14	2.22	0.89
6314.00	7531.00	6706.09	3160.72	1217.52	22.58	2.60	2.12
7531.00	8748.00	5999.59	1948.22	1217.00	20.20	1.60	3.08
8748.00	9965.00	4594.54	1660.22	1217.38	15.47	1.36	2.77
LB 9965.00	9981.00	230.41	46.14	16.49	0.78	2.88	4.99
9981.00	9997.00	977.44	109.64	16.43	3.29	6.85	8.92
9997.00	10013.00	1251.85	126.54	16.22	4.21	7.91	9.89
10013.00	10029.00	499.79	73.34	16.45	1.68	4.58	6.81
10029.00	RB 10045.00	45.56	15.16	11.61	0.15	1.34	3.00

Warning: Divided flow computed for this cross-section.

SUMMARY OF MANNING'S N VALUES

River:Powerline FRS

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7
Powerline	20.000	.022	.022	.022				
Powerline	19.963	.05	.022	.05				
Powerline	19.925	.022	.022	.022				

Powerline	19.905	.022	.022	.022		
Powerline	19.901	.05	.022	.05		
Powerline	19.879	.05	.015	.05		
Powerline	19.806	.05	.015	.05		
Powerline	19.727	.05	.015	.05		
Powerline	19.643	.05	.015	.05		
Powerline	19.544	.05	.015	.05		
Powerline	19.456	.05	.015	.05		
Powerline	19.369	.05	.015	.05		
Powerline	19.278	.05	.015	.05		
Powerline	19.191	.05	.015	.05		
Powerline	19.100	.05	.015	.05		
Powerline	18.999	.05	.015	.05		
Powerline	18.905	.05	.015	.05		
Powerline	18.814	.05	.015	.05		
Powerline	18.729	.05	.015	.05		
Powerline	18.703	.05	.015	.05		
Powerline	18.612	.05	.015	.05		
Powerline	18.520	.05	.015	.05		
Powerline	18.429	.05	.015	.05		
Powerline	18.339	.05	.015	.05		
Powerline	18.245	.05	.015	.05		
Powerline	18.153	.05	.015	.05		
Powerline	18.059	.05	.015	.05		
Powerline	17.964	.05	.015	.05		
Powerline	17.873	.05	.015	.05		
Powerline	17.778	.05	.015	.05		
Powerline	17.684	.05	.015	.05		
Powerline	17.590	.05	.015	.05		
Powerline	17.494	.05	.015	.05		
Powerline	17.405	.05	.015	.05		
Powerline	17.309	.05	.015	.05		
Powerline	17.218	.05	.015	.05		
Powerline	17.134	.05	.015	.05		
Powerline	17.044	.05	.015	.05		
Powerline	16.945	.05	.015	.05		
Powerline	16.849	.05	.015	.05		
Powerline	16.753	.05	.015	.05		
Powerline	16.665	.05	.015	.05		
Powerline	16.575	.05	.015	.05		
Powerline	16.468	.05	.015	.05		
Powerline	16.373	.05	.015	.05		
Powerline	16.275	.05	.015	.05		
Powerline	16.185	.05	.015	.05		
Powerline	16.087	.05	.015	.05		
Powerline	15.995	.05	.015	.05		
Powerline	15.913	.05	.015	.05		
Powerline	15.717	.05	.05	.05		
Powerline	15.529	.05	.05	.05		
Powerline	15.364	.05	.05	.05		
Powerline	15.177	.05	.05	.05		
Powerline	14.988	.05	.05	.05		
Powerline	14.890	.05	.05	.05		
Powerline	14.790	.05	.05	.05		
Powerline	14.691	.05	.05	.05		
Powerline	14.601	.05	.05	.05		
Powerline	14.504	.1	.05	.05	.05	
Powerline	14.410	.1	.022	.05	.05	.05
Powerline	14.313	.1	.05	.05	.05	
Powerline	14.218	.1	.05	.05		
Powerline	13.940	.1	.05	.05		
Powerline	13.750	.1	.05	.05		
Powerline	13.560	.1	.05	.05		
Powerline	13.355	.1	.05	.05		
Powerline	13.145	.022	.05			
Powerline	13.111	.1	.05	.05		
Powerline	13.054	.1	.05	.05		
Powerline	12.958	.1	.05	.05		
Powerline	12.867	.1	.05	.05		
Powerline	12.770	.1	.05	.05		
Powerline	12.674	.1	.05	.05		
Powerline	12.576	.1	.05	.05		
Powerline	12.481	.1	.05	.05		
Powerline	12.382	.1	.05	.05		
Powerline	12.258	.1	.05	.05		

Powerline	11.028	.1	.05	.035	.05	.03	.05
.015							
Powerline	10.660	.1	.05	.035	.05	.03	.05
.015							
Powerline	10.264	.1	.05	.035	.05	.3	.05
.015							
Powerline	9.904	.1	.05	.035	.05	.03	.05
.015							
Powerline	9.447	.1	.05	.035	.05	.03	
Powerline	9.090	.1	.05	.035	.05	.03	
Powerline	8.745	.05	.05	.15	.035	.03	
Powerline	8.212	.05	.035	.15	.035	.03	

SUMMARY OF REACH LENGTHS

River: Powerline FRS

Reach	River Sta.	Left	Channel	Right
Powerline	20.000	194.05	193.94	194.05
Powerline	19.963	202.72	203.44	202.72
Powerline	19.925	106	105.38	106
Powerline	19.905	23	22.1	23
Powerline	19.901	213.82	249.12	282.84
Powerline	19.879	215.31	249.97	212.05
Powerline	19.806	420.97	416.55	422.34
Powerline	19.727	479.98	444.3	444.2
Powerline	19.643	447.66	524.77	489.6
Powerline	19.544	454.81	461.63	449.09
Powerline	19.456	471.43	458.83	474.45
Powerline	19.369	470.44	483.62	480.37
Powerline	19.278	479.41	456.95	473.4
Powerline	19.191	473.38	480.01	494.92
Powerline	19.100	498.88	532.81	502.11
Powerline	18.999	550.8	497.5	512.71
Powerline	18.905	497.15	483.04	572.01
Powerline	18.814	468.36	449.54	498.59
Powerline	18.729	79.54	137.44	117.14
Powerline	18.703	420.6	479.13	473.13
Powerline	18.612	439.72	484.69	514.43
Powerline	18.520	522.38	479.05	425.04
Powerline	18.429	544.04	475.03	439.46
Powerline	18.339	457.74	497.49	511.08
Powerline	18.245	487.77	484.36	558.91
Powerline	18.153	560.42	500	528.17
Powerline	18.059	463.51	500.02	509.99
Powerline	17.964	490.55	480	439.57
Powerline	17.873	490.49	500	414.21
Powerline	17.778	487.24	500.01	490.5
Powerline	17.684	529.26	495.97	402.35
Powerline	17.590	519.2	503.87	537.11
Powerline	17.494	473.59	472.04	447.11
Powerline	17.405	541.31	508.19	481.14
Powerline	17.309	501.66	476.06	493.7
Powerline	17.218	440	446.85	550
Powerline	17.134	500	476.47	600
Powerline	17.044	500	522.73	550
Powerline	16.945	500	506.37	550
Powerline	16.849	480	507.71	530
Powerline	16.753	500	461.9	500
Powerline	16.665	480	477.33	480
Powerline	16.575	510	563.38	510
Powerline	16.468	500	500.95	490
Powerline	16.373	530	518.74	519
Powerline	16.275	630	472.49	490
Powerline	16.185	675	516.84	450
Powerline	16.087	260	486.13	485
Powerline	15.995	260	436.69	435
Powerline	15.913	280	1031.89	1240
Powerline	15.717	430	996.46	996
Powerline	15.529	490	867.21	867
Powerline	15.364	350	990.02	990
Powerline	15.177	1120	997.61	880

Powerline	14.988	920	519.08	450
Powerline	14.890	730	525.77	520
Powerline	14.790	650	523.64	525
Powerline	14.691	640	474.31	475
Powerline	14.601	590	512.1	490
Powerline	14.504	530	493.52	493.52
Powerline	14.410	475	515.27	515.27
Powerline	14.313	498.87	498.87	500
Powerline	14.218	225	1472.18	1500
Powerline	13.940	200	1001.12	1001.12
Powerline	13.750	215	1003.33	1003.33
Powerline	13.560	400	1080.06	1080.06
Powerline	13.355	760	1112.17	1115
Powerline	13.145	475	178.89	180
Powerline	13.111	325	301.73	270
Powerline	13.054	500	505.01	500
Powerline	12.958	670	479.11	500
Powerline	12.867	590	514.81	500
Powerline	12.770	220	506.56	500
Powerline	12.674	690	518.48	500
Powerline	12.576	490	502.49	500
Powerline	12.481	490	520.37	500
Powerline	12.382	905	657.07	660
Powerline	12.258	1310	6494.89	6504.89
Powerline	11.028	1530	1945.05	1230
Powerline	10.660	1400	2089.32	1050
Powerline	10.264	1450	1900.36	1480
Powerline	9.904	2840	2412.12	2422.12
Powerline	9.447	1600	1887.23	1897.23
Powerline	9.090	2400	1819.85	1829.85
Powerline	8.745	2100	2814.07	2824.07
Powerline	8.212			

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Powerline FRS

Reach	River Sta.	Contr.	Expan.
Powerline	20.000	.3	.5
Powerline	19.963	.3	.5
Powerline	19.925	.3	.5
Powerline	19.905	.3	.5
Powerline	19.901	.3	.5
Powerline	19.879	.3	.5
Powerline	19.806	.3	.5
Powerline	19.727	.3	.5
Powerline	19.643	.3	.5
Powerline	19.544	.3	.5
Powerline	19.456	.3	.5
Powerline	19.369	.3	.5
Powerline	19.278	.3	.5
Powerline	19.191	.3	.5
Powerline	19.100	.3	.5
Powerline	18.999	.3	.5
Powerline	18.905	.3	.5
Powerline	18.814	.3	.5
Powerline	18.729	.3	.5
Powerline	18.703	.3	.5
Powerline	18.612	.3	.5
Powerline	18.520	.1	.3
Powerline	18.429	.1	.3
Powerline	18.339	.1	.3
Powerline	18.245	.1	.3
Powerline	18.153	.1	.3
Powerline	18.059	.1	.3
Powerline	17.964	.1	.3
Powerline	17.873	.1	.3
Powerline	17.778	.1	.3
Powerline	17.684	.1	.3
Powerline	17.590	.1	.3
Powerline	17.494	.1	.3
Powerline	17.405	.1	.3

Powerline	17.309	.1	.3
Powerline	17.218	.1	.3
Powerline	17.134	.1	.3
Powerline	17.044	.1	.3
Powerline	16.945	.1	.3
Powerline	16.849	.1	.3
Powerline	16.753	.1	.3
Powerline	16.665	.1	.3
Powerline	16.575	.1	.3
Powerline	16.468	.1	.3
Powerline	16.373	.1	.3
Powerline	16.275	.1	.3
Powerline	16.185	.1	.3
Powerline	16.087	.1	.3
Powerline	15.995	.1	.3
Powerline	15.913	.1	.3
Powerline	15.717	.1	.3
Powerline	15.529	.1	.3
Powerline	15.364	.1	.3
Powerline	15.177	.1	.3
Powerline	14.988	.1	.3
Powerline	14.890	.1	.3
Powerline	14.790	.1	.3
Powerline	14.691	.1	.3
Powerline	14.601	.1	.3
Powerline	14.504	.1	.3
Powerline	14.410	.1	.3
Powerline	14.313	.1	.3
Powerline	14.218	.1	.3
Powerline	13.940	.1	.3
Powerline	13.750	.1	.3
Powerline	13.560	.1	.3
Powerline	13.355	.1	.3
Powerline	13.145	.1	.3
Powerline	13.111	.1	.3
Powerline	13.054	.1	.3
Powerline	12.958	.1	.3
Powerline	12.867	.1	.3
Powerline	12.770	.1	.3
Powerline	12.674	.1	.3
Powerline	12.576	.1	.3
Powerline	12.481	.1	.3
Powerline	12.382	.1	.3
Powerline	12.258	.1	.3
Powerline	11.028	.1	.3
Powerline	10.660	.1	.3
Powerline	10.264	.1	.3
Powerline	9.904	.1	.3
Powerline	9.447	.1	.3
Powerline	9.090	.1	.3
Powerline	8.745	.1	.3
Powerline	8.212	.1	.3

Profile Output Table - Standard Table 1

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Powerline	20.000	20000.00	1565.65	1569.09		1569.57	0.002185	5.53	3615.70	1558.77	0.64
Powerline	19.963	20000.00	1561.85	1569.22		1569.31	0.000132	2.31	8662.58	1687.12	0.18
Powerline	19.925	20000.00	1565.93	1568.90	1568.00	1569.18	0.001285	4.30	4642.89	12879.48	0.49
Powerline	19.905	20000.00	1566.25	1568.10	1568.10	1568.80	0.006085	6.62	2973.70	11708.16	0.98
Powerline	19.901	20000.00	1565.51	1567.63	1567.63	1568.37	0.006688	7.13	3064.00	7295.58	1.04
Powerline	19.879	20000.00	1556.58	1562.74	1562.22	1563.11	0.007223	4.34	4276.96	7318.88	0.57
Powerline	19.806	20000.00	1555.20	1561.06	1560.43	1561.41	0.007102	3.90	4506.95	7322.46	0.58
Powerline	19.727	20000.00	1552.91	1558.27	1557.77	1558.61	0.006219	3.27	4764.03	7024.86	0.58
Powerline	19.643	20000.00	1550.45	1555.04	1554.52	1555.32	0.007862	3.56	4990.15	6971.43	0.66
Powerline	19.544	20000.00	1547.56	1552.39	1551.72	1552.58	0.004434	3.62	6045.64	6986.55	0.75
Powerline	19.456	20000.00	1544.96	1549.56	1549.22	1549.80	0.008751	4.35	5339.91	7003.06	0.91
Powerline	19.369	20000.00	1542.48	1546.56	1545.89	1546.73	0.004983	3.44	6499.71	7062.48	0.59
Powerline	19.278	20000.00	1539.81	1543.53	1543.17	1543.74	0.008060	5.44	5766.74	7035.89	1.06
Powerline	19.191	20000.00	1536.91	1539.92	1539.41	1540.08	0.007239	5.38	6294.63	6775.61	1.61
Powerline	19.100	20000.00	1533.24	1536.88	1536.36	1537.06	0.005473	12.19	7180.32	7156.52	1.42
Powerline	18.999	20000.00	1529.22	1533.08	1532.88	1533.43	0.009685	16.70	5959.86	6352.21	1.89
Powerline	18.905	20000.00	1525.63	1529.76	1529.21	1529.96	0.004541	11.88	7228.14	6891.21	1.32
Powerline	18.814	20000.00	1521.99	1526.52	1526.43	1526.86	0.007365	15.64	6388.19	6600.33	1.68
Powerline	18.729	20000.00	1518.59	1523.75	1523.39	1523.97	0.004758	11.62	7239.51	6216.24	1.34
Powerline	18.703	20000.00	1520.00	1523.02	1522.82	1523.34	0.006928	14.69	6219.49	5229.16	1.64
Powerline	18.612	20000.00	1514.00	1519.78	1519.78	1520.30	0.006103	16.83	6436.31	5433.73	1.60
Powerline	18.520	20000.00	1510.95	1516.23	1516.11	1516.64	0.005657	15.26	6213.92	4733.71	1.52
Powerline	18.429	20000.00	1508.13	1513.52	1513.51	1513.97	0.006390	16.49	6631.45	5503.60	1.62
Powerline	18.339	20000.00	1505.46	1510.94	1510.84	1511.26	0.005002	14.36	7357.93	5608.56	1.43
Powerline	18.245	20000.00	1502.35	1508.01	1508.00	1508.53	0.006120	16.66	6331.62	4987.62	1.60
Powerline	18.153	20000.00	1499.32	1504.73	1504.72	1505.21	0.006289	16.27	6150.34	4611.69	1.61
Powerline	18.059	20000.00	1496.48	1501.53	1501.42	1501.92	0.005919	15.16	6396.77	5442.25	1.55
Powerline	17.964	20000.00	1493.27	1498.26	1498.26	1498.70	0.007047	16.41	6529.07	6148.08	1.69
Powerline	17.873	20000.00	1490.63	1495.10	1495.07	1495.46	0.007141	15.61	6452.25	7249.83	1.67
Powerline	17.778	20000.00	1487.44	1492.31	1492.16	1492.60	0.005895	14.61	7771.60	8511.74	1.53
Powerline	17.684	20000.00	1484.90	1489.01	1488.87	1489.31	0.007699	15.00	6560.58	6365.88	1.71
Powerline	17.590	20000.00	1481.95	1486.06	1485.71	1486.27	0.005480	12.67	7301.18	6057.09	1.44
Powerline	17.494	20000.00	1478.10	1482.58	1482.41	1482.93	0.007368	15.37	6067.88	4828.61	1.69
Powerline	17.405	20000.00	1474.60	1479.55	1479.36	1479.93	0.005786	14.83	6049.16	4301.46	1.53
Powerline	17.309	20000.00	1470.98	1476.11	1476.11	1476.65	0.007236	16.87	5663.79	4201.93	1.72
Powerline	17.218	20000.00	1467.93	1473.24	1472.93	1473.53	0.004189	13.27	7252.15	5075.36	1.32
Powerline	17.134	20000.00	1463.60	1469.95	1469.95	1470.65	0.008498	18.02	5315.30	3963.30	1.86
Powerline	17.044	20000.00	1460.00	1467.43	1467.43	1468.01	0.002658	14.33	7970.97	5464.26	1.14
Powerline	16.945	20000.00	1457.50	1464.50	1464.50	1465.02	0.002509	14.35	8841.56	6191.25	1.12
Powerline	16.849	20000.00	1454.80	1460.63	1459.98	1460.85	0.003817	11.28	7247.48	5007.41	1.23
Powerline	16.753	20000.00	1451.80	1457.25	1457.24	1457.76	0.010244	17.33	5059.31	4463.29	1.96
Powerline	16.665	20000.00	1449.20	1454.45	1454.45	1454.95	0.003573	15.35	7669.72	6587.40	1.31
Powerline	16.575	20000.00	1446.00	1451.83	1451.61	1452.20	0.004348	15.28	7356.72	6309.11	1.37
Powerline	16.468	20000.00	1443.00	1449.30	1448.91	1449.59	0.005887	14.30	6570.69	7067.51	1.47
Powerline	16.373	20000.00	1439.80	1446.32	1446.32	1447.12	0.004102	15.85	5858.44	7067.90	1.39
Powerline	16.275	20000.00	1436.90	1443.66	1443.66	1444.29	0.003786	18.23	6388.09	4753.07	1.38
Powerline	16.185	20000.00	1434.00	1440.05	1440.05	1440.68	0.003673	15.94	6413.22	4817.94	1.33
Powerline	16.087	20000.00	1429.40	1436.71	1436.71	1437.43	0.002837	16.66	6451.65	3714.36	1.22
Powerline	15.995	20000.00	1428.50	1434.48	1434.48	1435.14	0.004793	16.62	5397.35	3052.84	1.47

Powerline	15.913	20000.00	1427.00	1432.60	1432.20	1433.11	0.005956	11.95	5049.06	2671.15	1.50
Powerline	15.717	20000.00	1421.90	1431.49		1431.63	0.001743	3.81	7252.83	2398.20	0.29
Powerline	15.529	20000.00	1417.80	1430.72	1427.82	1430.83	0.000841	3.35	8099.11	3728.51	0.21
Powerline	15.364	20000.00	1419.60	1430.17	1426.73	1430.28	0.000819	3.17	7401.49	3194.78	0.21
Powerline	15.177	20000.00	1419.00	1429.35	1425.74	1429.56	0.001248	3.99	5579.86	2977.60	0.26
Powerline	14.988	20000.00	1419.30	1427.10	1425.42	1427.50	0.003705	5.63	4178.04	1604.78	0.42
Powerline	14.890	20000.00	1418.10	1424.57	1423.27	1424.76	0.003562	4.41	5824.49	2192.31	0.39
Powerline	14.790	29700.00	1416.70	1421.27	1420.35	1421.49	0.005795	4.81	8256.26	4241.09	0.48
Powerline	14.691	29700.00	1411.40	1417.78	1417.02	1417.94	0.005395	4.46	9335.43	6221.25	0.46
Powerline	14.601	29700.00	1410.20	1414.58	1413.65	1414.71	0.004869	3.49	10454.15	8430.48	0.42
Powerline	14.504	29700.00	1410.00	1411.96	1411.00	1412.08	0.004107	2.15	10697.92	7382.65	0.35
Powerline	14.410	29700.00	1406.40	1409.92		1410.04	0.003629	2.65	10671.98	5848.67	0.35
Powerline	14.313	29700.00	1403.70	1407.81	1406.97	1407.96	0.005361	3.24	9674.45	5799.26	0.42
Powerline	14.218	29700.00	1402.40	1406.44	1404.78	1406.52	0.001764	2.14	13608.99	5903.47	0.25
Powerline	13.940	23489.00	1400.70	1406.15	1403.70	1406.18	0.000606	2.01	15401.18	5614.65	0.17
Powerline	13.750	18706.00	1400.90	1406.01	1403.01	1406.04	0.000369	1.57	14484.56	4735.87	0.13
Powerline	13.560	17104.00	1400.80	1405.90	1402.58	1405.92	0.000323	1.44	12498.58	3523.16	0.12
Powerline	13.355	14948.00	1398.00	1405.76	1401.66	1405.78	0.000253	1.58	12363.66	4575.72	0.11
Powerline	13.145	14816.00	1397.50	1404.29	1403.23	1405.07	0.007456	7.79	2176.78	974.99	0.60
Powerline	13.111	14816.00	1396.00	1403.49	1401.68	1403.76	0.002525	5.18	5546.53	4202.19	0.36
Powerline	13.054	14816.00	1395.50	1402.82	1400.75	1402.98	0.002232	4.74	6637.67	4897.09	0.33
Powerline	12.958	14816.00	1394.30	1401.40	1399.95	1401.63	0.003291	5.58	6241.28	4431.30	0.40
Powerline	12.867	14816.00	1393.40	1399.93	1398.25	1400.02	0.002111	4.07	8365.45	4565.84	0.32
Powerline	12.770	14816.00	1392.30	1397.52	1397.15	1397.85	0.008823	7.01	5413.07	4275.95	0.62
Powerline	12.674	14816.00	1390.70	1396.43	1394.90	1396.51	0.002346	3.92	8858.41	4301.54	0.33
Powerline	12.576	14816.00	1389.00	1394.80	1393.52	1394.90	0.002657	4.32	8940.64	4259.99	0.35
Powerline	12.481	14816.00	1387.35	1393.36	1391.83	1393.49	0.003092	4.80	8736.26	4114.62	0.38
Powerline	12.382	14816.00	1386.27	1391.73	1390.49	1391.85	0.003494	4.86	8540.01	3976.71	0.40
Powerline	12.258	14816.00	1384.80	1389.47		1389.52	0.002163	3.11	10596.95	4195.25	0.30
Powerline	11.028	29700.00	1370.70	1381.57	1381.57	1382.21	0.001935	8.53	10159.57	8637.02	0.54
Powerline	10.660	29700.00	1366.00	1376.32	1375.88	1376.51	0.003106	5.48	12141.56	10223.07	0.58
Powerline	10.264	29700.00	1361.00	1370.72	1370.22	1370.83	0.004683	1.23	11701.35	9369.36	0.08
Powerline	9.904	29700.00	1358.00	1364.38		1364.63	0.003597	7.24	12218.15	10563.20	0.65
Powerline	9.447	29700.00	1348.00	1354.29		1354.54	0.003733	8.55	10648.88	11181.65	0.68
Powerline	9.090	29700.00	1338.00	1347.66	1347.66	1348.17	0.003885	10.94	8766.05	8628.66	0.72
Powerline	8.745	29700.00	1332.00	1338.47		1338.62	0.003716	7.86	14917.91	11480.59	0.67
Powerline	8.212	29700.00	1322.50	1330.88	1330.41	1331.02	0.003304	8.10	16660.47	11132.73	0.64

Profile Output Table - Standard Table 2

Reach	River Sta	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
Powerline	20.000	1569.57	1569.09	0.48	0.07	0.20		20000.00		1558.77
Powerline	19.963	1569.31	1569.22	0.08	0.06	0.06		20000.00		1687.12
Powerline	19.925	1569.18	1568.90	0.29	0.25	0.13	983.94	17886.68	1129.37	12879.48
Powerline	19.905	1568.80	1568.10	0.71	0.14	0.01	1611.38	16410.67	1977.95	11708.16
Powerline	19.901	1568.37	1567.63	0.74	1.69	0.18	984.75	18402.49	612.76	7295.58
Powerline	19.879	1563.11	1562.74	0.37	1.69	0.01	5721.83	14023.25	254.92	7318.88
Powerline	19.806	1561.41	1561.06	0.35	2.80	0.01	8531.46	8934.01	2534.52	7322.46
Powerline	19.727	1558.61	1558.27	0.34	3.26	0.03	13414.90	4912.17	1672.93	7024.86
Powerline	19.643	1555.32	1555.04	0.27	2.69	0.04	12544.72	3401.14	4054.15	6971.43
Powerline	19.544	1552.58	1552.39	0.19	2.76	0.02	14219.43	1766.84	4013.73	6986.55

Powerline	19.456	1549.80	1549.56	0.24	3.04	0.04	13380.64	2256.91	4362.45	7003.06
Powerline	19.369	1546.73	1546.56	0.17	2.97	0.01	14639.41	1635.09	3725.50	7062.48
Powerline	19.278	1543.74	1543.53	0.21	3.64	0.02	15136.10	1084.98	3778.91	7035.89
Powerline	19.191	1540.08	1539.92	0.16	3.01	0.01	13569.52	522.31	5908.17	6775.61
Powerline	19.100	1537.06	1536.88	0.18	3.58	0.05	11697.89	629.26	7672.86	7156.52
Powerline	18.999	1533.43	1533.08	0.35	3.40	0.08	10356.06	900.87	8743.07	6352.21
Powerline	18.905	1529.96	1529.76	0.19	3.05	0.04	9370.36	772.39	9857.25	6891.21
Powerline	18.814	1526.86	1526.52	0.34	2.83	0.06	8020.91	1072.41	10906.69	6600.33
Powerline	18.729	1523.97	1523.75	0.22	0.59	0.03	8149.61	1093.14	10757.24	6216.24
Powerline	18.703	1523.34	1523.02	0.32	2.99	0.06	6429.25	1021.42	12549.32	5229.16
Powerline	18.612	1520.30	1519.78	0.52			4179.89	1800.07	14020.04	5433.73
Powerline	18.520	1516.64	1516.23	0.41	2.67	0.00	726.10	1459.96	17813.94	4733.71
Powerline	18.429	1513.97	1513.52	0.45	2.66	0.04	5690.97	1568.53	12740.50	5503.60
Powerline	18.339	1511.26	1510.94	0.32	2.71	0.02	6461.35	1416.89	12121.76	5608.56
Powerline	18.245	1508.53	1508.01	0.52	3.31	0.01	4921.76	1812.85	13265.39	4987.62
Powerline	18.153	1505.21	1504.73	0.48	3.26	0.03	5417.63	1681.22	12901.16	4611.69
Powerline	18.059	1501.92	1501.53	0.39	3.21	0.01	4848.37	1403.59	13748.04	5442.25
Powerline	17.964	1498.70	1498.26	0.44			4028.42	1501.08	14470.50	6148.08
Powerline	17.873	1495.46	1495.10	0.36	2.84	0.02	3678.27	1165.86	15155.87	7249.83
Powerline	17.778	1492.60	1492.31	0.29	3.29	0.00	6065.35	1190.51	12744.14	8511.74
Powerline	17.684	1489.31	1489.01	0.30	3.01	0.03	6699.13	931.56	12369.31	6365.88
Powerline	17.590	1486.27	1486.06	0.20	3.32	0.01	11543.90	794.73	7661.37	6057.09
Powerline	17.494	1482.93	1482.58	0.35	3.00	0.00	10078.36	1115.43	8806.21	4828.61
Powerline	17.405	1479.93	1479.55	0.38	3.27	0.02	8366.92	1384.15	10248.93	4301.46
Powerline	17.309	1476.65	1476.11	0.54			7369.16	1688.81	10942.03	4201.93
Powerline	17.218	1473.53	1473.24	0.29	2.84	0.04	10213.78	1369.23	8416.98	5075.36
Powerline	17.134	1470.65	1469.95	0.70			9726.00	2094.36	8179.65	3963.30
Powerline	17.044	1468.01	1467.43	0.58	1.37	0.02	6668.36	3192.65	10138.99	5464.26
Powerline	16.945	1465.02	1464.50	0.52	1.64	0.09	4014.02	2908.17	13077.82	6191.25
Powerline	16.849	1460.85	1460.63	0.22	3.06	0.03	4868.64	1186.14	13945.22	5007.41
Powerline	16.753	1457.76	1457.25	0.51	2.81	0.00	2345.62	1283.25	16371.14	4463.29
Powerline	16.665	1454.95	1454.45	0.50			2539.48	2284.06	15176.46	6587.40
Powerline	16.575	1452.20	1451.83	0.37	2.59	0.02	3018.53	1464.53	15516.94	6309.11
Powerline	16.468	1449.59	1449.30	0.29	2.42	0.05	5771.95	1005.50	13222.55	7067.51
Powerline	16.373	1447.12	1446.32	0.80			6034.02	3523.87	10442.11	7067.90
Powerline	16.275	1444.29	1443.66	0.63	1.98	0.00	5603.38	1981.73	12414.89	4753.07
Powerline	16.185	1440.68	1440.05	0.62	1.89	0.01	7020.68	2501.13	10478.19	4817.94
Powerline	16.087	1437.43	1436.71	0.72	1.07	0.02	16113.57	2902.84	983.58	3714.36
Powerline	15.995	1435.14	1434.48	0.66			17548.36	2363.95	87.69	3052.84
Powerline	15.913	1433.11	1432.60	0.51	1.37	0.11	16819.14	3179.97	0.89	2671.15
Powerline	15.717	1431.63	1431.49	0.14	0.78	0.01	13207.14	6683.69	109.17	2398.20
Powerline	15.529	1430.83	1430.72	0.11	0.55	0.00	9763.94	9151.07	1084.99	3728.51
Powerline	15.364	1430.28	1430.17	0.12	0.71	0.01	11583.50	6982.59	1433.90	3194.78
Powerline	15.177	1429.56	1429.35	0.21	2.04	0.02	5689.29	12590.26	1720.45	2977.60
Powerline	14.988	1427.50	1427.10	0.40	2.68	0.06	4798.85	13606.88	1594.27	1604.78
Powerline	14.890	1424.76	1424.57	0.19	3.27	0.00	17398.77	2494.35	106.88	2192.31
Powerline	14.790	1421.49	1421.27	0.21	3.53	0.02	23877.24	5822.75		4241.09
Powerline	14.691	1417.94	1417.78	0.16	3.22	0.01	27209.29	2490.71		6221.25
Powerline	14.601	1414.71	1414.58	0.13	2.62	0.00	28359.20	1339.66	1.14	8430.48
Powerline	14.504	1412.08	1411.96	0.12	2.04	0.00	29273.25	426.75		7382.65
Powerline	14.410	1410.04	1409.92	0.12	2.08	0.00	28855.99	844.01		5848.67
Powerline	14.313	1407.96	1407.81	0.15	1.42	0.02	28693.44	1006.56		5799.26
Powerline	14.218	1406.52	1406.44	0.07	0.32	0.01	28788.52	911.48		5903.47
Powerline	13.940	1406.18	1406.15	0.04	0.14	0.00	20593.32	2895.68		5614.65

Powerline	13.750	1406.04	1406.01	0.03	0.11	0.00	16602.20	1939.74	164.06	4735.87
Powerline	13.560	1405.92	1405.90	0.03	0.14	0.00	13907.72	3125.65	70.63	3523.16
Powerline	13.355	1405.78	1405.76	0.02	0.63	0.08	13670.71	1161.82	115.48	4575.72
Powerline	13.145	1405.07	1404.29	0.78	1.16	0.15	5171.93	9644.07		974.99
Powerline	13.111	1403.76	1403.49	0.27	0.74	0.03	5716.39	9021.05	78.56	4202.19
Powerline	13.054	1402.98	1402.82	0.17	1.35	0.01	8591.01	6178.50	46.48	4897.09
Powerline	12.958	1401.63	1401.40	0.23	1.57	0.04	8353.88	6373.53	88.59	4431.30
Powerline	12.867	1400.02	1399.93	0.10	2.15	0.02	10640.63	4159.02	16.36	4565.84
Powerline	12.770	1397.85	1397.52	0.33	1.26	0.07	9100.72	5713.05	2.23	4275.95
Powerline	12.674	1396.51	1396.43	0.08	1.61	0.00	11269.23	3541.75	5.03	4301.54
Powerline	12.576	1394.90	1394.80	0.10	1.41	0.00	10658.02	4139.71	18.27	4259.99
Powerline	12.481	1393.49	1393.36	0.12	1.64	0.00	10519.74	4241.74	54.52	4114.62
Powerline	12.382	1391.85	1391.73	0.12	2.31	0.02	10886.46	3793.96	135.58	3976.71
Powerline	12.258	1389.52	1389.47	0.04	7.25	0.06	12443.74	2372.26		4195.25
Powerline	11.028	1382.21	1381.57	0.63			12243.40	16161.28	1295.32	8637.02
Powerline	10.660	1376.51	1376.32	0.19	5.65	0.02	19084.22	9225.99	1389.79	10223.07
Powerline	10.264	1370.83	1370.72	0.11	6.19	0.01	24604.34	1894.90	3200.76	9369.36
Powerline	9.904	1364.63	1364.38	0.25	10.09	0.00	22485.19	5643.08	1571.73	10563.20
Powerline	9.447	1354.54	1354.29	0.25	6.36	0.03	25236.90	4463.10		11181.65
Powerline	9.090	1348.17	1347.66	0.51	8.75	0.11	23053.41	6646.59		8628.66
Powerline	8.745	1338.62	1338.47	0.15	7.59	0.00	26531.04	3168.96		11480.59
Powerline	8.212	1331.02	1330.88	0.14			26694.95	3005.05		11132.73

Profile Output Table - Hydratable

Reach	River Sta	Q Total (cfs)	W.S. Elev (ft)	Trvl Tme Chl (hrs)	Trvl Tme Avg (hrs)	Vel Chnl (ft/s)	Vel Total (ft/s)	Max Chl Dpth (ft)	Hydr Depth (ft)
Powerline	20.000	20000.00	1569.09	3.32	5.69	5.53	5.53	3.44	2.32
Powerline	19.963	20000.00	1569.22	3.31	5.68	2.31	2.31	7.37	5.13
Powerline	19.925	20000.00	1568.90	3.29	5.66	4.30	4.31	4.40	2.37
Powerline	19.905	20000.00	1568.10	3.29	5.66	6.62	6.73	2.40	1.44
Powerline	19.901	20000.00	1567.63	3.28	5.66	7.13	6.53	2.61	1.47
Powerline	19.879	20000.00	1562.74	3.27	5.65	4.34	4.68	6.16	1.95
Powerline	19.806	20000.00	1561.06	3.26	5.63	3.90	4.44	5.86	1.76
Powerline	19.727	20000.00	1558.27	3.22	5.60	3.27	4.20	10.34	1.59
Powerline	19.643	20000.00	1555.04	3.19	5.57	3.56	4.01	4.59	1.51
Powerline	19.544	20000.00	1552.39	3.15	5.54	3.62	3.31	4.83	1.71
Powerline	19.456	20000.00	1549.56	3.11	5.50	4.35	3.75	5.67	1.27
Powerline	19.369	20000.00	1546.56	3.08	5.46	3.44	3.08	5.16	1.45
Powerline	19.278	20000.00	1543.53	3.05	5.42	5.44	3.47	5.70	1.28
Powerline	19.191	20000.00	1539.92	3.03	5.38	5.38	3.18	4.83	1.29
Powerline	19.100	20000.00	1536.88	3.01	5.34	12.19	2.79	4.38	1.35
Powerline	18.999	20000.00	1533.08	3.00	5.29	16.70	3.36	3.86	1.08
Powerline	18.905	20000.00	1529.76	2.99	5.24	11.88	2.77	4.13	1.30
Powerline	18.814	20000.00	1526.52	2.98	5.19	15.64	3.13	4.53	1.10
Powerline	18.729	20000.00	1523.75	2.97	5.15	11.62	2.76	5.16	1.32
Powerline	18.703	20000.00	1523.02	2.97	5.14	14.69	3.22	3.45	1.24
Powerline	18.612	20000.00	1519.78	2.96	5.10	16.83	3.11	5.78	1.19
Powerline	18.520	20000.00	1516.23	2.95	5.06	15.26	3.22	5.28	1.31
Powerline	18.429	20000.00	1513.52	2.95	5.02	16.49	3.02	5.39	1.20
Powerline	18.339	20000.00	1510.94	2.94	4.97	14.36	2.72	5.48	1.31
Powerline	18.245	20000.00	1508.01	2.93	4.92	16.66	3.16	5.66	1.27

Powerline	18.153	20000.00	1504.73	2.92	4.88	16.27	3.25	5.41	1.33
Powerline	18.059	20000.00	1501.53	2.91	4.83	15.16	3.13	5.05	1.26
Powerline	17.964	20000.00	1498.26	2.90	4.79	16.41	3.06	4.99	1.06
Powerline	17.873	20000.00	1495.10	2.89	4.74	15.61	3.10	4.57	0.98
Powerline	17.778	20000.00	1492.31	2.89	4.70	14.61	2.57	4.87	1.08
Powerline	17.684	20000.00	1489.01	2.88	4.65	15.00	3.05	5.17	1.03
Powerline	17.590	20000.00	1486.06	2.87	4.61	12.67	2.74	5.03	1.21
Powerline	17.494	20000.00	1482.58	2.86	4.56	15.37	3.30	4.87	1.26
Powerline	17.405	20000.00	1479.55	2.85	4.52	14.83	3.31	4.95	1.41
Powerline	17.309	20000.00	1476.11	2.84	4.48	16.87	3.53	5.13	1.35
Powerline	17.218	20000.00	1473.24	2.83	4.44	13.27	2.76	5.31	1.43
Powerline	17.134	20000.00	1469.95	2.82	4.40	18.02	3.76	6.35	1.34
Powerline	17.044	20000.00	1467.43	2.81	4.35	14.33	2.51	7.43	1.46
Powerline	16.945	20000.00	1464.50	2.80	4.29	14.35	2.26	7.00	1.43
Powerline	16.849	20000.00	1460.63	2.79	4.23	11.28	2.76	5.83	1.45
Powerline	16.753	20000.00	1457.25	2.78	4.19	17.33	3.95	5.45	1.29
Powerline	16.665	20000.00	1454.45	2.77	4.15	15.35	2.61	5.25	1.38
Powerline	16.575	20000.00	1451.83	2.77	4.10	15.28	2.72	5.83	1.39
Powerline	16.468	20000.00	1449.30	2.76	4.05	14.30	3.04	6.30	1.21
Powerline	16.373	20000.00	1446.32	2.75	4.00	15.85	3.41	6.52	1.57
Powerline	16.275	20000.00	1443.66	2.74	3.96	18.23	3.13	6.76	1.60
Powerline	16.185	20000.00	1440.05	2.73	3.91	15.94	3.12	6.05	1.63
Powerline	16.087	20000.00	1436.71	2.72	3.86	16.66	3.10	7.31	2.09
Powerline	15.995	20000.00	1434.48	2.71	3.84	16.62	3.71	5.98	2.05
Powerline	15.913	20000.00	1432.60	2.70	3.81	11.95	3.96	5.60	1.90
Powerline	15.717	20000.00	1431.49	2.67	3.77	3.81	2.76	9.59	3.02
Powerline	15.529	20000.00	1430.72	2.59	3.70	3.35	2.47	12.92	4.37
Powerline	15.364	20000.00	1430.17	2.52	3.62	3.17	2.70	10.57	5.55
Powerline	15.177	20000.00	1429.35	2.44	3.56	3.99	3.58	10.35	6.11
Powerline	14.988	20000.00	1427.10	2.38	3.49	5.63	4.79	7.80	3.93
Powerline	14.890	20000.00	1424.57	2.35	3.44	4.41	3.43	6.47	2.66
Powerline	14.790	29700.00	1421.27	2.32	3.39	4.81	3.60	4.57	1.95
Powerline	14.691	29700.00	1417.78	2.29	3.34	4.46	3.18	6.38	1.61
Powerline	14.601	29700.00	1414.58	2.26	3.28	3.49	2.84	4.38	1.60
Powerline	14.504	29700.00	1411.96	2.21	3.22	2.15	2.78	3.96	1.72
Powerline	14.410	29700.00	1409.92	2.15	3.17	2.65	2.78	3.62	1.82
Powerline	14.313	29700.00	1407.81	2.10	3.12	3.24	3.07	4.11	1.67
Powerline	14.218	29700.00	1406.44	2.05	3.07	2.14	2.18	4.14	2.31
Powerline	13.940	23489.00	1406.15	1.85	3.02	2.01	1.53	5.45	2.74
Powerline	13.750	18706.00	1406.01	1.70	2.96	1.57	1.29	5.11	3.12
Powerline	13.560	17104.00	1405.90	1.51	2.89	1.44	1.37	5.20	3.55
Powerline	13.355	14948.00	1405.76	1.31	2.79	1.58	1.21	7.76	3.98
Powerline	13.145	14816.00	1404.29	1.25	2.73	7.79	6.81	6.79	2.98
Powerline	13.111	14816.00	1403.49	1.24	2.71	5.18	2.67	7.49	3.49
Powerline	13.054	14816.00	1402.82	1.22	2.67	4.74	2.23	7.32	3.81
Powerline	12.958	14816.00	1401.40	1.20	2.61	5.58	2.37	7.10	2.98
Powerline	12.867	14816.00	1399.93	1.17	2.53	4.07	1.77	6.53	3.25
Powerline	12.770	14816.00	1397.52	1.14	2.46	7.01	2.74	5.22	1.85
Powerline	12.674	14816.00	1396.43	1.12	2.42	3.92	1.67	5.73	2.87
Powerline	12.576	14816.00	1394.80	1.08	2.32	4.32	1.66	5.80	2.44
Powerline	12.481	14816.00	1393.36	1.05	2.23	4.80	1.70	6.01	2.20
Powerline	12.382	14816.00	1391.73	1.02	2.15	4.86	1.73	5.46	2.15
Powerline	12.258	14816.00	1389.47	0.98	2.00	3.11	1.40	4.67	2.53
Powerline	11.028	29700.00	1381.57	0.67	1.54	8.53	2.92	10.87	1.43

Powerline	10.660	29700.00	1376.32	0.59	1.34	5.48	2.45	10.32	1.31
Powerline	10.264	29700.00	1370.72	0.42	1.17	1.23	2.54	9.72	1.25
Powerline	9.904	29700.00	1364.38	0.29	1.00	7.24	2.43	6.38	1.16
Powerline	9.447	29700.00	1354.29	0.21	0.71	8.55	2.79	6.29	0.95
Powerline	9.090	29700.00	1347.66	0.15	0.56	10.94	3.39	9.66	1.02
Powerline	8.745	29700.00	1338.47	0.10	0.32	7.86	1.99	6.47	1.30
Powerline	8.212	29700.00	1330.88	0.00	0.00	8.10	1.78	8.38	1.50

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : FCD 98-33

River: Powerline FRS Reach: Powerline RS: 20.000 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.963 Profile: PF 3
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.925 Profile: PF 3
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.905 Profile: PF 3
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Powerline FRS Reach: Powerline RS: 19.901 Profile: PF 3
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Powerline FRS Reach: Powerline RS: 19.879 Profile: PF 3
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.806 Profile: PF 3
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.727 Profile: PF 3
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

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River: Powerline FRS  Reach: Powerline     RS: 19.643     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 19.544     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 19.456     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 19.369     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 19.278     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 19.191     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 19.100     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.999     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.905     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.814     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.729     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
River: Powerline FRS  Reach: Powerline     RS: 18.703     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.612     Profile: PF 3
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
```

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    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.520     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.429     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.339     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.245     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.153     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.059     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 17.964     Profile: PF 3
    Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
            for the water surface and continued on with the calculations.
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 17.873     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 17.778     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 17.684     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 17.590     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 17.494     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 17.405     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
```

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 17.309 Profile: PF 3
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 17.218 Profile: PF 3
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 17.134 Profile: PF 3
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 17.044 Profile: PF 3
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: Powerline FRS Reach: Powerline RS: 16.945 Profile: PF 3
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: Powerline FRS Reach: Powerline RS: 16.849 Profile: PF 3
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 16.753 Profile: PF 3
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 16.665 Profile: PF 3
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 16.575 Profile: PF 3
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 16.468 Profile: PF 3
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 16.373 Profile: PF 3
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 16.275 Profile: PF 3
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Powerline FRS Reach: Powerline RS: 16.185 Profile: PF 3
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Powerline FRS Reach: Powerline RS: 16.087 Profile: PF 3
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Powerline FRS Reach: Powerline RS: 15.995 Profile: PF 3

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     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 15.913     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 15.717     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 15.177     Profile: PF 3
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.988     Profile: PF 3
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.890     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.790     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.691     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.601     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.504     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.410     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.313     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.218     Profile: PF 3
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     Warning:Divided flow computed for this cross-section.
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
River: Powerline FRS  Reach: Powerline     RS: 13.940     Profile: PF 3
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
River: Powerline FRS  Reach: Powerline     RS: 13.750     Profile: PF 3
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
River: Powerline FRS  Reach: Powerline     RS: 13.560     Profile: PF 3
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
River: Powerline FRS  Reach: Powerline     RS: 13.355     Profile: PF 3
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 13.145     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 13.111     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
River: Powerline FRS  Reach: Powerline     RS: 13.054     Profile: PF 3
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.958     Profile: PF 3
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.867     Profile: PF 3
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.770     Profile: PF 3
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.674     Profile: PF 3
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.576     Profile: PF 3
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.481     Profile: PF 3
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.382     Profile: PF 3
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.258     Profile: PF 3
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
```

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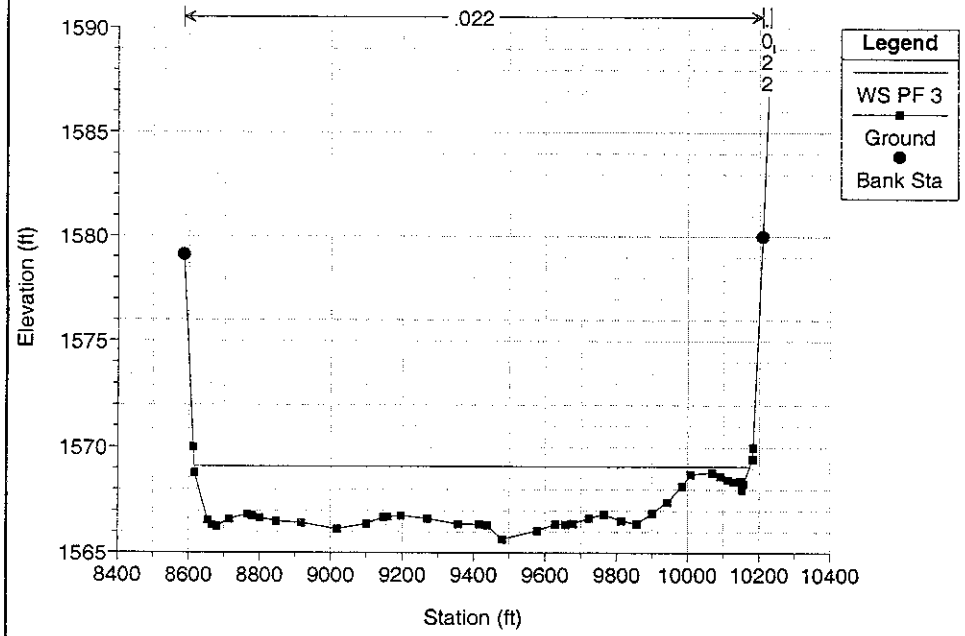
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 11.028     Profile: PF 3
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 10.660     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 10.264     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 9.904     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 9.447     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 9.090     Profile: PF 3
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
             water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
             program defaulted to critical depth.
River: Powerline FRS  Reach: Powerline     RS: 8.745     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 8.212     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
```

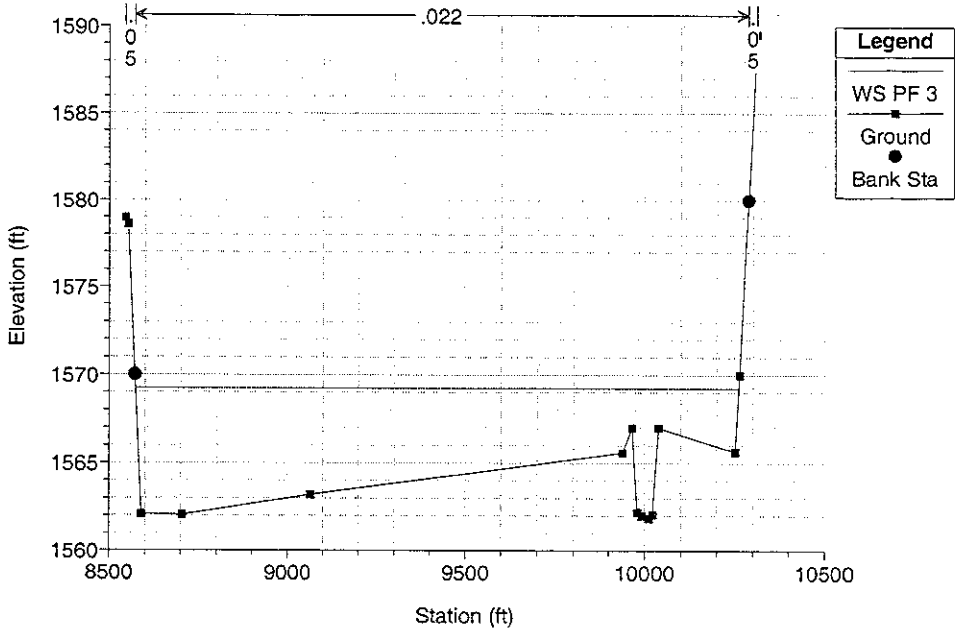
East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM

River = Powerline FRS Reach = Powerline Upstream embankment of the Powerline FRS RS = 20.000



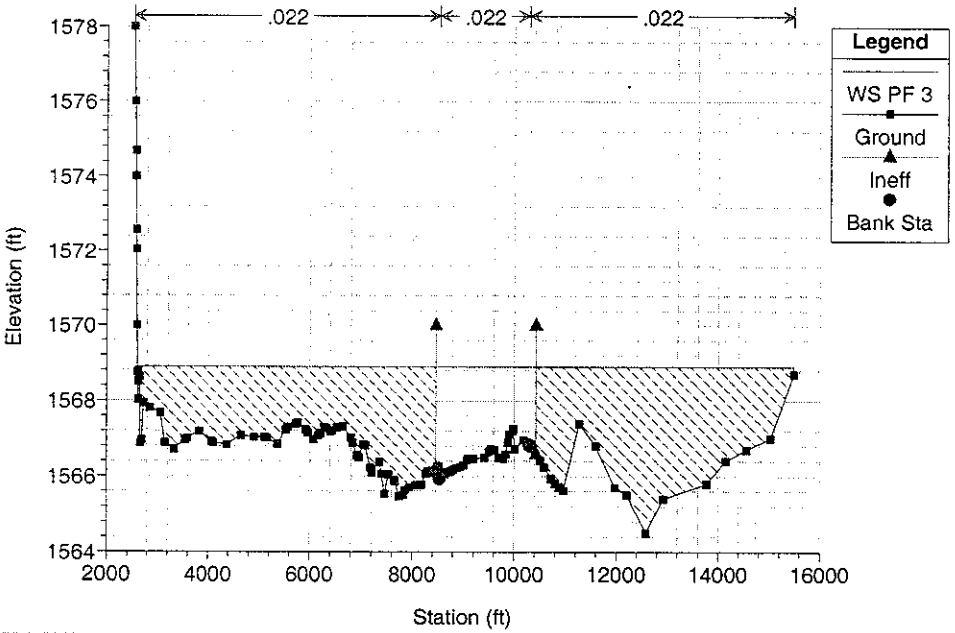
East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM

River = Powerline FRS Reach = Powerline RS = 19.963



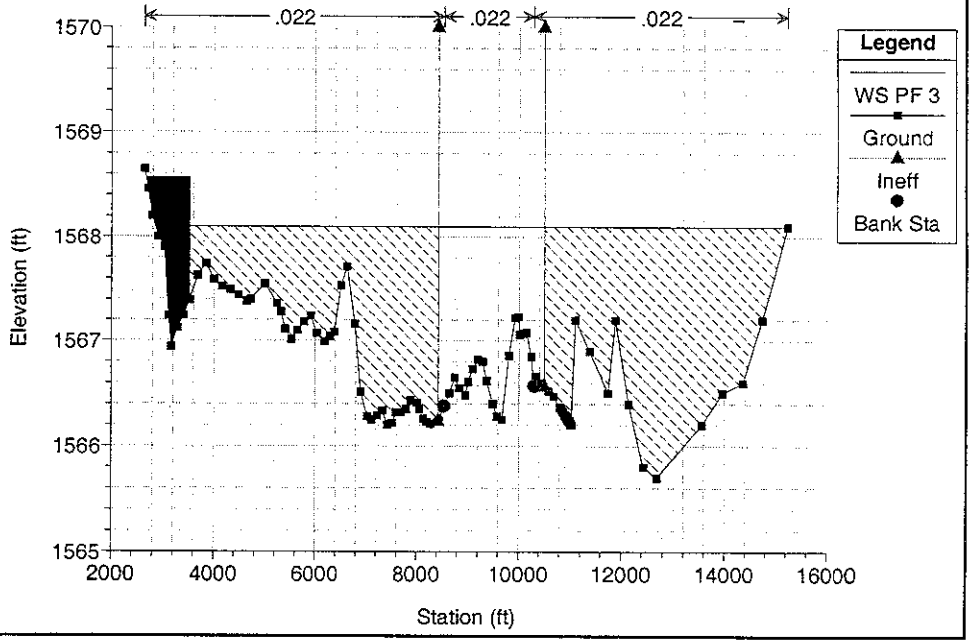
East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM

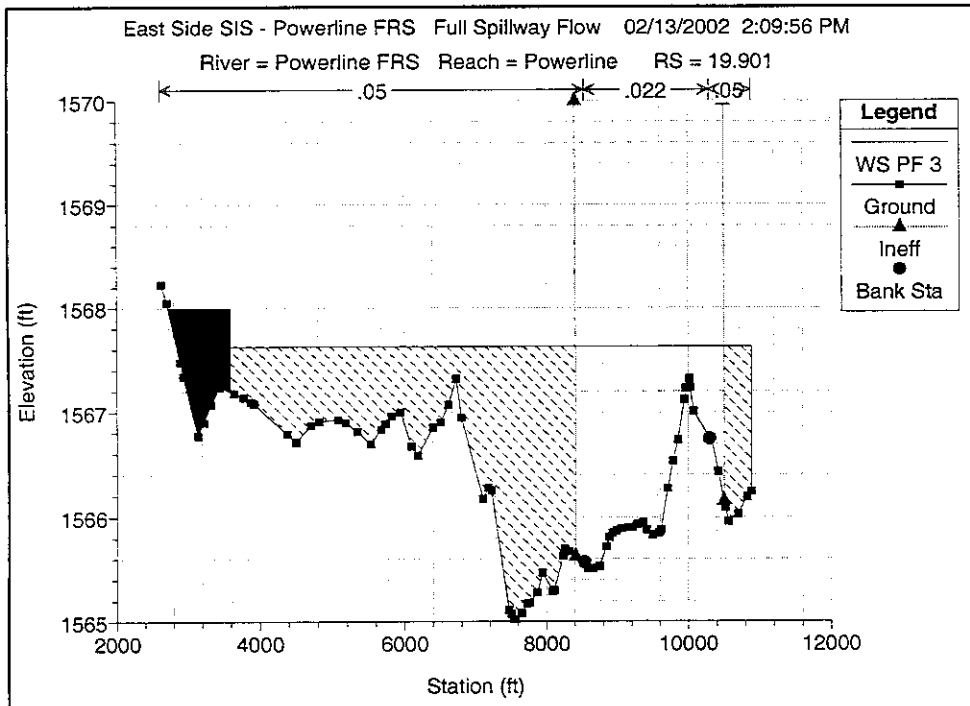
River = Powerline FRS Reach = Powerline Top of Bank, East Embankment of the CAP RS = 19.925

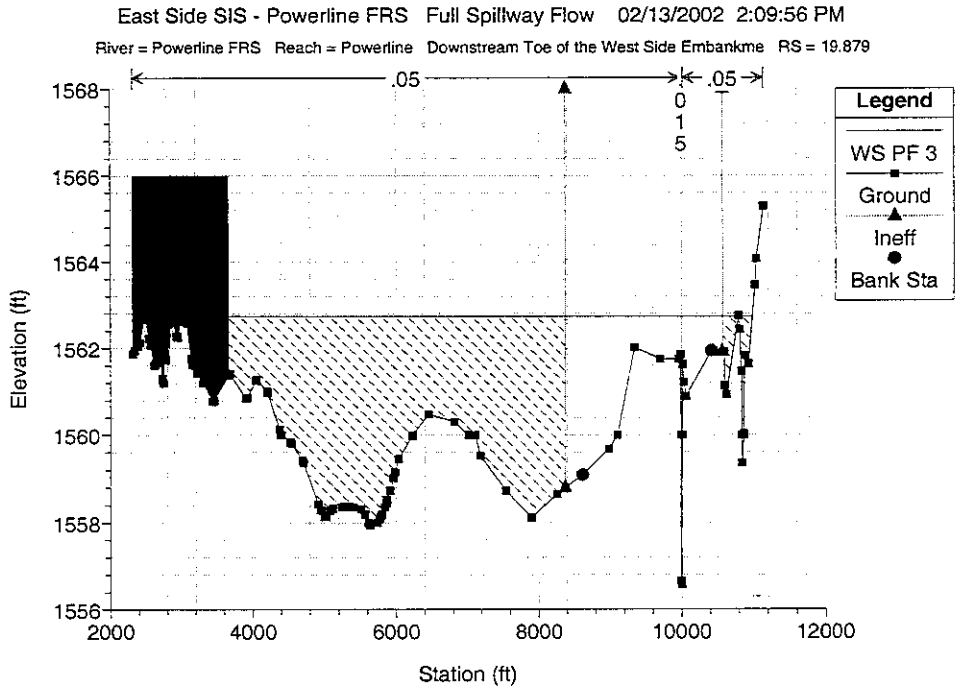


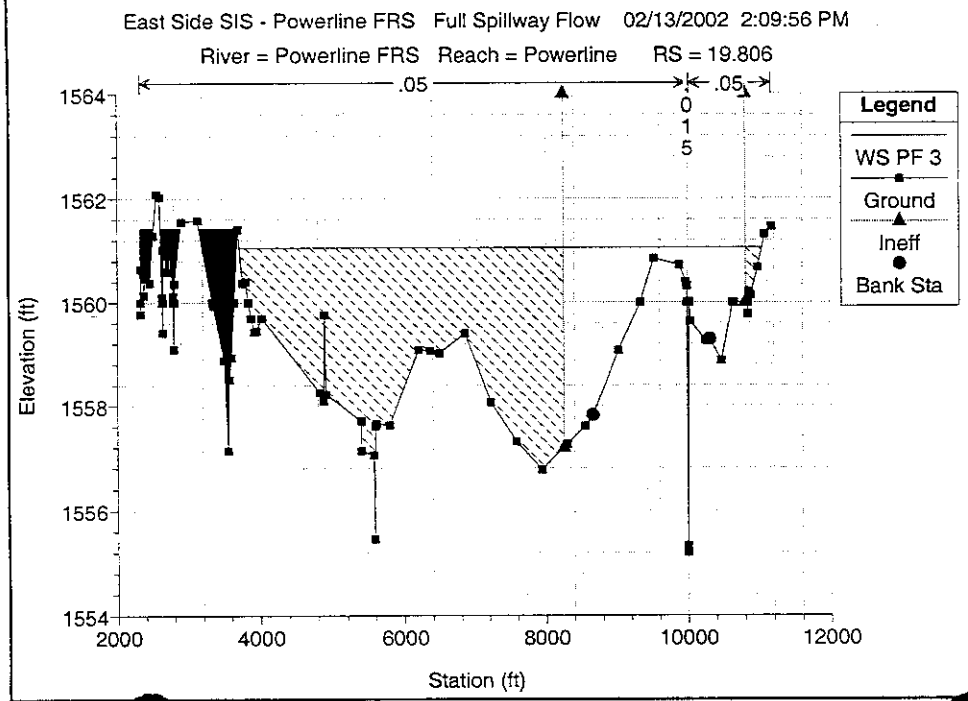
East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM

River = Powerline FRS Reach = Powerline Top of Bank, West Embankment of the CAP RS = 19.905




East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 19.901
.05
.022
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline Downstream Toe of the West Side Embankme RS = 19.879
.05
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 19.806
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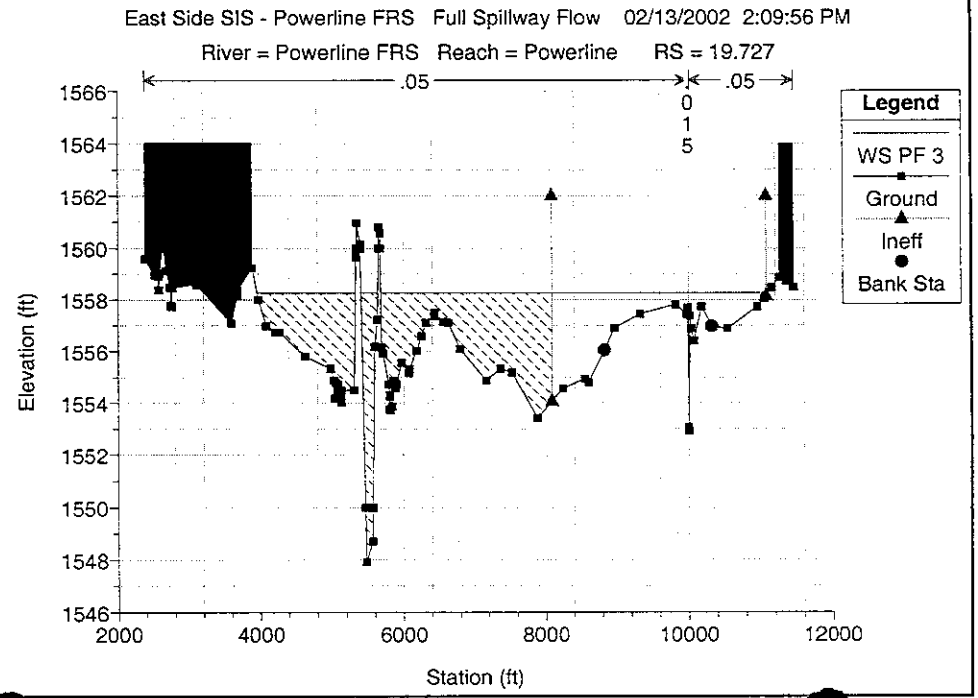
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 19.727
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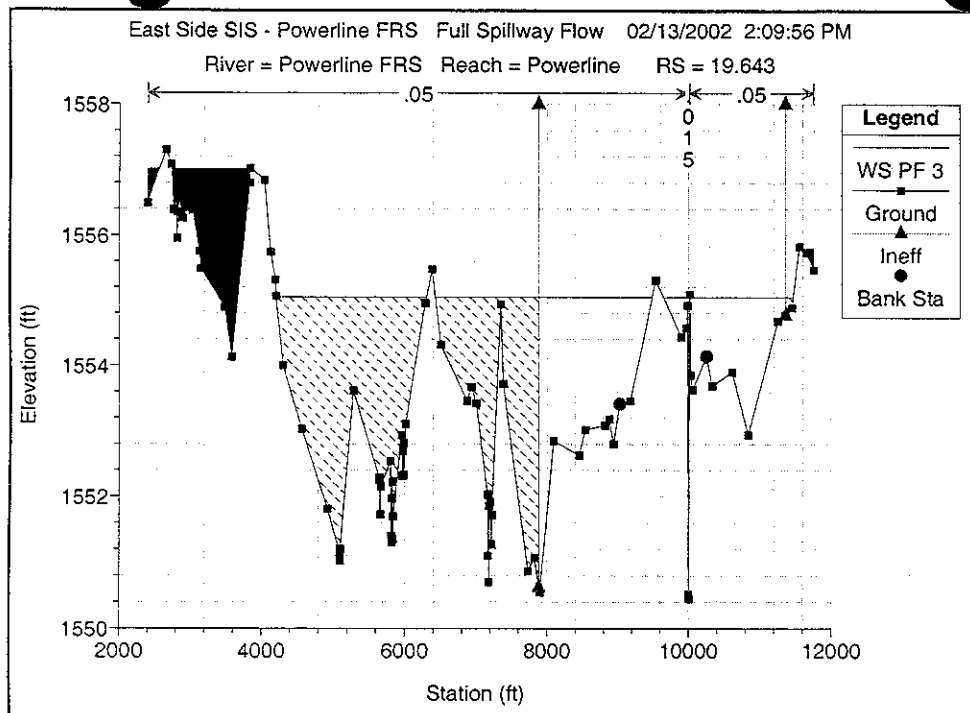
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 19.643
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.05
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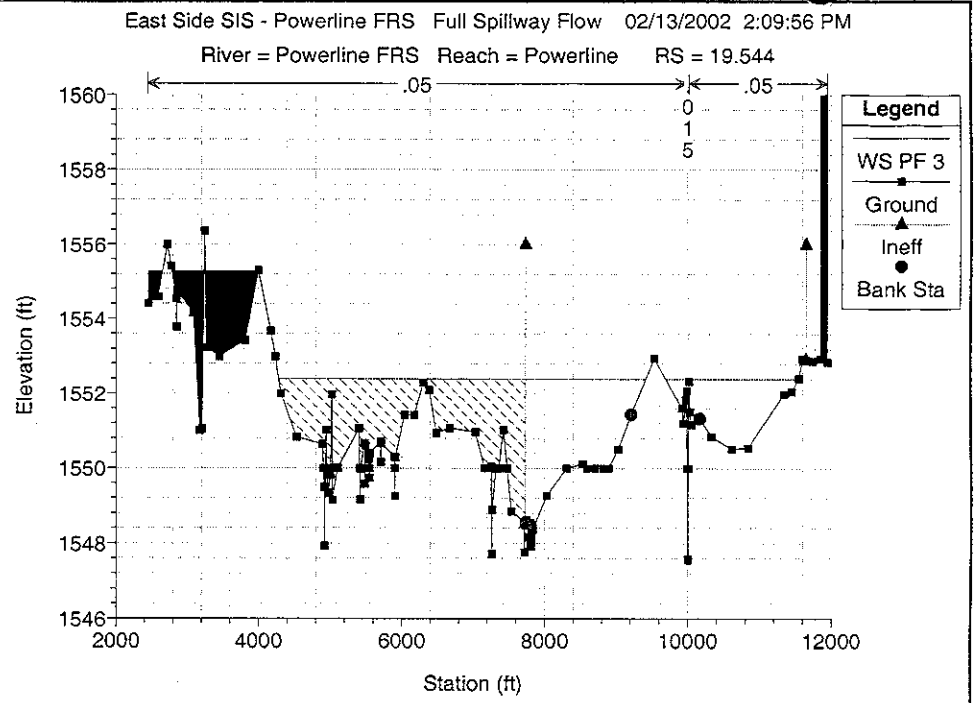
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 19.544
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.05
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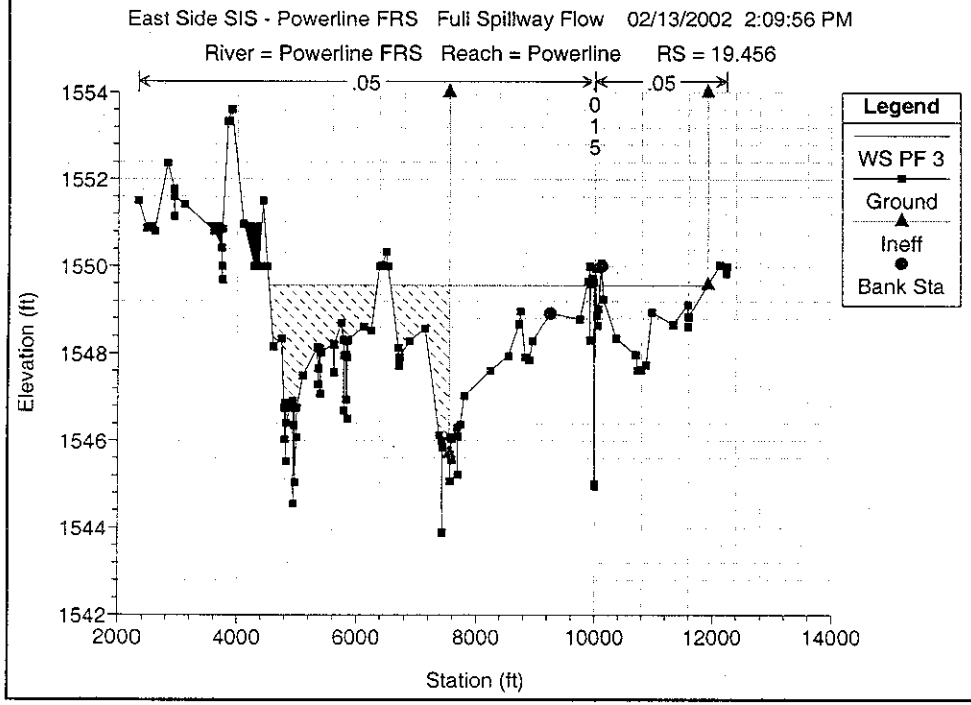
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 19.456
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.05
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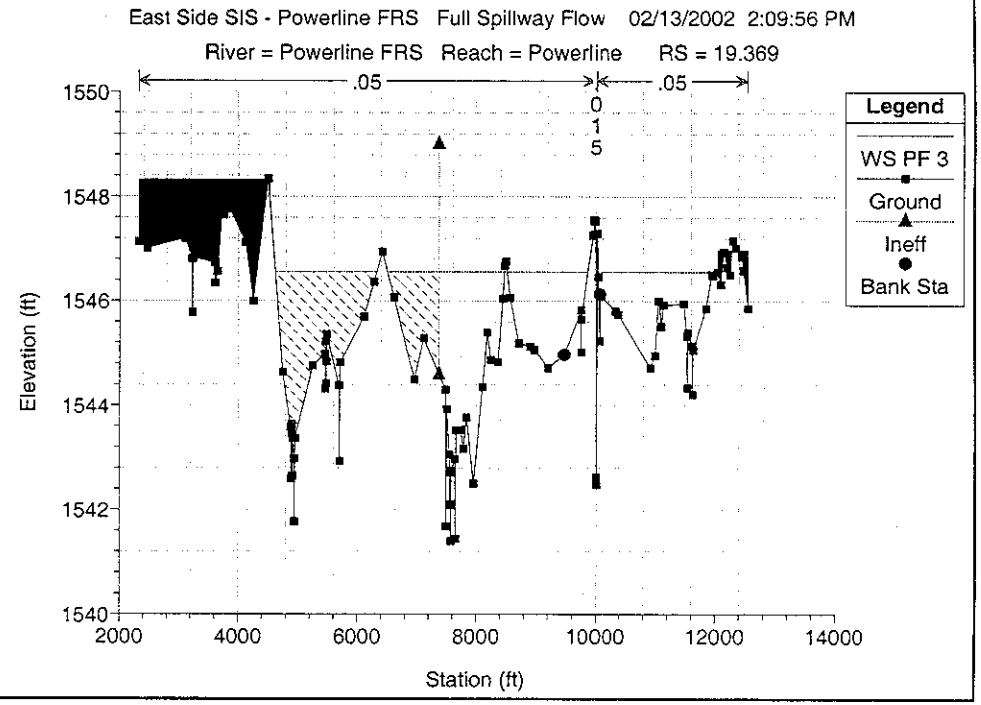
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 19.369
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.05
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1
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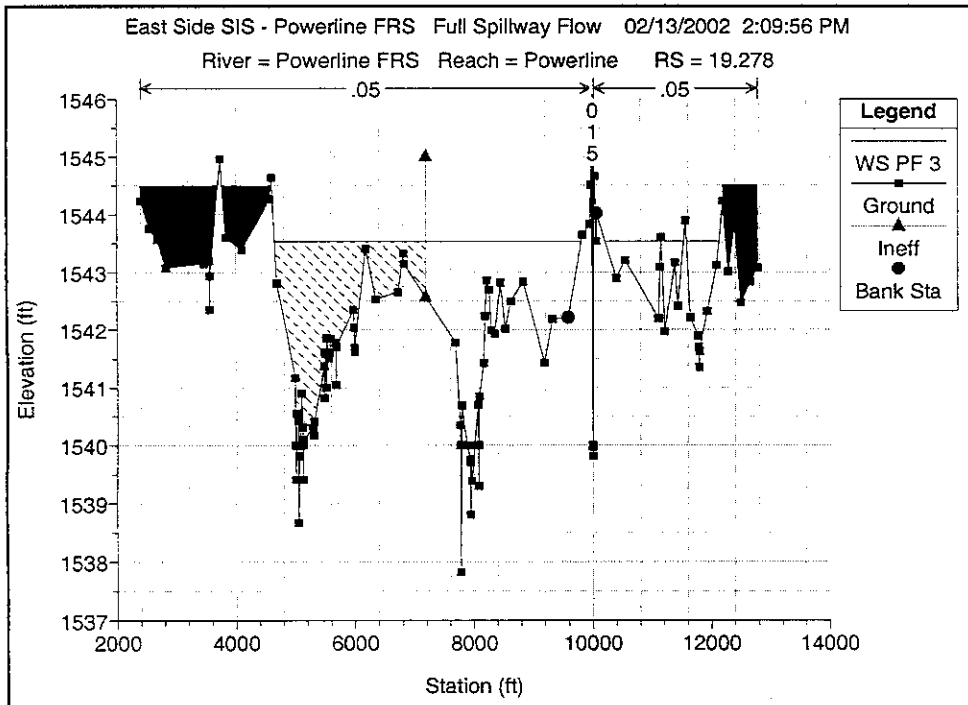
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 19.278
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.05
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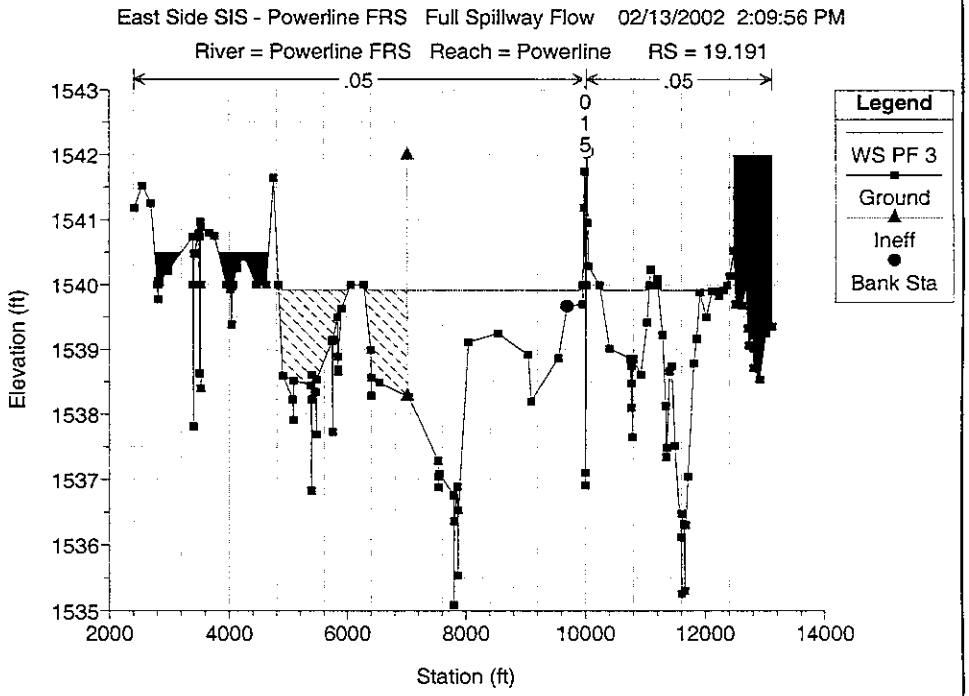
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 19.191
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.05
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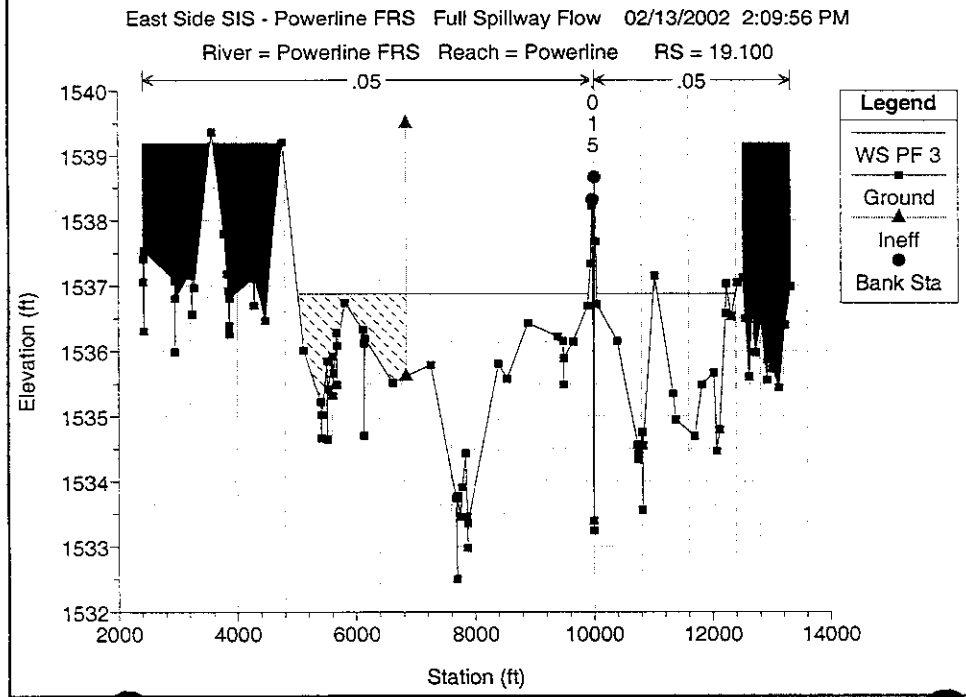
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 19.100
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.05
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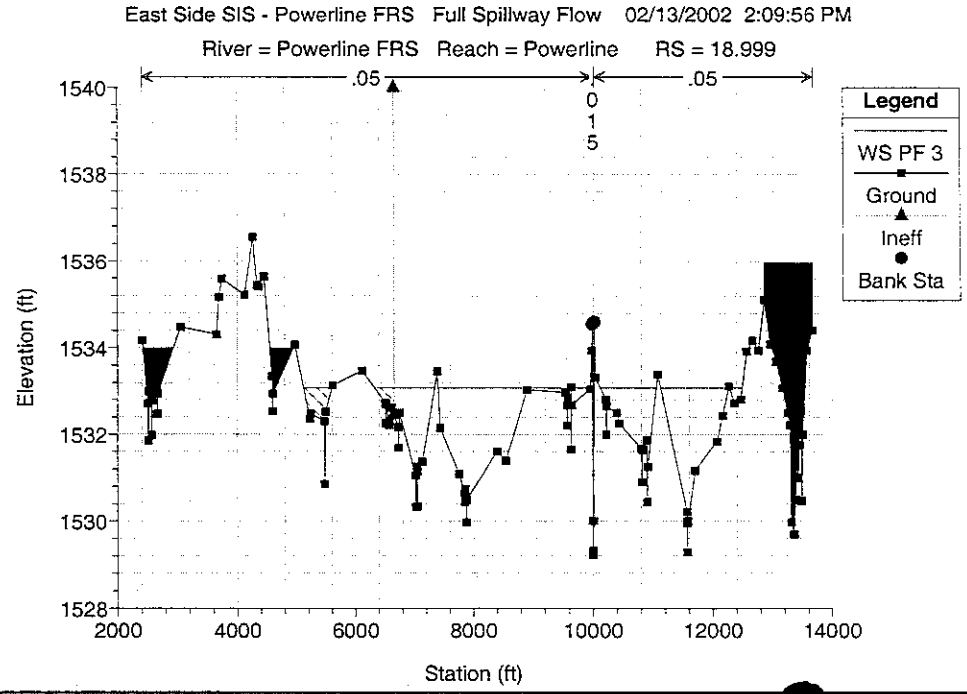
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 18.999
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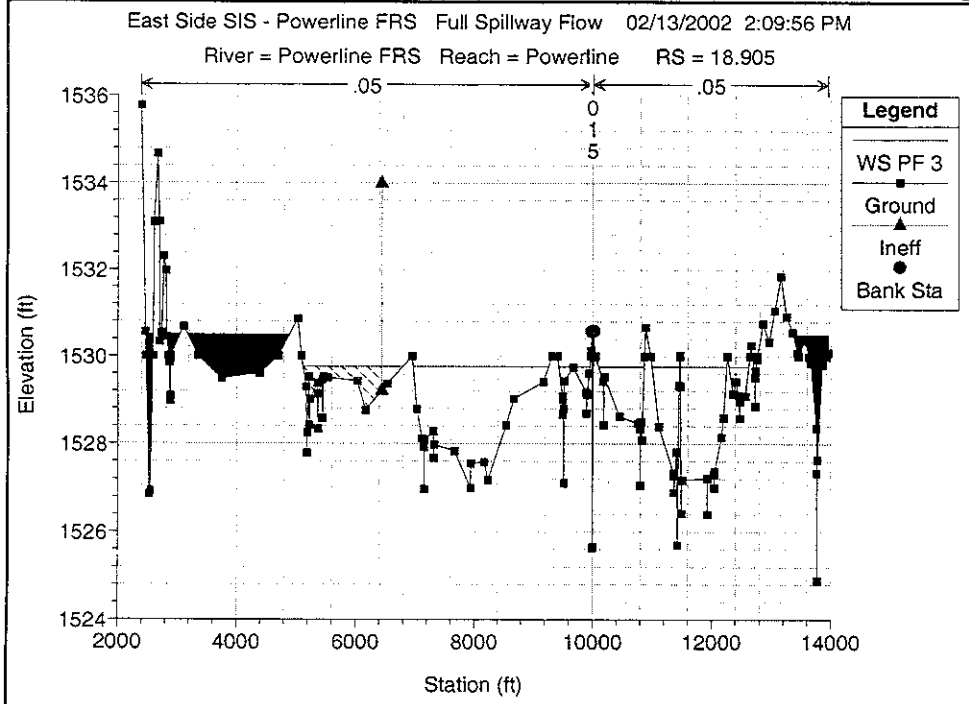
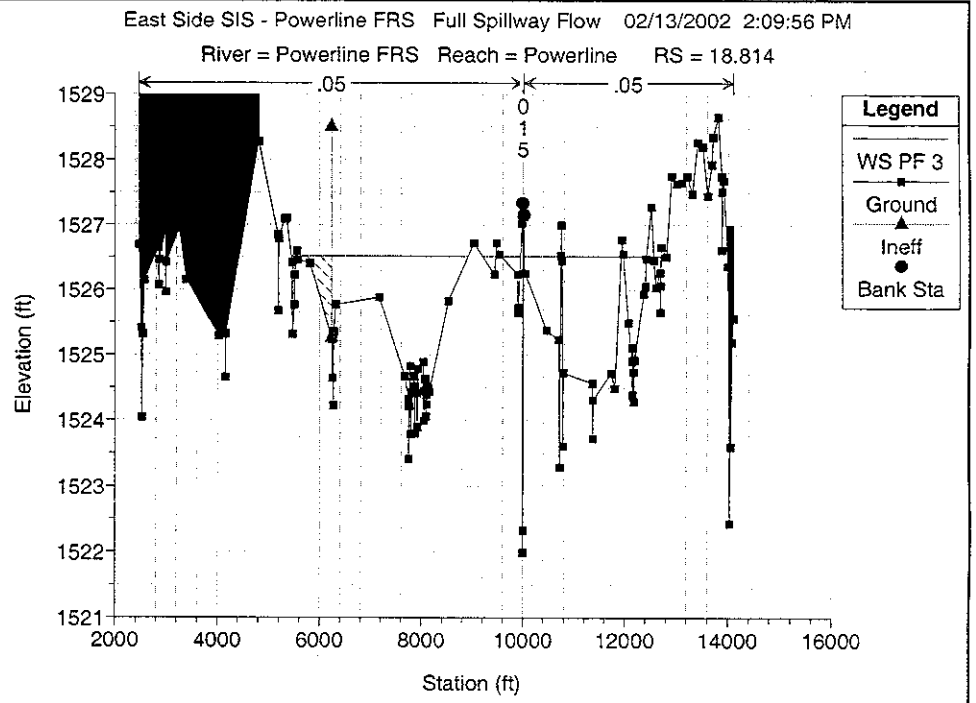
.05
0
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 18.905
.05
.05
0
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 18.814
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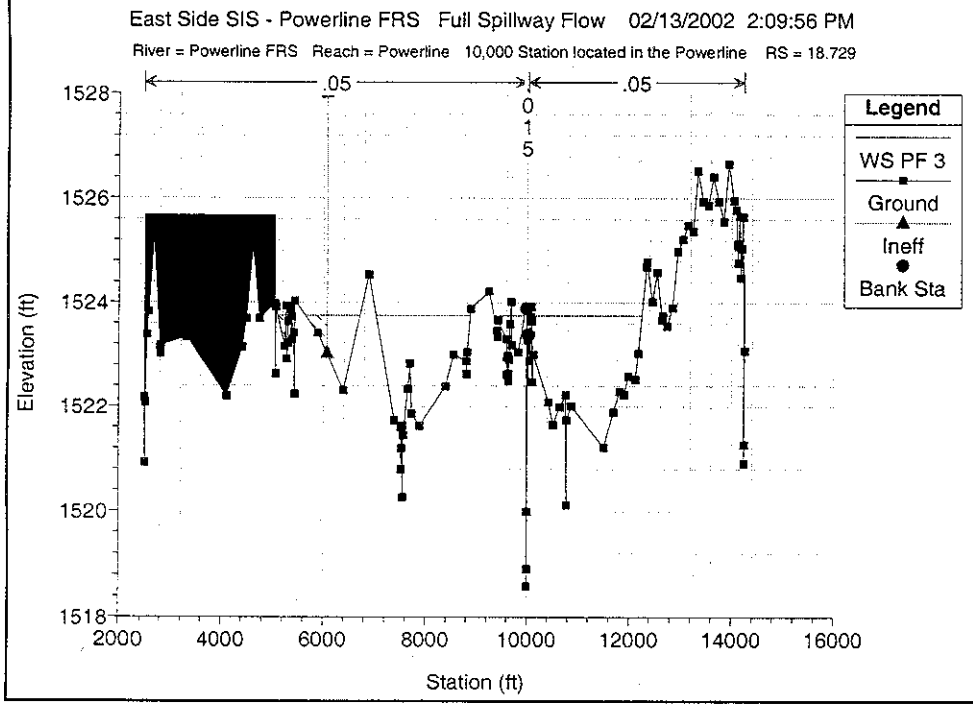
.05
0
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in the Powerline RS = 18.729
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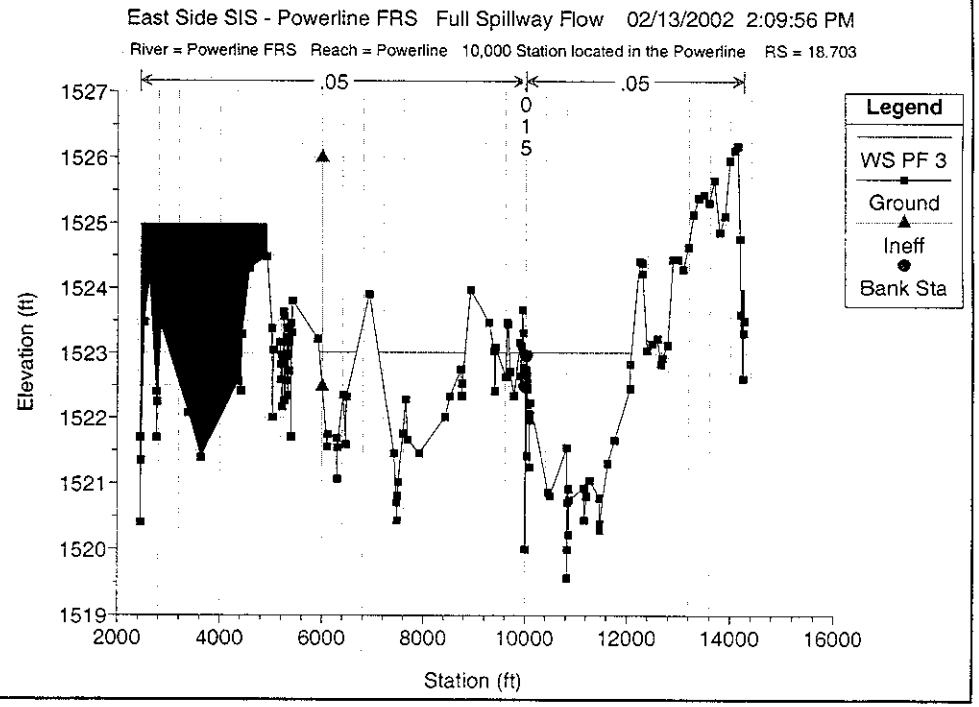
.05
0
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in the Powerline RS = 18.703
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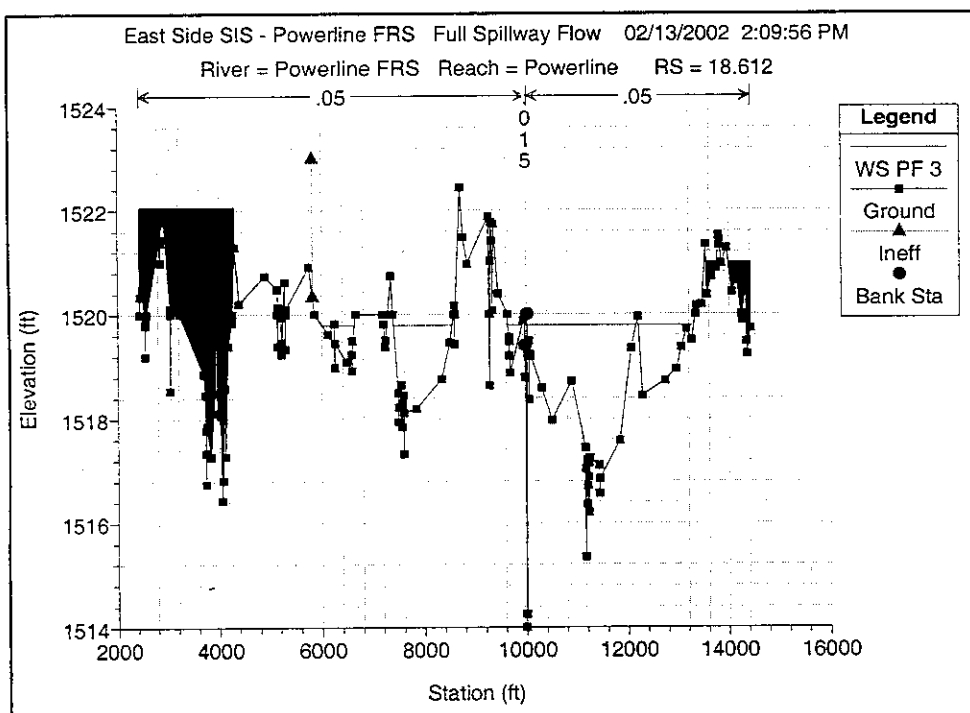
.05
0
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 18.612
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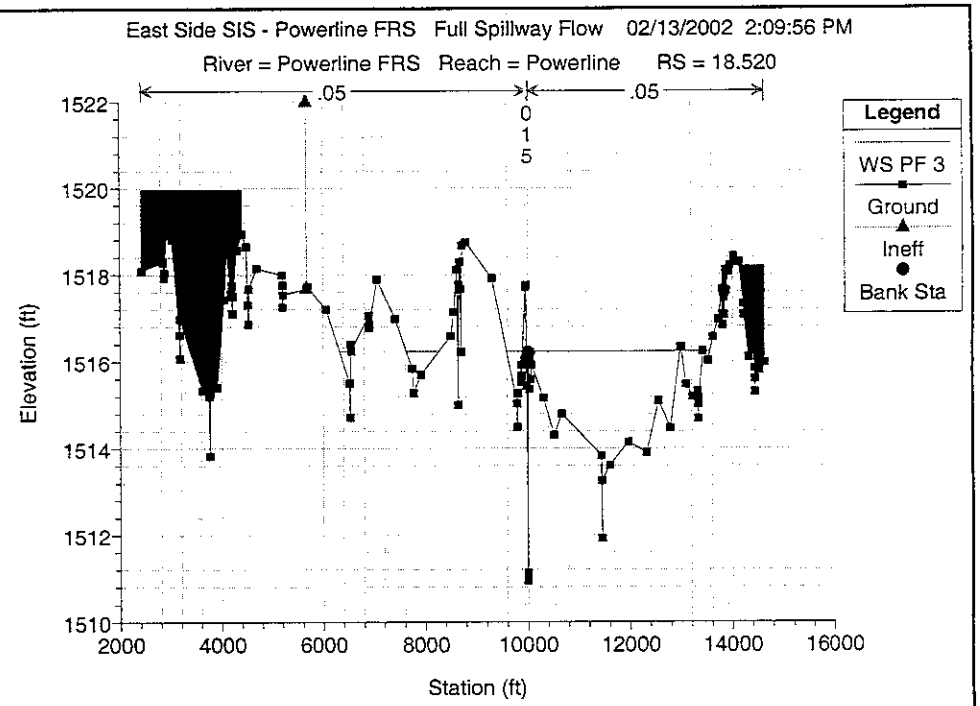
.05
0
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 18.520
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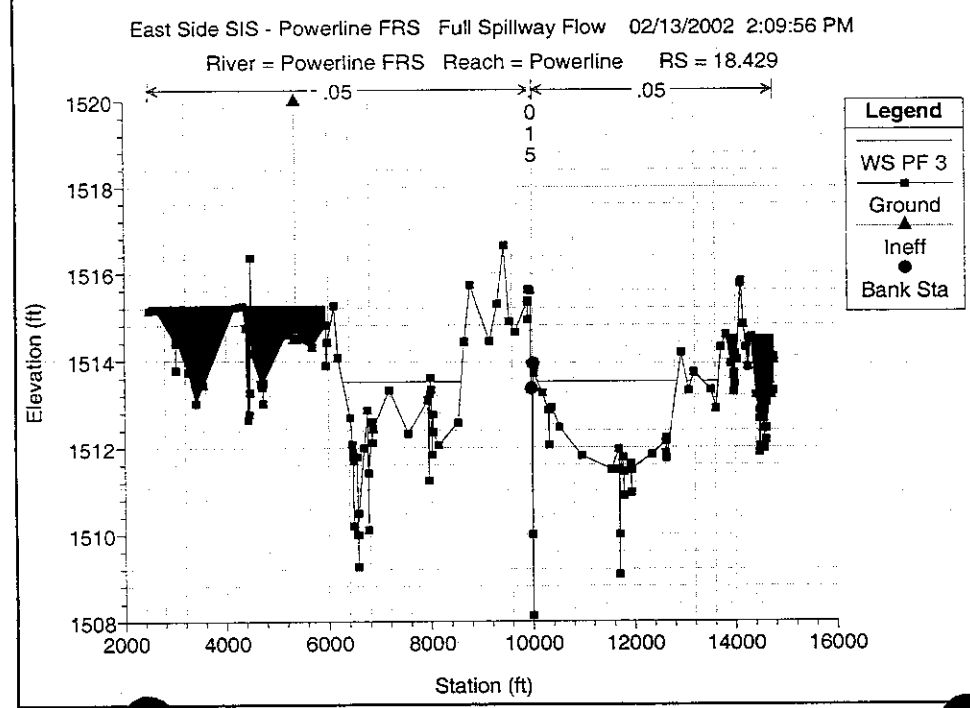
.05
0
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 18.429
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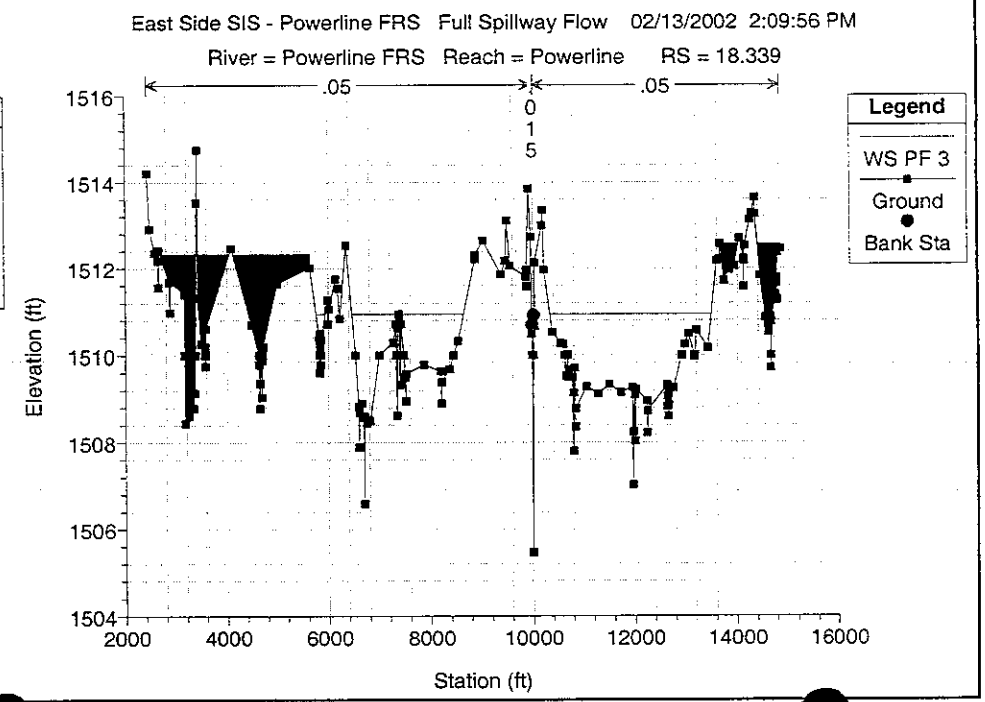
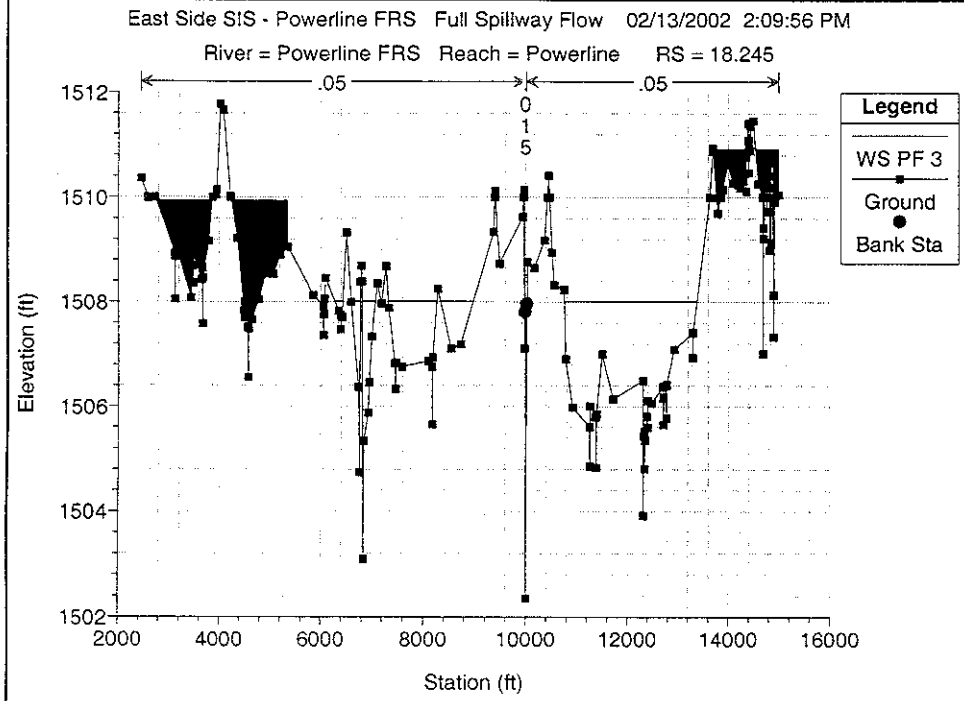
.05
0
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 18.339
.05
.05
0
1
5
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 18.245
.05
.05
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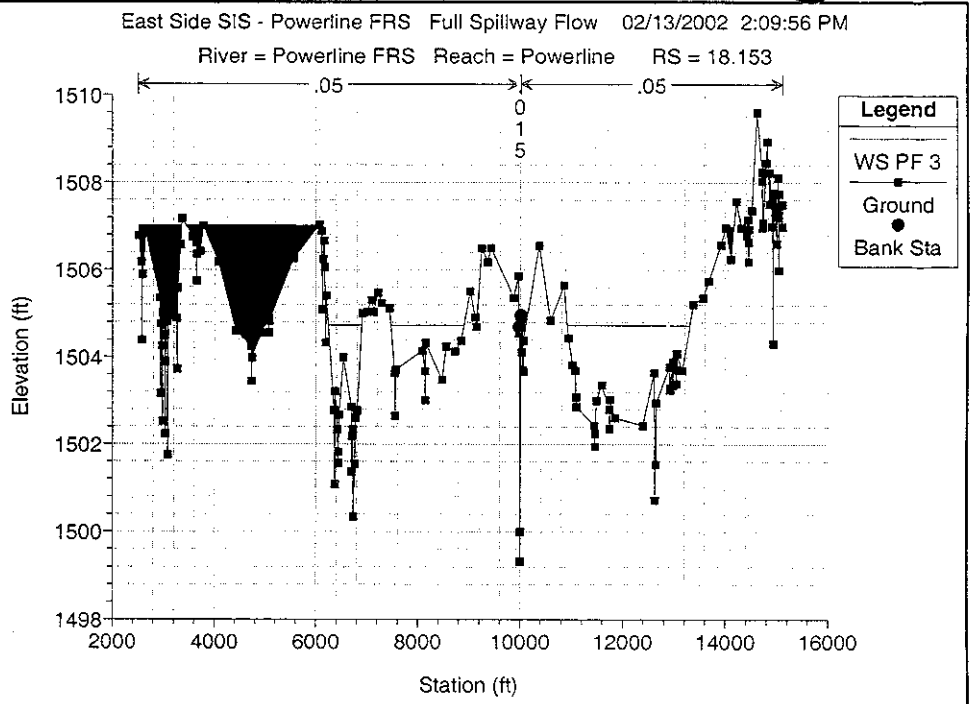
1
5
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 18.153
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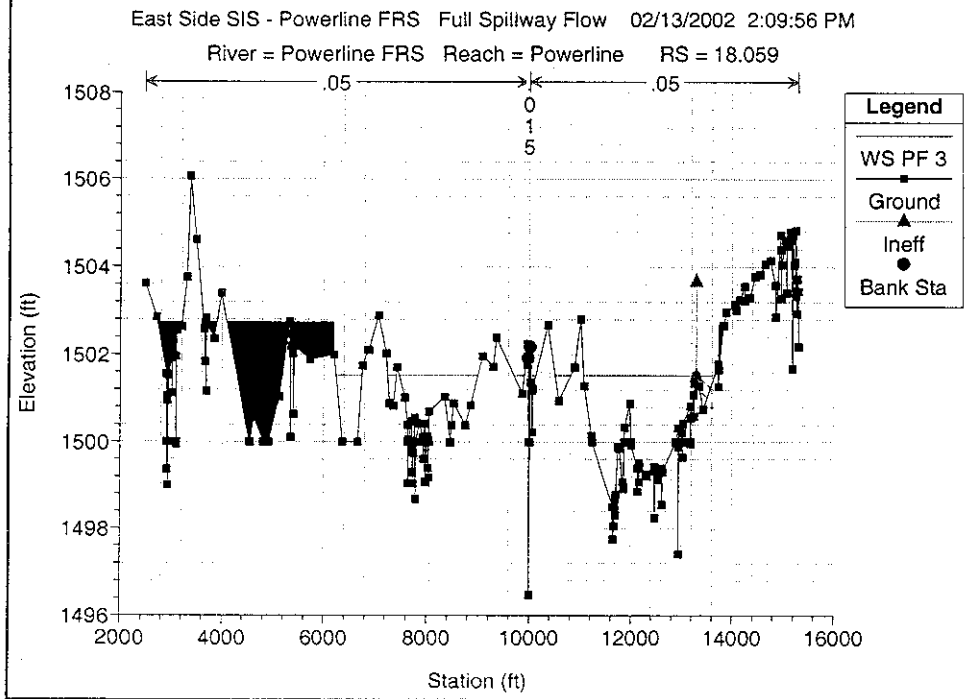
.05
0
1
5
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 18.059
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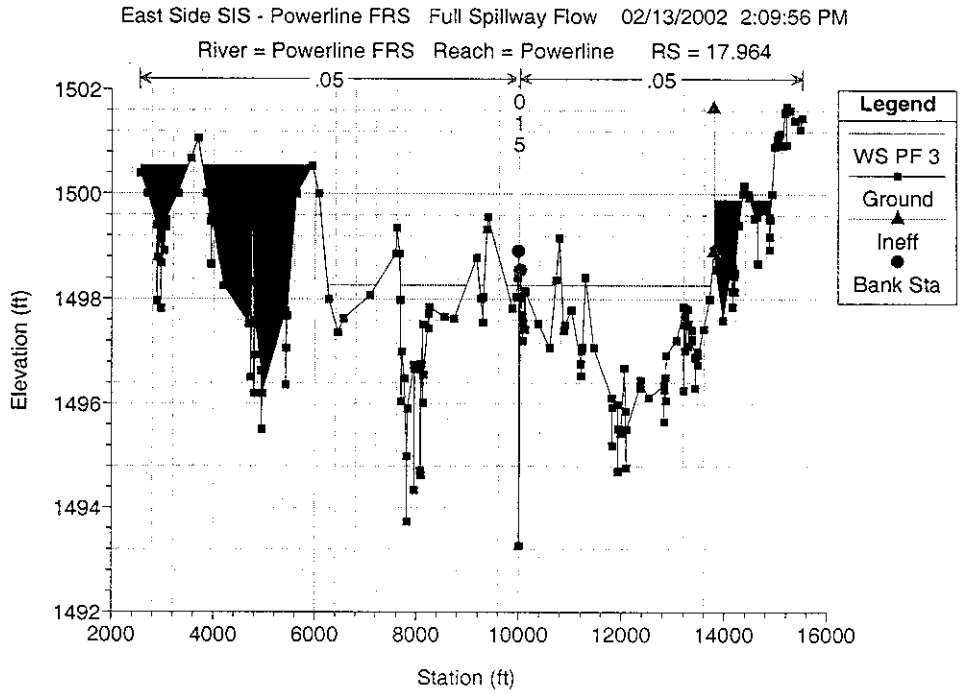
.05
0
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 17.964
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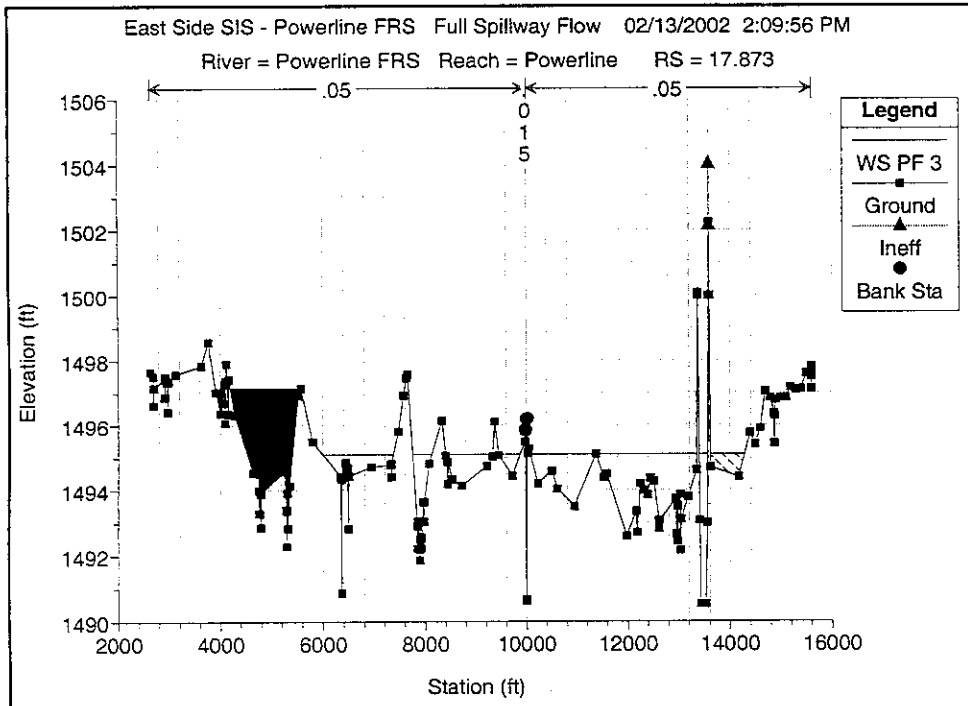
.05
0
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 17.873
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.05
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1
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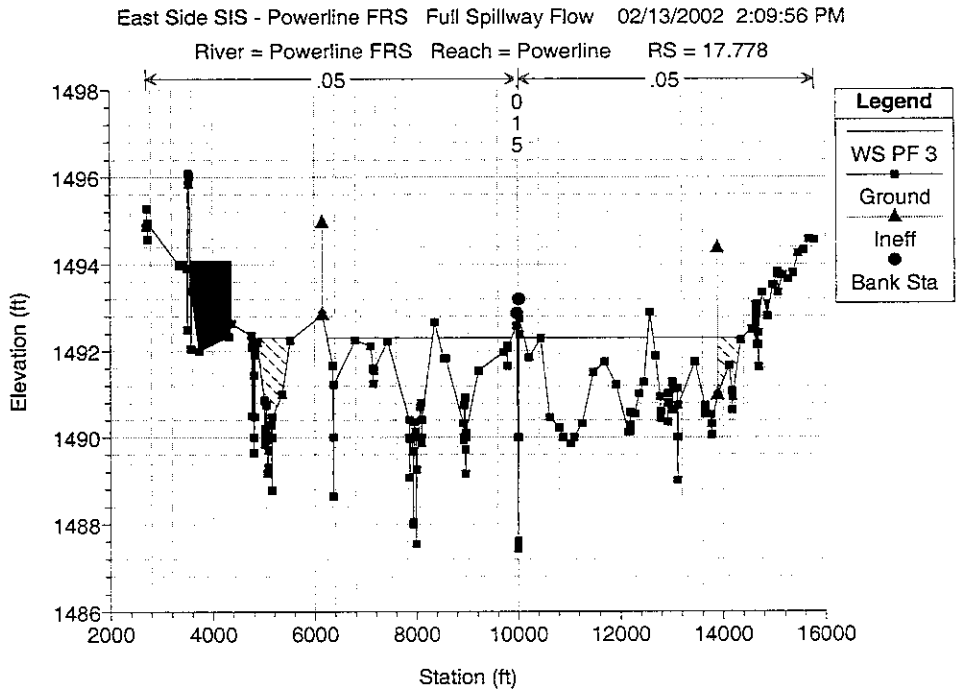
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 17.778
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.05
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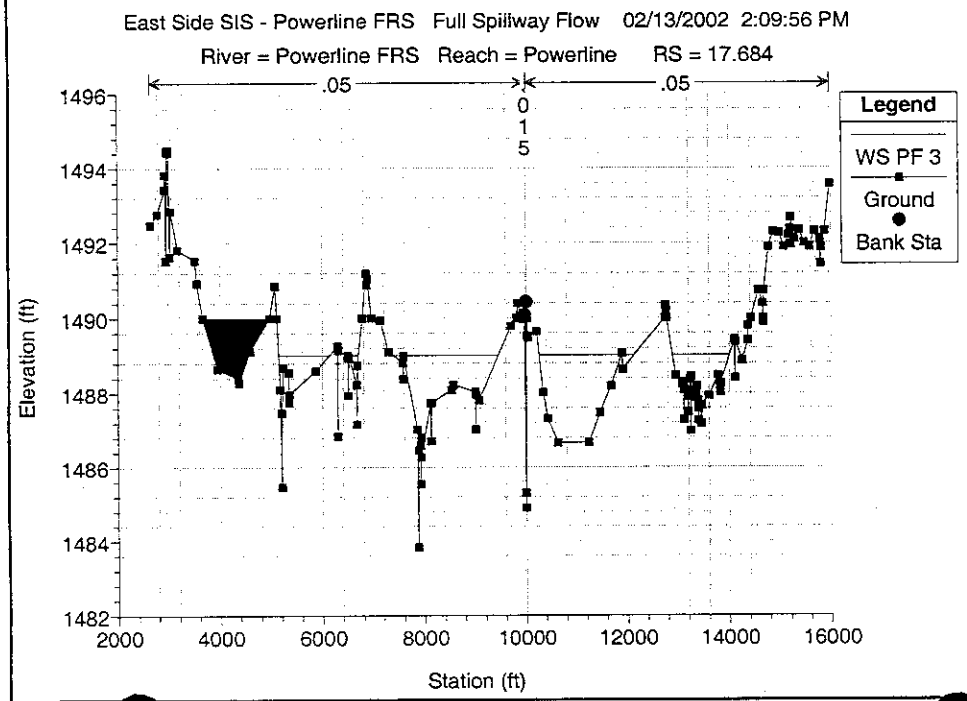
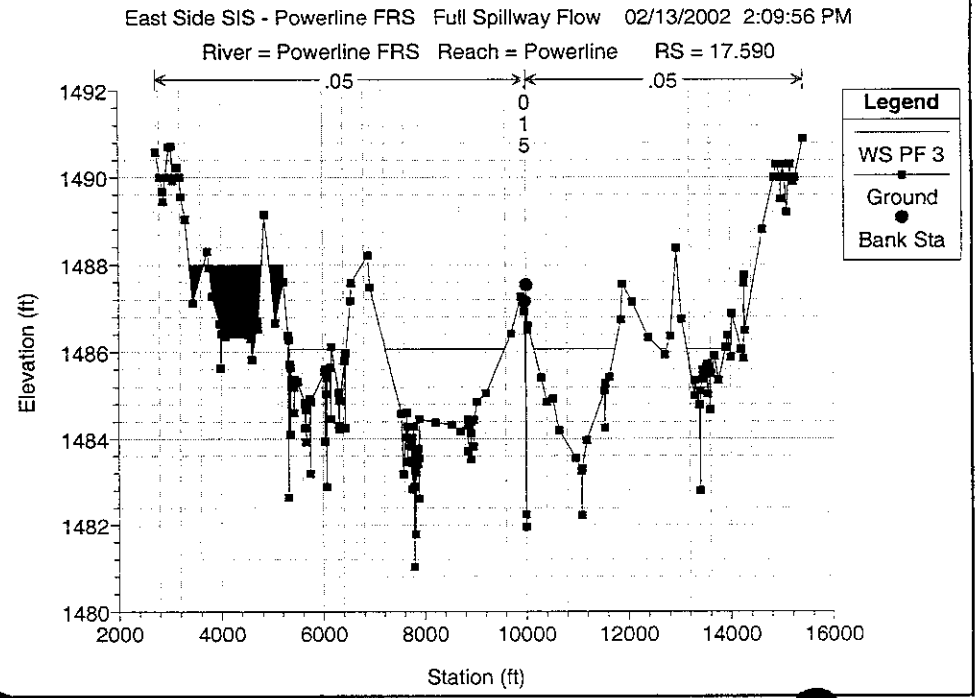
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 17.684
.05
.05
0
1
5
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 17.590
.05
.05
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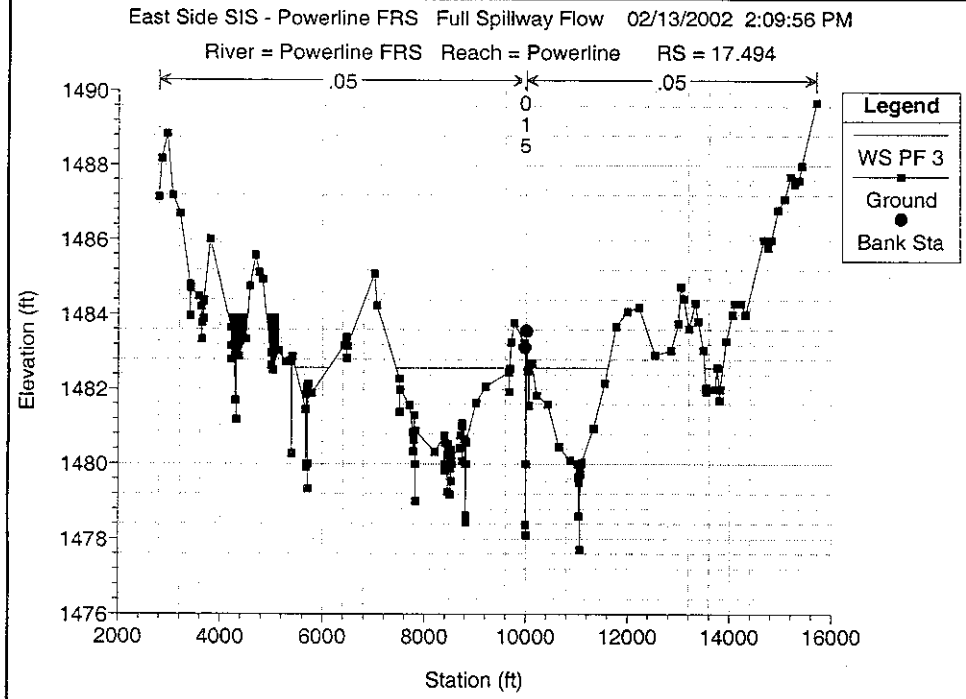
1
5
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 17.494
.05
.05
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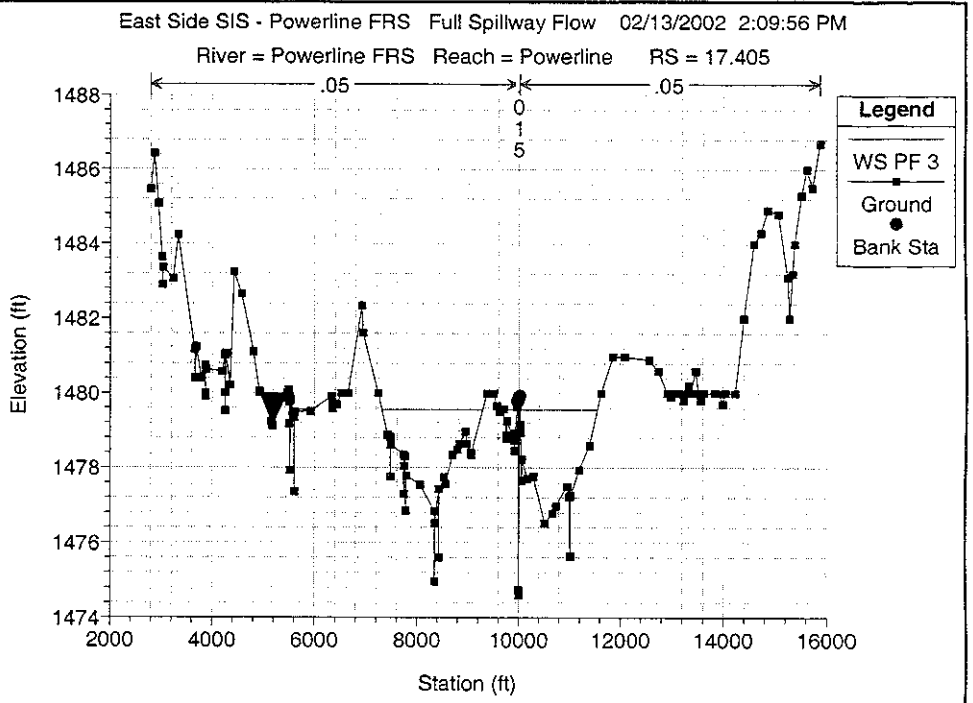
1
5
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 17.405
.05
.05
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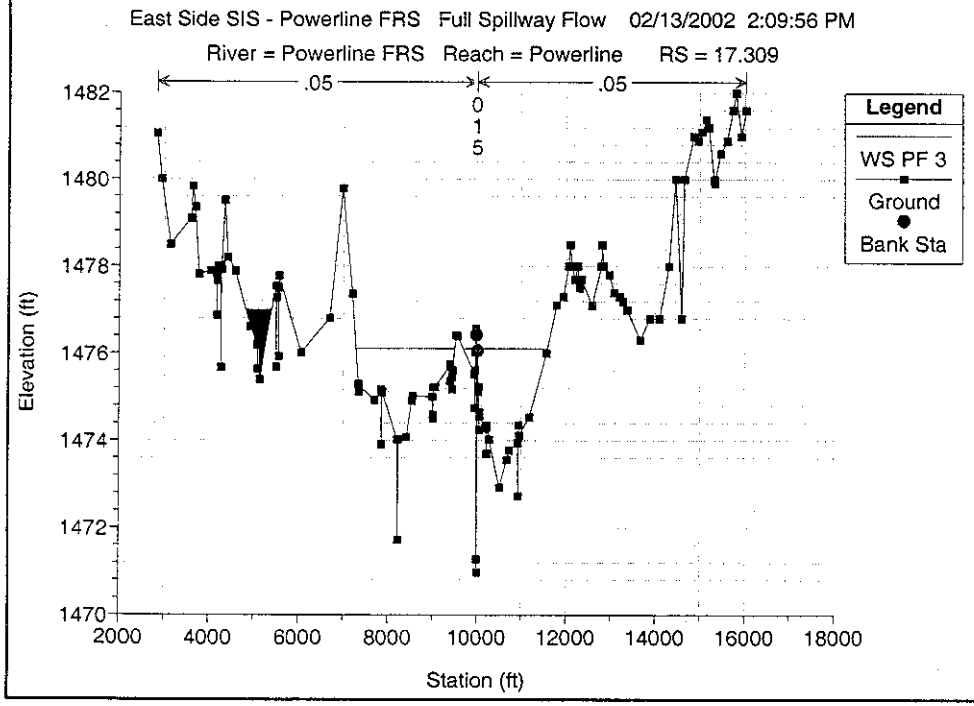
1
5
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 17.309
.05
.05
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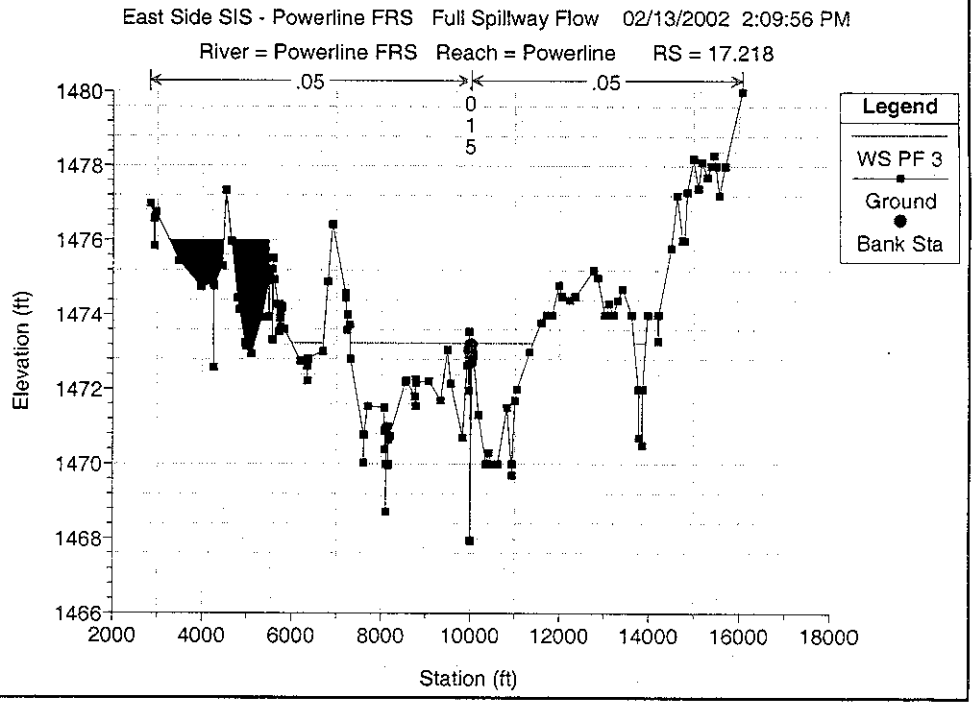
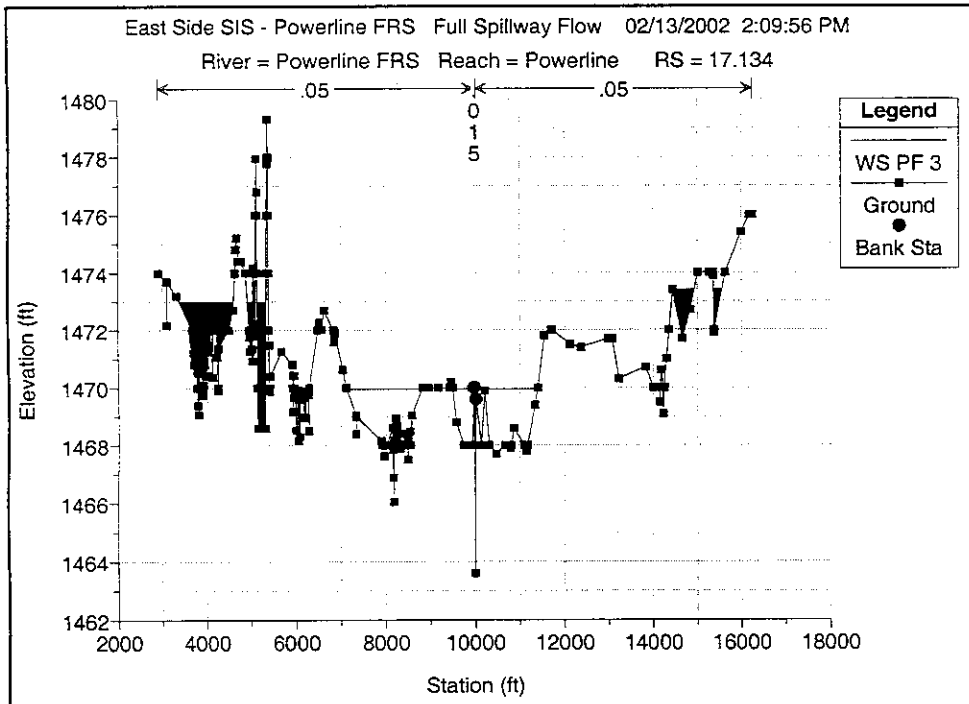
1
5
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 17.218
.05
.05
0
1
5
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 17.134
.05
.05
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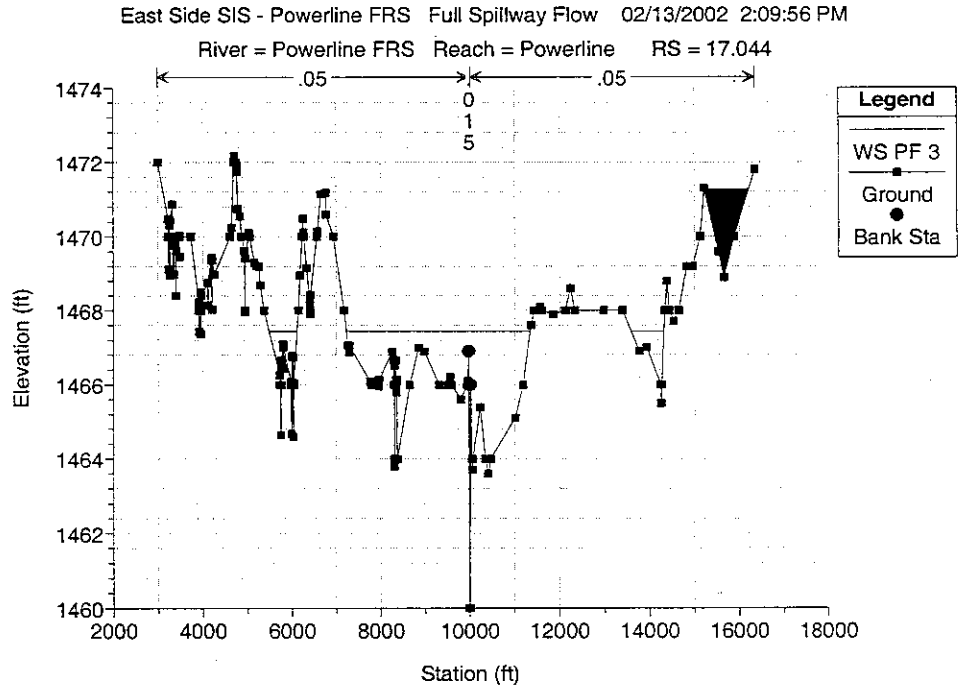
1
5
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 17.044
.05
.05
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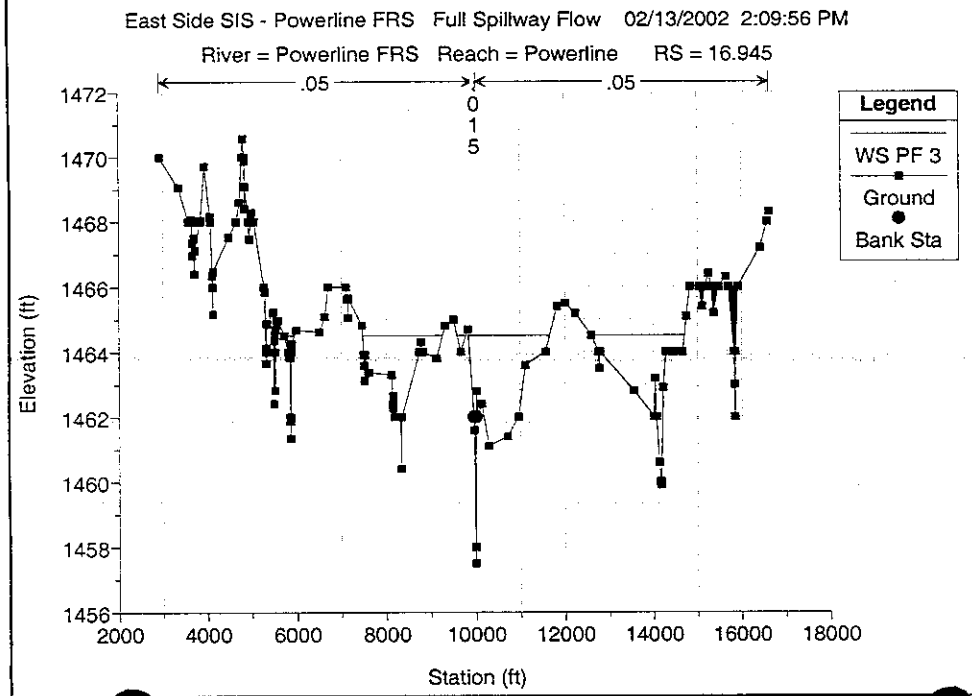
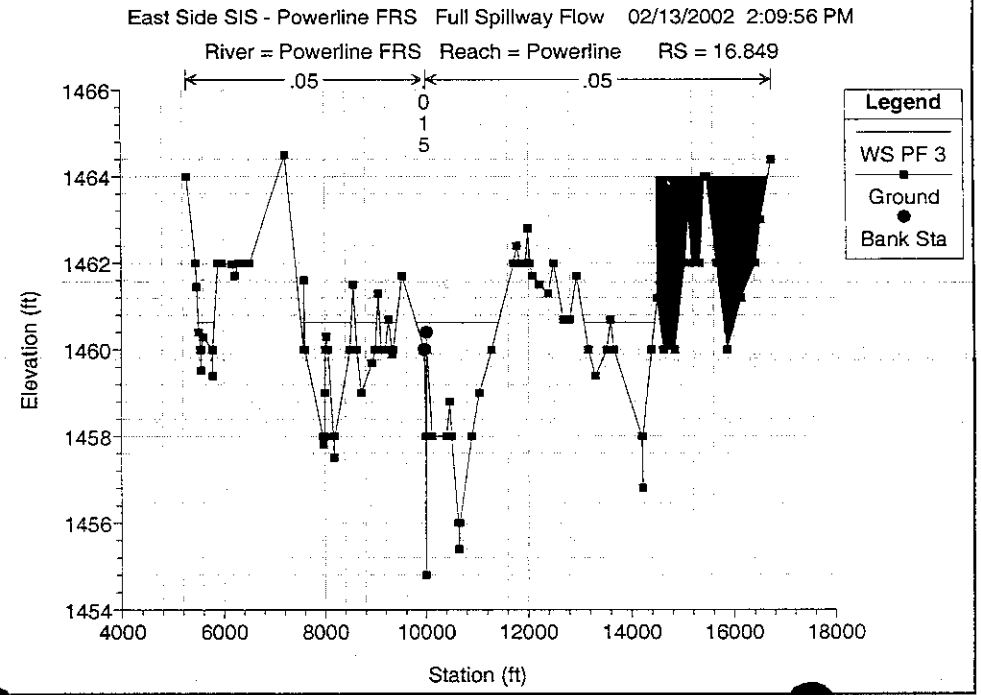
1
5
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 16.945
.05
.05
0
1
5
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 16.849
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.05
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1
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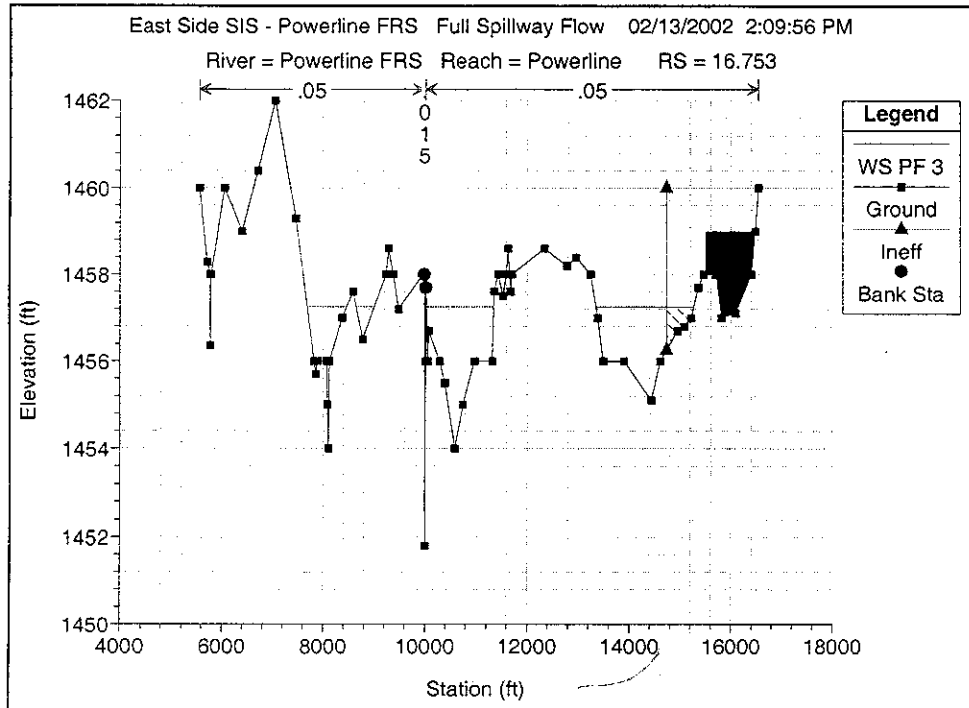
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 16.753
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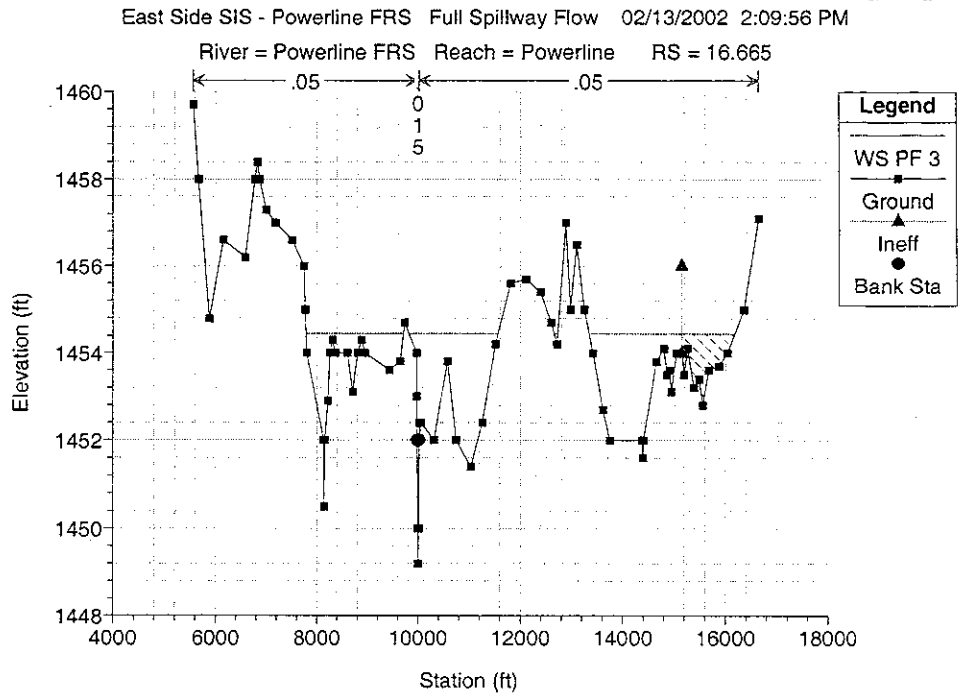
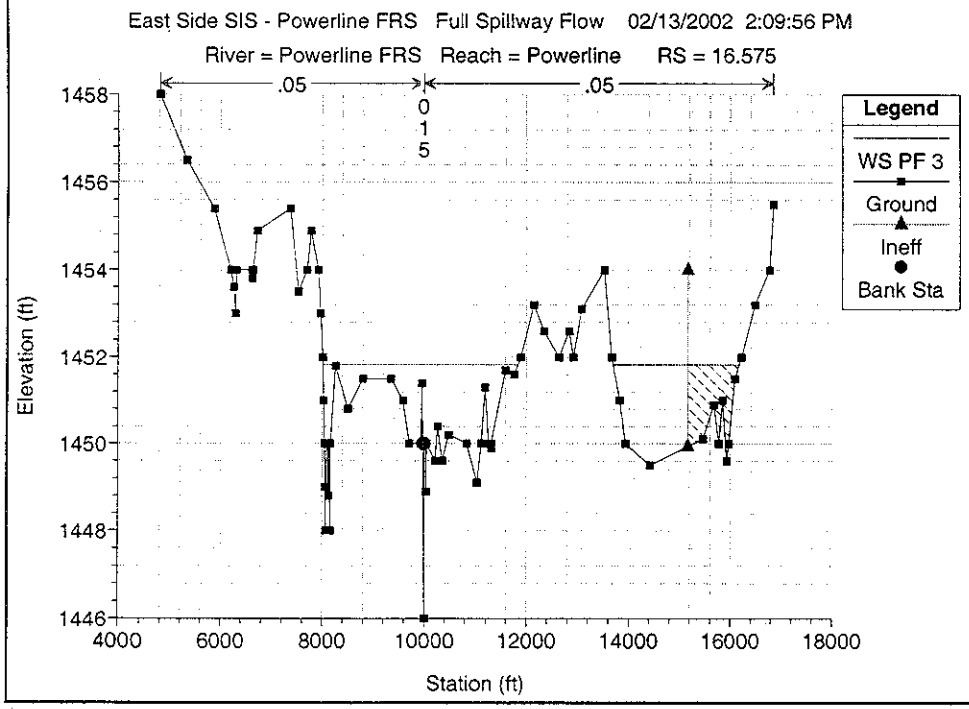
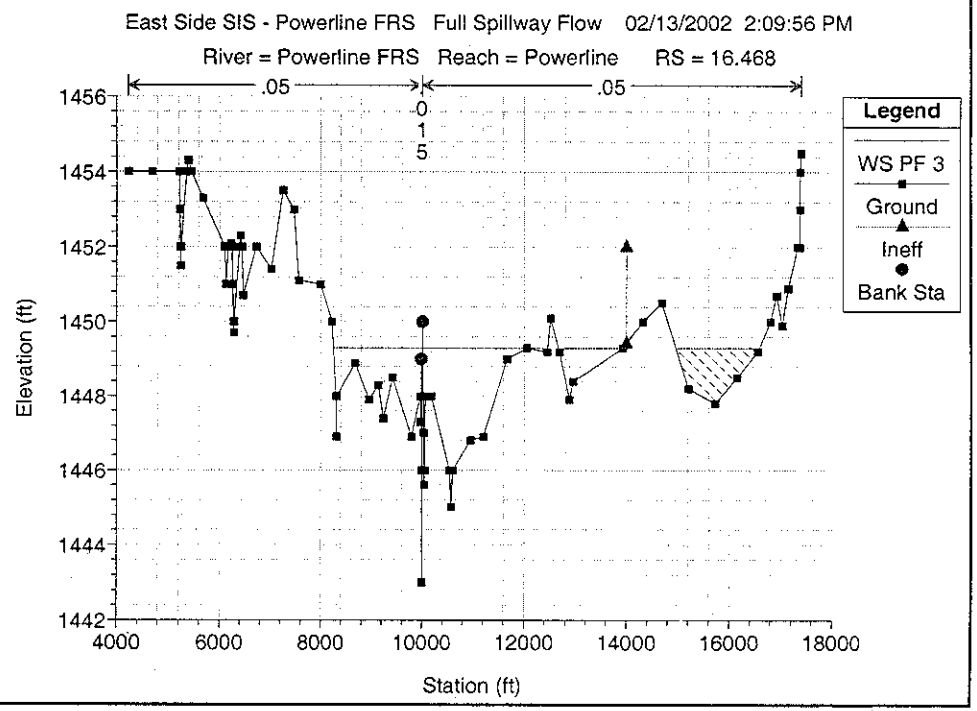
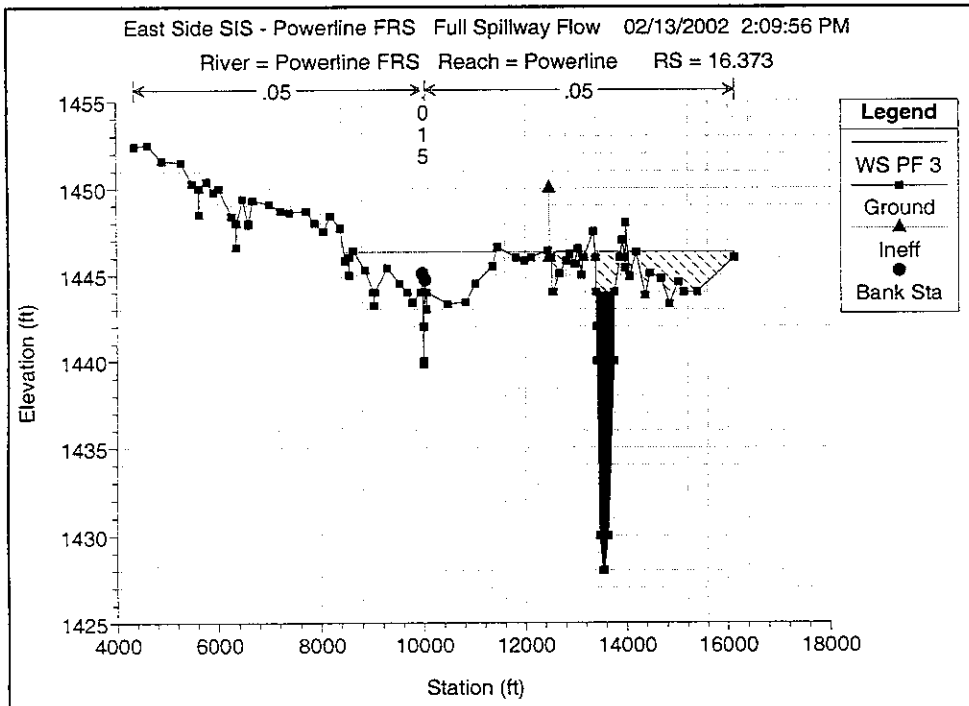
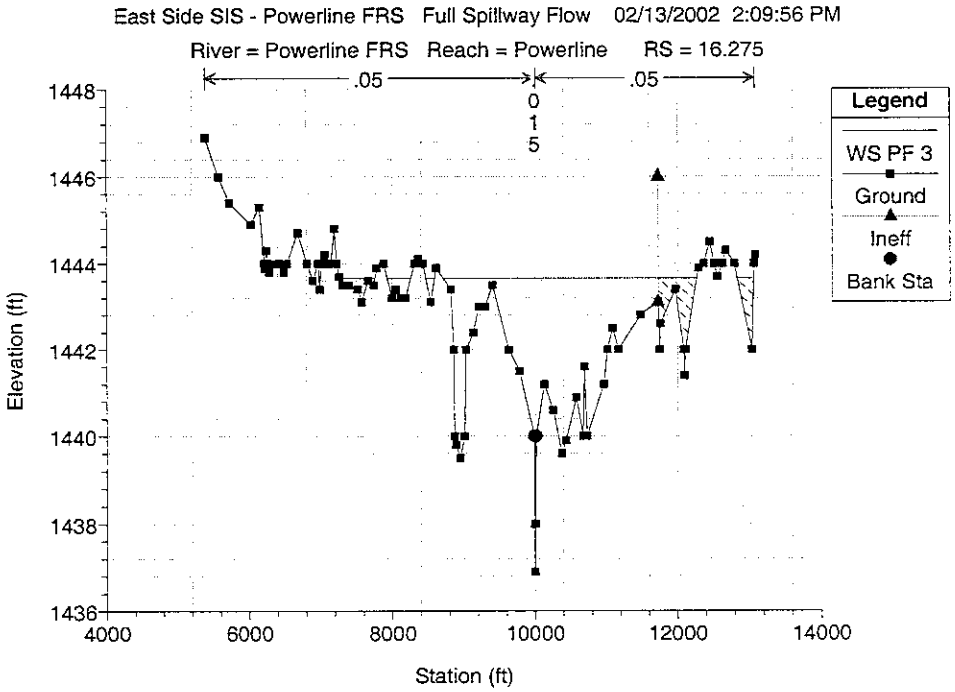
.05
0
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

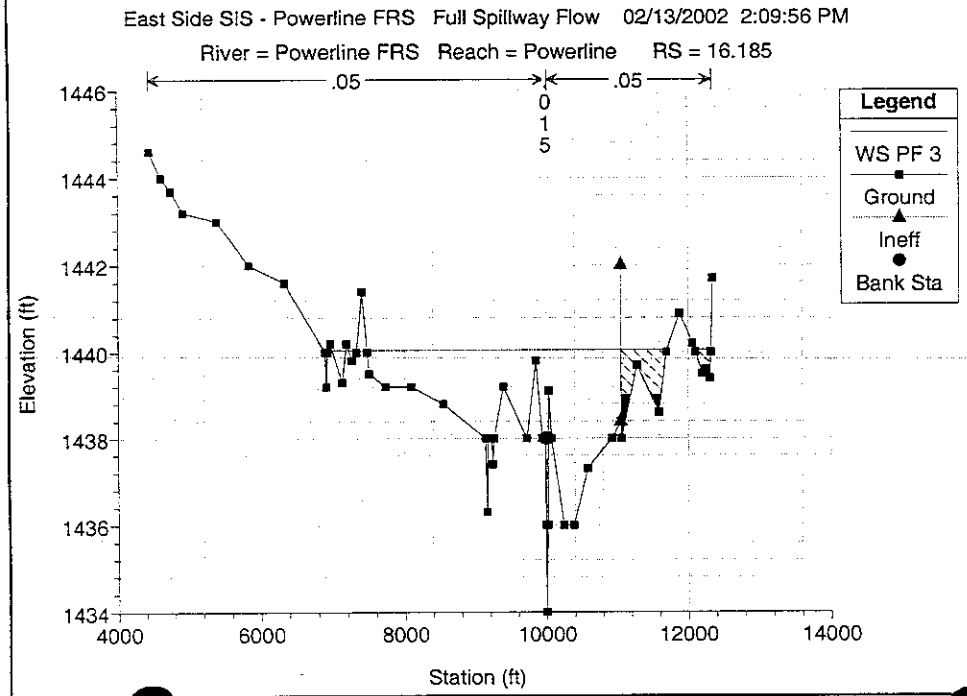

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 16.665
.05
.05
0
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

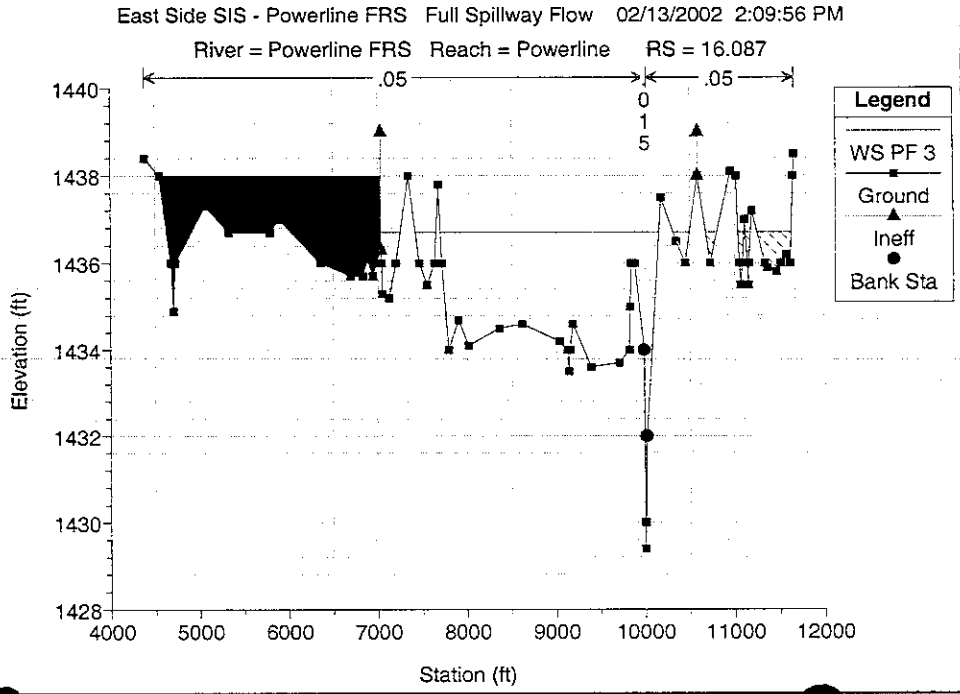

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 16.575
.05
.05
0
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

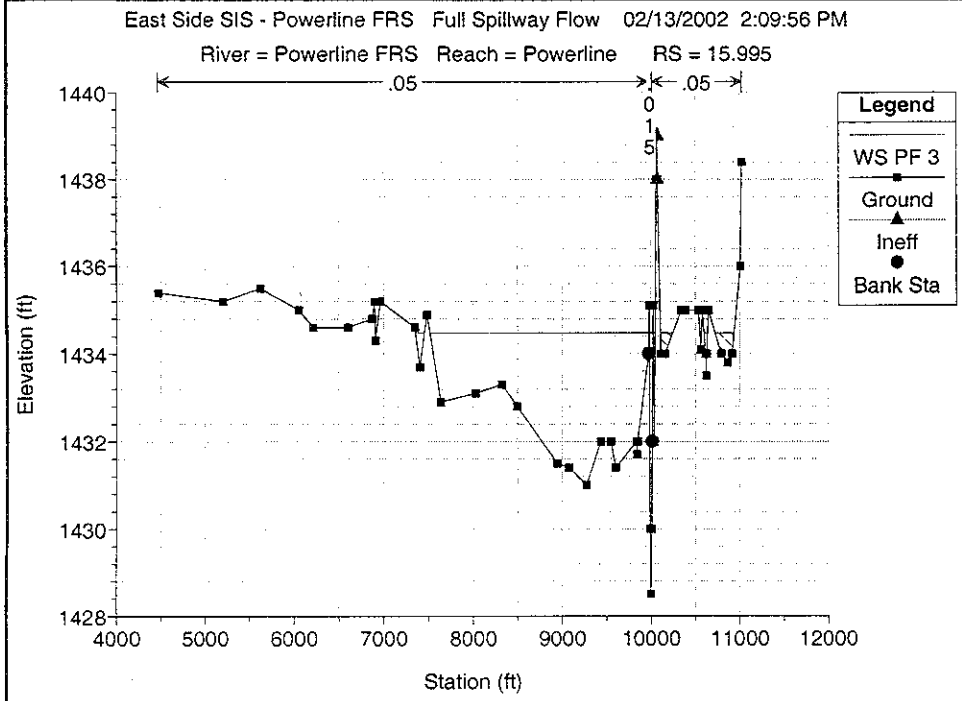

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 16.468
.05
.05
0
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

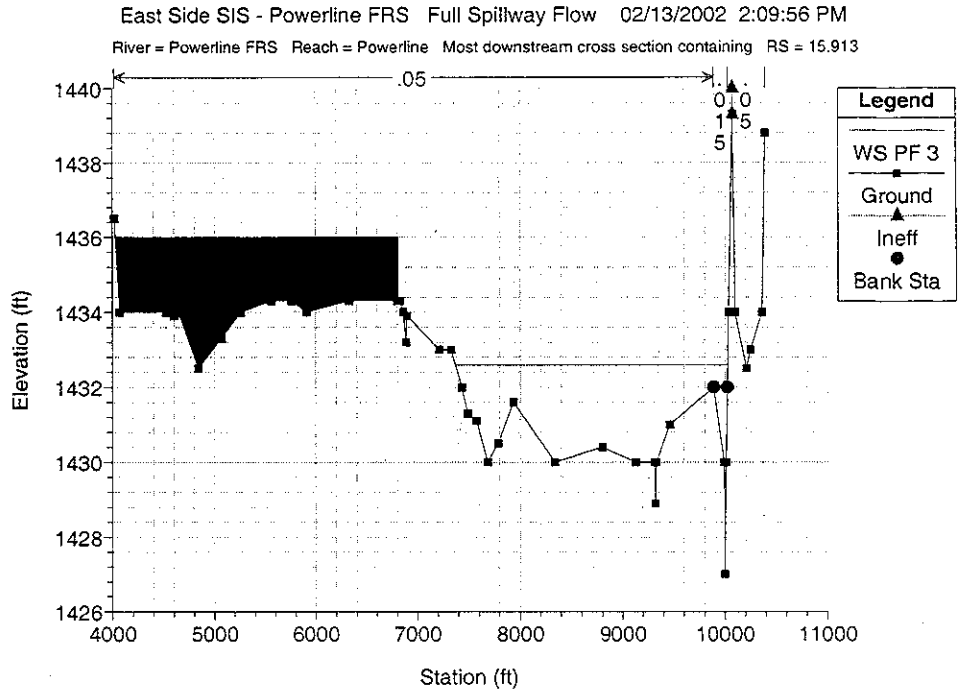

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 16.373
.05
.05
0
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

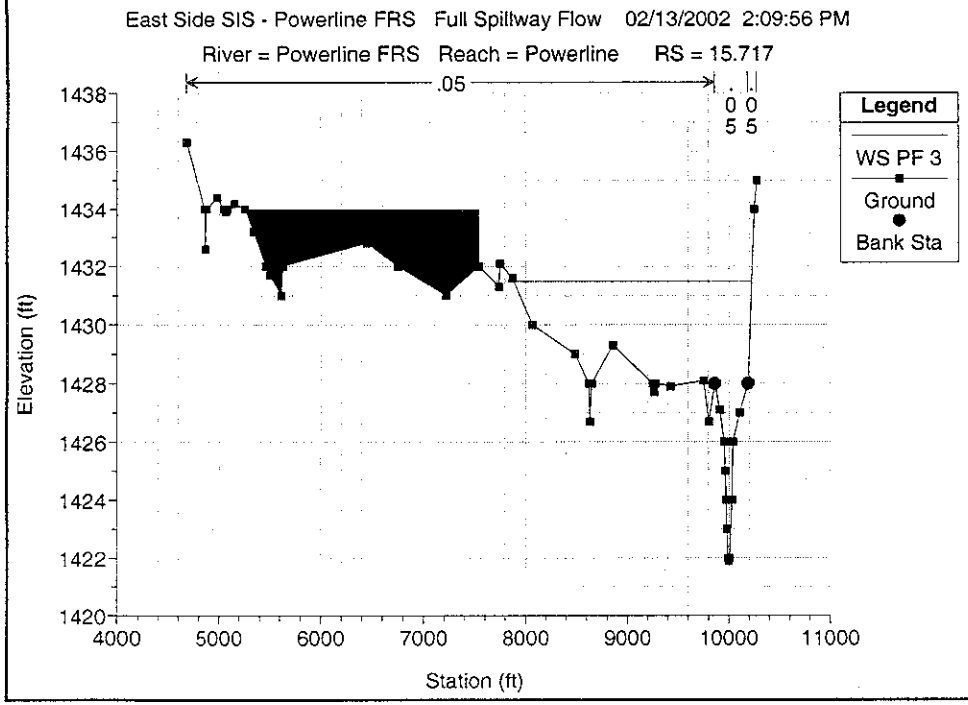

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 16.275
.05
.05
0
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

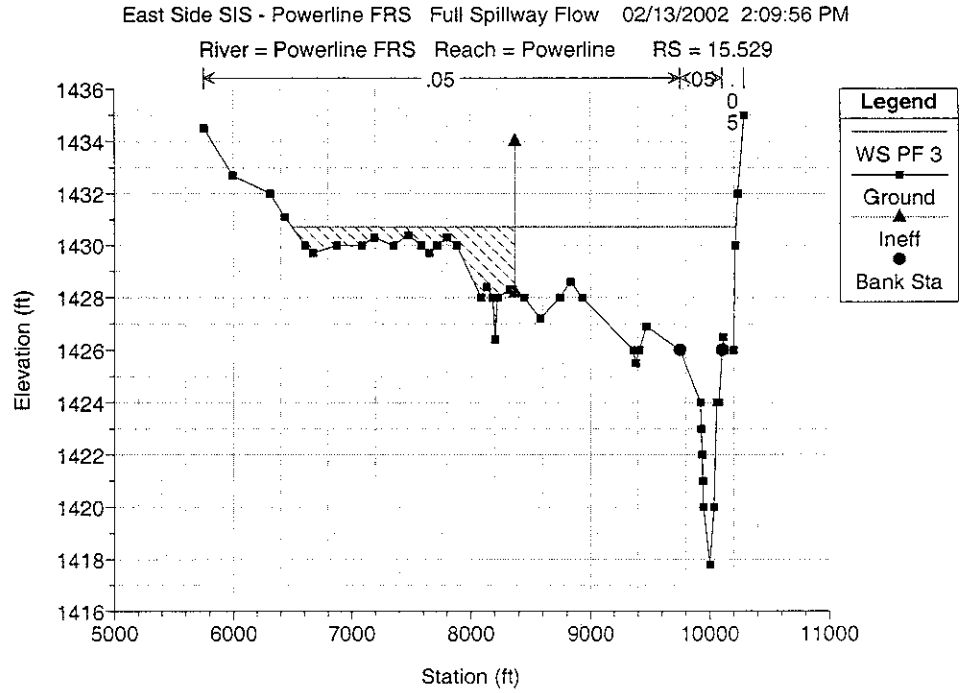

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 16.185
.05
.05
0
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

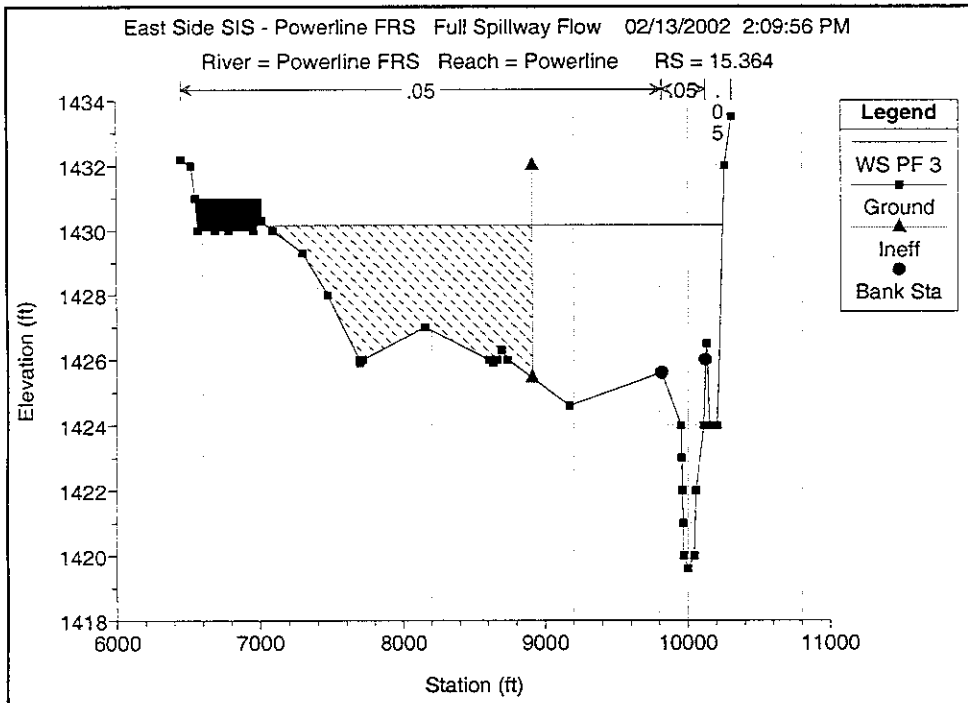

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 16.087
.05
.05
0
1
5
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

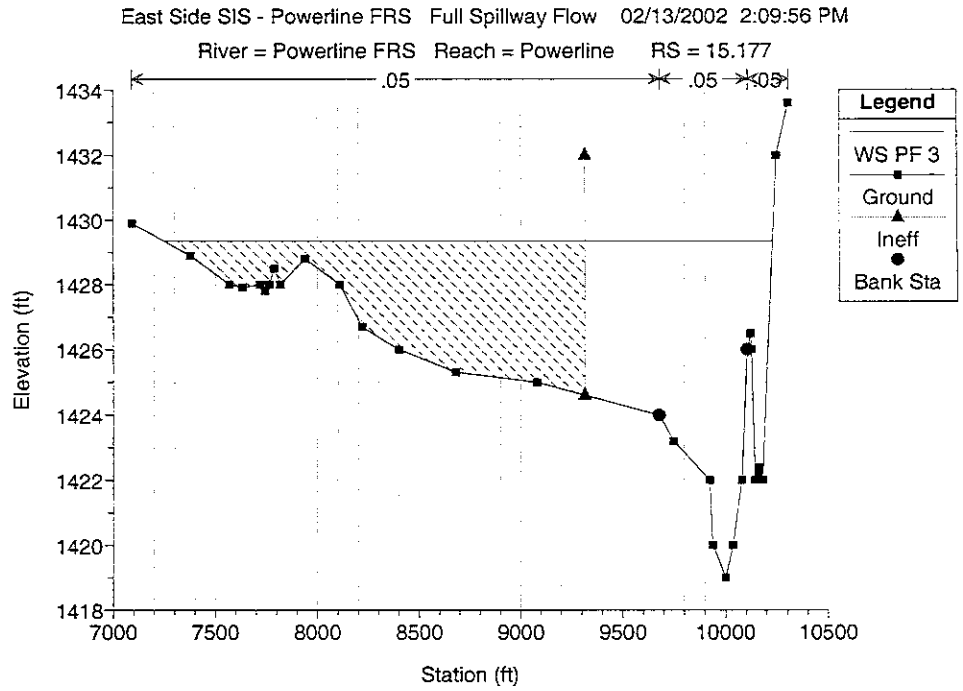

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 15.995
.05
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

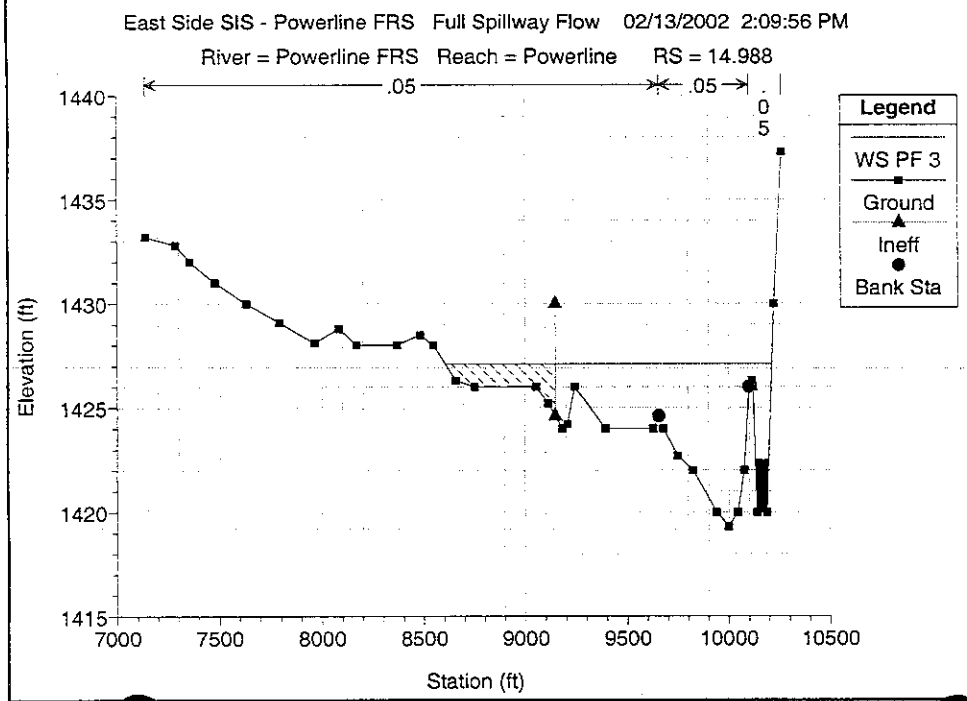

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline Most downstream cross section containing RS = 15.913
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

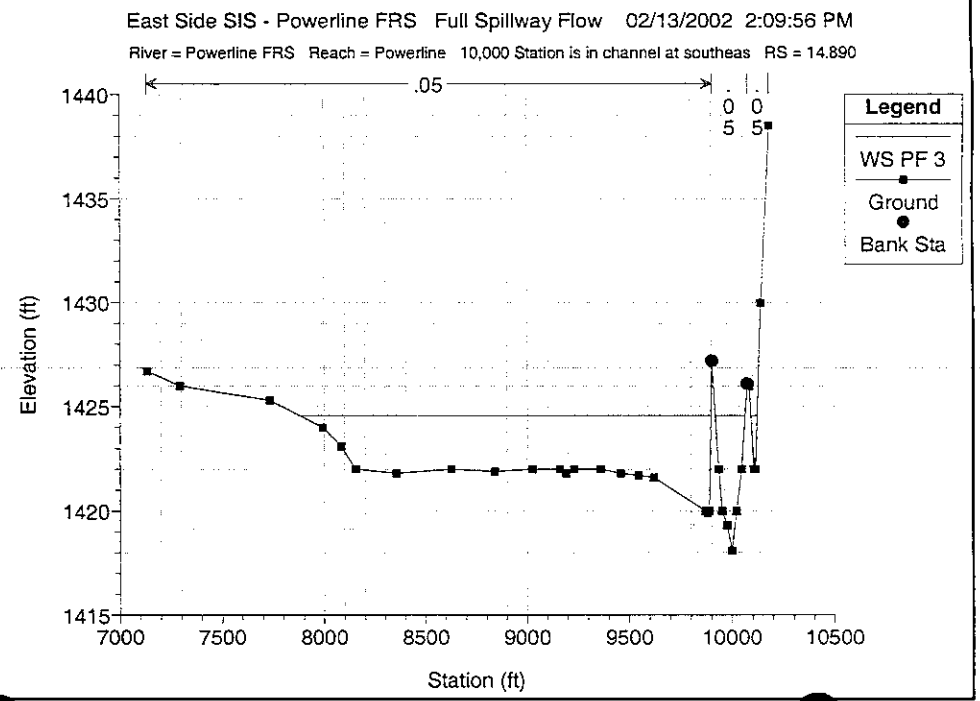

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 15.717
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 15.529
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 15.364
.05
.05
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

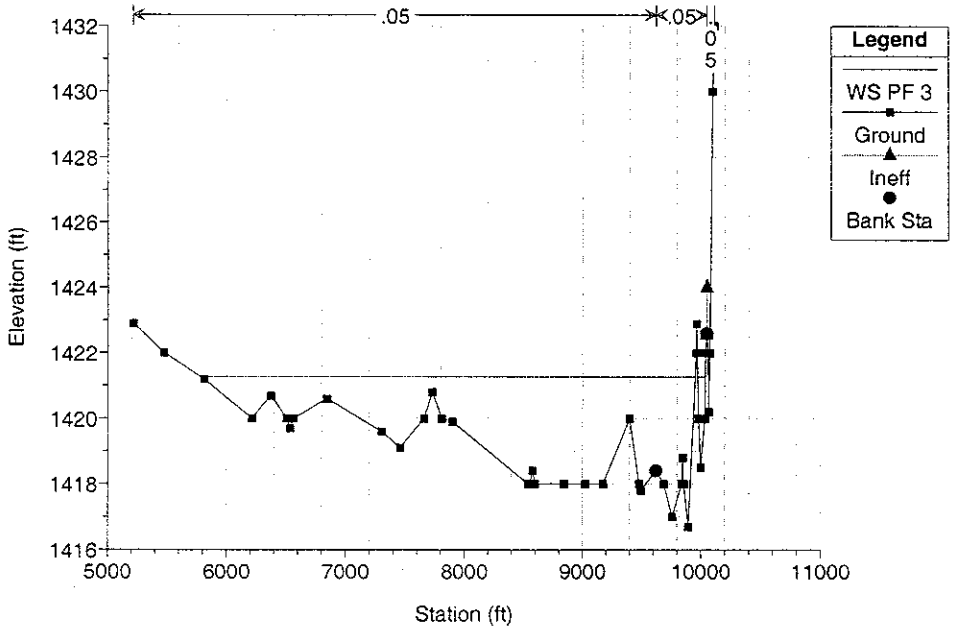

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 15.177
.05
.05
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 14.988
.05
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline 10,000 Station is in channel at southeas RS = 14.890
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

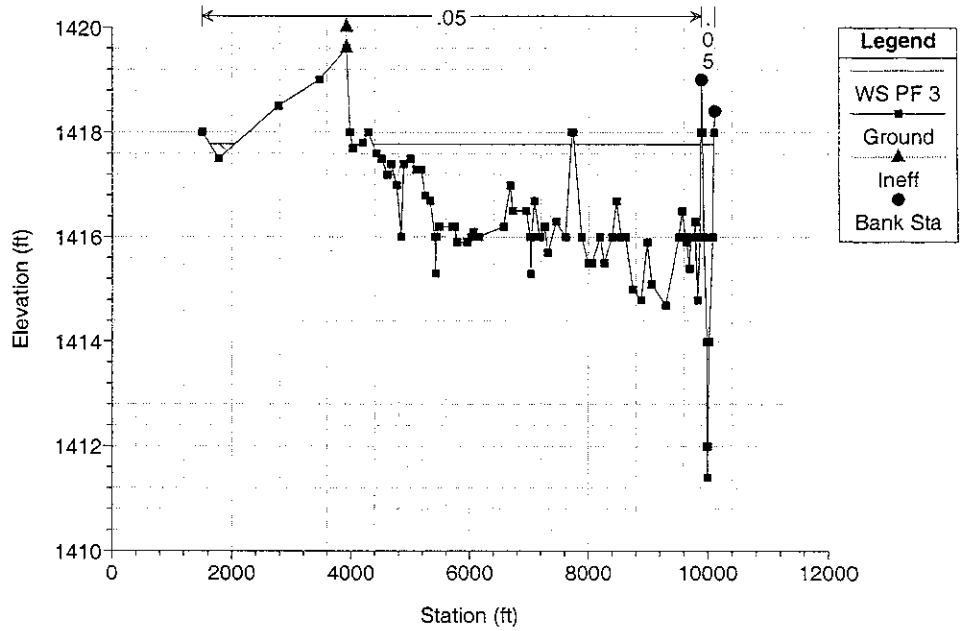
East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM

River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.790



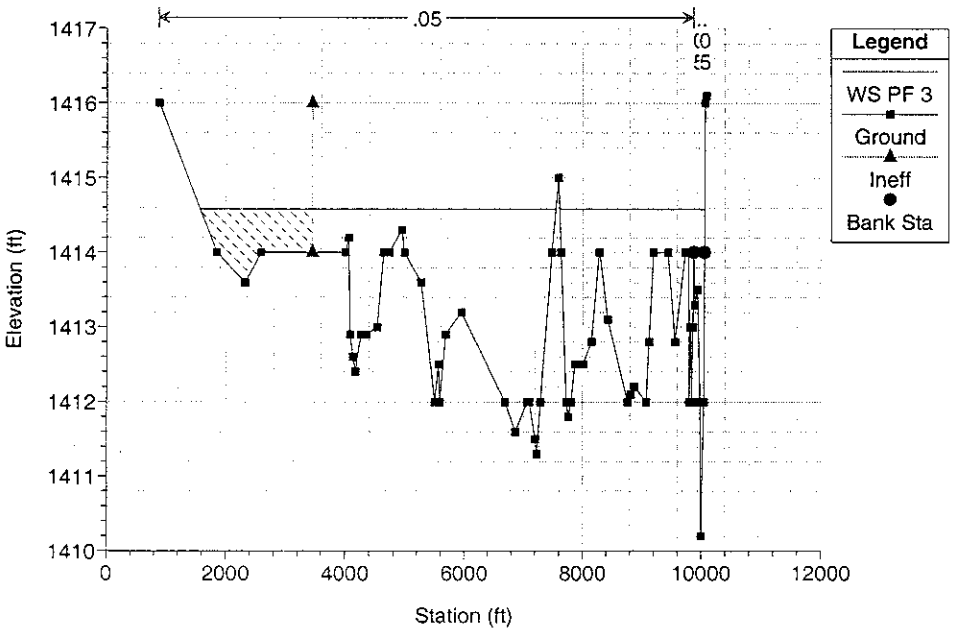
East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM

River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.691



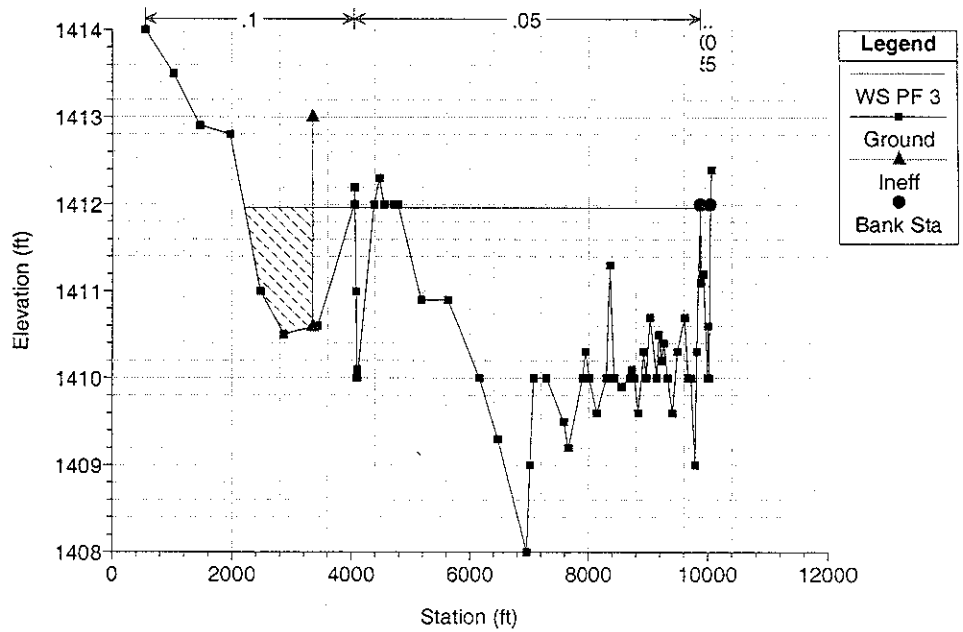
East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM

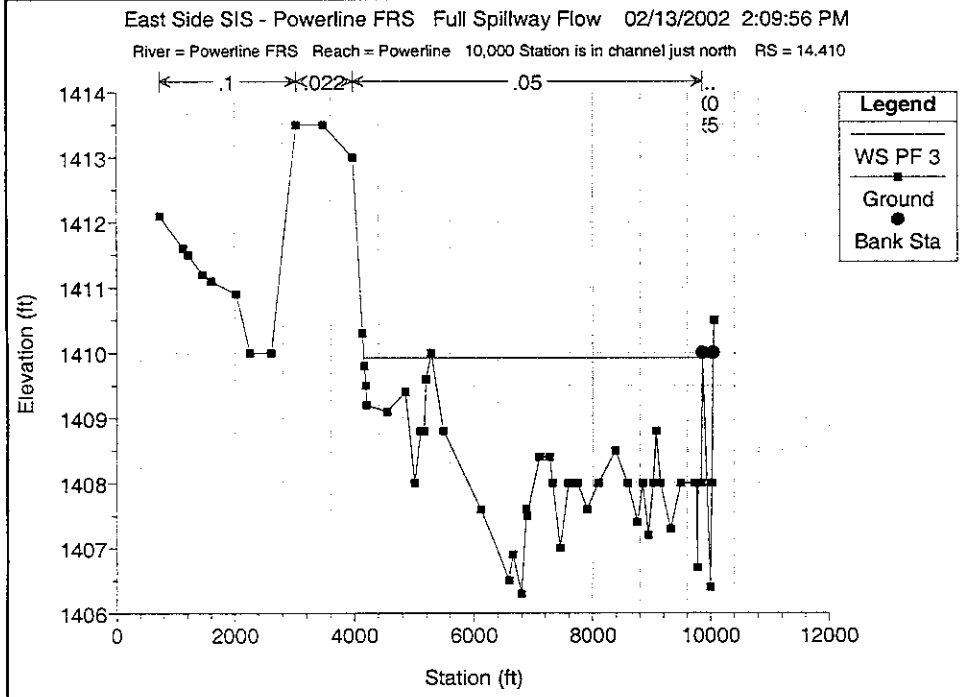
River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.601

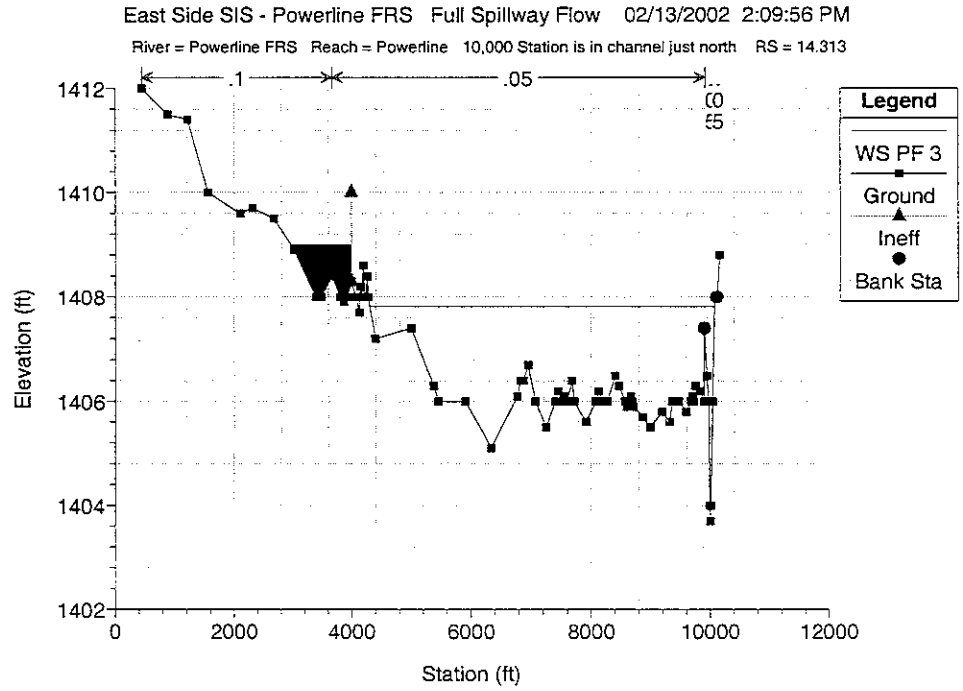


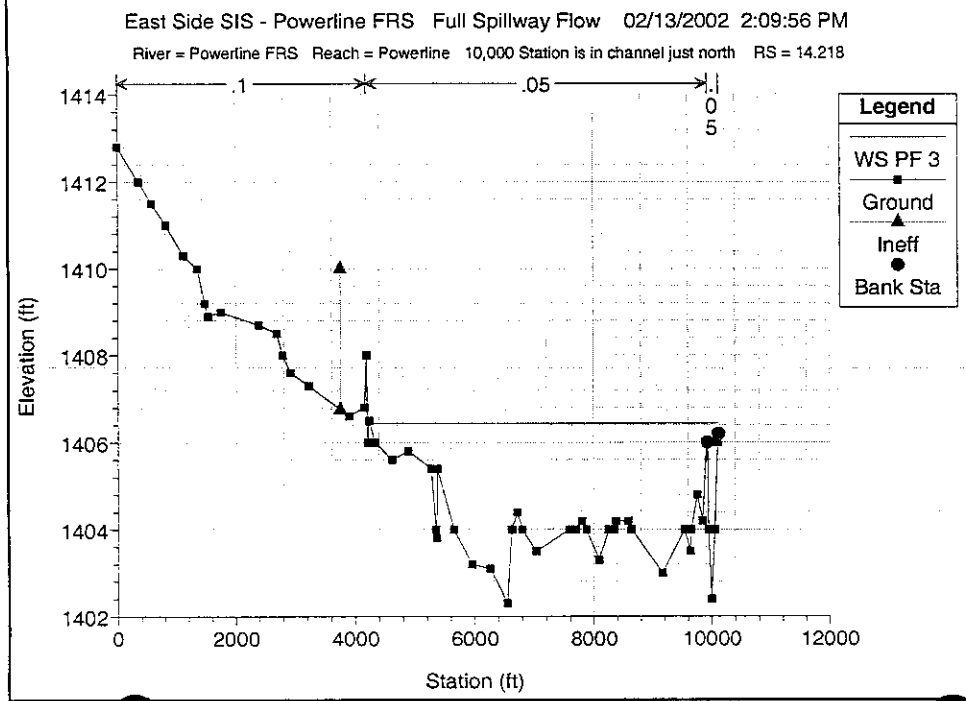
East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM

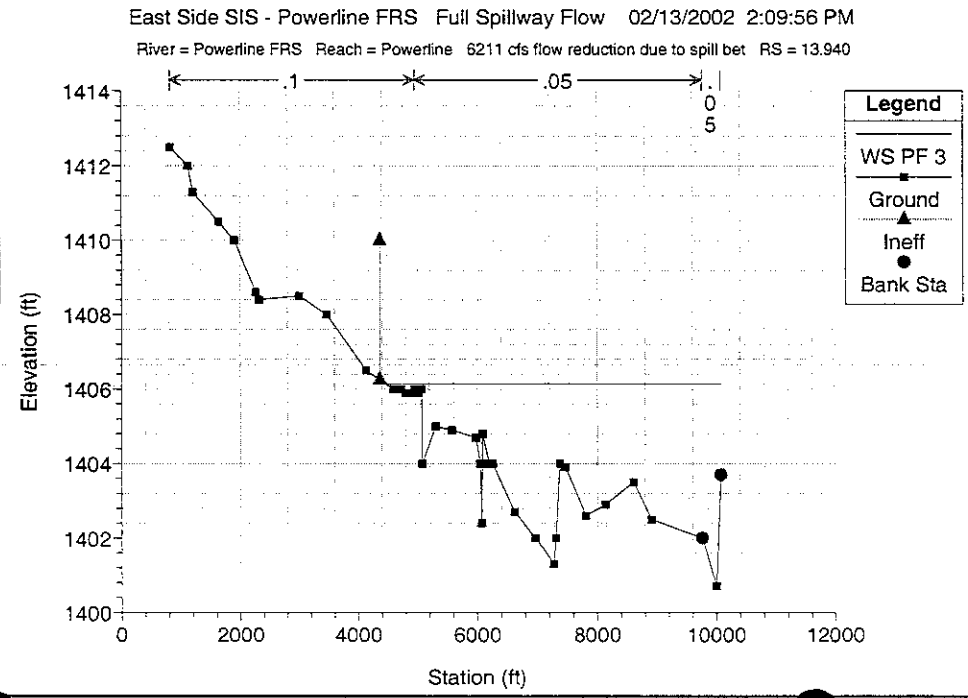
River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.504




East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.410
.1
.022
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

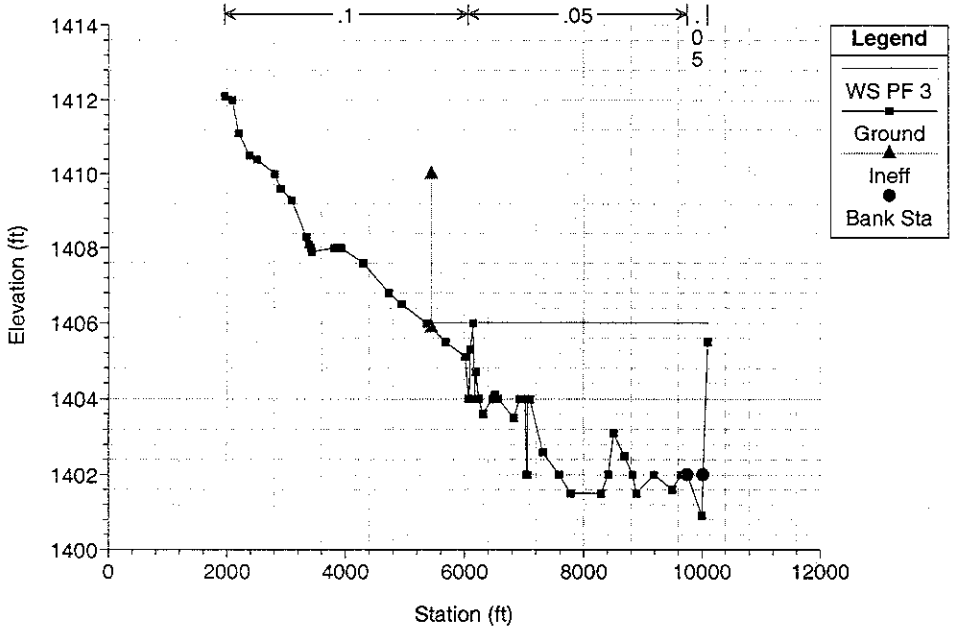

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.313
.1
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.218
.1
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline 6211 cfs flow reduction due to spill bet RS = 13.940
.1
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

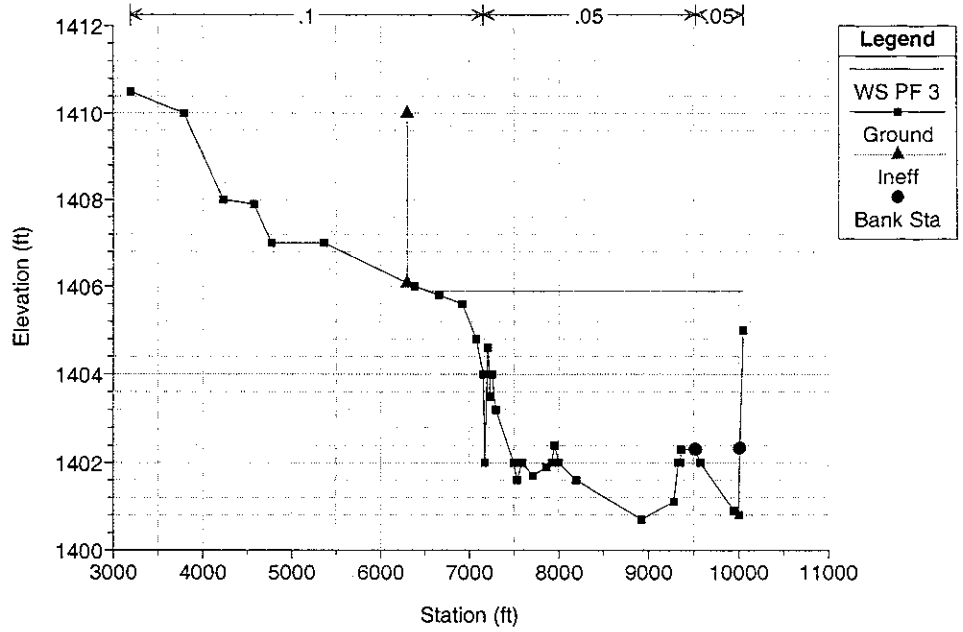
East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM

River = Powerline FRS Reach = Powerline 4782 cfs flow reduction due to spill bet RS = 13.750



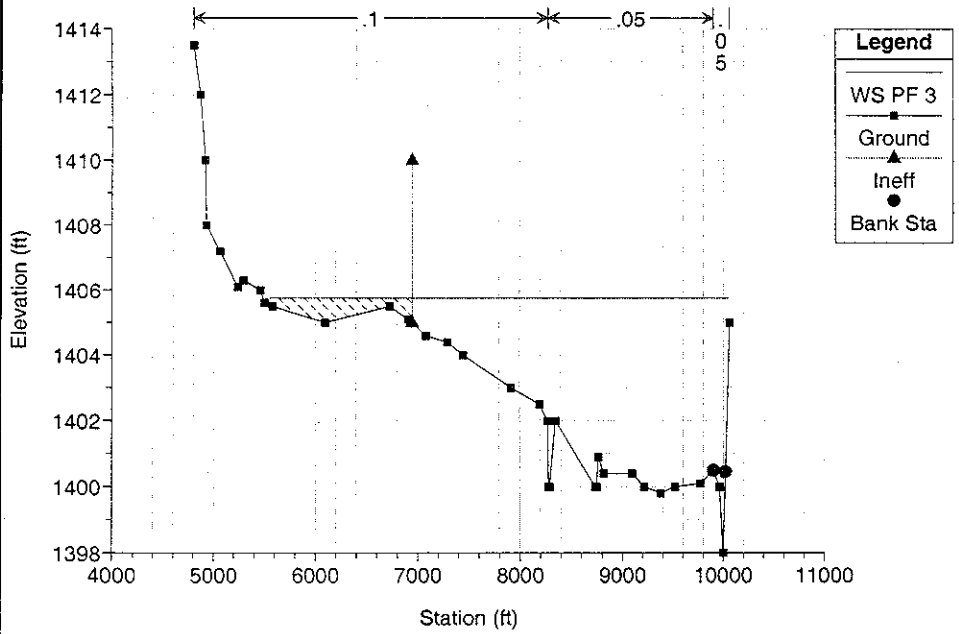
East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM

River = Powerline FRS Reach = Powerline 1602 cfs flow reduction due to spill bet RS = 13.560



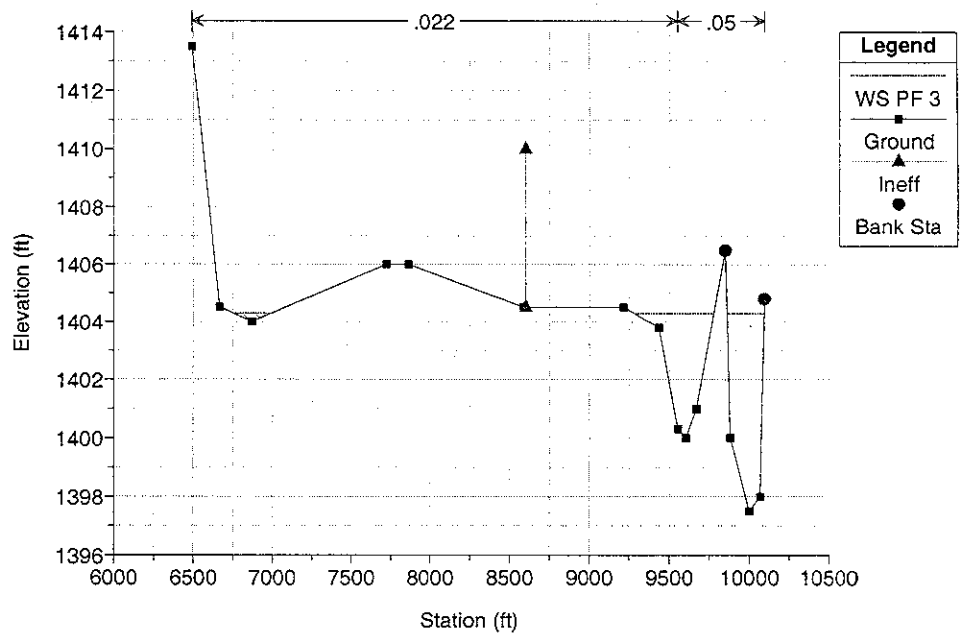
East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM

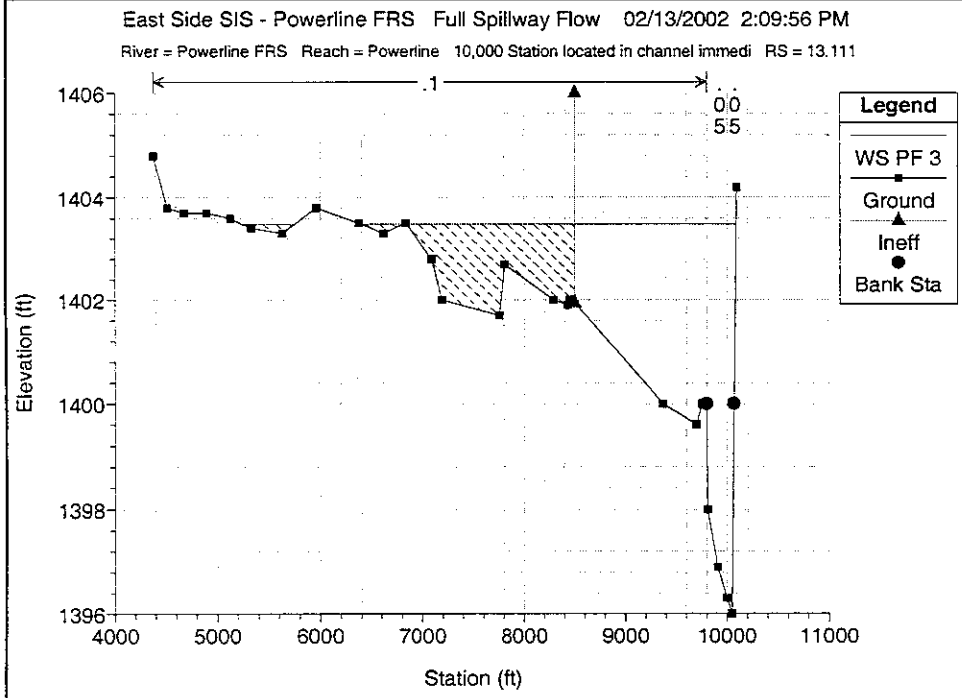
River = Powerline FRS Reach = Powerline 2156 cfs flow reduction due to spill bet RS = 13.355

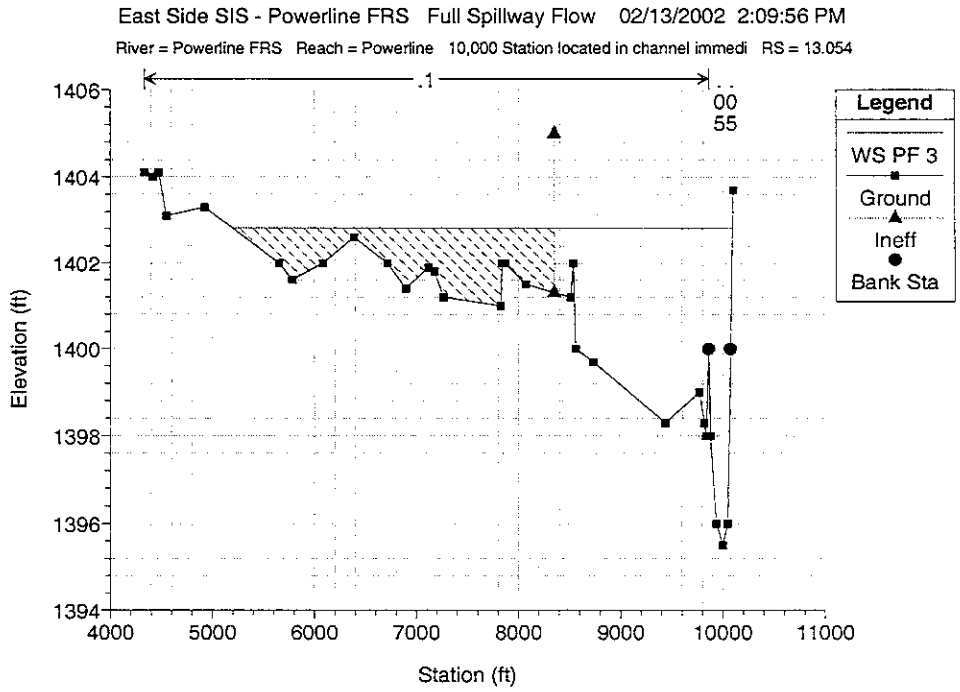


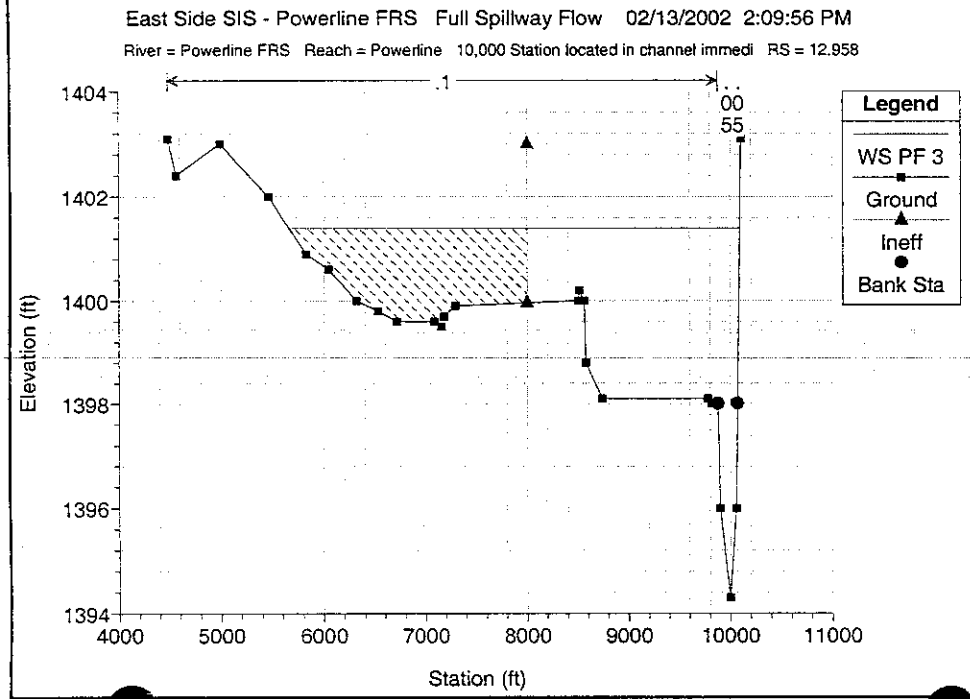
East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM

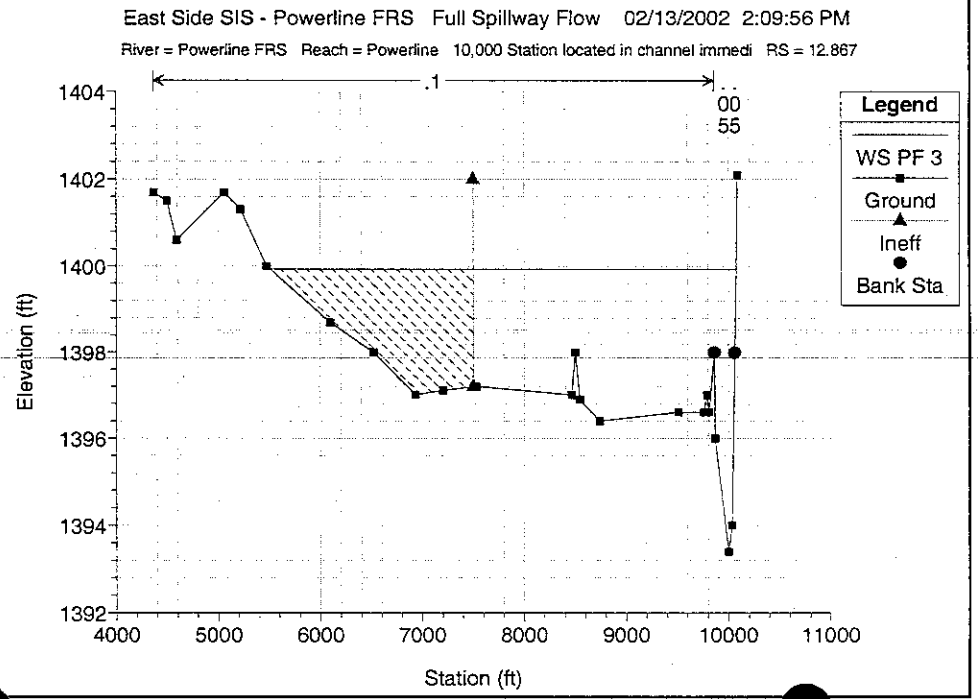
River = Powerline FRS Reach = Powerline 132 cfs flow reduction due to spill betw RS = 13.145

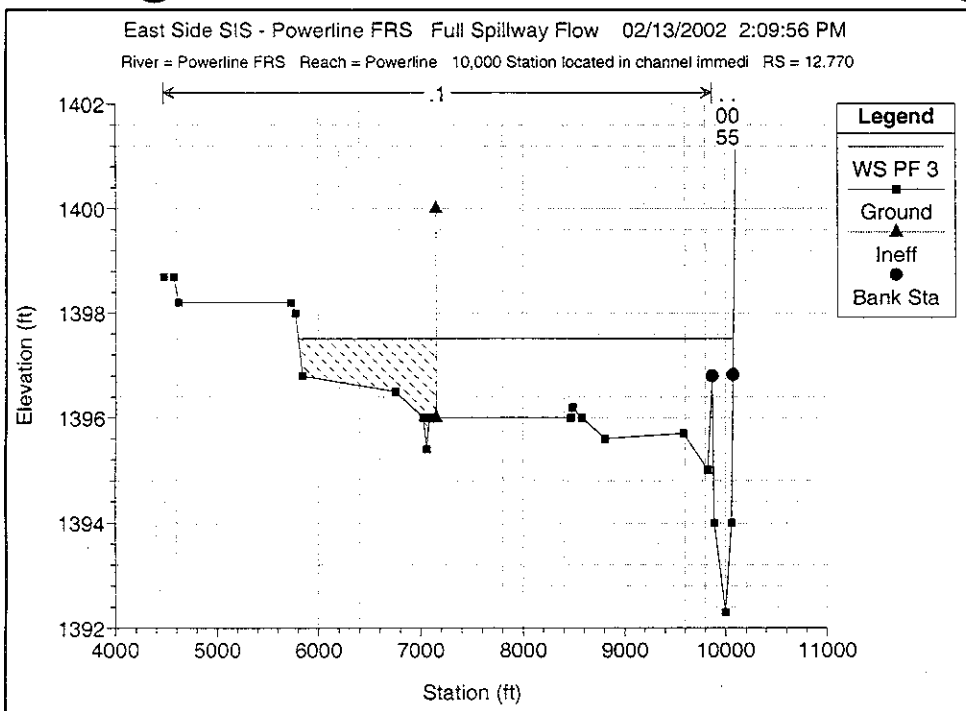


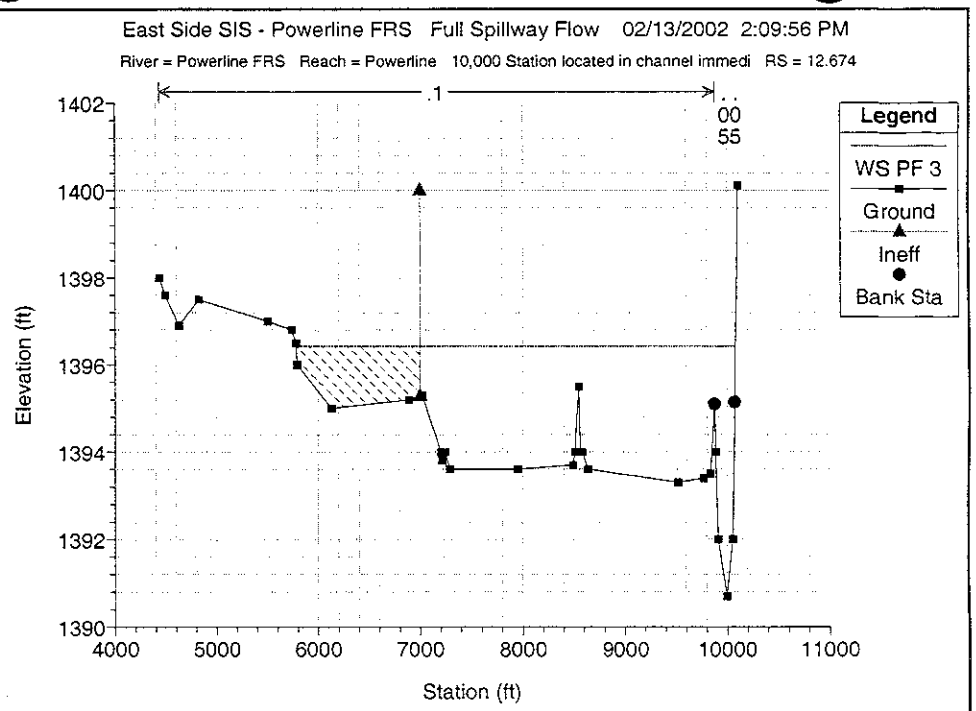

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 13.111
.1
00
55
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

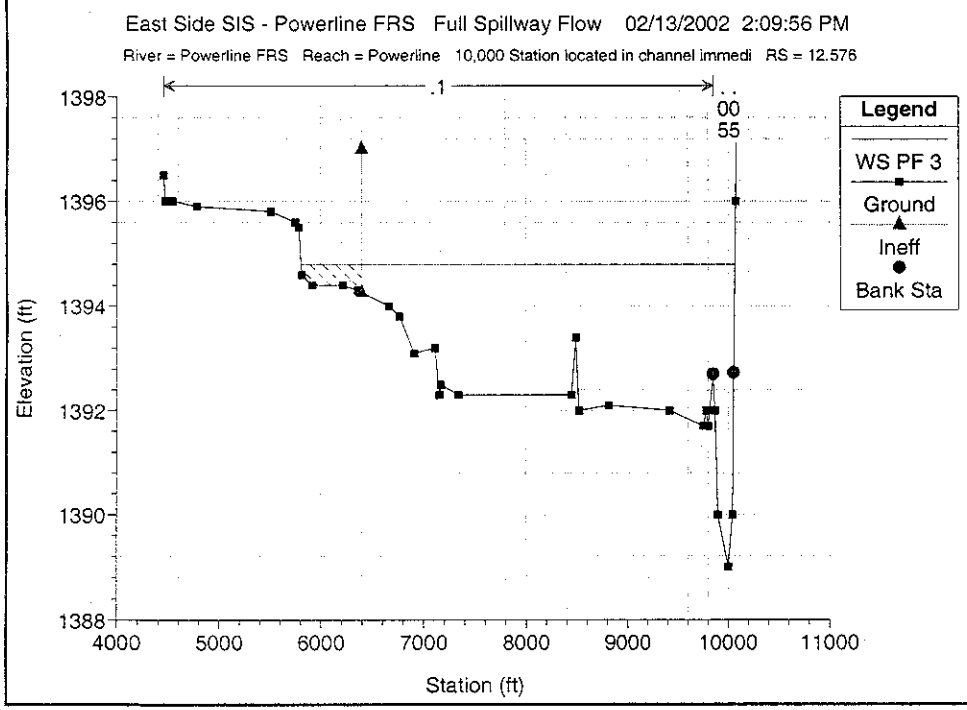

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 13.054
.1
00
55
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

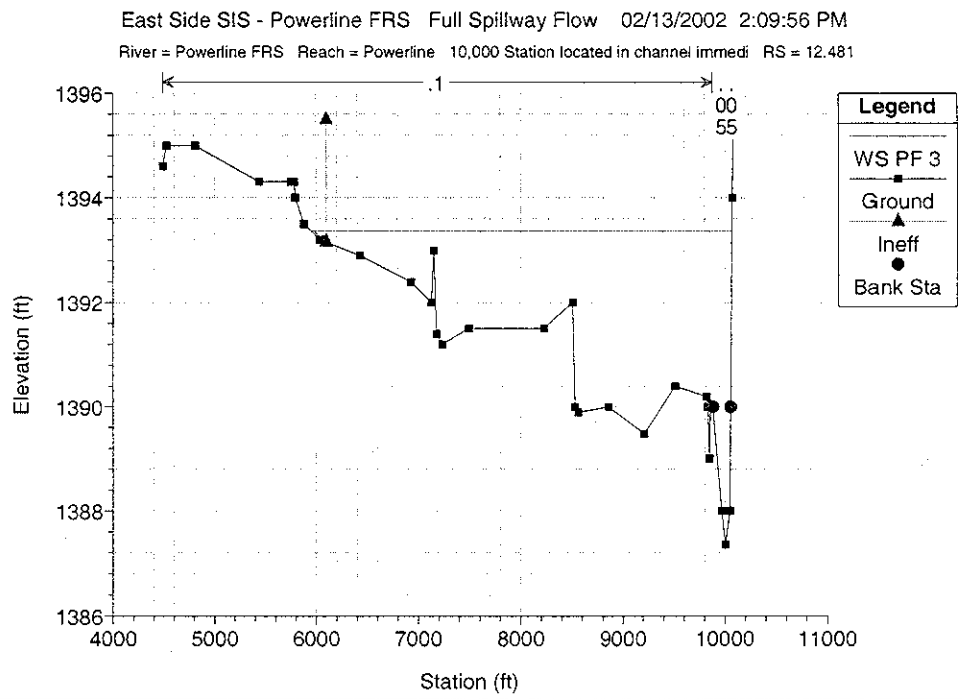

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.958
.1
00
55
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

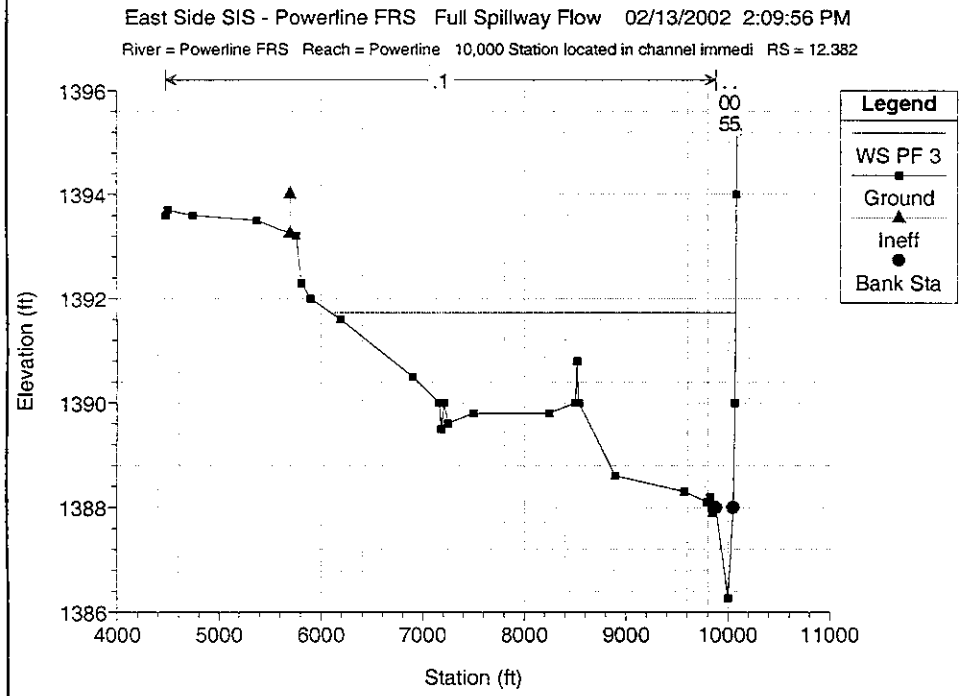

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.867
.1
00
55
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

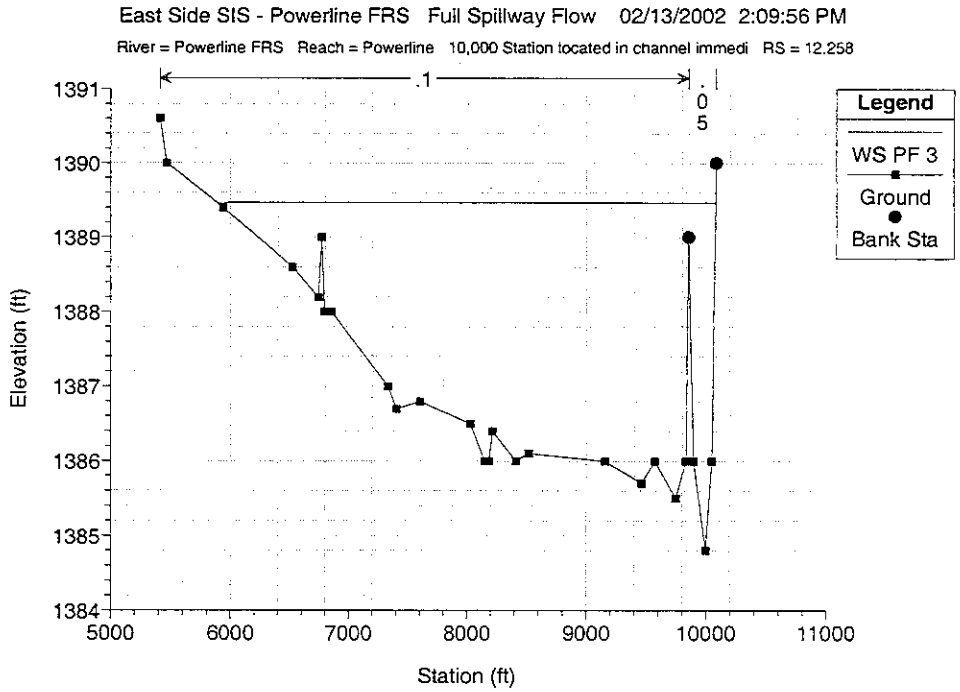

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.770
.1
00
55
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

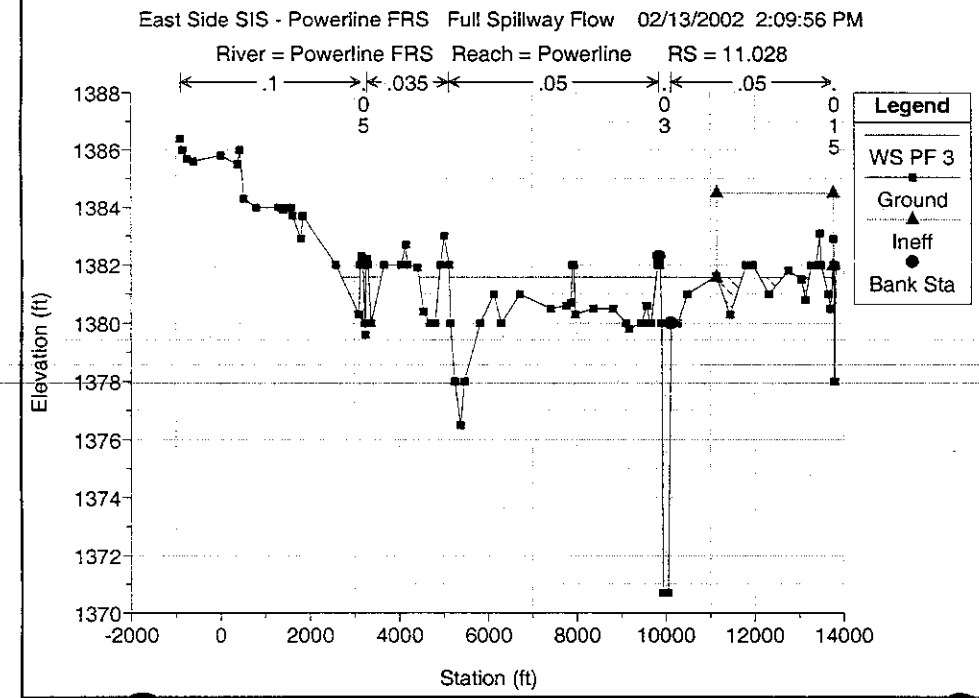

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.674
.1
00
55
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

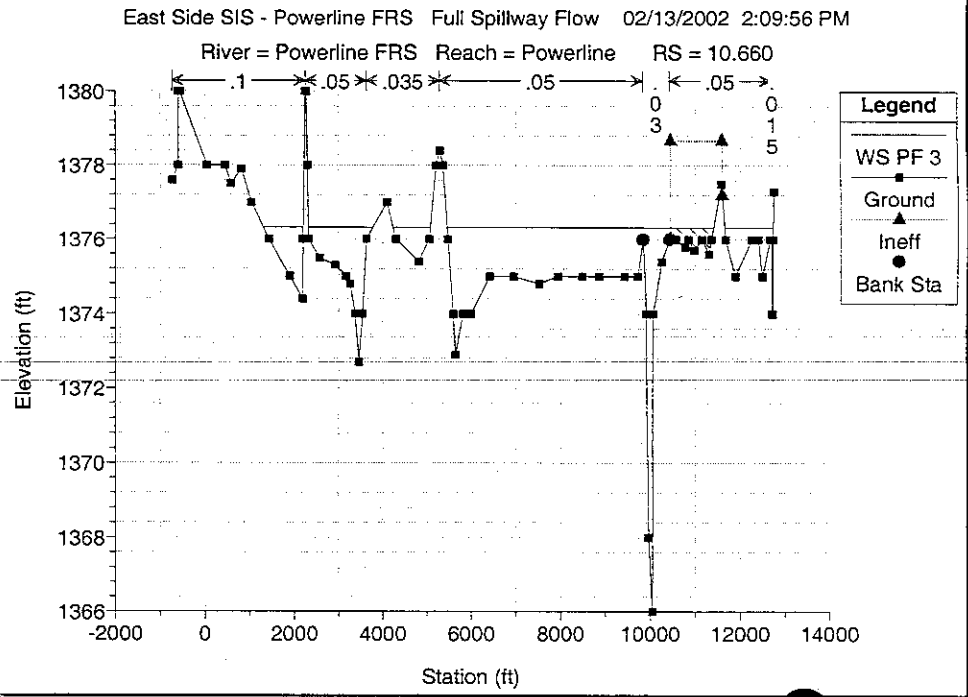

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.576
.1
00
55
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

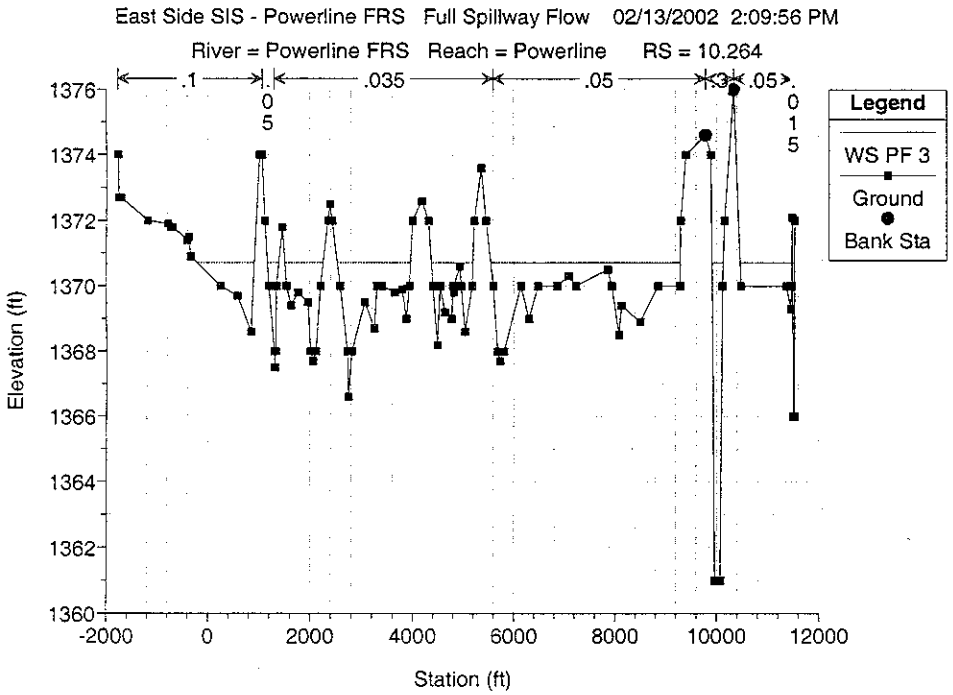

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.481
.1
00
55
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

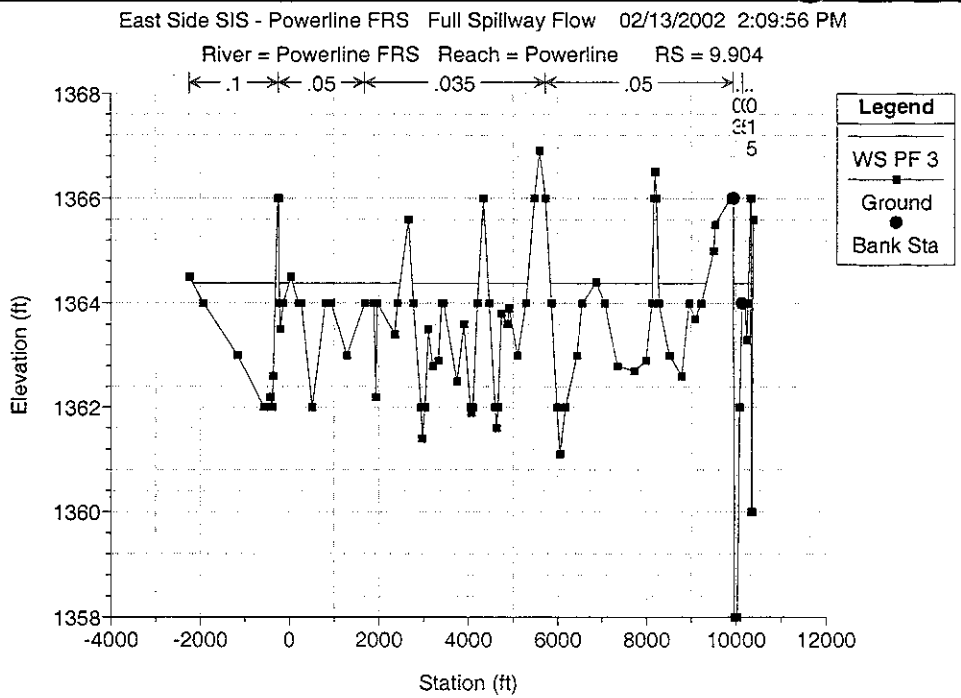

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.382
.1
.00
.055
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

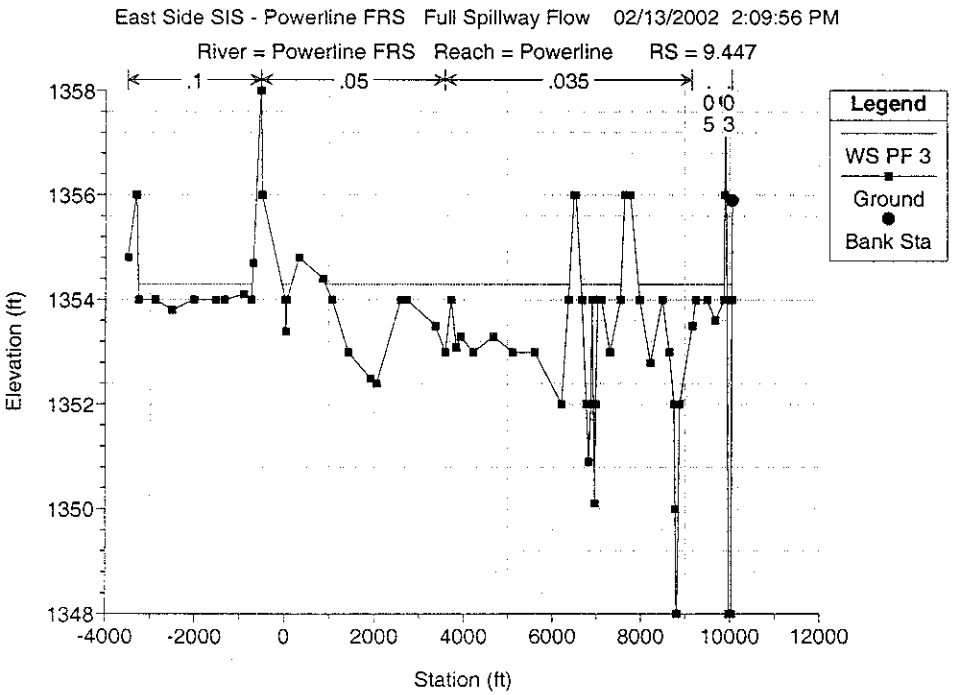

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.258
.1
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

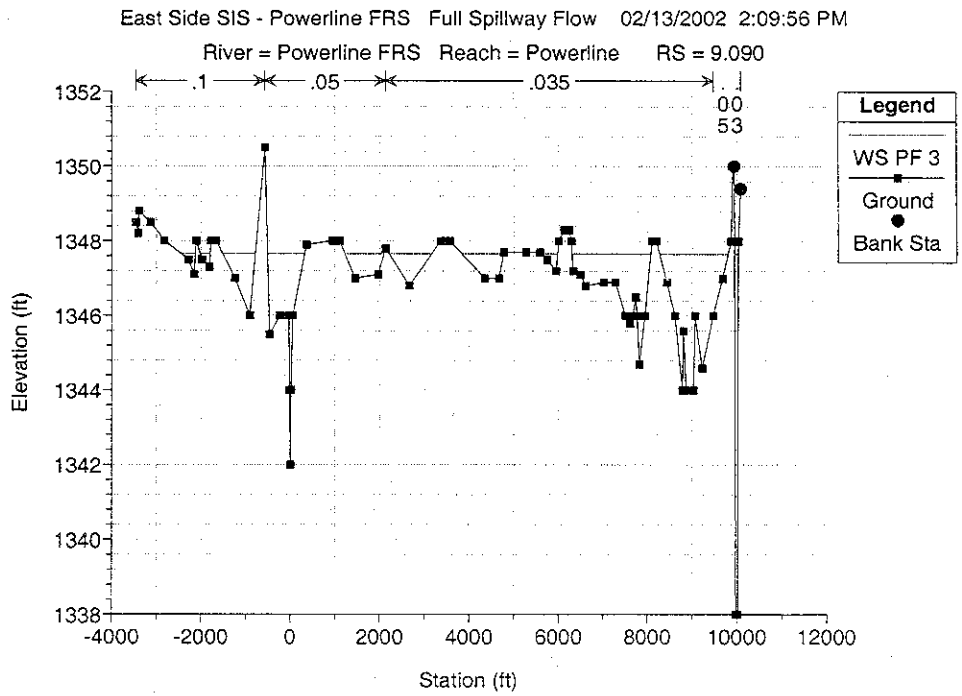

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 11.028
.1
.035
.05
.05
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

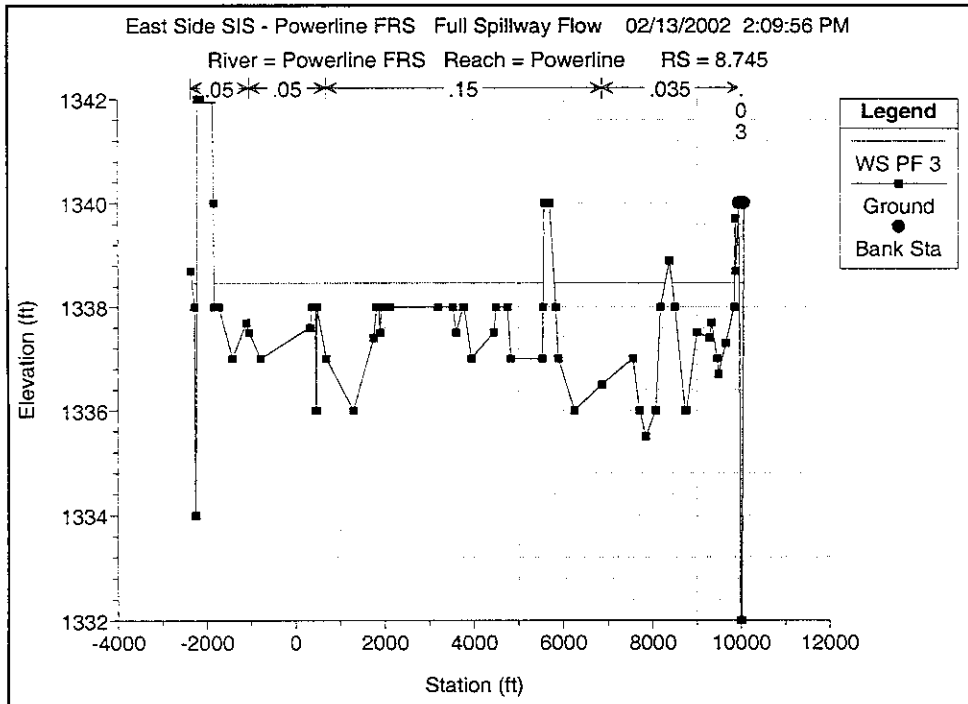

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 10.660
.1
.05
.035
.05
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

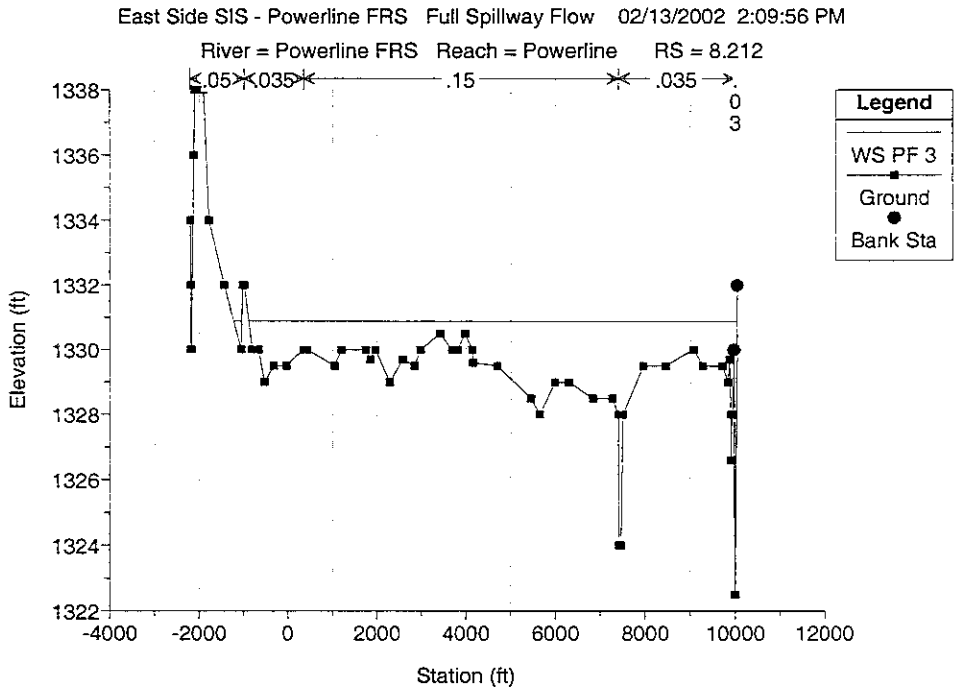

East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 10.264
.1
.035
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 9.904
.1
.05
.035
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 9.447
.1
.05
.035
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 9.090
.1
.05
.035
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 8.745
.05
.05
.15
.035
.03
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
1342
1340
1338
1336
1334
1332
-4000
-2000
0
2000
4000
6000
8000
10000
12000
Station (ft)


East Side SIS - Powerline FRS Full Spillway Flow 02/13/2002 2:09:56 PM
River = Powerline FRS Reach = Powerline RS = 8.212
.05
.035
.15
.035
.03
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
1338
1336
1334
1332
1330
1328
1326
1324
1322
-4000
-2000
0
2000
4000
6000
8000
10000
12000
Station (ft)

HEC-RAS September 1998 Version 2.2
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

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

PROJECT DATA
Project Title: East Side SIS - Vineyard FRS
Project File : VinFull.prj
Run Date and Time: 02/06/2002 10:42:08 AM

Project in English units

Project Description:
Vineyard FRS - Full Flow Scenario

Vineyard FRS Emergency Spillway to
approximately 1.1 miles east of the intersection of Pecos Avenue and Crismon Road

FCD 98-33
Michael Baker Jr., Inc.

There are several locations in
this model where the cross section ends had to be extended vertically for the computed water surface. With the exception of the 2 cross sections which reflect the Top of Bank elevations for the CAP (x-secs 19.515 and 19.537), these extensions are less than 0.5 ft. Due to the shallow depth of flooding at these ends, and the general trend of the topography which would show these spill flows falling back into the delineation area, the spills have been considered insignificant and the main flow discharge used in the delineation has not been reduced to reflect a loss of flow.

For the 2 cross sections
which reflect the Top of Bank elevations for the CAP (x-secs 19.515 and 19.537), the vertical extensions of the computed water surface are in the ineffective flow portion of the cross sections. The modeling approach at the CAP is discussed in Section 2.2 Special Problems in the TDN.

PLAN DATA

Plan Title: Full Spillway Flow
Plan File : m:\Folders from V\Fcdspill\TaskB\Power\Submit\Dec0301\HEC-RAS\Vineyard\full\VinFull.P01

Geometry Title: Existing Conditions Geometry
Geometry File : m:\Folders from V\Fcdspill\TaskB\Power\Submit\Dec0301\HEC-RAS\Vineyard\full\VinFull.G01

Flow Title : Full Flow Profile (Mixed Flow Regime)
Flow File : m:\Folders from V\Fcdspill\TaskB\Power\Submit\Dec0301\HEC-RAS\Vineyard\full\VinFull.F01

Plan Summary Information:

Number of:	Cross Sections	= 66	Mulitple Openings	=	0
	Culverts	= 0	Inline Weirs	=	0
	Bridges	= 0			

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20

```
    Maximum difference tolerance        =  0.3
    Flow tolerance factor               =  0.001

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


FLOW DATA

Flow Title: Full Flow Profile (Mixed Flow Regime)
Flow File : v:\Fcdspill\TaskB\Power\Submit\Dec0301\HEC-RAS\Vineyard\full\VinFull.F01

Flow Data (cfs)

  River          Reach          RS                PF 3
  Vineyard FRS   Vineyard       20.000            9700
  Vineyard FRS   Vineyard       14.523            9700
  Vineyard FRS   Vineyard       3                29700


Boundary Conditions

  River          Reach          Profile                    Upstream              Downstream

  Vineyard FRS   Vineyard       PF 3                        Critical          Known WS = 1417.78



GEOMETRY DATA

Geometry Title: Existing Conditions Geometry
Geometry File : v:\Fcdspill\TaskB\Power\Submit\Dec0301\HEC-RAS\Vineyard\full\VinFull.G01

CROSS SECTION          RIVER: Vineyard FRS
REACH: Vineyard           RS: 20.000

INPUT
Description: Emergency Spillway Crest
Station Elevation Data    num=      47
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
 9756.36     1580 9766.14 1580.77 9776.32     1580 9781.26 1579.35 9795.42     1578
 9796.86 1577.92 9812.93 1577.36 9829.49 1576.85 9836.21     1576 9847.19 1574.41
 9852.33     1574 9857.21 1573.61 9866.96 1573.37 9879.07   1573.2 9897.36 1573.25
 9916.23 1573.03 9948.22 1572.96 9971.81 1572.93 9998.43 1572.9310021.92 1572.96
10047.04 1572.9610067.05 1572.9110084.73 1572.9810113.39  1573.210124.08  1573.2
10139.34 1573.42 10148.5     1574 10151.8 1574.3910161.97 1575.93 10163.9     1576
10210.34 1576.7310230.27     157810232.41 1578.1710245.63 1578.4110252.28 1578.27
10299.13 1578.1710347.64 1578.03 10352.9 1578.0510401.36 1578.24 10447.5  1578.5
10504.61  1578.710562.96 1578.4510642.45 1578.7410704.83 1579.0810779.59 1578.93
10855.22 1578.8110929.22  1578.5

Manning's n Values        num=       3
     Sta    n Val     Sta    n Val     Sta    n Val
 9756.36     .022 9781.26     .02210245.63     .022

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9781.2610245.63            806.25  433.34  127.42              .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
10245.6310929.22  1581.5
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
10704.8310929.22  1581.5

CROSS SECTION OUTPUT    Profile #PF 3

  E.G. Elev (ft)            1579.17   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.35   Wt. n-Val.                            0.022
  W.S. Elev (ft)            1578.82   Reach Len. (ft)            806.25    433.34    127.42
  Crit W.S. (ft)            1576.33   Flow Area (sq ft)                   2036.02
```

E.G. Slope (ft/ft)	0.000683	Area (sq ft)		2036.02	167.41
Q Total (cfs)	9700.00	Flow (cfs)		9700.00	
Top Width (ft)	869.50	Top Width (ft)		458.77	410.73
Vel Total (ft/s)	4.76	Avg. Vel. (ft/s)		4.76	
Max Chl Dpth (ft)	5.91	Hydr. Depth (ft)		4.44	
Conv. Total (cfs)	371118.6	Conv. (cfs)		371118.6	
Length Wtd. (ft)	433.34	Wetted Per. (ft)		459.25	
Min Ch El (ft)	1572.91	Shear (lb/sq ft)		0.19	
Alpha	1.00	Stream Power (lb/ft s)		0.90	
Frctn Loss (ft)	0.53	Cum Volume (acre-ft)	1918.91	676.17	1049.38
C & E Loss (ft)	0.22	Cum SA (acres)	1178.95	374.43	914.52

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9781.26	9874.13	808.34	247.17	87.53	8.33	2.83	3.27
9874.13	9967.01	2799.96	533.36	92.88	28.87	5.74	5.25
9967.01	10059.88	2905.60	545.34	92.87	29.95	5.87	5.33
10059.88	10152.76	2686.47	520.40	92.93	27.70	5.60	5.16
10152.76	RB 10245.63	499.63	189.76	93.04	5.15	2.04	2.63

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.918

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9668.89	1577.48	9681.42	1577.32	9695.98	1577.19	9709.31	1577.08	9796.73	1576.71
9810.3	1576.24	9811.3	1576.57	9813.37	1576	9820.96	1574	9822.02	1573.73
9951.72	1573.58	10093.15	1573.42	10111.69	1574	10120.71	1574.28	10128.26	1576
10141.33	1577.91	10156.43	1576.13	10170.8	1576	10229.98	1575.57	10234.55	1575.83
10235.4	1576	10245.28	1578						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9668.89	.022	9811.3	.022	10141.33	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9811.3	10141.33	495.89	497.31	498.61	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9668.89	9811.3	1579.54	10141.33	10245.28	1579.54

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1578.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.07	Wt. n-Val.		0.022	
W.S. Elev (ft)	1577.35	Reach Len. (ft)	495.89	497.31	498.61
Crit W.S. (ft)	1576.76	Flow Area (sq ft)		1166.56	
E.G. Slope (ft/ft)	0.002779	Area (sq ft)	56.77	1166.56	130.58
Q Total (cfs)	9700.00	Flow (cfs)		9700.00	
Top Width (ft)	554.33	Top Width (ft)	132.16	326.19	95.98
Vel Total (ft/s)	8.32	Avg. Vel. (ft/s)		8.32	
Max Chl Dpth (ft)	3.93	Hydr. Depth (ft)		3.58	
Conv. Total (cfs)	184007.8	Conv. (cfs)		184007.8	
Length Wtd. (ft)	497.31	Wetted Per. (ft)		326.87	
Min Ch El (ft)	1573.42	Shear (lb/sq ft)		0.62	
Alpha	1.00	Stream Power (lb/ft s)		5.15	
Frctn Loss (ft)	1.80	Cum Volume (acre-ft)	1918.38	660.24	1048.94
C & E Loss (ft)	0.11	Cum SA (acres)	1177.73	370.52	913.78

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9811.30	9877.31	1807.94	225.58	66.38	18.64	3.42	8.01
9877.31	9943.31	2091.31	245.62	66.01	21.56	3.72	8.51
9943.31	10009.32	2162.75	250.63	66.01	22.30	3.80	8.63
10009.32	10075.32	2234.06	255.55	66.01	23.03	3.87	8.74
10075.32	RB 10141.33	1403.95	189.18	62.47	14.47	3.04	7.42

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.824

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9408.66	1577.91	9491.59	1577.38	9550.08	1576.38	9592.42	1576	9691.51	1575.28
9827.15	1575.06	9832.93	1574.49	9837.08	1574	9844.69	1572.87	9932.02	1572
9974.36	1571.58	10115.78	1571.63	10134.21	1572	10150.17	1572.32	10168.72	1575.24
10182.83	1572.88	10257.19	1572.11	10280.85	1572	10398.61	1571.77	10540.05	1571.15
10562.8	1571.65	10564.15	1572	10571.8	1574	10579.45	1576	10587.09	1578
10589.02	1578.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9408.66	.022	9827.15	.022	10168.72	.022

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9827.15 10168.72 424.27 427.26 382.35 .3 .5
Ineffective Flow num= 1

Sta L	Sta R	Elev
10168.22	10589.02	1578.14

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1576.51	Element			
Vel Head (ft)	1.46	Wt. n-Val.		0.022	
W.S. Elev (ft)	1575.05	Reach Len. (ft)	424.27	427.26	382.35
Crit W.S. (ft)	1575.05	Flow Area (sq ft)		1001.33	
E.G. Slope (ft/ft)	0.004886	Area (sq ft)		1001.33	1262.39
Q Total (cfs)	9700.00	Flow (cfs)		9700.00	
Top Width (ft)	746.31	Top Width (ft)		340.31	405.99
Vel Total (ft/s)	9.69	Avg. Vel. (ft/s)		9.69	
Max Chl Dpth (ft)	3.90	Hydr. Depth (ft)		2.94	
Conv. Total (cfs)	138772.0	Conv. (cfs)		138772.0	
Length Wtd. (ft)	420.41	Wetted Per. (ft)		340.68	
Min Ch El (ft)	1571.58	Shear (lb/sq ft)		0.90	
Alpha	1.00	Stream Power (lb/ft s)		8.68	
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)	1918.06	647.86	1040.97
C & E Loss (ft)	0.65	Cum SA (acres)	1176.97	366.72	910.90

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,

water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9827.15	9895.46	1059.22	140.97	68.39	10.92	2.07	7.51
9895.46	9963.78	2009.53	206.93	68.32	20.72	3.03	9.71
9963.78	10032.09	2504.14	236.13	68.31	25.82	3.46	10.61
10032.09	10100.41	2485.23	235.06	68.31	25.62	3.44	10.57
10100.41	RB 10168.72	1641.88	182.26	67.35	16.93	2.72	9.01

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
water surface was used.

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.743

INPUT
Description:
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9013.45	1576.03	9014.58	1576	9075.85	1574.13	9114.32	1574.19	9116.96	1574
9124.8	1573.46	9139.12	1574	9139.82	1574.02	9168.13	1574.26	9173.03	1574
9177.19	1573.73	9181.64	1574	9183.86	1574.16	9208.39	1574	9217.26	1573.94
9358.69	1572.94	9500.11	1572.44	9641.52	1572.8	9782.96	1572.39	9850.08	1572.15
9851.38	1572	9861.77	1570.67	9913.42	1570	9924.37	1569.86	10065.79	1569.98
10168.09	1569.83	10176.79	1570	10191.34	1570.21	10207.22	1570.67	10225.68	1571.36
10263.22	1571.31	10305.13	1570	10331	1569.57	10347.85	1569.57	10430.82	1568.95
10452.08	1568.61	10475.21	1569.32	10489.9	1568.82	10502.03	1569.31	10652.08	1569.48
10663.78	1569.69	10722.49	1569.57	10723.68	1570	10729.19	1572	10735.02	1574
10741.14	1576	10746.34	1578	10747.77	1578.63	10753.86	1578.7		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9013.45	.022	9850.08	.022	10225.68	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9850.08	10225.68	353.6	355.36	359.8	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9013.45	9631.45	1578	10413.45	10753.86	1578

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1574.95	Element			
Vel Head (ft)	0.16	Wt. n-Val.	0.022	0.022	0.022
W.S. Elev (ft)	1574.79	Reach Len. (ft)	353.60	355.36	359.80
Crit W.S. (ft)	1572.20	Flow Area (sq ft)	500.57	1762.09	880.04
E.G. Slope (ft/ft)	0.000301	Area (sq ft)	1390.44	1762.09	2609.13
Q Total (cfs)	9700.00	Flow (cfs)	1019.81	5790.00	2890.20
Top Width (ft)	1683.34	Top Width (ft)	795.98	375.60	511.77
Vel Total (ft/s)	3.09	Avg. Vel. (ft/s)	2.04	3.29	3.28
Max Chl Dpth (ft)	6.18	Hydr. Depth (ft)	2.29	4.69	4.69
Conv. Total (cfs)	558642.0	Conv. (cfs)	58732.6	333457.3	166452.1
Length Wtd. (ft)	356.62	Wetted Per. (ft)	218.63	375.72	187.80
Min Ch El (ft)	1569.83	Shear (lb/sq ft)	0.04	0.09	0.09
Alpha	1.06	Stream Power (lb/ft s)	0.09	0.29	0.29
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	1911.29	634.31	1023.98
C & E Loss (ft)	0.06	Cum SA (acres)	1173.10	363.21	906.88

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9599.09	9682.75	197.45	104.87	51.30	2.04	2.04	1.88
9682.75	9766.42	373.46	186.94	83.66	3.85	2.23	2.00
9766.42	9850.08	448.89	208.76	83.66	4.63	2.50	2.15
LB 9850.08	9925.20	1020.73	327.11	75.22	10.52	4.35	3.12
9925.20	10000.32	1244.17	368.17	75.12	12.83	4.90	3.38
10000.32	10075.44	1217.91	363.49	75.12	12.56	4.84	3.35
10075.44	10150.56	1236.48	366.81	75.12	12.75	4.88	3.37
10150.56	RB 10225.68	1070.72	336.50	75.14	11.04	4.48	3.18
10225.68	10278.50	501.64	187.02	52.83	5.17	3.54	2.68
10278.50	10331.32	802.19	247.89	52.83	8.27	4.69	3.24
10331.32	10384.13	987.80	280.83	52.82	10.18	5.32	3.52
10384.13	10436.95	598.57	164.30	29.32	6.17	5.60	3.64

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.676

INPUT
Description:
Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7980.27	1574.95	8121.78	1574.49	8263.2	1574.16	8341.89	1574	8357.18	1573.92
8381.53	1572	8384.47	1571.59	8388.48	1572	8404.63	1572.84	8422.7	1573.54
8448.46	1573.37	8483.47	1573.07	8495.52	1573.62	8546.04	1572.99	8687.46	1572.37
8828.89	1572.06	8970.31	1572.37	9036.11	1573	9111.73	1572.8	9169.93	1572
9253.16	1571.32	9394.56	1571.96	9535.99	1570.98	9612.62	1570	9677.43	1569.14
9818.83	1568.28	9897.6	1568.19	9908.02	1568.29	9960.26	1568.06	10101.68	1568.35
10243.09	1568.83	10304.91	1568.86	10334.68	1568.87	10372.39	1568	10467.52	1567.2
10595.04	1567.31	10856.03	1567.06	10866.3	1567.11	10905.16	1567.08	10917.37	1567.42
10918.89	1568	10924.14	1570	10929.38	1572	10934.62	1574	10939.87	1576
10945.11	1578	10948.28	1579.22	10954.12	1579.11				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7980.27	.05	9818.83	.05	10243.09	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9818.83	10243.09	347.45	326.19	237.54	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
7980.27	9481.78	1576	10621.78	10954.12	1576

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1574.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1574.77	Reach Len. (ft)	347.45	326.19	237.54
Crit W.S. (ft)	1569.72	Flow Area (sq ft)	1718.67	2731.59	2622.91
E.G. Slope (ft/ft)	0.000184	Area (sq ft)	4585.15	2731.59	4943.94
Q Total (cfs)	9700.00	Flow (cfs)	2051.36	3808.89	3839.74
Top Width (ft)	2902.42	Top Width (ft)	1784.59	424.26	693.56
Vel Total (ft/s)	1.37	Avg. Vel. (ft/s)	1.19	1.39	1.46
Max Chl Dpth (ft)	7.71	Hydr. Depth (ft)	5.10	6.44	6.93
Conv. Total (cfs)	715484.9	Conv. (cfs)	151311.3	280949.1	283224.6
Length Wtd. (ft)	299.12	Wetted Per. (ft)	337.07	424.26	378.70
Min Ch El (ft)	1568.06	Shear (lb/sq ft)	0.06	0.07	0.08
Alpha	1.02	Stream Power (lb/ft s)	0.07	0.10	0.12
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	1887.03	615.98	992.78
C & E Loss (ft)	0.01	Cum SA (acres)	1162.62	359.95	901.90

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9451.12	9634.97	647.52	633.89	153.20	6.68	4.14	1.02
9634.97	9818.83	1403.85	1084.79	183.86	14.47	5.90	1.29
LB 9818.83	9903.68	781.64	554.99	84.85	8.06	6.54	1.41
9903.68	9988.53	798.18	562.01	84.85	8.23	6.62	1.42
9988.53	10073.39	787.39	557.43	84.85	8.12	6.57	1.41
10073.39	10158.24	747.99	540.53	84.85	7.71	6.37	1.38
10158.24	RB 10243.09	693.68	516.62	84.85	7.15	6.09	1.34

10243.09	10314.19	553.42	421.46	71.10	5.71	5.93	1.31
10314.19	10385.30	613.19	448.23	71.11	6.32	6.30	1.37
10385.30	10456.40	762.11	510.66	71.11	7.86	7.18	1.49
10456.40	10527.50	827.48	536.51	71.10	8.53	7.55	1.54
10527.50	10598.61	817.79	532.73	71.10	8.43	7.49	1.54
10598.61	10669.71	265.76	173.32	23.17	2.74	7.48	1.53

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.614

INPUT
Description:
Station Elevation Data num= 103

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7616.41	1574.4	7659.77	1574.33	7668.64	1574	7671.15	1573.91	7686.88	1573.67
7757.83	1572.77	7976.79	1572.77	8076.7	1572.63	8121.8	1572.75	8125.5	1572
8135.24	1570	8137.24	1569.59	8141.02	1569.46	8142.92	1570	8150.27	1572
8153.07	1572.68	8175.29	1572.63	8180.14	1572	8180.44	1571.96	8180.93	1572
8192.67	1572.71	8320.81	1572	8345.62	1571.83	8360.97	1570.56	8376.36	1572
8376.7	1572.03	8421.22	1572	8465.18	1571.81	8473.77	1570.7	8483.68	1571.93
8493.53	1571.69	8500.74	1570.03	8515.67	1571.89	8528.86	1572	8535.94	1572.1
8538.53	1572	8547.86	1571.63	8564.51	1571.88	8586.9	1571.7	8594.62	1570
8599.3	1568.88	8608.16	1570	8616.32	1570.88	8618.67	1570	8620.6	1569.25
8624.47	1570	8630.67	1571.22	8682.59	1571.23	8697.58	1571.19	8814.65	1570.8
8823.62	1570	8858.06	1568	8863.94	1567.34	8881.09	1568	8882.43	1568
8884.48	1567.85	8885.42	1568	8892.73	1569.17	8920.58	1570	8924.92	1570.24
8959.97	1570	9001.16	1569.9	9013.09	1569.42	9067.75	1569.64	9135.11	1569.05
9276.54	1568.63	9417.95	1568.01	9429.99	1568	9491.6	1567.89	9501.75	1568
9505.93	1568.05	9510.75	1568	9559.39	1567.46	9700.81	1566.63	9842.22	1566.22
9951.8	156610030.46		156610202.79		1566.3110295.78		1567.4210399.89		1566.62
10486.8	1566	10519	1565.8110580.35		156610587.59		156610662.89		1566
10827.64	156610834.62		156610853.18		1566.14	10863.1	156610900.31		1565.54
10967.29	1565.3410977.44		1565.4311032.52		1565.5311039.11		156611041.86		1566.19
11046.39	156811051.39		157011056.39		157211061.39		157411066.39		1576
11071.39	157811075.19		1579.5211081.92		1579.46				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7616.41	.05	9700.81	.08	10827.64	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9505.93	10295.78	876.62	404.64	269.25	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
7616.41	9316.41	157610741.41	11081.92		1576

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1574.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.050	0.071	0.080
W.S. Elev (ft)	1574.74	Reach Len. (ft)	876.62	404.64	269.25
Crit W.S. (ft)	1567.66	Flow Area (sq ft)	1258.38	6485.86	3772.56
E.G. Slope (ft/ft)	0.000099	Area (sq ft)	7122.96	6485.86	6571.60
Q Total (cfs)	9700.00	Flow (cfs)	1312.14	5497.03	2890.82
Top Width (ft)	3446.84	Top Width (ft)	1889.52	789.85	767.47
Vel Total (ft/s)	0.84	Avg. Vel. (ft/s)	1.04	0.85	0.77
Max Chl Dpth (ft)	9.40	Hydr. Depth (ft)	6.64	8.21	8.47
Conv. Total (cfs)	976627.6	Conv. (cfs)	132110.8	553459.2	291057.7
Length Wtd. (ft)	490.13	Wetted Per. (ft)	189.52	789.86	445.64
Min Ch El (ft)	1566.00	Shear (lb/sq ft)	0.04	0.05	0.05
Alpha	1.03	Stream Power (lb/ft s)	0.04	0.04	0.04
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	1840.34	581.47	961.39
C & E Loss (ft)	0.02	Cum SA (acres)	1147.97	355.40	897.91

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9128.03	9316.98	3.59	3.57	0.57	0.04	6.29	1.01
9316.98	9505.93	1308.55	1254.81	188.95	13.49	6.64	1.04

LB 9505.93	9663.90	1305.80	1166.93	157.97	13.46	7.39	1.12
9663.90	9821.87	1106.91	1299.11	157.97	11.41	8.22	0.85
9821.87	9979.84	1058.87	1364.24	157.97	10.92	8.64	0.78
9979.84	10137.81	1067.64	1371.01	157.97	11.01	8.68	0.78
10137.81	RB 10295.78	957.81	1284.58	157.98	9.87	8.13	0.75
10295.78	10374.39	427.89	599.55	78.62	4.41	7.63	0.71
10374.39	10453.01	484.89	646.26	78.62	5.00	8.22	0.75
10453.01	10531.62	538.95	688.58	78.62	5.56	8.76	0.78
10531.62	10610.24	542.27	691.12	78.61	5.59	8.79	0.78
10610.24	10688.85	537.47	687.43	78.61	5.54	8.74	0.78
10688.85	10767.46	359.35	459.62	52.56	3.70	8.74	0.78

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.537

INPUT
Description: Top of CAP - East Bank
Station Elevation Data num= 108

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7945.61	1572.58	8020.28	1572.34	8094.55	1572.37	8171.43	1572.51	8238.74	1572.46
8320.61	1572.68	8401.23	1573.25	8467	1572.89	8539	1572.96	8616	1573.11
8689.48	1572.61	8761.53	1572.56	8839.54	1572.75	8933.3	1572.82	9012.61	1572.85
9094.19	1572.85	9169.63	1572.85	9250.49	1572.87	9337.78	1572.8	9431.7	1572.85
9519.19	1573.18	9595.45	1572.96	9668.98	1573.01	9748.54	1572.8	9829.07	1572.61
9927.66	1572.82	10009.73	1572.85	10080.67	1572.96	10162.02	1573.01	10253.21	1572.73
10323.55	1572.56	10406.81	1572.77	10485.93	1572.81	0565.05	1572.99	10629.6	1572.82
10711.62	1572.99	10787.63	1573.01	10847.32	1573.18	10905.92	1573.16	10973.76	1573.01
11043.23	1572.75	11113.1	1572.51	11175.29	1572.46	11237.16	1572.81	1305.44	1572.85
11356.94	1572.27	11411.8	1572.22	11479.15	1572.19	11480.26	1572.19	11542.9	1572.1
11596.63	1572.22	11666.5	1572.24	11749.4	1572.24	11830.15	1572.39	11899.16	1572.53
11958.34	1572.44	11970.02	1572.11	2002.54	1572	12019.53	1571.95	12068.68	1571.76
12115.14	1571.97	12208.51	1571.95	12233.52	1572	12256.63	1572.05	12269.6	1572
12309.93	1571.85	12360.54	1571.78	12412.92	1571.97	12462.59	1571.95	12484.62	1572
12516.23	1572.07	12577.34	1572.14	12604.35	1572	12631.79	1571.85	12683.15	1571.78
12726.91	1571.73	12771.59	1571.59	12817.67	1571.81	2860.98	1571.85	12913.87	1571.88
12962.1	1571.9	13014.9	1571.68	13068.11	1571.59	13117.45	1571.76	13164.87	1571.8
13217.39	1571.83	13264.36	1571.56	13324.04	1571.51	13375.58	1571.46	13429.83	1571.68
13480.27	1571.56	13531.29	1571.37	13579.6	1571.46	13628.4	1571.66	13721.86	1571.49
13766.12	1571.41	13810.82	1571.41	13848.3	1571.39	13908.11	1571.46	13965.91	1571.15
14013.9	1571.51	14057.9	1571.54	14098.51	1571.56	14138.18	1571.44	14207.21	1571.61
14252.27	1571.59	14303.1	1571.27	14348	1571.54				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7945.61	.022	9337.78	.022	10253.21	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9337.78	10253.21	119.05	115.13	126.68	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
7945.61	8440.61	1575.5	10845.61	14348	1575.5

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1574.63	Element			
Vel Head (ft)	0.09	Wt. n-Val.	0.022	0.022	0.022
W.S. Elev (ft)	1574.54	Reach Len. (ft)	119.05	115.13	126.68
Crit W.S. (ft)	1573.65	Flow Area (sq ft)	1539.39	1517.93	1001.94
E.G. Slope (ft/ft)	0.000623	Area (sq ft)	2502.50	1517.93	10080.72
Q Total (cfs)	9700.00	Flow (cfs)	3718.61	3584.14	2397.25
Top Width (ft)	6402.39	Top Width (ft)	1392.17	915.43	4094.79
Vel Total (ft/s)	2.39	Avg. Vel. (ft/s)	2.42	2.36	2.39
Max Chl Dpth (ft)	3.39	Hydr. Depth (ft)	1.72	1.66	1.69
Conv. Total (cfs)	388711.4	Conv. (cfs)	149017.2	143628.6	96065.6
Length Wtd. (ft)	119.30	Wetted Per. (ft)	897.17	915.43	592.40
Min Ch El (ft)	1572.61	Shear (lb/sq ft)	0.07	0.06	0.07
Alpha	1.00	Stream Power (lb/ft s)	0.16	0.15	0.16
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	1743.48	544.30	909.92
C & E Loss (ft)	0.08	Cum SA (acres)	1114.95	347.48	882.89

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8363.26	8502.48	231.10	99.87	61.87	2.38	1.61	2.31
8502.48	8641.70	479.00	213.92	139.22	4.94	1.54	2.24
8641.70	8780.91	679.77	263.91	139.22	7.01	1.90	2.58
8780.91	8920.13	627.91	251.64	139.22	6.47	1.81	2.50
8920.13	9059.35	570.67	237.62	139.22	5.88	1.71	2.40
9059.35	9198.56	563.67	235.86	139.22	5.81	1.69	2.39
9198.56	9337.78	566.47	236.56	139.22	5.84	1.70	2.39
LB 9337.78	9520.87	692.47	297.68	183.09	7.14	1.63	2.33
9520.87	9703.95	625.98	280.18	183.09	6.45	1.53	2.23
9703.95	9887.04	830.32	331.93	183.09	8.56	1.81	2.50
9887.04	10070.12	747.71	311.70	183.09	7.71	1.70	2.40
10070.12	RB 10253.21	687.68	296.44	183.09	7.09	1.62	2.32
10253.21	10662.69	1771.07	721.74	409.48	18.26	1.76	2.45
10662.69	11072.17	626.17	280.20	182.92	6.46	1.53	2.23

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.515

INPUT
Description: Top of CAP - West Bank
Station Elevation Data num= 79

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7978.26	1572.8	8061.18	1573.04	8131.25	1572.99	8210.06	1572.8	8315.32	1572.87
8423.2	1573.04	8521.5	1572.92	8625.42	1572.96	8720.36	1572.94	8801.41	1573.08
8883.7	1572.96	9079.33	1572.68	9161.37	1572.53	9257.34	1572.94	9333.63	1573.13
9399.46	1573.16	9482.92	1573.13	9549.15	1573.11	9611.35	1573.04	9663.4	1573.01
9743.33	1573.3	9815.39	1573.52	9957.46	1573.5	410046.94	1573.5	410137.71	1573.68
10218.58	1573.7	810288.09	1573.4	210378.87	1573.4	210463.44	1573.4	210555.65	1573.25
10640.6	1573.5	410738.89	1573.6	110796.63	1573.7	310859.55	1573.7	510916.98	1573.73
10974.9	1573.6	611059.28	1573.8	511130.62	1573.5	411194.45	1573.2	311245.03	1573.16
11293.78	1573.3	11344.25	1573.2	811376.05	1573.2	811451.65	1572.9	711524.95	1573.09
11598	1572.9	711663.98	1572.9	711763.07	1572.6	611861.49	1572.9	211943.32	1573.05
12031.02	1572.95	12108.1	1572.6	812276.63	1572.6	112359.74	1572.7	312416.67	1572.46
12500.88	1572.6	812559.91	1572.68	12634.8	1572.9	12750.74	1572.9	12806.61	1572.75
12885.55	1572.7	513010.29	1572.58	13085.2	1572.4	913146.91	1572.4	113204.48	1572.29
13359.31	1572.6	113506.27	1572.7	313588.94	1572.6	613665.56	1572.7	13770.87	1572.39
13827.51	1571.4	413902.82	1571.1	713981.75	1571.2	414066.74	1571.3	914133.77	1571.15
14211.91	1571.07	14288.4	1571.5	614352.95	1571.6	314413.29	1571.59		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7978.26	.022	9399.46	.022	10218.58	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9399.46	10218.58		384.02	203.25	127.25	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
7978.26	8278.26	1574.5	10913.26	14413.29	1574.5

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1574.38	Element			
Vel Head (ft)	0.37	Wt. n-Val.	0.022	0.022	0.022
W.S. Elev (ft)	1574.02	Reach Len. (ft)	384.02	203.25	127.25
Crit W.S. (ft)	1574.02	Flow Area (sq ft)	1241.27	526.73	344.86
E.G. Slope (ft/ft)	0.005497	Area (sq ft)	1572.20	526.73	5362.77
Q Total (cfs)	9700.00	Flow (cfs)	6652.20	1965.09	1082.71
Top Width (ft)	6435.03	Top Width (ft)	1421.20	819.12	4194.71
Vel Total (ft/s)	4.59	Avg. Vel. (ft/s)	5.36	3.73	3.14
Max Chl Dpth (ft)	2.95	Hydr. Depth (ft)	1.11	0.64	0.50
Conv. Total (cfs)	130828.7	Conv. (cfs)	89721.4	26504.1	14603.1
Length Wtd. (ft)	260.95	Wetted Per. (ft)	1121.20	819.12	694.68
Min Ch El (ft)	1573.01	Shear (lb/sq ft)	0.38	0.22	0.17

Alpha	1.12	Stream Power (lb/ft s)	2.04	0.82	0.53
Frctn Loss (ft)	1.79	Cum Volume (acre-ft)	1737.92	541.59	887.46
C & E Loss (ft)	0.10	Cum SA (acres)	1111.10	345.19	870.83

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8262.50	8404.62	736.75	139.06	126.36	7.60	1.10	5.30
8404.62	8546.74	754.64	147.87	142.12	7.78	1.04	5.10
8546.74	8688.86	788.28	151.79	142.12	8.13	1.07	5.19
8688.86	8830.98	719.82	143.73	142.12	7.42	1.01	5.01
8830.98	8973.10	806.32	153.86	142.12	8.31	1.08	5.24
8973.10	9115.22	1077.13	183.06	142.12	11.10	1.29	5.88
9115.22	9257.34	1142.62	189.66	142.12	11.78	1.33	6.02
9257.34	9399.46	626.66	132.26	142.12	6.46	0.93	4.74
LB 9399.46	9563.28	624.53	145.05	163.82	6.44	0.89	4.31
9563.28	9727.11	690.17	154.01	163.82	7.12	0.94	4.48
9727.11	9890.93	297.32	92.92	163.82	3.07	0.57	3.20
9890.93	10054.76	223.69	78.34	163.82	2.31	0.48	2.86
10054.76	RB 10218.58	129.36	56.40	163.82	1.33	0.34	2.29
10218.58	10638.05	848.21	247.99	419.47	8.74	0.59	3.42
10638.05	11057.52	234.49	96.87	275.21	2.42	0.35	2.42

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.477

INPUT
Description: Downstream of CAP
Station Elevation Data num= 213

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7983.58	1562.41	8045.31	1562.09	8054.43	1562	8083.59	1561.7	8141.47	1562
8162.36	1562.11	8183.58	1562.39	8222.5	1563.01	8256.74	1562.51	8283.57	1562.13
8383.58	1562.15	8417.47	1562.05	8483.57	1562.13	8564.48	1562	8569.78	1561.72
8579.84	1562	8583.59	1562.1	8683.58	1562.56	8783.59	1562.61	8883.58	1562.63
8983.59	1562.63	9083.58	1562.63	9183.57	1562.46	9283.58	1562.58	9367.01	1562.45
9383.44	1562.11	9383.57	1562.03	9415.68	1562.56	9441.42	1562.53	9472.89	1562.16
9473.59	1562	9486.06	1560	9491.07	1559.37	9495.59	1560	9512.29	1562
9519.26	1562.81	9546.72	1562	9581.95	1560.7	9612.9	1562	9614.85	1562.19
9615.51	1562	9622.18	1560	9624.71	1559.09	9630.69	1560	9645.13	1561.89
9650.83	1561.38	9655.6	1562	9658.15	1562.21	9669.03	1562	9669.06	1562
9682.29	1560.05	9692.48	1561.86	9701.38	1560.28	9708.36	1561.14	9722.96	1560
9732.87	1558.28	9740.66	1560	9749.04	1561.78	9783.59	1561.96	9793.53	1560
9793.59	1559.99	9793.69	1560	9810.35	1562	9811.05	1562.07	9819.53	1562
9874.15	1561.55	9896.1	1560.31	9908.76	1561.18	9920.4	1561.1	9927.05	1560
9929.79	1559.56	9933.48	1560	9946.82	1561.65	9993.51	1561.58	9999.93	1560.62

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10014.53 1561.1610021.21  1560.210032.88 1561.3110092.28 1561.6410143.37    1562
10146.08 1562.0310153.47    156210186.82    156210217.22    156210256.46    1562
10316.92 1562.0710370.26 1562.2210389.76 1562.2810419.91 1562.3210450.04 1562.37
10488.22 1562.3910506.71 1562.3910547.24  1562.510590.14 1562.5510629.86 1562.59
10667.15 1562.7510687.91 1562.7710706.84 1562.8910734.18 1563.0810757.52 1563.23
10776.83 1563.2610801.03 1563.2310823.71 1563.1310844.04  1562.910869.34 1562.48
10887.29 1562.2110907.33    156210924.74 1561.8210971.62 1561.6310992.59  1561.6
11008.71 1561.5711033.02 1561.5311050.12  1561.511069.66 1561.4411098.14 1561.32
11121.62 1561.2511144.65  1561.2 11171.2 1561.1611192.89 1561.1211209.79 1561.09
   11256 1560.9311276.31 1560.95 11294.2    156111309.57 1561.0111342.13 1560.79
11357.77 1560.7611374.75 1560.7411390.63 1560.7611411.03 1560.7311454.05 1560.59
11480.65 1560.4711506.58 1560.3511526.03 1560.2611570.34 1560.1311583.32 1560.08
11590.51    156011626.73 1559.59   11658 1559.2111677.12 1558.9711696.01 1558.98
11717.81 1559.06 11742.6 1559.0911769.09 1559.3111797.94 1559.6411816.99 1559.88
11825.42    156011837.63 1560.1711864.35 1560.4811886.36 1560.5711927.36 1560.66
11946.35 1560.6711964.59  1560.711987.42 1560.7612016.37 1560.83 12067.2 1560.85
12097.65 1560.7712122.01  1560.712152.28 1560.7512196.83  1560.912216.71 1560.97
12256.53 1561.1112278.78 1561.2612297.98  1561.412324.06 1561.5512389.93 1561.67
 12424.2 1561.7612466.71 1561.8712507.85 1561.9612528.79    1562   12551 1562.04
12586.56 1562.0712632.33 1562.0912674.72  1562.112732.64 1562.1112773.86 1562.18
12817.31 1562.3112861.92  1562.2 12902.1 1562.03 12910.6    156212926.65 1561.97
12964.59 1561.9112999.02  1561.813044.52 1561.6413076.83 1561.5713111.09 1561.55
13149.13  1561.613179.32 1561.7313221.89 1561.78   13269  1561.713300.25 1561.76
13343.85 1561.8413388.61 1561.9313413.05 1561.9513467.59 1561.9113502.24 1561.74
13545.84 1561.6313580.49 1561.5413612.73 1561.2413659.39 1560.8713680.07  1560.9
13724.67    156113779.48 1560.9313825.22 1560.7714020.76    156014023.54 1559.86
14030.59    156014111.26 1560.1314269.96    156214331.07 1563.0414332.93 1562.62
14334.54 1563.1714345.57    156414401.58    1566

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 7983.58     .05 9472.89     .0510143.37     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9472.8910143.37           404.21  378.84  343.37              .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
10993.5814401.58    1566

CROSS SECTION OUTPUT    Profile #PF 3

  E.G. Elev (ft)            1568.01   Element                   Left OB    Channel   Right OB
  Vel Head (ft)                6.05   Wt. n-Val.                 0.050      0.050      0.050
  W.S. Elev (ft)            1561.96   Reach Len. (ft)           404.21     378.84     343.37
  Crit W.S. (ft)            1562.90   Flow Area (sq ft)          11.33     474.29      19.50
  E.G. Slope (ft/ft)       0.614162   Area (sq ft)               11.33     474.29    2858.47
  Q Total (cfs)             9700.00   Flow (cfs)                 67.12    9458.93     173.94
  Top Width (ft)            3613.38   Top Width (ft)             88.38     595.55    2929.45
  Vel Total (ft/s)            19.20   Avg. Vel. (ft/s)            5.92      19.94       8.92
  Max Chl Dpth (ft)            3.68   Hydr. Depth (ft)            0.13       0.80       0.24
  Conv. Total (cfs)         12377.4   Conv. (cfs)                 85.7    12069.8      222.0
  Length Wtd. (ft)           376.22   Wetted Per. (ft)           88.39     598.55      82.32
  Min Ch El (ft)            1558.28   Shear (lb/sq ft)            4.92      30.38       9.08
  Alpha                        1.06   Stream Power (lb/ft s)     29.12     605.92      81.02
  Frctn Loss (ft)              4.78   Cum Volume (acre-ft)     1730.94     539.26     875.46
  C & E Loss (ft)              1.68   Cum SA (acres)           1104.45     341.89     860.43


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 3

  Left Sta     Right Sta       Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)            (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
```

7983.58	8132.51	58.30	9.76	74.13	0.60	0.13	5.98
8132.51	8281.44	0.00	0.00	1.12	0.00	0.00	0.47
8281.44	8430.37						
8430.37	8579.30	8.81	1.57	13.14	0.09	0.12	5.61
8579.30	9472.89						
LB 9472.89	9606.99	1795.06	89.53	97.67	18.51	0.92	20.05
9606.99	9741.08	3972.58	155.48	117.92	40.95	1.34	25.55
9741.08	9875.18	551.70	47.90	120.01	5.69	0.40	11.52
9875.18	10009.27	2300.08	118.07	134.49	23.71	0.88	19.48
10009.27	RB 10143.37	839.53	63.32	128.45	8.65	0.49	13.26
10143.37	10569.19						
10569.19	10995.01	173.94	19.50	82.32	1.79	0.24	8.92

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.405

INPUT
Description:
Station Elevation Data num= 122

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8144.55	1560.78	8187.86	1560	8302.6	1558.99	8315.81	1559.07	8347.82	1559.04
8356.75	1558.34	8362.84	1559.04	8405.66	1559.08	8422.06	1558.29	8454.3	1559.13
8470.66	1559.64	8756.26	1560	8772.8	1560.45	8774.8	1560	8777.57	1559.15
8800.62	1559.02	8806.76	1560	8810.83	1560.62	8829.51	1560	8885.61	1559.66
8985.6	1559.66	9085.61	1559.88	9453.11	1560	9547.68	1560	9686.39	1559.77
9694.69	1558.13	9705.54	1560	9705.58	1560.01	9705.61	1560	9712.72	1558
9719.79	1556	9720.07	1555.92	9720.41	1556	9729.69	1558	9736.75	1559.43
9750.93	1558.5	9761.05	1558.99	9785.41	1558.54	9787.08	1558	9793.04	1556
9796.59	1554.7	9801.63	1556	9810	1558	9814.96	1559.17	9864.05	1559.24
9874.12	1558	9884.35	1556.15	9896.69	1558	9900.48	1558.65	9916.43	1558.66
9918.8	1558	9924.72	1556.33	9933.04	1558	9938.68	1559.14	9946.7	1559.17
9952.27	1558	9956.7	1557.19	9963.36	1558	9970.11	1558.89	10007.42	1559.07
10013.58	1558	10022.29	1556.48	10035.06	1558	10042.09	1558.79	10050.52	1558.66
10052.41	1558	10055.87	1556.63	10069.74	1558	10079.61	1558.66	10486.03	1560
10588.92	1560.19	10701.13	1560	11194.05	1558	11286.29	1557.81	11290.55	1558
11298.54	1558.35	11335.39	1558	11443.34	1557.86	11593.13	1557.34	11626.08	1556.72
11629.58	1556	11635.07	1554.91	1642.11	1556	11650.79	1557.32	11759.58	1557.54
11902.77	1558	12028.15	1558.15	12036.75	1558.02	12045.55	1558.45	12075.8	1558.78
12392.04	1559.64	12540.98	1560	12708.27	1560.22	12871.36	1560	13024.48	1559.32
13227.6	1560	13340.73	1560	13384.03	1560.14	13385.33	1560	13389.58	1559.5
13397.99	1559.95	13509.01	1559.43	13514.53	1558.91	13527.76	1559.38	13541.03	1559.19
13546.84	1558.45	13556.5	1559.17	13829.67	1559.66	13841.34	1558.75	13849.97	1559.27
13949.01	1559.25	14093.57	1558.69	14102.92	1558.07	14109.7	1558.21	14118.47	1558
14139.46	1557.81	14147.26	1556.15	14157.92	1556.81	14180.78	1557.72	14203.41	1558
14234.66	1558.45	14323.33	1560						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8144.55	.05	9686.39	.05	10079.61	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9686.39	10079.61	436.68	426.43	402.95	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
11194.55	14323.33	1561.5

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1560.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1560.49	Reach Len. (ft)	436.68	426.43	402.95

Crit W.S. (ft)	1560.14	Flow Area (sq ft)	1149.84	876.25	1295.36
E.G. Slope (ft/ft)	0.007020	Area (sq ft)	1149.84	876.25	6038.69
Q Total (cfs)	9700.00	Flow (cfs)	2441.92	3693.43	3564.65
Top Width (ft)	6158.18	Top Width (ft)	1521.24	393.22	4243.72
Vel Total (ft/s)	2.92	Avg. Vel. (ft/s)	2.12	4.22	2.75
Max Chl Dpth (ft)	5.79	Hydr. Depth (ft)	0.76	2.23	1.16
Conv. Total (cfs)	115770.0	Conv. (cfs)	29144.5	44081.3	42544.3
Length Wtd. (ft)	419.98	Wetted Per. (ft)	1521.66	397.86	1114.95
Min Ch El (ft)	1554.70	Shear (lb/sq ft)	0.33	0.97	0.51
Alpha	1.25	Stream Power (lb/ft s)	0.70	4.07	1.40
Frctn Loss (ft)	3.00	Cum Volume (acre-ft)	1725.55	533.39	840.39
C & E Loss (ft)	0.00	Cum SA (acres)	1096.98	337.59	832.16

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8144.55	8298.73	242.29	115.50	138.25	2.50	0.84	2.10
8298.73	8452.92	787.35	244.76	154.28	8.12	1.59	3.22
8452.92	8607.10	255.89	124.67	154.19	2.64	0.81	2.05
8607.10	8761.29	147.77	89.68	154.19	1.52	0.58	1.65
8761.29	8915.47	212.93	110.38	149.83	2.20	0.74	1.93
8915.47	9069.65	242.29	120.65	154.18	2.50	0.78	2.01
9069.65	9223.84	153.26	91.66	154.18	1.58	0.59	1.67
9223.84	9378.02	131.62	83.66	154.18	1.36	0.54	1.57
9378.02	9532.21	114.43	76.92	154.18	1.18	0.50	1.49
9532.21	9686.39	154.07	91.95	154.18	1.59	0.60	1.68
LB 9686.39	9765.03	609.77	156.91	79.94	6.29	2.00	3.89
9765.03	9843.68	772.73	180.77	79.83	7.97	2.30	4.27
9843.68	9922.32	735.35	175.01	79.31	7.58	2.23	4.20
9922.32	10000.97	647.68	162.19	79.32	6.68	2.06	3.99
10000.97	RB 10079.61	927.88	201.38	79.47	9.57	2.56	4.61
10079.61	10503.98	1190.42	481.18	424.37	12.27	1.13	2.47
10503.98	10928.35	523.14	293.80	424.37	5.39	0.69	1.78
10928.35	11352.73	1851.14	520.39	266.20	19.08	1.95	3.56

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.324

INPUT
Description:
Station Elevation Data num= 116

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8090.52	1558.65	8168.18	1558.87	8218.93	1558	8268.17	1557.15	8288.85	1556.66
8368.19	1556.58	8468.18	1556.65	8568.19	1556.51	8668.18	1556.36	8768.17	1556.46
8868.18	1556.55	8968.17	1556.36	9068.18	1556.48	9168.17	1556.39	9268.19	1556.89
9368.18	1557.06	9468.19	1557.2	9568.18	1557.34	9583.28	1557.32	9589.93	1556
9593.43	1555.26	9599.37	1556	9668.17	1557.44	9785.4	1557.08	9789.47	1556
9797.55	1554	9800.24	1553.35	9804.48	1554	9824.41	1555.69	9828.2	1554.89
9838.19	1556	9839.98	1556.3	9860.27	1556.22	9860.81	1556	9865.83	1554
9870.94	1552	9871.81	1551.66	9872.5	1552	9876.51	1554	9880.42	1556
9881.62	1556.62	9890.55	1556.12	9890.85	1556	9895.69	1554	9900.53	1552.01
9915.16	1554	9926.9	1555.65	9941.62	1556	9959.43	1556.4	9966.73	1556
9967.64	1555.95	9968.79	1556	9984.09	1556.48	10050.29	1556	10119.83	1555.57
10143.23	1555.97	10154.41	1555.75	10160.39	1555.07	10173.94	1556	10177.94	1556.27
10243.48	1556.42	10471.71	1558	10474.91	1558.04	10477.92	1558	10674.6	1556
10791.12	1555.67	10803.57	1555.54	11107.36	1555.62	11433.72	1554.41	11434.93	1554
11441.01	1552.09	11447.93	1554	11450.83	1555.11	11555.67	1554.85	11562.11	1554.36
11569.81	1555.18	11687.56	1555.72	11739.84	1555.94	11755.89	1556	12056.05	1557.03
12372.3	1557.64	12688.86	1556.92	13100.3	1557.23	13416.54	1557.35	13468.72	1557.07
13479.51	1556.51	13491.41	1556.94	13561.54	1556.65	13565.18	1556	13571.92	1554.79
13579.65	1556	13586.25	1556	13588.06	1555.03	13593.31	1556	13598.7	1557.21

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13616.52 1557.2813716.52 1557.4213730.52 1556.8713738.46    155613742.74 1555.01
13749.52    155613752.11 1556.45 13830.2    155613856.37 1555.5413862.99    1554
13866.04 1553.2713869.94    155413878.06 1555.6513890.74 1555.7213897.58 1554.67
13906.41 1555.5613954.36    155614032.74 1556.8914067.64 1556.7614131.21    1558
14132.74 1558.03

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 8090.52     .05  9785.4     .0510243.48     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9785.410243.48           398.87  516.12  498.97             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
11192.7714132.74    1558
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CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1557.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1557.49	Reach Len. (ft)	398.87	516.12	498.97
Crit W.S. (ft)	1557.04	Flow Area (sq ft)	1190.89	832.85	1161.62
E.G. Slope (ft/ft)	0.007445	Area (sq ft)	1190.89	832.85	3843.92
Q Total (cfs)	9700.00	Flow (cfs)	2575.94	3163.05	3961.01
Top Width (ft)	5582.81	Top Width (ft)	1536.92	458.08	3587.80
Vel Total (ft/s)	3.05	Avg. Vel. (ft/s)	2.16	3.80	3.41
Max Chl Dpth (ft)	5.83	Hydr. Depth (ft)	0.77	1.82	1.42
Conv. Total (cfs)	112415.7	Conv. (cfs)	29853.2	36657.4	45905.1
Length Wtd. (ft)	478.49	Wetted Per. (ft)	1537.20	462.08	819.27
Min Ch El (ft)	1551.66	Shear (lb/sq ft)	0.36	0.84	0.66
Alpha	1.15	Stream Power (lb/ft s)	0.78	3.18	2.25
Frctn Loss (ft)	3.08	Cum Volume (acre-ft)	1713.82	525.02	794.68
C & E Loss (ft)	0.02	Cum SA (acres)	1081.65	333.42	795.93

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8090.52	8260.01	0.59	1.15	11.53	0.01	0.10	0.51
8260.01	8429.50	286.70	137.80	169.50	2.96	0.81	2.08
8429.50	8598.98	348.49	154.91	169.49	3.59	0.91	2.25
8598.98	8768.47	459.63	182.90	169.49	4.74	1.08	2.51
8768.47	8937.96	400.58	168.42	169.49	4.13	0.99	2.38
8937.96	9107.45	450.18	180.64	169.49	4.64	1.07	2.49
9107.45	9276.94	350.05	155.33	169.49	3.61	0.92	2.25
9276.94	9446.42	105.56	75.66	169.49	1.09	0.45	1.40
9446.42	9615.91	106.06	75.92	169.75	1.09	0.45	1.40
9615.91	9785.40	68.09	58.16	169.50	0.70	0.34	1.17
LB 9785.40	9877.02	990.76	223.99	93.85	10.21	2.44	4.42
9877.02	9968.63	895.71	210.33	93.29	9.23	2.30	4.26
9968.63	10060.25	342.31	117.25	91.62	3.53	1.28	2.92
10060.25	10151.86	559.95	157.53	91.62	5.77	1.72	3.55
10151.86	RB 10243.48	374.34	123.76	91.70	3.86	1.35	3.02
10243.48	10632.41	221.61	138.03	258.90	2.28	0.53	1.61
10632.41	11021.33	2460.28	688.50	388.93	25.36	1.77	3.57
11021.33	11410.26	1279.10	335.08	171.44	13.19	1.95	3.82

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.227

INPUT
Description:
Station Elevation Data num= 139

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8041.2	1554.87	8141.21	1554.99	8194.12	1554.98	8241.19	1555.98	8241.98	1556
8262.09	1556.56	8287.86	1556	8341.19	1554.63	8347.6	1555	8354.37	1554

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 8363.34 1552.57 8385.53 1553.49 8393.89 1553.03  8403.6    1554 8409.75 1554.54
 8413.26    1554 8427.08 1552.59  8441.2 1553.79 8441.89    1554 8443.12 1554.37
 8447.16    1554 8461.69 1552.76 8481.98    1552 8489.72  1551.7 8495.36    1552
 8504.67  1552.5 8534.28 1553.76  8541.2 1553.05 8558.78 1552.26 8588.63 1552.96
 8595.88    1552 8598.14 1551.67 8600.18    1552 8609.45 1553.43 8619.56 1553.78
 8635.69 1552.59 8641.21 1553.41 8647.87 1553.47 8729.27 1553.18  8736.7    1552
 8740.25 1551.41 8741.19 1551.61 8743.33    1552 8751.16 1553.56 8841.19 1553.77
  9184.6 1553.38 9199.39 1552.24  9209.5    1552 9212.07 1551.88 9213.22    1552
 9223.05 1552.94 9233.13 1553.41 9240.55    1552 9241.32 1551.87 9242.08    1552
 9256.12    1554 9258.13 1554.28 9746.74 1554.18 9776.07    1554  9826.4 1553.62
 9841.43 1552.66 9874.24 1553.55 9922.76 1553.67 9965.43 1553.02 9976.34 1552.12
10010.49 1552.4910012.01    155210018.19    1550 10020.8 1549.1610026.35    1550
10039.64    155210046.02 1552.9610100.53 1552.7510102.01    155210104.35 1550.82
10122.07    155210141.83  1553.510219.51    155410256.63 1554.2710334.21    1554
10668.95 1552.5911009.84 1552.0611018.68 1552.8511047.32 1552.7311081.26  1552.4
11144.39 1552.5311146.81    155211151.52 1550.8511162.24 1551.2311189.72    1550
11205.25 1549.3411208.29 1549.1311212.62    155011223.43    1552 11224.3 1552.16
11225.88    1552 11242.7 1550.2611251.93 1551.7611266.17    155211292.19 1552.35
11293.27    155211297.56    155211298.63  1552.511493.56 1553.2611714.31    1554
 12318.2  1554.412461.24 1554.51 12467.6 1554.2312476.93 1554.6912496.25 1554.32
12499.85    155412503.26 1553.6912507.99    155412515.05 1554.46 12730.5 1554.79
13142.81 1554.8913471.81    155413547.67 1553.9313555.11 1553.6313559.48 1553.07
13568.86    1554   13570 1554.1113584.43    155413597.61    155413597.72 1554.04
13597.93    155413606.04    155213607.88 1551.4613610.72    155213621.19 1553.99
13622.12    155413630.88 1554.0513631.03    155413636.12 1552.2913659.05 1553.69
13684.53    155413733.66 1554.43 13872.6 1554.5413967.43 1554.65

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  8041.2     .05 9746.74     .0510256.63     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9746.7410256.63           469.21  495.71  496.49             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 11251.213967.43    1557
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CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1554.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1554.42	Reach Len. (ft)	469.21	495.71	496.49
Crit W.S. (ft)	1553.68	Flow Area (sq ft)	1134.76	647.96	1764.45
E.G. Slope (ft/ft)	0.005671	Area (sq ft)	1134.76	647.96	2699.58
Q Total (cfs)	9700.00	Flow (cfs)	2218.18	1698.06	5783.76
Top Width (ft)	4443.75	Top Width (ft)	1393.14	509.89	2540.72
Vel Total (ft/s)	2.73	Avg. Vel. (ft/s)	1.95	2.62	3.28
Max Chl Dpth (ft)	5.29	Hydr. Depth (ft)	0.81	1.27	1.77
Conv. Total (cfs)	128809.6	Conv. (cfs)	29455.9	22549.1	76804.5
Length Wtd. (ft)	491.68	Wetted Per. (ft)	1394.94	511.35	995.36
Min Ch El (ft)	1549.16	Shear (lb/sq ft)	0.29	0.45	0.63
Alpha	1.13	Stream Power (lb/ft s)	0.56	1.18	2.06
Frctn Loss (ft)	2.65	Cum Volume (acre-ft)	1703.17	516.25	757.20
C & E Loss (ft)	0.01	Cum SA (acres)	1068.24	327.69	760.83

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8211.75	8382.31	84.03	38.50	30.96	0.87	1.25	2.18
8382.31	8552.86	547.27	233.63	168.97	5.64	1.39	2.34
8552.86	8723.42	536.72	231.98	170.90	5.53	1.36	2.31
8723.42	8893.97	276.95	155.97	170.91	2.86	0.91	1.78
8893.97	9064.52	226.44	138.11	170.55	2.33	0.81	1.64
9064.52	9235.08	446.18	207.54	170.70	4.60	1.22	2.15
9235.08	9405.63	53.39	58.08	170.83	0.55	0.34	0.92
9405.63	9576.19	20.31	32.50	170.55	0.21	0.19	0.62
9576.19	9746.74	26.88	38.45	170.55	0.28	0.23	0.70
LB 9746.74	9848.72	109.34	72.03	102.01	1.13	0.71	1.52
9848.72	9950.70	181.25	97.53	101.99	1.87	0.96	1.86
9950.70	10052.67	826.83	243.25	102.83	8.52	2.39	3.40

10052.67	10154.65	517.79	183.49	102.54	5.34	1.80	2.82
10154.65	RB 10256.63	62.85	51.66	101.98	0.65	0.51	1.22
10256.63	10627.71	617.19	327.91	371.08	6.36	0.88	1.88
10627.71	10998.79	2511.60	761.16	371.08	25.89	2.05	3.30
10998.79	11369.87	2654.98	675.36	253.19	27.37	2.68	3.93

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.133

INPUT
Description:
Station Elevation Data num= 116

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7810.94	1552.37	7845.41	1552	8108.99	1551.25	8144.41	1552	8165.19	1552.06
8167.4	1552	8175.61	1551.7	8182.72	1552	8187.6	1552.2	8223.25	1552.52
8311.45	1552.88	8440.45	1552.73	8641.58	1552	8709.64	1551.32	8719.23	1550
8731.58	1548	8732.8	1547.83	8733.64	1548	8742.62	1549.82	8747.63	1550
8762.66	1550.55	8785.53	1550	8790.17	1549.89	8809.27	1549.52	8817.27	1548.13
8828.96	1548.29	8839.39	1550	8840.3	1550.11	8866.43	1550.95	8886.26	1550.62
8921.72	1550.95	8927.7	1550	8930.45	1549.54	8934.13	1550	8944.15	1551.18
9228.23	1551.77	9813.36	1551.11	9843.01	1550.82	9860.14	1550	9867.3	1549.77
9869.81	1550	9879.04	1550.11	9892.58	1551.01	9898.97	1550.36	9908.34	1551.24
9958.57	1551.41	9986.41	1550.98	9991.24	1550	9996.64	1548.71	10004.24	1550
10010.56	1551.11	10051.38	1550.81	10055.2	1550	10065.1	1548	10067.52	1547.51
10069.58	1548	10077.79	1550	10080.5	1550.74	10142.13	1551.22	10418.83	1550
10652.04	1549.71	10711.39	1549.77	10726.25	1549.3	10945.4	1549.84	10954.84	1548
10960.42	1546.87	10965.73	1548	10974.19	1549.41	10974.36	1549.41	10980.73	1548
10982.23	1547.49	10985.98	1548	10995.54	1549.31	11004.52	1549.29	11009.51	1548.15
11026.24	1549.53	11066.68	1549.16	11076.13	1548.13	11088.06	1548.91	11095.03	1548
11096.86	1547.75	11099.06	1548	11104.61	1548.61	11121.81	1549.28	11124.25	1548
11124.67	1547.79	11126.3	1548	11134.49	1549.04	11161.94	1549.31	1305.32	1550
11869.06	1550.95	12037.37	1551.26	12045.22	1550.55	12056.17	1551.25	12378.94	1551.78
12655.79	1552	12888.86	1552.36	13112.89	1552	13186.02	1551.61	3193.75	1551.06
13208.89	1551.74	13215.4	1551.16	13223.79	1552	13224.27	1552.05	13301.17	1552.29
13333.89	1552.64	13338.09	1552	13343.36	1551.24	13350.99	1552	13356.58	1552.57
13374.3	1552	13383.66	1551.67	13394.43	1550.38	13409.94	1552	13411.17	1552.11
13617.39	1552.75								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7810.94	.05	9813.36	.05	10142.13	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9813.36	10142.13	442.94	544.45	458.39	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
11300.94	13617.39	1554

Blocked Obstructions num= 1

Sta L	Sta R	Elev
7810.94	8314.22	1554

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1551.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1551.74	Reach Len. (ft)	442.94	544.45	458.39
Crit W.S. (ft)	1550.82	Flow Area (sq ft)	658.31	346.09	2308.05
E.G. Slope (ft/ft)	0.005185	Area (sq ft)	658.31	346.09	3256.31
Q Total (cfs)	9700.00	Flow (cfs)	1124.50	764.37	7811.13
Top Width (ft)	3739.47	Top Width (ft)	1103.78	328.77	2306.92
Vel Total (ft/s)	2.93	Avg. Vel. (ft/s)	1.71	2.21	3.38
Max Chl Dpth (ft)	4.87	Hydr. Depth (ft)	0.60	1.05	1.99
Conv. Total (cfs)	134703.5	Conv. (cfs)	15615.9	10614.7	108472.8
Length Wtd. (ft)	474.61	Wetted Per. (ft)	1104.77	330.10	1160.56
Min Ch El (ft)	1547.51	Shear (lb/sq ft)	0.19	0.34	0.64
Alpha	1.16	Stream Power (lb/ft s)	0.33	0.75	2.18
Frctn Loss (ft)	2.63	Cum Volume (acre-ft)	1693.51	510.59	723.26
C & E Loss (ft)	0.00	Cum SA (acres)	1054.79	322.91	733.21

Warning: Divided flow computed for this cross-section.

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8611.91	8812.15	461.47	205.23	145.02	4.76	1.42	2.25
8812.15	9012.39	467.35	235.50	200.69	4.82	1.18	1.98
9012.39	9212.63	26.43	41.98	200.24	0.27	0.21	0.63
9212.63	9412.88	4.95	13.99	158.33	0.05	0.09	0.35
9412.88	9613.12	45.54	58.19	200.24	0.47	0.29	0.78
9613.12	9813.36	118.76	103.42	200.24	1.22	0.52	1.15
LB 9813.36	9879.11	184.40	79.33	65.79	1.90	1.21	2.32
9879.11	9944.87	78.02	47.37	65.86	0.80	0.72	1.65
9944.87	10010.62	130.18	64.54	66.21	1.34	0.98	2.02
10010.62	10076.38	277.08	101.63	66.35	2.86	1.55	2.73
10076.38	RB 10142.13	94.68	53.22	65.90	0.98	0.81	1.78
10142.13	10489.66	1055.54	438.82	347.53	10.88	1.26	2.41
10489.66	10837.18	2409.32	720.01	347.53	24.84	2.07	3.35
10837.18	11184.71	3558.13	911.59	349.27	36.68	2.62	3.90
11184.71	11532.23	788.14	237.63	116.23	8.13	2.04	3.32

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.030

INPUT
Description:
Station Elevation Data num= 123

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7668.67	1550.46	7698.1	1550	8058.73	1549.23	8192.83	1549.67	8471.03	1549.2
8517.42	1550	8528.05	1550.18	8534.86	1550	8586.83	1548	8589.22	1547.87
8596.6	1546	8597.74	1545.71	8598.99	1546	8607.76	1548	8610.45	1548.61
8631.13	1548.43	8636.74	1548	8640.73	1547.58	8648.48	1548	8657.98	1548.54
8672.69	1548.29	8675.46	1548	8682.73	1547.24	8691.36	1548	8697.1	1548.49
8746.95	1548.47	8750.68	1548	8754.35	1547.45	8760.05	1548	8764.71	1548.45
8883.34	1548.53	9295.66	1549.01	9802.44	1548	9805.57	1547.98	9809.14	1548
9844.74	1548.23	9847.95	1548	9855.43	1547.43	9886.4	1547.82	9891.88	1546.27
9900.21	1547.84	9923.52	1548	9926.36	1548.07	9926.88	1548	9933.68	1547.05
9941.54	1548	9944.29	1548.35	9966.1	1548.3	9967.24	1548	9972.37	1546.72
9983.7	1548	9984.88	1548.16	10018.16	1548.14	10018.69	1548	10027.01	1546.05
10027.67	1546	10040.35	1545.07	10044.76	1546	10053.63	1548	10055.8	1548.52
10072.35	1548.26	10073.34	1548	10080.93	1546	10081.3	1545.91	10081.88	1546
10094.27	1548	10095.61	1548.22	10146.29	1548.05	10146.61	1548	10157.45	1546.14
10176.51	1548	10177.86	1548.13	10195.44	1548	10257.34	1547.79	10315.46	1547.59
10370.67	1547.58	10376.3	1546.96	10388.95	1547.49	10531.38	1546.85	10544.91	1547.48
10772.01	1547.04	10811.25	1546.77	10814.71	1546	10821.86	1544.45	10831.07	1546
10834.55	1546.68	10870.32	1546.59	10873.27	1546	10876.3	1545.42	10881.08	1546
10884.17	1546.38	11022.56	1547.23	11529.72	1548	11793.45	1548.79	11799.82	1548.4
11807.24	1548.89	11828.78	1548.71	12402.55	1550	12437.06	1550.15	12492.27	1550
12731.52	1549.34	12736.03	1548.63	12744.75	1549.75	12782.23	1549.35	12789.19	1548.06
12801.54	1549.78	12976.14	1550	12994.22	1550.44	13018.11	1550.28	13054.39	1550
13055	1550	13060.13	1550.15	13181.23	1550.14	13183.08	1550	13188.47	1549.29
13193.31	1550	13194.69	1550.22	13281.19	1550.24	13282.54	1550	13286.45	1549.28
13289.25	1550	13290.18	1550.25	13328.14	1550				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7668.67	.05	9844.74	.05	10544.91	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9844.74	10544.91	468.48	513.02	424.17	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
11267.31	13328.14	1550

Blocked Obstructions num= 1

Sta L	Sta R	Elev
7668.67	8527.85	1550

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1549.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1549.10	Reach Len. (ft)	468.48	513.02	424.17
Crit W.S. (ft)	1548.42	Flow Area (sq ft)	743.15	1086.18	1445.55
E.G. Slope (ft/ft)	0.005866	Area (sq ft)	743.15	1086.18	2024.96
Q Total (cfs)	9700.00	Flow (cfs)	1172.69	3305.73	5221.58
Top Width (ft)	3461.96	Top Width (ft)	1286.40	700.17	1475.39
Vel Total (ft/s)	2.96	Avg. Vel. (ft/s)	1.58	3.04	3.61
Max Chl Dpth (ft)	4.65	Hydr. Depth (ft)	0.58	1.55	2.00
Conv. Total (cfs)	126652.7	Conv. (cfs)	15311.8	43162.8	68178.0
Length Wtd. (ft)	468.86	Wetted Per. (ft)	1287.32	702.47	723.02
Min Ch El (ft)	1545.07	Shear (lb/sq ft)	0.21	0.57	0.73
Alpha	1.19	Stream Power (lb/ft s)	0.33	1.72	2.64
Frctn Loss (ft)	3.26	Cum Volume (acre-ft)	1686.39	501.64	695.47
C & E Loss (ft)	0.00	Cum SA (acres)	1042.64	316.48	713.31

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8539.10	8756.71	357.37	186.27	199.25	3.68	0.94	1.92
8756.71	8974.31	177.76	126.92	217.64	1.83	0.58	1.40
8974.31	9191.92	70.14	72.64	217.61	0.72	0.33	0.97
9191.92	9409.53	23.81	37.99	217.61	0.25	0.17	0.63
9409.53	9627.13	151.67	115.38	217.61	1.56	0.53	1.31
9627.13	9844.74	391.92	203.94	217.61	4.04	0.94	1.92
LB 9844.74	9984.77	528.55	191.45	140.86	5.45	1.37	2.76
9984.77	10124.81	657.97	218.54	141.19	6.78	1.56	3.01
10124.81	10264.84	507.01	186.43	140.29	5.23	1.33	2.72
10264.84	10404.88	645.71	215.41	140.08	6.66	1.54	3.00
10404.88	RB 10544.91	966.52	274.36	140.05	9.96	1.96	3.52
10544.91	10823.23	1931.91	546.33	278.59	19.92	1.96	3.54
10823.23	11101.56	2453.10	630.58	278.67	25.29	2.27	3.89
11101.56	11379.88	836.56	268.63	165.75	8.62	1.62	3.11

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 18.932

INPUT
Description:
Station Elevation Data num= 134

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7317.07	1547.29	7371.26	1547.3	7517.51	1546.39	7523.26	1546.21	7687.49	1546.17
7782.4	1546	8003.83	1546.03	8007.8	1546	8067.79	1545.53	8112.62	1546
8173.09	1546.5	8198.07	1546	8328.25	1544.95	8338.31	1545.81	8359.07	1545.37
8368.16	1544.63	8376.12	1545.31	8380.68	1545.18	8385.67	1544	8390.32	1542.92
8397.03	1544	8406.87	1545.42	8416.65	1545.6	8475.52	1545.23	8481.2	1544.33
8490.22	1545.23	8502.8	1545.15	8508.62	1544.48	8525.13	1545.64	8828.96	1545.43
9750.93	1544.76	9786.79	1545.04	9794.76	1544	9795.32	1543.94	9795.88	1544
9804.62	1545.05	9822.35	1544.57	9825.69	1544	9831.14	1543.06	9836.82	1544
9840.74	1544.64	9895.52	1544.95	9901.38	1544	9902.97	1543.77	9904.81	1544
9913.72	1545.18	9948.38	1545.02	9983.05	1544.96	9985.94	1544	9991.41	1542
9991.61	1541.93	9991.93	154	210001.29	154	410005.12	1544.8	100043.65	1544.66
10046.85	154	410051.33	1543.05	100058.33	154	410062.55	1544.47	100080.64	1544.27
10082.93	154	410094.95	1542.32	100105.42	154	410109.87	1544.71	100132.12	1544.42
10133.55	154	410137.85	1542.75	10144.3	1544	10147.6	1544.67	100211.14	1544.79
10215.15	154	410219.52	1542.98	100223.84	154	410227.72	1544.92	100260.83	1544.25
10274.72	1544.42	100278.79	154	410282.32	1543.58	10286.2	154	410291.89	1544.61
10326.74	1544.23	100327.66	154	410333.16	1542.85	100339.24	154	410341.97	1544.48
10360.83	1544.06	100371.54	1544.17	10391.5	1544.17	100400.88	1544.12	100406.97	1544
10437.33	1543.69	100444.45	1542.67	100455.72	154	410456.36	1544.07	100457.04	1544
10460.81	1543.58	100483.17	1543.84	100493.67	1543.28	100503.67	154	410504.91	1544.07
10514.31	154	410519.43	1543.96	100524.16	1543.42	100544.13	154	410544.93	1544.06
10546.65	154	410560.82	1543.51	100568.16	1543.52	100575.45	1542.17	100586.46	1544
10586.52	1544.01	100591.67	154	410660.82	1543.87	100696.52	154	411467.04	1545.74
11602	154	612372.58	1547.21	2375.22	1547.41	12381.03	1546.38	12390.91	1547.65

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12596.19 1547.5212695.05    1548 12719.9    154812940.53    154812968.89 1548.15
12969.25    154812972.93  1546.6 12983.4 1547.9712985.31    154813080.51 1548.38
13082.89    154813084.22 1547.7913086.69    154813091.49 1548.38

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 7317.07     .05 9786.79     .0510591.67     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9786.7910591.67           581.34  528.78  466.64             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
11367.0713091.49    1548
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 7317.07 8175.05    1548
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CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1546.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1545.84	Reach Len. (ft)	581.34	528.78	466.64
Crit W.S. (ft)	1545.45	Flow Area (sq ft)	1000.19	1301.64	923.65
E.G. Slope (ft/ft)	0.008376	Area (sq ft)	1000.19	1301.64	947.09
Q Total (cfs)	9700.00	Flow (cfs)	2014.71	4862.33	2822.96
Top Width (ft)	3299.22	Top Width (ft)	1568.53	804.88	925.81
Vel Total (ft/s)	3.01	Avg. Vel. (ft/s)	2.01	3.74	3.06
Max Chl Dpth (ft)	3.91	Hydr. Depth (ft)	0.64	1.62	1.19
Conv. Total (cfs)	105986.5	Conv. (cfs)	22013.7	53127.9	30844.9
Length Wtd. (ft)	535.06	Wetted Per. (ft)	1569.29	808.69	775.40
Min Ch El (ft)	1541.93	Shear (lb/sq ft)	0.33	0.84	0.62
Alpha	1.17	Stream Power (lb/ft s)	0.67	3.14	1.90
Frctn Loss (ft)	3.28	Cum Volume (acre-ft)	1677.01	487.58	681.00
C & E Loss (ft)	0.04	Cum SA (acres)	1027.29	307.62	701.61

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8057.99	8304.96	38.16	30.32	86.70	0.39	0.35	1.26
8304.96	8551.93	321.68	165.78	247.72	3.32	0.67	1.94
8551.93	8798.90	84.69	74.35	246.97	0.87	0.30	1.14
8798.90	9045.87	181.15	117.32	246.97	1.87	0.48	1.54
9045.87	9292.85	309.00	161.64	246.97	3.19	0.65	1.91
9292.85	9539.82	462.81	205.97	246.97	4.77	0.83	2.25
9539.82	9786.79	617.21	244.81	246.97	6.36	0.99	2.52
LB 9786.79	9947.77	545.68	187.01	161.56	5.63	1.16	2.92
9947.77	10108.74	942.21	260.04	162.37	9.71	1.62	3.62
10108.74	10269.72	716.62	220.38	161.85	7.39	1.37	3.25
10269.72	10430.69	1041.26	275.45	161.39	10.73	1.71	3.78
10430.69	RB 10591.67	1616.53	358.76	161.53	16.67	2.23	4.51
10591.67	10841.65	1617.80	442.29	249.98	16.68	1.77	3.66
10841.65	11091.63	879.24	306.77	249.98	9.06	1.23	2.87
11091.63	11341.62	314.83	165.65	249.98	3.25	0.66	1.90
11341.62	11591.60	11.15	8.95	25.45	0.11	0.35	1.25

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

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CROSS SECTION          RIVER: Vineyard FRS
REACH: Vineyard           RS: 18.832

INPUT
Description:
Station Elevation Data     num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 7139.32    1544 7263.34 1542.84 7403.88 1542.41 7413.37 1542.65 7442.83 1542.59
 7450.54 1542.33 7462.34 1542.78 7604.56  1542.1 7621.22    1542 7846.42 1541.44
 8103.79 1541.35 8117.71 1540.75 8132.48 1541.29 8147.53 1541.51 8160.22 1540.61
    8178  1541.7 8186.32    1540 8191.93 1538.81 8199.09    1540 8204.86 1541.03
  8216.1 1541.26 8221.53    1540 8222.84 1539.72 8226.94    1540  8233.6 1540.25
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 8246.37 1541.31 8384.96 1541.63 9589.09 1541.29 9623.97 1541.29 9640.21 1541.42
 9735.56 1541.51 9743.82 1541.29 9750.54 1541.76 9816.49 1541.77 9823.01 1541.34
 9828.96 1541.67 9909.63 1541.76 9914.21    1540  9917.9 1538.55 9922.17    1540
 9926.74 1541.66 9954.01  1541.8 9959.26 1540.73 9967.16 1541.82 9975.81  1541.8
 9983.88 1540.69 9996.79 1541.8810029.79  1541.410037.06    154010049.16 1539.13
10053.74    154010062.51 1541.5710135.77 1541.1810139.84    154010140.61  1539.8
10141.75    154010147.26 1541.0910160.07 1541.0210169.37    154010170.14 1539.89
10170.92    154010180.88 1541.5210240.54 1541.1610246.31    154010246.96 1539.86
10250.87 1539.5910253.24    154010260.71 1541.3910296.56 1541.2110307.83 1540.26
10324.81 1541.5810349.63 1540.0210363.61 1541.3210387.94 1541.4210392.13    1540
10395.67 1538.7810401.22    1540 10406.6 1541.3710494.64 1541.2310594.65 1541.04
10694.63  1540.910794.64 1541.3311072.46    154211206.95 1542.19 12128.9 1543.62
12228.91 1543.3812328.89 1543.18 12428.9 1543.1612528.89 1543.33 12628.9 1543.48
12728.91 1543.74 12828.9 1543.9212928.91 1543.87 13028.9 1543.8713128.91 1543.92
 13148.9    1544 13228.9 1544.33

Manning's n Values          num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
 7139.32     .05 9909.63     .05 10406.6     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9909.63 10406.6           441.13  509.32  557.25             .3       .5
Ineffective Flow     num=        1
   Sta L   Sta R    Elev
11454.32 13228.9    1544
Blocked Obstructions     num=        1
   Sta L   Sta R    Elev
 7139.32 7462.35    1544

CROSS SECTION OUTPUT    Profile #PF 3

  E.G. Elev (ft)            1542.68   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.08   Wt. n-Val.                  0.050      0.050      0.050
  W.S. Elev (ft)            1542.60   Reach Len. (ft)            441.13     509.32     557.25
  Crit W.S. (ft)            1542.00   Flow Area (sq ft)         2650.22     770.05     949.36
  E.G. Slope (ft/ft)       0.004744   Area (sq ft)              2650.22     770.05     949.51
  Q Total (cfs)             9700.00   Flow (cfs)                5780.01    2100.42    1819.57
  Top Width (ft)            3967.44   Top Width (ft)            2408.68     496.97    1061.79
  Vel Total (ft/s)             2.22   Avg. Vel. (ft/s)             2.18       2.73       1.92
  Max Chl Dpth (ft)            4.05   Hydr. Depth (ft)             1.10       1.55       0.91
  Conv. Total (cfs)        140836.8   Conv. (cfs)               83921.5   30496.5   26418.8
  Length Wtd. (ft)           496.98   Wetted Per. (ft)          2409.54     500.56    1047.72
  Min Ch El (ft)            1538.55   Shear (lb/sq ft)             0.33       0.46       0.27
  Alpha                        1.04   Stream Power (lb/ft s)       0.71       1.24       0.51
  Frctn Loss (ft)              2.81   Cum Volume (acre-ft)      1652.65     475.01     670.84
  C & E Loss (ft)              0.01   Cum SA (acres)            1000.75     299.72     690.97


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 3

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.   Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                (ft)      (ft/s)
  7416.35       7693.38          96.49      84.20    192.44      0.99      0.44       1.15
  7693.38       7970.41         607.05     293.68    277.03      6.26      1.06       2.07
  7970.41       8247.44        1103.97     420.94    277.84     11.38      1.52       2.62
  8247.44       8524.47         601.43     292.04    277.03      6.20      1.05       2.06
  8524.47       8801.51         591.72     289.21    277.03      6.10      1.04       2.05
  8801.51       9078.54         667.41     310.87    277.03      6.88      1.12       2.15
  9078.54       9355.57         746.77     332.54    277.03      7.70      1.20       2.25
  9355.57       9632.60         827.41     353.65    277.03      8.53      1.28       2.34
  9632.60       9909.63         537.76     273.10    277.07      5.54      0.99       1.97
  LB 9909.63    10009.02        304.54     127.82    100.84      3.14      1.29       2.38
  10009.02      10108.42        421.00     154.58     99.78      4.34      1.56       2.72
  10108.42      10207.81        418.03     154.00     99.90      4.31      1.55       2.71
  10207.81      10307.21        423.64     155.14     99.74      4.37      1.56       2.73
  10307.21      RB 10406.60     533.24     178.50    100.30      5.50      1.80       2.99
  10406.60      10688.83        929.38     412.81    282.23      9.58      1.46       2.25
  10688.83      10971.06        684.46     343.59    282.23      7.06      1.22       1.99
  10971.06      11253.29        185.96     157.21    282.23      1.92      0.56       1.18
  11253.29      11535.52         19.73      35.73    201.03      0.20      0.18       0.55


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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 18.736

INPUT
Description:
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6910.67	1540.26	7021.97	1540	7052.14	1539.62	7099.83	1539.97	7107.58	1539.86
7193.58	1539.52	7692.79	1538.52	7693.58	1538.76	7713.76	1538.24	7782.28	1539.47
7787.8	1538.3	7795.95	1538.86	7829.9	1539.02	7834.46	1538	7840.12	1536.66
7845.26	1538	7849.78	1539.13	7870.1	1538.85	7871.91	1538	7875.98	1536
7876.05	1535.97	7876.16	1536	7882.89	1538	7885.96	1538.89	8054.12	1539.07
8154.12	1539	8254.13	1538.97	8354.13	1538.78	8454.13	1539	8554.13	1539.19
8654.11	1539.21	8754.11	1539.29	9867.25	1539.36	9872.65	1538	9874.84	1537.48
9877.06	1538	9884.27	1539.48	9961.84	1538.78	9967.97	1538.48	9976.73	1538.76
9984.68	1538.23	9992.88	1538.88	10030.14	1538.65	10032.69	1538	10036.51	1537.04
10041.66	1538	10045.48	1538.71	10072.67	1538.71	10075.73	1538	10079.22	1537.13
10086.03	1538	10090.48	1538.59	10121.94	1538.87	10127.58	1538	10129.56	1537.71
10132.99	1538	10141.96	1538.78	10176.19	1538.55	10178.69	1538	10183.95	1536.85
10191.83	1538	10194.84	1538.45	10478.13	1538	10520.64	1537.88	10531.15	1537.23
10539.6	1538	10540.45	1538.09	10556.62	1538	10587.73	1537.81	10593.21	1536.92
10600.89	1537.73	10634.57	1537.55	10640.02	1536.41	10651.21	1537.85	10731.97	1538
10859.27	1538.39	11271.55	1538.81	11683.86	1539.09	11783.88	1539.36	11883.89	1539.48
11983.87	1539.58	12083.89	1539.41	12183.87	1539.44	12276.86	1539.05	12282.27	1538.66
12292.79	1539.21	12383.87	1539.36	12412.25	1538.75	12415.33	1538	12418.73	1537.19
12423.54	1538	12429.7	1539	12583.87	1539.68	12683.88	1539.56	12783.89	1539.95
12798.43	1540	12883.88	1540.31	12983.89	1540.24	13083.87	1540.75	13183.88	1540.94

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6910.67	.05	9867.25	.05	10194.84	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9867.25	10194.84	569.73	486.46	441.02	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
11678.08	13183.88	1541

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6910.67	7099.27	1541

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1539.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1539.75	Reach Len. (ft)	569.73	486.46	441.02
Crit W.S. (ft)	1539.40	Flow Area (sq ft)	1684.94	371.91	1933.61
E.G. Slope (ft/ft)	0.006895	Area (sq ft)	1684.94	371.91	2336.12
Q Total (cfs)	9700.00	Flow (cfs)	3011.31	995.57	5693.13
Top Width (ft)	5597.32	Top Width (ft)	2731.91	327.59	2537.82
Vel Total (ft/s)	2.43	Avg. Vel. (ft/s)	1.79	2.68	2.94
Max Chl Dpth (ft)	3.78	Hydr. Depth (ft)	0.62	1.14	1.30
Conv. Total (cfs)	116818.1	Conv. (cfs)	36265.5	11989.7	68562.9
Length Wtd. (ft)	497.76	Wetted Per. (ft)	2733.77	329.16	1483.63
Min Ch El (ft)	1536.85	Shear (lb/sq ft)	0.27	0.49	0.56
Alpha	1.15	Stream Power (lb/ft s)	0.47	1.30	1.65
Frctn Loss (ft)	2.94	Cum Volume (acre-ft)	1630.70	468.33	649.83
C & E Loss (ft)	0.02	Cum SA (acres)	974.72	294.90	667.94

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6910.67	7206.33	6.00	9.80	70.99	0.06	0.14	0.61
7206.33	7501.99	251.38	163.17	295.66	2.59	0.55	1.54
7501.99	7797.64	699.26	301.53	295.85	7.21	1.02	2.32
7797.64	8093.30	587.35	272.11	297.32	6.06	0.92	2.16
8093.30	8388.96	481.05	240.85	295.66	4.96	0.81	2.00
8388.96	8684.62	324.61	190.22	295.66	3.35	0.64	1.71
8684.62	8980.28	186.47	136.40	295.66	1.92	0.46	1.37

8980.28	9275.93	170.18	129.12	295.66	1.75	0.44	1.32
9275.93	9571.59	158.26	123.61	295.66	1.63	0.42	1.28
9571.59	9867.25	146.73	118.13	295.66	1.51	0.40	1.24
LB 9867.25	9932.77	85.53	45.65	65.96	0.88	0.70	1.87
9932.77	9998.29	157.70	65.74	65.58	1.63	1.00	2.40
9998.29	10063.80	218.13	80.01	65.87	2.25	1.22	2.73
10063.80	10129.32	242.93	85.35	65.89	2.50	1.30	2.85
10129.32	RB 10194.84	291.27	95.16	65.87	3.00	1.45	3.06
10194.84	10493.74	1435.78	459.77	298.90	14.80	1.54	3.12
10493.74	10792.65	2064.36	571.98	299.29	21.28	1.91	3.61
10792.65	11091.55	1075.33	386.55	298.90	11.09	1.29	2.78
11091.55	11390.46	685.95	295.16	298.90	7.07	0.99	2.32
11390.46	11689.36	431.74	220.16	287.62	4.45	0.77	1.96

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 18.644

INPUT
Description:
Station Elevation Data num= 127

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6672.18	1537.24	6728.39	1536.69	6733.88	1536.44	6740.28	1536.91	6757.32	1537.13
6796.81	1536.97	6846.67	1536.41	6887.49	1536.59	6944.14	1536.14	6960.73	1536
7046.11	1535.39	7061.79	1536	7064.52	1536.12	7070.22	1536	7082.45	1535.69
7148.22	1536	7172.17	1536.15	7214.5	1536.06	7215.7	1536	7222.7	1535.66
7231.63	1535.99	7232.26	1536	7408.02	1536.61	7409.8	1536	7411.17	1535.36
7418.1	1536	7419.37	1536.44	7443.13	1536.15	7443.95	1536	7454.72	1534
7457.3	1533.44	7459.33	1534	7466.58	1536	7467.24	1536.16	7672.18	1536.1
7698.67	1536	7841.67	1536	8379.29	1536.2	8449.38	1536	8666.72	1536
8783.19	1536	8784.72	1536	9186.15	1535.62	9286.15	1535.72	9386.15	1535.67
9486.16	1535.89	9586.14	1535.69	9686.14	1535.5	9739.13	1536	9751.98	1536.12
9753.42	1536	9771.18	1536	9773.45	1536.12	9863.06	1536	9925.5	1535.93
9932.27	1535.22	9942.25	1536	9943.36	1536.09	9951.68	1536	9973.6	1535.82
9981.96	1534.52	9993.41	1536	9993.83	1536.06	9996.23	1536	10002.54	1535.84
10019.96	1536	10029.15	1536.09	10030.02	1536	10036.26	1535.22	10042.26	1536
10042.72	1536.06	10053.09	1536	10065.58	1535.92	10072.48	1534.55	10081.4	1536
10081.89	1536.08	10087.08	1536	10102.54	1535.77	10202.54	1535.48	10302.55	1534.78
10368.62	1534.61	10374.2	1534.36	10379.37	1534.67	10402.55	1535.05	10457.81	1535.11
10461.43	1534	10461.79	1533.91	10462.37	1534	10468.08	1534.91	10502.54	1534.95
10505.71	1534.76	10512.2	1534.16	10520.22	1535.33	10602.56	1534.98	10702.55	1535.27
10802.54	1535.56	10902.53	1535.63	11114.99	1534	11314.84	1536.21	11727.16	1536.71
11827.18	1536.64	11927.17	1536.49	12027.16	1536.34	12127.15	1536.37	12227.17	1536.32
12250.2	1536.11	12250.44	1536	12255.18	1534	12255.9	1533.71	12256.88	1534
12263.32	1536	12265.42	1536.78	12327.16	1536.32	12427.16	1536.39	12527.17	1536.61
12601.92	1536.49	12607.09	1536.55	12629.84	1536.05	12629.99	1536	12636.37	1534
12636.85	1533.84	12637.56	1534	12645.7	1536	12646.94	1536.31	12750.78	1536.25
12974.38	1536.66	13074.39	1536.88						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6672.18	.05	9863.06	.05	10081.89	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9863.06	10081.89	397.21	500.78	427.12	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6672.18	6887.49	1538	11717.18	13074.39	1538

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6672.18	6757.32	1538

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1536.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1536.83	Reach Len. (ft)	397.21	500.78	427.12
Crit W.S. (ft)	1536.37	Flow Area (sq ft)	2592.98	225.22	1831.87
E.G. Slope (ft/ft)	0.005101	Area (sq ft)	2614.18	225.22	2362.27
Q Total (cfs)	9700.00	Flow (cfs)	5020.26	486.37	4193.37
Top Width (ft)	6241.49	Top Width (ft)	3053.64	218.83	2969.02
Vel Total (ft/s)	2.09	Avg. Vel. (ft/s)	1.94	2.16	2.29
Max Chl Dpth (ft)	3.39	Hydr. Depth (ft)	0.87	1.03	1.12

Conv. Total (cfs)	135807.3	Conv. (cfs)	70287.4	6809.6	58710.3
Length Wtd. (ft)	418.16	Wetted Per. (ft)	2976.60	219.47	1635.69
Min Ch El (ft)	1534.52	Shear (lb/sq ft)	0.28	0.33	0.36
Alpha	1.02	Stream Power (lb/ft s)	0.54	0.71	0.82
Frctn Loss (ft)	2.46	Cum Volume (acre-ft)	1602.59	464.99	626.04
C & E Loss (ft)	0.01	Cum SA (acres)	936.88	291.85	640.07

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6672.18	6991.27	105.78	67.46	103.78	1.09	0.65	1.57
6991.27	7310.36	566.22	289.29	319.13	5.84	0.91	1.96
7310.36	7629.44	364.69	222.44	320.06	3.76	0.70	1.64
7629.44	7948.53	462.87	256.33	319.09	4.77	0.80	1.81
7948.53	8267.62	393.94	232.69	319.09	4.06	0.73	1.69
8267.62	8586.71	407.04	237.30	319.09	4.20	0.74	1.72
8586.71	8905.80	508.67	271.26	319.09	5.24	0.85	1.88
8905.80	9224.88	769.10	347.63	319.09	7.93	1.09	2.21
9224.88	9543.97	761.48	345.56	319.09	7.85	1.08	2.20
9543.97	9863.06	680.43	323.00	319.10	7.01	1.01	2.11
LB 9863.06	9906.83	70.64	37.33	43.77	0.73	0.85	1.89
9906.83	9950.59	91.82	43.72	43.84	0.95	1.00	2.10
9950.59	9994.36	128.68	53.59	43.97	1.33	1.22	2.40
9994.36	10038.12	83.58	41.32	43.84	0.86	0.94	2.02
10038.12	RB 10081.89	111.67	49.27	44.06	1.15	1.13	2.27
10081.89	10381.14	1227.21	478.65	299.27	12.65	1.60	2.56
10381.14	10680.39	1498.06	539.75	299.63	15.44	1.80	2.78
10680.39	10979.64	861.61	387.12	299.25	8.88	1.29	2.23
10979.64	11278.89	416.86	250.41	299.25	4.30	0.84	1.66
11278.89	11578.14	169.29	145.83	299.25	1.75	0.49	1.16
11578.14	11877.39	20.38	30.13	139.04	0.21	0.22	0.68

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 18.549

INPUT
Description: "Eastern Diversion" at southern end of cross section
Station Elevation Data num= 123

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6653.63	1533.44	6688.95	1532.77	6703.24	1532.41	6709.49	1534	6717.04	1536
6720	1536.76	6723.69	1536	6734.2	1534	6744.71	1532	6755.14	1530
6757.35	1529.56	6759.43	1530	6768.36	1532	6772.03	1532.82	6827.12	1534
6830.68	1534.08	6920.8	1534	6987.74	1534	6994.75	1534.13	6995.52	1534
6998.92	1532.87	7006.64	1533.67	7018.29	1533.66	7024.19	1532	7027.21	1530.62
7030.53	1532	7037.16	1533.77	7063.46	1534	7085.79	1534	7127.73	1534
7244.54	1534	7413.78	1533.52	7826.1	1533.67	8238.4	1533.38	8383.89	1534
8468.87	1534	9348.18	1533.21	9448.18	1533.06	9458.66	1532.96	9548.18	1533.5
9648.18	1533.4	9666.19	1533.42	9672.55	1532.49	9683.98	1533.35	9748.16	1533.33
9794.9	1533.47	9804.54	1532.57	9809.32	1532.27	9824.44	1533.83	9848.16	1533.43
9999.22	1533.28	10005.38	1532	10007.33	1531.58	10010.84	1532	10023.47	1533.42
10083.77	1532.42	10085.94	1532	10090.38	1531.27	10096.31	1532	10099.53	1532.38
10123.61	1532.53	10125.9	1532	10127.94	1531.55	10131.35	1532	10135.71	1532.46
10273.7	1532.45	11238.18	1534	11364.12	1534.36	11464.12	1534.46	11564.13	1534.27
11664.13	1534.17	11764.12	1534.22	11864.11	1534.11	1964.13	1534.54	12002.43	1534.35
12012.72	1534.23	12054.15	1534.23	12055.15	1534	12064.07	1532	12064.27	1531.87
12066.04	1532	12085.92	1532.43	12092.7	1534	12094.41	1534.47	12111.91	1534
12134.26	1533.41	2139.33	1532.01	12147.99	1533.05	12157.84	1532.51	12163.92	1534
12164.46	1534	12172.81	1534	12198.1	1534.08	12198.68	1534	12203.89	1533.27
12208.82	1534	12219.34	1534	12229.63	1533.54	12233.33	1534	12235.29	1534.34
12250.02	1534.13	12251.19	1534	12259.98	1533.12	12264.58	1534	12270.69	1534.37
12273.84	1534.28	12276.17	1534	12282.88	1533.23	12288.74	1534	12298.2	1534.26
12299.36	1534	12304.57	1532.58	12313.48	1534	12318.31	1534.8	12346.16	1534.18
12347.63	1534	12354.31	1533.29	12360.13	1534	12373.99	1534.72	12464.12	1535.17
12564.13	1535.73	12628.49	1534	12664.12	1536.15				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

6653.63 .05 9848.16 .0510135.71 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9848.1610135.71 503.55 511.81 476.98 .3 .5
Ineffective Flow num= 1
Sta L Sta R Elev
11559.8512664.12 1536
Blocked Obstructions num= 1
Sta L Sta R Elev
6653.63 6720.41 1536

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1534.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1534.34	Reach Len. (ft)	503.55	511.81	476.98
Crit W.S. (ft)	1533.90	Flow Area (sq ft)	2381.64	392.23	1356.41
E.G. Slope (ft/ft)	0.006916	Area (sq ft)	2381.64	392.23	1622.88
Q Total (cfs)	9700.00	Flow (cfs)	4918.39	1190.57	3591.03
Top Width (ft)	5348.79	Top Width (ft)	3115.75	287.55	1945.50
Vel Total (ft/s)	2.35	Avg. Vel. (ft/s)	2.07	3.04	2.65
Max Chl Dpth (ft)	4.78	Hydr. Depth (ft)	0.76	1.36	1.08
Conv. Total (cfs)	116638.3	Conv. (cfs)	59141.6	14316.1	43180.6
Length Wtd. (ft)	497.36	Wetted Per. (ft)	3118.08	288.17	1253.74
Min Ch El (ft)	1531.27	Shear (lb/sq ft)	0.33	0.59	0.47
Alpha	1.07	Stream Power (lb/ft s)	0.68	1.78	1.24
Frctn Loss (ft)	3.39	Cum Volume (acre-ft)	1579.81	461.45	606.51
C & E Loss (ft)	0.00	Cum SA (acres)	908.75	288.94	615.97

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6653.63	6973.08	428.64	202.75	241.49	4.42	0.84	2.11
6973.08	7292.54	231.95	157.12	320.73	2.39	0.49	1.48
7292.54	7611.99	451.27	233.86	319.45	4.65	0.73	1.93
7611.99	7931.44	426.81	226.17	319.45	4.40	0.71	1.89
7931.44	8250.89	584.43	273.11	319.45	6.03	0.85	2.14
8250.89	8570.35	217.29	150.84	319.45	2.24	0.47	1.44
8570.35	8889.80	301.22	183.49	319.45	3.11	0.57	1.64
8889.80	9209.25	591.82	275.17	319.45	6.10	0.86	2.15
9209.25	9528.71	945.66	364.53	319.46	9.75	1.14	2.59
9528.71	9848.16	739.30	314.57	319.69	7.62	0.98	2.35
LB 9848.16	9905.67	121.34	53.96	57.51	1.25	0.94	2.25
9905.67	9963.18	133.90	57.24	57.51	1.38	1.00	2.34
9963.18	10020.69	230.94	79.53	57.77	2.38	1.38	2.90
10020.69	10078.20	224.97	78.16	57.53	2.32	1.36	2.88
10078.20	RB 10135.71	479.45	123.34	57.84	4.94	2.14	3.89
10135.71	10388.55	1522.92	466.52	252.84	15.70	1.85	3.26
10388.55	10641.39	1080.83	379.77	252.84	11.14	1.50	2.85
10641.39	10894.23	638.88	277.02	252.84	6.59	1.10	2.31
10894.23	11147.07	295.09	174.28	252.84	3.04	0.69	1.69
11147.07	11399.92	53.09	57.81	209.96	0.55	0.28	0.92
11399.92	11652.76	0.21	1.00	32.42	0.00	0.03	0.21

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 18.452

INPUT
Description: "Eastern Diversion" at southern end of cross section
Station Elevation Data num= 107

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7596.34	1530	7603.93	1530.17	7620.04	1531.13	7625.89	1530	7636.59	1528
7645.6	1526.32	7654.04	1528	7659.91	1529.34	7710.82	1529.46	7715.32	1528.63
7720.32	1529.35	7724.35	1529.62	7816.08	1530	7840.3	1530	7860.92	1529.87
7871.78	1528.95	7891.06	1529.89	7904.7	1529.21	7910.33	1528.83	7913.86	1528.72

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 7922.05  1529.5 7931.85 1528.83  7953.7 1529.98  8036.7 1529.98 8236.25    1530
 8239.67    1530 8644.73    1530 8645.03    1530 8645.21    1530 8745.03 1529.49
 8845.01 1529.61 8945.02 1529.66 9045.02 1529.64 9145.02 1529.61 9233.75    1530
 9245.02 1530.05 9345.02 1530.41 9445.03 1530.31 9475.52 1530.46  9479.5    1530
 9481.52 1529.74 9484.13    1530 9489.39 1530.53 9505.75 1530.63 9517.38 1530.22
 9526.37 1530.58 9545.03 1530.43 9568.28 1530.29 9569.95    1530 9571.84 1529.64
 9577.31    1530 9584.88 1530.51 9645.03 1530.22 9745.03 1530.17 9845.01 1530.22
 9862.77    1530 9927.34 1528.64 9934.33 1528.35 9943.72    1530 9945.26 1530.24
 9960.81    1530 9998.18 1529.3610003.43    152810009.33 1526.5310012.28 1526.99
10016.69    1528 10023.7 1529.5710039.96 1529.5510043.03    1528   10047 1526.11
10047.82    152610048.02    152610053.39    152810058.47 1529.4410108.08    1530
10114.38 1530.0710115.05    153010125.73  1528.910138.16 1529.8510161.24 1529.84
10261.26 1529.8210278.83    153010312.33 1530.3410313.25    1530 10316.5 1529.02
10321.59    153010322.47 1530.0710969.02 1529.9711069.03 1530.0611169.03 1530.21
11269.02 1530.2611369.04 1530.4811469.03 1530.9211569.02 1531.0911669.04 1530.94
11769.03 1530.7511869.02 1530.9911977.62    153012030.83 1529.2812036.02  1528.3
12044.89 1529.7312072.62    1530 12092.7 1530.1912408.94  1530.712455.89 1530.89
12586.75  1531.112725.17 1531.14

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 7596.34     .05 9845.01     .0510321.59     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9845.0110321.59           501.22  506.04  405.75              .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
11666.3412725.17    1532
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 7596.34  7618.9    1532

CROSS SECTION OUTPUT    Profile #PF 3

  E.G. Elev (ft)            1531.04   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.10   Wt. n-Val.                  0.050      0.050      0.050
  W.S. Elev (ft)            1530.95   Reach Len. (ft)            501.22     506.04     405.75
  Crit W.S. (ft)            1530.48   Flow Area (sq ft)         2320.70     669.73     926.30
  E.G. Slope (ft/ft)       0.006592   Area (sq ft)              2320.70     669.73    1304.25
  Q Total (cfs)             9700.00   Flow (cfs)                5758.66    2020.01    1921.33
  Top Width (ft)            4663.99   Top Width (ft)            2224.01     476.58    1963.40
  Vel Total (ft/s)             2.48   Avg. Vel. (ft/s)             2.48       3.02       2.07
  Max Chl Dpth (ft)            4.95   Hydr. Depth (ft)             1.04       1.41       0.80
  Conv. Total (cfs)        119467.9   Conv. (cfs)               70925.3   24879.0    23663.6
  Length Wtd. (ft)          482.25   Wetted Per. (ft)          2225.27     479.21    1163.04
  Min Ch El (ft)            1526.00   Shear (lb/sq ft)             0.43       0.58       0.33
  Alpha                        1.04   Stream Power (lb/ft s)       1.07       1.73       0.68
  Frctn Loss (ft)              2.81   Cum Volume (acre-ft)      1552.63     455.21     590.48
  C & E Loss (ft)              0.00   Cum SA (acres)             877.89     284.45     594.57


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 3

  Left Sta      Right Sta        Flow       Area       W.P.     % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                 (ft)     (ft/s)
  7596.34       7821.21         979.81     314.39    201.10      10.10      1.57       3.12
  7821.21       8046.07         739.47     277.77    225.05       7.62      1.24       2.66
  8046.07       8270.94         480.35     214.35    224.87       4.95      0.95       2.24
  8270.94       8495.81         473.61     212.54    224.87       4.88      0.95       2.23
  8495.81       8720.67         528.87     227.09    224.87       5.45      1.01       2.33
  8720.67       8945.54         865.23     305.12    224.87       8.92      1.36       2.84
  8945.54       9170.41         810.31     293.35    224.87       8.35      1.30       2.76
  9170.41       9395.28         354.82     178.73    224.87       3.66      0.79       1.99
  9395.28       9620.14         210.69     130.78    225.05       2.17      0.58       1.61
  9620.14       9845.01         315.53     166.58    224.87       3.25      0.74       1.89
  LB 9845.01    9940.33         475.25     149.30     95.43       4.90      1.57       3.18
  9940.33       10035.64        522.30     158.42     96.07       5.38      1.66       3.30
  10035.64      10130.96        519.41     158.35     96.76       5.35      1.66       3.28
  10130.96      10226.27        275.35     107.56     95.34       2.84      1.13       2.56
  10226.27      RB 10321.59     227.70      96.09     95.62       2.35      1.01       2.37
  10321.59      10561.95        462.44     214.83    240.36       4.77      0.89       2.15
  10561.95      10802.31        494.82     223.74    240.36       5.10      0.93       2.21
```

10802.31	11042.66	517.43	229.81	240.36	5.33	0.96	2.25
11042.66	11283.02	360.65	185.06	240.36	3.72	0.77	1.95
11283.02	11523.38	85.98	72.86	200.81	0.89	0.36	1.18

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 18.356

INPUT
Description: "Eastern Diversion" at southern end of cross section
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7979.69	1526	8040.32	1526.64	8048.37	1528	8050.39	1528.34	8053.28	1528
8067.48	1526.26	8068.47	1526	8075.08	1524	8077.29	1523.3	8080.38	1524
8089.35	1526	8092.04	1526.55	8128.78	1526.52	8138.57	1526.06	8148.23	1526.95
8208.68	1526.82	8214.43	1526.33	8220.79	1526.81	8237.8	1526.81	8464.31	1527.02
8974.22	1527.38	9074.21	1527.19	9174.22	1527.41	9274.21	1527.41	9374.22	1527.51
9474.21	1527.19	9574.23	1526.85	9582.18	1526.97	9588.34	1526.59	9600.54	1527.16
9623.24	1526.91	9633.09	1526.67	9649.14	1527.22	9674.22	1526.97	9774.24	1526.77
9777.08	1526.9	9908.47	1526.15	9911.46	1526	9922.03	1525.08	9930.34	1525.9
9954.52	1524.99	9970.29	1526	9978.18	1526.87	9998.19	152610001.67		1525.82
10010.56	1524.2110013.36		152410019.68		1523.0210025.31		152410036.93		1525.89
10040.11	152610064.61		1526.7310070.48		152610075.14		1525.5210080.56		1526
10086.12	1526.4710090.46		1526.8410161.88		1526.410162.88		152610167.12		1524
10168.26	1523.6710169.57		152410177.21		1526	10178.9	1526.4510206.54		1526.06
10206.75	1526	10212.8	1524.1910223.84		152610227.22		1526.610275.16		1526.69
10279.62	152610289.25		1524.610297.68		152610302.95		1526.8110596.03		1526.86
10696.05	1526.9610762.58		1526.7610796.04		1527.0110896.03		1526.9910996.05		1527.16
11096.04	1527.2111196.04		1527.2811296.05		1527.6211396.04		1527.7711496.04		1527.82
11592.4	152811596.05		1528.0411598.81		152811604.92		1527.9311610.06		1527.39
11618.11	152811646.49		152811760.36		1527.8211763.25		1527.311768.29		1528.08
11784.19	152811826.05		1527.8212045.25		152812434.34		1528.8912534.36		1528.84

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7979.69	.05	9908.47	.05	10302.95	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9908.47	10302.95	303.03	284.7	201.78	.3	.5

Blocked Obstructions num= 1

Sta L	Sta R	Elev
7979.69	8050.93	1529

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1528.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1528.12	Reach Len. (ft)	303.03	284.70	201.78
Crit W.S. (ft)	1527.64	Flow Area (sq ft)	1986.62	856.09	1280.90
E.G. Slope (ft/ft)	0.005193	Area (sq ft)	1986.62	856.09	1280.90
Q Total (cfs)	9700.00	Flow (cfs)	4449.71	3059.88	2190.41
Top Width (ft)	4045.61	Top Width (ft)	1856.21	394.48	1794.92
Vel Total (ft/s)	2.35	Avg. Vel. (ft/s)	2.24	3.57	1.71
Max Chl Dpth (ft)	5.10	Hydr. Depth (ft)	1.07	2.17	0.71
Conv. Total (cfs)	134608.8	Conv. (cfs)	61749.5	42462.6	30396.7
Length Wtd. (ft)	275.29	Wetted Per. (ft)	1857.26	397.03	1795.08
Min Ch El (ft)	1523.02	Shear (lb/sq ft)	0.35	0.70	0.23
Alpha	1.26	Stream Power (lb/ft s)	0.78	2.50	0.40
Frctn Loss (ft)	1.68	Cum Volume (acre-ft)	1527.85	446.34	578.44
C & E Loss (ft)	0.01	Cum SA (acres)	854.42	279.39	577.07

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7979.69	8172.57	642.85	214.26	121.27	6.63	1.78	3.00
8172.57	8365.45	595.07	246.30	192.92	6.13	1.28	2.42
8365.45	8558.32	469.53	213.64	192.88	4.84	1.11	2.20

8558.32	8751.20	373.71	186.30	192.88	3.85	0.97	2.01
8751.20	8944.08	290.09	160.03	192.88	2.99	0.83	1.81
8944.08	9136.96	290.64	160.22	192.88	3.00	0.83	1.81
9136.96	9329.84	223.87	136.99	192.88	2.31	0.71	1.63
9329.84	9522.71	272.78	154.23	192.88	2.81	0.80	1.77
9522.71	9715.59	514.21	225.64	192.92	5.30	1.17	2.28
9715.59	9908.47	776.95	289.02	192.88	8.01	1.50	2.69
LB 9908.47	9987.37	704.53	187.96	79.09	7.26	2.38	3.75
9987.37	10066.26	854.22	211.33	79.40	8.81	2.68	4.04
10066.26	10145.16	370.26	127.72	79.01	3.82	1.62	2.90
10145.16	10224.05	677.95	184.75	80.25	6.99	2.34	3.67
10224.05	RB 10302.95	452.91	144.33	79.28	4.67	1.83	3.14
10302.95	10526.09	596.95	288.15	223.14	6.15	1.29	2.07
10526.09	10749.23	554.24	275.59	223.14	5.71	1.24	2.01
10749.23	10972.37	479.31	252.59	223.14	4.94	1.13	1.90
10972.37	11195.51	335.27	203.84	223.14	3.46	0.91	1.64
11195.51	11418.66	134.45	117.81	223.14	1.39	0.53	1.14
11418.66	11641.80	38.06	55.25	223.19	0.39	0.25	0.69
11641.80	11864.94	31.63	49.46	223.25	0.33	0.22	0.64
11864.94	12088.08	20.49	38.11	223.14	0.21	0.17	0.54
12088.08	12311.22	0.01	0.11	9.79	0.00	0.01	0.09

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 18.302

INPUT
Description: "Eastern Diversion" at southern end of cross section
Station Elevation Data num= 89

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8343.07	1523.86	8357.67	1524	8430.38	1524.77	8440.11	1526	8440.94	1526.11
8441.89	1526	8453.5	1524.66	8459.45	1524	8467.96	1523.07	8477.38	1524
8481.81	1524.37	8485.3	1524.31	8585.29	1524.73	8685.28	1524.85	8785.29	1524.7
8797.9	1525.25	8872.6	1526	8885.28	1526.13	8948.67	1526	8965.19	1525.97
8985.29	1525.74	9085.28	1525.79	9111.82	1526	9158.91	1526	9185.29	1525.77
9204.84	1525.82	9285.28	1525.72	9385.27	1525.16	9471.21	1524.91	9485.29	1524.68
9508.58	1525.14	9585.28	1525.72	9685.31	1525.4	9776.11	1525.08	9924.57	1524.49
9926.95	1524	9933.21	1522.76	9943.68	1522.59	9951.23	1524	9955.5	1524.83
10001.96	1524	10002.71	1523.87	10013.27	1522.04	10025.23	1524	10029.01	1524.61
10168.41	1524.85	10173.79	1524.31	10188.64	1524.75	10191.51	1524	10198.24	1522.23
10207.87	1524	10211	1524.55	10255.92	1524.62	10289.58	1524.15	10317.45	1525.58
10317.75	1525.15	10417.77	1525.67	10517.76	1525.52	10617.76	1525.71	10640.59	1525.62
10717.75	1525.71	10817.76	1525.41	10917.76	1525.59	11017.75	1525.41	1117.77	1525.91
11295.97	1525.41	11341.37	1525.54	11378.36	1526	11379.36	1526.01	11379.47	1526
11383.69	1525.54	11389.03	1526	11389.52	1526.04	11395.79	1526	11419.66	1525.84
11422.27	1526	11427.12	1526.23	11564.97	1526.11	11664.99	1526.41	1746.55	1526
11764.98	1525.91	11864.97	1525.84	11964.96	1525.98	11968.46	1526	12064.98	1526.47
12164.97	1526.84	12264.97	1526.86	12364.98	1527.11	12464.97	1527.33		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8343.07	.05	9924.57	.05	10317.75	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9924.57	10317.75	299.49	284.73	297.8	.3	.5

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8343.07	8440.73	1527

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1526.53	Element			
Vel Head (ft)	0.15	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1526.38	Reach Len. (ft)	299.49	284.73	297.80
Crit W.S. (ft)		Flow Area (sq ft)	1645.12	796.15	1052.83
E.G. Slope (ft/ft)	0.007331	Area (sq ft)	1645.12	796.15	1052.83
Q Total (cfs)	9700.00	Flow (cfs)	4483.04	3233.68	1983.29
Top Width (ft)	3597.18	Top Width (ft)	1483.84	393.18	1720.16
Vel Total (ft/s)	2.78	Avg. Vel. (ft/s)	2.73	4.06	1.88
Max Chl Dpth (ft)	4.34	Hydr. Depth (ft)	1.11	2.02	0.61
Conv. Total (cfs)	113288.6	Conv. (cfs)	52358.5	37766.9	23163.3
Length Wtd. (ft)	294.06	Wetted Per. (ft)	1484.41	394.78	1720.23
Min Ch El (ft)	1522.04	Shear (lb/sq ft)	0.51	0.92	0.28

Alpha	1.25	Stream Power (lb/ft s)	1.38	3.75	0.53
Frctn Loss (ft)	1.71	Cum Volume (acre-ft)	1515.22	440.94	573.03
C & E Loss (ft)	0.01	Cum SA (acres)	842.80	276.81	568.93

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8343.07	8501.22	465.93	125.23	61.03	4.80	2.07	3.72
8501.22	8659.37	905.18	273.00	158.15	9.33	1.73	3.32
8659.37	8817.52	725.29	239.02	158.16	7.48	1.51	3.03
8817.52	8975.67	98.35	72.07	158.15	1.01	0.46	1.36
8975.67	9133.82	139.40	88.85	158.15	1.44	0.56	1.57
9133.82	9291.97	137.55	88.14	158.15	1.42	0.56	1.56
9291.97	9450.12	432.13	175.18	158.15	4.45	1.11	2.47
9450.12	9608.27	436.69	176.29	158.16	4.50	1.11	2.48
9608.27	9766.42	362.24	157.59	158.15	3.73	1.00	2.30
9766.42	9924.57	780.28	249.73	158.15	8.04	1.58	3.12
LB 9924.57	10003.21	850.36	188.98	79.05	8.77	2.40	4.50
10003.21	10081.84	743.40	174.29	78.99	7.66	2.22	4.27
10081.84	10160.48	439.75	126.96	78.64	4.53	1.61	3.46
10160.48	10239.11	685.46	166.19	79.20	7.07	2.11	4.12
10239.11	RB 10317.75	514.72	139.73	78.90	5.31	1.78	3.68
10317.75	10532.47	412.23	188.63	214.72	4.25	0.88	2.19
10532.47	10747.19	304.56	157.31	214.72	3.14	0.73	1.94
10747.19	10961.92	407.60	187.36	214.72	4.20	0.87	2.18
10961.92	11176.64	305.11	157.48	214.72	3.15	0.73	1.94
11176.64	11391.36	336.98	167.16	214.77	3.47	0.78	2.02
11391.36	11606.08	50.26	53.37	214.73	0.52	0.25	0.94
11606.08	11820.80	53.52	54.45	205.48	0.55	0.26	0.98
11820.80	12035.53	112.95	86.75	214.72	1.16	0.40	1.30
12035.53	12250.25	0.07	0.33	11.63	0.00	0.03	0.22

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 18.248

INPUT
Description: "Eastern Diversion" at southern end of cross section
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8657.05	1522.89	8693.41	1522.86	8698.16	1524	8702.54	1524.87	8706.24	1524
8710.19	1523.08	8720.04	1522.79	8724.63	1522	8724.95	1521.96	8725.43	1522
8750.81	1523.82	8766.46	1524	8798.49	1524.36	8898.48	1524.6	8952.99	1524.4
8979.48	1524.24	8982.38	1524	8985.5	1523.8	8987.5	1524	8991.29	1524.33
8996.29	1524	8998.49	1523.86	9003.55	1524	9018.93	1524.44	9023.75	1524
9025.11	1523.87	9026.98	1524	9034.31	1524.51	9098.48	1524.17	9117.04	1524
9198.47	1523.71	9298.49	1523.28	9363.16	1523.41	9366	1522.73	9373.47	1523.23
9398.48	1523.03	9498.49	1523.9	9598.46	1523.53	9776.49	1522.96	9914.69	1522.71
9925.07	1522.53	9929.16	1522	9939.81	1520.85	9949.01	1520.69	9961.31	1522
9966.78	1522.6	9980.18	1522.1	9980.6	1522	9988.95	1520.06	9999.27	1522
10002.92	1522.7	10066.34	1522.28	10069.17	1522	10076.21	1521.31	10096.22	1522
10115.93	1522.68	10118.65	1522	10125.91	1520.33	10134.05	1522	10139.26	1523.04
10150.83	1522.29	10152.64	1522	10158.85	1521.03	10165.94	1522	10172.25	1522.87
10187.18	1522	10191	1521.87	10193.07	1522	10230.92	1522.83	10266.99	1523.04
10330.94	1523.21	10430.93	1523.2	10476.8	1523.11	10530.92	1523.17	10630.91	1523.32
10730.93	1523.37	10830.93	1523.37	10930.92	1523.17	11030.93	1523.66	11049.07	1523.18
11055.14	1524	11055.26	1524.01	11063.98	1524	11081.25	1523.85	11088.88	1522.93
11100.6	1523.87	11122.23	1524	11143.04	1524	11236.84	1523.61	11241	1523.83
11254.53	1523.61	11478.14	1523.91	11578.15	1523.93	11634.79	1524	11678.14	1524.05
11778.14	1524.37	11878.13	1524.42	11978.15	1524.69	12078.14	1524.93	12178.13	1524.86
12278.15	1525.08	12378.14	1525.03						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8657.05	.05	9914.69	.05	10230.92	.05

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9914.6910230.92           357.93  394.82  548.56            .3        .5
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
 8657.05 8702.47  1525.5
```

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1524.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1524.68	Reach Len. (ft)	357.93	394.82	548.56
Crit W.S. (ft)	1524.18	Flow Area (sq ft)	1266.76	830.23	1779.80
E.G. Slope (ft/ft)	0.004856	Area (sq ft)	1266.76	830.23	1779.80
Q Total (cfs)	9700.00	Flow (cfs)	2702.00	3261.13	3736.87
Top Width (ft)	3270.91	Top Width (ft)	1211.34	316.23	1743.34
Vel Total (ft/s)	2.50	Avg. Vel. (ft/s)	2.13	3.93	2.10
Max Chl Dpth (ft)	4.62	Hydr. Depth (ft)	1.05	2.63	1.02
Conv. Total (cfs)	139195.7	Conv. (cfs)	38773.9	46797.4	53624.3
Length Wtd. (ft)	460.93	Wetted Per. (ft)	1211.89	317.83	1743.51
Min Ch El (ft)	1520.06	Shear (lb/sq ft)	0.32	0.79	0.31
Alpha	1.30	Stream Power (lb/ft s)	0.68	3.11	0.65
Frctn Loss (ft)	2.74	Cum Volume (acre-ft)	1505.21	435.63	563.35
C & E Loss (ft)	0.01	Cum SA (acres)	833.53	274.50	557.09

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8657.05	8782.81	218.39	101.87	79.79	2.25	1.28	2.14
8782.81	8908.58	17.99	27.32	125.77	0.19	0.22	0.66
8908.58	9034.34	47.09	48.69	125.88	0.49	0.39	0.97
9034.34	9160.11	76.98	65.37	125.77	0.79	0.52	1.18
9160.11	9285.87	260.13	135.73	125.76	2.68	1.08	1.92
9285.87	9411.63	418.44	180.58	125.86	4.31	1.44	2.32
9411.63	9537.40	253.50	133.64	125.77	2.61	1.06	1.90
9537.40	9663.16	288.28	144.36	125.76	2.97	1.15	2.00
9663.16	9788.93	479.22	195.83	125.77	4.94	1.56	2.45
9788.93	9914.69	642.00	233.38	125.76	6.62	1.86	2.75
LB 9914.69	9977.94	754.78	181.43	63.46	7.78	2.87	4.16
9977.94	10041.18	636.15	164.02	63.73	6.56	2.59	3.88
10041.18	10104.43	666.51	168.23	63.31	6.87	2.66	3.96
10104.43	10167.67	682.84	171.44	64.00	7.04	2.71	3.98
10167.67	RB 10230.92	520.84	145.11	63.33	5.37	2.29	3.59
10230.92	10445.64	837.50	332.56	214.72	8.63	1.55	2.52
10445.64	10660.36	763.15	314.52	214.72	7.87	1.46	2.43
10660.36	10875.09	645.13	284.36	214.72	6.65	1.32	2.27
10875.09	11089.81	582.38	267.49	214.84	6.00	1.25	2.18
11089.81	11304.53	342.33	194.44	214.77	3.53	0.91	1.76
11304.53	11519.25	315.86	185.26	214.72	3.26	0.86	1.70
11519.25	11733.97	206.30	143.48	214.72	2.13	0.67	1.44
11733.97	11948.70	44.05	56.81	214.72	0.45	0.26	0.78
11948.70	12163.42	0.18	0.88	25.56	0.00	0.03	0.20

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

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CROSS SECTION          RIVER: Vineyard FRS
REACH: Vineyard           RS: 18.173

INPUT
Description:
Station Elevation Data     num=      102
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 8890.55 1522.77 8942.96    1522 8959.84 1521.75 8965.59    1520 8967.06 1519.49
 8968.81    1520 8974.66 1521.75 8984.71  1521.5 8996.79 1521.26  8996.8 1521.09
 9009.29 1521.56 9016.53 1520.98  9022.6 1521.65 9030.21 1521.73 9036.48 1521.08
 9046.35 1521.96 9090.55 1521.82 9190.54 1521.15 9720.87 1521.09 9765.39 1521.08
 9798.81 1520.84 9824.05 1520.36 9944.05 1520.31  9945.4    1520  9949.5 1519.05
 9955.77    1520 9957.08  1520.2 9982.66    1520 9984.13 1519.99 9990.83 1518.65
10001.55 1519.5810020.28    152010035.67 1520.3410037.89    152010047.66 1518.33
10061.43 1519.7810103.87    152010115.02 1520.0610115.49    152010120.82  1519.3
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10130.73    152010133.66 1520.2310163.17 1520.4210165.19    1520 10168.9 1519.17
10175.96    152010179.24 1520.39   10208 1520.7210211.76    152010212.53 1519.85
10213.94    152010217.82 1520.4210440.27    152010482.66    152010526.41    1520
10584.46 1520.1310585.27    152010588.58 1519.5210596.27    152010596.71 1520.03
10599.87    1520 10623.3    152010633.43 1520.1910635.95    152010643.33 1519.17
10655.38    152010659.08 1520.3410676.46    152010682.12  1519.9 10686.6 1519.54
10695.43    152010701.55 1520.2810737.35    1520 10744.5 1519.9410754.24 1519.29
10760.21    152010762.17 1520.2210774.26    152010783.36 1519.8410787.37 1519.15
 10795.2 1519.9910874.31    152010934.28 1520.3711034.28 1520.5911134.28 1520.94
11234.28 1521.1111334.28 1521.2511434.27 1521.4311534.27 1521.4311634.27 1521.45
11734.27 1521.6511744.59 1521.8911750.83 1521.4611772.06 1521.8611776.36 1521.33
11780.86    152211783.17  1522.311816.89    152211834.58 1521.8411862.61    1522
11934.58 1522.41 12034.6  1522.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 8890.55     .05 9944.05     .0510217.82     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9944.0510217.82           510.37   485.8  404.15              .3       .5

CROSS SECTION OUTPUT    Profile #PF 3

  E.G. Elev (ft)            1522.06   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.15   Wt. n-Val.                  0.050      0.050      0.050
  W.S. Elev (ft)            1521.90   Reach Len. (ft)            510.37     485.80     404.15
  Crit W.S. (ft)                      Flow Area (sq ft)          801.08     544.69    1930.80
  E.G. Slope (ft/ft)       0.007424   Area (sq ft)               801.08     544.69    1930.80
  Q Total (cfs)             9700.00   Flow (cfs)                1809.55    2200.72    5689.73
  Top Width (ft)            2830.98   Top Width (ft)             976.43     273.77    1580.78
  Vel Total (ft/s)             2.96   Avg. Vel. (ft/s)             2.26       4.04       2.95
  Max Chl Dpth (ft)            3.57   Hydr. Depth (ft)             0.82       1.99       1.22
  Conv. Total (cfs)        112574.4   Conv. (cfs)               21001.0    25540.6    66032.8
  Length Wtd. (ft)           454.87   Wetted Per. (ft)           977.42     274.83    1581.26
  Min Ch El (ft)            1518.33   Shear (lb/sq ft)             0.38       0.92       0.57
  Alpha                        1.11   Stream Power (lb/ft s)       0.86       3.71       1.67
  Frctn Loss (ft)              2.99   Cum Volume (acre-ft)      1496.71     429.40     539.99
  C & E Loss (ft)              0.01   Cum SA (acres)             824.54     271.82     536.16


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 3

  Left Sta     Right Sta        Flow       Area       W.P.    % Conv.   Hydr D.   Velocity
  (ft)         (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  8890.55      8995.90          47.76      28.27      47.16      0.49      0.61      1.69
  8995.90      9101.25          29.23      26.96      87.46      0.30      0.31      1.08
  9101.25      9206.60          79.08      52.77     105.35      0.82      0.50      1.50
  9206.60      9311.95         159.18      80.29     105.35      1.64      0.76      1.98
  9311.95      9417.30         163.34      81.54     105.35      1.68      0.77      2.00
  9417.30      9522.65         167.55      82.79     105.35      1.73      0.79      2.02
  9522.65      9628.00         171.82      84.05     105.35      1.77      0.80      2.04
  9628.00      9733.35         176.15      85.32     105.35      1.82      0.81      2.06
  9733.35      9838.70         283.21     113.45     105.36      2.92      1.08      2.50
  9838.70      9944.05         532.24     165.64     105.35      5.49      1.57      3.21
  LB 9944.05   9998.80         504.19     118.87      55.15      5.20      2.17      4.24
  9998.80      10053.56        533.91     122.87      54.97      5.50      2.24      4.35
  10053.56     10108.31        471.42     113.88      54.80      4.86      2.08      4.14
  10108.31     10163.07        375.77      99.42      54.84      3.87      1.82      3.78
  10163.07     RB 10217.82     315.43      89.66      55.08      3.25      1.64      3.52
  10217.82     10399.50        943.84     300.82     181.68      9.73      1.66      3.14
  10399.50     10581.18       1163.43     341.04     181.68     11.99      1.88      3.41
  10581.18     10762.85       1241.39     354.79     181.95     12.80      1.95      3.50
  10762.85     10944.53       1136.15     336.30     181.79     11.71      1.85      3.38
  10944.53     11126.21        615.93     232.85     181.68      6.35      1.28      2.65
  11126.21     11307.89        297.61     150.51     181.68      3.07      0.83      1.98
  11307.89     11489.57        151.58     100.40     181.68      1.56      0.55      1.51
  11489.57     11671.24        110.51      83.06     181.68      1.14      0.46      1.33
  11671.24     11852.92         29.28      31.03     127.45      0.30      0.24      0.94


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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 18.081

INPUT
Description:
Station Elevation Data num= 92

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8098.03	1520.86	8102.76	1521.26	8106.99	1520.59	8113.43	1521.3	8147.09	1520.77
8154.66	1520.18	8165.07	1520.75	8291.57	1520	8408.48	1520	8509.67	1520
8617.4	1520	8666.04	1519.42	8692.89	1518.79	8723.09	1518.67	8879.05	1518.73
8943.18	1519.39	8945.14	1518	8947.99	1516	8948.95	1515.33	8950.37	1516
8954.69	1518	8957.52	1519.21	8979.06	1518.83	9079.05	1518.17	9107.85	1518
9179.07	1517.57	9279.06	1517.55	9691.35	1517.36	9817.89	1517.28	9958.89	1517.42
9964.59	1516.18	9972.34	1517.6210024.35		1517.4810028.63		1516.6410033.91		1517.59
10103.66	1517.16	10147.2	1517.31	10154.3	1516.43	10160.9	1517.0410178.75		1517.01
10184.14	1516.5310203.66		1516.7910279.32		1516.210287.21		1516.9410303.66		1516.65
10330.53	1516.5110334.82		151610337.53		1515.610342.27		151610348.17		1516.44
10446.11	1516.2410447.39		151610453.33		1514.8610459.16		151610462.27		1516.6
10496.18	1516.7610501.45		151610504.65		1515.5510518.82		151610527.28		1516.52
10533.61	1516.7910627.27		1516.8410727.27		1517.5310827.27		1517.7510927.27		1517.9
10949.66	151811027.27		1518.3611127.27		1518.5811227.26		1518.6611327.26		1518.9
11427.26	1518.9511527.26		1519.111627.26		1519.4211634.84		1519.5511644.54		1518.8
11650.77	1519.8511727.26		1519.4411827.25		1519.4911927.25		1519.6111955.26		1519.56
11961.98	1518.8811966.76		1519.611970.34		1519.511975.92		1518.43 11985.4		1519.52
12024.53	1519.4412026.85		1518.8112027.28		1518.6812035.17		152012035.26		1520.01
12036.86	152012127.28		1519.24						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8098.03	.05	9958.89	.0510348.17		.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9958.8910348.17		357.17	430.67	405.55	.3	.5

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
8098.03	8941.23	152111652.4712127.28			1521

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1519.05	Element			
Vel Head (ft)	0.14	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1518.92	Reach Len. (ft)	357.17	430.67	405.55
Crit W.S. (ft)		Flow Area (sq ft)	1332.85	766.11	1261.95
E.G. Slope (ft/ft)	0.005834	Area (sq ft)	1332.85	766.11	1261.95
Q Total (cfs)	9700.00	Flow (cfs)	3665.43	2727.80	3306.77
Top Width (ft)	2406.13	Top Width (ft)	997.86	389.28	1018.98
Vel Total (ft/s)	2.89	Avg. Vel. (ft/s)	2.75	3.56	2.62
Max Chl Dpth (ft)	4.06	Hydr. Depth (ft)	1.34	1.97	1.24
Conv. Total (cfs)	126998.1	Conv. (cfs)	47989.9	35714.0	43294.2
Length Wtd. (ft)	392.85	Wetted Per. (ft)	999.78	389.95	1019.42
Min Ch El (ft)	1515.60	Shear (lb/sq ft)	0.49	0.72	0.45
Alpha	1.05	Stream Power (lb/ft s)	1.34	2.55	1.18
Frctn Loss (ft)	2.37	Cum Volume (acre-ft)	1484.21	422.09	525.18
C & E Loss (ft)	0.00	Cum SA (acres)	812.98	268.12	524.10

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8842.37	9028.46	50.63	35.75	69.35	0.52	0.53	1.42
9028.46	9214.55	395.58	182.18	186.09	4.08	0.98	2.17
9214.55	9400.63	705.12	257.70	186.09	7.27	1.38	2.74
9400.63	9586.72	776.83	273.12	186.09	8.01	1.47	2.84
9586.72	9772.80	856.77	289.65	186.09	8.83	1.56	2.96
9772.80	9958.89	880.52	294.44	186.09	9.08	1.58	2.99
LB 9958.89	10036.75	355.59	120.19	78.29	3.67	1.54	2.96
10036.75	10114.60	370.54	122.92	77.86	3.82	1.58	3.01
10114.60	10192.46	504.60	148.03	77.96	5.20	1.90	3.41
10192.46	10270.31	725.09	183.90	77.86	7.48	2.36	3.94

10270.31	RB 10348.17	771.98	191.07	77.99	7.96	2.45	4.04
10348.17	10526.08	1580.31	468.84	178.32	16.29	2.64	3.37
10526.08	10703.99	988.43	353.48	177.92	10.19	1.99	2.80
10703.99	10881.90	461.09	223.70	177.91	4.75	1.26	2.06
10881.90	11059.81	220.83	143.82	177.91	2.28	0.81	1.54
11059.81	11237.72	51.90	60.32	177.91	0.54	0.34	0.86
11237.72	11415.64	4.19	11.66	127.19	0.04	0.09	0.36
11415.64	11593.55						
11593.55	11771.46	0.04	0.13	2.26	0.00	0.06	0.27

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 18.000

INPUT
Description:
Station Elevation Data num= 88

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8086.07	1518.42	8178.34	1518	8446.63	1517.3	8541.06	1516.41	8543.07	1516
8547.91	1514.81	8555.38	1516	8557.65	1516.32	8574.46	1516.3	8579.24	1516
8583.61	1515.71	8587.38	1516	8593.16	1516.45	8609.85	1516.73	8614.55	1516.04
8623.45	1516.96	8744.85	1517.38	8818.72	1516.77	8848.3	1516.23	8849	1516
8854.95	1514	8860.5	1512.06	8865.9	1514	8871	1515.93	9022.91	1516
9025.53	1516	9427.08	1515.08	9807.82	1514.91	9823.11	1514.43	9824.03	1514
9827.34	1512.55	9836.13	1514	9839.97	1514.63	9929.7	1514.88	10033.76	1515.21
10037.03	1514	10041.16	1512.34	10048.76	1514	10053.58	1515.06	10107.72	1515.07
10117.12	1514.25	10124.17	1514.92	10178.87	1515.11	10191.51	1514.97	10199.16	1514.12
10204.8	1514.85	10242.29	1514.41	10245.46	1514	10249.98	1513.49	10255.04	1514
10257.89	1514.26	10425.81	1514	10426.22	1513.97	10426.65	1514	10500.52	1514.58
10540.58	1514.27	10640.58	1514.76	10740.58	1515.21	10840.58	1515.49	10940.58	1515.74
11040.58	1515.71	11137.89	1516	11140.58	1516.01	11240.57	1516.18	11340.57	1516.45
11440.57	1516.42	11525.93	1516.63	11531.08	1516	11533.09	1515.78	11534.38	1516
11539.09	1516.84	11568.08	1516.67	11575.77	1516.16	11581.24	1516.72	11626.94	1516.72
11630.73	1516.03	11638.77	1516.92	11756.81	1516.21	1759.42	1516.56	11762.17	1516
11764.25	1515.59	11767.36	1516	11773.22	1516.87	11856.82	1516.23	11919.02	1516
11956.81	1515.86	12045.16	1516	12056.81	1515.98				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8086.07	.05	9929.7	.05	10257.89	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9929.71	10257.89	499.55	496.48	527.1	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
8086.07	8744.85	1518	11538.74	12056.81	1518

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1516.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1516.56	Reach Len. (ft)	499.55	496.48	527.10
Crit W.S. (ft)		Flow Area (sq ft)	1396.10	570.83	1485.16
E.G. Slope (ft/ft)	0.006248	Area (sq ft)	1396.10	570.83	1485.16
Q Total (cfs)	9700.00	Flow (cfs)	3841.41	1935.16	3923.43
Top Width (ft)	2677.42	Top Width (ft)	1099.38	328.19	1249.85
Vel Total (ft/s)	2.81	Avg. Vel. (ft/s)	2.75	3.39	2.64
Max Chl Dpth (ft)	4.50	Hydr. Depth (ft)	1.27	1.74	1.19
Conv. Total (cfs)	122711.3	Conv. (cfs)	48596.4	24481.0	49633.9
Length Wtd. (ft)	507.64	Wetted Per. (ft)	1101.35	329.28	1249.98
Min Ch El (ft)	1512.34	Shear (lb/sq ft)	0.49	0.68	0.46
Alpha	1.03	Stream Power (lb/ft s)	1.36	2.29	1.22
Frctn Loss (ft)	3.55	Cum Volume (acre-ft)	1473.02	415.48	512.39
C & E Loss (ft)	0.01	Cum SA (acres)	804.38	264.58	513.54

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8823.52	9007.88	266.65	140.97	178.95	2.75	0.79	1.89
9007.88	9192.25	242.65	134.81	184.36	2.50	0.73	1.80
9192.25	9376.61	517.17	212.28	184.36	5.33	1.15	2.44
9376.61	9560.97	789.55	273.63	184.36	8.14	1.48	2.89
9560.97	9745.34	875.61	291.15	184.36	9.03	1.58	3.01
9745.34	9929.70	1149.83	343.28	184.94	11.85	1.86	3.35
LB 9929.70	9995.34	325.62	103.32	65.64	3.36	1.57	3.15
9995.34	10060.98	420.85	121.13	66.47	4.34	1.85	3.47
10060.98	10126.61	336.99	105.52	65.71	3.47	1.61	3.19
10126.61	10192.25	314.30	101.16	65.64	3.24	1.54	3.11
10192.25	RB 10257.89	537.38	139.71	65.82	5.54	2.13	3.85
10257.89	10437.78	1473.69	437.90	179.89	15.19	2.43	3.37
10437.78	10617.67	1198.71	386.87	179.90	12.36	2.15	3.10
10617.67	10797.57	670.45	272.99	179.89	6.91	1.52	2.46
10797.57	10977.46	314.49	173.34	179.89	3.24	0.96	1.81
10977.46	11157.35	199.27	131.82	179.89	2.05	0.73	1.51
11157.35	11337.24	55.63	61.31	179.89	0.57	0.34	0.91
11337.24	11517.13	6.82	16.58	159.51	0.07	0.10	0.41
11517.13	11697.03	4.33	4.35	11.11	0.04	0.40	1.00

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 17.906

INPUT
Description:
Station Elevation Data num= 119

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8028.04	1514.61	8133.63	1514	8133.66	1514	8151.26	1513.4	8318.33	1513.54
8323.27	1512	8323.36	1511.97	8323.46	1512	8329.02	1513.11	8387.85	1513.54
8393.31	1512	8396.53	1511.07	8400.41	1512	8406.43	1513.42	8434.77	1513.45
8445	1513.2	8463.55	1513.16	8470.33	1512.14	8474.26	1512.75	8611.14	1513.11
8738.53	1512	8762.31	1512	8763.29	1512.13	8763.79	1512	8768.64	1510
8770.21	1509.33	8773	1510	8778.6	1511.22	8807.44	1511.79	8812.48	1510
8813.32	1509.71	8815.43	1510	8827.29	1511.76	8910.79	1512	8927.36	1512.04
8938.71	1512	9027.37	1511.66	9116.03	1512	9127.37	1512.04	9227.38	1512.04
9327.35	1512.26	9427.35	1512.18	9560.65	1512	9853.86	1511.64	9867.16	1510.54
9875.36	1511.48	9925.97	1510.14	9940.89	1511.21	9976.98	1510.35	9978.34	1510
9986.04	1508	9990.73	1507.76	9991.43	1508	9997.33	1510	9999.46	1510.68
10004.26	151010008.17	1509.4110014.39		151010019.24	1510.4910035.55		1510.18		
10045.65	1510.8510131.32	1510.5910141.02		151010145.55	1509.7310147.65		1510		
10155.62	1510.9310179.29	1510.6710187.26		151010192.01	1509.5310197.44		1510		
10207.51	1510.8310256.52	1511.1910300.62		1516.0410364.87	1516.0110412.96		1511.67		
10715.18	151210806.09	1512.7210808.77		1512 10813.2	1511.07 10814.8		1511.18		
10825.39	151210832.86	1512.6710842.43		151210842.95	1511.9610845.53		1512		
10925.08	1512.3610955.75		151211066.56	1511.9611091.12		151211166.56	1512.11		
11266.56	1512.1611366.56	1512.0911368.37		1512.5 11376.9		151211383.65	1511.59		
11392.2	151211424.54	1512.5211466.56		1512.1811477.99	1512.5211483.89		1512		
11490.09	1511.4611495.65		151211501.17	1512.5511533.79		151211539.95	1511.91		
11545.16	151211566.56	1512.38 11598.8		1512.2611600.66		151211603.98	1511.55		
11608.01	151211612.33	1512.4911666.56		1512.2311766.55	1512.4311866.55		1512.6		
11966.55	1512.8711984.68	1512.9212053.41		1513.1312066.55	1513.21				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8028.04	.05	9976.98	.05	10256.52	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9976.98	10256.52	434.39	456.2	444.62	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
11502.21	12066.55	1516

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8028.04	8611.14	1516

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1513.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.050	0.050	0.050

W.S. Elev (ft)	1512.93	Reach Len. (ft)	434.39	456.20	444.62
Crit W.S. (ft)	1512.63	Flow Area (sq ft)	1445.06	691.98	977.94
E.G. Slope (ft/ft)	0.007905	Area (sq ft)	1445.06	691.98	1210.30
Q Total (cfs)	9700.00	Flow (cfs)	4002.35	3336.58	2361.07
Top Width (ft)	3228.83	Top Width (ft)	1345.02	279.54	1604.27
Vel Total (ft/s)	3.11	Avg. Vel. (ft/s)	2.77	4.82	2.41
Max Chl Dpth (ft)	5.17	Hydr. Depth (ft)	1.07	2.48	0.87
Conv. Total (cfs)	109099.9	Conv. (cfs)	45016.1	37527.9	26556.0
Length Wtd. (ft)	442.99	Wetted Per. (ft)	1346.48	280.70	1119.64
Min Ch El (ft)	1507.76	Shear (lb/sq ft)	0.53	1.22	0.43
Alpha	1.30	Stream Power (lb/ft s)	1.47	5.87	1.04
Frctn Loss (ft)	3.47	Cum Volume (acre-ft)	1456.73	408.28	496.08
C & E Loss (ft)	0.02	Cum SA (acres)	790.36	261.11	496.27

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8612.72	8807.62	342.06	150.67	176.45	3.53	0.86	2.27
8807.62	9002.51	616.01	223.38	195.39	6.35	1.15	2.76
9002.51	9197.40	514.44	200.28	194.90	5.30	1.03	2.57
9197.40	9392.30	316.25	149.58	194.89	3.26	0.77	2.11
9392.30	9587.19	363.49	162.60	194.89	3.75	0.83	2.24
9587.19	9782.09	559.56	210.64	194.89	5.77	1.08	2.66
9782.09	9976.98	1290.54	347.90	195.06	13.30	1.79	3.71
LB 9976.98	10032.89	1038.18	183.05	56.84	10.70	3.27	5.67
10032.89	10088.80	549.30	124.13	55.93	5.66	2.22	4.43
10088.80	10144.70	619.65	133.44	55.93	6.39	2.39	4.64
10144.70	10200.61	677.23	140.88	56.06	6.98	2.52	4.81
10200.61	RB 10256.52	452.26	110.47	55.93	4.66	1.98	4.09
10256.52	10437.52	136.30	53.10	54.47	1.41	0.98	2.57
10437.52	10618.53	581.74	205.05	181.00	6.00	1.13	2.84
10618.53	10799.53	326.52	145.00	181.01	3.37	0.80	2.25
10799.53	10980.53	326.11	144.99	181.29	3.36	0.80	2.25
10980.53	11161.54	413.44	167.06	181.00	4.26	0.92	2.47
11161.54	11342.54	322.41	143.90	181.00	3.32	0.80	2.24
11342.54	11523.54	254.51	118.82	159.87	2.62	0.74	2.14

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 17.819

INPUT
Description:
Station Elevation Data num= 106

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7844.68	1510.74	7980.19	1510	8068.3	1509.72	8136.49	1509.37	8139.95	1508
8142.71	1506.99	8145.27	1508	8148.93	1509.45	8153.82	1510.07	8180.9	1509.78
8250.77	1509.59	8291.9	1509.26	8492.06	1508.35	8492.85	1508	8497.55	1506.7
8508.18	1507.82	8509.13	1507.76	8515.4	1506.19	8524.77	1506	8531.11	1504.99
8534.7	1506	8542.35	1508	8544.36	1508.41	8615.49	1508.41	8715.5	1508.03
8815.5	1508.12	8915.49	1508.22	9015.49	1508.1	9115.5	1508.63	9215.5	1508.78
9315.48	1508.75	9415.47	1508.92	9515.47	1508.61	9615.47	1508.53	9715.47	1508.43
9815.47	1508.12	9837.83	1508	9915.49	1507.6	9967.94	1508	9984.92	1508.13
9985.4	1508	9993.28	1506	9994.35	1505.75	9995.3	1506	10002.79	1508
10004.15	1508.37	10012.12	1508	10015.49	1507.85	10028.62	1508	10057.19	1508.34
10058.93	1508	10063.08	1506.93	10070.92	1508	10072.78	1508.24	10102.32	1508
10115.49	1507.89	10123.29	1508	10164.76	1508.56	10171.96	1508	10177.34	1507.53
10191.15	1507.92	10202.1	1506.79	10215.49	1507.65	10217.09	1507.91	10315.49	1507.94
10346.22	1507.99	10351.73	1507.26	10360.75	1508	10368.74	1508.61	10415.48	1508.19
10515.48	1508.38	10652.9	1508.47	10654.89	1508	10658.73	1507.03	10662.39	1508
10665.58	1508.91	10693.65	1508.59	10698.19	1508	10699.42	1507.82	10700.99	1508
10706.34	1508.62	10740.05	1508.04	10753.27	1508.51	10756.22	1508	10757.78	1507.73
10760.27	1508	10764.84	1508.49	10927.8	1508.51	11027.8	1508.7	11127.8	1508.83
11227.8	1509.12	11327.8	1509.19	11427.8	1509.17	11469.41	1509.39	11475.36	1509.8
11521.91	1509.66	11527.79	1508.78	11529.09	1508.64	11535.26	1508.51	11565.54	1509.94
11627.79	1509.63	11702.3	1510	11727.79	1510.13	11827.79	1510.05	11927.79	1510.52

12027.79 1510.84

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7844.68	.05	9984.92	.0510368.74		.05

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

9984.9210368.74 447.96 499.97 459.45 .1 .3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
7844.68	8153.82	1510.5

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1509.64	Element			
Vel Head (ft)	0.13	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1509.50	Reach Len. (ft)	447.96	499.97	459.45
Crit W.S. (ft)	1509.09	Flow Area (sq ft)	1913.49	616.10	929.32
E.G. Slope (ft/ft)	0.007750	Area (sq ft)	1913.49	616.10	929.32
Q Total (cfs)	9700.00	Flow (cfs)	5365.24	2205.22	2129.54
Top Width (ft)	3243.06	Top Width (ft)	1723.53	383.82	1135.71
Vel Total (ft/s)	2.80	Avg. Vel. (ft/s)	2.80	3.58	2.29
Max Chl Dpth (ft)	4.51	Hydr. Depth (ft)	1.11	1.61	0.82
Conv. Total (cfs)	110187.2	Conv. (cfs)	60946.5	25050.2	24190.5
Length Wtd. (ft)	462.40	Wetted Per. (ft)	1724.56	384.99	1136.45
Min Ch El (ft)	1505.75	Shear (lb/sq ft)	0.54	0.77	0.40
Alpha	1.07	Stream Power (lb/ft s)	1.51	2.77	0.91
Frctn Loss (ft)	3.35	Cum Volume (acre-ft)	1439.98	401.43	485.16
C & E Loss (ft)	0.00	Cum SA (acres)	775.06	257.64	482.28

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8058.70	8272.73	0.16	0.52	11.34	0.00	0.05	0.31
8272.73	8486.75	251.76	137.21	214.03	2.60	0.64	1.83
8486.75	8700.78	1123.05	337.19	215.05	11.58	1.58	3.33
8700.78	8914.80	911.11	296.86	214.02	9.39	1.39	3.07
8914.80	9128.82	734.59	260.88	214.03	7.57	1.22	2.82
9128.82	9342.85	333.51	162.43	214.02	3.44	0.76	2.05
9342.85	9556.87	320.68	158.65	214.03	3.31	0.74	2.02
9556.87	9770.90	563.67	222.55	214.02	5.81	1.04	2.53
9770.90	9984.92	1126.71	337.21	214.03	11.62	1.58	3.34
LB 9984.92	10061.68	482.59	130.48	77.54	4.98	1.70	3.70
10061.68	10138.45	403.38	116.78	76.90	4.16	1.52	3.45
10138.45	10215.21	457.23	125.90	76.90	4.71	1.64	3.63
10215.21	10291.98	433.41	121.85	76.79	4.47	1.59	3.56
10291.98	RB 10368.74	428.62	121.09	76.86	4.42	1.58	3.54
10368.74	10534.65	523.65	195.29	165.91	5.40	1.18	2.68
10534.65	10700.55	449.38	178.37	166.39	4.63	1.08	2.52
10700.55	10866.46	463.52	181.57	166.06	4.78	1.09	2.55
10866.46	11032.36	355.87	154.89	165.91	3.67	0.93	2.30
11032.36	11198.27	203.23	110.67	165.91	2.10	0.67	1.84
11198.27	11364.17	71.61	59.19	165.90	0.74	0.36	1.21
11364.17	11530.08	36.47	33.99	114.10	0.38	0.30	1.07
11530.08	11695.98	25.81	15.35	26.27	0.27	0.58	1.68

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 17.725

INPUT
Description:
Station Elevation Data num= 105

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7608.74	1507.69	7832.35	1507.54	7972.19	1507.5	7980.38	1506	7980.46	1505.98
7980.57	1506	7987.52	1507.23	8055.97	1507.32	8262.43	1506	8279.57	1505.87

8503.17	1505.53	8603.18	1505.87	8693.9	1504.08	8694.48	1504	8703.19	1503.19
8703.68	1502.77	8710.25	1504	8712.96	1504.59	8803.19	1504.3	8825.73	1504
8888.22	1503.17	8892.41	1502.56	8896.25	1503.19	8903.17	1503.23	8983.45	1503.31
8985.46	1502.72	8989.02	1503.45	9002.38	1504	9003.18	1504.03	9103.19	1504.93
9515.49	1504.89	9615.48	1505.06	9715.48	1504.94	9815.5	1504.64	9867.17	1504.59
9879.55	1504.11	9892.11	1504.55	9896.94	1504	9902.35	1503.42	9907.75	1504
9913.89	1504.61	9915.49	1504.72	9933.06	1504.28	9935.38	1504	9939.99	1503.46
9945.34	1504	9948.95	1504.43	9966.84	1504.59	9973.25	1504.18	9978.06	1504.79
9988.44	1504.46	10015.49	1505.01	10107.71	1505.08	10112	1504	10115.48	1503.12
10116.2	1502.75	10122.73	1504	10128.44	1505.09	10141.6	1505.19	10146.72	1504.65
10156.6	1505.14	10215.48	1505.04	10257.97	1505.04	10271.44	1504.23	10281.71	1504.86
10286.68	1504.83	10292.52	1504	10292.7	1503.98	10293.06	1504	10303.07	1504.72
10315.5	1504.84	10353.83	1504.03	10354.11	1504	10363.33	1503.01	10374.05	1504
10382.15	1504.63	10415.49	1504.84	10515.49	1505.04	10615.48	1505.41	10642.27	1505.43
10715.48	1505.23	10815.5	1505.55	10915.49	1505.61	10915.49	1505.92	11060.31	1506
11115.48	1506.11	11215.48	1506.44	11315.5	1506.86	11433.6	1506.45	11442.91	1507.02
11505.7	1507.08	11513.21	1506.16	11520.38	1507.59	11750.26	1507.81	1755.19	1506.46
11762.04	1507.97	11762.11	1508	11825.38	1508.04	11922.9	1508.14	11923.37	1508
11925.4	1507.42	11926.66	1507.25	11929.86	1508	11932	1508.54	12025.39	1509.27

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7608.74	.05	9867.17	.05	10382.15	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9867.17	10382.15	383	500	500.99	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
7608.74	8055.97	1509

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1506.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1506.15	Reach Len. (ft)	383.00	500.00	500.99
Crit W.S. (ft)		Flow Area (sq ft)	2119.63	774.10	526.81
E.G. Slope (ft/ft)	0.006801	Area (sq ft)	2119.63	774.10	526.81
Q Total (cfs)	9700.00	Flow (cfs)	6192.09	2485.77	1022.13
Top Width (ft)	2891.02	Top Width (ft)	1628.13	514.98	747.91
Vel Total (ft/s)	2.84	Avg. Vel. (ft/s)	2.92	3.21	1.94
Max Chl Dpth (ft)	3.59	Hydr. Depth (ft)	1.30	1.50	0.70
Conv. Total (cfs)	117619.3	Conv. (cfs)	75083.5	30141.7	12394.1
Length Wtd. (ft)	429.14	Wetted Per. (ft)	1628.80	516.15	747.91
Min Ch El (ft)	1502.75	Shear (lb/sq ft)	0.55	0.64	0.30
Alpha	1.06	Stream Power (lb/ft s)	1.61	2.04	0.58
Frctn Loss (ft)	3.22	Cum Volume (acre-ft)	1419.25	393.46	477.48
C & E Loss (ft)	0.00	Cum SA (acres)	757.83	252.48	472.35

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8060.43	8286.27	4.68	7.33	47.23	0.05	0.16	0.64
8286.27	8512.11	136.91	104.00	225.84	1.41	0.46	1.32
8512.11	8737.96	529.44	234.31	226.24	5.46	1.04	2.26
8737.96	8963.80	2137.27	540.99	225.95	22.03	2.40	3.95
8963.80	9189.64	1186.32	380.06	226.02	12.23	1.68	3.12
9189.64	9415.48	712.37	279.78	225.84	7.34	1.24	2.55
9415.48	9641.33	677.45	271.47	225.84	6.98	1.20	2.50
9641.33	9867.17	807.63	301.66	225.84	8.33	1.34	2.68
LB 9867.17	9970.17	707.80	193.86	103.25	7.30	1.88	3.65
9970.17	10073.16	375.03	132.32	103.05	3.87	1.28	2.83
10073.16	10176.16	386.23	134.96	103.59	3.98	1.31	2.86
10176.16	10279.15	331.36	122.84	103.03	3.42	1.19	2.70
10279.15	RB 10382.15	685.36	190.12	103.22	7.07	1.85	3.60
10382.15	10546.47	491.29	200.72	164.33	5.06	1.22	2.45
10546.47	10710.80	253.99	135.10	164.32	2.62	0.82	1.88
10710.80	10875.12	194.45	115.10	164.32	2.00	0.70	1.69
10875.12	11039.45	77.99	66.53	164.32	0.80	0.40	1.17
11039.45	11203.77	4.42	9.36	90.61	0.05	0.10	0.47

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 17.630

INPUT
Description:
Station Elevation Data num= 131

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7086.24	1506.43	7104.86	1506	7119.85	1505.66	7147.16	1505.49	7402.46	1504.66
7718.69	1504.35	7743.13	1504.09	7744.4	1504	7748.51	1503.65	7752.73	1504
7752.92	1504.03	7926.09	1504	8257.2	1503.04	8573.43	1502.22	8616.24	1502
8673.43	1501.71	8773.44	1501.93	8806.96	1502	8873.42	1502.14	8927.72	1502
9051.18	1501.96	9077.45	1503.3	9124.8	1500.45	9127.66	1500	9140.44	1498
9142.71	1497.64	9144.38	1498	9154.14	1500	9156.72	1500.48	9174.99	1500.53
9179.21	1500	9186.71	1498.46	9197.94	1498.8	9199.44	1498.64	9206.87	1500
9210.55	1501.21	9230.27	1501.4	9236.84	1500	9237.48	1499.89	9238.62	1500
9251.59	1501.5	9306.41	1501.66	9391.87	1501.77	9615.48	1501.42	9715.5	1501.45
9815.5	1501.4	9864.04	1501.08	9875.38	1500.71	9883.71	1501.09	9915.49	1501.23
9966.65	1501.41	9981.97	1500.52	9996.74	1501.02	10005.83	1500	10008.34	1499.7
10010.37	1500	10015.49	1500.76	10017.13	1500.86	10026.05	1500	10026.75	1499.93
10027.65	1500	10035.87	1500.61	10115.48	1501.84	10146.13	1502	10215.5	1502.36
10268.49	1502.03	10268.6	1502	10275.93	1500	10276.56	1499.82	10277.66	1500
10288.3	1501.99	10309.9	1501.8	10315.5	1501.79	10321.38	1502	10325.99	1502.16
10338.37	1502.12	10339.17	1502	10344.96	1501.11	10351.15	1500.47	10361.43	1501.96
10374.01	1502	10405.46	1502.09	10408.26	1502	10414.12	1501.77	10415.29	1502
10415.49	1502.04	10426.98	1502.23	10431.49	1502	10444.94	1501.38	10452.14	1500
10454.05	1499.63	10455.58	1500	10458.81	1500.79	10464.64	1500.45	10473.13	1502
10475.42	1502.41	10505.6	1502	10515.49	1501.87	10615.48	1501.92	10715.5	1501.97
10730.25	1502	10759.22	1502.07	10760.34	1502	10765.14	1501.65	10771.57	1501.99
10815.49	1501.99	10817.91	1502	10915.49	1502.41	11015.49	1502.53	11115.48	1502.87
11180.86	1502.97	11191.68	1503.07	11292.86	1504	11387.28	1504.04	11387.35	1504
11391.32	1502	11391.92	1501.7	11392.62	1502	11397.53	1504	11398.22	1504.26
11407.69	1504.53	11410.68	1504.19	11417.91	1504.58	11431.75	1504.62	11549.3	1504
11796.25	1504	11936.47	1504.23	11937.28	1504	11940.89	1502.95	11945.37	1504
11945.96	1504.14								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7086.24	.05	9815.5	.05	10475.42	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9815.5	10475.42	282.16	400.01	467.43	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
11432.5	11945.96	1507

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1503.06	Element			
Vel Head (ft)	0.16	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1502.90	Reach Len. (ft)	282.16	400.01	467.43
Crit W.S. (ft)		Flow Area (sq ft)	1722.19	931.56	452.41
E.G. Slope (ft/ft)	0.008329	Area (sq ft)	1722.19	931.56	452.41
Q Total (cfs)	9700.00	Flow (cfs)	5574.61	3174.49	950.90
Top Width (ft)	2811.17	Top Width (ft)	1488.43	659.92	662.82
Vel Total (ft/s)	3.12	Avg. Vel. (ft/s)	3.24	3.41	2.10
Max Chl Dpth (ft)	5.26	Hydr. Depth (ft)	1.16	1.41	0.68
Conv. Total (cfs)	106283.1	Conv. (cfs)	61081.2	34782.9	10419.1
Length Wtd. (ft)	351.17	Wetted Per. (ft)	1489.81	661.48	663.37
Min Ch El (ft)	1499.63	Shear (lb/sq ft)	0.60	0.73	0.35
Alpha	1.05	Stream Power (lb/ft s)	1.95	2.50	0.75
Frctn Loss (ft)	2.45	Cum Volume (acre-ft)	1402.36	383.67	471.85
C & E Loss (ft)	0.02	Cum SA (acres)	744.13	245.74	464.24

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8177.94	8450.87	20.95	24.84	138.41	0.22	0.18	0.84

8450.87	8723.80	481.44	213.70	272.93	4.96	0.78	2.25
8723.80	8996.72	602.18	244.41	272.93	6.21	0.90	2.46
8996.72	9269.65	2095.71	506.35	259.69	21.61	1.96	4.14
9269.65	9542.57	1023.46	335.99	272.93	10.55	1.23	3.05
9542.57	9815.50	1350.86	396.87	272.93	13.93	1.45	3.40
LB 9815.50	9947.48	836.75	226.47	132.00	8.63	1.72	3.69
9947.48	10079.47	1154.95	274.99	132.25	11.91	2.08	4.20
10079.47	10211.45	312.92	125.52	131.99	3.23	0.95	2.49
10211.45	10343.44	337.39	131.54	132.55	3.48	1.00	2.56
10343.44	RB 10475.42	532.49	173.04	132.69	5.49	1.31	3.08
10475.42	10622.47	320.61	137.37	147.06	3.31	0.93	2.33
10622.47	10769.53	322.48	137.86	147.08	3.32	0.94	2.34
10769.53	10916.58	228.13	112.00	147.06	2.35	0.76	2.04
10916.58	11063.64	71.54	55.85	147.05	0.74	0.38	1.28
11063.64	11210.69	3.02	6.19	69.33	0.03	0.09	0.49
11210.69	11357.74						
11357.74	11504.80	5.11	3.15	5.80	0.05	0.60	1.62

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 17.554

INPUT
Description:
Station Elevation Data num= 147

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6862.9	1503.18	6879.75	1503.23	6910.67	1502.12	6974.35	1502	7195.98	1501.56
7512.21	1501.35	7658.94	1500.35	7661.95	1500	7664.27	1499.68	7666.16	1500
7668.72	1500.59	7828.44	1500.67	8059.79	1500.66	8096.34	1501.1	8144.66	1501.13
8244.3	1501.03	8244.67	1501.06	8279.57	1500	8280.24	1499.98	8344.67	1499.7
8444.65	1499.41	8544.66	1499.72	8644.67	1499.53	8744.67	1499.41	8844.68	1499.31
8944.66	1499.82	9013.24	1498.71	9020.54	1498	9025.63	1497.25	9030.58	1498
9032.58	1498.31	9044.67	1498.54	9046.41	1498	9047.92	1497.55	9053.36	1496.97
9056.79	1498	9056.95	1498.05	9074.29	1498.37	9080.26	1498	9086.38	1497.82
9091.16	1496	9093.22	1495.36	9095.08	1496	9100.88	1498	9103.96	1499.05
9121.76	1498.35	9125.21	1498	9128.8	1497.55	9131.63	1498	9131.64	1498
9144.67	1498.44	9153.59	1498.4	9158.51	1498	9159.69	1497.83	9160.65	1498
9166.15	1499	9187.28	1499.18	9244.67	1499.68	9361.53	1499.44	9468.28	1499.41
9691.88	1499.56	9915.48	1499.24	9927.42	1499.04	9936.98	1498	9937.16	1497.98
9937.33	1498	9951.2	1499.47	9972.87	1499.16	9980.62	1498.42	9992.14	1498.82
10015.5	1498.89	10030.04	1498.34	10042.11	1498.86	10239.11	1499.19	10339.1	1499.24
10411.77	1499.11	10416.24	1498	10419	1497.24	10422.77	1498	10430	1499.26
10439.1	1499.36	10478.69	1499.16	10487.04	1498	10488.4	1497.79	10491.01	1498
10507.18	1498.66	10511.9	1498.06	10521.71	1498.91	10539.09	1498.79	10555.04	1498.02
10555.14	1498	10558.81	1497.29	10569.72	1496.19	10587.56	1498	10594.6	1498.73
10606.72	1498.79	10611.87	1498.14	10639.11	1498.61	0654.72	1498.38	10657.92	1498
10659.55	1497.8	10661.2	1498	10670.16	1499.02	10692.14	1498.66	10694.56	1498
10695.25	1497.87	10696.26	1498	10706.95	1499.33	10732.8	1498.59	10736.26	1498
10739.1	1497.52	10741.99	1497.42	10747.81	1498	10758.83	1499.11	10773.92	1498.68
10793.28	1499.48	10813.36	1499.19	10820.3	1498.61	0832.87	1499.79	10839.1	1499.65
10908.75	1499.56	10913.42	1499.29	10923.26	1499.57	10939.1	1499.61	1039.09	1499.95
11068.81	1500	11139.11	1500.12	11211.91	1500	11232.8	1500	11234.8	1500.03
11236.13	1500	11244.92	1499.76	11257.58	1500	11295.66	1500	11551.41	1499.83
11590.71	1500	11651.4	1500.27	11751.42	1500.39	11851.42	1501.11	1951.26	1500.88
11951.41	1500.74	11953.76	1500.03	11959.56	1500.88	11982.77	1501.21	1991.32	1500.7
11999.73	1501.01	12051.41	1501.08						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6862.9	.05	9691.88	.05	10606.72	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9691.88	10606.72	407.45	398.94	593.71	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
7562.9	8097.03	1503	11852.06	12051.71	1503

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1500.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1500.48	Reach Len. (ft)	407.45	398.94	593.71

Crit W.S. (ft)	1499.97	Flow Area (sq ft)	1608.51	1356.58	886.18
E.G. Slope (ft/ft)	0.005915	Area (sq ft)	1608.51	1356.58	886.18
Q Total (cfs)	9700.00	Flow (cfs)	3976.55	4028.87	1694.57
Top Width (ft)	3500.39	Top Width (ft)	1428.12	914.84	1157.42
Vel Total (ft/s)	2.52	Avg. Vel. (ft/s)	2.47	2.97	1.91
Max Chl Dpth (ft)	5.12	Hydr. Depth (ft)	1.13	1.48	0.77
Conv. Total (cfs)	126118.7	Conv. (cfs)	51702.8	52383.1	22032.7
Length Wtd. (ft)	447.07	Wetted Per. (ft)	1429.96	915.93	1158.08
Min Ch El (ft)	1496.19	Shear (lb/sq ft)	0.42	0.55	0.28
Alpha	1.07	Stream Power (lb/ft s)	1.03	1.62	0.54
Frctn Loss (ft)	2.73	Cum Volume (acre-ft)	1391.57	373.16	464.67
C & E Loss (ft)	0.00	Cum SA (acres)	734.68	238.51	454.47

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7994.49	8277.39	2.18	2.82	13.64	0.02	0.21	0.77
8277.39	8560.29	471.34	238.74	282.90	4.86	0.84	1.97
8560.29	8843.19	632.29	284.75	282.90	6.52	1.01	2.22
8843.19	9126.08	1396.67	459.17	284.52	14.40	1.62	3.04
9126.08	9408.98	838.91	337.50	283.10	8.65	1.19	2.49
9408.98	9691.88	635.14	285.52	282.90	6.55	1.01	2.22
LB 9691.88	9874.85	443.66	192.35	182.97	4.57	1.05	2.31
9874.85	10057.82	838.09	281.86	183.17	8.64	1.54	2.97
10057.82	10240.78	750.30	263.63	182.97	7.74	1.44	2.85
10240.78	10423.75	682.50	249.25	183.29	7.04	1.36	2.74
10423.75	RB 10606.72	1314.37	369.51	183.53	13.55	2.02	3.56
10606.72	10751.19	816.70	284.59	144.96	8.42	1.97	2.87
10751.19	10895.66	341.05	168.37	144.62	3.52	1.17	2.03
10895.66	11040.13	174.19	112.46	144.48	1.80	0.78	1.55
11040.13	11184.60	64.77	62.12	144.47	0.67	0.43	1.04
11184.60	11329.06	82.21	71.67	144.47	0.85	0.50	1.15
11329.06	11473.53	97.81	79.54	144.47	1.01	0.55	1.23
11473.53	11618.00	103.53	82.31	144.47	1.07	0.57	1.26
11618.00	11762.47	14.31	25.11	144.47	0.15	0.17	0.57
11762.47	11906.94	0.00	0.01	1.67	0.00	0.01	0.06

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 17.479

INPUT
Description:
Station Elevation Data num= 107

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6730.65	1500.84	6740.25	1500.33	6759.23	1500.05	6889.34	1500	7046.88	1499.7
7363.1	1499.19	7515.93	1498.39	7521.18	1498.27	7527.37	1498.43	7675.53	1498
7679.34	1497.98	7895.98	1496.99	7901.54	1496.96	7904.48	1497.43	8111.61	1498
8205	1498.28	8260.56	1498.68	8264.29	1498	8265.25	1497.76	8267.24	1498
8273.06	1498.67	8311.78	1499.28	8318.56	1498.51	8343.9	1498.12	8354.08	1498
8411.79	1497.31	8511.8	1496.34	8611.79	1496.32	8711.8	1496.44	8811.79	1496.58
8911.8	1496.73	9011.78	1496.68	9111.78	1496.58	9155.45	1496.2	9156.38	1496
9162.98	1494.7	9167.18	1496	9167.64	1496.14	9170.25	1496	9171.66	1495.92
9175.72	1495.13	9183.38	1496	9188.57	1496.58	9206.02	1496.81	9213.66	1496
9214.4	1495.93	9215.37	1496	9223.34	1496.54	9489.84	1496.43	9495.82	1496.1
9504.6	1496.6	9568.46	1496.58	9792.06	1496.75	9892.08	1496.97	9989.62	1497
9992.08	1496.85	9996.56	1496.69	10006.64	1497.03	10311.34	1496.73	10389.23	1496.35
10392.63	1496	10397.15	1495.52	10414.09	1496	10414.67	1496.02	10414.74	1496
10421.18	1494.63	10430.97	1495.88	10448.18	1496	10458.15	1496.05	10458.34	1496
10466.47	1494	10467.53	1493.74	10468.65	1494	10476.57	1496	10479.42	1496.74
10549.67	1496.15	10550.32	1496	10557.27	1494.26	10567.57	1496	10568.47	1496.17
10627.57	1496.65	11024.25	1496.53	11026.52	1496.08	11030.11	1496.31	11059.5	1496.05
11060.16	1496	11064.04	1495.68	11067.24	1496	11070.97	1496.35	11113.27	1496.31
11118.34	1496	11118.73	1495.98	11119.18	1496	11123.27	1496.23	11137.48	1496.34
11237.47	1496.61	11337.47	1496.73	11437.46	1496.8	11537.46	1496.95	11637.48	1496.97
11737.48	1497.39	11837.47	1497.64	11899.39	1497.58	11901.81	1496.72	11909.03	1497.63
11937.46	1497.64	12037.46	1497.91						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6730.65	.05	9489.84	.05	10627.57	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9489.84	10627.57	434.06	535.05	398.92	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6730.65	8312.52	1500

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1497.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1497.76	Reach Len. (ft)	434.06	535.05	398.92
Crit W.S. (ft)		Flow Area (sq ft)	1346.83	1298.27	1244.16
E.G. Slope (ft/ft)	0.006279	Area (sq ft)	1346.83	1298.27	1244.16
Q Total (cfs)	9700.00	Flow (cfs)	3594.85	3335.80	2769.35
Top Width (ft)	3606.75	Top Width (ft)	1115.50	1137.73	1353.52
Vel Total (ft/s)	2.49	Avg. Vel. (ft/s)	2.67	2.57	2.23
Max Chl Dpth (ft)	4.02	Hydr. Depth (ft)	1.21	1.14	0.92
Conv. Total (cfs)	122414.3	Conv. (cfs)	45367.1	42098.0	34949.2
Length Wtd. (ft)	458.19	Wetted Per. (ft)	1116.11	1139.10	1353.84
Min Ch El (ft)	1493.74	Shear (lb/sq ft)	0.47	0.45	0.36
Alpha	1.02	Stream Power (lb/ft s)	1.26	1.15	0.80
Frctn Loss (ft)	2.16	Cum Volume (acre-ft)	1377.75	361.00	450.15
C & E Loss (ft)	0.01	Cum SA (acres)	722.79	229.11	437.36

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8110.25	8386.16	0.33	0.84	11.83	0.00	0.07	0.40
8386.16	8662.08	801.80	314.41	275.93	8.27	1.14	2.55
8662.08	8938.00	865.56	329.18	275.92	8.92	1.19	2.63
8938.00	9213.92	951.74	348.76	276.50	9.81	1.26	2.73
9213.92	9489.84	975.42	353.65	275.94	10.06	1.28	2.76
LB 9489.84	9717.39	653.84	262.84	227.57	6.74	1.16	2.49
9717.39	9944.93	444.07	208.39	227.55	4.58	0.92	2.13
9944.93	10172.48	360.66	183.94	227.56	3.72	0.81	1.96
10172.48	10400.02	596.69	248.82	227.59	6.15	1.09	2.40
10400.02	RB 10627.57	1280.56	394.29	228.83	13.20	1.73	3.25
10627.57	10768.56	364.36	159.19	140.99	3.76	1.13	2.29
10768.56	10909.55	387.59	165.20	140.99	4.00	1.17	2.35
10909.55	11050.54	443.61	179.17	141.04	4.57	1.27	2.48
11050.54	11191.53	559.36	205.92	141.05	5.77	1.46	2.72
11191.53	11332.52	364.64	159.26	140.99	3.76	1.13	2.29
11332.52	11473.50	286.91	137.92	140.99	2.96	0.98	2.08
11473.50	11614.49	216.15	116.37	140.99	2.23	0.83	1.86
11614.49	11755.48	121.00	82.16	140.99	1.25	0.58	1.47
11755.48	11896.47	18.59	26.70	140.99	0.19	0.19	0.70
11896.47	12037.46	7.12	12.26	84.82	0.07	0.14	0.58

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 17.377

INPUT
Description:
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6580.94	1497.75	6897.19	1497.16	7103.45	1497.45	7157.29	1498	7213.41	1498.55
7227.92	1498	7257.82	1496.87	7363.76	1496	7497.07	1495.97	7503.96	1494
7504.33	1493.9	7505.08	1494	7514.23	1495.27	7529.62	1495.59	7845.82	1495.88
8006.56	1494.74	8051.77	1496	8119.71	1496.47	8150.13	1497.09	8162.07	1497.31
8205.67	1496.02	8262.05	1496.1	8268.01	1496	8362.06	1494.47	8462.05	1494.08
8562.06	1494.06	8588.96	1494	8662.07	1493.84	8727.95	1494	8762.06	1494.08
8862.07	1494.4	8962.07	1494.49	9064.84	1494.6	9071.04	1494	9071.28	1493.96
9072.19	1494	9078.82	1494.77	9207.97	1494	9217.31	1493.88	9238.59	1494

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 9278.31 1494.22 9298.77 1494.29 9594.52 1494.98 9860.98    1494 9955.07 1493.52
 9997.62 1493.38 9999.56 1492.7910005.78    149410006.19 1494.0810009.81    1494
10026.38 1493.5710033.19 1493.0310040.49 1493.5910055.08 1493.6710143.76    1494
10155.09 1494.0410167.91    149410180.95 1493.9110184.99 1492.2410191.26    1494
10192.18 1494.2910208.22    149410221.14 1493.77 10227.2    149210227.69 1491.85
10228.22    149210235.38    149410235.98 1494.1510245.25    149410271.14 1493.52
10274.99    149210275.56 1491.7810276.45    149210284.49    149410285.53 1494.25
10315.69    149410567.39 1493.75 10759.2 1493.4410883.61  1493.610911.68 1493.89
10916.14 1493.1310922.11 1493.9610983.62 1493.9211002.97    149411083.62 1494.34
11183.63 1494.5811283.61  1495.111383.62 1495.1511483.62 1495.1311583.63 1495.55
11672.15 1495.2811677.89 1494.4411683.53 1495.5811683.61 1495.1811714.41 1495.33
11719.86 1495.5211783.62 1495.4511883.63 1495.52

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 6580.94     .05 9207.97     .0510285.53     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9207.9710285.53           389.72  295.16  235.91              .1       .3
Blocked Obstructions      num=        1
   Sta L   Sta R    Elev
 6580.94  8161.6    1498
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CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1495.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1495.62	Reach Len. (ft)	389.72	295.16	235.91
Crit W.S. (ft)		Flow Area (sq ft)	1204.39	1547.04	1836.41
E.G. Slope (ft/ft)	0.003619	Area (sq ft)	1204.39	1547.04	1836.41
Q Total (cfs)	9700.00	Flow (cfs)	2583.43	3515.52	3601.06
Top Width (ft)	3592.10	Top Width (ft)	916.44	1077.56	1598.10
Vel Total (ft/s)	2.11	Avg. Vel. (ft/s)	2.15	2.27	1.96
Max Chl Dpth (ft)	3.84	Hydr. Depth (ft)	1.31	1.44	1.15
Conv. Total (cfs)	161231.0	Conv. (cfs)	42941.1	58434.0	59855.9
Length Wtd. (ft)	305.71	Wetted Per. (ft)	916.53	1079.68	1598.83
Min Ch El (ft)	1491.78	Shear (lb/sq ft)	0.30	0.32	0.26
Alpha	1.01	Stream Power (lb/ft s)	0.64	0.74	0.51
Frctn Loss (ft)	1.47	Cum Volume (acre-ft)	1365.04	343.53	436.04
C & E Loss (ft)	0.01	Cum SA (acres)	712.66	215.50	423.84

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8157.16	8419.86	183.03	113.29	128.34	1.89	0.88	1.62
8419.86	8682.56	1003.54	418.84	262.70	10.35	1.59	2.40
8682.56	8945.27	800.14	365.62	262.70	8.25	1.39	2.19
8945.27	9207.97	596.71	306.64	262.78	6.15	1.17	1.95
LB 9207.97	9423.48	589.91	286.49	215.51	6.08	1.33	2.06
9423.48	9638.99	259.70	175.12	215.51	2.68	0.81	1.48
9638.99	9854.51	495.45	258.01	215.51	5.11	1.20	1.92
9854.51	10070.02	1128.95	423.11	215.78	11.64	1.96	2.67
10070.02	RB 10285.53	1041.53	404.32	217.36	10.74	1.88	2.58
10285.53	10445.34	532.40	263.04	159.81	5.49	1.65	2.02
10445.34	10605.15	634.25	292.17	159.81	6.54	1.83	2.17
10605.15	10764.96	772.09	328.76	159.81	7.96	2.06	2.35
10764.96	10924.77	765.39	327.15	159.93	7.89	2.05	2.34
10924.77	11084.58	485.17	248.78	159.81	5.00	1.56	1.95
11084.58	11244.39	252.05	167.95	159.81	2.60	1.05	1.50
11244.39	11404.20	78.15	83.19	159.81	0.81	0.52	0.94
11404.20	11564.01	50.06	63.67	159.81	0.52	0.40	0.79
11564.01	11723.82	23.43	40.43	160.32	0.24	0.25	0.58
11723.82	11883.63	8.05	21.28	159.91	0.08	0.13	0.38

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Vineyard FRS

REACH: Vineyard RS: 17.321

INPUT
Description:
Station Elevation Data num= 278

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6486.68	1496.15	6524.91	1496	6802.88	1495.51	6817.44	1495.46	6839.01	1496
6844.68	1496.19	6877.46	1496	6889.71	1495.98	6909.83	1495.39	7129.74	1496
7163.23	1496.33	7184.91	1496	7253.87	1494.9	7347.98	1494	7657.3	1493.31
7755.68	1492.57	7756.92	1492	7759.13	1491.01	7764.65	1492	7766.45	1492.29
7773.74	1492.3	7774.62	1492	7776.18	1491.35	7778.53	1492	7780.6	1492.59
7803.79	1492.77	7807.45	1492	7808.35	1491.82	7809.19	1492	7811.8	1492.76
7973.52	1493.74	8086.36	1494	8124.82	1494.49	8172.98	1494.46	8228.26	1494.27
8289.73	1494.71	8369.24	1494	8389.74	1493.82	8489.73	1493.16	8536.74	1492.94
8540.9	1492	8549.2	1490	8549.75	1489.86	8551.75	1490	8558.09	1492.41
8565.22	1492.72	8575.94	1493.77	8583.09	1494.14	8586.24	1494.25	8596.09	1494.24
8605.89	1493.9	8614.92	1493.73	8626.23	1493.74	8639.14	1493.75	8652.8	1493.68
8667.1	1493.71	8679.28	1492	8680.43	1493.79	8692.42	1493.54	8700.74	1493.46
8704.51	1492	8712.6	1493.41	8724.99	1493.37	8739.65	1493.45	8752.87	1493.46
8765.72	1493.49	8777.71	1493.54	8783.95	1493.49	8788.92	1492	8791.15	1493.41
8794.51	1492	8798.85	1493.22	8808.06	1493.01	8815.72	1492.87	8824.45	1492.87
8831.32	1493.02	8837.72	1493.29	8843.37	1493.31	8849.88	1493.31	8854.34	1493.36
8861.15	1493.5	8869.05	1493.36	8877.9	1493.11	8885.61	1492.96	8891.33	1493.23
8898.6	1493.4	8907.56	1493.4	8918.48	1493.53	8926.23	1493.73	8934.75	1493.72
8947.9	1493.76	8955.58	1493.67	8964.61	1493.48	8970.99	1493.33	8975.46	1492.96
8986.71	1490.93	8988.93	1490	8989.17	1489.87	8990.02	1490	8996.73	1491.03
9016.42	1491.4	9022.81	1491.47	9099.93	1491.66	9100.1	1491.75	9103.63	1491.22
9112.72	1491.67	9200.1	1491.67	9300.09	1491.9	9400.09	1491.77	9444.02	1492
9464.15	1492.1	9491.86	1492	9500.1	1491.97	9504.77	1492	9600.08	1492.64
9654.73	1492.63	9676.31	1494.74	9683.32	1494.82	9691.77	1494.87	9700.93	1494.88
9710.83	1494.93	9718.28	1494.94	9727.83	1494.89	9734.43	1494.84	9742.51	1494.76
9750.21	1494.73	9761.59	1494.8	9767.08	1494.82	9776.94	1494.86	9784.97	1494.92
9793.37	1494.98	9807.31	1494.96	9814.64	1494.94	9820.13	1494.92	9831.84	1494.92
9837.69	1494.93	9845.74	1494.89	9852.33	1494.84	9858.55	1494.75	9861.84	1494.71
9871.69	1494.75	9875.35	1494.74	9881.86	1494.69	9888.08	1494.66	9894.3	1494.67
9903.81	1494.68	9909.65	1494.68	9914.4	1494.67	9925	1494.59	9931.58	1494.55
9935.97	1494.52	9941.47	1494.45	9947.36	1494.36	9957.25	1494.3	9961.66	1494.29
9966.44	1494.31	9971.21	1494.29	9975.22	1494.23	9977.61	1492	9984.01	1494.35
9999.34	1490.69	10012.69	1491.81	10014.79	1492	10033	1494.52	10043.85	1494.52
10053.95	1494.51	10061.72	1494.49	10071.31	1494.46	10079.51	1494.44	10098.97	1494.52
10109.84	1494.57	10133.86	1494.65	10144.59	1494.61	10160.99	1494.51	10173.66	1494.58
10180.73	1494.62	10189.75	1494.69	10204.51	1494.8	10210.08	1494.8	10216.57	1494.79
10223.93	1494.77	10239.91	1494.69	10248.49	1494.59	10259.49	1494.82	10261.05	1494.89
10269.4	1495.1	10279.83	1495.26	10288.53	1495.31	10300.32	1495.33	10305.87	1495.33
10310.05	1495.33	10313.48	1494	10319.3	1495.39	10328.47	1495.39	10335.75	1494
10337.92	1495.29	10346.15	1495.2	10352.3	1495.31	10355.46	1494	10360.08	1496.08
10372.2	1497.11	10382.25	1497.66	10395.33	1497.83	10407.76	1497.82	10416.84	1497.66
10426.22	1497.39	10431.95	1494	10437.05	1497.08	10445.36	1496.84	10453.25	1496.61
10462.67	1496.33	10469.64	1496.19	10476.69	1496.1	10483	1496.13	10492.37	1496.06
10500.62	1496.02	10509.46	1496.03	10521.27	1496.02	10532.95	1495.96	10545.11	1495.96
10556.44	1495.98	10567.29	1495.86	10586.21	1495.52	10596.26	1495.46	10608.12	1495.41
10618.12	1495.33	10631.62	1495.08	10643.69	1494.84	10651.38	1492	10652.29	1492
10653.73	1494.63	10666.82	1493.72	10670.27	1493.24	10679.42	1492.91	10683.9	1492
10691.54	1490.35	10695.29	1490	10696.28	1489.9	10697.18	1490	10714.92	1492
10721.26	1492.31	10725.21	1492	10731.91	1491.33	10737.34	1492	10740.99	1492.48
10766.45	1492.76	10768.55	1492	10770.52	1491.35	10783.25	1492	10791.79	1492.89
10834.96	1492.91	10890.55	1492.39	10893.58	1492.8	11151.33	1492.51	11154.65	1492.48
11158.05	1492	11159.51	1491.8	11164.17	1492	11178.19	1492.67	11251.35	1492.68
11351.34	1493.03	11451.34	1494.04	11475.13	1494	11551.35	1493.87	11651.36	1493.5
11751.34	1493.82	11766.18	1493.96	11772.65	1492.88	11782.24	1493.48	11833.32	1493.7
11836.86	1493.32	11841.95	1493.58	11851.35	1493.52	11877.72	1493.29	11886.95	1493.42
11938.57	1494	11951.38	1494.14	12051.38	1494.19				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6486.68	.05	9300.09	.05	10033	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9300.09	10033	732.26	497.51	448.5	.3	.5

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6486.68	8289.4	1496

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft) 1494.21 Element Left OB Channel Right OB

Vel Head (ft)	0.15	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1494.06	Reach Len. (ft)	732.26	497.51	448.50
Crit W.S. (ft)		Flow Area (sq ft)	1236.20	784.55	1268.47
E.G. Slope (ft/ft)	0.006744	Area (sq ft)	1236.20	784.55	1268.47
Q Total (cfs)	9700.00	Flow (cfs)	3754.08	2888.74	3057.19
Top Width (ft)	2630.55	Top Width (ft)	917.90	421.55	1291.10
Vel Total (ft/s)	2.95	Avg. Vel. (ft/s)	3.04	3.68	2.41
Max Chl Dpth (ft)	4.20	Hydr. Depth (ft)	1.35	1.86	0.98
Conv. Total (cfs)	118113.1	Conv. (cfs)	45711.9	35175.0	37226.1
Length Wtd. (ft)	641.54	Wetted Per. (ft)	921.98	423.39	1293.92
Min Ch El (ft)	1490.69	Shear (lb/sq ft)	0.56	0.78	0.41
Alpha	1.09	Stream Power (lb/ft s)	1.71	2.87	0.99
Frctn Loss (ft)	4.38	Cum Volume (acre-ft)	1354.12	335.63	427.64
C & E Loss (ft)	0.03	Cum SA (acres)	704.46	210.43	416.02

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8174.73	8456.07	36.89	33.76	93.60	0.38	0.36	1.09
8456.07	8737.41	462.72	233.09	264.00	4.77	0.89	1.99
8737.41	9018.75	660.30	296.64	282.96	6.81	1.05	2.23
9018.75	9300.09	2594.16	672.71	281.41	26.74	2.39	3.86
LB 9300.09	9446.67	1315.87	323.55	146.58	13.57	2.21	4.07
9446.67	9593.25	994.74	273.56	146.58	10.26	1.87	3.64
9593.25	9739.84	279.11	98.21	76.18	2.88	1.29	2.84
9739.84	9886.42						
9886.42	RB 10033.00	299.02	89.23	54.05	3.08	1.71	3.35
10033.00	10234.84						
10234.84	10436.68	0.01	0.04	1.41	0.00	0.03	0.19
10436.68	10638.51						
10638.51	10840.35	979.21	327.31	188.52	10.09	1.76	2.99
10840.35	11042.19	705.14	276.24	201.87	7.27	1.37	2.55
11042.19	11244.03	820.52	302.55	201.91	8.46	1.50	2.71
11244.03	11445.87	354.74	182.91	201.84	3.66	0.91	1.94
11445.87	11647.70	35.94	46.31	201.84	0.37	0.23	0.78
11647.70	11849.54	108.94	90.10	201.97	1.12	0.45	1.21
11849.54	12051.38	52.69	43.02	94.56	0.54	0.45	1.22

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 17.227

INPUT
Description:
Station Elevation Data num= 191

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6152.2	1490.06	6222.02	1490.32	6224.85	1490	6228.81	1489.56	6231.37	1490
6232.06	1490.12	6252.19	1490.2	6298.84	1490	6337.19	1489.84	6341.27	1490
6352.2	1490.44	6387.15	1490.87	6430.71	1491.18	6443.66	1490.8	6452.21	1490.59
6552.19	1491.12	6652.2	1490.69	6680.48	1490	6689.14	1489.94	6696.64	1488.86
6700.56	1489.54	6718.59	1488.84	6724.29	1489.29	6728.85	1488.37	6731.79	1489.62
6748.42	1489.37	6751.58	1488.24	6752.19	1488.82	6761.93	1489.45	6774.72	1489.38
6778.68	1489.29	6784.87	1489.39	6842.36	1490	6852.2	1490.1	6899.64	1490
6952.19	1489.88	6977.81	1489.43	6982.32	1488.55	6987.97	1489.67	7033.11	1490
7052.2	1490.15	7152.18	1491.54	7406.05	1490	7690.7	1489.08	7864.89	1489.45
7869.87	1488	7872	1487.37	7875.21	1488	7881.59	1488.81	7925.93	1488.28
7930.37	1488	7931.51	1487.92	7932.68	1488	7935.94	1488.31	8009.3	1490
8014.78	1490.09	8061.74	1490.5	8070.55	1490	8070.76	1489.99	8072.61	1490
8153.19	1490.26	8229.24	1490.83	8308.91	1490	8329.22	1489.79	8391.69	1488.89
8429.23	1488.19	8465.87	1488	8529.22	1487.68	8629.23	1487.53	8667.86	1488
8729.21	1488.74	8829.22	1489.4	8843.46	1489.37	8886.2	1488	8929.21	1486.66
8945.6	1486	8951.09	1485.78	8955.45	1484.92	8961.41	1485.6	8976.18	1485.11
8979.54	1484	8982.56	1483.01	8986.96	1484	8989.35	1484.52	9029.22	1485.64
9110.53	1485.73	9116.38	1485.46	9123.04	1486	9123.61	1486.04	9129.23	1486.37
9211.51	1486.42	9215.31	1486	9220.96	1485.52	9225.58	1486	9228.21	1486.27
9229.22	1486.37	9329.21	1487.31	9417.27	1486.82	9423.81	1487.2	9429.22	1487.08

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 9449.94 1486.75  9460.2    1486 9467.54 1485.49 9477.92    1486 9493.85 1486.78
  9502.5    1486  9504.5 1485.83  9510.9    1486 9515.83 1486.13 9529.22 1486.74
 9540.27 1487.34 9577.88 1487.52 9600.54 1487.74 9602.67    1488 9619.12    1490
 9622.99 1491.96 9629.23 1491.23 9632.68    1490 9636.33  1488.7 9640.73    1488
 9647.74 1486.89 9742.58 1486.91 9749.04    1488  9752.9 1488.67 9761.45    1490
 9773.02 1493.38 9774.09    1492 9780.28    1492 9786.64    1490 9795.47 1488.22
 9797.87    1488 9801.88 1487.63 9815.48    1488 9829.22 1488.27 9832.29 1488.63
 9853.96 1488.39 9860.14    1488 9861.29 1487.92  9862.2    1488  9875.6 1489.04
 9929.22  1489.3 9961.83 1489.01 9967.68 1488.45 9974.76 1489.1310034.19 1489.04
 10040.4 1489.4110067.62 1489.3810072.83 1488.7710084.19  1489.310492.28 1489.12
10501.36 1488.4510508.99 1489.41 10563.1 1488.8410568.99    148810571.78 1487.64
10573.68    148810577.59  1488.610601.85 1488.9110621.37    148810625.11 1487.77
10627.12    1488 10635.6 1489.3210641.44 1488.9510645.92 1488.1610657.98 1489.18
10735.99 1489.13   10836  1489.310935.98 1489.8210984.12    149011035.99 1490.19
   11136 1490.44   11236 1490.9611302.92 1491.0811309.46 1490.5211320.34 1491.47
11335.98 1491.3811435.99  1491.411481.74 1491.16   11536 1491.45   11636 1491.18
11735.99 1491.2511835.99 1491.33 11839.9 1491.3211850.55 1490.3711863.22 1491.19
11890.32 1491.5511894.62 1490.8611900.29 1491.16   11936 1491.2812035.98  1491.6
12135.99  1491.9

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  6152.2     .05 9786.64     .0510084.19     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9786.6410084.19           493.71  502.79  505.19             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 9329.21  9624.1    1493
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  6152.2 8229.04    1492 9623.98 9773.64    1492

CROSS SECTION OUTPUT    Profile #PF 3

  E.G. Elev (ft)            1489.79   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.25   Wt. n-Val.                0.050      0.050      0.050
  W.S. Elev (ft)            1489.54   Reach Len. (ft)          493.71     502.79     505.19
  Crit W.S. (ft)            1488.62   Flow Area (sq ft)       2133.07     191.96     330.90
  E.G. Slope (ft/ft)       0.006998   Area (sq ft)            2864.90     191.96     330.90
  Q Total (cfs)             9700.00   Flow (cfs)              8884.93     357.83     457.24
  Top Width (ft)            2362.06   Top Width (ft)          1268.78     295.27     798.01
  Vel Total (ft/s)             3.65   Avg. Vel. (ft/s)           4.17       1.86       1.38
  Max Chl Dpth (ft)            6.53   Hydr. Depth (ft)           2.17       0.65       0.41
  Conv. Total (cfs)        115956.9   Conv. (cfs)           106213.2     4277.7     5466.0
  Length Wtd. (ft)           494.59   Wetted Per. (ft)         983.52     295.64     798.53
  Min Ch El (ft)            1487.63   Shear (lb/sq ft)           0.95       0.28       0.18
  Alpha                        1.21   Stream Power (lb/ft s)     3.95       0.53       0.25
  Frctn Loss (ft)              2.83   Cum Volume (acre-ft)    1319.65     330.05     419.40
  C & E Loss (ft)              0.03   Cum SA (acres)           686.08     206.33     405.27

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

FLOW DISTRIBUTION OUTPUT    Profile #PF 3

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.   Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  8332.86       8696.31        1568.17     513.95    349.77     16.17      1.47      3.05
  8696.31       9059.75        2946.26     762.52    364.16     30.37      2.10      3.86
  9059.75       9423.20        4370.48     856.59    269.59     45.06      3.18      5.10
  9423.20       9786.64
  LB 9786.64    9846.15         189.39      74.47     57.42      1.95      1.30      2.54
  9846.15       9905.66          85.00      46.73     59.57      0.88      0.79      1.82
  9905.66       9965.17          24.00      21.87     59.53      0.25      0.37      1.10
  9965.17       10024.68         40.87      30.11     59.55      0.42      0.51      1.36
  10024.68      RB 10084.19      18.57      18.76     59.57      0.19      0.32      0.99
  10084.19      10289.37         58.03      58.58    205.18      0.60      0.29      0.99
  10289.37      10494.55         92.20      77.35    205.19      0.95      0.38      1.19
  10494.55      10699.73        254.71     142.45    205.69      2.63      0.69      1.79
  10699.73      10904.91         52.32      52.53    182.47      0.54      0.29      1.00

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 17.132

INPUT
Description:
Station Elevation Data num= 168

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6185.31	1487.92	6195.33	1488	6214.13	1488	6263.64	1486.78	6268.56	1487.16
6285.32	1487.24	6385.31	1487.68	6485.32	1487.6	6539.72	1488	6585.3	1488.33
6685.31	1488.57	6707.6	1488	6769.39	1486.41	6777.19	1487.23	6778.78	1486.22
6783.48	1486.97	6785.32	1487.29	6885.31	1487.43	6914.6	1487.33	6919.03	1486.63
6924.73	1487.35	6985.32	1487.56	7523.84	1486.42	7916.22	1486	8062.36	1485.69
8210.49	1485.47	8217.5	1485.21	8222.91	1485.4	8254.74	1486	8323.17	1486.75
8332.63	1486.49	8340.37	1486.62	8378.57	1487.43	8478.58	1487.6	8554.44	1486
8573.44	1485.6	8578.57	1485.78	8678.58	1484.86	8725.65	1484.21	8728.85	1484
8733.73	1483.62	8736.67	1484	8741.36	1484.57	8778.31	1484.36	8778.57	1484.57
8781.72	1484	8783.53	1483.67	8785.6	1484	8787.62	1484.42	8878.58	1485.06
8922.05	1485.2	8962.85	1486	8969.24	1486.13	8978.56	1486.2	8983.4	1486
9032.5	1484	9078.57	1482.48	9079.27	1482.29	9080.13	1482	9083.24	1480.8
9088.29	1482	9096.21	1483.54	9148.85	1482.75	9151.43	1482.5	9155.62	1482.81
9178.58	1483.5	9278.57	1483.82	9349.88	1484	9378.59	1484.07	9405.56	1484
9409.8	1483.99	9416.29	1483.73	9421.22	1484	9432.93	1484.62	9445.58	1484
9450.18	1483.77	9470.54	1483.37	9478.57	1482.25	9478.95	1482.24	9505.61	1484
9514.17	1484.44	9531.69	1484.22	9534.83	1484	9536.6	1483.87	9539.73	1484
9559.16	1484.87	9578.57	1484.76	9599.93	1484.72	9603.82	1484.33	9611.57	1484.74
9637.34	1484.48	9640.04	1484.08	9651.22	1484.66	9665.45	1484.63	9673.67	1484.17
9678.58	1484.54	9688.25	1484.96	9778.56	1485.36	9878.57	1486	9890.71	1486
9965.26	1486.02	9965.5	1486	9972.44	1485.45	9976.68	1486	9976.73	1486.01
9977.26	148610012.27		1486	10022	1486.1510022.57		148610025.44		1485.04
10029.7	148610029.96		1486.0710073.27		1486	10088.9	148610304.49		1486
10354.71	1485.8710359.12		148510366.19		1485.7910383.98		148610386.61		1486.05
10387.01	148610391.09		1485.3910401.84		148610403.09		1486.07	10684.8	1486.94
10784.81	1486.6610790.45		1486.5110793.07		148610796.27		1485.410800.29		1486
10805.23	1486.6310879.73		1486.7110884.71		1486.3910884.82		1486.5210893.65		1486.72
10984.82	1486.3711084.81		1486.4911176.09		1486.9311184.81		1487.2811257.68		1488
11284.82	1488.2711331.98		1488	11384.8	1487.711479.13		1487.7211484.81		1487.43
11486.31	1487.5411504.62		1487.64	11509.7	1487.2911516.43		1487.8211584.81		1487.9
11684.82	1487.8511753.32		1488	11784.8	1488.0711836.21		148811884.81		1487.87
11898.86	148811906.64		1488.0711906.98		148811911.18		1486.97	11920.7	1488
11921.2	1488.0411943.89		1488.1311944.28		148811946.02		148811949.67		1488.27
11984.82	1488.2212084.82		1488.3712184.81		1489.58				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6185.31	.05	9878.57	.05	10088.9	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9878.57	10088.9	491.85	496.91	498.15	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
9541.56	9880.66	1490

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6185.31	8479.86	1490.02

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1486.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1486.74	Reach Len. (ft)	491.85	496.91	498.15
Crit W.S. (ft)	1485.68	Flow Area (sq ft)	2436.72	157.88	398.34
E.G. Slope (ft/ft)	0.004757	Area (sq ft)	2999.62	159.42	398.34
Q Total (cfs)	9700.00	Flow (cfs)	8904.96	268.75	526.29
Top Width (ft)	2482.61	Top Width (ft)	1359.29	210.33	912.99
Vel Total (ft/s)	3.24	Avg. Vel. (ft/s)	3.65	1.70	1.32
Max Chl Dpth (ft)	5.94	Hydr. Depth (ft)	2.38	0.76	0.44
Conv. Total (cfs)	140638.7	Conv. (cfs)	129111.6	3896.6	7630.5
Length Wtd. (ft)	492.89	Wetted Per. (ft)	1023.54	208.59	913.45
Min Ch El (ft)	1485.04	Shear (lb/sq ft)	0.71	0.22	0.13
Alpha	1.18	Stream Power (lb/ft s)	2.58	0.38	0.17
Frctn Loss (ft)	2.84	Cum Volume (acre-ft)	1286.42	328.02	415.17
C & E Loss (ft)	0.01	Cum SA (acres)	671.18	203.41	395.34

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8401.27	8770.59	1042.06	391.15	251.42	10.74	1.56	2.66
8770.59	9139.92	2864.03	837.57	370.22	29.53	2.27	3.42
9139.92	9509.24	4701.41	1126.83	369.56	48.47	3.05	4.17
9509.24	9878.57	297.44	81.17	32.34	3.07	2.51	3.66
LB 9878.57	9920.64	49.39	29.53	39.98	0.51	0.74	1.67
9920.64	9962.70	50.73	30.62	42.07	0.52	0.73	1.66
9962.70	10004.77	60.98	34.21	42.13	0.63	0.81	1.78
10004.77	10046.83	56.88	32.88	42.36	0.59	0.78	1.73
10046.83	RB 10088.90	50.76	30.63	42.07	0.52	0.73	1.66
10088.90	10298.49	241.91	155.43	209.59	2.49	0.74	1.56
10298.49	10508.08	221.23	147.37	209.79	2.28	0.70	1.50
10508.08	10717.67	11.56	19.54	112.49	0.12	0.17	0.59
10717.67	10927.26	11.65	23.26	171.85	0.12	0.14	0.50
10927.26	11136.86	39.95	52.75	209.59	0.41	0.25	0.76

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 17.038

INPUT
Description:
Station Elevation Data num= 133

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6150.14	1486.32	6174.29	1486.35	6190.92	1486	6191.48	1485.99	6196.69	1485.11
6204.64	1485.51	6250.15	1485.91	6257.47	1486	6350.14	1486.51	6361.97	1486
6363.47	1485.94	6371.46	1485.47	6378.02	1485.8	6416.08	1485.84	6419.18	1485.37
6423.88	1485.68	6449.91	1486	6450.15	1486	6550.16	1486.95	6654.52	1486
6792.59	1485.08	6910.69	1485.32	7112.54	1484.54	7119.31	1484.35	7130.39	1484.7
7325.22	1484	7449.22	1483.84	7604.83	1484	7987.8	1483.57	8163.66	1484
8213.95	1484.36	8216.01	1484	8219.46	1483.38	8224.03	1484	8225.92	1484.26
8233.02	1484.66	8235.65	1484.06	8241.23	1484.43	8408.09	1486	8454.37	1486.4
8526.32	1486.85	8574.03	1486.45	8626.31	1486.2	8664.85	1486	8726.31	1485.69
8826.31	1484.66	8926.33	1484.18	8998.71	1484	9026.33	1483.93	9120.84	1482
9126.33	1481.89	9162.16	1481.31	9193.91	1481.34	9226.23	1480.97	9226.32	1481.04
9229.01	1480	9233.82	1478.25	9242.49	1480	9248.53	1481.23	9257.1	1480.22
9269.69	1481.58	9286.44	1481.63	9326.32	1481.21	9326.5	1481.13	9331.62	1480.98
9347.43	1481.43	9426.32	1481.7	9509.29	1480.69	9513.14	1480	9518.39	1479.11
9521.96	1480	9526.3	1481.09	9530.6	1481.19	9548.14	1480.92	9553.28	1480.59
9562.44	1481.16	9626.31	1481.95	9651.61	1482	9726.32	1482.15	9826.32	1482.37
9926.31	1482.59	10191.28	1482.63	10194.17	1482.56	10205.1	1482.8	10243.54	1482.84
10245.3	1482.58	10252.81	1483.15	10410.76	1482.72	10415.84	1482.09	10424.56	1482.73
10701.94	1483.75	10711.72	1483.52	10720.65	1483.75	10732.53	1483.58	10736.95	1483.73
10741.13	1483.34	10752.86	1483.74	10772.15	1484	10808.15	1484.13	10808.86	1484
10813.53	1483.05	10817.38	1484	10818.98	1484.38	10832.54	1484.22	10859.81	1484
10929.73	1483.43	10932.54	1483.41	10935.65	1483.53	10945.42	1483.37	10950	1482.53
10958.32	1483.41	11032.55	1483.33	11132.53	1483.63	11198.05	1484	11232.54	1484.2
11332.54	1484.44	11370.26	1484.44	11383.66	1484.35	11432.7	1484.44	11532.68	1484.49
11632.69	1484.59	11732.7	1484.47	11832.7	1484.81	11932.52	1484.66	11932.68	1484.42
11936.31	1484	11937.21	1483.85	11938.5	1484	11944.55	1484.67	12032.69	1484.89
12132.7	1485.92	12136.55	1486	12232.7	1487.92				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6150.14	.05	9726.32	.05	10205.1	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9726.32	10205.1	500.93	488.11	396	.3	.5

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6150.14	8526.21	1486

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1484.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1483.84	Reach Len. (ft)	500.93	488.11	396.00
Crit W.S. (ft)		Flow Area (sq ft)	1582.45	638.27	498.62
E.G. Slope (ft/ft)	0.007112	Area (sq ft)	1582.45	638.27	498.62
Q Total (cfs)	9700.00	Flow (cfs)	6849.45	1937.62	912.94
Top Width (ft)	2028.79	Top Width (ft)	695.79	478.78	854.21
Vel Total (ft/s)	3.57	Avg. Vel. (ft/s)	4.33	3.04	1.83
Max Chl Dpth (ft)	5.59	Hydr. Depth (ft)	2.27	1.33	0.58
Conv. Total (cfs)	115020.2	Conv. (cfs)	81219.0	22975.8	10825.4
Length Wtd. (ft)	484.92	Wetted Per. (ft)	697.23	478.78	854.66
Min Ch El (ft)	1482.15	Shear (lb/sq ft)	1.01	0.59	0.26
Alpha	1.21	Stream Power (lb/ft s)	4.36	1.80	0.47
Frctn Loss (ft)	2.64	Cum Volume (acre-ft)	1260.55	323.48	410.05
C & E Loss (ft)	0.05	Cum SA (acres)	659.58	199.48	385.24

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9011.08	9368.70	3105.98	738.43	339.19	32.02	2.18	4.21
9368.70	9726.32	3743.50	844.02	358.04	38.59	2.36	4.44
LB 9726.32	9822.08	516.13	152.16	95.76	5.32	1.59	3.39
9822.08	9917.83	407.23	131.99	95.76	4.20	1.38	3.09
9917.83	10013.59	345.63	119.62	95.76	3.56	1.25	2.89
10013.59	10109.34	338.62	118.16	95.76	3.49	1.23	2.87
10109.34	RB 10205.10	329.98	116.34	95.76	3.40	1.21	2.84
10205.10	10407.86	417.37	189.11	202.80	4.30	0.93	2.21
10407.86	10610.62	338.41	166.76	202.82	3.49	0.82	2.03
10610.62	10813.38	33.89	37.54	153.85	0.35	0.24	0.90
10813.38	11016.14	70.90	56.42	140.83	0.73	0.40	1.26
11016.14	11218.90	52.36	48.80	154.35	0.54	0.32	1.07

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 16.945

INPUT
Description:
Station Elevation Data num= 145

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6103.68	1483.47	6112.44	1483.23	6114.81	1482.91	6120.98	1484	6122.77	1484.32
6136.44	1484	6141.13	1483.89	6145.52	1483.1	6153.65	1483.42	6203.68	1483.69
6303.68	1483.74	6467.45	1482.74	6476.36	1482.37	6485.67	1483.23	6664.24	1483.71
6764.23	1483.91	6864.23	1483.15	6894.87	1482.3	6964.23	1482.72	7333.48	1482
7547.32	1481.23	7907.88	1480.96	8047.34	1481.67	8052.38	1481.26	8062.34	1481.83
8071.81	1482	8205.2	1484	8268.44	1484.35	8368.44	1484.08	8383.16	1484
8468.44	1483.54	8568.43	1483.47	8668.43	1483.2	8768.43	1482.08	8774.3	1482
8868.43	1480.67	8968.42	1480.06	9068.45	1480.16	9122.86	1480	9168.44	1479.87
9251.81	1479.51	9261.67	1478.92	9268.44	1479.58	9277.69	1479.66	9323.19	1479.91
9368.44	1479.82	9369.32	1479.76	9374.14	1478	9379.66	1476.03	9386.14	1478
9391.22	1479.53	9407.07	1479.44	9413.49	1478	9414.9	1477.68	9417.78	1478
9426.34	1479.06	9466.19	1479.62	9468.44	1478.64	9470.28	1478	9474.54	1476.51
9481.41	1476.19	9489.99	1478	9495.85	1479.2	9509.31	1479.56	9522.36	1478.5
9535.38	1479.33	9568.45	1479.16	9668.44	1478.84	9764.79	1479.19	9768.45	1478.67
9778.91	1478.02	9787.89	1478.77	9808.54	1479.11	9812.98	1478	9820.99	1476
9821.49	1475.88	9822.3	1476	9834.21	1478	9834.94	1478.12	9853.55	1478.41
9855.46	1478	9859.47	1477.08	9868.03	1478	9871.9	1478.46	9923.28	1478.49
9926.92	1478	9929.76	1477.61	9936.66	1478	9943.91	1478.42	9970.57	1478.56
9974.52	1478	9980.24	1477.14	9982.72	1477.17	9989.81	147810069.06		1479.33
10169.07	1479.6110269.05		1479.7310369.07		1479.6610469.05		1479.9510496.86		1480
10569.07	1480.1310669.05		1480.8910704.06		1480.8810709.07		1480.2110715.03		1481.08
10769.06	1481.0410869.05		1480.9710949.62		1480.7310954.33		148010954.51		1479.97
10954.77	148010961.43		1481.0210969.06		1480.7911007.81		1480.8511011.02		1480.12
11016.41	1480.9811041.33		1481.0211069.05		1481.0711169.04		1481.0411269.04		1481.04
11369.05	1481.5811426.57		1481.6811434.05		1481.1411445.12		1481.6311469.06		1481.56
11471	1481.7111475.83		1481.3511481.51		1481.6411569.04		1481.611669.05		1481.6

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11769.05 1481.6511869.06 1481.7811969.04 1481.9811972.43    148212069.05 1482.72
12080.54 1482.7912095.82 1482.6812169.05 1483.28 12189.8 1483.31 12193.5 1483.26
12204.76 1483.9512207.81    1484 12230.3  1484.412240.24 1484.7112269.03 1485.28

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 6103.68     .05 9764.79     .0510169.07     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9764.7910169.07           500.67  505.48  500.56             .1       .3
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
 6103.68 8269.78    1485
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CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1481.40	Element			
Vel Head (ft)	0.15	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1481.25	Reach Len. (ft)	500.67	505.48	500.56
Crit W.S. (ft)		Flow Area (sq ft)	1586.19	1073.40	834.85
E.G. Slope (ft/ft)	0.004295	Area (sq ft)	1586.19	1073.40	834.85
Q Total (cfs)	9700.00	Flow (cfs)	4378.42	4000.92	1320.66
Top Width (ft)	2485.34	Top Width (ft)	937.60	404.28	1143.46
Vel Total (ft/s)	2.78	Avg. Vel. (ft/s)	2.76	3.73	1.58
Max Chl Dpth (ft)	5.37	Hydr. Depth (ft)	1.69	2.66	0.73
Conv. Total (cfs)	148012.1	Conv. (cfs)	66810.2	61049.9	20152.0
Length Wtd. (ft)	502.67	Wetted Per. (ft)	940.07	405.43	1143.88
Min Ch El (ft)	1475.88	Shear (lb/sq ft)	0.45	0.71	0.20
Alpha	1.23	Stream Power (lb/ft s)	1.25	2.65	0.31
Frctn Loss (ft)	2.11	Cum Volume (acre-ft)	1242.33	313.89	403.98
C & E Loss (ft)	0.00	Cum SA (acres)	650.19	194.54	376.16

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8666.46	9032.57	288.97	175.22	205.38	2.98	0.85	1.65
9032.57	9398.68	1366.21	561.54	367.34	14.08	1.53	2.43
9398.68	9764.79	2723.24	849.43	367.35	28.07	2.32	3.21
LB 9764.79	9845.65	1011.04	250.96	81.53	10.42	3.10	4.03
9845.65	9926.50	938.24	239.46	81.11	9.67	2.96	3.92
9926.50	10007.36	1036.21	254.11	81.07	10.68	3.14	4.08
10007.36	10088.21	622.00	186.89	80.86	6.41	2.31	3.33
10088.21	RB 10169.07	393.43	141.98	80.86	4.06	1.76	2.77
10169.07	10379.07	666.09	329.81	210.00	6.87	1.57	2.02
10379.07	10589.06	480.70	271.19	210.00	4.96	1.29	1.77
10589.06	10799.06	77.11	90.47	210.11	0.79	0.43	0.85
10799.06	11009.05	63.20	80.30	210.17	0.65	0.38	0.79
11009.05	11219.05	26.84	48.03	210.11	0.28	0.23	0.56
11219.05	11429.05	6.68	14.82	89.38	0.07	0.17	0.45
11429.05	11639.04	0.05	0.23	4.11	0.00	0.06	0.22

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 16.850

INPUT
Description:
Station Elevation Data num= 153

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     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 6048.85  1481.5 6051.53  1481.2 6055.99 1480.97 6063.43    1482 6065.05 1482.21
 6083.32 1482.06 6083.56    1482 6087.13 1480.93 6096.06  1481.4 6133.42 1480.91
 6137.76 1480.57 6148.85  1481.3 6150.81 1481.07 6219.72 1481.04 6225.69 1480.73
 6232.93 1481.25 6248.84 1481.64 6470.16  1480.6 6476.55 1480.18  6483.2 1480.68
  6609.4 1481.38 6652.15 1480.77 6668.82  1480.5 6678.02  1480.7  6709.4 1481.11
 6785.34    1480  6790.1 1479.95 7017.45    1479 7023.18 1478.19 7033.41 1479.33
 7349.71 1478.55 7598.19    1478 7609.77    1478 7693.71  1478.2 7771.33 1479.38
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 7775.46 1478.97 7826.72    1480 7990.02 1481.55 8090.02 1481.89 8190.04 1481.45
 8290.04  1481.4 8390.03 1480.57 8490.03 1480.65 8590.03 1480.26 8601.08    1480
 8638.57 1479.12 8678.06 1479.39 8690.03 1479.06 8790.02 1479.23 8890.02 1479.62
 8990.02  1478.6 9064.85    1478 9090.02  1477.8 9190.04 1477.58 9290.04 1477.55
 9351.01    1478 9390.03 1478.28 9443.29    1478 9490.03 1477.75 9590.05 1477.33
    9642 1476.18 9643.27    1476 9655.68 1474.29 9671.47    1476  9677.5 1476.94
 9690.03 1476.69 9786.41 1476.67 9790.04 1476.09 9790.89    1476 9799.63 1475.04
 9807.15 1474.79 9812.87    1476 9814.02 1476.23 9822.21    1476 9825.49 1475.87
 9835.42 1474.34 9844.09    1476 9847.78 1476.66 9859.94 1476.35 9864.98    1476
 9865.76 1475.94 9872.47    1476 9890.03 1476.17 9907.44 1476.34 9911.23    1476
 9918.97 1475.24    9923    1476 9929.61 1476.54 9929.63 1476.54 9937.29    1476
  9944.2 1475.67 9949.03    1476 9966.21 1476.71 9990.04 1476.5110090.03 1476.93
10152.51 1476.68 10155.1    147610157.79  1475.310161.16 1474.9610166.58    1476
10173.08 1477.2410190.04 1477.1110203.69  1477.310207.65 1476.7410217.56 1477.45
10290.03 1477.1610390.04 1477.2310490.03  1477.810590.04 1477.9510607.58    1478
10690.03 1478.2510790.04 1478.1510797.45 1478.1710799.04    147810803.31 1477.54
10806.18    147810808.78 1478.4510890.03 1478.1210949.04 1478.7410962.28 1478.13
 10962.6    147810967.44    147610967.81 1475.8510968.31    147610974.83    1478
10977.05 1478.6610990.04 1478.4410998.69 1478.1410999.49    147811004.42 1477.11
11010.69    147811011.47 1478.1111090.03 1478.8111190.04 1478.9911290.03 1479.01
11390.04 1479.0611490.03 1478.91 11540.1 1478.6111551.96  1478.911590.04 1479.04
11690.02 1479.0611790.04 1479.3111890.05 1479.2311990.04 1479.2612090.05 1479.19
12190.03  1479.712207.24 1479.4912211.43 1479.04   12218 1479.6812231.24    1480
12240.75 1480.2112250.99 1480.3212290.05  1480.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 6048.85     .05 9786.41     .0510173.08     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9786.4110173.08            498.13  499.99  498.03              .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 6048.85 8890.26    148211789.7312290.05    1482

CROSS SECTION OUTPUT    Profile #PF 3

  E.G. Elev (ft)            1479.28   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.14   Wt. n-Val.                  0.050      0.050      0.050
  W.S. Elev (ft)            1479.14   Reach Len. (ft)            498.13     499.99     498.03
  Crit W.S. (ft)                      Flow Area (sq ft)         1330.30    1091.47    1269.91
  E.G. Slope (ft/ft)       0.004128   Area (sq ft)              1330.30    1091.47    1269.91
  Q Total (cfs)             9700.00   Flow (cfs)                3424.27    4153.69    2122.05
  Top Width (ft)            2786.08   Top Width (ft)             849.56     386.67    1549.85
  Vel Total (ft/s)             2.63   Avg. Vel. (ft/s)             2.57       3.81       1.67
  Max Chl Dpth (ft)            4.85   Hydr. Depth (ft)             1.57       2.82       0.82
  Conv. Total (cfs)        150975.0   Conv. (cfs)               53296.8    64649.8    33028.4
  Length Wtd. (ft)           498.79   Wetted Per. (ft)           849.88     387.90    1551.09
  Min Ch El (ft)            1474.34   Shear (lb/sq ft)             0.40       0.73       0.21
  Alpha                        1.33   Stream Power (lb/ft s)       1.04       2.76       0.35
  Frctn Loss (ft)              2.60   Cum Volume (acre-ft)      1225.57     301.32     391.89
  C & E Loss (ft)              0.00   Cum SA (acres)             639.92     189.95     360.68


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 3

  Left Sta     Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)             (cfs)    (sq ft)      (ft)                (ft)      (ft/s)
  8665.14      9038.90          56.71      50.51    102.05       0.58       0.49       1.12
  9038.90      9412.65        1105.96     504.54    373.76      11.40       1.35       2.19
  9412.65      9786.41        2261.59     775.25    374.07      23.32       2.07       2.92
  LB 9786.41   9863.74        1129.19     264.44     77.94      11.64       3.42       4.27
  9863.74      9941.08         947.92     237.56     77.51       9.77       3.07       3.99
  9941.08      10018.41        759.42     207.81     77.36       7.83       2.69       3.65
  10018.41     10095.75        608.56     181.92     77.33       6.27       2.35       3.35
  10095.75     RB 10173.08     708.60     199.74     77.75       7.31       2.58       3.55
  10173.08     10384.78        902.05     406.33    211.76       9.30       1.92       2.22
  10384.78     10596.47        565.93     307.15    211.70       5.83       1.45       1.84
  10596.47     10808.17        304.20     211.67    211.80       3.14       1.00       1.44
  10808.17     11019.87        261.60     193.71    212.76       2.70       0.92       1.35
  11019.87     11231.56         54.75      75.63    211.70       0.56       0.36       0.72
  11231.56     11443.26          8.83      25.31    211.70       0.09       0.12       0.35
  11443.26     11654.96         23.68      45.74    211.70       0.24       0.22       0.52
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11654.96	11866.66	1.01	4.36	67.97	0.01	0.06	0.23

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 16.755

INPUT
Description:
Station Elevation Data num= 135

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6024.45	1479.23	6051.23	1479.49	6072.51	1478.48	6074.39	1478	6076.03	1477.58
6080.6	1477.47	6085.32	1478	6090.32	1478.51	6506.19	1480	6509.41	1480.06
6514.52	1480	6642.74	1478	6697.65	1477.17	6952.11	1476	7149.7	1475.22
7208.17	1475.15	7209.16	1475.15	7368.25	1475.44	7427.41	1475.74	7433.84	1475.21
7489.14	1476	7656.04	1478	7790.03	1478.38	7834.85	1478	7890.03	1477.53
7990.03	1477.77	8090.02	1477.87	8120.6	1478	8190.02	1478.02	8290.04	1478.24
8313.89	1478	8349.78	1477.64	8390.04	1477.99	8490.04	1477.55	8590.04	1477.63
8690.03	1476.95	8767.38	1476	8767.57	1475.99	8774.43	1475.69	8784.04	1476
8790.03	1476.19	8795.52	1476.87	8890.03	1476.78	8927.68	1476.96	8981.39	1476.78
8990.03	1476.58	9039.72	1476	9090.02	1475.41	9190.02	1475.17	9290.04	1475.41
9390.05	1474.46	9490.03	1474.86	9590.05	1474.83	9690.03	1474.71	9788.42	1474.51
9790.05	1474.39	9800.67	1474.48	9802.62	1474	9807.67	1472.79	9813.87	1474
9816.93	1474.59	9828.19	1474.52	9832.8	1474	9834.75	1473.79	9836.56	1474
9842.92	1474.75	9858.27	1474.21	9859.13	1474	9866.69	1472	9867.16	1471.88
9867.73	1472	9877.05	1474	9879.64	1474.55	9890.03	1474.41	9939.56	1474.95
9986.23	1474.41	9990.04	1474.04	9990.45	1474	9995.52	1473.510008.87		1474
10009.77	1474.0410014.04		1474	10031.6	1473.8510037.39		1472.8410048.34		1474
10049.64	1474.2310078.53		1474.15	10079	147410085.05		1472.0210090.03		1473.52
10093.42	147410095.68		1474.3210190.04		1474.3110290.03		1474.4810390.04		1475.8
10490.03	1475.4710590.04		1475.4510690.03		1475.87	10709	1475.8510715.67		1474.54
10725.67	1476	10726.3	1476.0910785.96		147610790.04		1475.9910802.48		1476
10890.03	1476.0410948.01		147610990.04		1475.9711090.03		1475.8511190.04		1475.89
11274.79	147611290.03		1476.0211327.83		147611390.04		1475.9711490.05		1475.99
11556.44	1475.6411561.33		147611561.96		1476.0511590.04		1476.0911597.91		1476.09
11598.88	147611603.32		1475.5711610.78		1475.9311635.25		147611690.05		1476.27
11790.04	1476.4911890.05		1476.3411990.04		1476.5412025.16		1476.4212090.05		1476.59
12190.04	1477.1812232.33		147812250.64		1478.3512270.52		1479.0112290.05		1479.01

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6024.45	.05	9800.67	.0510095.68		.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9800.6	710095.68	401.42	400	403.43	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
6024.45	8927.68	1478

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6024.45	8591.37	1480

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1476.68	Element			
Vel Head (ft)	0.17	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1476.51	Reach Len. (ft)	401.42	400.00	403.43
Crit W.S. (ft)	1475.89	Flow Area (sq ft)	1189.70	698.45	1418.71
E.G. Slope (ft/ft)	0.006819	Area (sq ft)	1214.17	698.45	1418.71
Q Total (cfs)	9700.00	Flow (cfs)	3789.54	3031.62	2878.83
Top Width (ft)	3104.32	Top Width (ft)	871.13	295.01	1938.18
Vel Total (ft/s)	2.93	Avg. Vel. (ft/s)	3.19	4.34	2.03
Max Chl Dpth (ft)	4.63	Hydr. Depth (ft)	1.48	2.37	0.73
Conv. Total (cfs)	117466.6	Conv. (cfs)	45891.2	36712.9	34862.5
Length Wtd. (ft)	401.62	Wetted Per. (ft)	804.53	296.92	1938.48
Min Ch El (ft)	1471.88	Shear (lb/sq ft)	0.63	1.00	0.31
Alpha	1.29	Stream Power (lb/ft s)	2.01	4.35	0.63
Frctn Loss (ft)	1.78	Cum Volume (acre-ft)	1211.02	291.05	376.52
C & E Loss (ft)	0.03	Cum SA (acres)	630.08	186.03	340.74

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

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8667.80	9045.43	14.59	14.17	49.27	0.15	0.29	1.03
9045.43	9423.05	1443.42	503.79	377.63	14.88	1.33	2.87
9423.05	9800.67	2331.54	671.74	377.63	24.04	1.78	3.47
LB 9800.67	9859.67	576.48	136.58	59.53	5.94	2.31	4.22
9859.67	9918.67	637.30	145.07	59.54	6.57	2.46	4.39
9918.67	9977.68	360.75	102.73	59.01	3.72	1.74	3.51
9977.68	10036.68	692.29	152.03	59.13	7.14	2.58	4.55
10036.68	RB 10095.68	764.82	162.03	59.71	7.88	2.75	4.72
10095.68	10315.12	1462.58	465.02	219.44	15.08	2.12	3.15
10315.12	10534.55	432.54	223.89	219.44	4.46	1.02	1.93
10534.55	10753.99	326.39	189.16	219.68	3.36	0.86	1.73
10753.99	10973.43	128.73	108.20	219.44	1.33	0.49	1.19
10973.43	11192.87	184.50	134.28	219.44	1.90	0.61	1.37
11192.87	11412.30	146.54	116.94	219.44	1.51	0.53	1.25
11412.30	11631.74	168.19	127.03	219.49	1.73	0.58	1.32
11631.74	11851.18	23.54	39.04	219.44	0.24	0.18	0.60
11851.18	12070.61	5.82	15.14	182.68	0.06	0.08	0.38

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 16.679

INPUT
Description:
Station Elevation Data num= 165

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6186.07	1475.12	6189.51	1475.45	6211.96	1475.27	6216.95	1474	6217.69	1473.82
6221.7	1474	6230.94	1474.43	6286.07	1474.61	6301.71	1474.2	6386.07	1475.22
6554.33	1474	6633.27	1473.27	6677.39	1473.88	6746.62	1473.39	6778.83	1473.02
6782.63	1472.75	6792.78	1472.92	6941.35	1472.52	6944.21	1472	6954.43	1470.15
6961.99	1472	6966.7	1472.95	7018.21	1472.74	7022.6	1472	7027.01	1471.29
7030.94	1472	7033.64	1472.5	7055.26	1472.32	7056.28	1472	7059.71	1470.89
7067.32	1472	7067.92	1472.13	7070.24	1472	7073.81	1472	7076.81	1472.42
7193.26	1473.27	7237.59	1474	7255.93	1474.16	7397.21	1476	7403.09	1476.06
7413.51	1476	7471.53	1475.21	7495.22	1475.29	7624.89	1475.69	7644.52	1476
7690.03	1476.72	7718.95	1476	7741.91	1475.43	7790.02	1475.94	7890.03	1475.7
7990.02	1475.06	8087.7	1474.68	8090.03	1474.6	8170.85	1474.97	8190.04	1475.85
8228.24	1475.46	8268.18	1476	8290.03	1476.41	8390.04	1476.19	8429.3	1476
8483.52	1475.74	8490.02	1475.94	8524.1	1475.94	8590.03	1475.77	8612.46	1475.08
8669.37	1475.01	8690.02	1474.92	8702.56	1474.79	8739.78	1474.09	8767.23	1474.38
8790.03	1474.16	8797.64	1474	8799.14	1473.97	8815.93	1473.34	8832.11	1473.94
8837.67	1474	8890.02	1474.55	8990.03	1474.09	9026.05	1474	9090.02	1473.84
9190.03	1473.09	9290.02	1473.14	9390.03	1472.73	9490.04	1472.9	9590.03	1472.8
9690.04	1472.73	9752.67	1472.63	9757.26	1472	9757.87	1471.92	9758.99	1472
9766.11	1472.53	9790.03	1472.63	9797.42	1472.38	9800.92	1472	9805.99	1471.58
9810.84	1472	9818.36	1472.64	9842.92	1472.48	9844.83	1472	9850.92	1470.54
9856.87	1472	9860.79	1472.99	9890.04	1472.7	9940.78	1472.18	9962.05	1472
9962.44	1471.98	9962.88	1472	9973.77	1472.5	9979.96	1472	9983.77	1471.68
9986.98	1472	9990.03	1472.33	9991.38	1472.49	10002.23	1472.28	10008.09	1472
10018.92	1471.49	10023.58	1472	10027.94	1472.43	10090.04	1472.28	10092.4	1472.59
10097.14	1472	10107.5	1470.76	10116.99	1472	10120.39	1472.57	10154.08	1472.47
10160.19	1472	10162.44	1471.83	10165.72	1472	10173.95	1472.43	10190.03	1472.46
10290.04	1472.58	10390.03	1473.07	10490.04	1473.27	10590.03	1473.37	10690.04	1473.52
10790.03	1473.54	10890.04	1473.82	10990.03	1473.89	11090.04	1473.59	11190.02	1473.54
11290.04	1473.97	11336.83	1474	11390.02	1474.04	11490.04	1474.06	11590.02	1474.19
11631.2	1474.22	11631.81	1474	11634.15	1473.41	11640.72	1474	11641.76	1474.2
11670.61	1474.29	11675.35	1474	11675.66	1473.98	11675.87	1474	11680.23	1474.37
11690.03	1474.31	11790.05	1474.36	11890.03	1474.21	11990.05	1474.31	12090.03	1474.26
12190.04	1474.53	12258.47	1475.94	12268.77	1475.98	12290.03	1475.67	12294.43	1476

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6186.07	.05	9752.67	.05	10173.95	.05

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Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9752.6710173.95           501.06  500.01  501.06            .1        .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev
 6186.07 8890.02    1476
Blocked Obstructions     num=        1
   Sta L   Sta R    Elev
 6186.07 8290.43    1476
```

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1474.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1474.79	Reach Len. (ft)	501.06	500.01	501.06
Crit W.S. (ft)	1473.93	Flow Area (sq ft)	1338.47	1056.31	2080.76
E.G. Slope (ft/ft)	0.003107	Area (sq ft)	1453.80	1056.31	2080.76
Q Total (cfs)	9700.00	Flow (cfs)	2971.38	3223.37	3505.25
Top Width (ft)	3499.78	Top Width (ft)	1049.94	421.28	2028.56
Vel Total (ft/s)	2.17	Avg. Vel. (ft/s)	2.22	3.05	1.68
Max Chl Dpth (ft)	4.25	Hydr. Depth (ft)	1.55	2.51	1.03
Conv. Total (cfs)	174032.7	Conv. (cfs)	53311.0	57832.2	62889.5
Length Wtd. (ft)	500.74	Wetted Per. (ft)	862.66	422.43	2028.75
Min Ch El (ft)	1470.54	Shear (lb/sq ft)	0.30	0.48	0.20
Alpha	1.20	Stream Power (lb/ft s)	0.67	1.48	0.34
Frctn Loss (ft)	1.63	Cum Volume (acre-ft)	1198.72	283.00	360.32
C & E Loss (ft)	0.03	Cum SA (acres)	621.23	182.75	322.38

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8682.69	9039.35	89.52	84.10	149.33	0.92	0.56	1.06
9039.35	9396.01	1116.85	541.62	356.66	11.51	1.52	2.06
9396.01	9752.67	1765.02	712.76	356.66	18.20	2.00	2.48
LB 9752.67	9836.93	598.76	202.19	84.41	6.17	2.40	2.96
9836.93	9921.18	570.01	196.66	84.79	5.88	2.33	2.90
9921.18	10005.44	681.07	218.38	84.35	7.02	2.59	3.12
10005.44	10089.69	667.41	215.70	84.32	6.88	2.56	3.09
10089.69	RB 10173.95	706.12	223.37	84.55	7.28	2.65	3.16
10173.95	10386.00	1095.65	453.58	212.05	11.30	2.14	2.42
10386.00	10598.05	633.94	326.65	212.05	6.54	1.54	1.94
10598.05	10810.09	470.13	273.01	212.05	4.85	1.29	1.72
10810.09	11022.14	303.03	209.77	212.05	3.12	0.99	1.44
11022.14	11234.19	398.93	247.39	212.05	4.11	1.17	1.61
11234.19	11446.24	218.32	172.31	212.05	2.25	0.81	1.27
11446.24	11658.29	158.45	142.20	212.21	1.63	0.67	1.11
11658.29	11870.33	89.80	101.12	212.07	0.93	0.48	0.89
11870.33	12082.38	103.22	109.93	212.05	1.06	0.52	0.94
12082.38	12294.43	33.78	44.80	120.13	0.35	0.37	0.75

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 16.585

INPUT
Description: Centerline of Vineyard Road
Station Elevation Data num= 74

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6389.47	1471.33	6488.54	1470.91	6592.65	1470.82	6687.53	1470.65	6785.7	1470.5
6876.5	1470.52	6988.71	1470.94	7085.69	1471.04	7183.99	1471.55	7282.41	1471.94
7354.12	1472	7383.71	1472.33	7489.65	1472.87	7582.64	1472.94	7690.38	1473.23
7790.04	1473.38	7890.02	1473.55	7990.03	1473.79	8071.41	1474	8090.02	1474.06
8096.05	1474	8175.29	1474	8190.03	1474.21	8290.02	1474.38	8390.03	1474.4
8490.04	1474.45	8590.03	1474.45	8690.04	1474.33	8713.59	1474	8789.08	1474
8790.03	1474.09	8800.36	1474	8890.04	1473.82	8990.02	1473.36	9090.04	1473.14
9190.02	1472.77	9290.03	1472.4	9323.8	1472	9388.08	1472	9390.04	1472.18
9424.46	1472	9488.19	1472	9490.05	1472.16	9548.82	1472	9590.04	1471.89
9690.05	1471.79	9790.04	1471.81	9890.05	1471.79	9990.03	1471.66	10090.05	1471.69

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10190.03 1471.7910290.05 1471.7610390.03 1471.7610490.05 1471.7410590.03 1471.94
 10653.8    147210690.04 1472.0410790.03 1472.2810890.04 1472.2810990.03 1472.21
11090.04 1472.3111190.03 1472.1311290.04 1472.2811390.05 1472.2811490.04 1472.33
11590.05 1472.4111690.04 1472.5111790.05 1472.5611890.04 1472.5611990.05 1472.78
12090.04 1472.7312190.05 1472.83 12241.2 1472.8712290.04 1472.88

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 6389.47    .016 9790.04    .01610190.03    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9790.0410190.03            572.41  410.14  323.21             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 6389.47 8493.34    1474
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CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1473.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.	0.016	0.016	0.016
W.S. Elev (ft)	1472.87	Reach Len. (ft)	572.41	410.14	323.21
Crit W.S. (ft)	1472.87	Flow Area (sq ft)	490.92	455.69	1230.00
E.G. Slope (ft/ft)	0.003434	Area (sq ft)	490.92	455.69	1230.00
Q Total (cfs)	9700.00	Flow (cfs)	2266.67	2705.18	4728.15
Top Width (ft)	3100.20	Top Width (ft)	628.19	399.99	2072.02
Vel Total (ft/s)	4.46	Avg. Vel. (ft/s)	4.62	5.94	3.84
Max Chl Dpth (ft)	1.21	Hydr. Depth (ft)	0.78	1.14	0.59
Conv. Total (cfs)	165526.3	Conv. (cfs)	38679.8	46162.7	80683.8
Length Wtd. (ft)	423.59	Wetted Per. (ft)	628.21	399.99	2072.02
Min Ch El (ft)	1471.66	Shear (lb/sq ft)	0.17	0.24	0.13
Alpha	1.11	Stream Power (lb/ft s)	0.77	1.45	0.49
Frctn Loss (ft)	1.64	Cum Volume (acre-ft)	1187.54	274.32	341.27
C & E Loss (ft)	0.07	Cum SA (acres)	611.58	178.03	298.79

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9109.93	9449.98	567.15	160.21	288.15	5.85	0.56	3.54
9449.98	9790.04	1699.53	330.71	340.06	17.52	0.97	5.14
LB 9790.04	9870.04	488.54	85.77	80.00	5.04	1.07	5.70
9870.04	9950.04	519.89	89.04	80.00	5.36	1.11	5.84
9950.04	10030.03	587.96	95.86	80.00	6.06	1.20	6.13
10030.03	10110.03	580.06	95.08	80.00	5.98	1.19	6.10
10110.03	RB 10190.03	528.72	89.94	80.00	5.45	1.12	5.88
10190.03	10400.03	1162.79	232.50	210.00	11.99	1.11	5.00
10400.03	10610.03	1086.31	223.20	210.00	11.20	1.06	4.87
10610.03	10820.03	619.63	159.37	210.00	6.39	0.76	3.89
10820.03	11030.03	442.93	130.30	210.00	4.57	0.62	3.40
11030.03	11240.04	478.14	136.41	210.00	4.93	0.65	3.51
11240.04	11450.04	417.58	125.77	210.00	4.30	0.60	3.32
11450.04	11660.04	297.66	102.65	210.00	3.07	0.49	2.90
11660.04	11870.04	158.91	70.44	210.00	1.64	0.34	2.26
11870.04	12080.04	54.87	37.22	210.00	0.57	0.18	1.47
12080.04	12290.04	9.33	12.14	182.01	0.10	0.07	0.77

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 16.507

INPUT
Description:
Station Elevation Data num= 153

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6214.25	1467.99	6240.57	1467.96	6247.38	1467.6	6314.24	1467.23	6391.35	1468
6414.25	1468.23	6444.44	1468	6497.24	1467.6	6505.11	1466.84	6513.11	1467.16
6514.24	1467.03	6548.91	1466.89	6553.26	1466	6555.97	1465.49	6559.87	1466
6567.77	1467.06	6614.25	1467.52	6622.97	1467.31	6638.07	1466.26	6648.13	1467.44
6691.86	1466.83	6702.8	1467.23	6714.23	1467.01	6758.29	1466.98	6769.48	1466.76
6807.04	1467.79	6814.24	1467.86	6823.45	1468	6914.23	1469.35	7137.85	1468.25
7151.01	1468.3	7165.53	1468.19	7240.87	1469.24	7266.68	1470	7315	1471.29
7438.14	1470.61	7534.17	1470	7663.82	1468	7676.38	1467.81	7776.37	1467.74
7876.38	1467.18	7937.48	1468	7976.36	1468.52	7985.46	1468.96	8050.52	1470
8076.38	1470.43	8090.38	1470	8090.58	1469.99	8176.36	1469.55	8276.37	1468.94
8376.36	1468.5	8476.37	1468.11	8576.36	1468.84	8654.28	1470	8676.37	1470.33
8729.25	1470.61	8736.25	1470.62	8746.25	1470.61	8776.36	1470.55	8876.37	1470.16
8976.38	1470.01	8976.78	1470	9010.36	1469.16	9076.37	1468.84	9176.38	1469.38
9330.49	1468.76	9340.01	1468.32	9348.1	1468.64	9380.19	1468.54	9386.21	1468
9391.66	1467.49	9397.67	1468	9432.23	1468.51	9588.7	1468.34	9677.9	1468.82
9682.02	1468	9683.59	1467.67	9685.17	1468	9688.76	1468.76	9697.35	1468.58
9699.05	1468	9703.14	1466.6	9718.37	1466.19	9725.2	1468	9729.46	1469.06
9742.54	1468.89	9744.95	1468	9746.03	1467.6	9750.86	1468	9756.64	1468.49
9778.55	1468.89	9780.72	1468	9785.63	1466	9786.44	1465.66	9787.86	1466
9796.09	1468	9798.92	1468.69	9852.11	1468.81	9858.79	1468	9859.36	1467.93
9859.94	1468	9866.71	1468.81	9897.91	1468.82	9904.51	1468.47	9921.6	1468.9
10001.01	1468.59	10003.69	1468.71	10011.99	1468	10012.46	1467.96	10012.94	1468
10022.36	1468.76	10077.67	1468.3	10079.9	1468	10085.32	1467.27	10095.52	1468
10099.68	1468.31	10105.41	1468.45	10110.53	1468	10118.57	1467.36	10125.16	1468
10127.55	1468.24	10134.41	1468	10150.35	1467.65	10155.6	1466	10155.81	1465.92
10156.28	1466	10168.12	1468	10168.87	1468.12	10510.91	1468.81	10819.04	1470
10923.22	1470.45	11023.21	1470.03	11044.76	1470	11123.22	1469.88	11165.9	1470
11223.21	1470.16	11323.22	1470.06	11423.2	1470.16	11468.27	1470	11523.22	1469.81
11600.17	1470	11623.2	1470.06	11714.4	1470.39	11719.12	1470	11719.95	1469.88
11721.51	1470	11723.22	1470.13	11728.31	1470.48	11823.2	1470.31	11923.21	1470.3
12023.2	1470.38	12123.21	1470.68	12223.2	1470.33				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6214.25	.05	9677.9	.05	10168.87	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9677.91	10168.87	294	294.2	296.55	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6214.25	8736.25	1472	12127.34	12223.2	1472

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1470.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1470.55	Reach Len. (ft)	294.00	294.20	296.55
Crit W.S. (ft)	1469.62	Flow Area (sq ft)	1305.33	1104.99	1550.07
E.G. Slope (ft/ft)	0.004422	Area (sq ft)	1305.33	1104.99	1550.07
Q Total (cfs)	9700.00	Flow (cfs)	3301.17	3734.67	2664.15
Top Width (ft)	3303.45	Top Width (ft)	901.51	490.97	1910.97
Vel Total (ft/s)	2.45	Avg. Vel. (ft/s)	2.53	3.38	1.72
Max Chl Dpth (ft)	4.89	Hydr. Depth (ft)	1.45	2.25	0.81
Conv. Total (cfs)	145875.1	Conv. (cfs)	49645.3	56164.5	40065.3
Length Wtd. (ft)	294.81	Wetted Per. (ft)	901.62	494.02	1911.02
Min Ch El (ft)	1465.66	Shear (lb/sq ft)	0.40	0.62	0.22
Alpha	1.23	Stream Power (lb/ft s)	1.01	2.09	0.38
Frctn Loss (ft)	1.30	Cum Volume (acre-ft)	1175.74	266.97	330.96
C & E Loss (ft)	0.00	Cum SA (acres)	601.53	173.84	284.01

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8638.81	8985.17	61.69	71.70	208.78	0.64	0.34	0.86
8985.17	9331.54	1133.08	503.36	346.38	11.68	1.45	2.25
9331.54	9677.90	2106.38	730.27	346.46	21.72	2.11	2.88

LB 9677.90	9776.09	875.98	245.79	99.40	9.03	2.50	3.56
9776.09	9874.29	689.63	212.85	99.30	7.11	2.17	3.24
9874.29	9972.48	498.46	174.40	98.21	5.14	1.78	2.86
9972.48	10070.68	609.23	196.76	98.26	6.28	2.00	3.10
10070.68	RB 10168.87	1061.38	275.19	98.85	10.94	2.80	3.86
10168.87	10374.30	1124.83	456.62	205.43	11.60	2.22	2.46
10374.30	10579.74	781.91	367.11	205.43	8.06	1.79	2.13
10579.74	10785.17	336.47	221.34	205.43	3.47	1.08	1.52
10785.17	10990.60	50.53	70.97	205.44	0.52	0.35	0.71
10990.60	11196.04	113.70	115.44	205.43	1.17	0.56	0.98
11196.04	11401.47	76.33	90.89	205.43	0.79	0.44	0.84
11401.47	11606.90	118.92	118.59	205.43	1.23	0.58	1.00
11606.90	11812.33	33.78	55.74	205.48	0.35	0.27	0.61
11812.33	12017.77	26.02	47.65	205.43	0.27	0.23	0.55
12017.77	12223.20	1.70	5.75	62.07	0.02	0.09	0.30

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 16.451

INPUT
Description:
Station Elevation Data num= 153

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6170.21	1466.86	6192.72	1467.84	6199.07	1467.74	6242.63	1468	6255.56	1468.08
6270.22	1468.42	6307.88	1468.21	6316.52	1468	6355.91	1467.18	6370.21	1466.89
6435.69	1467.33	6470.22	1467.91	6520.65	1467.06	6531.26	1466.33	6540.75	1466
6559.77	1466	6564.09	1466.01	6564.14	1466	6570.21	1465.35	6574.72	1465.3
6582.33	1466	6583.56	1466.12	6598.82	1466.3	6600.38	1466	6606.78	1464.77
6612.13	1466	6613.43	1466.27	6670.22	1466.33	6730.71	1466	6770.2	1465.79
6857.61	1465.54	6862.14	1466	6865.72	1466.41	6870.22	1466.18	6877.2	1466.34
6881.99	1466.01	6891.47	1466.38	6964.15	1467.12	6970.2	1466.91	7212.05	1468
7268.13	1468.2	7286.43	1468.6	7401.19	1468.04	7407.97	1468	7479.56	1468
7490.56	1468	7602.68	1466.84	7689.29	1466	7711.4	1465.6	7748.42	1465.63
7768.88	1465.89	7823.1	1466	8056.96	1468	8076.34	1468.21	8112.58	1468.86
8151.93	1469.4	8190.46	1468.28	8212.57	1468.11	8219.63	1468	8312.58	1466.59
8343.24	1466.25	8345.66	1466	8349.15	1465.61	8355.4	1466	8358.37	1466.22
8400.93	1467.25	8412.56	1467.2	8496.2	1468	8512.58	1468.16	8556.98	1468.36
8612.56	1468.67	8712.57	1469.21	8714.13	1469.26	8765.27	1469.47	8812.56	1469.18
8862.39	1468.42	8912.57	1468.89	9012.58	1468.77	9076.37	1468	9206.79	1467.35
9324.51	1467.52	9349.09	1468	9366.48	1468.39	9397.4	1468	9456.95	1467.22
9464.47	1466	9465.64	1465.81	9467.96	1466	9480.77	1467.1	9502.09	1467.2
9509.06	1466.33	9522.9	1466.6	9525.59	1467.15	9691.74	1467.96	9699.64	1466
9700.89	1465.68	9702.04	1466	9708.05	1467.68	9738.68	1467.79	9743.3	1466
9743.98	1465.73	9745.16	1466	9751.75	1467.76	9813.83	1467.7	9820.4	1466
9824.2	1464.86	9827.81	1466	9832.37	1467.54	9890.18	1467.57	9898.44	1466.52
9906.05	1467.29	9935.2	1467.15	10038.63	1467.07	10049.61	1466.23	10059.46	1466.93
10080.43	1466.75	10082.68	146	10086.83	1464.62	10092.85	146	10095.57	1466.65
10140.92	1466.86	10146.28	146	10146.57	1465.95	10146.96	146	10155.88	1466.97
10178.7	1467.05	10187.16	1466.66	10194.07	1467.14	10216.24	1467.24	10224.7	1466.72
10238.95	1467.4	10445.1	1467.21	10706.01	146	10857.41	1468.84	11269.72	1468.51
11369.72	1468.49	11469.73	1468.69	11569.73	1468.76	11657.22	1468.98	11661.87	1468.29
11669.71	1468.71	11670.2	1468.75	11769.72	1468.84	11840.94	1468.85	11845.87	1468.93
11853.17	1469.31	11869.54	1468.87	11869.73	1468.81	11873.14	1468.61	11880.3	1469.09
11969.73	1469.36	12069.74	1468.71	12169.72	1468.51				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6170.21	.05	9691.74	.05	10238.95	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9691.74	10238.95	442.05	443.33	435.7	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6170.21	8765.27	147	11970.09	12169.72	1470

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1469.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1469.26	Reach Len. (ft)	442.05	443.33	435.70
Crit W.S. (ft)		Flow Area (sq ft)	1213.74	1185.78	1528.69
E.G. Slope (ft/ft)	0.004387	Area (sq ft)	1213.74	1185.78	1528.69

Q Total (cfs)	9700.00	Flow (cfs)	2934.08	3894.51	2871.41
Top Width (ft)	3131.72	Top Width (ft)	891.47	547.21	1693.05
Vel Total (ft/s)	2.47	Avg. Vel. (ft/s)	2.42	3.28	1.88
Max Chl Dpth (ft)	4.64	Hydr. Depth (ft)	1.36	2.17	0.90
Conv. Total (cfs)	146451.6	Conv. (cfs)	44299.0	58799.7	43352.9
Length Wtd. (ft)	440.68	Wetted Per. (ft)	891.78	550.15	1693.16
Min Ch El (ft)	1464.62	Shear (lb/sq ft)	0.37	0.59	0.25
Alpha	1.17	Stream Power (lb/ft s)	0.90	1.94	0.46
Frctn Loss (ft)	2.12	Cum Volume (acre-ft)	1167.24	259.23	320.48
C & E Loss (ft)	0.00	Cum SA (acres)	595.48	170.33	271.75

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8635.28	8987.43	90.03	83.99	187.17	0.93	0.45	1.07
8987.43	9339.59	1200.47	511.70	352.16	12.38	1.45	2.35
9339.59	9691.74	1643.59	618.05	352.45	16.94	1.76	2.66
LB 9691.74	9801.18	555.65	195.22	110.64	5.73	1.78	2.85
9801.18	9910.62	671.86	218.56	110.36	6.93	2.00	3.07
9910.62	10020.07	744.92	231.75	109.44	7.68	2.12	3.21
10020.07	10129.51	1055.91	286.38	110.08	10.89	2.62	3.69
10129.51	RB 10238.95	866.17	253.87	109.63	8.93	2.32	3.41
10238.95	10432.03	970.35	376.31	193.08	10.00	1.95	2.58
10432.03	10625.10	848.03	347.09	193.08	8.74	1.80	2.44
10625.10	10818.18	389.18	217.51	193.08	4.01	1.13	1.79
10818.18	11011.26	96.05	93.95	193.08	0.99	0.49	1.02
11011.26	11204.33	142.21	118.89	193.08	1.47	0.62	1.20
11204.33	11397.41	193.42	142.99	193.08	1.99	0.74	1.35
11397.41	11590.49	122.85	108.90	193.08	1.27	0.56	1.13
11590.49	11783.57	80.63	84.59	193.14	0.83	0.44	0.95
11783.57	11976.64	28.66	38.44	148.48	0.30	0.26	0.75

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 16.367

INPUT
Description:
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6053.17	1466.5	6075.4	1467.12	6084.99	1467.09	6153.16	1466.64	6253.17	1466.18
6288.3	1466	6333.91	1465.77	6353.18	1465.84	6421.02	1465.59	6453.17	1464.79
6456.19	1465.02	6530.75	1465.85	6535.89	1464.54	6542.11	1465.94	6553.18	1465.15
6876.09	1464.25	6885.95	1464.71	6900.39	1464.37	6907.47	1464.71	7281.17	1464.2
7662.17	1464.24	7671.67	1464.69	7693.49	1464.62	8105.81	1465.01	8207.63	1464.64
8214.14	1464.18	8221.66	1464.98	8418.87	1466	8420.19	1466.08	8518.11	1466.96
8594.04	1467.57	8618.12	1467.38	8718.11	1466.13	8730.93	1466	8759	1465.72
8793.42	1465.93	8815.44	1466	8818.12	1466.01	8887.65	1467.35	8916.59	1468
8918.1	1468.03	8935.49	1468	9018.12	1467.84	9118.12	1467.37	9213.19	1466
9218.13	1465.93	9319.69	1465.24	9328.81	1464.76	9347.19	1465.36	9395.47	1465.87
9433.89	1465.76	9449.85	1464.45	9455.71	1465.01	9498.99	1464.95	9502.77	1464.31
9512.58	1465.11	9630.43	1464.96	9893.28	1465.4	9902.32	1464.07	9911	1465.24
9928.65	1465.41	9932.26	1464.47	9939.3	1465.66	9954.22	1465.48	9960.29	1465.28
9964.71	1465.53	10054.63	1465.45	10058.33	1464	10060.4	1463.16	10063.36	1464
10069.04	1465.46	10173.3	1465.25	10179.38	1464.07	10189.46	1465.11	10213.04	1465.53
10218.57	1465.02	10225.97	1465.75	10237.71	1465.58	10246.25	1464.95	10249.03	1465.34
10552.38	1465.38	10733.55	1466	10964.72	1466.21	11474.62	1466.72	11561.42	1466.62
11567.19	1466	11568.33	1465.87	11569.48	1466	11574.67	1466.67	11674.68	1467.02
11688.91	1467.05	11693.3	1466.94	11705.16	1467.05	11723.64	1467.11	11729.02	1466.87
11734.44	1467.46	11774.79	1467.12	11874.8	1467.21	11974.78	1467.49	12074.78	1466.62

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6053.17	.05	9498.99	.05	10249.03	.05

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

9498.9910249.03 392.24 394.26 389.71 .1 .3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6053.17	8594.99	146811	735.15	12074.78	1468

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1467.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1467.12	Reach Len. (ft)	392.24	394.26	389.71
Crit W.S. (ft)	1466.46	Flow Area (sq ft)	714.03	1438.65	1441.19
E.G. Slope (ft/ft)	0.005345	Area (sq ft)	714.03	1438.65	1441.19
Q Total (cfs)	9700.00	Flow (cfs)	1807.83	4819.05	3073.12
Top Width (ft)	2831.62	Top Width (ft)	599.34	750.04	1482.24
Vel Total (ft/s)	2.70	Avg. Vel. (ft/s)	2.53	3.35	2.13
Max Chl Dpth (ft)	3.96	Hydr. Depth (ft)	1.19	1.92	0.97
Conv. Total (cfs)	132673.5	Conv. (cfs)	24726.9	65913.4	42033.1
Length Wtd. (ft)	392.04	Wetted Per. (ft)	599.47	751.56	1482.35
Min Ch El (ft)	1463.16	Shear (lb/sq ft)	0.40	0.64	0.32
Alpha	1.13	Stream Power (lb/ft s)	1.01	2.14	0.69
Frctn Loss (ft)	1.92	Cum Volume (acre-ft)	1157.46	245.88	305.63
C & E Loss (ft)	0.01	Cum SA (acres)	587.91	163.73	255.87

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8465.24	8809.83	295.81	150.93	170.53	3.05	0.89	1.96
8809.83	9154.41	59.44	43.46	84.25	0.61	0.52	1.37
9154.41	9498.99	1452.58	519.64	344.70	14.98	1.51	2.80
LB 9498.99	9649.00	1136.04	317.86	150.09	11.71	2.12	3.57
9649.00	9799.01	1030.83	299.79	150.01	10.63	2.00	3.44
9799.01	9949.01	921.51	280.58	150.41	9.50	1.87	3.28
9949.01	10099.02	827.44	263.27	150.76	8.53	1.76	3.14
10099.02	RB 10249.03	903.22	277.14	150.29	9.31	1.85	3.26
10249.03	10431.61	881.48	321.90	182.58	9.09	1.76	2.74
10431.61	10614.18	833.25	311.22	182.58	8.59	1.70	2.68
10614.18	10796.75	489.73	226.24	182.57	5.05	1.24	2.16
10796.75	10979.33	332.00	179.18	182.58	3.42	0.98	1.85
10979.33	11161.91	239.72	147.37	182.58	2.47	0.81	1.63
11161.91	11344.48	154.83	113.37	182.58	1.60	0.62	1.37
11344.48	11527.06	90.90	82.36	182.58	0.94	0.45	1.10
11527.06	11709.63	50.79	58.10	182.67	0.52	0.32	0.87
11709.63	11892.21	0.45	1.45	21.66	0.00	0.07	0.31

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 16.293

INPUT
Description:
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5892.28	1467.56	5937.77	1467.11	5955.32	1466.95	5964.07	1466.42	5976.76	1466
6013.58	1464.75	6037.78	1464.45	6085.82	1464	6137.77	1463.52	6237.78	1463.4
6263.44	1463.78	6554.01	1462.66	6764.33	1462	6870.24	1461.79	7131.38	1461.69
7137.64	1461.14	7186.47	1461.21	7275.61	1461.71	7355.34	1462	7358.81	1462.02
7546.48	1462	7626.75	1462	7753.43	1462.84	7776.53	1462.1	7787.81	1462.91
7839.32	1462.42	7962.62	1463.52	7974.26	1463.08	8027.6	1464	8230.51	1465.51
8330.49	1465.63	8430.5	1465.7	8530.51	1464.72	8612.03	1464	8630.49	1463.84
8706.96	1463.47	8730.5	1463.22	8809.63	1463.84	8821.04	1464	8830.49	1464.13
8872.78	1464.6	8930.5	1464.01	8932.22	1464	9030.51	1463.49	9071.41	1464
9130.51	1464.21	9132.45	1464.76	9277.4	1464	9294.75	1463.68	9300.69	1464
9308.72	1464.45	9363.35	1464	9395.31	1463.68	9404.18	1462.75	9429.27	1463.17
9464.31	1463.35	9468.55	1462.35	9476.72	1463.22	9487.98	1463.24	9490.49	1462.75
9495.69	1463.15	9522.33	1463.22	9526.07	1462.72	9531.95	1463.15	9851.49	1464
9862.22	1464.11	9862.94	1464	9865.89	1463.54	9869.34	1464	9871.78	1464.28

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 9913.34 1464.38 9914.34    1464 9918.43 1462.52 9923.78    1464 9925.64 1464.52
 9946.11 1464.32 9977.06 1464.29 9979.77    1464  9985.7 1463.66 9988.14    1464
 9990.26 1464.3810019.16    146410085.24 1463.9210104.63 1463.38 10122.6  1463.9
10179.55    1464 10180.3 1464.0410187.17    146410464.67 1463.2410844.29    1464
10941.11    146411189.79    146411467.78 1464.6211484.88 1464.3911584.89 1464.96
11619.18 1465.2111684.21 1465.48 11997.2 1465.11

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 5892.28     .05 9464.31     .05 10122.6     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9464.31 10122.6            505.8  506.02  508.51             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 5892.28 8432.28    146611684.21 11997.2    1466

CROSS SECTION OUTPUT    Profile #PF 3

  E.G. Elev (ft)            1465.31   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.09   Wt. n-Val.                  0.050      0.050      0.050
  W.S. Elev (ft)            1465.22   Reach Len. (ft)            505.80     506.02     508.51
  Crit W.S. (ft)                      Flow Area (sq ft)         1201.67     991.16    1885.27
  E.G. Slope (ft/ft)       0.004496   Area (sq ft)              1201.67     991.16    1885.27
  Q Total (cfs)             9700.00   Flow (cfs)                2733.09    2591.79    4375.12
  Top Width (ft)            3143.61   Top Width (ft)             985.28     658.29    1500.05
  Vel Total (ft/s)             2.38   Avg. Vel. (ft/s)             2.27       2.61       2.32
  Max Chl Dpth (ft)            2.87   Hydr. Depth (ft)             1.22       1.51       1.26
  Conv. Total (cfs)        144663.0   Conv. (cfs)               40760.5    38653.2    65249.2
  Length Wtd. (ft)           506.89   Wetted Per. (ft)           985.46     659.36    1500.06
  Min Ch El (ft)            1462.35   Shear (lb/sq ft)             0.34       0.42       0.35
  Alpha                        1.01   Stream Power (lb/ft s)       0.78       1.10       0.82
  Frctn Loss (ft)              2.69   Cum Volume (acre-ft)      1148.83     234.88     290.75
  C & E Loss (ft)              0.00   Cum SA (acres)             580.78     157.36     242.53


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 3

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                (ft)      (ft/s)
  8392.70       8749.90         672.04     309.20    270.88       6.93       1.14       2.17
  8749.90       9107.11        1088.86     461.36    357.22      11.23       1.29       2.36
  9107.11       9464.31         972.21     431.11    357.36      10.02       1.21       2.26
  LB 9464.31    9595.97         858.42     273.44    131.93       8.85       2.08       3.14
  9595.97       9727.63         633.25     227.63    131.66       6.53       1.73       2.78
  9727.63       9859.28         433.33     181.29    131.66       4.47       1.38       2.39
  9859.28       9990.94         270.42     136.94    132.43       2.79       1.04       1.97
  9990.94       RB 10122.60     396.37     171.86    131.68       4.09       1.31       2.31
  10122.60      10310.06        582.04     252.89    187.46       6.00       1.35       2.30
  10310.06      10497.52        944.70     338.17    187.46       9.74       1.80       2.79
  10497.52      10684.98        881.83     324.49    187.46       9.09       1.73       2.72
  10684.98      10872.44        589.87     254.93    187.46       6.08       1.36       2.31
  10872.44      11059.90        495.18     229.52    187.46       5.10       1.22       2.16
  11059.90      11247.36        481.96     225.82    187.46       4.97       1.20       2.13
  11247.36      11434.82        289.31     166.26    187.46       2.98       0.89       1.74
  11434.82      11622.28        110.22      93.18    187.46       1.14       0.50       1.18


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

CROSS SECTION          RIVER: Vineyard FRS
REACH: Vineyard           RS: 16.197

INPUT
Description:
Station Elevation Data    num=      92
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 5632.08    1462 5790.68 1461.42 5801.19 1461.62 5871.06 1461.53 5878.43 1461.03
 5889.13 1461.58 5930.97 1461.73 5955.22    1462 5976.55 1462.24 6065.87 1462.67
 6108.17 1463.75  6164.2    1464 6184.67 1464.05 6186.48    1464 6224.02 1463.12
 6247.22 1462.12 6255.94    1462 6518.17    1460 6975.21 1458.73  7231.4 1459.46
  7236.5 1458.72 7244.61 1459.21 7291.44 1458.98 7544.82    1460 7753.08  1461.7
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 7820.41    1462 8019.46  1463.4 8119.46 1463.32 8212.35    1462 8219.45  1461.9
 8319.46 1461.31 8419.47 1461.24 8502.88    1462 8508.01 1462.05 8513.37    1462
 8519.45 1461.95  8521.3    1462 8568.83 1463.34 8616.74    1462 8619.46 1461.92
 8641.62  1461.8 8701.33 1461.05 8719.45 1460.53 8738.82 1460.91  8766.6  1460.6
 8771.76    1460 8776.32 1459.44 8780.56    1460 8785.17 1460.57 8819.46 1460.16
 8919.47 1460.81 9019.47 1461.23 9059.47  1461.4 9164.89 1461.58 9268.63 1460.99
 9273.51 1460.54 9278.85 1461.16 9530.63 1460.58 9627.34 1461.24 9631.25    1460
 9632.41 1459.66 9633.74    1460 9638.45 1461.21 9873.72    1462 9874.36 1462.05
  9874.7    1462 9879.14 1461.34 9885.56    1462 9886.74 1462.11 9900.96    1462
10141.22 1461.7510145.66 1460.67 10155.4 1461.6110214.42 1461.4310221.74  1461.2
10226.46 1461.4110252.15 1461.2710262.94 1460.9610272.18  1461.410452.59 1460.96
 10864.9 1461.33 11277.2 1461.8311292.29    1462 11350.2 1462.6611357.06  1462.1
11365.37 1462.9211503.52 1462.3111508.79 1462.0411518.86 1462.3611522.97 1462.16
11593.44 1462.0811909.66 1463.17

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 5632.08     .05 9627.34     .0510272.18     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9627.3410272.18           478.05  477.22  481.71              .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 5632.08 8019.46    1464 11350.211909.66    1464
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CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1462.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1462.51	Reach Len. (ft)	478.05	477.22	481.71
Crit W.S. (ft)		Flow Area (sq ft)	1852.29	553.73	1205.32
E.G. Slope (ft/ft)	0.006323	Area (sq ft)	1852.29	553.73	1205.32
Q Total (cfs)	9700.00	Flow (cfs)	5425.00	1181.25	3093.75
Top Width (ft)	3101.19	Top Width (ft)	1391.59	644.84	1064.75
Vel Total (ft/s)	2.69	Avg. Vel. (ft/s)	2.93	2.13	2.57
Max Chl Dpth (ft)	3.07	Hydr. Depth (ft)	1.33	0.86	1.13
Conv. Total (cfs)	121988.3	Conv. (cfs)	68225.4	14855.5	38907.4
Length Wtd. (ft)	478.77	Wetted Per. (ft)	1391.85	645.57	1064.76
Min Ch El (ft)	1459.66	Shear (lb/sq ft)	0.53	0.34	0.45
Alpha	1.03	Stream Power (lb/ft s)	1.54	0.72	1.15
Frctn Loss (ft)	2.85	Cum Volume (acre-ft)	1131.10	225.91	272.71
C & E Loss (ft)	0.00	Cum SA (acres)	566.98	149.79	227.56

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8029.24	8428.76	546.10	238.24	252.22	5.63	0.94	2.29
8428.76	8828.29	1134.39	416.54	340.51	11.69	1.22	2.72
8828.29	9227.81	1648.36	555.65	399.53	16.99	1.39	2.97
9227.81	9627.34	2096.11	641.86	399.59	21.61	1.61	3.27
LB 9627.34	9756.31	384.64	152.78	129.40	3.97	1.18	2.52
9756.31	9885.28	166.42	92.32	129.06	1.72	0.72	1.80
9885.28	10014.24	108.63	71.45	128.98	1.12	0.55	1.52
10014.24	10143.21	159.41	89.96	129.03	1.64	0.70	1.77
10143.21	RB 10272.18	362.17	147.22	129.11	3.73	1.14	2.46
10272.18	10435.93	582.71	214.26	163.75	6.01	1.31	2.72
10435.93	10599.68	721.55	243.57	163.75	7.44	1.49	2.96
10599.68	10763.42	608.85	219.98	163.75	6.28	1.34	2.77
10763.42	10927.17	499.33	195.30	163.75	5.15	1.19	2.56
10927.17	11090.92	374.76	164.41	163.75	3.86	1.00	2.28
11090.92	11254.67	259.58	131.90	163.75	2.68	0.81	1.97
11254.67	11418.42	47.00	35.92	82.27	0.48	0.44	1.31

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 16.106

INPUT
Description:
Station Elevation Data num= 152

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5510.69	1459.47	5536.64	1460	5546.74	1460.21	5610.67	1460.53	5626.12	1460.98
5661.03	1460	5673.44	1459.59	5684.16	1459.51	5710.68	1459.08	5804.6	1458.72
5810.67	1458.69	5899.16	1459.44	5910.68	1459.52	5967.82	1459.98	6032.92	1458.79
6119.7	1458	6546.3	1457.34	6717.01	1457.35	6724.36	1456.17	6736.22	1456.28
6746.86	1456.98	6794.17	1458	6862.53	1458.98	6862.65	1459.46	7078.37	1460
7155.15	1460.28	7178.76	1460.26	7234.95	1460	7313.34	1459.85	7406.06	1460
7494.98	1460.21	7549.91	1460.55	7556.57	1460	7559.05	1459.8	7562.63	1460
7580.19	1460.94	7765.08	1460.63	7794.58	1460.38	7807.31	1461.03	7811.21	1460.43
7861.44	1461.06	7872.41	1460.97	7887.86	1461.58	7911.22	1461.11	8000.27	1460
8011.23	1459.86	8111.21	1458.42	8211.22	1458.19	8270.48	1458.09	8284.34	1458
8311.21	1457.83	8365.47	1458	8411.21	1458.15	8463.59	1458.86	8511.22	1458.39
8551.71	1458.86	8611.21	1458.81	8711.22	1458.15	8809.54	1458.37	8810.52	1458
8811.23	1457.73	8814.13	1457.63	8819.04	1458	8823.05	1458.26	8860.98	1458
8911.22	1457.65	9017.29	1458	9125.79	1458	9145.52	1457.87	9163.75	1457.49
9175.65	1457.64	9196.78	1457.84	9205.45	1457.53	9217.93	1457.9	9231.4	1458
9260.11	1458.14	9262.91	1458	9269.34	1457.67	9278.71	1457.96	9311.46	1457.53
9317.91	1456.63	9326.78	1457.65	9331.86	1456.62	9339.11	1458	9339.69	1458.11
9349.08	1458.05	9349.43	1458	9362.47	1457	9374.22	1458	9374.34	1458.01
9416.96	1458.41	9419.37	1458	9422	1457.48	9428.46	1457.32	9436.18	1458
9442.48	1458.57	9586.5	1458.85	9592.05	1458	9592.18	1457.98	9592.37	1458
9597.94	1458.73	9688.14	1459.13	9691.33	1458	9693.67	1457.17	9697.16	1458
9702.33	1459.44	9749.66	1459.41	9759.3	1458	9762.44	1457.46	9767.61	1458
9773.99	1458.83	9782.81	1458.92	9788.24	1458.13	9790.63	1458.98	9833.19	1458.6
10092.45	1458.3	10093.68	1458	10098.32	1456.9	10102.56	1458	10104.22	1458.43
10199.09	1458.67	10207.62	1458.11	10212.25	1458.71	10265.46	1458.59	10270.74	1458
10274.98	1457.52	10279.14	1458	10281.27	1458.41	10302.75	1458.27	10303.98	1458
10306.45	1457.47	10309.32	1458	10311.58	1458.38	10755.13	1459.09	10889.9	1458.67
11095.36	1459.1	11099.24	1458.79	11108.21	1458.71	11114.19	1459.23	11167.44	1459.19
11251.26	1459.87	11253.22	1459.66	11257.91	1459.71	11293.83	1460	11313.9	1460.16
11317.12	1460	11320.09	1459.85	11322.47	1460	11327.49	1460.32	11372.13	1460
11579.76	1459.54	11774.31	1460						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5510.69	.05	9586.5	.05	10311.58	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9586.5	10311.58	451.05	514.19	546.94	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5510.69	7887.86	1461	11251.26	11774.31	1461

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1459.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1459.66	Reach Len. (ft)	451.05	514.19	546.94
Crit W.S. (ft)		Flow Area (sq ft)	2245.36	780.63	726.20
E.G. Slope (ft/ft)	0.005758	Area (sq ft)	2245.36	780.63	726.20
Q Total (cfs)	9700.00	Flow (cfs)	6448.95	1845.94	1405.12
Top Width (ft)	3200.03	Top Width (ft)	1561.30	725.08	913.65
Vel Total (ft/s)	2.59	Avg. Vel. (ft/s)	2.87	2.36	1.93
Max Chl Dpth (ft)	3.04	Hydr. Depth (ft)	1.44	1.08	0.79
Conv. Total (cfs)	127834.1	Conv. (cfs)	84989.2	24327.2	18517.7
Length Wtd. (ft)	473.74	Wetted Per. (ft)	1562.10	726.97	913.69
Min Ch El (ft)	1456.90	Shear (lb/sq ft)	0.52	0.39	0.29
Alpha	1.06	Stream Power (lb/ft s)	1.48	0.91	0.55
Frctn Loss (ft)	2.84	Cum Volume (acre-ft)	1108.61	218.60	262.03
C & E Loss (ft)	0.00	Cum SA (acres)	550.78	142.28	216.62

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7956.18	8363.76	1166.21	439.68	338.57	12.02	1.30	2.65
8363.76	8771.34	1194.43	480.39	407.59	12.31	1.18	2.49
8771.34	9178.92	2240.05	700.67	407.73	23.09	1.72	3.20

9178.92	9586.50	1848.27	624.63	408.21	19.05	1.53	2.96
LB 9586.50	9731.52	193.63	107.42	145.76	2.00	0.74	1.80
9731.52	9876.53	291.67	137.23	145.45	3.01	0.95	2.13
9876.53	10021.55	429.87	172.98	145.02	4.43	1.19	2.49
10021.55	10166.56	497.35	188.99	145.38	5.13	1.30	2.63
10166.56	RB 10311.58	433.43	174.01	145.37	4.47	1.20	2.49
10311.58	10457.85	404.09	169.93	146.27	4.17	1.16	2.38
10457.85	10604.13	277.69	135.68	146.27	2.86	0.93	2.05
10604.13	10750.40	171.01	101.44	146.27	1.76	0.69	1.69
10750.40	10896.67	208.71	114.32	146.27	2.15	0.78	1.83
10896.67	11042.95	226.81	120.17	146.27	2.34	0.82	1.89
11042.95	11189.22	113.66	79.39	146.31	1.17	0.54	1.43
11189.22	11335.49	3.14	5.26	36.01	0.03	0.15	0.60

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 16.009

INPUT
Description:
Station Elevation Data num= 114

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5407.64	1456	5407.65	1455.89	5497.99	1456	5534	1457.02	5571.96	1457.67
5619.06	1457.42	5629.56	1457.41	5666.03	1456.73	5707.63	1456.87	5776.56	1456.59
5829.34	1456	6246.16	1454.91	6352.79	1455.91	6356.93	1455.16	6363.42	1456
6364.05	1456.09	6371.88	1456	6687.71	1456	6737.55	1456.63	6745.53	1456.28
6751.99	1456.68	6899.71	1458	7083.1	1458.75	7100.54	1458.69	7141.3	1459.63
7154.12	1459.44	7200.55	1458.88	7300.56	1458.56	7366.34	1458.38	7385.53	1458
7400.55	1457.7	7500.56	1457.14	7600.57	1456.65	7680.76	1456	7700.55	1455.84
7800.56	1455.57	7900.54	1455.15	8000.55	1455.28	8100.56	1455.2	8200.55	1455.23
8300.56	1455.18	8400.54	1455.03	8500.55	1454.78	8600.56	1455.01	8700.54	1455.45
8800.56	1455.47	8900.56	1455.57	9000.56	1455.54	9100.56	1455.49	9113.22	1454.93
9117.65	1454	9119.28	1453.65	9121.54	1454	9129.31	1455.25	9200.56	1455.62
9300.56	1455.89	9307.69	1456	9350.32	1456.65	9355.31	1456	9358.15	1457.72
9370.34	1454	9371.6	1453.83	9373.07	1454	9380.55	1455.87	9386.44	1456
9391.55	1456	9393.95	1456	9393.96	1456	9399.31	1455.41	9406.42	1456
9409.45	1456.3	9572.07	1456.2	9572.78	1456	9576.78	1454.87	9584.52	1456
9587.12	1456.37	9821.04	1456.14	9891.26	1456.34	9903.37	1456.07	9904.11	1456
9910.23	1455.49	9916.58	1456	9916.86	1456.02	9939.75	1456	9955.14	1455.96
9959.65	1455.64	9966.16	1455.97	10022.32	1456	10330.93	1456.44	10481.31	1456.51
10506.24	1456.16	10506.75	1456	10512.76	1454.26	10520.12	1456	10522.41	1456.53
10667.34	1456.24	10670.72	1456	10680.9	1455.16	10699.79	1456	10700.35	1456
10770.14	1456.14	10771.06	1456	10780.84	1455.17	10789.28	1456	10793.99	1456.46
10840.84	1456.31	11102.19	1456	11130.73	1455.93	11134.83	1455.44	11139.91	1456
11140.43	1456.07	11170.98	1456.12	11253.16	1456.14	11665.47	1456.66		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5407.64	.05	9358.15	.05	10330.93	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9358.15	10330.93	305.1	396.01	394.62	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
5407.64	7141.64	1461

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1456.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1456.82	Reach Len. (ft)	305.10	396.01	394.62
Crit W.S. (ft)		Flow Area (sq ft)	2484.60	639.29	744.88
E.G. Slope (ft/ft)	0.006401	Area (sq ft)	2484.60	639.29	744.88
Q Total (cfs)	9700.00	Flow (cfs)	7349.45	1150.45	1200.10
Top Width (ft)	4094.41	Top Width (ft)	1790.05	969.82	1334.54
Vel Total (ft/s)	2.51	Avg. Vel. (ft/s)	2.96	1.80	1.61
Max Chl Dpth (ft)	3.17	Hydr. Depth (ft)	1.39	0.66	0.56
Conv. Total (cfs)	121237.6	Conv. (cfs)	91858.8	14379.1	14999.7
Length Wtd. (ft)	326.64	Wetted Per. (ft)	1790.60	970.92	1335.47
Min Ch El (ft)	1453.83	Shear (lb/sq ft)	0.55	0.26	0.22
Alpha	1.17	Stream Power (lb/ft s)	1.64	0.47	0.36
Frctn Loss (ft)	1.55	Cum Volume (acre-ft)	1084.13	210.22	252.79
C & E Loss (ft)	0.01	Cum SA (acres)	533.42	132.28	202.50

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7382.90	7777.95	256.01	143.63	211.34	2.64	0.68	1.78
7777.95	8173.00	1864.87	607.23	395.05	19.23	1.54	3.07
8173.00	8568.05	2360.45	699.45	395.05	24.33	1.77	3.37
8568.05	8963.10	1641.16	562.41	395.05	16.92	1.42	2.92
8963.10	9358.15	1226.94	471.89	394.11	12.65	1.20	2.60
LB 9358.15	9552.71	273.90	142.47	192.34	2.82	0.74	1.92
9552.71	9747.26	188.05	114.29	194.85	1.94	0.59	1.65
9747.26	9941.82	231.57	129.43	194.61	2.39	0.67	1.79
9941.82	10136.37	305.69	152.88	194.58	3.15	0.79	2.00
10136.37	RB 10330.93	151.24	100.22	194.56	1.56	0.52	1.51
10330.93	10464.38	51.26	46.09	133.45	0.53	0.35	1.11
10464.38	10597.84	99.49	68.74	133.99	1.03	0.52	1.45
10597.84	10731.29	180.99	98.28	133.52	1.87	0.74	1.84
10731.29	10864.75	145.77	86.33	133.56	1.50	0.65	1.69
10864.75	10998.20	133.65	81.92	133.45	1.38	0.61	1.63
10998.20	11131.65	197.81	103.65	133.46	2.04	0.78	1.91
11131.65	11265.11	174.60	96.19	133.51	1.80	0.72	1.82
11265.11	11398.56	120.62	77.03	133.45	1.24	0.58	1.57
11398.56	11532.02	67.90	54.57	133.45	0.70	0.41	1.24
11532.02	11665.47	28.02	32.10	133.61	0.29	0.24	0.87

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 15.934

INPUT
Description:
Station Elevation Data num= 104

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5338.44	1454.34	5405.98	1454.11	5438.45	1454.74	5521.3	1455.66	5532.69	1455.57
5538.43	1455.13	5587.66	1454.69	5789.13	1454	5859.79	1453.61	6176.01	1453.51
6282.95	1453.67	6287.8	1452.59	6295.52	1453.43	6421.84	1454	6429.97	1454.16
6438.27	1454.12	6452.86	1454.21	6478.27	1454.72	6617.99	1455.7	6641.48	1456
6667.4	1456.25	6682.34	1456	6719	1456	6756.42	1455.72	6779.74	1456
6842.3	1457.1	6913.01	1457.87	6922.46	1458	6977.34	1458.51	7008.85	1458.52
7032.21	1458.1	7043.99	1458	7118.37	1457.39	7132.22	1456.82	7138.2	1456.9
7172.75	1457.87	7232.2	1457.43	7332.21	1456.85	7416.28	1456	7432.2	1455.84
7532.21	1455.4	7632.21	1454.81	7699.74	1454	7732.49	1453.61	7832.49	1453.09
7932.5	1453.14	8032.49	1453.24	8132.5	1453.19	8232.48	1453.02	8332.49	1453.14
8432.5	1453.21	8532.49	1453.26	8632.5	1453.68	8732.5	1453.8	8798.97	1454
8832.5	1454.1	8932.5	1454.4	9032.5	1454.45	9132.5	1454.3	9232.5	1454.25
9332.51	1454.22	9432.51	1454.2	9521.75	1454	9532.51	1453.98	9542.19	1454
9632.51	1454.22	9681.64	1455.04	9708.3	1460.2	9729.34	1454.84	9732.51	1454.13
9733.02	1454	9740.25	1452.24	9745.97	1452	9759.89	1451.39	9780.98	1451.47
9800.05	1451.41	9811.23	1451.39	9816.62	1452	9834.44	1454	9834.61	1454.05
9866.8	1461.12	9889.1	1454.82	9959.39	1454.11	9960.07	1454	9967.44	1452.8
9974.8	1454	9977.02	1454.33	9986.97	1454.13	9988.2	1454	9996.09	1453.41
10021.22	1454	10041.53	1454.59	10243.14	1454.65	10368.55	1454.91	10753.05	1454.62
11098.63	1454	11165.37	1453.68	11227.49	1454	11353.74	1454.72	11360.63	1454
11362.31	1453.79	11365.51	1454	11577.69	1454.81	11831.69	1456		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5338.44	.05	9889.1	.05	10368.55	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9889.1	10368.55	477	504.08	492.54	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5338.44	7173.5	1464	9708.88	9868.91	1461.08

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1455.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1455.30	Reach Len. (ft)	477.00	504.08	492.54
Crit W.S. (ft)		Flow Area (sq ft)	3170.77	377.25	1084.64
E.G. Slope (ft/ft)	0.003648	Area (sq ft)	3170.77	377.25	1084.64
Q Total (cfs)	9700.00	Flow (cfs)	7410.49	576.90	1712.61
Top Width (ft)	3929.15	Top Width (ft)	2135.16	479.45	1314.54
Vel Total (ft/s)	2.09	Avg. Vel. (ft/s)	2.34	1.53	1.58
Max Chl Dpth (ft)	2.50	Hydr. Depth (ft)	1.49	0.79	0.83
Conv. Total (cfs)	160602.2	Conv. (cfs)	122694.9	9551.7	28355.6
Length Wtd. (ft)	483.21	Wetted Per. (ft)	2135.27	479.73	1314.60
Min Ch El (ft)	1452.80	Shear (lb/sq ft)	0.34	0.18	0.19
Alpha	1.08	Stream Power (lb/ft s)	0.79	0.27	0.30
Frctn Loss (ft)	2.10	Cum Volume (acre-ft)	1064.32	205.60	244.51
C & E Loss (ft)	0.00	Cum SA (acres)	519.68	125.69	190.50

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7158.70	7613.77	6.81	12.18	64.26	0.07	0.19	0.56
7613.77	8068.84	2041.09	816.22	455.08	21.04	1.79	2.50
8068.84	8523.90	2746.54	975.34	455.07	28.31	2.14	2.82
8523.90	8978.97	1349.84	636.88	455.07	13.92	1.40	2.12
8978.97	9434.03	777.73	457.49	455.07	8.02	1.01	1.70
9434.03	9889.10	488.44	272.66	250.73	5.04	1.09	1.79
LB 9889.10	9984.99	170.80	98.22	96.12	1.76	1.02	1.74
9984.99	10080.88	189.30	104.39	95.94	1.95	1.09	1.81
10080.88	10176.77	86.85	65.40	95.89	0.90	0.68	1.33
10176.77	10272.66	79.29	61.92	95.89	0.82	0.65	1.28
10272.66	RB 10368.55	50.66	47.32	95.89	0.52	0.49	1.07
10368.55	10514.86	63.94	66.02	146.31	0.66	0.45	0.97
10514.86	10661.18	91.03	81.61	146.31	0.94	0.56	1.12
10661.18	10807.49	125.14	98.78	146.31	1.29	0.68	1.27
10807.49	10953.81	204.66	132.69	146.31	2.11	0.91	1.54
10953.81	11100.12	312.64	171.11	146.31	3.22	1.17	1.83
11100.12	11246.43	438.09	209.50	146.32	4.52	1.43	2.09
11246.43	11392.75	229.39	142.12	146.37	2.36	0.97	1.61
11392.75	11539.06	209.38	134.53	146.32	2.16	0.92	1.56
11539.06	11685.38	38.36	48.29	144.03	0.40	0.34	0.79

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 15.838

INPUT
Description:
Station Elevation Data num= 68

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5317.68	1452	5395	1451.75	5412	1452	5430	1452.8	5460	1452
5470	1454	5483	1453.9	5495	1454	5685	1452	5730	1451.8
5830	1452	6120	1451.6	6270	1452	6340	1452	6530	1452
6690	1454	6800	1454.9	6910	1454	6970	1453.2	7180	1454
7230	1454.7	7310	1454	7490	1453.7	7610	1453.1	7710	1454
7800	1454.4	7940	1454	8080	1452	8100	1451.7	8160	1452
8220	1452	8290	1451.4	8490	1451.8	8870	1452	8970	1452
9030	1451.8	9130	1451.9	9200	1451.5	9310	1452	9340	1452
9430	1450.7	9480	1451.6	9570	1452	9630	1452	9710	1451.8
9730	1451	9740	1451.7	9830	1452	9860	1452	9870	1451.3
9880	1452	9890	1452.2	9940	1452	10000	1452	10060	1452.2
10200	1452.4	10250	1452.2	10720	1452.7	10770	1452.8	10880	1452.1
10910	1452.9	11050	1452	11250	1452	11260	1451.76	11270	1451.34
11280	1451.86	11400	1452	11880	1454				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5317.68	.05	9630	.05	10200	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9630	10200	506.83	498.04	494.93	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
5317.68	7805.79	1454.8

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1453.27	Element			
Vel Head (ft)	0.09	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1453.17	Reach Len. (ft)	506.83	498.04	494.93
Crit W.S. (ft)		Flow Area (sq ft)	2208.34	662.50	1201.65
E.G. Slope (ft/ft)	0.005311	Area (sq ft)	2208.34	662.50	1201.65
Q Total (cfs)	9700.00	Flow (cfs)	5850.83	1586.05	2263.12
Top Width (ft)	3684.11	Top Width (ft)	1632.22	570.00	1481.89
Vel Total (ft/s)	2.38	Avg. Vel. (ft/s)	2.65	2.39	1.88
Max Chl Dpth (ft)	2.47	Hydr. Depth (ft)	1.35	1.16	0.81
Conv. Total (cfs)	133095.5	Conv. (cfs)	80280.3	21762.5	31052.7
Length Wtd. (ft)	502.28	Wetted Per. (ft)	1632.25	570.09	1481.94
Min Ch El (ft)	1451.00	Shear (lb/sq ft)	0.45	0.39	0.27
Alpha	1.06	Stream Power (lb/ft s)	1.19	0.92	0.51
Frctn Loss (ft)	2.80	Cum Volume (acre-ft)	1034.87	199.58	231.58
C & E Loss (ft)	0.00	Cum SA (acres)	499.05	119.62	174.69

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7905.07	8336.30	996.61	407.97	338.54	10.27	1.21	2.44
8336.30	8767.54	1595.65	596.10	431.23	16.45	1.38	2.68
8767.54	9198.77	1398.11	550.65	431.23	14.41	1.28	2.54
9198.77	9630.00	1860.43	653.63	431.25	19.18	1.52	2.85
LB 9630.00	9744.00	434.88	161.57	114.04	4.48	1.42	2.69
9744.00	9858.00	368.35	146.23	114.00	3.80	1.28	2.52
9858.00	9972.00	321.93	134.90	114.05	3.32	1.18	2.39
9972.00	10086.00	273.17	122.22	114.00	2.82	1.07	2.24
10086.00	RB 10200.00	187.72	97.59	114.00	1.94	0.86	1.92
10200.00	10368.00	286.10	151.33	168.00	2.95	0.90	1.89
10368.00	10536.00	215.43	127.64	168.00	2.22	0.76	1.69
10536.00	10704.00	137.76	97.61	168.00	1.42	0.58	1.41
10704.00	10872.00	144.07	100.27	168.00	1.49	0.60	1.44
10872.00	11040.00	190.70	118.64	168.01	1.97	0.71	1.61
11040.00	11208.00	444.06	197.00	168.00	4.58	1.17	2.25
11208.00	11376.00	514.01	215.09	168.03	5.30	1.28	2.39
11376.00	11544.00	296.05	154.46	168.00	3.05	0.92	1.92
11544.00	11712.00	34.96	39.62	137.90	0.36	0.29	0.88

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 15.744

INPUT
Description:
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6818.26	1452.3	7040	1452	7160	1450	7340	1449.1	7430	1449.1
7680	1450	8040	1452	8070	1452.3	8100	1452	8190	1450
8370	1448.9	8460	1448	8470	1448	8770	1449.3	9090	1448
9110	1448	9160	1448.7	9240	1448	9450	1448	9510	1449.7
9790	1449.3	10000	1449.3	10070	1449.7	10140	1449.3	10590	1450
10730	1450.5	10820	1450.2	10870	1450.7	11050	1450	11110	1449.2
11230	1449.8	11420	1449.5	11630	1450	11700	1450	11790	1450.3

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

6818.26 .05 9160 .05 10070 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9160 10070 448.07 486.94 509.51 .1 .3
Blocked Obstructions num= 1
Sta L Sta R Elev
6818.26 8074.38 1452.79

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1450.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1450.35	Reach Len. (ft)	448.07	486.94	509.51
Crit W.S. (ft)		Flow Area (sq ft)	1556.00	1257.58	853.92
E.G. Slope (ft/ft)	0.005848	Area (sq ft)	1556.00	1257.58	853.92
Q Total (cfs)	9700.00	Flow (cfs)	4794.63	3545.87	1359.50
Top Width (ft)	3399.55	Top Width (ft)	985.56	910.00	1503.99
Vel Total (ft/s)	2.64	Avg. Vel. (ft/s)	3.08	2.82	1.59
Max Chl Dpth (ft)	2.35	Hydr. Depth (ft)	1.58	1.38	0.57
Conv. Total (cfs)	126842.6	Conv. (cfs)	62697.3	46367.8	17777.5
Length Wtd. (ft)	473.43	Wetted Per. (ft)	985.58	910.03	1504.05
Min Ch El (ft)	1448.00	Shear (lb/sq ft)	0.58	0.50	0.21
Alpha	1.14	Stream Power (lb/ft s)	1.78	1.42	0.33
Frctn Loss (ft)	2.21	Cum Volume (acre-ft)	1012.97	188.61	219.90
C & E Loss (ft)	0.01	Cum SA (acres)	483.82	111.16	157.73

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7989.13	8223.30	19.42	17.59	48.86	0.20	0.36	1.10
8223.30	8457.48	820.14	311.05	234.18	8.46	1.33	2.64
8457.48	8691.65	1477.61	442.82	234.18	15.23	1.89	3.34
8691.65	8925.83	804.57	307.49	234.18	8.29	1.31	2.62
8925.83	9160.00	1672.86	477.05	234.18	17.25	2.04	3.51
LB 9160.00	9342.00	1400.20	398.92	182.00	14.44	2.19	3.51
9342.00	9524.00	1137.94	352.26	182.02	11.73	1.94	3.23
9524.00	9706.00	258.68	144.82	182.00	2.67	0.80	1.79
9706.00	9888.00	389.99	185.27	182.00	4.02	1.02	2.11
9888.00	RB 10070.00	359.08	176.31	182.00	3.70	0.97	2.04
10070.00	10242.00	311.63	157.76	172.00	3.21	0.92	1.98
10242.00	10414.00	224.42	129.56	172.00	2.31	0.75	1.73
10414.00	10586.00	108.01	83.54	172.00	1.11	0.49	1.29
10586.00	10758.00	12.08	18.13	100.80	0.12	0.18	0.67
10758.00	10930.00	1.55	4.25	58.29	0.02	0.07	0.37
10930.00	11102.00	54.86	51.37	140.91	0.57	0.36	1.07
11102.00	11274.00	242.61	135.76	172.00	2.50	0.79	1.79
11274.00	11446.00	219.44	127.82	172.00	2.26	0.74	1.72
11446.00	11618.00	144.77	99.59	172.00	1.49	0.58	1.45
11618.00	11790.00	40.14	46.13	172.05	0.41	0.27	0.87

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 15.652

INPUT
Description:
Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6819.57	1450.5	6900	1450	7090	1448	7290	1446.9	7440	1448
7540	1447.1	7600	1448	7650	1448	7700	1447.2	7770	1448
8030	1449.6	8110	1449.2	8240	1449.4	8370	1448	8550	1446
8640	1446.4	8760	1446.7	9060	1446	9120	1446	9180	1444.3
9230	1446	9320	1446.1	9480	1446.9	9590	1446.2	9730	1446.6
9790	1446.4	9890	1446.4	9970	1447.6	10060	1446.5	10140	1446.7

10470	1447	10630	1447.9	10790	1448	10960	1447.4	11030	1446.9
11200	1447.5	11310	1447.2	11400	1447.6	11690	1448		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6819.57	.05	9120	.05	10630	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9120	10630	501.22	512.24	506.96	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6819.57	8256.2	1450.4

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1448.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1448.15	Reach Len. (ft)	501.22	512.24	506.96
Crit W.S. (ft)		Flow Area (sq ft)	1247.74	2340.32	601.43
E.G. Slope (ft/ft)	0.003827	Area (sq ft)	1247.74	2340.32	601.43
Q Total (cfs)	9700.00	Flow (cfs)	3180.30	5761.98	757.71
Top Width (ft)	3334.32	Top Width (ft)	764.32	1510.00	1060.00
Vel Total (ft/s)	2.32	Avg. Vel. (ft/s)	2.55	2.46	1.26
Max Chl Dpth (ft)	3.85	Hydr. Depth (ft)	1.63	1.55	0.57
Conv. Total (cfs)	156801.2	Conv. (cfs)	51409.8	93142.9	12248.5
Length Wtd. (ft)	508.14	Wetted Per. (ft)	764.33	1510.08	1060.16
Min Ch El (ft)	1444.30	Shear (lb/sq ft)	0.39	0.37	0.14
Alpha	1.09	Stream Power (lb/ft s)	0.99	0.91	0.17
Frctn Loss (ft)	2.51	Cum Volume (acre-ft)	998.55	168.50	211.39
C & E Loss (ft)	0.00	Cum SA (acres)	474.82	97.63	142.74

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8199.83	8429.87	29.32	30.25	74.19	0.30	0.41	0.97
8429.87	8659.91	973.00	388.92	230.05	10.03	1.69	2.50
8659.91	8889.96	882.36	366.75	230.04	9.10	1.59	2.41
8889.96	9120.00	1295.63	461.82	230.04	13.36	2.01	2.81
LB 9120.00	9422.00	2171.06	703.35	302.05	22.38	2.33	3.09
9422.00	9724.00	1204.25	493.82	302.00	12.41	1.64	2.44
9724.00	10026.00	943.52	426.58	302.01	9.73	1.41	2.21
10026.00	10328.00	959.33	430.84	302.00	9.89	1.43	2.23
10328.00	RB 10630.00	483.83	285.73	302.00	4.99	0.95	1.69
10630.00	10736.00	13.64	23.43	106.00	0.14	0.22	0.58
10736.00	10842.00	12.30	22.02	106.00	0.13	0.21	0.56
10842.00	10948.00	57.62	55.62	106.00	0.59	0.52	1.04
10948.00	11054.00	174.60	108.17	106.00	1.80	1.02	1.61
11054.00	11160.00	163.87	104.13	106.00	1.69	0.98	1.57
11160.00	11266.00	101.47	78.11	106.00	1.05	0.74	1.30
11266.00	11372.00	128.43	89.97	106.00	1.32	0.85	1.43
11372.00	11478.00	58.79	56.29	106.00	0.61	0.53	1.04
11478.00	11584.00	32.70	39.59	106.00	0.34	0.37	0.83
11584.00	11690.00	14.28	24.09	106.15	0.15	0.23	0.59

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 15.555

INPUT
Description:
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6589.75	1446	6760	1444	6770	1443.8	6890	1443.9	6980	1443.9
7070	1443.1	7160	1443.2	7270	1443.8	7620	1444	7820	1445.6
7970	1446	8120	1446.5	8180	1446.1	8280	1446.5	8310	1446
8330	1445.7	8350	1446	8430	1446.3	8470	1446	8580	1444

8720	1444	8790	1442	8870	1444	8930	1444	9000	1442
9230	1444	9340	1444.3	9490	1444	9700	1444.3	9780	1444.9
9930	1445.5	10020	1445	10110	1444.9	10290	1445.8	10380	1445.8
10550	1445	10740	1445.4	10970	1444.7	11090	1445	11340	1444
11380	1444	11430	1444.9	11480	1444	11520	1445.1	11580	1444
11650	1446	11700	1446	11730	1445.5	11860	1446	12260	1448

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6589.75	.05	8930	.05	10290	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8930	10290	504.24	493.86	488.78	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6589.75	8439.39	1447

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1445.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1445.59	Reach Len. (ft)	504.24	493.86	488.78
Crit W.S. (ft)		Flow Area (sq ft)	776.44	1728.53	924.89
E.G. Slope (ft/ft)	0.006726	Area (sq ft)	776.44	1728.53	924.89
Q Total (cfs)	9700.00	Flow (cfs)	2773.69	5047.19	1879.11
Top Width (ft)	2996.03	Top Width (ft)	437.50	1318.18	1240.35
Vel Total (ft/s)	2.83	Avg. Vel. (ft/s)	3.57	2.92	2.03
Max Chl Dpth (ft)	3.59	Hydr. Depth (ft)	1.77	1.31	0.75
Conv. Total (cfs)	118272.1	Conv. (cfs)	33819.6	61540.4	22912.0
Length Wtd. (ft)	494.77	Wetted Per. (ft)	437.57	1318.22	1240.42
Min Ch El (ft)	1442.00	Shear (lb/sq ft)	0.75	0.55	0.31
Alpha	1.11	Stream Power (lb/ft s)	2.66	1.61	0.64
Frctn Loss (ft)	2.14	Cum Volume (acre-ft)	986.90	144.57	202.51
C & E Loss (ft)	0.02	Cum SA (acres)	467.91	81.01	129.35

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8461.95	8695.97	688.82	254.11	203.49	7.10	1.25	2.71
8695.97	8930.00	2084.86	522.32	234.08	21.49	2.23	3.99
LB 8930.00	9202.00	2816.84	729.33	272.04	29.04	2.68	3.86
9202.00	9474.00	1023.99	397.40	272.00	10.56	1.46	2.58
9474.00	9746.00	947.21	379.24	272.00	9.77	1.39	2.50
9746.00	10018.00	131.49	115.98	272.00	1.36	0.43	1.13
10018.00	RB 10290.00	127.68	106.59	230.18	1.32	0.46	1.20
10290.00	10487.00	5.59	9.21	62.57	0.06	0.15	0.61
10487.00	10684.00	112.24	88.17	197.00	1.16	0.45	1.27
10684.00	10881.00	78.54	71.17	197.00	0.81	0.36	1.10
10881.00	11078.00	268.75	148.89	197.00	2.77	0.76	1.80
11078.00	11275.00	386.09	185.04	197.00	3.98	0.94	2.09
11275.00	11472.00	682.86	260.54	197.02	7.04	1.32	2.62
11472.00	11669.00	344.69	160.54	163.73	3.55	0.98	2.15
11669.00	11866.00	0.37	1.32	29.10	0.00	0.05	0.28

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 15.461

INPUT
Description:
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

6450.31	1444	6530	1442	6650	1441.1	6720	1440.7	6940	1440.8
7140	1441.4	7240	1440.7	7340	1440.8	7430	1440.8	7780	1442
7880	1442.7	7940	1442	7990	1442	8220	1444	8290	1444
8430	1442	8620	1444	8670	1444.5	8720	1444	8790	1442
8840	1442	8920	1440	9000	1441	9040	1441	9070	1440
9320	1441.3	9400	1442	9480	1442.2	9550	1442	9620	1442
9660	1442	9680	1441.7	9710	1442	9820	1442.4	9910	1444
9960	1444	10020	1443.2	10320	1443.1	10420	1442.6	10510	1442
10590	1442.3	10650	1442	11150	1442.4	11190	1442.2	11380	1442
11460	1440	11510	1442	11550	1442	11650	1442	11730	1441
11750	1442	11970	1444	12385	1446				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6450.31	.05	9040	.05	10590	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9040	10590	520.38	503.9	438.05	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6450.31	8679.34	1445.59

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1443.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1443.49	Reach Len. (ft)	520.38	503.90	438.05
Crit W.S. (ft)		Flow Area (sq ft)	651.05	1958.66	1889.20
E.G. Slope (ft/ft)	0.003068	Area (sq ft)	651.05	1958.66	1889.20
Q Total (cfs)	9700.00	Flow (cfs)	1787.72	3970.78	3941.51
Top Width (ft)	3058.84	Top Width (ft)	302.12	1432.94	1323.79
Vel Total (ft/s)	2.16	Avg. Vel. (ft/s)	2.75	2.03	2.09
Max Chl Dpth (ft)	3.49	Hydr. Depth (ft)	2.15	1.37	1.43
Conv. Total (cfs)	175130.2	Conv. (cfs)	32276.6	71691.1	71162.5
Length Wtd. (ft)	480.64	Wetted Per. (ft)	302.17	1432.98	1323.90
Min Ch El (ft)	1440.00	Shear (lb/sq ft)	0.41	0.26	0.27
Alpha	1.04	Stream Power (lb/ft s)	1.13	0.53	0.57
Frctn Loss (ft)	2.52	Cum Volume (acre-ft)	978.64	123.67	186.72
C & E Loss (ft)	0.01	Cum SA (acres)	463.63	65.41	114.96

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8522.06	8781.03	30.14	26.60	43.16	0.31	0.62	1.13
8781.03	9040.00	1757.58	624.46	259.00	18.12	2.41	2.81
LB 9040.00	9350.00	2327.29	861.15	310.02	23.99	2.78	2.70
9350.00	9660.00	811.17	457.54	310.00	8.36	1.48	1.77
9660.00	9970.00	388.62	257.10	221.27	4.01	1.16	1.51
9970.00	10280.00	57.06	89.56	281.68	0.59	0.32	0.64
10280.00	RB 10590.00	386.66	293.33	310.00	3.99	0.95	1.32
10590.00	10769.50	500.95	252.57	179.50	5.16	1.41	1.98
10769.50	10949.00	451.28	237.23	179.50	4.65	1.32	1.90
10949.00	11128.50	372.54	211.45	179.50	3.84	1.18	1.76
11128.50	11308.00	430.44	230.59	179.50	4.44	1.28	1.87
11308.00	11487.50	1008.74	384.42	179.55	10.40	2.14	2.62
11487.50	11667.00	592.05	279.21	179.52	6.10	1.56	2.12
11667.00	11846.50	570.73	273.14	179.53	5.88	1.52	2.09
11846.50	12026.00	14.76	20.58	67.29	0.15	0.31	0.72

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 15.366

INPUT
Description:
Station Elevation Data num= 67

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5972.96	1442.9	6490	1443	7200	1443	7440	1442	7530	1440
7580	1438	7630	1437.8	7690	1438	7840	1438.8	7910	1440
7970	1440	7980	1438	7990	1436	8010	1436	8030	1438
8060	1440	8160	1440.5	8190	1440.3	8230	1440.8	8270	1440
8380	1439.7	8480	1440	8620	1442	8660	1442.5	8720	1442
8840	1440	8880	1439.9	8980	1439.8	9060	1438	9070	1438
9080	1438.2	9090	1438	9100	1438	9450	1439.9	9640	1439.7
9690	1439.8	9740	1440	9820	1441.2	9930	1440	9960	1439.7
9990	1439.9	10020	1439.7	10030	1440	10050	1440	10080	1439.6
10110	1440	10170	1440.1	10230	1440.5	10310	1440	10360	1440
10390	1440.3	10410	1440	10490	1440	10660	1439.9	10700	1440
10720	1440.1	10740	1440	10860	1440	10950	1439.6	11080	1440
11160	1440.2	11240	1440	11340	1438.8	11420	1440	11630	1440.9
11890	1442	12260	1444						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5972.96	.05	8980	.05	10230	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8980	10230	464	498.41	516.61	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5972.96	8670.92	1442.78	10163.38	12260	1438.18

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1441.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1440.85	Reach Len. (ft)	464.00	498.41	516.61
Crit W.S. (ft)		Flow Area (sq ft)	158.30	1560.11	1217.33
E.G. Slope (ft/ft)	0.010960	Area (sq ft)	158.30	1560.11	1217.33
Q Total (cfs)	9700.00	Flow (cfs)	434.23	5797.45	3468.32
Top Width (ft)	2775.39	Top Width (ft)	191.20	1195.11	1389.09
Vel Total (ft/s)	3.30	Avg. Vel. (ft/s)	2.74	3.72	2.85
Max Chl Dpth (ft)	2.85	Hydr. Depth (ft)	0.83	1.31	0.88
Conv. Total (cfs)	92654.5	Conv. (cfs)	4147.7	55377.3	33129.4
Length Wtd. (ft)	504.36	Wetted Per. (ft)	191.20	1195.16	1389.12
Min Ch El (ft)	1438.00	Shear (lb/sq ft)	0.57	0.89	0.60
Alpha	1.05	Stream Power (lb/ft s)	1.55	3.32	1.71
Frctn Loss (ft)	1.30	Cum Volume (acre-ft)	973.81	103.32	171.10
C & E Loss (ft)	0.04	Cum SA (acres)	460.68	50.21	101.32

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8679.30	8980.00	434.22	158.30	191.20	4.48	0.83	2.74
LB 8980.00	9230.00	2930.73	593.45	250.03	30.21	2.37	4.94
9230.00	9480.00	1334.61	370.16	250.00	13.76	1.48	3.61
9480.00	9730.00	765.34	265.15	250.00	7.89	1.06	2.89
9730.00	9980.00	234.89	118.21	195.12	2.42	0.61	1.99
9980.00	RB 10230.00	531.92	213.15	250.01	5.48	0.85	2.50
10230.00	10433.00	343.80	145.71	203.01	3.54	0.72	2.36
10433.00	10636.00	486.59	179.48	203.00	5.02	0.88	2.71
10636.00	10839.00	468.50	175.44	203.00	4.83	0.86	2.67
10839.00	11042.00	657.45	215.00	203.00	6.78	1.06	3.06
11042.00	11245.00	400.09	159.59	203.00	4.12	0.79	2.51
11245.00	11448.00	1017.31	279.38	203.02	10.49	1.38	3.64
11448.00	11651.00	94.57	62.73	171.09	0.97	0.37	1.51

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 15.272

INPUT
Description: Top of bank for "Western Diversion" - stations 8750 to 8780.

Blocked Obstruction on the south side of the cross section was used to eliminate this area from the HEC-RAS hydraulic calculations as flows do not overtop the diversion.

Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5483.92	1436	5505	1434	5535	1432	5565	1430	5595	1428
6930	1428	6960	1440	7010	1432	7050	1434	7170	1435.6
7350	1435.1	7500	1435.6	7540	1435.3	7590	1436	7940	1437.6
8000	1437.5	8020	1437.4	8230	1438	8410	1438	8580	1438
8600	1439	8650	1438	8680	1437.9	8750	1438	8780	1438
8800	1440	8870	1440	8880	1438	8890	1436	8910	1434.8
8930	1436	8980	1436.8	9010	1436	9260	1437.1	9370	1437.5
9500	1437.7	9590	1437.3	9720	1437.4	9790	1438	9840	1438.9
9890	1438.5	9950	1438	9960	1437.4	9970	1438	9980	1438.1
10010	1438	10070	1437.4	10180	1437.5	10240	1437.2	10350	1437.6
10500	1437.2	10540	1437.4	10630	1437.6	10810	1437.6	10940	1436.6
10980	1436.3	11090	1437.5	11200	1436.7	11270	1438	11720	1440

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5483.92	.05	8880	.05	10350	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8880	10350	450	477.77	520	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
10350	10400	1440

Blocked Obstructions num= 1

Sta L	Sta R	Elev
5483.92	8870	1440

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1439.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1439.65	Reach Len. (ft)	450.00	477.77	520.00
Crit W.S. (ft)	1438.05	Flow Area (sq ft)	6.77	3418.08	2392.54
E.G. Slope (ft/ft)	0.001130	Area (sq ft)	6.77	3418.08	2498.15
Q Total (cfs)	9700.00	Flow (cfs)	5.86	5991.07	3703.07
Top Width (ft)	2768.50	Top Width (ft)	8.23	1470.00	1290.27
Vel Total (ft/s)	1.67	Avg. Vel. (ft/s)	0.87	1.75	1.55
Max Chl Dpth (ft)	4.85	Hydr. Depth (ft)	0.82	2.33	1.93
Conv. Total (cfs)	288612.8	Conv. (cfs)	174.4	178257.8	110180.7
Length Wtd. (ft)	490.38	Wetted Per. (ft)	8.39	1470.35	1240.30
Min Ch El (ft)	1434.80	Shear (lb/sq ft)	0.06	0.16	0.14
Alpha	1.01	Stream Power (lb/ft s)	0.05	0.29	0.21
Frctn Loss (ft)	0.75	Cum Volume (acre-ft)	972.93	74.84	149.07
C & E Loss (ft)	0.06	Cum SA (acres)	459.62	34.96	85.43

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8540.39	8880.00	5.86	6.77	8.39	0.06	0.82	0.87
LB 8880.00	9174.00	2154.17	994.64	294.29	22.21	3.38	2.17
9174.00	9468.00	1189.16	696.10	294.00	12.26	2.37	1.71
9468.00	9762.00	1037.35	641.34	294.00	10.69	2.18	1.62
9762.00	10056.00	531.20	429.25	294.05	5.48	1.46	1.24
10056.00	RB 10350.00	1079.20	656.74	294.00	11.13	2.23	1.64
10350.00	10487.00	315.39	199.66	87.00	3.25	2.29	1.58
10487.00	10624.00	475.17	306.19	137.00	4.90	2.23	1.55

10624.00	10761.00	410.11	280.29	137.00	4.23	2.05	1.46
10761.00	10898.00	485.17	310.04	137.00	5.00	2.26	1.56
10898.00	11035.00	793.41	416.46	137.01	8.18	3.04	1.91
11035.00	11172.00	551.74	334.90	137.01	5.69	2.44	1.65
11172.00	11309.00	462.13	301.12	137.01	4.76	2.20	1.53
11309.00	11446.00	161.08	159.99	137.00	1.66	1.17	1.01
11446.00	11583.00	47.18	76.58	137.00	0.49	0.56	0.62
11583.00	11720.00	1.67	7.29	57.27	0.02	0.13	0.23

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 15.181

INPUT
Description: Blocked Obstructions used to approximate building locations and tire storage areas on the north side of the channel. On the south side of channel, blocked obstruction was used to eliminate this area from the HEC-RAS hydraulic calculations as flows do not overtop the diversion.. The inundation area shown on this part of the cross section on the plan sheets is a backwater inundation area.

Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2796.16	1440	3743.86	1437.3	3914.88	1436	4708.85	1435.4	5120	1434.5
5355	1434	5455	1426	7080	1434	7625	1434	7835	1434.7
8185	1435.2	8225	1434.6	8260	1435.7	8300	1435.1	8410	1436
8500	1436	8565	1436	8585	1436.6	8605	1436	8620	1436
8655	1436.3	8905	1436	8965	1436	9010	1435.6	9050	1436
9070	1436.3	9120	1436	9160	1436.7	9200	1436	9470	1436
9510	1438	9520	1440	9530	1438	9580	1432.9	9600	1434
9740	1434.7	9850	1436	9900	1436	9910	1435.2	9920	1436
9935	1437.6	9955	1436	10040	1435.3	10080	1436	10600	1436
10720	1435	10745	1434.3	10765	1436	10980	1438	11540	1436.9
11985	1438	12300	1439	12460	1440				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2796.16	.05	9900	.022	11540	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9530	10080	495	498.17	495	.3	.5

Blocked Obstructions num= 3

Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L	Sta R	Elev
2796.16	9530	1439.5	10080	10720	1439.5	10795	11660	1439.5

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1438.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.		0.039	0.028
W.S. Elev (ft)	1438.64	Reach Len. (ft)	495.00	498.17	495.00
Crit W.S. (ft)		Flow Area (sq ft)		1854.28	644.91
E.G. Slope (ft/ft)	0.002226	Area (sq ft)		1854.28	644.91
Q Total (cfs)	9700.00	Flow (cfs)		7608.58	2091.42
Top Width (ft)	1150.18	Top Width (ft)		550.00	600.18
Vel Total (ft/s)	3.88	Avg. Vel. (ft/s)		4.10	3.24
Max Chl Dpth (ft)	5.74	Hydr. Depth (ft)		3.37	1.07
Conv. Total (cfs)	205602.9	Conv. (cfs)		161272.7	44330.2
Length Wtd. (ft)	496.81	Wetted Per. (ft)		553.79	607.70
Min Ch El (ft)	1432.90	Shear (lb/sq ft)		0.47	0.15
Alpha	1.03	Stream Power (lb/ft s)		1.91	0.48
Frctn Loss (ft)	2.29	Cum Volume (acre-ft)	972.89	45.93	130.31
C & E Loss (ft)	0.12	Cum SA (acres)	459.58	23.88	74.15

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta	Right Sta	Flow	Area	W.P.	% Conv.	Hydr D.	Velocity

(ft)	(ft)	(cfs)	(sq ft)	(ft)		(ft)	(ft/s)
LB 9530.00	9640.00	1556.32	444.40	110.93	16.04	4.04	3.50
9640.00	9750.00	1641.55	457.32	110.00	16.92	4.16	3.59
9750.00	9860.00	1046.12	349.00	110.01	10.78	3.17	3.00
9860.00	9970.00	1203.31	270.83	110.21	12.41	2.46	4.44
9970.00	RB 10080.00	2161.27	332.73	112.64	22.28	3.02	6.50
10080.00	10556.00						
10556.00	10794.00	1576.00	241.86	77.72	16.25	3.27	6.52
10794.00	11032.00	5.71	2.36	3.36	0.06	2.36	2.42
11032.00	11508.00						
11508.00	11746.00	184.61	114.60	87.44	1.90	1.33	1.61
11746.00	11984.00	284.74	221.85	238.00	2.94	0.93	1.28
11984.00	12222.00	40.37	64.24	201.18	0.42	0.32	0.63

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 15.087

INPUT
Description: Blocked Obstruction used to eliminate the basin from the hydraulic calculations.

Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2797.42	1436	3756.38	1435.2	3882.35	1434	4716.45	1433.2	4790	1432
5055	1433.6	5150	1433.6	5225	1432	5350	1432.3	5380	1432
5455	1426	9500	1424.9	9660	1426	9730	1432	9850	1434
9900	1434	9905	1433.1	9910	1434	9940	1435.4	9960	1434
9970	1434	9980	1434.7	9990	1434	10040	1433.5	10180	1434
10185	1436	10225	1436	10265	1434	10620	1432	10710	1432.8
10775	1434	11015	1434	11585	1436	12285	1438	12605	1440
12755	1442	12825	1441.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2797.42	.05	9900	.022	9980	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9900	10185	500	489.37	500	.3	.5

Ineffective Flow num= 3

Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L	Sta R	Elev
2797.42	9780	1439	10250	10610	1439	10890	11560	1439

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2797.42	9780	1432

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1436.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.65	Wt. n-Val.	0.050	0.041	0.050
W.S. Elev (ft)	1435.82	Reach Len. (ft)	500.00	489.37	500.00
Crit W.S. (ft)	1435.48	Flow Area (sq ft)	259.02	523.24	723.23
E.G. Slope (ft/ft)	0.014615	Area (sq ft)	21313.47	523.24	2405.83
Q Total (cfs)	9700.00	Flow (cfs)	1554.21	3488.60	4657.19
Top Width (ft)	8473.82	Top Width (ft)	6884.71	284.55	1304.56
Vel Total (ft/s)	6.44	Avg. Vel. (ft/s)	6.00	6.67	6.44
Max Chl Dpth (ft)	3.82	Hydr. Depth (ft)	2.16	1.84	2.40
Conv. Total (cfs)	80235.6	Conv. (cfs)	12855.9	28856.7	38522.9
Length Wtd. (ft)	496.53	Wetted Per. (ft)	120.01	285.19	301.41
Min Ch El (ft)	1433.10	Shear (lb/sq ft)	1.97	1.67	2.19
Alpha	1.00	Stream Power (lb/ft s)	11.82	11.16	14.10
Frctn Loss (ft)	3.26	Cum Volume (acre-ft)	851.79	32.33	112.97
C & E Loss (ft)	0.18	Cum SA (acres)	420.46	19.11	63.33

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9189.74	9900.00	1554.21	259.02	120.01	16.02	2.16	6.00
LB 9900.00	9957.00	704.35	73.45	57.23	7.26	1.29	9.59
9957.00	10014.00	754.27	99.20	57.06	7.78	1.74	7.60
10014.00	10071.00	774.43	127.04	57.00	7.98	2.23	6.10
10071.00	10128.00	704.46	120.03	57.00	7.26	2.11	5.87
10128.00	RB 10185.00	551.09	103.51	56.90	5.68	1.83	5.32
10185.00	10449.00	25.22	11.41	21.39	0.26	0.53	2.21
10449.00	10713.00	2714.79	354.51	103.00	27.99	3.44	7.66
10713.00	10977.00	1917.18	357.31	177.01	19.76	2.02	5.37

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 14.994

INPUT
Description: Blocked Obstruction used to eliminate the basin from the hydraulic calculations.
Station Elevation Data num= 47

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3217.35	1434	3746.68	1433.4	4014.89	1432	4712.52	1431.1	4735	1431.4
4755	1431.4	4775	1430.4	5020	1430.1	5150	1430.1	5330	1432
5405	1430	9500	1430	9700	1432	9755	1430	9785	1432
9825	1431	9905	1432	9915	1430.4	9935	1432	9975	1430.5
10010	1430.2	10115	1430.7	10155	1430	10225	1429.6	10270	1430
10395	1430.4	10415	1430.2	10460	1430.3	10490	1430.6	10510	1430
10520	1430	10555	1430.7	10725	1430	10940	1432	10970	1430
10975	1430	10990	1432	11195	1433	11525	1434	11735	1436
11790	1436.4	11845	1436	11965	1437.5	12060	1437.6	12120	1437.2
12265	1436	12470	1437.8						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3217.35	.05	9905	.022	10115	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9905	10115	510	512.24	515	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
3217.35	9520	1436	11125	11310	1436

Blocked Obstructions num= 1

Sta L	Sta R	Elev
3217.35	9700	1432

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1433.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.	0.050	0.022	0.050
W.S. Elev (ft)	1432.74	Reach Len. (ft)	510.00	512.24	515.00
Crit W.S. (ft)	1431.91	Flow Area (sq ft)	428.39	429.08	2064.50
E.G. Slope (ft/ft)	0.003717	Area (sq ft)	4532.52	429.08	2065.11
Q Total (cfs)	9700.00	Flow (cfs)	833.28	2843.05	6023.67
Top Width (ft)	7267.02	Top Width (ft)	6031.13	210.00	1025.90
Vel Total (ft/s)	3.32	Avg. Vel. (ft/s)	1.95	6.63	2.92
Max Chl Dpth (ft)	3.14	Hydr. Depth (ft)	1.11	2.04	2.04
Conv. Total (cfs)	159102.4	Conv. (cfs)	13667.7	46632.6	98802.1
Length Wtd. (ft)	513.79	Wetted Per. (ft)	385.12	210.22	1010.24
Min Ch El (ft)	1430.20	Shear (lb/sq ft)	0.26	0.47	0.47
Alpha	1.68	Stream Power (lb/ft s)	0.50	3.14	1.38
Frctn Loss (ft)	1.78	Cum Volume (acre-ft)	703.46	26.98	87.32
C & E Loss (ft)	0.04	Cum SA (acres)	346.33	16.33	49.95

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9236.24	9905.00	833.28	428.39	385.12	8.59	1.11	1.95
LB 9905.00	9947.00	286.13	57.61	42.20	2.95	1.37	4.97
9947.00	9989.00	496.45	80.05	42.02	5.12	1.91	6.20
9989.00	10031.00	762.91	103.58	42.00	7.87	2.47	7.37
10031.00	10073.00	697.07	98.12	42.00	7.19	2.34	7.10
10073.00	RB 10115.00	600.47	89.72	42.00	6.19	2.14	6.69
10115.00	10350.50	2111.24	642.98	235.51	21.77	2.73	3.28
10350.50	10586.00	1681.88	561.00	235.52	17.34	2.38	3.00
10586.00	10821.50	1683.26	561.26	235.51	17.35	2.38	3.00
10821.50	11057.00	536.46	282.71	235.71	5.53	1.20	1.90
11057.00	11292.50	10.85	16.55	68.00	0.11	0.24	0.66

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 14.897

INPUT
Description:
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3272.11	1432	3742.24	1431.9	4197.35	1430	4713.9	1430	5585	1428.5
6410	1428	6985	1428	7135	1426	7635	1426	7740	1426.6
7940	1428	8585	1430	9330	1430	9510	1429.8	9850	1429.6
9900	1428.7	9940	1429.8	9990	1429.2	10005	1429.3	10020	1429.1
10080	1430	10100	1428	10335	1428	10355	1428	10365	1426.9
10375	1428	10600	1428.6	10630	1428.3	10650	1428.6	10795	1428.8
10835	1428	10840	1427.4	10850	1428	10855	1430	11050	1430.6
11130	1430.6	11340	1432	11480	1433.5	11605	1432.9	11685	1433.3
11790	1433	11945	1433.3	12040	1434	12130	1435.8		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3272.11	.05	9850	.022	10005	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9850	10005	500	497.67	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
3272.11	9250	1432

CROSS SECTION OUTPUT Profile #PF 3

			Left OB	Channel	Right OB
E.G. Elev (ft)	1431.21	Element			
Vel Head (ft)	0.16	Wt. n-Val.	0.050	0.022	0.050
W.S. Elev (ft)	1431.04	Reach Len. (ft)	500.00	497.67	500.00
Crit W.S. (ft)	1430.01	Flow Area (sq ft)	746.94	270.71	2455.89
E.G. Slope (ft/ft)	0.003242	Area (sq ft)	13427.91	270.71	2455.89
Q Total (cfs)	9700.00	Flow (cfs)	1462.75	1509.80	6727.45
Top Width (ft)	7249.68	Top Width (ft)	5902.94	155.00	1191.74
Vel Total (ft/s)	2.79	Avg. Vel. (ft/s)	1.96	5.58	2.74
Max Chl Dpth (ft)	5.04	Hydr. Depth (ft)	1.24	1.75	2.06
Conv. Total (cfs)	170349.3	Conv. (cfs)	25688.5	26514.7	118146.1
Length Wtd. (ft)	499.58	Wetted Per. (ft)	600.00	155.03	1192.42
Min Ch El (ft)	1428.70	Shear (lb/sq ft)	0.25	0.35	0.42
Alpha	1.36	Stream Power (lb/ft s)	0.49	1.97	1.14
Frctn Loss (ft)	1.52	Cum Volume (acre-ft)	598.32	22.87	60.59
C & E Loss (ft)	0.00	Cum SA (acres)	276.47	14.19	36.84

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9192.21	9850.00	1462.75	746.94	600.00	15.08	1.24	1.96
LB 9850.00	9881.00	292.45	53.44	31.01	3.01	1.72	5.47
9881.00	9912.00	431.20	67.46	31.01	4.45	2.18	6.39
9912.00	9943.00	256.71	49.43	31.01	2.65	1.59	5.19

9943.00	9974.00	223.47	45.47	31.00	2.30	1.47	4.91
9974.00	RB 10005.00	305.96	54.91	31.00	3.15	1.77	5.57
10005.00	10217.50	1392.90	516.05	212.61	14.36	2.43	2.70
10217.50	10430.00	2067.28	654.01	212.62	21.31	3.08	3.16
10430.00	10642.50	1621.33	565.16	212.50	16.71	2.66	2.87
10642.50	10855.00	1431.73	524.96	212.95	14.76	2.47	2.73
10855.00	11067.50	183.78	153.05	212.50	1.89	0.72	1.20
11067.50	11280.00	30.45	42.66	129.24	0.31	0.33	0.71

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 14.803

INPUT
Description: Blocked Obstruction used to approximate building location on the north side of the channel.

Station Elevation Data num= 52

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3258.11	1430	3749.52	1429.3	4341.57	1428	4707.12	1428	4765	1427.9
4860	1427.6	5475	1426.8	6155	1426.6	6495	1426	7330	1424
7400	1423.8	7590	1423.6	7630	1422.6	7635	1424	7710	1424.5
8285	1426	8660	1427.4	8730	1427.4	8850	1427.3	9020	1428
9170	1429.1	9185	1428	9285	1427.1	9415	1427.3	9560	1426.9
9620	1426.6	9720	1426.9	9865	1428	9880	1430	9955	1428
9975	1426	9990	1427.4	10010	1426.8	10055	1426.8	10070	1426
10080	1426	10115	1426.6	10210	1426	10240	1428	10255	1426
10265	1425	10840	1426	10920	1426	10960	1428	10990	1430
11195	1432	11350	1431.4	11390	1431.5	11570	1431	11780	1432
11860	1434	11910	1434.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3258.11	.05	9955	.022	10010	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9955	10115	500	487.6	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
3258.11	8980	1432

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9170	9185	1432	10265	10840	1432

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1429.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.050	0.037	0.050
W.S. Elev (ft)	1429.52	Reach Len. (ft)	500.00	487.60	500.00
Crit W.S. (ft)	1428.34	Flow Area (sq ft)	1854.78	458.26	859.34
E.G. Slope (ft/ft)	0.002908	Area (sq ft)	17774.64	458.26	859.34
Q Total (cfs)	9700.00	Flow (cfs)	4903.67	2023.19	2773.15
Top Width (ft)	6776.39	Top Width (ft)	6323.59	160.00	292.81
Vel Total (ft/s)	3.06	Avg. Vel. (ft/s)	2.64	4.41	3.23
Max Chl Dpth (ft)	6.92	Hydr. Depth (ft)	1.98	2.86	2.93
Conv. Total (cfs)	179868.6	Conv. (cfs)	90929.5	37516.3	51422.9
Length Wtd. (ft)	497.02	Wetted Per. (ft)	940.49	160.20	301.20
Min Ch El (ft)	1426.00	Shear (lb/sq ft)	0.36	0.52	0.52
Alpha	1.13	Stream Power (lb/ft s)	0.95	2.29	1.67
Frctn Loss (ft)	3.28	Cum Volume (acre-ft)	419.24	18.70	41.56
C & E Loss (ft)	0.05	Cum SA (acres)	206.30	12.39	28.32

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta	Right Sta	Flow	Area	W.P.	% Conv.	Hydr D.	Velocity

(ft)	(ft)	(cfs)	(sq ft)	(ft)		(ft)	(ft/s)
8615.62	9285.31	836.50	407.46	292.26	8.62	1.40	2.05
9285.31	9955.00	4067.16	1447.32	648.23	41.93	2.23	2.81
LB 9955.00	9987.00	601.25	85.93	32.15	6.20	2.69	7.00
9987.00	10019.00	435.39	79.67	32.02	4.49	2.49	5.46
10019.00	10051.00	271.17	87.05	32.00	2.80	2.72	3.12
10051.00	10083.00	360.95	103.37	32.02	3.72	3.23	3.49
10083.00	RB 10115.00	354.44	102.23	32.00	3.65	3.19	3.47
10115.00	10294.50	1521.54	459.56	154.77	15.69	3.06	3.31
10294.50	10833.00						
10833.00	11012.50	1251.61	399.78	146.43	12.90	2.80	3.13

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 14.710

INPUT
Description:
Station Elevation Data num= 54

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3561.95	1428	3742.55	1427.82	4148.75	1427	4713.37	1426.9	4770	1427.1
4925	1426	6050	1424.5	6310	1424	6755	1423.4	7385	1422
7420	1421.8	7600	1421.8	7645	1421.2	7665	1422	7700	1422.1
7800	1422	8280	1424	8600	1426	8700	1425.5	8870	1425.4
9050	1426	9270	1426.3	9295	1428	9560	1428	9785	1427
9855	1426	9860	1424	9890	1426	9910	1426.6	9950	1426
9985	1424.2	10005	1425	10030	1424	10090	1424.2	10115	1424
10150	1423.8	10215	1424	10260	1423.8	10355	1424	10400	1424
10425	1423	10440	1424	10700	1424	10735	1422	10740	1424
10880	1426	10950	1428	10985	1427.9	11120	1428	11180	1428.7
11290	1428.4	11335	1428.6	11420	1428.6	11490	1429.3		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3561.95	.05	9950	.022	10005	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9950	10215	500	496.27	580	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
3561.95	8725	1429

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1426.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.71	Wt. n-Val.	0.050	0.046	0.050
W.S. Elev (ft)	1425.64	Reach Len. (ft)	500.00	496.27	580.00
Crit W.S. (ft)	1425.64	Flow Area (sq ft)	61.51	375.12	1031.02
E.G. Slope (ft/ft)	0.026966	Area (sq ft)	6697.61	375.12	1031.02
Q Total (cfs)	9700.00	Flow (cfs)	157.85	2631.42	6910.73
Top Width (ft)	4548.36	Top Width (ft)	3650.30	258.06	640.01
Vel Total (ft/s)	6.61	Avg. Vel. (ft/s)	2.57	7.01	6.70
Max Chl Dpth (ft)	4.44	Hydr. Depth (ft)	0.25	1.45	1.61
Conv. Total (cfs)	59069.5	Conv. (cfs)	961.2	16024.4	42083.9
Length Wtd. (ft)		Wetted Per. (ft)	247.00	258.13	640.51
Min Ch El (ft)	1423.80	Shear (lb/sq ft)	0.42	2.45	2.71
Alpha	1.04	Stream Power (lb/ft s)	1.08	17.16	18.16
Frctn Loss (ft)		Cum Volume (acre-ft)	278.79	14.04	30.71
C & E Loss (ft)		Cum SA (acres)	149.06	10.05	22.97

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8672.39	9311.19	57.61	37.89	217.88	0.59	0.17	1.52
9311.19	9950.00	100.24	23.62	29.12	1.03	0.82	4.24
LB 9950.00	10003.00	397.30	39.74	46.11	4.10	0.86	10.00
10003.00	10056.00	433.20	71.53	53.02	4.47	1.35	6.06
10056.00	10109.00	509.76	79.85	53.00	5.26	1.51	6.38
10109.00	10162.00	652.66	92.61	53.00	6.73	1.75	7.05
10162.00	RB 10215.00	638.49	91.40	53.00	6.58	1.72	6.99
10215.00	10342.50	1556.06	223.31	127.50	16.04	1.75	6.97
10342.50	10470.00	1629.82	229.64	127.55	16.80	1.80	7.10
10470.00	10597.50	1398.73	209.48	127.50	14.42	1.64	6.68
10597.50	10725.00	1602.72	227.33	127.54	16.52	1.78	7.05
10725.00	10852.50	723.40	141.21	127.91	7.46	1.11	5.12
10852.50	10980.00	0.01	0.04	2.51	0.00	0.02	0.33

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 14.616

INPUT
Description:
Station Elevation Data num= 47

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3399.19	1427.67	4093.13	1426	4721.67	1425.7	4750	1424	5415	1423.8
6040	1424	6740	1422	7375	1420	7410	1419.8	7455	1420
7500	1422	7535	1420	7645	1420	8135	1421.3	8600	1422
8660	1424	9110	1424	9205	1424	9270	1422	9310	1420
9345	1418	9370	1416	9665	1415.2	9805	1416	9810	1418
9870	1420	9875	1422	9915	1423.5	9950	1423.3	9965	1422
9990	1422.5	10005	1422	10025	1421.9	10100	1421.9	10120	1422
10165	1422.6	10180	1422	10200	1421.6	10240	1421.8	10390	1421.7
10480	1421.9	10540	1422	10590	1422	10610	1420	10770	1422
10820	1424	11295	1425.6						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3399.19	.05	9950	.022	9990	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9950	10240	500	494.72	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
3399.19	8830	1425

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9100	9915	1419

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1423.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.050	0.046	0.050
W.S. Elev (ft)	1423.06	Reach Len. (ft)	500.00	494.72	500.00
Crit W.S. (ft)	1421.17	Flow Area (sq ft)	2377.05	296.02	815.40
E.G. Slope (ft/ft)	0.002224	Area (sq ft)	6493.64	296.02	815.40
Q Total (cfs)	9700.00	Flow (cfs)	7761.44	464.82	1473.75
Top Width (ft)	3775.15	Top Width (ft)	2931.35	287.25	556.55
Vel Total (ft/s)	2.78	Avg. Vel. (ft/s)	3.27	1.57	1.81
Max Chl Dpth (ft)	4.06	Hydr. Depth (ft)	3.56	1.03	1.47
Conv. Total (cfs)	205708.2	Conv. (cfs)	164597.1	9857.4	31253.8
Length Wtd. (ft)	499.60	Wetted Per. (ft)	668.35	287.33	556.68

Min Ch El (ft)	1421.60	Shear (lb/sq ft)	0.49	0.14	0.20
Alpha	1.18	Stream Power (lb/ft s)	1.61	0.22	0.37
Frctn Loss (ft)	1.70	Cum Volume (acre-ft)	203.08	10.21	18.42
C & E Loss (ft)	0.01	Cum SA (acres)	111.28	6.94	15.00

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8639.84	9294.92	82.78	60.31	59.48	0.85	1.01	1.37
9294.92	9950.00	7678.66	2316.74	608.87	79.16	3.81	3.31
LB 9950.00	10008.00	86.27	42.19	55.31	0.89	0.76	2.04
10008.00	10066.00	100.62	66.67	58.00	1.04	1.15	1.51
10066.00	10124.00	98.65	65.88	58.00	1.02	1.14	1.50
10124.00	10182.00	49.83	43.74	58.02	0.51	0.75	1.14
10182.00	RB 10240.00	129.45	77.55	58.00	1.33	1.34	1.67
10240.00	10345.50	219.01	136.84	105.50	2.26	1.30	1.60
10345.50	10451.00	224.50	138.89	105.50	2.31	1.32	1.62
10451.00	10556.50	173.19	118.86	105.50	1.79	1.13	1.46
10556.50	10662.00	479.73	219.13	105.60	4.95	2.08	2.19
10662.00	10767.50	361.64	184.89	105.51	3.73	1.75	1.96
10767.50	10873.00	15.67	16.79	29.07	0.16	0.58	0.93

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 14.523

INPUT
Description:
Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3393.53	1426.63	3709.46	1426	4269.8	1424	4705.37	1424.2	4770	1424
4800	1422.7	4940	1422.7	5415	1422.4	6020	1422.1	6055	1421.4
6150	1420.7	6250	1420.7	6545	1420.3	7265	1419.3	7415	1418.2
7475	1420	7495	1420.8	7515	1420	7535	1416	7545	1414.4
7565	1416	7600	1419.8	7630	1418	7670	1418.6	7810	1419.2
7980	1419.2	8130	1419.2	8285	1419.4	8410	1419.6	8570	1419.1
8600	1420	8610	1420.5	8625	1420	8670	1416	9185	1415.3
9675	1415.2	9790	1416	9800	1418	9900	1420	9940	1421.4
9985	1420	9995	1420.4	10000	1420	10010	1419.8	10055	1419.8
10100	1420	10140	1420.4	10170	1420	10180	1419.5	10205	1420
10305	1419.6	10540	1420	10740	1419.9	10785	1420	10860	1422
10870	1422	10880	1420	10895	1420	11225	1422	11270	1422.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3393.53	.05	9900	.02	9995	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9900	10205	640	649	700	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
3393.53	9375	1422

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
7500	7600	1418	8600	9940	1418.5

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1421.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.	0.050	0.042	0.050
W.S. Elev (ft)	1421.26	Reach Len. (ft)	640.00	649.00	700.00
Crit W.S. (ft)	1420.69	Flow Area (sq ft)	1395.19	333.02	997.65

E.G. Slope (ft/ft)	0.005862	Area (sq ft)	7697.99	333.02	997.65
Q Total (cfs)	9700.00	Flow (cfs)	6090.60	1004.36	2605.03
Top Width (ft)	4980.82	Top Width (ft)	3826.63	296.78	857.41
Vel Total (ft/s)	3.56	Avg. Vel. (ft/s)	4.37	3.02	2.61
Max Chl Dpth (ft)	3.26	Hydr. Depth (ft)	2.66	1.12	1.16
Conv. Total (cfs)	126690.7	Conv. (cfs)	79548.7	13117.9	34024.1
Length Wtd. (ft)	644.76	Wetted Per. (ft)	525.02	296.87	857.56
Min Ch El (ft)	1419.50	Shear (lb/sq ft)	0.97	0.41	0.43
Alpha	1.16	Stream Power (lb/ft s)	4.25	1.24	1.11
Frctn Loss (ft)	3.53	Cum Volume (acre-ft)	121.63	6.64	8.02
C & E Loss (ft)	0.02	Cum SA (acres)	72.50	3.63	6.89

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

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9249.35	9900.00	6090.59	1395.19	525.02	62.79	2.66	4.37
LB 9900.00	9961.00	97.49	27.16	52.81	1.01	0.51	3.59
9961.00	10022.00	272.13	68.58	61.04	2.81	1.12	3.97
10022.00	10083.00	249.43	87.60	61.00	2.57	1.44	2.85
10083.00	10144.00	164.71	68.29	61.00	1.70	1.12	2.41
10144.00	RB 10205.00	220.60	81.39	61.02	2.27	1.33	2.71
10205.00	10311.50	452.81	157.25	106.50	4.67	1.48	2.88
10311.50	10418.00	497.83	166.45	106.50	5.13	1.56	2.99
10418.00	10524.50	405.37	147.15	106.50	4.18	1.38	2.75
10524.50	10631.00	359.69	136.96	106.50	3.71	1.29	2.63
10631.00	10737.50	383.67	142.37	106.50	3.96	1.34	2.69
10737.50	10844.00	202.09	92.56	94.94	2.08	0.98	2.18
10844.00	10950.50	197.08	83.82	76.95	2.03	1.09	2.35
10950.50	11057.00	102.52	64.50	106.50	1.06	0.61	1.59
11057.00	11163.50	3.98	6.60	46.67	0.04	0.14	0.60

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 3

INPUT
Description: Cross Section 14.691 on Powerline FRS Baseline
Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1510	1418	1780	1417.5	2785	1418.5	3470	1419	3930	1419.6
3980	1418	4030	1417.7	4200	1417.8	4290	1418	4430	1417.6
4515	1417.5	4615	1417.2	4670	1417.4	4770	1417	4845	1416
4890	1417.4	5000	1417.5	5100	1417.3	5180	1417.3	5250	1416.8
5335	1416.7	5410	1416	5430	1415.3	5440	1416	5490	1416.2
5710	1416.2	5745	1416.2	5785	1415.9	5955	1415.9	6020	1416
6060	1416.1	6155	1416	6565	1416.2	6685	1417	6725	1416.5
6950	1416.5	7020	1416	7030	1415.3	7040	1416	7090	1416.7
7175	1416	7255	1416.2	7310	1415.7	7455	1416.3	7615	1416
7715	1418	7740	1418	7879	1416	7999	1415.5	8069	1415.5
8194	1416	8264	1415.5	8399	1416	8469	1416.7	8549	1416
8594	1416	8620	1416	8749	1415	8887	1414.8	8987	1415.9
9057	1415.1	9295	1414.7	9513	1416	9568	1416.5	9623	1416
9643	1415.9	9688	1415.4	9708	1416	9770	1416	9780	1416.3
9790	1416	9825	1414.8	9865	1416	9880	1418	9890	1419
9905	1418	9930	1416	9980	1414	9985	1412	10000	1411.4
10005	1412	10020	1414	10080	1416	10100	1418	10115	1418.4

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1510	.05	9890	.05	10115	.05

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

9890	10115	640	474.31	475	.1	.3	

Ineffective Flow num= 1

Sta L	Sta R	Elev
1510	3930	1420

CROSS SECTION OUTPUT Profile #PF 3

E.G. Elev (ft)	1417.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1417.78	Reach Len. (ft)			
Crit W.S. (ft)	1416.99	Flow Area (sq ft)	8798.71	558.65	
E.G. Slope (ft/ft)	0.005358	Area (sq ft)	8859.29	558.65	
Q Total (cfs)	29700.00	Flow (cfs)	27213.27	2486.74	
Top Width (ft)	6232.12	Top Width (ft)	6042.07	190.05	
Vel Total (ft/s)	3.17	Avg. Vel. (ft/s)	3.09	4.45	
Max Chl Dpth (ft)	6.38	Hydr. Depth (ft)	1.57	2.94	
Conv. Total (cfs)	405748.8	Conv. (cfs)	371776.0	33972.7	
Length Wtd. (ft)		Wetted Per. (ft)	5609.81	190.85	
Min Ch El (ft)	1411.40	Shear (lb/sq ft)	0.52	0.98	
Alpha	1.03	Stream Power (lb/ft s)	1.62	4.36	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #PF 3

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
3186.00	4024.00	0.03	0.16	7.34	0.00	0.02	0.17
4024.00	4862.00	344.78	280.22	637.03	1.16	0.44	1.23
4862.00	5700.00	1865.40	861.16	838.06	6.28	1.03	2.17
5700.00	6538.00	4488.61	1458.40	838.00	15.11	1.74	3.08
6538.00	7376.00	3332.29	1219.74	838.07	11.22	1.46	2.73
7376.00	8214.00	3736.84	1273.94	786.75	12.58	1.62	2.93
8214.00	9052.00	6379.75	1800.93	838.02	21.48	2.15	3.54
9052.00	9890.00	7065.56	1904.16	826.54	23.79	2.30	3.71
LB 9890.00	9935.00	58.45	29.20	27.33	0.20	1.07	2.00
9935.00	9980.00	502.08	129.60	45.04	1.69	2.88	3.87
9980.00	10025.00	1349.73	235.68	45.57	4.54	5.24	5.73
10025.00	10070.00	497.35	128.85	45.02	1.67	2.86	3.86
10070.00	RB 10115.00	79.12	35.31	27.90	0.27	1.27	2.24

Warning: Divided flow computed for this cross-section.

SUMMARY OF MANNING'S N VALUES

River:Vineyard FRS

Reach	River Sta.	n1	n2	n3
Vineyard	20.000	.022	.022	.022
Vineyard	19.918	.022	.022	.022
Vineyard	19.824	.022	.022	.022
Vineyard	19.743	.022	.022	.022
Vineyard	19.676	.05	.05	.05
Vineyard	19.614	.05	.08	.05
Vineyard	19.537	.022	.022	.022
Vineyard	19.515	.022	.022	.022
Vineyard	19.477	.05	.05	.05
Vineyard	19.405	.05	.05	.05
Vineyard	19.324	.05	.05	.05
Vineyard	19.227	.05	.05	.05
Vineyard	19.133	.05	.05	.05
Vineyard	19.030	.05	.05	.05
Vineyard	18.932	.05	.05	.05
Vineyard	18.832	.05	.05	.05
Vineyard	18.736	.05	.05	.05
Vineyard	18.644	.05	.05	.05
Vineyard	18.549	.05	.05	.05
Vineyard	18.452	.05	.05	.05
Vineyard	18.356	.05	.05	.05

Vineyard	18.302	.05	.05	.05
Vineyard	18.248	.05	.05	.05
Vineyard	18.173	.05	.05	.05
Vineyard	18.081	.05	.05	.05
Vineyard	18.000	.05	.05	.05
Vineyard	17.906	.05	.05	.05
Vineyard	17.819	.05	.05	.05
Vineyard	17.725	.05	.05	.05
Vineyard	17.630	.05	.05	.05
Vineyard	17.554	.05	.05	.05
Vineyard	17.479	.05	.05	.05
Vineyard	17.377	.05	.05	.05
Vineyard	17.321	.05	.05	.05
Vineyard	17.227	.05	.05	.05
Vineyard	17.132	.05	.05	.05
Vineyard	17.038	.05	.05	.05
Vineyard	16.945	.05	.05	.05
Vineyard	16.850	.05	.05	.05
Vineyard	16.755	.05	.05	.05
Vineyard	16.679	.05	.05	.05
Vineyard	16.585	.016	.016	.016
Vineyard	16.507	.05	.05	.05
Vineyard	16.451	.05	.05	.05
Vineyard	16.367	.05	.05	.05
Vineyard	16.293	.05	.05	.05
Vineyard	16.197	.05	.05	.05
Vineyard	16.106	.05	.05	.05
Vineyard	16.009	.05	.05	.05
Vineyard	15.934	.05	.05	.05
Vineyard	15.838	.05	.05	.05
Vineyard	15.744	.05	.05	.05
Vineyard	15.652	.05	.05	.05
Vineyard	15.555	.05	.05	.05
Vineyard	15.461	.05	.05	.05
Vineyard	15.366	.05	.05	.05
Vineyard	15.272	.05	.05	.05
Vineyard	15.181	.05	.022	.05
Vineyard	15.087	.05	.022	.05
Vineyard	14.994	.05	.022	.05
Vineyard	14.897	.05	.022	.05
Vineyard	14.803	.05	.022	.05
Vineyard	14.710	.05	.022	.05
Vineyard	14.616	.05	.022	.05
Vineyard	14.523	.05	.02	.05
Vineyard	3	.05	.05	.05

SUMMARY OF REACH LENGTHS

River: Vineyard FRS

Reach	River Sta.	Left	Channel	Right
Vineyard	20.000	806.25	433.34	127.42
Vineyard	19.918	495.89	497.31	498.61
Vineyard	19.824	424.27	427.26	382.35
Vineyard	19.743	353.6	355.36	359.8
Vineyard	19.676	347.45	326.19	237.54
Vineyard	19.614	876.62	404.64	269.25
Vineyard	19.537	119.05	115.13	126.68
Vineyard	19.515	384.02	203.25	127.25
Vineyard	19.477	404.21	378.84	343.37
Vineyard	19.405	436.68	426.43	402.95
Vineyard	19.324	398.87	516.12	498.97
Vineyard	19.227	469.21	495.71	496.49
Vineyard	19.133	442.94	544.45	458.39
Vineyard	19.030	468.48	513.02	424.17
Vineyard	18.932	581.34	528.78	466.64
Vineyard	18.832	441.13	509.32	557.25
Vineyard	18.736	569.73	486.46	441.02
Vineyard	18.644	397.21	500.78	427.12
Vineyard	18.549	503.55	511.81	476.98
Vineyard	18.452	501.22	506.04	405.75
Vineyard	18.356	303.03	284.7	201.78

Vineyard	18.302	299.49	284.73	297.8
Vineyard	18.248	357.93	394.82	548.56
Vineyard	18.173	510.37	485.8	404.15
Vineyard	18.081	357.17	430.67	405.55
Vineyard	18.000	499.55	496.48	527.1
Vineyard	17.906	434.39	456.2	444.62
Vineyard	17.819	447.96	499.97	459.45
Vineyard	17.725	383	500	500.99
Vineyard	17.630	282.16	400.01	467.43
Vineyard	17.554	407.45	398.94	593.71
Vineyard	17.479	434.06	535.05	398.92
Vineyard	17.377	389.72	295.16	235.91
Vineyard	17.321	732.26	497.51	448.5
Vineyard	17.227	493.71	502.79	505.19
Vineyard	17.132	491.85	496.91	498.15
Vineyard	17.038	500.93	488.11	396
Vineyard	16.945	500.67	505.48	500.56
Vineyard	16.850	498.13	499.99	498.03
Vineyard	16.755	401.42	400	403.43
Vineyard	16.679	501.06	500.01	501.06
Vineyard	16.585	572.41	410.14	323.21
Vineyard	16.507	294	294.2	296.55
Vineyard	16.451	442.05	443.33	435.7
Vineyard	16.367	392.24	394.26	389.71
Vineyard	16.293	505.8	506.02	508.51
Vineyard	16.197	478.05	477.22	481.71
Vineyard	16.106	451.05	514.19	546.94
Vineyard	16.009	305.1	396.01	394.62
Vineyard	15.934	477	504.08	492.54
Vineyard	15.838	506.83	498.04	494.93
Vineyard	15.744	448.07	486.94	509.51
Vineyard	15.652	501.22	512.24	506.96
Vineyard	15.555	504.24	493.86	488.78
Vineyard	15.461	520.38	503.9	438.05
Vineyard	15.366	464	498.41	516.61
Vineyard	15.272	450	477.77	520
Vineyard	15.181	495	498.17	495
Vineyard	15.087	500	489.37	500
Vineyard	14.994	510	512.24	515
Vineyard	14.897	500	497.67	500
Vineyard	14.803	500	487.6	500
Vineyard	14.710	500	496.27	580
Vineyard	14.616	500	494.72	500
Vineyard	14.523	640	649	700
Vineyard	3	640	474.31	475

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Vineyard FRS

Reach	River Sta.	Contr.	Expan.
Vineyard	20.000	.3	.5
Vineyard	19.918	.3	.5
Vineyard	19.824	.3	.5
Vineyard	19.743	.3	.5
Vineyard	19.676	.3	.5
Vineyard	19.614	.3	.5
Vineyard	19.537	.3	.5
Vineyard	19.515	.3	.5
Vineyard	19.477	.3	.5
Vineyard	19.405	.3	.5
Vineyard	19.324	.3	.5
Vineyard	19.227	.3	.5
Vineyard	19.133	.3	.5
Vineyard	19.030	.3	.5
Vineyard	18.932	.3	.5
Vineyard	18.832	.3	.5
Vineyard	18.736	.3	.5
Vineyard	18.644	.3	.5
Vineyard	18.549	.3	.5
Vineyard	18.452	.3	.5
Vineyard	18.356	.3	.5

Vineyard	18.302	.3	.5
Vineyard	18.248	.3	.5
Vineyard	18.173	.3	.5
Vineyard	18.081	.3	.5
Vineyard	18.000	.1	.3
Vineyard	17.906	.1	.3
Vineyard	17.819	.1	.3
Vineyard	17.725	.1	.3
Vineyard	17.630	.1	.3
Vineyard	17.554	.1	.3
Vineyard	17.479	.1	.3
Vineyard	17.377	.1	.3
Vineyard	17.321	.3	.5
Vineyard	17.227	.3	.5
Vineyard	17.132	.3	.5
Vineyard	17.038	.3	.5
Vineyard	16.945	.1	.3
Vineyard	16.850	.1	.3
Vineyard	16.755	.1	.3
Vineyard	16.679	.1	.3
Vineyard	16.585	.1	.3
Vineyard	16.507	.1	.3
Vineyard	16.451	.1	.3
Vineyard	16.367	.1	.3
Vineyard	16.293	.1	.3
Vineyard	16.197	.1	.3
Vineyard	16.106	.1	.3
Vineyard	16.009	.1	.3
Vineyard	15.934	.1	.3
Vineyard	15.838	.1	.3
Vineyard	15.744	.1	.3
Vineyard	15.652	.1	.3
Vineyard	15.555	.1	.3
Vineyard	15.461	.1	.3
Vineyard	15.366	.1	.3
Vineyard	15.272	.3	.5
Vineyard	15.181	.3	.5
Vineyard	15.087	.3	.5
Vineyard	14.994	.1	.3
Vineyard	14.897	.1	.3
Vineyard	14.803	.1	.3
Vineyard	14.710	.1	.3
Vineyard	14.616	.1	.3
Vineyard	14.523	.1	.3
Vineyard	3	.1	.3

Profile Output Table - Standard Table 1

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Vineyard	20.000	9700.00	1572.91	1578.82	1576.33	1579.17	0.000683	4.76	2036.02	869.50	0.40
Vineyard	19.918	9700.00	1573.42	1577.35	1576.76	1578.42	0.002779	8.32	1166.56	554.33	0.77
Vineyard	19.824	9700.00	1571.58	1575.05	1575.05	1576.51	0.004886	9.69	1001.33	746.31	1.00
Vineyard	19.743	9700.00	1569.83	1574.79	1572.20	1574.95	0.000301	3.29	3142.70	1683.34	0.27
Vineyard	19.676	9700.00	1568.06	1574.77	1569.72	1574.80	0.000184	1.39	7073.17	2902.42	0.10
Vineyard	19.614	9700.00	1566.00	1574.74	1567.66	1574.76	0.000099	0.85	11516.80	3446.84	0.05
Vineyard	19.537	9700.00	1572.61	1574.54	1573.65	1574.63	0.000623	2.36	4059.26	6402.39	0.32
Vineyard	19.515	9700.00	1573.01	1574.02	1574.02	1574.38	0.005497	3.73	2112.86	6435.03	0.82
Vineyard	19.477	9700.00	1558.28	1561.96	1562.90	1568.01	0.614162	19.94	505.13	3613.38	3.94
Vineyard	19.405	9700.00	1554.70	1560.49	1560.14	1560.66	0.007020	4.22	3321.45	6158.18	0.50
Vineyard	19.324	9700.00	1551.66	1557.49	1557.04	1557.66	0.007445	3.80	3185.36	5582.81	0.50
Vineyard	19.227	9700.00	1549.16	1554.42	1553.68	1554.55	0.005671	2.62	3547.17	4443.75	0.41
Vineyard	19.133	9700.00	1547.51	1551.74	1550.82	1551.89	0.005185	2.21	3312.45	3739.47	0.38
Vineyard	19.030	9700.00	1545.07	1549.10	1548.42	1549.26	0.005866	3.04	3274.87	3461.96	0.43
Vineyard	18.932	9700.00	1541.93	1545.84	1545.45	1546.00	0.008376	3.74	3225.48	3299.22	0.52
Vineyard	18.832	9700.00	1538.55	1542.60	1542.00	1542.68	0.004744	2.73	4369.63	3967.44	0.39
Vineyard	18.736	9700.00	1536.85	1539.75	1539.40	1539.86	0.006895	2.68	3990.46	5597.32	0.44
Vineyard	18.644	9700.00	1534.52	1536.83	1536.37	1536.90	0.005101	2.16	4650.07	6241.49	0.38
Vineyard	18.549	9700.00	1531.27	1534.34	1533.90	1534.43	0.006916	3.04	4130.28	5348.79	0.46
Vineyard	18.452	9700.00	1526.00	1530.95	1530.48	1531.04	0.006592	3.02	3916.73	4663.99	0.45
Vineyard	18.356	9700.00	1523.02	1528.12	1527.64	1528.23	0.005193	3.57	4123.60	4045.61	0.43
Vineyard	18.302	9700.00	1522.04	1526.38		1526.53	0.007331	4.06	3494.10	3597.18	0.50
Vineyard	18.248	9700.00	1520.06	1524.68	1524.18	1524.81	0.004856	3.93	3876.79	3270.91	0.43
Vineyard	18.173	9700.00	1518.33	1521.90		1522.06	0.007424	4.04	3276.57	2830.98	0.50
Vineyard	18.081	9700.00	1515.60	1518.92		1519.05	0.005834	3.56	3360.91	2406.13	0.45
Vineyard	18.000	9700.00	1512.34	1516.56		1516.68	0.006248	3.39	3452.09	2677.42	0.45
Vineyard	17.906	9700.00	1507.76	1512.93	1512.63	1513.12	0.007905	4.82	3114.98	3228.83	0.54
Vineyard	17.819	9700.00	1505.75	1509.50	1509.09	1509.64	0.007750	3.58	3458.92	3243.06	0.50
Vineyard	17.725	9700.00	1502.75	1506.15		1506.28	0.006801	3.21	3420.54	2891.02	0.46
Vineyard	17.630	9700.00	1499.63	1502.90		1503.06	0.008329	3.41	3106.15	2811.17	0.51
Vineyard	17.554	9700.00	1496.19	1500.48	1499.97	1500.59	0.005915	2.97	3851.27	3500.39	0.43
Vineyard	17.479	9700.00	1493.74	1497.76		1497.86	0.006279	2.57	3889.26	3606.75	0.42
Vineyard	17.377	9700.00	1491.78	1495.62		1495.69	0.003619	2.27	4587.84	3592.10	0.33
Vineyard	17.321	9700.00	1490.69	1494.06		1494.21	0.006744	3.68	3289.22	2630.55	0.48
Vineyard	17.227	9700.00	1487.63	1489.54	1488.62	1489.79	0.006998	1.86	2655.93	2362.06	0.41
Vineyard	17.132	9700.00	1485.04	1486.74	1485.68	1486.93	0.004757	1.70	2992.94	2482.61	0.34
Vineyard	17.038	9700.00	1482.15	1483.84		1484.08	0.007112	3.04	2719.34	2028.79	0.46
Vineyard	16.945	9700.00	1475.88	1481.25		1481.40	0.004295	3.73	3494.44	2485.34	0.40
Vineyard	16.850	9700.00	1474.34	1479.14		1479.28	0.004128	3.81	3691.68	2786.08	0.40
Vineyard	16.755	9700.00	1471.88	1476.51	1475.89	1476.68	0.006819	4.34	3306.86	3104.32	0.50
Vineyard	16.679	9700.00	1470.54	1474.79	1473.93	1474.87	0.003107	3.05	4475.54	3499.78	0.34
Vineyard	16.585	9700.00	1471.66	1472.87	1472.87	1473.22	0.003434	5.94	2176.60	3100.20	0.98
Vineyard	16.507	9700.00	1465.66	1470.55	1469.62	1470.66	0.004422	3.38	3960.39	3303.45	0.40
Vineyard	16.451	9700.00	1464.62	1469.26		1469.37	0.004387	3.28	3928.20	3131.72	0.39
Vineyard	16.367	9700.00	1463.16	1467.12	1466.46	1467.24	0.005345	3.35	3593.86	2831.62	0.43
Vineyard	16.293	9700.00	1462.35	1465.22		1465.31	0.004496	2.61	4078.10	3143.61	0.38
Vineyard	16.197	9700.00	1459.66	1462.51		1462.62	0.006323	2.13	3611.34	3101.19	0.41
Vineyard	16.106	9700.00	1456.90	1459.66		1459.77	0.005758	2.36	3752.20	3200.03	0.40
Vineyard	16.009	9700.00	1453.83	1456.82		1456.93	0.006401	1.80	3868.78	4094.41	0.39

Vineyard	15.934	9700.00	1452.80	1455.30		1455.37	0.003648	1.53	4632.66	3929.15	0.30
Vineyard	15.838	9700.00	1451.00	1453.17		1453.27	0.005311	2.39	4072.49	3684.11	0.39
Vineyard	15.744	9700.00	1448.00	1450.35		1450.47	0.005848	2.82	3667.50	3399.55	0.42
Vineyard	15.652	9700.00	1444.30	1448.15		1448.25	0.003827	2.46	4189.48	3334.32	0.35
Vineyard	15.555	9700.00	1442.00	1445.59		1445.73	0.006726	2.92	3429.86	2996.03	0.45
Vineyard	15.461	9700.00	1440.00	1443.49		1443.56	0.003068	2.03	4498.91	3058.84	0.31
Vineyard	15.366	9700.00	1438.00	1440.85		1441.03	0.010960	3.72	2935.74	2775.39	0.57
Vineyard	15.272	9700.00	1434.80	1439.65	1438.05	1439.69	0.001130	1.75	5817.38	2768.50	0.20
Vineyard	15.181	9700.00	1432.90	1438.64		1438.88	0.002226	4.10	2499.19	1150.18	0.39
Vineyard	15.087	9700.00	1433.10	1435.82	1435.48	1436.47	0.014615	6.67	1505.49	8473.82	0.87
Vineyard	14.994	9700.00	1430.20	1432.74	1431.91	1433.02	0.003717	6.63	2921.97	7267.02	0.82
Vineyard	14.897	9700.00	1428.70	1431.04	1430.01	1431.21	0.003242	5.58	3473.55	7249.68	0.74
Vineyard	14.803	9700.00	1426.00	1429.52	1428.34	1429.68	0.002908	4.41	3172.38	6776.39	0.46
Vineyard	14.710	9700.00	1423.80	1425.64	1425.64	1426.35	0.026966	7.01	1467.65	4548.36	1.03
Vineyard	14.616	9700.00	1421.60	1423.06	1421.17	1423.20	0.002224	1.57	3488.47	3775.15	0.27
Vineyard	14.523	9700.00	1419.50	1421.26	1420.69	1421.49	0.005862	3.02	2725.86	4980.82	0.50
Vineyard	3	29700.00	1411.40	1417.78	1416.99	1417.94	0.005358	4.45	9357.36	6232.12	0.46

Profile Output Table - Standard Table 2

Reach	River Sta	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
Vineyard	20.000	1579.17	1578.82	0.35	0.53	0.22		9700.00		869.50
Vineyard	19.918	1578.42	1577.35	1.07	1.80	0.11		9700.00		554.33
Vineyard	19.824	1576.51	1575.05	1.46	0.33	0.65		9700.00		746.31
Vineyard	19.743	1574.95	1574.79	0.16	0.08	0.06	1019.81	5790.00	2890.20	1683.34
Vineyard	19.676	1574.80	1574.77	0.03	0.04	0.01	2051.36	3808.89	3839.74	2902.42
Vineyard	19.614	1574.76	1574.74	0.01	0.10	0.02	1312.14	5497.03	2890.82	3446.84
Vineyard	19.537	1574.63	1574.54	0.09	0.17	0.08	3718.61	3584.14	2397.25	6402.39
Vineyard	19.515	1574.38	1574.02	0.37	1.79	0.10	6652.20	1965.09	1082.71	6435.03
Vineyard	19.477	1568.01	1561.96	6.05	4.78	1.68	67.12	9458.93	173.94	3613.38
Vineyard	19.405	1560.66	1560.49	0.17	3.00	0.00	2441.92	3693.43	3564.65	6158.18
Vineyard	19.324	1557.66	1557.49	0.17	3.08	0.02	2575.94	3163.05	3961.01	5582.81
Vineyard	19.227	1554.55	1554.42	0.13	2.65	0.01	2218.18	1698.06	5783.76	4443.75
Vineyard	19.133	1551.89	1551.74	0.15	2.63	0.00	1124.50	764.37	7811.13	3739.47
Vineyard	19.030	1549.26	1549.10	0.16	3.26	0.00	1172.69	3305.73	5221.58	3461.96
Vineyard	18.932	1546.00	1545.84	0.16	3.28	0.04	2014.71	4862.33	2822.96	3299.22
Vineyard	18.832	1542.68	1542.60	0.08	2.81	0.01	5780.01	2100.42	1819.57	3967.44
Vineyard	18.736	1539.86	1539.75	0.11	2.94	0.02	3011.31	995.57	5693.13	5597.32
Vineyard	18.644	1536.90	1536.83	0.07	2.46	0.01	5020.26	486.37	4193.37	6241.49
Vineyard	18.549	1534.43	1534.34	0.09	3.39	0.00	4918.39	1190.57	3591.03	5348.79
Vineyard	18.452	1531.04	1530.95	0.10	2.81	0.00	5758.66	2020.01	1921.33	4663.99
Vineyard	18.356	1528.23	1528.12	0.11	1.68	0.01	4449.71	3059.88	2190.41	4045.61
Vineyard	18.302	1526.53	1526.38	0.15	1.71	0.01	4483.04	3233.68	1983.29	3597.18
Vineyard	18.248	1524.81	1524.68	0.13	2.74	0.01	2702.00	3261.13	3736.87	3270.91
Vineyard	18.173	1522.06	1521.90	0.15	2.99	0.01	1809.55	2200.72	5689.73	2830.98
Vineyard	18.081	1519.05	1518.92	0.14	2.37	0.00	3665.43	2727.80	3306.77	2406.13
Vineyard	18.000	1516.68	1516.56	0.13	3.55	0.01	3841.41	1935.16	3923.43	2677.42
Vineyard	17.906	1513.12	1512.93	0.20	3.47	0.02	4002.35	3336.58	2361.07	3228.83
Vineyard	17.819	1509.64	1509.50	0.13	3.35	0.00	5365.24	2205.22	2129.54	3243.06
Vineyard	17.725	1506.28	1506.15	0.13	3.22	0.00	6192.09	2485.77	1022.13	2891.02
Vineyard	17.630	1503.06	1502.90	0.16	2.45	0.02	5574.61	3174.49	950.90	2811.17

Vineyard	17.554	1500.59	1500.48	0.11	2.73	0.00	3976.55	4028.87	1694.57	3500.39
Vineyard	17.479	1497.86	1497.76	0.10	2.16	0.01	3594.85	3335.80	2769.35	3606.75
Vineyard	17.377	1495.69	1495.62	0.07	1.47	0.01	2583.43	3515.52	3601.06	3592.10
Vineyard	17.321	1494.21	1494.06	0.15	4.38	0.03	3754.08	2888.74	3057.19	2630.55
Vineyard	17.227	1489.79	1489.54	0.25	2.83	0.03	8884.93	357.83	457.24	2362.06
Vineyard	17.132	1486.93	1486.74	0.19	2.84	0.01	8904.96	268.75	526.29	2482.61
Vineyard	17.038	1484.08	1483.84	0.24	2.64	0.05	6849.45	1937.62	912.94	2028.79
Vineyard	16.945	1481.40	1481.25	0.15	2.11	0.00	4378.42	4000.92	1320.66	2485.34
Vineyard	16.850	1479.28	1479.14	0.14	2.60	0.00	3424.27	4153.69	2122.05	2786.08
Vineyard	16.755	1476.68	1476.51	0.17	1.78	0.03	3789.54	3031.62	2878.83	3104.32
Vineyard	16.679	1474.87	1474.79	0.09	1.63	0.03	2971.38	3223.37	3505.25	3499.78
Vineyard	16.585	1473.22	1472.87	0.34	1.64	0.07	2266.67	2705.18	4728.15	3100.20
Vineyard	16.507	1470.66	1470.55	0.11	1.30	0.00	3301.17	3734.67	2664.15	3303.45
Vineyard	16.451	1469.37	1469.26	0.11	2.12	0.00	2934.08	3894.51	2871.41	3131.72
Vineyard	16.367	1467.24	1467.12	0.13	1.92	0.01	1807.83	4819.05	3073.12	2831.62
Vineyard	16.293	1465.31	1465.22	0.09	2.69	0.00	2733.09	2591.79	4375.12	3143.61
Vineyard	16.197	1462.62	1462.51	0.12	2.85	0.00	5425.00	1181.25	3093.75	3101.19
Vineyard	16.106	1459.77	1459.66	0.11	2.84	0.00	6448.95	1845.94	1405.12	3200.03
Vineyard	16.009	1456.93	1456.82	0.11	1.55	0.01	7349.45	1150.45	1200.10	4094.41
Vineyard	15.934	1455.37	1455.30	0.07	2.10	0.00	7410.49	576.90	1712.61	3929.15
Vineyard	15.838	1453.27	1453.17	0.09	2.80	0.00	5850.83	1586.05	2263.12	3684.11
Vineyard	15.744	1450.47	1450.35	0.12	2.21	0.01	4794.63	3545.87	1359.50	3399.55
Vineyard	15.652	1448.25	1448.15	0.09	2.51	0.00	3180.30	5761.98	757.71	3334.32
Vineyard	15.555	1445.73	1445.59	0.14	2.14	0.02	2773.69	5047.19	1879.11	2996.03
Vineyard	15.461	1443.56	1443.49	0.08	2.52	0.01	1787.72	3970.78	3941.51	3058.84
Vineyard	15.366	1441.03	1440.85	0.18	1.30	0.04	434.23	5797.45	3468.32	2775.39
Vineyard	15.272	1439.69	1439.65	0.04	0.75	0.06	5.86	5991.07	3703.07	2768.50
Vineyard	15.181	1438.88	1438.64	0.24	2.29	0.12		7608.58	2091.42	1150.18
Vineyard	15.087	1436.47	1435.82	0.65	3.26	0.18	1554.21	3488.60	4657.19	8473.82
Vineyard	14.994	1433.02	1432.74	0.29	1.78	0.04	833.28	2843.05	6023.67	7267.02
Vineyard	14.897	1431.21	1431.04	0.16	1.52	0.00	1462.75	1509.80	6727.45	7249.68
Vineyard	14.803	1429.68	1429.52	0.16	3.28	0.05	4903.67	2023.19	2773.15	6776.39
Vineyard	14.710	1426.35	1425.64	0.71			157.85	2631.42	6910.73	4548.36
Vineyard	14.616	1423.20	1423.06	0.14	1.70	0.01	7761.44	464.82	1473.75	3775.15
Vineyard	14.523	1421.49	1421.26	0.23	3.53	0.02	6090.60	1004.36	2605.03	4980.82
Vineyard	3	1417.94	1417.78	0.16			27213.27	2486.74		6232.12

Profile Output Table - Hydratable

Reach	River Sta	Q Total (cfs)	W.S. Elev (ft)	Trvl Tme Chl (hrs)	Trvl Tme Avg (hrs)	Vel Chnl (ft/s)	Vel Total (ft/s)	Max Chl Dpth (ft)	Hydr Depth (ft)
Vineyard	20.000	9700.00	1578.82	2.67	2.84	4.76	4.76	5.91	4.44
Vineyard	19.918	9700.00	1577.35	2.65	2.82	8.32	8.32	3.93	3.58
Vineyard	19.824	9700.00	1575.05	2.64	2.80	9.69	9.69	3.90	2.94
Vineyard	19.743	9700.00	1574.79	2.62	2.79	3.29	3.09	6.18	4.02
Vineyard	19.676	9700.00	1574.77	2.58	2.74	1.39	1.37	7.71	6.20
Vineyard	19.614	9700.00	1574.74	2.49	2.67	0.85	0.84	9.40	8.08
Vineyard	19.537	9700.00	1574.54	2.42	2.58	2.36	2.39	3.39	1.69
Vineyard	19.515	9700.00	1574.02	2.41	2.57	3.73	4.59	2.95	0.80
Vineyard	19.477	9700.00	1561.96	2.41	2.57	19.94	19.20	3.68	0.66
Vineyard	19.405	9700.00	1560.49	2.40	2.56	4.22	2.92	5.79	1.10
Vineyard	19.324	9700.00	1557.49	2.37	2.52	3.80	3.05	5.83	1.13

Vineyard	19.227	9700.00	1554.42	2.33	2.47	2.62	2.73	5.29	1.22
Vineyard	19.133	9700.00	1551.74	2.27	2.42	2.21	2.93	4.87	1.28
Vineyard	19.030	9700.00	1549.10	2.21	2.38	3.04	2.96	4.65	1.21
Vineyard	18.932	9700.00	1545.84	2.17	2.34	3.74	3.01	3.91	1.02
Vineyard	18.832	9700.00	1542.60	2.12	2.28	2.73	2.22	4.05	1.11
Vineyard	18.736	9700.00	1539.75	2.07	2.22	2.68	2.43	3.78	0.88
Vineyard	18.644	9700.00	1536.83	2.02	2.16	2.16	2.09	3.39	0.96
Vineyard	18.549	9700.00	1534.34	1.96	2.11	3.04	2.35	4.78	0.89
Vineyard	18.452	9700.00	1530.95	1.92	2.05	3.02	2.48	4.95	1.01
Vineyard	18.356	9700.00	1528.12	1.87	1.99	3.57	2.35	5.10	1.02
Vineyard	18.302	9700.00	1526.38	1.85	1.96	4.06	2.78	4.34	0.97
Vineyard	18.248	9700.00	1524.68	1.83	1.93	3.93	2.50	4.62	1.19
Vineyard	18.173	9700.00	1521.90	1.80	1.88	4.04	2.96	3.57	1.16
Vineyard	18.081	9700.00	1518.92	1.77	1.84	3.56	2.89	4.06	1.40
Vineyard	18.000	9700.00	1516.56	1.73	1.80	3.39	2.81	4.50	1.29
Vineyard	17.906	9700.00	1512.93	1.70	1.76	4.82	3.11	5.17	1.14
Vineyard	17.819	9700.00	1509.50	1.67	1.71	3.58	2.80	4.51	1.07
Vineyard	17.725	9700.00	1506.15	1.63	1.67	3.21	2.84	3.59	1.18
Vineyard	17.630	9700.00	1502.90	1.59	1.63	3.41	3.12	5.26	1.10
Vineyard	17.554	9700.00	1500.48	1.55	1.59	2.97	2.52	5.12	1.10
Vineyard	17.479	9700.00	1497.76	1.51	1.54	2.57	2.49	4.02	1.08
Vineyard	17.377	9700.00	1495.62	1.45	1.49	2.27	2.11	3.84	1.28
Vineyard	17.321	9700.00	1494.06	1.42	1.46	3.68	2.95	4.20	1.25
Vineyard	17.227	9700.00	1489.54	1.37	1.40	1.86	3.65	6.53	1.28
Vineyard	17.132	9700.00	1486.74	1.30	1.36	1.70	3.24	5.94	1.40
Vineyard	17.038	9700.00	1483.84	1.24	1.32	3.04	3.57	5.59	1.34
Vineyard	16.945	9700.00	1481.25	1.20	1.28	3.73	2.78	5.37	1.41
Vineyard	16.850	9700.00	1479.14	1.16	1.23	3.81	2.63	4.85	1.33
Vineyard	16.755	9700.00	1476.51	1.13	1.18	4.34	2.93	4.63	1.09
Vineyard	16.679	9700.00	1474.79	1.10	1.13	3.05	2.17	4.25	1.35
Vineyard	16.585	9700.00	1472.87	1.07	1.09	5.94	4.46	1.21	0.70
Vineyard	16.507	9700.00	1470.55	1.04	1.06	3.38	2.45	4.89	1.20
Vineyard	16.451	9700.00	1469.26	1.02	1.02	3.28	2.47	4.64	1.25
Vineyard	16.367	9700.00	1467.12	0.98	0.98	3.35	2.70	3.96	1.27
Vineyard	16.293	9700.00	1465.22	0.94	0.93	2.61	2.38	2.87	1.30
Vineyard	16.197	9700.00	1462.51	0.88	0.88	2.13	2.69	3.07	1.16
Vineyard	16.106	9700.00	1459.66	0.82	0.83	2.36	2.59	3.04	1.17
Vineyard	16.009	9700.00	1456.82	0.76	0.78	1.80	2.51	3.17	0.94
Vineyard	15.934	9700.00	1455.30	0.69	0.74	1.53	2.09	2.50	1.18
Vineyard	15.838	9700.00	1453.17	0.62	0.68	2.39	2.38	2.47	1.11
Vineyard	15.744	9700.00	1450.35	0.57	0.62	2.82	2.64	2.35	1.08
Vineyard	15.652	9700.00	1448.15	0.51	0.57	2.46	2.32	3.85	1.26
Vineyard	15.555	9700.00	1445.59	0.46	0.51	2.92	2.83	3.59	1.14
Vineyard	15.461	9700.00	1443.49	0.41	0.46	2.03	2.16	3.49	1.47
Vineyard	15.366	9700.00	1440.85	0.36	0.41	3.72	3.30	2.85	1.06
Vineyard	15.272	9700.00	1439.65	0.31	0.35	1.75	1.67	4.85	2.14
Vineyard	15.181	9700.00	1438.64	0.26	0.30	4.10	3.88	5.74	2.17
Vineyard	15.087	9700.00	1435.82	0.24	0.28	6.67	6.44	3.82	2.13
Vineyard	14.994	9700.00	1432.74	0.22	0.25	6.63	3.32	3.14	1.82
Vineyard	14.897	9700.00	1431.04	0.19	0.20	5.58	2.79	5.04	1.78
Vineyard	14.803	9700.00	1429.52	0.16	0.15	4.41	3.06	6.92	2.28
Vineyard	14.710	9700.00	1425.64	0.14	0.13	7.01	6.61	4.44	1.28
Vineyard	14.616	9700.00	1423.06	0.11	0.10	1.57	2.78	4.06	2.31
Vineyard	14.523	9700.00	1421.26	0.05	0.05	3.02	3.56	3.26	1.62

Vineyard	3	29700.00	1417.78	0.00	0.00	4.45	3.17	6.38	1.61

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : FCD 98-33

River: Vineyard FRS Reach: Vineyard RS: 20.000 Profile: PF 3
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 19.918 Profile: PF 3
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 19.824 Profile: PF 3
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Vineyard FRS Reach: Vineyard RS: 19.614 Profile: PF 3
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 19.537 Profile: PF 3
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 19.515 Profile: PF 3
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning:The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Vineyard FRS Reach: Vineyard RS: 19.477 Profile: PF 3
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

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    Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
            This may indicate the need for additional cross sections.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
    Warning:The parabolic search method failed to converge on critical depth.  The program will try the cross section
            slice/secant method to find critical depth.
    Note:   Multiple critical depths were found at this location.  The critical depth with the lowest, valid, water surface was
            used.
    Note:   Program found supercritical flow starting at this cross section.
River: Vineyard FRS  Reach: Vineyard     RS: 19.405     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The cross-section end points had to be extended vertically for the computed water surface.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
    Note:   Hydraulic jump has occurred between this cross section and the previous upstream section.
River: Vineyard FRS  Reach: Vineyard     RS: 19.324     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 19.227     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 19.133     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 19.030     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.932     Profile: PF 3
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.832     Profile: PF 3
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.736     Profile: PF 3
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.644     Profile: PF 3
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.549     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.452     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.356     Profile: PF 3
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
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River: Vineyard FRS  Reach: Vineyard     RS: 18.302     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.248     Profile: PF 3
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.173     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.081     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.000     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.906     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.819     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.725     Profile: PF 3
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.630     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.554     Profile: PF 3
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.479     Profile: PF 3
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.377     Profile: PF 3
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.321     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.227     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.132     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
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Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 17.038 Profile: PF 3
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 16.945 Profile: PF 3
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 16.850 Profile: PF 3
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 16.755 Profile: PF 3
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 16.679 Profile: PF 3
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 16.585 Profile: PF 3
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: Vineyard FRS Reach: Vineyard RS: 16.507 Profile: PF 3
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 16.451 Profile: PF 3
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 16.367 Profile: PF 3
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 16.293 Profile: PF 3
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 16.197 Profile: PF 3
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 16.106 Profile: PF 3
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 16.009 Profile: PF 3
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.

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    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 15.934     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 15.838     Profile: PF 3
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 15.744     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The cross-section end points had to be extended vertically for the computed water surface.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 15.652     Profile: PF 3
    Warning:The cross-section end points had to be extended vertically for the computed water surface.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 15.555     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
            This may indicate the need for additional cross sections.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 15.461     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
            This may indicate the need for additional cross sections.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 15.366     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
            This may indicate the need for additional cross sections.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 15.272     Profile: PF 3
    Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
            This may indicate the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 15.181     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
            This may indicate the need for additional cross sections.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 15.087     Profile: PF 3
    Warning:Divided flow computed for this cross-section.
    Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
            This may indicate the need for additional cross sections.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 14.994     Profile: PF 3
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
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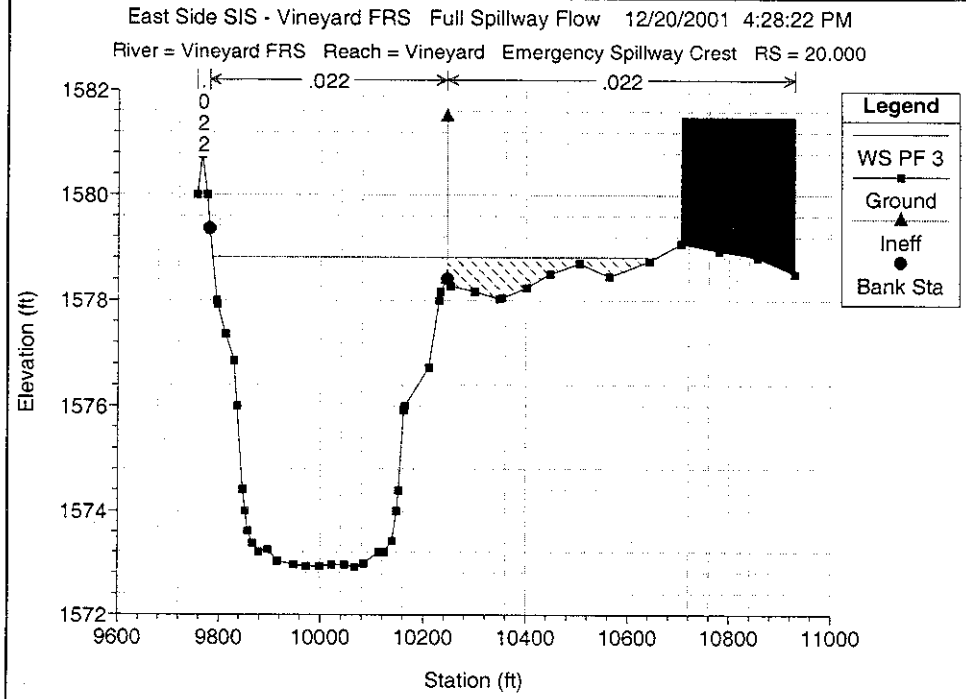
River: Vineyard FRS  Reach: Vineyard     RS: 14.897     Profile: PF 3
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 14.803     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 14.710     Profile: PF 3
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 14.616     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 14.523     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 3     Profile: PF 3
     Warning:Divided flow computed for this cross-section.
```


East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard Emergency Spillway Crest RS = 20.000
.022
.022
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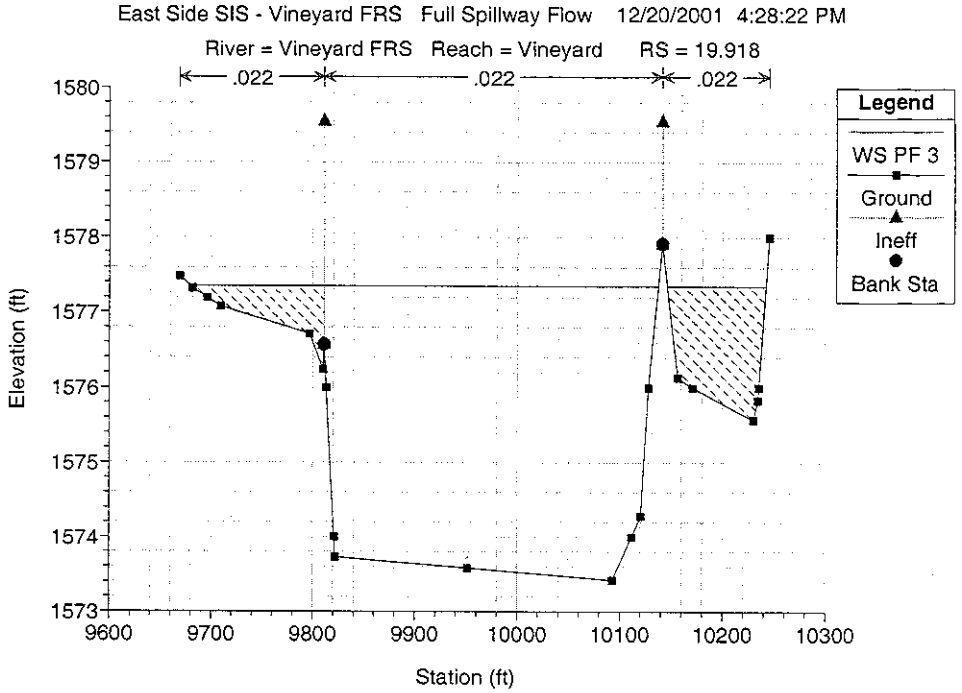
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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River = Vineyard FRS Reach = Vineyard RS = 19.918
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Legend
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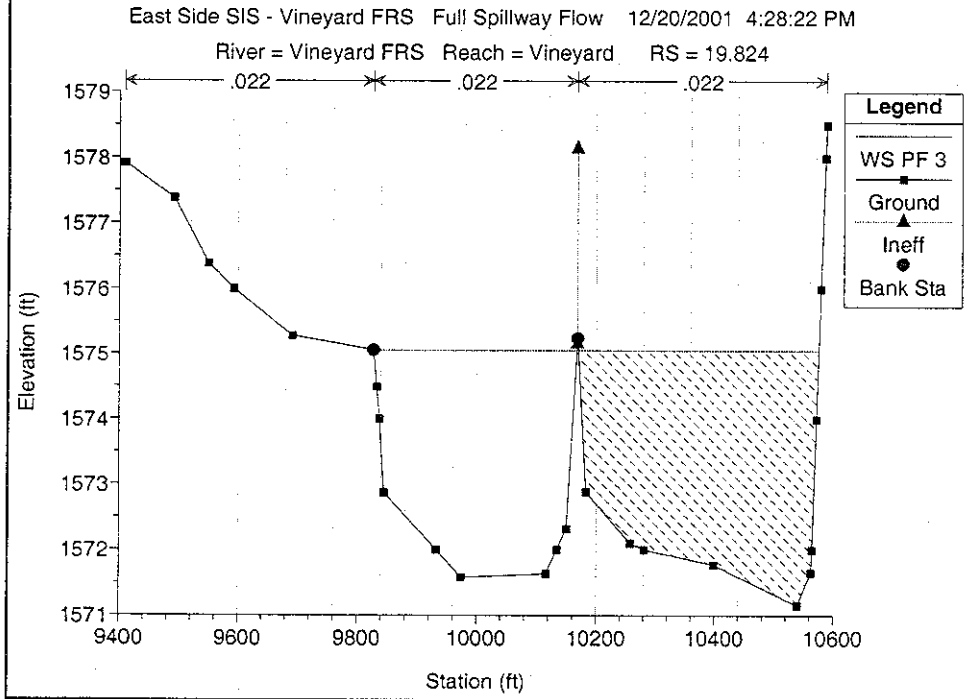
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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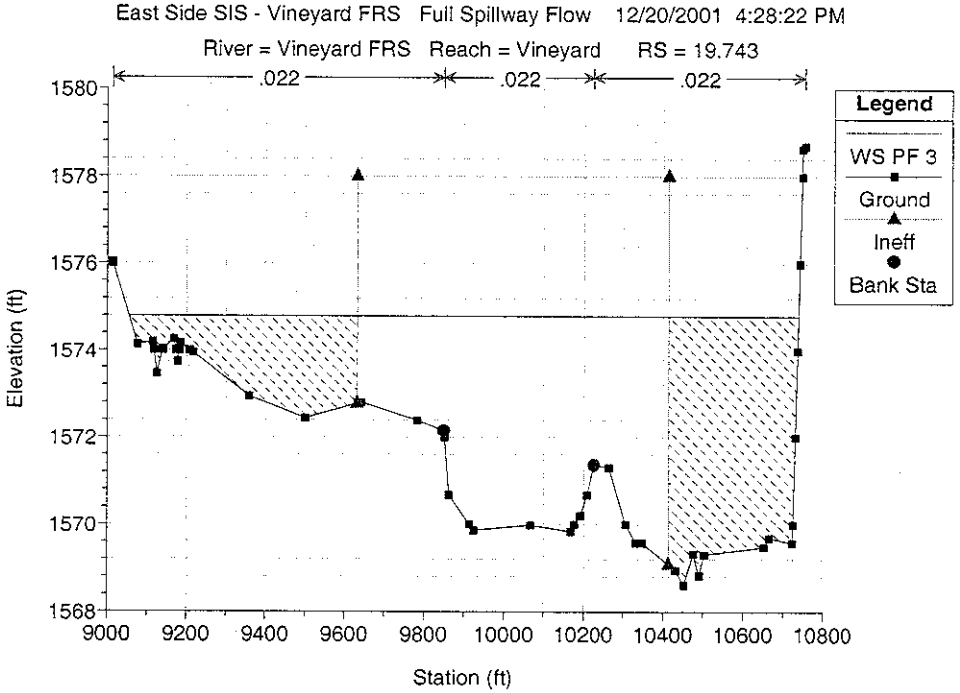
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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River = Vineyard FRS Reach = Vineyard RS = 19.743
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.022
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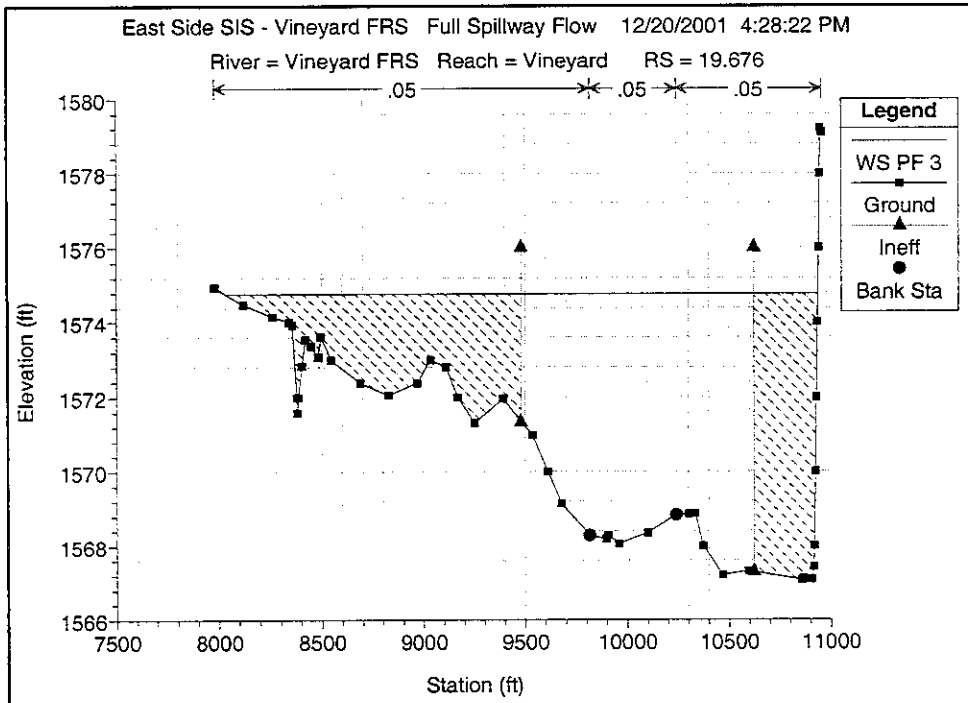
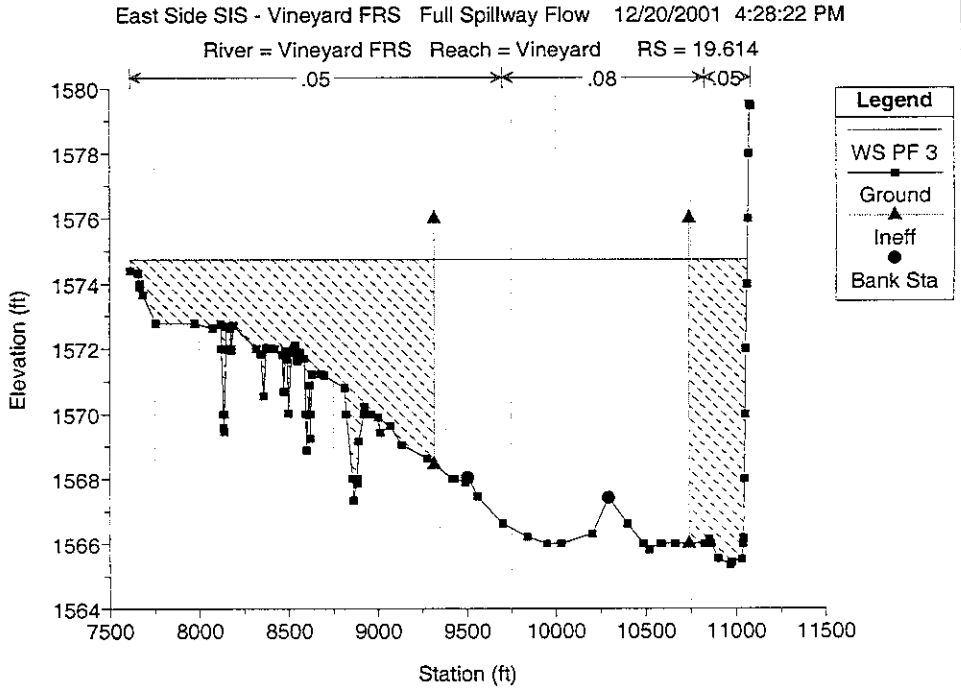
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 19.676
.05
.05
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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River = Vineyard FRS Reach = Vineyard RS = 19.614
.05
.08
.05
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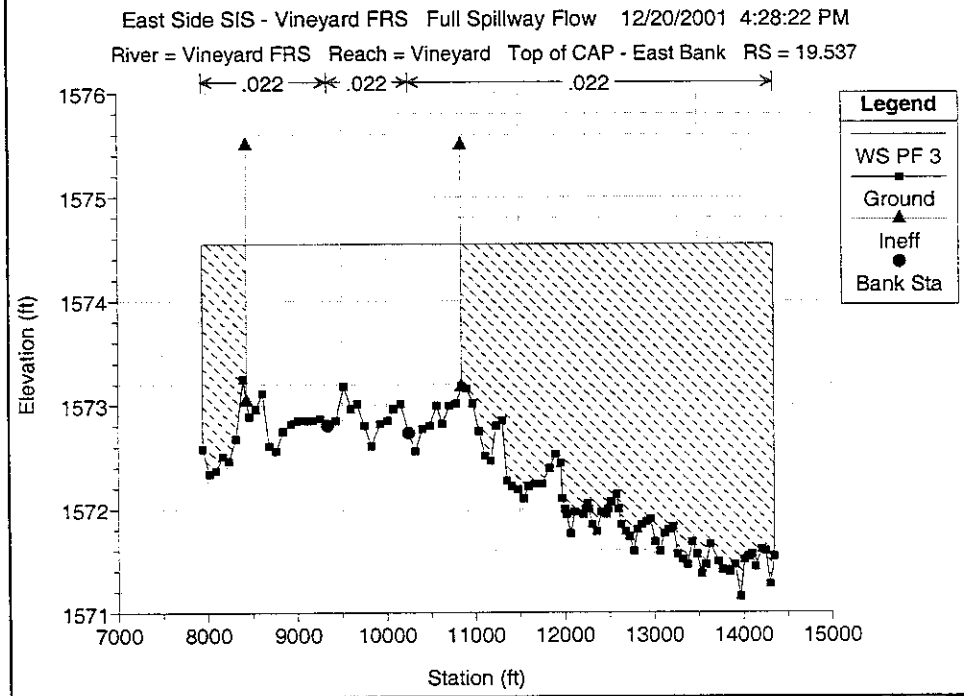
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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.022
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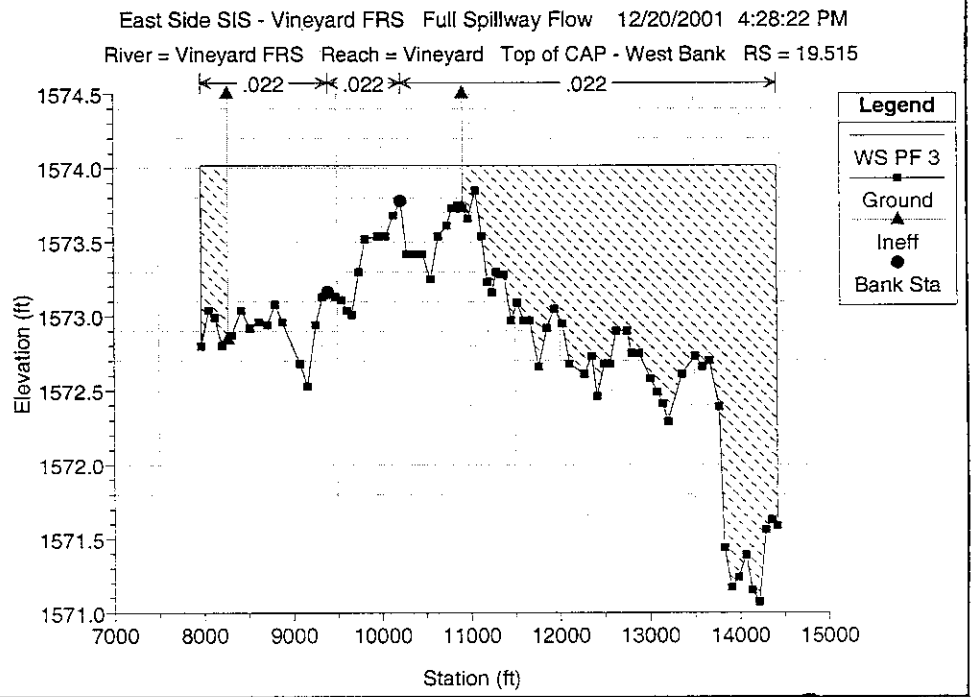
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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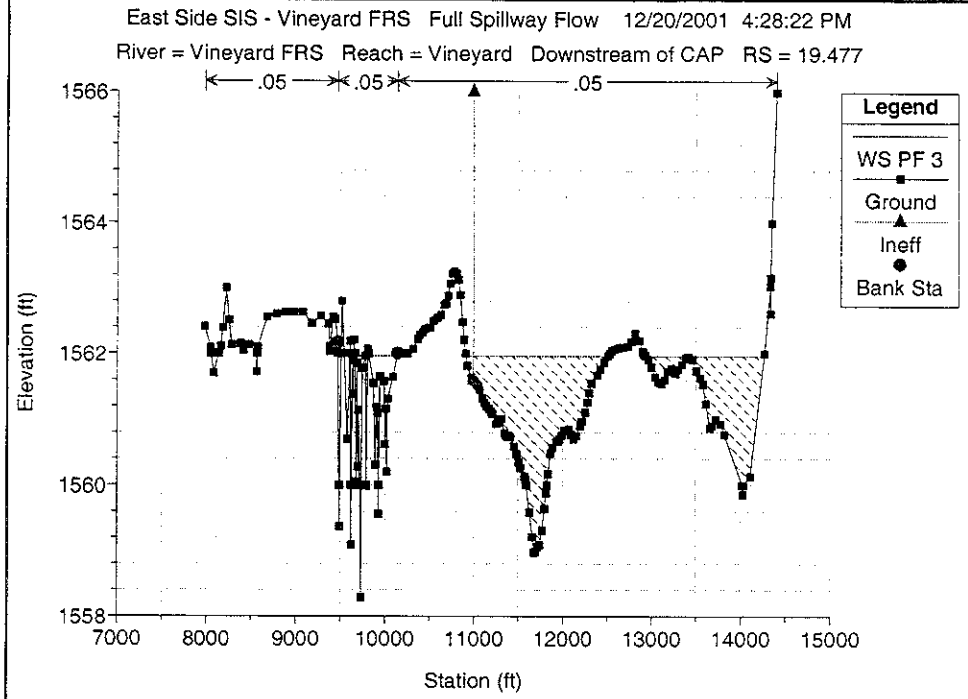
River = Vineyard FRS Reach = Vineyard Top of CAP - West Bank RS = 19.515
.022
.022
.022
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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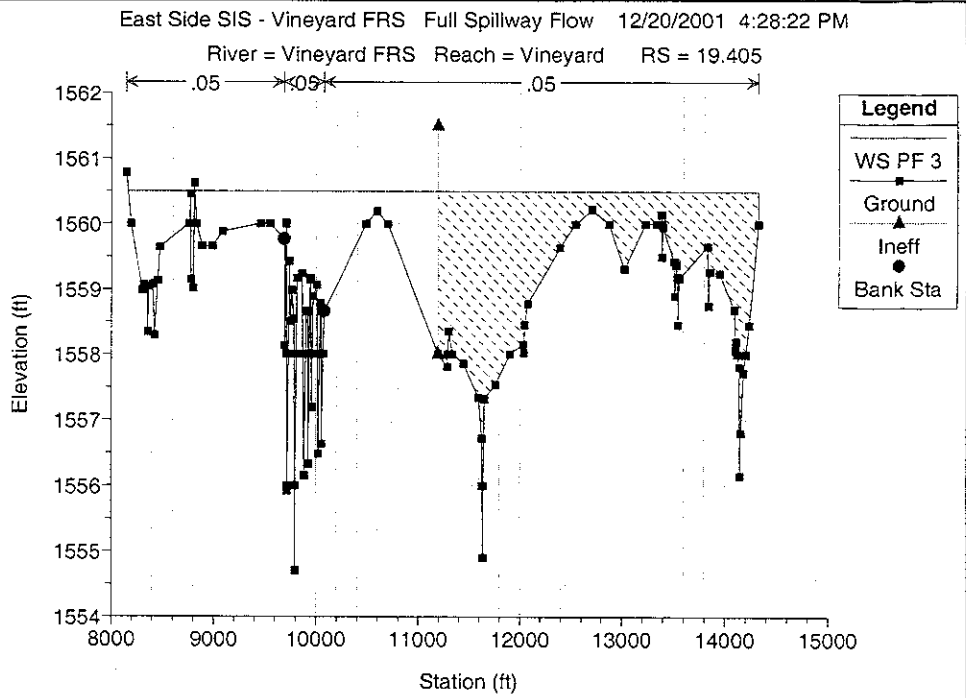
River = Vineyard FRS Reach = Vineyard Downstream of CAP RS = 19.477
.05
.05
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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River = Vineyard FRS Reach = Vineyard RS = 19.405
.05
.05
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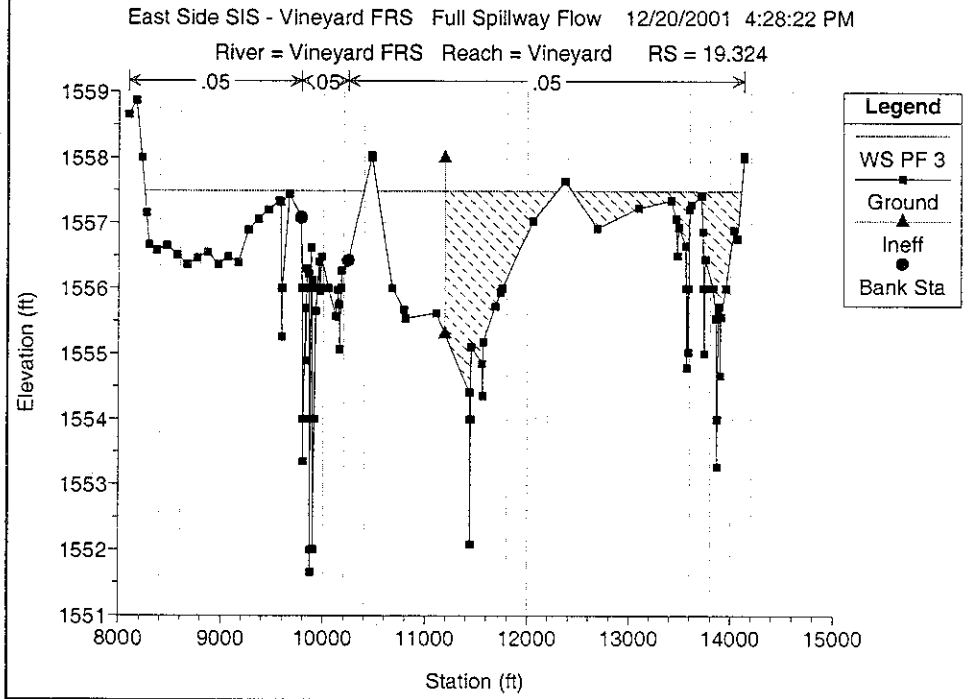
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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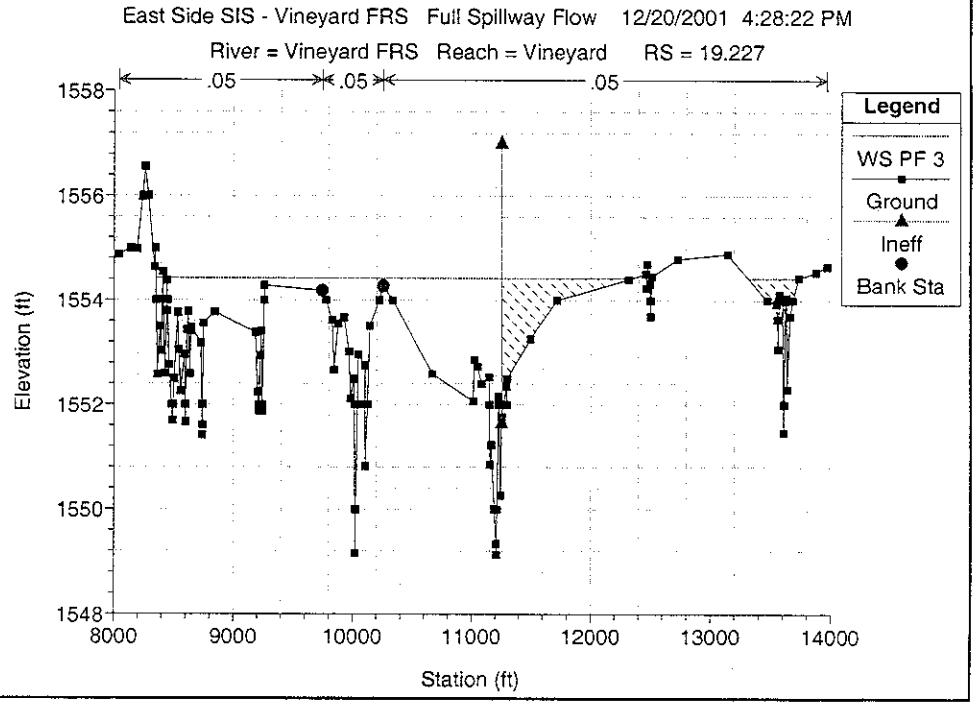
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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River = Vineyard FRS Reach = Vineyard RS = 19.227
.05
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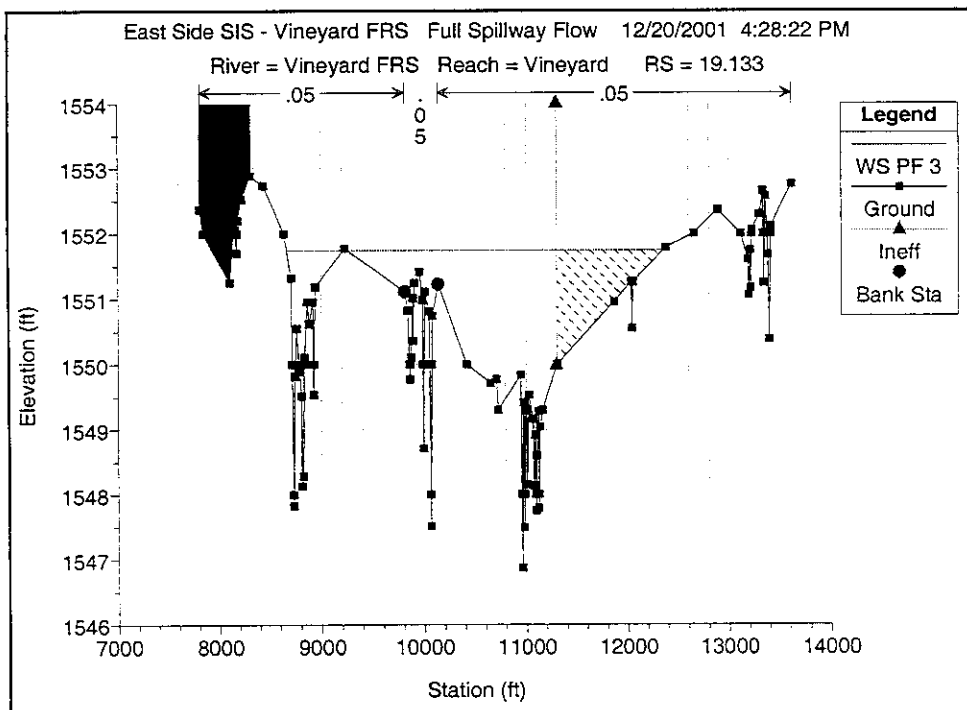
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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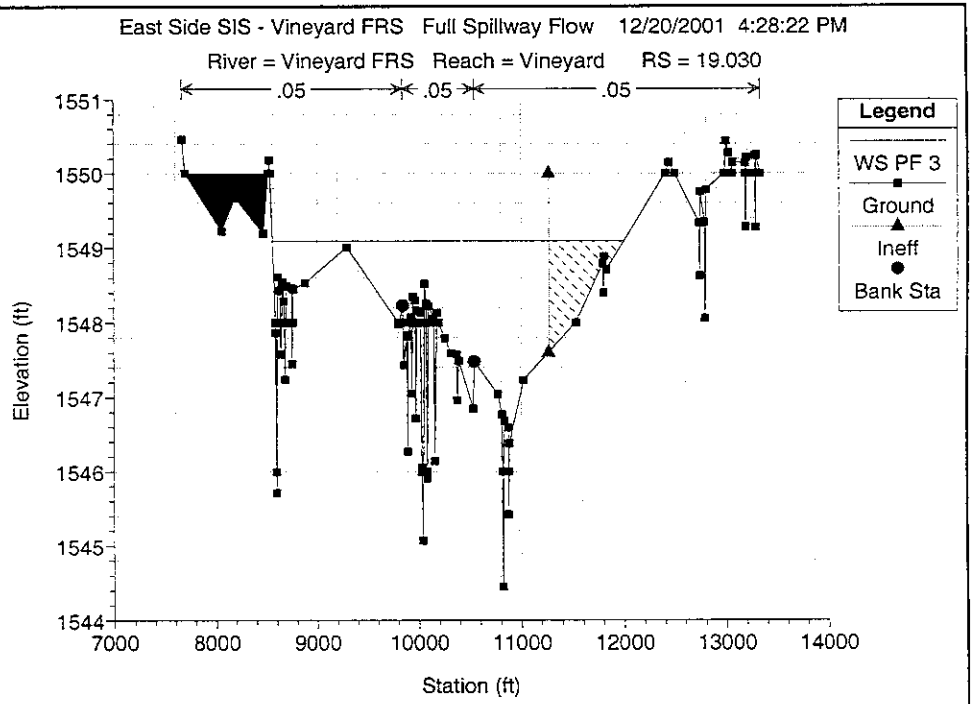
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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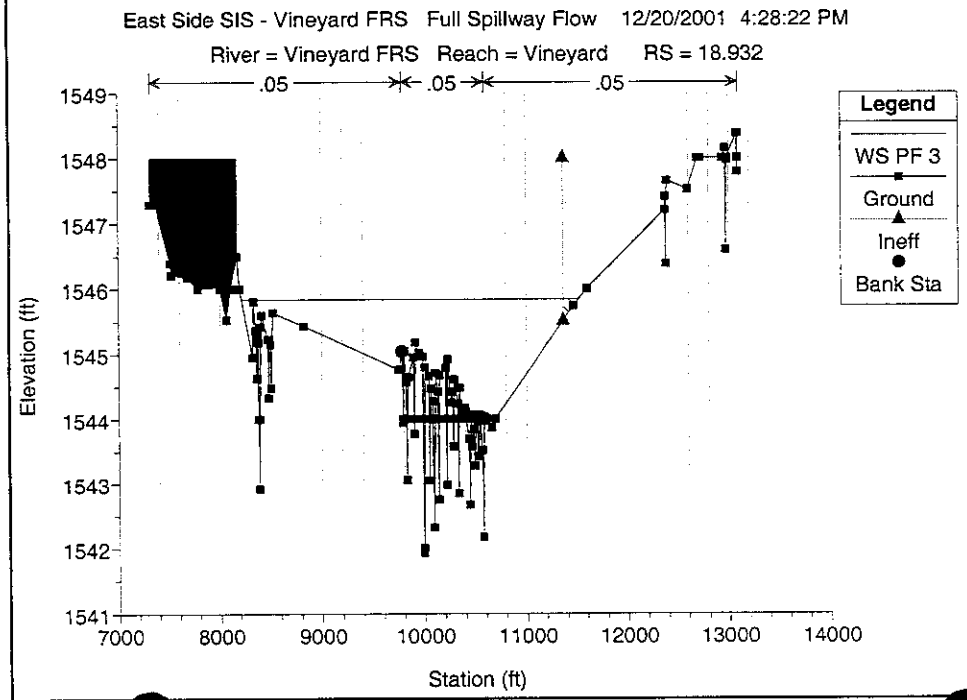
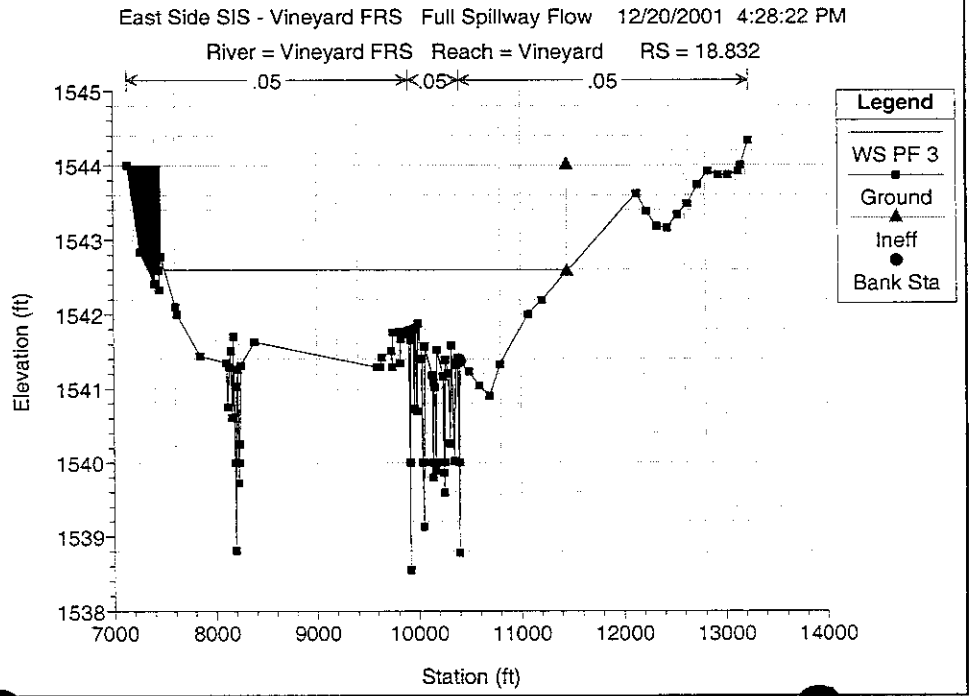
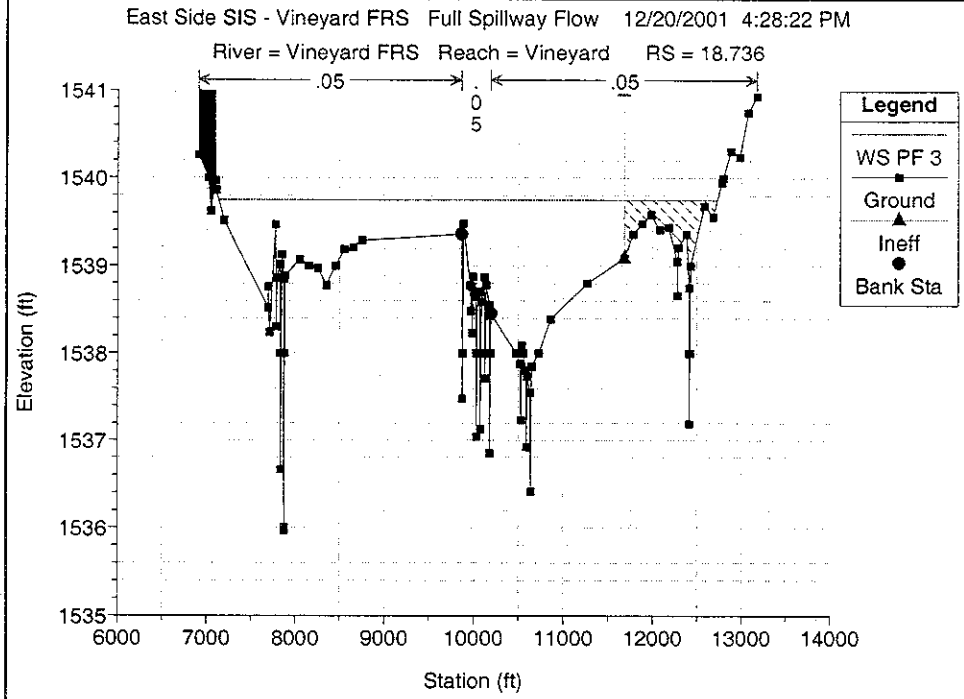
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 18.932
.05
.05
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 18.832
.05
.05
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 18.736
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.05
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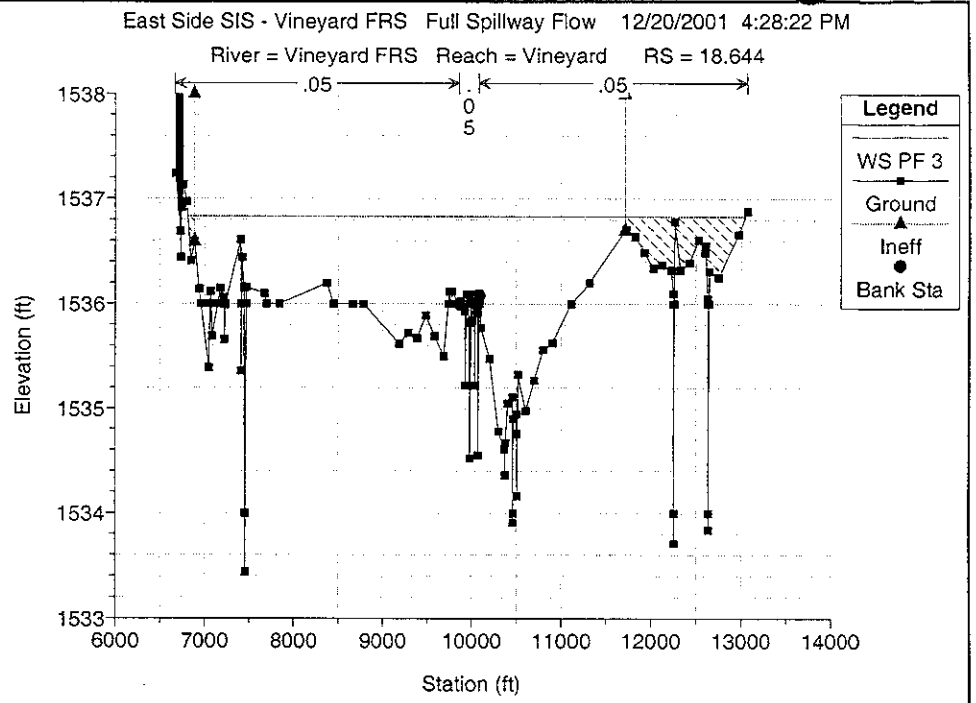
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 18.644
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.05
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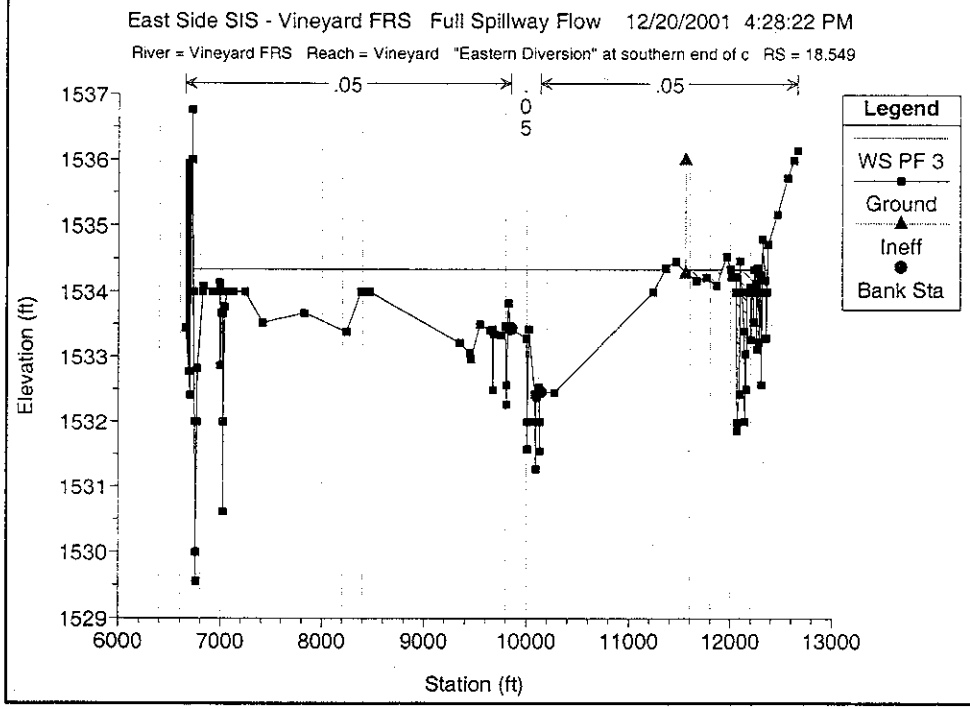
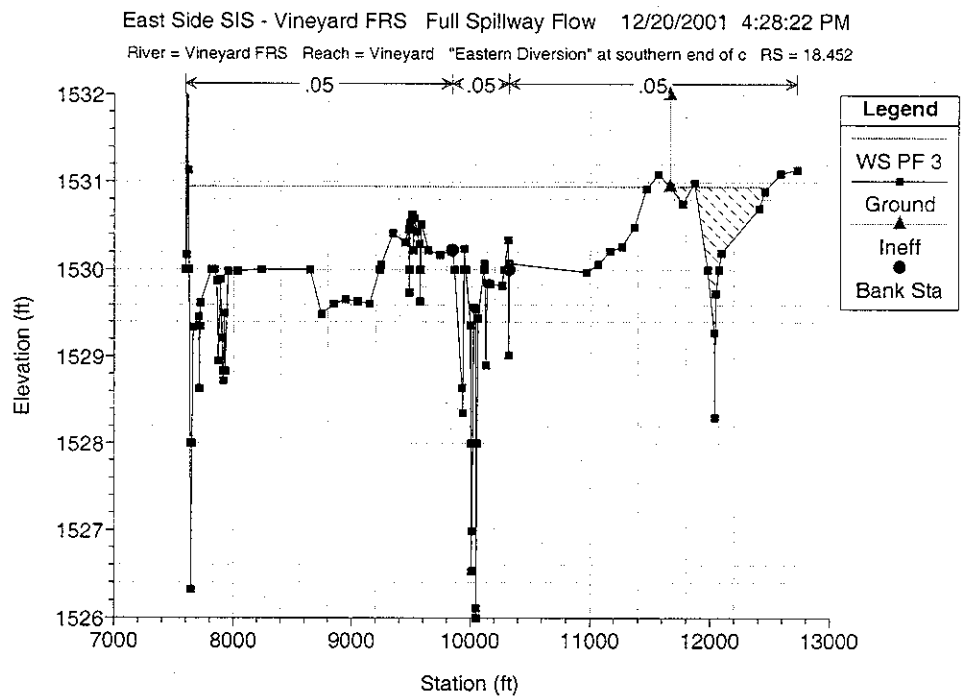
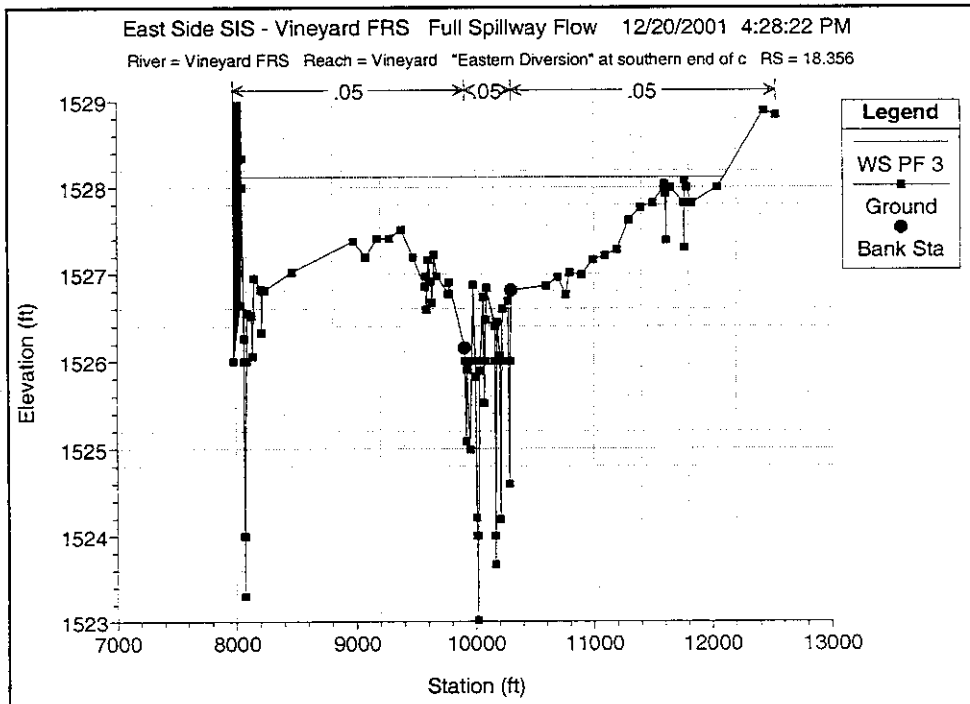
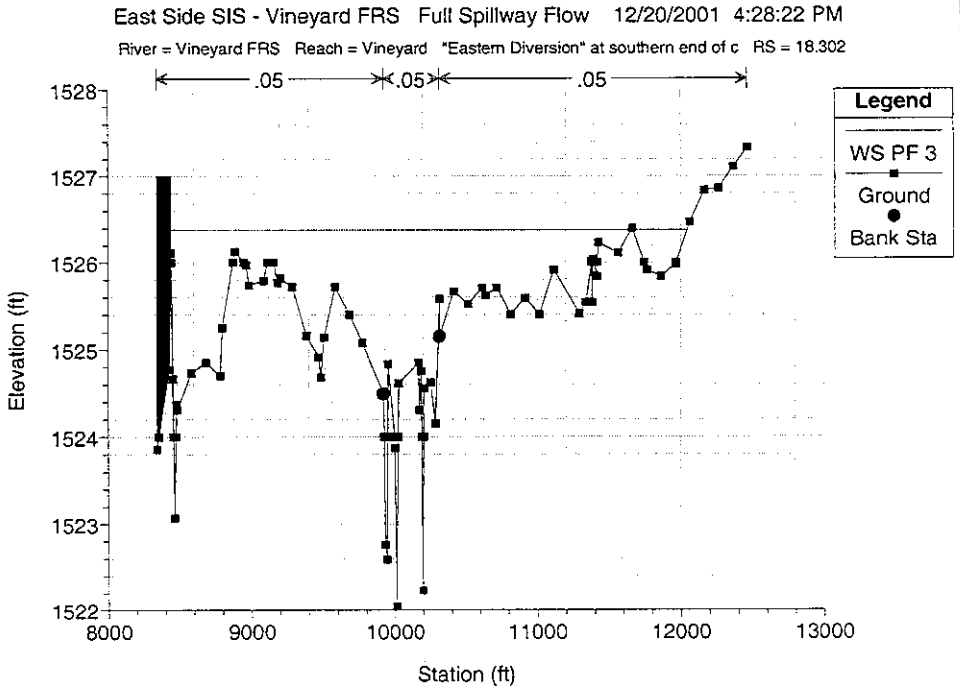
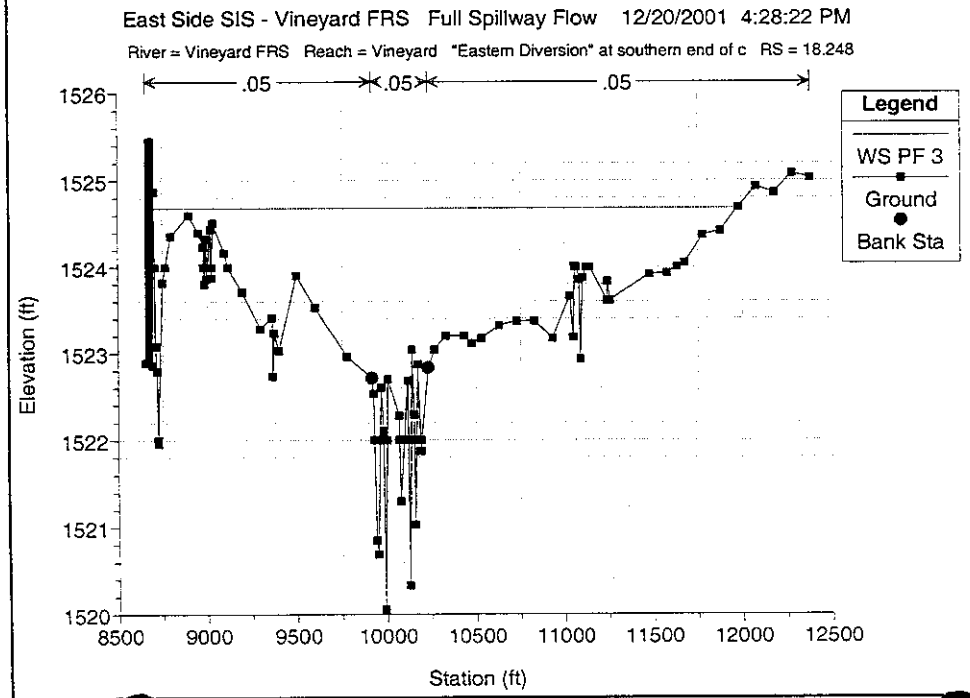
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

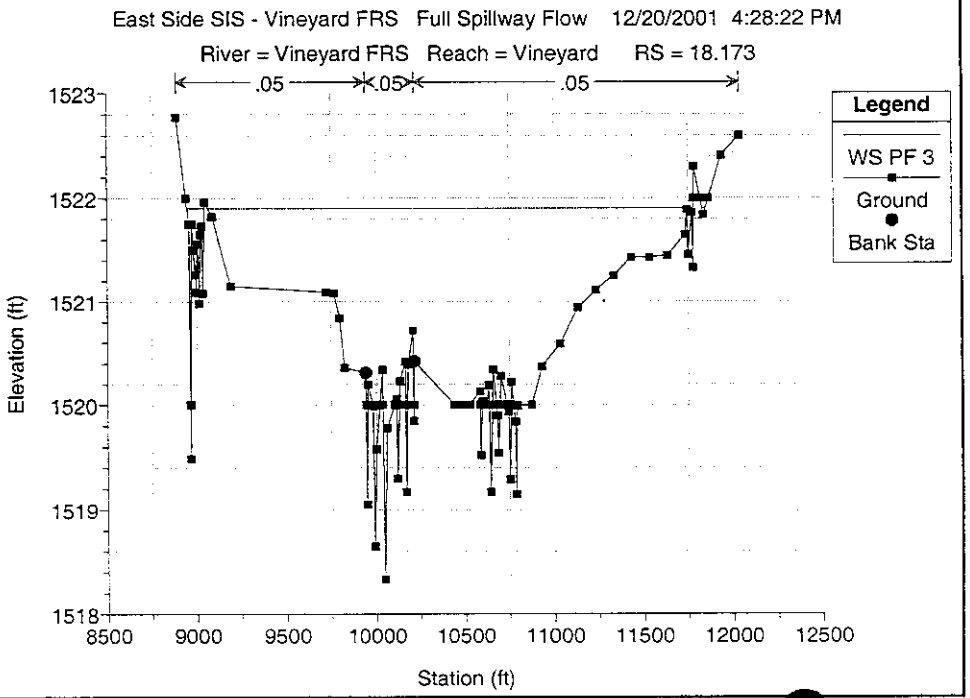

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard "Eastern Diversion" at southern end of c RS = 18.549
.05
.05
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

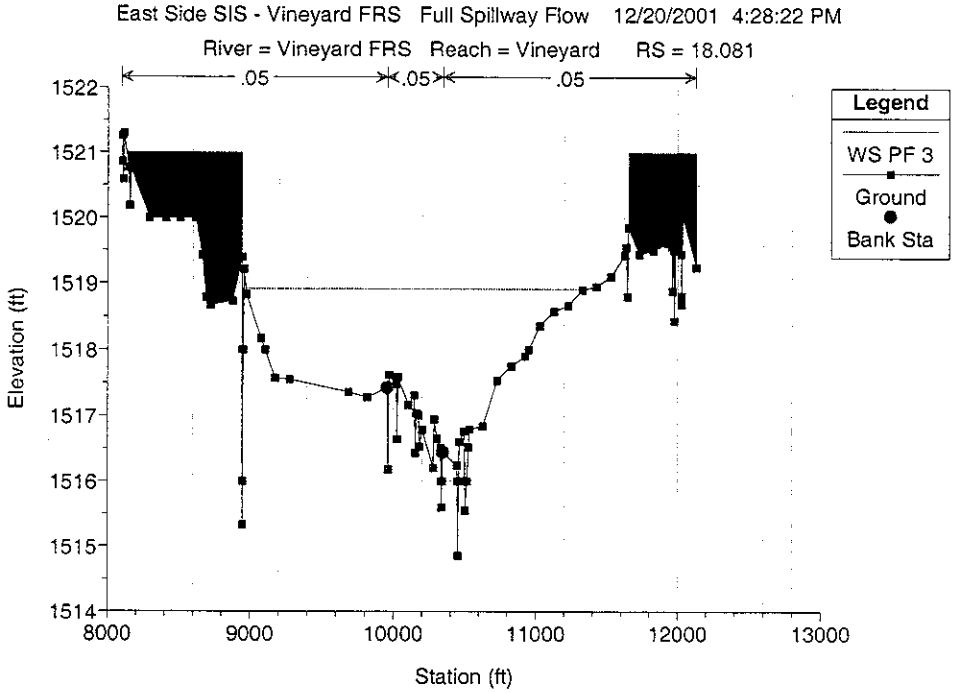

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard "Eastern Diversion" at southern end of c RS = 18.452
.05
.05
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

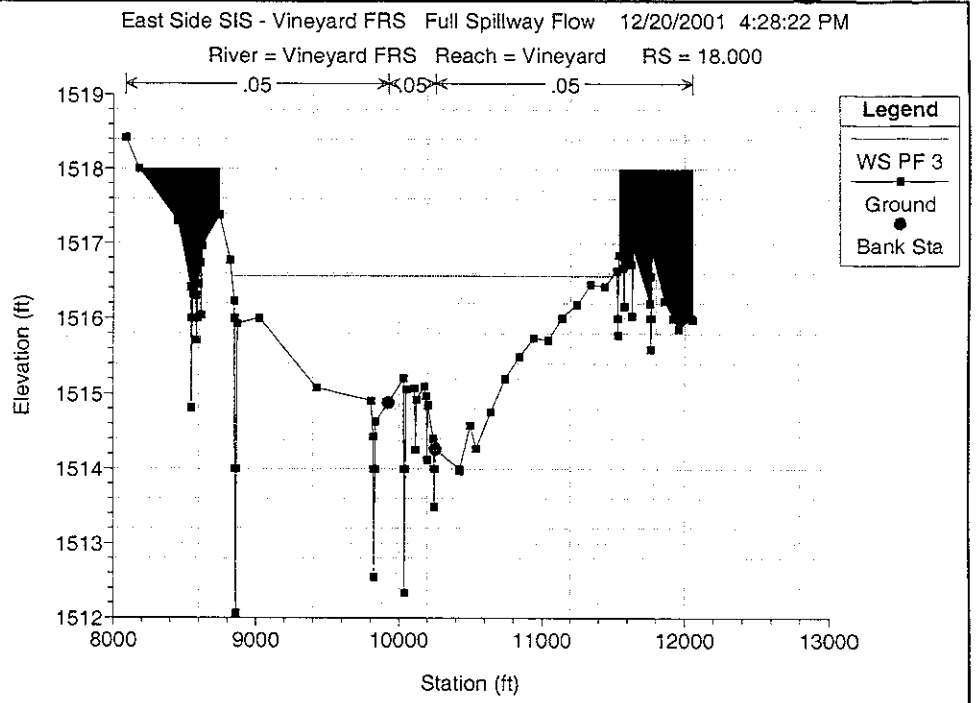

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard "Eastern Diversion" at southern end of c RS = 18.356
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

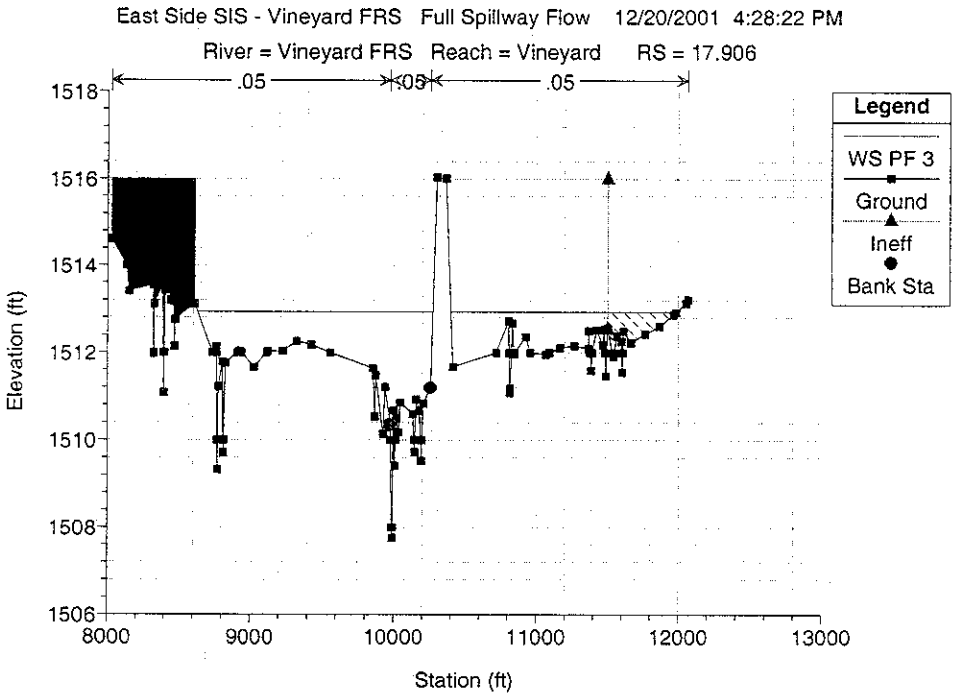

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard "Eastern Diversion" at southern end of c RS = 18.302
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

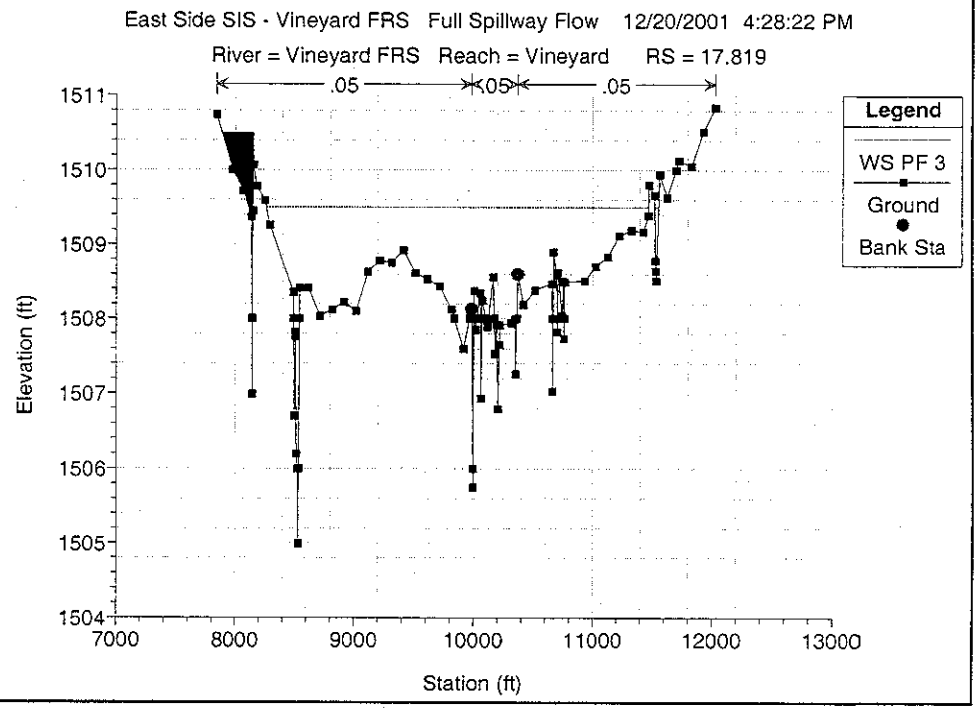

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard "Eastern Diversion" at southern end of c RS = 18.248
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

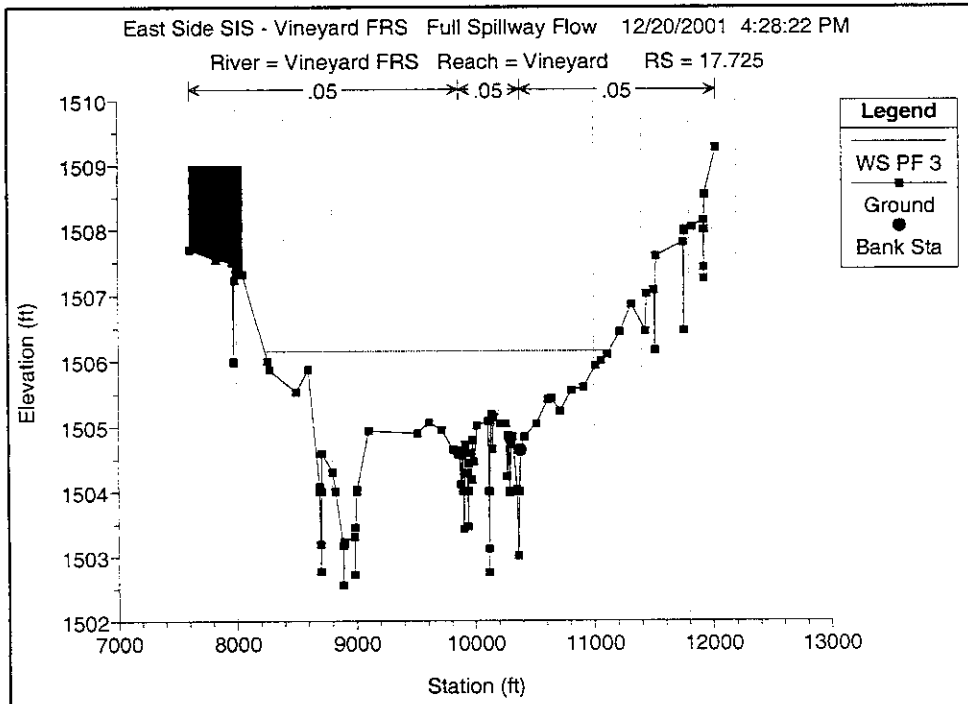

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 18.173
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 18.081
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 18.000
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 17.906
.05
.05
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 17.819
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 17.725
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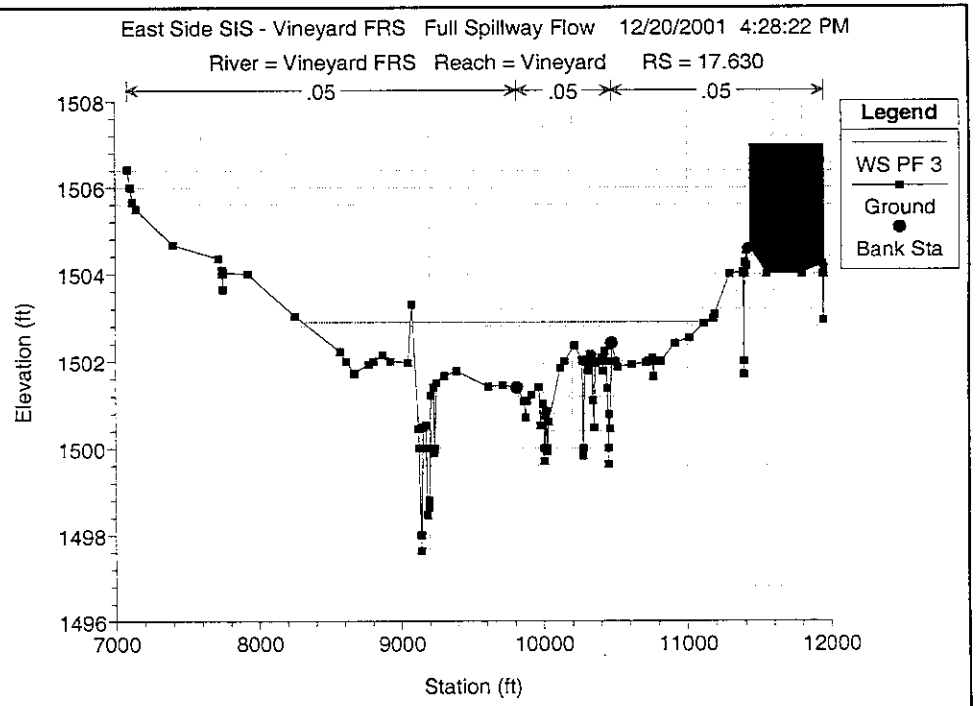
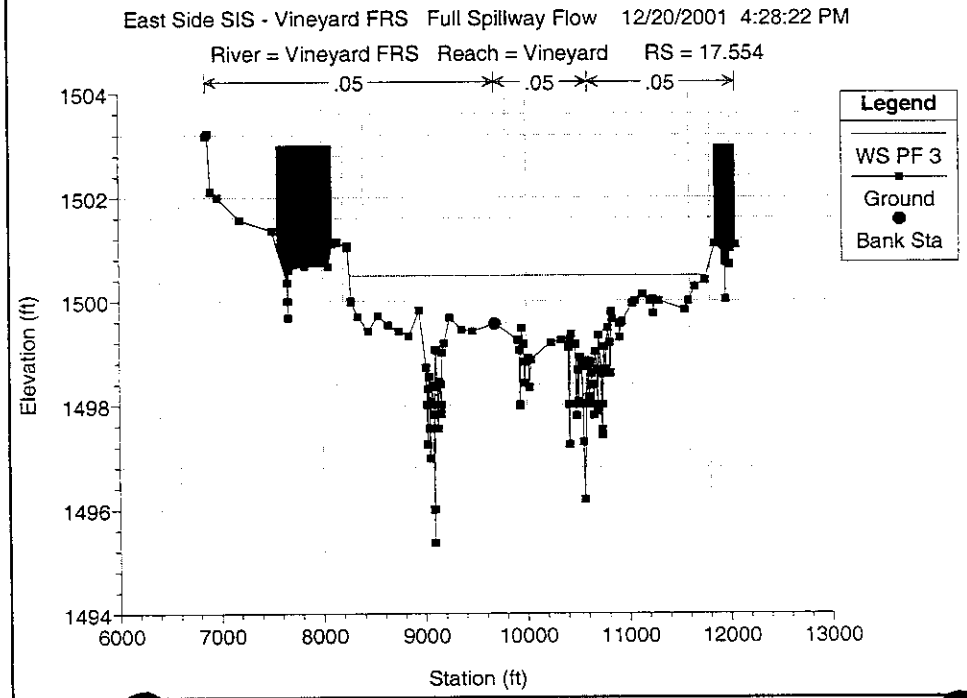
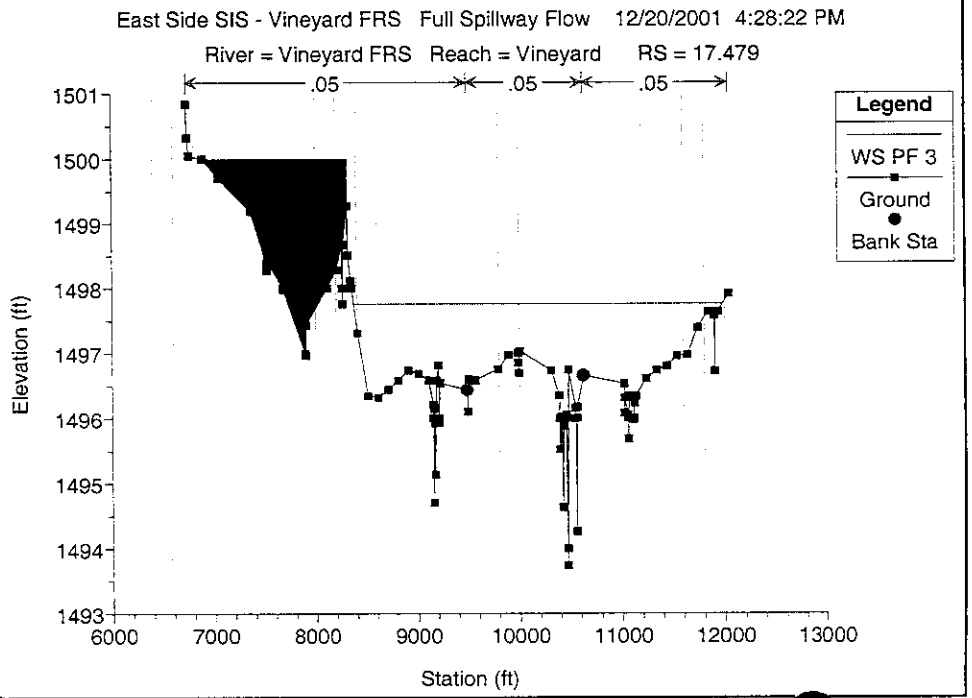
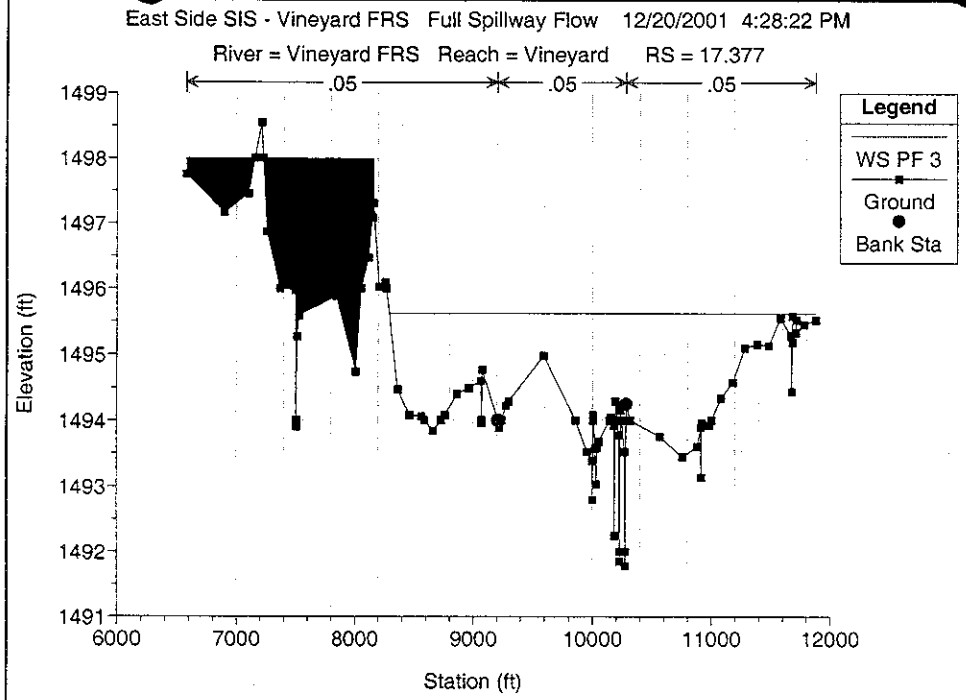
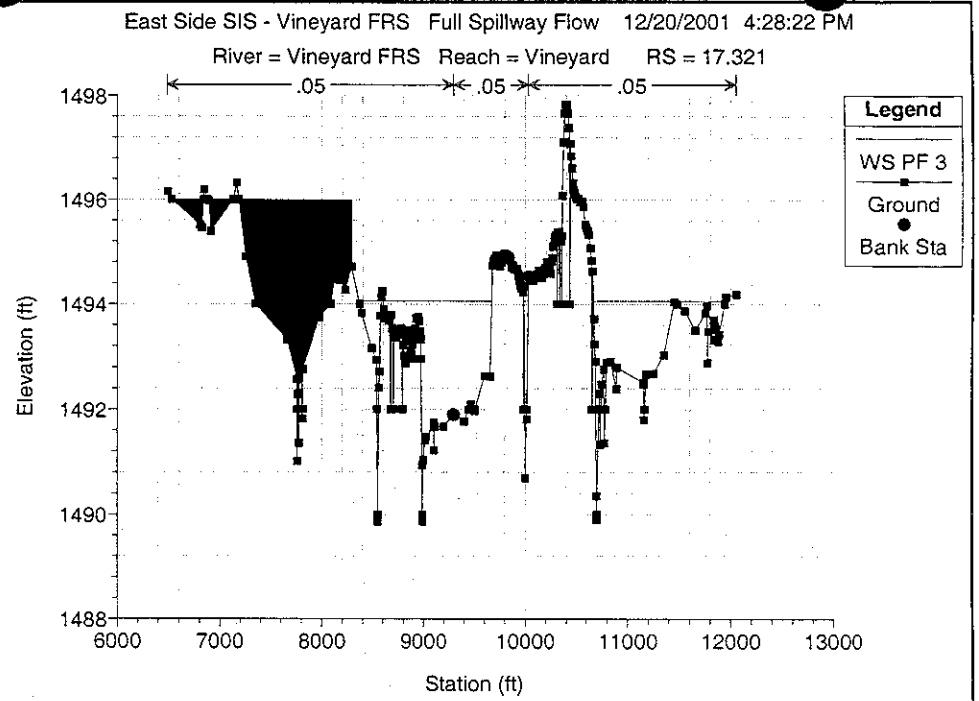
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

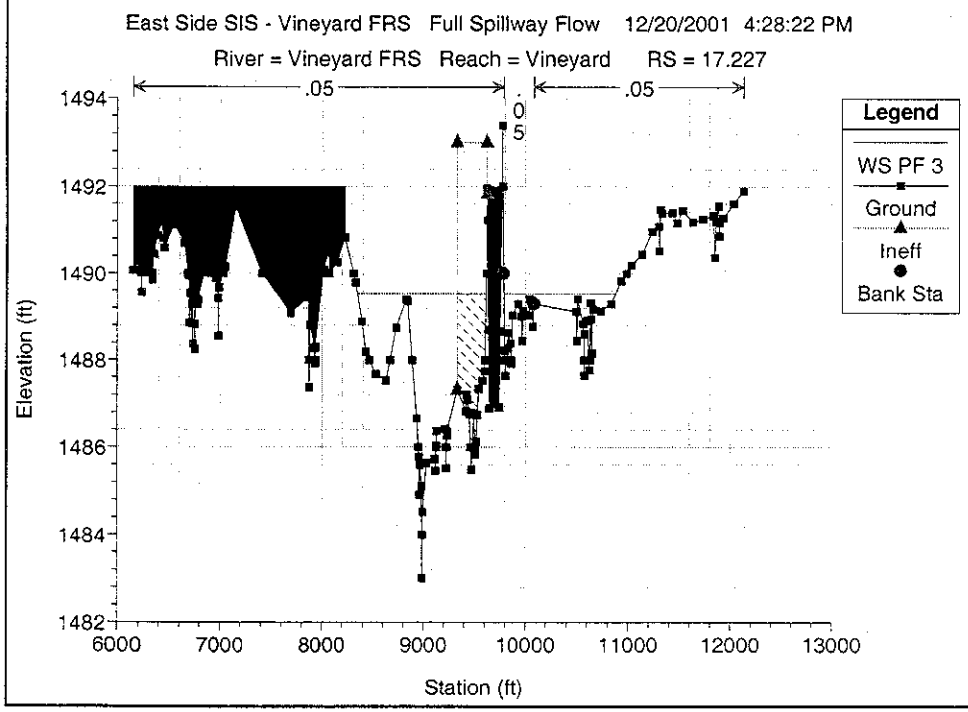

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 17.630
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

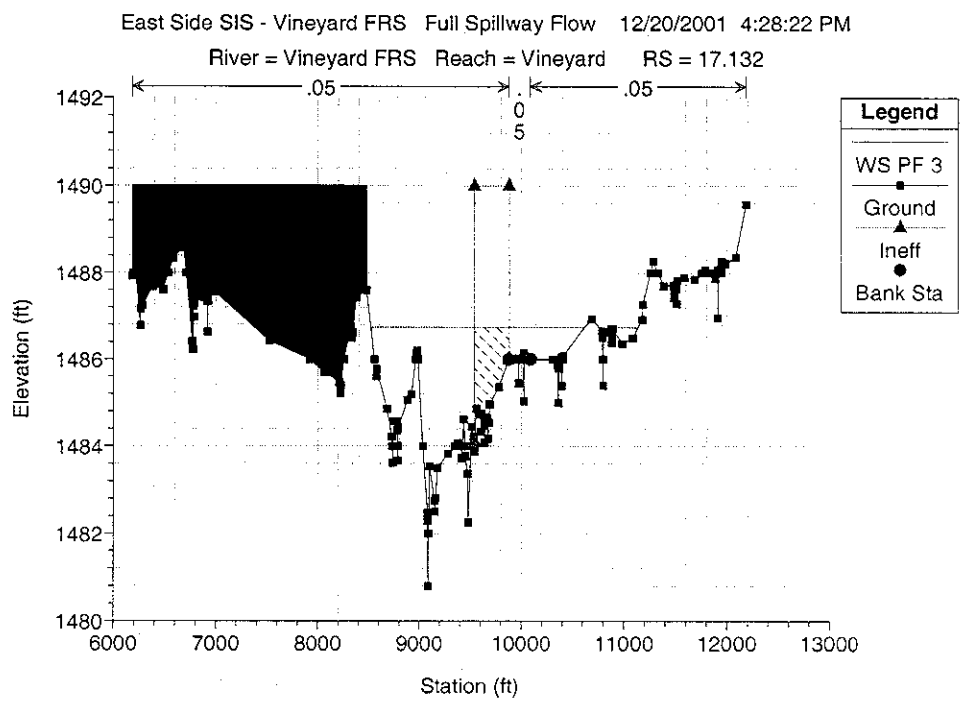

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 17.554
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

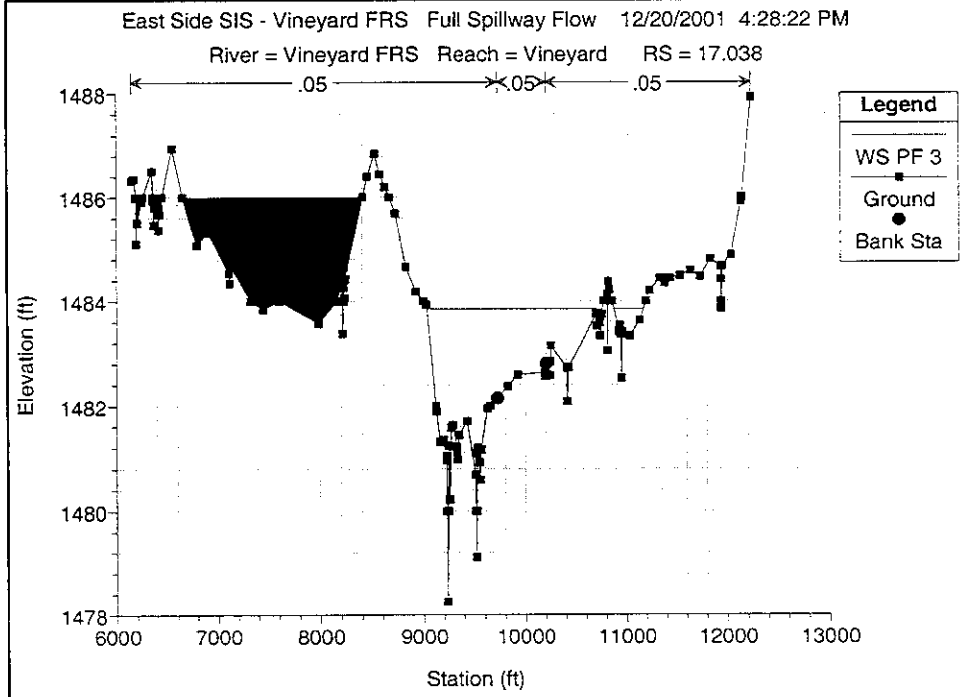

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 17.479
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

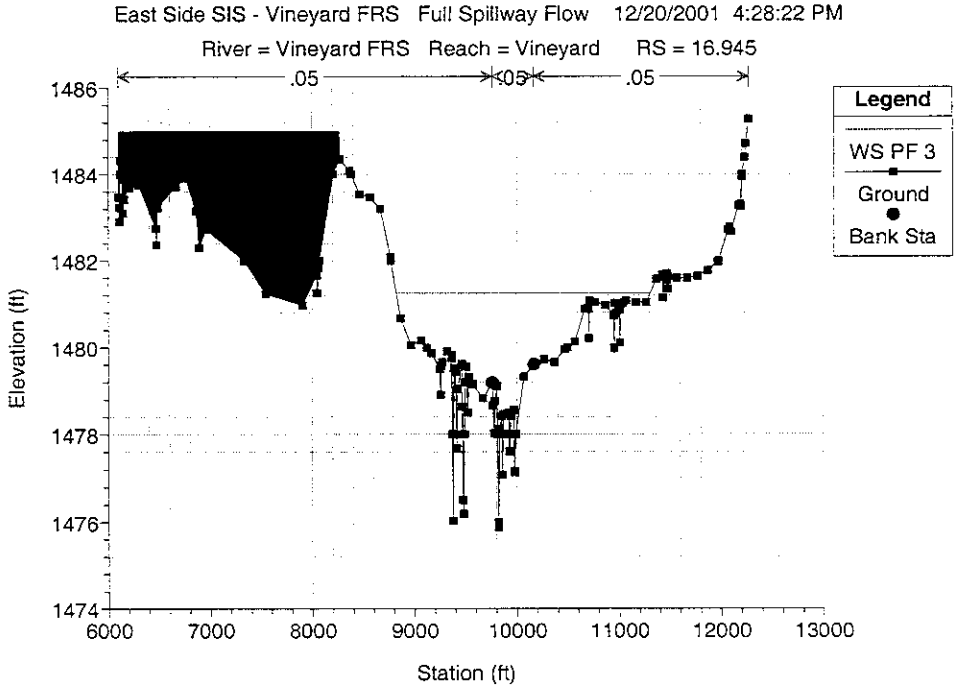

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 17.377
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

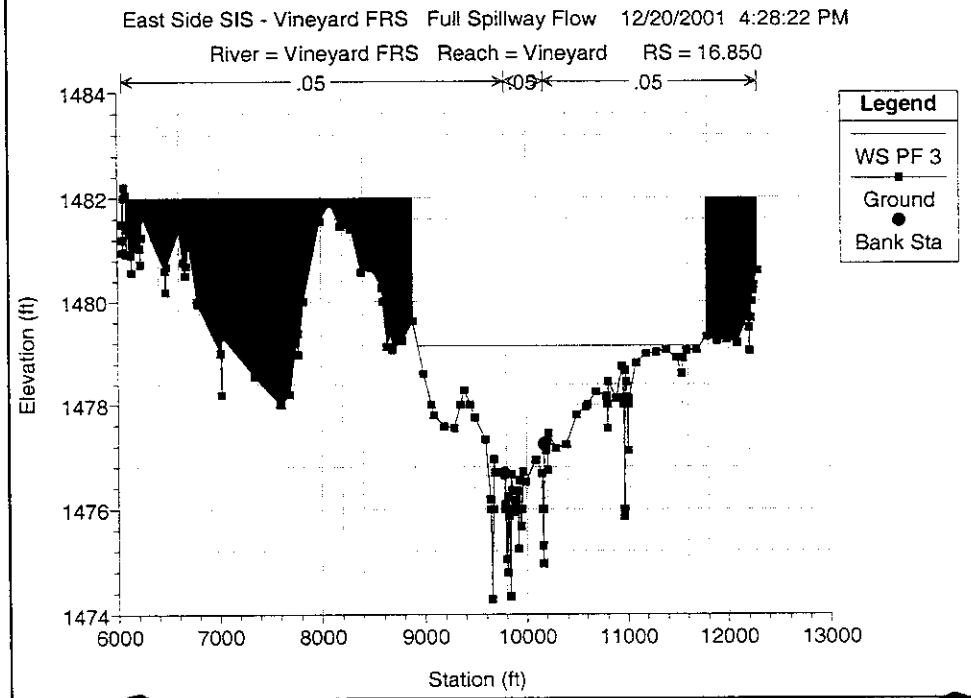

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 17.321
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

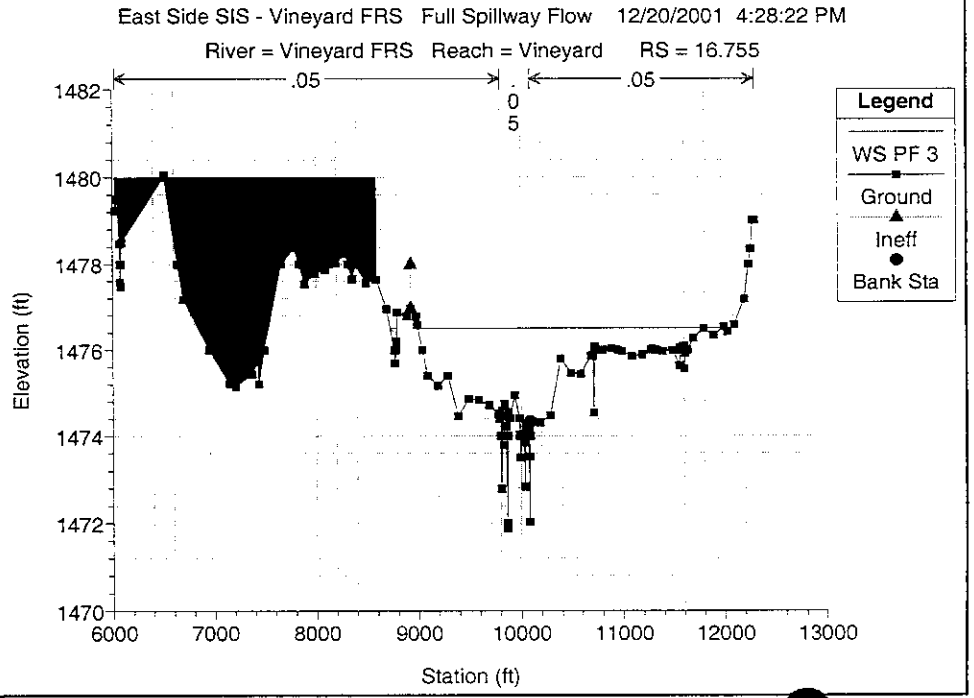

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 17.227
.05
.05
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

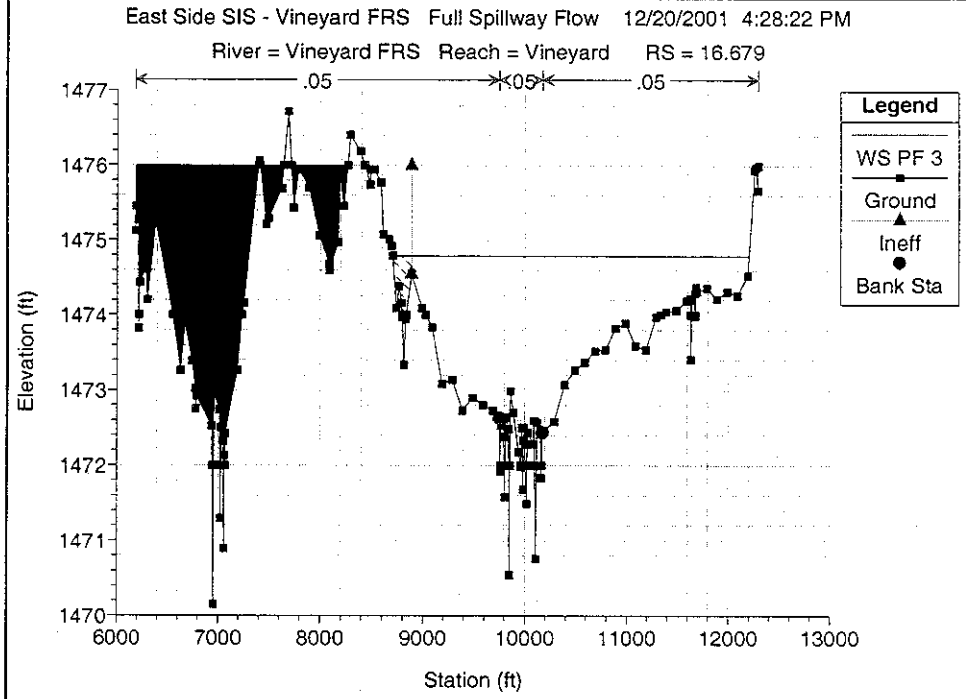

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 17.132
.05
.05
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

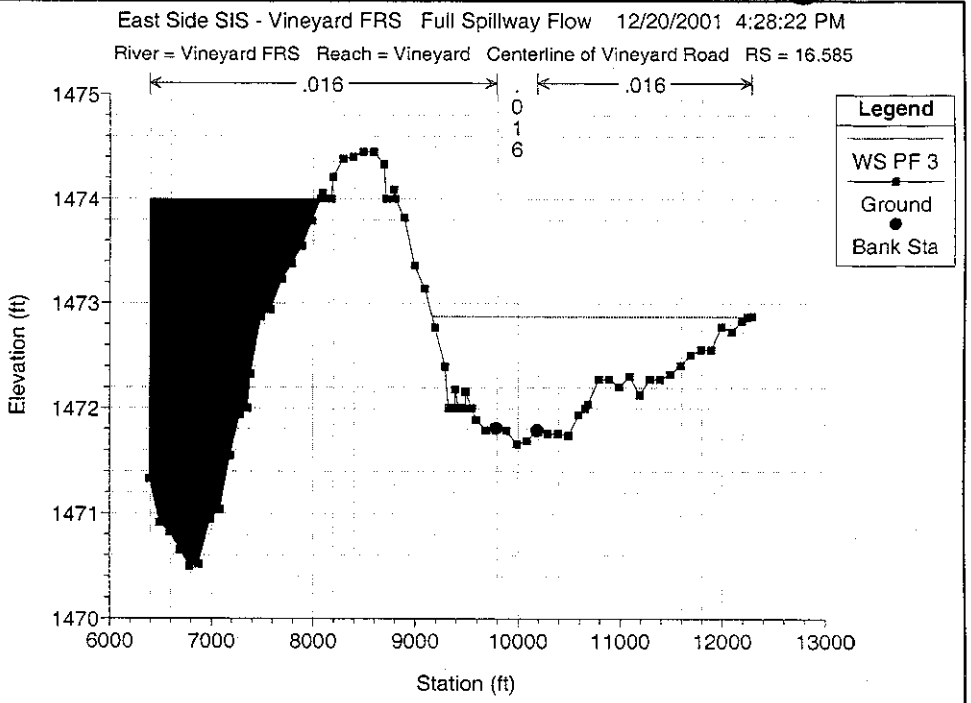

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 17.038
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

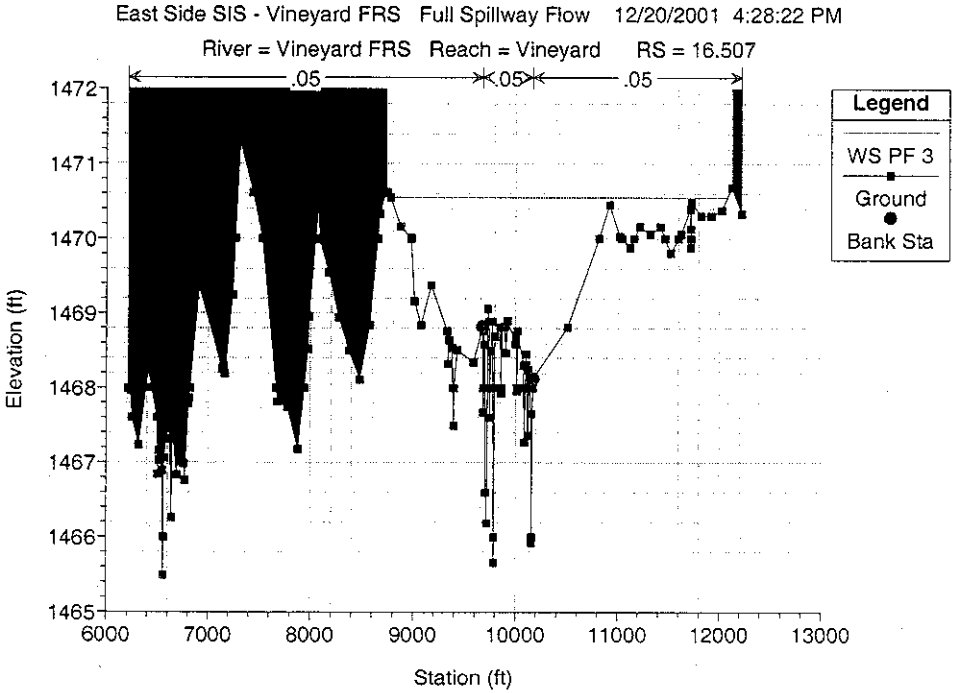

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 16.945
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

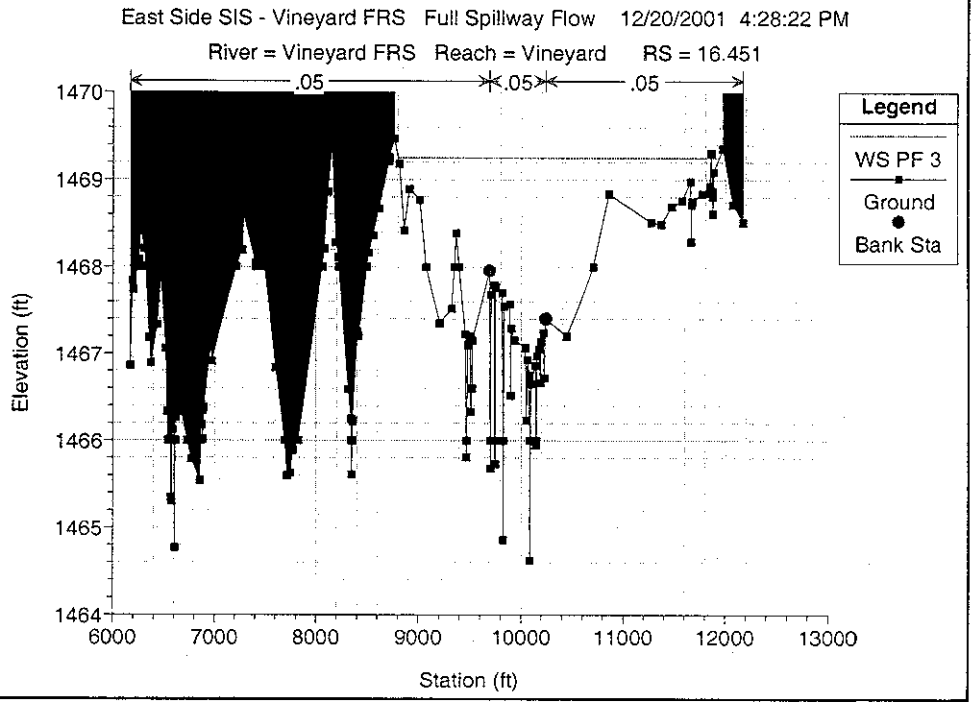

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 16.850
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

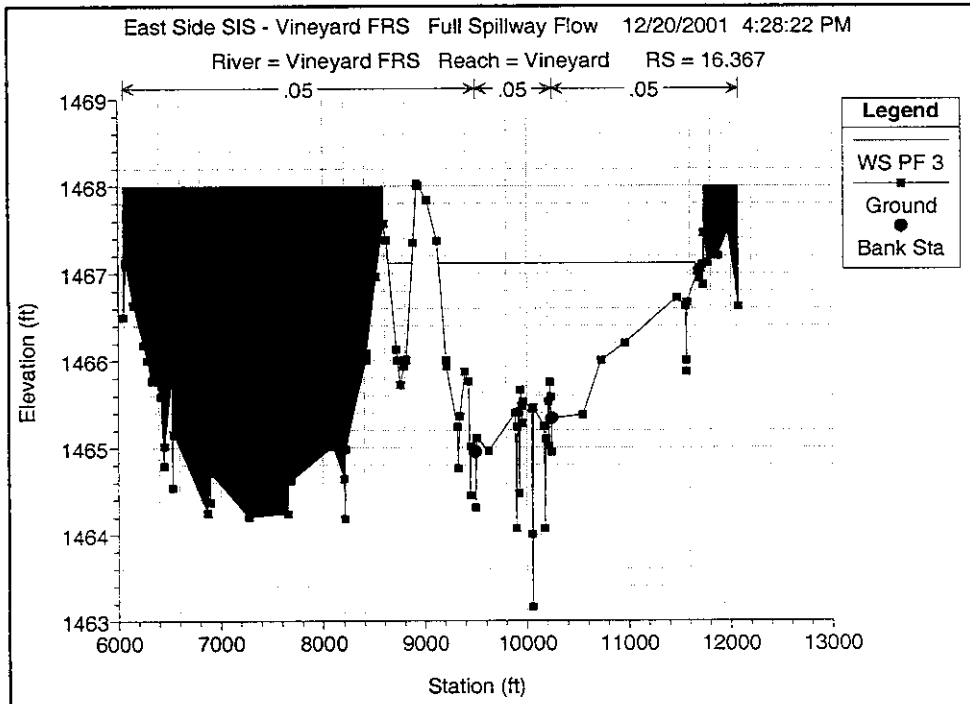

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 16.755
.05
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

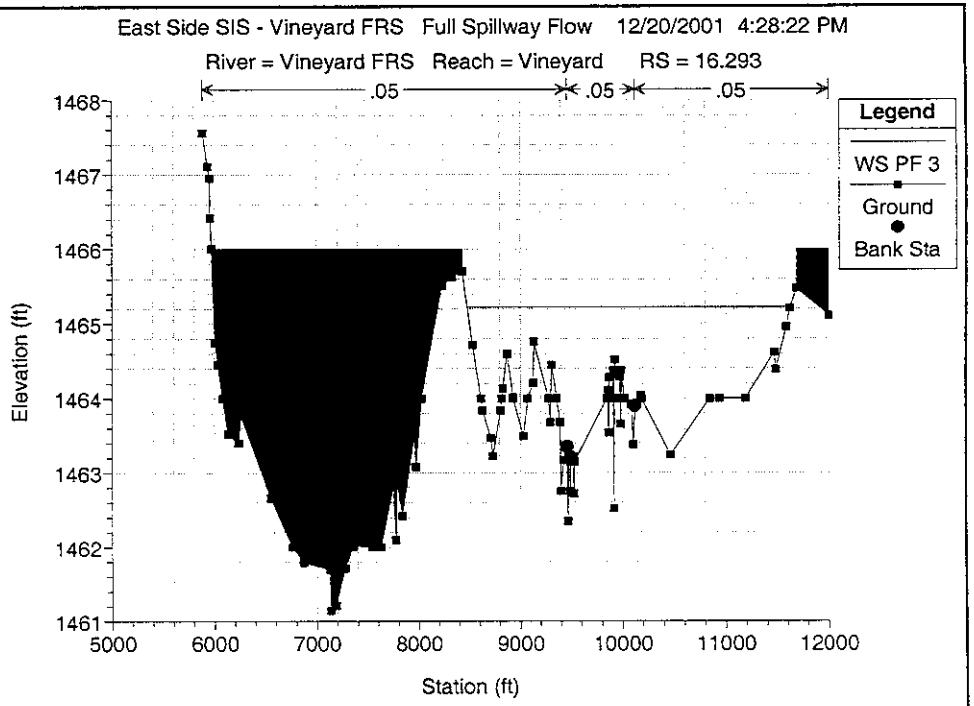

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 16.679
.05
.05
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

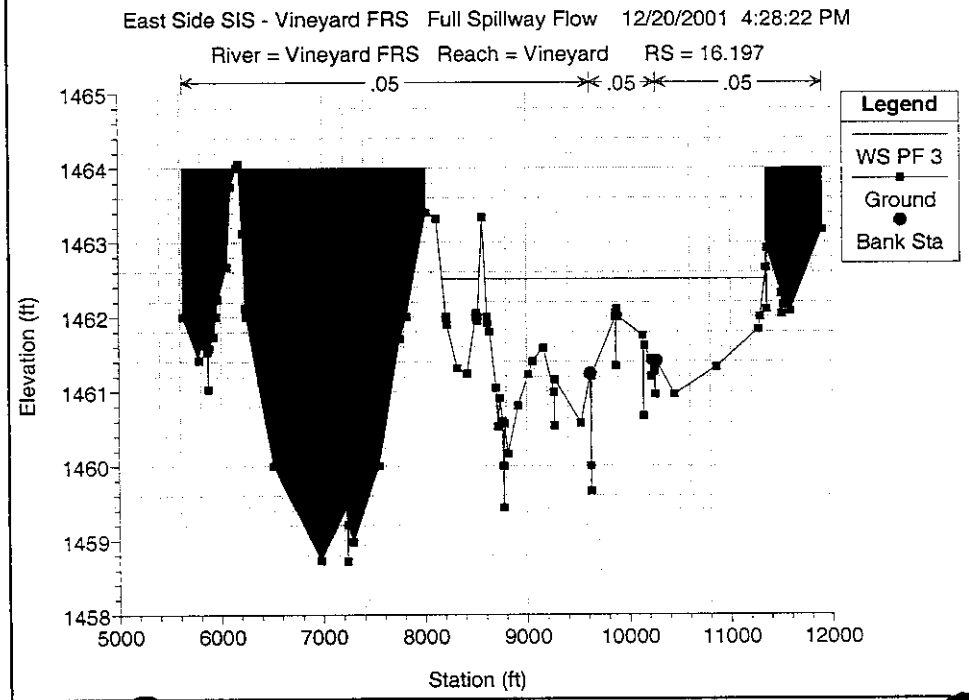

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard Centerline of Vineyard Road RS = 16.585
.016
.016
.016
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

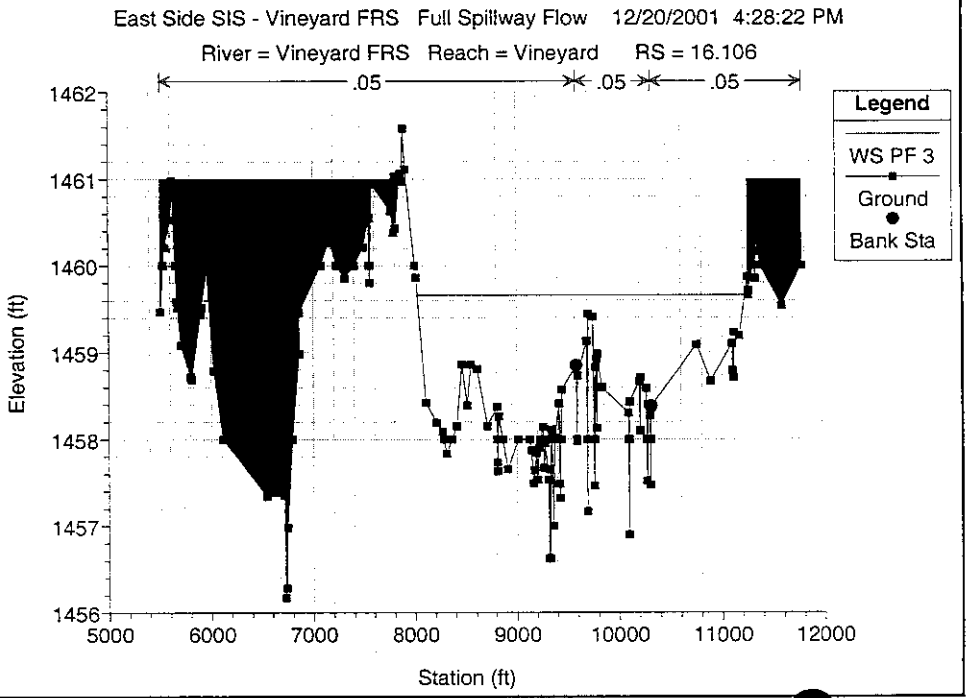

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 16.507
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

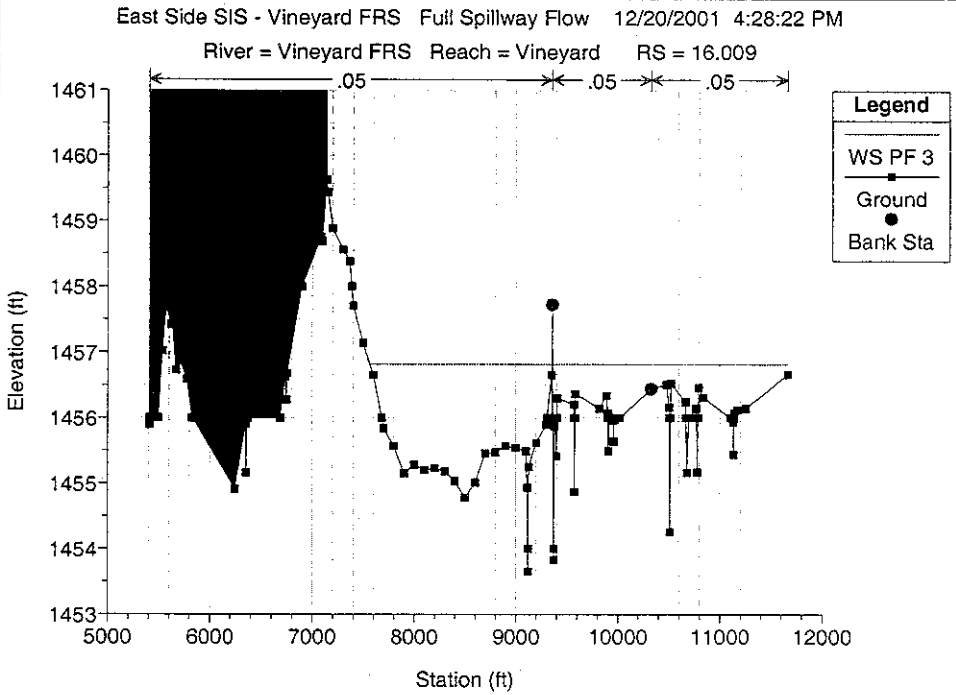

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 16.451
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

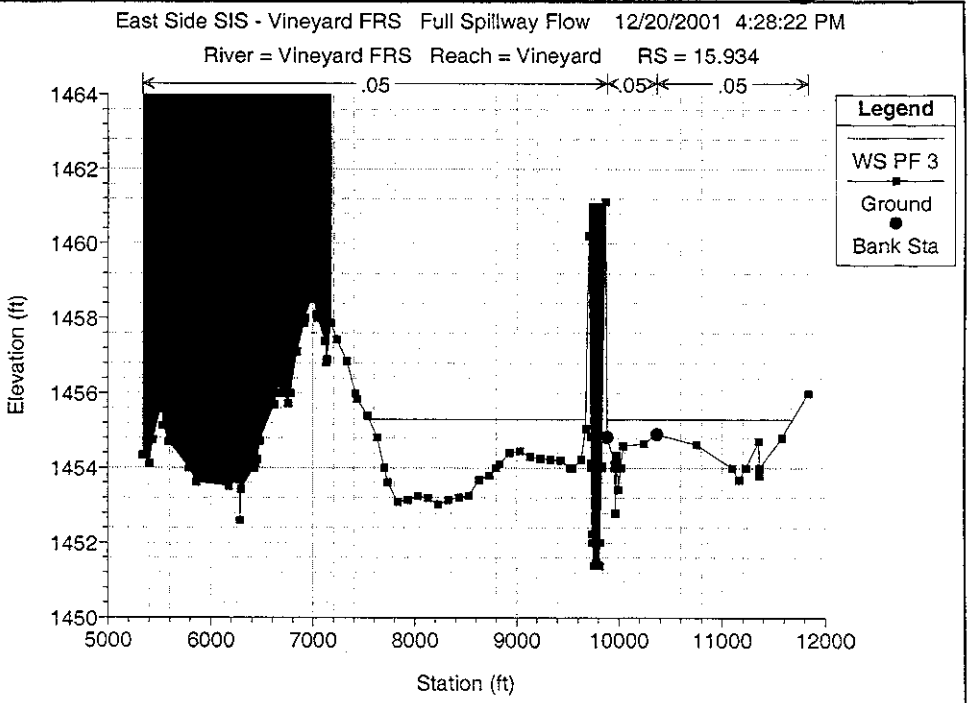

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 16.367
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

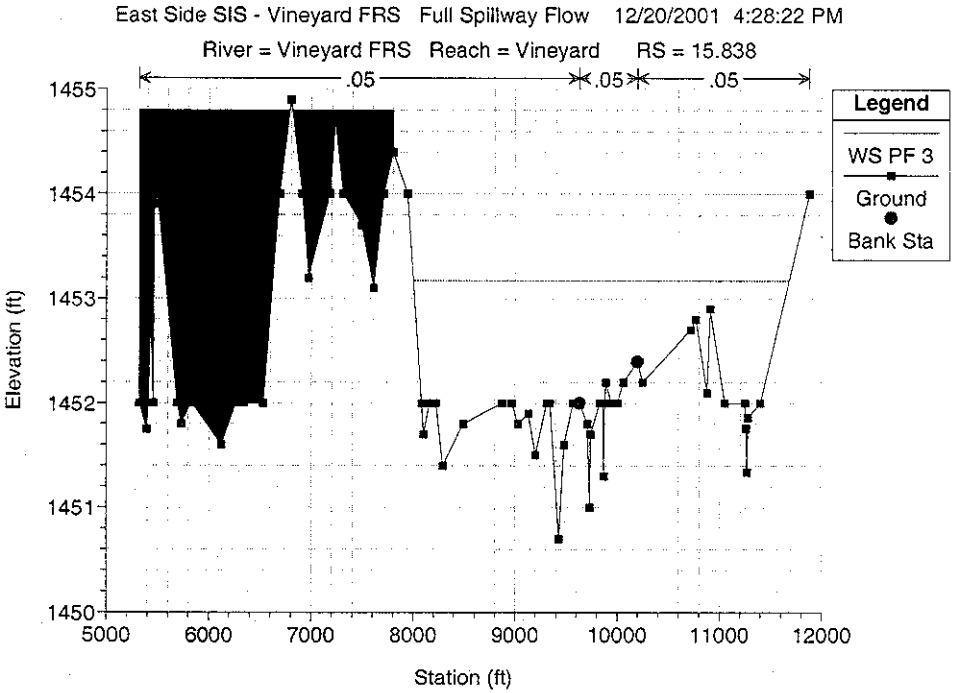

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 16.293
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

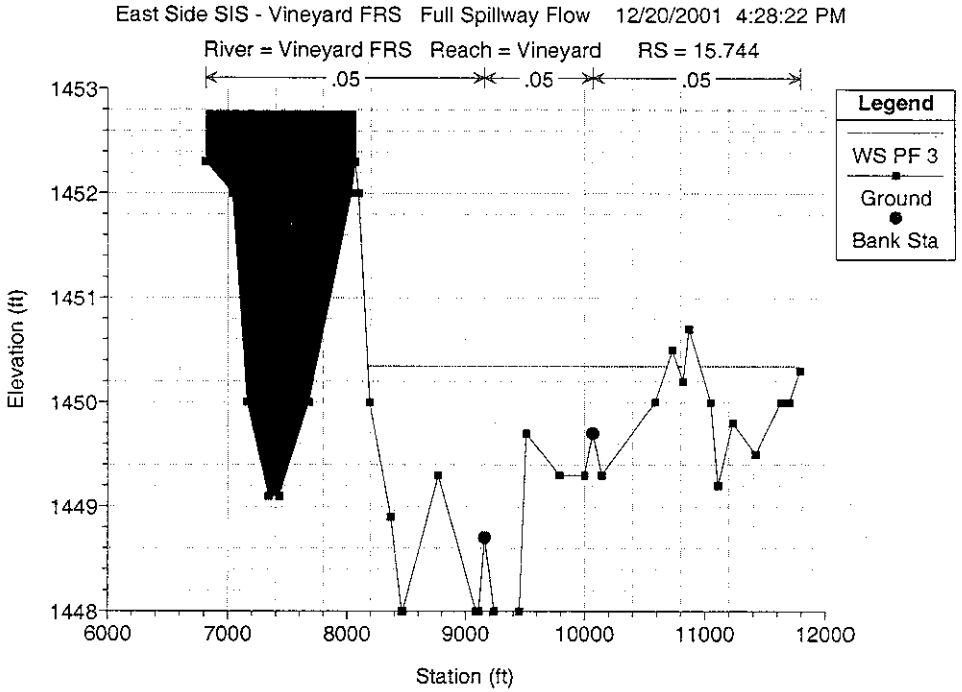

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 16.197
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

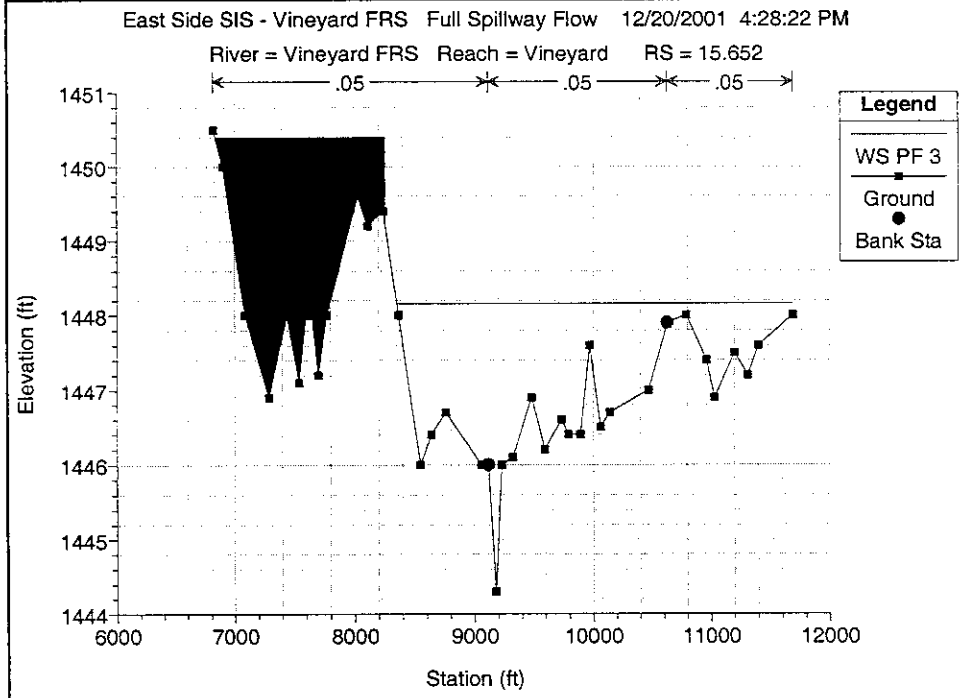

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 16.106
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

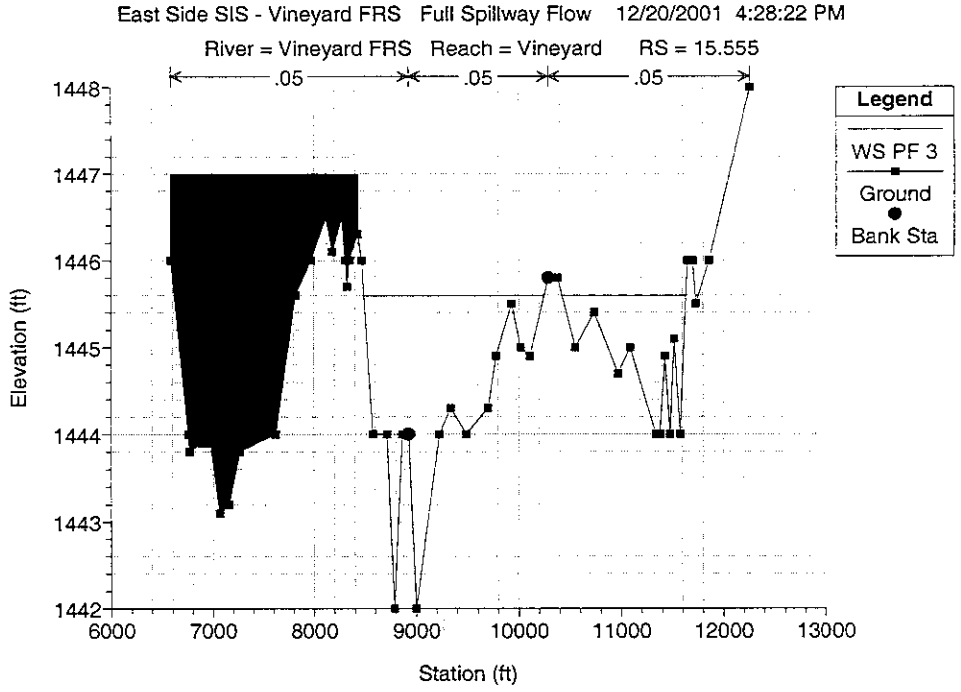

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 16.009
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

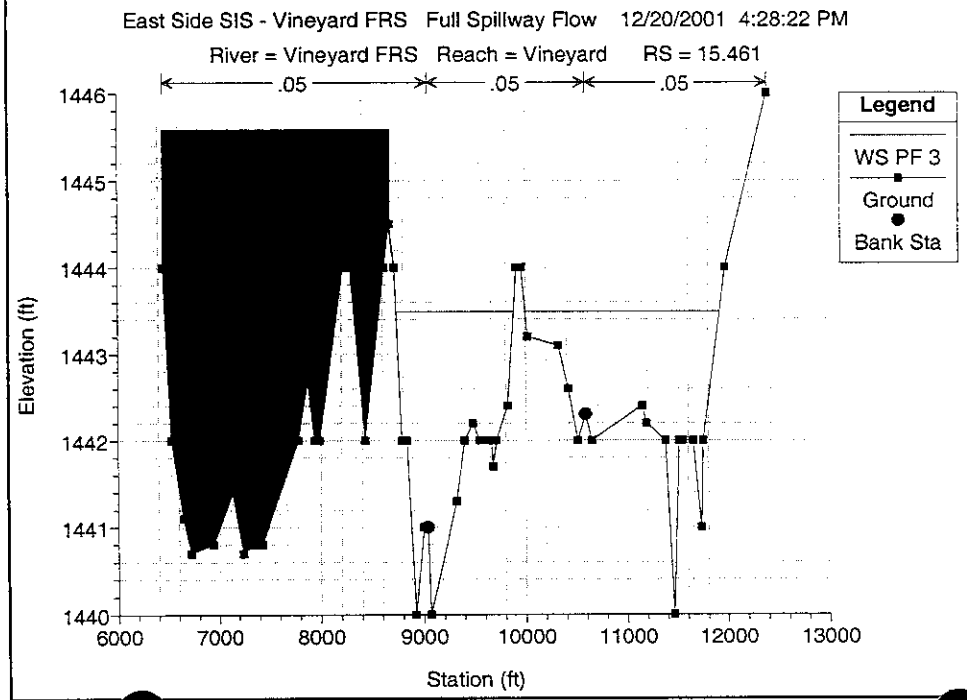

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 15.934
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

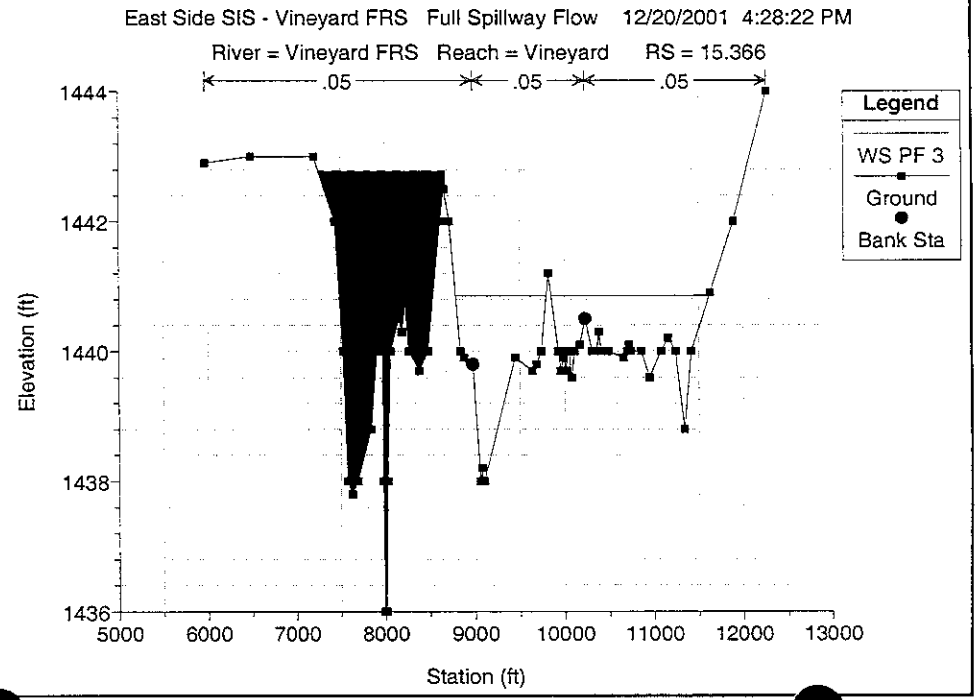

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 15.838
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 15.744
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 15.652
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

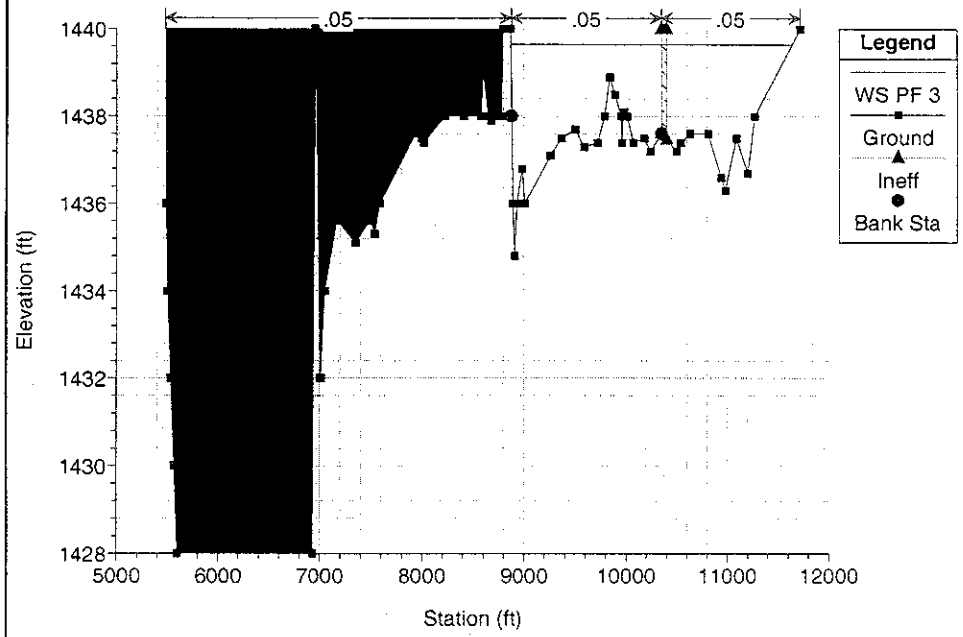

East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 15.555
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 15.461
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 15.366
.05
.05
.05
Legend
WS PF 3
Ground
Bank Sta
Elevation (ft)
Station (ft)

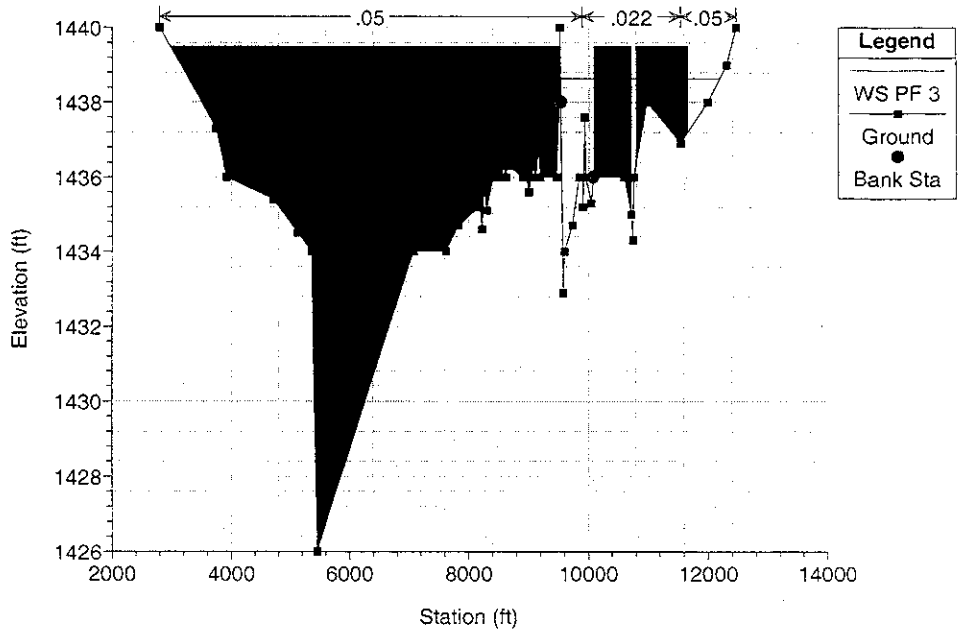
East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM

River = Vineyard FRS Reach = Vineyard Top of bank for "Western Diversion" - st RS = 15.272



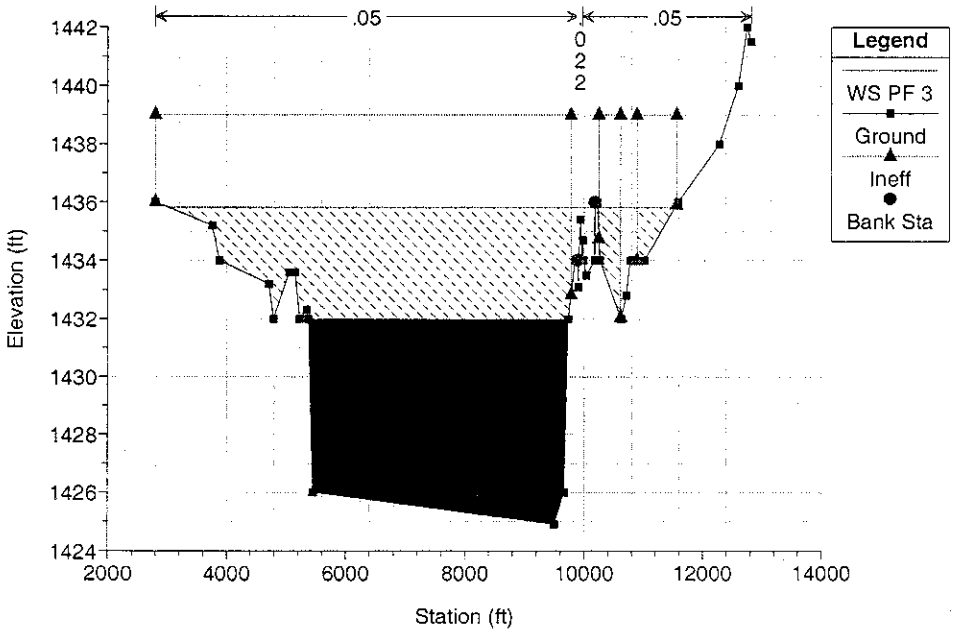
East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM

River = Vineyard FRS Reach = Vineyard Blocked Obstructions used to approximate RS = 15.181



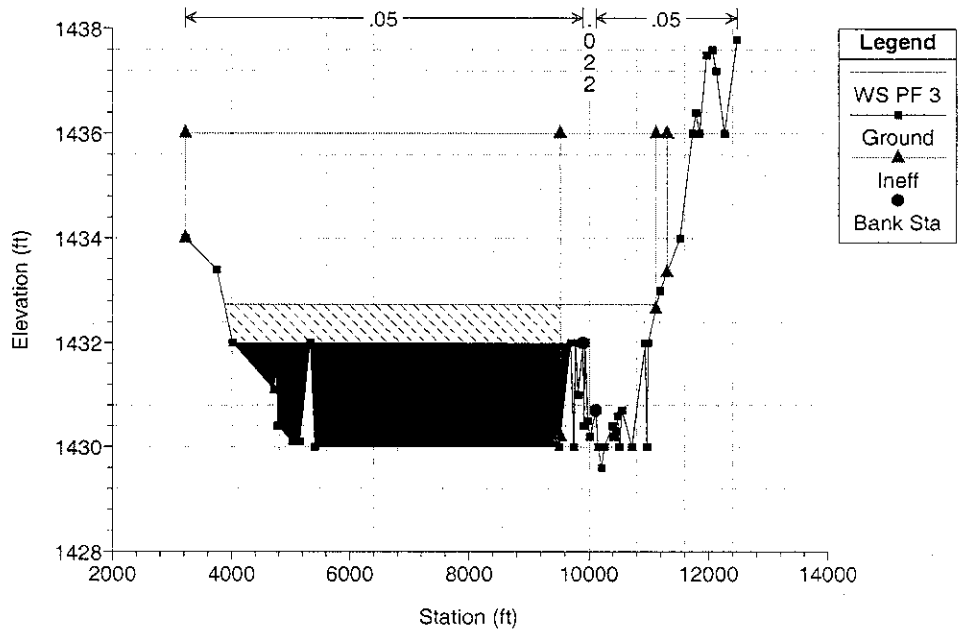
East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM

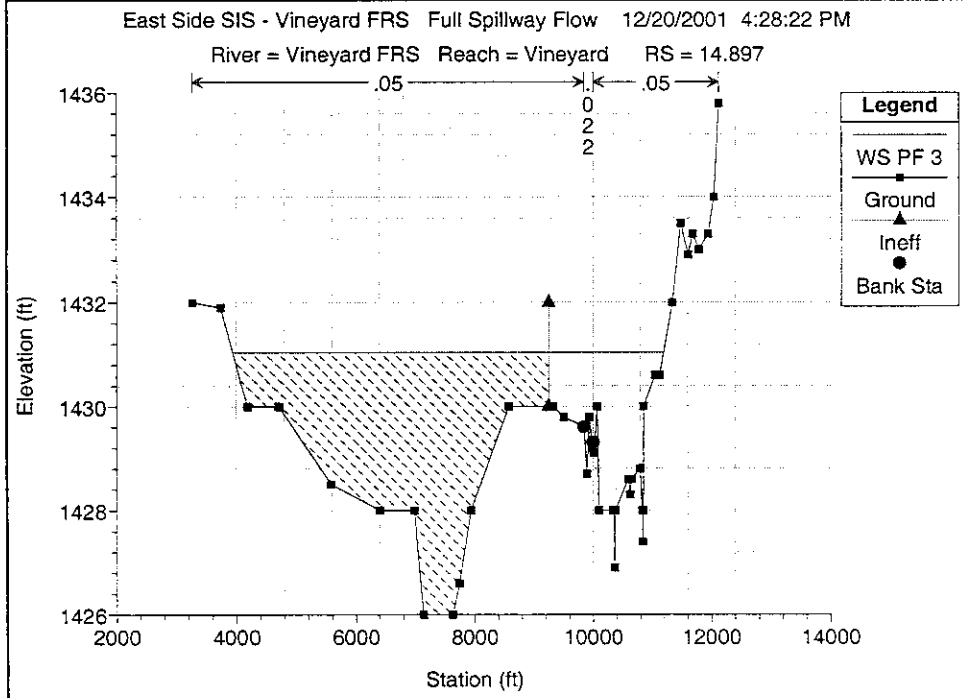
River = Vineyard FRS Reach = Vineyard Blocked Obstruction used to eliminate th RS = 15.087

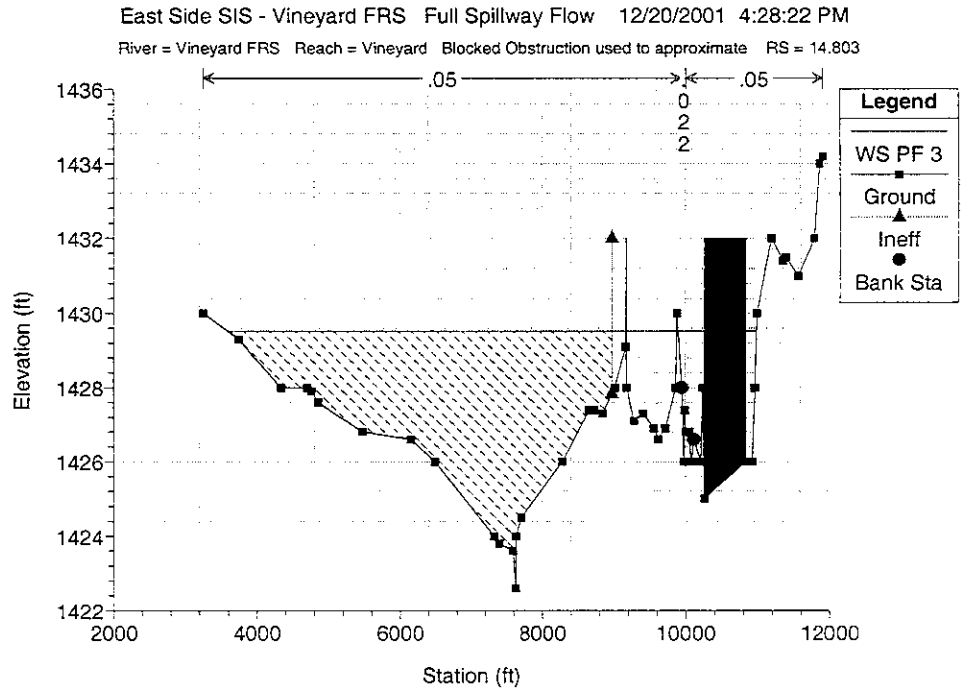


East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM

River = Vineyard FRS Reach = Vineyard Blocked Obstruction used to eliminate th RS = 14.994




East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 14.897
.05
.05
0
2
2
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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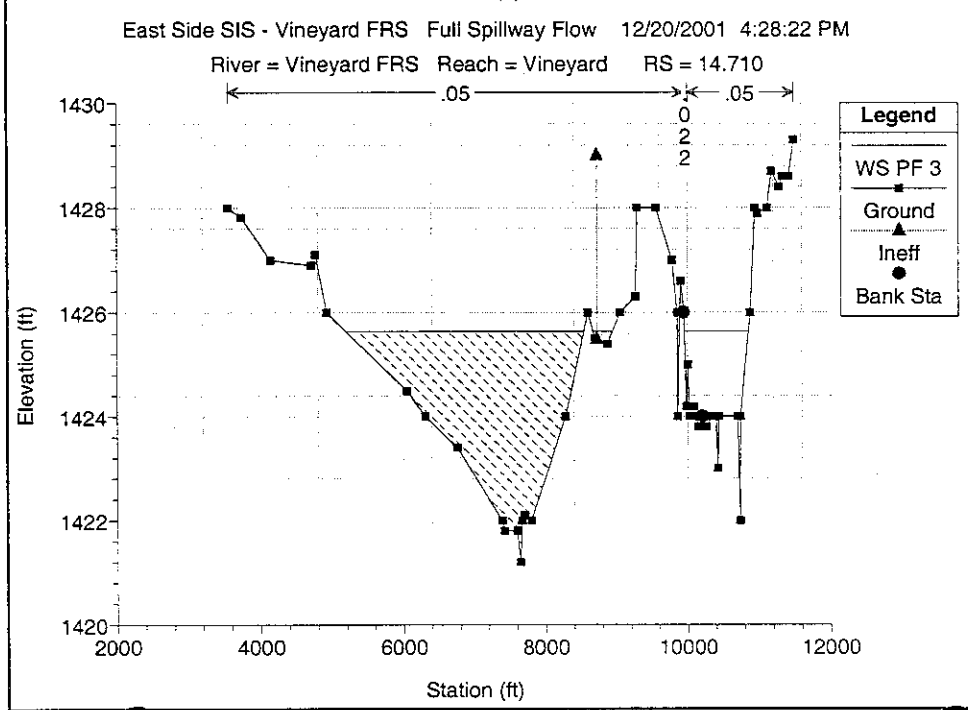
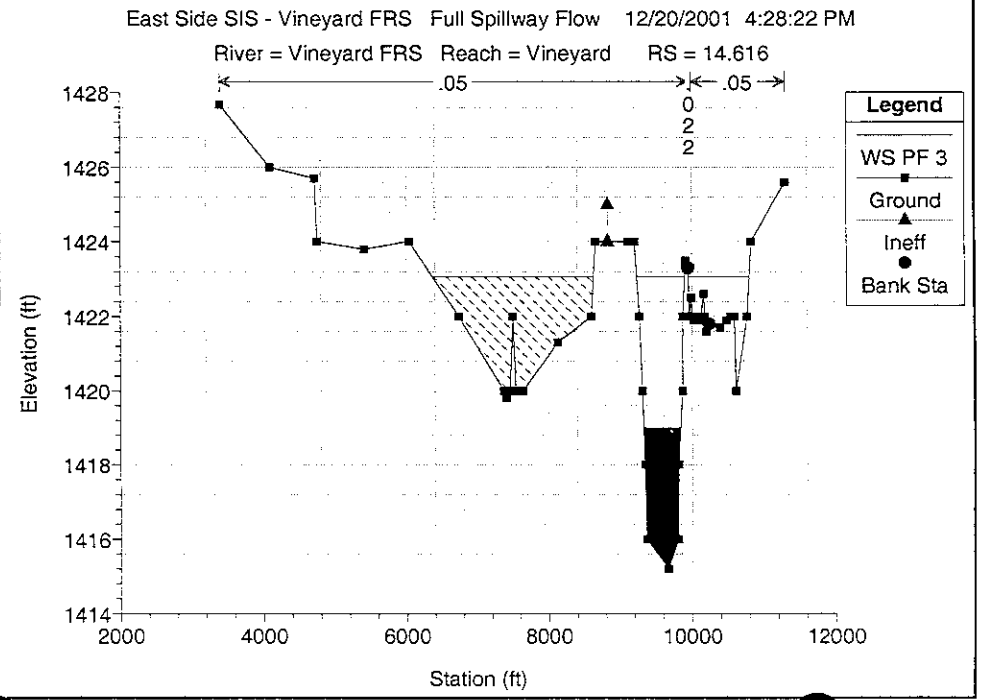
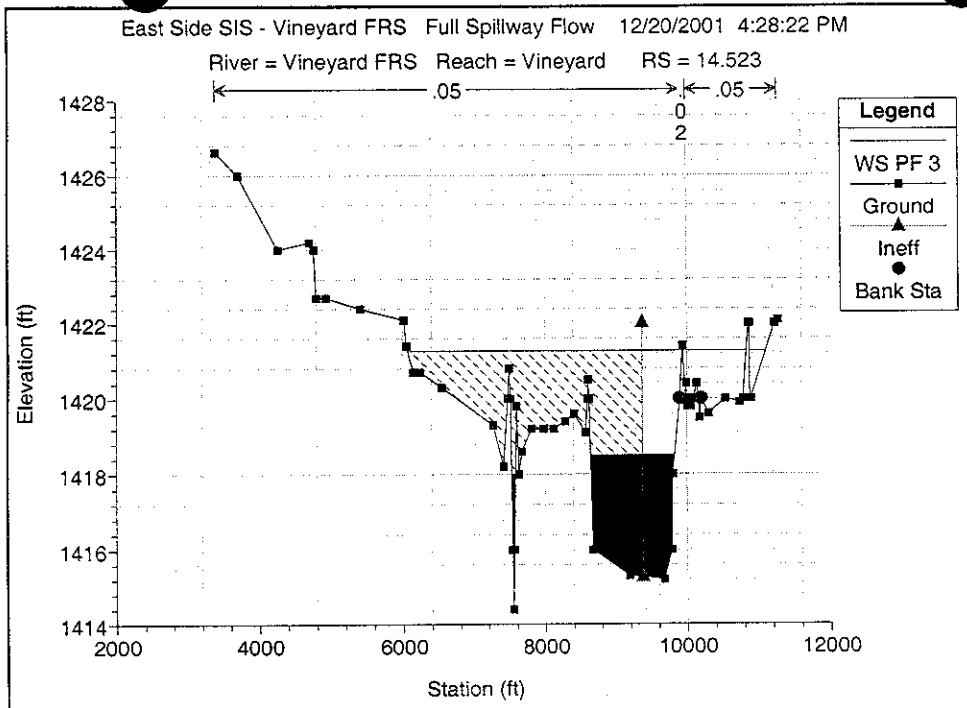
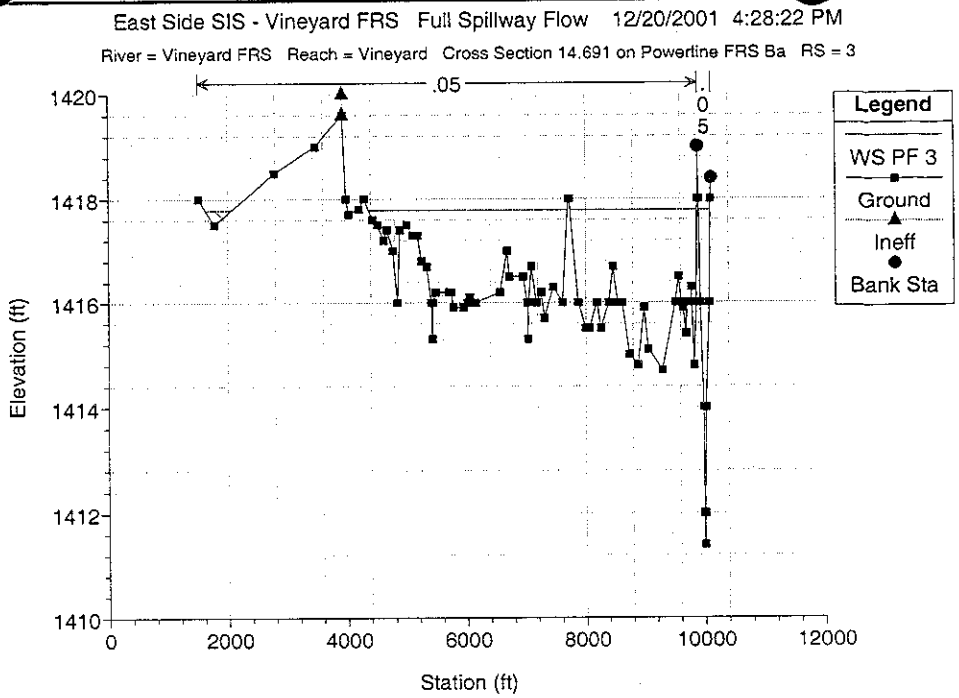
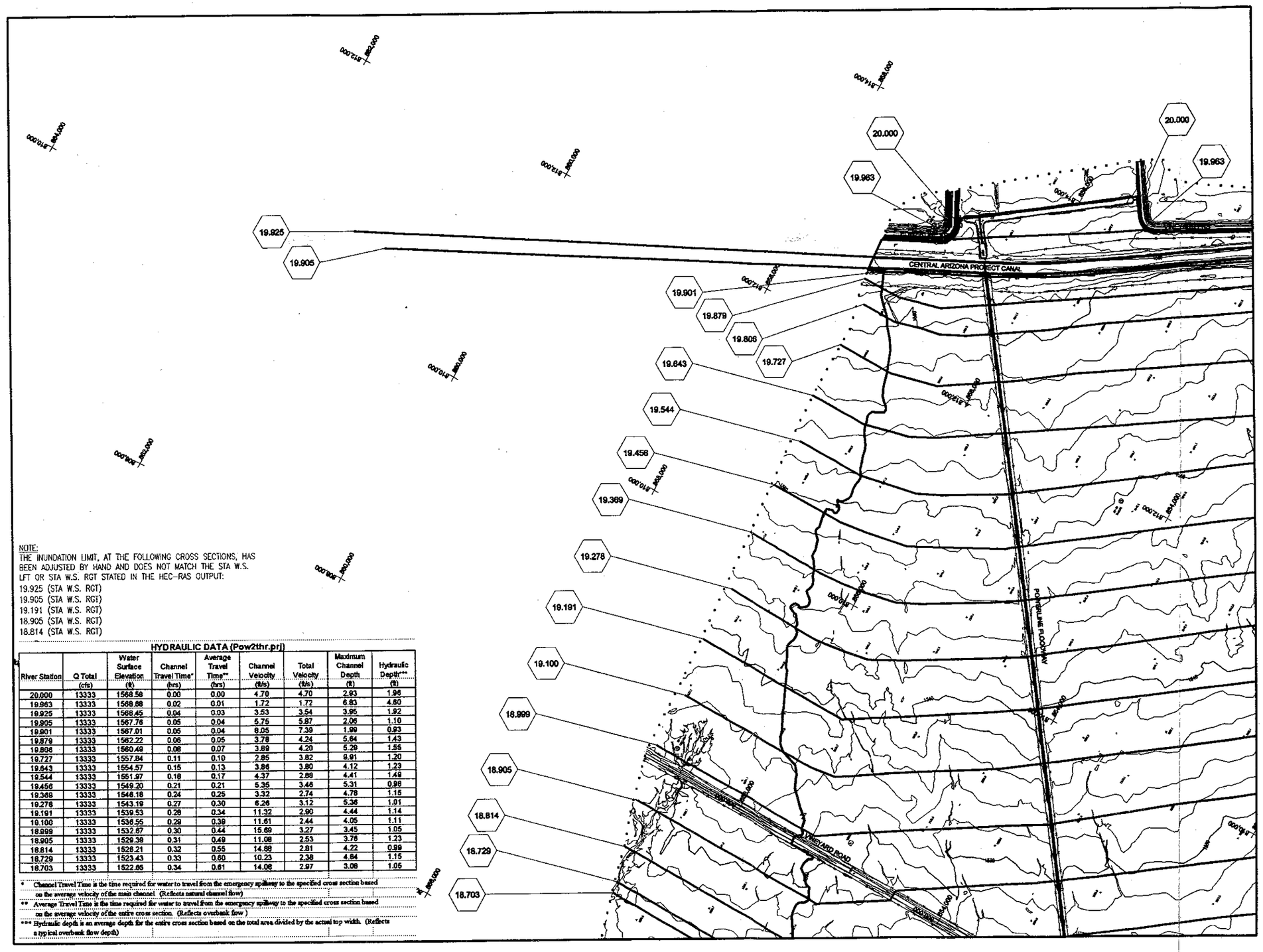
River = Vineyard FRS Reach = Vineyard Blocked Obstruction used to approximate RS = 14.803
.05
.05
0
2
2
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 14.710
.05
.05
0
2
2
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 14.616
.05
.05
0
2
2
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard RS = 14.523
.05
.05
.02
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
1428
1426
1424
1422
1420
1418
1416
1414
2000
4000
6000
8000
10000
12000
Station (ft)


East Side SIS - Vineyard FRS Full Spillway Flow 12/20/2001 4:28:22 PM
River = Vineyard FRS Reach = Vineyard Cross Section 14.691 on Powerline FRS Ba RS = 3
.05
.05
Legend
WS PF 3
Ground
Ineff
Bank Sta
Elevation (ft)
1420
1418
1416
1414
1412
1410
0
2000
4000
6000
8000
10000
12000
Station (ft)



NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
19.925 (STA W.S. RGT)
19.905 (STA W.S. RGT)
19.191 (STA W.S. RGT)
18.905 (STA W.S. RGT)
18.814 (STA W.S. RGT)

HYDRAULIC DATA (Pow2thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
20.000	13333	1568.58	0.00	0.00	4.70	4.70	2.93	1.96
19.963	13333	1568.68	0.02	0.01	1.72	1.72	6.83	4.60
19.925	13333	1568.45	0.04	0.03	3.53	3.54	3.95	1.92
19.905	13333	1567.76	0.05	0.04	5.75	5.87	2.06	1.10
19.901	13333	1567.01	0.05	0.04	8.05	7.39	1.99	0.93
19.879	13333	1562.22	0.06	0.05	3.78	4.24	5.64	1.43
19.806	13333	1560.49	0.08	0.07	3.89	4.20	5.29	1.55
19.727	13333	1557.84	0.11	0.10	2.85	3.82	9.91	1.20
19.643	13333	1554.57	0.15	0.13	3.86	3.80	4.12	1.23
19.544	13333	1551.97	0.18	0.17	4.37	2.88	4.41	1.49
19.456	13333	1549.20	0.21	0.21	5.35	3.46	5.31	0.98
19.369	13333	1546.18	0.24	0.25	3.32	2.74	4.78	1.15
19.278	13333	1543.19	0.27	0.30	6.26	3.12	5.36	1.01
19.191	13333	1539.53	0.28	0.34	11.32	2.90	4.44	1.14
19.100	13333	1536.55	0.29	0.39	11.61	2.44	4.05	1.11
18.999	13333	1532.87	0.30	0.44	15.69	3.27	3.45	1.05
18.905	13333	1529.39	0.31	0.49	11.08	2.53	3.76	1.23
18.814	13333	1526.21	0.32	0.55	14.89	2.81	4.22	0.99
18.729	13333	1523.43	0.33	0.60	10.23	2.38	4.64	1.15
18.703	13333	1522.65	0.34	0.61	14.06	2.97	3.08	1.05

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY
HYDRAULIC BASE LINE WITH RIVER MILE — HR3.0 — HR3.0
CROSS SECTION — 2.147 — WSE — 2.147
STREET FLOW — SF
ELEVATION REFERENCE MARK — ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary
PANEL POINT
MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

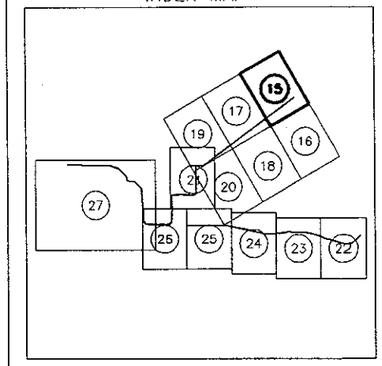
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
10	1566.420	SET ½" REBAR 150' NORTHEAST OF THE POWERLINE F.R.S. SPILLWAY. N: 857,003.368 E: 813,192.567

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

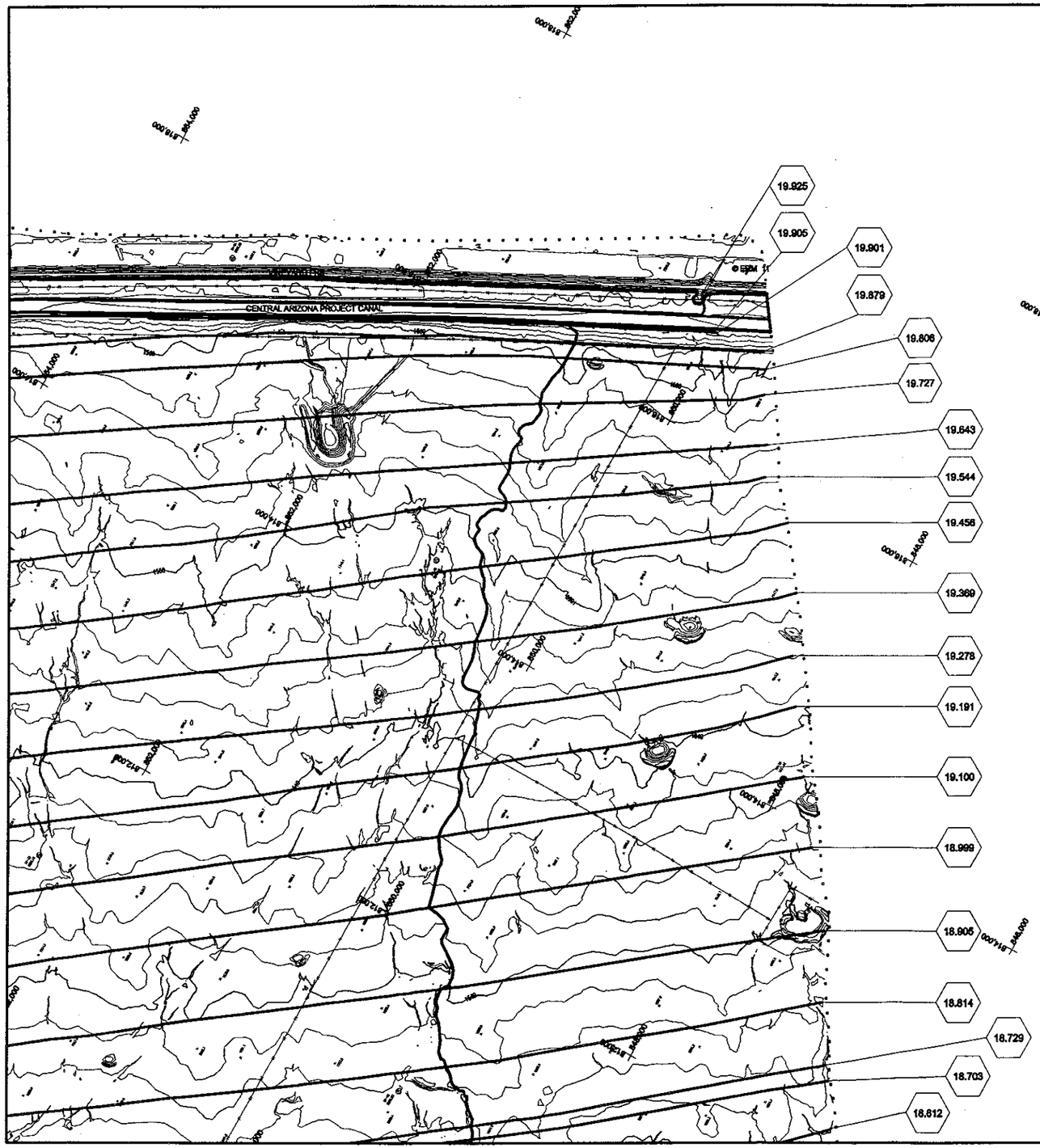
	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 15 OF 40

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

AERIAL MAPPING PROVIDED BY:
M&B AERIAL MAPPING, LLC,
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA (Pow2thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
19.925	13333	1568.45	0.04	0.03	3.53	3.54	3.95	1.92
19.905	13333	1567.76	0.05	0.04	5.75	5.87	2.06	1.10
19.901	13333	1567.01	0.05	0.04	8.05	7.39	1.99	0.93
19.879	13333	1562.22	0.06	0.05	3.78	4.24	5.64	1.43
19.806	13333	1560.49	0.08	0.07	3.89	4.20	5.29	1.55
19.727	13333	1557.84	0.11	0.10	2.85	3.82	9.91	1.20
19.643	13333	1554.57	0.15	0.13	3.86	3.80	4.12	1.23
19.544	13333	1551.97	0.18	0.17	4.37	2.88	4.41	1.49
19.456	13333	1549.20	0.21	0.21	5.35	3.46	5.31	0.98
19.369	13333	1546.18	0.24	0.25	3.32	2.74	4.78	1.15
19.278	13333	1543.19	0.27	0.30	6.26	3.12	5.36	1.01
19.191	13333	1539.53	0.28	0.34	11.32	2.90	4.44	1.14
19.100	13333	1536.55	0.29	0.39	11.61	2.44	4.05	1.11
18.999	13333	1532.67	0.30	0.44	15.68	3.27	3.45	1.05
18.905	13333	1529.39	0.31	0.49	11.08	2.53	3.76	1.23
18.814	13333	1526.21	0.32	0.55	14.88	2.81	4.22	0.99
18.729	13333	1523.43	0.33	0.60	10.23	2.38	4.84	1.15
18.703	13333	1522.65	0.34	0.61	14.08	2.97	3.08	1.05
18.612	13333	1519.57	0.35	0.65	15.01	2.66	5.57	1.21

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
19.925 (STA W.S. LFT)
19.905 (STA W.S. LFT)

LEGEND

INUNDATION AREA BOUNDARY
HYDRAULIC BASE LINE WITH RIVER MILE — M12.0 — M13.0
CROSS SECTION — 2.147 WSE 2.147
STREET FLOW — SF
ELEVATION REFERENCE MARK — ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary
PANEL POINT
MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

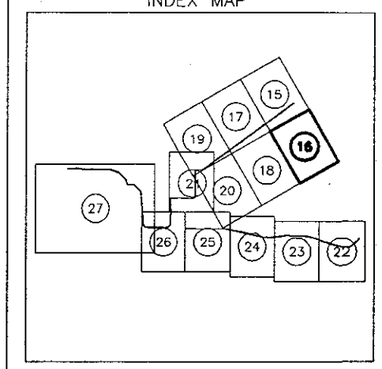
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
11	1566.500	SET ½" REBAR 150' SOUTHEAST OF THE VINEYARD F.R.S. SPILLWAY. N: 850,127.386 E: 817,167.004

NOTES

1– THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2– STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 16 OF 40

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

AERIAL MAPPING PROVIDED BY:
M&B AERIAL MAPPING, LLC.
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040

HYDRAULIC DATA (Pow2thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
18.814	13333	1526.21	0.32	0.55	14.88	2.81	4.22	0.99
18.729	13333	1523.43	0.33	0.60	10.23	2.38	4.84	1.15
18.703	13333	1522.65	0.34	0.61	14.08	2.97	3.08	1.05
18.612	13333	1519.57	0.35	0.65	15.01	2.86	5.57	1.21
18.520	13333	1515.83	0.36	0.69	15.48	3.34	4.88	1.28
18.429	13333	1513.23	0.36	0.74	14.82	2.58	5.10	1.05
18.339	13333	1510.55	0.37	0.79	14.78	2.55	5.08	1.01
18.245	13333	1507.70	0.38	0.84	15.00	2.72	5.35	1.11
18.153	13333	1504.32	0.39	0.89	16.38	3.06	5.00	1.02
18.059	13333	1501.07	0.40	0.94	16.21	3.12	4.59	1.03
17.964	13333	1498.05	0.41	0.99	13.87	2.51	4.78	0.94
17.873	13333	1494.89	0.42	1.03	16.93	2.93	4.36	0.77
17.778	13333	1491.94	0.43	1.08	14.24	2.48	4.50	0.92
17.684	13333	1488.73	0.44	1.14	13.86	2.83	4.89	0.95
17.590	13333	1485.66	0.45	1.18	12.88	2.63	4.63	0.99
17.494	13333	1482.27	0.46	1.24	13.54	2.85	4.56	1.13
17.405	13333	1479.05	0.47	1.28	15.35	3.17	4.45	1.23
17.309	13333	1475.82	0.48	1.32	14.76	2.95	4.84	1.18
17.218	13333	1472.67	0.49	1.37	14.58	2.88	4.74	1.17

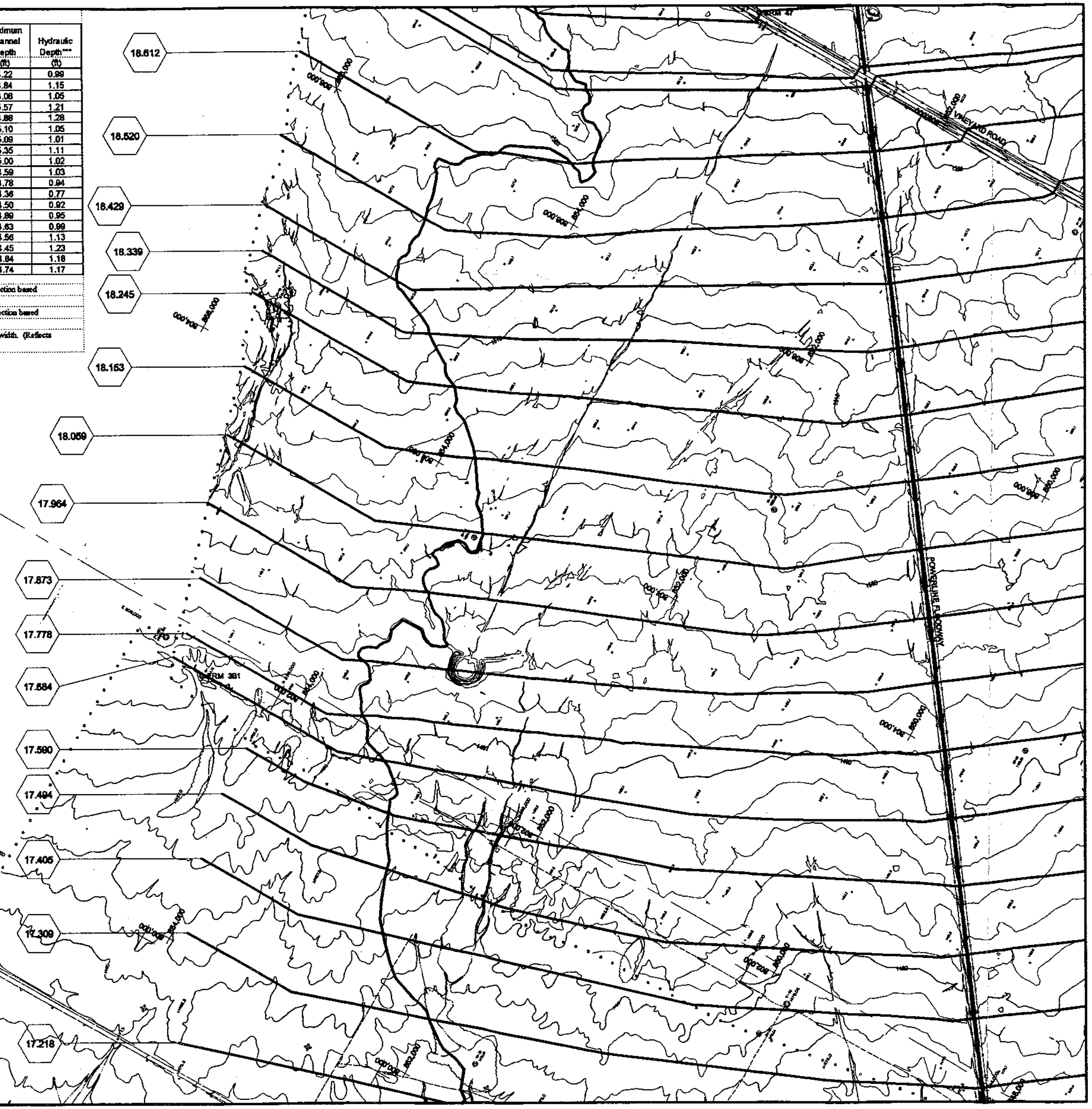
* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:

18.612 (STA W.S. RGT)
18.059 (STA W.S. RGT)
17.684 (STA W.S. RGT)
17.590 (STA W.S. RGT)
17.494 (STA W.S. RGT)



LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M12.0, M13.0

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF →

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

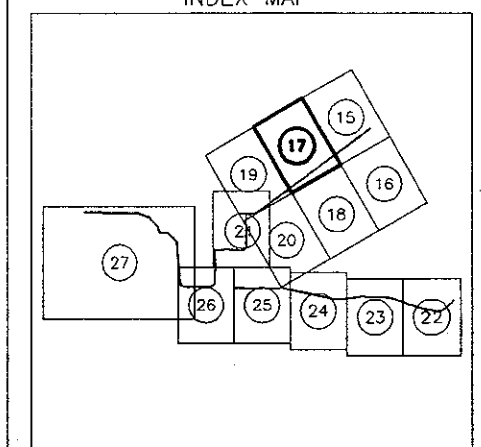
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
381	1493.540	SET ½" REBAR ½ MILE EAST OF MOUNTAIN RD & 300' SOUTH OF ELLIOTT RD. N: 854,742.886 E: 801,785.386
47	1524.110	SET ½" REBAR 200' EAST OF VINEYARD RD. & 1200' NORTH OF THE POWERLINE FLOODWAY. N: 853,571.871 E: 808,018.738

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD FLOOD RETARDING STRUCTURES SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Baker
Michael Baker Jr., Inc.

Registered Professional Engineer (Civil) — CERTIFICATE NO. 28148 KOFI AWUMAH — Date Signed ...... ARIZONA, U.S.A.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

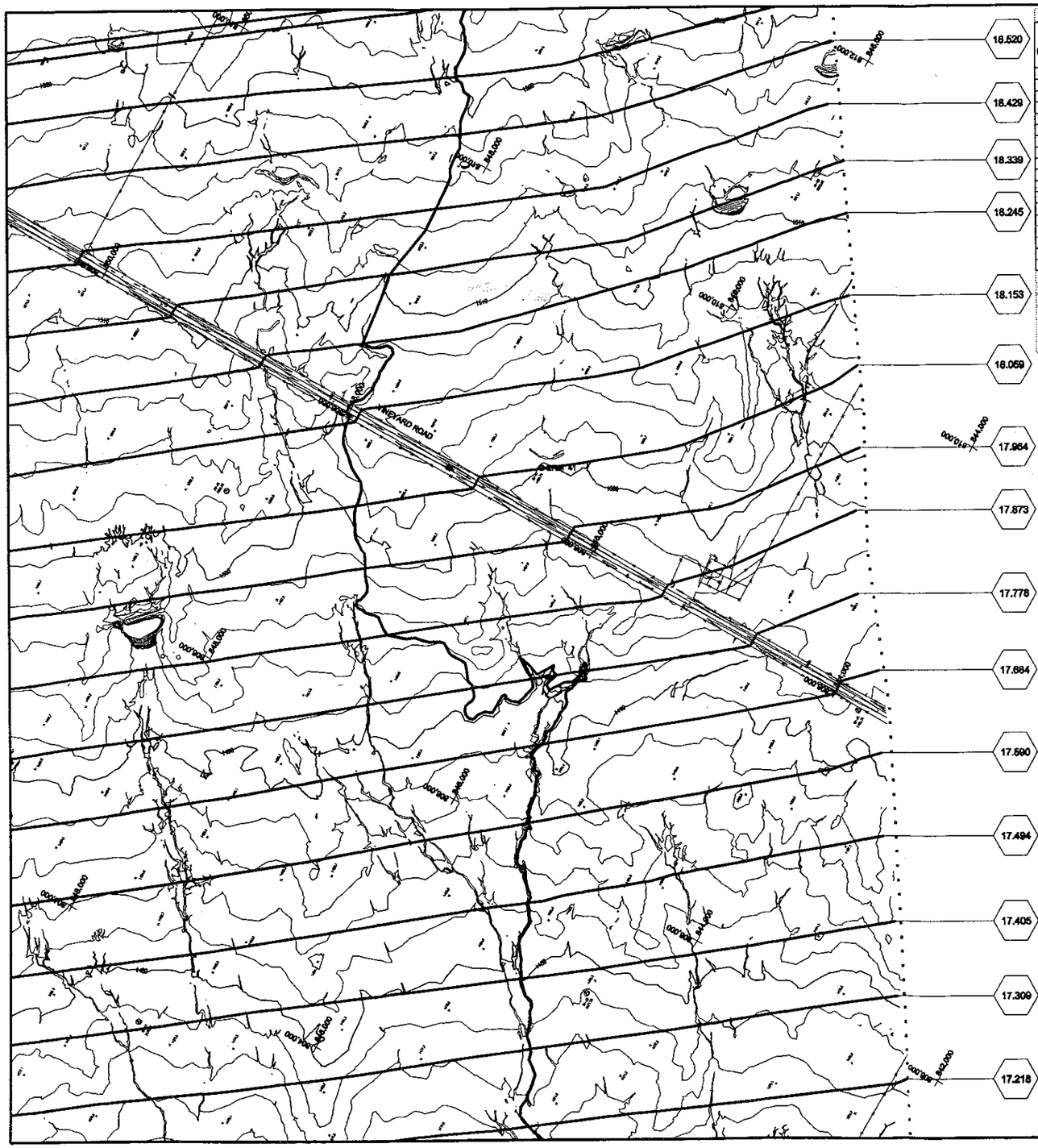
SHEET 17 OF 40

WEST SIDE AERIAL MAPPING PROVIDED BY: FCDMC TO BAKER AS A RASTER IMAGE (QUEEN CREEK ADMS TOPOGRAPHIC MAPS, FCD 86-23)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING PROVIDED BY: M&B AERIAL MAPPING, LLC, ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA FOR EAST SIDE MAPPING PROVIDED BY: AZTEC ENGINEERING, 3747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA (Pow2thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
18.729	13333	1523.43	0.33	0.80	10.23	2.38	4.84	1.15
18.703	13333	1522.65	0.34	0.81	14.08	2.97	3.08	1.05
18.612	13333	1519.57	0.35	0.85	15.01	2.86	5.57	1.21
18.520	13333	1515.83	0.36	0.89	15.48	3.34	4.88	1.28
18.429	13333	1513.23	0.36	0.74	14.82	2.59	5.10	1.05
18.339	13333	1510.55	0.37	0.79	14.78	2.55	5.09	1.01
18.245	13333	1507.70	0.38	0.84	15.00	2.72	5.35	1.11
18.153	13333	1504.32	0.39	0.89	16.38	3.06	5.00	1.02
18.059	13333	1501.07	0.40	0.94	16.21	3.12	4.59	1.03
17.964	13333	1498.05	0.41	0.99	13.87	2.51	4.78	0.94
17.873	13333	1494.89	0.42	1.03	16.93	2.93	4.38	0.77
17.778	13333	1491.94	0.43	1.08	14.24	2.48	4.50	0.92
17.684	13333	1488.73	0.44	1.14	13.86	2.83	4.89	0.95
17.590	13333	1485.66	0.45	1.18	12.88	2.83	4.63	0.99
17.494	13333	1482.27	0.46	1.24	13.54	2.85	4.56	1.13
17.405	13333	1479.05	0.47	1.28	15.35	3.17	4.45	1.23
17.309	13333	1475.82	0.48	1.32	14.76	2.95	4.84	1.18
17.218	13333	1472.67	0.49	1.37	14.58	2.88	4.74	1.17

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
18.520 (STA W.S. LFT)
18.429 (STA W.S. LFT)
17.218 (STA W.S. LFT)

LEGEND

INUNDATION AREA BOUNDARY
HYDRAULIC BASE LINE WITH RIVER MILE — M12.0 — M13.0
CROSS SECTION — 2.147 WSE 2.147
STREET FLOW — SF
ELEVATION REFERENCE MARK — ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary
PANEL POINT
MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

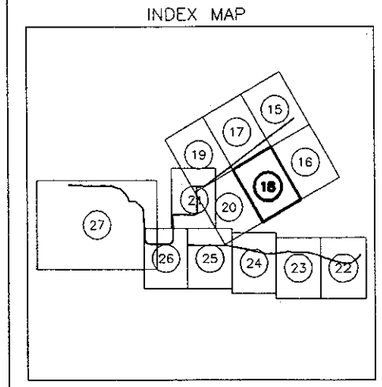
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
41	1499.790	SET ½" REBAR 300' EAST OF VINEYARD RD. & 6000' SOUTH OF THE POWERLINE FLOODWAY. N: 846,608.173 E: 808,349.531

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——► SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

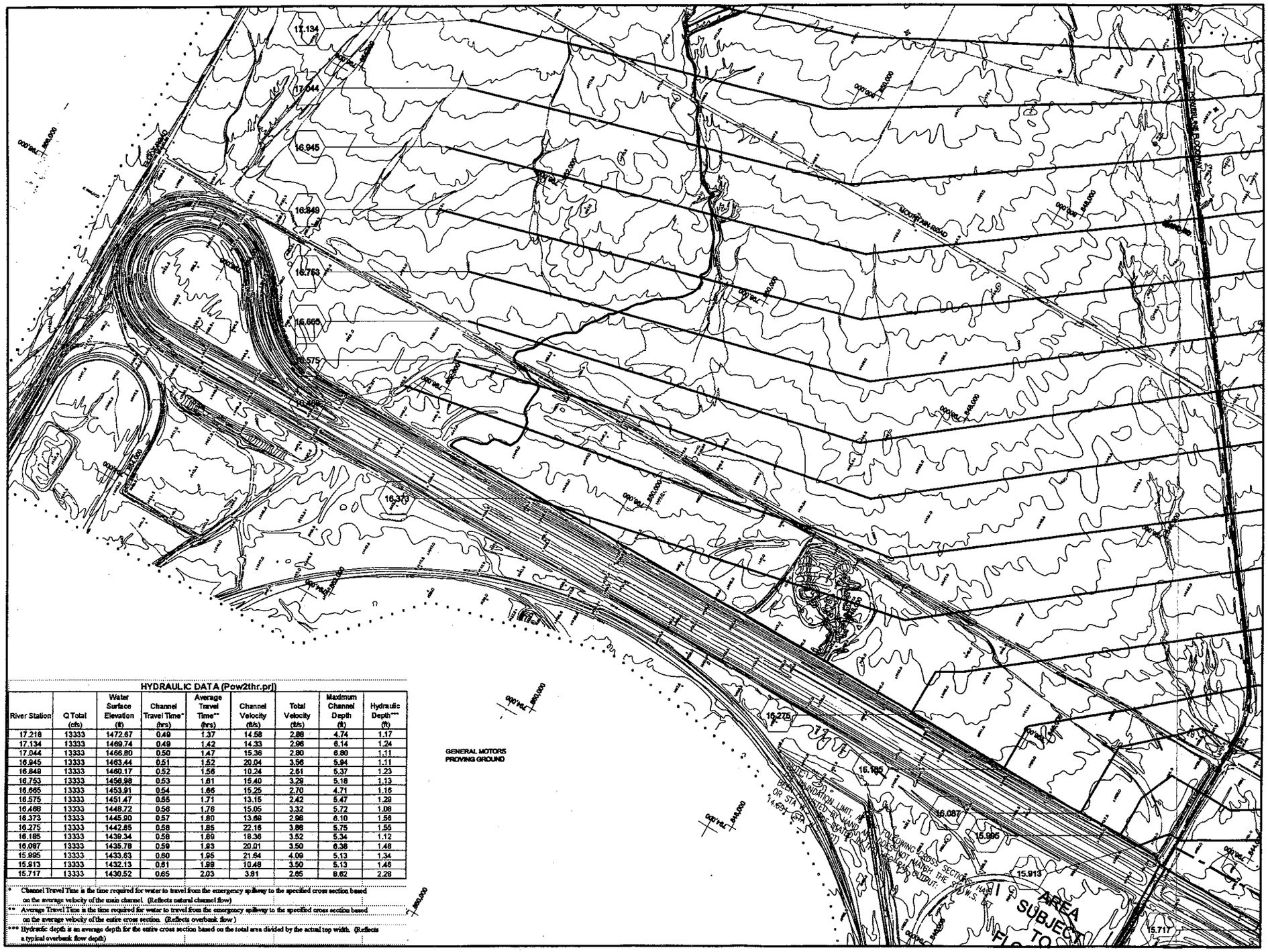
	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 18 OF 40

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

AERIAL MAPPING PROVIDED BY:
M&B AERIAL MAPPING, LLC.
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA (Pow2thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
17.218	13333	1472.67	0.49	1.37	14.58	2.88	4.74	1.17
17.134	13333	1469.74	0.49	1.42	14.33	2.98	6.14	1.24
17.044	13333	1466.80	0.50	1.47	15.36	2.90	6.80	1.11
16.945	13333	1463.44	0.51	1.52	20.04	3.56	5.84	1.11
16.849	13333	1460.17	0.52	1.56	10.24	2.61	5.37	1.23
16.753	13333	1456.98	0.53	1.61	15.40	3.29	5.18	1.13
16.665	13333	1453.91	0.54	1.66	15.25	2.70	4.71	1.16
16.575	13333	1451.47	0.55	1.71	13.15	2.42	5.47	1.29
16.468	13333	1448.72	0.56	1.76	15.05	3.32	5.72	1.08
16.373	13333	1445.90	0.57	1.80	13.69	2.98	6.10	1.56
16.275	13333	1442.85	0.58	1.85	22.16	3.86	5.75	1.55
16.185	13333	1439.34	0.58	1.89	18.36	3.52	5.34	1.12
16.087	13333	1435.78	0.59	1.93	20.01	3.50	6.38	1.48
15.995	13333	1433.63	0.60	1.95	21.64	4.09	5.13	1.34
15.913	13333	1432.13	0.61	1.99	10.48	3.50	5.13	1.46
15.717	13333	1430.52	0.65	2.03	3.81	2.65	8.62	2.28

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — MI 5.0 — MI 5.0

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

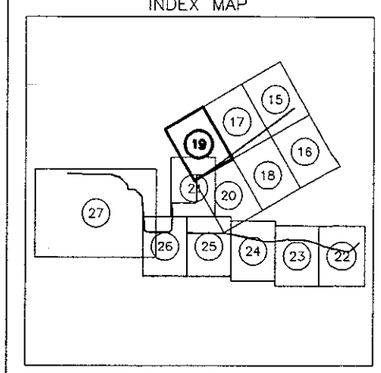
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000

2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL.

INDEX MAP



400' 0' 400' 800'

SCALE: 1" = 400 FEET

CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker

Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

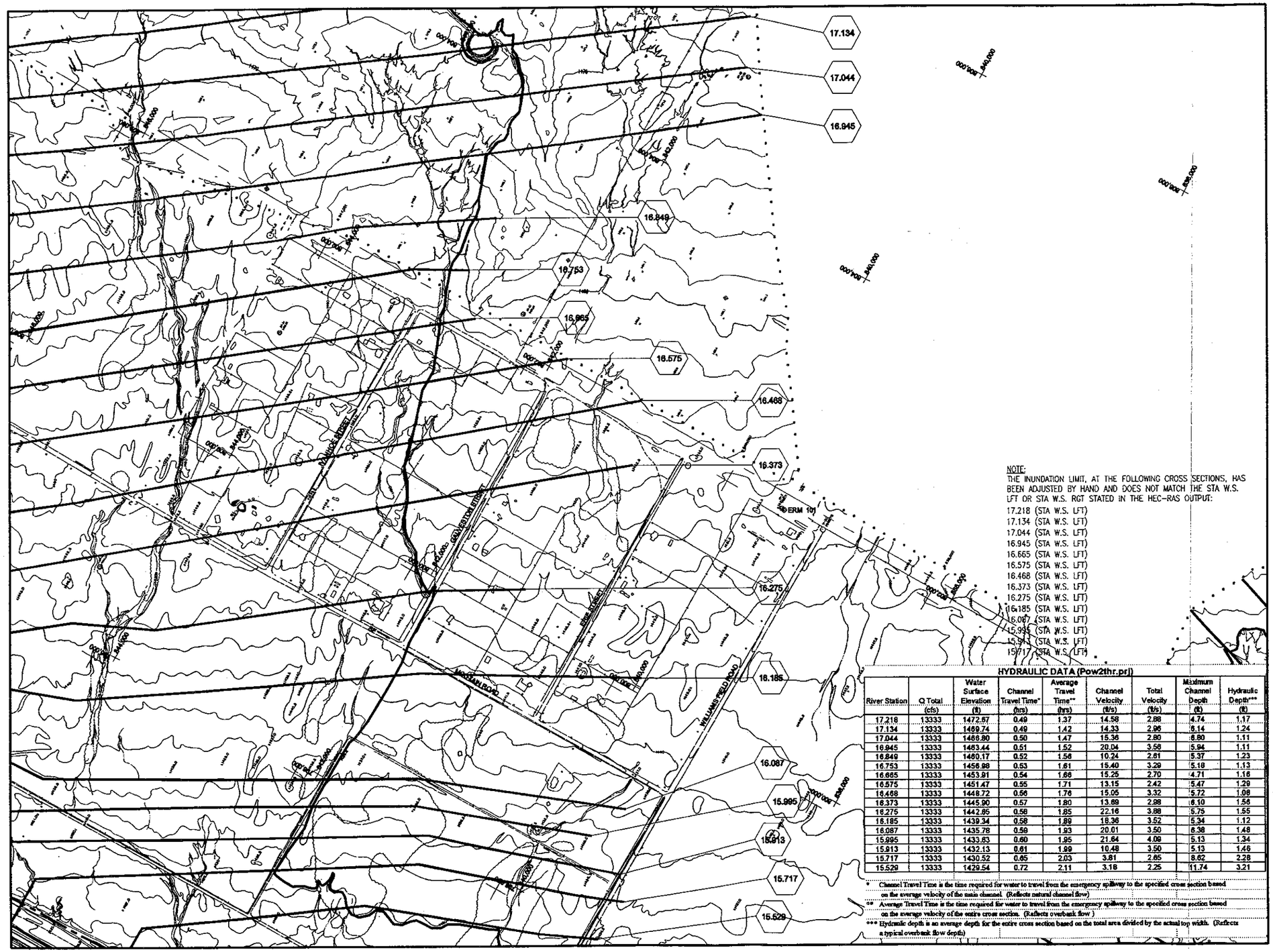
SHEET 19 OF 40

WEST SIDE AERIAL MAPPING
PROVIDED BY: FCDMC TO BAKER AS RASTER IMAGES
(QUEEN CREEK ADMS TOPOGRAPHIC MAPS, FCD 86-23)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING PROVIDED BY:
M&B AERIAL MAPPING, LLC.
ONE WEST DEER VALLEY ROAD #208, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA FOR EAST SIDE MAPPING
PROVIDED BY: AZTEC ENGINEERING
3747 East Grove Street, Phoenix, AZ 85040



NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:

17.218 (STA W.S. LFT)
17.134 (STA W.S. LFT)
17.044 (STA W.S. LFT)
16.945 (STA W.S. LFT)
16.665 (STA W.S. LFT)
16.575 (STA W.S. LFT)
16.468 (STA W.S. LFT)
16.373 (STA W.S. LFT)
16.275 (STA W.S. LFT)
16.185 (STA W.S. LFT)
16.087 (STA W.S. LFT)
15.995 (STA W.S. LFT)
15.913 (STA W.S. LFT)
15.717 (STA W.S. LFT)

HYDRAULIC DATA (Pow2thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
17.218	13333	1472.67	0.49	1.37	14.58	2.88	4.74	1.17
17.134	13333	1469.74	0.49	1.42	14.33	2.96	8.14	1.24
17.044	13333	1466.80	0.50	1.47	15.36	2.80	6.80	1.11
16.945	13333	1463.44	0.51	1.52	20.04	3.58	5.94	1.11
16.849	13333	1460.17	0.52	1.56	10.24	2.61	5.37	1.23
16.753	13333	1456.88	0.53	1.61	15.40	3.29	5.18	1.13
16.665	13333	1453.91	0.54	1.66	15.25	2.70	4.71	1.16
16.575	13333	1451.47	0.55	1.71	13.15	2.42	5.47	1.29
16.468	13333	1448.72	0.56	1.76	15.05	3.32	5.72	1.08
16.373	13333	1445.90	0.57	1.80	13.69	2.98	6.10	1.56
16.275	13333	1442.85	0.58	1.85	22.16	3.88	5.75	1.55
16.185	13333	1439.34	0.58	1.89	18.36	3.52	5.34	1.12
16.087	13333	1435.78	0.59	1.93	20.01	3.50	6.38	1.48
15.995	13333	1433.63	0.60	1.95	21.64	4.09	5.13	1.34
15.913	13333	1432.13	0.61	1.99	10.48	3.50	5.13	1.46
15.717	13333	1430.52	0.65	2.03	3.81	2.65	8.62	2.28
15.529	13333	1429.54	0.72	2.11	3.18	2.25	11.74	3.21

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M12.0 — M13.0

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

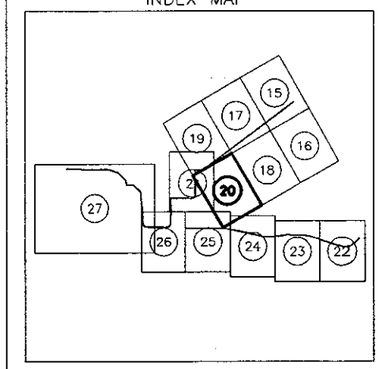
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
101	1450.880	FOUND BENT GLO CAP @ S.W. COR SEC 30 T.1S., R8E. N: 839,631.600 E: 801,944.211

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOOD
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

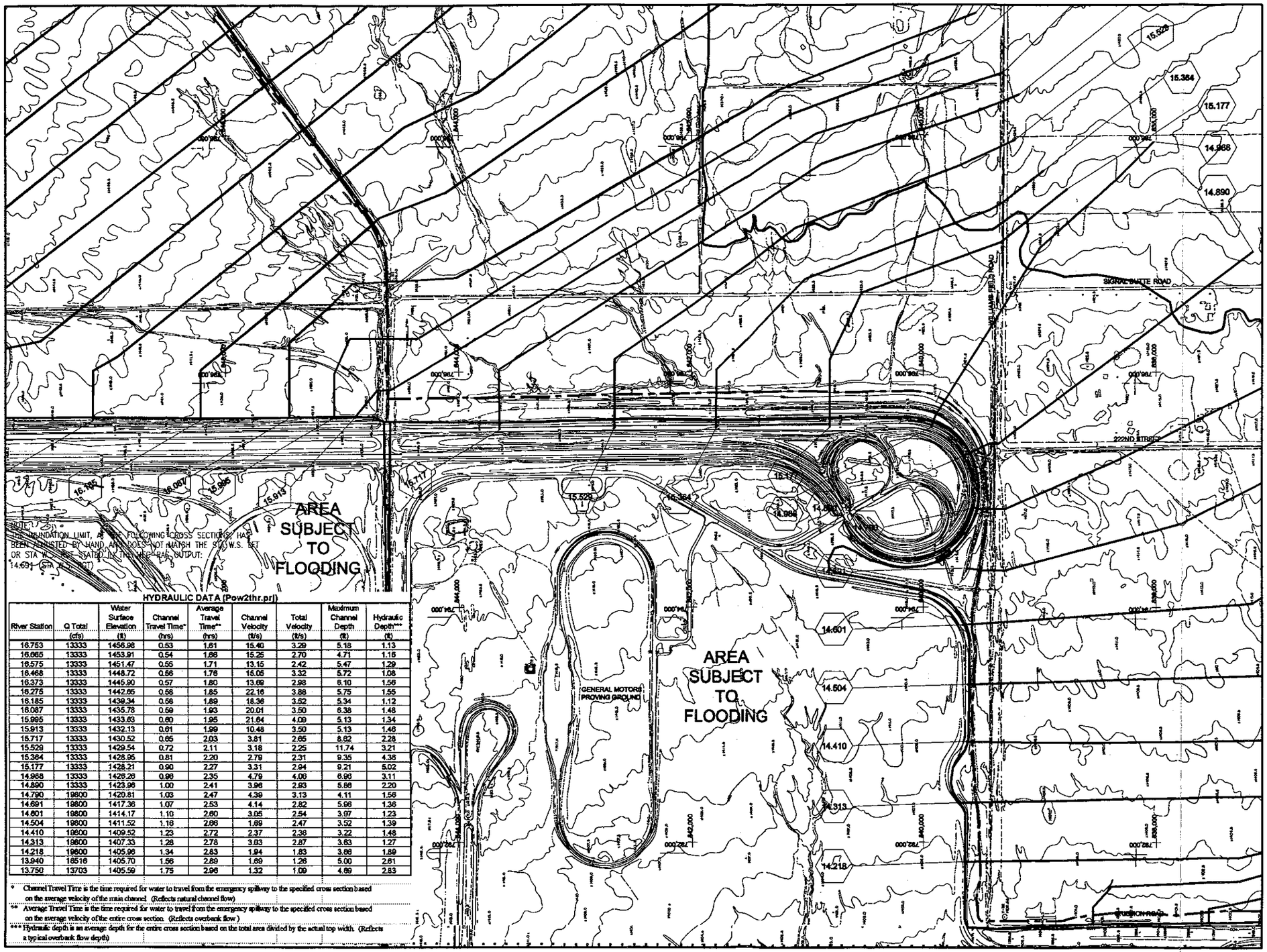
SHEET 20 OF 40

WEST SIDE AERIAL MAPPING
PROVIDED BY: FCDMC TO BAKER AS RASTER IMAGES
(QUEEN CREEK ADMS TOPOGRAPHIC MAPS, FCD 88-23)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING PROVIDED BY:
M&B AERIAL MAPPING, LLC.
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA FOR EAST SIDE MAPPING
PROVIDED BY: AZTEC ENGINEERING.
3747 East Grove Street, Phoenix, AZ 85040



NOTE: THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. ELEV OR STA W.S. ELEV STATED IN THE HEC-RAS OUTPUT:
14.691 (STA 16,600)

HYDRAULIC DATA (Pow2thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
16.753	13333	1456.98	0.53	1.61	15.40	3.29	5.18	1.13
16.665	13333	1453.91	0.54	1.68	15.25	2.70	4.71	1.16
16.575	13333	1451.47	0.55	1.71	13.15	2.42	5.47	1.29
16.468	13333	1448.72	0.56	1.78	15.05	3.32	5.72	1.08
16.373	13333	1446.90	0.57	1.80	13.69	2.98	6.10	1.56
16.275	13333	1442.65	0.58	1.85	22.16	3.88	5.75	1.55
16.185	13333	1439.34	0.56	1.89	18.36	3.52	5.34	1.12
16.067	13333	1435.78	0.59	1.93	20.01	3.50	6.38	1.48
15.995	13333	1433.63	0.60	1.95	21.64	4.09	5.13	1.34
15.913	13333	1432.13	0.61	1.99	10.48	3.50	5.13	1.46
15.717	13333	1430.52	0.65	2.03	3.81	2.65	8.62	2.28
15.529	13333	1429.54	0.72	2.11	3.18	2.25	11.74	3.21
15.364	13333	1428.95	0.81	2.20	2.79	2.31	9.35	4.36
15.177	13333	1428.21	0.90	2.27	3.31	2.94	9.21	5.02
14.968	13333	1426.26	0.98	2.35	4.79	4.06	6.96	3.11
14.890	13333	1423.96	1.00	2.41	3.96	2.93	5.86	2.20
14.790	19600	1420.81	1.03	2.47	4.39	3.13	4.11	1.56
14.691	19600	1417.36	1.07	2.53	4.14	2.82	5.96	1.36
14.601	19600	1414.17	1.10	2.60	3.05	2.54	3.97	1.23
14.504	19600	1411.52	1.16	2.66	1.69	2.47	3.52	1.39
14.410	19600	1409.52	1.23	2.72	2.37	2.38	3.22	1.48
14.313	19600	1407.33	1.28	2.78	3.03	2.87	3.63	1.27
14.218	19600	1405.96	1.34	2.83	1.94	1.83	3.86	1.89
13.940	16516	1405.70	1.56	2.89	1.69	1.26	5.00	2.61
13.750	13703	1405.59	1.75	2.96	1.32	1.09	4.69	2.83

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M13.0

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

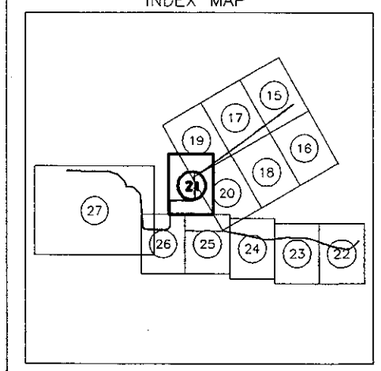
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000

2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL.

INDEX MAP



400' 0' 400' 800'

SCALE: 1" = 400 FEET

CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOW

F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker

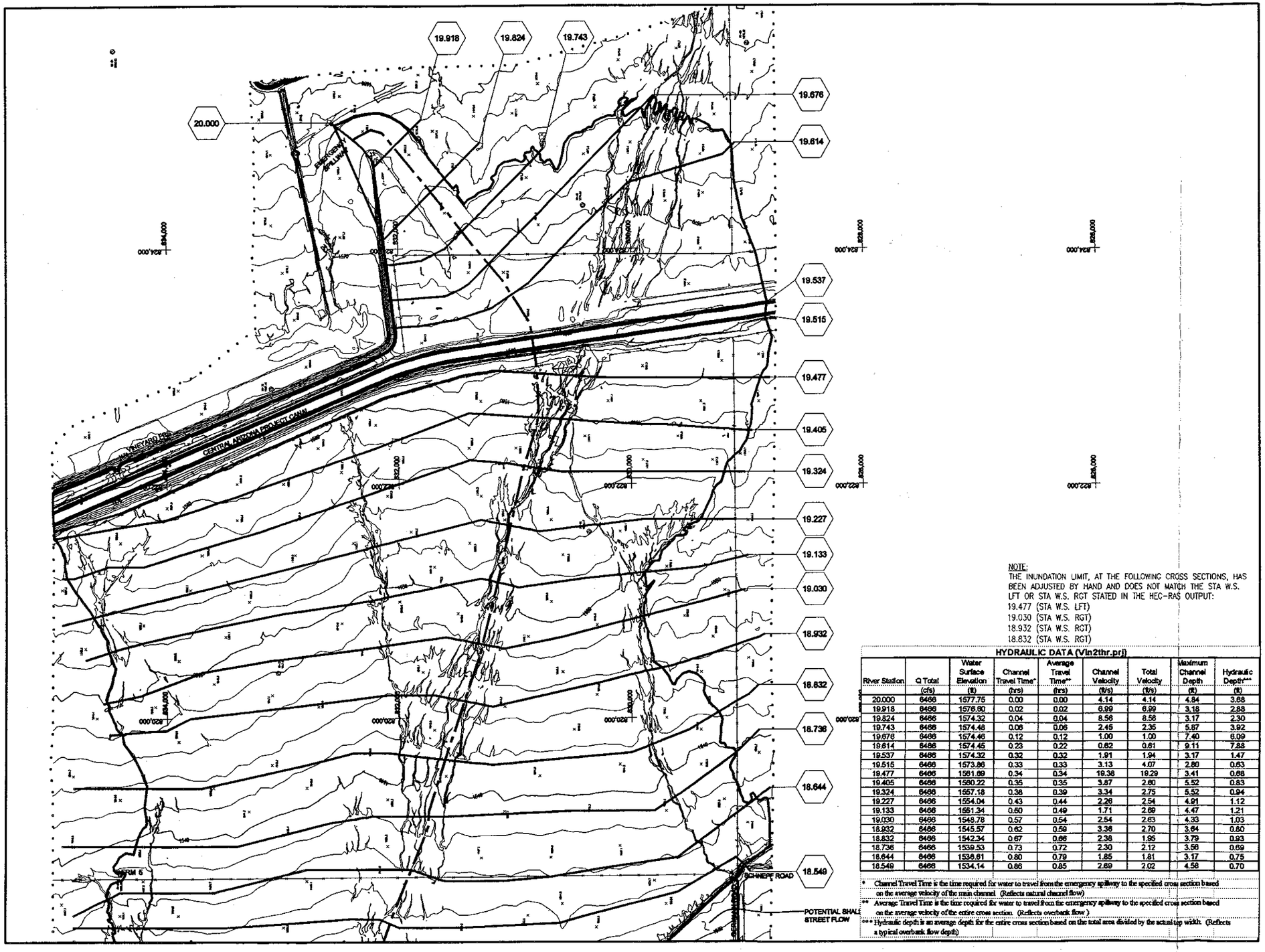
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 21 OF 40

MAPPING PROVIDED BY:
FCDMC TO BAKER AS A RASTER IMAGE
(QUEEN CREEK ADMS TOPOGRAPHIC MAPS, FCD 86-23)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.



NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
19.477 (STA W.S. LFT)
19.030 (STA W.S. RGT)
18.932 (STA W.S. RGT)
18.832 (STA W.S. RGT)

HYDRAULIC DATA (Vin2thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
20.000	6466	1577.75	0.00	0.00	4.14	4.14	4.84	3.68
19.918	6466	1576.60	0.02	0.02	6.99	6.99	3.18	2.88
19.824	6466	1574.32	0.04	0.04	8.56	8.56	3.17	2.30
19.743	6466	1574.48	0.06	0.06	2.45	2.35	5.67	3.92
19.676	6466	1574.46	0.12	0.12	1.00	1.00	7.40	6.09
19.614	6466	1574.45	0.23	0.22	0.62	0.61	9.11	7.88
19.537	6466	1574.32	0.32	0.32	1.91	1.94	3.17	1.47
19.515	6466	1573.86	0.33	0.33	3.13	4.07	2.80	0.83
19.477	6466	1561.69	0.34	0.34	19.38	19.29	3.41	0.88
19.405	6466	1560.22	0.35	0.35	3.87	2.80	5.52	0.83
19.324	6466	1557.18	0.38	0.39	3.34	2.75	5.52	0.94
19.227	6466	1554.04	0.43	0.44	2.26	2.54	4.91	1.12
19.133	6466	1551.34	0.50	0.49	1.71	2.69	4.47	1.21
19.030	6466	1548.78	0.57	0.54	2.54	2.63	4.33	1.03
18.932	6466	1545.57	0.62	0.59	3.36	2.70	3.64	0.80
18.832	6466	1542.34	0.67	0.66	2.38	1.95	3.79	0.93
18.736	6466	1539.53	0.73	0.72	2.30	2.12	3.56	0.69
18.644	6466	1536.61	0.80	0.79	1.85	1.81	3.17	0.75
18.549	6466	1534.14	0.86	0.85	2.69	2.02	4.58	0.70

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M15.0 — M15.0

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

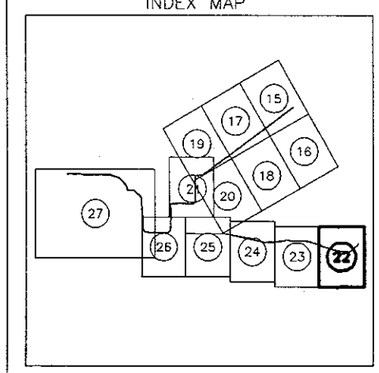
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
5	1539.330	FOUND GLO BRASS CAP @ SE COR. SEC. 33, T.1S., R.8E. N: 834,415.003 E: 816,655.270

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——— SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker

Michael Baker Jr., Inc.

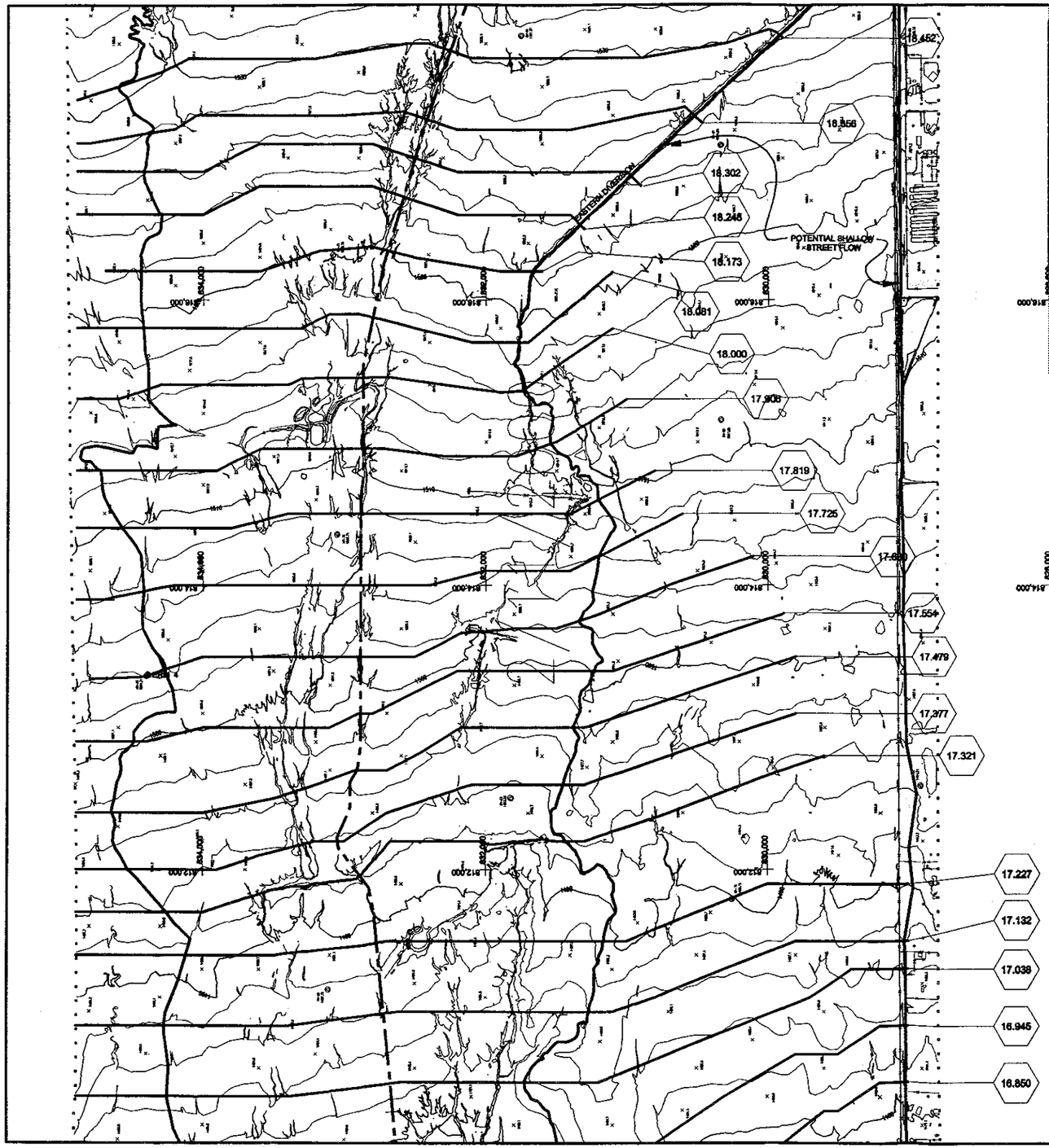
	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 22 OF 40

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

AERIAL MAPPING PROVIDED BY:
M&B AERIAL MAPPING, LLC,
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA (Vln2thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
18.452	8466	1530.70	0.91	0.92	2.74	2.17	4.70	0.78
18.356	8466	1527.85	0.96	0.98	3.19	2.10	4.83	0.87
18.302	8466	1526.09	0.96	1.02	3.77	2.81	4.05	0.77
18.248	8466	1524.37	1.00	1.05	3.53	2.39	4.31	1.12
18.173	8466	1521.53	1.03	1.10	3.88	2.99	3.20	1.02
18.081	8466	1518.56	1.07	1.14	3.02	2.53	3.70	1.21
18.000	8466	1516.20	1.11	1.18	2.98	2.53	4.14	1.06
17.908	8466	1512.88	1.15	1.24	4.29	2.88	4.92	0.90
17.819	8466	1509.25	1.18	1.29	3.33	2.67	4.28	0.94
17.725	8466	1505.88	1.23	1.34	2.74	2.43	3.32	0.98
17.630	8466	1502.65	1.28	1.38	3.03	2.97	5.01	1.01
17.554	8466	1500.23	1.32	1.42	2.59	2.20	4.67	0.91
17.479	8466	1497.51	1.36	1.47	2.24	2.34	3.77	0.95
17.377	8466	1495.27	1.44	1.53	1.94	1.91	3.49	1.06
17.321	8466	1493.57	1.47	1.57	3.25	3.07	3.71	1.12
17.227	8466	1488.93	1.52	1.62	1.70	3.88	5.92	1.61
17.132	8466	1486.28	1.63	1.66	0.91	3.01	5.48	1.34
17.038	8466	1483.46	1.71	1.70	2.39	3.28	5.21	1.15
16.945	8466	1480.78	1.76	1.75	3.37	2.82	4.90	1.34
16.850	8466	1478.75	1.80	1.80	3.25	2.35	4.46	1.29

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:

18.356 (STA W.S. RGT)
18.081 (STA W.S. RGT)
17.819 (STA W.S. RGT)
17.725 (STA W.S. RGT)
17.554 (STA W.S. RGT)
17.554 (STA W.S. LFT)
17.227 (STA W.S. RGT)
17.132 (STA W.S. RGT)
17.038 (STA W.S. RGT)
16.945 (STA W.S. RGT)

LEGEND

INUNDATION AREA BOUNDARY
HYDRAULIC BASE LINE WITH RIVER MILE — M12.0 — M13.0
CROSS SECTION — 2.147 WSE 2.147
STREET FLOW — SF
ELEVATION REFERENCE MARK — ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary
PANEL POINT
MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

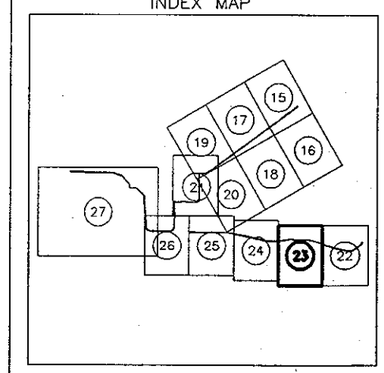
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
4	1504.420	FOUND GLO BRASS CAP SW COR. SEC. 33, T.1S., R.8E. N: 828,653.28 E:762,457.54

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

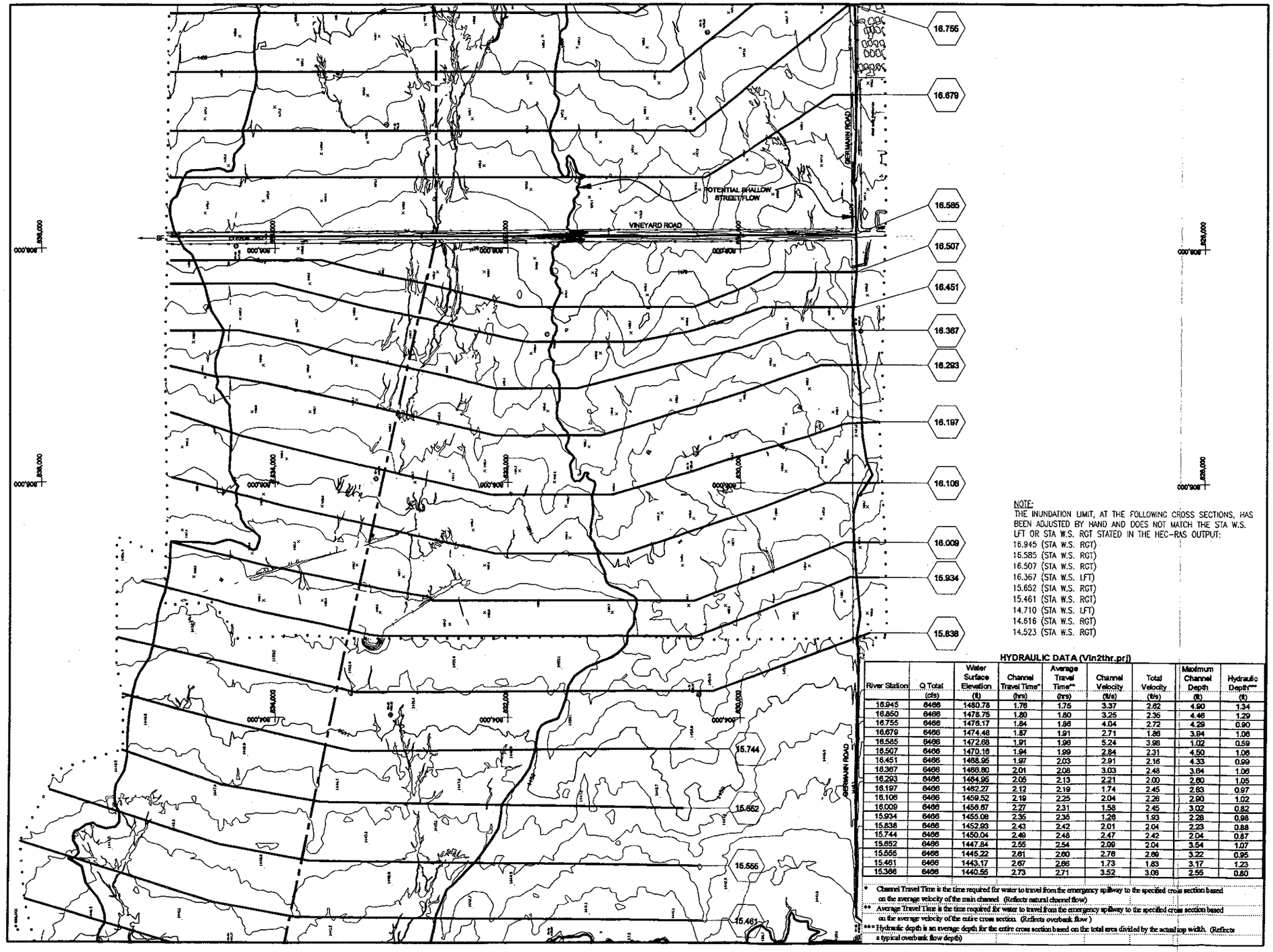
	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 23 OF 40

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

AERIAL MAPPING PROVIDED BY:
M&S AERIAL MAPPING, LLC.
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040



NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
16.945 (STA W.S. RGT)
16.585 (STA W.S. RGT)
16.507 (STA W.S. RGT)
16.367 (STA W.S. LFT)
15.652 (STA W.S. RGT)
15.461 (STA W.S. RGT)
14.710 (STA W.S. LFT)
14.616 (STA W.S. RGT)
14.523 (STA W.S. RGT)

HYDRAULIC DATA (Vin2thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
16.945	6466	1480.78	1.76	1.75	3.37	2.62	4.90	1.34
16.850	6466	1478.75	1.80	1.80	3.25	2.36	4.46	1.29
16.755	6466	1476.17	1.84	1.86	4.04	2.72	4.29	0.90
16.679	6466	1474.48	1.87	1.91	2.71	1.86	3.94	1.06
16.585	6466	1472.68	1.91	1.96	5.24	3.98	1.02	0.59
16.507	6466	1470.16	1.94	1.99	2.84	2.31	4.50	1.06
16.451	6466	1468.95	1.97	2.03	2.91	2.16	4.33	0.99
16.367	6466	1466.80	2.01	2.08	3.03	2.48	3.64	1.06
16.293	6466	1464.95	2.05	2.13	2.21	2.00	2.80	1.05
16.197	6466	1462.27	2.12	2.19	1.74	2.45	2.63	0.97
16.108	6466	1459.52	2.19	2.25	2.04	2.26	2.80	1.02
16.009	6466	1456.67	2.27	2.31	1.58	2.45	3.02	0.82
15.934	6466	1455.08	2.35	2.35	1.26	1.93	2.28	0.98
15.838	6466	1452.93	2.43	2.42	2.01	2.04	2.23	0.88
15.744	6466	1450.04	2.49	2.48	2.47	2.42	2.04	0.87
15.652	6466	1447.84	2.55	2.54	2.09	2.04	3.54	1.07
15.565	6466	1445.22	2.61	2.60	2.76	2.69	3.22	0.95
15.461	6466	1443.17	2.67	2.66	1.73	1.83	3.17	1.23
15.386	6466	1440.55	2.73	2.71	3.52	3.08	2.55	0.80

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M12.0 — M13.0

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

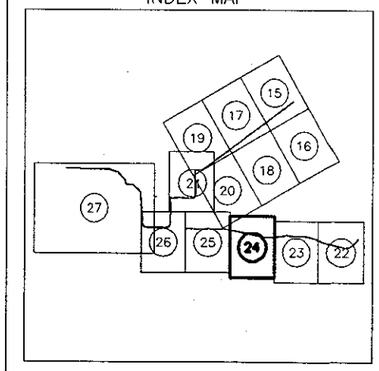
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
3B2	1472.730	FOUND GLO BRASS CAP @ NE COR. SEC. 6, T.2S., R.8E N: 834,374.097 E: 808,087.804

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

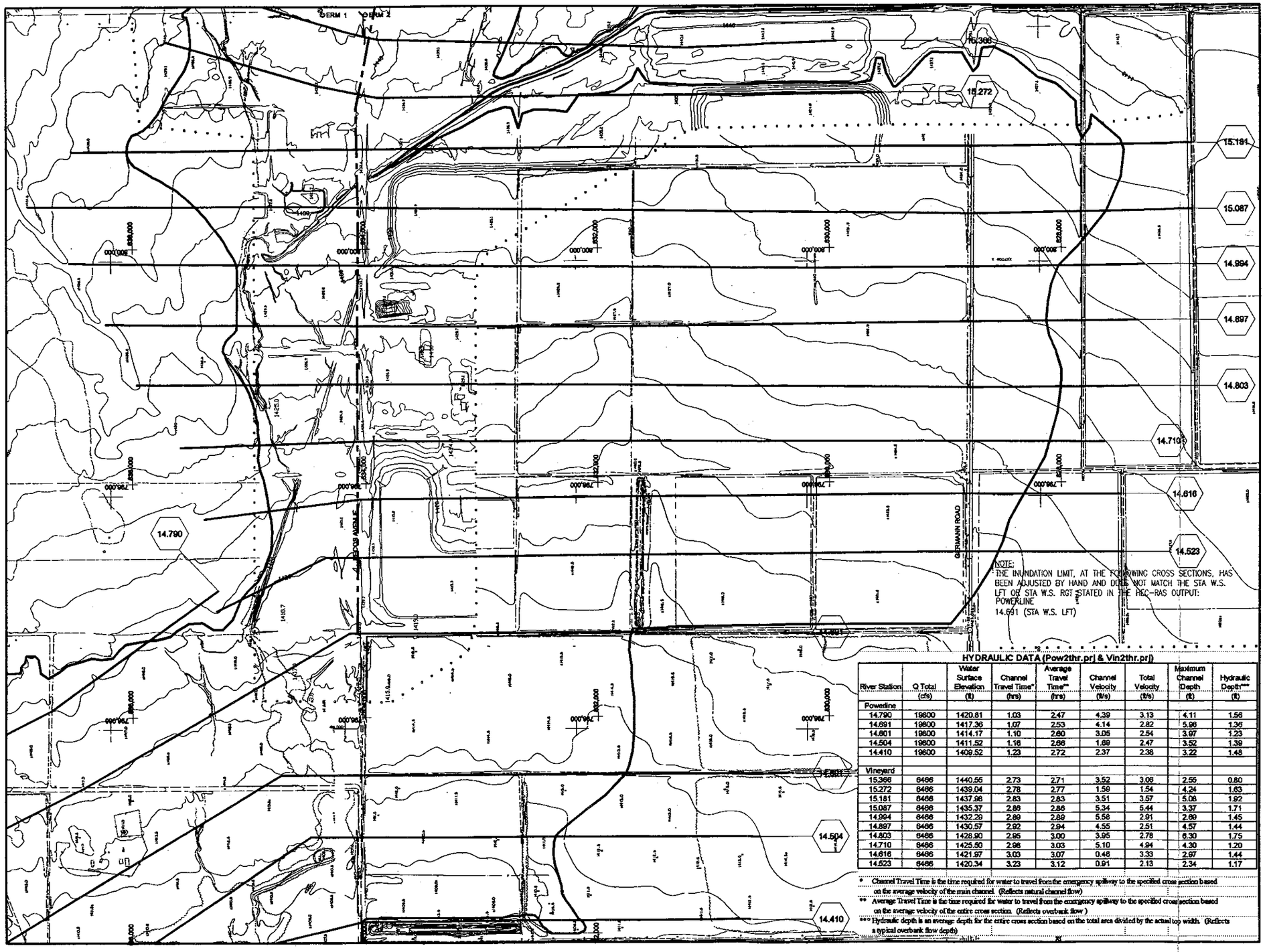
SHEET 24 OF 40

WEST SIDE AERIAL MAPPING PROVIDED BY: FCDMC TO BAKER (SE MESA ADMP FCD 95-32)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING PROVIDED BY: M&B AERIAL MAPPING, LLC, ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA FOR EAST SIDE MAPPING PROVIDED BY: AZTEC ENGINEERING, 3747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA (Pow2thr.prj & Vin2thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
Powerline								
14.790	19800	1420.81	1.03	2.47	4.39	3.13	4.11	1.56
14.691	19800	1417.36	1.07	2.53	4.14	2.82	5.96	1.36
14.601	19800	1414.17	1.10	2.60	3.05	2.54	3.97	1.23
14.504	19800	1411.52	1.16	2.66	1.69	2.47	3.52	1.39
14.410	19800	1409.52	1.23	2.72	2.37	2.38	3.22	1.48
Vineyard								
15.366	6466	1440.55	2.73	2.71	3.52	3.05	2.55	0.80
15.272	6466	1439.04	2.78	2.77	1.59	1.54	4.24	1.63
15.181	6466	1437.96	2.83	2.83	3.51	3.57	5.08	1.92
15.087	6466	1435.37	2.89	2.86	5.34	5.44	3.37	1.71
14.994	6466	1432.29	2.89	2.89	5.58	2.91	2.89	1.45
14.897	6466	1430.57	2.92	2.94	4.55	2.51	4.57	1.44
14.803	6466	1428.90	2.95	3.00	3.95	2.78	6.30	1.75
14.710	6466	1425.50	2.98	3.03	5.10	4.94	4.30	1.20
14.616	6466	1421.97	3.03	3.07	0.48	3.33	2.97	1.44
14.523	6466	1420.34	3.23	3.12	0.91	2.13	2.34	1.17

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M15.0 — M13.0

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

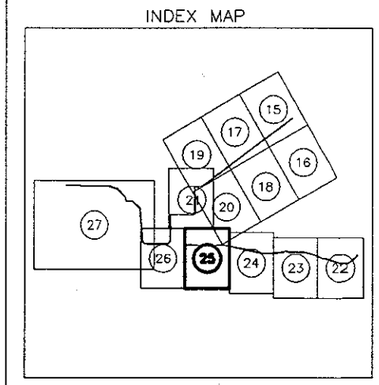
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
1	1441.980	FOUND GLO BRASS CAP @ SE COR. SEC. 36. T.1S., R.7E. N: 833,987.778 E: 802,006.580
2	1441.450	FOUND GLO BRASS CAP @ NW COR. SEC. 6. T.2S., R.8E. N: 833,987.778 E: 802,006.580

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000

2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL.

INDEX MAP



400' 0' 400' 800'

SCALE: 1" = 400 FEET

CONTOUR INTERVAL = 2 FEET

NO	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD FLOOD RETARDING STRUCTURES SPILLWAY INUNDATION STUDY 2/3 SPILLWAY FLOW

F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker

Michael Baker Jr., Inc.

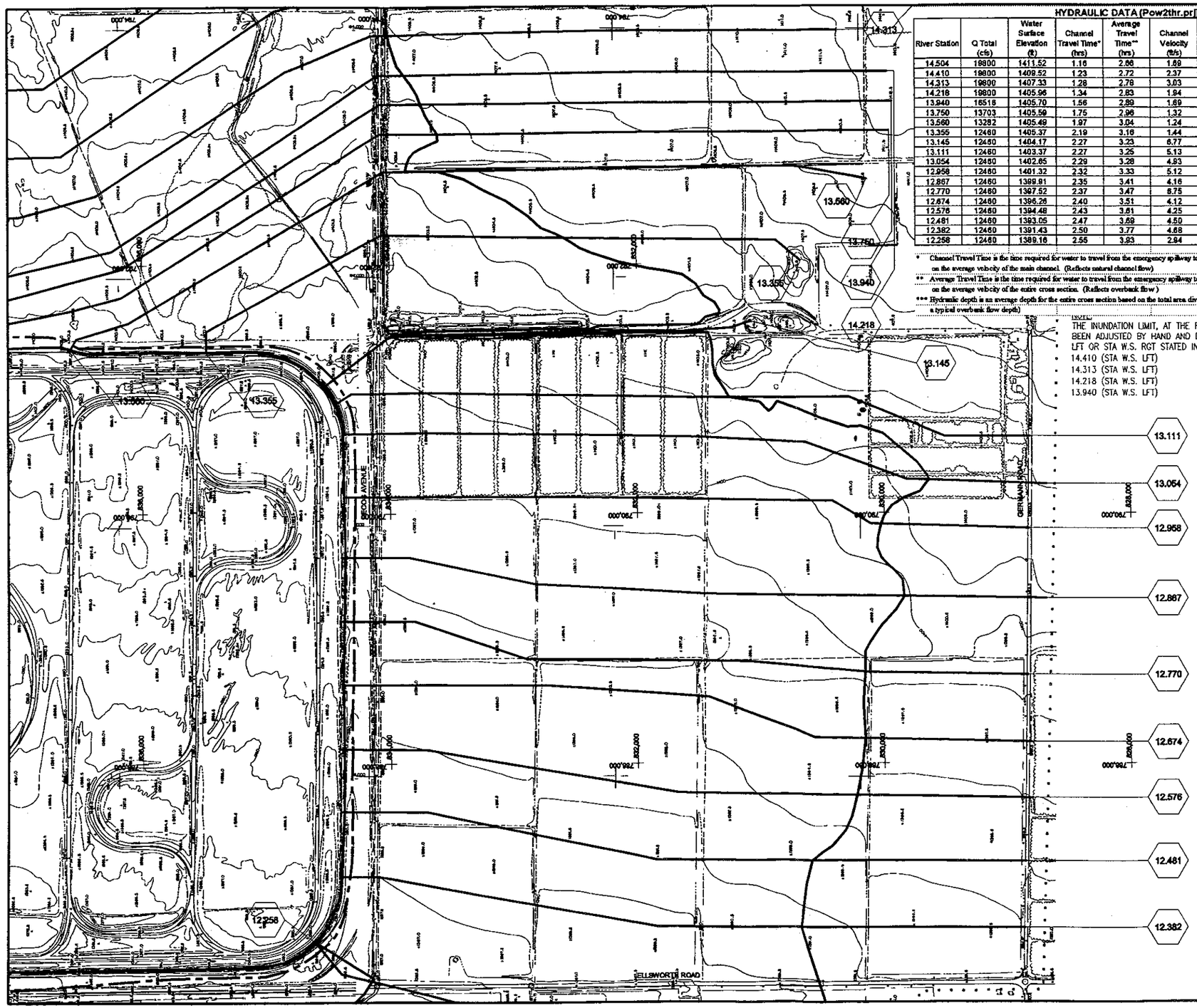
	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 25 OF 40

STRIP MAPPING ALONG PECOS AVENUE PROVIDED BY: FCDMC TO BAKER (SE MESA ADMP FCD 95-32)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

MAPPING PROVIDED BY: FCDMC TO BAKER AS A RASTER IMAGE (QUEEN CREEK ADMS TOPOGRAPHIC MAPS, FCD 86-23)



HYDRAULIC DATA (Pow2thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
14.504	19800	1411.52	1.16	2.66	1.89	2.47	3.52	1.39
14.410	19800	1409.52	1.23	2.72	2.37	2.38	3.22	1.48
14.313	19800	1407.33	1.28	2.78	3.03	2.87	3.83	1.27
14.218	19800	1405.96	1.34	2.83	1.94	1.83	3.66	1.89
13.940	16518	1405.70	1.56	2.89	1.69	1.26	5.00	2.61
13.750	13703	1405.59	1.75	2.96	1.32	1.09	4.89	2.83
13.560	13282	1405.49	1.97	3.04	1.24	1.19	4.80	3.50
13.355	12460	1405.37	2.19	3.16	1.44	1.14	7.37	3.95
13.145	12460	1404.17	2.27	3.23	6.77	5.96	6.87	3.04
13.111	12460	1403.37	2.27	3.25	5.13	3.23	7.37	4.27
13.054	12460	1402.65	2.29	3.28	4.93	2.71	7.15	4.34
12.958	12460	1401.32	2.32	3.33	5.12	2.49	7.02	3.56
12.867	12460	1399.91	2.35	3.41	4.16	1.94	6.51	3.40
12.770	12460	1397.52	2.37	3.47	8.75	2.85	5.22	1.95
12.674	12460	1396.26	2.40	3.51	4.12	1.84	5.56	2.82
12.576	12460	1394.48	2.43	3.61	4.25	1.73	5.48	2.45
12.481	12460	1393.05	2.47	3.69	4.50	1.69	5.70	2.25
12.382	12460	1391.43	2.50	3.77	4.68	1.69	5.16	2.00
12.258	12460	1389.16	2.55	3.93	2.94	1.34	4.36	2.35

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:

- 14.410 (STA W.S. LFT)
- 14.313 (STA W.S. LFT)
- 14.218 (STA W.S. LFT)
- 13.940 (STA W.S. LFT)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M13.0 — M13.0

CROSS SECTION — 2.147 — WSE — 2.147

STREET FLOW — SF →

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

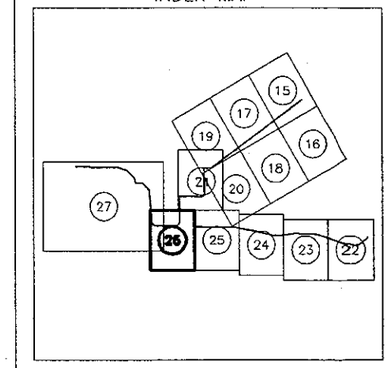
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

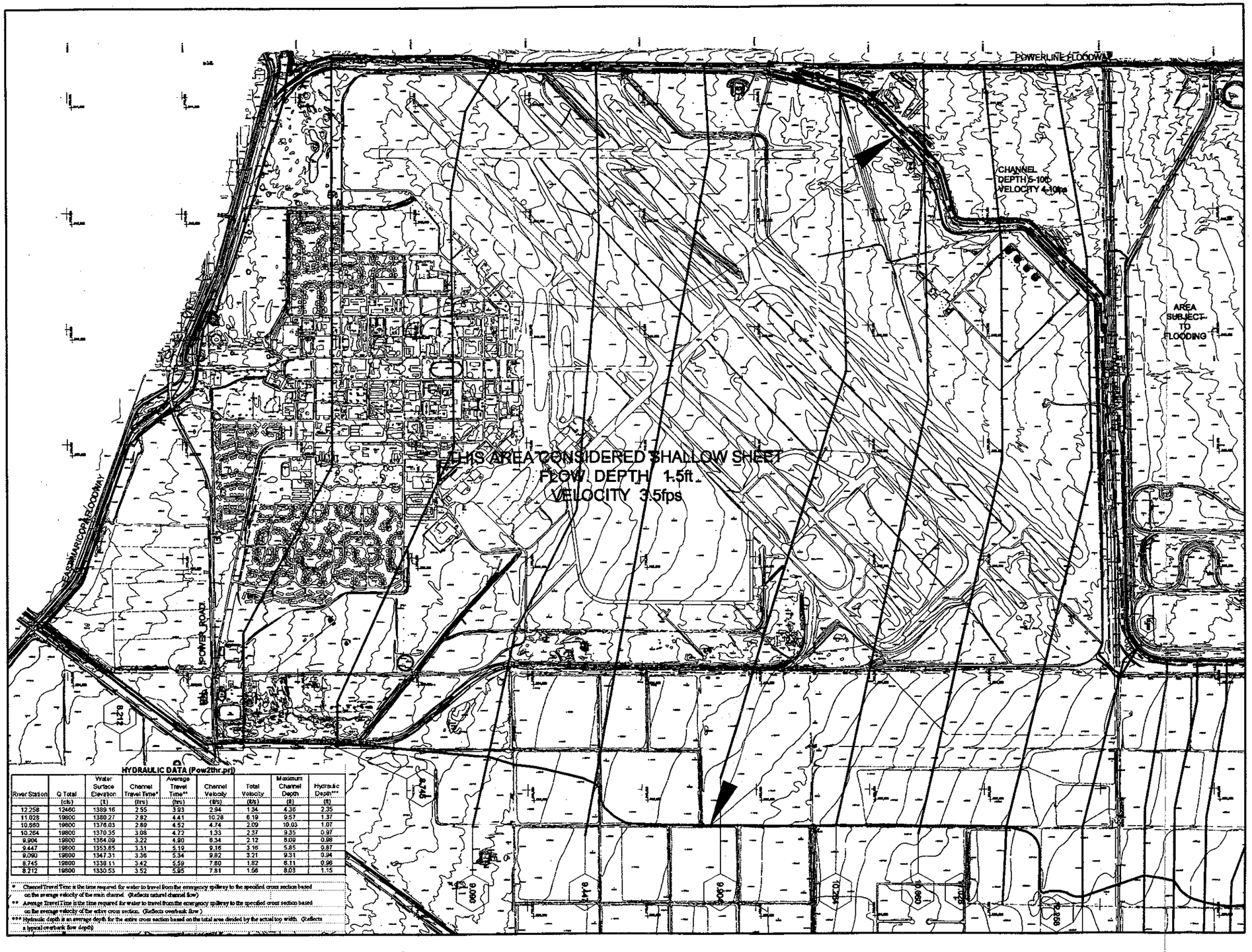
Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 26 OF 40

MAPPING PROVIDED BY:
FCDMC TO BAKER AS A RASTER IMAGE
(QUEEN CREEK ADMS TOPOGRAPHIC MAPS, FCD 86-23)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.



HYDRAULIC DATA (Pow2thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
12.258	12460	1389.16	2.55	3.93	2.94	1.34	4.38	2.35
11.028	19800	1380.27	2.82	4.41	10.28	6.19	9.57	1.37
10.660	19800	1376.03	2.89	4.52	4.74	2.09	10.03	1.07
10.264	19800	1370.35	3.08	4.72	1.33	2.37	9.35	0.97
9.904	19800	1364.09	3.22	4.90	8.34	2.12	8.09	0.98
9.447	19800	1353.85	3.31	5.19	9.16	3.16	5.85	0.87
9.090	19800	1347.31	3.36	5.34	9.82	3.21	9.31	0.94
8.745	19800	1338.11	3.42	5.59	7.80	1.82	6.11	0.96
8.212	19800	1330.53	3.52	5.95	7.81	1.56	8.03	1.15

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 — M13.0
CROSS SECTION	2.147 — WSE — 2.147
STREET FLOW	SF ⟶
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	△
MAPPING BOUNDARY	

ELEVATION REFERENCE MARKS

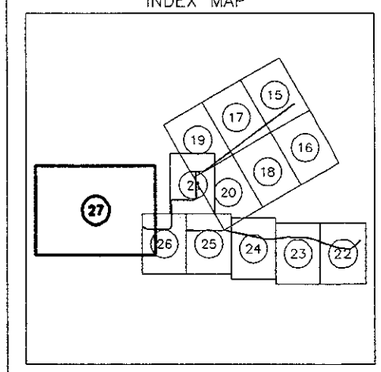
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ⟶ SYMBOL.

INDEX MAP



800' 0' 800' 1600'
SCALE: 1" = 800 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
2/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 27 OF 40

MAPPING PROVIDED BY:
FCDMC TO BAKER AS A RASTER IMAGE
(QUEEN CREEK ADMS TOPOGRAPHIC MAPS, FCD 86-23)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

HEC-RAS September 1998 Version 2.2
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
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PROJECT DATA
Project Title: East Side SIS - Powerline FRS
Project File : Pow2thr.prj
Run Date and Time: 02/13/2002 2:13:34 PM

Project in English units

Project Description:
Spillway Inundation Study for Powerline FRS - 2/3 Spillway Flow Scenario

Powerline FRS Emergency Spillway to Ellsworth Road

FCD
98-33
Michael Baker Jr., Inc.

PLAN DATA

Plan Title: 2/3 Spillway Flow
Plan File : m:\Folders from V\Fcdspill\TaskB\Power\HECRAS\Dec1201\HEC-RAS\Power\2third\Pow2thr.P01

Geometry Title: Existing Conditions Geometry
Geometry File : m:\Folders from V\Fcdspill\TaskB\Power\HECRAS\Dec1201\HEC-RAS\Power\2third\Pow2thr.G01

Flow Title : 2/3 Flow Profile (Mixed Flow Regime)
Flow File : m:\Folders from V\Fcdspill\TaskB\Power\HECRAS\Dec1201\HEC-RAS\Power\2third\Pow2thr.F01

Plan Summary Information:
Number of: Cross Sections = 86 Mulitple Openings = 0
Culverts = 0 Inline Weirs = 0
Bridges = 0

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

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

FLOW DATA

Flow Title: 2/3 Flow Profile (Mixed Flow Regime)
Flow File : m:\Folders from V\Fcdspill\TaskB\Power\HECRAS\Dec1201\HEC-RAS\Power\2third\Pow2thr.F01

Flow Data (cfs)

River	Reach	RS	PF 2
Powerline FRS	Powerline	20.000	13333
Powerline FRS	Powerline	14.790	19800
Powerline FRS	Powerline	13.940	16516
Powerline FRS	Powerline	13.750	13703
Powerline FRS	Powerline	13.560	13282
Powerline FRS	Powerline	13.355	12460
Powerline FRS	Powerline	13.145	12460
Powerline FRS	Powerline	11.028	19800

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Powerline FRS	Powerline	PF 2	Critical	Normal S = .0033

Changes in WS and EG

River	Reach	RS	Profile	Type	Value
Powerline FRS	Powerline	12.258	PF 2	Known WS	1389.158

GEOMETRY DATA

Geometry Title: Existing Conditions Geometry
Geometry File : m:\Folders from V\Fcdspill\TaskB\Power\HECRAS\Dec1201\HEC-RAS\Power\2third\Pow2thr.G01

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 20.000

INPUT
Description: Upstream embankment of the Powerline FRS and Vineyard FRS principal spillways outlet collection channel. The collection channel is the upper limit of the Powerline Floodway.

Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8586.53	1579.11	8612.94	1570	8616.46	1568.79	8653.31	1566.55	8665.91	1566.33
8679.32	1566.26	8714.95	1566.6	8765.61	1566.83	8779.71	1566.76	8800.87	1566.65
8846.99	1566.5	8918.05	1566.42	9017.36	1566.13	9100	1566.38	9146.88	1566.69
9160.05	1566.72	9196.55	1566.76	9270.7	1566.63	9357.22	1566.36	9414.93	1566.36
9438.01	1566.32	9480.48	1565.65	9577.62	1566.06	9628.69	1566.36	9656.18	1566.35
9678.11	1566.39	9722.53	1566.65	9765.27	1566.82	9813.13	1566.53	9855.52	1566.38
9900.42	1566.87	9941.96	1567.4	9983.41	1568.16	10007.63	1568.72	10067.75	1568.82
10091.17	1568.63	10111.04	1568.46	10128.2	1568.38	10147	1568.41	10151.71	1568
10155.55	1568.26	10182.13	1569.44	10183.61		157	0209.22	158	0231.82 1589.07

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8586.53	.022	8586.53	.022	10209.22	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8586.53	10209.22	194.05	193.94	194.05	.3	.5

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1568.92	Element			
Vel Head (ft)	0.34	Wt. n-Val.		0.022	
W.S. Elev (ft)	1568.58	Reach Len. (ft)	194.05	193.94	194.05
Crit W.S. (ft)		Flow Area (sq ft)		2834.69	
E.G. Slope (ft/ft)	0.001980	Area (sq ft)		2834.69	
Q Total (cfs)	13333.00	Flow (cfs)		13333.00	
Top Width (ft)	1447.64	Top Width (ft)		1447.64	
Vel Total (ft/s)	4.70	Avg. Vel. (ft/s)		4.70	
Max Chl Dpth (ft)	2.93	Hydr. Depth (ft)		1.96	
Conv. Total (cfs)	299650.3	Conv. (cfs)		299650.3	
Length Wtd. (ft)	193.94	Wetted Per. (ft)		1447.77	

Min Ch El (ft)	1565.65	Shear (lb/sq ft)		0.24	
Alpha	1.00	Stream Power (lb/ft s)		1.14	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	6202.59	1115.83	1436.04
C & E Loss (ft)	0.15	Cum SA (acres)	5096.92	313.87	1211.66

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 8586.53	8911.07	2469.96	555.84	291.24	18.53	1.91	4.44
8911.07	9235.61	3347.80	696.62	324.54	25.11	2.15	4.81
9235.61	9560.14	3855.13	758.17	324.54	28.91	2.34	5.08
9560.14	9884.68	3269.93	686.86	324.54	24.53	2.12	4.76
9884.68	RB 10209.22	390.19	137.19	182.90	2.93	0.75	2.84

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.963

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8545.34	1578.97	8552.69	1578.6	8571.96	1570	8589.72	1562.07	8704.5	1562.04
9065.06	1563.19	9938.57	1565.57	9965.68	1566.98	9980.1	1562.2	9992.72	1562.01
10011.9	1561.85	10022.2	1562.08	10039.01	1566.98	10251.79	1565.63	10262.77	1570
10288.02	1580	10311.9	1589.52						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8545.34	.05	8571.96	.022	10288.02	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8571.96	10288.02	202.72	203.44	202.72	.3	.5

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1568.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.022	
W.S. Elev (ft)	1568.68	Reach Len. (ft)	202.72	203.44	202.72
Crit W.S. (ft)		Flow Area (sq ft)		7752.58	
E.G. Slope (ft/ft)	0.000085	Area (sq ft)		7752.58	
Q Total (cfs)	13333.00	Flow (cfs)		13333.00	
Top Width (ft)	1684.56	Top Width (ft)		1684.56	
Vel Total (ft/s)	1.72	Avg. Vel. (ft/s)		1.72	
Max Chl Dpth (ft)	6.83	Hydr. Depth (ft)		4.60	
Conv. Total (cfs)	1446731.4	Conv. (cfs)		1446731.4	
Length Wtd. (ft)	203.40	Wetted Per. (ft)		1688.08	
Min Ch El (ft)	1561.85	Shear (lb/sq ft)		0.02	
Alpha	1.00	Stream Power (lb/ft s)		0.04	
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	6202.59	1092.26	1436.04
C & E Loss (ft)	0.04	Cum SA (acres)	5096.92	306.90	1211.66

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 8571.96	8915.17	4366.16	2138.98	341.68	32.75	6.29	2.04
8915.17	9258.38	3481.83	1870.73	343.21	26.11	5.45	1.86
9258.38	9601.60	2530.05	1544.56	343.21	18.98	4.50	1.64
9601.60	9944.81	1713.77	1222.65	343.22	12.85	3.56	1.40
9944.81	RB 10288.02	1241.18	975.64	316.75	9.31	3.10	1.27

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.925

INPUT
Description: Top of Bank, East Embankment of the CAP
Station Elevation Data num= 118

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2534.04	1578	2554.26	1576	2564.39	1574.69	2568.55	1574	2576.27	1572.57
2578.36	1572.05	2590.28	1570	2606.56	1568.74	2614.37	1568.03	2617.92	1568.5
2623.83	1568.79	2647.34	1568.62	2658.65	1566.87	2693.53	1566.96	2722.07	1567.94
2847.48	1567.82	3055.24	1567.67	3144.34	1566.88	3326.58	1566.71	3544.34	1566.96
3584.34	1567	3821.82	1567.18	4064.37	1566.92	4104.34	1566.88	4366.64	1566.83
4641.18	1567.08	4901.46	1567.03	5104.34	1567.03	5144.34	1567.01	5362.43	1566.85
5522.43	1567.23	5562.43	1567.3	5722.43	1567.39	5762.43	1567.41	5922.43	1567.23
5962.43	1567.16	6072.78	1566.98	6162.43	1567.08	6202.43	1567.13	6282.43	1567.29
6322.43	1567.28	6402.43	1567.18	6442.43	1567.21	6526.99	1567.29	6648.12	1567.32
6802.43	1567.01	6842.43	1566.88	6922.43	1566.55	6962.43	1566.5	7042.43	1566.84
7082.43	1566.81	7180.83	1566.22	7203.29	1566.1	7362.39	1566.38	7402.43	1566.06
7462.95	1565.53	7541.92	1566.04	7652.43	1565.9	7663.71	1565.87	7741.87	1565.47
7820.02	1565.5	7862.95	1565.64	7942.95	1565.71	8067.91	1565.77	8142.95	1565.77
8182.95	1565.78	8276.74	1566.07	8303.78	1566.14	8382.95	1566.1	8402.98	1566.1
8502.95	1566.27	8523.03	1566.26	8541.53	1565.93	8602.98	1566.09	8642.96	1566.06
8722.99	1566.11	8763	1566.14	8802.2	1566.17	8883.03	1566.22	8942.95	1566.25
9008.99	1566.29	9071.22	1566.43	9102.95	1566.48	9163.13	1566.46	9200.86	1566.46
9420.88	1566.5	9502.94	1566.65	9542.94	1566.72	9609.58	1566.69	9689.57	1566.5
9711.62	1566.48	9790.57	1566.47	9840.26	1566.58	9880.05	1566.89	9903.53	1567.11
9976.39	1567.2	9988.47	1567.26	10011.01	1566.72	10185.66	1566.96	10294.18	1566.83
10344.14	1566.74	10501.72	1566.41	10579.87	1566.24	10716.44	1565.94	10796.44	1565.81
10876.45	1565.71	10956.44	1565.62	11264.04	1567.41	1594.04	1566.81	1964.04	1565.7
12204.04	1565.51	2584.04	1564.51	2924.04	1565.41	3774.04	1565.81	4144.04	1566.4
14554.04	1566.71	5024.04	15671	5484.04	1568.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2534.04	.022	8541.53	.022	10294.18	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8541.53	10294.18	106	105.38	106	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2534.04	8463.16	1570	10420.88	15484.04	1570

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1568.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.022	0.022	0.022
W.S. Elev (ft)	1568.45	Reach Len. (ft)	106.00	105.38	106.00
Crit W.S. (ft)	1567.65	Flow Area (sq ft)	175.39	3372.24	220.35
E.G. Slope (ft/ft)	0.001144	Area (sq ft)	9624.87	3372.24	11650.68
Q Total (cfs)	13333.00	Flow (cfs)	685.62	11919.27	728.11
Top Width (ft)	12775.24	Top Width (ft)	5900.84	1752.65	5121.75
Vel Total (ft/s)	3.54	Avg. Vel. (ft/s)	3.91	3.53	3.30
Max Chl Dpth (ft)	3.95	Hydr. Depth (ft)	2.24	1.92	1.74
Conv. Total (cfs)	394139.0	Conv. (cfs)	20267.8	352347.6	21523.7
Length Wtd. (ft)	105.47	Wetted Per. (ft)	78.37	1752.66	126.70
Min Ch El (ft)	1565.93	Shear (lb/sq ft)	0.16	0.14	0.12
Alpha	1.00	Stream Power (lb/ft s)	0.62	0.49	0.41
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	6180.19	1066.28	1408.93
C & E Loss (ft)	0.10	Cum SA (acres)	5083.19	298.87	1199.75

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7940.78	8541.53	685.62	175.39	78.37	5.14	2.24	3.91
LB 8541.53	8892.06	3258.92	818.92	350.53	24.44	2.34	3.98
8892.06	9242.59	2668.97	726.44	350.53	20.02	2.07	3.67

9242.59	9593.12	2284.91	661.79	350.53	17.14	1.89	3.45
9593.12	9943.65	2085.66	626.53	350.53	15.64	1.79	3.33
9943.65	RB 10294.18	1620.81	538.56	350.54	12.16	1.54	3.01
10294.18	10813.17	728.11	220.35	126.70	5.46	1.74	3.30

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.905

INPUT
Description: Top of Bank, West Embankment of the CAP
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2641.94	1568.65	2702.15	1568.46	2785.37	1568.2	2905.37	1568	3025.37	1567.9
3105.37	1567.24	3162.14	1566.94	3282.14	1567.12	3402.14	1567.24	3522.14	1567.39
3682.14	1567.63	3842.14	1567.74	4002.14	1567.59	4162.14	1567.52	4322.14	1567.49
4482.14	1567.44	4642.14	1567.38	4722.14	1567.4	5002.14	1567.55	5242.14	1567.36
5322.14	1567.28	5406.23	1567.11	5526.27	1567.01	5646.22	1567.1	5777.62	1567.18
5916.57	1567.24	6026.75	1567.07	6186.75	1566.99	6286.02	1567.04	6372.57	1567.08
6506.75	1567.53	6626.75	1567.71	6786.75	1567.16	6900.58	1566.51	7026.74	1566.28
7114.46	1566.25	7226.74	1566.29	7327.9	1566.34	7426.74	1566.2	7515.08	1566.22
7595.37	1566.32	7693.61	1566.32	7796.77	1566.35	7880.86	1566.43	8002.55	1566.41
8052.69	1566.35	8133.27	1566.26	8195.87	1566.23	8273.3	1566.21	8411.84	1566.23
8438.34	1566.24	8539.56	1566.38	8647.68	1566.5	8751.29	1566.65	8838.34	1566.55
8957.42	1566.48	9013.6	1566.61	9099.06	1566.73	9202.54	1566.82	9293.6	1566.8
9373.6	1566.62	9491.6	1566.4	9499.16	1566.4	9573.58	1566.28	9674.64	1566.25
9813.55	1566.86	9924.41	1567.22	9989.5	1567.23	10012	1567.06	10084.4	1567.07
10154.31	1567.08	10245.72	1566.85	10298.43	1566.57	10332	1566.66	10431.77	1566.6
10572	1566.52	10671.83	1566.47	10808.62	1566.37	10831.87	1566.35	10852	1566.33
10871.88	1566.32	10892	1566.31	10911.89	1566.29	10932	1566.27	10951.9	1566.25
10973.72	1566.24	10993.74	1566.22	11013.99	1566.21	11091.94	1567.21	11391.94	1566.9
11741.94	1566.51	11891.94	1567.21	12141.94	1566.41	12431.94	1565.81	12691.94	1565.7
13561.94	1566.21	13961.94	1566.51	14361.94	1566.61	14741.94	1567.21	15231.94	1568.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2641.94	.022	8539.56	.022	10298.43	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8539.56	10298.43	23	22.1	23	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2641.94	8424.31	1570	10492.73	15231.94	1570

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2641.94	3522.25	1568.57

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1568.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.54	Wt. n-Val.	0.022	0.022	0.022
W.S. Elev (ft)	1567.76	Reach Len. (ft)	23.00	22.10	23.00
Crit W.S. (ft)	1567.76	Flow Area (sq ft)	167.88	1881.36	222.53
E.G. Slope (ft/ft)	0.006615	Area (sq ft)	3766.38	1881.36	6003.40
Q Total (cfs)	13333.00	Flow (cfs)	1185.09	10809.74	1338.17
Top Width (ft)	11523.41	Top Width (ft)	5017.31	1758.87	4747.23
Vel Total (ft/s)	5.87	Avg. Vel. (ft/s)	7.06	5.75	6.01
Max Chl Dpth (ft)	2.06	Hydr. Depth (ft)	1.46	1.07	1.15
Conv. Total (cfs)	163926.9	Conv. (cfs)	14570.5	132903.8	16452.6
Length Wtd. (ft)	22.22	Wetted Per. (ft)	115.25	1758.87	194.30
Min Ch El (ft)	1566.25	Shear (lb/sq ft)	0.60	0.44	0.47
Alpha	1.01	Stream Power (lb/ft s)	4.25	2.54	2.84
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	6163.90	1059.93	1387.45
C & E Loss (ft)	0.01	Cum SA (acres)	5069.90	294.62	1187.74

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7949.80	8539.56	1185.09	167.88	115.25	8.89	1.46	7.06
LB 8539.56	8891.33	2667.60	430.65	351.77	20.01	1.22	6.19
8891.33	9243.11	2205.51	384.20	351.77	16.54	1.09	5.74
9243.11	9594.88	2624.63	426.47	351.77	19.69	1.21	6.15
9594.88	9946.66	2145.64	377.91	351.78	16.09	1.07	5.68
9946.66	RB 10298.43	1166.36	262.15	351.78	8.75	0.75	4.45
10298.43	10791.78	1338.17	222.53	194.30	10.04	1.15	6.01

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
water surface was used.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.901

INPUT
Description:
Station Elevation Data num= 83

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2624.53	1568.23	2703.99	1568.05	2898.29	1567.48	2944.62	1567.34	3141.6	1566.77
3221.78	1566.9	3325.26	1567.07	3448.94	1567.24	3649.7	1567.18	3780.75	1567.14
3882.25	1567.1	3930.55	1567.08	4380.88	1566.79	4503.41	1566.71	4710.72	1566.87
4822.8	1566.91	5085.96	1566.93	5187.47	1566.9	5351.49	1566.81	5533.16	1566.69
5681.12	1566.83	5740.29	1566.89	5825.37	1566.96	5950.1	1567	6103.9	1566.67
6193.95	1566.58	6408.13	1566.85	6511.22	1566.9	6621.43	1567.07	6731.19	1567.32
6800.5	1566.95	7107.91	1566.17	7185.6	1566.28	7227.07	1566.25	7466.96	1565.11
7503.73	1565.07	7538.43	1565.02	7566.71	1565.02	7650.62	1565.08	7722.07	1565.17
7758.23	1565.18	7872.09	1565.28	7946.29	1565.47	8087.3	1565.29	8108.37	1565.3
8239.04	1565.63	8264.94	1565.7	8318.01	1565.67	8522.59	1565.57	8541.31	1565.57
8584.35	1565.51	8659.82	1565.51	8749.34	1565.53	8842.72	1565.72	8887.55	1565.81
8932.47	1565.85	8988.3	1565.87	9056.33	1565.89	9161.33	1565.9	9223.05	1565.9
9284.16	1565.93	9363.74	1565.95	9414.5	1565.88	9500.55	1565.83	9587.34	1565.85
9610	1565.86	9616.46	1565.88	9711.26	1566.27	9789.54	1566.53	9861.02	1566.73
9946.52	1567.12	9968.28	1567.23	10016.08	1567.32	10025.22	1567.24	10075.85	1567.01
10300.3	1566.74	10325.06	1566.75	10422.72	1566.43	10521.18	1566.09	10559.82	1565.96
10705.28	1566.03	10826.01	1566.19	10887.02	1566.24				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2624.53	.05	8541.31	.022	10300.3	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8541.31	10300.3	213.82	249.12	282.84	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2624.53	8417.45	1570	10503.5	10887.02	1570

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2624.53	3591.44	1568

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1567.84	Element			
Vel Head (ft)	0.56	Wt. n-Val.	0.050	0.022	0.050
W.S. Elev (ft)	1567.28	Reach Len. (ft)	213.82	249.12	282.84
Crit W.S. (ft)	1567.28	Flow Area (sq ft)	209.68	1976.90	161.51
E.G. Slope (ft/ft)	0.007070	Area (sq ft)	4033.01	1976.90	625.44
Q Total (cfs)	13333.00	Flow (cfs)	744.28	12242.42	346.30
Top Width (ft)	7250.71	Top Width (ft)	4927.77	1736.21	586.72
Vel Total (ft/s)	5.68	Avg. Vel. (ft/s)	3.55	6.19	2.14
Max Chl Dpth (ft)	2.26	Hydr. Depth (ft)	1.69	1.14	0.79

Conv. Total (cfs)	158563.8	Conv. (cfs)	8851.4	145594.0	4118.4
Length Wtd. (ft)	242.56	Wetted Per. (ft)	123.86	1736.22	203.20
Min Ch El (ft)	1565.51	Shear (lb/sq ft)	0.75	0.50	0.35
Alpha	1.12	Stream Power (lb/ft s)	2.65	3.11	0.75
Frctn Loss (ft)	1.77	Cum Volume (acre-ft)	6161.84	1058.95	1385.70
C & E Loss (ft)	0.12	Cum SA (acres)	5067.28	293.74	1186.33

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7949.63	8541.31	744.28	209.68	123.86	5.58	1.69	3.55
LB 8541.31	8893.11	4368.47	598.28	351.80	32.76	1.70	7.30
8893.11	9244.91	3172.29	493.78	351.80	23.79	1.40	6.42
9244.91	9596.70	3152.32	491.91	351.80	23.64	1.40	6.41
9596.70	9948.50	1305.93	289.91	351.80	9.79	0.82	4.50
9948.50	RB 10300.30	243.42	103.01	329.02	1.83	0.31	2.36
10300.30	10358.97	55.65	33.38	58.67	0.42	0.57	1.67
10358.97	10417.64	86.63	43.53	58.67	0.65	0.74	1.99
10417.64	10476.32	128.18	55.06	58.67	0.96	0.94	2.33
10476.32	10534.99	75.84	29.54	27.18	0.57	1.09	2.57

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.879

INPUT
Description: Downstream Toe of the West Side Embankment of the CAP
Station Elevation Data num= 119

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2313.21	1561.86	2341.54	1561.94	2387.7	1562.05	2414.82	1562.13	2483.44	1562.72
2510.04	1562.66	2549.68	1562.23	2568.81	1562.07	2627.23	1561.61	2642.37	1561.66
2695.97	1561.88	2708.87	1561.74	2733.26	1561.31	2744.85	1561.2	2766.15	1561.9
2774.79	1562.17	2782.08	1562.21	2783.53	1561.73	2784.66	1562.11	2792.9	1562.36
2810.8	1562.55	2824.13	1562.57	2878.6	1562.62	2884.4	1562.61	2937.74	1562.28
2948.18	1562.26	2995.26	1562.62	3011.39	1562.67	3060.46	1562.79	3078.99	1562.58
3144.46	1561.75	3160.76	1561.62	3221.01	1561.45	3229.09	1561.43	3308.6	1561.21
3442.86	1560.78	3460.84	1560.8	3668.44	1561.39	3681.21	1561.42	3906.59	1560.85
3923.39	1560.87	4049.59	1561.26	4057.11	1561.28	4201.41	1561.02	4213.64	1560.98
4377.92	1560.13	4402.56	1560.01	4407.42	1560	4531.85	1559.84	4544.45	1559.81
4702.73	1559.41	4717.65	1559.36	4923.99	1558.42	4958.69	1558.29	5009.88	1558.13
5033.19	1558.13	5082.61	1558.27	5119.18	1558.32	5254.75	1558.36	5284.15	1558.37
5347.54	1558.37	5414.6	1558.36	5518.27	1558.31	5568.15	1558.19	5621.17	1557.99
5644.53	1557.94	5746.85	1558	5772.86	1558.07	5787.34	1558.12	5806.09	1558.19
5849.3	1558.35	5869.37	1558.45	5880.83	1558.52	5919.45	1558.73	5966.45	1559.02
5989.17	1559.15	6037.64	1559.45	6037.81	1559.45	6233.2	1559.98	6236.61	1560
6456.98	1560.48	6817.53	1560.3	7015.33	1560	7074.35	1560	7106.79	1560
7178.08	1559.52	7538.65	1558.73	7899.2	1558.12	8259.76	1558.65	8620.32	1559.09
8980.87	1559.68	9104.35	1560	9341.43	1562.02	9701.98	1561.75	9968.92	1561.75

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 9984.81 1561.85 9988.92    1560 9996.46 1556.6610002.17 1556.5810011.01    1560
10015.19 1561.6310030.34 1561.2310062.55  1560.910423.09 1561.9510598.15 1561.92
10603.68 1561.1510622.27 1560.9410795.83 1562.7610809.46 1562.44 10833.8 1561.48
10839.21    156010842.83 1559.36   10865    1560 10866.1 1560.0410875.39 1561.84
10936.05 1561.6511020.89 1563.4711036.05 1564.0811136.06  1565.3

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2313.21     .05 9984.81    .01510015.19     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       8620.3210423.09           215.31  249.97  212.05             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2313.21    8375    1568   1057011136.06    1568
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 2313.21 3664.43    1566

CROSS SECTION OUTPUT    Profile #PF 2

  E.G. Elev (ft)            1562.54   Element                   Left OB    Channel   Right OB
  Vel Head (ft)                0.32   Wt. n-Val.                 0.050      0.042      0.050
  W.S. Elev (ft)            1562.22   Reach Len. (ft)           215.31     249.97     212.05
  Crit W.S. (ft)            1561.47   Flow Area (sq ft)         804.45    2297.93      41.44
  E.G. Slope (ft/ft)       0.007566   Area (sq ft)            14169.98    2297.93     284.56
  Q Total (cfs)            13333.00   Flow (cfs)               4589.72    8697.20      46.08
  Top Width (ft)            7227.40   Top Width (ft)           4955.89    1802.77     468.74
  Vel Total (ft/s)             4.24   Avg. Vel. (ft/s)            5.71       3.78       1.11
  Max Chl Dpth (ft)            5.64   Hydr. Depth (ft)            3.28       1.27       0.28
  Conv. Total (cfs)        153287.8   Conv. (cfs)             52767.4    99990.6      529.8
  Length Wtd. (ft)           233.90   Wetted Per. (ft)         245.32    1804.84     146.91
  Min Ch El (ft)            1556.58   Shear (lb/sq ft)            1.55       0.60       0.13
  Alpha                        1.14   Stream Power (lb/ft s)      8.84       2.28       0.15
  Frctn Loss (ft)              1.74   Cum Volume (acre-ft)     6117.17    1046.73    1382.75
  C & E Loss (ft)              0.00   Cum SA (acres)           5043.02     283.62    1182.90


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 2

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  7989.61       8620.32        4589.72     804.45    245.32      34.42       3.28       5.71
  LB 8620.32    8980.87        4372.59    1021.98    360.55      32.80       2.83       4.28
  8980.87       9341.43        1703.68     580.54    360.56      12.78       1.61       2.93
  9341.43       9701.98         124.13     120.60    360.55       0.93       0.33       1.03
  9701.98       10062.54       1971.84     288.34    362.61      14.79       0.80       6.84
  10062.54      RB 10423.09     524.95     286.47    360.56       3.94       0.79       1.83
  10423.09      10494.39         21.51      19.65     71.30       0.16       0.28       1.09
  10494.39      10565.68         23.12      20.52     71.30       0.17       0.29       1.13
  10565.68      10636.98          1.45       1.27      4.32       0.01       0.29       1.14


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

CROSS SECTION          RIVER: Powerline FRS
REACH: Powerline          RS: 19.806

INPUT
Description:
Station Elevation Data    num=      89
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  2327.4 1559.77 2329.35    1560 2335.14 1560.65 2370.25 1560.56 2378.26 1560.14
  2387.5 1560.47 2461.15 1560.38  2507.7 1561.29 2556.13 1562.09  2599.5 1562.03
 2632.96  1560.1  2634.1    1560 2641.21 1559.41 2645.66    1560 2653.42 1561.02
 2684.08 1560.91 2684.77  1560.6 2723.24 1560.59 2743.55 1561.06 2789.68 1560.13
 2791.94    1560  2798.9 1559.09 2807.65    1560 2810.99 1560.36 2908.38 1561.55
 3131.97 1561.58 3336.72    1560 3355.62 1559.93 3505.53 1558.88 3554.33 1557.14
 3579.21 1558.51 3604.63 1558.93 3646.04    1560 3693.38 1561.41 3760.75 1560.37
 3802.81  1560.4  3839.2    1560 3875.53 1559.69 3922.53 1559.42 3949.61 1559.45
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 4026.43 1559.69 4832.65 1558.25 4882.43 1558.09 4897.42 1559.76 4913.14 1558.22
 5397.11 1557.71 5402.55 1557.13 5574.79 1557.05 5590.74 1555.46 5603.09  1557.6
 5617.31 1557.65 5798.77 1557.63 6202.34 1559.08 6366.57 1559.06 6497.12 1559.01
 6857.67  1559.4 7218.23 1558.06 7578.79 1557.31 7939.34 1556.77  8299.9 1557.26
    8547 1557.61 8660.46 1557.82 9021.01 1559.07 9331.03    1560    9521 1560.85
 9881.59 1560.72 9970.36 1560.39 9985.67 1560.32 9986.43    1560 9997.37 1555.33
10003.01  1555.210016.91    156010016.93 1560.0110019.98    156010031.64 1559.64
10242.13 1559.26 10311.4 1559.2810465.74 1558.8710630.71    156010645.31    1560
10828.92    156010828.94    156010840.24 1559.7710846.67    156010852.27 1560.21
10878.49 1560.14 10978.5 1560.6811078.49 1561.3111178.48 1561.46

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  2327.4     .05 9986.43    .01510019.98     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       8660.46 10311.4           420.97  416.55  422.34             .3       .5
Ineffective Flow     num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  2327.4 8252.01    156410806.8711178.48    1564
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  2327.4 3701.69 1561.43

CROSS SECTION OUTPUT    Profile #PF 2

  E.G. Elev (ft)            1560.80   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.32   Wt. n-Val.                  0.050      0.039      0.050
  W.S. Elev (ft)            1560.49   Reach Len. (ft)            420.97     416.55     422.34
  Crit W.S. (ft)            1559.96   Flow Area (sq ft)         1224.34    1472.55     476.75
  E.G. Slope (ft/ft)       0.007222   Area (sq ft)             11009.53    1472.55     519.50
  Q Total (cfs)            13333.00   Flow (cfs)                6428.12    5731.39    1173.49
  Top Width (ft)            6684.41   Top Width (ft)            4907.22    1146.04     631.16
  Vel Total (ft/s)             4.20   Avg. Vel. (ft/s)             5.25       3.89       2.46
  Max Chl Dpth (ft)            5.29   Hydr. Depth (ft)             3.00       1.28       0.96
  Conv. Total (cfs)        156896.2   Conv. (cfs)              75643.0    67444.2    13809.0
  Length Wtd. (ft)           419.71   Wetted Per. (ft)          408.45    1147.88     495.47
  Min Ch El (ft)            1555.20   Shear (lb/sq ft)             1.35       0.58       0.43
  Alpha                        1.15   Stream Power (lb/ft s)       7.10       2.25       1.07
  Frctn Loss (ft)              2.67   Cum Volume (acre-ft)      6054.94    1035.91    1380.79
  C & E Loss (ft)              0.02   Cum SA (acres)            5018.64     275.16    1180.23


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 2

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                 (ft)     (ft/s)
  8027.15       8660.46        6428.11    1224.34    408.45      48.21       3.00       5.25
  LB 8660.46    8990.65        2600.19     691.29    330.19      19.50       2.09       3.76
  8990.65       9320.84         774.75     334.31    330.19       5.81       1.01       2.32
  9320.84       9651.02          29.88      31.50    118.81       0.22       0.27       0.95
  9651.02       9981.21           0.99       2.55     36.67       0.01       0.07       0.39
  9981.21       RB 10311.40    2325.59     412.89    332.02      17.44       1.25       5.63
  10311.40      10398.11        314.78     114.55     86.71       2.36       1.32       2.75
  10398.11      10484.82        402.70     132.80     86.71       3.02       1.53       3.03
  10484.82      10571.52        263.85     103.04     86.71       1.98       1.19       2.56
  10571.52      10658.23         90.25      54.13     86.71       0.68       0.62       1.67
  10658.23      10744.94         59.45      42.14     86.71       0.45       0.49       1.41
  10744.94      10831.65         42.46      30.10     61.93       0.32       0.49       1.41


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

CROSS SECTION          RIVER: Powerline FRS
REACH: Powerline          RS: 19.727

INPUT
Description:
Station Elevation Data    num=      99
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
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2380.67	1559.58	2522.09	1558.95	2564.88	1558.91	2573.68	1558.38	2584.42	1559.01
2624.78	1560	2634.19	1560.35	2649.74	1560	2684.25	1559.13	2737.16	1558.48
2742.24	1557.78	2755.77	1557.74	2762.22	1558.46	3105.17	1558.58	3595.61	1557.09
3681.9	1558.15	3688.31	1558.37	3887.64	1559.24	3978.12	1558	4086.6	1556.98
4214.43	1556.74	4271.4	1556.73	4631.94	1555.8	4987.29	1555.33	5036.91	1554.89
5043.8	1554.18	5051.05	1554.8	5078.68	1554.64	5085.98	1554.32	5090.27	1554.74
5126.76	1554.31	5132.92	1554.03	5136.22	1554.48	5312.41	1554.51	5340.8	1559.67
5343.94	1560	5353.05	1560.96	5400.2	1560.15	5401.18	1560	5466.56	1550
5480.46	1547.93	5568.39	1548.71	5573.9	1550	5600.96	1556.19	5636.66	1557.23
5655.05	1560	5660.25	1560.79	5676.2	1560.57	5678.84	1560	5698.17	1556.15
5713.6	1555.91	5799.32	1554.73	5806.94	1553.76	5812.32	1554.31	5814.9	1554.25
5819.66	1553.71	5846.35	1553.87	5862.64	1554.87	5880.74	1554.86	5890.23	1554.57
5898.49	1554.74	5973.95	1555.56	6074.16	1555.17	6088.86	1555.31	6183.78	1556.01
6253.58	1556.57	6316.57	1557.11	6434.71	1557.37	6439.91	1557.5	6553.25	1557.15
6625.06	1557.12	6795.26	1556.08	7155.82	1554.88	7359.98	1555.33	7516.38	1555.19
7876.94	1553.41	8237.49	1554.56	8546.94	1554.95	8598.05	1554.8	8822.67	1556.05
8958.61	1556.9	9319.16	1557.46	9819.15	1557.81	9971.46	1557.45	9987.1	1557.69
9997.59	1553.07	10003.23	1552.91	10016.06	1557.39	10031.31	1556.88	10070.74	1556.4
10179.72	1557.74	10323.16	1556.97	10540.27	1556.88	10956.5	1557.74	11056.49	1558.06
11156.5	1558.47	11256.5	1558.87	11356.49	1558.72	11456.5	1558.5		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2380.67	.05	9987.1	.015	10016.06	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8822.67	10323.16	479.98	444.3	444.2	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2380.67	8077.47	1562	11077.3	11456.5	1562

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2380.67	3888	1564.04	11255.94	11456.5	1564

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1558.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.050	0.031	0.050
W.S. Elev (ft)	1557.84	Reach Len. (ft)	479.98	444.30	444.20
Crit W.S. (ft)	1557.21	Flow Area (sq ft)	2213.49	859.75	420.07
E.G. Slope (ft/ft)	0.005628	Area (sq ft)	12048.43	859.75	420.07
Q Total (cfs)	13333.00	Flow (cfs)	10196.92	2446.08	690.00
Top Width (ft)	6858.56	Top Width (ft)	4693.84	1500.49	664.23
Vel Total (ft/s)	3.82	Avg. Vel. (ft/s)	4.61	2.85	1.64
Max Chl Dpth (ft)	9.91	Hydr. Depth (ft)	2.97	0.57	0.63
Conv. Total (cfs)	177730.3	Conv. (cfs)	135926.0	32606.5	9197.8
Length Wtd. (ft)	470.21	Wetted Per. (ft)	745.20	1502.25	664.23
Min Ch El (ft)	1552.91	Shear (lb/sq ft)	1.04	0.20	0.22
Alpha	1.23	Stream Power (lb/ft s)	4.81	0.57	0.36
Frctn Loss (ft)	3.29	Cum Volume (acre-ft)	5943.52	1024.76	1376.23
C & E Loss (ft)	0.02	Cum SA (acres)	4972.25	262.50	1173.95

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7534.27	8178.47	1920.85	366.44	101.00	14.41	3.63	5.24
8178.47	8822.67	8276.04	1847.05	644.20	62.07	2.87	4.48
LB 8822.67	9122.77	675.10	318.60	300.10	5.06	1.06	2.12
9122.77	9422.87	171.26	139.90	300.10	1.28	0.47	1.22
9422.87	9722.96	42.23	60.39	300.10	0.32	0.20	0.70
9722.96	10023.06	1227.84	133.63	301.84	9.21	0.45	9.19
10023.06	RB 10323.16	329.67	207.24	300.12	2.47	0.69	1.59
10323.16	10436.49	186.14	101.14	113.33	1.40	0.89	1.84
10436.49	10549.83	202.40	106.35	113.33	1.52	0.94	1.90
10549.83	10663.16	162.33	93.16	113.33	1.22	0.82	1.74
10663.16	10776.50	92.84	66.63	113.33	0.70	0.59	1.39
10776.50	10889.83	39.81	40.09	113.33	0.30	0.35	0.99
10889.83	11003.16	6.49	12.71	97.56	0.05	0.13	0.51

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.643

INPUT
Description:
Station Elevation Data num= 92

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2406.87	1556.49	2660.44	1557.3	2737.02	1557.08	2767.41	1556.39	2812.91	1556.56
2820.39	1555.95	2825.32	1556.35	2852.28	1556.56	2894.16	1556.26	2970.57	1556.42
3036.58	1556.38	3127.97	1555.75	3150.3	1555.48	3488.55	1554.89	3586.29	1554.13
3843.29	1556.8	3849.11	1557.02	4051.24	1556.84	4133.87	1555.74	4199.43	1555.31
4209.65	1555.06	4307.22	1554	4570.21	1553.03	4930.75	1551.81	5097.11	1551.15
5102.31	1551.02	5109.19	1551.2	5291.32	1553.62	5651.85	1552.29	5655.84	1552.25
5662.89	1551.72	5673.87	1552.15	5806.96	1552.54	5817.14	1551.4	5823.22	1551.3
5827.82	1551.97	5834.96	1552.22	5839.71	1551.35	5842.63	1551.69	5967.39	1552.93
5974.41	1552.31	5979.4	1552.69	5990.81	1552.81	5993.63	1552.33	6021.46	1553.11
6288.92	1554.95	6382.5	1555.47	6512.08	1554.32	6872.63	1553.46	6939.13	1553.67
7004.15	1553.42	7163.49	1552.03	7168.01	1551.1	7173.71	1552.01	7174.03	1552.02
7178.51	1550.7	7184.47	1551.85	7205.7	1551.91	7219.3	1551.27	7225.24	1551.71
7345.64	1554.93	7383.02	1553.72	7732.87	1550.87	7821.88	1551.07	7897.81	1550.55
8093.43	1552.85	8453.99	1552.63	8542.26	1553.02	8814.55	1553.09	8879.06	1553.18
8938.83	1552.8	9026.03	1553.41	9175.1	1553.46	9535.66	1555.31	9896.22	1554.44
9972.31	1554.58	9987.06	1554.92	9997.05	1550.52	10002.87	1550.45	10015.11	1555.09
10031.34	1553.86	10055.57	1553.63	10256.77	1554.14	10332.96	1553.69	10617.34	1553.9
10840.93	1552.94	11253.24	1554.68	11353.25	1554.76	11453.25	1554.88	11553.24	1555.83
11653.23	1555.73	11753.24	1555.46						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2406.87	.05	9987.06	.015	10015.11	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9026.03	10256.77	447.66	524.77	489.6	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2406.87	7886.52	1558	11360.25	11753.24	1558

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2406.87	3842.51	1557.01	11577.66	11753.24	1555.8

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1554.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.	0.050	0.031	0.050
W.S. Elev (ft)	1554.57	Reach Len. (ft)	447.66	524.77	489.60
Crit W.S. (ft)	1554.21	Flow Area (sq ft)	2146.05	522.33	840.99
E.G. Slope (ft/ft)	0.008893	Area (sq ft)	8110.24	522.33	840.99
Q Total (cfs)	13333.00	Flow (cfs)	9172.28	2017.82	2142.91
Top Width (ft)	6215.20	Top Width (ft)	4495.94	749.16	970.09
Vel Total (ft/s)	3.80	Avg. Vel. (ft/s)	4.27	3.86	2.55
Max Chl Dpth (ft)	4.12	Hydr. Depth (ft)	1.88	0.70	0.87
Conv. Total (cfs)	141381.7	Conv. (cfs)	97261.9	21396.7	22723.1
Length Wtd. (ft)	463.54	Wetted Per. (ft)	1139.53	750.80	970.10
Min Ch El (ft)	1550.45	Shear (lb/sq ft)	1.05	0.39	0.48
Alpha	1.10	Stream Power (lb/ft s)	4.47	1.49	1.23
Frctn Loss (ft)	2.65	Cum Volume (acre-ft)	5832.46	1017.71	1369.80
C & E Loss (ft)	0.05	Cum SA (acres)	4921.62	251.03	1165.61

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7702.20	8364.11	5228.11	1093.70	477.61	39.21	2.29	4.78
8364.11	9026.03	3944.19	1052.35	661.92	29.58	1.59	3.75
LB 9026.03	9272.18	647.10	252.46	246.15	4.85	1.03	2.56

9272.18	9518.33	41.52	36.33	119.01	0.31	0.31	1.14
9518.33	9764.47						
9764.47	10010.62	1003.82	70.86	147.51	7.53	0.48	14.17
10010.62	RB 10256.77	325.36	162.67	238.14	2.44	0.68	2.00
10256.77	10406.42	239.73	112.37	149.65	1.80	0.75	2.13
10406.42	10556.06	249.57	115.11	149.65	1.87	0.77	2.17
10556.06	10705.71	260.93	118.23	149.65	1.96	0.79	2.21
10705.71	10855.36	647.98	204.05	149.65	4.86	1.36	3.18
10855.36	11005.00	562.12	187.37	149.65	4.22	1.25	3.00
11005.00	11154.65	174.47	92.86	149.65	1.31	0.62	1.88
11154.65	11304.30	8.11	11.00	72.21	0.06	0.15	0.74

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.544

INPUT
Description:
Station Elevation Data num= 120

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2448.16	1554.41	2589.58	1554.58	2718.22	1555.99	2775.1	1555.41	2844.02	1554.53
2849.21	1553.77	2853.57	1554.73	3083.66	1554.15	3173.59	1551	3208.41	1551.04
3247.68	1556.35	3269.24	1553.22	3449.83	1552.98	3810.4	1553.42	3998.89	1555.29
4170.96	1553.67	4235.49	1552.98	4309.18	1552	4531.5	1550.83	4892.06	1550.64
4905.35	1550	4916.01	1549.49	4923.48	1547.93	4936.95	1550	4944.05	1551.02
4953.59	1550	4955.43	1549.83	4972.73	1549.34	4982.92	1549.32	5005.71	1549.82
5007.39	1550	5024.14	1551.97	5033.7	1550	5037.32	1549.14	5107.87	1550
5404.59	1551.06	5414.55	1550	5421.83	1549.16	5425.77	1549.97	5428.17	1550
5480.39	1550.67	5484.09	1550	5486.27	1549.58	5489.35	1550	5493.74	1550.6
5538.03	1550.24	5541.86	1550	5546.12	1549.74	5548.99	1550	5551.75	1550.38
5703.32	1550.72	5709.2	1550.16	5714.99	1550.67	5899.33	1550.31	5901.37	1550
5906.15	1549.25	5908.98	1550	5910.02	1550.29	6042.21	1551.43	6176.74	1551.42
6304.36	1552.3	6385.17	1552.1	6487.06	1550.94	6672.7	1551.07	7033.25	1550.97
7161.09	1550	7247.86	1550	7255.73	1550.06	7256.06	1550	7266.7	1547.72
7272.02	1548.89	7325.89	1549.99	7358.15	1550	7423.07	1551.03	7475.03	1550
7533.26	1548.85	7712.4	1548.57	7720.21	1547.76	7727.36	1548.48	7744.29	1548.61
7775.42	1548.16	7794.95	1548.55	7803.6	1547.91	7810.31	1548.14	7816.8	1548.33
7825.21	1548.49	7832.82	1548.37	8033.27	1549.26	8305.7	1550	8533.26	1550.12
8600.04	1550	8695.13	1550	8821.71	1550	8902.69	1550	9033.25	1550.51
9214.16	1551.44	9533.27	1552.95	9919.74	1551.61	9938.84	1551.2	9970.54	1551.84
9986.05	1552.07	9991.11	1550	9997.07	1547.581	0002.95	1547.561	0009.22	1550
10015.21	1552.331	0032.31	1551.521	0050.66	1551.161	0170.16	1551.331	0333.35	1550.85
10616.35	1550.521	0839.97	1550.551	1349.86	1551.991	1449.86	1552.061	1549.85	1552.41
11606.44	1552.931	1649.91	1552.91	1749.93	1552.871	1849.93	1552.941	1949.93	1552.85

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2448.16	.05	9991.11	.01	510015.21	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9214.161	0170.16	454.81	461.63	449.09	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2448.16	7732.34	1556	11649.91	11949.93	1556

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2448.16	3995.19	1555.27	11849.69	11949.93	1560

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1552.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.050	0.022	0.050
W.S. Elev (ft)	1551.97	Reach Len. (ft)	454.81	461.63	449.09
Crit W.S. (ft)	1551.52	Flow Area (sq ft)	3195.22	248.94	1185.25
E.G. Slope (ft/ft)	0.003986	Area (sq ft)	7858.00	248.94	1185.25
Q Total (cfs)	13333.00	Flow (cfs)	10005.94	1087.32	2239.74
Top Width (ft)	6382.70	Top Width (ft)	4759.23	450.82	1172.65
Vel Total (ft/s)	2.88	Avg. Vel. (ft/s)	3.13	4.37	1.89
Max Chl Dpth (ft)	4.41	Hydr. Depth (ft)	2.16	0.55	1.01
Conv. Total (cfs)	211181.5	Conv. (cfs)	158484.1	17222.0	35475.3

Length Wtd. (ft)	454.50	Wetted Per. (ft)	1481.87	452.53	1172.66
Min Ch El (ft)	1547.56	Shear (lb/sq ft)	0.54	0.14	0.25
Alpha	1.15	Stream Power (lb/ft s)	1.68	0.60	0.48
Frctn Loss (ft)	2.68	Cum Volume (acre-ft)	5750.40	1013.06	1358.42
C & E Loss (ft)	0.02	Cum SA (acres)	4874.06	243.80	1153.57

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7184.36	7860.96	1962.96	462.40	128.66	14.72	3.60	4.25
7860.96	8537.56	5208.26	1613.03	676.60	39.06	2.38	3.23
8537.56	9214.16	2834.73	1119.78	676.60	21.26	1.66	2.53
LB 9214.16	9405.36	22.94	29.70	112.04	0.17	0.27	0.77
9405.36	9787.76						
9787.76	9978.96	34.82	44.33	163.09	0.26	0.27	0.79
9978.96	RB 10170.16	1029.56	174.91	177.40	7.72	1.00	5.89
10170.16	10348.14	256.98	160.32	177.98	1.93	0.90	1.60
10348.14	10526.11	438.40	220.89	177.98	3.29	1.24	1.98
10526.11	10704.09	549.02	252.81	177.98	4.12	1.42	2.17
10704.09	10882.07	544.17	251.47	177.98	4.08	1.41	2.16
10882.07	11060.04	331.71	186.85	177.98	2.49	1.05	1.78
11060.04	11238.02	111.99	97.40	177.98	0.84	0.55	1.15
11238.02	11416.00	7.45	15.50	104.79	0.06	0.15	0.48

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.456

INPUT
Description:
Station Elevation Data num= 120

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2326.78	1551.51	2468.2	1550.88	2609.62	1550.81	2819.09	1552.37	2932.31	1551.78
2936.87	1551.15	2941.23	1551.61	3109.62	1551.42	3609.63	1550.81	3738.03	1550.43
3741.86	1550	3746.37	1549.69	3749.04	1550	3753.61	1550.86	3840.98	1553.33
3905.76	1553.61	4109.64	1550.98	4280.02	1550	4366.5	1550	4435.63	1551.51
4510.91	1550	4609.64	1548.16	4745.8	1548.34	4791.42	1546.76	4800.31	1546.03
4802.85	1546.87	4817.26	1546.74	4824.37	1545.53	4829.48	1546.41	4936.75	1546.92
4947.32	1544.55	4954.36	1546.36	4964.42	1546.75	4973.42	1545.05	5002.55	1546.08
5007.53	1546.76	5109.64	1547.5	5353.31	1548.14	5361.57	1547.3	5365.81	1547.66
5390.84	1548.11	5401.92	1547.08	5412.04	1548.03	5621.83	1548.22	5629.2	1547.57
5632.38	1548.2	5749.94	1548.7	5789.77	1548.31	5795.27	1546.69	5801.13	1547.95
5826.82	1547.97	5830.34	1546.95	5833.66	1548.28	5845.44	1547.91	5849.92	1546.51
5859.09	1548.31	6125.15	1548.61	6249.94	1548.53	6384.67	1550	6424.21	1550.03
6498.76	1550.34	6524.47	1550	6706.44	1548.13	6714.43	1547.73	6722.08	1547.92
6890.25	1548.28	7149.52	1548.57	7390.25	1546.13	7432.9	1546	7440.72	1543.89
7447.01	1545.85	7567.61	1545.69	7573.73	1545.07	7579.82	1546.09	7592.7	1546.04
7595.81	1545.56	7600.99	1546.07	7690.53	1546.31	7697.87	1545.23	7702.83	1546.1
7745.56	1546.38	7805.65	1547.03	8250.48	1547.61	8544.46	1547.95	8730.36	1548.68
8750.47	1548.97	8834.84	1547.92	8901.47	1547.85	8954.29	1548.29	9250.49	1548.92
9750.5	1548.79	9885.78	1549.65	9914.89	1550	9922.74	1548.31	9928.71	1549.6
9970.72	1549.73	9986.01	1549.64	9997.42	1544.96	10002.98	1545.01	10015.65	1549.94
10031.7	1548.87	10048.69	1548.65	10061.23	1549.02	10117.2	1550	10120.79	1550.08
10123.16	1550	10146.67	1549.24	10366.36	1548.35	10696.21	1547.98	10734.33	1547.62
10796.91	1547.63	10877.54	1547.74	10973.48	1548.95	11334.79	1548.66	11583.68	1549.12
11589.9	1548.62	11594.64	1548.84	12123.08	1550.03	12231.88	1549.84	12248.6	1550

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2326.78	.05	9986.01	.01	10015.65	.05

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

```
      9250.4910123.16          471.43  458.83  474.45            .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2326.78 7554.97    155411924.18 12248.6    1554
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2326.78    4430    155112128.76 12248.6 1550.04
```

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1549.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.050	0.022	0.050
W.S. Elev (ft)	1549.20	Reach Len. (ft)	471.43	458.83	474.45
Crit W.S. (ft)	1549.06	Flow Area (sq ft)	2554.58	269.09	1034.68
E.G. Slope (ft/ft)	0.009379	Area (sq ft)	6254.47	269.09	1034.68
Q Total (cfs)	13333.00	Flow (cfs)	9661.49	1440.76	2230.75
Top Width (ft)	6644.18	Top Width (ft)	4404.93	643.42	1595.83
Vel Total (ft/s)	3.46	Avg. Vel. (ft/s)	3.78	5.35	2.16
Max Chl Dpth (ft)	5.31	Hydr. Depth (ft)	1.51	0.42	0.65
Conv. Total (cfs)	137671.8	Conv. (cfs)	99761.1	14876.8	23034.0
Length Wtd. (ft)	470.71	Wetted Per. (ft)	1695.87	645.25	1595.86
Min Ch El (ft)	1544.96	Shear (lb/sq ft)	0.88	0.24	0.38
Alpha	1.19	Stream Power (lb/ft s)	3.34	1.31	0.82
Frctn Loss (ft)	3.06	Cum Volume (acre-ft)	5676.73	1010.32	1346.97
C & E Loss (ft)	0.04	Cum SA (acres)	4826.22	238.00	1139.30

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7173.38	7865.75	4437.24	873.89	311.12	33.28	2.81	5.08
7865.75	8558.12	4055.68	1140.24	692.37	30.42	1.65	3.56
8558.12	9250.49	1168.55	540.44	692.38	8.76	0.78	2.16
LB 9250.49	9425.02	67.18	52.28	174.53	0.50	0.30	1.28
9425.02	9599.56	84.99	60.21	174.53	0.64	0.34	1.41
9599.56	9774.09	99.76	66.28	174.53	0.75	0.38	1.51
9774.09	9948.63	8.11	8.84	48.82	0.06	0.18	0.92
9948.63	RB 10123.16	1180.74	81.49	72.83	8.86	1.14	14.49
10123.16	10335.70	77.19	64.47	178.40	0.58	0.36	1.20
10335.70	10548.25	440.64	196.66	212.54	3.30	0.93	2.24
10548.25	10760.79	713.95	262.70	212.55	5.35	1.24	2.72
10760.79	10973.34	703.11	260.30	212.55	5.27	1.22	2.70
10973.34	11185.88	79.88	70.58	212.54	0.60	0.33	1.13
11185.88	11398.42	146.26	101.47	212.54	1.10	0.48	1.44
11398.42	11610.97	53.88	55.74	212.57	0.40	0.26	0.97
11610.97	11823.51	15.84	22.76	142.17	0.12	0.16	0.70

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.369

INPUT
Description:
Station Elevation Data num= 112

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2325.29	1547.13	2466.71	1547.01	3107.02	1547.2	3217.75	1546.81	3224.85	1545.77
3232	1546.82	3607.81	1546.73	3610.55	1546.34	3642.99	1546.56	3738.92	1547.9
3747.34	1547.65	3856.34	1547.76	4120.1	1547.12	4247.34	1545.99	4502.86	1548.34
4747.34	1544.64	4879.75	1543.59	4892.1	1542.6	4896.65	1543.47	4904.7	1543.64
4910.72	1542.65	4912.24	1543.37	4938.41	1542.98	4947.26	1541.77	4959.42	1543.37
5247.35	1544.76	5451.64	1544.98	5459.43	1544.32	5462.59	1545.22	5472.63	1544.84
5476.53	1544.42	5480.27	1545.36	5693.23	1544.38	5701.53	1542.93	5709.92	1544.82
6107.56	1545.69	6272.96	1546.36	6415.74	1546.95	6607.56	1546.06	6950.57	1544.5
7107.56	1545.28	7482.41	1544.3	7491.51	1541.68	7505.53	1543.93	7547.67	1543.06
7557.38	1542.09	7562.84	1542.74	7571.17	1542.1	7574.97	1541.4	7581.26	1542.72
7640.56	1542.97	7646.59	1541.44	7652.4	1543.52	7737.83	1543.53	7780.44	1543.17
7834.75	1543.77	7953.23	1542.5	8098.43	1544.35	8177.08	1545.39	8237.01	1544.88

```
 8354.63 1544.83 8434.36 1546.05 8467.71 1546.68 8484.05 1546.76 8558.43 1546.06
 8701.59 1545.19 8898.35 1545.13 8967.72 1545.07  9197.1 1544.72 9467.71 1544.97
 9749.34 1545.83 9753.63 1545.02 9759.54 1545.65 9945.56 1547.26 9962.32 1547.56
 9967.73 1547.54 9971.61 1547.29 9984.93 1547.53 9997.16 1542.6310003.01 1542.48
10016.24  1547.310030.55 1546.4610054.41 1545.2310061.55 1546.1210328.37  1545.8
10375.48 1545.7410911.46 1544.7210987.28 1544.9611042.09    154611060.67    1546
11089.43 1545.5111135.07 1545.9211467.74 1545.9511522.26 1545.3211530.15 1544.34
11535.16  1545.411611.54 1545.1411619.82 1544.2111624.18 1545.0611843.17 1545.85
11943.17 1546.5111957.88 1546.4912044.01 1546.5512088.56 1546.3212144.08 1546.95
12195.37 1546.6512244.16  1546.512293.26 1547.1712344.19 1547.0212444.19 1546.85
12469.02 1546.5912544.19 1545.86

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2325.29     .05 9984.93    .01510016.24     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9467.7110061.55           470.44  483.62  480.37              .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 2325.29 7371.04    1549
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2325.29 4523.31 1548.33   1204412544.19 1546.98
```

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1546.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.050	0.029	0.050
W.S. Elev (ft)	1546.18	Reach Len. (ft)	470.44	483.62	480.37
Crit W.S. (ft)	1545.60	Flow Area (sq ft)	3400.91	311.65	1145.53
E.G. Slope (ft/ft)	0.004768	Area (sq ft)	6474.96	311.65	1145.53
Q Total (cfs)	13333.00	Flow (cfs)	10578.34	1035.67	1718.99
Top Width (ft)	6598.25	Top Width (ft)	4363.54	403.30	1831.41
Vel Total (ft/s)	2.74	Avg. Vel. (ft/s)	3.11	3.32	1.50
Max Chl Dpth (ft)	4.78	Hydr. Depth (ft)	1.71	0.77	0.63
Conv. Total (cfs)	193098.7	Conv. (cfs)	153203.7	14999.3	24895.7
Length Wtd. (ft)	472.72	Wetted Per. (ft)	1993.47	404.83	1831.74
Min Ch El (ft)	1542.48	Shear (lb/sq ft)	0.51	0.23	0.19
Alpha	1.17	Stream Power (lb/ft s)	1.58	0.76	0.28
Frctn Loss (ft)	2.93	Cum Volume (acre-ft)	5607.85	1007.26	1335.10
C & E Loss (ft)	0.01	Cum SA (acres)	4778.77	232.49	1120.64

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7324.98	8039.23	7305.53	1879.27	669.63	54.79	2.81	3.89
8039.23	8753.47	1300.98	642.76	609.60	9.76	1.05	2.02
8753.47	9467.71	1971.84	878.87	714.24	14.79	1.23	2.24
LB 9467.71	9586.48	247.04	122.01	118.77	1.85	1.03	2.02
9586.48	9705.25	119.55	78.93	118.77	0.90	0.66	1.51
9705.25	9824.01	43.75	42.70	115.48	0.33	0.37	1.02
9824.01	9942.78						
9942.78	RB 10061.55	625.33	68.01	51.82	4.69	1.35	9.19
10061.55	10309.81	31.74	51.50	248.26	0.24	0.21	0.62
10309.81	10558.08	163.83	137.88	248.27	1.23	0.56	1.19
10558.08	10806.34	452.97	253.81	248.26	3.40	1.02	1.78
10806.34	11054.61	548.94	284.83	248.28	4.12	1.15	1.93
11054.61	11302.87	61.42	76.54	248.27	0.46	0.31	0.80
11302.87	11551.13	93.68	98.62	248.44	0.70	0.40	0.95
11551.13	11799.40	346.90	216.31	248.40	2.60	0.87	1.60
11799.40	12047.66	19.49	26.02	93.56	0.15	0.28	0.75

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.278

INPUT
Description:
Station Elevation Data num= 118

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2398.85	1544.23	2540.26	1543.76	2681.68	1543.57	2823.1	1543.08	3463.45	1543.15
3553.24	1543.2	3558.27	1542.35	3562.45	1542.94	3736.74	1544.97	3832.49	1543.6
4103.76	1543.39	4576.88	1544.27	4603.76	1544.64	4690.95	1542.82	4995.02	1541.17
5001.21	1540	5006.32	1539.41	5010.45	1540	5013.99	1540.55	5042.86	1540.43
5044.84	1540	5051.85	1538.67	5059.8	1539.81	5067.6	1540	5103.76	1540.9
5115.04	1540.31	5117.4	1540	5121.79	1539.41	5124.26	1540	5124.61	1540.09
5289.52	1540.29	5301.09	1540.17	5315.32	1540.41	5477.56	1541.37	5484.11	1540.82
5491.06	1541.62	5508.69	1541.59	5512.05	1541	5516.98	1541.86	5563.3	1541.51
5574.94	1541.61	5585.54	1541.85	5682.46	1541.77	5687.57	1541.05	5691.57	1541.71
5963.98	1542.35	5983.81	1542.04	5990.12	1541.62	5993.85	1541.69	6182.68	1543.41
6350.77	1542.53	6721.89	1542.66	6810.31	1543.33	6824.21	1543.15	7684.44	1541.78
7767.77	1540.35	7769.41	1540	7780.08	1537.83	7791.7	1540	7795.5	1540.69
7875.07	1540	7934.22	1539.75	7938.76	1538.81	7943	1539.71	7960.24	1539.39
8008.74	1540	8068.91	1540.7	8074.77	1540	8081.1	1539.3	8085.97	1540
8090.66	1540.85	8159.26	1541.42	8184.43	1542.24	8215.99	1542.86	8251.93	1542.7
8290.41	1541.99	8350.06	1541.93	8446.86	1542.83	8527.99	1542.02	8618.35	1542.5
8831.91	1542.84	9187.09	1541.43	9324.62	1542.19	9584.63	1542.21	9824.61	1543.65
9952.54	1543.84	9971.73	1544.51	9986.02	1544.97	9996.76	1540	9996.82	1539.97
10002.87	1539.81	10003.33	1540	10016.28	1545.18	10030.82	1544.66	10054.36	1543.54
10063.91	1544.02	10393.35	1542.91	10546.68	1543.21	11105.44	1542.21	11129.77	1543.09
11152.1	1543.61	11208.81	1541.97	11385.33	1543.17	11432.66	1542.41	11559.37	1543.9
11641	1542.21	11770.74	1541.89	11781.04	1541.71	11791.27	1541.35	11798.79	1541.63
11926.31	1542.32	12085.25	1543.12	12192.72	1544.23	12283.77	1543.01	12390.15	1543.82
12496.02	1542.47	12658.39	1542.84	12772.52	1543.08				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2398.85	.05	9986.02	.01	10016.28	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9584.63	10063.91	479.41	456.95	473.4	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
2398.85	7190.77	1545

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2398.85	4601	1544.5	12193.21	12772.52	1544.51

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1543.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.	0.050	0.021	0.050
W.S. Elev (ft)	1543.19	Reach Len. (ft)	479.41	456.95	473.40
Crit W.S. (ft)	1542.94	Flow Area (sq ft)	3202.11	126.13	949.22
E.G. Slope (ft/ft)	0.008376	Area (sq ft)	6109.25	126.13	949.22
Q Total (cfs)	13333.00	Flow (cfs)	10570.25	789.39	1973.36
Top Width (ft)	6645.67	Top Width (ft)	4818.09	185.42	1642.17
Vel Total (ft/s)	3.12	Avg. Vel. (ft/s)	3.30	6.26	2.08
Max Chl Dpth (ft)	5.36	Hydr. Depth (ft)	1.34	0.68	0.58
Conv. Total (cfs)	145683.1	Conv. (cfs)	115495.9	8625.2	21562.0
Length Wtd. (ft)	476.95	Wetted Per. (ft)	2394.85	186.79	1642.25
Min Ch El (ft)	1539.81	Shear (lb/sq ft)	0.70	0.35	0.30
Alpha	1.19	Stream Power (lb/ft s)	2.31	2.21	0.63
Frctn Loss (ft)	3.67	Cum Volume (acre-ft)	5539.89	1004.83	1323.55
C & E Loss (ft)	0.00	Cum SA (acres)	4729.19	229.22	1101.48

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6710.32	7428.90	411.37	194.60	238.13	3.09	0.82	2.11
7428.90	8147.47	6925.40	1648.01	719.52	51.94	2.29	4.20
8147.47	8866.05	1109.86	549.08	718.61	8.32	0.76	2.02
8866.05	9584.63	2123.62	810.42	718.58	15.93	1.13	2.62
LB 9584.63	9680.49	139.25	66.74	95.86	1.04	0.70	2.09
9680.49	9776.34	12.82	13.92	68.11	0.10	0.20	0.92

9776.34	9968.05						
9968.05	RB 10063.91	637.31	45.47	22.82	4.78	2.12	14.02
10063.91	10334.77	0.43	1.32	27.85	0.00	0.05	0.33
10334.77	10605.63	23.47	35.00	253.98	0.18	0.14	0.67
10605.63	10876.49	110.15	90.81	270.86	0.83	0.34	1.21
10876.49	11147.35	402.63	193.76	257.76	3.02	0.75	2.08
11147.35	11418.21	253.69	145.48	251.75	1.90	0.58	1.74
11418.21	11689.08	199.42	109.30	176.72	1.50	0.62	1.82
11689.08	11959.94	920.03	324.52	270.88	6.90	1.20	2.84
11959.94	12230.80	63.55	49.04	132.47	0.48	0.37	1.30

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.191

INPUT
Description:
Station Elevation Data num= 142

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2414.82	1541.18	2556.24	1541.52	2697.66	1541.25	2802.02	1540	2816.33	1539.77
2819.68	1540	2820.43	1540.06	2839.08	1540.04	2980.49	1540.21	3396.24	1540.74
3398.5	1540	3405.34	1537.81	3421.23	1540	3424.94	1540.48	3499.54	1540.79
3502.86	1540	3507.37	1538.63	3509.68	1540	3511.23	1540.74	3519.07	1540.97
3521.6	1540	3526.05	1538.4	3531	1540	3534.31	1540.89	3672.07	1540.8
3761.55	1540.75	3959.94	1540	4030.58	1539.92	4045.65	1539.38	4054.01	1539.97
4066.03	1540	4140.88	1540.26	4261.55	1540.43	4464.84	1540	4633.13	1540
4753.68	1541.64	4833.87	1540	4901.86	1538.6	5071.39	1538.23	5079.16	1537.91
5084.31	1538.52	5379.08	1538.45	5386.92	1536.83	5395.19	1538.23	5401.83	1538.61
5457.79	1538.35	5467.85	1537.69	5475.54	1538.54	5740.55	1539.13	5744.73	1537.73
5750.07	1539.15	5830.59	1539.5	5839.17	1538.66	5839.24	1538.69	5843.34	1538.89
5901.83	1539.63	6057.68	1540	6280.86	1540	6394.93	1538.99	6400.25	1538.29
6407.11	1538.57	6542.17	1538.49	7042.16	1538.27	7538.12	1537.29	7542.14	1537.05
7549.27	1536.88	7556.72	1537.09	7794.17	1536.76	7802.44	1535.09	7807.65	1536.37
7862.15	1536.89	7870	1535.54	7875.53	1536.53	8042.15	1539.12	8542.14	1539.25
9042.15	1538.92	9089.16	1538.2	9542.15	1538.87	9694.82	1539.67	9951.29	1539.7
9955.58	1540	9973.13	1541.19	9986.96	1541.74	9990.89	1540	9997.37	1537.11
10003.36	1536.91	10011.07	1540	10015.53	1542.14	10016.45	1542.15	10031.17	1542.05
10042.16	1540.96	10051.84	1540.29	10232.13	1540	10402.7	1539.02	10751.65	1538.86
10762.19	1538.11	10767.64	1538.75	10774.6	1538.48	10785.19	1537.65	10795.03	1538.86
10924.11	1538.62	11028.55	1539.42	11064.59	1540	11084.75	1540.24	11193.1	1540.1
11198.79	1540	11281.9	1539.23	11336.98	1538.13	11347.69	1537.35	11355.92	1537.49
11397.07	1538.67	11438.79	1538.75	11485.41	1537.52	11598.61	1536.12	11601.71	1535.26
11606.98	1536.48	11643.73	1536.32	11659.66	1535.31	11674.55	1536.31	11706.59	1537.05
11806.59	1538.79	11850.42	1539.17	11906.59	1539.88	12006.6	1539.5	12106.6	1539.9
12206.59	1539.91	12222.68	1539.83	12306.65	1539.92	12358.44	1540	12406.87	1540.14
12470.66	1540.53	12507.05	1539.71	12607.07	1539.68	12683.31	1540	12707.08	1539.33
12720.82	1539.07	12793.16	1539.23	12802.87	1539.02	12807.15	1538.72	12907.15	1538.54
13007.13	1539.26	13107.15	1539.36						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2414.82	.05	9986.96	.01	10015.53	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9694.82	10031.17	473.38	480.01	494.92	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
2414.82	7018.97	1542

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2414.82	4740	1540.5	12471.71	13107.15	1542

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1539.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1539.53	Reach Len. (ft)	473.38	480.01	494.92
Crit W.S. (ft)	1538.95	Flow Area (sq ft)	3032.37	30.23	1532.06
E.G. Slope (ft/ft)	0.007026	Area (sq ft)	4636.10	30.23	1532.06
Q Total (cfs)	13333.00	Flow (cfs)	8264.43	342.28	4726.29
Top Width (ft)	5755.60	Top Width (ft)	4371.40	17.95	1366.25
Vel Total (ft/s)	2.90	Avg. Vel. (ft/s)	2.73	11.32	3.08

Max Chl Dpth (ft)	4.44	Hydr. Depth (ft)	1.14	1.68	1.12
Conv. Total (cfs)	159067.1	Conv. (cfs)	98597.4	4083.5	56386.1
Length Wtd. (ft)	481.62	Wetted Per. (ft)	2649.70	18.98	1366.86
Min Ch El (ft)	1536.91	Shear (lb/sq ft)	0.50	0.70	0.49
Alpha	1.34	Stream Power (lb/ft s)	1.37	7.91	1.52
Frctn Loss (ft)	2.99	Cum Volume (acre-ft)	5480.76	1004.01	1310.07
C & E Loss (ft)	0.01	Cum SA (acres)	4678.62	228.16	1085.14

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6782.82	7510.82	2553.89	836.61	491.85	19.15	1.70	3.05
7510.82	8238.82	4300.99	1338.43	728.56	32.26	1.84	3.21
8238.82	8966.82	308.48	275.33	728.00	2.31	0.38	1.12
8966.82	9694.82	1101.08	582.00	701.29	8.26	0.83	1.89
9694.82	9963.90						
9963.90	RB 10031.17	342.28	30.23	18.98	2.57	1.68	11.32
10031.17	10338.77	0.74	1.77	24.84	0.01	0.07	0.41
10338.77	10646.37	246.25	158.74	307.60	1.85	0.52	1.55
10646.37	10953.96	507.97	245.17	307.77	3.81	0.80	2.07
10953.96	11261.56	34.97	30.56	93.47	0.26	0.33	1.14
11261.56	11569.16	1440.51	458.17	307.68	10.80	1.49	3.14
11569.16	11876.76	2495.78	637.37	307.95	18.72	2.07	3.92
11876.76	12184.36	0.04	0.26	17.55	0.00	0.01	0.15

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.100

INPUT
Description:
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2416.22	1537.06	2422.25	1537.41	2425.33	1536.31	2435.89	1537.54	2943.21	1537.08
2947.83	1535.99	2952.97	1536.81	3197.24	1537.16	3232.92	1537.16	3241.3	1536.57
3245.76	1537.26	3280.21	1536.97	3573.83	1539.37	3788.05	1537.8	3837.54	1537.18
3859.52	1536.92	3865.97	1536.39	3869.89	1536.9	3873.7	1536.26	3878.57	1536.81
4281.13	1537.11	4287.82	1536.7	4295.82	1537.15	4477.86	1536.47	4768.6	1539.2
5118.17	1536.01	5411.16	1535.22	5419.85	1534.66	5426.73	1535.02	5511.78	1535.85
5517.51	1534.64	5526.41	1535.42	5608.35	1535.92	5615.85	1535.32	5625.36	1535.66
5673.66	1536.28	5679.71	1535.49	5685.74	1536.08	5811.87	1536.74	6118.19	1536.33
6132.81	1536.12	6141.14	1534.7	6149.09	1536.19	6618.18	1535.52	7258.47	1535.79
7689.33	1533.74	7696.4	1532.5	7704.07	1533.77	7758.48	1533.46	7789.07	1533.91
7841.83	1534.43	7869.27	1533.46	7875.51	1532.98	7883.17	1533.36	8398.79	1535.81
8543.15	1535.58	8898.8	1536.43	9398.8	1536.22	9487.2	1536.15	9497.73	1535.49
9501.29	1535.89	9657.63	1536.14	9898.81	1536.69	9948.38	1537.34	9972.03	1538.22
9986.3	1538.32	9996.84	1533.39	10003.24	1533.24	10016.16	1538.66	10031.56	1537.68
10053.12	1536.72	10398.79	1536.15	10742.07	1534.56	10748.66	1534.33	10753.85	1534.42
10820.21	1534.75	10824.63	1533.56	10830.93	1534.55	11031.97	1537.15	11342.19	1535.35
11381.08	1534.94	11702.76	1534.69	11830.04	1535.49	12023.46	1535.67	12071.89	1534.46
12124.56	1534.79	12224.56	1536.58	12238.37	1537.03	12324.56	1536.53	12424.56	1537.05
12523.06	1537.12	12566.87	1536.5	12624.9	1535.61	12679.07	1536.73	12724.92	1535.98
12824.92	1536.48	12924.92	1535.56	12936.81	1535.87	13025.74	1535.73	13125.74	1535.44
13225.74	1536.41	3325.74	1536.99						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2416.22	.05	9986.3	.015	10016.16	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.3	10016.16	498.88	532.81	502.11	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
2416.22	6844.13	1539.5

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev

2416.22 4768.6 1539.2 1252113325.74 1539.2

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1536.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1536.55	Reach Len. (ft)	498.88	532.81	502.11
Crit W.S. (ft)	1536.12	Flow Area (sq ft)	3255.81	44.35	2157.56
E.G. Slope (ft/ft)	0.005522	Area (sq ft)	4416.77	44.35	2157.56
Q Total (cfs)	13333.00	Flow (cfs)	7606.89	514.82	5211.29
Top Width (ft)	6534.05	Top Width (ft)	4594.10	21.03	1918.92
Vel Total (ft/s)	2.44	Avg. Vel. (ft/s)	2.34	11.61	2.42
Max Chl Dpth (ft)	4.05	Hydr. Depth (ft)	1.09	2.11	1.12
Conv. Total (cfs)	179427.0	Conv. (cfs)	102368.6	6928.2	70130.2
Length Wtd. (ft)	501.69	Wetted Per. (ft)	2991.83	22.40	1919.22
Min Ch El (ft)	1533.24	Shear (lb/sq ft)	0.38	0.68	0.39
Alpha	1.78	Stream Power (lb/ft s)	0.88	7.92	0.94
Frctn Loss (ft)	3.65	Cum Volume (acre-ft)	5431.57	1003.60	1289.11
C & E Loss (ft)	0.05	Cum SA (acres)	4629.91	227.94	1066.47

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6201.26	6958.27	174.64	103.47	114.14	1.31	0.91	1.69
6958.27	7715.28	2523.62	1095.07	757.23	18.93	1.45	2.30
7715.28	8472.28	4399.13	1528.31	757.07	32.99	2.02	2.88
8472.28	9229.29	321.53	318.06	757.01	2.41	0.42	1.01
9229.29	9986.30	188.01	210.93	606.39	1.41	0.35	0.89
LB 9986.30	9992.27	4.34	1.11	2.41	0.03	0.51	3.90
9992.27	9998.24	153.32	13.99	6.45	1.15	2.34	10.96
9998.24	10004.22	272.09	19.25	6.06	2.04	3.22	14.13
10004.22	10010.19	84.70	9.82	6.48	0.64	1.64	8.63
10010.19	RB 10016.16	0.38	0.18	1.01	0.00	0.20	2.09
10016.16	10347.12	17.21	29.27	188.42	0.13	0.16	0.59
10347.12	10678.08	602.19	309.46	330.96	4.52	0.94	1.95
10678.08	11009.03	1194.19	453.10	307.43	8.96	1.48	2.64
11009.03	11339.99	173.01	120.63	203.91	1.30	0.59	1.43
11339.99	11670.95	1595.48	555.26	330.96	11.97	1.68	2.87
11670.95	12001.91	969.02	411.68	330.96	7.27	1.24	2.35
12001.91	12332.87	660.14	278.15	226.57	4.95	1.23	2.37

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.999

INPUT
Description:
Station Elevation Data num= 117

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2413.27	1534.17	2509.46	1532.71	2515.11	1531.86	2520.96	1532.99	2570.16	1532.79
2572.89	1531.98	2578.59	1533.07	2654.66	1533	2666.65	1532.47	2671	1532.94
3053.57	1534.48	3655.57	1534.31	3693.89	1535.17	3742.52	1535.59	4123.22	1535.22
4268.34	1536.55	4334.19	1535.44	4355.78	1535.41	4456.6	1535.64	4590.06	1533.35
4597.25	1532.53	4604.07	1532.94	4974.51	1534.07	5228.17	1532.36	5241.76	1532.48
5476.01	1532.3	5481.31	1530.86	5491.25	1532.52	5614.82	1533.14	6114.81	1533.48
6511.71	1532.73	6517.64	1532.26	6522.82	1532.7	6573.18	1532.21	6580.97	1532.3
6614.8	1532.62	6728.97	1532.16	6732.98	1531.69	6745.91	1532.5	7022.8	1531.05
7030.16	1530.33	7035.93	1531.06	7047.19	1531.26	7055.57	1530.34	7057.43	1531.15
7136.91	1531.37	7388.6	1533.46	7440.42	1532.15	7754.98	1531.09	7849.81	1530.63
7854.58	1530.45	7860.61	1530.74	7873.22	1530.56	7879.62	1529.97	7885.31	1530.49
8395.29	1531.61	8541.38	1531.39	8895.3	1533.04	9535.61	1532.97	9563.63	1532.67
9571.38	1532.2	9575.26	1532.85	9629.81	1533.1	9636.38	1531.65	9641.71	1532.68
9951.25	1533.05	9975.16	1533.94	9986.71	1534.55	9995.57	1530	9997.09	1529.22
10003.06	1529.32	10004.66	1530	10015.51	1534.61	10031.54	1533.32	10210.26	1532.8
10218.1	1531.99	10223.53	1532.65	10397.35	1532.51	10433.02	1532.25	10808.09	1531.67
10815.2	1530.91	10820.14	1531.64	10897.11	1531.87	10904.47	1530.44	10911.92	1531.25

```
 11077.7 1533.3911563.72 1530.2111565.13    1530 11568.9 1529.2911573.42 1529.95
11574.76    153011701.22 1531.1612061.77 1531.8312161.75 1532.4312261.75 1533.12
12361.75 1532.7212461.77  1532.812561.77 1533.9212661.76 1534.1712761.76 1533.94
12861.76 1535.1112961.77 1534.0913061.76 1533.6913161.76 1533.0713261.76  1532.5
13298.29 1532.2113313.71 1529.9713355.96 1529.6913384.84 1530.4913409.42  1532.1
13418.21    153113440.39 1531.7513460.29 1532.5513475.13 1530.4713485.34    1532
13562.79 1533.9413662.79 1534.41

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2413.27     .05 9986.71    .01510015.51     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9986.7110015.51            550.8   497.5  512.71              .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 2413.27 6654.45    1540
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2413.27    4965    1534 12862.213662.79 1535.97
```

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1533.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1532.67	Reach Len. (ft)	550.80	497.50	512.71
Crit W.S. (ft)	1532.61	Flow Area (sq ft)	2317.20	45.02	1720.58
E.G. Slope (ft/ft)	0.009702	Area (sq ft)	2437.41	45.02	1720.58
Q Total (cfs)	13333.00	Flow (cfs)	7472.51	706.43	5154.06
Top Width (ft)	4367.31	Top Width (ft)	2529.23	20.57	1817.52
Vel Total (ft/s)	3.27	Avg. Vel. (ft/s)	3.22	15.69	3.00
Max Chl Dpth (ft)	3.45	Hydr. Depth (ft)	1.13	2.19	0.95
Conv. Total (cfs)	135358.8	Conv. (cfs)	75862.1	7171.8	52324.9
Length Wtd. (ft)	531.12	Wetted Per. (ft)	2054.48	22.08	1818.03
Min Ch El (ft)	1529.22	Shear (lb/sq ft)	0.68	1.24	0.57
Alpha	2.09	Stream Power (lb/ft s)	2.20	19.38	1.72
Frctn Loss (ft)	3.36	Cum Volume (acre-ft)	5392.32	1003.05	1266.76
C & E Loss (ft)	0.09	Cum SA (acres)	4589.12	227.69	1044.94

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6199.99	6957.33	384.25	188.91	302.94	2.88	0.62	2.03
6957.33	7714.68	1814.54	642.83	630.58	13.61	1.02	2.82
7714.68	8472.02	4663.17	1218.65	757.41	34.97	1.61	3.83
8472.02	9229.37	599.96	259.37	342.98	4.50	0.76	2.31
9229.37	9986.71	10.53	7.44	20.58	0.08	0.37	1.41
LB 9986.71	9992.47	5.91	1.12	2.35	0.04	0.54	5.27
9992.47	9998.23	213.66	14.36	6.33	1.60	2.49	14.88
9998.23	10003.99	368.79	19.29	5.84	2.77	3.35	19.12
10003.99	10009.75	117.07	9.96	6.26	0.88	1.73	11.76
10009.75	RB 10015.51	1.00	0.30	1.30	0.01	0.25	3.27
10015.51	10380.24	9.98	17.13	168.75	0.07	0.10	0.58
10380.24	10744.97	413.74	217.96	364.73	3.10	0.60	1.90
10744.97	11109.69	620.13	248.87	276.91	4.65	0.90	2.49
11109.69	11474.42	685.03	267.63	286.02	5.14	0.94	2.56
11474.42	11839.15	2750.72	679.32	364.87	20.63	1.86	4.05
11839.15	12203.88	674.52	289.67	356.75	5.06	0.81	2.33

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.905

INPUT
Description:
Station Elevation Data num= 153

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2390.65	1535.78	2463.93	1530.55	2471.47	1530	2521.75	1526.86	2545.33	1526.93
2599.43	1530	2611.4	1533.1	2675.01	1534.67	2694.51	1533.11	2709.35	1530.33
2740.61	1530.53	2772.98	1532.3	2809.29	1531.98	2824.66	1530.44	2852.59	1530
2869.39	1529.85	2877.15	1528.96	2884.54	1529.08	2887.98	1529.94	2896.58	1530
3111.78	1530.68	3349.46	1530	3752.08	1529.48	4392.4	1529.6	4706.24	1530
5032.71	1530.86	5094.23	1530	5170.16	1529.29	5184.18	1527.79	5188.26	1528.24
5220.73	1529.52	5229.14	1528.42	5238.06	1529.01	5361.18	1529.38	5368.75	1528.33
5372.61	1529.13	5440.46	1529.46	5450.03	1528.57	5457.41	1529.54	5532.7	1529.51
6032.7	1529.43	6171.79	1528.75	6532.69	1529.36	6954.04	1530	7032.71	1528.79
7119.45	1528.12	7151.81	1527.92	7157.29	1526.97	7165.18	1528.08	7307.59	1528.28
7318.07	1527.68	7324.29	1527.98	7673	1527.83	7939.86	1526.99	7946.02	1527.56
8173.25	1527.58	8239.33	1527.18	8543.79	1528.42	8673.23	1529.02	9173.24	1529.41
9315.94	1530	9407.08	1530	9492.9	1529.08	9494.38	1528.67	9498.93	1529.01
9508.32	1528.8	9516.24	1527.11	9522.98	1529.43	9673.24	1529.75	9891.68	1529.16
9895.89	1528.69	9902.83	1529.11	9944.84	1529.61	9966.84	1530	9974.8	1530.13
9986.42	1530.57	9987.7	1530	9997.47	1525.63	10003.31	1525.66	10014.58	1530
10016.08	1530.58	10031.57	153	10032.16	1529.98	10032.66	153	10042.41	1530
10175.45	1529.43	10183.96	1528.43	10193.62	1529.53	10451.08	1528.62	10755.24	1528.46
10794.6	1528.34	10800.14	1527.06	10808.57	1528.51	10829.11	1528.08	10873	1530
10885.56	1530.67	10979.18	153	11115.79	1528.39	11361.29	1527.34	11367.94	1527.28
11369.12	1526.91	11412.46	1527.81	11428.65	1525.71	11447.28	1529.34	11461.64	1530
11462.04	1530.02	11462.42	153	11475.87	1529.31	11491.84	1526.42	11509.8	1527.18
11921.11	1527.21	11927.24	1526.4	11931.2	1527.21	12036.58	1527.31	12041.1	1527.01
12045.98	1527.38	12157.48	1528.15	12196.6	1528.59	12255.29	153	12262.93	1530
12357.57	1529.14	12400.82	1529.42	12452.16	1529.11	12466.06	1528.58	12470.61	1528.96
12557.56	1529.09	12635.13	153	12657.56	1530.26	12680.2	153	12721.94	1529.52
12729.21	1528.85	12734.62	1529.68	12757.56	1529.94	12764.99	153	12857.56	1530.76
12957.58	1530.34	13057.56	1531.06	13157.56	1531.85	13257.56	1530.93	13357.56	1530.56
13437.01	1530.09	13457.56	1530.01	13557.51	1530.37	13557.56	1530.39	13631.7	1530
13657.56	1529.86	13757.56	1528.35	13762.95	1527.34	13772.89	1524.89	13779.31	1527.65
13857.56	1529.81	13925.33	153	13957.57	1530.09				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2390.65	.05	9986.42	.015	10016.08	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.42	10016.08	497.15	483.04	572.01	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
2390.65	6442.03	1534

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2390.65	5025	1530.5	12260	13957.57	1530.5

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1529.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1529.39	Reach Len. (ft)	497.15	483.04	572.01
Crit W.S. (ft)	1528.91	Flow Area (sq ft)	2683.15	55.74	2533.10
E.G. Slope (ft/ft)	0.004391	Area (sq ft)	2924.46	55.74	2533.10
Q Total (cfs)	13333.00	Flow (cfs)	5946.29	617.39	6769.33
Top Width (ft)	4960.91	Top Width (ft)	3121.53	23.93	1815.44
Vel Total (ft/s)	2.53	Avg. Vel. (ft/s)	2.22	11.08	2.67
Max Chl Dpth (ft)	3.76	Hydr. Depth (ft)	1.10	2.33	1.40
Conv. Total (cfs)	201214.7	Conv. (cfs)	89738.2	9317.3	102159.2
Length Wtd. (ft)	536.54	Wetted Per. (ft)	2443.92	25.43	1816.88
Min Ch El (ft)	1525.63	Shear (lb/sq ft)	0.30	0.60	0.38
Alpha	1.80	Stream Power (lb/ft s)	0.67	6.66	1.02
Frctn Loss (ft)	2.96	Cum Volume (acre-ft)	5358.42	1002.48	1241.72
C & E Loss (ft)	0.05	Cum SA (acres)	4553.39	227.43	1023.56

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta	Right Sta	Flow	Area	W.P.	% Conv.	Hydr D.	Velocity

(ft)	(ft)	(cfs)	(sq ft)	(ft)		(ft)	(ft/s)
6188.54	6948.11	3.45	9.96	110.43	0.03	0.09	0.35
6948.11	7707.69	1919.30	933.17	714.18	14.40	1.31	2.06
7707.69	8467.27	3750.62	1429.71	759.61	28.13	1.88	2.62
8467.27	9226.84	236.58	260.63	680.31	1.77	0.38	0.91
9226.84	9986.42	36.30	49.66	179.39	0.27	0.28	0.73
LB 9986.42	9992.35	10.61	2.42	3.60	0.08	0.74	4.39
9992.35	9998.28	176.31	16.45	6.42	1.32	2.77	10.72
9998.28	10004.22	300.42	22.03	6.00	2.25	3.71	13.64
10004.22	10010.15	124.31	13.28	6.36	0.93	2.24	9.36
10010.15	RB 10016.08	5.72	1.56	3.05	0.04	0.55	3.66
10016.08	10410.23	57.36	63.33	193.71	0.43	0.33	0.91
10410.23	10804.38	598.54	343.72	394.36	4.49	0.87	1.74
10804.38	11198.53	318.65	187.25	222.37	2.39	0.84	1.70
11198.53	11592.68	2111.33	713.12	369.04	15.84	1.94	2.96
11592.68	11986.83	2791.49	865.81	394.28	20.94	2.20	3.22
11986.83	12380.97	892.00	359.87	243.11	6.69	1.48	2.48

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.814

INPUT
Description:
Station Elevation Data num= 130

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2467.1	1526.69	2512.33	1525.41	2523.88	1524.04	2538.47	1525.32	2571.18	1526.14
2852.09	1526.65	2856.58	1526.07	2860.41	1526.46	2987.4	1526.91	2995.59	1525.96
3000.08	1526.42	3251.39	1526.95	3389.06	1526.15	4029.36	1525.29	4152.42	1525.33
4155.53	1524.65	4160.5	1525.32	4810.4	1528.28	5183.05	1526.85	5189.4	1525.68
5196.25	1526.79	5310.39	1527.1	5332.15	1527.09	5346.34	1527.11	5453.54	1526.42
5462.32	1525.32	5502.77	1525.77	5507.62	1526.23	5550.94	1526.6	5564.66	1526.46
5810.38	1526.41	6239.08	1525.24	6246	1524.64	6251.74	1525.31	6258.12	1525.31
6265.42	1524.22	6275.45	1525.36	6310.38	1525.77	7170.61	1525.88	7670.59	1524.67
7744.54	1524.32	7748.99	1523.41	7754.67	1524.21	7776.46	1524.83	7785.44	1523.79
7796.32	1524.42	7862.54	1524.67	7867.64	1523.8	7874.43	1524.52	7911.01	1524.41
7916.99	1523.89	7922.3	1524.79	8036.55	1524.89	8045.49	1523.99	8051.74	1524.45
8076.76	1524.63	8085.45	1524.06	8093.74	1524.38	8097.09	1524.48	8099.98	1524.24
8106.78	1524.51	8140.51	1524.48	8147.68	1524.43	8530.83	1525.83	9030.84	1526.72
9432.5	1526.24	9470.54	1526.73	9530.84	1526.55	9888.28	1526.24	9895.01	1525.65
9902.01	1525.73	9973.27	1527.03	9987.38	1527.34	9997.73	1521.9	910003.68	1522.33
10016.22	1527.1	510030.91	1526.2	610463.08	1525.3	810693.23	1525.2	410709.47	1523.29
10729.22	1526.5	310743.12	152	710757.86	1526.4	510773.83	1523.6	110789.93	1524.73
11354.37	1524.5	711360.44	1523.72	11365.5	1524.3	111739.01	1524.7	211807.74	1524.49
11939.61	1526.7	811962.62	1526.5	612071.05	1525.5	12142.08	1524.9	112145.24	1524.39
12150.04	1525.1	212175.54	1524.74	12178.9	1524.2	912185.48	1524.9	212366.58	1525.94
12402.13	1526.0	612409.92	1526.4	812509.91	1527.2	812565.58	1526.4	612609.92	1526.04
12689.44	1526.2	712695.93	1525.6	612700.14	1526.0	712709.92	1526.6	612809.92	1526.51
12909.91	1527.7	513009.91	1527.6	313109.93	1527.6	513209.93	1527.7	513309.93	1527.48
13409.91	1528.2	713509.91	1528.2	13609.93	1527.4	513686.42	1527.9	313709.93	1528.35
13809.91	1528.6	513871.42	1527.7	513881.42	1526.6	213887.64	1527.5	213909.91	1527.68
13993.42	1526.3	714044.99	1522.4	314053.74	1523.6	14077.26	1525.2	14109.92	1525.57

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2467.1	.05	9987.38	.015	10016.22	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9987.38	10016.22	468.36	449.54	498.59	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
2467.1	6228.77	1528.5

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2467.1	4811.27	1528.99	12509.91	14109.92	1527

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1526.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1526.21	Reach Len. (ft)	468.36	449.54	498.59
Crit W.S. (ft)	1526.21	Flow Area (sq ft)	2155.25	61.00	2534.28

E.G. Slope (ft/ft)	0.007227	Area (sq ft)	2352.08	61.00	2534.28
Q Total (cfs)	13333.00	Flow (cfs)	4876.33	907.47	7549.20
Top Width (ft)	5215.60	Top Width (ft)	2962.79	24.23	2228.58
Vel Total (ft/s)	2.81	Avg. Vel. (ft/s)	2.26	14.88	2.98
Max Chl Dpth (ft)	4.22	Hydr. Depth (ft)	0.84	2.52	1.14
Conv. Total (cfs)	156833.6	Conv. (cfs)	57359.3	10674.4	88799.9
Length Wtd. (ft)		Wetted Per. (ft)	2558.57	25.98	2229.48
Min Ch El (ft)	1521.99	Shear (lb/sq ft)	0.38	1.06	0.51
Alpha	2.79	Stream Power (lb/ft s)	0.86	15.76	1.53
Frctn Loss (ft)		Cum Volume (acre-ft)	5328.31	1001.83	1208.45
C & E Loss (ft)		Cum SA (acres)	4518.67	227.16	997.01

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6227.24	6979.27	457.98	347.47	750.71	3.43	0.46	1.32
6979.27	7731.30	1259.97	638.15	752.03	9.45	0.85	1.97
7731.30	8483.32	3092.01	1093.91	752.58	23.19	1.45	2.83
8483.32	9235.35	54.62	63.79	263.26	0.41	0.24	0.86
9235.35	9987.38	11.69	11.90	39.99	0.09	0.30	0.98
LB 9987.38	9993.15	21.45	3.33	4.04	0.16	0.93	6.44
9993.15	9998.92	286.70	18.90	6.35	2.15	3.28	15.17
9998.92	10004.68	415.74	22.86	5.85	3.12	3.96	18.19
10004.68	10010.45	172.48	13.78	6.18	1.29	2.39	12.51
10010.45	RB 10016.22	11.10	2.13	3.57	0.08	0.64	5.20
10016.22	10425.59	185.07	140.96	372.08	1.39	0.38	1.31
10425.59	10834.96	1105.89	414.68	378.10	8.29	1.10	2.67
10834.96	11244.33	2142.07	636.49	409.37	16.07	1.55	3.37
11244.33	11653.70	2545.65	706.01	409.46	19.09	1.72	3.61
11653.70	12063.07	927.26	348.30	318.39	6.95	1.09	2.66
12063.07	12472.44	643.32	287.85	342.09	4.83	0.84	2.23

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.729

INPUT
Description: 10,000 Station located in the Powerline Floodway immediately upstream of the Vineyard Road crossing.
Station Elevation Data num= 123

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2485.03	1522.18	2494.25	1520.92	2503.17	1522.08	2543.19	1523.38	2574.88	1523.82
2677.2	1525.26	2801.54	1523.12	2804.3	1523.02	2810.91	1523.18	3324.56	1523.33
4105.58	1522.2	4413.21	1523.15	4493.82	1523.69	4618.48	1525.05	4746.45	1523.69
5045.1	1523.98	5060.2	1522.64	5067.09	1523.91	5233.59	1523.16	5268.47	1523.94
5275.81	1522.92	5300.19	1523.22	5304.51	1523.64	5362.5	1523.87	5371.44	1523.29
5377.18	1523.73	5418.5	1523.42	5427.73	1522.24	5436.14	1524.03	5886.63	1523.41
6386.65	1522.31	6886.64	1524.54	7386.61	1521.73	7515.74	1521.6	7521.89	1520.8
7532.34	1521.2	7542.88	1521.63	7553.77	1520.27	7561.91	1521.45	7652.52	1522.34
7688.69	1522.83	7730.23	1521.86	7886.62	1521.63	8386.63	1522.39	8543.89	1523
8796.29	1522.88	8804.49	1522.63	8818.19	1523.05	8886.62	1523.88	9247.17	1524.22
9405.25	1523.46	9415.99	1523.35	9421.75	1523.67	9593.49	1523.3	9599.19	1522.62
9606.26	1522.96	9625.53	1522.98	9629.39	1522.5	9630.29	1522.64	9640.37	1522.91
9658.45	1523.59	9677.35	1524.02	9697.61	1523.19	9824.89	1523.05	9971.08	1523.87
9985.83	1523.88	9993.89	1520	9996.81	1518.59	10003.18	1518.92	10005.8	1520
10014.58	1523.29	10026.55	1523.38	10043.33	1522.88	10061.36	1523.73	10075.6	1523.92
10090.2	1523.65	10104.61	1522.48	10122.05	1523	10422.64	1522.09	10511.65	1521.65
10646.24	1521.99	10763.82	1522.22	10773.4	1520.12	10780.39	1521.74	10869.86	1522.01
11504.09	1521.22	11693.36	1521.89	11816.73	1522.29	11899.45	1522.23	11984.67	1522.59
12123.05	1522.53	12176.13	1523.03	12339.27	1524.69	12346.65	1524.79	12446.64	1524.02
12546.64	1524.59	12646.66	1523.67	12659.49	1523.75	12746.66	1523.55	12846.66	1523.9
12946.64	1524.99	13046.64	1525.22	13146.66	1525.49	13246.66	1525.37	13346.64	1526.53

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13446.64 1525.9413546.64 1525.8613646.66 1526.4113746.66 1525.9413846.65 1525.56
13946.65 1526.6614046.64 1525.9614091.17 1525.7814114.07 1525.1314128.12 1524.77
14129.43 1525.09 14164.9 1525.6614179.62 1524.4814197.48 1525.0514227.73 1525.65
14245.74 1520.9114246.65 1521.2714255.59 1523.08

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2485.03     .05 9985.83    .01510026.55     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9985.8310026.55            79.54  137.44  117.14             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 2485.03 6063.98    1528
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2485.03 5045.37 1525.6812346.6514255.59  1524.5

CROSS SECTION OUTPUT    Profile #PF 2

  E.G. Elev (ft)            1523.61   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.18   Wt. n-Val.                 0.050      0.015      0.050
  W.S. Elev (ft)            1523.43   Reach Len. (ft)            79.54     137.44     117.14
  Crit W.S. (ft)            1523.35   Flow Area (sq ft)        2518.92      81.34    3002.51
  E.G. Slope (ft/ft)       0.004379   Area (sq ft)             2591.71      81.34    3002.51
  Q Total (cfs)            13333.00   Flow (cfs)               5088.05     832.37    7412.58
  Top Width (ft)            5192.45   Top Width (ft)           3001.49      39.79    2151.18
  Vel Total (ft/s)             2.38   Avg. Vel. (ft/s)            2.02      10.23       2.47
  Max Chl Dpth (ft)            4.84   Hydr. Depth (ft)            0.94       2.04       1.40
  Conv. Total (cfs)        201474.7   Conv. (cfs)              76885.4   12577.9   112011.3
  Length Wtd. (ft)           106.14   Wetted Per. (ft)         2672.67      41.71    2151.67
  Min Ch El (ft)            1518.59   Shear (lb/sq ft)            0.26       0.53       0.38
  Alpha                        2.03   Stream Power (lb/ft s)      0.52       5.46       0.94
  Frctn Loss (ft)              0.60   Cum Volume (acre-ft)     5301.74    1001.09    1176.76
  C & E Loss (ft)              0.04   Cum SA (acres)           4486.61     226.83     971.94


Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT    Profile #PF 2

  Left Sta     Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  5485.35      6235.43         137.54     102.91    171.45       1.03       0.60       1.34
  6235.43      6985.51         426.24     285.43    402.67       3.20       0.71       1.49
  6985.51      7735.59        1785.36     817.45    651.98      13.39       1.25       2.18
  7735.59      8485.67        2468.91    1050.21    750.08      18.52       1.40       2.35
  8485.67      9235.75         202.52     175.41    363.99       1.52       0.48       1.15
  9235.75      9985.83          67.53      87.53    332.50       0.51       0.26       0.77
  LB 9985.83   9993.97          80.32      12.52      8.00       0.60       1.74       6.42
  9993.97      10002.12        465.86      36.76      8.47       3.49       4.51      12.67
  10002.12     10010.26        271.02      26.81      8.66       2.03       3.29      10.11
  10010.26     10018.41         14.57       4.59      8.44       0.11       0.56       3.17
  10018.41     RB 10026.55       0.60       0.67      8.14       0.00       0.08       0.90
  10026.55     10449.45        557.54     330.15    385.11       4.18       0.86       1.69
  10449.45     10872.36       1644.19     656.08    423.32      12.33       1.55       2.51
  10872.36     11295.26       1893.78     713.86    422.90      14.20       1.69       2.65
  11295.26     11718.17       2420.42     827.08    422.91      18.15       1.96       2.93
  11718.17     12141.07        869.68     447.54    422.91       6.52       1.06       1.94
  12141.07     12563.97         26.93      27.79     74.52       0.20       0.37       0.97


Warning: Divided flow computed for this cross-section.

CROSS SECTION          RIVER: Powerline FRS
REACH: Powerline          RS: 18.703

INPUT
Description: 10,000 Station located in the Powerline Floodway immediately
             downstream of the Vineyard Road crossing.
Station Elevation Data    num=     146
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 2447.28  1521.7 2453.93  1520.4 2459.14 1521.35 2516.15 1523.48  2617.7 1524.14
 2760.43  1522.4 2767.05  1521.7 2775.32 1522.25 2851.42 1523.42  3382.8 1522.08
 3632.44 1521.39 4361.59 1522.57 4413.46 1522.42 4427.13 1523.29 4574.66 1524.31
 4913.45 1524.49 5016.57 1523.38 5024.76 1522.01 5041.37 1522.01 5047.46 1523.05
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    5179 1523.17 5191.75  1522.6 5195.86 1522.83 5207.01 1522.98 5216.49 1522.17
  5223.5 1522.85 5244.31 1523.63  5257.5 1523.57 5263.69 1522.27 5286.55 1522.58
  5293.5 1522.96 5317.33  1523.2 5324.76 1522.35 5330.28 1522.99 5335.46 1523.38
 5340.23 1523.17 5343.99 1522.73 5348.44 1523.24 5382.13 1523.46 5391.56 1521.71
 5398.21 1523.32 5413.47 1523.81 5913.46 1523.22 6105.16 1521.56 6113.43 1521.75
  6295.8 1521.69 6301.12 1521.07 6307.97 1521.55 6413.46 1522.36 6471.52  1521.6
 6475.71 1522.33 6913.45 1523.91 7413.45 1521.46 7472.12 1520.71 7477.76 1520.44
 7482.06 1520.81 7500.22 1521.02  7592.3 1521.76 7645.28 1522.29 7682.82 1521.67
 7913.45 1521.46 8413.44 1522.02 8513.38 1522.34 8730.96 1522.76 8745.88 1522.35
 8751.92 1522.54 8913.45 1523.98    9274 1523.48  9386.6 1523.04 9394.01 1522.42
 9400.73  1523.1 9608.31 1522.64 9634.55 1523.48 9653.06 1523.45 9689.43 1522.72
  9765.8 1522.35 9888.05 1523.17 9907.76 1522.65 9923.14 1523.12 9937.34 1523.67
 9951.97 1523.32 9962.45 1522.78 9985.85  1522.5 9991.17    152010008.41    1520
10013.23 1522.7510013.74 1522.9710024.63 1522.6910024.76  1522.610028.75 1521.42
10037.56    152310041.56 1522.45 10073.1 1521.9710078.22 1521.2510083.83 1522.06
10086.82 1522.2410447.39 1520.87   10484 1520.8110808.97 1521.5510817.49    1520
10819.75 1519.5710823.14    152010828.48 1520.7110841.94 1520.92 10849.4 1520.22
10854.75 1520.7511149.95 1520.93 11159.1 1520.4411195.38 1520.8111253.59 1521.05
11448.34 1520.7811453.91 1520.2911457.99 1520.3911623.02 1521.3111756.49 1521.66
12059.83 1522.4612062.37 1522.8412235.83 1524.4212283.46  1524.412289.74 1524.23
12383.45 1523.0512483.45 1523.1512583.44 1523.2312657.74 1522.8412683.44 1522.93
12783.46 1523.1312883.45 1524.4512983.45 1524.4513083.45  1524.313183.45 1524.64
13283.45 1525.1413383.45 1525.3913483.45 1525.4413583.45 1525.3213683.45 1525.66
13783.43 1524.8713883.45 1525.1213983.45 1525.9614083.46 1526.1214129.51 1526.18
14142.71 1526.1914183.46 1524.7714197.95 1523.6114246.99 1522.6214255.59 1523.32
14268.95 1523.51

Manning's n Values          num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
 2447.28     .05 9985.85    .01510013.74     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9985.8510013.74             420.6  479.13  473.13              .3       .5
Ineffective Flow     num=        1
   Sta L   Sta R    Elev
 2447.28 5998.42    1526
Blocked Obstructions      num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2447.28 4911.23 1524.99   1288614268.95    1524

CROSS SECTION OUTPUT    Profile #PF 2

  E.G. Elev (ft)            1522.97   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.32   Wt. n-Val.                0.050      0.015      0.050
  W.S. Elev (ft)            1522.65   Reach Len. (ft)          420.60     479.13     473.13
  Crit W.S. (ft)            1522.56   Flow Area (sq ft)       1645.67      59.23    2780.11
  E.G. Slope (ft/ft)       0.007604   Area (sq ft)            1673.20      59.23    2780.11
  Q Total (cfs)            13333.00   Flow (cfs)              3612.87     833.91    8886.22
  Top Width (ft)            4377.39   Top Width (ft)          2318.31      27.20    2031.87
  Vel Total (ft/s)             2.97   Avg. Vel. (ft/s)           2.20      14.08       3.20
  Max Chl Dpth (ft)            3.08   Hydr. Depth (ft)           0.74       2.18       1.37
  Conv. Total (cfs)        152902.1   Conv. (cfs)             41432.2     9563.2   101906.7
  Length Wtd. (ft)           461.16   Wetted Per. (ft)        2223.06      28.46    2032.67
  Min Ch El (ft)            1520.00   Shear (lb/sq ft)           0.35       0.99       0.65
  Alpha                        2.32   Stream Power (lb/ft s)     0.77      13.91       2.08
  Frctn Loss (ft)              2.85   Cum Volume (acre-ft)    5297.84    1000.87    1168.99
  C & E Loss (ft)              0.05   Cum SA (acres)          4481.75     226.73     966.32


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 2

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.   Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  5462.71       6216.56         355.32     169.31     218.15      2.66      0.78       2.10
  6216.56       6970.42         401.52     219.45     347.30      3.01      0.63       1.83
  6970.42       7724.28        1171.67     502.66     553.26      8.79      0.91       2.33
  7724.28       8478.14        1640.32     696.14     753.86     12.30      0.92       2.36
  8478.14       9231.99          32.68      40.85     223.61      0.25      0.18       0.80
  9231.99       9985.85          11.33      17.25     126.89      0.08      0.14       0.66
  LB 9985.85    9991.43          79.74       8.12       6.14      0.60      1.46       9.82
  9991.43       9997.01         230.34      14.77       5.58      1.73      2.65      15.60
  9997.01       10002.58        230.34      14.77       5.58      1.73      2.65      15.60
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10002.58	10008.16	230.34	14.77	5.58	1.73	2.65	15.60
10008.16	RB 10013.74	63.15	6.80	5.59	0.47	1.39	9.29
10013.74	10439.26	1017.49	412.74	410.47	7.63	1.01	2.47
10439.26	10864.78	2240.37	672.56	425.84	16.80	1.58	3.33
10864.78	11290.30	2781.27	765.54	425.54	20.86	1.80	3.63
11290.30	11715.82	2444.80	708.55	425.55	18.34	1.67	3.45
11715.82	12141.35	402.32	220.73	345.28	3.02	0.64	1.82

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.612

INPUT
Description:
Station Elevation Data num= 175

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2433.14	1520	2449.33	1520.34	2495.4	1520.49	2527.68	1520	2542.27	1519.79
2550.24	1519.2	2557.1	1519.85	2574.12	1520	2839.75	1521.37	2847.43	1521
2857.49	1521.37	2886.21	1521.78	2919.42	1521.83	2948.16	1521.45	3035.69	1520.11
3036.08	1520	3041.33	1518.54	3047.18	1520	3047.26	1520.02	3227.95	1520
3693.2	1518.86	3728.25	1518.46	3736.93	1516.74	3739.41	1517.34	3743.68	1517.78
3754.12	1517.86	3834.6	1517.27	3922.54	1518.5	3954.41	1520	3956.29	1520.41
3957.23	1520	3970.94	1518.12	4024.18	1518.07	4054.97	1516.43	4075.24	1516.82
4086.27	1517.99	4114.77	1518.59	4123.89	1517.28	4186.16	1519.39	4258.87	1519.84
4265.32	1520	4318.83	1521.29	4400.3	1520.21	4900.28	1520.74	5144.49	1520.48
5147.92	1520	5152.22	1519.39	5158.06	1520	5159.4	1520.14	5197.22	1520
5217.3	1519.95	5227.59	1519.24	5233.35	1519.46	5260.97	1520	5295.27	1520.62
5298.94	1520	5302.84	1519.34	5308.53	1520	5309.27	1520.1	5760.51	1520.91
5863.57	1520	6121.07	1519.61	6250.2	1519.82	6258.27	1518.98	6263.32	1519.45
6481.62	1519.09	6584.62	1519.23	6589.07	1518.92	6594.38	1519.49	6659.11	1520
7180.29	1520	7206.55	1519.81	7233.82	1519.38	7241.56	1519.5	7282.03	1520
7341.86	1520.74	7384.23	1520	7480.9	1518.5	7488.12	1517.94	7494.16	1518.22
7548.35	1518.65	7557.74	1517.84	7562.01	1518.28	7588.42	1518.45	7592.57	1517.32
7597.89	1518.12	7841.84	1518.19	8341.85	1518.76	8504.9	1519.46	8580.83	1520
8592.37	1520.17	8593.26	1520	8596.11	1519.43	8602.2	1519.99	8605.43	1520
8705.66	1522.44	8757.94	1521.48	8841.84	1520.96	9256.14	1521.88	9267.66	1520
9275.38	1518.64	9284.39	1520	9291.11	1521.02	9305.74	1521.77	9320.08	1521.41
9335.84	1520.07	9355.79	1521.73	9444.24	1520.4	9629.17	1520	9663.91	1519.21
9667.68	1519.56	9676.15	1519.48	9684.59	1518.88	9944.69	1519.88	9966.55	1520
9966.71	1520	9972.66	1518.79	9986.55	1519.4	9997.4	1514	10003.52	1514.25
10018.11	1520	10018.21	1520.04	10018.95	1520	10032.82	1519.24	10049.11	1519.49
10060.1	1518.37	10069.04	1519.21	10079.04	1519.23	10305.36	1518.59	10495.1	1517.97
10888.46	1518.72	11150.07	1517.44	11160.33	1515.34	11166.48	1517.04	11188.81	1517.2
11197.46	1516.36	11201.53	1516.71	11213.51	1516.88	11219.83	1516.21	11226.51	1517.15
11249.01	1517.25	11430.75	1517.11	11436.85	1516.56	11442.45	1516.85	11832.13	1517.58
12065.1	1519.35	12192.68	1519.95	12286.85	1518.44	12731.18	1518.73	12954.81	1518.95
13054.8	1519.37	13154.8	1519.72	13254.79	1519.5	13329.61	1520	13354.79	1520.17
13454.8	1520.19	13539.41	1521.34	13554.8	1520.37	13654.8	1520.72	13754.8	1520.89
13791.75	1521.51	13797.56	1521.32	13806.95	1521.44	13854.8	1520.97	13954.8	1521.27
14054.79	1520.43	14154.8	1520.65	14239.46	1520	14254.79	1519.88	14265.98	1520
14333.77	1520.68	14339.14	1520	14343.66	1519.48	14354.79	1519.24	14425.34	1519.73

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2433.14	.05	9986.55	.015	10018.95	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.55	10018.95	439.72	484.69	514.43	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2433.14	5824.6	1523	12312	12.68	14425.34

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2433.14	4319.57	1522.07	13154.8	14425.34	1521

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1520.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.49	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1519.57	Reach Len. (ft)	439.72	484.69	514.43
Crit W.S. (ft)	1519.57	Flow Area (sq ft)	1351.48	100.32	3202.60
E.G. Slope (ft/ft)	0.005161	Area (sq ft)	1354.47	100.32	3888.71

Q Total (cfs)	13333.00	Flow (cfs)	2725.63	1505.94	9101.42
Top Width (ft)	4764.54	Top Width (ft)	1754.29	30.47	2979.78
Vel Total (ft/s)	2.86	Avg. Vel. (ft/s)	2.02	15.01	2.84
Max Chl Dpth (ft)	5.57	Hydr. Depth (ft)	0.78	3.29	1.54
Conv. Total (cfs)	185584.3	Conv. (cfs)	37938.5	20961.5	126684.3
Length Wtd. (ft)		Wetted Per. (ft)	1732.65	32.75	2085.49
Min Ch El (ft)	1514.00	Shear (lb/sq ft)	0.25	0.99	0.49
Alpha	3.87	Stream Power (lb/ft s)	0.51	14.82	1.41
Frctn Loss (ft)		Cum Volume (acre-ft)	5283.23	1000.00	1132.77
C & E Loss (ft)		Cum SA (acres)	4462.09	226.41	939.10

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6209.84	6965.19	116.08	115.21	351.82	0.87	0.33	1.01
6965.19	7720.53	810.76	362.20	334.03	6.08	1.09	2.24
7720.53	8475.87	1711.39	785.91	755.34	12.84	1.04	2.18
8475.87	9231.21	3.19	5.94	46.51	0.02	0.13	0.54
9231.21	9986.55	84.22	82.22	244.94	0.63	0.34	1.02
LB 9986.55	9993.03	97.70	11.54	7.24	0.73	1.78	8.47
9993.03	9999.51	525.53	31.24	6.99	3.94	4.82	16.82
9999.51	10005.99	612.24	33.59	6.67	4.59	5.18	18.23
10005.99	10012.47	248.11	19.88	6.96	1.86	3.07	12.48
10012.47	RB 10018.95	22.36	4.07	4.89	0.17	0.90	5.49
10018.95	10459.59	629.86	360.66	432.87	4.72	0.83	1.75
10459.59	10900.23	1243.51	546.31	440.64	9.33	1.24	2.28
10900.23	11340.87	2672.60	865.06	441.25	20.04	1.96	3.09
11340.87	11781.51	3784.81	1065.33	440.67	28.39	2.42	3.55
11781.51	12222.14	770.65	365.23	330.06	5.78	1.11	2.11

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.520

INPUT
Description:
Station Elevation Data num= 117

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2428.93	1518.08	2841.82	1518.29	2867.23	1517.93	2875.34	1518.04	2917.57	1518.91
3035.87	1518.8	3176.33	1516.61	3183.43	1516.07	3190.95	1516.97	3633.09	1515.33
3762.08	1515.2	3769.15	1513.82	3779.06	1515.27	3915.93	1515.41	4057.36	1517.42
4110.7	1518.57	4198.79	1517.56	4213.44	1517.75	4222.58	1517.1	4229.59	1517.51
4309.58	1518.56	4410.31	1518.94	4495.67	1518.64	4526.84	1517.31	4533.84	1516.85
4542.65	1517.67	4698.77	1518.15	5198.77	1517.99	5211.46	1517.76	5217.65	1517.25
5224.04	1517.54	5677.21	1517.68	5700.73	1517.72	6058.99	1517.2	6527.62	1515.5
6535.12	1514.72	6542.23	1516.4	6559.01	1516.24	6900.38	1517.05	6903.59	1516.78
6913.75	1516.85	7059.01	1517.89	7419.55	1516.98	7746.58	1515.84	7770.07	1515.28
7919.54	1515.7	8501.43	1516.58	8559.87	1517.13	8625.04	1518.12	8644.5	1515.01
8662.08	1517.76	8676.56	1518.29	8691.53	1517.67	8706.59	1516.22	8725.55	1518.67
8801.64	1518.74	9301.65	1517.92	9787.93	1515.04	9794.78	1514.5	9798.74	1515.27
9867.5	1515.92	9871.5	1515.53	9876.98	1515.68	9951.95	1517.71	9963.31	1517.76
9972.67	1515.45	9985.84	1516.07	9997.43	1510.95	10003.2	1511.12	10016.44	1516.2
10030.34	1515.37	10052.86	1515.59	10071.19	1515.93	10301.69	1515.17	10513.13	1514.31
10662.26	1514.81	11437.05	1513.83	11445.9	1511.93	11450.75	1513.26	11605.66	1513.61
11966.22	1514.15	12326.77	1513.9	12550.4	1515.1	12774	1514.48	12982.55	1516.34
12997.6	1516.32	13093.19	1515.48	13221.2	1515.21	3321.19	1515.32	13322.32	1515.21
13328.88	1514.69	13333.72	1515.03	13421.19	1516.24	13521.21	1516.02	13621.21	1516.56
13721.21	1516.96	13803.37	1517.67	13807.79	1516.83	13814.89	1517.6	13821.2	1517.67
13831.8	1517.47	13836.83	1517.07	13844.06	1517.58	13875.12	1517.63	13921.2	1518.07
13953.88	1518.22	14021.2	1518.42	14121.2	1518.29	14221.2	1517.32	14223.88	1517.07
14321.2	1516.11	14421.19	1516.28	14437.86	1515.85	14443.86	1515.31	14447.64	1515.6
14521.2	1515.81	14621.19	1515.98						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2428.93	.05	9985.84	.01510016.44		.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.8410016.44		522.38	479.05	425.04	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2428.93	5673.51	1521	1253014621.19		1521

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2428.93	4409.03	1519.97	13798.814621.19		1518.2

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1516.33	Element			
Vel Head (ft)	0.50	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1515.83	Reach Len. (ft)	522.38	479.05	425.04
Crit W.S. (ft)	1515.82	Flow Area (sq ft)	176.71	83.65	3729.91
E.G. Slope (ft/ft)	0.006503	Area (sq ft)	176.71	83.65	4244.59
Q Total (cfs)	13333.00	Flow (cfs)	193.98	1294.67	11844.35
Top Width (ft)	3841.79	Top Width (ft)	604.73	29.11	3207.95
Vel Total (ft/s)	3.34	Avg. Vel. (ft/s)	1.10	15.48	3.18
Max Chl Dpth (ft)	4.88	Hydr. Depth (ft)	0.29	2.87	1.51
Conv. Total (cfs)	165343.1	Conv. (cfs)	2405.5	16055.3	146882.3
Length Wtd. (ft)	443.31	Wetted Per. (ft)	605.21	31.02	2473.57
Min Ch El (ft)	1510.95	Shear (lb/sq ft)	0.12	1.09	0.61
Alpha	2.89	Stream Power (lb/ft s)	0.13	16.94	1.94
Frctn Loss (ft)	2.67	Cum Volume (acre-ft)	5275.50	998.97	1084.75
C & E Loss (ft)	0.03	Cum SA (acres)	4450.18	226.08	902.56

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6207.38	6963.08	20.99	23.44	104.49	0.16	0.22	0.90
6963.08	7718.77						
7718.77	8474.46	60.45	63.82	261.43	0.45	0.24	0.95
8474.46	9230.15	5.72	4.30	10.55	0.04	0.41	1.33
9230.15	9985.84	106.82	85.14	228.73	0.80	0.37	1.25
LB 9985.84	9991.96	51.68	6.89	6.11	0.39	1.23	7.50
9991.96	9998.08	371.88	23.28	6.63	2.79	3.80	15.98
9998.08	10004.20	562.85	29.05	6.19	4.22	4.75	19.38
10004.20	10010.32	274.63	19.32	6.56	2.06	3.16	14.22
10010.32	RB 10016.44	33.63	5.12	5.53	0.25	0.99	6.57
10016.44	10476.92	420.48	257.05	420.10	3.15	0.61	1.64
10476.92	10937.39	1513.96	575.16	460.48	11.35	1.25	2.63
10937.39	11397.87	2448.80	767.52	460.47	18.37	1.67	3.19
11397.87	11858.34	3837.24	1005.25	460.86	28.78	2.18	3.82
11858.34	12318.82	2774.85	827.30	460.47	20.81	1.80	3.35
12318.82	12779.29	849.04	297.62	211.19	6.37	1.41	2.85

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.429

INPUT
Description:
Station Elevation Data num= 145

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2491.01	1515.14	2632.44	1515.16	3017.12	1514.39	3022.22	1513.79	3029.09	1514.51
3272.75	1513.74	3414.15	1513.02	3563.18	1513.44	4195.23	1515.22	4337.66	1515.24
4404.59	1514.74	4439.53	1512.64	4466.05	1512.78	4483.74	1513.27	4500.09	1516.36
4518.35	1514.17	4695.23	1513.48	4723.38	1513.4	4732.7	1513.02	4735.77	1513.49
5195.23	1514.58	5695.23	1514.3	5955.13	1514.81	5959.89	1513.88	5982.02	1514.41
6114.64	1515.26	6195.23	1514.06	6423.16	1512.69	6461.98	1512.08	6479.02	1511.88

6487.8	1510.2	6496.71	1511.7	6560.63	1511.79	6572.87	1510	6577.89	1509.26
6583.26	1510	6586.33	1510.49	6695.24	1512	6767.91	1512.86	6779.82	1510.11
6785.17	1511.42	6857.23	1512.59	6865.92	1512.12	6874.28	1512.43	7195.22	1513.32
7555.78	1512.32	7946.41	1513.09	7966.73	1511.24	7983.53	1513.23	7998.17	1513.61
8012.62	1513.33	8027.73	1511.83	8048.05	1512.76	8051.6	1512.36	8158.52	1512.06
8540.08	1512.57	8655.25	1514.41	8658.52	1514.43	8779.29	1515.72	9158.52	1514.43
9309.7	1515.29	9447.23	1516.64	9545.27	1514.88	9658.52	1514.63	9905	1515.35
9915.83	1514.93	9919.32	1515.33	9927.47	1515.62	9965.76	1515.59	9971.96	1513.32
9986.37	1513.36	9993.44	1510	9997.41	1508.13	10002.96	1508.13	10007.44	1510
10016.7	1513.92	10029.75	1513.71	10197.45	1513.26	10309.81	1512.85	10326.65	1512.06
10333.96	1512.85	10381.23	1512.92	10526.56	1512.46	10964.32	1511.81	11547.41	1511.49
11691.15	1511.96	11698.49	1510	11702.17	1509.07	11704.5	1510	11708.25	1511.49
11784.69	1511.77	11793.36	1510.89	11800.01	1511.45	11930.36	1511.62	11941.83	1510.96
11945.17	1511.49	12353.63	1511.84	12624.77	1512.15	12629.02	1511.87	12632.41	1512.22
12638.1	1512.22	12640.73	1512.18	12640.87	1511.75	12936.73	1514.17	13081.85	1513.3
13185.94	1513.72	13519.81	1513.32	13619.83	1512.89	13719.83	1514.29	13819.84	1514.57
13919.83	1513.92	13971.58	1513.65	13976.36	1513.27	13980.87	1513.71	13985.95	1513.68
13992.69	1513.48	14001.13	1514.13	14019.84	1514	14033.84	1514.01	14107.76	1515.75
14119.83	1515.81	14163.04	1514.81	14219.83	1514.29	14257.17	1513.84	14319.83	1514.52
14419.83	1513.21	14479.34	1512.65	14485.88	1511.88	14493.03	1512.03	14497.25	1512.86
14519.83	1512.78	14544.55	1512.93	14548.64	1512.43	14557.91	1512.85	14572.55	1512.66
14579.84	1511.97	14586.03	1512.84	14601.25	1513.28	14609.57	1512.18	14616.95	1512.44
14619.83	1513.03	14719.83	1513.21	14750.64	1514.07	14758.58	1513.31	14765.68	1514

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2491.01	.05	9986.37	.015	10016.7	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.37	10016.7	544.04	475.03	439.46	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
2491.01	5366.01	1520

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2491.01	5951.21	1515.27	13805.37	14765.68	1514.56

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1513.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1513.23	Reach Len. (ft)	544.04	475.03	439.46
Crit W.S. (ft)	1513.23	Flow Area (sq ft)	1710.00	86.78	3342.34
E.G. Slope (ft/ft)	0.005579	Area (sq ft)	1710.00	86.78	3342.34
Q Total (cfs)	13333.00	Flow (cfs)	3378.07	1286.45	8668.48
Top Width (ft)	4899.99	Top Width (ft)	2152.50	28.42	2719.07
Vel Total (ft/s)	2.59	Avg. Vel. (ft/s)	1.98	14.82	2.59
Max Chl Dpth (ft)	5.10	Hydr. Depth (ft)	0.79	3.05	1.23
Conv. Total (cfs)	178508.5	Conv. (cfs)	45227.2	17223.6	116057.7
Length Wtd. (ft)		Wetted Per. (ft)	2153.90	30.60	2720.45
Min Ch El (ft)	1508.13	Shear (lb/sq ft)	0.28	0.99	0.43
Alpha	3.95	Stream Power (lb/ft s)	0.55	14.64	1.11
Frctn Loss (ft)		Cum Volume (acre-ft)	5264.18	998.03	1047.73
C & E Loss (ft)		Cum SA (acres)	4433.65	225.76	873.64

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6238.69	6988.23	1855.34	772.87	655.89	13.92	1.18	2.40
6988.23	7737.76	423.75	324.09	684.21	3.18	0.47	1.31
7737.76	8487.30	1027.75	562.76	719.74	7.71	0.78	1.83
8487.30	9236.83	71.25	50.28	94.06	0.53	0.53	1.42
9236.83	9986.37						
LB 9986.37	9992.44	58.99	7.97	6.41	0.44	1.38	7.40
9992.44	9998.50	391.88	25.10	6.59	2.94	4.14	15.61
9998.50	10004.57	561.49	30.39	6.20	4.21	5.01	18.47
10004.57	10010.63	249.91	19.15	6.58	1.87	3.16	13.05
10010.63	RB 10016.70	24.19	4.16	4.82	0.18	0.94	5.81

10016.70	10491.60	118.49	108.12	285.81	0.89	0.38	1.10
10491.60	10966.50	1110.06	507.12	474.90	8.33	1.07	2.19
10966.50	11441.39	2067.47	736.49	474.90	15.51	1.55	2.81
11441.39	11916.29	2350.80	796.10	475.80	17.63	1.68	2.95
11916.29	12391.19	2093.50	742.08	474.96	15.70	1.56	2.82
12391.19	12866.09	916.89	434.91	430.89	6.88	1.01	2.11
12866.09	13340.99						
13340.99	13815.88	11.24	17.51	103.19	0.08	0.17	0.64

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.339

INPUT
Description:
Station Elevation Data num= 192

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2432.94	1514.21	2477.64	1512.91	2578.69	1512.35	2644.55	1512.18	2648.79	1511.56
2651.96	1512.42	2867.84	1511.68	2877.77	1510.98	2887.04	1511.69	3170.26	1511.4
3173.72	1510	3177.16	1508.44	3254.27	1508.6	3340.91	1508.79	3367.73	1509.14
3380.23	1510	3406.75	1513.53	3421.46	1514.76	3430.38	1511.32	3500.66	1510.26
3573.23	1510.19	3575.45	1510	3577.21	1509.75	3581.42	1510	3584.38	1510.6
4087.74	1512.46	4495.44	1510.69	4637	1510	4645.57	1509.79	4652.79	1508.78
4659.04	1509.36	4691.92	1509.88	4692.68	1509.04	4708.78	1510	4712.7	1510.19
4995.44	1511.64	5635.74	1512.01	5821.87	1510.35	5824.54	1510	5827.83	1509.6
5830.52	1510	5833.91	1510.5	5841.82	1510.17	5843.82	1510	5847.99	1509.79
5848.99	1510	5850.71	1510.35	5987.72	1511.27	5993.29	1510.71	6009.61	1511.06
6135.75	1511.75	6176.89	1511.54	6223.72	1510.84	6347.56	1512.54	6532.94	1510
6593.93	1508.82	6601.86	1507.89	6606.66	1508.68	6656.74	1508.9	6695.32	1508.61
6703.28	1506.59	6709.84	1508.57	6749.72	1508.44	6776.07	1508.52	6813.66	1508.49
6996.77	1510	7276.05	1510.29	7327.18	1510.71	7334.48	1510	7348.6	1508.62
7359.03	1510	7363.76	1510.63	7379.11	1510.95	7393.89	1510.84	7402.48	1510
7409.37	1509.33	7418.5	1510	7428.38	1510.71	7485.57	1510	7509.88	1509.5
7517.99	1508.95	7524.32	1509.58	7875.33	1509.79	8214.14	1509.64	8221.63	1508.9
8227.17	1509.39	8375.36	1509.69	8449.6	1510	8542	1510.32	8872.88	1512.21
8875.36	1512.31	9032.14	1512.64	9375.36	1511.86	9457.98	1512.18	9488.51	1513.11
9551.29	1512.06	9863.94	1511.8	9870.24	1511.58	9876.37	1511.96	9918.23	1513.85
9964.28	1512.73	9972.95	1510.49	9985.47	1510.7	9987.09	1510	9997.52	1505.46
10003.07	1505.46	10013.01	1510	10016.9	1510.92	10030.8	1510.68	10033.44	1512.13
10182.5	1512.99	10194.29	1513.35	10223.13	1511.97	10377.1	1510.53	10541.9	1510.27
10600.7	1510.26	10620.99	1510	10658.42	1509.53	10684.41	1510	10686.79	1510.02
10687.08	1510	10693.65	1509.51	10702.82	1509.68	10778.21	1509.5	10792.25	1507.8
10803.26	1509.14	10820.34	1509.72	10829.14	1508.36	10836.21	1508.78	11047.91	1509.29
11271.53	1509.12	11495.15	1509.34	11718.74	1509.15	11951.04	1509.27	11961.66	1507.02
11968.33	1508.24	11995.93	1509.09	12003.6	1508.03	12008.04	1509.23	12237.44	1508.95
12244.54	1508.22	12249.07	1508.72	12624.66	1509.32	12630.49	1508.82	12634.48	1509.06
12650.06	1509.11	12653.02	1508.61	12657.21	1508.86	12660.39	1509.24	12748.29	1509.26
12918.6	1510	12971.9	1510.25	13048.34	1510.49	13155.42	1510	13162.02	1509.96
13164.39	1510	13195.52	1510.57	13419.13	1510.17	13595.04	1512.18	13642.72	1512.21
13664.48	1512.57	13742.72	1511.71	13842.73	1511.96	13942.71	1512.06	14042.73	1512.7
14116.92	1512.22	14124.17	1511.57	14130.22	1512.18	14142.71	1512.53	14242.72	1513.13
14278.39	1513.29	14342.74	1513.65	14352.83	1513.26	14442.75	1511.84	14542.74	1510.87
14603.72	1510.73	14611.68	1510.54	14620.02	1510.76	14642.75	1510.89	14646.98	1511.37
14652.68	1510	14653.96	1509.72	14655.29	1510	14658.66	1510.78	14742.74	1511.31
14749.93	1511.41	14758.64	1511.26	14761.34	1511.65	14765.01	1511.79	14776.78	1511.29
14783.76	1512.36	14842.73	1512.46						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2432.94	.05	9985.47	.015	10016.9	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.47	10016.9	457.74	497.49	511.08	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2432.94	5635.36	1512.33	13643.34	14842.73	1512.57

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft) 1510.95 Element Left OB Channel Right OB

Vel Head (ft)	0.39	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1510.56	Reach Len. (ft)	457.74	497.49	511.08
Crit W.S. (ft)	1510.56	Flow Area (sq ft)	1855.81	86.84	3328.37
E.G. Slope (ft/ft)	0.005659	Area (sq ft)	1855.81	86.84	3328.37
Q Total (cfs)	13333.00	Flow (cfs)	3920.76	1267.80	8144.44
Top Width (ft)	5207.55	Top Width (ft)	2108.64	29.55	3069.36
Vel Total (ft/s)	2.53	Avg. Vel. (ft/s)	2.11	14.60	2.45
Max Chl Dpth (ft)	5.10	Hydr. Depth (ft)	0.88	2.94	1.08
Conv. Total (cfs)	177243.9	Conv. (cfs)	52121.1	16853.7	108269.1
Length Wtd. (ft)		Wetted Per. (ft)	2109.97	31.67	3070.47
Min Ch El (ft)	1505.46	Shear (lb/sq ft)	0.31	0.97	0.38
Alpha	3.94	Stream Power (lb/ft s)	0.66	14.14	0.94
Frctn Loss (ft)		Cum Volume (acre-ft)	5241.92	997.09	1014.08
C & E Loss (ft)		Cum SA (acres)	4407.04	225.45	844.45

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5453.95	6209.21	14.44	18.81	82.60	0.11	0.23	0.77
6209.21	6964.46	2060.23	741.50	472.72	15.45	1.57	2.78
6964.46	7719.71	628.68	422.43	686.97	4.72	0.62	1.49
7719.71	8474.96	1193.44	644.54	755.31	8.95	0.85	1.85
8474.96	9230.22	23.95	28.39	108.22	0.18	0.26	0.84
9230.22	9985.47	0.03	0.13	4.15	0.00	0.03	0.21
LB 9985.47	9991.76	54.48	7.69	6.49	0.41	1.29	7.09
9991.76	9998.04	371.74	24.80	6.81	2.79	3.95	14.99
9998.04	10004.33	581.59	31.67	6.41	4.36	5.04	18.37
10004.33	10010.61	244.30	19.39	6.91	1.83	3.09	12.60
10010.61	RB 10016.90	15.68	3.29	5.05	0.12	0.69	4.76
10016.90	10499.48	7.52	14.93	125.07	0.06	0.12	0.50
10499.48	10982.07	1078.42	504.34	482.92	8.09	1.05	2.14
10982.07	11464.65	1643.72	649.26	482.58	12.33	1.35	2.53
11464.65	11947.23	1596.66	638.05	482.58	11.98	1.32	2.50
11947.23	12429.82	2283.15	791.19	483.24	17.12	1.64	2.89
12429.82	12912.40	1421.97	595.25	482.69	10.67	1.23	2.39
12912.40	13394.98	99.95	120.09	473.53	0.75	0.25	0.83
13394.98	13877.56	13.05	15.27	57.86	0.10	0.26	0.85

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.245

INPUT
Description:
Station Elevation Data num= 185

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2450.58	1510.36	2587.39	1510	2592.01	1509.99	2732.07	1510	2733.9	1510
3124.46	1508.93	3127.48	1508.05	3132.89	1508.86	3157.33	1509.05	3171.5	1508.97
3443.02	1508.08	3490.04	1508.69	3491.54	1508.36	3496.24	1508.88	3655.38	1508.42
3667.03	1508.65	3675.42	1507.58	3681.09	1508.46	3796.77	1509.17	3863.76	1510
3938.21	1510.05	3948.73	1510.15	4022.09	1511.78	4079.62	1511.66	4221.04	1510.02
4226.23	1510	4362.47	1509.22	4494.68	1507.83	4498.02	1507.7	4503.62	1508
4568.61	1507.52	4573.86	1506.56	4579.4	1507.49	4645.3	1507.66	4786.73	1508.05
4928.15	1508.53	5069.56	1508.53	5211	1508.9	5352.41	1509.05	5852.41	1508.13
6046.71	1507.92	6053.46	1507.37	6058.22	1507.76	6071.84	1508.06	6091.74	1508.46
6352.42	1507.83	6392.18	1507.75	6395.71	1507.48	6416.18	1507.71	6507.64	1509.33
6592.19	1508	6743.21	1506.37	6761.1	1504.74	6778.69	1508.38	6793.89	1508.69
6808.63	1508.39	6832.99	1503.09	6845.32	1505.34	6932.95	1505.88	6951.97	1506.46
7001.52	1507.34	7108.95	1508.35	7194.61	1507.97	7279.4	1508.68	7332.74	1507.88
7454.24	1506.82	7466.84	1506.33	7476.16	1506.84	7592.26	1506.76	8092.28	1506.87
8174.39	1506.76	8182.77	1505.66	8191.04	1506.94	8286.57	1508.25	8544.38	1507.11
8732.6	1507.19	9372.9	1509.34	9399.14	1510	9403.96	1510.12	9411.72	1510

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 9493.27 1508.73 9939.42 1509.63 9957.91    1510 9966.31 1510.14 9966.65    1510
 9973.18 1507.11 9985.58  1507.8 9997.83 1502.3510003.38 1502.3510017.89 1507.96
10031.18 1507.94 10034.3 1508.7610172.57 1508.6510369.15 1509.1810424.24    1510
10449.38 1510.4110467.27    151010513.12 1508.9510557.62 1508.3210748.33 1508.24
10782.51 1506.9110921.78 1505.9811252.12 1505.6111259.43 1504.8611264.01 1506.01
11370.07  1505.811385.08 1504.8311394.77 1505.8511498.02    150711721.61 1506.14
12310.26  1506.512318.58 1503.9212325.46 1505.4412339.13 1505.5312342.86 1504.81
12346.54 1505.3612393.43 1505.8112398.58  1505.612404.08 1506.1212483.18 1506.06
 12706.8 1506.3812711.17 1506.1612715.84 1505.6612720.68 1506.1812767.65  1506.4
12774.29 1505.7812779.36 1506.4212930.41  1507.113291.85 1507.4113295.98 1506.94
13299.78 1507.4213636.06    151013690.82 1510.8813691.99 1510.9413768.03    1510
13791.97  1509.713848.25    151013857.29 1510.0513891.99 1510.1513991.99 1510.62
14091.98 1510.2714191.98 1510.2514224.09 1510.4614231.54 1510.1814239.31 1510.52
14291.98 1510.3214343.48 1510.7714349.97 1510.1214355.53 1510.8614391.46 1511.41
14391.98 1511.0914401.34 1510.4714409.13 1510.9414428.53 1510.8914432.39 1511.36
14491.99 1511.4614591.98 1510.2614679.96    151014687.23 1507.0114691.99 1509.42
14694.36 1509.2214724.65    151014755.09 1510.35 14759.4    151014762.95 1509.73
14765.72    151014771.39 1510.5514791.99 1510.1914807.86 1510.6714810.68    1510
14814.55 1508.9914819.41 1509.73 14821.5    151014824.68 1510.41 14827.6    1510
14833.36 1509.1414838.19    1510   14843 1510.7914876.95 1510.8414880.67    1510
14891.98 1508.1414891.99 1507.3414911.72    151014911.86 1509.9114991.99 1510.05

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2450.58     .05 9985.58    .01510017.89     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9985.5810017.89           487.77  484.36  558.91             .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2450.58 5352.14 1509.9513695.6314991.99 1510.93
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CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1508.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.44	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1507.74	Reach Len. (ft)	487.77	484.36	558.91
Crit W.S. (ft)	1507.74	Flow Area (sq ft)	1481.27	100.03	3469.76
E.G. Slope (ft/ft)	0.005016	Area (sq ft)	1481.27	100.03	3469.76
Q Total (cfs)	13333.00	Flow (cfs)	2988.87	1448.38	8895.75
Top Width (ft)	4442.20	Top Width (ft)	1830.82	31.59	2579.79
Vel Total (ft/s)	2.64	Avg. Vel. (ft/s)	2.02	14.48	2.56
Max Chl Dpth (ft)	5.39	Hydr. Depth (ft)	0.81	3.17	1.34
Conv. Total (cfs)	188255.1	Conv. (cfs)	42201.3	20450.3	125603.5
Length Wtd. (ft)		Wetted Per. (ft)	1832.33	33.74	2580.97
Min Ch El (ft)	1502.35	Shear (lb/sq ft)	0.25	0.93	0.42
Alpha	4.03	Stream Power (lb/ft s)	0.51	13.44	1.08
Frctn Loss (ft)		Cum Volume (acre-ft)	5224.38	996.02	974.20
C & E Loss (ft)		Cum SA (acres)	4386.34	225.10	811.31

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5464.58	6218.08	1.14	1.65	9.01	0.01	0.18	0.69
6218.08	6971.58	1290.71	481.44	345.39	9.68	1.40	2.68
6971.58	7725.08	602.60	338.28	448.09	4.52	0.76	1.78
7725.08	8478.58	855.91	469.33	600.16	6.42	0.78	1.82
8478.58	9232.08	234.63	186.61	416.85	1.76	0.45	1.26
9232.08	9985.58	3.91	3.97	12.83	0.03	0.31	0.98
LB 9985.58	9992.04	63.64	8.88	6.92	0.48	1.41	7.16
9992.04	9998.50	411.14	27.36	7.01	3.08	4.23	15.03
9998.50	10004.97	626.11	34.32	6.58	4.70	5.31	18.24
10004.97	10011.43	305.26	22.77	6.93	2.29	3.52	13.40
10011.43	RB 10017.89	42.22	6.69	6.31	0.32	1.14	6.31
10017.89	10515.30						
10515.30	11012.71	882.96	353.04	251.46	6.62	1.40	2.50
11012.71	11510.12	2686.22	904.35	497.68	20.15	1.82	2.97
11510.12	12007.53	1683.88	683.19	497.41	12.63	1.37	2.46

12007.53	12504.94	2110.00	782.65	498.11	15.83	1.57	2.70
12504.94	13002.35	1375.00	605.04	497.54	10.31	1.22	2.27
13002.35	13499.76	157.68	141.48	338.76	1.18	0.42	1.11

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.153

INPUT
Description:
Station Elevation Data num= 170

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2510.78	1506.78	2566	1506.18	2574.14	1504.39	2582.64	1505.88	2652.21	1506.83
2930.56	1505.35	2945.13	1503.16	2951.78	1504.76	2977.33	1504.26	2981.94	1502.52
2987.91	1505.01	3029.06	1504.49	3033.22	1502.23	3039.84	1503.89	3061.78	1505.06
3074.97	1504.81	3084.82	1501.75	3094.11	1504.94	3258.04	1504.89	3265.7	1503.73
3278.32	1505.57	3331.48	1506.57	3362.63	1507.18	3574.16	1506.76	3641.9	1506.62
3647.98	1505.74	3654.43	1506.35	3715.57	1506.43	3781.09	1507.01	4079.66	1506.18
4425.04	1504.6	4720.55	1504.25	4728.96	1503.44	4735.2	1503.99	4925.04	1504.55
5064.81	1504.89	5069.99	1504.56	5075.85	1504.83	5565.34	1506.26	6065.34	1507.03
6107.66	1506.88	6128.21	1505.09	6142.44	1506.24	6158.09	1506.67	6172.48	1506.06
6189.79	1504.34	6207.32	1505.41	6357.6	1502.78	6366.4	1501.07	6375.09	1503.21
6417.98	1502.33	6428.69	1501.56	6436.9	1501.82	6449.01	1502.68	6541	1503.99
6694.15	1502.85	6698.57	1501.37	6705.63	1502.19	6724.98	1502.33	6732.72	1500.34
6766.43	1501.54	6770.24	1502.6	6800.82	1502.79	6806.27	1502.76	6911.43	1505
6996.04	1505.03	7095.93	1505.31	7139.42	1505.03	7215.84	1505.48	7294.98	1505.24
7446.59	1505.12	7543.7	1503.63	7552.79	1502.65	7563.01	1503.71	8086.92	1504.15
8137.36	1503.68	8142.8	1503.01	8148.37	1504.33	8478.44	1503.48	8553.66	1504.24
8727.19	1504.13	8849.76	1504.38	9019.48	1505.51	9120.71	1504.91	9147.78	1504.7
9242.97	1506.49	9367.51	1506.18	9426.62	1506.51	9867.51	1505.36	9964.42	1505.86
9969.45	1504.56	9982.52	1504.69	9993.78	1500	9995.42	1499.32	10000.97	1499.32
10002.75	1500	10015.69	1504.95	10028.86	1504.12	10031.41	1504.91	10051.37	1503.71
10055.33	1503.67	10056.82	1504.38	10367.51	1506.56	10586.39	1504.84	10850.32	1505.65
10938.32	1504.44	11023.69	1503.82	11072.25	1503.7	11086.3	1503.08	11089.95	1502.86
11444.05	1502.43	11453.56	1501.94	11458.91	1502.25	11484.14	1503	11594.14	1503.36
11737.15	1502.8	11746.09	1502.35	11749.85	1503.03	11851.52	1502.61	12390.03	1502.43
12615.71	1503.65	12624.3	1500.71	12645.27	1501.54	12650.33	1502.95	12916.79	1503.79
12922.39	1503.25	12928.55	1503.29	12968.6	1503.78	12975.65	1503.36	12981.91	1503.9
13036.13	1503.72	13040.12	1503.41	13044.74	1504.09	13151.61	1503.71	13375.23	1505.21
13567.84	1505.36	13672.89	1505.74	13913.74	1506.58	14013.73	1506.97	14113.73	1506.25
14213.75	1507.57	14313.73	1506.97	14413.74	1506.8	14441.92	1507.16	14449.46	1506.65
14451.95	1506.19	14455.27	1506.94	14513.73	1507.37	14613.74	1509.61	14713.74	1508.24
14718.95	1508.04	14725.42	1506.98	14731.62	1507.09	14799.09	1508.45	14813.73	1508.94
14862.32	1507.51	14869.04	1508.22	14913.73	1507	14914.3	1507.65	14929.93	1504.32
14944.51	1507.77	14993.16	1507.46	15000.82	1506.61	15008.73	1507.3	15013.74	1507.22
15032.6	1508.11	15042.17	1505.99	15047.87	1507.75	15112.47	1506.99	15113.73	1507.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2510.78	.05	9982.52	.01	15015.69	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9982.52	15015.69	560.42	500	528.17	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2510.78	6062.76	1507.02	14015.73	15113.73	1507

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1504.86	Element			
Vel Head (ft)	0.38	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1504.47	Reach Len. (ft)	560.42	500.00	528.17
Crit W.S. (ft)	1504.47	Flow Area (sq ft)	1583.15	95.27	3340.74
E.G. Slope (ft/ft)	0.004855	Area (sq ft)	1583.15	95.27	3340.74
Q Total (cfs)	13333.00	Flow (cfs)	3254.39	1322.84	8755.77
Top Width (ft)	4405.08	Top Width (ft)	2004.74	31.41	2368.93
Vel Total (ft/s)	2.66	Avg. Vel. (ft/s)	2.06	13.89	2.62
Max Chl Dpth (ft)	5.15	Hydr. Depth (ft)	0.79	3.03	1.41
Conv. Total (cfs)	191350.1	Conv. (cfs)	46705.7	18985.0	125659.4
Length Wtd. (ft)		Wetted Per. (ft)	2006.32	33.39	2370.14

Min Ch El (ft)	1499.32	Shear (lb/sq ft)	0.24	0.86	0.43
Alpha	3.50	Stream Power (lb/ft s)	0.49	12.01	1.12
Frctn Loss (ft)		Cum Volume (acre-ft)	5207.23	994.93	930.51
C & E Loss (ft)		Cum SA (acres)	4364.87	224.75	779.56

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5499.48	6246.65	0.08	0.24	3.56	0.00	0.07	0.34
6246.65	6993.82	2339.97	898.53	627.21	17.55	1.44	2.60
6993.82	7741.00	271.10	171.31	252.43	2.03	0.68	1.58
7741.00	8488.17	536.60	398.33	747.37	4.02	0.53	1.35
8488.17	9235.35	106.63	114.74	375.75	0.80	0.31	0.93
9235.35	9982.52						
LB 9982.52	9989.15	51.75	7.79	6.63	0.39	1.27	6.64
9989.15	9995.79	367.34	26.04	7.16	2.76	3.92	14.11
9995.79	10002.42	590.55	33.79	6.74	4.43	5.09	17.48
10002.42	10009.06	280.89	22.10	7.10	2.11	3.33	12.71
10009.06	RB 10015.69	32.32	5.56	5.77	0.24	1.03	5.82
10015.69	10525.49	8.61	10.51	38.73	0.06	0.27	0.82
10525.49	11035.30	37.74	37.20	99.48	0.28	0.37	1.01
11035.30	11545.10	2383.76	860.33	509.86	17.88	1.69	2.77
11545.10	12054.91	2272.04	835.92	509.88	17.04	1.64	2.72
12054.91	12564.71	2767.53	940.90	509.81	20.76	1.85	2.94
12564.71	13074.51	1173.40	562.65	510.63	8.80	1.10	2.09
13074.51	13584.32	112.71	93.24	191.76	0.85	0.49	1.21

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.059

INPUT
Description:
Station Elevation Data num= 225

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2481.22	1503.62	2704.81	1502.85	2901.04	1501.56	2906.83	1500	2909.02	1499.37
2911.76	1500	2916.31	1501.05	2920.15	1500.95	2924.29	1500	2928.39	1499
2932.1	1500	2937.55	1501.53	3004.31	1501.91	3009.44	1501.12	3016.94	1502.1
3085.4	1501.96	3093.89	1500	3094.11	1499.95	3094.49	1500	3108.49	1502.55
3204.81	1502.63	3305.88	1503.76	3374.81	1506.06	3486.42	1504.61	3650.35	1502.59
3660.41	1501.84	3666.58	1502.71	3680.5	1502.83	3687.06	1501.16	3691.98	1502.68
3845.11	1502.36	3986.54	1503.4	4533.59	1500	4552.1	1500	4626.85	1500.56
4803.7	1500	4914.84	1500	5126.85	1501.04	5328.28	1502.75	5347.95	1500.11
5362.85	1502.2	5376.9	1502.47	5390.23	1502.03	5405.67	1500.63	5425.91	1502.19
5726.01	1501.88	6199.32	1502	6366.33	1500	6366.7	1500	6664.88	1500
6756.59	1501.75	6866.34	1502.11	6883.14	1502.11	7076.24	1502.9	7222.94	1502.03
7289.04	1500.89	7366.34	1500.82	7429.44	1501.71	7584.84	1501.02	7640.92	1500.39
7642.77	1500	7647.56	1499.05	7651.71	1500	7651.94	1500.05	7653.57	1500
7654.77	1500	7723.95	1500.47	7727.28	1500	7729.68	1499.3	7735.3	1499.92
7738.17	1499.78	7742.81	1499.04	7751.4	1499.75	7760.12	1500	7781.49	1500.55
7783.66	1500	7788.98	1498.68	7797.79	1500	7797.8	1500	7866.35	1500.43
7943.38	1500.11	7943.97	1500	7947.32	1499.61	7951.98	1500	7954.39	1500.08
7974.03	1500.42	7976.5	1500	7982.19	1499.09	7990.52	1499.06	7999.95	1500
8001.17	1500.11	8022.84	1500.12	8024.03	1500	8030.35	1499.4	8039.34	1500
8039.81	1500.04	8039.97	1500	8044.91	1499.18	8050.54	1500	8055.71	1500.7
8366.33	1501.04	8469.7	1500	8472.19	1499.98	8473.85	1500	8494.96	1500.38
8537.1	1500.88	8760.95	1500.39	8866.33	1500.84	9096.89	1501.97	9305.05	1501.72
9366.33	1502.4	9866.33	1501.11	9966.74	1502.25	9970.08	1501.77	9984.11	1501.92
9988.88	1500	9997.67	1496.48	10003.23	1496.48	10012.23	1500	10017.78	1502.18
10031.44	1501.37	10054.34	1501.18	10062.47	1500.23	10070.34	1501.23	10366.35	1502.68
10581.39	1500.94	10885.83	1501.71	11006.67	1502.81	11079.29	1501.29	11219.18	1500.15
11231.71	1500	11637.64	1498.49	11642.89	1497.75	11661.46	1498.06	11673.41	1498.49

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11686.92 1498.6911690.79  1498.311698.36 1498.7911745.21 1499.8911768.24 1499.85
11831.84 1499.0811850.32 1498.9611854.49 1498.9211869.81    150011875.13 1500.34
11983.99 1500.8812004.19    150012010.73 1499.9312126.57 1499.3912131.35 1498.85
 12134.4 1499.3912157.32 1499.5112163.09 1499.07 12167.6 1499.4212295.76 1499.26
12314.62 1499.2112459.44 1499.4312468.24 1498.2412476.64 1499.32 12529.8 1499.13
12609.04 1499.3912616.23 1498.5512622.99  1499.312884.03    150012933.86 1500.32
12934.69    150012941.73 1497.4112949.17 1499.8912977.97    1500 13016.9 1500.21
 13019.7    150013023.36 1499.6513025.93    1500 13029.1 1500.4213178.31 1500.82
13181.88    150013182.08 1499.9613182.29    150013185.87 1500.5513242.14 1501.08
13248.72 1500.5913258.46 1501.3513291.38 1501.5213347.38 1501.2913434.18 1500.75
13730.64 1501.7913736.15 1501.2713742.38 1501.6613833.73 1502.6713884.46 1502.97
14052.96 1503.1514084.54 1503.0214152.97 1503.2514246.91 1503.5614252.95 1503.23
14352.97  1503.314452.96 1503.7814552.96 1503.8314652.95 1504.0614752.95 1504.15
14852.96 1503.5814858.37 1502.8714952.96 1504.73 14959.7  1504.414964.99 1503.29
 14973.8 1504.0515052.95  1504.615070.54  1504.515075.23 1503.4115079.44 1504.48
15104.35 1504.4815152.97  1504.815169.61 1504.6115185.68 1501.6915193.49 1504.71
15217.66 1504.0415241.32 1504.1115248.51 1503.3315252.78 1504.8315252.96 1504.83
 15270.8 1503.4515275.37 1502.9415282.16 1503.7315298.96 1503.4415306.43 1502.19

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2481.22     .05 9984.11    .01510017.78     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9984.1110017.78           463.51  500.02  509.99             .1       .3
Ineffective Flow     num=        1
   Sta L   Sta R    Elev
 13292.415306.43 1503.66
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2481.22 6197.82 1502.74 13292.415306.43  1502.7

CROSS SECTION OUTPUT    Profile #PF 2

  E.G. Elev (ft)            1501.57   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.42   Wt. n-Val.                0.050      0.015      0.050
  W.S. Elev (ft)            1501.15   Reach Len. (ft)          463.51     500.02     509.99
  Crit W.S. (ft)            1501.15   Flow Area (sq ft)       1330.16      81.09    3203.95
  E.G. Slope (ft/ft)       0.006162   Area (sq ft)            1330.16      81.09    3203.95
  Q Total (cfs)            13333.00   Flow (cfs)              2494.07    1199.10    9639.83
  Top Width (ft)            4277.98   Top Width (ft)          1964.71      29.14    2284.13
  Vel Total (ft/s)             2.89   Avg. Vel. (ft/s)           1.88      14.79       3.01
  Max Chl Dpth (ft)            4.67   Hydr. Depth (ft)           0.68       2.78       1.40
  Conv. Total (cfs)        169849.6   Conv. (cfs)             31772.1    15275.4   122802.1
  Length Wtd. (ft)                    Wetted Per. (ft)        1966.04      30.92    2285.98
  Min Ch El (ft)            1496.48   Shear (lb/sq ft)           0.26       1.01       0.54
  Alpha                        3.22   Stream Power (lb/ft s)     0.49      14.92       1.62
  Frctn Loss (ft)                     Cum Volume (acre-ft)    5188.48     993.92     890.83
  C & E Loss (ft)                     Cum SA (acres)          4339.33     224.40     751.35


Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT    Profile #PF 2

  Left Sta     Right Sta       Flow      Area      W.P.    % Conv.   Hydr D.   Velocity
  (ft)         (ft)            (cfs)   (sq ft)     (ft)                (ft)     (ft/s)
  6232.67      6982.95        979.31    433.60    454.98      7.34      0.95      2.26
  6982.95      7733.24        226.63    151.35    294.18      1.70      0.52      1.50
  7733.24      8483.53        982.90    531.07    751.19      7.37      0.71      1.85
  8483.53      9233.82        305.17    213.75    446.24      2.29      0.48      1.43
  9233.82      9984.11          0.07      0.40     19.45      0.00      0.02      0.17
  LB 9984.11   9990.84         29.35      4.68      5.20      0.22      0.97      6.27
  9990.84      9997.58        313.01     22.13      7.25      2.35      3.29     14.15
  9997.58      10004.31       579.00     31.22      6.82      4.34      4.64     18.54
  10004.31     10011.05       259.25     19.73      7.23      1.94      2.93     13.14
  10011.05     RB 10017.78     18.49      3.32      4.42      0.14      0.81      5.56
  10017.78     10546.65         9.36      6.97     15.24      0.07      0.46      1.34
  10546.65     11075.51         5.83     11.55    109.47      0.04      0.11      0.51
  11075.51     11604.38      2261.02    762.13    508.02     16.96      1.50      2.97
  11604.38     12133.24      2538.39    830.33    529.11     19.04      1.57      3.06
  12133.24     12662.11      3388.07    987.42    529.15     25.41      1.87      3.43
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12662.11	13190.97	1416.42	585.50	530.01	10.62	1.11	2.42
13190.97	13719.83	20.73	20.05	64.98	0.16	0.31	1.03

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.964

INPUT
Description:
Station Elevation Data num= 182

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2554.85	1500.39	2701.88	1500	2876.58	1499.41	2890.29	1497.96	2899.1	1498.79
2954.85	1499.24	2963.09	1497.82	2967.23	1498.68	3028.42	1498.92	3054.85	1499.37
3055.39	1499.5	3291.97	1500	3554.86	1500.67	3696.27	1501.06	3857.85	1500
3946.8	1499.47	3952.91	1498.66	3956.72	1499.54	4196.27	1498.25	4696.27	1497.53
4721.96	1498.33	4734.76	1496.51	4752.13	1499.38	4764.88	1499.66	4778.1	1499.36
4798.05	1496.2	4806.78	1496.93	4814.61	1497.58	4937.72	1496.64	4949.51	1495.51
4956.59	1496.2	5419.6	1497.77	5423.44	1496.36	5433.48	1497.07	5446.4	1497.68
5633.17	1500	5942.14	1500.53	6075.44	1500	6267.84	1498	6442.15	1497.37
6558.7	1497.63	7082.47	1498.07	7582.47	1498.86	7602.01	1499.35	7656.53	1498.86
7673.33	1497.98	7692.76	1496.05	7706.21	1497	7750.64	1496.49	7801.26	1494.99
7810.41	1493.73	7813.98	1495.91	7941.38	1496.75	7946.01	1494.34	7955.46	1496.67
8059.01	1496.66	8066.73	1494.72	8074.31	1496.74	8075.78	1496.76	8081.51	1494.62
8088.67	1496.77	8110.92	1497.52	8118.71	1496.02	8124.23	1496.56	8227.27	1497.73
8233.92	1497.44	8237.45	1497.85	8534.75	1497.67	8722.93	1497.63	9161.19	1498.78
9246.93	1498.01	9290.48	1497.56	9297.6	1498.04	9363.23	1499.33	9386.32	1499.57
9863.23	1497.83	9942.27	1498.04	9970.85	1498.41	9984.52	1498.91	9997.68	1493.27
10003.23	1493.27	10017.96	1498.55	10031.78	1498.03	10052.3	1497.71	10061.99	1497.21
10069.46	1497.56	10101.32	1498.15	10108.74	1497.42	10116.6	1498.14	10363.24	1497.53
10588.69	1497.08	10712	1498.36	10775.36	1499.16	10863.25	1497.41	10880.26	1497.5
11015.17	1497.79	11192.21	1496.77	11197.23	1496.54	11204.67	1497.01	11223.81	1497.08
11278.66	1498.41	11447.4	1497.08	11807.31	1496.11	11814.47	1495.21	11816.29	1495.93
11919.88	1495.98	11928.64	1494.71	11933.59	1495.52	11985.93	1495.43	12048.43	1496.69
12072.67	1495.86	12081.56	1494.77	12089.47	1495.51	12360.57	1496.35	12364.8	1496.31
12367.76	1496.46	12524.45	1496.11	12822.44	1496.36	12828.47	1495.66	12834.04	1496.27
12849.44	1496.51	12857.06	1496.07	12865.38	1496.93	13062.96	1497.22	13190.61	1497.85
13197.59	1496.26	13202.9	1497.51	13215.18	1497.68	13221.26	1497.02	13282.08	1497.81
13286.19	1497.11	13289.07	1497.53	13357.35	1497.41	13361.37	1497.23	13364.44	1497.22
13427.55	1496.91	13433.12	1496.31	13437.67	1496.88	13469.84	1497	13474.65	1496.75
13482.76	1496.93	13587.43	1497.43	13704.26	1497	13813785.48	1498.93	13824.54	1498.56
13968.9	1497.61	14138.91	1498.69	14146.84	1498.15	14148.27	1497.85	14153.88	1498.6
14183.44	1498.44	14185.98	1498.14	14194.18	1498.5	14271.74	1499.41	14349.87	1500
14371.74	1500.17	14445.85	1500	14471.74	1499.94	14571.73	1499.54	14629.74	1499.58
14637.69	1498.68	14642.84	1499.68	14671.75	1499.77	14771.74	1499.69	14867.49	1499.57
14871.73	1499.19	14874.38	1498.94	14881.62	1499.51	14913.02	1500	14971.73	1500.91
15021.9	1501.05	15052.57	1501.13	15071.74	1501.16	15113.1	1500.93	15171.74	1501.56
15195.22	1501.59	15201.31	1500.94	15206.28	1501.68	15271.73	1501.61	15371.75	1501.41
15471.74	1501.24	15506.81	1501.46						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2554.85	.05	9984.52	.01	15017.96	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9984.52	15017.96	490.55	480	439.57	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
13782.57	15506.81	1501.65

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2554.85	5933.56	1500.54	13786.41	15506.81	1499.9

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1498.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.39	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1498.02	Reach Len. (ft)	490.55	480.00	439.57
Crit W.S. (ft)	1498.02	Flow Area (sq ft)	1251.14	84.08	3766.85
E.G. Slope (ft/ft)	0.005835	Area (sq ft)	1251.14	84.08	3766.85
Q Total (cfs)	13333.00	Flow (cfs)	2292.89	1219.86	9820.25

Top Width (ft)	5548.75	Top Width (ft)	2124.58	29.87	3394.30
Vel Total (ft/s)	2.61	Avg. Vel. (ft/s)	1.83	14.51	2.61
Max Chl Dpth (ft)	4.75	Hydr. Depth (ft)	0.59	2.81	1.11
Conv. Total (cfs)	174544.1	Conv. (cfs)	30016.5	15969.4	128558.1
Length Wtd. (ft)		Wetted Per. (ft)	2127.76	31.67	3395.60
Min Ch El (ft)	1493.27	Shear (lb/sq ft)	0.21	0.97	0.40
Alpha	3.64	Stream Power (lb/ft s)	0.39	14.03	1.05
Frctn Loss (ft)		Cum Volume (acre-ft)	5174.75	992.97	850.03
C & E Loss (ft)		Cum SA (acres)	4317.58	224.06	718.11

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5526.72	6269.68	0.01	0.05	3.51	0.00	0.01	0.13
6269.68	7012.65	183.50	207.46	742.97	1.38	0.28	0.88
7012.65	7755.62	236.86	104.08	90.32	1.78	1.15	2.28
7755.62	8498.59	1759.15	806.58	745.99	13.19	1.09	2.18
8498.59	9241.55	100.89	109.87	371.95	0.76	0.30	0.92
9241.55	9984.52	12.48	23.09	173.02	0.09	0.13	0.54
LB 9984.52	9991.21	27.87	4.55	5.01	0.21	0.99	6.13
9991.21	9997.90	319.37	22.77	7.26	2.40	3.41	14.02
9997.90	10004.58	571.94	31.42	6.77	4.29	4.70	18.20
10004.58	10011.27	271.57	20.49	7.10	2.04	3.06	13.26
10011.27	RB 10017.96	29.10	4.85	5.53	0.22	0.93	6.00
10017.96	10566.84	256.91	211.32	474.90	1.93	0.45	1.22
10566.84	11115.73	229.83	183.70	395.47	1.72	0.46	1.25
11115.73	11664.62	909.75	454.29	482.91	6.82	0.94	2.00
11664.62	12213.50	3920.49	1149.16	549.37	29.40	2.09	3.41
12213.50	12762.38	3071.19	992.22	548.89	23.03	1.81	3.10
12762.38	13311.27	970.68	497.34	549.47	7.28	0.91	1.95
13311.27	13860.15	461.41	278.83	394.59	3.46	0.71	1.65

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.873

INPUT
Description:
Station Elevation Data num= 148

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2636.03	1497.66	2684.31	1497.52	2695.43	1496.63	2697.83	1497.17	2916.33	1497.42
2919.75	1496.88	2928.8	1497.5	2969.79	1497.34	2976.11	1496.43	2985.4	1497.36
3136.03	1497.58	3636.04	1497.83	3777.43	1498.57	3918.87	1497.03	4013.14	1496.37
4060.28	1496.71	4090.42	1497.28	4101.68	1496.08	4118	1497.37	4130.62	1497.9
4143.6	1497.38	4172.36	1496.36	4180.32	1497.43	4299.06	1496.31	4659.59	1494.54
4760.08	1494.72	4767.14	1493.29	4770.24	1493.99	4791.67	1494.5	4797.33	1492.86
4800.03	1493.89	5261.78	1494.58	5293.93	1493.4	5299.66	1492.28	5305.21	1493.37
5311.1	1493.92	5316.03	1492.83	5346.47	1494.15	5530.41	1496.92	5580.7	1497.15
5799.79	1495.49	6352.89	1494.41	6360.85	1490.87	6368.61	1494.34	6440.09	1494.84
6450.37	1494.73	6453.16	1494.65	6483.75	1494.68	6491.61	1492.82	6499.45	1494.43
6940.09	1494.71	7326.24	1494.77	7335.57	1494.41	7339.31	1494.8	7470.57	1495.8
7580.41	1496.92	7634.43	1497.46	7659.03	1497.57	7839.81	1492.9	7847.09	1492.22
7853.05	1493.06	7888.26	1492.19	7894.91	1491.85	7901.29	1492.49	7911.33	1492.57
7918.62	1492.23	7924.29	1492.54	7964.41	1493.63	7972.79	1493.04	7977.77	1493.65
8080.4	1494.81	8329.31	1496.15	8403.12	1495.06	8430.73	1494.87	8436.71	1494.19
8442.46	1494.85	8538.3	1494.33	8720.72	1494.14	9220.72	1494.74	9327.19	1495.03
9371.48	1496.11	9450.38	1495.07	9720.73	1494.44	9972.37	1495.49	9984.59	1495.84
9997.5	1490.63	10003.54	1490.67	10016.6	1496.21	10031.16	1495.14	10037.16	1495.26
10220.72	1494.21	10502.96	1494.59	10607.7	1494.04	10943.46	1493.51	11368.12	1495.11
11526.55	1494.39	11589.38	1494.51	11973.76	1492.59	12161.34	1493.35	12181.65	1492.71
12240.24	1494.21	12312.12	1493.99	12388.24	1493.85	12445.49	1494.37	12503.98	1494.27
12605.2	1493.08	12609.38	1492.82	12613.79	1493.04	12946.67	1493.74	12951.41	1492.66

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12969.72 1492.4512978.77  1493.513027.91 1493.8613034.25 1492.16 13041.6 1493.11
13182.08 1493.78 13344.2 1494.6213371.14    150013371.59 1500.0913372.03    1500
13407.76 1493.0813432.09 1490.5313523.74 1490.5313559.32 1493.0113585.96    1500
13594.69 1502.2313601.67    150013617.73  1494.714166.97  1494.414390.56 1495.75
14490.58  1495.414590.57  1495.914690.57 1497.0514790.56 1496.8514859.06 1496.37
14866.57 1495.4314871.82 1496.2914890.58 1496.7814990.57 1496.8515090.57 1496.85
15190.56 1497.1715290.58  1497.115390.57 1497.1215490.56  1497.615590.58  1497.5
15592.85  1497.815599.17 1497.1315606.07  1497.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2636.03     .05 9984.59    .015 10016.6     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9984.59 10016.6           490.49     500  414.21              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
13371.5915606.07 1504.01
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 2636.03 5581.57 1497.16

CROSS SECTION OUTPUT    Profile #PF 2

  E.G. Elev (ft)            1495.35   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.36   Wt. n-Val.                  0.050      0.015      0.050
  W.S. Elev (ft)            1494.99   Reach Len. (ft)            490.49     500.00     414.21
  Crit W.S. (ft)            1494.99   Flow Area (sq ft)         1518.99      71.80    3561.91
  E.G. Slope (ft/ft)       0.006561   Area (sq ft)              1518.99      71.80    4450.03
  Q Total (cfs)            13333.00   Flow (cfs)                2801.58    1059.96    9471.46
  Top Width (ft)            6977.57   Top Width (ft)            2929.85      27.04    4020.67
  Vel Total (ft/s)             2.59   Avg. Vel. (ft/s)             1.84      14.76       2.66
  Max Chl Dpth (ft)            4.46   Hydr. Depth (ft)             0.52       2.65       1.11
  Conv. Total (cfs)        164602.7   Conv. (cfs)               34586.9    13085.7   116930.0
  Length Wtd. (ft)                    Wetted Per. (ft)          2932.10      28.77    3204.50
  Min Ch El (ft)            1490.63   Shear (lb/sq ft)             0.21       1.02       0.46
  Alpha                        3.44   Stream Power (lb/ft s)       0.39      15.09       1.21
  Frctn Loss (ft)                     Cum Volume (acre-ft)      5159.15     992.12     808.57
  C & E Loss (ft)                     Cum SA (acres)            4289.12     223.75     680.69


Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT    Profile #PF 2

  Left Sta      Right Sta        Flow       Area       W.P.     % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                  (ft)     (ft/s)
  5575.45       6310.31          60.83      63.15    254.32       0.46       0.25       0.96
  6310.31       7045.17         484.29     335.51    736.73       3.63       0.46       1.44
  7045.17       7780.02          76.17      81.19    340.19       0.57       0.24       0.94
  7780.02       8514.88        1337.01     500.10    435.64      10.03       1.15       2.67
  8514.88       9249.73         741.04     432.62    734.86       5.56       0.59       1.71
  9249.73       9984.59         102.26     106.43    430.36       0.77       0.25       0.96
  LB 9984.59    9990.99          22.41       3.72      4.63       0.17       0.87       6.02
  9990.99       9997.39         268.16      19.37      6.90       2.01       3.03      13.85
  9997.39       10003.80        512.41      27.77      6.43       3.84       4.34      18.45
  10003.80      10010.20        242.50      18.28      6.95       1.82       2.86      13.26
  10010.20      RB 10016.60      14.47       2.66      3.85       0.11       0.75       5.44
  10016.60      10575.55        396.36     264.73    491.59       2.97       0.54       1.50
  10575.55      11134.49       1637.48     652.77    558.95      12.28       1.17       2.51
  11134.49      11693.44        307.34     228.95    500.78       2.31       0.46       1.34
  11693.44      12252.39       3310.54     995.88    558.98      24.83       1.78       3.32
  12252.39      12811.33       1929.34     720.29    558.97      14.47       1.29       2.68
  12811.33      13370.28       1890.40     699.29    535.23      14.18       1.31       2.70


Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
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CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.778

INPUT
Description:
Station Elevation Data num= 174

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2712.36	1494.85	2731.79	1495.28	2739.09	1494.57	2743.51	1494.95	3352.66	1493.98
3495.09	1493.91	3508.51	1492.49	3529.39	1496.09	3543.14	1495.84	3555.78	1496.02
3576.97	1492.05	3592.13	1493.38	3735.47	1491.99	4320.46	1492.33	4375.77	1492.63
4762.6	1492.36	4769.05	1490.51	4774.49	1492.09	4797.58	1492.22	4803.37	1490
4804.18	1489.64	4805.81	1490	4811.47	1491.44	4823.91	1491.91	4829.13	1490.47
4837.38	1492.08	4875.77	1492.2	5007.49	1490.86	5019.44	1490	5021.66	1489.84
5024.77	1490	5028.22	1490.19	5054.78	1490.76	5061.11	1490	5069.31	1489.18
5078.55	1489.17	5086.27	1489.95	5089.6	1489.31	5093.47	1489.7	5115.93	1490
5148.46	1490.29	5149.52	1490	5154.2	1488.78	5163.2	1490	5166.82	1490.48
5361.4	1491	5516.09	1492.25	6156.39	1492.83	6354.21	1491.66	6359.71	1490
6363.71	1488.64	6369.52	1490	6374.98	1491.23	6796.71	1492.25	7095.94	1492.12
7151.12	1491.6	7157.74	1491.25	7164.74	1491.56	7437.03	1492.23	7853.48	1490.41
7856.31	1490	7862.67	1489.07	7866.57	1489.96	7881.18	1490	7887.37	1490
7924.79	1489.68	7931.95	1488	7937.69	1488.05	7945.2	1490	7946.55	1490.36
7980.83	1490.13	7981.29	1490	7990.74	1487.55	7998.03	1489.26	8038.48	1490
8077.33	1490.71	8093.66	1490.81	8098.68	1490	8099.34	1489.86	8100.37	1490
8103.36	1490.41	8357.27	1492.67	8538.02	1491.83	8577.33	1491.84	8918.75	1490.32
8924.64	1490	8925.51	1489.94	8926.66	1490	8935.53	1490.76	8954.35	1490.93
8959.01	1490	8962.98	1489.16	8964.96	1489.72	8968.89	1490	8970.48	1490.1
9217.65	1491.55	9717.66	1491.97	9784.22	1492.13	9787.64	1491.66	9792.51	1492.07
9972.32	1492.59	9984.48	1492.87	9991.36	1490	9997.51	1487.44	10002.92	1487.62
10008.79	1490	10016.74	1493.21	0029.91	1492.38	10034.4	1492.75	10217.67	1491.85
10441.26	1492.31	0620.12	1490.47	10801.86	1490.22	10871.47	1490	11025.94	1489.85
11094.06	1490	11250.54	1490.32	11474.13	1491.51	11697.75	1491.75	11921.37	1491.23
12144.96	1490.12	12184.34	1490.28	12188.34	1490.13	12191.48	1490.59	12282.11	1490.55
12369.13	1491.02	12461.07	1491.29	12578.25	1492.91	2688.49	1491.89	12777.99	1490.95
12783.99	1490.44	12789.98	1490.61	2925.07	1490.81	2928.21	1490.35	12932.97	1491.02
13014.72	1491.29	13023.88	1490.65	13032.48	1491.12	13108.82	1491.14	13112.88	1490
13116.23	1489.01	13120.62	1490	13124.61	1490.75	13455.45	1491.75	13646.52	1490.75
13654.42	1490.54	13660.81	1490.72	13767.64	1490.53	13775.32	1490.06	13780.18	1490.31
13893.96	1490.97	14117.55	1491.67	14174.27	1491.08	14180.74	1490.65	14187.87	1490.95
14341.75	1492.26	14565.36	1492.51	14665.35	1492.16	14679.09	1492.15	14688.62	1491.64
14693.53	1492.43	14765.41	1493.36	14865.41	1492.81	14965.42	1493.53	15062.47	1493.78
15065.56	1493.83	15070.14	1493.36	15165.65	1493.76	15265.66	1493.66	15365.67	1493.81
15465.65	1494.26	15565.66	1494.33	15665.66	1494.58	15765.65	1494.56		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2712.36	.05	9984.48	.015	10016.74	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9984.48	10016.74	487.24	500.01	490.5	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2712.36	6156.26	1494.95	13895.91	15765.65	1494.36

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2712.36	4797.58	1494.08	14566.81	15765.65	1493.16

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1492.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1491.94	Reach Len. (ft)	487.24	500.01	490.50
Crit W.S. (ft)	1491.91	Flow Area (sq ft)	1869.62	71.30	3442.48
E.G. Slope (ft/ft)	0.006128	Area (sq ft)	2559.24	71.30	3685.15
Q Total (cfs)	13333.00	Flow (cfs)	3948.28	1015.22	8369.50
Top Width (ft)	6880.97	Top Width (ft)	3134.66	26.91	3719.39
Vel Total (ft/s)	2.48	Avg. Vel. (ft/s)	2.11	14.24	2.43
Max Chl Dpth (ft)	4.50	Hydr. Depth (ft)	0.74	2.65	1.04
Conv. Total (cfs)	170320.0	Conv. (cfs)	50436.6	12968.7	106914.7
Length Wtd. (ft)	490.19	Wetted Per. (ft)	2521.72	28.66	3311.50
Min Ch El (ft)	1487.44	Shear (lb/sq ft)	0.28	0.95	0.40
Alpha	3.34	Stream Power (lb/ft s)	0.60	13.55	0.97
Frctn Loss (ft)	3.24	Cum Volume (acre-ft)	5136.19	991.29	769.89
C & E Loss (ft)	0.01	Cum SA (acres)	4254.97	223.44	643.89

Warning: Divided flow computed for this cross-section.

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5621.21	6348.42	2.79	5.23	42.06	0.02	0.12	0.53
6348.42	7075.63	183.89	145.74	322.12	1.38	0.45	1.26
7075.63	7802.84	312.75	240.08	505.83	2.35	0.47	1.30
7802.84	8530.06	2030.18	728.44	490.46	15.23	1.49	2.79
8530.06	9257.27	1365.67	672.33	727.54	10.24	0.92	2.03
9257.27	9984.48	52.95	77.77	433.72	0.40	0.18	0.68
LB 9984.48	9990.93	21.85	3.73	4.58	0.16	0.88	5.85
9990.93	9997.38	271.83	20.05	6.99	2.04	3.11	13.56
9997.38	10003.84	502.43	28.22	6.54	3.77	4.38	17.80
10003.84	10010.29	208.21	17.06	6.96	1.56	2.64	12.20
10010.29	RB 10016.74	10.91	2.23	3.59	0.08	0.67	4.89
10016.74	10591.63	84.35	71.25	180.63	0.63	0.39	1.18
10591.63	11166.52	3401.36	1040.45	574.89	25.51	1.81	3.27
11166.52	11741.41	854.06	454.07	574.89	6.41	0.79	1.88
11741.41	12316.30	1449.30	623.64	574.93	10.87	1.08	2.32
12316.30	12891.20	656.20	335.57	400.81	4.92	0.84	1.96
12891.20	13466.09	861.61	456.66	575.49	6.46	0.79	1.89
13466.09	14040.98	1062.65	460.84	429.85	7.97	1.07	2.31

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.684

INPUT
Description:
Station Elevation Data num= 152

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2639.94	1492.47	2781.35	1492.76	2922.78	1493.43	2930.04	1493.82	2946.49	1491.53
2966.34	1494.46	2979.7	1494.41	2992.51	1494.5	3011.08	1491.64	3029.74	1492.84
3169.81	1491.82	3508.56	1491.54	3550.58	1490.93	3665.41	1490	3950.83	1488.65
4360.77	1488.38	4377.91	1488.28	4591.15	1489.11	4978.22	1490	5084.95	1490.86
5112.98	1490	5181.21	1488.1	5204.3	1485.47	5213.57	1487.47	5231.45	1488.68
5344.81	1488.55	5350.82	1487.75	5354.03	1487.97	5871.78	1488.6	6292.61	1489.25
6299.59	1486.84	6308.4	1489.14	6496.28	1489.01	6501.02	1487.94	6506.09	1488.94
6512.09	1488.94	6662.46	1488.23	6671.3	1487.16	6677.85	1488.74	6768.62	1490
6853.19	1491.2	6860.78	1490.89	6869.24	1491.05	6956.38	1490	7130.53	1489.94
7293.1	1489.1	7580.29	1488.81	7584.3	1488.38	7588.78	1488.99	7861.06	1487.02
7871.77	1483.84	7884.94	1486.46	7921.2	1486.59	7927.85	1485.54	7933.28	1486.8
7933.43	1486.27	8121.83	1487.73	8132.66	1486.7	8139.14	1487.74	8536.01	1488.08
8573.73	1488.23	9003.37	1488.04	9010.77	1487.03	9019.11	1487.96	9073.71	1487.81
9714.03	1489.79	9824.75	1490	9852.07	1490.4	9942.32	1490	9953.61	1489.97
9960.05	1490	9970.68	1490.1	9984.08	1490.07	9984.27	1490	9997.46	1485.3
10003.39	1484.91	0015.24	1490	10016.24	1490.43	10022.68	1490	10030.07	1489.53
10037.89	1489.47	10214.02	1489.64	10350.23	1488.02	10437.64	1487.32	10629.65	1486.66
11243.87	1486.67	11467.47	1487.47	11691.08	1488.19	11902.81	1489.06	11914.69	1488.63
12743.45	1490	12758.36	1490.34	12769.08	1490.23	12782.24	1490	12956.07	1488.47
13085.3	1488.24	13111.41	1488.29	13117.83	1487.28	13121.44	1488.08	13192.38	1487.93
13198.4	1487.49	13203.1	1487.89	13239.24	1488.38	13247.28	1486.98	13253.83	1488.44
13352.19	1488.07	13356.8	1487.87	13360.91	1488.19	13393.52	1487.8	13400.6	1487.27
13405.41	1487.58	13451.42	1487.68	13456.65	1487.17	13461.12	1487.66	13599.9	1487.93
13785.6	1488.48	13819.67	1488.21	3827.09	1488.01	13837.33	1488.26	14107.41	1489.42
14116.14	1488.41	4122.26	1489.36	14255.77	1488.86	14361.85	1489.41	4367.66	1489.81
14426.85	1490	14572	1490.74	14660.64	1490.39	14668.3	1490	14669.77	1489.9
14672.01	1489.99	14672.08	1490	14680.86	1490.74	14772.01	1491.89	14872.01	1492.29
14972	1492.26	15072.03	1491.89	15172.01	1492.21	15196.08	1492.36	15203.71	1491.95
15209.19	1492.66	15272.02	1492.11	15372	1492.34	15472.01	1491.99	15572.01	1491.89
15672	1492.31	15772.02	1492.11	15780.91	1492.09	15790.78	1491.45	15795.62	1491.87
15872.01	1492.31	15972.01	1493.56						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2639.94	.05	9984.08	.01	10016.24	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9984.08	10016.24	529.26	495.97	402.35	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
2639.94	5540	1492

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2639.94	5084.95	1490

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1489.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1488.73	Reach Len. (ft)	529.26	495.97	402.35
Crit W.S. (ft)	1488.64	Flow Area (sq ft)	1722.09	55.04	2929.46
E.G. Slope (ft/ft)	0.007145	Area (sq ft)	1945.79	55.04	2929.46
Q Total (cfs)	13333.00	Flow (cfs)	3802.01	762.89	8768.10
Top Width (ft)	5331.63	Top Width (ft)	2688.94	24.45	2618.25
Vel Total (ft/s)	2.83	Avg. Vel. (ft/s)	2.21	13.86	2.99
Max Chl Dpth (ft)	4.89	Hydr. Depth (ft)	0.75	2.25	1.12
Conv. Total (cfs)	157729.9	Conv. (cfs)	44977.9	9025.0	103727.0
Length Wtd. (ft)	461.16	Wetted Per. (ft)	2310.22	25.84	2618.90
Min Ch El (ft)	1484.90	Shear (lb/sq ft)	0.33	0.95	0.50
Alpha	2.28	Stream Power (lb/ft s)	0.73	13.17	1.49
Frctn Loss (ft)	3.11	Cum Volume (acre-ft)	5111.00	990.57	732.65
C & E Loss (ft)	0.02	Cum SA (acres)	4222.40	223.14	608.21

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4843.18	5577.60	27.93	19.14	37.60	0.21	0.51	1.46
5577.60	6312.01	104.46	107.76	390.58	0.78	0.28	0.97
6312.01	7046.42	48.24	43.49	128.81	0.36	0.34	1.11
7046.42	7780.84	136.53	88.93	161.75	1.02	0.55	1.54
7780.84	8515.25	2672.11	971.01	735.90	20.04	1.32	2.75
8515.25	9249.67	795.79	469.10	734.54	5.97	0.64	1.70
9249.67	9984.08	16.95	22.65	121.03	0.13	0.19	0.75
LB 9984.08	9990.51	5.47	1.27	2.84	0.04	0.48	4.29
9990.51	9996.94	155.76	13.50	6.83	1.17	2.10	11.54
9996.94	10003.38	397.36	23.18	6.48	2.98	3.60	17.14
10003.38	10009.81	198.28	15.76	7.00	1.49	2.45	12.58
10009.81	RB 10016.24	6.01	1.32	2.70	0.05	0.53	4.55
10016.24	10611.82	1158.67	411.06	321.16	8.69	1.28	2.82
10611.82	11207.39	4760.45	1228.61	595.58	35.70	2.06	3.87
11207.39	11802.97	1781.91	681.33	595.58	13.36	1.14	2.62
11802.97	12398.55	1.19	3.81	81.37	0.01	0.05	0.31
12398.55	12994.13	13.05	14.92	67.42	0.10	0.22	0.87
12994.13	13589.70	839.87	434.03	596.16	6.30	0.73	1.94
13589.70	14185.28	212.99	155.71	361.64	1.60	0.43	1.37

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.590

INPUT
Description:
Station Elevation Data num= 177

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2739.26	1490.58	2825.34	1490	2875.69	1489.67	2879.6	1489.44	2925.36	1490
2995.36	1490.7	3039.21	1490.72	3069.62	1490	3072.55	1489.92	3130.83	1490
3153.83	1490.23	3201.39	1490	3227.74	1489.55	3306.47	1489.03	3452.15	1487.12
3739.78	1488.3	3775.41	1487.93	3835.73	1487.27	3988.45	1486.65	4004.62	1485.63
4019.11	1486.42	4087.49	1486.34	4596.46	1486.3	4610.29	1485.82	4723.82	1486.7
4727.82	1486.52	4855.22	1489.14	5068.71	1486.67	5227.06	1487.6	5316.36	1486.37
5325.02	1482.64	5336.02	1486.27	5350.98	1485.72	5358.71	1484.1	5364.16	1485.64
5427.72	1485.2	5431.42	1484.6	5435.44	1485.37	5508.85	1485.33	5644.87	1484.81
5651.06	1484.26	5653.85	1484.83	5662.54	1484.68	5667.34	1483.93	5672.05	1484.72
5747.01	1484.92	5754.24	1483.19	5760.19	1484.86	6037.8	1485.55	6042.63	1483.94

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 6048.24  1485.6 6063.96 1485.04 6071.91 1482.89 6079.87 1485.42 6148.75 1485.65
 6157.54 1484.46 6166.38 1486.12  6314.3 1485.07 6320.97 1484.31 6325.86 1484.22
 6328.63 1484.88 6431.11  1485.8 6437.46 1484.26 6447.61 1485.97 6546.58 1487.17
 6558.67 1487.58 6889.59 1488.21 6930.18 1487.48 7548.16 1484.59 7584.07 1483.18
  7628.8 1484.04 7652.31 1484.61 7657.13 1483.46 7665.23 1484.29 7736.68 1484.01
 7740.09 1483.45 7744.12 1483.83    7754 1484.02 7759.23 1482.83  7760.9  1483.5
    7784 1484.29 7794.18 1481.03 7800.63 1482.89 7811.93 1483.27 7817.46 1481.79
 7830.33 1483.23 7859.51  1483.7 7863.86 1483.41 7870.09 1483.77 7883.93 1483.55
 7890.21 1482.62 7900.37 1484.46 8210.81 1484.38  8537.5 1484.33  8710.8 1484.17
 8856.23 1484.45 8863.25 1483.71 8868.09  1484.3    8909  1484.4 8915.27 1483.52
 8920.63 1484.13 8961.04 1484.44 8965.26 1483.82 8970.62 1484.44 9036.82 1484.85
 9210.79 1485.05 9710.78 1486.43 9898.22 1487.27 9971.13 1486.93  9982.9 1487.16
 9997.44 1482.2410003.02 1481.9510015.54 1487.5410029.67  1486.510038.71  1486.6
10296.82 1485.4110401.25 1484.8510520.44 1484.9310648.08  1484.210967.67 1483.55
 11085.2 1483.2511089.76 1482.2311098.64 1483.3111191.28 1483.9611544.18 1485.11
11551.23 1484.2611559.73 1485.2911638.49 1485.43 11862.1 1486.7411890.23 1487.56
12085.71 1487.1512401.94 1486.3312718.16 1485.9412834.05 1486.3712952.35 1488.38
13045.59 1486.76 13305.1 1484.9913312.01 1485.3513396.69 1484.7913404.54  1482.8
13412.72 1485.11 13465.4 1485.5813470.16 1485.3913473.84 1485.5913530.03 1485.66
13549.39 1485.5313554.96 1485.0413556.66 1485.7313594.25 1485.6313603.58 1484.67
13623.49 1485.5113692.01 1485.9113767.47 1485.3513912.67  1486.113950.26 1486.38
14009.14 1485.8814029.68 1486.8814204.76 1486.0614254.61 1485.8514262.39 1487.58
14272.46 1487.77 14279.3 1486.4914629.26  1488.814854.26    149014899.26  1490.3
14974.26    149014989.26  1489.514999.26    149015029.26  1490.315054.26    1490
15099.26  1489.215134.26    149015164.26  1490.315189.26    149015219.26  1489.9
15259.26    149015414.26  1490.9

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2739.26     .05  9982.9    .01510015.54     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9982.910015.54            519.2  503.87  537.11              .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 2739.26    5230    1488

CROSS SECTION OUTPUT    Profile #PF 2

  E.G. Elev (ft)            1485.89   Element                   Left OB    Channel   Right OB
  Vel Head (ft)                0.23   Wt. n-Val.                 0.050      0.015      0.050
  W.S. Elev (ft)            1485.66   Reach Len. (ft)            519.20     503.87     537.11
  Crit W.S. (ft)            1485.49   Flow Area (sq ft)         3038.57      52.60    1969.80
  E.G. Slope (ft/ft)       0.006395   Area (sq ft)              3038.57      52.60    1969.80
  Q Total (cfs)            13333.00   Flow (cfs)                7488.79     677.75    5166.46
  Top Width (ft)            5117.90   Top Width (ft)            3140.22      24.00    1953.68
  Vel Total (ft/s)             2.63   Avg. Vel. (ft/s)             2.46      12.88       2.62
  Max Chl Dpth (ft)            4.63   Hydr. Depth (ft)             0.97       2.19       1.01
  Conv. Total (cfs)        166725.9   Conv. (cfs)               93645.4     8475.1    64605.3
  Length Wtd. (ft)           525.72   Wetted Per. (ft)          3146.40      25.36    1954.78
  Min Ch El (ft)            1481.95   Shear (lb/sq ft)             0.39       0.83       0.40
  Alpha                        2.09   Stream Power (lb/ft s)       0.95      10.67       1.06
  Frctn Loss (ft)              3.32   Cum Volume (acre-ft)      5080.72     989.96     710.02
  C & E Loss (ft)              0.01   Cum SA (acres)            4186.99     222.87     587.10


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 2

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                (ft)      (ft/s)
  4912.35       5636.72         219.94     151.70     303.23       1.65       0.50       1.45
  5636.72       6361.08         573.90     368.01     659.36       4.30       0.56       1.56
  6361.08       7085.44          25.84      23.20      68.88       0.19       0.34       1.11
  7085.44       7809.81        1604.82     606.63     491.94      12.04       1.24       2.65
  7809.81       8534.17        2955.26    1021.82     724.90      22.17       1.41       2.89
  8534.17       9258.54        2072.19     825.67     724.62      15.54       1.14       2.51
  9258.54       9982.90          36.83      41.53     173.48       0.28       0.24       0.89
  LB 9982.90    9989.43           2.50       0.74       2.21       0.02       0.35       3.36
  9989.43       9995.96         118.11      11.84       6.89       0.89       1.81       9.97
  9995.96       10002.48        356.86      22.62       6.62       2.68       3.46      15.78
  10002.48      10009.01        195.20      16.20       7.10       1.46       2.48      12.05
  10009.01      RB 10015.54       5.06       1.20       2.54       0.04       0.52       4.22
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10015.54	10555.41	279.55	183.13	312.95	2.10	0.59	1.53
10555.41	11095.28	3168.39	977.58	540.03	23.76	1.81	3.24
11095.28	11635.16	1526.60	630.78	540.01	11.45	1.17	2.42
11635.16	12175.03	2.89	5.32	42.70	0.02	0.12	0.54
12175.03	12714.90						
12714.90	13254.77	5.13	7.86	48.00	0.04	0.16	0.65
13254.77	13794.64	182.73	162.33	438.12	1.37	0.37	1.13
13794.64	14334.52	1.19	2.81	32.97	0.01	0.09	0.42

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.494

INPUT
Description:
Station Elevation Data num= 168

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2801.85	1487.14	2848.59	1488.16	2954.68	1488.84	3071.29	1487.19	3214.51	1486.7
3412.39	1484.8	3417.34	1483.97	3424.4	1484.72	3582.87	1484.48	3631.17	1484.22
3643.74	1483.34	3651.36	1483.78	3673.01	1484.34	3675.13	1483.89	3680.77	1484.38
3805.64	1486.02	4207.69	1483.65	4213.58	1482.8	4219.89	1483.16	4281.86	1483.19
4297.75	1481.7	4302.52	1482.88	4312.25	1483.09	4317.09	1481.18	4326.24	1483.29
4363.91	1482.89	4505.33	1483.35	4582.24	1484.76	4695.98	1485.58	4761.25	1485.13
4834.81	1484.94	4996.62	1482.65	5003.32	1482.98	5025.05	1482.52	5145.64	1483.03
5287.06	1482.74	5388.85	1482.77	5398.17	1480.27	5410.78	1482.88	5667.67	1481.46
5676.82	1480	5677.29	1479.9	5677.67	1480	5684.4	1481.86	5699.82	1482.06
5706.61	1480	5708.78	1479.34	5711.08	1480	5719.85	1482.14	5787.05	1481.89
6427.38	1483.18	6468.66	1483.4	6476.9	1482.84	6486.07	1483.16	7026.34	1485.09
7067.68	1484.24	7510.85	1482.29	7513.03	1481.39	7518.29	1481.99	7708.01	1481.58
7781.02	1480.85	7786.36	1480.33	7792.72	1480.64	7808.5	1481.3	7815.6	1480
7820.67	1479.01	7824.74	1480	7828.84	1480.89	8207.99	1480.32	8397.59	1480.75
8401.99	1480	8402.92	1479.83	8404.38	1480	8409.36	1480.56	8445.27	1480.24
8446.87	1480	8452.04	1479.26	8456.81	1480	8460.12	1480.54	8498.28	1480.27
8499.79	1480	8504.51	1479.19	8508.49	1479.89	8511.6	1480	8521.46	1480.38
8523.68	1480	8527.43	1479.54	8531.61	1480	8534.31	1480.19	8698	1480.42
8708	1480.76	8741.01	1481	8746.52	1480.08	8750.59	1481.08	8801.31	1480.67
8804.07	1480	8809.42	1478.63	8812.37	1478.44	8821.86	1480	8825.35	1480.57
9016.29	1481.63	9207.97	1482.07	9666.75	1482.46	9676.09	1481.93	9683.63	1482.56
9713.4	1483.27	9776.33	1483.78	9971.63	1483.25	9983.76	1483.13	9992.89	1480
9997.63	1478.38	10002.85	1478.11	10007.43	1480	10016.02	1483.57	10031.15	1482.49
10042.06	1482.53	10057.73	1481.56	10067.11	1482.71	10112.34	1482.71	10207.98	1481.83
10431.58	1481.59	10655.2	1480.45	10878.8	1480.09	11020.1	1480	11027.99	1479.64
11042.47	1478.61	11045.95	1479.52	11055.98	1479.81	11064.19	1477.71	11073.58	1479.72
11098.69	1480	11102.42	1480.04	11326.03	1480.94	11549.63	1482.17	11773.24	1483.69
11996.85	1484.08	12220.46	1484.2	12536.7	1482.92	12852.9	1483.04	13000.41	1483.76
13040.17	1484.75	13102.58	1484.42	13205.88	1483.63	13329.55	1484.31	13390.28	1483.82
13485.18	1483.06	13536.48	1482.04	13542.33	1481.94	13716.85	1482	13761.85	1482.6
13796.85	1482	13806.85	1481.71	13816.85	1482	13936.85	1483.31	14056.85	1484
14106.85	1484.31	14226.85	1484.31	14311.85	1482	14671.85	1482	14751.85	1485.8
14821.85	1482	14946.85	1486.81	15081.85	1487.11	15201.85	1487.71	15281.85	1487.5
15366.85	1487.61	15416.85	1482	15701.85	1489.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2801.85	.05	9983.76	.015	10016.02	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9983.76	10016.02	473.59	472.04	447.11	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2801.85	5140	1484

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1482.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1482.27	Reach Len. (ft)	473.59	472.04	447.11
Crit W.S. (ft)	1482.03	Flow Area (sq ft)	2560.56	64.10	2047.21
E.G. Slope (ft/ft)	0.006220	Area (sq ft)	2560.56	64.10	2047.21
Q Total (cfs)	13333.00	Flow (cfs)	6608.29	867.67	5857.05
Top Width (ft)	4135.43	Top Width (ft)	2414.37	26.62	1694.43
Vel Total (ft/s)	2.85	Avg. Vel. (ft/s)	2.58	13.54	2.86

Max Chl Dpth (ft)	4.56	Hydr. Depth (ft)	1.06	2.41	1.21
Conv. Total (cfs)	169051.6	Conv. (cfs)	83787.7	11001.3	74262.6
Length Wtd. (ft)	460.49	Wetted Per. (ft)	2417.90	28.11	1695.16
Min Ch El (ft)	1478.10	Shear (lb/sq ft)	0.41	0.89	0.47
Alpha	2.31	Stream Power (lb/ft s)	1.06	11.99	1.34
Frctn Loss (ft)	3.04	Cum Volume (acre-ft)	5047.35	989.28	685.25
C & E Loss (ft)	0.02	Cum SA (acres)	4153.89	222.58	564.61

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4956.42	5674.61	115.88	85.97	171.19	0.87	0.50	1.35
5674.61	6392.80	108.92	103.97	302.18	0.82	0.35	1.05
6392.80	7111.00						
7111.00	7829.19	479.91	258.65	318.98	3.60	0.81	1.86
7829.19	8547.38	3961.61	1270.20	718.74	29.71	1.77	3.12
8547.38	9265.57	1935.92	826.61	718.83	14.52	1.15	2.34
9265.57	9983.76	6.04	15.16	187.98	0.05	0.08	0.40
LB 9983.76	9990.21	13.41	2.67	4.17	0.10	0.68	5.03
9990.21	9996.66	188.42	15.85	6.82	1.41	2.46	11.89
9996.66	10003.12	434.45	25.73	6.54	3.26	3.99	16.89
10003.12	10009.57	219.86	17.56	6.99	1.65	2.72	12.52
10009.57	RB 10016.02	11.53	2.30	3.60	0.09	0.69	5.02
10016.02	10584.60	505.16	305.71	441.85	3.79	0.69	1.65
10584.60	11153.19	4277.15	1218.84	569.23	32.08	2.14	3.51
11153.19	11721.77	1012.01	450.67	411.18	7.59	1.10	2.25
11721.77	13427.52						
13427.52	13996.10	62.73	71.99	272.92	0.47	0.26	0.87

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.405

INPUT
Description:
Station Elevation Data num= 146

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2797.5	1485.45	2876.3	1486.42	2951.15	1485.07	3022.67	1483.64	3032.55	1482.9
3037.36	1483.36	3234.45	1483.06	3333.06	1484.24	3657.16	1481.17	3664.86	1480.41
3685	1481.25	3784.19	1480.41	3862.2	1480.75	3867.76	1480	3868.51	1479.9
3869.04	1480	3872.77	1480.64	4196.15	1480.58	4247.27	1481.02	4253.55	1480
4256.42	1479.52	4258.85	1480	4264.19	1481.06	4354.85	1480.21	4429.51	1483.24
4577.94	1482.65	4808.31	1481.11	4924.36	1480.05	4933.41	1480	5160.67	1479.23
5177.67	1479.12	5424.37	1479.86	5467.85	1480	5493.98	1480.09	5494.47	1480
5499.53	1479.17	5504.48	1479.76	5512.09	1479.91	5520.9	1477.93	5528.96	1479.82
5598.24	1479.34	5606.99	1477.35	5614.36	1479.49	5924.36	1479.5	6334.07	1479.9
6341.12	1479.58	6347.58	1479.72	6424.37	1479.69	6525.94	1480	6573.45	1480
6652.86	1480	6924.36	1482.35	6940.74	1481.62	7234.72	1480	7424.37	1478.87
7479.45	1478.82	7481.79	1477.76	7486.33	1478.61	7733.25	1478.35	7739.89	1477.29
7746.29	1478.04	7769.05	1478.3	7778.84	1476.86	7788.74	1477.78	8064.67	1477.54
8338.6	1476.84	8344.79	1474.96	8349.03	1476.51	8427.83	1477.43	8436.35	1475.6
8442.57	1477.43	8534.02	1477.74	8564.68	1477.56	8699.64	1478.34	8794.2	1478.48
8834.07	1478.63	8956.72	1478.97	8971.79	1478.63	9054.21	1478.39	9064.65	1478.35
9373.23	1480	9502.71	1480	9564.65	1479.65	9620.78	1479.5	9699.27	1479.57
9752.34	1478.86	9761.96	1478.79	9768.22	1479.25	9915.39	1478.73	9918.8	1478.45
9923.5	1478.92	9970.82	1479.62	9983.83	1479.78	9997.12	1474.74	10003.37	1474.6
10017.44	1479.92	10030.14	1479.15	10035.8	1478.94	10056.55	1477.66	10063.42	1478.22
10170.94	1477.71	10288.3	1477.77	10511.9	1476.51	10665.86	1476.77	10735.52	1476.97
10959.12	1477.51	11003.44	1477.22	11011.47	1475.64	11020.75	1477.26	11182.75	1477.94
11406.36	1478.59	11624.35	1480	11853.58	1480.98	12077.23	1480.98	12557.5	1480.9
12742.5	1480.6	12922.5	1480	12992.5	1479.9	13062.5	1480	13142.5	1480
13237.5	1479.8	13312.5	1480	13337.5	1480.2	13372.5	1480	13462.5	1480.6
13527.5	1480	13562.5	1479.8	13622.5	1480	13842.5	1480	13907.5	1480
13992.5	1479.7	14042.5	1480	14232.5	1480	14402.5	1482	14587.5	1484
14727.5	1484.3	14852.5	1484.9	15062.5	1484.8	15242.5	1483.1	15282.5	1482
15342.5	1483.2	15382.5	1484	15512.5	1485.3	15622.5	1486	15727.5	1485.5

15877.5 1486.7

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2797.5	.05	9983.83	.01510017.44		.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9983.8310017.44		541.31	508.19	481.14	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2797.5	5495	1480

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1479.51	Element			
Vel Head (ft)	0.46	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1479.05	Reach Len. (ft)	541.31	508.19	481.14
Crit W.S. (ft)	1479.05	Flow Area (sq ft)	1931.91	78.03	2195.28
E.G. Slope (ft/ft)	0.007010	Area (sq ft)	1931.91	78.03	2195.28
Q Total (cfs)	13333.00	Flow (cfs)	4916.14	1197.93	7218.93
Top Width (ft)	3432.55	Top Width (ft)	1958.67	29.38	1444.50
Vel Total (ft/s)	3.17	Avg. Vel. (ft/s)	2.54	15.35	3.29
Max Chl Dpth (ft)	4.45	Hydr. Depth (ft)	0.99	2.66	1.52
Conv. Total (cfs)	159249.2	Conv. (cfs)	58718.3	14308.0	86222.8
Length Wtd. (ft)		Wetted Per. (ft)	1961.02	30.99	1444.87
Min Ch El (ft)	1474.60	Shear (lb/sq ft)	0.43	1.10	0.66
Alpha	2.93	Stream Power (lb/ft s)	1.10	16.92	2.19
Frctn Loss (ft)		Cum Volume (acre-ft)	5022.93	988.51	663.48
C & E Loss (ft)		Cum SA (acres)	4130.11	222.27	548.50

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4953.40	5672.03	29.01	16.78	23.76	0.22	0.73	1.73
5672.03	7109.30						
7109.30	7827.93	453.50	279.13	434.22	3.40	0.64	1.62
7827.93	8546.56	3823.33	1227.71	719.65	28.68	1.71	3.11
8546.56	9265.20	595.73	386.08	648.86	4.47	0.60	1.54
9265.20	9983.83	14.58	22.21	134.52	0.11	0.17	0.66
LB 9983.83	9990.55	28.15	4.36	5.13	0.21	0.91	6.46
9990.55	9997.27	303.93	20.79	7.18	2.28	3.09	14.62
9997.27	10004.00	563.86	29.42	6.77	4.23	4.38	19.17
10004.00	10010.72	279.43	19.78	7.19	2.10	2.94	14.13
10010.72	RB 10017.44	22.53	3.69	4.72	0.17	0.84	6.10
10017.44	10603.45	3137.88	945.82	570.66	23.53	1.66	3.32
10603.45	11189.45	3756.80	1065.16	586.30	28.18	1.82	3.53
11189.45	11775.46	324.25	184.29	287.91	2.43	0.64	1.76

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.309

INPUT
Description:
Station Elevation Data num= 128

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2835.25	1481.06	2935.75	1480	3139.14	1478.49	3590.1	1479.09	3633.69	1479.83
3689.92	1479.35	3779.43	1477.81	4044.7	1477.89	4167.7	1477.84	4180.54	1476.87
4186.25	1477.66	4211.44	1478	4216.18	1477.96	4262.85	1478	4271.26	1475.68
4279.81	1477.91	4345.08	1479.51	4419.76	1478.19	4591.69	1477.88	4919.75	1476.61
5072.07	1476.19	5077.35	1475.64	5083.38	1476.27	5112.75	1476.31	5130.68	1475.4
5488.15	1477.54	5496.26	1475.69	5503.83	1477.28	5543.27	1477.49	5552.38	1475.93

5557.91	1477.78	6059.93	1476.01	6700.23	1476.81	6985.59	1479.78	7200.23	1477.37
7338.86	1475.3	7343.89	1475.12	7348.38	1475.26	7700.24	1474.93	7848.65	1475.16
7859.53	1473.91	7869.83	1475.1	8210.69	1474.02	8220.24	1471.72	8235.38	1474.02
8414.68	1474.07	8534.69	1474.91	8560.48	1475.02	9002.64	1475	9007.24	1474.59
9012.99	1474.5	9021.42	1475.22	9060.44	1475.22	9387.27	1475.71	9391.26	1475.37
9397.24	1475.74	9431.82	1475.45	9439.58	1475.18	9447.2	1475.61	9523.29	1476.42
9560.46	1476.39	9944.57	1475.53	9950.87	1474.74	9956.9	1475.61	9965.01	1476.03
9969.24	1476.57	9982.15	1476.43	9995.91	1471.28	10002.34	1470.98	10016.6	1476.06
10029.34	1475.12	10033.98	1475.23	10053.6	1474.24	10060.45	1474.64	10060.74	1474.55
10190.22	1474.28	10212.47	1474.31	10219.22	1473.71	10223.05	1474.34	10284.05	1474.02
10507.67	1472.93	10674.19	1473.56	10731.27	1473.77	10929.54	1473.95	10935.53	1472.73
10941.61	1474.35	10954.89	1474.11	11178.49	1474.53	11558.25	147	11788.25	1477.1
11945.25	1477.31	12060.25	147	812095.25	1478.51	2135.25	147	812195.25	1477.7
12260.25	147	812305.25	1477.51	2345.25	1477.71	2585.25	1477.11	2785.25	1478
12805.25	1478.51	2835.25	147	812963.25	1477.81	3073.25	1477.41	3200.25	1477.3
13275.25	1477.21	3365.25	147	713660.25	1476.31	3875.25	1476.81	4090.25	1476.8
14300.25	147	814455.25	148	014590.25	1476.81	4645.25	148	014855.25	1481
14960.25	1480.91	5045.25	1481.11	5135.25	1481.41	5195.25	1481.21	5310.25	1480
15320.25	1479.91	5330.25	148	015460.25	1480.61	5605.25	1480.91	5735.25	1481.6
15805.25	148	215920.25	148	116030.25	1481.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2835.25	.05	9982.15	.015	10016.6	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9982.15	10016.6	501.66	476.06	493.7	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2835.25	5487.9	1477

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1476.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1475.86	Reach Len. (ft)	501.66	476.06	493.70
Crit W.S. (ft)	1475.86	Flow Area (sq ft)	2072.62	91.86	2497.41
E.G. Slope (ft/ft)	0.005473	Area (sq ft)	2072.62	91.86	2497.41
Q Total (cfs)	13333.00	Flow (cfs)	4325.99	1304.78	7702.23
Top Width (ft)	3870.54	Top Width (ft)	2335.41	32.36	1502.77
Vel Total (ft/s)	2.86	Avg. Vel. (ft/s)	2.09	14.20	3.08
Max Chl Dpth (ft)	4.88	Hydr. Depth (ft)	0.89	2.84	1.66
Conv. Total (cfs)	180217.0	Conv. (cfs)	58472.7	17636.3	104108.0
Length Wtd. (ft)		Wetted Per. (ft)	2336.26	34.04	1503.27
Min Ch El (ft)	1470.98	Shear (lb/sq ft)	0.30	0.92	0.57
Alpha	3.26	Stream Power (lb/ft s)	0.63	13.10	1.75
Frctn Loss (ft)		Cum Volume (acre-ft)	4998.05	987.52	637.57
C & E Loss (ft)		Cum SA (acres)	4103.43	221.91	532.22

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4979.32	5694.01	0.05	0.13	1.59	0.00	0.09	0.38
5694.01	7123.39						
7123.39	7838.08	654.27	399.39	536.73	4.91	0.74	1.64
7838.08	8552.77	2744.84	1059.11	715.28	20.59	1.48	2.59
8552.77	9267.46	862.55	528.65	714.74	6.47	0.74	1.63
9267.46	9982.15	64.24	85.32	367.92	0.48	0.23	0.75
LB 9982.15	9989.04	32.86	5.39	5.73	0.25	1.00	6.10
9989.04	9995.93	306.13	22.72	7.36	2.30	3.30	13.47
9995.93	10002.82	582.30	32.63	6.93	4.37	4.73	17.85
10002.82	10009.71	336.34	23.99	7.31	2.52	3.48	14.02
10009.71	RB 10016.60	47.16	7.13	6.72	0.35	1.13	6.61
10016.60	10617.96	4031.19	1216.63	598.82	30.23	2.03	3.31
10617.96	11219.33	3414.52	1103.40	601.70	25.61	1.83	3.09
11219.33	11820.69	256.56	177.39	302.75	1.92	0.59	1.45

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.218

INPUT
Description:
Station Elevation Data num= 147

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2831.22	1476.97	2918.91	1476.58	2925.21	1475.85	2951.13	1476.63	2974.51	1476.75
3474.51	1475.44	3974.5	1474.74	4250.81	1474.83	4258.25	1472.58	4267.2	1474.77
4453.02	1475.31	4531.68	1477.33	4653.17	1475.97	4788.18	1474.45	4834.73	1474.14
4965.36	1473.24	4982.32	1473.16	5069.74	1473.24	5100.04	1472.95	5334.74	1473.93
5495.17	1474.92	5498.19	1473.94	5505.32	1475.07	5561.73	1475.22	5574.27	1473.33
5588.99	1475.51	5603	1474.95	5700.77	1474.28	5713.93	1473.54	5721.22	1474.27
5744.47	1473.92	5746.86	1473.66	5750.67	1474.08	5763.83	1474.23	5768.39	1473.61
5774.43	1474.19	5834.73	1473.61	6195.3	1472.76	6344.79	1472.61	6350.83	1472.22
6356.84	1472.81	6695.29	1473.02	6808.05	1474.9	6903.42	1476.42	7195.29	1474.59
7200.17	1474.45	7226.71	1473.59	7247.35	1474.01	7297.01	1473.74	7306.3	1472.81
7600.92	1470.78	7607.85	1470.03	7613.54	1470.78	7695.28	1471.54	8062.55	1471.5
8073.65	1470.39	8081.42	1470.88	8096.35	1470.93	8099.36	1470	8103.46	1468.72
8107.48	1470	8110.66	1470.97	8144.54	1471.01	8151.69	1470	8152	1469.96
8153.33	1470	8161.27	1470	8164.41	1470.64	8195.28	1470.74	8533.29	1472.19
8555.84	1472.24	8746.22	1471.81	8766.28	1472.27	8770.7	1471.55	8774.26	1472.18
9055.83	1472.22	9321.62	1471.7	9481.55	1473.06	9555.82	1472.15	9818.55	1470.7
9916.38	1472.64	9946.06	1472.92	9952.36	1471.96	9957.08	1472.95	9964.49	1473.55
9967.34	1472.68	9981.5	1473.06	9995.23	1467.96	10000.92	1467.93	10014.21	1473.2
10027.34	1472.73	10033	1472.95	10050.53	1472.83	10057.52	1472.94	10173.02	1471.31
10346.22	147	010401.22	1470.31	0456.22	147	010606.22	147	010816.22	1471.5
10916.22	147	010926.22	1469.71	0936.22	147	010991.22	1471.71	1036.22	1472
11326.22	147	311586.22	1473.81	1706.22	147	411826.22	147	411976.22	1474.8
12051.22	1474.51	2221.22	1474.41	2341.22	1474.51	2761.22	1475.21	2856.22	1475
13016.22	147	413061.22	147	413101.22	1474.31	3206.22	147	413301.22	1474.4
13411.22	1474.71	3611.22	147	413761.22	147	213776.22	1470.71	3786.22	1472
13851.22	147	213856.22	1470.51	3861.22	147	213971.22	147	414191.22	1474
14206.22	1473.31	4216.22	147	414491.22	1475.81	4626.22	1477.21	4741.22	1476
14781.22	147	614846.22	1477.31	4991.22	1478.21	5091.22	1477.41	5171.22	1478.1
15296.22	1477.71	5381.22	147	815436.22	1478.31	5481.22	147	815556.22	1477.2
15691.22	147	816066.22	1480						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2831.22	.05	9981.5	.015	10014.21	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9981.5	10014.21	440	446.85	550	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2831.22	5493.59	1476

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1473.09	Element			
Vel Head (ft)	0.41	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1472.67	Reach Len. (ft)	440.00	446.85	550.00
Crit W.S. (ft)	1472.64	Flow Area (sq ft)	2482.39	85.09	2066.72
E.G. Slope (ft/ft)	0.005896	Area (sq ft)	2482.39	85.09	2066.72
Q Total (cfs)	13333.00	Flow (cfs)	5595.36	1240.29	6497.34
Top Width (ft)	3966.28	Top Width (ft)	2594.66	30.33	1341.29
Vel Total (ft/s)	2.88	Avg. Vel. (ft/s)	2.25	14.58	3.14
Max Chl Dpth (ft)	4.74	Hydr. Depth (ft)	0.96	2.81	1.54
Conv. Total (cfs)	173644.9	Conv. (cfs)	72872.3	16153.2	84619.4
Length Wtd. (ft)	490.21	Wetted Per. (ft)	2595.97	32.08	1341.95
Min Ch El (ft)	1467.93	Shear (lb/sq ft)	0.35	0.98	0.57
Alpha	3.23	Stream Power (lb/ft s)	0.79	14.23	1.78
Frctn Loss (ft)	2.87	Cum Volume (acre-ft)	4971.82	986.55	611.70
C & E Loss (ft)	0.01	Cum SA (acres)	4075.05	221.57	516.10

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5691.33	6406.36	1.51	4.41	71.12	0.01	0.06	0.34
6406.36	7121.39						
7121.39	7836.42	1346.44	572.11	509.98	10.10	1.12	2.35
7836.42	8551.44	2484.03	946.20	715.92	18.63	1.32	2.63
8551.44	9266.47	628.27	414.57	715.15	4.71	0.58	1.52
9266.47	9981.50	1135.11	545.10	583.80	8.51	0.93	2.08
LB 9981.50	9988.04	35.78	5.60	5.86	0.27	1.02	6.38
9988.04	9994.58	294.68	21.30	6.98	2.21	3.26	13.84
9994.58	10001.13	566.28	30.82	6.60	4.25	4.71	18.37
10001.13	10007.67	309.16	21.99	7.04	2.32	3.36	14.06
10007.67	RB 10014.21	34.40	5.38	5.60	0.26	1.03	6.40
10014.21	10619.41	4073.11	1127.17	542.83	30.55	2.08	3.61
10619.41	11224.61	2226.41	819.43	605.25	16.70	1.35	2.72
11224.61	11829.81	0.01	0.06	6.10	0.00	0.01	0.11
11829.81	13645.42						
13645.42	14250.62	197.80	120.05	187.78	1.48	0.64	1.65

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.134

INPUT
Description:
Station Elevation Data num= 243

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2914.52	1474	3102.93	1473.7	3110.85	1472.18	3120.25	1473.69	3324.4	1473.19
3678.46	1472	3701	1471.73	3709.21	1471.21	3715.47	1471.68	3719.5	1471.56
3724.51	1470.8	3735.69	1471.07	3746.27	1471.4	3751.04	1470.82	3760.81	1471.25
3772.77	1471.27	3789.58	1470.61	3793.31	1470	3798.14	1469.39	3801.59	1470
3804.64	1470.58	3816.95	1470.5	3819.15	1470	3823.47	1469.07	3828.8	1470
3837.58	1471.47	3900.09	1470.64	3905.26	1470	3907.41	1469.74	3908.49	1470
3913.32	1471.05	3922.32	1471.01	3927.21	1470.09	3935.76	1470.91	3991.77	1471.63
3998.17	1470.42	4003.27	1471.44	4032.4	1471.26	4037.64	1470.41	4045.34	1471.48
4122.84	1472	4131.53	1472.06	4131.74	1472	4137.85	1470.36	4145.63	1472
4145.89	1472.06	4152.69	1472	4173.54	1472	4176.07	1472	4229.94	1472
4237.1	1472.04	4237.48	1472	4244.95	1471.07	4249.7	1472	4249.75	1472.01
4258.94	1472.15	4259.38	1472	4264.73	1470	4264.96	1469.92	4265.36	1470
4272.74	1471.36	4500.88	1472	4600.87	1472.69	4636.75	1474	4658.58	1474.82
4684.55	1475.21	4719.76	1474.41	4782.19	1474.41	4876.9	1474	4960.39	1472
4971.94	1471.76	4988.49	1471.27	5018.77	1471.35	5033.53	1470.93	5039.04	1471.89
5039.77	1472	5053.64	1474	5055.01	1474.18	5056.77	1474	5075.54	1472.24
5086.29	1472	5091.92	1471.81	5092.6	1472	5099.92	1474	5107.2	1476
5114.16	1477.96	5126.92	1476.8	5129.27	1476	5135.13	1474	5140.98	1472
5146.63	1470	5150.54	1468.6	5322.94	1468.6	5328.7	1470	5337.08	1472
5345.67	1474	5354.23	1476	5361.32	1477.78	5363.57	1478	5375.42	1479.31
5379.47	1478	5385.66	1476	5391.82	1474	5397.96	1472	5399.53	1471.49
5414.94	1470	5415.63	1469.89	5416.55	1470	5421.17	1470.39	5684.55	1471.26
5929.48	1470.8	5943.72	1470	5949.72	1469.18	5955.79	1470	5959.17	1470.43
5964.15	1470	5968.22	1469.67	5998.23	1469.8	6007.48	1468.53	6017.24	1469.76
6046.18	1469.92	6050.73	1468.17	6056.45	1469.74	6074.21	1469.6	6084.11	1468.31
6094.06	1469.84	6172.14	1469.66	6178.95	1468.98	6182.51	1469.66	6211.76	1469.8
6216.06	1468.96	6221.59	1469.89	6280.37	1469.77	6285.41	1468.51	6291.97	1469.9
6296.46	1470	6488.65	1472	6515.85	1472.27	6568.76	1472.02	6628.9	1472.69
6836.3	1472	6852.53	1471.97	6858.44	1471.59	6863.73	1471.88	7044.71	1470.62
7120.05	1470	7335.71	1469.06	7340.53	1468.4	7344.67	1468.99	7904.95	1468.15
7924.79	1468	7973.83	1467.62	8013.19	1468	8164.51	1468.62	8166.65	1468
8170.85	1466.88	8175.13	1467.85	8177.6	1468	8178.48	1468.05	8178.67	1468
8185.96	1466.05	8194.59	1468	8195.01	1468.15	8231.13	1468.95	8238.55	1468.33
8244.81	1468.88	8261.95	1468.65	8269.14	1468.04	8275.98	1468.4	8314.39	1468.03
8316.94	1468	8328.24	1467.89	8337.17	1468	8350.43	1468.4	8483.09	1468.4
8486.14	1468	8493.88	1467.5	8502.01	1468	8506.97	1468.2	8548.67	1468.48
8561.49	1468.01	8586.44	1469.05	8835	1470	8960	1470	9180	1470
9440	1470	9470	1470.2	9500	1470	9585	1468.8	9750	1468
9940	1468	9980	1470	10000	1463.6	10010	1468	10020	1469.6
10135	1468	10215	1469.9	10320	1468	10470	1467.7	10670	1468
10765	1468	10795	1467.9	10820	1468	10870	1468.6	11100	1468
11145	1467.8	11175	1468	11335	1469.4	11400	1470	11550	1471.8

11700	1472	11730	1472	12120	1471.5	12370	1471.4	12975	1471.7
13075	1471.7	13225	1470.3	13825	1470.7	14010	1470	14115	1470
14145	1470	14150	1469.5	14155	1470	14190	1470.6	14220	1470
14230	1469.1	14250	1470	14300	1471	14355	1472	14440	1473.4
14655	1471.7	14840	1472.7	15010	1474	15270	1474	15355	1474
15365	1473.9	15375	1472	15380	1471.9	15385	1472	15630	1474
16000	1475.4	16185	1476	16250	1476				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2914.52	.05	9980	.015	10020	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980	10020	500	476.47	600	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2914.52	5360	1473	14435	16250	1473.41

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1470.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.47	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1469.74	Reach Len. (ft)	500.00	476.47	600.00
Crit W.S. (ft)	1469.74	Flow Area (sq ft)	2491.44	107.82	1905.83
E.G. Slope (ft/ft)	0.005802	Area (sq ft)	2491.44	107.82	1905.83
Q Total (cfs)	13333.00	Flow (cfs)	6286.79	1544.70	5501.51
Top Width (ft)	3621.79	Top Width (ft)	2219.48	39.20	1363.11
Vel Total (ft/s)	2.96	Avg. Vel. (ft/s)	2.52	14.33	2.89
Max Chl Dpth (ft)	6.14	Hydr. Depth (ft)	1.12	2.75	1.40
Conv. Total (cfs)	175041.3	Conv. (cfs)	82535.6	20279.5	72226.2
Length Wtd. (ft)	543.94	Wetted Per. (ft)	2222.14	41.21	1363.24
Min Ch El (ft)	1463.60	Shear (lb/sq ft)	0.41	0.95	0.51
Alpha	3.45	Stream Power (lb/ft s)	1.02	13.58	1.46
Frctn Loss (ft)	1.77	Cum Volume (acre-ft)	4946.70	985.56	586.62
C & E Loss (ft)	0.00	Cum SA (acres)	4050.73	221.21	499.03

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5740.71	6447.26	53.73	54.26	175.66	0.40	0.31	0.99
6447.26	7153.81						
7153.81	7860.36	1365.85	650.24	681.38	10.24	0.95	2.10
7860.36	8566.90	3141.58	1088.12	707.59	23.56	1.54	2.89
8566.90	9273.45	102.37	84.27	200.82	0.77	0.42	1.21
9273.45	9980.00	1623.23	614.54	456.69	12.17	1.35	2.64
LB 9980.00	9988.00	55.52	8.29	7.56	0.42	1.15	6.70
9988.00	9996.00	409.31	28.66	8.40	3.07	3.58	14.28
9996.00	10004.00	795.94	43.06	8.57	5.97	5.38	18.48
10004.00	10012.00	250.72	21.54	8.58	1.88	2.69	11.64
10012.00	RB 10020.00	33.23	6.26	8.10	0.25	0.78	5.31
10020.00	10643.00	2477.65	871.18	607.74	18.58	1.43	2.84
10643.00	11266.00	2946.71	976.33	623.01	22.10	1.57	3.02
11266.00	11889.00	69.64	50.85	106.14	0.52	0.48	1.37
11889.00	13758.00						
13758.00	14381.00	7.54	7.48	26.35	0.06	0.28	1.01

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.044

INPUT
Description:
Station Elevation Data num= 180

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2997.33	1472	3229.28	1470.48	3233.16	1470	3241.94	1469.12	3251.31	1470
3257.48	1470.46	3265.24	1470.31	3266.53	1470	3270.21	1468.95	3273.92	1470
3275.9	1470.41	3332.06	1470.87	3339.29	1470	3361.18	1468.98	3368.2	1469.78
3399.76	1469.77	3407.95	1468.4	3415.64	1469.62	3479.55	1470	3481.71	1470
3482.37	1470.03	3486.02	1469.46	3491.67	1470	3739.65	1470	3912.53	1468.23
3916.18	1468	3926.98	1467.42	3930.18	1468	3932.64	1468.18	3959.17	1468.49
3961.4	1468	3964.25	1467.37	3967.86	1468	3970.46	1468.41	4120.44	1468.75
4127.39	1468.14	4130.5	1468.75	4206.37	1469.43	4213.15	1468.03	4219.34	1469.36
4268.29	1468.97	4617.41	1470	4646.3	1470.24	4706.76	1472	4712.35	1472.17
4758.52	1472	4766.99	1471.91	4768.29	1471.74	4793.31	1470.75	4845.19	1470.55
4880.8	1470	4945.25	1469.62	4957.9	1468	4958.16	1467.97	4958.32	1468
4965.38	1469.42	5026.31	1470	5037.17	1470.1	5055.93	1470	5163.11	1469.3
5219.22	1469.21	5268.3	1469.2	5300.57	1468.68	5381	1468	5733.04	1466.25
5736.78	1466	5752.91	1464.64	5761.52	1466	5765.67	1466.47	5768.28	1466.66
5805.04	1467.09	5812.22	1466.43	5816.13	1467.01	5987.29	1466.07	5987.62	1466
5995.57	1464.67	6001.95	1466	6005.63	1466.77	6026.75	1466.73	6029.15	1466
6032.79	1464.59	6039.78	1466	6040.03	1466.05	6154.39	1468	6187.37	1468.96
6236.64	1470	6258.74	1470.49	6268.29	1470.11	6276.65	1470	6338.38	1469.15
6410.2	1468.23	6415.85	1468	6418	1467.91	6419.61	1468	6425.76	1468.42
6570.17	1470	6579.27	1470.14	6658.2	1471.14	6768.3	1471.18	6776.51	1470.6
6939.96	1470	7183.44	1468	7268.3	1467.06	7293.58	1466.86	7300.47	1467.05
7304.94	1467.04	7768.31	1466.08	7794.56	1466	7885.22	1466	7958.03	1466.13
7961.96	1466	7963.62	1465.95	7965.39	1466	7972.38	1466.13	8268.3	1466.88
8304.67	1466.66	8306.73	1466	8312.19	1464	8312.77	1463.79	8313.38	1464
8318.63	1466	8319.83	1466.52	8343.21	1466.65	8348.29	1466	8349.97	1465.8
8355.46	1466	8359.02	1466.13	8375	1464	8655	1466	8855	1467
8980	1466.9	9320	1466	9520	1466	9560	1466.2	9590	1466
9800	1465.6	9940	1466	9960	1466.1	9980	1466.9	9995	1460
10000	1460	10005	1460	10025	1466	10045	1464	10055	1463.7
10065	1464	10230	1465.4	10345	1464	10410	1463.6	10470	1464
11015	1465.1	11195	1466	11370	1467.6	11440	1468	11570	1468.1
11605	1468	11860	1467.9	12130	1468	12240	1468.6	12340	1468
12980	1468	13400	1468	13780	1466.9	13945	1467	14245	1466
14255	1465.5	14265	1466	14335	1468	14385	1468.8	14440	1468
14540	1467.7	14655	1468	14825	1469.2	14965	1469.2	15130	1470
15215	1471.3	15540	1469.6	15660	1468.9	15885	1470	16345	1471.8

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2997.33	.05	9980	.015	10025	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980	10025	500	522.73	550	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
15215	16345	1471.28

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1467.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.48	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1467.13	Reach Len. (ft)	500.00	522.73	550.00
Crit W.S. (ft)	1467.13	Flow Area (sq ft)	2882.73	208.90	3234.64
E.G. Slope (ft/ft)	0.002072	Area (sq ft)	2882.73	208.90	3234.64
Q Total (cfs)	13333.00	Flow (cfs)	3626.51	2532.68	7173.81
Top Width (ft)	5204.27	Top Width (ft)	3263.83	45.00	1895.44
Vel Total (ft/s)	2.11	Avg. Vel. (ft/s)	1.26	12.12	2.22
Max Chl Dpth (ft)	7.13	Hydr. Depth (ft)	0.88	4.64	1.71
Conv. Total (cfs)	292880.0	Conv. (cfs)	79662.0	55634.2	157583.8
Length Wtd. (ft)	534.04	Wetted Per. (ft)	3266.23	47.39	1895.62
Min Ch El (ft)	1460.00	Shear (lb/sq ft)	0.11	0.57	0.22
Alpha	6.98	Stream Power (lb/ft s)	0.14	6.91	0.49
Frctn Loss (ft)	1.28	Cum Volume (acre-ft)	4915.85	983.83	551.22
C & E Loss (ft)	0.02	Cum SA (acres)	4019.26	220.75	476.59

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5092.13	5790.40	125.15	138.13	233.71	0.94	0.59	0.91
5790.40	6488.67	188.06	198.38	313.65	1.41	0.63	0.95
6488.67	7186.93						
7186.93	7885.20	380.72	398.53	622.82	2.86	0.64	0.96
7885.20	8583.47	1312.46	877.22	699.49	9.84	1.26	1.50
8583.47	9281.73	407.33	434.43	698.27	3.06	0.62	0.94
9281.73	9980.00	1212.79	836.04	698.29	9.10	1.20	1.45
LB 9980.00	9989.00	137.40	20.66	9.91	1.03	2.30	6.65
9989.00	9998.00	735.82	55.85	9.60	5.52	6.21	13.17
9998.00	10007.00	946.30	63.53	9.09	7.10	7.06	14.90
10007.00	10016.00	551.75	46.58	9.40	4.14	5.18	11.85
10016.00	RB 10025.00	161.41	22.28	9.40	1.21	2.48	7.24
10025.00	10657.00	4524.82	1752.09	632.13	33.94	2.77	2.58
10657.00	11289.00	2420.07	1203.54	632.01	18.15	1.90	2.01
11289.00	11921.00	1.32	3.88	29.12	0.01	0.13	0.34
11921.00	13185.00						
13185.00	13817.00	6.05	16.72	114.93	0.05	0.15	0.36
13817.00	14449.00	221.53	258.41	487.44	1.66	0.53	0.86

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.945

INPUT
Description:
Station Elevation Data num= 155

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2930.15	1470	3352.26	1469.07	3576.27	1468	3631.81	1468	3646.22	1468
3654.7	1468	3656.76	1468.06	3657.48	1468	3668.88	1466.97	3675.79	1467.36
3707.31	1467.5	3718.14	1466.4	3727.85	1467.13	3844.51	1468	3846.21	1468.05
3937.15	1469.72	4065.57	1468.17	4070.72	1468	4123.12	1466.35	4125.22	1466
4133.9	1465.18	4140.15	1466	4143.81	1466.48	4492.44	1467.53	4661.01	1468
4724.29	1468.6	4781.24	1470	4803.68	1470.58	4834.6	1470	4840.67	1469.88
4846.97	1468.4	4858.48	1469.1	4925.74	1468	4952.32	1467.47	4983.62	1468
4992.44	1468.15	5006.68	1468.28	5054.68	1468	5283.05	1466	5302.47	1465.85
5320.11	1464.13	5325.01	1464	5325.4	1463.66	5327.67	1464	5334.71	1464.87
5481.92	1465.24	5489.39	1464	5496.21	1462.42	5505.3	1464	5507.13	1464.35
5521.22	1464.53	5523.63	1464	5528.43	1462.83	5535.09	1464	5539.53	1464.71
5578.75	1464.97	5600	1464.97	5737.17	1464.5	5827.66	1464	5857.58	1463.84
5862.66	1462	5862.99	1461.88	5863.37	1462	5868.45	1462	5871.74	1461.35
5874.39	1462	5882.38	1464	5883.36	1464.25	5992.43	1464.67	6508.35	1464.62
6632.75	1465.09	6712.14	1466	7108.06	1466	7132.73	1465.62	7148.62	1465.62
7152.7	1465.06	7159.27	1465.66	7470.96	1464.81	7501.44	1463.92	7518.58	1463.59
7524.61	1463.13	7530.75	1463.91	7632.74	1463.37	8132.74	1463.3	8160.56	1462.4
8164.81	1462.26	8168.31	1462.65	8200	1462	8330	1462	8345	1460.4
8360	1462	8755	1464	8790	1464.3	8825	1464	9135	1463.8
9325	1464.8	9510	1465	9675	1464	9835	1464.7	9965	1462
9970	1461.6	9975	1462	9995	1458	10000	1457.5	10005	1458
10015	1462	10030	1462.8	10045	1462	10145	1462.4	10305	1461.1
10725	1461.4	10970	1462	11115	1463.6	11565	1464	11835	1465.4
12015	1465.5	12235	1465.2	12595	1464.5	12765	1464	12780	1463.5
12795	1464	13560	1462.8	14020	1462	14040	1463.2	14070	1462

14135	1460.6	14160	1460	14170	1459.9	14180	1460	14225	1462.9
14280	1464	14405	1464	14510	1464	14665	1464	14745	1465.1
14830	1466	15045	1466	15105	1465.4	15170	1466	15255	1466.4
15320	1466	15365	1465.2	15485	1466	15645	1466.3	15705	1466
15835	1464	15841	1463	15847	1462	15853	1462	15859	1463
15865	1464	15930	1466	16420	1467.2	16585	1468	16625	1468.3

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2930.15	.05	9975	.015	10015	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9975	10015	500	506.37	550	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
15044	16625	1465.99

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1464.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1463.98	Reach Len. (ft)	500.00	506.37	550.00
Crit W.S. (ft)	1463.98	Flow Area (sq ft)	1397.23	181.74	4278.95
E.G. Slope (ft/ft)	0.002813	Area (sq ft)	1397.23	181.74	4278.95
Q Total (cfs)	13333.00	Flow (cfs)	2102.27	2567.34	8663.39
Top Width (ft)	4822.04	Top Width (ft)	1752.70	40.00	3029.34
Vel Total (ft/s)	2.28	Avg. Vel. (ft/s)	1.50	14.13	2.02
Max Chl Dpth (ft)	6.48	Hydr. Depth (ft)	0.80	4.54	1.41
Conv. Total (cfs)	251408.5	Conv. (cfs)	39640.6	48410.0	163357.9
Length Wtd. (ft)	535.51	Wetted Per. (ft)	1754.49	41.22	3029.61
Min Ch El (ft)	1457.50	Shear (lb/sq ft)	0.14	0.77	0.25
Alpha	8.00	Stream Power (lb/ft s)	0.21	10.94	0.50
Frctn Loss (ft)	1.79	Cum Volume (acre-ft)	4891.29	981.49	503.78
C & E Loss (ft)	0.13	Cum SA (acres)	3990.47	220.24	445.50

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5043.60	5748.09	20.77	19.16	30.20	0.16	0.65	1.08
5748.09	6452.58	50.03	40.30	51.83	0.38	0.79	1.24
6452.58	7157.06						
7157.06	7861.54	179.43	188.73	362.26	1.35	0.52	0.95
7861.54	8566.03	1606.10	917.43	704.70	12.05	1.30	1.75
8566.03	9270.51	63.68	115.32	500.06	0.48	0.23	0.55
9270.51	9975.00	182.26	116.28	105.43	1.37	1.10	1.57
LB 9975.00	9983.00	217.71	22.25	8.16	1.63	2.78	9.79
9983.00	9991.00	464.35	35.05	8.16	3.48	4.38	13.25
9991.00	9999.00	762.24	47.05	8.10	5.72	5.88	16.20
9999.00	10007.00	803.09	48.75	8.18	6.02	6.09	16.47
10007.00	RB 10015.00	319.95	28.65	8.62	2.40	3.58	11.17
10015.00	10676.00	3980.74	1602.16	661.05	29.86	2.42	2.48
10676.00	11337.00	1579.44	920.06	661.01	11.85	1.39	1.72
11337.00	11998.00	5.31	18.96	206.58	0.04	0.09	0.28
11998.00	12659.00						
12659.00	13320.00	157.69	213.22	541.73	1.18	0.39	0.74
13320.00	13981.00	1493.05	889.53	661.00	11.20	1.35	1.68
13981.00	14642.00	1447.17	634.99	298.24	10.85	2.13	2.28

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to

critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.849

INPUT
Description:
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5288.27	1464	5458.83	1462	5478.35	1461.45	5517.9	1460.4	5557.35	1460
5558.9	1459.52	5561.45	1460	5606.97	1460.29	5787.83	1460	5791.12	1459.4
5794.24	1460	5898.97	1462	5977.4	1462	6175.48	1461.97	6225.4	1461.7
6312.19	1462	6346	1462	6526.33	1462	7220	1464.5	7580	1460
7595	1461.6	7610	1460	7960	1458	7975	1457.8	7990	1458
8000	1459	8010	1460	8030	1460.3	8060	1460	8170	1458
8185	1457.5	8200	1458	8495	1460	8565	1461.5	8630	1460
8720	1459	8930	1459.7	8995	1460	9055	1461.3	9110	1460
9195	1460	9265	1460.7	9325	1460	9340	1459.9	9355	1460
9530	1461.7	9970	1460	9990	1458	10000	1454.8	10010	1460.4
10020	1460	10110	1458	10400	1458	10465	1458.8	10495	1458
10630	1456	10645	1455.4	10660	1456	10895	1458	11035	1459
11285	1460	11715	1462	11775	1462.4	11835	1462	11945	1462
11995	1462.8	12035	1462	12080	1461.7	12220	1461.5	12390	1461.3
12500	1462	12685	1460.7	12800	1460.7	12940	1461.7	13165	1460
13295	1459.4	13525	1460	13595	1460.7	13665	1460	14205	1458
14220	1456.8	14230	1458	14390	1460	14505	1461.2	14625	1460
14845	1460	15045	1462	15115	1463.2	15185	1462	15335	1462
15435	1464	15480	1464	15665	1462	15865	1460	16150	1461.2
16425	1462	16530	1463	16750	1464.4				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5288.27	.05	9970	.015	10010	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9970	10010	480	507.71	530	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
14500	16750	1464.01

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1460.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1460.17	Reach Len. (ft)	480.00	507.71	530.00
Crit W.S. (ft)	1459.63	Flow Area (sq ft)	1346.71	86.66	3666.84
E.G. Slope (ft/ft)	0.004014	Area (sq ft)	1346.71	86.66	3666.84
Q Total (cfs)	13333.00	Flow (cfs)	2611.05	887.51	9834.43
Top Width (ft)	4143.67	Top Width (ft)	1643.56	39.58	2460.53
Vel Total (ft/s)	2.61	Avg. Vel. (ft/s)	1.94	10.24	2.68
Max Chl Dpth (ft)	5.37	Hydr. Depth (ft)	0.82	2.19	1.49
Conv. Total (cfs)	210444.1	Conv. (cfs)	41212.1	14008.2	155223.8
Length Wtd. (ft)	520.95	Wetted Per. (ft)	1643.98	41.58	2460.76
Min Ch El (ft)	1454.80	Shear (lb/sq ft)	0.21	0.52	0.37
Alpha	1.91	Stream Power (lb/ft s)	0.40	5.35	1.00
Frctn Loss (ft)	2.94	Cum Volume (acre-ft)	4875.54	979.93	453.62
C & E Loss (ft)	0.02	Cum SA (acres)	3970.98	219.78	410.84

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5288.27	5756.44	3.17	9.29	118.25	0.02	0.08	0.34
5756.44	6224.62	4.70	8.10	46.57	0.04	0.17	0.58
6224.62	7160.96						
7160.96	7629.13	3.01	5.56	35.49	0.02	0.16	0.54
7629.13	8097.31	1059.97	516.06	445.85	7.95	1.16	2.05
8097.31	8565.48	1166.73	526.27	405.45	8.75	1.30	2.22

8565.48	9033.65	359.19	252.85	379.81	2.69	0.67	1.42
9033.65	9501.83	13.03	25.05	169.75	0.10	0.15	0.52
9501.83	9970.00	1.25	3.54	42.81	0.01	0.08	0.35
LB 9970.00	9978.00	16.29	4.52	8.04	0.12	0.57	3.60
9978.00	9986.00	70.80	10.92	8.04	0.53	1.37	6.48
9986.00	9994.00	176.80	19.08	8.22	1.33	2.39	9.26
9994.00	10002.00	495.38	36.04	8.59	3.72	4.51	13.74
10002.00	RB 10010.00	128.24	16.09	8.69	0.96	2.12	7.97
10010.00	10684.00	5074.47	1559.72	668.22	38.06	2.33	3.25
10684.00	11358.00	2705.10	1048.80	636.58	20.29	1.65	2.58
11358.00	12706.00						
12706.00	13380.00	136.99	117.95	236.89	1.03	0.50	1.16
13380.00	14054.00	582.92	398.72	567.09	4.37	0.70	1.46
14054.00	14728.00	1334.94	541.67	351.99	10.01	1.54	2.46

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.753

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5564.74	1460	5713.27	1458.29	5768.23	1458	5778.22	1456.35	5792.96	1458
6059.02	1460	6405	1459	6710	1460.4	7060	1462	7460	1459.3
7820	1456	7855	1455.7	7885	1456	8065	1456	8085	1455
8105	1454	8125	1456	8375	1457	8590	1457.6	8775	1456.5
9240	1458	9285	1458.6	9375	1458	9480	1457.2	9960	1458
9985	1458	10000	1451.8	10010	1456	10020	1457.7	10050	1456
10070	1456.7	10290	1456	10390	1455.5	10580	1454	10750	1455
10970	1456	11320	1456	11360	1457.6	11435	1458	11530	1457.5
11600	1458	11630	1458.6	11660	1458	11680	1457.6	11705	1458
12340	1458.6	12780	1458.2	12960	1458.4	13245	1458	13380	1457
13485	1456	13895	1456	14440	1455.1	14605	1456	14945	1456.7
15080	1456.8	15215	1457	15355	1457.7	15460	1458	15700	1458
15810	1457	16095	1457.1	16400	1458	16480	1459	16545	1460

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5564.74	.05	9985	.015	10020	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985	10020	500	461.9	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
14730	16545	1460

Blocked Obstructions num= 1

Sta L	Sta R	Elev
15500	16545	1459

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1457.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1456.98	Reach Len. (ft)	500.00	461.90	500.00
Crit W.S. (ft)	1456.98	Flow Area (sq ft)	599.57	66.10	3383.78
E.G. Slope (ft/ft)	0.008531	Area (sq ft)	599.57	66.10	3533.77
Q Total (cfs)	13333.00	Flow (cfs)	1368.19	1018.14	10946.67
Top Width (ft)	4056.16	Top Width (ft)	896.28	28.30	3131.58
Vel Total (ft/s)	3.29	Avg. Vel. (ft/s)	2.28	15.40	3.24
Max Chl Dpth (ft)	5.18	Hydr. Depth (ft)	0.67	2.34	1.27
Conv. Total (cfs)	144352.8	Conv. (cfs)	14813.1	11023.1	118516.7
Length Wtd. (ft)		Wetted Per. (ft)	896.53	30.26	2659.84
Min Ch El (ft)	1451.80	Shear (lb/sq ft)	0.36	1.16	0.68
Alpha	2.51	Stream Power (lb/ft s)	0.81	17.92	2.19
Frctn Loss (ft)		Cum Volume (acre-ft)	4864.82	979.04	409.82
C & E Loss (ft)		Cum SA (acres)	3956.98	219.38	376.82

Warning: The energy equation could not be balanced within the specified number of iterations. The

program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5564.74	6006.77	3.39	2.98	9.54	0.03	0.32	1.14
6006.77	7332.84						
7332.84	7774.87	18.70	17.52	61.83	0.14	0.28	1.07
7774.87	8216.90	1240.58	476.92	442.18	9.30	1.08	2.60
8216.90	8658.92	52.79	46.96	153.22	0.40	0.31	1.12
8658.92	9100.95	52.75	55.19	229.76	0.40	0.24	0.96
9100.95	9985.00						
LB 9985.00	9992.00	29.50	4.25	4.91	0.22	0.94	6.94
9992.00	9999.00	375.21	23.24	7.57	2.81	3.32	16.14
9999.00	10006.00	526.24	28.50	7.59	3.95	4.07	18.47
10006.00	10013.00	85.30	9.46	7.38	0.64	1.35	9.02
10013.00	RB 10020.00	1.88	0.65	2.81	0.01	0.24	2.89
10020.00	10672.50	3371.56	957.17	639.85	25.29	1.50	3.52
10672.50	11325.00	2700.52	844.42	652.51	20.25	1.29	3.20
11325.00	11977.50	10.95	7.61	19.53	0.08	0.39	1.44
11977.50	13282.50						
13282.50	13935.00	1229.87	493.00	552.95	9.22	0.89	2.49
13935.00	14587.50	3327.48	957.10	652.50	24.96	1.47	3.48
14587.50	15240.00	306.29	124.47	142.50	2.30	0.87	2.46

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.665

INPUT
Description:
Station Elevation Data num= 78

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5568.4	1459.7	5670	1458	5883.57	1454.79	6155	1456.6	6585	1456.2
6775	1458	6825	1458.4	6865	1458	6995	1457.3	7180	1457
7505	1456.6	7745	1456	7770	1455	7795	1454	8130	1452
8140	1450.5	8155	1452	8215	1452.9	8255	1454	8315	1454.3
8370	1454	8595	1454	8705	1453.1	8805	1454	8880	1454.3
8950	1454	9430	1453.6	9640	1453.8	9730	1454.7	9965	1454
9970	1453	9980	1452	9990	1450	10000	1449.2	10010	1450
10015	1452	10020	1452.4	10025	1452	10055	1452.4	10305	1452
10580	1453.8	10745	1452	11030	1451.4	11255	1452.4	11510	1454.2
11805	1455.6	12110	1455.7	12390	1455.4	12600	1454.7	12710	1454.2
12880	1457	12975	1455	13095	1456.5	13240	1455	13410	1454
13610	1452.7	13750	1452	14380	1452	14390	1451.6	14405	1452
14660	1453.8	14805	1454.1	14860	1453.5	14910	1453.6	14950	1453.1
15050	1454	15120	1454	15160	1454	15195	1453.5	15260	1454.1
15385	1453.2	15490	1453.4	15565	1452.8	15680	1453.6	15870	1453.7
16035	1454	16355	1455	16635	1457.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5568.4	.05	9980	.015	10015	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980	10015	480	477.33	480	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
15150	16635	1456

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1454.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.50	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1454.02	Reach Len. (ft)	480.00	477.33	480.00
Crit W.S. (ft)	1454.02	Flow Area (sq ft)	829.28	133.80	4458.94
E.G. Slope (ft/ft)	0.003465	Area (sq ft)	829.28	133.80	4869.84
Q Total (cfs)	13333.00	Flow (cfs)	1227.61	1884.33	10221.07
Top Width (ft)	5728.28	Top Width (ft)	1650.46	35.00	4042.83
Vel Total (ft/s)	2.46	Avg. Vel. (ft/s)	1.48	14.08	2.29
Max Chl Dpth (ft)	4.82	Hydr. Depth (ft)	0.50	3.82	1.41
Conv. Total (cfs)	226520.0	Conv. (cfs)	20856.4	32013.6	173650.0
Length Wtd. (ft)	479.70	Wetted Per. (ft)	1650.83	35.65	3169.62
Min Ch El (ft)	1449.20	Shear (lb/sq ft)	0.11	0.81	0.30
Alpha	5.33	Stream Power (lb/ft s)	0.16	11.43	0.70
Frctn Loss (ft)	1.71	Cum Volume (acre-ft)	4856.62	977.98	361.59
C & E Loss (ft)	0.06	Cum SA (acres)	3942.37	219.05	335.64

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7774.20	8215.36	987.96	506.80	421.13	7.41	1.20	1.95
8215.36	8656.52	20.09	44.67	334.97	0.15	0.13	0.45
8656.52	9097.68	74.88	95.03	307.26	0.56	0.31	0.79
9097.68	9538.84	105.55	134.94	441.16	0.79	0.31	0.78
9538.84	9980.00	39.13	47.84	146.31	0.29	0.33	0.82
LB 9980.00	9987.00	209.31	19.06	7.14	1.57	2.72	10.98
9987.00	9994.00	397.46	27.90	7.07	2.98	3.99	14.25
9994.00	10001.00	509.20	32.28	7.02	3.82	4.61	15.77
10001.00	10008.00	482.15	31.24	7.02	3.62	4.46	15.43
10008.00	RB 10015.00	286.22	23.32	7.39	2.15	3.33	12.27
10015.00	10677.00	1870.67	910.40	662.05	14.03	1.38	2.05
10677.00	11339.00	3667.43	1363.46	662.01	27.51	2.06	2.69
11339.00	12001.00	80.23	75.15	145.93	0.60	0.52	1.07
12001.00	13325.00						
13325.00	13987.00	1814.30	848.29	580.91	13.61	1.46	2.14
13987.00	14649.00	2697.83	1134.06	662.02	20.23	1.71	2.38
14649.00	15311.00	90.59	127.58	456.71	0.68	0.28	0.71

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.575

INPUT
Description:
Station Elevation Data num= 82

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4814.46	1458	5330	1456.5	5870	1455.4	6195	1454	6255	1453.6
6290	1453	6310	1454	6615	1454	6625	1453.8	6635	1454
6720	1454.9	7370	1455.4	7530	1453.5	7700	1454	7780	1454.9
7920	1454	7965	1453	8010	1452	8030	1451	8050	1450
8058	1449	8066	1448	8074	1448	8082	1449	8090	1450

8120	1450	8125	1448.8	8130	1450	8150	1450	8157	1448
8163	1448	8170	1450	8260	1451.8	8510	1450.8	8800	1451.5
9350	1451.5	9590	1451	9715	1450	9940	1450	9960	1451.4
9980	1450	10000	1446	10005	1450	10040	1450	10045	1448.9
10050	1450	10220	1449.6	10270	1450.4	10365	1449.6	10475	1450.2
10845	1450	11035	1449.1	11120	1450	11195	1451.3	11270	1450
11320	1449.9	11320	1450	11595	1451.7	11765	1451.6	11895	1452
12155	1453.2	12345	1452.6	12645	1452	12835	1452.6	12920	1452
13085	1453.1	13525	1454	13670	1452	13825	1451	13940	1450
14425	1449.5	15460	1450.1	15680	1450.9	15770	1450	15850	1451
15930	1449.6	15970	1450	16090	1451.5	16220	1452	16485	1453.2
16775	1454	16850	1455.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4814.46	.05	9980	.015	10005	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980	10005	510	563.38	510	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
15170	16850	1454

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1451.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1451.47	Reach Len. (ft)	510.00	563.38	510.00
Crit W.S. (ft)	1451.28	Flow Area (sq ft)	1016.11	86.73	4417.84
E.G. Slope (ft/ft)	0.003680	Area (sq ft)	1016.11	86.73	5468.57
Q Total (cfs)	13333.00	Flow (cfs)	1786.52	1140.34	10406.14
Top Width (ft)	5195.78	Top Width (ft)	1282.78	25.00	3888.00
Vel Total (ft/s)	2.42	Avg. Vel. (ft/s)	1.76	13.15	2.36
Max Chl Dpth (ft)	5.47	Hydr. Depth (ft)	0.79	3.47	1.49
Conv. Total (cfs)	219802.8	Conv. (cfs)	29451.9	18799.2	171551.8
Length Wtd. (ft)	513.99	Wetted Per. (ft)	1284.03	26.80	2970.84
Min Ch El (ft)	1446.00	Shear (lb/sq ft)	0.18	0.74	0.34
Alpha	3.35	Stream Power (lb/ft s)	0.32	9.77	0.80
Frctn Loss (ft)	2.66	Cum Volume (acre-ft)	4846.45	976.77	304.63
C & E Loss (ft)	0.01	Cum SA (acres)	3926.21	218.72	291.95

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7913.78	8430.34	683.32	347.26	311.66	5.13	1.12	1.97
8430.34	8946.89	126.76	133.43	356.97	0.95	0.37	0.95
8946.89	9463.45	4.08	10.15	98.74	0.03	0.10	0.40
9463.45	9980.00	972.34	525.27	516.66	7.29	1.02	1.85
LB 9980.00	9985.00	87.16	9.85	5.10	0.65	1.97	8.85
9985.00	9990.00	172.80	14.85	5.10	1.30	2.97	11.64
9990.00	9995.00	280.31	19.85	5.10	2.10	3.97	14.12
9995.00	10000.00	407.64	24.85	5.10	3.06	4.97	16.41
10000.00	RB 10005.00	192.42	17.35	6.40	1.44	3.47	11.09
10005.00	10689.50	2365.19	1025.83	684.75	17.74	1.50	2.31
10689.50	11374.00	2339.20	1018.98	684.63	17.54	1.49	2.30
11374.00	12058.50	125.93	104.29	183.70	0.94	0.57	1.21
12058.50	13427.50						
13427.50	14112.00	745.11	396.53	359.76	5.59	1.10	1.88
14112.00	14796.50	3321.85	1257.54	684.50	24.91	1.84	2.64
14796.50	15481.00	1508.89	614.69	373.50	11.32	1.65	2.45

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.468

INPUT
Description:
Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4226.41	1454	4690	1454	5220	1454	5230	1453	5240	1452
5245	1451.5	5250	1452	5360	1454	5400	1454.3	5450	1454
5680	1453.3	6100	1452	6130	1451	6170	1452	6220	1452.1
6250	1452	6260	1451	6280	1450	6285	1449.7	6290	1450
6390	1452	6420	1452.3	6445	1452	6465	1450.7	6725	1452
7020	1451.4	7255	1453.5	7470	1453	7560	1451.1	7990	1451
8225	1450	8305	1448	8315	1446.9	8325	1448	8675	1448.9
8955	1447.9	9135	1448.3	9240	1447.4	9420	1448.5	9790	1446.9
9970	1448	9975	1447.3	9980	1448	9985	1449	9995	1446
10000	1443	10010	1450	10020	1449	10025	1448	10030	1448
10035	1448	10040	1447	10045	1446	10050	1445.6	10055	1446
10070	1448	10180	1448	10545	1446	10580	1445	10610	1446
10955	1446.8	11205	1446.9	11670	1449	12050	1449.3	12450	1449.2
12520	1450.1	12690	1449.2	12885	1447.9	12960	1448.4	13935	1449.3
14320	1450	14690	1450.5	15210	1448.2	15730	1447.8	16150	1448.5
16545	1449.2	16800	1450	16920	1450.7	17025	1449.9	17135	1450.9
17315	1452	17355	1452	17362	1453	17370	1454	17395	1454.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4226.41	.05	9985	.015	10010	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985	10010	500	500.95	490	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
14000	17395	1452

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1449.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1448.72	Reach Len. (ft)	500.00	500.95	490.00
Crit W.S. (ft)	1448.64	Flow Area (sq ft)	1183.98	56.71	2771.86
E.G. Slope (ft/ft)	0.007851	Area (sq ft)	1183.98	56.71	3425.24
Q Total (cfs)	13333.00	Flow (cfs)	2644.60	853.73	9834.67
Top Width (ft)	4910.50	Top Width (ft)	1584.18	22.22	3304.10
Vel Total (ft/s)	3.32	Avg. Vel. (ft/s)	2.23	15.05	3.55
Max Chl Dpth (ft)	5.72	Hydr. Depth (ft)	0.75	2.55	1.30
Conv. Total (cfs)	150477.9	Conv. (cfs)	29847.3	9635.3	110995.3
Length Wtd. (ft)	493.84	Wetted Per. (ft)	1584.49	25.25	2125.97
Min Ch El (ft)	1443.00	Shear (lb/sq ft)	0.37	1.10	0.64
Alpha	2.24	Stream Power (lb/ft s)	0.82	16.57	2.27
Frctn Loss (ft)	2.49	Cum Volume (acre-ft)	4833.57	975.84	252.56
C & E Loss (ft)	0.03	Cum SA (acres)	3909.42	218.41	249.84

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8257.42	8833.28	196.94	155.63	434.01	1.48	0.36	1.27
8833.28	9409.14	819.17	409.88	575.87	6.14	0.71	2.00
9409.14	9985.00	1628.51	618.48	574.61	12.21	1.08	2.63
LB 9985.00	9990.00	12.97	2.46	4.23	0.10	0.61	5.26
9990.00	9995.00	113.10	9.83	5.22	0.85	1.97	11.51
9995.00	10000.00	374.64	21.08	5.83	2.81	4.22	17.77
10000.00	10005.00	328.21	19.83	6.10	2.46	3.97	16.55
10005.00	RB 10010.00	24.81	3.51	3.86	0.19	1.11	7.07
10010.00	10748.50	5155.86	1348.61	727.55	38.67	1.85	3.82
10748.50	11487.00	4462.96	1244.16	738.50	33.47	1.68	3.59
11487.00	12225.50	34.59	32.58	120.13	0.26	0.27	1.06
12225.50	12964.00	142.42	93.66	201.42	1.07	0.46	1.52

12964.00	13702.50	38.83	52.85	338.37	0.29	0.16	0.73

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.373

INPUT
Description:
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4359.5	1452.4	4630	1452.5	4915	1451.6	5285	1451.5	5505	1450.3
5625	1450	5635	1448.5	5645	1450	5785	1450.4	5920	1449.8
6030	1450	6275	1448.4	6350	1448	6360	1446.6	6370	1448
6485	1449.4	6595	1448	6605	1447.9	6615	1448	6690	1449.3
7000	1449.1	7220	1448.7	7390	1448.6	7715	1448.7	7880	1448
8050	1447.5	8180	1448.4	8375	1447.7	8475	1445.8	8530	1446
8545	1445	8555	1446	8625	1446.4	8860	1445.3	9015	1444
9030	1443.2	9040	1444	9290	1445.4	9525	1444.5	9680	1444
9780	1443.4	9940	1444	9975	1445.1	9980	1444	9985	1442
9995	1440	10000	1439.8	10005	1440	10010	1442	10020	1444
10030	1444.7	10045	1444	10055	1443	10065	1444	10470	1443.3
10825	1443.4	11010	1444.5	11355	1445.5	11450	1446.6	11820	1446
11990	1445.8	12120	1446	12445	1446.4	12480	1446	12515	1446
12535	1444	12555	1444	12675	1445.1	12810	1445.8	12880	1446.2
12980	1445.6	13040	1446.5	13115	1445	13145	1446	13165	1446
13345	1447.5	13395	1446	13405	1444	13410	1442	13415	1440
13465	1430	13530	1428	13555	1428	13640	1430	13755	1440
13765	1444	13875	1446	13915	1447	13970	1446	13975	1445.4
13980	1446	13985	1448	14065	1444.9	14195	1446.3	14375	1443.8
14470	1445.1	14685	1444.8	14855	1443.3	15030	1444.6	15130	1444
15400	1444	16130	1446						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4359.5	.05	9975	.015	10030	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9975	10030	530	518.74	519	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
12480	16130	1450

Blocked Obstructions num= 1

Sta L	Sta R	Elev
13395	13915	1444

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1446.57	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.67	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1445.90	Reach Len. (ft)	530.00	518.74	519.00
Crit W.S. (ft)	1445.90	Flow Area (sq ft)	1699.26	199.23	2572.86
E.G. Slope (ft/ft)	0.003545	Area (sq ft)	1699.26	199.23	6236.46
Q Total (cfs)	13333.00	Flow (cfs)	3671.55	2728.24	6933.21
Top Width (ft)	5786.01	Top Width (ft)	1298.24	55.00	4432.77
Vel Total (ft/s)	2.98	Avg. Vel. (ft/s)	2.16	13.69	2.69
Max Chl Dpth (ft)	6.10	Hydr. Depth (ft)	1.31	3.62	1.71
Conv. Total (cfs)	223929.8	Conv. (cfs)	61664.3	45821.2	116444.3
Length Wtd. (ft)		Wetted Per. (ft)	1298.40	56.32	1509.09
Min Ch El (ft)	1439.80	Shear (lb/sq ft)	0.29	0.78	0.38
Alpha	4.88	Stream Power (lb/ft s)	0.63	10.72	1.02
Frctn Loss (ft)		Cum Volume (acre-ft)	4817.02	974.37	198.22
C & E Loss (ft)		Cum SA (acres)	3892.88	217.97	206.33

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8290.35	8851.90	30.63	45.44	175.21	0.23	0.26	0.67
8851.90	9413.45	1177.25	646.66	561.61	8.83	1.15	1.82
9413.45	9975.00	2463.67	1007.15	561.57	18.48	1.79	2.45
LB 9975.00	9986.00	225.53	25.25	11.52	1.69	2.30	8.93
9986.00	9997.00	891.01	56.88	11.18	6.68	5.17	15.67
9997.00	10008.00	1081.42	64.02	11.24	8.11	5.82	16.89
10008.00	10019.00	404.34	35.60	11.33	3.03	3.24	11.36
10019.00	RB 10030.00	125.93	17.50	11.04	0.94	1.59	7.20
10030.00	10640.00	4201.95	1420.21	610.12	31.52	2.33	2.96
10640.00	11250.00	2664.05	1080.37	610.00	19.98	1.77	2.47
11250.00	11860.00	65.53	64.84	139.52	0.49	0.46	1.01
11860.00	12470.00	1.70	7.44	149.45	0.01	0.05	0.23

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.275

INPUT
Description:
Station Elevation Data num= 93

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5390.3	1446.9	5575	1446	5725	1445.4	6030	1444.9	6145	1445.3
6215	1444	6220	1443.9	6225	1444	6245	1444.3	6275	1444
6285	1443.8	6295	1444	6420	1444	6490	1443.8	6535	1444
6685	1444.7	6815	1444	6895	1443.6	6970	1444	6995	1443.4
7015	1444	7060	1444.2	7100	1444	7150	1444	7195	1444.8
7235	1444	7270	1443.7	7320	1443.5	7400	1443.5	7525	1443.4
7580	1443.1	7670	1443.6	7750	1443.5	7785	1443.9	7885	1444
8005	1443.2	8055	1443.4	8130	1443.2	8190	1443.2	8310	1444
8360	1444.1	8430	1444	8540	1443.1	8620	1443.9	8820	1443.4
8860	1442	8870	1440	8890	1439.8	8950	1439.5	9010	1440
9030	1442	9135	1442.4	9210	1443	9300	1443	9400	1443.5
9630	1442	9780	1441.5	9990	1440	9995	1438	10000	1436.9
10005	1438	10010	1440	10130	1441.2	10250	1440.6	10375	1439.6
10435	1439.9	10580	1440.9	10670	1440	10690	1441.6	10725	1440
10965	1441.2	11015	1442	11090	1442.5	11170	1442	11480	1442.8
11730	1443.1	11750	1442	11760	1442.6	11970	1443.4	12090	1442
12100	1441.4	12110	1442	12290	1443.9	12365	1444	12450	1444.5
12510	1444	12560	1443.7	12630	1444	12670	1444.3	12790	1444
13040	1442	13065	1444	13080	1444.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5390.3	.05	9990	.015	10010	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9990	10010	630	472.49	490	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
11730	13080	1446

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1443.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.74	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1443.07	Reach Len. (ft)	630.00	472.49	490.00
Crit W.S. (ft)	1443.07	Flow Area (sq ft)	1444.20	96.88	2904.99
E.G. Slope (ft/ft)	0.004238	Area (sq ft)	1444.20	96.88	3161.04
Q Total (cfs)	13333.00	Flow (cfs)	3551.36	1730.91	8050.73
Top Width (ft)	3235.04	Top Width (ft)	1008.29	20.00	2206.75
Vel Total (ft/s)	3.00	Avg. Vel. (ft/s)	2.46	17.87	2.77
Max Chl Dpth (ft)	6.17	Hydr. Depth (ft)	1.43	4.84	1.71
Conv. Total (cfs)	204809.1	Conv. (cfs)	54552.6	26588.7	123667.8
Length Wtd. (ft)	525.95	Wetted Per. (ft)	1008.62	21.01	1694.39
Min Ch El (ft)	1436.90	Shear (lb/sq ft)	0.38	1.22	0.45
Alpha	5.30	Stream Power (lb/ft s)	0.93	21.80	1.26

Frctn Loss (ft)	1.86	Cum Volume (acre-ft)	4797.90	972.61	142.24
C & E Loss (ft)	0.07	Cum SA (acres)	3878.85	217.52	166.78

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8610.09	9070.06	1736.75	585.84	240.93	13.03	2.43	2.96
9070.06	9530.03	76.46	99.20	307.72	0.57	0.32	0.77
9530.03	9990.00	1738.15	759.16	459.98	13.04	1.65	2.29
LB 9990.00	9994.00	229.34	15.48	4.31	1.72	3.87	14.82
9994.00	9998.00	393.18	21.07	4.15	2.95	5.27	18.66
9998.00	10002.00	485.88	23.80	4.10	3.64	5.95	20.42
10002.00	10006.00	393.18	21.07	4.15	2.95	5.27	18.66
10006.00	RB 10010.00	229.34	15.48	4.31	1.72	3.87	14.82
10010.00	10317.00	2135.81	739.98	307.01	16.02	2.41	2.89
10317.00	10624.00	2845.83	879.03	307.01	21.34	2.86	3.24
10624.00	10931.00	2339.04	781.55	307.11	17.54	2.55	2.99
10931.00	11238.00	566.08	333.59	307.01	4.25	1.09	1.70
11238.00	11545.00	158.86	155.63	307.00	1.19	0.51	1.02
11545.00	11852.00	5.10	15.21	159.26	0.04	0.10	0.34

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.185

INPUT
Description:
Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4450.53	1444.6	4615	1444	4745	1443.7	4920	1443.2	5400	1443
5850	1442	6340	1441.6	6900	1440	6915	1439.2	6930	1440
6970	1440.2	7140	1439.3	7195	1440.2	7275	1439.8	7335	1440
7415	1441.4	7485	1440	7510	1439.5	7740	1439.2	8095	1439.2
8545	1438.8	9140	1438	9160	1436.3	9180	1438	9225	1438
9245	1437.4	9260	1438	9390	1439.2	9725	1438	9855	1439.8
9945	1438	9990	1438	9995	1436	10000	1434	10020	1436
10025	1438	10035	1439.1	10070	1438	10245	1436	10385	1436
10585	1437.3	10930	1438	11055	1438.4	11065	1438	11285	1439.7
11590	1438.6	11700	1440	11880	1440.9	12065	1440.2	12110	1440
12210	1439.5	12260	1439.6	12310	1439.4	12325	1440	12345	1441.7

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4450.53	.05	9990	.015	10025	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9990	10025	675	516.84	450	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
11055	12345	1442

Blocked Obstructions num= 1

Sta L	Sta R	Elev
11055	12345	1439

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1440.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1439.70	Reach Len. (ft)	675.00	516.84	450.00
Crit W.S. (ft)	1439.70	Flow Area (sq ft)	2392.16	144.59	2549.70
E.G. Slope (ft/ft)	0.003006	Area (sq ft)	2392.16	144.59	2890.48
Q Total (cfs)	13333.00	Flow (cfs)	3759.45	1974.91	7598.65
Top Width (ft)	4432.46	Top Width (ft)	2597.73	35.00	1799.73
Vel Total (ft/s)	2.62	Avg. Vel. (ft/s)	1.57	13.66	2.98
Max Chl Dpth (ft)	5.70	Hydr. Depth (ft)	0.92	4.13	2.48
Conv. Total (cfs)	243190.0	Conv. (cfs)	68571.2	36021.8	138597.1
Length Wtd. (ft)	579.94	Wetted Per. (ft)	2597.97	36.26	1030.69
Min Ch El (ft)	1434.00	Shear (lb/sq ft)	0.17	0.75	0.46
Alpha	4.86	Stream Power (lb/ft s)	0.27	10.22	1.38
Frctn Loss (ft)	1.52	Cum Volume (acre-ft)	4770.16	971.30	108.20
C & E Loss (ft)	0.01	Cum SA (acres)	3852.77	217.23	144.24

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6666.32	7220.26	13.22	25.00	119.54	0.10	0.21	0.53
7220.26	7774.21	75.76	99.34	274.35	0.57	0.36	0.76
7774.21	8328.16	303.60	302.61	553.95	2.28	0.55	1.00
8328.16	8882.11	835.49	555.48	553.95	6.27	1.00	1.50
8882.11	9436.05	1577.57	813.49	554.12	11.83	1.47	1.94
9436.05	9990.00	953.74	596.21	542.07	7.15	1.10	1.60
LB 9990.00	9997.00	230.96	21.72	7.54	1.73	3.10	10.63
9997.00	10004.00	584.30	37.32	7.25	4.38	5.33	15.66
10004.00	10011.00	527.33	34.67	7.03	3.96	4.95	15.21
10011.00	10018.00	409.06	29.77	7.03	3.07	4.25	13.74
10018.00	RB 10025.00	223.27	21.12	7.40	1.67	3.02	10.57
10025.00	10257.00	1622.46	569.26	232.09	12.17	2.45	2.85
10257.00	10489.00	3005.03	823.86	232.00	22.54	3.55	3.65
10489.00	10721.00	1619.68	568.59	232.00	12.15	2.45	2.85
10721.00	10953.00	1050.38	438.48	232.00	7.88	1.89	2.40
10953.00	11185.00	301.16	149.51	102.60	2.26	1.47	2.01

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.087

INPUT
Description:
Station Elevation Data num= 71

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

4384.06	1438.4	4550	1438	4680	1436	4710	1434.9	4730	1436
5070	1437.3	5330	1436.7	5795	1436.7	5900	1437	6360	1436
6700	1435.7	6835	1435.7	6885	1436.1	6945	1435.7	6990	1436
7035	1436.3	7045	1436	7055	1435.3	7125	1435.2	7205	1436
7340	1438	7465	1436	7550	1435.5	7635	1436	7680	1437.8
7715	1436	7790	1434	7900	1434.7	8015	1434.1	8360	1434.5
8615	1434.6	9035	1434.2	9125	1434	9140	1433.5	9155	1434
9185	1434.6	9390	1433.6	9710	1433.7	9820	1434	9830	1435
9840	1436	9880	1436	9985	1434	9990	1432	9995	1430
10000	1429.4	10005	1430	10015	1432	10180	1437.5	10350	1436.5
10450	1436	10585	1438	10730	1436	10955	1438.1	11015	1438
11055	1436	11070	1435.5	11085	1436	11110	1437	11140	1436
11155	1435.5	11160	1436	11190	1437.2	11335	1436	11365	1435.9
11465	1435.8	11515	1436	11575	1436.2	11620	1436	11645	1438
11655	1438.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4384.06	.05	9985	.015	10015	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985	10015	260	486.13	485	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4384.06	7035	1439	10585	11655	1439

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4384.06	7035	1438

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1436.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.61	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1436.28	Reach Len. (ft)	260.00	486.13	485.00
Crit W.S. (ft)	1436.28	Flow Area (sq ft)	4729.32	161.42	285.37
E.G. Slope (ft/ft)	0.002313	Area (sq ft)	4729.32	161.42	419.09
Q Total (cfs)	13333.00	Flow (cfs)	10368.59	2308.21	656.20
Top Width (ft)	3342.59	Top Width (ft)	2658.28	30.00	654.30
Vel Total (ft/s)	2.58	Avg. Vel. (ft/s)	2.19	14.30	2.30
Max Chl Dpth (ft)	6.88	Hydr. Depth (ft)	1.78	5.38	1.40
Conv. Total (cfs)	277235.4	Conv. (cfs)	215595.8	47995.1	13644.5
Length Wtd. (ft)	301.19	Wetted Per. (ft)	2658.51	31.04	203.53
Min Ch El (ft)	1429.40	Shear (lb/sq ft)	0.26	0.75	0.20
Alpha	5.94	Stream Power (lb/ft s)	0.56	10.74	0.47
Frctn Loss (ft)	0.86	Cum Volume (acre-ft)	4714.98	969.48	91.11
C & E Loss (ft)	0.03	Cum SA (acres)	3812.05	216.84	131.57

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6624.44	7184.53	160.47	126.36	148.91	1.20	0.85	1.27
7184.53	7744.62	106.10	124.90	269.06	0.80	0.46	0.85
7744.62	8304.72	2399.00	1087.73	560.11	17.99	1.94	2.21
8304.72	8864.81	2054.22	991.02	560.09	15.41	1.77	2.07
8864.81	9424.91	2874.01	1212.26	560.12	21.56	2.16	2.37
9424.91	9985.00	2774.78	1187.05	560.21	20.81	2.12	2.34
LB 9985.00	9991.00	211.35	20.88	6.46	1.59	3.48	10.12
9991.00	9997.00	500.46	34.72	6.32	3.75	5.79	14.41
9997.00	10003.00	658.45	40.20	6.04	4.94	6.70	16.38
10003.00	10009.00	552.91	36.32	6.09	4.15	6.05	15.22
10009.00	RB 10015.00	385.04	29.28	6.12	2.89	4.88	13.15
10015.00	10179.00	652.14	274.84	128.49	4.89	2.14	2.37

10179.00	10343.00						
10343.00	10507.00	4.06	10.52	75.04	0.03	0.14	0.39

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 15.995

INPUT
Description:
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4469.64	1435.4	5200	1435.2	5625	1435.5	6055	1435	6215	1434.6
6605	1434.6	6870	1434.8	6900	1435.2	6910	1434.3	6965	1435.2
7350	1434.6	7405	1433.7	7485	1434.9	7640	1432.9	8030	1433.1
8325	1433.3	8495	1432.8	8945	1431.5	9075	1431.4	9275	1431
9435	1432	9545	1432	9600	1431.4	9840	1432	9845	1431.7
9850	1432	9975	1434	9980	1435.1	9990	1430	10000	1428.5
10010	1430	10015	1432	10025	1435.1	10040	1432	10065	1438
10070	1439	10080	1438	10110	1434	10160	1434	10340	1435
10390	1435	10535	1435	10560	1434.1	10580	1435	10615	1434
10625	1433.5	10630	1434	10650	1435	10790	1434	10865	1433.8
10915	1434	11010	1436	11030	1438.4				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4469.64	.05	9975	.015	10015	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9975	10015	260	436.69	435	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10080	11030	1439

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1434.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1434.15	Reach Len. (ft)	260.00	436.69	435.00
Crit W.S. (ft)	1434.15	Flow Area (sq ft)	4373.28	130.59	28.20
E.G. Slope (ft/ft)	0.003570	Area (sq ft)	4373.28	130.59	77.13
Q Total (cfs)	13333.00	Flow (cfs)	11436.84	1844.70	51.46
Top Width (ft)	2804.53	Top Width (ft)	2488.81	33.80	281.93
Vel Total (ft/s)	2.94	Avg. Vel. (ft/s)	2.62	14.13	1.83
Max Chl Dpth (ft)	5.65	Hydr. Depth (ft)	1.76	3.86	1.07
Conv. Total (cfs)	223143.0	Conv. (cfs)	191408.6	30873.1	861.2
Length Wtd. (ft)		Wetted Per. (ft)	2488.86	35.42	27.06
Min Ch El (ft)	1428.50	Shear (lb/sq ft)	0.39	0.82	0.23
Alpha	3.87	Stream Power (lb/ft s)	1.02	11.61	0.42
Frctn Loss (ft)		Cum Volume (acre-ft)	4687.82	967.85	88.34
C & E Loss (ft)		Cum SA (acres)	3796.69	216.48	126.35

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7222.32	7772.86	338.85	234.23	286.68	2.54	0.82	1.45
7772.86	8323.39	949.60	564.31	550.54	7.12	1.03	1.68

8323.39	8873.93	2089.51	905.77	550.54	15.67	1.65	2.31
8873.93	9424.46	4959.85	1521.51	550.54	37.20	2.76	3.26
9424.46	9975.00	3099.03	1147.46	550.57	23.24	2.08	2.70
LB 9975.00	9983.00	0.68	0.38	1.96	0.01	0.21	1.82
9983.00	9991.00	199.99	20.76	8.87	1.50	2.59	9.63
9991.00	9999.00	612.90	39.18	8.09	4.60	4.90	15.64
9999.00	10007.00	672.68	41.43	8.09	5.05	5.18	16.24
10007.00	RB 10015.00	358.44	28.85	8.42	2.69	3.61	12.42
10015.00	10116.50	51.46	28.20	27.06	0.39	1.07	1.83

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 15.913

INPUT
Description: Most downstream cross section containing the Powerline Floodway.

The hydraulic baseline makes a 90 degree turn to the south downstream of this cross section.

Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4019.39	1436.5	4070	1434	4525	1434	4600	1433.9	4645	1434
4840	1432.5	5070	1433.3	5260	1434	5560	1434.3	5760	1434.3
5910	1434	6330	1434.3	6800	1434.3	6825	1434.3	6860	1434
6890	1433.2	6900	1433.9	7215	1433	7330	1433	7435	1432
7490	1431.3	7575	1431.1	7685	1430	7785	1430.5	7935	1431.6
8340	1430	8800	1430.4	9130	1430	9310	1430	9320	1428.9
9330	1430	9460	1431	9890	1432	9990	1430	10000	1427
10010	1430	10025.21	1432	10035	1434	10070	1439.3	10100	1434
10210	1432.5	10250	1433	10360	1434	10390	1438.8		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4019.39	.05	9890	.015	10025.21	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9890	10025.21	280	1031.89	1240	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10070	10390	1440

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4019.39	6810	1436

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1432.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.40	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1432.13	Reach Len. (ft)	280.00	1031.89	1240.00
Crit W.S. (ft)	1431.89	Flow Area (sq ft)	3607.27	202.46	0.04
E.G. Slope (ft/ft)	0.006596	Area (sq ft)	3607.27	202.46	0.04
Q Total (cfs)	13333.00	Flow (cfs)	11211.84	2121.14	0.02
Top Width (ft)	2604.23	Top Width (ft)	2468.39	135.21	0.62
Vel Total (ft/s)	3.50	Avg. Vel. (ft/s)	3.11	10.48	0.38
Max Chl Dpth (ft)	5.13	Hydr. Depth (ft)	1.46	1.50	0.06
Conv. Total (cfs)	164164.8	Conv. (cfs)	138047.7	26116.9	0.2
Length Wtd. (ft)	496.32	Wetted Per. (ft)	2468.54	136.24	0.64
Min Ch El (ft)	1427.00	Shear (lb/sq ft)	0.60	0.61	0.03
Alpha	2.09	Stream Power (lb/ft s)	1.87	6.41	0.01
Frctn Loss (ft)	1.79	Cum Volume (acre-ft)	4664.00	966.18	87.96
C & E Loss (ft)	0.08	Cum SA (acres)	3781.89	215.64	124.94

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6954.70	7541.76	119.97	73.10	120.16	0.90	0.61	1.64
7541.76	8128.82	1939.50	732.25	587.07	14.55	1.25	2.65
8128.82	8715.88	3818.67	1099.48	587.06	28.64	1.87	3.47
8715.88	9302.94	4130.06	1152.43	587.06	30.98	1.96	3.58
9302.94	9890.00	1203.61	550.01	587.19	9.03	0.94	2.19
LB 9890.00	9917.04	40.94	10.76	27.05	0.31	0.40	3.80
9917.04	9944.08	171.11	25.39	27.05	1.28	0.94	6.74
9944.08	9971.13	365.24	40.01	27.05	2.74	1.48	9.13
9971.13	9998.17	791.57	63.98	27.41	5.94	2.37	12.37
9998.17	RB 10025.21	752.31	62.32	27.69	5.64	2.30	12.07
10025.21	10061.69	0.02	0.04	0.64	0.00	0.06	0.38

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 15.717

INPUT
Description:
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4681.97	1436.3	4860	1434	4870	1432.6	4880	1434	4985	1434.4
5050	1434	5070	1433.9	5090	1434	5155	1434.2	5260	1434
5340	1433.2	5460	1432	5505	1431.7	5615	1431	5630	1432
6450	1432.8	6750	1432	7220	1431	7540	1432	7740	1431.3
7750	1432.1	7870	1431.6	8065	1430	8485	1429	8620	1428
8630	1426.7	8650	1428	8855	1429.3	9250	1428	9265	1427.7
9280	1428	9425	1427.9	9750	1428.1	9805	1426.7	9865	1428
9910	1427.1	9955	1426	9965	1425	9975	1424	9980	1423
9990	1422	10000	1421.9	10010	1422	10030	1424	10040	1426
10110	1427	10190	1428	10250	1434	10275	1435		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4681.97	.05	9865	.05	10190	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9865	10190	430	996.46	996	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4681.97	7540	1434

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1430.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1430.52	Reach Len. (ft)	430.00	996.46	996.00
Crit W.S. (ft)		Flow Area (sq ft)	3569.62	1438.25	31.77
E.G. Slope (ft/ft)	0.002271	Area (sq ft)	3569.62	1438.25	31.77
Q Total (cfs)	13333.00	Flow (cfs)	7796.94	5483.74	52.33
Top Width (ft)	2213.67	Top Width (ft)	1863.47	325.00	25.21
Vel Total (ft/s)	2.65	Avg. Vel. (ft/s)	2.18	3.81	1.65
Max Chl Dpth (ft)	8.62	Hydr. Depth (ft)	1.92	4.43	1.26
Conv. Total (cfs)	279784.1	Conv. (cfs)	163613.5	115072.6	1098.0
Length Wtd. (ft)	718.96	Wetted Per. (ft)	1863.65	325.58	25.33
Min Ch El (ft)	1421.90	Shear (lb/sq ft)	0.27	0.63	0.18
Alpha	1.25	Stream Power (lb/ft s)	0.59	2.39	0.29
Frctn Loss (ft)	1.00	Cum Volume (acre-ft)	4640.93	946.75	87.50
C & E Loss (ft)	0.01	Cum SA (acres)	3767.97	210.19	124.58

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta	Right Sta	Flow	Area	W.P.	% Conv.	Hydr D.	Velocity

(ft)	(ft)	(cfs)	(sq ft)	(ft)		(ft)	(ft/s)
7791.79	8310.09	226.05	215.66	308.56	1.70	0.70	1.05
8310.09	8828.39	1880.92	946.27	518.44	14.11	1.83	1.99
8828.39	9346.70	2143.83	1023.44	518.31	16.08	1.97	2.09
9346.70	9865.00	3546.11	1384.23	518.33	26.60	2.67	2.56
LB 9865.00	9930.00	600.31	206.99	65.01	4.50	3.18	2.90
9930.00	9995.00	1603.96	373.84	65.26	12.03	5.75	4.29
9995.00	10060.00	1961.04	421.87	65.30	14.71	6.49	4.65
10060.00	10125.00	796.76	245.30	65.01	5.98	3.77	3.25
10125.00	RB 10190.00	521.68	190.26	65.01	3.91	2.93	2.74
10190.00	10198.50	35.26	17.81	8.54	0.26	2.10	1.98
10198.50	10207.00	14.82	10.59	8.54	0.11	1.25	1.40
10207.00	10215.50	2.25	3.37	8.25	0.02	0.41	0.67

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 15.529

INPUT
Description:
Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5751.89	1434.5	5995	1432.7	6310	1432	6435	1431.1	6605	1430
6675	1429.7	6875	1430	7085	1430	7190	1430.3	7350	1430
7480	1430.4	7585	1430	7655	1429.7	7720	1430	7800	1430.3
7885	1430	8085	1428	8135	1428.4	8185	1428	8205	1426.4
8225	1428	8325	1428.3	8445	1428	8580	1427.2	8745	1428
8830	1428.6	8930	1428	9360	1426	9380	1425.5	9410	1426
9470	1426.9	9750	1426	9920	1424	9927	1423	9935	1422
9940	1421	9945	1420	10000	1417.8	10035	1420	10055	1424
10075	1424	10105	1426	10110	1426.5	10120	1426	10200	1426
10215	1430	10235	1432	10285	1435				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5751.89	.05	9750	.05	10105	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9750	10105	490	867.21	867	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
5751.89	8370	1434

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1429.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1429.54	Reach Len. (ft)	490.00	867.21	867.00
Crit W.S. (ft)	1427.03	Flow Area (sq ft)	3248.19	2310.17	355.73
E.G. Slope (ft/ft)	0.000948	Area (sq ft)	3790.42	2310.17	355.73
Q Total (cfs)	13333.00	Flow (cfs)	5259.58	7356.13	717.29
Top Width (ft)	2281.97	Top Width (ft)	1818.71	355.00	108.26
Vel Total (ft/s)	2.25	Avg. Vel. (ft/s)	1.62	3.18	2.02
Max Chl Dpth (ft)	11.74	Hydr. Depth (ft)	2.35	6.51	3.29
Conv. Total (cfs)	432988.9	Conv. (cfs)	170804.9	238890.1	23293.9
Length Wtd. (ft)	689.52	Wetted Per. (ft)	1380.03	355.92	108.76
Min Ch El (ft)	1417.80	Shear (lb/sq ft)	0.14	0.38	0.19
Alpha	1.35	Stream Power (lb/ft s)	0.23	1.22	0.39
Frctn Loss (ft)	0.60	Cum Volume (acre-ft)	4604.60	903.88	83.07
C & E Loss (ft)	0.01	Cum SA (acres)	3749.80	202.41	123.05

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8150.76	8550.57	376.50	303.54	180.57	2.82	1.68	1.24
8550.57	8950.38	782.40	647.00	399.82	5.87	1.62	1.21
8950.38	9350.19	1682.19	1024.18	399.82	12.62	2.56	1.64
9350.19	9750.00	2418.47	1273.45	399.83	18.14	3.19	1.90
LB 9750.00	9821.00	597.73	280.79	71.00	4.48	3.95	2.13

9821.00	9892.00	822.62	340.09	71.00	6.17	4.79	2.42
9892.00	9963.00	1624.18	512.50	71.35	12.18	7.22	3.17
9963.00	10034.00	3205.96	769.62	71.10	24.05	10.84	4.17
10034.00	RB 10105.00	1105.66	407.17	71.46	8.29	5.73	2.72
10105.00	10123.00	120.39	59.92	18.04	0.90	3.33	2.01
10123.00	10141.00	133.39	63.67	18.00	1.00	3.54	2.10
10141.00	10159.00	133.39	63.67	18.00	1.00	3.54	2.10
10159.00	10177.00	133.39	63.67	18.00	1.00	3.54	2.10
10177.00	10195.00	133.39	63.67	18.00	1.00	3.54	2.10
10195.00	10213.00	63.35	41.13	18.45	0.48	2.29	1.54
10213.00	10231.00	0.00	0.01	0.27	0.00	0.04	0.09

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 15.364

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6449.56	1432.2	6520	1432	6550	1431	6570	1430	6690	1430
6785	1430	6955	1430	7015	1430.3	7090	1430	7300	1429.3
7470	1428	7690	1426	7695	1425.9	7715	1426	8155	1427
8605	1426	8635	1425.9	8665	1426	8695	1426.3	8735	1426
9170	1424.6	9815	1425.6	9950	1424	9955	1423	9960	1422
9965	1421	9970	1420	10000	1419.6	10045	1420	10055	1422
10110	1424	10120	1426	10130	1426.5	10135	1426	10150	1424
10205	1424	10255	1432	10305	1433.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6449.56	.05	9815	.05	10120	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9815	10120	350	990.02	990	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
6449.56	8910	1432

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6449.56	7015	1431

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1429.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1428.95	Reach Len. (ft)	350.00	990.02	990.00
Crit W.S. (ft)	1426.22	Flow Area (sq ft)	3503.13	1830.96	448.27
E.G. Slope (ft/ft)	0.000809	Area (sq ft)	7184.08	1830.96	448.27
Q Total (cfs)	13333.00	Flow (cfs)	7299.93	5102.59	930.48
Top Width (ft)	2889.81	Top Width (ft)	2468.88	305.00	115.92
Vel Total (ft/s)	2.31	Avg. Vel. (ft/s)	2.08	2.79	2.08
Max Chl Dpth (ft)	9.35	Hydr. Depth (ft)	3.87	6.00	3.87
Conv. Total (cfs)	468770.9	Conv. (cfs)	256656.0	179400.3	32714.6
Length Wtd. (ft)	732.33	Wetted Per. (ft)	905.00	305.84	116.48
Min Ch El (ft)	1419.60	Shear (lb/sq ft)	0.20	0.30	0.19
Alpha	1.06	Stream Power (lb/ft s)	0.41	0.84	0.40
Frctn Loss (ft)	0.68	Cum Volume (acre-ft)	4542.88	862.65	75.07
C & E Loss (ft)	0.01	Cum SA (acres)	3725.68	195.84	120.82

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8805.37	9141.91	1877.64	900.70	231.91	14.08	3.88	2.08
9141.91	9478.46	3011.97	1388.06	336.54	22.59	4.12	2.17
9478.46	9815.00	2410.30	1214.34	336.54	18.08	3.61	1.98
LB 9815.00	9876.00	434.36	226.24	61.00	3.26	3.71	1.92
9876.00	9937.00	584.46	270.34	61.00	4.38	4.43	2.16
9937.00	9998.00	1401.20	458.02	61.40	10.51	7.51	3.06
9998.00	10059.00	1832.11	537.27	61.20	13.74	8.81	3.41
10059.00	RB 10120.00	850.47	339.08	61.23	6.38	5.56	2.51
10120.00	10138.50	80.86	51.59	18.57	0.61	2.79	1.57
10138.50	10157.00	177.35	82.71	18.60	1.33	4.47	2.14
10157.00	10175.50	210.73	91.53	18.50	1.58	4.95	2.30

10175.50	10194.00	210.73	91.53	18.50	1.58	4.95	2.30
10194.00	10212.50	193.08	87.03	18.60	1.45	4.70	2.22
10212.50	10231.00	56.93	41.95	18.74	0.43	2.27	1.36
10231.00	10249.50	0.82	1.94	4.98	0.01	0.39	0.42

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 15.177

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7092.18	1429.9	7380	1428.9	7570	1428	7635	1427.9	7720	1428
7745	1427.8	7765	1428	7790	1428.5	7820	1428	7940	1428.8
8110	1428	8220	1426.7	8400	1426	8680	1425.3	9080	1425
9680	1424	9750	1423.2	9925	1422	9940	1420	10000	1419
10035	1420	10080	1422	10105	1426	10120	1426.5	10125	1426
10145	1422	10180	1422	10245	1432	10300	1433.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7092.18	.05	9680	.05	10105	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9680	10105	1120	997.61	880	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
7092.18	9315	1432

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10119.6	10300	1422.5

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1428.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1428.21	Reach Len. (ft)	1120.00	997.61	880.00
Crit W.S. (ft)	1425.06	Flow Area (sq ft)	1425.05	2669.06	446.96
E.G. Slope (ft/ft)	0.001071	Area (sq ft)	4661.13	2669.06	446.96
Q Total (cfs)	13333.00	Flow (cfs)	3436.54	8829.09	1067.37
Top Width (ft)	2447.80	Top Width (ft)	1907.44	425.00	115.35
Vel Total (ft/s)	2.94	Avg. Vel. (ft/s)	2.41	3.31	2.39
Max Chl Dpth (ft)	9.21	Hydr. Depth (ft)	3.90	6.28	3.87
Conv. Total (cfs)	407397.1	Conv. (cfs)	105005.3	269777.7	32614.1
Length Wtd. (ft)	1015.18	Wetted Per. (ft)	365.00	425.53	116.17
Min Ch El (ft)	1419.00	Shear (lb/sq ft)	0.26	0.42	0.26
Alpha	1.07	Stream Power (lb/ft s)	0.63	1.39	0.61
Frctn Loss (ft)	1.77	Cum Volume (acre-ft)	4495.29	811.52	64.90
C & E Loss (ft)	0.02	Cum SA (acres)	3708.10	187.54	118.19

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9162.44	9421.22	909.07	391.79	106.22	6.82	3.69	2.32
9421.22	9680.00	2527.46	1033.25	258.78	18.96	3.99	2.45
LB 9680.00	9765.00	1058.26	398.49	85.00	7.94	4.69	2.66
9765.00	9850.00	1340.60	459.23	85.00	10.05	5.40	2.92
9850.00	9935.00	1622.15	515.09	85.09	12.17	6.06	3.15
9935.00	10020.00	2970.01	740.33	85.06	22.28	8.71	4.01
10020.00	RB 10105.00	1838.08	555.93	85.37	13.79	6.54	3.31
10105.00	10124.50	52.24	38.08	19.53	0.39	1.95	1.37
10124.50	10144.00	174.15	78.93	19.85	1.31	4.05	2.21
10144.00	10163.50	312.56	111.31	19.50	2.34	5.71	2.81
10163.50	10183.00	312.56	111.31	19.50	2.34	5.71	2.81
10183.00	10202.50	189.44	82.81	19.73	1.42	4.25	2.29
10202.50	10222.00	26.43	24.52	18.06	0.20	1.37	1.08

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.988

INPUT
Description:
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7140.34	1433.2	7285	1432.8	7355	1432	7480	1431	7635	1430
7795	1429.1	7965	1428.1	8085	1428.8	8170	1428	8370	1428
8485	1428.5	8550	1428	8660	1426.3	8755	1426	9055	1426
9115	1425.2	9185	1424	9210	1424.2	9245	1426	9395	1424
9630	1424	9660	1424.6	9680	1424	9750	1422.7	9825	1422
9940	1420	10000	1419.3	10043	1420	10075	1422	10100	1426
10115	1426.3	10120	1426	10140	1420	10188	1420	10223	1430
10262.21	1437.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7140.34	.05	9660	.05	10100	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9660	10100	920	519.08	450	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
7140.34	9150	1430

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10115.21	0262.21	1422.5

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1426.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1426.26	Reach Len. (ft)	920.00	519.08	450.00
Crit W.S. (ft)	1424.69	Flow Area (sq ft)	943.85	2048.21	295.52
E.G. Slope (ft/ft)	0.003350	Area (sq ft)	1121.39	2048.21	295.52
Q Total (cfs)	13333.00	Flow (cfs)	2446.92	9815.38	1070.70
Top Width (ft)	1535.89	Top Width (ft)	988.41	440.00	107.48
Vel Total (ft/s)	4.06	Avg. Vel. (ft/s)	2.59	4.79	3.62
Max Chl Dpth (ft)	6.96	Hydr. Depth (ft)	1.85	4.66	2.75
Conv. Total (cfs)	230365.4	Conv. (cfs)	42277.5	169588.6	18499.3
Length Wtd. (ft)	723.90	Wetted Per. (ft)	510.07	440.43	108.53
Min Ch El (ft)	1419.30	Shear (lb/sq ft)	0.39	0.97	0.57
Alpha	1.17	Stream Power (lb/ft s)	1.00	4.66	2.06
Frctn Loss (ft)	2.41	Cum Volume (acre-ft)	4420.95	757.50	57.40
C & E Loss (ft)	0.05	Cum SA (acres)	3670.87	177.64	115.94

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8904.10	9156.07	25.09	10.41	6.07	0.19	1.72	2.41
9156.07	9408.03	811.57	372.13	252.03	6.09	1.48	2.18
9408.03	9660.00	1610.27	561.31	251.97	12.08	2.23	2.87
LB 9660.00	9748.00	751.63	236.12	88.02	5.64	2.68	3.18
9748.00	9836.00	1438.58	348.55	88.01	10.79	3.96	4.13
9836.00	9924.00	2278.83	459.35	88.01	17.09	5.22	4.96
9924.00	10012.00	3334.31	577.18	88.01	25.01	6.56	5.78
10012.00	RB 10100.00	2012.04	427.00	88.38	15.09	4.85	4.71
10100.00	10116.22	0.71	1.75	13.78	0.01	0.13	0.41
10116.22	10132.44	60.09	26.98	16.74	0.45	1.66	2.23
10132.44	10148.66	239.37	61.05	16.22	1.80	3.76	3.92
10148.66	10164.88	239.37	61.05	16.22	1.80	3.76	3.92
10164.88	10181.11	239.38	61.05	16.22	1.80	3.76	3.92

10181.11	10197.33	238.83	61.00	16.24	1.79	3.76	3.92
10197.33	10213.55	52.94	22.66	13.10	0.40	1.80	2.34

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.890

INPUT
Description: 10,000 Station is in channel at southeast corner of GM property, just north of intersection of Williams Field Road and 222nd Street.

Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7134.44	1426.7	7295	1426	7735	1425.3	7995	1424	8085	1423.1
8155	1422	8355	1421.8	8625	1422	8840	1421.9	9025	1422
9160	1422	9190	1421.8	9230	1422	9360	1422	9460	1421.8
9545	1421.7	9620	1421.6	9870	1420	9880	1419.9	9890	1420
9905	1427.2	9935	1422	9950	1420	9975	1419.3	10000	1418.1
10020	1420	10045	1422	10075	1426.1	10085	1426	10105	1422
10115	1422	10140	1430	10185	1438.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7134.44	.05	9905	.05	10075	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9905	10075	730	525.77	520	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10080	10185	1422.5

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1424.10	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1423.96	Reach Len. (ft)	730.00	525.77	520.00
Crit W.S. (ft)	1422.91	Flow Area (sq ft)	4032.22	481.49	29.29
E.G. Slope (ft/ft)	0.003304	Area (sq ft)	4032.22	481.49	29.29
Q Total (cfs)	13333.00	Flow (cfs)	11372.00	1907.29	53.71
Top Width (ft)	2061.29	Top Width (ft)	1899.63	135.70	25.96
Vel Total (ft/s)	2.93	Avg. Vel. (ft/s)	2.82	3.96	1.83
Max Chl Dpth (ft)	5.86	Hydr. Depth (ft)	2.12	3.55	1.13
Conv. Total (cfs)	231971.8	Conv. (cfs)	197853.8	33183.6	934.5
Length Wtd. (ft)	690.00	Wetted Per. (ft)	1900.56	136.34	26.33
Min Ch El (ft)	1418.10	Shear (lb/sq ft)	0.44	0.73	0.23
Alpha	1.05	Stream Power (lb/ft s)	1.23	2.89	0.42
Frctn Loss (ft)	3.12	Cum Volume (acre-ft)	4366.53	742.43	55.72
C & E Loss (ft)	0.00	Cum SA (acres)	3640.37	174.21	115.25

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7965.61	8242.66	608.97	312.26	244.05	4.57	1.28	1.95
8242.66	8519.72	1584.66	583.11	277.06	11.89	2.10	2.72
8519.72	8796.78	1459.52	555.03	277.06	10.95	2.00	2.63
8796.78	9073.83	1469.05	557.20	277.06	11.02	2.01	2.64
9073.83	9350.89	1442.18	551.07	277.06	10.82	1.99	2.62
9350.89	9627.94	1684.79	604.95	277.06	12.64	2.18	2.79
9627.94	9905.00	3122.84	868.61	271.22	23.42	3.21	3.60
LB 9905.00	9939.00	36.98	20.05	15.53	0.28	1.31	1.85
9939.00	9973.00	520.02	134.11	34.11	3.90	3.94	3.88
9973.00	10007.00	846.78	179.58	34.06	6.35	5.28	4.72
10007.00	10041.00	463.29	125.15	34.13	3.47	3.68	3.70
10041.00	RB 10075.00	40.19	22.60	18.52	0.30	1.23	1.78
10075.00	10086.00						
10086.00	10097.00	0.17	0.33	1.85	0.00	0.18	0.51
10097.00	10108.00	23.27	13.08	11.11	0.17	1.19	1.78

10108.00	10119.00	29.72	15.15	11.12	0.22	1.38	1.96
10119.00	10130.00	0.55	0.73	2.24	0.00	0.34	0.76

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.790

INPUT
Description: 10,000 Station is in channel just north of and paralleling Williams Field Road.

Confluence with Vineyard FRS Emergency Spillway flows. Q increased by 6467 cfs to include the Vineyard 2/3 flow discharge.

Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5215.53	1422.9	5475	1422	5815	1421.2	6215	1420	6375	1420.7
6505	1420	6535	1419.7	6565	1420	6845	1420.6	7305	1419.6
7460	1419.1	7660	1420	7730	1420.8	7810	1420	7900	1419.9
8540	1418	8555	1418	8580	1418.4	8600	1418	8845	1418
9025	1418	9175	1418	9400	1420	9480	1418	9495	1417.8
9625	1418.4	9690	1418	9760	1417	9840	1418	9847	1418.8
9855	1418	9895	1416.7	9960	1422	9965	1422.9	9970	1422
9980	1420	10000	1418.5	10035	1420	10040	1422	10050	1422.6
10060	1422	10067	1420.2	10075	1422	10100	1430	10115	1432

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5215.53	.05	9625	.05	10050	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9625	10050	650	523.64	525	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10049.5	10115	1424.01

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1420.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1420.81	Reach Len. (ft)	650.00	523.64	525.00
Crit W.S. (ft)	1419.87	Flow Area (sq ft)	5296.44	1032.10	
E.G. Slope (ft/ft)	0.005793	Area (sq ft)	5296.44	1032.10	1.54
Q Total (cfs)	19800.00	Flow (cfs)	15272.01	4527.99	
Top Width (ft)	4066.16	Top Width (ft)	3679.62	381.46	5.07
Vel Total (ft/s)	3.13	Avg. Vel. (ft/s)	2.88	4.39	
Max Chl Dpth (ft)	4.11	Hydr. Depth (ft)	1.44	2.71	
Conv. Total (cfs)	260151.7	Conv. (cfs)	200658.5	59493.2	
Length Wtd. (ft)	629.22	Wetted Per. (ft)	3679.69	382.07	
Min Ch El (ft)	1416.70	Shear (lb/sq ft)	0.52	0.98	
Alpha	1.10	Stream Power (lb/ft s)	1.50	4.29	
Frctn Loss (ft)	3.48	Cum Volume (acre-ft)	4288.36	733.29	55.54
C & E Loss (ft)	0.01	Cum SA (acres)	3593.62	171.09	115.07

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5656.48	6097.42	24.38	34.68	152.05	0.12	0.23	0.70
6097.42	6538.37	300.98	239.89	440.95	1.52	0.54	1.25
6538.37	6979.32	251.21	215.23	440.95	1.27	0.49	1.17
6979.32	7420.26	824.67	439.18	440.95	4.16	1.00	1.88
7420.26	7861.21	769.54	421.33	440.96	3.89	0.96	1.83
7861.21	8302.16	1544.63	639.99	440.95	7.80	1.45	2.41
8302.16	8743.11	4076.13	1145.58	440.95	20.59	2.60	3.56
8743.11	9184.05	4640.00	1238.19	440.95	23.43	2.81	3.75
9184.05	9625.00	2840.49	922.41	440.98	14.35	2.09	3.08

LB 9625.00	9710.00	967.31	228.61	85.00	4.89	2.69	4.23
9710.00	9795.00	1506.63	298.24	85.01	7.61	3.51	5.05
9795.00	9880.00	1163.88	255.56	85.10	5.88	3.01	4.55
9880.00	9965.00	644.49	161.50	65.57	3.26	2.47	3.99
9965.00	RB 10050.00	245.66	88.19	61.39	1.24	1.44	2.79

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.691

INPUT
Description: 10,000 Station is in channel just north of and paralleling Williams Field Road.

Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1502.9	1418	1780	1417.5	2785	1418.5	3470	1419	3930	1419.6
3980	1418	4030	1417.7	4200	1417.8	4290	1418	4430	1417.6
4515	1417.5	4615	1417.2	4670	1417.4	4770	1417	4845	1416
4890	1417.4	5000	1417.5	5100	1417.3	5180	1417.3	5250	1416.8
5335	1416.7	5410	1416	5430	1415.3	5440	1416	5490	1416.2
5710	1416.2	5745	1416.2	5785	1415.9	5955	1415.9	6020	1416
6060	1416.1	6155	1416	6565	1416.2	6685	1417	6725	1416.5
6950	1416.5	7020	1416	7030	1415.3	7040	1416	7090	1416.7
7175	1416	7255	1416.2	7310	1415.7	7455	1416.3	7615	1416
7715	1418	7740	1418	7879	1416	7999	1415.5	8069	1415.5
8194	1416	8264	1415.5	8399	1416	8469	1416.7	8549	1416
8594	1416	8620	1416	8749	1415	8887	1414.8	8987	1415.9
9057	1415.1	9295	1414.7	9513	1416	9568	1416.5	9623	1416
9643	1415.9	9688	1415.4	9708	1416	9770	1416	9780	1416.3
9790	1416	9825	1414.8	9865	1416	9880	1418	9890	1419
9905	1418	9930	1416	9980	1414	9985	1412	10000	1411.4
10005	1412	10020	1414	10080	1416	10100	1418	10115	1418.4

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1502.9	.05	9890	.05	10115	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9890	10115	640	474.31	475	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
1502.9	3930	1419

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1417.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1417.36	Reach Len. (ft)	640.00	474.31	475.00
Crit W.S. (ft)	1416.73	Flow Area (sq ft)	6550.03	480.23	
E.G. Slope (ft/ft)	0.005283	Area (sq ft)	6550.03	480.23	
Q Total (cfs)	19800.00	Flow (cfs)	17814.04	1985.96	
Top Width (ft)	5185.44	Top Width (ft)	5004.91	180.53	
Vel Total (ft/s)	2.82	Avg. Vel. (ft/s)	2.72	4.14	
Max Chl Dpth (ft)	5.96	Hydr. Depth (ft)	1.31	2.66	
Conv. Total (cfs)	272410.0	Conv. (cfs)	245087.0	27323.0	
Length Wtd. (ft)	627.68	Wetted Per. (ft)	5005.26	181.29	
Min Ch El (ft)	1411.40	Shear (lb/sq ft)	0.43	0.87	
Alpha	1.06	Stream Power (lb/ft s)	1.17	3.61	
Frctn Loss (ft)	3.21	Cum Volume (acre-ft)	4199.98	724.20	55.53
C & E Loss (ft)	0.01	Cum SA (acres)	3528.83	167.71	115.03

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4019.03	4857.74	114.49	102.42	272.35	0.58	0.38	1.12
4857.74	5696.45	960.86	521.62	655.77	4.85	0.80	1.84

5696.45	6535.16	2847.44	1104.52	838.71	14.38	1.32	2.58
6535.16	7373.87	1896.21	865.46	838.78	9.58	1.03	2.19
7373.87	8212.58	2425.36	952.53	736.88	12.25	1.29	2.55
8212.58	9051.29	4465.36	1446.83	838.73	22.55	1.73	3.09
9051.29	9890.00	5104.30	1556.67	824.04	25.78	1.89	3.28
LB 9890.00	9935.00	31.84	18.79	22.02	0.16	0.86	1.69
9935.00	9980.00	378.88	110.56	45.04	1.91	2.46	3.43
9980.00	10025.00	1153.52	216.64	45.57	5.83	4.81	5.32
10025.00	10070.00	374.68	109.81	45.02	1.89	2.44	3.41
10070.00	RB 10115.00	47.06	24.44	23.64	0.24	1.04	1.93

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.601

INPUT
Description: 10,000 Station is in channel just north of and paralleling Williams Field Road.

Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
873.43	1416	1845	1414	2315	1413.6	2590	1414	4005	1414
4055	1414.2	4085	1412.9	4135	1412.6	4170	1412.4	4265	1412.9
4355	1412.9	4540	1413	4640	1414	4730	1414	4940	1414.3
4990	1414	5270	1413.6	5505	1412	5570	1412.5	5590	1412
5685	1412.9	5950	1413.2	6690	1412	6870	1411.6	7065	1412
7100	1412	7200	1411.5	7225	1411.3	7290	1412	7480	1414
7591	1415	7636	1414	7725	1412	7760	1411.8	7810	1412
7870	1412.5	8011	1412.5	8155	1412.8	8280	1414	8295	1414
8430	1413.1	8760	1412	8815	1412.1	8877	1412.2	9075	1412
9125	1412.8	9200	1414	9445	1414	9560	1412.8	9735	1414
9770	1414	9790	1414	9800	1412	9820	1413	9840	1412
9860	1413	9880	1414	9890	1413.3	9940	1413.5	9980	1412
10000	1410.2	10045	1412	10055	1414	10070	1416	10090	1416.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
873.43	.05	9880	.05	10055	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9880	10055	590	512.1	490	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
873.43	3450	1416

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1414.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1414.17	Reach Len. (ft)	590.00	512.10	490.00
Crit W.S. (ft)	1413.37	Flow Area (sq ft)	7496.96	312.19	0.11
E.G. Slope (ft/ft)	0.004875	Area (sq ft)	7930.03	312.19	0.11
Q Total (cfs)	19800.00	Flow (cfs)	18848.52	951.43	0.04
Top Width (ft)	8047.95	Top Width (ft)	7871.66	175.00	1.29
Vel Total (ft/s)	2.54	Avg. Vel. (ft/s)	2.51	3.05	0.40
Max Chl Dpth (ft)	3.97	Hydr. Depth (ft)	1.21	1.78	0.09
Conv. Total (cfs)	283595.7	Conv. (cfs)	269967.7	13627.4	0.6
Length Wtd. (ft)	587.71	Wetted Per. (ft)	6183.30	175.37	1.31
Min Ch El (ft)	1410.20	Shear (lb/sq ft)	0.37	0.54	0.03
Alpha	1.01	Stream Power (lb/ft s)	0.93	1.65	0.01
Frctn Loss (ft)	2.66	Cum Volume (acre-ft)	4093.60	719.89	55.53
C & E Loss (ft)	0.00	Cum SA (acres)	3434.24	165.77	115.03

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
2674.74	3575.40	13.28	21.63	125.40	0.07	0.17	0.61

3575.40	4476.06	1003.59	635.40	893.19	5.07	0.71	1.58
4476.06	5376.72	454.04	375.90	790.13	2.29	0.48	1.21
5376.72	6277.37	3092.65	1252.46	900.67	15.62	1.39	2.47
6277.37	7178.03	6242.37	1908.85	900.66	31.53	2.12	3.27
7178.03	8078.69	3522.71	1272.99	771.61	17.79	1.65	2.77
8078.69	8979.34	3201.45	1278.71	900.67	16.17	1.42	2.50
8979.34	9880.00	1318.43	751.03	900.98	6.66	0.83	1.76
LB 9880.00	9915.00	37.06	25.79	35.02	0.19	0.74	1.44
9915.00	9950.00	39.19	26.66	35.01	0.20	0.76	1.47
9950.00	9985.00	152.57	60.29	35.04	0.77	1.72	2.53
9985.00	10020.00	486.32	120.91	35.08	2.46	3.45	4.02
10020.00	RB 10055.00	236.28	78.54	35.22	1.19	2.24	3.01
10055.00	10058.50	0.04	0.11	1.31	0.00	0.09	0.40

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.504

INPUT
Description: 10,000 Station is in channel just north of and paralleling Williams Field Road.

Station Elevation Data num= 64

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
553.76	1414	1027	1413.5	1467	1412.9	1967	1412.8	2477	1411
2867	1410.5	3437	1410.6	4047	1412	4052	1412.2	4057	1412
4077	1411	4092	1410	4097	1410.1	4102	1410	4382	1412
4472	1412.3	4550	1412	4714	1412	4784	1412	5174	1410.9
5629	1410.9	6159	1410	6469	1409.3	6958	1408	7013	1409
7073	1410	7284	1410	7579	1409.5	7659	1409.2	7889	1410
7949	1410.3	8011	1410	8141	1409.6	8301	1410	8361	1411.3
8431	1410	8551	1409.9	8691	1410	8721	1410.1	8766	1410
8836	1409.6	8926	1410.3	8968	1410	9033	1410.7	9138	1410
9176	1410.5	9226	1410.2	9266	1410.4	9325	1410	9405	1409.6
9485	1410.3	9610	1410.7	9665	1410	9710	1410	9785	1409
9810	1410.3	9870	1412	9880	1411.1	9920	1411.2	9985	1410
10000	1410.6	10020	1410	10035	1412	10055	1412.4		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
553.76	.1	4052	.05	9870	.05	10035	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9870	10035	530	493.52	493.52	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
553.76	3350	1413

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1411.61	Element			
Vel Head (ft)	0.09	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1411.52	Reach Len. (ft)	530.00	493.52	493.52
Crit W.S. (ft)	1410.69	Flow Area (sq ft)	7902.49	126.95	
E.G. Slope (ft/ft)	0.004266	Area (sq ft)	8713.32	126.95	
Q Total (cfs)	19800.00	Flow (cfs)	19585.41	214.59	
Top Width (ft)	6811.35	Top Width (ft)	6655.29	156.07	
Vel Total (ft/s)	2.47	Avg. Vel. (ft/s)	2.48	1.69	
Max Chl Dpth (ft)	3.52	Hydr. Depth (ft)	1.40	0.81	
Conv. Total (cfs)	303139.4	Conv. (cfs)	299854.0	3285.4	
Length Wtd. (ft)	529.26	Wetted Per. (ft)	5635.14	156.22	
Min Ch El (ft)	1410.00	Shear (lb/sq ft)	0.37	0.22	
Alpha	1.00	Stream Power (lb/ft s)	0.93	0.37	
Frctn Loss (ft)	2.01	Cum Volume (acre-ft)	3980.89	717.31	55.53
C & E Loss (ft)	0.00	Cum SA (acres)	3335.86	163.83	115.02

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
3348.63	4280.26	474.27	455.29	701.58	2.40	0.65	1.04
4280.26	5211.88	81.89	95.89	292.25	0.41	0.33	0.85
5211.88	6143.50	1303.76	802.35	931.62	6.58	0.86	1.62
6143.50	7075.13	7525.26	2297.01	931.64	38.01	2.47	3.28
7075.13	8006.75	4186.05	1615.59	931.63	21.14	1.73	2.59
8006.75	8938.38	3352.68	1414.12	931.66	16.93	1.52	2.37
8938.38	9870.00	2661.50	1222.22	914.76	13.44	1.34	2.18
LB 9870.00	9903.00	8.82	9.98	27.69	0.04	0.36	0.88
9903.00	9936.00	12.64	13.29	33.00	0.06	0.40	0.95
9936.00	9969.00	50.12	30.36	33.01	0.25	0.92	1.65
9969.00	10002.00	86.60	42.16	33.02	0.44	1.28	2.05
10002.00	RB 10035.00	56.41	31.16	29.51	0.28	1.06	1.81

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.410

INPUT
Description: 10,000 Station is in channel just north of and paralleling Williams Field Road.

Station Elevation Data num= 57

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
729.19	1412.1	1126	1411.6	1206	1411.5	1456	1411.2	1603	1411.1
2023	1410.9	2253	1410	2613	1410	3035	1413.5	3476	1413.5
3970	1413	4127	1410.3	4159	1409.8	4189	1409.5	4199	1409.2
4549	1409.1	4849	1409.4	5011	1408	5111	1408.8	5166	1408.8
5195	1409.6	5285	1410	5495	1408.8	6125	1407.6	6600	1406.5
6660	1406.9	6805	1406.3	6885	1407.6	6900	1407.5	7105	1408.4
7275	1408.4	7330	1408	7460	1407	7595	1408	7745	1408
7910	1407.6	8100	1408	8385	1408.5	8595	1408	8755	1407.4
8850	1408	8945	1407.2	9025	1408	9075	1408.8	9145	1408
9320	1407.3	9490	1408	9725	1408	9755	1408	9775	1406.7
9785	1408	9835	1408	9855	1410	10000	1406.4	10020	1408
10035	1410	10060	1410.5						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
729.19	.1	3035	.022	3970	.05	9855	.05	10035	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9855	10035	475	515.27	515.27	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1409.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1409.52	Reach Len. (ft)	475.00	515.27	515.27
Crit W.S. (ft)		Flow Area (sq ft)	8081.16	250.38	
E.G. Slope (ft/ft)	0.003405	Area (sq ft)	8081.16	250.38	
Q Total (cfs)	19800.00	Flow (cfs)	19207.50	592.50	
Top Width (ft)	5641.66	Top Width (ft)	5484.81	156.85	
Vel Total (ft/s)	2.38	Avg. Vel. (ft/s)	2.38	2.37	
Max Chl Dpth (ft)	3.22	Hydr. Depth (ft)	1.47	1.60	
Conv. Total (cfs)	339341.1	Conv. (cfs)	329186.6	10154.5	
Length Wtd. (ft)	476.31	Wetted Per. (ft)	5485.09	157.05	
Min Ch El (ft)	1406.40	Shear (lb/sq ft)	0.31	0.34	
Alpha	1.00	Stream Power (lb/ft s)	0.74	0.80	
Frctn Loss (ft)	2.14	Cum Volume (acre-ft)	3878.72	715.17	55.53
C & E Loss (ft)	0.00	Cum SA (acres)	3262.00	162.05	115.02

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
3466.93	4379.51	50.94	63.25	192.06	0.26	0.33	0.81

4379.51	5292.09	490.23	438.16	812.44	2.48	0.54	1.12
5292.09	6204.68	2011.84	1033.42	834.87	10.16	1.24	1.95
6204.68	7117.26	6538.28	2172.02	912.60	33.02	2.38	3.01
7117.26	8029.84	3555.85	1507.13	912.59	17.96	1.65	2.36
8029.84	8942.42	3058.30	1376.80	912.59	15.45	1.51	2.22
8942.42	9855.00	3502.04	1490.36	907.96	17.69	1.64	2.35
LB 9855.00	9891.00	1.79	3.37	16.49	0.01	0.20	0.53
9891.00	9927.00	42.46	30.82	36.01	0.21	0.86	1.38
9927.00	9963.00	139.79	63.00	36.01	0.71	1.75	2.22
9963.00	9999.00	278.05	95.17	36.01	1.40	2.64	2.92
9999.00	RB 10035.00	130.43	58.02	32.53	0.66	1.79	2.25

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.313

INPUT
Description: 10,000 Station is in channel just north of and paralleling Williams Field Road.

Station Elevation Data num= 81

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
444.97	1412	877	1411.5	1212	1411.4	1557	1410	2107	1409.6
2317	1409.7	2676	1409.5	3016	1408.9	3396	1408	3488	1408
3663	1408.4	3811	1408	3861	1407.9	3920	1408	3990	1408.3
4065	1408	4130	1407.7	4145	1408.2	4165	1408	4190	1408.6
4210	1408	4241	1408	4261	1408.4	4276	1408	4398	1407.2
4995	1407.4	5375	1406.3	5450	1406	5903	1406	6333	1405.1
6768	1406.1	6818	1406.4	6868	1406.4	6950	1406.7	7071	1406
7249	1405.5	7409	1406	7449	1406.2	7509	1406	7549	1406.1
7590	1406	7676	1406.4	7717	1406	7913	1405.6	8083	1406
8123	1406.2	8202	1406	8233	1406	8273	1406	8405	1406.5
8466	1406.3	8566	1406	8600	1405.9	8640	1406	8667	1406.1
8693	1406	8713	1405.9	8863	1405.7	8989	1405.5	9187	1405.8
9312	1405.6	9360	1406	9400	1406	9470	1406	9595	1405.8
9680	1406	9700	1406.1	9720	1406	9750	1406.3	9830	1406.2
9890	1406	9905	1407.4	9945	1406.5	9970	1406	9990	1404
10000	1403.7	10005	1404	10035	1406	10080	1408	10115	1408
10155	1408.8								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
444.97	.1	3663	.05	9905	.05	10115	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9905	10115	498.87	498.87	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
444.97	3990	1410

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1407.46	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1407.33	Reach Len. (ft)	498.87	498.87	500.00
Crit W.S. (ft)	1406.72	Flow Area (sq ft)	6669.30	230.54	
E.G. Slope (ft/ft)	0.006205	Area (sq ft)	6669.30	230.54	
Q Total (cfs)	19800.00	Flow (cfs)	19102.44	697.56	
Top Width (ft)	5441.35	Top Width (ft)	5284.69	156.66	
Vel Total (ft/s)	2.87	Avg. Vel. (ft/s)	2.86	3.03	
Max Chl Dpth (ft)	3.63	Hydr. Depth (ft)	1.26	1.47	
Conv. Total (cfs)	251364.6	Conv. (cfs)	242508.9	8855.7	
Length Wtd. (ft)	498.87	Wetted Per. (ft)	5284.77	156.88	
Min Ch El (ft)	1403.70	Shear (lb/sq ft)	0.49	0.57	
Alpha	1.00	Stream Power (lb/ft s)	1.40	1.72	
Frctn Loss (ft)	1.42	Cum Volume (acre-ft)	3798.30	712.33	55.53
C & E Loss (ft)	0.02	Cum SA (acres)	3203.28	160.20	115.02

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

section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4228.98	5174.99	31.61	60.33	555.45	0.16	0.11	0.52
5174.99	6120.99	3131.41	1176.51	946.00	15.82	1.24	2.66
6120.99	7066.99	4455.91	1453.84	946.01	22.50	1.54	3.06
7066.99	8012.99	4028.03	1368.39	946.01	20.34	1.45	2.94
8012.99	8959.00	3443.73	1245.58	946.01	17.39	1.32	2.76
8959.00	9905.00	4011.74	1364.65	945.29	20.26	1.44	2.94
LB 9905.00	9947.00	18.58	16.92	38.79	0.09	0.44	1.10
9947.00	9989.00	181.06	68.52	42.10	0.91	1.63	2.64
9989.00	10031.00	457.21	119.43	42.08	2.31	2.84	3.83
10031.00	10073.00	40.73	25.67	33.91	0.21	0.76	1.59

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.218

INPUT
Description: 10,000 Station is in channel just north of and paralleling Williams Field Road.

Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1412.8	355	1412	565	1411.5	815	1411	1110	1410.3
1350	1410	1480	1409.2	1535	1408.9	1755	1409	2390	1408.7
2685	1408.5	2785	1408	2920	1407.6	3220	1407.3	3900	1406.6
4155	1406.8	4185	1408	4215	1406	4220	1406	4235	1406.5
4335	1406	4625	1405.6	4895	1405.8	5275	1405.4	5355	1404
5370	1403.8	5380	1405.4	5655	1404	5955	1403.2	6260	1403.1
6550	1402.3	6625	1404	6715	1404.4	6805	1404	7035	1403.5
7605	1404	7695	1404	7810	1404.2	7885	1404	8095	1403.3
8255	1404	8350	1404	8380	1404.2	8585	1404.2	8645	1404
9165	1403	9540	1404	9635	1403.5	9655	1404	9755	1404.8
9845	1404.2	9915	1406	9935	1406	9950	1404	10000	1402.4
10050	1404	10100	1406	10125	1406.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	4185	.05	9935	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9935	10125	225	1472.18	1500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
0	3750	1410

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1406.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1405.96	Reach Len. (ft)	225.00	1472.18	1500.00
Crit W.S. (ft)	1404.51	Flow Area (sq ft)	10476.98	339.10	
E.G. Slope (ft/ft)	0.001621	Area (sq ft)	10476.98	339.10	
Q Total (cfs)	19800.00	Flow (cfs)	19141.62	658.38	
Top Width (ft)	5716.42	Top Width (ft)	5552.59	163.83	
Vel Total (ft/s)	1.83	Avg. Vel. (ft/s)	1.83	1.94	
Max Chl Dpth (ft)	3.66	Hydr. Depth (ft)	1.89	2.07	
Conv. Total (cfs)	491772.3	Conv. (cfs)	475420.2	16352.2	
Length Wtd. (ft)	323.22	Wetted Per. (ft)	5552.80	164.05	
Min Ch El (ft)	1402.40	Shear (lb/sq ft)	0.19	0.21	
Alpha	1.00	Stream Power (lb/ft s)	0.35	0.41	
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)	3700.11	709.06	55.53
C & E Loss (ft)	0.01	Cum SA (acres)	3141.23	158.36	115.02

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less

than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
3974.00	4967.50	54.06	134.03	606.48	0.27	0.22	0.40
4967.50	5961.00	1811.30	1342.87	993.65	9.15	1.35	1.35
5961.00	6954.50	5570.43	2634.83	993.52	28.13	2.65	2.11
6954.50	7948.00	3861.10	2114.67	993.50	19.50	2.13	1.83
7948.00	8941.50	3843.14	2108.76	993.50	19.41	2.12	1.82
8941.50	9935.00	4001.60	2141.81	972.14	20.21	2.20	1.87
LB 9935.00	9973.00	108.96	68.10	37.87	0.55	1.81	1.60
9973.00	10011.00	286.50	121.83	38.02	1.45	3.21	2.35
10011.00	10049.00	202.56	98.95	38.02	1.02	2.60	2.05
10049.00	10087.00	59.13	47.27	38.03	0.30	1.24	1.25
10087.00	RB 10125.00	1.23	2.93	12.11	0.01	0.24	0.42

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.940

INPUT
Description: 3284 cfs flow reduction due to spill between this section and next upstream section.

10,000 Station located on approximately the Crismon Road alignment between the Williams Field Road alignment and Pecos Avenue

Station Elevation Data num= 42

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
818.33	1412.5	1115	1412	1205	1411.3	1635	1410.5	1905	1410
2265	1408.6	2320	1408.4	3000	1408.5	3470	1408	4140	1406.5
4600	1406	4720	1406	4800	1405.9	4930	1405.9	4960	1406
5020	1405.9	5055	1406	5070	1406	5075	1404	5085	1404
5305	1405	5580	1404.9	5980	1404.7	6050	1404	6075	1402.4
6080	1404	6085	1404.8	6195	1404	6260	1404	6620	1402.7
6970	1402	7275	1401.3	7310	1402	7380	1404	7465	1403.9
7815	1402.6	8140	1402.9	8610	1403.5	8915	1402.5	9765	1402
10000	1400.7	10080	1403.7						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
818.33	.1	4960	.05	9765	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9765	10080	200	1001.12	1001.12	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
818.33	4370	1410

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1405.73	Element			
Vel Head (ft)	0.03	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1405.70	Reach Len. (ft)	200.00	1001.12	1001.12
Crit W.S. (ft)	1403.41	Flow Area (sq ft)	11780.12	1303.55	
E.G. Slope (ft/ft)	0.000490	Area (sq ft)	11780.12	1303.55	
Q Total (cfs)	16516.00	Flow (cfs)	14314.44	2201.56	
Top Width (ft)	5009.26	Top Width (ft)	4694.26	315.00	
Vel Total (ft/s)	1.26	Avg. Vel. (ft/s)	1.22	1.69	
Max Chl Dpth (ft)	5.00	Hydr. Depth (ft)	2.51	4.14	
Conv. Total (cfs)	745843.6	Conv. (cfs)	646423.4	99420.1	
Length Wtd. (ft)	300.47	Wetted Per. (ft)	4695.01	317.06	
Min Ch El (ft)	1400.70	Shear (lb/sq ft)	0.08	0.13	
Alpha	1.04	Stream Power (lb/ft s)	0.09	0.21	
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	3642.63	681.31	55.53
C & E Loss (ft)	0.00	Cum SA (acres)	3114.76	150.27	115.02

Warning: The cross-section end points had to be extended vertically for the computed water surface.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4397.00	5291.67	196.65	275.79	221.26	1.19	1.25	0.71
5291.67	6186.33	539.95	884.20	895.04	3.27	0.99	0.61
6186.33	7081.00	3201.38	2571.98	894.67	19.38	2.87	1.24
7081.00	7975.67	3337.79	2637.23	894.71	20.21	2.95	1.27
7975.67	8870.33	2725.19	2335.09	894.67	16.50	2.61	1.17
8870.33	9765.00	4313.49	3075.83	894.67	26.12	3.44	1.40
LB 9765.00	9828.00	392.05	244.34	63.00	2.37	3.88	1.60
9828.00	9891.00	452.51	266.29	63.00	2.74	4.23	1.70
9891.00	9954.00	516.39	288.25	63.00	3.13	4.58	1.79
9954.00	10017.00	564.16	303.99	63.01	3.42	4.83	1.86
10017.00	RB 10080.00	276.45	200.68	65.05	1.67	3.19	1.38

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.750

INPUT
Description: 2812 cfs flow reduction due to spill between this section and next upstream section.

10,000 Station located on approximately the Crismon Road alignment between the Williams Field Road alignment and Pecos Avenue

Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1967.85	1412.1	2100	1412	2200	1411.1	2380	1410.5	2510	1410.4
2810	1410	2910	1409.6	3090	1409.3	3345	1408.3	3385	1408.1
3420	1408	3435	1407.9	3810	1408	3940	1408	4305	1407.6
4730	1406.8	4950	1406.5	5370	1406	5685	1405.5	6015	1405.1
6070	1404	6080	1404	6100	1405.3	6150	1406	6170	1404
6180	1404	6195	1404.7	6250	1404	6315	1403.6	6475	1404
6510	1404.1	6570	1404	6830	1403.5	6935	1404	7025	1404
7045	1402	7060	1402	7070	1404	7100	1404	7315	1402.6
7585	1402	7785	1401.5	8295	1401.5	8415	1402	8505	1403.1
8685	1402.5	8825	1402	8890	1401.5	9190	1402	9495	1401.6
9650	1402	9750	1402	10000	1400.91	10020.88	1402	10095	1405.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1967.85	.1	6070	.05	9750	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9750	10020.88	215	1003.33	1003.33	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
1967.85	5450	1410

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1405.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1405.59	Reach Len. (ft)	215.00	1003.33	1003.33
Crit W.S. (ft)	1402.78	Flow Area (sq ft)	11308.61	1122.39	136.64
E.G. Slope (ft/ft)	0.000297	Area (sq ft)	11308.61	1122.39	136.64
Q Total (cfs)	13703.00	Flow (cfs)	12114.78	1483.15	105.07
Top Width (ft)	4435.81	Top Width (ft)	4090.81	270.88	74.12
Vel Total (ft/s)	1.09	Avg. Vel. (ft/s)	1.07	1.32	0.77
Max Chl Dpth (ft)	4.69	Hydr. Depth (ft)	2.76	4.14	1.84
Conv. Total (cfs)	794955.3	Conv. (cfs)	702817.3	86042.5	6095.6
Length Wtd. (ft)	334.30	Wetted Per. (ft)	4091.28	270.91	74.30
Min Ch El (ft)	1400.90	Shear (lb/sq ft)	0.05	0.08	0.03
Alpha	1.02	Stream Power (lb/ft s)	0.05	0.10	0.03
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	3589.63	653.43	53.96
C & E Loss (ft)	0.00	Cum SA (acres)	3094.59	143.54	114.17

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5080.71	5858.92	2.71	37.35	232.83	0.02	0.16	0.07
5858.92	6637.14	550.30	934.71	745.27	4.02	1.25	0.59
6637.14	7415.35	1389.51	1689.20	778.52	10.14	2.17	0.82
7415.35	8193.57	3657.95	3018.83	778.22	26.69	3.88	1.21
8193.57	8971.79	3037.55	2700.30	778.23	22.17	3.47	1.12
8971.79	9750.00	3476.76	2928.20	778.22	25.37	3.76	1.19
LB 9750.00	9804.18	246.43	201.14	54.18	1.80	3.71	1.23
9804.18	9858.35	273.35	214.05	54.18	1.99	3.95	1.28
9858.35	9912.53	301.39	226.97	54.18	2.20	4.19	1.33
9912.53	9966.70	330.51	239.88	54.18	2.41	4.43	1.38
9966.70	RB 10020.88	331.47	240.35	54.21	2.42	4.44	1.38
10020.88	10028.29	25.15	25.34	7.42	0.18	3.42	0.99
10028.29	10035.70	21.01	22.74	7.42	0.15	3.07	0.92
10035.70	10043.12	17.17	20.15	7.42	0.13	2.72	0.85
10043.12	10050.53	13.65	17.56	7.42	0.10	2.37	0.78
10050.53	10057.94	10.45	14.96	7.42	0.08	2.02	0.70
10057.94	10065.35	7.61	12.37	7.42	0.06	1.67	0.62
10065.35	10072.76	5.14	9.77	7.42	0.04	1.32	0.53
10072.76	10080.18	3.07	7.18	7.42	0.02	0.97	0.43
10080.18	10087.59	1.46	4.58	7.42	0.01	0.62	0.32
10087.59	10095.00	0.36	1.99	7.51	0.00	0.27	0.18

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.560

INPUT
Description: 421 cfs flow reduction due to spill between this section and next upstream section.

10,000 Station located on approximately the Crismon Road alignment between the Williams Field Road alignment and Pecos Avenue.

Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3194.74	1410.5	3790	1410	4230	1408	4575	1407.9	4775	1407
5365	1407	6380	1406	6660	1405.8	6920	1405.6	7075	1404.8
7155	1404	7175	1402	7205	1404.6	7225	1404	7230	1403.5
7235	1404	7250	1404	7295	1403.2	7500	1402	7535	1401.6
7595	1402	7715	1401.7	7865	1401.9	7925	1402	7955	1402.4
8005	1402	8195	1401.6	8925	1400.7	9285	1401.1	9335	1402
9355	1402	9365	1402.3	9525	1402.3	9575	1402	9950	1400.9
10000	1400.8	10014.61	1402.33	10050	1405				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3194.74	.1	7155	.05	9525	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9525	10014.61	400	1080.06	1080.06	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
3194.74	6300	1410

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1405.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1405.49	Reach Len. (ft)	400.00	1080.06	1080.06
Crit W.S. (ft)	1402.43	Flow Area (sq ft)	9151.57	1973.78	64.76
E.G. Slope (ft/ft)	0.000272	Area (sq ft)	9151.57	1973.78	64.76
Q Total (cfs)	13282.00	Flow (cfs)	10786.66	2448.41	46.93
Top Width (ft)	3109.66	Top Width (ft)	2584.66	489.61	35.39
Vel Total (ft/s)	1.19	Avg. Vel. (ft/s)	1.18	1.24	0.72
Max Chl Dpth (ft)	4.80	Hydr. Depth (ft)	3.54	4.03	1.83
Conv. Total (cfs)	805912.7	Conv. (cfs)	654502.7	148562.3	2847.7
Length Wtd. (ft)	494.60	Wetted Per. (ft)	2584.97	489.69	35.99
Min Ch El (ft)	1400.80	Shear (lb/sq ft)	0.06	0.07	0.03
Alpha	1.00	Stream Power (lb/ft s)	0.07	0.08	0.02
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	3539.13	617.77	51.64

C & E Loss (ft)	0.00	Cum SA (acres)	3078.12	134.78	112.91

Warning: The cross-section end points had to be extended vertically for the computed water surface.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6359.87	6992.90	0.45	7.13	52.55	0.00	0.14	0.06
6992.90	7625.92	1292.42	1445.83	633.32	9.73	2.28	0.89
7625.92	8258.95	2652.26	2312.33	633.03	19.97	3.65	1.15
8258.95	8891.97	3567.71	2762.57	633.03	26.86	4.36	1.29
8891.97	9525.00	3273.78	2623.69	633.04	24.65	4.14	1.25
LB 9525.00	9622.92	376.42	338.10	97.92	2.83	3.45	1.11
9622.92	9720.84	437.59	370.07	97.92	3.29	3.78	1.18
9720.84	9818.77	494.42	398.20	97.92	3.72	4.07	1.24
9818.77	9916.69	553.98	426.32	97.92	4.17	4.35	1.30
9916.69	RB 10014.61	586.04	441.11	98.00	4.41	4.50	1.33
10014.61	10018.15	9.92	10.73	3.55	0.07	3.03	0.92
10018.15	10021.69	8.51	9.78	3.55	0.06	2.76	0.87
10021.69	10025.23	7.18	8.84	3.55	0.05	2.50	0.81
10025.23	10028.77	5.95	7.89	3.55	0.04	2.23	0.75
10028.77	10032.30	4.81	6.95	3.55	0.04	1.96	0.69
10032.30	10035.84	3.77	6.00	3.55	0.03	1.70	0.63
10035.84	10039.38	2.83	5.06	3.55	0.02	1.43	0.56
10039.38	10042.92	2.01	4.11	3.55	0.02	1.16	0.49
10042.92	10046.46	1.30	3.17	3.55	0.01	0.90	0.41
10046.46	10050.00	0.66	2.22	4.04	0.00	0.63	0.30

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.355

INPUT
Description: 822 cfs flow reduction due to spill between this section and next upstream section.

10,000 Station located on approximately the Crismon Road alignment between the Williams Field Road alignment and Pecos Avenue.

Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4809.6	1413.5	4870	1412	4915	1410	4930	1408	5065	1407.2
5240	1406.1	5295	1406.3	5460	1406	5500	1405.6	5580	1405.5
6095	1405	6730	1405.5	6915	1405.1	7085	1404.6	7295	1404.4
7450	1404	7920	1403	8195	1402.5	8275	1402	8280	1400
8290	1400	8350	1402	8735	1400	8745	1400	8765	1400.9
8820	1400.4	9100	1400.4	9215	1400	9380	1399.8	9520	1400
9770	1400.1	9900	1400.5	9960	1400	10000	139810020.88		1400.45
10060	1405								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4809.6	.1	8280	.05	9900	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
990	10020.88	760	1112.17	1115	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4809.6	7300	1410

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4809.6	6733	1406

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1405.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.053	0.050	0.050
W.S. Elev (ft)	1405.37	Reach Len. (ft)	760.00	1112.17	1115.00
Crit W.S. (ft)	1401.48	Flow Area (sq ft)	10105.39	690.51	103.54
E.G. Slope (ft/ft)	0.000232	Area (sq ft)	10399.10	690.51	103.54
Q Total (cfs)	12460.00	Flow (cfs)	11374.34	997.01	88.65
Top Width (ft)	3270.66	Top Width (ft)	3110.66	120.88	39.12

Vel Total (ft/s)	1.14	Avg. Vel. (ft/s)	1.13	1.44	0.86
Max Chl Dpth (ft)	7.37	Hydr. Depth (ft)	3.89	5.71	2.65
Conv. Total (cfs)	818644.1	Conv. (cfs)	747314.3	65505.1	5824.7
Length Wtd. (ft)	891.21	Wetted Per. (ft)	2600.45	121.08	39.76
Min Ch El (ft)	1398.00	Shear (lb/sq ft)	0.06	0.08	0.04
Alpha	1.02	Stream Power (lb/ft s)	0.06	0.12	0.03
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	3449.37	584.74	49.55
C & E Loss (ft)	0.06	Cum SA (acres)	3051.97	127.21	111.98

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6845.76	7354.80	13.49	57.83	54.80	0.11	1.06	0.23
7354.80	7863.84	279.13	868.75	509.04	2.24	1.71	0.32
7863.84	8372.88	954.49	1516.93	509.46	7.66	2.98	0.63
8372.88	8881.92	2878.45	2324.30	509.07	23.10	4.57	1.24
8881.92	9390.96	3565.50	2642.78	509.04	28.62	5.19	1.35
9390.96	9900.00	3683.27	2694.81	509.04	29.56	5.29	1.37
LB 9900.00	9924.18	157.35	120.21	24.18	1.26	4.97	1.31
9924.18	9948.35	168.12	125.08	24.18	1.35	5.17	1.34
9948.35	9972.53	186.68	133.23	24.19	1.50	5.51	1.40
9972.53	9996.70	252.21	159.62	24.21	2.02	6.60	1.58
9996.70	RB 10020.88	232.65	152.37	24.32	1.87	6.30	1.53
10020.88	10024.79	20.25	18.36	3.94	0.16	4.69	1.10
10024.79	10028.70	17.09	16.58	3.94	0.14	4.24	1.03
10028.70	10032.62	14.14	14.80	3.94	0.11	3.78	0.96
10032.62	10036.53	11.42	13.02	3.94	0.09	3.33	0.88
10036.53	10040.44	8.94	11.24	3.94	0.07	2.87	0.80
10040.44	10044.35	6.71	9.46	3.94	0.05	2.42	0.71
10044.35	10048.26	4.74	7.68	3.94	0.04	1.96	0.62
10048.26	10052.18	3.06	5.90	3.94	0.02	1.51	0.52
10052.18	10056.09	1.68	4.12	3.94	0.01	1.05	0.41
10056.09	10060.00	0.62	2.34	4.31	0.00	0.60	0.26

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.145

INPUT
Description: 10,000 Station located in channel immediately northeast of intersection of Crismon Road alignment and Pecos Avenue.

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6492.7	1413.5	6665	1404.5	6870	1404	7720	1406	7860	1406
8585	1404.5	9215	1404.5	9435	1403.8	9555	1400.3	9605	1400
9670	1401	9850	1406.5	9880	1400	10000	1397.5	10070	1398
10095	1404.8								

Manning's n Values num= 2

Sta	n Val	Sta	n Val
6492.7	.022	9555	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9850	10095	475	178.89	180	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
6492.7	9285	1410

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6492.7	7800	1407

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1404.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.59	Wt. n-Val.	0.040	0.050	
W.S. Elev (ft)	1404.17	Reach Len. (ft)	475.00	178.89	180.00
Crit W.S. (ft)	1402.86	Flow Area (sq ft)	880.52	1210.23	
E.G. Slope (ft/ft)	0.005785	Area (sq ft)	880.52	1210.23	
Q Total (cfs)	12460.00	Flow (cfs)	4261.06	8198.94	
Top Width (ft)	687.45	Top Width (ft)	455.50	231.94	
Vel Total (ft/s)	5.96	Avg. Vel. (ft/s)	4.84	6.77	
Max Chl Dpth (ft)	6.67	Hydr. Depth (ft)	1.93	5.22	
Conv. Total (cfs)	163818.5	Conv. (cfs)	56022.4	107796.1	
Length Wtd. (ft)	272.37	Wetted Per. (ft)	455.61	233.24	
Min Ch El (ft)	1397.50	Shear (lb/sq ft)	0.70	1.87	
Alpha	1.08	Stream Power (lb/ft s)	3.38	12.70	
Frctn Loss (ft)	1.00	Cum Volume (acre-ft)	3350.97	560.48	48.23
C & E Loss (ft)	0.09	Cum SA (acres)	3020.86	122.71	111.48

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9178.54	9514.27	527.50	142.74	196.02	4.23	0.73	3.70
9514.27	9850.00	3733.56	737.78	259.60	29.96	2.84	5.06
LB 9850.00	9899.00	586.68	123.17	38.70	4.71	3.22	4.76
9899.00	9948.00	1617.87	248.80	49.01	12.98	5.08	6.50
9948.00	9997.00	2195.54	298.82	49.01	17.62	6.10	7.35
9997.00	10046.00	2451.56	319.25	49.00	19.68	6.52	7.68
10046.00	RB 10095.00	1347.30	220.18	47.51	10.81	4.72	6.12

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.111

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4379.27	1404.8	4515	1403.8	4680	1403.7	4900	1403.7	5130	1403.6
5330	1403.4	5635	1403.3	5960	1403.8	6375	1403.5	6620	1403.3
6835	1403.5	7090	1402.8	7190	1402	7755	1401.7	7810	1402.7
8290	1402	8430	1401.9	8450	1402	8475	1402	9370	1400
9700	1399.6	9755	1400	9800	1400	9810	1398	9910	1396.9
10000	1396.3	10050	1396	10069.59	1400.01	10095	1404.2		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4379.27	.1	9800	.05	10069.59	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9800	10069.59	325	301.73	270	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4379.27	9185	1405

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4379.27	6838	1404

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1403.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1403.37	Reach Len. (ft)	325.00	301.73	270.00

Crit W.S. (ft)	1401.23	Flow Area (sq ft)	2114.31	1712.41	34.33
E.G. Slope (ft/ft)	0.002539	Area (sq ft)	5491.86	1712.41	34.33
Q Total (cfs)	12460.00	Flow (cfs)	3606.07	8781.85	72.08
Top Width (ft)	3209.40	Top Width (ft)	2919.40	269.59	20.41
Vel Total (ft/s)	3.23	Avg. Vel. (ft/s)	1.71	5.13	2.10
Max Chl Dpth (ft)	7.37	Hydr. Depth (ft)	3.44	6.35	1.68
Conv. Total (cfs)	247272.6	Conv. (cfs)	71563.5	174278.6	1430.4
Length Wtd. (ft)	310.70	Wetted Per. (ft)	615.00	270.20	20.68
Min Ch El (ft)	1396.00	Shear (lb/sq ft)	0.54	1.00	0.26
Alpha	1.86	Stream Power (lb/ft s)	0.93	5.15	0.55
Frctn Loss (ft)	0.78	Cum Volume (acre-ft)	3316.23	554.47	48.16
C & E Loss (ft)	0.03	Cum SA (acres)	3002.46	121.68	111.44

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8715.85	9257.93	348.56	221.91	72.93	2.80	3.04	1.57
9257.93	9800.00	3257.52	1892.40	542.08	26.14	3.49	1.72
LB 9800.00	9853.92	1327.27	290.41	54.12	10.65	5.39	4.57
9853.92	9907.84	1661.65	331.84	53.92	13.34	6.15	5.01
9907.84	9961.75	1885.84	358.01	53.92	15.14	6.64	5.27
9961.75	10015.67	2058.39	377.32	53.92	16.52	7.00	5.46
10015.67	RB 10069.59	1848.68	354.82	54.32	14.84	6.58	5.21
10069.59	10072.13	21.56	8.02	2.58	0.17	3.16	2.69
10072.13	10074.67	17.00	6.95	2.58	0.14	2.74	2.45
10074.67	10077.21	12.89	5.89	2.58	0.10	2.32	2.19
10077.21	10079.75	9.25	4.82	2.58	0.07	1.90	1.92
10079.75	10082.29	6.10	3.76	2.58	0.05	1.48	1.62
10082.29	10084.84	3.50	2.69	2.58	0.03	1.06	1.30
10084.84	10087.38	1.52	1.63	2.58	0.01	0.64	0.93
10087.38	10089.92	0.26	0.57	2.58	0.00	0.22	0.46

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.054

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.

Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4336.9	1404.1	4420	1404	4475	1404.1	4550	1403.1	4925	1403.3
5655	1402	5785	1401.6	6085	1402	6390	1402.6	6715	1402
6895	1401.4	7120	1401.9	7175	1401.8	7265	1401.2	7825	1401
7840	1402	7870	1402	8070	1401.5	8510	1401.2	8535	1402
8560	1400	8735	1399.7	9435	1398.3	9770	1399	9815	1398.3
9835	1398	9865	1400	9880	1398	9940	1396	10000	1395.5
10050	1396	10075.22	1400	10100	1403.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4336.9	.1	9865	.05	10075.22	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9865	10075.22	500	505.01	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4336.9	9035	1405

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1402.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1402.65	Reach Len. (ft)	500.00	505.01	500.00
Crit W.S. (ft)	1400.47	Flow Area (sq ft)	3300.21	1270.21	23.53
E.G. Slope (ft/ft)	0.002505	Area (sq ft)	7740.92	1270.21	23.53
Q Total (cfs)	12460.00	Flow (cfs)	6159.87	6258.20	41.93
Top Width (ft)	4803.45	Top Width (ft)	4575.48	210.22	17.75
Vel Total (ft/s)	2.71	Avg. Vel. (ft/s)	1.87	4.93	1.78
Max Chl Dpth (ft)	7.15	Hydr. Depth (ft)	3.98	6.04	1.33
Conv. Total (cfs)	248943.1	Conv. (cfs)	123070.4	125035.0	837.6
Length Wtd. (ft)	502.42	Wetted Per. (ft)	830.08	210.71	17.95
Min Ch El (ft)	1395.50	Shear (lb/sq ft)	0.62	0.94	0.21
Alpha	1.89	Stream Power (lb/ft s)	1.16	4.65	0.37

Frctn Loss (ft)	1.33	Cum Volume (acre-ft)	3266.86	544.14	47.98
C & E Loss (ft)	0.00	Cum SA (acres)	2974.50	120.02	111.32

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8759.38	9312.19	1930.44	1061.10	277.19	15.49	3.83	1.82
9312.19	9865.00	4229.43	2239.11	552.88	33.94	4.05	1.89
LB 9865.00	9907.04	779.05	192.73	42.19	6.25	4.58	4.04
9907.04	9949.09	1301.21	261.87	42.06	10.44	6.23	4.97
9949.09	9991.13	1544.40	290.18	42.05	12.39	6.90	5.32
9991.13	10033.18	1585.77	294.82	42.05	12.73	7.01	5.38
10033.18	RB 10075.22	1047.78	230.60	42.36	8.41	5.48	4.54
10075.22	10077.70	13.88	6.11	2.50	0.11	2.47	2.27
10077.70	10080.18	10.59	5.19	2.51	0.08	2.10	2.04
10080.18	10082.65	7.66	4.28	2.51	0.06	1.73	1.79
10082.65	10085.13	5.12	3.36	2.50	0.04	1.36	1.52
10085.13	10087.61	3.01	2.44	2.50	0.02	0.99	1.23
10087.61	10090.09	1.38	1.53	2.51	0.01	0.62	0.90
10090.09	10092.57	0.30	0.61	2.51	0.00	0.25	0.49
10092.57	10095.04	0.00	0.01	0.41	0.00	0.03	0.12

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.958

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.

Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4485.04	1403.1	4565	1402.4	4995	1403	5460	1402	5830	1400.9
6050	1400.6	6320	1400	6535	1399.8	6715	1399.6	7085	1399.6
7155	1399.5	7180	1399.7	7290	1399.9	8510	1400	8515	1400.2
8565	1400	8580	1398.8	8740	1398.1	9780	1398.1	9820	1398
9880	1398	9900	1396	10000	1394.3	10060	1396	10072.29	1398.01
10105	1403.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4485.04	.1	9880	.05	10072.29	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9880	10072.29	670	479.11	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4485.04	8685	1403

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1401.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1401.32	Reach Len. (ft)	670.00	479.11	500.00
Crit W.S. (ft)	1399.71	Flow Area (sq ft)	3847.20	1126.29	35.17
E.G. Slope (ft/ft)	0.002818	Area (sq ft)	7895.80	1126.29	35.17
Q Total (cfs)	12460.00	Flow (cfs)	6615.99	5767.04	76.97
Top Width (ft)	4404.22	Top Width (ft)	4190.67	192.29	21.26
Vel Total (ft/s)	2.49	Avg. Vel. (ft/s)	1.72	5.12	2.19
Max Chl Dpth (ft)	7.02	Hydr. Depth (ft)	3.22	5.86	1.65
Conv. Total (cfs)	234737.0	Conv. (cfs)	124640.3	108646.7	1450.1
Length Wtd. (ft)	592.72	Wetted Per. (ft)	1195.00	192.59	21.52
Min Ch El (ft)	1394.30	Shear (lb/sq ft)	0.57	1.03	0.29
Alpha	2.22	Stream Power (lb/ft s)	0.97	5.27	0.63
Frctn Loss (ft)	1.47	Cum Volume (acre-ft)	3177.12	530.25	47.64
C & E Loss (ft)	0.03	Cum SA (acres)	2924.19	117.69	111.10

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8261.51	8801.01	623.02	366.73	116.01	5.00	3.16	1.70
8801.01	9340.50	2985.01	1736.24	539.50	23.96	3.22	1.72
9340.50	9880.00	3007.96	1744.24	539.50	24.14	3.23	1.72
LB 9880.00	9918.46	841.47	187.42	38.56	6.75	4.87	4.49
9918.46	9956.92	1178.44	229.17	38.46	9.46	5.96	5.14
9956.92	9995.37	1401.73	254.31	38.46	11.25	6.61	5.51
9995.37	10033.83	1394.18	253.51	38.47	11.19	6.59	5.50
10033.83	RB 10072.29	951.21	201.88	38.63	7.63	5.25	4.71
10072.29	10075.56	27.74	9.99	3.31	0.22	3.05	2.78
10075.56	10078.83	20.47	8.33	3.31	0.16	2.54	2.46
10078.83	10082.10	14.11	6.66	3.31	0.11	2.04	2.12
10082.10	10085.37	8.73	4.99	3.31	0.07	1.53	1.75
10085.37	10088.64	4.44	3.33	3.31	0.04	1.02	1.33
10088.64	10091.92	1.40	1.66	3.31	0.01	0.51	0.84
10091.92	10095.19	0.07	0.21	1.65	0.00	0.13	0.33

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.867

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.

Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4366.93	1401.7	4500	1401.5	4595	1400.6	5060	1401.7	5220	1401.3
5475	1400	6095	1398.7	6525	1398	6935	1397	7205	1397.1
7535	1397.2	8465	1397	8505	1398	8545	1396.9	8740	1396.4
9510	1396.6	9760	1396.6	9790	1397	9810	1396.6	9865	1398
9870	1396	10000	1393.4	10035	1394	10062.98	1397.99	10090	1402.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4366.93	.1	9865	.05	10062.98	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9865	10062.98	590	514.81	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4366.93	8185	1402

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1400.03	Element			
Vel Head (ft)	0.12	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1399.91	Reach Len. (ft)	590.00	514.81	500.00
Crit W.S. (ft)	1398.16	Flow Area (sq ft)	5392.88	1019.18	12.15
E.G. Slope (ft/ft)	0.002214	Area (sq ft)	10896.86	1019.18	12.15
Q Total (cfs)	12460.00	Flow (cfs)	8204.65	4238.93	16.41
Top Width (ft)	4558.76	Top Width (ft)	4348.14	197.98	12.64
Vel Total (ft/s)	1.94	Avg. Vel. (ft/s)	1.52	4.16	1.35
Max Chl Dpth (ft)	6.51	Hydr. Depth (ft)	3.21	5.15	0.96
Conv. Total (cfs)	264812.3	Conv. (cfs)	174373.5	90090.0	348.9
Length Wtd. (ft)	560.54	Wetted Per. (ft)	1680.05	198.68	12.78
Min Ch El (ft)	1393.40	Shear (lb/sq ft)	0.44	0.71	0.13
Alpha	1.97	Stream Power (lb/ft s)	0.67	2.95	0.18
Frctn Loss (ft)	2.14	Cum Volume (acre-ft)	3032.59	518.45	47.37
C & E Loss (ft)	0.02	Cum SA (acres)	2858.52	115.54	110.90

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7665.77	8215.58	122.63	87.31	30.58	0.98	2.86	1.40
8215.58	8765.39	2371.00	1639.87	549.83	19.03	2.98	1.45
8765.39	9315.19	2999.10	1888.15	549.81	24.07	3.43	1.59
9315.19	9865.00	2711.91	1777.52	549.83	21.76	3.23	1.53
LB 9865.00	9904.60	566.68	161.88	39.99	4.55	4.09	3.50
9904.60	9944.19	797.80	197.99	39.60	6.40	5.00	4.03
9944.19	9983.79	1019.30	229.34	39.60	8.18	5.79	4.44
9983.79	10023.38	1181.18	250.55	39.60	9.48	6.33	4.71
10023.38	RB 10062.98	674.00	179.43	39.88	5.41	4.53	3.76
10062.98	10065.68	7.81	4.64	2.73	0.06	1.72	1.68
10065.68	10068.38	4.95	3.53	2.73	0.04	1.31	1.40
10068.38	10071.09	2.63	2.42	2.73	0.02	0.89	1.09
10071.09	10073.79	0.95	1.31	2.73	0.01	0.48	0.72
10073.79	10076.49	0.08	0.25	1.85	0.00	0.14	0.32

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.770

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4476.32	1398.7	4575	1398.7	4620	1398.2	5730	1398.2	5775	1398
5845	1396.8	6755	1396.5	7025	1396	7060	1395.4	7085	1396
8470	1396	8485	1396.2	8575	1396	8805	1395.6	9585	1395.7
9825	1395	9870	1396.8	9890	1394	10000	1392.3	10060	1394
10074.46	1396.82	10105	1401.4						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4476.32	.1	9870	.05	10074.46	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
987 10074.46 220 506.56 500 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev
4476.32	7835	1400

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1397.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1397.52	Reach Len. (ft)	220.00	506.56	500.00
Crit W.S. (ft)	1397.10	Flow Area (sq ft)	3559.79	815.56	1.63
E.G. Slope (ft/ft)	0.008191	Area (sq ft)	5956.25	815.56	1.63
Q Total (cfs)	12460.00	Flow (cfs)	6949.90	5507.95	2.16
Top Width (ft)	4276.05	Top Width (ft)	4066.93	204.46	4.66
Vel Total (ft/s)	2.85	Avg. Vel. (ft/s)	1.95	6.75	1.32
Max Chl Dpth (ft)	5.22	Hydr. Depth (ft)	1.75	3.99	0.35
Conv. Total (cfs)	137677.0	Conv. (cfs)	76793.0	60860.1	23.8
Length Wtd. (ft)	324.70	Wetted Per. (ft)	2035.04	204.96	4.71
Min Ch El (ft)	1392.30	Shear (lb/sq ft)	0.89	2.03	0.18
Alpha	2.75	Stream Power (lb/ft s)	1.75	13.74	0.23
Frctn Loss (ft)	1.43	Cum Volume (acre-ft)	2918.46	507.61	47.29
C & E Loss (ft)	0.07	Cum SA (acres)	2801.53	113.16	110.80

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7712.53	8251.90	1117.70	633.18	416.90	8.97	1.52	1.77

8251.90	8791.26	1535.89	849.36	539.37	12.33	1.57	1.81
8791.26	9330.63	2073.95	1017.08	539.37	16.64	1.89	2.04
9330.63	9870.00	2222.33	1060.16	539.41	17.84	1.97	2.10
LB 9870.00	9910.89	638.70	119.26	41.09	5.13	2.92	5.36
9910.89	9951.78	1156.92	170.02	40.90	9.29	4.16	6.80
9951.78	9992.68	1464.59	195.85	40.90	11.75	4.79	7.48
9992.68	10033.57	1479.02	197.03	40.91	11.87	4.82	7.51
10033.57	RB 10074.46	768.74	133.40	41.17	6.17	3.26	5.76
10074.46	10077.51	2.05	1.43	3.09	0.02	0.47	1.43
10077.51	10080.57	0.11	0.19	1.62	0.00	0.12	0.58

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.674

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4432.83	1398	4490	1397.6	4630	1396.9	4825	1397.5	5505	1397
5740	1396.8	5780	1396.5	5795	1396	6130	1395	6890	1395.2
7020	1395.3	7205	1394	7215	1393.8	7225	1394	7245	1394
7290	1393.6	7950	1393.6	8485	1393.7	8505	1394	8545	1395.5
8560	1394	8580	1394	8635	1393.6	9520	1393.3	9770	1393.4
9835	1393.5	9875	1395.1	9885	1394	9915	1392	10000	1390.7
10060	1392	10076.21	1395.15	10105	1400.12				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4432.83	.1	9875	.05	10076.21	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9875	10076.21	690	518.48	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4432.83	7685	1398

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1396.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1396.26	Reach Len. (ft)	690.00	518.48	500.00
Crit W.S. (ft)	1394.86	Flow Area (sq ft)	5891.90	870.70	3.58
E.G. Slope (ft/ft)	0.002740	Area (sq ft)	8715.12	870.70	3.58
Q Total (cfs)	12460.00	Flow (cfs)	8864.75	3591.52	3.73
Top Width (ft)	4295.50	Top Width (ft)	4087.85	201.21	6.44
Vel Total (ft/s)	1.84	Avg. Vel. (ft/s)	1.50	4.12	1.04
Max Chl Dpth (ft)	5.56	Hydr. Depth (ft)	2.69	4.33	0.56
Conv. Total (cfs)	238026.3	Conv. (cfs)	169345.4	68609.7	71.2
Length Wtd. (ft)	639.02	Wetted Per. (ft)	2190.14	201.66	6.53
Min Ch El (ft)	1390.70	Shear (lb/sq ft)	0.46	0.74	0.09
Alpha	1.92	Stream Power (lb/ft s)	0.69	3.05	0.10
Frctn Loss (ft)	1.77	Cum Volume (acre-ft)	2881.41	497.81	47.26
C & E Loss (ft)	0.00	Cum SA (acres)	2780.94	110.80	110.74

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7153.92	7698.13	52.13	34.95	13.13	0.42	2.66	1.49
7698.13	8242.35	2140.62	1440.51	544.22	17.18	2.65	1.49
8242.35	8786.57	1912.36	1346.38	544.32	15.35	2.47	1.42
8786.57	9330.78	2358.22	1526.66	544.22	18.93	2.81	1.54
9330.78	9875.00	2401.44	1543.42	544.25	19.27	2.84	1.56
LB 9875.00	9915.24	356.06	116.00	40.37	2.86	2.88	3.07
9915.24	9955.48	769.96	184.03	40.25	6.18	4.57	4.18

9955.48	9995.73	950.29	208.79	40.25	7.63	5.19	4.55
9995.73	10035.97	956.79	209.66	40.25	7.68	5.21	4.56
10035.97	RB 10076.21	558.40	152.22	40.55	4.48	3.78	3.67
10076.21	10079.09	3.00	2.48	2.92	0.02	0.86	1.21
10079.09	10081.97	0.72	1.05	2.92	0.01	0.37	0.68
10081.97	10084.85	0.01	0.04	0.69	0.00	0.06	0.20

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.576

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.

Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4455.26	1396.5	4470	1396	4520	1396	4540	1396	4785	1395.9
5510	1395.8	5750	1395.6	5785	1395.5	5815	1394.6	5920	1394.4
6215	1394.4	6365	1394.3	6665	1394	6770	1393.8	6915	1393.1
7115	1393.2	7160	1392.3	7175	1392.5	7345	1392.3	8455	1392.3
8495	1393.4	8525	1392	8820	1392.1	9420	1392	9755	1391.7
9785	1392	9805	1391.7	9855	1392.7	9870	1392	9895	1390
10000	1389	10040	1390	10056.98	1392.73	10075	1396	10085	1397.24

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4455.26	.1	9855	.05	10056.98	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9855	10056.98	490	502.49	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4455.26	7135	1396

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1394.59	Element			
Vel Head (ft)	0.11	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1394.48	Reach Len. (ft)	490.00	502.49	500.00
Crit W.S. (ft)	1393.33	Flow Area (sq ft)	6283.38	894.73	8.48
E.G. Slope (ft/ft)	0.002811	Area (sq ft)	6937.88	894.73	8.48
Q Total (cfs)	12460.00	Flow (cfs)	8649.76	3798.13	12.10
Top Width (ft)	4190.68	Top Width (ft)	3979.04	201.98	9.67
Vel Total (ft/s)	1.73	Avg. Vel. (ft/s)	1.38	4.25	1.43
Max Chl Dpth (ft)	5.48	Hydr. Depth (ft)	2.31	4.43	0.88
Conv. Total (cfs)	235023.7	Conv. (cfs)	163154.0	71641.4	228.3
Length Wtd. (ft)	493.79	Wetted Per. (ft)	2720.07	202.31	9.82
Min Ch El (ft)	1389.00	Shear (lb/sq ft)	0.41	0.78	0.15
Alpha	2.27	Stream Power (lb/ft s)	0.56	3.29	0.22
Frctn Loss (ft)	1.42	Cum Volume (acre-ft)	2757.44	487.30	47.19
C & E Loss (ft)	0.00	Cum SA (acres)	2717.05	108.40	110.65

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6615.16	7155.13	45.49	37.95	20.13	0.37	1.89	1.20
7155.13	7695.10	1518.28	1160.48	539.98	12.19	2.15	1.31
7695.10	8235.08	1559.35	1179.22	539.97	12.51	2.18	1.32
8235.08	8775.05	1626.91	1209.65	540.02	13.06	2.24	1.34
8775.05	9315.03	1853.43	1308.02	539.97	14.88	2.42	1.42
9315.03	9855.00	2046.31	1388.08	539.99	16.42	2.57	1.47
LB 9855.00	9895.40	387.04	120.88	40.49	3.11	2.99	3.20
9895.40	9935.79	816.83	189.05	40.40	6.56	4.68	4.32
9935.79	9976.19	931.79	204.60	40.40	7.48	5.06	4.55
9976.19	10016.58	1015.05	215.39	40.40	8.15	5.33	4.71
10016.58	RB 10056.98	647.42	164.81	40.62	5.20	4.08	3.93
10056.98	10059.78	7.30	4.20	2.85	0.06	1.50	1.74
10059.78	10062.58	3.66	2.78	2.85	0.03	0.99	1.32

10062.58	10065.39	1.10	1.35	2.85	0.01	0.48	0.82
10065.39	10068.19	0.04	0.14	1.28	0.00	0.11	0.31

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.481

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.

Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4491.24	1394.6	4525	1395	4810	1395	5440	1394.3	5750	1394.3
5780	1394.3	5795	1394	5880	1393.5	6040	1393.2	6430	1392.9
6930	1392.4	7130	1392	7155	1393	7180	1391.4	7235	1391.2
7495	1391.5	8225	1391.5	8505	1392	8530	1390	8560	1389.9
8860	1390	9210.08	1389.48	9510	1390.4	9815	1390.2	9830	1390
9845	1389	9855	1390	9875	1390	9965	1388	10000	1387.35
10045	1388	10053.2	1390	10070	1394	10085	1395.8		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4491.24	.1	9875	.05	10053.2	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9875	10053.2	490	520.37	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4491.24	6785	1394

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1393.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1393.05	Reach Len. (ft)	490.00	520.37	500.00
Crit W.S. (ft)	1391.74	Flow Area (sq ft)	6521.91	827.76	19.54
E.G. Slope (ft/ft)	0.002970	Area (sq ft)	6652.95	827.76	19.54
Q Total (cfs)	12460.00	Flow (cfs)	8690.15	3728.68	41.17
Top Width (ft)	3831.41	Top Width (ft)	3640.40	178.20	12.81
Vel Total (ft/s)	1.69	Avg. Vel. (ft/s)	1.33	4.50	2.11
Max Chl Dpth (ft)	5.70	Hydr. Depth (ft)	2.11	4.65	1.53
Conv. Total (cfs)	228620.9	Conv. (cfs)	159450.2	68415.3	755.3
Length Wtd. (ft)	498.77	Wetted Per. (ft)	3090.24	178.47	13.17
Min Ch El (ft)	1387.35	Shear (lb/sq ft)	0.39	0.86	0.28
Alpha	2.56	Stream Power (lb/ft s)	0.52	3.87	0.58
Frctn Loss (ft)	1.62	Cum Volume (acre-ft)	2681.00	477.37	47.03
C & E Loss (ft)	0.00	Cum SA (acres)	2674.19	106.21	110.52

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6644.74	7183.12	179.10	294.01	398.19	1.44	0.74	0.61
7183.12	7721.50	917.98	884.32	538.38	7.37	1.64	1.04
7721.50	8259.87	831.85	833.55	538.38	6.68	1.55	1.00
8259.87	8798.25	1519.18	1196.47	538.46	12.19	2.22	1.27
8798.25	9336.62	2932.20	1775.11	538.38	23.53	3.30	1.65
9336.62	9875.00	2309.85	1538.46	538.46	18.54	2.86	1.50
LB 9875.00	9910.64	447.63	122.82	35.65	3.59	3.45	3.64
9910.64	9946.28	631.91	151.05	35.65	5.07	4.24	4.18
9946.28	9981.92	836.66	178.76	35.65	6.71	5.02	4.68
9981.92	10017.56	991.30	197.90	35.65	7.96	5.55	5.01
10017.56	RB 10053.20	821.17	177.23	35.88	6.59	4.97	4.63
10053.20	10056.38	22.08	8.50	3.27	0.18	2.67	2.60
10056.38	10059.56	12.67	6.09	3.27	0.10	1.91	2.08
10059.56	10062.74	5.48	3.68	3.27	0.04	1.16	1.49
10062.74	10065.92	0.93	1.27	3.27	0.01	0.40	0.73

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.382

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.

Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4480.79	1393.6	4500	1393.7	4750	1393.6	5375	1393.5	5760	1393.2
5810	1392.3	5900	1392	6190	1391.6	6900	1390.5	7160	1390
7180	1389.5	7210	1390	7245	1389.6	7500	1389.8	8245	1389.8
8505	1390	8520	1390.8	8535	1390	8895	1388.6	9570	1388.3
9795	1388.1	9825	1388.2	9835	1388	9845	1387.9	9855	1388
9880	1388	10000	1386.27	10050	1388	10065	1390	10080	1394
10085	1395.21								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4480.79	.1	9880	.05	10050	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9880	10050	905	657.07	660	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4480.79	6385	1394

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1391.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1391.43	Reach Len. (ft)	905.00	657.07	660.00
Crit W.S. (ft)	1390.30	Flow Area (sq ft)	6596.08	730.07	40.28
E.G. Slope (ft/ft)	0.003559	Area (sq ft)	6601.68	730.07	40.28
Q Total (cfs)	12460.00	Flow (cfs)	8929.46	3419.18	111.35
Top Width (ft)	3770.37	Top Width (ft)	3580.01	170.00	20.36
Vel Total (ft/s)	1.69	Avg. Vel. (ft/s)	1.35	4.68	2.76
Max Chl Dpth (ft)	5.16	Hydr. Depth (ft)	1.89	4.29	1.98
Conv. Total (cfs)	208862.9	Conv. (cfs)	149681.7	57314.6	1866.5
Length Wtd. (ft)	849.60	Wetted Per. (ft)	3495.06	170.04	20.68
Min Ch El (ft)	1386.27	Shear (lb/sq ft)	0.42	0.95	0.43
Alpha	2.59	Stream Power (lb/ft s)	0.57	4.47	1.20
Frctn Loss (ft)	2.32	Cum Volume (acre-ft)	2606.45	468.06	46.69
C & E Loss (ft)	0.02	Cum SA (acres)	2633.58	104.13	110.33

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6100.55	6640.47	31.89	84.20	255.47	0.26	0.33	0.38
6640.47	7180.40	415.69	530.11	539.93	3.34	0.98	0.78
7180.40	7720.32	1016.89	906.71	539.93	8.16	1.68	1.12
7720.32	8260.24	966.96	879.72	539.92	7.76	1.63	1.10
8260.24	8800.16	1041.04	919.59	539.97	8.36	1.70	1.13
8800.16	9340.08	2496.76	1554.27	539.92	20.04	2.88	1.61
9340.08	9880.00	2960.23	1721.46	539.92	23.76	3.19	1.72
LB 9880.00	9914.00	524.10	124.94	34.00	4.21	3.67	4.19
9914.00	9948.00	645.73	141.60	34.00	5.18	4.16	4.56
9948.00	9982.00	777.30	158.27	34.00	6.24	4.65	4.91
9982.00	10016.00	864.07	168.66	34.01	6.93	4.96	5.12
10016.00	RB 10050.00	607.98	136.60	34.02	4.88	4.02	4.45
10050.00	10053.50	37.97	11.19	3.53	0.30	3.20	3.39
10053.50	10057.00	29.18	9.55	3.53	0.23	2.73	3.05
10057.00	10060.50	21.35	7.92	3.53	0.17	2.26	2.70
10060.50	10064.00	14.53	6.29	3.53	0.12	1.80	2.31
10064.00	10067.50	7.44	4.24	3.60	0.06	1.21	1.76
10067.50	10071.00	0.88	1.09	2.96	0.01	0.38	0.81

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.258

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.

Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5413	1390.6	5468	1390	5938	1389.4	6523	1388.6	6743	1388.2
6773	1389	6793	1388	6853	1388	7333	1387	7403	1386.7
7603	1386.8	8028	1386.5	8148	1386	8183	1386	8213	1386.4
8413	1386	8518	1386.1	9158	1386	9463	1385.7	9573	1386
9748	1385.5	9833	1386	9853	1389	9893	1386	10003	1384.8
10048	1386	10083	1390						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5413	.1	9853	.05	10083	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9853	10083	1310	6494.89	6504.89	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1389.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.100	0.050	
W.S. Elev (ft)	1389.16	Reach Len. (ft)	1310.00	6494.89	6504.89
Crit W.S. (ft)		Flow Area (sq ft)	8632.10	692.43	
E.G. Slope (ft/ft)	0.002163	Area (sq ft)	8632.10	692.43	
Q Total (cfs)	12460.00	Flow (cfs)	10422.57	2037.43	
Top Width (ft)	3960.63	Top Width (ft)	3738.00	222.63	
Vel Total (ft/s)	1.34	Avg. Vel. (ft/s)	1.21	2.94	
Max Chl Dpth (ft)	4.36	Hydr. Depth (ft)	2.31	3.11	
Conv. Total (cfs)	267887.1	Conv. (cfs)	224082.9	43804.2	
Length Wtd. (ft)		Wetted Per. (ft)	3738.27	222.95	
Min Ch El (ft)	1384.80	Shear (lb/sq ft)	0.31	0.42	
Alpha	1.48	Stream Power (lb/ft s)	0.38	1.23	
Frctn Loss (ft)		Cum Volume (acre-ft)	2448.20	457.33	46.38
C & E Loss (ft)		Cum SA (acres)	2557.56	101.17	110.17

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: The user has entered a known water surface elevation at this cross section.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5857.00	6301.00	3.70	23.66	186.00	0.03	0.13	0.16
6301.00	6745.00	111.67	258.80	444.00	0.90	0.58	0.43
6745.00	7189.00	458.75	604.18	444.04	3.68	1.36	0.76
7189.00	7633.00	1068.42	1003.35	444.00	8.57	2.26	1.06
7633.00	8077.00	1302.67	1130.07	444.00	10.45	2.55	1.15
8077.00	8521.00	1730.64	1340.08	444.00	13.89	3.02	1.29
8521.00	8965.00	1802.86	1373.35	444.00	14.47	3.09	1.31
8965.00	9409.00	1928.97	1430.22	444.00	15.48	3.22	1.35
9409.00	9853.00	2014.90	1468.41	444.23	16.17	3.31	1.37
LB 9853.00	9899.00	169.63	85.46	46.11	1.36	1.86	1.98
9899.00	9945.00	482.26	159.82	46.00	3.87	3.47	3.02
9945.00	9991.00	603.86	182.90	46.00	4.85	3.98	3.30
9991.00	10037.00	611.30	184.27	46.01	4.91	4.01	3.32
10037.00	RB 10083.00	170.37	79.98	38.82	1.37	2.07	2.13

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: The user has entered a known water surface elevation at this cross section.

CROSS SECTION RIVER: Powerline FRS

REACH: Powerline RS: 11.028

INPUT
Description:
Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-892.5	1386.4	-847.5	1386	-737.5	1385.7	-607.5	1385.6	12.5	1385.8
387.5	1385.5	437.5	1386	532.5	1384.3	807.5	1384	1307.5	1384
1417.5	1383.9	1437.5	1384	1467.5	1384	1587.5	1384	1622.5	1383.7
1812.5	1382.9	1847.5	1383.7	2587.5	1382	3097.5	1380.3	3137.5	1382
3167.5	1382.3	3192.5	1382	3237.5	1380	3247.5	1379.6	3267.5	1382
3287.5	1382.2	3307.5	1382	3377.5	1380	3672.5	1382	4047.5	1382
4157.5	1382.7	4192.5	1382	4417.5	1381.9	4552.5	1380.4	4707.5	1380
4822.5	1380	4937.5	1382	5022.5	1383	5127.5	1382	5157.5	1380
5262.5	1378	5387.5	1376.5	5477.5	1378	5837.5	1380	6142.5	1381
6312.5	1380	6727.5	1381	7427.5	1380.5	7777.5	1380.6	7887.5	1380.7
7907.5	1382	7942.5	1382	7977.5	1380.3	8387.5	1380.5	8817.5	1380.5
9117.5	1380	9177.5	1379.8	9457.5	1380	9582.5	1380.6	9647.5	1380
9677.5	1380	9827.5	1382	9857.5	1382.3	9877.5	1382	9912.5	1380
9942.5	1370.7	10057.5	1370.7	10127.5	1380	10272.5	1380	10487.5	1381
11137.5	1381.6	11447.5	1380.3	11807.5	1382	11957.5	1382	12317.5	1381
12757.5	1381.8	13042.5	1381.5	13132.5	1380.8	13267.5	1382	13372.5	1382
13457.5	1383.1	13492.5	1382	13647.5	1381	13697.5	1380.5	13762.5	1382
13767.5	1382.9	13777.5	1382	13787.5	1378	13797.5	1378	13822.5	1382

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-892.5	.1	3167.5	.05	3287.5	.035	5127.5	.05	9857.5	.03
10127.5	.05	13767.5	.015						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9857.5	10127.5	1530	1945.05	1230	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
11147.1	13760.97	1384.5

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1381.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.37	Wt. n-Val.	0.050	0.030	0.018
W.S. Elev (ft)	1380.27	Reach Len. (ft)	1530.00	1945.05	1230.00
Crit W.S. (ft)	1379.79	Flow Area (sq ft)	1510.63	1593.95	93.03
E.G. Slope (ft/ft)	0.003106	Area (sq ft)	1510.63	1593.95	93.03
Q Total (cfs)	19800.00	Flow (cfs)	3060.33	16383.66	356.01
Top Width (ft)	2330.43	Top Width (ft)	1876.96	219.79	233.68
Vel Total (ft/s)	6.19	Avg. Vel. (ft/s)	2.03	10.28	3.83
Max Chl Dpth (ft)	9.57	Hydr. Depth (ft)	0.80	7.25	0.40
Conv. Total (cfs)	355296.3	Conv. (cfs)	54915.3	293992.6	6388.4
Length Wtd. (ft)	1768.60	Wetted Per. (ft)	1877.09	221.82	234.30
Min Ch El (ft)	1370.70	Shear (lb/sq ft)	0.16	1.39	0.08
Alpha	2.30	Stream Power (lb/ft s)	0.32	14.32	0.29
Frctn Loss (ft)	5.10	Cum Volume (acre-ft)	2295.69	286.88	39.43
C & E Loss (ft)	0.37	Cum SA (acres)	2473.13	68.19	92.73

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
2332.50	3407.50	9.73	13.93	61.39	0.05	0.23	0.70
3407.50	4482.50	0.08	0.36	10.33	0.00	0.04	0.23
4482.50	5557.50	2577.84	996.49	640.83	13.02	1.56	2.59
5557.50	6632.50	363.84	327.61	523.37	1.84	0.63	1.11
6632.50	8782.50						
8782.50	9857.50	108.83	172.24	641.17	0.55	0.27	0.63
LB 9857.50	9911.50	0.24	0.41	3.79	0.00	0.11	0.59
9911.50	9965.50	3360.73	368.14	55.41	16.97	6.82	9.13
9965.50	10019.50	6020.75	516.97	54.00	30.41	9.57	11.65
10019.50	10073.50	5684.43	499.96	54.14	28.71	9.26	11.37
10073.50	RB 10127.50	1317.52	208.47	54.47	6.65	3.86	6.32

10127.50	10497.00	29.99	47.69	203.79	0.15	0.23	0.63
10497.00	13453.00						
13453.00	13822.50	326.02	45.35	30.51	1.65	1.52	7.19

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 10.660

INPUT
Description:
Station Elevation Data num= 71

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-727.5	1377.6	-597.5	1378	-587.5	1380	-562.5	1380	42.5	1378
447.5	1378	582.5	1377.5	822.5	1377.9	1032.5	1377	1422.5	1376
1902.5	1375	2187.5	1374.4	2192.5	1376	2252.5	1380	2272.5	1380
2292.5	1378	2317.5	1376	2572.5	1375.5	2922.5	1375.3	3162.5	1375
3262.5	1374.8	3372.5	1374	3462.5	1372.7	3542.5	1374	3632.5	1376
4102.5	1377	4297.5	1376	4812.5	1375.4	5052.5	1376	5202.5	1378
5287.5	1378.4	5357.5	1378	5477.5	1376	5592.5	1374	5637.5	1372.9
5812.5	1374	5992.5	1374	6412.5	1375	6947.5	1375	7522.5	1374.8
7942.5	1375	8482.5	1375	8857.5	1375	9422.5	1375	9722.5	1375
9832.5	1376	9912.5	1374	9957.5	1368	10042.5	1366	10062.5	1374
10252.5	1375.4	10432.5	1376	10562.5	1376	10767.5	1375.8	10842.5	1376
10972.5	1375.7	11142.5	1376	11302.5	1375.6	11352.5	1376	11572.5	1377.5
11672.5	1376	11882.5	1375	12252.5	1376	12392.5	1376	12487.5	1375
12662.5	1376	12692.5	1376	12697.5	1374	12712.5	1374	12717.5	1376
12732.5	1377.3								

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-727.5	.1	2252.5	.05	3632.5	.035	5287.5	.05	9832.5	.03
10432.5	.05	12692.5	.015						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9832.5	10432.5	1400	2089.32	1050	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10448.24	11591.8	1378.67

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1376.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.051	0.030	0.036
W.S. Elev (ft)	1376.03	Reach Len. (ft)	1400.00	2089.32	1050.00
Crit W.S. (ft)	1375.77	Flow Area (sq ft)	7487.89	1508.65	496.24
E.G. Slope (ft/ft)	0.002686	Area (sq ft)	7487.89	1508.65	637.91
Q Total (cfs)	19800.00	Flow (cfs)	11965.37	7144.59	690.04
Top Width (ft)	9802.43	Top Width (ft)	7230.82	600.00	1971.62
Vel Total (ft/s)	2.09	Avg. Vel. (ft/s)	1.60	4.74	1.39
Max Chl Dpth (ft)	10.03	Hydr. Depth (ft)	1.04	2.51	0.47
Conv. Total (cfs)	382073.3	Conv. (cfs)	230891.3	137866.5	13315.5
Length Wtd. (ft)	1532.43	Wetted Per. (ft)	7231.16	601.99	1063.82
Min Ch El (ft)	1366.00	Shear (lb/sq ft)	0.17	0.42	0.08
Alpha	2.23	Stream Power (lb/ft s)	0.28	1.99	0.11
Frctn Loss (ft)	5.71	Cum Volume (acre-ft)	2137.65	217.61	29.11
C & E Loss (ft)	0.01	Cum SA (acres)	2313.18	49.88	61.59

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
1384.50	2440.50	421.65	655.78	905.54	2.13	0.72	0.64
2440.50	3496.50	1737.54	1121.28	1056.02	8.78	1.06	1.55

3496.50	4552.50	424.71	248.87	410.59	2.15	0.61	1.71
4552.50	5608.50	489.87	357.37	635.00	2.47	0.56	1.37
5608.50	6664.50	3820.37	1798.94	1056.01	19.29	1.70	2.12
6664.50	7720.50	1878.01	1174.81	1056.00	9.48	1.11	1.60
7720.50	8776.50	1679.89	1098.80	1056.00	8.48	1.04	1.53
8776.50	9832.50	1513.31	1032.07	1056.00	7.64	0.98	1.47
LB 9832.50	9952.50	736.26	270.20	120.38	3.72	2.25	2.72
9952.50	10072.50	5908.58	946.50	121.61	29.84	7.89	6.24
10072.50	10192.50	380.59	181.63	120.00	1.92	1.51	2.10
10192.50	10312.50	102.75	82.79	120.00	0.52	0.69	1.24
10312.50	RB 10432.50	16.40	27.53	120.00	0.08	0.23	0.60
10432.50	10662.50	0.06	0.46	15.74	0.00	0.03	0.14
10662.50	11582.50						
11582.50	11812.50	36.84	50.81	141.96	0.19	0.36	0.73
11812.50	12042.50	241.68	190.51	230.00	1.22	0.83	1.27
12042.50	12272.50	41.68	66.37	230.00	0.21	0.29	0.63
12272.50	12502.50	44.07	68.62	230.01	0.22	0.30	0.64
12502.50	12732.50	325.71	119.47	216.11	1.65	0.55	2.73

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 10.264

INPUT
Description:
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1765	1374	-1755	1372.7	-1710	1372.7	-1175	1372	-780	1371.9
-720	1371.8	-685	1371.8	-400	1371.4	-365	1371.5	-330	1370.9
255	1370	590	1369.7	850	1368.6	1020	1374	1070	1374
1125	1372	1200	1370	1305	1368	1310	1367.5	1330	1368
1350	1370	1460	1371.8	1545	1370	1635	1369.4	1770	1369.8
1960	1369.5	2010	1368	2060	1367.7	2120	1368	2205	1370
2355	1372	2395	1372.5	2440	1372	2590	1370	2735	1368
2750	1366.6	2820	1368	3065	1369.5	3255	1368.7	3305	1370
3345	1370	3405	1370	3655	1369.8	3795	1369.9	3880	1369
3940	1370	4005	1372	4190	1372.6	4320	1372	4400	1370
4490	1368.2	4545	1370	4640	1369.2	4775	1369	4800	1370
4815	1369.8	4825	1370	4935	1370.6	4965	1370	5035	1368.6
5185	1370	5225	1372	5365	1373.6	5460	1372	5600	1370
5685	1368	5735	1367.7	5815	1368	6145	1370	6305	1369
6485	1370	6865	1370	7090	1370.3	7235	1370	7865	1370.5
7940	1370	8085	1368.5	8135	1369.4	8500	1368.9	8855	1370
9285	1370	9305	1372	9405	1374	9790	1374.6	9895	1374
9965	1361	10075	1361	10115	1370	10165	1372	10335	1376
10480	1370	11365	1370	11455	1369.3	11465	1370	11485	1372.1
11505	1366	11520	1366	11535	1372				

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-1765	.1	1070	.05	1305	.035	5600	.05	9790	.3
10335	.05	11485	.015						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9790	10335	1450	1900.36	1480	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1370.46	Element			
Vel Head (ft)	0.11	Wt. n-Val.	0.042	0.300	0.022
W.S. Elev (ft)	1370.35	Reach Len. (ft)	1450.00	1900.36	1480.00
Crit W.S. (ft)	1370.14	Flow Area (sq ft)	6389.48	1459.78	503.61
E.G. Slope (ft/ft)	0.005504	Area (sq ft)	6389.48	1459.78	503.61
Q Total (cfs)	19800.00	Flow (cfs)	15619.21	1947.42	2233.37
Top Width (ft)	8652.87	Top Width (ft)	7406.72	209.15	1037.00
Vel Total (ft/s)	2.37	Avg. Vel. (ft/s)	2.44	1.33	4.43
Max Chl Dpth (ft)	9.35	Hydr. Depth (ft)	0.86	6.98	0.49
Conv. Total (cfs)	266897.8	Conv. (cfs)	210542.1	26250.6	30105.2
Length Wtd. (ft)	1526.85	Wetted Per. (ft)	7407.29	211.02	1038.54
Min Ch El (ft)	1361.00	Shear (lb/sq ft)	0.30	2.38	0.17

Alpha	1.26	Stream Power (lb/ft s)	0.72	3.17	0.74
Frctn Loss (ft)	6.12	Cum Volume (acre-ft)	1914.65	146.42	15.36
C & E Loss (ft)	0.01	Cum SA (acres)	2077.96	30.48	25.33

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
-609.50	546.00	91.47	180.52	519.67	0.46	0.35	0.51
546.00	1701.50	1339.92	747.05	717.15	6.77	1.04	1.79
1701.50	2857.00	4492.94	1195.81	823.42	22.69	1.45	3.76
2857.00	4012.50	2513.59	945.70	1094.47	12.69	0.86	2.66
4012.50	5168.00	1983.45	695.51	724.27	10.02	0.96	2.85
5168.00	6323.50	2760.90	1059.48	772.21	13.94	1.37	2.61
6323.50	7479.00	404.17	399.83	1155.50	2.04	0.35	1.01
7479.00	8634.50	1657.04	860.79	946.57	8.37	0.91	1.93
8634.50	9790.00	375.74	304.79	654.04	1.90	0.47	1.23
9790.00	9899.00						
9899.00	10008.00	819.83	637.59	94.22	4.14	6.83	1.29
10008.00	10117.00	1127.50	821.27	110.00	5.69	7.53	1.37
10117.00	10226.00	0.09	0.92	6.80	0.00	0.14	0.09
10226.00	10455.00						
10455.00	10575.00	37.02	34.92	103.51	0.19	0.34	1.06
10575.00	10695.00	46.03	42.22	120.00	0.23	0.35	1.09
10695.00	10815.00	46.03	42.22	120.00	0.23	0.35	1.09
10815.00	10935.00	46.03	42.22	120.00	0.23	0.35	1.09
10935.00	11055.00	46.03	42.22	120.00	0.23	0.35	1.09
11055.00	11175.00	46.03	42.22	120.00	0.23	0.35	1.09
11175.00	11295.00	46.03	42.22	120.00	0.23	0.35	1.09
11295.00	11415.00	65.02	51.94	120.00	0.33	0.43	1.25
11415.00	11535.00	1855.16	163.45	95.03	9.37	1.75	11.35

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 9.904

INPUT
Description:
Station Elevation Data num= 92

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-2240	1364.5	-1930	1364	-1160	1363	-570	1362	-480	1362
-425	1362.2	-380	1362	-360	1362.6	-260	1366	-240	1366
-220	1364	-205	1363.5	-140	1364	35	1364.5	210	1364
275	1364	510	1362	810	1364	935	1364	1290	1363
1690	1364	1890	1364	1935	1362.2	1970	1364	2360	1363.4
2420	1364	2670	1365.6	2780	1364	2940	1362	2970	1361.4
3030	1362	3110	1363.5	3210	1362.8	3335	1362.9	3410	1364
3450	1364	3750	1362.5	3910	1363.6	4050	1362	4070	1361.9
4105	1362	4205	1364	4340	1366	4465	1364	4600	1362
4635	1361.6	4665	1362	4740	1363.8	4880	1363.6	4915	1363.9
5100	1363	5290	1364	5480	1366	5600	1366.9	5730	1366
5855	1364	5980	1362	6060	1361.1	6170	1362	6435	1363
6540	1364	6870	1364.4	7065	1364	7355	1362.8	7730	1362.7
7995	1362.9	8130	1364	8165	1366	8195	1366.5	8220	1366
8280	1364	8520	1363	8785	1362.6	8960	1364	9095	1363.7
9230	1364	9495	1365	9525	1365.5	9870	1366	9935	1366
9965	1358	10035	1358	10070	1362	10145	1364	10200	1364
10245	1363.3	10275	1364	10315	1366	10330	1366	10335	1360
10350	1360	10380	1365.6						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-2240	.1	-240	.05	1690	.035	5730	.05	9935	.03
10145	.05	10330	.015						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9935	10145	2840	2412.12	2422.12	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1364.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.24	Wt. n-Val.	0.050	0.030	0.016
W.S. Elev (ft)	1364.09	Reach Len. (ft)	2840.00	2412.12	2422.12
Crit W.S. (ft)		Flow Area (sq ft)	8468.98	721.55	151.84
E.G. Slope (ft/ft)	0.003043	Area (sq ft)	8468.98	721.55	151.84
Q Total (cfs)	19800.00	Flow (cfs)	14006.71	4577.94	1215.35
Top Width (ft)	9554.94	Top Width (ft)	9179.86	202.85	172.22
Vel Total (ft/s)	2.12	Avg. Vel. (ft/s)	1.65	6.34	8.00
Max Chl Dpth (ft)	6.09	Hydr. Depth (ft)	0.92	3.56	0.88
Conv. Total (cfs)	358944.7	Conv. (cfs)	253920.9	82991.3	22032.5
Length Wtd. (ft)	2730.55	Wetted Per. (ft)	9180.20	203.91	174.54
Min Ch El (ft)	1358.00	Shear (lb/sq ft)	0.18	0.67	0.17
Alpha	3.38	Stream Power (lb/ft s)	0.29	4.26	1.32
Frctn Loss (ft)	10.10	Cum Volume (acre-ft)	1667.35	98.84	4.22
C & E Loss (ft)	0.01	Cum SA (acres)	1801.90	21.49	4.79

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
-2240.00	-1022.50	372.81	626.56	965.78	1.88	0.65	0.60
-1022.50	195.00	1431.77	1260.14	838.23	7.23	1.50	1.14
195.00	1412.50	1234.80	930.36	1217.52	6.24	0.76	1.33
1412.50	2630.00	436.14	398.64	1022.27	2.20	0.39	1.09
2630.00	3847.50	2834.87	1176.21	1074.02	14.32	1.10	2.41
3847.50	5065.00	2279.66	990.73	969.80	11.51	1.02	2.30
5065.00	6282.50	2290.08	980.67	667.33	11.57	1.47	2.34
6282.50	7500.00	934.28	670.56	815.87	4.72	0.82	1.39
7500.00	8717.50	1863.17	1131.69	1071.98	9.41	1.06	1.65
8717.50	9935.00	329.12	303.41	537.41	1.66	0.56	1.08
LB 9935.00	9977.00	823.66	142.76	35.65	4.16	4.10	5.77
9977.00	10019.00	1953.78	255.95	42.00	9.87	6.09	7.63
10019.00	10061.00	1483.51	217.32	42.17	7.49	5.17	6.83
10061.00	10103.00	269.66	78.06	42.07	1.36	1.86	3.45
10103.00	RB 10145.00	47.34	27.47	42.01	0.24	0.65	1.72
10145.00	10168.50	0.67	2.21	23.50	0.00	0.09	0.30
10168.50	10192.00	0.67	2.21	23.50	0.00	0.09	0.30
10192.00	10215.50	1.87	4.08	23.50	0.01	0.17	0.46
10215.50	10239.00	11.54	12.17	23.50	0.06	0.52	0.95
10239.00	10262.50	16.01	14.80	23.51	0.08	0.63	1.08
10262.50	10286.00	1.63	3.09	14.39	0.01	0.21	0.53
10286.00	10309.50						
10309.50	10333.00	3.90	1.20	2.21	0.02	0.85	3.26
10333.00	10356.50	1041.60	89.87	24.74	5.26	3.82	11.59
10356.50	10380.00	137.45	22.23	15.70	0.69	1.44	6.18

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 9.447

INPUT
Description:
Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-3505	1354.8	-3325	1356	-3310	1356	-3260	1354	-2875	1354
-2505	1353.8	-2005	1354	-1525	1354	-1325	1354	-895	1354.1
-725	1354	-685	1354.7	-520	1358	-505	1358	-490	1356
30	1354	45	1353.4	65	1354	335	1354.8	865	1354.4
1075	1354	1435	1353	1920	1352.5	2055	1352.4	2595	1354
2735	1354	3375	1353.5	3600	1353	3735	1354	3845	1353.1
3945	1353.3	4230	1353	4685	1353.3	5125	1353	5620	1353
6215	1352	6380	1354	6505	1356	6550	1356	6680	1354
6775	1352	6825	1350.9	6875	1352	6915	1354	6935	1352
6965	1350.1	6985	1352	7045	1354	7125	1354	7315	1353

7555	1354	7645	1356	7775	1356	7985	1354	8225	1352.8
8495	1354	8645	1353	8745	1352	8775	1350	8795	1348
8820	1348	8875	1352	9165	1353.5	9245	1354	9495	1354
9675	1353.6	9875	1354	9885	1356	9915	1357.8	9970	1348
10030	1348	10040	1354	10055	1355.9				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-3505	.1	-505	.05	3600	.035	9165	.05	9915	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9915	10055	1600	1887.23	1897.23	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1354.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.037	0.030	
W.S. Elev (ft)	1353.85	Reach Len. (ft)	1600.00	1887.23	1897.23
Crit W.S. (ft)		Flow Area (sq ft)	5785.03	475.15	
E.G. Slope (ft/ft)	0.004550	Area (sq ft)	5785.03	475.15	
Q Total (cfs)	19800.00	Flow (cfs)	15448.13	4351.87	
Top Width (ft)	7230.01	Top Width (ft)	7127.46	102.55	
Vel Total (ft/s)	3.16	Avg. Vel. (ft/s)	2.67	9.16	
Max Chl Dpth (ft)	5.85	Hydr. Depth (ft)	0.81	4.63	
Conv. Total (cfs)	293524.5	Conv. (cfs)	229010.3	64514.2	
Length Wtd. (ft)	1672.77	Wetted Per. (ft)	7128.20	104.69	
Min Ch El (ft)	1348.00	Shear (lb/sq ft)	0.23	1.29	
Alpha	2.40	Stream Power (lb/ft s)	0.62	11.81	
Frctn Loss (ft)	6.39	Cum Volume (acre-ft)	1202.69	65.71	
C & E Loss (ft)	0.01	Cum SA (acres)	1270.30	13.04	

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
-3505.00	-2163.00	0.37	4.61	200.24	0.00	0.02	0.08
-2163.00	-821.00						
-821.00	521.00	4.25	5.80	26.04	0.02	0.22	0.73
521.00	1863.00	1004.86	585.40	732.59	5.08	0.80	1.72
1863.00	3205.00	992.37	645.50	953.02	5.01	0.68	1.54
3205.00	4547.00	1442.69	762.05	1302.41	7.29	0.59	1.89
4547.00	5889.00	2723.20	1095.10	1342.00	13.75	0.82	2.49
5889.00	7231.00	4308.12	1231.19	903.88	21.76	1.36	3.50
7231.00	8573.00	669.09	380.97	786.55	3.38	0.48	1.76
8573.00	9915.00	4303.21	1074.44	881.47	21.73	1.22	4.01
LB 9915.00	9943.00	6.00	3.01	5.90	0.03	0.52	2.00
9943.00	9971.00	708.66	98.74	28.43	3.58	3.53	7.18
9971.00	9999.00	1662.12	163.69	28.00	8.39	5.85	10.15
9999.00	10027.00	1662.12	163.69	28.00	8.39	5.85	10.15
10027.00	RB 10055.00	312.94	46.02	14.36	1.58	3.61	6.80

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 9.090

INPUT
Description:
Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-3460	1348.5	-3410	1348.2	-3385	1348.8	-3130	1348.5	-2820	1348
-2280	1347.5	-2150	1347.1	-2105	1348	-1975	1347.5	-1815	1347.3
-1775	1348	-1660	1348	-1240	1347	-910	1346	-560	1350.5
-460	1345.5	-230	1346	-30	1346	-15	1344	10	1342
20	1344	60	1346	370	1347.9	950	1348	1100	1348
1450	1347	1970	1347.1	2140	1347.8	2670	1346.8	3375	1348
3575	1348	4350	1347	4670	1347	4780	1347.7	5275	1347.7
5590	1347.7	5750	1347.5	5950	1347.2	6010	1348	6130	1348.3

6240	1348.3	6285	1348	6330	1347.2	6490	1347.1	6610	1346.8
7020	1346.9	7290	1346.9	7510	1346	7610	1345.8	7675	1346
7740	1346.5	7770	1346	7820	1344.7	7950	1346	8105	1348
8200	1348	8440	1346.9	8620	1346	8780	1344	8805	1345.6
8865	1344	9030	1344	9070	1346	9220	1344.6	9465	1346
9680	1347	9860	1348	9910	1350	9935	1350	9980	1338
10020	1338	10030	1348	10080	1349.4				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-3460	.1	-560	.05	2140	.035	9465	.05	9935	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9935	10080	2400	1819.85	1829.85	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1347.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.50	Wt. n-Val.	0.039	0.030	
W.S. Elev (ft)	1347.31	Reach Len. (ft)	2400.00	1819.85	1829.85
Crit W.S. (ft)	1347.31	Flow Area (sq ft)	5589.35	578.55	
E.G. Slope (ft/ft)	0.003257	Area (sq ft)	5589.35	578.55	
Q Total (cfs)	19800.00	Flow (cfs)	14117.23	5682.77	
Top Width (ft)	6576.74	Top Width (ft)	6492.50	84.24	
Vel Total (ft/s)	3.21	Avg. Vel. (ft/s)	2.53	9.82	
Max Chl Dpth (ft)	9.31	Hydr. Depth (ft)	0.86	6.87	
Conv. Total (cfs)	346941.4	Conv. (cfs)	247366.3	99575.1	
Length Wtd. (ft)	2275.56	Wetted Per. (ft)	6493.22	89.32	
Min Ch El (ft)	1338.00	Shear (lb/sq ft)	0.18	1.32	
Alpha	3.13	Stream Power (lb/ft s)	0.44	12.94	
Frctn Loss (ft)	7.89	Cum Volume (acre-ft)	993.79	42.88	
C & E Loss (ft)	0.10	Cum SA (acres)	1020.16	8.99	

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
-3460.00	-2120.50	1.52	8.55	80.06	0.01	0.11	0.18
-2120.50	-781.00	204.80	356.25	575.34	1.03	0.62	0.57
-781.00	558.50	2120.36	1074.13	771.08	10.71	1.39	1.97
558.50	1898.00	86.42	138.33	557.72	0.44	0.25	0.62
1898.00	3237.50	145.02	168.70	697.61	0.73	0.24	0.86
3237.50	4577.00	93.37	109.24	469.94	0.47	0.23	0.85
4577.00	5916.50	30.24	38.21	184.44	0.15	0.21	0.79
5916.50	7256.00	421.35	361.17	974.40	2.13	0.37	1.17
7256.00	8595.50	2586.78	1101.94	1041.55	13.06	1.06	2.35
8595.50	9935.00	8427.37	2232.81	1141.07	42.56	1.96	3.77
LB 9935.00	9964.00	219.65	47.76	19.59	1.11	2.52	4.60
9964.00	9993.00	2392.82	235.96	29.56	12.08	8.14	10.14
9993.00	10022.00	2942.38	268.09	29.83	14.86	9.24	10.98
10022.00	10051.00	127.91	26.74	10.34	0.65	3.66	4.78

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 8.745

INPUT

Description:
Station Elevation Data num= 69

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-2355	1338.7	-2275	1338	-2255	1334	-2240	1334	-2200	1342
-2175	1342	-2005	1342	-1870	1342	-1835	1340	-1825	1338
-1720	1338	-1420	1337	-1105	1337.7	-1040	1337.5	-785	1337
325	1337.6	375	1338	445	1338	455	1336	480	1336
485	1338	685	1337	1295	1336	1750	1337.4	1815	1338
1865	1338	1895	1337.5	1925	1338	2115	1338	3195	1338
3525	1338	3595	1337.5	3755	1338	3775	1338	3935	1337
4445	1337.5	4495	1338	4755	1338	4825	1337	5535	1337
5550	1338	5575	1340	5695	1340	5825	1338	5885	1337
6255	1336	6855	1336.5	7555	1337	7705	1336	7845	1335.5
8075	1336	8170	1338	8375	1338.9	8495	1338	8725	1336
8755	1336	8995	1337.5	9275	1337.4	9325	1337.7	9455	1337
9485	1336.7	9645	1337.3	9835	1338	9865	1339.7	9870	1338.7
9945	1340	9985	1332	10015	1332	10055	1340		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-2355	.05	-1040	.05	685	.15	6855	.035	9945	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9945	10055	2100	2814.07	2824.07	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1338.27	Element			
Vel Head (ft)	0.16	Wt. n-Val.	0.059	0.030	
W.S. Elev (ft)	1338.11	Reach Len. (ft)	2100.00	2814.07	2824.07
Crit W.S. (ft)		Flow Area (sq ft)	10494.61	369.99	
E.G. Slope (ft/ft)	0.003697	Area (sq ft)	10494.61	369.99	
Q Total (cfs)	19800.00	Flow (cfs)	16988.52	2811.48	
Top Width (ft)	11270.17	Top Width (ft)	11179.06	91.10	
Vel Total (ft/s)	1.82	Avg. Vel. (ft/s)	1.62	7.60	
Max Chl Dpth (ft)	6.11	Hydr. Depth (ft)	0.94	4.06	
Conv. Total (cfs)	325647.9	Conv. (cfs)	279407.8	46240.1	
Length Wtd. (ft)	2198.74	Wetted Per. (ft)	11180.60	92.31	
Min Ch El (ft)	1332.00	Shear (lb/sq ft)	0.22	0.93	
Alpha	3.15	Stream Power (lb/ft s)	0.35	7.03	
Frctn Loss (ft)	7.59	Cum Volume (acre-ft)	550.71	23.07	
C & E Loss (ft)	0.00	Cum SA (acres)	533.34	5.33	

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
-2355.00	-1125.00	839.21	572.38	769.53	4.24	0.74	1.47
-1125.00	105.00	1648.48	1035.35	1230.00	8.33	0.84	1.59
105.00	1335.00	1305.38	1404.36	1230.59	6.59	1.14	0.93
1335.00	2565.00	275.49	684.19	1230.01	1.39	0.56	0.40
2565.00	3795.00	33.85	194.48	1230.00	0.17	0.16	0.17
3795.00	5025.00	391.26	844.48	1230.01	1.98	0.69	0.46
5025.00	6255.00	836.53	1208.36	963.60	4.22	1.25	0.69
6255.00	7485.00	3772.50	1989.00	1230.00	19.05	1.62	1.90
7485.00	8715.00	5422.52	1536.76	944.88	27.39	1.63	3.53
8715.00	9945.00	2463.30	1025.26	1121.96	12.44	0.91	2.40
LB 9945.00	9967.00	48.59	15.75	12.80	0.25	1.26	3.08
9967.00	9989.00	753.85	102.03	22.36	3.81	4.64	7.39
9989.00	10011.00	1206.58	134.43	22.00	6.09	6.11	8.98
10011.00	10033.00	753.85	102.03	22.36	3.81	4.64	7.39
10033.00	RB 10055.00	48.59	15.75	12.80	0.25	1.26	3.08

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 8.212

INPUT
Description:
Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-2205	1334	-2190	1332	-2185	1330	-2170	1330	-2120	1336
-2090	1338	-1900	1338	-1785	1334	-1440	1332	-1055	1330
-1025	1332	-985	1332	-805	1330	-665	1330	-525	1329
-325	1329.5	-35	1329.5	355	1330	425	1330	1045	1329.5
1205	1330	1745	1330	1850	1329.7	1965	1330	2285	1329
2585	1329.7	2845	1329.5	2975	1330	3415	1330.5	3680	1330
3805	1330	3980	1330.5	4145	1330	4155	1329.6	4705	1329.5
5455	1328.5	5645	1328	5995	1329	6295	1329	6845	1328.5
7265	1328.5	7400	1328	7425	1324	7465	1324	7505	1328
7955	1329.5	8455	1329.5	9065	1330	9270	1329.5	9705	1329.5
9830	1329	9865	1329.7	9895	1328	9910	1326.6	9915	1328
9935	1328	9965	1330	9995	1322.5	10005	1322.5	10045	1332

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-2205	.05	-985	.035	355	.15	7400	.035	9965	.03

Bank Sta: Left	Right	Coeff Contr.	Expan.
9965	10045	.1	.3

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1330.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.067	0.030	
W.S. Elev (ft)	1330.53	Reach Len. (ft)			
Crit W.S. (ft)	1330.29	Flow Area (sq ft)	12351.84	344.13	
E.G. Slope (ft/ft)	0.003301	Area (sq ft)	12351.84	344.13	
Q Total (cfs)	19800.00	Flow (cfs)	17111.69	2688.31	
Top Width (ft)	11020.86	Top Width (ft)	10947.07	73.79	
Vel Total (ft/s)	1.56	Avg. Vel. (ft/s)	1.39	7.81	
Max Chl Dpth (ft)	8.03	Hydr. Depth (ft)	1.13	4.66	
Conv. Total (cfs)	344639.0	Conv. (cfs)	297846.3	46792.7	
Length Wtd. (ft)		Wetted Per. (ft)	10948.15	75.66	
Min Ch El (ft)	1322.50	Shear (lb/sq ft)	0.23	0.94	
Alpha	4.09	Stream Power (lb/ft s)	0.32	7.32	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
-2205.00	-988.00	25.11	38.05	129.92	0.13	0.29	0.66
-988.00	229.00	2057.73	1008.25	1081.31	10.39	0.93	2.04
229.00	1446.00	420.58	844.87	1217.00	2.12	0.69	0.50
1446.00	2663.00	477.40	1053.45	1217.00	2.41	0.87	0.45
2663.00	3880.00	169.61	566.17	1217.00	0.86	0.47	0.30
3880.00	5097.00	521.41	1110.69	1217.01	2.63	0.91	0.47
5097.00	6314.00	1713.59	2267.93	1217.00	8.65	1.86	0.76
6314.00	7531.00	5357.98	2725.14	1217.52	27.06	2.24	1.97
7531.00	8748.00	3739.19	1512.65	1217.00	18.88	1.24	2.47
8748.00	9965.00	2629.09	1224.64	1217.38	13.28	1.01	2.15
LB 9965.00	9981.00	183.60	40.41	16.49	0.93	2.53	4.54
9981.00	9997.00	888.33	103.91	16.43	4.49	6.49	8.55
9997.00	10013.00	1151.71	120.81	16.22	5.82	7.55	9.53
10013.00	10029.00	433.76	67.61	16.45	2.19	4.23	6.42
10029.00	RB 10045.00	30.91	11.39	10.06	0.16	1.16	2.71

Warning: Divided flow computed for this cross-section.

SUMMARY OF MANNING'S N VALUES

River:Powerline FRS

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7

Powerline	20.000	.022	.022	.022		
Powerline	19.963	.05	.022	.05		
Powerline	19.925	.022	.022	.022		
Powerline	19.905	.022	.022	.022		
Powerline	19.901	.05	.022	.05		
Powerline	19.879	.05	.015	.05		
Powerline	19.806	.05	.015	.05		
Powerline	19.727	.05	.015	.05		
Powerline	19.643	.05	.015	.05		
Powerline	19.544	.05	.015	.05		
Powerline	19.456	.05	.015	.05		
Powerline	19.369	.05	.015	.05		
Powerline	19.278	.05	.015	.05		
Powerline	19.191	.05	.015	.05		
Powerline	19.100	.05	.015	.05		
Powerline	18.999	.05	.015	.05		
Powerline	18.905	.05	.015	.05		
Powerline	18.814	.05	.015	.05		
Powerline	18.729	.05	.015	.05		
Powerline	18.703	.05	.015	.05		
Powerline	18.612	.05	.015	.05		
Powerline	18.520	.05	.015	.05		
Powerline	18.429	.05	.015	.05		
Powerline	18.339	.05	.015	.05		
Powerline	18.245	.05	.015	.05		
Powerline	18.153	.05	.015	.05		
Powerline	18.059	.05	.015	.05		
Powerline	17.964	.05	.015	.05		
Powerline	17.873	.05	.015	.05		
Powerline	17.778	.05	.015	.05		
Powerline	17.684	.05	.015	.05		
Powerline	17.590	.05	.015	.05		
Powerline	17.494	.05	.015	.05		
Powerline	17.405	.05	.015	.05		
Powerline	17.309	.05	.015	.05		
Powerline	17.218	.05	.015	.05		
Powerline	17.134	.05	.015	.05		
Powerline	17.044	.05	.015	.05		
Powerline	16.945	.05	.015	.05		
Powerline	16.849	.05	.015	.05		
Powerline	16.753	.05	.015	.05		
Powerline	16.665	.05	.015	.05		
Powerline	16.575	.05	.015	.05		
Powerline	16.468	.05	.015	.05		
Powerline	16.373	.05	.015	.05		
Powerline	16.275	.05	.015	.05		
Powerline	16.185	.05	.015	.05		
Powerline	16.087	.05	.015	.05		
Powerline	15.995	.05	.015	.05		
Powerline	15.913	.05	.015	.05		
Powerline	15.717	.05	.05	.05		
Powerline	15.529	.05	.05	.05		
Powerline	15.364	.05	.05	.05		
Powerline	15.177	.05	.05	.05		
Powerline	14.988	.05	.05	.05		
Powerline	14.890	.05	.05	.05		
Powerline	14.790	.05	.05	.05		
Powerline	14.691	.05	.05	.05		
Powerline	14.601	.05	.05	.05		
Powerline	14.504	.1	.05	.05	.05	
Powerline	14.410	.1	.022	.05	.05	.05
Powerline	14.313	.1	.05	.05	.05	
Powerline	14.218	.1	.05	.05		
Powerline	13.940	.1	.05	.05		
Powerline	13.750	.1	.05	.05		
Powerline	13.560	.1	.05	.05		
Powerline	13.355	.1	.05	.05		
Powerline	13.145	.022	.05			
Powerline	13.111	.1	.05	.05		
Powerline	13.054	.1	.05	.05		
Powerline	12.958	.1	.05	.05		
Powerline	12.867	.1	.05	.05		
Powerline	12.770	.1	.05	.05		
Powerline	12.674	.1	.05	.05		
Powerline	12.576	.1	.05	.05		
Powerline	12.481	.1	.05	.05		

Powerline	12.382	.1	.05	.05			
Powerline	12.258	.1	.05	.05			
Powerline	11.028	.1	.05	.035	.05	.03	.05
.015							
Powerline	10.660	.1	.05	.035	.05	.03	.05
.015							
Powerline	10.264	.1	.05	.035	.05	.3	.05
.015							
Powerline	9.904	.1	.05	.035	.05	.03	.05
.015							
Powerline	9.447	.1	.05	.035	.05	.03	
Powerline	9.090	.1	.05	.035	.05	.03	
Powerline	8.745	.05	.05	.15	.035	.03	
Powerline	8.212	.05	.035	.15	.035	.03	

SUMMARY OF REACH LENGTHS

River: Powerline FRS

Reach	River Sta.	Left	Channel	Right
Powerline	20.000	194.05	193.94	194.05
Powerline	19.963	202.72	203.44	202.72
Powerline	19.925	106	105.38	106
Powerline	19.905	23	22.1	23
Powerline	19.901	213.82	249.12	282.84
Powerline	19.879	215.31	249.97	212.05
Powerline	19.806	420.97	416.55	422.34
Powerline	19.727	479.98	444.3	444.2
Powerline	19.643	447.66	524.77	489.6
Powerline	19.544	454.81	461.63	449.09
Powerline	19.456	471.43	458.83	474.45
Powerline	19.369	470.44	483.62	480.37
Powerline	19.278	479.41	456.95	473.4
Powerline	19.191	473.38	480.01	494.92
Powerline	19.100	498.88	532.81	502.11
Powerline	18.999	550.8	497.5	512.71
Powerline	18.905	497.15	483.04	572.01
Powerline	18.814	468.36	449.54	498.59
Powerline	18.729	79.54	137.44	117.14
Powerline	18.703	420.6	479.13	473.13
Powerline	18.612	439.72	484.69	514.43
Powerline	18.520	522.38	479.05	425.04
Powerline	18.429	544.04	475.03	439.46
Powerline	18.339	457.74	497.49	511.08
Powerline	18.245	487.77	484.36	558.91
Powerline	18.153	560.42	500	528.17
Powerline	18.059	463.51	500.02	509.99
Powerline	17.964	490.55	480	439.57
Powerline	17.873	490.49	500	414.21
Powerline	17.778	487.24	500.01	490.5
Powerline	17.684	529.26	495.97	402.35
Powerline	17.590	519.2	503.87	537.11
Powerline	17.494	473.59	472.04	447.11
Powerline	17.405	541.31	508.19	481.14
Powerline	17.309	501.66	476.06	493.7
Powerline	17.218	440	446.85	550
Powerline	17.134	500	476.47	600
Powerline	17.044	500	522.73	550
Powerline	16.945	500	506.37	550
Powerline	16.849	480	507.71	530
Powerline	16.753	500	461.9	500
Powerline	16.665	480	477.33	480
Powerline	16.575	510	563.38	510
Powerline	16.468	500	500.95	490
Powerline	16.373	530	518.74	519
Powerline	16.275	630	472.49	490
Powerline	16.185	675	516.84	450
Powerline	16.087	260	486.13	485
Powerline	15.995	260	436.69	435
Powerline	15.913	280	1031.89	1240
Powerline	15.717	430	996.46	996
Powerline	15.529	490	867.21	867

Powerline	15.364	350	990.02	990
Powerline	15.177	1120	997.61	880
Powerline	14.988	920	519.08	450
Powerline	14.890	730	525.77	520
Powerline	14.790	650	523.64	525
Powerline	14.691	640	474.31	475
Powerline	14.601	590	512.1	490
Powerline	14.504	530	493.52	493.52
Powerline	14.410	475	515.27	515.27
Powerline	14.313	498.87	498.87	500
Powerline	14.218	225	1472.18	1500
Powerline	13.940	200	1001.12	1001.12
Powerline	13.750	215	1003.33	1003.33
Powerline	13.560	400	1080.06	1080.06
Powerline	13.355	760	1112.17	1115
Powerline	13.145	475	178.89	180
Powerline	13.111	325	301.73	270
Powerline	13.054	500	505.01	500
Powerline	12.958	670	479.11	500
Powerline	12.867	590	514.81	500
Powerline	12.770	220	506.56	500
Powerline	12.674	690	518.48	500
Powerline	12.576	490	502.49	500
Powerline	12.481	490	520.37	500
Powerline	12.382	905	657.07	660
Powerline	12.258	1310	6494.89	6504.89
Powerline	11.028	1530	1945.05	1230
Powerline	10.660	1400	2089.32	1050
Powerline	10.264	1450	1900.36	1480
Powerline	9.904	2840	2412.12	2422.12
Powerline	9.447	1600	1887.23	1897.23
Powerline	9.090	2400	1819.85	1829.85
Powerline	8.745	2100	2814.07	2824.07
Powerline	8.212			

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Powerline FRS

Reach	River Sta.	Contr.	Expan.
Powerline	20.000	.3	.5
Powerline	19.963	.3	.5
Powerline	19.925	.3	.5
Powerline	19.905	.3	.5
Powerline	19.901	.3	.5
Powerline	19.879	.3	.5
Powerline	19.806	.3	.5
Powerline	19.727	.3	.5
Powerline	19.643	.3	.5
Powerline	19.544	.3	.5
Powerline	19.456	.3	.5
Powerline	19.369	.3	.5
Powerline	19.278	.3	.5
Powerline	19.191	.3	.5
Powerline	19.100	.3	.5
Powerline	18.999	.3	.5
Powerline	18.905	.3	.5
Powerline	18.814	.3	.5
Powerline	18.729	.3	.5
Powerline	18.703	.3	.5
Powerline	18.612	.3	.5
Powerline	18.520	.1	.3
Powerline	18.429	.1	.3
Powerline	18.339	.1	.3
Powerline	18.245	.1	.3
Powerline	18.153	.1	.3
Powerline	18.059	.1	.3
Powerline	17.964	.1	.3
Powerline	17.873	.1	.3
Powerline	17.778	.1	.3
Powerline	17.684	.1	.3
Powerline	17.590	.1	.3

Powerline	17.494	.1	.3
Powerline	17.405	.1	.3
Powerline	17.309	.1	.3
Powerline	17.218	.1	.3
Powerline	17.134	.1	.3
Powerline	17.044	.1	.3
Powerline	16.945	.1	.3
Powerline	16.849	.1	.3
Powerline	16.753	.1	.3
Powerline	16.665	.1	.3
Powerline	16.575	.1	.3
Powerline	16.468	.1	.3
Powerline	16.373	.1	.3
Powerline	16.275	.1	.3
Powerline	16.185	.1	.3
Powerline	16.087	.1	.3
Powerline	15.995	.1	.3
Powerline	15.913	.1	.3
Powerline	15.717	.1	.3
Powerline	15.529	.1	.3
Powerline	15.364	.1	.3
Powerline	15.177	.1	.3
Powerline	14.988	.1	.3
Powerline	14.890	.1	.3
Powerline	14.790	.1	.3
Powerline	14.691	.1	.3
Powerline	14.601	.1	.3
Powerline	14.504	.1	.3
Powerline	14.410	.1	.3
Powerline	14.313	.1	.3
Powerline	14.218	.1	.3
Powerline	13.940	.1	.3
Powerline	13.750	.1	.3
Powerline	13.560	.1	.3
Powerline	13.355	.1	.3
Powerline	13.145	.1	.3
Powerline	13.111	.1	.3
Powerline	13.054	.1	.3
Powerline	12.958	.1	.3
Powerline	12.867	.1	.3
Powerline	12.770	.1	.3
Powerline	12.674	.1	.3
Powerline	12.576	.1	.3
Powerline	12.481	.1	.3
Powerline	12.382	.1	.3
Powerline	12.258	.1	.3
Powerline	11.028	.1	.3
Powerline	10.660	.1	.3
Powerline	10.264	.1	.3
Powerline	9.904	.1	.3
Powerline	9.447	.1	.3
Powerline	9.090	.1	.3
Powerline	8.745	.1	.3
Powerline	8.212	.1	.3

Profile Output Table - Standard Table 1

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Powerline	20.000	13333.00	1565.65	1568.58		1568.92	0.001980	4.70	2834.69	1447.64	0.59
Powerline	19.963	13333.00	1561.85	1568.68		1568.73	0.000085	1.72	7752.58	1684.56	0.14
Powerline	19.925	13333.00	1565.93	1568.45	1567.65	1568.64	0.001144	3.53	3767.98	12775.24	0.45
Powerline	19.905	13333.00	1566.25	1567.76	1567.76	1568.30	0.006615	5.75	2271.77	11523.41	0.98
Powerline	19.901	13333.00	1565.51	1567.28	1567.28	1567.84	0.007070	6.19	2348.09	7250.71	1.02
Powerline	19.879	13333.00	1556.58	1562.22	1561.47	1562.54	0.007566	3.78	3143.82	7227.40	0.59
Powerline	19.806	13333.00	1555.20	1560.49	1559.96	1560.80	0.007222	3.89	3173.64	6684.41	0.61
Powerline	19.727	13333.00	1552.91	1557.84	1557.21	1558.12	0.005628	2.85	3493.30	6858.56	0.66
Powerline	19.643	13333.00	1550.45	1554.57	1554.21	1554.82	0.008893	3.86	3509.38	6215.20	0.82
Powerline	19.544	13333.00	1547.56	1551.97	1551.52	1552.12	0.003986	4.37	4629.40	6382.70	1.04
Powerline	19.456	13333.00	1544.96	1549.20	1549.06	1549.42	0.009379	5.35	3858.34	6644.18	1.46
Powerline	19.369	13333.00	1542.48	1546.18	1545.60	1546.32	0.004768	3.32	4858.09	6598.25	0.67
Powerline	19.278	13333.00	1539.81	1543.19	1542.94	1543.37	0.008376	6.26	4277.46	6645.67	1.34
Powerline	19.191	13333.00	1536.91	1539.53	1538.95	1539.71	0.007026	11.32	4594.66	5755.60	1.54
Powerline	19.100	13333.00	1533.24	1536.55	1536.12	1536.71	0.005522	11.61	5457.72	6534.05	1.41
Powerline	18.999	13333.00	1529.22	1532.67	1532.61	1533.01	0.009702	15.69	4082.80	4367.31	1.87
Powerline	18.905	13333.00	1525.63	1529.39	1528.91	1529.57	0.004391	11.08	5271.99	4960.91	1.28
Powerline	18.814	13333.00	1521.99	1526.21	1526.21	1526.55	0.007227	14.88	4750.53	5215.60	1.65
Powerline	18.729	13333.00	1518.59	1523.43	1523.35	1523.61	0.004379	10.23	5602.77	5192.45	1.26
Powerline	18.703	13333.00	1520.00	1522.65	1522.56	1522.97	0.007604	14.08	4485.01	4377.39	1.68
Powerline	18.612	13333.00	1514.00	1519.57	1519.57	1520.06	0.005161	15.01	4654.40	4764.54	1.46
Powerline	18.520	13333.00	1510.95	1515.83	1515.82	1516.33	0.006503	15.48	3990.27	3841.79	1.61
Powerline	18.429	13333.00	1508.13	1513.23	1513.23	1513.64	0.005579	14.82	5139.12	4899.99	1.50
Powerline	18.339	13333.00	1505.46	1510.56	1510.56	1510.95	0.005659	14.60	5271.02	5207.55	1.50
Powerline	18.245	13333.00	1502.35	1507.74	1507.74	1508.17	0.005016	14.48	5051.06	4442.20	1.43
Powerline	18.153	13333.00	1499.32	1504.47	1504.47	1504.86	0.004855	13.89	5019.16	4405.08	1.40
Powerline	18.059	13333.00	1496.48	1501.15	1501.15	1501.57	0.006162	14.79	4615.19	4277.98	1.56
Powerline	17.964	13333.00	1493.27	1498.02	1498.02	1498.40	0.005835	14.51	5102.06	5548.75	1.52
Powerline	17.873	13333.00	1490.63	1494.99	1494.99	1495.35	0.006561	14.76	5152.69	6977.57	1.60
Powerline	17.778	13333.00	1487.44	1491.94	1491.91	1492.26	0.006128	14.24	5383.40	6880.97	1.54
Powerline	17.684	13333.00	1484.90	1488.73	1488.64	1489.01	0.007145	13.86	4706.59	5331.63	1.63
Powerline	17.590	13333.00	1481.95	1485.66	1485.49	1485.89	0.006395	12.88	5060.97	5117.90	1.53
Powerline	17.494	13333.00	1478.10	1482.27	1482.03	1482.56	0.006220	13.54	4671.88	4135.43	1.54
Powerline	17.405	13333.00	1474.60	1479.05	1479.05	1479.51	0.007010	15.35	4205.22	3432.55	1.66
Powerline	17.309	13333.00	1470.98	1475.86	1475.86	1476.27	0.005473	14.20	4661.89	3870.54	1.49
Powerline	17.218	13333.00	1467.93	1472.67	1472.64	1473.09	0.005896	14.58	4634.20	3966.28	1.53
Powerline	17.134	13333.00	1463.60	1469.74	1469.74	1470.21	0.005802	14.33	4505.08	3621.79	1.52
Powerline	17.044	13333.00	1460.00	1467.13	1467.13	1467.61	0.002072	12.12	6326.28	5204.27	0.99
Powerline	16.945	13333.00	1457.50	1463.98	1463.98	1464.62	0.002813	14.13	5857.92	4822.04	1.17
Powerline	16.849	13333.00	1454.80	1460.17	1459.63	1460.37	0.004014	10.24	5100.21	4143.67	1.22
Powerline	16.753	13333.00	1451.80	1456.98	1456.98	1457.40	0.008531	15.40	4049.44	4056.16	1.78
Powerline	16.665	13333.00	1449.20	1454.02	1454.02	1454.52	0.003465	14.08	5422.03	5728.28	1.27
Powerline	16.575	13333.00	1446.00	1451.47	1451.28	1451.77	0.003680	13.15	5520.68	5195.78	1.24
Powerline	16.468	13333.00	1443.00	1448.72	1448.64	1449.10	0.007851	15.05	4012.56	4910.50	1.66
Powerline	16.373	13333.00	1439.80	1445.90	1445.90	1446.57	0.003545	13.69	4471.35	5786.01	1.27
Powerline	16.275	13333.00	1436.90	1443.07	1443.07	1443.81	0.004238	17.87	4446.07	3235.04	1.43
Powerline	16.185	13333.00	1434.00	1439.70	1439.70	1440.22	0.003006	13.66	5086.45	4432.46	1.18
Powerline	16.087	13333.00	1429.40	1436.28	1436.28	1436.89	0.002313	14.30	5176.11	3342.59	1.09
Powerline	15.995	13333.00	1428.50	1434.15	1434.15	1434.67	0.003570	14.13	4532.06	2804.53	1.27

Powerline	15.913	13333.00	1427.00	1432.13	1431.89	1432.52	0.006596	10.48	3809.77	2604.23	1.51
Powerline	15.717	13333.00	1421.90	1430.52		1430.66	0.002271	3.81	5039.63	2213.67	0.32
Powerline	15.529	13333.00	1417.80	1429.54	1427.03	1429.64	0.000948	3.18	5914.09	2281.97	0.22
Powerline	15.364	13333.00	1419.60	1428.95	1426.22	1429.04	0.000809	2.79	5782.35	2889.81	0.20
Powerline	15.177	13333.00	1419.00	1428.21	1425.06	1428.35	0.001071	3.31	4541.07	2447.80	0.23
Powerline	14.988	13333.00	1419.30	1426.26	1424.69	1426.56	0.003350	4.79	3287.58	1535.89	0.39
Powerline	14.890	13333.00	1418.10	1423.96	1422.91	1424.10	0.003304	3.96	4543.00	2061.29	0.37
Powerline	14.790	19800.00	1416.70	1420.81	1419.87	1420.98	0.005793	4.39	6328.54	4066.16	0.47
Powerline	14.691	19800.00	1411.40	1417.36	1416.73	1417.49	0.005283	4.14	7030.27	5185.44	0.45
Powerline	14.601	19800.00	1410.20	1414.17	1413.37	1414.27	0.004875	3.05	7809.26	8047.95	0.40
Powerline	14.504	19800.00	1410.00	1411.52	1410.69	1411.61	0.004266	1.69	8029.44	6811.35	0.33
Powerline	14.410	19800.00	1406.40	1409.52		1409.60	0.003405	2.37	8331.54	5641.66	0.33
Powerline	14.313	19800.00	1403.70	1407.33	1406.72	1407.46	0.006205	3.03	6899.84	5441.35	0.44
Powerline	14.218	19800.00	1402.40	1405.96	1404.51	1406.02	0.001621	1.94	10816.08	5716.42	0.24
Powerline	13.940	16516.00	1400.70	1405.70	1403.41	1405.73	0.000490	1.69	13083.67	5009.26	0.15
Powerline	13.750	13703.00	1400.90	1405.59	1402.78	1405.61	0.000297	1.32	12567.64	4435.81	0.11
Powerline	13.560	13282.00	1400.80	1405.49	1402.43	1405.52	0.000272	1.24	11190.12	3109.66	0.11
Powerline	13.355	12460.00	1398.00	1405.37	1401.48	1405.39	0.000232	1.44	10899.44	3270.66	0.11
Powerline	13.145	12460.00	1397.50	1404.17	1402.86	1404.76	0.005785	6.77	2090.75	687.45	0.52
Powerline	13.111	12460.00	1396.00	1403.37	1401.23	1403.68	0.002539	5.13	3861.05	3209.40	0.36
Powerline	13.054	12460.00	1395.50	1402.65	1400.47	1402.87	0.002505	4.93	4593.95	4803.45	0.35
Powerline	12.958	12460.00	1394.30	1401.32	1399.71	1401.53	0.002818	5.12	5008.66	4404.22	0.37
Powerline	12.867	12460.00	1393.40	1399.91	1398.16	1400.03	0.002214	4.16	6424.20	4558.76	0.32
Powerline	12.770	12460.00	1392.30	1397.52	1397.10	1397.86	0.008191	6.75	4376.98	4276.05	0.60
Powerline	12.674	12460.00	1390.70	1396.26	1394.86	1396.36	0.002740	4.12	6766.18	4295.50	0.35
Powerline	12.576	12460.00	1389.00	1394.48	1393.33	1394.59	0.002811	4.25	7186.59	4190.68	0.36
Powerline	12.481	12460.00	1387.35	1393.05	1391.74	1393.16	0.002970	4.50	7369.21	3831.41	0.37
Powerline	12.382	12460.00	1386.27	1391.43	1390.30	1391.54	0.003559	4.68	7366.43	3770.37	0.40
Powerline	12.258	12460.00	1384.80	1389.16		1389.20	0.002163	2.94	9324.53	3960.63	0.29
Powerline	11.028	19800.00	1370.70	1380.27	1379.79	1381.64	0.003106	10.28	3197.61	2330.43	0.67
Powerline	10.660	19800.00	1366.00	1376.03	1375.77	1376.18	0.002686	4.74	9492.78	9802.43	0.53
Powerline	10.264	19800.00	1361.00	1370.35	1370.14	1370.46	0.005504	1.33	8352.87	8652.87	0.09
Powerline	9.904	19800.00	1358.00	1364.09		1364.33	0.003043	6.34	9342.37	9554.94	0.59
Powerline	9.447	19800.00	1348.00	1353.85		1354.22	0.004550	9.16	6260.17	7230.01	0.75
Powerline	9.090	19800.00	1338.00	1347.31	1347.31	1347.81	0.003257	9.82	6167.90	6576.74	0.66
Powerline	8.745	19800.00	1332.00	1338.11		1338.27	0.003697	7.60	10864.60	11270.17	0.66
Powerline	8.212	19800.00	1322.50	1330.53	1330.29	1330.68	0.003301	7.81	12695.97	11020.86	0.64

Profile Output Table - Standard Table 2

Reach	River Sta	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
Powerline	20.000	1568.92	1568.58	0.34	0.05	0.15		13333.00		1447.64
Powerline	19.963	1568.73	1568.68	0.05	0.04	0.04		13333.00		1684.56
Powerline	19.925	1568.64	1568.45	0.19	0.24	0.10	685.62	11919.27	728.11	12775.24
Powerline	19.905	1568.30	1567.76	0.54	0.15	0.01	1185.09	10809.74	1338.17	11523.41
Powerline	19.901	1567.84	1567.28	0.56	1.77	0.12	744.28	12242.42	346.30	7250.71
Powerline	19.879	1562.54	1562.22	0.32	1.74	0.00	4589.72	8697.20	46.08	7227.40
Powerline	19.806	1560.80	1560.49	0.32	2.67	0.02	6428.12	5731.39	1173.49	6684.41
Powerline	19.727	1558.12	1557.84	0.28	3.29	0.02	10196.92	2446.08	690.00	6858.56
Powerline	19.643	1554.82	1554.57	0.25	2.65	0.05	9172.28	2017.82	2142.91	6215.20
Powerline	19.544	1552.12	1551.97	0.15	2.68	0.02	10005.94	1087.32	2239.74	6382.70

Powerline	19.456	1549.42	1549.20	0.22	3.06	0.04	9661.49	1440.76	2230.75	6644.18
Powerline	19.369	1546.32	1546.18	0.14	2.93	0.01	10578.34	1035.67	1718.99	6598.25
Powerline	19.278	1543.37	1543.19	0.18	3.67	0.00	10570.25	789.39	1973.36	6645.67
Powerline	19.191	1539.71	1539.53	0.17	2.99	0.01	8264.43	342.28	4726.29	5755.60
Powerline	19.100	1536.71	1536.55	0.16	3.65	0.05	7606.89	514.82	5211.29	6534.05
Powerline	18.999	1533.01	1532.67	0.35	3.36	0.09	7472.51	706.43	5154.06	4367.31
Powerline	18.905	1529.57	1529.39	0.18	2.96	0.05	5946.29	617.39	6769.33	4960.91
Powerline	18.814	1526.55	1526.21	0.34			4876.33	907.47	7549.20	5215.60
Powerline	18.729	1523.61	1523.43	0.18	0.60	0.04	5088.05	832.37	7412.58	5192.45
Powerline	18.703	1522.97	1522.65	0.32	2.85	0.05	3612.87	833.91	8886.22	4377.39
Powerline	18.612	1520.06	1519.57	0.49			2725.63	1505.94	9101.42	4764.54
Powerline	18.520	1516.33	1515.83	0.50	2.67	0.03	193.98	1294.67	11844.35	3841.79
Powerline	18.429	1513.64	1513.23	0.41			3378.07	1286.45	8668.48	4899.99
Powerline	18.339	1510.95	1510.56	0.39			3920.76	1267.80	8144.44	5207.55
Powerline	18.245	1508.17	1507.74	0.44			2988.87	1448.38	8895.75	4442.20
Powerline	18.153	1504.86	1504.47	0.38			3254.39	1322.84	8755.77	4405.08
Powerline	18.059	1501.57	1501.15	0.42			2494.07	1199.10	9639.83	4277.98
Powerline	17.964	1498.40	1498.02	0.39			2292.89	1219.86	9820.25	5548.75
Powerline	17.873	1495.35	1494.99	0.36			2801.58	1059.96	9471.46	6977.57
Powerline	17.778	1492.26	1491.94	0.32	3.24	0.01	3948.28	1015.22	8369.50	6880.97
Powerline	17.684	1489.01	1488.73	0.28	3.11	0.02	3802.01	762.89	8768.10	5331.63
Powerline	17.590	1485.89	1485.66	0.23	3.32	0.01	7488.79	677.75	5166.46	5117.90
Powerline	17.494	1482.56	1482.27	0.29	3.04	0.02	6608.29	867.67	5857.05	4135.43
Powerline	17.405	1479.51	1479.05	0.46			4916.14	1197.93	7218.93	3432.55
Powerline	17.309	1476.27	1475.86	0.41			4325.99	1304.78	7702.23	3870.54
Powerline	17.218	1473.09	1472.67	0.41	2.87	0.01	5595.36	1240.29	6497.34	3966.28
Powerline	17.134	1470.21	1469.74	0.47	1.77	0.00	6286.79	1544.70	5501.51	3621.79
Powerline	17.044	1467.61	1467.13	0.48	1.28	0.02	3626.51	2532.68	7173.81	5204.27
Powerline	16.945	1464.62	1463.98	0.64	1.79	0.13	2102.27	2567.34	8663.39	4822.04
Powerline	16.849	1460.37	1460.17	0.20	2.94	0.02	2611.05	887.51	9834.43	4143.67
Powerline	16.753	1457.40	1456.98	0.42			1368.19	1018.14	10946.67	4056.16
Powerline	16.665	1454.52	1454.02	0.50	1.71	0.06	1227.61	1884.33	10221.07	5728.28
Powerline	16.575	1451.77	1451.47	0.30	2.66	0.01	1786.52	1140.34	10406.14	5195.78
Powerline	16.468	1449.10	1448.72	0.38	2.49	0.03	2644.60	853.73	9834.67	4910.50
Powerline	16.373	1446.57	1445.90	0.67			3671.55	2728.24	6933.21	5786.01
Powerline	16.275	1443.81	1443.07	0.74	1.86	0.07	3551.36	1730.91	8050.73	3235.04
Powerline	16.185	1440.22	1439.70	0.52	1.52	0.01	3759.45	1974.91	7598.65	4432.46
Powerline	16.087	1436.89	1436.28	0.61	0.86	0.03	10368.59	2308.21	656.20	3342.59
Powerline	15.995	1434.67	1434.15	0.52			11436.84	1844.70	51.46	2804.53
Powerline	15.913	1432.52	1432.13	0.40	1.79	0.08	11211.84	2121.14	0.02	2604.23
Powerline	15.717	1430.66	1430.52	0.14	1.00	0.01	7796.94	5483.74	52.33	2213.67
Powerline	15.529	1429.64	1429.54	0.11	0.60	0.01	5259.58	7356.13	717.29	2281.97
Powerline	15.364	1429.04	1428.95	0.09	0.68	0.01	7299.93	5102.59	930.48	2889.81
Powerline	15.177	1428.35	1428.21	0.14	1.77	0.02	3436.54	8829.09	1067.37	2447.80
Powerline	14.988	1426.56	1426.26	0.30	2.41	0.05	2446.92	9815.38	1070.70	1535.89
Powerline	14.890	1424.10	1423.96	0.14	3.12	0.00	11372.00	1907.29	53.71	2061.29
Powerline	14.790	1420.98	1420.81	0.17	3.48	0.01	15272.01	4527.99		4066.16
Powerline	14.691	1417.49	1417.36	0.13	3.21	0.01	17814.04	1985.96		5185.44
Powerline	14.601	1414.27	1414.17	0.10	2.66	0.00	18848.52	951.43	0.04	8047.95
Powerline	14.504	1411.61	1411.52	0.09	2.01	0.00	19585.41	214.59		6811.35
Powerline	14.410	1409.60	1409.52	0.09	2.14	0.00	19207.50	592.50		5641.66
Powerline	14.313	1407.46	1407.33	0.13	1.42	0.02	19102.44	697.56		5441.35
Powerline	14.218	1406.02	1405.96	0.05	0.28	0.01	19141.62	658.38		5716.42
Powerline	13.940	1405.73	1405.70	0.03	0.12	0.00	14314.44	2201.56		5009.26

Powerline	13.750	1405.61	1405.59	0.02	0.09	0.00	12114.78	1483.15	105.07	4435.81
Powerline	13.560	1405.52	1405.49	0.02	0.12	0.00	10786.66	2448.41	46.93	3109.66
Powerline	13.355	1405.39	1405.37	0.02	0.57	0.06	11374.34	997.01	88.65	3270.66
Powerline	13.145	1404.76	1404.17	0.59	1.00	0.09	4261.06	8198.94		687.45
Powerline	13.111	1403.68	1403.37	0.30	0.78	0.03	3606.07	8781.85	72.08	3209.40
Powerline	13.054	1402.87	1402.65	0.22	1.33	0.00	6159.87	6258.20	41.93	4803.45
Powerline	12.958	1401.53	1401.32	0.21	1.47	0.03	6615.99	5767.04	76.97	4404.22
Powerline	12.867	1400.03	1399.91	0.12	2.14	0.02	8204.65	4238.93	16.41	4558.76
Powerline	12.770	1397.86	1397.52	0.35	1.43	0.07	6949.90	5507.95	2.16	4276.05
Powerline	12.674	1396.36	1396.26	0.10	1.77	0.00	8864.75	3591.52	3.73	4295.50
Powerline	12.576	1394.59	1394.48	0.11	1.42	0.00	8649.76	3798.13	12.10	4190.68
Powerline	12.481	1393.16	1393.05	0.11	1.62	0.00	8690.15	3728.68	41.17	3831.41
Powerline	12.382	1391.54	1391.43	0.11	2.32	0.02	8929.46	3419.18	111.35	3770.37
Powerline	12.258	1389.20	1389.16	0.04			10422.57	2037.43		3960.63
Powerline	11.028	1381.64	1380.27	1.37	5.10	0.37	3060.33	16383.66	356.01	2330.43
Powerline	10.660	1376.18	1376.03	0.15	5.71	0.01	11965.37	7144.59	690.04	9802.43
Powerline	10.264	1370.46	1370.35	0.11	6.12	0.01	15619.21	1947.42	2233.37	8652.87
Powerline	9.904	1364.33	1364.09	0.24	10.10	0.01	14006.71	4577.94	1215.35	9554.94
Powerline	9.447	1354.22	1353.85	0.37	6.39	0.01	15448.13	4351.87		7230.01
Powerline	9.090	1347.81	1347.31	0.50	7.89	0.10	14117.23	5682.77		6576.74
Powerline	8.745	1338.27	1338.11	0.16	7.59	0.00	16988.52	2811.48		11270.17
Powerline	8.212	1330.68	1330.53	0.15			17111.69	2688.31		11020.86

Profile Output Table - Hydratable

Reach	River Sta	Q Total (cfs)	W.S. Elev (ft)	Trvl Tme Chl (hrs)	Trvl Tme Avg (hrs)	Vel Chnl (ft/s)	Vel Total (ft/s)	Max Chl Dpth (ft)	Hydr Depth (ft)
Powerline	20.000	13333.00	1568.58	3.54	6.06	4.70	4.70	2.93	1.96
Powerline	19.963	13333.00	1568.68	3.53	6.04	1.72	1.72	6.83	4.60
Powerline	19.925	13333.00	1568.45	3.50	6.02	3.53	3.54	3.95	1.92
Powerline	19.905	13333.00	1567.76	3.50	6.02	5.75	5.87	2.06	1.10
Powerline	19.901	13333.00	1567.28	3.50	6.02	6.19	5.68	2.26	1.14
Powerline	19.879	13333.00	1562.22	3.48	6.00	3.78	4.24	5.64	1.43
Powerline	19.806	13333.00	1560.49	3.47	5.99	3.89	4.20	5.29	1.55
Powerline	19.727	13333.00	1557.84	3.43	5.96	2.85	3.82	9.91	1.20
Powerline	19.643	13333.00	1554.57	3.39	5.92	3.86	3.80	4.12	1.23
Powerline	19.544	13333.00	1551.97	3.36	5.88	4.37	2.88	4.41	1.49
Powerline	19.456	13333.00	1549.20	3.33	5.85	5.35	3.46	5.31	0.98
Powerline	19.369	13333.00	1546.18	3.30	5.80	3.32	2.74	4.78	1.15
Powerline	19.278	13333.00	1543.19	3.27	5.76	6.26	3.12	5.36	1.01
Powerline	19.191	13333.00	1539.53	3.26	5.71	11.32	2.90	4.44	1.14
Powerline	19.100	13333.00	1536.55	3.25	5.66	11.61	2.44	4.05	1.11
Powerline	18.999	13333.00	1532.67	3.24	5.62	15.69	3.27	3.45	1.05
Powerline	18.905	13333.00	1529.39	3.23	5.56	11.08	2.53	3.76	1.23
Powerline	18.814	13333.00	1526.21	3.22	5.51	14.88	2.81	4.22	0.99
Powerline	18.729	13333.00	1523.43	3.21	5.46	10.23	2.38	4.84	1.15
Powerline	18.703	13333.00	1522.65	3.20	5.45	14.08	2.97	3.08	1.05
Powerline	18.612	13333.00	1519.57	3.19	5.41	15.01	2.86	5.57	1.21
Powerline	18.520	13333.00	1515.83	3.19	5.36	15.48	3.34	4.88	1.28
Powerline	18.429	13333.00	1513.23	3.18	5.32	14.82	2.59	5.10	1.05
Powerline	18.339	13333.00	1510.56	3.17	5.27	14.60	2.53	5.10	1.01
Powerline	18.245	13333.00	1507.74	3.16	5.22	14.48	2.64	5.39	1.14

Powerline	18.153	13333.00	1504.47	3.15	5.16	13.89	2.66	5.15	1.14
Powerline	18.059	13333.00	1501.15	3.14	5.11	14.79	2.89	4.67	1.08
Powerline	17.964	13333.00	1498.02	3.13	5.06	14.51	2.61	4.75	0.92
Powerline	17.873	13333.00	1494.99	3.12	5.01	14.76	2.59	4.46	0.84
Powerline	17.778	13333.00	1491.94	3.11	4.96	14.24	2.48	4.50	0.92
Powerline	17.684	13333.00	1488.73	3.10	4.91	13.86	2.83	4.89	0.95
Powerline	17.590	13333.00	1485.66	3.09	4.86	12.88	2.63	4.63	0.99
Powerline	17.494	13333.00	1482.27	3.08	4.81	13.54	2.85	4.56	1.13
Powerline	17.405	13333.00	1479.05	3.07	4.76	15.35	3.17	4.45	1.23
Powerline	17.309	13333.00	1475.86	3.06	4.72	14.20	2.86	4.88	1.20
Powerline	17.218	13333.00	1472.67	3.05	4.67	14.58	2.88	4.74	1.17
Powerline	17.134	13333.00	1469.74	3.04	4.62	14.33	2.96	6.14	1.24
Powerline	17.044	13333.00	1467.13	3.03	4.56	12.12	2.11	7.13	1.22
Powerline	16.945	13333.00	1463.98	3.02	4.50	14.13	2.28	6.48	1.21
Powerline	16.849	13333.00	1460.17	3.01	4.44	10.24	2.61	5.37	1.23
Powerline	16.753	13333.00	1456.98	3.00	4.39	15.40	3.29	5.18	1.13
Powerline	16.665	13333.00	1454.02	2.99	4.34	14.08	2.46	4.82	1.12
Powerline	16.575	13333.00	1451.47	2.98	4.29	13.15	2.42	5.47	1.29
Powerline	16.468	13333.00	1448.72	2.97	4.24	15.05	3.32	5.72	1.08
Powerline	16.373	13333.00	1445.90	2.96	4.19	13.69	2.98	6.10	1.56
Powerline	16.275	13333.00	1443.07	2.95	4.15	17.87	3.00	6.17	1.63
Powerline	16.185	13333.00	1439.70	2.94	4.09	13.66	2.62	5.70	1.39
Powerline	16.087	13333.00	1436.28	2.93	4.03	14.30	2.58	6.88	1.79
Powerline	15.995	13333.00	1434.15	2.92	4.00	14.13	2.94	5.65	1.78
Powerline	15.913	13333.00	1432.13	2.91	3.96	10.48	3.50	5.13	1.46
Powerline	15.717	13333.00	1430.52	2.87	3.92	3.81	2.65	8.62	2.28
Powerline	15.529	13333.00	1429.54	2.80	3.84	3.18	2.25	11.74	3.21
Powerline	15.364	13333.00	1428.95	2.71	3.75	2.79	2.31	9.35	4.36
Powerline	15.177	13333.00	1428.21	2.62	3.68	3.31	2.94	9.21	5.02
Powerline	14.988	13333.00	1426.26	2.56	3.60	4.79	4.06	6.96	3.11
Powerline	14.890	13333.00	1423.96	2.52	3.54	3.96	2.93	5.86	2.20
Powerline	14.790	19800.00	1420.81	2.49	3.48	4.39	3.13	4.11	1.56
Powerline	14.691	19800.00	1417.36	2.45	3.42	4.14	2.82	5.96	1.36
Powerline	14.601	19800.00	1414.17	2.42	3.35	3.05	2.54	3.97	1.23
Powerline	14.504	19800.00	1411.52	2.36	3.29	1.69	2.47	3.52	1.39
Powerline	14.410	19800.00	1409.52	2.29	3.23	2.37	2.38	3.22	1.48
Powerline	14.313	19800.00	1407.33	2.24	3.17	3.03	2.87	3.63	1.27
Powerline	14.218	19800.00	1405.96	2.18	3.12	1.94	1.83	3.66	1.89
Powerline	13.940	16516.00	1405.70	1.96	3.06	1.69	1.26	5.00	2.61
Powerline	13.750	13703.00	1405.59	1.77	2.99	1.32	1.09	4.69	2.83
Powerline	13.560	13282.00	1405.49	1.55	2.91	1.24	1.19	4.80	3.60
Powerline	13.355	12460.00	1405.37	1.33	2.79	1.44	1.14	7.37	3.95
Powerline	13.145	12460.00	1404.17	1.25	2.72	6.77	5.96	6.67	3.04
Powerline	13.111	12460.00	1403.37	1.25	2.70	5.13	3.23	7.37	4.27
Powerline	13.054	12460.00	1402.65	1.23	2.67	4.93	2.71	7.15	4.34
Powerline	12.958	12460.00	1401.32	1.20	2.62	5.12	2.49	7.02	3.56
Powerline	12.867	12460.00	1399.91	1.17	2.54	4.16	1.94	6.51	3.40
Powerline	12.770	12460.00	1397.52	1.15	2.48	6.75	2.85	5.22	1.95
Powerline	12.674	12460.00	1396.26	1.12	2.44	4.12	1.84	5.56	2.82
Powerline	12.576	12460.00	1394.48	1.09	2.34	4.25	1.73	5.48	2.45
Powerline	12.481	12460.00	1393.05	1.05	2.26	4.50	1.69	5.70	2.25
Powerline	12.382	12460.00	1391.43	1.02	2.18	4.68	1.69	5.16	2.00
Powerline	12.258	12460.00	1389.16	0.97	2.02	2.94	1.34	4.36	2.35
Powerline	11.028	19800.00	1380.27	0.70	1.54	10.28	6.19	9.57	1.37

Powerline	10.660	19800.00	1376.03	0.63	1.43	4.74	2.09	10.03	1.07
Powerline	10.264	19800.00	1370.35	0.44	1.23	1.33	2.37	9.35	0.97
Powerline	9.904	19800.00	1364.09	0.30	1.05	6.34	2.12	6.09	0.98
Powerline	9.447	19800.00	1353.85	0.21	0.76	9.16	3.16	5.85	0.87
Powerline	9.090	19800.00	1347.31	0.16	0.61	9.82	3.21	9.31	0.94
Powerline	8.745	19800.00	1338.11	0.10	0.36	7.60	1.82	6.11	0.96
Powerline	8.212	19800.00	1330.53	0.00	0.00	7.81	1.56	8.03	1.15

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : FCD 98-33

River: Powerline FRS Reach: Powerline RS: 20.000 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.963 Profile: PF 2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.925 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.905 Profile: PF 2
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Powerline FRS Reach: Powerline RS: 19.901 Profile: PF 2
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Powerline FRS Reach: Powerline RS: 19.879 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.806 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.727 Profile: PF 2

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    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 19.643     Profile: PF 2
    Warning:Divided flow computed for this cross-section.
    Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
            This may indicate the need for additional cross sections.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 19.544     Profile: PF 2
    Warning:Divided flow computed for this cross-section.
    Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
            This may indicate the need for additional cross sections.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 19.456     Profile: PF 2
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 19.369     Profile: PF 2
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 19.278     Profile: PF 2
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 19.191     Profile: PF 2
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 19.100     Profile: PF 2
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.999     Profile: PF 2
    Warning:Divided flow computed for this cross-section.
    Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
            This may indicate the need for additional cross sections.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.905     Profile: PF 2
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.814     Profile: PF 2
    Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
            for the water surface and continued on with the calculations.
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.729     Profile: PF 2
    Warning:Divided flow computed for this cross-section.
River: Powerline FRS  Reach: Powerline     RS: 18.703     Profile: PF 2
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     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.612     Profile: PF 2
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.520     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.429     Profile: PF 2
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.339     Profile: PF 2
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.245     Profile: PF 2
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.153     Profile: PF 2
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.059     Profile: PF 2
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 17.964     Profile: PF 2
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 17.873     Profile: PF 2
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
             for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
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the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 17.778 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 17.684 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 17.590 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 17.494 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 17.405 Profile: PF 2
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 17.309 Profile: PF 2
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 17.218 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 17.134 Profile: PF 2
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: Powerline FRS Reach: Powerline RS: 17.044 Profile: PF 2
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: Powerline FRS Reach: Powerline RS: 16.945 Profile: PF 2

Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: Powerline FRS Reach: Powerline RS: 16.849 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 16.753 Profile: PF 2
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 16.665 Profile: PF 2
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Powerline FRS Reach: Powerline RS: 16.575 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 16.468 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 16.373 Profile: PF 2
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 16.275 Profile: PF 2
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

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

River: Powerline FRS Reach: Powerline RS: 16.185 Profile: PF 2
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: Powerline FRS Reach: Powerline RS: 16.087 Profile: PF 2
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: Powerline FRS Reach: Powerline RS: 15.995 Profile: PF 2
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: Powerline FRS Reach: Powerline RS: 15.913 Profile: PF 2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: Powerline FRS Reach: Powerline RS: 15.717 Profile: PF 2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: Powerline FRS Reach: Powerline RS: 15.177 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: Powerline FRS Reach: Powerline RS: 14.988 Profile: PF 2
Warning:Divided flow computed for this cross-section.

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     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.890     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.790     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.691     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.601     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.504     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.410     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.313     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.218     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 13.940     Profile: PF 2
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
River: Powerline FRS  Reach: Powerline     RS: 13.750     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
River: Powerline FRS  Reach: Powerline     RS: 13.560     Profile: PF 2
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
River: Powerline FRS  Reach: Powerline     RS: 13.355     Profile: PF 2
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 13.145     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
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River: Powerline FRS  Reach: Powerline     RS: 13.054     Profile: PF 2
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.958     Profile: PF 2
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.867     Profile: PF 2
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.770     Profile: PF 2
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.674     Profile: PF 2
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.576     Profile: PF 2
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.481     Profile: PF 2
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.382     Profile: PF 2
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.258     Profile: PF 2
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
     Note:   The user has entered a known water surface elevation at this cross section.
River: Powerline FRS  Reach: Powerline     RS: 11.028     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 10.660     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 10.264     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 9.904     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 9.447     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
```

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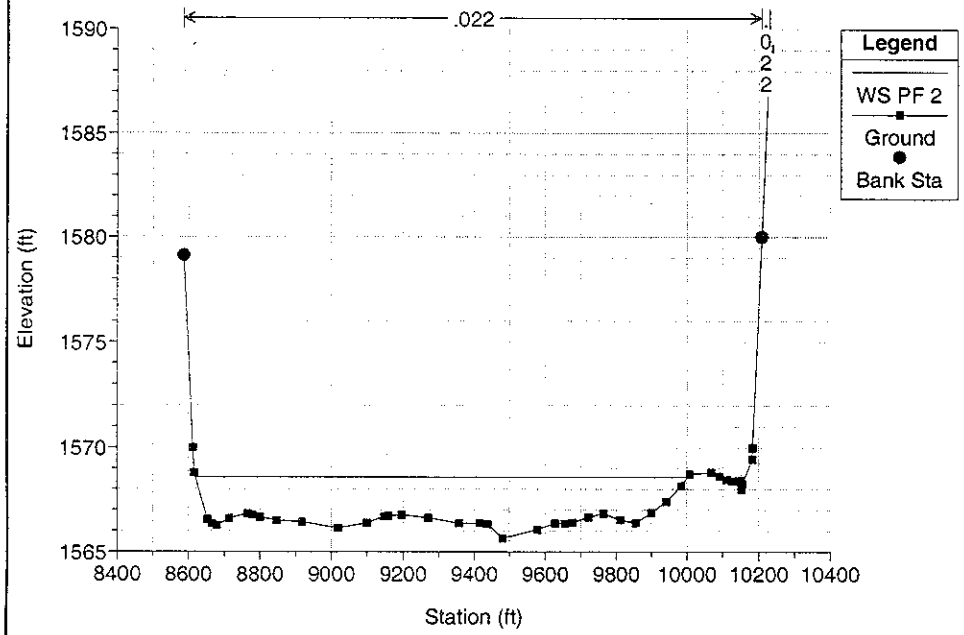
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 9.090     Profile: PF 2
    Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
            for the water surface and continued on with the calculations.
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
    Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
            water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
            program defaulted to critical depth.
River: Powerline FRS  Reach: Powerline     RS: 8.745     Profile: PF 2
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 8.212     Profile: PF 2
    Warning:Divided flow computed for this cross-section.
```

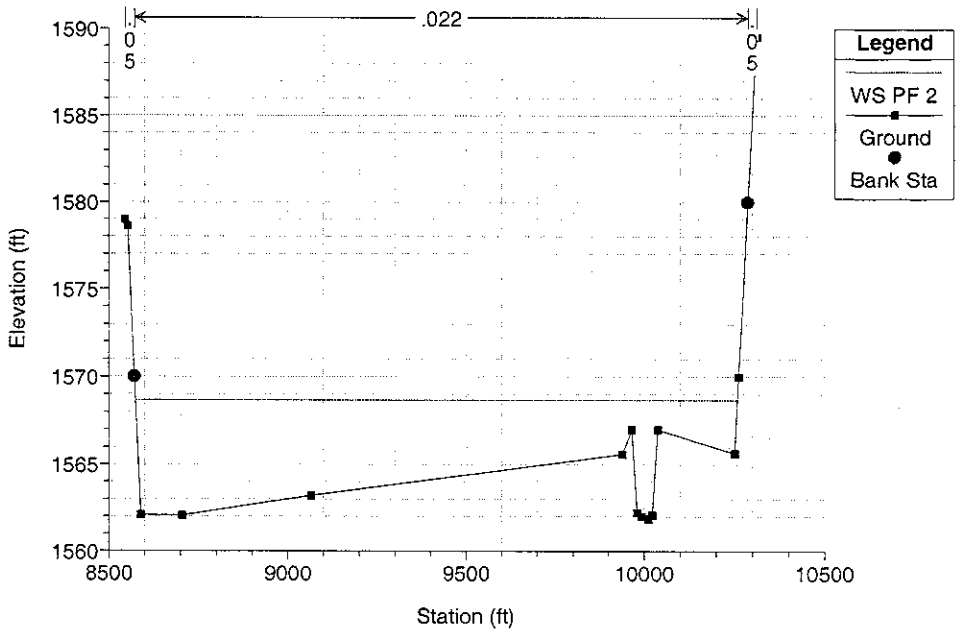
East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM

River = Powerline FRS Reach = Powerline Upstream embankment of the Powerline FRS RS = 20.000



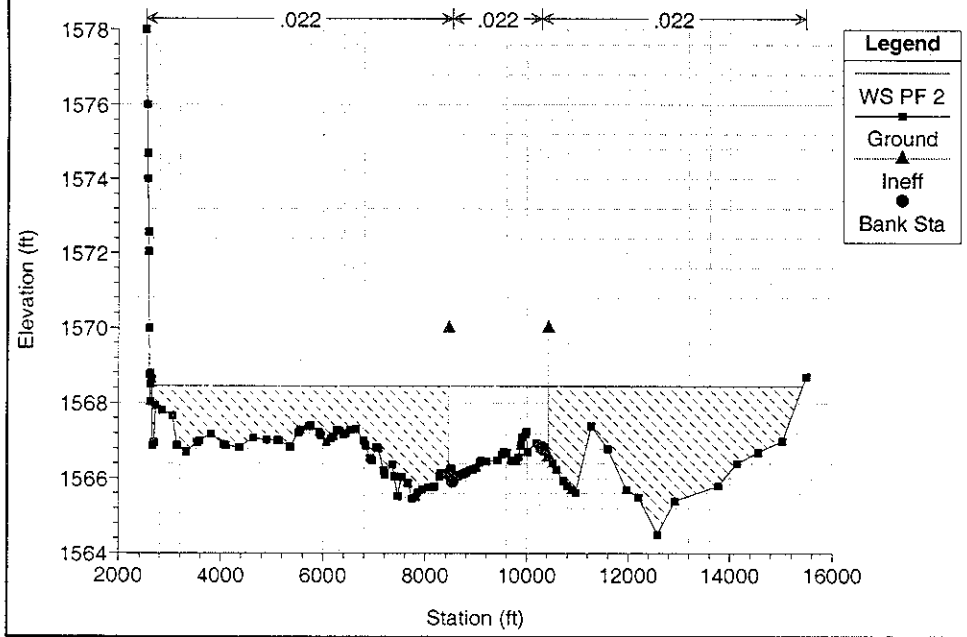
East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM

River = Powerline FRS Reach = Powerline RS = 19.963



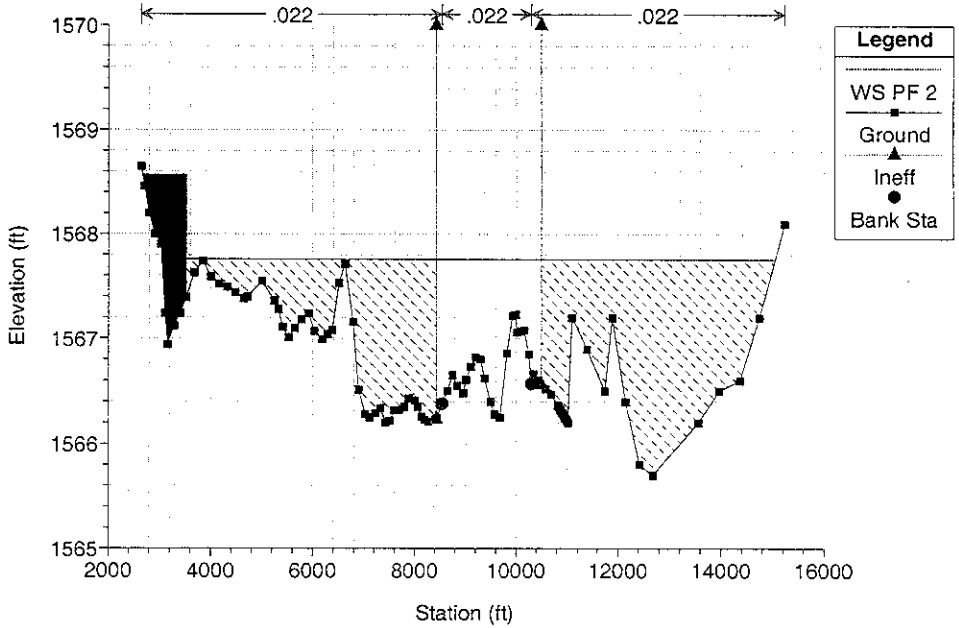
East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM

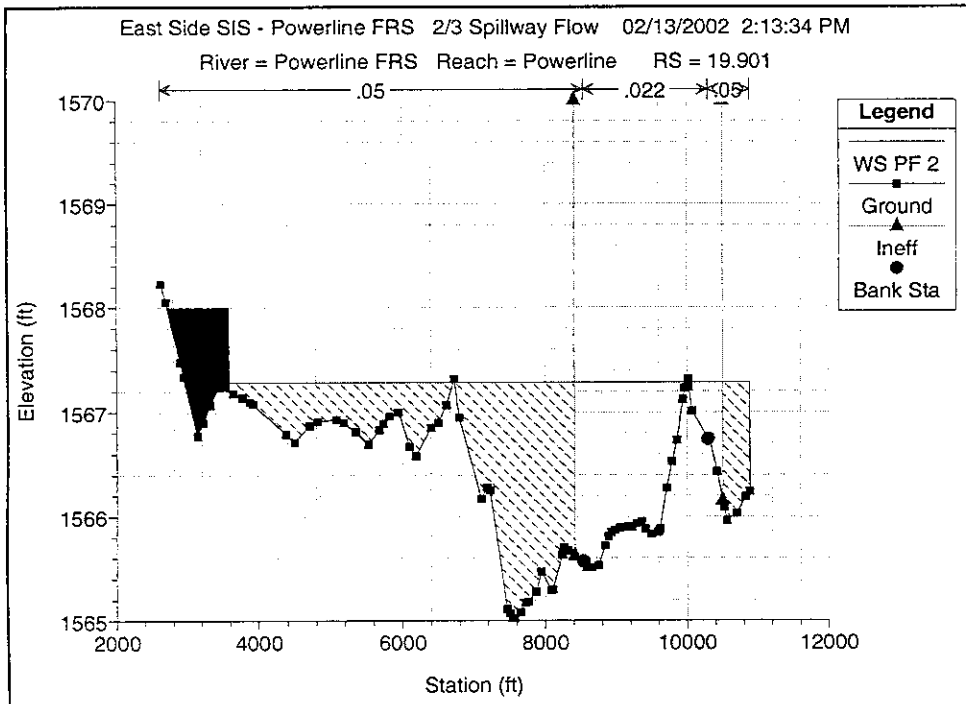
River = Powerline FRS Reach = Powerline Top of Bank, East Embankment of the CAP RS = 19.925

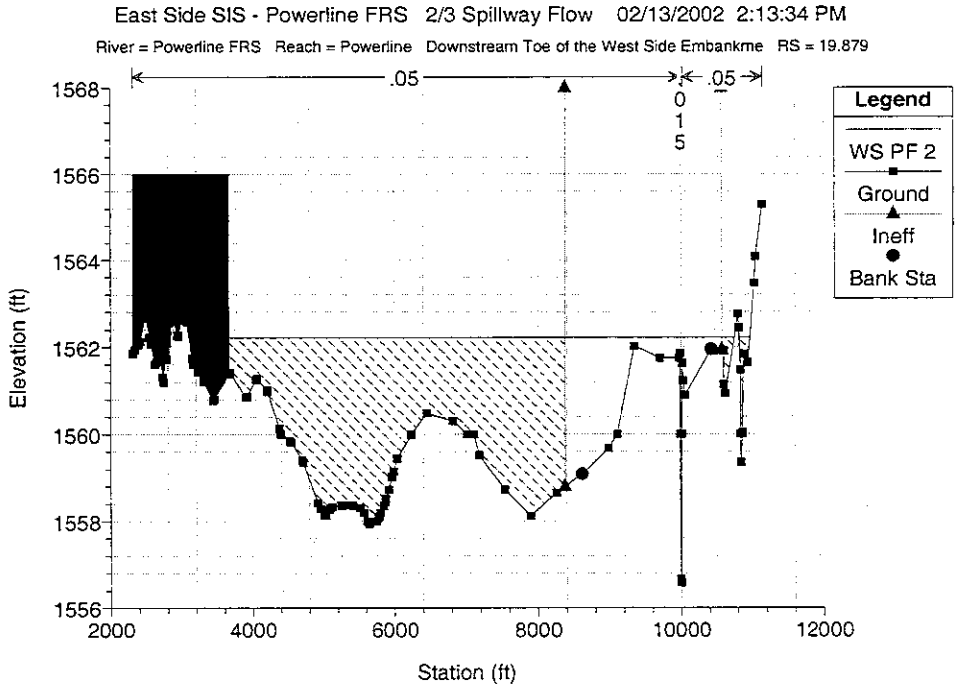


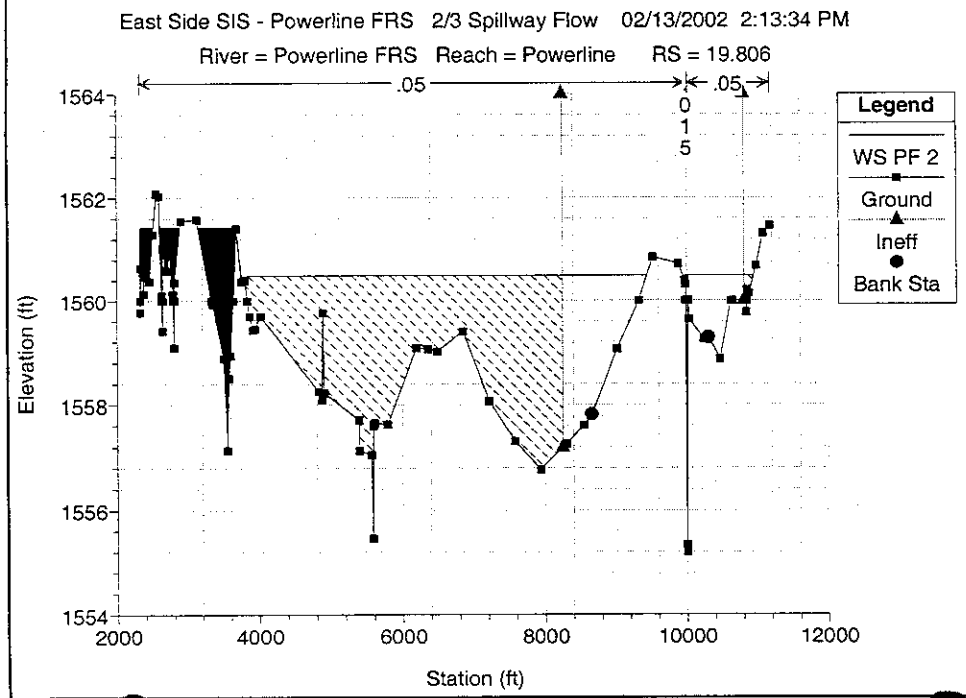
East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM

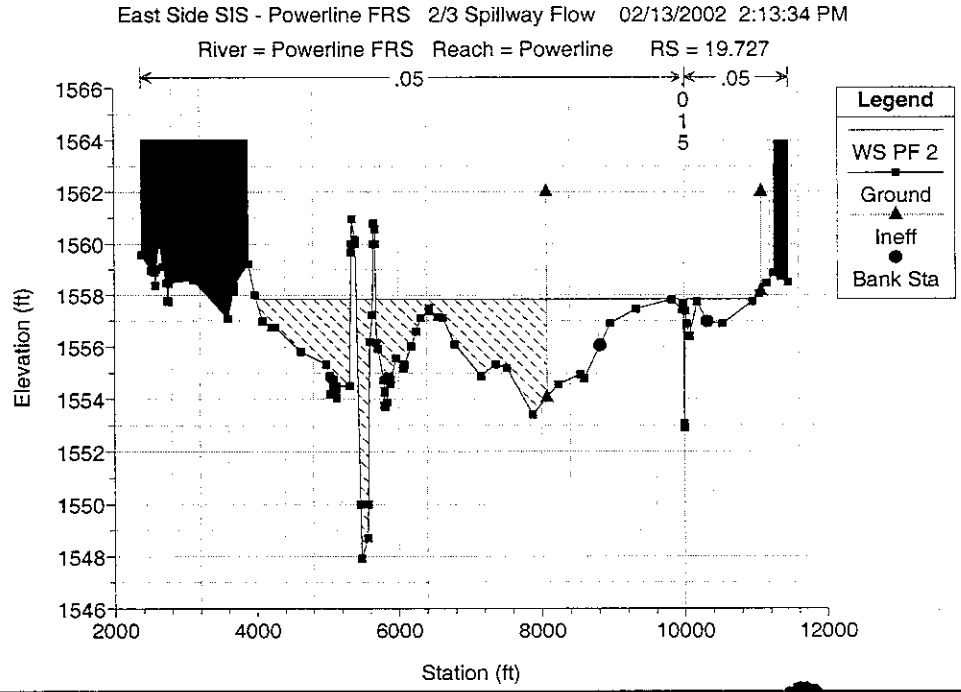
River = Powerline FRS Reach = Powerline Top of Bank, West Embankment of the CAP RS = 19.905

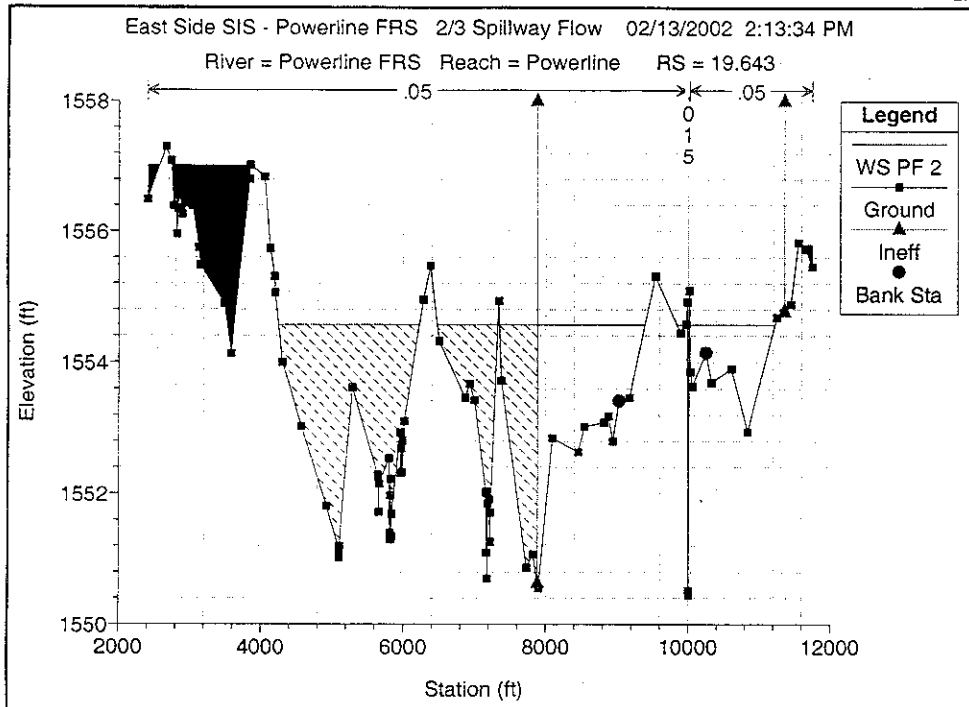


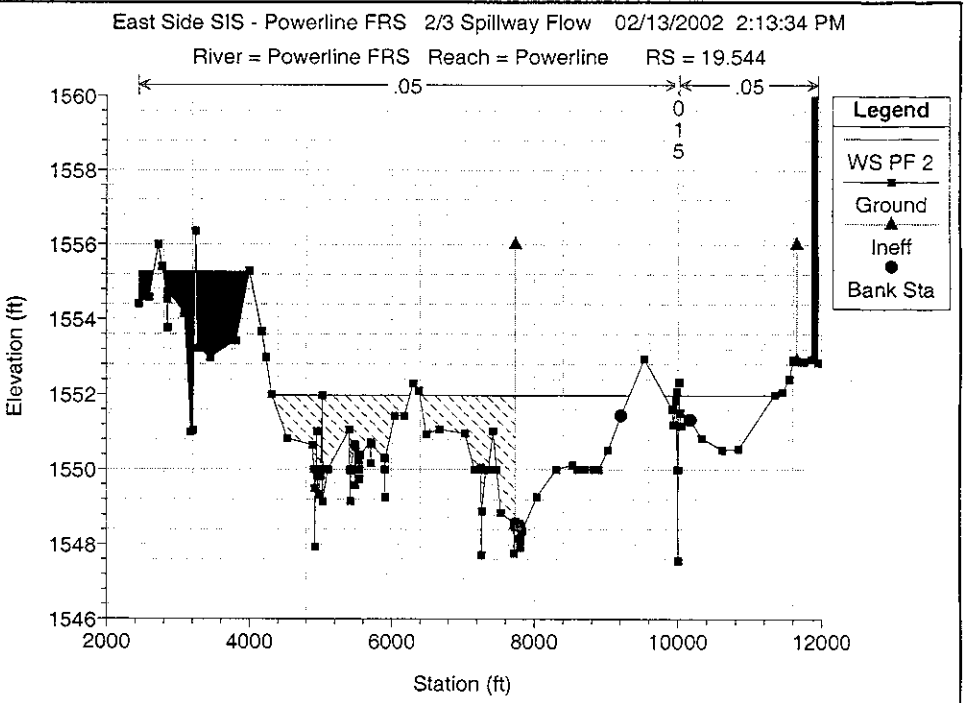

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 19.901
.05
.022
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

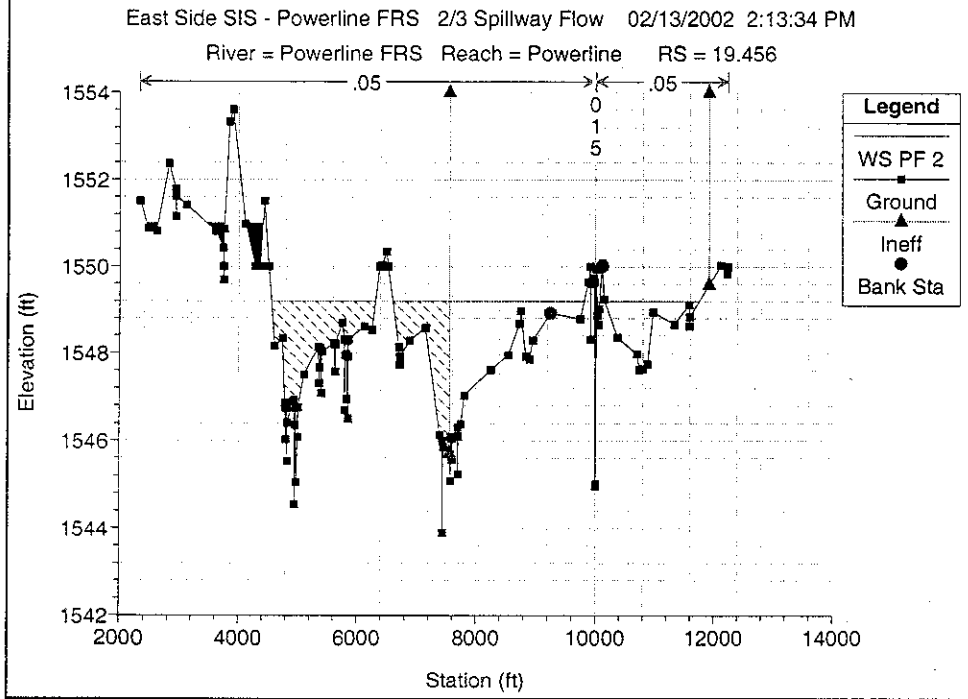

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline Downstream Toe of the West Side Embankme RS = 19.879
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

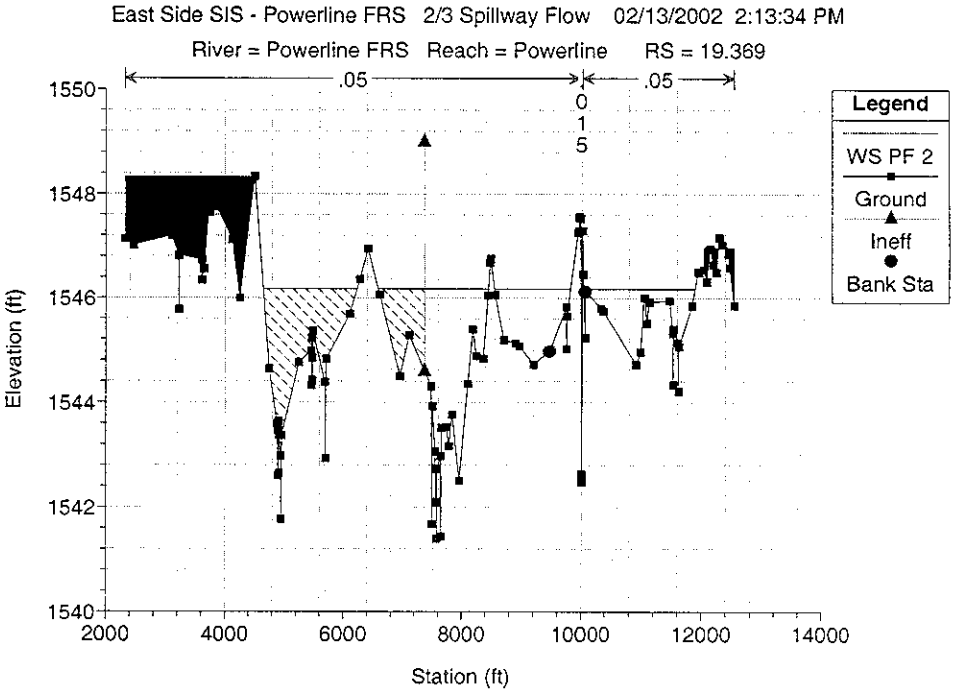

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 19.806
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

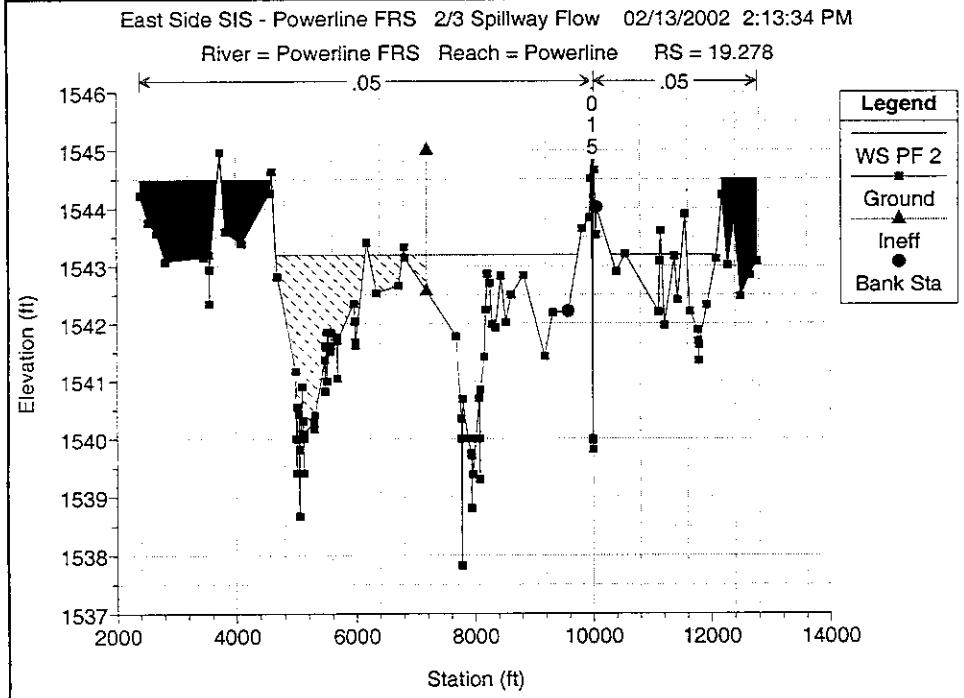

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 19.727
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

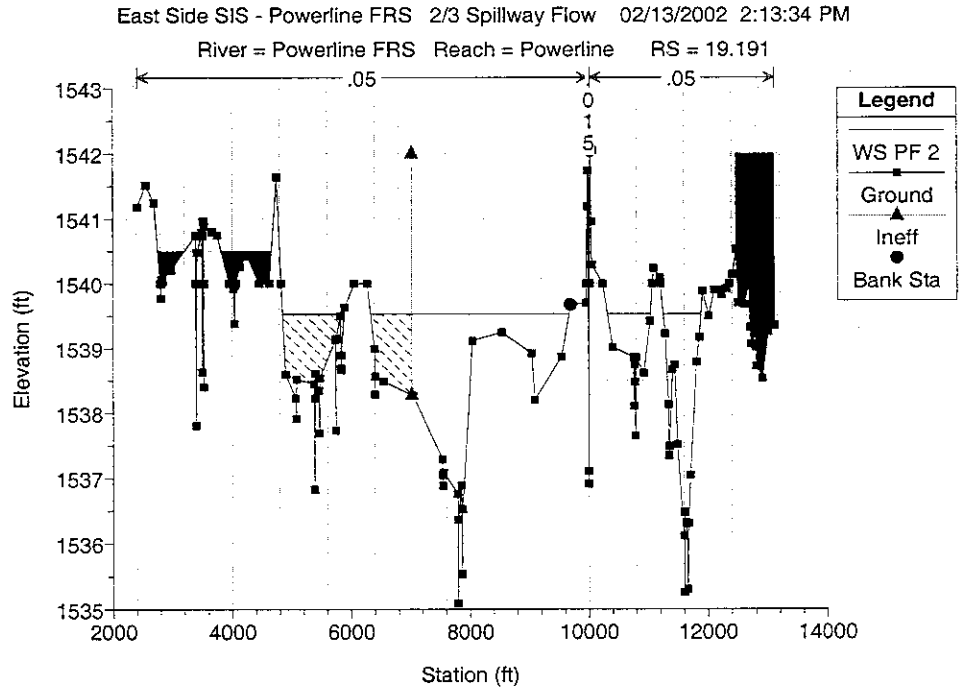

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 19.643
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

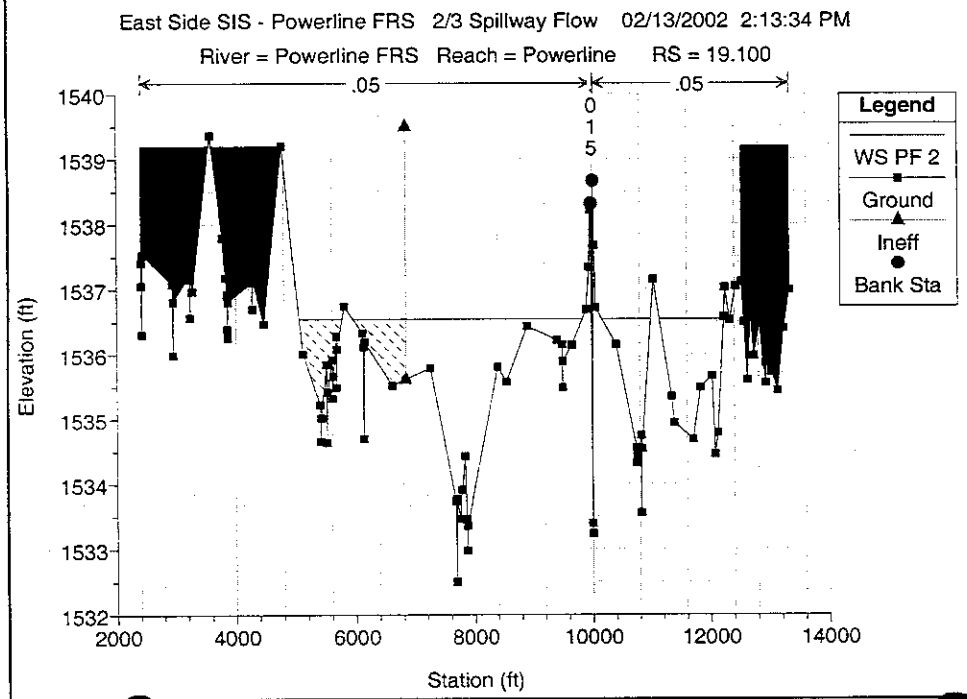

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 19.544
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

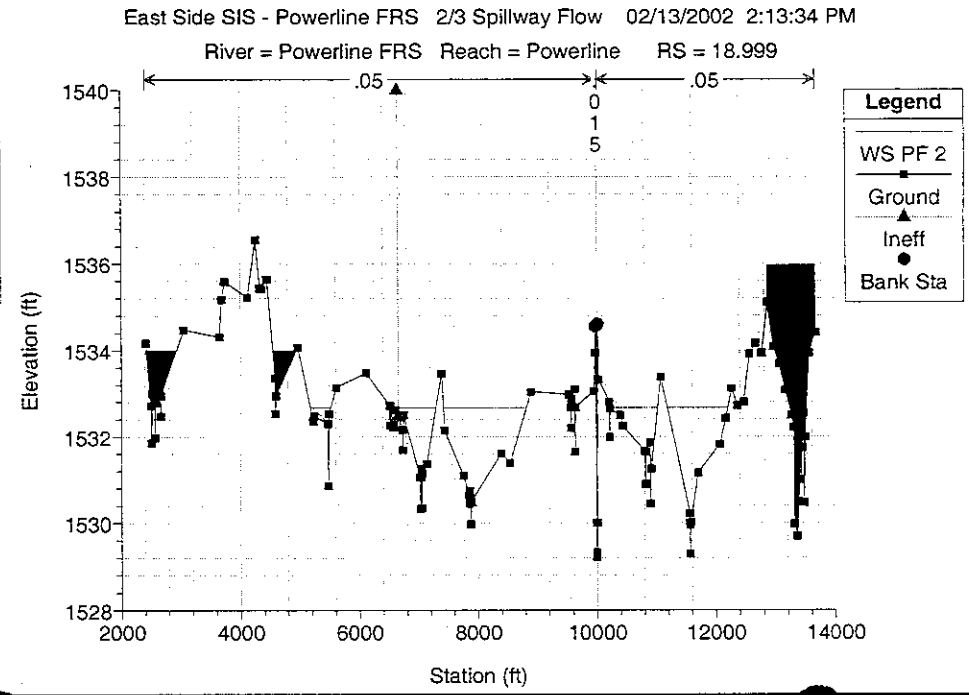

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 19.456
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

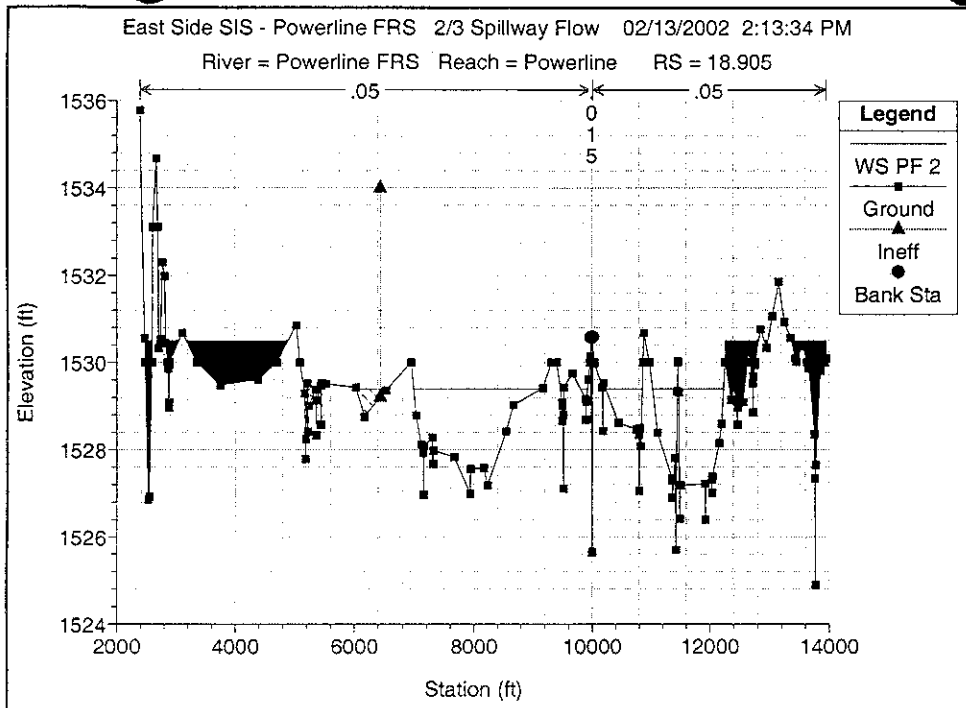

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 19.369
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

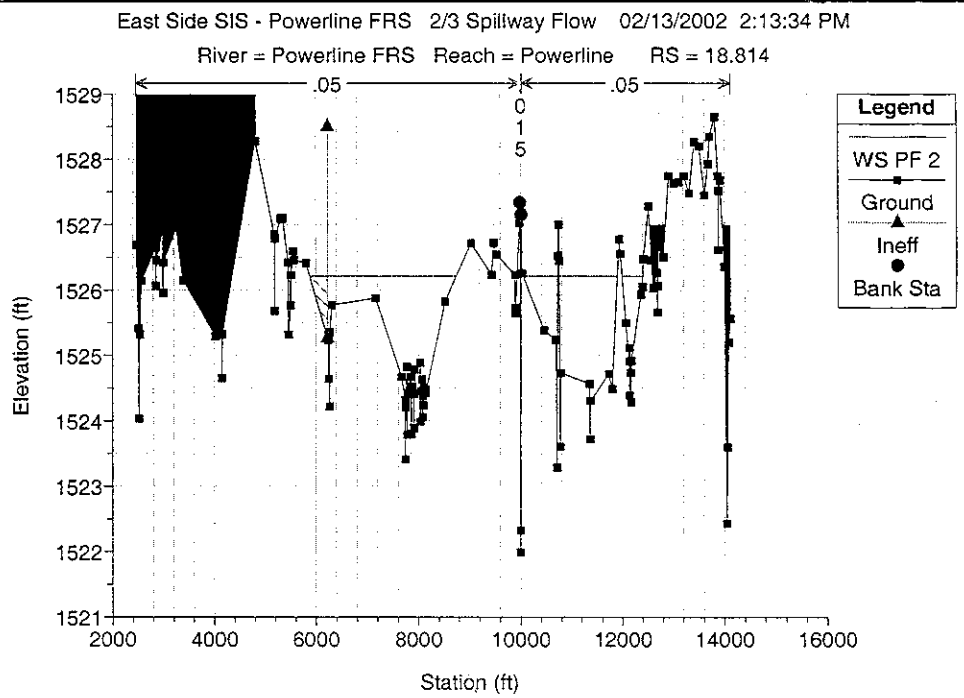

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 19.278
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

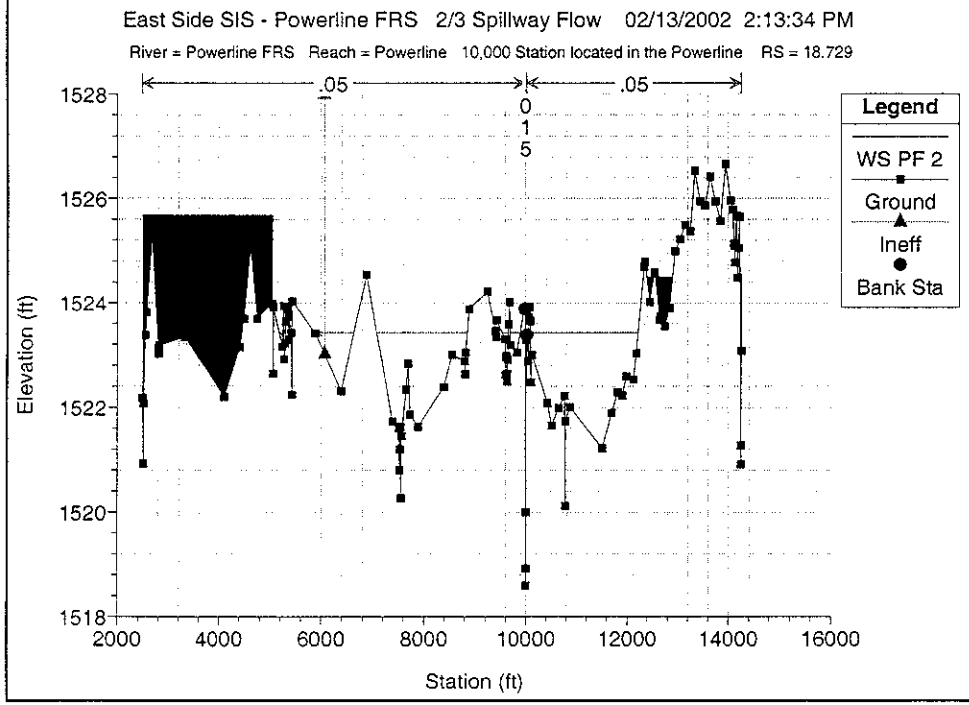

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 19.191
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

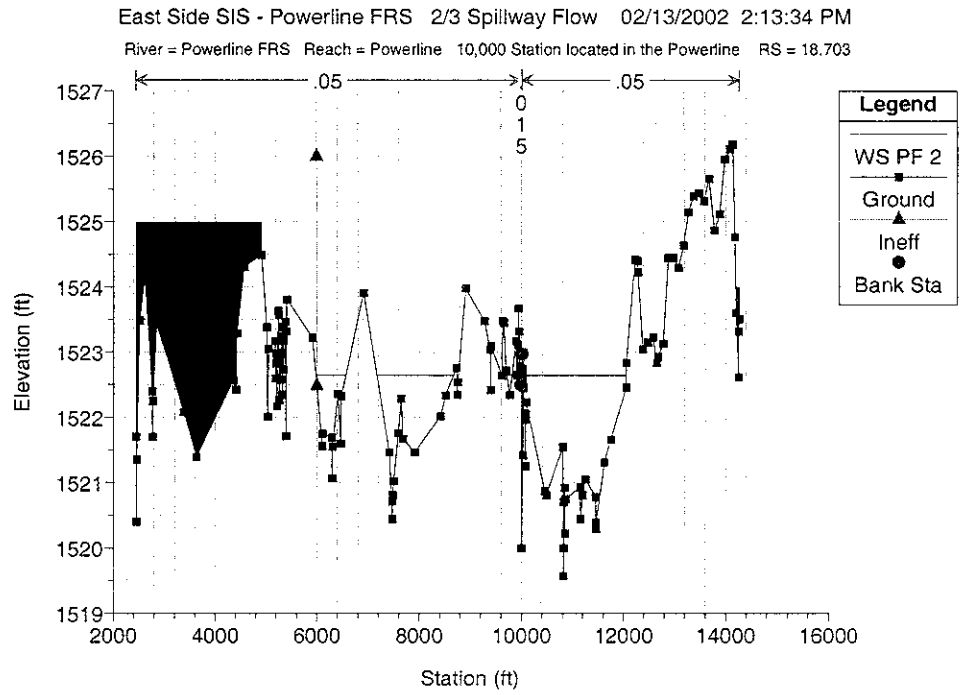

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 19.100
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

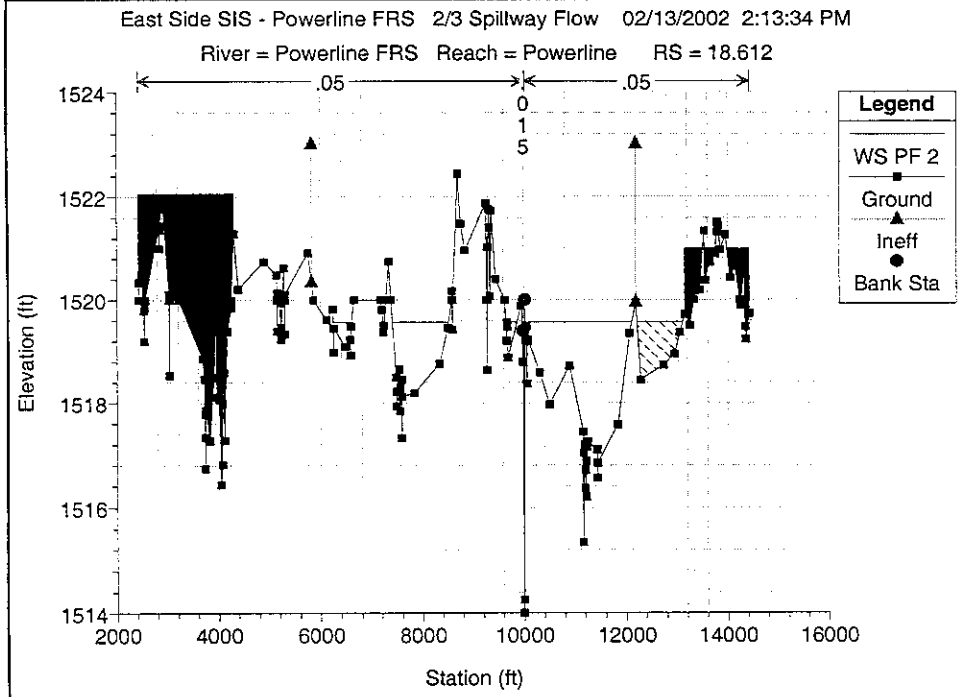

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 18.999
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

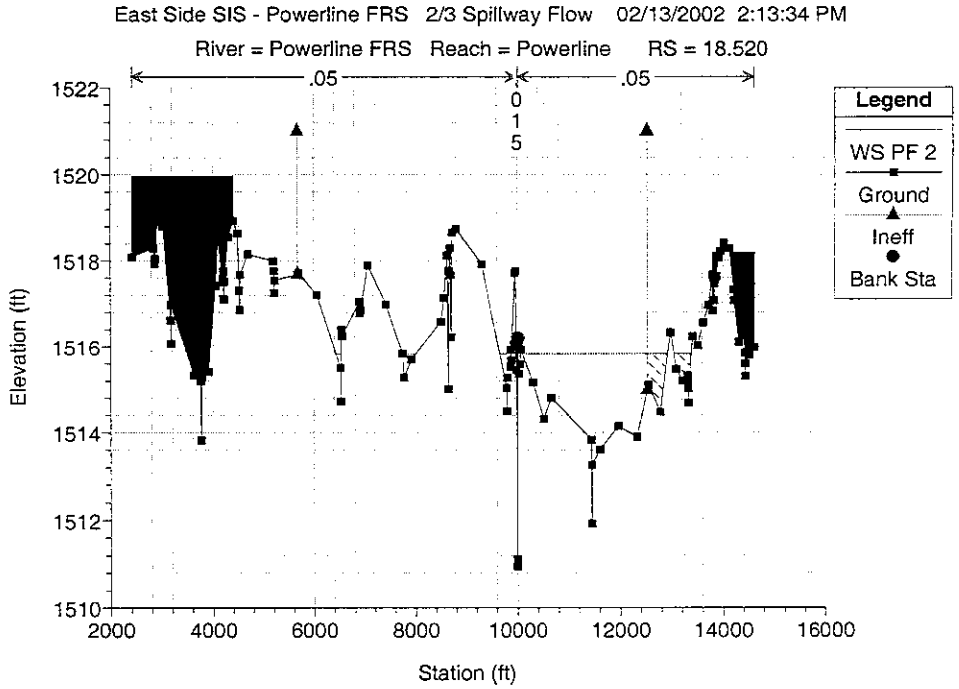

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 18.905
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

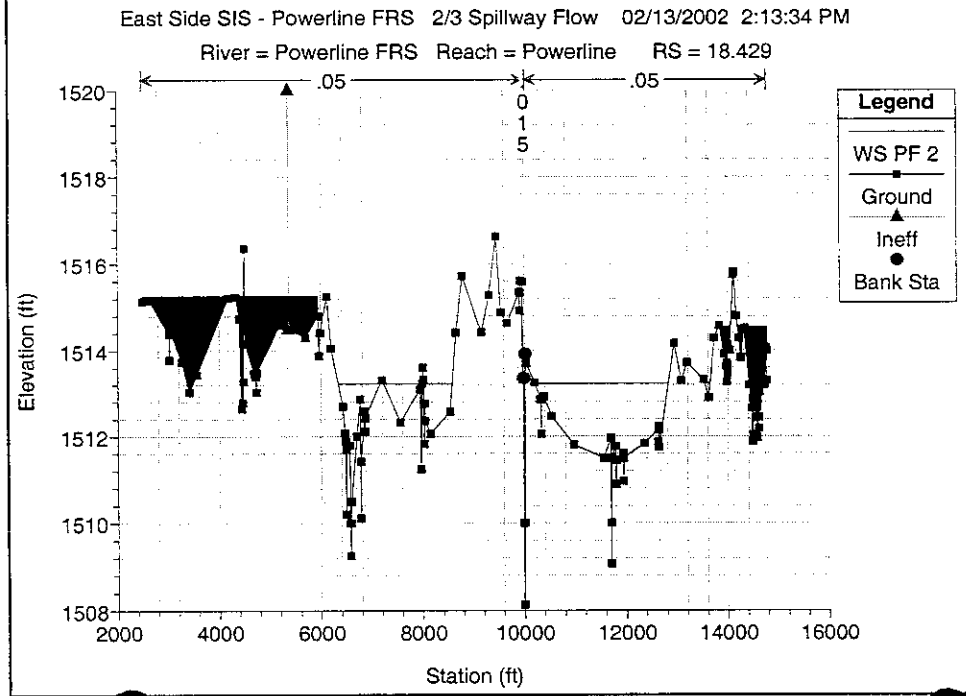

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 18.814
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

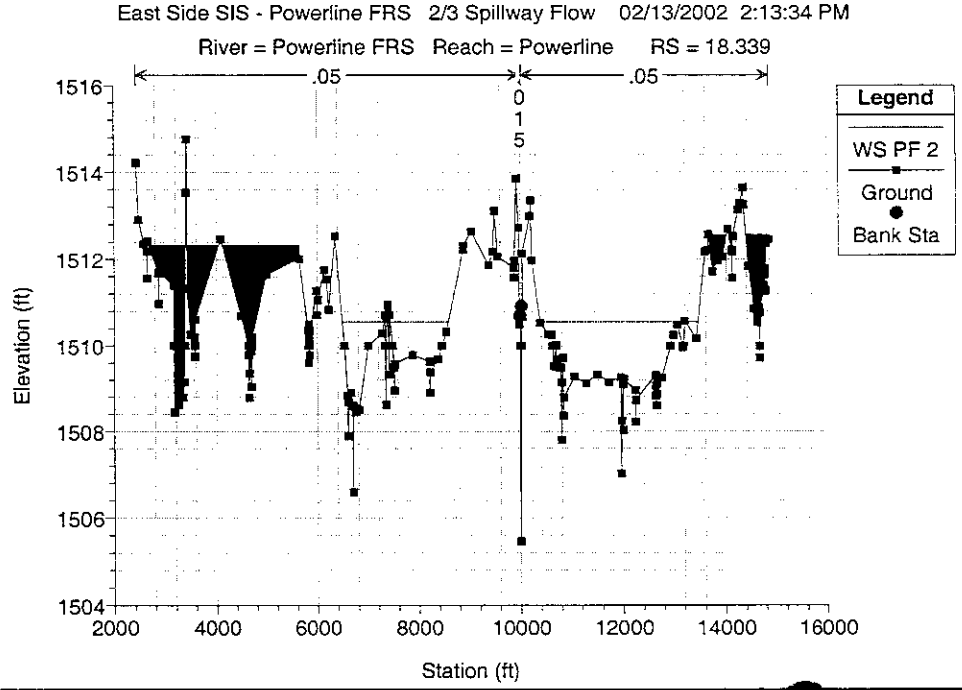

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in the Powerline RS = 18.729
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

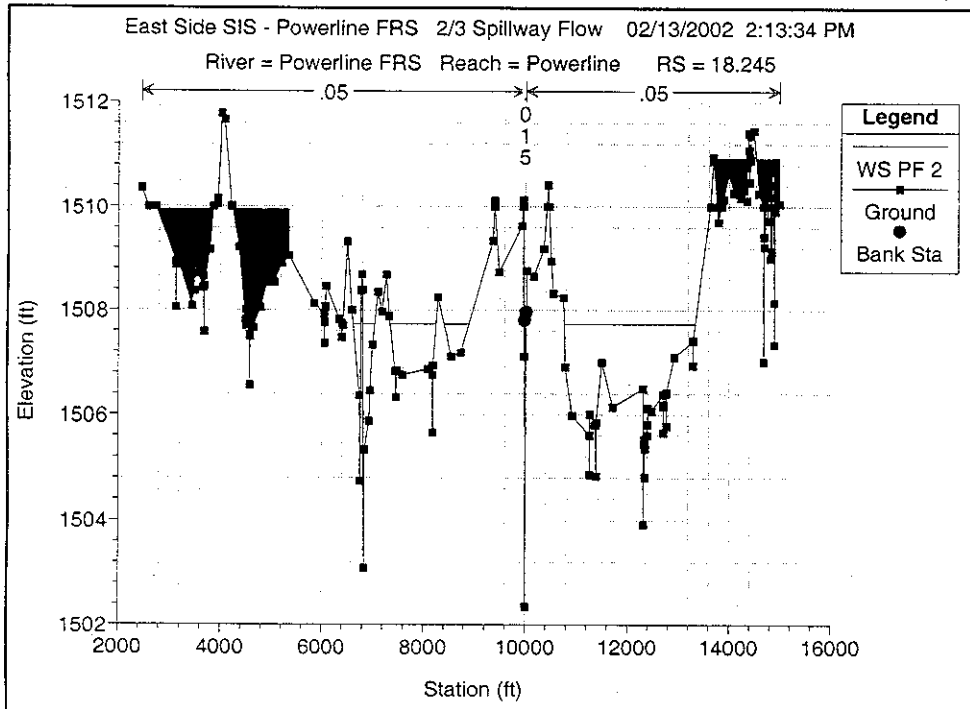

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in the Powerline RS = 18.703
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

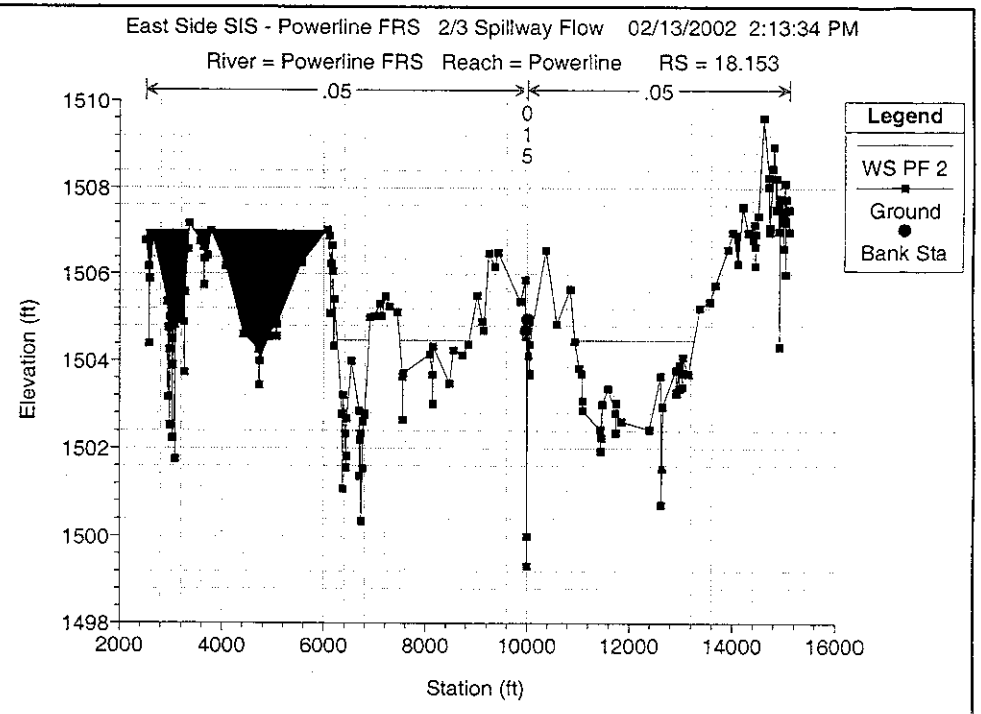

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 18.612
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

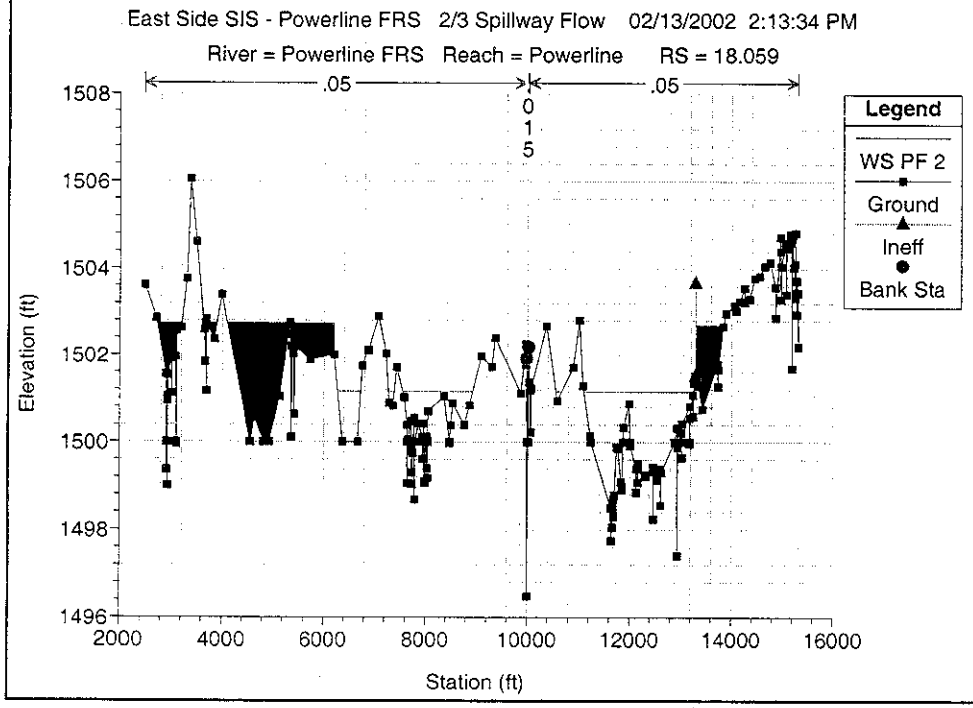

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 18.520
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 18.429
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 18.339
.05
.05
0
1
5
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 18.245
.05
.05
0
1
5
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 18.153
.05
.05
0
1
5
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 18.059
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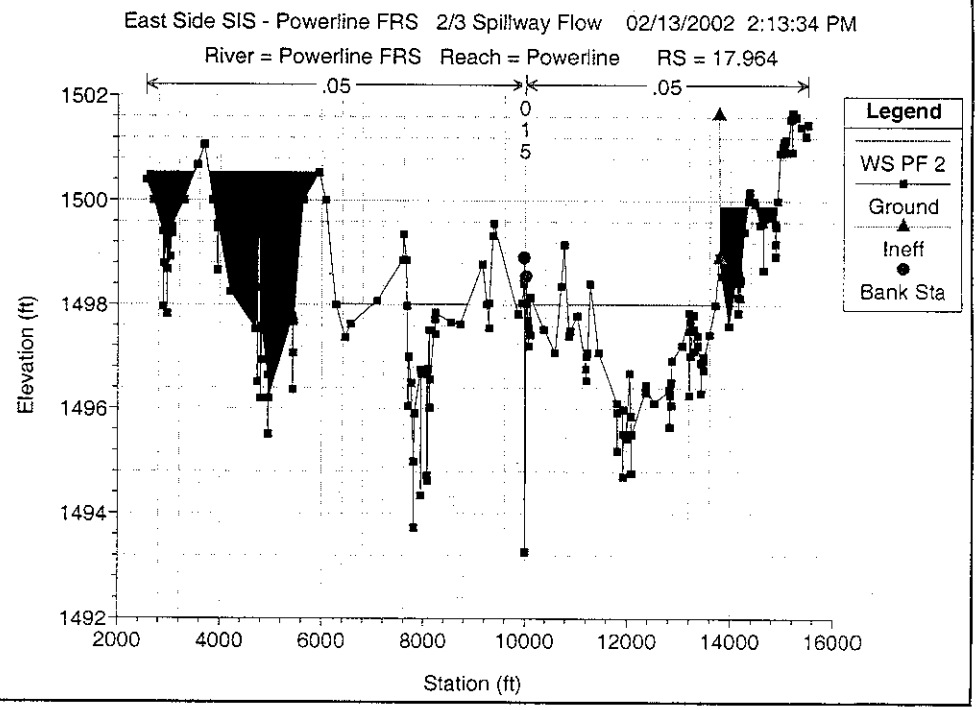
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 17.964
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.05
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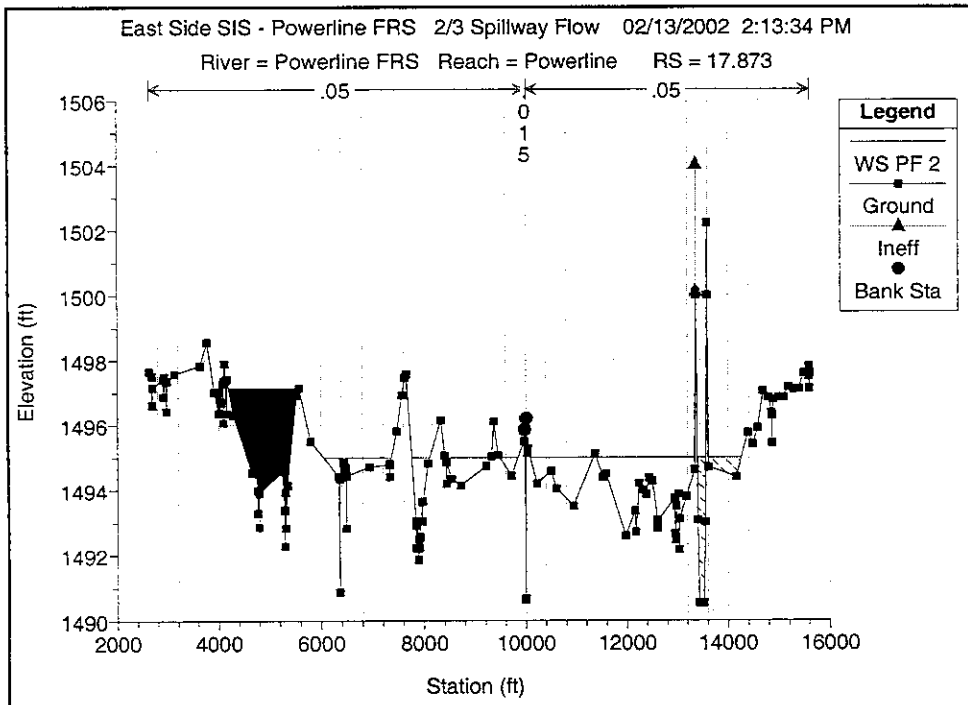
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 17.873
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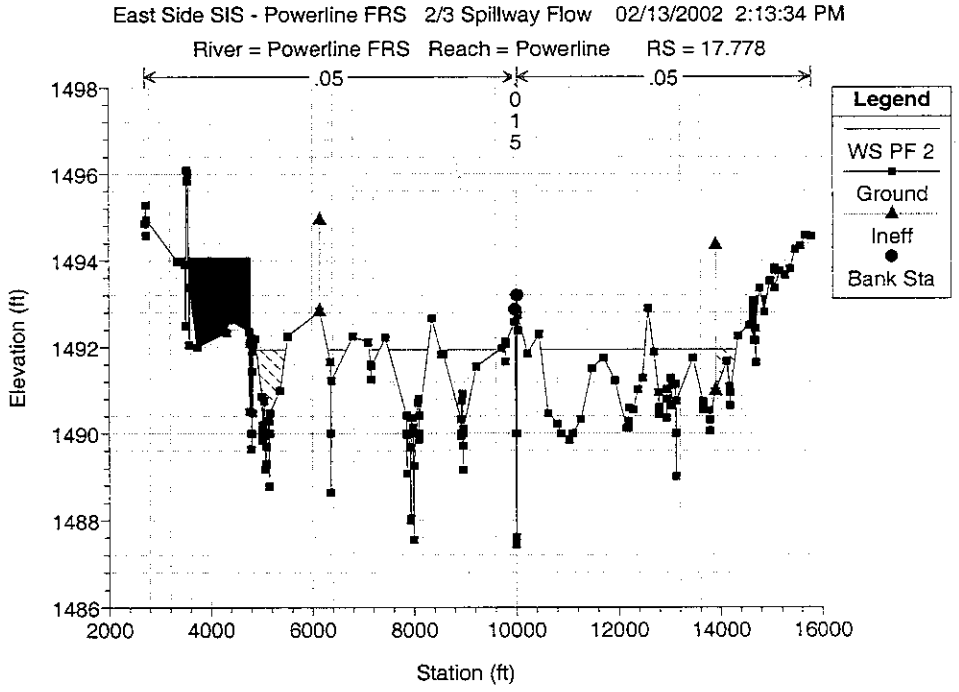
0
1
5
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 17.778
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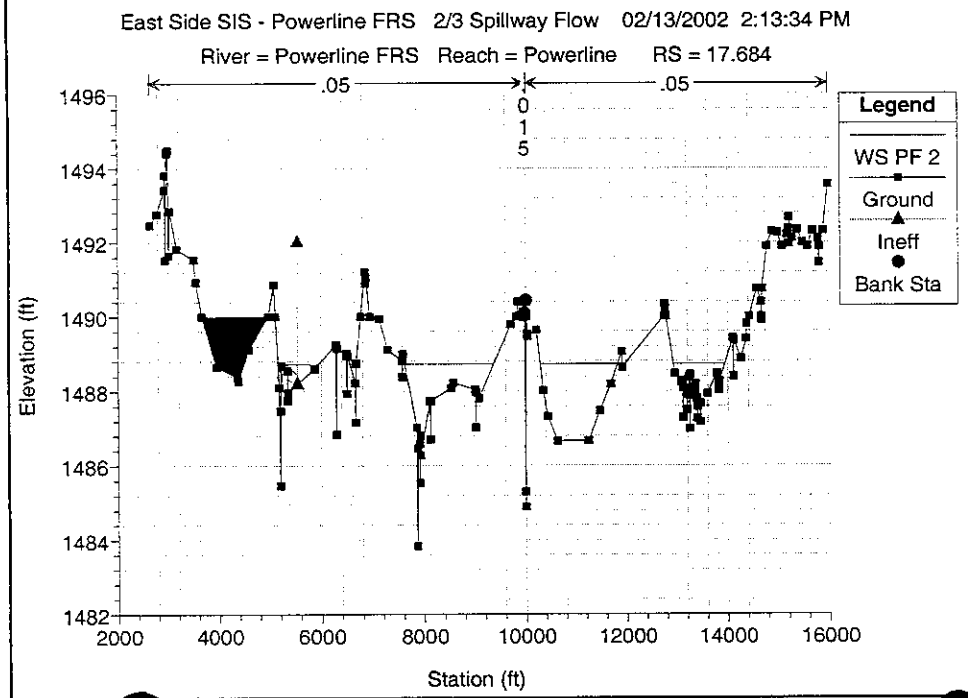
0
1
5
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 17.684
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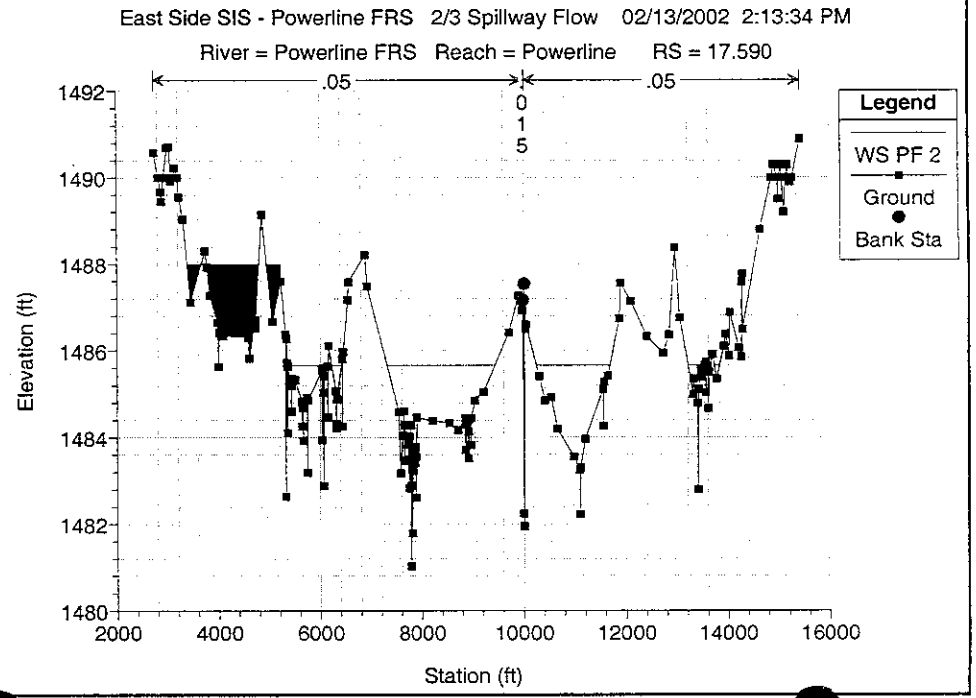
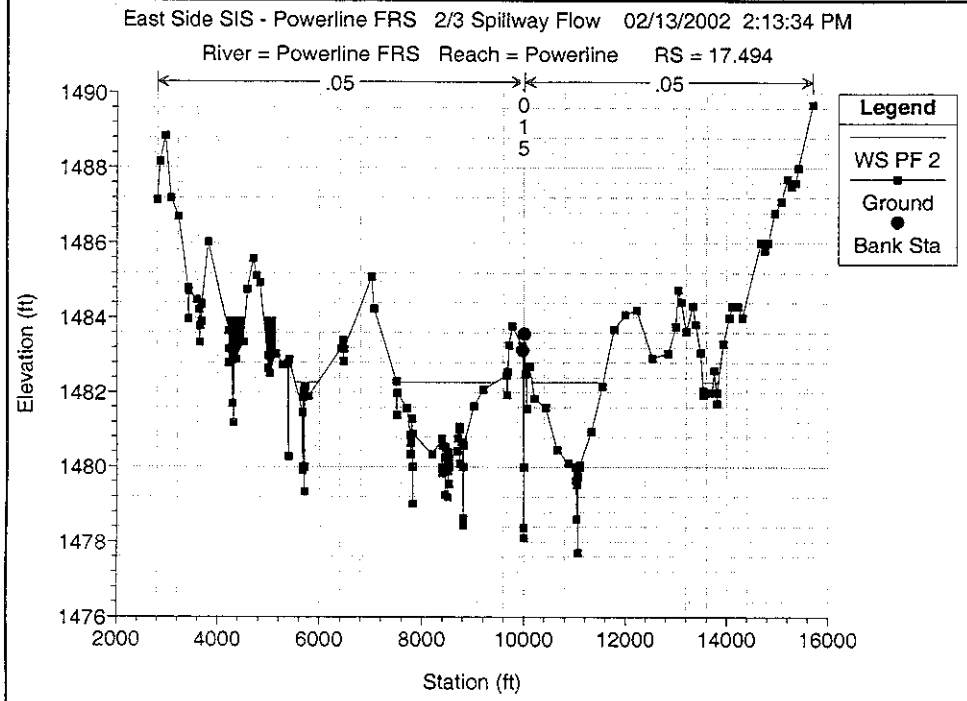
0
1
5
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 17.590
.05
0
1
5
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 17.494
.05
.05
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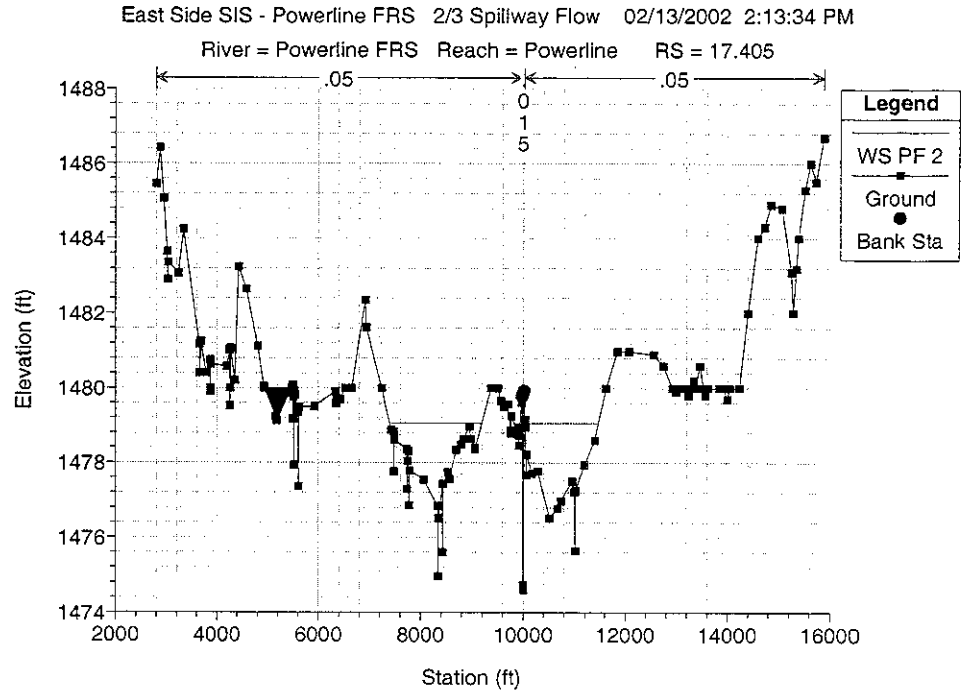
1
5
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 17.405
.05
.05
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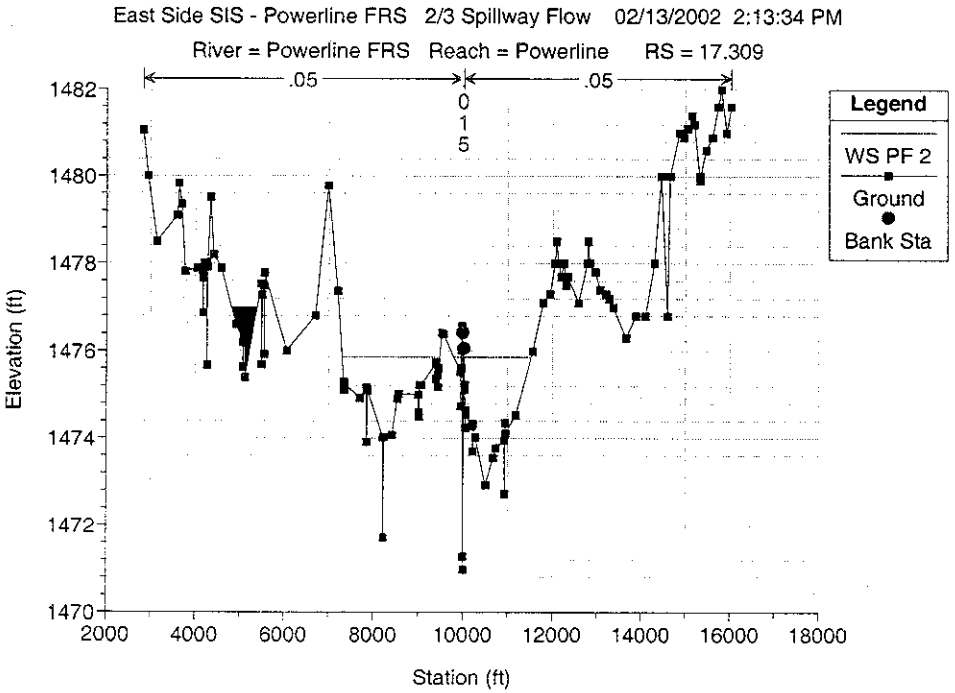
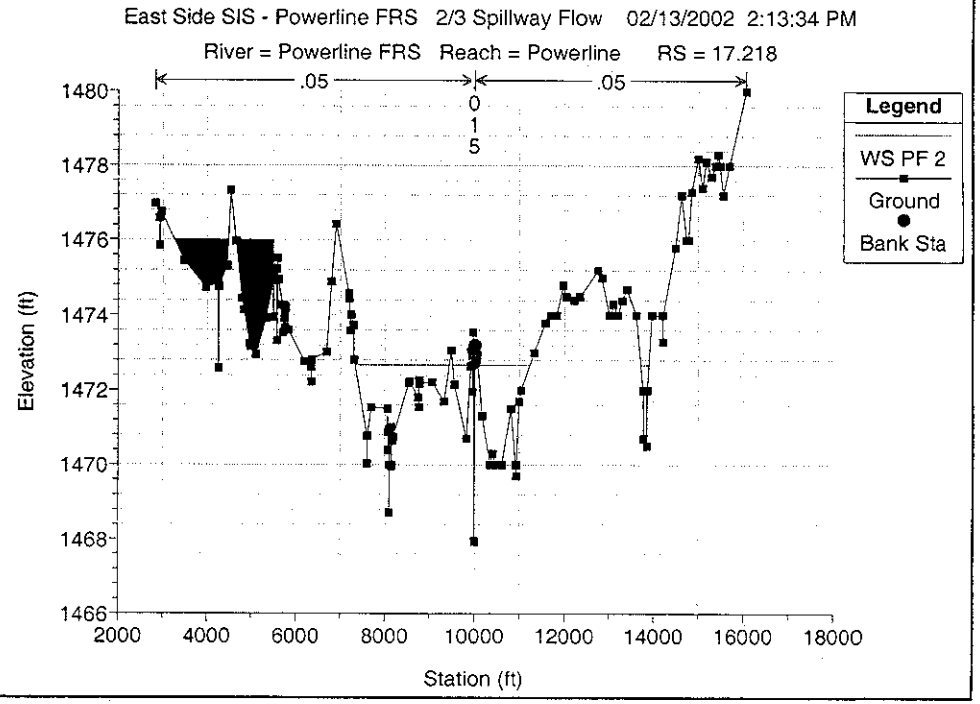
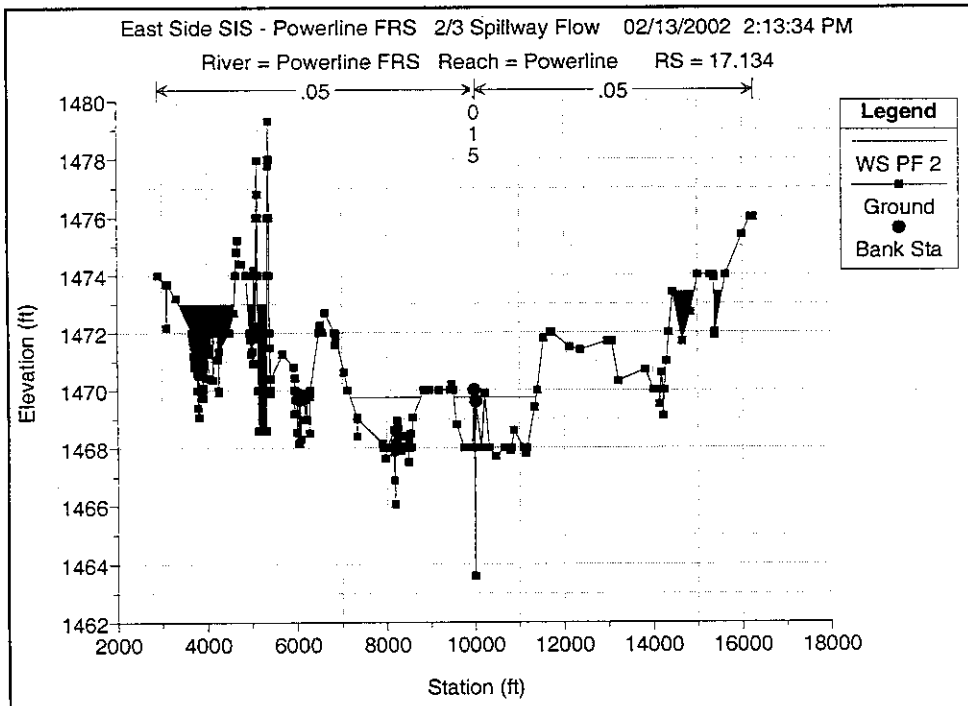
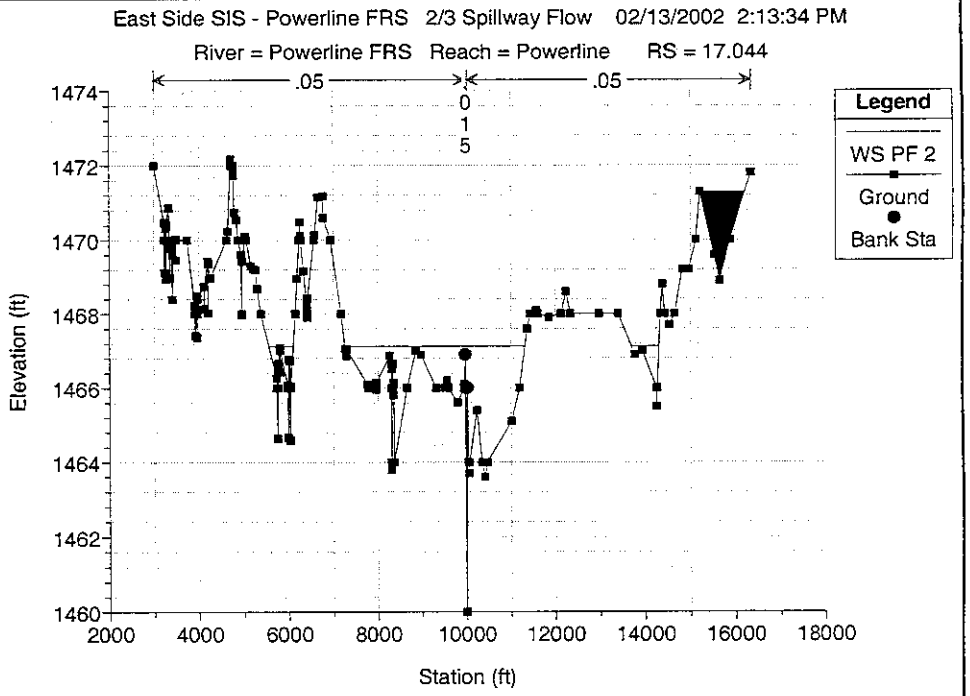
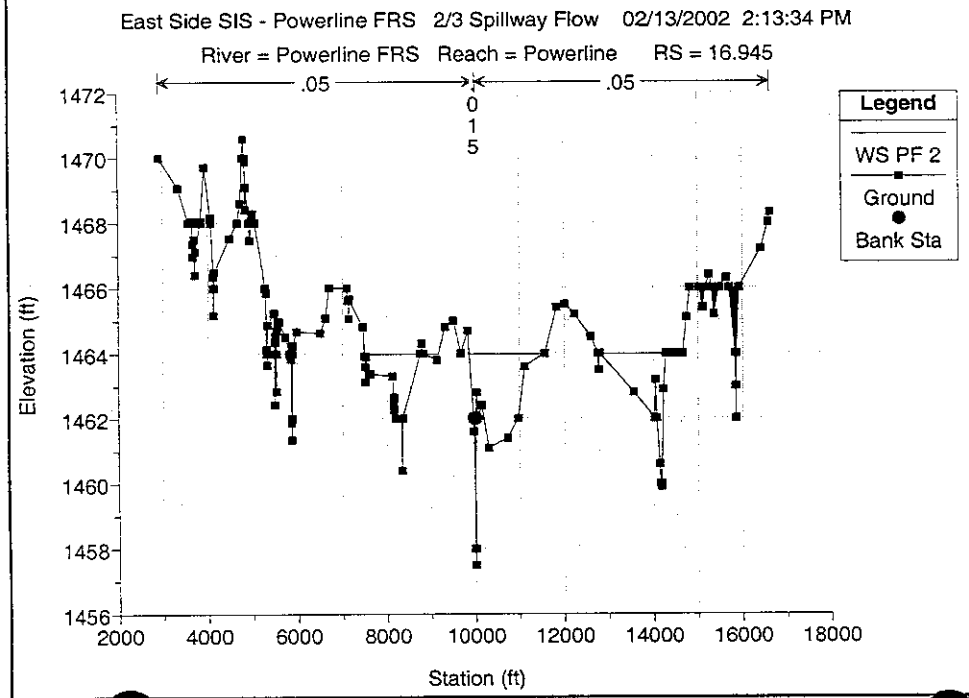
1
5
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

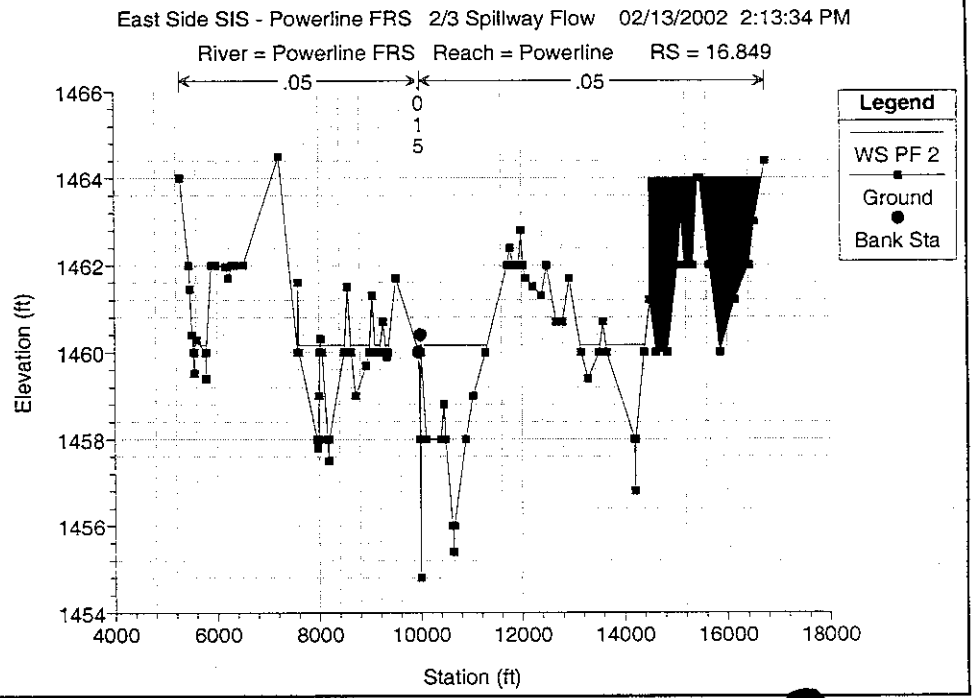

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 17.309
.05
.05
0
1
5
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

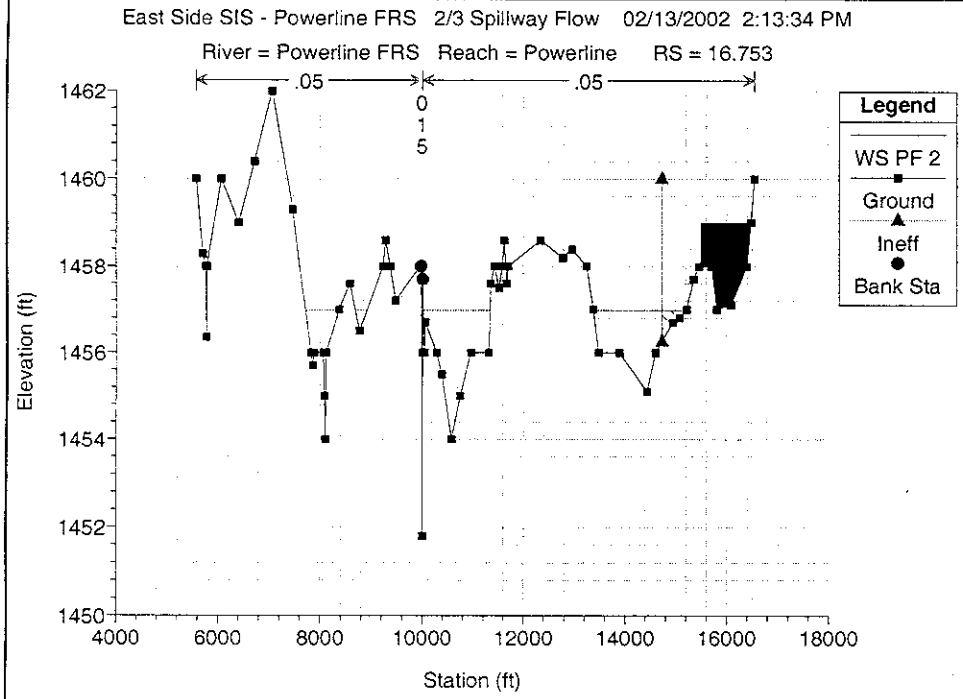

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 17.218
.05
.05
0
1
5
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

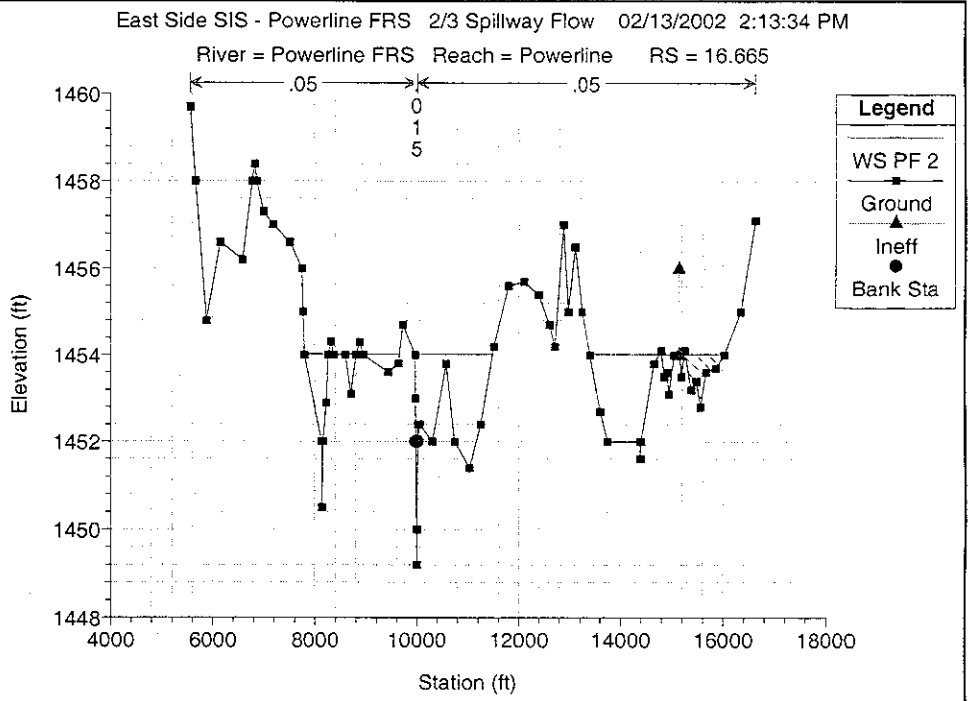

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 17.134
.05
.05
0
1
5
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

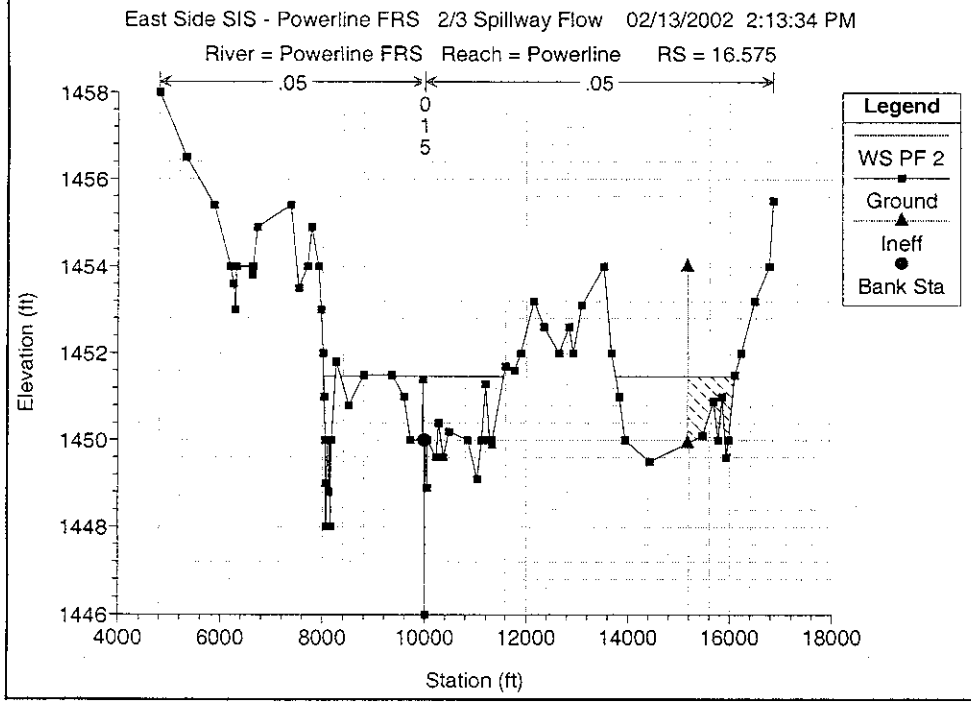

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 17.044
.05
.05
0
1
5
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

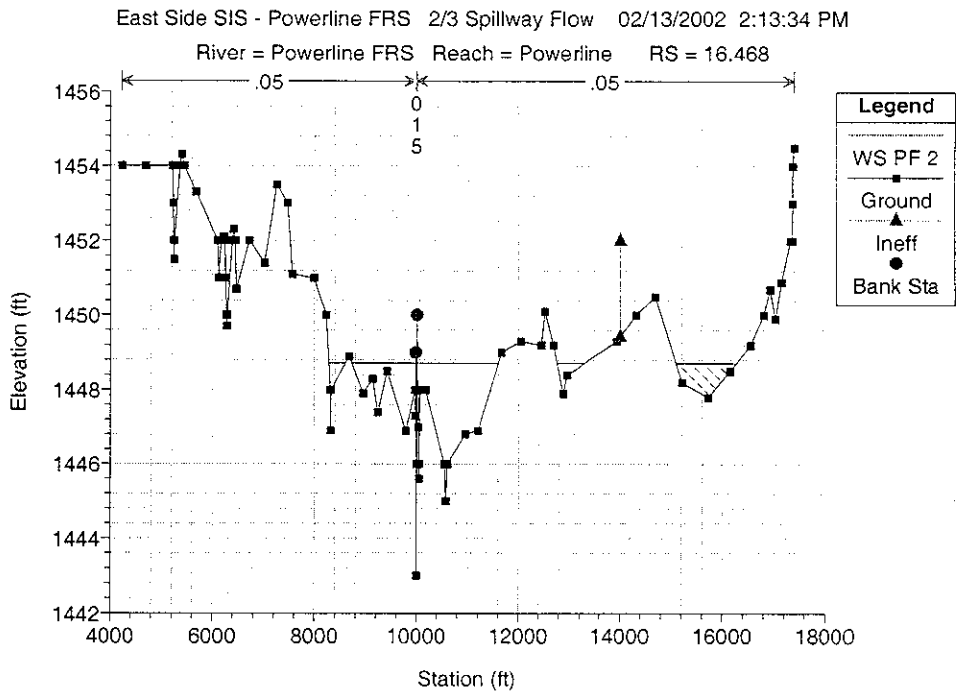

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 16.945
.05
.05
0
1
5
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

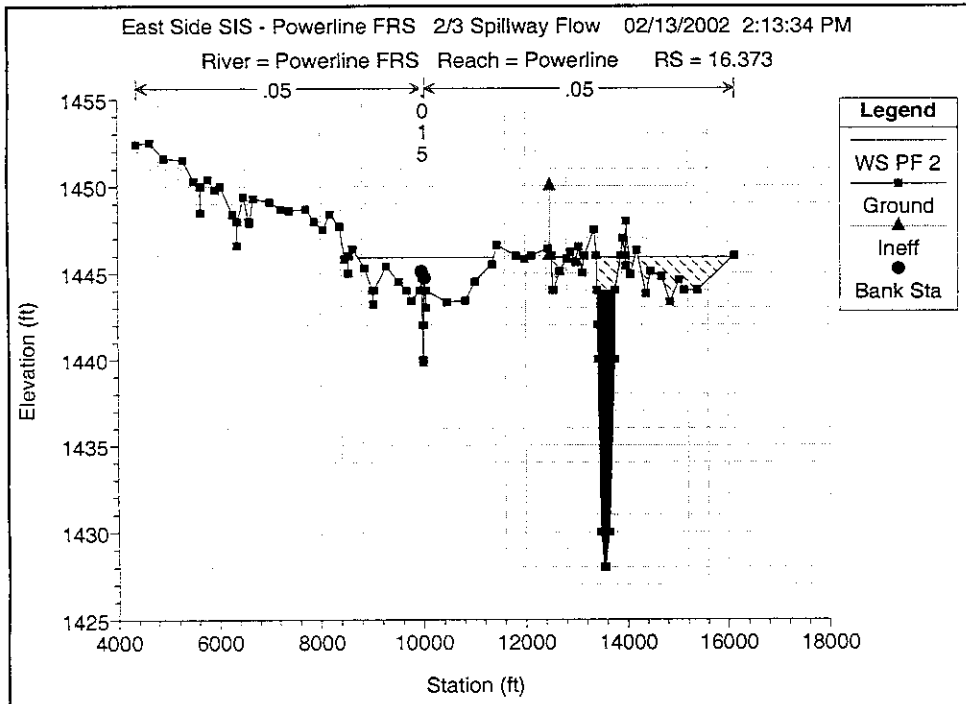

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 16.849
.05
.05
0
1
5
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

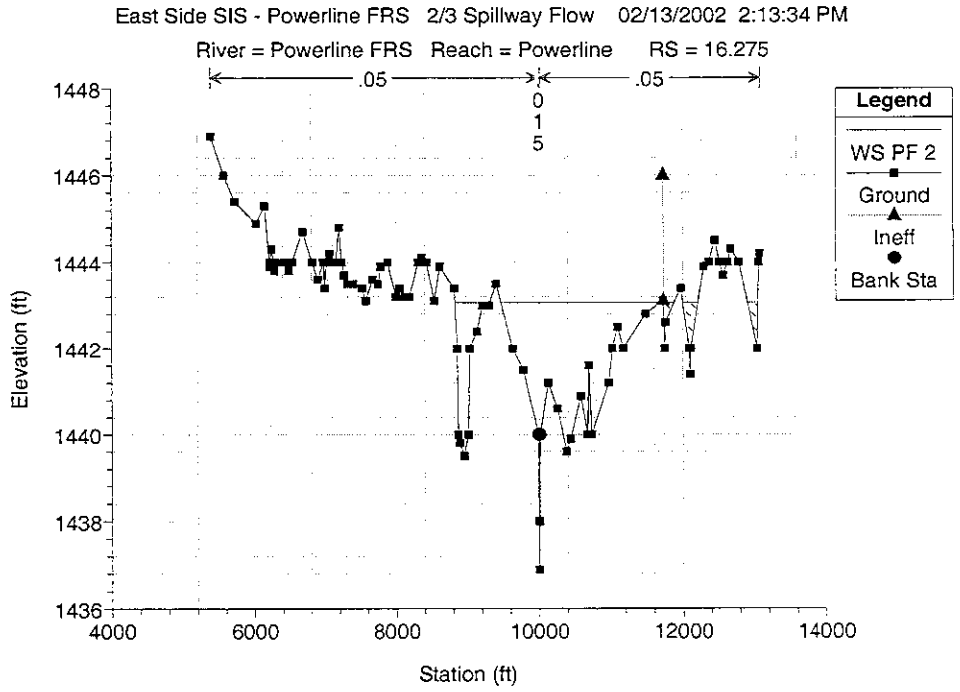

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 16.753
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

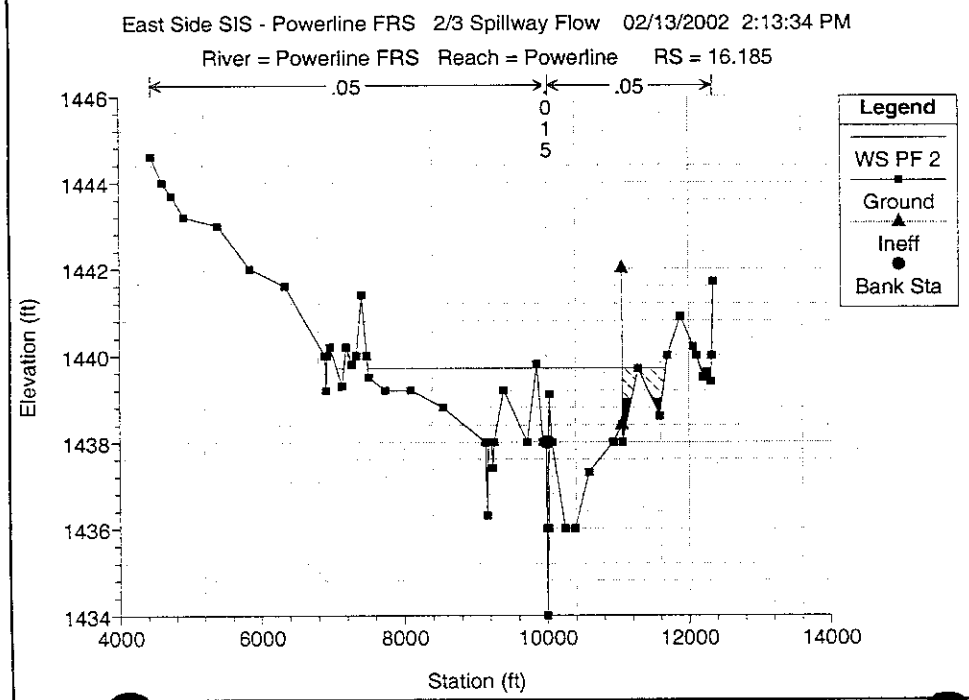

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 16.665
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

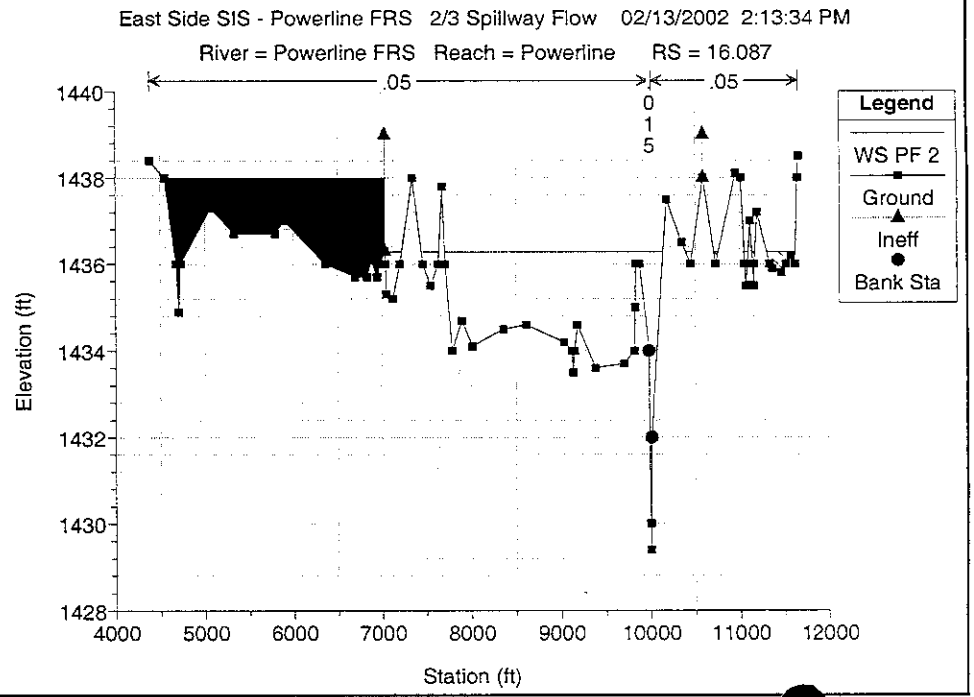

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 16.575
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 16.468
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 16.373
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

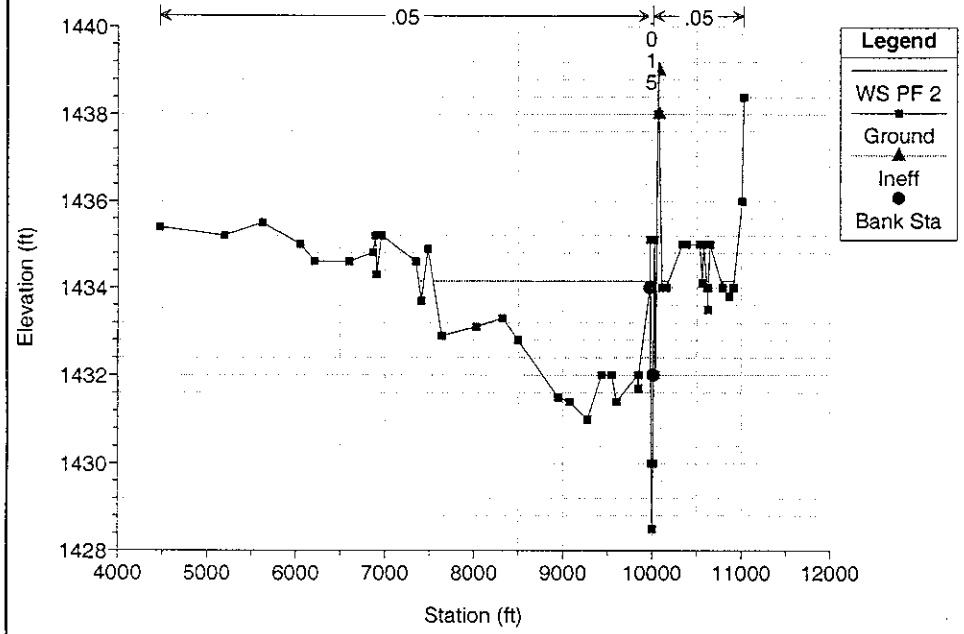

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 16.275
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 16.185
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 16.087
.05
.05
0
1
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

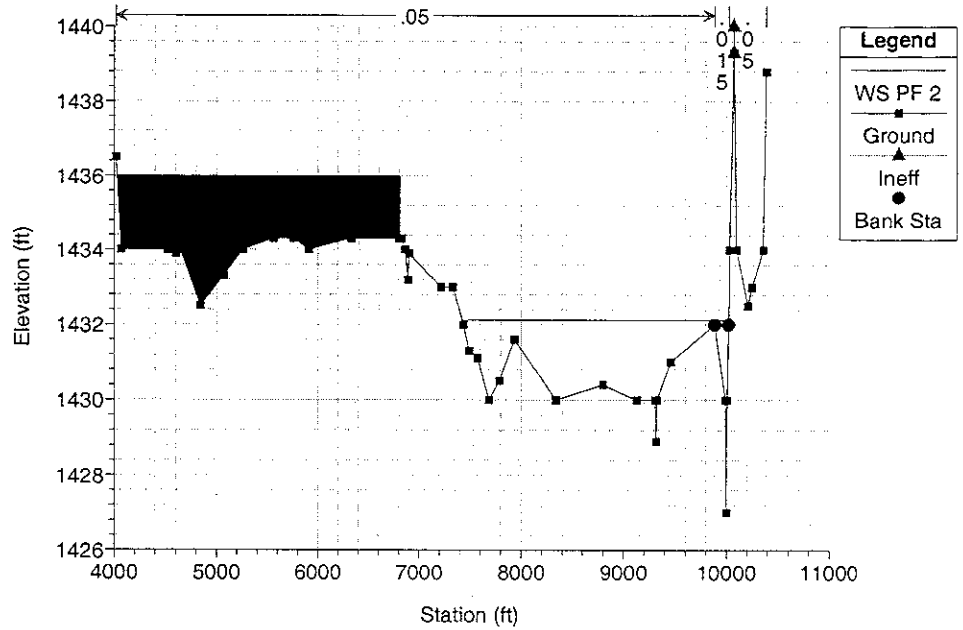
East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM

River = Powerline FRS Reach = Powerline RS = 15.995



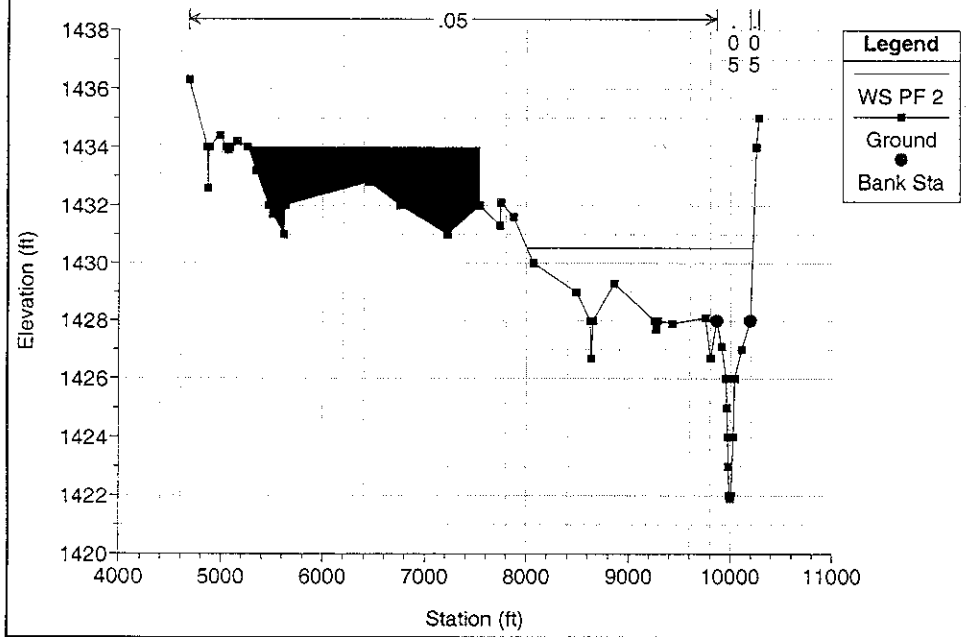
East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM

River = Powerline FRS Reach = Powerline Most downstream cross section containing RS = 15.913



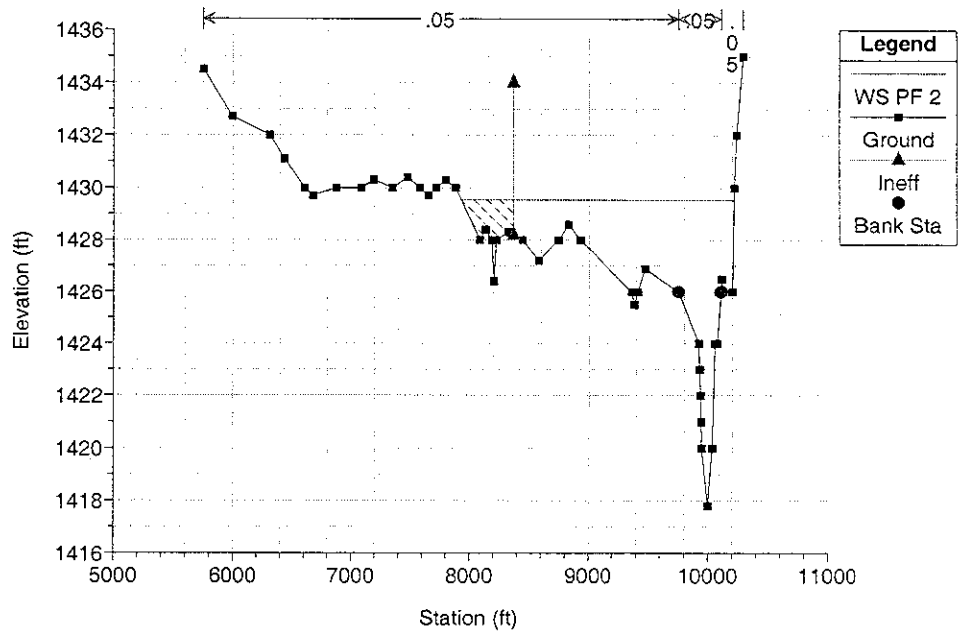
East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM

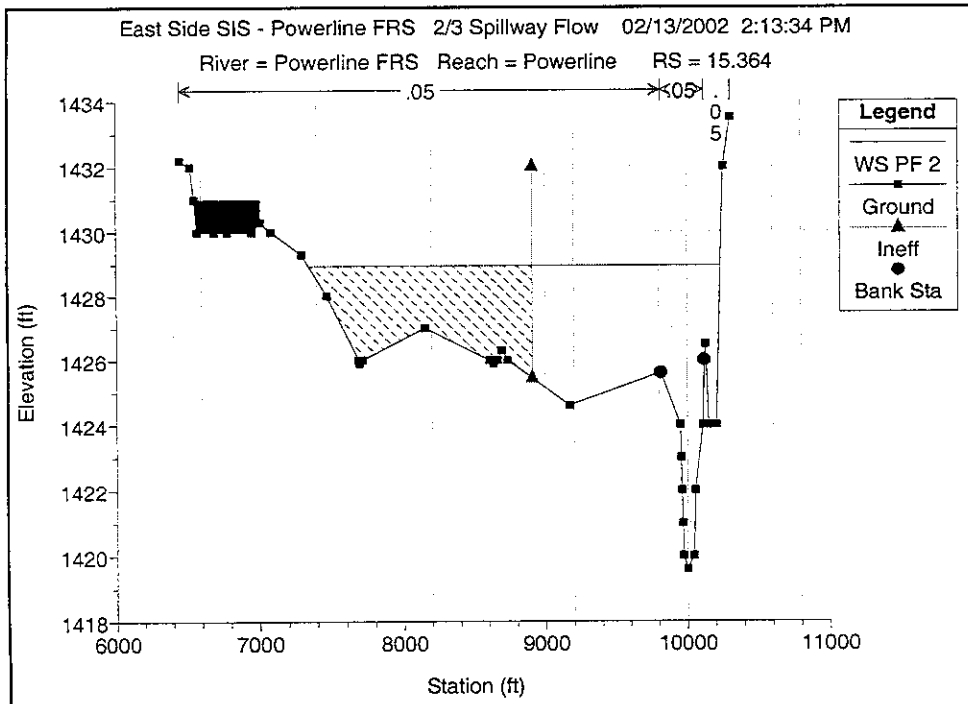
River = Powerline FRS Reach = Powerline RS = 15.717

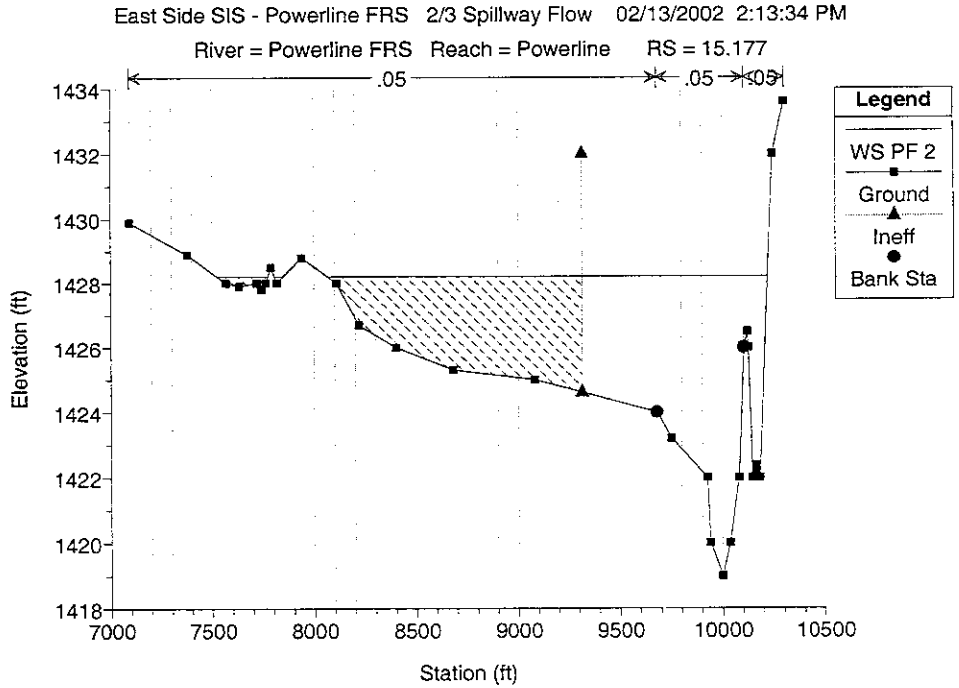


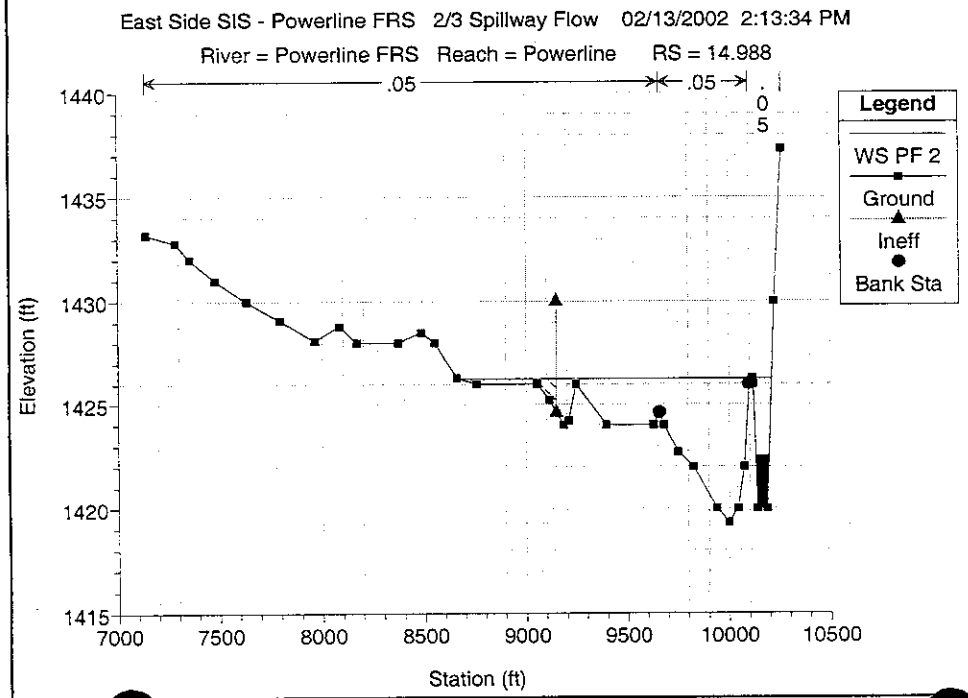
East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM

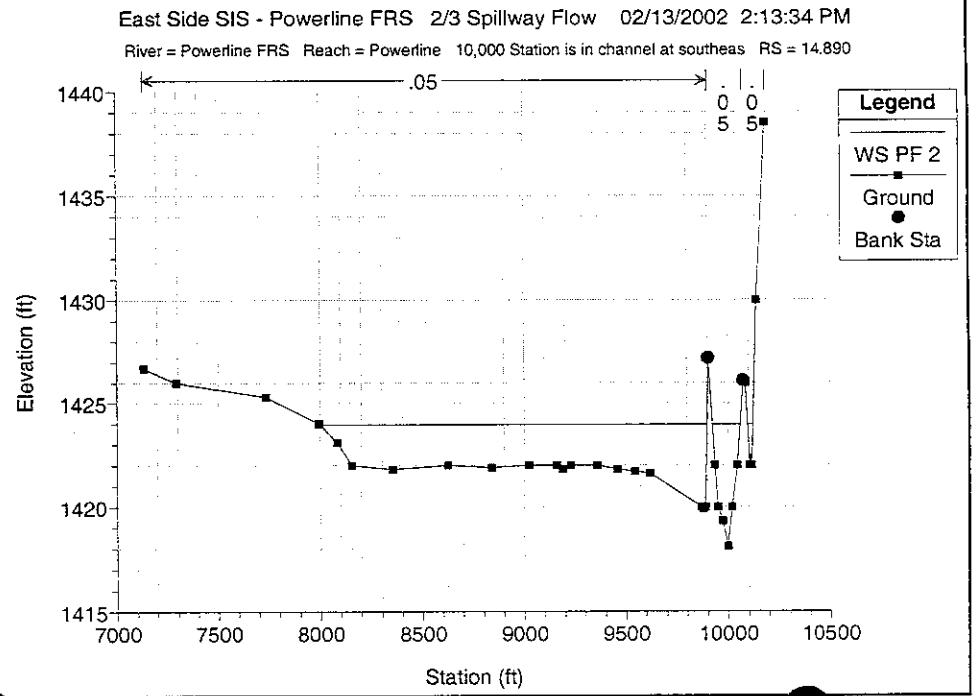
River = Powerline FRS Reach = Powerline RS = 15.529




East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 15.364
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

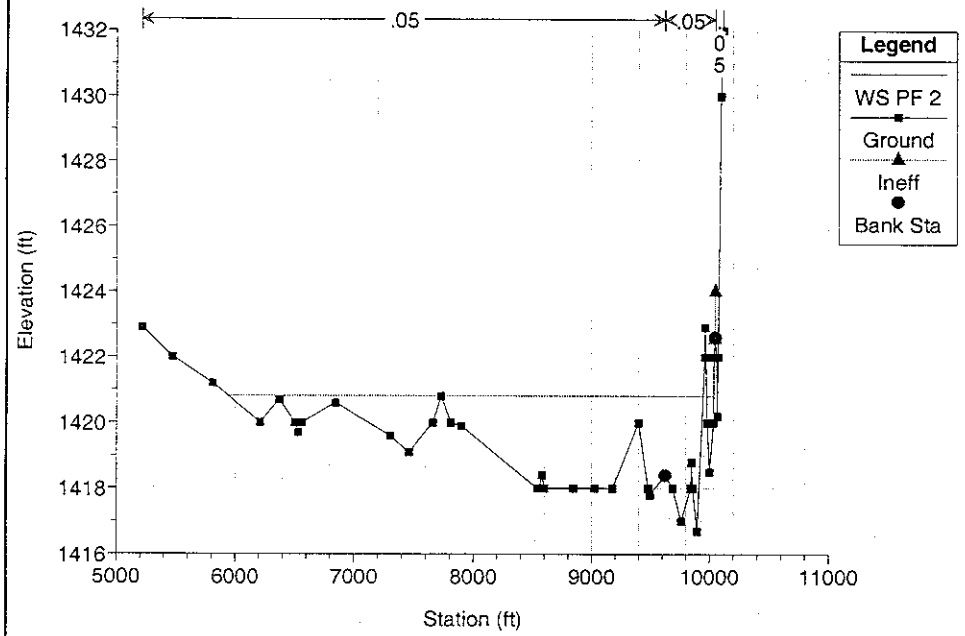

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 15.177
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 14.988
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline 10,000 Station is in channel at southeas RS = 14.890
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

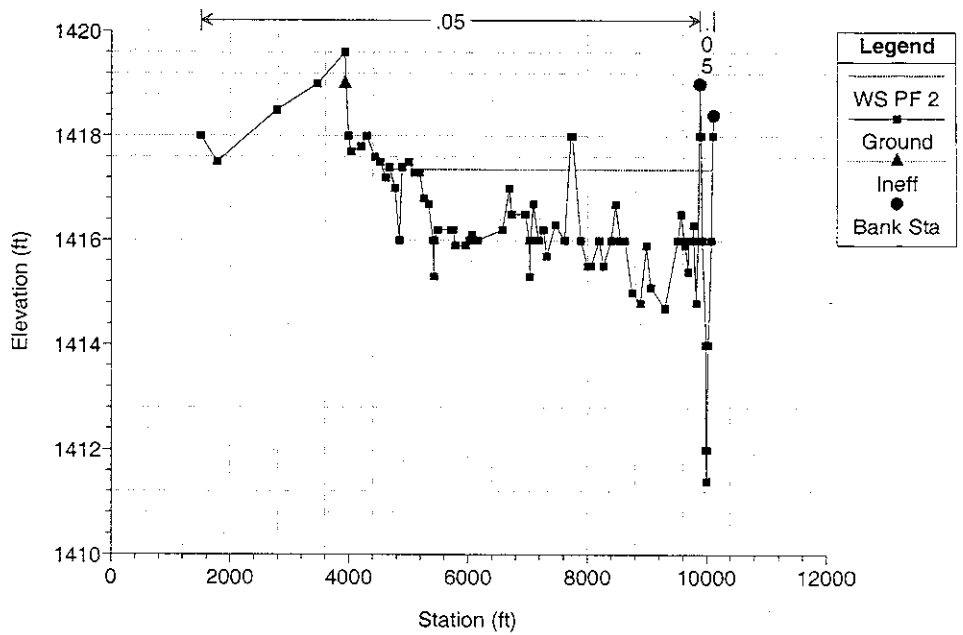
East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM

River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.790



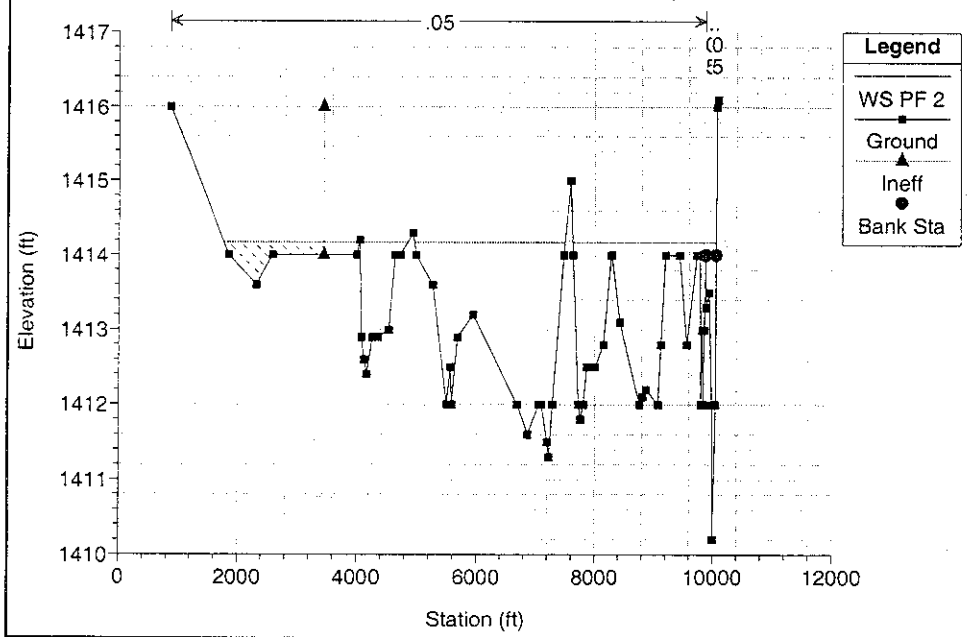
East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM

River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.691



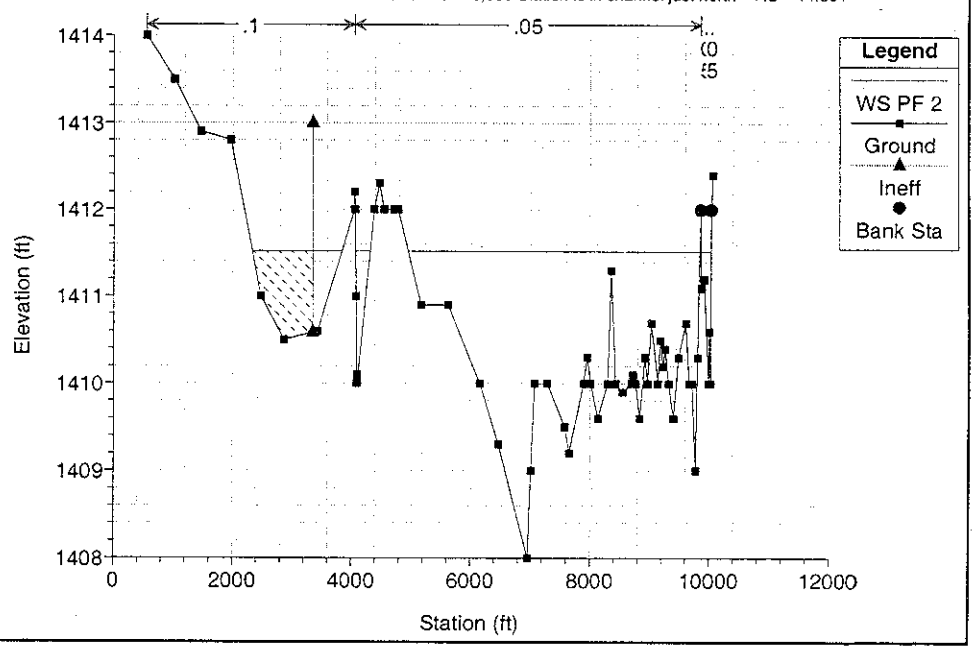
East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM

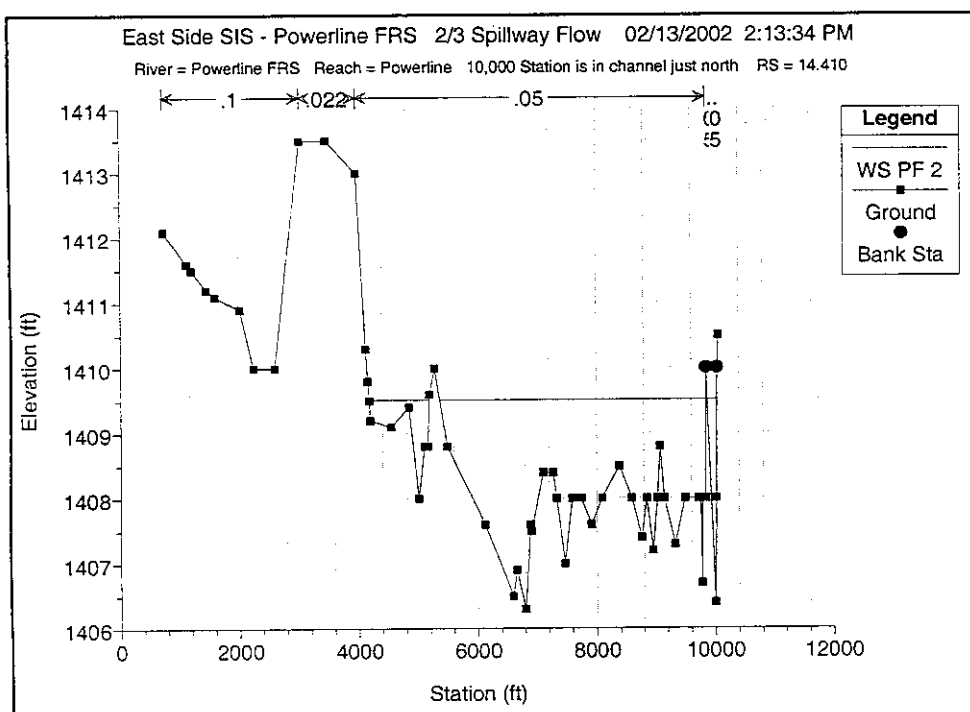
River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.601

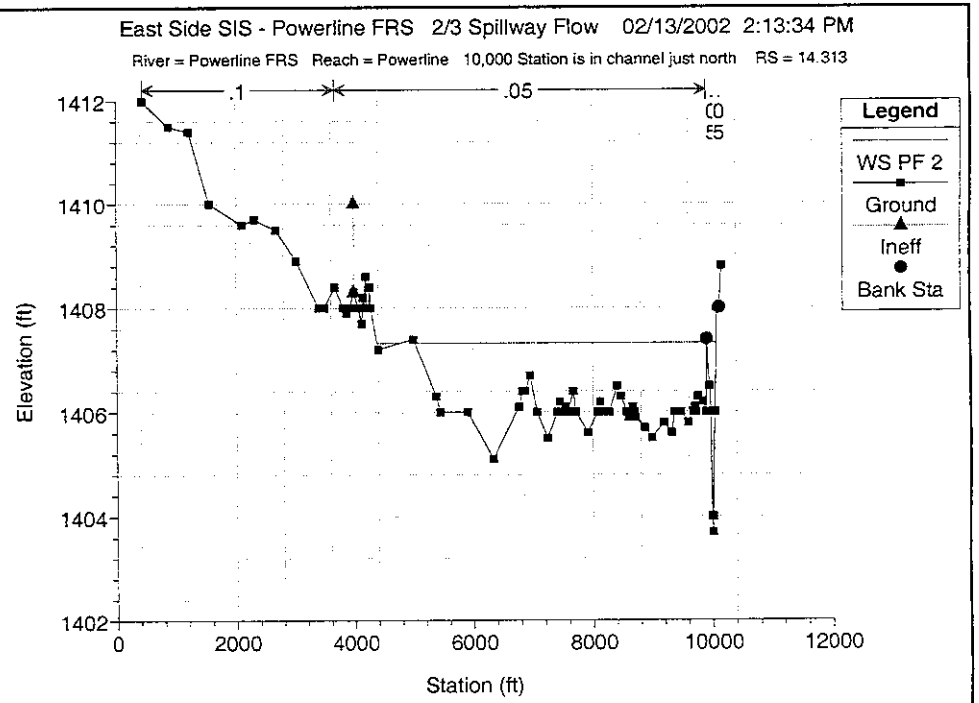


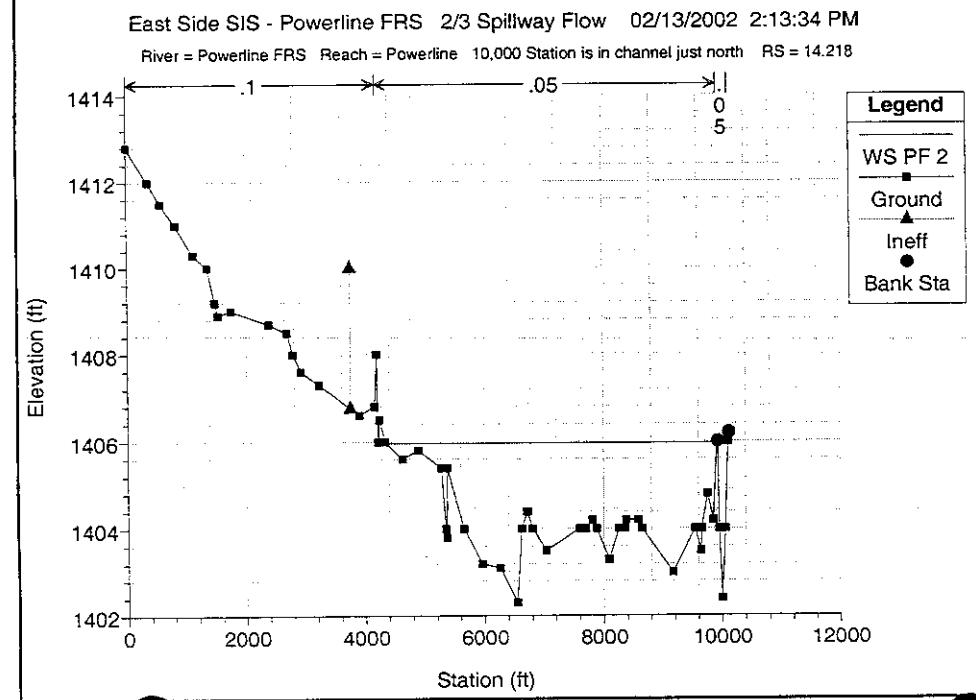
East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM

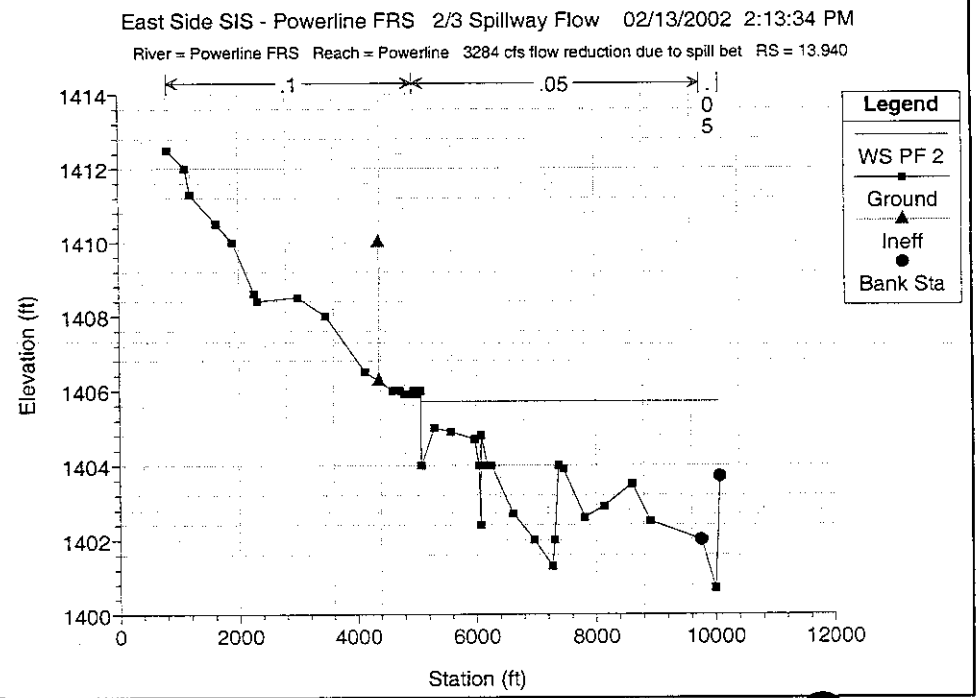
River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.504




East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.410
.1
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

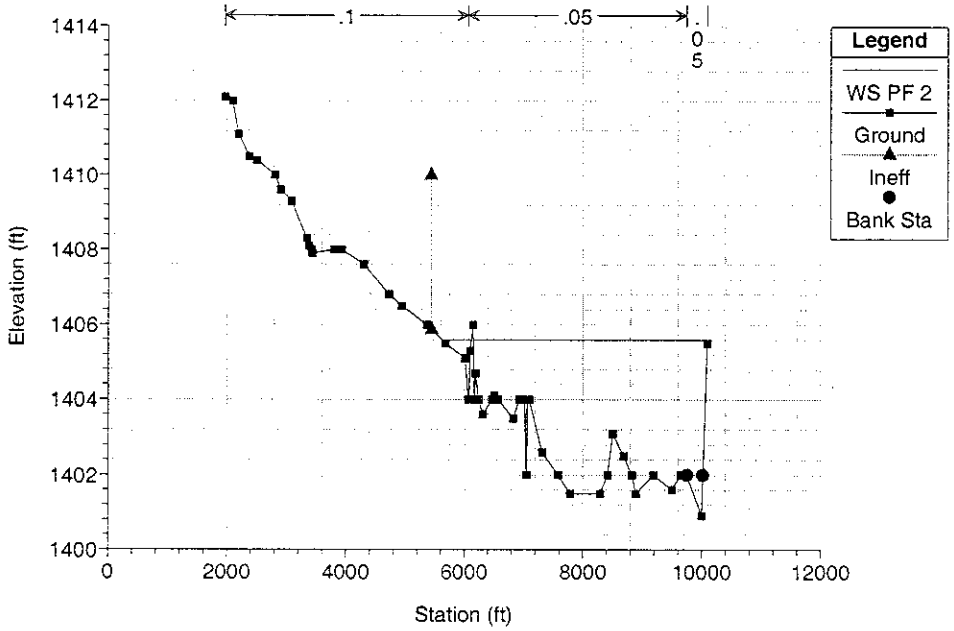

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.313
.1
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.218
.1
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline 3284 cfs flow reduction due to spill bet RS = 13.940
.1
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

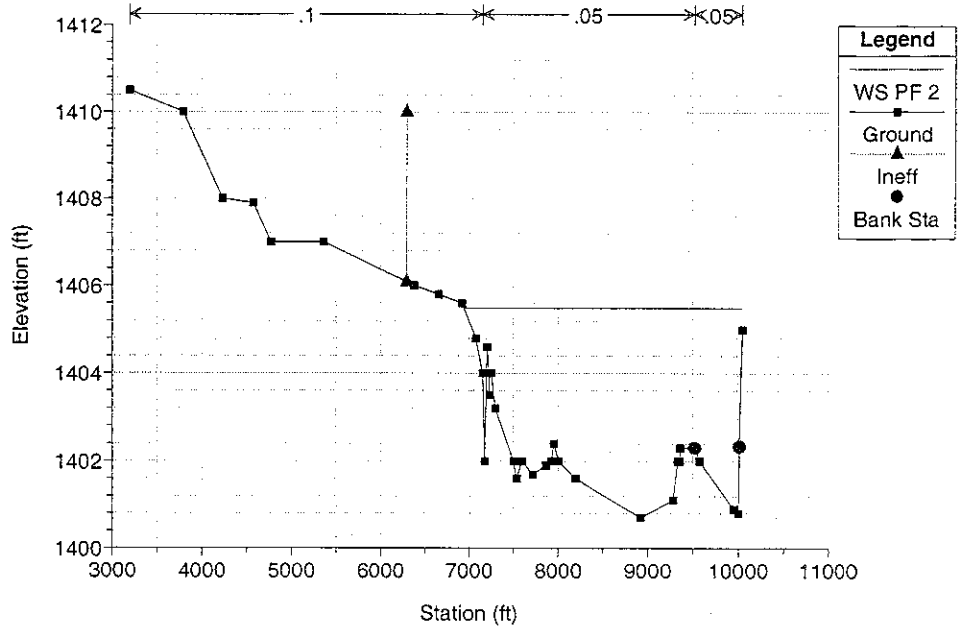
East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM

River = Powerline FRS Reach = Powerline 2812 cfs flow reduction due to spill bet RS = 13.750



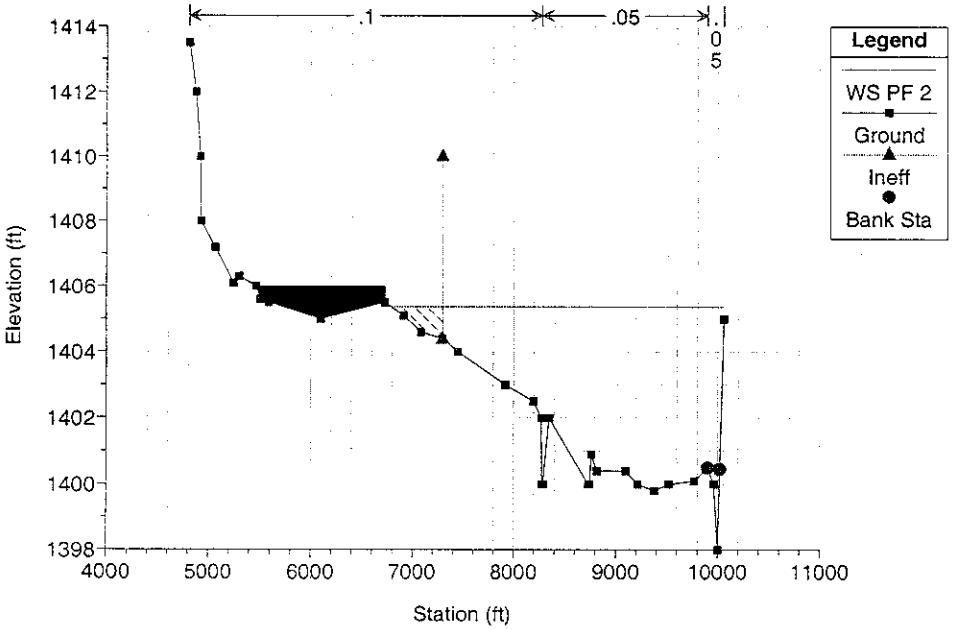
East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM

River = Powerline FRS Reach = Powerline 421 cfs flow reduction due to spill betw RS = 13.560



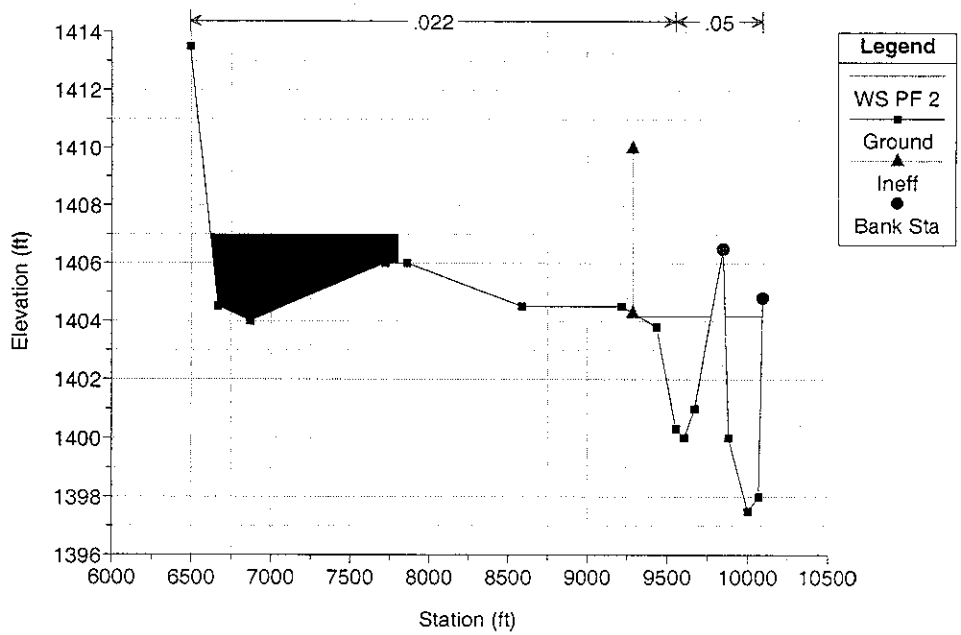
East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM

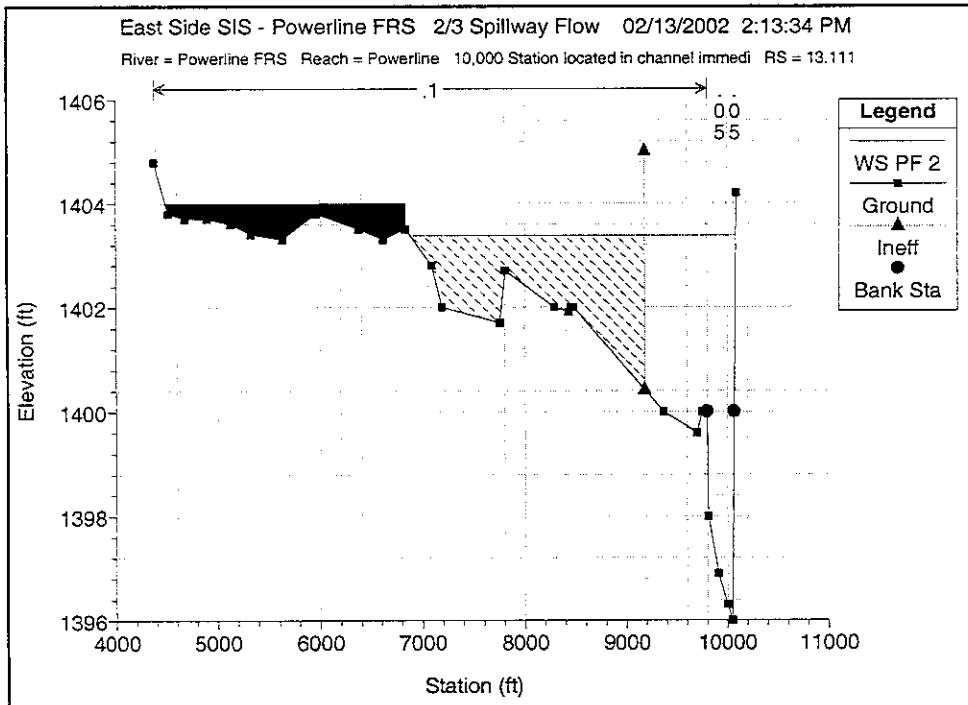
River = Powerline FRS Reach = Powerline 822 cfs flow reduction due to spill betw RS = 13.355

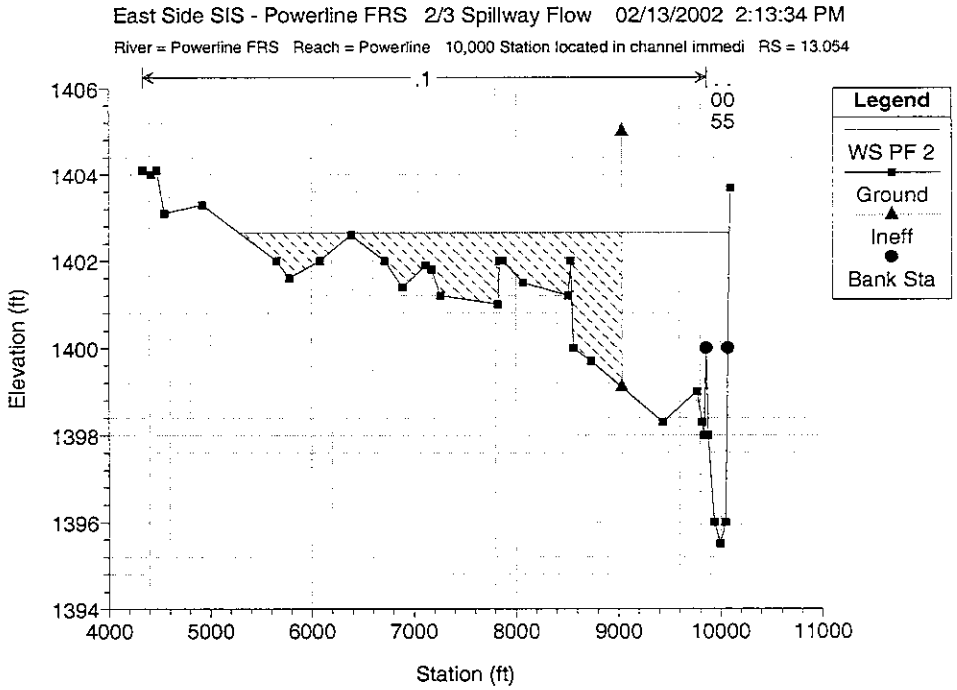


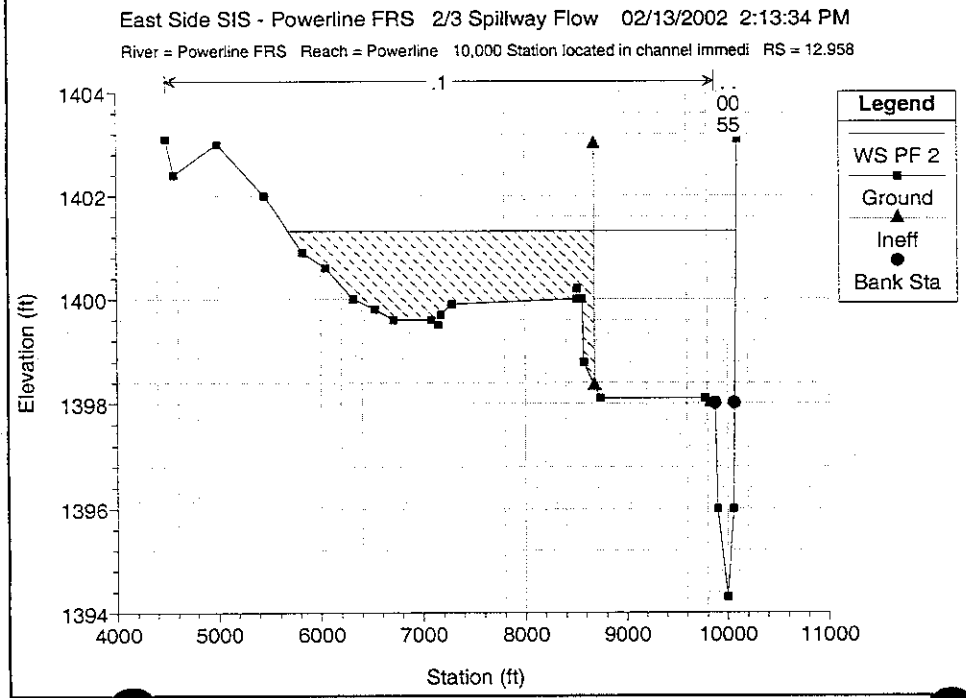
East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM

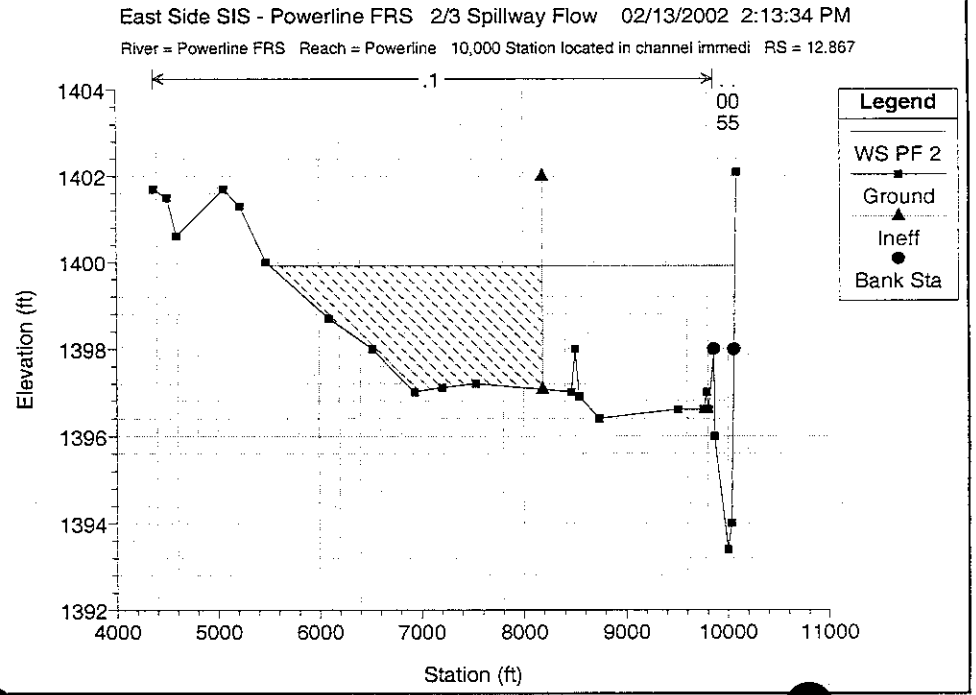
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 13.145




East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 13.111
.1
00
55
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

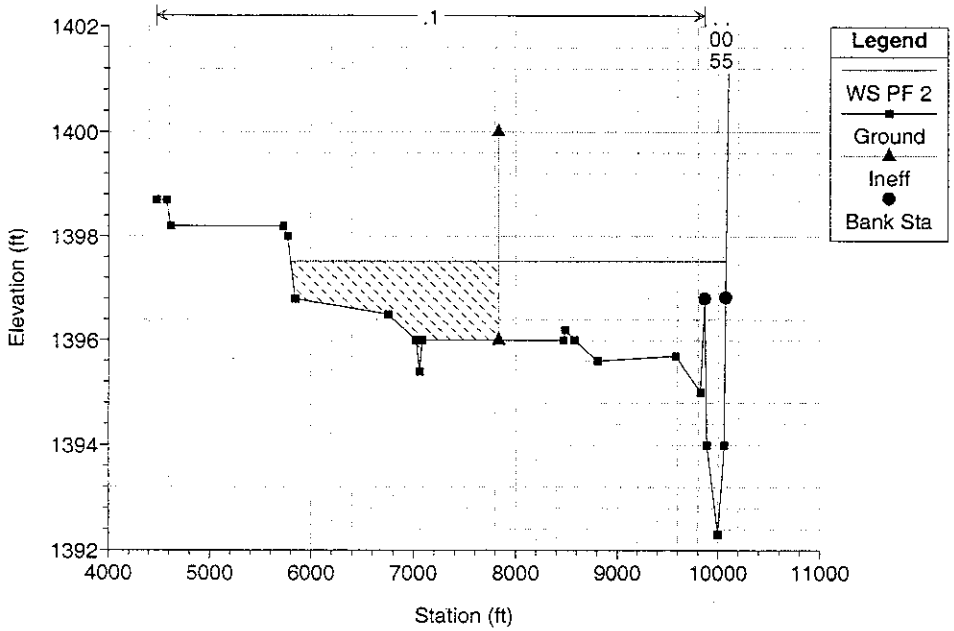

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 13.054
.1
00
55
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.958
.1
00
55
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.867
.1
00
55
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

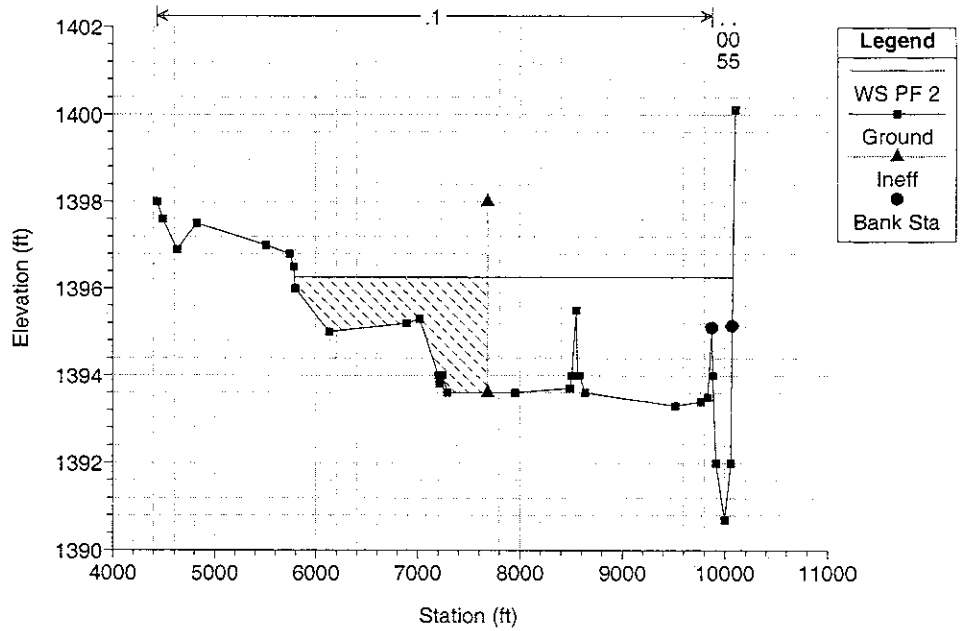
East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM

River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.770



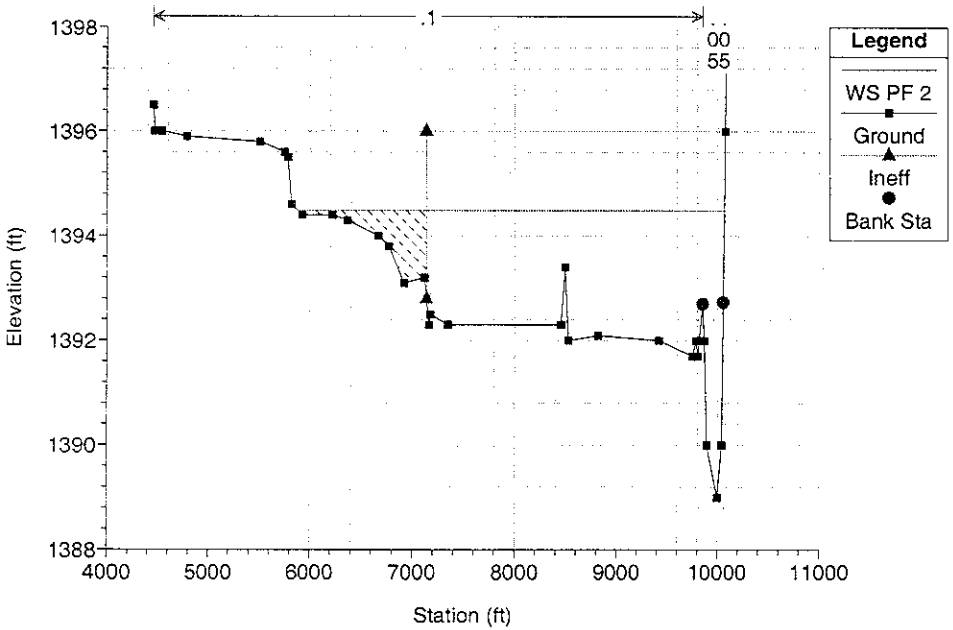
East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM

River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.674



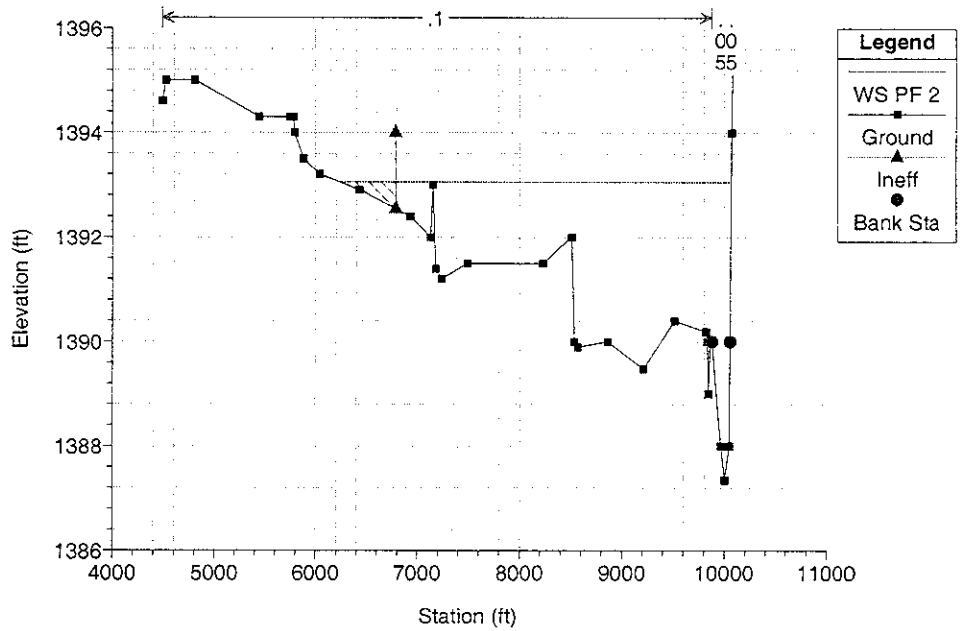
East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM

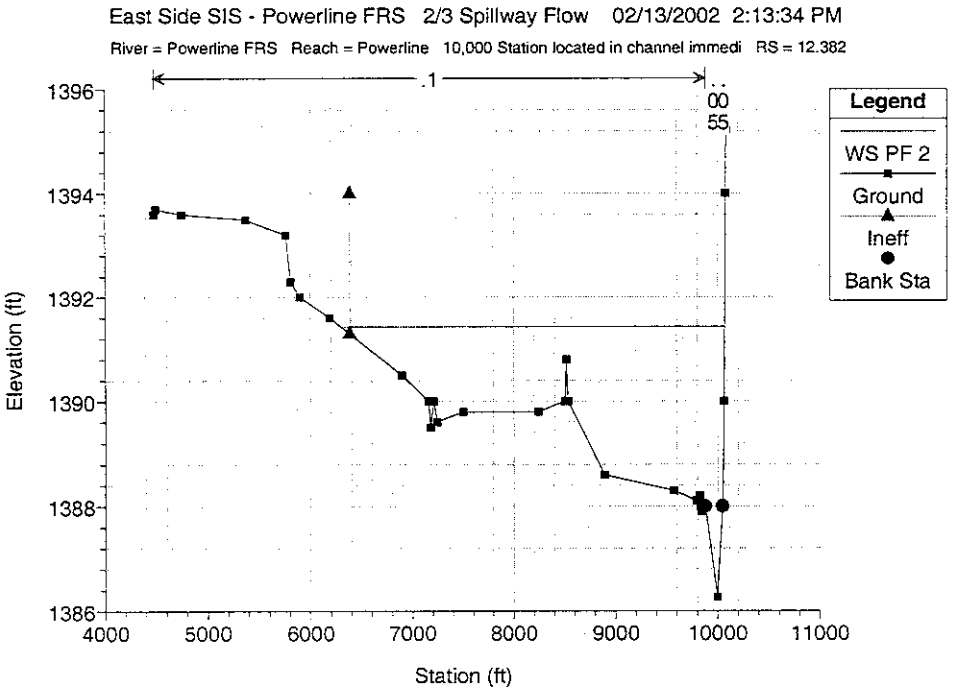
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.576

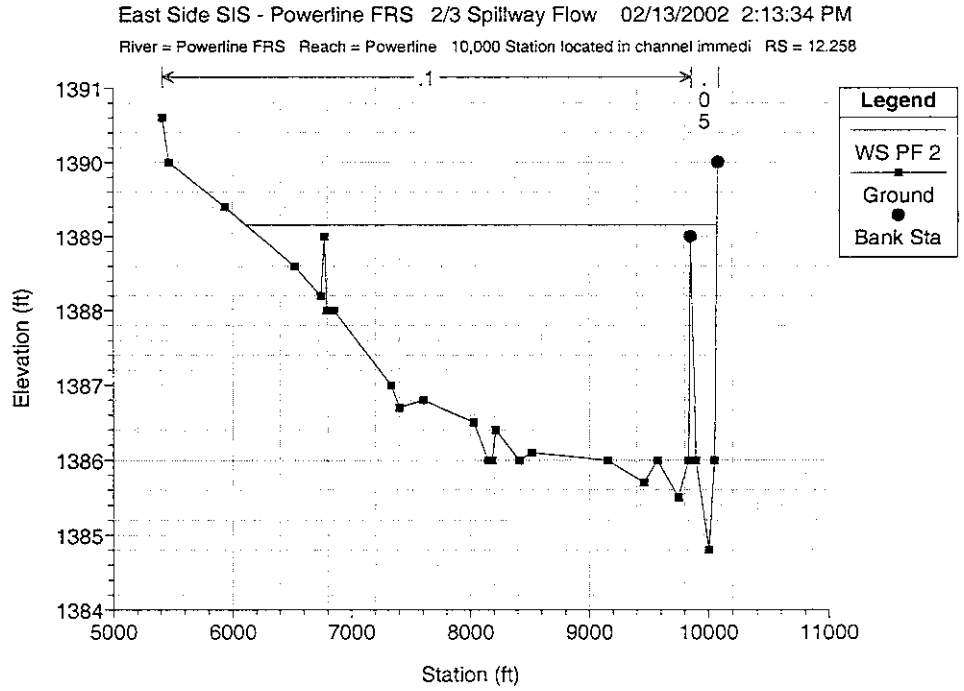


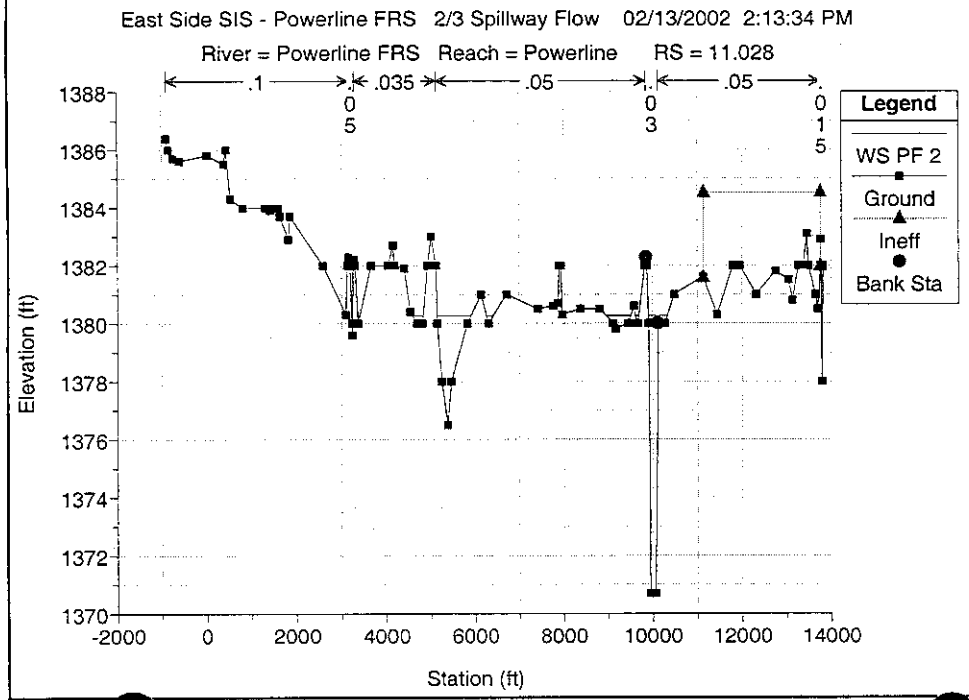
East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM

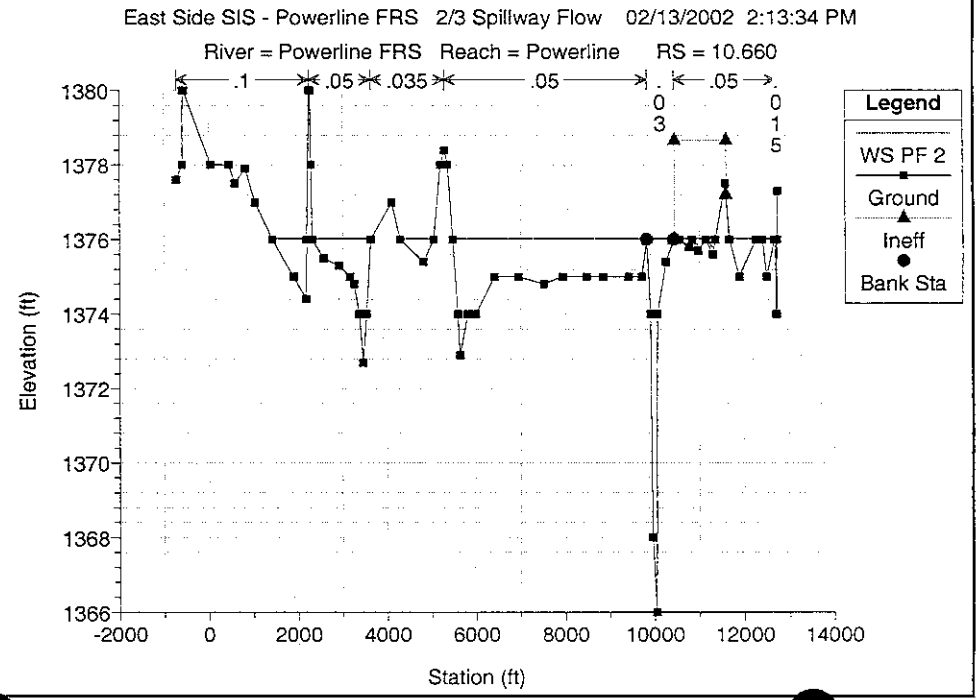
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.481

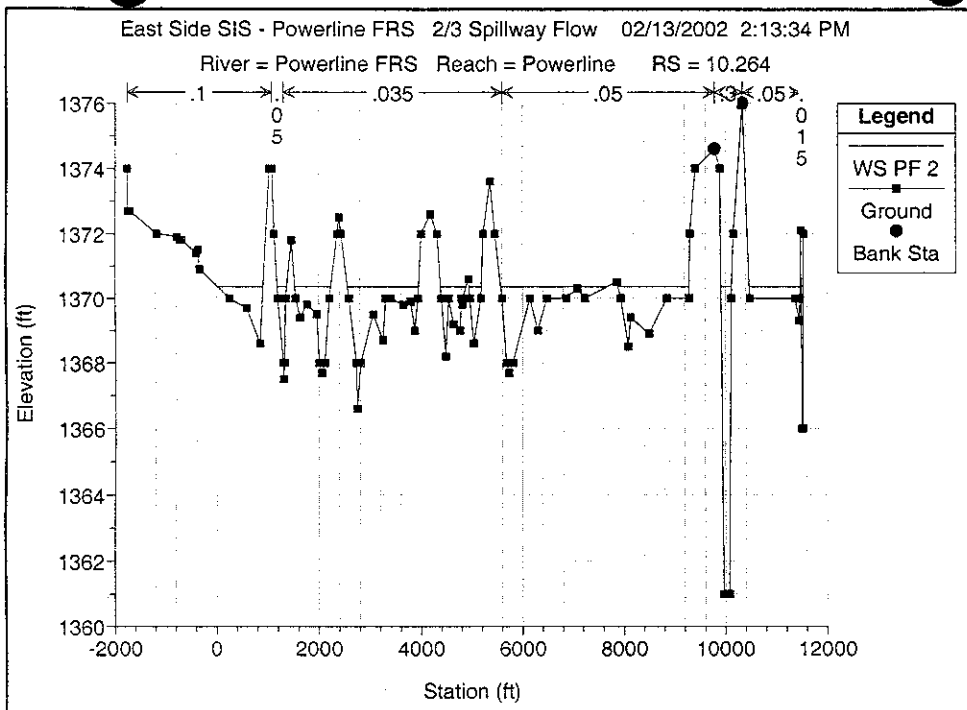


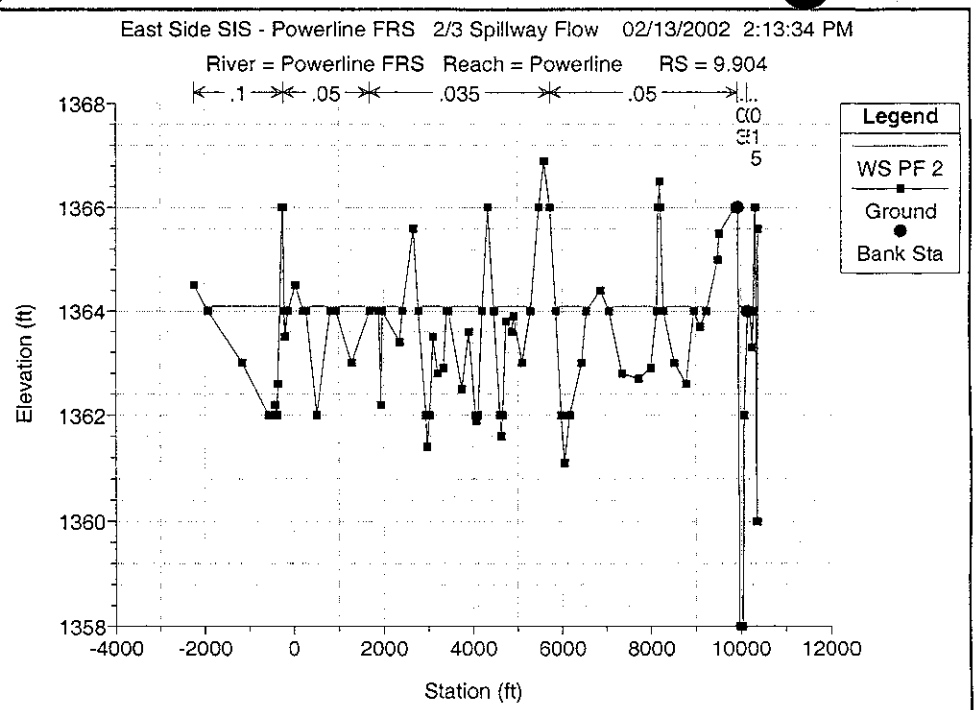

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.382
.1
.00
.55
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

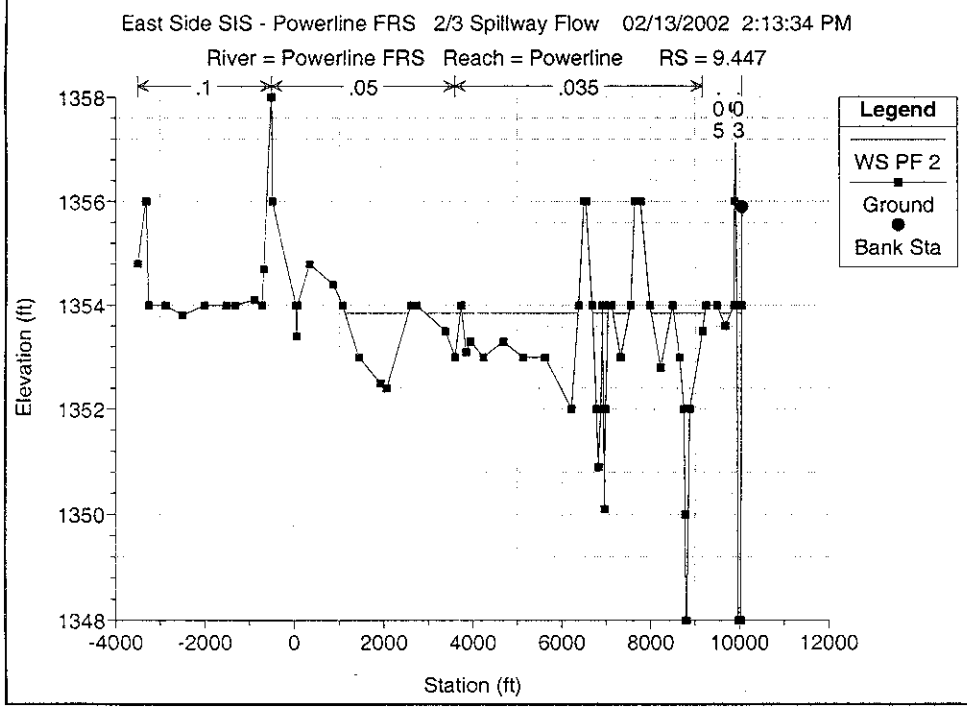

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.258
.1
.0
.5
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

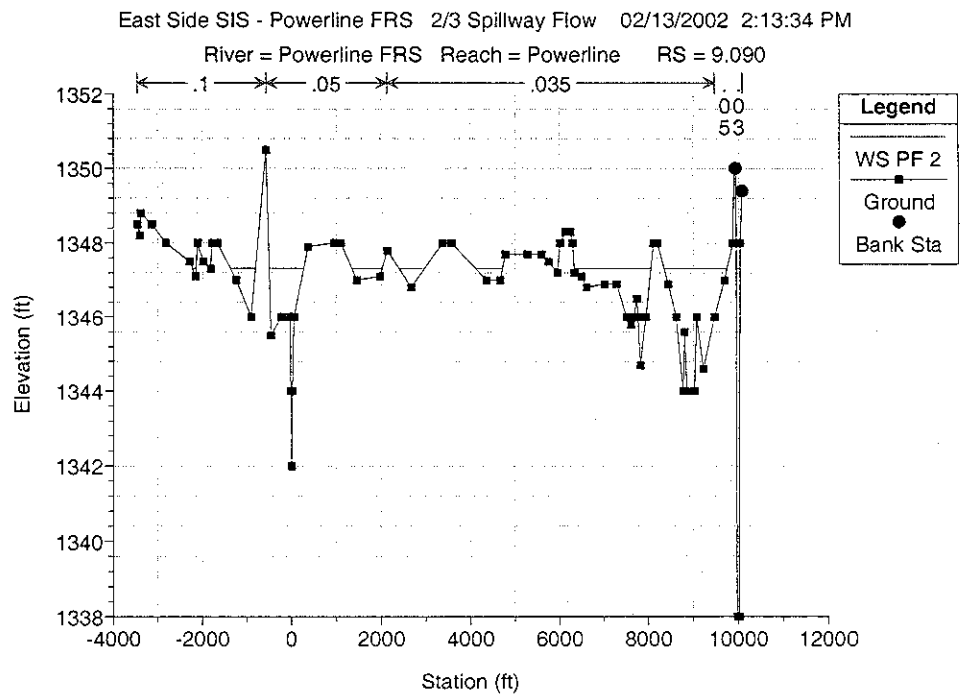

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 11.028
.1
.035
.05
.05
.0
.5
.0
.3
.0
.1
.5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

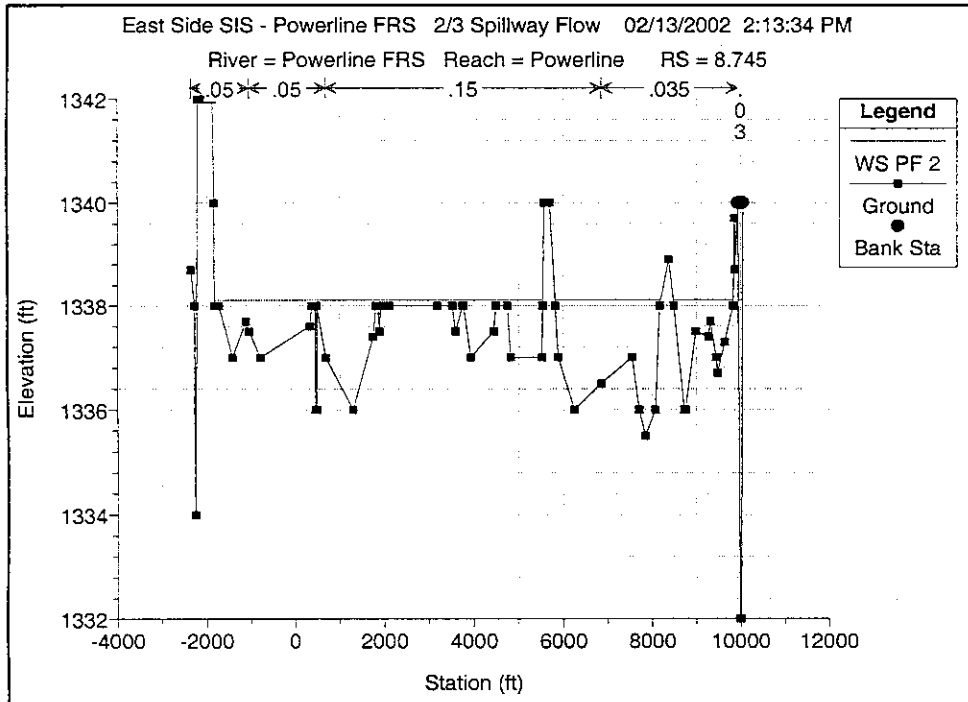

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 10.660
.1
.05
.035
.05
.05
.0
.3
.0
.1
.5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

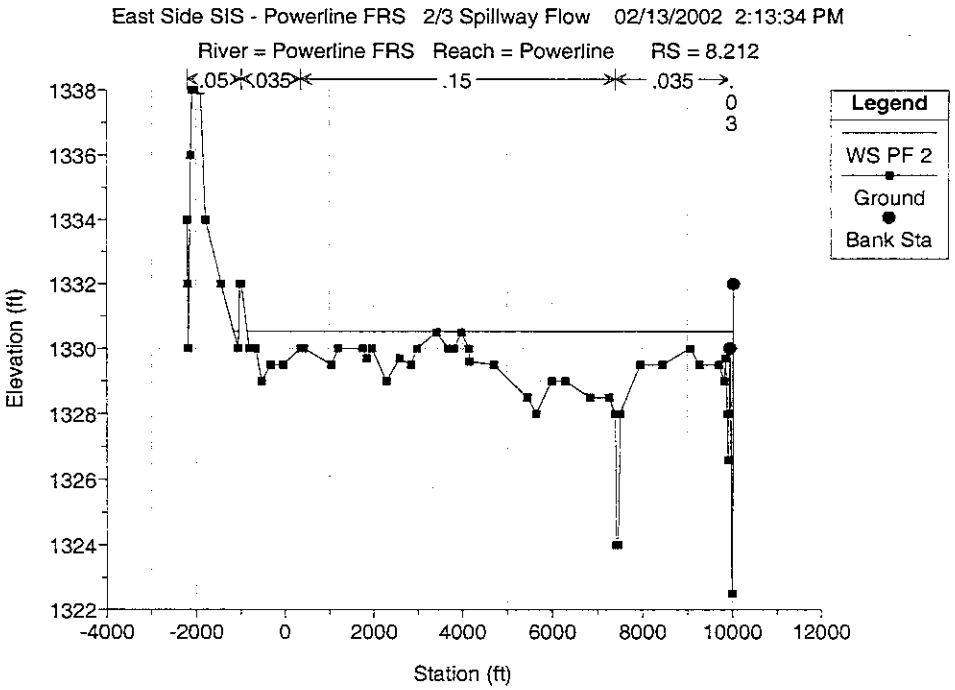

East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 10.264
.1
.035
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 9.904
.1
.05
.035
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 9.447
.1
.05
.035
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 9.090
.1
.05
.035
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 8.745
.05
.05
.15
.035
.03
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
1342
1340
1338
1336
1334
1332
-4000
-2000
0
2000
4000
6000
8000
10000
12000


East Side SIS - Powerline FRS 2/3 Spillway Flow 02/13/2002 2:13:34 PM
River = Powerline FRS Reach = Powerline RS = 8.212
.05
.035
.15
.035
.03
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)
1338
1336
1334
1332
1330
1328
1326
1324
1322
-4000
-2000
0
2000
4000
6000
8000
10000
12000

HEC-RAS September 1998 Version 2.2
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

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

PROJECT DATA
Project Title: East Side SIS - Vineyard FRS
Project File : Vin2thr.prj
Run Date and Time: 02/06/2002 10:47:42 AM

Project in English units

Project Description:
Vineyard FRS - 2/3 Flow Scenario

Vineyard FRS Emergency Spillway to
approximately 1.1 miles east of the intersection of Pecos Avenue and Crismon Road

FCD 98-33
Michael Baker Jr., Inc.

There are several locations in
this model where the cross section ends had to be extended vertically for the computed water surface. With the exception of the 2 cross sections which reflect the Top of Bank elevations for the CAP (x-secs 19.515 and 19.537), these extensions are less than 0.5 ft. Due to the shallow depth of flooding at these ends, and the general trend of the topography which would show these spill flows falling back into the delineation area, the spills have been considered insignificant and the main flow discharge used in the delineation has not been reduced to reflect a loss of flow.

For the 2 cross sections
which reflect the Top of Bank elevations for the CAP (x-secs 19.515 and 19.537), the vertical extensions of the computed water surface are in the ineffective flow portion of the cross sections. The modeling approach at the CAP is discussed in Section 2.2 Special Problems in the TDN.

PLAN DATA

Plan Title: 2/3 Spillway Flow
Plan File : m:\Folders from V\Fcdspill\TaskB\Power\Submit\Dec0301\HEC-RAS\Vineyard\2third\Vin2thr.P01

Geometry Title: Existing Conditions Geometry
Geometry File : m:\Folders from V\Fcdspill\TaskB\Power\Submit\Dec0301\HEC-RAS\Vineyard\2third\Vin2thr.G01

Flow Title : 2/3 Flow Profile (Mixed Flow Regime)
Flow File : m:\Folders from V\Fcdspill\TaskB\Power\Submit\Dec0301\HEC-RAS\Vineyard\2third\Vin2thr.F01

Plan Summary Information:

Number of:	Cross Sections	= 66	Mulitple Openings	=	0
	Culverts	= 0	Inline Weirs	=	0
	Bridges	= 0			

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20

```
    Maximum difference tolerance        =  0.3
    Flow tolerance factor               =  0.001

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


FLOW DATA

Flow Title: 2/3 Flow Profile (Mixed Flow Regime)
Flow File : v:\Fcdspill\TaskB\Power\Submit\Dec0301\HEC-RAS\Vineyard\2third\Vin2thr.F01

Flow Data (cfs)

  River          Reach          RS                  PF 2
  Vineyard SpillwaVineyard      20.000              6466
  Vineyard SpillwaVineyard      14.523              6466
  Vineyard SpillwaVineyard      3                  19800


Boundary Conditions

  River          Reach          Profile                        Upstream                Downstream

  Vineyard SpillwaVineyard      PF 2                            Critical          Known WS = 1417.36


GEOMETRY DATA

Geometry Title: Existing Conditions Geometry
Geometry File : v:\Fcdspill\TaskB\Power\Submit\Dec0301\HEC-RAS\Vineyard\2third\Vin2thr.G01

CROSS SECTION          RIVER: Vineyard Spillwa
REACH: Vineyard           RS: 20.000

INPUT
Description: Emergency Spillway Crest
Station Elevation Data    num=      47
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 9756.36    1580 9766.14 1580.77 9776.32    1580 9781.26 1579.35 9795.42    1578
 9796.86 1577.92 9812.93 1577.36 9829.49 1576.85 9836.21    1576 9847.19 1574.41
 9852.33    1574 9857.21 1573.61 9866.96 1573.37 9879.07  1573.2 9897.36 1573.25
 9916.23 1573.03 9948.22 1572.96 9971.81 1572.93 9998.43 1572.9310021.92 1572.96
10047.04 1572.9610067.05 1572.9110084.73 1572.9810113.39  1573.210124.08  1573.2
10139.34 1573.42 10148.5    1574 10151.8 1574.3910161.97 1575.93 10163.9    1576
10210.34 1576.7310230.27    157810232.41 1578.1710245.63 1578.4110252.28 1578.27
10299.13 1578.1710347.64 1578.03 10352.9 1578.0510401.36 1578.24 10447.5  1578.5
10504.61  1578.710562.96 1578.4510642.45 1578.7410704.83 1579.0810779.59 1578.93
10855.22 1578.8110929.22  1578.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 9756.36    .022 9781.26    .02210245.63    .022

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9781.2610245.63           806.25  433.34  127.42            .3        .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
10245.6310929.22  1581.5
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
10704.8310929.22  1581.5

CROSS SECTION OUTPUT    Profile #PF 2

  E.G. Elev (ft)            1578.02   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.27   Wt. n-Val.                            0.022
  W.S. Elev (ft)            1577.75   Reach Len. (ft)             806.25    433.34    127.42
  Crit W.S. (ft)            1575.54   Flow Area (sq ft)                    1562.49
```

E.G. Slope (ft/ft)	0.000662	Area (sq ft)		1562.49	
Q Total (cfs)	6466.00	Flow (cfs)		6466.00	
Top Width (ft)	424.68	Top Width (ft)		424.68	
Vel Total (ft/s)	4.14	Avg. Vel. (ft/s)		4.14	
Max Chl Dpth (ft)	4.84	Hydr. Depth (ft)		3.68	
Conv. Total (cfs)	251346.3	Conv. (cfs)		251346.3	
Length Wtd. (ft)	433.34	Wetted Per. (ft)		425.10	
Min Ch El (ft)	1572.91	Shear (lb/sq ft)		0.15	
Alpha	1.00	Stream Power (lb/ft s)		0.63	
Frctn Loss (ft)	0.51	Cum Volume (acre-ft)	1474.31	548.58	773.55
C & E Loss (ft)	0.15	Cum SA (acres)	1098.98	362.95	767.10

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9781.26	9874.13	436.66	160.63	72.66	6.75	2.22	2.72
9874.13	9967.01	1947.25	434.53	92.88	30.12	4.68	4.48
9967.01	10059.88	2037.57	446.51	92.87	31.51	4.81	4.56
10059.88	10152.76	1850.72	421.57	92.93	28.62	4.54	4.39
10152.76	RB 10245.63	193.79	99.25	73.76	3.00	1.35	1.95

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 19.918

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9668.89	1577.48	9681.42	1577.32	9695.98	1577.19	9709.31	1577.08	9796.73	1576.71
9810.3	1576.24	9811.3	1576.57	9813.37	1576	9820.96	1574	9822.02	1573.73
9951.72	1573.58	10093.15	1573.42	10111.69	1574	10120.71	1574.28	10128.26	1576
10141.33	1577.91	10156.43	1576.13	10170.8	1576	10229.98	1575.57	10234.55	1575.83
10235.4	1576	10245.28	1578						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9668.89	.022	9811.3	.022	10141.33	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9811.31	10141.33	495.89	497.31	498.61	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9668.89	9811.3	1579.54	10141.33	10245.28	1579.54

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1577.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.76	Wt. n-Val.		0.022	
W.S. Elev (ft)	1576.60	Reach Len. (ft)	495.89	497.31	498.61
Crit W.S. (ft)	1576.02	Flow Area (sq ft)		925.57	
E.G. Slope (ft/ft)	0.002615	Area (sq ft)	2.12	925.57	62.83
Q Total (cfs)	6466.00	Flow (cfs)		6466.00	
Top Width (ft)	418.60	Top Width (ft)	11.52	321.10	85.98
Vel Total (ft/s)	6.99	Avg. Vel. (ft/s)		6.99	
Max Chl Dpth (ft)	3.18	Hydr. Depth (ft)		2.88	
Conv. Total (cfs)	126454.5	Conv. (cfs)		126454.5	
Length Wtd. (ft)	497.31	Wetted Per. (ft)		321.72	
Min Ch El (ft)	1573.42	Shear (lb/sq ft)		0.47	
Alpha	1.00	Stream Power (lb/ft s)		3.28	
Frctn Loss (ft)	1.79	Cum Volume (acre-ft)	1474.29	536.20	773.46
C & E Loss (ft)	0.11	Cum SA (acres)	1098.87	359.24	766.98

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

section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9811.30	9877.31	1165.03	176.43	66.38	18.02	2.67	6.60
9877.31	9943.31	1399.08	196.47	66.01	21.64	2.98	7.12
9943.31	10009.32	1458.93	201.48	66.01	22.56	3.05	7.24
10009.32	10075.32	1518.87	206.40	66.01	23.49	3.13	7.36
10075.32	RB 10141.33	924.08	144.79	57.32	14.29	2.54	6.38

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 19.824

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9408.66	1577.91	9491.59	1577.38	9550.08	1576.38	9592.42	1576	9691.51	1575.28
9827.15	1575.06	9832.93	1574.49	9837.08	1574	9844.69	1572.87	9932.02	1572
9974.36	1571.58	10115.78	1571.63	10134.21	1572	10150.17	1572.32	10168.72	1575.24
10182.83	1572.88	10257.19	1572.11	10280.85	1572	10398.61	1571.77	10540.05	1571.15
10562.8	1571.65	10564.15	1572	10571.8	1574	10579.45	1576	10587.09	1578
10589.02	1578.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9408.66	.022	9827.15	.022	10168.72	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9827.15	10168.72	424.27	427.26	382.35	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
10168.22	10589.02	1578.14

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1575.46	Element			
Vel Head (ft)	1.14	Wt. n-Val.		0.022	
W.S. Elev (ft)	1574.32	Reach Len. (ft)	424.27	427.26	382.35
Crit W.S. (ft)	1574.32	Flow Area (sq ft)		755.47	
E.G. Slope (ft/ft)	0.005295	Area (sq ft)		755.47	966.44
Q Total (cfs)	6466.00	Flow (cfs)		6466.00	
Top Width (ft)	727.25	Top Width (ft)		328.47	398.78
Vel Total (ft/s)	8.56	Avg. Vel. (ft/s)		8.56	
Max Chl Dpth (ft)	3.17	Hydr. Depth (ft)		2.30	
Conv. Total (cfs)	88858.3	Conv. (cfs)		88858.3	
Length Wtd. (ft)	420.18	Wetted Per. (ft)		328.74	
Min Ch El (ft)	1571.58	Shear (lb/sq ft)		0.76	
Alpha	1.00	Stream Power (lb/ft s)		6.50	
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	1474.28	526.61	767.57
C & E Loss (ft)	0.52	Cum SA (acres)	1098.81	355.53	764.20

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9827.15	9895.46	597.74	93.50	61.18	9.24	1.53	6.39
9895.46	9963.78	1313.05	156.68	68.32	20.31	2.29	8.38
9963.78	10032.09	1745.81	185.88	68.31	27.00	2.72	9.39
10032.09	10100.41	1729.06	184.81	68.31	26.74	2.71	9.36
10100.41	RB 10168.72	1080.34	134.60	62.62	16.71	2.16	8.03

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
water surface was used.

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 19.743

INPUT
Description:
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9013.45	1576.03	9014.58	1576	9075.85	1574.13	9114.32	1574.19	9116.96	1574
9124.8	1573.46	9139.12	1574	9139.82	1574.02	9168.13	1574.26	9173.03	1574
9177.19	1573.73	9181.64	1574	9183.86	1574.16	9208.39	1574	9217.26	1573.94
9358.69	1572.94	9500.11	1572.44	9641.52	1572.8	9782.96	1572.39	9850.08	1572.15
9851.38	1572	9861.77	1570.67	9913.42	1570	9924.37	1569.86	10065.79	1569.98
10168.09	1569.83	10176.79	1570	10191.34	1570.21	10207.22	1570.67	10225.68	1571.36
10263.22	1571.31	10305.13	1570	10331	1569.57	10347.85	1569.57	10430.82	1568.95
10452.08	1568.61	10475.21	1569.32	10489.9	1568.82	10502.03	1569.31	10652.08	1569.48
10663.78	1569.69	10722.49	1569.57	10723.68	1570	10729.19	1572	10735.02	1574
10741.14	1576	10746.34	1578	10747.77	1578.63	10753.86	1578.7		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9013.45	.022	9850.08	.022	10225.68	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9850.08	10225.68	353.6	355.36	359.8	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9013.45	9712	1578	10413.45	10753.86	1578

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1574.57	Element			
Vel Head (ft)	0.09	Wt. n-Val.	0.022	0.022	0.022
W.S. Elev (ft)	1574.48	Reach Len. (ft)	353.60	355.36	359.80
Crit W.S. (ft)	1571.70	Flow Area (sq ft)	288.80	1642.78	820.40
E.G. Slope (ft/ft)	0.000184	Area (sq ft)	1139.27	1642.78	2446.73
Q Total (cfs)	6466.00	Flow (cfs)	432.75	4024.55	2008.70
Top Width (ft)	1671.97	Top Width (ft)	785.57	375.60	510.80
Vel Total (ft/s)	2.35	Avg. Vel. (ft/s)	1.50	2.45	2.45
Max Chl Dpth (ft)	5.87	Hydr. Depth (ft)	2.09	4.37	4.37
Conv. Total (cfs)	476666.3	Conv. (cfs)	31901.5	296685.5	148079.3
Length Wtd. (ft)	356.74	Wetted Per. (ft)	138.08	375.72	187.80
Min Ch El (ft)	1569.83	Shear (lb/sq ft)	0.02	0.05	0.05
Alpha	1.04	Stream Power (lb/ft s)	0.04	0.12	0.12
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	1468.73	514.85	752.59
C & E Loss (ft)	0.04	Cum SA (acres)	1094.98	352.08	760.21

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9682.75	9766.42	152.72	106.62	54.42	2.36	1.96	1.43
9766.42	9850.08	280.02	182.18	83.66	4.33	2.18	1.54
LB 9850.08	9925.20	702.73	303.25	75.22	10.87	4.04	2.32
9925.20	10000.32	869.11	344.31	75.12	13.44	4.58	2.52
10000.32	10075.44	849.51	339.63	75.12	13.14	4.52	2.50
10075.44	10150.56	863.37	342.95	75.12	13.35	4.57	2.52
10150.56	RB 10225.68	739.84	312.64	75.14	11.44	4.16	2.37
10225.68	10278.50	334.30	170.25	52.83	5.17	3.22	1.96
10278.50	10331.32	556.32	231.11	52.83	8.60	4.38	2.41
10331.32	10384.13	694.78	264.05	52.82	10.75	5.00	2.63
10384.13	10436.95	423.30	154.99	29.32	6.55	5.29	2.73

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 19.676

INPUT
Description:
Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7980.27	1574.95	8121.78	1574.49	8263.2	1574.16	8341.89	1574	8357.18	1573.92
8381.53	1572	8384.47	1571.59	8388.48	1572	8404.63	1572.84	8422.7	1573.54
8448.46	1573.37	8483.47	1573.07	8495.52	1573.62	8546.04	1572.99	8687.46	1572.37
8828.89	1572.06	8970.31	1572.37	9036.11	1573	9111.73	1572.8	9169.93	1572
9253.16	1571.32	9394.56	1571.96	9535.99	1570.98	9612.62	1570	9677.43	1569.14
9818.83	1568.28	9897.6	1568.19	9908.02	1568.29	9960.26	1568.06	10101.68	1568.35
10243.09	1568.83	10304.91	1568.86	10334.68	1568.87	10372.39	1568	10467.52	1567.2
10595.04	1567.31	10856.03	1567.06	10866.3	1567.11	10905.16	1567.08	10917.37	1567.42
10918.89	1568	10924.14	1570	10929.38	1572	10934.62	1574	10939.87	1576
10945.11	1578	10948.28	1579.22	10954.12	1579.11				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7980.27	.05	9818.83	.05	10243.09	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9818.83	10243.09	347.45	326.19	237.54	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
7980.27	9563	1576	10621.78	10954.12	1576

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1574.48	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1574.46	Reach Len. (ft)	347.45	326.19	237.54
Crit W.S. (ft)	1569.37	Flow Area (sq ft)	1336.80	2600.25	2505.68
E.G. Slope (ft/ft)	0.000102	Area (sq ft)	4047.47	2600.25	4729.36
Q Total (cfs)	6466.00	Flow (cfs)	1206.95	2611.14	2647.91
Top Width (ft)	2803.34	Top Width (ft)	1686.32	424.26	692.75
Vel Total (ft/s)	1.00	Avg. Vel. (ft/s)	0.90	1.00	1.06
Max Chl Dpth (ft)	7.40	Hydr. Depth (ft)	5.23	6.13	6.62
Conv. Total (cfs)	640865.3	Conv. (cfs)	119624.8	258797.9	262442.6
Length Wtd. (ft)	296.90	Wetted Per. (ft)	255.84	424.26	378.70
Min Ch El (ft)	1568.06	Shear (lb/sq ft)	0.03	0.04	0.04
Alpha	1.01	Stream Power (lb/ft s)	0.03	0.04	0.04
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	1447.68	497.54	722.95
C & E Loss (ft)	0.00	Cum SA (acres)	1084.95	348.81	755.24

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9451.12	9634.97	242.93	308.93	71.98	3.76	4.29	0.79
9634.97	9818.83	964.02	1027.87	183.86	14.91	5.59	0.94
LB 9818.83	9903.68	536.52	528.72	84.85	8.30	6.23	1.01
9903.68	9988.53	548.44	535.74	84.85	8.48	6.31	1.02
9988.53	10073.39	540.67	531.17	84.85	8.36	6.26	1.02
10073.39	10158.24	512.29	514.26	84.85	7.92	6.06	1.00
10158.24	RB 10243.09	473.22	490.36	84.85	7.32	5.78	0.97
10243.09	10314.19	376.47	399.45	71.10	5.82	5.62	0.94
10314.19	10385.30	419.41	426.22	71.11	6.49	5.99	0.98
10385.30	10456.40	526.77	488.65	71.11	8.15	6.87	1.08

10456.40	10527.50	574.02	514.50	71.10	8.88	7.24	1.12
10527.50	10598.61	567.01	510.72	71.10	8.77	7.18	1.11
10598.61	10669.71	184.24	166.15	23.17	2.85	7.17	1.11

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 19.614

INPUT
Description:
Station Elevation Data num= 103

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7616.41	1574.4	7659.77	1574.33	7668.64	1574	7671.15	1573.91	7686.88	1573.67
7757.83	1572.77	7976.79	1572.77	8076.7	1572.63	8121.8	1572.75	8125.5	1572
8135.24	1570	8137.24	1569.59	8141.02	1569.46	8142.92	1570	8150.27	1572
8153.07	1572.68	8175.29	1572.63	8180.14	1572	8180.44	1571.96	8180.93	1572
8192.67	1572.71	8320.81	1572	8345.62	1571.83	8360.97	1570.56	8376.36	1572
8376.7	1572.03	8421.22	1572	8465.18	1571.81	8473.77	1570.7	8483.68	1571.93
8493.53	1571.69	8500.74	1570.03	8515.67	1571.89	8528.86	1572	8535.94	1572.1
8538.53	1572	8547.86	1571.63	8564.51	1571.88	8586.9	1571.7	8594.62	1570
8599.3	1568.88	8608.16	1570	8616.32	1570.88	8618.67	1570	8620.6	1569.25
8624.47	1570	8630.67	1571.22	8682.59	1571.23	8697.58	1571.19	8814.65	1570.8
8823.62	1570	8858.06	1568	8863.94	1567.34	8881.09	1568	8882.43	1568
8884.48	1567.85	8885.42	1568	8892.73	1569.17	8920.58	1570	8924.92	1570.24
8959.97	1570	9001.16	1569.9	9013.09	1569.42	9067.75	1569.64	9135.11	1569.05
9276.54	1568.63	9417.95	1568.01	9429.99	1568	9491.6	1567.89	9501.75	1568
9505.93	1568.05	9510.75	1568	9559.39	1567.46	9700.81	1566.63	9842.22	1566.22
9951.8	156610030.46		156610202.79	1566.3110295.78		1567.4210399.89			1566.62
10486.8	1566	10519	1565.8110580.35		156610587.59		156610662.89		1566
10827.64	156610834.62		156610853.18	1566.14	10863.1		156610900.31		1565.54
10967.29	1565.3410977.44		1565.4311032.52	1565.5311039.11			156611041.86		1566.19
11046.39	156811051.39		157011056.39		157211061.39		157411066.39		1576
11071.39	157811075.19		1579.5211081.92	1579.46					

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7616.41	.05	9700.81	.08	10827.64	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9505.93	10295.78	876.62	404.64	269.25	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
7616.41	9397	157610741.41	11081.92		1576

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1574.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.050	0.071	0.080
W.S. Elev (ft)	1574.45	Reach Len. (ft)	876.62	404.64	269.25
Crit W.S. (ft)	1567.34	Flow Area (sq ft)	705.00	6251.76	3640.48
E.G. Slope (ft/ft)	0.000056	Area (sq ft)	6562.93	6251.76	6344.24
Q Total (cfs)	6466.00	Flow (cfs)	542.47	3878.75	2044.78
Top Width (ft)	3446.10	Top Width (ft)	1889.52	789.85	766.73
Vel Total (ft/s)	0.61	Avg. Vel. (ft/s)	0.77	0.62	0.56
Max Chl Dpth (ft)	9.11	Hydr. Depth (ft)	6.47	7.92	8.17
Conv. Total (cfs)	867305.8	Conv. (cfs)	72762.6	520269.9	274273.3
Length Wtd. (ft)	468.65	Wetted Per. (ft)	108.93	789.86	445.64
Min Ch El (ft)	1566.00	Shear (lb/sq ft)	0.02	0.03	0.03
Alpha	1.02	Stream Power (lb/ft s)	0.02	0.02	0.02
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	1405.36	464.40	692.76
C & E Loss (ft)	0.02	Cum SA (acres)	1070.69	344.27	751.26

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9316.98	9505.93	542.47	705.00	108.93	8.39	6.47	0.77
LB 9505.93	9663.90	915.46	1120.11	157.97	14.16	7.09	0.82
9663.90	9821.87	781.39	1252.29	157.97	12.08	7.93	0.62
9821.87	9979.84	749.84	1317.42	157.97	11.60	8.34	0.57
9979.84	10137.81	756.27	1324.19	157.97	11.70	8.38	0.57

10137.81	RB 10295.78	675.79	1237.76	157.98	10.45	7.84	0.55
10295.78	10374.39	300.62	576.25	78.62	4.65	7.33	0.52
10374.39	10453.01	342.32	622.96	78.62	5.29	7.92	0.55
10453.01	10531.62	381.95	665.28	78.62	5.91	8.46	0.57
10531.62	10610.24	384.39	667.82	78.61	5.94	8.49	0.58
10610.24	10688.85	380.86	664.13	78.61	5.89	8.45	0.57
10688.85	10767.46	254.64	444.04	52.56	3.94	8.45	0.57

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 19.537

INPUT
Description: Top of CAP - East Bank
Station Elevation Data num= 108

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7945.61	1572.58	8020.28	1572.34	8094.55	1572.37	8171.43	1572.51	8238.74	1572.46
8320.61	1572.68	8401.23	1573.25	8467	1572.89	8539	1572.96	8616	1573.11
8689.48	1572.61	8761.53	1572.56	8839.54	1572.75	8933.3	1572.82	9012.61	1572.85
9094.19	1572.85	9169.63	1572.85	9250.49	1572.87	9337.78	1572.8	9431.7	1572.85
9519.19	1573.18	9595.45	1572.96	9668.98	1573.01	9748.54	1572.8	9829.07	1572.61
9927.66	1572.82	10009.73	1572.85	10080.67	1572.96	10162.02	1573.01	10253.21	1572.73
10323.55	1572.56	10406.81	1572.77	10485.93	1572.81	0565.05	1572.99	10629.6	1572.82
10711.62	1572.99	10787.63	1573.01	10847.32	1573.18	10905.92	1573.16	10973.76	1573.01
11043.23	1572.75	11113.1	1572.51	11175.29	1572.46	11237.16	1572.81	1305.44	1572.85
11356.94	1572.27	11411.8	1572.22	11479.15	1572.19	11480.26	1572.19	11542.9	1572.1
11596.63	1572.22	11666.5	1572.24	11749.4	1572.24	11830.15	1572.39	11899.16	1572.53
11958.34	1572.44	11970.02	1572.11	2002.54	157212	019.53	1571.95	12068.68	1571.76
12115.14	1571.97	12208.51	1571.95	12233.52	157212	256.63	1572.05	12269.6	1572
12309.93	1571.85	12360.54	1571.78	12412.92	1571.97	12462.59	1571.95	12484.62	1572
12516.23	1572.07	12577.34	1572.14	12604.35	157212	631.79	1571.85	12683.15	1571.78
12726.91	1571.73	12771.59	1571.59	12817.67	1571.81	2860.98	1571.85	12913.87	1571.88
12962.1	1571.9	13014.9	1571.68	13068.11	1571.59	13117.45	1571.76	13164.87	1571.8
13217.39	1571.83	13264.36	1571.56	13324.04	1571.51	13375.58	1571.46	13429.83	1571.68
13480.27	1571.56	13531.29	1571.37	13579.6	1571.46	13628.4	1571.66	13721.86	1571.49
13766.12	1571.41	13810.82	1571.41	13848.3	1571.39	13908.11	1571.46	13965.91	1571.15
14013.9	1571.51	14057.9	1571.54	14098.51	1571.56	14138.18	1571.44	14207.21	1571.61
14252.27	1571.59	14303.1	1571.27	14348	1571.54				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7945.61	.022	9337.78	.022	10253.21	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9337.78	10253.21	119.05	115.13	126.68	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
7945.61	8575	1575.5	10845.61	14348	1575.5

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1574.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.022	0.022	0.022
W.S. Elev (ft)	1574.32	Reach Len. (ft)	119.05	115.13	126.68
Crit W.S. (ft)	1573.48	Flow Area (sq ft)	1154.89	1313.54	869.68
E.G. Slope (ft/ft)	0.000492	Area (sq ft)	2191.67	1313.54	9166.50
Q Total (cfs)	6466.00	Flow (cfs)	2280.70	2502.79	1682.51
Top Width (ft)	6402.39	Top Width (ft)	1392.17	915.43	4094.79
Vel Total (ft/s)	1.94	Avg. Vel. (ft/s)	1.97	1.91	1.93
Max Chl Dpth (ft)	3.17	Hydr. Depth (ft)	1.51	1.43	1.47
Conv. Total (cfs)	291590.6	Conv. (cfs)	102850.2	112866.0	75874.4
Length Wtd. (ft)	119.25	Wetted Per. (ft)	762.78	915.43	592.40
Min Ch El (ft)	1572.61	Shear (lb/sq ft)	0.05	0.04	0.05
Alpha	1.00	Stream Power (lb/ft s)	0.09	0.08	0.09
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	1317.27	429.26	644.82
C & E Loss (ft)	0.07	Cum SA (acres)	1037.66	336.35	736.24

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8502.48	8641.70	148.34	84.70	66.70	2.29	1.27	1.75
8641.70	8780.91	489.97	232.83	139.22	7.58	1.67	2.10
8780.91	8920.13	447.68	220.56	139.22	6.92	1.58	2.03
8920.13	9059.35	401.25	206.53	139.22	6.21	1.48	1.94
9059.35	9198.56	395.59	204.78	139.22	6.12	1.47	1.93
9198.56	9337.78	397.85	205.48	139.22	6.15	1.48	1.94
LB 9337.78	9520.87	480.78	256.80	183.09	7.44	1.40	1.87
9520.87	9703.95	427.44	239.30	183.09	6.61	1.31	1.79
9703.95	9887.04	592.35	291.05	183.09	9.16	1.59	2.04
9887.04	10070.12	525.34	270.83	183.09	8.12	1.48	1.94
10070.12	RB 10253.21	476.92	255.56	183.09	7.38	1.40	1.87
10253.21	10662.69	1254.88	630.32	409.48	19.41	1.54	1.99
10662.69	11072.17	427.63	239.36	182.92	6.61	1.31	1.79

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 19.515

INPUT
Description: Top of CAP - West Bank
Station Elevation Data num= 79

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7978.26	1572.8	8061.18	1573.04	8131.25	1572.99	8210.06	1572.8	8315.32	1572.87
8423.2	1573.04	8521.5	1572.92	8625.42	1572.96	8720.36	1572.94	8801.41	1573.08
8883.7	1572.96	9079.33	1572.68	9161.37	1572.53	9257.34	1572.94	9333.63	1573.13
9399.46	1573.16	9482.92	1573.13	9549.15	1573.11	9611.35	1573.04	9663.4	1573.01
9743.33	1573.3	9815.39	1573.52	9957.46	1573.54	10046.94	1573.54	10137.71	1573.68
10218.58	1573.78	10288.09	1573.42	10378.87	1573.42	10463.44	1573.42	10555.65	1573.25
10640.6	1573.54	10738.89	1573.61	10796.63	1573.73	10859.55	1573.75	10916.98	1573.73
10974.9	1573.66	11059.28	1573.85	11130.62	1573.54	11194.45	1573.23	11245.03	1573.16
11293.78	1573.31	11344.25	1573.28	11376.05	1573.28	11451.65	1572.97	11524.95	1573.09
11598	1572.97	11663.98	1572.97	11763.07	1572.66	11861.49	1572.92	11943.32	1573.05
12031.02	1572.95	12108.1	1572.68	12276.63	1572.61	12359.74	1572.73	12416.67	1572.46
12500.88	1572.68	12559.91	1572.68	12634.8	1572.91	12750.74	1572.91	12806.61	1572.75
12885.55	1572.75	13010.29	1572.58	13085.2	1572.49	13146.91	1572.41	13204.48	1572.29
13359.31	1572.61	13506.27	1572.73	13588.94	1572.66	13665.56	1572.71	13770.87	1572.39
13827.51	1571.44	13902.82	1571.17	13981.75	1571.24	14066.74	1571.39	14133.77	1571.15
14211.91	1571.07	14288.4	1571.56	14352.95	1571.63	14413.29	1571.59		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7978.26	.022	9399.46	.022	10218.58	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9399.46	10218.58	384.02	203.25	127.25	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
7978.26	8411	1574.5	10913.26	14413.29	1574.5

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1574.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.022	0.022	0.022
W.S. Elev (ft)	1573.86	Reach Len. (ft)	384.02	203.25	127.25
Crit W.S. (ft)	1573.86	Flow Area (sq ft)	945.97	402.54	239.53
E.G. Slope (ft/ft)	0.005532	Area (sq ft)	1356.73	402.54	4726.80
Q Total (cfs)	6466.00	Flow (cfs)	4615.00	1259.29	591.71
Top Width (ft)	6435.03	Top Width (ft)	1421.20	819.12	4194.71
Vel Total (ft/s)	4.07	Avg. Vel. (ft/s)	4.88	3.13	2.47
Max Chl Dpth (ft)	2.80	Hydr. Depth (ft)	0.96	0.49	0.34
Conv. Total (cfs)	86934.5	Conv. (cfs)	62048.1	16931.0	7955.4
Length Wtd. (ft)	264.39	Wetted Per. (ft)	988.46	819.12	694.68
Min Ch El (ft)	1573.01	Shear (lb/sq ft)	0.33	0.17	0.12
Alpha	1.17	Stream Power (lb/ft s)	1.61	0.53	0.29
Frctn Loss (ft)	1.77	Cum Volume (acre-ft)	1312.42	426.99	624.62
C & E Loss (ft)	0.08	Cum SA (acres)	1033.82	334.06	724.18

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8404.62	8546.74	555.95	120.90	135.74	8.60	0.89	4.60
8546.74	8688.86	610.36	130.24	142.12	9.44	0.92	4.69
8688.86	8830.98	548.77	122.19	142.12	8.49	0.86	4.49
8830.98	8973.10	626.66	132.31	142.12	9.69	0.93	4.74
8973.10	9115.22	873.67	161.51	142.12	13.51	1.14	5.41
9115.22	9257.34	933.97	168.11	142.12	14.44	1.18	5.56
9257.34	9399.46	465.64	110.72	142.12	7.20	0.78	4.21
LB 9399.46	9563.28	436.93	120.21	163.82	6.76	0.73	3.63
9563.28	9727.11	492.57	129.18	163.82	7.62	0.79	3.81
9727.11	9890.93	169.40	68.08	163.82	2.62	0.42	2.49
9890.93	10054.76	113.35	53.50	163.82	1.75	0.33	2.12
10054.76	RB 10218.58	47.03	31.56	163.82	0.73	0.19	1.49
10218.58	10638.05	502.66	184.39	419.47	7.77	0.44	2.73
10638.05	11057.52	89.04	55.14	275.21	1.38	0.20	1.61

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 19.477

INPUT
Description: Downstream of CAP
Station Elevation Data num= 213

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7983.58	1562.41	8045.31	1562.09	8054.43	1562	8083.59	1561.7	8141.47	1562
8162.36	1562.11	8183.58	1562.39	8222.5	1563.01	8256.74	1562.51	8283.57	1562.13
8383.58	1562.15	8417.47	1562.05	8483.57	1562.13	8564.48	1562	8569.78	1561.72
8579.84	1562	8583.59	1562.1	8683.58	1562.56	8783.59	1562.61	8883.58	1562.63
8983.59	1562.63	9083.58	1562.63	9183.57	1562.46	9283.58	1562.58	9367.01	1562.45
9383.44	1562.11	9383.57	1562.03	9415.68	1562.56	9441.42	1562.53	9472.89	1562.16
9473.59	1562	9486.06	1560	9491.07	1559.37	9495.59	1560	9512.29	1562
9519.26	1562.81	9546.72	1562	9581.95	1560.7	9612.9	1562	9614.85	1562.19
9615.51	1562	9622.18	1560	9624.71	1559.09	9630.69	1560	9645.13	1561.89
9650.83	1561.38	9655.6	1562	9658.15	1562.21	9669.03	1562	9669.06	1562
9682.29	1560.05	9692.48	1561.86	9701.38	1560.28	9708.36	1561.14	9722.96	1560
9732.87	1558.28	9740.66	1560	9749.04	1561.78	9783.59	1561.96	9793.53	1560
9793.59	1559.99	9793.69	1560	9810.35	1562	9811.05	1562.07	9819.53	1562
9874.15	1561.55	9896.1	1560.31	9908.76	1561.18	9920.4	1561.1	9927.05	1560
9929.79	1559.56	9933.48	1560	9946.82	1561.65	9993.51	1561.58	9999.93	1560.62
10014.53	1561.16	10021.21	1560.21	10032.88	1561.31	10092.28	1561.64	10143.37	1562
10146.08	1562.03	10153.47	1562	10186.82	1562	10217.22	1562	10256.46	1562
10316.92	1562.07	10370.26	1562.22	10389.76	1562.28	10419.91	1562.32	10450.04	1562.37
10488.22	1562.39	10506.71	1562.39	10547.24	1562.5	10590.14	1562.55	10629.86	1562.59
10667.15	1562.75	10687.91	1562.77	10706.84	1562.89	10734.18	1563.08	10757.52	1563.23
10776.83	1563.26	10801.03	1563.23	10823.71	1563.13	10844.04	1562.9	10869.34	1562.48
10887.29	1562.21	10907.33	1562	10924.74	1561.82	10971.62	1561.63	10992.59	1561.6
11008.71	1561.57	11033.02	1561.53	11050.12	1561.5	11069.66	1561.44	11098.14	1561.32
11121.62	1561.25	11144.65	1561.2	11171.2	1561.16	11192.89	1561.12	11209.79	1561.09
11256	1560.93	11276.31	1560.95	11294.2	1561	11309.57	1561.01	11342.13	1560.79

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11357.77 1560.7611374.75 1560.7411390.63 1560.7611411.03 1560.7311454.05 1560.59
11480.65 1560.4711506.58 1560.3511526.03 1560.2611570.34 1560.1311583.32 1560.08
11590 51    156011626.73 1559.59   11658 1559.2111677.12 1558.9711696.01 1558.98
11717.81 1559.06 11742.6 1559.0911769.09 1559.3111797.94 1559.6411816.99 1559.88
11825.42    156011837.63 1560.1711864.35 1560.4811886.36 1560.5711927.36 1560.66
11946.35 1560.6711964.59  1560.711987.42 1560.7612016.37 1560.83 12067.2 1560.85
12097.65 1560.7712122.01  1560.712152.28 1560.7512196.83  1560.912216.71 1560.97
12256.53 1561.1112278.78 1561.2612297.98  1561.412324.06 1561.5512389.93 1561.67
 12424.2 1561.7612466.71 1561.8712507.85 1561.9612528.79    1562   12551 1562.04
12586.56 1562.0712632.33 1562.0912674.72  1562.112732.64 1562.1112773.86 1562.18
12817.31 1562.3112861.92  1562.2 12902.1 1562.03 12910.6    156212926.65 1561.97
12964.59 1561.9112999.02  1561.813044.52 1561.6413076.83 1561.5713111.09 1561.55
13149.13  1561.613179.32 1561.7313221.89 1561.78   13269  1561.713300.25 1561.76
13343.85 1561.8413388.61 1561.9313413.05 1561.9513467.59 1561.9113502.24 1561.74
13545.84 1561.6313580.49 1561.5413612.73 1561.2413659.39 1560.8713680.07  1560.9
13724.67    156113779.48 1560.9313825.22 1560.7714020.76    156014023.54 1559.86
14030.59    156014111.26 1560.1314269.96    156214331.07 1563.0414332.93 1562.62
14334.54 1563.1714345.57    156414401.58    1566

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 7983.58     .05 9472.89     .0510143.37     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9472.8910143.37           404.21  378.84  343.37             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
10993.5814401.58    1566
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CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1567.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.83	Wt. n-Val.		0.050	0.050
W.S. Elev (ft)	1561.69	Reach Len. (ft)	404.21	378.84	343.37
Crit W.S. (ft)	1562.60	Flow Area (sq ft)		333.21	2.07
E.G. Slope (ft/ft)	0.654674	Area (sq ft)		333.21	2149.82
Q Total (cfs)	6466.00	Flow (cfs)		6458.66	7.34
Top Width (ft)	2758.00	Top Width (ft)		457.64	2300.36
Vel Total (ft/s)	19.29	Avg. Vel. (ft/s)		19.38	3.55
Max Chl Dpth (ft)	3.41	Hydr. Depth (ft)		0.73	0.06
Conv. Total (cfs)	7991.4	Conv. (cfs)		7982.3	9.1
Length Wtd. (ft)	375.23	Wetted Per. (ft)		460.40	36.51
Min Ch El (ft)	1558.28	Shear (lb/sq ft)		29.58	2.32
Alpha	1.01	Stream Power (lb/ft s)		573.35	8.22
Frctn Loss (ft)	4.98	Cum Volume (acre-ft)	1306.44	425.27	614.57
C & E Loss (ft)	1.66	Cum SA (acres)	1027.56	331.08	714.70

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9472.89	9606.99	1192.13	64.80	84.87	18.44	0.77	18.40
9606.99	9741.08	3190.23	126.05	102.31	49.34	1.25	25.31
9741.08	9875.18	395.41	26.75	48.65	6.12	0.55	14.78
9875.18	10009.27	1293.48	81.81	134.49	20.00	0.61	15.81
10009.27	RB 10143.37	387.40	33.81	90.08	5.99	0.38	11.46
10143.37	10569.19						
10569.19	10995.01	7.34	2.07	36.51	0.11	0.06	3.55

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

section. This may indicate the need for additional cross sections.
Note: Program found supercritical flow starting at this cross section.

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 19.405

INPUT
Description:
Station Elevation Data num= 122

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8144.55	1560.78	8187.86	1560	8302.6	1558.99	8315.81	1559.07	8347.82	1559.04
8356.75	1558.34	8362.84	1559.04	8405.66	1559.08	8422.06	1558.29	8454.3	1559.13
8470.66	1559.64	8756.26	1560	8772.8	1560.45	8774.8	1560	8777.57	1559.15
8800.62	1559.02	8806.76	1560	8810.83	1560.62	8829.51	1560	8885.61	1559.66
8985.6	1559.66	9085.61	1559.88	9453.11	1560	9547.68	1560	9686.39	1559.77
9694.69	1558.13	9705.54	1560	9705.58	1560.01	9705.61	1560	9712.72	1558
9719.79	1556	9720.07	1555.92	9720.41	1556	9729.69	1558	9736.75	1559.43
9750.93	1558.5	9761.05	1558.99	9785.41	1558.54	9787.08	1558	9793.04	1556
9796.59	1554.7	9801.63	1556	9810	1558	9814.96	1559.17	9864.05	1559.24
9874.12	1558	9884.35	1556.15	9896.69	1558	9900.48	1558.65	9916.43	1558.66
9918.8	1558	9924.72	1556.33	9933.04	1558	9938.68	1559.14	9946.7	1559.17
9952.27	1558	9956.7	1557.19	9963.36	1558	9970.11	1558.89	10007.42	1559.07
10013.58	1558	10022.29	1556.48	10035.06	1558	10042.09	1558.79	10050.52	1558.66
10052.41	1558	10055.87	1556.63	10069.74	1558	10079.61	1558.66	10486.03	1560
10588.92	1560.19	10701.13	1560	11194.05	1558	11286.29	1557.81	11290.55	1558
11298.54	1558.35	11335.39	1558	11443.34	1557.86	11593.13	1557.34	11626.08	1556.72
11629.58	1556	11635.07	1554.91	11642.11	1556	11650.79	1557.32	11759.58	1557.54
11902.77	1558	12028.15	1558.15	12036.75	1558.02	12045.55	1558.45	12075.8	1558.78
12392.04	1559.64	12540.98	1560	12708.27	1560.22	12871.36	1560	13024.48	1559.32
13227.6	1560	13340.73	1560	13384.03	1560.14	13385.33	1560	13389.58	1559.5
13397.99	1559.95	13509.01	1559.43	13514.53	1558.91	13527.76	1559.38	13541.03	1559.19
13546.84	1558.45	13556.5	1559.17	13829.67	1559.66	13841.34	1558.75	13849.97	1559.27
13949.01	1559.25	14093.57	1558.69	14102.92	1558.07	14109.7	1558.21	14118.47	1558
14139.46	1557.81	14147.26	1556.15	14157.92	1556.81	14180.78	1557.72	14203.41	1558
14234.66	1558.45	14323.33	1560						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8144.55	.05	9686.39	.05	10079.61	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9686.39	10079.61	436.68	426.43	402.95	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
11194.55	14323.33	1561.5

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1560.36	Element			
Vel Head (ft)	0.14	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1560.22	Reach Len. (ft)	436.68	426.43	402.95
Crit W.S. (ft)	1559.73	Flow Area (sq ft)	732.61	767.20	986.14
E.G. Slope (ft/ft)	0.007052	Area (sq ft)	732.61	767.20	4861.73
Q Total (cfs)	6466.00	Flow (cfs)	1232.10	2966.24	2267.66
Top Width (ft)	6116.34	Top Width (ft)	1486.00	393.22	4237.12
Vel Total (ft/s)	2.60	Avg. Vel. (ft/s)	1.68	3.87	2.30
Max Chl Dpth (ft)	5.52	Hydr. Depth (ft)	0.49	1.95	0.88
Conv. Total (cfs)	76997.8	Conv. (cfs)	14672.0	35322.3	27003.5
Length Wtd. (ft)	419.19	Wetted Per. (ft)	1486.37	397.86	1114.95
Min Ch El (ft)	1554.70	Shear (lb/sq ft)	0.22	0.85	0.39
Alpha	1.37	Stream Power (lb/ft s)	0.36	3.28	0.90
Frctn Loss (ft)	3.04	Cum Volume (acre-ft)	1303.04	420.49	586.94
C & E Loss (ft)	0.00	Cum SA (acres)	1020.66	327.38	688.93

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8144.55	8298.73	133.06	79.30	122.85	2.06	0.65	1.68

8298.73	8452.92	543.15	202.00	154.28	8.40	1.31	2.69
8452.92	8607.10	120.71	81.91	154.19	1.87	0.53	1.47
8607.10	8761.29	47.68	46.91	154.19	0.74	0.30	1.02
8761.29	8915.47	107.76	71.45	129.94	1.67	0.55	1.51
8915.47	9069.65	111.00	77.89	154.18	1.72	0.51	1.43
9069.65	9223.84	51.09	48.90	154.18	0.79	0.32	1.04
9223.84	9378.02	37.94	40.90	154.18	0.59	0.27	0.93
9378.02	9532.21	28.10	34.16	154.18	0.43	0.22	0.82
9532.21	9686.39	51.60	49.19	154.18	0.80	0.32	1.05
LB 9686.39	9765.03	475.59	135.10	79.94	7.36	1.72	3.52
9765.03	9843.68	624.24	158.96	79.83	9.65	2.02	3.93
9843.68	9922.32	589.59	153.20	79.31	9.12	1.95	3.85
9922.32	10000.97	509.59	140.38	79.32	7.88	1.78	3.63
10000.97	RB 10079.61	767.21	179.57	79.47	11.87	2.28	4.27
10079.61	10503.98	703.79	363.48	424.37	10.88	0.86	1.94
10503.98	10928.35	210.34	176.11	424.37	3.25	0.41	1.19
10928.35	11352.73	1353.56	446.57	266.20	20.93	1.68	3.03

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 19.324

INPUT
Description:
Station Elevation Data num= 116

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8090.52	1558.65	8168.18	1558.87	8218.93	1558	8268.17	1557.15	8288.85	1556.66
8368.19	1556.58	8468.18	1556.65	8568.19	1556.51	8668.18	1556.36	8768.17	1556.46
8868.18	1556.55	8968.17	1556.36	9068.18	1556.48	9168.17	1556.39	9268.19	1556.89
9368.18	1557.06	9468.19	1557.2	9568.18	1557.34	9583.28	1557.32	9589.93	1556
9593.43	1555.26	9599.37	1556	9668.17	1557.44	9785.4	1557.08	9789.47	1556
9797.55	1554	9800.24	1553.35	9804.48	1554	9824.41	1555.69	9828.2	1554.89
9838.19	1556	9839.98	1556.3	9860.27	1556.22	9860.81	1556	9865.83	1554
9870.94	1552	9871.81	1551.66	9872.5	1552	9876.51	1554	9880.42	1556
9881.62	1556.62	9890.55	1556.12	9890.85	1556	9895.69	1554	9900.53	1552.01
9915.16	1554	9926.9	1555.65	9941.62	1556	9959.43	1556.4	9966.73	1556
9967.64	1555.95	9968.79	1556	9984.09	1556.48	10050.29	1556	10119.83	1555.57
10143.23	1555.97	10154.41	1555.75	10160.39	1555.07	10173.94	1556	10177.94	1556.27
10243.48	1556.42	10471.71	1558	10474.91	1558.04	10477.92	1558	10674.6	1556
10791.12	1555.67	10803.57	1555.54	11107.36	1555.62	11433.72	1554.41	11434.93	1554
11441.01	1552.09	11447.93	1554	11450.83	1555.11	11555.67	1554.85	11562.11	1554.36
11569.81	1555.18	11687.56	1555.72	11739.84	1555.94	11755.89	1556	12056.05	1557.03
12372.3	1557.64	12688.86	1556.92	13100.3	1557.23	13416.54	1557.35	13468.72	1557.07
13479.51	1556.5	13491.41	1556.94	13561.54	1556.65	13565.18	1556	13571.92	1554.79
13579.65	1556	13586.25	1556	13588.06	1555.03	13593.31	1556	13598.7	1557.21
13616.52	1557.28	13716.52	1557.42	13730.52	1556.87	13738.46	1556	13742.74	1555.01
13749.52	1556	13752.11	1556.45	13830.2	1556	13856.37	1555.54	13862.99	1554
13866.04	1553.27	13869.94	1554	13878.06	1555.65	13890.74	1555.72	13897.58	1554.67
13906.41	1555.56	13954.36	1556	14032.74	1556.89	14067.64	1556.76	14131.21	1558
14132.74	1558.03								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8090.52	.05	9785.4	.05	10243.48	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9785.4	10243.48	398.87	516.12	498.97	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
11192.77	14132.74	1558

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1557.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1557.18	Reach Len. (ft)	398.87	516.12	498.97
Crit W.S. (ft)	1556.76	Flow Area (sq ft)	741.38	690.88	919.36
E.G. Slope (ft/ft)	0.007367	Area (sq ft)	741.38	690.88	2850.07
Q Total (cfs)	6466.00	Flow (cfs)	1325.92	2304.26	2835.82
Top Width (ft)	4411.44	Top Width (ft)	1291.90	458.08	2661.46

Vel Total (ft/s)	2.75	Avg. Vel. (ft/s)	1.79	3.34	3.08
Max Chl Dpth (ft)	5.52	Hydr. Depth (ft)	0.57	1.51	1.24
Conv. Total (cfs)	75333.3	Conv. (cfs)	15447.8	26846.2	33039.2
Length Wtd. (ft)	482.88	Wetted Per. (ft)	1292.16	462.08	744.01
Min Ch El (ft)	1551.66	Shear (lb/sq ft)	0.26	0.69	0.57
Alpha	1.16	Stream Power (lb/ft s)	0.47	2.29	1.75
Frctn Loss (ft)	3.16	Cum Volume (acre-ft)	1295.65	413.35	551.27
C & E Loss (ft)	0.01	Cum SA (acres)	1006.74	323.21	657.02

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8260.01	8429.50	133.48	85.62	163.07	2.06	0.53	1.56
8429.50	8598.98	175.24	102.38	169.49	2.71	0.60	1.71
8598.98	8768.47	262.15	130.37	169.49	4.05	0.77	2.01
8768.47	8937.96	215.43	115.89	169.49	3.33	0.68	1.86
8937.96	9107.45	254.61	128.11	169.49	3.94	0.76	1.99
9107.45	9276.94	176.43	102.80	169.49	2.73	0.61	1.72
9276.94	9446.42	14.69	23.13	169.49	0.23	0.14	0.63
9446.42	9615.91	76.47	34.84	39.71	1.18	0.88	2.20
9615.91	9785.40	17.42	18.24	72.45	0.27	0.25	0.96
LB 9785.40	9877.02	773.74	195.59	93.85	11.97	2.13	3.96
9877.02	9968.63	688.55	181.93	93.29	10.65	1.99	3.78
9968.63	10060.25	211.08	88.86	91.62	3.26	0.97	2.38
10060.25	10151.86	393.57	129.13	91.62	6.09	1.41	3.05
10151.86	RB 10243.48	237.33	95.36	91.70	3.67	1.04	2.49
10243.48	10632.41	88.77	69.45	183.65	1.37	0.38	1.28
10632.41	11021.33	1786.85	567.96	388.93	27.63	1.46	3.15
11021.33	11410.26	960.17	281.95	171.44	14.85	1.64	3.41

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 19.227

INPUT
Description:
Station Elevation Data num= 139

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8041.2	1554.87	8141.21	1554.99	8194.12	1554.98	8241.19	1555.98	8241.98	1556
8262.09	1556.56	8287.86	1556	8341.19	1554.63	8347.6	1555	8354.37	1554
8363.34	1552.57	8385.53	1553.49	8393.89	1553.03	8403.6	1554	8409.75	1554.54
8413.26	1554	8427.08	1552.59	8441.2	1553.79	8441.89	1554	8443.12	1554.37
8447.16	1554	8461.69	1552.76	8481.98	1552	8489.72	1551.7	8495.36	1552
8504.67	1552.5	8534.28	1553.76	8541.2	1553.05	8558.78	1552.26	8588.63	1552.96
8595.88	1552	8598.14	1551.67	8600.18	1552	8609.45	1553.43	8619.56	1553.78
8635.69	1552.59	8641.21	1553.41	8647.87	1553.47	8729.27	1553.18	8736.7	1552
8740.25	1551.41	8741.19	1551.61	8743.33	1552	8751.16	1553.56	8841.19	1553.77
9184.6	1553.38	9199.39	1552.24	9209.5	1552	9212.07	1551.88	9213.22	1552
9223.05	1552.94	9233.13	1553.41	9240.55	1552	9241.32	1551.87	9242.08	1552
9256.12	1554	9258.13	1554.28	9746.74	1554.18	9776.07	1554	9826.4	1553.62
9841.43	1552.66	9874.24	1553.55	9922.76	1553.67	9965.43	1553.02	9976.34	1552.12
10010.49	1552.49	10012.01	1552	10018.19	1550	10020.8	1549.16	10026.35	1550
10039.64	1552	10046.02	1552.96	10100.53	1552.75	10102.01	1552	10104.35	1550.82
10122.07	1552	10141.83	1553.51	10219.51	1552	10256.63	1554.27	10334.21	1554
10668.95	1552.59	11009.84	1552.06	11018.68	1552.85	11047.32	1552.73	11081.26	1552.4
11144.39	1552.53	11146.81	1552	11151.52	1550.85	11162.24	1551.23	11189.72	1550
11205.25	1549.34	11208.29	1549.13	11212.62	1550	11223.43	1552	11224.3	1552.16
11225.88	1552	11242.7	1550.26	11251.93	1551.76	11266.17	1552	11292.19	1552.35
11293.27	1552	11297.56	1552	11298.63	1552.51	11493.56	1553.26	11714.31	1554
12318.2	1554.41	12461.24	1554.51	12467.6	1554.23	12476.93	1554.69	12496.25	1554.32
12499.85	1552	12503.26	1553.69	12507.99	1552	12515.05	1554.46	12730.5	1554.79
13142.81	1554.89	13471.81	1552	13547.67	1553.93	13555.11	1553.63	13559.48	1553.07
13568.86	1554	13570	1554.11	13584.43	1552	13597.61	1552	13597.72	1554.04
13597.93	1552	13606.04	1552	13607.88	1551.46	13610.72	1552	13621.19	1553.99
13622.12	1552	13630.88	1554.05	13631.03	1552	13636.12	1552.29	13659.05	1553.69
13684.53	1552	13733.66	1554.43	13872.6	1554.54	13967.43	1554.65		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8041.2	.05	9746.74	.05	10256.63	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9746.74	10256.63	469.21	495.71	496.49	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
11251.21	3967.43	1557

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1554.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1554.04	Reach Len. (ft)	469.21	495.71	496.49
Crit W.S. (ft)	1553.32	Flow Area (sq ft)	695.50	457.22	1389.72
E.G. Slope (ft/ft)	0.005764	Area (sq ft)	695.50	457.22	1882.05
Q Total (cfs)	6466.00	Flow (cfs)	1331.23	1032.80	4101.97
Top Width (ft)	3021.06	Top Width (ft)	888.59	454.99	1677.48
Vel Total (ft/s)	2.54	Avg. Vel. (ft/s)	1.91	2.26	2.95
Max Chl Dpth (ft)	4.91	Hydr. Depth (ft)	0.78	1.00	1.50
Conv. Total (cfs)	85164.0	Conv. (cfs)	17533.7	13603.0	54027.2
Length Wtd. (ft)	492.15	Wetted Per. (ft)	890.24	456.45	928.82
Min Ch El (ft)	1549.16	Shear (lb/sq ft)	0.28	0.36	0.54
Alpha	1.10	Stream Power (lb/ft s)	0.54	0.81	1.59
Frctn Loss (ft)	2.68	Cum Volume (acre-ft)	1289.07	406.55	524.17
C & E Loss (ft)	0.00	Cum SA (acres)	996.75	317.80	632.17

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8211.75	8382.31	56.16	27.16	28.33	0.87	0.96	2.07
8382.31	8552.86	384.44	170.96	157.26	5.95	1.09	2.25
8552.86	8723.42	347.64	166.39	170.90	5.38	0.98	2.09
8723.42	8893.97	125.72	90.39	170.91	1.94	0.53	1.39
8893.97	9064.52	87.22	72.52	170.55	1.35	0.43	1.20
9064.52	9235.08	266.99	141.95	170.70	4.13	0.83	1.88
9235.08	9405.63	63.06	26.11	21.58	0.98	1.22	2.41
9405.63	9746.74						
LB 9746.74	9848.72	35.94	34.45	78.95	0.56	0.44	1.04
9848.72	9950.70	72.88	58.32	101.99	1.13	0.57	1.25
9950.70	10052.67	584.40	204.04	102.83	9.04	2.00	2.86
10052.67	10154.65	328.59	144.27	102.54	5.08	1.41	2.28
10154.65	RB 10256.63	10.99	16.13	70.15	0.17	0.23	0.68
10256.63	10627.71	289.74	192.93	304.55	4.48	0.63	1.50
10627.71	10998.79	1770.13	618.48	371.08	27.38	1.67	2.86
10998.79	11369.87	2042.09	578.31	253.19	31.58	2.29	3.53

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 19.133

INPUT
Description:
Station Elevation Data num= 116

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7810.94	1552.37	7845.41	1552	8108.99	1551.25	8144.41	1552	8165.19	1552.06
8167.4	1552	8175.61	1551.7	8182.72	1552	8187.6	1552.2	8223.25	1552.52
8311.45	1552.88	8440.45	1552.73	8641.58	1552	8709.64	1551.32	8719.23	1550
8731.58	1548	8732.8	1547.83	8733.64	1548	8742.62	1549.82	8747.63	1550
8762.66	1550.55	8785.53	1550	8790.17	1549.89	8809.27	1549.52	8817.27	1548.13
8828.96	1548.29	8839.39	1550	8840.3	1550.11	8866.43	1550.95	8886.26	1550.62
8921.72	1550.95	8927.7	1550	8930.45	1549.54	8934.13	1550	8944.15	1551.18
9228.23	1551.77	9813.36	1551.11	9843.01	1550.82	9860.14	1550	9867.3	1549.77
9869.81	1550	9879.04	1550.11	9892.58	1551.01	9898.97	1550.36	9908.34	1551.24

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 9958.57 1551.41 9986.41 1550.98 9991.24    1550 9996.64 1548.7110004.24    1550
10010.56 1551.1110051.38 1550.81 10055.2    1550 10065.1    154810067.52 1547.51
10069.58    154810077.79    1550 10080.5 1550.7410142.13 1551.2210418.83    1550
10652.04 1549.7110711.39 1549.7710726.25  1549.3 10945.4 1549.8410954.84    1548
10960.42 1546.8710965.73    154810974.19 1549.4110974.36 1549.4110980.73    1548
10982.23 1547.4910985.98    154810995.54 1549.3111004.52 1549.2911009.51 1548.15
11026.24 1549.5311066.68 1549.1611076.13 1548.1311088.06 1548.9111095.03    1548
11096.86 1547.7511099.06    154811104.61  1548.611121.81 1549.2811124.25    1548
11124.67 1547.79 11126.3    154811134.49 1549.0411161.94  1549.311305.32    1550
11869.06 1550.9512037.37 1551.2612045.22 1550.5512056.17 1551.2512378.94 1551.78
12655.79    155212888.86 1552.3613112.89    155213186.02  1551.613193.75 1551.06
13208.89 1551.74 13215.4 1551.1613223.79    155213224.27 1552.0513301.17 1552.29
13333.89 1552.6413338.09    155213343.36 1551.2413350.99    155213356.58 1552.57
 13374.3    155213383.66 1551.6713394.43 1550.3813409.94    155213411.17 1552.11
13617.39 1552.75

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 7810.94     .05 9813.36     .0510142.13     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9813.3610142.13           442.94  544.45  458.39             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
11300.9413617.39    1554
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 7810.94 8314.22    1554

CROSS SECTION OUTPUT    Profile #PF 2

  E.G. Elev (ft)          1551.46   Element                  Left OB    Channel   Right OB
  Vel Head (ft)              0.12   Wt. n-Val.                0.050      0.050      0.050
  W.S. Elev (ft)          1551.34   Reach Len. (ft)          442.94     544.45     458.39
  Crit W.S. (ft)          1550.52   Flow Area (sq ft)        336.20     216.62    1848.88
  E.G. Slope (ft/ft)     0.005228   Area (sq ft)             336.20     216.62    2405.47
  Q Total (cfs)           6466.00   Flow (cfs)               677.00     369.74    5419.27
  Top Width (ft)          2830.75   Top Width (ft)           522.06     304.68    2004.01
  Vel Total (ft/s)           2.69   Avg. Vel. (ft/s)           2.01       1.71       2.93
  Max Chl Dpth (ft)          4.47   Hydr. Depth (ft)           0.64       0.71       1.60
  Conv. Total (cfs)       89424.5   Conv. (cfs)              9362.8     5113.5    74948.2
  Length Wtd. (ft)         474.18   Wetted Per. (ft)         523.04     306.01    1160.56
  Min Ch El (ft)          1547.51   Shear (lb/sq ft)           0.21       0.23       0.52
  Alpha                      1.07   Stream Power (lb/ft s)     0.42       0.39       1.52
  Frctn Loss (ft)            2.55   Cum Volume (acre-ft)    1283.52     402.72     499.73
  C & E Loss (ft)            0.00   Cum SA (acres)           989.16     313.48     611.19

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

FLOW DISTRIBUTION OUTPUT    Profile #PF 2

  Left Sta     Right Sta       Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)            (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  8611.91      8812.15        402.50     155.84    105.36       6.22       1.49       2.58
  8812.15      9012.39        262.82     156.15    200.69       4.06       0.78       1.68
  9012.39      9212.63          0.01       0.11     10.29       0.00       0.01       0.10
  9212.63      9412.88
  9412.88      9613.12          0.00       0.02      6.45       0.00       0.00       0.05
  9613.12      9813.36         11.67      24.08    200.24       0.18       0.12       0.48
  LB 9813.36   9879.11         90.68      53.28     65.79       1.40       0.81       1.70
  9879.11      9944.87         21.10      21.38     59.80       0.33       0.36       0.99
  9944.87      10010.62        67.01      39.23     48.18       1.04       0.82       1.71
  10010.62     10076.38       161.48      75.58     66.35       2.50       1.15       2.14
  10076.38     RB 10142.13     29.47      27.16     65.90       0.46       0.41       1.08
  10142.13     10489.66       553.86     301.11    347.53       8.57       0.87       1.84
  10489.66     10837.18      1662.50     582.31    347.53      25.71       1.68       2.86
  10837.18     11184.71      2661.93     773.89    349.27      41.17       2.23       3.44
  11184.71     11532.23       540.97     191.57    116.23       8.37       1.65       2.82

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
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CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 19.030

INPUT
Description:
Station Elevation Data num= 123

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7668.67	1550.46	7698.1	1550	8058.73	1549.23	8192.83	1549.67	8471.03	1549.2
8517.42	1550	8528.05	1550.18	8534.86	1550	8586.83	1548	8589.22	1547.87
8596.6	1546	8597.74	1545.71	8598.99	1546	8607.76	1548	8610.45	1548.61
8631.13	1548.43	8636.74	1548	8640.73	1547.58	8648.48	1548	8657.98	1548.54
8672.69	1548.29	8675.46	1548	8682.73	1547.24	8691.36	1548	8697.1	1548.49
8746.95	1548.47	8750.68	1548	8754.35	1547.45	8760.05	1548	8764.71	1548.45
8883.34	1548.53	9295.66	1549.01	9802.44	1548	9805.57	1547.98	9809.14	1548
9844.74	1548.23	9847.95	1548	9855.43	1547.43	9886.4	1547.82	9891.88	1546.27
9900.21	1547.84	9923.52	1548	9926.36	1548.07	9926.88	1548	9933.68	1547.05
9941.54	1548	9944.29	1548.35	9966.1	1548.3	9967.24	1548	9972.37	1546.72
9983.7	1548	9984.88	1548.16	10018.16	1548.14	10018.69	1548	10027.01	1546.05
10027.67	1546	10040.35	1545.07	10044.76	1546	10053.63	1548	10055.8	1548.52
10072.35	1548.26	10073.34	1548	10080.93	1546	10081.3	1545.91	10081.88	1546
10094.27	1548	10095.61	1548.22	10146.29	1548.05	10146.61	1548	10157.45	1546.14
10176.51	1548	10177.86	1548.13	10195.44	1548	10257.34	1547.79	10315.46	1547.59
10370.67	1547.58	10376.3	1546.96	10388.95	1547.49	10531.38	1546.85	10544.91	1547.48
10772.01	1547.04	10811.25	1546.77	10814.71	1546	10821.86	1544.45	10831.07	1546
10834.55	1546.68	10870.32	1546.59	10873.27	1546	10876.3	1545.42	10881.08	1546
10884.17	1546.38	11022.56	1547.23	11529.72	1548	11793.45	1548.79	11799.82	1548.4
11807.24	1548.89	11828.78	1548.71	12402.55	1550	12437.06	1550.15	12492.27	1550
12731.52	1549.34	12736.03	1548.63	12744.75	1549.75	12782.23	1549.35	12789.19	1548.06
12801.54	1549.78	12976.14	1550	12994.22	1550.44	13018.11	1550.28	13054.39	1550
13055	1550	13060.13	1550.15	13181.23	1550.14	13183.08	1550	13188.47	1549.29
13193.31	1550	13194.69	1550.22	13281.19	1550.24	13282.54	1550	13286.45	1549.28
13289.25	1550	13290.18	1550.25	13328.14	1550				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7668.67	.05	9844.74	.05	10544.91	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9844.74	10544.91		468.48	513.02	424.17	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
11267.31	13328.14	1550

Blocked Obstructions num= 1

Sta L	Sta R	Elev
7668.67	8527.85	1550

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1548.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1548.78	Reach Len. (ft)	468.48	513.02	424.17
Crit W.S. (ft)	1548.14	Flow Area (sq ft)	375.42	866.09	1218.47
E.G. Slope (ft/ft)	0.005546	Area (sq ft)	375.42	866.09	1585.29
Q Total (cfs)	6466.00	Flow (cfs)	442.96	2204.02	3819.02
Top Width (ft)	2978.14	Top Width (ft)	968.10	700.17	1309.87
Vel Total (ft/s)	2.63	Avg. Vel. (ft/s)	1.18	2.54	3.13
Max Chl Dpth (ft)	4.33	Hydr. Depth (ft)	0.39	1.24	1.69
Conv. Total (cfs)	86823.1	Conv. (cfs)	5947.9	29594.8	51280.4
Length Wtd. (ft)	469.15	Wetted Per. (ft)	969.01	702.47	723.02
Min Ch El (ft)	1545.07	Shear (lb/sq ft)	0.13	0.43	0.58
Alpha	1.17	Stream Power (lb/ft s)	0.16	1.09	1.83
Frctn Loss (ft)	3.20	Cum Volume (acre-ft)	1279.90	395.95	478.74
C & E Loss (ft)	0.00	Cum SA (acres)	981.58	307.20	593.75

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8539.10	8756.71	177.12	125.20	191.07	2.74	0.66	1.41
8756.71	8974.31	45.71	58.52	217.64	0.71	0.27	0.78

8974.31	9191.92	3.01	9.17	125.57	0.05	0.07	0.33
9191.92	9409.53						
9409.53	9627.13	31.75	46.98	217.12	0.49	0.22	0.68
9627.13	9844.74	185.37	135.54	217.61	2.87	0.62	1.37
LB 9844.74	9984.77	330.40	147.43	140.86	5.11	1.05	2.24
9984.77	10124.81	436.99	174.52	141.19	6.76	1.25	2.50
10124.81	10264.84	312.70	142.41	140.29	4.84	1.02	2.20
10264.84	10404.88	426.22	171.39	140.08	6.59	1.22	2.49
10404.88	RB 10544.91	697.73	230.34	140.05	10.79	1.64	3.03
10544.91	10823.23	1399.67	458.84	278.59	21.65	1.65	3.05
10823.23	11101.56	1853.37	543.09	278.67	28.66	1.95	3.41
11101.56	11379.88	565.96	216.53	165.75	8.75	1.31	2.61

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 18.932

INPUT
Description:
Station Elevation Data num= 134

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7317.07	1547.29	7371.26	1547.3	7517.51	1546.39	7523.26	1546.21	7687.49	1546.17
7782.4	1546	8003.83	1546.03	8007.8	1546	8067.79	1545.53	8112.62	1546
8173.09	1546.5	8198.07	1546	8328.25	1544.95	8338.31	1545.81	8359.07	1545.37
8368.16	1544.63	8376.12	1545.31	8380.68	1545.18	8385.67	1544	8390.32	1542.92
8397.03	1544	8406.87	1545.42	8416.65	1545.6	8475.52	1545.23	8481.2	1544.33
8490.22	1545.23	8502.8	1545.15	8508.62	1544.48	8525.13	1545.64	8828.96	1545.43
9750.93	1544.76	9786.79	1545.04	9794.76	1544	9795.32	1543.94	9795.88	1544
9804.62	1545.05	9822.35	1544.57	9825.69	1544	9831.14	1543.06	9836.82	1544
9840.74	1544.64	9895.52	1544.95	9901.38	1544	9902.97	1543.77	9904.81	1544
9913.72	1545.18	9948.38	1545.02	9983.05	1544.96	9985.94	1544	9991.41	1542
9991.61	1541.93	9991.93	154210001.29		154410005.12		1544.810043.65		1544.66
10046.85	154410051.33		1543.0510058.33		154410062.55		1544.4710080.64		1544.27
10082.93	154410094.95		1542.3210105.42		154410109.87		1544.7110132.12		1544.42
10133.55	154410137.85		1542.75 10144.3		1544 10147.6		1544.6710211.14		1544.79
10215.15	154410219.52		1542.9810223.84		154410227.72		1544.9210260.83		1544.25
10274.72	1544.4210278.79		154410282.32		1543.58 10286.2		154410291.89		1544.61
10326.74	1544.2310327.66		154410333.16		1542.8510339.24		154410341.97		1544.48
10360.83	1544.0610371.54		1544.17 10391.5		1544.1710400.88		1544.1210406.97		1544
10437.33	1543.6910444.45		1542.6710455.72		154410456.36		1544.0710457.04		1544
10460.81	1543.5810483.17		1543.8410493.67		1543.2810503.67		154410504.91		1544.07
10514.31	154410519.43		1543.9610524.16		1543.4210544.13		154410544.93		1544.06
10546.65	154410560.82		1543.5110568.16		1543.5210575.45		1542.1710586.46		1544
10586.52	1544.0110591.67		154410660.82		1543.8710696.52		154411467.04		1545.74
11602	154612372.58		1547.212375.22		1547.4112381.03		1546.3812390.91		1547.65
12596.19	1547.5212695.05		1548 12719.9		154812940.53		154812968.89		1548.15
12969.25	154812972.93		1546.6 12983.4		1547.9712985.31		154813080.51		1548.38
13082.89	154813084.22		1547.7913086.69		154813091.49		1548.38		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7317.07	.05	9786.79	.0510591.67		.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9786.79	10591.67	581.34	528.78	466.64	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
11367.07	13091.49	1548

Blocked Obstructions num= 1

Sta L	Sta R	Elev
7317.07	8175.05	1548

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1545.71	Element			
Vel Head (ft)	0.14	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1545.57	Reach Len. (ft)	581.34	528.78	466.64
Crit W.S. (ft)	1545.16	Flow Area (sq ft)	591.04	1086.67	716.55
E.G. Slope (ft/ft)	0.008646	Area (sq ft)	591.04	1086.67	717.24
Q Total (cfs)	6466.00	Flow (cfs)	930.90	3656.56	1878.54
Top Width (ft)	3017.70	Top Width (ft)	1412.69	804.88	800.12
Vel Total (ft/s)	2.70	Avg. Vel. (ft/s)	1.58	3.36	2.62

Max Chl Dpth (ft)	3.64	Hydr. Depth (ft)	0.42	1.35	0.92
Conv. Total (cfs)	69538.9	Conv. (cfs)	10011.4	39324.6	20202.9
Length Wtd. (ft)	532.97	Wetted Per. (ft)	1413.43	808.69	775.40
Min Ch El (ft)	1541.93	Shear (lb/sq ft)	0.23	0.73	0.50
Alpha	1.20	Stream Power (lb/ft s)	0.36	2.44	1.31
Frctn Loss (ft)	3.27	Cum Volume (acre-ft)	1274.70	384.45	467.53
C & E Loss (ft)	0.04	Cum SA (acres)	968.78	298.34	583.48

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8057.99	8304.96	10.18	11.58	53.59	0.16	0.22	0.88
8304.96	8551.93	162.58	103.27	199.40	2.51	0.52	1.57
8551.93	8798.90	3.83	10.29	172.55	0.06	0.06	0.37
8798.90	9045.87	44.01	51.36	246.97	0.68	0.21	0.86
9045.87	9292.85	124.11	95.67	246.97	1.92	0.39	1.30
9292.85	9539.82	234.10	140.01	246.97	3.62	0.57	1.67
9539.82	9786.79	352.05	178.84	246.97	5.44	0.72	1.97
LB 9786.79	9947.77	354.58	144.01	161.56	5.48	0.89	2.46
9947.77	10108.74	700.17	217.05	162.37	10.83	1.35	3.23
10108.74	10269.72	501.27	177.39	161.85	7.75	1.10	2.83
10269.72	10430.69	788.13	232.45	161.39	12.19	1.44	3.39
10430.69	RB 10591.67	1312.38	315.77	161.53	20.30	1.96	4.16
10591.67	10841.65	1186.55	375.52	249.98	18.35	1.50	3.16
10841.65	11091.63	562.68	240.00	249.98	8.70	0.96	2.34
11091.63	11341.62	128.37	98.89	249.98	1.99	0.40	1.30
11341.62	11591.60	1.00	2.15	25.45	0.02	0.08	0.46

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 18.832

INPUT
Description:
Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7139.32	1544	7263.34	1542.84	7403.88	1542.41	7413.37	1542.65	7442.83	1542.59
7450.54	1542.33	7462.34	1542.78	7604.56	1542.1	7621.22	1542	7846.42	1541.44
8103.79	1541.35	8117.71	1540.75	8132.48	1541.29	8147.53	1541.51	8160.22	1540.61
8178	1541.7	8186.32	1540	8191.93	1538.81	8199.09	1540	8204.86	1541.03
8216.1	1541.26	8221.53	1540	8222.84	1539.72	8226.94	1540	8233.6	1540.25
8246.37	1541.31	8384.96	1541.63	9589.09	1541.29	9623.97	1541.29	9640.21	1541.42
9735.56	1541.51	9743.82	1541.29	9750.54	1541.76	9816.49	1541.77	9823.01	1541.34
9828.96	1541.67	9909.63	1541.76	9914.21	1540	9917.9	1538.55	9922.17	1540
9926.74	1541.66	9954.01	1541.8	9959.26	1540.73	9967.16	1541.82	9975.81	1541.8
9983.88	1540.69	9996.79	1541.8810029.79		1541.410037.06		154010049.16		1539.13
10053.74		154010062.51	1541.5710135.77		1541.1810139.84		154010140.61		1539.8
10141.75		154010147.26	1541.0910160.07		1541.0210169.37		154010170.14		1539.89
10170.92		154010180.88	1541.5210240.54		1541.1610246.31		154010246.96		1539.86
10250.87	1539.5910253.24		154010260.71		1541.3910296.56		1541.2110307.83		1540.26
10324.81	1541.5810349.63		1540.0210363.61		1541.3210387.94		1541.4210392.13		1540
10395.67	1538.7810401.22		1540 10406.6		1541.3710494.64		1541.2310594.65		1541.04
10694.63	1540.910794.64		1541.3311072.46		154211206.95		1542.19 12128.9		1543.62
12228.91	1543.3812328.89		1543.18 12428.9		1543.1612528.89		1543.33 12628.9		1543.48
12728.91	1543.74 12828.9		1543.9212928.91		1543.87 13028.9		1543.8713128.91		1543.92
13148.9	1544 13228.9		1544.33						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7139.32	.05	9909.63	.05	10406.6	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9909.63	10406.6	441.13	509.32	557.25	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
7139.32	7750	154411454.32		13228.9	1544

Blocked Obstructions num= 1

Sta L	Sta R	Elev
7139.32	7462.35	1544

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1542.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1542.34	Reach Len. (ft)	441.13	509.32	557.25
Crit W.S. (ft)	1541.83	Flow Area (sq ft)	1970.35	643.98	700.92
E.G. Slope (ft/ft)	0.004598	Area (sq ft)	2045.96	643.98	700.92
Q Total (cfs)	6466.00	Flow (cfs)	3733.88	1535.01	1197.11
Top Width (ft)	3750.86	Top Width (ft)	2355.64	496.97	898.25
Vel Total (ft/s)	1.95	Avg. Vel. (ft/s)	1.90	2.38	1.71
Max Chl Dpth (ft)	3.79	Hydr. Depth (ft)	0.91	1.30	0.78
Conv. Total (cfs)	95361.1	Conv. (cfs)	55067.5	22638.5	17655.1
Length Wtd. (ft)	500.85	Wetted Per. (ft)	2160.48	500.56	898.25
Min Ch El (ft)	1538.55	Shear (lb/sq ft)	0.26	0.37	0.22
Alpha	1.04	Stream Power (lb/ft s)	0.50	0.88	0.38
Frctn Loss (ft)	2.79	Cum Volume (acre-ft)	1257.11	373.95	459.93
C & E Loss (ft)	0.01	Cum SA (acres)	943.63	290.43	574.38

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7693.38	7970.41	340.78	189.91	220.41	5.27	0.86	1.79
7970.41	8247.44	811.60	350.66	277.84	12.55	1.27	2.31
8247.44	8524.47	378.91	221.77	277.03	5.86	0.80	1.71
8524.47	8801.51	370.87	218.93	277.03	5.74	0.79	1.69
8801.51	9078.54	434.01	240.59	277.03	6.71	0.87	1.80
9078.54	9355.57	501.12	262.27	277.03	7.75	0.95	1.91
9355.57	9632.60	570.12	283.37	277.03	8.82	1.02	2.01
9632.60	9909.63	326.48	202.82	277.07	5.05	0.73	1.61
LB 9909.63	10009.02	207.34	102.61	100.84	3.21	1.03	2.02
10009.02	10108.42	307.24	129.37	99.78	4.75	1.30	2.37
10108.42	10207.81	304.70	128.79	99.90	4.71	1.30	2.37
10207.81	10307.21	309.52	129.92	99.74	4.79	1.31	2.38
10307.21	RB 10406.60	406.23	153.29	100.30	6.28	1.54	2.65
10406.60	10688.83	670.35	341.22	282.23	10.37	1.21	1.96
10688.83	10971.06	459.41	272.00	282.23	7.10	0.96	1.69
10971.06	11253.29	66.92	85.62	282.23	1.03	0.30	0.78
11253.29	11535.52	0.42	2.06	51.56	0.01	0.04	0.20

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard *RS: 18.736*

INPUT
Description:
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6910.67	1540.26	7021.97	1540	7052.14	1539.62	7099.83	1539.97	7107.58	1539.86
7193.58	1539.52	7248.6	1539.2	7276.87	1539.02	7692.79	1538.52	7693.58	1538.76
7713.76	1538.24	7782.28	1539.47	7787.8	1538.3	7795.95	1538.86	7829.9	1539.02
7834.46	1538	7840.12	1536.66	7845.26	1538	7849.78	1539.13	7870.1	1538.85
7871.91	1538	7875.98	1536	7876.05	1535.97	7876.16	1536	7882.89	1538
7885.96	1538.89	8054.12	1539.07	8154.12	1539	8254.13	1538.97	8354.13	1538.78
8454.13	1539	8554.13	1539.19	8654.11	1539.21	8754.11	1539.29	9867.25	1539.36
9872.65	1538	9874.84	1537.48	9877.06	1538	9884.27	1539.48	9961.84	1538.78
9967.97	1538.48	9976.73	1538.76	9984.68	1538.23	9992.88	1538.8810030.14		1538.65
10032.69	153810036.51		1537.0410041.66		153810045.48		1538.7110072.67		1538.7
10075.73	153810079.22		1537.1310086.03		153810090.48		1538.5910121.94		1538.87
10127.58	153810129.56		1537.7110132.99		153810141.96		1538.7810176.19		1538.55
10178.69	153810183.95		1536.8510191.83		153810194.84		1538.4510478.13		1538
10520.64	1537.8810531.15		1537.23 10539.6		153810540.45		1538.0910556.62		1538
10587.73	1537.8110593.21		1536.9210600.89		1537.7310634.57		1537.5510640.02		1536.41
10651.21	1537.8510731.97		153810859.27		1538.3911271.55		1538.811683.86		1539.09
11783.88	1539.3611883.89		1539.4811983.87		1539.5812083.89		1539.4112183.87		1539.44

12276.86 1539.0512282.27 1538.6612292.79 1539.2112383.87 1539.3612412.25 1538.75
12415.33 153812418.73 1537.1912423.54 1538 12429.7 153912583.87 1539.68
12683.88 1539.5612783.89 1539.9512798.43 154012883.88 1540.3112983.89 1540.24
13083.87 1540.7513183.88 1540.94

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6910.67	.05	9867.25	.05	10194.84	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9867.2510194.84 569.73 486.46 441.02 .3 .5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6910.67	7275	154	11678.08	13183.88	1541

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6910.67	7099.27	1541

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1539.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1539.53	Reach Len. (ft)	569.73	486.46	441.02
Crit W.S. (ft)	1539.16	Flow Area (sq ft)	1143.99	298.77	1602.45
E.G. Slope (ft/ft)	0.006845	Area (sq ft)	1164.04	298.77	1789.96
Q Total (cfs)	6466.00	Flow (cfs)	1629.65	688.65	4147.70
Top Width (ft)	5273.18	Top Width (ft)	2675.43	327.59	2270.16
Vel Total (ft/s)	2.12	Avg. Vel. (ft/s)	1.42	2.30	2.59
Max Chl Dpth (ft)	3.56	Hydr. Depth (ft)	0.44	0.91	1.08
Conv. Total (cfs)	78152.8	Conv. (cfs)	19697.2	8323.5	50132.1
Length Wtd. (ft)	491.68	Wetted Per. (ft)	2594.11	329.16	1483.63
Min Ch El (ft)	1536.85	Shear (lb/sq ft)	0.19	0.39	0.46
Alpha	1.19	Stream Power (lb/ft s)	0.27	0.89	1.19
Frctn Loss (ft)	2.94	Cum Volume (acre-ft)	1240.85	368.43	444.00
C & E Loss (ft)	0.02	Cum SA (acres)	918.16	285.61	554.12

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7206.33	7501.99	228.57	145.52	226.99	3.54	0.64	1.57
7501.99	7797.64	472.38	250.10	295.85	7.31	0.85	1.89
7797.64	8093.30	341.03	206.10	297.32	5.27	0.70	1.65
8093.30	8388.96	260.23	174.84	295.66	4.02	0.59	1.49
8388.96	8684.62	147.19	124.21	295.66	2.28	0.42	1.18
8684.62	8980.28	57.12	70.39	295.66	0.88	0.24	0.81
8980.28	9275.93	47.61	63.11	295.66	0.74	0.21	0.75
9275.93	9571.59	40.89	57.60	295.66	0.63	0.19	0.71
9571.59	9867.25	34.61	52.12	295.66	0.54	0.18	0.66
LB 9867.25	9932.77	44.04	31.02	65.96	0.68	0.47	1.42
9932.77	9998.29	101.62	51.11	65.58	1.57	0.78	1.99
9998.29	10063.80	152.72	65.38	65.87	2.36	1.00	2.34
10063.80	10129.32	174.08	70.73	65.89	2.69	1.08	2.46
10129.32	RB 10194.84	216.18	80.53	65.87	3.34	1.23	2.68
10194.84	10493.74	1076.68	393.03	298.90	16.65	1.31	2.74
10493.74	10792.65	1634.95	505.24	299.29	25.29	1.69	3.24
10792.65	11091.55	763.63	319.82	298.90	11.81	1.07	2.39
11091.55	11390.46	435.80	228.43	298.90	6.74	0.76	1.91
11390.46	11689.36	236.66	155.94	287.62	3.66	0.54	1.52

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 18.644

INPUT
Description:
Station Elevation Data num= 127

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     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 6672.18 1537.24 6728.39 1536.69 6733.88 1536.44 6740.28 1536.91 6757.32 1537.13
 6796.81 1536.97 6846.67 1536.41 6887.49 1536.59 6944.14 1536.14 6960.73    1536
 7046.11 1535.39 7061.79    1536 7064.52 1536.12 7070.22    1536 7082.45 1535.69
 7148.22    1536 7172.17 1536.15  7214.5 1536.06  7215.7    1536  7222.7 1535.66
 7231.63 1535.99 7232.26    1536 7408.02 1536.61  7409.8    1536 7411.17 1535.36
  7418.1    1536 7419.37 1536.44 7443.13 1536.15 7443.95    1536 7454.72    1534
  7457.3 1533.44 7459.33    1534 7466.58    1536 7467.24 1536.16 7672.18  1536.1
 7698.67    1536 7841.67    1536 8379.29  1536.2 8449.38    1536 8666.72    1536
 8783.19    1536 8784.72    1536 9186.15 1535.62 9286.15 1535.72 9386.15 1535.67
 9486.16 1535.89 9586.14 1535.69 9686.14  1535.5 9739.13    1536 9751.98 1536.12
 9753.42    1536 9771.18    1536 9773.45 1536.12 9863.06    1536  9925.5 1535.93
 9932.27 1535.22 9942.25    1536 9943.36 1536.09 9951.68    1536  9973.6 1535.82
 9981.96 1534.52 9993.41    1536 9993.83 1536.06 9996.23    153610002.54 1535.84
10019.96    153610029.15 1536.0910030.02    153610036.26 1535.2210042.26    1536
10042.72 1536.0610053.09    153610065.58 1535.9210072.48 1534.55 10081.4    1536
10081.89 1536.0810087.08    153610102.54 1535.7710202.54 1535.4810302.55 1534.78
10368.62 1534.61 10374.2 1534.3610379.37 1534.6710402.55 1535.0510457.81 1535.11
10461.43    153410461.79 1533.9110462.37    153410468.08  1534.910502.54 1534.95
10505.71 1534.76 10512.2 1534.1610520.22 1535.3310602.56 1534.9810702.55 1535.27
10802.54 1535.5610902.53 1535.6311114.99    153611314.84  1536.211727.16 1536.71
11827.18 1536.6411927.17 1536.4912027.16 1536.3412127.15 1536.3712227.17 1536.32
 12250.2  1536.112250.44    153612255.18    1534 12255.9 1533.7112256.88    1534
12263.32    153612265.42 1536.7812327.16 1536.3212427.16 1536.3912527.17 1536.61
12601.92 1536.4912607.09 1536.5512629.84 1536.0512629.99    153612636.37    1534
12636.85 1533.8412637.56    1534 12645.7    153612646.94 1536.3112750.78 1536.25
12974.38 1536.6613074.39 1536.88

Manning's n Values          num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
 6672.18     .05 9863.06     .0510081.89     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9863.0610081.89            397.21  500.78  427.12              .3       .5
Ineffective Flow      num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 6672.18 6887.49    153811717.1813074.39    1538
Blocked Obstructions      num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 6672.18 6757.32    153812646.9413074.39    1538

CROSS SECTION OUTPUT     Profile #PF 2

  E.G. Elev (ft)            1536.66   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.05   Wt. n-Val.                0.050      0.050      0.050
  W.S. Elev (ft)            1536.61   Reach Len. (ft)          397.21     500.78     427.12
  Crit W.S. (ft)            1536.23   Flow Area (sq ft)       1931.54     176.58    1471.75
  E.G. Slope (ft/ft)       0.005188   Area (sq ft)            1937.59     176.58    1658.94
  Q Total (cfs)             6466.00   Flow (cfs)              3110.83     326.96    3028.21
  Top Width (ft)            5581.95   Top Width (ft)          3032.71     218.83    2330.41
  Vel Total (ft/s)             1.81   Avg. Vel. (ft/s)           1.61       1.85       2.06
  Max Chl Dpth (ft)            3.17   Hydr. Depth (ft)           0.65       0.81       0.94
  Conv. Total (cfs)         89770.9   Conv. (cfs)             43189.3     4539.4    42042.2
  Length Wtd. (ft)           420.18   Wetted Per. (ft)        2975.46     219.47    1561.69
  Min Ch El (ft)            1534.52   Shear (lb/sq ft)           0.21       0.26       0.31
  Alpha                        1.04   Stream Power (lb/ft s)     0.34       0.48       0.63
  Frctn Loss (ft)              2.44   Cum Volume (acre-ft)    1220.57     365.78     426.54
  C & E Loss (ft)              0.01   Cum SA (acres)           880.83     282.56     530.83


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

FLOW DISTRIBUTION OUTPUT     Profile #PF 2

  Left Sta     Right Sta       Flow       Area       W.P.    % Conv.   Hydr D.   Velocity
  (ft)         (ft)            (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  6672.18      6991.27         52.64      44.39    103.78      0.81      0.43       1.19
  6991.27      7310.36        354.22     218.36    319.13      5.48      0.68       1.62
  7310.36      7629.44        192.70     151.51    318.92      2.98      0.48       1.27
  7629.44      7948.53        269.68     185.40    319.09      4.17      0.58       1.45
  7948.53      8267.62        214.85     161.76    319.09      3.32      0.51       1.33
  8267.62      8586.71        225.15     166.37    319.09      3.48      0.52       1.35
  8586.71      8905.80        306.84     200.33    319.09      4.75      0.63       1.53
  8905.80      9224.88        525.63     276.70    319.09      8.13      0.87       1.90
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9224.88	9543.97	519.09	274.63	319.09	8.03	0.86	1.89
9543.97	9863.06	449.98	252.07	319.10	6.96	0.79	1.79
LB 9863.06	9906.83	42.83	27.60	43.77	0.66	0.63	1.55
9906.83	9950.59	60.53	33.99	43.84	0.94	0.78	1.78
9950.59	9994.36	92.42	43.86	43.97	1.43	1.00	2.11
9994.36	10038.12	53.58	31.59	43.84	0.83	0.72	1.70
10038.12	RB 10081.89	77.61	39.54	44.06	1.20	0.90	1.96
10081.89	10381.14	934.24	412.13	299.27	14.45	1.38	2.27
10381.14	10680.39	1175.37	473.23	299.63	18.18	1.58	2.48
10680.39	10979.64	614.73	320.59	299.25	9.51	1.07	1.92
10979.64	11278.89	243.41	183.89	299.25	3.76	0.61	1.32
11278.89	11578.14	59.92	79.30	299.25	0.93	0.27	0.76
11578.14	11877.39	0.56	2.62	65.04	0.01	0.04	0.21

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 18.549

INPUT
Description: "Eastern Diversion" at southern end of cross section
Station Elevation Data num= 123

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6653.63	1533.44	6688.95	1532.77	6703.24	1532.41	6709.49	1534	6717.04	1536
6720	1536.76	6723.69	1536	6734.2	1534	6744.71	1532	6755.14	1530
6757.35	1529.56	6759.43	1530	6768.36	1532	6772.03	1532.82	6827.12	1534
6830.68	1534.08	6920.8	1534	6987.74	1534	6994.75	1534.13	6995.52	1534
6998.92	1532.87	7006.64	1533.67	7018.29	1533.66	7024.19	1532	7027.21	1530.62
7030.53	1532	7037.16	1533.77	7063.46	1534	7085.79	1534	7127.73	1534
7244.54	1534	7413.78	1533.52	7826.1	1533.67	8238.4	1533.38	8383.89	1534
8468.87	1534	9348.18	1533.21	9448.18	1533.06	9458.66	1532.96	9548.18	1533.5
9648.18	1533.4	9666.19	1533.42	9672.55	1532.49	9683.98	1533.35	9748.16	1533.33
9794.9	1533.47	9804.54	1532.57	9809.32	1532.27	9824.44	1533.83	9848.16	1533.43
9999.22	1533.28	10005.38	1532	10007.33	1531.58	10010.84	1532	10023.47	1533.42
10083.77	1532.42	10085.94	1532	10090.38	1531.27	10096.31	1532	10099.53	1532.38
10123.61	1532.53	10125.9	1532	10127.94	1531.55	10131.35	1532	10135.71	1532.46
10273.7	1532.45	11238.18	1534	11364.12	1534.36	11464.12	1534.46	11564.13	1534.27
11664.13	1534.17	11764.12	1534.22	11864.11	1534.11	1964.13	1534.54	12002.43	1534.35
12012.72	1534.23	12054.15	1534.23	12055.15	1534	12064.07	1532	12064.27	1531.87
12066.04	1532	12085.92	1532.43	12092.7	1534	12094.41	1534.47	12111.91	1534
12134.26	1533.41	2139.33	1532.01	12147.99	1533.05	12157.84	1532.51	12163.92	1534
12164.46	1534	12172.81	1534	12198.1	1534.08	12198.68	1534	12203.89	1533.27
12208.82	1534	12219.34	1534	12229.63	1533.54	12233.33	1534	12235.29	1534.34
12250.02	1534.13	12251.19	1534	12259.98	1533.12	12264.58	1534	12270.69	1534.37
12273.84	1534.28	12276.17	1534	12282.88	1533.23	12288.74	1534	12298.2	1534.26
12299.36	1534	12304.57	1532.58	12313.48	1534	12318.31	1534.8	12346.16	1534.18
12347.63	1534	12354.31	1533.29	12360.13	1534	12373.99	1534.72	12464.12	1535.17
12564.13	1535.73	12628.49	1534	12664.12	1536.15				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6653.63	.05	9848.16	.05	10135.71	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9848.16	10135.71	503.55	511.81	476.98	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
11559.85	12664.12	1536

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6653.63	6720.41	1536	12318.31	12664.12	1536

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1534.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1534.14	Reach Len. (ft)	503.55	511.81	476.98
Crit W.S. (ft)	1533.76	Flow Area (sq ft)	1748.10	333.75	1114.27
E.G. Slope (ft/ft)	0.006752	Area (sq ft)	1748.10	333.75	1266.32
Q Total (cfs)	6466.00	Flow (cfs)	2903.08	898.83	2664.09
Top Width (ft)	4808.38	Top Width (ft)	3114.68	287.55	1406.15
Vel Total (ft/s)	2.02	Avg. Vel. (ft/s)	1.66	2.69	2.39
Max Chl Dpth (ft)	4.58	Hydr. Depth (ft)	0.56	1.16	0.97

Conv. Total (cfs)	78690.3	Conv. (cfs)	35330.1	10938.6	32421.7
Length Wtd. (ft)	497.27	Wetted Per. (ft)	3117.00	288.17	1150.17
Min Ch El (ft)	1531.27	Shear (lb/sq ft)	0.24	0.49	0.41
Alpha	1.12	Stream Power (lb/ft s)	0.39	1.31	0.98
Frctn Loss (ft)	3.43	Cum Volume (acre-ft)	1203.76	362.85	412.20
C & E Loss (ft)	0.00	Cum SA (acres)	852.80	279.65	512.51

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6653.63	6973.08	259.68	153.91	240.41	4.02	0.64	1.69
6973.08	7292.54	91.14	92.15	320.73	1.41	0.29	0.99
7292.54	7611.99	250.82	168.89	319.45	3.88	0.53	1.49
7611.99	7931.44	232.08	161.20	319.45	3.59	0.50	1.44
7931.44	8250.89	355.32	208.14	319.45	5.50	0.65	1.71
8250.89	8570.35	81.24	85.87	319.45	1.26	0.27	0.95
8570.35	8889.80	139.01	118.53	319.45	2.15	0.37	1.17
8889.80	9209.25	361.21	210.21	319.45	5.59	0.66	1.72
9209.25	9528.71	651.88	299.57	319.46	10.08	0.94	2.18
9528.71	9848.16	480.70	249.60	319.69	7.43	0.78	1.93
LB 9848.16	9905.67	78.29	42.26	57.51	1.21	0.73	1.85
9905.67	9963.18	88.69	45.55	57.51	1.37	0.79	1.95
9963.18	10020.69	171.74	67.84	57.77	2.66	1.18	2.53
10020.69	10078.20	166.46	66.47	57.53	2.57	1.16	2.50
10078.20	RB 10135.71	393.68	111.64	57.84	6.09	1.94	3.53
10135.71	10388.55	1221.27	415.10	252.84	18.89	1.64	2.94
10388.55	10641.39	826.26	328.35	252.84	12.78	1.30	2.52
10641.39	10894.23	442.04	225.60	252.84	6.84	0.89	1.96
10894.23	11147.07	160.53	122.86	252.84	2.48	0.49	1.31
11147.07	11399.92	13.98	22.34	138.81	0.22	0.16	0.63

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 18.452

INPUT
Description: "Eastern Diversion" at southern end of cross section
Station Elevation Data num= 107

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7596.34	1530	7603.93	1530.17	7620.04	1531.13	7625.89	1530	7636.59	1528
7645.6	1526.32	7654.04	1528	7659.91	1529.34	7710.82	1529.46	7715.32	1528.63
7720.32	1529.35	7724.35	1529.62	7816.08	1530	7840.3	1530	7860.92	1529.87
7871.78	1528.95	7891.06	1529.89	7904.7	1529.21	7910.33	1528.83	7913.86	1528.72
7922.05	1529.5	7931.85	1528.83	7953.7	1529.98	8036.7	1529.98	8236.25	1530
8239.67	1530	8644.73	1530	8645.03	1530	8645.21	1530	8745.03	1529.49
8845.01	1529.61	8945.02	1529.66	9045.02	1529.64	9145.02	1529.61	9233.75	1530
9245.02	1530.05	9345.02	1530.41	9445.03	1530.31	9475.52	1530.46	9479.5	1530
9481.52	1529.74	9484.13	1530	9489.39	1530.53	9505.75	1530.63	9517.38	1530.22
9526.37	1530.58	9545.03	1530.43	9568.28	1530.29	9569.95	1530	9571.84	1529.64
9577.31	1530	9584.88	1530.51	9645.03	1530.22	9745.03	1530.17	9845.01	1530.22
9862.77	1530	9927.34	1528.64	9934.33	1528.35	9943.72	1530	9945.26	1530.24
9960.81	1530	9998.18	1529.36	10003.43		152810009.33	1526.53	10012.28	1526.99
10016.69	1528	10023.7	1529.57	10039.96	1529.55	10043.03	1528	10047	1526.11
10047.82		152610048.02		152610053.39		152810058.47	1529.44	10108.08	1530
10114.38	1530.07	10115.05		153010125.73	1528.91	10138.16	1529.85	10161.24	1529.84
10261.26	1529.82	10278.83		153010312.33	1530.34	10313.25	1530	10316.5	1529.02
10321.59		153010322.47	1530.07	10969.02	1529.97	11069.03	1530.06	11169.03	1530.21
11269.02	1530.26	11369.04	1530.48	11469.03	1530.92	11569.02	1531.09	11669.04	1530.94
11769.03	1530.75	11869.02	1530.99	11977.62		153012030.83	1529.28	12036.02	1528.3
12044.89	1529.73	12072.62	1530	12092.7	1530.19	12408.94	1530.71	12455.89	1530.89
12586.75	1531.11	12725.17	1531.14						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7596.34	.05	9845.01	.05	10321.59	.05

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Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9845.0110321.59           501.22  506.04  405.75              .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
11666.3412725.17    1532
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 7596.34  7618.9    1532
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CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1530.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1530.70	Reach Len. (ft)	501.22	506.04	405.75
Crit W.S. (ft)	1530.32	Flow Area (sq ft)	1776.25	553.02	650.62
E.G. Slope (ft/ft)	0.007021	Area (sq ft)	1776.25	553.02	874.88
Q Total (cfs)	6466.00	Flow (cfs)	3807.57	1515.12	1143.32
Top Width (ft)	4305.08	Top Width (ft)	2222.75	476.58	1605.75
Vel Total (ft/s)	2.17	Avg. Vel. (ft/s)	2.14	2.74	1.76
Max Chl Dpth (ft)	4.70	Hydr. Depth (ft)	0.80	1.16	0.59
Conv. Total (cfs)	77167.5	Conv. (cfs)	45440.8	18081.9	13644.8
Length Wtd. (ft)	484.01	Wetted Per. (ft)	2223.98	479.21	1097.52
Min Ch El (ft)	1526.00	Shear (lb/sq ft)	0.35	0.51	0.26
Alpha	1.06	Stream Power (lb/ft s)	0.75	1.39	0.46
Frctn Loss (ft)	2.83	Cum Volume (acre-ft)	1183.39	357.64	400.47
C & E Loss (ft)	0.00	Cum SA (acres)	821.95	275.16	496.02

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7596.34	7821.21	744.06	265.52	199.80	11.51	1.33	2.80
7821.21	8046.07	512.73	222.71	225.05	7.93	0.99	2.30
8046.07	8270.94	293.46	159.29	224.87	4.54	0.71	1.84
8270.94	8495.81	287.92	157.48	224.87	4.45	0.70	1.83
8495.81	8720.67	333.61	172.03	224.87	5.16	0.77	1.94
8720.67	8945.54	622.25	250.06	224.87	9.62	1.11	2.49
8945.54	9170.41	574.20	238.29	224.87	8.88	1.06	2.41
9170.41	9395.28	192.45	123.67	224.87	2.98	0.55	1.56
9395.28	9620.14	84.91	75.71	225.05	1.31	0.34	1.12
9620.14	9845.01	161.97	111.51	224.87	2.51	0.50	1.45
LB 9845.01	9940.33	365.75	125.96	95.43	5.66	1.32	2.90
9940.33	10035.64	409.13	135.08	96.07	6.33	1.42	3.03
10035.64	10130.96	406.81	135.01	96.76	6.29	1.42	3.01
10130.96	10226.27	187.13	84.22	95.34	2.89	0.88	2.22
10226.27	RB 10321.59	146.30	72.75	95.62	2.26	0.76	2.01
10321.59	10561.95	280.75	155.97	240.36	4.34	0.65	1.80
10561.95	10802.31	307.97	164.88	240.36	4.76	0.69	1.87
10802.31	11042.66	327.13	170.96	240.36	5.06	0.71	1.91
11042.66	11283.02	197.25	126.20	240.36	3.05	0.53	1.56
11283.02	11523.38	30.21	32.61	136.08	0.47	0.24	0.93

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 18.356

INPUT
Description: "Eastern Diversion" at southern end of cross section
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7979.69	1526	8040.32	1526.64	8048.37	1528	8050.39	1528.34	8053.28	1528
8067.48	1526.26	8068.47	1526	8075.08	1524	8077.29	1523.3	8080.38	1524
8089.35	1526	8092.04	1526.55	8128.78	1526.52	8138.57	1526.06	8148.23	1526.95
8208.68	1526.82	8214.43	1526.33	8220.79	1526.81	8237.8	1526.81	8464.31	1527.02
8974.22	1527.38	9074.21	1527.19	9174.22	1527.41	9274.21	1527.41	9374.22	1527.51
9474.21	1527.19	9574.23	1526.85	9582.18	1526.97	9588.34	1526.59	9600.54	1527.16
9623.24	1526.91	9633.09	1526.67	9649.14	1527.22	9674.22	1526.97	9774.24	1526.77

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 9777.08  1526.9 9908.47 1526.15 9911.46    1526 9922.03 1525.08 9930.34  1525.9
 9954.52 1524.99 9970.29    1526 9978.18 1526.87 9998.19    152610001.67 1525.82
10010.56 1524.2110013.36    152410019.68 1523.0210025.31    152410036.93 1525.89
10040.11    152610064.61 1526.7310070.48    152610075.14 1525.5210080.56    1526
10086.12 1526.4710090.46 1526.8410161.88  1526.410162.88    152610167.12    1524
10168.26 1523.6710169.57    152410177.21    1526 10178.9 1526.4510206.54 1526.06
10206.75    1526 10212.8 1524.1910223.84    152610227.22  1526.610275.16 1526.69
10279.62    152610289.25  1524.610297.68    152610302.95 1526.8110596.03 1526.86
10696.05 1526.9610762.58 1526.7610796.04 1527.0110896.03 1526.9910996.05 1527.16
11096.04 1527.2111196.04 1527.2811296.05 1527.6211396.04 1527.7711496.04 1527.82
 11592.4    152811596.05 1528.0411598.81    152811604.92 1527.9311610.06 1527.39
11618.11    152811646.49    152811760.36 1527.8211763.25  1527.311768.29 1528.08
11784.19    152811826.05 1527.8212045.25    152812434.34 1528.8912534.36 1528.84

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
 7979.69     .05 9908.47     .0510302.95     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9908.4710302.95            303.03   284.7  201.78              .3       .5
Blocked Obstructions      num=        1
   Sta L   Sta R    Elev
 7979.69 8050.93    1529
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CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1527.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1527.85	Reach Len. (ft)	303.03	284.70	201.78
Crit W.S. (ft)	1527.50	Flow Area (sq ft)	1487.97	750.05	847.56
E.G. Slope (ft/ft)	0.004946	Area (sq ft)	1487.97	750.05	847.56
Q Total (cfs)	6466.00	Flow (cfs)	2684.83	2395.66	1385.51
Top Width (ft)	3541.24	Top Width (ft)	1853.98	394.48	1292.78
Vel Total (ft/s)	2.10	Avg. Vel. (ft/s)	1.80	3.19	1.63
Max Chl Dpth (ft)	4.83	Hydr. Depth (ft)	0.80	1.90	0.66
Conv. Total (cfs)	91940.1	Conv. (cfs)	38175.6	34063.9	19700.6
Length Wtd. (ft)	277.83	Wetted Per. (ft)	1855.01	397.03	1292.92
Min Ch El (ft)	1523.02	Shear (lb/sq ft)	0.25	0.58	0.20
Alpha	1.30	Stream Power (lb/ft s)	0.45	1.86	0.33
Frctn Loss (ft)	1.70	Cum Volume (acre-ft)	1164.61	350.07	392.45
C & E Loss (ft)	0.01	Cum SA (acres)	798.50	270.10	482.52

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7979.69	8172.57	469.12	182.22	119.02	7.26	1.54	2.57
8172.57	8365.45	378.86	194.45	192.92	5.86	1.01	1.95
8365.45	8558.32	278.90	161.80	192.88	4.31	0.84	1.72
8558.32	8751.20	204.86	134.45	192.88	3.17	0.70	1.52
8751.20	8944.08	142.60	108.19	192.88	2.21	0.56	1.32
8944.08	9136.96	143.01	108.37	192.88	2.21	0.56	1.32
9136.96	9329.84	95.66	85.14	192.88	1.48	0.44	1.12
9329.84	9522.71	130.09	102.39	192.88	2.01	0.53	1.27
9522.71	9715.59	314.16	173.79	192.92	4.86	0.90	1.81
9715.59	9908.47	527.57	237.17	192.88	8.16	1.23	2.22
LB 9908.47	9987.37	560.25	166.75	79.09	8.66	2.11	3.36
9987.37	10066.26	695.28	190.12	79.40	10.75	2.41	3.66
10066.26	10145.16	265.60	106.51	79.01	4.11	1.35	2.49
10145.16	10224.05	537.13	163.54	80.25	8.31	2.07	3.28
10224.05	RB 10302.95	337.38	123.12	79.28	5.22	1.56	2.74
10302.95	10526.09	428.22	228.17	223.14	6.62	1.02	1.88
10526.09	10749.23	389.67	215.61	223.14	6.03	0.97	1.81
10749.23	10972.37	322.89	192.61	223.14	4.99	0.86	1.68
10972.37	11195.51	198.51	143.86	223.14	3.07	0.64	1.38
11195.51	11418.66	43.47	57.83	223.14	0.67	0.26	0.75
11418.66	11641.80	1.95	6.63	104.83	0.03	0.06	0.29
11641.80	11864.94	0.82	2.87	72.38	0.01	0.04	0.29

Warning: Divided flow computed for this cross-section.

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 18.302

INPUT
Description: "Eastern Diversion" at southern end of cross section
Station Elevation Data num= 89

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8343.07	1523.86	8357.67	1524	8430.38	1524.77	8440.11	1526	8440.94	1526.11
8441.89	1526	8453.5	1524.66	8459.45	1524	8467.96	1523.07	8477.38	1524
8481.81	1524.37	8485.3	1524.31	8585.29	1524.73	8685.28	1524.85	8785.29	1524.7
8797.9	1525.25	8872.6	1526	8885.28	1526.13	8948.67	1526	8965.19	1525.97
8985.29	1525.74	9085.28	1525.79	9111.82	1526	9158.91	1526	9185.29	1525.77
9204.84	1525.82	9285.28	1525.72	9385.27	1525.16	9471.21	1524.91	9485.29	1524.68
9508.58	1525.14	9585.28	1525.72	9685.31	1525.4	9776.11	1525.08	9924.57	1524.49
9926.95	1524	9933.21	1522.76	9943.68	1522.59	9951.23	1524	9955.5	1524.83
10001.96	152410002.71		1523.8710013.27		1522.0410025.23		152410029.01		1524.61
10168.41	1524.8510173.79		1524.3110188.64		1524.7510191.51		152410198.24		1522.23
10207.87	1524	10211	1524.5510255.92		1524.6210289.58		1524.1510317.45		1525.58
10317.75	1525.1510417.77		1525.6710517.76		1525.5210617.76		1525.7110640.59		1525.62
10717.75	1525.7110817.76		1525.410917.76		1525.5911017.75		1525.411117.77		1525.91
11295.97	1525.4111341.37		1525.5411378.36		152611379.36		1526.0111379.47		1526
11383.69	1525.5411389.03		152611389.52		1526.0411395.79		152611419.66		1525.84
11422.27	152611427.12		1526.2311564.97		1526.1111664.99		1526.411746.55		1526
11764.98	1525.9111864.97		1525.8411964.96		1525.9811968.46		152612064.98		1526.47
12164.97	1526.8412264.97		1526.8612364.98		1527.1112464.97		1527.33		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8343.07	.05	9924.57	.0510317.75		.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9924.5	710317.75		299.49	284.73	297.8	.3	.5

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8343.07	8440.73	1527

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1526.23	Element			
Vel Head (ft)	0.14	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1526.09	Reach Len. (ft)	299.49	284.73	297.80
Crit W.S. (ft)		Flow Area (sq ft)	1209.80	680.67	591.38
E.G. Slope (ft/ft)	0.007796	Area (sq ft)	1209.80	680.67	591.38
Q Total (cfs)	6466.00	Flow (cfs)	2963.75	2568.16	934.08
Top Width (ft)	3217.91	Top Width (ft)	1459.79	393.18	1364.94
Vel Total (ft/s)	2.61	Avg. Vel. (ft/s)	2.45	3.77	1.58
Max Chl Dpth (ft)	4.05	Hydr. Depth (ft)	0.83	1.73	0.43
Conv. Total (cfs)	73231.2	Conv. (cfs)	33566.2	29085.9	10579.0
Length Wtd. (ft)	293.21	Wetted Per. (ft)	1460.07	394.78	1365.00
Min Ch El (ft)	1522.04	Shear (lb/sq ft)	0.40	0.84	0.21
Alpha	1.29	Stream Power (lb/ft s)	0.99	3.17	0.33
Frctn Loss (ft)	1.73	Cum Volume (acre-ft)	1155.23	345.39	389.12
C & E Loss (ft)	0.01	Cum SA (acres)	786.97	267.53	476.36

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8343.07	8501.22	370.26	107.46	60.40	5.73	1.79	3.45
8501.22	8659.37	675.55	226.55	158.15	10.45	1.43	2.98
8659.37	8817.52	515.25	192.58	158.16	7.97	1.22	2.68
8817.52	8975.67	20.54	26.11	134.44	0.32	0.19	0.79
8975.67	9133.82	41.38	42.41	158.15	0.64	0.27	0.98
9133.82	9291.97	40.23	41.70	158.15	0.62	0.26	0.96
9291.97	9450.12	263.35	128.73	158.15	4.07	0.81	2.05
9450.12	9608.27	267.14	129.84	158.16	4.13	0.82	2.06
9608.27	9766.42	206.13	111.14	158.15	3.19	0.70	1.85
9766.42	9924.57	563.92	203.28	158.15	8.72	1.29	2.77

LB 9924.57	10003.21	702.79	165.88	79.05	10.87	2.11	4.24
10003.21	10081.84	602.42	151.20	78.99	9.32	1.92	3.98
10081.84	10160.48	323.19	103.87	78.64	5.00	1.32	3.11
10160.48	10239.11	548.60	143.09	79.20	8.48	1.82	3.83
10239.11	RB 10317.75	391.18	116.63	78.90	6.05	1.48	3.35
10317.75	10532.47	226.43	125.57	214.72	3.50	0.58	1.80
10532.47	10747.19	140.35	94.24	214.72	2.17	0.44	1.49
10747.19	10961.92	222.61	124.29	214.72	3.44	0.58	1.79
10961.92	11176.64	140.77	94.41	214.72	2.18	0.44	1.49
11176.64	11391.36	165.63	104.10	214.77	2.56	0.48	1.59
11391.36	11606.08	3.56	4.91	32.80	0.06	0.15	0.73
11606.08	11820.80	10.75	14.40	92.50	0.17	0.16	0.75
11820.80	12035.53	23.98	29.45	166.03	0.37	0.18	0.81

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 18.248

INPUT
Description: "Eastern Diversion" at southern end of cross section
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8657.05	1522.89	8693.41	1522.86	8698.16	1524	8702.54	1524.87	8706.24	1524
8710.19	1523.08	8720.04	1522.79	8724.63	1522	8724.95	1521.96	8725.43	1522
8750.81	1523.82	8766.46	1524	8798.49	1524.36	8898.48	1524.6	8952.99	1524.4
8979.48	1524.24	8982.38	1524	8985.5	1523.8	8987.5	1524	8991.29	1524.33
8996.29	1524	8998.49	1523.86	9003.55	1524	9018.93	1524.44	9023.75	1524
9025.11	1523.87	9026.98	1524	9034.31	1524.51	9098.48	1524.17	9117.04	1524
9198.47	1523.71	9298.49	1523.28	9363.16	1523.41	9366	1522.73	9373.47	1523.23
9398.48	1523.03	9498.49	1523.9	9598.46	1523.53	9776.49	1522.96	9914.69	1522.71
9925.07	1522.53	9929.16	1522	9939.81	1520.85	9949.01	1520.69	9961.31	1522
9966.78	1522.6	9980.18	1522.1	9980.6	1522	9988.95	1520.06	9999.27	1522
10002.92	1522.71	10066.34	1522.28	10069.17	1522	10076.21	1521.31	10096.22	1522
10115.93	1522.68	10118.65	1522	10125.91	1520.33	10134.05	1522	10139.26	1523.04
10150.83	1522.29	10152.64	1522	10158.85	1521.03	10165.94	1522	10172.25	1522.87
10187.18	1522	10191	1521.87	10193.07	1522	10230.92	1522.83	10266.99	1523.04
10330.94	1523.21	10430.93	1523.2	10476.8	1523.11	10530.92	1523.17	10630.91	1523.32
10730.93	1523.37	10830.93	1523.37	10930.92	1523.17	11030.93	1523.66	11049.07	1523.18
11055.14	1524	11055.26	1524.01	11063.98	1524	11081.25	1523.85	11088.88	1522.93
11100.6	1523.87	11122.23	1524	11143.04	1524	11236.84	1523.61	11241	1523.83
11254.53	1523.61	11478.14	1523.91	11578.15	1523.93	11634.79	1524	11678.14	1524.05
11778.14	1524.37	11878.13	1524.42	11978.15	1524.69	12078.14	1524.93	12178.13	1524.86
12278.15	1525.08	12378.14	1525.03						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8657.05	.05	9914.69	.05	10230.92	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9914.69	10230.92	357.93	394.82	548.56	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
11305	12378.14	1525

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8657.05	8702.47	1525.5

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1524.48	Element			
Vel Head (ft)	0.11	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1524.37	Reach Len. (ft)	357.93	394.82	548.56
Crit W.S. (ft)	1523.88	Flow Area (sq ft)	909.78	731.56	1058.72
E.G. Slope (ft/ft)	0.004653	Area (sq ft)	909.78	731.56	1256.14
Q Total (cfs)	6466.00	Flow (cfs)	1755.21	2585.31	2125.49
Top Width (ft)	2883.58	Top Width (ft)	1020.93	316.23	1546.42
Vel Total (ft/s)	2.39	Avg. Vel. (ft/s)	1.93	3.53	2.01
Max Chl Dpth (ft)	4.31	Hydr. Depth (ft)	0.89	2.31	0.99
Conv. Total (cfs)	94790.8	Conv. (cfs)	25731.2	37900.3	31159.4
Length Wtd. (ft)	460.59	Wetted Per. (ft)	1021.43	317.83	1074.25
Min Ch El (ft)	1520.06	Shear (lb/sq ft)	0.26	0.67	0.29
Alpha	1.28	Stream Power (lb/ft s)	0.50	2.36	0.57

Frctn Loss (ft)	2.78	Cum Volume (acre-ft)	1147.94	340.78	382.80
C & E Loss (ft)	0.01	Cum SA (acres)	778.44	265.21	466.41

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8657.05	8782.81	142.97	77.28	78.43	2.21	0.99	1.85
8782.81	8908.58	0.52	1.51	18.78	0.01	0.08	0.35
8908.58	9034.34	9.84	14.88	70.65	0.15	0.21	0.66
9034.34	9160.11	22.62	28.05	98.89	0.35	0.28	0.81
9160.11	9285.87	151.06	96.49	125.76	2.34	0.77	1.57
9285.87	9411.63	285.27	141.34	125.86	4.41	1.12	2.02
9411.63	9537.40	145.66	94.40	125.77	2.25	0.75	1.54
9537.40	9663.16	174.26	105.12	125.76	2.69	0.84	1.66
9663.16	9788.93	338.56	156.59	125.77	5.24	1.25	2.16
9788.93	9914.69	484.46	194.14	125.76	7.49	1.54	2.50
LB 9914.69	9977.94	609.32	161.70	63.46	9.42	2.56	3.77
9977.94	10041.18	502.51	144.29	63.73	7.77	2.28	3.48
10041.18	10104.43	529.49	148.50	63.31	8.19	2.35	3.57
10104.43	10167.67	544.72	151.70	64.00	8.42	2.40	3.59
10167.67	RB 10230.92	399.27	125.38	63.33	6.17	1.98	3.18
10230.92	10445.64	602.77	265.57	214.72	9.32	1.24	2.27
10445.64	10660.36	536.07	247.52	214.72	8.29	1.15	2.17
10660.36	10875.09	431.70	217.36	214.72	6.68	1.01	1.99
10875.09	11089.81	377.16	200.49	214.84	5.83	0.93	1.88
11089.81	11304.53	177.28	127.44	214.77	2.74	0.59	1.39
11304.53	11519.25	0.50	0.32	0.47	0.01	0.69	1.54

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 18.173

INPUT
Description:
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8890.55	1522.77	8942.96	1522	8959.84	1521.75	8965.59	1520	8967.06	1519.49
8968.81	1520	8974.66	1521.75	8984.71	1521.5	8996.79	1521.26	8996.8	1521.09
9009.29	1521.56	9016.53	1520.98	9022.6	1521.65	9030.21	1521.73	9036.48	1521.08
9046.35	1521.96	9090.55	1521.82	9190.54	1521.15	9720.87	1521.09	9765.39	1521.08
9798.81	1520.84	9824.05	1520.36	9944.05	1520.31	9945.4	1520	9949.5	1519.05
9955.77	1520	9957.08	1520.2	9982.66	1520	9984.13	1519.99	9990.83	1518.65
10001.55	1519.58	10020.28	152	10035.67	1520.34	10037.89	152	10047.66	1518.33
10061.43	1519.78	10103.87	152	10115.02	1520.06	10115.49	152	10120.82	1519.3
10130.73	152	10133.66	1520.23	10163.17	1520.42	10165.19	1520	10168.9	1519.17
10175.96	152	10179.24	1520.39	10208	1520.72	10211.76	152	10212.53	1519.85
10213.94	152	10217.82	1520.42	10440.27	152	10482.66	152	10526.41	1520
10584.46	1520.13	10585.27	152	10588.58	1519.52	10596.27	152	10596.71	1520.03
10599.87	1520	10623.3	152	10633.43	1520.19	10635.95	152	10643.33	1519.17
10655.38	152	10659.08	1520.34	10676.46	152	10682.12	1519.9	10686.6	1519.54
10695.43	152	10701.55	1520.28	10737.35	1520	10744.5	1519.94	10754.24	1519.29
10760.21	152	10762.17	1520.22	10774.26	152	10783.36	1519.84	10787.37	1519.15
10795.2	1519.99	10874.31	152	10934.28	1520.37	11034.28	1520.59	11134.28	1520.94
11234.28	1521.11	11334.28	1521.25	11434.27	1521.43	11534.27	1521.43	11634.27	1521.45
11734.27	1521.65	11744.59	1521.89	11750.83	1521.46	11772.06	1521.86	11776.36	1521.33
11780.86	152	11783.17	1522.31	11816.89	152	11834.58	1521.84	11862.61	1522
11934.58	1522.41	12034.6	1522.6						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8890.55	.05	9944.05	.05	10217.82	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9944.05	10217.82	510.37	485.8	404.15	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev

11185 12034.6 1522

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1521.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1521.53	Reach Len. (ft)	510.37	485.80	404.15
Crit W.S. (ft)	1521.03	Flow Area (sq ft)	458.00	442.46	1259.26
E.G. Slope (ft/ft)	0.008133	Area (sq ft)	458.00	442.46	1357.52
Q Total (cfs)	6466.00	Flow (cfs)	814.00	1628.93	4023.08
Top Width (ft)	2608.49	Top Width (ft)	870.04	273.77	1464.67
Vel Total (ft/s)	2.99	Avg. Vel. (ft/s)	1.78	3.68	3.19
Max Chl Dpth (ft)	3.20	Hydr. Depth (ft)	0.53	1.62	1.30
Conv. Total (cfs)	71698.4	Conv. (cfs)	9026.0	18062.4	44609.9
Length Wtd. (ft)	451.24	Wetted Per. (ft)	870.93	274.83	967.56
Min Ch El (ft)	1518.33	Shear (lb/sq ft)	0.27	0.82	0.66
Alpha	1.13	Stream Power (lb/ft s)	0.47	3.01	2.11
Frctn Loss (ft)	3.00	Cum Volume (acre-ft)	1142.32	335.46	366.35
C & E Loss (ft)	0.03	Cum SA (acres)	770.67	262.54	447.45

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8890.55	8995.90	24.85	15.13	26.41	0.38	0.59	1.64
8995.90	9101.25	7.56	8.21	34.15	0.12	0.24	0.92
9101.25	9206.60	15.28	16.96	72.91	0.24	0.23	0.90
9206.60	9311.95	51.95	40.95	105.35	0.80	0.39	1.27
9311.95	9417.30	54.63	42.20	105.35	0.84	0.40	1.29
9417.30	9522.65	57.36	43.45	105.35	0.89	0.41	1.32
9522.65	9628.00	60.16	44.71	105.35	0.93	0.42	1.35
9628.00	9733.35	63.03	45.98	105.35	0.97	0.44	1.37
9733.35	9838.70	139.63	74.11	105.36	2.16	0.70	1.88
9838.70	9944.05	339.57	126.31	105.35	5.25	1.20	2.69
LB 9944.05	9998.80	383.82	98.42	55.15	5.94	1.80	3.90
9998.80	10053.56	411.04	102.42	54.97	6.36	1.87	4.01
10053.56	10108.31	353.45	93.43	54.80	5.47	1.71	3.78
10108.31	10163.07	266.96	78.97	54.84	4.13	1.44	3.38
10163.07	RB 10217.82	213.66	69.22	55.08	3.30	1.26	3.09
10217.82	10399.50	714.97	232.97	181.68	11.06	1.28	3.07
10399.50	10581.18	932.33	273.20	181.68	14.42	1.50	3.41
10581.18	10762.85	1010.81	286.95	181.95	15.63	1.58	3.52
10762.85	10944.53	905.16	268.46	181.79	14.00	1.48	3.37
10944.53	11126.21	402.37	165.01	181.68	6.22	0.91	2.44
11126.21	11307.89	57.40	32.67	58.79	0.89	0.56	1.76

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 18.081

INPUT
Description:
Station Elevation Data num= 92

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8098.03	1520.86	8102.76	1521.26	8106.99	1520.59	8113.43	1521.3	8147.09	1520.77
8154.66	1520.18	8165.07	1520.75	8291.57	1520	8408.48	1520	8509.67	1520
8617.4	1520	8666.04	1519.42	8692.89	1518.79	8723.09	1518.67	8879.05	1518.73
8943.18	1519.39	8945.14	1518	8947.99	1516	8948.95	1515.33	8950.37	1516
8954.69	1518	8957.52	1519.21	8979.06	1518.83	9079.05	1518.17	9107.85	1518
9179.07	1517.57	9279.06	1517.55	9691.35	1517.36	9817.89	1517.28	9958.89	1517.42
9964.59	1516.18	9972.34	1517.62	10024.35	1517.48	10028.63	1516.64	10033.91	1517.59
10103.66	1517.16	10147.2	1517.31	10154.3	1516.43	10160.9	1517.04	10178.75	1517.01
10184.14	1516.53	10203.66	1516.79	10279.32	1516.21	10287.21	1516.94	10303.66	1516.65
10330.53	1516.51	10334.82	1516	10337.53	1515.61	10342.27	1516	10348.17	1516.44
10446.11	1516.24	10447.39	1516	10453.33	1514.86	10459.16	1516	10462.27	1516.6
10496.18	1516.76	10501.45	1516	10504.65	1515.55	10518.82	1516	10527.28	1516.52
10533.61	1516.79	10627.27	1516.84	10727.27	1517.53	10827.27	1517.75	10927.27	1517.9

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10949.66    151811027.27 1518.3611127.27 1518.5811227.26 1518.6611327.26  1518.9
11427.26 1518.9511527.26  1519.111627.26 1519.4211634.84 1519.5511644.54  1518.8
11650.77 1519.8511727.26 1519.4411827.25 1519.4911927.25 1519.6111955.26 1519.56
11961.98 1518.8811966.76  1519.611970.34  1519.511975.92 1518.43 11985.4 1519.52
12024.53 1519.4412026.85 1518.8112027.28 1518.6812035.17    152012035.26 1520.01
12036.86    152012127.28 1519.24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 8098.03     .05 9958.89     .0510348.17     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9958.8910348.17           357.17  430.67  405.55              .3       .5
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 8098.03 8941.23    152111652.4712127.28    1521

CROSS SECTION OUTPUT    Profile #PF 2

  E.G. Elev (ft)            1518.67   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.10   Wt. n-Val.                0.050      0.050      0.050
  W.S. Elev (ft)            1518.56   Reach Len. (ft)          357.17     430.67     405.55
  Crit W.S. (ft)                      Flow Area (sq ft)        984.40     627.36     940.06
  E.G. Slope (ft/ft)       0.005474   Area (sq ft)             984.40     627.36     940.06
  Q Total (cfs)             6466.00   Flow (cfs)              2214.26    1893.85    2357.89
  Top Width (ft)            2111.33   Top Width (ft)           950.94     389.28     771.11
  Vel Total (ft/s)             2.53   Avg. Vel. (ft/s)           2.25       3.02       2.51
  Max Chl Dpth (ft)            3.70   Hydr. Depth (ft)           1.04       1.61       1.22
  Conv. Total (cfs)         87397.3   Conv. (cfs)             29928.9    25598.1    31870.3
  Length Wtd. (ft)           394.92   Wetted Per. (ft)         952.67     389.95     771.53
  Min Ch El (ft)            1515.60   Shear (lb/sq ft)           0.35       0.55       0.42
  Alpha                        1.04   Stream Power (lb/ft s)     0.79       1.66       1.04
  Frctn Loss (ft)              2.36   Cum Volume (acre-ft)    1133.87     329.49     355.69
  C & E Loss (ft)              0.00   Cum SA (acres)           760.01     258.84     437.08


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 2

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                 (ft)     (ft/s)
  8842.37       9028.46          36.55      18.95     22.24       0.57       0.92       1.93
  9028.46       9214.55         181.26     115.85    186.09       2.80       0.62       1.56
  9214.55       9400.63         418.42     191.37    186.09       6.47       1.03       2.19
  9400.63       9586.72         476.10     206.79    186.09       7.36       1.11       2.30
  9586.72       9772.80         541.22     223.32    186.09       8.37       1.20       2.42
  9772.80       9958.89         560.71     228.11    186.09       8.67       1.23       2.46
  LB 9958.89    10036.75        220.15      92.44     78.29       3.40       1.19       2.38
  10036.75      10114.60        231.97      95.17     77.86       3.59       1.22       2.44
  10114.60      10192.46        342.37     120.28     77.96       5.29       1.54       2.85
  10192.46      10270.31        529.42     156.15     77.86       8.19       2.01       3.39
  10270.31      RB 10348.17     569.93     163.32     77.99       8.81       2.10       3.49
  10348.17      10526.08       1271.19     405.43    178.32      19.66       2.28       3.14
  10526.08      10703.99        728.59     290.06    177.92      11.27       1.63       2.51
  10703.99      10881.90        271.11     160.28    177.91       4.19       0.90       1.69
  10881.90      11059.81         85.86      80.40    177.91       1.33       0.45       1.07
  11059.81      11237.72          1.15       3.89     59.46       0.02       0.07       0.29


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

CROSS SECTION          RIVER: Vineyard Spillwa
REACH: Vineyard           RS: 18.000

INPUT
Description:
Station Elevation Data    num=      88
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 8086.07 1518.42 8178.34    1518 8446.63  1517.3 8541.06 1516.41 8543.07    1516
 8547.91 1514.81 8555.38    1516 8557.65 1516.32 8574.46  1516.3 8579.24    1516
 8583.61 1515.71 8587.38    1516 8593.16 1516.45 8609.85 1516.73 8614.55 1516.04
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 8623.45 1516.96 8744.85 1517.38 8818.72 1516.77  8848.3 1516.23    8849    1516
 8854.95    1514  8860.5 1512.06  8865.9    1514    8871 1515.93 9022.91    1516
 9025.53    1516 9427.08 1515.08 9807.82 1514.91 9823.11 1514.43 9824.03    1514
 9827.34 1512.55 9836.13    1514 9839.97 1514.63  9929.7 1514.8810033.76 1515.21
10037.03    151410041.16 1512.3410048.76    151410053.58 1515.0610107.72 1515.07
10117.12 1514.2510124.17 1514.9210178.87  1515.110191.51 1514.9710199.16 1514.12
 10204.8 1514.8510242.29  1514.410245.46    151410249.98 1513.4910255.04    1514
10257.89 1514.2610425.81    151410426.22 1513.9710426.65    151410500.52 1514.58
10540.58 1514.2710640.58 1514.7610740.58  1515.210840.58 1515.4910940.58 1515.74
11040.58 1515.7111137.89    151611140.58 1516.0111240.57 1516.1811340.57 1516.45
11440.57 1516.4211525.93 1516.6311531.08    151611533.09 1515.7811534.38    1516
11539.09 1516.8411568.08 1516.6711575.77 1516.1611581.24 1516.7211626.94 1516.72
11630.73 1516.0311638.77 1516.9211756.81  1516.211759.42 1516.5611762.17    1516
11764.25 1515.5911767.36    151611773.22 1516.8711856.82 1516.2311919.02    1516
11956.81 1515.8612045.16    151612056.81 1515.98

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 8086.07     .05  9929.7     .0510257.89     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9929.710257.89           499.55  496.48   527.1              .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 8086.07 8744.85  151811539.0912056.81    1518

CROSS SECTION OUTPUT    Profile #PF 2

  E.G. Elev (ft)            1516.30   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.10   Wt. n-Val.                0.050      0.050      0.050
  W.S. Elev (ft)            1516.20   Reach Len. (ft)          499.55     496.48     527.10
  Crit W.S. (ft)                      Flow Area (sq ft)       1007.03     453.65    1090.80
  E.G. Slope (ft/ft)       0.006580   Area (sq ft)            1007.03     453.65    1090.80
  Q Total (cfs)             6466.00   Flow (cfs)              2312.31    1354.02    2799.67
  Top Width (ft)            2406.08   Top Width (ft)          1081.31     328.19     996.58
  Vel Total (ft/s)             2.53   Avg. Vel. (ft/s)           2.30       2.98       2.57
  Max Chl Dpth (ft)            4.14   Hydr. Depth (ft)           0.93       1.38       1.09
  Conv. Total (cfs)         79712.7   Conv. (cfs)             28506.1    16692.3    34514.2
  Length Wtd. (ft)           507.33   Wetted Per. (ft)        1083.27     329.28     996.65
  Min Ch El (ft)            1512.34   Shear (lb/sq ft)           0.38       0.57       0.45
  Alpha                        1.03   Stream Power (lb/ft s)     0.88       1.69       1.15
  Frctn Loss (ft)              3.46   Cum Volume (acre-ft)    1125.71     324.15     346.23
  C & E Loss (ft)              0.01   Cum SA (acres)           751.67     255.29     428.85


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 2

  Left Sta      Right Sta        Flow       Area       W.P.     % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                 (ft)      (ft/s)
  8823.52       9007.88         112.03     81.04     160.88       1.73       0.51       1.38
  9007.88       9192.25          78.21     68.98     184.36       1.21       0.37       1.13
  9192.25       9376.61         274.30    146.45     184.36       4.24       0.79       1.87
  9376.61       9560.97         491.43    207.80     184.36       7.60       1.13       2.36
  9560.97       9745.34         562.42    225.32     184.36       8.70       1.22       2.50
  9745.34       9929.70         793.98    277.46     184.94      12.28       1.50       2.86
  LB 9929.70    9995.34         216.54     79.89      65.64       3.35       1.22       2.71
  9995.34       10060.98        300.26     97.69      66.47       4.64       1.49       3.07
  10060.98      10126.61        226.38     82.08      65.71       3.50       1.25       2.76
  10126.61      10192.25        206.82     77.72      65.64       3.20       1.18       2.66
  10192.25      RB 10257.89     404.01    116.27      65.82       6.25       1.77       3.47
  10257.89      10437.78       1190.60    373.67     179.89      18.41       2.08       3.19
  10437.78      10617.67        932.11    322.63     179.90      14.42       1.79       2.89
  10617.67      10797.57        451.20    208.76     179.89       6.98       1.16       2.16
  10797.57      10977.46        153.00    109.10     179.89       2.37       0.61       1.40
  10977.46      11157.35         68.88     67.59     179.89       1.07       0.38       1.02
  11157.35      11337.24          2.92      7.73      91.05       0.05       0.08       0.38
  11337.24      11517.13
  11517.13      11697.03          0.91      1.31       6.13       0.01       0.22       0.70


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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 17.906

INPUT
Description:
Station Elevation Data num= 119

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8028.04	1514.61	8133.63	1514	8133.66	1514	8151.26	1513.4	8318.33	1513.54
8323.27	1512	8323.36	1511.97	8323.46	1512	8329.02	1513.11	8387.85	1513.54
8393.31	1512	8396.53	1511.07	8400.41	1512	8406.43	1513.42	8434.77	1513.45
8445	1513.2	8463.55	1513.16	8470.33	1512.14	8474.26	1512.75	8611.14	1513.11
8738.53	1512	8762.31	1512	8763.29	1512.13	8763.79	1512	8768.64	1510
8770.21	1509.33	8773	1510	8778.6	1511.22	8807.44	1511.79	8812.48	1510
8813.32	1509.71	8815.43	1510	8827.29	1511.76	8910.79	1512	8927.36	1512.04
8938.71	1512	9027.37	1511.66	9116.03	1512	9127.37	1512.04	9227.38	1512.04
9327.35	1512.26	9427.35	1512.18	9560.65	1512	9853.86	1511.64	9867.16	1510.54
9875.36	1511.48	9925.97	1510.14	9940.89	1511.21	9976.98	1510.35	9978.34	1510
9986.04	1508	9990.73	1507.76	9991.43	1508	9997.33	1510	9999.46	1510.68
10004.26	1510	10008.17	1509.41	10014.39	1510	10019.24	1510.49	10035.55	1510.18
10045.65	1510.85	10131.32	1510.59	10141.02	1510	10145.55	1509.73	10147.65	1510
10155.62	1510.93	10179.29	1510.67	10187.26	1510	10192.01	1509.53	10197.44	1510
10207.51	1510.83	10256.52	1511.19	10300.62	1516.04	10364.87	1516.01	10412.96	1511.67
10715.18	1512	10806.09	1512.72	10808.77	1512	10813.2	1511.07	10814.8	1511.18
10825.39	1512	10832.86	1512.67	10842.43	1512	10842.95	1511.96	10845.53	1512
10925.08	1512.36	10955.75	1512	11066.56	1511.96	11091.12	1512	11166.56	1512.11
11266.56	1512.16	11366.56	1512.09	11368.37	1512.5	11376.9	1512	11383.65	1511.59
11392.2	1512	11424.54	1512.52	11466.56	1512.18	11477.99	1512.52	11483.89	1512
11490.09	1511.46	11495.65	1512	11501.17	1512.55	11533.79	1512	11539.95	1511.91
11545.16	1512	11566.56	1512.38	11598.8	1512.26	11600.66	1512	11603.98	1511.55
11608.01	1512	11612.33	1512.49	11666.56	1512.23	11766.55	1512.43	11866.55	1512.6
11966.55	1512.87	11984.68	1512.92	12053.41	1513.13	12066.55	1513.21		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8028.04	.05	9976.98	.05	10256.52	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9976.98	10256.52	434.39	456.2	444.62	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
11502.21	12066.55	1516

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8028.04	8611.14	1516

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1512.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1512.68	Reach Len. (ft)	434.39	456.20	444.62
Crit W.S. (ft)	1512.42	Flow Area (sq ft)	1110.78	621.75	697.58
E.G. Slope (ft/ft)	0.007202	Area (sq ft)	1110.78	621.75	819.53
Q Total (cfs)	6466.00	Flow (cfs)	2499.97	2664.55	1301.47
Top Width (ft)	3097.13	Top Width (ft)	1316.19	279.54	1501.40
Vel Total (ft/s)	2.66	Avg. Vel. (ft/s)	2.25	4.29	1.87
Max Chl Dpth (ft)	4.92	Hydr. Depth (ft)	0.84	2.22	0.63
Conv. Total (cfs)	76191.7	Conv. (cfs)	29458.3	31397.6	15335.8
Length Wtd. (ft)	443.66	Wetted Per. (ft)	1317.64	280.70	1109.00
Min Ch El (ft)	1507.76	Shear (lb/sq ft)	0.38	1.00	0.28
Alpha	1.44	Stream Power (lb/ft s)	0.85	4.27	0.53
Frctn Loss (ft)	3.46	Cum Volume (acre-ft)	1113.57	318.02	334.68
C & E Loss (ft)	0.01	Cum SA (acres)	737.93	251.83	413.74

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8612.72	8807.62	212.89	110.16	147.61	3.29	0.75	1.93
8807.62	9002.51	379.80	174.42	195.39	5.87	0.89	2.18

9002.51	9197.40	300.25	151.32	194.90	4.64	0.78	1.98
9197.40	9392.30	152.09	100.61	194.89	2.35	0.52	1.51
9392.30	9587.19	186.31	113.64	194.89	2.88	0.58	1.64
9587.19	9782.09	335.29	161.68	194.89	5.19	0.83	2.07
9782.09	9976.98	933.34	298.94	195.06	14.43	1.53	3.12
LB 9976.98	10032.89	864.15	169.00	56.84	13.36	3.02	5.11
10032.89	10088.80	427.57	110.09	55.93	6.61	1.97	3.88
10088.80	10144.70	489.50	119.40	55.93	7.57	2.14	4.10
10144.70	10200.61	540.54	126.84	56.06	8.36	2.27	4.26
10200.61	RB 10256.52	342.82	96.43	55.93	5.30	1.72	3.56
10256.52	10437.52	86.57	40.09	49.38	1.34	0.81	2.16
10437.52	10618.53	364.02	159.58	181.00	5.63	0.88	2.28
10618.53	10799.53	165.73	99.53	181.01	2.56	0.55	1.67
10799.53	10980.53	169.31	99.63	175.75	2.62	0.57	1.70
10980.53	11161.54	231.37	121.59	181.00	3.58	0.67	1.90
11161.54	11342.54	162.70	98.43	181.00	2.52	0.54	1.65
11342.54	11523.54	121.74	78.71	159.87	1.88	0.49	1.55

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 17.819

INPUT
Description:
Station Elevation Data num= 106

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7844.68	1510.74	7980.19	1510	8068.3	1509.72	8136.49	1509.37	8139.95	1508
8142.71	1506.99	8145.27	1508	8148.93	1509.45	8153.82	1510.07	8180.9	1509.78
8250.77	1509.59	8291.9	1509.26	8492.06	1508.35	8492.85	1508	8497.55	1506.7
8508.18	1507.82	8509.13	1507.76	8515.4	1506.19	8524.77	1506	8531.11	1504.99
8534.7	1506	8542.35	1508	8544.36	1508.41	8615.49	1508.41	8715.5	1508.03
8815.5	1508.12	8915.49	1508.22	9015.49	1508.1	9115.5	1508.63	9215.5	1508.78
9315.48	1508.75	9415.47	1508.92	9515.47	1508.61	9615.47	1508.53	9715.47	1508.43
9815.47	1508.12	9837.83	1508	9915.49	1507.6	9967.94	1508	9984.92	1508.13
9985.4	1508	9993.28	1506	9994.35	1505.75	9995.3	150	10002.79	1508
10004.15	1508.37	10012.12	150	10015.49	1507.85	10028.62	150	10057.19	1508.34
10058.93	150	10063.08	1506.93	10070.92	150	10072.78	1508.24	10102.32	1508
10115.49	1507.89	10123.29	150	10164.76	1508.56	10171.96	150	10177.34	1507.53
10191.15	1507.92	10202.1	1506.79	10215.49	1507.65	10217.09	1507.91	10315.49	1507.94
10346.22	1507.99	10351.73	1507.26	10360.75	150	10368.74	1508.6	10415.48	1508.19
10515.48	1508.38	10652.9	1508.47	10654.89	150	10658.73	1507.03	10662.39	1508
10665.58	1508.91	10693.65	1508.59	10698.19	150	10699.42	1507.82	10700.99	1508
10706.34	1508.62	10740.05	1508.04	10753.27	1508.51	10756.22	150	10757.78	1507.73
10760.27	150	10764.84	1508.49	10927.8	1508.51	11027.8	1508.7	11127.8	1508.83
11227.8	1509.12	11327.8	1509.19	11427.8	1509.17	11469.41	1509.39	11475.36	1509.8
11521.91	1509.66	11527.79	1508.78	11529.09	1508.64	11535.26	1508.51	11565.54	1509.94
11627.79	1509.63	11702.3	151	11727.79	1510.13	11827.79	1510.05	11927.79	1510.52
12027.79	1510.84								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7844.68	.05	9984.92	.05	10368.74	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9984.92	10368.74	447.96	499.97	459.45	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10860	12027.79	1510

Blocked Obstructions num= 1

Sta L	Sta R	Elev
7844.68	8153.82	1510

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1509.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1509.25	Reach Len. (ft)	447.96	499.97	459.45
Crit W.S. (ft)	1508.88	Flow Area (sq ft)	1479.90	518.65	424.02
E.G. Slope (ft/ft)	0.008427	Area (sq ft)	1479.90	518.65	644.01
Q Total (cfs)	6466.00	Flow (cfs)	3692.37	1725.89	1047.74
Top Width (ft)	3175.48	Top Width (ft)	1691.01	383.82	1100.65
Vel Total (ft/s)	2.67	Avg. Vel. (ft/s)	2.50	3.33	2.47

Max Chl Dpth (ft)	4.26	Hydr. Depth (ft)	0.88	1.35	0.86
Conv. Total (cfs)	70436.9	Conv. (cfs)	40222.6	18800.9	11413.4
Length Wtd. (ft)	463.30	Wetted Per. (ft)	1692.04	384.99	491.91
Min Ch El (ft)	1505.75	Shear (lb/sq ft)	0.46	0.71	0.45
Alpha	1.05	Stream Power (lb/ft s)	1.15	2.36	1.12
Frctn Loss (ft)	3.39	Cum Volume (acre-ft)	1100.65	312.05	327.21
C & E Loss (ft)	0.01	Cum SA (acres)	722.93	248.36	400.46

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8272.73	8486.75	122.47	84.53	192.84	1.89	0.44	1.45
8486.75	8700.78	852.50	282.85	215.05	13.18	1.32	3.01
8700.78	8914.80	661.79	242.51	214.02	10.23	1.13	2.73
8914.80	9128.82	506.38	206.53	214.03	7.83	0.97	2.45
9128.82	9342.85	172.10	108.09	214.02	2.66	0.51	1.59
9342.85	9556.87	162.20	104.31	214.03	2.51	0.49	1.55
9556.87	9770.90	359.65	168.20	214.02	5.56	0.79	2.14
9770.90	9984.92	855.29	282.86	214.03	13.23	1.32	3.02
LB 9984.92	10061.68	384.18	110.99	77.54	5.94	1.45	3.46
10061.68	10138.45	310.17	97.29	76.90	4.80	1.27	3.19
10138.45	10215.21	360.13	106.41	76.90	5.57	1.39	3.38
10215.21	10291.98	337.91	102.36	76.79	5.23	1.33	3.30
10291.98	RB 10368.74	333.51	101.60	76.86	5.16	1.32	3.28
10368.74	10534.65	395.57	153.16	165.91	6.12	0.92	2.58
10534.65	10700.55	324.83	136.25	166.39	5.02	0.82	2.38
10700.55	10866.46	327.33	134.61	159.61	5.06	0.84	2.43

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 17.725

INPUT
Description:
Station Elevation Data num= 105

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7608.74	1507.69	7832.35	1507.54	7972.19	1507.5	7980.38	1506	7980.46	1505.98
7980.57	1506	7987.52	1507.23	8055.97	1507.32	8262.43	1506	8279.57	1505.87
8503.17	1505.53	8603.18	1505.87	8693.9	1504.08	8694.48	1504	8703.19	1503.19
8703.68	1502.77	8710.25	1504	8712.96	1504.59	8803.19	1504.3	8825.73	1504
8888.22	1503.17	8892.41	1502.56	8896.25	1503.19	8903.17	1503.23	8983.45	1503.31
8985.46	1502.72	8989.02	1503.45	9002.38	1504	9003.18	1504.03	9103.19	1504.93
9515.49	1504.89	9615.48	1505.06	9715.48	1504.94	9815.5	1504.64	9867.17	1504.59
9879.55	1504.11	9892.11	1504.55	9896.94	1504	9902.35	1503.42	9907.75	1504
9913.89	1504.61	9915.49	1504.72	9933.06	1504.28	9935.38	1504	9939.99	1503.46
9945.34	1504	9948.95	1504.43	9966.84	1504.59	9973.25	1504.18	9978.06	1504.79
9988.44	1504.46	10015.49	1505.01	10107.71	1505.08	10112	1504	10115.48	1503.12
10116.2	1502.75	10122.73	1504	10128.44	1505.09	10141.6	1505.19	10146.72	1504.65
10156.6	1505.14	10215.48	1505.04	10257.97	1505.04	10271.44	1504.23	10281.71	1504.86
10286.68	1504.83	10292.52	1504	10292.7	1503.98	10293.06	1504	10303.07	1504.72
10315.5	1504.84	10353.83	1504.03	10354.11	1504	10363.33	1503.01	10374.05	1504
10382.15	1504.63	10415.49	1504.84	10515.49	1505.04	10615.48	1505.41	10642.27	1505.43
10715.48	1505.23	10815.5	1505.55	10915.49	1505.6	11015.49	1505.92	11060.31	1506
11115.48	1506.1	11215.48	1506.44	11315.5	1506.86	11433.6	1506.45	11442.91	1507.02
11505.7	1507.08	11513.21	1506.16	11520.38	1507.59	11750.26	1507.8	11755.19	1506.46
11762.04	1507.97	11762.11	1508	11825.38	1508.04	11922.9	1508.14	11923.37	1508
11925.4	1507.42	11926.66	1507.25	11929.86	1508	11932	1508.54	12025.39	1509.27

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7608.74	.05	9867.17	.05	10382.15	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9867.17	10382.15	383	500	500.99	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev

7608.74 8055.97 1509

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1505.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1505.88	Reach Len. (ft)	383.00	500.00	500.99
Crit W.S. (ft)		Flow Area (sq ft)	1684.75	634.79	341.40
E.G. Slope (ft/ft)	0.006449	Area (sq ft)	1684.75	634.79	341.40
Q Total (cfs)	6466.00	Flow (cfs)	4179.89	1739.04	547.07
Top Width (ft)	2724.30	Top Width (ft)	1588.79	514.98	620.53
Vel Total (ft/s)	2.43	Avg. Vel. (ft/s)	2.48	2.74	1.60
Max Chl Dpth (ft)	3.32	Hydr. Depth (ft)	1.06	1.23	0.55
Conv. Total (cfs)	80516.8	Conv. (cfs)	52049.4	21655.1	6812.3
Length Wtd. (ft)	429.55	Wetted Per. (ft)	1589.46	516.15	620.53
Min Ch El (ft)	1502.75	Shear (lb/sq ft)	0.43	0.50	0.22
Alpha	1.05	Stream Power (lb/ft s)	1.06	1.36	0.35
Frctn Loss (ft)	3.18	Cum Volume (acre-ft)	1084.38	305.43	322.01
C & E Loss (ft)	0.00	Cum SA (acres)	706.07	243.20	391.38

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8060.43	8286.27	0.01	0.10	7.89	0.00	0.01	0.11
8286.27	8512.11	29.36	42.91	225.84	0.45	0.19	0.68
8512.11	8737.96	300.12	173.22	226.24	4.64	0.77	1.73
8737.96	8963.80	1641.59	479.90	225.95	25.39	2.12	3.42
8963.80	9189.64	830.80	318.97	226.02	12.85	1.41	2.60
9189.64	9415.48	443.12	218.69	225.84	6.85	0.97	2.03
9415.48	9641.33	415.41	210.38	225.84	6.42	0.93	1.97
9641.33	9867.17	519.46	240.57	225.84	8.03	1.07	2.16
LB 9867.17	9970.17	526.77	165.99	103.25	8.15	1.61	3.17
9970.17	10073.16	243.76	104.46	103.05	3.77	1.01	2.33
10073.16	10176.16	253.22	107.10	103.59	3.92	1.04	2.36
10176.16	10279.15	208.03	94.98	103.03	3.22	0.92	2.19
10279.15	RB 10382.15	507.27	162.26	103.22	7.85	1.58	3.13
10382.15	10546.47	317.81	156.26	164.33	4.92	0.95	2.03
10546.47	10710.80	128.24	90.65	164.32	1.98	0.55	1.41
10710.80	10875.12	84.63	70.65	164.32	1.31	0.43	1.20
10875.12	11039.45	16.39	23.84	127.55	0.25	0.19	0.69

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 17.630

INPUT
Description:
Station Elevation Data num= 131

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7086.24	1506.43	7104.86	1506	7119.85	1505.66	7147.16	1505.49	7402.46	1504.66
7718.69	1504.35	7743.13	1504.09	7744.4	1504	7748.51	1503.65	7752.73	1504
7752.92	1504.03	7926.09	1504	8257.2	1503.04	8573.43	1502.22	8616.24	1502
8673.43	1501.71	8773.44	1501.93	8806.96	1502	8873.42	1502.14	8927.72	1502
9051.18	1501.96	9077.45	1503.3	9124.8	1500.45	9127.66	1500	9140.44	1498
9142.71	1497.64	9144.38	1498	9154.14	1500	9156.72	1500.48	9174.99	1500.53
9179.21	1500	9186.71	1498.46	9197.94	1498.8	9199.44	1498.64	9206.87	1500
9210.55	1501.21	9230.27	1501.4	9236.84	1500	9237.48	1499.89	9238.62	1500
9251.59	1501.5	9306.41	1501.66	9391.87	1501.77	9615.48	1501.42	9715.5	1501.45
9815.5	1501.4	9864.04	1501.08	9875.38	1500.71	9883.71	1501.09	9915.49	1501.23
9966.65	1501.41	9981.97	1500.52	9996.74	1501.02	10005.83	1500	10008.34	1499.7
10010.37	1500	10015.49	1500.76	10017.13	1500.86	10026.05	1500	10026.75	1499.93
10027.65	1500	10035.87	1500.61	10115.48	1501.84	10146.13	1502	10215.5	1502.36
10268.49	1502.03	10268.6	1502	10275.93	1500	10276.56	1499.82	10277.66	1500
10288.3	1501.99	10309.9	1501.8	10315.5	1501.79	10321.38	1502	10325.99	1502.16
10338.37	1502.12	10339.17	1502	10344.96	1501.11	10351.15	1500.47	10361.43	1501.96
10374.01	1502	10405.46	1502.09	10408.26	1502	10414.12	1501.77	10415.29	1502
10415.49	1502.04	10426.98	1502.23	10431.49	1502	10444.94	1501.38	10452.14	1500
10454.05	1499.63	10455.58	1500	10458.81	1500.79	10464.64	1500.45	10473.13	1502

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10475.42 1502.41 10505.6    150210515.49 1501.8710615.48 1501.92 10715.5 1501.97
10730.25    150210759.22 1502.0710760.34    150210765.14 1501.6510771.57 1501.99
10815.49 1501.9910817.91    150210915.49 1502.4111015.49 1502.5311115.48 1502.87
11180.86 1502.9711191.68 1503.0711292.86    150411387.28 1504.0411387.35    1504
11391.32    150211391.92  1501.711392.62    150211397.53    150411398.22 1504.26
11407.69 1504.5311410.68 1504.1911417.91 1504.5811431.75 1504.62 11549.3    1504
11796.25    150411936.47 1504.2311937.28    150411940.89 1502.9511945.37    1504
11945.96 1504.14

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 7086.24     .05  9815.5     .0510475.42     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9815.510475.42           282.16  400.01  467.43             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 7086.24 8873.42    1506
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
11431.7511945.96    1507
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CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1502.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1502.65	Reach Len. (ft)	282.16	400.01	467.43
Crit W.S. (ft)	1502.25	Flow Area (sq ft)	1115.35	766.10	297.88
E.G. Slope (ft/ft)	0.008563	Area (sq ft)	1362.25	766.10	297.88
Q Total (cfs)	6466.00	Flow (cfs)	3616.45	2323.39	526.16
Top Width (ft)	2620.93	Top Width (ft)	1382.66	659.92	578.35
Vel Total (ft/s)	2.97	Avg. Vel. (ft/s)	3.24	3.03	1.77
Max Chl Dpth (ft)	5.01	Hydr. Depth (ft)	1.21	1.16	0.52
Conv. Total (cfs)	69877.0	Conv. (cfs)	39082.4	25108.5	5686.1
Length Wtd. (ft)	351.48	Wetted Per. (ft)	919.75	661.48	578.79
Min Ch El (ft)	1499.63	Shear (lb/sq ft)	0.65	0.62	0.28
Alpha	1.07	Stream Power (lb/ft s)	2.10	1.88	0.49
Frctn Loss (ft)	2.46	Cum Volume (acre-ft)	1070.98	297.39	318.33
C & E Loss (ft)	0.02	Cum SA (acres)	693.00	236.46	384.49

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8723.80	8996.72	150.76	76.62	123.30	2.33	0.62	1.97
8996.72	9269.65	1748.17	442.72	250.60	27.04	1.78	3.95
9269.65	9542.57	713.45	267.56	272.93	11.03	0.98	2.67
9542.57	9815.50	1004.06	328.44	272.93	15.53	1.20	3.06
LB 9815.50	9947.48	636.96	193.38	132.00	9.85	1.47	3.29
9947.48	10079.47	923.88	241.90	132.25	14.29	1.83	3.82
10079.47	10211.45	186.11	92.42	131.99	2.88	0.70	2.01
10211.45	10343.44	206.18	98.45	132.55	3.19	0.75	2.09
10343.44	RB 10475.42	370.28	139.95	132.69	5.73	1.06	2.65
10475.42	10622.47	194.40	100.50	147.06	3.01	0.68	1.93
10622.47	10769.53	195.96	100.98	147.08	3.03	0.69	1.94
10769.53	10916.58	119.70	75.12	147.06	1.85	0.51	1.59
10916.58	11063.64	13.31	19.32	133.02	0.21	0.15	0.69
11063.64	11357.74						
11357.74	11504.80	2.78	1.96	4.58	0.04	0.47	1.42

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 17.554

INPUT
Description:
Station Elevation Data num= 147

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     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
  6862.9 1503.18 6879.75 1503.23 6910.67 1502.12 6974.35    1502 7195.98 1501.56
 7512.21 1501.35 7658.94 1500.35 7661.95    1500 7664.27 1499.68 7666.16    1500
 7668.72 1500.59 7828.44 1500.67 8059.79 1500.66 8096.34  1501.1 8144.66 1501.13
  8244.3 1501.03 8244.67 1501.06 8279.57    1500 8280.24 1499.98 8344.67  1499.7
 8444.65 1499.41 8544.66 1499.72 8644.67 1499.53 8744.67 1499.41 8844.68 1499.31
 8944.66 1499.82 9013.24 1498.71 9020.54    1498 9025.63 1497.25 9030.58    1498
 9032.58 1498.31 9044.67 1498.54 9046.41    1498 9047.92 1497.55 9053.36 1496.97
 9056.79    1498 9056.95 1498.05 9074.29 1498.37 9080.26    1498 9086.38 1497.82
 9091.16    1496 9093.22 1495.36 9095.08    1496 9100.88    1498 9103.96 1499.05
 9121.76 1498.35 9125.21    1498  9128.8 1497.55 9131.63    1498 9131.64    1498
 9144.67 1498.44 9153.59  1498.4 9158.51    1498 9159.69 1497.83 9160.65    1498
 9166.15    1499 9187.28 1499.18 9244.67 1499.68 9361.53 1499.44 9468.28 1499.41
 9691.88 1499.56 9915.48 1499.24 9927.42 1499.04 9936.98    1498 9937.16 1497.98
 9937.33    1498  9951.2 1499.47 9972.87 1499.16 9980.62 1498.42 9992.14 1498.82
 10015.5 1498.8910030.04 1498.3410042.11 1498.8610239.11 1499.19 10339.1 1499.24
10411.77  1499.110416.24    1498   10419 1497.2410422.77    1498   10430 1499.26
 10439.1 1499.3610478.69 1499.1610487.04    1498 10488.4 1497.7910491.01    1498
10507.18 1498.66 10511.9 1498.0610521.71 1498.9110539.09 1498.7910555.04 1498.02
10555.14    149810558.81 1497.2910569.72 1496.1910587.56    1498 10594.6 1498.73
10606.72 1498.7910611.87 1498.1410639.11  1498.610654.72 1498.3810657.92    1498
10659.55  1497.8 10661.2    149810670.16 1499.0210692.14 1498.6610694.56    1498
10695.25 1497.8710696.26    149810706.95 1499.33 10732.8 1498.5910736.26    1498
 10739.1 1497.5210741.99 1497.4210747.81    149810758.83 1499.1110773.92 1498.68
10793.28 1499.4810813.36 1499.19 10820.3  1498.610832.87 1499.79 10839.1 1499.65
10908.75 1499.5610913.42 1499.2910923.26 1499.57 10939.1  1499.611039.09 1499.95
11068.81    150011139.11 1500.1211211.91    1500 11232.8    1500 11234.8 1500.03
11236.13    150011244.92 1499.7611257.58    150011295.66    150011551.41 1499.83
11590.71    1500 11651.4 1500.2711751.42 1500.3911851.42  1501.111951.26 1500.88
11951.41 1500.7411953.76 1500.0311959.56 1500.8811982.77  1501.211991.32  1500.7
11999.73 1501.0112051.41 1501.08

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  6862.9     .05 9691.88     .0510606.72     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9691.8810606.72            407.45  398.94  593.71             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
  6862.9    8400    1503
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  7562.9 8097.03    150311851.4212051.41    1503
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CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1500.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1500.23	Reach Len. (ft)	407.45	398.94	593.71
Crit W.S. (ft)	1499.73	Flow Area (sq ft)	1197.58	1131.44	613.62
E.G. Slope (ft/ft)	0.005737	Area (sq ft)	1258.05	1131.44	613.62
Q Total (cfs)	6466.00	Flow (cfs)	2560.49	2932.15	973.36
Top Width (ft)	3371.50	Top Width (ft)	1420.02	914.84	1036.64
Vel Total (ft/s)	2.20	Avg. Vel. (ft/s)	2.14	2.59	1.59
Max Chl Dpth (ft)	4.87	Hydr. Depth (ft)	0.93	1.24	0.59
Conv. Total (cfs)	85366.4	Conv. (cfs)	33804.5	38711.3	12850.7
Length Wtd. (ft)	441.46	Wetted Per. (ft)	1293.70	915.93	1037.30
Min Ch El (ft)	1496.19	Shear (lb/sq ft)	0.33	0.44	0.21
Alpha	1.08	Stream Power (lb/ft s)	0.71	1.15	0.34
Frctn Loss (ft)	2.72	Cum Volume (acre-ft)	1062.50	288.67	313.44
C & E Loss (ft)	0.00	Cum SA (acres)	683.93	229.22	375.82

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8277.39	8560.29	182.82	109.11	160.29	2.83	0.68	1.68
8560.29	8843.19	388.11	215.13	282.90	6.00	0.76	1.80
8843.19	9126.08	1040.03	389.55	284.52	16.08	1.38	2.67
9126.08	9408.98	559.07	267.88	283.10	8.65	0.95	2.09
9408.98	9691.88	390.43	215.91	282.90	6.04	0.76	1.81

LB 9691.88	9874.85	277.22	147.32	182.97	4.29	0.81	1.88
9874.85	10057.82	611.10	236.83	183.17	9.45	1.29	2.58
10057.82	10240.78	535.16	218.61	182.97	8.28	1.19	2.45
10240.78	10423.75	477.19	204.22	183.29	7.38	1.12	2.34
10423.75	RB 10606.72	1031.50	324.48	183.53	15.95	1.77	3.18
10606.72	10751.19	581.14	249.04	144.96	8.99	1.72	2.33
10751.19	10895.66	204.14	132.81	144.62	3.16	0.92	1.54
10895.66	11040.13	82.18	76.91	144.48	1.27	0.53	1.07
11040.13	11184.60	13.97	26.56	144.47	0.22	0.18	0.53
11184.60	11329.06	23.32	36.12	144.47	0.36	0.25	0.65
11329.06	11473.53	32.39	43.99	144.47	0.50	0.30	0.74
11473.53	11618.00	35.85	46.75	144.47	0.55	0.32	0.77
11618.00	11762.47	0.34	1.43	25.36	0.01	0.06	0.24

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 17.479

INPUT
Description:
Station Elevation Data num= 107

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6730.65	1500.84	6740.25	1500.33	6759.23	1500.05	6889.34	1500	7046.88	1499.7
7363.1	1499.19	7515.93	1498.39	7521.18	1498.27	7527.37	1498.43	7675.53	1498
7679.34	1497.98	7895.98	1496.99	7901.54	1496.96	7904.48	1497.43	8111.61	1498
8205	1498.28	8260.56	1498.68	8264.29	1498	8265.25	1497.76	8267.24	1498
8273.06	1498.67	8311.78	1499.28	8318.56	1498.51	8343.9	1498.12	8354.08	1498
8411.79	1497.31	8511.8	1496.34	8611.79	1496.32	8711.8	1496.44	8811.79	1496.58
8911.8	1496.73	9011.78	1496.68	9111.78	1496.58	9155.45	1496.2	9156.38	1496
9162.98	1494.7	9167.18	1496	9167.64	1496.14	9170.25	1496	9171.66	1495.92
9175.72	1495.13	9183.38	1496	9188.57	1496.58	9206.02	1496.81	9213.66	1496
9214.4	1495.93	9215.37	1496	9223.34	1496.54	9489.84	1496.43	9495.82	1496.1
9504.6	1496.6	9568.46	1496.58	9792.06	1496.75	9892.08	1496.97	9989.62	1497
9992.08	1496.85	9996.56	1496.69	10006.64	1497.03	10311.34	1496.73	10389.23	1496.35
10392.63	1496	10397.15	1495.52	10414.09	1496	10414.67	1496.02	10414.74	1496
10421.18	1494.63	10430.97	1495.88	10448.18	1496	10458.15	1496.05	10458.34	1496
10466.47	1494	10467.53	1493.74	10468.65	1494	10476.57	1496	10479.42	1496.74
10549.67	1496.15	10550.32	1496	10557.27	1494.26	10567.57	1496	10568.47	1496.17
10627.57	1496.65	11024.25	1496.53	11026.52	1496.08	11030.11	1496.31	11059.5	1496.05
11060.16	1496	11064.04	1495.68	11067.24	1496	11070.97	1496.35	11113.27	1496.31
11118.34	1496	11118.73	1495.98	11119.18	1496	11123.27	1496.23	11137.48	1496.34
11237.47	1496.61	11337.47	1496.73	11437.46	1496.8	11537.46	1496.95	11637.48	1496.97
11737.48	1497.39	11837.47	1497.64	11899.39	1497.58	11901.81	1496.72	11909.03	1497.63
11937.46	1497.64	12037.46	1497.91						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6730.65	.05	9489.84	.05	10627.57	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9489.84	10627.57	434.06	535.05	398.92	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
11310	12037.46	1500

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6730.65	8312.52	1500	11837.47	12037.46	1500

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1497.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1497.51	Reach Len. (ft)	434.06	535.05	398.92
Crit W.S. (ft)	1497.07	Flow Area (sq ft)	1072.44	1015.78	675.72
E.G. Slope (ft/ft)	0.006642	Area (sq ft)	1072.44	1015.78	926.26
Q Total (cfs)	6466.00	Flow (cfs)	2561.08	2279.28	1625.65
Top Width (ft)	3390.17	Top Width (ft)	1094.73	1137.73	1157.71
Vel Total (ft/s)	2.34	Avg. Vel. (ft/s)	2.39	2.24	2.41
Max Chl Dpth (ft)	3.77	Hydr. Depth (ft)	0.98	0.89	0.99
Conv. Total (cfs)	79340.0	Conv. (cfs)	31425.3	27967.5	19947.2
Length Wtd. (ft)	458.14	Wetted Per. (ft)	1095.34	1139.10	682.55
Min Ch El (ft)	1493.74	Shear (lb/sq ft)	0.41	0.37	0.41
Alpha	1.00	Stream Power (lb/ft s)	0.97	0.83	0.99

Frctn Loss (ft)	2.26	Cum Volume (acre-ft)	1051.60	278.84	302.95
C & E Loss (ft)	0.01	Cum SA (acres)	672.17	219.83	360.87

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8386.16	8662.08	564.92	246.38	266.98	8.74	0.92	2.29
8662.08	8938.00	607.10	260.67	275.92	9.39	0.94	2.33
8938.00	9213.92	684.04	280.25	276.50	10.58	1.02	2.44
9213.92	9489.84	705.02	285.15	275.94	10.90	1.03	2.47
LB 9489.84	9717.39	438.10	206.35	227.57	6.78	0.91	2.12
9717.39	9944.93	262.92	151.89	227.55	4.07	0.67	1.73
9944.93	10172.48	196.22	127.44	227.56	3.03	0.56	1.54
10172.48	10400.02	389.57	192.32	227.59	6.02	0.85	2.03
10400.02	RB 10627.57	992.48	337.79	228.83	15.35	1.48	2.94
10627.57	10768.56	274.02	124.18	140.99	4.24	0.88	2.21
10768.56	10909.55	296.50	130.20	140.99	4.59	0.92	2.28
10909.55	11050.54	351.29	144.16	141.04	5.43	1.02	2.44
11050.54	11191.53	466.47	170.91	141.05	7.21	1.21	2.73
11191.53	11332.52	237.34	106.26	118.47	3.67	0.90	2.23

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 17.377

INPUT
Description:
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6580.94	1497.75	6897.19	1497.16	7103.45	1497.45	7157.29	1498	7213.41	1498.55
7227.92	1498	7257.82	1496.87	7363.76	1496	7497.07	1495.97	7503.96	1494
7504.33	1493.9	7505.08	1494	7514.23	1495.27	7529.62	1495.59	7845.82	1495.88
8006.56	1494.74	8051.77	1496	8119.71	1496.47	8150.13	1497.09	8162.07	1497.31
8205.67	1496.02	8262.05	1496.1	8268.01	1496	8362.06	1494.47	8462.05	1494.08
8562.06	1494.06	8588.96	1494	8662.07	1493.84	8727.95	1494	8762.06	1494.08
8862.07	1494.4	8962.07	1494.49	9064.84	1494.6	9071.04	1494	9071.28	1493.96
9072.19	1494	9078.82	1494.77	9207.97	1494	9217.31	1493.88	9238.59	1494
9278.31	1494.22	9298.77	1494.29	9594.52	1494.98	9860.98	1494	9955.07	1493.52
9997.62	1493.38	9999.56	1492.79	10005.78	1494	10006.19	1494.08	10009.81	1494
10026.38	1493.57	10033.19	1493.03	10040.49	1493.59	10055.08	1493.67	10143.76	1494
10155.09	1494.04	10167.91	1494	10180.95	1493.91	10184.99	1492.24	10191.26	1494
10192.18	1494.29	10208.22	1494	10221.14	1493.77	10227.2	1492	10227.69	1491.85
10228.22	1492	10235.38	1494	10235.98	1494.15	10245.25	1494	10271.14	1493.52
10274.99	1492	10275.56	1491.78	10276.45	1492	10284.49	1494	10285.53	1494.25
10315.69	1494	10567.39	1493.75	10759.2	1493.44	10883.61	1493.61	10911.68	1493.89
10916.14	1493.13	10922.11	1493.96	10983.62	1493.92	11002.97	1494	11083.62	1494.34
11183.63	1494.58	11283.61	1495.11	11383.62	1495.15	11483.62	1495.13	11583.63	1495.55
11672.15	1495.28	11677.89	1494.44	11683.53	1495.58	11683.61	1495.18	11714.41	1495.33
11719.86	1495.52	11783.62	1495.45	11883.63	1495.52				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6580.94	.05	9207.97	.05	10285.53	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9207.97	10285.53	389.72	295.16	235.91	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6580.94	8161.6	1498	11583.63	11883.63	1498

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1495.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1495.27	Reach Len. (ft)	389.72	295.16	235.91
Crit W.S. (ft)		Flow Area (sq ft)	887.53	1170.05	1332.20
E.G. Slope (ft/ft)	0.003818	Area (sq ft)	887.53	1170.05	1332.20
Q Total (cfs)	6466.00	Flow (cfs)	1620.62	2266.78	2578.61

Top Width (ft)	3203.31	Top Width (ft)	894.93	1077.56	1230.82
Vel Total (ft/s)	1.91	Avg. Vel. (ft/s)	1.83	1.94	1.94
Max Chl Dpth (ft)	3.49	Hydr. Depth (ft)	0.99	1.09	1.08
Conv. Total (cfs)	104648.4	Conv. (cfs)	26228.7	36686.4	41733.2
Length Wtd. (ft)	307.62	Wetted Per. (ft)	895.02	1079.68	1230.94
Min Ch El (ft)	1491.78	Shear (lb/sq ft)	0.24	0.26	0.26
Alpha	1.00	Stream Power (lb/ft s)	0.43	0.50	0.50
Frctn Loss (ft)	1.59	Cum Volume (acre-ft)	1041.83	265.42	292.61
C & E Loss (ft)	0.01	Cum SA (acres)	662.25	206.22	349.93

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8157.16	8419.86	99.72	72.16	106.83	1.54	0.68	1.38
8419.86	8682.56	679.00	326.93	262.70	10.50	1.24	2.08
8682.56	8945.27	504.96	273.71	262.70	7.81	1.04	1.84
8945.27	9207.97	336.93	214.74	262.78	5.21	0.82	1.57
LB 9207.97	9423.48	351.44	211.09	215.51	5.44	0.98	1.66
9423.48	9638.99	100.70	99.72	215.51	1.56	0.46	1.01
9638.99	9854.51	276.03	182.61	215.51	4.27	0.85	1.51
9854.51	10070.02	806.78	347.71	215.78	12.48	1.61	2.32
10070.02	RB 10285.53	731.85	328.92	217.36	11.32	1.53	2.22
10285.53	10445.34	385.57	207.13	159.81	5.96	1.30	1.86
10445.34	10605.15	480.12	236.26	159.81	7.43	1.48	2.03
10605.15	10764.96	610.35	272.85	159.81	9.44	1.71	2.24
10764.96	10924.77	604.03	271.24	159.93	9.34	1.70	2.23
10924.77	11084.58	342.35	192.87	159.81	5.29	1.21	1.78
11084.58	11244.39	138.46	112.04	159.81	2.14	0.70	1.24
11244.39	11404.20	13.14	27.28	159.81	0.20	0.17	0.48
11404.20	11564.01	4.55	12.54	112.15	0.07	0.11	0.36

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 17.321

INPUT
Description:
Station Elevation Data num= 278

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6486.68	1496.15	6524.91	1496	6802.88	1495.51	6817.44	1495.46	6839.01	1496
6844.68	1496.19	6877.46	1496	6889.71	1495.98	6909.83	1495.39	7129.74	1496
7163.23	1496.33	7184.91	1496	7253.87	1494.9	7347.98	1494	7657.3	1493.31
7755.68	1492.57	7756.92	1492	7759.13	1491.01	7764.65	1492	7766.45	1492.29
7773.74	1492.3	7774.62	1492	7776.18	1491.35	7778.53	1492	7780.6	1492.59
7803.79	1492.77	7807.45	1492	7808.35	1491.82	7809.19	1492	7811.8	1492.76
7973.52	1493.74	8086.36	1494	8124.82	1494.49	8172.98	1494.46	8228.26	1494.27
8289.73	1494.71	8359.24	1494	8389.74	1493.82	8489.73	1493.16	8536.74	1492.94
8540.9	1492	8549.2	1490	8549.75	1489.86	8551.75	1490	8558.09	1492.41
8565.22	1492.72	8575.94	1493.77	8583.09	1494.14	8586.24	1494.25	8596.09	1494.24
8605.89	1493.9	8614.92	1493.73	8626.23	1493.74	8639.14	1493.75	8652.8	1493.68
8667.1	1493.71	8679.28	1492	8680.43	1493.79	8692.42	1493.54	8700.74	1493.46
8704.51	1492	8712.6	1493.41	8724.99	1493.37	8739.65	1493.45	8752.87	1493.46
8765.72	1493.49	8777.71	1493.54	8783.95	1493.49	8788.92	1492	8791.15	1493.41
8794.51	1492	8798.85	1493.22	8808.06	1493.01	8815.72	1492.87	8824.45	1492.87
8831.32	1493.02	8837.72	1493.29	8843.37	1493.31	8849.88	1493.31	8854.34	1493.36
8861.15	1493.5	8869.05	1493.36	8877.9	1493.11	8885.61	1492.96	8891.33	1493.23
8898.6	1493.4	8907.56	1493.4	8918.48	1493.53	8926.23	1493.73	8934.75	1493.72
8947.9	1493.76	8955.58	1493.67	8964.61	1493.48	8970.99	1493.33	8975.46	1492.96
8986.71	1490.93	8988.93	1490	8989.17	1489.87	8990.02	1490	8996.73	1491.03
9016.42	1491.4	9022.81	1491.47	9099.93	1491.66	9100.1	1491.75	9103.63	1491.22
9112.72	1491.67	9200.1	1491.67	9300.09	1491.9	9400.09	1491.77	9444.02	1492
9464.15	1492.1	9491.86	1492	9500.1	1491.97	9504.77	1492	9600.08	1492.64
9654.73	1492.63	9676.31	1494.74	9683.32	1494.82	9691.77	1494.87	9700.93	1494.88
9710.83	1494.93	9718.28	1494.94	9727.83	1494.89	9734.43	1494.84	9742.51	1494.76

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 9750.21 1494.73 9761.59  1494.8 9767.08 1494.82 9776.94 1494.86 9784.97 1494.92
 9793.37 1494.98 9807.31 1494.96 9814.64 1494.94 9820.13 1494.92 9831.84 1494.92
 9837.69 1494.93 9845.74 1494.89 9852.33 1494.84 9858.55 1494.75 9861.84 1494.71
 9871.69 1494.75 9875.35 1494.74 9881.86 1494.69 9888.08 1494.66  9894.3 1494.67
 9903.81 1494.68 9909.65 1494.68  9914.4 1494.67    9925 1494.59 9931.58 1494.55
 9935.97 1494.52 9941.47 1494.45 9947.36 1494.36 9957.25  1494.3 9961.66 1494.29
 9966.44 1494.31 9971.21 1494.29 9975.22 1494.23 9977.61    1492 9984.01 1494.35
 9999.34 1490.6910012.69 1491.8110014.79    1492   10033 1494.5210043.85 1494.52
10053.95 1494.5110061.72 1494.4910071.31 1494.4610079.51 1494.4410098.97 1494.52
10109.84 1494.5710133.86 1494.6510144.59 1494.6110160.99 1494.5110173.66 1494.58
10180.73 1494.6210189.75 1494.6910204.51  1494.810210.08  1494.810216.57 1494.79
10223.93 1494.7710239.91 1494.6910248.49 1494.5910259.49 1494.8210261.05 1494.89
 10269.4  1495.110279.83 1495.2610288.53 1495.3110300.32 1495.3310305.87 1495.33
10310.05 1495.3310313.48    1494 10319.3 1495.3910328.47 1495.3910335.75    1494
10337.92 1495.2910346.15  1495.2 10352.3 1495.3110355.46    149410360.08 1496.08
 10372.2 1497.1110382.25 1497.6610395.33 1497.8310407.76 1497.8210416.84 1497.66
10426.22 1497.3910431.95    149410437.05 1497.0810445.36 1496.8410453.25 1496.61
10462.67 1496.3310469.64 1496.1910476.69 1496.11   10483 1496.1310492.37 1496.06
10500.62 1496.0210509.46 1496.0310521.27 1496.0210532.95 1495.9610545.11 1495.96
10556.44 1495.9810567.29 1495.8610586.21 1495.5210596.26 1495.4610608.12 1495.41
10618.12 1495.3310631.62 1495.0810643.69 1494.8410651.38    149210652.29    1492
10653.73 1494.6310666.82 1493.7210670.27 1493.2410679.42 1492.91 10683.9    1492
10691.54 1490.3510695.29    149010696.28  1489.910697.18    149010714.92    1492
10721.26 1492.3110725.21    149210731.91 1491.3310737.34    149210740.99 1492.48
10766.45 1492.7610768.55    149210770.52 1491.3510783.25    149210791.79 1492.89
10834.96 1492.9110890.55 1492.3910893.58  1492.811151.33 1492.5111154.65 1492.48
11158.05    149211159.51  1491.811164.17    149211178.19 1492.6711251.35 1492.68
11351.34 1493.0311451.34 1494.0411475.13    149411551.35 1493.8711651.36  1493.5
11751.34 1493.8211766.18 1493.9611772.65 1492.8811782.24 1493.4811833.32  1493.7
11836.86 1493.3211841.95 1493.5811851.35 1493.5211877.72 1493.2911886.95 1493.42
11938.57    149411951.38 1494.1412051.38 1494.19

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 6486.68     .05 9300.09     .05   10033     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9300.09   10033           732.26  497.51   448.5             .3       .5
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 6486.68  8289.4    149611451.3412051.38    1496

CROSS SECTION OUTPUT    Profile #PF 2

  E.G. Elev (ft)            1493.72   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.15   Wt. n-Val.                  0.050      0.050      0.050
  W.S. Elev (ft)            1493.57   Reach Len. (ft)            732.26     497.51     448.50
  Crit W.S. (ft)                      Flow Area (sq ft)          819.39     579.61     709.06
  E.G. Slope (ft/ft)       0.007556   Area (sq ft)               819.39     579.61     709.06
  Q Total (cfs)             6466.00   Flow (cfs)                2808.24    1884.63    1773.13
  Top Width (ft)            1877.91   Top Width (ft)             726.34     408.99     742.58
  Vel Total (ft/s)             3.07   Avg. Vel. (ft/s)             3.43       3.25       2.50
  Max Chl Dpth (ft)            3.71   Hydr. Depth (ft)             1.13       1.42       0.95
  Conv. Total (cfs)         74385.9   Conv. (cfs)               32306.5    21681.1    20398.3
  Length Wtd. (ft)           656.13   Wetted Per. (ft)           730.25     410.44     744.76
  Min Ch El (ft)            1490.69   Shear (lb/sq ft)             0.53       0.67       0.45
  Alpha                        1.05   Stream Power (lb/ft s)       1.81       2.17       1.12
  Frctn Loss (ft)              4.52   Cum Volume (acre-ft)      1034.19     259.49     287.08
  C & E Loss (ft)              0.03   Cum SA (acres)             655.00     201.18     344.59


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 2

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.   Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  8174.73       8456.07           1.43       2.58     27.98      0.02      0.09       0.55
  8456.07       8737.41         248.42     119.63    178.46      3.84      0.68       2.08
  8737.41       9018.75         340.31     163.32    242.39      5.26      0.68       2.08
  9018.75       9300.09        2218.08     533.86    281.41     34.30      1.90       4.15
  LB 9300.09    9446.67         907.69     251.21    146.58     14.04      1.71       3.61
  9446.67       9593.25         627.04     201.21    146.58      9.70      1.37       3.12
  9593.25       9739.84         142.39      61.90     71.10      2.20      0.87       2.30
```

9739.84	9886.42						
9886.42	RB 10033.00	207.52	65.28	46.17	3.21	1.46	3.18
10033.00	10638.51						
10638.51	10840.35	708.54	237.55	180.51	10.96	1.33	2.98
10840.35	11042.19	401.30	176.62	201.87	6.21	0.88	2.27
11042.19	11244.03	505.76	202.94	201.91	7.82	1.01	2.49
11244.03	11445.87	157.53	91.94	160.47	2.44	0.57	1.71

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 17.227

INPUT
Description:
Station Elevation Data num= 191

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6152.2	1490.06	6222.02	1490.32	6224.85	1490	6228.81	1489.56	6231.37	1490
6232.06	1490.12	6252.19	1490.2	6298.84	1490	6337.19	1489.84	6341.27	1490
6352.2	1490.44	6387.15	1490.87	6430.71	1491.18	6443.66	1490.8	6452.21	1490.59
6552.19	1491.12	6652.2	1490.69	6680.48	1490	6689.14	1489.94	6696.64	1488.86
6700.56	1489.54	6718.59	1488.84	6724.29	1489.29	6728.85	1488.37	6731.79	1489.62
6748.42	1489.37	6751.58	1488.24	6752.19	1488.82	6761.93	1489.45	6774.72	1489.38
6778.68	1489.29	6784.87	1489.39	6842.36	1490	6852.2	1490.1	6899.64	1490
6952.19	1489.88	6977.81	1489.43	6982.32	1488.55	6987.97	1489.67	7033.11	1490
7052.2	1490.15	7152.18	1491.54	7406.05	1490	7690.7	1489.08	7864.89	1489.45
7869.87	1488	7872	1487.37	7875.21	1488	7881.59	1488.81	7925.93	1488.28
7930.37	1488	7931.51	1487.92	7932.68	1488	7935.94	1488.31	8009.3	1490
8014.78	1490.09	8061.74	1490.5	8070.55	1490	8070.76	1489.99	8072.61	1490
8153.19	1490.26	8229.24	1490.83	8308.91	1490	8329.22	1489.79	8391.69	1488.89
8429.23	1488.19	8465.87	1488	8529.22	1487.68	8629.23	1487.53	8667.86	1488
8729.21	1488.74	8829.22	1489.4	8843.46	1489.37	8886.2	1488	8929.21	1486.66
8945.6	1486	8951.09	1485.78	8955.45	1484.92	8961.41	1485.6	8976.18	1485.11
8979.54	1484	8982.56	1483.01	8986.96	1484	8989.35	1484.52	9029.22	1485.64
9110.53	1485.73	9116.38	1485.46	9123.04	1486	9123.61	1486.04	9129.23	1486.37
9211.51	1486.42	9215.31	1486	9220.96	1485.52	9225.58	1486	9228.21	1486.27
9229.22	1486.37	9329.21	1487.31	9417.27	1486.82	9423.81	1487.2	9429.22	1487.08
9449.94	1486.75	9460.2	1486	9467.54	1485.49	9477.92	1486	9493.85	1486.78
9502.5	1486	9504.5	1485.83	9510.9	1486	9515.83	1486.13	9529.22	1486.74
9540.27	1487.34	9577.88	1487.52	9600.54	1487.74	9602.67	1488	9619.12	1490
9622.99	1491.96	9629.23	1491.23	9632.68	1490	9636.33	1488.7	9640.73	1488
9647.74	1486.89	9742.58	1486.91	9749.04	1488	9752.9	1488.67	9761.45	1490
9773.02	1493.38	9774.09	1492	9780.28	1492	9786.64	1490	9795.47	1488.22
9797.87	1488	9801.88	1487.63	9815.48	1488	9829.22	1488.27	9832.29	1488.63
9853.96	1488.39	9860.14	1488	9861.29	1487.92	9862.2	1488	9875.6	1489.04
9929.22	1489.3	9961.83	1489.01	9967.68	1488.45	9974.76	1489.13	10034.19	1489.04
10040.4	1489.41	10067.62	1489.38	10072.83	1488.77	10084.19	1489.3	10492.28	1489.12
10501.36	1488.45	10508.99	1489.41	10563.1	1488.84	10568.99	1488	10571.78	1487.64
10573.68	1488	10577.59	1488.61	10601.85	1488.91	10621.37	1488	10625.11	1487.77
10627.12	1488	10635.6	1489.32	10641.44	1488.95	10645.92	1488.16	10657.98	1489.18
10735.99	1489.13	10836	1489.31	10935.98	1489.82	10984.12	1490	11035.99	1490.19
11136	1490.44	11236	1490.96	11302.92	1491.08	11309.46	1490.52	11320.34	1491.47
11335.98	1491.38	11435.99	1491.41	11481.74	1491.16	11536	1491.45	11636	1491.18
11735.99	1491.25	11835.99	1491.33	11839.9	1491.32	11850.55	1490.37	11863.22	1491.19
11890.32	1491.55	11894.62	1490.86	11900.29	1491.16	11936	1491.28	12035.98	1491.6
12135.99	1491.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6152.2	.05	9786.64	.05	10084.19	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9786.64	10084.19	493.71	502.79	505.19	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
9329.21	9624.1	1493

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6152.2	8229.04	1492	9623.98	9773.64	1492

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft) 1489.17 Element Left OB Channel Right OB

Vel Head (ft)	0.25	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1488.93	Reach Len. (ft)	493.71	502.79	505.19
Crit W.S. (ft)	1488.12	Flow Area (sq ft)	1568.58	58.79	40.54
E.G. Slope (ft/ft)	0.006353	Area (sq ft)	2125.99	58.79	40.54
Q Total (cfs)	6466.00	Flow (cfs)	6313.75	99.78	52.48
Top Width (ft)	1319.38	Top Width (ft)	1120.99	96.72	101.67
Vel Total (ft/s)	3.88	Avg. Vel. (ft/s)	4.03	1.70	1.29
Max Chl Dpth (ft)	5.92	Hydr. Depth (ft)	1.87	0.61	0.40
Conv. Total (cfs)	81120.9	Conv. (cfs)	79210.8	1251.8	658.4
Length Wtd. (ft)	493.96	Wetted Per. (ft)	840.77	96.96	102.09
Min Ch El (ft)	1487.63	Shear (lb/sq ft)	0.74	0.24	0.16
Alpha	1.06	Stream Power (lb/ft s)	2.98	0.41	0.20
Frctn Loss (ft)	2.69	Cum Volume (acre-ft)	1009.44	255.84	283.22
C & E Loss (ft)	0.05	Cum SA (acres)	639.47	198.30	340.24

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8332.86	8696.31	780.94	311.98	307.08	12.08	1.02	2.50
8696.31	9059.75	2328.31	565.72	264.10	36.01	2.15	4.12
9059.75	9423.20	3204.50	690.88	269.59	49.56	2.56	4.64
9423.20	9786.64						
LB 9786.64	9846.15	73.35	40.22	54.31	1.13	0.74	1.82
9846.15	9905.66	24.18	15.86	28.03	0.37	0.57	1.52
9905.66	9965.17	0.15	0.29	2.47	0.00	0.12	0.53
9965.17	10024.68	1.95	2.07	7.49	0.03	0.28	0.94
10024.68	RB 10084.19	0.15	0.36	4.67	0.00	0.08	0.40
10084.19	10494.55						
10494.55	10699.73	52.48	40.54	102.09	0.81	0.40	1.29

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 17.132

INPUT
Description:
Station Elevation Data num= 168

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6185.31	1487.92	6195.33	1488	6214.13	1488	6263.64	1486.78	6268.56	1487.16
6285.32	1487.24	6385.31	1487.68	6485.32	1487.6	6539.72	1488	6585.3	1488.33
6685.31	1488.57	6707.6	1488	6769.39	1486.41	6777.19	1487.23	6778.78	1486.22
6783.48	1486.97	6785.32	1487.29	6885.31	1487.43	6914.6	1487.33	6919.03	1486.63
6924.73	1487.35	6985.32	1487.56	7523.84	1486.42	7916.22	1486	8062.36	1485.69
8210.49	1485.47	8217.5	1485.21	8222.91	1485.4	8254.74	1486	8323.17	1486.75
8332.63	1486.49	8340.37	1486.62	8378.57	1487.43	8478.58	1487.6	8554.44	1486
8573.44	1485.6	8578.57	1485.78	8678.58	1484.86	8725.65	1484.21	8728.85	1484
8733.73	1483.62	8736.67	1484	8741.36	1484.57	8778.31	1484.36	8778.57	1484.57
8781.72	1484	8783.53	1483.67	8785.6	1484	8787.62	1484.42	8878.58	1485.06
8922.05	1485.2	8962.85	1486	8969.24	1486.13	8978.56	1486.2	8983.4	1486
9032.5	1484	9078.57	1482.48	9079.27	1482.29	9080.13	1482	9083.24	1480.8
9088.29	1482	9096.21	1483.54	9148.85	1482.75	9151.43	1482.5	9155.62	1482.81
9178.58	1483.5	9278.57	1483.82	9349.88	1484	9378.59	1484.07	9405.56	1484
9409.8	1483.99	9416.29	1483.73	9421.22	1484	9432.93	1484.62	9445.58	1484
9450.18	1483.77	9470.54	1483.37	9478.57	1482.25	9478.95	1482.24	9505.61	1484
9514.17	1484.44	9531.69	1484.22	9534.83	1484	9536.6	1483.87	9539.73	1484
9559.16	1484.87	9578.57	1484.76	9599.93	1484.72	9603.82	1484.33	9611.57	1484.74
9637.34	1484.48	9640.04	1484.08	9651.22	1484.66	9665.45	1484.63	9673.67	1484.17
9678.58	1484.54	9688.25	1484.96	9778.56	1485.36	9878.57	1486	9890.71	1486
9965.26	1486.02	9965.5	1486	9972.44	1485.45	9976.68	1486	9976.73	1486.01
9977.26	148610012.27	1486	10022	1486.1510022.57		148610025.44			1485.04
10029.7	148610029.96	1486.0710073.27		1486	10088.9	148610304.49			1486
10354.71	1485.8710359.12	148510366.19		1485.7910383.98		148610386.61			1486.05
10387.01	148610391.09	1485.3910401.84		148610403.09		1486.07 10684.8			1486.94
10784.81	1486.6610790.45	1486.5110793.07		148610796.27		1485.410800.29			1486
10805.23	1486.6310879.73	1486.7110884.71		1486.3910884.82		1486.5210893.65			1486.72
10984.82	1486.3711084.81	1486.4911176.09		1486.9311184.81		1487.2811257.68			1488

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11284.82 1488.2711331.98    1488 11384.8  1487.711479.13 1487.7211484.81 1487.43
11486.31 1487.5411504.62 1487.64 11509.7 1487.2911516.43 1487.8211584.81  1487.9
11684.82 1487.8511753.32    1488 11784.8 1488.0711836.21    148811884.81 1487.87
11898.86    148811906.64 1488.0711906.98    148811911.18 1486.97 11920.7    1488
 11921.2 1488.0411943.89 1488.1311944.28    148811946.02    148811949.67 1488.27
11984.82 1488.2212084.82 1488.3712184.81 1489.58

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 6185.31     .05 9878.57     .05 10088.9     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9878.57 10088.9           491.85  496.91  498.15             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 9541.56 9880.66    1490
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 6185.31 8479.86 1490.02
```

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1486.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1486.28	Reach Len. (ft)	491.85	496.91	498.15
Crit W.S. (ft)	1485.24	Flow Area (sq ft)	1971.52	62.09	116.75
E.G. Slope (ft/ft)	0.004693	Area (sq ft)	2379.42	62.68	116.75
Q Total (cfs)	6466.00	Flow (cfs)	6303.66	56.36	105.98
Top Width (ft)	1941.42	Top Width (ft)	1337.48	210.33	393.60
Vel Total (ft/s)	3.01	Avg. Vel. (ft/s)	3.20	0.91	0.91
Max Chl Dpth (ft)	5.48	Hydr. Depth (ft)	1.97	0.30	0.30
Conv. Total (cfs)	94385.7	Conv. (cfs)	92016.0	822.7	1547.0
Length Wtd. (ft)	492.50	Wetted Per. (ft)	1001.72	208.59	393.95
Min Ch El (ft)	1485.04	Shear (lb/sq ft)	0.58	0.09	0.09
Alpha	1.10	Stream Power (lb/ft s)	1.84	0.08	0.08
Frctn Loss (ft)	2.77	Cum Volume (acre-ft)	983.91	255.14	282.31
C & E Loss (ft)	0.01	Cum SA (acres)	625.54	196.52	337.37

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8401.27	8770.59	627.51	280.57	229.60	9.70	1.22	2.24
8770.59	9139.92	1935.77	667.69	370.22	29.94	1.81	2.90
9139.92	9509.24	3531.00	956.95	369.56	54.61	2.59	3.69
9509.24	9878.57	209.39	66.31	32.34	3.24	2.05	3.16
LB 9878.57	9920.64	9.60	11.14	39.98	0.15	0.28	0.86
9920.64	9962.70	9.47	11.27	42.07	0.15	0.27	0.84
9962.70	10004.77	15.01	14.87	42.13	0.23	0.35	1.01
10004.77	10046.83	12.79	13.54	42.36	0.20	0.32	0.94
10046.83	RB 10088.90	9.48	11.28	42.07	0.15	0.27	0.84
10088.90	10298.49	51.58	59.02	209.59	0.80	0.28	0.87
10298.49	10508.08	48.95	53.02	173.34	0.76	0.31	0.92
10508.08	10717.67						
10717.67	10927.26	5.44	4.71	11.02	0.08	0.43	1.15

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 17.038

INPUT
Description:
Station Elevation Data num= 133

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     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 6150.14 1486.32 6174.29 1486.35 6190.92    1486 6191.48 1485.99 6196.69 1485.11
 6204.64 1485.51 6250.15 1485.91 6257.47    1486 6350.14 1486.51 6361.97    1486
 6363.47 1485.94 6371.46 1485.47 6378.02  1485.8 6416.08 1485.84 6419.18 1485.37
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 6423.88 1485.68 6449.91    1486 6450.15    1486 6550.16 1486.95 6654.52    1486
 6792.59 1485.08 6910.69 1485.32 7112.54 1484.54 7119.31 1484.35 7130.39  1484.7
 7325.22    1484 7449.22 1483.84 7604.83    1484  7987.8 1483.57 8163.66    1484
 8213.95 1484.36 8216.01    1484 8219.46 1483.38 8224.03    1484 8225.92 1484.26
 8233.02 1484.66 8235.65 1484.06 8241.23 1484.43 8408.09    1486 8454.37  1486.4
 8526.32 1486.85 8574.03 1486.45 8626.31  1486.2 8664.85    1486 8726.31 1485.69
 8826.31 1484.66 8926.33 1484.18 8998.71    1484 9026.33 1483.93 9120.84    1482
 9126.33 1481.89 9162.16 1481.31 9193.91 1481.34 9226.23 1480.97 9226.32 1481.04
 9229.01    1480 9233.82 1478.25 9242.49    1480 9248.53 1481.23  9257.1 1480.22
 9269.69 1481.58 9286.44 1481.63 9326.32 1481.21  9326.5 1481.13 9331.62 1480.98
 9347.43 1481.43 9426.32  1481.7 9509.29 1480.69 9513.14    1480 9518.39 1479.11
 9521.96    1480  9526.3 1481.09  9530.6 1481.19 9548.14 1480.92 9553.28 1480.59
 9562.44 1481.16 9626.31 1481.95 9651.61    1482 9726.32 1482.15 9826.32 1482.37
 9926.31 1482.5910191.28 1482.6310194.17 1482.56 10205.1  1482.810243.54 1482.84
 10245.3 1482.5810252.81 1483.1510410.76 1482.7210415.84 1482.0910424.56 1482.73
10701.94 1483.7510711.72 1483.5210720.65 1483.7510732.53 1483.5810736.95 1483.73
10741.13 1483.3410752.86 1483.7410772.15    148410808.15 1484.1310808.86    1484
10813.53 1483.0510817.38    148410818.98 1484.3810832.54 1484.2210859.81    1484
10929.73 1483.4310932.54 1483.4110935.65 1483.5310945.42 1483.37   10950 1482.53
10958.32 1483.4111032.55 1483.3311132.53 1483.6311198.05    148411232.54  1484.2
11332.54 1484.4411370.26 1484.4411383.66 1484.35 11432.7 1484.4411532.68 1484.49
11632.69 1484.59 11732.7 1484.47 11832.7 1484.8111932.52 1484.6611932.68 1484.42
11936.31    148411937.21 1483.85 11938.5    148411944.55 1484.6712032.69 1484.89
 12132.7 1485.9212136.55    1486 12232.7 1487.92

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 6150.14     .05 9726.32     .05 10205.1     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9726.32 10205.1           500.93  488.11     396             .3       .5
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 6150.14 8526.21    1486

CROSS SECTION OUTPUT    Profile #PF 2

  E.G. Elev (ft)            1483.65   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.20   Wt. n-Val.                 0.050      0.050      0.050
  W.S. Elev (ft)            1483.46   Reach Len. (ft)           500.93     488.11     396.00
  Crit W.S. (ft)                      Flow Area (sq ft)        1316.62     452.82     216.00
  E.G. Slope (ft/ft)       0.006945   Area (sq ft)             1316.62     452.82     216.00
  Q Total (cfs)             6466.00   Flow (cfs)               5074.34    1080.59     311.07
  Top Width (ft)            1723.24   Top Width (ft)            676.83     478.78     567.63
  Vel Total (ft/s)             3.26   Avg. Vel. (ft/s)            3.85       2.39       1.44
  Max Chl Dpth (ft)            5.21   Hydr. Depth (ft)            1.95       0.95       0.38
  Conv. Total (cfs)         77586.4   Conv. (cfs)              60887.7    12966.2     3732.5
  Length Wtd. (ft)           488.11   Wetted Per. (ft)          678.26     478.78     567.96
  Min Ch El (ft)            1482.15   Shear (lb/sq ft)            0.84       0.41       0.16
  Alpha                        1.20   Stream Power (lb/ft s)      3.24       0.98       0.24
  Frctn Loss (ft)              2.71   Cum Volume (acre-ft)      963.04     252.20     280.41
  C & E Loss (ft)              0.04   Cum SA (acres)            614.17     192.59     331.87


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 2

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  9011.08       9368.70        2328.41     611.12     320.22      36.01      1.91       3.81
  9368.70       9726.32        2745.95     705.51     358.04      42.47      1.97       3.89
  LB 9726.32    9822.08         318.28     115.07      95.76       4.92      1.20       2.77
  9822.08       9917.83         230.86      94.90      95.76       3.57      0.99       2.43
  9917.83       10013.59        182.92      82.53      95.76       2.83      0.86       2.22
  10013.59      10109.34        177.55      81.07      95.76       2.75      0.85       2.19
  10109.34      RB 10205.10     170.96      79.25      95.76       2.64      0.83       2.16
  10205.10      10407.86        178.61     110.57     202.80       2.76      0.55       1.62
  10407.86      10610.62        122.58      88.22     202.82       1.90      0.44       1.39
  10610.62      10813.38          0.28       0.87      18.23       0.00      0.05       0.32
  10813.38      11016.14          7.53      11.70      85.35       0.12      0.14       0.64
  11016.14      11218.90          2.06       4.63      58.75       0.03      0.08       0.44
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Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 16.945

INPUT
Description:
Station Elevation Data num= 145

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6103.68	1483.47	6112.44	1483.23	6114.81	1482.91	6120.98	1484	6122.77	1484.32
6136.44	1484	6141.13	1483.89	6145.52	1483.1	6153.65	1483.42	6203.68	1483.69
6303.68	1483.74	6467.45	1482.74	6476.36	1482.37	6485.67	1483.23	6664.24	1483.71
6764.23	1483.91	6864.23	1483.15	6894.87	1482.3	6964.23	1482.72	7333.48	1482
7547.32	1481.23	7907.88	1480.96	8047.34	1481.67	8052.38	1481.26	8062.34	1481.83
8071.81	1482	8205.2	1484	8268.44	1484.35	8368.44	1484.08	8383.16	1484
8468.44	1483.54	8568.43	1483.47	8668.43	1483.2	8768.43	1482.08	8774.3	1482
8868.43	1480.67	8968.42	1480.06	9068.45	1480.16	9122.86	1480	9168.44	1479.87
9251.81	1479.51	9261.67	1478.92	9268.44	1479.58	9277.69	1479.66	9323.19	1479.91
9368.44	1479.82	9369.32	1479.76	9374.14	1478	9379.66	1476.03	9386.14	1478
9391.22	1479.53	9407.07	1479.44	9413.49	1478	9414.9	1477.68	9417.78	1478
9426.34	1479.06	9466.19	1479.62	9468.44	1478.64	9470.28	1478	9474.54	1476.51
9481.41	1476.19	9489.99	1478	9495.85	1479.2	9509.31	1479.56	9522.36	1478.5
9535.38	1479.33	9568.45	1479.16	9668.44	1478.84	9764.79	1479.19	9768.45	1478.67
9778.91	1478.02	9787.89	1478.77	9808.54	1479.11	9812.98	1478	9820.99	1476
9821.49	1475.88	9822.3	1476	9834.21	1478	9834.94	1478.12	9853.55	1478.41
9855.46	1478	9859.47	1477.08	9868.03	1478	9871.9	1478.46	9923.28	1478.49
9926.92	1478	9929.76	1477.61	9936.66	1478	9943.91	1478.42	9970.57	1478.56
9974.52	1478	9980.24	1477.14	9982.72	1477.17	9989.81	1478	10069.06	1479.33
10169.07	1479.6	110269.05	1479.7	310369.07	1479.66	10469.05	1479.95	10496.86	1480
10569.07	1480.13	10669.05	1480.89	10704.06	1480.88	10709.07	1480.21	10715.03	1481.08
10769.06	1481.04	10869.05	1480.97	10949.62	1480.73	10954.33	1480	10954.51	1479.97
10954.77	1480	10961.43	1481.02	10969.06	1480.79	11007.81	1480.85	11011.02	1480.12
11016.41	1480.98	11041.33	1481.02	11069.05	1481.07	11169.04	1481.04	11269.04	1481.04
11369.05	1481.58	11426.57	1481.68	11434.05	1481.14	11445.12	1481.63	11469.06	1481.56
11471	1481.71	11475.83	1481.35	11481.51	1481.64	11569.04	1481.61	11669.05	1481.6
11769.05	1481.65	11869.06	1481.78	11969.04	1481.98	11972.43	1482	12069.05	1482.72
12080.54	1482.79	12095.82	1482.68	12169.05	1483.28	12189.8	1483.31	12193.5	1483.26
12204.76	1483.95	12207.81	1484	12230.3	1484.4	12240.24	1484.71	12269.03	1485.28

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6103.68	.05	9764.79	.05	10169.07	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9764.79	10169.07	500.67	505.48	500.56	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6103.68	8269.78	1485

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1480.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1480.78	Reach Len. (ft)	500.67	505.48	500.56
Crit W.S. (ft)		Flow Area (sq ft)	1154.80	884.04	430.43
E.G. Slope (ft/ft)	0.004540	Area (sq ft)	1154.80	884.04	430.43
Q Total (cfs)	6466.00	Flow (cfs)	2716.52	2976.64	772.84
Top Width (ft)	1838.62	Top Width (ft)	904.45	404.28	529.90
Vel Total (ft/s)	2.62	Avg. Vel. (ft/s)	2.35	3.37	1.80
Max Chl Dpth (ft)	4.90	Hydr. Depth (ft)	1.28	2.19	0.81
Conv. Total (cfs)	95964.9	Conv. (cfs)	40317.1	44177.7	11470.1
Length Wtd. (ft)	502.89	Wetted Per. (ft)	906.92	405.43	530.23
Min Ch El (ft)	1475.88	Shear (lb/sq ft)	0.36	0.62	0.23
Alpha	1.16	Stream Power (lb/ft s)	0.85	2.08	0.41
Frctn Loss (ft)	2.05	Cum Volume (acre-ft)	948.83	244.71	277.47
C & E Loss (ft)	0.00	Cum SA (acres)	605.08	187.65	326.89

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8666.46	9032.57	100.81	86.79	172.23	1.56	0.50	1.16
9032.57	9398.68	744.69	390.06	367.34	11.52	1.07	1.91
9398.68	9764.79	1871.02	677.95	367.35	28.94	1.85	2.76
LB 9764.79	9845.65	782.86	213.09	81.53	12.11	2.64	3.67
9845.65	9926.50	716.19	201.59	81.11	11.08	2.49	3.55
9926.50	10007.36	805.29	216.24	81.07	12.45	2.67	3.72
10007.36	10088.21	433.72	149.02	80.86	6.71	1.84	2.91
10088.21	RB 10169.07	238.57	104.11	80.86	3.69	1.29	2.29
10169.07	10379.07	466.66	231.45	210.00	7.22	1.10	2.02
10379.07	10589.06	286.81	172.83	210.00	4.44	0.82	1.66
10589.06	10799.06	14.40	18.96	74.39	0.22	0.26	0.76
10799.06	11009.05	2.82	4.93	29.61	0.04	0.17	0.57
11009.05	11219.05	2.15	2.25	6.23	0.03	0.37	0.96

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 16.850

INPUT
Description:
Station Elevation Data num= 153

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6048.85	1481.5	6051.53	1481.2	6055.99	1480.97	6063.43	1482	6065.05	1482.21
6083.32	1482.06	6083.56	1482	6087.13	1480.93	6096.06	1481.4	6133.42	1480.91
6137.76	1480.57	6148.85	1481.3	6150.81	1481.07	6219.72	1481.04	6225.69	1480.73
6232.93	1481.25	6248.84	1481.64	6470.16	1480.6	6476.55	1480.18	6483.2	1480.68
6609.4	1481.38	6652.15	1480.77	6668.82	1480.5	6678.02	1480.7	6709.4	1481.11
6785.34	1480	6790.1	1479.95	7017.45	1479	7023.18	1478.19	7033.41	1479.33
7349.71	1478.55	7598.19	1478	7609.77	1478	7693.71	1478.2	7771.33	1479.38
7775.46	1478.97	7826.72	1480	7990.02	1481.55	8090.02	1481.89	8190.04	1481.45
8290 04	1481.4	8390.03	1480.57	8490.03	1480.65	8590.03	1480.26	8601.08	1480
8638.57	1479.12	8678.06	1479.39	8690.03	1479.06	8790.02	1479.23	8890.02	1479.62
8990.02	1478.6	9064.85	1478	9090.02	1477.8	9190.04	1477.58	9290.04	1477.55
9351.01	1478	9390.03	1478.28	9443.29	1478	9490.03	1477.75	9590.05	1477.33
9642	1476.18	9643.27	1476	9655.68	1474.29	9671.47	1476	9677.5	1476.94
9690.03	1476.69	9786.41	1476.67	9790.04	1476.09	9790.89	1476	9799.63	1475.04
9807.15	1474.79	9812.87	1476	9814.02	1476.23	9822.21	1476	9825.49	1475.87
9835.42	1474.34	9844.09	1476	9847.78	1476.66	9859.94	1476.35	9864.98	1476
9865.76	1475.94	9872.47	1476	9890.03	1476.17	9907.44	1476.34	9911.23	1476
9918.97	1475.24	9923	1476	9929.61	1476.54	9929.63	1476.54	9937.29	1476
9944.2	1475.67	9949.03	1476	9966.21	1476.71	9990.04	1476.51	10090.03	1476.93
10152.51	1476.68	10155.1	1476	10157.79	1475.31	10161.16	1474.96	10166.58	1476
10173.08	1477.24	10190.04	1477.11	10203.69	1477.31	10207.65	1476.74	10217.56	1477.45
10290.03	1477.16	10390.04	1477.23	10490.03	1477.81	10590.04	1477.95	10607.58	1478
10690.03	1478.25	10790.04	1478.15	10797.45	1478.17	10799.04	1478	10803.31	1477.54
10806.18	1478	10808.78	1478.45	10890.03	1478.12	10949.04	1478.74	10962.28	1478.13
10962.6	1478	10967.44	1476	10967.81	1475.85	10968.31	1476	10974.83	1478
10977.05	1478.66	10990.04	1478.44	10998.69	1478.14	10999.49	1478	11004.42	1477.11
11010.69	1478	11011.47	1478.11	11090.03	1478.81	11190.04	1478.99	11290.03	1479.01
11390.04	1479.06	11490.03	1478.91	11540.1	1478.61	11551.96	1478.91	11590.04	1479.04
11690.02	1479.06	11790.04	1479.31	11890.05	1479.23	11990.04	1479.26	12090.05	1479.19
12190.03	1479.71	12207.24	1479.49	12211.43	1479.04	12218	1479.68	12231.24	1480
12240.75	1480.21	12250.99	1480.32	12290.05	1480.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6048.85	.05	9786.41	.05	10173.08	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9786.41	10173.08	498.13	499.99	498.03	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6048.85	8890.26	1482	11789.73	12290.05	1482

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1478.86	Element			
Vel Head (ft)	0.11	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1478.75	Reach Len. (ft)	498.13	499.99	498.03
Crit W.S. (ft)		Flow Area (sq ft)	1003.15	939.11	804.99

E.G. Slope (ft/ft)	0.003679	Area (sq ft)	1003.15	939.11	804.99
Q Total (cfs)	6466.00	Flow (cfs)	2083.07	3051.97	1330.96
Top Width (ft)	2136.35	Top Width (ft)	810.93	386.67	938.75
Vel Total (ft/s)	2.35	Avg. Vel. (ft/s)	2.08	3.25	1.65
Max Chl Dpth (ft)	4.46	Hydr. Depth (ft)	1.24	2.43	0.86
Conv. Total (cfs)	106609.0	Conv. (cfs)	34344.9	50319.7	21944.5
Length Wtd. (ft)	498.90	Wetted Per. (ft)	811.25	387.90	939.99
Min Ch El (ft)	1474.34	Shear (lb/sq ft)	0.28	0.56	0.20
Alpha	1.25	Stream Power (lb/ft s)	0.59	1.81	0.33
Frctn Loss (ft)	2.53	Cum Volume (acre-ft)	936.43	234.13	270.37
C & E Loss (ft)	0.00	Cum SA (acres)	595.22	183.06	318.45

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8665.14	9038.90	12.93	17.90	63.42	0.20	0.28	0.72
9038.90	9412.65	581.71	357.26	373.76	9.00	0.96	1.63
9412.65	9786.41	1488.42	627.97	374.07	23.02	1.68	2.37
LB 9786.41	9863.74	866.27	233.97	77.94	13.40	3.03	3.70
9863.74	9941.08	709.43	207.08	77.51	10.97	2.68	3.43
9941.08	10018.41	548.54	177.34	77.36	8.48	2.29	3.09
10018.41	10095.75	421.81	151.45	77.33	6.52	1.96	2.79
10095.75	RB 10173.08	505.92	169.27	77.75	7.82	2.19	2.99
10173.08	10384.78	685.28	322.92	211.76	10.60	1.53	2.12
10384.78	10596.47	371.84	223.73	211.70	5.75	1.06	1.66
10596.47	10808.17	147.05	128.26	211.80	2.27	0.61	1.15
10808.17	11019.87	114.00	110.29	212.76	1.76	0.52	1.03
11019.87	11231.56	12.26	17.81	63.23	0.19	0.28	0.69
11231.56	11443.26						
11443.26	11654.96	0.54	1.99	28.74	0.01	0.07	0.27

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 16.755

INPUT
Description:
Station Elevation Data num= 135

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6024.45	1479.23	6051.23	1479.49	6072.51	1478.48	6074.39	1478	6076.03	1477.58
6080.6	1477.47	6085.32	1478	6090.32	1478.51	6506.19	1480	6509.41	1480.06
6514.52	1480	6642.74	1478	6697.65	1477.17	6952.11	1476	7149.7	1475.22
7208.17	1475.15	7209.16	1475.15	7368.25	1475.44	7427.41	1475.74	7433.84	1475.21
7489.14	1476	7656.04	1478	7790.03	1478.38	7834.85	1478	7890.03	1477.53
7990.03	1477.77	8090.02	1477.87	8120.6	1478	8190.02	1478.02	8290.04	1478.24
8313.89	1478	8349.78	1477.64	8390.04	1477.99	8490.04	1477.55	8590.04	1477.63
8690.03	1476.95	8767.38	1476	8767.57	1475.99	8774.43	1475.69	8784.04	1476
8790.03	1476.19	8795.52	1476.87	8890.03	1476.78	8927.68	1476.96	8981.39	1476.78
8990.03	1476.58	9039.72	1476	9090.02	1475.41	9190.02	1475.17	9290.04	1475.41
9390.05	1474.46	9490.03	1474.86	9590.05	1474.83	9690.03	1474.71	9788.42	1474.51
9790.05	1474.39	9800.67	1474.48	9802.62	1474	9807.67	1472.79	9813.87	1474
9816.93	1474.59	9828.19	1474.52	9832.8	1474	9834.75	1473.79	9836.56	1474
9842.92	1474.75	9858.27	1474.21	9859.13	1474	9866.69	1472	9867.16	1471.88
9867.73	1472	9877.05	1474	9879.64	1474.55	9890.03	1474.41	9939.56	1474.95
9986.23	1474.41	9990.04	1474.04	9990.45	1474	9995.52	1473.51	10008.87	1474
10009.77	1474.04	10014.04	1474	10031.6	1473.85	10037.39	1472.84	10048.34	1474
10049.64	1474.23	10078.53	1474.15	10079	1474	10085.05	1472.02	10090.03	1473.52
10093.42	1474	10095.68	1474.32	10190.04	1474.31	10290.03	1474.48	10390.04	1475.8
10490.03	1475.47	10590.04	1475.45	10690.03	1475.87	10709	1475.85	10715.67	1474.54
10725.67	1476	10726.3	1476.09	10785.96	1476	10790.04	1475.99	10802.48	1476
10890.03	1476.04	10948.01	1476	10990.04	1475.97	11090.03	1475.85	11190.04	1475.89
11274.79	1476	11290.03	1476.02	11327.83	1476	11390.04	1475.97	11490.05	1475.99

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11556.44 1475.6411561.33    147611561.96 1476.0511590.04 1476.0911597.91 1476.09
11598.88    147611603.32 1475.5711610.78 1475.9311635.25    147611690.05 1476.27
11790.04 1476.4911890.05 1476.3411990.04 1476.5412025.16 1476.4212090.05 1476.59
12190.04 1477.1812232.33    147812250.64 1478.3512270.52 1479.0112290.05 1479.01

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 6024.45     .05 9800.67     .0510095.68     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9800.6710095.68           401.42     400  403.43             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 6024.45 8927.68    1478
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 6024.45 8591.37    1480
```

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1476.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1476.17	Reach Len. (ft)	401.42	400.00	403.43
Crit W.S. (ft)	1475.67	Flow Area (sq ft)	923.42	599.02	850.42
E.G. Slope (ft/ft)	0.007237	Area (sq ft)	930.53	599.02	850.42
Q Total (cfs)	6466.00	Flow (cfs)	2622.32	2417.87	1425.81
Top Width (ft)	2681.02	Top Width (ft)	811.65	295.01	1574.35
Vel Total (ft/s)	2.72	Avg. Vel. (ft/s)	2.84	4.04	1.68
Max Chl Dpth (ft)	4.29	Hydr. Depth (ft)	1.19	2.03	0.54
Conv. Total (cfs)	76009.0	Conv. (cfs)	30825.9	28422.5	16760.7
Length Wtd. (ft)	401.40	Wetted Per. (ft)	775.65	296.92	1574.65
Min Ch El (ft)	1471.88	Shear (lb/sq ft)	0.54	0.91	0.24
Alpha	1.34	Stream Power (lb/ft s)	1.53	3.68	0.41
Frctn Loss (ft)	1.75	Cum Volume (acre-ft)	925.37	225.31	260.91
C & E Loss (ft)	0.03	Cum SA (acres)	585.94	179.14	304.08

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8667.80	9045.43	1.44	2.43	20.39	0.02	0.12	0.59
9045.43	9423.05	919.88	376.52	377.63	14.23	1.00	2.44
9423.05	9800.67	1701.00	544.47	377.63	26.31	1.44	3.12
LB 9800.67	9859.67	454.96	116.69	59.53	7.04	1.98	3.90
9859.67	9918.67	511.35	125.18	59.54	7.91	2.12	4.08
9918.67	9977.68	258.57	82.85	59.01	4.00	1.40	3.12
9977.68	10036.68	562.23	132.15	59.13	8.70	2.24	4.25
10036.68	RB 10095.68	630.77	142.14	59.71	9.76	2.41	4.44
10095.68	10315.12	978.84	391.07	219.44	15.14	1.78	2.50
10315.12	10534.55	198.04	149.93	219.44	3.06	0.68	1.32
10534.55	10753.99	127.57	115.20	219.68	1.97	0.52	1.11
10753.99	10973.43	16.90	34.24	219.44	0.26	0.16	0.49
10973.43	11192.87	43.42	60.32	219.44	0.67	0.27	0.72
11192.87	11412.30	24.69	42.99	219.44	0.38	0.20	0.57
11412.30	11631.74	35.08	53.08	219.49	0.54	0.24	0.66
11631.74	11851.18	1.27	3.60	38.29	0.02	0.09	0.35

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 16.679

INPUT
Description:

Station Elevation Data num= 165

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6186.07	1475.12	6189.51	1475.45	6211.96	1475.27	6216.95	1474	6217.69	1473.82
6221.7	1474	6230.94	1474.43	6286.07	1474.61	6301.71	1474.2	6386.07	1475.22
6554.33	1474	6633.27	1473.27	6677.39	1473.88	6746.62	1473.39	6778.83	1473.02
6782.63	1472.75	6792.78	1472.92	6941.35	1472.52	6944.21	1472	6954.43	1470.15
6961.99	1472	6966.7	1472.95	7018.21	1472.74	7022.6	1472	7027.01	1471.29
7030.94	1472	7033.64	1472.5	7055.26	1472.32	7056.28	1472	7059.71	1470.89
7067.32	1472	7067.92	1472.13	7070.24	1472	7073.81	1472	7076.81	1472.42
7193.26	1473.27	7237.59	1474	7255.93	1474.16	7397.21	1476	7403.09	1476.06
7413.51	1476	7471.53	1475.21	7495.22	1475.29	7624.89	1475.69	7644.52	1476
7690.03	1476.72	7718.95	1476	7741.91	1475.43	7790.02	1475.94	7890.03	1475.7
7990.02	1475.06	8087.7	1474.68	8090.03	1474.6	8170.85	1474.97	8190.04	1475.85
8228.24	1475.46	8268.18	1476	8290.03	1476.41	8390.04	1476.19	8429.3	1476
8483.52	1475.74	8490.02	1475.94	8524.1	1475.94	8590.03	1475.77	8612.46	1475.08
8669.37	1475.01	8690.02	1474.92	8702.56	1474.79	8739.78	1474.09	8767.23	1474.38
8790.03	1474.16	8797.64	1474	8799.14	1473.97	8815.93	1473.34	8832.11	1473.94
8837.67	1474	8890.02	1474.55	8990.03	1474.09	9026.05	1474	9090.02	1473.84
9190.03	1473.09	9290.02	1473.14	9390.03	1472.73	9490.04	1472.9	9590.03	1472.8
9690.04	1472.73	9752.67	1472.63	9757.26	1472	9757.87	1471.92	9758.99	1472
9766.11	1472.53	9790.03	1472.63	9797.42	1472.38	9800.92	1472	9805.99	1471.58
9810.84	1472	9818.36	1472.64	9842.92	1472.48	9844.83	1472	9850.92	1470.54
9856.87	1472	9860.79	1472.99	9890.04	1472.7	9940.78	1472.18	9962.05	1472
9962.44	1471.98	9962.88	1472	9973.77	1472.5	9979.96	1472	9983.77	1471.68
9986.98	1472	9990.03	1472.33	9991.38	1472.49	10002.23	1472.28	10008.09	1472
10018.92	1471.49	10023.58	1472	10027.94	1472.43	10090.04	1472.28	10092.4	1472.59
10097.14	1472	10107.5	1470.76	10116.99	1472	10120.39	1472.57	10154.08	1472.47
10160.19	1472	10162.44	1471.83	10165.72	1472	10173.95	1472.43	10190.03	1472.46
10290.04	1472.58	10390.03	1473.07	10490.04	1473.27	10590.03	1473.37	10690.04	1473.52
10790.03	1473.54	10890.04	1473.82	10990.03	1473.89	11090.04	1473.59	11190.02	1473.54
11290.04	1473.97	11336.83	1474	11390.02	1474.04	11490.04	1474.06	11590.02	1474.19
11631.2	1474.22	11631.81	1474	11634.15	1473.41	11640.72	1474	11641.76	1474.2
11670.61	1474.29	11675.35	1474	11675.66	1473.98	11675.87	1474	11680.23	1474.37
11690.03	1474.31	11790.05	1474.36	11890.03	1474.21	11990.05	1474.31	12090.03	1474.26
12190.04	1474.53	12258.47	1475.94	12268.77	1475.98	12290.03	1475.67	12294.43	1476

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6186.07	.05	9752.67	.05	10173.95	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9752.67	10173.95	501.06	500.01	501.06	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
6186.07	8890.02	1476

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6186.07	8890.02	1476

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1474.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1474.48	Reach Len. (ft)	501.06	500.01	501.06
Crit W.S. (ft)	1473.68	Flow Area (sq ft)	1077.90	928.82	1469.46
E.G. Slope (ft/ft)	0.002912	Area (sq ft)	1077.90	928.82	1469.46
Q Total (cfs)	6466.00	Flow (cfs)	2027.92	2518.77	1919.31
Top Width (ft)	3268.76	Top Width (ft)	848.35	421.28	1999.13
Vel Total (ft/s)	1.86	Avg. Vel. (ft/s)	1.88	2.71	1.31
Max Chl Dpth (ft)	3.94	Hydr. Depth (ft)	1.27	2.20	0.74
Conv. Total (cfs)	119817.8	Conv. (cfs)	37578.2	46673.9	35565.7
Length Wtd. (ft)	500.69	Wetted Per. (ft)	848.35	422.43	1999.32
Min Ch El (ft)	1470.54	Shear (lb/sq ft)	0.23	0.40	0.13
Alpha	1.30	Stream Power (lb/ft s)	0.43	1.08	0.17
Frctn Loss (ft)	1.58	Cum Volume (acre-ft)	916.12	218.29	250.16
C & E Loss (ft)	0.02	Cum SA (acres)	578.29	175.86	287.53

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8682.69	9039.35	25.61	39.38	135.03	0.40	0.29	0.65

9039.35	9396.01	730.54	433.69	356.66	11.30	1.22	1.68
9396.01	9752.67	1271.77	604.83	356.66	19.67	1.70	2.10
LB 9752.67	9836.93	462.90	176.70	84.41	7.16	2.10	2.62
9836.93	9921.18	437.71	171.16	84.79	6.77	2.03	2.56
9921.18	10005.44	535.96	192.88	84.35	8.29	2.29	2.78
10005.44	10089.69	523.78	190.21	84.32	8.10	2.26	2.75
10089.69	RB 10173.95	558.41	197.88	84.55	8.64	2.35	2.82
10173.95	10386.00	740.98	389.41	212.05	11.46	1.84	1.90
10386.00	10598.05	383.96	262.48	212.05	5.94	1.24	1.46
10598.05	10810.09	262.32	208.84	212.05	4.06	0.98	1.26
10810.09	11022.14	143.79	145.60	212.05	2.22	0.69	0.99
11022.14	11234.19	210.91	183.22	212.05	3.26	0.86	1.15
11234.19	11446.24	87.58	108.14	212.05	1.35	0.51	0.81
11446.24	11658.29	50.82	78.04	212.21	0.79	0.37	0.65
11658.29	11870.33	14.63	36.95	212.07	0.23	0.17	0.40
11870.33	12082.38	20.89	45.76	212.05	0.32	0.22	0.46
12082.38	12294.43	3.43	11.01	90.70	0.05	0.12	0.31

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 16.585

INPUT
Description: Centerline of Vineyard Road
Station Elevation Data num= 74

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6389.47	1471.33	6488.54	1470.91	6592.65	1470.82	6687.53	1470.65	6785.7	1470.5
6876.5	1470.52	6988.71	1470.94	7085.69	1471.04	7183.99	1471.55	7282.41	1471.94
7354.12	1472	7383.71	1472.33	7489.65	1472.87	7582.64	1472.94	7690.38	1473.23
7790.04	1473.38	7890.02	1473.55	7990.03	1473.79	8071.41	1474	8090.02	1474.06
8096.05	1474	8175.29	1474	8190.03	1474.21	8290.02	1474.38	8390.03	1474.4
8490.04	1474.45	8590.03	1474.45	8690.04	1474.33	8713.59	1474	8789.08	1474
8790.03	1474.09	8800.36	1474	8890.04	1473.82	8990.02	1473.36	9090.04	1473.14
9190.02	1472.77	9290.03	1472.4	9323.8	1472	9388.08	1472	9390.04	1472.18
9424.46	1472	9488.19	1472	9490.05	1472.16	9548.82	1472	9590.04	1471.89
9690.05	1471.79	9790.04	1471.81	9890.05	1471.79	9990.03	1471.66	10090.05	1471.69
10190.03	1471.79	10290.05	1471.76	10390.03	1471.76	10490.05	1471.74	10590.03	1471.94
10653.8	1472	10690.04	1472.04	10790.03	1472.28	10890.04	1472.28	10990.03	1472.21
11090.04	1472.31	11190.03	1472.13	11290.04	1472.28	11390.05	1472.28	11490.04	1472.33
11590.05	1472.41	11690.04	1472.51	11790.05	1472.56	11890.04	1472.56	11990.05	1472.78
12090.04	1472.73	12190.05	1472.83	12241.2	1472.87	12290.04	1472.88		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6389.47	.016	9790.04	.016	10190.03	.016

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9790.04	10190.03	572.41	410.14	323.21	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6389.47	8493.34	1474

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1472.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.27	Wt. n-Val.	0.016	0.016	0.016
W.S. Elev (ft)	1472.68	Reach Len. (ft)	572.41	410.14	323.21
Crit W.S. (ft)	1472.68	Flow Area (sq ft)	376.26	379.57	866.89
E.G. Slope (ft/ft)	0.003418	Area (sq ft)	376.26	379.57	866.89
Q Total (cfs)	6466.00	Flow (cfs)	1536.53	1989.99	2939.48
Top Width (ft)	2733.09	Top Width (ft)	576.76	399.99	1756.34
Vel Total (ft/s)	3.98	Avg. Vel. (ft/s)	4.08	5.24	3.39
Max Chl Dpth (ft)	1.02	Hydr. Depth (ft)	0.65	0.95	0.49
Conv. Total (cfs)	110605.8	Conv. (cfs)	26283.5	34040.3	50282.0
Length Wtd. (ft)	424.02	Wetted Per. (ft)	576.78	399.99	1756.34
Min Ch El (ft)	1471.66	Shear (lb/sq ft)	0.14	0.20	0.11
Alpha	1.11	Stream Power (lb/ft s)	0.57	1.06	0.36
Frctn Loss (ft)	1.57	Cum Volume (acre-ft)	907.75	210.78	236.73
C & E Loss (ft)	0.06	Cum SA (acres)	570.10	171.14	265.93

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9109.93	9449.98	348.59	110.27	236.71	5.39	0.47	3.16
9449.98	9790.04	1187.94	265.99	340.06	18.37	0.78	4.47
LB 9790.04	9870.04	351.75	70.55	80.00	5.44	0.88	4.99
9870.04	9950.04	379.27	73.81	80.00	5.87	0.92	5.14
9950.04	10030.03	439.47	80.63	80.00	6.80	1.01	5.45
10030.03	10110.03	432.45	79.86	80.00	6.69	1.00	5.42
10110.03	RB 10190.03	387.04	74.71	80.00	5.99	0.93	5.18
10190.03	10400.03	855.14	192.54	210.00	13.23	0.92	4.44
10400.03	10610.03	787.41	183.24	210.00	12.18	0.87	4.30
10610.03	10820.03	385.67	119.41	210.00	5.96	0.57	3.23
10820.03	11030.03	242.23	90.33	210.00	3.75	0.43	2.68
11030.03	11240.04	270.19	96.45	210.00	4.18	0.46	2.80
11240.04	11450.04	222.34	85.80	210.00	3.44	0.41	2.59
11450.04	11660.04	131.76	62.69	210.00	2.04	0.30	2.10
11660.04	11870.04	39.60	30.47	210.00	0.61	0.15	1.30
11870.04	12080.04	5.14	5.97	76.33	0.08	0.08	0.86

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 16.507

INPUT
Description:
Station Elevation Data num= 153

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6214.25	1467.99	6240.57	1467.96	6247.38	1467.6	6314.24	1467.23	6391.35	1468
6414.25	1468.23	6444.44	1468	6497.24	1467.6	6505.11	1466.84	6513.11	1467.16
6514.24	1467.03	6548.91	1466.89	6553.26	1466	6555.97	1465.49	6559.87	1466
6567.77	1467.06	6614.25	1467.52	6622.97	1467.31	6638.07	1466.26	6648.13	1467.44
6691.86	1466.83	6702.8	1467.23	6714.23	1467.01	6758.29	1466.98	6769.48	1466.76
6807.04	1467.79	6814.24	1467.86	6823.45	1468	6914.23	1469.35	7137.85	1468.25
7151.01	1468.3	7165.53	1468.19	7240.87	1469.24	7266.68	1470	7315	1471.29
7438.14	1470.61	7534.17	1470	7663.82	1468	7676.38	1467.81	7776.37	1467.74
7876.38	1467.18	7937.48	1468	7976.36	1468.52	7985.46	1468.96	8050.52	1470
8076.38	1470.43	8090.38	1470	8090.58	1469.99	8176.36	1469.55	8276.37	1468.94
8376.36	1468.5	8476.37	1468.11	8576.36	1468.84	8654.28	1470	8676.37	1470.33
8729.25	1470.61	8736.25	1470.62	8746.25	1470.61	8776.36	1470.55	8876.37	1470.16
8976.38	1470.01	8976.78	1470	9010.36	1469.16	9076.37	1468.84	9176.38	1469.38
9330.49	1468.76	9340.01	1468.32	9348.1	1468.64	9380.19	1468.54	9386.21	1468
9391.66	1467.49	9397.67	1468	9432.23	1468.51	9588.7	1468.34	9677.9	1468.82
9682.02	1468	9683.59	1467.67	9685.17	1468	9688.76	1468.76	9697.35	1468.58
9699.05	1468	9703.14	1466.6	9718.37	1466.19	9725.2	1468	9729.46	1469.06
9742.54	1468.89	9744.95	1468	9746.03	1467.6	9750.86	1468	9756.64	1468.49
9778.55	1468.89	9780.72	1468	9785.63	1466	9786.44	1465.66	9787.86	1466
9796.09	1468	9798.92	1468.69	9852.11	1468.81	9858.79	1468	9859.36	1467.93
9859.94	1468	9866.71	1468.81	9897.91	1468.82	9904.51	1468.47	9921.6	1468.9
10001.01	1468.59	10003.69	1468.7	10011.99	1468	10012.46	1467.96	10012.94	1468
10022.36	1468.76	10077.67	1468.3	10079.9	1468	10085.32	1467.27	10095.52	1468
10099.68	1468.31	10105.41	1468.45	10110.53	1468	10118.57	1467.36	10125.16	1468
10127.55	1468.24	10134.41	1468	10150.35	1467.65	10155.6	1466	10155.81	1465.92
10156.28	1466	10168.12	1468	10168.87	1468.12	10510.91	1468.81	10819.04	1470
10923.22	1470.45	11023.21	1470.03	11044.76	1470	11123.22	1469.88	11165.9	1470
11223.21	1470.16	11323.22	1470.06	11423.2	1470.16	11468.27	1470	11523.22	1469.81
11600.17	1470	11623.2	1470.06	11714.4	1470.39	11719.12	1470	11719.95	1469.88
11721.51	1470	11723.22	1470.13	11728.31	1470.48	11823.2	1470.31	11923.21	1470.3
12023.2	1470.38	12123.21	1470.68	12223.2	1470.33				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6214.25	.05	9677.9	.05	10168.87	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9677.91	10168.87	294	294.2	296.55	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6214.25	8736.25	1472	12127.34	12223.2	1472

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1470.25	Element			
Vel Head (ft)	0.09	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1470.16	Reach Len. (ft)	294.00	294.20	296.55
Crit W.S. (ft)	1469.34	Flow Area (sq ft)	975.97	915.18	908.67
E.G. Slope (ft/ft)	0.004015	Area (sq ft)	975.97	915.18	908.67
Q Total (cfs)	6466.00	Flow (cfs)	2093.86	2599.33	1772.81
Top Width (ft)	2648.17	Top Width (ft)	802.38	490.97	1354.82
Vel Total (ft/s)	2.31	Avg. Vel. (ft/s)	2.15	2.84	1.95
Max Chl Dpth (ft)	4.50	Hydr. Depth (ft)	1.22	1.86	0.67
Conv. Total (cfs)	102051.3	Conv. (cfs)	33046.9	41024.6	27979.8
Length Wtd. (ft)	294.74	Wetted Per. (ft)	802.48	494.02	1354.85
Min Ch El (ft)	1465.66	Shear (lb/sq ft)	0.30	0.46	0.17
Alpha	1.08	Stream Power (lb/ft s)	0.65	1.32	0.33
Frctn Loss (ft)	1.21	Cum Volume (acre-ft)	898.87	204.69	230.14
C & E Loss (ft)	0.00	Cum SA (acres)	561.03	166.95	254.39

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8638.81	8985.17	3.49	10.15	109.65	0.05	0.09	0.34
8985.17	9331.54	649.00	369.46	346.38	10.04	1.07	1.76
9331.54	9677.90	1441.34	596.37	346.46	22.29	1.72	2.42
LB 9677.90	9776.09	627.05	207.83	99.40	9.70	2.12	3.02
9776.09	9874.29	470.62	174.88	99.30	7.28	1.78	2.69
9874.29	9972.48	313.47	136.44	98.21	4.85	1.39	2.30
9972.48	10070.68	403.53	158.80	98.26	6.24	1.62	2.54
10070.68	RB 10168.87	784.64	237.23	98.85	12.13	2.42	3.31
10168.87	10374.30	940.18	377.20	205.43	14.54	1.84	2.49
10374.30	10579.74	598.59	287.69	205.43	9.26	1.40	2.08
10579.74	10785.17	184.37	141.92	205.43	2.85	0.69	1.30
10785.17	10990.60	5.11	10.84	71.69	0.08	0.15	0.47
10990.60	11196.04	18.81	36.02	204.57	0.29	0.18	0.52
11196.04	11401.47	2.79	11.47	205.43	0.04	0.06	0.24
11401.47	11606.90	21.57	39.17	205.43	0.33	0.19	0.55
11606.90	11812.33	1.44	4.37	51.43	0.02	0.09	0.33

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 16.451

INPUT
Description:
Station Elevation Data num= 153

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6170.21	1466.86	6192.72	1467.84	6199.07	1467.74	6242.63	1468	6255.56	1468.08
6270.22	1468.42	6307.88	1468.21	6316.52	1468	6355.91	1467.18	6370.21	1466.89
6435.69	1467.33	6470.22	1467.91	6520.65	1467.06	6531.26	1466.33	6540.75	1466
6559.77	1466	6564.09	1466.01	6564.14	1466	6570.21	1465.35	6574.72	1465.3
6582.33	1466	6583.56	1466.12	6598.82	1466.3	6600.38	1466	6606.78	1464.77
6612.13	1466	6613.43	1466.27	6670.22	1466.33	6730.71	1466	6770.2	1465.79
6857.61	1465.54	6862.14	1466	6865.72	1466.41	6870.22	1466.18	6877.2	1466.34
6881.99	1466.01	6891.47	1466.38	6964.15	1467.12	6970.2	1466.91	7212.05	1468
7268.13	1468.2	7286.43	1468.6	7401.19	1468.04	7407.97	1468	7479.56	1468
7490.56	1468	7602.68	1466.84	7689.29	1466	7711.4	1465.6	7748.42	1465.63
7768.88	1465.89	7823.1	1466	8056.96	1468	8076.34	1468.21	8112.58	1468.86

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 8151.93  1469.4 8190.46 1468.28 8212.57 1468.11 8219.63    1468 8312.58 1466.59
 8343.24 1466.25 8345.66    1466 8349.15 1465.61  8355.4    1466 8358.37 1466.22
 8400.93 1467.25 8412.56  1467.2  8496.2    1468 8512.58 1468.16 8556.98 1468.36
 8612.56 1468.67 8712.57 1469.21 8714.13 1469.26 8765.27 1469.47 8812.56 1469.18
 8862.39 1468.42 8912.57 1468.89 9012.58 1468.77 9076.37    1468 9206.79 1467.35
 9324.51 1467.52 9349.09    1468 9366.48 1468.39  9397.4    1468 9456.95 1467.22
 9464.47    1466 9465.64 1465.81 9467.96    1466 9480.77  1467.1 9502.09  1467.2
 9509.06 1466.33  9522.9  1466.6 9525.59 1467.15 9691.74 1467.96 9699.64    1466
 9700.89 1465.68 9702.04    1466 9708.05 1467.68 9738.68 1467.79  9743.3    1466
 9743.98 1465.73 9745.16    1466 9751.75 1467.76 9813.83  1467.7  9820.4    1466
  9824.2 1464.86 9827.81    1466 9832.37 1467.54 9890.18 1467.57 9898.44 1466.52
 9906.05 1467.29  9935.2 1467.1510038.63 1467.0710049.61 1466.2310059.46 1466.93
10080.43 1466.7510082.68    146610086.83 1464.6210092.85    146610095.57 1466.65
10140.92 1466.8610146.28    146610146.57 1465.9510146.96    146610155.88 1466.97
 10178.7 1467.0510187.16 1466.6610194.07 1467.1410216.24 1467.24 10224.7 1466.72
10238.95  1467.4 10445.1  1467.210706.01    146810857.41 1468.8411269.72 1468.51
11369.72 1468.4911469.73 1468.6911569.73 1468.7611657.22 1468.9811661.87 1468.29
11669.71 1468.71 11670.2 1468.7511769.72 1468.8411840.94 1468.8511845.87 1468.93
11853.17 1469.3111869.54 1468.8711869.73 1468.8111873.14 1468.61 11880.3 1469.09
11969.73 1469.3612069.74 1468.7112169.72 1468.51

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 6170.21     .05 9691.74     .0510238.95     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9691.7410238.95           442.05  443.33   435.7             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 6170.21 8765.27    147011970.0912169.72    1470

CROSS SECTION OUTPUT    Profile #PF 2

  E.G. Elev (ft)            1469.04   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.09   Wt. n-Val.                0.050      0.050      0.050
  W.S. Elev (ft)            1468.95   Reach Len. (ft)          442.05     443.33     435.70
  Crit W.S. (ft)                      Flow Area (sq ft)        947.12    1019.05    1027.94
  E.G. Slope (ft/ft)       0.004229   Area (sq ft)             947.12    1019.05    1027.94
  Q Total (cfs)             6466.00   Flow (cfs)              1945.41    2970.51    1550.09
  Top Width (ft)            3018.50   Top Width (ft)           864.14     547.21    1607.15
  Vel Total (ft/s)             2.16   Avg. Vel. (ft/s)           2.05       2.91       1.51
  Max Chl Dpth (ft)            4.33   Hydr. Depth (ft)           1.10       1.86       0.64
  Conv. Total (cfs)         99426.1   Conv. (cfs)             29914.0    45676.7    23835.3
  Length Wtd. (ft)           441.07   Wetted Per. (ft)         864.45     550.15    1607.25
  Min Ch El (ft)            1464.62   Shear (lb/sq ft)           0.29       0.49       0.17
  Alpha                        1.23   Stream Power (lb/ft s)     0.59       1.43       0.25
  Frctn Loss (ft)              2.13   Cum Volume (acre-ft)     892.38     198.16     223.55
  C & E Loss (ft)              0.00   Cum SA (acres)           555.41     163.44     244.31


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 2

  Left Sta     Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  8635.28      8987.43          19.19      31.97    159.84       0.30       0.20       0.60
  8987.43      9339.59         778.31     404.40    352.16      12.04       1.15       1.92
  9339.59      9691.74        1147.91     510.75    352.45      17.75       1.45       2.25
  LB 9691.74   9801.18         397.94     161.88    110.64       6.15       1.48       2.46
  9801.18      9910.62         498.94     185.21    110.36       7.72       1.69       2.69
  9910.62      10020.07        562.68     198.40    109.44       8.70       1.81       2.84
  10020.07     10129.51        840.65     253.03    110.08      13.00       2.31       3.32
  10129.51     RB 10238.95     670.30     220.52    109.63      10.37       2.01       3.04
  10238.95     10432.03        637.96     317.49    193.08       9.87       1.64       2.01
  10432.03     10625.10        543.12     288.26    193.08       8.40       1.49       1.88
  10625.10     10818.18        200.82     158.69    193.08       3.11       0.82       1.27
  10818.18     11011.26         16.26      35.12    193.08       0.25       0.18       0.46
  11011.26     11204.33         39.78      60.07    193.08       0.62       0.31       0.66
  11204.33     11397.41         69.79      84.16    193.08       1.08       0.44       0.83
  11397.41     11590.49         29.37      50.07    193.08       0.45       0.26       0.59
  11590.49     11783.57         10.24      25.94    181.29       0.16       0.14       0.39
  11783.57     11976.64          2.73       8.14     74.41       0.04       0.11       0.34
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Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 16.367

INPUT
Description:
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6053.17	1466.5	6075.4	1467.12	6084.99	1467.09	6153.16	1466.64	6253.17	1466.18
6288.3	1466	6333.91	1465.77	6353.18	1465.84	6421.02	1465.59	6453.17	1464.79
6456.19	1465.02	6530.75	1465.85	6535.89	1464.54	6542.11	1465.94	6553.18	1465.15
6876.09	1464.25	6885.95	1464.71	6900.39	1464.37	6907.47	1464.71	7281.17	1464.2
7662.17	1464.24	7671.67	1464.69	7693.49	1464.62	8105.81	1465.01	8207.63	1464.64
8214.14	1464.18	8221.66	1464.98	8418.87	1466	8420.19	1466.08	8518.11	1466.96
8594.04	1467.57	8618.12	1467.38	8718.11	1466.13	8730.93	1466	8759	1465.72
8793.42	1465.93	8815.44	1466	8818.12	1466.01	8887.65	1467.35	8916.59	1468
8918.1	1468.03	8935.49	1468	9018.12	1467.84	9118.12	1467.37	9213.19	1466
9218.13	1465.93	9319.69	1465.24	9328.81	1464.76	9347.19	1465.36	9395.47	1465.87
9433.89	1465.76	9449.85	1464.45	9455.71	1465.01	9498.99	1464.95	9502.77	1464.31
9512.58	1465.11	9630.43	1464.96	9893.28	1465.4	9902.32	1464.07	9911	1465.24
9928.65	1465.41	9932.26	1464.47	9939.3	1465.66	9954.22	1465.48	9960.29	1465.28
9964.71	1465.53	10054.63	1465.45	10058.33	1464	10060.4	1463.16	10063.36	1464
10069.04	1465.46	10173.3	1465.25	10179.38	1464.07	10189.46	1465.11	10213.04	1465.53
10218.57	1465.02	10225.97	1465.75	10237.71	1465.58	10246.25	1464.95	10249.03	1465.34
10552.38	1465.38	10733.55	146	10964.72	1466.21	11474.62	1466.72	11561.42	1466.62
11567.19	146	11568.33	1465.87	11569.48	146	11574.67	1466.67	11674.68	1467.02
11688.91	1467.05	11693.3	1466.94	11705.16	1467.05	11723.64	1467.11	11729.02	1466.87
11734.44	1467.46	11774.79	1467.12	11874.8	1467.21	11974.78	1467.49	12074.78	1466.62

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6053.17	.05	9498.99	.05	10249.03	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9498.99	10249.03	392.24	394.26	389.71	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6053.17	8918.1	1468	11735.15	12074.78	1468

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1466.91	Element			
Vel Head (ft)	0.11	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1466.80	Reach Len. (ft)	392.24	394.26	389.71
Crit W.S. (ft)	1466.17	Flow Area (sq ft)	411.52	1203.16	995.62
E.G. Slope (ft/ft)	0.005552	Area (sq ft)	411.52	1203.16	995.62
Q Total (cfs)	6466.00	Flow (cfs)	1031.92	3646.05	1788.03
Top Width (ft)	2454.54	Top Width (ft)	341.40	750.04	1363.10
Vel Total (ft/s)	2.48	Avg. Vel. (ft/s)	2.51	3.03	1.80
Max Chl Dpth (ft)	3.64	Hydr. Depth (ft)	1.21	1.60	0.73
Conv. Total (cfs)	86776.6	Conv. (cfs)	13848.8	48931.6	23996.2
Length Wtd. (ft)	392.18	Wetted Per. (ft)	341.51	751.56	1363.20
Min Ch El (ft)	1463.16	Shear (lb/sq ft)	0.42	0.55	0.25
Alpha	1.15	Stream Power (lb/ft s)	1.05	1.68	0.45
Frctn Loss (ft)	1.88	Cum Volume (acre-ft)	885.49	186.85	213.43
C & E Loss (ft)	0.01	Cum SA (acres)	549.29	156.84	229.45

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9154.41	9498.99	1031.92	411.52	341.51	15.96	1.21	2.51
LB 9498.99	9649.00	885.32	270.76	150.09	13.69	1.80	3.27
9649.00	9799.01	789.34	252.69	150.01	12.21	1.68	3.12
9799.01	9949.01	690.69	233.49	150.41	10.68	1.56	2.96
9949.01	10099.02	606.53	216.18	150.76	9.38	1.44	2.81
10099.02	RB 10249.03	674.16	230.04	150.29	10.43	1.53	2.93
10249.03	10431.61	604.73	264.58	182.58	9.35	1.45	2.29

10431.61	10614.18	564.57	253.89	182.58	8.73	1.39	2.22
10614.18	10796.75	286.26	168.92	182.57	4.43	0.93	1.69
10796.75	10979.33	166.10	121.85	182.58	2.57	0.67	1.36
10979.33	11161.91	100.33	90.05	182.58	1.55	0.49	1.11
11161.91	11344.48	45.53	56.05	182.58	0.70	0.31	0.81
11344.48	11527.06	11.89	25.04	182.58	0.18	0.14	0.47
11527.06	11709.63	8.64	15.24	85.17	0.13	0.18	0.57

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 16.293

INPUT
Description:
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5892.28	1467.56	5937.77	1467.11	5955.32	1466.95	5964.07	1466.42	5976.76	1466
6013.58	1464.75	6037.78	1464.45	6085.82	1464	6137.77	1463.52	6237.78	1463.4
6263.44	1463.78	6554.01	1462.66	6764.33	1462	6870.24	1461.79	7131.38	1461.69
7137.64	1461.14	7186.47	1461.21	7275.61	1461.71	7355.34	1462	7358.81	1462.02
7546.48	1462	7626.75	1462	7753.43	1462.84	7776.53	1462.1	7787.81	1462.91
7839.32	1462.42	7962.62	1463.52	7974.26	1463.08	8027.6	1464	8230.51	1465.51
8330.49	1465.63	8430.5	1465.7	8530.51	1464.72	8612.03	1464	8630.49	1463.84
8706.96	1463.47	8730.5	1463.22	8809.63	1463.84	8821.04	1464	8830.49	1464.13
8872.78	1464.6	8930.5	1464.01	8932.22	1464	9030.51	1463.49	9071.41	1464
9130.51	1464.21	9132.45	1464.76	9277.4	1464	9294.75	1463.68	9300.69	1464
9308.72	1464.45	9363.35	1464	9395.31	1463.68	9404.18	1462.75	9429.27	1463.17
9464.31	1463.35	9468.55	1462.35	9476.72	1463.22	9487.98	1463.24	9490.49	1462.75
9495.69	1463.15	9522.33	1463.22	9526.07	1462.72	9531.95	1463.15	9851.49	1464
9862.22	1464.11	9862.94	1464	9865.89	1463.54	9869.34	1464	9871.78	1464.28
9913.34	1464.38	9914.34	1464	9918.43	1462.52	9923.78	1464	9925.64	1464.52
9946.11	1464.32	9977.06	1464.29	9979.77	1464	9985.7	1463.66	9988.14	1464
9990.26	1464.38	10019.16	1464	10085.24	1463.92	10104.63	1463.38	10122.6	1463.9
10179.55	1464	10180.3	1464.04	10187.17	1464	10464.67	1463.24	10844.29	1464
10941.11	1464	11189.79	1464	11467.78	1464.62	11484.88	1464.39	11584.89	1464.96
11619.18	1465.21	11684.21	1465.48	11997.2	1465.11				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5892.28	.05	9464.31	.05	10122.6	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9464.31	10122.6	505.8	506.02	508.51	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5892.28	8423	1466	11684.21	11997.2	1466

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1465.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1464.95	Reach Len. (ft)	505.80	506.02	508.51
Crit W.S. (ft)		Flow Area (sq ft)	938.99	813.17	1485.08
E.G. Slope (ft/ft)	0.004186	Area (sq ft)	938.99	813.17	1485.08
Q Total (cfs)	6466.00	Flow (cfs)	1781.61	1798.04	2886.34
Top Width (ft)	3077.21	Top Width (ft)	957.68	658.29	1461.24
Vel Total (ft/s)	2.00	Avg. Vel. (ft/s)	1.90	2.21	1.94
Max Chl Dpth (ft)	2.60	Hydr. Depth (ft)	0.98	1.24	1.02
Conv. Total (cfs)	99942.2	Conv. (cfs)	27537.7	27791.6	44613.0
Length Wtd. (ft)	506.90	Wetted Per. (ft)	957.86	659.36	1461.25
Min Ch El (ft)	1462.35	Shear (lb/sq ft)	0.26	0.32	0.27
Alpha	1.01	Stream Power (lb/ft s)	0.49	0.71	0.52
Frctn Loss (ft)	2.65	Cum Volume (acre-ft)	879.41	177.72	202.33
C & E Loss (ft)	0.00	Cum SA (acres)	543.44	150.47	216.82

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)

8392.70	8749.90	455.94	239.69	243.28	7.05	0.99	1.90
8749.90	9107.11	710.67	364.78	357.22	10.99	1.02	1.95
9107.11	9464.31	615.02	334.53	357.36	9.51	0.94	1.84
LB 9464.31	9595.97	646.83	237.84	131.93	10.00	1.81	2.72
9595.97	9727.63	453.44	192.03	131.66	7.01	1.46	2.36
9727.63	9859.28	286.17	145.69	131.66	4.43	1.11	1.96
9859.28	9990.94	155.66	101.34	132.43	2.41	0.77	1.54
9990.94	RB 10122.60	255.94	136.26	131.68	3.96	1.03	1.88
10122.60	10310.06	381.15	202.21	187.46	5.89	1.08	1.88
10310.06	10497.52	685.19	287.49	187.46	10.60	1.53	2.38
10497.52	10684.98	631.68	273.80	187.46	9.77	1.46	2.31
10684.98	10872.44	387.57	204.24	187.46	5.99	1.09	1.90
10872.44	11059.90	310.59	178.83	187.46	4.80	0.95	1.74
11059.90	11247.36	299.97	175.14	187.46	4.64	0.93	1.71
11247.36	11434.82	150.04	115.57	187.46	2.32	0.62	1.30
11434.82	11622.28	40.14	47.80	149.02	0.62	0.32	0.84

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 16.197

INPUT
Description:
Station Elevation Data num= 92

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5632.08	1462	5790.68	1461.42	5801.19	1461.62	5871.06	1461.53	5878.43	1461.03
5889.13	1461.58	5930.97	1461.73	5955.22	1462	5976.55	1462.24	6065.87	1462.67
6108.17	1463.75	6164.2	1464	6184.67	1464.05	6186.48	1464	6224.02	1463.12
6247.22	1462.12	6255.94	1462	6518.17	1460	6975.21	1458.73	7231.4	1459.46
7236.5	1458.72	7244.61	1459.21	7291.44	1458.98	7544.82	1460	7753.08	1461.7
7820.41	1462	8019.46	1463.4	8119.46	1463.32	8212.35	1462	8219.45	1461.9
8319.46	1461.31	8419.47	1461.24	8502.88	1462	8508.01	1462.05	8513.37	1462
8519.45	1461.95	8521.3	1462	8568.83	1463.34	8616.74	1462	8619.46	1461.92
8641.62	1461.8	8701.33	1461.05	8719.45	1460.53	8738.82	1460.91	8766.6	1460.6
8771.76	1460	8776.32	1459.44	8780.56	1460	8785.17	1460.57	8819.46	1460.16
8919.47	1460.81	9019.47	1461.23	9059.47	1461.4	9164.89	1461.58	9268.63	1460.99
9273.51	1460.54	9278.85	1461.16	9530.63	1460.58	9627.34	1461.24	9631.25	1460
9632.41	1459.66	9633.74	1460	9638.45	1461.21	9873.72	1462	9874.36	1462.05
9874.7	1462	9879.14	1461.34	9885.56	1462	9886.74	1462.11	9900.96	1462
10141.22	1461.75	10145.66	1460.67	10155.4	1461.61	10214.42	1461.43	10221.74	1461.2
10226.46	1461.41	10252.15	1461.27	10262.94	1460.96	10272.18	1461.41	10452.59	1460.96
10864.9	1461.33	11277.2	1461.83	11292.29	1462	11350.2	1462.66	11357.06	1462.1
11365.37	1462.92	11503.52	1462.31	11508.79	1462.04	11518.86	1462.36	11522.97	1462.16
11593.44	1462.08	11909.66	1463.17						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5632.08	.05	9627.34	.05	10272.18	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9627.34	10272.18	478.05	477.22	481.71	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
5632.08	8568.83	1464

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5632.08	8019.46	1464	11365.37	11909.66	1464

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1462.37	Element			
Vel Head (ft)	0.10	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1462.27	Reach Len. (ft)	478.05	477.22	481.71
Crit W.S. (ft)	1461.84	Flow Area (sq ft)	1290.17	398.11	951.23
E.G. Slope (ft/ft)	0.006538	Area (sq ft)	1520.58	398.11	951.23
Q Total (cfs)	6466.00	Flow (cfs)	3625.07	693.08	2147.85
Top Width (ft)	3049.59	Top Width (ft)	1357.42	644.84	1047.32
Vel Total (ft/s)	2.45	Avg. Vel. (ft/s)	2.81	1.74	2.26
Max Chl Dpth (ft)	2.83	Hydr. Depth (ft)	1.26	0.62	0.91
Conv. Total (cfs)	79966.8	Conv. (cfs)	44832.2	8571.5	26563.0
Length Wtd. (ft)	478.80	Wetted Per. (ft)	1020.39	645.57	1047.34
Min Ch El (ft)	1459.66	Shear (lb/sq ft)	0.52	0.25	0.37
Alpha	1.07	Stream Power (lb/ft s)	1.45	0.44	0.84

Frctn Loss (ft)	2.76	Cum Volume (acre-ft)	865.13	170.69	188.11
C & E Loss (ft)	0.00	Cum SA (acres)	530.00	142.90	202.18

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8428.76	8828.29	810.46	285.50	221.28	12.53	1.29	2.84
8828.29	9227.81	1206.96	459.23	399.53	18.67	1.15	2.63
9227.81	9627.34	1607.62	545.44	399.59	24.86	1.37	2.95
LB 9627.34	9756.31	256.43	121.65	129.40	3.97	0.94	2.11
9756.31	9885.28	81.73	61.20	129.06	1.26	0.47	1.34
9885.28	10014.24	40.81	40.33	128.98	0.63	0.31	1.01
10014.24	10143.21	76.55	58.83	129.03	1.18	0.46	1.30
10143.21	RB 10272.18	237.58	116.10	129.11	3.67	0.90	2.05
10272.18	10435.93	417.92	174.74	163.75	6.46	1.07	2.39
10435.93	10599.68	541.19	204.06	163.75	8.37	1.25	2.65
10599.68	10763.42	440.96	180.46	163.75	6.82	1.10	2.44
10763.42	10927.17	345.11	155.78	163.75	5.34	0.95	2.22
10927.17	11090.92	238.77	124.89	163.75	3.69	0.76	1.91
11090.92	11254.67	144.45	92.38	163.75	2.23	0.56	1.56
11254.67	11418.42	19.46	18.94	64.85	0.30	0.29	1.03

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 16.106

INPUT
Description:
Station Elevation Data num= 152

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5510.69	1459.47	5536.64	1460	5546.74	1460.21	5610.67	1460.53	5626.12	1460.98
5661.03	1460	5673.44	1459.59	5684.16	1459.51	5710.68	1459.08	5804.6	1458.72
5810.67	1458.69	5899.16	1459.44	5910.68	1459.52	5967.82	1459.98	6032.92	1458.79
6119.7	1458	6546.3	1457.34	6717.01	1457.35	6724.36	1456.17	6736.22	1456.28
6746.86	1456.98	6794.17	1458	6862.53	1458.98	6862.65	1459.46	7078.37	1460
7155.15	1460.28	7178.76	1460.26	7234.95	1460	7313.34	1459.85	7406.06	1460
7494.98	1460.21	7549.91	1460.55	7556.57	1460	7559.05	1459.8	7562.63	1460
7580.19	1460.94	7765.08	1460.63	7794.58	1460.38	7807.31	1461.03	7811.21	1460.43
7861.44	1461.06	7872.41	1460.97	7887.86	1461.58	7911.22	1461.11	8000.27	1460
8011.23	1459.86	8111.21	1458.42	8211.22	1458.19	8270.48	1458.09	8284.34	1458
8311.21	1457.83	8365.47	1458	8411.21	1458.15	8463.59	1458.86	8511.22	1458.39
8551.71	1458.86	8611.21	1458.81	8711.22	1458.15	8809.54	1458.37	8810.52	1458
8811.23	1457.73	8814.13	1457.63	8819.04	1458	8823.05	1458.26	8860.98	1458
8911.22	1457.65	9017.29	1458	9125.79	1458	9145.52	1457.87	9163.75	1457.49
9175.65	1457.64	9196.78	1457.84	9205.45	1457.53	9217.93	1457.9	9231.4	1458
9260.11	1458.14	9262.91	1458	9269.34	1457.67	9278.71	1457.96	9311.46	1457.53
9317.91	1456.63	9326.78	1457.65	9331.86	1456.62	9339.11	1458	9339.69	1458.11
9349.08	1458.05	9349.43	1458	9362.47	1457	9374.22	1458	9374.34	1458.01
9416.96	1458.41	9419.37	1458	9422	1457.48	9428.46	1457.32	9436.18	1458
9442.48	1458.57	9586.5	1458.85	9592.05	1458	9592.18	1457.98	9592.37	1458
9597.94	1458.73	9688.14	1459.13	9691.33	1458	9693.67	1457.17	9697.16	1458
9702.33	1459.44	9749.66	1459.41	9759.3	1458	9762.44	1457.46	9767.61	1458
9773.99	1458.83	9782.81	1458.92	9788.24	1458.13	9790.63	1458.98	9833.19	1458.6
10092.45	1458.31	10093.68	1458	10098.32	1456.91	10102.56	1458	10104.22	1458.43
10199.09	1458.67	10207.62	1458.11	10212.25	1458.71	10265.46	1458.59	10270.74	1458
10274.98	1457.52	10279.14	1458	10281.27	1458.41	10302.75	1458.27	10303.98	1458
10306.45	1457.47	10309.32	1458	10311.58	1458.38	10755.13	1459.09	10889.9	1458.67
11095.36	1459.11	11099.24	1458.79	11108.21	1458.71	11114.19	1459.23	11167.44	1459.19
11251.26	1459.87	11253.22	1459.66	11257.91	1459.71	11293.83	1460	11313.9	1460.16
11317.12	1460	11320.09	1459.85	11322.47	1460	11327.49	1460.32	11372.13	1460
11579.76	1459.54	11774.31	1460						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5510.69	.05	9586.5	.05	10311.58	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9586.510311.58 451.05 514.19 546.94 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev
5510.69	8400	1460

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5510.69	7887.86	146	11251.26	11774.31	1461

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1459.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1459.52	Reach Len. (ft)	451.05	514.19	546.94
Crit W.S. (ft)	1459.03	Flow Area (sq ft)	1583.56	680.44	601.13
E.G. Slope (ft/ft)	0.005155	Area (sq ft)	2030.28	680.44	601.13
Q Total (cfs)	6466.00	Flow (cfs)	4094.21	1389.27	982.52
Top Width (ft)	3173.41	Top Width (ft)	1551.71	725.08	896.62
Vel Total (ft/s)	2.26	Avg. Vel. (ft/s)	2.59	2.04	1.63
Max Chl Dpth (ft)	2.90	Hydr. Depth (ft)	1.33	0.94	0.67
Conv. Total (cfs)	90055.8	Conv. (cfs)	57022.5	19349.2	13684.1
Length Wtd. (ft)	474.24	Wetted Per. (ft)	1187.29	726.97	896.66
Min Ch El (ft)	1456.90	Shear (lb/sq ft)	0.43	0.30	0.22
Alpha	1.09	Stream Power (lb/ft s)	1.11	0.62	0.35
Frctn Loss (ft)	2.82	Cum Volume (acre-ft)	845.64	164.78	179.53
C & E Loss (ft)	0.00	Cum SA (acres)	514.04	135.39	191.43

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8363.76	8771.34	776.79	370.91	371.35	12.01	1.00	2.09
8771.34	9178.92	1832.31	644.35	407.73	28.34	1.58	2.84
9178.92	9586.50	1485.12	568.31	408.21	22.97	1.39	2.61
LB 9586.50	9731.52	129.04	87.38	145.76	2.00	0.60	1.48
9731.52	9876.53	210.79	117.20	145.45	3.26	0.81	1.80
9876.53	10021.55	329.18	152.95	145.02	5.09	1.05	2.15
10021.55	10166.56	387.92	168.95	145.38	6.00	1.17	2.30
10166.56	RB 10311.58	332.33	153.97	145.37	5.14	1.06	2.16
10311.58	10457.85	307.49	149.72	146.27	4.76	1.02	2.05
10457.85	10604.13	199.44	115.47	146.27	3.08	0.79	1.73
10604.13	10750.40	110.96	81.22	146.27	1.72	0.56	1.37
10750.40	10896.67	141.81	94.10	146.27	2.19	0.64	1.51
10896.67	11042.95	156.81	99.96	146.27	2.43	0.68	1.57
11042.95	11189.22	65.45	59.18	146.31	1.01	0.40	1.11
11189.22	11335.49	0.54	1.46	18.98	0.01	0.08	0.37

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 16.009

INPUT
Description:
Station Elevation Data num= 114

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5407.64	1456	5407.65	1455.89	5497.99	1456	5534	1457.02	5571.96	1457.67
5619.06	1457.42	5629.56	1457.41	5666.03	1456.73	5707.63	1456.87	5776.56	1456.59
5829.34	1456	6246.16	1454.91	6352.79	1455.91	6356.93	1455.16	6363.42	1456
6364.05	1456.09	6371.88	1456	6687.71	1456	6737.55	1456.63	6745.53	1456.28
6751.99	1456.68	6899.71	1458	7083.1	1458.75	7100.54	1458.69	7141.3	1459.63
7154.12	1459.44	7200.55	1458.88	7300.56	1458.56	7366.34	1458.38	7385.53	1458
7400.55	1457.7	7500.56	1457.14	7600.57	1456.65	7680.76	1456	7700.55	1455.84
7800.56	1455.57	7900.54	1455.15	8000.55	1455.28	8100.56	1455.2	8200.55	1455.23
8300.56	1455.18	8400.54	1455.03	8500.55	1454.78	8600.56	1455.01	8700.54	1455.45
8800.56	1455.47	8900.56	1455.57	9000.56	1455.54	9100.56	1455.49	9113.22	1454.93
9117.65	1454	9119.28	1453.65	9121.54	1454	9129.31	1455.25	9200.56	1455.62
9300.56	1455.89	9307.69	1456	9350.32	1456.65	9355.31	1456	9358.15	1457.72
9370.34	1454	9371.6	1453.83	9373.07	1454	9380.55	1455.87	9386.44	1456
9391.55	1456	9393.95	1456	9393.96	1456	9399.31	1455.41	9406.42	1456

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 9409.45  1456.3 9572.07  1456.2 9572.78    1456 9576.78 1454.87 9584.52    1456
 9587.12 1456.37 9821.04 1456.14 9891.26 1456.34 9903.37 1456.07 9904.11    1456
 9910.23 1455.49 9916.58    1456 9916.86 1456.02 9939.75    1456 9955.14 1455.96
 9959.65 1455.64 9966.16 1455.9710022.32    145610330.93 1456.4410481.31 1456.51
10506.24 1456.1610506.75    145610512.76 1454.2610520.12    145610522.41 1456.53
10667.34 1456.2410670.72    1456 10680.9 1455.1610699.79    145610700.35    1456
10770.14 1456.1410771.06    145610780.84 1455.1710789.28    145610793.99 1456.46
10840.84 1456.3111102.19    145611130.73 1455.9311134.83 1455.4411139.91    1456
11140.43 1456.0711170.98 1456.1211253.16 1456.1411665.47 1456.66

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 5407.64     .05 9358.15     .0510330.93     .05

Bank Sta: Left   Right   Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9358.1510330.93            305.1  396.01  394.62             .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 5407.64    8100    1460   1133511665.47    1460
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 5407.64 7141.64    1461
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CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1456.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1456.67	Reach Len. (ft)	305.10	396.01	394.62
Crit W.S. (ft)	1456.31	Flow Area (sq ft)	1664.60	495.49	475.42
E.G. Slope (ft/ft)	0.006935	Area (sq ft)	2221.37	495.49	546.94
Q Total (cfs)	6466.00	Flow (cfs)	4968.20	783.38	714.41
Top Width (ft)	4063.40	Top Width (ft)	1759.53	969.33	1334.54
Vel Total (ft/s)	2.45	Avg. Vel. (ft/s)	2.98	1.58	1.50
Max Chl Dpth (ft)	3.02	Hydr. Depth (ft)	1.32	0.51	0.47
Conv. Total (cfs)	77643.2	Conv. (cfs)	59657.8	9406.8	8578.6
Length Wtd. (ft)	325.62	Wetted Per. (ft)	1256.92	970.42	1004.84
Min Ch El (ft)	1453.83	Shear (lb/sq ft)	0.57	0.22	0.20
Alpha	1.23	Stream Power (lb/ft s)	1.71	0.35	0.31
Frctn Loss (ft)	1.63	Cum Volume (acre-ft)	823.63	157.84	172.32
C & E Loss (ft)	0.01	Cum SA (acres)	496.90	125.39	177.42

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7777.95	8173.00	332.83	106.38	73.00	5.15	1.46	3.13
8173.00	8568.05	2153.48	640.86	395.05	33.30	1.62	3.36
8568.05	8963.10	1442.07	503.81	395.05	22.30	1.28	2.86
8963.10	9358.15	1039.82	413.54	393.82	16.08	1.05	2.51
LB 9358.15	9552.71	195.58	114.09	191.83	3.02	0.60	1.71
9552.71	9747.26	119.51	85.43	194.85	1.85	0.44	1.40
9747.26	9941.82	156.98	100.57	194.61	2.43	0.52	1.56
9941.82	10136.37	222.66	124.03	194.58	3.44	0.64	1.80
10136.37	RB 10330.93	88.64	71.37	194.56	1.37	0.37	1.24
10330.93	10464.38	21.07	26.30	133.45	0.33	0.20	0.80
10464.38	10597.84	59.15	48.94	133.99	0.91	0.37	1.21
10597.84	10731.29	130.27	78.49	133.52	2.01	0.59	1.66
10731.29	10864.75	98.89	66.54	133.56	1.53	0.50	1.49
10864.75	10998.20	88.25	62.12	133.45	1.36	0.47	1.42
10998.20	11131.65	145.49	83.86	133.46	2.25	0.63	1.73
11131.65	11265.11	124.52	76.39	133.51	1.93	0.57	1.63
11265.11	11398.56	46.79	32.77	69.89	0.72	0.47	1.43

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Vineyard Spillwa

REACH: Vineyard RS: 15.934

INPUT
Description:
Station Elevation Data num= 104

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5338.44	1454.34	5405.98	1454.11	5438.45	1454.74	5521.3	1455.66	5532.69	1455.57
5538.43	1455.13	5587.66	1454.69	5789.13	1454	5859.79	1453.61	6176.01	1453.51
6282.95	1453.67	6287.8	1452.59	6295.52	1453.43	6421.84	1454	6429.97	1454.16
6438.27	1454.12	6452.86	1454.21	6478.27	1454.72	6617.99	1455.7	6641.48	1456
6667.4	1456.25	6682.34	1456	6719	1456	6756.42	1455.72	6779.74	1456
6842.3	1457.1	6913.01	1457.87	6922.46	1458	6977.34	1458.51	7008.85	1458.52
7032.21	1458.1	7043.99	1458	7118.37	1457.39	7132.22	1456.82	7138.2	1456.9
7172.75	1457.87	7232.2	1457.43	7332.21	1456.85	7416.28	1456	7432.2	1455.84
7532.21	1455.4	7632.21	1454.81	7699.74	1454	7732.49	1453.61	7832.49	1453.09
7932.5	1453.14	8032.49	1453.24	8132.5	1453.19	8232.48	1453.02	8332.49	1453.14
8432.5	1453.21	8532.49	1453.26	8632.5	1453.68	8732.5	1453.8	8798.97	1454
8832.5	1454.1	8932.5	1454.4	9032.5	1454.45	9132.5	1454.3	9232.5	1454.25
9332.51	1454.22	9432.51	1454.2	9521.75	1454	9532.51	1453.98	9542.19	1454
9632.51	1454.22	9681.64	1455.04	9708.3	1460.2	9729.34	1454.84	9732.51	1454.13
9733.02	1454	9740.25	1452.24	9745.97	1452	9759.89	1451.39	9780.98	1451.47
9800.05	1451.41	9811.23	1451.39	9816.62	1452	9834.44	1454	9834.61	1454.05
9866.8	1461.12	9889.1	1454.82	9959.39	1454.11	9960.07	1454	9967.44	1452.8
9974.8	1454	9977.02	1454.33	9986.97	1454.13	9988.2	1454	9996.09	1453.41
10021.22	1454	10041.53	1454.59	10243.14	1454.65	10368.55	1454.91	10753.05	1454.62
11098.63	1454	11165.37	1453.68	11227.49	1454	11353.74	1454.72	11360.63	1454
11362.31	1453.79	11365.51	1454	11577.69	1454.81	11831.69	1456		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5338.44	.05	9889.1	.05	10368.55	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9889.1	10368.55	477	504.08	492.54	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5338.44	7900	1458	11530	11831.69	1458

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5338.44	7173.5	1464	9708.88	9868.91	1461.08

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1455.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1455.08	Reach Len. (ft)	477.00	504.08	492.54
Crit W.S. (ft)	1454.47	Flow Area (sq ft)	2302.39	270.73	772.33
E.G. Slope (ft/ft)	0.003855	Area (sq ft)	2700.80	270.73	797.82
Q Total (cfs)	6466.00	Flow (cfs)	5039.28	341.13	1085.59
Top Width (ft)	3842.53	Top Width (ft)	2095.56	479.45	1267.51
Vel Total (ft/s)	1.93	Avg. Vel. (ft/s)	2.19	1.26	1.41
Max Chl Dpth (ft)	2.28	Hydr. Depth (ft)	1.29	0.56	0.66
Conv. Total (cfs)	104147.3	Conv. (cfs)	81167.2	5494.6	17485.5
Length Wtd. (ft)	482.73	Wetted Per. (ft)	1782.78	479.73	1161.51
Min Ch El (ft)	1452.80	Shear (lb/sq ft)	0.31	0.14	0.16
Alpha	1.11	Stream Power (lb/ft s)	0.68	0.17	0.22
Frctn Loss (ft)	2.14	Cum Volume (acre-ft)	806.39	154.36	166.23
C & E Loss (ft)	0.00	Cum SA (acres)	483.40	118.81	165.64

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7613.77	8068.84	835.70	318.79	168.84	12.92	1.89	2.62
8068.84	8523.90	2318.36	874.24	455.07	35.85	1.92	2.65
8523.90	8978.97	1025.10	535.78	455.07	15.85	1.18	1.91
8978.97	9434.03	519.60	356.39	455.07	8.04	0.78	1.46
9434.03	9889.10	340.48	217.19	248.74	5.27	0.87	1.57
LB 9889.10	9984.99	112.03	76.92	96.12	1.73	0.80	1.46
9984.99	10080.88	127.57	83.09	95.94	1.97	0.87	1.54
10080.88	10176.77	44.39	44.09	95.89	0.69	0.46	1.01

10176.77	10272.66	38.71	40.62	95.89	0.60	0.42	0.95
10272.66	RB 10368.55	18.43	26.02	95.89	0.29	0.27	0.71
10368.55	10514.86	20.75	33.52	146.31	0.32	0.23	0.62
10514.86	10661.18	39.22	49.11	146.31	0.61	0.34	0.80
10661.18	10807.49	64.64	66.28	146.31	1.00	0.45	0.98
10807.49	10953.81	128.70	100.19	146.31	1.99	0.68	1.28
10953.81	11100.12	221.05	138.60	146.31	3.42	0.95	1.59
11100.12	11246.43	332.25	176.99	146.32	5.14	1.21	1.88
11246.43	11392.75	149.47	109.61	146.37	2.31	0.75	1.36
11392.75	11539.06	129.55	98.05	137.25	2.00	0.71	1.32

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 15.838

INPUT
Description:
Station Elevation Data num= 68

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5317.68	1452	5395	1451.75	5412	1452	5430	1452.8	5460	1452
5470	1454	5483	1453.9	5495	1454	5685	1452	5730	1451.8
5830	1452	6120	1451.6	6270	1452	6340	1452	6530	1452
6690	1454	6800	1454.9	6910	1454	6970	1453.2	7180	1454
7230	1454.7	7310	1454	7490	1453.7	7610	1453.1	7710	1454
7800	1454.4	7940	1454	8080	1452	8100	1451.7	8160	1452
8220	1452	8290	1451.4	8490	1451.8	8870	1452	8970	1452
9030	1451.8	9130	1451.9	9200	1451.5	9310	1452	9340	1452
9430	1450.7	9480	1451.6	9570	1452	9630	1452	9710	1451.8
9730	1451	9740	1451.7	9830	1452	9860	1452	9870	1451.3
9880	1452	9890	1452.2	9940	1452	10000	1452	10060	1452.2
10200	1452.4	10250	1452.2	10720	1452.7	10770	1452.8	10880	1452.1
10910	1452.9	11050	1452	11250	1452	11260	1451.76	11270	1451.34
11280	1451.86	11400	1452	11880	1454				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5317.68	.05	9630	.05	10200	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9630	10200	506.83	498.04	494.93	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
5317.68	7805.79	1454.8

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1453.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1452.93	Reach Len. (ft)	506.83	498.04	494.93
Crit W.S. (ft)		Flow Area (sq ft)	1807.00	521.60	842.66
E.G. Slope (ft/ft)	0.005144	Area (sq ft)	1807.00	521.60	842.66
Q Total (cfs)	6466.00	Flow (cfs)	4151.31	1047.84	1266.85
Top Width (ft)	3607.48	Top Width (ft)	1614.92	570.00	1422.57
Vel Total (ft/s)	2.04	Avg. Vel. (ft/s)	2.30	2.01	1.50
Max Chl Dpth (ft)	2.23	Hydr. Depth (ft)	1.12	0.92	0.59
Conv. Total (cfs)	90150.7	Conv. (cfs)	57878.6	14609.3	17662.8
Length Wtd. (ft)	502.81	Wetted Per. (ft)	1614.95	570.09	1422.61
Min Ch El (ft)	1451.00	Shear (lb/sq ft)	0.36	0.29	0.19
Alpha	1.08	Stream Power (lb/ft s)	0.83	0.59	0.29
Frctn Loss (ft)	2.85	Cum Volume (acre-ft)	781.71	149.77	156.95
C & E Loss (ft)	0.00	Cum SA (acres)	463.08	112.74	150.43

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7905.07	8336.30	700.09	326.43	321.23	10.83	1.02	2.14
8336.30	8767.54	1130.23	489.50	431.23	17.48	1.14	2.31

8767.54	9198.77	960.82	444.06	431.23	14.86	1.03	2.16
9198.77	9630.00	1360.15	547.03	431.25	21.04	1.27	2.49
LB 9630.00	9744.00	308.13	133.39	114.04	4.77	1.17	2.31
9744.00	9858.00	251.42	118.05	114.00	3.89	1.04	2.13
9858.00	9972.00	212.44	106.72	114.05	3.29	0.94	1.99
9972.00	10086.00	172.11	94.04	114.00	2.66	0.82	1.83
10086.00	RB 10200.00	103.74	69.41	114.00	1.60	0.61	1.49
10200.00	10368.00	159.85	109.80	168.00	2.47	0.65	1.46
10368.00	10536.00	106.61	86.11	168.00	1.65	0.51	1.24
10536.00	10704.00	52.16	56.08	168.00	0.81	0.33	0.93
10704.00	10872.00	56.35	58.74	168.00	0.87	0.35	0.96
10872.00	11040.00	88.69	77.11	168.01	1.37	0.46	1.15
11040.00	11208.00	285.41	155.48	168.00	4.41	0.93	1.84
11208.00	11376.00	342.83	173.56	168.03	5.30	1.03	1.98
11376.00	11544.00	167.52	112.94	168.00	2.59	0.67	1.48
11544.00	11712.00	7.44	12.86	78.57	0.12	0.16	0.58

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 15.744

INPUT
Description:
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6818.26	1452.3	7040	1452	7160	1450	7340	1449.1	7430	1449.1
7680	1450	8040	1452	8070	1452.3	8100	1452	8190	1450
8370	1448.9	8460	1448	8470	1448	8770	1449.3	9090	1448
9110	1448	9160	1448.7	9240	1448	9450	1448	9510	1449.7
9790	1449.3	10000	1449.3	10070	1449.7	10140	1449.3	10590	1450
10730	1450.5	10820	1450.2	10870	1450.7	11050	1450	11110	1449.2
11230	1449.8	11420	1449.5	11630	1450	11700	1450	11790	1450.3

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6818.26	.05	9160	.05	10070	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9160	10070	448.07	486.94	509.51	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6818.26	8074.38	1452.79

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1450.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1450.04	Reach Len. (ft)	448.07	486.94	509.51
Crit W.S. (ft)		Flow Area (sq ft)	1256.03	978.65	441.97
E.G. Slope (ft/ft)	0.006282	Area (sq ft)	1256.03	978.65	441.97
Q Total (cfs)	6466.00	Flow (cfs)	3510.36	2419.59	536.05
Top Width (ft)	3084.57	Top Width (ft)	971.76	910.00	1202.80
Vel Total (ft/s)	2.42	Avg. Vel. (ft/s)	2.79	2.47	1.21
Max Chl Dpth (ft)	2.04	Hydr. Depth (ft)	1.29	1.08	0.37
Conv. Total (cfs)	81582.2	Conv. (cfs)	44290.5	30528.2	6763.4
Length Wtd. (ft)	471.05	Wetted Per. (ft)	971.78	910.03	1202.81
Min Ch El (ft)	1448.00	Shear (lb/sq ft)	0.51	0.42	0.14
Alpha	1.14	Stream Power (lb/ft s)	1.42	1.04	0.17
Frctn Loss (ft)	2.22	Cum Volume (acre-ft)	763.89	141.20	149.65
C & E Loss (ft)	0.01	Cum SA (acres)	448.03	104.28	135.51

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7989.13	8223.30	2.78	4.73	35.07	0.04	0.13	0.59
8223.30	8457.48	542.98	239.27	234.18	8.40	1.02	2.27
8457.48	8691.65	1128.10	371.04	234.18	17.45	1.58	3.04

8691.65	8925.83	529.60	235.71	234.18	8.19	1.01	2.25
8925.83	9160.00	1306.86	405.27	234.18	20.21	1.73	3.22
LB 9160.00	9342.00	1070.05	343.13	182.00	16.55	1.89	3.12
9342.00	9524.00	838.64	296.47	182.02	12.97	1.63	2.83
9524.00	9706.00	112.95	89.03	182.00	1.75	0.49	1.27
9706.00	9888.00	210.86	129.48	182.00	3.26	0.71	1.63
9888.00	RB 10070.00	187.11	120.53	182.00	2.89	0.66	1.55
10070.00	10242.00	159.33	105.04	172.00	2.46	0.61	1.52
10242.00	10414.00	94.62	76.84	172.00	1.46	0.45	1.23
10414.00	10586.00	20.64	30.82	172.00	0.32	0.18	0.67
10586.00	10758.00	0.07	0.38	14.97	0.00	0.03	0.18
10758.00	10930.00						
10930.00	11102.00	20.24	20.26	62.08	0.31	0.33	1.00
11102.00	11274.00	107.69	83.04	172.00	1.67	0.48	1.30
11274.00	11446.00	91.09	75.10	172.00	1.41	0.44	1.21
11446.00	11618.00	41.52	46.87	172.00	0.64	0.27	0.89
11618.00	11790.00	0.87	3.61	93.75	0.01	0.04	0.24

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 15.652

INPUT
Description:
Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6819.57	1450.5	6900	1450	7090	1448	7290	1446.9	7440	1448
7540	1447.1	7600	1448	7650	1448	7700	1447.2	7770	1448
8030	1449.6	8110	1449.2	8240	1449.4	8370	1448	8550	1446
8640	1446.4	8760	1446.7	9060	1446	9120	1446	9180	1444.3
9230	1446	9320	1446.1	9480	1446.9	9590	1446.2	9730	1446.6
9790	1446.4	9890	1446.4	9970	1447.6	10060	1446.5	10140	1446.7
10470	1447	10630	1447.9	10790	1448	10960	1447.4	11030	1446.9
11200	1447.5	11310	1447.2	11400	1447.6	11690	1448		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6819.57	.05	9120	.05	10630	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9120	10630	501.22	512.24	506.96	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6819.57	8256.2	1450.4

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1447.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1447.84	Reach Len. (ft)	501.22	512.24	506.96
Crit W.S. (ft)		Flow Area (sq ft)	1011.87	1865.63	298.61
E.G. Slope (ft/ft)	0.003708	Area (sq ft)	1011.87	1865.63	298.61
Q Total (cfs)	6466.00	Flow (cfs)	2264.82	3905.64	295.54
Top Width (ft)	2973.09	Top Width (ft)	735.56	1499.26	738.27
Vel Total (ft/s)	2.04	Avg. Vel. (ft/s)	2.24	2.09	0.99
Max Chl Dpth (ft)	3.54	Hydr. Depth (ft)	1.38	1.24	0.40
Conv. Total (cfs)	106189.1	Conv. (cfs)	37194.4	64141.0	4853.6
Length Wtd. (ft)	508.08	Wetted Per. (ft)	735.58	1499.33	738.27
Min Ch El (ft)	1444.30	Shear (lb/sq ft)	0.32	0.29	0.09
Alpha	1.07	Stream Power (lb/ft s)	0.71	0.60	0.09
Frctn Loss (ft)	2.55	Cum Volume (acre-ft)	752.23	125.30	145.32
C & E Loss (ft)	0.01	Cum SA (acres)	439.25	90.81	124.16

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8199.83	8429.87	8.00	11.47	45.44	0.12	0.25	0.70
8429.87	8659.91	684.16	316.55	230.05	10.58	1.38	2.16
8659.91	8889.96	606.20	294.39	230.04	9.38	1.28	2.06
8889.96	9120.00	966.46	389.46	230.04	14.95	1.69	2.48
LB 9120.00	9422.00	1641.91	608.35	302.05	25.39	2.01	2.70
9422.00	9724.00	812.40	398.82	302.00	12.56	1.32	2.04
9724.00	10026.00	597.17	331.57	302.01	9.24	1.10	1.80
10026.00	10328.00	610.05	335.84	302.00	9.43	1.11	1.82
10328.00	RB 10630.00	244.09	191.05	291.26	3.77	0.66	1.28
10630.00	10736.00						
10736.00	10842.00	0.01	0.08	6.55	0.00	0.01	0.08
10842.00	10948.00	12.05	22.28	106.00	0.19	0.21	0.54
10948.00	11054.00	90.81	74.82	106.00	1.40	0.71	1.21
11054.00	11160.00	82.79	70.79	106.00	1.28	0.67	1.17
11160.00	11266.00	38.57	44.76	106.00	0.60	0.42	0.86
11266.00	11372.00	57.07	56.62	106.00	0.88	0.53	1.01
11372.00	11478.00	12.67	22.95	106.00	0.20	0.22	0.55
11478.00	11584.00	1.58	6.32	95.72	0.02	0.07	0.25

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 15.555

INPUT
Description:
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6589.75	1446	6760	1444	6770	1443.8	6890	1443.9	6980	1443.9
7070	1443.1	7160	1443.2	7270	1443.8	7620	1444	7820	1445.6
7970	1446	8120	1446.5	8180	1446.1	8280	1446.5	8310	1446
8330	1445.7	8350	1446	8430	1446.3	8470	1446	8580	1444
8720	1444	8790	1442	8870	1444	8930	1444	9000	1442
9230	1444	9340	1444.3	9490	1444	9700	1444.3	9780	1444.9
9930	1445.5	10020	1445	10110	1444.9	10290	1445.8	10380	1445.8
10550	1445	10740	1445.4	10970	1444.7	11090	1445	11340	1444
11380	1444	11430	1444.9	11480	1444	11520	1445.1	11580	1444
11650	1446	11700	1446	11730	1445.5	11860	1446	12260	1448

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6589.75	.05	8930	.05	10290	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8930	10290	504.24	493.86	488.78	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6589.75	8439.39	1447

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1445.35	Element			
Vel Head (ft)	0.12	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1445.22	Reach Len. (ft)	504.24	493.86	488.78
Crit W.S. (ft)		Flow Area (sq ft)	619.85	1275.36	508.82
E.G. Slope (ft/ft)	0.007314	Area (sq ft)	619.85	1275.36	508.82
Q Total (cfs)	6466.00	Flow (cfs)	2050.57	3521.00	894.43
Top Width (ft)	2523.49	Top Width (ft)	417.35	1126.49	979.64
Vel Total (ft/s)	2.69	Avg. Vel. (ft/s)	3.31	2.76	1.76
Max Chl Dpth (ft)	3.22	Hydr. Depth (ft)	1.49	1.13	0.52
Conv. Total (cfs)	75605.7	Conv. (cfs)	23976.9	41170.3	10458.5
Length Wtd. (ft)	495.24	Wetted Per. (ft)	417.42	1126.54	979.70
Min Ch El (ft)	1442.00	Shear (lb/sq ft)	0.68	0.52	0.24
Alpha	1.11	Stream Power (lb/ft s)	2.24	1.43	0.42
Frctn Loss (ft)	2.10	Cum Volume (acre-ft)	742.84	106.83	140.63
C & E Loss (ft)	0.02	Cum SA (acres)	432.62	75.37	114.16

Warning: Divided flow computed for this cross-section.

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8461.95	8695.97	444.74	183.26	183.34	6.88	1.00	2.43
8695.97	8930.00	1605.81	436.59	234.08	24.83	1.87	3.68
LB 8930.00	9202.00	2245.41	629.69	272.04	34.73	2.32	3.57
9202.00	9474.00	644.49	297.75	272.00	9.97	1.09	2.16
9474.00	9746.00	580.33	279.60	272.00	8.98	1.03	2.08
9746.00	10018.00	23.69	32.64	153.58	0.37	0.21	0.73
10018.00	RB 10290.00	27.10	35.69	156.92	0.42	0.23	0.76
10290.00	10487.00						
10487.00	10684.00	9.30	17.34	154.41	0.14	0.11	0.54
10684.00	10881.00	6.16	10.58	83.37	0.10	0.13	0.58
10881.00	11078.00	94.31	76.72	197.00	1.46	0.39	1.23
11078.00	11275.00	179.48	112.88	197.00	2.78	0.57	1.59
11275.00	11472.00	421.37	188.37	197.02	6.52	0.96	2.24
11472.00	11669.00	183.82	102.93	150.91	2.84	0.68	1.79

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 15.461

INPUT
Description:
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6450.31	1444	6530	1442	6650	1441.1	6720	1440.7	6940	1440.8
7140	1441.4	7240	1440.7	7340	1440.8	7430	1440.8	7780	1442
7880	1442.7	7940	1442	7990	1442	8220	1444	8290	1444
8430	1442	8620	1444	8670	1444.5	8720	1444	8790	1442
8840	1442	8920	1440	9000	1441	9040	1441	9070	1440
9320	1441.3	9400	1442	9480	1442.2	9550	1442	9620	1442
9660	1442	9680	1441.7	9710	1442	9820	1442.4	9910	1444
9960	1444	10020	1443.2	10320	1443.1	10420	1442.6	10510	1442
10590	1442.3	10650	1442	11150	1442.4	11190	1442.2	11380	1442
11460	1440	11510	1442	11550	1442	11650	1442	11730	1441
11750	1442	11970	1444	12385	1446				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6450.31	.05	9040	.05	10590	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9040	10590	520.38	503.9	438.05	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6450.31	8679.34	1445.59

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1443.22	Element			
Vel Head (ft)	0.06	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1443.17	Reach Len. (ft)	520.38	503.90	438.05
Crit W.S. (ft)		Flow Area (sq ft)	556.11	1508.00	1470.97
E.G. Slope (ft/ft)	0.002778	Area (sq ft)	556.11	1508.00	1470.97
Q Total (cfs)	6466.00	Flow (cfs)	1341.57	2607.90	2516.54
Top Width (ft)	2879.32	Top Width (ft)	290.91	1299.84	1288.57
Vel Total (ft/s)	1.83	Avg. Vel. (ft/s)	2.41	1.73	1.71
Max Chl Dpth (ft)	3.17	Hydr. Depth (ft)	1.91	1.16	1.14
Conv. Total (cfs)	122678.6	Conv. (cfs)	25453.4	49479.4	47745.9
Length Wtd. (ft)	482.99	Wetted Per. (ft)	290.96	1299.88	1288.67
Min Ch El (ft)	1440.00	Shear (lb/sq ft)	0.33	0.20	0.20
Alpha	1.06	Stream Power (lb/ft s)	0.80	0.35	0.34
Frctn Loss (ft)	2.51	Cum Volume (acre-ft)	736.03	91.05	129.52

C & E Loss (ft)	0.01	Cum SA (acres)	428.52	61.62	101.44

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8522.06	8781.03	12.96	14.57	31.95	0.20	0.46	0.89
8781.03	9040.00	1328.61	541.54	259.00	20.55	2.09	2.45
LB 9040.00	9350.00	1719.16	761.89	310.02	26.59	2.46	2.26
9350.00	9660.00	488.89	358.28	310.00	7.56	1.16	1.36
9660.00	9970.00	223.36	189.13	203.26	3.45	0.93	1.18
9970.00	10280.00	0.53	4.63	166.59	0.01	0.03	0.11
10280.00	RB 10590.00	175.97	194.07	310.00	2.72	0.63	0.91
10590.00	10769.50	308.56	195.09	179.50	4.77	1.09	1.58
10769.50	10949.00	269.19	179.75	179.50	4.16	1.00	1.50
10949.00	11128.50	207.98	153.97	179.50	3.22	0.86	1.35
11128.50	11308.00	252.84	173.12	179.50	3.91	0.96	1.46
11308.00	11487.50	729.46	326.95	179.55	11.28	1.82	2.23
11487.50	11667.00	381.92	221.74	179.52	5.91	1.24	1.72
11667.00	11846.50	364.64	215.67	179.53	5.64	1.20	1.69
11846.50	12026.00	1.94	4.67	32.07	0.03	0.15	0.41

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 15.366

INPUT
Description:
Station Elevation Data num= 67

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5972.96	1442.9	6490	1443	7200	1443	7440	1442	7530	1440
7580	1438	7630	1437.8	7690	1438	7840	1438.8	7910	1440
7970	1440	7980	1438	7990	1436	8010	1436	8030	1438
8060	1440	8160	1440.5	8190	1440.3	8230	1440.8	8270	1440
8380	1439.7	8480	1440	8620	1442	8660	1442.5	8720	1442
8840	1440	8880	1439.9	8980	1439.8	9060	1438	9070	1438
9080	1438.2	9090	1438	9100	1438	9450	1439.9	9640	1439.7
9690	1439.8	9740	1440	9820	1441.2	9930	1440	9960	1439.7
9990	1439.9	10020	1439.7	10030	1440	10050	1440	10080	1439.6
10110	1440	10170	1440.1	10230	1440.5	10310	1440	10360	1440
10390	1440.3	10410	1440	10490	1440	10660	1439.9	10700	1440
10720	1440.1	10740	1440	10860	1440	10950	1439.6	11080	1440
11160	1440.2	11240	1440	11340	1438.8	11420	1440	11630	1440.9
11890	1442	12260	1444						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5972.96	.05	8980	.05	10230	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8980	10230	464	498.41	516.61	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5972.96	8670.92	1442.78	10163.38	12260	1438.18

CROSS SECTION OUTPUT Profile #PF 2

			Left OB	Channel	Right OB
E.G. Elev (ft)	1440.71	Element			
Vel Head (ft)	0.16	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1440.55	Reach Len. (ft)	464.00	498.41	516.61
Crit W.S. (ft)		Flow Area (sq ft)	103.14	1205.42	807.34
E.G. Slope (ft/ft)	0.013098	Area (sq ft)	103.14	1205.42	807.34
Q Total (cfs)	6466.00	Flow (cfs)	248.47	4237.45	1980.07

Top Width (ft)	2638.61	Top Width (ft)	173.03	1147.15	1318.43
Vel Total (ft/s)	3.06	Avg. Vel. (ft/s)	2.41	3.52	2.45
Max Chl Dpth (ft)	2.55	Hydr. Depth (ft)	0.60	1.05	0.61
Conv. Total (cfs)	56497.4	Conv. (cfs)	2171.1	37025.2	17301.1
Length Wtd. (ft)	503.98	Wetted Per. (ft)	173.03	1147.20	1318.45
Min Ch El (ft)	1438.00	Shear (lb/sq ft)	0.49	0.86	0.50
Alpha	1.09	Stream Power (lb/ft s)	1.17	3.02	1.23
Frctn Loss (ft)	1.60	Cum Volume (acre-ft)	732.09	75.36	118.06
C & E Loss (ft)	0.04	Cum SA (acres)	425.75	47.46	88.33

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8679.30	8980.00	248.47	103.14	173.03	3.84	0.60	2.41
LB 8980.00	9230.00	2444.20	517.73	250.03	37.80	2.07	4.72
9230.00	9480.00	954.27	294.45	250.00	14.76	1.18	3.24
9480.00	9730.00	457.53	189.43	250.00	7.08	0.76	2.42
9730.00	9980.00	113.45	66.38	147.16	1.75	0.45	1.71
9980.00	RB 10230.00	268.02	137.44	250.01	4.15	0.55	1.95
10230.00	10433.00	147.13	84.23	203.01	2.28	0.41	1.75
10433.00	10636.00	258.04	118.00	203.00	3.99	0.58	2.19
10636.00	10839.00	243.51	113.96	203.00	3.77	0.56	2.14
10839.00	11042.00	400.09	153.52	203.00	6.19	0.76	2.61
11042.00	11245.00	189.71	98.11	203.00	2.93	0.48	1.93
11245.00	11448.00	717.21	217.90	203.02	11.09	1.07	3.29
11448.00	11651.00	24.37	21.61	100.43	0.38	0.22	1.13

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 15.272

INPUT
Description: Top of bank for "Western Diversion" - stations 8750 to 8780.

Blocked Obstruction on the south side of the cross section was used to eliminate this area from the HEC-RAS hydraulic calculations as flows do not overtop the diversion.

Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5483.92	1436	5505	1434	5535	1432	5565	1430	5595	1428
6930	1428	6960	1440	7010	1432	7050	1434	7170	1435.6
7350	1435.1	7500	1435.6	7540	1435.3	7590	1436	7940	1437.6
8000	1437.5	8020	1437.4	8230	1438	8410	1438	8580	1438
8600	1439	8650	1438	8680	1437.9	8750	1438	8780	1438
8800	1440	8870	1440	8880	1438	8890	1436	8910	1434.8
8930	1436	8980	1436.8	9010	1436	9260	1437.1	9370	1437.5
9500	1437.7	9590	1437.3	9720	1437.4	9790	1438	9840	1438.9
9890	1438.5	9950	1438	9960	1437.4	9970	1438	9980	1438.1
10010	1438	10070	1437.4	10180	1437.5	10240	1437.2	10350	1437.6
10500	1437.2	10540	1437.4	10630	1437.6	10810	1437.6	10940	1436.6
10980	1436.3	11090	1437.5	11200	1436.7	11270	1438	11720	1440

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5483.92	.05	8880	.05	10350	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8880	10350	450	477.77	520	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
10350	10400	1440

Blocked Obstructions num= 1

Sta L	Sta R	Elev
5483.92	8870	1440

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1439.08	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1439.04	Reach Len. (ft)	450.00	477.77	520.00
Crit W.S. (ft)	1437.83	Flow Area (sq ft)	2.70	2525.35	1680.81
E.G. Slope (ft/ft)	0.001384	Area (sq ft)	2.70	2525.35	1756.06
Q Total (cfs)	6466.00	Flow (cfs)	1.90	4004.24	2459.86
Top Width (ft)	2628.82	Top Width (ft)	5.19	1470.00	1153.62
Vel Total (ft/s)	1.54	Avg. Vel. (ft/s)	0.70	1.59	1.46
Max Chl Dpth (ft)	4.24	Hydr. Depth (ft)	0.52	1.72	1.52
Conv. Total (cfs)	173805.0	Conv. (cfs)	51.1	107633.4	66120.5
Length Wtd. (ft)	489.79	Wetted Per. (ft)	5.29	1470.35	1103.65
Min Ch El (ft)	1434.80	Shear (lb/sq ft)	0.04	0.15	0.13
Alpha	1.00	Stream Power (lb/ft s)	0.03	0.24	0.19
Frctn Loss (ft)	0.85	Cum Volume (acre-ft)	731.53	54.01	102.86
C & E Loss (ft)	0.05	Cum SA (acres)	424.80	32.49	73.67

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8540.39	8880.00	1.90	2.70	5.29	0.03	0.52	0.70
LB 8880.00	9174.00	1663.10	816.10	294.29	25.72	2.78	2.04
9174.00	9468.00	779.04	517.56	294.00	12.05	1.76	1.51
9468.00	9762.00	646.56	462.79	294.00	10.00	1.57	1.40
9762.00	10056.00	232.73	250.71	294.05	3.60	0.85	0.93
10056.00	RB 10350.00	682.81	478.19	294.00	10.56	1.63	1.43
10350.00	10487.00	211.85	146.83	87.00	3.28	1.69	1.44
10487.00	10624.00	314.05	222.99	137.00	4.86	1.63	1.41
10624.00	10761.00	255.66	197.09	137.00	3.95	1.44	1.30
10761.00	10898.00	323.14	226.84	137.00	5.00	1.66	1.42
10898.00	11035.00	613.54	333.26	137.01	9.49	2.43	1.84
11035.00	11172.00	384.31	251.70	137.01	5.94	1.84	1.53
11172.00	11309.00	302.24	217.92	137.01	4.67	1.59	1.39
11309.00	11446.00	53.14	76.79	137.00	0.82	0.56	0.69
11446.00	11583.00	1.91	7.38	57.62	0.03	0.13	0.26

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 15.181

INPUT
Description: Blocked Obstructions used to approximate building locations and tire storage areas on the north side of the channel. On the south side of channel, blocked obstruction was used to eliminate this area from the HEC-RAS hydraulic calculations as flows do not overtop the diversion.. The inundation area shown on this part of the cross section on the plan sheets is a backwater inundation area.

Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2796.16	1440	3743.86	1437.3	3914.88	1436	4708.85	1435.4	5120	1434.5
5355	1434	5455	1426	7080	1434	7625	1434	7835	1434.7
8185	1435.2	8225	1434.6	8260	1435.7	8300	1435.1	8410	1436
8500	1436	8565	1436	8585	1436.6	8605	1436	8620	1436
8655	1436.3	8905	1436	8965	1436	9010	1435.6	9050	1436
9070	1436.3	9120	1436	9160	1436.7	9200	1436	9470	1436
9510	1438	9520	1440	9530	1438	9580	1432.9	9600	1434
9740	1434.7	9850	1436	9900	1436	9910	1435.2	9920	1436
9935	1437.6	9955	1436	10040	1435.3	10080	1436	10600	1436
10720	1435	10745	1434.3	10765	1436	10980	1438	11540	1436.9
11985	1438	12300	1439	12460	1440				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2796.16	.05	9900	.022	11540	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9530	10080	495	498.17	495	.3	.5

Blocked Obstructions num= 3

Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L	Sta R	Elev
2796.16	9530	1439.5	10080	10720	1439.5	10795	11660	1439.5

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1438.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.		0.039	0.024
W.S. Elev (ft)	1437.98	Reach Len. (ft)	495.00	498.17	495.00
Crit W.S. (ft)	1436.77	Flow Area (sq ft)		1493.07	318.70
E.G. Slope (ft/ft)	0.002238	Area (sq ft)		1493.07	318.70
Q Total (cfs)	6466.00	Flow (cfs)		5242.60	1223.40
Top Width (ft)	941.20	Top Width (ft)		549.79	391.41
Vel Total (ft/s)	3.57	Avg. Vel. (ft/s)		3.51	3.84
Max Chl Dpth (ft)	5.08	Hydr. Depth (ft)		2.72	0.81
Conv. Total (cfs)	136671.9	Conv. (cfs)		110812.9	25859.0
Length Wtd. (ft)	496.80	Wetted Per. (ft)		552.29	396.95
Min Ch El (ft)	1432.90	Shear (lb/sq ft)		0.38	0.11
Alpha	1.00	Stream Power (lb/ft s)		1.33	0.43
Frctn Loss (ft)	2.27	Cum Volume (acre-ft)	731.52	31.98	90.48
C & E Loss (ft)	0.08	Cum SA (acres)	424.77	21.41	64.45

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9530.00	9640.00	1159.97	372.17	110.08	17.94	3.39	3.12
9640.00	9750.00	1228.40	385.08	110.00	19.00	3.50	3.19
9750.00	9860.00	708.35	276.76	110.01	10.95	2.52	2.56
9860.00	9970.00	707.85	198.59	110.21	10.95	1.81	3.56
9970.00	RB 10080.00	1438.02	260.48	111.99	22.24	2.37	5.52
10080.00	10556.00						
10556.00	10794.00	1118.87	193.27	77.06	17.30	2.61	5.79
10794.00	11032.00	3.93	1.70	2.70	0.06	1.70	2.31
11032.00	11508.00						
11508.00	11746.00	61.40	58.12	86.78	0.95	0.68	1.06
11746.00	11984.00	39.20	65.62	230.41	0.61	0.28	0.60

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 15.087

INPUT
Description: Blocked Obstruction used to eliminate the basin from the hydraulic calculations.
Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2797.42	1436	3756.38	1435.2	3882.35	1434	4716.45	1433.2	4790	1432
5055	1433.6	5150	1433.6	5225	1432	5350	1432.3	5380	1432
5455	1426	9500	1424.9	9660	1426	9730	1432	9850	1434
9900	1434	9905	1433.1	9910	1434	9940	1435.4	9960	1434
9970	1434	9980	1434.7	9990	1434	10040	1433.5	10180	1434
10185	1436	10225	1436	10265	1434	10620	1432	10710	1432.8
10775	1434	11015	1434	11585	1436	12285	1438	12605	1440
12755	1442	12825	1441.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2797.42	.05	9900	.022	9980	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9900	10185	500	489.37	500	.3	.5

Ineffective Flow num= 3

Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L	Sta R	Elev

2797.42	9780	1439	10250	10610	1439	10890	11560	1439

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2797.42	9780	1432

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1435.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.46	Wt. n-Val.	0.050	0.042	0.050
W.S. Elev (ft)	1435.37	Reach Len. (ft)	500.00	489.37	500.00
Crit W.S. (ft)	1435.04	Flow Area (sq ft)	204.89	395.17	589.34
E.G. Slope (ft/ft)	0.014121	Area (sq ft)	18330.05	395.17	1848.43
Q Total (cfs)	6466.00	Flow (cfs)	1033.62	2111.40	3320.99
Top Width (ft)	7793.31	Top Width (ft)	6344.07	282.25	1166.99
Vel Total (ft/s)	5.44	Avg. Vel. (ft/s)	5.04	5.34	5.64
Max Chl Dpth (ft)	3.37	Hydr. Depth (ft)	1.71	1.40	2.02
Conv. Total (cfs)	54413.5	Conv. (cfs)	8698.2	17768.1	27947.2
Length Wtd. (ft)	496.73	Wetted Per. (ft)	120.01	282.80	292.37
Min Ch El (ft)	1433.10	Shear (lb/sq ft)	1.51	1.23	1.78
Alpha	1.00	Stream Power (lb/ft s)	7.59	6.58	10.01
Frctn Loss (ft)	3.20	Cum Volume (acre-ft)	627.37	21.18	78.16
C & E Loss (ft)	0.13	Cum SA (acres)	388.73	16.66	55.59

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9189.74	9900.00	1033.62	204.89	120.01	15.99	1.71	5.04
LB 9900.00	9957.00	341.45	47.76	56.06	5.28	0.86	7.15
9957.00	10014.00	444.02	73.50	57.06	6.87	1.29	6.04
10014.00	10071.00	520.46	101.33	57.00	8.05	1.78	5.14
10071.00	10128.00	461.79	94.32	57.00	7.14	1.65	4.90
10128.00	RB 10185.00	343.66	78.26	55.68	5.31	1.41	4.39
10185.00	10449.00	5.68	3.81	12.36	0.09	0.31	1.49
10449.00	10713.00	2090.95	308.05	103.00	32.34	2.99	6.79
10713.00	10977.00	1224.35	277.47	177.01	18.94	1.57	4.41

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 14.994

INPUT
Description: Blocked Obstruction used to eliminate the basin from the hydraulic calculations.
Station Elevation Data num= 47

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3217.35	1434	3746.68	1433.4	4014.89	1432	4712.52	1431.1	4735	1431.4
4755	1431.4	4775	1430.4	5020	1430.1	5150	1430.1	5330	1432
5405	1430	9500	1430	9700	1432	9755	1430	9785	1432
9825	1431	9905	1432	9915	1430.4	9935	1432	9975	1430.5
10010	1430.2	10115	1430.7	10155	1430	10225	1429.6	10270	1430
10395	1430.4	10415	1430.2	10460	1430.3	10490	1430.6	10510	1430
10520	1430	10555	1430.7	10725	1430	10940	1432	10970	1430
10975	1430	10990	1432	11195	1433	11525	1434	11735	1436
11790	1436.4	11845	1436	11965	1437.5	12060	1437.6	12120	1437.2
12265	1436	12470	1437.8						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3217.35	.05	9905	.022	10115	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9905	10115	510	512.24	515	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
3217.35	9520	1436	11125	11310	1436

Blocked Obstructions num= 1

Sta L	Sta R	Elev
3217.35	9700	1432

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1432.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.	0.050	0.022	0.050
W.S. Elev (ft)	1432.29	Reach Len. (ft)	510.00	512.24	515.00
Crit W.S. (ft)	1431.54	Flow Area (sq ft)	257.75	336.00	1630.54
E.G. Slope (ft/ft)	0.003647	Area (sq ft)	1878.11	336.00	1630.54
Q Total (cfs)	6466.00	Flow (cfs)	353.91	1873.43	4238.66
Top Width (ft)	7091.25	Top Width (ft)	5946.21	210.00	935.03
Vel Total (ft/s)	2.91	Avg. Vel. (ft/s)	1.37	5.58	2.60
Max Chl Dpth (ft)	2.69	Hydr. Depth (ft)	0.67	1.60	1.74
Conv. Total (cfs)	107075.8	Conv. (cfs)	5860.7	31023.7	70191.5
Length Wtd. (ft)	514.01	Wetted Per. (ft)	385.12	210.22	935.27
Min Ch El (ft)	1430.20	Shear (lb/sq ft)	0.15	0.36	0.40
Alpha	1.60	Stream Power (lb/ft s)	0.21	2.03	1.03
Frctn Loss (ft)	1.78	Cum Volume (acre-ft)	511.39	17.07	58.20
C & E Loss (ft)	0.03	Cum SA (acres)	318.19	13.89	43.53

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9236.24	9905.00	353.91	257.75	385.12	5.47	0.67	1.37
LB 9905.00	9947.00	146.03	39.00	42.20	2.26	0.93	3.74
9947.00	9989.00	312.36	61.44	42.02	4.83	1.46	5.08
9989.00	10031.00	536.32	84.96	42.00	8.29	2.02	6.31
10031.00	10073.00	480.12	79.50	42.00	7.43	1.89	6.04
10073.00	RB 10115.00	398.58	71.10	42.00	6.16	1.69	5.61
10115.00	10350.50	1580.84	538.60	235.51	24.45	2.29	2.94
10350.50	10586.00	1200.47	456.62	235.52	18.57	1.94	2.63
10586.00	10821.50	1201.67	456.88	235.51	18.58	1.94	2.63
10821.50	11057.00	255.70	178.45	228.74	3.95	0.78	1.43

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 14.897

INPUT
Description:
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3272.11	1432	3742.24	1431.9	4197.35	1430	4713.9	1430	5585	1428.5
6410	1428	6985	1428	7135	1426	7635	1426	7740	1426.6
7940	1428	8585	1430	9330	1430	9510	1429.8	9850	1429.6
9900	1428.7	9940	1429.8	9990	1429.2	10005	1429.3	10020	1429.1
10080	1430	10100	1428	10335	1428	10355	1428	10365	1426.9
10375	1428	10600	1428.6	10630	1428.3	10650	1428.6	10795	1428.8
10835	1428	10840	1427.4	10850	1428	10855	1430	11050	1430.6
11130	1430.6	11340	1432	11480	1433.5	11605	1432.9	11685	1433.3
11790	1433	11945	1433.3	12040	1434	12130	1435.8		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3272.11	.05	9850	.022	10005	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9850	10005	500	497.67	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
3272.11	9250	1432

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1430.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.050	0.022	0.050
W.S. Elev (ft)	1430.57	Reach Len. (ft)	500.00	497.67	500.00
Crit W.S. (ft)	1429.57	Flow Area (sq ft)	464.08	197.64	1912.91
E.G. Slope (ft/ft)	0.003285	Area (sq ft)	10671.68	197.64	1912.91
Q Total (cfs)	6466.00	Flow (cfs)	666.05	899.54	4900.41
Top Width (ft)	6981.41	Top Width (ft)	5790.02	155.00	1036.39
Vel Total (ft/s)	2.51	Avg. Vel. (ft/s)	1.44	4.55	2.56
Max Chl Dpth (ft)	4.57	Hydr. Depth (ft)	0.77	1.28	1.85
Conv. Total (cfs)	112818.4	Conv. (cfs)	11621.2	15695.2	85502.1
Length Wtd. (ft)	499.58	Wetted Per. (ft)	600.00	155.03	1037.07
Min Ch El (ft)	1428.70	Shear (lb/sq ft)	0.16	0.26	0.38
Alpha	1.28	Stream Power (lb/ft s)	0.23	1.19	0.97
Frctn Loss (ft)	1.66	Cum Volume (acre-ft)	437.92	13.93	37.25
C & E Loss (ft)	0.00	Cum SA (acres)	249.49	11.74	31.88

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9192.21	9850.00	666.05	464.08	600.00	10.30	0.77	1.44
LB 9850.00	9881.00	171.31	38.83	31.01	2.65	1.25	4.41
9881.00	9912.00	286.37	52.85	31.01	4.43	1.70	5.42
9912.00	9943.00	142.79	34.81	31.01	2.21	1.12	4.10
9943.00	9974.00	116.83	30.86	31.00	1.81	1.00	3.79
9974.00	RB 10005.00	182.23	40.29	31.00	2.82	1.30	4.52
10005.00	10217.50	1002.65	415.87	212.61	15.51	1.96	2.41
10217.50	10430.00	1616.24	553.83	212.62	25.00	2.61	2.92
10430.00	10642.50	1208.08	464.98	212.50	18.68	2.19	2.60
10642.50	10855.00	1037.63	424.78	212.95	16.05	2.00	2.44
10855.00	11067.50	35.83	53.45	186.39	0.55	0.29	0.67

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 14.803

INPUT
Description: Blocked Obstruction used to approximate building location on the north side of the channel.

Station Elevation Data num= 52

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3258.11	1430	3749.52	1429.3	4341.57	1428	4707.12	1428	4765	1427.9
4860	1427.6	5475	1426.8	6155	1426.6	6495	1426	7330	1424
7400	1423.8	7590	1423.6	7630	1422.6	7635	1424	7710	1424.5
8285	1426	8660	1427.4	8730	1427.4	8850	1427.3	9020	1428
9170	1429.1	9185	1428	9285	1427.1	9415	1427.3	9560	1426.9
9620	1426.6	9720	1426.9	9865	1428	9880	1430	9955	1428
9975	1426	9990	1427.4	10010	1426.8	10055	1426.8	10070	1426
10080	1426	10115	1426.6	10210	1426	10240	1428	10255	1426
10265	1425	10840	1426	10920	1426	10960	1428	10990	1430
11195	1432	11350	1431.4	11390	1431.5	11570	1431	11780	1432
11860	1434	11910	1434.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3258.11	.05	9955	.022	10010	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9955	10115	500	487.6	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
3258.11	8980	1432

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9170	9185	1432	10265	10840	1432

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1429.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.050	0.037	0.050
W.S. Elev (ft)	1428.90	Reach Len. (ft)	500.00	487.60	500.00
Crit W.S. (ft)	1428.02	Flow Area (sq ft)	1283.58	358.92	680.44
E.G. Slope (ft/ft)	0.003312	Area (sq ft)	13975.58	358.92	680.44
Q Total (cfs)	6466.00	Flow (cfs)	2995.26	1418.62	2052.12
Top Width (ft)	6374.72	Top Width (ft)	5931.23	160.00	283.49
Vel Total (ft/s)	2.78	Avg. Vel. (ft/s)	2.33	3.95	3.02
Max Chl Dpth (ft)	6.30	Hydr. Depth (ft)	1.45	2.24	2.40
Conv. Total (cfs)	112362.8	Conv. (cfs)	52050.1	24652.0	35660.7
Length Wtd. (ft)	496.98	Wetted Per. (ft)	884.13	160.20	290.62
Min Ch El (ft)	1426.00	Shear (lb/sq ft)	0.30	0.46	0.48
Alpha	1.14	Stream Power (lb/ft s)	0.70	1.83	1.46
Frctn Loss (ft)	3.13	Cum Volume (acre-ft)	296.47	10.75	22.37
C & E Loss (ft)	0.02	Cum SA (acres)	182.21	9.95	24.30

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8615.62	9285.31	367.53	229.96	263.88	5.68	0.87	1.60
9285.31	9955.00	2627.73	1053.62	620.25	40.64	1.70	2.49
LB 9955.00	9987.00	413.24	66.07	32.15	6.39	2.06	6.26
9987.00	10019.00	285.02	59.80	32.02	4.41	1.87	4.77
10019.00	10051.00	187.58	67.18	32.00	2.90	2.10	2.79
10051.00	10083.00	269.41	83.51	32.02	4.17	2.61	3.23
10083.00	RB 10115.00	263.38	82.36	32.00	4.07	2.57	3.20
10115.00	10294.50	1116.17	366.43	154.15	17.26	2.44	3.05
10294.50	10833.00						
10833.00	11012.50	935.95	314.01	136.47	14.47	2.35	2.98

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 14.710

INPUT
Description:
Station Elevation Data num= 54

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3561.95	1428	3742.55	1427.82	4148.75	1427	4713.37	1426.9	4770	1427.1
4925	1426	6050	1424.5	6310	1424	6755	1423.4	7385	1422
7420	1421.8	7600	1421.8	7645	1421.2	7665	1422	7700	1422.1
7800	1422	8280	1424	8600	1426	8700	1425.5	8870	1425.4
9050	1426	9270	1426.3	9295	1428	9560	1428	9785	1427
9855	1426	9860	1424	9890	1426	9910	1426.6	9950	1426
9985	1424.2	10005	1425	10030	1424	10090	1424.2	10115	1424
10150	1423.8	10215	1424	10260	1423.8	10355	1424	10400	1424
10425	1423	10440	1424	10700	1424	10735	1422	10740	1424
10880	1426	10950	1428	10985	1427.9	11120	1428	11180	1428.7
11290	1428.4	11335	1428.6	11420	1428.6	11490	1429.3		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3561.95	.05	9950	.022	10005	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9950	10215	500	496.27	580	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
3561.95	8725	1429

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1425.89	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.	0.050	0.046	0.050
W.S. Elev (ft)	1425.50	Reach Len. (ft)	500.00	496.27	580.00
Crit W.S. (ft)	1425.19	Flow Area (sq ft)	29.84	338.87	941.32
E.G. Slope (ft/ft)	0.016337	Area (sq ft)	6196.30	338.87	941.32
Q Total (cfs)	6466.00	Flow (cfs)	67.12	1728.78	4670.10
Top Width (ft)	4334.11	Top Width (ft)	3448.68	255.31	630.12
Vel Total (ft/s)	4.94	Avg. Vel. (ft/s)	2.25	5.10	4.96
Max Chl Dpth (ft)	4.30	Hydr. Depth (ft)	0.15	1.33	1.49
Conv. Total (cfs)	50588.4	Conv. (cfs)	525.1	13525.5	36537.7
Length Wtd. (ft)	530.53	Wetted Per. (ft)	202.13	255.38	630.63
Min Ch El (ft)	1423.80	Shear (lb/sq ft)	0.15	1.35	1.52
Alpha	1.02	Stream Power (lb/ft s)	0.34	6.90	7.55
Frctn Loss (ft)	3.66	Cum Volume (acre-ft)	180.70	6.85	13.06
C & E Loss (ft)	0.06	Cum SA (acres)	128.38	7.62	19.06

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8672.39	9311.19	5.73	10.11	175.51	0.09	0.06	0.57
9311.19	9950.00	61.39	19.73	26.62	0.95	0.75	3.11
LB 9950.00	10003.00	241.22	33.43	43.36	3.73	0.77	7.22
10003.00	10056.00	279.75	64.04	53.02	4.33	1.21	4.37
10056.00	10109.00	336.36	72.36	53.00	5.20	1.37	4.65
10109.00	10162.00	440.92	85.12	53.00	6.82	1.61	5.18
10162.00	RB 10215.00	430.51	83.91	53.00	6.66	1.58	5.13
10215.00	10342.50	1056.55	205.30	127.50	16.34	1.61	5.15
10342.50	10470.00	1111.10	211.63	127.55	17.18	1.66	5.25
10470.00	10597.50	940.58	191.47	127.50	14.55	1.50	4.91
10597.50	10725.00	1091.05	209.33	127.54	16.87	1.64	5.21
10725.00	10852.50	470.83	123.60	120.53	7.28	1.03	3.81

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 14.616

INPUT
Description:
Station Elevation Data num= 47

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3399.19	1427.67	4093.13	1426	4721.67	1425.7	4750	1424	5415	1423.8
6040	1424	6740	1422	7375	1420	7410	1419.8	7455	1420
7500	1422	7535	1420	7645	1420	8135	1421.3	8600	1422
8660	1424	9110	1424	9205	1424	9270	1422	9310	1420
9345	1418	9370	1416	9665	1415.2	9805	1416	9810	1418
9870	1420	9875	1422	9915	1423.5	9950	1423.3	9965	1422
9990	1422.5	10005	1422	10025	1421.9	10100	1421.9	10120	1422
10165	1422.6	10180	1422	10200	1421.6	10240	1421.8	10390	1421.7
10480	1421.9	10540	1422	10590	1422	10610	1420	10770	1422
10820	1424	11295	1425.6						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
3399.19	.05	4721.67	.05	9950	.022	9990	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9950	10240	500	494.72	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
3399.19	8465	1425

Blocked Obstructions num= 1

Sta L	Sta R	Elev

9100 9915 1419

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1422.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1421.97	Reach Len. (ft)	500.00	494.72	500.00
Crit W.S. (ft)	1420.67	Flow Area (sq ft)	1694.37	20.74	225.24
E.G. Slope (ft/ft)	0.003799	Area (sq ft)	3559.39	20.74	225.24
Q Total (cfs)	6466.00	Flow (cfs)	6109.92	9.64	346.44
Top Width (ft)	3058.40	Top Width (ft)	2435.55	162.31	460.54
Vel Total (ft/s)	3.33	Avg. Vel. (ft/s)	3.61	0.46	1.54
Max Chl Dpth (ft)	2.97	Hydr. Depth (ft)	2.35	0.13	0.49
Conv. Total (cfs)	104901.6	Conv. (cfs)	99124.7	156.4	5620.5
Length Wtd. (ft)	499.96	Wetted Per. (ft)	721.11	162.31	460.65
Min Ch El (ft)	1421.60	Shear (lb/sq ft)	0.56	0.03	0.12
Alpha	1.12	Stream Power (lb/ft s)	2.01	0.01	0.18
Frctn Loss (ft)	1.72	Cum Volume (acre-ft)	124.71	4.80	5.29
C & E Loss (ft)	0.03	Cum SA (acres)	94.61	5.24	11.80

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7984.76	8639.84	3.62	10.18	116.27	0.06	0.09	0.36
8639.84	9294.92	19.19	14.83	24.38	0.30	0.61	1.29
9294.92	9950.00	6087.11	1669.37	580.45	94.14	2.88	3.65
9950.00	10008.00						
10008.00	10066.00	0.79	3.46	55.36	0.01	0.06	0.23
10066.00	10124.00	0.67	2.96	48.36	0.01	0.06	0.23
10124.00	10182.00	0.00	0.00	0.59	0.00	0.01	0.05
10182.00	RB 10240.00	8.18	14.32	58.00	0.13	0.25	0.57
10240.00	10345.50	12.86	21.84	105.50	0.20	0.21	0.59
10345.50	10451.00	14.94	23.88	105.50	0.23	0.23	0.63
10451.00	10556.50	1.22	4.56	72.08	0.02	0.06	0.27
10556.50	10662.00	228.00	105.07	71.82	3.53	1.47	2.17
10662.00	10767.50	89.41	69.88	105.51	1.38	0.66	1.28

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 14.523

INPUT
Description:
Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3393.53	1426.63	3709.46	1426	4269.8	1424	4705.37	1424.2	4770	1424
4800	1422.7	4940	1422.7	5415	1422.4	6020	1422.1	6055	1421.4
6150	1420.7	6250	1420.7	6545	1420.3	7265	1419.3	7415	1418.2
7475	1420	7495	1420.8	7515	1420	7535	1416	7545	1414.4
7565	1416	7600	1419.8	7630	1418	7670	1418.6	7810	1419.2
7980	1419.2	8130	1419.2	8285	1419.4	8410	1419.6	8570	1419.1
8600	1420	8610	1420.5	8625	1420	8670	1416	9185	1415.3
9675	1415.2	9790	1416	9800	1418	9900	1420	9940	1421.4
9985	1420	9995	1420.4	10000	1420	10010	1419.8	10055	1419.8
10100	1420	10140	1420.4	10170	1420	10180	1419.5	10205	1420
10305	1419.6	10540	1420	10740	1419.9	10785	1420	10860	1422
10870	1422	10880	1420	10895	1420	11225	1422	11270	1422.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3393.53	.05	9900	.022	9995	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9900	10205	640	649	700	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev

3393.53 8190 1422

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
7500	7600	1418	8600	9940	1418.5

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1420.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.050	0.048	0.050
W.S. Elev (ft)	1420.34	Reach Len. (ft)	640.00	649.00	700.00
Crit W.S. (ft)	1419.50	Flow Area (sq ft)	2654.26	83.88	290.44
E.G. Slope (ft/ft)	0.003112	Area (sq ft)	4282.98	83.88	290.44
Q Total (cfs)	6466.00	Flow (cfs)	6106.38	76.61	283.01
Top Width (ft)	4240.75	Top Width (ft)	3349.56	226.61	664.58
Vel Total (ft/s)	2.13	Avg. Vel. (ft/s)	2.30	0.91	0.97
Max Chl Dpth (ft)	2.34	Hydr. Depth (ft)	1.56	0.37	0.44
Conv. Total (cfs)	115912.3	Conv. (cfs)	109465.6	1373.3	5073.4
Length Wtd. (ft)	641.35	Wetted Per. (ft)	1701.88	226.67	664.62
Min Ch El (ft)	1419.50	Shear (lb/sq ft)	0.30	0.07	0.08
Alpha	1.11	Stream Power (lb/ft s)	0.70	0.07	0.08
Frctn Loss (ft)	2.92	Cum Volume (acre-ft)	79.70	4.21	2.33
C & E Loss (ft)	0.01	Cum SA (acres)	61.41	3.03	5.34

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

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7948.06	8598.71	600.96	379.85	408.72	9.29	0.93	1.58
8598.71	9249.35	2761.49	1136.51	642.49	42.71	1.77	2.43
9249.35	9900.00	2743.93	1137.90	650.66	42.44	1.75	2.41
LB 9900.00	9961.00	1.78	1.61	9.59	0.03	0.17	1.11
9961.00	10022.00	14.16	14.69	45.38	0.22	0.32	0.96
10022.00	10083.00	31.47	30.91	61.00	0.49	0.51	1.02
10083.00	10144.00	7.34	11.96	50.53	0.11	0.24	0.61
10144.00	RB 10205.00	21.86	24.70	60.17	0.34	0.41	0.88
10205.00	10311.50	62.99	58.28	106.50	0.97	0.55	1.08
10311.50	10418.00	80.42	67.48	106.50	1.24	0.63	1.19
10418.00	10524.50	45.86	48.17	106.50	0.71	0.45	0.95
10524.50	10631.00	30.87	37.99	106.50	0.48	0.36	0.81
10631.00	10737.50	38.53	43.40	106.50	0.60	0.41	0.89
10737.50	10844.00	16.22	20.53	60.08	0.25	0.34	0.79
10844.00	10950.50	8.13	14.59	72.04	0.13	0.20	0.56

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

CROSS SECTION RIVER: Vineyard Spillwa
REACH: Vineyard RS: 3

INPUT
Description: Cross Section 14.691 on Powerline FRS Baseline
Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1510	1418	1780	1417.5	2785	1418.5	3470	1419	3930	1419.6
3980	1418	4030	1417.7	4200	1417.8	4290	1418	4430	1417.6
4515	1417.5	4615	1417.2	4670	1417.4	4770	1417	4845	1416
4890	1417.4	5000	1417.5	5100	1417.3	5180	1417.3	5250	1416.8
5335	1416.7	5410	1416	5430	1415.3	5440	1416	5490	1416.2
5710	1416.2	5745	1416.2	5785	1415.9	5955	1415.9	6020	1416
6060	1416.1	6155	1416	6565	1416.2	6685	1417	6725	1416.5
6950	1416.5	7020	1416	7030	1415.3	7040	1416	7090	1416.7
7175	1416	7255	1416.2	7310	1415.7	7455	1416.3	7615	1416
7715	1418	7740	1418	7879	1416	7999	1415.5	8069	1415.5
8194	1416	8264	1415.5	8399	1416	8469	1416.7	8549	1416
8594	1416	8620	1416	8749	1415	8887	1414.8	8987	1415.9

9057	1415.1	9295	1414.7	9513	1416	9568	1416.5	9623	1416
9643	1415.9	9688	1415.4	9708	1416	9770	1416	9780	1416.3
9790	1416	9825	1414.8	9865	1416	9880	1418	9890	1419
9905	1418	9930	1416	9980	1414	9985	1412	10000	1411.4
10005	1412	10020	1414	10080	1416	10100	1418	10115	1418.4

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1510	.05	9890	.05	10115	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9890	10115	640	474.31	475	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
1510	3930	1419

CROSS SECTION OUTPUT Profile #PF 2

E.G. Elev (ft)	1417.49	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1417.36	Reach Len. (ft)			
Crit W.S. (ft)	1416.75	Flow Area (sq ft)	6565.93	480.81	
E.G. Slope (ft/ft)	0.005248	Area (sq ft)	6565.93	480.81	
Q Total (cfs)	19800.00	Flow (cfs)	17817.30	1982.70	
Top Width (ft)	5190.33	Top Width (ft)	5009.73	180.60	
Vel Total (ft/s)	2.81	Avg. Vel. (ft/s)	2.71	4.12	
Max Chl Dpth (ft)	5.96	Hydr. Depth (ft)	1.31	2.66	
Conv. Total (cfs)	273329.3	Conv. (cfs)	245959.1	27370.2	
Length Wtd. (ft)		Wetted Per. (ft)	5010.08	181.36	
Min Ch El (ft)	1411.40	Shear (lb/sq ft)	0.43	0.87	
Alpha	1.05	Stream Power (lb/ft s)	1.17	3.58	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #PF 2

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4024.00	4862.00	120.91	107.11	279.34	0.61	0.38	1.13
4862.00	5700.00	964.08	523.99	656.74	4.87	0.80	1.84
5700.00	6538.00	2847.88	1106.40	838.00	14.38	1.32	2.57
6538.00	7376.00	1899.46	867.75	838.07	9.59	1.04	2.19
7376.00	8214.00	2424.55	954.03	736.54	12.25	1.30	2.54
8214.00	9052.00	4464.14	1448.93	838.02	22.55	1.73	3.08
9052.00	9890.00	5096.28	1557.72	823.36	25.74	1.89	3.27
LB 9890.00	9935.00	31.89	18.86	22.06	0.16	0.86	1.69
9935.00	9980.00	378.45	110.70	45.04	1.91	2.46	3.42
9980.00	10025.00	1151.00	216.78	45.57	5.81	4.82	5.31
10025.00	10070.00	374.26	109.95	45.02	1.89	2.44	3.40
10070.00	RB 10115.00	47.10	24.51	23.67	0.24	1.04	1.92

Warning: Divided flow computed for this cross-section.

SUMMARY OF MANNING'S N VALUES

River:Vineyard Spillwa

Reach	River Sta.	n1	n2	n3	n4
Vineyard	20.000	.022	.022	.022	
Vineyard	19.918	.022	.022	.022	
Vineyard	19.824	.022	.022	.022	
Vineyard	19.743	.022	.022	.022	
Vineyard	19.676	.05	.05	.05	
Vineyard	19.614	.05	.08	.05	
Vineyard	19.537	.022	.022	.022	
Vineyard	19.515	.022	.022	.022	
Vineyard	19.477	.05	.05	.05	
Vineyard	19.405	.05	.05	.05	
Vineyard	19.324	.05	.05	.05	

Vineyard	19.227	.05	.05	.05	
Vineyard	19.133	.05	.05	.05	
Vineyard	19.030	.05	.05	.05	
Vineyard	18.932	.05	.05	.05	
Vineyard	18.832	.05	.05	.05	
Vineyard	18.736	.05	.05	.05	
Vineyard	18.644	.05	.05	.05	
Vineyard	18.549	.05	.05	.05	
Vineyard	18.452	.05	.05	.05	
Vineyard	18.356	.05	.05	.05	
Vineyard	18.302	.05	.05	.05	
Vineyard	18.248	.05	.05	.05	
Vineyard	18.173	.05	.05	.05	
Vineyard	18.081	.05	.05	.05	
Vineyard	18.000	.05	.05	.05	
Vineyard	17.906	.05	.05	.05	
Vineyard	17.819	.05	.05	.05	
Vineyard	17.725	.05	.05	.05	
Vineyard	17.630	.05	.05	.05	
Vineyard	17.554	.05	.05	.05	
Vineyard	17.479	.05	.05	.05	
Vineyard	17.377	.05	.05	.05	
Vineyard	17.321	.05	.05	.05	
Vineyard	17.227	.05	.05	.05	
Vineyard	17.132	.05	.05	.05	
Vineyard	17.038	.05	.05	.05	
Vineyard	16.945	.05	.05	.05	
Vineyard	16.850	.05	.05	.05	
Vineyard	16.755	.05	.05	.05	
Vineyard	16.679	.05	.05	.05	
Vineyard	16.585	.016	.016	.016	
Vineyard	16.507	.05	.05	.05	
Vineyard	16.451	.05	.05	.05	
Vineyard	16.367	.05	.05	.05	
Vineyard	16.293	.05	.05	.05	
Vineyard	16.197	.05	.05	.05	
Vineyard	16.106	.05	.05	.05	
Vineyard	16.009	.05	.05	.05	
Vineyard	15.934	.05	.05	.05	
Vineyard	15.838	.05	.05	.05	
Vineyard	15.744	.05	.05	.05	
Vineyard	15.652	.05	.05	.05	
Vineyard	15.555	.05	.05	.05	
Vineyard	15.461	.05	.05	.05	
Vineyard	15.366	.05	.05	.05	
Vineyard	15.272	.05	.05	.05	
Vineyard	15.181	.05	.022	.05	
Vineyard	15.087	.05	.022	.05	
Vineyard	14.994	.05	.022	.05	
Vineyard	14.897	.05	.022	.05	
Vineyard	14.803	.05	.022	.05	
Vineyard	14.710	.05	.022	.05	
Vineyard	14.616	.05	.05	.022	.05
Vineyard	14.523	.05	.022	.05	
Vineyard	3	.05	.05	.05	

SUMMARY OF REACH LENGTHS

River: Vineyard Spillwa

Reach	River Sta.	Left	Channel	Right
Vineyard	20.000	806.25	433.34	127.42
Vineyard	19.918	495.89	497.31	498.61
Vineyard	19.824	424.27	427.26	382.35
Vineyard	19.743	353.6	355.36	359.8
Vineyard	19.676	347.45	326.19	237.54
Vineyard	19.614	876.62	404.64	269.25
Vineyard	19.537	119.05	115.13	126.68
Vineyard	19.515	384.02	203.25	127.25
Vineyard	19.477	404.21	378.84	343.37
Vineyard	19.405	436.68	426.43	402.95
Vineyard	19.324	398.87	516.12	498.97

Vineyard	19.227	469.21	495.71	496.49
Vineyard	19.133	442.94	544.45	458.39
Vineyard	19.030	468.48	513.02	424.17
Vineyard	18.932	581.34	528.78	466.64
Vineyard	18.832	441.13	509.32	557.25
Vineyard	18.736	569.73	486.46	441.02
Vineyard	18.644	397.21	500.78	427.12
Vineyard	18.549	503.55	511.81	476.98
Vineyard	18.452	501.22	506.04	405.75
Vineyard	18.356	303.03	284.7	201.78
Vineyard	18.302	299.49	284.73	297.8
Vineyard	18.248	357.93	394.82	548.56
Vineyard	18.173	510.37	485.8	404.15
Vineyard	18.081	357.17	430.67	405.55
Vineyard	18.000	499.55	496.48	527.1
Vineyard	17.906	434.39	456.2	444.62
Vineyard	17.819	447.96	499.97	459.45
Vineyard	17.725	383	500	500.99
Vineyard	17.630	282.16	400.01	467.43
Vineyard	17.554	407.45	398.94	593.71
Vineyard	17.479	434.06	535.05	398.92
Vineyard	17.377	389.72	295.16	235.91
Vineyard	17.321	732.26	497.51	448.5
Vineyard	17.227	493.71	502.79	505.19
Vineyard	17.132	491.85	496.91	498.15
Vineyard	17.038	500.93	488.11	396
Vineyard	16.945	500.67	505.48	500.56
Vineyard	16.850	498.13	499.99	498.03
Vineyard	16.755	401.42	400	403.43
Vineyard	16.679	501.06	500.01	501.06
Vineyard	16.585	572.41	410.14	323.21
Vineyard	16.507	294	294.2	296.55
Vineyard	16.451	442.05	443.33	435.7
Vineyard	16.367	392.24	394.26	389.71
Vineyard	16.293	505.8	506.02	508.51
Vineyard	16.197	478.05	477.22	481.71
Vineyard	16.106	451.05	514.19	546.94
Vineyard	16.009	305.1	396.01	394.62
Vineyard	15.934	477	504.08	492.54
Vineyard	15.838	506.83	498.04	494.93
Vineyard	15.744	448.07	486.94	509.51
Vineyard	15.652	501.22	512.24	506.96
Vineyard	15.555	504.24	493.86	488.78
Vineyard	15.461	520.38	503.9	438.05
Vineyard	15.366	464	498.41	516.61
Vineyard	15.272	450	477.77	520
Vineyard	15.181	495	498.17	495
Vineyard	15.087	500	489.37	500
Vineyard	14.994	510	512.24	515
Vineyard	14.897	500	497.67	500
Vineyard	14.803	500	487.6	500
Vineyard	14.710	500	496.27	580
Vineyard	14.616	500	494.72	500
Vineyard	14.523	640	649	700
Vineyard	3	640	474.31	475

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Vineyard Spillwa

Reach	River Sta.	Contr.	Expan.
Vineyard	20.000	.3	.5
Vineyard	19.918	.3	.5
Vineyard	19.824	.3	.5
Vineyard	19.743	.3	.5
Vineyard	19.676	.3	.5
Vineyard	19.614	.3	.5
Vineyard	19.537	.3	.5
Vineyard	19.515	.3	.5
Vineyard	19.477	.3	.5
Vineyard	19.405	.3	.5
Vineyard	19.324	.3	.5

Vineyard	19.227	.3	.5
Vineyard	19.133	.3	.5
Vineyard	19.030	.3	.5
Vineyard	18.932	.3	.5
Vineyard	18.832	.3	.5
Vineyard	18.736	.3	.5
Vineyard	18.644	.3	.5
Vineyard	18.549	.3	.5
Vineyard	18.452	.3	.5
Vineyard	18.356	.3	.5
Vineyard	18.302	.3	.5
Vineyard	18.248	.3	.5
Vineyard	18.173	.3	.5
Vineyard	18.081	.3	.5
Vineyard	18.000	.1	.3
Vineyard	17.906	.1	.3
Vineyard	17.819	.1	.3
Vineyard	17.725	.1	.3
Vineyard	17.630	.1	.3
Vineyard	17.554	.1	.3
Vineyard	17.479	.1	.3
Vineyard	17.377	.1	.3
Vineyard	17.321	.3	.5
Vineyard	17.227	.3	.5
Vineyard	17.132	.3	.5
Vineyard	17.038	.3	.5
Vineyard	16.945	.1	.3
Vineyard	16.850	.1	.3
Vineyard	16.755	.1	.3
Vineyard	16.679	.1	.3
Vineyard	16.585	.1	.3
Vineyard	16.507	.1	.3
Vineyard	16.451	.1	.3
Vineyard	16.367	.1	.3
Vineyard	16.293	.1	.3
Vineyard	16.197	.1	.3
Vineyard	16.106	.1	.3
Vineyard	16.009	.1	.3
Vineyard	15.934	.1	.3
Vineyard	15.838	.1	.3
Vineyard	15.744	.1	.3
Vineyard	15.652	.1	.3
Vineyard	15.555	.1	.3
Vineyard	15.461	.1	.3
Vineyard	15.366	.1	.3
Vineyard	15.272	.3	.5
Vineyard	15.181	.3	.5
Vineyard	15.087	.3	.5
Vineyard	14.994	.1	.3
Vineyard	14.897	.1	.3
Vineyard	14.803	.1	.3
Vineyard	14.710	.1	.3
Vineyard	14.616	.1	.3
Vineyard	14.523	.1	.3
Vineyard	3	.1	.3

Profile Output Table - Standard Table 1

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Vineyard	20.000	6466.00	1572.91	1577.75	1575.54	1578.02	0.000662	4.14	1562.49	424.68	0.38
Vineyard	19.918	6466.00	1573.42	1576.60	1576.02	1577.36	0.002615	6.99	925.57	418.60	0.73
Vineyard	19.824	6466.00	1571.58	1574.32	1574.32	1575.46	0.005295	8.56	755.47	727.25	0.99
Vineyard	19.743	6466.00	1569.83	1574.48	1571.70	1574.57	0.000184	2.45	2751.99	1671.97	0.21
Vineyard	19.676	6466.00	1568.06	1574.46	1569.37	1574.48	0.000102	1.00	6442.73	2803.34	0.07
Vineyard	19.614	6466.00	1566.00	1574.45	1567.34	1574.45	0.000056	0.62	10597.24	3446.10	0.04
Vineyard	19.537	6466.00	1572.61	1574.32	1573.48	1574.38	0.000492	1.91	3338.11	6402.39	0.28
Vineyard	19.515	6466.00	1573.01	1573.86	1573.86	1574.17	0.005532	3.13	1588.04	6435.03	0.79
Vineyard	19.477	6466.00	1558.28	1561.69	1562.60	1567.52	0.654674	19.38	335.28	2758.00	4.00
Vineyard	19.405	6466.00	1554.70	1560.22	1559.73	1560.36	0.007052	3.87	2485.95	6116.34	0.49
Vineyard	19.324	6466.00	1551.66	1557.18	1556.76	1557.32	0.007367	3.34	2351.62	4411.44	0.48
Vineyard	19.227	6466.00	1549.16	1554.04	1553.32	1554.15	0.005764	2.26	2542.43	3021.06	0.40
Vineyard	19.133	6466.00	1547.51	1551.34	1550.52	1551.46	0.005228	1.71	2401.70	2830.75	0.36
Vineyard	19.030	6466.00	1545.07	1548.78	1548.14	1548.91	0.005546	2.54	2459.98	2978.14	0.40
Vineyard	18.932	6466.00	1541.93	1545.57	1545.16	1545.71	0.008646	3.36	2394.25	3017.70	0.51
Vineyard	18.832	6466.00	1538.55	1542.34	1541.83	1542.40	0.004598	2.38	3315.25	3750.86	0.37
Vineyard	18.736	6466.00	1536.85	1539.53	1539.16	1539.61	0.006845	2.30	3045.21	5273.18	0.43
Vineyard	18.644	6466.00	1534.52	1536.61	1536.23	1536.66	0.005188	1.85	3579.87	5581.95	0.36
Vineyard	18.549	6466.00	1531.27	1534.14	1533.76	1534.21	0.006752	2.69	3196.12	4808.38	0.44
Vineyard	18.452	6466.00	1526.00	1530.70	1530.32	1530.78	0.007021	2.74	2979.90	4305.08	0.45
Vineyard	18.356	6466.00	1523.02	1527.85	1527.50	1527.94	0.004946	3.19	3085.59	3541.24	0.41
Vineyard	18.302	6466.00	1522.04	1526.09		1526.23	0.007796	3.77	2481.85	3217.91	0.51
Vineyard	18.248	6466.00	1520.06	1524.37	1523.88	1524.48	0.004653	3.53	2700.05	2883.58	0.41
Vineyard	18.173	6466.00	1518.33	1521.53	1521.03	1521.69	0.008133	3.68	2159.72	2608.49	0.51
Vineyard	18.081	6466.00	1515.60	1518.56		1518.67	0.005474	3.02	2551.82	2111.33	0.42
Vineyard	18.000	6466.00	1512.34	1516.20		1516.30	0.006580	2.98	2551.48	2406.08	0.45
Vineyard	17.906	6466.00	1507.76	1512.68	1512.42	1512.84	0.007202	4.29	2430.11	3097.13	0.51
Vineyard	17.819	6466.00	1505.75	1509.25	1508.88	1509.37	0.008427	3.33	2422.56	3175.48	0.50
Vineyard	17.725	6466.00	1502.75	1505.88		1505.98	0.006449	2.74	2660.94	2724.30	0.43
Vineyard	17.630	6466.00	1499.63	1502.65	1502.25	1502.79	0.008563	3.03	2179.33	2620.93	0.50
Vineyard	17.554	6466.00	1496.19	1500.23	1499.73	1500.32	0.005737	2.59	2942.64	3371.50	0.41
Vineyard	17.479	6466.00	1493.74	1497.51	1497.07	1497.59	0.006642	2.24	2763.94	3390.17	0.42
Vineyard	17.377	6466.00	1491.78	1495.27		1495.32	0.003818	1.94	3389.79	3203.31	0.33
Vineyard	17.321	6466.00	1490.69	1493.57		1493.72	0.007556	3.25	2108.05	1877.91	0.48
Vineyard	17.227	6466.00	1487.63	1488.93	1488.12	1489.17	0.006353	1.70	1667.92	1319.38	0.38
Vineyard	17.132	6466.00	1485.04	1486.28	1485.24	1486.44	0.004693	0.91	2150.37	1941.42	0.29
Vineyard	17.038	6466.00	1482.15	1483.46		1483.65	0.006945	2.39	1985.45	1723.24	0.43
Vineyard	16.945	6466.00	1475.88	1480.78		1480.91	0.004540	3.37	2469.26	1838.62	0.40
Vineyard	16.850	6466.00	1474.34	1478.75		1478.86	0.003679	3.25	2747.24	2136.35	0.37
Vineyard	16.755	6466.00	1471.88	1476.17	1475.67	1476.33	0.007237	4.04	2372.86	2681.02	0.50
Vineyard	16.679	6466.00	1470.54	1474.48	1473.68	1474.55	0.002912	2.71	3476.18	3268.76	0.32
Vineyard	16.585	6466.00	1471.66	1472.68	1472.68	1472.96	0.003418	5.24	1622.72	2733.09	0.95
Vineyard	16.507	6466.00	1465.66	1470.16	1469.34	1470.25	0.004015	2.84	2799.82	2648.17	0.37
Vineyard	16.451	6466.00	1464.62	1468.95		1469.04	0.004229	2.91	2994.11	3018.50	0.38
Vineyard	16.367	6466.00	1463.16	1466.80	1466.17	1466.91	0.005552	3.03	2610.30	2454.54	0.42
Vineyard	16.293	6466.00	1462.35	1464.95		1465.02	0.004186	2.21	3237.25	3077.21	0.35
Vineyard	16.197	6466.00	1459.66	1462.27	1461.84	1462.37	0.006538	1.74	2639.51	3049.59	0.39
Vineyard	16.106	6466.00	1456.90	1459.52	1459.03	1459.61	0.005155	2.04	2865.13	3173.41	0.37
Vineyard	16.009	6466.00	1453.83	1456.67	1456.31	1456.78	0.006935	1.58	2635.50	4063.40	0.39

Vineyard	15.934	6466.00	1452.80	1455.08	1454.47	1455.14	0.003855	1.26	3345.46	3842.53	0.30
Vineyard	15.838	6466.00	1451.00	1452.93		1453.00	0.005144	2.01	3171.27	3607.48	0.37
Vineyard	15.744	6466.00	1448.00	1450.04		1450.14	0.006282	2.47	2676.65	3084.57	0.42
Vineyard	15.652	6466.00	1444.30	1447.84		1447.91	0.003708	2.09	3176.11	2973.09	0.33
Vineyard	15.555	6466.00	1442.00	1445.22		1445.35	0.007314	2.76	2404.03	2523.49	0.46
Vineyard	15.461	6466.00	1440.00	1443.17		1443.22	0.002778	1.73	3535.08	2879.32	0.28
Vineyard	15.366	6466.00	1438.00	1440.55		1440.71	0.013098	3.52	2115.90	2638.61	0.60
Vineyard	15.272	6466.00	1434.80	1439.04	1437.83	1439.08	0.001384	1.59	4208.86	2628.82	0.21
Vineyard	15.181	6466.00	1432.90	1437.98	1436.77	1438.18	0.002238	3.51	1811.78	941.20	0.38
Vineyard	15.087	6466.00	1433.10	1435.37	1435.04	1435.83	0.014121	5.34	1189.40	7793.31	0.80
Vineyard	14.994	6466.00	1430.20	1432.29	1431.54	1432.50	0.003647	5.58	2224.29	7091.25	0.78
Vineyard	14.897	6466.00	1428.70	1430.57	1429.57	1430.70	0.003285	4.55	2574.63	6981.41	0.71
Vineyard	14.803	6466.00	1426.00	1428.90	1428.02	1429.04	0.003312	3.95	2322.95	6374.72	0.47
Vineyard	14.710	6466.00	1423.80	1425.50	1425.19	1425.89	0.016337	5.10	1310.03	4334.11	0.78
Vineyard	14.616	6466.00	1421.60	1421.97	1420.67	1422.16	0.003799	0.46	1940.36	3058.40	0.23
Vineyard	14.523	6466.00	1419.50	1420.34	1419.50	1420.41	0.003112	0.91	3028.57	4240.75	0.26
Vineyard	3	19800.00	1411.40	1417.36	1416.75	1417.49	0.005248	4.12	7046.73	5190.33	0.45

Profile Output Table - Standard Table 2

Reach	River Sta	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
Vineyard	20.000	1578.02	1577.75	0.27	0.51	0.15		6466.00		424.68
Vineyard	19.918	1577.36	1576.60	0.76	1.79	0.11		6466.00		418.60
Vineyard	19.824	1575.46	1574.32	1.14	0.22	0.52		6466.00		727.25
Vineyard	19.743	1574.57	1574.48	0.09	0.05	0.04	432.75	4024.55	2008.70	1671.97
Vineyard	19.676	1574.48	1574.46	0.02	0.02	0.00	1206.95	2611.14	2647.91	2803.34
Vineyard	19.614	1574.45	1574.45	0.01	0.06	0.02	542.47	3878.75	2044.78	3446.10
Vineyard	19.537	1574.38	1574.32	0.06	0.14	0.07	2280.70	2502.79	1682.51	6402.39
Vineyard	19.515	1574.17	1573.86	0.30	1.77	0.08	4615.00	1259.29	591.71	6435.03
Vineyard	19.477	1567.52	1561.69	5.83	4.98	1.66		6458.66	7.34	2758.00
Vineyard	19.405	1560.36	1560.22	0.14	3.04	0.00	1232.10	2966.24	2267.66	6116.34
Vineyard	19.324	1557.32	1557.18	0.14	3.16	0.01	1325.92	2304.26	2835.82	4411.44
Vineyard	19.227	1554.15	1554.04	0.11	2.68	0.00	1331.23	1032.80	4101.97	3021.06
Vineyard	19.133	1551.46	1551.34	0.12	2.55	0.00	677.00	369.74	5419.27	2830.75
Vineyard	19.030	1548.91	1548.78	0.13	3.20	0.00	442.96	2204.02	3819.02	2978.14
Vineyard	18.932	1545.71	1545.57	0.14	3.27	0.04	930.90	3656.56	1878.54	3017.70
Vineyard	18.832	1542.40	1542.34	0.06	2.79	0.01	3733.88	1535.01	1197.11	3750.86
Vineyard	18.736	1539.61	1539.53	0.08	2.94	0.02	1629.65	688.65	4147.70	5273.18
Vineyard	18.644	1536.66	1536.61	0.05	2.44	0.01	3110.83	326.96	3028.21	5581.95
Vineyard	18.549	1534.21	1534.14	0.07	3.43	0.00	2903.08	898.83	2664.09	4808.38
Vineyard	18.452	1530.78	1530.70	0.08	2.83	0.00	3807.57	1515.12	1143.32	4305.08
Vineyard	18.356	1527.94	1527.85	0.09	1.70	0.01	2684.83	2395.66	1385.51	3541.24
Vineyard	18.302	1526.23	1526.09	0.14	1.73	0.01	2963.75	2568.16	934.08	3217.91
Vineyard	18.248	1524.48	1524.37	0.11	2.78	0.01	1755.21	2585.31	2125.49	2883.58
Vineyard	18.173	1521.69	1521.53	0.16	3.00	0.03	814.00	1628.93	4023.08	2608.49
Vineyard	18.081	1518.67	1518.56	0.10	2.36	0.00	2214.26	1893.85	2357.89	2111.33
Vineyard	18.000	1516.30	1516.20	0.10	3.46	0.01	2312.31	1354.02	2799.67	2406.08
Vineyard	17.906	1512.84	1512.68	0.16	3.46	0.01	2499.97	2664.55	1301.47	3097.13
Vineyard	17.819	1509.37	1509.25	0.12	3.39	0.01	3692.37	1725.89	1047.74	3175.48
Vineyard	17.725	1505.98	1505.88	0.10	3.18	0.00	4179.89	1739.04	547.07	2724.30
Vineyard	17.630	1502.79	1502.65	0.15	2.46	0.02	3616.45	2323.39	526.16	2620.93

Vineyard	17.554	1500.32	1500.23	0.08	2.72	0.00	2560.49	2932.15	973.36	3371.50
Vineyard	17.479	1497.59	1497.51	0.09	2.26	0.01	2561.08	2279.28	1625.65	3390.17
Vineyard	17.377	1495.32	1495.27	0.06	1.59	0.01	1620.62	2266.78	2578.61	3203.31
Vineyard	17.321	1493.72	1493.57	0.15	4.52	0.03	2808.24	1884.63	1773.13	1877.91
Vineyard	17.227	1489.17	1488.93	0.25	2.69	0.05	6313.75	99.78	52.48	1319.38
Vineyard	17.132	1486.44	1486.28	0.16	2.77	0.01	6303.66	56.36	105.98	1941.42
Vineyard	17.038	1483.65	1483.46	0.20	2.71	0.04	5074.34	1080.59	311.07	1723.24
Vineyard	16.945	1480.91	1480.78	0.12	2.05	0.00	2716.52	2976.64	772.84	1838.62
Vineyard	16.850	1478.86	1478.75	0.11	2.53	0.00	2083.07	3051.97	1330.96	2136.35
Vineyard	16.755	1476.33	1476.17	0.16	1.75	0.03	2622.32	2417.87	1425.81	2681.02
Vineyard	16.679	1474.55	1474.48	0.07	1.58	0.02	2027.92	2518.77	1919.31	3268.76
Vineyard	16.585	1472.96	1472.68	0.27	1.57	0.06	1536.53	1989.99	2939.48	2733.09
Vineyard	16.507	1470.25	1470.16	0.09	1.21	0.00	2093.86	2599.33	1772.81	2648.17
Vineyard	16.451	1469.04	1468.95	0.09	2.13	0.00	1945.41	2970.51	1550.09	3018.50
Vineyard	16.367	1466.91	1466.80	0.11	1.88	0.01	1031.92	3646.05	1788.03	2454.54
Vineyard	16.293	1465.02	1464.95	0.06	2.65	0.00	1781.61	1798.04	2886.34	3077.21
Vineyard	16.197	1462.37	1462.27	0.10	2.76	0.00	3625.07	693.08	2147.85	3049.59
Vineyard	16.106	1459.61	1459.52	0.09	2.82	0.00	4094.21	1389.27	982.52	3173.41
Vineyard	16.009	1456.78	1456.67	0.11	1.63	0.01	4968.20	783.38	714.41	4063.40
Vineyard	15.934	1455.14	1455.08	0.06	2.14	0.00	5039.28	341.13	1085.59	3842.53
Vineyard	15.838	1453.00	1452.93	0.07	2.85	0.00	4151.31	1047.84	1266.85	3607.48
Vineyard	15.744	1450.14	1450.04	0.10	2.22	0.01	3510.36	2419.59	536.05	3084.57
Vineyard	15.652	1447.91	1447.84	0.07	2.55	0.01	2264.82	3905.64	295.54	2973.09
Vineyard	15.555	1445.35	1445.22	0.12	2.10	0.02	2050.57	3521.00	894.43	2523.49
Vineyard	15.461	1443.22	1443.17	0.06	2.51	0.01	1341.57	2607.90	2516.54	2879.32
Vineyard	15.366	1440.71	1440.55	0.16	1.60	0.04	248.47	4237.45	1980.07	2638.61
Vineyard	15.272	1439.08	1439.04	0.04	0.85	0.05	1.90	4004.24	2459.86	2628.82
Vineyard	15.181	1438.18	1437.98	0.20	2.27	0.08		5242.60	1223.40	941.20
Vineyard	15.087	1435.83	1435.37	0.46	3.20	0.13	1033.62	2111.40	3320.99	7793.31
Vineyard	14.994	1432.50	1432.29	0.21	1.78	0.03	353.91	1873.43	4238.66	7091.25
Vineyard	14.897	1430.70	1430.57	0.13	1.66	0.00	666.05	899.54	4900.41	6981.41
Vineyard	14.803	1429.04	1428.90	0.14	3.13	0.02	2995.26	1418.62	2052.12	6374.72
Vineyard	14.710	1425.89	1425.50	0.38	3.66	0.06	67.12	1728.78	4670.10	4334.11
Vineyard	14.616	1422.16	1421.97	0.19	1.72	0.03	6109.92	9.64	346.44	3058.40
Vineyard	14.523	1420.41	1420.34	0.08	2.92	0.01	6106.38	76.61	283.01	4240.75
Vineyard	3	1417.49	1417.36	0.13			17817.30	1982.70		5190.33

Profile Output Table - Hydratable

Reach	River Sta	Q Total (cfs)	W.S. Elev (ft)	Trvl Tme Chl (hrs)	Trvl Tme Avg (hrs)	Vel Chnl (ft/s)	Vel Total (ft/s)	Max Chl Dpth (ft)	Hydr Depth (ft)
Vineyard	20.000	6466.00	1577.75	3.30	3.19	4.14	4.14	4.84	3.68
Vineyard	19.918	6466.00	1576.60	3.28	3.17	6.99	6.99	3.18	2.88
Vineyard	19.824	6466.00	1574.32	3.26	3.15	8.56	8.56	3.17	2.30
Vineyard	19.743	6466.00	1574.48	3.24	3.13	2.45	2.35	5.87	3.92
Vineyard	19.676	6466.00	1574.46	3.18	3.07	1.00	1.00	7.40	6.09
Vineyard	19.614	6466.00	1574.45	3.07	2.97	0.62	0.61	9.11	7.88
Vineyard	19.537	6466.00	1574.32	2.98	2.87	1.91	1.94	3.17	1.47
Vineyard	19.515	6466.00	1573.86	2.97	2.86	3.13	4.07	2.80	0.63
Vineyard	19.477	6466.00	1561.69	2.96	2.85	19.38	19.29	3.41	0.68
Vineyard	19.405	6466.00	1560.22	2.95	2.84	3.87	2.60	5.52	0.83
Vineyard	19.324	6466.00	1557.18	2.92	2.80	3.34	2.75	5.52	0.94

Vineyard	19.227	6466.00	1554.04	2.87	2.75	2.26	2.54	4.91	1.12
Vineyard	19.133	6466.00	1551.34	2.80	2.70	1.71	2.69	4.47	1.21
Vineyard	19.030	6466.00	1548.78	2.73	2.65	2.54	2.63	4.33	1.03
Vineyard	18.932	6466.00	1545.57	2.68	2.60	3.36	2.70	3.64	0.80
Vineyard	18.832	6466.00	1542.34	2.63	2.53	2.38	1.95	3.79	0.93
Vineyard	18.736	6466.00	1539.53	2.57	2.47	2.30	2.12	3.56	0.69
Vineyard	18.644	6466.00	1536.61	2.50	2.40	1.85	1.81	3.17	0.75
Vineyard	18.549	6466.00	1534.14	2.44	2.34	2.69	2.02	4.58	0.70
Vineyard	18.452	6466.00	1530.70	2.39	2.27	2.74	2.17	4.70	0.78
Vineyard	18.356	6466.00	1527.85	2.34	2.21	3.19	2.10	4.83	0.87
Vineyard	18.302	6466.00	1526.09	2.32	2.17	3.77	2.61	4.05	0.77
Vineyard	18.248	6466.00	1524.37	2.30	2.14	3.53	2.39	4.31	1.12
Vineyard	18.173	6466.00	1521.53	2.27	2.09	3.68	2.99	3.20	1.02
Vineyard	18.081	6466.00	1518.56	2.23	2.05	3.02	2.53	3.70	1.21
Vineyard	18.000	6466.00	1516.20	2.19	2.01	2.98	2.53	4.14	1.06
Vineyard	17.906	6466.00	1512.68	2.15	1.95	4.29	2.66	4.92	0.90
Vineyard	17.819	6466.00	1509.25	2.12	1.90	3.33	2.67	4.26	0.94
Vineyard	17.725	6466.00	1505.88	2.07	1.85	2.74	2.43	3.32	0.98
Vineyard	17.630	6466.00	1502.65	2.02	1.81	3.03	2.97	5.01	1.01
Vineyard	17.554	6466.00	1500.23	1.98	1.77	2.59	2.20	4.87	0.91
Vineyard	17.479	6466.00	1497.51	1.94	1.72	2.24	2.34	3.77	0.95
Vineyard	17.377	6466.00	1495.27	1.86	1.66	1.94	1.91	3.49	1.06
Vineyard	17.321	6466.00	1493.57	1.83	1.62	3.25	3.07	3.71	1.12
Vineyard	17.227	6466.00	1488.93	1.78	1.57	1.70	3.88	5.92	1.61
Vineyard	17.132	6466.00	1486.28	1.67	1.53	0.91	3.01	5.48	1.34
Vineyard	17.038	6466.00	1483.46	1.59	1.49	2.39	3.26	5.21	1.15
Vineyard	16.945	6466.00	1480.78	1.54	1.44	3.37	2.62	4.90	1.34
Vineyard	16.850	6466.00	1478.75	1.50	1.39	3.25	2.35	4.46	1.29
Vineyard	16.755	6466.00	1476.17	1.46	1.33	4.04	2.72	4.29	0.90
Vineyard	16.679	6466.00	1474.48	1.43	1.28	2.71	1.86	3.94	1.06
Vineyard	16.585	6466.00	1472.68	1.39	1.23	5.24	3.98	1.02	0.59
Vineyard	16.507	6466.00	1470.16	1.36	1.20	2.84	2.31	4.50	1.06
Vineyard	16.451	6466.00	1468.95	1.33	1.16	2.91	2.16	4.33	0.99
Vineyard	16.367	6466.00	1466.80	1.29	1.11	3.03	2.48	3.64	1.06
Vineyard	16.293	6466.00	1464.95	1.25	1.06	2.21	2.00	2.60	1.05
Vineyard	16.197	6466.00	1462.27	1.18	1.00	1.74	2.45	2.83	0.97
Vineyard	16.106	6466.00	1459.52	1.11	0.94	2.04	2.26	2.90	1.02
Vineyard	16.009	6466.00	1456.67	1.03	0.88	1.58	2.45	3.02	0.82
Vineyard	15.934	6466.00	1455.08	0.95	0.84	1.26	1.93	2.28	0.98
Vineyard	15.838	6466.00	1452.93	0.87	0.77	2.01	2.04	2.23	0.88
Vineyard	15.744	6466.00	1450.04	0.81	0.71	2.47	2.42	2.04	0.87
Vineyard	15.652	6466.00	1447.84	0.75	0.65	2.09	2.04	3.54	1.07
Vineyard	15.555	6466.00	1445.22	0.69	0.59	2.76	2.69	3.22	0.95
Vineyard	15.461	6466.00	1443.17	0.63	0.53	1.73	1.83	3.17	1.23
Vineyard	15.366	6466.00	1440.55	0.57	0.48	3.52	3.06	2.55	0.80
Vineyard	15.272	6466.00	1439.04	0.52	0.42	1.59	1.54	4.24	1.63
Vineyard	15.181	6466.00	1437.98	0.47	0.36	3.51	3.57	5.08	1.92
Vineyard	15.087	6466.00	1435.37	0.44	0.33	5.34	5.44	3.37	1.71
Vineyard	14.994	6466.00	1432.29	0.41	0.30	5.58	2.91	2.69	1.45
Vineyard	14.897	6466.00	1430.57	0.38	0.25	4.55	2.51	4.57	1.44
Vineyard	14.803	6466.00	1428.90	0.35	0.19	3.95	2.78	6.30	1.75
Vineyard	14.710	6466.00	1425.50	0.32	0.16	5.10	4.94	4.30	1.20
Vineyard	14.616	6466.00	1421.97	0.27	0.12	0.46	3.33	2.97	1.44
Vineyard	14.523	6466.00	1420.34	0.07	0.07	0.91	2.13	2.34	1.17

Vineyard	3	19800.00	1417.36	0.00	0.00	4.12	2.81	5.96	1.36

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : FCD 98-33

River: Vineyard Spillwa Reach: Vineyard RS: 20.000 Profile: PF 2
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 19.918 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 19.824 Profile: PF 2
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Vineyard Spillwa Reach: Vineyard RS: 19.614 Profile: PF 2
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 19.537 Profile: PF 2
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 19.515 Profile: PF 2
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Vineyard Spillwa Reach: Vineyard RS: 19.477 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate

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            the need for additional cross sections.
     Note:   Program found supercritical flow starting at this cross section.
River: Vineyard Spillwa  Reach: Vineyard     RS: 19.405     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The cross-section end points had to be extended vertically for the computed water surface.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
     Note:   Hydraulic jump has occurred between this cross section and the previous upstream section.
River: Vineyard Spillwa  Reach: Vineyard     RS: 19.324     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 19.227     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 19.133     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 19.030     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 18.932     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 18.832     Profile: PF 2
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 18.736     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 18.644     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 18.549     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 18.452     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 18.356     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 18.302     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
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            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 18.248     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 18.173     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 18.081     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 18.000     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 17.906     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 17.819     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 17.725     Profile: PF 2
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 17.630     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 17.554     Profile: PF 2
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 17.479     Profile: PF 2
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 17.377     Profile: PF 2
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
            This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 17.321     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 17.227     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 17.132     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
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the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 17.038 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 16.945 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 16.850 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 16.755 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 16.679 Profile: PF 2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 16.585 Profile: PF 2
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: Vineyard Spillwa Reach: Vineyard RS: 16.507 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 16.451 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 16.367 Profile: PF 2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 16.293 Profile: PF 2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 16.197 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 16.106 Profile: PF 2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 16.009 Profile: PF 2

Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 15.934 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 15.838 Profile: PF 2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 15.744 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 15.652 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 15.555 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 15.461 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 15.366 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 15.181 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 15.087 Profile: PF 2
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard Spillwa Reach: Vineyard RS: 14.994 Profile: PF 2
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

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River: Vineyard Spillwa  Reach: Vineyard     RS: 14.897     Profile: PF 2
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 14.803     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 14.710     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 14.616     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 14.523     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard Spillwa  Reach: Vineyard     RS: 3     Profile: PF 2
     Warning:Divided flow computed for this cross-section.
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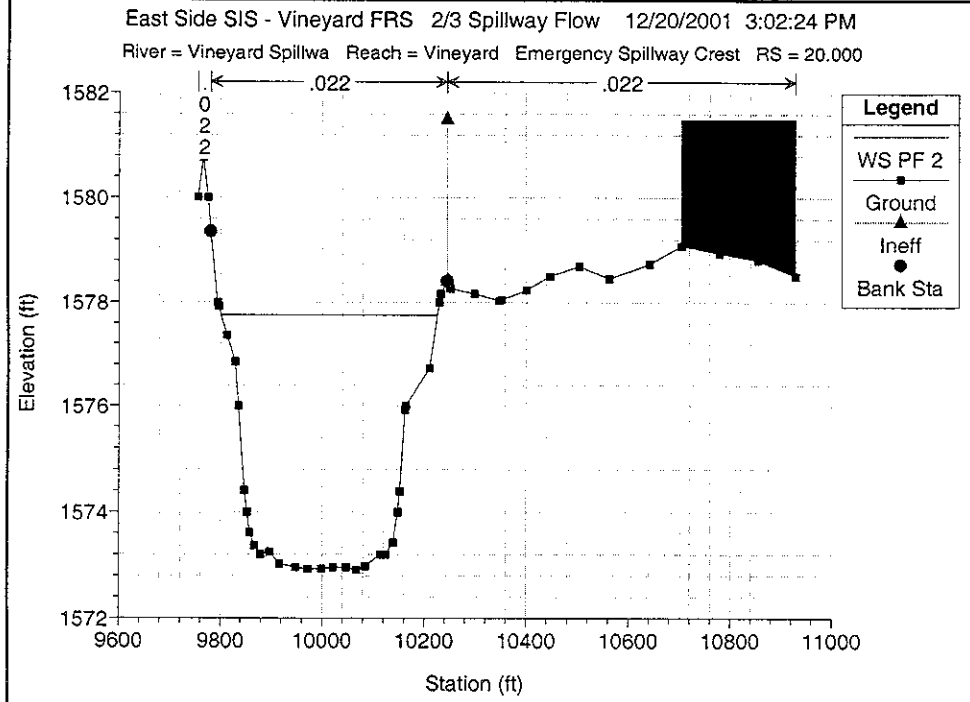
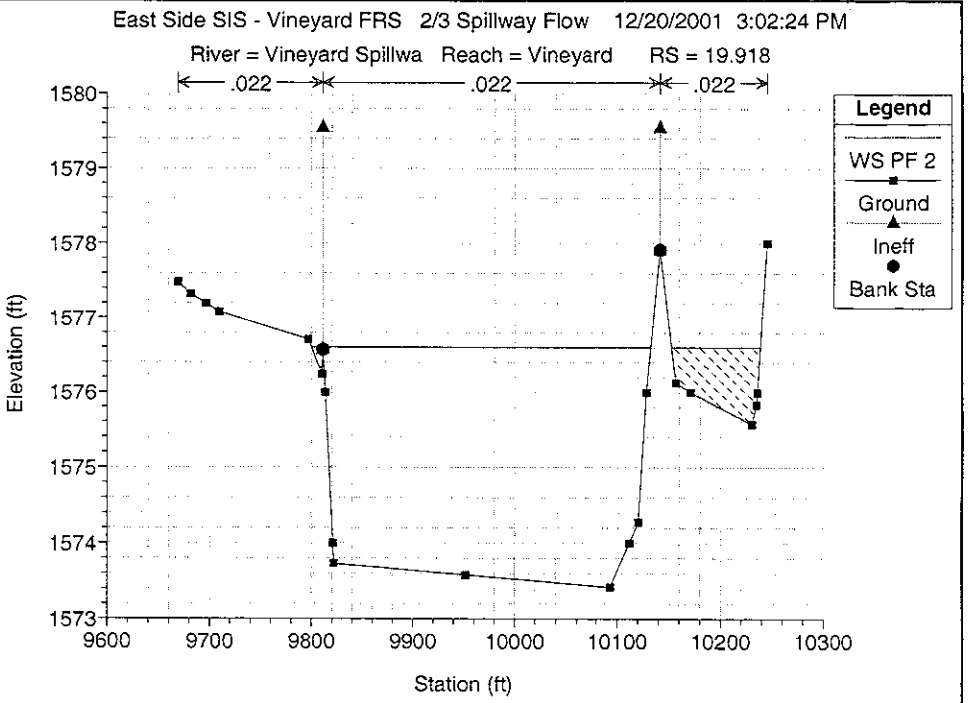
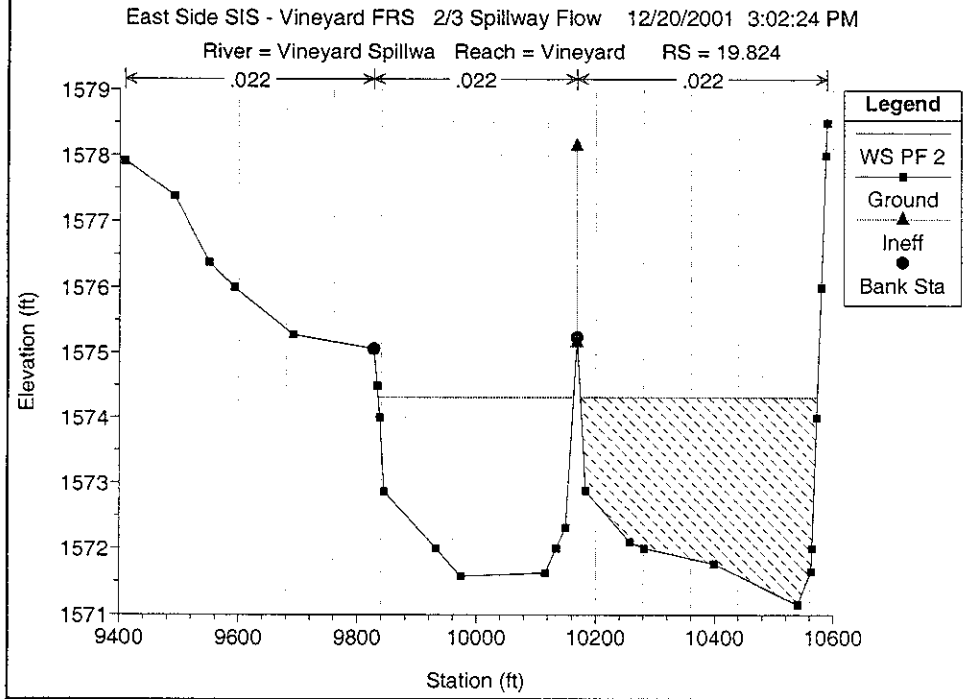

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard Emergency Spillway Crest RS = 20.000
.022
.022
.022
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 19.918
.022
.022
.022
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 19.824
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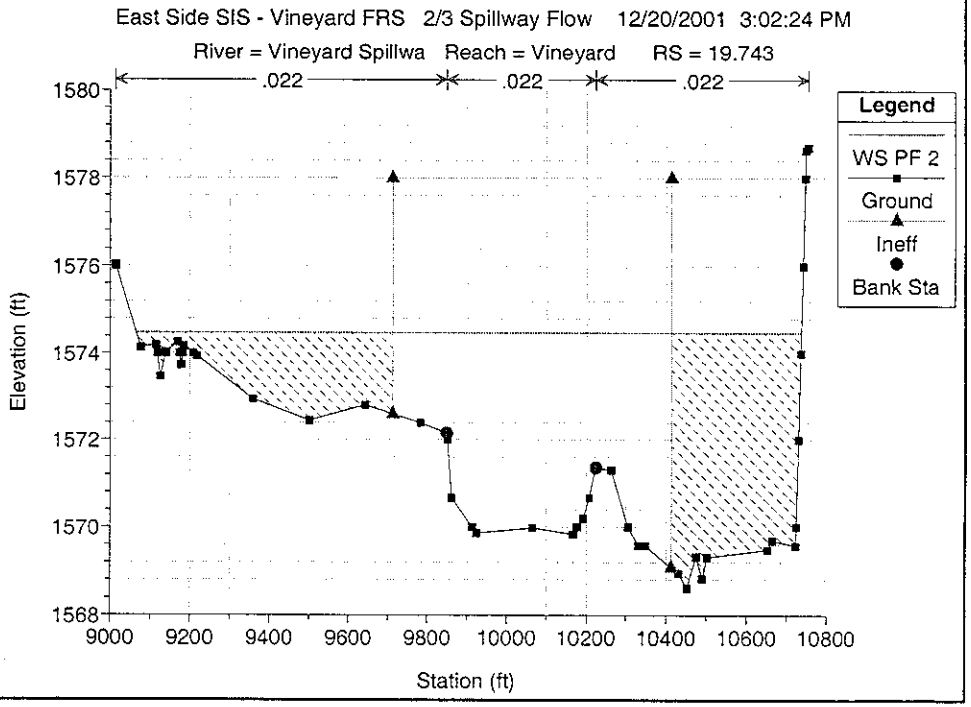
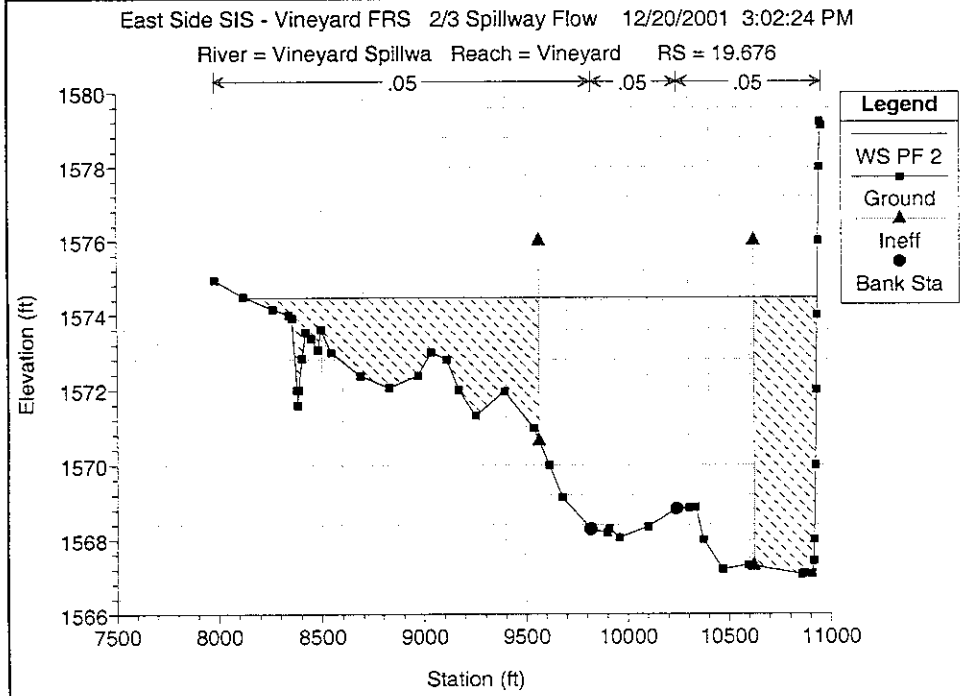
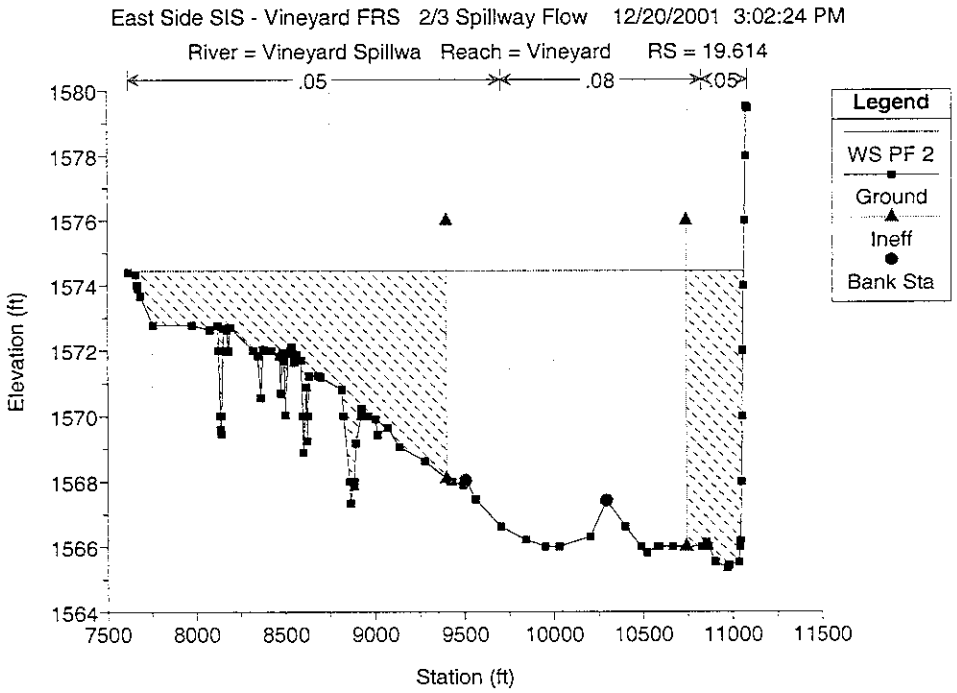
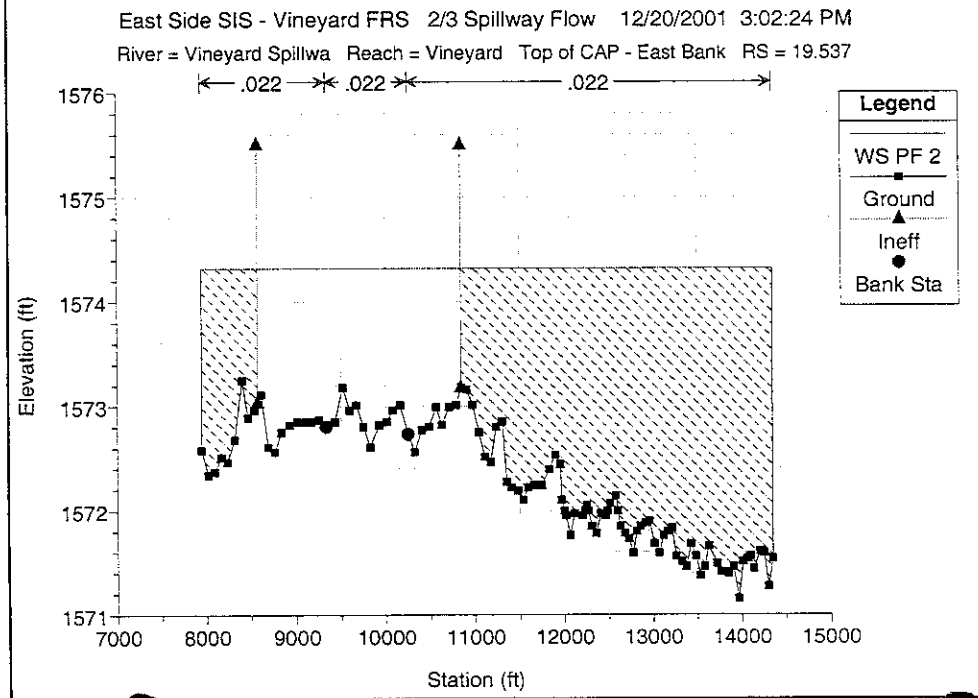
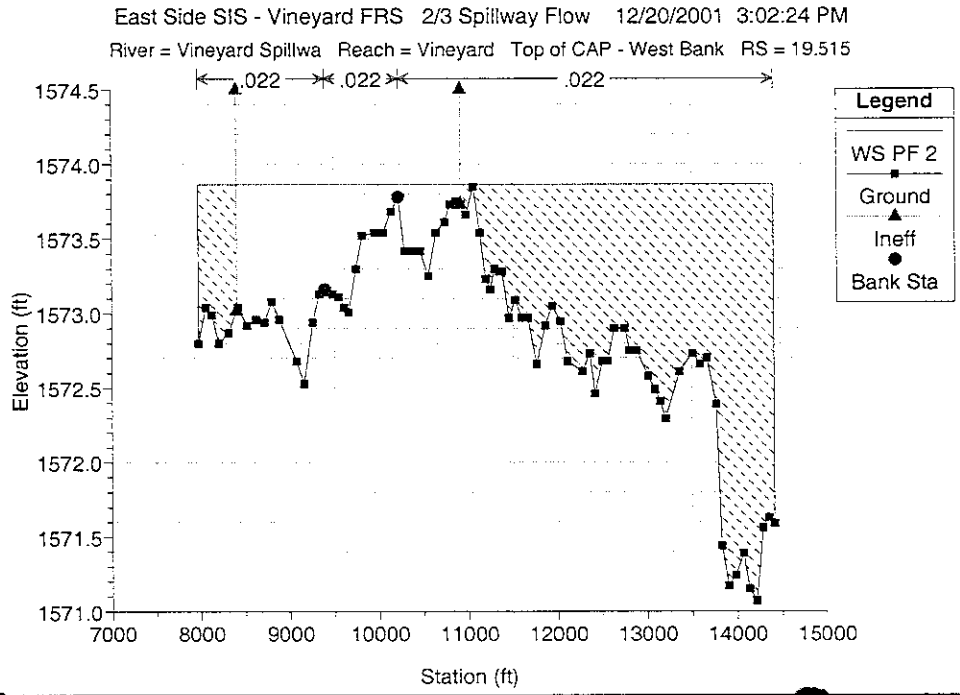
.022
.022
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

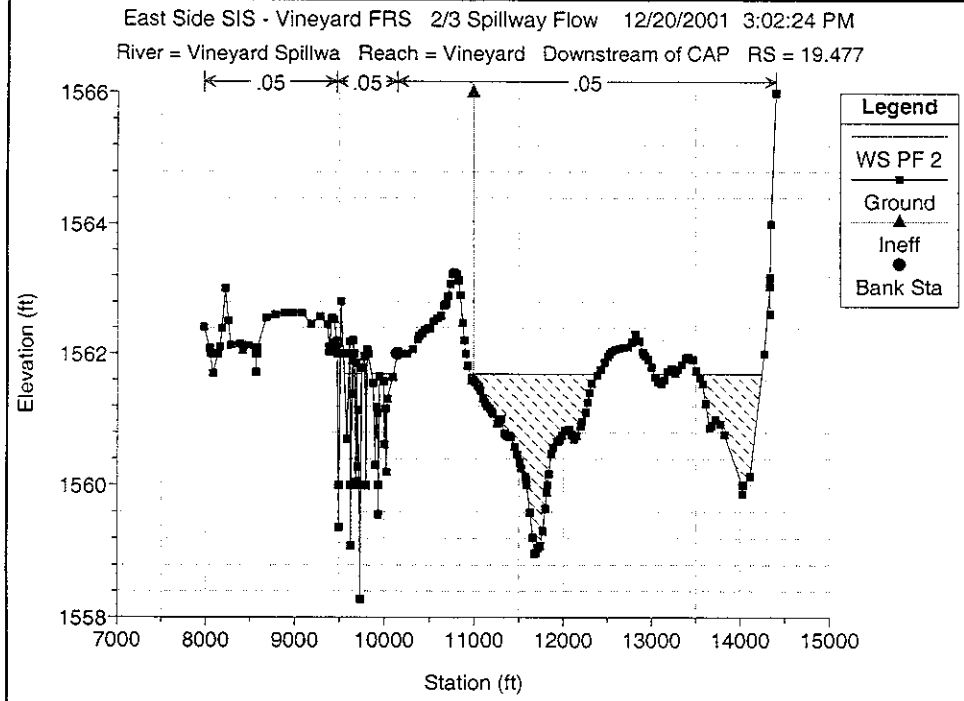

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 19.743
.022
.022
.022
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

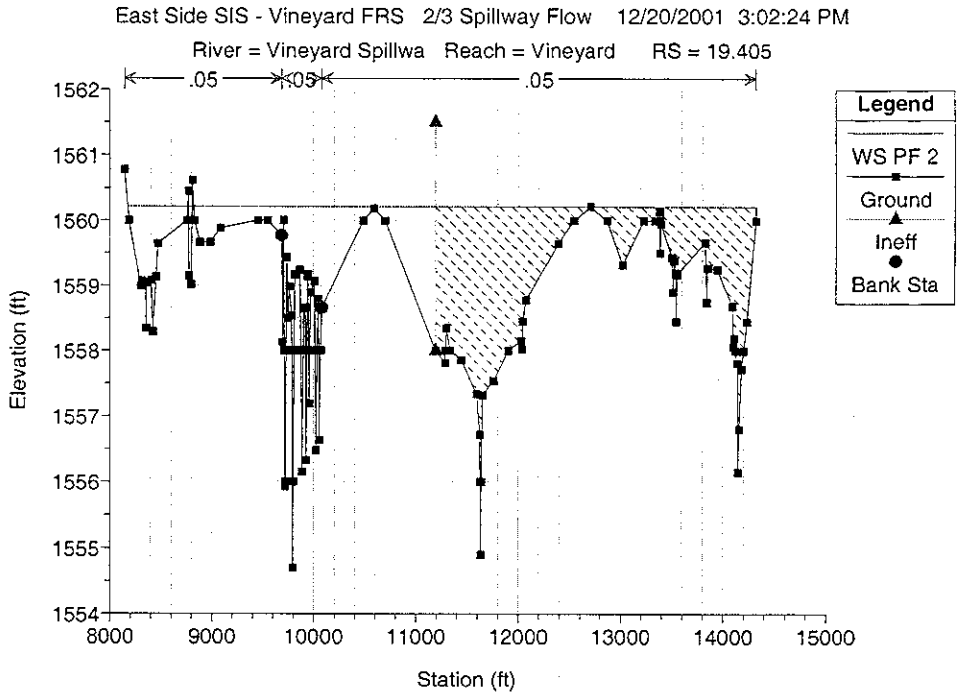

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 19.676
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

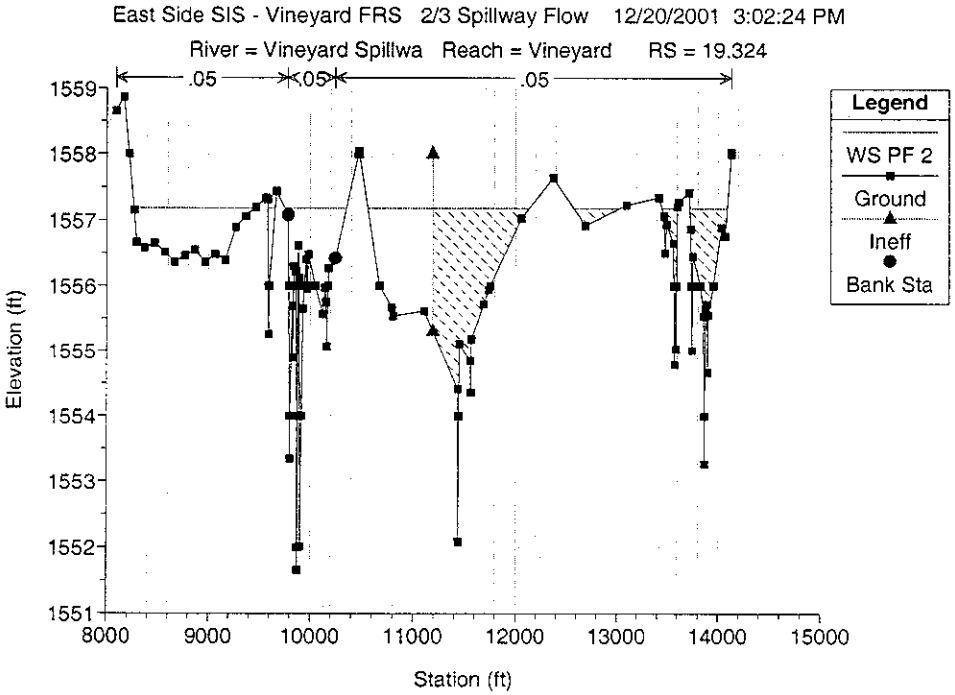

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 19.614
.05
.08
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

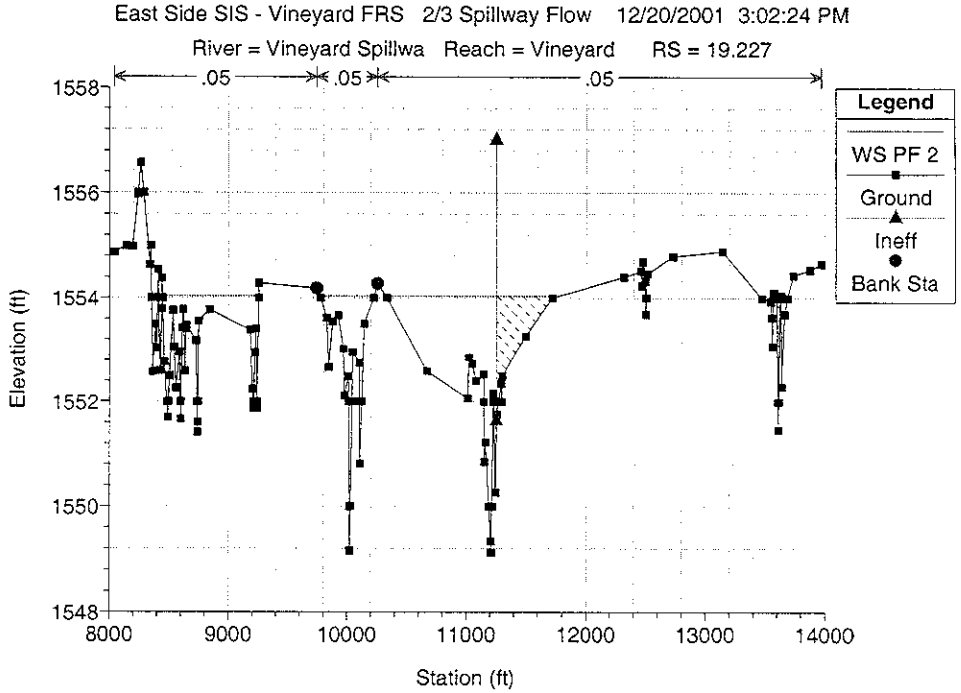

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard Top of CAP - East Bank RS = 19.537
.022
.022
.022
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

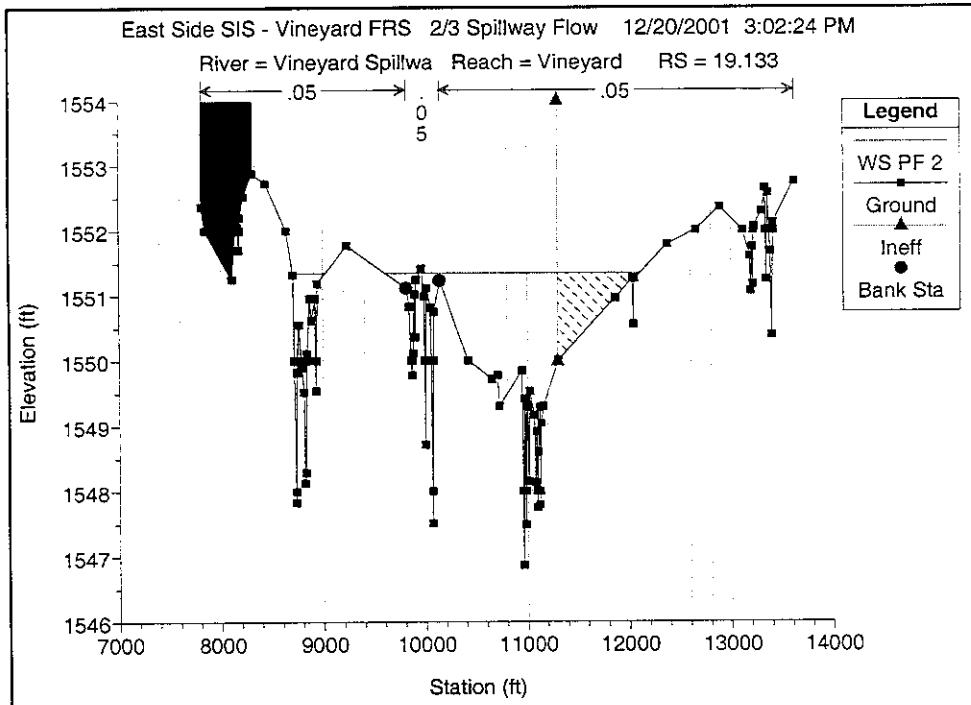

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard Top of CAP - West Bank RS = 19.515
.022
.022
.022
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

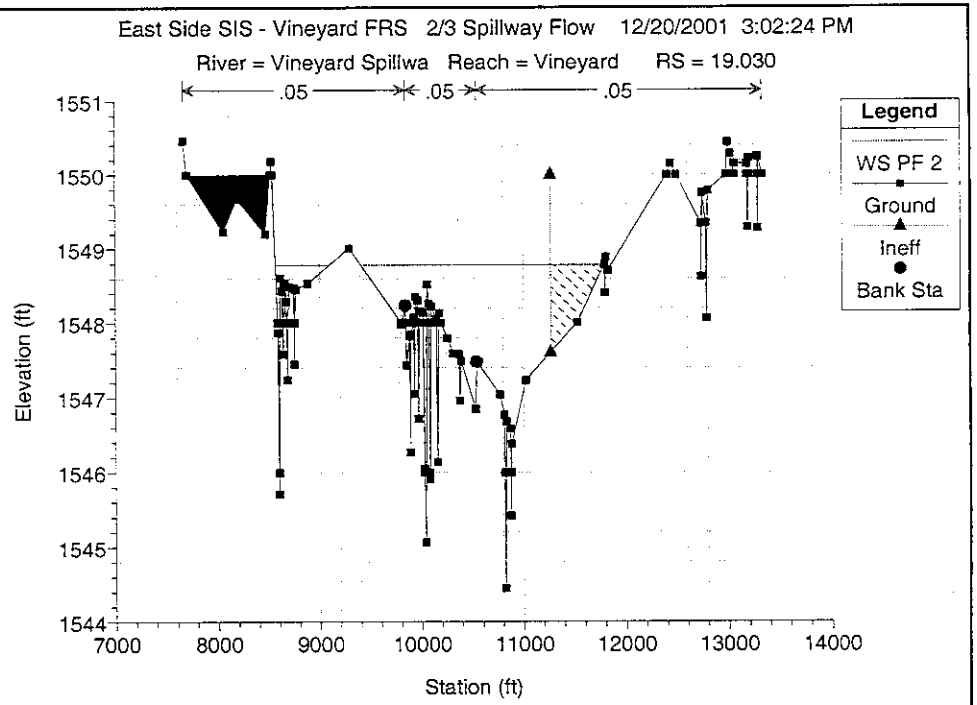

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard Downstream of CAP RS = 19.477
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

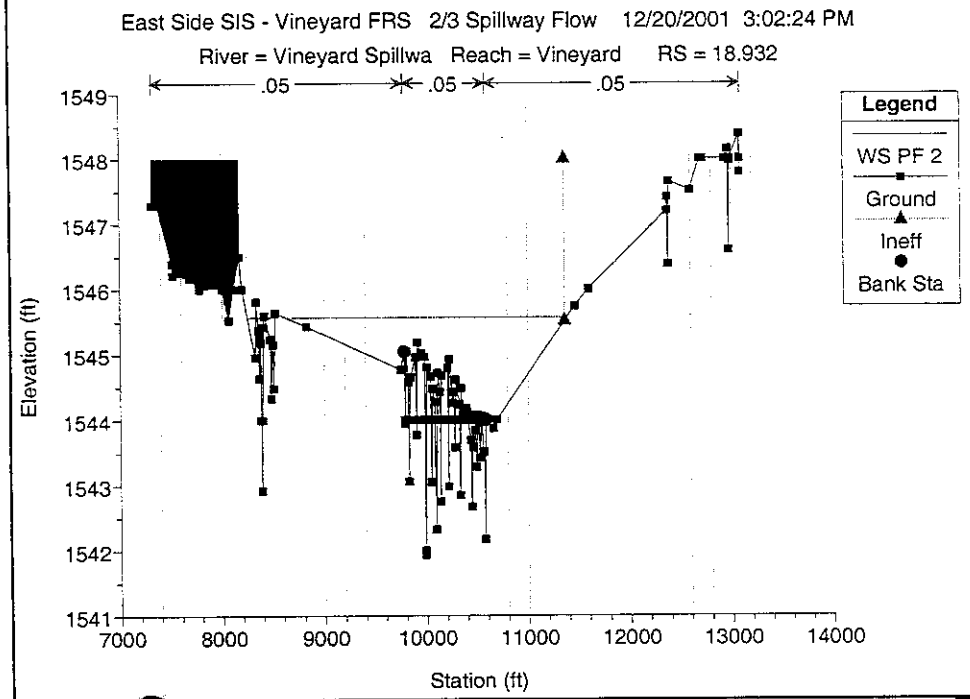

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 19.405
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

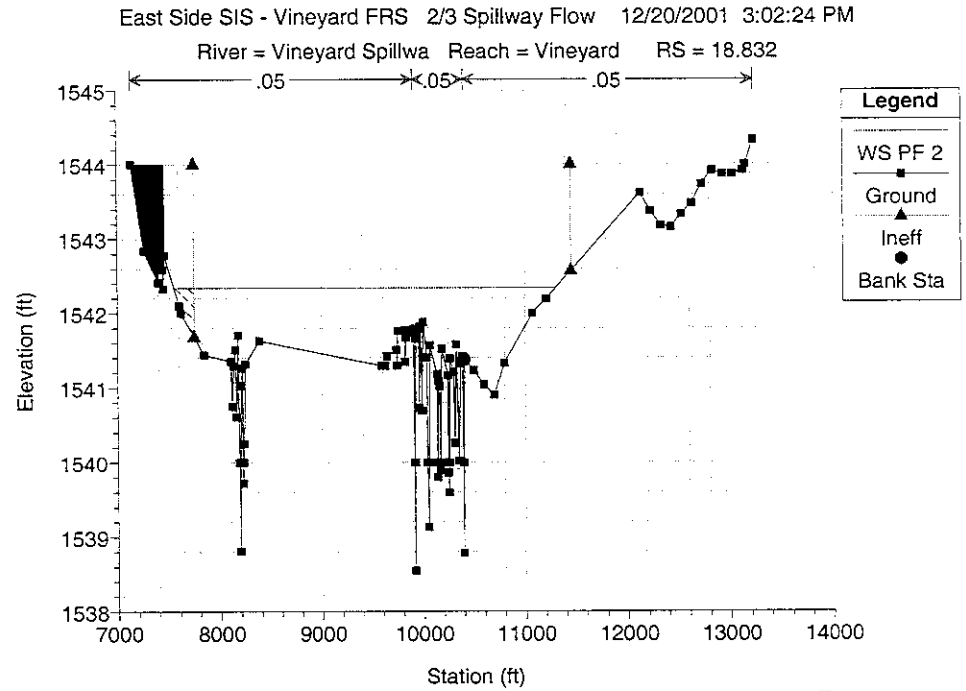

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 19.324
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 19.227
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 19.133
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

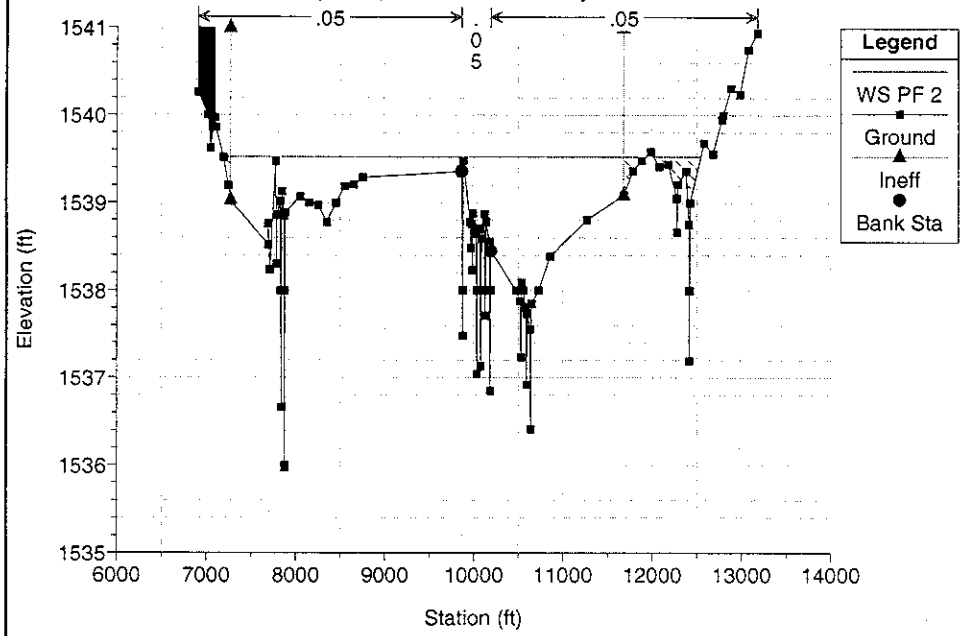

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 19.030
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 18.932
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 18.832
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

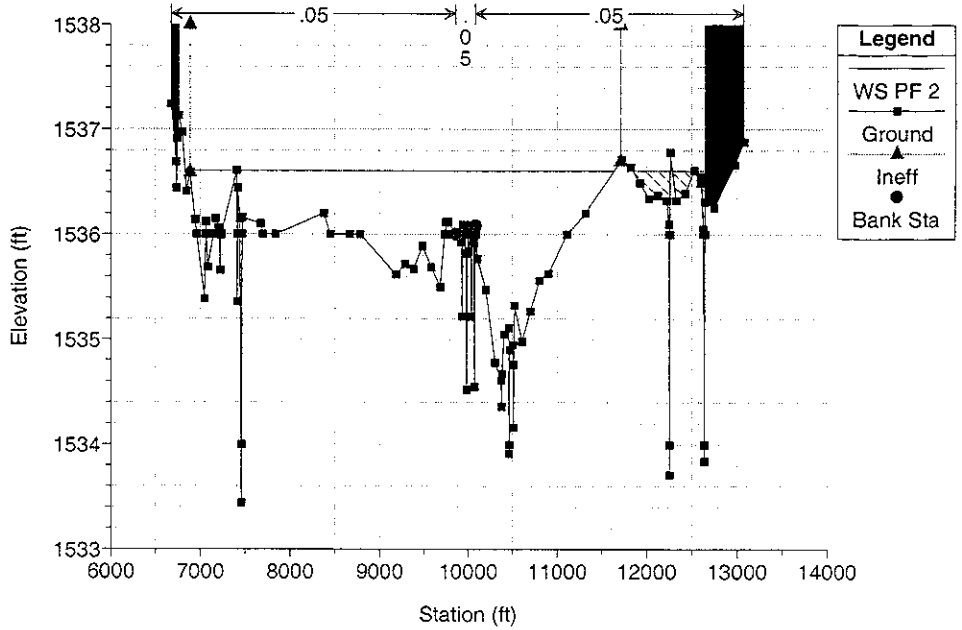
East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM

River = Vineyard Spillwa Reach = Vineyard RS = 18.736



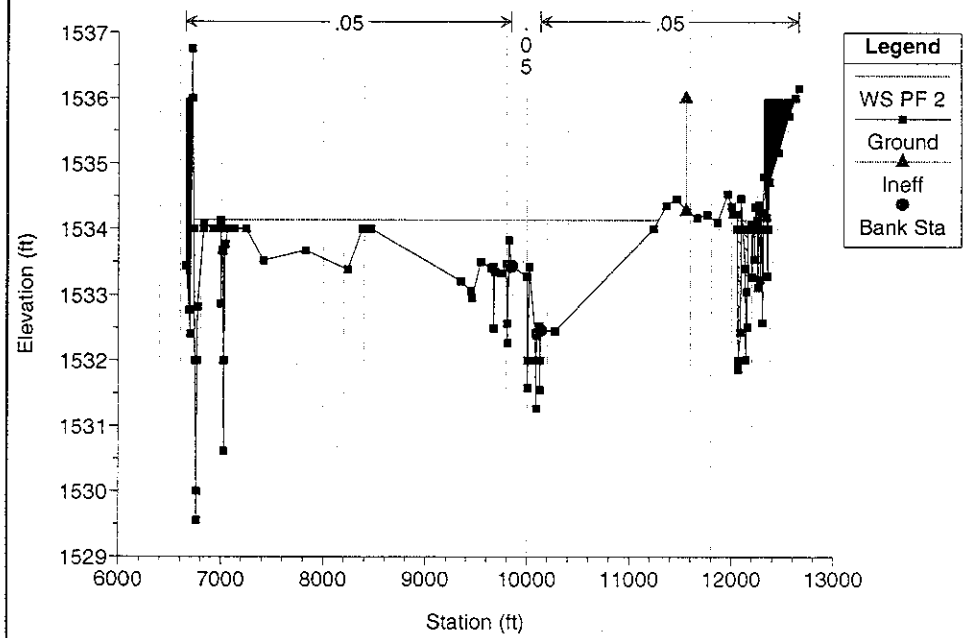
East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM

River = Vineyard Spillwa Reach = Vineyard RS = 18.644



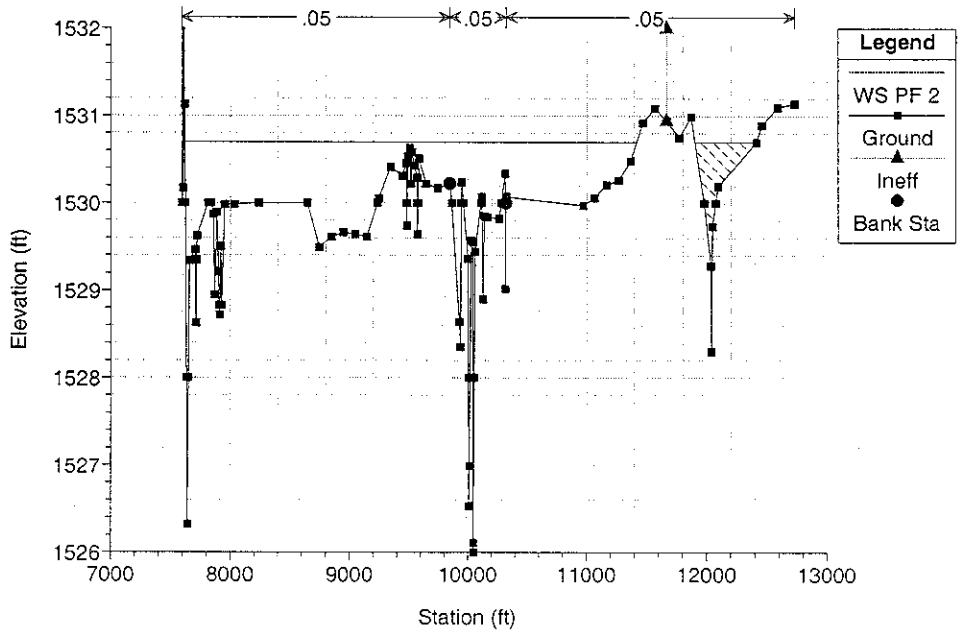
East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM

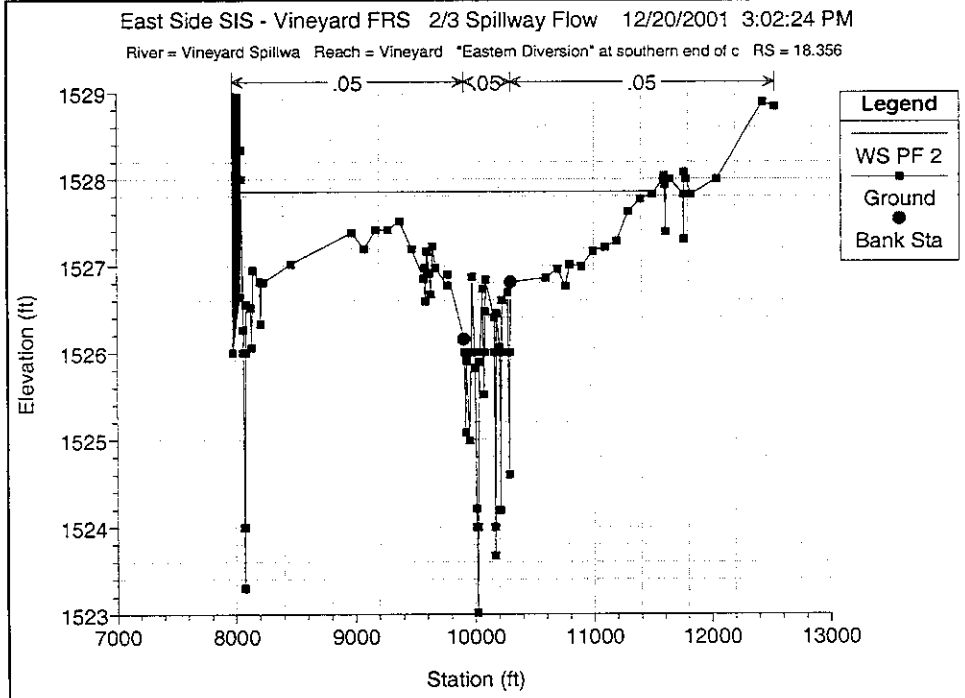
River = Vineyard Spillwa Reach = Vineyard "Eastern Diversion" at southern end of c RS = 18.549

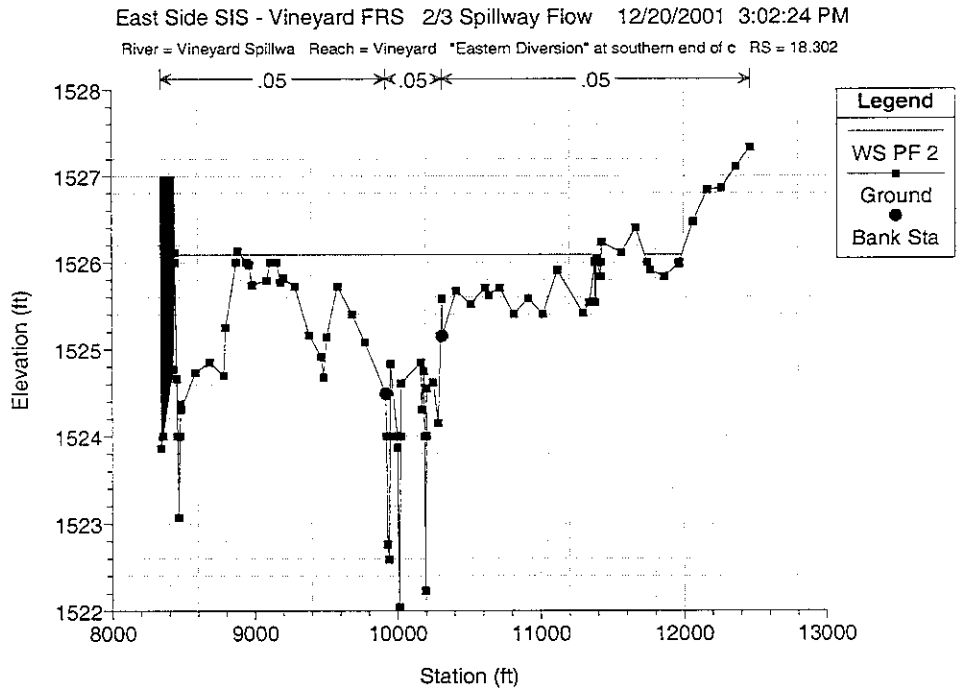


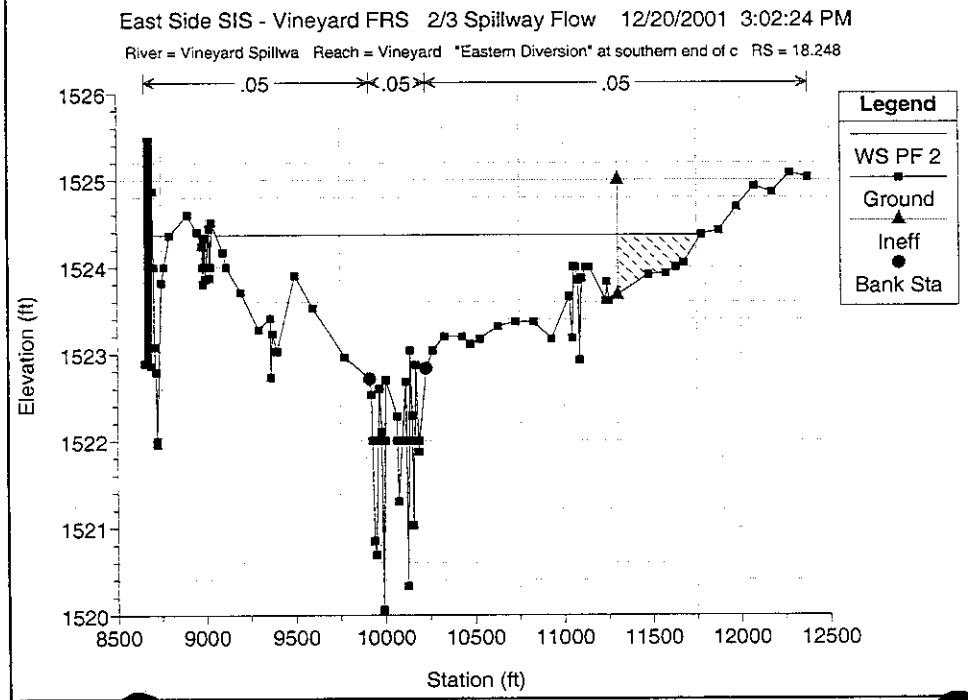
East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM

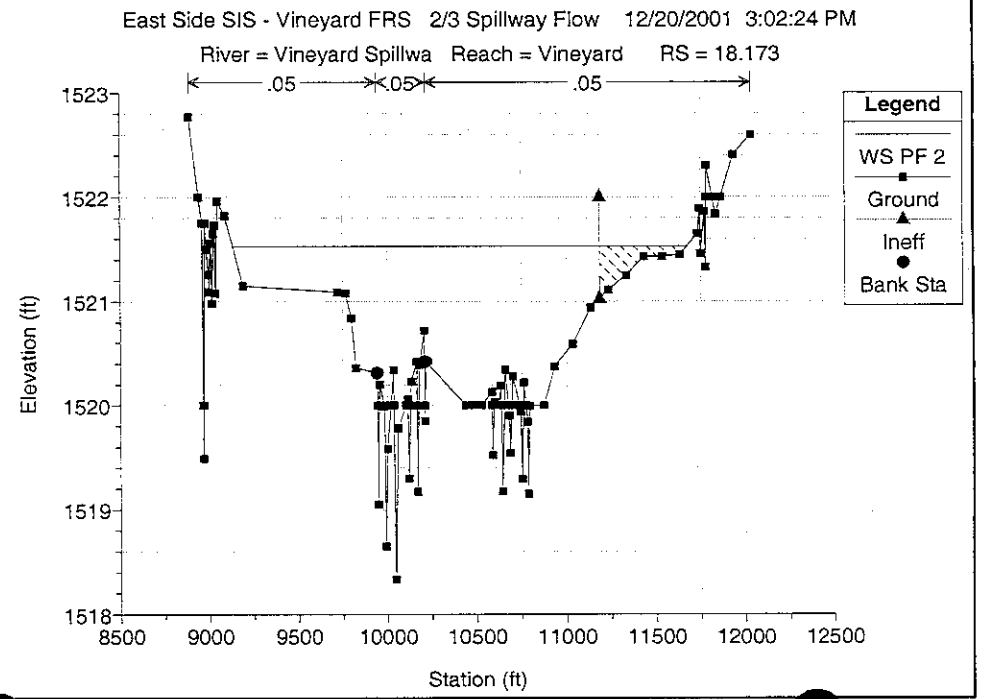
River = Vineyard Spillwa Reach = Vineyard "Eastern Diversion" at southern end of c RS = 18.452

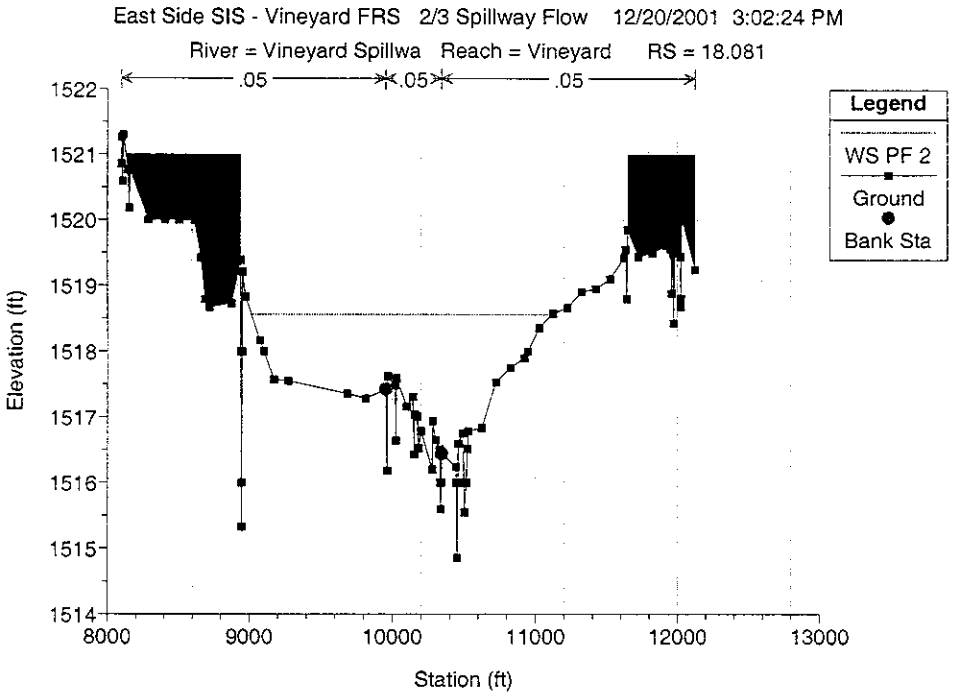


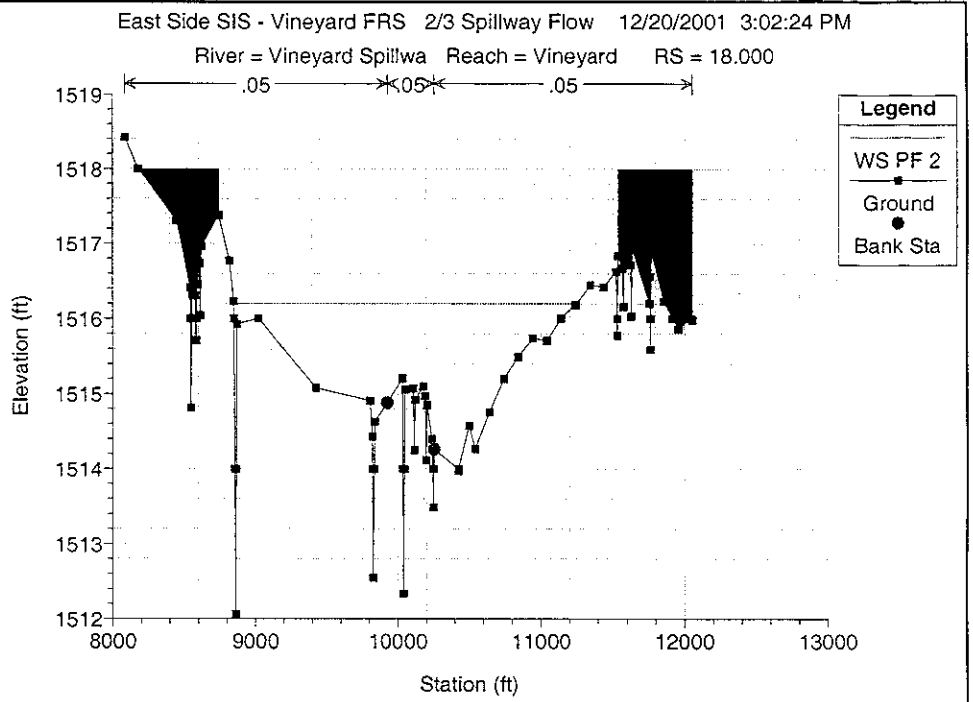

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard "Eastern Diversion" at southern end of c RS = 18.356
.05
.05
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

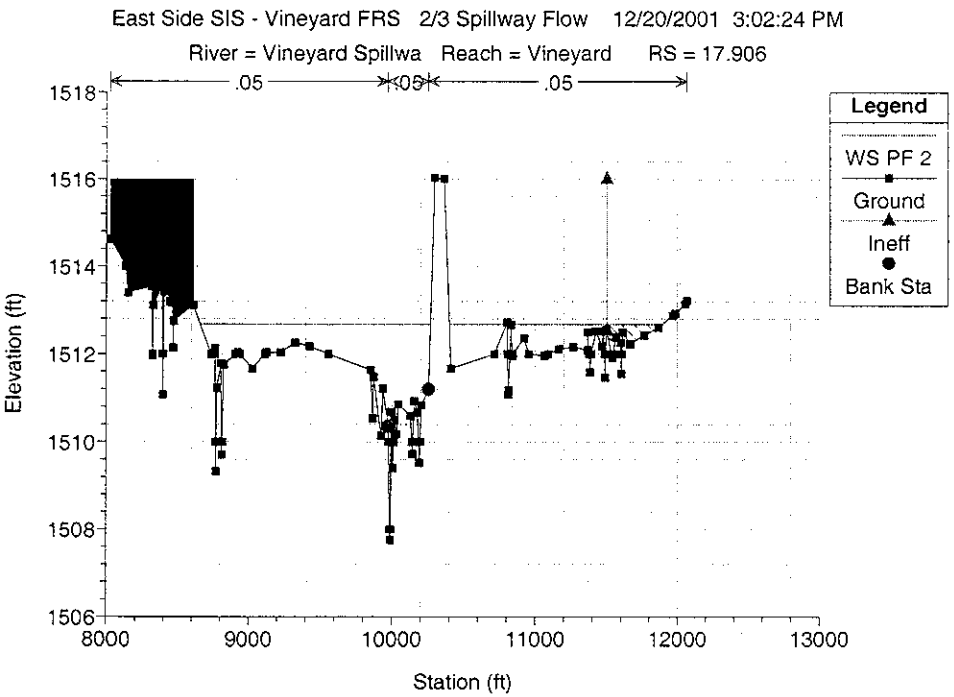

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard "Eastern Diversion" at southern end of c RS = 18.302
.05
.05
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

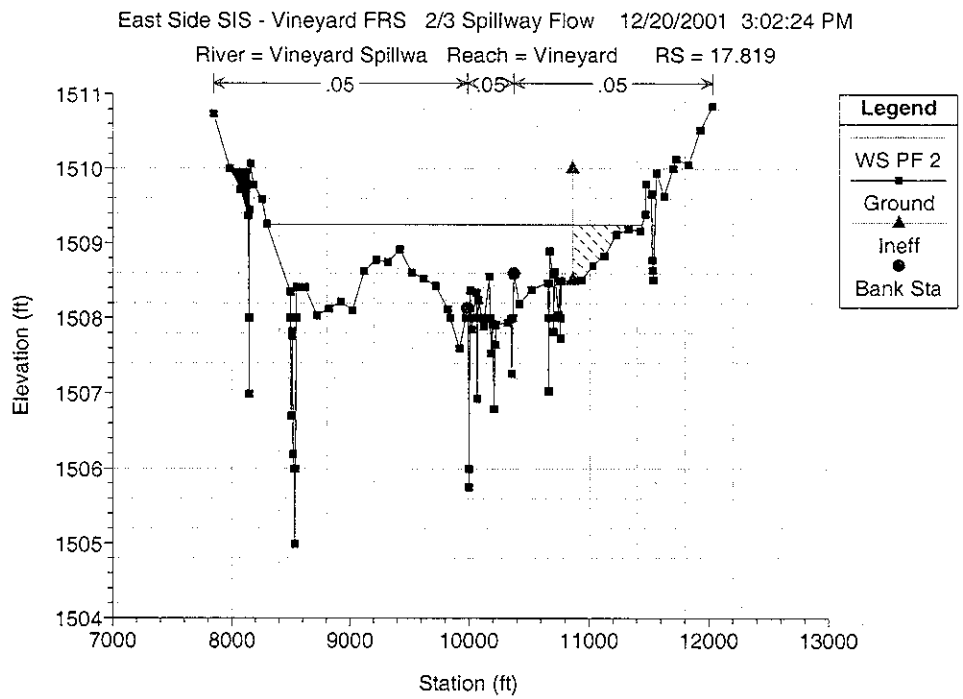

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard "Eastern Diversion" at southern end of c RS = 18.248
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

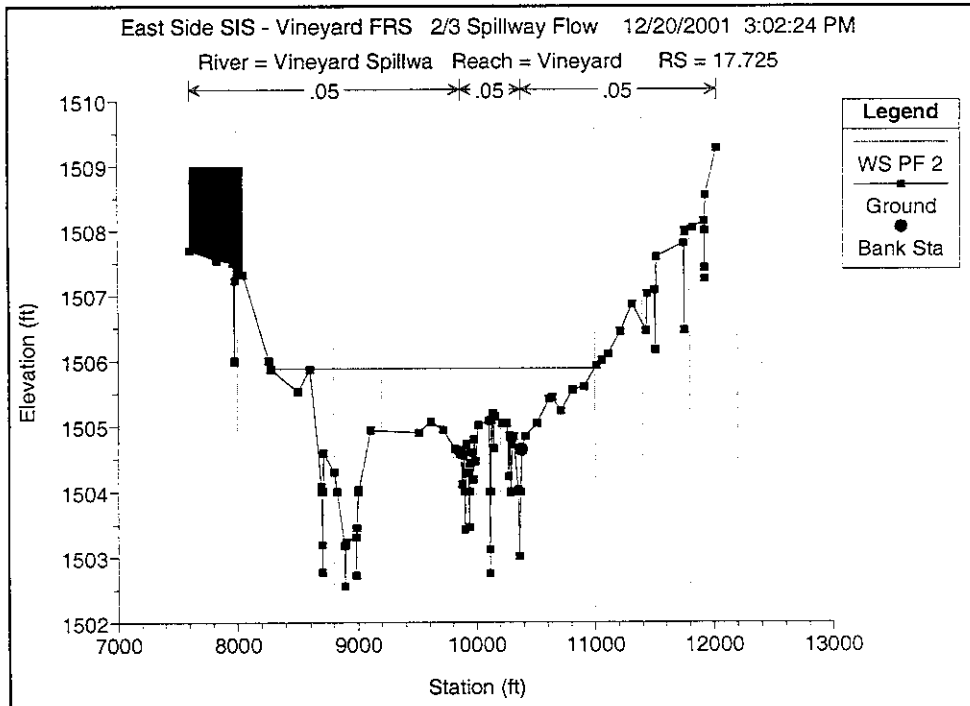

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 18.173
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

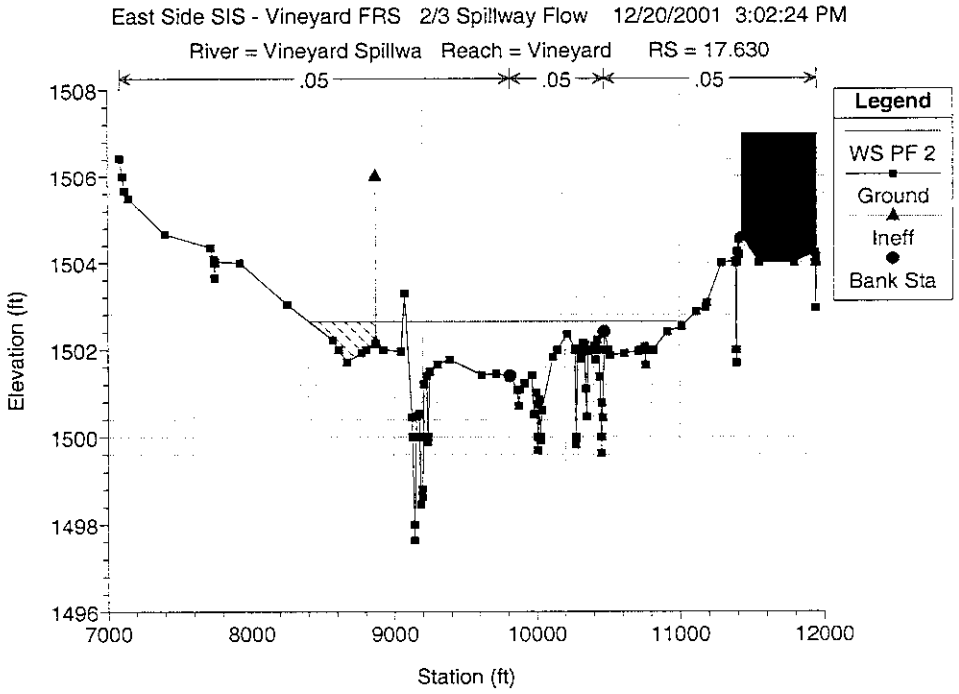

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 18.081
.05
.05
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

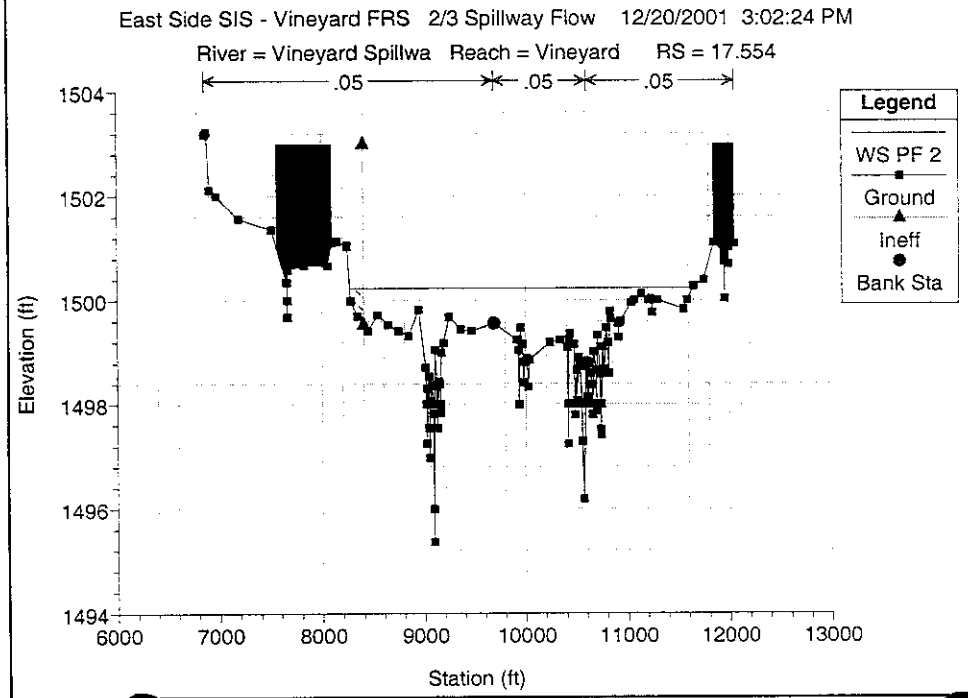

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 18.000
.05
.05
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

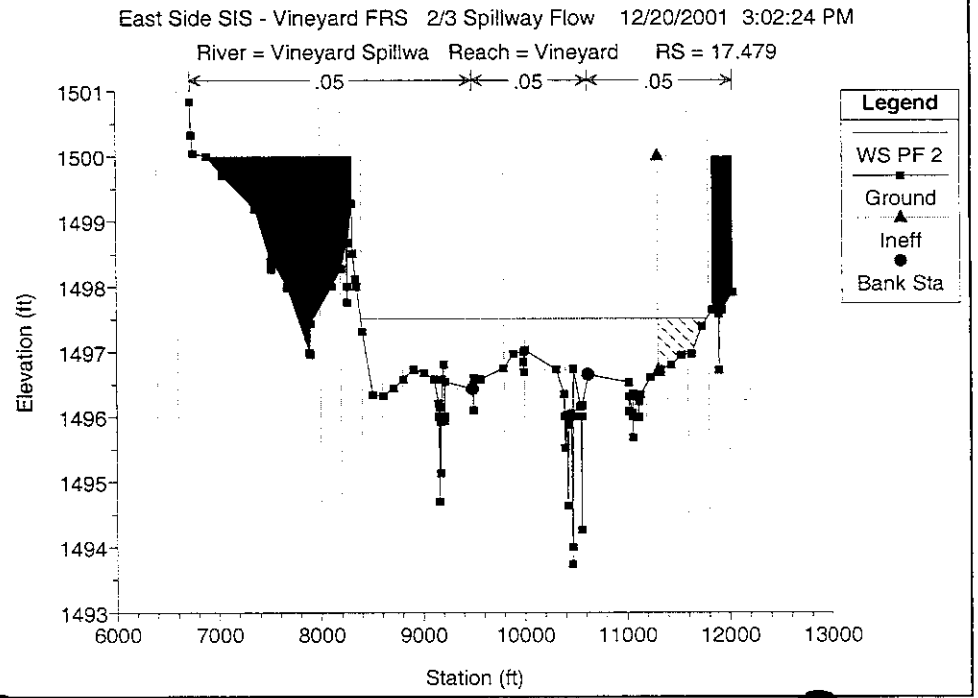

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 17.906
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

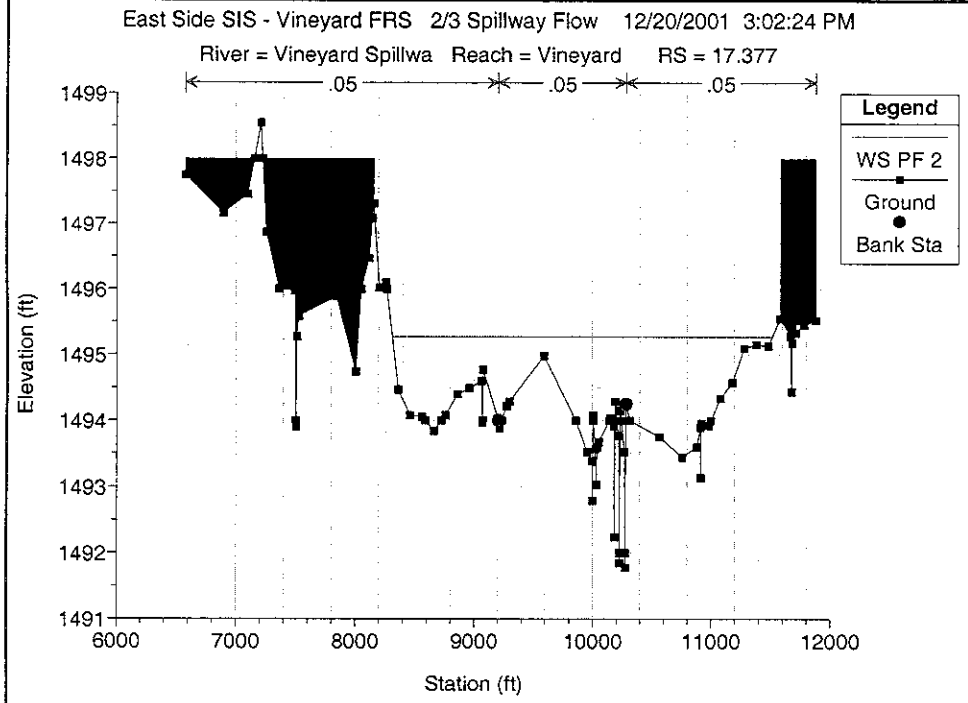

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 17.819
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

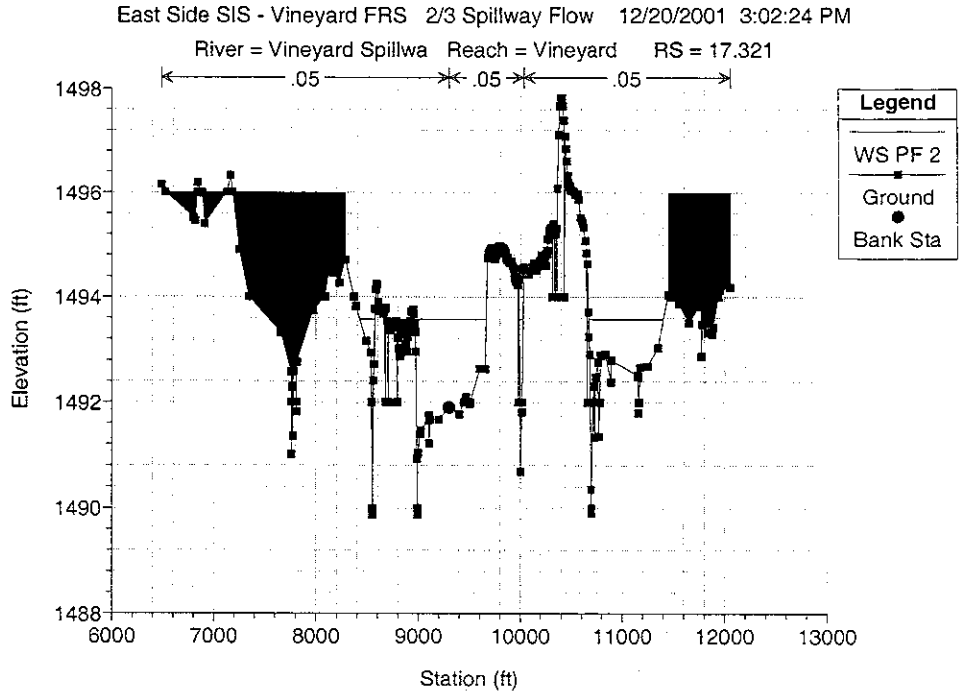

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 17.725
.05
.05
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

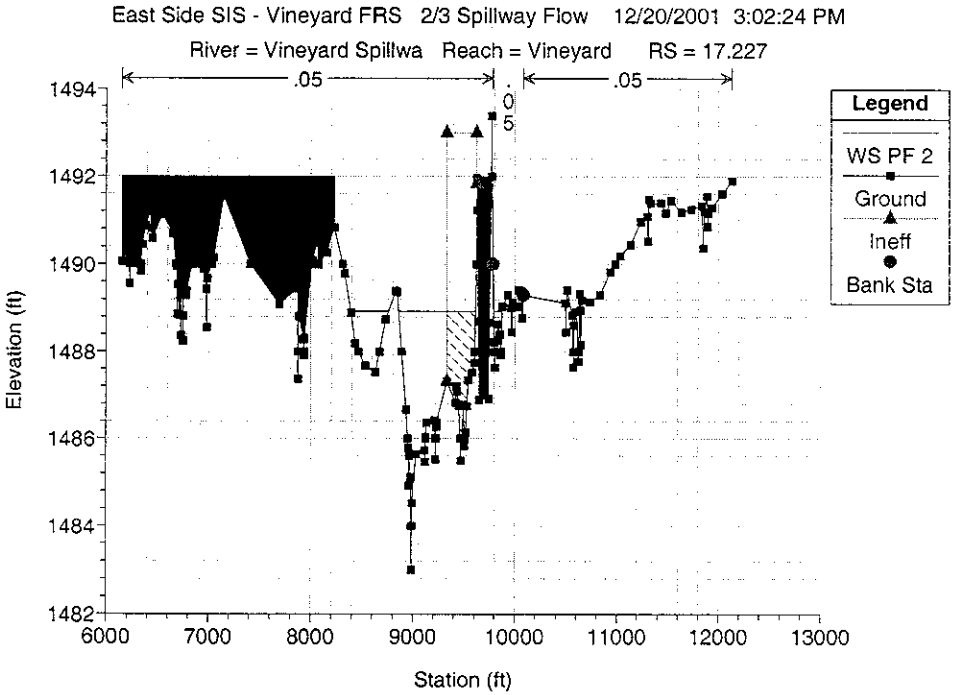

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 17.630
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

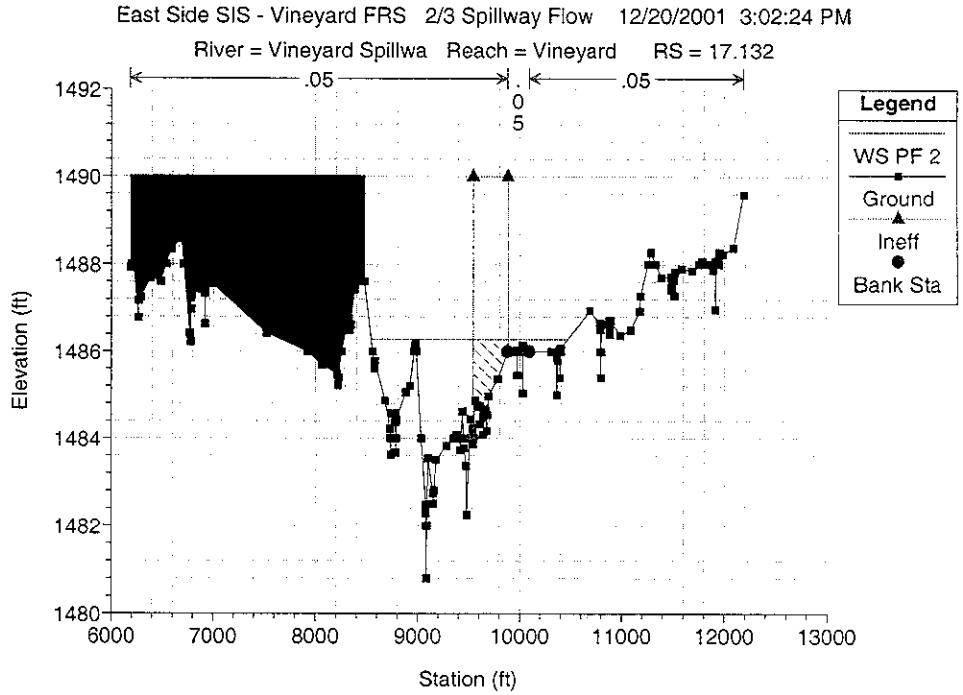

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 17.554
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

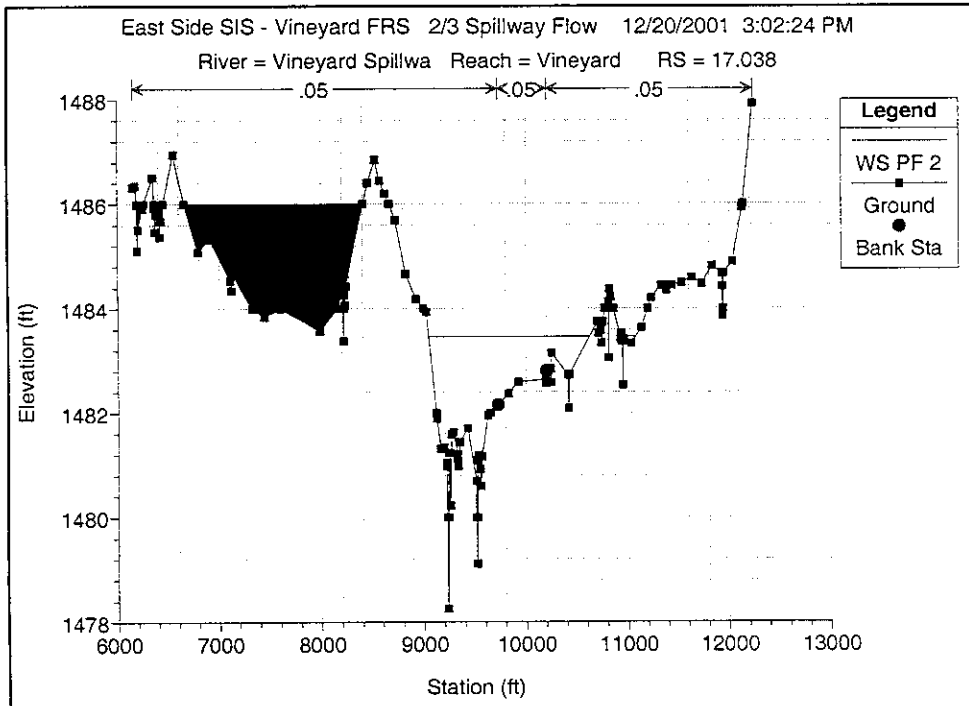

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 17.479
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

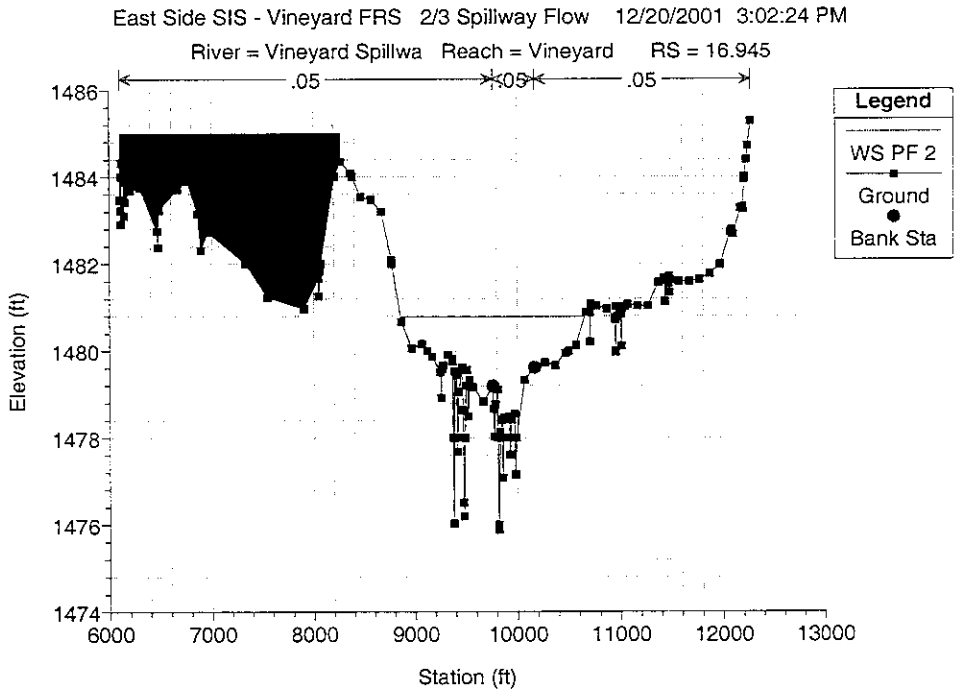

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 17.377
.05
.05
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

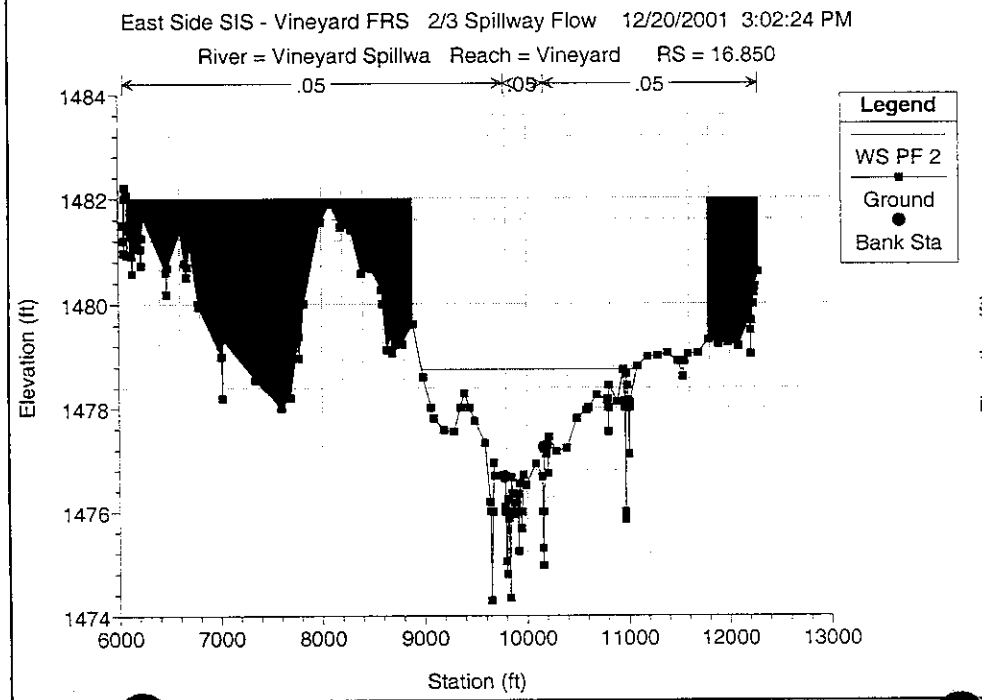

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 17.321
.05
.05
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

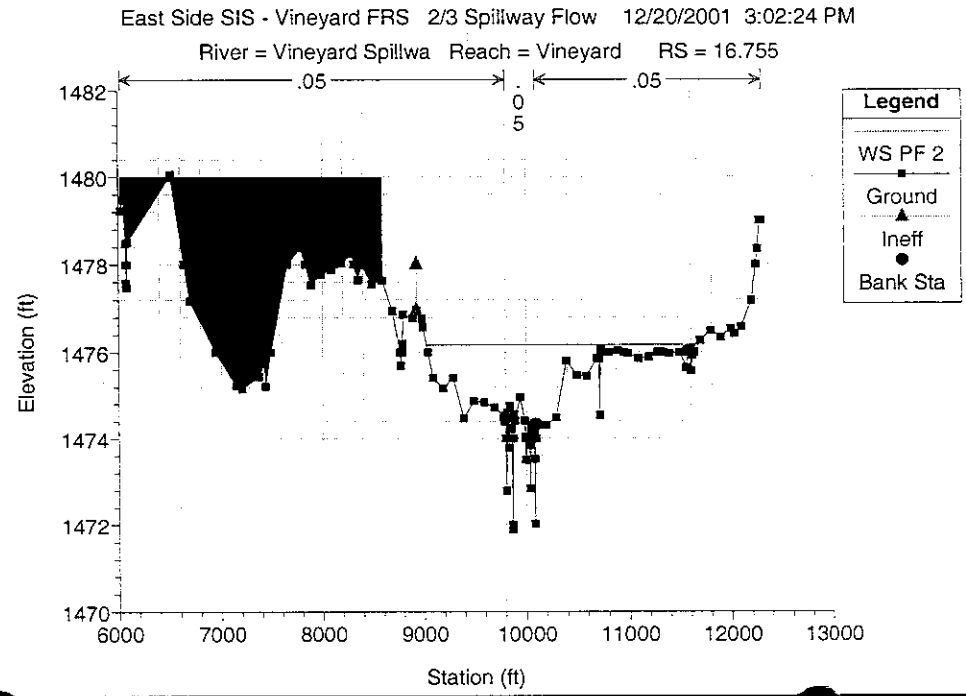

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 17.227
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

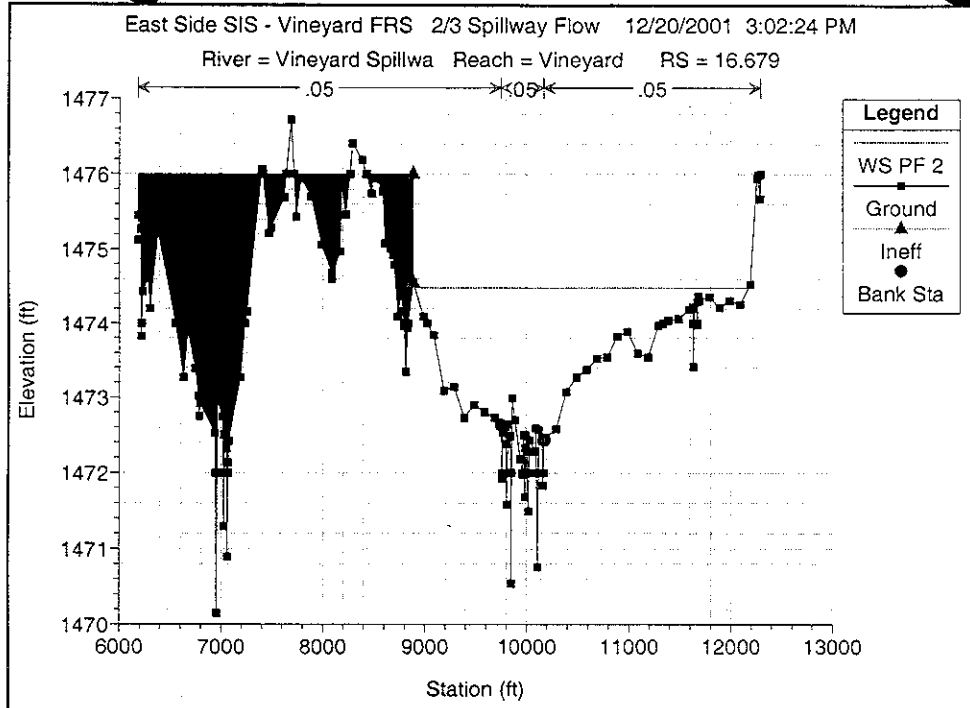

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 17.132
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

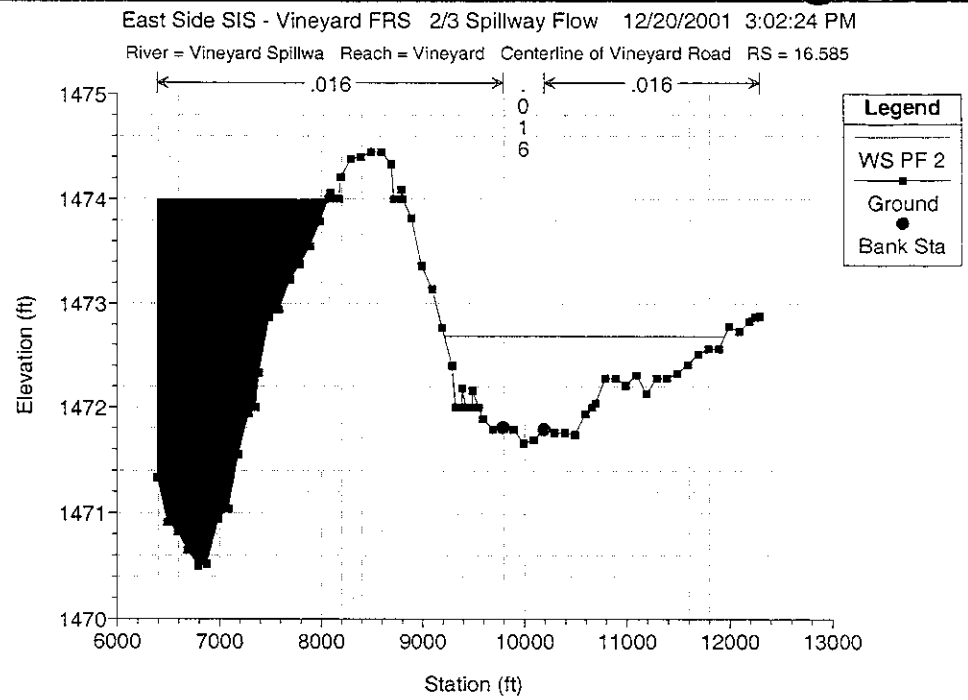

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 17.038
.05
.05
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
1488
1486
1484
1482
1480
1478
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

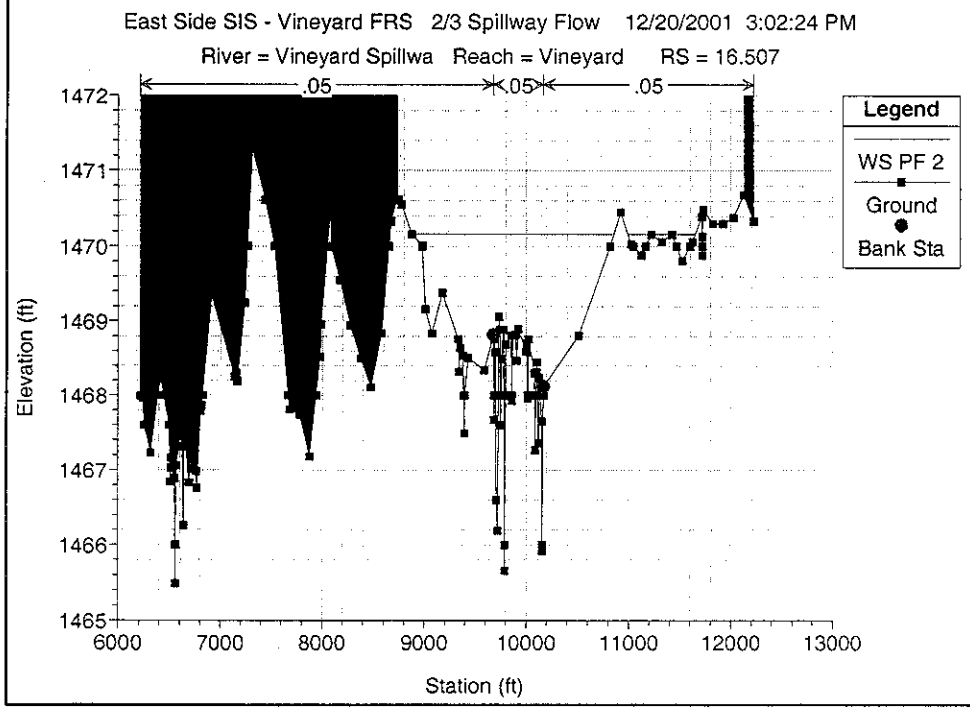

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 16.945
.05
.05
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
1486
1484
1482
1480
1478
1476
1474
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

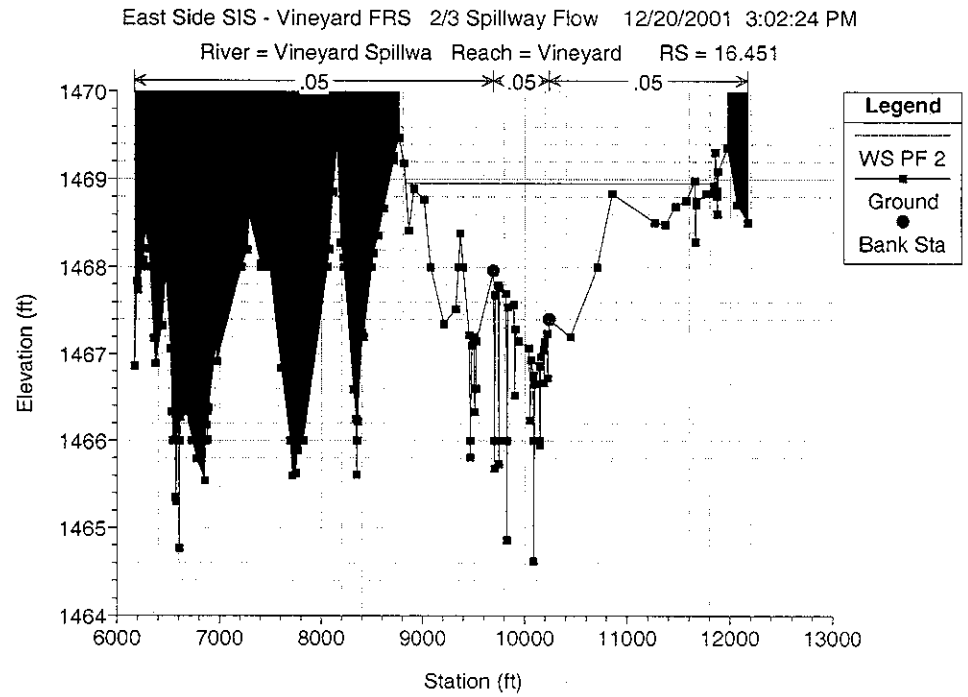

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 16.850
.05
.05
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
1484
1482
1480
1478
1476
1474
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

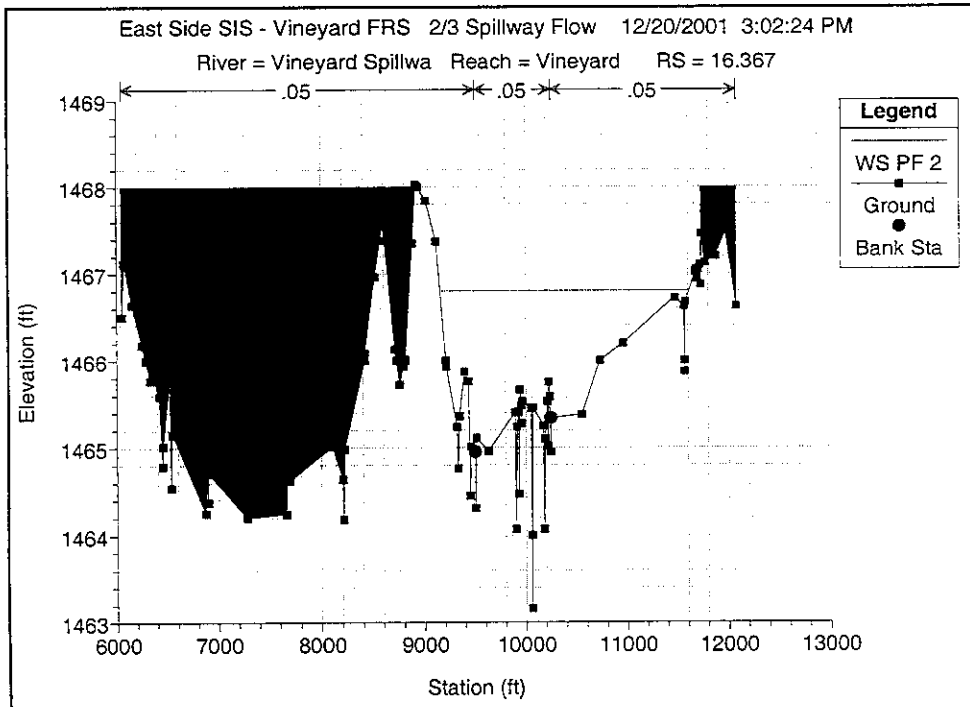

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 16.755
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1482
1480
1478
1476
1474
1472
1470
6000
7000
8000
9000
10000
11000
12000
13000
Station (ft)

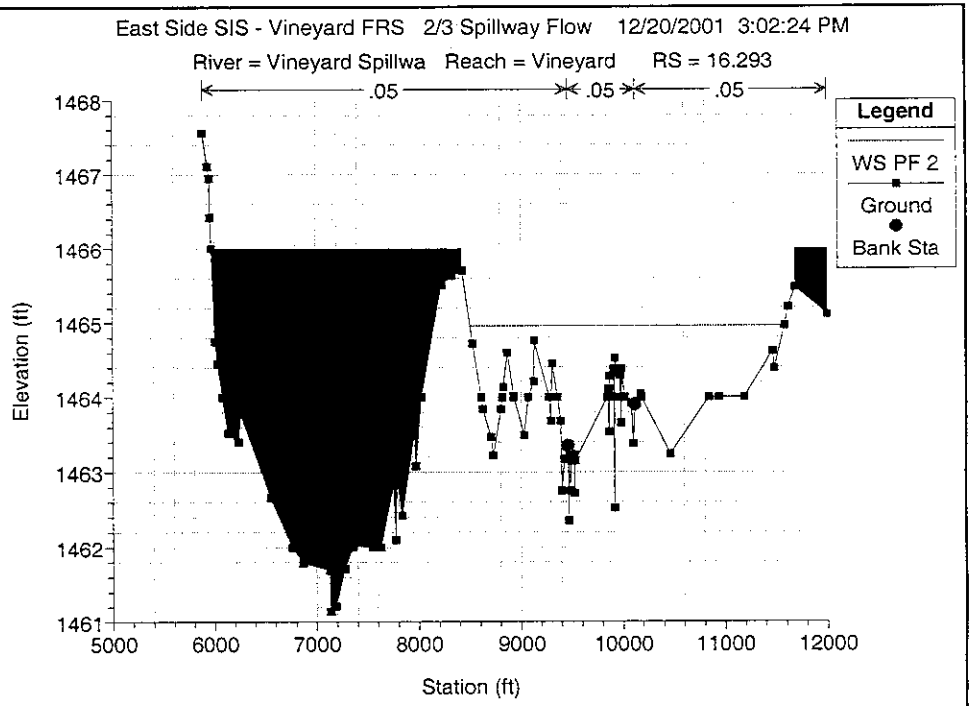

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 16.679
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

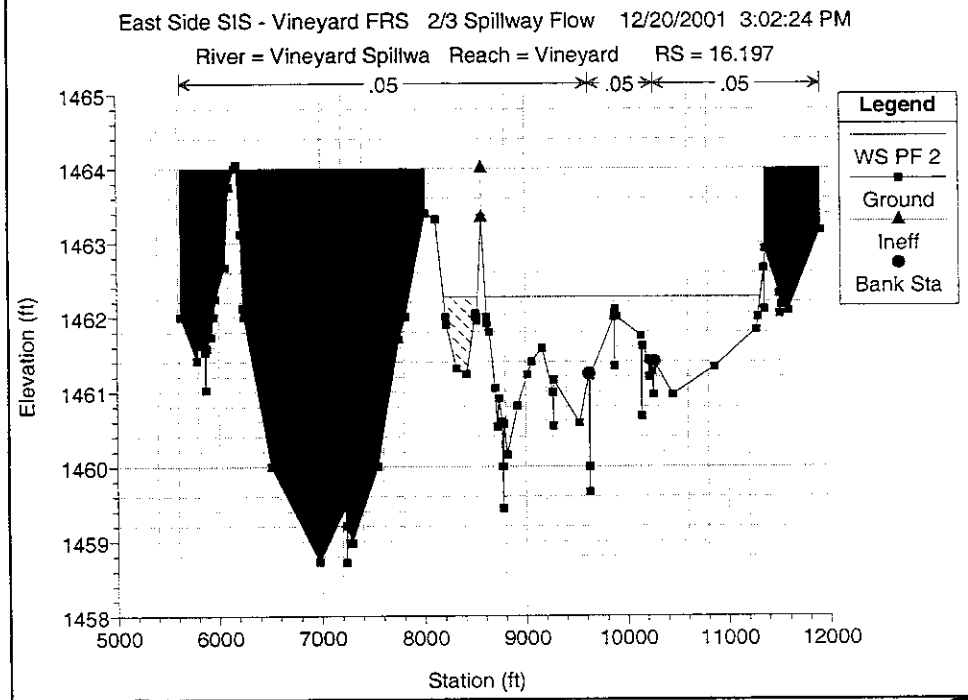

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard Centerline of Vineyard Road RS = 16.585
.016
.016
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

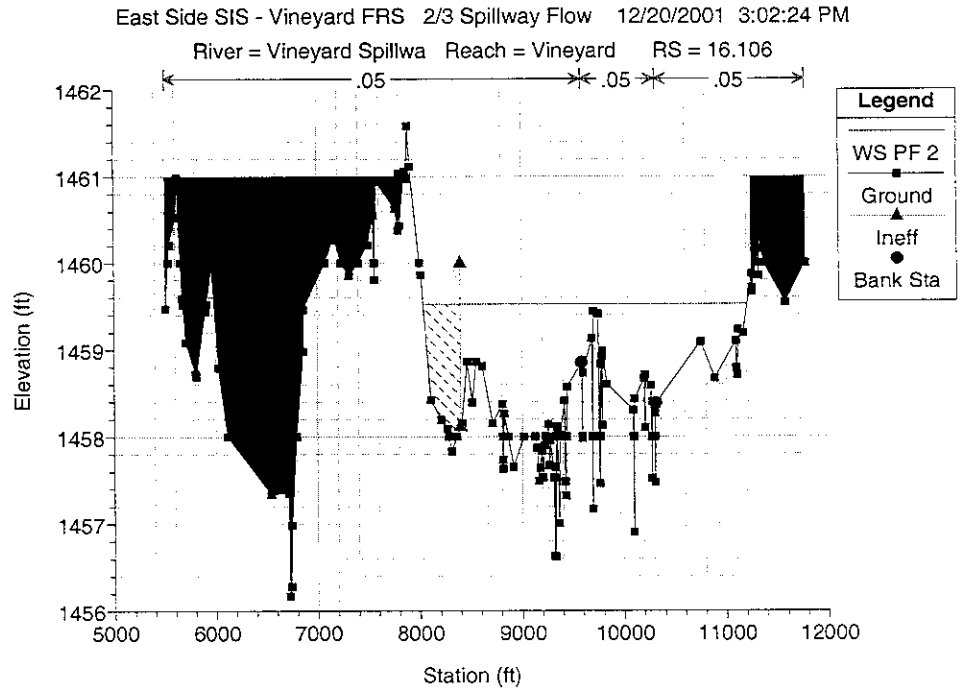

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 16.507
.05
.05
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

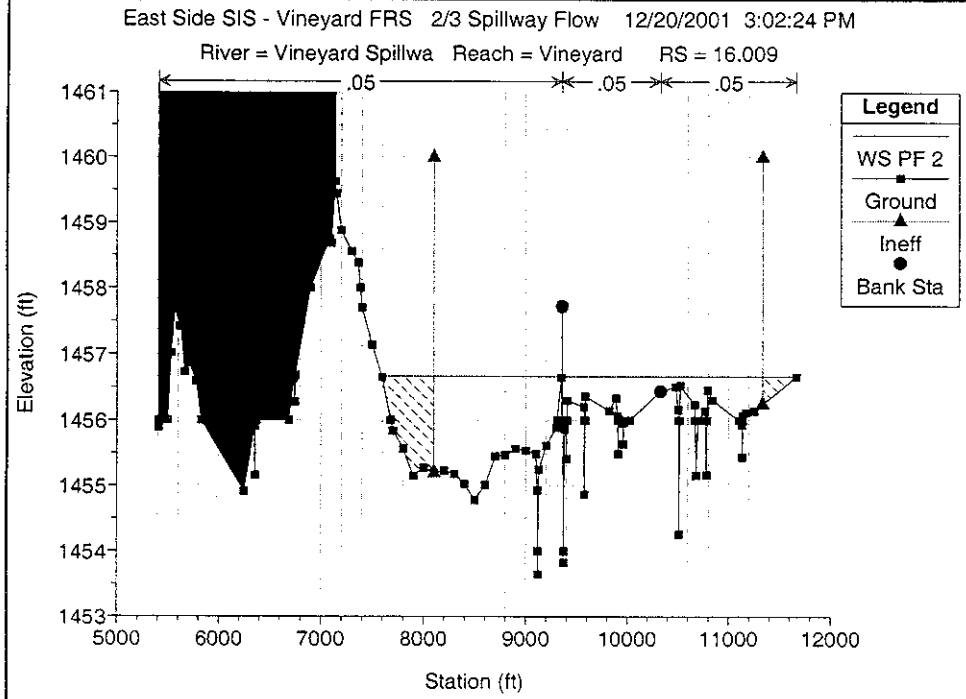

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 16.451
.05
.05
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

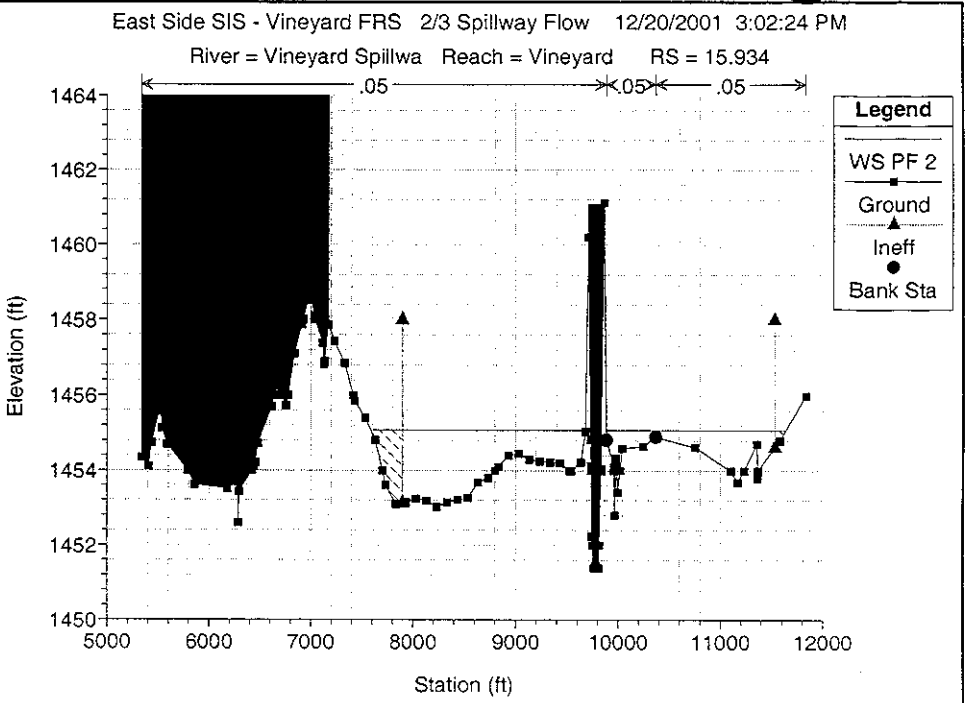

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 16.367
.05
.05
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

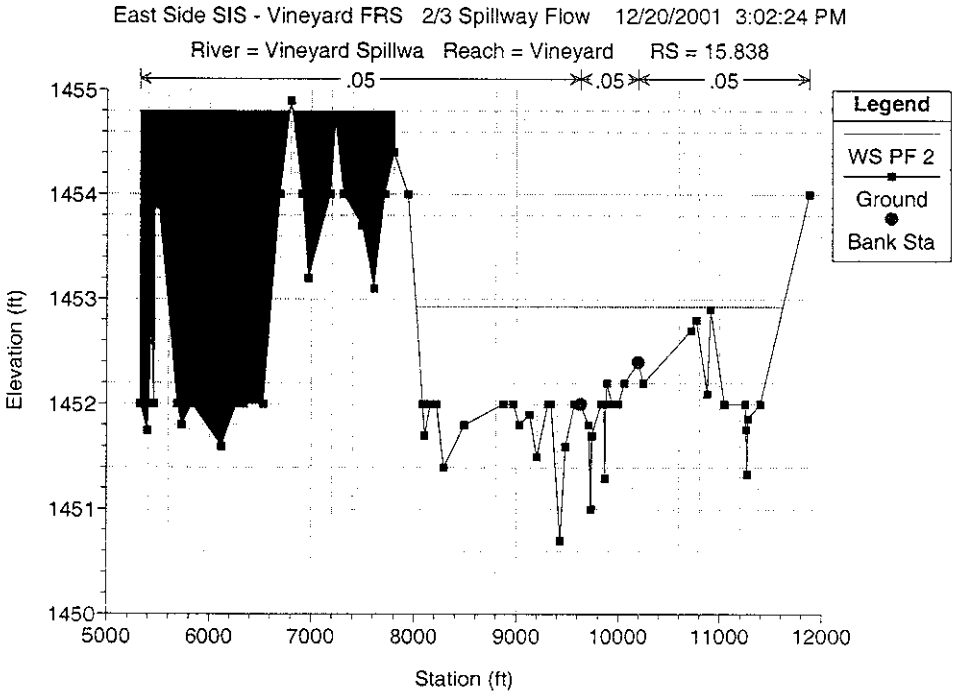

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 16.293
.05
.05
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

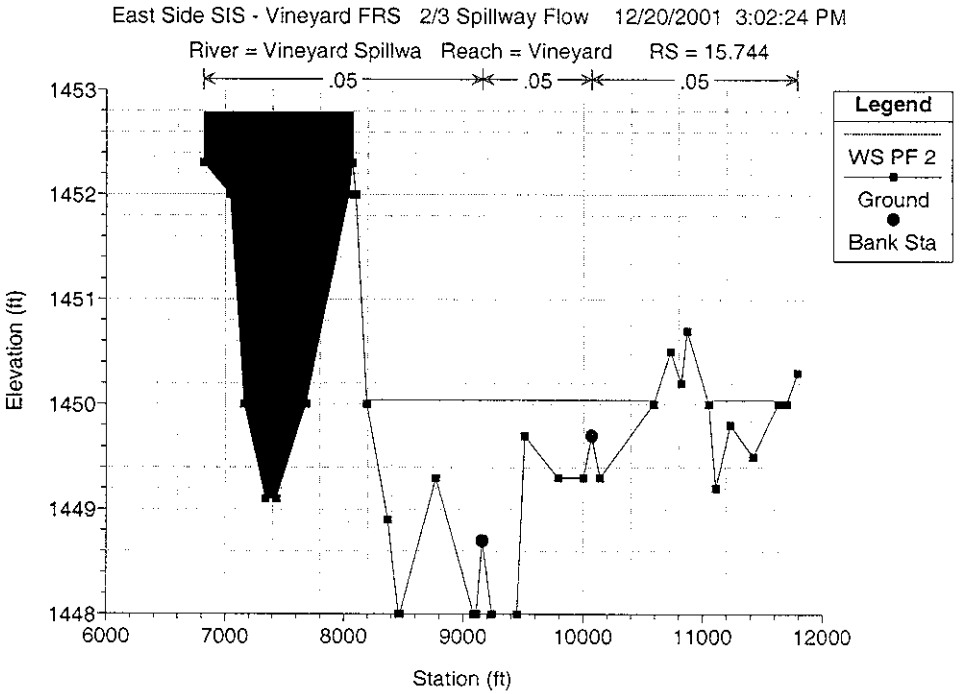

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 16.197
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

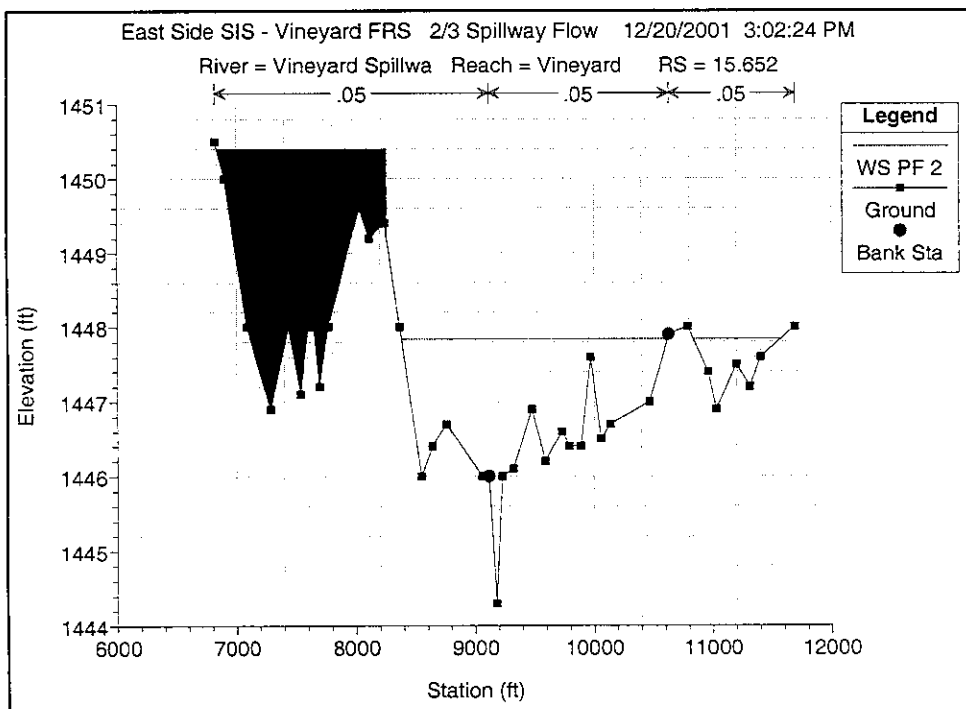

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 16.106
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

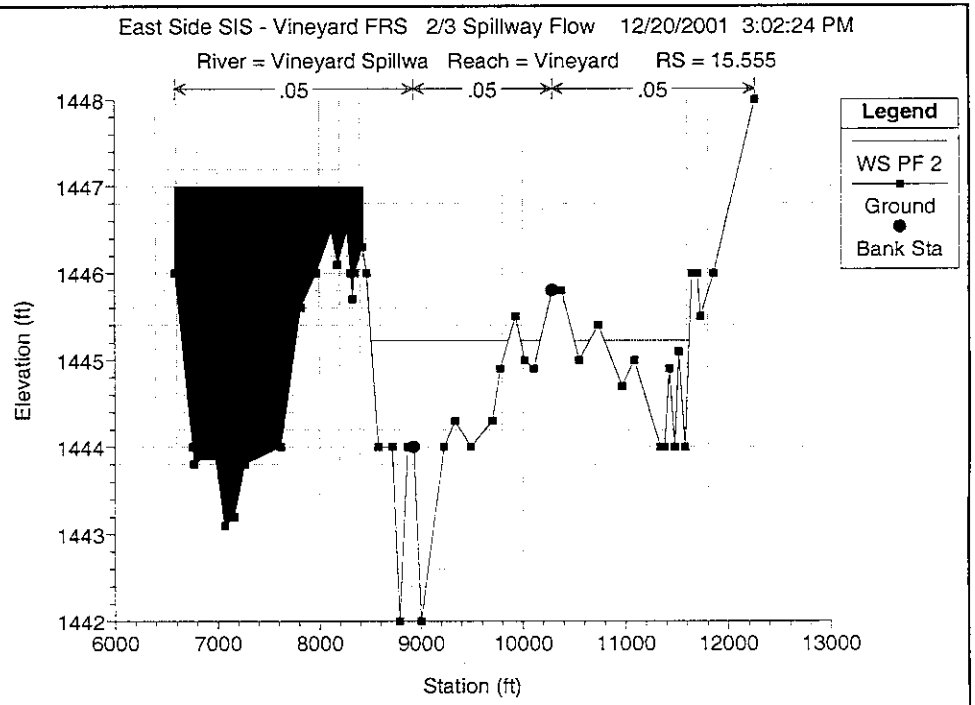

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 16.009
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

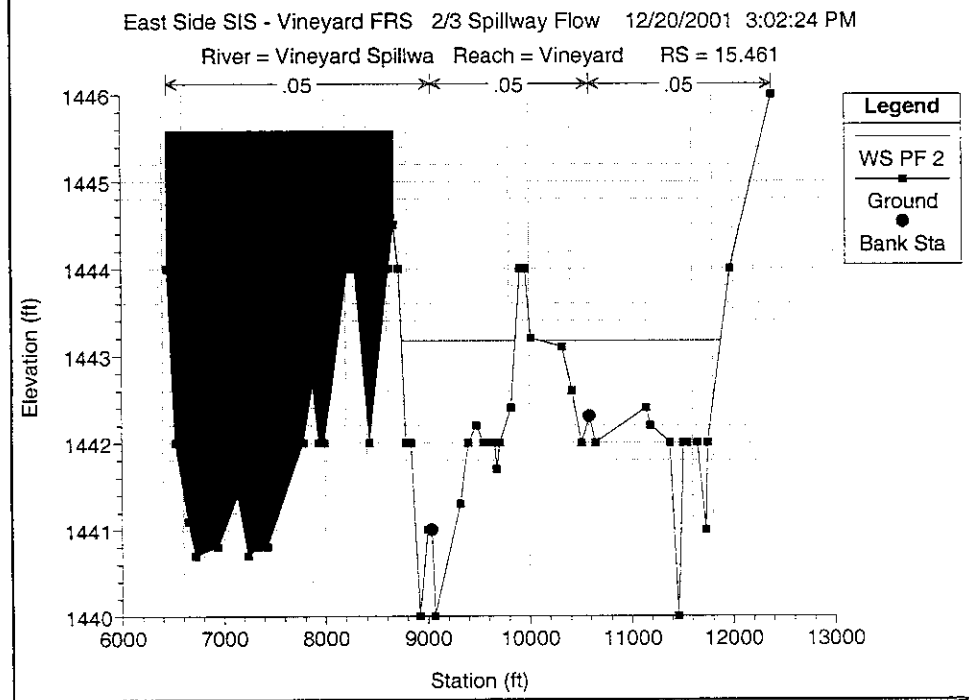

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 15.934
.05
.05
.05
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

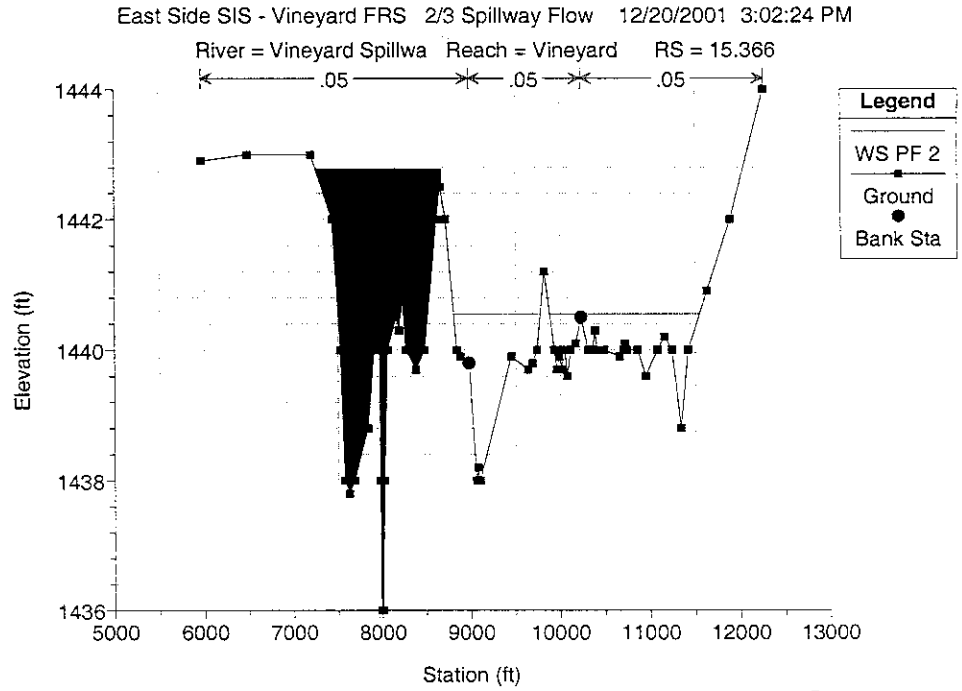

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 15.838
.05
.05
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 15.744
.05
.05
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 15.652
.05
.05
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

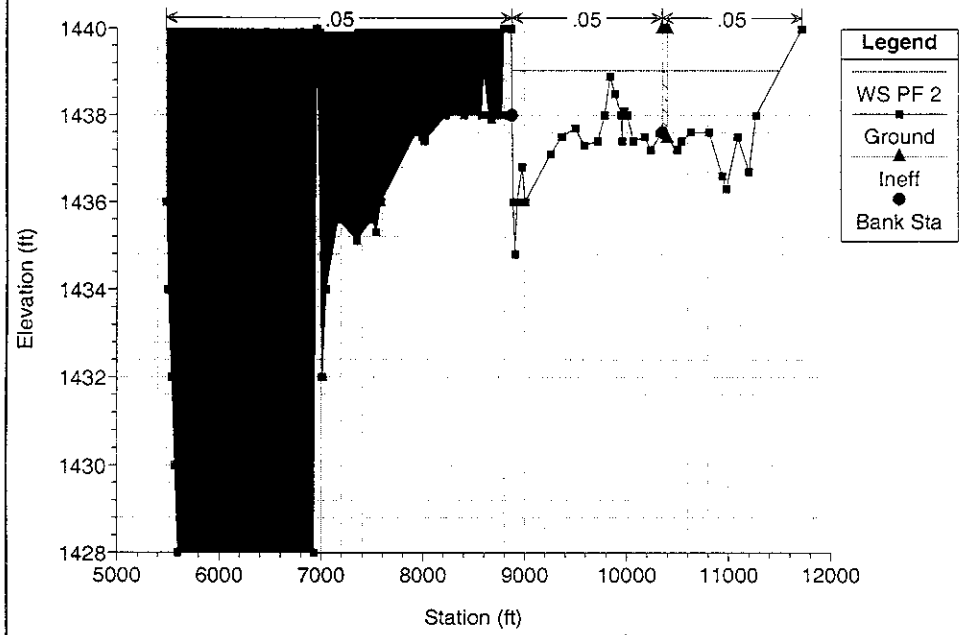

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 15.555
.05
.05
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 15.461
.05
.05
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 15.366
.05
.05
.05
Legend
WS PF 2
Ground
Bank Sta
Elevation (ft)
Station (ft)

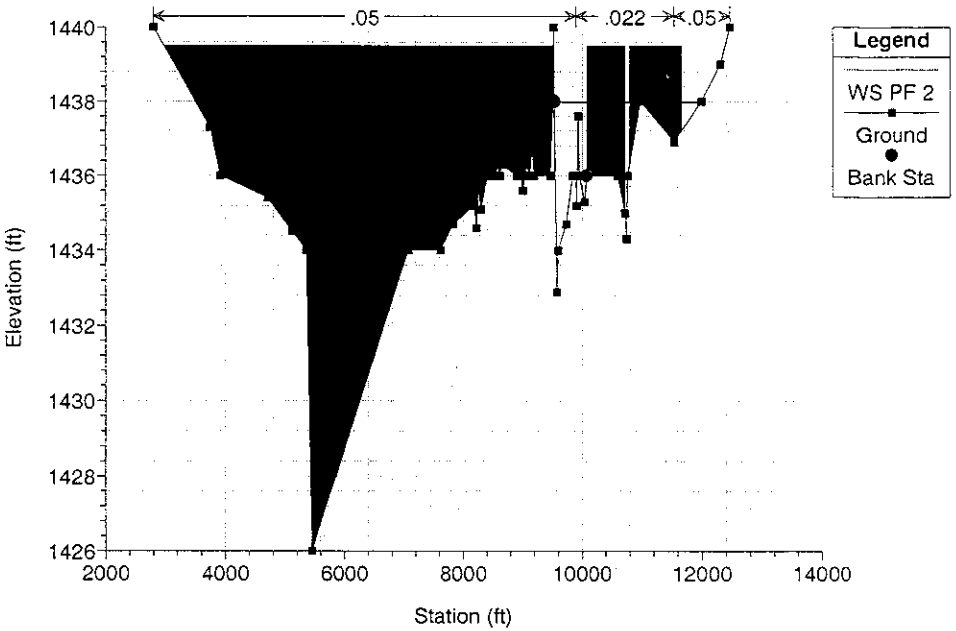
East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM

River = Vineyard Spillwa Reach = Vineyard Top of bank for "Western Diversion" - st RS = 15.272



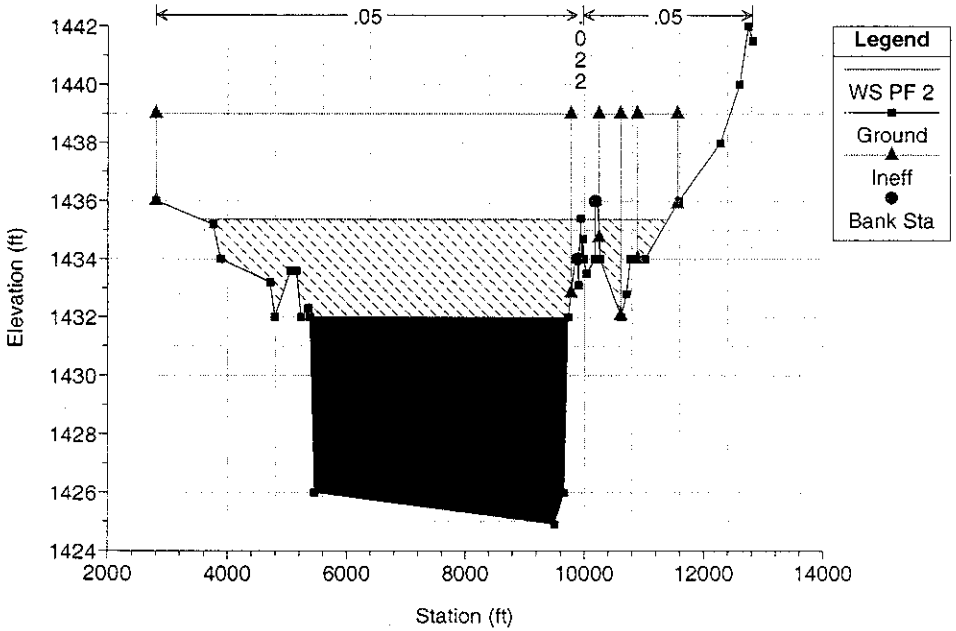
East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM

River = Vineyard Spillwa Reach = Vineyard Blocked Obstructions used to approximate RS = 15.181



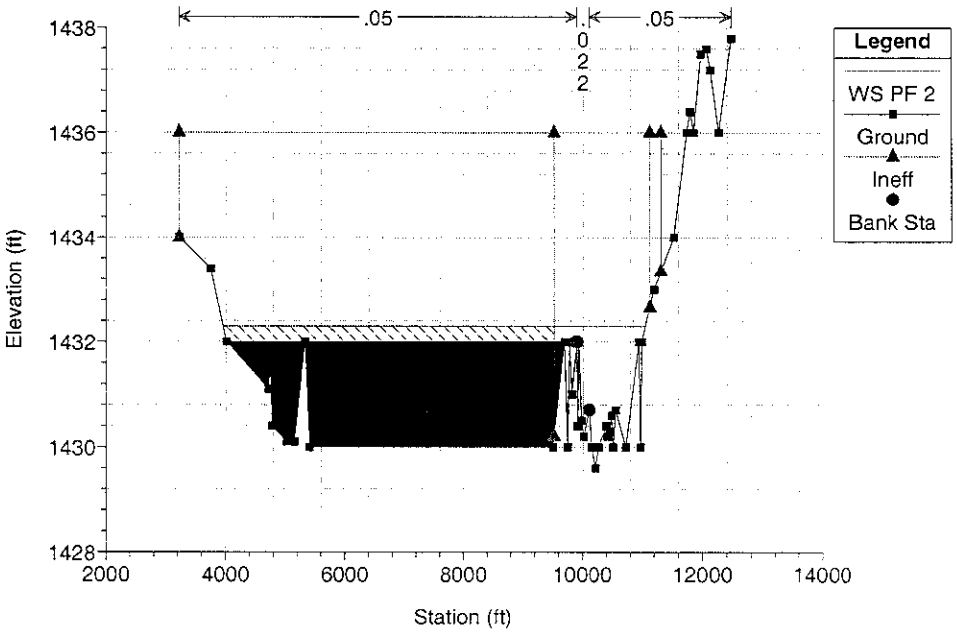
East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM

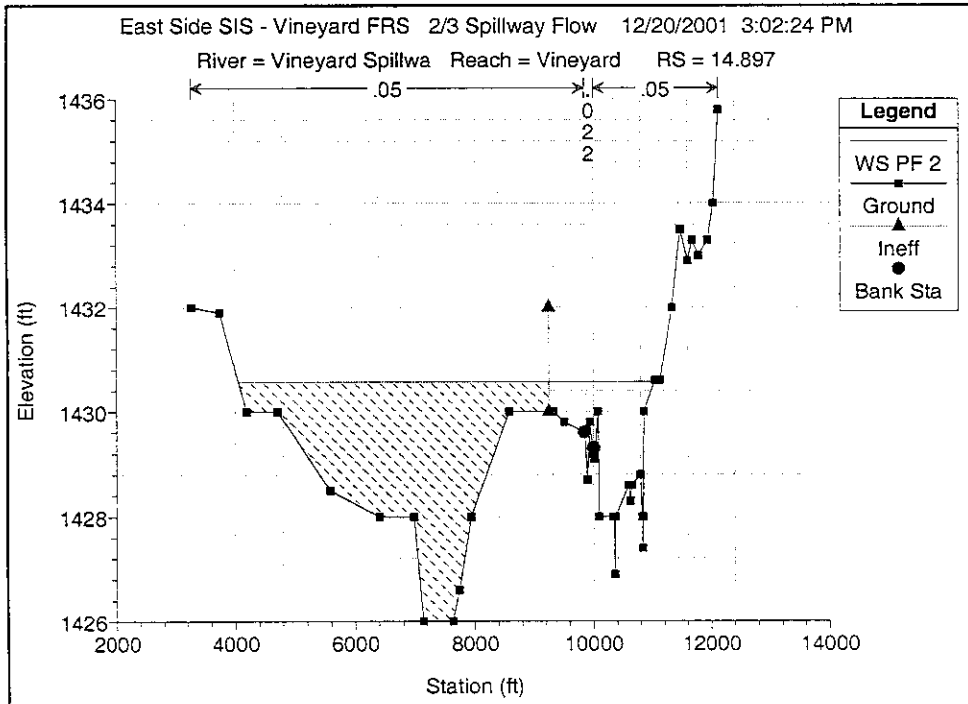
River = Vineyard Spillwa Reach = Vineyard Blocked Obstruction used to eliminate th RS = 15.087

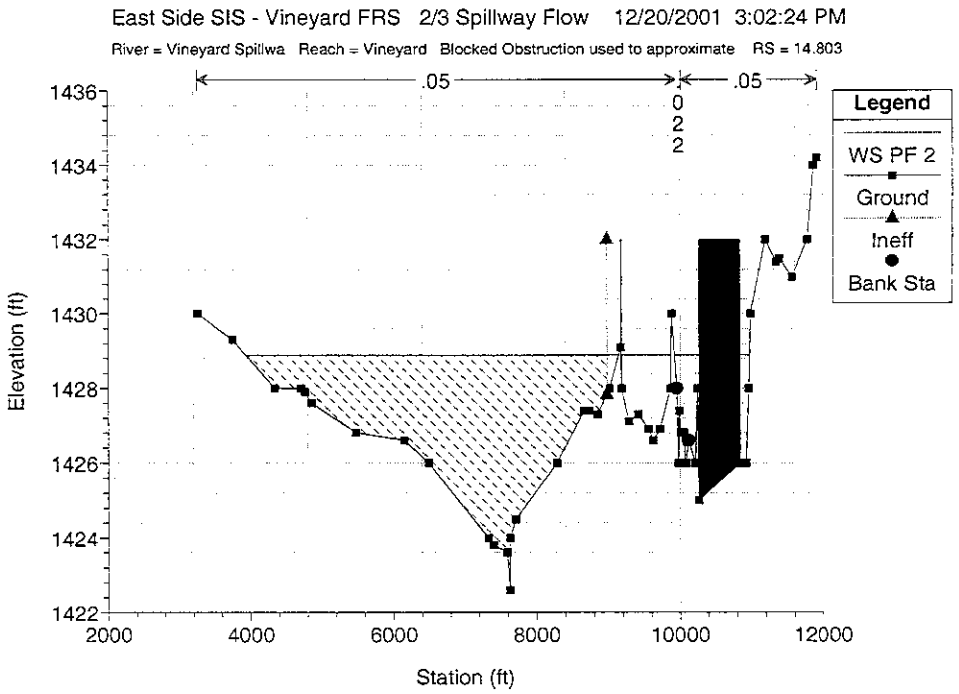


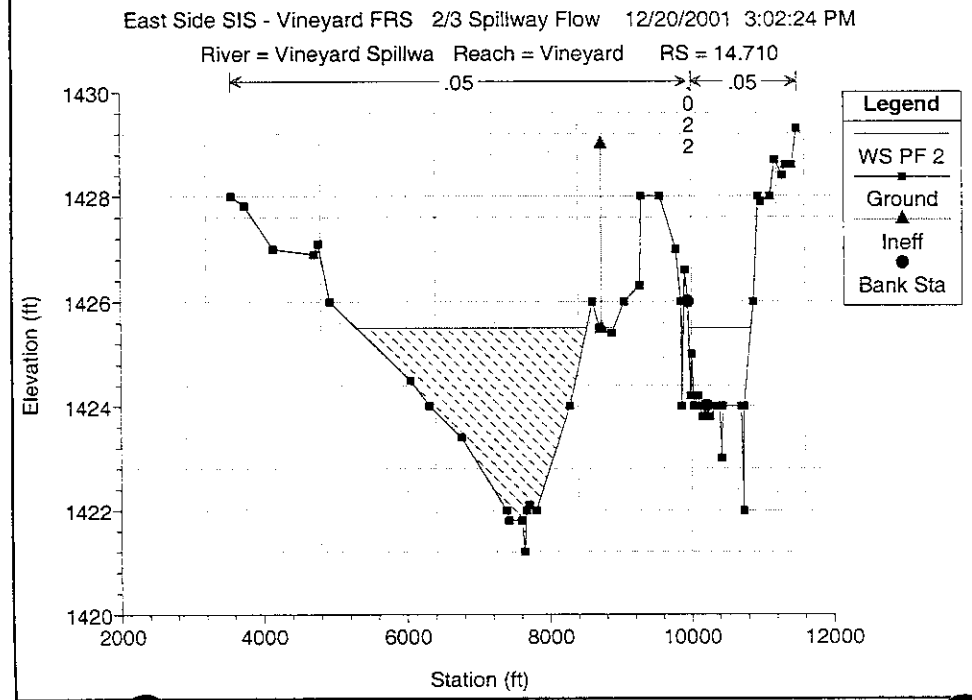
East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM

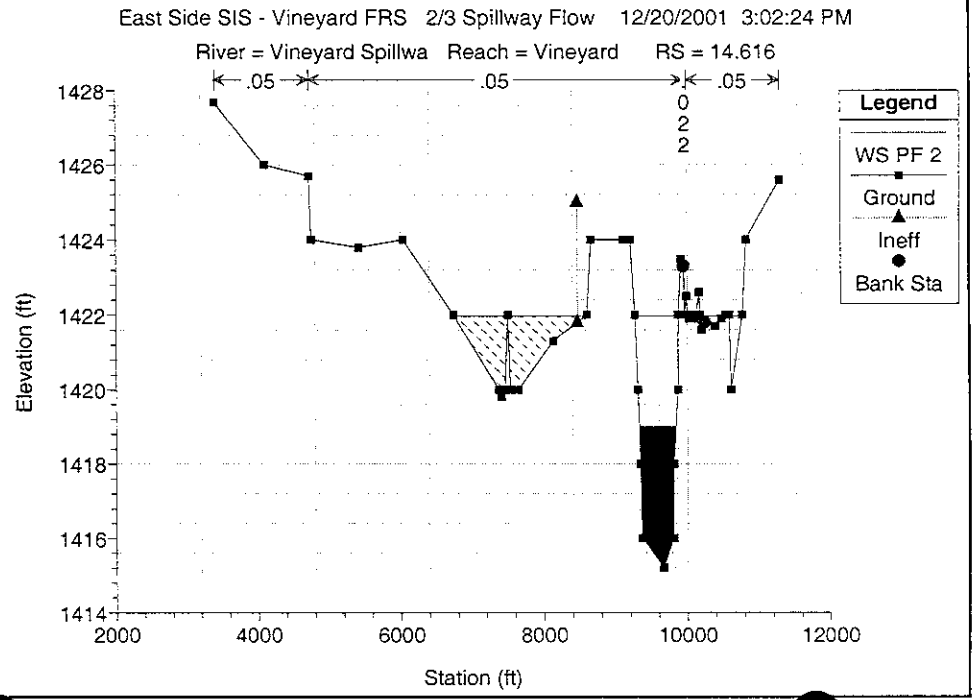
River = Vineyard Spillwa Reach = Vineyard Blocked Obstruction used to eliminate th RS = 14.994

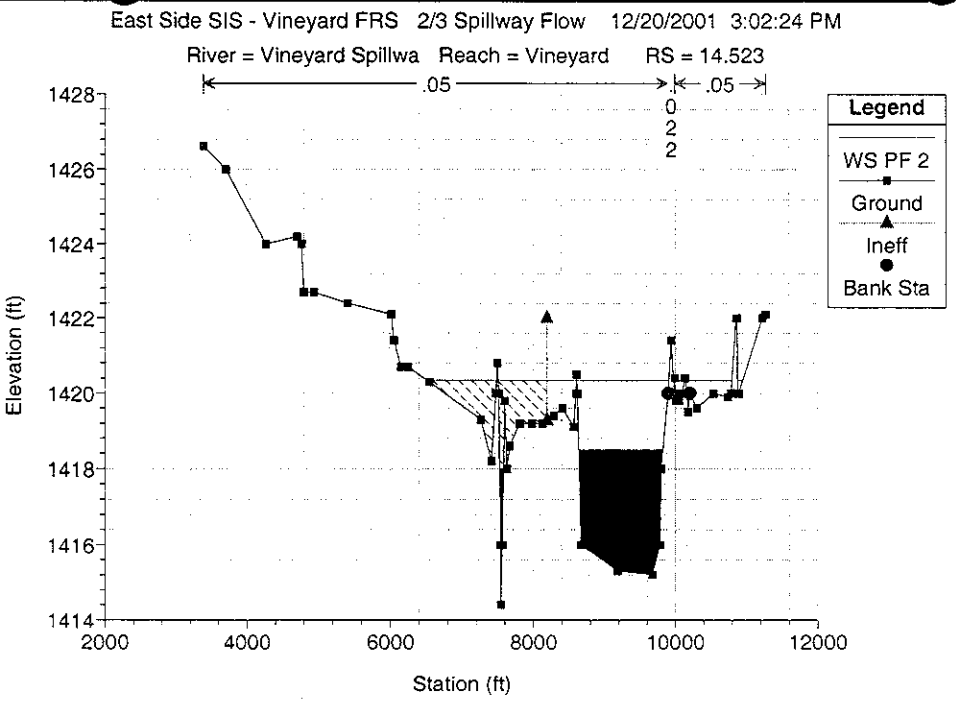


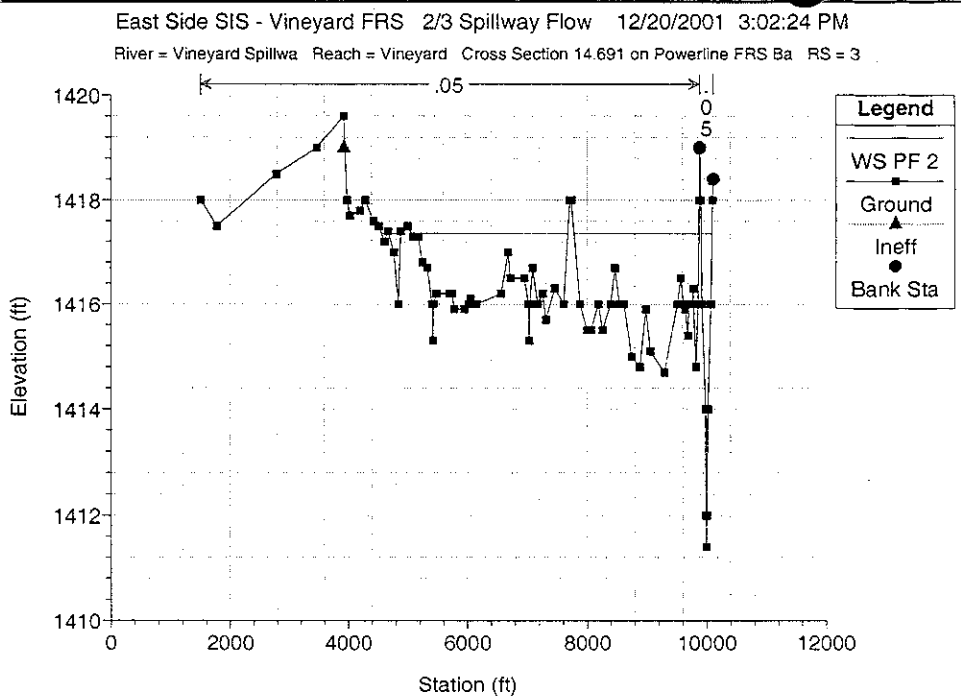

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 14.897
.05
.05
0
2
2
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

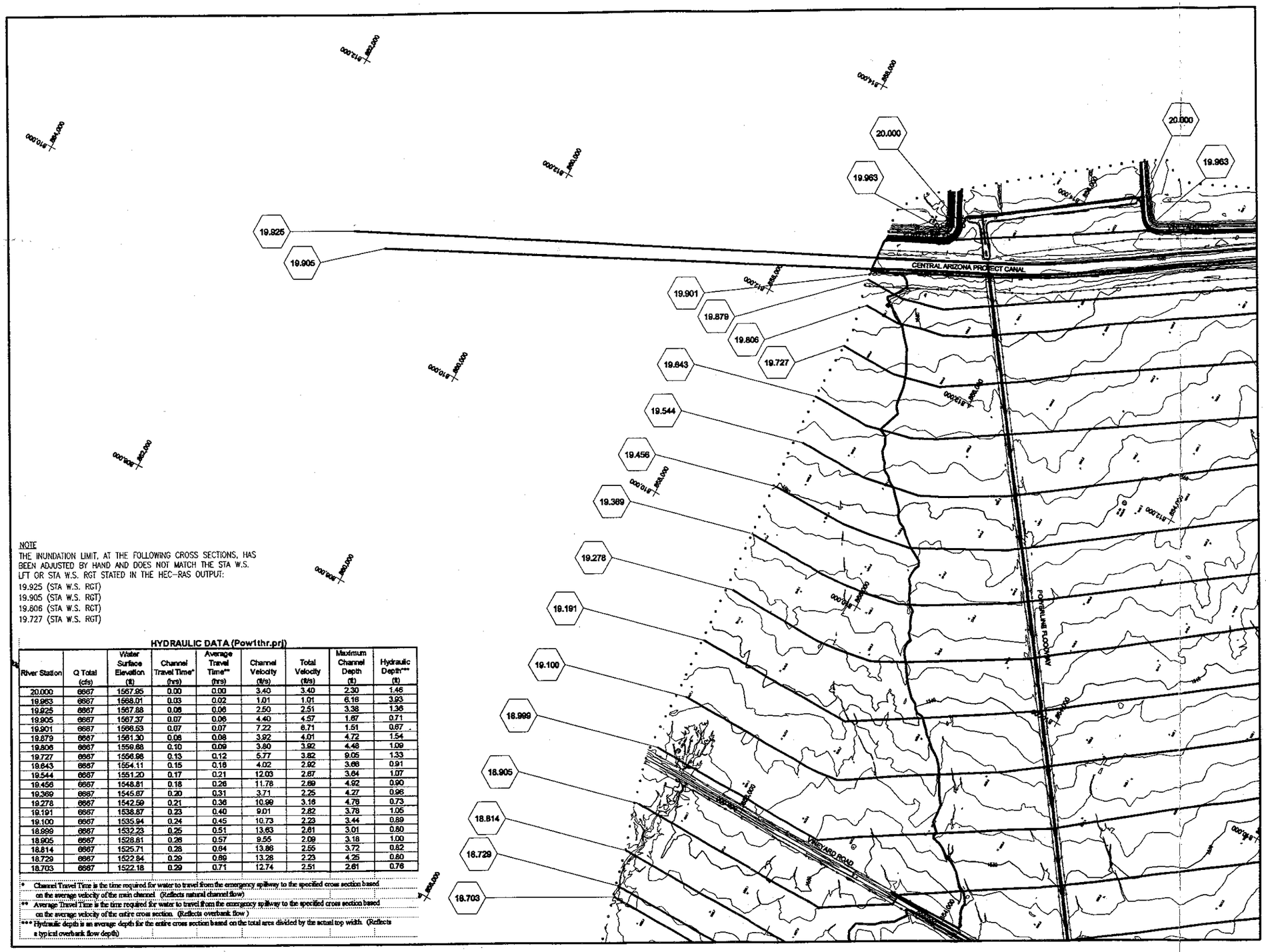

East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard Blocked Obstruction used to approximate RS = 14.803
.05
.05
0
2
2
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 14.710
.05
.05
0
2
2
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 14.616
.05
.05
.05
0
2
2
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard RS = 14.523
.05
.05
0
2
2
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1428
1426
1424
1422
1420
1418
1416
1414
2000
4000
6000
8000
10000
12000
Station (ft)


East Side SIS - Vineyard FRS 2/3 Spillway Flow 12/20/2001 3:02:24 PM
River = Vineyard Spillwa Reach = Vineyard Cross Section 14.691 on Powerline FRS Ba RS = 3
.05
0
5
Legend
WS PF 2
Ground
Ineff
Bank Sta
Elevation (ft)
1420
1418
1416
1414
1412
1410
0
2000
4000
6000
8000
10000
12000
Station (ft)



NOTE
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
19.925 (STA W.S. RGT)
19.905 (STA W.S. RGT)
19.806 (STA W.S. RGT)
19.727 (STA W.S. RGT)

HYDRAULIC DATA (Pow1thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
20.000	6667	1567.95	0.00	0.00	3.40	3.40	2.30	1.46
19.963	6667	1568.01	0.03	0.02	1.01	1.01	6.18	3.93
19.925	6667	1567.88	0.06	0.06	2.50	2.51	3.38	1.36
19.905	6667	1567.37	0.07	0.06	4.40	4.57	1.67	0.71
19.901	6667	1566.53	0.07	0.07	7.22	6.71	1.51	0.67
19.879	6667	1561.30	0.08	0.08	3.92	4.01	4.72	1.54
19.806	6667	1559.68	0.10	0.09	3.80	3.92	4.48	1.09
19.727	6667	1556.98	0.13	0.12	5.77	3.82	9.05	1.33
19.643	6667	1554.11	0.15	0.16	4.02	2.92	3.66	0.91
19.544	6667	1551.20	0.17	0.21	12.03	2.67	3.64	1.07
19.456	6667	1548.81	0.18	0.26	11.78	2.69	4.92	0.90
19.369	6667	1545.67	0.20	0.31	3.71	2.25	4.27	0.96
19.278	6667	1542.59	0.21	0.36	10.99	3.16	4.76	0.73
19.191	6667	1538.87	0.23	0.40	9.01	2.82	3.78	1.05
19.100	6667	1535.94	0.24	0.45	10.73	2.23	3.44	0.89
18.999	6667	1532.23	0.25	0.51	13.63	2.61	3.01	0.80
18.905	6667	1528.61	0.26	0.57	9.55	2.09	3.18	1.00
18.814	6667	1525.71	0.28	0.64	13.86	2.55	3.72	0.82
18.729	6667	1522.84	0.29	0.69	13.28	2.23	4.25	0.80
18.703	6667	1522.18	0.29	0.71	12.74	2.51	2.61	0.76

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)
** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)
*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY
HYDRAULIC BASE LINE WITH RIVER MILE — M13.0 — M13.0
CROSS SECTION — 2.147 WSE 2.147
STREET FLOW — SF →
ELEVATION REFERENCE MARK — ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary
PANEL POINT
MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

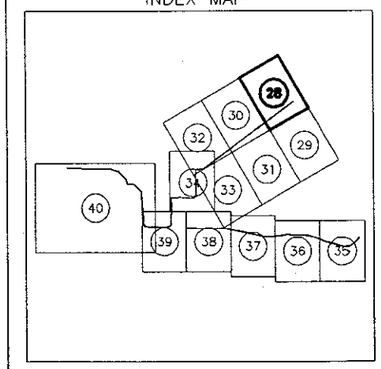
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
10	1566.420	SET ½" REBAR 150' NORTHEAST OF THE POWERLINE F.R.S. SPILLWAY. N: 857,003.368 E: 813,192.567

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

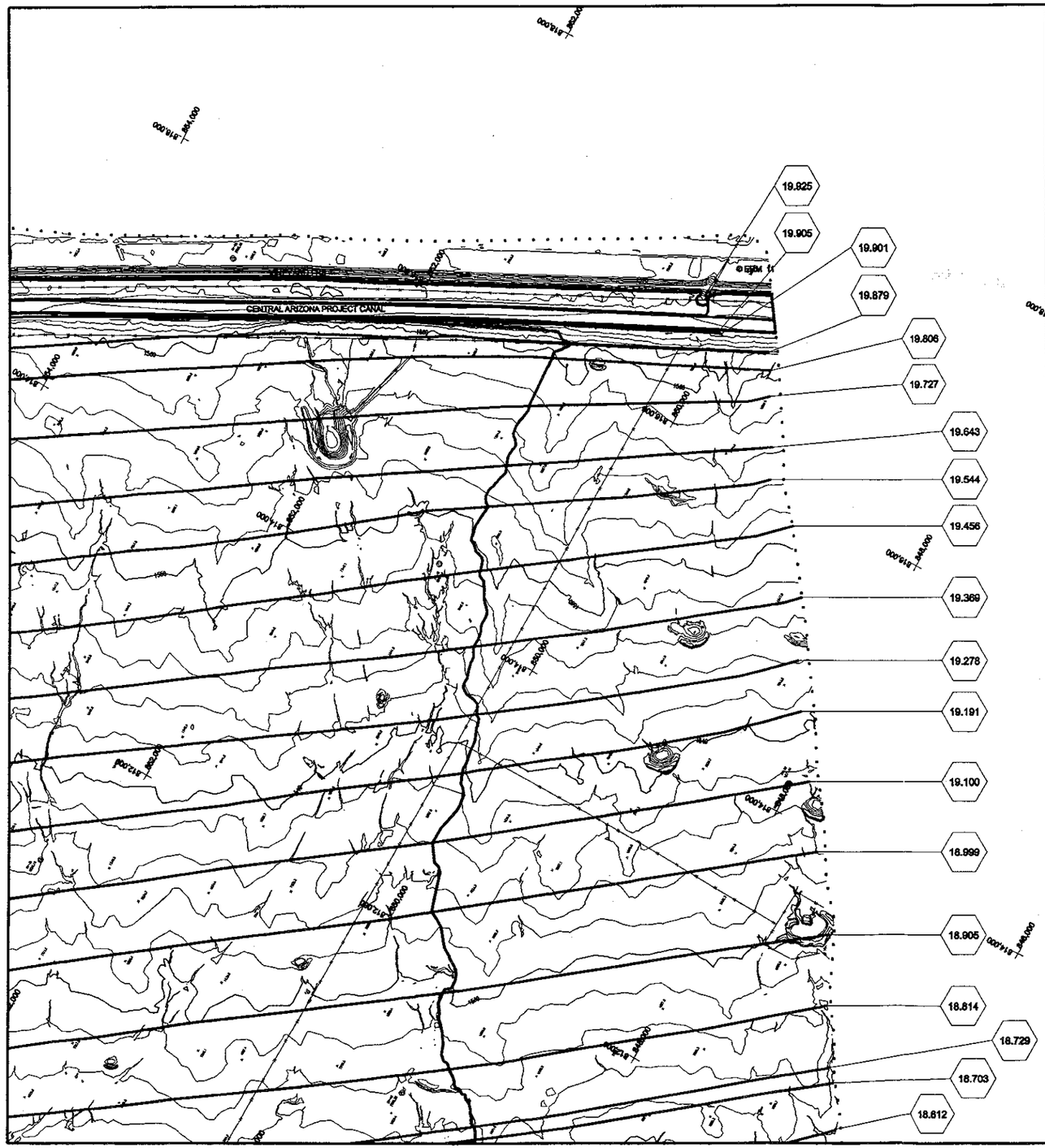
	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 28 OF 40

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

AERIAL MAPPING PROVIDED BY:
M&S AERIAL MAPPING, LLC,
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA (Pow11hr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
19.925	6667	1567.88	0.08	0.08	2.50	2.51	3.38	1.38
19.905	6667	1567.37	0.07	0.06	4.40	4.57	1.67	0.71
19.901	6667	1566.53	0.07	0.07	7.22	6.71	1.51	0.67
19.879	6667	1561.30	0.08	0.08	3.92	4.01	4.72	1.54
19.806	6667	1559.68	0.10	0.09	3.80	3.92	4.48	1.09
19.727	6667	1558.98	0.13	0.12	5.77	3.82	9.05	1.33
19.643	6667	1554.11	0.15	0.16	4.02	2.92	3.66	0.91
19.544	6667	1551.20	0.17	0.21	12.03	2.67	3.64	1.07
19.456	6667	1548.81	0.18	0.26	11.78	2.69	4.92	0.90
19.369	6667	1545.57	0.20	0.31	3.71	2.25	4.27	0.96
19.278	6667	1542.59	0.21	0.36	10.99	3.16	4.76	0.73
19.191	6667	1538.87	0.23	0.40	9.01	2.82	3.78	1.05
19.100	6667	1535.94	0.24	0.45	10.73	2.23	3.44	0.89
18.999	6667	1532.23	0.25	0.51	13.83	2.61	3.01	0.80
18.905	6667	1528.81	0.26	0.57	9.55	2.09	3.18	1.00
18.814	6667	1525.71	0.28	0.64	13.86	2.55	3.72	0.82
18.729	6667	1522.84	0.29	0.69	13.28	2.23	4.25	0.60
18.703	6667	1522.18	0.29	0.71	12.74	2.51	2.61	0.78
18.612	6667	1519.01	0.30	0.76	13.84	2.42	5.01	0.95

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
19.925 (STA W.S. LFT)
19.905 (STA W.S. LFT)
18.612 (STA W.S. LFT)

LEGEND

INUNDATION AREA BOUNDARY
HYDRAULIC BASE LINE WITH RIVER MILE — M13.0 M13.5
CROSS SECTION — 2.147 WSE 2.147
STREET FLOW — SF
ELEVATION REFERENCE MARK — ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary
PANEL POINT
MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

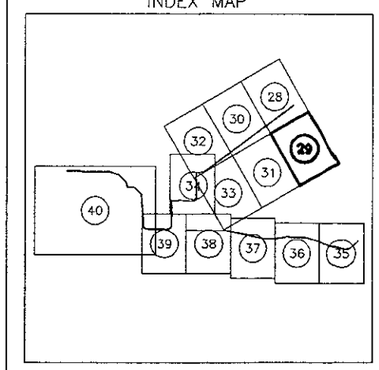
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
11	1566.500	SET ½" REBAR 150' SOUTHEAST OF THE VINEYARD F.R.S. SPILLWAY. N: 850,127.386 E: 817,157.004

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 29 OF 40

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

AERIAL MAPPING PROVIDED BY:
M&B AERIAL MAPPING, LLC.
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040

HYDRAULIC DATA (Pow1thr.prj)

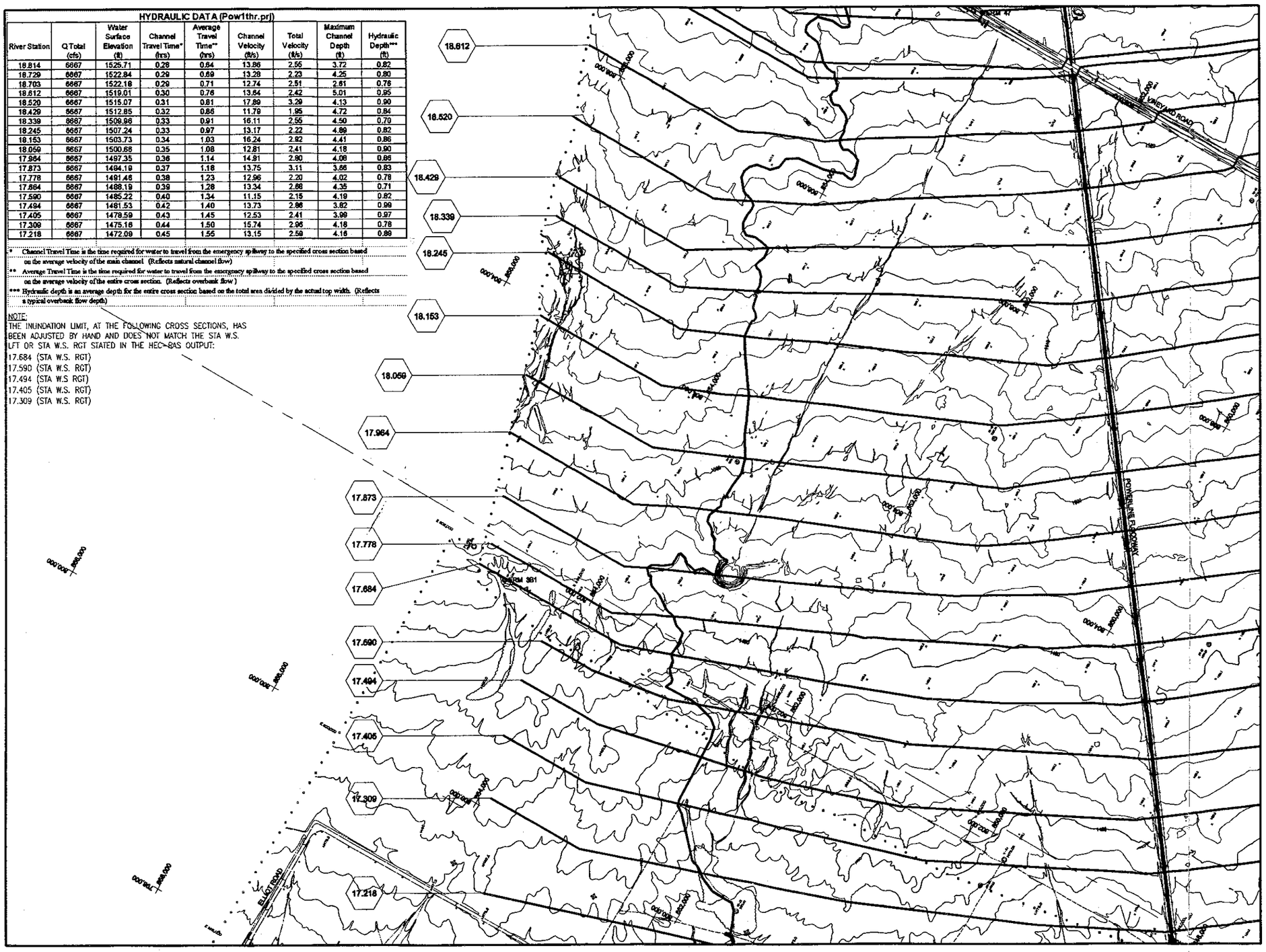
River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
18.814	6667	1525.71	0.28	0.84	13.86	2.55	3.72	0.82
18.729	6667	1522.84	0.29	0.89	13.28	2.23	4.25	0.80
18.703	6667	1522.18	0.29	0.71	12.74	2.51	2.61	0.76
18.612	6667	1519.01	0.30	0.76	13.64	2.42	5.01	0.95
18.520	6667	1515.07	0.31	0.81	17.89	3.29	4.13	0.90
18.429	6667	1512.85	0.32	0.86	11.79	1.95	4.72	0.84
18.339	6667	1509.96	0.33	0.91	16.11	2.55	4.50	0.70
18.245	6667	1507.24	0.33	0.97	13.17	2.22	4.89	0.82
18.153	6667	1503.73	0.34	1.03	16.24	2.92	4.41	0.86
18.059	6667	1500.68	0.35	1.08	12.81	2.41	4.18	0.90
17.964	6667	1497.35	0.36	1.14	14.91	2.80	4.08	0.86
17.873	6667	1494.19	0.37	1.18	13.75	3.11	3.66	0.83
17.778	6667	1491.46	0.38	1.23	12.96	2.20	4.02	0.78
17.684	6667	1488.19	0.39	1.28	13.34	2.88	4.35	0.71
17.590	6667	1485.22	0.40	1.34	11.15	2.15	4.19	0.82
17.494	6667	1481.53	0.42	1.40	13.73	2.98	3.82	0.99
17.405	6667	1478.59	0.43	1.45	12.53	2.41	3.99	0.97
17.309	6667	1475.16	0.44	1.50	15.74	2.95	4.18	0.78
17.218	6667	1472.09	0.45	1.55	13.15	2.59	4.16	0.89

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
17.684 (STA W.S. RGT)
17.590 (STA W.S. RGT)
17.494 (STA W.S RGT)
17.405 (STA W.S. RGT)
17.309 (STA W.S. RGT)



LEGEND

INUNDATION AREA BOUNDARY
HYDRAULIC BASE LINE WITH RIVER MILE — MI 20 — MI 5.0
CROSS SECTION — 2.147 WSE 2.147
STREET FLOW — SF
ELEVATION REFERENCE MARK — ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary
PANEL POINT
MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

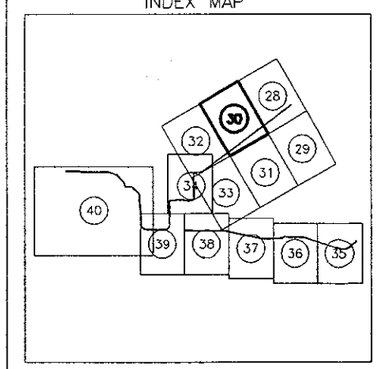
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
3B1	1493.540	SET ½" REBAR ½ MILE EAST OF MOUNTAIN RD & 300' SOUTH OF ELLIOTT RD. N: 854,742.886 E: 801,785.386
47	1524.110	SET ½" REBAR 200' EAST OF VINEYARD RD. & 1200' NORTH OF THE POWERLINE FLOODWAY. N: 853,571.871 E: 808,018.738

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

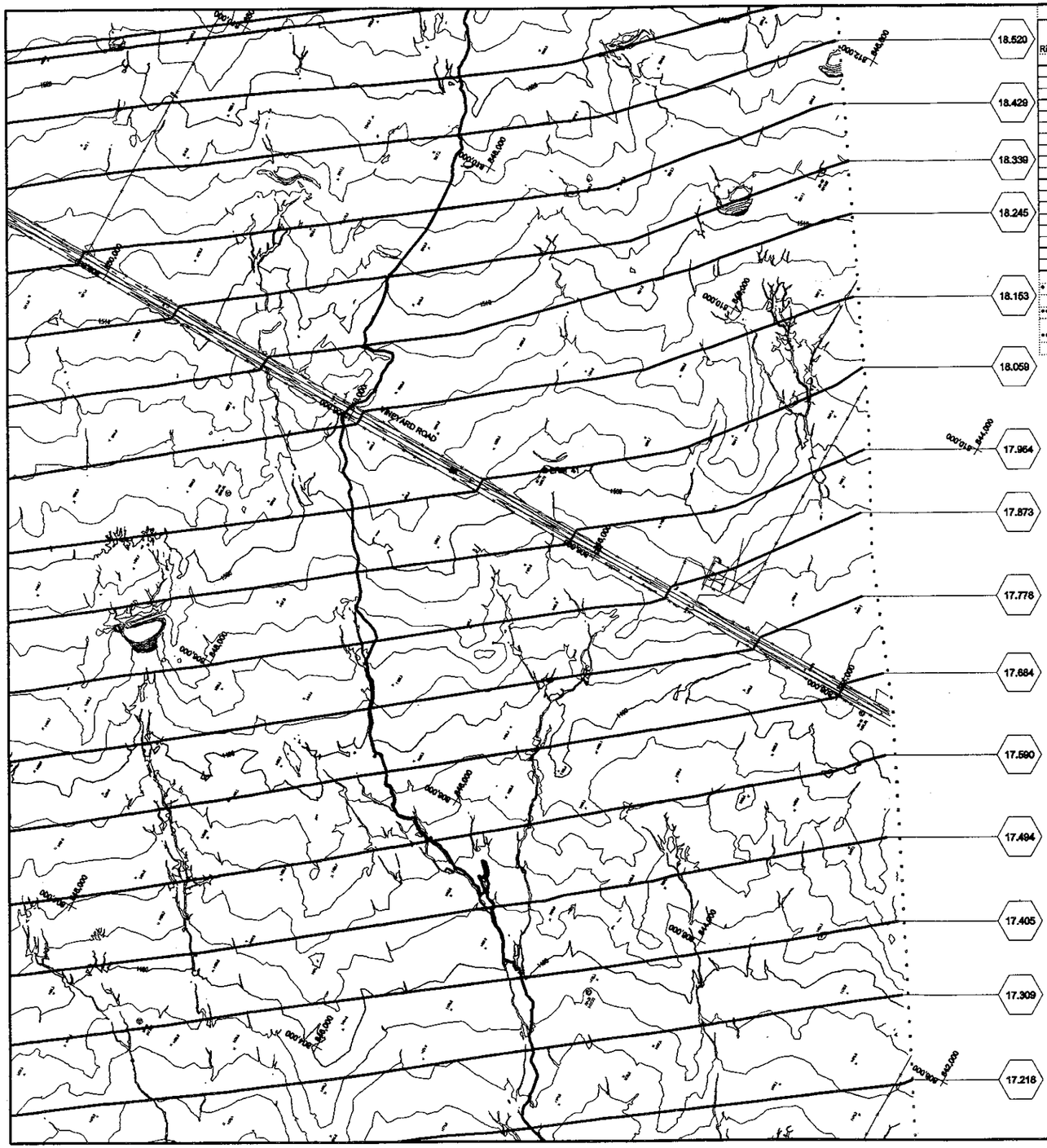
SHEET 30 OF 40

WEST SIDE AERIAL MAPPING
PROVIDED BY: FCDMC TO BAKER AS A RASTER IMAGE
(QUEEN CREEK ADMS TOPOGRAPHIC MAPS, FCD 86-23)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING PROVIDED BY:
M&B AERIAL MAPPING, LLC,
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA FOR EASTSIDE MAPPING
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA (Pow1thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
18.729	6667	1522.84	0.29	0.69	13.28	2.23	4.25	0.80
18.703	6667	1522.18	0.29	0.71	12.74	2.51	2.61	0.76
18.612	6667	1519.01	0.30	0.76	13.64	2.42	5.01	0.95
18.520	6667	1515.07	0.31	0.81	17.89	3.29	4.13	0.90
18.429	6667	1512.85	0.32	0.86	11.79	1.95	4.72	0.84
18.339	6667	1509.96	0.33	0.91	16.11	2.55	4.50	0.70
18.245	6667	1507.24	0.33	0.97	13.17	2.22	4.89	0.82
18.153	6667	1503.73	0.34	1.03	16.24	2.92	4.41	0.86
18.059	6667	1500.66	0.35	1.08	12.81	2.41	4.18	0.90
17.964	6667	1497.35	0.36	1.14	14.91	2.80	4.08	0.86
17.873	6667	1494.19	0.37	1.18	13.75	3.11	3.66	0.83
17.778	6667	1491.48	0.38	1.23	12.96	2.20	4.02	0.78
17.684	6667	1488.19	0.39	1.28	13.34	2.68	4.35	0.71
17.590	6667	1485.22	0.40	1.34	11.15	2.15	4.19	0.82
17.494	6667	1481.53	0.42	1.40	13.73	2.86	3.82	0.99
17.405	6667	1478.59	0.43	1.45	12.53	2.41	3.99	0.97
17.309	6667	1475.16	0.44	1.50	15.74	2.96	4.18	0.78
17.218	6667	1472.09	0.45	1.55	13.15	2.59	4.16	0.89

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:

18.612 (STA W.S. LFT)
18.520 (STA W.S. LFT)
18.429 (STA W.S. LFT)
18.339 (STA W.S. LFT)
18.245 (STA W.S. LFT)
17.964 (STA W.S. LFT)
17.309 (STA W.S. LFT)
17.218 (STA W.S. LFT)

LEGEND

INUNDATION AREA BOUNDARY
HYDRAULIC BASE LINE WITH RIVER MILE — MI2.0 MI3.0
CROSS SECTION — 2.147 WSE 2.147
STREET FLOW — SF
ELEVATION REFERENCE MARK — ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary
PANEL POINT
MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

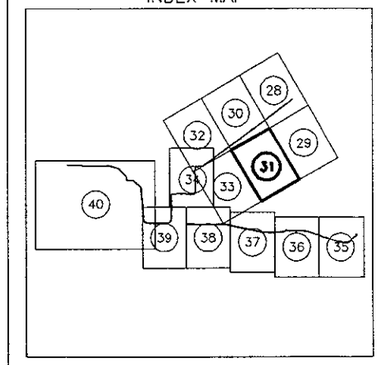
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1928 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
41	1499.790	SET ½" REBAR 300' EAST OF VINEYARD RD. & 6000' SOUTH OF THE POWERLINE FLOODWAY. N: 846,608.173 E: 808,349.531

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KORI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

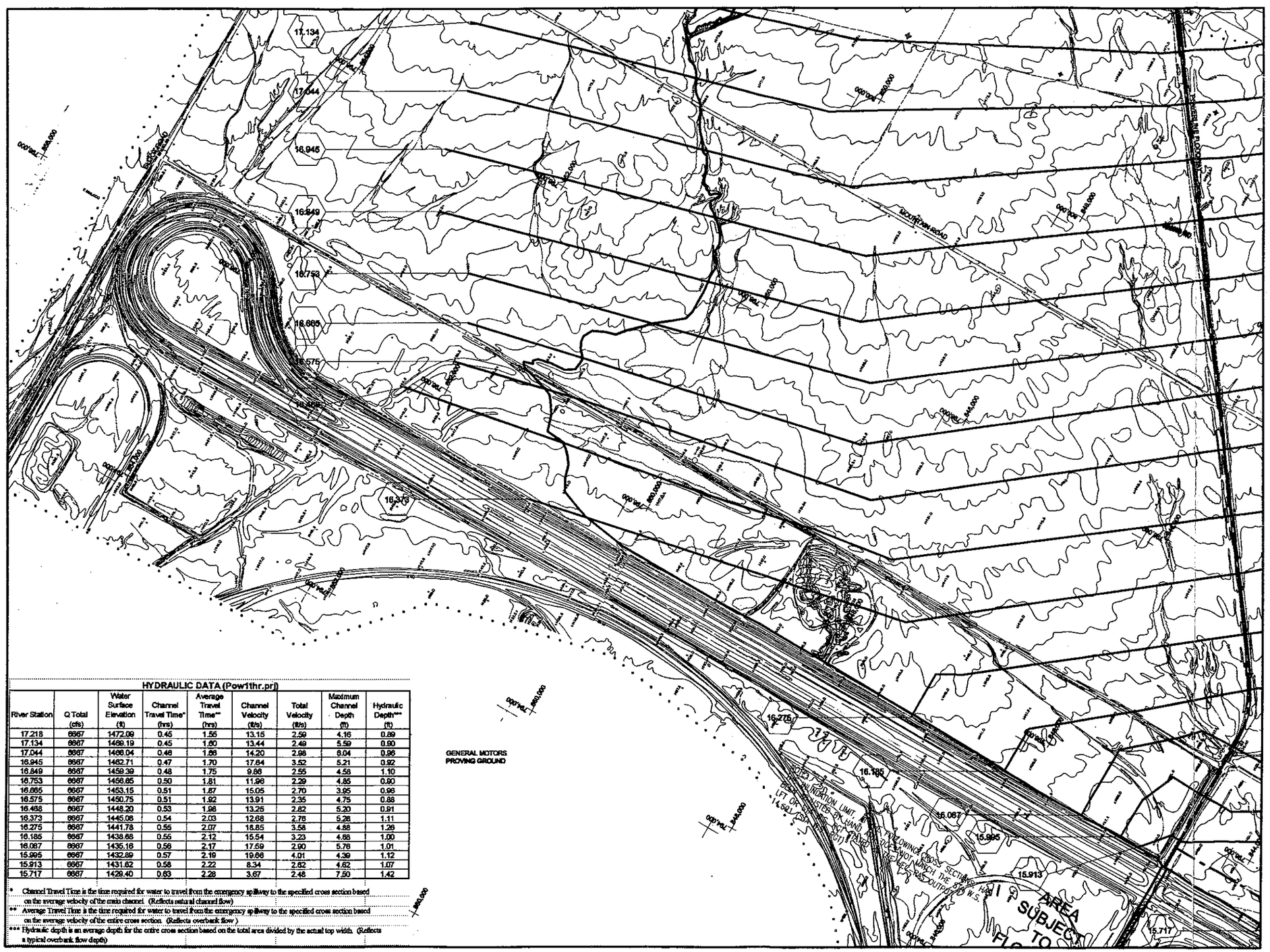
	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 31 OF 40

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

AERIAL MAPPING PROVIDED BY:
M&B AERIAL MAPPING, LLC.
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING.
3747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA (Pow1thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
17.218	6667	1472.09	0.45	1.55	13.15	2.59	4.16	0.89
17.134	6667	1469.19	0.45	1.60	13.44	2.49	5.59	0.90
17.044	6667	1466.04	0.46	1.66	14.20	2.98	6.04	0.96
16.945	6667	1462.71	0.47	1.70	17.64	3.52	5.21	0.92
16.849	6667	1459.39	0.48	1.75	9.86	2.55	4.58	1.10
16.753	6667	1456.65	0.50	1.81	11.96	2.29	4.85	0.90
16.665	6667	1453.15	0.51	1.87	15.05	2.70	3.95	0.98
16.575	6667	1450.75	0.51	1.92	13.91	2.35	4.75	0.88
16.468	6667	1448.20	0.53	1.96	13.25	2.82	5.20	0.91
16.373	6667	1445.08	0.54	2.03	12.68	2.76	5.28	1.11
16.275	6667	1441.78	0.55	2.07	18.85	3.58	4.88	1.26
16.185	6667	1438.68	0.55	2.12	15.54	3.23	4.68	1.00
16.087	6667	1435.16	0.56	2.17	17.59	2.90	5.76	1.01
15.995	6667	1432.89	0.57	2.19	19.66	4.01	4.39	1.12
15.913	6667	1431.62	0.58	2.22	8.34	2.62	4.62	1.07
15.717	6667	1429.40	0.63	2.28	3.67	2.48	7.50	1.42

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	M12.0 — M13.0
CROSS SECTION	2.147 WSE 2.147
STREET FLOW	SF
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	
MAPPING BOUNDARY	

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

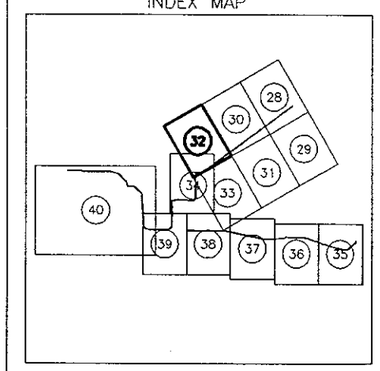
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1 - THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000

2 - STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——► SYMBOL.

INDEX MAP



400' 0' 400' 800'

SCALE: 1" = 400 FEET

CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI ANUMAH Date Signed ARIZONA, U.S.A.

Baker

Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

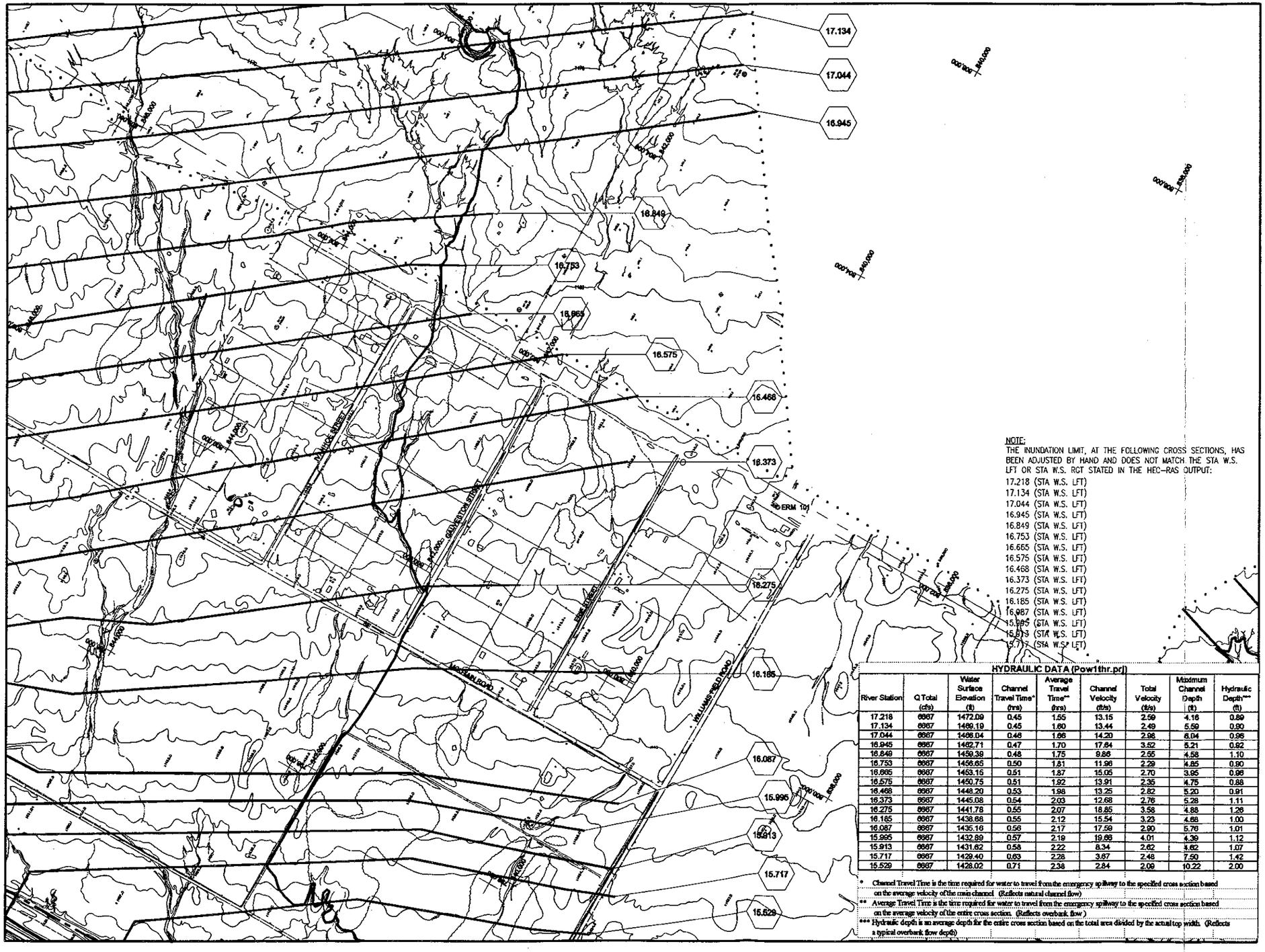
SHEET 32 OF 40

WEST SIDE AERIAL MAPPING PROVIDED BY: FCDMC TO BAKER AS RASTER IMAGES (QUEEN CREEK ADMS TOPOGRAPHIC MAPS, FCD 86-23)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING PROVIDED BY: M&S AERIAL MAPPING, LLC, ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA FOR EAST SIDE MAPPING PROVIDED BY: AZTEC ENGINEERING, 3747 East Grove Street, Phoenix, AZ 85040



NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:

17.218 (STA W.S. LFT)
17.134 (STA W.S. LFT)
17.044 (STA W.S. LFT)
16.945 (STA W.S. LFT)
16.849 (STA W.S. LFT)
16.753 (STA W.S. LFT)
16.665 (STA W.S. LFT)
16.575 (STA W.S. LFT)
16.468 (STA W.S. LFT)
16.373 (STA W.S. LFT)
16.275 (STA W.S. LFT)
16.185 (STA W.S. LFT)
16.087 (STA W.S. LFT)
15.995 (STA W.S. LFT)
15.913 (STA W.S. LFT)
15.717 (STA W.S. LFT)
15.529 (STA W.S. LFT)

HYDRAULIC DATA (Pow1thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
17.218	6667	1472.09	0.45	1.55	13.15	2.59	4.16	0.89
17.134	6667	1469.19	0.45	1.60	13.44	2.49	5.59	0.90
17.044	6667	1466.04	0.46	1.66	14.20	2.98	6.04	0.96
16.945	6667	1462.71	0.47	1.70	17.84	3.52	5.21	0.92
16.849	6667	1459.39	0.48	1.75	9.86	2.55	4.58	1.10
16.753	6667	1456.65	0.50	1.81	11.96	2.29	4.85	0.90
16.665	6667	1453.15	0.51	1.87	15.05	2.70	3.95	0.96
16.575	6667	1450.75	0.51	1.92	13.91	2.35	4.75	0.88
16.468	6667	1448.20	0.53	1.98	13.25	2.82	5.20	0.91
16.373	6667	1445.08	0.54	2.03	12.68	2.76	5.28	1.11
16.275	6667	1441.78	0.55	2.07	18.85	3.58	4.88	1.26
16.185	6667	1438.68	0.55	2.12	15.54	3.23	4.68	1.00
16.087	6667	1435.16	0.56	2.17	17.59	2.90	5.76	1.01
15.995	6667	1432.89	0.57	2.19	19.68	4.01	4.39	1.12
15.913	6667	1431.62	0.58	2.22	8.34	2.62	4.62	1.07
15.717	6667	1429.40	0.63	2.28	3.67	2.48	7.50	1.42
15.529	6667	1428.02	0.71	2.38	2.84	2.09	10.22	2.00

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M12.0 — M13.0

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

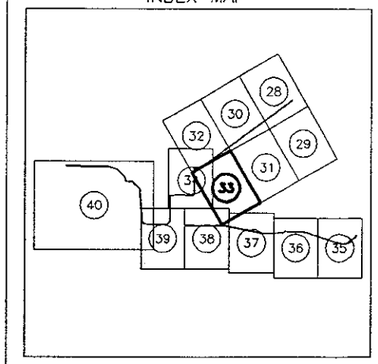
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
101	1450.880	FOUND BENT GLO CAP @ S.W. COR SEC 30 T.1S., R8E. N: 839,631.600 E: 801,944.211

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——— SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KORI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

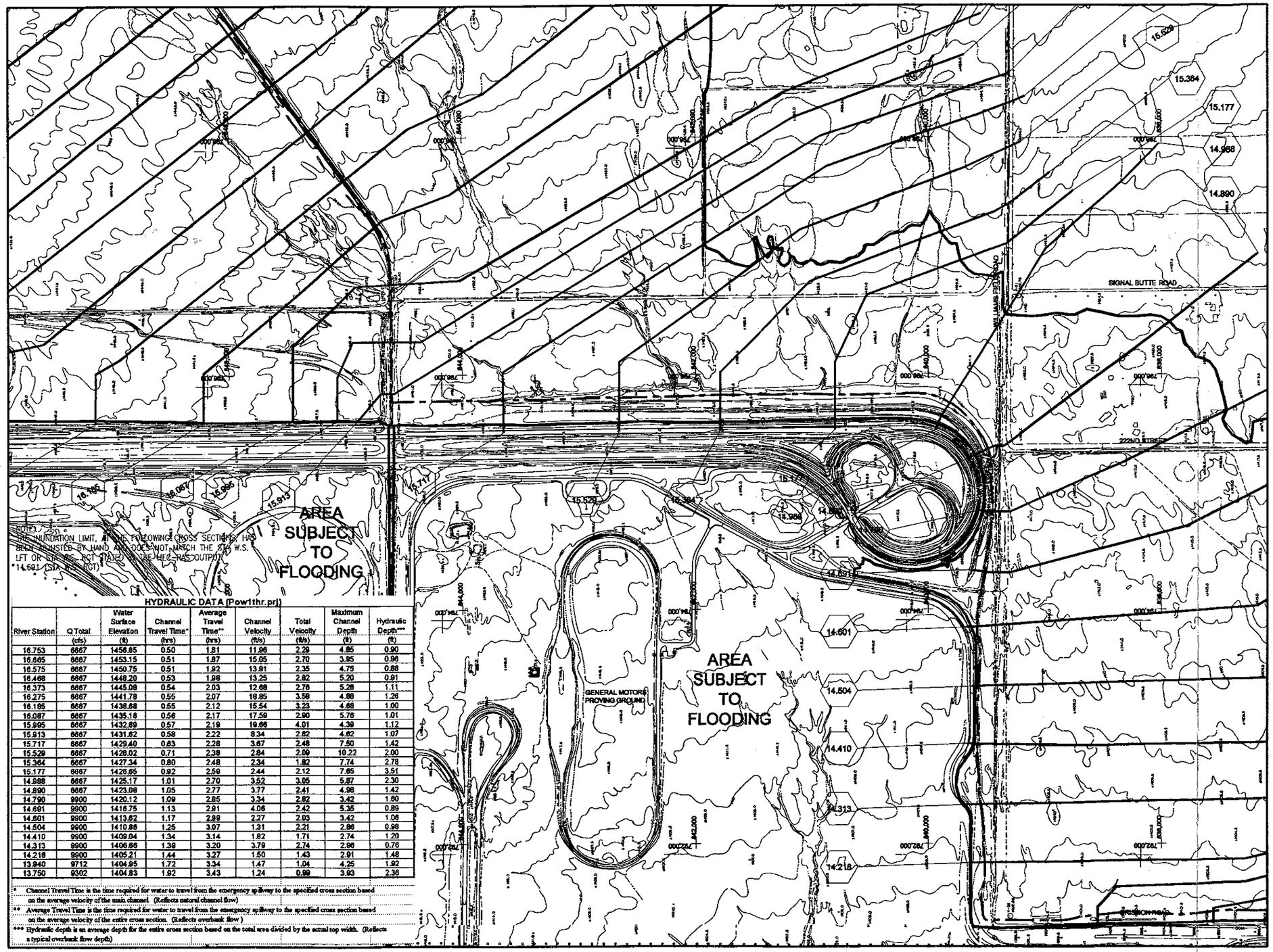
SHEET 33 OF 40

WEST SIDE AERIAL MAPPING
PROVIDED BY: FCDMC TO BAKER AS RASTER IMAGES
(QUEEN CREEK ADMS TOPOGRAPHIC MAPS, FCD 86-23)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING PROVIDED BY:
M&B AERIAL MAPPING, LLC.
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA FOR EAST SIDE MAPPING
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040



NOTE: THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR CTR ELEV. NOT STATED IN THE HEC-RAS OUTPUT.
"14.691 (STA 16.166 RCT)"

HYDRAULIC DATA (Pow1thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
16.753	6667	1456.85	0.50	1.81	11.96	2.29	4.85	0.90
16.665	6667	1453.15	0.51	1.87	15.05	2.70	3.85	0.96
16.575	6667	1450.75	0.51	1.92	13.91	2.35	4.75	0.88
16.468	6667	1448.20	0.53	1.98	13.25	2.82	5.20	0.91
16.373	6667	1445.08	0.54	2.03	12.68	2.76	5.28	1.11
16.275	6667	1441.78	0.55	2.07	18.85	3.58	4.88	1.26
16.165	6667	1438.68	0.55	2.12	15.54	3.23	4.68	1.00
16.067	6667	1435.18	0.56	2.17	17.59	2.90	5.78	1.01
15.995	6667	1432.89	0.57	2.19	19.66	4.01	4.39	1.12
15.913	6667	1431.62	0.58	2.22	8.34	2.62	4.62	1.07
15.717	6667	1429.40	0.63	2.28	3.67	2.48	7.50	1.42
15.529	6667	1428.02	0.71	2.38	2.84	2.09	10.22	2.00
15.364	6667	1427.34	0.80	2.48	2.34	1.82	7.74	2.78
15.177	6667	1426.65	0.92	2.59	2.44	2.12	7.65	3.51
14.988	6667	1425.17	1.01	2.70	3.52	3.05	5.87	2.30
14.890	6667	1423.08	1.05	2.77	3.77	2.41	4.98	1.42
14.790	9900	1420.12	1.09	2.85	3.34	2.82	3.42	1.60
14.691	9900	1416.75	1.13	2.91	4.06	2.42	5.35	0.89
14.601	9900	1413.62	1.17	2.99	2.27	2.03	3.42	1.06
14.504	9900	1410.88	1.25	3.07	1.31	2.21	2.86	0.98
14.410	9900	1409.04	1.34	3.14	1.82	1.71	2.74	1.20
14.313	9900	1406.66	1.39	3.20	3.79	2.74	2.96	0.76
14.218	9900	1405.21	1.44	3.27	1.50	1.43	2.91	1.48
13.940	9712	1404.95	1.72	3.34	1.47	1.04	4.25	1.92
13.750	9302	1404.83	1.92	3.43	1.24	0.99	3.93	2.36

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M12.0 — M13.0

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

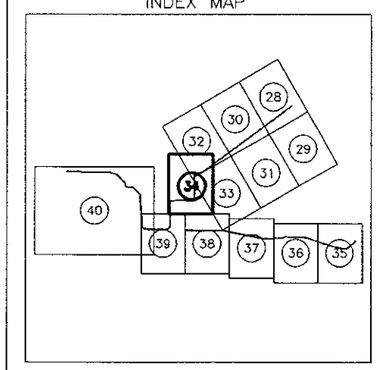
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1– THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000

2– STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL.

INDEX MAP



400' 0' 400' 800'

SCALE: 1" = 400 FEET

CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AMUAH Date Signed ARIZONA, U.S.A.

Baker

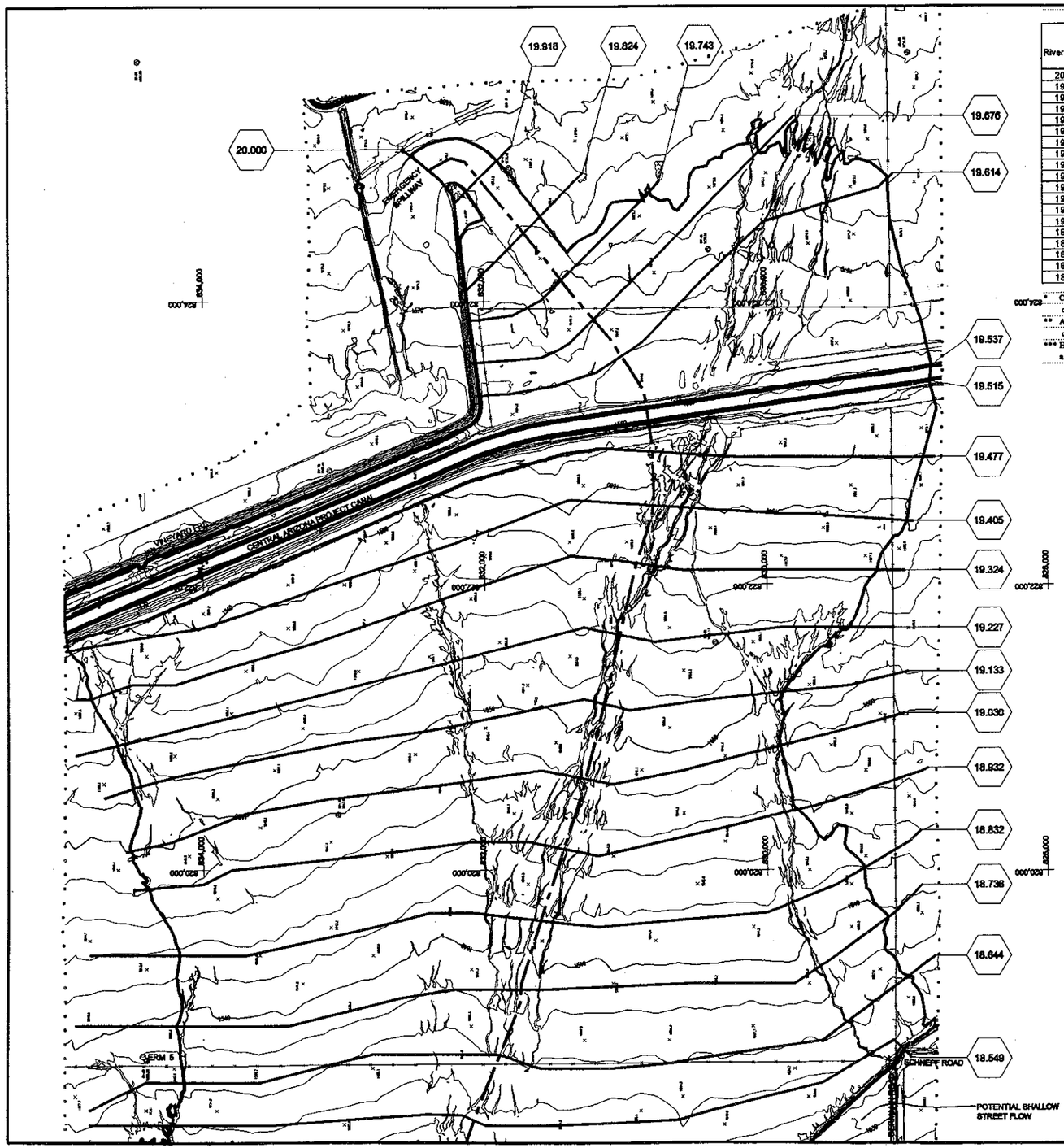
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 34 OF 40

MAPPING PROVIDED BY:
FCDMC TO BAKER AS A RASTER IMAGE
(QUEEN CREEK ADMS TOPOGRAPHIC MAPS, FCD 86-23)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.



HYDRAULIC DATA (Vin11hr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
20.000	3233	1578.39	0.00	0.00	3.14	3.14	3.48	2.89
19.918	3233	1575.34	0.02	0.03	6.12	6.12	1.92	1.71
19.824	3233	1573.95	0.05	0.05	5.08	5.08	2.80	1.97
19.743	3233	1574.05	0.08	0.09	1.41	1.39	5.44	3.75
19.676	3233	1574.05	0.18	0.19	0.56	0.57	6.99	5.81
19.614	3233	1574.04	0.38	0.37	0.35	0.34	8.70	7.57
19.537	3233	1573.99	0.52	0.52	1.30	1.33	2.84	1.14
19.515	3233	1573.83	0.54	0.53	2.31	3.43	2.56	0.46
19.477	3233	1561.18	0.54	0.54	19.28	19.28	2.90	0.67
19.405	3233	1559.73	0.65	0.55	3.18	2.47	5.03	0.80
19.324	3233	1556.75	0.59	0.60	2.69	2.34	5.09	0.68
19.227	3233	1553.45	0.65	0.66	2.32	2.33	4.32	0.93
19.133	3233	1550.74	0.71	0.72	1.97	2.24	3.87	1.08
19.030	3233	1548.31	0.79	0.78	1.84	2.14	3.86	0.90
18.932	3233	1545.17	0.86	0.83	2.68	2.35	3.24	0.84
18.832	3233	1542.00	0.92	0.91	1.91	1.51	3.45	0.84
18.736	3233	1539.20	0.99	0.99	1.89	1.83	3.23	0.57
18.644	3233	1536.30	1.08	1.07	1.37	1.48	2.86	0.50
18.549	3233	1533.81	1.16	1.15	2.11	1.75	4.25	0.51

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
19.477 (STA W.S. RGT AND LFT)
19.030 (STA W.S. RGT)
18.932 (STA W.S. RGT)
18.832 (STA W.S. RGT)

LEGEND

INUNDATION AREA BOUNDARY
HYDRAULIC BASE LINE WITH RIVER MILE (#12.0, #13.0)
CROSS SECTION (2.147 WSE 2.147)
STREET FLOW (SF)
ELEVATION REFERENCE MARK (ERM XXX)
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY (County Boundary)
PANEL POINT
MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

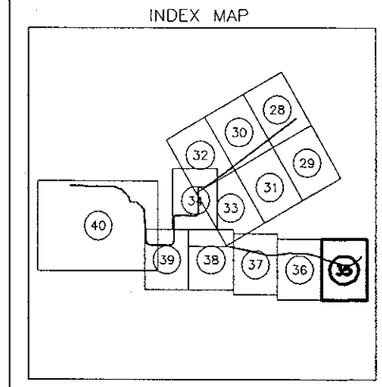
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929.
CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
5	1539.330	FOUND GLO BRASS CAP @ SE COR. SEC. 33, T.1S., R.8E. N: 834,415.003 E: 816,655.270

NOTES

1– THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2– STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——— SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

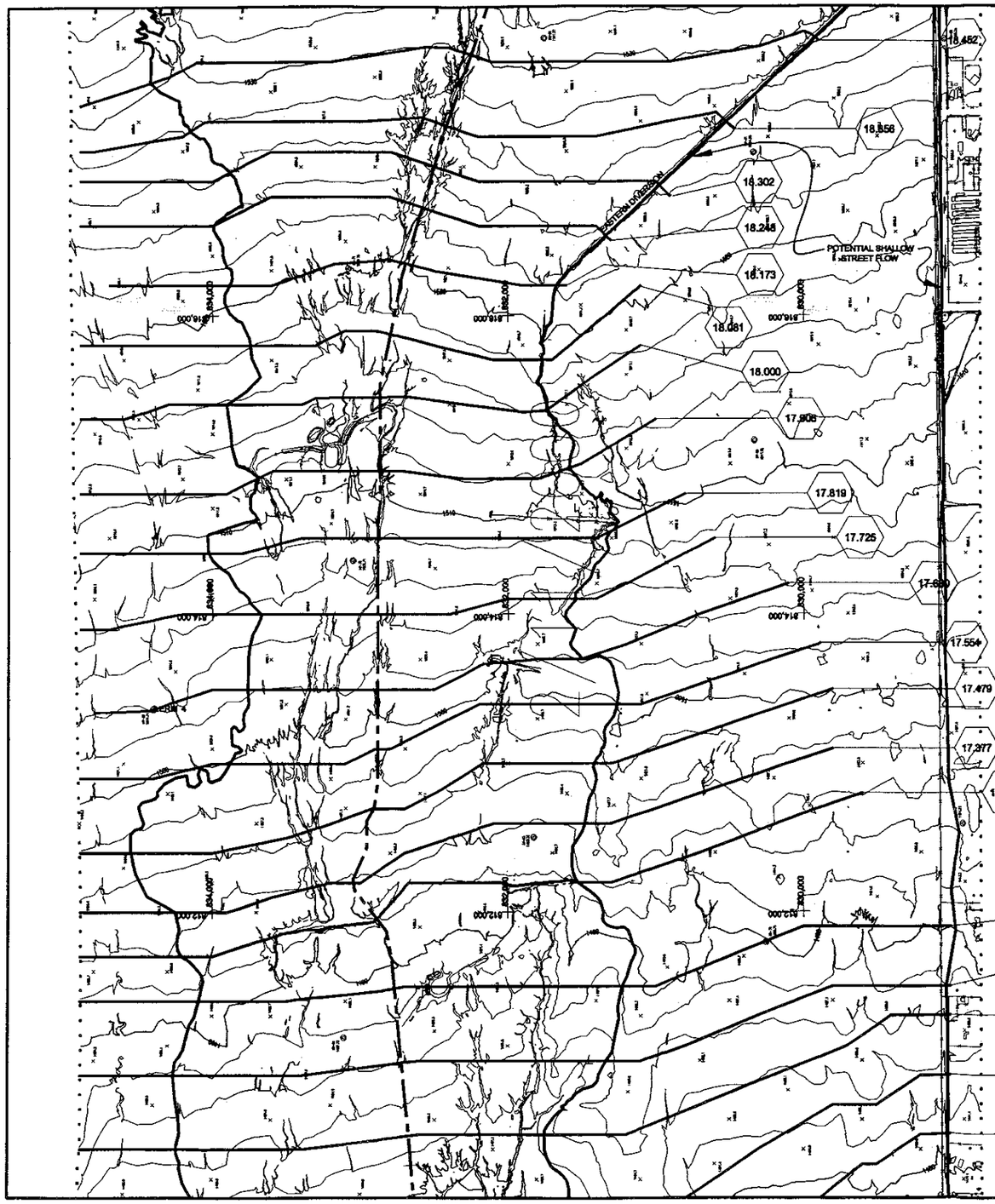
	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 35 OF 40

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR: 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

AERIAL MAPPING PROVIDED BY:
MAB AERIAL MAPPING, LLC,
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 Foil Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA (Vln1thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
18.452	3233	1530.39	1.22	1.23	2.27	1.78	4.39	0.51
18.356	3233	1527.48	1.28	1.30	2.74	1.73	4.48	0.59
18.302	3233	1525.86	1.30	1.34	3.28	2.52	3.82	0.59
18.248	3233	1523.89	1.33	1.38	3.02	2.01	3.83	0.76
18.173	3233	1521.08	1.37	1.43	3.04	2.57	2.75	0.87
18.081	3233	1518.06	1.42	1.49	2.37	2.03	3.22	0.85
18.000	3233	1515.71	1.47	1.54	2.21	2.17	3.85	0.83
17.908	3233	1512.33	1.51	1.60	3.67	2.36	4.57	0.71
17.819	3233	1508.89	1.55	1.66	2.81	2.13	3.50	0.82
17.725	3233	1505.44	1.61	1.72	2.02	2.04	2.88	0.74
17.630	3233	1502.22	1.67	1.77	2.43	2.45	4.56	0.70
17.554	3233	1499.88	1.72	1.82	1.98	1.75	4.52	0.71
17.479	3233	1497.17	1.78	1.89	1.89	1.82	3.43	0.82
17.377	3233	1494.83	1.88	1.98	1.50	1.56	3.05	0.74
17.321	3233	1493.08	1.92	2.00	2.54	2.59	3.20	0.82
17.227	3233	1488.08	2.00	2.06	0.79	3.50	5.05	1.32
17.132	3233	1485.49	2.20	2.11	0.61	2.63	4.69	1.38
17.038	3233	1482.92	2.34	2.16	1.31	2.73	4.67	0.90
16.945	3233	1480.21	2.41	2.21	2.86	2.19	4.33	0.90
16.850	3233	1478.18	2.48	2.26	2.62	2.00	3.89	0.96

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
17.227 (STA W.S. RGT)
17.132 (STA W.S. RGT)
17.038 (STA W.S. RGT)

LEGEND

INUNDATION AREA BOUNDARY
HYDRAULIC BASE LINE WITH RIVER MILE — M13.0 — M13.0
CROSS SECTION — 2.147 WSE 2.147
STREET FLOW — SF
ELEVATION REFERENCE MARK — ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary
PANEL POINT
MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

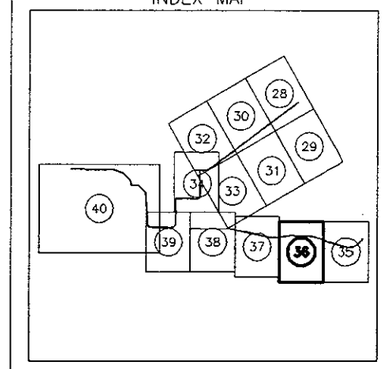
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
4	1504.420	FOUND GLO BRASS CAP @ SW COR. SEC. 33, T.1S., R.8E N: 828,653.28 E:762,457.54

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

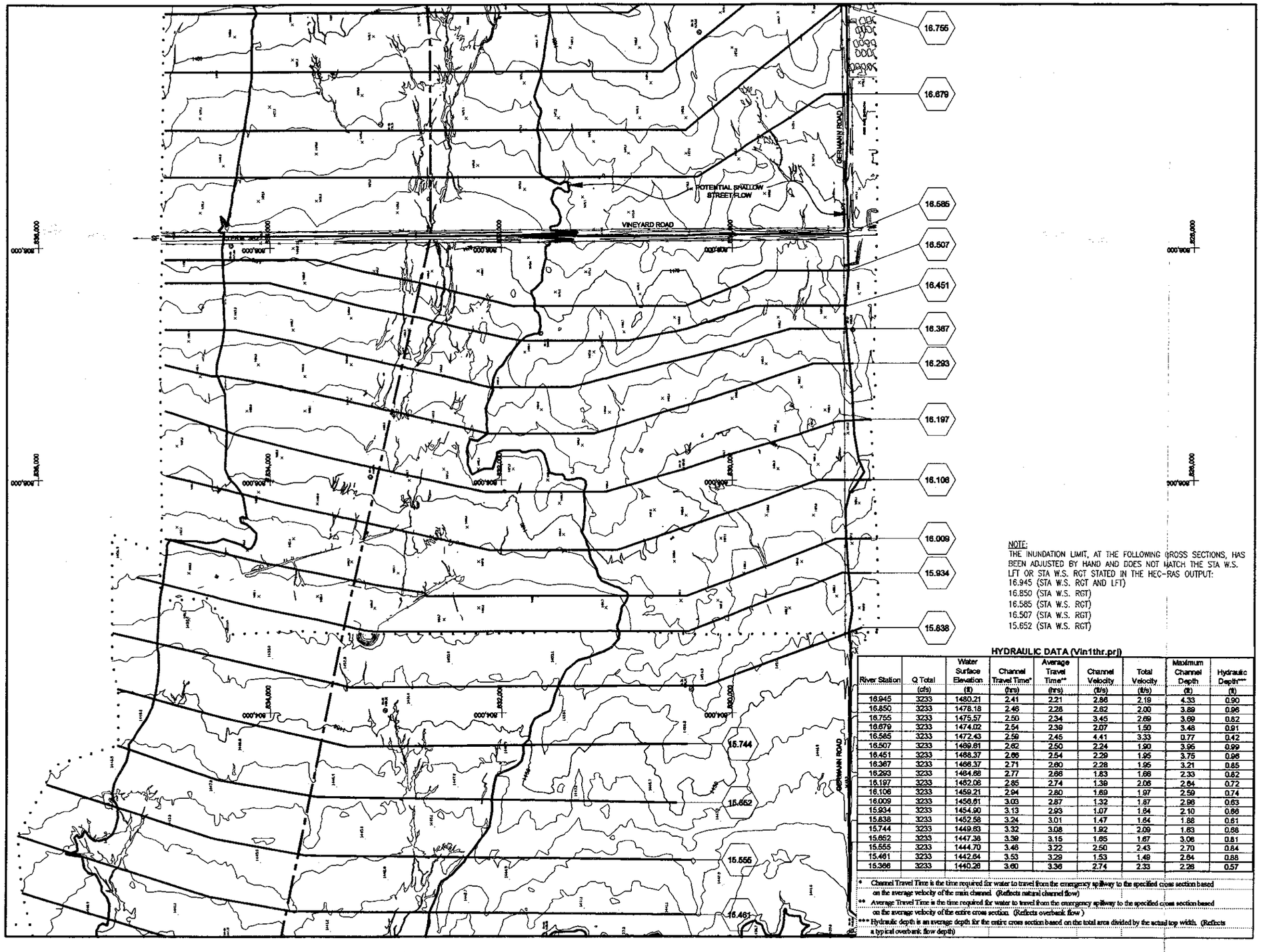
	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 36 OF 40

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

AERIAL MAPPING PROVIDED BY:
M&B AERIAL MAPPING, LLC,
ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA
PROVIDED BY: AZTEC ENGINEERING,
3747 East Grove Street, Phoenix, AZ 85040



NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:
16.945 (STA W.S. RGT AND LFT)
16.850 (STA W.S. RGT)
16.585 (STA W.S. RGT)
16.507 (STA W.S. RGT)
15.652 (STA W.S. RGT)

HYDRAULIC DATA (Vin1thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
16.945	3233	1480.21	2.41	2.21	2.86	2.19	4.33	0.90
16.850	3233	1478.18	2.46	2.28	2.62	2.00	3.89	0.96
16.755	3233	1475.57	2.50	2.34	3.45	2.69	3.69	0.82
16.679	3233	1474.02	2.54	2.39	2.07	1.50	3.48	0.91
16.585	3233	1472.43	2.59	2.45	4.41	3.33	0.77	0.42
16.507	3233	1469.61	2.62	2.50	2.24	1.90	3.96	0.99
16.451	3233	1468.37	2.66	2.54	2.29	1.95	3.75	0.96
16.367	3233	1466.37	2.71	2.60	2.28	1.95	3.21	0.85
16.293	3233	1464.68	2.77	2.66	1.83	1.68	2.33	0.82
16.197	3233	1462.06	2.85	2.74	1.39	2.06	2.84	0.72
16.108	3233	1459.21	2.94	2.80	1.69	1.97	2.59	0.74
16.009	3233	1456.61	3.03	2.87	1.32	1.87	2.98	0.63
15.934	3233	1454.90	3.13	2.93	1.07	1.64	2.10	0.86
15.838	3233	1452.58	3.24	3.01	1.47	1.64	1.88	0.61
15.744	3233	1449.63	3.32	3.08	1.92	2.09	1.63	0.88
15.652	3233	1447.38	3.39	3.15	1.85	1.67	3.06	0.81
15.555	3233	1444.70	3.48	3.22	2.50	2.43	2.70	0.84
15.461	3233	1442.84	3.53	3.29	1.53	1.49	2.64	0.88
15.366	3233	1440.28	3.60	3.36	2.74	2.33	2.28	0.57

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M13.0 — M13.0

CROSS SECTION — 2.147 — WSE — 2.147

STREET FLOW — SF →

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

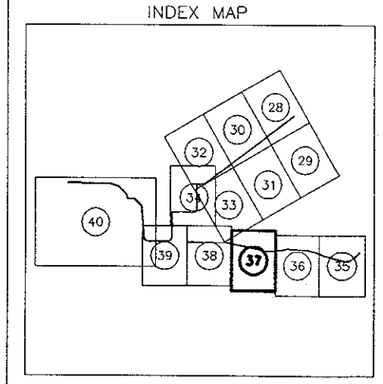
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
3B2	1472.730	FOUND GLO BRASS CAP @ NE COR. SEC. 6, T.2S., R.8E N: 834,374.097 E: 808,087.804

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF → SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

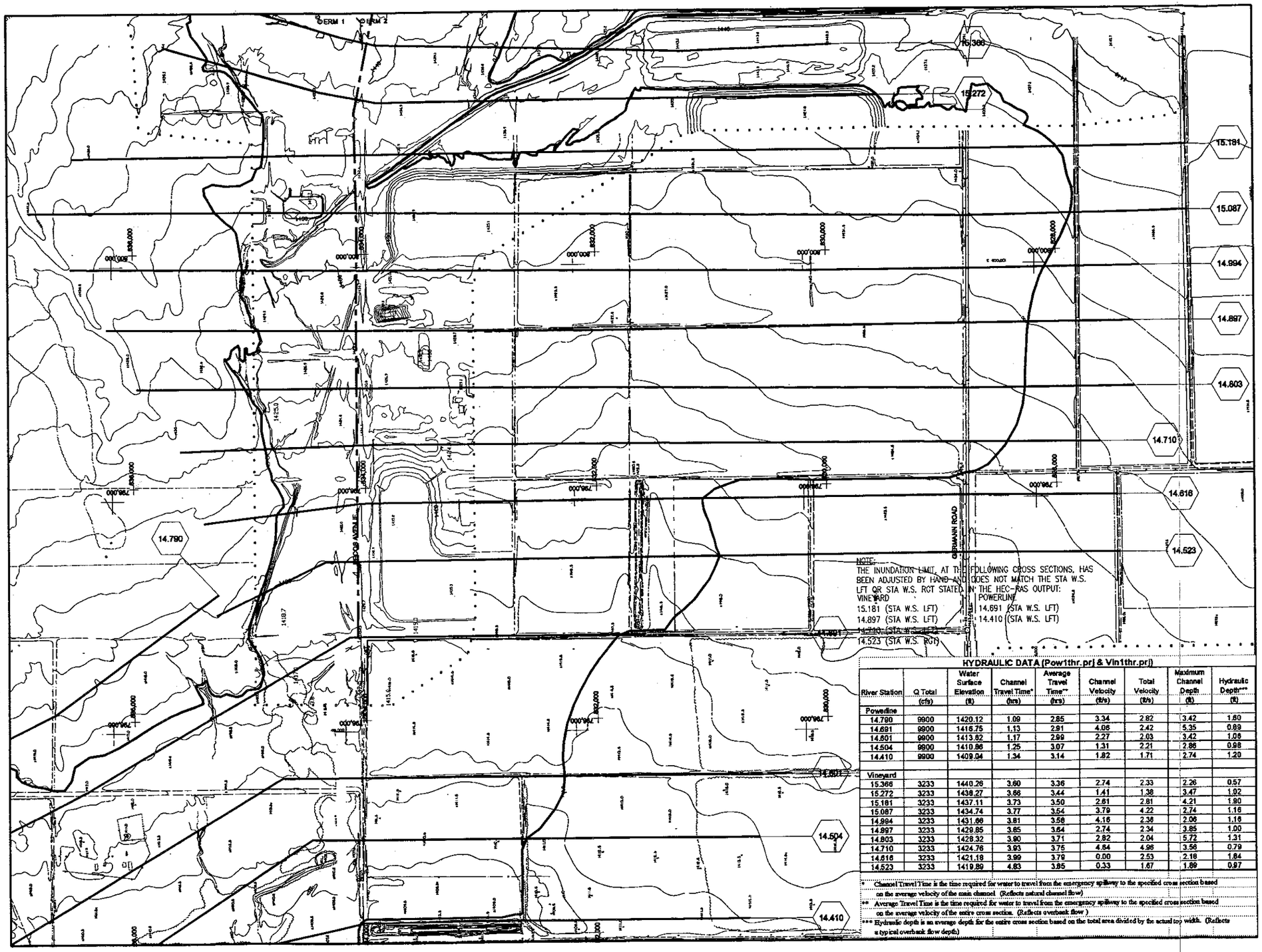
SHEET 37 OF 40

WEST SIDE AERIAL MAPPING PROVIDED BY: FCDMC TO BAKER (SE MESA ADMP FCD 95-32)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

EAST SIDE AERIAL MAPPING PROVIDED BY: M&B AERIAL MAPPING, LLC, ONE WEST DEER VALLEY ROAD #206, PHOENIX, AZ 85027

GROUND CONTROL SURVEY DATA FOR EAST SIDE MAPPING PROVIDED BY: AZTEC ENGINEERING, 3747 East Grove Street, Phoenix, AZ 85040



HYDRAULIC DATA (Pow1thr.prj & Vin1thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
Powerline								
14.790	9900	1420.12	1.09	2.85	3.34	2.82	3.42	1.80
14.691	9900	1416.75	1.13	2.91	4.06	2.42	5.35	0.89
14.601	9900	1413.82	1.17	2.99	2.27	2.03	3.42	1.06
14.504	9900	1410.86	1.25	3.07	1.31	2.21	2.86	0.98
14.410	9900	1409.04	1.34	3.14	1.82	1.71	2.74	1.20
Vineyard								
15.366	3233	1440.26	3.60	3.36	2.74	2.33	2.26	0.57
15.272	3233	1438.27	3.66	3.44	1.41	1.38	3.47	1.02
15.181	3233	1437.11	3.73	3.50	2.61	2.81	4.21	1.90
15.087	3233	1434.74	3.77	3.54	3.79	4.22	2.74	1.16
14.994	3233	1431.66	3.81	3.58	4.16	2.38	2.06	1.16
14.897	3233	1429.85	3.85	3.64	2.74	2.34	3.85	1.00
14.803	3233	1428.32	3.90	3.71	2.82	2.04	5.72	1.31
14.710	3233	1424.76	3.93	3.75	4.64	4.96	3.56	0.79
14.616	3233	1421.18	3.99	3.79	0.00	2.53	2.18	1.84
14.523	3233	1419.89	4.03	3.85	0.33	1.67	1.89	0.97

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY	
HYDRAULIC BASE LINE WITH RIVER MILE	HBL 15.0 — HBL 13.0
CROSS SECTION	2.147 — WSE — 2.147
STREET FLOW	SF →
ELEVATION REFERENCE MARK	ERM XXX
COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY	County Boundary
PANEL POINT	△
MAPPING BOUNDARY	

ELEVATION REFERENCE MARKS

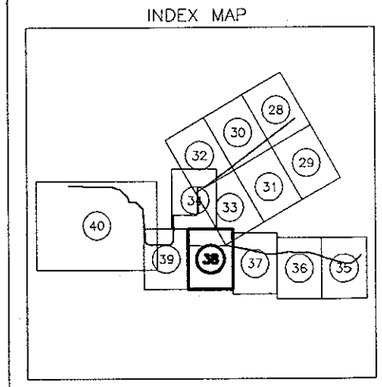
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION
1	1441.980	FOUND GLO BRASS CAP @ SE COR. SEC. 36. T.1S., R.7E. N: 833,987.778 E: 802,006.580
2	1441.450	FOUND GLO BRASS CAP @ NW COR. SEC. 6. T.2S., R.8E. N: 833,987.778 E: 802,006.580

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——— SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker
Michael Baker Jr., Inc.

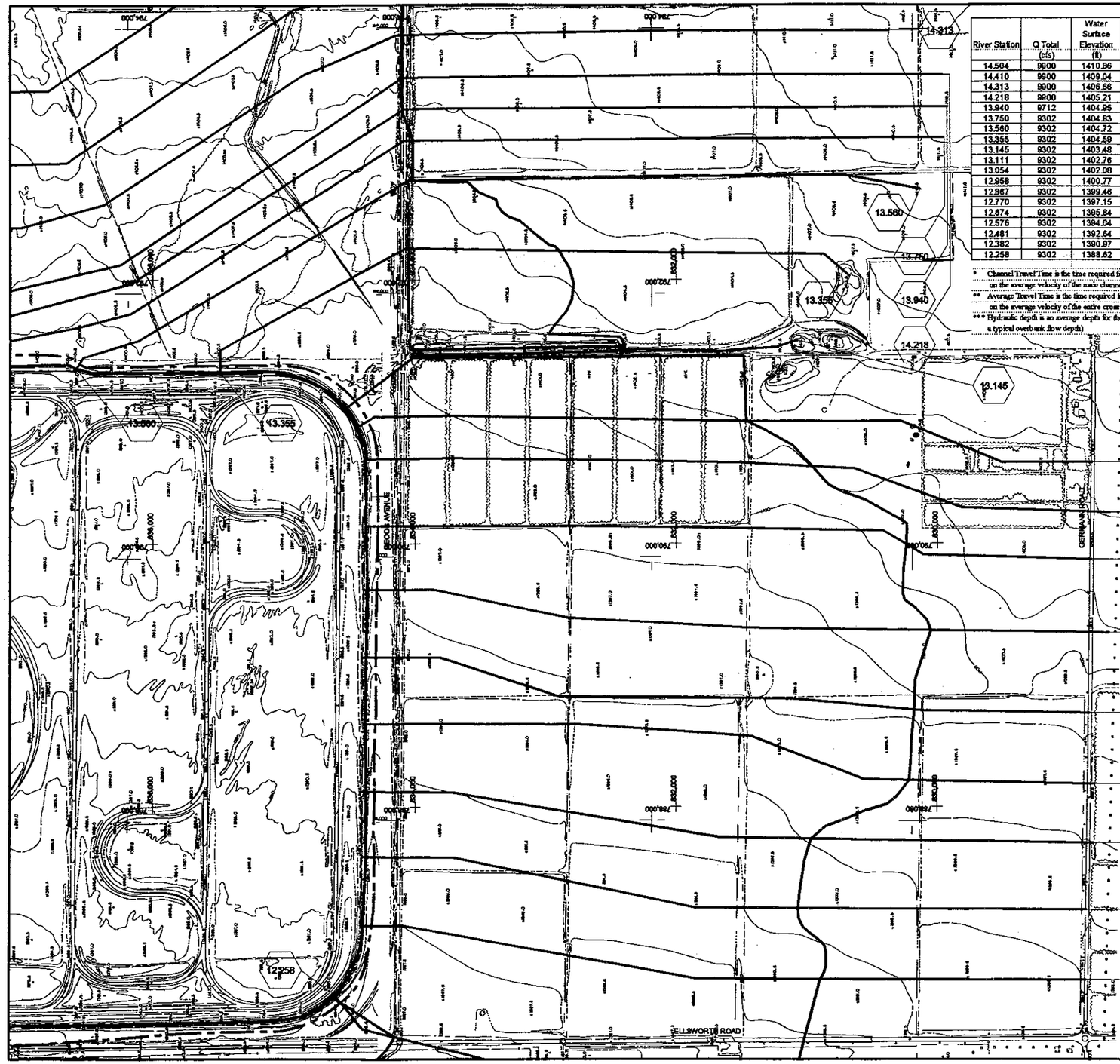
	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 38 OF 40

STRIP MAPPING ALONG PECOS AVENUE PROVIDED BY: FCDMC TO BAKER (SE MESA ADMP FCD 95-32)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

MAPPING PROVIDED BY: FCDMC TO BAKER AS A RASTER IMAGE (QUEEN CREEK ADMS TOPOGRAPHIC MAPS, FCD 86-23)



HYDRAULIC DATA (Powrthr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
14.504	9900	1410.86	1.25	3.07	1.31	2.21	2.86	0.99
14.410	9900	1409.04	1.34	3.14	1.82	1.71	2.74	1.20
14.313	9900	1406.66	1.39	3.20	3.79	2.74	2.96	0.76
14.218	9900	1405.21	1.44	3.27	1.50	1.43	2.91	1.48
13.940	9712	1404.95	1.72	3.34	1.47	1.04	4.25	1.92
13.750	9302	1404.83	1.92	3.43	1.24	0.99	3.93	2.36
13.560	9302	1404.72	2.16	3.52	1.10	1.05	4.02	2.98
13.355	9302	1404.59	2.41	3.65	1.33	1.06	6.59	3.17
13.145	9302	1403.48	2.49	3.73	6.04	5.51	5.98	3.17
13.111	9302	1402.76	2.50	3.75	4.61	3.08	6.76	3.85
13.054	9302	1402.08	2.52	3.78	4.51	2.56	6.58	3.87
12.958	9302	1400.77	2.55	3.83	4.77	2.36	6.47	3.06
12.867	9302	1399.46	2.58	3.91	3.76	1.76	6.06	2.99
12.770	9302	1397.15	2.61	3.98	6.40	2.71	4.85	1.61
12.674	9302	1395.84	2.64	4.02	3.83	1.69	5.14	2.41
12.576	9302	1394.04	2.68	4.13	4.05	1.63	5.04	2.03
12.481	9302	1392.84	2.71	4.22	4.10	1.55	5.29	1.90
12.382	9302	1390.97	2.74	4.30	4.57	1.63	4.70	1.84
12.258	9302	1388.62	2.79	4.47	2.68	1.27	3.82	2.07

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

NOTE:
THE INUNDATION LIMIT, AT THE FOLLOWING CROSS SECTIONS, HAS BEEN ADJUSTED BY HAND AND DOES NOT MATCH THE STA W.S. LFT OR STA W.S. RGT STATED IN THE HEC-RAS OUTPUT:

- 19.477 (STA W.S. RGT AND LFT)
- 19.030 (STA W.S. RGT)
- 18.932 (STA W.S. RGT)
- 18.832 (STA W.S. RGT)

LEGEND

- INUNDATION AREA BOUNDARY
- HYDRAULIC BASE LINE WITH RIVER MILE — W12.0 — W13.0
- CROSS SECTION — 2.147 WSE 2.147
- STREET FLOW — SF
- ELEVATION REFERENCE MARK — ERM XXX
- COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary
- PANEL POINT
- MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

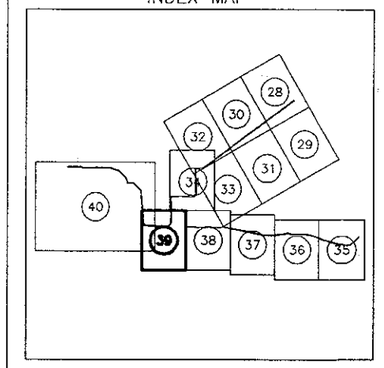
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000
2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL.

INDEX MAP



400' 0' 400' 800'
SCALE: 1" = 400 FEET
CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AMUMAH Date Signed ARIZONA, U.S.A.

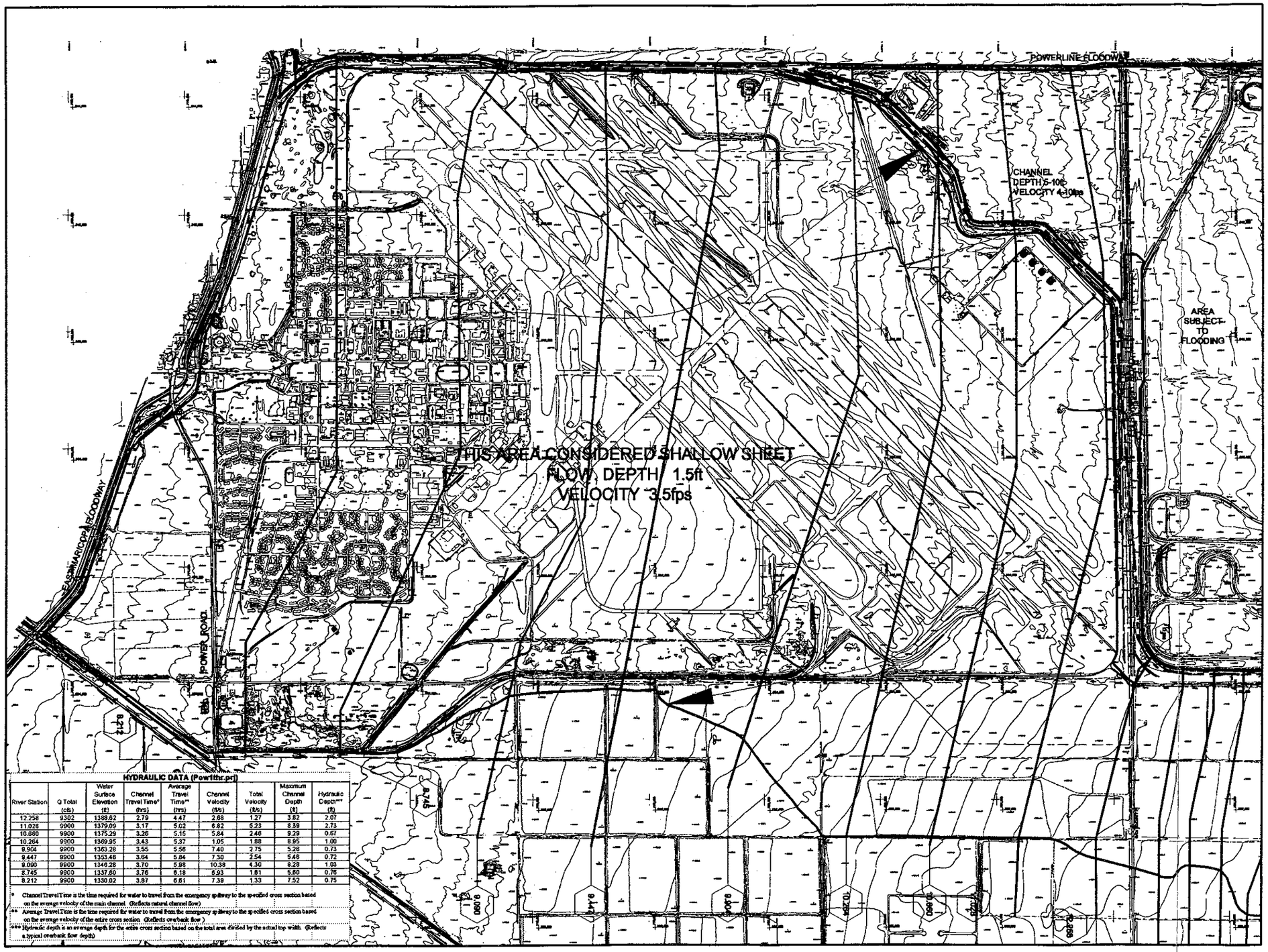
Baker
Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R.	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 39 OF 40

MAPPING PROVIDED BY:
FCDMC TO BAKER AS A RASTER IMAGE
(QUEEN CREEK ADMS TOPOGRAPHIC MAPS, FCD 86-23)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.



HYDRAULIC DATA (Pow1thr.prj)

River Station	Q Total (cfs)	Water Surface Elevation (ft)	Channel Travel Time* (hrs)	Average Travel Time** (hrs)	Channel Velocity (ft/s)	Total Velocity (ft/s)	Maximum Channel Depth (ft)	Hydraulic Depth*** (ft)
12.258	9302	1388.62	2.79	4.47	2.68	1.27	3.82	2.07
11.028	9900	1379.09	3.17	5.02	6.82	5.23	8.39	2.73
10.660	9900	1375.29	3.26	5.15	5.84	2.48	9.29	0.67
10.264	9900	1369.95	3.43	5.37	1.05	1.88	8.95	1.00
9.904	9900	1363.28	3.55	5.56	7.40	2.75	5.28	0.73
9.447	9900	1353.48	3.64	5.84	7.30	2.54	5.46	0.72
9.090	9900	1346.28	3.70	5.98	10.38	4.30	9.28	1.03
8.745	9900	1337.60	3.76	6.18	6.93	1.81	5.80	0.76
8.212	9900	1330.02	3.87	6.61	7.39	1.33	7.52	0.75

* Channel Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the main channel. (Reflects natural channel flow)

** Average Travel Time is the time required for water to travel from the emergency spillway to the specified cross section based on the average velocity of the entire cross section. (Reflects overbank flow.)

*** Hydraulic depth is an average depth for the entire cross section based on the total area divided by the actual top width. (Reflects a typical overbank flow depth)

LEGEND

INUNDATION AREA BOUNDARY

HYDRAULIC BASE LINE WITH RIVER MILE — M12.0 M13.0

CROSS SECTION — 2.147 WSE 2.147

STREET FLOW — SF

ELEVATION REFERENCE MARK — ERM XXX

COUNTY, PARISH, STATE OR INTERNATIONAL BOUNDARY — County Boundary

PANEL POINT

MAPPING BOUNDARY

ELEVATION REFERENCE MARKS

NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929. CONVERSION FACTOR 1929 NGVD TO 1988 NAVD= +1.98 ft

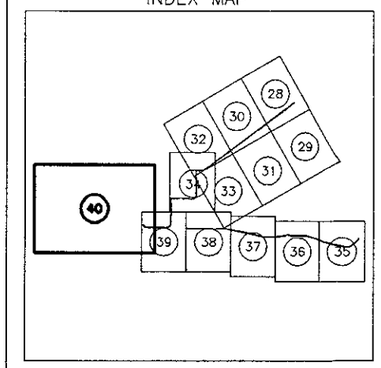
I.D. NUMBER	ELEVATION (FT)	DESCRIPTION/LOCATION

NOTES

1- THE HYDRAULIC BASE LINE IS CROSS SECTION STATION 10,000

2- STREETS, OUTSIDE OF THE INUNDATION LIMITS, EXPECTED TO EXPERIENCE SHALLOW FLOODING ARE SHOWN ON THE MAPS WITH THE SF ——→ SYMBOL.

INDEX MAP



800' 0' 800' 1600'

SCALE: 1" = 800 FEET

CONTOUR INTERVAL = 2 FEET

NO.	REVISION	BY	DATE
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

POWERLINE AND VINEYARD
FLOOD RETARDING STRUCTURES
SPILLWAY INUNDATION STUDY
1/3 SPILLWAY FLOW
F.C.D. CONTRACT NO. 98-33

Registered Professional Engineer (Civil) CERTIFICATE NO. 28148 KOFI AWUMAH Date Signed ARIZONA, U.S.A.

Baker

Michael Baker Jr., Inc.

	BY	DATE
DESIGN	C.W.R	03/02
DESIGN CHK.	W.C.	03/02
PLANS	H.D.T.	03/02
PLANS CHK.	K.A.	03/02

SHEET 40 OF 40

MAPPING PROVIDED BY:
FCDMC TO BAKER AS A RASTER IMAGE
(QUEEN CREEK ADMS TOPOGRAPHIC MAPS, FCD 86-23)

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS. THE HORIZONTAL DATUM WAS NAD 83.

HEC-RAS September 1998 Version 2.2
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
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PROJECT DATA
Project Title: East Side SIS - Powerline FRS
Project File : Pow1thr.prj
Run Date and Time: 02/13/2002 2:20:16 PM

Project in English units

Project Description:
Spillway Inundation Study for Powerline FRS - 1/3 Spillway Flow Scenario

Powerline FRS Emergency Spillway to Ellsworth Road

FCD
98-33
Michael Baker Jr., Inc.

PLAN DATA

Plan Title: 1/3 Spillway Flow
Plan File : m:\Folders from V\Fcdspill\TaskB\Power\HECRAS\Dec1201\HEC-RAS\Power\1third\Pow1thr.P01

Geometry Title: Existing Conditions Geometry
Geometry File : m:\Folders from V\Fcdspill\TaskB\Power\HECRAS\Dec1201\HEC-RAS\Power\1third\Pow1thr.G01

Flow Title : 1/3 Flow Profile (Mixed Flow Regime)
Flow File : m:\Folders from V\Fcdspill\TaskB\Power\HECRAS\Dec1201\HEC-RAS\Power\1third\Pow1thr.F01

Plan Summary Information:

Number of:	Cross Sections	= 86	Mulitple Openings	=	0
	Culverts	= 0	Inline Weirs	=	0
	Bridges	= 0			

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

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

FLOW DATA

Flow Title: 1/3 Flow Profile (Mixed Flow Regime)
Flow File : m:\Folders from V\Fcdspill\TaskB\Power\HECRAS\Dec1201\HEC-RAS\Power\1third\Pow1thr.F01

Flow Data (cfs)

River	Reach	RS	PF 1
Powerline FRS	Powerline	20.000	6667
Powerline FRS	Powerline	14.790	9900
Powerline FRS	Powerline	13.940	9712
Powerline FRS	Powerline	13.750	9302
Powerline FRS	Powerline	11.028	9900

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Powerline FRS	Powerline	PF 1	Critical	Normal S = .0033

Changes in WS and EG

River	Reach	RS	Profile	Type	Value
Powerline FRS	Powerline	12.258	PF 1	Known WS	1388.621

GEOMETRY DATA

Geometry Title: Existing Conditions Geometry
Geometry File : m:\Folders from V\Fcdspill\TaskB\Power\HECRAS\Dec1201\HEC-RAS\Power\1third\Pow1thr.G01

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 20.000

INPUT
Description: Upstream embankment of the Powerline FRS and Vineyard FRS principal spillways outlet collection channel. The collection channel is the upper limit of the Powerline Floodway.

Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8586.53	1579.11	8612.94	1570	8616.46	1568.79	8653.31	1566.55	8665.91	1566.33
8679.32	1566.26	8714.95	1566.6	8765.61	1566.83	8779.71	1566.76	8800.87	1566.65
8846.99	1566.5	8918.05	1566.42	9017.36	1566.13	9100	1566.38	9146.88	1566.69
9160.05	1566.72	9196.55	1566.76	9270.7	1566.63	9357.22	1566.36	9414.93	1566.36
9438.01	1566.32	9480.48	1565.65	9577.62	1566.06	9628.69	1566.36	9656.18	1566.35
9678.11	1566.39	9722.53	1566.65	9765.27	1566.82	9813.13	1566.53	9855.52	1566.38
9900.42	1566.87	9941.96	1567.4	9983.41	1568.16	10007.63	1568.72	10067.75	1568.82
10091.17	1568.63	10111.04	1568.46	10128.2	1568.38	10147	1568.41	10151.71	1568
10155.55	1568.26	10182.13	1569.44	10183.61		1570	10209.22	1580	10231.82 1589.07

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8586.53	.022	8586.53	.022	10209.22	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8586.53	10209.22	194.05	193.94	194.05	.3	.5

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1568.13	Element			
Vel Head (ft)	0.18	Wt. n-Val.		0.022	
W.S. Elev (ft)	1567.95	Reach Len. (ft)	194.05	193.94	194.05
Crit W.S. (ft)		Flow Area (sq ft)		1959.74	
E.G. Slope (ft/ft)	0.001531	Area (sq ft)		1959.74	
Q Total (cfs)	6667.00	Flow (cfs)		6667.00	
Top Width (ft)	1341.51	Top Width (ft)		1341.51	
Vel Total (ft/s)	3.40	Avg. Vel. (ft/s)		3.40	
Max Chl Dpth (ft)	2.30	Hydr. Depth (ft)		1.46	
Conv. Total (cfs)	170409.7	Conv. (cfs)		170409.7	
Length Wtd. (ft)	193.94	Wetted Per. (ft)		1341.58	
Min Ch El (ft)	1565.65	Shear (lb/sq ft)		0.14	
Alpha	1.00	Stream Power (lb/ft s)		0.47	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	3600.72	893.32	858.07

C & E Loss (ft)	0.08	Cum SA (acres)	3602.39	263.33	851.10

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 8586.53	8911.07	1181.70	374.67	280.80	17.72	1.33	3.15
8911.07	9235.61	1683.96	491.02	324.54	25.26	1.51	3.43
9235.61	9560.14	2050.26	552.56	324.54	30.75	1.70	3.71
9560.14	9884.68	1628.51	481.25	324.54	24.43	1.48	3.38
9884.68	RB 10209.22	122.57	60.25	87.15	1.84	0.69	2.03

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.963

INPUT
Description:
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8545.34	1578.97	8552.69	1578.6	8571.96	1570	8589.72	1562.07	8704.5	1562.04
9065.06	1563.19	9938.57	1565.57	9965.68	1566.98	9980.1	1562.2	9992.72	1562.01
10011.9	1561.85	10022.2	1562.08	10039.01	1566.98	10251.79	1565.63	10262.77	1570
10288.02	1580	10311.9	1589.52						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8545.34	.05	8571.96	.022	10288.02	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8571.96	10288.02	202.72	203.44	202.72	.3	.5

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1568.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.022	
W.S. Elev (ft)	1568.01	Reach Len. (ft)	202.72	203.44	202.72
Crit W.S. (ft)		Flow Area (sq ft)		6614.65	
E.G. Slope (ft/ft)	0.000036	Area (sq ft)		6614.65	
Q Total (cfs)	6667.00	Flow (cfs)		6667.00	
Top Width (ft)	1681.35	Top Width (ft)		1681.35	
Vel Total (ft/s)	1.01	Avg. Vel. (ft/s)		1.01	
Max Chl Dpth (ft)	6.16	Hydr. Depth (ft)		3.93	
Conv. Total (cfs)	1111958.1	Conv. (cfs)		1111958.1	
Length Wtd. (ft)	203.40	Wetted Per. (ft)		1684.59	
Min Ch El (ft)	1561.85	Shear (lb/sq ft)		0.01	
Alpha	1.00	Stream Power (lb/ft s)		0.01	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	3600.72	874.23	858.07
C & E Loss (ft)	0.02	Cum SA (acres)	3602.39	256.60	851.10

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 8571.96	8915.17	2328.26	1909.42	340.02	34.92	5.64	1.22
8915.17	9258.38	1793.24	1638.67	343.21	26.90	4.77	1.09
9258.38	9601.60	1238.75	1312.50	343.21	18.58	3.82	0.94
9601.60	9944.81	775.00	990.59	343.22	11.62	2.89	0.78
9944.81	RB 10288.02	531.75	763.46	314.92	7.98	2.44	0.70

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS

REACH: Powerline RS: 19.925

INPUT
Description: Top of Bank, East Embankment of the CAP
Station Elevation Data num= 118

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2534.04	1578	2554.26	1576	2564.39	1574.69	2568.55	1574	2576.27	1572.57
2578.36	1572.05	2590.28	1570	2606.56	1568.74	2614.37	1568.03	2617.92	1568.5
2623.83	1568.79	2647.34	1568.62	2658.65	1566.87	2693.53	1566.96	2722.07	1567.94
2847.48	1567.82	3055.24	1567.67	3144.34	1566.88	3326.58	1566.71	3544.34	1566.96
3584.34	1567	3821.82	1567.18	4064.37	1566.92	4104.34	1566.88	4366.64	1566.83
4641.18	1567.08	4901.46	1567.03	5104.34	1567.03	5144.34	1567.01	5362.43	1566.85
5522.43	1567.23	5562.43	1567.3	5722.43	1567.39	5762.43	1567.41	5922.43	1567.23
5962.43	1567.16	6072.78	1566.98	6162.43	1567.08	6202.43	1567.13	6282.43	1567.29
6322.43	1567.28	6402.43	1567.18	6442.43	1567.21	6526.99	1567.29	6648.12	1567.32
6802.43	1567.01	6842.43	1566.88	6922.43	1566.55	6962.43	1566.5	7042.43	1566.84
7082.43	1566.81	7180.83	1566.22	7203.29	1566.1	7362.39	1566.38	7402.43	1566.06
7462.95	1565.53	7541.92	1566.04	7652.43	1565.9	7663.71	1565.87	7741.87	1565.47
7820.02	1565.5	7862.95	1565.64	7942.95	1565.71	8067.91	1565.77	8142.95	1565.77
8182.95	1565.78	8276.74	1566.07	8303.78	1566.14	8382.95	1566.1	8402.98	1566.1
8502.95	1566.27	8523.03	1566.26	8541.53	1565.93	8602.98	1566.09	8642.96	1566.06
8722.99	1566.11	8763	1566.14	8802.2	1566.17	8883.03	1566.22	8942.95	1566.25
9008.99	1566.29	9071.22	1566.43	9102.95	1566.48	9163.13	1566.46	9200.86	1566.46
9420.88	1566.5	9502.94	1566.65	9542.94	1566.72	9609.58	1566.69	9689.57	1566.5
9711.62	1566.48	9790.57	1566.47	9840.26	1566.58	9880.05	1566.89	9903.53	1567.11
9976.39	1567.2	9988.47	1567.26	10011.01	1566.72	10185.66	1566.96	10294.18	1566.83
10344.14	1566.74	10501.72	1566.41	10579.87	1566.24	10716.44	1565.94	10796.44	1565.81
10876.45	1565.71	10956.44	1565.62	11264.04	1567.41	1594.04	1566.81	1964.04	1565.7
12204.04	1565.51	2584.04	1564.51	2924.04	1565.41	3774.04	1565.81	4144.04	1566.4
14554.04	1566.71	5024.04	156	71548 4.04	1568.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2534.04	.022	8541.53	.022	10294.18	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8541.53	10294.18	106	105.38	106	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2534.04	8463.16	157	10420.88	15484.04	1570

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1567.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.022	0.022	0.022
W.S. Elev (ft)	1567.88	Reach Len. (ft)	106.00	105.38	106.00
Crit W.S. (ft)	1567.23	Flow Area (sq ft)	130.92	2377.82	148.46
E.G. Slope (ft/ft)	0.000915	Area (sq ft)	6282.53	2377.82	8788.25
Q Total (cfs)	6667.00	Flow (cfs)	376.58	5953.31	337.12
Top Width (ft)	12546.81	Top Width (ft)	5825.94	1752.65	4968.22
Vel Total (ft/s)	2.51	Avg. Vel. (ft/s)	2.88	2.50	2.27
Max Chl Dpth (ft)	3.38	Hydr. Depth (ft)	1.67	1.36	1.17
Conv. Total (cfs)	220416.1	Conv. (cfs)	12449.9	196820.9	11145.3
Length Wtd. (ft)	105.48	Wetted Per. (ft)	78.37	1752.66	126.70
Min Ch El (ft)	1565.93	Shear (lb/sq ft)	0.10	0.08	0.07
Alpha	1.00	Stream Power (lb/ft s)	0.27	0.19	0.15
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	3586.10	853.24	837.63
C & E Loss (ft)	0.07	Cum SA (acres)	3588.84	248.58	839.54

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7940.78	8541.53	376.58	130.92	78.37	5.65	1.67	2.88
LB 8541.53	8892.06	1813.03	620.03	350.53	27.19	1.77	2.92
8892.06	9242.59	1385.16	527.56	350.53	20.78	1.51	2.63
9242.59	9593.12	1113.94	462.90	350.53	16.71	1.32	2.41
9593.12	9943.65	976.16	427.65	350.53	14.64	1.22	2.28
9943.65	RB 10294.18	665.01	339.68	350.54	9.97	0.97	1.96
10294.18	10813.17	337.12	148.46	126.70	5.06	1.17	2.27

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.905

INPUT
Description: Top of Bank, West Embankment of the CAP
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2641.94	1568.65	2702.15	1568.46	2785.37	1568.2	2905.37	1568	3025.37	1567.9
3105.37	1567.24	3162.14	1566.94	3282.14	1567.12	3402.14	1567.24	3522.14	1567.39
3682.14	1567.63	3842.14	1567.74	4002.14	1567.59	4162.14	1567.52	4322.14	1567.49
4482.14	1567.44	4642.14	1567.38	4722.14	1567.4	5002.14	1567.55	5242.14	1567.36
5322.14	1567.28	5406.23	1567.11	5526.27	1567.01	5646.22	1567.1	5777.62	1567.18
5916.57	1567.24	6026.75	1567.07	6186.75	1566.99	6286.02	1567.04	6372.57	1567.08
6506.75	1567.53	6626.75	1567.71	6786.75	1567.16	6900.58	1566.51	7026.74	1566.28
7114.46	1566.25	7226.74	1566.29	7327.9	1566.34	7426.74	1566.2	7515.08	1566.22
7595.37	1566.32	7693.61	1566.32	7796.77	1566.35	7880.86	1566.43	8002.55	1566.41
8052.69	1566.35	8133.27	1566.26	8195.87	1566.23	8273.3	1566.21	8411.84	1566.23
8438.34	1566.24	8539.56	1566.38	8647.68	1566.5	8751.29	1566.65	8838.34	1566.55
8957.42	1566.48	9013.6	1566.61	9099.06	1566.73	9202.54	1566.82	9293.6	1566.8
9373.6	1566.62	9491.6	1566.4	9499.16	1566.4	9573.58	1566.28	9674.64	1566.25
9813.55	1566.86	9924.41	1567.22	9989.5	1567.23	10012	1567.06	10084.4	1567.07
10154.31	1567.08	10245.72	1566.85	10298.43	1566.57	10332	1566.66	10431.77	1566.6
10572	1566.52	10671.83	1566.47	10808.62	1566.37	10831.87	1566.35	10852	1566.33
10871.88	1566.32	10892	1566.31	10911.89	1566.29	10932	1566.27	10951.9	1566.25
10973.72	1566.24	10993.74	1566.22	11013.99	1566.21	11091.94	1567.21	11391.94	1566.9
11741.94	1566.51	11891.94	1567.21	12141.94	1566.41	12431.94	1565.81	12691.94	1565.7
13561.94	1566.21	13961.94	1566.51	14361.94	1566.61	14741.94	1567.21	15231.94	1568.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2641.94	.022	8539.56	.022	10298.43	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8539.56	10298.43	23	22.1	23	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2641.94	8424.31	1570	10492.73	15231.94	1570

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2641.94	3522.25	1568.57

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1567.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.022	0.022	0.022
W.S. Elev (ft)	1567.37	Reach Len. (ft)	23.00	22.10	23.00
Crit W.S. (ft)	1567.37	Flow Area (sq ft)	122.66	1191.30	146.30
E.G. Slope (ft/ft)	0.007145	Area (sq ft)	2101.75	1191.30	4182.80
Q Total (cfs)	6667.00	Flow (cfs)	730.05	5245.65	691.30
Top Width (ft)	9327.57	Top Width (ft)	3035.07	1758.87	4533.63
Vel Total (ft/s)	4.57	Avg. Vel. (ft/s)	5.95	4.40	4.73
Max Chl Dpth (ft)	1.67	Hydr. Depth (ft)	1.06	0.68	0.75
Conv. Total (cfs)	78870.7	Conv. (cfs)	8636.5	62056.1	8178.1
Length Wtd. (ft)	22.23	Wetted Per. (ft)	115.25	1758.87	194.30
Min Ch El (ft)	1566.25	Shear (lb/sq ft)	0.47	0.30	0.34
Alpha	1.03	Stream Power (lb/ft s)	2.83	1.33	1.59
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	3575.90	848.92	821.84
C & E Loss (ft)	0.02	Cum SA (acres)	3578.05	244.33	827.98

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7949.80	8539.56	730.05	122.66	115.25	10.95	1.06	5.95
LB 8539.56	8891.33	1424.06	292.63	351.77	21.36	0.83	4.87
8891.33	9243.11	1067.63	246.18	351.77	16.01	0.70	4.34
9243.11	9594.88	1390.36	288.46	351.77	20.85	0.82	4.82
9594.88	9946.66	1022.55	239.89	351.78	15.34	0.68	4.26
9946.66	RB 10298.43	341.05	124.14	351.78	5.12	0.35	2.75
10298.43	10791.78	691.30	146.30	194.30	10.37	0.75	4.73

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.901

INPUT
Description:
Station Elevation Data num= 83

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2624.53	1568.23	2703.99	1568.05	2898.29	1567.48	2944.62	1567.34	3141.6	1566.77
3221.78	1566.9	3325.26	1567.07	3448.94	1567.24	3649.7	1567.18	3780.75	1567.14
3882.25	1567.1	3930.55	1567.08	4380.88	1566.79	4503.41	1566.71	4710.72	1566.87
4822.8	1566.91	5085.96	1566.93	5187.47	1566.9	5351.49	1566.81	5533.16	1566.69
5681.12	1566.83	5740.29	1566.89	5825.37	1566.96	5950.1	1567	6103.9	1566.67
6193.95	1566.58	6408.13	1566.85	6511.22	1566.9	6621.43	1567.07	6731.19	1567.32
6800.5	1566.95	7107.91	1566.17	7185.6	1566.28	7227.07	1566.25	7466.96	1565.11
7503.73	1565.07	7538.43	1565.02	7566.71	1565.02	7650.62	1565.08	7722.07	1565.17
7758.23	1565.18	7872.09	1565.28	7946.29	1565.47	8087.3	1565.29	8108.37	1565.3
8239.04	1565.63	8264.94	1565.7	8318.01	1565.67	8522.59	1565.57	8541.31	1565.57
8584.35	1565.51	8659.82	1565.51	8749.34	1565.53	8842.72	1565.72	8887.55	1565.81
8932.47	1565.85	8988.3	1565.87	9056.33	1565.89	9161.33	1565.9	9223.05	1565.9
9284.16	1565.93	9363.74	1565.95	9414.5	1565.88	9500.55	1565.83	9587.34	1565.85
9610	1565.86	9616.46	1565.88	9711.26	1566.27	9789.54	1566.53	9861.02	1566.73
9946.52	1567.12	9968.28	1567.23	10016.08	1567.32	10025.22	1567.24	10075.85	1567.01
10300.3	1566.74	10325.06	1566.75	10422.72	1566.43	10521.18	1566.09	10559.82	1565.96
10705.28	1566.03	10826.01	1566.19	10887.02	1566.24				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2624.53	.05	8541.31	.022	10300.3	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8541.31	10300.3	213.82	249.12	282.84	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2624.53	8417.45	1570	10503.51	10887.02	1570

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2624.53	3591.44	1568

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1567.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.41	Wt. n-Val.	0.050	0.022	0.050
W.S. Elev (ft)	1566.78	Reach Len. (ft)	213.82	249.12	282.84
Crit W.S. (ft)	1566.78	Flow Area (sq ft)	146.57	1171.13	57.97
E.G. Slope (ft/ft)	0.007447	Area (sq ft)	1961.88	1171.13	326.50
Q Total (cfs)	6667.00	Flow (cfs)	420.56	6182.01	64.43
Top Width (ft)	4314.42	Top Width (ft)	2368.87	1358.83	586.72
Vel Total (ft/s)	4.85	Avg. Vel. (ft/s)	2.87	5.28	1.11
Max Chl Dpth (ft)	1.76	Hydr. Depth (ft)	1.18	0.86	0.29
Conv. Total (cfs)	77257.1	Conv. (cfs)	4873.4	71637.1	746.7
Length Wtd. (ft)	241.77	Wetted Per. (ft)	123.86	1358.84	203.20
Min Ch El (ft)	1565.51	Shear (lb/sq ft)	0.55	0.40	0.13
Alpha	1.12	Stream Power (lb/ft s)	1.58	2.12	0.15
Frctn Loss (ft)	1.65	Cum Volume (acre-ft)	3574.83	848.32	820.65

C & E Loss (ft) 0.08 Cum SA (acres) 3576.63 243.54 826.63

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7949.63	8541.31	420.56	146.57	123.86	6.31	1.18	2.87
LB 8541.31	8893.11	2586.82	419.04	351.80	38.80	1.19	6.17
8893.11	9244.91	1603.69	314.53	351.80	24.05	0.89	5.10
9244.91	9596.70	1587.85	312.66	351.80	23.82	0.89	5.08
9596.70	9948.50	403.45	124.39	274.22	6.05	0.45	3.24
9948.50	RB 10300.30	0.19	0.51	29.22	0.00	0.02	0.37
10300.30	10358.97	1.11	3.48	58.67	0.02	0.06	0.32
10358.97	10417.64	10.75	13.63	58.67	0.16	0.23	0.79
10417.64	10476.32	29.87	25.17	58.67	0.45	0.43	1.19
10476.32	10534.99	22.70	15.69	27.18	0.34	0.58	1.45

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.879

INPUT
Description: Downstream Toe of the West Side Embankment of the CAP
Station Elevation Data num= 119

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2313.21	1561.86	2341.54	1561.94	2387.7	1562.05	2414.82	1562.13	2483.44	1562.72
2510.04	1562.66	2549.68	1562.23	2568.81	1562.07	2627.23	1561.61	2642.37	1561.66
2695.97	1561.88	2708.87	1561.74	2733.26	1561.31	2744.85	1561.2	2766.15	1561.9
2774.79	1562.17	2782.08	1562.21	2783.53	1561.73	2784.66	1562.11	2792.9	1562.36
2810.8	1562.55	2824.13	1562.57	2878.6	1562.62	2884.4	1562.61	2937.74	1562.28
2948.18	1562.26	2995.26	1562.62	3011.39	1562.67	3060.46	1562.79	3078.99	1562.58
3144.46	1561.75	3160.76	1561.62	3221.01	1561.45	3229.09	1561.43	3308.6	1561.21
3442.86	1560.78	3460.84	1560.8	3668.44	1561.39	3681.21	1561.42	3906.59	1560.85
3923.39	1560.87	4049.59	1561.26	4057.11	1561.28	4201.41	1561.02	4213.64	1560.98
4377.92	1560.13	4402.56	1560.01	4407.42	1560	4531.85	1559.84	4544.45	1559.81
4702.73	1559.41	4717.65	1559.36	4923.99	1558.42	4958.69	1558.29	5009.88	1558.13
5033.19	1558.13	5082.61	1558.27	5119.18	1558.32	5254.75	1558.36	5284.15	1558.37
5347.54	1558.37	5414.6	1558.36	5518.27	1558.31	5568.15	1558.19	5621.17	1557.99
5644.53	1557.94	5746.85	1558	5772.86	1558.07	5787.34	1558.12	5806.09	1558.19
5849.3	1558.35	5869.37	1558.45	5880.83	1558.52	5919.45	1558.73	5966.45	1559.02
5989.17	1559.15	6037.64	1559.45	6037.81	1559.45	6233.2	1559.98	6236.61	1560
6456.98	1560.48	6817.53	1560.3	7015.33	1560	7074.35	1560	7106.79	1560
7178.08	1559.52	7538.65	1558.73	7899.2	1558.12	8259.76	1558.65	8620.32	1559.09
8980.87	1559.68	9104.35	1560	9341.43	1562.02	9701.98	1561.75	9968.92	1561.75
9984.81	1561.85	9988.92	1560	9996.46	1556.66	10002.17	1556.58	10011.01	1560
10015.19	1561.63	10030.34	1561.23	10062.55	1560.91	10423.09	1561.95	10598.15	1561.92
10603.68	1561.15	10622.27	1560.94	10795.83	1562.76	10809.46	1562.44	10833.8	1561.48
10839.21	1560	10842.83	1559.36	10865	1560	10866.1	1560.04	10875.39	1561.84
10936.05	1561.65	11020.89	1563.47	11036.05	1564.08	11136.06	1565.3		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2313.21	.05	9984.81	.01510015.19		.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8620.3210423.09		215.31	249.97	212.05	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2313.21	8375	1568	1057011136.06		1568

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2313.21	3664.43	1566

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1561.55	Element			
Vel Head (ft)	0.25	Wt. n-Val.	0.050	0.040	
W.S. Elev (ft)	1561.30	Reach Len. (ft)	215.31	249.97	212.05
Crit W.S. (ft)	1560.62	Flow Area (sq ft)	578.38	1083.10	
E.G. Slope (ft/ft)	0.006302	Area (sq ft)	9607.74	1083.10	61.19
Q Total (cfs)	6667.00	Flow (cfs)	2417.08	4249.92	
Top Width (ft)	5818.88	Top Width (ft)	4890.85	836.11	91.92
Vel Total (ft/s)	4.01	Avg. Vel. (ft/s)	4.18	3.92	
Max Chl Dpth (ft)	4.72	Hydr. Depth (ft)	2.36	1.30	
Conv. Total (cfs)	83985.0	Conv. (cfs)	30448.2	53536.7	
Length Wtd. (ft)	232.85	Wetted Per. (ft)	245.32	837.99	
Min Ch El (ft)	1556.58	Shear (lb/sq ft)	0.93	0.51	
Alpha	1.00	Stream Power (lb/ft s)	3.88	2.00	
Frctn Loss (ft)	1.60	Cum Volume (acre-ft)	3546.44	841.87	819.39
C & E Loss (ft)	0.00	Cum SA (acres)	3558.81	237.26	824.42

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7989.61	8620.32	2417.08	578.38	245.32	36.25	2.36	4.18
LB 8620.32	8980.87	2423.82	689.73	360.55	36.36	1.91	3.51
8980.87	9341.43	640.69	278.89	275.82	9.61	1.01	2.30
9341.43	9701.98						
9701.98	10062.54	1164.27	87.30	64.95	17.46	1.38	13.34
10062.54	RB 10423.09	21.14	27.20	136.67	0.32	0.20	0.78

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.806

INPUT
Description:
Station Elevation Data num= 89

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2327.4	1559.77	2329.35	1560	2335.14	1560.65	2370.25	1560.56	2378.26	1560.14
2387.5	1560.47	2461.15	1560.38	2507.7	1561.29	2556.13	1562.09	2599.5	1562.03
2632.96	1560.1	2634.1	1560	2641.21	1559.41	2645.66	1560	2653.42	1561.02
2684.08	1560.91	2684.77	1560.6	2723.24	1560.59	2743.55	1561.06	2789.68	1560.13
2791.94	1560	2798.9	1559.09	2807.65	1560	2810.99	1560.36	2908.38	1561.55
3131.97	1561.58	3336.72	1560	3355.62	1559.93	3505.53	1558.88	3554.33	1557.14
3579.21	1558.51	3604.63	1558.93	3646.04	1560	3693.38	1561.41	3760.75	1560.37
3802.81	1560.4	3839.2	1560	3875.53	1559.69	3922.53	1559.42	3949.61	1559.45
4026.43	1559.69	4832.65	1558.25	4882.43	1558.09	4897.42	1559.76	4913.14	1558.22
5397.11	1557.71	5402.55	1557.13	5574.79	1557.05	5590.74	1555.46	5603.09	1557.6
5617.31	1557.65	5798.77	1557.63	6202.34	1559.08	6366.57	1559.06	6497.12	1559.01
6857.67	1559.4	7218.23	1558.06	7578.79	1557.31	7939.34	1556.77	8299.9	1557.26
8547	1557.61	8660.46	1557.82	9021.01	1559.07	9331.03	1560	9521	1560.85
9881.59	1560.72	9970.36	1560.39	9985.67	1560.32	9986.43	1560	9997.37	1555.33
10003.01	1555.210016.91		156010016.93		1560.0110019.98		156010031.64		1559.64
10242.13	1559.26	10311.4	1559.2810465.74		1558.8710630.71		156010645.31		1560

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10828.92    156010828.94    156010840.24 1559.7710846.67    156010852.27 1560.21
10878.49 1560.14 10978.5 1560.6811078.49 1561.3111178.48 1561.46

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  2327.4     .05 9986.43    .01510019.98     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       8660.46 10311.4           420.97  416.55  422.34             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  2327.4 8252.01    156410806.8711178.48    1564
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
  2327.4 3701.69 1561.43
```

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1559.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.	0.050	0.033	0.050
W.S. Elev (ft)	1559.68	Reach Len. (ft)	420.97	416.55	422.34
Crit W.S. (ft)	1559.30	Flow Area (sq ft)	896.41	663.00	142.11
E.G. Slope (ft/ft)	0.007550	Area (sq ft)	7129.62	663.00	142.11
Q Total (cfs)	6667.00	Flow (cfs)	3909.07	2520.49	237.44
Top Width (ft)	5924.21	Top Width (ft)	4776.25	874.91	273.05
Vel Total (ft/s)	3.92	Avg. Vel. (ft/s)	4.36	3.80	1.67
Max Chl Dpth (ft)	4.48	Hydr. Depth (ft)	2.19	0.76	0.52
Conv. Total (cfs)	76730.7	Conv. (cfs)	44989.6	29008.4	2732.7
Length Wtd. (ft)	419.85	Wetted Per. (ft)	408.45	876.56	273.05
Min Ch El (ft)	1555.20	Shear (lb/sq ft)	1.03	0.36	0.25
Alpha	1.09	Stream Power (lb/ft s)	4.51	1.36	0.41
Frctn Loss (ft)	2.71	Cum Volume (acre-ft)	3505.07	836.86	818.90
C & E Loss (ft)	0.00	Cum SA (acres)	3534.92	232.35	823.53

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8027.15	8660.46	3909.08	896.41	408.45	58.63	2.19	4.36
LB 8660.46	8990.65	1215.36	426.20	330.19	18.23	1.29	2.85
8990.65	9320.84	99.58	82.87	234.75	1.49	0.35	1.20
9320.84	9981.21						
9981.21	RB 10311.40	1205.53	153.92	311.62	18.08	0.50	7.83
10311.40	10398.11	70.30	44.94	86.71	1.05	0.52	1.56
10398.11	10484.82	124.05	63.18	86.71	1.86	0.73	1.96
10484.82	10571.52	42.93	33.43	86.71	0.64	0.39	1.28
10571.52	10658.23	0.17	0.57	12.92	0.00	0.04	0.30

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.727

INPUT
Description:
Station Elevation Data num= 99

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2380.67	1559.58	2522.09	1558.95	2564.88	1558.91	2573.68	1558.38	2584.42	1559.01
2624.78	1560	2634.19	1560.35	2649.74	1560	2684.25	1559.13	2737.16	1558.48
2742.24	1557.78	2755.77	1557.74	2762.22	1558.46	3105.17	1558.58	3595.61	1557.09
3681.9	1558.15	3688.31	1558.37	3887.64	1559.24	3978.12	1558	4086.6	1556.98
4214.43	1556.74	4271.4	1556.73	4631.94	1555.8	4987.29	1555.33	5036.91	1554.89
5043.8	1554.18	5051.05	1554.8	5078.68	1554.64	5085.98	1554.32	5090.27	1554.74
5126.76	1554.31	5132.92	1554.03	5136.22	1554.48	5312.41	1554.51	5340.8	1559.67
5343.94	1560	5353.05	1560.96	5400.2	1560.15	5401.18	1560	5466.56	1550
5480.46	1547.93	5568.39	1548.71	5573.9	1550	5600.96	1556.19	5636.66	1557.23
5655.05	1560	5660.25	1560.79	5676.2	1560.57	5678.84	1560	5698.17	1556.15
5713.6	1555.91	5799.32	1554.73	5806.94	1553.76	5812.32	1554.31	5814.9	1554.25

5819.66	1553.71	5846.35	1553.87	5862.64	1554.87	5880.74	1554.86	5890.23	1554.57
5898.49	1554.74	5973.95	1555.56	6074.16	1555.17	6088.86	1555.31	6183.78	1556.01
6253.58	1556.57	6316.57	1557.11	6434.71	1557.37	6439.91	1557.5	6553.25	1557.15
6625.06	1557.12	6795.26	1556.08	7155.82	1554.88	7359.98	1555.33	7516.38	1555.19
7876.94	1553.41	8237.49	1554.56	8546.94	1554.95	8598.05	1554.8	8822.67	1556.05
8958.61	1556.9	9319.16	1557.46	9819.15	1557.81	9971.46	1557.45	9987.1	1557.69
9997.59	1553.07	10003.23	1552.91	10016.06	1557.39	10031.31	1556.88	10070.74	1556.4
10179.72	1557.74	10323.16	1556.97	10540.27	1556.88	10956.5	1557.74	11056.49	1558.06
11156.5	1558.47	11256.5	1558.87	11356.49	1558.72	11456.5	1558.5		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2380.67	.05	9987.1	.015	10016.06	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8822.67	10323.16	479.98	444.3	444.2	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2380.67	8077.47	1562	11077.3	11456.5	1562

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2380.67	3888	1564.04	11255.94	11456.5	1564

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1557.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.	0.050	0.019	0.050
W.S. Elev (ft)	1556.98	Reach Len. (ft)	479.98	444.30	444.20
Crit W.S. (ft)	1556.67	Flow Area (sq ft)	1570.99	160.52	13.49
E.G. Slope (ft/ft)	0.005586	Area (sq ft)	8137.76	160.52	13.49
Q Total (cfs)	6667.00	Flow (cfs)	5736.94	925.94	4.12
Top Width (ft)	4791.64	Top Width (ft)	4225.80	301.93	263.90
Vel Total (ft/s)	3.82	Avg. Vel. (ft/s)	3.65	5.77	0.31
Max Chl Dpth (ft)	9.05	Hydr. Depth (ft)	2.11	0.53	0.05
Conv. Total (cfs)	89203.1	Conv. (cfs)	76759.0	12388.9	55.2
Length Wtd. (ft)	473.11	Wetted Per. (ft)	745.20	303.46	263.90
Min Ch El (ft)	1552.91	Shear (lb/sq ft)	0.74	0.18	0.02
Alpha	1.10	Stream Power (lb/ft s)	2.68	1.06	0.01
Frctn Loss (ft)	2.92	Cum Volume (acre-ft)	3431.30	832.93	818.15
C & E Loss (ft)	0.05	Cum SA (acres)	3491.42	226.73	820.93

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7534.27	8178.47	1212.62	279.36	101.00	18.19	2.77	4.34
8178.47	8822.67	4524.31	1291.63	644.20	67.86	2.01	3.50
LB 8822.67	9122.77	81.42	70.09	185.31	1.22	0.38	1.16
9122.77	9722.96						
9722.96	10023.06	817.84	63.50	27.67	12.27	2.43	12.88
10023.06	RB 10323.16	26.68	26.94	90.48	0.40	0.30	0.99
10323.16	10436.49	0.67	3.42	113.33	0.01	0.03	0.20
10436.49	10549.83	3.13	8.63	113.33	0.05	0.08	0.36
10549.83	10663.16	0.33	1.43	37.23	0.00	0.04	0.23

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.643

INPUT
Description:
Station Elevation Data num= 92

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2406.87	1556.49	2660.44	1557.3	2737.02	1557.08	2767.41	1556.39	2812.91	1556.56
2820.39	1555.95	2825.32	1556.35	2852.28	1556.56	2894.16	1556.26	2970.57	1556.42
3036.58	1556.38	3127.97	1555.75	3150.3	1555.48	3488.55	1554.89	3586.29	1554.13
3843.29	1556.8	3849.11	1557.02	4051.24	1556.84	4133.87	1555.74	4199.43	1555.31

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 4209.65 1555.06 4307.22    1554 4570.21 1553.03 4930.75 1551.81 5097.11 1551.15
 5102.31 1551.02 5109.19  1551.2 5291.32 1553.62 5651.85 1552.29 5655.84 1552.25
 5662.89 1551.72 5673.87 1552.15 5806.96 1552.54 5817.14  1551.4 5823.22  1551.3
 5827.82 1551.97 5834.96 1552.22 5839.71 1551.35 5842.63 1551.69 5967.39 1552.93
 5974.41 1552.31  5979.4 1552.69 5990.81 1552.81 5993.63 1552.33 6021.46 1553.11
 6288.92 1554.95  6382.5 1555.47 6512.08 1554.32 6872.63 1553.46 6939.13 1553.67
 7004.15 1553.42 7163.49 1552.03 7168.01  1551.1 7173.71 1552.01 7174.03 1552.02
 7178.51  1550.7 7184.47 1551.85  7205.7 1551.91  7219.3 1551.27 7225.24 1551.71
 7345.64 1554.93 7383.02 1553.72 7732.87 1550.87 7821.88 1551.07 7897.81 1550.55
 8093.43 1552.85 8453.99 1552.63 8542.26 1553.02 8814.55 1553.09 8879.06 1553.18
 8938.83  1552.8 9026.03 1553.41  9175.1 1553.46 9535.66 1555.31 9896.22 1554.44
 9972.31 1554.58 9987.06 1554.92 9997.05 1550.5210002.87 1550.4510015.11 1555.09
10031.34 1553.8610055.57 1553.6310256.77 1554.1410332.96 1553.6910617.34  1553.9
10840.93 1552.9411253.24 1554.6811353.25 1554.7611453.25 1554.8811553.24 1555.83
11653.23 1555.7311753.24 1555.46

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2406.87     .05 9987.06    .01510015.11     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9026.0310256.77            447.66  524.77   489.6              .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2406.87 7886.52    155811360.2511753.24    1558
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2406.87 3842.51 1557.0111577.6611753.24  1555.8
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CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1554.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.050	0.025	0.050
W.S. Elev (ft)	1554.11	Reach Len. (ft)	447.66	524.77	489.60
Crit W.S. (ft)	1553.87	Flow Area (sq ft)	1619.14	248.00	417.85
E.G. Slope (ft/ft)	0.006846	Area (sq ft)	6083.03	248.00	417.85
Q Total (cfs)	6667.00	Flow (cfs)	5031.97	997.46	637.56
Top Width (ft)	5605.86	Top Width (ft)	4237.00	514.03	854.83
Vel Total (ft/s)	2.92	Avg. Vel. (ft/s)	3.11	4.02	1.53
Max Chl Dpth (ft)	3.66	Hydr. Depth (ft)	1.42	0.48	0.49
Conv. Total (cfs)	80576.5	Conv. (cfs)	60815.8	12055.2	7705.5
Length Wtd. (ft)	460.77	Wetted Per. (ft)	1139.53	515.47	854.83
Min Ch El (ft)	1550.45	Shear (lb/sq ft)	0.61	0.21	0.21
Alpha	1.17	Stream Power (lb/ft s)	1.89	0.83	0.32
Frctn Loss (ft)	2.70	Cum Volume (acre-ft)	3352.95	830.84	815.95
C & E Loss (ft)	0.05	Cum SA (acres)	3444.79	222.56	815.23

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7702.20	8364.11	3106.96	872.86	477.61	46.60	1.83	3.56
8364.11	9026.03	1925.04	746.28	661.92	28.87	1.13	2.58
LB 9026.03	9272.18	223.48	138.64	246.15	3.35	0.56	1.61
9272.18	9518.33	0.89	2.14	28.89	0.01	0.07	0.42
9518.33	9764.47						
9764.47	10010.62	719.89	52.63	23.01	10.80	2.42	13.68
10010.62	RB 10256.77	53.18	54.59	217.42	0.80	0.25	0.97
10256.77	10406.42	41.18	43.27	143.95	0.62	0.30	0.95
10406.42	10556.06	44.31	45.92	149.65	0.66	0.31	0.96
10556.06	10705.71	49.43	49.03	149.65	0.74	0.33	1.01
10705.71	10855.36	266.87	134.85	149.65	4.00	0.90	1.98
10855.36	11005.00	214.15	118.17	149.65	3.21	0.79	1.81
11005.00	11154.65	21.61	26.61	112.29	0.32	0.24	0.81

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

CROSS SECTION RIVER: Powerline FRS

REACH: Powerline RS: 19.544

INPUT
Description:
Station Elevation Data num= 120

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2448.16	1554.41	2589.58	1554.58	2718.22	1555.99	2775.1	1555.41	2844.02	1554.53
2849.21	1553.77	2853.57	1554.73	3083.66	1554.15	3173.59	1551	3208.41	1551.04
3247.68	1556.35	3269.24	1553.22	3449.83	1552.98	3810.4	1553.42	3998.89	1555.29
4170.96	1553.67	4235.49	1552.98	4309.18	1552	4531.5	1550.83	4892.06	1550.64
4905.35	1550	4916.01	1549.49	4923.48	1547.93	4936.95	1550	4944.05	1551.02
4953.59	1550	4955.43	1549.83	4972.73	1549.34	4982.92	1549.32	5005.71	1549.82
5007.39	1550	5024.14	1551.97	5033.7	1550	5037.32	1549.14	5107.87	1550
5404.59	1551.06	5414.55	1550	5421.83	1549.16	5425.77	1549.97	5428.17	1550
5480.39	1550.67	5484.09	1550	5486.27	1549.58	5489.35	1550	5493.74	1550.6
5538.03	1550.24	5541.86	1550	5546.12	1549.74	5548.99	1550	5551.75	1550.38
5703.32	1550.72	5709.2	1550.16	5714.99	1550.67	5899.33	1550.31	5901.37	1550
5906.15	1549.25	5908.98	1550	5910.02	1550.29	6042.21	1551.43	6176.74	1551.42
6304.36	1552.3	6385.17	1552.1	6487.06	1550.94	6672.7	1551.07	7033.25	1550.97
7161.09	1550	7247.86	1550	7255.73	1550.06	7256.06	1550	7266.7	1547.72
7272.02	1548.89	7325.89	1549.99	7358.15	1550	7423.07	1551.03	7475.03	1550
7533.26	1548.85	7712.4	1548.57	7720.21	1547.76	7727.36	1548.48	7744.29	1548.61
7775.42	1548.16	7794.95	1548.55	7803.6	1547.91	7810.31	1548.14	7816.8	1548.33
7825.21	1548.49	7832.82	1548.37	8033.27	1549.26	8305.7	1550	8533.26	1550.12
8600.04	1550	8695.13	1550	8821.71	1550	8902.69	1550	9033.25	1550.51
9214.16	1551.44	9533.27	1552.95	9919.74	1551.61	9938.84	1551.2	9970.54	1551.84
9986.05	1552.07	9991.11	1550	9997.07	1547.58	10002.95	1547.56	10009.22	1550
10015.21	1552.33	10032.31	1551.52	10050.66	1551.16	10170.16	1551.33	10333.35	1550.85
10616.35	1550.52	10839.97	1550.55	11349.86	1551.99	11449.86	1552.06	11549.85	1552.41
11606.44	1552.93	11649.91	1552.91	11749.93	1552.87	11849.93	1552.94	11949.93	1552.85

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2448.16	.05	9991.11	.015	10015.21	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9214.16	10170.16	454.81	461.63	449.09	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2448.16	7732.34	1556	11649.91	11949.93	1556

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2448.16	3995.19	1555.27	11849.69	11949.93	1560

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1551.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1551.20	Reach Len. (ft)	454.81	461.63	449.09
Crit W.S. (ft)	1551.20	Flow Area (sq ft)	2054.18	54.89	386.79
E.G. Slope (ft/ft)	0.005072	Area (sq ft)	4341.46	54.89	386.79
Q Total (cfs)	6667.00	Flow (cfs)	5523.51	660.36	483.13
Top Width (ft)	5149.50	Top Width (ft)	4245.02	51.36	853.12
Vel Total (ft/s)	2.67	Avg. Vel. (ft/s)	2.69	12.03	1.25
Max Chl Dpth (ft)	3.64	Hydr. Depth (ft)	1.43	1.07	0.45
Conv. Total (cfs)	93615.6	Conv. (cfs)	77559.1	9272.6	6783.9
Length Wtd. (ft)		Wetted Per. (ft)	1434.44	52.75	853.12
Min Ch El (ft)	1547.56	Shear (lb/sq ft)	0.45	0.33	0.14
Alpha	2.86	Stream Power (lb/ft s)	1.22	3.96	0.18
Frctn Loss (ft)		Cum Volume (acre-ft)	3299.38	829.02	811.42
C & E Loss (ft)		Cum SA (acres)	3401.21	219.16	805.63

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7184.36	7860.96	1426.18	362.86	128.66	21.39	2.82	3.93
7860.96	8537.56	2946.64	1089.39	676.60	44.20	1.61	2.70
8537.56	9214.16	1150.70	601.92	629.18	17.26	0.96	1.91

9214.16	9978.96							
9978.96	RB 10170.16	660.37	54.89	52.75	9.91	1.07	12.03
10170.16	10348.14	16.57	25.62	132.49	0.25	0.19	0.65
10348.14	10526.11	96.79	83.14	177.98	1.45	0.47	1.16
10526.11	10704.09	166.36	115.07	177.98	2.50	0.65	1.45
10704.09	10882.07	163.14	113.73	177.98	2.45	0.64	1.43
10882.07	11060.04	40.25	49.11	177.98	0.60	0.28	0.82
11060.04	11238.02	0.01	0.11	8.72	0.00	0.01	0.10

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.456

INPUT
Description:
Station Elevation Data num= 120

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2326.78	1551.51	2468.2	1550.88	2609.62	1550.81	2819.09	1552.37	2932.31	1551.78
2936.87	1551.15	2941.23	1551.61	3109.62	1551.42	3609.63	1550.81	3738.03	1550.43
3741.86	1550	3746.37	1549.69	3749.04	1550	3753.61	1550.86	3840.98	1553.33
3905.76	1553.61	4109.64	1550.98	4280.02	1550	4366.5	1550	4435.63	1551.51
4510.91	1550	4609.64	1548.16	4745.8	1548.34	4791.42	1546.76	4800.31	1546.03
4802.85	1546.87	4817.26	1546.74	4824.37	1545.53	4829.48	1546.41	4936.75	1546.92
4947.32	1544.55	4954.36	1546.36	4964.42	1546.75	4973.42	1545.05	5002.55	1546.08
5007.53	1546.76	5109.64	1547.5	5353.31	1548.14	5361.57	1547.3	5365.81	1547.66
5390.84	1548.11	5401.92	1547.08	5412.04	1548.03	5621.83	1548.22	5629.2	1547.57
5632.38	1548.2	5749.94	1548.7	5789.77	1548.31	5795.27	1546.69	5801.13	1547.95
5826.82	1547.97	5830.34	1546.95	5833.66	1548.28	5845.44	1547.91	5849.92	1546.51
5859.09	1548.31	6125.15	1548.61	6249.94	1548.53	6384.67	1550	6424.21	1550.03
6498.76	1550.34	6524.47	1550	6706.44	1548.13	6714.43	1547.73	6722.08	1547.92
6890.25	1548.28	7149.52	1548.57	7390.25	1546.13	7432.9	1546	7440.72	1543.89
7447.01	1545.85	7567.61	1545.69	7573.73	1545.07	7579.82	1546.09	7592.7	1546.04
7595.81	1545.56	7600.99	1546.07	7690.53	1546.31	7697.87	1545.23	7702.83	1546.1
7745.56	1546.38	7805.65	1547.03	8250.48	1547.61	8544.46	1547.95	8730.36	1548.68
8750.47	1548.97	8834.84	1547.92	8901.47	1547.85	8954.29	1548.29	9250.49	1548.92
9750.5	1548.79	9885.78	1549.65	9914.89	1550	9922.74	1548.31	9928.71	1549.6
9970.72	1549.73	9986.01	1549.64	9997.42	1544.96	10002.98	1545.01	10015.65	1549.94
10031.7	1548.87	10048.69	1548.65	10061.23	1549.02	10117.2	1550	10120.79	1550.08
10123.16	1550	10146.67	1549.24	10366.36	1548.35	10696.21	1547.98	10734.33	1547.62
10796.91	1547.63	10877.54	1547.74	10973.48	1548.95	11334.79	1548.66	11583.68	1549.12
11589.9	1548.62	11594.64	1548.84	12123.08	1550.03	12231.88	1549.84	12248.6	1550

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2326.78	.05	9986.01	.015	10015.65	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9250.49	10123.16	471.43	458.83	474.45	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2326.78	7554.97	1554	11924.18	12248.6	1554

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2326.78	4430	1551	12128.76	12248.6	1550.04

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1549.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.050	0.016	0.050
W.S. Elev (ft)	1548.92	Reach Len. (ft)	471.43	458.83	474.45
Crit W.S. (ft)	1548.92	Flow Area (sq ft)	2089.68	101.66	634.22
E.G. Slope (ft/ft)	0.004193	Area (sq ft)	5055.52	101.66	634.22
Q Total (cfs)	6667.00	Flow (cfs)	5033.99	686.02	946.99
Top Width (ft)	6170.94	Top Width (ft)	4331.29	578.84	1260.81
Vel Total (ft/s)	2.36	Avg. Vel. (ft/s)	2.41	6.75	1.49
Max Chl Dpth (ft)	5.03	Hydr. Depth (ft)	1.24	0.18	0.50
Conv. Total (cfs)	102964.1	Conv. (cfs)	77744.1	10594.8	14625.1
Length Wtd. (ft)		Wetted Per. (ft)	1688.78	580.49	1260.84
Min Ch El (ft)	1544.96	Shear (lb/sq ft)	0.32	0.05	0.13
Alpha	1.69	Stream Power (lb/ft s)	0.78	0.31	0.20

Frctn Loss (ft)	Cum Volume (acre-ft)	3250.33	828.19	806.16
C & E Loss (ft)	Cum SA (acres)	3356.44	215.82	794.73

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7173.38	7865.75	2576.85	788.65	311.12	38.65	2.54	3.27
7865.75	8558.12	2062.81	950.33	692.37	30.94	1.37	2.17
8558.12	9250.49	394.34	350.70	685.29	5.91	0.51	1.12
LB 9250.49	9425.02	0.73	4.41	174.53	0.01	0.03	0.17
9425.02	9599.56	4.04	12.34	174.53	0.06	0.07	0.33
9599.56	9774.09	7.98	18.44	171.80	0.12	0.11	0.43
9774.09	9948.63	1.49	1.74	5.81	0.02	0.31	0.86
9948.63	RB 10123.16	671.78	64.75	53.82	10.08	1.24	10.37
10123.16	10335.70	16.45	24.82	110.69	0.25	0.22	0.66
10335.70	10548.25	186.58	138.36	212.54	2.80	0.65	1.35
10548.25	10760.79	357.54	204.40	212.55	5.36	0.96	1.75
10760.79	10973.34	352.89	202.03	210.53	5.29	0.96	1.75
10973.34	11185.88	3.95	12.76	178.32	0.06	0.07	0.31
11185.88	11398.42	26.78	43.17	212.54	0.40	0.20	0.62
11398.42	11610.97	2.73	8.22	103.30	0.04	0.08	0.33
11610.97	11823.51	0.07	0.47	20.37	0.00	0.02	0.14

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.369

INPUT
Description:
Station Elevation Data num= 112

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2325.29	1547.13	2466.71	1547.01	3107.02	1547.2	3217.75	1546.81	3224.85	1545.77
3232	1546.82	3607.81	1546.73	3610.55	1546.34	3642.99	1546.56	3738.92	1547.9
3747.34	1547.65	3856.34	1547.76	4120.1	1547.12	4247.34	1545.99	4502.86	1548.34
4747.34	1544.64	4879.75	1543.59	4892.1	1542.6	4896.65	1543.47	4904.7	1543.64
4910.72	1542.65	4912.24	1543.37	4938.41	1542.98	4947.26	1541.77	4959.42	1543.37
5247.35	1544.76	5451.64	1544.98	5459.43	1544.32	5462.59	1545.22	5472.63	1544.84
5476.53	1544.42	5480.27	1545.36	5693.23	1544.38	5701.53	1542.93	5709.92	1544.82
6107.56	1545.69	6272.96	1546.36	6415.74	1546.95	6607.56	1546.06	6950.57	1544.5
7107.56	1545.28	7482.41	1544.3	7491.51	1541.68	7505.53	1543.93	7547.67	1543.06
7557.38	1542.09	7562.84	1542.74	7571.17	1542.1	7574.97	1541.4	7581.26	1542.72
7640.56	1542.97	7646.59	1541.44	7652.4	1543.52	7737.83	1543.53	7780.44	1543.17
7834.75	1543.77	7953.23	1542.5	8098.43	1544.35	8177.08	1545.39	8237.01	1544.88
8354.63	1544.83	8434.36	1546.05	8467.71	1546.68	8484.05	1546.76	8558.43	1546.06
8701.59	1545.19	8898.35	1545.13	8967.72	1545.07	9197.1	1544.72	9467.71	1544.97
9749.34	1545.83	9753.63	1545.02	9759.54	1545.65	9945.56	1547.26	9962.32	1547.56
9967.73	1547.54	9971.61	1547.29	9984.93	1547.53	9997.16	1542.6	310003.01	1542.48
10016.24	1547.3	10030.55	1546.46	10054.41	1545.23	10061.55	1546.12	10328.37	1545.8
10375.48	1545.74	10911.46	1544.72	10987.28	1544.96	11042.09		154611060.67	1546
11089.43	1545.51	11135.07	1545.92	11467.74	1545.95	11522.26	1545.32	11530.15	1544.34
11535.16	1545.4	11611.54	1545.14	11619.82	1544.21	11624.18	1545.06	11843.17	1545.85
11943.17	1546.51	11957.88	1546.49	12044.01	1546.55	12088.56	1546.32	12144.08	1546.95
12195.37	1546.65	12244.16	1546.5	12293.26	1547.17	12344.19	1547.02	12444.19	1546.85
12469.02	1546.59	12544.19	1545.86						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2325.29	.05	9984.93	.015	10016.24	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9467.71	10061.55	470.44	483.62	480.37	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
2325.29	7371.04	1549

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2325.29	4523.31	1548.33	12044	12544.19	1546.98

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1545.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.050	0.021	0.050
W.S. Elev (ft)	1545.67	Reach Len. (ft)	470.44	483.62	480.37
Crit W.S. (ft)	1545.27	Flow Area (sq ft)	2408.97	129.05	423.96
E.G. Slope (ft/ft)	0.003755	Area (sq ft)	4340.32	129.05	423.96
Q Total (cfs)	6667.00	Flow (cfs)	5722.67	478.45	465.88
Top Width (ft)	5190.12	Top Width (ft)	3978.02	273.96	938.15
Vel Total (ft/s)	2.25	Avg. Vel. (ft/s)	2.38	3.71	1.10
Max Chl Dpth (ft)	4.27	Hydr. Depth (ft)	1.28	0.47	0.45
Conv. Total (cfs)	108793.3	Conv. (cfs)	93383.5	7807.4	7602.4
Length Wtd. (ft)	472.10	Wetted Per. (ft)	1884.47	275.24	938.47
Min Ch El (ft)	1542.48	Shear (lb/sq ft)	0.30	0.11	0.11
Alpha	1.17	Stream Power (lb/ft s)	0.71	0.41	0.12
Frctn Loss (ft)	2.84	Cum Volume (acre-ft)	3199.48	826.97	800.40
C & E Loss (ft)	0.05	Cum SA (acres)	3311.47	211.33	782.76

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7324.98	8039.23	4538.99	1537.75	669.63	68.08	2.30	2.95
8039.23	8753.47	484.11	357.39	500.60	7.26	0.71	1.35
8753.47	9467.71	699.56	513.82	714.24	10.49	0.72	1.36
LB 9467.71	9586.48	70.34	61.30	118.77	1.06	0.52	1.15
9586.48	9705.25	9.94	18.36	109.65	0.15	0.17	0.54
9705.25	9824.01	2.30	3.09	11.45	0.03	0.27	0.75
9824.01	9942.78						
9942.78	RB 10061.55	395.86	46.29	35.37	5.94	1.35	8.55
10061.55	10309.81						
10309.81	10558.08	8.80	19.87	144.50	0.13	0.14	0.44
10558.08	10806.34	134.96	126.92	248.26	2.02	0.51	1.06
10806.34	11054.61	227.80	165.02	218.23	3.42	0.76	1.38
11054.61	11302.87	0.64	2.11	26.77	0.01	0.08	0.31
11302.87	11551.13	16.88	20.54	59.12	0.25	0.35	0.82
11551.13	11799.40	76.80	89.51	241.58	1.15	0.37	0.86

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.278

INPUT
Description:
Station Elevation Data num= 118

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2398.85	1544.23	2540.26	1543.76	2681.68	1543.57	2823.1	1543.08	3463.45	1543.15
3553.24	1543.2	3558.27	1542.35	3562.45	1542.94	3736.74	1544.97	3832.49	1543.6
4103.76	1543.39	4576.88	1544.27	4603.76	1544.64	4690.95	1542.82	4995.02	1541.17
5001.21	1540	5006.32	1539.41	5010.45	1540	5013.99	1540.55	5042.86	1540.43
5044.84	1540	5051.85	1538.67	5059.8	1539.81	5067.6	1540	5103.76	1540.9
5115.04	1540.31	5117.4	1540	5121.79	1539.41	5124.26	1540	5124.61	1540.09
5289.52	1540.29	5301.09	1540.17	5315.32	1540.41	5477.56	1541.37	5484.11	1540.82
5491.06	1541.62	5508.69	1541.59	5512.05	1541	5516.98	1541.86	5563.3	1541.51
5574.94	1541.61	5585.54	1541.85	5682.46	1541.77	5687.57	1541.05	5691.57	1541.71
5963.98	1542.35	5983.81	1542.04	5990.12	1541.62	5993.85	1541.69	6182.68	1543.41
6350.77	1542.53	6721.89	1542.66	6810.31	1543.33	6824.21	1543.15	7684.44	1541.78

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 7767.77 1540.35 7769.41    1540 7780.08 1537.83  7791.7    1540  7795.5 1540.69
 7875.07    1540 7934.22 1539.75 7938.76 1538.81    7943 1539.71 7960.24 1539.39
 8008.74    1540 8068.91  1540.7 8074.77    1540  8081.1  1539.3 8085.97    1540
 8090.66 1540.85 8159.26 1541.42 8184.43 1542.24 8215.99 1542.86 8251.93  1542.7
 8290.41 1541.99 8350.06 1541.93 8446.86 1542.83 8527.99 1542.02 8618.35  1542.5
 8831.91 1542.84 9187.09 1541.43 9324.62 1542.19 9584.63 1542.21 9824.61 1543.65
 9952.54 1543.84 9971.73 1544.51 9986.02 1544.97 9996.76    1540 9996.82 1539.97
10002.87 1539.8110003.33    154010016.28 1545.1810030.82 1544.6610054.36 1543.54
10063.91 1544.0210393.35  1542.910546.68 1543.2111105.44  1542.211129.77 1543.09
 11152.1 1543.6111208.81 1541.9711385.33 1543.1711432.66 1542.4111559.37  1543.9
   11641 1542.2111770.74 1541.8911781.04  1541.711791.27 1541.3511798.79 1541.63
11926.31 1542.3212085.25 1543.1212192.72 1544.2312283.77 1543.0112390.15 1543.82
12496.02 1542.4712658.39 1542.8412772.52 1543.08

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2398.85     .05 9986.02    .01510016.28     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9584.6310063.91           479.41  456.95   473.4             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 2398.85 7190.77    1545
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2398.85    4601  1544.5 12193.212772.52 1544.51

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1542.87   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.28   Wt. n-Val.                0.050      0.016      0.050
  W.S. Elev (ft)            1542.59   Reach Len. (ft)          479.41     456.95     473.40
  Crit W.S. (ft)            1542.57   Flow Area (sq ft)       1797.48      45.33     267.49
  E.G. Slope (ft/ft)       0.010761   Area (sq ft)            3437.93      45.33     267.49
  Q Total (cfs)             6667.00   Flow (cfs)              5700.63     498.02     468.34
  Top Width (ft)            4425.19   Top Width (ft)          3621.32      81.84     722.03
  Vel Total (ft/s)             3.16   Avg. Vel. (ft/s)           3.17      10.99       1.75
  Max Chl Dpth (ft)            4.76   Hydr. Depth (ft)           0.87       0.55       0.37
  Conv. Total (cfs)         64268.1   Conv. (cfs)             54952.6     4800.8     4514.7
  Length Wtd. (ft)           477.11   Wetted Per. (ft)        2068.44      82.96     722.07
  Min Ch El (ft)            1539.81   Shear (lb/sq ft)           0.58       0.37       0.25
  Alpha                        1.79   Stream Power (lb/ft s)     1.85       4.03       0.44
  Frctn Loss (ft)              3.78   Cum Volume (acre-ft)    3157.48     826.00     796.59
  C & E Loss (ft)              0.06   Cum SA (acres)          3270.44     209.35     773.60


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta     Right Sta       Flow       Area       W.P.    % Conv.   Hydr D.   Velocity
  (ft)         (ft)            (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  6710.32      7428.90         49.65      50.62    238.13       0.74      0.21       0.98
  7428.90      8147.47       4734.27    1213.55    719.52      71.01      1.69       3.90
  8147.47      8866.05        220.75     155.68    421.23       3.31      0.37       1.42
  8866.05      9584.63        695.98     377.64    689.56      10.44      0.55       1.84
  LB 9584.63   9680.49         12.20      11.99     63.21       0.18      0.19       1.02
  9680.49      9968.05
  9968.05      RB 10063.91    485.83      33.35     19.75       7.29      1.79      14.57
  10063.91     10876.49
  10876.49     11147.35        44.31      43.99    226.01       0.66      0.19       1.01
  11147.35     11418.21        47.81      34.83    112.51       0.72      0.31       1.37
  11418.21     11689.08        35.38      26.92     92.80       0.53      0.29       1.31
  11689.08     11959.94       340.43     160.75    270.88       5.11      0.59       2.12
  11959.94     12230.80         0.40       0.99     19.87       0.01      0.05       0.41


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

CROSS SECTION          RIVER: Powerline FRS
REACH: Powerline          RS: 19.191
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INPUT
Description:
Station Elevation Data num= 142

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2414.82	1541.18	2556.24	1541.52	2697.66	1541.25	2802.02	1540	2816.33	1539.77
2819.68	1540	2820.43	1540.06	2839.08	1540.04	2980.49	1540.21	3396.24	1540.74
3398.5	1540	3405.34	1537.81	3421.23	1540	3424.94	1540.48	3499.54	1540.79
3502.86	1540	3507.37	1538.63	3509.68	1540	3511.23	1540.74	3519.07	1540.97
3521.6	1540	3526.05	1538.4	3531	1540	3534.31	1540.89	3672.07	1540.8
3761.55	1540.75	3959.94	1540	4030.58	1539.92	4045.65	1539.38	4054.01	1539.97
4066.03	1540	4140.88	1540.26	4261.55	1540.43	4464.84	1540	4633.13	1540
4753.68	1541.64	4833.87	1540	4901.86	1538.6	5071.39	1538.23	5079.16	1537.91
5084.31	1538.52	5379.08	1538.45	5386.92	1536.83	5395.19	1538.23	5401.83	1538.61
5457.79	1538.35	5467.85	1537.69	5475.54	1538.54	5740.55	1539.13	5744.73	1537.73
5750.07	1539.15	5830.59	1539.5	5839.17	1538.66	5839.24	1538.69	5843.34	1538.89
5901.83	1539.63	6057.68	1540	6280.86	1540	6394.93	1538.99	6400.25	1538.29
6407.11	1538.57	6542.17	1538.49	7042.16	1538.27	7538.12	1537.29	7542.14	1537.05
7549.27	1536.88	7556.72	1537.09	7794.17	1536.76	7802.44	1535.09	7807.65	1536.37
7862.15	1536.89	7870	1535.54	7875.53	1536.53	8042.15	1539.12	8542.14	1539.25
9042.15	1538.92	9089.16	1538.2	9542.15	1538.87	9694.82	1539.67	9951.29	1539.7
9955.58	1540	9973.13	1541.19	9986.96	1541.74	9990.89	1540	9997.37	1537.11
10003.36	1536.91	10011.07	1540	10015.53	1542.14	10016.45	1542.15	10031.17	1542.05
10042.16	1540.96	10051.84	1540.29	10232.13	1540	10402.7	1539.02	10751.65	1538.86
10762.19	1538.11	10767.64	1538.75	10774.6	1538.48	10785.19	1537.65	10795.03	1538.86
10924.11	1538.62	11028.55	1539.42	11064.59	1540	11084.75	1540.24	11193.1	1540.1
11198.79	1540	11281.9	1539.23	11336.98	1538.13	11347.69	1537.35	11355.92	1537.49
11397.07	1538.67	11438.79	1538.75	11485.41	1537.52	11598.61	1536.12	11601.71	1535.26
11606.98	1536.48	11643.73	1536.32	11659.66	1535.31	11674.55	1536.31	11706.59	1537.05
11806.59	1538.79	11850.42	1539.17	11906.59	1539.88	12006.6	1539.5	12106.6	1539.9
12206.59	1539.91	12222.68	1539.83	12306.65	1539.92	12358.44	1540	12406.87	1540.14
12470.66	1540.53	12507.05	1539.71	12607.07	1539.68	12683.31	1540	12707.08	1539.33
12720.82	1539.07	12793.16	1539.23	12802.87	1539.02	12807.15	1538.72	12907.15	1538.54
13007.13	1539.26	13107.15	1539.36						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2414.82	.05	9986.96	.01	10015.53	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9694.82	10031.17		473.38	480.01	494.92	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
2414.82	7018.97	1542

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2414.82	4740	1540.5	12471.71	13107.15	1542

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1539.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1538.87	Reach Len. (ft)	473.38	480.01	494.92
Crit W.S. (ft)	1538.31	Flow Area (sq ft)	1585.93	19.34	759.99
E.G. Slope (ft/ft)	0.006195	Area (sq ft)	2152.60	19.34	759.99
Q Total (cfs)	6667.00	Flow (cfs)	4368.38	174.34	2124.27
Top Width (ft)	3616.36	Top Width (ft)	2869.63	14.81	731.92
Vel Total (ft/s)	2.82	Avg. Vel. (ft/s)	2.75	9.01	2.80
Max Chl Dpth (ft)	3.78	Hydr. Depth (ft)	1.06	1.31	1.04
Conv. Total (cfs)	84707.6	Conv. (cfs)	55502.6	2215.1	26990.0
Length Wtd. (ft)	480.78	Wetted Per. (ft)	1500.85	15.56	732.53
Min Ch El (ft)	1536.91	Shear (lb/sq ft)	0.41	0.48	0.40
Alpha	1.21	Stream Power (lb/ft s)	1.13	4.33	1.12
Frctn Loss (ft)	2.91	Cum Volume (acre-ft)	3126.72	825.67	791.00
C & E Loss (ft)	0.00	Cum SA (acres)	3234.72	208.85	765.70

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6782.82	7510.82	1178.95	509.81	491.85	17.68	1.04	2.31
7510.82	8238.82	3011.33	911.87	515.52	45.17	1.77	3.30

8238.82	8966.82						
8966.82	9694.82	178.10	164.24	493.48	2.67	0.33	1.08
9694.82	9963.90						
9963.90	RB 10031.17	174.34	19.34	15.56	2.62	1.31	9.01
10031.17	10646.37						
10646.37	10953.96	32.52	42.78	214.73	0.49	0.20	0.76
10953.96	11261.56	0.00	0.02	2.21	0.00	0.01	0.09
11261.56	11569.16	589.82	266.44	269.09	8.85	0.99	2.21
11569.16	11876.76	1501.93	450.74	246.49	22.53	1.83	3.33

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 19.100

INPUT
Description:
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2416.22	1537.06	2422.25	1537.41	2425.33	1536.31	2435.89	1537.54	2943.21	1537.08
2947.83	1535.99	2952.97	1536.81	3197.24	1537.16	3232.92	1537.16	3241.3	1536.57
3245.76	1537.26	3280.21	1536.97	3573.83	1539.37	3788.05	1537.8	3837.54	1537.18
3859.52	1536.92	3865.97	1536.39	3869.89	1536.9	3873.7	1536.26	3878.57	1536.81
4281.13	1537.11	4287.82	1536.7	4295.82	1537.15	4477.86	1536.47	4768.6	1539.2
5118.17	1536.01	5411.16	1535.22	5419.85	1534.66	5426.73	1535.02	5511.78	1535.85
5517.51	1534.64	5526.41	1535.42	5608.35	1535.92	5615.85	1535.32	5625.36	1535.66
5673.66	1536.28	5679.71	1535.49	5685.74	1536.08	5811.87	1536.74	6118.19	1536.33
6132.81	1536.12	6141.14	1534.7	6149.09	1536.19	6618.18	1535.52	7258.47	1535.79
7689.33	1533.74	7696.4	1532.5	7704.07	1533.77	7758.48	1533.46	7789.07	1533.91
7841.83	1534.43	7869.27	1533.46	7875.51	1532.98	7883.17	1533.36	8398.79	1535.81
8543.15	1535.58	8898.8	1536.43	9398.8	1536.22	9487.2	1536.15	9497.73	1535.49
9501.29	1535.89	9657.63	1536.14	9898.81	1536.69	9948.38	1537.34	9972.03	1538.22
9986.3	1538.32	9996.84	1533.39	10003.24	1533.24	10016.16	1538.66	10031.56	1537.68
10053.12	1536.72	10398.79	1536.15	10742.07	1534.56	10748.66	1534.33	10753.85	1534.42
10820.21	1534.75	10824.63	1533.56	10830.93	1534.55	11031.97	1537.15	11342.19	1535.35
11381.08	1534.94	11702.76	1534.69	11830.04	1535.49	12023.46	1535.67	12071.89	1534.46
12124.56	1534.79	12224.56	1536.58	12238.37	1537.03	12324.56	1536.53	12424.56	1537.05
12523.06	1537.12	12566.87	1536.5	12624.9	1535.61	12679.07	1536.73	12724.92	1535.98
12824.92	1536.48	12924.92	1535.56	12936.81	1535.87	13025.74	1535.73	13125.74	1535.44
13225.74	1536.41	3325.74	1536.99						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2416.22	.05	9986.3	.015	10016.16	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.3	10016.16	498.88	532.81	502.11	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
2416.22	6844.13	1539.5

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2416.22	4768.6	1539.2	12521	13325.74	1539.2

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1536.11	Element			
Vel Head (ft)	0.16	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1535.94	Reach Len. (ft)	498.88	532.81	502.11
Crit W.S. (ft)	1535.56	Flow Area (sq ft)	1800.23	32.52	1163.22
E.G. Slope (ft/ft)	0.005897	Area (sq ft)	2160.22	32.52	1163.22
Q Total (cfs)	6667.00	Flow (cfs)	4020.50	348.80	2297.70
Top Width (ft)	4409.15	Top Width (ft)	2946.08	18.31	1444.77
Vel Total (ft/s)	2.23	Avg. Vel. (ft/s)	2.23	10.73	1.98
Max Chl Dpth (ft)	3.44	Hydr. Depth (ft)	0.95	1.78	0.81
Conv. Total (cfs)	86817.0	Conv. (cfs)	52354.6	4542.1	29920.4
Length Wtd. (ft)	502.20	Wetted Per. (ft)	1896.42	19.42	1445.05
Min Ch El (ft)	1533.24	Shear (lb/sq ft)	0.35	0.62	0.30
Alpha	2.09	Stream Power (lb/ft s)	0.78	6.61	0.59
Frctn Loss (ft)	3.53	Cum Volume (acre-ft)	3103.28	825.38	780.08
C & E Loss (ft)	0.04	Cum SA (acres)	3203.12	208.66	753.34

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6201.26	6958.27	32.33	34.79	114.14	0.48	0.30	0.93
6958.27	7715.28	1172.58	639.59	757.23	17.59	0.84	1.83
7715.28	8472.28	2777.04	1072.83	757.07	41.65	1.42	2.59
8472.28	9229.29	37.29	49.57	223.26	0.56	0.22	0.75
9229.29	9986.30	1.29	3.47	44.74	0.02	0.08	0.37
LB 9986.30	9992.27	0.43	0.19	0.99	0.01	0.21	2.28
9992.27	9998.24	99.01	10.40	6.45	1.49	1.74	9.52
9998.24	10004.22	204.23	15.66	6.06	3.06	2.62	13.04
10004.22	10010.19	45.13	6.28	5.93	0.68	1.15	7.19
10010.19	10347.12						
10347.12	10678.08	183.64	127.73	234.85	2.75	0.54	1.44
10678.08	11009.03	641.89	282.27	260.91	9.63	1.08	2.27
11009.03	11339.99	27.60	29.14	100.21	0.41	0.29	0.95
11339.99	11670.95	806.92	356.13	330.96	12.10	1.08	2.27
11670.95	12001.91	341.39	212.55	330.96	5.12	0.64	1.61
12001.91	12332.87	296.22	155.40	187.16	4.44	0.83	1.91

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.999

INPUT
Description:
Station Elevation Data num= 117

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2413.27	1534.17	2509.46	1532.71	2515.11	1531.86	2520.96	1532.99	2570.16	1532.79
2572.89	1531.98	2578.59	1533.07	2654.66	1533	2666.65	1532.47	2671	1532.94
3053.57	1534.48	3655.57	1534.31	3693.89	1535.17	3742.52	1535.59	4123.22	1535.22
4268.34	1536.55	4334.19	1535.44	4355.78	1535.41	4456.6	1535.64	4590.06	1533.35
4597.25	1532.53	4604.07	1532.94	4974.51	1534.07	5228.17	1532.36	5241.76	1532.48
5476.01	1532.3	5481.31	1530.86	5491.25	1532.52	5614.82	1533.14	6114.81	1533.48
6511.71	1532.73	6517.64	1532.26	6522.82	1532.7	6573.18	1532.21	6580.97	1532.3
6614.8	1532.62	6728.97	1532.16	6732.98	1531.69	6745.91	1532.5	7022.8	1531.05
7030.16	1530.33	7035.93	1531.06	7047.19	1531.26	7055.57	1530.34	7057.43	1531.15
7136.91	1531.37	7388.6	1533.46	7440.42	1532.15	7754.98	1531.09	7849.81	1530.63
7854.58	1530.45	7860.61	1530.74	7873.22	1530.56	7879.62	1529.97	7885.31	1530.49
8395.29	1531.61	8541.38	1531.39	8895.3	1533.04	9535.61	1532.97	9563.63	1532.67
9571.38	1532.2	9575.26	1532.85	9629.81	1533.1	9636.38	1531.65	9641.71	1532.68
9951.25	1533.05	9975.16	1533.94	9986.71	1534.55	9995.57	1530	9997.09	1529.22
10003.06	1529.32	10004.66	1530	10015.51	1534.61	0031.54	1533.32	10210.26	1532.8
10218.1	1531.99	10223.53	1532.65	10397.35	1532.51	0433.02	1532.25	10808.09	1531.67
10815.2	1530.91	0820.14	1531.64	10897.11	1531.87	10904.47	1530.44	10911.92	1531.25
11077.7	1533.39	11563.72	1530.21	11565.13	1530	11568.9	1529.29	11573.42	1529.95
11574.76	1530	11701.22	1531.16	12061.77	1531.83	12161.75	1532.43	12261.75	1533.12
12361.75	1532.72	12461.77	1532.8	12561.77	1533.92	12661.76	1534.17	12761.76	1533.94
12861.76	1535.11	12961.77	1534.09	13061.76	1533.69	13161.76	1533.07	13261.76	1532.5
13298.29	1532.21	13313.71	1529.97	13355.96	1529.69	13384.84	1530.49	13409.42	1532.1
13418.21	1530	13113440.39	1531.75	13460.29	1532.55	13475.13	1530.47	13485.34	1532
13562.79	1533.94	13662.79	1534.41						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2413.27	.05	9986.71	.01	10015.51	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.71	10015.51	550.8	497.5	512.71	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
2413.27	6654.45	1540

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2413.27	4965	1534	12862.21	3662.79	1535.97

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1532.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1532.23	Reach Len. (ft)	550.80	497.50	512.71
Crit W.S. (ft)	1532.23	Flow Area (sq ft)	1482.91	36.55	1037.96
E.G. Slope (ft/ft)	0.008497	Area (sq ft)	1492.09	36.55	1037.96
Q Total (cfs)	6667.00	Flow (cfs)	3674.48	498.40	2494.12
Top Width (ft)	3228.25	Top Width (ft)	1785.28	18.71	1424.25
Vel Total (ft/s)	2.61	Avg. Vel. (ft/s)	2.48	13.63	2.40
Max Chl Dpth (ft)	3.01	Hydr. Depth (ft)	0.84	1.95	0.73
Conv. Total (cfs)	72328.2	Conv. (cfs)	39863.3	5407.0	27057.9
Length Wtd. (ft)	530.57	Wetted Per. (ft)	1767.92	20.03	1424.71
Min Ch El (ft)	1529.22	Shear (lb/sq ft)	0.44	0.97	0.39
Alpha	2.86	Stream Power (lb/ft s)	1.10	13.20	0.93
Frctn Loss (ft)	2.96	Cum Volume (acre-ft)	3082.37	824.96	767.39
C & E Loss (ft)	0.08	Cum SA (acres)	3176.03	208.44	736.80

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6199.99	6957.33	96.80	71.91	191.90	1.45	0.37	1.35
6957.33	7714.68	778.20	385.89	561.58	11.67	0.69	2.02
7714.68	8472.02	2576.34	892.03	757.41	38.64	1.18	2.89
8472.02	9229.37	221.35	131.40	250.47	3.32	0.52	1.68
9229.37	9986.71	1.74	1.67	6.57	0.03	0.26	1.04
LB 9986.71	9992.47	1.43	0.40	1.41	0.02	0.32	3.57
9992.47	9998.23	148.41	11.87	6.33	2.23	2.06	12.50
9998.23	10003.99	279.38	16.80	5.84	4.19	2.92	16.63
10003.99	10009.75	69.18	7.47	6.26	1.04	1.30	9.26
10009.75	RB 10015.51	0.01	0.01	0.20	0.00	0.04	0.88
10015.51	10380.24	0.32	0.53	4.40	0.00	0.12	0.61
10380.24	10744.97	66.15	70.43	301.84	0.99	0.23	0.94
10744.97	11109.69	230.77	136.78	243.50	3.46	0.56	1.69
11109.69	11474.42	315.55	158.49	220.11	4.73	0.72	1.99
11474.42	11839.15	1642.62	522.02	364.87	24.64	1.43	3.15
11839.15	12203.88	238.75	149.70	290.00	3.58	0.52	1.59

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.905

INPUT
Description:
Station Elevation Data num= 153

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2390.65	1535.78	2463.93	1530.55	2471.47	1530	2521.75	1526.86	2545.33	1526.93
2599.43	1530	2611.4	1533.1	2675.01	1534.67	2694.51	1533.11	2709.35	1530.33
2740.61	1530.53	2772.98	1532.3	2809.29	1531.98	2824.66	1530.44	2852.59	1530
2869.39	1529.85	2877.15	1528.96	2884.54	1529.08	2887.98	1529.94	2896.58	1530
3111.78	1530.68	3349.46	1530	3752.08	1529.48	4392.4	1529.6	4706.24	1530
5032.71	1530.86	5094.23	1530	5170.16	1529.29	5184.18	1527.79	5188.26	1528.24
5220.73	1529.52	5229.14	1528.42	5238.06	1529.01	5361.18	1529.38	5368.75	1528.33

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 5372.61 1529.13 5440.46 1529.46 5450.03 1528.57 5457.41 1529.54  5532.7 1529.51
  6032.7 1529.43 6171.79 1528.75 6532.69 1529.36 6954.04    1530 7032.71 1528.79
 7119.45 1528.12 7151.81 1527.92 7157.29 1526.97 7165.18 1528.08 7307.59 1528.28
 7318.07 1527.68 7324.29 1527.98    7673 1527.83 7939.86 1526.99 7946.02 1527.56
 8173.25 1527.58 8239.33 1527.18 8543.79 1528.42 8673.23 1529.02 9173.24 1529.41
 9315.94    1530 9407.08    1530  9492.9 1529.08 9494.38 1528.67 9498.93 1529.01
 9508.32  1528.8 9516.24 1527.11 9522.98 1529.43 9673.24 1529.75 9891.68 1529.16
 9895.89 1528.69 9902.83 1529.11 9944.84 1529.61 9966.84    1530  9974.8 1530.13
 9986.42 1530.57  9987.7    1530 9997.47 1525.6310003.31 1525.6610014.58    1530
10016.08 1530.5810031.57    153010032.16 1529.9810032.66    153010042.41    1530
10175.45 1529.4310183.96 1528.4310193.62 1529.5310451.08 1528.6210755.24 1528.46
 10794.6 1528.3410800.14 1527.0610808.57  1528.510829.11 1528.08   10873    1530
10885.56 1530.6710979.18    153011115.79 1528.3911361.29 1527.3411367.94 1527.28
11369.12  1526.911412.46 1527.8111428.65  1525.711447.28 1529.3411461.64    1530
11462.04 1530.0211462.42    153011475.87 1529.3111491.84 1526.42 11509.8 1527.18
11921.11 1527.2111927.24  1526.4 11931.2 1527.2112036.58 1527.31 12041.1 1527.01
12045.98 1527.3812157.48 1528.15 12196.6 1528.5912255.29    153012262.93    1530
12357.57 1529.1412400.82 1529.4212452.16 1529.1112466.06 1528.5812470.61 1528.96
12557.56 1529.0912635.13    153012657.56 1530.26 12680.2    153012721.94 1529.52
12729.21 1528.8512734.62 1529.6812757.56 1529.9412764.99    153012857.56 1530.76
12957.58 1530.3413057.56 1531.0613157.56 1531.8513257.56 1530.9313357.56 1530.56
13437.01 1530.0913457.56 1530.0113557.51 1530.3713557.56 1530.39 13631.7    1530
13657.56 1529.8613757.56 1528.3513762.95 1527.3413772.89 1524.8913779.31 1527.65
13857.56 1529.8113925.33    153013957.57 1530.09

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2390.65     .05 9986.42    .01510016.08     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9986.4210016.08            497.15  483.04  572.01              .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 2390.65 6442.03    1534
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2390.65    5025  1530.5   1315013957.57  1530.5

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1528.96   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.14   Wt. n-Val.                0.050      0.015      0.050
  W.S. Elev (ft)            1528.81   Reach Len. (ft)          497.15     483.04     572.01
  Crit W.S. (ft)            1528.55   Flow Area (sq ft)       1590.50      42.69    1561.40
  E.G. Slope (ft/ft)       0.003932   Area (sq ft)            1607.92      42.69    1561.40
  Q Total (cfs)             6667.00   Flow (cfs)              2938.27     407.68    3321.04
  Top Width (ft)            3288.69   Top Width (ft)          1711.61      21.13    1555.95
  Vel Total (ft/s)             2.09   Avg. Vel. (ft/s)           1.85       9.55       2.13
  Max Chl Dpth (ft)            3.18   Hydr. Depth (ft)           0.98       2.02       1.00
  Conv. Total (cfs)        106327.9   Conv. (cfs)             46860.7     6501.9    52965.3
  Length Wtd. (ft)           535.42   Wetted Per. (ft)        1616.40      22.40    1557.20
  Min Ch El (ft)            1525.63   Shear (lb/sq ft)           0.24       0.47       0.25
  Alpha                        2.14   Stream Power (lb/ft s)     0.45       4.47       0.52
  Frctn Loss (ft)              2.79   Cum Volume (acre-ft)    3062.77     824.50     752.09
  C & E Loss (ft)              0.07   Cum SA (acres)          3153.92     208.21     719.26


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  6948.11       7707.69         794.17     530.77     676.54      11.91      0.78       1.50
  7707.69       8467.27        2077.89     990.03     759.61      31.17      1.30       2.10
  8467.27       9226.84          52.20      58.36     160.91       0.78      0.36       0.89
  9226.84       9986.42          13.98      11.34      19.34       0.21      0.60       1.23
  LB 9986.42    9992.35           2.68       0.89       2.18       0.04      0.45       3.02
  9992.35       9998.28         114.49      13.01       6.42       1.72      2.19       8.80
  9998.28       10004.22        217.33      18.60       6.00       3.26      3.14      11.69
  10004.22      10010.15         72.44       9.85       6.36       1.09      1.66       7.36
  10010.15      RB 10016.08       0.74       0.35       1.44       0.01      0.26       2.13
  10016.08      10410.23          0.52       1.57      19.87       0.01      0.08       0.33
  10410.23      10804.38         92.27     115.57     394.36       1.38      0.29       0.80
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10804.38	11198.53	84.88	76.63	160.00	1.27	0.48	1.11
11198.53	11592.68	1135.17	502.83	360.84	17.03	1.40	2.26
11592.68	11986.83	1589.78	637.66	394.28	23.85	1.62	2.49
11986.83	12380.97	418.02	226.13	219.01	6.27	1.03	1.85
12380.97	12775.12	0.44	1.02	8.85	0.01	0.12	0.43

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.814

INPUT
Description:
Station Elevation Data num= 130

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2467.1	1526.69	2512.33	1525.41	2523.88	1524.04	2538.47	1525.32	2571.18	1526.14
2852.09	1526.65	2856.58	1526.07	2860.41	1526.46	2987.4	1526.91	2995.59	1525.96
3000.08	1526.42	3251.39	1526.95	3389.06	1526.15	4029.36	1525.29	4152.42	1525.33
4155.53	1524.65	4160.5	1525.32	4810.4	1528.28	5183.05	1526.85	5189.4	1525.68
5196.25	1526.79	5310.39	1527.1	5332.15	1527.09	5346.34	1527.11	5453.54	1526.42
5462.32	1525.32	5502.77	1525.77	5507.62	1526.23	5550.94	1526.6	5564.66	1526.46
5810.38	1526.41	6239.08	1525.24	6246	1524.64	6251.74	1525.31	6258.12	1525.31
6265.42	1524.22	6275.45	1525.36	6310.38	1525.77	7170.61	1525.88	7670.59	1524.67
7744.54	1524.32	7748.99	1523.41	7754.67	1524.21	7776.46	1524.83	7785.44	1523.79
7796.32	1524.42	7862.54	1524.67	7867.64	1523.8	7874.43	1524.52	7911.01	1524.41
7916.99	1523.89	7922.3	1524.79	8036.55	1524.89	8045.49	1523.99	8051.74	1524.45
8076.76	1524.63	8085.45	1524.06	8093.74	1524.38	8097.09	1524.48	8099.98	1524.24
8106.78	1524.51	8140.51	1524.48	8147.68	1524.43	8530.83	1525.83	9030.84	1526.72
9432.5	1526.24	9470.54	1526.73	9530.84	1526.55	9888.28	1526.24	9895.01	1525.65
9902.01	1525.73	9973.27	1527.03	9987.38	1527.34	9997.73	1521.99	10003.68	1522.33
10016.22	1527.15	10030.91	1526.26	10463.08	1525.38	10693.23	1525.24	10709.47	1523.29
10729.22	1526.53	10743.12	1527	10757.86	1526.45	10773.83	1523.61	10789.93	1524.73
11354.37	1524.57	11360.44	1523.72	11365.5	1524.31	11739.01	1524.72	11807.74	1524.49
11939.61	1526.78	11962.62	1526.56	12071.05	1525.5	12142.08	1524.91	12145.24	1524.39
12150.04	1525.12	12175.54	1524.74	12178.9	1524.29	12185.48	1524.92	12366.58	1525.94
12402.13	1526.06	12409.92	1526.48	12509.91	1527.28	12565.58	1526.46	12609.92	1526.04
12689.44	1526.27	12695.93	1525.66	12700.14	1526.07	12709.92	1526.66	12809.92	1526.51
12909.91	1527.75	13009.91	1527.63	13109.93	1527.65	13209.93	1527.75	13309.93	1527.48
13409.91	1528.27	13509.91	1528.2	13609.93	1527.45	13686.42	1527.93	13709.93	1528.35
13809.91	1528.65	13871.42	1527.75	13881.42	1526.62	13887.64	1527.52	13909.91	1527.68
13993.42	1526.37	14044.99	1522.43	14053.74	1523.6	14077.26	1525.2	14109.92	1525.57

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2467.1	.05	9987.38	.015	10016.22	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9987.38	10016.22	468.36	449.54	498.59	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
2467.1	6228.77	1528.5

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2467.1	4811.27	1528.99	12910	14109.92	1527

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1526.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1525.71	Reach Len. (ft)	468.36	449.54	498.59
Crit W.S. (ft)	1525.71	Flow Area (sq ft)	1051.64	49.41	1515.22
E.G. Slope (ft/ft)	0.007258	Area (sq ft)	1095.27	49.41	1515.22
Q Total (cfs)	6667.00	Flow (cfs)	2280.19	684.61	3702.20
Top Width (ft)	3382.83	Top Width (ft)	1542.73	21.95	1818.15
Vel Total (ft/s)	2.55	Avg. Vel. (ft/s)	2.17	13.86	2.44
Max Chl Dpth (ft)	3.72	Hydr. Depth (ft)	0.78	2.25	0.83
Conv. Total (cfs)	78254.9	Conv. (cfs)	26764.1	8035.8	43455.1
Length Wtd. (ft)		Wetted Per. (ft)	1342.11	23.49	1818.97
Min Ch El (ft)	1521.99	Shear (lb/sq ft)	0.36	0.95	0.38
Alpha	3.79	Stream Power (lb/ft s)	0.77	13.21	0.92
Frctn Loss (ft)		Cum Volume (acre-ft)	3047.34	823.99	731.89
C & E Loss (ft)		Cum SA (acres)	3135.35	207.97	697.11

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6227.24	6979.27	59.08	38.30	76.88	0.89	0.50	1.54
6979.27	7731.30	519.19	296.30	491.28	7.79	0.60	1.75
7731.30	8483.32	1701.78	716.43	752.58	25.53	0.95	2.38
8483.32	9235.35	0.10	0.42	15.23	0.00	0.03	0.23
9235.35	9987.38	0.05	0.19	6.14	0.00	0.03	0.24
LB 9987.38	9993.15	9.34	1.77	2.95	0.14	0.68	5.27
9993.15	9998.92	219.53	16.00	6.35	3.29	2.77	13.72
9998.92	10004.68	335.14	19.96	5.85	5.03	3.46	16.79
10004.68	10010.45	117.62	10.89	6.18	1.76	1.89	10.80
10010.45	RB 10016.22	2.98	0.79	2.17	0.04	0.39	3.77
10016.22	10425.59	10.33	16.06	125.57	0.16	0.13	0.64
10425.59	10834.96	413.09	226.69	372.13	6.20	0.61	1.82
10834.96	11244.33	1131.18	431.01	409.37	16.97	1.05	2.62
11244.33	11653.70	1451.12	500.53	409.46	21.77	1.22	2.90
11653.70	12063.07	484.42	208.63	238.13	7.27	0.88	2.32
12063.07	12472.44	212.05	132.28	263.21	3.18	0.50	1.60
12472.44	12881.81	0.01	0.03	1.09	0.00	0.03	0.22

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.729

INPUT
Description: 10,000 Station located in the Powerline Floodway immediately upstream of the Vineyard Road crossing.
Station Elevation Data num= 123

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2485.03	1522.18	2494.25	1520.92	2503.17	1522.08	2543.19	1523.38	2574.88	1523.82
2677.2	1525.26	2801.54	1523.12	2804.3	1523.02	2810.91	1523.18	3324.56	1523.33
4105.58	1522.2	4413.21	1523.15	4493.82	1523.69	4618.48	1525.05	4746.45	1523.69
5045.1	1523.98	5060.2	1522.64	5067.09	1523.91	5233.59	1523.16	5268.47	1523.94
5275.81	1522.92	5300.19	1523.22	5304.51	1523.64	5362.5	1523.87	5371.44	1523.29
5377.18	1523.73	5418.5	1523.42	5427.73	1522.24	5436.14	1524.03	5886.63	1523.41
6386.65	1522.31	6886.64	1524.54	7386.61	1521.73	7515.74	1521.6	7521.89	1520.8
7532.34	1521.2	7542.88	1521.63	7553.77	1520.27	7561.91	1521.45	7652.52	1522.34
7688.69	1522.83	7730.23	1521.86	7886.62	1521.63	8386.63	1522.39	8543.89	1523
8796.29	1522.88	8804.49	1522.63	8818.19	1523.05	8886.62	1523.88	9247.17	1524.22
9405.25	1523.46	9415.99	1523.35	9421.75	1523.67	9593.49	1523.3	9599.19	1522.62
9606.26	1522.96	9625.53	1522.98	9629.39	1522.5	9630.29	1522.64	9640.37	1522.91
9658.45	1523.59	9677.35	1524.02	9697.61	1523.19	9824.89	1523.05	9971.08	1523.87
9985.83	1523.88	9993.89	1520	9996.81	1518.59	10003.18	1518.92	10005.8	1520
10014.58	1523.29	10026.55	1523.38	10043.33	1522.88	10061.36	1523.73	10075.6	1523.92
10090.2	1523.65	10104.61	1522.48	10122.05		1523	10422.64	1522.09	10511.65	1521.65
10646.24	1521.99	10763.82	1522.22	10773.4	1520.12	10780.39	1521.74	10869.86	1522.01
11504.09	1521.22	11693.36	1521.89	11816.73	1522.29	11899.45	1522.23	11984.67	1522.59
12123.05	1522.53	12176.13	1523.03	12339.27	1524.69	12346.65	1524.79	12446.64	1524.02
12546.64	1524.59	12646.66	1523.67	12659.49	1523.75	12746.66	1523.55	12846.66	1523.9
12946.64	1524.99	13046.64	1525.22	13146.66	1525.49	13246.66	1525.37	13346.64	1526.53
13446.64	1525.94	13546.64	1525.86	13646.66	1526.41	13746.66	1525.94	13846.65	1525.56
13946.65	1526.66	14046.64	1525.96	14091.17	1525.78	14114.07	1525.13	14128.12	1524.77
14129.43	1525.09	14164.9	1525.66	14179.62	1524.48	14197.48	1525.05	14227.73	1525.65
14245.74	1520.91	14246.65	1521.27	14255.59	1523.08				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2485.03	.05	9985.83	.015	10026.55	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.83	10026.55	79.54	137.44	117.14	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
2485.03	6063.98	1528

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2485.03	5045.37	1525.68	13160	14255.59	1524.5

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1523.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1522.94	Reach Len. (ft)	79.54	137.44	117.14
Crit W.S. (ft)	1522.94	Flow Area (sq ft)	1341.79	66.83	1956.90
E.G. Slope (ft/ft)	0.004164	Area (sq ft)	1345.56	66.83	1956.90
Q Total (cfs)	6667.00	Flow (cfs)	2238.17	770.45	3658.37
Top Width (ft)	4028.58	Top Width (ft)	1955.79	25.84	2046.95
Vel Total (ft/s)	1.98	Avg. Vel. (ft/s)	1.67	11.53	1.87
Max Chl Dpth (ft)	4.35	Hydr. Depth (ft)	0.69	2.59	0.96
Conv. Total (cfs)	103317.0	Conv. (cfs)	34684.5	11939.5	56693.0
Length Wtd. (ft)	109.34	Wetted Per. (ft)	1941.06	27.59	2047.40
Min Ch El (ft)	1518.59	Shear (lb/sq ft)	0.18	0.63	0.25
Alpha	4.64	Stream Power (lb/ft s)	0.30	7.26	0.46
Frctn Loss (ft)	0.61	Cum Volume (acre-ft)	3034.22	823.39	712.02
C & E Loss (ft)	0.01	Cum SA (acres)	3116.54	207.72	674.99

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: Divided flow computed for this cross-section.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5485.35	6235.43	10.23	19.56	133.33	0.15	0.15	0.52
6235.43	6985.51	113.68	113.44	291.57	1.71	0.39	1.00
6985.51	7735.59	915.72	516.37	563.82	13.74	0.92	1.77
7735.59	8485.67	1193.52	678.56	750.08	17.90	0.90	1.76
8485.67	9235.75	2.62	9.69	177.78	0.04	0.05	0.27
9235.75	9985.83	2.42	4.18	24.47	0.04	0.17	0.58
LB 9985.83	9993.97	63.07	9.20	6.86	0.95	1.49	6.85
9993.97	10002.12	454.41	32.72	8.47	6.82	4.02	13.89
10002.12	10010.26	244.50	22.77	8.66	3.67	2.80	10.74
10010.26	10018.41	8.47	2.13	3.60	0.13	0.63	3.97
10018.41	10026.55						
10026.55	10449.45	152.09	147.54	330.29	2.28	0.45	1.03
10449.45	10872.36	816.25	446.54	423.32	12.24	1.06	1.83
10872.36	11295.26	1000.43	504.32	422.90	15.01	1.19	1.98
11295.26	11718.17	1402.14	617.54	422.91	21.03	1.46	2.27
11718.17	12141.07	286.17	238.00	422.91	4.29	0.56	1.20
12141.07	12563.97	1.26	2.96	25.08	0.02	0.12	0.42

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: Divided flow computed for this cross-section.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.703

INPUT
Description: 10,000 Station located in the Powerline Floodway immediately downstream of the Vineyard Road crossing.
Station Elevation Data num= 146

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2447.28	1521.7	2453.93	1520.4	2459.14	1521.35	2516.15	1523.48	2617.7	1524.14
2760.43	1522.4	2767.05	1521.7	2775.32	1522.25	2851.42	1523.42	3382.8	1522.08
3632.44	1521.39	4361.59	1522.57	4413.46	1522.42	4427.13	1523.29	4574.66	1524.31

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 4913.45 1524.49 5016.57 1523.38 5024.76 1522.01 5041.37 1522.01 5047.46 1523.05
    5179 1523.17 5191.75  1522.6 5195.86 1522.83 5207.01 1522.98 5216.49 1522.17
  5223.5 1522.85 5244.31 1523.63  5257.5 1523.57 5263.69 1522.27 5286.55 1522.58
  5293.5 1522.96 5317.33  1523.2 5324.76 1522.35 5330.28 1522.99 5335.46 1523.38
 5340.23 1523.17 5343.99 1522.73 5348.44 1523.24 5382.13 1523.46 5391.56 1521.71
 5398.21 1523.32 5413.47 1523.81 5913.46 1523.22 6105.16 1521.56 6113.43 1521.75
  6295.8 1521.69 6301.12 1521.07 6307.97 1521.55 6413.46 1522.36 6471.52  1521.6
 6475.71 1522.33 6913.45 1523.91 7413.45 1521.46 7472.12 1520.71 7477.76 1520.44
 7482.06 1520.81 7500.22 1521.02  7592.3 1521.76 7645.28 1522.29 7682.82 1521.67
 7913.45 1521.46 8413.44 1522.02 8513.38 1522.34 8730.96 1522.76 8745.88 1522.35
 8751.92 1522.54 8913.45 1523.98    9274 1523.48  9386.6 1523.04 9394.01 1522.42
 9400.73  1523.1 9608.31 1522.64 9634.55 1523.48 9653.06 1523.45 9689.43 1522.72
  9765.8 1522.35 9888.05 1523.17 9907.76 1522.65 9923.14 1523.12 9937.34 1523.67
 9951.97 1523.32 9962.45 1522.78 9985.85  1522.5 9991.17    152010008.41    1520
10013.23 1522.7510013.74 1522.9710024.63 1522.6910024.76  1522.610028.75 1521.42
10037.56    152310041.56 1522.45 10073.1 1521.9710078.22 1521.2510083.83 1522.06
10086.82 1522.2410447.39 1520.87   10484 1520.8110808.97 1521.5510817.49    1520
10819.75 1519.5710823.14    152010828.48 1520.7110841.94 1520.92 10849.4 1520.22
10854.75 1520.7511149.95 1520.93 11159.1 1520.4411195.38 1520.8111253.59 1521.05
11448.34 1520.7811453.91 1520.2911457.99 1520.3911623.02 1521.3111756.49 1521.66
12059.83 1522.4612062.37 1522.8412235.83 1524.4212283.46  1524.412289.74 1524.23
12383.45 1523.0512483.45 1523.1512583.44 1523.2312657.74 1522.8412683.44 1522.93
12783.46 1523.1312883.45 1524.4512983.45 1524.4513083.45  1524.313183.45 1524.64
13283.45 1525.1413383.45 1525.3913483.45 1525.4413583.45 1525.3213683.45 1525.66
13783.43 1524.8713883.45 1525.1213983.45 1525.9614083.46 1526.1214129.51 1526.18
14142.71 1526.1914183.46 1524.7714197.95 1523.6114246.99 1522.6214255.59 1523.32
14268.95 1523.51

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2447.28     .05 9985.85    .01510013.74     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9985.8510013.74            420.6  479.13  473.13             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 2447.28 5998.42    1526
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2447.28 4911.23 1524.99   1288614268.95    1524

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1522.48   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.31   Wt. n-Val.                  0.050      0.015      0.050
  W.S. Elev (ft)            1522.17   Reach Len. (ft)            420.60     479.13     473.13
  Crit W.S. (ft)            1522.17   Flow Area (sq ft)          763.41      46.68    1839.95
  E.G. Slope (ft/ft)       0.007874   Area (sq ft)               767.34      46.68    1839.95
  Q Total (cfs)             6667.00   Flow (cfs)                1265.91     594.76    4806.33
  Top Width (ft)            3507.68   Top Width (ft)            1601.33      25.68    1880.67
  Vel Total (ft/s)             2.52   Avg. Vel. (ft/s)             1.66      12.74       2.61
  Max Chl Dpth (ft)            2.60   Hydr. Depth (ft)             0.48       1.82       0.98
  Conv. Total (cfs)         75132.4   Conv. (cfs)               14265.9     6702.5    54163.9
  Length Wtd. (ft)                    Wetted Per. (ft)          1578.39      26.74    1881.32
  Min Ch El (ft)            1520.00   Shear (lb/sq ft)             0.24       0.86       0.48
  Alpha                        3.15   Stream Power (lb/ft s)       0.39      10.93       1.26
  Frctn Loss (ft)                     Cum Volume (acre-ft)      3032.29     823.22     706.92
  C & E Loss (ft)                     Cum SA (acres)            3113.29     207.64     669.71


Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
         than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta     Right Sta       Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)            (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  5462.71      6216.56        102.02      71.70    182.42       1.53       0.39       1.42
  6216.56      6970.42        123.16      86.55    220.12       1.85       0.39       1.42
  6970.42      7724.28        502.34     264.98    438.30       7.53       0.60       1.90
  7724.28      8478.14        538.37     340.16    737.55       8.08       0.46       1.58
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8478.14	9985.85						
LB 9985.85	9991.43	47.77	5.59	5.37	0.72	1.14	8.54
9991.43	9997.01	169.26	12.13	5.58	2.54	2.17	13.95
9997.01	10002.58	169.26	12.13	5.58	2.54	2.17	13.95
10002.58	10008.16	169.26	12.13	5.58	2.54	2.17	13.95
10008.16	RB 10013.74	39.21	4.69	4.64	0.59	1.15	8.37
10013.74	10439.26	394.62	223.46	368.48	5.92	0.61	1.77
10439.26	10864.78	1243.36	471.39	425.84	18.65	1.11	2.64
10864.78	11290.30	1679.18	564.36	425.54	25.19	1.33	2.98
11290.30	11715.82	1406.18	507.37	425.55	21.09	1.19	2.77
11715.82	12141.35	83.02	73.37	235.92	1.25	0.31	1.13

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.612

INPUT
Description:
Station Elevation Data num= 175

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2433.14	1520	2449.33	1520.34	2495.4	1520.49	2527.68	1520	2542.27	1519.79
2550.24	1519.2	2557.1	1519.85	2574.12	1520	2839.75	1521.37	2847.43	1521
2857.49	1521.37	2886.21	1521.78	2919.42	1521.83	2948.16	1521.45	3035.69	1520.11
3036.08	1520	3041.33	1518.54	3047.18	1520	3047.26	1520.02	3227.95	1520
3693.2	1518.86	3728.25	1518.46	3736.93	1516.74	3739.41	1517.34	3743.68	1517.78
3754.12	1517.86	3834.6	1517.27	3922.54	1518.5	3954.41	1520	3956.29	1520.41
3957.23	1520	3970.94	1518.12	4024.18	1518.07	4054.97	1516.43	4075.24	1516.82
4086.27	1517.99	4114.77	1518.59	4123.89	1517.28	4186.16	1519.39	4258.87	1519.84
4265.32	1520	4318.83	1521.29	4400.3	1520.21	4900.28	1520.74	5144.49	1520.48
5147.92	1520	5152.22	1519.39	5158.06	1520	5159.4	1520.14	5197.22	1520
5217.3	1519.95	5227.59	1519.24	5233.35	1519.46	5260.97	1520	5295.27	1520.62
5298.94	1520	5302.84	1519.34	5308.53	1520	5309.27	1520.1	5760.51	1520.91
5863.57	1520	6121.07	1519.61	6250.2	1519.82	6258.27	1518.98	6263.32	1519.45
6481.62	1519.09	6584.62	1519.23	6589.07	1518.92	6594.38	1519.49	6659.11	1520
7180.29	1520	7206.55	1519.81	7233.82	1519.38	7241.56	1519.5	7282.03	1520
7341.86	1520.74	7384.23	1520	7480.9	1518.5	7488.12	1517.94	7494.16	1518.22
7548.35	1518.65	7557.74	1517.84	7562.01	1518.28	7588.42	1518.45	7592.57	1517.32
7597.89	1518.12	7841.84	1518.19	8341.85	1518.76	8504.9	1519.46	8580.83	1520
8592.37	1520.17	8593.26	1520	8596.11	1519.43	8602.2	1519.99	8605.43	1520
8705.66	1522.44	8757.94	1521.48	8841.84	1520.96	9256.14	1521.88	9267.66	1520
9275.38	1518.64	9284.39	1520	9291.11	1521.02	9305.74	1521.77	9320.08	1521.41
9335.84	1520.07	9355.79	1521.73	9444.24	1520.4	9629.17	1520	9663.91	1519.21
9667.68	1519.56	9676.15	1519.48	9684.59	1518.88	9944.69	1519.88	9966.55	1520
9966.71	1520	9972.66	1518.79	9986.55	1519.4	9997.4	1514	10003.52	1514.25
10018.11	1520	10018.21	1520.04	10018.95	1520	10032.82	1519.24	10049.11	1519.49
10060.1	1518.37	10069.04	1519.21	10079.04	1519.23	10305.36	1518.59	10495.1	1517.97
10888.46	1518.72	11150.07	1517.44	11160.33	1515.34	11166.48	1517.04	11188.81	1517.2
11197.46	1516.36	11201.53	1516.71	11213.51	1516.88	11219.83	1516.21	1226.51	1517.15
11249.01	1517.25	11430.75	1517.11	1436.85	1516.56	11442.45	1516.85	11832.13	1517.58
12065.1	1519.35	12192.68	1519.95	12286.85	1518.44	12731.18	1518.73	12954.81	1518.95
13054.8	1519.37	13154.8	1519.72	13254.79	1519.5	13329.61	1520	13354.79	1520.17
13454.8	1520.19	13539.41	1521.34	13554.8	1520.37	13654.8	1520.72	13754.8	1520.89
13791.75	1521.51	13797.56	1521.32	13806.95	1521.44	13854.8	1520.97	13954.8	1521.27
14054.79	1520.43	14154.8	1520.65	14239.46	1520	14254.79	1519.88	14265.98	1520
14333.77	1520.68	14339.14	1520	14343.66	1519.48	14354.79	1519.24	14425.34	1519.73

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2433.14	.05	9986.55	.015	10018.95	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.55	10018.95	439.72	484.69	514.43	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
2433.14	5824.6	1523

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2433.14	4319.57	1522.07	12192.68	14425.34	1521

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1519.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1519.16	Reach Len. (ft)	439.72	484.69	514.43
Crit W.S. (ft)	1519.16	Flow Area (sq ft)	741.33	88.21	2378.18
E.G. Slope (ft/ft)	0.003320	Area (sq ft)	741.33	88.21	2378.18
Q Total (cfs)	6667.00	Flow (cfs)	1005.68	1008.69	4652.64
Top Width (ft)	3180.21	Top Width (ft)	1197.61	28.96	1953.64
Vel Total (ft/s)	2.08	Avg. Vel. (ft/s)	1.36	11.44	1.96
Max Chl Dpth (ft)	5.16	Hydr. Depth (ft)	0.62	3.05	1.22
Conv. Total (cfs)	115704.8	Conv. (cfs)	17453.4	17505.6	80745.8
Length Wtd. (ft)	504.53	Wetted Per. (ft)	1198.10	31.11	1954.36
Min Ch El (ft)	1514.00	Shear (lb/sq ft)	0.13	0.59	0.25
Alpha	5.26	Stream Power (lb/ft s)	0.17	6.72	0.49
Frctn Loss (ft)	1.95	Cum Volume (acre-ft)	3025.01	822.47	684.01
C & E Loss (ft)	0.00	Cum SA (acres)	3099.78	207.34	648.88

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6209.84	6965.19	0.94	4.52	106.30	0.01	0.04	0.21
6965.19	7720.53	365.95	239.86	282.60	5.49	0.85	1.53
7720.53	8475.87	631.70	482.45	714.99	9.48	0.67	1.31
8475.87	9231.21						
9231.21	9986.55	7.09	14.50	94.21	0.11	0.15	0.49
LB 9986.55	9993.03	53.92	8.97	6.70	0.81	1.49	6.01
9993.03	9999.51	362.51	28.60	6.99	5.44	4.41	12.67
9999.51	10005.99	426.86	30.96	6.67	6.40	4.78	13.79
10005.99	10012.47	156.41	17.25	6.96	2.35	2.66	9.07
10012.47	RB 10018.95	8.99	2.43	3.78	0.13	0.69	3.70
10018.95	10459.59	189.05	191.44	372.93	2.84	0.51	0.99
10459.59	10900.23	500.99	367.24	440.64	7.51	0.83	1.36
10900.23	11340.87	1418.10	686.00	441.25	21.27	1.56	2.07
11340.87	11781.51	2175.17	886.27	440.67	32.63	2.01	2.45
11781.51	12222.14	369.32	247.23	258.87	5.54	0.96	1.49

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.520

INPUT
Description:
Station Elevation Data num= 117

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2428.93	1518.08	2841.82	1518.29	2867.23	1517.93	2875.34	1518.04	2917.57	1518.91
3035.87	1518.8	3176.33	1516.61	3183.43	1516.07	3190.95	1516.97	3633.09	1515.33
3762.08	1515.2	3769.15	1513.82	3779.06	1515.27	3915.93	1515.41	4057.36	1517.42
4110.7	1518.57	4198.79	1517.56	4213.44	1517.75	4222.58	1517.1	4229.59	1517.51
4309.58	1518.56	4410.31	1518.94	4495.67	1518.64	4526.84	1517.31	4533.84	1516.85
4542.65	1517.67	4698.77	1518.15	5198.77	1517.99	5211.46	1517.76	5217.65	1517.25
5224.04	1517.54	5677.21	1517.68	5700.73	1517.72	6058.99	1517.2	6527.62	1515.5
6535.12	1514.72	6542.23	1516.4	6559.01	1516.24	6900.38	1517.05	6903.59	1516.78
6913.75	1516.85	7059.01	1517.89	7419.55	1516.98	7746.58	1515.84	7770.07	1515.28
7919.54	1515.7	8501.43	1516.58	8559.87	1517.13	8625.04	1518.12	8644.5	1515.01

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 8662.08 1517.76 8676.56 1518.29 8691.53 1517.67 8706.59 1516.22 8725.55 1518.67
 8801.64 1518.74 9301.65 1517.92 9787.93 1515.04 9794.78  1514.5 9798.74 1515.27
  9867.5 1515.92  9871.5 1515.53 9876.98 1515.68 9951.95 1517.71 9963.31 1517.76
 9972.67 1515.45 9985.84 1516.07 9997.43 1510.95 10003.2 1511.1210016.44  1516.2
10030.34 1515.3710052.86 1515.5910071.19 1515.9310301.69 1515.1710513.13 1514.31
10662.26  1514.811437.05 1513.83 11445.9 1511.9311450.75 1513.2611605.66 1513.61
11966.22 1514.1512326.77  1513.9 12550.4  1515.1   12774 1514.4812982.55 1516.34
 12997.6 1516.3213093.19 1515.48 13221.2  1515.213321.19 1515.3213322.32 1515.21
13328.88 1514.6913333.72 1515.0313421.19 1516.2413521.21 1516.0213621.21 1516.56
13721.21 1516.9613803.37 1517.6713807.79 1516.8313814.89  1517.6 13821.2 1517.67
 13831.8 1517.4713836.83 1517.0713844.06 1517.5813875.12 1517.63 13921.2 1518.07
13953.88 1518.22 14021.2 1518.42 14121.2 1518.29 14221.2 1517.3214223.88 1517.07
 14321.2 1516.1114421.19 1516.2814437.86 1515.8514443.86 1515.3114447.64  1515.6
 14521.2 1515.8114621.19 1515.98

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2428.93     .05 9985.84    .01510016.44     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9985.8410016.44            522.38  479.05  425.04              .1       .3
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2428.93 5673.51    1521   1253014621.19    1521
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2428.93 4409.03 1519.97 13798.814621.19  1518.2

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1515.74   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.37   Wt. n-Val.                0.050      0.015      0.050
  W.S. Elev (ft)            1515.37   Reach Len. (ft)          522.38     479.05     425.04
  Crit W.S. (ft)            1515.37   Flow Area (sq ft)         21.56      70.76    2631.63
  E.G. Slope (ft/ft)       0.004550   Area (sq ft)              21.56      70.76    2841.47
  Q Total (cfs)             6667.00   Flow (cfs)                14.94     865.06    5787.00
  Top Width (ft)            3007.13   Top Width (ft)           128.92      26.87    2851.34
  Vel Total (ft/s)             2.45   Avg. Vel. (ft/s)          0.69      12.22       2.20
  Max Chl Dpth (ft)            4.42   Hydr. Depth (ft)          0.17       2.63       1.15
  Conv. Total (cfs)        98840.6    Conv. (cfs)               221.6    12824.8    85794.3
  Length Wtd. (ft)          442.61    Wetted Per. (ft)         129.19      28.59    2290.84
  Min Ch El (ft)            1510.95   Shear (lb/sq ft)          0.05       0.70       0.33
  Alpha                        3.94   Stream Power (lb/ft s)    0.03       8.59       0.72
  Frctn Loss (ft)              1.74   Cum Volume (acre-ft)   3021.16     821.59     653.19
  C & E Loss (ft)              0.02   Cum SA (acres)         3093.08     207.03     620.51

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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta     Right Sta       Flow       Area       W.P.     % Conv.   Hydr D.   Velocity
  (ft)         (ft)            (cfs)    (sq ft)      (ft)                (ft)      (ft/s)
  6207.38      6963.08          2.79       2.96      9.16       0.04      0.33       0.94
  6963.08      7718.77
  7718.77      8474.46          0.45       1.74     37.21       0.01      0.05       0.26
  8474.46      9230.15          0.53       0.84      4.66       0.01      0.18       0.64
  9230.15      9985.84         11.17      16.03     78.17       0.17      0.21       0.70
  LB 9985.84   9991.96         24.97       4.56      4.97       0.37      1.00       5.47
  9991.96      9998.08        251.32      20.46      6.63       3.77      3.34      12.28
  9998.08      10004.20       397.89      26.23      6.19       5.97      4.29      15.17
  10004.20     10010.32       176.94      16.50      6.56       2.65      2.70      10.72
  10010.32     RB 10016.44     13.93       3.02      4.25       0.21      0.76       4.61
  10016.44     10476.92       113.45     104.37    237.36       1.70      0.44       1.09
  10476.92     10937.39       582.52     363.08    460.48       8.74      0.79       1.60
  10937.39     11397.87      1183.16     555.44    460.47      17.75      1.21       2.13
  11397.87     11858.34      2141.33     793.17    460.86      32.12      1.72       2.70
  11858.34     12318.82      1402.91     615.22    460.47      21.04      1.34       2.28
  12318.82     12779.29       363.64     200.35    211.19       5.45      0.95       1.81
```

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.429

INPUT
Description:
Station Elevation Data num= 145

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2491.01	1515.14	2632.44	1515.16	3017.12	1514.39	3022.22	1513.79	3029.09	1514.51
3272.75	1513.74	3414.15	1513.02	3563.18	1513.44	4195.23	1515.22	4337.66	1515.24
4404.59	1514.74	4439.53	1512.64	4466.05	1512.78	4483.74	1513.27	4500.09	1516.36
4518.35	1514.17	4695.23	1513.48	4723.38	1513.4	4732.7	1513.02	4735.77	1513.49
5195.23	1514.58	5695.23	1514.3	5955.13	1514.81	5959.89	1513.88	5982.02	1514.41
6114.64	1515.26	6195.23	1514.06	6423.16	1512.69	6461.98	1512.08	6479.02	1511.88
6487.8	1510.2	6496.71	1511.7	6560.63	1511.79	6572.87	1510	6577.89	1509.26
6583.26	1510	6586.33	1510.49	6695.24	1512	6767.91	1512.86	6779.82	1510.11
6785.17	1511.42	6857.23	1512.59	6865.92	1512.12	6874.28	1512.43	7195.22	1513.32
7555.78	1512.32	7946.41	1513.09	7966.73	1511.24	7983.53	1513.23	7998.17	1513.61
8012.62	1513.33	8027.73	1511.83	8048.05	1512.76	8051.6	1512.36	8158.52	1512.06
8540.08	1512.57	8655.25	1514.41	8658.52	1514.43	8779.29	1515.72	9158.52	1514.43
9309.7	1515.29	9447.23	1516.64	9545.27	1514.88	9658.52	1514.63	9905	1515.35
9915.83	1514.93	9919.32	1515.33	9927.47	1515.62	9965.76	1515.59	9971.96	1513.32
9986.37	1513.36	9993.44	1510	9997.41	1508.13	10002.96	1508.13	10007.44	1510
10016.7	1513.92	10029.75	1513.71	10197.45	1513.26	10309.81	1512.85	10326.65	1512.06
10333.96	1512.85	10381.23	1512.92	10526.56	1512.46	10964.32	1511.81	11547.41	1511.49
11691.15	1511.96	11698.49	1510	11702.17	1509.07	11704.5	1510	11708.25	1511.49
11784.69	1511.77	11793.36	1510.89	11800.01	1511.45	11930.36	1511.62	11941.83	1510.96
11945.17	1511.49	12353.63	1511.84	12624.77	1512.15	12629.02	1511.87	12632.41	1512.22
12638.1	1512.22	12640.73	1512.18	12640.87	1511.75	12936.73	1514.17	13081.85	1513.3
13185.94	1513.72	13519.81	1513.32	13619.83	1512.89	13719.83	1514.29	13819.84	1514.57
13919.83	1513.92	13971.58	1513.65	13976.36	1513.27	13980.87	1513.71	13985.95	1513.68
13992.69	1513.48	14001.13	1514.13	14019.84	1514	14033.84	1514.01	14107.76	1515.75
14119.83	1515.81	14163.04	1514.81	14219.83	1514.29	14257.17	1513.84	14319.83	1514.52
14419.83	1513.21	14479.34	1512.65	14485.88	1511.88	14493.03	1512.03	14497.25	1512.86
14519.83	1512.78	14544.55	1512.93	14548.64	1512.43	14557.91	1512.85	14572.55	1512.66
14579.84	1511.97	14586.03	1512.84	14601.25	1513.28	14609.57	1512.18	14616.95	1512.44
14619.83	1513.03	14719.83	1513.21	14750.64	1514.07	14758.58	1513.31	14765.68	1514

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2491.01	.05	9986.37	.015	10016.7	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9986.37	10016.7	544.04	475.03	439.46	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
2491.01	5366.01	1520

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2491.01	5951.21	1515.27	13805.37	14765.68	1514.56

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1513.19	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1512.89	Reach Len. (ft)	544.04	475.03	439.46
Crit W.S. (ft)	1512.89	Flow Area (sq ft)	1051.77	77.49	2469.07
E.G. Slope (ft/ft)	0.003442	Area (sq ft)	1051.77	77.49	2469.07
Q Total (cfs)	6667.00	Flow (cfs)	1430.64	867.96	4368.40
Top Width (ft)	4209.98	Top Width (ft)	1725.41	26.92	2457.65
Vel Total (ft/s)	1.85	Avg. Vel. (ft/s)	1.36	11.20	1.77
Max Chl Dpth (ft)	4.76	Hydr. Depth (ft)	0.61	2.88	1.00
Conv. Total (cfs)	113644.5	Conv. (cfs)	24386.5	14795.1	74463.0
Length Wtd. (ft)	468.21	Wetted Per. (ft)	1726.76	28.96	2459.02
Min Ch El (ft)	1508.13	Shear (lb/sq ft)	0.13	0.57	0.22
Alpha	5.47	Stream Power (lb/ft s)	0.18	6.44	0.38

Frctn Loss (ft)	1.75	Cum Volume (acre-ft)	3014.72	820.77	627.28
C & E Loss (ft)	0.01	Cum SA (acres)	3081.96	206.74	594.61

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6238.69	6988.23	927.24	562.36	600.02	13.91	0.94	1.65
6988.23	7737.76	105.39	134.99	442.02	1.58	0.31	0.78
7737.76	8487.30	380.73	332.21	611.68	5.71	0.54	1.15
8487.30	9236.83	17.30	22.22	73.04	0.26	0.30	0.78
9236.83	9986.37						
LB 9986.37	9992.44	32.79	6.14	5.63	0.49	1.21	5.34
9992.44	9998.50	267.64	23.06	6.59	4.01	3.80	11.60
9998.50	10004.57	393.35	28.36	6.20	5.90	4.67	13.87
10004.57	10010.63	162.94	17.11	6.58	2.44	2.82	9.52
10010.63	RB 10016.70	11.25	2.81	3.95	0.17	0.77	4.01
10016.70	10491.60	14.04	27.96	167.55	0.21	0.17	0.50
10491.60	10966.50	467.86	347.64	474.90	7.02	0.73	1.35
10966.50	11441.39	1088.60	577.01	474.90	16.33	1.22	1.89
11441.39	11916.29	1280.76	636.62	475.80	19.21	1.34	2.01
11916.29	12391.19	1106.12	582.60	474.96	16.59	1.23	1.90
12391.19	12866.09	411.00	297.22	389.83	6.16	0.76	1.38
12866.09	13340.99						
13340.99	13815.88	0.00	0.00	1.08	0.00	0.00	0.02

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.339

INPUT
Description:
Station Elevation Data num= 192

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2432.94	1514.21	2477.64	1512.91	2578.69	1512.35	2644.55	1512.18	2648.79	1511.56
2651.96	1512.42	2867.84	1511.68	2877.77	1510.98	2887.04	1511.69	3170.26	1511.4
3173.72	1510	3177.16	1508.44	3254.27	1508.6	3340.91	1508.79	3367.73	1509.14
3380.23	1510	3406.75	1513.53	3421.46	1514.76	3430.38	1511.32	3500.66	1510.26
3573.23	1510.19	3575.45	1510	3577.21	1509.75	3581.42	1510	3584.38	1510.6
4087.74	1512.46	4495.44	1510.69	4637	1510	4645.57	1509.79	4652.79	1508.78
4659.04	1509.36	4691.92	1509.88	4692.68	1509.04	4708.78	1510	4712.7	1510.19
4995.44	1511.64	5635.74	1512.01	5821.87	1510.35	5824.54	1510	5827.83	1509.6
5830.52	1510	5833.91	1510.5	5841.82	1510.17	5843.82	1510	5847.99	1509.79
5848.99	1510	5850.71	1510.35	5987.72	1511.27	5993.29	1510.71	6009.61	1511.06
6135.75	1511.75	6176.89	1511.54	6223.72	1510.84	6347.56	1512.54	6532.94	1510
6593.93	1508.82	6601.86	1507.89	6606.66	1508.68	6656.74	1508.9	6695.32	1508.61
6703.28	1506.59	6709.84	1508.57	6749.72	1508.44	6776.07	1508.52	6813.66	1508.49
6996.77	1510	7276.05	1510.29	7327.18	1510.71	7334.48	1510	7348.6	1508.62
7359.03	1510	7363.76	1510.63	7379.11	1510.95	7393.89	1510.84	7402.48	1510
7409.37	1509.33	7418.5	1510	7428.38	1510.71	7485.57	1510	7509.88	1509.5
7517.99	1508.95	7524.32	1509.58	7875.33	1509.79	8214.14	1509.64	8221.63	1508.9
8227.17	1509.39	8375.36	1509.69	8449.6	1510	8542	1510.32	8872.88	1512.21
8875.36	1512.31	9032.14	1512.64	9375.36	1511.86	9457.98	1512.18	9488.51	1513.11
9551.29	1512.06	9863.94	1511.8	9870.24	1511.58	9876.37	1511.96	9918.23	1513.85
9964.28	1512.73	9972.95	1510.49	9985.47	1510.7	9987.09	1510	9997.52	1505.46
10003.07	1505.46	10013.01	1510	10016.9	1510.92	10030.8	1510.68	10033.44	1512.13
10182.5	1512.99	10194.29	1513.35	10223.13	1511.97	10377.1	1510.53	10541.9	1510.27

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 10600.7 1510.2610620.99    151010658.42 1509.5310684.41    151010686.79 1510.02
10687.08    151010693.65 1509.5110702.82 1509.6810778.21  1509.510792.25  1507.8
10803.26 1509.1410820.34 1509.7210829.14 1508.3610836.21 1508.7811047.91 1509.29
11271.53 1509.1211495.15 1509.3411718.74 1509.1511951.04 1509.2711961.66 1507.02
11968.33 1508.2411995.93 1509.09 12003.6 1508.0312008.04 1509.2312237.44 1508.95
12244.54 1508.2212249.07 1508.7212624.66 1509.3212630.49 1508.8212634.48 1509.06
12650.06 1509.1112653.02  1508.612657.21 1508.8612660.39 1509.2412748.29 1509.26
 12918.6    1510 12971.9 1510.2513048.34 1510.4913155.42    151013162.02 1509.96
13164.39    151013195.52 1510.5713419.13 1510.1713595.04 1512.1813642.72 1512.21
13664.48 1512.5713742.72 1511.7113842.73 1511.9613942.71 1512.0614042.73  1512.7
14116.92 1512.2214124.17 1511.5714130.22 1512.1814142.71 1512.5314242.72 1513.13
14278.39 1513.2914342.74 1513.6514352.83 1513.2614442.75 1511.8414542.74 1510.87
14603.72 1510.7314611.68 1510.5414620.02 1510.7614642.75 1510.8914646.98 1511.37
14652.68    151014653.96 1509.7214655.29    151014658.66 1510.7814742.74 1511.31
14749.93  1511.414758.64 1511.2614761.34 1511.6514765.01 1511.7914776.78 1511.29
14783.76 1512.3614842.73 1512.46

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2432.94     .05 9985.47    .015 10016.9     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9985.47 10016.9           457.74  497.49  511.08              .1       .3
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2432.94 5635.36 1512.3313643.3414842.73 1512.57

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1510.51   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.35   Wt. n-Val.                   0.050      0.015      0.050
  W.S. Elev (ft)            1510.16   Reach Len. (ft)             457.74     497.49     511.08
  Crit W.S. (ft)            1510.16   Flow Area (sq ft)          1086.05      75.63    2242.40
  E.G. Slope (ft/ft)       0.004097   Area (sq ft)               1086.05      75.63    2242.40
  Q Total (cfs)             6667.00   Flow (cfs)                 1630.23     909.79    4126.98
  Top Width (ft)            4136.77   Top Width (ft)             1713.81      26.96    2396.00
  Vel Total (ft/s)             1.96   Avg. Vel. (ft/s)              1.50      12.03       1.84
  Max Chl Dpth (ft)            4.70   Hydr. Depth (ft)              0.63       2.81       0.94
  Conv. Total (cfs)        104156.7   Conv. (cfs)                25468.6    14213.4    64474.6
  Length Wtd. (ft)           497.48   Wetted Per. (ft)           1714.98      28.94    2397.11
  Min Ch El (ft)            1505.46   Shear (lb/sq ft)              0.16       0.67       0.24
  Alpha                        5.84   Stream Power (lb/ft s)        0.24       8.04       0.44
  Frctn Loss (ft)              1.85   Cum Volume (acre-ft)       3001.37     819.94     603.51
  C & E Loss (ft)              0.00   Cum SA (acres)             3060.49     206.44     570.13


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                 (ft)     (ft/s)
  5453.95       6209.21           2.58       3.90      16.20       0.04       0.24       0.66
  6209.21       6964.46        1121.25     559.98     443.77      16.82       1.26       2.00
  6964.46       7719.71         155.55     176.55     479.30       2.33       0.37       0.88
  7719.71       8474.96         350.71     344.91     755.31       5.26       0.46       1.02
  8474.96       9230.22           0.13       0.72      20.40       0.00       0.04       0.18
  9230.22       9985.47
  LB 9985.47    9991.76          30.13       5.51       5.49       0.45       1.09       5.47
  9991.76       9998.04         268.62      22.31       6.81       4.03       3.55      12.04
  9998.04       10004.33        437.39      29.17       6.41       6.56       4.64      14.99
  10004.33      10010.61        167.46      16.90       6.91       2.51       2.69       9.91
  10010.61      RB 10016.90       6.19       1.74       3.32       0.09       0.57       3.55
  10016.90      10499.48
  10499.48      10982.07        553.33     325.70     373.78       8.30       0.87       1.70
  10982.07      11464.65        823.10     457.81     482.58      12.35       0.95       1.80
  11464.65      11947.23        789.76     446.59     482.58      11.85       0.93       1.77
  11947.23      12429.82       1289.79     599.74     483.24      19.35       1.24       2.15
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12429.82	12912.40	667.59	403.79	482.69	10.01	0.84	1.65
12912.40	13394.98	3.40	8.77	92.24	0.05	0.10	0.39

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.245

INPUT
Description:
Station Elevation Data num= 185

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2450.58	1510.36	2587.39	1510	2592.01	1509.99	2732.07	1510	2733.9	1510
3124.46	1508.93	3127.48	1508.05	3132.89	1508.86	3157.33	1509.05	3171.5	1508.97
3443.02	1508.08	3490.04	1508.69	3491.54	1508.36	3496.24	1508.88	3655.38	1508.42
3667.03	1508.65	3675.42	1507.58	3681.09	1508.46	3796.77	1509.17	3863.76	1510
3938.21	1510.05	3948.73	1510.15	4022.09	1511.78	4079.62	1511.66	4221.04	1510.02
4226.23	1510	4362.47	1509.22	4494.68	1507.83	4498.02	1507.7	4503.62	1508
4568.61	1507.52	4573.86	1506.56	4579.4	1507.49	4645.3	1507.66	4786.73	1508.05
4928.15	1508.53	5069.56	1508.53	5211	1508.9	5352.41	1509.05	5852.41	1508.13
6046.71	1507.92	6053.46	1507.37	6058.22	1507.76	6071.84	1508.06	6091.74	1508.46
6352.42	1507.83	6392.18	1507.75	6395.71	1507.48	6416.18	1507.71	6507.64	1509.33
6592.19	1508	6743.21	1506.37	6761.1	1504.74	6778.69	1508.38	6793.89	1508.69
6808.63	1508.39	6832.99	1503.09	6845.32	1505.34	6932.95	1505.88	6951.97	1506.46
7001.52	1507.34	7108.95	1508.35	7194.61	1507.97	7279.4	1508.68	7332.74	1507.88
7454.24	1506.82	7466.84	1506.33	7476.16	1506.84	7592.26	1506.76	8092.28	1506.87
8174.39	1506.76	8182.77	1505.66	8191.04	1506.94	8286.57	1508.25	8544.38	1507.11
8732.6	1507.19	9372.9	1509.34	9399.14	1510	9403.96	1510.12	9411.72	1510
9493.27	1508.73	9939.42	1509.63	9957.91	1510	9966.31	1510.14	9966.65	1510
9973.18	1507.11	9985.58	1507.8	9997.83	1502.35	10003.38	1502.35	10017.89	1507.96
10031.18	1507.94	10034.3	1508.76	10172.57	1508.65	10369.15	1509.18	10424.24	1510
10449.38	1510.41	10467.27	1510	10513.12	1508.95	10557.62	1508.32	10748.33	1508.24
10782.51	1506.91	10921.78	1505.98	11252.12	1505.61	11259.43	1504.86	11264.01	1506.01
11370.07	1505.81	11385.08	1504.83	11394.77	1505.85	11498.02	1507	11721.61	1506.14
12310.26	1506.51	2318.58	1503.92	12325.46	1505.44	12339.13	1505.53	12342.86	1504.81
12346.54	1505.36	12393.43	1505.81	12398.58	1505.61	2404.08	1506.12	12483.18	1506.06
12706.8	1506.38	12711.17	1506.16	12715.84	1505.66	12720.68	1506.18	12767.65	1506.4
12774.29	1505.78	12779.36	1506.42	12930.41	1507.11	3291.85	1507.41	13295.98	1506.94
13299.78	1507.42	13636.06	1510	13690.82	1510.88	13691.99	1510.94	13768.03	1510
13791.97	1509.71	3848.25	1510	13857.29	1510.05	13891.99	1510.15	13991.99	1510.62
14091.98	1510.27	14191.98	1510.25	14224.09	1510.46	14231.54	1510.18	14239.31	1510.52
14291.98	1510.32	14343.48	1510.77	14349.97	1510.12	14355.53	1510.86	14391.46	1511.41
14391.98	1511.09	14401.34	1510.47	14409.13	1510.94	14428.53	1510.89	14432.39	1511.36
14491.99	1511.46	14591.98	1510.26	14679.96	1510	14687.23	1507.01	14691.99	1509.42
14694.36	1509.22	14724.65	1510	14755.09	1510.35	14759.4	1510	14762.95	1509.73
14765.72	1510	14771.39	1510.55	14791.99	1510.19	14807.86	1510.67	14810.68	1510
14814.55	1508.99	14819.41	1509.73	14821.5	1510	14824.68	1510.41	14827.6	1510
14833.36	1509.14	14838.19	1510	14843	1510.79	14876.95	1510.84	14880.67	1510
14891.98	1508.14	14891.99	1507.34	14911.72	1510	14911.86	1509.91	14991.99	1510.05

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2450.58	.05	9985.58	.01	10017.89	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985.58	10017.89	487.77	484.36	558.91	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2450.58	5352.14	1509.95	13695.63	14991.99	1510.93

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1507.70	Element			
Vel Head (ft)	0.34	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1507.36	Reach Len. (ft)	487.77	484.36	558.91
Crit W.S. (ft)	1507.36	Flow Area (sq ft)	863.06	88.41	2504.83
E.G. Slope (ft/ft)	0.003383	Area (sq ft)	863.06	88.41	2504.83

Q Total (cfs)	6667.00	Flow (cfs)	1281.76	1008.00	4377.24
Top Width (ft)	3936.95	Top Width (ft)	1440.27	29.76	2466.92
Vel Total (ft/s)	1.93	Avg. Vel. (ft/s)	1.49	11.40	1.75
Max Chl Dpth (ft)	5.01	Hydr. Depth (ft)	0.60	2.97	1.02
Conv. Total (cfs)	114631.1	Conv. (cfs)	22038.4	17331.3	75261.5
Length Wtd. (ft)	534.27	Wetted Per. (ft)	1441.56	31.76	2468.09
Min Ch El (ft)	1502.35	Shear (lb/sq ft)	0.13	0.59	0.21
Alpha	5.94	Stream Power (lb/ft s)	0.19	6.70	0.37
Frctn Loss (ft)	1.90	Cum Volume (acre-ft)	2991.13	819.00	575.66
C & E Loss (ft)	0.00	Cum SA (acres)	3043.91	206.12	541.60

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6218.08	6971.58	752.17	364.56	281.29	11.28	1.30	2.06
6971.58	7725.08	203.21	184.37	364.35	3.05	0.51	1.10
7725.08	8478.58	299.28	263.25	496.60	4.49	0.53	1.14
8478.58	9232.08	26.85	50.26	294.25	0.40	0.17	0.53
9232.08	9985.58	0.27	0.62	5.07	0.00	0.12	0.43
LB 9985.58	9992.04	35.54	6.65	5.98	0.53	1.22	5.34
9992.04	9998.50	288.92	24.91	7.01	4.33	3.85	11.60
9998.50	10004.97	454.71	31.87	6.58	6.82	4.93	14.27
10004.97	10011.43	207.49	20.33	6.93	3.11	3.15	10.21
10011.43	RB 10017.89	21.34	4.65	5.26	0.32	0.95	4.59
10017.89	10515.30						
10515.30	11012.71	437.99	259.61	241.72	6.57	1.07	1.69
11012.71	11510.12	1467.43	715.88	497.68	22.01	1.44	2.05
11510.12	12007.53	792.96	494.72	497.41	11.89	0.99	1.60
12007.53	12504.94	1075.09	594.18	498.11	16.13	1.19	1.81
12504.94	13002.35	595.27	416.57	497.54	8.93	0.84	1.43
13002.35	13499.76	8.48	23.87	235.62	0.13	0.10	0.36

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 18.153

INPUT
Description:
Station Elevation Data num= 170

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2510.78	1506.78	2566	1506.18	2574.14	1504.39	2582.64	1505.88	2652.21	1506.83
2930.56	1505.35	2945.13	1503.16	2951.78	1504.76	2977.33	1504.26	2981.94	1502.52
2987.91	1505.01	3029.06	1504.49	3033.22	1502.23	3039.84	1503.89	3061.78	1505.06
3074.97	1504.81	3084.82	1501.75	3094.11	1504.94	3258.04	1504.89	3265.7	1503.73
3278.32	1505.57	3331.48	1506.57	3362.63	1507.18	3574.16	1506.76	3641.9	1506.62
3647.98	1505.74	3654.43	1506.35	3715.57	1506.43	3781.09	1507.01	4079.66	1506.18
4425.04	1504.6	4720.55	1504.25	4728.96	1503.44	4735.2	1503.99	4925.04	1504.55
5064.81	1504.89	5069.99	1504.56	5075.85	1504.83	5565.34	1506.26	6065.34	1507.03
6107.66	1506.88	6128.21	1505.09	6142.44	1506.24	6158.09	1506.67	6172.48	1506.06
6189.79	1504.34	6207.32	1505.41	6357.6	1502.78	6366.4	1501.07	6375.09	1503.21
6417.98	1502.33	6428.69	1501.56	6436.9	1501.82	6449.01	1502.68	6541	1503.99
6694.15	1502.85	6698.57	1501.37	6705.63	1502.19	6724.98	1502.33	6732.72	1500.34
6766.43	1501.54	6770.24	1502.6	6800.82	1502.79	6806.27	1502.76	6911.43	1505
6996.04	1505.03	7095.93	1505.31	7139.42	1505.03	7215.84	1505.48	7294.98	1505.24
7446.59	1505.12	7543.7	1503.63	7552.79	1502.65	7563.01	1503.71	8086.92	1504.15
8137.36	1503.68	8142.8	1503.01	8148.37	1504.33	8478.44	1503.48	8553.66	1504.24

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 8727.19 1504.13 8849.76 1504.38 9019.48 1505.51 9120.71 1504.91 9147.78  1504.7
 9242.97 1506.49 9367.51 1506.18 9426.62 1506.51 9867.51 1505.36 9964.42 1505.86
 9969.45 1504.56 9982.52 1504.69 9993.78    1500 9995.42 1499.3210000.97 1499.32
10002.75    150010015.69 1504.9510028.86 1504.1210031.41  1504.910051.37 1503.71
10055.33 1503.6710056.82 1504.3810367.51 1506.5610586.39 1504.8410850.32 1505.65
10938.32 1504.4411023.69 1503.8211072.25  1503.7 11086.3 1503.0811089.95 1502.86
11444.05 1502.4311453.56 1501.9411458.91 1502.2511484.14    150311594.14 1503.36
11737.15  1502.811746.09 1502.3511749.85 1503.0311851.52 1502.6112390.03 1502.43
12615.71 1503.65 12624.3 1500.7112645.27 1501.5412650.33 1502.9512916.79 1503.79
12922.39 1503.2512928.55 1503.29 12968.6 1503.7812975.65 1503.3612981.91  1503.9
13036.13 1503.7213040.12  1503.413044.74 1504.0913151.61  1503.713375.23 1505.21
13567.84 1505.3613672.89 1505.7413913.74 1506.5814013.73 1506.9714113.73 1506.25
14213.75 1507.5714313.73 1506.9714413.74  1506.814441.92 1507.1614449.46 1506.65
14451.95 1506.1914455.27 1506.9414513.73 1507.3714613.74 1509.6114713.74 1508.24
14718.95 1508.0414725.42 1506.9814731.62 1507.0914799.09 1508.4514813.73 1508.94
14862.32 1507.5114869.04 1508.2214913.73    1507 14914.3 1507.6514929.93 1504.32
14944.51 1507.7714993.16 1507.4615000.82 1506.6115008.73  1507.315013.74 1507.22
 15032.6 1508.1115042.17 1505.9915047.87 1507.7515112.47 1506.9915113.73  1507.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2510.78     .05 9982.52    .01510015.69     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9982.5210015.69           560.42     500  528.17             .1       .3
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2510.78 6062.76 1507.0214015.7315113.73    1507

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1504.35   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.34   Wt. n-Val.                  0.050      0.015      0.050
  W.S. Elev (ft)            1504.01   Reach Len. (ft)            560.42     500.00     528.17
  Crit W.S. (ft)            1504.01   Flow Area (sq ft)          779.99      81.37    2291.62
  E.G. Slope (ft/ft)       0.003751   Area (sq ft)               779.99      81.37    2291.62
  Q Total (cfs)             6667.00   Flow (cfs)                1293.72     941.12    4432.16
  Top Width (ft)            3510.77   Top Width (ft)            1291.61      29.11    2190.06
  Vel Total (ft/s)             2.11   Avg. Vel. (ft/s)             1.66      11.57       1.93
  Max Chl Dpth (ft)            4.69   Hydr. Depth (ft)             0.60       2.80       1.05
  Conv. Total (cfs)        108861.3   Conv. (cfs)               21124.4    15366.9    72370.0
  Length Wtd. (ft)                    Wetted Per. (ft)          1293.13      30.91    2191.10
  Min Ch El (ft)            1499.32   Shear (lb/sq ft)             0.14       0.62       0.24
  Alpha                        4.90   Stream Power (lb/ft s)       0.23       7.13       0.47
  Frctn Loss (ft)                     Cum Volume (acre-ft)      2981.93     818.06     544.89
  C & E Loss (ft)                     Cum SA (acres)            3028.62     205.79     511.72

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.   Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)              (ft)      (ft/s)
  6246.65       6993.82        1186.55     621.90     579.37     17.80      1.08       1.91
  6993.82       7741.00          48.47      62.25     222.49      0.73      0.28       0.78
  7741.00       8488.17          52.48      86.40     448.07      0.79      0.19       0.61
  8488.17       9235.35           6.22       9.43      43.20      0.09      0.22       0.66
  9235.35       9982.52
  LB 9982.52    9989.15          26.80       5.23       5.43      0.40      1.04       5.12
  9989.15       9995.79         262.73      22.99       7.16      3.94      3.46      11.43
  9995.79       10002.42        444.02      30.74       6.74      6.66      4.63      14.44
  10002.42      10009.06        193.05      19.05       7.10      2.90      2.87      10.13
  10009.06      RB 10015.69      14.52       3.36       4.49      0.22      0.80       4.33
  10015.69      10525.49          1.41       2.19       9.88      0.02      0.22       0.64
  10525.49      11035.30          2.28       5.04      38.44      0.03      0.13       0.45
  11035.30      11545.10       1258.00     626.09     509.86     18.87      1.23       2.01
  11545.10      12054.91       1177.29     601.68     509.88     17.66      1.18       1.96
  12054.91      12564.71       1539.35     706.66     509.81     23.09      1.39       2.18
  12564.71      13074.51        442.77     329.20     489.52      6.64      0.67       1.34
  13074.51      13584.32         11.07      20.76     123.72      0.17      0.17       0.53
```

```
Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION          RIVER: Powerline FRS
REACH: Powerline          RS: 18.059

INPUT
Description:
Station Elevation Data    num=     225
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 2481.22 1503.62 2704.81 1502.85 2901.04 1501.56 2906.83    1500 2909.02 1499.37
 2911.76    1500 2916.31 1501.05 2920.15 1500.95 2924.29    1500 2928.39    1499
  2932.1    1500 2937.55 1501.53 3004.31 1501.91 3009.44 1501.12 3016.94  1502.1
  3085.4 1501.96 3093.89    1500 3094.11 1499.95 3094.49    1500 3108.49 1502.55
 3204.81 1502.63 3305.88 1503.76 3374.81 1506.06 3486.42 1504.61 3650.35 1502.59
 3660.41 1501.84 3666.58 1502.71  3680.5 1502.83 3687.06 1501.16 3691.98 1502.68
 3845.11 1502.36 3986.54  1503.4 4533.59    1500  4552.1    1500 4626.85 1500.56
  4803.7    1500 4914.84    1500 5126.85 1501.04 5328.28 1502.75 5347.95 1500.11
 5362.85  1502.2  5376.9 1502.47 5390.23 1502.03 5405.67 1500.63 5425.91 1502.19
 5726.01 1501.88 6199.32    1502 6366.33    1500  6366.7    1500 6664.88    1500
 6756.59 1501.75 6866.34 1502.11 6883.14 1502.11 7076.24  1502.9 7222.94 1502.03
 7289.04 1500.89 7366.34 1500.82 7429.44 1501.71 7584.84 1501.02 7640.92 1500.39
 7642.77    1500 7647.56 1499.05 7651.71    1500 7651.94 1500.05 7653.57    1500
 7654.77    1500 7723.95 1500.47 7727.28    1500 7729.68  1499.3  7735.3 1499.92
 7738.17 1499.78 7742.81 1499.04  7751.4 1499.75 7760.12    1500 7781.49 1500.55
 7783.66    1500 7788.98 1498.68 7797.79    1500  7797.8    1500 7866.35 1500.43
 7943.38 1500.11 7943.97    1500 7947.32 1499.61 7951.98    1500 7954.39 1500.08
 7974.03 1500.42  7976.5    1500 7982.19 1499.09 7990.52 1499.06 7999.95    1500
 8001.17 1500.11 8022.84 1500.12 8024.03    1500 8030.35  1499.4 8039.34    1500
 8039.81 1500.04 8039.97    1500 8044.91 1499.18 8050.54    1500 8055.71  1500.7
 8366.33 1501.04  8469.7    1500 8472.19 1499.98 8473.85    1500 8494.96 1500.38
  8537.1 1500.88 8760.95 1500.39 8866.33 1500.84 9096.89 1501.97 9305.05 1501.72
 9366.33  1502.4 9866.33 1501.11 9966.74 1502.25 9970.08 1501.77 9984.11 1501.92
 9988.88    1500 9997.67 1496.4810003.23 1496.4810012.23    150010017.78 1502.18
10031.44 1501.3710054.34 1501.1810062.47 1500.2310070.34 1501.2310366.35 1502.68
10581.39 1500.9410885.83 1501.7111006.67 1502.8111079.29 1501.2911219.18 1500.15
11231.71    150011637.64 1498.4911642.89 1497.7511661.46 1498.0611673.41 1498.49
11686.92 1498.6911690.79  1498.311698.36 1498.7911745.21 1499.8911768.24 1499.85
11831.84 1499.0811850.32 1498.9611854.49 1498.9211869.81    150011875.13 1500.34
11983.99 1500.8812004.19    150012010.73 1499.9312126.57 1499.3912131.35 1498.85
 12134.4 1499.3912157.32 1499.5112163.09 1499.07 12167.6 1499.4212295.76 1499.26
12314.62 1499.2112459.44 1499.4312468.24 1498.2412476.64 1499.32 12529.8 1499.13
12609.04 1499.3912616.23 1498.5512622.99  1499.312884.03    150012933.86 1500.32
12934.69    150012941.73 1497.4112949.17 1499.8912977.97    1500 13016.9 1500.21
 13019.7    150013023.36 1499.6513025.93    1500 13029.1 1500.4213178.31 1500.82
13181.88    150013182.08 1499.9613182.29    150013185.87 1500.5513242.14 1501.08
13248.72 1500.5913258.46 1501.3513291.38 1501.5213347.38 1501.2913434.18 1500.75
13730.64 1501.7913736.15 1501.2713742.38 1501.6613833.73 1502.6713884.46 1502.97
14052.96 1503.1514084.54 1503.0214152.97 1503.2514246.91 1503.5614252.95 1503.23
14352.97  1503.314452.96 1503.7814552.96 1503.8314652.95 1504.0614752.95 1504.15
14852.96 1503.5814858.37 1502.8714952.96 1504.73 14959.7  1504.414964.99 1503.29
 14973.8 1504.0515052.95  1504.615070.54  1504.515075.23 1503.4115079.44 1504.48
15104.35 1504.4815152.97  1504.815169.61 1504.6115185.68 1501.6915193.49 1504.71
15217.66 1504.0415241.32 1504.1115248.51 1503.3315252.78 1504.8315252.96 1504.83
 15270.8 1503.4515275.37 1502.9415282.16 1503.7315298.96 1503.4415306.43 1502.19

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2481.22     .05 9984.11    .01510017.78     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9984.1110017.78           463.51  500.02  509.99              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 13292.415306.43 1503.66
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2481.22 6197.82 1502.74 13728.815306.43  1502.7

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1501.05   Element                    Left OB    Channel   Right OB
```

Vel Head (ft)	0.36	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1500.69	Reach Len. (ft)	463.51	500.02	509.99
Crit W.S. (ft)	1500.69	Flow Area (sq ft)	585.68	68.26	2227.78
E.G. Slope (ft/ft)	0.004761	Area (sq ft)	585.68	68.26	2227.78
Q Total (cfs)	6667.00	Flow (cfs)	818.95	836.40	5011.65
Top Width (ft)	3159.34	Top Width (ft)	1163.93	26.83	1968.57
Vel Total (ft/s)	2.31	Avg. Vel. (ft/s)	1.40	12.25	2.25
Max Chl Dpth (ft)	4.21	Hydr. Depth (ft)	0.50	2.54	1.13
Conv. Total (cfs)	96624.8	Conv. (cfs)	11869.1	12121.9	72633.8
Length Wtd. (ft)		Wetted Per. (ft)	1165.24	28.44	1970.31
Min Ch El (ft)	1496.48	Shear (lb/sq ft)	0.15	0.71	0.34
Alpha	4.27	Stream Power (lb/ft s)	0.21	8.74	0.76
Frctn Loss (ft)		Cum Volume (acre-ft)	2973.15	817.20	517.49
C & E Loss (ft)		Cum SA (acres)	3012.82	205.47	486.51

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6232.67	6982.95	353.76	239.38	392.70	5.31	0.61	1.48
6982.95	7733.24	72.41	57.46	119.67	1.09	0.48	1.26
7733.24	8483.53	367.83	248.34	405.98	5.52	0.61	1.48
8483.53	9233.82	24.95	40.51	246.90	0.37	0.16	0.62
9233.82	9984.11						
LB 9984.11	9990.84	12.62	2.73	3.97	0.19	0.74	4.62
9990.84	9997.58	215.08	19.04	7.25	3.23	2.83	11.30
9997.58	10004.31	429.65	28.14	6.82	6.44	4.18	15.27
10004.31	10011.05	172.35	16.65	7.23	2.59	2.47	10.35
10011.05	RB 10017.78	6.70	1.71	3.17	0.10	0.58	3.93
10017.78	10546.65	1.32	1.76	7.66	0.02	0.23	0.75
10546.65	11075.51						
11075.51	11604.38	1227.14	542.22	451.78	18.41	1.20	2.26
11604.38	12133.24	1350.88	591.92	487.04	20.26	1.22	2.28
12133.24	12662.11	1875.66	745.06	529.15	28.13	1.41	2.52
12662.11	13190.97	556.48	346.20	481.94	8.35	0.72	1.61
13190.97	13719.83	0.16	0.61	12.74	0.00	0.05	0.27

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION *RIVER: Powerline FRS*
REACH: Powerline RS: 17.964

INPUT
Description:
Station Elevation Data num= 182

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2554.85	1500.39	2701.88	1500	2876.58	1499.41	2890.29	1497.96	2899.1	1498.79
2954.85	1499.24	2963.09	1497.82	2967.23	1498.68	3028.42	1498.92	3054.85	1499.37
3055.39	1499.5	3291.97	1500	3554.86	1500.67	3696.27	1501.06	3857.85	1500
3946.8	1499.47	3952.91	1498.66	3956.72	1499.54	4196.27	1498.25	4696.27	1497.53
4721.96	1498.33	4734.76	1496.51	4752.13	1499.38	4764.88	1499.66	4778.1	1499.36
4798.05	1496.2	4806.78	1496.93	4814.61	1497.58	4937.72	1496.64	4949.51	1495.51
4956.59	1496.2	5419.6	1497.77	5423.44	1496.36	5433.48	1497.07	5446.4	1497.68
5633.17	1500	5942.14	1500.53	6075.44	1500	6267.84	1498	6442.15	1497.37
6558.7	1497.63	7082.47	1498.07	7582.47	1498.86	7602.01	1499.35	7656.53	1498.86
7673.33	1497.98	7692.76	1496.05	7706.21	1497	7750.64	1496.49	7801.26	1494.99
7810.41	1493.73	7813.98	1495.91	7941.38	1496.75	7946.01	1494.34	7955.46	1496.67
8059.01	1496.66	8066.73	1494.72	8074.31	1496.74	8075.78	1496.76	8081.51	1494.62
8088.67	1496.77	8110.92	1497.52	8118.71	1496.02	8124.23	1496.56	8227.27	1497.73
8233.92	1497.44	8237.45	1497.85	8534.75	1497.67	8722.93	1497.63	9161.19	1498.78
9246.93	1498.01	9290.48	1497.56	9297.6	1498.04	9363.23	1499.33	9386.32	1499.57
9863.23	1497.83	9942.27	1498.04	9970.85	1498.41	9984.52	1498.91	9997.68	1493.27
10003.23	1493.27	10017.96	1498.55	10031.78	1498.03	10052.3	1497.71	10061.99	1497.21
10069.46	1497.56	10101.32	1498.15	10108.74	1497.42	10116.6	1498.14	10363.24	1497.53

```
10588.69 1497.08   10712 1498.3610775.36 1499.1610863.25  1497.410880.26  1497.5
11015.17 1497.7911192.21 1496.7711197.23 1496.5411204.67 1497.0111223.81 1497.08
11278.66 1498.41 11447.4 1497.0811807.31 1496.1111814.47  1495.211816.29 1495.93
11919.88 1495.9811928.64  1494.711933.59 1495.5211985.93 1495.4312048.43 1496.69
12072.67 1495.8612081.56 1494.7712089.47 1495.5112360.57 1496.35 12364.8 1496.31
12367.76 1496.4612524.45 1496.1112822.44 1496.3612828.47 1495.6612834.04 1496.27
12849.44 1496.5112857.06 1496.0712865.38 1496.9313062.96 1497.2213190.61 1497.85
13197.59 1496.26 13202.9 1497.5113215.18 1497.6813221.26 1497.0213282.08 1497.81
13286.19 1497.1113289.07 1497.5313357.35 1497.4113361.37 1497.2313364.44 1497.22
13427.55  1496.913433.12  1496.313437.67 1496.8813469.84    149713474.65 1496.75
13482.76 1496.9313587.43 1497.4313704.26    149813785.48 1498.9313824.54 1498.56
 13968.9  1497.614138.91 1498.6914146.84 1498.1514148.27 1497.8514153.88  1498.6
14183.44 1498.4414185.98 1498.1414194.18  1498.514271.74 1499.4114349.87    1500
14371.74 1500.1714445.85    150014471.74 1499.9414571.73 1499.5414629.74 1499.58
14637.69 1498.6814642.84 1499.6814671.75 1499.7714771.74 1499.6914867.49 1499.57
14871.73 1499.1914874.38 1498.9414881.62 1499.5114913.02    150014971.73 1500.91
 15021.9 1501.0515052.57 1501.1315071.74 1501.16 15113.1 1500.9315171.74 1501.56
15195.22 1501.5915201.31 1500.9415206.28 1501.6815271.73 1501.6115371.75 1501.41
15471.74 1501.2415506.81 1501.46

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2554.85     .05 9984.52    .01510017.96     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9984.5210017.96           490.55     480  439.57              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
13782.5715506.81 1501.65
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 2554.85 5933.56 1500.54 13786.415506.81  1499.9
```

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1497.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1497.49	Reach Len. (ft)	490.55	480.00	439.57
Crit W.S. (ft)	1497.49	Flow Area (sq ft)	560.88	69.12	2178.41
E.G. Slope (ft/ft)	0.004862	Area (sq ft)	560.88	69.12	2178.41
Q Total (cfs)	6667.00	Flow (cfs)	1225.74	856.20	4585.06
Top Width (ft)	3169.60	Top Width (ft)	618.10	27.19	2524.31
Vel Total (ft/s)	2.37	Avg. Vel. (ft/s)	2.19	12.39	2.10
Max Chl Dpth (ft)	4.22	Hydr. Depth (ft)	0.91	2.54	0.86
Conv. Total (cfs)	95610.9	Conv. (cfs)	17578.2	12278.6	65754.1
Length Wtd. (ft)		Wetted Per. (ft)	621.21	28.79	2525.45
Min Ch El (ft)	1493.27	Shear (lb/sq ft)	0.27	0.73	0.26
Alpha	4.19	Stream Power (lb/ft s)	0.60	9.03	0.55
Frctn Loss (ft)		Cum Volume (acre-ft)	2967.05	816.41	491.70
C & E Loss (ft)		Cum SA (acres)	3003.34	205.16	460.21

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6269.68	7012.65	1.82	5.49	89.20	0.03	0.06	0.33
7012.65	7755.62	114.12	62.10	77.50	1.71	0.80	1.84
7755.62	8498.59	1109.79	493.29	454.51	16.65	1.09	2.25
8498.59	9984.52						
LB 9984.52	9991.21	11.21	2.45	3.68	0.17	0.72	4.57
9991.21	9997.90	221.52	19.27	7.26	3.32	2.88	11.50
9997.90	10004.58	430.36	27.92	6.77	6.46	4.17	15.42
10004.58	10011.27	182.03	16.98	7.10	2.73	2.54	10.72
10011.27	RB 10017.96	11.06	2.51	3.97	0.17	0.67	4.41
10017.96	10566.84	22.22	35.90	198.28	0.33	0.18	0.62
10566.84	11115.73	15.63	24.64	131.13	0.23	0.19	0.63
11115.73	11664.62	297.46	224.23	394.77	4.46	0.57	1.33
11664.62	12213.50	2248.73	861.38	549.37	33.73	1.57	2.61
12213.50	12762.38	1609.19	704.44	548.89	24.14	1.28	2.28

12762.38	13311.27	297.94	228.72	413.86	4.47	0.55	1.30
13311.27	13860.15	93.90	99.12	289.16	1.41	0.34	0.95

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. *This may indicate the need for additional cross sections.*

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.873

INPUT
Description:
Station Elevation Data num= 148

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2636.03	1497.66	2684.31	1497.52	2695.43	1496.63	2697.83	1497.17	2916.33	1497.42
2919.75	1496.88	2928.8	1497.5	2969.79	1497.34	2976.11	1496.43	2985.4	1497.36
3136.03	1497.58	3636.04	1497.83	3777.43	1498.57	3918.87	1497.03	4013.14	1496.37
4060.28	1496.71	4090.42	1497.28	4101.68	1496.08	4118	1497.37	4130.62	1497.9
4143.6	1497.38	4172.36	1496.36	4180.32	1497.43	4299.06	1496.31	4659.59	1494.54
4760.08	1494.72	4767.14	1493.29	4770.24	1493.99	4791.67	1494.5	4797.33	1492.86
4800.03	1493.89	5261.78	1494.58	5293.93	1493.4	5299.66	1492.28	5305.21	1493.37
5311.1	1493.92	5316.03	1492.83	5346.47	1494.15	5530.41	1496.92	5580.7	1497.15
5799.79	1495.49	6352.89	1494.41	6360.85	1490.87	6368.61	1494.34	6440.09	1494.84
6450.37	1494.73	6453.16	1494.65	6483.75	1494.68	6491.61	1492.82	6499.45	1494.43
6940.09	1494.71	7326.24	1494.77	7335.57	1494.41	7339.31	1494.8	7470.57	1495.8
7580.41	1496.92	7634.43	1497.46	7659.03	1497.57	7839.81	1492.9	7847.09	1492.22
7853.05	1493.06	7888.26	1492.19	7894.91	1491.85	7901.29	1492.49	7911.33	1492.57
7918.62	1492.23	7924.29	1492.54	7964.41	1493.63	7972.79	1493.04	7977.77	1493.65
8080.4	1494.81	8329.31	1496.15	8403.12	1495.06	8430.73	1494.87	8436.71	1494.19
8442.46	1494.85	8538.3	1494.33	8720.72	1494.14	9220.72	1494.74	9327.19	1495.03
9371.48	1496.11	9450.38	1495.07	9720.73	1494.44	9972.37	1495.49	9984.59	1495.84
9997.5	1490.63	10003.54	1490.67	10016.6	1496.21	0031.16	1495.14	10037.16	1495.26
10220.72	1494.21	0502.96	1494.59	10607.7	1494.04	10943.46	1493.51	1368.12	1495.11
11526.55	1494.39	11589.38	1494.51	1973.76	1492.59	12161.34	1493.35	12181.65	1492.71
12240.24	1494.21	2312.12	1493.99	12388.24	1493.85	12445.49	1494.37	12503.98	1494.27
12605.2	1493.08	12609.38	1492.82	12613.79	1493.04	12946.67	1493.74	12951.41	1492.66
12969.72	1492.45	12978.77	1493.51	3027.91	1493.86	13034.25	1492.16	13041.6	1493.11
13182.08	1493.78	13344.2	1494.62	13371.14		15001	3371.59	1500.09	13372.03
13407.76	1493.08	13432.09	1490.53	13523.74	1490.53	13559.32	1493.01	13585.96	1500
13594.69	1502.23	13601.67		15001	3617.73	1494.71	4166.97	1494.41	4390.56	1495.75
14490.58	1495.41	4590.57	1495.91	4690.57	1497.05	14790.56	1496.85	14859.06	1496.37
14866.57	1495.43	14871.82	1496.29	14890.58	1496.78	14990.57	1496.85	15090.57	1496.85
15190.56	1497.17	15290.58	1497.11	5390.57	1497.12	15490.56	1497.61	5590.58	1497.5
15592.85	1497.81	5599.17	1497.13	15606.07	1497.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2636.03	.05	9984.59	.015	10016.6	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9984.59	10016.6	490.49	500	414.21	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
13595	15606.07	1504.01

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2636.03	5581.57	1497.16

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1494.61	Element			
Vel Head (ft)	0.43	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1494.18	Reach Len. (ft)	490.49	500.00	414.21
Crit W.S. (ft)	1494.18	Flow Area (sq ft)	276.65	51.50	1797.91
E.G. Slope (ft/ft)	0.007257	Area (sq ft)	276.65	51.50	1797.91
Q Total (cfs)	6667.00	Flow (cfs)	724.33	712.62	5230.05
Top Width (ft)	2573.82	Top Width (ft)	335.09	23.13	2215.60
Vel Total (ft/s)	3.14	Avg. Vel. (ft/s)	2.62	13.84	2.91
Max Chl Dpth (ft)	3.65	Hydr. Depth (ft)	0.83	2.23	0.81
Conv. Total (cfs)	78262.6	Conv. (cfs)	8502.8	8365.3	61394.6
Length Wtd. (ft)	439.06	Wetted Per. (ft)	337.05	24.53	2216.61
Min Ch El (ft)	1490.63	Shear (lb/sq ft)	0.37	0.95	0.37
Alpha	2.83	Stream Power (lb/ft s)	0.97	13.16	1.07

Frctn Loss (ft)	2.78	Cum Volume (acre-ft)	2962.33	815.75	471.64
C & E Loss (ft)	0.03	Cum SA (acres)	2997.98	204.88	436.29

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6310.31	7045.17	92.11	33.00	28.93	1.38	1.21	2.79
7045.17	7780.02						
7780.02	8514.88	631.93	242.15	234.76	9.48	1.03	2.61
8514.88	9249.73	0.29	1.50	73.35	0.00	0.02	0.19
9249.73	9984.59						
LB 9984.59	9990.99	4.47	1.06	2.47	0.07	0.46	4.22
9990.99	9997.39	170.28	14.19	6.90	2.55	2.22	12.00
9997.39	10003.80	387.42	22.59	6.43	5.81	3.53	17.15
10003.80	10010.20	148.48	13.10	6.95	2.23	2.05	11.33
10010.20	RB 10016.60	1.96	0.57	1.77	0.03	0.35	3.46
10016.60	10575.55						
10575.55	11134.49	264.00	201.00	542.19	3.96	0.37	1.31
11134.49	11693.44	2.15	3.94	39.85	0.03	0.10	0.54
11693.44	12252.39	1371.05	543.85	551.71	20.56	0.99	2.52
12252.39	12811.33	499.01	278.64	472.08	7.48	0.59	1.79
12811.33	13370.28	540.95	286.55	448.59	8.11	0.64	1.89
13370.28	13929.23	2552.89	483.93	162.18	38.29	2.99	5.28

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.778

INPUT
Description:
Station Elevation Data num= 174

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2712.36	1494.85	2731.79	1495.28	2739.09	1494.57	2743.51	1494.95	3352.66	1493.98
3495.09	1493.91	3508.51	1492.49	3529.39	1496.09	3543.14	1495.84	3555.78	1496.02
3576.97	1492.05	3592.13	1493.38	3735.47	1491.99	4320.46	1492.33	4375.77	1492.63
4762.6	1492.36	4769.05	1490.51	4774.49	1492.09	4797.58	1492.22	4803.37	1490
4804.18	1489.64	4805.81	1490	4811.47	1491.44	4823.91	1491.91	4829.13	1490.47
4837.38	1492.08	4875.77	1492.2	5007.49	1490.86	5019.44	1490	5021.66	1489.84
5024.77	1490	5028.22	1490.19	5054.78	1490.76	5061.11	1490	5069.31	1489.18
5078.55	1489.17	5086.27	1489.95	5089.6	1489.31	5093.47	1489.7	5115.93	1490
5148.46	1490.29	5149.52	1490	5154.2	1488.78	5163.2	1490	5166.82	1490.48
5361.4	1491	5516.09	1492.25	6156.39	1492.83	6354.21	1491.66	6359.71	1490
6363.71	1488.64	6369.52	1490	6374.98	1491.23	6796.71	1492.25	7095.94	1492.12
7151.12	1491.6	7157.74	1491.25	7164.74	1491.56	7437.03	1492.23	7853.48	1490.41
7856.31	1490	7862.67	1489.07	7866.57	1489.96	7881.18	1490	7887.37	1490
7924.79	1489.68	7931.95	1488	7937.69	1488.05	7945.2	1490	7946.55	1490.36
7980.83	1490.13	7981.29	1490	7990.74	1487.55	7998.03	1489.26	8038.48	1490
8077.33	1490.71	8093.66	1490.81	8098.68	1490	8099.34	1489.86	8100.37	1490
8103.36	1490.41	8357.27	1492.67	8538.02	1491.83	8577.33	1491.84	8918.75	1490.32
8924.64	1490	8925.51	1489.94	8926.66	1490	8935.53	1490.76	8954.35	1490.93
8959.01	1490	8962.98	1489.16	8964.96	1489.72	8968.89	1490	8970.48	1490.1
9217.65	1491.55	9717.66	1491.97	9784.22	1492.13	9787.64	1491.66	9792.51	1492.07
9972.32	1492.59	9984.48	1492.87	9991.36	1490	9997.51	1487.44	10002.92	1487.62
10008.79	1490	10016.74	1493.21	10029.91	1492.38	10034.4	1492.75	10217.67	1491.85
10441.26	1492.31	10620.12	1490.47	10801.86	1490.22	10871.47	1490	11025.94	1489.85
11094.06	1490	11250.54	1490.32	11474.13	1491.51	11697.75	1491.75	11921.37	1491.23
12144.96	1490.12	12184.34	1490.28	12188.34	1490.13	12191.48	1490.59	12282.11	1490.55
12369.13	1491.02	12461.07	1491.29	12578.25	1492.91	12688.49	1491.89	12777.99	1490.95
12783.99	1490.44	12789.98	1490.61	12925.07	1490.81	12928.21	1490.35	12932.97	1491.02
13014.72	1491.29	13023.88	1490.65	13032.48	1491.12	13108.82	1491.14	13112.88	1490
13116.23	1489.01	13120.62	1490	13124.61	1490.75	13455.45	1491.75	13646.52	1490.75
13654.42	1490.54	13660.81	1490.72	13767.64	1490.53	13775.32	1490.06	13780.18	1490.31
13893.96	1490.97	14117.55	1491.67	14174.27	1491.08	14180.74	1490.65	14187.87	1490.95
14341.75	1492.26	14565.36	1492.51	14665.35	1492.16	14679.09	1492.15	14688.62	1491.64
14693.53	1492.43	14765.41	1493.36	14865.41	1492.81	14965.42	1493.53	15062.47	1493.78
15065.56	1493.83	15070.14	1493.36	15165.65	1493.76	15265.66	1493.66	15365.67	1493.81

15465.65 1494.2615565.66 1494.3315665.66 1494.5815765.65 1494.56

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2712.36	.05	9984.48	.01510016.74		.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9984.4810016.74 487.24 500.01 490.5 .1 .3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2712.36	6156.26	1494.95	13895.915765.65		1494.36

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2712.36	4373.31	1494.08	14566.815765.65		1493.16

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1491.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1491.47	Reach Len. (ft)	487.24	500.01	490.50
Crit W.S. (ft)	1491.47	Flow Area (sq ft)	1009.98	59.21	2017.76
E.G. Slope (ft/ft)	0.005511	Area (sq ft)	1442.25	59.21	2089.66
Q Total (cfs)	6667.00	Flow (cfs)	1970.97	750.22	3945.81
Top Width (ft)	4713.03	Top Width (ft)	1789.43	24.63	2898.98
Vel Total (ft/s)	2.16	Avg. Vel. (ft/s)	1.95	12.67	1.96
Max Chl Dpth (ft)	4.03	Hydr. Depth (ft)	0.78	2.40	0.77
Conv. Total (cfs)	89804.2	Conv. (cfs)	26548.9	10105.4	53149.8
Length Wtd. (ft)		Wetted Per. (ft)	1290.65	26.18	2627.68
Min Ch El (ft)	1487.44	Shear (lb/sq ft)	0.27	0.78	0.26
Alpha	4.60	Stream Power (lb/ft s)	0.53	9.86	0.52
Frctn Loss (ft)		Cum Volume (acre-ft)	2952.65	815.11	453.15
C & E Loss (ft)		Cum SA (acres)	2986.01	204.61	411.98

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6348.42	7075.63	42.68	41.72	121.73	0.64	0.34	1.02
7075.63	7802.84	94.39	82.26	202.10	1.42	0.41	1.15
7802.84	8530.06	1243.56	518.41	421.39	18.65	1.23	2.40
8530.06	9257.27	590.34	367.59	545.43	8.85	0.67	1.61
9257.27	9984.48						
LB 9984.48	9990.93	9.14	2.01	3.36	0.14	0.65	4.55
9990.93	9997.38	197.47	17.03	6.99	2.96	2.64	11.60
9997.38	10003.84	396.84	25.20	6.54	5.95	3.91	15.75
10003.84	10010.29	143.47	14.03	6.96	2.15	2.18	10.22
10010.29	RB 10016.74	3.30	0.94	2.33	0.05	0.44	3.50
10016.74	10591.63	26.48	24.80	69.63	0.40	0.36	1.07
10591.63	11166.52	1991.35	770.75	574.89	29.87	1.34	2.58
11166.52	11741.41	406.44	229.25	300.82	6.10	0.76	1.77
11741.41	12316.30	616.07	360.50	499.86	9.24	0.72	1.71
12316.30	12891.20	227.99	166.38	321.26	3.42	0.52	1.37
12891.20	13466.09	243.70	202.22	473.50	3.66	0.43	1.21
13466.09	14040.98	433.78	263.85	387.72	6.51	0.68	1.64

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.684

INPUT
Description:
Station Elevation Data num= 152

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

```
 2639.94 1492.47 2781.35 1492.76 2922.78 1493.43 2930.04 1493.82 2946.49 1491.53
 2966.34 1494.46  2979.7 1494.41 2992.51  1494.5 3011.08 1491.64 3029.74 1492.84
 3169.81 1491.82 3508.56 1491.54 3550.58 1490.93 3665.41    1490 3950.83 1488.65
 4360.77 1488.38 4377.91 1488.28 4591.15 1489.11 4978.22    1490 5084.95 1490.86
 5112.98    1490 5181.21  1488.1  5204.3 1485.47 5213.57 1487.47 5231.45 1488.68
 5344.81 1488.55 5350.82 1487.75 5354.03 1487.97 5871.78  1488.6 6292.61 1489.25
 6299.59 1486.84  6308.4 1489.14 6496.28 1489.01 6501.02 1487.94 6506.09 1488.94
 6512.09 1488.94 6662.46 1488.23  6671.3 1487.16 6677.85 1488.74 6768.62    1490
 6853.19  1491.2 6860.78 1490.89 6869.24 1491.05 6956.38    1490 7130.53 1489.94
  7293.1  1489.1 7580.29 1488.81  7584.3 1488.38 7588.78 1488.99 7861.06 1487.02
 7871.77 1483.84 7884.94 1486.46  7921.2 1486.59 7927.85 1485.54 7933.28  1486.8
 7933.43 1486.27 8121.83 1487.73 8132.66  1486.7 8139.14 1487.74 8536.01 1488.08
 8573.73 1488.23 9003.37 1488.04 9010.77 1487.03 9019.11 1487.96 9073.71 1487.81
 9714.03 1489.79 9824.75    1490 9852.07  1490.4 9942.32    1490 9953.61 1489.97
 9960.05    1490 9970.68  1490.1 9984.08 1490.07 9984.27    1490 9997.46  1485.3
10003.39  1484.910015.24    149010016.24 1490.4310022.68    149010030.07 1489.53
10037.89 1489.4710214.02 1489.6410350.23 1488.0210437.64 1487.3210629.65 1486.66
11243.87 1486.6711467.47 1487.4711691.08 1488.1911902.81 1489.0611914.69 1488.63
12743.45    149012758.36 1490.3412769.08 1490.2312782.24    149012956.07 1488.47
 13085.3 1488.2413111.41 1488.2913117.83 1487.2813121.44 1488.0813192.38 1487.93
 13198.4 1487.49 13203.1 1487.8913239.24 1488.3813247.28 1486.9813253.83 1488.44
13352.19 1488.07 13356.8 1487.8713360.91 1488.1913393.52  1487.8 13400.6 1487.27
13405.41 1487.5813451.42 1487.6813456.65 1487.1713461.12 1487.66 13599.9 1487.93
 13785.6 1488.4813819.67  1488.213827.09 1488.0113837.33 1488.2614107.41 1489.42
14116.14  1488.414122.26 1489.3614255.77 1488.8614361.85  1489.414367.66 1489.81
14426.85    1490   14572 1490.7414660.64 1490.39 14668.3    149014669.77  1489.9
14672.01 1489.9914672.08    149014680.86 1490.7414772.01 1491.8914872.01 1492.29
   14972 1492.2615072.03 1491.8915172.01 1492.2115196.08 1492.3615203.71 1491.95
15209.19 1492.6615272.02 1492.11   15372 1492.3415472.01 1491.9915572.01 1491.89
   15672 1492.3115772.02 1492.1115780.91 1492.0915790.78 1491.4515795.62 1491.87
15872.01 1492.3115972.01 1493.56

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2639.94     .05 9984.08    .01510016.24     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9984.0810016.24           529.26  495.97  402.35             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 2639.94    5090    1490

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1488.51   Element                   Left OB    Channel   Right OB
  Vel Head (ft)                0.32   Wt. n-Val.                 0.050      0.015      0.050
  W.S. Elev (ft)            1488.19   Reach Len. (ft)           529.26     495.97     402.35
  Crit W.S. (ft)            1488.19   Flow Area (sq ft)         767.65      42.63    1698.37
  E.G. Slope (ft/ft)       0.007806   Area (sq ft)              767.65      42.63    1698.37
  Q Total (cfs)             6667.00   Flow (cfs)               1487.81     564.93    4614.26
  Top Width (ft)            3541.51   Top Width (ft)           1656.69      21.69    1863.13
  Vel Total (ft/s)             2.66   Avg. Vel. (ft/s)            1.94      13.25       2.72
  Max Chl Dpth (ft)            4.35   Hydr. Depth (ft)            0.46       1.97       0.91
  Conv. Total (cfs)         75461.9   Conv. (cfs)              16840.1     6394.3    52227.5
  Length Wtd. (ft)                    Wetted Per. (ft)         1659.37      22.88    1863.67
  Min Ch El (ft)            1484.90   Shear (lb/sq ft)            0.23       0.91       0.44
  Alpha                        2.95   Stream Power (lb/ft s)      0.44      12.03       1.21
  Frctn Loss (ft)                     Cum Volume (acre-ft)     2940.29     814.53     431.83
  C & E Loss (ft)                     Cum SA (acres)           2966.74     204.34     385.16


Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta     Right Sta       Flow      Area      W.P.    % Conv.   Hydr D.   Velocity
  (ft)         (ft)            (cfs)   (sq ft)     (ft)                (ft)     (ft/s)
  4843.18      5577.60         90.77     74.17   234.48      1.36      0.32      1.22
  5577.60      6312.01         12.10      6.14     9.48      0.18      0.68      1.97
  6312.01      7046.42         10.61      6.89    15.40      0.16      0.45      1.54
  7046.42      7780.84         28.11     24.06    81.57      0.42      0.30      1.17
  7780.84      8515.25       1289.64    576.01   735.90     19.34      0.78      2.24
```

8515.25	9249.67	56.58	80.38	582.53	0.85	0.14	0.70
9249.67	9984.08						
LB 9984.08	9990.51	0.63	0.24	1.24	0.01	0.21	2.62
9990.51	9996.94	101.10	10.04	6.83	1.52	1.56	10.07
9996.94	10003.38	322.73	19.72	6.48	4.84	3.07	16.36
10003.38	10009.81	139.48	12.30	7.00	2.09	1.91	11.34
10009.81	RB 10016.24	0.98	0.32	1.34	0.01	0.26	3.03
10016.24	10611.82	587.92	250.50	275.93	8.82	0.91	2.35
10611.82	11207.39	3012.39	908.28	595.58	45.18	1.53	3.32
11207.39	11802.97	833.52	386.66	483.84	12.50	0.80	2.16
11802.97	12994.13						
12994.13	13589.70	169.95	137.42	395.71	2.55	0.35	1.24
13589.70	14185.28	10.47	15.52	112.62	0.16	0.14	0.67

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.590

INPUT
Description:
Station Elevation Data num= 177

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2739.26	1490.58	2825.34	1490	2875.69	1489.67	2879.6	1489.44	2925.36	1490
2995.36	1490.7	3039.21	1490.72	3069.62	1490	3072.55	1489.92	3130.83	1490
3153.83	1490.23	3201.39	1490	3227.74	1489.55	3306.47	1489.03	3452.15	1487.12
3739.78	1488.3	3775.41	1487.93	3835.73	1487.27	3988.45	1486.65	4004.62	1485.63
4019.11	1486.42	4087.49	1486.34	4596.46	1486.3	4610.29	1485.82	4723.82	1486.7
4727.82	1486.52	4855.22	1489.14	5068.71	1486.67	5227.06	1487.6	5316.36	1486.37
5325.02	1482.64	5336.02	1486.27	5350.98	1485.72	5358.71	1484.1	5364.16	1485.64
5427.72	1485.2	5431.42	1484.6	5435.44	1485.37	5508.85	1485.33	5644.87	1484.81
5651.06	1484.26	5653.85	1484.83	5662.54	1484.68	5667.34	1483.93	5672.05	1484.72
5747.01	1484.92	5754.24	1483.19	5760.19	1484.86	6037.8	1485.55	6042.63	1483.94
6048.24	1485.6	6063.96	1485.04	6071.91	1482.89	6079.87	1485.42	6148.75	1485.65
6157.54	1484.46	6166.38	1486.12	6314.3	1485.07	6320.97	1484.31	6325.86	1484.22
6328.63	1484.88	6431.11	1485.8	6437.46	1484.26	6447.61	1485.97	6546.58	1487.17
6558.67	1487.58	6889.59	1488.21	6930.18	1487.48	7548.16	1484.59	7584.07	1483.18
7628.8	1484.04	7652.31	1484.61	7657.13	1483.46	7665.23	1484.29	7736.68	1484.01
7740.09	1483.45	7744.12	1483.83	7754	1484.02	7759.23	1482.83	7760.9	1483.5
7784	1484.29	7794.18	1481.03	7800.63	1482.89	7811.93	1483.27	7817.46	1481.79
7830.33	1483.23	7859.51	1483.7	7863.86	1483.41	7870.09	1483.77	7883.93	1483.55
7890.21	1482.62	7900.37	1484.46	8210.81	1484.38	8537.5	1484.33	8710.8	1484.17
8856.23	1484.45	8863.25	1483.71	8868.09	1484.3	8909	1484.4	8915.27	1483.52
8920.63	1484.13	8961.04	1484.44	8965.26	1483.82	8970.62	1484.44	9036.82	1484.85
9210.79	1485.05	9710.78	1486.43	9898.22	1487.27	9971.13	1486.93	9982.9	1487.16
9997.44	1482.24	10003.02	1481.95	10015.54	1487.54	10029.67	1486.51	0038.71	1486.6
10296.82	1485.41	10401.25	1484.85	10520.44	1484.93	10648.08	1484.21	0967.67	1483.55
11085.2	1483.25	11089.76	1482.23	11098.64	1483.31	11191.28	1483.96	11544.18	1485.11
11551.23	1484.26	11559.73	1485.29	11638.49	1485.43	11862.1	1486.74	11890.23	1487.56
12085.71	1487.15	12401.94	1486.33	12718.16	1485.94	12834.05	1486.37	12952.35	1488.38
13045.59	1486.76	13305.1	1484.99	13312.01	1485.35	13396.69	1484.79	13404.54	1482.8
13412.72	1485.11	13465.4	1485.58	13470.16	1485.39	13473.84	1485.59	13530.03	1485.66
13549.39	1485.53	13554.96	1485.04	13556.66	1485.73	13594.25	1485.63	13603.58	1484.67
13623.49	1485.51	13692.01	1485.91	13767.47	1485.35	13912.67	1486.11	3950.26	1486.38
14009.14	1485.88	14029.68	1486.88	14204.76	1486.06	14254.61	1485.85	14262.39	1487.58
14272.46	1487.77	14279.3	1486.49	14629.26	1488.81	4854.26	1490	4899.26	1490.3
14974.26	1490	4989.26	1489.51	4999.26	1490	5029.26	1490.31	5054.26	1490
15099.26	1489.21	5134.26	1490	5164.26	1490.31	5189.26	1490	5219.26	1489.9
15259.26	1490	5414.26	1490.9						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2739.26	.05	9982.9	.01	15010.54	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9982.91	15010.54	519.2	503.87	537.11	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2739.26	5230	1488

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1485.41	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1485.22	Reach Len. (ft)	519.20	503.87	537.11
Crit W.S. (ft)	1485.12	Flow Area (sq ft)	1803.48	42.48	1251.45
E.G. Slope (ft/ft)	0.005560	Area (sq ft)	1803.48	42.48	1251.45
Q Total (cfs)	6667.00	Flow (cfs)	3501.83	473.90	2691.27
Top Width (ft)	3776.11	Top Width (ft)	2376.62	21.70	1377.80
Vel Total (ft/s)	2.15	Avg. Vel. (ft/s)	1.94	11.15	2.15
Max Chl Dpth (ft)	4.19	Hydr. Depth (ft)	0.76	1.96	0.91
Conv. Total (cfs)	89410.0	Conv. (cfs)	46962.4	6355.5	36092.2
Length Wtd. (ft)	525.42	Wetted Per. (ft)	2382.20	22.89	1378.75
Min Ch El (ft)	1481.95	Shear (lb/sq ft)	0.26	0.64	0.32
Alpha	2.74	Stream Power (lb/ft s)	0.51	7.19	0.68
Frctn Loss (ft)	3.49	Cum Volume (acre-ft)	2924.67	814.04	418.20
C & E Loss (ft)	0.02	Cum SA (acres)	2942.24	204.10	370.20

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4912.35	5636.72	45.82	43.72	132.43	0.69	0.33	1.05
5636.72	6361.08	156.55	138.56	374.99	2.35	0.37	1.13
6361.08	7085.44	4.81	4.73	15.00	0.07	0.32	1.02
7085.44	7809.81	919.96	410.33	397.24	13.80	1.04	2.24
7809.81	8534.17	1504.09	701.02	724.90	22.56	0.97	2.15
8534.17	9258.54	870.57	504.87	724.62	13.06	0.70	1.72
9258.54	9982.90	0.04	0.23	13.02	0.00	0.02	0.15
LB 9982.90	9989.43	0.17	0.11	0.83	0.00	0.13	1.66
9989.43	9995.96	70.18	8.95	6.89	1.05	1.37	7.84
9995.96	10002.48	269.19	19.73	6.62	4.04	3.02	13.64
10002.48	10009.01	133.27	13.31	7.10	2.00	2.04	10.02
10009.01	RB 10015.54	1.08	0.39	1.45	0.02	0.30	2.75
10015.54	10555.41	58.45	65.24	222.74	0.88	0.29	0.90
10555.41	11095.28	1848.47	738.49	540.03	27.73	1.37	2.50
11095.28	11635.16	742.93	402.22	463.99	11.14	0.87	1.85
11635.16	13254.77						
13254.77	13794.64	41.42	45.52	151.99	0.62	0.30	0.91

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.494

INPUT
Description:
Station Elevation Data num= 168

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2801.85	1487.14	2848.59	1488.16	2954.68	1488.84	3071.29	1487.19	3214.51	1486.7
3412.39	1484.8	3417.34	1483.97	3424.4	1484.72	3582.87	1484.48	3631.17	1484.22
3643.74	1483.34	3651.36	1483.78	3673.01	1484.34	3675.13	1483.89	3680.77	1484.38
3805.64	1486.02	4207.69	1483.65	4213.58	1482.8	4219.89	1483.16	4281.86	1483.19
4297.75	1481.7	4302.52	1482.88	4312.25	1483.09	4317.09	1481.18	4326.24	1483.29
4363.91	1482.89	4505.33	1483.35	4582.24	1484.76	4695.98	1485.58	4761.25	1485.13
4834.81	1484.94	4996.62	1482.65	5003.32	1482.98	5025.05	1482.52	5145.64	1483.03
5287.06	1482.74	5388.85	1482.77	5398.17	1480.27	5410.78	1482.88	5667.67	1481.46
5676.82	1480	5677.29	1479.9	5677.67	1480	5684.4	1481.86	5699.82	1482.06
5706.61	1480	5708.78	1479.34	5711.08	1480	5719.85	1482.14	5787.05	1481.89
6427.38	1483.18	6468.66	1483.4	6476.9	1482.84	6486.07	1483.16	7026.34	1485.09
7067.68	1484.24	7510.85	1482.29	7513.03	1481.39	7518.29	1481.99	7708.01	1481.58
7781.02	1480.85	7786.36	1480.33	7792.72	1480.64	7808.5	1481.3	7815.6	1480
7820.67	1479.01	7824.74	1480	7828.84	1480.89	8207.99	1480.32	8397.59	1480.75
8401.99	1480	8402.92	1479.83	8404.38	1480	8409.36	1480.56	8445.27	1480.24
8446.87	1480	8452.04	1479.26	8456.81	1480	8460.12	1480.54	8498.28	1480.27
8499.79	1480	8504.51	1479.19	8508.49	1479.89	8511.6	1480	8521.46	1480.38
8523.68	1480	8527.43	1479.54	8531.61	1480	8534.31	1480.19	8698	1480.42
8708	1480.76	8741.01	1481	8746.52	1480.08	8750.59	1481.08	8801.31	1480.67
8804.07	1480	8809.42	1478.63	8812.37	1478.44	8821.86	1480	8825.35	1480.57

```
 9016.29 1481.63 9207.97 1482.07 9666.75 1482.46 9676.09 1481.93 9683.63 1482.56
  9713.4 1483.27 9776.33 1483.78 9971.63 1483.25 9983.76 1483.13 9992.89    1480
 9997.63 1478.3810002.85  1478.110007.43    148010016.02 1483.5710031.15 1482.49
10042.06 1482.5310057.73 1481.5610067.11  1482.710112.34 1482.7110207.98 1481.83
10431.58 1481.59 10655.2 1480.45 10878.8 1480.09 11020.1    148011027.99 1479.64
11042.47 1478.6111045.95 1479.5211055.98  1479.811064.19 1477.7111073.58 1479.72
11098.69    148011102.42 1480.0411326.03 1480.9411549.63 1482.1711773.24 1483.69
11996.85 1484.0812220.46  1484.2 12536.7 1482.92 12852.9 1483.0413000.41 1483.76
13040.17 1484.7513102.58 1484.4213205.88 1483.6313329.55 1484.3113390.28 1483.82
13485.18 1483.0613536.48 1482.0413542.33 1481.9413716.85    148213761.85  1482.6
13796.85    148213806.85  1481.713816.85    148213936.85  1483.314056.85    1484
14106.85  1484.314226.85  1484.314311.85    148414671.85    148614751.85  1485.8
14821.85    148614946.85  1486.815081.85  1487.115201.85  1487.715281.85  1487.5
15366.85  1487.615416.85    148815701.85  1489.7

Manning's n Values          num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
 2801.85     .05 9983.76    .01510016.02     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9983.7610016.02           473.59  472.04  447.11             .1       .3
Blocked Obstructions      num=        1
   Sta L   Sta R    Elev
 2801.85    5140    1484
```

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1481.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1481.53	Reach Len. (ft)	473.59	472.04	447.11
Crit W.S. (ft)	1481.49	Flow Area (sq ft)	1241.69	45.90	1044.82
E.G. Slope (ft/ft)	0.008048	Area (sq ft)	1241.69	45.90	1044.82
Q Total (cfs)	6667.00	Flow (cfs)	3152.08	630.15	2884.77
Top Width (ft)	2356.19	Top Width (ft)	1342.71	22.70	990.79
Vel Total (ft/s)	2.86	Avg. Vel. (ft/s)	2.54	13.73	2.76
Max Chl Dpth (ft)	3.82	Hydr. Depth (ft)	0.92	2.02	1.05
Conv. Total (cfs)	74314.5	Conv. (cfs)	35135.0	7024.0	32155.4
Length Wtd. (ft)	460.45	Wetted Per. (ft)	1345.66	23.91	991.43
Min Ch El (ft)	1478.10	Shear (lb/sq ft)	0.46	0.96	0.53
Alpha	2.96	Stream Power (lb/ft s)	1.18	13.24	1.46
Frctn Loss (ft)	2.94	Cum Volume (acre-ft)	2906.53	813.53	404.05
C & E Loss (ft)	0.00	Cum SA (acres)	2920.07	203.84	355.59

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4956.42	5674.61	15.91	11.64	31.20	0.24	0.38	1.37
5674.61	6392.80	68.09	25.59	25.26	1.02	1.05	2.66
6392.80	7111.00						
7111.00	7829.19	140.78	73.43	118.51	2.11	0.62	1.92
7829.19	8547.38	1991.55	740.23	718.74	29.87	1.03	2.69
8547.38	9265.57	935.75	390.80	451.94	14.04	0.87	2.39
9265.57	9983.76						
LB 9983.76	9990.21	1.89	0.55	1.89	0.03	0.31	3.43
9990.21	9996.66	119.97	11.09	6.82	1.80	1.72	10.82
9996.66	10003.12	356.70	20.97	6.54	5.35	3.25	17.01
10003.12	10009.57	149.85	12.80	6.99	2.25	1.98	11.71
10009.57	RB 10016.02	1.74	0.50	1.68	0.03	0.32	3.48
10016.02	10584.60	63.44	51.18	141.70	0.95	0.36	1.24
10584.60	11153.19	2449.38	799.27	569.23	36.74	1.41	3.06
11153.19	11721.77	371.96	194.37	280.51	5.58	0.69	1.91

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.405

INPUT
Description:
Station Elevation Data num= 146

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2797.5	1485.45	2876.3	1486.42	2951.15	1485.07	3022.67	1483.64	3032.55	1482.9
3037.36	1483.36	3234.45	1483.06	3333.06	1484.24	3657.16	1481.17	3664.86	1480.41
3685	1481.25	3784.19	1480.41	3862.2	1480.75	3867.76	1480	3868.51	1479.9
3869.04	1480	3872.77	1480.64	4196.15	1480.58	4247.27	1481.02	4253.55	1480
4256.42	1479.52	4258.85	1480	4264.19	1481.06	4354.85	1480.21	4429.51	1483.24
4577.94	1482.65	4808.31	1481.11	4924.36	1480.05	4933.41	1480	5160.67	1479.23
5177.67	1479.12	5424.37	1479.86	5467.85	1480	5493.98	1480.09	5494.47	1480
5499.53	1479.17	5504.48	1479.76	5512.09	1479.91	5520.9	1477.93	5528.96	1479.82
5598.24	1479.34	5606.99	1477.35	5614.36	1479.49	5924.36	1479.5	6334.07	1479.9
6341.12	1479.58	6347.58	1479.72	6424.37	1479.69	6525.94	1480	6573.45	1480
6652.86	1480	6924.36	1482.35	6940.74	1481.62	7234.72	1480	7424.37	1478.87
7479.45	1478.82	7481.79	1477.76	7486.33	1478.61	7733.25	1478.35	7739.89	1477.29
7746.29	1478.04	7769.05	1478.3	7778.84	1476.86	7788.74	1477.78	8064.67	1477.54
8338.6	1476.84	8344.79	1474.96	8349.03	1476.51	8427.83	1477.43	8436.35	1475.6
8442.57	1477.43	8534.02	1477.74	8564.68	1477.56	8699.64	1478.34	8794.2	1478.48
8834.07	1478.63	8956.72	1478.97	8971.79	1478.63	9054.21	1478.39	9064.65	1478.35
9373.23	1480	9502.71	1480	9564.65	1479.65	9620.78	1479.5	9699.27	1479.57
9752.34	1478.86	9761.96	1478.79	9768.22	1479.25	9915.39	1478.73	9918.8	1478.45
9923.5	1478.92	9970.82	1479.62	9983.83	1479.78	9997.12	1474.74	10003.37	1474.6
10017.44	1479.92	10030.14	1479.15	10035.8	1478.94	10056.55	1477.66	10063.42	1478.22
10170.94	1477.71	10288.3	1477.77	10511.9	1476.51	10665.86	1476.77	10735.52	1476.97
10959.12	1477.51	10003.44	1477.22	11011.47	1475.64	11020.75	1477.26	11182.75	1477.94
11406.36	1478.59	11624.35	1480	11853.58	1480.98	12077.23	1480.98	12557.5	1480.9
12742.5	1480.6	12922.5	1480	12992.5	1479.9	13062.5	1480	13142.5	1480
13237.5	1479.8	13312.5	1480	13337.5	1480.2	13372.5	1480	13462.5	1480.6
13527.5	1480	13562.5	1479.8	13622.5	1480	13842.5	1480	13907.5	1480
13992.5	1479.7	14042.5	1480	14232.5	1480	14402.5	1482	14587.5	1484
14727.5	1484.3	14852.5	1484.9	15062.5	1484.8	15242.5	1483.1	15282.5	1482
15342.5	1483.2	15382.5	1484	15512.5	1485.3	15622.5	1486	15727.5	1485.5
15877.5	1486.7								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2797.5	.05	9983.83	.015	10017.44	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9983.83	10017.44	541.31	508.19	481.14	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2797.5	5495	1480

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1478.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1478.59	Reach Len. (ft)	541.31	508.19	481.14
Crit W.S. (ft)	1478.59	Flow Area (sq ft)	1148.13	65.09	1550.08
E.G. Slope (ft/ft)	0.005295	Area (sq ft)	1148.13	65.09	1550.08
Q Total (cfs)	6667.00	Flow (cfs)	2202.87	815.79	3648.34
Top Width (ft)	2858.24	Top Width (ft)	1466.48	26.95	1364.80
Vel Total (ft/s)	2.41	Avg. Vel. (ft/s)	1.92	12.53	2.35
Max Chl Dpth (ft)	3.99	Hydr. Depth (ft)	0.78	2.41	1.14
Conv. Total (cfs)	91620.8	Conv. (cfs)	30272.9	11210.9	50137.1
Length Wtd. (ft)	501.22	Wetted Per. (ft)	1468.52	28.39	1365.15
Min Ch El (ft)	1474.60	Shear (lb/sq ft)	0.26	0.76	0.38
Alpha	4.03	Stream Power (lb/ft s)	0.50	9.50	0.88
Frctn Loss (ft)	2.39	Cum Volume (acre-ft)	2893.54	812.93	390.73
C & E Loss (ft)	0.00	Cum SA (acres)	2904.80	203.57	343.51

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4953.40	5672.03	9.43	7.92	15.93	0.14	0.51	1.19
5672.03	7109.30						
7109.30	7827.93	93.47	105.33	329.15	1.40	0.32	0.89
7827.93	8546.56	1972.62	897.52	719.65	29.59	1.25	2.20
8546.56	9265.20	127.29	137.14	400.67	1.91	0.34	0.93
9265.20	9983.83	0.07	0.22	3.11	0.00	0.07	0.32
LB 9983.83	9990.55	11.30	2.43	3.83	0.17	0.68	4.64
9990.55	9997.27	202.99	17.70	7.18	3.04	2.63	11.47
9997.27	10004.00	409.28	26.33	6.77	6.14	3.92	15.55
10004.00	10010.72	183.86	16.69	7.19	2.76	2.48	11.02
10010.72	RB 10017.44	8.35	1.94	3.42	0.13	0.61	4.30
10017.44	10603.45	1595.71	685.83	562.03	23.93	1.22	2.33
10603.45	11189.45	1988.15	795.91	586.30	29.82	1.36	2.50
11189.45	11775.46	64.47	68.33	216.83	0.97	0.32	0.94

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.309

INPUT
Description:
Station Elevation Data num= 128

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2835.25	1481.06	2935.75	1480	3139.14	1478.49	3590.1	1479.09	3633.69	1479.83
3689.92	1479.35	3779.43	1477.81	4044.7	1477.89	4167.7	1477.84	4180.54	1476.87
4186.25	1477.66	4211.44	1478	4216.18	1477.96	4262.85	1478	4271.26	1475.68
4279.81	1477.91	4345.08	1479.51	4419.76	1478.19	4591.69	1477.88	4919.75	1476.61
5072.07	1476.19	5077.35	1475.64	5083.38	1476.27	5112.75	1476.31	5130.68	1475.4
5488.15	1477.54	5496.26	1475.69	5503.83	1477.28	5543.27	1477.49	5552.38	1475.93
5557.91	1477.78	6059.93	1476.01	6700.23	1476.81	6985.59	1479.78	7200.23	1477.37
7338.86	1475.3	7343.89	1475.12	7348.38	1475.26	7700.24	1474.93	7848.65	1475.16
7859.53	1473.91	7869.83	1475.1	8210.69	1474.02	8220.24	1471.72	8235.38	1474.02
8414.68	1474.07	8534.69	1474.91	8560.48	1475.02	9002.64	1475	9007.24	1474.59
9012.99	1474.5	9021.42	1475.22	9060.44	1475.22	9387.27	1475.71	9391.26	1475.37
9397.24	1475.74	9431.82	1475.45	9439.58	1475.18	9447.2	1475.61	9523.29	1476.42
9560.46	1476.39	9944.57	1475.53	9950.87	1474.74	9956.9	1475.61	9965.01	1476.03
9969.24	1476.57	9982.15	1476.43	9995.91	1471.28	10002.34	1470.98	10016.6	1476.06
10029.34	1475.12	10033.98	1475.23	10053.6	1474.24	10060.45	1474.64	10060.74	1474.55
10190.22	1474.28	10212.47	1474.31	10219.22	1473.71	10223.05	1474.34	10284.05	1474.02
10507.67	1472.93	10674.19	1473.56	10731.27	1473.77	10929.54	1473.95	10935.53	1472.73
10941.61	1474.35	10954.89	1474.11	11178.49	1474.53	11558.25	147	11788.25	1477.1
11945.25	1477.31	12060.25	147	812095.25	1478.51	2135.25	147	812195.25	1477.7
12260.25	147	812305.25	1477.51	2345.25	1477.71	2585.25	1477.11	2785.25	1478
12805.25	1478.51	2835.25	147	812963.25	1477.81	3073.25	1477.41	3200.25	1477.3
13275.25	1477.21	3365.25	147	713660.25	1476.31	3875.25	1476.81	4090.25	1476.8
14300.25	147	814455.25	148	014590.25	1476.81	4645.25	148	014855.25	1481
14960.25	1480.91	5045.25	1481.11	5135.25	1481.41	5195.25	1481.21	5310.25	1480
15320.25	1479.91	5330.25	148	015460.25	1480.61	5605.25	1480.91	5735.25	1481.6
15805.25	148	215920.25	148	116030.25	1481.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2835.25	.05	9982.15	.015	10016.6	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9982.15	10016.6	501.66	476.06	493.7	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2835.25	5487.9	1477

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1475.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.	0.050	0.015	0.050

W.S. Elev (ft)	1475.39	Reach Len. (ft)	501.66	476.06	493.70
Crit W.S. (ft)	1475.39	Flow Area (sq ft)	1077.67	77.19	1818.50
E.G. Slope (ft/ft)	0.004323	Area (sq ft)	1077.67	77.19	1818.50
Q Total (cfs)	6667.00	Flow (cfs)	1467.77	917.95	4281.28
Top Width (ft)	3263.65	Top Width (ft)	1859.42	29.78	1374.45
Vel Total (ft/s)	2.24	Avg. Vel. (ft/s)	1.36	11.89	2.35
Max Chl Dpth (ft)	4.41	Hydr. Depth (ft)	0.58	2.59	1.32
Conv. Total (cfs)	101402.4	Conv. (cfs)	22324.2	13961.6	65116.6
Length Wtd. (ft)		Wetted Per. (ft)	1860.17	31.29	1374.94
Min Ch El (ft)	1470.98	Shear (lb/sq ft)	0.16	0.67	0.36
Alpha	4.66	Stream Power (lb/ft s)	0.21	7.92	0.84
Frctn Loss (ft)		Cum Volume (acre-ft)	2879.71	812.10	372.13
C & E Loss (ft)		Cum SA (acres)	2884.14	203.24	328.38

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7123.39	7838.08	114.53	153.56	505.12	1.72	0.30	0.75
7838.08	8552.77	1198.04	721.83	715.28	17.97	1.01	1.66
8552.77	9267.46	152.80	198.13	619.84	2.29	0.32	0.77
9267.46	9982.15	2.40	4.14	19.93	0.04	0.21	0.58
LB 9982.15	9989.04	14.33	3.15	4.38	0.21	0.77	4.54
9989.04	9995.93	210.78	19.47	7.36	3.16	2.83	10.83
9995.93	10002.82	435.38	29.37	6.93	6.53	4.26	14.82
10002.82	10009.71	235.00	20.74	7.31	3.52	3.01	11.33
10009.71	RB 10016.60	22.45	4.46	5.31	0.34	0.89	5.04
10016.60	10617.96	2354.33	935.62	592.40	35.31	1.58	2.52
10617.96	11219.33	1868.65	819.60	601.70	28.03	1.36	2.28
11219.33	11820.69	58.31	63.29	180.83	0.87	0.35	0.92

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.218

INPUT
Description:
Station Elevation Data num= 147

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2831.22	1476.97	2918.91	1476.58	2925.21	1475.85	2951.13	1476.63	2974.51	1476.75
3474.51	1475.44	3974.5	1474.74	4250.81	1474.83	4258.25	1472.58	4267.2	1474.77
4453.02	1475.31	4531.68	1477.33	4653.17	1475.97	4788.18	1474.45	4834.73	1474.14
4965.36	1473.24	4982.32	1473.16	5069.74	1473.24	5100.04	1472.95	5334.74	1473.93
5495.17	1474.92	5498.19	1473.94	5505.32	1475.07	5561.73	1475.22	5574.27	1473.33
5588.99	1475.51	5603	1474.95	5700.77	1474.28	5713.93	1473.54	5721.22	1474.27
5744.47	1473.92	5746.86	1473.66	5750.67	1474.08	5763.83	1474.23	5768.39	1473.61
5774.43	1474.19	5834.73	1473.61	6195.3	1472.76	6344.79	1472.61	6350.83	1472.22
6356.84	1472.81	6695.29	1473.02	6808.05	1474.9	6903.42	1476.42	7195.29	1474.59
7200.17	1474.45	7226.71	1473.59	7247.35	1474.01	7297.01	1473.74	7306.3	1472.81
7600.92	1470.78	7607.85	1470.03	7613.54	1470.78	7695.28	1471.54	8062.55	1471.5
8073.65	1470.39	8081.42	1470.88	8096.35	1470.93	8099.36	1470	8103.46	1468.72
8107.48	1470	8110.66	1470.97	8144.54	1471.01	8151.69	1470	8152	1469.96
8153.33	1470	8161.27	1470	8164.41	1470.64	8195.28	1470.74	8533.29	1472.19
8555.84	1472.24	8746.22	1471.81	8766.28	1472.27	8770.7	1471.55	8774.26	1472.18
9055.83	1472.22	9321.62	1471.7	9481.55	1473.06	9555.82	1472.15	9818.55	1470.7
9916.38	1472.64	9946.06	1472.92	9952.36	1471.96	9957.08	1472.95	9964.49	1473.55
9967.34	1472.68	9981.5	1473.06	9995.23	1467.96	10000.92	1467.93	10014.21	1473.2
10027.34	1472.73	10033	1472.95	10050.53	1472.83	10057.52	1472.94	10173.02	1471.31
10346.22	1470	10401.22	1470.31	10456.22	1470	10606.22	1470	10816.22	1471.5
10916.22	1470	10926.22	1469.71	10936.22	1470	10991.22	1471.71	11036.22	1472
11326.22	1473	11586.22	1473.81	11706.22	1474	11826.22	1474	11976.22	1474.8
12051.22	1474.51	12221.22	1474.41	12341.22	1474.51	12761.22	1475.21	12856.22	1475
13016.22	1474	13061.22	1474	13101.22	1474.31	13206.22	1474	13301.22	1474.4

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13411.22  1474.713611.22    147413761.22    147213776.22  1470.713786.22    1472
13851.22    147213856.22  1470.513861.22    147213971.22    147414191.22    1474
14206.22  1473.314216.22    147414491.22  1475.814626.22  1477.214741.22    1476
14781.22    147614846.22  1477.314991.22  1478.215091.22  1477.415171.22  1478.1
15296.22  1477.715381.22    147815436.22  1478.315481.22    147815556.22  1477.2
15691.22    147816066.22    1480

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 2831.22     .05  9981.5    .01510014.21     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9981.510014.21              440  446.85     550             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 2831.22 5493.59    1476
```

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1472.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1472.16	Reach Len. (ft)	440.00	446.85	550.00
Crit W.S. (ft)	1472.16	Flow Area (sq ft)	1254.40	70.23	1443.56
E.G. Slope (ft/ft)	0.004738	Area (sq ft)	1254.40	70.23	1443.56
Q Total (cfs)	6667.00	Flow (cfs)	2096.45	859.38	3711.18
Top Width (ft)	3045.66	Top Width (ft)	1928.38	27.65	1089.63
Vel Total (ft/s)	2.41	Avg. Vel. (ft/s)	1.67	12.24	2.57
Max Chl Dpth (ft)	4.23	Hydr. Depth (ft)	0.65	2.54	1.32
Conv. Total (cfs)	96855.1	Conv. (cfs)	30456.2	12484.6	53914.2
Length Wtd. (ft)	494.28	Wetted Per. (ft)	1929.54	29.22	1090.28
Min Ch El (ft)	1467.93	Shear (lb/sq ft)	0.19	0.71	0.39
Alpha	4.11	Stream Power (lb/ft s)	0.32	8.70	1.01
Frctn Loss (ft)	2.08	Cum Volume (acre-ft)	2866.28	811.29	353.64
C & E Loss (ft)	0.01	Cum SA (acres)	2862.33	202.93	314.41

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7121.39	7836.42	564.64	329.77	435.57	8.47	0.76	1.71
7836.42	8551.44	1066.58	580.68	690.31	16.00	0.84	1.84
8551.44	9266.47	40.91	62.94	355.45	0.61	0.18	0.65
9266.47	9981.50	424.31	281.01	448.20	6.36	0.63	1.51
LB 9981.50	9988.04	14.87	3.14	4.39	0.22	0.76	4.73
9988.04	9994.58	199.07	17.94	6.98	2.99	2.74	11.09
9994.58	10001.13	420.08	27.47	6.60	6.30	4.20	15.29
10001.13	10007.67	210.92	18.64	7.04	3.16	2.85	11.32
10007.67	RB 10014.21	14.44	3.04	4.21	0.22	0.78	4.75
10014.21	10619.41	2451.91	858.19	506.49	36.78	1.69	2.86
10619.41	11224.61	1218.96	544.20	462.67	18.28	1.18	2.24
11224.61	13645.42						
13645.42	14250.62	40.31	41.17	121.12	0.60	0.34	0.98

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.134

INPUT
Description:
Station Elevation Data num= 243

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2914.52	1474	3102.93	1473.7	3110.85	1472.18	3120.25	1473.69	3324.4	1473.19
3678.46	1472	3701	1471.73	3709.21	1471.21	3715.47	1471.68	3719.5	1471.56
3724.51	1470.8	3735.69	1471.07	3746.27	1471.4	3751.04	1470.82	3760.81	1471.25
3772.77	1471.27	3789.58	1470.61	3793.31	1470	3798.14	1469.39	3801.59	1470
3804.64	1470.58	3816.95	1470.5	3819.15	1470	3823.47	1469.07	3828.8	1470
3837.58	1471.47	3900.09	1470.64	3905.26	1470	3907.41	1469.74	3908.49	1470
3913.32	1471.05	3922.32	1471.01	3927.21	1470.09	3935.76	1470.91	3991.77	1471.63
3998.17	1470.42	4003.27	1471.44	4032.4	1471.26	4037.64	1470.41	4045.34	1471.48
4122.84	1472	4131.53	1472.06	4131.74	1472	4137.85	1470.36	4145.63	1472
4145.89	1472.06	4152.69	1472	4173.54	1472	4176.07	1472	4229.94	1472
4237.1	1472.04	4237.48	1472	4244.95	1471.07	4249.7	1472	4249.75	1472.01
4258.94	1472.15	4259.38	1472	4264.73	1470	4264.96	1469.92	4265.36	1470
4272.74	1471.36	4500.88	1472	4600.87	1472.69	4636.75	1474	4658.58	1474.82
4684.55	1475.21	4719.76	1474.41	4782.19	1474.41	4876.9	1474	4960.39	1472
4971.94	1471.76	4988.49	1471.27	5018.77	1471.35	5033.53	1470.93	5039.04	1471.89
5039.77	1472	5053.64	1474	5055.01	1474.18	5056.77	1474	5075.54	1472.24
5086.29	1472	5091.92	1471.81	5092.6	1472	5099.92	1474	5107.2	1476
5114.16	1477.96	5126.92	1476.8	5129.27	1476	5135.13	1474	5140.98	1472
5146.63	1470	5150.54	1468.6	5322.94	1468.6	5328.7	1470	5337.08	1472
5345.67	1474	5354.23	1476	5361.32	1477.78	5363.57	1478	5375.42	1479.31
5379.47	1478	5385.66	1476	5391.82	1474	5397.96	1472	5399.53	1471.49
5414.94	1470	5415.63	1469.89	5416.55	1470	5421.17	1470.39	5684.55	1471.26
5929.48	1470.8	5943.72	1470	5949.72	1469.18	5955.79	1470	5959.17	1470.43
5964.15	1470	5968.22	1469.67	5998.23	1469.8	6007.48	1468.53	6017.24	1469.76
6046.18	1469.92	6050.73	1468.17	6056.45	1469.74	6074.21	1469.6	6084.11	1468.31
6094.06	1469.84	6172.14	1469.66	6178.95	1468.98	6182.51	1469.66	6211.76	1469.8
6216.06	1468.96	6221.59	1469.89	6280.37	1469.77	6285.41	1468.51	6291.97	1469.9
6296.46	1470	6488.65	1472	6515.85	1472.27	6568.76	1472.02	6628.9	1472.69
6836.3	1472	6852.53	1471.97	6858.44	1471.59	6863.73	1471.88	7044.71	1470.62
7120.05	1470	7335.71	1469.06	7340.53	1468.4	7344.67	1468.99	7904.95	1468.15
7924.79	1468	7973.83	1467.62	8013.19	1468	8164.51	1468.62	8166.65	1468
8170.85	1466.88	8175.13	1467.85	8177.6	1468	8178.48	1468.05	8178.67	1468
8185.96	1466.05	8194.59	1468	8195.01	1468.15	8231.13	1468.95	8238.55	1468.33
8244.81	1468.88	8261.95	1468.65	8269.14	1468.04	8275.98	1468.4	8314.39	1468.03
8316.94	1468	8328.24	1467.89	8337.17	1468	8350.43	1468.4	8483.09	1468.4
8486.14	1468	8493.88	1467.5	8502.01	1468	8506.97	1468.2	8548.67	1468.48
8561.49	1468.01	8586.44	1469.05	8835	1470	8960	1470	9180	1470
9440	1470	9470	1470.2	9500	1470	9585	1468.8	9750	1468
9940	1468	9980	1470	10000	1463.6	10010	1468	10020	1469.6
10135	1468	10215	1469.9	10320	1468	10470	1467.7	10670	1468
10765	1468	10795	1467.9	10820	1468	10870	1468.6	11100	1468
11145	1467.8	11175	1468	11335	1469.4	11400	1470	11550	1471.8
11700	1472	11730	1472	12120	1471.5	12370	1471.4	12975	1471.7
13075	1471.7	13225	1470.3	13825	1470.7	14010	1470	14115	1470
14145	1470	14150	1469.5	14155	1470	14190	1470.6	14220	1470
14230	1469.1	14250	1470	14300	1471	14355	1472	14440	1473.4
14655	1471.7	14840	1472.7	15010	1474	15270	1474	15355	1474
15365	1473.9	15375	1472	15380	1471.9	15385	1472	15630	1474
16000	1475.4	16185	1476	16250	1476				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2914.52	.05	9980	.015	10020	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980	10020	500	476.47	600	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
2914.52	5360	1473	14435	16250	1473.41

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1469.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1469.34	Reach Len. (ft)	500.00	476.47	600.00
Crit W.S. (ft)	1469.34	Flow Area (sq ft)	1684.53	92.54	1381.45
E.G. Slope (ft/ft)	0.003779	Area (sq ft)	1684.53	92.54	1381.45
Q Total (cfs)	6667.00	Flow (cfs)	2899.70	1015.45	2751.85
Top Width (ft)	3144.82	Top Width (ft)	1865.19	36.32	1243.30
Vel Total (ft/s)	2.11	Avg. Vel. (ft/s)	1.72	10.97	1.99
Max Chl Dpth (ft)	5.74	Hydr. Depth (ft)	0.90	2.55	1.11
Conv. Total (cfs)	108456.6	Conv. (cfs)	47171.4	16519.0	44766.2

Length Wtd. (ft)	544.07	Wetted Per. (ft)	1867.33	38.25	1243.37
Min Ch El (ft)	1463.60	Shear (lb/sq ft)	0.21	0.57	0.26
Alpha	4.77	Stream Power (lb/ft s)	0.37	6.26	0.52
Frctn Loss (ft)	1.35	Cum Volume (acre-ft)	2851.43	810.46	335.80
C & E Loss (ft)	0.01	Cum SA (acres)	2843.17	202.60	299.69

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5740.71	6447.26	20.80	21.83	54.58	0.31	0.41	0.95
6447.26	7153.81						
7153.81	7860.36	531.40	395.13	589.24	7.97	0.67	1.34
7860.36	8566.90	1537.98	804.36	707.59	23.07	1.14	1.91
8566.90	9273.45	17.61	24.73	95.73	0.26	0.26	0.71
9273.45	9980.00	791.89	438.48	420.20	11.88	1.04	1.81
LB 9980.00	9988.00	26.56	5.65	6.24	0.40	0.95	4.70
9988.00	9996.00	267.80	25.45	8.40	4.02	3.18	10.52
9996.00	10004.00	557.92	39.85	8.57	8.37	4.98	14.00
10004.00	10012.00	152.79	18.33	8.58	2.29	2.29	8.34
10012.00	RB 10020.00	10.38	3.26	6.46	0.16	0.51	3.18
10020.00	10643.00	1277.51	637.38	550.03	19.16	1.16	2.00
10643.00	11266.00	1460.97	726.13	623.01	21.91	1.17	2.01
11266.00	11889.00	12.95	16.97	62.28	0.19	0.27	0.76
11889.00	13758.00						
13758.00	14381.00	0.43	0.97	8.06	0.01	0.12	0.44

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 17.044

INPUT
Description:
Station Elevation Data num= 180

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2997.33	1472	3229.28	1470.48	3233.16	1470	3241.94	1469.12	3251.31	1470
3257.48	1470.46	3265.24	1470.31	3266.53	1470	3270.21	1468.95	3273.92	1470
3275.9	1470.41	3332.06	1470.87	3339.29	1470	3361.18	1468.98	3368.2	1469.78
3399.76	1469.77	3407.95	1468.4	3415.64	1469.62	3479.55	1470	3481.71	1470
3482.37	1470.03	3486.02	1469.46	3491.67	1470	3739.65	1470	3912.53	1468.23
3916.18	1468	3926.98	1467.42	3930.18	1468	3932.64	1468.18	3959.17	1468.49
3961.4	1468	3964.25	1467.37	3967.86	1468	3970.46	1468.41	4120.44	1468.75
4127.39	1468.14	4130.5	1468.75	4206.37	1469.43	4213.15	1468.03	4219.34	1469.36
4268.29	1468.97	4617.41	1470	4646.3	1470.24	4706.76	1472	4712.35	1472.17
4758.52	1472	4766.99	1471.91	4768.29	1471.74	4793.31	1470.75	4845.19	1470.55
4880.8	1470	4945.25	1469.62	4957.9	1468	4958.16	1467.97	4958.32	1468
4965.38	1469.42	5026.31	1470	5037.17	1470.1	5055.93	1470	5163.11	1469.3
5219.22	1469.21	5268.3	1469.2	5300.57	1468.68	5381	1468	5733.04	1466.25
5736.78	1466	5752.91	1464.64	5761.52	1466	5765.67	1466.47	5768.28	1466.66
5805.04	1467.09	5812.22	1466.43	5816.13	1467.01	5987.29	1466.07	5987.62	1466
5995.57	1464.67	6001.95	1466	6005.63	1466.77	6026.75	1466.73	6029.15	1466
6032.79	1464.59	6039.78	1466	6040.03	1466.05	6154.39	1468	6187.37	1468.96
6236.64	1470	6258.74	1470.49	6268.29	1470.11	6276.65	1470	6338.38	1469.15

6410.2	1468.23	6415.85	1468	6418	1467.91	6419.61	1468	6425.76	1468.42
6570.17	1470	6579.27	1470.14	6658.2	1471.14	6768.3	1471.18	6776.51	1470.6
6939.96	1470	7183.44	1468	7268.3	1467.06	7293.58	1466.86	7300.47	1467.05
7304.94	1467.04	7768.31	1466.08	7794.56	1466	7885.22	1466	7958.03	1466.13
7961.96	1466	7963.62	1465.95	7965.39	1466	7972.38	1466.13	8268.3	1466.88
8304.67	1466.66	8306.73	1466	8312.19	1464	8312.77	1463.79	8313.38	1464
8318.63	1466	8319.83	1466.52	8343.21	1466.65	8348.29	1466	8349.97	1465.8
8355.46	1466	8359.02	1466.13	8375	1464	8655	1466	8855	1467
8980	1466.9	9320	1466	9520	1466	9560	1466.2	9590	1466
9800	1465.6	9940	1466	9960	1466.1	9980	1466.9	9995	1460
10000	1460	10005	1460	10025	1466	10045	1464	10055	1463.7
10065	1464	10230	1465.4	10345	1464	10410	1463.6	10470	1464
11015	1465.1	11195	1466	11370	1467.6	11440	1468	11570	1468.1
11605	1468	11860	1467.9	12130	1468	12240	1468.6	12340	1468
12980	1468	13400	1468	13780	1466.9	13945	1467	14245	1466
14255	1465.5	14265	1466	14335	1468	14385	1468.8	14440	1468
14540	1467.7	14655	1468	14825	1469.2	14965	1469.2	15130	1470
15215	1471.3	15540	1469.6	15660	1468.9	15885	1470	16345	1471.8

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2997.33	.05	9980	.015	10025	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980	10025	500	522.73	550	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
15215	16345	1471.28

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1466.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.47	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1466.44	Reach Len. (ft)	500.00	522.73	550.00
Crit W.S. (ft)	1466.44	Flow Area (sq ft)	1070.96	178.44	2149.87
E.G. Slope (ft/ft)	0.001755	Area (sq ft)	1070.96	178.44	2149.87
Q Total (cfs)	6667.00	Flow (cfs)	1055.07	1820.25	3791.68
Top Width (ft)	3355.64	Top Width (ft)	1924.50	44.01	1387.13
Vel Total (ft/s)	1.96	Avg. Vel. (ft/s)	0.99	10.20	1.76
Max Chl Dpth (ft)	6.44	Hydr. Depth (ft)	0.56	4.05	1.55
Conv. Total (cfs)	159148.0	Conv. (cfs)	25185.7	43451.2	90511.1
Length Wtd. (ft)	536.40	Wetted Per. (ft)	1926.65	46.30	1387.29
Min Ch El (ft)	1460.00	Shear (lb/sq ft)	0.06	0.42	0.17
Alpha	7.89	Stream Power (lb/ft s)	0.06	4.31	0.30
Frctn Loss (ft)	1.15	Cum Volume (acre-ft)	2835.62	808.98	311.48
C & E Loss (ft)	0.02	Cum SA (acres)	2821.42	202.16	281.57

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5092.13	5790.40	26.59	33.63	71.54	0.40	0.47	0.79
5790.40	6488.67	31.97	46.38	121.25	0.48	0.39	0.69
6488.67	7186.93						
7186.93	7885.20	46.63	82.71	292.40	0.70	0.28	0.56
7885.20	8583.47	584.46	453.99	465.02	8.77	0.98	1.29
8583.47	9281.73	55.85	91.82	289.57	0.84	0.32	0.61
9281.73	9980.00	309.58	362.42	686.87	4.64	0.53	0.85
LB 9980.00	9989.00	76.32	14.75	8.81	1.14	1.84	5.17
9989.00	9998.00	546.13	49.71	9.60	8.19	5.52	10.99
9998.00	10007.00	719.91	57.39	9.09	10.80	6.38	12.54
10007.00	10016.00	392.88	40.44	9.40	5.89	4.49	9.71
10016.00	RB 10025.00	85.01	16.14	9.40	1.28	1.79	5.27
10025.00	10657.00	2618.77	1321.07	632.13	39.28	2.09	1.98
10657.00	11289.00	1148.72	781.96	586.52	17.23	1.33	1.47
11289.00	13817.00						

13817.00	14449.00	24.18	46.83	168.64	0.36	0.28	0.52

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.945

INPUT
Description:
Station Elevation Data num= 155

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2930.15	1470	3352.26	1469.07	3576.27	1468	3631.81	1468	3646.22	1468
3654.7	1468	3656.76	1468.06	3657.48	1468	3668.88	1466.97	3675.79	1467.36
3707.31	1467.5	3718.14	1466.4	3727.85	1467.13	3844.51	1468	3846.21	1468.05
3937.15	1469.72	4065.57	1468.17	4070.72	1468	4123.12	1466.35	4125.22	1466
4133.9	1465.18	4140.15	1466	4143.81	1466.48	4492.44	1467.53	4661.01	1468
4724.29	1468.6	4781.24	1470	4803.68	1470.58	4834.6	1470	4840.67	1469.88
4846.97	1468.4	4858.48	1469.1	4925.74	1468	4952.32	1467.47	4983.62	1468
4992.44	1468.15	5006.68	1468.28	5054.68	1468	5283.05	1466	5302.47	1465.85
5320.11	1464.13	5325.01	1464	5325.4	1463.66	5327.67	1464	5334.71	1464.87
5481.92	1465.24	5489.39	1464	5496.21	1462.42	5505.3	1464	5507.13	1464.35
5521.22	1464.53	5523.63	1464	5528.43	1462.83	5535.09	1464	5539.53	1464.71
5578.75	1464.97	5600	1464.97	5737.17	1464.5	5827.66	1464	5857.58	1463.84
5862.66	1462	5862.99	1461.88	5863.37	1462	5868.45	1462	5871.74	1461.35
5874.39	1462	5882.38	1464	5883.36	1464.25	5992.43	1464.67	6508.35	1464.62
6632.75	1465.09	6712.14	1466	7108.06	1466	7132.73	1465.62	7148.62	1465.62
7152.7	1465.06	7159.27	1465.66	7470.96	1464.81	7501.44	1463.92	7518.58	1463.59
7524.61	1463.13	7530.75	1463.91	7632.74	1463.37	8132.74	1463.3	8160.56	1462.4
8164.81	1462.26	8168.31	1462.65	8200	1462	8330	1462	8345	1460.4
8360	1462	8755	1464	8790	1464.3	8825	1464	9135	1463.8
9325	1464.8	9510	1465	9675	1464	9835	1464.7	9965	1462
9970	1461.6	9975	1462	9995	1458	10000	1457.5	10005	1458
10015	1462	10030	1462.8	10045	1462	10145	1462.4	10305	1461.1
10725	1461.4	10970	1462	11115	1463.6	11565	1464	11835	1465.4
12015	1465.5	12235	1465.2	12595	1464.5	12765	1464	12780	1463.5
12795	1464	13560	1462.8	14020	1462	14040	1463.2	14070	1462
14135	1460.6	14160	1460	14170	1459.9	14180	1460	14225	1462.9
14280	1464	14405	1464	14510	1464	14665	1464	14745	1465.1
14830	1466	15045	1466	15105	1465.4	15170	1466	15255	1466.4
15320	1466	15365	1465.2	15485	1466	15645	1466.3	15705	1466
15835	1464	15841	1463	15847	1462	15853	1462	15859	1463
15865	1464	15930	1466	16420	1467.2	16585	1468	16625	1468.3

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2930.15	.05	9975	.015	10015	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9975	10015	500	506.37	550	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
15044	16625	1465.99

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1463.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1463.15	Reach Len. (ft)	500.00	506.37	550.00
Crit W.S. (ft)	1463.15	Flow Area (sq ft)	447.95	148.51	2300.34
E.G. Slope (ft/ft)	0.002658	Area (sq ft)	447.95	148.51	2300.34
Q Total (cfs)	6667.00	Flow (cfs)	606.08	1782.54	4278.38
Top Width (ft)	2543.57	Top Width (ft)	545.61	40.00	1957.96
Vel Total (ft/s)	2.30	Avg. Vel. (ft/s)	1.35	12.00	1.86
Max Chl Dpth (ft)	5.65	Hydr. Depth (ft)	0.82	3.71	1.17
Conv. Total (cfs)	129324.0	Conv. (cfs)	11756.4	34577.0	82990.5
Length Wtd. (ft)	536.90	Wetted Per. (ft)	546.61	41.22	1958.20
Min Ch El (ft)	1457.50	Shear (lb/sq ft)	0.14	0.60	0.19
Alpha	7.72	Stream Power (lb/ft s)	0.18	7.18	0.36

Frctn Loss (ft)	1.88	Cum Volume (acre-ft)	2826.90	807.02	283.39
C & E Loss (ft)	0.13	Cum SA (acres)	2807.24	201.65	260.45

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5043.60	5748.09	2.13	3.19	10.70	0.03	0.30	0.67
5748.09	6452.58	29.74	19.94	20.03	0.45	1.02	1.49
6452.58	7157.06						
7157.06	7861.54	0.00	0.00	0.43	0.00	0.01	0.07
7861.54	8566.03	520.79	378.34	428.88	7.81	0.88	1.38
8566.03	9270.51	0.24	1.13	21.15	0.00	0.05	0.21
9270.51	9975.00	53.17	45.36	65.43	0.80	0.69	1.17
LB 9975.00	9983.00	114.63	15.60	8.16	1.72	1.95	7.35
9983.00	9991.00	311.10	28.40	8.16	4.67	3.55	10.95
9991.00	9999.00	562.48	40.40	8.10	8.44	5.05	13.92
9999.00	10007.00	598.31	42.10	8.18	8.97	5.26	14.21
10007.00	RB 10015.00	196.01	22.00	8.62	2.94	2.75	8.91
10015.00	10676.00	2185.63	1053.07	661.05	32.78	1.59	2.08
10676.00	11337.00	890.99	501.89	398.25	13.36	1.26	1.78
11337.00	13320.00						
13320.00	13981.00	338.94	340.66	644.28	5.08	0.53	0.99
13981.00	14642.00	862.84	404.71	254.62	12.94	1.59	2.13

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.849

INPUT
Description:
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5288.27	1464	5458.83	1462	5478.35	1461.45	5517.9	1460.4	5557.35	1460
5558.9	1459.52	5561.45	1460	5606.97	1460.29	5787.83	1460	5791.12	1459.4
5794.24	1460	5898.97	1462	5977.4	1462	6175.48	1461.97	6225.4	1461.7
6312.19	1462	6346	1462	6526.33	1462	7220	1464.5	7580	1460
7595	1461.6	7610	1460	7960	1458	7975	1457.8	7990	1458
8000	1459	8010	1460	8030	1460.3	8060	1460	8170	1458
8185	1457.5	8200	1458	8495	1460	8565	1461.5	8630	1460
8720	1459	8930	1459.7	8995	1460	9055	1461.3	9110	1460
9195	1460	9265	1460.7	9325	1460	9340	1459.9	9355	1460
9530	1461.7	9970	1460	9990	1458	10000	1454.8	10010	1460.4
10020	1460	10110	1458	10400	1458	10465	1458.8	10495	1458
10630	1456	10645	1455.4	10660	1456	10895	1458	11035	1459
11285	1460	11715	1462	11775	1462.4	11835	1462	11945	1462
11995	1462.8	12035	1462	12080	1461.7	12220	1461.5	12390	1461.3
12500	1462	12685	1460.7	12800	1460.7	12940	1461.7	13165	1460
13295	1459.4	13525	1460	13595	1460.7	13665	1460	14205	1458
14220	1456.8	14230	1458	14390	1460	14505	1461.2	14625	1460
14845	1460	15045	1462	15115	1463.2	15185	1462	15335	1462
15435	1464	15480	1464	15665	1462	15865	1460	16150	1461.2
16425	1462	16530	1463	16750	1464.4				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5288.27	.05	9970	.015	10010	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9970	10010	480	507.71	530	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
14500	16750	1464.01

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1459.60	Element			
Vel Head (ft)	0.22	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1459.39	Reach Len. (ft)	480.00	507.71	530.00
Crit W.S. (ft)	1459.04	Flow Area (sq ft)	494.17	58.21	2059.14
E.G. Slope (ft/ft)	0.004798	Area (sq ft)	494.17	58.21	2059.14
Q Total (cfs)	6667.00	Flow (cfs)	831.10	573.85	5262.05
Top Width (ft)	2372.22	Top Width (ft)	746.85	32.04	1593.33
Vel Total (ft/s)	2.55	Avg. Vel. (ft/s)	1.68	9.86	2.56
Max Chl Dpth (ft)	4.58	Hydr. Depth (ft)	0.66	1.82	1.29
Conv. Total (cfs)	96251.6	Conv. (cfs)	11998.7	8284.7	75968.3
Length Wtd. (ft)	522.68	Wetted Per. (ft)	746.97	33.80	1593.54
Min Ch El (ft)	1454.80	Shear (lb/sq ft)	0.20	0.52	0.39
Alpha	2.13	Stream Power (lb/ft s)	0.33	5.09	0.99
Frctn Loss (ft)	2.65	Cum Volume (acre-ft)	2821.50	805.81	255.87
C & E Loss (ft)	0.01	Cum SA (acres)	2799.82	201.24	238.03

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7629.13	8097.31	382.83	222.10	289.79	5.74	0.77	1.72
8097.31	8565.48	428.43	243.16	307.01	6.43	0.79	1.76
8565.48	9033.65	19.84	28.91	150.16	0.30	0.19	0.69
9033.65	9970.00						
LB 9970.00	9978.00	0.19	0.17	1.86	0.00	0.09	1.14
9978.00	9986.00	18.18	4.68	8.04	0.27	0.59	3.88
9986.00	9994.00	96.33	12.84	8.22	1.44	1.61	7.50
9994.00	10002.00	380.48	29.80	8.59	5.71	3.72	12.77
10002.00	RB 10010.00	78.68	10.72	7.09	1.18	1.73	7.34
10010.00	10684.00	2973.34	1049.70	636.40	44.60	1.65	2.83
10684.00	11358.00	1581.34	624.12	447.26	23.72	1.40	2.53
11358.00	13380.00						
13380.00	14054.00	103.57	92.06	222.95	1.55	0.41	1.13
14054.00	14728.00	603.79	293.27	286.93	9.06	1.02	2.06

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.753

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5564.74	1460	5713.27	1458.29	5768.23	1458	5778.22	1456.35	5792.96	1458
6059.02	1460	6405	1459	6710	1460.4	7060	1462	7460	1459.3
7820	1456	7855	1455.7	7885	1456	8065	1456	8085	1455
8105	1454	8125	1456	8375	1457	8590	1457.6	8775	1456.5
9240	1458	9285	1458.6	9375	1458	9480	1457.2	9960	1458
9985	1458	10000	1451.8	10010	1456	10020	1457.7	10050	1456
10070	1456.7	10290	1456	10390	1455.5	10580	1454	10750	1455
10970	1456	11320	1456	11360	1457.6	11435	1458	11530	1457.5
11600	1458	11630	1458.6	11660	1458	11680	1457.6	11705	1458
12340	1458.6	12780	1458.2	12960	1458.4	13245	1458	13380	1457
13485	1456	13895	1456	14440	1455.1	14605	1456	14945	1456.7
15080	1456.8	15215	1457	15355	1457.7	15460	1458	15700	1458
15810	1457	16095	1457.1	16400	1458	16480	1459	16545	1460

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5564.74	.05	9985	.015	10020	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985	10020	500	461.9	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
14730	16545	1460

Blocked Obstructions num= 1

Sta L	Sta R	Elev
15500	16545	1459

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1456.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.29	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1456.65	Reach Len. (ft)	500.00	461.90	500.00
Crit W.S. (ft)	1456.65	Flow Area (sq ft)	347.01	57.08	2501.02
E.G. Slope (ft/ft)	0.005470	Area (sq ft)	347.01	57.08	2537.57
Q Total (cfs)	6667.00	Flow (cfs)	557.01	682.40	5427.59
Top Width (ft)	3416.07	Top Width (ft)	610.60	25.52	2779.96
Vel Total (ft/s)	2.29	Avg. Vel. (ft/s)	1.61	11.96	2.17
Max Chl Dpth (ft)	4.85	Hydr. Depth (ft)	0.57	2.24	0.97
Conv. Total (cfs)	90141.6	Conv. (cfs)	7531.1	9226.4	73384.1
Length Wtd. (ft)	494.38	Wetted Per. (ft)	610.79	27.38	2591.58
Min Ch El (ft)	1451.80	Shear (lb/sq ft)	0.19	0.71	0.33
Alpha	3.55	Stream Power (lb/ft s)	0.31	8.51	0.72
Frctn Loss (ft)	1.87	Cum Volume (acre-ft)	2816.86	805.14	227.90
C & E Loss (ft)	0.01	Cum SA (acres)	2792.34	200.90	211.43

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5564.74	6006.77	0.37	0.65	4.47	0.01	0.15	0.56
6006.77	7332.84						
7332.84	7774.87	1.41	2.92	25.26	0.02	0.12	0.48
7774.87	8216.90	548.20	328.75	442.18	8.22	0.74	1.67
8216.90	8658.92	5.25	9.64	69.42	0.08	0.14	0.54
8658.92	9100.95	1.78	5.05	69.46	0.03	0.07	0.35
9100.95	9985.00						
LB 9985.00	9992.00	14.15	2.86	4.03	0.21	0.77	4.94
9992.00	9999.00	255.03	20.90	7.57	3.83	2.99	12.20
9999.00	10006.00	370.10	26.15	7.59	5.55	3.74	14.15
10006.00	10013.00	43.04	7.11	7.38	0.65	1.02	6.05
10013.00	RB 10020.00	0.05	0.05	0.81	0.00	0.07	1.02
10020.00	10672.50	1811.70	744.21	615.18	27.17	1.21	2.43
10672.50	11325.00	1304.62	625.70	652.51	19.57	0.96	2.09
11325.00	11977.50	1.95	2.48	11.14	0.03	0.22	0.79
11977.50	13282.50						
13282.50	13935.00	481.23	313.55	517.76	7.22	0.61	1.53
13935.00	14587.50	1719.27	738.38	652.50	25.79	1.13	2.33
14587.50	15240.00	108.83	76.70	142.50	1.63	0.54	1.42

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

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
water surface was used.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.665

INPUT
Description:
Station Elevation Data num= 78

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5568.4	1459.7	5670	1458	5883.57	1454.79	6155	1456.6	6585	1456.2
6775	1458	6825	1458.4	6865	1458	6995	1457.3	7180	1457
7505	1456.6	7745	1456	7770	1455	7795	1454	8130	1452
8140	1450.5	8155	1452	8215	1452.9	8255	1454	8315	1454.3
8370	1454	8595	1454	8705	1453.1	8805	1454	8880	1454.3
8950	1454	9430	1453.6	9640	1453.8	9730	1454.7	9965	1454
9970	1453	9980	1452	9990	1450	10000	1449.2	10010	1450
10015	1452	10020	1452.4	10025	1452	10055	1452.4	10305	1452
10580	1453.8	10745	1452	11030	1451.4	11255	1452.4	11510	1454.2
11805	1455.6	12110	1455.7	12390	1455.4	12600	1454.7	12710	1454.2
12880	1457	12975	1455	13095	1456.5	13240	1455	13410	1454
13610	1452.7	13750	1452	14380	1452	14390	1451.6	14405	1452
14660	1453.8	14805	1454.1	14860	1453.5	14910	1453.6	14950	1453.1
15050	1454	15120	1454	15160	1454	15195	1453.5	15260	1454.1
15385	1453.2	15490	1453.4	15565	1452.8	15680	1453.6	15870	1453.7
16035	1454	16355	1455	16635	1457.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5568.4	.05	9980	.015	10015	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980	10015	480	477.33	480	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
15150	16635	1456

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1453.86	Element			
Vel Head (ft)	0.42	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1453.44	Reach Len. (ft)	480.00	477.33	480.00
Crit W.S. (ft)	1453.44	Flow Area (sq ft)	317.91	113.51	2840.91
E.G. Slope (ft/ft)	0.002778	Area (sq ft)	317.91	113.51	2915.54
Q Total (cfs)	6667.00	Flow (cfs)	433.23	1282.81	4950.96
Top Width (ft)	3260.04	Top Width (ft)	438.80	35.00	2786.23
Vel Total (ft/s)	2.04	Avg. Vel. (ft/s)	1.36	11.30	1.74
Max Chl Dpth (ft)	4.24	Hydr. Depth (ft)	0.72	3.24	1.15
Conv. Total (cfs)	126494.1	Conv. (cfs)	8219.8	24339.0	93935.4
Length Wtd. (ft)	479.57	Wetted Per. (ft)	439.11	35.65	2480.06
Min Ch El (ft)	1449.20	Shear (lb/sq ft)	0.13	0.55	0.20
Alpha	6.49	Stream Power (lb/ft s)	0.17	6.24	0.35
Frctn Loss (ft)	1.55	Cum Volume (acre-ft)	2813.04	804.24	196.61
C & E Loss (ft)	0.03	Cum SA (acres)	2786.32	200.58	179.48

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7774.20	8215.36	410.14	289.06	327.30	6.15	0.88	1.42
8215.36	8656.52	3.30	5.17	19.40	0.05	0.27	0.64
8656.52	9097.68	6.54	13.75	80.09	0.10	0.17	0.48

9097.68	9538.84						
9538.84	9980.00	13.25	9.92	12.31	0.20	0.81	1.34
LB 9980.00	9987.00	124.78	15.00	7.14	1.87	2.14	8.32
9987.00	9994.00	271.75	23.84	7.07	4.08	3.41	11.40
9994.00	10001.00	361.65	28.22	7.02	5.42	4.03	12.81
10001.00	10008.00	339.72	27.18	7.02	5.10	3.88	12.50
10008.00	RB 10015.00	184.92	19.26	7.39	2.77	2.75	9.60
10015.00	10677.00	798.44	542.19	574.82	11.98	0.94	1.47
10677.00	11339.00	1947.96	979.69	662.01	29.22	1.48	1.99
11339.00	12001.00	8.14	14.36	63.80	0.12	0.23	0.57
12001.00	13325.00						
13325.00	13987.00	874.00	537.60	491.35	13.11	1.09	1.63
13987.00	14649.00	1317.09	755.81	622.47	19.76	1.21	1.74
14649.00	15311.00	5.32	11.26	65.60	0.08	0.17	0.47

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.575

INPUT
Description:
Station Elevation Data num= 82

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4814.46	1458	5330	1456.5	5870	1455.4	6195	1454	6255	1453.6
6290	1453	6310	1454	6615	1454	6625	1453.8	6635	1454
6720	1454.9	7370	1455.4	7530	1453.5	7700	1454	7780	1454.9
7920	1454	7965	1453	8010	1452	8030	1451	8050	1450
8058	1449	8066	1448	8074	1448	8082	1449	8090	1450
8120	1450	8125	1448.8	8130	1450	8150	1450	8157	1448
8163	1448	8170	1450	8260	1451.8	8510	1450.8	8800	1451.5
9350	1451.5	9590	1451	9715	1450	9940	1450	9960	1451.4
9980	1450	10000	1446	10005	1450	10040	1450	10045	1448.9
10050	1450	10220	1449.6	10270	1450.4	10365	1449.6	10475	1450.2
10845	1450	11035	1449.1	11120	1450	11195	1451.3	11270	1450
11320	1449.9	11320	1450	11595	1451.7	11765	1451.6	11895	1452
12155	1453.2	12345	1452.6	12645	1452	12835	1452.6	12920	1452
13085	1453.1	13525	1454	13670	1452	13825	1451	13940	1450
14425	1449.5	15460	1450.1	15680	1450.9	15770	1450	15850	1451
15930	1449.6	15970	1450	16090	1451.5	16220	1452	16485	1453.2
16775	1454	16850	1455.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4814.46	.05	9980	.015	10005	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9980	10005	510	563.38	510	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
15170	16850	1454

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1451.19	Element			
Vel Head (ft)	0.32	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1450.87	Reach Len. (ft)	510.00	563.38	510.00
Crit W.S. (ft)	1450.87	Flow Area (sq ft)	468.68	71.85	2715.38
E.G. Slope (ft/ft)	0.003804	Area (sq ft)	468.68	71.85	3235.15
Q Total (cfs)	6667.00	Flow (cfs)	802.46	847.16	5017.38
Top Width (ft)	4194.96	Top Width (ft)	589.44	25.00	3580.52
Vel Total (ft/s)	2.05	Avg. Vel. (ft/s)	1.71	11.79	1.85
Max Chl Dpth (ft)	4.87	Hydr. Depth (ft)	0.80	2.87	0.99
Conv. Total (cfs)	108095.3	Conv. (cfs)	13010.7	13735.4	81349.1
Length Wtd. (ft)		Wetted Per. (ft)	590.63	26.80	2738.08

Min Ch El (ft)	1446.00	Shear (lb/sq ft)	0.19	0.64	0.24
Alpha	4.91	Stream Power (lb/ft s)	0.32	7.51	0.44
Frctn Loss (ft)		Cum Volume (acre-ft)	2808.71	803.22	162.72
C & E Loss (ft)		Cum SA (acres)	2780.65	200.25	144.40

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7913.78	8430.34	428.98	211.60	182.30	6.43	1.17	2.03
8430.34	8946.89	0.37	1.81	49.06	0.01	0.04	0.20
8946.89	9463.45						
9463.45	9980.00	373.10	255.27	359.27	5.60	0.71	1.46
LB 9980.00	9985.00	47.63	6.87	5.10	0.71	1.37	6.93
9985.00	9990.00	118.50	11.87	5.10	1.78	2.37	9.98
9990.00	9995.00	212.89	16.87	5.10	3.19	3.37	12.62
9995.00	10000.00	328.13	21.87	5.10	4.92	4.37	15.00
10000.00	RB 10005.00	140.00	14.37	6.40	2.10	2.87	9.74
10005.00	10689.50	1048.60	618.24	684.75	15.73	0.90	1.70
10689.50	11374.00	1112.96	621.87	635.45	16.69	0.98	1.79
11374.00	12058.50	17.89	23.59	87.37	0.27	0.27	0.76
12058.50	13427.50						
13427.50	14112.00	319.17	209.48	272.50	4.79	0.77	1.52
14112.00	14796.50	1782.82	849.95	684.50	26.74	1.24	2.10
14796.50	15481.00	735.95	392.28	373.50	11.04	1.05	1.88

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.468

INPUT
Description:
Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4226.41	1454	4690	1454	5220	1454	5230	1453	5240	1452
5245	1451.5	5250	1452	5360	1454	5400	1454.3	5450	1454
5680	1453.3	6100	1452	6130	1451	6170	1452	6220	1452.1
6250	1452	6260	1451	6280	1450	6285	1449.7	6290	1450
6390	1452	6420	1452.3	6445	1452	6465	1450.7	6725	1452
7020	1451.4	7255	1453.5	7470	1453	7560	1451.1	7990	1451
8225	1450	8305	1448	8315	1446.9	8325	1448	8675	1448.9
8955	1447.9	9135	1448.3	9240	1447.4	9420	1448.5	9790	1446.9
9970	1448	9975	1447.3	9980	1448	9985	1449	9995	1446
10000	1443	10010	1450	10020	1449	10025	1448	10030	1448
10035	1448	10040	1447	10045	1446	10050	1445.6	10055	1446
10070	1448	10180	1448	10545	1446	10580	1445	10610	1446
10955	1446.8	11205	1446.9	11670	1449	12050	1449.3	12450	1449.2
12520	1450.1	12690	1449.2	12885	1447.9	12960	1448.4	13935	1449.3
14320	1450	14690	1450.5	15210	1448.2	15730	1447.8	16150	1448.5
16545	1449.2	16800	1450	16920	1450.7	17025	1449.9	17135	1450.9
17315	1452	17355	1452	17362	1453	17370	1454	17395	1454.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4226.41	.05	9985	.015	10010	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985	10010	500	500.95	490	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
14000	17395	1452

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1448.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1448.20	Reach Len. (ft)	500.00	500.95	490.00
Crit W.S. (ft)	1448.20	Flow Area (sq ft)	477.25	45.79	1843.38
E.G. Slope (ft/ft)	0.006945	Area (sq ft)	477.25	45.79	1991.83
Q Total (cfs)	6667.00	Flow (cfs)	800.87	606.49	5259.64
Top Width (ft)	3360.02	Top Width (ft)	1032.76	19.74	2307.53
Vel Total (ft/s)	2.82	Avg. Vel. (ft/s)	1.68	13.25	2.85
Max Chl Dpth (ft)	5.20	Hydr. Depth (ft)	0.46	2.32	1.18
Conv. Total (cfs)	80000.4	Conv. (cfs)	9610.0	7277.6	63112.8
Length Wtd. (ft)	493.64	Wetted Per. (ft)	1033.01	22.53	1556.81
Min Ch El (ft)	1443.00	Shear (lb/sq ft)	0.20	0.88	0.51
Alpha	2.86	Stream Power (lb/ft s)	0.34	11.67	1.46
Frctn Loss (ft)	2.08	Cum Volume (acre-ft)	2803.17	802.46	132.12
C & E Loss (ft)	0.02	Cum SA (acres)	2771.16	199.96	109.93

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8257.42	8833.28	21.37	23.09	103.89	0.32	0.22	0.93
8833.28	9409.14	128.44	120.47	438.48	1.93	0.27	1.07
9409.14	9985.00	651.06	333.70	490.64	9.77	0.68	1.95
LB 9985.00	9990.00	2.75	0.81	2.42	0.04	0.35	3.42
9990.00	9995.00	63.87	7.23	5.22	0.96	1.45	8.84
9995.00	10000.00	283.62	18.48	5.83	4.25	3.70	15.35
10000.00	10005.00	244.80	17.23	6.10	3.67	3.45	14.21
10005.00	RB 10010.00	11.45	2.05	2.96	0.17	0.85	5.58
10010.00	10748.50	2906.39	970.66	724.90	43.59	1.34	2.99
10748.50	11487.00	2344.24	859.58	738.50	35.16	1.16	2.73
11487.00	12225.50	0.01	0.05	4.82	0.00	0.01	0.12
12225.50	12964.00	9.01	13.08	88.59	0.14	0.15	0.69

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.373

INPUT
Description:
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4359.5	1452.4	4630	1452.5	4915	1451.6	5285	1451.5	5505	1450.3
5625	1450	5635	1448.5	5645	1450	5785	1450.4	5920	1449.8
6030	1450	6275	1448.4	6350	1448	6360	1446.6	6370	1448
6485	1449.4	6595	1448	6605	1447.9	6615	1448	6690	1449.3
7000	1449.1	7220	1448.7	7390	1448.6	7715	1448.7	7880	1448

8050	1447.5	8180	1448.4	8375	1447.7	8475	1445.8	8530	1446
8545	1445	8555	1446	8625	1446.4	8860	1445.3	9015	1444
9030	1443.2	9040	1444	9290	1445.4	9525	1444.5	9680	1444
9780	1443.4	9940	1444	9975	1445.1	9980	1444	9985	1442
9995	1440	10000	1439.8	10005	1440	10010	1442	10020	1444
10030	1444.7	10045	1444	10055	1443	10065	1444	10470	1443.3
10825	1443.4	11010	1444.5	11355	1445.5	11450	1446.6	11820	1446
11990	1445.8	12120	1446	12445	1446.4	12480	1446	12515	1446
12535	1444	12555	1444	12675	1445.1	12810	1445.8	12880	1446.2
12980	1445.6	13040	1446.5	13115	1445	13145	1446	13165	1446
13345	1447.5	13395	1446	13405	1444	13410	1442	13415	1440
13465	1430	13530	1428	13555	1428	13640	1430	13755	1440
13765	1444	13875	1446	13915	1447	13970	1446	13975	1445.4
13980	1446	13985	1448	14065	1444.9	14195	1446.3	14375	1443.8
14470	1445.1	14685	1444.8	14855	1443.3	15030	1444.6	15130	1444
15400	1444	16130	1446						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4359.5	.05	9975	.015	10030	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9975	10030	530	518.74	519	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
12480	16130	1450

Blocked Obstructions num= 1

Sta L	Sta R	Elev
13395	13915	1444

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1445.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.52	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1445.28	Reach Len. (ft)	530.00	518.74	519.00
Crit W.S. (ft)	1445.28	Flow Area (sq ft)	960.05	165.03	1743.12
E.G. Slope (ft/ft)	0.002829	Area (sq ft)	960.05	165.03	3797.42
Q Total (cfs)	6667.00	Flow (cfs)	1444.59	1780.55	3441.86
Top Width (ft)	4657.54	Top Width (ft)	1065.57	55.00	3536.96
Vel Total (ft/s)	2.32	Avg. Vel. (ft/s)	1.50	10.79	1.97
Max Chl Dpth (ft)	5.48	Hydr. Depth (ft)	0.90	3.00	1.40
Conv. Total (cfs)	125348.9	Conv. (cfs)	27160.2	33476.9	64711.8
Length Wtd. (ft)	521.46	Wetted Per. (ft)	1065.68	56.32	1248.47
Min Ch El (ft)	1439.80	Shear (lb/sq ft)	0.16	0.52	0.25
Alpha	6.22	Stream Power (lb/ft s)	0.24	5.58	0.49
Frctn Loss (ft)	1.70	Cum Volume (acre-ft)	2794.92	801.25	99.56
C & E Loss (ft)	0.01	Cum SA (acres)	2759.12	199.53	77.06

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8290.35	8851.90	0.39	0.96	6.97	0.01	0.14	0.41
8851.90	9413.45	328.81	301.12	497.14	4.93	0.61	1.09
9413.45	9975.00	1115.38	657.96	561.57	16.73	1.17	1.70
LB 9975.00	9986.00	113.63	18.41	11.52	1.70	1.67	6.17
9986.00	9997.00	613.97	50.04	11.18	9.21	4.55	12.27
9997.00	10008.00	764.21	57.18	11.24	11.46	5.20	13.37
10008.00	10019.00	241.72	28.76	11.33	3.63	2.61	8.41
10019.00	RB 10030.00	47.01	10.66	11.04	0.71	0.97	4.41
10030.00	10640.00	2267.87	1040.89	610.12	34.02	1.71	2.18
10640.00	11250.00	1173.78	701.06	610.00	17.61	1.15	1.67
11250.00	11860.00	0.21	1.16	28.35	0.00	0.04	0.18

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.275

INPUT
Description:
Station Elevation Data num= 93

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5390.3	1446.9	5575	1446	5725	1445.4	6030	1444.9	6145	1445.3
6215	1444	6220	1443.9	6225	1444	6245	1444.3	6275	1444
6285	1443.8	6295	1444	6420	1444	6490	1443.8	6535	1444
6685	1444.7	6815	1444	6895	1443.6	6970	1444	6995	1443.4
7015	1444	7060	1444.2	7100	1444	7150	1444	7195	1444.8
7235	1444	7270	1443.7	7320	1443.5	7400	1443.5	7525	1443.4
7580	1443.1	7670	1443.6	7750	1443.5	7785	1443.9	7885	1444
8005	1443.2	8055	1443.4	8130	1443.2	8190	1443.2	8310	1444
8360	1444.1	8430	1444	8540	1443.1	8620	1443.9	8820	1443.4
8860	1442	8870	1440	8890	1439.8	8950	1439.5	9010	1440
9030	1442	9135	1442.4	9210	1443	9300	1443	9400	1443.5
9630	1442	9780	1441.5	9990	1440	9995	1438	10000	1436.9
10005	1438	10010	1440	10130	1441.2	10250	1440.6	10375	1439.6
10435	1439.9	10580	1440.9	10670	1440	10690	1441.6	10725	1440
10965	1441.2	11015	1442	11090	1442.5	11170	1442	11480	1442.8
11730	1443.1	11750	1442	11760	1442.6	11970	1443.4	12090	1442
12100	1441.4	12110	1442	12290	1443.9	12365	1444	12450	1444.5
12510	1444	12560	1443.7	12630	1444	12670	1444.3	12790	1444
13040	1442	13065	1444	13080	1444.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5390.3	.05	9990	.015	10010	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9990	10010	630	472.49	490	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
11730	13080	1446

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1442.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.64	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1442.13	Reach Len. (ft)	630.00	472.49	490.00
Crit W.S. (ft)	1442.13	Flow Area (sq ft)	717.72	78.00	1597.09
E.G. Slope (ft/ft)	0.003803	Area (sq ft)	717.72	78.00	1608.34
Q Total (cfs)	6667.00	Flow (cfs)	1603.82	1142.54	3920.64
Top Width (ft)	1761.83	Top Width (ft)	585.55	20.00	1156.28
Vel Total (ft/s)	2.79	Avg. Vel. (ft/s)	2.23	14.65	2.45
Max Chl Dpth (ft)	5.22	Hydr. Depth (ft)	1.23	3.90	1.46
Conv. Total (cfs)	108104.2	Conv. (cfs)	26005.6	18526.1	63572.5
Length Wtd. (ft)	513.71	Wetted Per. (ft)	585.86	21.01	1092.32
Min Ch El (ft)	1436.90	Shear (lb/sq ft)	0.29	0.88	0.35
Alpha	5.35	Stream Power (lb/ft s)	0.65	12.91	0.85
Frctn Loss (ft)	1.63	Cum Volume (acre-ft)	2784.72	799.80	67.35
C & E Loss (ft)	0.05	Cum SA (acres)	2749.07	199.08	49.10

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to

critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8610.09	9070.06	1006.65	371.52	206.69	15.10	1.80	2.71
9070.06	9530.03						
9530.03	9990.00	597.16	346.20	379.17	8.96	0.91	1.72
LB 9990.00	9994.00	134.99	11.70	4.31	2.02	2.92	11.54
9994.00	9998.00	265.39	17.29	4.15	3.98	4.32	15.35
9998.00	10002.00	341.77	20.02	4.10	5.13	5.01	17.07
10002.00	10006.00	265.39	17.29	4.15	3.98	4.32	15.35
10006.00	RB 10010.00	134.99	11.70	4.31	2.02	2.92	11.54
10010.00	10317.00	1035.88	450.14	307.01	15.54	1.47	2.30
10317.00	10624.00	1622.42	589.20	307.01	24.34	1.92	2.75
10624.00	10931.00	1199.95	491.72	307.11	18.00	1.60	2.44
10931.00	11238.00	62.40	66.04	171.19	0.94	0.39	0.94

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.185

INPUT
Description:
Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4450.53	1444.6	4615	1444	4745	1443.7	4920	1443.2	5400	1443
5850	1442	6340	1441.6	6900	1440	6915	1439.2	6930	1440
6970	1440.2	7140	1439.3	7195	1440.2	7275	1439.8	7335	1440
7415	1441.4	7485	1440	7510	1439.5	7740	1439.2	8095	1439.2
8545	1438.8	9140	1438	9160	1436.3	9180	1438	9225	1438
9245	1437.4	9260	1438	9390	1439.2	9725	1438	9855	1439.8
9945	1438	9990	1438	9995	1436	10000	1434	10020	1436
10025	1438	10035	1439.1	10070	1438	10245	1436	10385	1436
10585	1437.3	10930	1438	11055	1438.4	11065	1438	11285	1439.7
11590	1438.6	11700	1440	11880	1440.9	12065	1440.2	12110	1440
12210	1439.5	12260	1439.6	12310	1439.4	12325	1440	12345	1441.7

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4450.53	.05	9990	.015	10025	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9990	10025	675	516.84	450	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
11055	12345	1442

Blocked Obstructions num= 1

Sta L	Sta R	Elev
11055	12345	1439

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1439.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.49	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1439.04	Reach Len. (ft)	675.00	516.84	450.00
Crit W.S. (ft)	1439.04	Flow Area (sq ft)	901.96	121.33	1865.29
E.G. Slope (ft/ft)	0.002700	Area (sq ft)	901.96	121.33	1876.38
Q Total (cfs)	6667.00	Flow (cfs)	972.37	1397.36	4297.26

Top Width (ft)	2919.72	Top Width (ft)	1557.01	35.00	1327.71
Vel Total (ft/s)	2.31	Avg. Vel. (ft/s)	1.08	11.52	2.30
Max Chl Dpth (ft)	5.04	Hydr. Depth (ft)	0.58	3.47	1.82
Conv. Total (cfs)	128304.9	Conv. (cfs)	18713.1	26891.9	82699.9
Length Wtd. (ft)	561.29	Wetted Per. (ft)	1557.20	36.26	1028.16
Min Ch El (ft)	1434.00	Shear (lb/sq ft)	0.10	0.56	0.31
Alpha	5.89	Stream Power (lb/ft s)	0.11	6.50	0.70
Frctn Loss (ft)	1.14	Cum Volume (acre-ft)	2773.00	798.72	47.76
C & E Loss (ft)	0.01	Cum SA (acres)	2733.58	198.79	35.13

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7774.21	8328.16	0.13	1.16	51.02	0.00	0.02	0.11
8328.16	8882.11	126.87	187.36	553.95	1.90	0.34	0.68
8882.11	9436.05	592.94	450.44	491.39	8.89	0.92	1.32
9436.05	9990.00	252.39	262.98	460.84	3.79	0.57	0.96
LB 9990.00	9997.00	144.65	17.07	7.54	2.17	2.44	8.48
9997.00	10004.00	438.05	32.67	7.25	6.57	4.67	13.41
10004.00	10011.00	388.19	30.02	7.03	5.82	4.29	12.93
10011.00	10018.00	288.43	25.12	7.03	4.33	3.59	11.48
10018.00	RB 10025.00	138.04	16.47	7.40	2.07	2.35	8.38
10025.00	10257.00	888.76	415.16	229.55	13.33	1.81	2.14
10257.00	10489.00	1957.90	669.68	232.00	29.37	2.89	2.92
10489.00	10721.00	879.84	414.42	232.00	13.20	1.79	2.12
10721.00	10953.00	469.52	284.30	232.00	7.04	1.23	1.65
10953.00	11185.00	101.28	81.73	102.60	1.52	0.80	1.24

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 16.087

INPUT
Description:
Station Elevation Data num= 71

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4384.06	1438.4	4550	1438	4680	1436	4710	1434.9	4730	1436
5070	1437.3	5330	1436.7	5795	1436.7	5900	1437	6360	1436
6700	1435.7	6835	1435.7	6885	1436.1	6945	1435.7	6990	1436
7035	1436.3	7045	1436	7055	1435.3	7125	1435.2	7205	1436
7340	1438	7465	1436	7550	1435.5	7635	1436	7680	1437.8
7715	1436	7790	1434	7900	1434.7	8015	1434.1	8360	1434.5
8615	1434.6	9035	1434.2	9125	1434	9140	1433.5	9155	1434
9185	1434.6	9390	1433.6	9710	1433.7	9820	1434	9830	1435
9840	1436	9880	1436	9985	1434	9990	1432	9995	1430
10000	1429.4	10005	1430	10015	1432	10180	1437.5	10350	1436.5
10450	1436	10585	1438	10730	1436	10955	1438.1	11015	1438
11055	1436	11070	1435.5	11085	1436	11110	1437	11140	1436
11155	1435.5	11160	1436	11190	1437.2	11335	1436	11365	1435.9
11465	1435.8	11515	1436	11575	1436.2	11620	1436	11645	1438

11655 1438.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4384.06	.05	9985	.015	10015	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9985	10015	260	486.13	485	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
4384.06	7035	1439	10585	11655	1439

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4384.06	7035	1438

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1436.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.46	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1435.67	Reach Len. (ft)	260.00	486.13	485.00
Crit W.S. (ft)	1435.67	Flow Area (sq ft)	3177.58	143.10	202.05
E.G. Slope (ft/ft)	0.001589	Area (sq ft)	3177.58	143.10	203.50
Q Total (cfs)	6667.00	Flow (cfs)	4742.74	1565.57	358.69
Top Width (ft)	2534.30	Top Width (ft)	2377.18	30.00	127.12
Vel Total (ft/s)	1.89	Avg. Vel. (ft/s)	1.49	10.94	1.78
Max Chl Dpth (ft)	6.27	Hydr. Depth (ft)	1.34	4.77	1.84
Conv. Total (cfs)	167226.5	Conv. (cfs)	118960.8	39268.6	8997.0
Length Wtd. (ft)	317.85	Wetted Per. (ft)	2377.35	31.04	110.17
Min Ch El (ft)	1429.40	Shear (lb/sq ft)	0.13	0.46	0.18
Alpha	8.34	Stream Power (lb/ft s)	0.20	5.00	0.32
Frctn Loss (ft)	0.82	Cum Volume (acre-ft)	2741.40	797.15	37.01
C & E Loss (ft)	0.03	Cum SA (acres)	2703.10	198.40	27.62

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6624.44	7184.53	23.60	41.44	122.32	0.35	0.34	0.57
7184.53	7744.62	2.51	8.89	75.12	0.04	0.12	0.28
7744.62	8304.72	1057.56	745.87	560.11	15.86	1.33	1.42
8304.72	8864.81	839.08	649.17	560.09	12.59	1.16	1.29
8864.81	9424.91	1367.94	870.41	560.12	20.52	1.55	1.57
9424.91	9985.00	1452.05	861.79	499.58	21.78	1.73	1.68
LB 9985.00	9991.00	126.17	17.22	6.46	1.89	2.87	7.33
9991.00	9997.00	342.14	31.06	6.32	5.13	5.18	11.02
9997.00	10003.00	462.28	36.54	6.04	6.93	6.09	12.65
10003.00	10009.00	381.28	32.66	6.09	5.72	5.44	11.67
10009.00	RB 10015.00	253.70	25.62	6.12	3.81	4.27	9.90
10015.00	10179.00	358.69	202.05	110.17	5.38	1.84	1.78

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 15.995

INPUT
Description:
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4469.64	1435.4	5200	1435.2	5625	1435.5	6055	1435	6215	1434.6
6605	1434.6	6870	1434.8	6900	1435.2	6910	1434.3	6965	1435.2
7350	1434.6	7405	1433.7	7485	1434.9	7640	1432.9	8030	1433.1
8325	1433.3	8495	1432.8	8945	1431.5	9075	1431.4	9275	1431
9435	1432	9545	1432	9600	1431.4	9840	1432	9845	1431.7
9850	1432	9975	1434	9980	1435.1	9990	1430	10000	1428.5
10010	1430	10015	1432	10025	1435.1	10040	1432	10065	1438
10070	1439	10080	1438	10110	1434	10160	1434	10340	1435
10390	1435	10535	1435	10560	1434.1	10580	1435	10615	1434
10625	1433.5	10630	1434	10650	1435	10790	1434	10865	1433.8
10915	1434	11010	1436	11030	1438.4				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4469.64	.05	9975	.015	10015	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9975	10015	260	436.69	435	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10080	11030	1439

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1434.03	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.81	Wt. n-Val.	0.050	0.015	0.050
W.S. Elev (ft)	1433.21	Reach Len. (ft)	260.00	436.69	435.00
Crit W.S. (ft)	1433.21	Flow Area (sq ft)	2151.51	100.49	9.02
E.G. Slope (ft/ft)	0.004915	Area (sq ft)	2151.51	100.49	9.02
Q Total (cfs)	6667.00	Flow (cfs)	5178.32	1475.48	13.20
Top Width (ft)	2200.69	Top Width (ft)	2154.53	31.30	14.85
Vel Total (ft/s)	2.95	Avg. Vel. (ft/s)	2.41	14.68	1.46
Max Chl Dpth (ft)	4.71	Hydr. Depth (ft)	1.00	3.21	0.61
Conv. Total (cfs)	95100.3	Conv. (cfs)	73865.3	21046.7	188.3
Length Wtd. (ft)	295.00	Wetted Per. (ft)	2154.57	32.68	15.30
Min Ch El (ft)	1428.50	Shear (lb/sq ft)	0.31	0.94	0.18
Alpha	6.01	Stream Power (lb/ft s)	0.74	13.85	0.26
Frctn Loss (ft)	1.53	Cum Volume (acre-ft)	2725.49	795.79	35.83
C & E Loss (ft)	0.17	Cum SA (acres)	2689.57	198.06	26.83

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
water surface was used.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7222.32	7772.86	32.82	41.05	157.21	0.49	0.26	0.80
7772.86	8323.39	28.32	55.96	425.61	0.42	0.13	0.51
8323.39	8873.93	639.92	393.52	519.75	9.60	0.76	1.63
8873.93	9424.46	2952.48	1007.86	550.54	44.29	1.83	2.93
9424.46	9975.00	1524.78	653.12	501.46	22.87	1.30	2.33
9975.00	9983.00						
9983.00	9991.00	122.86	13.42	8.09	1.84	1.84	9.16
9991.00	9999.00	515.07	31.71	8.09	7.73	3.96	16.24
9999.00	10007.00	577.40	33.96	8.09	8.66	4.25	17.00
10007.00	RB 10015.00	260.14	21.39	8.42	3.90	2.67	12.16
10015.00	10116.50	13.20	9.02	15.30	0.20	0.61	1.46

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid,
water surface was used.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 15.913

INPUT
Description: Most downstream cross section containing the Powerline Floodway.

The hydraulic baseline makes a 90 degree turn to the south downstream of this cross section.

Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4019.39	1436.5	4070	1434	4525	1434	4600	1433.9	4645	1434
4840	1432.5	5070	1433.3	5260	1434	5560	1434.3	5760	1434.3
5910	1434	6330	1434.3	6800	1434.3	6825	1434.3	6860	1434
6890	1433.2	6900	1433.9	7215	1433	7330	1433	7435	1432
7490	1431.3	7575	1431.1	7685	1430	7785	1430.5	7935	1431.6
8340	1430	8800	1430.4	9130	1430	9310	1430	9320	1428.9
9330	1430	9460	1431	9890	1432	9990	1430	10000	1427
10010	1430	10025.21	1432	10035	1434	10070	1439.3	10100	1434
10210	1432.5	10250	1433	10360	1434	10390	1438.8		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4019.39	.05	9890	.015	10025.21	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9890	10025.21	280	1031.89	1240	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10070	10390	1440

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4019.39	6810	1436

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1431.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.	0.050	0.015	
W.S. Elev (ft)	1431.62	Reach Len. (ft)	280.00	1031.89	1240.00
Crit W.S. (ft)	1431.41	Flow Area (sq ft)	2403.13	138.29	
E.G. Slope (ft/ft)	0.005503	Area (sq ft)	2403.13	138.29	
Q Total (cfs)	6667.00	Flow (cfs)	5514.23	1152.77	
Top Width (ft)	2376.58	Top Width (ft)	2263.10	113.47	
Vel Total (ft/s)	2.62	Avg. Vel. (ft/s)	2.29	8.34	
Max Chl Dpth (ft)	4.62	Hydr. Depth (ft)	1.06	1.22	
Conv. Total (cfs)	89869.4	Conv. (cfs)	74330.3	15539.1	
Length Wtd. (ft)	567.71	Wetted Per. (ft)	2263.25	114.48	
Min Ch El (ft)	1427.00	Shear (lb/sq ft)	0.36	0.42	
Alpha	2.38	Stream Power (lb/ft s)	0.84	3.46	
Frctn Loss (ft)	2.31	Cum Volume (acre-ft)	2711.90	794.60	35.78
C & E Loss (ft)	0.03	Cum SA (acres)	2676.39	197.33	26.75

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)

6954.70	7541.76	22.62	23.94	77.11	0.34	0.31	0.94
7541.76	8128.82	736.34	435.85	587.07	11.04	0.74	1.69
8128.82	8715.88	2039.19	803.09	587.06	30.59	1.37	2.54
8715.88	9302.94	2268.15	856.03	587.06	34.02	1.46	2.65
9302.94	9890.00	447.91	284.22	424.94	6.72	0.67	1.58
LB 9890.00	9917.04	0.78	0.67	8.18	0.01	0.08	1.17
9917.04	9944.08	41.70	11.74	27.05	0.63	0.43	3.55
9944.08	9971.13	160.66	26.36	27.05	2.41	0.97	6.09
9971.13	9998.17	467.93	50.33	27.41	7.02	1.86	9.30
9998.17	RB 10025.21	481.72	49.20	24.80	7.23	2.04	9.79

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 15.717

INPUT
Description:
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4681.97	1436.3	4860	1434	4870	1432.6	4880	1434	4985	1434.4
5050	1434	5070	1433.9	5090	1434	5155	1434.2	5260	1434
5340	1433.2	5460	1432	5505	1431.7	5615	1431	5630	1432
6450	1432.8	6750	1432	7220	1431	7540	1432	7740	1431.3
7750	1432.1	7870	1431.6	8065	1430	8485	1429	8620	1428
8630	1426.7	8650	1428	8855	1429.3	9250	1428	9265	1427.7
9280	1428	9425	1427.9	9750	1428.1	9805	1426.7	9865	1428
9910	1427.1	9955	1426	9965	1425	9975	1424	9980	1423
9990	1422	10000	1421.9	10010	1422	10030	1424	10040	1426
10110	1427	10190	1428	10250	1434	10275	1435		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4681.97	.05	9865	.05	10190	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9865	10190	430	996.46	996	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4681.97	7540	1434

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1429.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1429.40	Reach Len. (ft)	430.00	996.46	996.00
Crit W.S. (ft)		Flow Area (sq ft)	1603.82	1072.42	9.73
E.G. Slope (ft/ft)	0.003106	Area (sq ft)	1603.82	1072.42	9.73
Q Total (cfs)	6667.00	Flow (cfs)	2722.10	3932.27	12.64
Top Width (ft)	1884.91	Top Width (ft)	1545.96	325.00	13.95
Vel Total (ft/s)	2.48	Avg. Vel. (ft/s)	1.70	3.67	1.30
Max Chl Dpth (ft)	7.50	Hydr. Depth (ft)	1.04	3.30	0.70
Conv. Total (cfs)	119622.9	Conv. (cfs)	48841.3	70554.8	226.7
Length Wtd. (ft)	823.67	Wetted Per. (ft)	1546.13	325.58	14.02
Min Ch El (ft)	1421.90	Shear (lb/sq ft)	0.20	0.64	0.13
Alpha	1.48	Stream Power (lb/ft s)	0.34	2.34	0.17
Frctn Loss (ft)	1.40	Cum Volume (acre-ft)	2699.02	780.26	35.65
C & E Loss (ft)	0.01	Cum SA (acres)	2664.15	192.14	26.55

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8310.09	8828.39	449.23	362.96	509.49	6.74	0.71	1.24
8828.39	9346.70	612.19	440.04	518.31	9.18	0.85	1.39
9346.70	9865.00	1660.68	800.83	518.33	24.91	1.55	2.07
LB 9865.00	9930.00	325.35	133.82	65.01	4.88	2.06	2.43

9930.00	9995.00	1250.86	300.67	65.26	18.76	4.63	4.16
9995.00	10060.00	1600.60	348.70	65.30	24.01	5.36	4.59
10060.00	10125.00	495.01	172.13	65.01	7.42	2.65	2.88
10125.00	RB 10190.00	260.44	117.09	65.01	3.91	1.80	2.22
10190.00	10198.50	11.73	8.25	8.54	0.18	0.97	1.42
10198.50	10207.00	0.91	1.49	5.48	0.01	0.27	0.61

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 15.529

INPUT
Description:
Station Elevation Data num= 48

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5751.89	1434.5	5995	1432.7	6310	1432	6435	1431.1	6605	1430
6675	1429.7	6875	1430	7085	1430	7190	1430.3	7350	1430
7480	1430.4	7585	1430	7655	1429.7	7720	1430	7800	1430.3
7885	1430	8085	1428	8135	1428.4	8185	1428	8205	1426.4
8225	1428	8325	1428.3	8445	1428	8580	1427.2	8745	1428
8830	1428.6	8930	1428	9360	1426	9380	1425.5	9410	1426
9470	1426.9	9750	1426	9920	1424	9927	1423	9935	1422
9940	1421	9945	1420	10000	1417.8	10035	1420	10055	1424
10075	1424	10105	1426	10110	1426.5	10120	1426	10200	1426
10215	1430	10235	1432	10285	1435				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5751.89	.05	9750	.05	10105	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9750	10105	490	867.21	867	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
5751.89	8370	1434

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1428.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1428.02	Reach Len. (ft)	490.00	867.21	867.00
Crit W.S. (ft)	1424.69	Flow Area (sq ft)	1217.34	1773.25	196.28
E.G. Slope (ft/ft)	0.001070	Area (sq ft)	1250.53	1773.25	196.28
Q Total (cfs)	6667.00	Flow (cfs)	1344.52	5028.97	293.51
Top Width (ft)	1651.91	Top Width (ft)	1194.31	355.00	102.59
Vel Total (ft/s)	2.09	Avg. Vel. (ft/s)	1.10	2.84	1.50
Max Chl Dpth (ft)	10.22	Hydr. Depth (ft)	1.07	5.00	1.91
Conv. Total (cfs)	203794.9	Conv. (cfs)	41099.0	153724.0	8971.8
Length Wtd. (ft)	741.78	Wetted Per. (ft)	1137.49	355.92	102.90
Min Ch El (ft)	1417.80	Shear (lb/sq ft)	0.07	0.33	0.13
Alpha	1.46	Stream Power (lb/ft s)	0.08	0.94	0.19
Frctn Loss (ft)	0.71	Cum Volume (acre-ft)	2684.93	747.71	33.29
C & E Loss (ft)	0.01	Cum SA (acres)	2650.62	184.36	25.22

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8150.76	8550.57	15.23	35.75	115.43	0.23	0.31	0.43
8550.57	8950.38	48.71	93.34	222.42	0.73	0.42	0.52
8950.38	9350.19	403.25	419.48	399.82	6.05	1.05	0.96
9350.19	9750.00	877.31	668.75	399.83	13.16	1.67	1.31
LB 9750.00	9821.00	271.32	173.40	71.00	4.07	2.44	1.56
9821.00	9892.00	443.00	232.71	71.00	6.64	3.28	1.90
9892.00	9963.00	1112.47	405.12	71.35	16.69	5.71	2.75
9963.00	10034.00	2529.46	662.24	71.10	37.94	9.33	3.82
10034.00	RB 10105.00	672.75	299.78	71.46	10.09	4.22	2.24
10105.00	10123.00	46.92	32.69	18.04	0.70	1.82	1.44

10123.00	10141.00	56.31	36.44	18.00	0.84	2.02	1.55
10141.00	10159.00	56.31	36.44	18.00	0.84	2.02	1.55
10159.00	10177.00	56.31	36.44	18.00	0.84	2.02	1.55
10177.00	10195.00	56.31	36.44	18.00	0.84	2.02	1.55
10195.00	10213.00	21.36	17.81	12.86	0.32	1.41	1.20

Warning: Divided flow computed for this cross-section.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 15.364

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6449.56	1432.2	6520	1432	6550	1431	6570	1430	6690	1430
6785	1430	6955	1430	7015	1430.3	7090	1430	7300	1429.3
7470	1428	7690	1426	7695	1425.9	7715	1426	8155	1427
8605	1426	8635	1425.9	8665	1426	8695	1426.3	8735	1426
9170	1424.6	9815	1425.6	9950	1424	9955	1423	9960	1422
9965	1421	9970	1420	10000	1419.6	10045	1420	10055	1422
10110	1424	10120	1426	10130	1426.5	10135	1426	10150	1424
10205	1424	10255	1432	10305	1433.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6449.56	.05	9815	.05	10120	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9815	10120	350	990.02	990	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
6449.56	8910	1432

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6449.56	7015	1431

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1427.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1427.34	Reach Len. (ft)	350.00	990.02	990.00
Crit W.S. (ft)	1425.56	Flow Area (sq ft)	2050.18	1341.29	270.21
E.G. Slope (ft/ft)	0.000864	Area (sq ft)	3384.39	1341.29	270.21
Q Total (cfs)	6667.00	Flow (cfs)	3088.69	3138.78	439.53
Top Width (ft)	2683.50	Top Width (ft)	2272.61	305.00	105.89
Vel Total (ft/s)	1.82	Avg. Vel. (ft/s)	1.51	2.34	1.63
Max Chl Dpth (ft)	7.74	Hydr. Depth (ft)	2.27	4.40	2.55
Conv. Total (cfs)	226846.9	Conv. (cfs)	105093.8	106798.1	14955.0
Length Wtd. (ft)	778.90	Wetted Per. (ft)	905.00	305.84	106.32
Min Ch El (ft)	1419.60	Shear (lb/sq ft)	0.12	0.24	0.14
Alpha	1.15	Stream Power (lb/ft s)	0.18	0.55	0.22
Frctn Loss (ft)	0.67	Cum Volume (acre-ft)	2658.86	716.70	28.65
C & E Loss (ft)	0.00	Cum SA (acres)	2631.12	177.79	23.15

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8805.37	9141.91	794.78	528.37	231.91	11.92	2.28	1.50
9141.91	9478.46	1363.49	847.75	336.54	20.45	2.52	1.61
9478.46	9815.00	930.41	674.03	336.54	13.96	2.00	1.38
LB 9815.00	9876.00	166.84	128.31	61.00	2.50	2.10	1.30
9876.00	9937.00	272.99	172.41	61.00	4.09	2.83	1.58
9937.00	9998.00	927.58	360.08	61.40	13.91	5.90	2.58
9998.00	10059.00	1295.02	439.34	61.20	19.42	7.20	2.95
10059.00	RB 10120.00	476.37	241.15	61.23	7.15	3.95	1.98
10120.00	10138.50	19.75	21.89	18.57	0.30	1.18	0.90
10138.50	10157.00	86.14	53.01	18.60	1.29	2.87	1.62
10157.00	10175.50	111.72	61.83	18.50	1.68	3.34	1.81
10175.50	10194.00	111.72	61.83	18.50	1.68	3.34	1.81
10194.00	10212.50	98.17	57.33	18.60	1.47	3.10	1.71
10212.50	10231.00	12.03	14.34	13.56	0.18	1.07	0.84

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 15.177

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7092.18	1429.9	7380	1428.9	7570	1428	7635	1427.9	7720	1428
7745	1427.8	7765	1428	7790	1428.5	7820	1428	7940	1428.8
8110	1428	8220	1426.7	8400	1426	8680	1425.3	9080	1425
9680	1424	9750	1423.2	9925	1422	9940	1420	10000	1419
10035	1420	10080	1422	10105	1426	10120	1426.5	10125	1426
10145	1422	10180	1422	10245	1432	10300	1433.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7092.18	.05	9680	.05	10105	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9680	10105	1120	997.61	880	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
7092.18	9315	1432

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10119.6	10300	1422.5

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1426.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1426.65	Reach Len. (ft)	1120.00	997.61	880.00
Crit W.S. (ft)	1423.77	Flow Area (sq ft)	856.11	2006.61	275.05
E.G. Slope (ft/ft)	0.000855	Area (sq ft)	2223.83	2006.61	275.05
Q Total (cfs)	6667.00	Flow (cfs)	1313.06	4902.47	451.47
Top Width (ft)	1977.29	Top Width (ft)	1447.07	425.00	105.22
Vel Total (ft/s)	2.12	Avg. Vel. (ft/s)	1.53	2.44	1.64
Max Chl Dpth (ft)	7.65	Hydr. Depth (ft)	2.35	4.72	2.61
Conv. Total (cfs)	228049.0	Conv. (cfs)	44914.1	167692.1	15442.8
Length Wtd. (ft)	1006.69	Wetted Per. (ft)	365.00	425.53	105.92
Min Ch El (ft)	1419.00	Shear (lb/sq ft)	0.13	0.25	0.14
Alpha	1.12	Stream Power (lb/ft s)	0.19	0.61	0.23
Frctn Loss (ft)	1.38	Cum Volume (acre-ft)	2636.33	678.66	22.45
C & E Loss (ft)	0.01	Cum SA (acres)	2616.18	169.50	20.75

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9162.44	9421.22	324.74	226.23	106.22	4.87	2.13	1.44
9421.22	9680.00	988.31	629.88	258.78	14.82	2.43	1.57
LB 9680.00	9765.00	472.87	266.00	85.00	7.09	3.13	1.78
9765.00	9850.00	666.24	326.74	85.00	9.99	3.84	2.04
9850.00	9935.00	866.11	382.60	85.09	12.99	4.50	2.26
9935.00	10020.00	1873.89	607.84	85.06	28.11	7.15	3.08
10020.00	RB 10105.00	1023.36	423.44	85.37	15.35	4.98	2.42
10105.00	10124.50	3.03	7.68	19.53	0.05	0.39	0.39
10124.50	10144.00	64.78	48.53	19.85	0.97	2.49	1.33
10144.00	10163.50	153.67	80.92	19.50	2.30	4.15	1.90
10163.50	10183.00	153.67	80.92	19.50	2.30	4.15	1.90
10183.00	10202.50	73.95	52.41	19.73	1.11	2.69	1.41
10202.50	10222.00	2.37	4.59	7.81	0.04	0.59	0.52

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.988

INPUT
Description:
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7140.34	1433.2	7285	1432.8	7355	1432	7480	1431	7635	1430
7795	1429.1	7965	1428.1	8085	1428.8	8170	1428	8370	1428
8485	1428.5	8550	1428	8660	1426.3	8755	1426	9055	1426
9115	1425.2	9185	1424	9210	1424.2	9245	1426	9395	1424
9630	1424	9660	1424.6	9680	1424	9750	1422.7	9825	1422
9940	1420	10000	1419.3	10043	1420	10075	1422	10100	1426
10115	1426.3	10120	1426	10140	1420	10188	1420	10223	1430
10262.21	1437.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7140.34	.05	9660	.05	10100	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9660	10100	920	519.08	450	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
7140.34	9150	1430

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10115.21	10262.21	1422.5

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1425.34	Element			
Vel Head (ft)	0.17	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1425.17	Reach Len. (ft)	920.00	519.08	450.00
Crit W.S. (ft)	1423.31	Flow Area (sq ft)	418.07	1568.58	198.00
E.G. Slope (ft/ft)	0.002543	Area (sq ft)	427.49	1568.58	198.00
Q Total (cfs)	6667.00	Flow (cfs)	614.88	5526.86	525.26
Top Width (ft)	982.75	Top Width (ft)	464.63	434.80	83.32
Vel Total (ft/s)	3.05	Avg. Vel. (ft/s)	1.47	3.52	2.65
Max Chl Dpth (ft)	5.87	Hydr. Depth (ft)	0.97	3.61	2.38
Conv. Total (cfs)	132195.9	Conv. (cfs)	12192.0	109588.8	10415.1
Length Wtd. (ft)	693.44	Wetted Per. (ft)	431.51	435.17	84.08
Min Ch El (ft)	1419.30	Shear (lb/sq ft)	0.15	0.57	0.37
Alpha	1.19	Stream Power (lb/ft s)	0.23	2.02	0.99
Frctn Loss (ft)	2.14	Cum Volume (acre-ft)	2602.25	637.72	17.67
C & E Loss (ft)	0.02	Cum SA (acres)	2591.60	159.65	18.84

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8904.10	9156.07	4.02	3.77	6.07	0.06	0.62	1.07
9156.07	9408.03	155.31	128.89	173.47	2.33	0.74	1.20
9408.03	9660.00	455.55	285.41	251.97	6.83	1.13	1.60
LB 9660.00	9748.00	265.28	139.76	88.02	3.98	1.59	1.90
9748.00	9836.00	709.53	252.19	88.01	10.64	2.87	2.81
9836.00	9924.00	1301.85	362.99	88.01	19.53	4.12	3.59
9924.00	10012.00	2079.96	480.82	88.01	31.20	5.46	4.33
10012.00	RB 10100.00	1170.24	332.81	83.12	17.55	4.02	3.52
10100.00	10116.22						
10116.22	10132.44	25.09	13.94	10.06	0.38	1.44	1.80
10132.44	10148.66	120.63	43.28	16.22	1.81	2.67	2.79
10148.66	10164.88	120.63	43.28	16.22	1.81	2.67	2.79
10164.88	10181.11	120.64	43.29	16.22	1.81	2.67	2.79
10181.11	10197.33	120.29	43.24	16.24	1.80	2.67	2.78
10197.33	10213.55	17.98	10.97	9.11	0.27	1.25	1.64

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.890

INPUT
Description: 10,000 Station is in channel at southeast corner of GM property, just north of intersection of Williams Field Road and 222nd Street.

Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7134.44	1426.7	7295	1426	7735	1425.3	7995	1424	8085	1423.1
8155	1422	8355	1421.8	8625	1422	8840	1421.9	9025	1422
9160	1422	9190	1421.8	9230	1422	9360	1422	9460	1421.8
9545	1421.7	9620	1421.6	9870	1420	9880	1419.9	9890	1420
9905	1427.2	9935	1422	9950	1420	9975	1419.3	10000	1418.1
10020	1420	10045	1422	10075	1426.1	10085	1426	10105	1422
10115	1422	10140	1430	10185	1438.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7134.44	.05	9905	.05	10075	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9905	10075	730	525.77	520	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10080	10185	1422.5

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1423.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1423.08	Reach Len. (ft)	730.00	525.77	520.00
Crit W.S. (ft)	1422.51	Flow Area (sq ft)	2390.33	366.48	9.49
E.G. Slope (ft/ft)	0.003810	Area (sq ft)	2390.33	366.48	9.49
Q Total (cfs)	6667.00	Flow (cfs)	5276.19	1379.82	11.00
Top Width (ft)	1952.91	Top Width (ft)	1810.04	124.11	18.76
Vel Total (ft/s)	2.41	Avg. Vel. (ft/s)	2.21	3.77	1.16
Max Chl Dpth (ft)	4.98	Hydr. Depth (ft)	1.32	2.95	0.51
Conv. Total (cfs)	108016.9	Conv. (cfs)	85483.3	22355.4	178.2
Length Wtd. (ft)	680.94	Wetted Per. (ft)	1810.75	124.62	18.91
Min Ch El (ft)	1418.10	Shear (lb/sq ft)	0.31	0.70	0.12
Alpha	1.17	Stream Power (lb/ft s)	0.69	2.63	0.14
Frctn Loss (ft)	2.93	Cum Volume (acre-ft)	2572.49	626.19	16.60
C & E Loss (ft)	0.00	Cum SA (acres)	2567.58	156.32	18.32

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7965.61	8242.66	213.14	135.38	156.30	3.20	0.87	1.57
8242.66	8519.72	668.05	337.81	277.06	10.02	1.22	1.98
8519.72	8796.78	578.08	309.73	277.06	8.67	1.12	1.87
8796.78	9073.83	584.84	311.90	277.06	8.77	1.13	1.88
9073.83	9350.89	565.79	305.77	277.06	8.49	1.10	1.85
9350.89	9627.94	741.55	359.65	277.06	11.12	1.30	2.06
9627.94	9905.00	1924.75	630.09	269.18	28.87	2.35	3.05
LB 9905.00	9939.00	13.08	8.73	10.35	0.20	0.85	1.50
9939.00	9973.00	366.63	104.00	34.11	5.50	3.06	3.53
9973.00	10007.00	671.70	149.48	34.06	10.08	4.40	4.49
10007.00	10041.00	315.44	95.05	34.13	4.73	2.80	3.32
10041.00	RB 10075.00	12.95	9.21	11.98	0.19	0.77	1.41
10075.00	10097.00						
10097.00	10108.00	4.48	4.02	8.45	0.07	0.48	1.12
10108.00	10119.00	6.51	5.47	10.46	0.10	0.53	1.19

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

CROSS SECTION RIVER: Powerline FRS

REACH: Powerline RS: 14.790

INPUT
Description: 10,000 Station is in channel just north of and paralleling Williams Field Road.

Confluence with Vineyard FRS Emergency Spillway flows. Q increased by 3233 cfs to include the Vineyard 1/3 flow discharge.

Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5215.53	1422.9	5475	1422	5815	1421.2	6215	1420	6375	1420.7
6505	1420	6535	1419.7	6565	1420	6845	1420.6	7305	1419.6
7460	1419.1	7660	1420	7730	1420.8	7810	1420	7900	1419.9
8540	1418	8555	1418	8580	1418.4	8600	1418	8845	1418
9025	1418	9175	1418	9400	1420	9480	1418	9495	1417.8
9625	1418.4	9690	1418	9760	1417	9840	1418	9847	1418.8
9855	1418	9895	1416.7	9960	1422	9965	1422.9	9970	1422
9980	1420	10000	1418.5	10035	1420	10040	1422	10050	1422.6
10060	1422	10067	1420.2	10075	1422	10100	1430	10115	1432

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5215.53	.05	9625	.05	10050	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9625	10050	650	523.64	525	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10049.5	10115	1424.01

Blocked Obstructions num= 1

Sta L	Sta R	Elev
5215.53	7720	1421

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1420.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1420.12	Reach Len. (ft)	650.00	523.64	525.00
Crit W.S. (ft)	1419.21	Flow Area (sq ft)	2741.73	774.48	
E.G. Slope (ft/ft)	0.004689	Area (sq ft)	2741.73	774.48	
Q Total (cfs)	9900.00	Flow (cfs)	7312.88	2587.12	
Top Width (ft)	2194.99	Top Width (ft)	1827.12	367.87	
Vel Total (ft/s)	2.82	Avg. Vel. (ft/s)	2.67	3.34	
Max Chl Dpth (ft)	3.42	Hydr. Depth (ft)	1.50	2.11	
Conv. Total (cfs)	144575.1	Conv. (cfs)	106793.9	37781.1	
Length Wtd. (ft)	623.79	Wetted Per. (ft)	1827.17	368.25	
Min Ch El (ft)	1416.70	Shear (lb/sq ft)	0.44	0.62	
Alpha	1.03	Stream Power (lb/ft s)	1.17	2.06	
Frctn Loss (ft)	3.39	Cum Volume (acre-ft)	2529.49	619.30	16.55
C & E Loss (ft)	0.01	Cum SA (acres)	2537.10	153.35	18.20

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7420.26	7861.21	4.10	8.40	63.33	0.04	0.13	0.49
7861.21	8302.16	527.63	336.78	440.95	5.33	0.76	1.57
8302.16	8743.11	2431.79	842.38	440.95	24.56	1.91	2.89
8743.11	9184.05	2893.50	934.98	440.95	29.23	2.12	3.09
9184.05	9625.00	1455.87	619.21	440.98	14.71	1.40	2.35
LB 9625.00	9710.00	524.69	170.16	85.00	5.30	2.00	3.08
9710.00	9795.00	929.35	239.79	85.01	9.39	2.82	3.88
9795.00	9880.00	669.89	197.12	85.10	6.77	2.32	3.40
9880.00	9965.00	379.21	119.44	57.11	3.83	2.10	3.17
9965.00	RB 10050.00	83.97	47.97	56.03	0.85	0.86	1.75

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.691

INPUT
Description: 10,000 Station is in channel just north of and paralleling Williams Field Road.

Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1502.9	1418	1780	1417.5	2785	1418.5	3470	1419	3930	1419.6
3980	1418	4030	1417.7	4200	1417.8	4290	1418	4430	1417.6
4515	1417.5	4615	1417.2	4670	1417.4	4770	1417	4845	1416
4890	1417.4	5000	1417.5	5100	1417.3	5180	1417.3	5250	1416.8
5335	1416.7	5410	1416	5430	1415.3	5440	1416	5490	1416.2
5710	1416.2	5745	1416.2	5785	1415.9	5955	1415.9	6020	1416
6060	1416.1	6155	1416	6565	1416.2	6685	1417	6725	1416.5
6950	1416.5	7020	1416	7030	1415.3	7040	1416	7090	1416.7
7175	1416	7255	1416.2	7310	1415.7	7455	1416.3	7615	1416
7715	1418	7740	1418	7879	1416	7999	1415.5	8069	1415.5
8194	1416	8264	1415.5	8399	1416	8469	1416.7	8549	1416
8594	1416	8620	1416	8749	1415	8887	1414.8	8987	1415.9
9057	1415.1	9295	1414.7	9513	1416	9568	1416.5	9623	1416
9643	1415.9	9688	1415.4	9708	1416	9770	1416	9780	1416.3
9790	1416	9825	1414.8	9865	1416	9880	1418	9890	1419
9905	1418	9930	1416	9980	1414	9985	1412	10000	1411.4
10005	1412	10020	1414	10080	1416	10100	1418	10115	1418.4

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1502.9	.05	9890	.05	10115	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9890	10115	640	474.31	475	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
1502.9	1835	1419

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1416.85	Element			
Vel Head (ft)	0.11	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1416.75	Reach Len. (ft)	640.00	474.31	475.00
Crit W.S. (ft)	1416.39	Flow Area (sq ft)	3708.90	374.30	
E.G. Slope (ft/ft)	0.006394	Area (sq ft)	3708.90	374.30	
Q Total (cfs)	9900.00	Flow (cfs)	8379.81	1520.19	
Top Width (ft)	4589.24	Top Width (ft)	4422.44	166.80	
Vel Total (ft/s)	2.42	Avg. Vel. (ft/s)	2.26	4.06	
Max Chl Dpth (ft)	5.35	Hydr. Depth (ft)	0.84	2.24	
Conv. Total (cfs)	123812.4	Conv. (cfs)	104800.4	19012.0	
Length Wtd. (ft)	623.21	Wetted Per. (ft)	4422.72	167.51	
Min Ch El (ft)	1411.40	Shear (lb/sq ft)	0.33	0.89	
Alpha	1.17	Stream Power (lb/ft s)	0.76	3.62	
Frctn Loss (ft)	3.16	Cum Volume (acre-ft)	2481.36	612.40	16.55
C & E Loss (ft)	0.01	Cum SA (acres)	2490.48	150.14	18.20

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4019.03	4857.74	36.20	27.91	68.76	0.37	0.41	1.30
4857.74	5696.45	318.86	210.82	412.57	3.22	0.51	1.51
5696.45	6535.16	1113.42	592.91	838.71	11.25	0.71	1.88
6535.16	7373.87	511.42	361.23	780.55	5.17	0.46	1.42
7373.87	8212.58	1063.28	525.29	663.97	10.74	0.79	2.02
8212.58	9051.29	2379.72	935.23	838.73	24.04	1.12	2.54
9051.29	9890.00	2956.91	1055.50	819.43	29.87	1.29	2.80
LB 9890.00	9935.00	10.32	7.72	14.37	0.10	0.54	1.34
9935.00	9980.00	253.00	83.11	45.04	2.56	1.85	3.04
9980.00	10025.00	988.93	189.19	45.57	9.99	4.20	5.23
10025.00	10070.00	249.27	82.36	45.02	2.52	1.83	3.03
10070.00	RB 10115.00	18.68	11.92	17.51	0.19	0.68	1.57

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.601

INPUT
Description: 10,000 Station is in channel just north of and paralleling Williams Field Road.
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
873.43	1416	1845	1414	2315	1413.6	2590	1414	4005	1414
4055	1414.2	4085	1412.9	4135	1412.6	4170	1412.4	4265	1412.9
4355	1412.9	4540	1413	4640	1414	4730	1414	4940	1414.3
4990	1414	5270	1413.6	5505	1412	5570	1412.5	5590	1412
5685	1412.9	5950	1413.2	6690	1412	6870	1411.6	7065	1412
7100	1412	7200	1411.5	7225	1411.3	7290	1412	7480	1414
7591	1415	7636	1414	7725	1412	7760	1411.8	7810	1412
7870	1412.5	8011	1412.5	8155	1412.8	8280	1414	8295	1414
8430	1413.1	8760	1412	8815	1412.1	8877	1412.2	9075	1412
9125	1412.8	9200	1414	9445	1414	9560	1412.8	9735	1414
9770	1414	9790	1414	9800	1412	9820	1413	9840	1412
9860	1413	9880	1414	9890	1413.3	9940	1413.5	9980	1412
10000	1410.2	10045	1412	10055	1414	10070	1416	10090	1416.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
873.43	.05	9880	.05	10055	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9880	10055	590	512.1	490	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
873.43	2840	1416

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1413.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1413.62	Reach Len. (ft)	590.00	512.10	490.00
Crit W.S. (ft)	1412.97	Flow Area (sq ft)	4649.76	216.44	
E.G. Slope (ft/ft)	0.004145	Area (sq ft)	4650.04	216.44	
Q Total (cfs)	9900.00	Flow (cfs)	9409.57	490.43	
Top Width (ft)	4607.69	Top Width (ft)	4440.07	167.62	
Vel Total (ft/s)	2.03	Avg. Vel. (ft/s)	2.02	2.27	
Max Chl Dpth (ft)	3.42	Hydr. Depth (ft)	1.05	1.29	
Conv. Total (cfs)	153775.3	Conv. (cfs)	146157.5	7617.8	
Length Wtd. (ft)	587.85	Wetted Per. (ft)	4408.15	167.94	
Min Ch El (ft)	1410.20	Shear (lb/sq ft)	0.27	0.33	
Alpha	1.00	Stream Power (lb/ft s)	0.55	0.76	
Frctn Loss (ft)	2.74	Cum Volume (acre-ft)	2419.96	609.18	16.55
C & E Loss (ft)	0.00	Cum SA (acres)	2425.37	148.32	18.20

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
3575.40	4476.06	526.05	327.73	407.63	5.31	0.80	1.61
4476.06	5376.72	102.88	100.35	244.53	1.04	0.41	1.03
5376.72	6277.37	1239.04	752.44	900.67	12.52	0.84	1.65
6277.37	7178.03	3524.26	1408.83	900.66	35.60	1.56	2.50
7178.03	8078.69	1873.49	867.47	691.31	18.92	1.25	2.16
8078.69	8979.34	1509.19	803.04	788.40	15.24	1.02	1.88
8979.34	9880.00	634.66	389.92	474.95	6.41	0.82	1.63
LB 9880.00	9915.00	4.19	7.40	29.54	0.04	0.25	0.57
9915.00	9950.00	3.60	7.23	35.01	0.04	0.21	0.50
9950.00	9985.00	64.45	40.86	35.04	0.65	1.17	1.58
9985.00	10020.00	293.43	101.48	35.08	2.96	2.90	2.89

10020.00	RB 10055.00	124.75	59.47	33.27	1.26	1.80	2.10

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.504

INPUT
Description: 10,000 Station is in channel just north of and paralleling Williams Field Road.

Station Elevation Data num= 64

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
553.76	1414	1027	1413.5	1467	1412.9	1967	1412.8	2477	1411
2867	1410.5	3437	1410.6	4047	1412	4052	1412.2	4057	1412
4077	1411	4092	1410	4097	1410.1	4102	1410	4382	1412
4472	1412.3	4550	1412	4714	1412	4784	1412	5174	1410.9
5629	1410.9	6159	1410	6469	1409.3	6958	1408	7013	1409
7073	1410	7284	1410	7579	1409.5	7659	1409.2	7889	1410
7949	1410.3	8011	1410	8141	1409.6	8301	1410	8361	1411.3
8431	1410	8551	1409.9	8691	1410	8721	1410.1	8766	1410
8836	1409.6	8926	1410.3	8968	1410	9033	1410.7	9138	1410
9176	1410.5	9226	1410.2	9266	1410.4	9325	1410	9405	1409.6
9485	1410.3	9610	1410.7	9665	1410	9710	1410	9785	1409
9810	1410.3	9870	1412	9880	1411.1	9920	1411.2	9985	1410
10000	1410.6	10020	1410	10035	1412	10055	1412.4		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
553.76	.1	4052	.05	9870	.05	10035	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9870	10035	530	493.52	493.52	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
553.76	3350	1413

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1410.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1410.86	Reach Len. (ft)	530.00	493.52	493.52
Crit W.S. (ft)	1410.30	Flow Area (sq ft)	4439.07	42.66	
E.G. Slope (ft/ft)	0.005153	Area (sq ft)	4645.26	42.66	
Q Total (cfs)	9900.00	Flow (cfs)	9843.96	56.04	
Top Width (ft)	5334.91	Top Width (ft)	5246.69	88.21	
Vel Total (ft/s)	2.21	Avg. Vel. (ft/s)	2.22	1.31	
Max Chl Dpth (ft)	2.86	Hydr. Depth (ft)	0.99	0.48	
Conv. Total (cfs)	137919.6	Conv. (cfs)	137138.9	780.7	
Length Wtd. (ft)	529.29	Wetted Per. (ft)	4480.77	88.30	
Min Ch El (ft)	1410.00	Shear (lb/sq ft)	0.32	0.16	
Alpha	1.00	Stream Power (lb/ft s)	0.71	0.20	
Frctn Loss (ft)	1.84	Cum Volume (acre-ft)	2357.01	607.66	16.55
C & E Loss (ft)	0.01	Cum SA (acres)	2359.77	146.81	18.20

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
3348.63	4280.26	90.02	104.44	345.35	0.91	0.30	0.86
4280.26	5211.88						
5211.88	6143.50	227.89	206.06	492.65	2.30	0.42	1.11
6143.50	7075.13	4945.07	1684.84	931.64	49.95	1.81	2.94
7075.13	8006.75	2084.71	1003.41	931.63	21.06	1.08	2.08
8006.75	8938.38	1511.14	811.50	887.94	15.26	0.91	1.86
8938.38	9870.00	985.13	628.80	891.56	9.95	0.71	1.57
9870.00	9936.00						

9936.00	9969.00	7.62	8.72	30.75	0.08	0.28	0.87
9969.00	10002.00	30.14	20.47	33.02	0.30	0.62	1.47
10002.00	RB 10035.00	18.27	13.46	24.54	0.18	0.55	1.36

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.410

INPUT
Description: 10,000 Station is in channel just north of and paralleling Williams Field Road.
Station Elevation Data num= 57

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
729.19	1412.1	1126	1411.6	1206	1411.5	1456	1411.2	1603	1411.1
2023	1410.9	2253	1410	2613	1410	3035	1413.5	3476	1413.5
3970	1413	4127	1410.3	4159	1409.8	4189	1409.5	4199	1409.2
4549	1409.1	4849	1409.4	5011	1408	5111	1408.8	5166	1408.8
5195	1409.6	5285	1410	5495	1408.8	6125	1407.6	6600	1406.5
6660	1406.9	6805	1406.3	6885	1407.6	6900	1407.5	7105	1408.4
7275	1408.4	7330	1408	7460	1407	7595	1408	7745	1408
7910	1407.6	8100	1408	8385	1408.5	8595	1408	8755	1407.4
8850	1408	8945	1407.2	9025	1408	9075	1408.8	9145	1408
9320	1407.3	9490	1408	9725	1408	9755	1408	9775	1406.7
9785	1408	9835	1408	9855	1410	10000	1406.4	10020	1408
10035	1410	10060	1410.5						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
729.19	.1	3035	.022	3970	.05	9855	.05	10035	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9855	10035	475	515.27	515.27	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1409.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1409.04	Reach Len. (ft)	475.00	515.27	515.27
Crit W.S. (ft)		Flow Area (sq ft)	5612.92	181.25	
E.G. Slope (ft/ft)	0.002513	Area (sq ft)	5612.92	181.25	
Q Total (cfs)	9900.00	Flow (cfs)	9570.23	329.77	
Top Width (ft)	4810.67	Top Width (ft)	4676.53	134.15	
Vel Total (ft/s)	1.71	Avg. Vel. (ft/s)	1.71	1.82	
Max Chl Dpth (ft)	2.74	Hydr. Depth (ft)	1.20	1.35	
Conv. Total (cfs)	197473.1	Conv. (cfs)	190895.2	6577.9	
Length Wtd. (ft)	476.76	Wetted Per. (ft)	4676.77	134.31	
Min Ch El (ft)	1406.40	Shear (lb/sq ft)	0.19	0.21	
Alpha	1.00	Stream Power (lb/ft s)	0.32	0.39	
Frctn Loss (ft)	2.30	Cum Volume (acre-ft)	2294.60	606.39	16.55
C & E Loss (ft)	0.01	Cum SA (acres)	2299.40	145.55	18.20

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4379.51	5292.09	126.10	140.90	284.09	1.27	0.50	0.89
5292.09	6204.68	856.83	656.53	751.72	8.65	0.87	1.31
6204.68	7117.26	3815.90	1738.45	912.60	38.54	1.90	2.19
7117.26	8029.84	1708.86	1073.56	912.59	17.26	1.18	1.59
8029.84	8942.42	1377.30	943.24	912.59	13.91	1.03	1.46
8942.42	9855.00	1685.23	1060.23	903.18	17.02	1.17	1.59
9855.00	9891.00						
9891.00	9927.00	10.13	13.80	33.36	0.10	0.41	0.73

9927.00	9963.00	71.32	45.89	36.01	0.72	1.27	1.55
9963.00	9999.00	172.89	78.07	36.01	1.75	2.17	2.21
9999.00	RB 10035.00	75.45	43.49	28.94	0.76	1.51	1.73

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.313

INPUT
Description: 10,000 Station is in channel just north of and paralleling Williams Field Road.
Station Elevation Data num= 81

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
444.97	1412	877	1411.5	1212	1411.4	1557	1410	2107	1409.6
2317	1409.7	2676	1409.5	3016	1408.9	3396	1408	3488	1408
3663	1408.4	3811	1408	3861	1407.9	3920	1408	3990	1408.3
4065	1408	4130	1407.7	4145	1408.2	4165	1408	4190	1408.6
4210	1408	4241	1408	4261	1408.4	4276	1408	4398	1407.2
4995	1407.4	5375	1406.3	5450	1406	5903	1406	6333	1405.1
6768	1406.1	6818	1406.4	6868	1406.4	6950	1406.7	7071	1406
7249	1405.5	7409	1406	7449	1406.2	7509	1406	7549	1406.1
7590	1406	7676	1406.4	7717	1406	7913	1405.6	8083	1406
8123	1406.2	8202	1406	8233	1406	8273	1406	8405	1406.5
8466	1406.3	8566	1406	8600	1405.9	8640	1406	8667	1406.1
8693	1406	8713	1405.9	8863	1405.7	8989	1405.5	9187	1405.8
9312	1405.6	9360	1406	9400	1406	9470	1406	9595	1405.8
9680	1406	9700	1406.1	9720	1406	9750	1406.3	9830	1406.2
9890	1406	9905	1407.4	9945	1406.5	9970	1406	9990	1404
10000	1403.7	10005	1404	10035	1406	10080	1408	10115	1408
10155	1408.8								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
444.97	.1	3663	.05	9905	.05	10115	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9905	10115	498.87	498.87	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
444.97	3990	1410

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1406.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1406.66	Reach Len. (ft)	498.87	498.87	500.00
Crit W.S. (ft)	1406.41	Flow Area (sq ft)	3475.74	141.19	
E.G. Slope (ft/ft)	0.012021	Area (sq ft)	3475.74	141.19	
Q Total (cfs)	9900.00	Flow (cfs)	9364.28	535.72	
Top Width (ft)	4743.02	Top Width (ft)	4630.87	112.15	
Vel Total (ft/s)	2.74	Avg. Vel. (ft/s)	2.69	3.79	
Max Chl Dpth (ft)	2.96	Hydr. Depth (ft)	0.75	1.26	
Conv. Total (cfs)	90294.8	Conv. (cfs)	85408.6	4886.1	
Length Wtd. (ft)	498.87	Wetted Per. (ft)	4630.92	112.35	
Min Ch El (ft)	1403.70	Shear (lb/sq ft)	0.56	0.94	
Alpha	1.02	Stream Power (lb/ft s)	1.52	3.58	
Frctn Loss (ft)	1.52	Cum Volume (acre-ft)	2245.05	604.49	16.55
C & E Loss (ft)	0.03	Cum SA (acres)	2248.65	144.10	18.20

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)

5174.99	6120.99	1331.75	555.69	871.32	13.45	0.64	2.40
6120.99	7066.99	2465.91	825.25	929.45	24.91	0.89	2.99
7066.99	8012.99	2029.77	739.49	946.01	20.50	0.78	2.74
8012.99	8959.00	1499.66	616.68	946.01	15.15	0.65	2.43
8959.00	9905.00	2037.18	738.64	938.14	20.58	0.79	2.76
LB 9905.00	9947.00	0.57	0.95	9.24	0.01	0.10	0.60
9947.00	9989.00	107.19	40.60	42.10	1.08	0.97	2.64
9989.00	10031.00	415.46	91.51	42.08	4.20	2.18	4.54
10031.00	10073.00	12.51	8.13	18.94	0.13	0.43	1.54

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 14.218

INPUT
Description: 10,000 Station is in channel just north of and paralleling Williams Field Road.

Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1412.8	355	1412	565	1411.5	815	1411	1110	1410.3
1350	1410	1480	1409.2	1535	1408.9	1755	1409	2390	1408.7
2685	1408.5	2785	1408	2920	1407.6	3220	1407.3	3900	1406.6
4155	1406.8	4185	1408	4215	1406	4220	1406	4235	1406.5
4335	1406	4625	1405.6	4895	1405.8	5275	1405.4	5355	1404
5370	1403.8	5380	1405.4	5655	1404	5955	1403.2	6260	1403.1
6550	1402.3	6625	1404	6715	1404.4	6805	1404	7035	1403.5
7605	1404	7695	1404	7810	1404.2	7885	1404	8095	1403.3
8255	1404	8350	1404	8380	1404.2	8585	1404.2	8645	1404
9165	1403	9540	1404	9635	1403.5	9655	1404	9755	1404.8
9845	1404.2	9915	1406	9935	1406	9950	1404	10000	1402.4
10050	1404	10100	1406	10125	1406.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	4185	.05	9935	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9935	10125	225	1472.18	1500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
0	3750	1410

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1405.24	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1405.21	Reach Len. (ft)	225.00	1472.18	1500.00
Crit W.S. (ft)	1404.14	Flow Area (sq ft)	6721.78	224.33	
E.G. Slope (ft/ft)	0.001357	Area (sq ft)	6721.78	224.33	
Q Total (cfs)	9900.00	Flow (cfs)	9562.72	337.28	
Top Width (ft)	4698.13	Top Width (ft)	4558.91	139.22	
Vel Total (ft/s)	1.43	Avg. Vel. (ft/s)	1.42	1.50	
Max Chl Dpth (ft)	2.91	Hydr. Depth (ft)	1.47	1.61	
Conv. Total (cfs)	268749.1	Conv. (cfs)	259593.0	9156.0	
Length Wtd. (ft)	346.02	Wetted Per. (ft)	4559.09	139.37	
Min Ch El (ft)	1402.40	Shear (lb/sq ft)	0.12	0.14	
Alpha	1.00	Stream Power (lb/ft s)	0.18	0.21	
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	2186.65	602.39	16.55
C & E Loss (ft)	0.00	Cum SA (acres)	2196.03	142.66	18.20

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4967.50	5961.00	815.40	704.44	635.89	8.24	1.11	1.16

5961.00	6954.50	3115.92	1882.31	993.52	31.47	1.89	1.66
6954.50	7948.00	1817.53	1362.14	993.50	18.36	1.37	1.33
7948.00	8941.50	1804.41	1356.24	993.50	18.23	1.37	1.33
8941.50	9935.00	2009.46	1416.64	942.68	20.30	1.50	1.42
LB 9935.00	9973.00	49.41	41.68	32.14	0.50	1.30	1.19
9973.00	10011.00	168.48	93.05	38.02	1.70	2.45	1.81
10011.00	10049.00	105.27	70.17	38.02	1.06	1.85	1.50
10049.00	10087.00	14.12	19.42	31.19	0.14	0.62	0.73

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.940

INPUT
Description: 188 cfs flow reduction due to spill between this section and next upstream section.

10,000 Station located on approximately the Crismon Road alignment between the Williams Field Road alignment and Pecos Avenue.

Station Elevation Data num= 42

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
818.33	1412.5	1115	1412	1205	1411.3	1635	1410.5	1905	1410
2265	1408.6	2320	1408.4	3000	1408.5	3470	1408	4140	1406.5
4600	1406	4720	1406	4800	1405.9	4930	1405.9	4960	1406
5020	1405.9	5055	1406	5070	1406	5075	1404	5085	1404
5305	1405	5580	1404.9	5980	1404.7	6050	1404	6075	1402.4
6080	1404	6085	1404.8	6195	1404	6260	1404	6620	1402.7
6970	1402	7275	1401.3	7310	1402	7380	1404	7465	1403.9
7815	1402.6	8140	1402.9	8610	1403.5	8915	1402.5	9765	1402
10000	1400.7	10080	1403.7						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
818.33	.1	4960	.05	9765	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9765	10080	200	1001.12	1001.12	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
818.33	4370	1410

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1404.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1404.95	Reach Len. (ft)	200.00	1001.12	1001.12
Crit W.S. (ft)	1403.07	Flow Area (sq ft)	8258.25	1066.96	
E.G. Slope (ft/ft)	0.000482	Area (sq ft)	8258.25	1066.96	
Q Total (cfs)	9712.00	Flow (cfs)	8146.28	1565.72	
Top Width (ft)	4867.77	Top Width (ft)	4552.77	315.00	
Vel Total (ft/s)	1.04	Avg. Vel. (ft/s)	0.99	1.47	
Max Chl Dpth (ft)	4.25	Hydr. Depth (ft)	1.81	3.39	
Conv. Total (cfs)	442369.2	Conv. (cfs)	371052.5	71316.7	
Length Wtd. (ft)	316.28	Wetted Per. (ft)	4553.37	316.31	
Min Ch El (ft)	1400.70	Shear (lb/sq ft)	0.05	0.10	
Alpha	1.07	Stream Power (lb/ft s)	0.05	0.15	
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	2147.96	580.57	16.55
C & E Loss (ft)	0.00	Cum SA (acres)	2172.50	134.98	18.20

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4397.00	5291.67	41.40	110.55	219.23	0.43	0.50	0.37
5291.67	6186.33	55.19	215.50	755.42	0.57	0.29	0.26
6186.33	7081.00	1855.28	1900.00	894.67	19.10	2.12	0.98
7081.00	7975.67	1962.63	1965.25	894.71	20.21	2.20	1.00

7975.67	8870.33	1486.01	1663.11	894.67	15.30	1.86	0.89
8870.33	9765.00	2745.78	2403.85	894.67	28.27	2.69	1.14
LB 9765.00	9828.00	270.20	197.02	63.00	2.78	3.13	1.37
9828.00	9891.00	322.23	218.97	63.00	3.32	3.48	1.47
9891.00	9954.00	377.86	240.93	63.00	3.89	3.82	1.57
9954.00	10017.00	419.84	256.67	63.01	4.32	4.07	1.64
10017.00	RB 10080.00	175.58	153.36	64.30	1.81	2.43	1.14

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.750

INPUT
Description: 410 cfs flow reduction due to spill between this section and next upstream section.

10,000 Station located on approximately the Crismon Road alignment between the Williams Field Road alignment and Pecos Avenue.

Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1967.85	1412.1	2100	1412	2200	1411.1	2380	1410.5	2510	1410.4
2810	1410	2910	1409.6	3090	1409.3	3345	1408.3	3385	1408.1
3420	1408	3435	1407.9	3810	1408	3940	1408	4305	1407.6
4730	1406.8	4950	1406.5	5370	1406	5685	1405.5	6015	1405.1
6070	1404	6080	1404	6100	1405.3	6150	1406	6170	1404
6180	1404	6195	1404.7	6250	1404	6315	1403.6	6475	1404
6510	1404.1	6570	1404	6830	1403.5	6935	1404	7025	1404
7045	1402	7060	1402	7070	1404	7100	1404	7315	1402.6
7585	1402	7785	1401.5	8295	1401.5	8415	1402	8505	1403.1
8685	1402.5	8825	1402	8890	1401.5	9190	1402	9495	1401.6
9650	1402	9750	1402	10000	1400.91	10020.88	1402	10095	1405.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1967.85	.1	6070	.05	9750	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9750	10020.88	215	1003.33	1003.33	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
1967.85	5450	1410

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1404.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1404.83	Reach Len. (ft)	215.00	1003.33	1003.33
Crit W.S. (ft)	1402.55	Flow Area (sq ft)	8387.96	914.53	84.57
E.G. Slope (ft/ft)	0.000345	Area (sq ft)	8387.96	914.53	84.57
Q Total (cfs)	9302.00	Flow (cfs)	8108.00	1135.30	58.71
Top Width (ft)	3983.01	Top Width (ft)	3652.28	270.88	59.85
Vel Total (ft/s)	0.99	Avg. Vel. (ft/s)	0.97	1.24	0.69
Max Chl Dpth (ft)	3.93	Hydr. Depth (ft)	2.30	3.38	1.41
Conv. Total (cfs)	501118.1	Conv. (cfs)	436794.6	61160.8	3162.7
Length Wtd. (ft)	340.78	Wetted Per. (ft)	3652.70	270.91	59.92
Min Ch El (ft)	1400.90	Shear (lb/sq ft)	0.05	0.07	0.03
Alpha	1.02	Stream Power (lb/ft s)	0.05	0.09	0.02
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	2109.75	557.80	15.57
C & E Loss (ft)	0.00	Cum SA (acres)	2153.66	128.25	17.52

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
5858.92	6637.14	196.55	440.02	539.52	2.11	0.82	0.45
6637.14	7415.35	700.53	1092.05	778.52	7.53	1.40	0.64
7415.35	8193.57	2642.39	2421.68	778.22	28.41	3.11	1.09
8193.57	8971.79	2088.89	2103.15	778.23	22.46	2.70	0.99
8971.79	9750.00	2479.64	2331.05	778.22	26.66	3.00	1.06

LB 9750.00	9804.18	180.18	159.57	54.18	1.94	2.95	1.13
9804.18	9858.35	205.13	172.48	54.18	2.21	3.18	1.19
9858.35	9912.53	231.36	185.40	54.18	2.49	3.42	1.25
9912.53	9966.70	258.84	198.31	54.18	2.78	3.66	1.31
9966.70	RB 10020.88	259.78	198.78	54.21	2.79	3.67	1.31
10020.88	10028.29	17.48	19.65	7.42	0.19	2.65	0.89
10028.29	10035.70	13.80	17.06	7.42	0.15	2.30	0.81
10035.70	10043.12	10.48	14.46	7.42	0.11	1.95	0.72
10043.12	10050.53	7.54	11.87	7.42	0.08	1.60	0.64
10050.53	10057.94	5.00	9.27	7.42	0.05	1.25	0.54
10057.94	10065.35	2.89	6.68	7.42	0.03	0.90	0.43
10065.35	10072.76	1.28	4.09	7.42	0.01	0.55	0.31
10072.76	10080.18	0.24	1.49	7.42	0.00	0.20	0.16
10080.18	10087.59	0.00	0.01	0.56	0.00	0.01	0.03

Warning: Divided flow computed for this cross-section.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.560

INPUT
Description: 10,000 Station located on approximately the Crismon Road alignment between the Williams Field Road alignment and Pecos Avenue.

Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3194.74	1410.5	3790	1410	4230	1408	4575	1407.9	4775	1407
5365	1407	6380	1406	6660	1405.8	6920	1405.6	7075	1404.8
7155	1404	7175	1402	7205	1404.6	7225	1404	7230	1403.5
7235	1404	7250	1404	7295	1403.2	7500	1402	7535	1401.6
7595	1402	7715	1401.7	7865	1401.9	7925	1402	7955	1402.4
8005	1402	8195	1401.6	8925	1400.7	9285	1401.1	9335	1402
9355	1402	9365	1402.3	9525	1402.3	9575	1402	9950	1400.9
10000	1400.8	10014.61	1402.33	10050	1405				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3194.74	.1	7155	.05	9525	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9525	10014.61	400	1080.06	1080.06	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
3194.74	6300	1410

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1404.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1404.72	Reach Len. (ft)	400.00	1080.06	1080.06
Crit W.S. (ft)	1402.17	Flow Area (sq ft)	7201.23	1593.31	37.79
E.G. Slope (ft/ft)	0.000284	Area (sq ft)	7201.23	1593.31	37.79
Q Total (cfs)	9302.00	Flow (cfs)	7527.63	1753.10	21.27
Top Width (ft)	2963.05	Top Width (ft)	2441.79	489.61	31.65
Vel Total (ft/s)	1.05	Avg. Vel. (ft/s)	1.05	1.10	0.56
Max Chl Dpth (ft)	4.02	Hydr. Depth (ft)	2.95	3.25	1.19
Conv. Total (cfs)	551668.5	Conv. (cfs)	446436.8	103970.2	1261.6
Length Wtd. (ft)	495.81	Wetted Per. (ft)	2442.09	489.69	31.74
Min Ch El (ft)	1400.80	Shear (lb/sq ft)	0.05	0.06	0.02
Alpha	1.00	Stream Power (lb/ft s)	0.05	0.06	0.01
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	2071.28	528.92	14.16
C & E Loss (ft)	0.00	Cum SA (acres)	2138.62	119.49	16.46

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6992.90	7625.92	751.53	978.39	543.00	8.08	1.80	0.77
7625.92	8258.95	1808.71	1820.41	633.03	19.44	2.88	0.99
8258.95	8891.97	2614.20	2270.65	633.03	28.10	3.59	1.15
8891.97	9525.00	2353.15	2131.77	633.04	25.30	3.37	1.10
LB 9525.00	9622.92	251.13	262.01	97.92	2.70	2.68	0.96
9622.92	9720.84	304.24	293.97	97.92	3.27	3.00	1.03
9720.84	9818.77	354.29	322.10	97.92	3.81	3.29	1.10
9818.77	9916.69	407.33	350.23	97.92	4.38	3.58	1.16

9916.69	RB 10014.61	436.15	365.01	98.00	4.69	3.73	1.19
10014.61	10018.15	5.78	7.98	3.55	0.06	2.25	0.72
10018.15	10021.69	4.68	7.03	3.55	0.05	1.99	0.67
10021.69	10025.23	3.68	6.09	3.55	0.04	1.72	0.60
10025.23	10028.77	2.78	5.14	3.55	0.03	1.45	0.54
10028.77	10032.30	1.98	4.20	3.55	0.02	1.19	0.47
10032.30	10035.84	1.30	3.25	3.55	0.01	0.92	0.40
10035.84	10039.38	0.73	2.31	3.55	0.01	0.65	0.32
10039.38	10042.92	0.30	1.36	3.55	0.00	0.39	0.22
10042.92	10046.46	0.04	0.42	3.35	0.00	0.13	0.11

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.355

INPUT
Description: 10,000 Station located on approximately the Crismon Road alignment between the Williams Field Road alignment and Pecos Avenue.

Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4809.6	1413.5	4870	1412	4915	1410	4930	1408	5065	1407.2
5240	1406.1	5295	1406.3	5460	1406	5500	1405.6	5580	1405.5
6095	1405	6730	1405.5	6915	1405.1	7085	1404.6	7295	1404.4
7450	1404	7920	1403	8195	1402.5	8275	1402	8280	1400
8290	1400	8350	1402	8735	1400	8745	1400	8765	1400.9
8820	1400.4	9100	1400.4	9215	1400	9380	1399.8	9520	1400
9770	1400.1	9900	1400.5	9960	1400	10000	139810020.88		1400.45
10060	1405								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4809.6	.1	8280	.05	9900	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
990	10020.88	760	1112.17	1115	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4809.6	7300	1410

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1404.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.052	0.050	0.050
W.S. Elev (ft)	1404.59	Reach Len. (ft)	760.00	1112.17	1115.00
Crit W.S. (ft)	1401.26	Flow Area (sq ft)	8068.42	595.81	73.62
E.G. Slope (ft/ft)	0.000239	Area (sq ft)	8088.00	595.81	73.62
Q Total (cfs)	9302.00	Flow (cfs)	8455.39	791.94	54.68
Top Width (ft)	2959.15	Top Width (ft)	2802.69	120.88	35.58
Vel Total (ft/s)	1.06	Avg. Vel. (ft/s)	1.05	1.33	0.74
Max Chl Dpth (ft)	6.59	Hydr. Depth (ft)	3.10	4.93	2.07
Conv. Total (cfs)	601711.6	Conv. (cfs)	546947.4	51227.3	3536.8
Length Wtd. (ft)	896.38	Wetted Per. (ft)	2600.45	121.08	35.82
Min Ch El (ft)	1398.00	Shear (lb/sq ft)	0.05	0.07	0.03
Alpha	1.02	Stream Power (lb/ft s)	0.05	0.10	0.02
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	2001.08	501.78	12.78
C & E Loss (ft)	0.05	Cum SA (acres)	2114.54	111.92	15.63

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6845.76	7354.80	1.42	14.90	54.80	0.02	0.27	0.10
7354.80	7863.84	101.54	469.94	509.04	1.09	0.92	0.22
7863.84	8372.88	615.25	1118.12	509.46	6.61	2.20	0.55
8372.88	8881.92	2130.54	1925.49	509.07	22.90	3.78	1.11
8881.92	9390.96	2749.77	2243.97	509.04	29.56	4.41	1.23
9390.96	9900.00	2856.86	2296.00	509.04	30.71	4.51	1.24
LB 9900.00	9924.18	119.82	101.27	24.18	1.29	4.19	1.18
9924.18	9948.35	129.58	106.14	24.18	1.39	4.39	1.22
9948.35	9972.53	146.51	114.29	24.19	1.58	4.73	1.28
9972.53	9996.70	207.06	140.68	24.21	2.23	5.82	1.47
9996.70	RB 10020.88	188.96	133.43	24.32	2.03	5.52	1.42

10020.88	10024.79	14.62	15.30	3.94	0.16	3.91	0.96
10024.79	10028.70	11.90	13.52	3.94	0.13	3.46	0.88
10028.70	10032.62	9.40	11.74	3.94	0.10	3.00	0.80
10032.62	10036.53	7.15	9.96	3.94	0.08	2.55	0.72
10036.53	10040.44	5.15	8.18	3.94	0.06	2.09	0.63
10040.44	10044.35	3.42	6.40	3.94	0.04	1.64	0.53
10044.35	10048.26	1.99	4.62	3.94	0.02	1.18	0.43
10048.26	10052.18	0.88	2.84	3.94	0.01	0.73	0.31
10052.18	10056.09	0.17	1.06	3.94	0.00	0.27	0.16
10056.09	10060.00	0.00	0.01	0.37	0.00	0.02	0.03

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.145

INPUT
Description: 10,000 Station located in channel immediately northeast of intersection of Crismon Road alignment and Pecos Avenue.

Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6492.7	1413.5	6665	1404.5	6870	1404	7720	1406	7860	1406
8585	1404.5	9215	1404.5	9435	1403.8	9555	1400.3	9605	1400
9670	1401	9850	1406.5	9880	1400	10000	1397.5	10070	1398
10095	1404.8								

Manning's n Values num= 2

Sta	n Val	Sta	n Val
6492.7	.022	9555	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9850	10095	475	178.89	180	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
6492.7	9400	1410

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1403.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.49	Wt. n-Val.	0.039	0.050	
W.S. Elev (ft)	1403.48	Reach Len. (ft)	475.00	178.89	180.00
Crit W.S. (ft)	1402.28	Flow Area (sq ft)	635.30	1052.67	
E.G. Slope (ft/ft)	0.005352	Area (sq ft)	635.30	1052.67	
Q Total (cfs)	9302.00	Flow (cfs)	2944.37	6357.63	
Top Width (ft)	531.67	Top Width (ft)	305.43	226.24	
Vel Total (ft/s)	5.51	Avg. Vel. (ft/s)	4.63	6.04	
Max Chl Dpth (ft)	5.98	Hydr. Depth (ft)	2.08	4.65	
Conv. Total (cfs)	127146.5	Conv. (cfs)	40245.8	86900.7	
Length Wtd. (ft)	259.73	Wetted Per. (ft)	305.53	227.37	
Min Ch El (ft)	1397.50	Shear (lb/sq ft)	0.69	1.55	
Alpha	1.04	Stream Power (lb/ft s)	3.22	9.34	
Frctn Loss (ft)	0.88	Cum Volume (acre-ft)	1924.98	480.74	11.84
C & E Loss (ft)	0.07	Cum SA (acres)	2087.43	107.49	15.17

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9178.54	9514.27	320.52	68.27	68.45	3.45	1.00	4.69
9514.27	9850.00	2623.86	567.03	237.08	28.21	2.39	4.63
LB 9850.00	9899.00	408.23	97.96	35.46	4.39	2.79	4.17
9899.00	9948.00	1220.48	215.10	49.01	13.12	4.39	5.67
9948.00	9997.00	1729.28	265.12	49.01	18.59	5.41	6.52
9997.00	10046.00	1957.17	285.55	49.00	21.04	5.83	6.85
10046.00	RB 10095.00	1042.46	188.94	44.89	11.21	4.28	5.52

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less

than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.111

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.

Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4379.27	1404.8	4515	1403.8	4680	1403.7	4900	1403.7	5130	1403.6
5330	1403.4	5635	1403.3	5960	1403.8	6375	1403.5	6620	1403.3
6835	1403.5	7090	1402.8	7190	1402	7755	1401.7	7810	1402.7
8290	1402	8430	1401.9	8450	1402	8475	1402	9370	1400
9700	1399.6	9755	1400	9800	1400	9810	1398	9910	1396.9
10000	1396.3	10050	1396	10069.59	1400.01	10095	1404.2		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4379.27	.1	9800	.05	10069.59	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9800	10069.59	325	301.73	270	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4379.27	9300	1405

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1403.03	Element			
Vel Head (ft)	0.26	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1402.76	Reach Len. (ft)	325.00	301.73	270.00
Crit W.S. (ft)	1400.65	Flow Area (sq ft)	1453.98	1547.96	23.01
E.G. Slope (ft/ft)	0.002344	Area (sq ft)	3778.74	1547.96	23.01
Q Total (cfs)	9302.00	Flow (cfs)	2130.90	7130.48	40.62
Top Width (ft)	2991.90	Top Width (ft)	2705.61	269.59	16.71
Vel Total (ft/s)	3.08	Avg. Vel. (ft/s)	1.47	4.61	1.77
Max Chl Dpth (ft)	6.76	Hydr. Depth (ft)	2.91	5.74	1.38
Conv. Total (cfs)	192142.6	Conv. (cfs)	44016.0	147287.5	839.1
Length Wtd. (ft)	309.42	Wetted Per. (ft)	500.00	270.20	16.93
Min Ch El (ft)	1396.00	Shear (lb/sq ft)	0.43	0.84	0.20
Alpha	1.77	Stream Power (lb/ft s)	0.62	3.86	0.35
Frctn Loss (ft)	0.73	Cum Volume (acre-ft)	1900.91	475.40	11.79
C & E Loss (ft)	0.02	Cum SA (acres)	2071.01	106.47	15.14

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9257.93	9800.00	2130.91	1453.98	500.00	22.91	2.91	1.47
LB 9800.00	9853.92	1042.69	257.52	54.12	11.21	4.78	4.05
9853.92	9907.84	1340.26	298.95	53.92	14.41	5.54	4.48
9907.84	9961.75	1541.53	325.12	53.92	16.57	6.03	4.74
9961.75	10015.67	1697.12	344.43	53.92	18.24	6.39	4.93
10015.67	RB 10069.59	1508.87	321.93	54.32	16.22	5.97	4.69
10069.59	10072.13	14.49	6.47	2.58	0.16	2.55	2.24
10072.13	10074.67	10.74	5.40	2.58	0.12	2.13	1.99
10074.67	10077.21	7.45	4.34	2.58	0.08	1.71	1.72
10077.21	10079.75	4.66	3.27	2.58	0.05	1.29	1.42
10079.75	10082.29	2.42	2.21	2.58	0.03	0.87	1.10
10082.29	10084.84	0.81	1.14	2.58	0.01	0.45	0.71
10084.84	10087.38	0.05	0.18	1.48	0.00	0.12	0.29

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 13.054

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.

Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4336.9	1404.1	4420	1404	4475	1404.1	4550	1403.1	4925	1403.3
5655	1402	5785	1401.6	6085	1402	6390	1402.6	6715	1402
6895	1401.4	7120	1401.9	7175	1401.8	7265	1401.2	7825	1401

7840	1402	7870	1402	8070	1401.5	8510	1401.2	8535	1402
8560	1400	8735	1399.7	9435	1398.3	9770	1399	9815	1398.3
9835	1398	9865	1400	9880	1398	9940	1396	10000	1395.5
10050	1396	10075.22	1400	10100	1403.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4336.9	.1	9865	.05	10075.22	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9865	10075.22	500	505.01	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4336.9	9150	1405

Blocked Obstructions num= 1

Sta L	Sta R	Elev
4336.9	6390	1402.6

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1402.27	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1402.08	Reach Len. (ft)	500.00	505.01	500.00
Crit W.S. (ft)	1400.10	Flow Area (sq ft)	2469.21	1149.83	14.46
E.G. Slope (ft/ft)	0.002392	Area (sq ft)	5232.90	1149.83	14.46
Q Total (cfs)	9302.00	Flow (cfs)	4099.94	5180.65	21.41
Top Width (ft)	3416.52	Top Width (ft)	3192.39	210.22	13.92
Vel Total (ft/s)	2.56	Avg. Vel. (ft/s)	1.66	4.51	1.48
Max Chl Dpth (ft)	6.58	Hydr. Depth (ft)	3.45	5.47	1.04
Conv. Total (cfs)	190175.6	Conv. (cfs)	83821.6	105916.2	437.7
Length Wtd. (ft)	502.71	Wetted Per. (ft)	715.08	210.71	14.07
Min Ch El (ft)	1395.50	Shear (lb/sq ft)	0.52	0.82	0.15
Alpha	1.91	Stream Power (lb/ft s)	0.86	3.67	0.23
Frctn Loss (ft)	1.30	Cum Volume (acre-ft)	1867.30	466.05	11.68
C & E Loss (ft)	0.00	Cum SA (acres)	2049.01	104.81	15.04

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8759.38	9312.19	893.05	546.65	162.19	9.60	3.37	1.63
9312.19	9865.00	3206.89	1922.55	552.88	34.48	3.48	1.67
LB 9865.00	9907.04	607.79	168.66	42.19	6.53	4.01	3.60
9907.04	9949.09	1079.74	237.80	42.06	11.61	5.66	4.54
9949.09	9991.13	1302.70	266.10	42.05	14.00	6.33	4.90
9991.13	10033.18	1340.78	270.74	42.05	14.41	6.44	4.95
10033.18	RB 10075.22	849.65	206.53	42.36	9.13	4.91	4.11
10075.22	10077.70	8.74	4.69	2.50	0.09	1.89	1.86
10077.70	10080.18	6.09	3.78	2.51	0.07	1.52	1.61
10080.18	10082.65	3.83	2.86	2.51	0.04	1.15	1.34
10082.65	10085.13	2.01	1.94	2.50	0.02	0.78	1.03
10085.13	10087.61	0.69	1.02	2.50	0.01	0.41	0.68
10087.61	10090.09	0.05	0.17	1.55	0.00	0.11	0.29

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.958

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4485.04	1403.1	4565	1402.4	4995	1403	5460	1402	5830	1400.9
6050	1400.6	6320	1400	6535	1399.8	6715	1399.6	7085	1399.6
7155	1399.5	7180	1399.7	7290	1399.9	8510	1400	8515	1400.2
8565	1400	8580	1398.8	8740	1398.1	9780	1398.1	9820	1398
9880	1398	9900	1396	10000	1394.3	10060	1396	10072.29	1398.01
10105	1403.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4485.04	.1	9880	.05	10072.29	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
988 10072.29 670 479.11 500 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4485.04	8800	1403

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1400.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.20	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1400.77	Reach Len. (ft)	670.00	479.11	500.00
Crit W.S. (ft)	1399.38	Flow Area (sq ft)	2896.13	1021.67	24.55
E.G. Slope (ft/ft)	0.002783	Area (sq ft)	5668.71	1021.67	24.55
Q Total (cfs)	9302.00	Flow (cfs)	4382.25	4872.37	47.38
Top Width (ft)	4167.78	Top Width (ft)	3957.72	192.29	17.76
Vel Total (ft/s)	2.36	Avg. Vel. (ft/s)	1.51	4.77	1.93
Max Chl Dpth (ft)	6.47	Hydr. Depth (ft)	2.68	5.31	1.38
Conv. Total (cfs)	176314.4	Conv. (cfs)	83063.2	92353.0	898.1
Length Wtd. (ft)	583.62	Wetted Per. (ft)	1080.00	192.59	17.98
Min Ch El (ft)	1394.30	Shear (lb/sq ft)	0.47	0.92	0.24
Alpha	2.34	Stream Power (lb/ft s)	0.71	4.40	0.46
Frctn Loss (ft)	1.38	Cum Volume (acre-ft)	1804.73	453.47	11.45
C & E Loss (ft)	0.03	Cum SA (acres)	2007.97	102.48	14.86

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8261.51	8801.01	4.07	2.70	1.01	0.04	2.67	1.51
8801.01	9340.50	2179.01	1442.72	539.50	23.43	2.67	1.51
9340.50	9880.00	2199.18	1450.72	539.50	23.64	2.69	1.52
LB 9880.00	9918.46	685.42	166.50	38.56	7.37	4.33	4.12
9918.46	9956.92	996.80	208.24	38.46	10.72	5.41	4.79
9956.92	9995.37	1205.37	233.39	38.46	12.96	6.07	5.16
9995.37	10033.83	1198.31	232.59	38.47	12.88	6.05	5.15
10033.83	RB 10072.29	786.47	180.95	38.63	8.45	4.71	4.35
10072.29	10075.56	19.91	8.21	3.31	0.21	2.51	2.43
10075.56	10078.83	13.65	6.55	3.31	0.15	2.00	2.09
10078.83	10082.10	8.37	4.88	3.31	0.09	1.49	1.71
10082.10	10085.37	4.17	3.21	3.31	0.04	0.98	1.30
10085.37	10088.64	1.24	1.55	3.31	0.01	0.47	0.80
10088.64	10091.92	0.05	0.15	1.43	0.00	0.11	0.30

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.867

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.

Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4366.93	1401.7	4500	1401.5	4595	1400.6	5060	1401.7	5220	1401.3
5475	1400	6095	1398.7	6525	1398	6935	1397	7205	1397.1
7535	1397.2	8465	1397	8505	1398	8545	1396.9	8740	1396.4
9510	1396.6	9760	1396.6	9790	1397	9810	1396.6	9865	1398
9870	1396	10000	1393.4	10035	1394	10062.98	1397.99	10090	1402.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4366.93	.1	9865	.05	10062.98	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
986 10062.98 590 514.81 500 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4366.93	8300	1402

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1399.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1399.46	Reach Len. (ft)	590.00	514.81	500.00
Crit W.S. (ft)	1397.86	Flow Area (sq ft)	4358.91	930.05	7.12
E.G. Slope (ft/ft)	0.002044	Area (sq ft)	8987.64	930.05	7.12
Q Total (cfs)	9302.00	Flow (cfs)	5797.14	3497.12	7.74
Top Width (ft)	4341.10	Top Width (ft)	4133.44	197.98	9.68
Vel Total (ft/s)	1.76	Avg. Vel. (ft/s)	1.33	3.76	1.09
Max Chl Dpth (ft)	6.06	Hydr. Depth (ft)	2.79	4.70	0.74
Conv. Total (cfs)	205731.8	Conv. (cfs)	128214.9	77345.7	171.3
Length Wtd. (ft)	556.67	Wetted Per. (ft)	1565.05	198.68	9.79
Min Ch El (ft)	1393.40	Shear (lb/sq ft)	0.36	0.60	0.09
Alpha	2.08	Stream Power (lb/ft s)	0.47	2.25	0.10
Frctn Loss (ft)	2.04	Cum Volume (acre-ft)	1692.01	442.73	11.27
C & E Loss (ft)	0.02	Cum SA (acres)	1945.75	100.33	14.71

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8215.58	8765.39	1488.10	1188.26	465.41	16.00	2.55	1.25
8765.39	9315.19	2279.74	1640.63	549.81	24.51	2.98	1.39
9315.19	9865.00	2029.27	1530.00	549.83	21.82	2.78	1.33
LB 9865.00	9904.60	447.06	144.05	39.99	4.81	3.64	3.10
9904.60	9944.19	653.24	180.16	39.60	7.02	4.55	3.63
9944.19	9983.79	853.51	211.51	39.60	9.18	5.34	4.04
9983.79	10023.38	1000.84	232.72	39.60	10.76	5.88	4.30
10023.38	RB 10062.98	542.50	161.61	39.88	5.83	4.08	3.36
10062.98	10065.68	4.54	3.42	2.73	0.05	1.27	1.33
10065.68	10068.38	2.36	2.31	2.73	0.03	0.86	1.02
10068.38	10071.09	0.79	1.20	2.73	0.01	0.44	0.66
10071.09	10073.79	0.05	0.19	1.59	0.00	0.12	0.27

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.770

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.

Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4476.32	1398.7	4575	1398.7	4620	1398.2	5730	1398.2	5775	1398
5845	1396.8	6755	1396.5	7025	1396	7060	1395.4	7085	1396
8470	1396	8485	1396.2	8575	1396	8805	1395.6	9585	1395.7
9825	1395	9870	1396.8	9890	1394	10000	1392.3	10060	1394
10074.46	1396.82	10105	1401.4						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4476.32	.1	9870	.051	10074.46	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9870	10074.46	220	506.56	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4476.32	7950	1398

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1397.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1397.15	Reach Len. (ft)	220.00	506.56	500.00
Crit W.S. (ft)	1396.86	Flow Area (sq ft)	2685.99	741.11	0.37
E.G. Slope (ft/ft)	0.008348	Area (sq ft)	4479.20	741.11	0.37
Q Total (cfs)	9302.00	Flow (cfs)	4561.19	4740.51	0.31
Top Width (ft)	4252.38	Top Width (ft)	4045.69	204.46	2.23
Vel Total (ft/s)	2.71	Avg. Vel. (ft/s)	1.70	6.40	0.82
Max Chl Dpth (ft)	4.85	Hydr. Depth (ft)	1.40	3.62	0.17
Conv. Total (cfs)	101811.0	Conv. (cfs)	49922.5	51885.2	3.3
Length Wtd. (ft)	339.39	Wetted Per. (ft)	1920.04	204.96	2.26
Min Ch El (ft)	1392.30	Shear (lb/sq ft)	0.73	1.88	0.09
Alpha	3.02	Stream Power (lb/ft s)	1.24	12.05	0.07
Frctn Loss (ft)	1.49	Cum Volume (acre-ft)	1600.81	432.86	11.23
C & E Loss (ft)	0.08	Cum SA (acres)	1890.36	97.95	14.64

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7712.53	8251.90	515.71	348.59	301.90	5.54	1.15	1.48
8251.90	8791.26	996.96	652.96	539.37	10.72	1.21	1.53
8791.26	9330.63	1459.33	820.68	539.37	15.69	1.52	1.78
9330.63	9870.00	1589.17	863.76	539.41	17.08	1.60	1.84
LB 9870.00	9910.89	513.98	104.37	41.09	5.53	2.55	4.92
9910.89	9951.78	998.03	155.13	40.90	10.73	3.79	6.43
9951.78	9992.68	1290.22	180.96	40.90	13.87	4.43	7.13
9992.68	10033.57	1304.00	182.14	40.91	14.02	4.45	7.16
10033.57	RB 10074.46	634.30	118.51	41.17	6.82	2.90	5.35
10074.46	10077.51	0.31	0.37	2.26	0.00	0.17	0.82

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.674

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4432.83	1398	4490	1397.6	4630	1396.9	4825	1397.5	5505	1397
5740	1396.8	5780	1396.5	5795	1396	6130	1395	6890	1395.2
7020	1395.3	7205	1394	7215	1393.8	7225	1394	7245	1394
7290	1393.6	7950	1393.6	8485	1393.7	8505	1394	8545	1395.5
8560	1394	8580	1394	8635	1393.6	9520	1393.3	9770	1393.4
9835	1393.5	9875	1395.1	9885	1394	9915	1392	10000	1390.7
10060	1392	10076.21	1395.15	10105	1400.12				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4432.83	.1	9875	.05	10076.21	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9875	10076.21	690	518.48	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4432.83	7800	1398

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1395.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1395.84	Reach Len. (ft)	690.00	518.48	500.00
Crit W.S. (ft)	1394.65	Flow Area (sq ft)	4711.19	785.89	1.38

E.G. Slope (ft/ft)	0.002707	Area (sq ft)	6998.62	785.89	1.38
Q Total (cfs)	9302.00	Flow (cfs)	6291.70	3009.26	1.04
Top Width (ft)	4231.64	Top Width (ft)	4026.43	201.21	4.00
Vel Total (ft/s)	1.69	Avg. Vel. (ft/s)	1.34	3.83	0.75
Max Chl Dpth (ft)	5.14	Hydr. Depth (ft)	2.27	3.91	0.35
Conv. Total (cfs)	178781.5	Conv. (cfs)	120924.5	57837.0	20.0
Length Wtd. (ft)	632.08	Wetted Per. (ft)	2075.14	201.66	4.06
Min Ch El (ft)	1390.70	Shear (lb/sq ft)	0.38	0.66	0.06
Alpha	2.08	Stream Power (lb/ft s)	0.51	2.52	0.04
Frctn Loss (ft)	1.78	Cum Volume (acre-ft)	1571.83	423.98	11.22
C & E Loss (ft)	0.00	Cum SA (acres)	1869.97	95.60	14.60

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7698.13	8242.35	1290.95	982.92	442.35	13.88	2.22	1.31
8242.35	8786.57	1391.23	1116.99	544.32	14.96	2.05	1.25
8786.57	9330.78	1785.49	1297.26	544.22	19.19	2.38	1.38
9330.78	9875.00	1824.04	1314.03	544.25	19.61	2.41	1.39
LB 9875.00	9915.24	270.47	99.03	40.37	2.91	2.46	2.73
9915.24	9955.48	647.87	167.07	40.25	6.96	4.15	3.88
9955.48	9995.73	815.73	191.83	40.25	8.77	4.77	4.25
9995.73	10035.97	821.81	192.70	40.25	8.83	4.79	4.26
10035.97	RB 10076.21	453.37	135.26	40.55	4.87	3.36	3.35
10076.21	10079.09	1.01	1.27	2.92	0.01	0.44	0.79
10079.09	10081.97	0.03	0.11	1.13	0.00	0.10	0.29

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.576

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4455.26	1396.5	4470	1396	4520	1396	4540	1396	4785	1395.9
5510	1395.8	5750	1395.6	5785	1395.5	5815	1394.6	5920	1394.4
6215	1394.4	6365	1394.3	6665	1394	6770	1393.8	6915	1393.1
7115	1393.2	7160	1392.3	7175	1392.5	7345	1392.3	8455	1392.3
8495	1393.4	8525	1392	8820	1392.1	9420	1392	9755	1391.7
9785	1392	9805	1391.7	9855	1392.7	9870	1392	9895	1390
10000	1389	10040	139010056.98	1392.73		10075	1396	10085	1397.24

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4455.26	.1	9855	.0510056.98		.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
985510056.98 490 502.49 500 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev
4455.26	7250	1396

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1394.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1394.04	Reach Len. (ft)	490.00	502.49	500.00
Crit W.S. (ft)	1393.14	Flow Area (sq ft)	4902.77	805.65	4.75
E.G. Slope (ft/ft)	0.002948	Area (sq ft)	5385.07	805.65	4.75
Q Total (cfs)	9302.00	Flow (cfs)	6030.01	3266.27	5.73
Top Width (ft)	3442.05	Top Width (ft)	3232.84	201.98	7.23
Vel Total (ft/s)	1.63	Avg. Vel. (ft/s)	1.23	4.05	1.21
Max Chl Dpth (ft)	5.04	Hydr. Depth (ft)	1.88	3.99	0.66
Conv. Total (cfs)	171308.0	Conv. (cfs)	111050.2	60152.4	105.5
Length Wtd. (ft)	494.28	Wetted Per. (ft)	2605.06	202.31	7.35
Min Ch El (ft)	1389.00	Shear (lb/sq ft)	0.35	0.73	0.12

Alpha	2.55	Stream Power (lb/ft s)	0.43	2.97	0.14
Frctn Loss (ft)	1.41	Cum Volume (acre-ft)	1473.75	414.51	11.18
C & E Loss (ft)	0.00	Cum SA (acres)	1812.48	93.20	14.54

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7155.13	7695.10	892.76	770.42	445.10	9.60	1.73	1.16
7695.10	8235.08	1095.50	941.07	539.97	11.78	1.74	1.16
8235.08	8775.05	1155.12	971.50	540.02	12.42	1.80	1.19
8775.05	9315.03	1356.63	1069.87	539.97	14.58	1.98	1.27
9315.03	9855.00	1530.00	1149.93	539.99	16.45	2.13	1.33
LB 9855.00	9895.40	302.50	103.07	40.49	3.25	2.55	2.93
9895.40	9935.79	706.09	171.24	40.40	7.59	4.24	4.12
9935.79	9976.19	816.11	186.78	40.40	8.77	4.62	4.37
9976.19	10016.58	896.13	197.57	40.40	9.63	4.89	4.54
10016.58	RB 10056.98	545.45	146.99	40.62	5.86	3.64	3.71
10056.98	10059.78	4.22	2.97	2.85	0.05	1.06	1.42
10059.78	10062.58	1.42	1.54	2.85	0.02	0.55	0.92
10062.58	10065.39	0.09	0.24	1.66	0.00	0.15	0.38

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.481

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.

Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4491.24	1394.6	4525	1395	4810	1395	5440	1394.3	5750	1394.3
5780	1394.3	5795	1394	5880	1393.5	6040	1393.2	6430	1392.9
6930	1392.4	7130	1392	7155	1393	7180	1391.4	7235	1391.2
7495	1391.5	8225	1391.5	8505	1392	8530	1390	8560	1389.9
8860	1390	9210.08	1389.48	9510	1390.4	9815	1390.2	9830	1390
9845	1389	9855	1390	9875	1390	9965	1388	10000	1387.35
10045	1388	10053.2	1390	10070	1394	10085	1395.8		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4491.24	.1	9875	.05	10053.2	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9875	10053.2	490	520.37	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4491.24	6900	1394

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1392.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1392.64	Reach Len. (ft)	490.00	520.37	500.00
Crit W.S. (ft)	1391.33	Flow Area (sq ft)	5229.49	754.06	14.60
E.G. Slope (ft/ft)	0.002780	Area (sq ft)	5250.85	754.06	14.60
Q Total (cfs)	9302.00	Flow (cfs)	6186.89	3088.11	27.01
Top Width (ft)	3356.21	Top Width (ft)	3166.94	178.20	11.07
Vel Total (ft/s)	1.55	Avg. Vel. (ft/s)	1.18	4.10	1.85
Max Chl Dpth (ft)	5.29	Hydr. Depth (ft)	1.77	4.23	1.32
Conv. Total (cfs)	176417.2	Conv. (cfs)	117337.5	58567.6	512.2
Length Wtd. (ft)	499.97	Wetted Per. (ft)	2960.46	178.47	11.38
Min Ch El (ft)	1387.35	Shear (lb/sq ft)	0.31	0.73	0.22
Alpha	2.71	Stream Power (lb/ft s)	0.36	3.00	0.41
Frctn Loss (ft)	1.64	Cum Volume (acre-ft)	1413.93	405.51	11.07
C & E Loss (ft)	0.00	Cum SA (acres)	1776.48	91.00	14.43

Warning: Divided flow computed for this cross-section.

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6644.74	7183.12	47.68	114.88	268.41	0.51	0.43	0.42
7183.12	7721.50	554.74	661.66	538.38	5.96	1.23	0.84
7721.50	8259.87	485.63	610.90	538.38	5.22	1.13	0.79
8259.87	8798.25	1056.27	973.81	538.46	11.36	1.81	1.08
8798.25	9336.62	2298.23	1552.45	538.38	24.71	2.88	1.48
9336.62	9875.00	1744.35	1315.80	538.46	18.75	2.44	1.33
LB 9875.00	9910.64	348.97	108.08	35.65	3.75	3.03	3.23
9910.64	9946.28	513.74	136.31	35.65	5.52	3.82	3.77
9946.28	9981.92	699.31	164.02	35.65	7.52	4.60	4.26
9981.92	10017.56	840.60	183.16	35.65	9.04	5.14	4.59
10017.56	RB 10053.20	685.47	162.49	35.88	7.37	4.56	4.22
10053.20	10056.38	16.16	7.18	3.27	0.17	2.26	2.25
10056.38	10059.56	8.18	4.77	3.27	0.09	1.50	1.71
10059.56	10062.74	2.54	2.36	3.27	0.03	0.74	1.07
10062.74	10065.92	0.12	0.28	1.58	0.00	0.18	0.42

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.382

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.

Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4480.79	1393.6	4500	1393.7	4750	1393.6	5375	1393.5	5760	1393.2
5810	1392.3	5900	1392	6190	1391.6	6900	1390.5	7160	1390
7180	1389.5	7210	1390	7245	1389.6	7500	1389.8	8245	1389.8
8505	1390	8520	1390.8	8535	1390	8895	1388.6	9570	1388.3
9795	1388.1	9825	1388.2	9835	1388	9845	1387.9	9855	1388
9880	1388	10000	1386.27	10050	1388	10065	1390	10080	1394
10085	1395.21								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4480.79	.1	9880	.05	10050	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9880	10050	905	657.07	660	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
4480.79	6500	1394

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1391.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.100	0.050	0.050
W.S. Elev (ft)	1390.97	Reach Len. (ft)	905.00	657.07	660.00
Crit W.S. (ft)	1390.03	Flow Area (sq ft)	5028.50	652.15	31.34
E.G. Slope (ft/ft)	0.003948	Area (sq ft)	5028.50	652.15	31.34
Q Total (cfs)	9302.00	Flow (cfs)	6236.48	2983.55	81.96
Top Width (ft)	3472.78	Top Width (ft)	3284.14	170.00	18.64
Vel Total (ft/s)	1.63	Avg. Vel. (ft/s)	1.24	4.57	2.62
Max Chl Dpth (ft)	4.70	Hydr. Depth (ft)	1.53	3.84	1.68
Conv. Total (cfs)	148050.4	Conv. (cfs)	99259.7	47486.2	1304.5
Length Wtd. (ft)	843.63	Wetted Per. (ft)	3284.20	170.04	18.90
Min Ch El (ft)	1386.27	Shear (lb/sq ft)	0.38	0.95	0.41
Alpha	2.94	Stream Power (lb/ft s)	0.47	4.32	1.07
Frctn Loss (ft)	2.41	Cum Volume (acre-ft)	1356.11	397.11	10.81
C & E Loss (ft)	0.03	Cum SA (acres)	1740.20	88.92	14.26

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6100.55	6640.47	0.13	1.54	44.61	0.00	0.03	0.09
6640.47	7180.40	149.61	282.62	539.93	1.61	0.52	0.53
7180.40	7720.32	613.77	659.22	539.93	6.60	1.22	0.93
7720.32	8260.24	572.48	632.24	539.92	6.15	1.17	0.91
8260.24	8800.16	633.87	672.11	539.97	6.81	1.24	0.94
8800.16	9340.08	1919.99	1306.78	539.92	20.64	2.42	1.47
9340.08	9880.00	2346.61	1473.97	539.92	25.23	2.73	1.59
LB 9880.00	9914.00	441.36	109.35	34.00	4.74	3.22	4.04
9914.00	9948.00	559.08	126.02	34.00	6.01	3.71	4.44
9948.00	9982.00	687.66	142.68	34.00	7.39	4.20	4.82
9982.00	10016.00	773.02	153.08	34.01	8.31	4.50	5.05
10016.00	RB 10050.00	522.43	121.02	34.02	5.62	3.56	4.32
10050.00	10053.50	30.91	9.58	3.53	0.33	2.74	3.23
10053.50	10057.00	22.63	7.95	3.53	0.24	2.27	2.85
10057.00	10060.50	15.43	6.32	3.53	0.17	1.80	2.44
10060.50	10064.00	9.37	4.68	3.53	0.10	1.34	2.00
10064.00	10067.50	3.54	2.63	3.60	0.04	0.75	1.35
10067.50	10071.00	0.08	0.17	1.18	0.00	0.15	0.46

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 12.258

INPUT
Description: 10,000 Station located in channel immediately north of Pecos Avenue between Crismon Road alignment and Ellsworth Road.
Station Elevation Data num= 27

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5413	1390.6	5468	1390	5938	1389.4	6523	1388.6	6743	1388.2
6773	1389	6793	1388	6853	1388	7333	1387	7403	1386.7
7603	1386.8	8028	1386.5	8148	1386	8183	1386	8213	1386.4
8413	1386	8518	1386.1	9158	1386	9463	1385.7	9573	1386
9748	1385.5	9833	1386	9853	1389	9893	1386	10003	1384.8
10048	1386	10083	1390						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5413	.1	9853	.05	10083	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9853	10083	1310	6494.89	6504.89	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1388.66	Element			
Vel Head (ft)	0.04	Wt. n-Val.	0.100	0.050	
W.S. Elev (ft)	1388.62	Reach Len. (ft)	1310.00	6494.89	6504.89
Crit W.S. (ft)		Flow Area (sq ft)	6734.87	575.10	
E.G. Slope (ft/ft)	0.002159	Area (sq ft)	6734.87	575.10	
Q Total (cfs)	9302.00	Flow (cfs)	7762.79	1539.21	
Top Width (ft)	3533.91	Top Width (ft)	3321.03	212.88	
Vel Total (ft/s)	1.27	Avg. Vel. (ft/s)	1.15	2.68	
Max Chl Dpth (ft)	3.82	Hydr. Depth (ft)	2.03	2.70	
Conv. Total (cfs)	200178.4	Conv. (cfs)	167054.8	33123.6	
Length Wtd. (ft)		Wetted Per. (ft)	3321.26	213.15	
Min Ch El (ft)	1384.80	Shear (lb/sq ft)	0.27	0.36	
Alpha	1.42	Stream Power (lb/ft s)	0.32	0.97	
Frctn Loss (ft)		Cum Volume (acre-ft)	1233.91	387.85	10.57
C & E Loss (ft)		Cum SA (acres)	1671.59	86.04	14.12

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: The user has entered a known water surface elevation at this cross section.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Alpha	1.58	Stream Power (lb/ft s)	0.14	4.33	0.27
Frctn Loss (ft)	4.01	Cum Volume (acre-ft)	1124.62	244.84	9.37
C & E Loss (ft)	0.09	Cum SA (acres)	1614.61	54.87	12.66

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

FLOW DISTRIBUTION OUTPUT *Profile #PF 1*

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4482.50	5557.50	665.65	496.03	352.23	6.72	1.41	1.34
5557.50	6632.50	18.81	37.45	116.11	0.19	0.32	0.50
6632.50	9911.50						
9911.50	9965.50	1868.43	306.48	51.33	18.87	6.12	6.10
9965.50	10019.50	3464.91	453.03	54.00	35.00	8.39	7.65
10019.50	10073.50	3245.23	436.03	54.14	32.78	8.07	7.44
10073.50	RB 10127.50	582.10	147.66	47.56	5.88	3.13	3.94
10127.50	13453.00						
13453.00	13822.50	54.87	16.09	19.83	0.55	0.82	3.41

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 10.660

INPUT
Description:
Station Elevation Data num= 71

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-727.5	1377.6	-597.5	1378	-587.5	1380	-562.5	1380	42.5	1378
447.5	1378	582.5	1377.5	822.5	1377.9	1032.5	1377	1422.5	1376
1902.5	1375	2187.5	1374.4	2192.5	1376	2252.5	1380	2272.5	1380
2292.5	1378	2317.5	1376	2572.5	1375.5	2922.5	1375.3	3162.5	1375
3262.5	1374.8	3372.5	1374	3462.5	1372.7	3542.5	1374	3632.5	1376
4102.5	1377	4297.5	1376	4812.5	1375.4	5052.5	1376	5202.5	1378
5287.5	1378.4	5357.5	1378	5477.5	1376	5592.5	1374	5637.5	1372.9
5812.5	1374	5992.5	1374	6412.5	1375	6947.5	1375	7522.5	1374.8
7942.5	1375	8482.5	1375	8857.5	1375	9422.5	1375	9722.5	1375
9832.5	1376	9912.5	1374	9957.5	1368	10042.5	1366	10062.5	1374
10252.5	1375.4	10432.5	1376	10562.5	1376	10767.5	1375.8	10842.5	1376
10972.5	1375.7	11142.5	1376	11302.5	1375.6	11352.5	1376	11572.5	1377.5
11672.5	1376	11882.5	1375	12252.5	1376	12392.5	1376	12487.5	1375
12662.5	1376	12692.5	1376	12697.5	1374	12712.5	1374	12717.5	1376
12732.5	1377.3								

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-727.5	.1	2252.5	.05	3632.5	.035	5287.5	.05	9832.5	.03
10432.5	.05	12692.5	.015						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9832.5	10432.5	1400	2089.32	1050	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10448.2	11591.81	1378.67

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1375.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.052	0.030	0.019
W.S. Elev (ft)	1375.29	Reach Len. (ft)	1400.00	2089.32	1050.00
Crit W.S. (ft)	1375.00	Flow Area (sq ft)	2808.84	1149.76	59.30
E.G. Slope (ft/ft)	0.003160	Area (sq ft)	2808.84	1149.76	59.30
Q Total (cfs)	9900.00	Flow (cfs)	3033.43	6712.96	153.61
Top Width (ft)	5978.09	Top Width (ft)	5333.31	376.70	268.09
Vel Total (ft/s)	2.46	Avg. Vel. (ft/s)	1.08	5.84	2.59

Max Chl Dpth (ft)	9.29	Hydr. Depth (ft)	0.53	3.05	0.22
Conv. Total (cfs)	176100.2	Conv. (cfs)	53958.3	119409.5	2732.4
Length Wtd. (ft)	1660.43	Wetted Per. (ft)	5333.52	378.68	268.59
Min Ch El (ft)	1366.00	Shear (lb/sq ft)	0.10	0.60	0.04
Alpha	3.88	Stream Power (lb/ft s)	0.11	3.50	0.11
Frctn Loss (ft)	5.46	Cum Volume (acre-ft)	1065.92	189.19	8.31
C & E Loss (ft)	0.05	Cum SA (acres)	1512.72	41.87	8.60

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
1384.50	2440.50	81.67	189.64	427.20	0.82	0.44	0.43
2440.50	3496.50	517.36	423.89	566.11	5.23	0.75	1.22
3496.50	4552.50	179.28	113.99	104.08	1.81	1.10	1.57
4552.50	5608.50	90.91	71.63	90.20	0.92	0.79	1.27
5608.50	6664.50	1471.06	1018.28	1056.01	14.86	0.96	1.44
6664.50	7720.50	302.44	394.16	1056.00	3.05	0.37	0.77
7720.50	8776.50	211.62	318.14	1056.00	2.14	0.30	0.67
8776.50	9832.50	179.10	279.12	977.92	1.81	0.29	0.64
LB 9832.50	9952.50	591.12	191.56	91.98	5.97	2.09	3.09
9952.50	10072.50	5969.30	857.78	121.61	60.30	7.15	6.96
10072.50	10192.50	148.25	92.92	120.00	1.50	0.77	1.60
10192.50	10312.50	4.28	7.49	45.09	0.04	0.17	0.57
10312.50	11812.50						
11812.50	12042.50	11.25	24.42	168.29	0.11	0.15	0.46
12042.50	12272.50						
12272.50	12502.50	4.12	7.71	42.57	0.04	0.18	0.53
12502.50	12732.50	138.25	27.17	57.73	1.40	0.47	5.09

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 10.264

INPUT
Description:
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-1765	1374	-1755	1372.7	-1710	1372.7	-1175	1372	-780	1371.9
-720	1371.8	-685	1371.8	-400	1371.4	-365	1371.5	-330	1370.9
255	1370	590	1369.7	850	1368.6	1020	1374	1070	1374
1125	1372	1200	1370	1305	1368	1310	1367.5	1330	1368
1350	1370	1460	1371.8	1545	1370	1635	1369.4	1770	1369.8
1960	1369.5	2010	1368	2060	1367.7	2120	1368	2205	1370
2355	1372	2395	1372.5	2440	1372	2590	1370	2735	1368
2750	1366.6	2820	1368	3065	1369.5	3255	1368.7	3305	1370
3345	1370	3405	1370	3655	1369.8	3795	1369.9	3880	1369
3940	1370	4005	1372	4190	1372.6	4320	1372	4400	1370
4490	1368.2	4545	1370	4640	1369.2	4775	1369	4800	1370
4815	1369.8	4825	1370	4935	1370.6	4965	1370	5035	1368.6
5185	1370	5225	1372	5365	1373.6	5460	1372	5600	1370
5685	1368	5735	1367.7	5815	1368	6145	1370	6305	1369
6485	1370	6865	1370	7090	1370.3	7235	1370	7865	1370.5
7940	1370	8085	1368.5	8135	1369.4	8500	1368.9	8855	1370
9285	1370	9305	1372	9405	1374	9790	1374.6	9895	1374
9965	1361	10075	1361	10115	1370	10165	1372	10335	1376
10480	1370	11365	1370	11455	1369.3	11465	1370	11485	1372.1
11505	1366	11520	1366	11535	1372				

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-1765	.1	1070	.05	1305	.035	5600	.05	9790	.3
10335	.05	11485	.015						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9790	10335	1450	1900.36	1480	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1370.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.041	0.300	0.016
W.S. Elev (ft)	1369.95	Reach Len. (ft)	1450.00	1900.36	1480.00
Crit W.S. (ft)		Flow Area (sq ft)	3753.42	1377.89	134.33
E.G. Slope (ft/ft)	0.003430	Area (sq ft)	3753.42	1377.89	134.33
Q Total (cfs)	9900.00	Flow (cfs)	7264.97	1448.23	1186.80
Top Width (ft)	5251.64	Top Width (ft)	4923.21	197.96	130.47
Vel Total (ft/s)	1.88	Avg. Vel. (ft/s)	1.94	1.05	8.84
Max Chl Dpth (ft)	8.95	Hydr. Depth (ft)	0.76	6.96	1.03
Conv. Total (cfs)	169044.7	Conv. (cfs)	124051.1	24728.9	20264.8
Length Wtd. (ft)	1581.56	Wetted Per. (ft)	4923.71	199.77	131.85
Min Ch El (ft)	1361.00	Shear (lb/sq ft)	0.16	1.48	0.22
Alpha	3.47	Stream Power (lb/ft s)	0.32	1.55	1.93
Frctn Loss (ft)	6.25	Cum Volume (acre-ft)	960.47	128.57	5.97
C & E Loss (ft)	0.04	Cum SA (acres)	1347.90	28.09	3.80

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
-609.50	546.00	4.90	24.44	233.62	0.05	0.10	0.20
546.00	1701.50	599.62	472.48	642.21	6.06	0.74	1.27
1701.50	2857.00	2473.38	876.01	764.73	24.98	1.15	2.82
2857.00	4012.50	903.16	513.94	913.72	9.12	0.56	1.76
4012.50	5168.00	866.81	425.92	607.57	8.76	0.70	2.04
5168.00	6323.50	1428.51	755.97	716.14	14.43	1.06	1.89
6323.50	7479.00	65.49	64.39	152.25	0.66	0.42	1.02
7479.00	8634.50	869.15	555.85	689.55	8.78	0.81	1.56
8634.50	9790.00	53.94	64.42	203.92	0.54	0.32	0.84
9790.00	9899.00						
9899.00	10008.00	607.30	600.38	92.01	6.13	6.58	1.01
10008.00	10117.00	840.93	777.51	107.77	8.49	7.28	1.08
10117.00	11295.00						
11295.00	11415.00	3.88	7.32	43.39	0.04	0.17	0.53
11415.00	11535.00	1182.92	127.00	88.46	11.95	1.46	9.31

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 9.904

INPUT
Description:
Station Elevation Data num= 92

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-2240	1364.5	-1930	1364	-1160	1363	-570	1362	-480	1362
-425	1362.2	-380	1362	-360	1362.6	-260	1366	-240	1366
-220	1364	-205	1363.5	-140	1364	35	1364.5	210	1364
275	1364	510	1362	810	1364	935	1364	1290	1363
1690	1364	1890	1364	1935	1362.2	1970	1364	2360	1363.4
2420	1364	2670	1365.6	2780	1364	2940	1362	2970	1361.4
3030	1362	3110	1363.5	3210	1362.8	3335	1362.9	3410	1364
3450	1364	3750	1362.5	3910	1363.6	4050	1362	4070	1361.9
4105	1362	4205	1364	4340	1366	4465	1364	4600	1362
4635	1361.6	4665	1362	4740	1363.8	4880	1363.6	4915	1363.9
5100	1363	5290	1364	5480	1366	5600	1366.9	5730	1366
5855	1364	5980	1362	6060	1361.1	6170	1362	6435	1363
6540	1364	6870	1364.4	7065	1364	7355	1362.8	7730	1362.7
7995	1362.9	8130	1364	8165	1366	8195	1366.5	8220	1366
8280	1364	8520	1363	8785	1362.6	8960	1364	9095	1363.7
9230	1364	9495	1365	9525	1365.5	9870	1366	9935	1366
9965	1358	10035	1358	10070	1362	10145	1364	10200	1364
10245	1363.3	10275	1364	10315	1366	10330	1366	10335	1360
10350	1360	10380	1365.6						

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-2240	.1	-240	.05	1690	.035	5730	.05	9935	.03
10145	.05	10330	.015						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9935	10145	2840	2412.12	2422.12	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1363.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.57	Wt. n-Val.	0.050	0.030	0.015
W.S. Elev (ft)	1363.28	Reach Len. (ft)	2840.00	2412.12	2422.12
Crit W.S. (ft)		Flow Area (sq ft)	2946.12	566.81	82.38
E.G. Slope (ft/ft)	0.004609	Area (sq ft)	2946.12	566.81	82.38
Q Total (cfs)	9900.00	Flow (cfs)	4762.82	4194.63	942.55
Top Width (ft)	4911.79	Top Width (ft)	4703.84	172.66	35.28
Vel Total (ft/s)	2.75	Avg. Vel. (ft/s)	1.62	7.40	11.44
Max Chl Dpth (ft)	5.28	Hydr. Depth (ft)	0.63	3.28	2.33
Conv. Total (cfs)	145829.7	Conv. (cfs)	70157.6	61788.0	13884.1
Length Wtd. (ft)	2660.48	Wetted Per. (ft)	4704.04	173.60	37.12
Min Ch El (ft)	1358.00	Shear (lb/sq ft)	0.18	0.94	0.64
Alpha	4.87	Stream Power (lb/ft s)	0.29	6.95	7.31
Frctn Loss (ft)	10.00	Cum Volume (acre-ft)	848.97	86.15	2.29
C & E Loss (ft)	0.08	Cum SA (acres)	1187.67	20.01	0.98

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
-2240.00	-1022.50	32.56	83.51	350.49	0.33	0.24	0.39
-1022.50	195.00	659.70	662.96	682.42	6.66	0.97	1.00
195.00	1412.50	293.49	246.86	550.35	2.96	0.45	1.19
1412.50	2630.00	49.37	25.76	47.90	0.50	0.54	1.92
2630.00	3847.50	868.49	428.28	731.84	8.77	0.59	2.03
3847.50	5065.00	919.32	371.93	472.27	9.29	0.79	2.47
5065.00	6282.50	1219.97	512.70	469.87	12.32	1.09	2.38
6282.50	7500.00	218.56	189.43	441.72	2.21	0.43	1.15
7500.00	8717.50	414.96	353.83	805.11	4.19	0.44	1.17
8717.50	9935.00	86.38	70.85	152.08	0.87	0.47	1.22
LB 9935.00	9977.00	766.26	115.52	32.48	7.74	3.63	6.63
9977.00	10019.00	1912.03	221.62	42.00	19.31	5.28	8.63
10019.00	10061.00	1385.79	182.99	42.17	14.00	4.36	7.57
10061.00	10103.00	127.71	43.73	42.07	1.29	1.04	2.92
10103.00	RB 10145.00	2.85	2.95	14.88	0.03	0.20	0.97
10145.00	10309.50						
10309.50	10333.00	0.84	0.32	1.14	0.01	0.44	2.63
10333.00	10356.50	871.22	70.66	24.74	8.80	3.01	12.33
10356.50	10380.00	70.49	11.40	11.24	0.71	1.03	6.18

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 9.447

INPUT
Description:
Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-3505	1354.8	-3325	1356	-3310	1356	-3260	1354	-2875	1354
-2505	1353.8	-2005	1354	-1525	1354	-1325	1354	-895	1354.1
-725	1354	-685	1354.7	-520	1358	-505	1358	-490	1356
30	1354	45	1353.4	65	1354	335	1354.8	865	1354.4
1075	1354	1435	1353	1920	1352.5	2055	1352.4	2595	1354
2735	1354	3375	1353.5	3600	1353	3735	1354	3845	1353.1
3945	1353.3	4230	1353	4685	1353.3	5125	1353	5620	1353
6215	1352	6380	1354	6505	1356	6550	1356	6680	1354
6775	1352	6825	1350.9	6875	1352	6915	1354	6935	1352
6965	1350.1	6985	1352	7045	1354	7125	1354	7315	1353

7555	1354	7645	1356	7775	1356	7985	1354	8225	1352.8
8495	1354	8645	1353	8745	1352	8775	1350	8795	1348
8820	1348	8875	1352	9165	1353.5	9245	1354	9495	1354
9675	1353.6	9875	1354	9885	1356	9915	1357.8	9970	1348
10030	1348	10040	1354	10055	1355.9				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-3505	.1	-505	.05	3600	.035	9165	.05	9915	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9915	10055	1600	1887.23	1897.23	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1353.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.31	Wt. n-Val.	0.037	0.030	
W.S. Elev (ft)	1353.46	Reach Len. (ft)	1600.00	1887.23	1897.23
Crit W.S. (ft)	1353.46	Flow Area (sq ft)	3458.68	436.47	
E.G. Slope (ft/ft)	0.003114	Area (sq ft)	3458.68	436.47	
Q Total (cfs)	9900.00	Flow (cfs)	6715.22	3184.78	
Top Width (ft)	5427.35	Top Width (ft)	5327.58	99.77	
Vel Total (ft/s)	2.54	Avg. Vel. (ft/s)	1.94	7.30	
Max Chl Dpth (ft)	5.46	Hydr. Depth (ft)	0.65	4.37	
Conv. Total (cfs)	177400.0	Conv. (cfs)	120331.4	57068.6	
Length Wtd. (ft)	1712.52	Wetted Per. (ft)	5328.25	101.77	
Min Ch El (ft)	1348.00	Shear (lb/sq ft)	0.13	0.83	
Alpha	3.05	Stream Power (lb/ft s)	0.25	6.08	
Frctn Loss (ft)	5.23	Cum Volume (acre-ft)	640.18	58.37	
C & E Loss (ft)	0.03	Cum SA (acres)	860.66	12.47	

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
-821.00	521.00	0.02	0.12	3.72	0.00	0.03	0.16
521.00	1863.00	360.07	331.63	594.95	3.64	0.56	1.09
1863.00	3205.00	477.71	381.06	551.01	4.83	0.69	1.25
3205.00	4547.00	294.93	300.66	1017.75	2.98	0.30	0.98
4547.00	5889.00	763.70	582.03	1342.00	7.71	0.43	1.31
5889.00	7231.00	2368.10	913.53	758.56	23.92	1.20	2.59
7231.00	8573.00	141.19	139.80	477.39	1.43	0.29	1.01
8573.00	9915.00	2309.55	809.90	582.87	23.33	1.39	2.85
LB 9915.00	9943.00	1.46	1.20	3.72	0.01	0.33	1.22
9943.00	9971.00	487.03	88.04	28.43	4.92	3.14	5.53
9971.00	9999.00	1235.63	152.98	28.00	12.48	5.46	8.08
9999.00	10027.00	1235.63	152.98	28.00	12.48	5.46	8.08
10027.00	RB 10055.00	224.99	41.27	13.62	2.27	3.41	5.45

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 9.090

INPUT
Description:
Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

-3460	1348.5	-3410	1348.2	-3385	1348.8	-3130	1348.5	-2820	1348
-2280	1347.5	-2150	1347.1	-2105	1348	-1975	1347.5	-1815	1347.3
-1775	1348	-1660	1348	-1240	1347	-910	1346	-560	1350.5
-460	1345.5	-230	1346	-30	1346	-15	1344	10	1342
20	1344	60	1346	370	1347.9	950	1348	1100	1348
1450	1347	1970	1347.1	2140	1347.8	2670	1346.8	3375	1348
3575	1348	4350	1347	4670	1347	4780	1347.7	5275	1347.7
5590	1347.7	5750	1347.5	5950	1347.2	6010	1348	6130	1348.3
6240	1348.3	6285	1348	6330	1347.2	6490	1347.1	6610	1346.8
7020	1346.9	7290	1346.9	7510	1346	7610	1345.8	7675	1346
7740	1346.5	7770	1346	7820	1344.7	7950	1346	8105	1348
8200	1348	8440	1346.9	8620	1346	8780	1344	8805	1345.6
8865	1344	9030	1344	9070	1346	9220	1344.6	9465	1346
9680	1347	9860	1348	9910	1350	9935	1350	9980	1338
10020	1338	10030	1348	10080	1349.4				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-3460	.1	-560	.05	2140	.035	9465	.05	9935	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9935	10080	2400	1819.85	1829.85	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1347.11	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.62	Wt. n-Val.	0.037	0.030	
W.S. Elev (ft)	1346.48	Reach Len. (ft)	2400.00	1819.85	1829.85
Crit W.S. (ft)	1346.48	Flow Area (sq ft)	2272.89	510.33	
E.G. Slope (ft/ft)	0.002995	Area (sq ft)	2272.89	510.33	
Q Total (cfs)	9900.00	Flow (cfs)	5328.14	4571.86	
Top Width (ft)	2535.33	Top Width (ft)	2455.03	80.30	
Vel Total (ft/s)	3.56	Avg. Vel. (ft/s)	2.34	8.96	
Max Chl Dpth (ft)	8.48	Hydr. Depth (ft)	0.93	6.36	
Conv. Total (cfs)	180913.8	Conv. (cfs)	97367.0	83546.8	
Length Wtd. (ft)	2200.18	Wetted Per. (ft)	2455.70	84.93	
Min Ch El (ft)	1338.00	Shear (lb/sq ft)	0.17	1.12	
Alpha	3.16	Stream Power (lb/ft s)	0.41	10.06	
Frctn Loss (ft)	7.00	Cum Volume (acre-ft)	534.91	37.86	
C & E Loss (ft)	0.13	Cum SA (acres)	717.73	8.57	

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
-2120.50	-781.00	14.86	47.81	197.47	0.15	0.24	0.31
-781.00	558.50	689.57	498.13	619.18	6.97	0.81	1.38
558.50	7256.00						
7256.00	8595.50	581.58	373.68	665.29	5.87	0.56	1.56
8595.50	9935.00	4042.14	1353.27	973.76	40.83	1.39	2.99
LB 9935.00	9964.00	131.13	33.35	16.37	1.32	2.11	3.93
9964.00	9993.00	1927.34	211.91	29.56	19.47	7.31	9.10
9993.00	10022.00	2423.97	244.04	29.83	24.48	8.42	9.93
10022.00	10051.00	89.41	21.02	9.17	0.90	3.24	4.25

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

CROSS SECTION RIVER: Powerline FRS

REACH: Powerline RS: 8.745

INPUT
Description:
Station Elevation Data num= 69

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-2355	1338.7	-2275	1338	-2255	1334	-2240	1334	-2200	1342
-2175	1342	-2005	1342	-1870	1342	-1835	1340	-1825	1338
-1720	1338	-1420	1337	-1105	1337.7	-1040	1337.5	-785	1337
325	1337.6	375	1338	445	1338	455	1336	480	1336
485	1338	685	1337	1295	1336	1750	1337.4	1815	1338
1865	1338	1895	1337.5	1925	1338	2115	1338	3195	1338
3525	1338	3595	1337.5	3755	1338	3775	1338	3935	1337
4445	1337.5	4495	1338	4755	1338	4825	1337	5535	1337
5550	1338	5575	1340	5695	1340	5825	1338	5885	1337
6255	1336	6855	1336.5	7555	1337	7705	1336	7845	1335.5
8075	1336	8170	1338	8375	1338.9	8495	1338	8725	1336
8755	1336	8995	1337.5	9275	1337.4	9325	1337.7	9455	1337
9485	1336.7	9645	1337.3	9835	1338	9865	1339.7	9870	1338.7
9945	1340	9985	1332	10015	1332	10055	1340		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-2355	.05	-1040	.05	685	.15	6855	.035	9945	.03

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9945	10055	2100	2814.07	2824.07	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1337.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.062	0.030	
W.S. Elev (ft)	1337.60	Reach Len. (ft)	2100.00	2814.07	2824.07
Crit W.S. (ft)		Flow Area (sq ft)	5815.05	324.53	
E.G. Slope (ft/ft)	0.003384	Area (sq ft)	5815.05	324.53	
Q Total (cfs)	9900.00	Flow (cfs)	7652.19	2247.81	
Top Width (ft)	8099.95	Top Width (ft)	8013.98	85.97	
Vel Total (ft/s)	1.61	Avg. Vel. (ft/s)	1.32	6.93	
Max Chl Dpth (ft)	5.60	Hydr. Depth (ft)	0.73	3.78	
Conv. Total (cfs)	170182.2	Conv. (cfs)	131542.1	38640.1	
Length Wtd. (ft)	2262.98	Wetted Per. (ft)	8015.24	87.08	
Min Ch El (ft)	1332.00	Shear (lb/sq ft)	0.15	0.79	
Alpha	4.70	Stream Power (lb/ft s)	0.20	5.45	
Frctn Loss (ft)	7.55	Cum Volume (acre-ft)	312.11	20.42	
C & E Loss (ft)	0.00	Cum SA (acres)	429.32	5.09	

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
-2355.00	-1125.00	283.07	252.27	499.39	2.86	0.51	1.12
-1125.00	105.00	355.08	407.18	1176.51	3.59	0.35	0.87
105.00	1335.00	536.47	828.07	1021.18	5.42	0.81	0.65
1335.00	2565.00	174.54	349.35	447.97	1.76	0.78	0.50
2565.00	3795.00	0.17	2.16	44.59	0.00	0.05	0.08
3795.00	5025.00	107.07	337.76	856.99	1.08	0.39	0.32
5025.00	6255.00	362.37	723.65	924.80	3.66	0.78	0.50
6255.00	7485.00	1848.33	1357.48	1230.00	18.67	1.10	1.36
7485.00	8715.00	3243.99	1083.11	839.53	32.77	1.29	3.00
8715.00	9945.00	741.11	474.04	974.29	7.49	0.49	1.56
LB 9945.00	9967.00	25.41	9.97	10.18	0.26	1.00	2.55
9967.00	9989.00	596.78	90.73	22.36	6.03	4.12	6.58
9989.00	10011.00	1003.42	123.13	22.00	10.14	5.60	8.15
10011.00	10033.00	596.78	90.73	22.36	6.03	4.12	6.58
10033.00	RB 10055.00	25.41	9.97	10.18	0.26	1.00	2.55

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

CROSS SECTION RIVER: Powerline FRS
REACH: Powerline RS: 8.212

INPUT
Description:
Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-2205	1334	-2190	1332	-2185	1330	-2170	1330	-2120	1336
-2090	1338	-1900	1338	-1785	1334	-1440	1332	-1055	1330
-1025	1332	-985	1332	-805	1330	-665	1330	-525	1329
-325	1329.5	-35	1329.5	355	1330	425	1330	1045	1329.5
1205	1330	1745	1330	1850	1329.7	1965	1330	2285	1329
2585	1329.7	2845	1329.5	2975	1330	3415	1330.5	3680	1330
3805	1330	3980	1330.5	4145	1330	4155	1329.6	4705	1329.5
5455	1328.5	5645	1328	5995	1329	6295	1329	6845	1328.5
7265	1328.5	7400	1328	7425	1324	7465	1324	7505	1328
7955	1329.5	8455	1329.5	9065	1330	9270	1329.5	9705	1329.5
9830	1329	9865	1329.7	9895	1328	9910	1326.6	9915	1328
9935	1328	9965	1330	9995	1322.5	10005	1322.5	10045	1332

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
-2205	.05	-985	.035	355	.15	7400	.035	9965	.03

Bank Sta: Left	Right	Coeff Contr.	Expan.
9965	10045	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1330.23	Element			
Vel Head (ft)	0.21	Wt. n-Val.	0.074	0.030	
W.S. Elev (ft)	1330.02	Reach Len. (ft)			
Crit W.S. (ft)	1329.95	Flow Area (sq ft)	7132.86	307.62	
E.G. Slope (ft/ft)	0.003302	Area (sq ft)	7132.86	307.62	
Q Total (cfs)	9900.00	Flow (cfs)	7625.94	2274.06	
Top Width (ft)	9868.48	Top Width (ft)	9796.80	71.68	
Vel Total (ft/s)	1.33	Avg. Vel. (ft/s)	1.07	7.39	
Max Chl Dpth (ft)	7.52	Hydr. Depth (ft)	0.73	4.29	
Conv. Total (cfs)	172293.0	Conv. (cfs)	132716.9	39576.2	
Length Wtd. (ft)		Wetted Per. (ft)	9797.73	73.48	
Min Ch El (ft)	1322.50	Shear (lb/sq ft)	0.15	0.86	
Alpha	7.59	Stream Power (lb/ft s)	0.16	6.38	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
-2205.00	-988.00	0.04	0.42	20.18	0.00	0.02	0.10
-988.00	229.00	545.45	476.82	1036.14	5.51	0.46	1.14
229.00	1446.00	39.69	233.99	1217.00	0.40	0.19	0.17
1446.00	2663.00	100.97	442.57	1217.00	1.02	0.36	0.23
2663.00	3880.00	21.84	121.60	478.68	0.22	0.25	0.18
3880.00	5097.00	180.65	570.59	959.82	1.82	0.59	0.32
5097.00	6314.00	911.55	1657.05	1217.00	9.21	1.36	0.55
6314.00	7531.00	3662.50	2114.26	1217.52	36.99	1.74	1.73
7531.00	8748.00	1417.11	901.77	1217.00	14.31	0.74	1.57
8748.00	9965.00	746.14	613.76	1217.38	7.54	0.50	1.22
LB 9965.00	9981.00	125.58	32.38	16.49	1.27	2.02	3.88
9981.00	9997.00	768.70	95.88	16.43	7.76	5.99	8.02
9997.00	10013.00	1016.15	112.78	16.22	10.26	7.05	9.01
10013.00	10029.00	347.64	59.58	16.45	3.51	3.72	5.83
10029.00	RB 10045.00	15.99	7.00	7.89	0.16	0.91	2.28

Warning: Divided flow computed for this cross-section.

SUMMARY OF MANNING'S N VALUES

River:Powerline FRS

Reach	River Sta.	n1	n2	n3	n4	n5	n6	n7
Powerline	20.000	.022	.022	.022				
Powerline	19.963	.05	.022	.05				
Powerline	19.925	.022	.022	.022				
Powerline	19.905	.022	.022	.022				
Powerline	19.901	.05	.022	.05				
Powerline	19.879	.05	.015	.05				
Powerline	19.806	.05	.015	.05				
Powerline	19.727	.05	.015	.05				
Powerline	19.643	.05	.015	.05				
Powerline	19.544	.05	.015	.05				
Powerline	19.456	.05	.015	.05				
Powerline	19.369	.05	.015	.05				
Powerline	19.278	.05	.015	.05				
Powerline	19.191	.05	.015	.05				
Powerline	19.100	.05	.015	.05				
Powerline	18.999	.05	.015	.05				
Powerline	18.905	.05	.015	.05				
Powerline	18.814	.05	.015	.05				
Powerline	18.729	.05	.015	.05				
Powerline	18.703	.05	.015	.05				
Powerline	18.612	.05	.015	.05				
Powerline	18.520	.05	.015	.05				
Powerline	18.429	.05	.015	.05				
Powerline	18.339	.05	.015	.05				
Powerline	18.245	.05	.015	.05				
Powerline	18.153	.05	.015	.05				
Powerline	18.059	.05	.015	.05				
Powerline	17.964	.05	.015	.05				
Powerline	17.873	.05	.015	.05				
Powerline	17.778	.05	.015	.05				
Powerline	17.684	.05	.015	.05				
Powerline	17.590	.05	.015	.05				
Powerline	17.494	.05	.015	.05				
Powerline	17.405	.05	.015	.05				
Powerline	17.309	.05	.015	.05				
Powerline	17.218	.05	.015	.05				
Powerline	17.134	.05	.015	.05				
Powerline	17.044	.05	.015	.05				
Powerline	16.945	.05	.015	.05				
Powerline	16.849	.05	.015	.05				
Powerline	16.753	.05	.015	.05				
Powerline	16.665	.05	.015	.05				
Powerline	16.575	.05	.015	.05				
Powerline	16.468	.05	.015	.05				
Powerline	16.373	.05	.015	.05				
Powerline	16.275	.05	.015	.05				
Powerline	16.185	.05	.015	.05				
Powerline	16.087	.05	.015	.05				
Powerline	15.995	.05	.015	.05				
Powerline	15.913	.05	.015	.05				
Powerline	15.717	.05	.05	.05				
Powerline	15.529	.05	.05	.05				
Powerline	15.364	.05	.05	.05				
Powerline	15.177	.05	.05	.05				
Powerline	14.988	.05	.05	.05				
Powerline	14.890	.05	.05	.05				
Powerline	14.790	.05	.05	.05				
Powerline	14.691	.05	.05	.05				
Powerline	14.601	.05	.05	.05				
Powerline	14.504	.1	.05	.05	.05			
Powerline	14.410	.1	.022	.05	.05	.05		
Powerline	14.313	.1	.05	.05	.05			
Powerline	14.218	.1	.05	.05				
Powerline	13.940	.1	.05	.05				
Powerline	13.750	.1	.05	.05				
Powerline	13.560	.1	.05	.05				
Powerline	13.355	.1	.05	.05				
Powerline	13.145	.022	.05					
Powerline	13.111	.1	.05	.05				
Powerline	13.054	.1	.05	.05				
Powerline	12.958	.1	.05	.05				
Powerline	12.867	.1	.05	.05				
Powerline	12.770	.1	.05	.05				

Powerline	12.674	.1	.05	.05			
Powerline	12.576	.1	.05	.05			
Powerline	12.481	.1	.05	.05			
Powerline	12.382	.1	.05	.05			
Powerline	12.258	.1	.05	.05			
Powerline	11.028	.1	.05	.035	.05	.03	.05
.015							
Powerline	10.660	.1	.05	.035	.05	.03	.05
.015							
Powerline	10.264	.1	.05	.035	.05	.3	.05
.015							
Powerline	9.904	.1	.05	.035	.05	.03	.05
.015							
Powerline	9.447	.1	.05	.035	.05	.03	
Powerline	9.090	.1	.05	.035	.05	.03	
Powerline	8.745	.05	.05	.15	.035	.03	
Powerline	8.212	.05	.035	.15	.035	.03	

SUMMARY OF REACH LENGTHS

River: Powerline FRS

Reach	River Sta.	Left	Channel	Right
Powerline	20.000	194.05	193.94	194.05
Powerline	19.963	202.72	203.44	202.72
Powerline	19.925	106	105.38	106
Powerline	19.905	23	22.1	23
Powerline	19.901	213.82	249.12	282.84
Powerline	19.879	215.31	249.97	212.05
Powerline	19.806	420.97	416.55	422.34
Powerline	19.727	479.98	444.3	444.2
Powerline	19.643	447.66	524.77	489.6
Powerline	19.544	454.81	461.63	449.09
Powerline	19.456	471.43	458.83	474.45
Powerline	19.369	470.44	483.62	480.37
Powerline	19.278	479.41	456.95	473.4
Powerline	19.191	473.38	480.01	494.92
Powerline	19.100	498.88	532.81	502.11
Powerline	18.999	550.8	497.5	512.71
Powerline	18.905	497.15	483.04	572.01
Powerline	18.814	468.36	449.54	498.59
Powerline	18.729	79.54	137.44	117.14
Powerline	18.703	420.6	479.13	473.13
Powerline	18.612	439.72	484.69	514.43
Powerline	18.520	522.38	479.05	425.04
Powerline	18.429	544.04	475.03	439.46
Powerline	18.339	457.74	497.49	511.08
Powerline	18.245	487.77	484.36	558.91
Powerline	18.153	560.42	500	528.17
Powerline	18.059	463.51	500.02	509.99
Powerline	17.964	490.55	480	439.57
Powerline	17.873	490.49	500	414.21
Powerline	17.778	487.24	500.01	490.5
Powerline	17.684	529.26	495.97	402.35
Powerline	17.590	519.2	503.87	537.11
Powerline	17.494	473.59	472.04	447.11
Powerline	17.405	541.31	508.19	481.14
Powerline	17.309	501.66	476.06	493.7
Powerline	17.218	440	446.85	550
Powerline	17.134	500	476.47	600
Powerline	17.044	500	522.73	550
Powerline	16.945	500	506.37	550
Powerline	16.849	480	507.71	530
Powerline	16.753	500	461.9	500
Powerline	16.665	480	477.33	480
Powerline	16.575	510	563.38	510
Powerline	16.468	500	500.95	490
Powerline	16.373	530	518.74	519
Powerline	16.275	630	472.49	490
Powerline	16.185	675	516.84	450
Powerline	16.087	260	486.13	485
Powerline	15.995	260	436.69	435

Powerline	15.913	280	1031.89	1240
Powerline	15.717	430	996.46	996
Powerline	15.529	490	867.21	867
Powerline	15.364	350	990.02	990
Powerline	15.177	1120	997.61	880
Powerline	14.988	920	519.08	450
Powerline	14.890	730	525.77	520
Powerline	14.790	650	523.64	525
Powerline	14.691	640	474.31	475
Powerline	14.601	590	512.1	490
Powerline	14.504	530	493.52	493.52
Powerline	14.410	475	515.27	515.27
Powerline	14.313	498.87	498.87	500
Powerline	14.218	225	1472.18	1500
Powerline	13.940	200	1001.12	1001.12
Powerline	13.750	215	1003.33	1003.33
Powerline	13.560	400	1080.06	1080.06
Powerline	13.355	760	1112.17	1115
Powerline	13.145	475	178.89	180
Powerline	13.111	325	301.73	270
Powerline	13.054	500	505.01	500
Powerline	12.958	670	479.11	500
Powerline	12.867	590	514.81	500
Powerline	12.770	220	506.56	500
Powerline	12.674	690	518.48	500
Powerline	12.576	490	502.49	500
Powerline	12.481	490	520.37	500
Powerline	12.382	905	657.07	660
Powerline	12.258	1310	6494.89	6504.89
Powerline	11.028	1530	1945.05	1230
Powerline	10.660	1400	2089.32	1050
Powerline	10.264	1450	1900.36	1480
Powerline	9.904	2840	2412.12	2422.12
Powerline	9.447	1600	1887.23	1897.23
Powerline	9.090	2400	1819.85	1829.85
Powerline	8.745	2100	2814.07	2824.07
Powerline	8.212			

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Powerline FRS

Reach	River Sta.	Contr.	Expan.
Powerline	20.000	.3	.5
Powerline	19.963	.3	.5
Powerline	19.925	.3	.5
Powerline	19.905	.3	.5
Powerline	19.901	.3	.5
Powerline	19.879	.3	.5
Powerline	19.806	.3	.5
Powerline	19.727	.3	.5
Powerline	19.643	.3	.5
Powerline	19.544	.3	.5
Powerline	19.456	.3	.5
Powerline	19.369	.3	.5
Powerline	19.278	.3	.5
Powerline	19.191	.3	.5
Powerline	19.100	.3	.5
Powerline	18.999	.3	.5
Powerline	18.905	.3	.5
Powerline	18.814	.3	.5
Powerline	18.729	.3	.5
Powerline	18.703	.3	.5
Powerline	18.612	.3	.5
Powerline	18.520	.1	.3
Powerline	18.429	.1	.3
Powerline	18.339	.1	.3
Powerline	18.245	.1	.3
Powerline	18.153	.1	.3
Powerline	18.059	.1	.3
Powerline	17.964	.1	.3
Powerline	17.873	.1	.3

Powerline	17.778	.1	.3
Powerline	17.684	.1	.3
Powerline	17.590	.1	.3
Powerline	17.494	.1	.3
Powerline	17.405	.1	.3
Powerline	17.309	.1	.3
Powerline	17.218	.1	.3
Powerline	17.134	.1	.3
Powerline	17.044	.1	.3
Powerline	16.945	.1	.3
Powerline	16.849	.1	.3
Powerline	16.753	.1	.3
Powerline	16.665	.1	.3
Powerline	16.575	.1	.3
Powerline	16.468	.1	.3
Powerline	16.373	.1	.3
Powerline	16.275	.1	.3
Powerline	16.185	.1	.3
Powerline	16.087	.1	.3
Powerline	15.995	.1	.3
Powerline	15.913	.1	.3
Powerline	15.717	.1	.3
Powerline	15.529	.1	.3
Powerline	15.364	.1	.3
Powerline	15.177	.1	.3
Powerline	14.988	.1	.3
Powerline	14.890	.1	.3
Powerline	14.790	.1	.3
Powerline	14.691	.1	.3
Powerline	14.601	.1	.3
Powerline	14.504	.1	.3
Powerline	14.410	.1	.3
Powerline	14.313	.1	.3
Powerline	14.218	.1	.3
Powerline	13.940	.1	.3
Powerline	13.750	.1	.3
Powerline	13.560	.1	.3
Powerline	13.355	.1	.3
Powerline	13.145	.1	.3
Powerline	13.111	.1	.3
Powerline	13.054	.1	.3
Powerline	12.958	.1	.3
Powerline	12.867	.1	.3
Powerline	12.770	.1	.3
Powerline	12.674	.1	.3
Powerline	12.576	.1	.3
Powerline	12.481	.1	.3
Powerline	12.382	.1	.3
Powerline	12.258	.1	.3
Powerline	11.028	.1	.3
Powerline	10.660	.1	.3
Powerline	10.264	.1	.3
Powerline	9.904	.1	.3
Powerline	9.447	.1	.3
Powerline	9.090	.1	.3
Powerline	8.745	.1	.3
Powerline	8.212	.1	.3

Profile Output Table - Standard Table 1

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Powerline	20.000	6667.00	1565.65	1567.95		1568.13	0.001531	3.40	1959.74	1341.51	0.50
Powerline	19.963	6667.00	1561.85	1568.01		1568.02	0.000036	1.01	6614.65	1681.35	0.09
Powerline	19.925	6667.00	1565.93	1567.88	1567.23	1567.98	0.000915	2.50	2657.21	12546.81	0.38
Powerline	19.905	6667.00	1566.25	1567.37	1567.37	1567.70	0.007145	4.40	1460.26	9327.57	0.94
Powerline	19.901	6667.00	1565.51	1566.78	1566.78	1567.18	0.007447	5.28	1375.68	4314.42	1.00
Powerline	19.879	6667.00	1556.58	1561.30	1560.62	1561.55	0.006302	3.92	1661.49	5818.88	0.61
Powerline	19.806	6667.00	1555.20	1559.68	1559.30	1559.94	0.007550	3.80	1701.53	5924.21	0.77
Powerline	19.727	6667.00	1552.91	1556.98	1556.67	1557.23	0.005586	5.77	1745.00	4791.64	1.39
Powerline	19.643	6667.00	1550.45	1554.11	1553.87	1554.26	0.006846	4.02	2284.99	5605.86	1.02
Powerline	19.544	6667.00	1547.56	1551.20	1551.20	1551.51	0.005072	12.03	2495.86	5149.50	2.05
Powerline	19.456	6667.00	1544.96	1548.92	1548.92	1549.07	0.004193	6.75	2825.56	6170.94	2.84
Powerline	19.369	6667.00	1542.48	1545.67	1545.27	1545.76	0.003755	3.71	2961.98	5190.12	0.95
Powerline	19.278	6667.00	1539.81	1542.59	1542.57	1542.87	0.010761	10.99	2110.31	4425.19	2.60
Powerline	19.191	6667.00	1536.91	1538.87	1538.31	1539.01	0.006195	9.01	2365.26	3616.36	1.39
Powerline	19.100	6667.00	1533.24	1535.94	1535.56	1536.11	0.005897	10.73	2995.97	4409.15	1.42
Powerline	18.999	6667.00	1529.22	1532.23	1532.23	1532.54	0.008497	13.63	2557.42	3228.25	1.72
Powerline	18.905	6667.00	1525.63	1528.81	1528.55	1528.96	0.003932	9.55	3194.59	3288.69	1.18
Powerline	18.814	6667.00	1521.99	1525.71	1525.71	1526.09	0.007258	13.86	2616.27	3382.83	1.63
Powerline	18.729	6667.00	1518.59	1522.94	1522.94	1523.22	0.004164	11.53	3365.52	4028.58	1.26
Powerline	18.703	6667.00	1520.00	1522.17	1522.17	1522.48	0.007874	12.74	2650.03	3507.68	1.67
Powerline	18.612	6667.00	1514.00	1519.16	1519.16	1519.52	0.003320	11.44	3207.72	3180.21	1.15
Powerline	18.520	6667.00	1510.95	1515.37	1515.37	1515.74	0.004550	12.22	2723.95	3007.13	1.33
Powerline	18.429	6667.00	1508.13	1512.89	1512.89	1513.19	0.003442	11.20	3598.33	4209.98	1.16
Powerline	18.339	6667.00	1505.46	1510.16	1510.16	1510.51	0.004097	12.03	3404.08	4136.77	1.27
Powerline	18.245	6667.00	1502.35	1507.36	1507.36	1507.70	0.003383	11.40	3456.29	3936.95	1.17
Powerline	18.153	6667.00	1499.32	1504.01	1504.01	1504.35	0.003751	11.57	3152.97	3510.77	1.22
Powerline	18.059	6667.00	1496.48	1500.69	1500.69	1501.05	0.004761	12.25	2881.73	3159.34	1.35
Powerline	17.964	6667.00	1493.27	1497.49	1497.49	1497.86	0.004862	12.39	2808.41	3169.60	1.37
Powerline	17.873	6667.00	1490.63	1494.18	1494.18	1494.61	0.007257	13.84	2126.06	2573.82	1.63
Powerline	17.778	6667.00	1487.44	1491.47	1491.47	1491.81	0.005511	12.67	3086.95	4713.03	1.44
Powerline	17.684	6667.00	1484.90	1488.19	1488.19	1488.51	0.007806	13.25	2508.65	3541.51	1.67
Powerline	17.590	6667.00	1481.95	1485.22	1485.12	1485.41	0.005560	11.15	3097.41	3776.11	1.40
Powerline	17.494	6667.00	1478.10	1481.53	1481.49	1481.91	0.008048	13.73	2332.42	2356.19	1.70
Powerline	17.405	6667.00	1474.60	1478.59	1478.59	1478.95	0.005295	12.53	2763.29	2858.24	1.42
Powerline	17.309	6667.00	1470.98	1475.39	1475.39	1475.75	0.004323	11.89	2973.36	3263.65	1.30
Powerline	17.218	6667.00	1467.93	1472.16	1472.16	1472.53	0.004738	12.24	2768.19	3045.66	1.35
Powerline	17.134	6667.00	1463.60	1469.34	1469.34	1469.67	0.003779	10.97	3158.51	3144.82	1.21
Powerline	17.044	6667.00	1460.00	1466.44	1466.44	1466.91	0.001755	10.20	3399.27	3355.64	0.89
Powerline	16.945	6667.00	1457.50	1463.15	1463.15	1463.79	0.002658	12.00	2896.80	2543.57	1.10
Powerline	16.849	6667.00	1454.80	1459.39	1459.04	1459.60	0.004798	9.86	2611.52	2372.22	1.29
Powerline	16.753	6667.00	1451.80	1456.65	1456.65	1456.94	0.005470	11.96	2905.11	3416.07	1.41
Powerline	16.665	6667.00	1449.20	1453.44	1453.44	1453.86	0.002778	11.30	3272.33	3260.04	1.11
Powerline	16.575	6667.00	1446.00	1450.87	1450.87	1451.19	0.003804	11.79	3255.90	4194.96	1.23
Powerline	16.468	6667.00	1443.00	1448.20	1448.20	1448.55	0.006945	13.25	2366.42	3360.02	1.53
Powerline	16.373	6667.00	1439.80	1445.28	1445.28	1445.80	0.002829	10.79	2868.20	4657.54	1.10
Powerline	16.275	6667.00	1436.90	1442.13	1442.13	1442.77	0.003803	14.65	2392.81	1761.83	1.31
Powerline	16.185	6667.00	1434.00	1439.04	1439.04	1439.53	0.002700	11.52	2888.59	2919.72	1.09
Powerline	16.087	6667.00	1429.40	1435.67	1435.67	1436.13	0.001589	10.94	3522.74	2534.30	0.88
Powerline	15.995	6667.00	1428.50	1433.21	1433.21	1434.03	0.004915	14.68	2261.01	2200.69	1.44

Powerline	15.913	6667.00	1427.00	1431.62	1431.41	1431.88	0.005503	8.34	2541.42	2376.58	1.33
Powerline	15.717	6667.00	1421.90	1429.40		1429.54	0.003106	3.67	2685.98	1884.91	0.36
Powerline	15.529	6667.00	1417.80	1428.02	1424.69	1428.12	0.001070	2.84	3186.87	1651.91	0.22
Powerline	15.364	6667.00	1419.60	1427.34	1425.56	1427.40	0.000864	2.34	3661.68	2683.50	0.20
Powerline	15.177	6667.00	1419.00	1426.65	1423.77	1426.73	0.000855	2.44	3137.77	1977.29	0.20
Powerline	14.988	6667.00	1419.30	1425.17	1423.31	1425.34	0.002543	3.52	2184.65	982.75	0.33
Powerline	14.890	6667.00	1418.10	1423.08	1422.51	1423.18	0.003810	3.77	2766.30	1952.91	0.39
Powerline	14.790	9900.00	1416.70	1420.12	1419.21	1420.25	0.004689	3.34	3516.20	2194.99	0.41
Powerline	14.691	9900.00	1411.40	1416.75	1416.39	1416.85	0.006394	4.06	4083.19	4589.24	0.48
Powerline	14.601	9900.00	1410.20	1413.62	1412.97	1413.68	0.004145	2.27	4866.20	4607.69	0.35
Powerline	14.504	9900.00	1410.00	1410.86	1410.30	1410.94	0.005153	1.31	4481.73	5334.91	0.33
Powerline	14.410	9900.00	1406.40	1409.04		1409.09	0.002513	1.82	5794.17	4810.67	0.28
Powerline	14.313	9900.00	1403.70	1406.66	1406.41	1406.78	0.012021	3.79	3616.93	4743.02	0.60
Powerline	14.218	9900.00	1402.40	1405.21	1404.14	1405.24	0.001357	1.50	6946.11	4698.13	0.21
Powerline	13.940	9712.00	1400.70	1404.95	1403.07	1404.97	0.000482	1.47	9325.21	4867.77	0.14
Powerline	13.750	9302.00	1400.90	1404.83	1402.55	1404.84	0.000345	1.24	9387.06	3983.01	0.12
Powerline	13.560	9302.00	1400.80	1404.72	1402.17	1404.74	0.000284	1.10	8832.32	2963.05	0.11
Powerline	13.355	9302.00	1398.00	1404.59	1401.26	1404.61	0.000239	1.33	8737.86	2959.15	0.11
Powerline	13.145	9302.00	1397.50	1403.48	1402.28	1403.98	0.005352	6.04	1687.98	531.67	0.49
Powerline	13.111	9302.00	1396.00	1402.76	1400.65	1403.03	0.002344	4.61	3024.95	2991.90	0.34
Powerline	13.054	9302.00	1395.50	1402.08	1400.10	1402.27	0.002392	4.51	3633.50	3416.52	0.34
Powerline	12.958	9302.00	1394.30	1400.77	1399.38	1400.98	0.002783	4.77	3942.35	4167.78	0.36
Powerline	12.867	9302.00	1393.40	1399.46	1397.86	1399.56	0.002044	3.76	5296.08	4341.10	0.31
Powerline	12.770	9302.00	1392.30	1397.15	1396.86	1397.50	0.008348	6.40	3427.48	4252.38	0.59
Powerline	12.674	9302.00	1390.70	1395.84	1394.65	1395.93	0.002707	3.83	5498.45	4231.64	0.34
Powerline	12.576	9302.00	1389.00	1394.04	1393.14	1394.15	0.002948	4.05	5713.17	3442.05	0.36
Powerline	12.481	9302.00	1387.35	1392.64	1391.33	1392.74	0.002780	4.10	5998.16	3356.21	0.35
Powerline	12.382	9302.00	1386.27	1390.97	1390.03	1391.09	0.003948	4.57	5711.99	3472.78	0.41
Powerline	12.258	9302.00	1384.80	1388.62		1388.66	0.002159	2.68	7309.97	3533.91	0.29
Powerline	11.028	9900.00	1370.70	1379.09	1376.28	1379.76	0.001567	6.82	1892.76	693.05	0.47
Powerline	10.660	9900.00	1366.00	1375.29	1375.00	1375.66	0.003160	5.84	4017.90	5978.09	0.59
Powerline	10.264	9900.00	1361.00	1369.95		1370.14	0.003430	1.05	5265.63	5251.64	0.07
Powerline	9.904	9900.00	1358.00	1363.28		1363.85	0.004609	7.40	3595.30	4911.79	0.72
Powerline	9.447	9900.00	1348.00	1353.46	1353.46	1353.77	0.003114	7.30	3895.16	5427.35	0.61
Powerline	9.090	9900.00	1338.00	1346.48	1346.48	1347.11	0.002995	8.96	2783.22	2535.33	0.63
Powerline	8.745	9900.00	1332.00	1337.60		1337.79	0.003384	6.93	6139.59	8099.95	0.63
Powerline	8.212	9900.00	1322.50	1330.02	1329.95	1330.23	0.003302	7.39	7440.48	9868.48	0.63

Profile Output Table - Standard Table 2

Reach	River Sta	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
Powerline	20.000	1568.13	1567.95	0.18	0.02	0.08		6667.00		1341.51
Powerline	19.963	1568.02	1568.01	0.02	0.02	0.02		6667.00		1681.35
Powerline	19.925	1567.98	1567.88	0.10	0.21	0.07	376.58	5953.31	337.12	12546.81
Powerline	19.905	1567.70	1567.37	0.33	0.16	0.02	730.05	5245.65	691.30	9327.57
Powerline	19.901	1567.18	1566.78	0.41	1.65	0.08	420.56	6182.01	64.43	4314.42
Powerline	19.879	1561.55	1561.30	0.25	1.60	0.00	2417.08	4249.92		5818.88
Powerline	19.806	1559.94	1559.68	0.26	2.71	0.00	3909.07	2520.49	237.44	5924.21
Powerline	19.727	1557.23	1556.98	0.25	2.92	0.05	5736.94	925.94	4.12	4791.64
Powerline	19.643	1554.26	1554.11	0.15	2.70	0.05	5031.97	997.46	637.56	5605.86
Powerline	19.544	1551.51	1551.20	0.32			5523.51	660.36	483.13	5149.50

Powerline	19.456	1549.07	1548.92	0.15			5033.99	686.02	946.99	6170.94
Powerline	19.369	1545.76	1545.67	0.09	2.84	0.05	5722.67	478.45	465.88	5190.12
Powerline	19.278	1542.87	1542.59	0.28	3.78	0.06	5700.63	498.02	468.34	4425.19
Powerline	19.191	1539.01	1538.87	0.15	2.91	0.00	4368.38	174.34	2124.27	3616.36
Powerline	19.100	1536.11	1535.94	0.16	3.53	0.04	4020.50	348.80	2297.70	4409.15
Powerline	18.999	1532.54	1532.23	0.30	2.96	0.08	3674.48	498.40	2494.12	3228.25
Powerline	18.905	1528.96	1528.81	0.14	2.79	0.07	2938.27	407.68	3321.04	3288.69
Powerline	18.814	1526.09	1525.71	0.38			2280.19	684.61	3702.20	3382.83
Powerline	18.729	1523.22	1522.94	0.28	0.61	0.01	2238.17	770.45	3658.37	4028.58
Powerline	18.703	1522.48	1522.17	0.31			1265.91	594.76	4806.33	3507.68
Powerline	18.612	1519.52	1519.16	0.35	1.95	0.00	1005.68	1008.69	4652.64	3180.21
Powerline	18.520	1515.74	1515.37	0.37	1.74	0.02	14.94	865.06	5787.00	3007.13
Powerline	18.429	1513.19	1512.89	0.29	1.75	0.01	1430.64	867.96	4368.40	4209.98
Powerline	18.339	1510.51	1510.16	0.35	1.85	0.00	1630.23	909.79	4126.98	4136.77
Powerline	18.245	1507.70	1507.36	0.34	1.90	0.00	1281.76	1008.00	4377.24	3936.95
Powerline	18.153	1504.35	1504.01	0.34			1293.72	941.12	4432.16	3510.77
Powerline	18.059	1501.05	1500.69	0.36			818.95	836.40	5011.65	3159.34
Powerline	17.964	1497.86	1497.49	0.37			1225.74	856.20	4585.06	3169.60
Powerline	17.873	1494.61	1494.18	0.43	2.78	0.03	724.33	712.62	5230.05	2573.82
Powerline	17.778	1491.81	1491.47	0.33			1970.97	750.22	3945.81	4713.03
Powerline	17.684	1488.51	1488.19	0.32			1487.81	564.93	4614.26	3541.51
Powerline	17.590	1485.41	1485.22	0.20	3.49	0.02	3501.83	473.90	2691.27	3776.11
Powerline	17.494	1481.91	1481.53	0.38	2.94	0.00	3152.08	630.15	2884.77	2356.19
Powerline	17.405	1478.95	1478.59	0.36	2.39	0.00	2202.87	815.79	3648.34	2858.24
Powerline	17.309	1475.75	1475.39	0.36			1467.77	917.95	4281.28	3263.65
Powerline	17.218	1472.53	1472.16	0.37	2.08	0.01	2096.45	859.38	3711.18	3045.66
Powerline	17.134	1469.67	1469.34	0.33	1.35	0.01	2899.70	1015.45	2751.85	3144.82
Powerline	17.044	1466.91	1466.44	0.47	1.15	0.02	1055.07	1820.25	3791.68	3355.64
Powerline	16.945	1463.79	1463.15	0.64	1.88	0.13	606.08	1782.54	4278.38	2543.57
Powerline	16.849	1459.60	1459.39	0.22	2.65	0.01	831.10	573.85	5262.05	2372.22
Powerline	16.753	1456.94	1456.65	0.29	1.87	0.01	557.01	682.40	5427.59	3416.07
Powerline	16.665	1453.86	1453.44	0.42	1.55	0.03	433.23	1282.81	4950.96	3260.04
Powerline	16.575	1451.19	1450.87	0.32			802.46	847.16	5017.38	4194.96
Powerline	16.468	1448.55	1448.20	0.35	2.08	0.02	800.87	606.49	5259.64	3360.02
Powerline	16.373	1445.80	1445.28	0.52	1.70	0.01	1444.59	1780.55	3441.86	4657.54
Powerline	16.275	1442.77	1442.13	0.64	1.63	0.05	1603.82	1142.54	3920.64	1761.83
Powerline	16.185	1439.53	1439.04	0.49	1.14	0.01	972.37	1397.36	4297.26	2919.72
Powerline	16.087	1436.13	1435.67	0.46	0.82	0.03	4742.74	1565.57	358.69	2534.30
Powerline	15.995	1434.03	1433.21	0.81	1.53	0.17	5178.32	1475.48	13.20	2200.69
Powerline	15.913	1431.88	1431.62	0.25	2.31	0.03	5514.23	1152.77		2376.58
Powerline	15.717	1429.54	1429.40	0.14	1.40	0.01	2722.10	3932.27	12.64	1884.91
Powerline	15.529	1428.12	1428.02	0.10	0.71	0.01	1344.52	5028.97	293.51	1651.91
Powerline	15.364	1427.40	1427.34	0.06	0.67	0.00	3088.69	3138.78	439.53	2683.50
Powerline	15.177	1426.73	1426.65	0.08	1.38	0.01	1313.06	4902.47	451.47	1977.29
Powerline	14.988	1425.34	1425.17	0.17	2.14	0.02	614.88	5526.86	525.26	982.75
Powerline	14.890	1423.18	1423.08	0.11	2.93	0.00	5276.19	1379.82	11.00	1952.91
Powerline	14.790	1420.25	1420.12	0.13	3.39	0.01	7312.88	2587.12		2194.99
Powerline	14.691	1416.85	1416.75	0.11	3.16	0.01	8379.81	1520.19		4589.24
Powerline	14.601	1413.68	1413.62	0.06	2.74	0.00	9409.57	490.43		4607.69
Powerline	14.504	1410.94	1410.86	0.08	1.84	0.01	9843.96	56.04		5334.91
Powerline	14.410	1409.09	1409.04	0.05	2.30	0.01	9570.23	329.77		4810.67
Powerline	14.313	1406.78	1406.66	0.12	1.52	0.03	9364.28	535.72		4743.02
Powerline	14.218	1405.24	1405.21	0.03	0.26	0.00	9562.72	337.28		4698.13
Powerline	13.940	1404.97	1404.95	0.02	0.13	0.00	8146.28	1565.72		4867.77

Powerline	13.750	1404.84	1404.83	0.02	0.11	0.00	8108.00	1135.30	58.71	3983.01
Powerline	13.560	1404.74	1404.72	0.02	0.13	0.00	7527.63	1753.10	21.27	2963.05
Powerline	13.355	1404.61	1404.59	0.02	0.58	0.05	8455.39	791.94	54.68	2959.15
Powerline	13.145	1403.98	1403.48	0.49	0.88	0.07	2944.37	6357.63		531.67
Powerline	13.111	1403.03	1402.76	0.26	0.73	0.02	2130.90	7130.48	40.62	2991.90
Powerline	13.054	1402.27	1402.08	0.19	1.30	0.00	4099.94	5180.65	21.41	3416.52
Powerline	12.958	1400.98	1400.77	0.20	1.38	0.03	4382.25	4872.37	47.38	4167.78
Powerline	12.867	1399.56	1399.46	0.10	2.04	0.02	5797.14	3497.12	7.74	4341.10
Powerline	12.770	1397.50	1397.15	0.35	1.49	0.08	4561.19	4740.51	0.31	4252.38
Powerline	12.674	1395.93	1395.84	0.09	1.78	0.00	6291.70	3009.26	1.04	4231.64
Powerline	12.576	1394.15	1394.04	0.10	1.41	0.00	6030.01	3266.27	5.73	3442.05
Powerline	12.481	1392.74	1392.64	0.10	1.64	0.00	6186.89	3088.11	27.01	3356.21
Powerline	12.382	1391.09	1390.97	0.12	2.41	0.03	6236.48	2983.55	81.96	3472.78
Powerline	12.258	1388.66	1388.62	0.04			7762.79	1539.21		3533.91
Powerline	11.028	1379.76	1379.09	0.67	4.01	0.09	684.46	9160.66	54.87	693.05
Powerline	10.660	1375.66	1375.29	0.37	5.46	0.05	3033.43	6712.96	153.61	5978.09
Powerline	10.264	1370.14	1369.95	0.19	6.25	0.04	7264.97	1448.23	1186.80	5251.64
Powerline	9.904	1363.85	1363.28	0.57	10.00	0.08	4762.82	4194.63	942.55	4911.79
Powerline	9.447	1353.77	1353.46	0.31	5.23	0.03	6715.22	3184.78		5427.35
Powerline	9.090	1347.11	1346.48	0.62	7.00	0.13	5328.14	4571.86		2535.33
Powerline	8.745	1337.79	1337.60	0.19	7.55	0.00	7652.19	2247.81		8099.95
Powerline	8.212	1330.23	1330.02	0.21			7625.94	2274.06		9868.48

Profile Output Table - Hydratable

Reach	River Sta	Q Total (cfs)	W.S. Elev (ft)	Trvl Tme Chl (hrs)	Trvl Tme Avg (hrs)	Vel Chnl (ft/s)	Vel Total (ft/s)	Max Chl Dpth (ft)	Hydr Depth (ft)
Powerline	20.000	6667.00	1567.95	3.94	6.93	3.40	3.40	2.30	1.46
Powerline	19.963	6667.00	1568.01	3.92	6.90	1.01	1.01	6.16	3.93
Powerline	19.925	6667.00	1567.88	3.89	6.87	2.50	2.51	3.38	1.36
Powerline	19.905	6667.00	1567.37	3.88	6.86	4.40	4.57	1.67	0.71
Powerline	19.901	6667.00	1566.78	3.88	6.86	5.28	4.85	1.76	0.82
Powerline	19.879	6667.00	1561.30	3.86	6.85	3.92	4.01	4.72	1.54
Powerline	19.806	6667.00	1559.68	3.84	6.83	3.80	3.92	4.48	1.09
Powerline	19.727	6667.00	1556.98	3.82	6.80	5.77	3.82	9.05	1.33
Powerline	19.643	6667.00	1554.11	3.79	6.76	4.02	2.92	3.66	0.91
Powerline	19.544	6667.00	1551.20	3.77	6.71	12.03	2.67	3.64	1.07
Powerline	19.456	6667.00	1548.92	3.76	6.66	6.75	2.36	5.03	0.80
Powerline	19.369	6667.00	1545.67	3.74	6.61	3.71	2.25	4.27	0.96
Powerline	19.278	6667.00	1542.59	3.72	6.56	10.99	3.16	4.76	0.73
Powerline	19.191	6667.00	1538.87	3.71	6.51	9.01	2.82	3.78	1.05
Powerline	19.100	6667.00	1535.94	3.69	6.46	10.73	2.23	3.44	0.89
Powerline	18.999	6667.00	1532.23	3.68	6.40	13.63	2.61	3.01	0.80
Powerline	18.905	6667.00	1528.81	3.67	6.34	9.55	2.09	3.18	1.00
Powerline	18.814	6667.00	1525.71	3.66	6.28	13.86	2.55	3.72	0.82
Powerline	18.729	6667.00	1522.94	3.65	6.22	11.53	1.98	4.35	0.84
Powerline	18.703	6667.00	1522.17	3.64	6.21	12.74	2.52	2.60	0.76
Powerline	18.612	6667.00	1519.16	3.63	6.15	11.44	2.08	5.16	1.01
Powerline	18.520	6667.00	1515.37	3.62	6.09	12.22	2.45	4.42	1.11
Powerline	18.429	6667.00	1512.89	3.61	6.03	11.20	1.85	4.76	0.85
Powerline	18.339	6667.00	1510.16	3.60	5.96	12.03	1.96	4.70	0.82
Powerline	18.245	6667.00	1507.36	3.59	5.89	11.40	1.93	5.01	0.88

Powerline	18.153	6667.00	1504.01	3.58	5.82	11.57	2.11	4.69	0.90
Powerline	18.059	6667.00	1500.69	3.56	5.76	12.25	2.31	4.21	0.91
Powerline	17.964	6667.00	1497.49	3.55	5.70	12.39	2.37	4.22	0.89
Powerline	17.873	6667.00	1494.18	3.54	5.65	13.84	3.14	3.65	0.83
Powerline	17.778	6667.00	1491.47	3.53	5.60	12.67	2.16	4.03	0.78
Powerline	17.684	6667.00	1488.19	3.52	5.54	13.25	2.66	4.35	0.71
Powerline	17.590	6667.00	1485.22	3.51	5.49	11.15	2.15	4.19	0.82
Powerline	17.494	6667.00	1481.53	3.50	5.43	13.73	2.86	3.82	0.99
Powerline	17.405	6667.00	1478.59	3.49	5.38	12.53	2.41	3.99	0.97
Powerline	17.309	6667.00	1475.39	3.48	5.32	11.89	2.24	4.41	0.91
Powerline	17.218	6667.00	1472.16	3.47	5.26	12.24	2.41	4.23	0.91
Powerline	17.134	6667.00	1469.34	3.46	5.20	10.97	2.11	5.74	1.00
Powerline	17.044	6667.00	1466.44	3.44	5.13	10.20	1.96	6.44	1.01
Powerline	16.945	6667.00	1463.15	3.43	5.06	12.00	2.30	5.65	1.14
Powerline	16.849	6667.00	1459.39	3.42	5.00	9.86	2.55	4.58	1.10
Powerline	16.753	6667.00	1456.65	3.40	4.94	11.96	2.29	4.85	0.90
Powerline	16.665	6667.00	1453.44	3.39	4.87	11.30	2.04	4.24	1.11
Powerline	16.575	6667.00	1450.87	3.38	4.81	11.79	2.05	4.87	0.97
Powerline	16.468	6667.00	1448.20	3.37	4.74	13.25	2.82	5.20	0.91
Powerline	16.373	6667.00	1445.28	3.36	4.69	10.79	2.32	5.48	1.21
Powerline	16.275	6667.00	1442.13	3.35	4.63	14.65	2.79	5.22	1.41
Powerline	16.185	6667.00	1439.04	3.34	4.58	11.52	2.31	5.04	1.10
Powerline	16.087	6667.00	1435.67	3.32	4.50	10.94	1.89	6.27	1.40
Powerline	15.995	6667.00	1433.21	3.31	4.47	14.68	2.95	4.71	1.03
Powerline	15.913	6667.00	1431.62	3.30	4.44	8.34	2.62	4.62	1.07
Powerline	15.717	6667.00	1429.40	3.25	4.38	3.67	2.48	7.50	1.42
Powerline	15.529	6667.00	1428.02	3.17	4.28	2.84	2.09	10.22	2.00
Powerline	15.364	6667.00	1427.34	3.08	4.17	2.34	1.82	7.74	2.78
Powerline	15.177	6667.00	1426.65	2.96	4.06	2.44	2.12	7.65	3.51
Powerline	14.988	6667.00	1425.17	2.87	3.95	3.52	3.05	5.87	2.30
Powerline	14.890	6667.00	1423.08	2.83	3.88	3.77	2.41	4.98	1.42
Powerline	14.790	9900.00	1420.12	2.79	3.81	3.34	2.82	3.42	1.60
Powerline	14.691	9900.00	1416.75	2.75	3.74	4.06	2.42	5.35	0.89
Powerline	14.601	9900.00	1413.62	2.71	3.67	2.27	2.03	3.42	1.06
Powerline	14.504	9900.00	1410.86	2.63	3.59	1.31	2.21	2.86	0.98
Powerline	14.410	9900.00	1409.04	2.54	3.51	1.82	1.71	2.74	1.20
Powerline	14.313	9900.00	1406.66	2.49	3.46	3.79	2.74	2.96	0.76
Powerline	14.218	9900.00	1405.21	2.44	3.39	1.50	1.43	2.91	1.48
Powerline	13.940	9712.00	1404.95	2.16	3.31	1.47	1.04	4.25	1.92
Powerline	13.750	9302.00	1404.83	1.96	3.22	1.24	0.99	3.93	2.36
Powerline	13.560	9302.00	1404.72	1.72	3.13	1.10	1.05	4.02	2.98
Powerline	13.355	9302.00	1404.59	1.47	3.00	1.33	1.06	6.59	3.17
Powerline	13.145	9302.00	1403.48	1.39	2.93	6.04	5.51	5.98	3.17
Powerline	13.111	9302.00	1402.76	1.38	2.91	4.61	3.08	6.76	3.85
Powerline	13.054	9302.00	1402.08	1.36	2.88	4.51	2.56	6.58	3.87
Powerline	12.958	9302.00	1400.77	1.33	2.82	4.77	2.36	6.47	3.06
Powerline	12.867	9302.00	1399.46	1.30	2.74	3.76	1.76	6.06	2.99
Powerline	12.770	9302.00	1397.15	1.27	2.67	6.40	2.71	4.85	1.61
Powerline	12.674	9302.00	1395.84	1.24	2.63	3.83	1.69	5.14	2.41
Powerline	12.576	9302.00	1394.04	1.21	2.53	4.05	1.63	5.04	2.03
Powerline	12.481	9302.00	1392.64	1.17	2.44	4.10	1.55	5.29	1.90
Powerline	12.382	9302.00	1390.97	1.14	2.35	4.57	1.63	4.70	1.64
Powerline	12.258	9302.00	1388.62	1.09	2.19	2.68	1.27	3.82	2.07
Powerline	11.028	9900.00	1379.09	0.71	1.63	6.82	5.23	8.39	2.73

Powerline	10.660	9900.00	1375.29	0.62	1.50	5.84	2.46	9.29	0.67
Powerline	10.264	9900.00	1369.95	0.45	1.29	1.05	1.88	8.95	1.00
Powerline	9.904	9900.00	1363.28	0.33	1.10	7.40	2.75	5.28	0.73
Powerline	9.447	9900.00	1353.46	0.24	0.82	7.30	2.54	5.46	0.72
Powerline	9.090	9900.00	1346.48	0.17	0.66	8.96	3.56	8.48	1.10
Powerline	8.745	9900.00	1337.60	0.11	0.43	6.93	1.61	5.60	0.76
Powerline	8.212	9900.00	1330.02	0.00	0.00	7.39	1.33	7.52	0.75

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : FCD 98-33

River: Powerline FRS Reach: Powerline RS: 20.000 Profile: PF 1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.963 Profile: PF 1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.925 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.905 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Powerline FRS Reach: Powerline RS: 19.901 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Powerline FRS Reach: Powerline RS: 19.879 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.806 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.727 Profile: PF 1

Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.643 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.544 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.456 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.369 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.278 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.191 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 19.100 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 18.999 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: Powerline FRS Reach: Powerline RS: 18.905 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 18.814 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth

for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 18.729 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning:Divided flow computed for this cross-section.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: Powerline FRS Reach: Powerline RS: 18.703 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 18.612 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: Powerline FRS Reach: Powerline RS: 18.520 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: Powerline FRS Reach: Powerline RS: 18.429 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: Powerline FRS Reach: Powerline RS: 18.339 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The

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            program defaulted to critical depth.
River: Powerline FRS  Reach: Powerline     RS: 18.245     Profile: PF 1
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
            for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
            water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
            program defaulted to critical depth.
River: Powerline FRS  Reach: Powerline     RS: 18.153     Profile: PF 1
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
            for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 18.059     Profile: PF 1
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
            for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 17.964     Profile: PF 1
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
            for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 17.873     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 17.778     Profile: PF 1
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
            for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 17.684     Profile: PF 1
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
            for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 17.590     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 17.494     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 17.405     Profile: PF 1
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program selected the water
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surface that had the least amount of error between computed and assumed values.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: Powerline FRS Reach: Powerline RS: 17.309 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 17.218 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: Powerline FRS Reach: Powerline RS: 17.134 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: Powerline FRS Reach: Powerline RS: 17.044 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: Powerline FRS Reach: Powerline RS: 16.945 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: Powerline FRS Reach: Powerline RS: 16.849 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate

the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 16.753 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Powerline FRS Reach: Powerline RS: 16.665 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Powerline FRS Reach: Powerline RS: 16.575 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Powerline FRS Reach: Powerline RS: 16.468 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Powerline FRS Reach: Powerline RS: 16.373 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Powerline FRS Reach: Powerline RS: 16.275 Profile: PF 1

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

River: Powerline FRS Reach: Powerline RS: 16.185 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: Powerline FRS Reach: Powerline RS: 16.087 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

River: Powerline FRS Reach: Powerline RS: 15.995 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

River: Powerline FRS Reach: Powerline RS: 15.913 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: Powerline FRS Reach: Powerline RS: 15.717 Profile: PF 1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

River: Powerline FRS Reach: Powerline RS: 15.529 Profile: PF 1

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    Warning:Divided flow computed for this cross-section.
River: Powerline FRS  Reach: Powerline     RS: 15.177     Profile: PF 1
    Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
            This may indicate the need for additional cross sections.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.988     Profile: PF 1
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.890     Profile: PF 1
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.790     Profile: PF 1
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.691     Profile: PF 1
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.601     Profile: PF 1
    Warning:Divided flow computed for this cross-section.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.504     Profile: PF 1
    Warning:Divided flow computed for this cross-section.
    Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
            This may indicate the need for additional cross sections.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.410     Profile: PF 1
    Warning:Divided flow computed for this cross-section.
    Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
            This may indicate the need for additional cross sections.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.313     Profile: PF 1
    Warning:Divided flow computed for this cross-section.
    Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
            This may indicate the need for additional cross sections.
    Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 14.218     Profile: PF 1
    Warning:Divided flow computed for this cross-section.
    Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
            This may indicate the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 13.940     Profile: PF 1
    Warning:Divided flow computed for this cross-section.
    Warning:The cross-section end points had to be extended vertically for the computed water surface.
River: Powerline FRS  Reach: Powerline     RS: 13.750     Profile: PF 1
    Warning:Divided flow computed for this cross-section.
River: Powerline FRS  Reach: Powerline     RS: 13.355     Profile: PF 1
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     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 13.145     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 13.054     Profile: PF 1
     Warning:The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.958     Profile: PF 1
     Warning:The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.867     Profile: PF 1
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.770     Profile: PF 1
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.674     Profile: PF 1
     Warning:The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.576     Profile: PF 1
     Warning:The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.481     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.382     Profile: PF 1
     Warning:The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 12.258     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section.  This may indicate
             the need for additional cross sections.
     Note:   The user has entered a known water surface elevation at this cross section.
River: Powerline FRS  Reach: Powerline     RS: 11.028     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 10.660     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 10.264     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m), between the current and previous cross section.  This may indicate
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            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 9.904     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 9.447     Profile: PF 1
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
            for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
            water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
            program defaulted to critical depth.
River: Powerline FRS  Reach: Powerline     RS: 9.090     Profile: PF 1
     Warning:The energy equation could not be balanced within the specified number of iterations.  The program used critical depth
            for the water surface and continued on with the calculations.
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
     Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
            water surface came back below critical depth.  This indicates that there is not a valid subcritical answer.  The
            program defaulted to critical depth.
River: Powerline FRS  Reach: Powerline     RS: 8.745     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
            the need for additional cross sections.
River: Powerline FRS  Reach: Powerline     RS: 8.212     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
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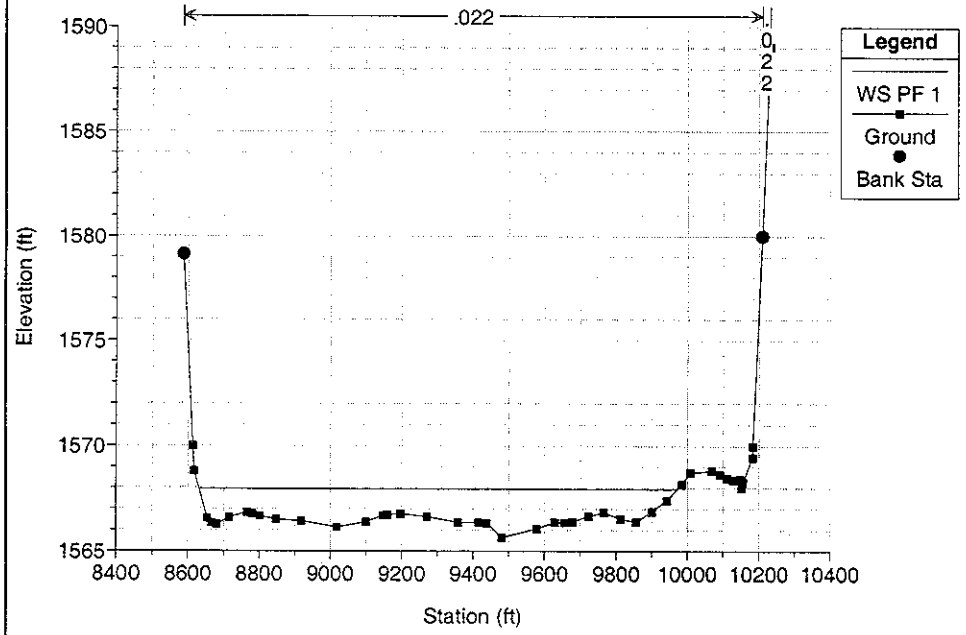
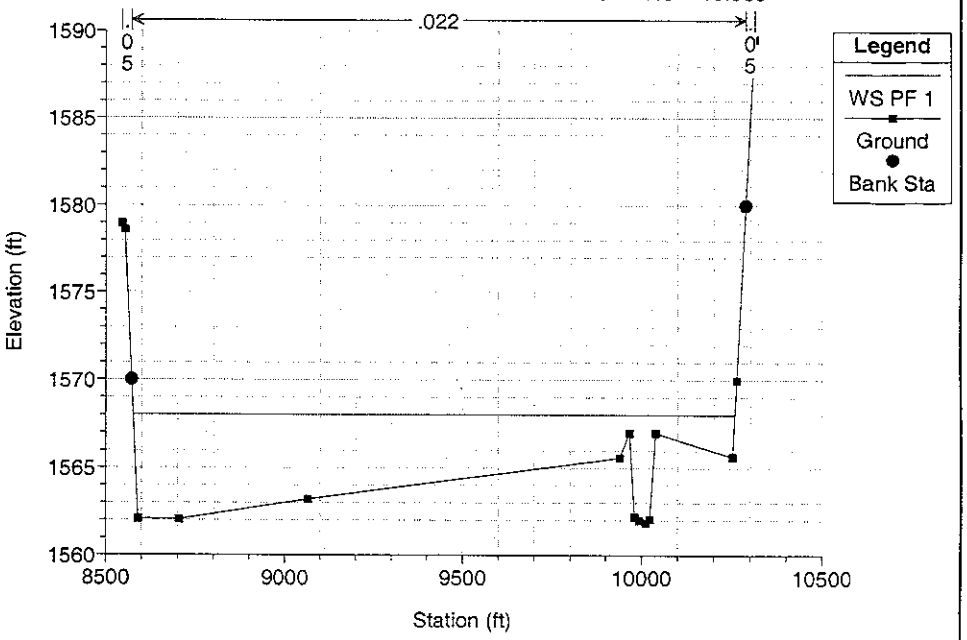
East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM

River = Powerline FRS Reach = Powerline Upstream embankment of the Powerline FRS RS = 20.000



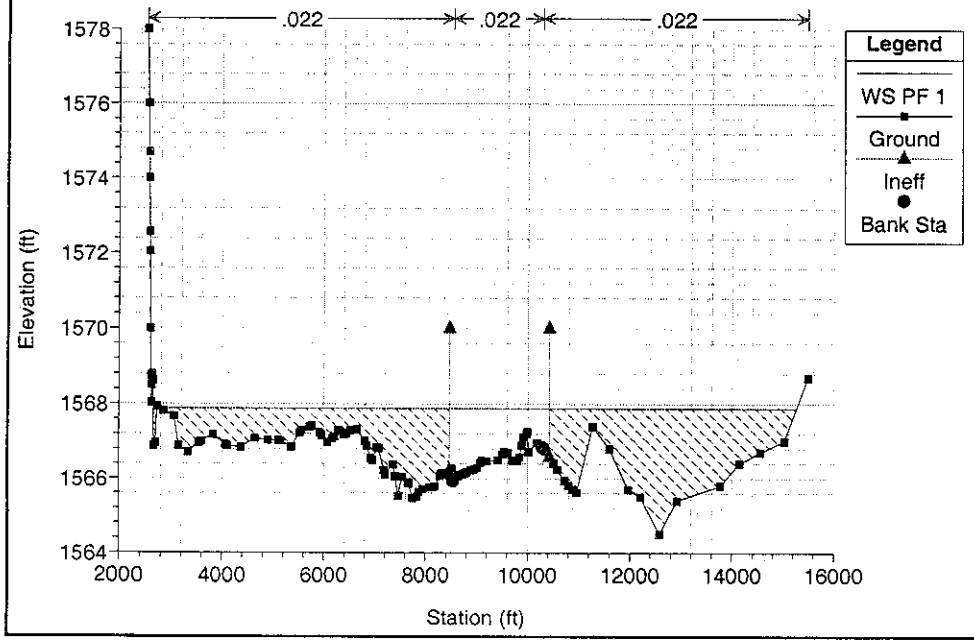
East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM

River = Powerline FRS Reach = Powerline RS = 19.963



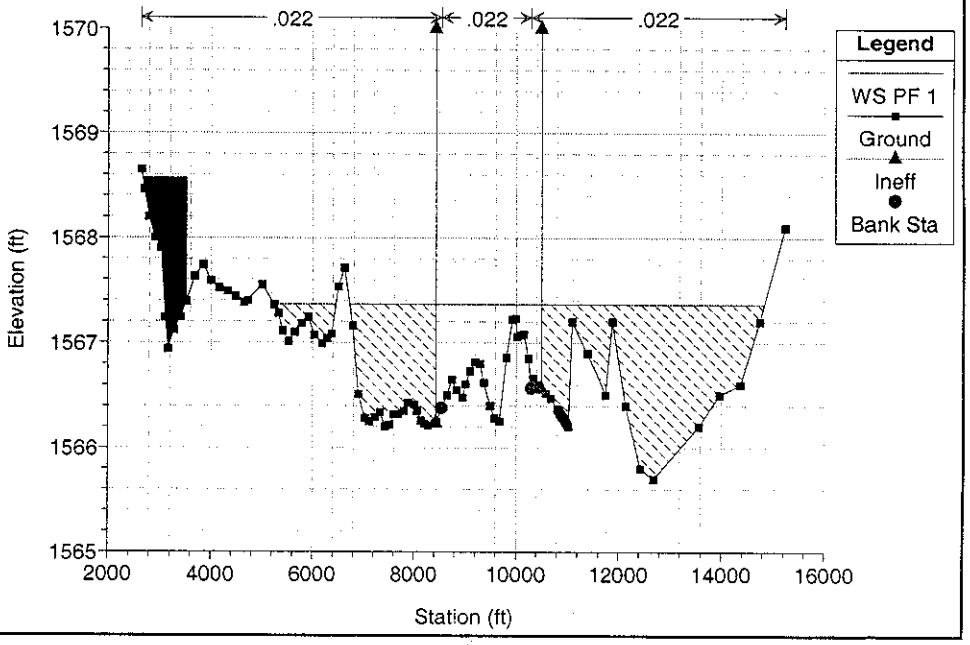
East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM

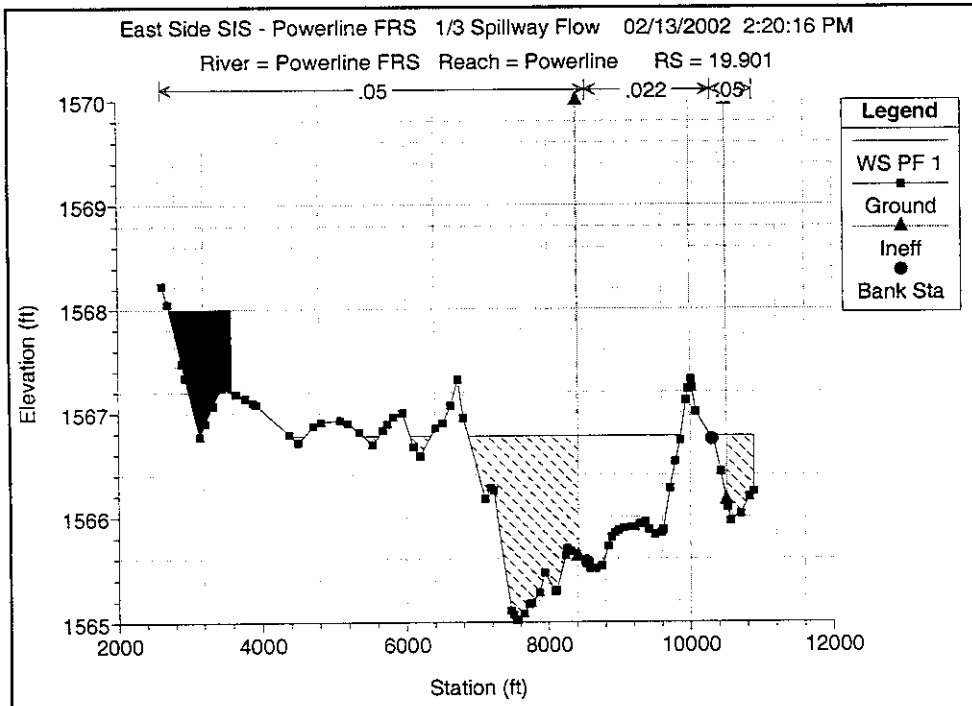
River = Powerline FRS Reach = Powerline Top of Bank, East Embankment of the CAP RS = 19.925

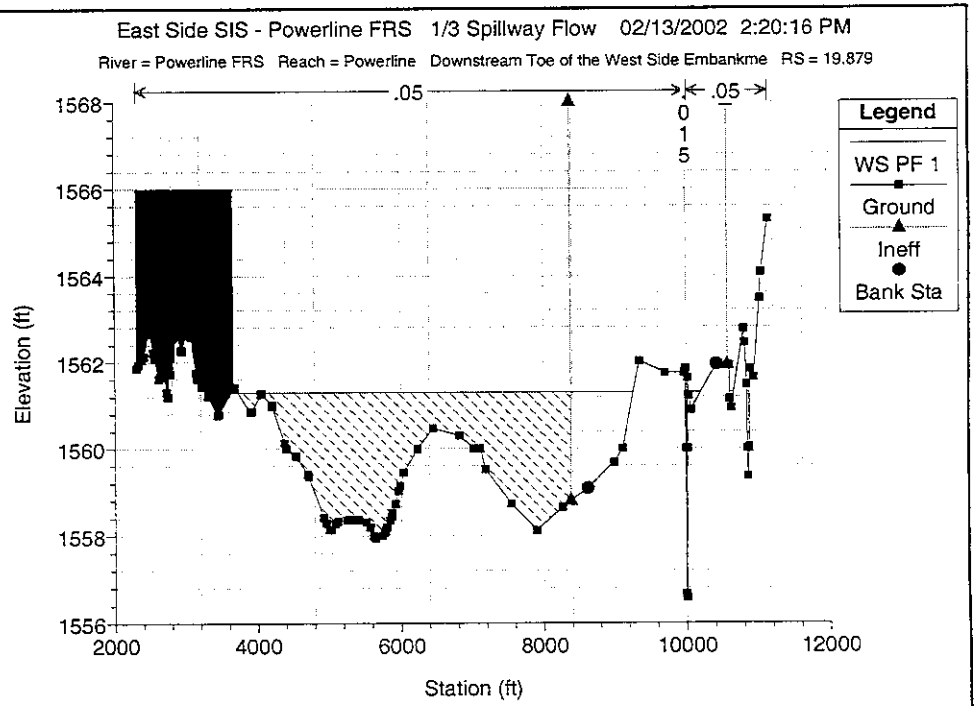


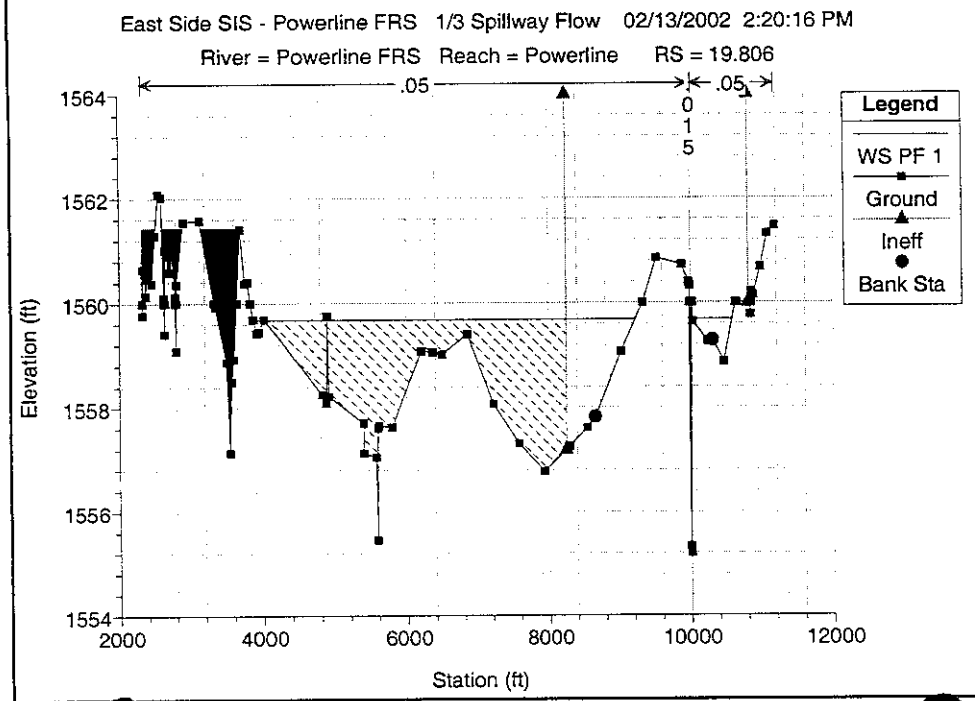
East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM

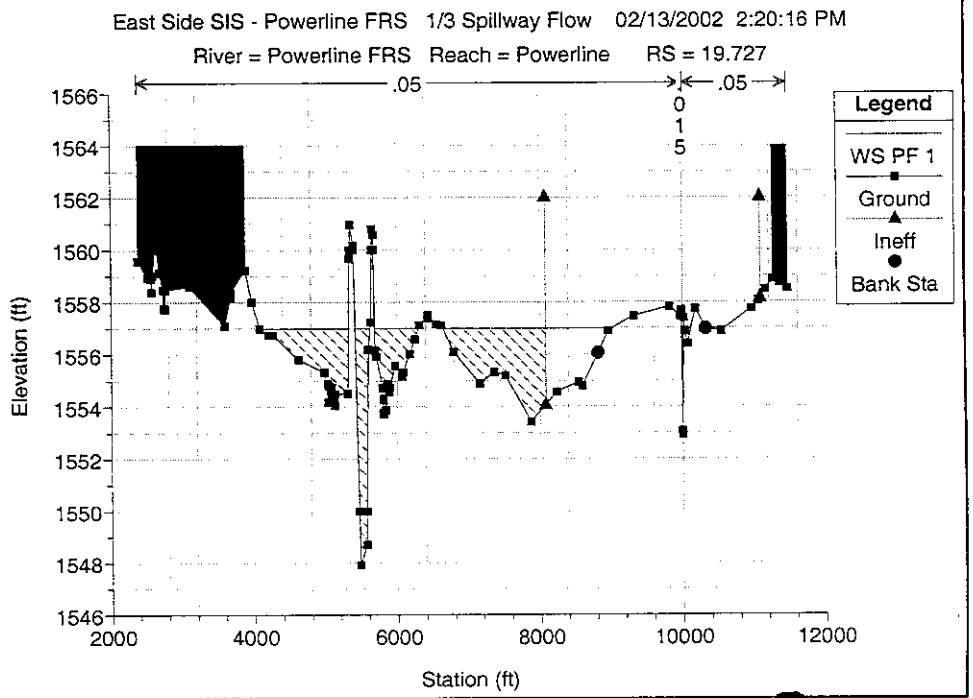
River = Powerline FRS Reach = Powerline Top of Bank, West Embankment of the CAP RS = 19.905

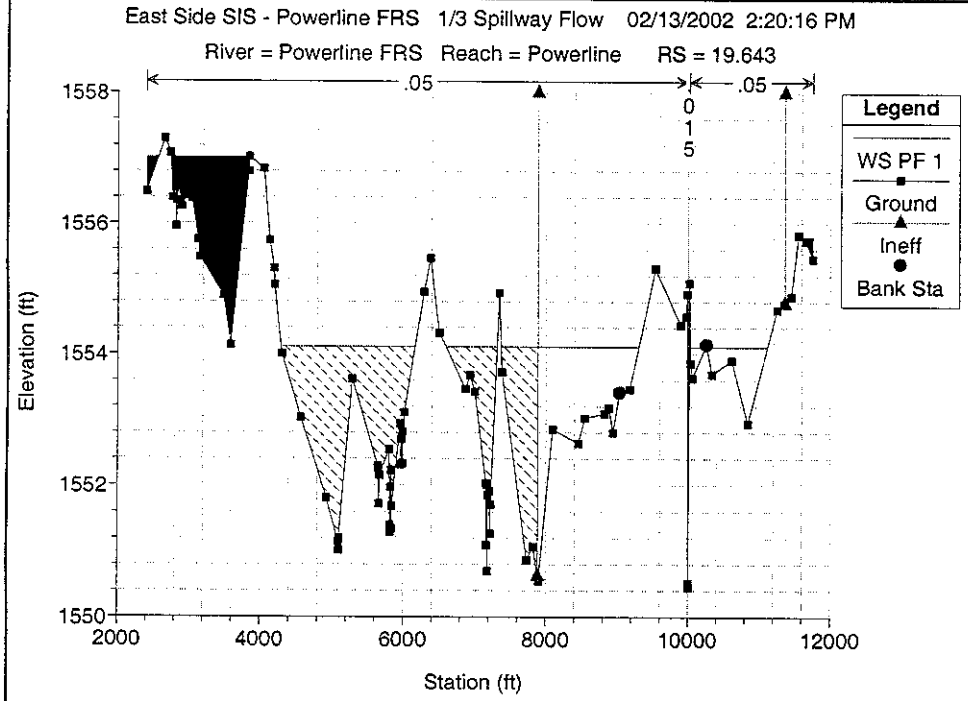


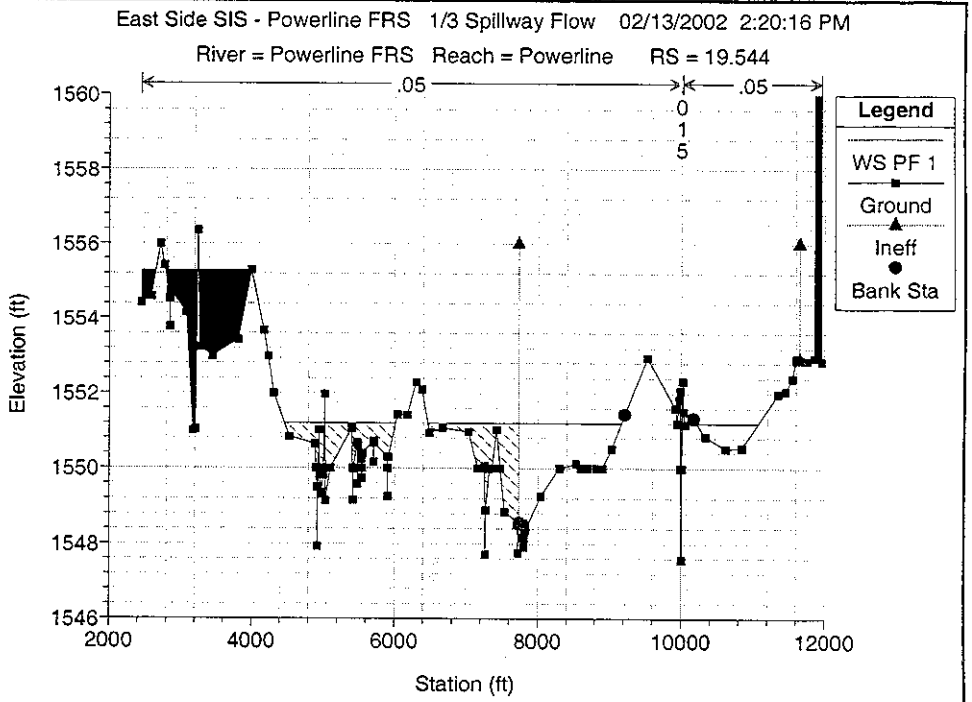

East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 19.901
.05
.022
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline Downstream Toe of the West Side Embankme RS = 19.879
.05
.05
0
1
5
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 19.806
.05
.05
0
1
5
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 19.727
.05
.05
0
1
5
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 19.643
.05
.05
0
1
5
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 19.544
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Legend
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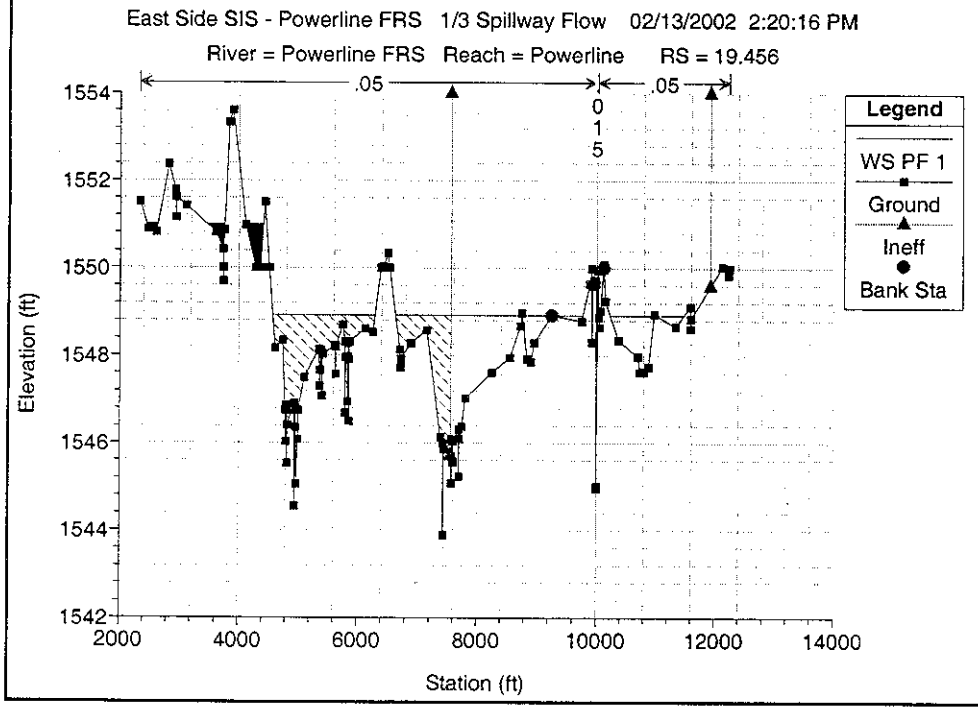
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 19.456
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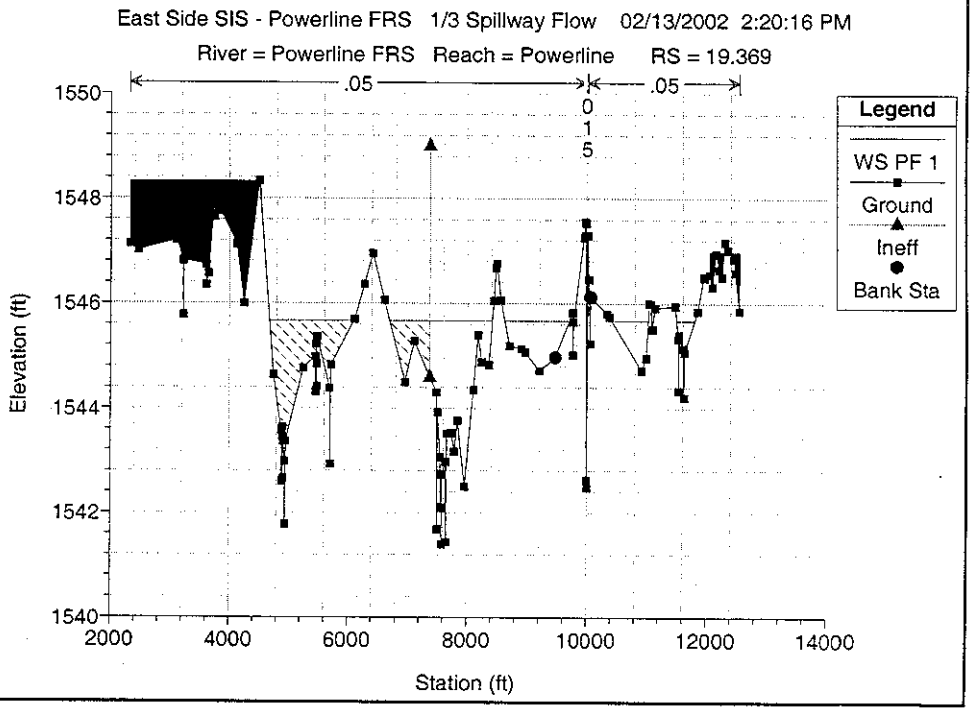
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 19.369
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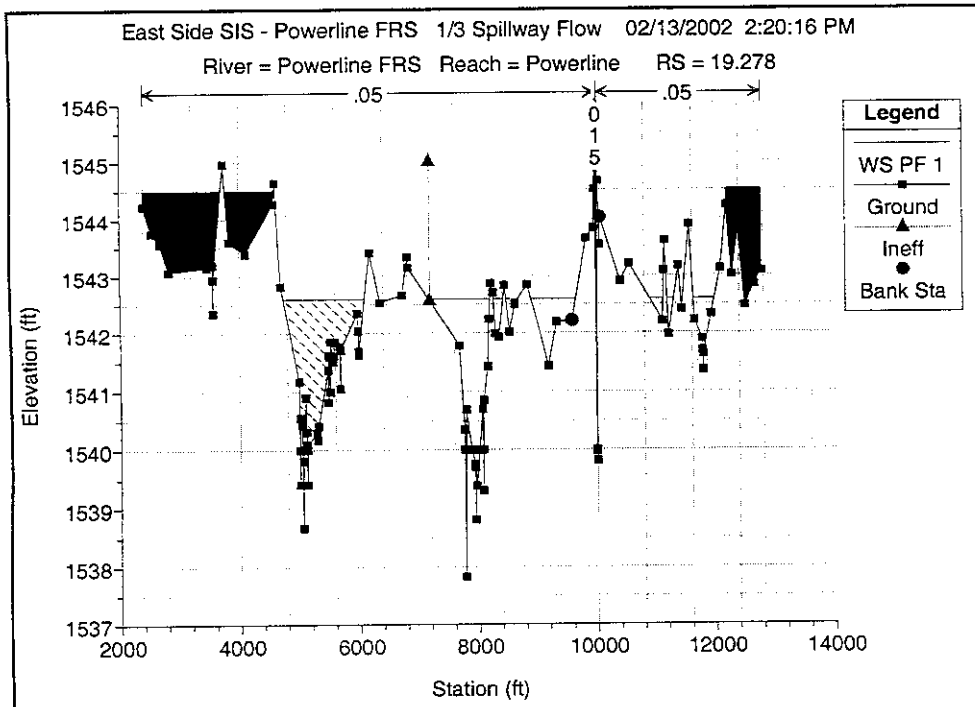
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 19.278
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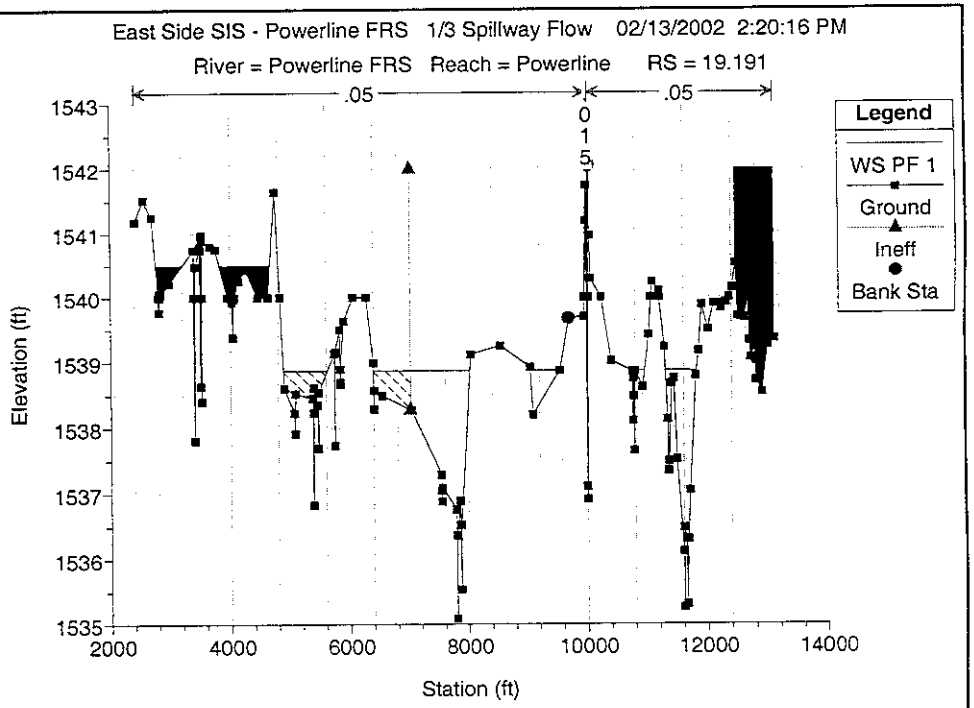
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 19.191
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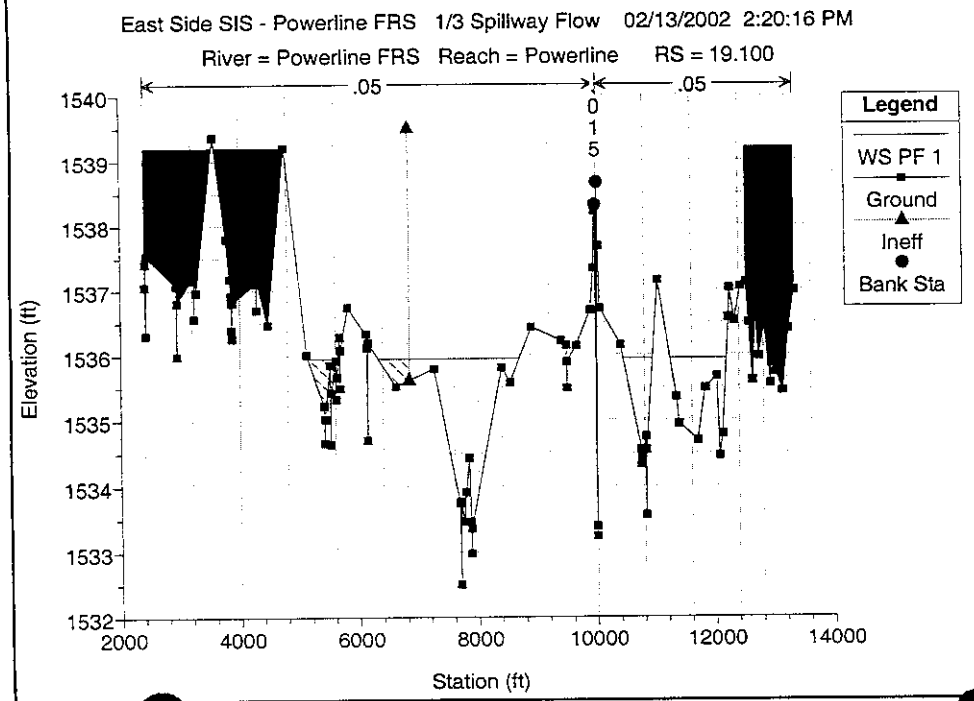
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 19.100
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Legend
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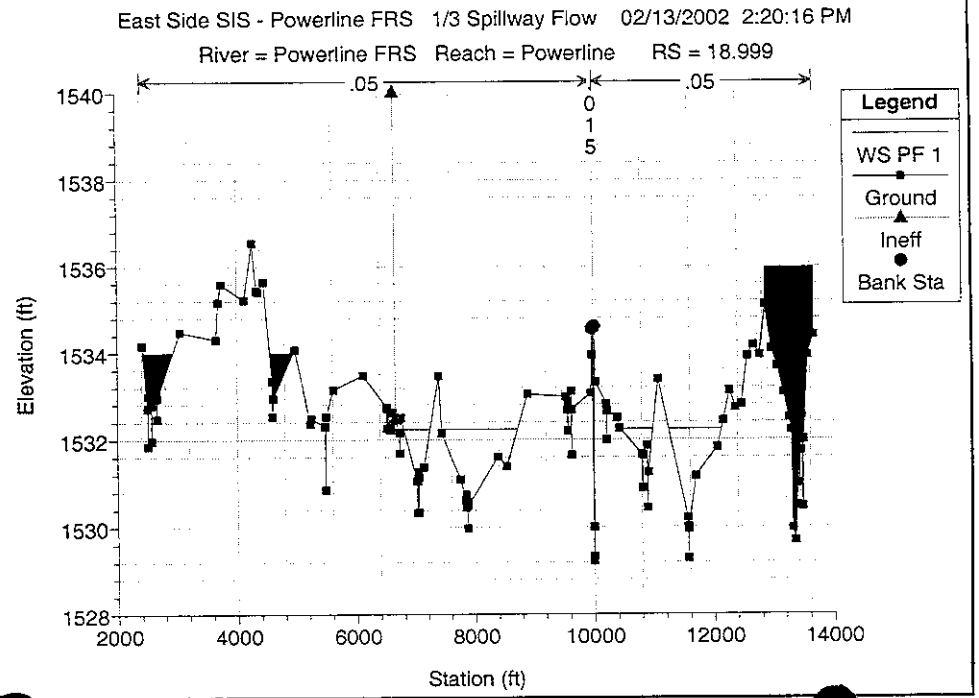
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 18.999
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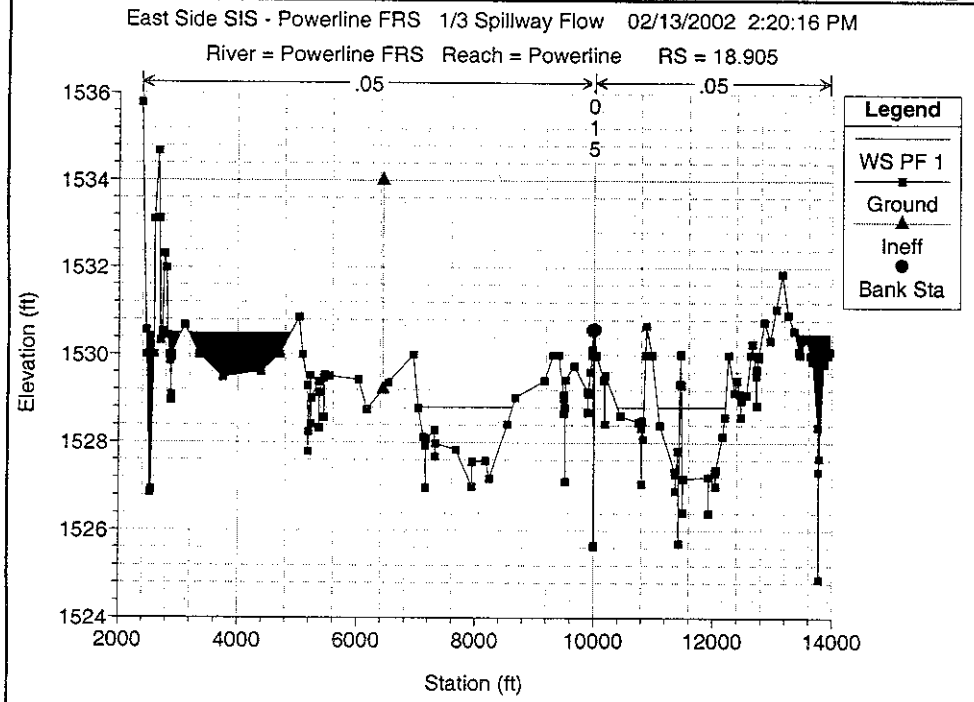
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 18.905
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.05
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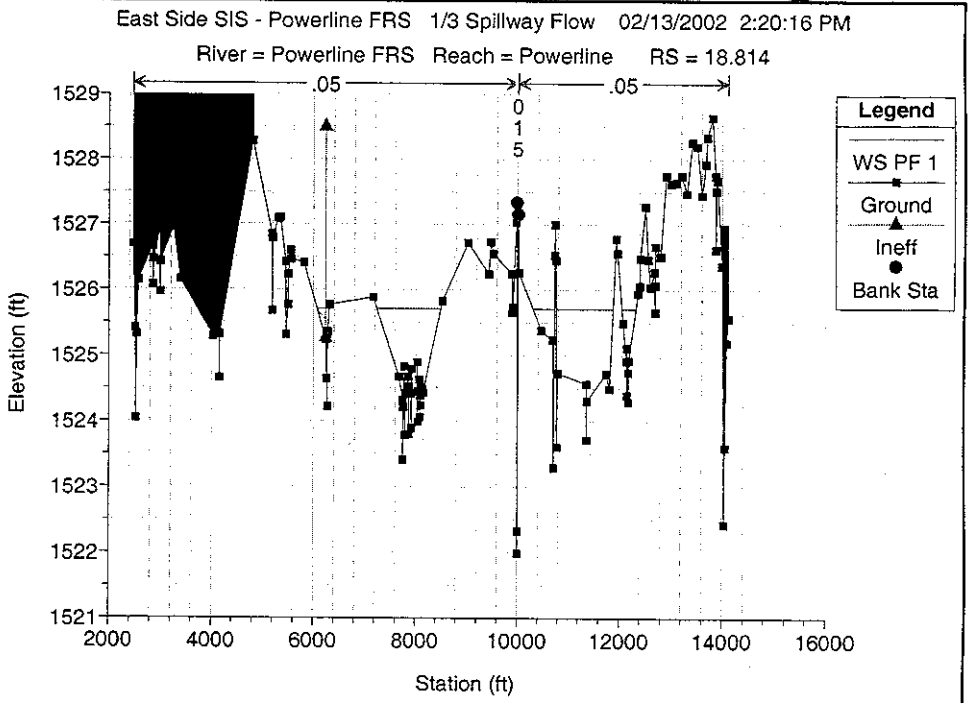
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 18.814
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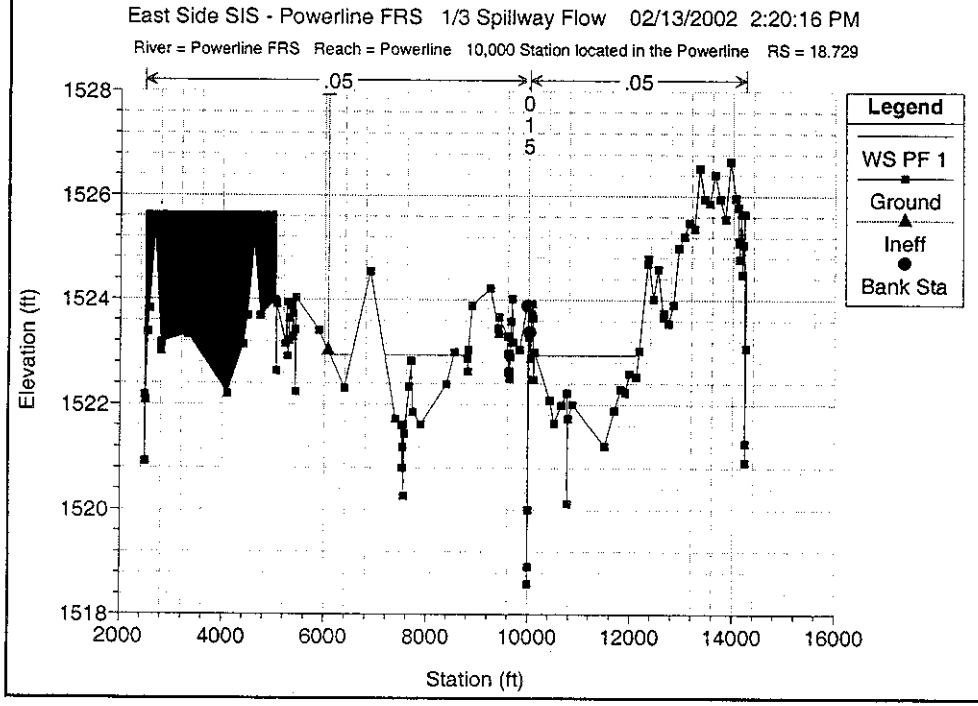
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in the Powerline RS = 18.729
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.05
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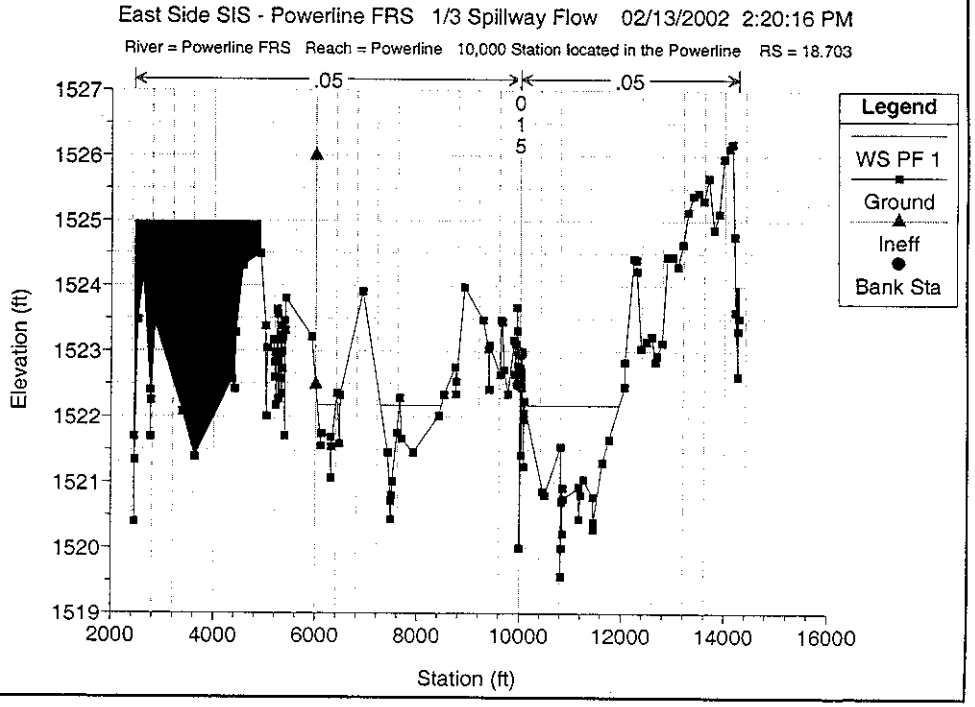
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in the Powerline RS = 18.703
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.05
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1
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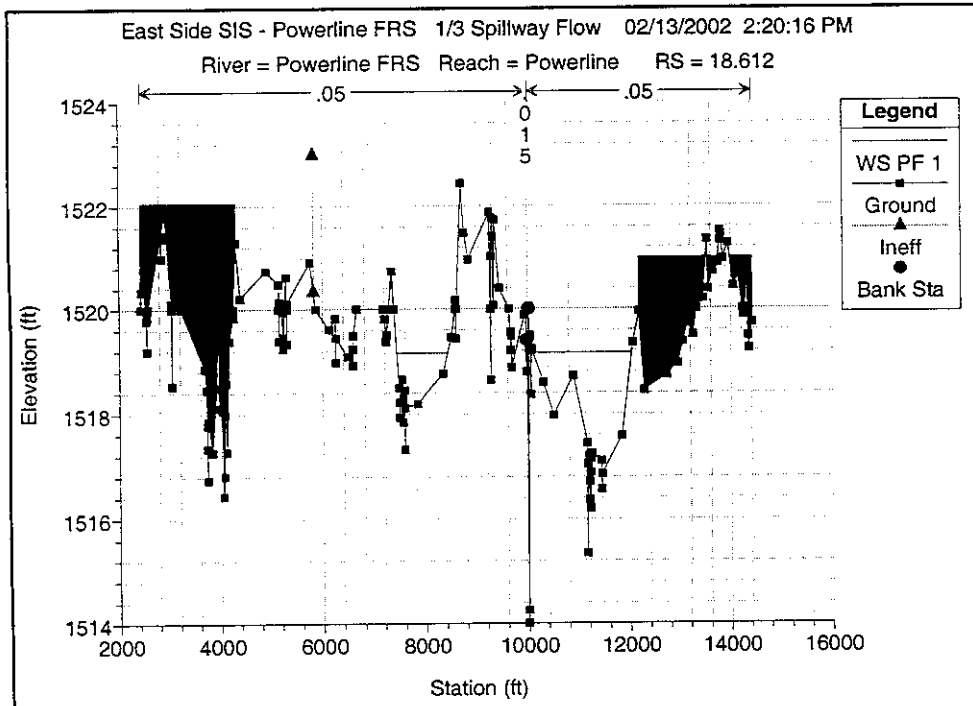
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 18.612
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.05
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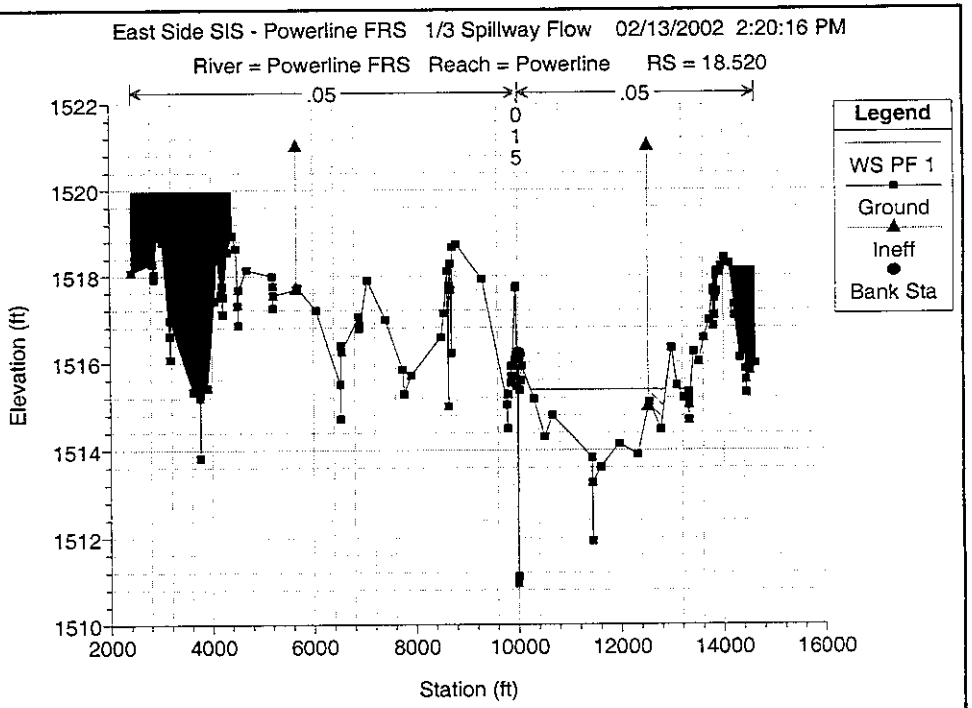
1
5
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 18.520
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.05
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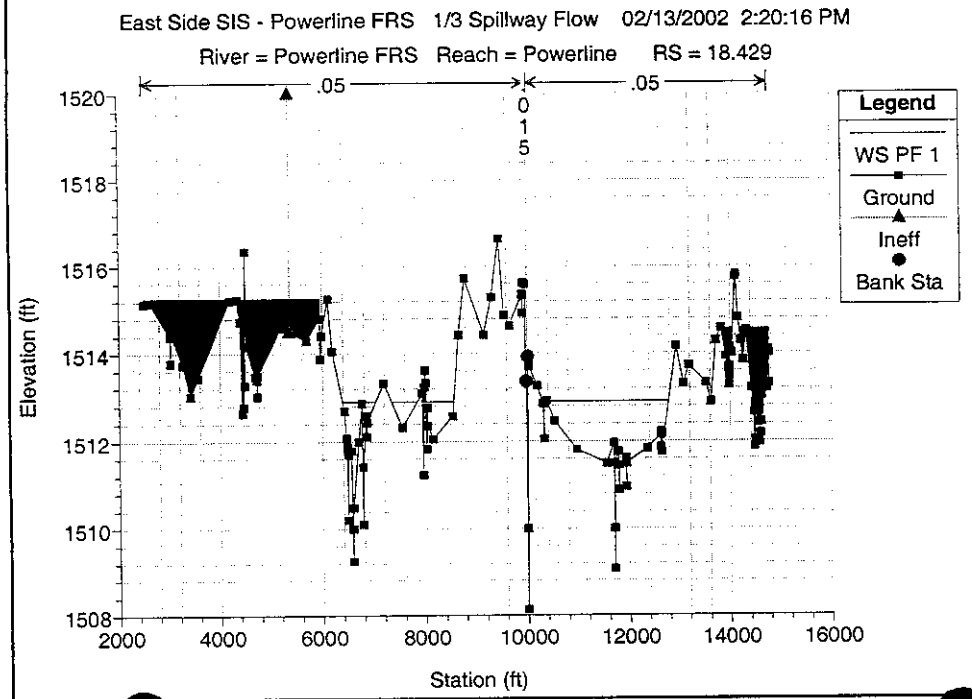
5
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 18.429
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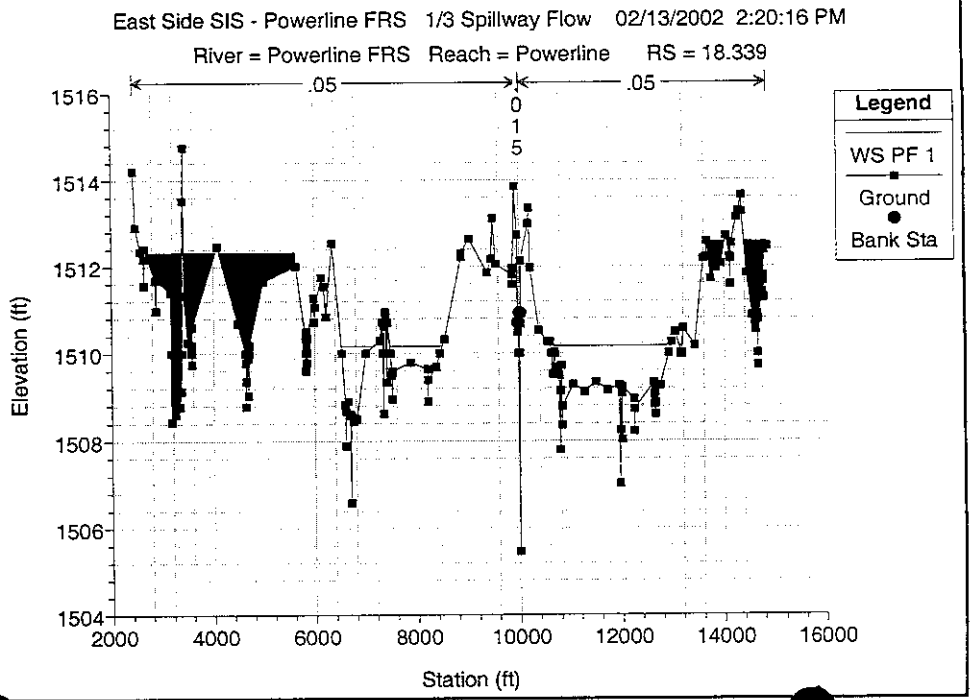
1
5
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 18.339
.05
.05
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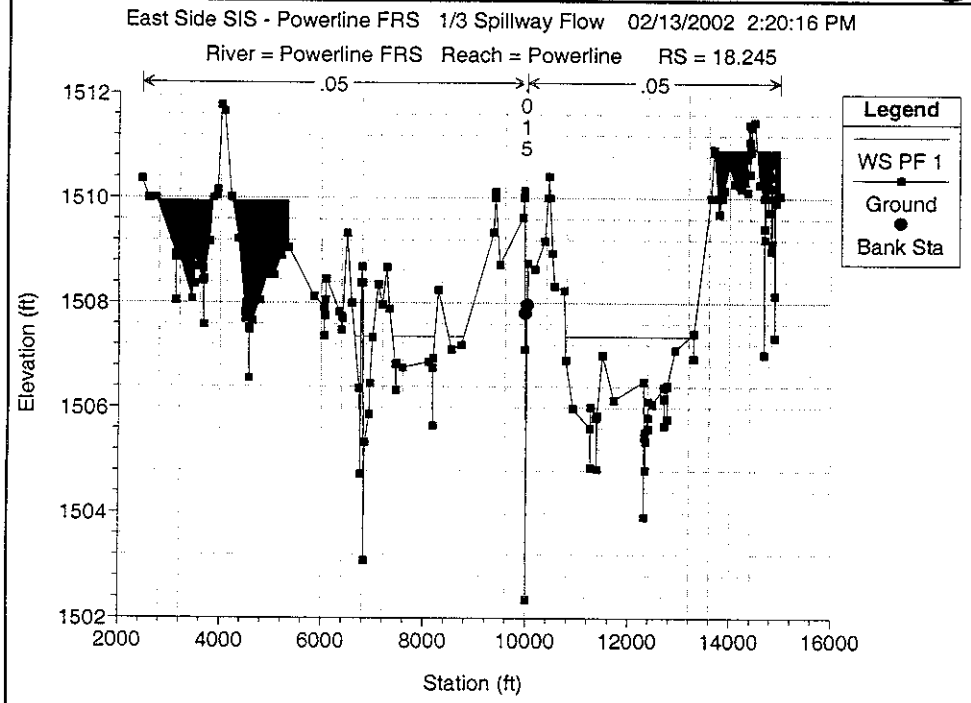
1
5
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 18.245
.05
.05
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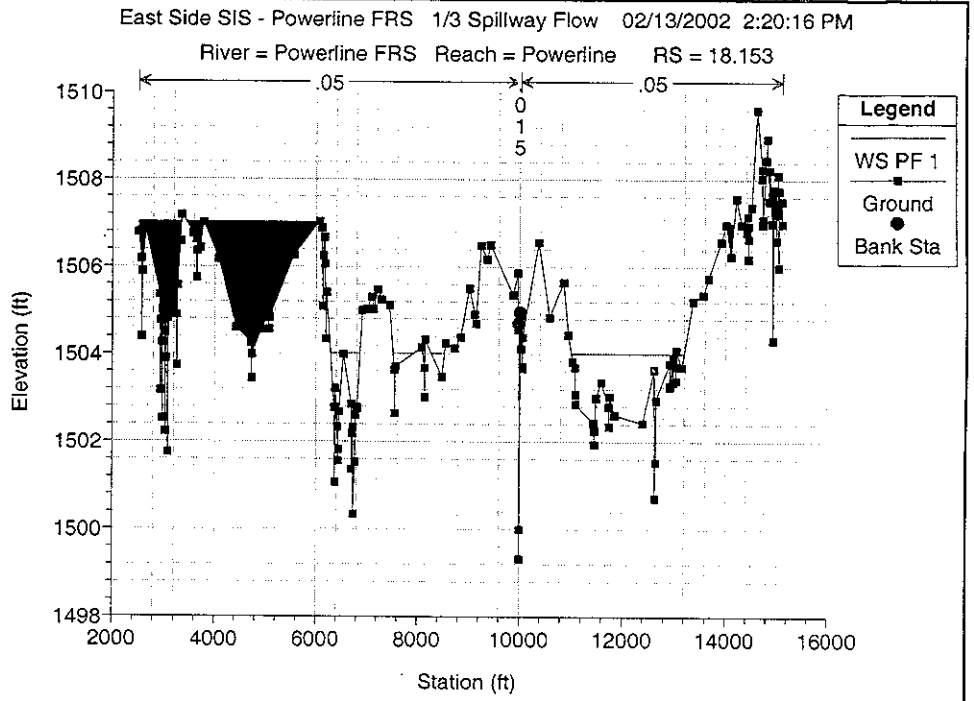
1
5
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 18.153
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.05
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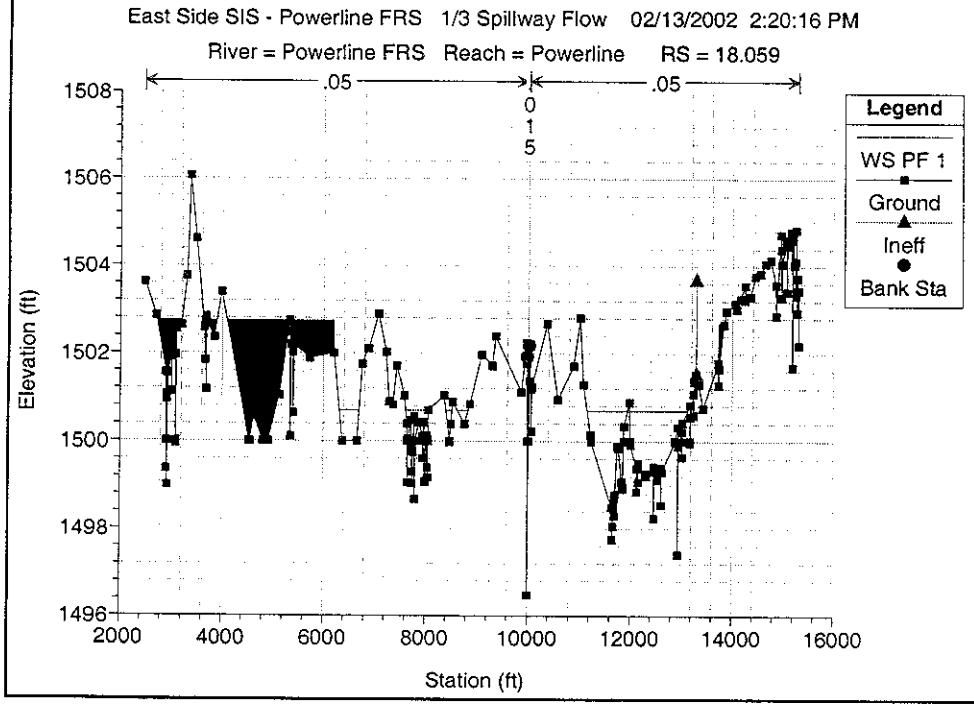
1
5
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 18.059
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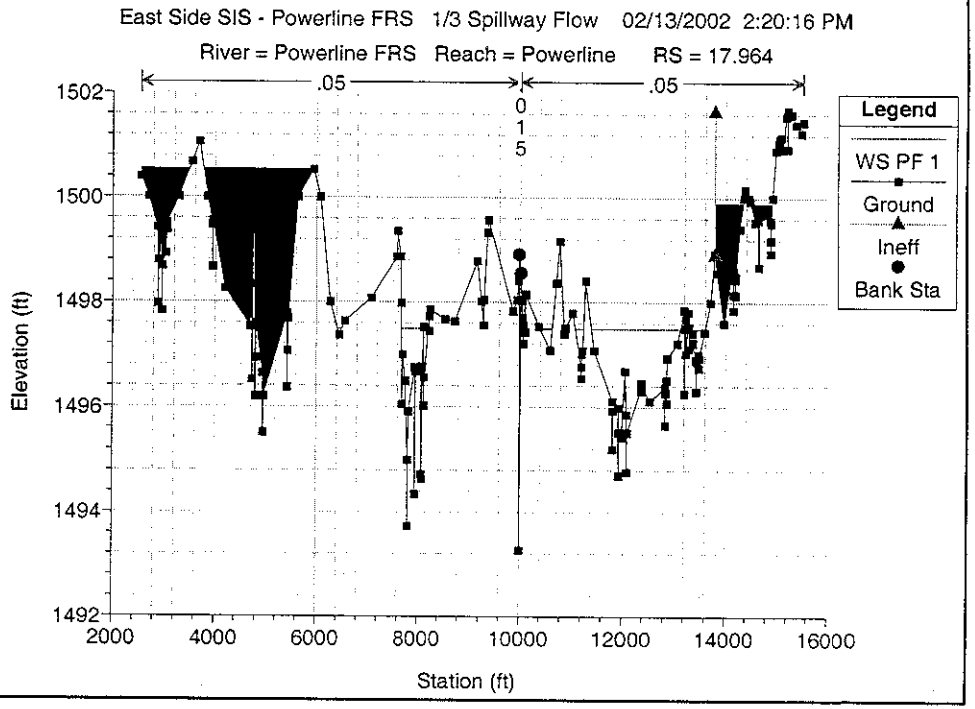
.05
0
1
5
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 17.964
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.05
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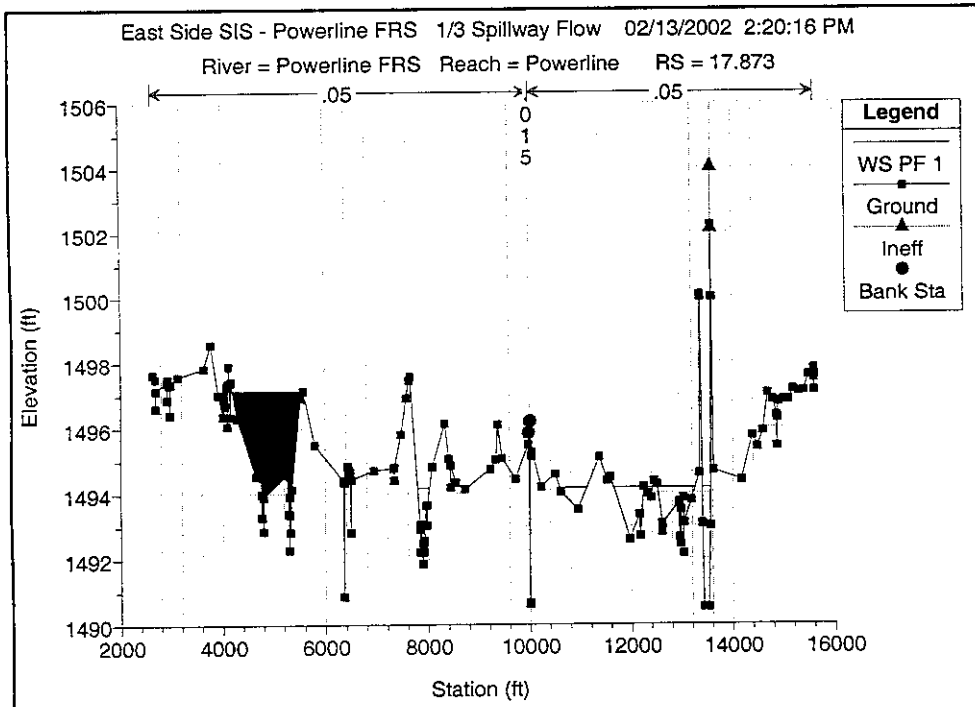
1
5
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 17.873
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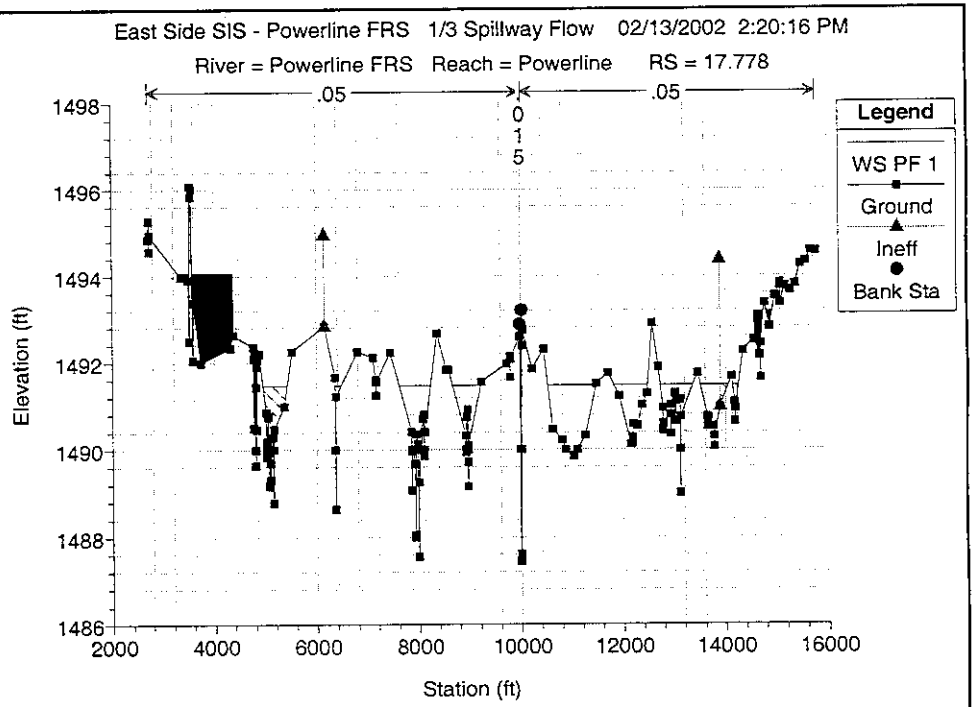
.05
0
1
5
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 17.778
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.05
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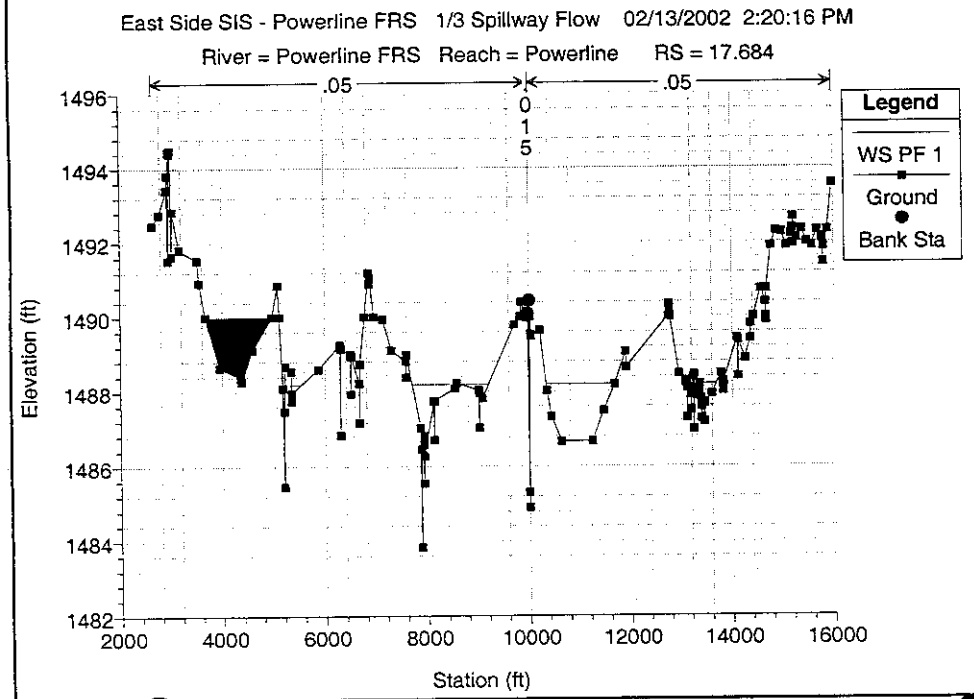
1
5
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 17.684
.05
.05
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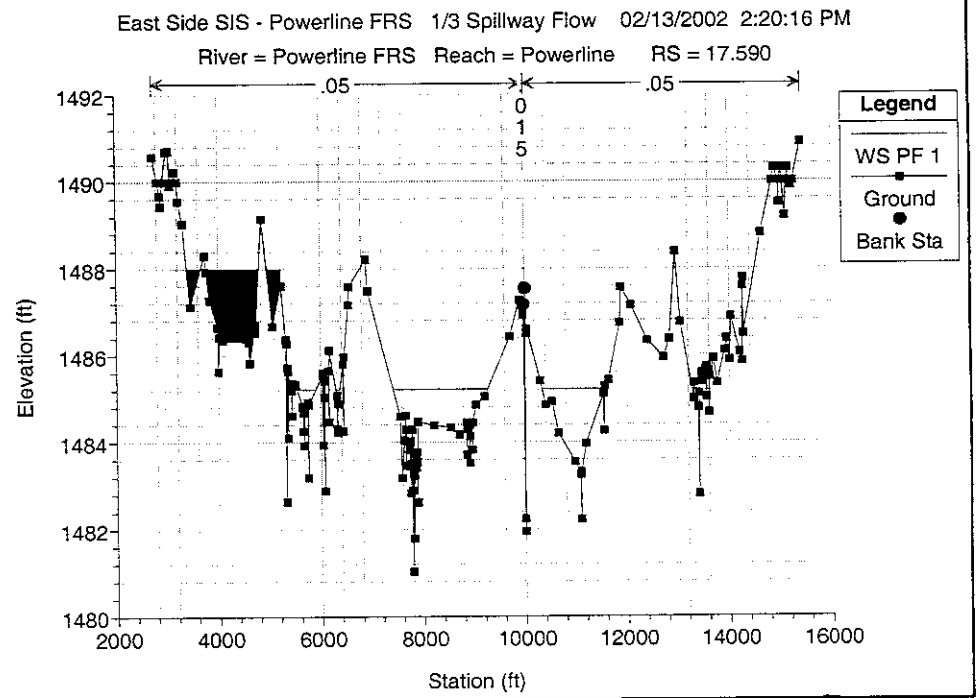
1
5
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 17.590
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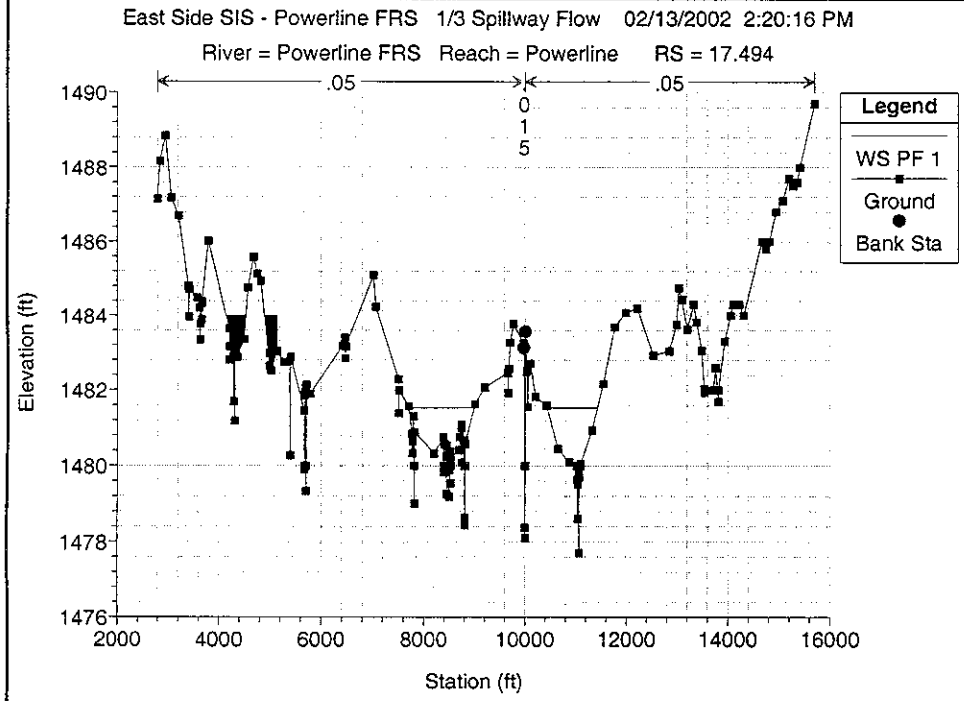
1
5
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 17.494
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.05
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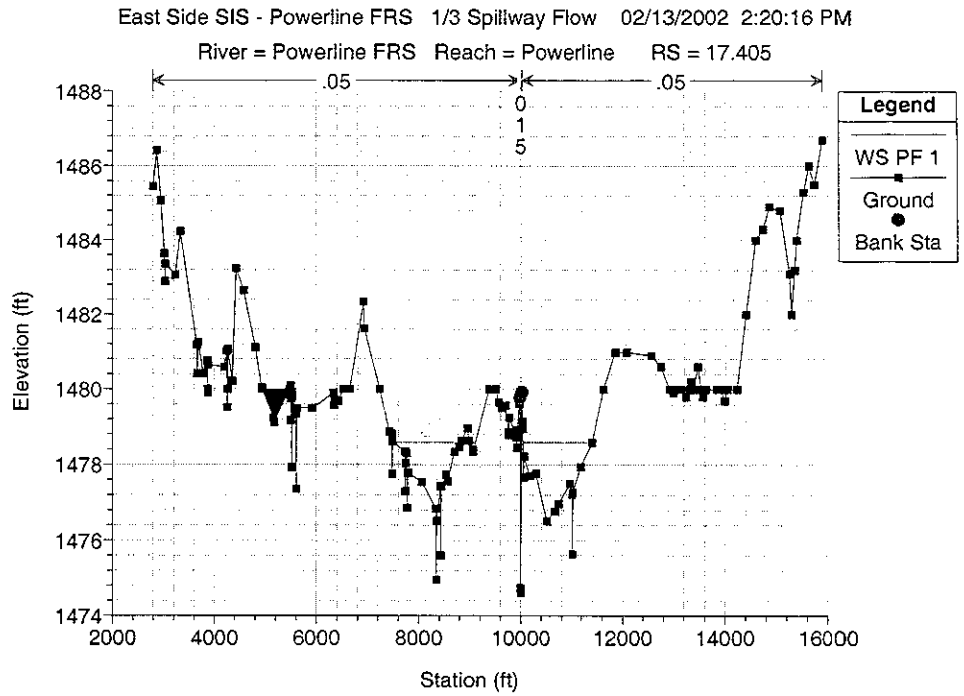
1
5
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 17.405
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.05
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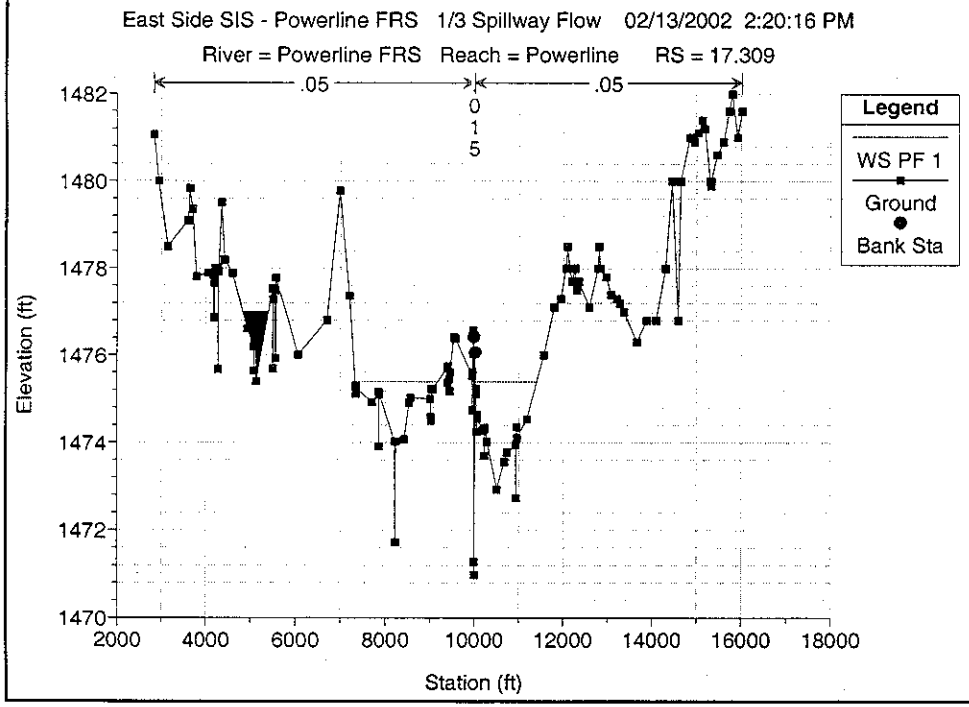
1
5
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 17.309
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.05
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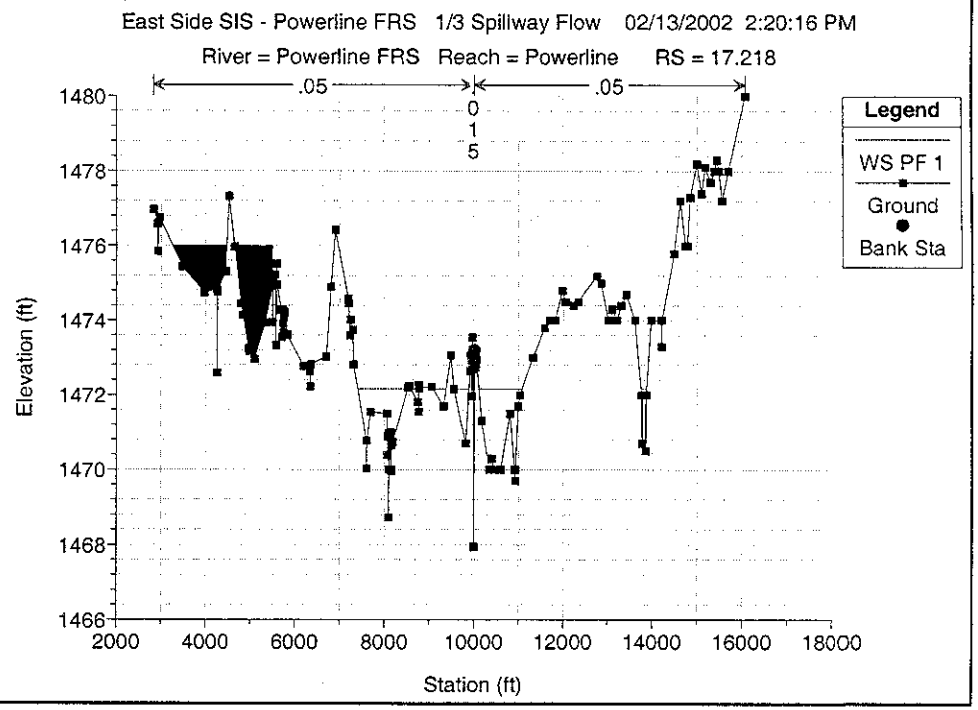
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 17.218
.05
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1
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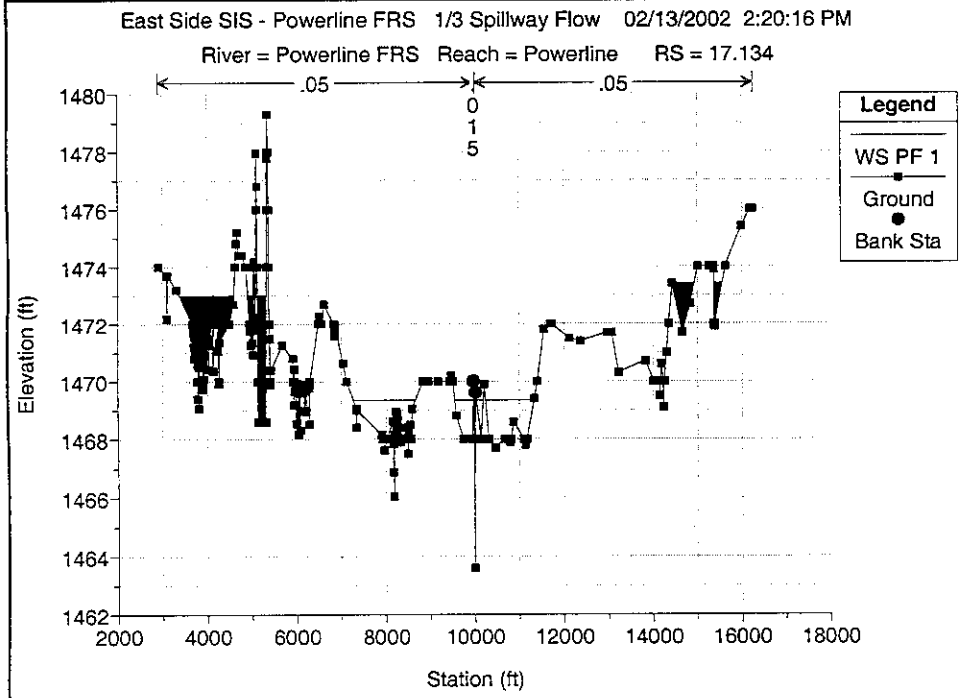
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 17.134
.05
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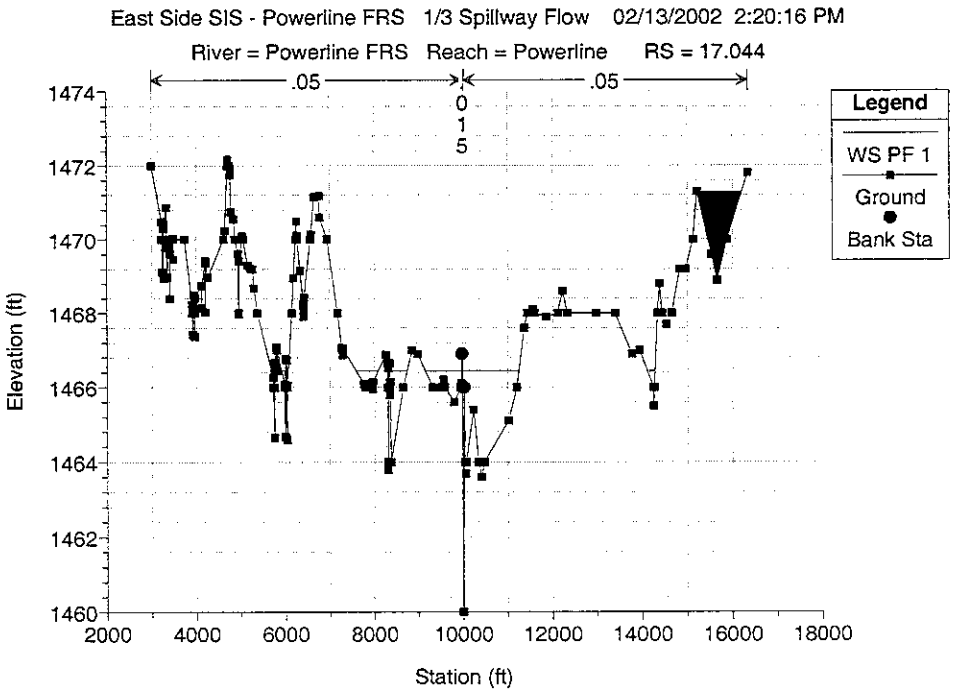
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 17.044
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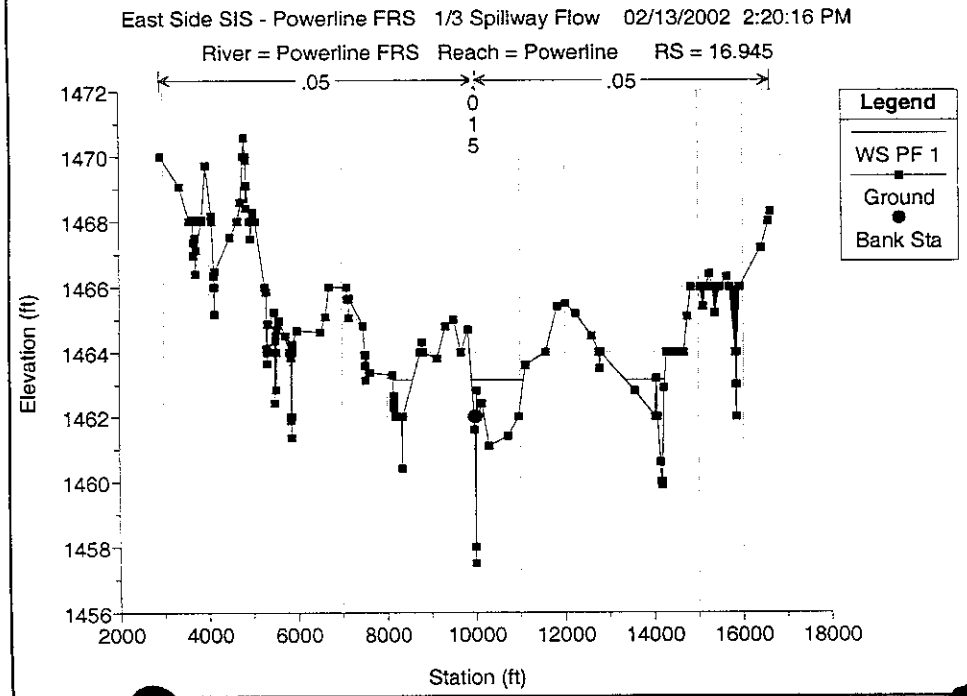
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 16.945
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1
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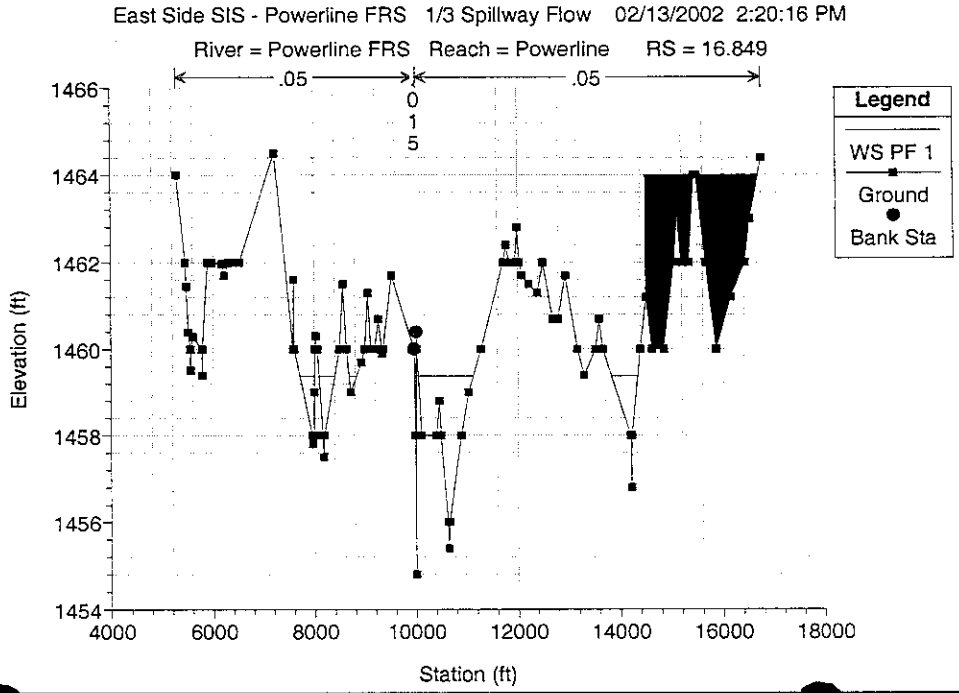
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 16.849
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.05
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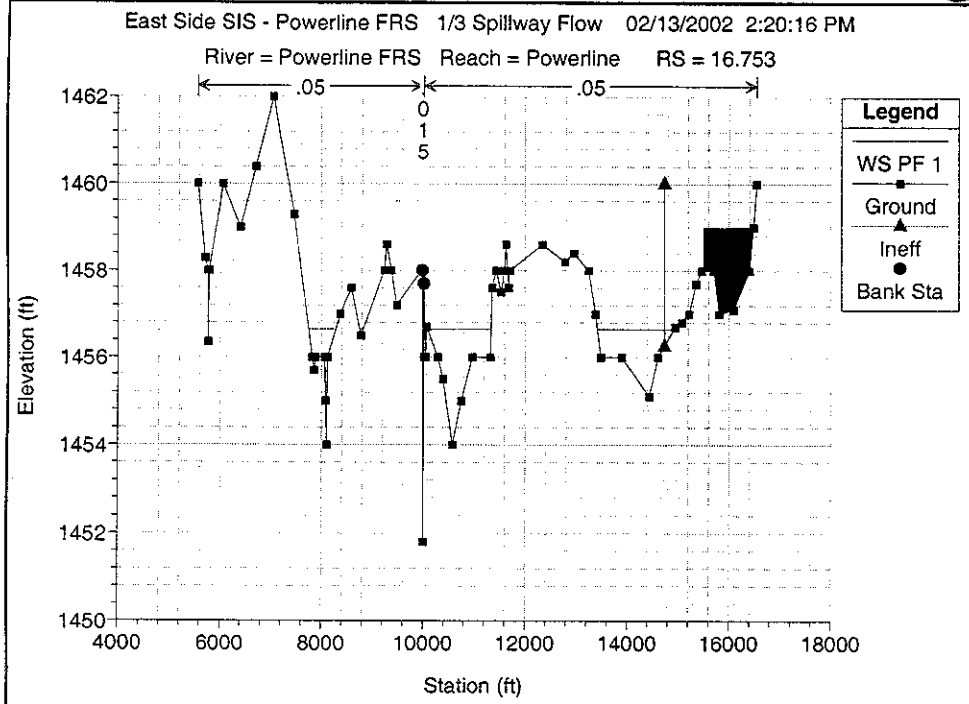
1
5
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 16.753
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.05
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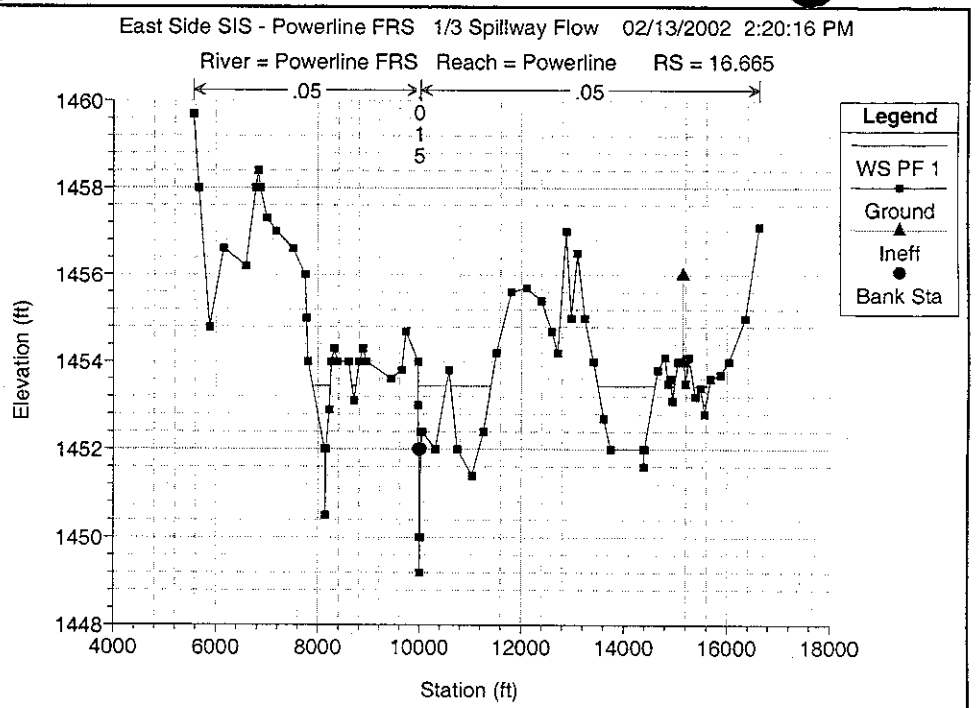
1
5
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 16.665
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.05
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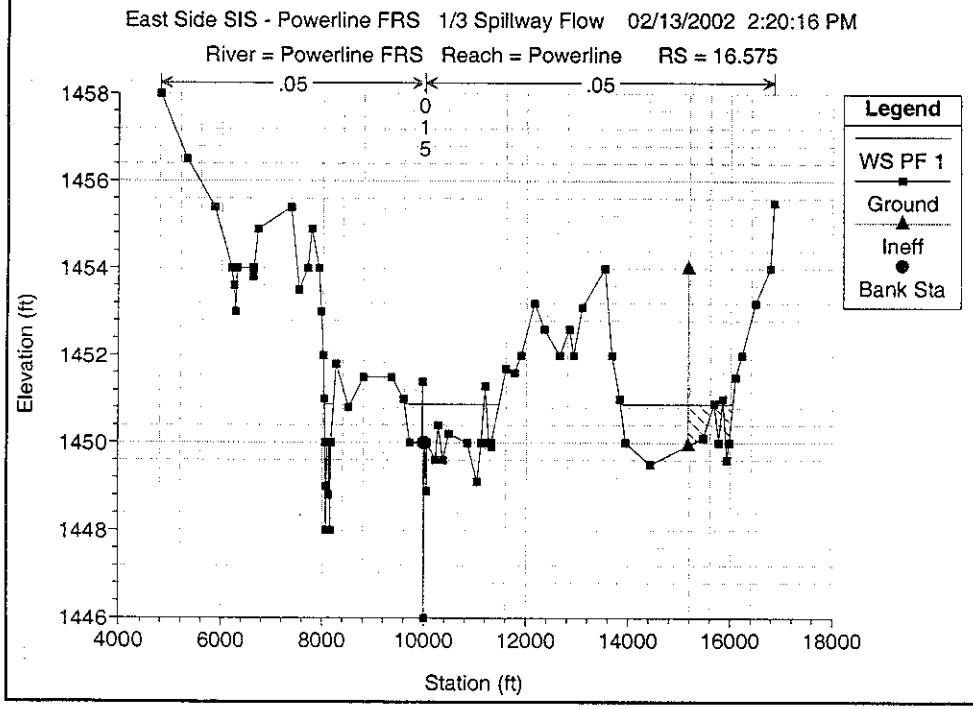
1
5
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 16.575
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.05
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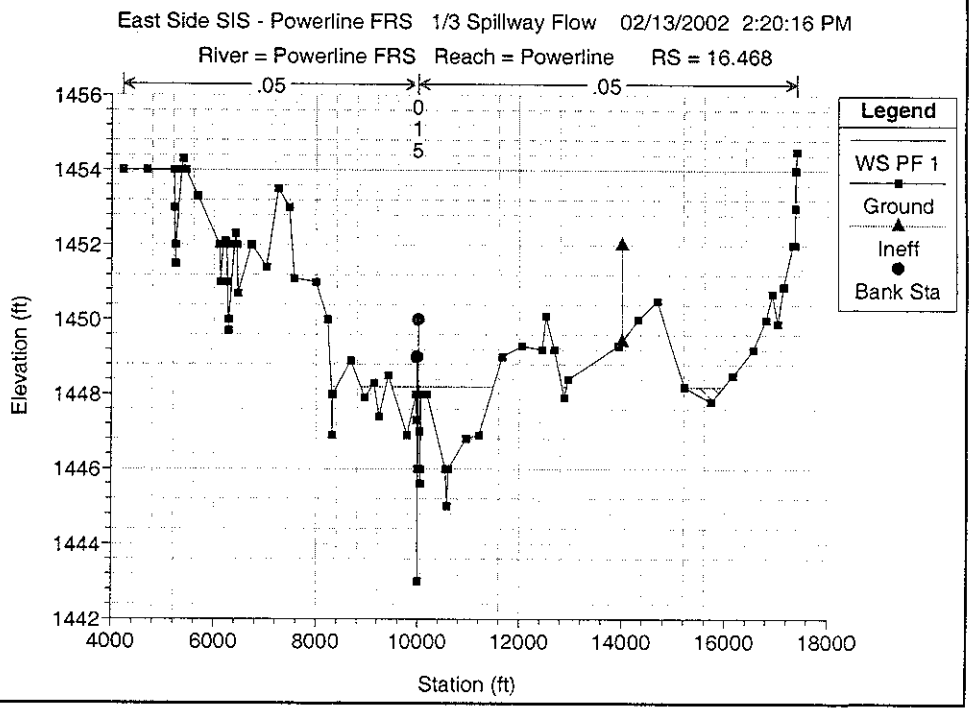
5
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 16.468
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.05
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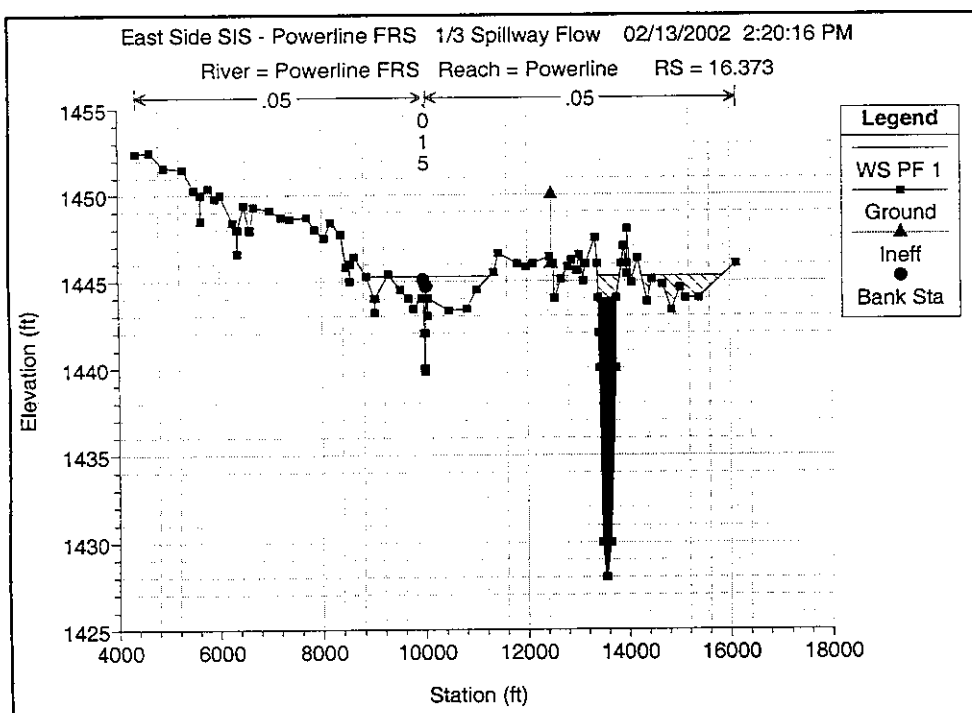
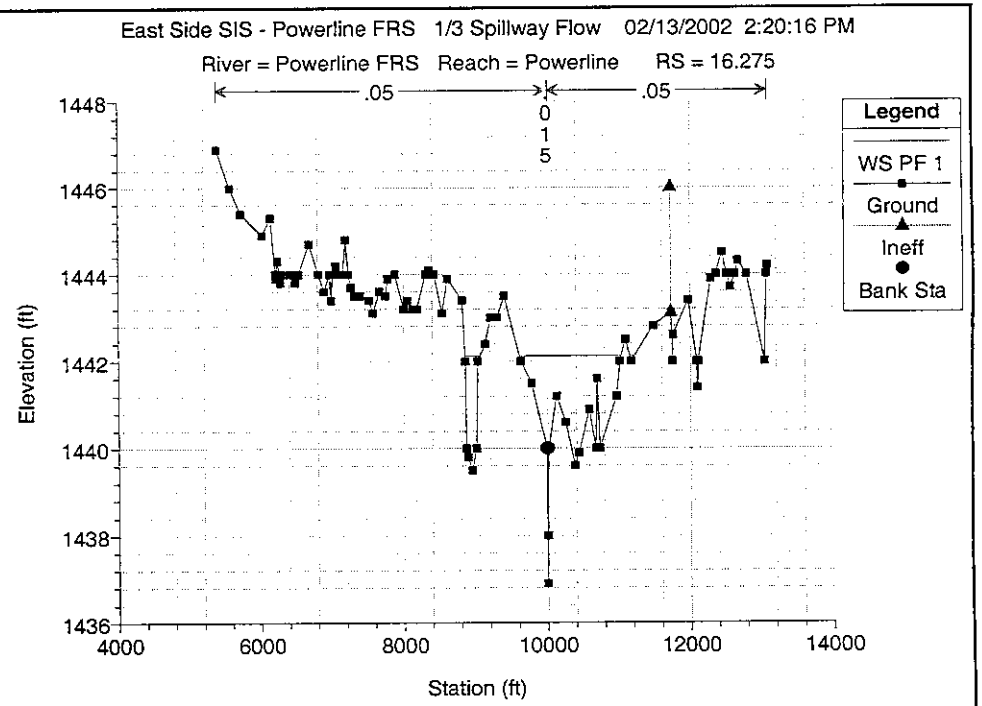
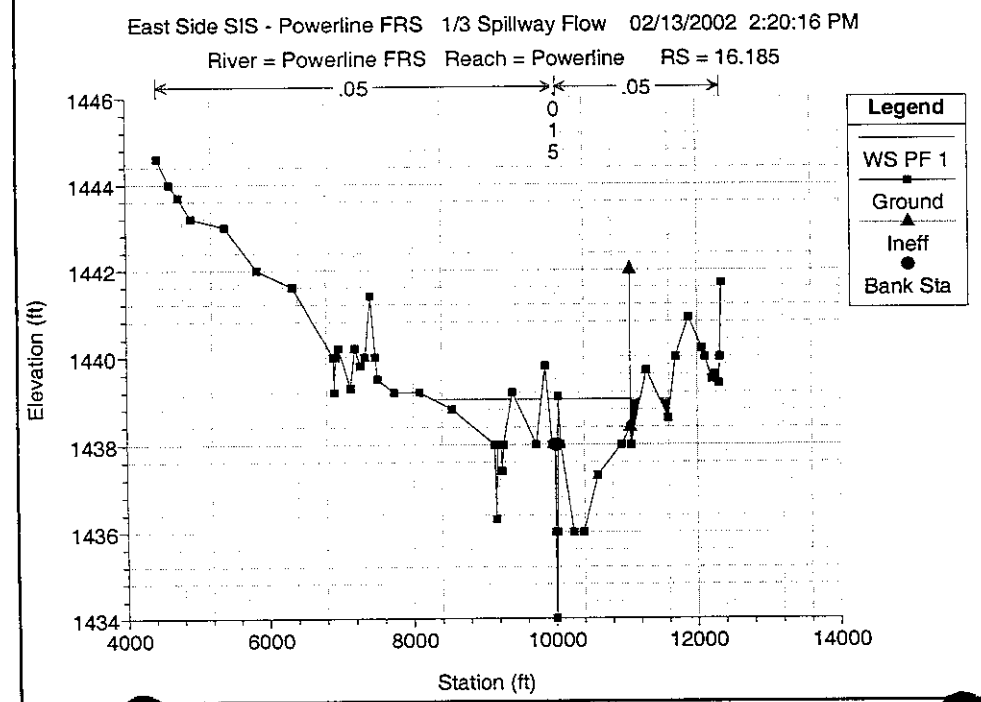
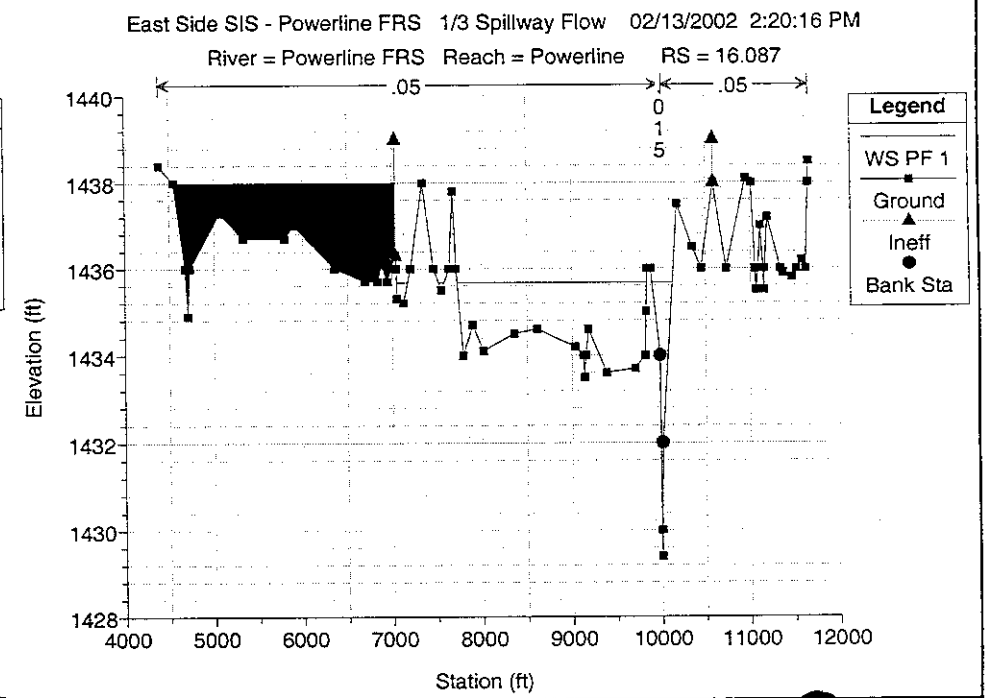
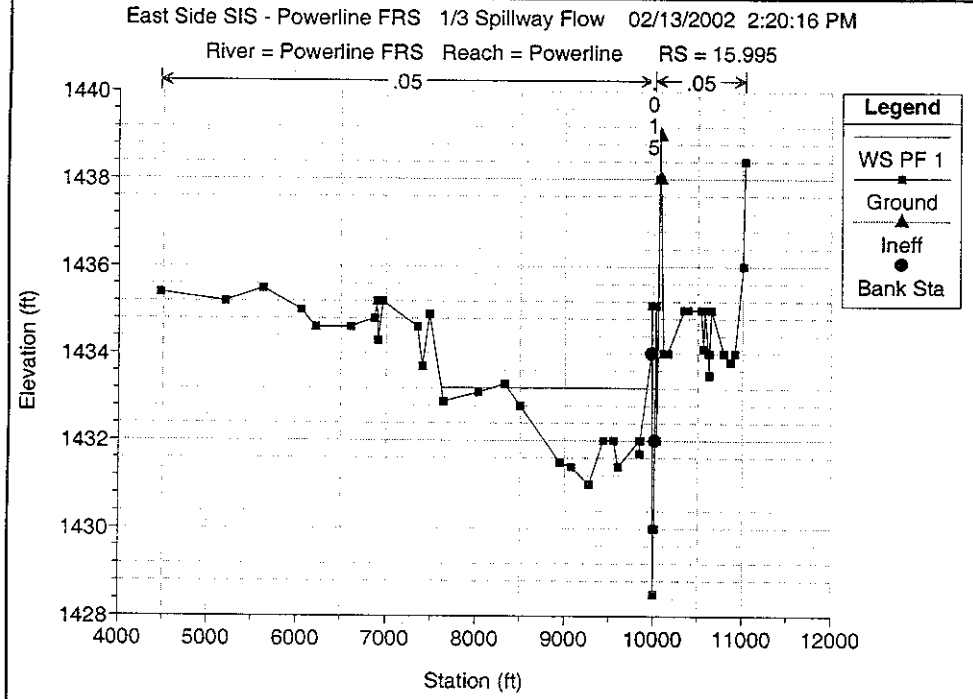
5
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

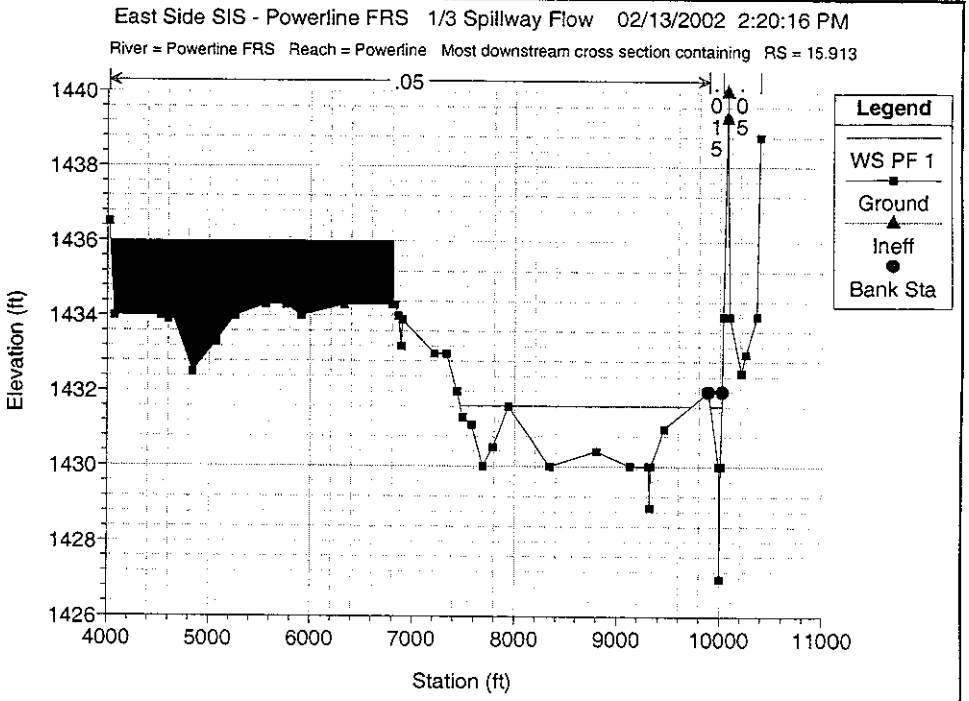

East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 16.373
.05
.05
0
1
5
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

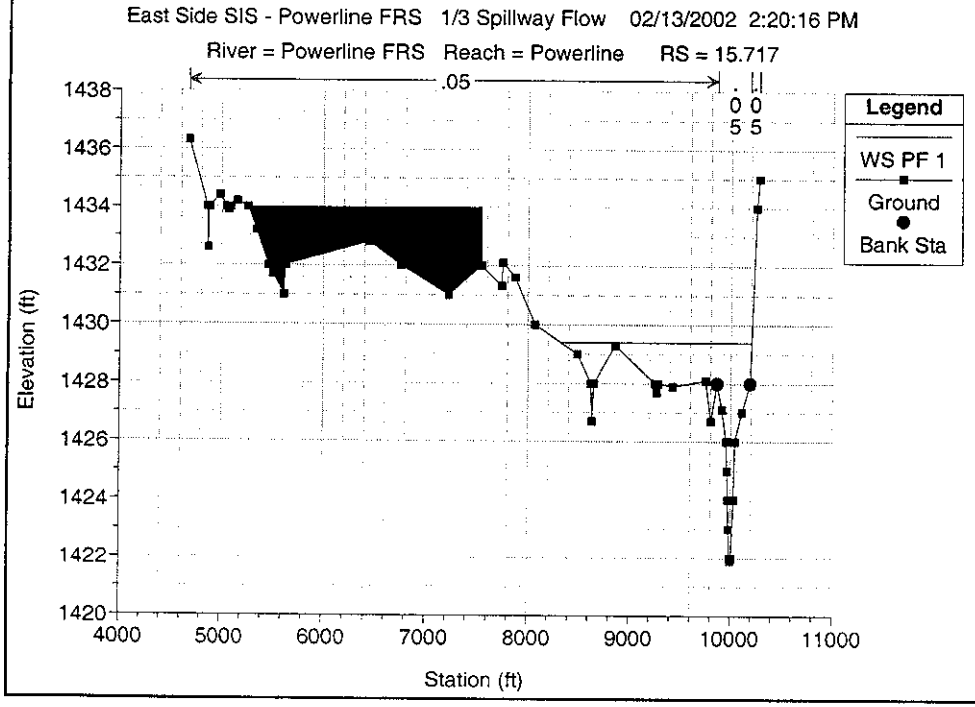

East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 16.275
.05
.05
0
1
5
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

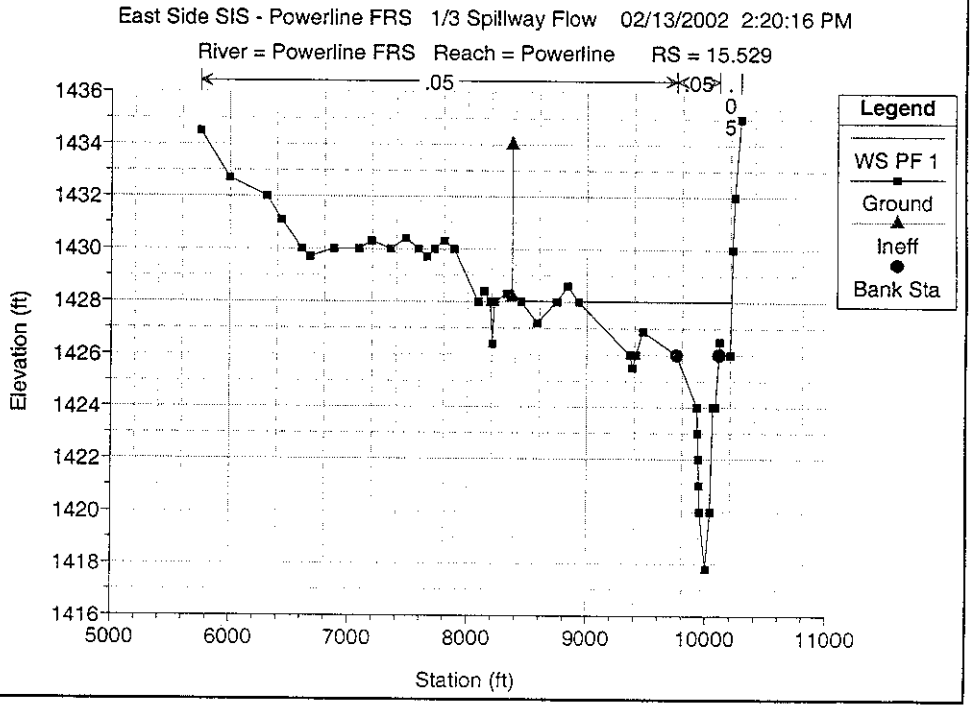

East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 16.185
.05
.05
0
1
5
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

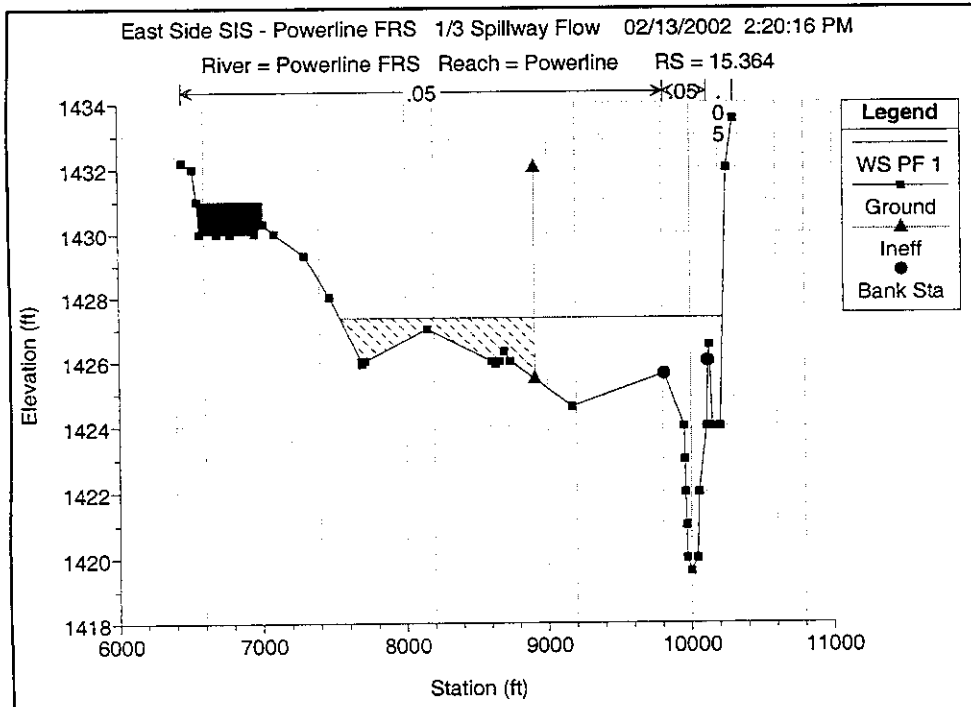

East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 16.087
.05
.05
0
1
5
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

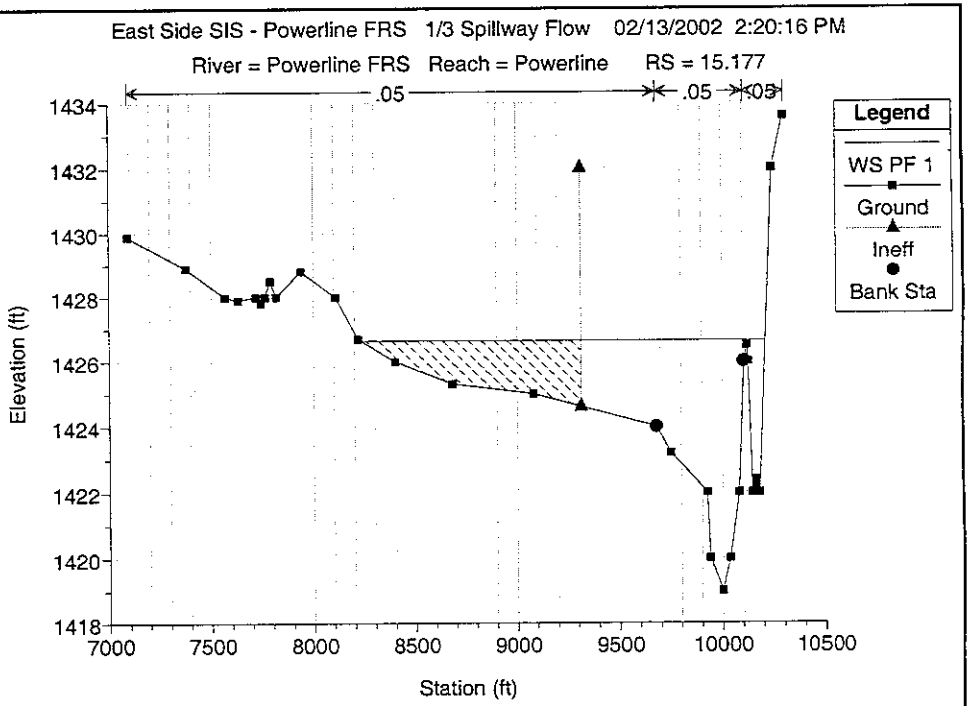

East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 15.995
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

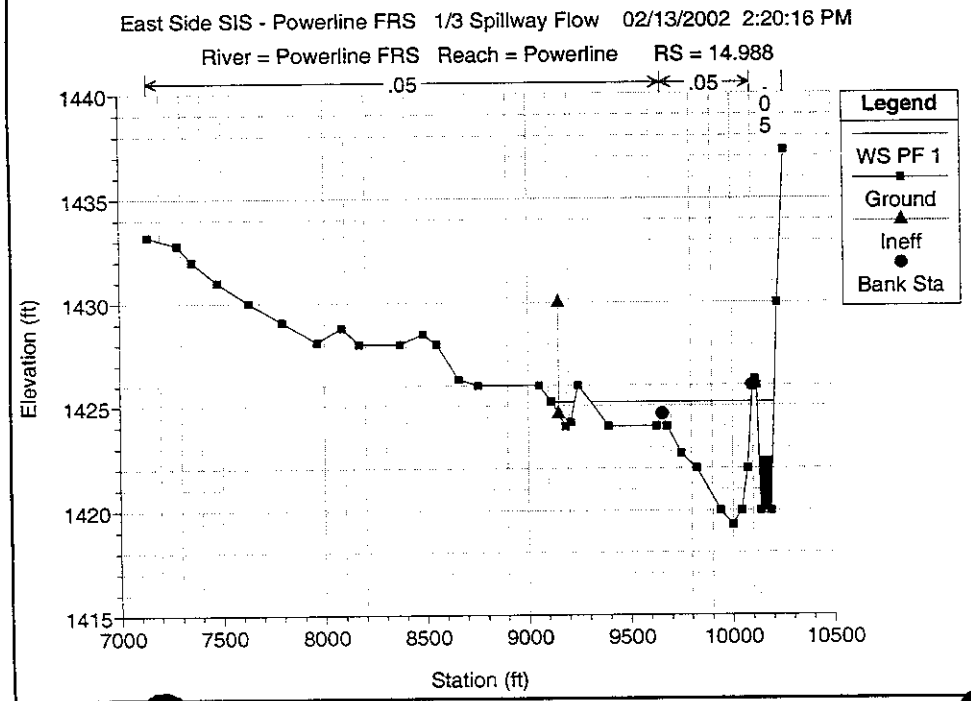

East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline Most downstream cross section containing RS = 15.913
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

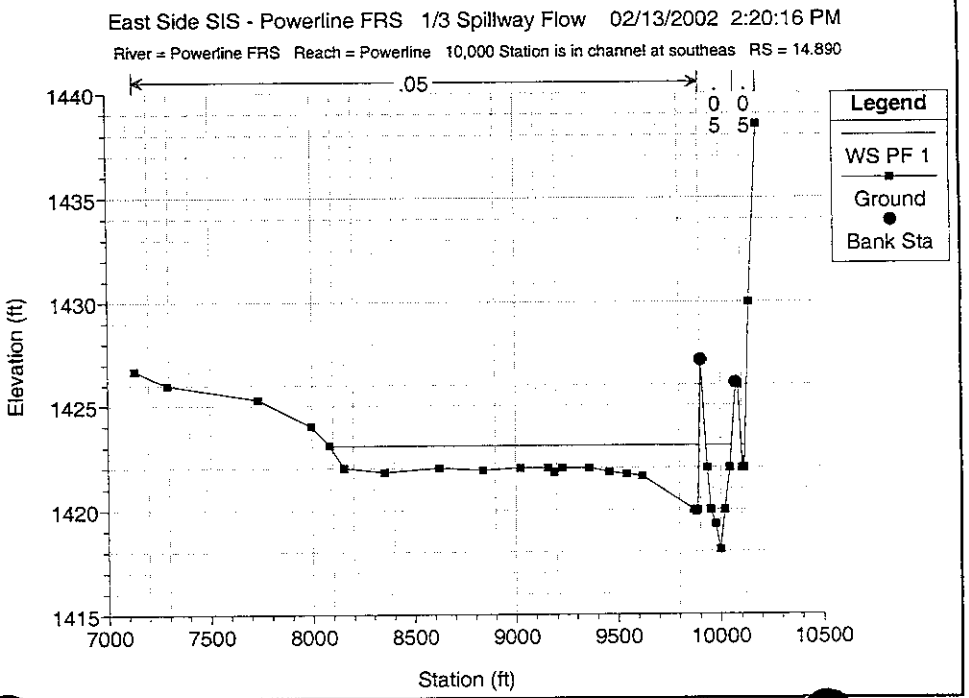

East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 15.717
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 15.529
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 15.364
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

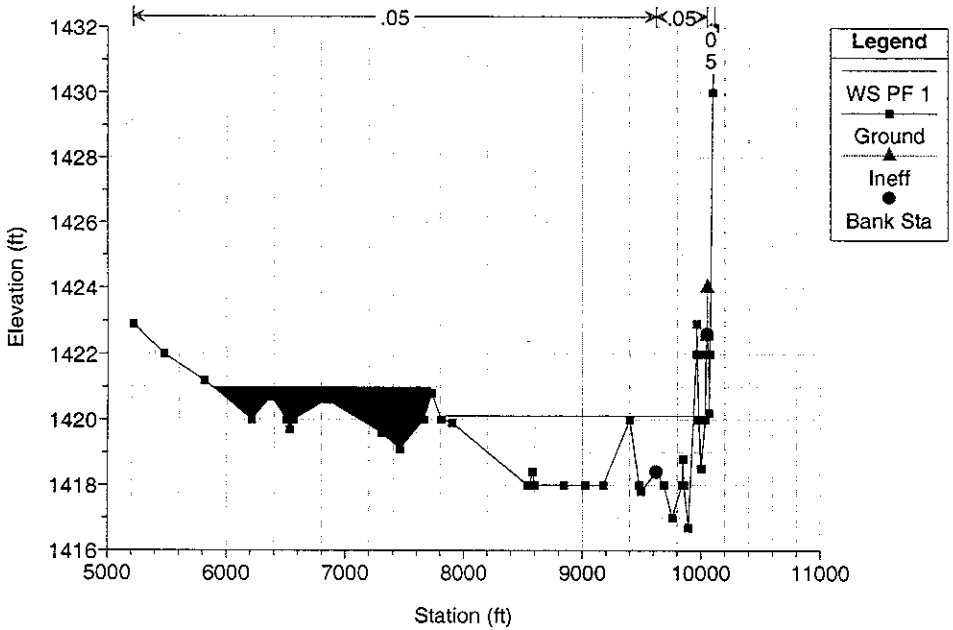

East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 15.177
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 14.988
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline 10,000 Station is in channel at southeas RS = 14.890
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

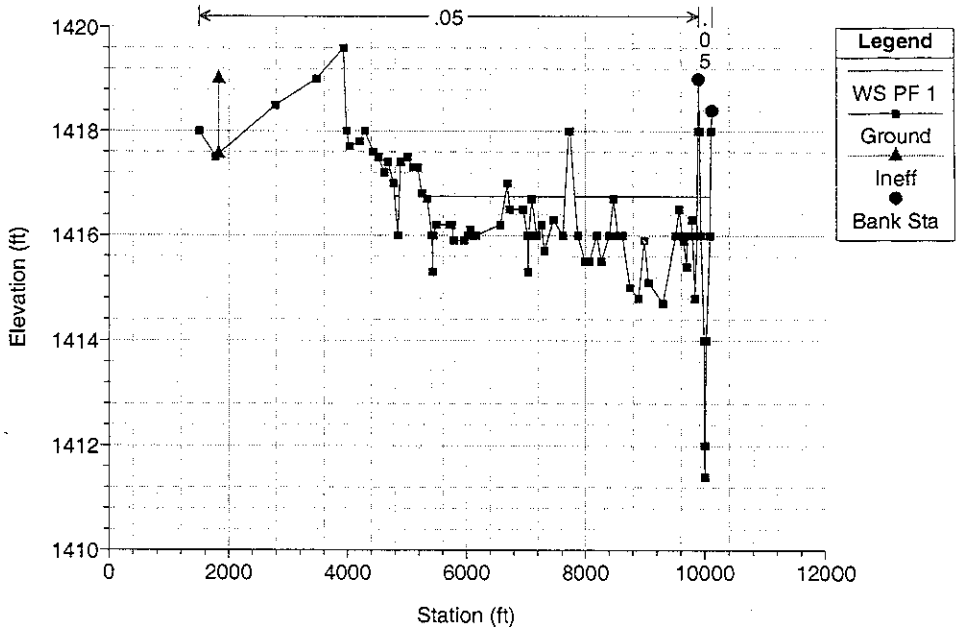
East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM

River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.790



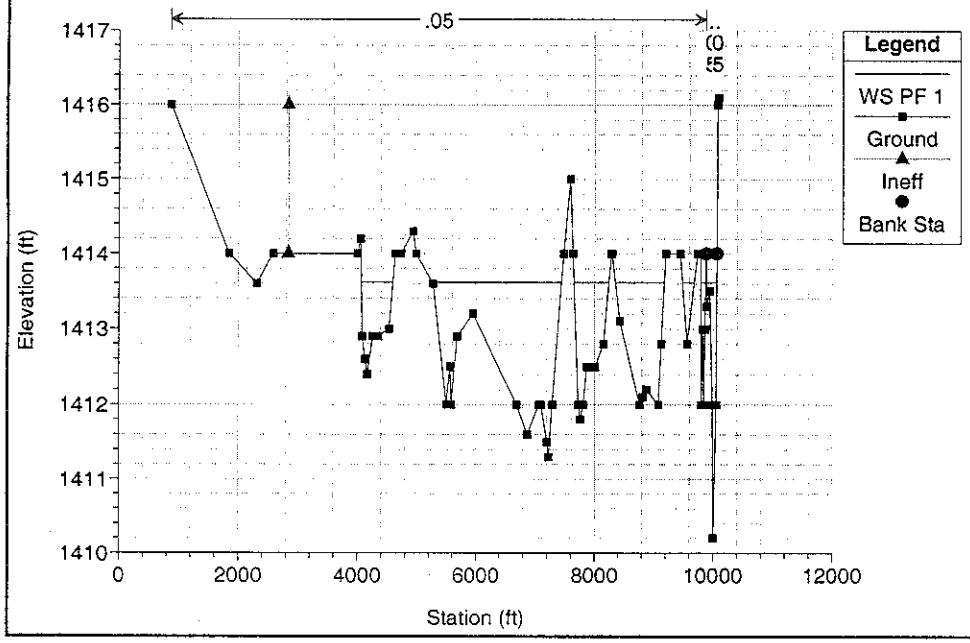
East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM

River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.691



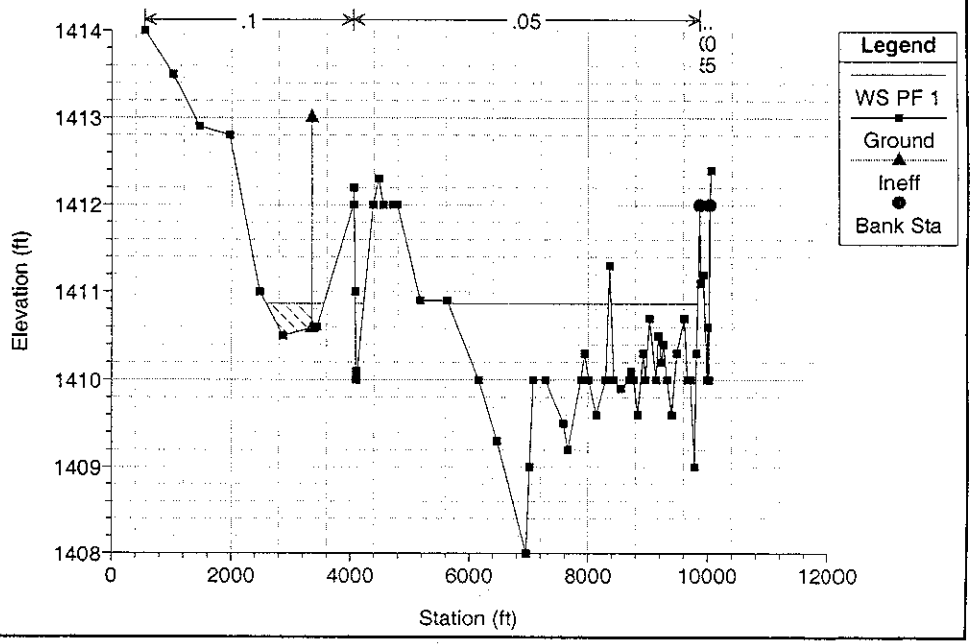
East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM

River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.601



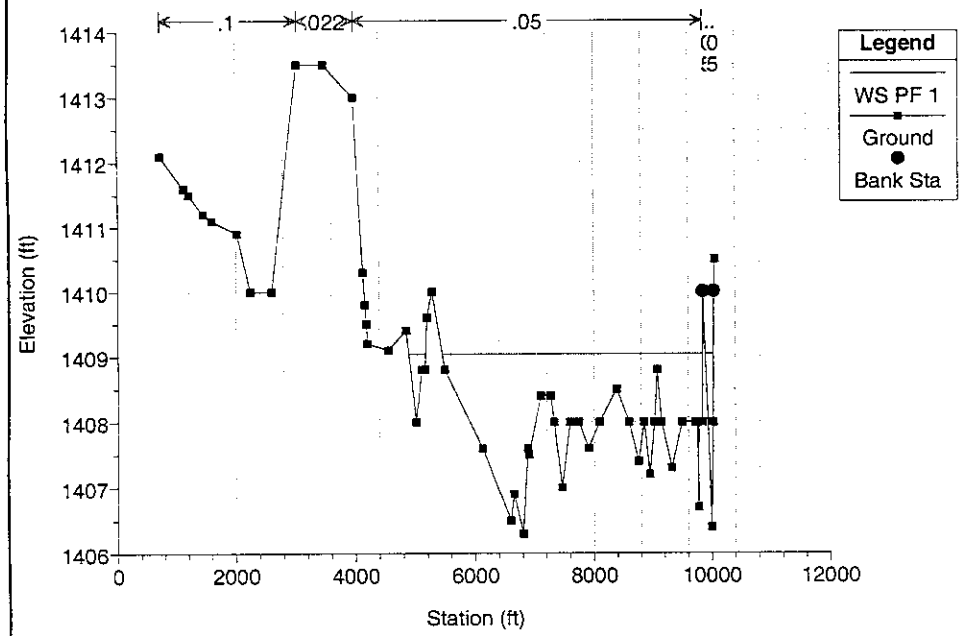
East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM

River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.504



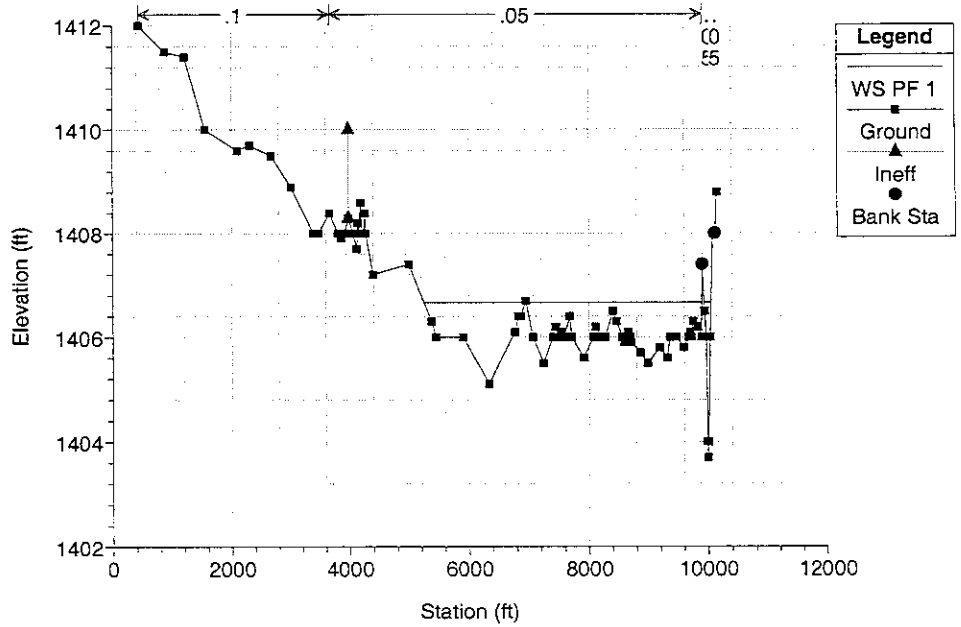
East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM

River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.410



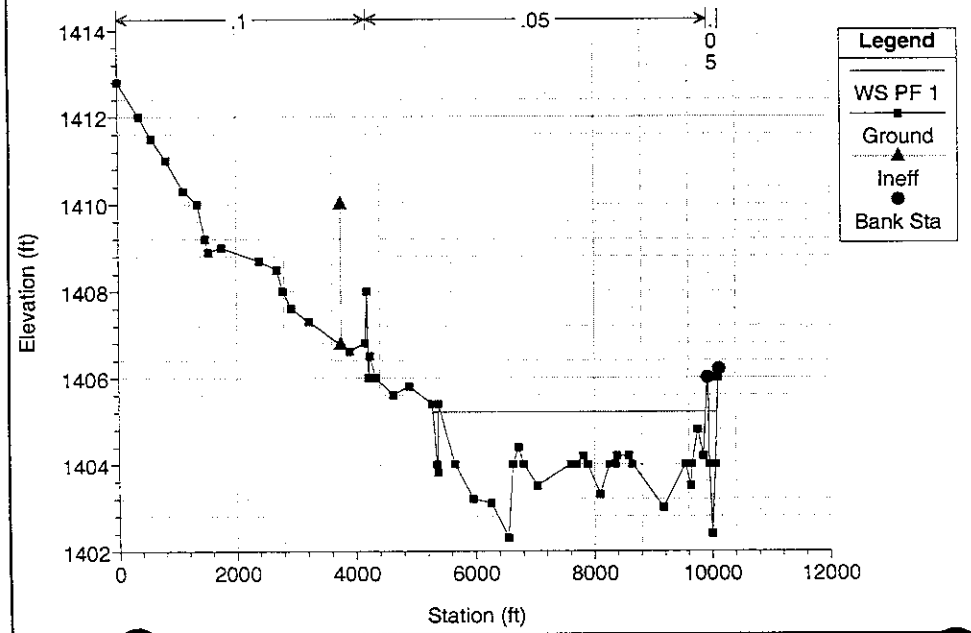
East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM

River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.313



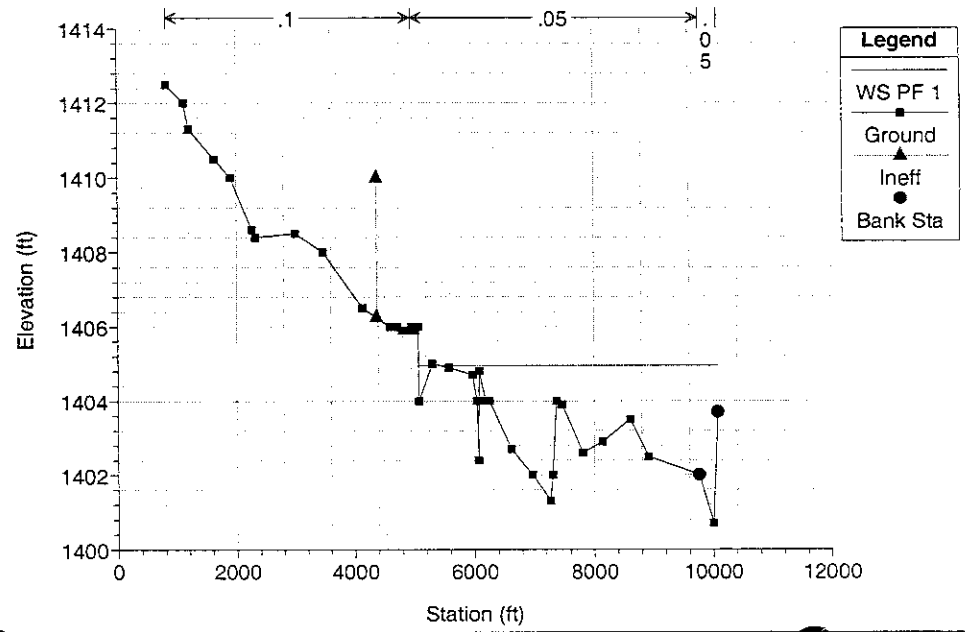
East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM

River = Powerline FRS Reach = Powerline 10,000 Station is in channel just north RS = 14.218



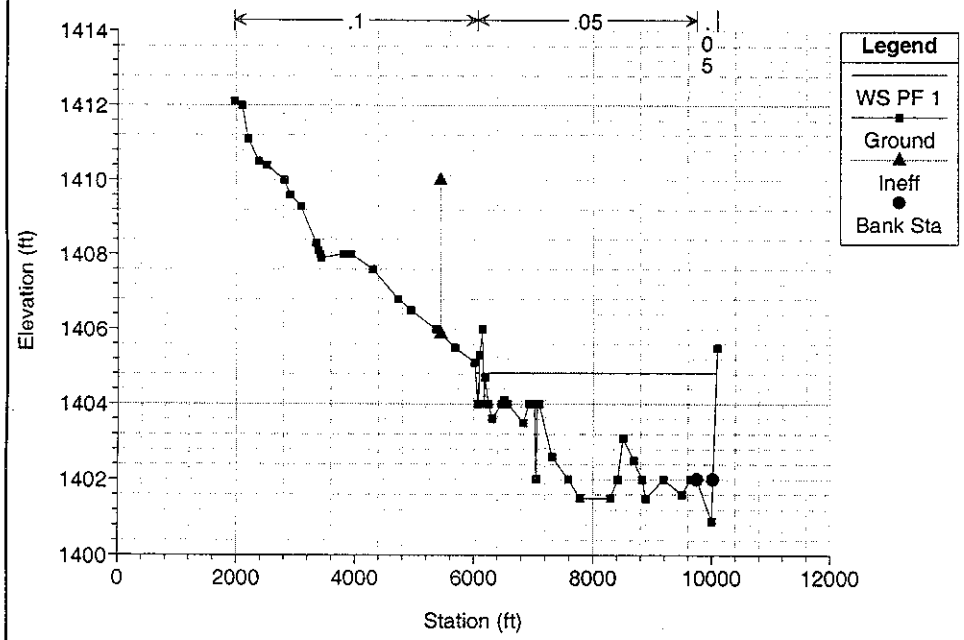
East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM

River = Powerline FRS Reach = Powerline 188 cfs flow reduction due to spill betw RS = 13.940



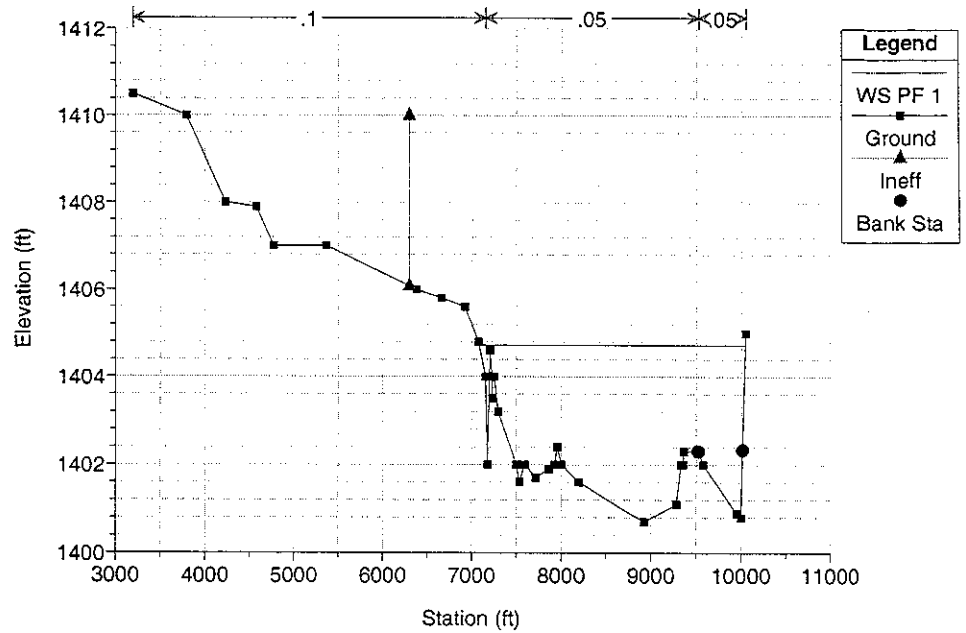
East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM

River = Powerline FRS Reach = Powerline 410 cfs flow reduction due to spill betw RS = 13.750



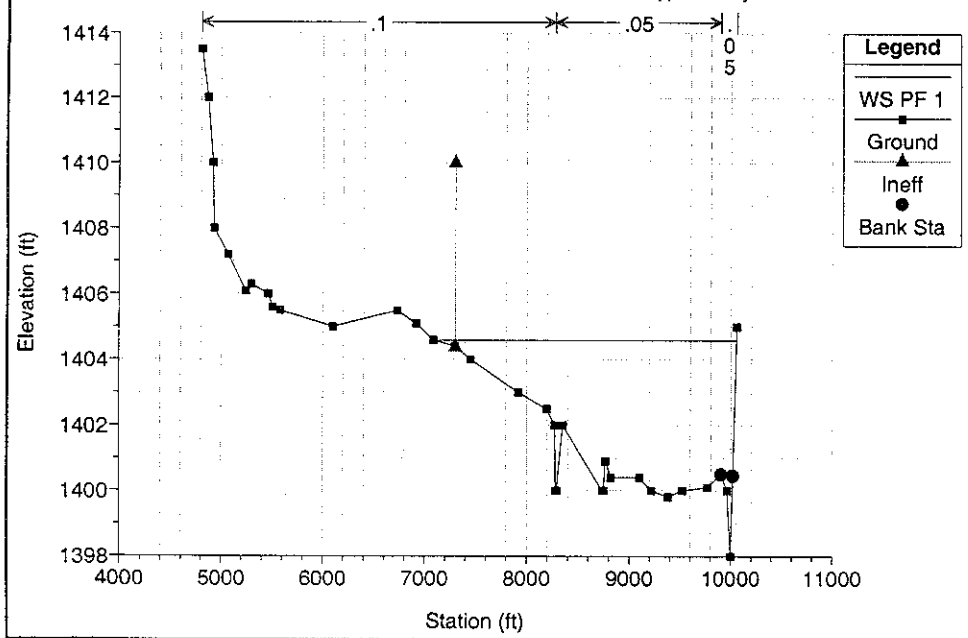
East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM

River = Powerline FRS Reach = Powerline 10,000 Station located on approximately RS = 13.560



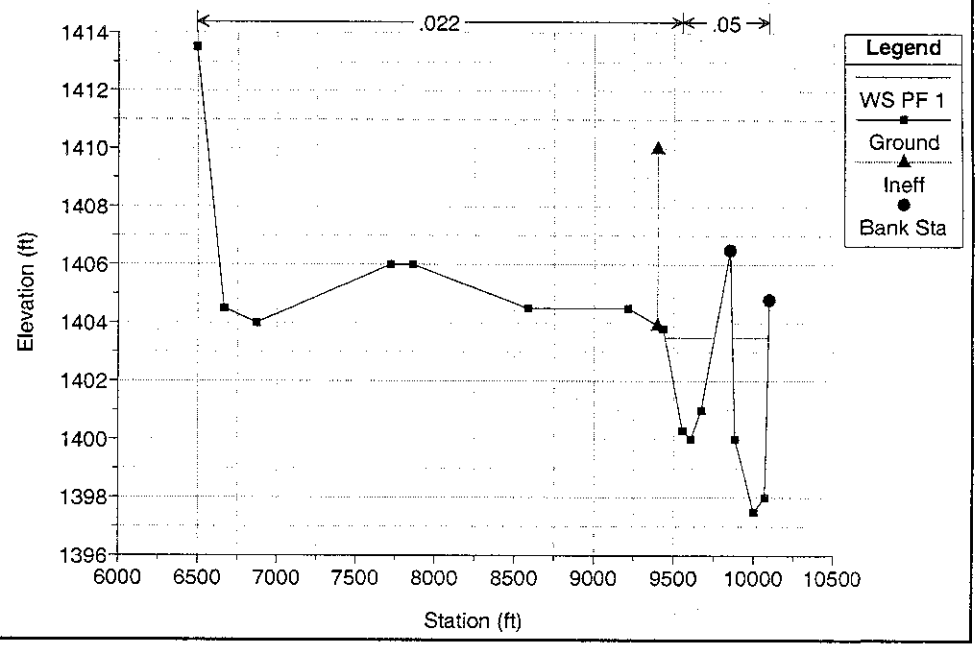
East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM

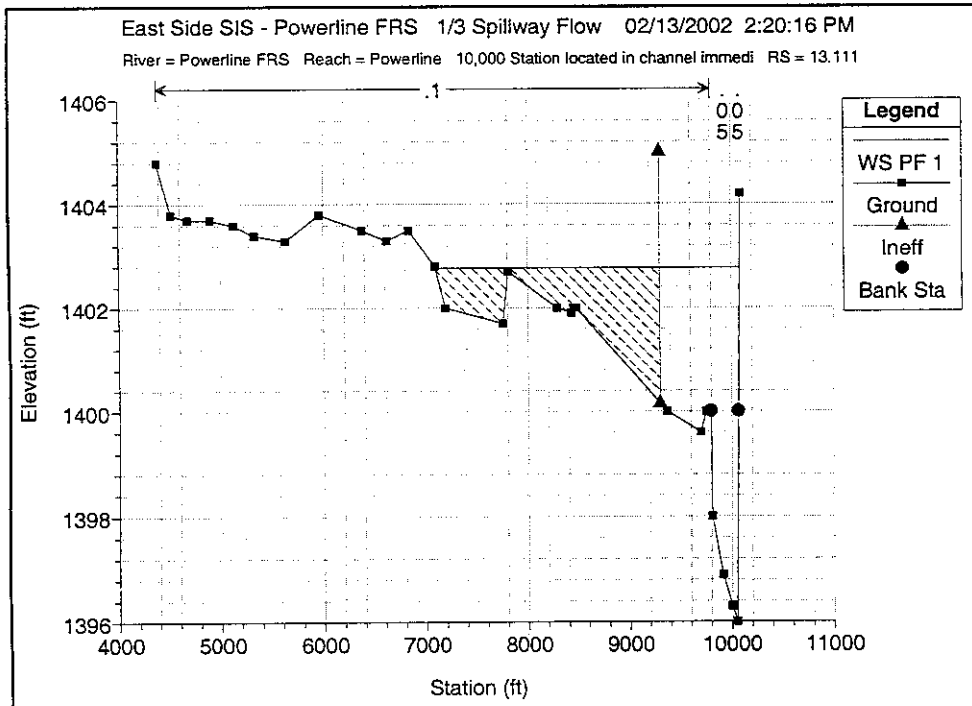
River = Powerline FRS Reach = Powerline 10,000 Station located on approximately RS = 13.355

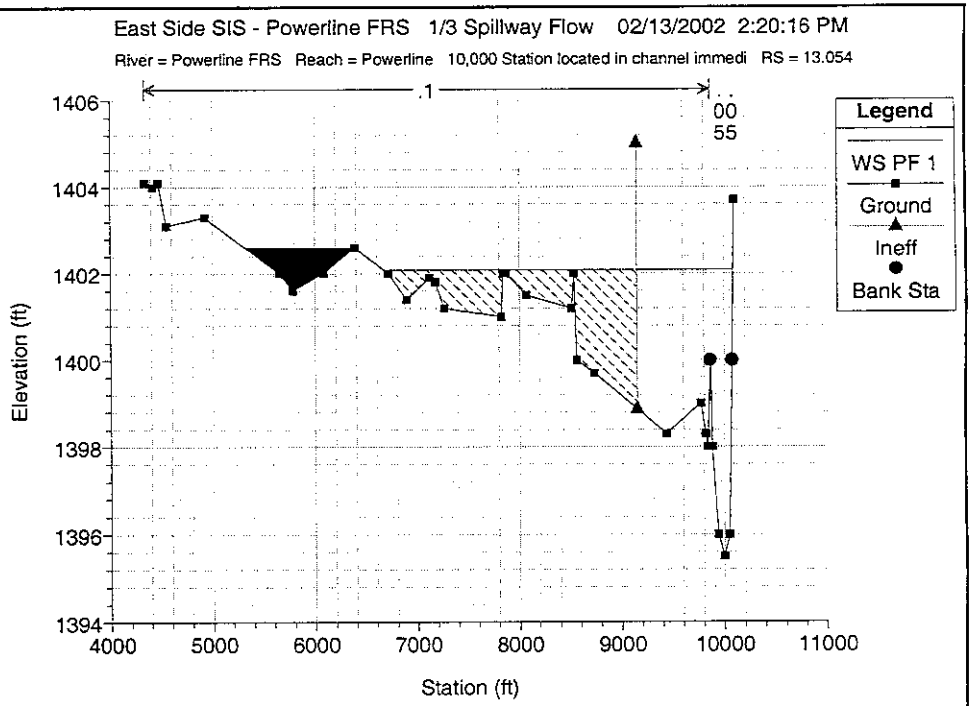


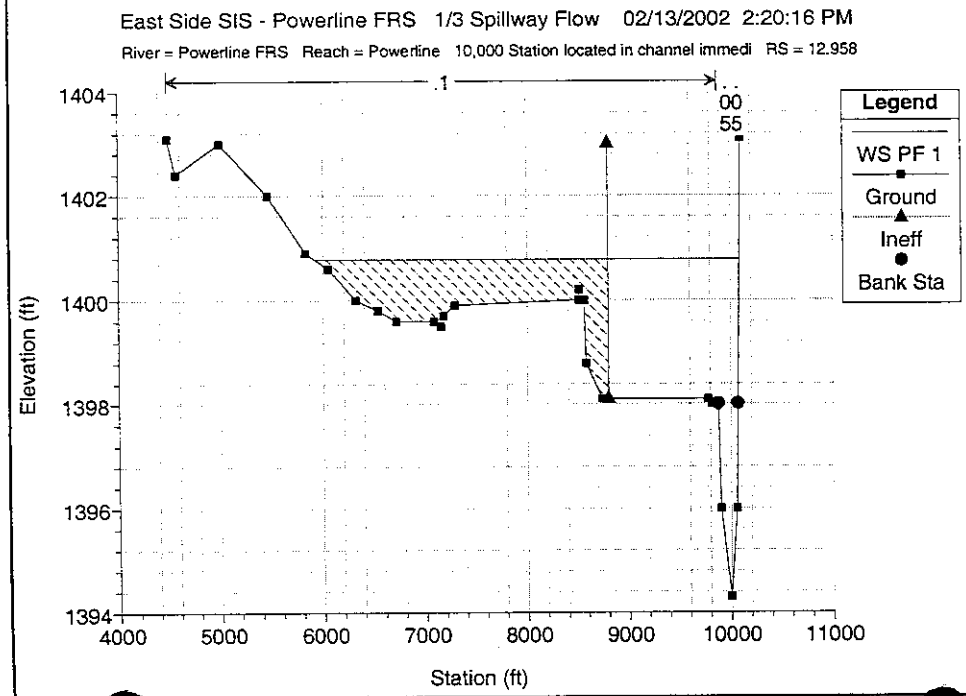
East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM

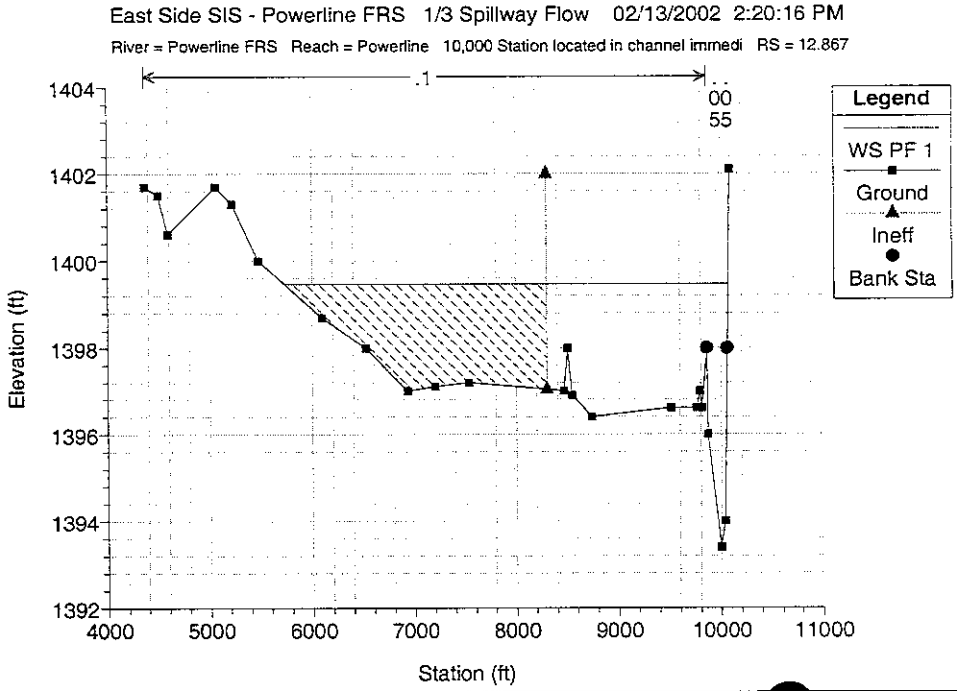
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 13.145




East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 13.111
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

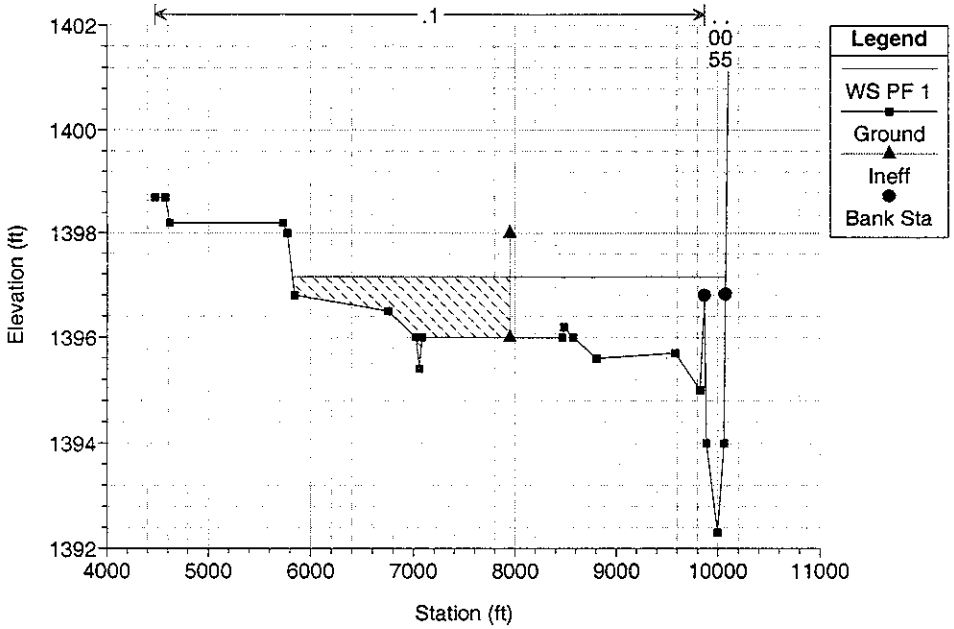

East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 13.054
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.958
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.867
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

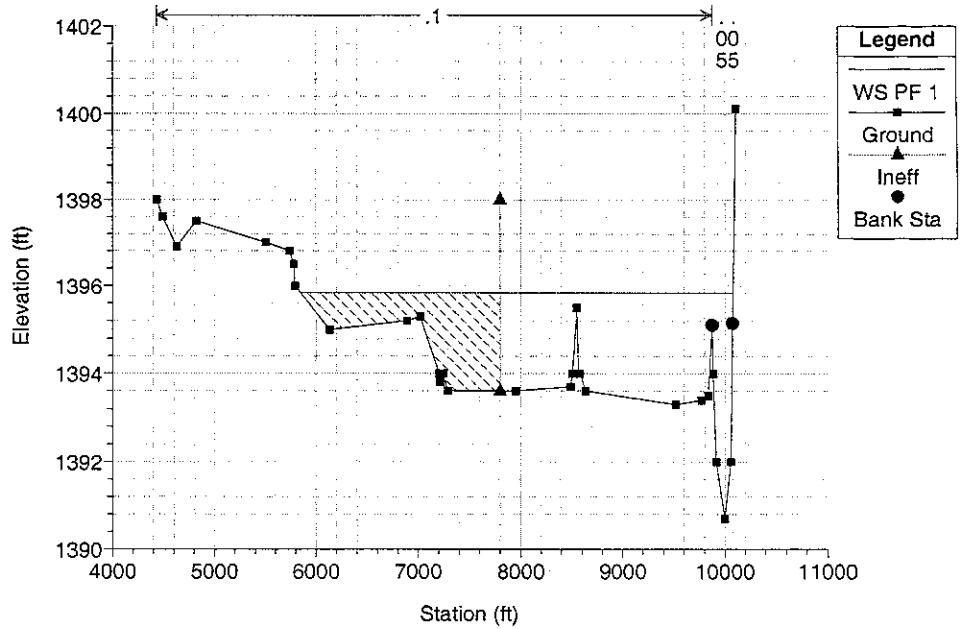
East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM

River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.770



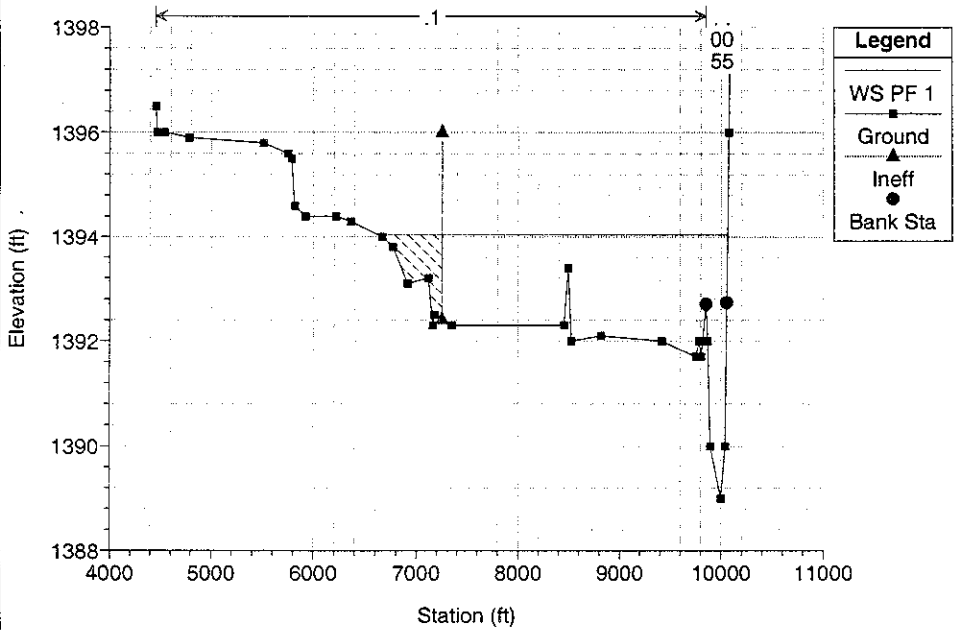
East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM

River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.674



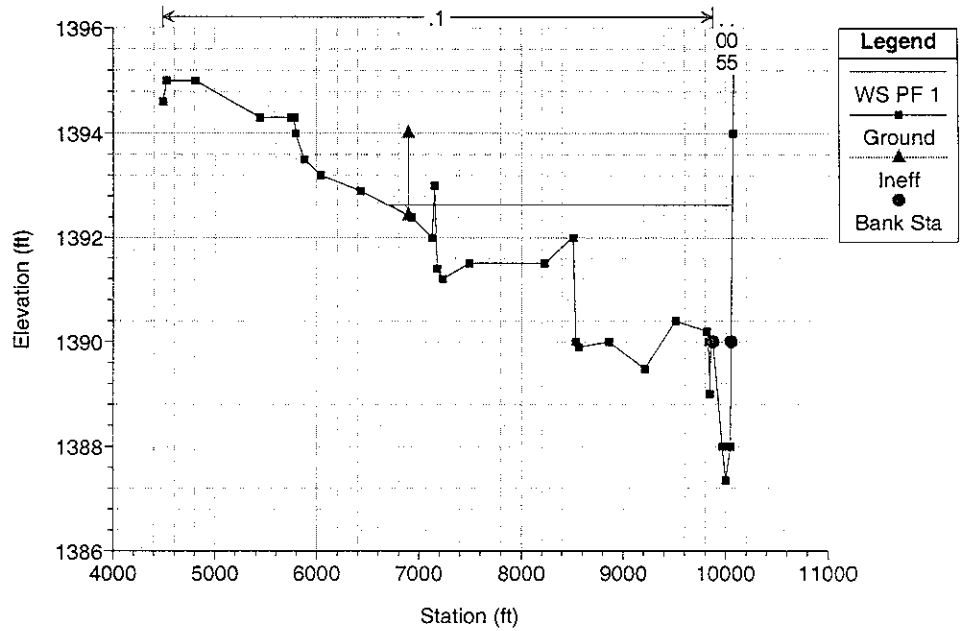
East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM

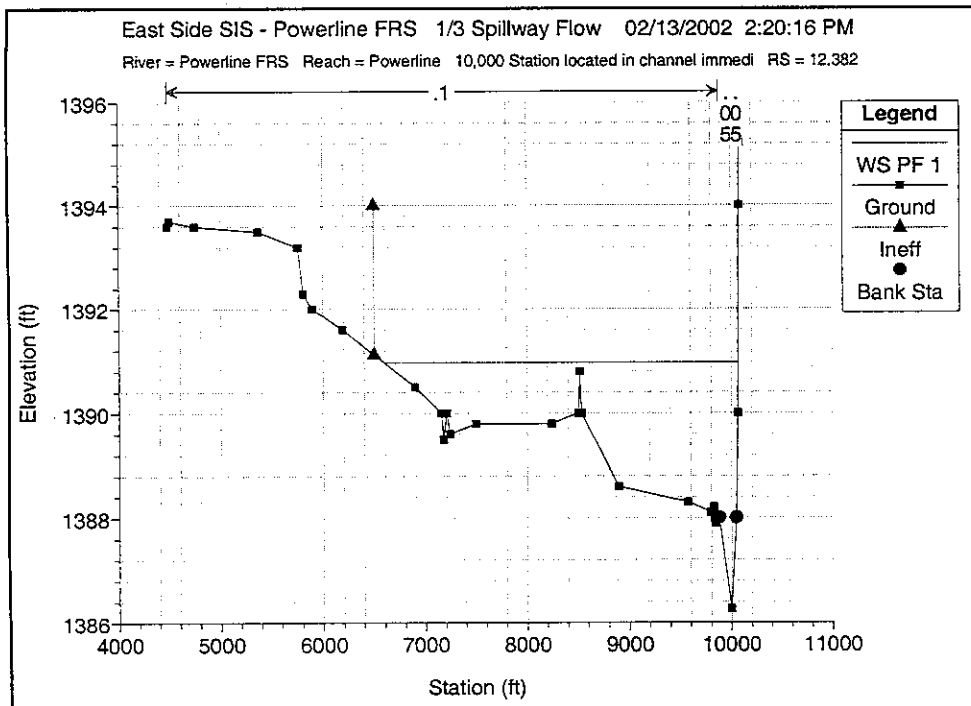
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.576

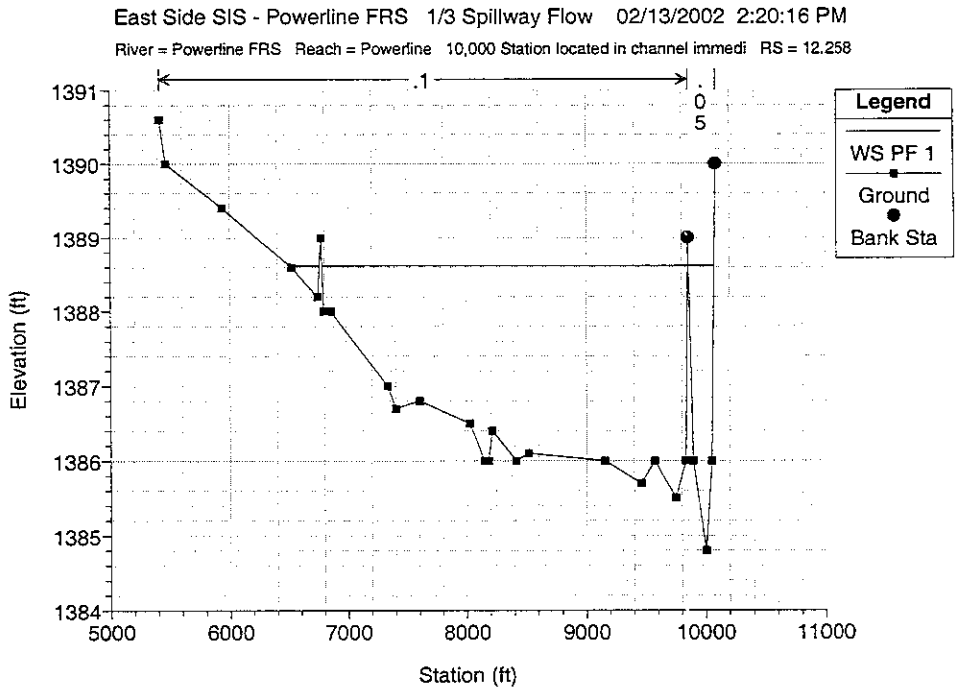


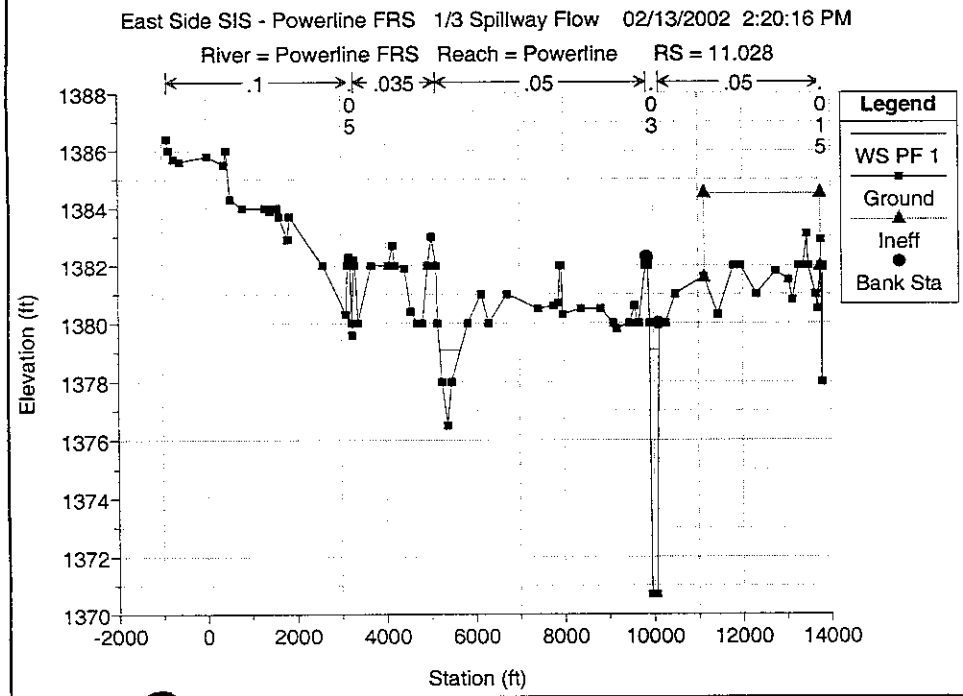
East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM

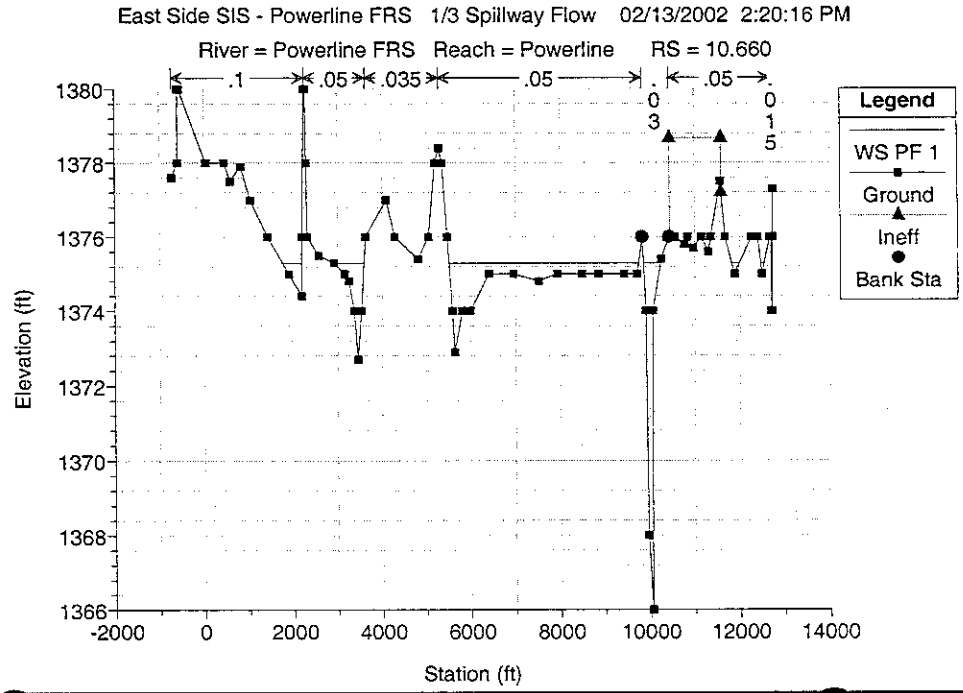
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.481

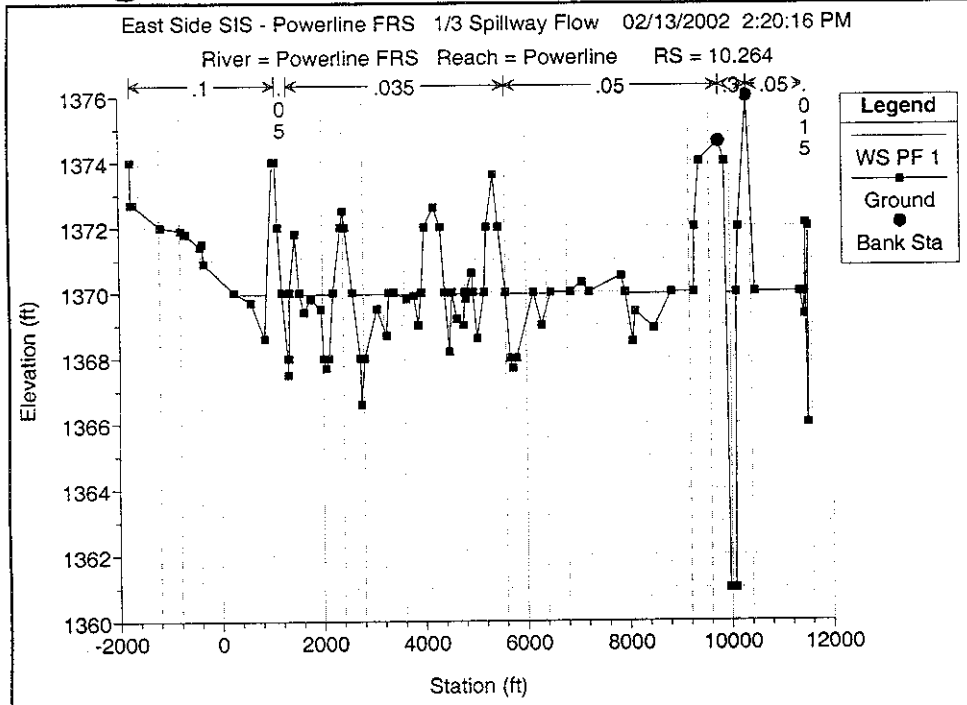


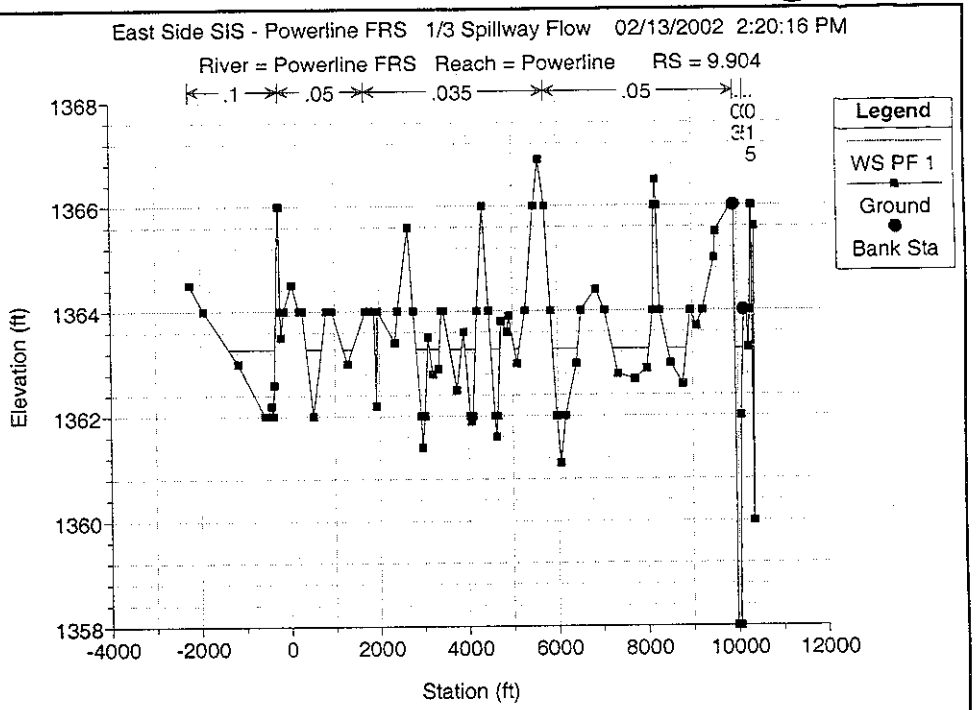

East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.382
.1
.055
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

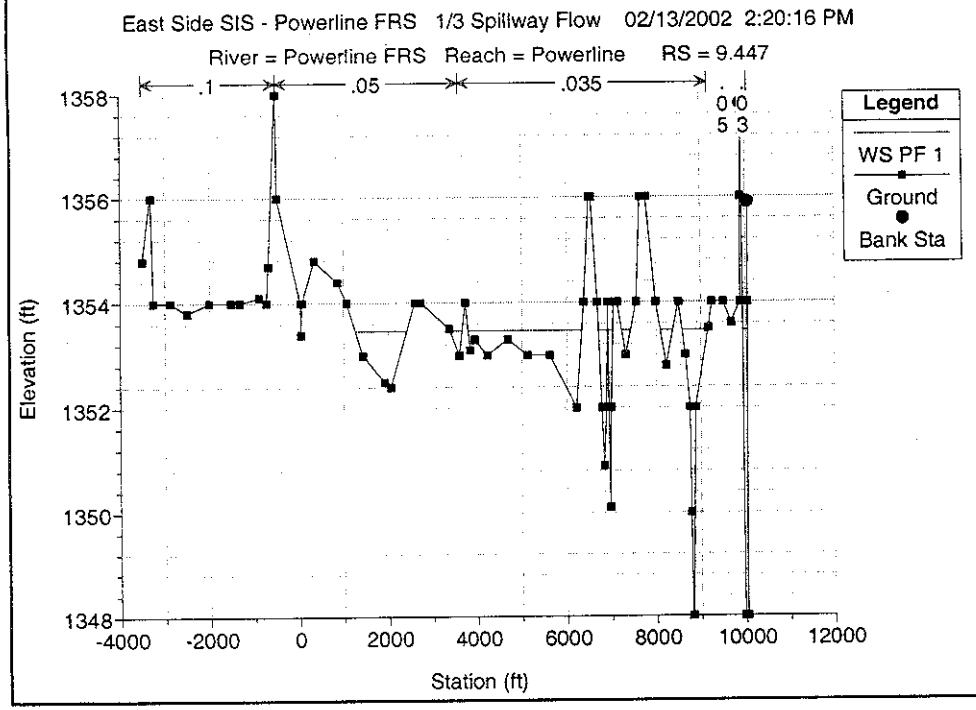

East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline 10,000 Station located in channel immedi RS = 12.258
.1
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

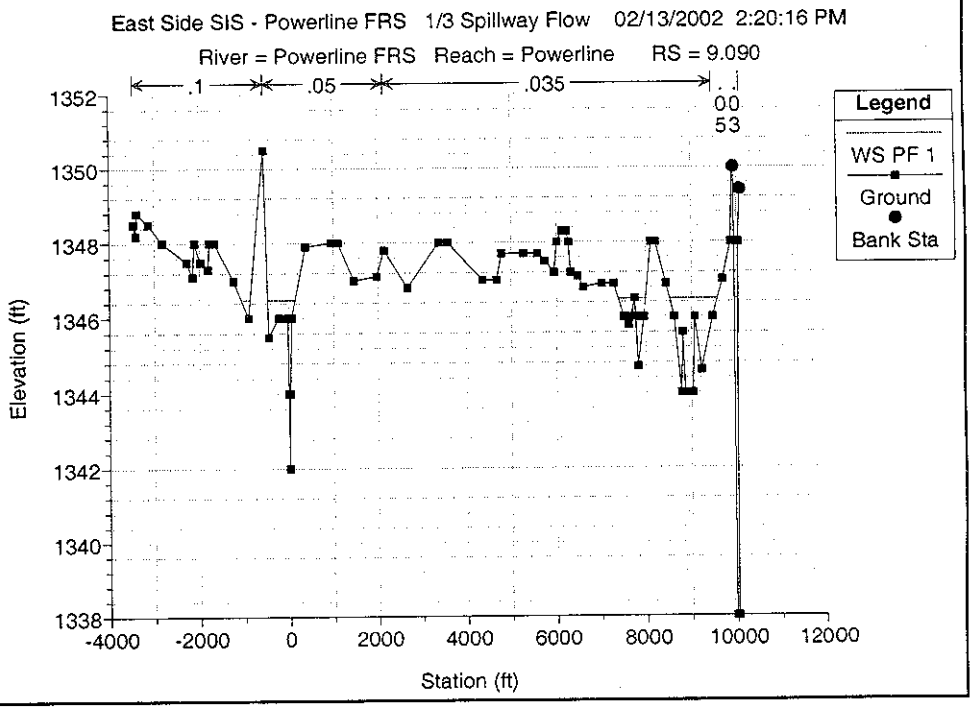

East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 11.028
.1
.05
.035
.05
.05
.05
.03
.015
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

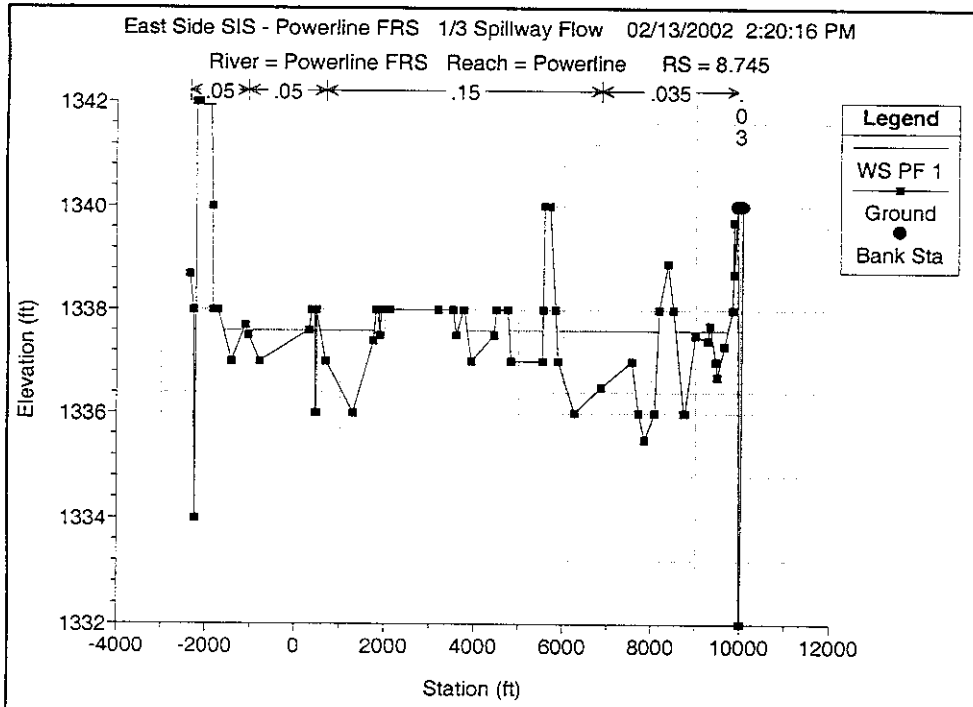

East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 10.660
.1
.05
.035
.05
.05
.05
.03
.015
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

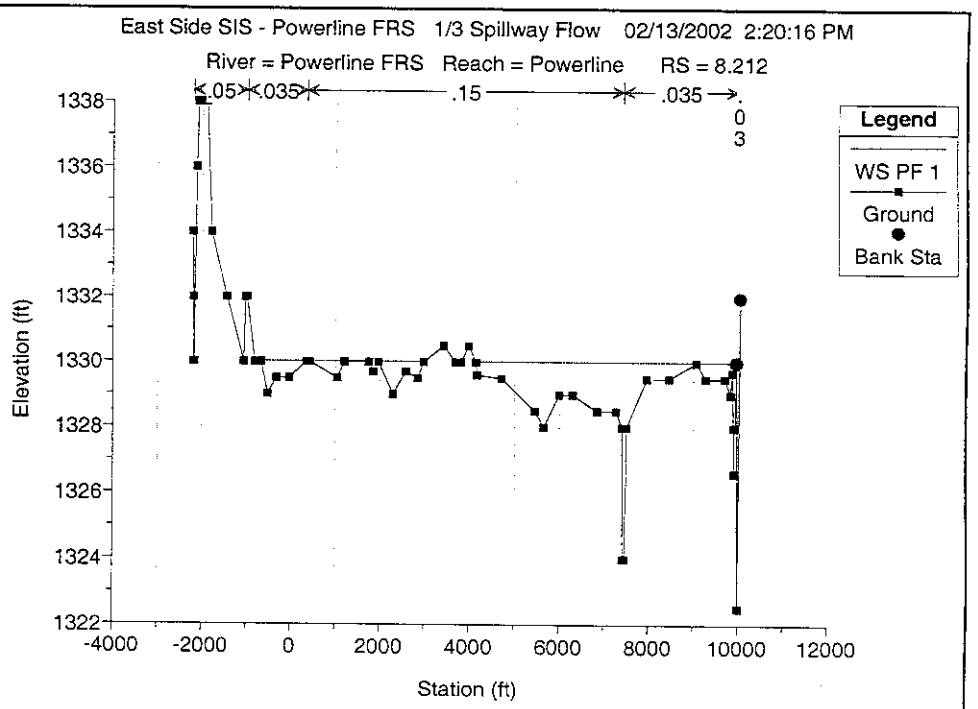

East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 10.264
.1
.035
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 9.904
.1
.05
.035
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 9.447
.1
.05
.035
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 9.090
.1
.05
.035
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 8.745
.05
.05
.15
.035
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
1342
1340
1338
1336
1334
1332
-4000
-2000
0
2000
4000
6000
8000
10000
12000
Station (ft)


East Side SIS - Powerline FRS 1/3 Spillway Flow 02/13/2002 2:20:16 PM
River = Powerline FRS Reach = Powerline RS = 8.212
.05
.035
.15
.035
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
1338
1336
1334
1332
1330
1328
1326
1324
1322
-4000
-2000
0
2000
4000
6000
8000
10000
12000
Station (ft)

HEC-RAS September 1998 Version 2.2
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

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

PROJECT DATA
Project Title: East Side SIS - Vineyard FRS
Project File : Vin1thr.prj
Run Date and Time: 02/06/2002 10:51:26 AM

Project in English units

Project Description:
Vineyard FRS - 1/3 Flow Scenario

Vineyard FRS Emergency Spillway to
approximately 1.1 miles east of the intersection of Pecos Avenue and Crismon
Road

FCD 98-33
Michael Baker Jr., Inc.

For the 2 cross sections which
reflect the Top of Bank elevations for the CAP (x-secs 19.515 and 19.537), the
the cross section ends had to be extended vertically for the computed water
surface. These extensions are in the ineffective flow portion of the cross
sections. The modeling approach at the CAP is discussed in Section 2.2 Special
Problems in the TDN.

PLAN DATA

Plan Title: 1/3 Spillway Flow
Plan File : m:\Folders from V\Fcdspill\TaskB\Power\Submit\Dec0301\HEC-RAS\Vineyard\1third\Vin1thr.P01

Geometry Title: Existing Conditions Geometry
Geometry File : m:\Folders from V\Fcdspill\TaskB\Power\Submit\Dec0301\HEC-
RAS\Vineyard\1third\Vin1thr.G01

Flow Title : 1/3 Flow Profile (Mixed Flow Regime)
Flow File : m:\Folders from V\Fcdspill\TaskB\Power\Submit\Dec0301\HEC-
RAS\Vineyard\1third\Vin1thr.F01

Plan Summary Information:

Number of:	Cross Sections =	66	Mulitple Openings =	0
	Culverts =	0	Inline Weirs =	0
	Bridges =	0		

Computational Information

Water surface calculation tolerance	=	0.01
Critical depth calculaton tolerance	=	0.01
Maximum number of interations	=	20
Maximum difference tolerance	=	0.3
Flow tolerance factor	=	0.001

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

FLOW DATA

Flow Title: 1/3 Flow Profile (Mixed Flow Regime)
Flow File : v:\Fcdspill\TaskB\Power\Submit\Dec0301\HEC-RAS\Vineyard\1third\Vin1thr.F01

Flow Data (cfs)

River	Reach	RS	PF 1
Vineyard FRS	Vineyard	20.000	3233
Vineyard FRS	Vineyard	14.523	3233
Vineyard FRS	Vineyard	3	9900

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Vineyard FRS	Vineyard	PF 1	Critical	Known WS = 1416.75

GEOMETRY DATA

Geometry Title: Existing Conditions Geometry
Geometry File : v:\Fcdspill\TaskB\Power\Submit\Dec0301\HEC-RAS\Vineyard\1third\Vin1thr.G01

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 20.000

INPUT
Description: Emergency Spillway Crest
Station Elevation Data num= 47

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9756.36	1580	9766.14	1580.77	9776.32	1580	9781.26	1579.35	9795.42	1578
9796.86	1577.92	9812.93	1577.36	9829.49	1576.85	9836.21	1576	9847.19	1574.41
9852.33	1574	9857.21	1573.61	9866.96	1573.37	9879.07	1573.2	9897.36	1573.25
9916.23	1573.03	9948.22	1572.96	9971.81	1572.93	9998.43	1572.93	10021.92	1572.96
10047.04	1572.96	10067.05	1572.91	10084.73	1572.98	10113.39	1573.21	10124.08	1573.2
10139.34	1573.42	10148.5	1574	10151.8	1574.39	10161.97	1575.93	10163.9	1576
10210.34	1576.73	10230.27	1578	10232.41	1578.17	10245.63	1578.41	10252.28	1578.27
10299.13	1578.17	10347.64	1578.03	10352.9	1578.05	10401.36	1578.24	10447.5	1578.5
10504.61	1578.71	10562.96	1578.45	10642.45	1578.74	10704.83	1579.08	10779.59	1578.93
10855.22	1578.81	10929.22	1578.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9756.36	.022	9781.26	.022	10245.63	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9781.26	10245.63	806.25	433.34	127.42	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
10245.63	10929.22	1581.5

Blocked Obstructions num= 1

Sta L	Sta R	Elev
10704.83	10929.22	1581.5

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1576.55	Element			
Vel Head (ft)	0.15	Wt. n-Val.		0.022	
W.S. Elev (ft)	1576.39	Reach Len. (ft)	806.25	433.34	127.42
Crit W.S. (ft)	1574.64	Flow Area (sq ft)		1028.08	
E.G. Slope (ft/ft)	0.000527	Area (sq ft)		1028.08	
Q Total (cfs)	3233.00	Flow (cfs)		3233.00	
Top Width (ft)	355.74	Top Width (ft)		355.74	
Vel Total (ft/s)	3.14	Avg. Vel. (ft/s)		3.14	
Max Chl Dpth (ft)	3.48	Hydr. Depth (ft)		2.89	
Conv. Total (cfs)	140794.0	Conv. (cfs)		140794.0	
Length Wtd. (ft)	433.34	Wetted Per. (ft)		356.08	
Min Ch El (ft)	1572.91	Shear (lb/sq ft)		0.10	
Alpha	1.00	Stream Power (lb/ft s)		0.30	

Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	990.57	392.27	488.75
C & E Loss (ft)	0.13	Cum SA (acres)	860.53	333.35	542.40

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9781.26	9874.13	212.87	87.85	41.20	6.58	2.14	2.42
9874.13	9967.01	1003.27	308.27	92.88	31.03	3.32	3.25
9967.01	10059.88	1069.10	320.25	92.87	33.07	3.45	3.34
10059.88	10152.76	933.61	295.31	92.93	28.88	3.18	3.16
10152.76	RB 10245.63	14.15	16.40	36.21	0.44	0.45	0.86

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.918

INPUT
Description:
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9668.89	1577.48	9681.42	1577.32	9695.98	1577.19	9709.31	1577.08	9796.73	1576.71
9810.3	1576.24	9811.3	1576.57	9813.37	1576	9820.96	1574	9822.02	1573.73
9951.72	1573.58	10093.15	1573.42	10111.69	1574	10120.71	1574.28	10128.26	1576
10141.33	1577.91	10156.43	1576.13	10170.8	1576	10229.98	1575.57	10234.55	1575.83
10235.4	1576	10245.28	1578						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9668.89	.022	9811.3	.022	10141.33	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9811.31	10141.33	495.89	497.31	498.61	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9668.89	9811.3	1579.54	10141.33	10245.28	1579.54

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1575.92	Element			
Vel Head (ft)	0.58	Wt. n-Val.		0.022	
W.S. Elev (ft)	1575.34	Reach Len. (ft)	495.89	497.31	498.61
Crit W.S. (ft)	1575.13	Flow Area (sq ft)		528.35	
E.G. Slope (ft/ft)	0.004029	Area (sq ft)		528.35	
Q Total (cfs)	3233.00	Flow (cfs)		3233.00	
Top Width (ft)	309.52	Top Width (ft)		309.52	
Vel Total (ft/s)	6.12	Avg. Vel. (ft/s)		6.12	
Max Chl Dpth (ft)	1.92	Hydr. Depth (ft)		1.71	
Conv. Total (cfs)	50932.4	Conv. (cfs)		50932.4	
Length Wtd. (ft)	497.31	Wetted Per. (ft)		309.86	
Min Ch El (ft)	1573.42	Shear (lb/sq ft)		0.43	
Alpha	1.00	Stream Power (lb/ft s)		2.62	
Frctn Loss (ft)	1.48	Cum Volume (acre-ft)	990.57	384.53	488.75
C & E Loss (ft)	0.09	Cum SA (acres)	860.53	330.04	542.40

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9811.30	9877.31	550.96	95.97	61.65	17.04	1.56	5.74
9877.31	9943.31	693.72	113.24	66.01	21.46	1.72	6.13
9943.31	10009.32	745.52	118.24	66.01	23.06	1.79	6.30
10009.32	10075.32	798.01	123.17	66.01	24.68	1.87	6.48
10075.32	RB 10141.33	444.79	77.73	50.19	13.76	1.55	5.72

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.824

INPUT
Description:
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9408.66	1577.91	9491.59	1577.38	9550.08	1576.38	9592.42	1576	9691.51	1575.28
9827.15	1575.06	9832.93	1574.49	9837.08	1574	9844.69	1572.87	9932.02	1572
9974.36	1571.58	10115.78	1571.63	10134.21	1572	10150.17	1572.32	10168.72	1575.24
10182.83	1572.88	10257.19	1572.11	10280.85	1572	10398.61	1571.77	10540.05	1571.15
10562.8	1571.65	10564.15	1572	10571.8	1574	10579.45	1576	10587.09	1578
10589.02	1578.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9408.66	.022	9827.15	.022	10168.72	.022

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9827.15	10168.72	424.27	427.26	382.35	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
10168.22	10589.02	1578.14

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1574.35	Element			
Vel Head (ft)	0.40	Wt. n-Val.		0.022	
W.S. Elev (ft)	1573.95	Reach Len. (ft)	424.27	427.26	382.35
Crit W.S. (ft)	1573.42	Flow Area (sq ft)		636.65	
E.G. Slope (ft/ft)	0.002291	Area (sq ft)		636.65	821.64
Q Total (cfs)	3233.00	Flow (cfs)		3233.00	
Top Width (ft)	718.35	Top Width (ft)		323.15	395.21
Vel Total (ft/s)	5.08	Avg. Vel. (ft/s)		5.08	
Max Chl Dpth (ft)	2.80	Hydr. Depth (ft)		1.97	
Conv. Total (cfs)	67546.9	Conv. (cfs)		67546.9	
Length Wtd. (ft)	419.95	Wetted Per. (ft)		323.37	
Min Ch El (ft)	1571.58	Shear (lb/sq ft)		0.28	
Alpha	1.00	Stream Power (lb/ft s)		1.43	
Frctn Loss (ft)	0.09	Cum Volume (acre-ft)	990.57	377.88	484.05
C & E Loss (ft)	0.18	Cum SA (acres)	860.53	326.43	540.14

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9827.15	9895.46	260.89	71.78	58.15	8.07	1.24	3.63
9895.46	9963.78	644.87	131.77	68.32	19.95	1.93	4.89
9963.78	10032.09	900.28	160.97	68.31	27.85	2.36	5.59
10032.09	10100.41	890.31	159.90	68.31	27.54	2.34	5.57
10100.41	RB 10168.72	536.66	112.25	60.27	16.60	1.87	4.78

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.743

INPUT
Description:
Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9013.45	1576.03	9014.58	1576	9075.85	1574.13	9114.32	1574.19	9116.96	1574
9124.8	1573.46	9139.12	1574	9139.82	1574.02	9168.13	1574.26	9173.03	1574
9177.19	1573.73	9181.64	1574	9183.86	1574.16	9208.39	1574	9217.26	1573.94

```
 9358.69 1572.94 9500.11 1572.44 9641.52  1572.8 9782.96 1572.39 9850.08 1572.15
 9851.38    1572 9861.77 1570.67 9913.42    1570 9924.37 1569.8610065.79 1569.98
10168.09 1569.8310176.79    157010191.34  1570.210207.22 1570.6710225.68 1571.36
10263.22  1571.310305.13    1570   10331 1569.5710347.85 1569.5710430.82 1568.95
10452.08 1568.6110475.21 1569.32 10489.9 1568.8210502.03 1569.3110652.08 1569.48
10663.78 1569.6910722.49 1569.5710723.68    157010729.19    157210735.02    1574
10741.14    157610746.34    157810747.77 1578.6310753.86  1578.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 9013.45    .022 9850.08    .02210225.68    .022

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9850.0810225.68            353.6  355.36   359.8             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 9013.45    9792    157810413.4510753.86    1578

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1574.08   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.03   Wt. n-Val.                0.022      0.022      0.022
  W.S. Elev (ft)            1574.05   Reach Len. (ft)          353.60     355.36     359.80
  Crit W.S. (ft)            1571.05   Flow Area (sq ft)        104.37    1483.04     740.55
  E.G. Slope (ft/ft)       0.000070   Area (sq ft)             816.36    1483.04    2229.77
  Q Total (cfs)             3233.00   Flow (cfs)                87.39    2098.45    1047.16
  Top Width (ft)            1572.04   Top Width (ft)           686.94     375.60     509.50
  Vel Total (ft/s)             1.39   Avg. Vel. (ft/s)           0.84       1.41       1.41
  Max Chl Dpth (ft)            5.44   Hydr. Depth (ft)           1.80       3.95       3.94
  Conv. Total (cfs)        385443.0   Conv. (cfs)             10418.8   250179.9   124844.2
  Length Wtd. (ft)           356.88   Wetted Per. (ft)           58.08     375.72     187.80
  Min Ch El (ft)            1569.83   Shear (lb/sq ft)           0.01       0.02       0.02
  Alpha                        1.02   Stream Power (lb/ft s)     0.01       0.02       0.02
  Frctn Loss (ft)              0.02   Cum Volume (acre-ft)     986.59     367.49     470.66
  C & E Loss (ft)              0.01   Cum SA (acres)           857.19     323.00     536.17


Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)          (ft)            (cfs)    (sq ft)      (ft)                 (ft)     (ft/s)
  9766.42       9850.08         87.39     104.37     58.08       2.70       1.80       0.84
  LB 9850.08    9925.20        360.81     271.31     75.22      11.16       3.61       1.33
  9925.20       10000.32       456.73     312.36     75.12      14.13       4.16       1.46
  10000.32      10075.44       445.38     307.68     75.12      13.78       4.10       1.45
  10075.44      10150.56       453.41     311.00     75.12      14.02       4.14       1.46
  10150.56      RB 10225.68    382.11     280.69     75.14      11.82       3.74       1.36
  10225.68      10278.50       162.62     147.78     52.83       5.03       2.80       1.10
  10278.50      10331.32       288.92     208.65     52.83       8.94       3.95       1.38
  10331.32      10384.13       368.94     241.59     52.82      11.41       4.57       1.53
  10384.13      10436.95       226.68     142.52     29.32       7.01       4.86       1.59


Warning: Divided flow computed for this cross-section.

CROSS SECTION          RIVER: Vineyard FRS
REACH: Vineyard           RS: 19.676

INPUT
Description:
Station Elevation Data    num=      48
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 7980.27 1574.95 8121.78 1574.49  8263.2 1574.16 8341.89    1574 8357.18 1573.92
 8381.53    1572 8384.47 1571.59 8388.48    1572 8404.63 1572.84  8422.7 1573.54
 8448.46 1573.37 8483.47 1573.07 8495.52 1573.62 8546.04 1572.99 8687.46 1572.37
 8828.89 1572.06 8970.31 1572.37 9036.11    1573 9111.73  1572.8 9169.93    1572
 9253.16 1571.32 9394.56 1571.96 9535.99 1570.98 9612.62    1570 9677.43 1569.14
 9818.83 1568.28  9897.6 1568.19 9908.02 1568.29 9960.26 1568.0610101.68 1568.35
10243.09 1568.8310304.91 1568.8610334.68 1568.8710372.39    156810467.52  1567.2
10595.04 1567.3110856.03 1567.06 10866.3 1567.1110905.16 1567.0810917.37 1567.42
10918.89    156810924.14    157010929.38    157210934.62    157410939.87    1576
10945.11    157810948.28 1579.2210954.12 1579.11

Manning's n Values        num=       3
```

Sta	n Val	Sta	n Val	Sta	n Val
7980.27	.05	9818.83	.05	10243.09	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9818.83	10243.09	347.45	326.19	237.54	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
7980.27	9643	1576	10621.78	10954.12	1576

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1574.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1574.05	Reach Len. (ft)	347.45	326.19	237.54
Crit W.S. (ft)	1568.95	Flow Area (sq ft)	915.62	2422.66	2347.17
E.G. Slope (ft/ft)	0.000035	Area (sq ft)	3379.56	2422.66	4439.62
Q Total (cfs)	3233.00	Flow (cfs)	483.06	1359.18	1390.76
Top Width (ft)	2615.66	Top Width (ft)	1499.75	424.26	691.65
Vel Total (ft/s)	0.57	Avg. Vel. (ft/s)	0.53	0.56	0.59
Max Chl Dpth (ft)	6.99	Hydr. Depth (ft)	5.21	5.71	6.20
Conv. Total (cfs)	547124.1	Conv. (cfs)	81748.9	230015.7	235359.5
Length Wtd. (ft)	293.96	Wetted Per. (ft)	175.84	424.26	378.70
Min Ch El (ft)	1568.06	Shear (lb/sq ft)	0.01	0.01	0.01
Alpha	1.00	Stream Power (lb/ft s)	0.01	0.01	0.01
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	969.56	351.55	443.11
C & E Loss (ft)	0.00	Cum SA (acres)	848.31	319.74	531.21

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9634.97	9818.83	483.06	915.62	175.84	14.94	5.21	0.53
LB 9818.83	9903.68	279.81	493.20	84.85	8.65	5.81	0.57
9903.68	9988.53	286.48	500.22	84.85	8.86	5.90	0.57
9988.53	10073.39	282.13	495.65	84.85	8.73	5.84	0.57
10073.39	10158.24	266.27	478.75	84.85	8.24	5.64	0.56
10158.24	RB 10243.09	244.49	454.84	84.85	7.56	5.36	0.54
10243.09	10314.19	193.64	369.68	71.10	5.99	5.20	0.52
10314.19	10385.30	217.56	396.46	71.11	6.73	5.58	0.55
10385.30	10456.40	277.62	458.89	71.11	8.59	6.45	0.60
10456.40	10527.50	304.17	484.73	71.10	9.41	6.82	0.63
10527.50	10598.61	300.23	480.95	71.10	9.29	6.76	0.62
10598.61	10669.71	97.53	156.45	23.17	3.02	6.75	0.62

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.614

INPUT
Description:
Station Elevation Data num= 103

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7616.41	1574.4	7659.77	1574.33	7668.64	1574	7671.15	1573.91	7686.88	1573.67
7757.83	1572.77	7976.79	1572.77	8076.7	1572.63	8121.8	1572.75	8125.5	1572
8135.24	1570	8137.24	1569.59	8141.02	1569.46	8142.92	1570	8150.27	1572
8153.07	1572.68	8175.29	1572.63	8180.14	1572	8180.44	1571.96	8180.93	1572
8192.67	1572.71	8320.81	1572	8345.62	1571.83	8360.97	1570.56	8376.36	1572
8376.7	1572.03	8421.22	1572	8465.18	1571.81	8473.77	1570.7	8483.68	1571.93
8493.53	1571.69	8500.74	1570.03	8515.67	1571.89	8528.86	1572	8535.94	1572.1
8538.53	1572	8547.86	1571.63	8564.51	1571.88	8586.9	1571.7	8594.62	1570
8599.3	1568.88	8608.16	1570	8616.32	1570.88	8618.67	1570	8620.6	1569.25
8624.47	1570	8630.67	1571.22	8682.59	1571.23	8697.58	1571.19	8814.65	1570.8
8823.62	1570	8858.06	1568	8863.94	1567.34	8881.09	1568	8882.43	1568
8884.48	1567.85	8885.42	1568	8892.73	1569.17	8920.58	1570	8924.92	1570.24
8959.97	1570	9001.16	1569.9	9013.09	1569.42	9067.75	1569.64	9135.11	1569.05
9276.54	1568.63	9417.95	1568.01	9429.99	1568	9491.6	1567.89	9501.75	1568
9505.93	1568.05	9510.75	1568	9559.39	1567.46	9700.81	1566.63	9842.22	1566.22
9951.8	156610030.46		156610202.79		1566.31	10295.78	1567.42	10399.89	1566.62
10486.8	1566	10519	1565.81	10580.35	156610587.59		156610662.89		1566
10827.64	156610834.62		156610853.18		1566.14	10863.1	156610900.31		1565.54
10967.29	1565.34	10977.44	1565.43	11032.52	1565.53	11039.11	156611041.86		1566.19
11046.39	156811051.39		157011056.39		157211061.39		157411066.39		1576
11071.39	157811075.19		1579.52	11081.92	1579.46				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7616.41	.05	9700.81	.08	10827.64	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9505.93	10295.78	876.62	404.64	269.25	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
7616.41	9478	1576	10741.41	11081.92	1576

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1574.04	Element			
Vel Head (ft)	0.00	Wt. n-Val.	0.050	0.071	0.080
W.S. Elev (ft)	1574.04	Reach Len. (ft)	876.62	404.64	269.25
Crit W.S. (ft)	1566.92	Flow Area (sq ft)	170.50	5929.92	3458.90
E.G. Slope (ft/ft)	0.000019	Area (sq ft)	5808.19	5929.92	6032.03
Q Total (cfs)	3233.00	Flow (cfs)	73.47	2066.26	1093.28
Top Width (ft)	3393.94	Top Width (ft)	1838.38	789.85	765.71
Vel Total (ft/s)	0.34	Avg. Vel. (ft/s)	0.43	0.35	0.32
Max Chl Dpth (ft)	8.70	Hydr. Depth (ft)	6.10	7.51	7.76
Conv. Total (cfs)	744774.4	Conv. (cfs)	16924.0	475996.4	251854.0
Length Wtd. (ft)	443.82	Wetted Per. (ft)	27.93	789.86	445.64
Min Ch El (ft)	1566.00	Shear (lb/sq ft)	0.01	0.01	0.01
Alpha	1.01	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	932.92	320.28	414.56
C & E Loss (ft)	0.01	Cum SA (acres)	835.00	315.19	527.24

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9316.98	9505.93	73.47	170.50	27.93	2.27	6.10	0.43
LB 9505.93	9663.90	482.94	1055.74	157.97	14.94	6.68	0.46
9663.90	9821.87	416.52	1187.92	157.97	12.88	7.52	0.35
9821.87	9979.84	401.61	1253.05	157.97	12.42	7.93	0.32
9979.84	10137.81	405.23	1259.82	157.97	12.53	7.98	0.32
10137.81	RB 10295.78	359.95	1173.39	157.98	11.13	7.43	0.31
10295.78	10374.39	159.10	544.22	78.62	4.92	6.92	0.29
10374.39	10453.01	182.50	590.93	78.62	5.64	7.52	0.31
10453.01	10531.62	204.80	633.25	78.62	6.33	8.06	0.32
10531.62	10610.24	206.17	635.79	78.61	6.38	8.09	0.32
10610.24	10688.85	204.19	632.10	78.61	6.32	8.04	0.32
10688.85	10767.46	136.52	422.62	52.56	4.22	8.04	0.32

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.537

INPUT
Description: Top of CAP - East Bank
Station Elevation Data num= 108

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7945.61	1572.58	8020.28	1572.34	8094.55	1572.37	8171.43	1572.51	8238.74	1572.46
8320.61	1572.68	8401.23	1573.25	8467	1572.89	8539	1572.96	8616	1573.11
8689.48	1572.61	8761.53	1572.56	8839.54	1572.75	8933.3	1572.82	9012.61	1572.85
9094.19	1572.85	9169.63	1572.85	9250.49	1572.87	9337.78	1572.8	9431.7	1572.85
9519.19	1573.18	9595.45	1572.96	9668.98	1573.01	9748.54	1572.8	9829.07	1572.61
9927.66	1572.82	10009.73	1572.85	10080.67	1572.96	10162.02	1573.01	10253.21	1572.73
10323.55	1572.56	10406.81	1572.77	10485.93	1572.81	0565.05	1572.99	10629.6	1572.82
10711.62	1572.99	10787.63	1573.01	10847.32	1573.18	10905.92	1573.16	10973.76	1573.01
11043.23	1572.75	11113.1	1572.51	11175.29	1572.46	11237.16	1572.81	1305.44	1572.85
11356.94	1572.27	11411.8	1572.22	11479.15	1572.19	11480.26	1572.19	11542.9	1572.1
11596.63	1572.22	11666.5	1572.24	11749.4	1572.24	11830.15	1572.39	11899.16	1572.53
11958.34	1572.44	11970.02	1572.11	2002.54	157212	019.53	1571.95	12068.68	1571.76
12115.14	1571.97	12208.51	1571.95	12233.52	157212	256.63	1572.05	12269.6	1572
12309.93	1571.85	12360.54	1571.78	12412.92	1571.97	12462.59	1571.95	12484.62	1572
12516.23	1572.07	12577.34	1572.14	12604.35	157212	631.79	1571.85	12683.15	1571.78
12726.91	1571.73	12771.59	1571.59	12817.67	1571.81	2860.98	1571.85	12913.87	1571.88
12962.1	1571.9	13014.9	1571.68	13068.11	1571.59	13117.45	1571.76	13164.87	1571.8

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13217.39 1571.8313264.36 1571.5613324.04 1571.5113375.58 1571.4613429.83 1571.68
13480.27 1571.5613531.29 1571.37 13579.6 1571.46 13628.4 1571.6613721.86 1571.49
13766.12 1571.4113810.82 1571.41 13848.3 1571.3913908.11 1571.4613965.91 1571.15
 14013.9 1571.51 14057.9 1571.5414098.51 1571.5614138.18 1571.4414207.21 1571.61
14252.27 1571.59 14303.1 1571.27   14348 1571.54

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 7945.61    .022 9337.78    .02210253.21    .022

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9337.7810253.21           119.05  115.13  126.68              .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 7945.61    8710  1575.510845.61   14348  1575.5

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1574.01   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.03   Wt. n-Val.                 0.022      0.022      0.022
  W.S. Elev (ft)            1573.99   Reach Len. (ft)           119.05     115.13     126.68
  Crit W.S. (ft)            1573.26   Flow Area (sq ft)         749.70    1005.57     670.38
  E.G. Slope (ft/ft)       0.000328   Area (sq ft)             1723.31    1005.57    7788.90
  Q Total (cfs)             3233.00   Flow (cfs)               1032.47    1309.82     890.71
  Top Width (ft)            6402.39   Top Width (ft)           1392.17     915.43    4094.79
  Vel Total (ft/s)             1.33   Avg. Vel. (ft/s)            1.38       1.30       1.33
  Max Chl Dpth (ft)            2.84   Hydr. Depth (ft)            1.19       1.10       1.13
  Conv. Total (cfs)        178472.1   Conv. (cfs)             56995.9    72306.2    49170.0
  Length Wtd. (ft)           119.18   Wetted Per. (ft)         627.78     915.43     592.40
  Min Ch El (ft)            1572.61   Shear (lb/sq ft)            0.02       0.02       0.02
  Alpha                        1.00   Stream Power (lb/ft s)      0.03       0.03       0.03
  Frctn Loss (ft)              0.10   Cum Volume (acre-ft)     857.14     288.07     371.85
  C & E Loss (ft)              0.06   Cum SA (acres)           802.49     307.27     512.21


Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
         than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  8641.70       8780.91         152.60      99.68     70.91       4.72       1.41       1.53
  8780.91       8920.13         245.64     173.72    139.22       7.60       1.25       1.41
  8920.13       9059.35         213.48     159.70    139.22       6.60       1.15       1.34
  9059.35       9198.56         209.59     157.94    139.22       6.48       1.13       1.33
  9198.56       9337.78         211.15     158.64    139.22       6.53       1.14       1.33
  LB 9337.78    9520.87         248.24     195.21    183.09       7.68       1.07       1.27
  9520.87       9703.95         212.28     177.71    183.09       6.57       0.97       1.19
  9703.95       9887.04         325.01     229.46    183.09      10.05       1.25       1.42
  9887.04       10070.12        278.68     209.23    183.09       8.62       1.14       1.33
  10070.12      RB 10253.21     245.62     193.97    183.09       7.60       1.06       1.27
  10253.21      10662.69        678.26     492.56    409.48      20.98       1.20       1.38
  10662.69      11072.17        212.45     177.82    182.92       6.57       0.97       1.19


Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less
         than 0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

CROSS SECTION          RIVER: Vineyard FRS
REACH: Vineyard           RS: 19.515

INPUT
Description: Top of CAP - West Bank
Station Elevation Data    num=      79
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 7978.26  1572.8 8061.18 1573.04 8131.25 1572.99 8210.06  1572.8 8315.32 1572.87
  8423.2 1573.04  8521.5 1572.92 8625.42 1572.96 8720.36 1572.94 8801.41 1573.08
  8883.7 1572.96 9079.33 1572.68 9161.37 1572.53 9257.34 1572.94 9333.63 1573.13
 9399.46 1573.16 9482.92 1573.13 9549.15 1573.11 9611.35 1573.04  9663.4 1573.01
 9743.33  1573.3 9815.39 1573.52 9957.46 1573.5410046.94 1573.5410137.71 1573.68
10218.58 1573.7810288.09 1573.4210378.87 1573.4210463.44 1573.4210555.65 1573.25
 10640.6 1573.5410738.89 1573.6110796.63 1573.7310859.55 1573.7510916.98 1573.73
 10974.9 1573.6611059.28 1573.8511130.62 1573.5411194.45 1573.2311245.03 1573.16
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11293.78  1573.311344.25 1573.2811376.05 1573.2811451.65 1572.9711524.95 1573.09
   11598 1572.9711663.98 1572.9711763.07 1572.6611861.49 1572.9211943.32 1573.05
12031.02 1572.95 12108.1 1572.6812276.63 1572.6112359.74 1572.7312416.67 1572.46
12500.88 1572.6812559.91 1572.68 12634.8  1572.912750.74  1572.912806.61 1572.75
12885.55 1572.7513010.29 1572.58 13085.2 1572.4913146.91 1572.4113204.48 1572.29
13359.31 1572.6113506.27 1572.7313588.94 1572.6613665.56  1572.713770.87 1572.39
13827.51 1571.4413902.82 1571.1713981.75 1571.2414066.74 1571.3914133.77 1571.15
14211.91 1571.07 14288.4 1571.5614352.95 1571.6314413.29 1571.59

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 7978.26    .022 9399.46    .02210218.58    .022

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9399.4610218.58           384.02  203.25  127.25             .3       .5
Ineffective Flow     num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 7978.26    8544  1574.510913.2614413.29  1574.5

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1573.85   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.22   Wt. n-Val.                  0.022      0.022      0.022
  W.S. Elev (ft)            1573.63   Reach Len. (ft)            384.02     203.25     127.25
  Crit W.S. (ft)            1573.63   Flow Area (sq ft)          628.07     220.16      94.59
  E.G. Slope (ft/ft)       0.005535   Area (sq ft)              1025.19     220.16    3785.31
  Q Total (cfs)             3233.00   Flow (cfs)                2568.49     508.31     156.20
  Top Width (ft)            5934.01   Top Width (ft)            1421.20     706.91    3805.90
  Vel Total (ft/s)             3.43   Avg. Vel. (ft/s)             4.09       2.31       1.65
  Max Chl Dpth (ft)            2.56   Hydr. Depth (ft)             0.73       0.31       0.19
  Conv. Total (cfs)         43456.2   Conv. (cfs)               34524.2     6832.4     2099.6
  Length Wtd. (ft)           273.75   Wetted Per. (ft)           855.46     706.91     502.13
  Min Ch El (ft)            1573.01   Shear (lb/sq ft)             0.25       0.11       0.07
  Alpha                        1.21   Stream Power (lb/ft s)       1.04       0.25       0.11
  Frctn Loss (ft)              1.86   Cum Volume (acre-ft)       853.38     286.45     355.02
  C & E Loss (ft)              0.05   Cum SA (acres)             798.65     305.13     500.73

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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta      Right Sta        Flow       Area       W.P.     % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                  (ft)     (ft/s)
  8404.62       8546.74           7.48       1.93       2.74       0.23       0.70       3.89
  8546.74       8688.86         370.45      97.09     142.12      11.46       0.68       3.82
  8688.86       8830.98         320.67      89.03     142.12       9.92       0.63       3.60
  8830.98       8973.10         383.74      99.16     142.12      11.87       0.70       3.87
  8973.10       9115.22         589.97     128.36     142.12      18.25       0.90       4.60
  9115.22       9257.34         641.38     134.96     142.12      19.84       0.95       4.75
  9257.34       9399.46         254.82      77.56     142.12       7.88       0.55       3.29
  LB 9399.46    9563.28         208.32      82.00     163.82       6.44       0.50       2.54
  9563.28       9727.11         247.64      90.96     163.82       7.66       0.56       2.72
  9727.11       9890.93          38.70      29.87     163.82       1.20       0.18       1.30
  9890.93       10054.76         12.67      15.28     163.82       0.39       0.09       0.83
  10054.76      RB 10218.58       0.96       2.05      51.62       0.03       0.04       0.47
  10218.58      10638.05        152.32      88.66     390.83       4.71       0.23       1.72
  10638.05      11057.52          3.88       5.93     111.29       0.12       0.05       0.65

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.477

INPUT
Description: Downstream of CAP
Station Elevation Data num= 213

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7983.58	1562.41	8045.31	1562.09	8054.43	1562	8083.59	1561.7	8141.47	1562
8162.36	1562.11	8183.58	1562.39	8222.5	1563.01	8256.74	1562.51	8283.57	1562.13
8383.58	1562.15	8417.47	1562.05	8483.57	1562.13	8564.48	1562	8569.78	1561.72
8579.84	1562	8583.59	1562.1	8683.58	1562.56	8783.59	1562.61	8883.58	1562.63
8983.59	1562.63	9083.58	1562.63	9183.57	1562.46	9283.58	1562.58	9367.01	1562.45
9383.44	1562.11	9383.57	1562.03	9415.68	1562.56	9441.42	1562.53	9472.89	1562.16
9473.59	1562	9486.06	1560	9491.07	1559.37	9495.59	1560	9512.29	1562
9519.26	1562.81	9546.72	1562	9581.95	1560.7	9612.9	1562	9614.85	1562.19
9615.51	1562	9622.18	1560	9624.71	1559.09	9630.69	1560	9645.13	1561.89
9650.83	1561.38	9655.6	1562	9658.15	1562.21	9669.03	1562	9669.06	1562
9682.29	1560.05	9692.48	1561.86	9701.38	1560.28	9708.36	1561.14	9722.96	1560
9732.87	1558.28	9740.66	1560	9749.04	1561.78	9783.59	1561.96	9793.53	1560
9793.59	1559.99	9793.69	1560	9810.35	1562	9811.05	1562.07	9819.53	1562
9874.15	1561.55	9896.1	1560.31	9908.76	1561.18	9920.4	1561.1	9927.05	1560
9929.79	1559.56	9933.48	1560	9946.82	1561.65	9993.51	1561.58	9999.93	1560.62
10014.53	1561.16	10021.21	1560.21	10032.88	1561.31	10092.28	1561.64	10143.37	1562
10146.08	1562.03	10153.47	156	10186.82	156	10217.22	156	10256.46	1562
10316.92	1562.07	10370.26	1562.22	10389.76	1562.28	10419.91	1562.32	10450.04	1562.37
10488.22	1562.39	10506.71	1562.39	10547.24	1562.5	10590.14	1562.55	10629.86	1562.59
10667.15	1562.75	10687.91	1562.77	10706.84	1562.89	10734.18	1563.08	10757.52	1563.23
10776.83	1563.26	10801.03	1563.23	10823.71	1563.13	10844.04	1562.91	10869.34	1562.48
10887.29	1562.21	10907.33	156	10924.74	1561.82	10971.62	1561.63	10992.59	1561.6
11008.71	1561.57	11033.02	1561.53	11050.12	1561.5	11069.66	1561.44	11098.14	1561.32
11121.62	1561.25	11144.65	1561.2	11171.2	1561.16	11192.89	1561.12	11209.79	1561.09
11256	1560.93	11276.31	1560.95	11294.2	156	11309.57	1561.01	11342.13	1560.79
11357.77	1560.76	11374.75	1560.74	11390.63	1560.76	11411.03	1560.73	11454.05	1560.59
11480.65	1560.47	11506.58	1560.35	11526.03	1560.26	11570.34	1560.13	11583.32	1560.08
11590.51	156	11626.73	1559.59	11658	1559.21	11677.12	1558.97	11696.01	1558.98
11717.81	1559.06	11742.6	1559.09	11769.09	1559.31	11797.94	1559.64	11816.99	1559.88
11825.42	156	11837.63	1560.17	11864.35	1560.48	11886.36	1560.57	11927.36	1560.66
11946.35	1560.67	11964.59	1560.71	11987.42	1560.76	12016.37	1560.83	12067.2	1560.85
12097.65	1560.77	12122.01	1560.71	12152.28	1560.75	12196.83	1560.91	12216.71	1560.97
12256.53	1561.11	12278.78	1561.26	12297.98	1561.4	12324.06	1561.55	12389.93	1561.67
12424.2	1561.76	12466.71	1561.87	12507.85	1561.96	12528.79	1562	12551	1562.04
12586.56	1562.07	12632.33	1562.09	12674.72	1562.1	12732.64	1562.11	12773.86	1562.18
12817.31	1562.31	12861.92	1562.2	12902.1	1562.03	12910.6	156	12926.65	1561.97
12964.59	1561.91	12999.02	1561.8	13044.52	1561.64	13076.83	1561.57	13111.09	1561.55
13149.13	1561.6	13179.32	1561.73	13221.89	1561.78	13269	1561.7	13300.25	1561.76
13343.85	1561.84	13388.61	1561.93	13413.05	1561.95	13467.59	1561.91	13502.24	1561.74
13545.84	1561.63	13580.49	1561.54	13612.73	1561.24	13659.39	1560.87	13680.07	1560.9
13724.67	156	13779.48	1560.93	13825.22	1560.77	14020.76	156	14023.54	1559.86
14030.59	156	14111.26	1560.13	14269.96	156	14331.07	1563.04	14332.93	1562.62
14334.54	1563.17	14345.57	156	14401.58	1566				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7983.58	.05	9472.89	.05	10143.37	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9472.89	10143.37	404.21	378.84	343.37	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
10993.58	14401.58	1566

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1566.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	5.77	Wt. n-Val.		0.050	
W.S. Elev (ft)	1561.18	Reach Len. (ft)	404.21	378.84	343.37
Crit W.S. (ft)	1562.22	Flow Area (sq ft)		167.69	
E.G. Slope (ft/ft)	0.723044	Area (sq ft)		167.69	1171.65

Q Total (cfs)	3233.00	Flow (cfs)		3233.00		
Top Width (ft)	1936.05	Top Width (ft)		249.43	1686.62	
Vel Total (ft/s)	19.28	Avg. Vel. (ft/s)		19.28		
Max Chl Dpth (ft)	2.90	Hydr. Depth (ft)		0.67		
Conv. Total (cfs)	3802.1	Conv. (cfs)		3802.1		
Length Wtd. (ft)	373.58	Wetted Per. (ft)		251.63		
Min Ch El (ft)	1558.28	Shear (lb/sq ft)		30.08		
Alpha	1.00	Stream Power (lb/ft s)		579.98		
Frctn Loss (ft)	5.38	Cum Volume (acre-ft)	848.86	285.54	347.78	
C & E Loss (ft)	1.63	Cum SA (acres)	792.38	302.90	492.70	

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9472.89	9606.99	502.27	30.15	51.29	15.54	0.59	16.66
9606.99	9741.08	1891.68	80.35	81.37	58.51	1.00	23.54
9741.08	9875.18	201.25	12.27	21.36	6.22	0.58	16.40
9875.18	10009.27	522.26	35.98	75.27	16.15	0.48	14.52
10009.27	RB 10143.37	115.55	8.95	22.33	3.57	0.40	12.91

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.405

INPUT
Description:
Station Elevation Data num= 122

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8144.55	1560.78	8187.86	1560	8302.6	1558.99	8315.81	1559.07	8347.82	1559.04
8356.75	1558.34	8362.84	1559.04	8405.66	1559.08	8422.06	1558.29	8454.3	1559.13
8470.66	1559.64	8756.26	1560	8772.8	1560.45	8774.8	1560	8777.57	1559.15
8800.62	1559.02	8806.76	1560	8810.83	1560.62	8829.51	1560	8885.61	1559.66
8985.6	1559.66	9085.61	1559.88	9453.11	1560	9547.68	1560	9686.39	1559.77
9694.69	1558.13	9705.54	1560	9705.58	1560.01	9705.61	1560	9712.72	1558
9719.79	1556	9720.07	1555.92	9720.41	1556	9729.69	1558	9736.75	1559.43
9750.93	1558.5	9761.05	1558.99	9785.41	1558.54	9787.08	1558	9793.04	1556
9796.59	1554.7	9801.63	1556	9810	1558	9814.96	1559.17	9864.05	1559.24
9874.12	1558	9884.35	1556.15	9896.69	1558	9900.48	1558.65	9916.43	1558.66
9918.8	1558	9924.72	1556.33	9933.04	1558	9938.68	1559.14	9946.7	1559.17
9952.27	1558	9956.7	1557.19	9963.36	1558	9970.11	1558.89	10007.42	1559.07
10013.58	1558	10022.29	1556.48	10035.06	1558	10042.09	1558.79	10050.52	1558.66
10052.41	1558	10055.87	1556.63	10069.74	1558	10079.61	1558.66	10486.03	1560
10588.92	1560.19	10701.13	1560	11194.05	1558	11286.29	1557.81	11290.55	1558
11298.54	1558.35	11335.39	1558	11443.34	1557.86	11593.13	1557.34	11626.08	1556.72
11629.58	1556	11635.07	1554.91	11642.11	1556	11650.79	1557.32	11759.58	1557.54
11902.77	1558	12028.15	1558.15	12036.75	1558.02	12045.55	1558.45	12075.8	1558.78
12392.04	1559.64	12540.98	1560	12708.27	1560.22	12871.36	1560	13024.48	1559.32
13227.6	1560	13340.73	1560	13384.03	1560.14	13385.33	1560	13389.58	1559.5
13397.99	1559.95	13509.01	1559.43	13514.53	1558.91	13527.76	1559.38	13541.03	1559.19
13546.84	1558.45	13556.5	1559.17	13829.67	1559.66	13841.34	1558.75	13849.97	1559.27
13949.01	1559.25	14093.57	1558.69	14102.92	1558.07	14109.7	1558.21	14118.47	1558
14139.46	1557.81	14147.26	1556.15	14157.92	1556.81	14180.78	1557.72	14203.41	1558
14234.66	1558.45	14323.33	1560						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

8144.55 .05 9686.39 .0510079.61 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9686.3910079.61 436.68 426.43 402.95 .3 .5
Ineffective Flow num= 1
Sta L Sta R Elev
11194.5514323.33 1561.5

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1559.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1559.73	Reach Len. (ft)	436.68	426.43	402.95
Crit W.S. (ft)	1559.30	Flow Area (sq ft)	190.28	576.33	542.73
E.G. Slope (ft/ft)	0.006902	Area (sq ft)	190.28	576.33	3110.74
Q Total (cfs)	3233.00	Flow (cfs)	292.21	1830.54	1110.25
Top Width (ft)	3954.27	Top Width (ft)	495.10	390.41	3068.76
Vel Total (ft/s)	2.47	Avg. Vel. (ft/s)	1.54	3.18	2.05
Max Chl Dpth (ft)	5.03	Hydr. Depth (ft)	0.38	1.48	0.72
Conv. Total (cfs)	38915.1	Conv. (cfs)	3517.3	22033.9	13363.9
Length Wtd. (ft)	417.42	Wetted Per. (ft)	495.35	394.98	750.99
Min Ch El (ft)	1554.70	Shear (lb/sq ft)	0.17	0.63	0.31
Alpha	1.21	Stream Power (lb/ft s)	0.25	2.00	0.64
Frctn Loss (ft)	2.99	Cum Volume (acre-ft)	847.98	282.31	330.90
C & E Loss (ft)	0.01	Cum SA (acres)	790.09	300.12	473.96

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8144.55	8298.73	30.08	28.25	80.12	0.93	0.35	1.06
8298.73	8452.92	238.02	127.01	154.28	7.36	0.82	1.87
8452.92	8607.10	4.69	9.64	88.55	0.15	0.11	0.49
8607.10	8761.29						
8761.29	8915.47	17.51	19.43	70.81	0.54	0.28	0.90
8915.47	9069.65	1.91	5.94	101.60	0.06	0.06	0.32
9069.65	9686.39						
LB 9686.39	9765.03	277.75	97.22	77.06	8.59	1.28	2.86
9765.03	9843.68	389.14	120.71	79.83	12.04	1.53	3.22
9843.68	9922.32	360.27	114.95	79.31	11.14	1.46	3.13
9922.32	10000.97	295.77	102.13	79.32	9.15	1.30	2.90
10000.97	RB 10079.61	507.60	141.32	79.47	15.70	1.80	3.59
10079.61	10503.98	256.00	173.37	324.30	7.92	0.53	1.48
10503.98	10928.35	55.45	52.26	160.50	1.72	0.33	1.06
10928.35	11352.73	798.82	317.11	266.20	24.71	1.19	2.52

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.324

INPUT
Description:
Station Elevation Data num= 116

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8090.52	1558.65	8168.18	1558.87	8218.93	1558	8268.17	1557.15	8288.85	1556.66
8368.19	1556.58	8468.18	1556.65	8568.19	1556.51	8668.18	1556.36	8768.17	1556.46
8868.18	1556.55	8968.17	1556.36	9068.18	1556.48	9168.17	1556.39	9268.19	1556.89
9368.18	1557.06	9468.19	1557.2	9568.18	1557.34	9583.28	1557.32	9589.93	1556
9593.43	1555.26	9599.37	1556	9668.17	1557.44	9785.4	1557.08	9789.47	1556
9797.55	1554	9800.24	1553.35	9804.48	1554	9824.41	1555.69	9828.2	1554.89
9838.19	1556	9839.98	1556.3	9860.27	1556.22	9860.81	1556	9865.83	1554
9870.94	1552	9871.81	1551.66	9872.5	1552	9876.51	1554	9880.42	1556
9881.62	1556.62	9890.55	1556.12	9890.85	1556	9895.69	1554	9900.53	1552.01
9915.16	1554	9926.9	1555.65	9941.62	1556	9959.43	1556.4	9966.73	1556
9967.64	1555.95	9968.79	1556	9984.09	1556.48	10050.29	1556	10119.83	1555.57

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10143.23 1555.9710154.41 1555.7510160.39 1555.0710173.94    155610177.94 1556.27
10243.48 1556.4210471.71    155810474.91 1558.0410477.92    1558 10674.6    1556
10791.12 1555.6710803.57 1555.5411107.36 1555.6211433.72 1554.4111434.93    1554
11441.01 1552.0911447.93    155411450.83 1555.1111555.67 1554.8511562.11 1554.36
11569.81 1555.1811687.56 1555.7211739.84 1555.9411755.89    155612056.05 1557.03
 12372.3 1557.6412688.86 1556.92 13100.3 1557.2313416.54 1557.3513468.72 1557.07
13479.51  1556.513491.41 1556.9413561.54 1556.6513565.18    155613571.92 1554.79
13579.65    155613586.25    155613588.06 1555.0313593.31    1556 13598.7 1557.21
13616.52 1557.2813716.52 1557.4213730.52 1556.8713738.46    155613742.74 1555.01
13749.52    155613752.11 1556.45 13830.2    155613856.37 1555.5413862.99    1554
13866.04 1553.2713869.94    155413878.06 1555.6513890.74 1555.7213897.58 1554.67
13906.41 1555.5613954.36    155614032.74 1556.8914067.64 1556.7614131.21    1558
14132.74 1558.03

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 8090.52     .05  9785.4     .0510243.48     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9785.410243.48           398.87  516.12  498.97             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
11192.7714132.74    1558

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1556.85   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.10   Wt. n-Val.                  0.050      0.050      0.050
  W.S. Elev (ft)            1556.75   Reach Len. (ft)            398.87     516.12     498.97
  Crit W.S. (ft)            1556.33   Flow Area (sq ft)          263.49     494.14     621.93
  E.G. Slope (ft/ft)       0.007455   Area (sq ft)               263.49     494.14    1929.46
  Q Total (cfs)             3233.00   Flow (cfs)                 283.91    1328.37    1620.72
  Top Width (ft)            3242.02   Top Width (ft)            1004.22     456.84    1780.96
  Vel Total (ft/s)             2.34   Avg. Vel. (ft/s)             1.08       2.69       2.61
  Max Chl Dpth (ft)            5.09   Hydr. Depth (ft)             0.26       1.08       0.97
  Conv. Total (cfs)         37444.7   Conv. (cfs)                3288.3    15385.2    18771.2
  Length Wtd. (ft)           492.98   Wetted Per. (ft)          1004.43     460.79     639.62
  Min Ch El (ft)            1551.66   Shear (lb/sq ft)             0.12       0.50       0.45
  Alpha                        1.18   Stream Power (lb/ft s)       0.13       1.34       1.18
  Frctn Loss (ft)              3.30   Cum Volume (acre-ft)       845.70     277.07     307.59
  C & E Loss (ft)              0.01   Cum SA (acres)             782.57     295.97     451.53


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta     Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)            (cfs)    (sq ft)      (ft)                 (ft)     (ft/s)
  8260.01      8429.50         12.51      19.61    144.45       0.39       0.14       0.64
  8429.50      8598.98         22.23      29.51    169.49       0.69       0.17       0.75
  8598.98      8768.47         67.56      57.50    169.49       2.09       0.34       1.17
  8768.47      8937.96         41.65      43.02    169.49       1.29       0.25       0.97
  8937.96      9107.45         63.19      55.24    169.49       1.95       0.33       1.14
  9107.45      9276.94         31.79      33.18    132.76       0.98       0.25       0.96
  9276.94      9446.42
  9446.42      9615.91         41.74      21.54     29.96       1.29       0.72       1.94
  9615.91      9785.40          3.24       3.90     19.30       0.10       0.20       0.83
  LB 9785.40   9877.02        514.78     156.41     92.56      15.92       1.73       3.29
  9877.02      9968.63        438.72     142.54     93.29      13.57       1.56       3.08
  9968.63      10060.25        76.10      49.47     91.62       2.35       0.54       1.54
  10060.25     10151.86       205.35      89.74     91.62       6.35       0.98       2.29
  10151.86     RB 10243.48     93.44      55.97     91.70       2.89       0.61       1.67
  10243.48     10632.41         9.64      12.94     79.26       0.30       0.16       0.75
  10632.41     11021.33      1019.74     400.75    388.93      31.54       1.03       2.54
  11021.33     11410.26       591.32     208.24    171.44      18.29       1.21       2.84


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

CROSS SECTION          RIVER: Vineyard FRS
REACH: Vineyard           RS: 19.227
```

INPUT
Description:
Station Elevation Data num= 139

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8041.2	1554.87	8141.21	1554.99	8194.12	1554.98	8241.19	1555.98	8241.98	1556
8262.09	1556.56	8287.86	1556	8341.19	1554.63	8347.6	1555	8354.37	1554
8363.34	1552.57	8385.53	1553.49	8393.89	1553.03	8403.6	1554	8409.75	1554.54
8413.26	1554	8427.08	1552.59	8441.2	1553.79	8441.89	1554	8443.12	1554.37
8447.16	1554	8461.69	1552.76	8481.98	1552	8489.72	1551.7	8495.36	1552
8504.67	1552.5	8534.28	1553.76	8541.2	1553.05	8558.78	1552.26	8588.63	1552.96
8595.88	1552	8598.14	1551.67	8600.18	1552	8609.45	1553.43	8619.56	1553.78
8635.69	1552.59	8641.21	1553.41	8647.87	1553.47	8729.27	1553.18	8736.7	1552
8740.25	1551.41	8741.19	1551.61	8743.33	1552	8751.16	1553.56	8841.19	1553.77
9184.6	1553.38	9199.39	1552.24	9209.5	1552	9212.07	1551.88	9213.22	1552
9223.05	1552.94	9233.13	1553.41	9240.55	1552	9241.32	1551.87	9242.08	1552
9256.12	1554	9258.13	1554.28	9746.74	1554.18	9776.07	1554	9826.4	1553.62
9841.43	1552.66	9874.24	1553.55	9922.76	1553.67	9965.43	1553.02	9976.34	1552.12
10010.49	1552.49	10012.01	1552	10018.19	1550	10020.8	1549.16	10026.35	1550
10039.64	1552	10046.02	1552.96	10100.53	1552.75	10102.01	1552	10104.35	1550.82
10122.07	1552	10141.83	1553.5	10219.51	1552	10256.63	1554.27	10334.21	1554
10668.95	1552.59	11009.84	1552.06	11018.68	1552.85	11047.32	1552.73	11081.26	1552.4
11144.39	1552.53	11146.81	1552	11151.52	1550.85	11162.24	1551.23	11189.72	1550
11205.25	1549.34	11208.29	1549.13	11212.62	1550	11223.43	1552	11224.3	1552.16
11225.88	1552	11242.7	1550.26	11251.93	1551.76	11266.17	1552	11292.19	1552.35
11293.27	1552	11297.56	1552	11298.63	1552.5	11493.56	1553.26	11714.31	1554
12318.2	1554.4	12461.24	1554.51	12467.6	1554.23	12476.93	1554.69	12496.25	1554.32
12499.85	1554	12503.26	1553.69	12507.99	1554	12515.05	1554.46	12730.5	1554.79
13142.81	1554.89	13471.81	1554	13547.67	1553.93	13555.11	1553.63	13559.48	1553.07
13568.86	1554	13570	1554.11	13584.43	1554	13597.61	1554	13597.72	1554.04
13597.93	1554	13606.04	1554	13607.88	1551.46	13610.72	1554	13621.19	1553.99
13622.12	1554	13630.88	1554.05	13631.03	1554	13636.12	1552.29	13659.05	1553.69
13684.53	1554	13733.66	1554.43	13872.6	1554.54	13967.43	1554.65		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8041.2	.05	9746.74	.05	10256.63	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9746.74	10256.63	469.21	495.71	496.49	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
11251.21	13967.43	1557

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1553.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1553.45	Reach Len. (ft)	469.21	495.71	496.49
Crit W.S. (ft)	1552.85	Flow Area (sq ft)	251.69	248.23	888.94
E.G. Slope (ft/ft)	0.006063	Area (sq ft)	251.69	248.23	1104.66
Q Total (cfs)	3233.00	Flow (cfs)	428.58	575.65	2228.77
Top Width (ft)	1838.26	Top Width (ft)	457.06	245.98	1135.21
Vel Total (ft/s)	2.33	Avg. Vel. (ft/s)	1.70	2.32	2.51
Max Chl Dpth (ft)	4.32	Hydr. Depth (ft)	0.55	1.01	1.13
Conv. Total (cfs)	41522.0	Conv. (cfs)	5504.3	7393.2	28624.4
Length Wtd. (ft)	493.02	Wetted Per. (ft)	458.43	247.42	788.15
Min Ch El (ft)	1549.16	Shear (lb/sq ft)	0.21	0.38	0.43
Alpha	1.05	Stream Power (lb/ft s)	0.35	0.88	1.07
Frctn Loss (ft)	2.72	Cum Volume (acre-ft)	843.35	272.67	290.21
C & E Loss (ft)	0.00	Cum SA (acres)	775.88	291.81	434.83

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8211.75	8382.31	17.37	11.76	24.60	0.54	0.48	1.48
8382.31	8552.86	168.23	87.24	122.31	5.20	0.71	1.93
8552.86	8723.42	99.02	69.02	150.78	3.06	0.46	1.43
8723.42	8893.97	55.97	24.83	27.55	1.73	0.91	2.25
8893.97	9064.52						

9064.52	9235.08	55.74	43.98	115.76	1.72	0.38	1.27
9235.08	9405.63	32.26	14.86	17.43	1.00	0.86	2.17
9405.63	9746.74						
LB 9746.74	9848.72	13.34	10.00	19.75	0.41	0.51	1.33
9848.72	9950.70	6.18	7.99	35.74	0.19	0.22	0.77
9950.70	10052.67	380.42	144.44	102.83	11.77	1.42	2.63
10052.67	10154.65	175.71	85.80	89.10	5.43	0.97	2.05
10154.65	10256.63						
10256.63	10627.71	58.24	56.56	163.88	1.80	0.35	1.03
10627.71	10998.79	885.81	401.59	371.08	27.40	1.08	2.21
10998.79	11369.87	1284.71	430.78	253.19	39.74	1.71	2.98

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.133

INPUT
Description:
Station Elevation Data num= 116

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7810.94	1552.37	7845.41	1552	8108.99	1551.25	8144.41	1552	8165.19	1552.06
8167.4	1552	8175.61	1551.7	8182.72	1552	8187.6	1552.2	8223.25	1552.52
8311.45	1552.88	8440.45	1552.73	8641.58	1552	8709.64	1551.32	8719.23	1550
8731.58	1548	8732.8	1547.83	8733.64	1548	8742.62	1549.82	8747.63	1550
8762.66	1550.55	8785.53	1550	8790.17	1549.89	8809.27	1549.52	8817.27	1548.13
8828.96	1548.29	8839.39	1550	8840.3	1550.11	8866.43	1550.95	8886.26	1550.62
8921.72	1550.95	8927.7	1550	8930.45	1549.54	8934.13	1550	8944.15	1551.18
9228.23	1551.77	9813.36	1551.11	9843.01	1550.82	9860.14	1550	9867.3	1549.77
9869.81	1550	9879.04	1550.11	9892.58	1551.01	9898.97	1550.36	9908.34	1551.24
9958.57	1551.41	9986.41	1550.98	9991.24	1550	9996.64	1548.71	10004.24	1550
10010.56	1551.11	10051.38	1550.81	10055.2	1550	10065.1	1548	10067.52	1547.51
10069.58	1548	10077.79	1550	10080.5	1550.74	10142.13	1551.22	10418.83	1550
10652.04	1549.71	10711.39	1549.77	10726.25	1549.3	10945.4	1549.84	10954.84	1548
10960.42	1546.87	10965.73	1548	10974.19	1549.41	10974.36	1549.41	10980.73	1548
10982.23	1547.49	10985.98	1548	10995.54	1549.31	11004.52	1549.29	11009.51	1548.15
11026.24	1549.53	11066.68	1549.16	11076.13	1548.13	11088.06	1548.91	11095.03	1548
11096.86	1547.75	11099.06	1548	11104.61	1548.61	11121.81	1549.28	11124.25	1548
11124.67	1547.79	11126.3	1548	11134.49	1549.04	11161.94	1549.31	11305.32	1550
11869.06	1550.95	12037.37	1551.26	12045.22	1550.55	12056.17	1551.25	12378.94	1551.78
12655.79	1552	12888.86	1552.36	13112.89	1552	13186.02	1551.61	13193.75	1551.06
13208.89	1551.74	13215.4	1551.16	13223.79	1552	13224.27	1552.05	13301.17	1552.29
13333.89	1552.64	13338.09	1552	13343.36	1551.24	13350.99	1552	13356.58	1552.57
13374.3	1552	13383.66	1551.67	13394.43	1550.38	13409.94	1552	13411.17	1552.11
13617.39	1552.75								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7810.94	.05	9813.36	.05	10142.13	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9813.36	10142.13	442.94	544.45	458.39	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
11300.94	13617.39	1554

Blocked Obstructions num= 1

Sta L	Sta R	Elev
7810.94	8314.22	1554

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1550.82	Element			
Vel Head (ft)	0.08	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1550.74	Reach Len. (ft)	442.94	544.45	458.39
Crit W.S. (ft)	1550.12	Flow Area (sq ft)	171.03	93.00	1177.48
E.G. Slope (ft/ft)	0.005040	Area (sq ft)	171.03	93.00	1345.50
Q Total (cfs)	3233.00	Flow (cfs)	371.25	183.60	2678.15
Top Width (ft)	1791.51	Top Width (ft)	183.82	101.54	1506.15
Vel Total (ft/s)	2.24	Avg. Vel. (ft/s)	2.17	1.97	2.27
Max Chl Dpth (ft)	3.87	Hydr. Depth (ft)	0.93	0.92	1.12
Conv. Total (cfs)	45538.1	Conv. (cfs)	5229.2	2586.1	37722.8
Length Wtd. (ft)	472.83	Wetted Per. (ft)	184.71	102.75	1052.00
Min Ch El (ft)	1547.51	Shear (lb/sq ft)	0.29	0.28	0.35

Alpha	1.00	Stream Power (lb/ft s)	0.63	0.56	0.80
Frctn Loss (ft)	2.43	Cum Volume (acre-ft)	841.07	270.73	276.25
C & E Loss (ft)	0.00	Cum SA (acres)	772.43	289.83	419.77

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8611.91	8812.15	212.47	95.33	98.80	6.57	0.97	2.23
8812.15	9012.39	158.78	75.70	85.92	4.91	0.89	2.10
9012.39	9813.36						
LB 9813.36	9879.11	25.30	20.40	34.49	0.78	0.59	1.24
9879.11	9944.87	3.16	4.44	17.29	0.10	0.26	0.71
9944.87	10010.62	36.47	20.94	21.27	1.13	1.00	1.74
10010.62	10076.38	116.06	44.92	25.25	3.59	1.82	2.58
10076.38	RB 10142.13	2.61	2.30	4.44	0.08	0.53	1.14
10142.13	10489.66	144.19	117.95	238.97	4.46	0.49	1.22
10489.66	10837.18	765.86	373.16	347.53	23.69	1.07	2.05
10837.18	11184.71	1522.74	564.74	349.27	47.10	1.63	2.70
11184.71	11532.23	245.35	121.62	116.23	7.59	1.05	2.02

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 19.030

INPUT
Description:
Station Elevation Data num= 123

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7668.67	1550.46	7698.1	1550	8058.73	1549.23	8192.83	1549.67	8471.03	1549.2
8517.42	1550	8528.05	1550.18	8534.86	1550	8586.83	1548	8589.22	1547.87
8596.6	1546	8597.74	1545.71	8598.99	1546	8607.76	1548	8610.45	1548.61
8631.13	1548.43	8636.74	1548	8640.73	1547.58	8648.48	1548	8657.98	1548.54
8672.69	1548.29	8675.46	1548	8682.73	1547.24	8691.36	1548	8697.1	1548.49
8746.95	1548.47	8750.68	1548	8754.35	1547.45	8760.05	1548	8764.71	1548.45
8883.34	1548.53	9295.66	1549.01	9802.44	1548	9805.57	1547.98	9809.14	1548
9844.74	1548.23	9847.95	1548	9855.43	1547.43	9886.4	1547.82	9891.88	1546.27
9900.21	1547.84	9923.52	1548	9926.36	1548.07	9926.88	1548	9933.68	1547.05
9941.54	1548	9944.29	1548.35	9966.1	1548.3	9967.24	1548	9972.37	1546.72
9983.7	1548	9984.88	1548.16	10018.16	1548.14	10018.69	1548	10027.01	1546.05
10027.67	1546	10040.35	1545.07	10044.76	1546	10053.63	1548	10055.8	1548.52
10072.35	1548.26	10073.34	1548	10080.93	1546	10081.3	1545.91	10081.88	1546
10094.27	1548	10095.61	1548.22	10146.29	1548.05	10146.61	1548	10157.45	1546.14
10176.51	1548	10177.86	1548.13	10195.44	1548	10257.34	1547.79	10315.46	1547.59
10370.67	1547.58	10376.3	1546.96	10388.95	1547.49	10531.38	1546.85	10544.91	1547.48
10772.01	1547.04	10811.25	1546.77	10814.71	1546	10821.86	1544.45	10831.07	1546
10834.55	1546.68	10870.32	1546.59	10873.27	1546	10876.3	1545.42	10881.08	1546
10884.17	1546.38	11022.56	1547.23	11529.72	1548	11793.45	1548.79	11799.82	1548.4
11807.24	1548.89	11828.78	1548.71	12402.55	1550	12437.06	1550.15	12492.27	1550
12731.52	1549.34	12736.03	1548.63	12744.75	1549.75	12782.23	1549.35	12789.19	1548.06
12801.54	1549.78	12976.14	1550	12994.22	1550.44	13018.11	1550.28	13054.39	1550
13055	1550	13060.13	1550.15	13181.23	1550.14	13183.08	1550	13188.47	1549.29
13193.31	1550	13194.69	1550.22	13281.19	1550.24	13282.54	1550	13286.45	1549.28
13289.25	1550	13290.18	1550.25	13328.14	1550				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7668.67	.05	9844.74	.05	10544.91	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9844.74	10544.91	468.48	513.02	424.17	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
11267.31	13328.14	1550

Blocked Obstructions num= 1

Sta L	Sta R	Elev
7668.67	8527.85	1550

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1548.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1548.31	Reach Len. (ft)	468.48	513.02	424.17
Crit W.S. (ft)	1547.75	Flow Area (sq ft)	89.61	538.82	878.97
E.G. Slope (ft/ft)	0.005115	Area (sq ft)	89.61	538.82	1029.81
Q Total (cfs)	3233.00	Flow (cfs)	116.08	988.91	2128.01
Top Width (ft)	2050.76	Top Width (ft)	289.34	669.24	1092.18
Vel Total (ft/s)	2.14	Avg. Vel. (ft/s)	1.30	1.84	2.42
Max Chl Dpth (ft)	3.86	Hydr. Depth (ft)	0.31	0.81	1.22
Conv. Total (cfs)	45204.0	Conv. (cfs)	1623.1	13827.0	29754.0
Length Wtd. (ft)	468.38	Wetted Per. (ft)	290.17	671.51	723.02
Min Ch El (ft)	1545.07	Shear (lb/sq ft)	0.10	0.26	0.39
Alpha	1.08	Stream Power (lb/ft s)	0.13	0.47	0.94
Frctn Loss (ft)	3.12	Cum Volume (acre-ft)	839.74	266.78	263.75
C & E Loss (ft)	0.00	Cum SA (acres)	770.02	285.01	406.10

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8539.10	8756.71	90.56	53.91	84.65	2.80	0.64	1.68
8756.71	8974.31	2.20	2.09	6.61	0.07	0.32	1.05
8974.31	9627.13						
9627.13	9844.74	23.32	33.62	198.92	0.72	0.17	0.69
LB 9844.74	9984.77	126.95	81.94	124.03	3.93	0.67	1.55
9984.77	10124.81	204.64	110.17	127.06	6.33	0.87	1.86
10124.81	10264.84	104.52	76.60	140.29	3.23	0.55	1.36
10264.84	10404.88	178.61	105.58	140.08	5.52	0.75	1.69
10404.88	RB 10544.91	374.19	164.53	140.05	11.57	1.17	2.27
10544.91	10823.23	760.03	328.04	278.59	23.51	1.18	2.32
10823.23	11101.56	1112.28	412.29	278.67	34.40	1.48	2.70
11101.56	11379.88	255.70	138.63	165.75	7.91	0.84	1.84

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 18.932

INPUT
Description:
Station Elevation Data num= 134

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7317.07	1547.29	7371.26	1547.3	7517.51	1546.39	7523.26	1546.21	7687.49	1546.17
7782.4	1546	8003.83	1546.03	8007.8	1546	8067.79	1545.53	8112.62	1546
8173.09	1546.5	8198.07	1546	8328.25	1544.95	8338.31	1545.81	8359.07	1545.37
8368.16	1544.63	8376.12	1545.31	8380.68	1545.18	8385.67	1544	8390.32	1542.92
8397.03	1544	8406.87	1545.42	8416.65	1545.6	8475.52	1545.23	8481.2	1544.33
8490.22	1545.23	8502.8	1545.15	8508.62	1544.48	8525.13	1545.64	8828.96	1545.43
9750.93	1544.76	9786.79	1545.04	9794.76	1544	9795.32	1543.94	9795.88	1544
9804.62	1545.05	9822.35	1544.57	9825.69	1544	9831.14	1543.06	9836.82	1544
9840.74	1544.64	9895.52	1544.95	9901.38	1544	9902.97	1543.77	9904.81	1544
9913.72	1545.18	9948.38	1545.02	9983.05	1544.96	9985.94	1544	9991.41	1542
9991.61	1541.93	9991.93	154210001.29		154410005.12		1544.810043.65		1544.66
10046.85	154410051.33		1543.0510058.33		154410062.55		1544.4710080.64		1544.27
10082.93	154410094.95		1542.3210105.42		154410109.87		1544.7110132.12		1544.42
10133.55	154410137.85		1542.75 10144.3		1544 10147.6		1544.6710211.14		1544.79
10215.15	154410219.52		1542.9810223.84		154410227.72		1544.9210260.83		1544.25
10274.72	1544.4210278.79		154410282.32		1543.58 10286.2		154410291.89		1544.61
10326.74	1544.2310327.66		154410333.16		1542.8510339.24		154410341.97		1544.48
10360.83	1544.0610371.54		1544.17 10391.5		1544.1710400.88		1544.1210406.97		1544
10437.33	1543.6910444.45		1542.6710455.72		154410456.36		1544.0710457.04		1544
10460.81	1543.5810483.17		1543.8410493.67		1543.2810503.67		154410504.91		1544.07
10514.31	154410519.43		1543.9610524.16		1543.4210544.13		154410544.93		1544.06
10546.65	154410560.82		1543.5110568.16		1543.5210575.45		1542.1710586.46		1544
10586.52	1544.0110591.67		154410660.82		1543.8710696.52		154411467.04		1545.74

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   11602    154612372.58  1547.212375.22 1547.4112381.03 1546.3812390.91 1547.65
12596.19 1547.5212695.05    1548 12719.9    154812940.53    154812968.89 1548.15
12969.25    154812972.93  1546.6 12983.4 1547.9712985.31    154813080.51 1548.38
13082.89    154813084.22 1547.7913086.69    154813091.49 1548.38

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 7317.07     .05 9786.79     .0510591.67     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9786.7910591.67           581.34  528.78  466.64             .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
11367.0713091.49    1548
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 7317.07 8175.05    1548

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1545.27   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.09   Wt. n-Val.                  0.050      0.050      0.050
  W.S. Elev (ft)            1545.17   Reach Len. (ft)            581.34     528.78     466.64
  Crit W.S. (ft)            1544.80   Flow Area (sq ft)          172.85     767.45     434.74
  E.G. Slope (ft/ft)       0.008715   Area (sq ft)               172.85     767.45     434.74
  Q Total (cfs)             3233.00   Flow (cfs)                 226.97    2058.65     947.38
  Top Width (ft)            2133.63   Top Width (ft)             705.73     803.40     624.49
  Vel Total (ft/s)             2.35   Avg. Vel. (ft/s)             1.31       2.68       2.18
  Max Chl Dpth (ft)            3.24   Hydr. Depth (ft)             0.24       0.96       0.70
  Conv. Total (cfs)         34631.8   Conv. (cfs)                2431.2    22052.2    10148.3
  Length Wtd. (ft)           529.01   Wetted Per. (ft)           706.39     807.21     624.50
  Min Ch El (ft)            1541.93   Shear (lb/sq ft)             0.13       0.52       0.38
  Alpha                        1.10   Stream Power (lb/ft s)       0.17       1.39       0.83
  Frctn Loss (ft)              3.20   Cum Volume (acre-ft)       838.33     259.09     256.62
  C & E Loss (ft)              0.03   Cum SA (acres)             764.67     276.34     397.74


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta     Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  8057.99      8304.96           0.02       0.08      4.42       0.00       0.02       0.20
  8304.96      8551.93          78.23      45.36     97.21       2.42       0.47       1.72
  8551.93      9045.87
  9045.87      9292.85           1.50       4.46    110.82       0.05       0.04       0.34
  9292.85      9539.82          37.04      42.06    246.97       1.15       0.17       0.88
  9539.82      9786.79         110.18      80.89    246.97       3.41       0.33       1.36
  LB 9786.79   9947.77         130.11      80.17    160.09       4.02       0.50       1.62
  9947.77      10108.74        379.26     153.20    162.37      11.73       0.95       2.48
  10108.74     10269.72        230.68     113.54    161.85       7.14       0.71       2.03
  10269.72     10430.69        446.74     168.61    161.39      13.82       1.05       2.65
  10430.69     RB 10591.67     871.85     251.93    161.53      26.97       1.56       3.46
  10591.67     10841.65        706.37     276.38    249.98      21.85       1.11       2.56
  10841.65     11091.63        229.70     140.86    249.98       7.10       0.56       1.63
  11091.63     11341.62         11.32      17.51    124.53       0.35       0.14       0.65


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

CROSS SECTION          RIVER: Vineyard FRS
REACH: Vineyard           RS: 18.832

INPUT
Description:
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 7139.32    1544 7263.34 1542.84 7403.88 1542.41 7413.37 1542.65 7442.83 1542.59
 7450.54 1542.33 7462.34 1542.78 7604.56  1542.1 7621.22    1542 7846.42 1541.44
 8103.79 1541.35 8117.71 1540.75 8132.48 1541.29 8147.53 1541.51 8160.22 1540.61
    8178  1541.7 8186.32    1540 8191.93 1538.81 8199.09    1540 8204.86 1541.03
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  8216.1 1541.26 8221.53    1540 8222.84 1539.72 8226.94    1540  8233.6 1540.25
 8246.37 1541.31 8384.96 1541.63 9589.09 1541.29 9623.97 1541.29 9640.21 1541.42
 9735.56 1541.51 9743.82 1541.29 9750.54 1541.76 9816.49 1541.77 9823.01 1541.34
 9828.96 1541.67 9909.63 1541.76 9914.21    1540  9917.9 1538.55 9922.17    1540
 9926.74 1541.66 9954.01  1541.8 9959.26 1540.73 9967.16 1541.82 9975.81  1541.8
 9983.88 1540.69 9996.79 1541.8810029.79  1541.410037.06    154010049.16 1539.13
10053.74    154010062.51 1541.5710135.77 1541.1810139.84    154010140.61  1539.8
10141.75    154010147.26 1541.0910160.07 1541.0210169.37    154010170.14 1539.89
10170.92    154010180.88 1541.5210240.54 1541.1610246.31    154010246.96 1539.86
10250.87 1539.5910253.24    154010260.71 1541.3910296.56 1541.2110307.83 1540.26
10324.81 1541.5810349.63 1540.0210363.61 1541.3210387.94 1541.4210392.13    1540
10395.67 1538.7810401.22    1540 10406.6 1541.3710494.64 1541.2310594.65 1541.04
10694.63  1540.910794.64 1541.3311072.46    154211206.95 1542.19 12128.9 1543.62
12228.91 1543.3812328.89 1543.18 12428.9 1543.1612528.89 1543.33 12628.9 1543.48
12728.91 1543.74 12828.9 1543.9212928.91 1543.87 13028.9 1543.8713128.91 1543.92
 13148.9    1544 13228.9 1544.33

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 7139.32     .05 9909.63     .05 10406.6     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9909.63 10406.6           441.13  509.32  557.25             .3       .5
Ineffective Flow     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 7139.32    7750    154411454.32 13228.9    1544
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 7139.32 7462.35    1544
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1542.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1542.00	Reach Len. (ft)	441.13	509.32	557.25
Crit W.S. (ft)	1541.68	Flow Area (sq ft)	1234.56	474.67	433.43
E.G. Slope (ft/ft)	0.004435	Area (sq ft)	1255.33	474.67	433.43
Q Total (cfs)	3233.00	Flow (cfs)	1682.49	906.73	643.78
Top Width (ft)	3452.20	Top Width (ft)	2288.59	496.97	666.64
Vel Total (ft/s)	1.51	Avg. Vel. (ft/s)	1.36	1.91	1.49
Max Chl Dpth (ft)	3.45	Hydr. Depth (ft)	0.57	0.96	0.65
Conv. Total (cfs)	48547.4	Conv. (cfs)	25264.7	13615.6	9667.1
Length Wtd. (ft)	507.58	Wetted Per. (ft)	2160.48	500.56	666.64
Min Ch El (ft)	1538.55	Shear (lb/sq ft)	0.16	0.26	0.18
Alpha	1.07	Stream Power (lb/ft s)	0.22	0.50	0.27
Frctn Loss (ft)	2.77	Cum Volume (acre-ft)	828.80	251.55	251.97
C & E Loss (ft)	0.01	Cum SA (acres)	744.69	268.45	390.83

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7693.38	7970.41	141.10	114.81	220.41	4.36	0.52	1.23
7970.41	8247.44	460.98	256.28	277.84	14.26	0.93	1.80
8247.44	8524.47	144.06	127.39	277.03	4.46	0.46	1.13
8524.47	8801.51	138.75	124.55	277.03	4.29	0.45	1.11
8801.51	9078.54	181.25	146.21	277.03	5.61	0.53	1.24
9078.54	9355.57	228.22	167.89	277.03	7.06	0.61	1.36
9355.57	9632.60	278.01	188.99	277.03	8.60	0.68	1.47
9632.60	9909.63	110.14	108.44	277.07	3.41	0.39	1.02
LB 9909.63	10009.02	103.71	68.75	100.84	3.21	0.69	1.51
10009.02	10108.42	180.64	95.51	99.78	5.59	0.96	1.89
10108.42	10207.81	178.67	94.93	99.90	5.53	0.96	1.88
10207.81	10307.21	182.44	96.06	99.74	5.64	0.97	1.90
10307.21	RB 10406.60	261.28	119.43	100.30	8.08	1.20	2.19
10406.60	10688.83	405.15	245.06	282.23	12.53	0.87	1.65
10688.83	10971.06	233.01	175.85	282.23	7.21	0.62	1.33
10971.06	11253.29	5.60	12.51	102.18	0.17	0.12	0.45

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 18.736

INPUT
Description:
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6910.67	1540.26	7021.97	1540	7052.14	1539.62	7099.83	1539.97	7107.58	1539.86
7193.58	1539.52	7248.6	1539.2	7276.87	1539.02	7692.79	1538.52	7693.58	1538.76
7713.76	1538.24	7782.28	1539.47	7787.8	1538.3	7795.95	1538.86	7829.9	1539.02
7834.46	1538	7840.12	1536.66	7845.26	1538	7849.78	1539.13	7870.1	1538.85
7871.91	1538	7875.98	1536	7876.05	1535.97	7876.16	1536	7882.89	1538
7885.96	1538.89	8054.12	1539.07	8154.12	1539	8254.13	1538.97	8354.13	1538.78
8454.13	1539	8554.13	1539.19	8654.11	1539.21	8754.11	1539.29	9867.25	1539.36
9872.65	1538	9874.84	1537.48	9877.06	1538	9884.27	1539.48	9961.84	1538.78
9967.97	1538.48	9976.73	1538.76	9984.68	1538.23	9992.88	1538.88	10030.14	1538.65
10032.69	153810	036.51	1537.04	10041.66	153810	045.48	1538.71	10072.67	1538.7
10075.73	153810	079.22	1537.13	10086.03	153810	090.48	1538.59	10121.94	1538.87
10127.58	153810	129.56	1537.71	10132.99	153810	141.96	1538.78	10176.19	1538.55
10178.69	153810	183.95	1536.85	10191.83	153810	194.84	1538.45	10478.13	1538
10520.64	1537.88	10531.15	1537.23	10539.6	153810	540.45	1538.09	10556.62	1538
10587.73	1537.81	10593.21	1536.92	10600.89	1537.73	10634.57	1537.55	10640.02	1536.41
10651.21	1537.85	10731.97	153810	859.27	1538.39	11271.55	1538.81	11683.86	1539.09
11783.88	1539.36	11883.89	1539.48	11983.87	1539.58	12083.89	1539.41	12183.87	1539.44
12276.86	1539.05	12282.27	1538.66	12292.79	1539.21	12383.87	1539.36	12412.25	1538.75
12415.33	153812	418.73	1537.19	12423.54	1538	12429.7	153912	583.87	1539.68
12683.88	1539.56	12783.89	1539.95	12798.43	154012	883.88	1540.31	12983.89	1540.24
13083.87	1540.75	13183.88	1540.94						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6910.67	.05	9867.25	.05	10194.84	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9867.25	10194.84		569.73	486.46	441.02	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6910.67	7275	1541	11678.08	13183.88	1541

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6910.67	7099.27	1541

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1539.26	Element			
Vel Head (ft)	0.06	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1539.20	Reach Len. (ft)	569.73	486.46	441.02
Crit W.S. (ft)	1538.85	Flow Area (sq ft)	445.98	196.91	1120.83
E.G. Slope (ft/ft)	0.006971	Area (sq ft)	448.26	196.91	1160.75
Q Total (cfs)	3233.00	Flow (cfs)	554.18	372.01	2306.82
Top Width (ft)	3313.22	Top Width (ft)	1351.33	294.83	1667.06
Vel Total (ft/s)	1.83	Avg. Vel. (ft/s)	1.24	1.89	2.06
Max Chl Dpth (ft)	3.23	Hydr. Depth (ft)	0.34	0.67	0.76
Conv. Total (cfs)	38723.0	Conv. (cfs)	6637.6	4455.7	27629.7
Length Wtd. (ft)	479.00	Wetted Per. (ft)	1326.36	296.36	1483.63
Min Ch El (ft)	1536.85	Shear (lb/sq ft)	0.15	0.29	0.33
Alpha	1.10	Stream Power (lb/ft s)	0.18	0.55	0.68
Frctn Loss (ft)	2.91	Cum Volume (acre-ft)	820.18	247.62	241.77
C & E Loss (ft)	0.01	Cum SA (acres)	726.26	263.82	375.90

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7206.33	7501.99	78.26	71.82	226.99	2.42	0.32	1.09
7501.99	7797.64	248.79	156.27	279.65	7.70	0.56	1.59
7797.64	8093.30	133.24	110.10	297.32	4.12	0.37	1.21
8093.30	8388.96	76.65	78.84	295.66	2.37	0.27	0.97
8388.96	8684.62	17.24	28.96	226.74	0.53	0.13	0.60
8684.62	9867.25						

LB 9867.25	9932.77	19.42	14.26	33.16	0.60	0.44	1.36
9932.77	9998.29	42.19	29.83	65.58	1.31	0.46	1.41
9998.29	10063.80	80.70	44.11	65.87	2.50	0.67	1.83
10063.80	10129.32	97.65	49.45	65.89	3.02	0.75	1.97
10129.32	RB 10194.84	132.04	59.26	65.87	4.08	0.90	2.23
10194.84	10493.74	629.38	295.97	298.90	19.47	0.99	2.13
10493.74	10792.65	1074.53	408.19	299.29	33.24	1.37	2.63
10792.65	11091.55	391.95	222.76	298.90	12.12	0.75	1.76
11091.55	11390.46	162.55	131.37	298.90	5.03	0.44	1.24
11390.46	11689.36	48.42	62.55	287.62	1.50	0.22	0.77

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 18.644

INPUT
Description:
Station Elevation Data num= 127

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6672.18	1537.24	6728.39	1536.69	6733.88	1536.44	6740.28	1536.91	6757.32	1537.13
6796.81	1536.97	6846.67	1536.41	6887.49	1536.59	6944.14	1536.14	6960.73	1536
7046.11	1535.39	7061.79	1536	7064.52	1536.12	7070.22	1536	7082.45	1535.69
7148.22	1536	7172.17	1536.15	7214.5	1536.06	7215.7	1536	7222.7	1535.66
7231.63	1535.99	7232.26	1536	7408.02	1536.61	7409.8	1536	7411.17	1535.36
7418.1	1536	7419.37	1536.44	7443.13	1536.15	7443.95	1536	7454.72	1534
7457.3	1533.44	7459.33	1534	7466.58	1536	7467.24	1536.16	7672.18	1536.1
7698.67	1536	7841.67	1536	8379.29	1536.2	8449.38	1536	8666.72	1536
8783.19	1536	8784.72	1536	9186.15	1535.62	9286.15	1535.72	9386.15	1535.67
9486.16	1535.89	9586.14	1535.69	9686.14	1535.5	9739.13	1536	9751.98	1536.12
9753.42	1536	9771.18	1536	9773.45	1536.12	9863.06	1536	9925.5	1535.93
9932.27	1535.22	9942.25	1536	9943.36	1536.09	9951.68	1536	9973.6	1535.82
9981.96	1534.52	9993.41	1536	9993.83	1536.06	9996.23	153	10002.54	1535.84
10019.96	153	10029.15	1536.09	10030.02	153	10036.26	1535.22	10042.26	1536
10042.72	1536.06	10053.09	153	10065.58	1535.92	10072.48	1534.55	10081.4	1536
10081.89	1536.08	10087.08	153	10102.54	1535.77	10202.54	1535.48	10302.55	1534.78
10368.62	1534.61	10374.2	1534.36	10379.37	1534.67	10402.55	1535.05	10457.81	1535.11
10461.43	153	10461.79	1533.91	10462.37	153	10468.08	1534.91	10502.54	1534.95
10505.71	1534.76	10512.2	1534.16	10520.22	1535.33	10602.56	1534.98	10702.55	1535.27
10802.54	1535.56	10902.53	1535.63	11114.99	153	11314.84	1536.21	11727.16	1536.71
11827.18	1536.64	11927.17	1536.49	12027.16	1536.34	12127.15	1536.37	12227.17	1536.32
12250.2	1536.11	12250.44	153	12255.18	1534	12255.9	1533.71	12256.88	1534
12263.32	153	12265.42	1536.78	12327.16	1536.32	12427.16	1536.39	12527.17	1536.61
12601.92	1536.49	12607.09	1536.55	12629.84	1536.05	12629.99	153	12636.37	1534
12636.85	1533.84	12637.56	1534	12645.7	153	12646.94	1536.31	12750.78	1536.25
12974.38	1536.66	13074.39	1536.88						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6672.18	.05	9863.06	.05	10081.89	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9863.06	10081.89	397.21	500.78	427.12	.3	.5

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6672.18	6887.49	153	11717.18	13074.39	1538

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6672.18	6757.32	153	12265.42	13074.39	1538

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1536.34	Element			
Vel Head (ft)	0.04	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1536.30	Reach Len. (ft)	397.21	500.78	427.12
Crit W.S. (ft)	1535.92	Flow Area (sq ft)	1046.92	110.06	1034.53
E.G. Slope (ft/ft)	0.005336	Area (sq ft)	1046.92	110.06	1055.57
Q Total (cfs)	3233.00	Flow (cfs)	1169.27	150.81	1912.92
Top Width (ft)	4407.51	Top Width (ft)	2838.03	218.83	1350.65
Vel Total (ft/s)	1.48	Avg. Vel. (ft/s)	1.12	1.37	1.85
Max Chl Dpth (ft)	2.86	Hydr. Depth (ft)	0.37	0.50	0.79
Conv. Total (cfs)	44260.4	Conv. (cfs)	16007.5	2064.6	26188.2
Length Wtd. (ft)	423.65	Wetted Per. (ft)	2838.98	219.47	1315.95

Min Ch El (ft)	1534.52	Shear (lb/sq ft)	0.12	0.17	0.26
Alpha	1.18	Stream Power (lb/ft s)	0.14	0.23	0.48
Frctn Loss (ft)	2.48	Cum Volume (acre-ft)	810.40	245.91	230.55
C & E Loss (ft)	0.00	Cum SA (acres)	698.86	260.95	360.63

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6672.18	6991.27	15.23	18.06	67.54	0.47	0.27	0.84
6991.27	7310.36	129.41	121.38	319.13	4.00	0.38	1.07
7310.36	7629.44	65.13	69.12	218.69	2.01	0.32	0.94
7629.44	7948.53	76.32	88.41	319.09	2.36	0.28	0.86
7948.53	8267.62	45.44	64.78	319.09	1.41	0.20	0.70
8267.62	8586.71	50.96	69.39	319.09	1.58	0.22	0.73
8586.71	8905.80	98.99	103.34	319.09	3.06	0.32	0.96
8905.80	9224.88	248.92	179.71	319.09	7.70	0.56	1.39
9224.88	9543.97	244.16	177.64	319.09	7.55	0.56	1.37
9543.97	9863.06	194.70	155.08	319.10	6.02	0.49	1.26
LB 9863.06	9906.83	14.19	14.30	43.77	0.44	0.33	0.99
9906.83	9950.59	26.24	20.69	43.84	0.81	0.47	1.27
9950.59	9994.36	50.18	30.56	43.97	1.55	0.70	1.64
9994.36	10038.12	21.36	18.29	43.84	0.66	0.42	1.17
10038.12	RB 10081.89	38.85	26.23	44.06	1.20	0.60	1.48
10081.89	10381.14	629.58	321.17	299.27	19.47	1.07	1.96
10381.14	10680.39	840.94	382.27	299.63	26.01	1.28	2.20
10680.39	10979.64	359.96	229.64	299.25	11.13	0.77	1.57
10979.64	11278.89	79.69	92.93	299.25	2.47	0.31	0.86
11278.89	11578.14	2.77	8.54	118.55	0.09	0.07	0.32

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 18.549

INPUT
Description: "Eastern Diversion" at southern end of cross section
Station Elevation Data num= 123

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6653.63	1533.44	6688.95	1532.77	6703.24	1532.41	6709.49	1534	6717.04	1536
6720	1536.76	6723.69	1536	6734.2	1534	6744.71	1532	6755.14	1530
6757.35	1529.56	6759.43	1530	6768.36	1532	6772.03	1532.82	6827.12	1534
6830.68	1534.08	6920.8	1534	6987.74	1534	6994.75	1534.13	6995.52	1534
6998.92	1532.87	7006.64	1533.67	7018.29	1533.66	7024.19	1532	7027.21	1530.62
7030.53	1532	7037.16	1533.77	7063.46	1534	7085.79	1534	7127.73	1534
7244.54	1534	7413.78	1533.52	7826.1	1533.67	8238.4	1533.38	8383.89	1534
8468.87	1534	9348.18	1533.21	9448.18	1533.06	9458.66	1532.96	9548.18	1533.5
9648.18	1533.4	9666.19	1533.42	9672.55	1532.49	9683.98	1533.35	9748.16	1533.33
9794.9	1533.47	9804.54	1532.57	9809.32	1532.27	9824.44	1533.83	9848.16	1533.43
9999.22	1533.28	10005.38	1532	10007.33	1531.58	10010.84	1532	10023.47	1533.42
10083.77	1532.42	10085.94	1532	10090.38	1531.27	10096.31	1532	10099.53	1532.38
10123.61	1532.53	10125.9	1532	10127.94	1531.55	10131.35	1532	10135.71	1532.46
10273.7	1532.45	11238.18	1532	11364.12	1534.36	11464.12	1534.46	11564.13	1534.27
11664.13	1534.17	11764.12	1534.22	11864.11	1534.11	11964.13	1534.54	12002.43	1534.35
12012.72	1534.23	12054.15	1534.23	12055.15	1534	12064.07	1532	12064.27	1531.87
12066.04	1532	12085.92	1532.43	12092.7	1534	12094.41	1534.47	12111.91	1534
12134.26	1533.41	12139.33	1532.01	12147.99	1533.05	12157.84	1532.51	12163.92	1534
12164.46	1534	12172.81	1534	12198.1	1534.08	12198.68	1534	12203.89	1533.27
12208.82	1534	12219.34	1534	12229.63	1533.54	12233.33	1534	12235.29	1534.34
12250.02	1534.13	12251.19	1534	12259.98	1533.12	12264.58	1534	12270.69	1534.37
12273.84	1534.28	12276.17	1534	12282.88	1533.23	12288.74	1534	12298.2	1534.26
12299.36	1534	12304.57	1532.58	12313.48	1534	12318.31	1534.8	12346.16	1534.18
12347.63	1534	12354.31	1533.29	12360.13	1534	12373.99	1534.72	12464.12	1535.17
12564.13	1535.73	12628.49	1536	12664.12	1536.15				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6653.63	.05	9848.16	.05	10135.71	.05

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Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9848.1610135.71           503.55  511.81  476.98            .3        .5
Ineffective Flow     num=        1
   Sta L   Sta R    Elev
11559.8512664.12    1536
Blocked Obstructions     num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 6653.63 6720.41    153612094.4112664.12    1536
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CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1533.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1533.81	Reach Len. (ft)	503.55	511.81	476.98
Crit W.S. (ft)	1533.45	Flow Area (sq ft)	848.53	239.43	760.83
E.G. Slope (ft/ft)	0.006454	Area (sq ft)	848.53	239.43	807.59
Q Total (cfs)	3233.00	Flow (cfs)	1196.72	505.22	1531.05
Top Width (ft)	3626.34	Top Width (ft)	2319.71	287.55	1019.09
Vel Total (ft/s)	1.75	Avg. Vel. (ft/s)	1.41	2.11	2.01
Max Chl Dpth (ft)	4.25	Hydr. Depth (ft)	0.37	0.83	0.77
Conv. Total (cfs)	40242.9	Conv. (cfs)	14896.3	6288.8	19057.9
Length Wtd. (ft)	497.51	Wetted Per. (ft)	2321.95	288.17	983.22
Min Ch El (ft)	1531.27	Shear (lb/sq ft)	0.15	0.33	0.31
Alpha	1.10	Stream Power (lb/ft s)	0.21	0.71	0.63
Frctn Loss (ft)	3.42	Cum Volume (acre-ft)	801.76	243.90	221.42
C & E Loss (ft)	0.00	Cum SA (acres)	675.35	258.04	349.01

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
6653.63	6973.08	288.43	108.18	83.74	8.92	1.30	2.67
6973.08	7292.54	64.83	34.97	46.68	2.01	0.77	1.85
7292.54	7611.99	52.26	64.66	299.87	1.62	0.22	0.81
7611.99	7931.44	39.92	56.42	319.45	1.23	0.18	0.71
7931.44	8250.89	109.50	103.36	319.45	3.39	0.32	1.06
8250.89	8570.35	12.16	16.51	88.02	0.38	0.19	0.74
8570.35	8889.80	8.95	19.36	207.63	0.28	0.09	0.46
8889.80	9209.25	113.17	105.42	319.45	3.50	0.33	1.07
9209.25	9528.71	314.83	194.78	319.46	9.74	0.61	1.62
9528.71	9848.16	192.64	144.84	318.20	5.96	0.46	1.33
LB 9848.16	9905.67	26.85	23.40	57.51	0.83	0.41	1.15
9905.67	9963.18	33.42	26.68	57.51	1.03	0.46	1.25
9963.18	10020.69	91.66	48.97	57.77	2.83	0.85	1.87
10020.69	10078.20	87.66	47.60	57.53	2.71	0.83	1.84
10078.20	RB 10135.71	265.65	92.78	57.84	8.22	1.61	2.86
10135.71	10388.55	814.02	332.17	252.84	25.18	1.31	2.45
10388.55	10641.39	491.53	245.42	252.84	15.20	0.97	2.00
10641.39	10894.23	199.04	142.67	252.84	6.16	0.56	1.40
10894.23	11147.07	26.47	40.57	224.70	0.82	0.18	0.65

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 18.452

INPUT
Description: "Eastern Diversion" at southern end of cross section
Station Elevation Data num= 107

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7596.34	1530	7603.93	1530.17	7620.04	1531.13	7625.89	1530	7636.59	1528
7645.6	1526.32	7654.04	1528	7659.91	1529.34	7710.82	1529.46	7715.32	1528.63
7720.32	1529.35	7724.35	1529.62	7816.08	1530	7840.3	1530	7860.92	1529.87
7871.78	1528.95	7891.06	1529.89	7904.7	1529.21	7910.33	1528.83	7913.86	1528.72
7922.05	1529.5	7931.85	1528.83	7953.7	1529.98	8036.7	1529.98	8236.25	1530
8239.67	1530	8644.73	1530	8645.03	1530	8645.21	1530	8745.03	1529.49
8845.01	1529.61	8945.02	1529.66	9045.02	1529.64	9145.02	1529.61	9233.75	1530

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 9245.02 1530.05 9345.02 1530.41 9445.03 1530.31 9475.52 1530.46  9479.5    1530
 9481.52 1529.74 9484.13    1530 9489.39 1530.53 9505.75 1530.63 9517.38 1530.22
 9526.37 1530.58 9545.03 1530.43 9568.28 1530.29 9569.95    1530 9571.84 1529.64
 9577.31    1530 9584.88 1530.51 9645.03 1530.22 9745.03 1530.17 9845.01 1530.22
 9862.77    1530 9927.34 1528.64 9934.33 1528.35 9943.72    1530 9945.26 1530.24
 9960.81    1530 9998.18 1529.3610003.43    152810009.33 1526.5310012.28 1526.99
10016.69    1528 10023.7 1529.5710039.96 1529.5510043.03    1528   10047 1526.11
10047.82    152610048.02    152610053.39    152810058.47 1529.4410108.08    1530
10114.38 1530.0710115.05    153010125.73  1528.910138.16 1529.8510161.24 1529.84
10261.26 1529.8210278.83    153010312.33 1530.3410313.25    1530 10316.5 1529.02
10321.59    153010322.47 1530.0710969.02 1529.9711069.03 1530.0611169.03 1530.21
11269.02 1530.2611369.04 1530.4811469.03 1530.9211569.02 1531.0911669.04 1530.94
11769.03 1530.7511869.02 1530.9911977.62    153012030.83 1529.2812036.02  1528.3
12044.89 1529.7312072.62    1530 12092.7 1530.1912408.94  1530.712455.89 1530.89
12586.75  1531.112725.17 1531.14

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 7596.34     .05 9845.01     .0510321.59     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9845.0110321.59           501.22  506.04  405.75              .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
11666.3412725.17    1532
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 7596.34  7618.9    1532

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1530.44   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.05   Wt. n-Val.                0.050      0.050      0.050
  W.S. Elev (ft)            1530.39   Reach Len. (ft)          501.22     506.04     405.75
  Crit W.S. (ft)            1530.15   Flow Area (sq ft)       1094.88     404.91     321.43
  E.G. Slope (ft/ft)       0.007310   Area (sq ft)            1094.88     404.91     422.94
  Q Total (cfs)             3233.00   Flow (cfs)              1931.86     919.52     381.63
  Top Width (ft)            3862.96   Top Width (ft)          2098.49     476.58    1287.89
  Vel Total (ft/s)             1.78   Avg. Vel. (ft/s)           1.76       2.27       1.19
  Max Chl Dpth (ft)            4.39   Hydr. Depth (ft)           0.52       0.85       0.32
  Conv. Total (cfs)         37813.2   Conv. (cfs)             22595.0    10754.7     4463.5
  Length Wtd. (ft)           488.91   Wetted Per. (ft)        2099.68     479.21    1006.32
  Min Ch El (ft)            1526.00   Shear (lb/sq ft)           0.24       0.39       0.15
  Alpha                        1.11   Stream Power (lb/ft s)     0.42       0.88       0.17
  Frctn Loss (ft)              2.88   Cum Volume (acre-ft)     790.52     240.11     214.68
  C & E Loss (ft)              0.01   Cum SA (acres)           649.81     253.55     336.38


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  7596.34       7821.21         492.55     203.94     198.17      15.23      1.03       2.42
  7821.21       8046.07         279.74     152.82     225.05       8.65      0.68       1.83
  8046.07       8270.94         114.53      89.40     224.87       3.54      0.40       1.28
  8270.94       8495.81         110.69      87.59     224.87       3.42      0.39       1.26
  8495.81       8720.67         143.01     102.14     224.87       4.42      0.45       1.40
  8720.67       8945.54         368.26     180.17     224.87      11.39      0.80       2.04
  8945.54       9170.41         329.04     168.40     224.87      10.18      0.75       1.95
  9170.41       9395.28          53.77      54.05     198.66       1.66      0.27       0.99
  9395.28       9620.14           8.24      14.74     128.60       0.26      0.11       0.56
  9620.14       9845.01          32.04      41.63     224.87       0.99      0.19       0.77
  LB 9845.01    9940.33         232.30      96.34      95.43       7.19      1.01       2.41
  9940.33       10035.64        268.91     105.46      96.07       8.32      1.11       2.55
  10035.64      10130.96        267.32     105.39      96.76       8.27      1.11       2.54
  10130.96      10226.27         90.23      54.60      95.34       2.79      0.57       1.65
  10226.27      RB 10321.59      60.77      43.12      95.62       1.88      0.45       1.41
  10321.59      10561.95         95.64      81.27     240.36       2.96      0.34       1.18
  10561.95      10802.31        113.74      90.18     240.36       3.52      0.38       1.26
  10802.31      11042.66        126.80      96.26     240.36       3.92      0.40       1.32
  11042.66      11283.02         44.72      51.50     240.36       1.38      0.21       0.87
  11283.02      11523.38          0.72       2.22      44.89       0.02      0.05       0.33
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Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 18.356

INPUT
Description: "Eastern Diversion" at southern end of cross section
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7979.69	1526	8040.32	1526.64	8048.37	1528	8050.39	1528.34	8053.28	1528
8067.48	1526.26	8068.47	1526	8075.08	1524	8077.29	1523.3	8080.38	1524
8089.35	1526	8092.04	1526.55	8128.78	1526.52	8138.57	1526.06	8148.23	1526.95
8208.68	1526.82	8214.43	1526.33	8220.79	1526.81	8237.8	1526.81	8464.31	1527.02
8974.22	1527.38	9074.21	1527.19	9174.22	1527.41	9274.21	1527.41	9374.22	1527.51
9474.21	1527.19	9574.23	1526.85	9582.18	1526.97	9588.34	1526.59	9600.54	1527.16
9623.24	1526.91	9633.09	1526.67	9649.14	1527.22	9674.22	1526.97	9774.24	1526.77
9777.08	1526.9	9908.47	1526.15	9911.46	1526	9922.03	1525.08	9930.34	1525.9
9954.52	1524.99	9970.29	1526	9978.18	1526.87	9998.19	152610001.67		1525.82
10010.56	1524.2110013.36		152410019.68		1523.0210025.31		152410036.93		1525.89
10040.11	152610064.61		1526.7310070.48		152610075.14		1525.5210080.56		1526
10086.12	1526.4710090.46		1526.8410161.88		1526.410162.88		152610167.12		1524
10168.26	1523.6710169.57		152410177.21		1526 10178.9		1526.4510206.54		1526.06
10206.75	1526 10212.8		1524.1910223.84		152610227.22		1526.610275.16		1526.69
10279.62	152610289.25		1524.610297.68		152610302.95		1526.8110596.03		1526.86
10696.05	1526.9610762.58		1526.7610796.04		1527.0110896.03		1526.9910996.05		1527.16
11096.04	1527.2111196.04		1527.2811296.05		1527.6211396.04		1527.7711496.04		1527.82
11592.4	152811596.05		1528.0411598.81		152811604.92		1527.9311610.06		1527.39
11618.11	152811646.49		152811760.36		1527.8211763.25		1527.311768.29		1528.08
11784.19	152811826.05		1527.8212045.25		152812434.34		1528.8912534.36		1528.84

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7979.69	.05	9908.47	.05	10302.95	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9908.47	10302.95	303.03	284.7	201.78	.3	.5

Blocked Obstructions num= 1

Sta L	Sta R	Elev
7979.69	8050.93	1529

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1527.56	Element			
Vel Head (ft)	0.07	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1527.48	Reach Len. (ft)	303.03	284.70	201.78
Crit W.S. (ft)	1527.16	Flow Area (sq ft)	808.19	605.20	459.06
E.G. Slope (ft/ft)	0.004846	Area (sq ft)	808.19	605.20	459.06
Q Total (cfs)	3233.00	Flow (cfs)	991.68	1658.35	582.97
Top Width (ft)	3169.37	Top Width (ft)	1817.33	394.48	957.56
Vel Total (ft/s)	1.73	Avg. Vel. (ft/s)	1.23	2.74	1.27
Max Chl Dpth (ft)	4.46	Hydr. Depth (ft)	0.44	1.53	0.48
Conv. Total (cfs)	46441.7	Conv. (cfs)	14245.4	23822.0	8374.3
Length Wtd. (ft)	283.13	Wetted Per. (ft)	1818.33	397.03	957.60
Min Ch El (ft)	1523.02	Shear (lb/sq ft)	0.13	0.46	0.15
Alpha	1.54	Stream Power (lb/ft s)	0.17	1.26	0.18
Frctn Loss (ft)	1.76	Cum Volume (acre-ft)	779.58	234.25	210.57
C & E Loss (ft)	0.02	Cum SA (acres)	627.28	248.49	325.92

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7979.69	8172.57	263.95	139.42	116.00	8.16	1.21	1.89
8172.57	8365.45	153.91	123.63	192.92	4.76	0.64	1.24
8365.45	8558.32	92.32	90.97	192.88	2.86	0.47	1.01
8558.32	8751.20	50.88	63.63	192.88	1.57	0.33	0.80
8751.20	8944.08	20.95	37.37	192.88	0.65	0.19	0.56

8944.08	9136.96	21.12	37.55	192.88	0.65	0.19	0.56
9136.96	9329.84	4.24	14.32	192.88	0.13	0.07	0.30
9329.84	9522.71	18.39	32.00	159.23	0.57	0.20	0.57
9522.71	9715.59	113.48	102.97	192.92	3.51	0.53	1.10
9715.59	9908.47	252.44	166.35	192.88	7.81	0.86	1.52
LB 9908.47	9987.37	398.61	137.78	79.09	12.33	1.75	2.89
9987.37	10066.26	516.18	161.15	79.40	15.97	2.04	3.20
10066.26	10145.16	153.02	77.54	79.01	4.73	0.98	1.97
10145.16	10224.05	379.54	134.57	80.25	11.74	1.71	2.82
10224.05	RB 10302.95	210.98	94.15	79.28	6.53	1.19	2.24
10302.95	10526.09	212.66	146.23	223.14	6.58	0.66	1.45
10526.09	10749.23	183.11	133.68	223.14	5.66	0.60	1.37
10749.23	10972.37	133.67	110.68	223.14	4.13	0.50	1.21
10972.37	11195.51	50.78	61.92	223.14	1.57	0.28	0.82
11195.51	11418.66	2.65	6.25	60.64	0.08	0.10	0.42
11418.66	11641.80	0.03	0.10	2.15	0.00	0.05	0.25
11641.80	11864.94	0.08	0.20	2.25	0.00	0.09	0.39

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 18.302

INPUT
Description: "Eastern Diversion" at southern end of cross section
Station Elevation Data num= 89

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8343.07	1523.86	8357.67	1524	8430.38	1524.77	8440.11	1526	8440.94	1526.11
8441.89	1526	8453.5	1524.66	8459.45	1524	8467.96	1523.07	8477.38	1524
8481.81	1524.37	8485.3	1524.31	8585.29	1524.73	8685.28	1524.85	8785.29	1524.7
8797.9	1525.25	8872.6	1526	8885.28	1526.13	8948.67	1526	8965.19	1525.97
8985.29	1525.74	9085.28	1525.79	9111.82	1526	9158.91	1526	9185.29	1525.77
9204.84	1525.82	9285.28	1525.72	9385.27	1525.16	9471.21	1524.91	9485.29	1524.68
9508.58	1525.14	9585.28	1525.72	9685.31	1525.4	9776.11	1525.08	9924.57	1524.49
9926.95	1524	9933.21	1522.76	9943.68	1522.59	9951.23	1524	9955.5	1524.83
10001.96	152410002.71	1523.8710013.27	1522.0410025.23	152410029.01	1524.61				
10168.41	1524.8510173.79	1524.3110188.64	1524.7510191.51	152410198.24	1522.23				
10207.87	1524	10211	1524.5510255.92	1524.6210289.58	1524.1510317.45	1525.58			
10317.75	1525.1510417.77	1525.6710517.76	1525.5210617.76	1525.7110640.59	1525.62				
10717.75	1525.7110817.76	1525.410917.76	1525.5911017.75	1525.411117.77	1525.91				
11295.97	1525.4111341.37	1525.5411378.36	152611379.36	1526.0111379.47	1526				
11383.69	1525.5411389.03	152611389.52	1526.0411395.79	152611419.66	1525.84				
11422.27	152611427.12	1526.2311564.97	1526.1111664.99	1526.411746.55	1526				
11764.98	1525.9111864.97	1525.8411964.96	1525.9811968.46	152612064.98	1526.47				
12164.97	1526.8412264.97	1526.8612364.98	1527.1112464.97	1527.33					

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8343.07	.05	9924.57	.0510317.75	.05	

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9924.5	10317.75	299.49	284.73	297.8	.3	.5

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8343.07	8440.73	1527

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1525.78	Element			
Vel Head (ft)	0.12	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1525.66	Reach Len. (ft)	299.49	284.73	297.80
Crit W.S. (ft)		Flow Area (sq ft)	666.06	510.19	105.15
E.G. Slope (ft/ft)	0.008565	Area (sq ft)	666.06	510.19	105.15
Q Total (cfs)	3233.00	Flow (cfs)	1483.79	1664.84	84.37
Top Width (ft)	2162.71	Top Width (ft)	992.79	393.18	776.74
Vel Total (ft/s)	2.52	Avg. Vel. (ft/s)	2.23	3.26	0.80
Max Chl Dpth (ft)	3.62	Hydr. Depth (ft)	0.67	1.30	0.14
Conv. Total (cfs)	34933.5	Conv. (cfs)	16032.8	17989.1	911.6
Length Wtd. (ft)	291.47	Wetted Per. (ft)	993.02	394.78	776.76
Min Ch El (ft)	1522.04	Shear (lb/sq ft)	0.36	0.69	0.07
Alpha	1.22	Stream Power (lb/ft s)	0.80	2.25	0.06
Frctn Loss (ft)	1.78	Cum Volume (acre-ft)	774.45	230.60	209.26
C & E Loss (ft)	0.01	Cum SA (acres)	617.51	245.92	321.90

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8343.07	8501.22	270.62	82.22	56.56	8.37	1.46	3.29
8501.22	8659.37	404.93	157.98	158.15	12.52	1.00	2.56
8659.37	8817.52	270.44	124.00	158.16	8.36	0.78	2.18
8817.52	8975.67	1.24	2.17	20.81	0.04	0.10	0.57
8975.67	9291.97						
9291.97	9450.12	82.82	60.22	153.40	2.56	0.39	1.38
9450.12	9608.27	97.74	62.19	129.65	3.02	0.48	1.57
9608.27	9766.42	45.51	42.56	158.15	1.41	0.27	1.07
9766.42	9924.57	310.49	134.71	158.15	9.60	0.85	2.30
LB 9924.57	10003.21	496.09	131.79	79.05	15.34	1.68	3.76
10003.21	10081.84	407.58	117.10	78.99	12.61	1.49	3.48
10081.84	10160.48	172.48	69.77	78.64	5.33	0.89	2.47
10160.48	10239.11	361.01	108.99	79.20	11.17	1.39	3.31
10239.11	RB 10317.75	227.70	82.54	78.90	7.04	1.05	2.76
10317.75	10532.47	27.72	32.55	202.56	0.86	0.16	0.85
10532.47	10747.19	1.28	4.00	108.70	0.04	0.04	0.32
10747.19	10961.92	24.83	31.19	214.72	0.77	0.15	0.80
10961.92	11176.64	15.52	17.74	106.01	0.48	0.17	0.87
11176.64	11391.36	15.02	19.66	144.76	0.46	0.14	0.76

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 18.248

INPUT
Description: "Eastern Diversion" at southern end of cross section
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8657.05	1522.89	8693.41	1522.86	8698.16	1524	8702.54	1524.87	8706.24	1524
8710.19	1523.08	8720.04	1522.79	8724.63	1522	8724.95	1521.96	8725.43	1522
8750.81	1523.82	8766.46	1524	8798.49	1524.36	8898.48	1524.6	8952.99	1524.4
8979.48	1524.24	8982.38	1524	8985.5	1523.8	8987.5	1524	8991.29	1524.33
8996.29	1524	8998.49	1523.86	9003.55	1524	9018.93	1524.44	9023.75	1524
9025.11	1523.87	9026.98	1524	9034.31	1524.51	9098.48	1524.17	9117.04	1524
9198.47	1523.71	9298.49	1523.28	9363.16	1523.41	9366	1522.73	9373.47	1523.23
9398.48	1523.03	9498.49	1523.9	9598.46	1523.53	9776.49	1522.96	9914.69	1522.71
9925.07	1522.53	9929.16	1522	9939.81	1520.85	9949.01	1520.69	9961.31	1522
9966.78	1522.6	9980.18	1522.1	9980.6	1522	9988.95	1520.06	9999.27	1522
10002.92	1522.7	10066.34	1522.28	10069.17	1522	10076.21	1521.31	10096.22	1522
10115.93	1522.68	10118.65	1522	10125.91	1520.33	10134.05	1522	10139.26	1523.04
10150.83	1522.29	10152.64	1522	10158.85	1521.03	10165.94	1522	10172.25	1522.87
10187.18	1522	10191	1521.87	10193.07	1522	10230.92	1522.83	10266.99	1523.04
10330.94	1523.2	10430.93	1523.2	10476.8	1523.11	10530.92	1523.17	10630.91	1523.32
10730.93	1523.37	10830.93	1523.37	10930.92	1523.17	11030.93	1523.66	11049.07	1523.18
11055.14	1524	11055.26	1524.01	11063.98	1524	11081.25	1523.85	11088.88	1522.93
11100.6	1523.87	11122.23	1524	11143.04	1524	11236.84	1523.61	11241	1523.83
11254.53	1523.61	11478.14	1523.91	11578.15	1523.93	11634.79	1524	11678.14	1524.05
11778.14	1524.37	11878.13	1524.42	11978.15	1524.69	12078.14	1524.93	12178.13	1524.86
12278.15	1525.08	12378.14	1525.03						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8657.05	.05	9914.69	.05	10230.92	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9914.69 10230.92 357.93 394.82 548.56 .3 .5
Ineffective Flow num= 1

Sta L	Sta R	Elev
11305	12378.14	1525

Blocked Obstructions num= 1

Sta L	Sta R	Elev
8657.05	8702.47	1525.5

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1523.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1523.89	Reach Len. (ft)	357.93	394.82	548.56
Crit W.S. (ft)	1523.54	Flow Area (sq ft)	473.12	580.82	553.16
E.G. Slope (ft/ft)	0.004612	Area (sq ft)	473.12	580.82	570.07
Q Total (cfs)	3233.00	Flow (cfs)	686.18	1752.06	794.76
Top Width (ft)	2279.68	Top Width (ft)	818.09	316.23	1145.36
Vel Total (ft/s)	2.01	Avg. Vel. (ft/s)	1.45	3.02	1.44
Max Chl Dpth (ft)	3.83	Hydr. Depth (ft)	0.58	1.84	0.56
Conv. Total (cfs)	47608.3	Conv. (cfs)	10104.5	25800.4	11703.4
Length Wtd. (ft)	457.14	Wetted Per. (ft)	818.44	317.83	986.75
Min Ch El (ft)	1520.06	Shear (lb/sq ft)	0.17	0.53	0.16
Alpha	1.45	Stream Power (lb/ft s)	0.24	1.59	0.23
Frctn Loss (ft)	2.79	Cum Volume (acre-ft)	770.53	227.04	206.96
C & E Loss (ft)	0.01	Cum SA (acres)	611.28	243.60	315.33

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8657.05	8782.81	74.10	44.33	50.49	2.29	0.88	1.67
8782.81	8908.58						
8908.58	9034.34	0.02	0.14	4.44	0.00	0.03	0.18
9034.34	9160.11	0.04	0.27	12.39	0.00	0.02	0.14
9160.11	9285.87	29.22	36.54	125.76	0.90	0.29	0.80
9285.87	9411.63	110.95	81.39	125.86	3.43	0.65	1.36
9411.63	9537.40	27.02	34.47	122.19	0.84	0.28	0.78
9537.40	9663.16	41.60	45.17	125.76	1.29	0.36	0.92
9663.16	9788.93	147.79	96.64	125.77	4.57	0.77	1.53
9788.93	9914.69	255.45	134.19	125.76	7.90	1.07	1.90
LB 9914.69	9977.94	429.14	131.55	63.46	13.27	2.08	3.26
9977.94	10041.18	337.75	114.14	63.73	10.45	1.80	2.96
10041.18	10104.43	360.35	118.35	63.31	11.15	1.87	3.04
10104.43	10167.67	374.04	121.55	64.00	11.57	1.92	3.08
10167.67	RB 10230.92	250.78	95.23	63.33	7.76	1.51	2.63
10230.92	10445.64	271.26	163.21	214.72	8.39	0.76	1.66
10445.64	10660.36	223.14	145.17	214.72	6.90	0.68	1.54
10660.36	10875.09	151.36	115.01	214.72	4.68	0.54	1.32
10875.09	11089.81	128.64	99.88	192.61	3.98	0.52	1.29
11089.81	11304.53	20.28	29.79	149.50	0.63	0.20	0.68
11304.53	11519.25	0.07	0.10	0.47	0.00	0.21	0.71

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 18.173

INPUT
Description:
Station Elevation Data num= 102

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8890.55	1522.77	8942.96	1522	8959.84	1521.75	8965.59	1520	8967.06	1519.49
8968.81	1520	8974.66	1521.75	8984.71	1521.5	8996.79	1521.26	8996.8	1521.09
9009.29	1521.56	9016.53	1520.98	9022.6	1521.65	9030.21	1521.73	9036.48	1521.08
9046.35	1521.96	9090.55	1521.82	9190.54	1521.15	9720.87	1521.09	9765.39	1521.08
9798.81	1520.84	9824.05	1520.36	9944.05	1520.31	9945.4	1520	9949.5	1519.05
9955.77	1520	9957.08	1520.2	9982.66	1520	9984.13	1519.99	9990.83	1518.65
10001.55	1519.58	10020.28	152	10035.67	1520.34	10037.89	152	10047.66	1518.33
10061.43	1519.78	10103.87	152	10115.02	1520.06	10115.49	152	10120.82	1519.3
10130.73	152	10133.66	1520.23	10163.17	1520.42	10165.19	1520	10168.9	1519.17
10175.96	152	10179.24	1520.39	10208	1520.72	10211.76	152	10212.53	1519.85
10213.94	152	10217.82	1520.42	10440.27	152	10482.66	152	10526.41	1520
10584.46	1520.13	10585.27	152	10588.58	1519.52	10596.27	152	10596.71	1520.03
10599.87	1520	10623.3	152	10633.43	1520.19	10635.95	152	10643.33	1519.17
10655.38	152	10659.08	1520.34	10676.46	152	10682.12	1519.9	10686.6	1519.54

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10695.43    152010701.55 1520.2810737.35    1520 10744.5 1519.9410754.24 1519.29
10760.21    152010762.17 1520.2210774.26    152010783.36 1519.8410787.37 1519.15
 10795.2 1519.9910874.31    152010934.28 1520.3711034.28 1520.5911134.28 1520.94
11234.28 1521.1111334.28 1521.2511434.27 1521.4311534.27 1521.4311634.27 1521.45
11734.27 1521.6511744.59 1521.8911750.83 1521.4611772.06 1521.8611776.36 1521.33
11780.86    152211783.17  1522.311816.89    152211834.58 1521.8411862.61    1522
11934.58 1522.41 12034.6  1522.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 8890.55     .05 9944.05     .0510217.82     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9944.0510217.82           510.37   485.8  404.15              .3       .5
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
   11185 12034.6    1522

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1521.19   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.11   Wt. n-Val.                0.050      0.050      0.050
  W.S. Elev (ft)            1521.08   Reach Len. (ft)          510.37     485.80     404.15
  Crit W.S. (ft)            1520.71   Flow Area (sq ft)        114.03     319.35     824.31
  E.G. Slope (ft/ft)       0.008592   Area (sq ft)             114.03     319.35     825.20
  Q Total (cfs)             3233.00   Flow (cfs)               219.95     972.32    2040.73
  Top Width (ft)            1469.97   Top Width (ft)           196.68     273.77     999.52
  Vel Total (ft/s)             2.57   Avg. Vel. (ft/s)           1.93       3.04       2.48
  Max Chl Dpth (ft)            2.75   Hydr. Depth (ft)           0.58       1.17       0.85
  Conv. Total (cfs)         34877.6   Conv. (cfs)              2372.8    10489.4    22015.4
  Length Wtd. (ft)           447.46   Wetted Per. (ft)         197.17     274.83     967.56
  Min Ch El (ft)            1518.33   Shear (lb/sq ft)           0.31       0.62       0.46
  Alpha                        1.05   Stream Power (lb/ft s)     0.60       1.90       1.13
  Frctn Loss (ft)              3.02   Cum Volume (acre-ft)     768.12     222.96     198.17
  C & E Loss (ft)              0.02   Cum SA (acres)           607.11     240.92     301.83


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta     Right Sta       Flow      Area       W.P.    % Conv.   Hydr D.   Velocity
  (ft)         (ft)            (cfs)   (sq ft)      (ft)                (ft)     (ft/s)
  8890.55      8995.90         17.51      8.18     10.86      0.54      0.79      2.14
  8995.90      9101.25          0.04      0.11      2.21      0.00      0.05      0.35
  9101.25      9733.35
  9733.35      9838.70         33.84     26.81     78.75      1.05      0.34      1.26
  9838.70      9944.05        168.56     78.93    105.35      5.21      0.75      2.14
  LB 9944.05   9998.80        241.68     73.80     55.15      7.48      1.35      3.27
  9998.80      10053.56       264.47     77.80     54.97      8.18      1.42      3.40
  10053.56     10108.31       215.99     68.81     54.80      6.68      1.26      3.14
  10108.31     10163.07       145.71     54.35     54.84      4.51      0.99      2.68
  10163.07     RB 10217.82    104.48     44.59     55.08      3.23      0.81      2.34
  10217.82     10399.50       343.37    151.27    181.68     10.62      0.83      2.27
  10399.50     10581.18       508.67    191.50    181.68     15.73      1.05      2.66
  10581.18     10762.85       570.40    205.24    181.95     17.64      1.13      2.78
  10762.85     10944.53       487.66    186.75    181.79     15.08      1.03      2.61
  10944.53     11126.21       127.05     83.31    181.68      3.93      0.46      1.53
  11126.21     11307.89         3.58      6.23     58.79      0.11      0.11      0.57


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

CROSS SECTION          RIVER: Vineyard FRS
REACH: Vineyard           RS: 18.081

INPUT
Description:
Station Elevation Data    num=      92
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 8098.03 1520.86 8102.76 1521.26 8106.99 1520.59 8113.43  1521.3 8147.09 1520.77
 8154.66 1520.18 8165.07 1520.75 8291.57    1520 8408.48    1520 8509.67    1520
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  8617.4    1520 8666.04 1519.42 8692.89 1518.79 8723.09 1518.67 8879.05 1518.73
 8943.18 1519.39 8945.14    1518 8947.99    1516 8948.95 1515.33 8950.37    1516
 8954.69    1518 8957.52 1519.21 8979.06 1518.83 9079.05 1518.17 9107.85    1518
 9179.07 1517.57 9279.06 1517.55 9691.35 1517.36 9817.89 1517.28 9958.89 1517.42
 9964.59 1516.18 9972.34 1517.6210024.35 1517.4810028.63 1516.6410033.91 1517.59
10103.66 1517.16 10147.2 1517.31 10154.3 1516.43 10160.9 1517.0410178.75 1517.01
10184.14 1516.5310203.66 1516.7910279.32  1516.210287.21 1516.9410303.66 1516.65
10330.53 1516.5110334.82    151610337.53  1515.610342.27    151610348.17 1516.44
10446.11 1516.2410447.39    151610453.33 1514.8610459.16    151610462.27  1516.6
10496.18 1516.7610501.45    151610504.65 1515.5510518.82    151610527.28 1516.52
10533.61 1516.7910627.27 1516.8410727.27 1517.5310827.27 1517.7510927.27  1517.9
10949.66    151811027.27 1518.3611127.27 1518.5811227.26 1518.6611327.26  1518.9
11427.26 1518.9511527.26  1519.111627.26 1519.4211634.84 1519.5511644.54  1518.8
11650.77 1519.8511727.26 1519.4411827.25 1519.4911927.25 1519.6111955.26 1519.56
11961.98 1518.8811966.76  1519.611970.34  1519.511975.92 1518.43 11985.4 1519.52
12024.53 1519.4412026.85 1518.8112027.28 1518.6812035.17    152012035.26 1520.01
12036.86    152012127.28 1519.24

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 8098.03     .05 9958.89     .0510348.17     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9958.8910348.17           357.17  430.67  405.55              .3       .5
Blocked Obstructions      num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 8098.03 8941.23    152111652.4712127.28    1521
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CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1518.15	Element			
Vel Head (ft)	0.07	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1518.08	Reach Len. (ft)	357.17	430.67	405.55
Crit W.S. (ft)		Flow Area (sq ft)	541.65	438.61	610.08
E.G. Slope (ft/ft)	0.005444	Area (sq ft)	541.65	438.61	610.08
Q Total (cfs)	3233.00	Flow (cfs)	867.33	1040.21	1325.46
Top Width (ft)	1881.49	Top Width (ft)	874.01	389.28	618.20
Vel Total (ft/s)	2.03	Avg. Vel. (ft/s)	1.60	2.37	2.17
Max Chl Dpth (ft)	3.22	Hydr. Depth (ft)	0.62	1.13	0.99
Conv. Total (cfs)	43815.7	Conv. (cfs)	11754.6	14097.6	17963.5
Length Wtd. (ft)	398.04	Wetted Per. (ft)	875.48	389.95	618.62
Min Ch El (ft)	1515.60	Shear (lb/sq ft)	0.21	0.38	0.34
Alpha	1.07	Stream Power (lb/ft s)	0.34	0.91	0.73
Frctn Loss (ft)	2.36	Cum Volume (acre-ft)	764.28	218.73	191.51
C & E Loss (ft)	0.00	Cum SA (acres)	600.84	237.23	294.32

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8842.37	9028.46	32.36	13.48	11.32	1.00	1.37	2.40
9028.46	9214.55	40.22	39.48	119.83	1.24	0.33	1.02
9214.55	9400.63	143.90	101.15	186.09	4.45	0.54	1.42
9400.63	9586.72	182.29	116.56	186.09	5.64	0.63	1.56
9586.72	9772.80	227.38	133.10	186.09	7.03	0.72	1.71
9772.80	9958.89	241.19	137.89	186.09	7.46	0.74	1.75
LB 9958.89	10036.75	88.74	54.69	78.29	2.74	0.70	1.62
10036.75	10114.60	96.61	57.42	77.86	2.99	0.74	1.68
10114.60	10192.46	176.66	82.53	77.96	5.46	1.06	2.14
10192.46	10270.31	322.68	118.40	77.86	9.98	1.52	2.73
10270.31	RB 10348.17	355.51	125.57	77.99	11.00	1.61	2.83
10348.17	10526.08	844.29	319.17	178.32	26.11	1.79	2.65
10526.08	10703.99	400.36	203.80	177.92	12.38	1.15	1.96
10703.99	10881.90	74.02	74.02	177.91	2.29	0.42	1.00
10881.90	11059.81	6.79	13.10	84.47	0.21	0.16	0.52

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 18.000

INPUT
Description:
Station Elevation Data num= 88

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8086.07	1518.42	8178.34	1518	8446.63	1517.3	8541.06	1516.41	8543.07	1516
8547.91	1514.81	8555.38	1516	8557.65	1516.32	8574.46	1516.3	8579.24	1516
8583.61	1515.71	8587.38	1516	8593.16	1516.45	8609.85	1516.73	8614.55	1516.04
8623.45	1516.96	8744.85	1517.38	8818.72	1516.77	8848.3	1516.23	8849	1516
8854.95	1514	8860.5	1512.06	8865.9	1514	8871	1515.93	9022.91	1516
9025.53	1516	9427.08	1515.08	9807.82	1514.91	9823.11	1514.43	9824.03	1514
9827.34	1512.55	9836.13	1514	9839.97	1514.63	9929.7	1514.8	10033.76	1515.21
10037.03	1514	10041.16	1512.34	10048.76	1514	10053.58	1515.06	10107.72	1515.07
10117.12	1514.25	10124.17	1514.92	10178.87	1515.11	10191.51	1514.97	10199.16	1514.12
10204.8	1514.85	10242.29	1514.41	10245.46	1514	10249.98	1513.49	10255.04	1514
10257.89	1514.26	10425.81	1514	10426.22	1513.97	10426.65	1514	10500.52	1514.58
10540.58	1514.27	10640.58	1514.76	10740.58	1515.21	10840.58	1515.49	10940.58	1515.74
11040.58	1515.71	11137.89	1516	11140.58	1516.01	11240.57	1516.18	11340.57	1516.45
11440.57	1516.42	11525.93	1516.63	11531.08	1516	11533.09	1515.78	11534.38	1516
11539.09	1516.84	11568.08	1516.67	11575.77	1516.16	11581.24	1516.72	11626.94	1516.72
11630.73	1516.03	11638.77	1516.92	11756.81	1516.21	11759.42	1516.56	11762.17	1516
11764.25	1515.59	11767.36	1516	11773.22	1516.87	11856.82	1516.23	11919.02	1516
11956.81	1515.86	12045.16	1516	12056.81	1515.98				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8086.07	.05	9929.7	.05	10257.89	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9929.7	10257.89	499.55	496.48	527.1	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
8086.07	8744.85	1518	11525.93	12056.81	1518

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1515.79	Element			
Vel Head (ft)	0.08	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1515.71	Reach Len. (ft)	499.55	496.48	527.10
Crit W.S. (ft)		Flow Area (sq ft)	535.44	292.96	662.86
E.G. Slope (ft/ft)	0.006477	Area (sq ft)	535.44	292.96	662.86
Q Total (cfs)	3233.00	Flow (cfs)	1012.76	648.17	1572.06
Top Width (ft)	1804.16	Top Width (ft)	798.84	328.19	677.13
Vel Total (ft/s)	2.17	Avg. Vel. (ft/s)	1.89	2.21	2.37
Max Chl Dpth (ft)	3.65	Hydr. Depth (ft)	0.67	0.89	0.98
Conv. Total (cfs)	40170.8	Conv. (cfs)	12583.8	8053.7	19533.2
Length Wtd. (ft)	506.15	Wetted Per. (ft)	800.68	329.28	677.14
Min Ch El (ft)	1512.34	Shear (lb/sq ft)	0.27	0.36	0.40
Alpha	1.03	Stream Power (lb/ft s)	0.51	0.80	0.94
Frctn Loss (ft)	3.31	Cum Volume (acre-ft)	759.86	215.11	185.59
C & E Loss (ft)	0.01	Cum SA (acres)	593.98	233.68	288.29

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8823.52	9007.88	117.59	37.59	21.82	3.64	1.83	3.13
9007.88	9192.25	0.54	1.91	40.82	0.02	0.05	0.28
9192.25	9376.61	55.39	56.18	184.36	1.71	0.30	0.99
9376.61	9560.97	189.53	117.53	184.36	5.86	0.64	1.61
9560.97	9745.34	238.93	135.05	184.36	7.39	0.73	1.77
9745.34	9929.70	410.82	187.19	184.94	12.71	1.02	2.19
LB 9929.70	9995.34	89.41	47.75	65.64	2.77	0.73	1.87
9995.34	10060.98	150.34	65.55	66.47	4.65	1.00	2.29
10060.98	10126.61	96.29	49.94	65.71	2.98	0.76	1.93
10126.61	10192.25	82.74	45.58	65.64	2.56	0.69	1.82
10192.25	RB 10257.89	229.39	84.13	65.82	7.10	1.28	2.73
10257.89	10437.78	795.78	285.59	179.89	24.61	1.59	2.79
10437.78	10617.67	573.19	234.55	179.90	17.73	1.30	2.44

10617.67	10797.57	189.36	120.68	179.89	5.86	0.67	1.57
10797.57	10977.46	13.70	22.03	131.64	0.42	0.17	0.62
10977.46	11157.35	0.00	0.00	5.82	0.00	0.00	0.02

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 17.906

INPUT
Description:
Station Elevation Data num= 119

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8028.04	1514.61	8133.63	1514	8133.66	1514	8151.26	1513.4	8318.33	1513.54
8323.27	1512	8323.36	1511.97	8323.46	1512	8329.02	1513.11	8387.85	1513.54
8393.31	1512	8396.53	1511.07	8400.41	1512	8406.43	1513.42	8434.77	1513.45
8445	1513.2	8463.55	1513.16	8470.33	1512.14	8474.26	1512.75	8611.14	1513.11
8738.53	1512	8762.31	1512	8763.29	1512.13	8763.79	1512	8768.64	1510
8770.21	1509.33	8773	1510	8778.6	1511.22	8807.44	1511.79	8812.48	1510
8813.32	1509.71	8815.43	1510	8827.29	1511.76	8910.79	1512	8927.36	1512.04
8938.71	1512	9027.37	1511.66	9116.03	1512	9127.37	1512.04	9227.38	1512.04
9327.35	1512.26	9427.35	1512.18	9560.65	1512	9853.86	1511.64	9867.16	1510.54
9875.36	1511.48	9925.97	1510.14	9940.89	1511.21	9976.98	1510.35	9978.34	1510
9986.04	1508	9990.73	1507.76	9991.43	1508	9997.33	1510	9999.46	1510.68
10004.26	151	10008.17	1509.41	10014.39	151	10019.24	1510.49	10035.55	1510.18
10045.65	1510.85	10131.32	1510.59	10141.02	151	10145.55	1509.73	10147.65	1510
10155.62	1510.93	10179.29	1510.67	10187.26	151	10192.01	1509.53	10197.44	1510
10207.51	1510.83	10256.52	1511.19	10300.62	1516.04	10364.87	1516.01	10412.96	1511.67
10715.18	151	10806.09	1512.72	10808.77	1512	10813.2	1511.07	10814.8	1511.18
10825.39	151	10832.86	1512.67	10842.43	151	10842.95	1511.96	10845.53	1512
10925.08	1512.36	10955.75	151	11066.56	1511.96	11091.12	151	11166.56	1512.11
11266.56	1512.16	11366.56	1512.09	11368.37	1512.5	11376.9	151	11383.65	1511.59
11392.2	151	11424.54	1512.52	11466.56	1512.18	11477.99	1512.52	11483.89	1512
11490.09	1511.46	11495.65	151	11501.17	1512.55	11533.79	151	11539.95	1511.91
11545.16	151	11566.56	1512.38	11598.8	1512.26	11600.66	151	11603.98	1511.55
11608.01	151	11612.33	1512.49	11666.56	1512.23	11766.55	1512.43	11866.55	1512.6
11966.55	1512.87	11984.68	1512.92	12053.41	1513.13	12066.55	1513.21		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8028.04	.05	9976.98	.05	10256.52	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9976.98	10256.52	434.39	456.2	444.62	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
11502.21	12066.55	1516

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
8028.04	8611.14	151	610832.86	12066.55	1516

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1512.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1512.33	Reach Len. (ft)	434.39	456.20	444.62
Crit W.S. (ft)	1512.00	Flow Area (sq ft)	665.90	525.83	180.51
E.G. Slope (ft/ft)	0.006592	Area (sq ft)	665.90	525.83	180.51
Q Total (cfs)	3233.00	Flow (cfs)	1040.23	1928.02	264.76
Top Width (ft)	1940.13	Top Width (ft)	1276.81	279.54	383.78
Vel Total (ft/s)	2.36	Avg. Vel. (ft/s)	1.56	3.67	1.47
Max Chl Dpth (ft)	4.57	Hydr. Depth (ft)	0.52	1.88	0.47
Conv. Total (cfs)	39820.5	Conv. (cfs)	12812.3	23747.1	3261.0
Length Wtd. (ft)	445.69	Wetted Per. (ft)	1278.26	280.70	384.06
Min Ch El (ft)	1507.76	Shear (lb/sq ft)	0.21	0.77	0.19
Alpha	1.62	Stream Power (lb/ft s)	0.33	2.83	0.28
Frctn Loss (ft)	3.49	Cum Volume (acre-ft)	752.97	210.45	180.48
C & E Loss (ft)	0.02	Cum SA (acres)	582.08	230.22	281.87

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8612.72	8807.62	96.90	66.54	108.23	3.00	0.62	1.46
8807.62	9002.51	145.48	107.54	195.39	4.50	0.55	1.35
9002.51	9197.40	97.40	84.45	194.90	3.01	0.43	1.15
9197.40	9392.30	21.11	33.74	194.89	0.65	0.17	0.63
9392.30	9587.19	36.38	46.77	194.89	1.13	0.24	0.78
9587.19	9782.09	118.12	94.81	194.89	3.65	0.49	1.25
9782.09	9976.98	524.83	232.06	195.06	16.23	1.19	2.26
LB 9976.98	10032.89	670.97	149.82	56.84	20.75	2.68	4.48
10032.89	10088.80	294.94	90.90	55.93	9.12	1.63	3.24
10088.80	10144.70	346.97	100.21	55.93	10.73	1.79	3.46
10144.70	10200.61	390.35	107.66	56.06	12.07	1.93	3.63
10200.61	RB 10256.52	224.81	77.24	55.93	6.95	1.38	2.91
10256.52	10437.52	39.54	24.38	42.42	1.22	0.58	1.62
10437.52	10618.53	151.37	97.47	181.00	4.68	0.54	1.55
10618.53	10799.53	48.81	44.45	138.86	1.51	0.32	1.10
10799.53	10980.53	25.01	14.19	21.78	0.77	0.66	1.76

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 17.819

INPUT
Description:
Station Elevation Data num= 106

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7844.68	1510.74	7980.19	1510	8068.3	1509.72	8136.49	1509.37	8139.95	1508
8142.71	1506.99	8145.27	1508	8148.93	1509.45	8153.82	1510.07	8180.9	1509.78
8250.77	1509.59	8291.9	1509.26	8492.06	1508.35	8492.85	1508	8497.55	1506.7
8508.18	1507.82	8509.13	1507.76	8515.4	1506.19	8524.77	1506	8531.11	1504.99
8534.7	1506	8542.35	1508	8544.36	1508.41	8615.49	1508.41	8715.5	1508.03
8815.5	1508.12	8915.49	1508.22	9015.49	1508.1	9115.5	1508.63	9215.5	1508.78
9315.48	1508.75	9415.47	1508.92	9515.47	1508.61	9615.47	1508.53	9715.47	1508.43
9815.47	1508.12	9837.83	1508	9915.49	1507.6	9967.94	1508	9984.92	1508.13
9985.4	1508	9993.28	1506	9994.35	1505.75	9995.3	150	10002.79	1508
10004.15	1508.37	10012.12	150	10015.49	1507.85	10028.62	150	10057.19	1508.34
10058.93	150	10063.08	1506.93	10070.92	150	10072.78	1508.24	10102.32	1508
10115.49	1507.89	10123.29	150	10164.76	1508.56	10171.96	150	10177.34	1507.53
10191.15	1507.92	10202.1	1506.79	10215.49	1507.65	10217.09	1507.91	10315.49	1507.94
10346.22	1507.99	10351.73	1507.26	10360.75	150	10368.74	1508.6	10415.48	1508.19
10515.48	1508.38	10652.9	1508.47	10654.89	150	10658.73	1507.03	10662.39	1508
10665.58	1508.9	10693.65	1508.59	10698.19	150	10699.42	1507.82	10700.99	1508
10706.34	1508.62	10740.05	1508.04	10753.27	1508.5	10756.22	150	10757.78	1507.73
10760.27	150	10764.84	1508.49	10927.8	1508.51	11027.8	1508.7	11127.8	1508.83
11227.8	1509.12	11327.8	1509.19	11427.8	1509.17	11469.41	1509.39	11475.36	1509.8
11521.91	1509.66	11527.79	1508.78	11529.09	1508.64	11535.26	1508.51	11565.54	1509.94
11627.79	1509.63	11702.3	151	11727.79	1510.13	11827.79	1510.05	11927.79	1510.52
12027.79	1510.84								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7844.68	.05	9984.92	.05	10368.74	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9984.92	10368.74	447.96	499.97	459.45	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
10860	12027.79	1510

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
7844.68	8153.82	151	11469.41	12027.79	1510

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1508.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1508.89	Reach Len. (ft)	447.96	499.97	459.45
Crit W.S. (ft)	1508.59	Flow Area (sq ft)	889.86	381.46	248.44

E.G. Slope (ft/ft)	0.009070	Area (sq ft)	889.86	381.46	317.10
Q Total (cfs)	3233.00	Flow (cfs)	1711.49	1073.05	448.46
Top Width (ft)	2752.31	Top Width (ft)	1588.16	383.82	780.33
Vel Total (ft/s)	2.13	Avg. Vel. (ft/s)	1.92	2.81	1.81
Max Chl Dpth (ft)	3.90	Hydr. Depth (ft)	0.56	0.99	0.51
Conv. Total (cfs)	33946.5	Conv. (cfs)	17970.7	11267.0	4708.8
Length Wtd. (ft)	464.17	Wetted Per. (ft)	1589.19	384.99	491.29
Min Ch El (ft)	1505.75	Shear (lb/sq ft)	0.32	0.56	0.29
Alpha	1.11	Stream Power (lb/ft s)	0.61	1.58	0.52
Frctn Loss (ft)	3.46	Cum Volume (acre-ft)	745.22	205.70	177.94
C & E Loss (ft)	0.00	Cum SA (acres)	567.80	226.74	275.93

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8272.73	8486.75	28.83	29.66	114.22	0.89	0.26	0.97
8486.75	8700.78	479.53	206.35	215.05	14.83	0.96	2.32
8700.78	8914.80	334.79	166.02	214.02	10.36	0.78	2.02
8914.80	9128.82	222.82	130.04	214.03	6.89	0.61	1.71
9128.82	9342.85	21.08	31.59	214.02	0.65	0.15	0.67
9342.85	9556.87	18.83	28.14	189.79	0.58	0.15	0.67
9556.87	9770.90	124.50	91.71	214.02	3.85	0.43	1.36
9770.90	9984.92	481.11	206.37	214.03	14.88	0.96	2.33
LB 9984.92	10061.68	248.07	83.55	77.54	7.67	1.09	2.97
10061.68	10138.45	185.09	69.85	76.90	5.73	0.91	2.65
10138.45	10215.21	227.09	78.97	76.90	7.02	1.03	2.88
10215.21	10291.98	208.22	74.92	76.79	6.44	0.98	2.78
10291.98	RB 10368.74	204.58	74.16	76.86	6.33	0.97	2.76
10368.74	10534.65	181.85	93.86	165.91	5.62	0.57	1.94
10534.65	10700.55	130.65	76.95	165.77	4.04	0.47	1.70
10700.55	10866.46	135.95	77.62	159.61	4.21	0.49	1.75

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 17.725

INPUT
Description:
Station Elevation Data num= 105

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7608.74	1507.69	7832.35	1507.54	7972.19	1507.5	7980.38	1506	7980.46	1505.98
7980.57	1506	7987.52	1507.23	8055.97	1507.32	8262.43	1506	8279.57	1505.87
8503.17	1505.53	8603.18	1505.87	8693.9	1504.08	8694.48	1504	8703.19	1503.19
8703.68	1502.77	8710.25	1504	8712.96	1504.59	8803.19	1504.3	8825.73	1504
8888.22	1503.17	8892.41	1502.56	8896.25	1503.19	8903.17	1503.23	8983.45	1503.31
8985.46	1502.72	8989.02	1503.45	9002.38	1504	9003.18	1504.03	9103.19	1504.93
9515.49	1504.89	9615.48	1505.06	9715.48	1504.94	9815.5	1504.64	9867.17	1504.59
9879.55	1504.11	9892.11	1504.55	9896.94	1504	9902.35	1503.42	9907.75	1504
9913.89	1504.61	9915.49	1504.72	9933.06	1504.28	9935.38	1504	9939.99	1503.46
9945.34	1504	9948.95	1504.43	9966.84	1504.59	9973.25	1504.18	9978.06	1504.79
9988.44	1504.46	10015.49	1505.01	10107.71	1505.08	10112	1504	10115.48	1503.12
10116.2	1502.75	10122.73	1504	10128.44	1505.09	10141.6	1505.19	10146.72	1504.65
10156.6	1505.14	10215.48	1505.04	10257.97	1505.04	10271.44	1504.23	10281.71	1504.86
10286.68	1504.83	10292.52	1504	10292.7	1503.98	10293.06	1504	10303.07	1504.72
10315.5	1504.84	10353.83	1504.03	10354.11	1504	10363.33	1503.01	10374.05	1504
10382.15	1504.63	10415.49	1504.84	10515.49	1505.04	10615.48	1505.41	10642.27	1505.43
10715.48	1505.23	10815.5	1505.55	10915.49	1505.61	10915.49	1505.92	11060.31	1506
11115.48	1506.11	11215.48	1506.44	11315.5	1506.86	11433.6	1506.45	11442.91	1507.02
11505.7	1507.08	11513.21	1506.16	11520.38	1507.59	11750.26	1507.81	1755.19	1506.46
11762.04	1507.97	11762.11	1508	11825.38	1508.04	11922.9	1508.14	11923.37	1508
11925.4	1507.42	11926.66	1507.25	11929.86	1508	11932	1508.54	12025.39	1509.27

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7608.74	.05	9867.17	.05	10382.15	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9867.17	10382.15	383	500	500.99	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
7608.74	8055.97	1509

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1505.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1505.44	Reach Len. (ft)	383.00	500.00	500.99
Crit W.S. (ft)	1505.04	Flow Area (sq ft)	1071.79	406.72	108.95
E.G. Slope (ft/ft)	0.006360	Area (sq ft)	1071.79	406.72	108.95
Q Total (cfs)	3233.00	Flow (cfs)	2301.70	822.40	108.90
Top Width (ft)	2154.74	Top Width (ft)	1242.00	514.98	397.76
Vel Total (ft/s)	2.04	Avg. Vel. (ft/s)	2.15	2.02	1.00
Max Chl Dpth (ft)	2.88	Hydr. Depth (ft)	0.86	0.79	0.27
Conv. Total (cfs)	40538.1	Conv. (cfs)	28860.7	10311.9	1365.5
Length Wtd. (ft)	423.41	Wetted Per. (ft)	1242.67	516.15	397.76
Min Ch El (ft)	1502.75	Shear (lb/sq ft)	0.34	0.31	0.11
Alpha	1.05	Stream Power (lb/ft s)	0.74	0.63	0.11
Frctn Loss (ft)	3.18	Cum Volume (acre-ft)	735.13	201.17	175.70
C & E Loss (ft)	0.00	Cum SA (acres)	553.24	221.58	269.72

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8512.11	8737.96	204.20	103.38	113.18	6.32	0.92	1.98
8737.96	8963.80	1126.98	379.88	225.95	34.86	1.68	2.97
8963.80	9189.64	449.76	218.95	226.02	13.91	0.97	2.05
9189.64	9415.48	162.13	118.67	225.84	5.01	0.53	1.37
9415.48	9641.33	143.65	110.36	225.84	4.44	0.49	1.30
9641.33	9867.17	214.96	140.55	225.84	6.65	0.62	1.53
LB 9867.17	9970.17	293.18	120.38	103.25	9.07	1.17	2.44
9970.17	10073.16	89.05	58.85	103.05	2.75	0.57	1.51
10073.16	10176.16	95.48	61.49	103.59	2.95	0.60	1.55
10176.16	10279.15	66.45	49.37	103.03	2.06	0.48	1.35
10279.15	RB 10382.15	278.24	116.65	103.22	8.61	1.13	2.39
10382.15	10546.47	98.17	83.49	164.33	3.04	0.51	1.18
10546.47	10710.80	7.53	17.88	164.32	0.23	0.11	0.42
10710.80	10875.12	3.21	7.58	69.11	0.10	0.11	0.42

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 17.630

INPUT
Description:
Station Elevation Data num= 131

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7086.24	1506.43	7104.86	1506	7119.85	1505.66	7147.16	1505.49	7402.46	1504.66
7718.69	1504.35	7743.13	1504.09	7744.4	1504	7748.51	1503.65	7752.73	1504
7752.92	1504.03	7926.09	1504	8257.2	1503.04	8573.43	1502.22	8616.24	1502
8673.43	1501.71	8773.44	1501.93	8806.96	1502	8873.42	1502.14	8927.72	1502
9051.18	1501.96	9077.45	1503.3	9124.8	1500.45	9127.66	1500	9140.44	1498
9142.71	1497.64	9144.38	1498	9154.14	1500	9156.72	1500.48	9174.99	1500.53
9179.21	1500	9186.71	1498.46	9197.94	1498.8	9199.44	1498.64	9206.87	1500
9210.55	1501.21	9230.27	1501.4	9236.84	1500	9237.48	1499.89	9238.62	1500
9251.59	1501.5	9306.41	1501.66	9391.87	1501.77	9615.48	1501.42	9715.5	1501.45
9815.5	1501.4	9864.04	1501.08	9875.38	1500.71	9883.71	1501.09	9915.49	1501.23
9966.65	1501.41	9981.97	1500.52	9996.74	1501.02	10005.83	1500	10008.34	1499.7
10010.37	1500	10015.49	1500.76	10017.13	1500.86	10026.05	1500	10026.75	1499.93
10027.65	1500	10035.87	1500.61	10115.48	1501.84	10146.13	1502	10215.5	1502.36
10268.49	1502.03	10268.6	1502	10275.93	1500	10276.56	1499.82	10277.66	1500
10288.3	1501.99	10309.9	1501.8	10315.5	1501.79	10321.38	1502	10325.99	1502.16
10338.37	1502.12	10339.17	1502	10344.96	1501.11	10351.15	1500.47	10361.43	1501.96
10374.01	1502	10405.46	1502.09	10408.26	1502	10414.12	1501.77	10415.29	1502
10415.49	1502.04	10426.98	1502.23	10431.49	1502	10444.94	1501.38	10452.14	1500

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10454.05 1499.6310455.58    150010458.81 1500.7910464.64 1500.4510473.13    1502
10475.42 1502.41 10505.6    150210515.49 1501.8710615.48 1501.92 10715.5 1501.97
10730.25    150210759.22 1502.0710760.34    150210765.14 1501.6510771.57 1501.99
10815.49 1501.9910817.91    150210915.49 1502.4111015.49 1502.5311115.48 1502.87
11180.86 1502.9711191.68 1503.0711292.86    150411387.28 1504.0411387.35    1504
11391.32    150211391.92  1501.711392.62    150211397.53    150411398.22 1504.26
11407.69 1504.5311410.68 1504.1911417.91 1504.5811431.75 1504.62 11549.3    1504
11796.25    150411936.47 1504.2311937.28    150411940.89 1502.9511945.37    1504
11945.96 1504.14

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 7086.24     .05  9815.5     .0510475.42     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9815.510475.42           282.16  400.01  467.43             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 7086.24 8873.42    1506
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
11387.2811945.96    1507

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1502.32   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.10   Wt. n-Val.                0.050      0.050      0.050
  W.S. Elev (ft)            1502.22   Reach Len. (ft)          282.16     400.01     467.43
  Crit W.S. (ft)            1501.86   Flow Area (sq ft)        731.79     491.50      96.36
  E.G. Slope (ft/ft)       0.008936   Area (sq ft)             817.36     491.50      96.36
  Q Total (cfs)             3233.00   Flow (cfs)              1932.39    1192.61     108.00
  Top Width (ft)            2198.12   Top Width (ft)          1205.01     610.73     382.37
  Vel Total (ft/s)             2.45   Avg. Vel. (ft/s)           2.64       2.43       1.12
  Max Chl Dpth (ft)            4.58   Hydr. Depth (ft)           0.81       0.80       0.25
  Conv. Total (cfs)         34200.9   Conv.. (cfs)            20442.1    12616.3     1142.5
  Length Wtd. (ft)           351.57   Wetted Per. (ft)         904.48     612.27     382.40
  Min Ch El (ft)            1499.63   Shear (lb/sq ft)           0.45       0.45       0.14
  Alpha                        1.06   Stream Power (lb/ft s)     1.19       1.09       0.16
  Frctn Loss (ft)              2.38   Cum Volume (acre-ft)     726.82     196.02     174.52
  C & E Loss (ft)              0.01   Cum SA (acres)           542.49     215.12     265.23


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta     Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  8723.80      8996.72          22.38      24.69    123.30       0.69       0.20       0.91
  8996.72      9269.65        1155.86     340.97    235.32      35.75       1.46       3.39
  9269.65      9542.57         274.26     152.62    272.93       8.48       0.56       1.80
  9542.57      9815.50         479.88     213.50    272.93      14.84       0.78       2.25
  LB 9815.50   9947.48         350.25     137.79    132.00      10.83       1.04       2.54
  9947.48      10079.47        578.36     186.32    132.25      17.89       1.41       3.10
  10079.47     10211.45         46.41      38.10    110.00       1.44       0.35       1.22
  10211.45     10343.44         62.09      44.83    106.80       1.92       0.42       1.38
  10343.44     RB 10475.42     155.52      84.46    131.23       4.81       0.65       1.84
  10475.42     10622.47         48.86      39.83    133.43       1.51       0.30       1.23
  10622.47     10769.53         44.31      39.05    147.08       1.37       0.27       1.13
  10769.53     10916.58         14.82      17.48    101.90       0.46       0.17       0.85


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

CROSS SECTION          RIVER: Vineyard FRS
REACH: Vineyard           RS: 17.554

INPUT
Description:
Station Elevation Data     num=     147
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
  6862.9 1503.18 6879.75 1503.23 6910.67 1502.12 6974.35    1502 7195.98 1501.56
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 7512.21 1501.35 7658.94 1500.35 7661.95    1500 7664.27 1499.68 7666.16    1500
 7668.72 1500.59 7828.44 1500.67 8059.79 1500.66 8096.34  1501.1 8144.66 1501.13
  8244.3 1501.03 8244.67 1501.06 8279.57    1500 8280.24 1499.98 8344.67  1499.7
 8444.65 1499.41 8544.66 1499.72 8644.67 1499.53 8744.67 1499.41 8844.68 1499.31
 8944.66 1499.82 9013.24 1498.71 9020.54    1498 9025.63 1497.25 9030.58    1498
 9032.58 1498.31 9044.67 1498.54 9046.41    1498 9047.92 1497.55 9053.36 1496.97
 9056.79    1498 9056.95 1498.05 9074.29 1498.37 9080.26    1498 9086.38 1497.82
 9091.16    1496 9093.22 1495.36 9095.08    1496 9100.88    1498 9103.96 1499.05
 9121.76 1498.35 9125.21    1498  9128.8 1497.55 9131.63    1498 9131.64    1498
 9144.67 1498.44 9153.59  1498.4 9158.51    1498 9159.69 1497.83 9160.65    1498
 9166.15    1499 9187.28 1499.18 9244.67 1499.68 9361.53 1499.44 9468.28 1499.41
 9691.88 1499.56 9915.48 1499.24 9927.42 1499.04 9936.98    1498 9937.16 1497.98
 9937.33    1498  9951.2 1499.47 9972.87 1499.16 9980.62 1498.42 9992.14 1498.82
 10015.5 1498.8910030.04 1498.3410042.11 1498.8610239.11 1499.19 10339.1 1499.24
10411.77  1499.110416.24    1498   10419 1497.2410422.77    1498   10430 1499.26
 10439.1 1499.3610478.69 1499.1610487.04    1498 10488.4 1497.7910491.01    1498
10507.18 1498.66 10511.9 1498.0610521.71 1498.9110539.09 1498.7910555.04 1498.02
10555.14    149810558.81 1497.2910569.72 1496.1910587.56    1498 10594.6 1498.73
10606.72 1498.7910611.87 1498.1410639.11  1498.610654.72 1498.3810657.92    1498
10659.55  1497.8 10661.2    149810670.16 1499.0210692.14 1498.6610694.56    1498
10695.25 1497.8710696.26    149810706.95 1499.33 10732.8 1498.5910736.26    1498
 10739.1 1497.5210741.99 1497.4210747.81    149810758.83 1499.1110773.92 1498.68
10793.28 1499.4810813.36 1499.19 10820.3  1498.610832.87 1499.79 10839.1 1499.65
10908.75 1499.5610913.42 1499.2910923.26 1499.57 10939.1  1499.611039.09 1499.95
11068.81    150011139.11 1500.1211211.91    1500 11232.8    1500 11234.8 1500.03
11236.13    150011244.92 1499.7611257.58    150011295.66    150011551.41 1499.83
11590.71    1500 11651.4 1500.2711751.42 1500.3911851.42  1501.111951.26 1500.88
11951.41 1500.7411953.76 1500.0311959.56 1500.8811982.77  1501.211991.32  1500.7
11999.73 1501.0112051.41 1501.08

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
  6862.9     .05 9691.88     .0510606.72     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9691.8810606.72           407.45  398.94  593.71             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
  6862.9    8400    1503
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
  7562.9 8097.03    150311139.1112051.41    1503

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)          1499.93   Element                  Left OB    Channel   Right OB
  Vel Head (ft)              0.05   Wt. n-Val.                0.050      0.050      0.050
  W.S. Elev (ft)          1499.88   Reach Len. (ft)          407.45     398.94     593.71
  Crit W.S. (ft)          1499.47   Flow Area (sq ft)        737.09     805.35     305.10
  E.G. Slope (ft/ft)     0.005293   Area (sq ft)             755.01     805.35     305.10
  Q Total (cfs)           3233.00   Flow (cfs)              1095.28    1598.14     539.58
  Top Width (ft)          2714.73   Top Width (ft)          1388.13     914.84     411.76
  Vel Total (ft/s)           1.75   Avg. Vel. (ft/s)           1.49       1.98       1.77
  Max Chl Dpth (ft)          4.52   Hydr. Depth (ft)           0.57       0.88       0.74
  Conv. Total (cfs)       44437.7   Conv. (cfs)             15054.7    21966.4     7416.6
  Length Wtd. (ft)         443.49   Wetted Per. (ft)        1293.70     915.93     412.41
  Min Ch El (ft)          1496.19   Shear (lb/sq ft)           0.19       0.29       0.24
  Alpha                      1.05   Stream Power (lb/ft s)     0.28       0.58       0.43
  Frctn Loss (ft)            2.71   Cum Volume (acre-ft)     721.73     190.06     172.36
  C & E Loss (ft)            0.00   Cum SA (acres)           534.09     208.12     260.97


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta     Right Sta       Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)            (cfs)    (sq ft)      (ft)                (ft)      (ft/s)
  8277.39      8560.29         48.05      51.98    160.29       1.49       0.32       0.92
  8560.29      8843.19        122.34     114.30    282.90       3.78       0.40       1.07
  8843.19      9126.08        571.00     288.71    284.52      17.66       1.02       1.98
  9126.08      9408.98        230.16     167.04    283.10       7.12       0.59       1.38
  9408.98      9691.88        123.72     115.07    282.90       3.83       0.41       1.08
  LB 9691.88   9874.85         97.25      82.10    182.97       3.01       0.45       1.18
  9874.85      10057.82       332.06     171.61    183.17      10.27       0.94       1.93
```

10057.82	10240.78	275.60	153.39	182.97	8.52	0.84	1.80
10240.78	10423.75	233.61	139.00	183.29	7.23	0.76	1.68
10423.75	RB 10606.72	659.64	259.26	183.53	20.40	1.42	2.54
10606.72	10751.19	425.94	197.54	144.96	13.17	1.37	2.16
10751.19	10895.66	97.18	81.32	144.62	3.01	0.56	1.20
10895.66	11040.13	16.44	26.24	122.83	0.51	0.21	0.63

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

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CROSS SECTION          RIVER: Vineyard FRS
REACH: Vineyard           RS: 17.479

INPUT
Description:
Station Elevation Data    num=     107
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 6730.65 1500.84 6740.25 1500.33 6759.23 1500.05 6889.34    1500 7046.88  1499.7
  7363.1 1499.19 7515.93 1498.39 7521.18 1498.27 7527.37 1498.43 7675.53    1498
 7679.34 1497.98 7895.98 1496.99 7901.54 1496.96 7904.48 1497.43 8111.61    1498
    8205 1498.28 8260.56 1498.68 8264.29    1498 8265.25 1497.76 8267.24    1498
 8273.06 1498.67 8311.78 1499.28 8318.56 1498.51  8343.9 1498.12 8354.08    1498
 8411.79 1497.31  8511.8 1496.34 8611.79 1496.32  8711.8 1496.44 8811.79 1496.58
  8911.8 1496.73 9011.78 1496.68 9111.78 1496.58 9155.45  1496.2 9156.38    1496
 9162.98  1494.7 9167.18    1496 9167.64 1496.14 9170.25    1496 9171.66 1495.92
 9175.72 1495.13 9183.38    1496 9188.57 1496.58 9206.02 1496.81 9213.66    1496
  9214.4 1495.93 9215.37    1496 9223.34 1496.54 9489.84 1496.43 9495.82  1496.1
  9504.6  1496.6 9568.46 1496.58 9792.06 1496.75 9892.08 1496.97 9989.62    1497
 9992.08 1496.85 9996.56 1496.6910006.64 1497.0310311.34 1496.7310389.23 1496.35
10392.63    149610397.15 1495.5210414.09    149610414.67 1496.0210414.74    1496
10421.18 1494.6310430.97 1495.8810448.18    149610458.15 1496.0510458.34    1496
10466.47    149410467.53 1493.7410468.65    149410476.57    149610479.42 1496.74
10549.67 1496.1510550.32    149610557.27 1494.2610567.57    149610568.47 1496.17
10627.57 1496.6511024.25 1496.5311026.52 1496.0811030.11 1496.31 11059.5 1496.05
11060.16    149611064.04 1495.6811067.24    149611070.97 1496.3511113.27 1496.31
11118.34    149611118.73 1495.9811119.18    149611123.27 1496.2311137.48 1496.34
11237.47 1496.6111337.47 1496.7311437.46  1496.811537.46 1496.9511637.48 1496.97
11737.48 1497.3911837.47 1497.6411899.39 1497.5811901.81 1496.7211909.03 1497.63
11937.46 1497.6412037.46 1497.91

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 6730.65     .05 9489.84     .0510627.57     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9489.8410627.57           434.06  535.05  398.92              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
   1131012037.46    1500
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 6730.65 8312.52    150011837.4712037.46    1500

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1497.22   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.05   Wt. n-Val.                  0.050      0.050      0.050
  W.S. Elev (ft)            1497.17   Reach.Len. (ft)            434.06     535.05     398.92
  Crit W.S. (ft)            1496.88   Flow Area (sq ft)          703.86     627.47     442.80
  E.G. Slope (ft/ft)       0.007136   Area (sq ft)               703.86     627.47     550.44
  Q Total (cfs)             3233.00   Flow (cfs)                1341.48    1058.48     833.04
  Top Width (ft)            3258.26   Top Width (ft)            1063.43    1137.73    1057.11
  Vel Total (ft/s)             1.82   Avg. Vel. (ft/s)             1.91       1.69       1.88
  Max Chl Dpth (ft)            3.43   Hydr. Depth (ft)             0.66       0.55       0.65
  Conv. Total (cfs)         38272.9   Conv. (cfs)               15880.7    12530.5     9861.7
  Length Wtd. (ft)           454.22   Wetted Per. (ft)          1064.03    1139.10     682.55
  Min Ch El (ft)            1493.74   Shear (lb/sq ft)             0.29       0.25       0.29
  Alpha                        1.01   Stream Power (lb/ft s)       0.56       0.41       0.54
  Frctn Loss (ft)              2.35   Cum Volume (acre-ft)       714.91     183.50     166.53
  C & E Loss (ft)              0.00   Cum SA (acres)             522.62     198.72     250.96
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Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8386.16	8662.08	310.82	160.32	235.67	9.61	0.68	1.94
8662.08	8938.00	297.99	166.49	275.92	9.22	0.60	1.79
8938.00	9213.92	358.16	186.07	276.50	11.08	0.67	1.92
9213.92	9489.84	374.51	190.97	275.94	11.58	0.69	1.96
LB 9489.84	9717.39	187.35	128.68	227.57	5.79	0.57	1.46
9717.39	9944.93	74.89	74.23	227.55	2.32	0.33	1.01
9944.93	10172.48	38.47	49.77	227.56	1.19	0.22	0.77
10172.48	10400.02	154.55	114.66	227.59	4.78	0.50	1.35
10400.02	RB 10627.57	603.24	260.13	228.83	18.66	1.14	2.32
10627.57	10768.56	124.08	76.06	140.99	3.84	0.54	1.63
10768.56	10909.55	140.87	82.08	140.99	4.36	0.58	1.72
10909.55	11050.54	182.99	96.04	141.04	5.66	0.68	1.91
11050.54	11191.53	275.57	122.79	141.05	8.52	0.87	2.24
11191.53	11332.52	109.52	65.83	118.47	3.39	0.56	1.66

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 17.377

INPUT
Description:
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6580.94	1497.75	6897.19	1497.16	7103.45	1497.45	7157.29	1498	7213.41	1498.55
7227.92	1498	7257.82	1496.87	7363.76	1496	7497.07	1495.97	7503.96	1494
7504.33	1493.9	7505.08	1494	7514.23	1495.27	7529.62	1495.59	7845.82	1495.88
8006.56	1494.74	8051.77	1496	8119.71	1496.47	8150.13	1497.09	8162.07	1497.31
8205.67	1496.02	8262.05	1496.1	8268.01	1496	8362.06	1494.47	8462.05	1494.08
8562.06	1494.06	8588.96	1494	8662.07	1493.84	8727.95	1494	8762.06	1494.08
8862.07	1494.4	8962.07	1494.49	9064.84	1494.6	9071.04	1494	9071.28	1493.96
9072.19	1494	9078.82	1494.77	9207.97	1494	9217.31	1493.88	9238.59	1494
9278.31	1494.22	9298.77	1494.29	9594.52	1494.98	9860.98	1494	9955.07	1493.52
9997.62	1493.38	9999.56	1492.79	10005.78	149	410006.19	1494.08	10009.81	1494
10026.38	1493.57	10033.19	1493.03	10040.49	1493.59	10055.08	1493.67	10143.76	1494
10155.09	1494.04	10167.91	149	410180.95	1493.91	10184.99	1492.24	10191.26	1494
10192.18	1494.29	10208.22	149	410221.14	1493.77	10227.2	149	210227.69	1491.85
10228.22	149	210235.38	149	410235.98	1494.15	10245.25	149	410271.14	1493.52
10274.99	149	210275.56	1491.78	10276.45	149	210284.49	149	410285.53	1494.25
10315.69	149	410567.39	1493.75	10759.2	1493.44	10883.61	1493.61	10911.68	1493.89
10916.14	1493.13	10922.11	1493.96	10983.62	1493.92	11002.97	149	411083.62	1494.34
11183.63	1494.58	11283.61	1495.11	11383.62	1495.15	11483.62	1495.13	11583.63	1495.55
11672.15	1495.28	11677.89	1494.44	11683.53	1495.58	11683.61	1495.18	11714.41	1495.33
11719.86	1495.52	11783.62	1495.45	11883.63	1495.52				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6580.94	.05	9207.97	.05	10285.53	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9207.97	10285.53	389.72	295.16	235.91	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6580.94	8161.6	149	811583.63	11883.63	1498

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1494.87	Element			
Vel Head (ft)	0.04	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1494.83	Reach Len. (ft)	389.72	295.16	235.91
Crit W.S. (ft)		Flow Area (sq ft)	499.45	703.78	870.65
E.G. Slope (ft/ft)	0.003924	Area (sq ft)	499.45	703.78	870.65
Q Total (cfs)	3233.00	Flow (cfs)	643.23	1055.96	1533.81
Top Width (ft)	2783.98	Top Width (ft)	867.87	970.49	945.63
Vel Total (ft/s)	1.56	Avg. Vel. (ft/s)	1.29	1.50	1.76
Max Chl Dpth (ft)	3.05	Hydr. Depth (ft)	0.58	0.73	0.92
Conv. Total (cfs)	51611.9	Conv. (cfs)	10268.6	16857.5	24485.9
Length Wtd. (ft)	310.20	Wetted Per. (ft)	867.95	972.61	945.75
Min Ch El (ft)	1491.78	Shear (lb/sq ft)	0.14	0.18	0.23
Alpha	1.04	Stream Power (lb/ft s)	0.18	0.27	0.40

Frctn Loss (ft)	1.68	Cum Volume (acre-ft)	708.91	175.33	160.03
C & E Loss (ft)	0.01	Cum SA (acres)	513.00	185.77	241.79

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8157.16	8419.86	29.34	31.08	79.76	0.91	0.39	0.94
8419.86	8682.56	323.20	211.26	262.70	10.00	0.80	1.53
8682.56	8945.27	199.24	158.04	262.70	6.16	0.60	1.26
8945.27	9207.97	91.46	99.07	262.78	2.83	0.38	0.92
LB 9207.97	9423.48	124.07	116.20	215.51	3.84	0.54	1.07
9423.48	9638.99	5.10	13.01	108.44	0.16	0.12	0.39
9638.99	9854.51	77.66	87.72	215.51	2.40	0.41	0.89
9854.51	10070.02	452.90	252.82	215.78	14.01	1.17	1.79
10070.02	RB 10285.53	396.26	234.03	217.36	12.26	1.09	1.69
10285.53	10445.34	213.60	136.76	159.81	6.61	0.86	1.56
10445.34	10605.15	294.68	165.89	159.81	9.11	1.04	1.78
10605.15	10764.96	410.80	202.49	159.81	12.71	1.27	2.03
10764.96	10924.77	405.14	200.87	159.93	12.53	1.26	2.02
10924.77	11084.58	177.78	122.50	159.81	5.50	0.77	1.45
11084.58	11244.39	31.79	42.13	146.58	0.98	0.29	0.75

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 17.321

INPUT
Description:
Station Elevation Data num= 278

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6486.68	1496.15	6524.91	1496	6802.88	1495.51	6817.44	1495.46	6839.01	1496
6844.68	1496.19	6877.46	1496	6889.71	1495.98	6909.83	1495.39	7129.74	1496
7163.23	1496.33	7184.91	1496	7253.87	1494.9	7347.98	1494	7657.3	1493.31
7755.68	1492.57	7756.92	1492	7759.13	1491.01	7764.65	1492	7766.45	1492.29
7773.74	1492.3	7774.62	1492	7776.18	1491.35	7778.53	1492	7780.6	1492.59
7803.79	1492.77	7807.45	1492	7808.35	1491.82	7809.19	1492	7811.8	1492.76
7973.52	1493.74	8086.36	1494	8124.82	1494.49	8172.98	1494.46	8228.26	1494.27
8289.73	1494.71	8369.24	1494	8389.74	1493.82	8489.73	1493.16	8536.74	1492.94
8540.9	1492	8549.2	1490	8549.75	1489.86	8551.75	1490	8558.09	1492.41
8565.22	1492.72	8575.94	1493.77	8583.09	1494.14	8586.24	1494.25	8596.09	1494.24
8605.89	1493.9	8614.92	1493.73	8626.23	1493.74	8639.14	1493.75	8652.8	1493.68
8667.1	1493.71	8679.28	1492	8680.43	1493.79	8692.42	1493.54	8700.74	1493.46
8704.51	1492	8712.6	1493.41	8724.99	1493.37	8739.65	1493.45	8752.87	1493.46
8765.72	1493.49	8777.71	1493.54	8783.95	1493.49	8788.92	1492	8791.15	1493.41
8794.51	1492	8798.85	1493.22	8808.06	1493.01	8815.72	1492.87	8824.45	1492.87
8831.32	1493.02	8837.72	1493.29	8843.37	1493.31	8849.88	1493.31	8854.34	1493.36
8861.15	1493.5	8869.05	1493.36	8877.9	1493.11	8885.61	1492.96	8891.33	1493.23
8898.6	1493.4	8907.56	1493.4	8918.48	1493.53	8926.23	1493.73	8934.75	1493.72
8947.9	1493.76	8955.58	1493.67	8964.61	1493.48	8970.99	1493.33	8975.46	1492.96
8986.71	1490.93	8988.93	1490	8989.17	1489.87	8990.02	1490	8996.73	1491.03
9016.42	1491.4	9022.81	1491.47	9099.93	1491.66	9100.1	1491.75	9103.63	1491.22
9112.72	1491.67	9200.1	1491.67	9300.09	1491.9	9400.09	1491.77	9444.02	1492
9464.15	1492.1	9491.86	1492	9500.1	1491.97	9504.77	1492	9600.08	1492.64
9654.73	1492.63	9676.31	1494.74	9683.32	1494.82	9691.77	1494.87	9700.93	1494.88
9710.83	1494.93	9718.28	1494.94	9727.83	1494.89	9734.43	1494.84	9742.51	1494.76
9750.21	1494.73	9761.59	1494.8	9767.08	1494.82	9776.94	1494.86	9784.97	1494.92
9793.37	1494.98	9807.31	1494.96	9814.64	1494.94	9820.13	1494.92	9831.84	1494.92
9837.69	1494.93	9845.74	1494.89	9852.33	1494.84	9858.55	1494.75	9861.84	1494.71
9871.69	1494.75	9875.35	1494.74	9881.86	1494.69	9888.08	1494.66	9894.3	1494.67
9903.81	1494.68	9909.65	1494.68	9914.4	1494.67	9925	1494.59	9931.58	1494.55
9935.97	1494.52	9941.47	1494.45	9947.36	1494.36	9957.25	1494.3	9961.66	1494.29
9966.44	1494.31	9971.21	1494.29	9975.22	1494.23	9977.61	1492	9984.01	1494.35

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 9999.34 1490.6910012.69 1491.8110014.79    1492   10033 1494.5210043.85 1494.52
10053.95 1494.5110061.72 1494.4910071.31 1494.4610079.51 1494.4410098.97 1494.52
10109.84 1494.5710133.86 1494.6510144.59 1494.6110160.99 1494.5110173.66 1494.58
10180.73 1494.6210189.75 1494.6910204.51  1494.810210.08  1494.810216.57 1494.79
10223.93 1494.7710239.91 1494.6910248.49 1494.5910259.49 1494.8210261.05 1494.89
 10269.4  1495.110279.83 1495.2610288.53 1495.3110300.32 1495.3310305.87 1495.33
10310.05 1495.3310313.48    1494 10319.3 1495.3910328.47 1495.3910335.75    1494
10337.92 1495.2910346.15  1495.2 10352.3 1495.3110355.46    149410360.08 1496.08
 10372.2 1497.1110382.25 1497.6610395.33 1497.8310407.76 1497.8210416.84 1497.66
10426.22 1497.3910431.95    149410437.05 1497.0810445.36 1496.8410453.25 1496.61
10462.67 1496.3310469.64 1496.1910476.69 1496.11   10483 1496.1310492.37 1496.06
10500.62 1496.0210509.46 1496.0310521.27 1496.0210532.95 1495.9610545.11 1495.96
10556.44 1495.9810567.29 1495.8610586.21 1495.5210596.26 1495.4610608.12 1495.41
10618.12 1495.3310631.62 1495.0810643.69 1494.8410651.38    149210652.29    1492
10653.73 1494.6310666.82 1493.7210670.27 1493.2410679.42 1492.91 10683.9    1492
10691.54 1490.3510695.29    149010696.28  1489.910697.18    149010714.92    1492
10721.26 1492.3110725.21    149210731.91 1491.3310737.34    149210740.99 1492.48
10766.45 1492.7610768.55    149210770.52 1491.3510783.25    149210791.79 1492.89
10834.96 1492.9110890.55 1492.3910893.58  1492.811151.33 1492.5111154.65 1492.48
11158.05    149211159.51  1491.811164.17    149211178.19 1492.6711251.35 1492.68
11351.34 1493.0311451.34 1494.0411475.13    149411551.35 1493.8711651.36  1493.5
11751.34 1493.8211766.18 1493.9611772.65 1492.8811782.24 1493.4811833.32  1493.7
11836.86 1493.3211841.95 1493.5811851.35 1493.5211877.72 1493.2911886.95 1493.42
11938.57    149411951.38 1494.1412051.38 1494.19

Manning's n Values          num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
 6486.68     .05 9300.09     .05   10033     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9300.09   10033           732.26  497.51   448.5             .3       .5
Blocked Obstructions      num=        2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 6486.68  8289.4    149611451.3412051.38    1496

CROSS SECTION OUTPUT     Profile #PF 1

  E.G. Elev (ft)            1493.18   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.12   Wt. n-Val.                0.050      0.050      0.050
  W.S. Elev (ft)            1493.06   Reach Len. (ft)          732.26     497.51     448.50
  Crit W.S. (ft)                      Flow Area (sq ft)        532.06     373.70     343.83
  E.G. Slope (ft/ft)       0.007939   Area (sq ft)             532.06     373.70     343.83
  Q Total (cfs)             3233.00   Flow (cfs)              1707.37     950.36     575.27
  Top Width (ft)            1522.53   Top Width (ft)           443.76     395.98     682.80
  Vel Total (ft/s)             2.59   Avg. Vel. (ft/s)           3.21       2.54       1.67
  Max Chl Dpth (ft)            3.20   Hydr. Depth (ft)           1.20       0.94       0.50
  Conv. Total (cfs)         36285.7   Conv. (cfs)             19162.7    10666.4     6456.6
  Length Wtd. (ft)           672.37   Wetted Per. (ft)         446.92     397.01     684.55
  Min Ch El (ft)            1490.69   Shear (lb/sq ft)           0.59       0.47       0.25
  Alpha                        1.17   Stream Power (lb/ft s)     1.89       1.19       0.42
  Frctn Loss (ft)              4.90   Cum Volume (acre-ft)     704.30     171.68     156.74
  C & E Loss (ft)              0.02   Cum SA (acres)           507.13     181.14     237.38


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

FLOW DISTRIBUTION OUTPUT     Profile #PF 1

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                (ft)      (ft/s)
  8456.07       8737.41         118.84     53.64      75.29       3.68       0.73       2.22
  8737.41       9018.75         242.63     88.50      90.22       7.50       1.00       2.74
  9018.75       9300.09        1345.89    389.93     281.41      41.63       1.39       3.45
  LB 9300.09    9446.67         501.61    176.22     146.58      15.52       1.20       2.85
  9446.67       9593.25         287.63    126.22     146.58       8.90       0.86       2.28
  9593.25       9739.84          37.25     26.89      65.85       1.15       0.41       1.39
  9739.84       9886.42
  9886.42       RB 10033.00     123.88     44.37      38.00       3.83       1.20       2.79
  10033.00      10638.51
  10638.51      10840.35        319.46    147.98     170.96       9.88       0.87       2.16
  10840.35      11042.19         88.80     73.36     201.87       2.75       0.36       1.21
  11042.19      11244.03        148.00     99.68     201.91       4.58       0.49       1.48
  11244.03      11445.87         19.01     22.81     109.81       0.59       0.21       0.83
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Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 17.227

INPUT
Description:
Station Elevation Data num= 191

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6152.2	1490.06	6222.02	1490.32	6224.85	1490	6228.81	1489.56	6231.37	1490
6232.06	1490.12	6252.19	1490.2	6298.84	1490	6337.19	1489.84	6341.27	1490
6352.2	1490.44	6387.15	1490.87	6430.71	1491.18	6443.66	1490.8	6452.21	1490.59
6552.19	1491.12	6652.2	1490.69	6680.48	1490	6689.14	1489.94	6696.64	1488.86
6700.56	1489.54	6718.59	1488.84	6724.29	1489.29	6728.85	1488.37	6731.79	1489.62
6748.42	1489.37	6751.58	1488.24	6752.19	1488.82	6761.93	1489.45	6774.72	1489.38
6778.68	1489.29	6784.87	1489.39	6842.36	1490	6852.2	1490.1	6899.64	1490
6952.19	1489.88	6977.81	1489.43	6982.32	1488.55	6987.97	1489.67	7033.11	1490
7052.2	1490.15	7152.18	1491.54	7406.05	1490	7690.7	1489.08	7864.89	1489.45
7869.87	1488	7872	1487.37	7875.21	1488	7881.59	1488.81	7925.93	1488.28
7930.37	1488	7931.51	1487.92	7932.68	1488	7935.94	1488.31	8009.3	1490
8014.78	1490.09	8061.74	1490.5	8070.55	1490	8070.76	1489.99	8072.61	1490
8153.19	1490.26	8229.24	1490.83	8308.91	1490	8329.22	1489.79	8391.69	1488.89
8429.23	1488.19	8465.87	1488	8529.22	1487.68	8629.23	1487.53	8667.86	1488
8729.21	1488.74	8829.22	1489.4	8843.46	1489.37	8886.2	1488	8929.21	1486.66
8945.6	1486	8951.09	1485.78	8955.45	1484.92	8961.41	1485.6	8976.18	1485.11
8979.54	1484	8982.56	1483.01	8986.96	1484	8989.35	1484.52	9029.22	1485.64
9110.53	1485.73	9116.38	1485.46	9123.04	1486	9123.61	1486.04	9129.23	1486.37
9211.51	1486.42	9215.31	1486	9220.96	1485.52	9225.58	1486	9228.21	1486.27
9229.22	1486.37	9329.21	1487.31	9417.27	1486.82	9423.81	1487.2	9429.22	1487.08
9449.94	1486.75	9460.2	1486	9467.54	1485.49	9477.92	1486	9493.85	1486.78
9502.5	1486	9504.5	1485.83	9510.9	1486	9515.83	1486.13	9529.22	1486.74
9540.27	1487.34	9577.88	1487.52	9600.54	1487.74	9602.67	1488	9619.12	1490
9622.99	1491.96	9629.23	1491.23	9632.68	1490	9636.33	1488.7	9640.73	1488
9647.74	1486.89	9742.58	1486.91	9749.04	1488	9752.9	1488.67	9761.45	1490
9773.02	1493.38	9774.09	1492	9780.28	1492	9786.64	1490	9795.47	1488.22
9797.87	1488	9801.88	1487.63	9815.48	1488	9829.22	1488.27	9832.29	1488.63
9853.96	1488.39	9860.14	1488	9861.29	1487.92	9862.2	1488	9875.6	1489.04
9929.22	1489.3	9961.83	1489.01	9967.68	1488.45	9974.76	1489.13	10034.19	1489.04
10040.4	1489.41	10067.62	1489.38	10072.83	1488.77	10084.19	1489.31	10492.28	1489.12
10501.36	1488.45	10508.99	1489.41	10563.1	1488.84	10568.99	148	10571.78	1487.64
10573.68	148	10577.59	1488.61	10601.85	1488.91	10621.37	148	10625.11	1487.77
10627.12	1488	10635.6	1489.32	10641.44	1488.95	10645.92	1488.16	10657.98	1489.18
10735.99	1489.13	10836	1489.31	10935.98	1489.82	10984.12	149	11035.99	1490.19
11136	1490.44	11236	1490.96	11302.92	1491.08	11309.46	1490.52	11320.34	1491.47
11335.98	1491.38	11435.99	1491.41	11481.74	1491.16	11536	1491.45	11636	1491.18
11735.99	1491.25	11835.99	1491.33	11839.9	1491.32	11850.55	1490.37	11863.22	1491.19
11890.32	1491.55	11894.62	1490.86	11900.29	1491.16	11936	1491.28	12035.98	1491.6
12135.99	1491.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6152.2	.05	9786.64	.05	10084.19	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9786.64	10084.19	493.71	502.79	505.19	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
9329.21	9624.1	1493

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6152.2	8229.04	1492	9623.98	9773.64	1492

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1488.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1488.06	Reach Len. (ft)	493.71	502.79	505.19
Crit W.S. (ft)	1487.26	Flow Area (sq ft)	916.26	4.69	2.21
E.G. Slope (ft/ft)	0.006689	Area (sq ft)	1233.63	4.69	2.21
Q Total (cfs)	3233.00	Flow (cfs)	3227.60	3.72	1.68
Top Width (ft)	975.54	Top Width (ft)	937.47	25.13	12.94
Vel Total (ft/s)	3.50	Avg. Vel. (ft/s)	3.52	0.79	0.76
Max Chl Dpth (ft)	5.05	Hydr. Depth (ft)	1.38	0.19	0.17

Conv. Total (cfs)	39528.9	Conv. (cfs)	39462.8	45.5	20.5
Length Wtd. (ft)	493.72	Wetted Per. (ft)	664.34	25.17	13.03
Min Ch El (ft)	1487.63	Shear (lb/sq ft)	0.58	0.08	0.07
Alpha	1.01	Stream Power (lb/ft s)	2.03	0.06	0.05
Frctn Loss (ft)	2.61	Cum Volume (acre-ft)	689.46	169.52	154.96
C & E Loss (ft)	0.04	Cum SA (acres)	495.52	178.74	233.80

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8332.86	8696.31	81.56	71.39	218.63	2.52	0.33	1.14
8696.31	9059.75	1576.25	387.07	176.12	48.76	2.21	4.07
9059.75	9423.20	1569.79	457.80	269.59	48.56	1.70	3.43
9423.20	9786.64						
LB 9786.64	9846.15	3.62	4.43	21.36	0.11	0.21	0.82
9846.15	9905.66	0.10	0.26	3.80	0.00	0.07	0.39
9905.66	10494.55						
10494.55	10699.73	1.68	2.21	13.03	0.05	0.17	0.76

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 17.132

INPUT
Description:
Station Elevation Data num= 168

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6185.31	1487.92	6195.33	1488	6214.13	1488	6263.64	1486.78	6268.56	1487.16
6285.32	1487.24	6385.31	1487.68	6485.32	1487.6	6539.72	1488	6585.3	1488.33
6685.31	1488.57	6707.6	1488	6769.39	1486.41	6777.19	1487.23	6778.78	1486.22
6783.48	1486.97	6785.32	1487.29	6885.31	1487.43	6914.6	1487.33	6919.03	1486.63
6924.73	1487.35	6985.32	1487.56	7523.84	1486.42	7916.22	1486	8062.36	1485.69
8210.49	1485.47	8217.5	1485.21	8222.91	1485.4	8254.74	1486	8323.17	1486.75
8332.63	1486.49	8340.37	1486.62	8378.57	1487.43	8478.58	1487.6	8554.44	1486
8573.44	1485.6	8578.57	1485.78	8678.58	1484.86	8725.65	1484.21	8728.85	1484
8733.73	1483.62	8736.67	1484	8741.36	1484.57	8778.31	1484.36	8778.57	1484.57
8781.72	1484	8783.53	1483.67	8785.6	1484	8787.62	1484.42	8878.58	1485.06
8922.05	1485.2	8962.85	1486	8969.24	1486.13	8978.56	1486.2	8983.4	1486
9032.5	1484	9078.57	1482.48	9079.27	1482.29	9080.13	1482	9083.24	1480.8
9088.29	1482	9096.21	1483.54	9148.85	1482.75	9151.43	1482.5	9155.62	1482.81
9178.58	1483.5	9278.57	1483.82	9349.88	1484	9378.59	1484.07	9405.56	1484
9409.8	1483.99	9416.29	1483.73	9421.22	1484	9432.93	1484.62	9445.58	1484
9450.18	1483.77	9470.54	1483.37	9478.57	1482.25	9478.95	1482.24	9505.61	1484
9514.17	1484.44	9531.69	1484.22	9534.83	1484	9536.6	1483.87	9539.73	1484
9559.16	1484.87	9578.57	1484.76	9599.93	1484.72	9603.82	1484.33	9611.57	1484.74
9637.34	1484.48	9640.04	1484.08	9651.22	1484.66	9665.45	1484.63	9673.67	1484.17
9678.58	1484.54	9688.25	1484.96	9778.56	1485.36	9878.57	1486	9890.71	1486
9965.26	1486.02	9965.5	1486	9972.44	1485.45	9976.68	1486	9976.73	1486.01
9977.26	1486	10012.27	1486	10022	1486.15	10022.57	1486	10025.44	1485.04
10029.7	1486	10029.96	1486.07	10073.27	1486	10088.9	1486	10304.49	1486
10354.71	1485.87	10359.12	1485	10366.19	1485.79	10383.98	1486	10386.61	1486.05
10387.01	1486	10391.09	1485.39	10401.84	1486	10403.09	1486.07	10684.8	1486.94
10784.81	1486.66	10790.45	1486.51	10793.07	1486	10796.27	1485.41	10800.29	1486
10805.23	1486.63	10879.73	1486.71	10884.71	1486.39	10884.82	1486.52	10893.65	1486.72
10984.82	1486.37	11084.81	1486.49	11176.09	1486.93	11184.81	1487.28	11257.68	1488
11284.82	1488.27	11331.98	1488	11384.8	1487.71	11479.13	1487.72	11484.81	1487.43
11486.31	1487.54	11504.62	1487.64	11509.7	1487.29	11516.43	1487.82	11584.81	1487.9
11684.82	1487.85	11753.32	1488	11784.8	1488.07	11836.21	1488	11884.81	1487.87
11898.86	1488	11906.64	1488.07	11906.98	1488	11911.18	1486.97	11920.7	1488
11921.2	1488.04	11943.89	1488.13	11944.28	1488	11946.02	1488	11949.67	1488.27
11984.82	1488.22	12084.82	1488.37	12184.81	1489.58				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6185.31	.05	9878.57	.05	10088.9	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9878.57 10088.9 491.85 496.91 498.15 .3 .5
Ineffective Flow num= 1
Sta L Sta R Elev
9541.56 9880.66 1490
Blocked Obstructions num= 1
Sta L Sta R Elev
6185.31 8479.86 1490.02

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1485.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1485.49	Reach Len. (ft)	491.85	496.91	498.15
Crit W.S. (ft)	1484.66	Flow Area (sq ft)	1225.43	0.78	1.89
E.G. Slope (ft/ft)	0.004245	Area (sq ft)	1387.74	0.78	1.89
Q Total (cfs)	3233.00	Flow (cfs)	3231.18	0.48	1.34
Top Width (ft)	1145.66	Top Width (ft)	1130.86	4.25	10.55
Vel Total (ft/s)	2.63	Avg. Vel. (ft/s)	2.64	0.61	0.71
Max Chl Dpth (ft)	4.69	Hydr. Depth (ft)	1.40	0.18	0.18
Conv. Total (cfs)	49618.2	Conv. (cfs)	49590.3	7.4	20.5
Length Wtd. (ft)	492.07	Wetted Per. (ft)	874.23	4.38	10.66
Min Ch El (ft)	1485.04	Shear (lb/sq ft)	0.37	0.05	0.05
Alpha	1.00	Stream Power (lb/ft s)	0.98	0.03	0.03
Frctn Loss (ft)	2.53	Cum Volume (acre-ft)	674.60	169.48	154.93
C & E Loss (ft)	0.01	Cum SA (acres)	483.80	178.57	233.66

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8401.27	8770.59	197.86	119.62	160.95	6.12	0.74	1.65
8770.59	9139.92	949.51	399.13	311.38	29.37	1.29	2.38
9139.92	9509.24	1987.64	665.85	369.56	61.48	1.80	2.99
9509.24	9878.57	96.17	40.83	32.34	2.97	1.26	2.36
9878.57	9962.70						
9962.70	10004.77	0.00	0.02	0.89	0.00	0.02	0.13
10004.77	10046.83	0.48	0.76	3.49	0.01	0.23	0.63
10046.83	10298.49						
10298.49	10508.08	1.32	1.84	9.52	0.04	0.19	0.72
10508.08	10717.67						
10717.67	10927.26	0.01	0.05	1.14	0.00	0.05	0.28

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 17.038

INPUT
Description:
Station Elevation Data num= 133

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6150.14	1486.32	6174.29	1486.35	6190.92	1486	6191.48	1485.99	6196.69	1485.11
6204.64	1485.51	6250.15	1485.91	6257.47	1486	6350.14	1486.51	6361.97	1486
6363.47	1485.94	6371.46	1485.47	6378.02	1485.8	6416.08	1485.84	6419.18	1485.37
6423.88	1485.68	6449.91	1486	6450.15	1486	6550.16	1486.95	6654.52	1486
6792.59	1485.08	6910.69	1485.32	7112.54	1484.54	7119.31	1484.35	7130.39	1484.7
7325.22	1484	7449.22	1483.84	7604.83	1484	7987.8	1483.57	8163.66	1484
8213.95	1484.36	8216.01	1484	8219.46	1483.38	8224.03	1484	8225.92	1484.26
8233.02	1484.66	8235.65	1484.06	8241.23	1484.43	8408.09	1486	8454.37	1486.4
8526.32	1486.85	8574.03	1486.45	8626.31	1486.2	8664.85	1486	8726.31	1485.69
8826.31	1484.66	8926.33	1484.18	8998.71	1484	9026.33	1483.93	9120.84	1482
9126.33	1481.89	9162.16	1481.31	9193.91	1481.34	9226.23	1480.97	9226.32	1481.04
9229.01	1480	9233.82	1478.25	9242.49	1480	9248.53	1481.23	9257.1	1480.22
9269.69	1481.58	9286.44	1481.63	9326.32	1481.21	9326.5	1481.13	9331.62	1480.98
9347.43	1481.43	9426.32	1481.7	9509.29	1480.69	9513.14	1480	9518.39	1479.11
9521.96	1480	9526.3	1481.09	9530.6	1481.19	9548.14	1480.92	9553.28	1480.59
9562.44	1481.16	9626.31	1481.95	9651.61	1482	9726.32	1482.15	9826.32	1482.37

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 9926.31 1482.5910191.28 1482.6310194.17 1482.56 10205.1  1482.810243.54 1482.84
 10245.3 1482.5810252.81 1483.1510410.76 1482.7210415.84 1482.0910424.56 1482.73
10701.94 1483.7510711.72 1483.5210720.65 1483.7510732.53 1483.5810736.95 1483.73
10741.13 1483.3410752.86 1483.7410772.15    148410808.15 1484.1310808.86    1484
10813.53 1483.0510817.38    148410818.98 1484.3810832.54 1484.2210859.81    1484
10929.73 1483.4310932.54 1483.4110935.65 1483.5310945.42 1483.37   10950 1482.53
10958.32 1483.4111032.55 1483.3311132.53 1483.6311198.05    148411232.54  1484.2
11332.54 1484.4411370.26 1484.4411383.66 1484.35 11432.7 1484.4411532.68 1484.49
11632.69 1484.59 11732.7 1484.47 11832.7 1484.8111932.52 1484.6611932.68 1484.42
11936.31    148411937.21 1483.85 11938.5    148411944.55 1484.6712032.69 1484.89
 12132.7 1485.9212136.55    1486 12232.7 1487.92

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 6150.14     .05 9726.32     .05 10205.1     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9726.32 10205.1           500.93  488.11     396              .3       .5
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 6150.14 8526.21    1486

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1483.06   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.14   Wt. n-Val.                  0.050      0.050      0.050
  W.S. Elev (ft)            1482.92   Reach Len. (ft)            500.93     488.11     396.00
  Crit W.S. (ft)                      Flow Area (sq ft)          961.35     196.54      25.76
  E.G. Slope (ft/ft)       0.006392   Area (sq ft)               961.35     196.54      25.76
  Q Total (cfs)             3233.00   Flow (cfs)                2958.84     257.93      16.23
  Top Width (ft)            1320.00   Top Width (ft)             650.62     478.78     190.60
  Vel Total (ft/s)             2.73   Avg. Vel. (ft/s)             3.08       1.31       0.63
  Max Chl Dpth (ft)            4.67   Hydr. Depth (ft)             1.48       0.41       0.14
  Conv. Total (cfs)         40438.2   Conv. (cfs)               37009.0     3226.2      203.0
  Length Wtd. (ft)           493.42   Wetted Per. (ft)           652.04     478.78     190.75
  Min Ch El (ft)            1482.15   Shear (lb/sq ft)             0.59       0.16       0.05
  Alpha                        1.18   Stream Power (lb/ft s)       1.81       0.21       0.03
  Frctn Loss (ft)              2.73   Cum Volume (acre-ft)       661.34     168.36     154.77
  C & E Loss (ft)              0.02   Cum SA (acres)             473.74     175.81     232.51


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta      Right Sta        Flow       Area       W.P.     % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                  (ft)     (ft/s)
  9011.08       9368.70        1405.03     447.27     294.00      43.46      1.53       3.14
  9368.70       9726.32        1553.82     514.08     358.04      48.06      1.44       3.02
  LB 9726.32    9822.08         108.82      63.81      95.76       3.37      0.67       1.71
  9822.08       9917.83          57.78      43.64      95.76       1.79      0.46       1.32
  9917.83       10013.59         33.15      31.27      95.76       1.03      0.33       1.06
  10013.59      10109.34         30.61      29.81      95.76       0.95      0.31       1.03
  10109.34      RB 10205.10      27.56      28.00      95.76       0.85      0.29       0.98
  10205.10      10407.86          6.00      11.96     115.95       0.19      0.10       0.50
  10407.86      10610.62          9.35      12.66      68.91       0.29      0.18       0.74
  10610.62      10813.38
  10813.38      11016.14          0.88       1.14       5.90       0.03      0.20       0.77


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

CROSS SECTION          RIVER: Vineyard FRS
REACH: Vineyard           RS: 16.945

INPUT
Description:
Station Elevation Data    num=     145
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 6103.68 1483.47 6112.44 1483.23 6114.81 1482.91 6120.98    1484 6122.77 1484.32
 6136.44    1484 6141.13 1483.89 6145.52  1483.1 6153.65 1483.42 6203.68 1483.69
 6303.68 1483.74 6467.45 1482.74 6476.36 1482.37 6485.67 1483.23 6664.24 1483.71
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 6764.23 1483.91 6864.23 1483.15 6894.87  1482.3 6964.23 1482.72 7333.48    1482
 7547.32 1481.23 7907.88 1480.96 8047.34 1481.67 8052.38 1481.26 8062.34 1481.83
 8071.81    1482  8205.2    1484 8268.44 1484.35 8368.44 1484.08 8383.16    1484
 8468.44 1483.54 8568.43 1483.47 8668.43  1483.2 8768.43 1482.08  8774.3    1482
 8868.43 1480.67 8968.42 1480.06 9068.45 1480.16 9122.86    1480 9168.44 1479.87
 9251.81 1479.51 9261.67 1478.92 9268.44 1479.58 9277.69 1479.66 9323.19 1479.91
 9368.44 1479.82 9369.32 1479.76 9374.14    1478 9379.66 1476.03 9386.14    1478
 9391.22 1479.53 9407.07 1479.44 9413.49    1478  9414.9 1477.68 9417.78    1478
 9426.34 1479.06 9466.19 1479.62 9468.44 1478.64 9470.28    1478 9474.54 1476.51
 9481.41 1476.19 9489.99    1478 9495.85  1479.2 9509.31 1479.56 9522.36  1478.5
 9535.38 1479.33 9568.45 1479.16 9668.44 1478.84 9764.79 1479.19 9768.45 1478.67
 9778.91 1478.02 9787.89 1478.77 9808.54 1479.11 9812.98    1478 9820.99    1476
 9821.49 1475.88  9822.3    1476 9834.21    1478 9834.94 1478.12 9853.55 1478.41
 9855.46    1478 9859.47 1477.08 9868.03    1478  9871.9 1478.46 9923.28 1478.49
 9926.92    1478 9929.76 1477.61 9936.66    1478 9943.91 1478.42 9970.57 1478.56
 9974.52    1478 9980.24 1477.14 9982.72 1477.17 9989.81    147810069.06 1479.33
10169.07 1479.6110269.05 1479.7310369.07 1479.6610469.05 1479.9510496.86    1480
10569.07 1480.1310669.05 1480.8910704.06 1480.8810709.07 1480.2110715.03 1481.08
10769.06 1481.0410869.05 1480.9710949.62 1480.7310954.33    148010954.51 1479.97
10954.77    148010961.43 1481.0210969.06 1480.7911007.81 1480.8511011.02 1480.12
11016.41 1480.9811041.33 1481.0211069.05 1481.0711169.04 1481.0411269.04 1481.04
11369.05 1481.5811426.57 1481.6811434.05 1481.1411445.12 1481.6311469.06 1481.56
   11471 1481.7111475.83 1481.3511481.51 1481.6411569.04  1481.611669.05  1481.6
11769.05 1481.6511869.06 1481.7811969.04 1481.9811972.43    148212069.05 1482.72
12080.54 1482.7912095.82 1482.6812169.05 1483.28 12189.8 1483.31 12193.5 1483.26
12204.76 1483.9512207.81    1484 12230.3  1484.412240.24 1484.7112269.03 1485.28

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 6103.68     .05 9764.79     .0510169.07     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9764.7910169.07           500.67  505.48  500.56             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 6103.68 8269.78    1485

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1480.30   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.09   Wt. n-Val.                  0.050      0.050      0.050
  W.S. Elev (ft)            1480.21   Reach Len. (ft)            500.67     505.48     500.56
  Crit W.S. (ft)                      Flow Area (sq ft)          657.77     652.29     164.29
  E.G. Slope (ft/ft)       0.004921   Area (sq ft)               657.77     652.29     164.29
  Q Total (cfs)             3233.00   Flow (cfs)                1180.45    1867.20     185.35
  Top Width (ft)            1640.23   Top Width (ft)             821.12     404.28     414.83
  Vel Total (ft/s)             2.19   Avg. Vel. (ft/s)             1.79       2.86       1.13
  Max Chl Dpth (ft)            4.33   Hydr. Depth (ft)             0.80       1.61       0.40
  Conv. Total (cfs)         46085.7   Conv. (cfs)               16827.0    26616.5     2642.2
  Length Wtd. (ft)           503.45   Wetted Per. (ft)           823.59     405.43     414.88
  Min Ch El (ft)            1475.88   Shear (lb/sq ft)             0.25       0.49       0.12
  Alpha                        1.24   Stream Power (lb/ft s)       0.44       1.41       0.14
  Frctn Loss (ft)              2.04   Cum Volume (acre-ft)       652.03     163.60     153.91
  C & E Loss (ft)              0.00   Cum SA (acres)             465.28     170.87     229.76


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta      Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)          (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  8666.46       9032.57           3.80       9.50     88.90       0.12       0.11       0.40
  9032.57       9398.68         199.13     180.19    367.34       6.16       0.49       1.11
  9398.68       9764.79         977.51     468.08    367.35      30.24       1.28       2.09
  LB 9764.79    9845.65         526.52     166.74     81.53      16.29       2.06       3.16
  9845.65       9926.50         469.02     155.24     81.11      14.51       1.92       3.02
  9926.50       10007.36        545.26     169.89     81.07      16.87       2.10       3.21
  10007.36      10088.21        235.95     102.67     80.86       7.30       1.27       2.30
  10088.21      RB 10169.07      90.45      57.76     80.86       2.80       0.71       1.57
  10169.07      10379.07        142.62     111.08    210.00       4.41       0.53       1.28
  10379.07      10589.06         42.54      52.78    200.67       1.32       0.26       0.81
  10589.06      10799.06
  10799.06      11009.05          0.19       0.39      3.22       0.01       0.12       0.48
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11009.05	11219.05	0.01	0.04	0.99	0.00	0.05	0.25

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 16.850

INPUT
Description:
Station Elevation Data num= 153

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6048.85	1481.5	6051.53	1481.2	6055.99	1480.97	6063.43	1482	6065.05	1482.21
6083.32	1482.06	6083.56	1482	6087.13	1480.93	6096.06	1481.4	6133.42	1480.91
6137.76	1480.57	6148.85	1481.3	6150.81	1481.07	6219.72	1481.04	6225.69	1480.73
6232.93	1481.25	6248.84	1481.64	6470.16	1480.6	6476.55	1480.18	6483.2	1480.68
6609.4	1481.38	6652.15	1480.77	6668.82	1480.5	6678.02	1480.7	6709.4	1481.11
6785.34	1480	6790.1	1479.95	7017.45	1479	7023.18	1478.19	7033.41	1479.33
7349.71	1478.55	7598.19	1478	7609.77	1478	7693.71	1478.2	7771.33	1479.38
7775.46	1478.97	7826.72	1480	7990.02	1481.55	8090.02	1481.89	8190.04	1481.45
8290.04	1481.4	8390.03	1480.57	8490.03	1480.65	8590.03	1480.26	8601.08	1480
8638.57	1479.12	8678.06	1479.39	8690.03	1479.06	8790.02	1479.23	8890.02	1479.62
8990.02	1478.6	9064.85	1478	9090.02	1477.8	9190.04	1477.58	9290.04	1477.55
9351.01	1478	9390.03	1478.28	9443.29	1478	9490.03	1477.75	9590.05	1477.33
9642	1476.18	9643.27	1476	9655.68	1474.29	9671.47	1476	9677.5	1476.94
9690.03	1476.69	9786.41	1476.67	9790.04	1476.09	9790.89	1476	9799.63	1475.04
9807.15	1474.79	9812.87	1476	9814.02	1476.23	9822.21	1476	9825.49	1475.87
9835.42	1474.34	9844.09	1476	9847.78	1476.66	9859.94	1476.35	9864.98	1476
9865.76	1475.94	9872.47	1476	9890.03	1476.17	9907.44	1476.34	9911.23	1476
9918.97	1475.24	9923	1476	9929.61	1476.54	9929.63	1476.54	9937.29	1476
9944.2	1475.67	9949.03	1476	9966.21	1476.71	9990.04	1476.51	10090.03	1476.93
10152.51	1476.68	10155.1	1476	10157.79	1475.31	10161.16	1474.96	10166.58	1476
10173.08	1477.24	10190.04	1477.11	10203.69	1477.31	10207.65	1476.74	10217.56	1477.45
10290.03	1477.16	10390.04	1477.23	10490.03	1477.81	10590.04	1477.95	10607.58	1478
10690.03	1478.25	10790.04	1478.15	10797.45	1478.17	10799.04	1478	10803.31	1477.54
10806.18	1478	10808.78	1478.45	10890.03	1478.12	10949.04	1478.74	10962.28	1478.13
10962.6	1478	10967.44	1476	10967.81	1475.85	10968.31	1476	10974.83	1478
10977.05	1478.66	10990.04	1478.44	10998.69	1478.14	10999.49	1478	11004.42	1477.11
11010.69	1478	11011.47	1478.11	11090.03	1478.81	11190.04	1478.99	11290.03	1479.01
11390.04	1479.06	11490.03	1478.91	11540.1	1478.61	11551.96	1478.91	11590.04	1479.04
11690.02	1479.06	11790.04	1479.31	11890.05	1479.23	11990.04	1479.26	12090.05	1479.19
12190.03	1479.71	12207.24	1479.49	12211.43	1479.04	12218	1479.68	12231.24	1480
12240.75	1480.21	12250.99	1480.32	12290.05	1480.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6048.85	.05	9786.41	.05	10173.08	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9786.4	10173.08	498.13	499.99	498.03	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6048.85	8890.26	1482	11789.73	12290.05	1482

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1478.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1478.18	Reach Len. (ft)	498.13	499.99	498.03
Crit W.S. (ft)		Flow Area (sq ft)	560.52	718.49	339.56
E.G. Slope (ft/ft)	0.003420	Area (sq ft)	560.52	718.49	339.56
Q Total (cfs)	3233.00	Flow (cfs)	913.94	1883.46	435.60
Top Width (ft)	1690.06	Top Width (ft)	710.02	386.67	593.37
Vel Total (ft/s)	2.00	Avg. Vel. (ft/s)	1.63	2.62	1.28
Max Chl Dpth (ft)	3.89	Hydr. Depth (ft)	0.79	1.86	0.57
Conv. Total (cfs)	55279.5	Conv. (cfs)	15627.1	32204.3	7448.1
Length Wtd. (ft)	499.07	Wetted Per. (ft)	710.33	387.90	594.49
Min Ch El (ft)	1474.34	Shear (lb/sq ft)	0.17	0.40	0.12
Alpha	1.25	Stream Power (lb/ft s)	0.27	1.04	0.16
Frctn Loss (ft)	2.55	Cum Volume (acre-ft)	645.03	155.65	151.02
C & E Loss (ft)	0.01	Cum SA (acres)	456.48	166.28	223.97

Warning: Divided flow computed for this cross-section.

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9038.90	9412.65	144.63	145.80	336.27	4.47	0.43	0.99
9412.65	9786.41	769.31	414.73	374.07	23.80	1.11	1.85
LB 9786.41	9863.74	584.25	189.85	77.94	18.07	2.45	3.08
9863.74	9941.08	454.65	162.96	77.51	14.06	2.11	2.79
9941.08	10018.41	325.34	133.21	77.36	10.06	1.72	2.44
10018.41	10095.75	227.02	107.33	77.33	7.02	1.39	2.12
10095.75	RB 10173.08	292.21	125.14	77.75	9.04	1.62	2.33
10173.08	10384.78	310.22	202.13	211.76	9.60	0.95	1.53
10384.78	10596.47	100.78	102.95	211.70	3.12	0.49	0.98
10596.47	10808.17	3.66	11.02	114.70	0.11	0.10	0.33
10808.17	11019.87	20.93	23.46	56.33	0.65	0.42	0.89

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 16.755

INPUT
Description:
Station Elevation Data num= 135

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6024.45	1479.23	6051.23	1479.49	6072.51	1478.48	6074.39	1478	6076.03	1477.58
6080.6	1477.47	6085.32	1478	6090.32	1478.51	6506.19	1480	6509.41	1480.06
6514.52	1480	6642.74	1478	6697.65	1477.17	6952.11	1476	7149.7	1475.22
7208.17	1475.15	7209.16	1475.15	7368.25	1475.44	7427.41	1475.74	7433.84	1475.21
7489.14	1476	7656.04	1478	7790.03	1478.38	7834.85	1478	7890.03	1477.53
7990.03	1477.77	8090.02	1477.87	8120.6	1478	8190.02	1478.02	8290.04	1478.24
8313.89	1478	8349.78	1477.64	8390.04	1477.99	8490.04	1477.55	8590.04	1477.63
8690.03	1476.95	8767.38	1476	8767.57	1475.99	8774.43	1475.69	8784.04	1476
8790.03	1476.19	8795.52	1476.87	8890.03	1476.78	8927.68	1476.96	8981.39	1476.78
8990.03	1476.58	9039.72	1476	9090.02	1475.41	9190.02	1475.17	9290.04	1475.41
9390.05	1474.46	9490.03	1474.86	9590.05	1474.83	9690.03	1474.71	9788.42	1474.51
9790.05	1474.39	9800.67	1474.48	9802.62	1474	9807.67	1472.79	9813.87	1474
9816.93	1474.59	9828.19	1474.52	9832.8	1474	9834.75	1473.79	9836.56	1474
9842.92	1474.75	9858.27	1474.21	9859.13	1474	9866.69	1472	9867.16	1471.88
9867.73	1472	9877.05	1474	9879.64	1474.55	9890.03	1474.41	9939.56	1474.95
9986.23	1474.41	9990.04	1474.04	9990.45	1474	9995.52	1473.51	10008.87	1474
10009.77	1474.04	10014.04	1474	10031.6	1473.85	10037.39	1472.84	10048.34	1474
10049.64	1474.23	10078.53	1474.15	10079	1474	10085.05	1472.02	10090.03	1473.52
10093.42	1474	10095.68	1474.32	10190.04	1474.31	10290.03	1474.48	10390.04	1475.8
10490.03	1475.47	10590.04	1475.45	10690.03	1475.87	10709	1475.85	10715.67	1474.54
10725.67	1476	10726.3	1476.09	10785.96	1476	10790.04	1475.99	10802.48	1476
10890.03	1476.04	10948.01	1476	10990.04	1475.97	11090.03	1475.85	11190.04	1475.89
11274.79	1476	11290.03	1476.02	11327.83	1476	11390.04	1475.97	11490.05	1475.99
11556.44	1475.64	11561.33	1476	11561.96	1476.05	11590.04	1476.09	11597.91	1476.09
11598.88	1476	11603.32	1475.57	11610.78	1475.93	11635.25	1476	11690.05	1476.27
11790.04	1476.49	11890.05	1476.34	11990.04	1476.54	12025.16	1476.42	12090.05	1476.59
12190.04	1477.18	12232.33	1478	12250.64	1478.35	12270.52	1479.01	12290.05	1479.01

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6024.45	.05	9800.67	.05	10095.68	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9800.67	10095.68	401.42	400	403.43	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
6024.45	8927.68	1478

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6024.45	8591.37	1480

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1475.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1475.57	Reach Len. (ft)	401.42	400.00	403.43
Crit W.S. (ft)	1475.21	Flow Area (sq ft)	474.59	422.49	302.83
E.G. Slope (ft/ft)	0.008438	Area (sq ft)	474.59	422.49	302.83
Q Total (cfs)	3233.00	Flow (cfs)	977.14	1459.03	796.83
Top Width (ft)	1469.65	Top Width (ft)	724.54	295.01	450.10
Vel Total (ft/s)	2.69	Avg. Vel. (ft/s)	2.06	3.45	2.63
Max Chl Dpth (ft)	3.69	Hydr. Depth (ft)	0.66	1.43	0.67
Conv. Total (cfs)	35196.0	Conv. (cfs)	10637.6	15883.7	8674.7
Length Wtd. (ft)	401.24	Wetted Per. (ft)	724.56	296.92	450.28
Min Ch El (ft)	1471.88	Shear (lb/sq ft)	0.35	0.75	0.35
Alpha	1.15	Stream Power (lb/ft s)	0.71	2.59	0.93
Frctn Loss (ft)	1.61	Cum Volume (acre-ft)	639.11	149.10	147.34
C & E Loss (ft)	0.03	Cum SA (acres)	448.28	162.36	218.00

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9045.43	9423.05	238.18	156.08	346.93	7.37	0.45	1.53
9423.05	9800.67	738.96	318.50	377.63	22.86	0.84	2.32
LB 9800.67	9859.67	265.15	81.39	59.53	8.20	1.38	3.26
9859.67	9918.67	312.77	89.88	59.54	9.67	1.52	3.48
9918.67	9977.68	108.87	47.54	59.01	3.37	0.81	2.29
9977.68	10036.68	355.84	96.84	59.13	11.01	1.64	3.67
10036.68	RB 10095.68	416.42	106.84	59.71	12.88	1.81	3.90
10095.68	10315.12	759.52	259.76	219.44	23.49	1.18	2.92
10315.12	10534.55	26.42	28.38	133.46	0.82	0.21	0.93
10534.55	10753.99	10.89	14.69	97.29	0.34	0.15	0.74

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 16.679

INPUT
Description:
Station Elevation Data num= 165

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6186.07	1475.12	6189.51	1475.45	6211.96	1475.27	6216.95	1474	6217.69	1473.82
6221.7	1474	6230.94	1474.43	6286.07	1474.61	6301.71	1474.2	6386.07	1475.22
6554.33	1474	6633.27	1473.27	6677.39	1473.88	6746.62	1473.39	6778.83	1473.02
6782.63	1472.75	6792.78	1472.92	6941.35	1472.52	6944.21	1472	6954.43	1470.15
6961.99	1472	6966.7	1472.95	7018.21	1472.74	7022.6	1472	7027.01	1471.29
7030.94	1472	7033.64	1472.5	7055.26	1472.32	7056.28	1472	7059.71	1470.89
7067.32	1472	7067.92	1472.13	7070.24	1472	7073.81	1472	7076.81	1472.42
7193.26	1473.27	7237.59	1474	7255.93	1474.16	7397.21	1476	7403.09	1476.06
7413.51	1476	7471.53	1475.21	7495.22	1475.29	7624.89	1475.69	7644.52	1476
7690.03	1476.72	7718.95	1476	7741.91	1475.43	7790.02	1475.94	7890.03	1475.7
7990.02	1475.06	8087.7	1474.68	8090.03	1474.6	8170.85	1474.97	8190.04	1475.85
8228.24	1475.46	8268.18	1476	8290.03	1476.41	8390.04	1476.19	8429.3	1476
8483.52	1475.74	8490.02	1475.94	8524.1	1475.94	8590.03	1475.77	8612.46	1475.08
8669.37	1475.01	8690.02	1474.92	8702.56	1474.79	8739.78	1474.09	8767.23	1474.38
8790.03	1474.16	8797.64	1474	8799.14	1473.97	8815.93	1473.34	8832.11	1473.94
8837.67	1474	8890.02	1474.55	8990.03	1474.09	9026.05	1474	9090.02	1473.84
9190.03	1473.09	9290.02	1473.14	9390.03	1472.73	9490.04	1472.9	9590.03	1472.8
9690.04	1472.73	9752.67	1472.63	9757.26	1472	9757.87	1471.92	9758.99	1472
9766.11	1472.53	9790.03	1472.63	9797.42	1472.38	9800.92	1472	9805.99	1471.58
9810.84	1472	9818.36	1472.64	9842.92	1472.48	9844.83	1472	9850.92	1470.54
9856.87	1472	9860.79	1472.99	9890.04	1472.7	9940.78	1472.18	9962.05	1472
9962.44	1471.98	9962.88	1472	9973.77	1472.5	9979.96	1472	9983.77	1471.68

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 9986.98    1472 9990.03 1472.33 9991.38 1472.4910002.23 1472.2810008.09    1472
10018.92 1471.4910023.58    147210027.94 1472.4310090.04 1472.28 10092.4 1472.59
10097.14    1472 10107.5 1470.7610116.99    147210120.39 1472.5710154.08 1472.47
10160.19    147210162.44 1471.8310165.72    147210173.95 1472.4310190.03 1472.46
10290.04 1472.5810390.03 1473.0710490.04 1473.2710590.03 1473.3710690.04 1473.52
10790.03 1473.5410890.04 1473.8210990.03 1473.8911090.04 1473.5911190.02 1473.54
11290.04 1473.9711336.83    147411390.02 1474.0411490.04 1474.0611590.02 1474.19
 11631.2 1474.2211631.81    147411634.15 1473.4111640.72    147411641.76  1474.2
11670.61 1474.2911675.35    147411675.66 1473.9811675.87    147411680.23 1474.37
11690.03 1474.3111790.05 1474.3611890.03 1474.2111990.05 1474.3112090.03 1474.26
12190.04 1474.5312258.47 1475.9412268.77 1475.9812290.03 1475.6712294.43    1476

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 6186.07     .05 9752.67     .0510173.95     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9752.6710173.95           501.06  500.01  501.06              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 6186.07 8890.02    1476
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
 6186.07 8890.02    1476

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1474.07   Element                    Left OB    Channel   Right OB
  Vel Head (ft)                0.04   Wt. n-Val.                  0.050      0.050      0.050
  W.S. Elev (ft)            1474.02   Reach Len. (ft)            501.06     500.01     501.06
  Crit W.S. (ft)            1473.29   Flow Area (sq ft)          710.27     734.59     715.41
  E.G. Slope (ft/ft)       0.002312   Area (sq ft)               710.27     734.59     715.41
  Q Total (cfs)             3233.00   Flow (cfs)                 991.27    1517.99     723.74
  Top Width (ft)            2361.15   Top Width (ft)             735.91     421.28    1203.96
  Vel Total (ft/s)             1.50   Avg. Vel. (ft/s)             1.40       2.07       1.01
  Max Chl Dpth (ft)            3.48   Hydr. Depth (ft)             0.97       1.74       0.59
  Conv. Total (cfs)         67234.8   Conv. (cfs)               20614.9    31568.8    15051.1
  Length Wtd. (ft)           500.62   Wetted Per. (ft)           735.91     422.43    1204.07
  Min Ch El (ft)            1470.54   Shear (lb/sq ft)             0.14       0.25       0.09
  Alpha                        1.26   Stream Power (lb/ft s)       0.19       0.52       0.09
  Frctn Loss (ft)              1.42   Cum Volume (acre-ft)       633.65     143.79     142.63
  C & E Loss (ft)              0.02   Cum SA (acres)             441.55     159.08     210.34


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta     Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  8682.69      9039.35           0.08       0.64     22.59       0.00       0.03       0.13
  9039.35      9396.01         303.06     269.25    356.66       9.37       0.75       1.13
  9396.01      9752.67         688.14     440.39    356.66      21.28       1.23       1.56
  LB 9752.67   9836.93         272.43     137.85     84.41       8.43       1.64       1.98
  9836.93      9921.18         253.70     132.32     84.79       7.85       1.57       1.92
  9921.18      10005.44        327.94     154.03     84.35      10.14       1.83       2.13
  10005.44     10089.69        318.60     151.36     84.32       9.85       1.80       2.10
  10089.69     RB 10173.95     345.32     159.03     84.55      10.68       1.89       2.17
  10173.95     10386.00        407.85     291.65    212.05      12.62       1.38       1.40
  10386.00     10598.05        157.38     164.71    212.05       4.87       0.78       0.96
  10598.05     10810.09         81.62     111.08    212.05       2.52       0.52       0.73
  10810.09     11022.14         20.04      47.84    212.05       0.62       0.23       0.42
  11022.14     11234.19         52.72      85.46    212.05       1.63       0.40       0.62
  11234.19     11446.24          2.66      11.82    133.45       0.08       0.09       0.22
  11446.24     11658.29          1.46       2.84      9.20       0.05       0.31       0.52
  11658.29     11870.33          0.00       0.02      1.18       0.00       0.02       0.09


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

CROSS SECTION          RIVER: Vineyard FRS
REACH: Vineyard           RS: 16.585
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INPUT
Description: Centerline of Vineyard Road
Station Elevation Data num= 74

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6389.47	1471.33	6488.54	1470.91	6592.65	1470.82	6687.53	1470.65	6785.7	1470.5
6876.5	1470.52	6988.71	1470.94	7085.69	1471.04	7183.99	1471.55	7282.41	1471.94
7354.12	1472	7383.71	1472.33	7489.65	1472.87	7582.64	1472.94	7690.38	1473.23
7790.04	1473.38	7890.02	1473.55	7990.03	1473.79	8071.41	1474	8090.02	1474.06
8096.05	1474	8175.29	1474	8190.03	1474.21	8290.02	1474.38	8390.03	1474.4
8490.04	1474.45	8590.03	1474.45	8690.04	1474.33	8713.59	1474	8789.08	1474
8790.03	1474.09	8800.36	1474	8890.04	1473.82	8990.02	1473.36	9090.04	1473.14
9190.02	1472.77	9290.03	1472.4	9323.8	1472	9388.08	1472	9390.04	1472.18
9424.46	1472	9488.19	1472	9490.05	1472.16	9548.82	1472	9590.04	1471.89
9690.05	1471.79	9790.04	1471.81	9890.05	1471.79	9990.03	1471.66	10090.05	1471.69
10190.03	1471.79	10290.05	1471.76	10390.03	1471.76	10490.05	1471.74	10590.03	1471.94
10653.8	1472	10690.04	1472.04	10790.03	1472.28	10890.04	1472.28	10990.03	1472.21
11090.04	1472.31	11190.03	1472.13	11290.04	1472.28	11390.05	1472.28	11490.04	1472.33
11590.05	1472.41	11690.04	1472.51	11790.05	1472.56	11890.04	1472.56	11990.05	1472.78
12090.04	1472.73	12190.05	1472.83	12241.2	1472.87	12290.04	1472.88		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6389.47	.016	9790.04	.016	10190.03	.016

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
9790.04 10190.03 572.41 410.14 323.21 .1 .3
Blocked Obstructions num= 1

Sta L	Sta R	Elev
6389.47	8493.34	1474

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1472.63	Element			
Vel Head (ft)	0.20	Wt. n-Val.	0.016	0.016	0.016
W.S. Elev (ft)	1472.43	Reach Len. (ft)	572.41	410.14	323.21
Crit W.S. (ft)	1472.43	Flow Area (sq ft)	237.72	277.37	456.20
E.G. Slope (ft/ft)	0.003668	Area (sq ft)	237.72	277.37	456.20
Q Total (cfs)	3233.00	Flow (cfs)	806.24	1222.26	1204.51
Top Width (ft)	2326.14	Top Width (ft)	507.70	399.99	1418.46
Vel Total (ft/s)	3.33	Avg. Vel. (ft/s)	3.39	4.41	2.64
Max Chl Dpth (ft)	0.77	Hydr. Depth (ft)	0.47	0.69	0.32
Conv. Total (cfs)	53382.0	Conv. (cfs)	13312.3	20181.4	19888.3
Length Wtd. (ft)	427.98	Wetted Per. (ft)	507.72	399.99	1418.46
Min Ch El (ft)	1471.66	Shear (lb/sq ft)	0.11	0.16	0.07
Alpha	1.16	Stream Power (lb/ft s)	0.36	0.70	0.19
Frctn Loss (ft)	1.64	Cum Volume (acre-ft)	628.20	137.98	135.89
C & E Loss (ft)	0.04	Cum SA (acres)	434.40	154.36	195.26

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9109.93	9449.98	160.74	58.61	167.65	4.97	0.35	2.74
9449.98	9790.04	645.50	179.11	340.06	19.97	0.53	3.60
LB 9790.04	9870.04	205.81	50.11	80.00	6.37	0.63	4.11
9870.04	9950.04	228.61	53.37	80.00	7.07	0.67	4.28
9950.04	10030.03	279.35	60.19	80.00	8.64	0.75	4.64
10030.03	10110.03	273.39	59.42	80.00	8.46	0.74	4.60
10110.03	RB 10190.03	235.10	54.28	80.00	7.27	0.68	4.33
10190.03	10400.03	475.90	138.88	210.00	14.72	0.66	3.43
10400.03	10610.03	423.99	129.58	210.00	13.11	0.62	3.27
10610.03	10820.03	136.86	65.75	210.00	4.23	0.31	2.08
10820.03	11030.03	51.73	36.68	210.00	1.60	0.17	1.41
11030.03	11240.04	66.90	42.80	210.00	2.07	0.20	1.56
11240.04	11450.04	41.53	32.15	210.00	1.28	0.15	1.29
11450.04	11660.04	7.59	10.36	158.45	0.23	0.07	0.73

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 16.507

INPUT
Description:
Station Elevation Data num= 153

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6214.25	1467.99	6240.57	1467.96	6247.38	1467.6	6314.24	1467.23	6391.35	1468
6414.25	1468.23	6444.44	1468	6497.24	1467.6	6505.11	1466.84	6513.11	1467.16
6514.24	1467.03	6548.91	1466.89	6553.26	1466	6555.97	1465.49	6559.87	1466
6567.77	1467.06	6614.25	1467.52	6622.97	1467.31	6638.07	1466.26	6648.13	1467.44
6691.86	1466.83	6702.8	1467.23	6714.23	1467.01	6758.29	1466.98	6769.48	1466.76
6807.04	1467.79	6814.24	1467.86	6823.45	1468	6914.23	1469.35	7137.85	1468.25
7151.01	1468.3	7165.53	1468.19	7240.87	1469.24	7266.68	1470	7315	1471.29
7438.14	1470.61	7534.17	1470	7663.82	1468	7676.38	1467.81	7776.37	1467.74
7876.38	1467.18	7937.48	1468	7976.36	1468.52	7985.46	1468.96	8050.52	1470
8076.38	1470.43	8090.38	1470	8090.58	1469.99	8176.36	1469.55	8276.37	1468.94
8376.36	1468.5	8476.37	1468.11	8576.36	1468.84	8654.28	1470	8676.37	1470.33
8729.25	1470.61	8736.25	1470.62	8746.25	1470.61	8776.36	1470.55	8876.37	1470.16
8976.38	1470.01	8976.78	1470	9010.36	1469.16	9076.37	1468.84	9176.38	1469.38
9330.49	1468.76	9340.01	1468.32	9348.1	1468.64	9380.19	1468.54	9386.21	1468
9391.66	1467.49	9397.67	1468	9432.23	1468.51	9588.7	1468.34	9677.9	1468.82
9682.02	1468	9683.59	1467.67	9685.17	1468	9688.76	1468.76	9697.35	1468.58
9699.05	1468	9703.14	1466.6	9718.37	1466.19	9725.2	1468	9729.46	1469.06
9742.54	1468.89	9744.95	1468	9746.03	1467.6	9750.86	1468	9756.64	1468.49
9778.55	1468.89	9780.72	1468	9785.63	1466	9786.44	1465.66	9787.86	1466
9796.09	1468	9798.92	1468.69	9852.11	1468.81	9858.79	1468	9859.36	1467.93
9859.94	1468	9866.71	1468.81	9897.91	1468.82	9904.51	1468.47	9921.6	1468.9
10001.01	1468.59	10003.69	1468.7	10011.99	1468	10012.46	1467.96	10012.94	1468
10022.36	1468.76	10077.67	1468.3	10079.9	1468	10085.32	1467.27	10095.52	1468
10099.68	1468.31	10105.41	1468.45	10110.53	1468	10118.57	1467.36	10125.16	1468
10127.55	1468.24	10134.41	1468	10150.35	1467.65	10155.6	1466	10155.81	1465.92
10156.28	1466	10168.12	1468	10168.87	1468.12	10510.91	1468.81	10819.04	1470
10923.22	1470.45	11023.21	1470.03	11044.76	1470	11123.22	1469.88	11165.9	1470
11223.21	1470.16	11323.22	1470.06	11423.2	1470.16	11468.27	1470	11523.22	1469.81
11600.17	1470	11623.2	1470.06	11714.4	1470.39	11719.12	1470	11719.95	1469.88
11721.51	1470	11723.22	1470.13	11728.31	1470.48	11823.2	1470.31	11923.21	1470.3
12023.2	1470.38	12123.21	1470.68	12223.2	1470.33				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6214.25	.05	9677.9	.05	10168.87	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9677.91	10168.87	294	294.2	296.55	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6214.25	8736.25	1472	12127.34	12223.2	1472

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1469.67	Element			
Vel Head (ft)	0.06	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1469.61	Reach Len. (ft)	294.00	294.20	296.55
Crit W.S. (ft)	1469.01	Flow Area (sq ft)	582.99	643.39	474.33
E.G. Slope (ft/ft)	0.003997	Area (sq ft)	582.99	643.39	474.33
Q Total (cfs)	3233.00	Flow (cfs)	983.09	1441.60	808.32
Top Width (ft)	1725.60	Top Width (ft)	685.52	490.97	549.11
Vel Total (ft/s)	1.90	Avg. Vel. (ft/s)	1.69	2.24	1.70
Max Chl Dpth (ft)	3.95	Hydr. Depth (ft)	0.85	1.31	0.86
Conv. Total (cfs)	51138.5	Conv. (cfs)	15550.2	22802.7	12785.7
Length Wtd. (ft)	294.70	Wetted Per. (ft)	685.62	494.02	549.12
Min Ch El (ft)	1465.66	Shear (lb/sq ft)	0.21	0.32	0.22
Alpha	1.06	Stream Power (lb/ft s)	0.36	0.73	0.37
Frctn Loss (ft)	1.24	Cum Volume (acre-ft)	622.81	133.65	132.44
C & E Loss (ft)	0.00	Cum SA (acres)	426.56	150.17	187.96

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8985.17	9331.54	202.22	178.36	339.16	6.25	0.53	1.13
9331.54	9677.90	780.86	404.62	346.46	24.15	1.17	1.93
LB 9677.90	9776.09	369.74	153.47	99.40	11.44	1.56	2.41
9776.09	9874.29	247.33	120.53	99.30	7.65	1.23	2.05
9874.29	9972.48	131.35	82.08	98.21	4.06	0.84	1.60
9972.48	10070.68	196.17	104.44	98.26	6.07	1.06	1.88
10070.68	RB 10168.87	497.00	182.87	98.85	15.37	1.86	2.72
10168.87	10374.30	521.56	263.47	205.43	16.13	1.28	1.98
10374.30	10579.74	261.12	173.96	205.43	8.08	0.85	1.50
10579.74	10785.17	25.66	36.91	138.25	0.79	0.27	0.70

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 16.451

INPUT
Description:
Station Elevation Data num= 153

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6170.21	1466.86	6192.72	1467.84	6199.07	1467.74	6242.63	1468	6255.56	1468.08
6270.22	1468.42	6307.88	1468.21	6316.52	1468	6355.91	1467.18	6370.21	1466.89
6435.69	1467.33	6470.22	1467.91	6520.65	1467.06	6531.26	1466.33	6540.75	1466
6559.77	1466	6564.09	1466.01	6564.14	1466	6570.21	1465.35	6574.72	1465.3
6582.33	1466	6583.56	1466.12	6598.82	1466.3	6600.38	1466	6606.78	1464.77
6612.13	1466	6613.43	1466.27	6670.22	1466.33	6730.71	1466	6770.2	1465.79
6857.61	1465.54	6862.14	1466	6865.72	1466.41	6870.22	1466.18	6877.2	1466.34
6881.99	1466.01	6891.47	1466.38	6964.15	1467.12	6970.2	1466.91	7212.05	1468
7268.13	1468.2	7286.43	1468.6	7401.19	1468.04	7407.97	1468	7479.56	1468
7490.56	1468	7602.68	1466.84	7689.29	1466	7711.4	1465.6	7748.42	1465.63
7768.88	1465.89	7823.1	1466	8056.96	1468	8076.34	1468.21	8112.58	1468.86
8151.93	1469.4	8190.46	1468.28	8212.57	1468.11	8219.63	1468	8312.58	1466.59
8343.24	1466.25	8345.66	1466	8349.15	1465.61	8355.4	1466	8358.37	1466.22
8400.93	1467.25	8412.56	1467.2	8496.2	1468	8512.58	1468.16	8556.98	1468.36
8612.56	1468.67	8712.57	1469.21	8714.13	1469.26	8765.27	1469.47	8812.56	1469.18
8862.39	1468.42	8912.57	1468.89	9012.58	1468.77	9076.37	1468	9206.79	1467.35
9324.51	1467.52	9349.09	1468	9366.48	1468.39	9397.4	1468	9456.95	1467.22
9464.47	1466	9465.64	1465.81	9467.96	1466	9480.77	1467.1	9502.09	1467.2
9509.06	1466.33	9522.9	1466.6	9525.59	1467.15	9691.74	1467.96	9699.64	1466
9700.89	1465.68	9702.04	1466	9708.05	1467.68	9738.68	1467.79	9743.3	1466
9743.98	1465.73	9745.16	1466	9751.75	1467.76	9813.83	1467.7	9820.4	1466
9824.2	1464.86	9827.81	1466	9832.37	1467.54	9890.18	1467.57	9898.44	1466.52
9906.05	1467.29	9935.2	1467.15	10038.63	1467.07	10049.61	1466.23	10059.46	1466.93
10080.43	1466.75	10082.68	146	610086.83	1464.62	10092.85	146	610095.57	1466.65
10140.92	1466.86	10146.28	146	610146.57	1465.95	10146.96	146	610155.88	1466.97
10178.7	1467.05	10187.16	1466.66	10194.07	1467.14	10216.24	1467.24	10224.7	1466.72
10238.95	1467.4	10445.1	1467.21	10706.01	146	810857.41	1468.84	11269.72	1468.51
11369.72	1468.49	11469.73	1468.69	11569.73	1468.76	11657.22	1468.98	11661.87	1468.29
11669.71	1468.71	11670.2	1468.75	11769.72	1468.84	11840.94	1468.85	11845.87	1468.93
11853.17	1469.31	11869.54	1468.87	11869.73	1468.81	11873.14	1468.61	11880.3	1469.09
11969.73	1469.36	12069.74	1468.71	12169.72	1468.51				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6170.21	.05	9691.74	.05	10238.95	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9691.74	10238.95	442.05	443.33	435.7	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6170.21	8765.27	1470	11970.09	12169.72	1470

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1468.43	Element	Left OB	Channel	Right OB

Vel Head (ft)	0.06	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1468.37	Reach Len. (ft)	442.05	443.33	435.70
Crit W.S. (ft)		Flow Area (sq ft)	522.24	700.42	433.06
E.G. Slope (ft/ft)	0.004302	Area (sq ft)	522.24	700.42	433.06
Q Total (cfs)	3233.00	Flow (cfs)	894.81	1603.81	734.38
Top Width (ft)	1725.88	Top Width (ft)	643.21	547.21	535.46
Vel Total (ft/s)	1.95	Avg. Vel. (ft/s)	1.71	2.29	1.70
Max Chl Dpth (ft)	3.75	Hydr. Depth (ft)	0.81	1.28	0.81
Conv. Total (cfs)	49289.8	Conv. (cfs)	13642.1	24451.4	11196.3
Length Wtd. (ft)	441.34	Wetted Per. (ft)	643.52	550.15	535.47
Min Ch El (ft)	1464.62	Shear (lb/sq ft)	0.22	0.34	0.22
Alpha	1.07	Stream Power (lb/ft s)	0.37	0.78	0.37
Frctn Loss (ft)	1.99	Cum Volume (acre-ft)	619.08	129.11	129.35
C & E Loss (ft)	0.00	Cum SA (acres)	422.07	146.66	184.27

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8987.43	9339.59	346.55	216.51	293.74	10.72	0.74	1.60
9339.59	9691.74	548.26	305.73	349.77	16.96	0.87	1.79
LB 9691.74	9801.18	171.88	98.15	110.64	5.32	0.90	1.75
9801.18	9910.62	245.67	121.49	110.36	7.60	1.11	2.02
9910.62	10020.07	293.34	134.68	109.44	9.07	1.23	2.18
10020.07	10129.51	515.39	189.30	110.08	15.94	1.73	2.72
10129.51	RB 10238.95	377.53	156.80	109.63	11.68	1.43	2.41
10238.95	10432.03	387.34	205.06	193.08	11.98	1.06	1.89
10432.03	10625.10	299.78	175.84	193.08	9.27	0.91	1.70
10625.10	10818.18	47.24	52.07	147.31	1.46	0.35	0.91
10818.18	11590.49						
11590.49	11783.57	0.02	0.08	2.00	0.00	0.04	0.21

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 16.367

INPUT
Description:
Station Elevation Data num= 100

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6053.17	1466.5	6075.4	1467.12	6084.99	1467.09	6153.16	1466.64	6253.17	1466.18
6288.3	1466	6333.91	1465.77	6353.18	1465.84	6421.02	1465.59	6453.17	1464.79
6456.19	1465.02	6530.75	1465.85	6535.89	1464.54	6542.11	1465.94	6553.18	1465.15
6876.09	1464.25	6885.95	1464.71	6900.39	1464.37	6907.47	1464.71	7281.17	1464.2
7662.17	1464.24	7671.67	1464.69	7693.49	1464.62	8105.81	1465.01	8207.63	1464.64
8214.14	1464.18	8221.66	1464.98	8418.87	1466	8420.19	1466.08	8518.11	1466.96
8594.04	1467.57	8618.12	1467.38	8718.11	1466.13	8730.93	1466	8759	1465.72
8793.42	1465.93	8815.44	1466	8818.12	1466.01	8887.65	1467.35	8916.59	1468
8918.1	1468.03	8935.49	1468	9018.12	1467.84	9118.12	1467.37	9213.19	1466
9218.13	1465.93	9319.69	1465.24	9328.81	1464.76	9347.19	1465.36	9395.47	1465.87
9433.89	1465.76	9449.85	1464.45	9455.71	1465.01	9498.99	1464.95	9502.77	1464.31
9512.58	1465.11	9630.43	1464.96	9893.28	1465.4	9902.32	1464.07	9911	1465.24
9928.65	1465.41	9932.26	1464.47	9939.3	1465.66	9954.22	1465.48	9960.29	1465.28
9964.71	1465.53	10054.63	1465.45	10058.33	1464	10060.4	1463.16	10063.36	1464
10069.04	1465.46	10173.3	1465.25	10179.38	1464.07	10189.46	1465.11	10213.04	1465.53
10218.57	1465.02	10225.97	1465.75	10237.71	1465.58	10246.25	1464.95	10249.03	1465.34
10552.38	1465.38	10733.55	146	10964.72	1466.21	11474.62	1466.72	11561.42	1466.62
11567.19	146	11568.33	1465.87	11569.48	146	11574.67	1466.67	11674.68	1467.02
11688.91	1467.05	11693.3	1466.94	11705.16	1467.05	11723.64	1467.11	11729.02	1466.87
11734.44	1467.46	11774.79	1467.12	11874.8	1467.21	11974.78	1467.49	12074.78	1466.62

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6053.17	.05	9498.99	.05	10249.03	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9498.99	10249.03	392.24	394.26	389.71	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
6053.17	8918.1	146811735.15	12074.78		1468

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1466.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1466.37	Reach Len. (ft)	392.24	394.26	389.71
Crit W.S. (ft)	1465.82	Flow Area (sq ft)	271.01	880.33	508.99
E.G. Slope (ft/ft)	0.004765	Area (sq ft)	271.01	880.33	508.99
Q Total (cfs)	3233.00	Flow (cfs)	506.51	2006.72	719.77
Top Width (ft)	1953.32	Top Width (ft)	311.53	750.04	891.75
Vel Total (ft/s)	1.95	Avg. Vel. (ft/s)	1.87	2.28	1.41
Max Chl Dpth (ft)	3.21	Hydr. Depth (ft)	0.87	1.17	0.57
Conv. Total (cfs)	46835.7	Conv. (cfs)	7337.7	29070.9	10427.2
Length Wtd. (ft)	392.27	Wetted Per. (ft)	311.64	751.56	891.81
Min Ch El (ft)	1463.16	Shear (lb/sq ft)	0.26	0.35	0.17
Alpha	1.11	Stream Power (lb/ft s)	0.48	0.79	0.24
Frctn Loss (ft)	1.70	Cum Volume (acre-ft)	615.05	121.06	124.64
C & E Loss (ft)	0.01	Cum SA (acres)	417.23	140.06	177.13

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9154.41	9498.99	506.51	271.01	311.64	15.67	0.87	1.87
LB 9498.99	9649.00	519.27	206.20	150.09	16.06	1.37	2.52
9649.00	9799.01	445.82	188.12	150.01	13.79	1.25	2.37
9799.01	9949.01	371.93	168.92	150.41	11.50	1.13	2.20
9949.01	10099.02	310.12	151.61	150.76	9.59	1.01	2.05
10099.02	RB 10249.03	359.57	165.48	150.29	11.12	1.10	2.17
10249.03	10431.61	311.55	186.00	182.58	9.64	1.02	1.68
10431.61	10614.18	282.29	175.31	182.58	8.73	0.96	1.61
10614.18	10796.75	93.49	90.34	182.57	2.89	0.49	1.03
10796.75	10979.33	27.42	43.27	182.58	0.85	0.24	0.63
10979.33	11161.91	3.60	11.91	152.84	0.11	0.08	0.30
11161.91	11527.06						
11527.06	11709.63	1.43	2.17	8.67	0.04	0.25	0.66

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 16.293

INPUT
Description:
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5892.28	1467.56	5937.77	1467.11	5955.32	1466.95	5964.07	1466.42	5976.76	1466
6013.58	1464.75	6037.78	1464.45	6085.82	1464	6137.77	1463.52	6237.78	1463.4
6263.44	1463.78	6554.01	1462.66	6764.33	1462	6870.24	1461.79	7131.38	1461.69
7137.64	1461.14	7186.47	1461.21	7275.61	1461.71	7355.34	1462	7358.81	1462.02
7546.48	1462	7626.75	1462	7753.43	1462.84	7776.53	1462.1	7787.81	1462.91
7839.32	1462.42	7962.62	1463.52	7974.26	1463.08	8027.6	1464	8230.51	1465.51
8330.49	1465.63	8430.5	1465.7	8530.51	1464.72	8612.03	1464	8630.49	1463.84
8706.96	1463.47	8730.5	1463.22	8809.63	1463.84	8821.04	1464	8830.49	1464.13
8872.78	1464.6	8930.5	1464.01	8932.22	1464	9030.51	1463.49	9071.41	1464
9130.51	1464.21	9132.45	1464.76	9277.4	1464	9294.75	1463.68	9300.69	1464
9308.72	1464.45	9363.35	1464	9395.31	1463.68	9404.18	1462.75	9429.27	1463.17
9464.31	1463.35	9468.55	1462.35	9476.72	1463.22	9487.98	1463.24	9490.49	1462.75
9495.69	1463.15	9522.33	1463.22	9526.07	1462.72	9531.95	1463.15	9851.49	1464
9862.22	1464.11	9862.94	1464	9865.89	1463.54	9869.34	1464	9871.78	1464.28
9913.34	1464.38	9914.34	1464	9918.43	1462.52	9923.78	1464	9925.64	1464.52
9946.11	1464.32	9977.06	1464.29	9979.77	1464	9985.7	1463.66	9988.14	1464
9990.26	1464.38	10019.16	1464	10085.24	1463.92	10104.63	1463.38	10122.6	1463.9
10179.55	1464	10180.3	1464.04	10187.17	1464	10464.67	1463.24	10844.29	1464
10941.11	1464	11189.79	1464	11467.78	1464.62	11484.88	1464.39	11584.89	1464.96

11619.18 1465.2111684.21 1465.48 11997.2 1465.11

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5892.28	.05	9464.31	.05	10122.6	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9464.31	10122.6	505.8	506.02	508.51	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5892.28	9132.45	146611684.21	11997.2		1466

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1464.72	Element			
Vel Head (ft)	0.04	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1464.68	Reach Len. (ft)	505.80	506.02	508.51
Crit W.S. (ft)		Flow Area (sq ft)	225.44	633.89	1093.64
E.G. Slope (ft/ft)	0.004006	Area (sq ft)	225.44	633.89	1093.64
Q Total (cfs)	3233.00	Flow (cfs)	337.85	1161.42	1733.72
Top Width (ft)	2388.66	Top Width (ft)	316.91	658.29	1413.45
Vel Total (ft/s)	1.66	Avg. Vel. (ft/s)	1.50	1.83	1.59
Max Chl Dpth (ft)	2.33	Hydr. Depth (ft)	0.71	0.96	0.77
Conv. Total (cfs)	51080.1	Conv. (cfs)	5337.9	18350.1	27392.2
Length Wtd. (ft)	507.21	Wetted Per. (ft)	317.00	659.36	1413.46
Min Ch El (ft)	1462.35	Shear (lb/sq ft)	0.18	0.24	0.19
Alpha	1.02	Stream Power (lb/ft s)	0.27	0.44	0.31
Frctn Loss (ft)	2.57	Cum Volume (acre-ft)	612.82	114.21	117.47
C & E Loss (ft)	0.00	Cum SA (acres)	414.40	133.69	166.82

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9107.11	9464.31	337.86	225.44	317.00	10.45	0.71	1.50
LB 9464.31	9595.97	468.32	201.99	131.93	14.49	1.53	2.32
9595.97	9727.63	305.46	156.18	131.66	9.45	1.19	1.96
9727.63	9859.28	169.90	109.84	131.66	5.26	0.83	1.55
9859.28	9990.94	71.48	65.49	132.43	2.21	0.50	1.09
9990.94	RB 10122.60	146.27	100.40	131.68	4.52	0.76	1.46
10122.60	10310.06	222.73	151.15	187.46	6.89	0.81	1.47
10310.06	10497.52	469.47	236.44	187.46	14.52	1.26	1.99
10497.52	10684.98	425.05	222.75	187.46	13.15	1.19	1.91
10684.98	10872.44	227.75	153.19	187.46	7.04	0.82	1.49
10872.44	11059.90	168.34	127.78	187.46	5.21	0.68	1.32
11059.90	11247.36	160.31	124.08	187.46	4.96	0.66	1.29
11247.36	11434.82	53.90	64.52	187.46	1.67	0.34	0.84
11434.82	11622.28	6.16	13.72	101.23	0.19	0.14	0.45

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 16.197

INPUT
Description:
Station Elevation Data num= 92

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5632.08	1462	5790.68	1461.42	5801.19	1461.62	5871.06	1461.53	5878.43	1461.03
5889.13	1461.58	5930.97	1461.73	5955.22	1462	5976.55	1462.24	6065.87	1462.67
6108.17	1463.75	6164.2	1464	6184.67	1464.05	6186.48	1464	6224.02	1463.12
6247.22	1462.12	6255.94	1462	6518.17	1460	6975.21	1458.73	7231.4	1459.46
7236.5	1458.72	7244.61	1459.21	7291.44	1458.98	7544.82	1460	7753.08	1461.7
7820.41	1462	8019.46	1463.4	8119.46	1463.32	8212.35	1462	8219.45	1461.9
8319.46	1461.31	8419.47	1461.24	8502.88	1462	8508.01	1462.05	8513.37	1462
8519.45	1461.95	8521.3	1462	8568.83	1463.34	8616.74	1462	8619.46	1461.92
8641.62	1461.8	8701.33	1461.05	8719.45	1460.53	8738.82	1460.91	8766.6	1460.6
8771.76	1460	8776.32	1459.44	8780.56	1460	8785.17	1460.57	8819.46	1460.16
8919.47	1460.81	9019.47	1461.23	9059.47	1461.4	9164.89	1461.58	9268.63	1460.99
9273.51	1460.54	9278.85	1461.16	9530.63	1460.58	9627.34	1461.24	9631.25	1460

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 9632.41 1459.66 9633.74    1460 9638.45 1461.21 9873.72    1462 9874.36 1462.05
  9874.7    1462 9879.14 1461.34 9885.56    1462 9886.74 1462.11 9900.96    1462
10141.22 1461.7510145.66 1460.67 10155.4 1461.6110214.42 1461.4310221.74  1461.2
10226.46 1461.4110252.15 1461.2710262.94 1460.9610272.18  1461.410452.59 1460.96
 10864.9 1461.33 11277.2 1461.8311292.29    1462 11350.2 1462.6611357.06  1462.1
11365.37 1462.9211503.52 1462.3111508.79 1462.0411518.86 1462.3611522.97 1462.16
11593.44 1462.0811909.66 1463.17

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 5632.08     .05 9627.34     .0510272.18     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       9627.3410272.18           478.05  477.22  481.71             .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 5632.08    9135    1463
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 5632.08 8019.46    146411365.3711909.66    1464

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1462.16   Element                  Left OB    Channel   Right OB
  Vel Head (ft)                0.07   Wt. n-Val.                0.050      0.050      0.050
  W.S. Elev (ft)            1462.08   Reach Len. (ft)          478.05     477.22     481.71
  Crit W.S. (ft)            1461.71   Flow Area (sq ft)        529.68     278.20     758.30
  E.G. Slope (ft/ft)       0.006642   Area (sq ft)            1270.50     278.20     758.30
  Q Total (cfs)             3233.00   Flow (cfs)              1346.86     386.02    1500.12
  Top Width (ft)            2999.17   Top Width (ft)          1331.08     640.84    1027.25
  Vel Total (ft/s)             2.06   Avg. Vel. (ft/s)           2.54       1.39       1.98
  Max Chl Dpth (ft)            2.64   Hydr. Depth (ft)           1.08       0.43       0.74
  Conv. Total (cfs)         39668.9   Conv. (cfs)             16525.9     4736.5    18406.5
  Length Wtd. (ft)           478.97   Wetted Per. (ft)         492.40     641.57    1027.26
  Min Ch El (ft)            1459.66   Shear (lb/sq ft)           0.45       0.18       0.31
  Alpha                        1.11   Stream Power (lb/ft s)     1.13       0.25       0.61
  Frctn Loss (ft)              2.87   Cum Volume (acre-ft)     604.13     108.91     106.66
  C & E Loss (ft)              0.00   Cum SA (acres)           404.83     126.14     152.58


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta     Right Sta        Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)             (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  8828.29      9227.81         102.00      58.56     92.81       3.15       0.63       1.74
  9227.81      9627.34        1244.83     471.11    399.59      38.50       1.18       2.64
  LB 9627.34   9756.31         164.90      97.66    129.40       5.10       0.76       1.69
  9756.31      9885.28          33.07      37.20    129.06       1.02       0.29       0.89
  9885.28      10014.24          8.62      16.39    124.97       0.27       0.13       0.53
  10014.24     10143.21         29.65      34.84    129.03       0.92       0.27       0.85
  10143.21     RB 10272.18     149.80      92.11    129.11       4.63       0.71       1.63
  10272.18     10435.93        301.32     144.28    163.75       9.32       0.88       2.09
  10435.93     10599.68        410.12     173.59    163.75      12.69       1.06       2.36
  10599.68     10763.42        321.48     150.00    163.75       9.94       0.92       2.14
  10763.42     10927.17        238.26     125.32    163.75       7.37       0.77       1.90
  10927.17     11090.92        148.66      94.43    163.75       4.60       0.58       1.57
  11090.92     11254.67         73.57      61.92    163.75       2.28       0.38       1.19
  11254.67     11418.42          6.73       8.78     44.77       0.21       0.20       0.77


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

CROSS SECTION          RIVER: Vineyard FRS
REACH: Vineyard           RS: 16.106

INPUT
Description:
Station Elevation Data    num=     152
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
 5510.69 1459.47 5536.64    1460 5546.74 1460.21 5610.67 1460.53 5626.12 1460.98
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 5661.03    1460 5673.44 1459.59 5684.16 1459.51 5710.68 1459.08  5804.6 1458.72
 5810.67 1458.69 5899.16 1459.44 5910.68 1459.52 5967.82 1459.98 6032.92 1458.79
  6119.7    1458  6546.3 1457.34 6717.01 1457.35 6724.36 1456.17 6736.22 1456.28
 6746.86 1456.98 6794.17    1458 6862.53 1458.98 6862.65 1459.46 7078.37    1460
 7155.15 1460.28 7178.76 1460.26 7234.95    1460 7313.34 1459.85 7406.06    1460
 7494.98 1460.21 7549.91 1460.55 7556.57    1460 7559.05  1459.8 7562.63    1460
 7580.19 1460.94 7765.08 1460.63 7794.58 1460.38 7807.31 1461.03 7811.21 1460.43
 7861.44 1461.06 7872.41 1460.97 7887.86 1461.58 7911.22 1461.11 8000.27    1460
 8011.23 1459.86 8111.21 1458.42 8211.22 1458.19 8270.48 1458.09 8284.34    1458
 8311.21 1457.83 8365.47    1458 8411.21 1458.15 8463.59 1458.86 8511.22 1458.39
 8551.71 1458.86 8611.21 1458.81 8711.22 1458.15 8809.54 1458.37 8810.52    1458
 8811.23 1457.73 8814.13 1457.63 8819.04    1458 8823.05 1458.26 8860.98    1458
 8911.22 1457.65 9017.29    1458 9125.79    1458 9145.52 1457.87 9163.75 1457.49
 9175.65 1457.64 9196.78 1457.84 9205.45 1457.53 9217.93  1457.9  9231.4    1458
 9260.11 1458.14 9262.91    1458 9269.34 1457.67 9278.71 1457.96 9311.46 1457.53
 9317.91 1456.63 9326.78 1457.65 9331.86 1456.62 9339.11    1458 9339.69 1458.11
 9349.08 1458.05 9349.43    1458 9362.47    1457 9374.22    1458 9374.34 1458.01
 9416.96 1458.41 9419.37    1458    9422 1457.48 9428.46 1457.32 9436.18    1458
 9442.48 1458.57  9586.5 1458.85 9592.05    1458 9592.18 1457.98 9592.37    1458
 9597.94 1458.73 9688.14 1459.13 9691.33    1458 9693.67 1457.17 9697.16    1458
 9702.33 1459.44 9749.66 1459.41  9759.3    1458 9762.44 1457.46 9767.61    1458
 9773.99 1458.83 9782.81 1458.92 9788.24 1458.13 9790.63 1458.98 9833.19  1458.6
10092.45  1458.310093.68    145810098.32  1456.910102.56    145810104.22 1458.43
10199.09 1458.6710207.62  1458.110212.25 1458.7110265.46 1458.5910270.74    1458
10274.98 1457.5210279.14    145810281.27  1458.410302.75 1458.2710303.98    1458
10306.45 1457.4710309.32    145810311.58 1458.3810755.13 1459.09 10889.9 1458.67
11095.36  1459.111099.24 1458.7911108.21 1458.7111114.19 1459.2311167.44 1459.19
11251.26 1459.8711253.22 1459.6611257.91 1459.7111293.83    1460 11313.9 1460.16
11317.12    146011320.09 1459.8511322.47    146011327.49 1460.3211372.13    1460
11579.76 1459.5411774.31    1460

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
 5510.69     .05  9586.5     .0510311.58     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        9586.510311.58           451.05  514.19  546.94              .1       .3
Ineffective Flow     num=       1
   Sta L   Sta R    Elev
 5510.69    8885    1460
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
 5510.69 7887.86    146111251.2611774.31    1461

CROSS SECTION OUTPUT    Profile #PF 1

  E.G. Elev (ft)            1459.29   Element                   Left OB    Channel   Right OB
  Vel Head (ft)                0.07   Wt. n-Val.                 0.050      0.050      0.050
  W.S. Elev (ft)            1459.21   Reach Len. (ft)           451.05     514.19     546.94
  Crit W.S. (ft)            1458.82   Flow Area (sq ft)         838.56     467.98     331.74
  E.G. Slope (ft/ft)       0.005307   Area (sq ft)             1556.98     467.98     331.74
  Q Total (cfs)             3233.00   Flow (cfs)               2043.50     791.71     397.79
  Top Width (ft)            3042.63   Top Width (ft)           1530.38     675.59     836.66
  Vel Total (ft/s)             1.97   Avg. Vel. (ft/s)            2.44       1.69       1.20
  Max Chl Dpth (ft)            2.59   Hydr. Depth (ft)            1.20       0.69       0.40
  Conv. Total (cfs)         44381.2   Conv. (cfs)              28052.3    10868.2     5460.7
  Length Wtd. (ft)           478.05   Wetted Per. (ft)          702.13     677.44     836.69
  Min Ch El (ft)            1456.90   Shear (lb/sq ft)            0.40       0.23       0.13
  Alpha                        1.19   Stream Power (lb/ft s)      0.96       0.39       0.16
  Frctn Loss (ft)              2.61   Cum Volume (acre-ft)       588.62     104.83     100.63
  C & E Loss (ft)              0.00   Cum SA (acres)             389.13     118.93     142.27


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

FLOW DISTRIBUTION OUTPUT    Profile #PF 1

  Left Sta     Right Sta       Flow       Area       W.P.    % Conv.    Hydr D.   Velocity
  (ft)         (ft)            (cfs)    (sq ft)      (ft)                (ft)     (ft/s)
  8771.34      9178.92       1036.66     395.43     293.93      32.06       1.35       2.62
  9178.92      9586.50       1006.85     443.13     408.21      31.14       1.09       2.27
  LB 9586.50   9731.52         58.92      49.27     115.73       1.82       0.43       1.20
  9731.52      9876.53        115.82      76.46     125.95       3.58       0.61       1.51
  9876.53      10021.55       188.67     108.41     145.02       5.84       0.75       1.74
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10021.55	10166.56	236.95	124.41	145.38	7.33	0.86	1.90
10166.56	RB 10311.58	191.35	109.43	145.37	5.92	0.75	1.75
10311.58	10457.85	167.12	104.79	146.27	5.17	0.72	1.59
10457.85	10604.13	86.42	70.55	146.27	2.67	0.48	1.22
10604.13	10750.40	28.55	36.30	146.27	0.88	0.25	0.79
10750.40	10896.67	47.36	49.18	146.27	1.47	0.34	0.96
10896.67	11042.95	57.12	55.03	146.27	1.77	0.38	1.04
11042.95	11189.22	11.20	15.88	105.33	0.35	0.15	0.71

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 16.009

INPUT
Description:
Station Elevation Data num= 114

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5407.64	1456	5407.65	1455.89	5497.99	1456	5534	1457.02	5571.96	1457.67
5619.06	1457.42	5629.56	1457.41	5666.03	1456.73	5707.63	1456.87	5776.56	1456.59
5829.34	1456	6246.16	1454.91	6352.79	1455.91	6356.93	1455.16	6363.42	1456
6364.05	1456.09	6371.88	1456	6687.71	1456	6737.55	1456.63	6745.53	1456.28
6751.99	1456.68	6899.71	1458	7083.1	1458.75	7100.54	1458.69	7141.3	1459.63
7154.12	1459.44	7200.55	1458.88	7300.56	1458.56	7366.34	1458.38	7385.53	1458
7400.55	1457.7	7500.56	1457.14	7600.57	1456.65	7680.76	1456	7700.55	1455.84
7800.56	1455.57	7900.54	1455.15	8000.55	1455.28	8100.56	1455.2	8200.55	1455.23
8300.56	1455.18	8400.54	1455.03	8500.55	1454.78	8600.56	1455.01	8700.54	1455.45
8800.56	1455.47	8900.56	1455.57	9000.56	1455.54	9100.56	1455.49	9113.22	1454.93
9117.65	1454	9119.28	1453.65	9121.54	1454	9129.31	1455.25	9200.56	1455.62
9300.56	1455.89	9307.69	1456	9350.32	1456.65	9355.31	1456	9358.15	1457.72
9370.34	1454	9371.6	1453.83	9373.07	1454	9380.55	1455.87	9386.44	1456
9391.55	1456	9393.95	1456	9393.96	1456	9399.31	1455.41	9406.42	1456
9409.45	1456.3	9572.07	1456.2	9572.78	1456	9576.78	1454.87	9584.52	1456
9587.12	1456.37	9821.04	1456.14	9891.26	1456.34	9903.37	1456.07	9904.11	1456
9910.23	1455.49	9916.58	1456	9916.86	1456.02	9939.75	1456	9955.14	1455.96
9959.65	1455.64	9966.16	1455.97	10022.32	1456	10330.93	1456.44	10481.31	1456.51
10506.24	1456.16	10506.75	1456	10512.76	1454.26	10520.12	1456	10522.41	1456.53
10667.34	1456.24	10670.72	1456	10680.9	1455.16	10699.79	1456	10700.35	1456
10770.14	1456.14	10771.06	1456	10780.84	1455.17	10789.28	1456	10793.99	1456.46
10840.84	1456.31	11102.19	1456	11130.73	1455.93	11134.83	1455.44	11139.91	1456
11140.43	1456.07	11170.98	1456.12	11253.16	1456.14	11665.47	1456.66		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5407.64	.05	9358.15	.05	10330.93	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9358.15	10330.93	305.1	396.01	394.62	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5407.64	8560	1460	11335	11665.47	1460

Blocked Obstructions num= 1

Sta L	Sta R	Elev
5407.64	7141.64	1461

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1456.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1456.61	Reach Len. (ft)	305.10	396.01	394.62
Crit W.S. (ft)	1456.28	Flow Area (sq ft)	881.96	435.27	413.03
E.G. Slope (ft/ft)	0.005771	Area (sq ft)	2112.44	435.27	465.18
Q Total (cfs)	3233.00	Flow (cfs)	2141.66	575.86	515.48
Top Width (ft)	4007.87	Top Width (ft)	1747.08	969.13	1291.66
Vel Total (ft/s)	1.87	Avg. Vel. (ft/s)	2.43	1.32	1.25
Max Chl Dpth (ft)	2.96	Hydr. Depth (ft)	1.11	0.45	0.41
Conv. Total (cfs)	42559.1	Conv. (cfs)	28192.7	7580.7	6785.7
Length Wtd. (ft)	332.85	Wetted Per. (ft)	793.57	970.20	1004.84
Min Ch El (ft)	1453.83	Shear (lb/sq ft)	0.40	0.16	0.15
Alpha	1.28	Stream Power (lb/ft s)	0.97	0.21	0.18
Frctn Loss (ft)	1.73	Cum Volume (acre-ft)	569.62	99.50	95.63
C & E Loss (ft)	0.01	Cum SA (acres)	372.16	109.22	128.91

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8173.00	8568.05	42.96	13.52	8.05	1.33	1.68	3.18
8568.05	8963.10	1225.68	479.27	395.05	37.91	1.21	2.56
8963.10	9358.15	873.02	389.17	390.47	27.00	1.00	2.24
LB 9358.15	9552.71	147.76	102.22	191.62	4.57	0.54	1.45
9552.71	9747.26	84.02	73.34	194.85	2.60	0.38	1.15
9747.26	9941.82	114.96	88.48	194.61	3.56	0.45	1.30
9941.82	10136.37	170.14	111.94	194.58	5.26	0.58	1.52
10136.37	RB 10330.93	58.98	59.28	194.56	1.82	0.30	0.99
10330.93	10464.38	10.07	18.01	133.45	0.31	0.13	0.56
10464.38	10597.84	39.01	40.65	133.99	1.21	0.30	0.96
10597.84	10731.29	97.20	70.20	133.52	3.01	0.53	1.38
10731.29	10864.75	71.19	58.24	133.56	2.20	0.44	1.22
10864.75	10998.20	62.47	53.83	133.45	1.93	0.40	1.16
10998.20	11131.65	109.93	75.56	133.46	3.40	0.57	1.45
11131.65	11265.11	92.41	68.10	133.51	2.86	0.51	1.36
11265.11	11398.56	33.18	28.43	69.89	1.03	0.41	1.17

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 15.934

INPUT
Description:
Station Elevation Data num= 104

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5338.44	1454.34	5405.98	1454.11	5438.45	1454.74	5521.3	1455.66	5532.69	1455.57
5538.43	1455.13	5587.66	1454.69	5789.13	1454	5859.79	1453.61	6176.01	1453.51
6282.95	1453.67	6287.8	1452.59	6295.52	1453.43	6421.84	1454	6429.97	1454.16
6438.27	1454.12	6452.86	1454.21	6478.27	1454.72	6617.99	1455.7	6641.48	1456
6667.4	1456.25	6682.34	1456	6719	1456	6756.42	1455.72	6779.74	1456
6842.3	1457.1	6913.01	1457.87	6922.46	1458	6977.34	1458.51	7008.85	1458.52
7032.21	1458.1	7043.99	1458	7118.37	1457.39	7132.22	1456.82	7138.2	1456.9
7172.75	1457.87	7232.2	1457.43	7332.21	1456.85	7416.28	1456	7432.2	1455.84
7532.21	1455.4	7632.21	1454.81	7699.74	1454	7732.49	1453.61	7832.49	1453.09
7932.5	1453.14	8032.49	1453.24	8132.5	1453.19	8232.48	1453.02	8332.49	1453.14
8432.5	1453.21	8532.49	1453.26	8632.5	1453.68	8732.5	1453.8	8798.97	1454
8832.5	1454.1	8932.5	1454.4	9032.5	1454.45	9132.5	1454.3	9232.5	1454.25
9332.51	1454.22	9432.51	1454.2	9521.75	1454	9532.51	1453.98	9542.19	1454
9632.51	1454.22	9681.64	1455.04	9708.3	1460.2	9729.34	1454.84	9732.51	1454.13
9733.02	1454	9740.25	1452.24	9745.97	1452	9759.89	1451.39	9780.98	1451.47
9800.05	1451.41	9811.23	1451.39	9816.62	1452	9834.44	1454	9834.61	1454.05
9866.8	1461.12	9889.1	1454.82	9959.39	1454.11	9960.07	1454	9967.44	1452.8
9974.8	1454	9977.02	1454.33	9986.97	1454.13	9988.2	1454	9996.09	1453.41
10021.22	1454	10041.53	1454.59	10243.14	1454.65	10368.55	1454.91	0753.05	1454.62
11098.63	1454	11165.37	1453.68	11227.49	1454	11353.74	1454.72	11360.63	1454
11362.31	1453.79	11365.51	1454	11577.69	1454.81	1831.69	1456		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5338.44	.05	9889.1	.05	10368.55	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9889.1	10368.55	477	504.08	492.54	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5338.44	8335	1458	11530	11831.69	1458

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5338.44	7173.5	1464	9708.88	9868.91	1461.08

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 1454.94 Element Left OB Channel Right OB

Vel Head (ft)	0.05	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1454.90	Reach Len. (ft)	477.00	504.08	492.54
Crit W.S. (ft)	1454.46	Flow Area (sq ft)	1221.59	184.59	563.64
E.G. Slope (ft/ft)	0.004642	Area (sq ft)	2327.70	184.59	573.49
Q Total (cfs)	3233.00	Flow (cfs)	2327.80	198.26	706.93
Top Width (ft)	3757.27	Top Width (ft)	2055.66	477.49	1224.11
Vel Total (ft/s)	1.64	Avg. Vel. (ft/s)	1.91	1.07	1.25
Max Chl Dpth (ft)	2.10	Hydr. Depth (ft)	0.91	0.39	0.49
Conv. Total (cfs)	47451.2	Conv. (cfs)	34165.5	2909.9	10375.8
Length Wtd. (ft)	482.68	Wetted Per. (ft)	1338.31	477.77	1156.15
Min Ch El (ft)	1452.80	Shear (lb/sq ft)	0.26	0.11	0.14
Alpha	1.12	Stream Power (lb/ft s)	0.50	0.12	0.18
Frctn Loss (ft)	2.31	Cum Volume (acre-ft)	554.07	96.68	90.92
C & E Loss (ft)	0.00	Cum SA (acres)	358.85	102.65	117.51

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8068.84	8523.90	850.34	319.75	188.90	26.30	1.69	2.66
8523.90	8978.97	848.75	454.01	455.07	26.25	1.00	1.87
8978.97	9434.03	367.20	274.62	455.07	11.36	0.60	1.34
9434.03	9889.10	261.48	173.21	239.27	8.09	0.72	1.51
LB 9889.10	9984.99	73.53	59.69	96.12	2.27	0.62	1.23
9984.99	10080.88	86.74	65.86	95.94	2.68	0.69	1.32
10080.88	10176.77	19.47	26.86	95.89	0.60	0.28	0.72
10176.77	10272.66	15.45	23.39	95.89	0.48	0.24	0.66
10272.66	RB 10368.55	3.07	8.79	93.93	0.09	0.09	0.35
10368.55	10514.86	1.66	7.24	140.95	0.05	0.05	0.23
10514.86	10661.18	11.00	22.82	146.31	0.34	0.16	0.48
10661.18	10807.49	28.03	39.99	146.31	0.87	0.27	0.70
10807.49	10953.81	78.01	73.90	146.31	2.41	0.51	1.06
10953.81	11100.12	156.71	112.31	146.31	4.85	0.77	1.40
11100.12	11246.43	255.82	150.70	146.32	7.91	1.03	1.70
11246.43	11392.75	95.26	83.32	146.37	2.95	0.57	1.14
11392.75	11539.06	80.46	73.38	137.25	2.49	0.53	1.10

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 15.838

INPUT
Description:
Station Elevation Data num= 68

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5317.68	1452	5395	1451.75	5412	1452	5430	1452.8	5460	1452
5470	1454	5483	1453.9	5495	1454	5685	1452	5730	1451.8
5830	1452	6120	1451.6	6270	1452	6340	1452	6530	1452
6690	1454	6800	1454.9	6910	1454	6970	1453.2	7180	1454
7230	1454.7	7310	1454	7490	1453.7	7610	1453.1	7710	1454
7800	1454.4	7940	1454	8080	1452	8100	1451.7	8160	1452
8220	1452	8290	1451.4	8490	1451.8	8870	1452	8970	1452
9030	1451.8	9130	1451.9	9200	1451.5	9310	1452	9340	1452
9430	1450.7	9480	1451.6	9570	1452	9630	1452	9710	1451.8
9730	1451	9740	1451.7	9830	1452	9860	1452	9870	1451.3
9880	1452	9890	1452.2	9940	1452	10000	1452	10060	1452.2
10200	1452.4	10250	1452.2	10720	1452.7	10770	1452.8	10880	1452.1
10910	1452.9	11050	1452	11250	1452	11260	1451.76	11270	1451.34
11280	1451.86	11400	1452	11880	1454				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5317.68	.05	9630	.05	10200	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9630	10200	506.83	498.04	494.93	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
5317.68	7805.79	1454.8

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1452.63	Element			
Vel Head (ft)	0.04	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1452.58	Reach Len. (ft)	506.83	498.04	494.93
Crit W.S. (ft)		Flow Area (sq ft)	1255.62	325.53	395.59
E.G. Slope (ft/ft)	0.005149	Area (sq ft)	1255.62	325.53	395.59
Q Total (cfs)	3233.00	Flow (cfs)	2286.79	477.78	468.43
Top Width (ft)	3246.09	Top Width (ft)	1590.84	570.00	1085.25
Vel Total (ft/s)	1.64	Avg. Vel. (ft/s)	1.82	1.47	1.18
Max Chl Dpth (ft)	1.88	Hydr. Depth (ft)	0.79	0.57	0.36
Conv. Total (cfs)	45055.6	Conv. (cfs)	31869.0	6658.5	6528.1
Length Wtd. (ft)	503.64	Wetted Per. (ft)	1590.87	570.09	1085.29
Min Ch El (ft)	1451.00	Shear (lb/sq ft)	0.25	0.18	0.12
Alpha	1.07	Stream Power (lb/ft s)	0.46	0.27	0.14
Frctn Loss (ft)	2.93	Cum Volume (acre-ft)	534.45	93.73	85.44
C & E Loss (ft)	0.00	Cum SA (acres)	338.88	96.59	104.46

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7905.07	8336.30	381.33	220.07	297.15	11.80	0.74	1.73
8336.30	8767.54	617.74	341.16	431.23	19.11	0.79	1.81
8767.54	9198.77	486.78	295.71	431.23	15.06	0.69	1.65
9198.77	9630.00	800.92	398.69	431.25	24.77	0.92	2.01
LB 9630.00	9744.00	166.25	94.18	114.04	5.14	0.83	1.77
9744.00	9858.00	123.64	78.83	114.00	3.82	0.69	1.57
9858.00	9972.00	95.44	67.51	114.05	2.95	0.59	1.41
9972.00	10086.00	67.49	54.82	114.00	2.09	0.48	1.23
10086.00	RB 10200.00	24.97	30.19	114.00	0.77	0.26	0.83
10200.00	10368.00	47.39	52.01	168.00	1.47	0.31	0.91
10368.00	10536.00	17.21	28.32	168.00	0.53	0.17	0.61
10536.00	10704.00	0.68	2.95	74.42	0.02	0.04	0.23
10704.00	10872.00	10.54	14.70	67.96	0.33	0.22	0.72
10872.00	11040.00	24.20	29.00	106.88	0.75	0.27	0.83
11040.00	11208.00	135.49	97.69	168.00	4.19	0.58	1.39
11208.00	11376.00	179.80	115.77	168.03	5.56	0.69	1.55
11376.00	11544.00	53.13	55.18	164.01	1.64	0.34	0.96

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 15.744

INPUT
Description:
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6818.26	1452.3	7040	1452	7160	1450	7340	1449.1	7430	1449.1
7680	1450	8040	1452	8070	1452.3	8100	1452	8190	1450
8370	1448.9	8460	1448	8470	1448	8770	1449.3	9090	1448
9110	1448	9160	1448.7	9240	1448	9450	1448	9510	1449.7
9790	1449.3	10000	1449.3	10070	1449.7	10140	1449.3	10590	1450
10730	1450.5	10820	1450.2	10870	1450.7	11050	1450	11110	1449.2
11230	1449.8	11420	1449.5	11630	1450	11700	1450	11790	1450.3

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6818.26	.05	9160	.05	10070	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9160	10070	448.07	486.94	509.51	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev

6818.26 8074.38 1452.79

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1449.70	Element			
Vel Head (ft)	0.07	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1449.63	Reach Len. (ft)	448.07	486.94	509.51
Crit W.S. (ft)		Flow Area (sq ft)	866.18	604.71	76.50
E.G. Slope (ft/ft)	0.006524	Area (sq ft)	866.18	604.71	76.50
Q Total (cfs)	3233.00	Flow (cfs)	2013.71	1163.86	55.43
Top Width (ft)	2266.28	Top Width (ft)	908.71	842.20	515.37
Vel Total (ft/s)	2.09	Avg. Vel. (ft/s)	2.32	1.92	0.72
Max Chl Dpth (ft)	1.63	Hydr. Depth (ft)	0.95	0.72	0.15
Conv. Total (cfs)	40027.5	Conv. (cfs)	24931.6	14409.6	686.3
Length Wtd. (ft)	467.80	Wetted Per. (ft)	908.73	842.23	515.37
Min Ch El (ft)	1448.00	Shear (lb/sq ft)	0.39	0.29	0.06
Alpha	1.08	Stream Power (lb/ft s)	0.90	0.56	0.04
Frctn Loss (ft)	2.27	Cum Volume (acre-ft)	522.11	88.41	82.76
C & E Loss (ft)	0.01	Cum SA (acres)	324.34	88.51	95.36

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8223.30	8457.48	259.54	144.78	206.20	8.03	0.70	1.79
8457.48	8691.65	691.05	274.16	234.18	21.38	1.17	2.52
8691.65	8925.83	222.32	138.83	234.18	6.88	0.59	1.60
8925.83	9160.00	840.78	308.40	234.18	26.01	1.32	2.73
LB 9160.00	9342.00	607.81	267.84	182.00	18.80	1.47	2.27
9342.00	9524.00	474.45	222.18	165.40	14.68	1.34	2.14
9524.00	9706.00	5.69	14.78	143.86	0.18	0.10	0.38
9706.00	9888.00	42.38	54.19	182.00	1.31	0.30	0.78
9888.00	RB 10070.00	33.55	45.72	168.97	1.04	0.27	0.73
10070.00	10242.00	28.13	34.37	158.97	0.87	0.22	0.82
10242.00	10414.00	3.88	8.94	107.23	0.12	0.08	0.43
10414.00	10930.00						
10930.00	11102.00	2.55	3.81	23.92	0.08	0.16	0.67
11102.00	11274.00	17.79	21.08	93.10	0.55	0.23	0.84
11274.00	11446.00	2.89	7.44	105.46	0.09	0.07	0.39
11446.00	11618.00	0.19	0.85	26.71	0.01	0.03	0.23

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 15.652

INPUT
Description:
Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6819.57	1450.5	6900	1450	7090	1448	7290	1446.9	7440	1448
7540	1447.1	7600	1448	7650	1448	7700	1447.2	7770	1448
8030	1449.6	8110	1449.2	8240	1449.4	8370	1448	8550	1446
8640	1446.4	8760	1446.7	9060	1446	9120	1446	9180	1444.3
9230	1446	9320	1446.1	9480	1446.9	9590	1446.2	9730	1446.6
9790	1446.4	9890	1446.4	9970	1447.6	10060	1446.5	10140	1446.7
10470	1447	10630	1447.9	10790	1448	10960	1447.4	11030	1446.9
11200	1447.5	11310	1447.2	11400	1447.6	11690	1448		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6819.57	.05	9120	.05	10630	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9120	10630	501.22	512.24	506.96	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6819.57	8256.2	1450.4

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1447.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1447.38	Reach Len. (ft)	501.22	512.24	506.96
Crit W.S. (ft)		Flow Area (sq ft)	682.46	1197.26	57.98
E.G. Slope (ft/ft)	0.003726	Area (sq ft)	682.46	1197.26	57.98
Q Total (cfs)	3233.00	Flow (cfs)	1224.21	1971.42	37.37
Top Width (ft)	2387.06	Top Width (ft)	694.09	1384.49	308.48
Vel Total (ft/s)	1.67	Avg. Vel. (ft/s)	1.79	1.65	0.64
Max Chl Dpth (ft)	3.08	Hydr. Depth (ft)	0.98	0.86	0.19
Conv. Total (cfs)	52960.9	Conv. (cfs)	20054.3	32294.5	612.1
Length Wtd. (ft)	508.10	Wetted Per. (ft)	694.10	1384.57	308.48
Min Ch El (ft)	1444.30	Shear (lb/sq ft)	0.23	0.20	0.04
Alpha	1.03	Stream Power (lb/ft s)	0.41	0.33	0.03
Frctn Loss (ft)	2.62	Cum Volume (acre-ft)	514.14	78.34	81.98
C & E Loss (ft)	0.01	Cum SA (acres)	316.10	76.07	90.54

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8199.83	8429.87	0.01	0.09	3.96	0.00	0.02	0.14
8429.87	8659.91	352.57	210.55	230.05	10.91	0.92	1.67
8659.91	8889.96	292.91	188.38	230.04	9.06	0.82	1.55
8889.96	9120.00	578.72	283.45	230.04	17.90	1.23	2.04
LB 9120.00	9422.00	1026.17	469.18	302.05	31.74	1.55	2.19
9422.00	9724.00	382.84	259.65	302.00	11.84	0.86	1.47
9724.00	10026.00	258.78	196.04	269.17	8.00	0.73	1.32
10026.00	10328.00	240.96	196.68	302.00	7.45	0.65	1.23
10328.00	RB 10630.00	62.67	75.71	209.34	1.94	0.36	0.83
10630.00	10948.00						
10948.00	11054.00	20.39	26.52	91.03	0.63	0.29	0.77
11054.00	11160.00	13.43	21.94	106.00	0.42	0.21	0.61
11160.00	11266.00	0.10	0.69	27.22	0.00	0.03	0.15
11266.00	11372.00	3.43	8.83	84.24	0.11	0.10	0.39

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 15.555

INPUT
Description:
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6589.75	1446	6760	1444	6770	1443.8	6890	1443.9	6980	1443.9
7070	1443.1	7160	1443.2	7270	1443.8	7620	1444	7820	1445.6
7970	1446	8120	1446.5	8180	1446.1	8280	1446.5	8310	1446
8330	1445.7	8350	1446	8430	1446.3	8470	1446	8580	1444
8720	1444	8790	1442	8870	1444	8930	1444	9000	1442
9230	1444	9340	1444.3	9490	1444	9700	1444.3	9780	1444.9
9930	1445.5	10020	1445	10110	1444.9	10290	1445.8	10380	1445.8
10550	1445	10740	1445.4	10970	1444.7	11090	1445	11340	1444
11380	1444	11430	1444.9	11480	1444	11520	1445.1	11580	1444
11650	1446	11700	1446	11730	1445.5	11860	1446	12260	1448

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6589.75	.05	8930	.05	10290	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8930	10290	504.24	493.86	488.78	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6589.75	8439.39	1447

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1444.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1444.70	Reach Len. (ft)	504.24	493.86	488.78
Crit W.S. (ft)		Flow Area (sq ft)	407.18	776.40	146.05
E.G. Slope (ft/ft)	0.007641	Area (sq ft)	407.18	776.40	146.05
Q Total (cfs)	3233.00	Flow (cfs)	1091.59	1940.11	201.30
Top Width (ft)	1590.48	Top Width (ft)	388.32	822.88	379.28
Vel Total (ft/s)	2.43	Avg. Vel. (ft/s)	2.68	2.50	1.38
Max Chl Dpth (ft)	2.70	Hydr. Depth (ft)	1.05	0.94	0.39
Conv. Total (cfs)	36986.3	Conv. (cfs)	12488.0	22195.3	2303.0
Length Wtd. (ft)	496.03	Wetted Per. (ft)	388.38	822.92	379.32
Min Ch El (ft)	1442.00	Shear (lb/sq ft)	0.50	0.45	0.18
Alpha	1.06	Stream Power (lb/ft s)	1.34	1.12	0.25
Frctn Loss (ft)	2.09	Cum Volume (acre-ft)	507.87	66.73	80.79
C & E Loss (ft)	0.02	Cum SA (acres)	309.87	63.09	86.54

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8461.95	8695.97	165.12	94.14	154.30	5.11	0.61	1.75
8695.97	8930.00	926.46	313.04	234.08	28.66	1.34	2.96
LB 8930.00	9202.00	1531.04	486.09	272.04	47.36	1.79	3.15
9202.00	9474.00	225.81	154.15	272.00	6.98	0.57	1.46
9474.00	9746.00	183.24	135.99	272.00	5.67	0.50	1.35
9746.00	10018.00	0.03	0.18	6.88	0.00	0.03	0.19
10018.00	11078.00						
11078.00	11275.00	21.36	23.83	109.16	0.66	0.22	0.90
11275.00	11472.00	134.37	86.66	174.42	4.16	0.50	1.55
11472.00	11669.00	45.57	35.55	95.74	1.41	0.37	1.28

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 15.461

INPUT
Description:
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6450.31	1444	6530	1442	6650	1441.1	6720	1440.7	6940	1440.8
7140	1441.4	7240	1440.7	7340	1440.8	7430	1440.8	7780	1442
7880	1442.7	7940	1442	7990	1442	8220	1444	8290	1444
8430	1442	8620	1444	8670	1444.5	8720	1444	8790	1442
8840	1442	8920	1440	9000	1441	9040	1441	9070	1440
9320	1441.3	9400	1442	9480	1442.2	9550	1442	9620	1442
9660	1442	9680	1441.7	9710	1442	9820	1442.4	9910	1444
9960	1444	10020	1443.2	10320	1443.1	10420	1442.6	10510	1442
10590	1442.3	10650	1442	11150	1442.4	11190	1442.2	11380	1442
11460	1440	11510	1442	11550	1442	11650	1442	11730	1441
11750	1442	11970	1444	12385	1446				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6450.31	.05	9040	.05	10590	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9040	10590	520.38	503.9	438.05	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
6450.31	8679.34	1445.59

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1442.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1442.64	Reach Len. (ft)	520.38	503.90	438.05
Crit W.S. (ft)		Flow Area (sq ft)	408.44	956.30	810.65
E.G. Slope (ft/ft)	0.002699	Area (sq ft)	408.44	956.30	810.65
Q Total (cfs)	3233.00	Flow (cfs)	825.73	1459.87	947.40
Top Width (ft)	2476.17	Top Width (ft)	272.56	972.70	1230.91
Vel Total (ft/s)	1.49	Avg. Vel. (ft/s)	2.02	1.53	1.17
Max Chl Dpth (ft)	2.64	Hydr. Depth (ft)	1.50	0.98	0.66
Conv. Total (cfs)	62227.0	Conv. (cfs)	15893.2	28098.7	18235.1
Length Wtd. (ft)	489.23	Wetted Per. (ft)	272.60	972.73	1231.01
Min Ch El (ft)	1440.00	Shear (lb/sq ft)	0.25	0.17	0.11
Alpha	1.13	Stream Power (lb/ft s)	0.51	0.25	0.13
Frctn Loss (ft)	2.32	Cum Volume (acre-ft)	503.15	56.91	75.42
C & E Loss (ft)	0.01	Cum SA (acres)	306.04	52.91	77.51

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8522.06	8781.03	1.33	2.64	13.60	0.04	0.19	0.50
8781.03	9040.00	824.40	405.80	259.00	25.50	1.57	2.03
LB 9040.00	9350.00	1159.82	599.40	310.02	35.87	1.93	1.93
9350.00	9660.00	179.68	195.78	310.00	5.56	0.63	0.92
9660.00	9970.00	72.81	90.33	173.77	2.25	0.52	0.81
9970.00	10280.00						
10280.00	RB 10590.00	47.56	70.79	178.94	1.47	0.40	0.67
10590.00	10769.50	95.56	101.00	179.50	2.96	0.56	0.95
10769.50	10949.00	72.62	85.66	179.50	2.25	0.48	0.85
10949.00	11128.50	39.99	59.88	179.50	1.24	0.33	0.67
11128.50	11308.00	63.49	79.03	179.50	1.96	0.44	0.80
11308.00	11487.50	384.43	232.86	179.55	11.89	1.30	1.65
11487.50	11667.00	141.16	127.65	179.52	4.37	0.71	1.11
11667.00	11846.50	150.14	124.56	153.94	4.64	0.81	1.21

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 15.366

INPUT
Description:
Station Elevation Data num= 67

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5972.96	1442.9	6490	1443	7200	1443	7440	1442	7530	1440
7580	1438	7630	1437.8	7690	1438	7840	1438.8	7910	1440
7970	1440	7980	1438	7990	1436	8010	1436	8030	1438
8060	1440	8160	1440.5	8190	1440.3	8230	1440.8	8270	1440
8380	1439.7	8480	1440	8620	1442	8660	1442.5	8720	1442
8840	1440	8880	1439.9	8980	1439.8	9060	1438	9070	1438
9080	1438.2	9090	1438	9100	1438	9450	1439.9	9640	1439.7
9690	1439.8	9740	1440	9820	1441.2	9930	1440	9960	1439.7
9990	1439.9	10020	1439.7	10030	1440	10050	1440	10080	1439.6
10110	1440	10170	1440.1	10230	1440.5	10310	1440	10360	1440
10390	1440.3	10410	1440	10490	1440	10660	1439.9	10700	1440
10720	1440.1	10740	1440	10860	1440	10950	1439.6	11080	1440
11160	1440.2	11240	1440	11340	1438.8	11420	1440	11630	1440.9
11890	1442	12260	1444						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5972.96	.05	8980	.05	10230	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8980	10230	464	498.41	516.61	.1	.3

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
5972.96	8670.92	1442.78	10163.38	12260	1438.18

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1440.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1440.26	Reach Len. (ft)	464.00	498.41	516.61
Crit W.S. (ft)		Flow Area (sq ft)	56.01	887.31	443.60
E.G. Slope (ft/ft)	0.010852	Area (sq ft)	56.01	887.31	443.60
Q Total (cfs)	3233.00	Flow (cfs)	87.67	2430.16	715.17
Top Width (ft)	2429.88	Top Width (ft)	155.83	1066.34	1207.71
Vel Total (ft/s)	2.33	Avg. Vel. (ft/s)	1.57	2.74	1.61
Max Chl Dpth (ft)	2.26	Hydr. Depth (ft)	0.36	0.83	0.37
Conv. Total (cfs)	31034.8	Conv. (cfs)	841.6	23328.0	6865.2
Length Wtd. (ft)	503.34	Wetted Per. (ft)	155.83	1066.39	1207.74
Min Ch El (ft)	1438.00	Shear (lb/sq ft)	0.24	0.56	0.25
Alpha	1.16	Stream Power (lb/ft s)	0.38	1.54	0.40
Frctn Loss (ft)	2.04	Cum Volume (acre-ft)	500.38	46.25	69.11
C & E Loss (ft)	0.02	Cum SA (acres)	303.48	41.12	65.25

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8679.30	8980.00	87.67	56.01	155.83	2.71	0.36	1.57
LB 8980.00	9230.00	1625.90	446.08	250.03	50.29	1.78	3.64
9230.00	9480.00	511.22	222.79	250.00	15.81	0.89	2.29
9480.00	9730.00	176.69	117.78	250.00	5.47	0.47	1.50
9730.00	9980.00	34.22	30.70	101.77	1.06	0.30	1.11
9980.00	RB 10230.00	82.13	69.97	214.58	2.54	0.33	1.17
10230.00	10433.00	27.24	30.62	159.17	0.84	0.19	0.89
10433.00	10636.00	70.70	59.81	203.00	2.19	0.29	1.18
10636.00	10839.00	62.94	55.78	203.00	1.95	0.27	1.13
10839.00	11042.00	153.76	95.33	203.00	4.76	0.47	1.61
11042.00	11245.00	36.05	39.93	203.00	1.11	0.20	0.90
11245.00	11448.00	363.36	159.72	203.02	11.24	0.79	2.28
11448.00	11651.00	1.11	2.41	33.55	0.03	0.07	0.46

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 15.272

INPUT
Description: Top of bank for "Western Diversion" - stations 8750 to 8780.

Blocked Obstruction on the south side of the cross section was used to eliminate this area from the HEC-RAS hydraulic calculations as flows do not overtop the diversion.

Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5483.92	1436	5505	1434	5535	1432	5565	1430	5595	1428
6930	1428	6960	1440	7010	1432	7050	1434	7170	1435.6
7350	1435.1	7500	1435.6	7540	1435.3	7590	1436	7940	1437.6

8000	1437.5	8020	1437.4	8230	1438	8410	1438	8580	1438
8600	1439	8650	1438	8680	1437.9	8750	1438	8780	1438
8800	1440	8870	1440	8880	1438	8890	1436	8910	1434.8
8930	1436	8980	1436.8	9010	1436	9260	1437.1	9370	1437.5
9500	1437.7	9590	1437.3	9720	1437.4	9790	1438	9840	1438.9
9890	1438.5	9950	1438	9960	1437.4	9970	1438	9980	1438.1
10010	1438	10070	1437.4	10180	1437.5	10240	1437.2	10350	1437.6
10500	1437.2	10540	1437.4	10630	1437.6	10810	1437.6	10940	1436.6
10980	1436.3	11090	1437.5	11200	1436.7	11270	1438	11720	1440

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5483.92	.05	8880	.05	10350	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
8880	10350	450	477.77	520	.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev
10350	10400	1440

Blocked Obstructions num= 1

Sta L	Sta R	Elev
5483.92	8870	1440

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1438.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1438.27	Reach Len. (ft)	450.00	477.77	520.00
Crit W.S. (ft)	1437.53	Flow Area (sq ft)	0.19	1437.76	903.50
E.G. Slope (ft/ft)	0.002092	Area (sq ft)	0.19	1437.76	940.56
Q Total (cfs)	3233.00	Flow (cfs)	0.07	2029.72	1203.21
Top Width (ft)	2341.34	Top Width (ft)	1.37	1358.20	981.77
Vel Total (ft/s)	1.38	Avg. Vel. (ft/s)	0.36	1.41	1.33
Max Chl Dpth (ft)	3.47	Hydr. Depth (ft)	0.14	1.06	0.97
Conv. Total (cfs)	70679.1	Conv. (cfs)	1.5	44373.4	26304.3
Length Wtd. (ft)	489.30	Wetted Per. (ft)	1.40	1358.53	931.80
Min Ch El (ft)	1434.80	Shear (lb/sq ft)	0.02	0.14	0.13
Alpha	1.00	Stream Power (lb/ft s)	0.01	0.20	0.17
Frctn Loss (ft)	1.02	Cum Volume (acre-ft)	500.08	32.94	60.91
C & E Loss (ft)	0.03	Cum SA (acres)	302.65	27.25	52.26

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8540.39	8880.00	0.07	0.19	1.40	0.00	0.14	0.36
LB 8880.00	9174.00	1124.17	591.54	294.29	34.77	2.01	1.90
9174.00	9468.00	348.81	293.00	294.00	10.79	1.00	1.19
9468.00	9762.00	247.07	238.24	294.00	7.64	0.81	1.04
9762.00	10056.00	35.42	61.34	182.24	1.10	0.34	0.58
10056.00	RB 10350.00	274.26	253.64	294.00	8.48	0.86	1.08
10350.00	10487.00	97.21	80.38	87.00	3.01	0.92	1.21
10487.00	10624.00	136.86	118.35	137.00	4.23	0.86	1.16
10624.00	10761.00	90.69	92.45	137.00	2.81	0.67	0.98
10761.00	10898.00	144.36	122.20	137.00	4.47	0.89	1.18
10898.00	11035.00	410.08	228.62	137.01	12.68	1.67	1.79
11035.00	11172.00	196.57	147.06	137.01	6.08	1.07	1.34
11172.00	11309.00	127.23	113.28	137.01	3.94	0.83	1.12
11309.00	11446.00	0.20	1.15	22.77	0.01	0.05	0.17

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 15.181

INPUT
Description: locked Obstructions used to approximate building locations and tire storage areas on the north side of the channel. On the south

side of channel, blocked obstruction was used to eliminate this area from the HEC-RAS hydraulic calculations as flows do not overtop the diversion.. The inundation area shown on this part of the cross section on the plan sheets is a backwater inundation area.

Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2796.16	1440	3743.86	1437.3	3914.88	1436	4708.85	1435.4	5120	1434.5
5355	1434	5455	1426	7080	1434	7625	1434	7835	1434.7
8185	1435.2	8225	1434.6	8260	1435.7	8300	1435.1	8410	1436
8500	1436	8565	1436	8585	1436.6	8605	1436	8620	1436
8655	1436.3	8905	1436	8965	1436	9010	1435.6	9050	1436
9070	1436.3	9120	1436	9160	1436.7	9200	1436	9470	1436
9510	1438	9520	1440	9530	1438	9580	1432.9	9600	1434
9740	1434.7	9850	1436	9900	1436	9910	1435.2	9920	1436
9935	1437.6	9955	1436	10040	1435.3	10080	1436	10600	1436
10720	1435	10745	1434.3	10765	1436	10980	1438	11540	1436.9
11985	1438	12300	1439	12460	1440				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2796.16	.05	9900	.022	11540	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9530	10080	495	498.17	495	.3	.5

Blocked Obstructions num= 3

Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L	Sta R	Elev
2796.16	9530	1439.5	10080	10720	1439.5	10795	11660	1439.5

CROSS SECTION OUTPUT Profile #PF 1

		Element	Left OB	Channel	Right OB
E.G. Elev (ft)	1437.25	Wt. n-Val.		0.041	0.022
Vel Head (ft)	0.14	Reach Len. (ft)	495.00	498.17	495.00
W.S. Elev (ft)	1437.11	Flow Area (sq ft)		1022.47	129.91
Crit W.S. (ft)	1436.21	Area (sq ft)		1022.47	129.91
E.G. Slope (ft/ft)	0.002083	Flow (cfs)		2670.40	562.60
Q Total (cfs)	3233.00	Top Width (ft)		530.60	75.00
Top Width (ft)	605.60	Avg. Vel. (ft/s)		2.61	4.33
Vel Total (ft/s)	2.81	Hydr. Depth (ft)		1.93	1.73
Max Chl Dpth (ft)	4.21	Conv. (cfs)		58507.1	12326.2
Conv. Total (cfs)	70833.3	Wetted Per. (ft)		532.14	78.03
Length Wtd. (ft)	496.73	Shear (lb/sq ft)		0.25	0.22
Min Ch El (ft)	1432.90	Stream Power (lb/ft s)		0.65	0.94
Alpha	1.13	Cum Volume (acre-ft)	500.08	19.45	54.52
Frctn Loss (ft)	2.18	Cum SA (acres)	302.64	16.89	45.96
C & E Loss (ft)	0.04				

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
LB 9530.00	9640.00	724.70	280.62	101.53	22.42	2.77	2.58
9640.00	9750.00	724.31	289.66	110.00	22.40	2.63	2.50
9750.00	9860.00	331.83	181.34	110.01	10.26	1.65	1.83
9860.00	9970.00	249.10	105.79	99.48	7.71	1.07	2.35
9970.00	RB 10080.00	640.46	165.07	111.12	19.81	1.50	3.88
10080.00	10556.00						
10556.00	10794.00	561.07	129.08	76.19	17.35	1.74	4.35
10794.00	11032.00	1.52	0.84	1.83	0.05	0.84	1.81

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 15.087

INPUT
Description: Blocked Obstruction used to eliminate the basin from the hydraulic calculations.

Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2797.42	1436	3756.38	1435.2	3882.35	1434	4716.45	1433.2	4790	1432
5055	1433.6	5150	1433.6	5225	1432	5350	1432.3	5380	1432
5455	1426	9500	1424.9	9660	1426	9730	1432	9850	1434
9900	1434	9905	1433.1	9910	1434	9940	1435.4	9960	1434
9970	1434	9980	1434.7	9990	1434	10040	1433.5	10180	1434
10185	1436	10225	1436	10265	1434	10620	1432	10710	1432.8
10775	1434	11015	1434	11585	1436	12285	1438	12605	1440
12755	1442	12825	1441.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2797.42	.05	9900	.022	9980	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9900	10185	500	489.37	500	.3	.5

Ineffective Flow num= 3

Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L	Sta R	Elev
2797.42	9780	1439	10250	10610	1439	10890	11560	1439

Blocked Obstructions num= 1

Sta L	Sta R	Elev
2797.42	9780	1432

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1435.03	Element			
Vel Head (ft)	0.28	Wt. n-Val.	0.050	0.044	0.050
W.S. Elev (ft)	1434.74	Reach Len. (ft)	500.00	489.37	500.00
Crit W.S. (ft)	1434.51	Flow Area (sq ft)	129.67	225.76	410.01
E.G. Slope (ft/ft)	0.014470	Area (sq ft)	14473.36	225.76	1176.84
Q Total (cfs)	3233.00	Flow (cfs)	488.14	854.81	1890.05
Top Width (ft)	7329.47	Top Width (ft)	6095.37	258.29	975.81
Vel Total (ft/s)	4.22	Avg. Vel. (ft/s)	3.76	3.79	4.61
Max Chl Dpth (ft)	2.74	Hydr. Depth (ft)	1.08	0.87	1.46
Conv. Total (cfs)	26876.2	Conv. (cfs)	4057.9	7106.1	15712.2
Length Wtd. (ft)	497.19	Wetted Per. (ft)	120.01	258.69	280.01
Min Ch El (ft)	1433.10	Shear (lb/sq ft)	0.98	0.79	1.32
Alpha	1.03	Stream Power (lb/ft s)	3.67	2.99	6.10
Frctn Loss (ft)	3.16	Cum Volume (acre-ft)	417.84	12.32	47.09
C & E Loss (ft)	0.08	Cum SA (acres)	268.01	12.38	39.99

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9189.74	9900.00	488.14	129.67	120.01	15.10	1.08	3.76
LB 9900.00	9957.00	111.42	19.79	33.64	3.45	0.59	5.63
9957.00	10014.00	142.90	37.77	57.06	4.42	0.66	3.78
10014.00	10071.00	254.31	65.60	57.00	7.87	1.15	3.88
10071.00	10128.00	210.61	58.59	57.00	6.51	1.03	3.59
10128.00	RB 10185.00	135.55	44.01	53.99	4.19	0.82	3.08
10185.00	10449.00						
10449.00	10713.00	1379.58	243.49	103.00	42.67	2.36	5.67
10713.00	10977.00	510.48	166.52	177.01	15.79	0.94	3.07

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 14.994

INPUT
Description: Blocked Obstruction used to eliminate the basin from the hydraulic calculations.

Station Elevation Data num= 47

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3217.35	1434	3746.68	1433.4	4014.89	1432	4712.52	1431.1	4735	1431.4
4755	1431.4	4775	1430.4	5020	1430.1	5150	1430.1	5330	1432
5405	1430	9500	1430	9700	1432	9755	1430	9785	1432
9825	1431	9905	1432	9915	1430.4	9935	1432	9975	1430.5
10010	1430.2	10115	1430.7	10155	1430	10225	1429.6	10270	1430
10395	1430.4	10415	1430.2	10460	1430.3	10490	1430.6	10510	1430
10520	1430	10555	1430.7	10725	1430	10940	1432	10970	1430
10975	1430	10990	1432	11195	1433	11525	1434	11735	1436
11790	1436.4	11845	1436	11965	1437.5	12060	1437.6	12120	1437.2
12265	1436	12470	1437.8						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3217.35	.05	9905	.022	10115	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9905	10115	510	512.24	515	.1	.3

Ineffective Flow num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
3217.35	9520	1436	11125	11310	1436

Blocked Obstructions num= 1

Sta L	Sta R	Elev
3217.35	9700	1432

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1431.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.050	0.022	0.050
W.S. Elev (ft)	1431.66	Reach Len. (ft)	510.00	512.24	515.00
Crit W.S. (ft)	1431.04	Flow Area (sq ft)	84.92	206.02	1076.77
E.G. Slope (ft/ft)	0.003522	Area (sq ft)	84.92	206.02	1076.77
Q Total (cfs)	3233.00	Flow (cfs)	113.49	857.18	2262.33
Top Width (ft)	1175.62	Top Width (ft)	149.99	194.63	831.00
Vel Total (ft/s)	2.36	Avg. Vel. (ft/s)	1.34	4.16	2.10
Max Chl Dpth (ft)	2.06	Hydr. Depth (ft)	0.57	1.06	1.30
Conv. Total (cfs)	54480.1	Conv. (cfs)	1912.5	14444.5	38123.1
Length Wtd. (ft)	514.43	Wetted Per. (ft)	150.09	194.80	831.20
Min Ch El (ft)	1430.20	Shear (lb/sq ft)	0.12	0.23	0.28
Alpha	1.39	Stream Power (lb/ft s)	0.17	0.97	0.60
Frctn Loss (ft)	1.83	Cum Volume (acre-ft)	334.29	9.89	34.16
C & E Loss (ft)	0.01	Cum SA (acres)	232.16	9.83	29.62

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9236.24	9905.00	113.49	84.92	150.09	3.51	0.57	1.34
LB 9905.00	9947.00	39.68	15.08	26.78	1.23	0.57	2.63
9947.00	9989.00	119.05	34.92	42.02	3.68	0.83	3.41
9989.00	10031.00	280.94	58.44	42.00	8.69	1.39	4.81
10031.00	10073.00	238.57	52.98	42.00	7.38	1.26	4.50
10073.00	RB 10115.00	178.92	44.58	42.00	5.53	1.06	4.01
10115.00	10350.50	923.72	389.92	235.51	28.57	1.66	2.37
10350.50	10586.00	623.26	307.93	235.52	19.28	1.31	2.02
10586.00	10821.50	624.17	308.20	235.51	19.31	1.31	2.03
10821.50	11057.00	91.20	70.72	124.66	2.82	0.57	1.29

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 14.897

INPUT
Description:
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3272.11	1432	3742.24	1431.9	4197.35	1430	4713.9	1430	5585	1428.5
6410	1428	6985	1428	7135	1426	7635	1426	7740	1426.6
7940	1428	8585	1430	9330	1430	9510	1429.8	9850	1429.6
9900	1428.7	9940	1429.8	9990	1429.2	10005	1429.3	10020	1429.1
10080	1430	10100	1428	10335	1428	10355	1428	10365	1426.9
10375	1428	10600	1428.6	10630	1428.3	10650	1428.6	10795	1428.8
10835	1428	10840	1427.4	10850	1428	10855	1430	11050	1430.6
11130	1430.6	11340	1432	11480	1433.5	11605	1432.9	11685	1433.3
11790	1433	11945	1433.3	12040	1434	12130	1435.8		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3272.11	.05	9850	.022	10005	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9850	10005	500	497.67	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
3272.11	9250	1432

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1429.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.050	0.022	0.050
W.S. Elev (ft)	1429.85	Reach Len. (ft)	500.00	497.67	500.00
Crit W.S. (ft)	1429.09	Flow Area (sq ft)	52.16	85.52	1245.47
E.G. Slope (ft/ft)	0.003625	Area (sq ft)	6752.60	85.52	1245.47
Q Total (cfs)	3233.00	Flow (cfs)	24.61	233.92	2974.47
Top Width (ft)	5113.89	Top Width (ft)	4120.76	155.00	838.13
Vel Total (ft/s)	2.34	Avg. Vel. (ft/s)	0.47	2.74	2.39
Max Chl Dpth (ft)	3.85	Hydr. Depth (ft)	0.14	0.55	1.49
Conv. Total (cfs)	53695.0	Conv. (cfs)	408.8	3885.0	49401.2
Length Wtd. (ft)	499.65	Wetted Per. (ft)	385.05	155.03	838.78
Min Ch El (ft)	1428.70	Shear (lb/sq ft)	0.03	0.12	0.34
Alpha	1.06	Stream Power (lb/ft s)	0.01	0.34	0.80
Frctn Loss (ft)	1.54	Cum Volume (acre-ft)	294.26	8.18	20.43
C & E Loss (ft)	0.00	Cum SA (acres)	207.16	7.78	19.75

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9192.21	9850.00	24.61	52.16	385.05	0.76	0.14	0.47
LB 9850.00	9881.00	39.58	16.40	31.01	1.22	0.53	2.41
9881.00	9912.00	110.83	30.42	31.01	3.43	0.98	3.64
9912.00	9943.00	24.78	12.39	31.01	0.77	0.40	2.00
9943.00	9974.00	13.07	8.43	31.00	0.40	0.27	1.55
9974.00	RB 10005.00	45.65	17.87	31.00	1.41	0.58	2.55
10005.00	10217.50	568.84	263.01	201.11	17.59	1.31	2.16
10217.50	10430.00	1102.97	400.11	212.62	34.12	1.88	2.76
10430.00	10642.50	726.05	311.26	212.50	22.46	1.46	2.33
10642.50	10855.00	576.62	271.09	212.54	17.84	1.28	2.13

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 14.803

INPUT
Description: Blocked Obstruction used to approximate building location on the north side of the channel.
Station Elevation Data num= 52

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3258.11	1430	3749.52	1429.3	4341.57	1428	4707.12	1428	4765	1427.9

4860	1427.6	5475	1426.8	6155	1426.6	6495	1426	7330	1424
7400	1423.8	7590	1423.6	7630	1422.6	7635	1424	7710	1424.5
8285	1426	8660	1427.4	8730	1427.4	8850	1427.3	9020	1428
9170	1429.1	9185	1428	9285	1427.1	9415	1427.3	9560	1426.9
9620	1426.6	9720	1426.9	9865	1428	9880	1430	9955	1428
9975	1426	9990	1427.4	10010	1426.8	10055	1426.8	10070	1426
10080	1426	10115	1426.6	10210	1426	10240	1428	10255	1426
10265	1425	10840	1426	10920	1426	10960	1428	10990	1430
11195	1432	11350	1431.4	11390	1431.5	11570	1431	11780	1432
11860	1434	11910	1434.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3258.11	.05	9955	.022	10010	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9955	10115	500	487.6	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
3258.11	8980	1432

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
9170	9185	1432	10265	10840	1432

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1428.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.050	0.038	0.050
W.S. Elev (ft)	1428.32	Reach Len. (ft)	500.00	487.60	500.00
Crit W.S. (ft)	1427.55	Flow Area (sq ft)	800.85	265.91	518.18
E.G. Slope (ft/ft)	0.002611	Area (sq ft)	10635.35	265.91	518.18
Q Total (cfs)	3233.00	Flow (cfs)	1299.13	749.51	1184.36
Top Width (ft)	5995.85	Top Width (ft)	5561.07	160.00	274.77
Vel Total (ft/s)	2.04	Avg. Vel. (ft/s)	1.62	2.82	2.29
Max Chl Dpth (ft)	5.72	Hydr. Depth (ft)	1.03	1.66	1.89
Conv. Total (cfs)	63265.9	Conv. (cfs)	25422.5	14666.9	23176.5
Length Wtd. (ft)	497.18	Wetted Per. (ft)	778.07	160.20	280.72
Min Ch El (ft)	1426.00	Shear (lb/sq ft)	0.17	0.27	0.30
Alpha	1.16	Stream Power (lb/ft s)	0.27	0.76	0.69
Frctn Loss (ft)	3.22	Cum Volume (acre-ft)	194.47	6.17	10.31
C & E Loss (ft)	0.03	Cum SA (acres)	151.60	5.98	13.36

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8615.62	9285.31	102.12	100.13	184.03	3.16	0.55	1.02
9285.31	9955.00	1197.01	700.72	594.04	37.02	1.18	1.71
LB 9955.00	9987.00	210.69	47.46	32.15	6.52	1.48	4.44
9987.00	10019.00	133.44	41.20	32.02	4.13	1.29	3.24
10019.00	10051.00	96.68	48.58	32.00	2.99	1.52	1.99
10051.00	10083.00	156.61	64.91	32.02	4.84	2.03	2.41
10083.00	RB 10115.00	152.09	63.76	32.00	4.70	1.99	2.39
10115.00	10294.50	631.75	279.24	153.57	19.54	1.86	2.26
10294.50	10833.00						
10833.00	11012.50	552.61	238.95	127.15	17.09	1.92	2.31

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 14.710

INPUT
Description:

Station Elevation Data num= 54

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3561.95	1428	3742.55	1427.82	4148.75	1427	4713.37	1426.9	4770	1427.1
4925	1426	6050	1424.5	6310	1424	6755	1423.4	7385	1422
7420	1421.8	7600	1421.8	7645	1421.2	7665	1422	7700	1422.1
7800	1422	8280	1424	8600	1426	8700	1425.5	8870	1425.4
9050	1426	9270	1426.3	9295	1428	9560	1428	9785	1427
9855	1426	9860	1424	9890	1426	9910	1426.6	9950	1426
9985	1424.2	10005	1425	10030	1424	10090	1424.2	10115	1424
10150	1423.8	10215	1424	10260	1423.8	10355	1424	10400	1424
10425	1423	10440	1424	10700	1424	10735	1422	10740	1424
10880	1426	10950	1428	10985	1427.9	11120	1428	11180	1428.7
11290	1428.4	11335	1428.6	11420	1428.6	11490	1429.3		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3561.95	.05	9950	.022	10005	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9950	10215	500	496.27	580	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
3561.95	8725	1429

CROSS SECTION OUTPUT Profile #PF 1

			Left OB	Channel	Right OB
E.G. Elev (ft)	1425.14	Element			
Vel Head (ft)	0.39	Wt. n-Val.	0.050	0.049	0.050
W.S. Elev (ft)	1424.76	Reach Len. (ft)	500.00	496.27	580.00
Crit W.S. (ft)	1424.74	Flow Area (sq ft)	5.00	155.34	490.82
E.G. Slope (ft/ft)	0.036512	Area (sq ft)	4021.55	155.34	490.82
Q Total (cfs)	3233.00	Flow (cfs)	14.71	720.12	2498.17
Top Width (ft)	3362.57	Top Width (ft)	2556.06	228.60	577.91
Vel Total (ft/s)	4.96	Avg. Vel. (ft/s)	2.94	4.64	5.09
Max Chl Dpth (ft)	3.56	Hydr. Depth (ft)	0.38	0.68	0.85
Conv. Total (cfs)	16919.5	Conv. (cfs)	77.0	3768.6	13073.8
Length Wtd. (ft)	531.37	Wetted Per. (ft)	13.40	228.64	578.41
Min Ch El (ft)	1423.80	Shear (lb/sq ft)	0.85	1.55	1.93
Alpha	1.01	Stream Power (lb/ft s)	2.50	7.18	9.85
Frctn Loss (ft)	3.77	Cum Volume (acre-ft)	110.35	3.81	4.52
C & E Loss (ft)	0.08	Cum SA (acres)	105.01	3.80	8.47

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
9311.19	9950.00	14.71	5.00	13.40	0.46	0.38	2.94
LB 9950.00	10003.00	37.12	6.87	24.73	1.15	0.28	5.41
10003.00	10056.00	98.79	25.67	44.91	3.06	0.57	3.85
10056.00	10109.00	133.35	32.83	53.00	4.12	0.62	4.06
10109.00	10162.00	230.49	45.59	53.00	7.13	0.86	5.06
10162.00	RB 10215.00	220.37	44.38	53.00	6.82	0.84	4.97
10215.00	10342.50	566.16	110.21	127.50	17.51	0.86	5.14
10342.50	10470.00	621.22	116.54	127.55	19.22	0.91	5.33
10470.00	10597.50	452.74	96.37	127.50	14.00	0.76	4.70
10597.50	10725.00	600.90	114.23	127.54	18.59	0.90	5.26
10725.00	10852.50	257.16	53.48	68.32	7.95	0.79	4.81

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 14.616

INPUT

Description:
Station Elevation Data num= 47

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3399.19	1427.67	4093.13	1426	4721.67	1425.7	4750	1424	5415	1423.8
6040	1424	6740	1422	7375	1420	7410	1419.8	7455	1420
7500	1422	7535	1420	7645	1420	8135	1421.3	8600	1422
8660	1424	9110	1424	9205	1424	9270	1422	9310	1420
9345	1418	9370	1416	9665	1415.2	9805	1416	9810	1418
9870	1420	9875	1422	9915	1423.5	9950	1423.3	9965	1422
9990	1422.5	10005	1422	10025	1421.9	10100	1421.9	10120	1422
10165	1422.6	10180	1422	10200	1421.6	10240	1421.8	10390	1421.7
10480	1421.9	10540	1422	10590	1422	10610	1420	10770	1422
10820	1424	11295	1425.6						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3399.19	.05	9950	.022	9990	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9950	10240	500	494.72	500	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
3399.19	8465	1425

Blocked Obstructions num= 1

Sta L	Sta R	Elev
9100	9915	1419

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1421.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.050		0.050
W.S. Elev (ft)	1421.18	Reach Len. (ft)	500.00	494.72	500.00
Crit W.S. (ft)	1420.05	Flow Area (sq ft)	1213.10		62.73
E.G. Slope (ft/ft)	0.002922	Area (sq ft)	1957.30		62.73
Q Total (cfs)	3233.00	Flow (cfs)	3162.12		70.88
Top Width (ft)	1749.91	Top Width (ft)	1643.65		106.26
Vel Total (ft/s)	2.53	Avg. Vel. (ft/s)	2.61		1.13
Max Chl Dpth (ft)	2.18	Hydr. Depth (ft)	2.07		0.59
Conv. Total (cfs)	59812.2	Conv. (cfs)	58500.9		1311.3
Length Wtd. (ft)	500.00	Wetted Per. (ft)	586.87		106.33
Min Ch El (ft)	1421.60	Shear (lb/sq ft)	0.38		0.11
Alpha	1.04	Stream Power (lb/ft s)	0.98		0.12
Frctn Loss (ft)	1.34	Cum Volume (acre-ft)	76.04	2.93	0.83
C & E Loss (ft)	0.02	Cum SA (acres)	80.91	2.50	3.91

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8639.84	9294.92	1.04	1.82	8.54	0.03	0.21	0.57
9294.92	9950.00	3161.09	1211.28	578.32	97.78	2.10	2.61
9950.00	10556.50						
10556.50	10662.00	64.18	51.46	63.87	1.99	0.81	1.25
10662.00	10767.50	6.70	11.26	42.46	0.21	0.27	0.59

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 14.523

INPUT
Description:
Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3393.53	1426.63	3709.46	1426	4269.8	1424	4705.37	1424.2	4770	1424
4800	1422.7	4940	1422.7	5415	1422.4	6020	1422.1	6055	1421.4
6150	1420.7	6250	1420.7	6545	1420.3	7265	1419.3	7415	1418.2
7475	1420	7495	1420.8	7515	1420	7535	1416	7545	1414.4

7565	1416	7600	1419.8	7630	1418	7670	1418.6	7810	1419.2
7980	1419.2	8130	1419.2	8285	1419.4	8410	1419.6	8570	1419.1
8600	1420	8610	1420.5	8625	1420	8670	1416	9185	1415.3
9675	1415.2	9790	1416	9800	1418	9900	1420	9940	1421.4
9985	1420	9995	1420.4	10000	1420	10010	1419.8	10055	1419.8
10100	1420	10140	1420.4	10170	1420	10180	1419.5	10205	1420
10305	1419.6	10540	1420	10740	1419.9	10785	1420	10860	1422
10870	1422	10880	1420	10895	1420	11225	1422	11270	1422.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
3393.53	.05	9900	.022	9995	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9900	10205	640	649	700	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
3393.53	8190	1422

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
7500	7600	1418	8600	9940	1418.5

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1419.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (ft)	1419.89	Reach Len. (ft)	640.00	649.00	700.00
Crit W.S. (ft)	1419.11	Flow Area (sq ft)	1895.54	10.13	34.34
E.G. Slope (ft/ft)	0.002450	Area (sq ft)	2862.24	10.13	34.34
Q Total (cfs)	3233.00	Flow (cfs)	3215.84	3.33	13.83
Top Width (ft)	3312.64	Top Width (ft)	2977.03	95.78	239.83
Vel Total (ft/s)	1.67	Avg. Vel. (ft/s)	1.70	0.33	0.40
Max Chl Dpth (ft)	1.89	Hydr. Depth (ft)	1.13	0.11	0.14
Conv. Total (cfs)	65312.2	Conv. (cfs)	64965.5	67.3	279.3
Length Wtd. (ft)	641.10	Wetted Per. (ft)	1674.34	95.80	239.83
Min Ch El (ft)	1419.50	Shear (lb/sq ft)	0.17	0.02	0.02
Alpha	1.03	Stream Power (lb/ft s)	0.29	0.01	0.01
Frctn Loss (ft)	3.07	Cum Volume (acre-ft)	48.38	2.87	0.28
C & E Loss (ft)	0.01	Cum SA (acres)	54.39	1.96	1.93

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

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
7948.06	8598.71	178.01	196.45	406.22	5.51	0.48	0.91
8598.71	9249.35	1546.62	852.99	623.14	47.84	1.37	1.81
9249.35	9900.00	1491.21	846.10	644.98	46.12	1.31	1.76
9900.00	9961.00						
9961.00	10022.00	0.28	1.22	16.32	0.01	0.07	0.23
10022.00	10083.00	0.81	3.69	52.42	0.02	0.07	0.22
10083.00	10144.00						
10144.00	RB 10205.00	2.25	5.22	27.06	0.07	0.19	0.43
10205.00	10311.50	4.72	12.08	78.09	0.15	0.15	0.39
10311.50	10418.00	8.65	19.66	106.50	0.27	0.18	0.44
10418.00	10524.50	0.46	2.60	55.24	0.01	0.05	0.18

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

CROSS SECTION RIVER: Vineyard FRS
REACH: Vineyard RS: 3

INPUT
Description: Cross Section 14.691 on Powerline FRS Baseline
Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1510	1418	1780	1417.5	2785	1418.5	3470	1419	3930	1419.6
3980	1418	4030	1417.7	4200	1417.8	4290	1418	4430	1417.6
4515	1417.5	4615	1417.2	4670	1417.4	4770	1417	4845	1416
4890	1417.4	5000	1417.5	5100	1417.3	5180	1417.3	5250	1416.8
5335	1416.7	5410	1416	5430	1415.3	5440	1416	5490	1416.2
5710	1416.2	5745	1416.2	5785	1415.9	5955	1415.9	6020	1416
6060	1416.1	6155	1416	6565	1416.2	6685	1417	6725	1416.5
6950	1416.5	7020	1416	7030	1415.3	7040	1416	7090	1416.7
7175	1416	7255	1416.2	7310	1415.7	7455	1416.3	7615	1416
7715	1418	7740	1418	7879	1416	7999	1415.5	8069	1415.5
8194	1416	8264	1415.5	8399	1416	8469	1416.7	8549	1416
8594	1416	8620	1416	8749	1415	8887	1414.8	8987	1415.9
9057	1415.1	9295	1414.7	9513	1416	9568	1416.5	9623	1416
9643	1415.9	9688	1415.4	9708	1416	9770	1416	9780	1416.3
9790	1416	9825	1414.8	9865	1416	9880	1418	9890	1419
9905	1418	9930	1416	9980	1414	9985	1412	10000	1411.4
10005	1412	10020	1414	10080	1416	10100	1418	10115	1418.4

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1510	.05	9890	.05	10115	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
9890	10115	640	474.31	475	.1	.3

Ineffective Flow num= 1

Sta L	Sta R	Elev
1510	1835	1419

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	1416.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.050	0.050	
W.S. Elev (ft)	1416.75	Reach Len. (ft)			
Crit W.S. (ft)	1416.36	Flow Area (sq ft)	3722.94	374.83	
E.G. Slope (ft/ft)	0.006331	Area (sq ft)	3722.94	374.83	
Q Total (cfs)	9900.00	Flow (cfs)	8384.13	1515.86	
Top Width (ft)	4593.48	Top Width (ft)	4426.61	166.88	
Vel Total (ft/s)	2.42	Avg. Vel. (ft/s)	2.25	4.04	
Max Chl Dpth (ft)	5.35	Hydr. Depth (ft)	0.84	2.25	
Conv. Total (cfs)	124423.5	Conv. (cfs)	105372.1	19051.4	
Length Wtd. (ft)		Wetted Per. (ft)	4426.89	167.58	
Min Ch El (ft)	1411.40	Shear (lb/sq ft)	0.33	0.88	
Alpha	1.16	Stream Power (lb/ft s)	0.75	3.58	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.

FLOW DISTRIBUTION OUTPUT Profile #PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
4024.00	4862.00	37.55	29.35	73.26	0.38	0.40	1.28
4862.00	5700.00	321.33	212.86	414.65	3.25	0.51	1.51
5700.00	6538.00	1115.74	595.23	838.00	11.27	0.71	1.87
6538.00	7376.00	514.84	363.76	780.57	5.20	0.47	1.42
7376.00	8214.00	1064.06	526.99	663.64	10.75	0.79	2.02
8214.00	9052.00	2379.92	937.76	838.02	24.04	1.12	2.54
9052.00	9890.00	2950.69	1056.98	818.74	29.80	1.29	2.79
LB 9890.00	9935.00	10.36	7.77	14.41	0.10	0.54	1.33
9935.00	9980.00	252.52	83.25	45.04	2.55	1.85	3.03
9980.00	10025.00	985.48	189.33	45.57	9.95	4.21	5.21
10025.00	10070.00	248.80	82.50	45.02	2.51	1.83	3.02
10070.00	RB 10115.00	18.71	11.98	17.54	0.19	0.68	1.56

Warning: Divided flow computed for this cross-section.

SUMMARY OF MANNING'S N VALUES

River:Vineyard FRS

Reach	River Sta.	n1	n2	n3
Vineyard	20.000	.022	.022	.022
Vineyard	19.918	.022	.022	.022
Vineyard	19.824	.022	.022	.022
Vineyard	19.743	.022	.022	.022
Vineyard	19.676	.05	.05	.05
Vineyard	19.614	.05	.08	.05
Vineyard	19.537	.022	.022	.022
Vineyard	19.515	.022	.022	.022
Vineyard	19.477	.05	.05	.05
Vineyard	19.405	.05	.05	.05
Vineyard	19.324	.05	.05	.05
Vineyard	19.227	.05	.05	.05
Vineyard	19.133	.05	.05	.05
Vineyard	19.030	.05	.05	.05
Vineyard	18.932	.05	.05	.05
Vineyard	18.832	.05	.05	.05
Vineyard	18.736	.05	.05	.05
Vineyard	18.644	.05	.05	.05
Vineyard	18.549	.05	.05	.05
Vineyard	18.452	.05	.05	.05
Vineyard	18.356	.05	.05	.05
Vineyard	18.302	.05	.05	.05
Vineyard	18.248	.05	.05	.05
Vineyard	18.173	.05	.05	.05
Vineyard	18.081	.05	.05	.05
Vineyard	18.000	.05	.05	.05
Vineyard	17.906	.05	.05	.05
Vineyard	17.819	.05	.05	.05
Vineyard	17.725	.05	.05	.05
Vineyard	17.630	.05	.05	.05
Vineyard	17.554	.05	.05	.05
Vineyard	17.479	.05	.05	.05
Vineyard	17.377	.05	.05	.05
Vineyard	17.321	.05	.05	.05
Vineyard	17.227	.05	.05	.05
Vineyard	17.132	.05	.05	.05
Vineyard	17.038	.05	.05	.05
Vineyard	16.945	.05	.05	.05
Vineyard	16.850	.05	.05	.05
Vineyard	16.755	.05	.05	.05
Vineyard	16.679	.05	.05	.05
Vineyard	16.585	.016	.016	.016
Vineyard	16.507	.05	.05	.05
Vineyard	16.451	.05	.05	.05
Vineyard	16.367	.05	.05	.05
Vineyard	16.293	.05	.05	.05
Vineyard	16.197	.05	.05	.05
Vineyard	16.106	.05	.05	.05
Vineyard	16.009	.05	.05	.05
Vineyard	15.934	.05	.05	.05
Vineyard	15.838	.05	.05	.05
Vineyard	15.744	.05	.05	.05
Vineyard	15.652	.05	.05	.05
Vineyard	15.555	.05	.05	.05
Vineyard	15.461	.05	.05	.05
Vineyard	15.366	.05	.05	.05
Vineyard	15.272	.05	.05	.05
Vineyard	15.181	.05	.022	.05
Vineyard	15.087	.05	.022	.05
Vineyard	14.994	.05	.022	.05
Vineyard	14.897	.05	.022	.05
Vineyard	14.803	.05	.022	.05
Vineyard	14.710	.05	.022	.05
Vineyard	14.616	.05	.022	.05
Vineyard	14.523	.05	.022	.05
Vineyard	3	.05	.05	.05

SUMMARY OF REACH LENGTHS

River: Vineyard FRS

Reach	River Sta.	Left	Channel	Right
Vineyard	20.000	806.25	433.34	127.42
Vineyard	19.918	495.89	497.31	498.61
Vineyard	19.824	424.27	427.26	382.35
Vineyard	19.743	353.6	355.36	359.8
Vineyard	19.676	347.45	326.19	237.54
Vineyard	19.614	876.62	404.64	269.25
Vineyard	19.537	119.05	115.13	126.68
Vineyard	19.515	384.02	203.25	127.25
Vineyard	19.477	404.21	378.84	343.37
Vineyard	19.405	436.68	426.43	402.95
Vineyard	19.324	398.87	516.12	498.97
Vineyard	19.227	469.21	495.71	496.49
Vineyard	19.133	442.94	544.45	458.39
Vineyard	19.030	468.48	513.02	424.17
Vineyard	18.932	581.34	528.78	466.64
Vineyard	18.832	441.13	509.32	557.25
Vineyard	18.736	569.73	486.46	441.02
Vineyard	18.644	397.21	500.78	427.12
Vineyard	18.549	503.55	511.81	476.98
Vineyard	18.452	501.22	506.04	405.75
Vineyard	18.356	303.03	284.7	201.78
Vineyard	18.302	299.49	284.73	297.8
Vineyard	18.248	357.93	394.82	548.56
Vineyard	18.173	510.37	485.8	404.15
Vineyard	18.081	357.17	430.67	405.55
Vineyard	18.000	499.55	496.48	527.1
Vineyard	17.906	434.39	456.2	444.62
Vineyard	17.819	447.96	499.97	459.45
Vineyard	17.725	383	500	500.99
Vineyard	17.630	282.16	400.01	467.43
Vineyard	17.554	407.45	398.94	593.71
Vineyard	17.479	434.06	535.05	398.92
Vineyard	17.377	389.72	295.16	235.91
Vineyard	17.321	732.26	497.51	448.5
Vineyard	17.227	493.71	502.79	505.19
Vineyard	17.132	491.85	496.91	498.15
Vineyard	17.038	500.93	488.11	396
Vineyard	16.945	500.67	505.48	500.56
Vineyard	16.850	498.13	499.99	498.03
Vineyard	16.755	401.42	400	403.43
Vineyard	16.679	501.06	500.01	501.06
Vineyard	16.585	572.41	410.14	323.21
Vineyard	16.507	294	294.2	296.55
Vineyard	16.451	442.05	443.33	435.7
Vineyard	16.367	392.24	394.26	389.71
Vineyard	16.293	505.8	506.02	508.51
Vineyard	16.197	478.05	477.22	481.71
Vineyard	16.106	451.05	514.19	546.94
Vineyard	16.009	305.1	396.01	394.62
Vineyard	15.934	477	504.08	492.54
Vineyard	15.838	506.83	498.04	494.93
Vineyard	15.744	448.07	486.94	509.51
Vineyard	15.652	501.22	512.24	506.96
Vineyard	15.555	504.24	493.86	488.78
Vineyard	15.461	520.38	503.9	438.05
Vineyard	15.366	464	498.41	516.61
Vineyard	15.272	450	477.77	520
Vineyard	15.181	495	498.17	495
Vineyard	15.087	500	489.37	500
Vineyard	14.994	510	512.24	515
Vineyard	14.897	500	497.67	500
Vineyard	14.803	500	487.6	500
Vineyard	14.710	500	496.27	580
Vineyard	14.616	500	494.72	500
Vineyard	14.523	640	649	700
Vineyard	3	640	474.31	475

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Vineyard FRS

Reach	River Sta.	Contr.	Expan.
Vineyard	20.000	.3	.5
Vineyard	19.918	.3	.5
Vineyard	19.824	.3	.5
Vineyard	19.743	.3	.5
Vineyard	19.676	.3	.5
Vineyard	19.614	.3	.5
Vineyard	19.537	.3	.5
Vineyard	19.515	.3	.5
Vineyard	19.477	.3	.5
Vineyard	19.405	.3	.5
Vineyard	19.324	.3	.5
Vineyard	19.227	.3	.5
Vineyard	19.133	.3	.5
Vineyard	19.030	.3	.5
Vineyard	18.932	.3	.5
Vineyard	18.832	.3	.5
Vineyard	18.736	.3	.5
Vineyard	18.644	.3	.5
Vineyard	18.549	.3	.5
Vineyard	18.452	.3	.5
Vineyard	18.356	.3	.5
Vineyard	18.302	.3	.5
Vineyard	18.248	.3	.5
Vineyard	18.173	.3	.5
Vineyard	18.081	.3	.5
Vineyard	18.000	.1	.3
Vineyard	17.906	.1	.3
Vineyard	17.819	.1	.3
Vineyard	17.725	.1	.3
Vineyard	17.630	.1	.3
Vineyard	17.554	.1	.3
Vineyard	17.479	.1	.3
Vineyard	17.377	.1	.3
Vineyard	17.321	.3	.5
Vineyard	17.227	.3	.5
Vineyard	17.132	.3	.5
Vineyard	17.038	.3	.5
Vineyard	16.945	.1	.3
Vineyard	16.850	.1	.3
Vineyard	16.755	.1	.3
Vineyard	16.679	.1	.3
Vineyard	16.585	.1	.3
Vineyard	16.507	.1	.3
Vineyard	16.451	.1	.3
Vineyard	16.367	.1	.3
Vineyard	16.293	.1	.3
Vineyard	16.197	.1	.3
Vineyard	16.106	.1	.3
Vineyard	16.009	.1	.3
Vineyard	15.934	.1	.3
Vineyard	15.838	.1	.3
Vineyard	15.744	.1	.3
Vineyard	15.652	.1	.3
Vineyard	15.555	.1	.3
Vineyard	15.461	.1	.3
Vineyard	15.366	.1	.3
Vineyard	15.272	.3	.5
Vineyard	15.181	.3	.5
Vineyard	15.087	.3	.5
Vineyard	14.994	.1	.3
Vineyard	14.897	.1	.3
Vineyard	14.803	.1	.3
Vineyard	14.710	.1	.3
Vineyard	14.616	.1	.3
Vineyard	14.523	.1	.3
Vineyard	3	.1	.3

Profile Output Table - Standard Table 1

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Vineyard	20.000	3233.00	1572.91	1576.39	1574.64	1576.55	0.000527	3.14	1028.08	355.74	0.33
Vineyard	19.918	3233.00	1573.42	1575.34	1575.13	1575.92	0.004029	6.12	528.35	309.52	0.83
Vineyard	19.824	3233.00	1571.58	1573.95	1573.42	1574.35	0.002291	5.08	636.65	718.35	0.64
Vineyard	19.743	3233.00	1569.83	1574.05	1571.05	1574.08	0.000070	1.41	2327.96	1572.04	0.13
Vineyard	19.676	3233.00	1568.06	1574.05	1568.95	1574.05	0.000035	0.56	5685.45	2615.66	0.04
Vineyard	19.614	3233.00	1566.00	1574.04	1566.92	1574.04	0.000019	0.35	9559.32	3393.94	0.02
Vineyard	19.537	3233.00	1572.61	1573.99	1573.26	1574.01	0.000328	1.30	2425.65	6402.39	0.22
Vineyard	19.515	3233.00	1573.01	1573.63	1573.63	1573.85	0.005535	2.31	942.83	5934.01	0.73
Vineyard	19.477	3233.00	1558.28	1561.18	1562.22	1566.95	0.723044	19.28	167.69	1936.05	4.14
Vineyard	19.405	3233.00	1554.70	1559.73	1559.30	1559.84	0.006902	3.18	1309.34	3954.27	0.46
Vineyard	19.324	3233.00	1551.66	1556.75	1556.33	1556.85	0.007455	2.69	1379.57	3242.02	0.46
Vineyard	19.227	3233.00	1549.16	1553.45	1552.85	1553.54	0.006063	2.32	1388.86	1838.26	0.41
Vineyard	19.133	3233.00	1547.51	1550.74	1550.12	1550.82	0.005040	1.97	1441.52	1791.51	0.36
Vineyard	19.030	3233.00	1545.07	1548.31	1547.75	1548.39	0.005115	1.84	1507.40	2050.76	0.36
Vineyard	18.932	3233.00	1541.93	1545.17	1544.80	1545.27	0.008715	2.68	1375.05	2133.63	0.48
Vineyard	18.832	3233.00	1538.55	1542.00	1541.68	1542.04	0.004435	1.91	2142.66	3452.20	0.34
Vineyard	18.736	3233.00	1536.85	1539.20	1538.85	1539.26	0.006971	1.89	1763.72	3313.22	0.41
Vineyard	18.644	3233.00	1534.52	1536.30	1535.92	1536.34	0.005336	1.37	2191.51	4407.51	0.34
Vineyard	18.549	3233.00	1531.27	1533.81	1533.45	1533.86	0.006454	2.11	1848.80	3626.34	0.41
Vineyard	18.452	3233.00	1526.00	1530.39	1530.15	1530.44	0.007310	2.27	1821.22	3862.96	0.43
Vineyard	18.356	3233.00	1523.02	1527.48	1527.16	1527.56	0.004846	2.74	1872.45	3169.37	0.39
Vineyard	18.302	3233.00	1522.04	1525.66		1525.78	0.008565	3.26	1281.40	2162.71	0.50
Vineyard	18.248	3233.00	1520.06	1523.89	1523.54	1523.98	0.004612	3.02	1607.10	2279.68	0.39
Vineyard	18.173	3233.00	1518.33	1521.08	1520.71	1521.19	0.008592	3.04	1257.69	1469.97	0.50
Vineyard	18.081	3233.00	1515.60	1518.08		1518.15	0.005444	2.37	1590.34	1881.49	0.39
Vineyard	18.000	3233.00	1512.34	1515.71		1515.79	0.006477	2.21	1491.26	1804.16	0.41
Vineyard	17.906	3233.00	1507.76	1512.33	1512.00	1512.47	0.006592	3.67	1372.24	1940.13	0.47
Vineyard	17.819	3233.00	1505.75	1508.89	1508.59	1508.97	0.009070	2.81	1519.76	2752.31	0.50
Vineyard	17.725	3233.00	1502.75	1505.44	1505.04	1505.50	0.006360	2.02	1587.47	2154.74	0.40
Vineyard	17.630	3233.00	1499.63	1502.22	1501.86	1502.32	0.008936	2.43	1319.65	2198.12	0.48
Vineyard	17.554	3233.00	1496.19	1499.88	1499.47	1499.93	0.005293	1.98	1847.54	2714.73	0.37
Vineyard	17.479	3233.00	1493.74	1497.17	1496.88	1497.22	0.007136	1.69	1774.13	3258.26	0.40
Vineyard	17.377	3233.00	1491.78	1494.83		1494.87	0.003924	1.50	2073.88	2783.98	0.31
Vineyard	17.321	3233.00	1490.69	1493.06		1493.18	0.007939	2.54	1249.59	1522.53	0.46
Vineyard	17.227	3233.00	1487.63	1488.06	1487.26	1488.25	0.006689	0.79	923.16	975.54	0.32
Vineyard	17.132	3233.00	1485.04	1485.49	1484.66	1485.60	0.004245	0.61	1228.10	1145.66	0.25
Vineyard	17.038	3233.00	1482.15	1482.92		1483.06	0.006392	1.31	1183.65	1320.00	0.36
Vineyard	16.945	3233.00	1475.88	1480.21		1480.30	0.004921	2.86	1474.35	1640.23	0.40
Vineyard	16.850	3233.00	1474.34	1478.18		1478.26	0.003420	2.62	1618.57	1690.06	0.34
Vineyard	16.755	3233.00	1471.88	1475.57	1475.21	1475.70	0.008438	3.45	1199.91	1469.65	0.51
Vineyard	16.679	3233.00	1470.54	1474.02	1473.29	1474.07	0.002312	2.07	2160.27	2361.15	0.28
Vineyard	16.585	3233.00	1471.66	1472.43	1472.43	1472.63	0.003668	4.41	971.30	2326.14	0.93
Vineyard	16.507	3233.00	1465.66	1469.61	1469.01	1469.67	0.003997	2.24	1700.71	1725.60	0.34
Vineyard	16.451	3233.00	1464.62	1468.37		1468.43	0.004302	2.29	1655.72	1725.88	0.36
Vineyard	16.367	3233.00	1463.16	1466.37	1465.82	1466.44	0.004765	2.28	1660.33	1953.32	0.37
Vineyard	16.293	3233.00	1462.35	1464.68		1464.72	0.004006	1.83	1952.97	2388.66	0.33
Vineyard	16.197	3233.00	1459.66	1462.08	1461.71	1462.16	0.006642	1.39	1566.17	2999.17	0.37
Vineyard	16.106	3233.00	1456.90	1459.21	1458.82	1459.29	0.005307	1.69	1638.28	3042.63	0.36
Vineyard	16.009	3233.00	1453.83	1456.61	1456.28	1456.68	0.005771	1.32	1730.26	4007.87	0.35

Vineyard	15.934	3233.00	1452.80	1454.90	1454.46	1454.94	0.004642	1.07	1969.82	3757.27	0.30
Vineyard	15.838	3233.00	1451.00	1452.58		1452.63	0.005149	1.47	1976.75	3246.09	0.34
Vineyard	15.744	3233.00	1448.00	1449.63		1449.70	0.006524	1.92	1547.40	2266.28	0.40
Vineyard	15.652	3233.00	1444.30	1447.38		1447.42	0.003726	1.65	1937.70	2387.06	0.31
Vineyard	15.555	3233.00	1442.00	1444.70		1444.79	0.007641	2.50	1329.62	1590.48	0.45
Vineyard	15.461	3233.00	1440.00	1442.64		1442.68	0.002699	1.53	2175.39	2476.17	0.27
Vineyard	15.366	3233.00	1438.00	1440.26		1440.36	0.010852	2.74	1386.93	2429.88	0.53
Vineyard	15.272	3233.00	1434.80	1438.27	1437.53	1438.30	0.002092	1.41	2341.45	2341.34	0.24
Vineyard	15.181	3233.00	1432.90	1437.11	1436.21	1437.25	0.002083	2.61	1152.38	605.60	0.33
Vineyard	15.087	3233.00	1433.10	1434.74	1434.51	1435.03	0.014470	3.79	765.44	7329.47	0.71
Vineyard	14.994	3233.00	1430.20	1431.66	1431.04	1431.78	0.003522	4.16	1367.71	1175.62	0.71
Vineyard	14.897	3233.00	1428.70	1429.85	1429.09	1429.94	0.003625	2.74	1383.15	5113.89	0.65
Vineyard	14.803	3233.00	1426.00	1428.32	1427.55	1428.39	0.002611	2.82	1584.95	5995.85	0.39
Vineyard	14.710	3233.00	1423.80	1424.76	1424.74	1425.14	0.036512	4.64	651.16	3362.57	0.99
Vineyard	14.616	3233.00	1421.60	1421.18	1420.05	1421.28	0.002922		1275.83	1749.91	0.00
Vineyard	14.523	3233.00	1419.50	1419.89	1419.11	1419.93	0.002450	0.33	1940.01	3312.64	0.18
Vineyard	3	9900.00	1411.40	1416.75	1416.36	1416.86	0.006331	4.04	4097.77	4593.48	0.48

Profile Output Table - Standard Table 2

Reach	River Sta	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
Vineyard	20.000	1576.55	1576.39	0.15	0.49	0.13		3233.00		355.74
Vineyard	19.918	1575.92	1575.34	0.58	1.48	0.09		3233.00		309.52
Vineyard	19.824	1574.35	1573.95	0.40	0.09	0.18		3233.00		718.35
Vineyard	19.743	1574.08	1574.05	0.03	0.02	0.01	87.39	2098.45	1047.16	1572.04
Vineyard	19.676	1574.05	1574.05	0.01	0.01	0.00	483.06	1359.18	1390.76	2615.66
Vineyard	19.614	1574.04	1574.04	0.00	0.02	0.01	73.47	2066.26	1093.28	3393.94
Vineyard	19.537	1574.01	1573.99	0.03	0.10	0.06	1032.47	1309.82	890.71	6402.39
Vineyard	19.515	1573.85	1573.63	0.22	1.86	0.05	2568.49	508.31	156.20	5934.01
Vineyard	19.477	1566.95	1561.18	5.77	5.38	1.63		3233.00		1936.05
Vineyard	19.405	1559.84	1559.73	0.11	2.99	0.01	292.21	1830.54	1110.25	3954.27
Vineyard	19.324	1556.85	1556.75	0.10	3.30	0.01	283.91	1328.37	1620.72	3242.02
Vineyard	19.227	1553.54	1553.45	0.09	2.72	0.00	428.58	575.65	2228.77	1838.26
Vineyard	19.133	1550.82	1550.74	0.08	2.43	0.00	371.25	183.60	2678.15	1791.51
Vineyard	19.030	1548.39	1548.31	0.08	3.12	0.00	116.08	988.91	2128.01	2050.76
Vineyard	18.932	1545.27	1545.17	0.09	3.20	0.03	226.97	2058.65	947.38	2133.63
Vineyard	18.832	1542.04	1542.00	0.04	2.77	0.01	1682.49	906.73	643.78	3452.20
Vineyard	18.736	1539.26	1539.20	0.06	2.91	0.01	554.18	372.01	2306.82	3313.22
Vineyard	18.644	1536.34	1536.30	0.04	2.48	0.00	1169.27	150.81	1912.92	4407.51
Vineyard	18.549	1533.86	1533.81	0.05	3.42	0.00	1196.72	505.22	1531.05	3626.34
Vineyard	18.452	1530.44	1530.39	0.05	2.88	0.01	1931.86	919.52	381.63	3862.96
Vineyard	18.356	1527.56	1527.48	0.07	1.76	0.02	991.68	1658.35	582.97	3169.37
Vineyard	18.302	1525.78	1525.66	0.12	1.78	0.01	1483.79	1664.84	84.37	2162.71
Vineyard	18.248	1523.98	1523.89	0.09	2.79	0.01	686.18	1752.06	794.76	2279.68
Vineyard	18.173	1521.19	1521.08	0.11	3.02	0.02	219.95	972.32	2040.73	1469.97
Vineyard	18.081	1518.15	1518.08	0.07	2.36	0.00	867.33	1040.21	1325.46	1881.49
Vineyard	18.000	1515.79	1515.71	0.08	3.31	0.01	1012.76	648.17	1572.06	1804.16
Vineyard	17.906	1512.47	1512.33	0.14	3.49	0.02	1040.23	1928.02	264.76	1940.13
Vineyard	17.819	1508.97	1508.89	0.08	3.46	0.00	1711.49	1073.05	448.46	2752.31
Vineyard	17.725	1505.50	1505.44	0.07	3.18	0.00	2301.70	822.40	108.90	2154.74
Vineyard	17.630	1502.32	1502.22	0.10	2.38	0.01	1932.39	1192.61	108.00	2198.12

Vineyard	17.554	1499.93	1499.88	0.05	2.71	0.00	1095.28	1598.14	539.58	2714.73
Vineyard	17.479	1497.22	1497.17	0.05	2.35	0.00	1341.48	1058.48	833.04	3258.26
Vineyard	17.377	1494.87	1494.83	0.04	1.68	0.01	643.23	1055.96	1533.81	2783.98
Vineyard	17.321	1493.18	1493.06	0.12	4.90	0.02	1707.37	950.36	575.27	1522.53
Vineyard	17.227	1488.25	1488.06	0.19	2.61	0.04	3227.60	3.72	1.68	975.54
Vineyard	17.132	1485.60	1485.49	0.11	2.53	0.01	3231.18	0.48	1.34	1145.66
Vineyard	17.038	1483.06	1482.92	0.14	2.73	0.02	2958.84	257.93	16.23	1320.00
Vineyard	16.945	1480.30	1480.21	0.09	2.04	0.00	1180.45	1867.20	185.35	1640.23
Vineyard	16.850	1478.26	1478.18	0.08	2.55	0.01	913.94	1883.46	435.60	1690.06
Vineyard	16.755	1475.70	1475.57	0.13	1.61	0.03	977.14	1459.03	796.83	1469.65
Vineyard	16.679	1474.07	1474.02	0.04	1.42	0.02	991.27	1517.99	723.74	2361.15
Vineyard	16.585	1472.63	1472.43	0.20	1.64	0.04	806.24	1222.26	1204.51	2326.14
Vineyard	16.507	1469.67	1469.61	0.06	1.24	0.00	983.09	1441.60	808.32	1725.60
Vineyard	16.451	1468.43	1468.37	0.06	1.99	0.00	894.81	1603.81	734.38	1725.88
Vineyard	16.367	1466.44	1466.37	0.07	1.70	0.01	506.51	2006.72	719.77	1953.32
Vineyard	16.293	1464.72	1464.68	0.04	2.57	0.00	337.85	1161.42	1733.72	2388.66
Vineyard	16.197	1462.16	1462.08	0.07	2.87	0.00	1346.86	386.02	1500.12	2999.17
Vineyard	16.106	1459.29	1459.21	0.07	2.61	0.00	2043.50	791.71	397.79	3042.63
Vineyard	16.009	1456.68	1456.61	0.07	1.73	0.01	2141.66	575.86	515.48	4007.87
Vineyard	15.934	1454.94	1454.90	0.05	2.31	0.00	2327.80	198.26	706.93	3757.27
Vineyard	15.838	1452.63	1452.58	0.04	2.93	0.00	2286.79	477.78	468.43	3246.09
Vineyard	15.744	1449.70	1449.63	0.07	2.27	0.01	2013.71	1163.86	55.43	2266.28
Vineyard	15.652	1447.42	1447.38	0.04	2.62	0.01	1224.21	1971.42	37.37	2387.06
Vineyard	15.555	1444.79	1444.70	0.10	2.09	0.02	1091.59	1940.11	201.30	1590.48
Vineyard	15.461	1442.68	1442.64	0.04	2.32	0.01	825.73	1459.87	947.40	2476.17
Vineyard	15.366	1440.36	1440.26	0.10	2.04	0.02	87.67	2430.16	715.17	2429.88
Vineyard	15.272	1438.30	1438.27	0.03	1.02	0.03	0.07	2029.72	1203.21	2341.34
Vineyard	15.181	1437.25	1437.11	0.14	2.18	0.04		2670.40	562.60	605.60
Vineyard	15.087	1435.03	1434.74	0.28	3.16	0.08	488.14	854.81	1890.05	7329.47
Vineyard	14.994	1431.78	1431.66	0.12	1.83	0.01	113.49	857.18	2262.33	1175.62
Vineyard	14.897	1429.94	1429.85	0.09	1.54	0.00	24.61	233.92	2974.47	5113.89
Vineyard	14.803	1428.39	1428.32	0.07	3.22	0.03	1299.13	749.51	1184.36	5995.85
Vineyard	14.710	1425.14	1424.76	0.39	3.77	0.08	14.71	720.12	2498.17	3362.57
Vineyard	14.616	1421.28	1421.18	0.10	1.34	0.02	3162.12		70.88	1749.91
Vineyard	14.523	1419.93	1419.89	0.04	3.07	0.01	3215.84	3.33	13.83	3312.64
Vineyard	3	1416.86	1416.75	0.11			8384.13	1515.86		4593.48

Profile Output Table - Hydratable

Reach	River Sta	Q Total (cfs)	W.S. Elev (ft)	Trvl Tme Chl (hrs)	Trvl Tme Avg (hrs)	Vel Chnl (ft/s)	Vel Total (ft/s)	Max Chl Dpth (ft)	Hydr Depth (ft)
Vineyard	20.000	3233.00	1576.39	4.91	3.94	3.14	3.14	3.48	2.89
Vineyard	19.918	3233.00	1575.34	4.89	3.91	6.12	6.12	1.92	1.71
Vineyard	19.824	3233.00	1573.95	4.86	3.89	5.08	5.08	2.80	1.97
Vineyard	19.743	3233.00	1574.05	4.83	3.85	1.41	1.39	5.44	3.75
Vineyard	19.676	3233.00	1574.05	4.73	3.75	0.56	0.57	6.99	5.81
Vineyard	19.614	3233.00	1574.04	4.53	3.57	0.35	0.34	8.70	7.57
Vineyard	19.537	3233.00	1573.99	4.39	3.42	1.30	1.33	2.84	1.14
Vineyard	19.515	3233.00	1573.63	4.37	3.41	2.31	3.43	2.56	0.46
Vineyard	19.477	3233.00	1561.18	4.37	3.40	19.28	19.28	2.90	0.67
Vineyard	19.405	3233.00	1559.73	4.36	3.39	3.18	2.47	5.03	0.80
Vineyard	19.324	3233.00	1556.75	4.32	3.34	2.69	2.34	5.09	0.66

Vineyard	19.227	3233.00	1553.45	4.26	3.28	2.32	2.33	4.32	0.93
Vineyard	19.133	3233.00	1550.74	4.20	3.22	1.97	2.24	3.87	1.08
Vineyard	19.030	3233.00	1548.31	4.12	3.16	1.84	2.14	3.86	0.90
Vineyard	18.932	3233.00	1545.17	4.05	3.11	2.68	2.35	3.24	0.64
Vineyard	18.832	3233.00	1542.00	3.99	3.03	1.91	1.51	3.45	0.64
Vineyard	18.736	3233.00	1539.20	3.92	2.95	1.89	1.83	3.23	0.57
Vineyard	18.644	3233.00	1536.30	3.83	2.87	1.37	1.48	2.86	0.50
Vineyard	18.549	3233.00	1533.81	3.75	2.79	2.11	1.75	4.25	0.51
Vineyard	18.452	3233.00	1530.39	3.69	2.71	2.27	1.78	4.39	0.51
Vineyard	18.356	3233.00	1527.48	3.63	2.64	2.74	1.73	4.46	0.59
Vineyard	18.302	3233.00	1525.66	3.61	2.60	3.26	2.52	3.62	0.59
Vineyard	18.248	3233.00	1523.89	3.58	2.56	3.02	2.01	3.83	0.76
Vineyard	18.173	3233.00	1521.08	3.54	2.51	3.04	2.57	2.75	0.87
Vineyard	18.081	3233.00	1518.08	3.49	2.45	2.37	2.03	3.22	0.85
Vineyard	18.000	3233.00	1515.71	3.44	2.40	2.21	2.17	3.65	0.83
Vineyard	17.906	3233.00	1512.33	3.40	2.34	3.67	2.36	4.57	0.71
Vineyard	17.819	3233.00	1508.89	3.36	2.28	2.81	2.13	3.90	0.62
Vineyard	17.725	3233.00	1505.44	3.30	2.22	2.02	2.04	2.88	0.74
Vineyard	17.630	3233.00	1502.22	3.24	2.17	2.43	2.45	4.58	0.70
Vineyard	17.554	3233.00	1499.88	3.19	2.12	1.98	1.75	4.52	0.71
Vineyard	17.479	3233.00	1497.17	3.13	2.05	1.69	1.82	3.43	0.62
Vineyard	17.377	3233.00	1494.83	3.03	1.98	1.50	1.56	3.05	0.74
Vineyard	17.321	3233.00	1493.06	2.99	1.94	2.54	2.59	3.20	0.82
Vineyard	17.227	3233.00	1488.06	2.91	1.88	0.79	3.50	5.05	1.32
Vineyard	17.132	3233.00	1485.49	2.71	1.83	0.61	2.63	4.69	1.38
Vineyard	17.038	3233.00	1482.92	2.57	1.78	1.31	2.73	4.67	0.90
Vineyard	16.945	3233.00	1480.21	2.50	1.73	2.86	2.19	4.33	0.90
Vineyard	16.850	3233.00	1478.18	2.45	1.66	2.62	2.00	3.89	0.96
Vineyard	16.755	3233.00	1475.57	2.41	1.60	3.45	2.69	3.69	0.82
Vineyard	16.679	3233.00	1474.02	2.37	1.55	2.07	1.50	3.48	0.91
Vineyard	16.585	3233.00	1472.43	2.32	1.49	4.41	3.33	0.77	0.42
Vineyard	16.507	3233.00	1469.61	2.29	1.44	2.24	1.90	3.95	0.99
Vineyard	16.451	3233.00	1468.37	2.25	1.40	2.29	1.95	3.75	0.96
Vineyard	16.367	3233.00	1466.37	2.20	1.34	2.28	1.95	3.21	0.85
Vineyard	16.293	3233.00	1464.68	2.14	1.28	1.83	1.66	2.33	0.82
Vineyard	16.197	3233.00	1462.08	2.06	1.20	1.39	2.06	2.64	0.72
Vineyard	16.106	3233.00	1459.21	1.97	1.14	1.69	1.97	2.59	0.74
Vineyard	16.009	3233.00	1456.61	1.88	1.07	1.32	1.87	2.96	0.63
Vineyard	15.934	3233.00	1454.90	1.78	1.01	1.07	1.64	2.10	0.66
Vineyard	15.838	3233.00	1452.58	1.67	0.93	1.47	1.64	1.88	0.61
Vineyard	15.744	3233.00	1449.63	1.59	0.86	1.92	2.09	1.63	0.68
Vineyard	15.652	3233.00	1447.38	1.52	0.79	1.65	1.67	3.08	0.81
Vineyard	15.555	3233.00	1444.70	1.45	0.72	2.50	2.43	2.70	0.84
Vineyard	15.461	3233.00	1442.64	1.38	0.65	1.53	1.49	2.64	0.88
Vineyard	15.366	3233.00	1440.26	1.31	0.58	2.74	2.33	2.26	0.57
Vineyard	15.272	3233.00	1438.27	1.25	0.50	1.41	1.38	3.47	1.02
Vineyard	15.181	3233.00	1437.11	1.18	0.44	2.61	2.81	4.21	1.90
Vineyard	15.087	3233.00	1434.74	1.14	0.40	3.79	4.22	2.74	1.16
Vineyard	14.994	3233.00	1431.66	1.10	0.36	4.16	2.36	2.06	1.16
Vineyard	14.897	3233.00	1429.85	1.06	0.30	2.74	2.34	3.85	1.00
Vineyard	14.803	3233.00	1428.32	1.01	0.23	2.82	2.04	5.72	1.31
Vineyard	14.710	3233.00	1424.76	0.98	0.19	4.64	4.96	3.56	0.79
Vineyard	14.616	3233.00	1421.18	0.92	0.15		2.53	2.18	1.84
Vineyard	14.523	3233.00	1419.89	0.08	0.09	0.33	1.67	1.89	0.97

Vineyard	3	9900.00	1416.75	0.00	0.00	4.04	2.42	5.35	0.89

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : FCD 98-33

River: Vineyard FRS Reach: Vineyard RS: 20.000 Profile: PF 1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 19.918 Profile: PF 1
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 19.824 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 19.743 Profile: PF 1
Warning:Divided flow computed for this cross-section.
River: Vineyard FRS Reach: Vineyard RS: 19.614 Profile: PF 1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 19.537 Profile: PF 1
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 19.515 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The cross-section end points had to be extended vertically for the computed water surface.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.
River: Vineyard FRS Reach: Vineyard RS: 19.477 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Program found supercritical flow starting at this cross section.
River: Vineyard FRS Reach: Vineyard RS: 19.405 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Hydraulic jump has occurred between this cross section and the previous upstream section.
River: Vineyard FRS Reach: Vineyard RS: 19.324 Profile: PF 1
Warning:Divided flow computed for this cross-section.

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     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 19.227     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 19.133     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 19.030     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.932     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.832     Profile: PF 1
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.736     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.644     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.549     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.452     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.356     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.302     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.248     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.173     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.081     Profile: PF 1
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     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 18.000     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.906     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.819     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.725     Profile: PF 1
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.630     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.554     Profile: PF 1
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.479     Profile: PF 1
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.377     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.321     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.227     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.132     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 17.038     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 16.945     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
```

River: Vineyard FRS Reach: Vineyard RS: 16.850 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 16.755 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 16.679 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 16.585 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
River: Vineyard FRS Reach: Vineyard RS: 16.507 Profile: PF 1
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 16.451 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 16.367 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 16.293 Profile: PF 1
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 16.197 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 16.106 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 16.009 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
River: Vineyard FRS Reach: Vineyard RS: 15.934 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

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River: Vineyard FRS  Reach: Vineyard     RS: 15.838     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 15.744     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 15.652     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 15.555     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 15.461     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 15.366     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 15.272     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 15.181     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 15.087     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 14.994     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 14.897     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
```

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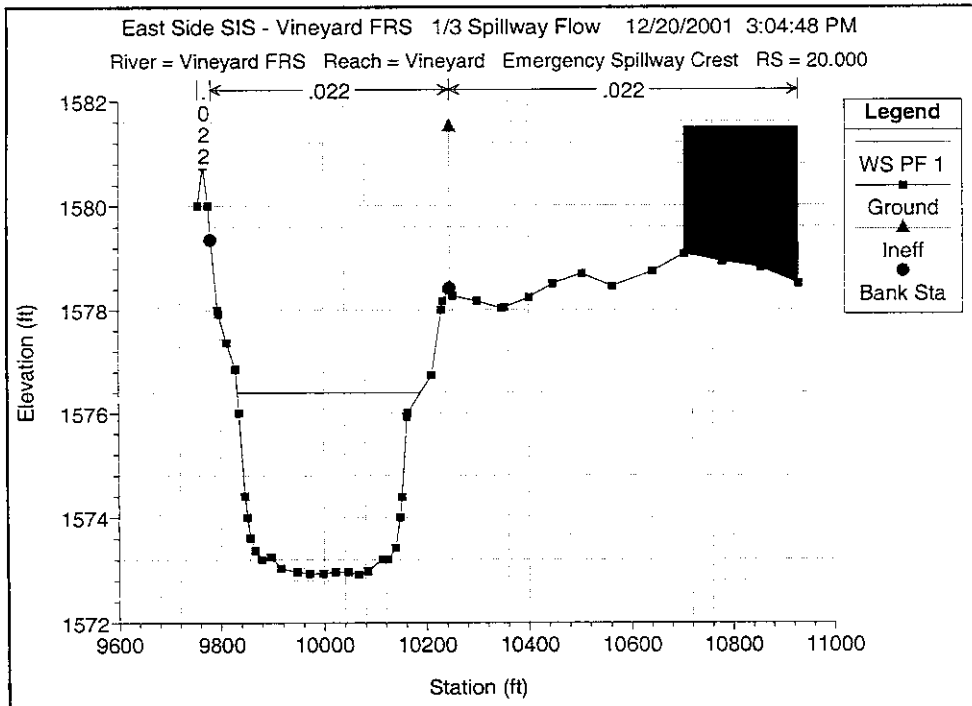
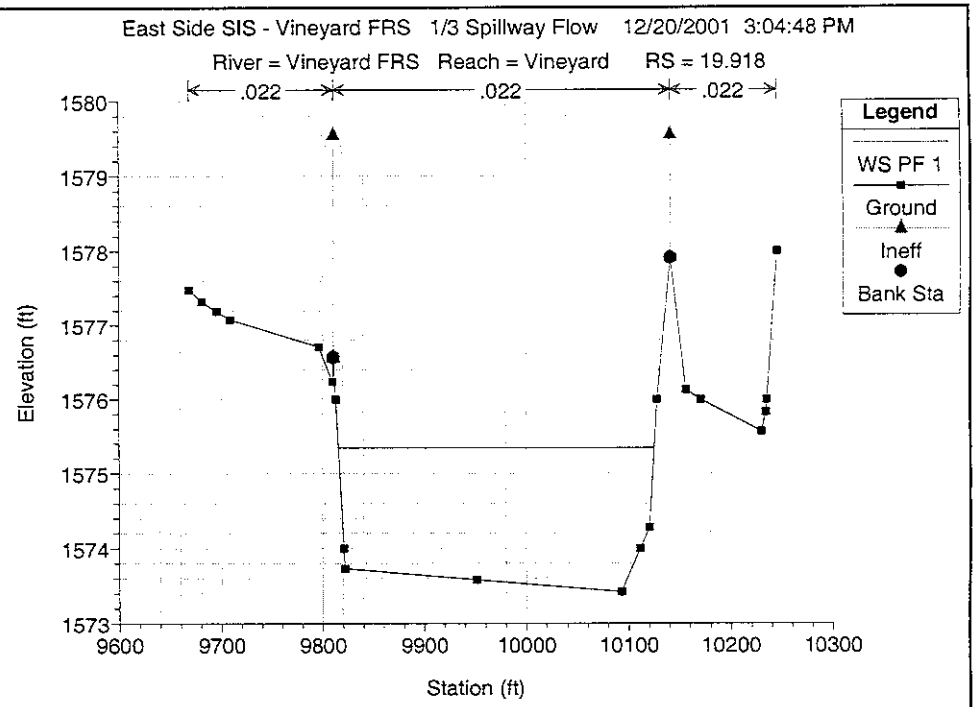
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 14.803     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 14.710     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 14.616     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 14.523     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
     Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
             This may indicate the need for additional cross sections.
     Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.  This may indicate
             the need for additional cross sections.
River: Vineyard FRS  Reach: Vineyard     RS: 3     Profile: PF 1
     Warning:Divided flow computed for this cross-section.
```


East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard Emergency Spillway Crest RS = 20.000
.022
.022
.022
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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River = Vineyard FRS Reach = Vineyard RS = 19.918
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.022
.022
Legend
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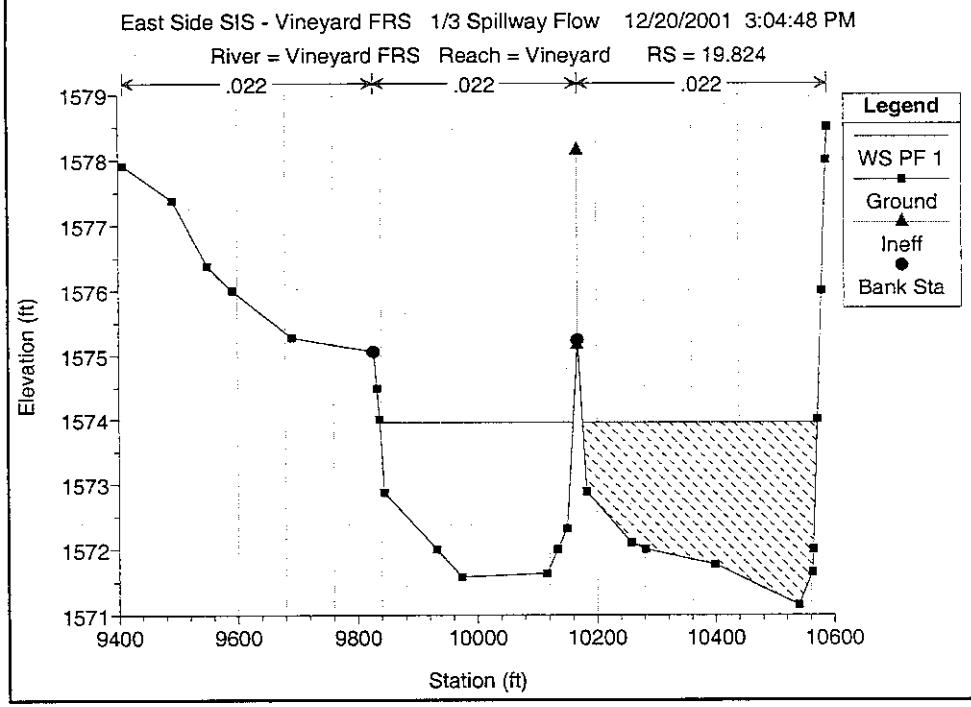
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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River = Vineyard FRS Reach = Vineyard RS = 19.824
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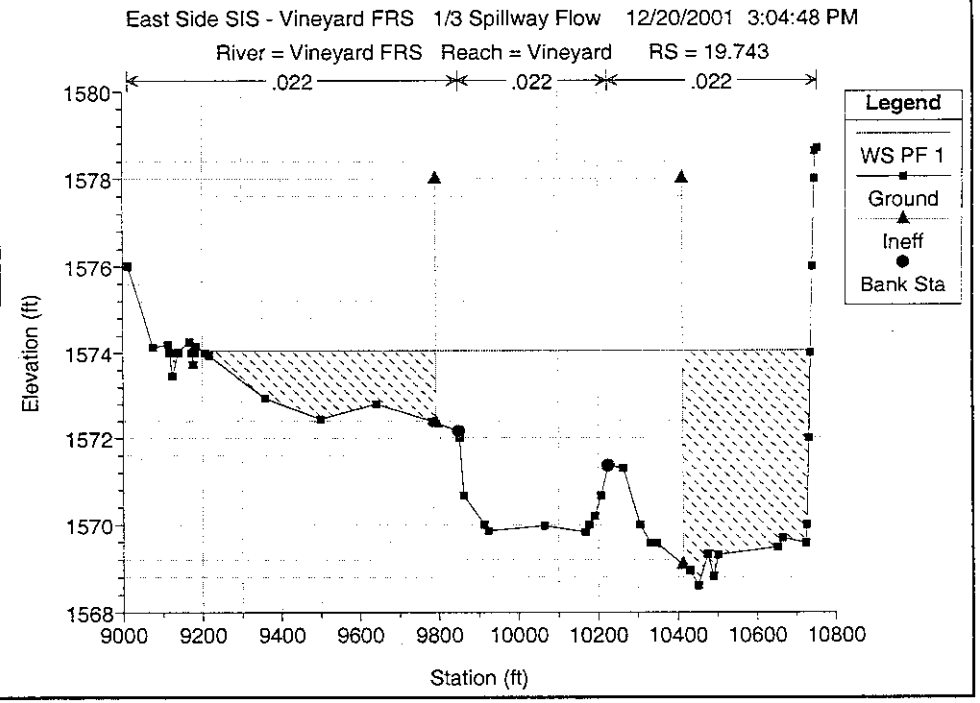
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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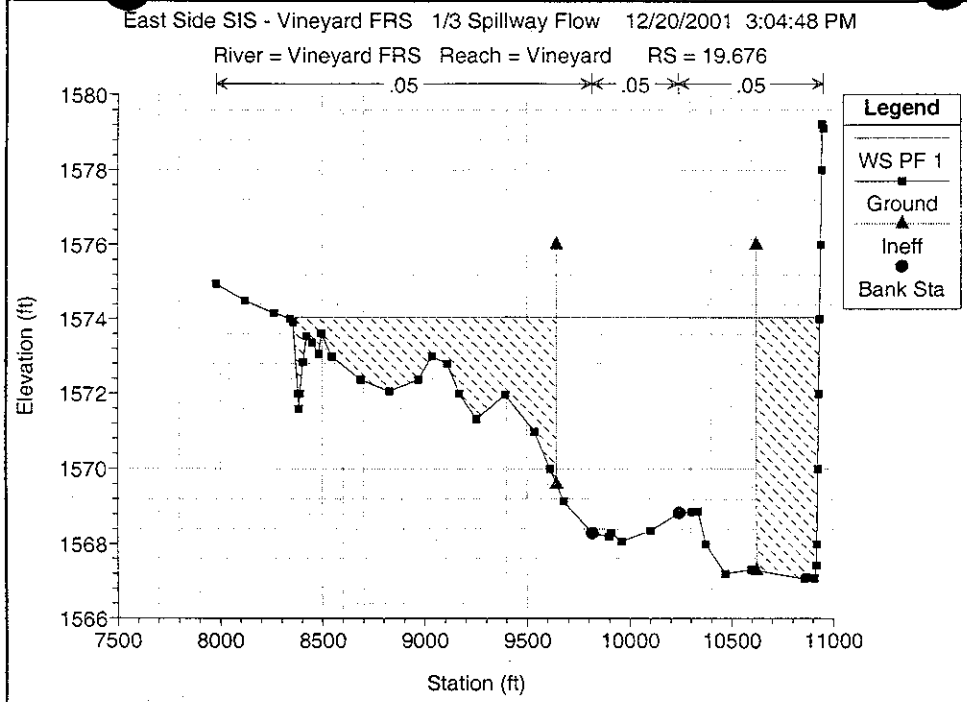
River = Vineyard FRS Reach = Vineyard RS = 19.743
.022
.022
.022
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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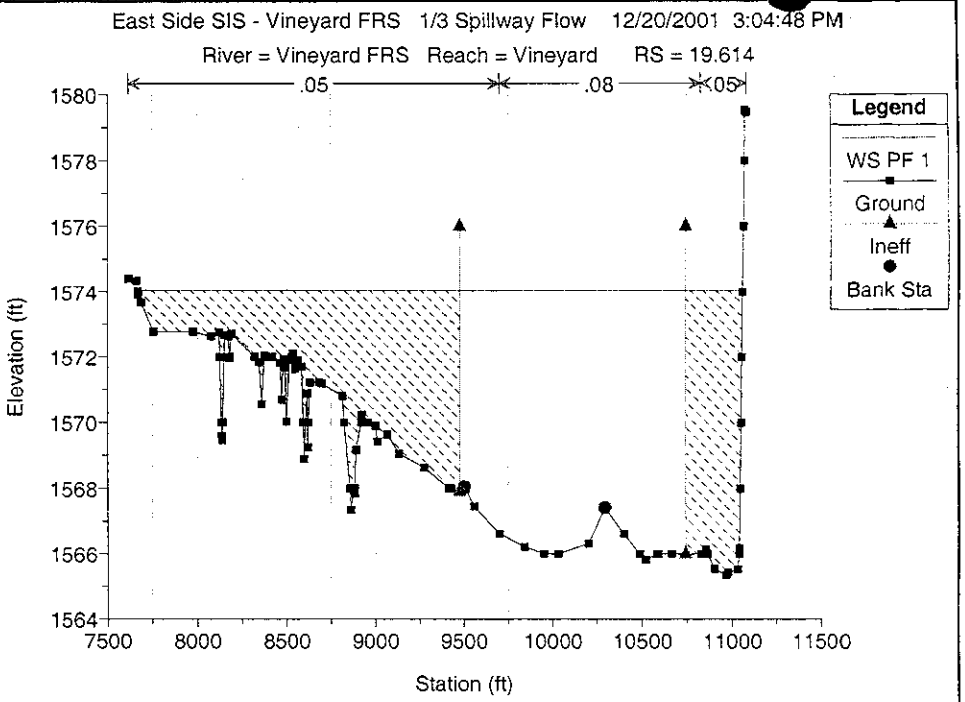
River = Vineyard FRS Reach = Vineyard RS = 19.676
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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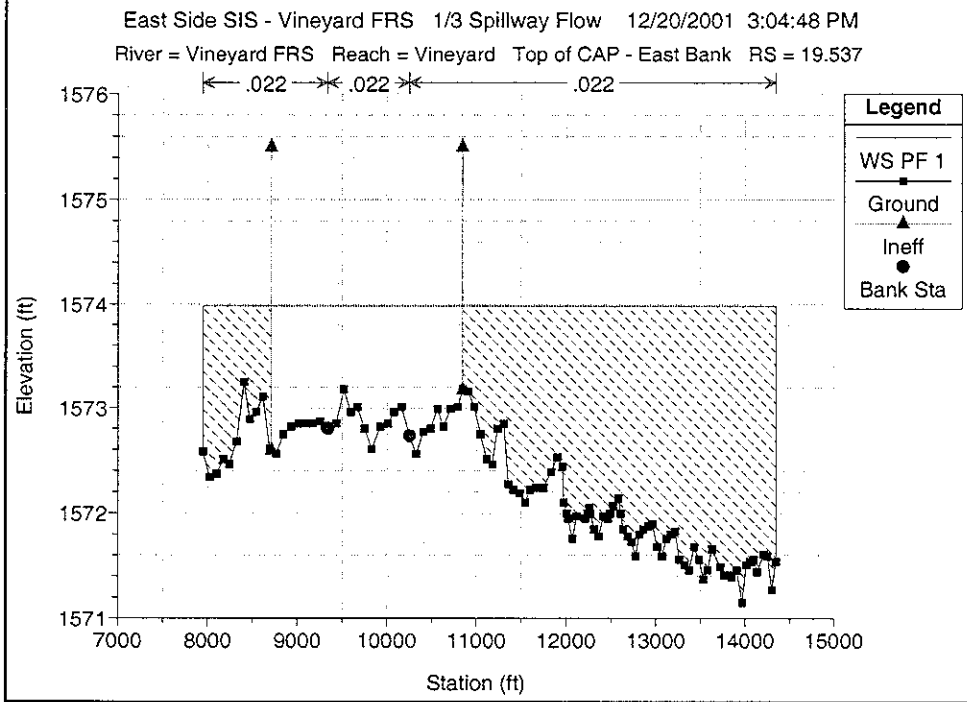
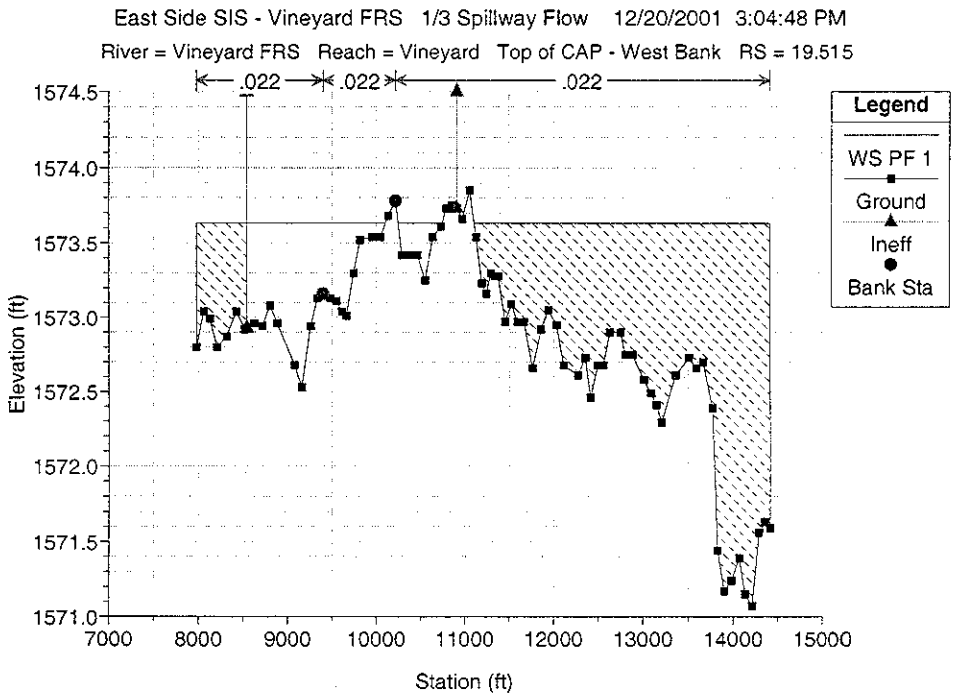
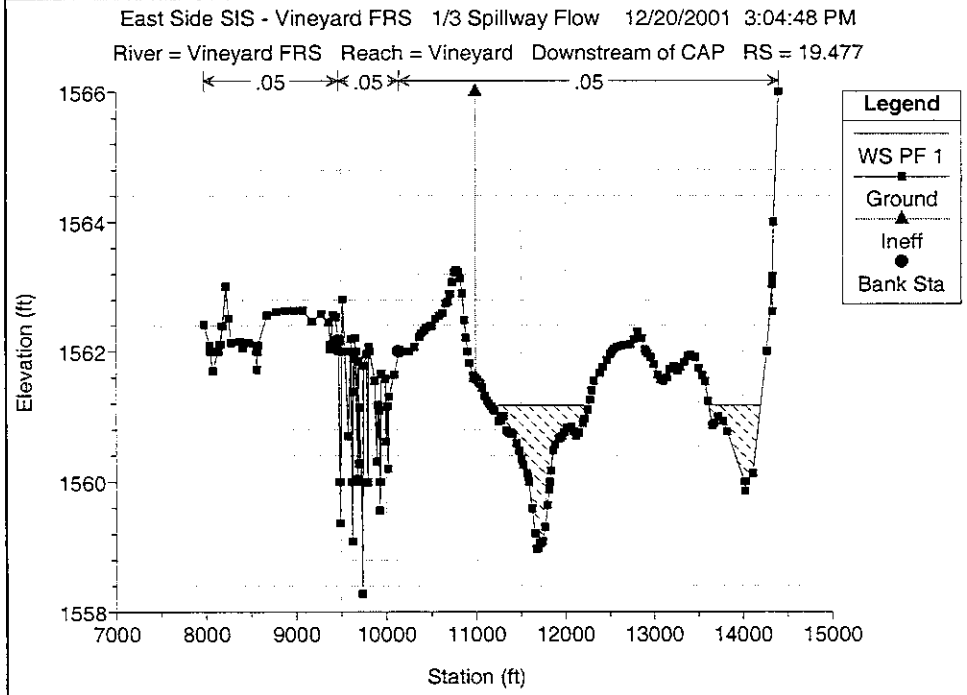
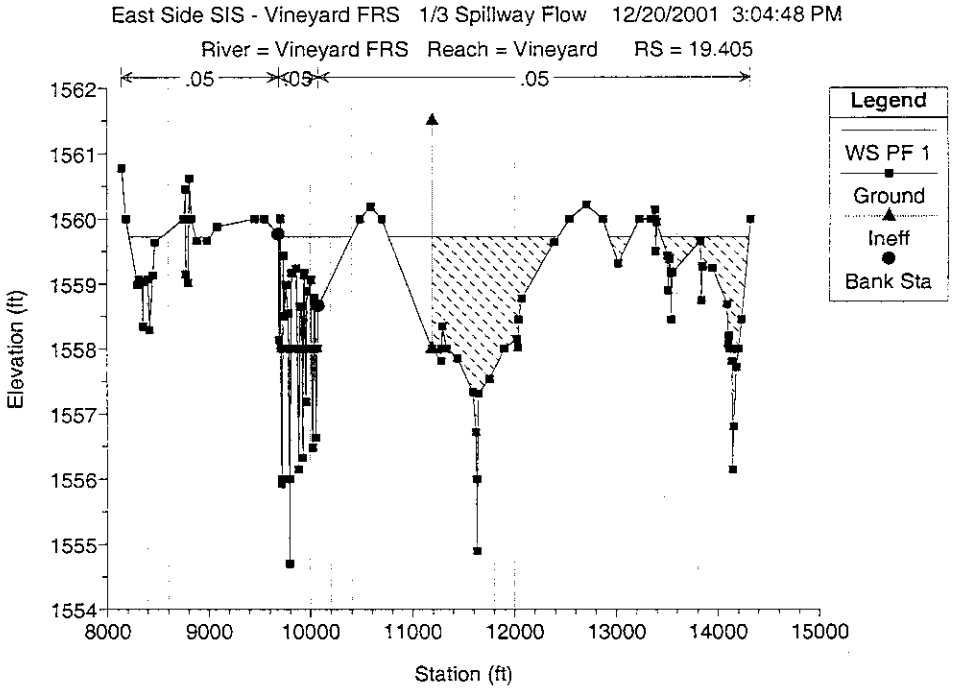
River = Vineyard FRS Reach = Vineyard RS = 19.614
.05
.08
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard Top of CAP - East Bank RS = 19.537
.022
.022
.022
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard Top of CAP - West Bank RS = 19.515
.022
.022
.022
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard Downstream of CAP RS = 19.477
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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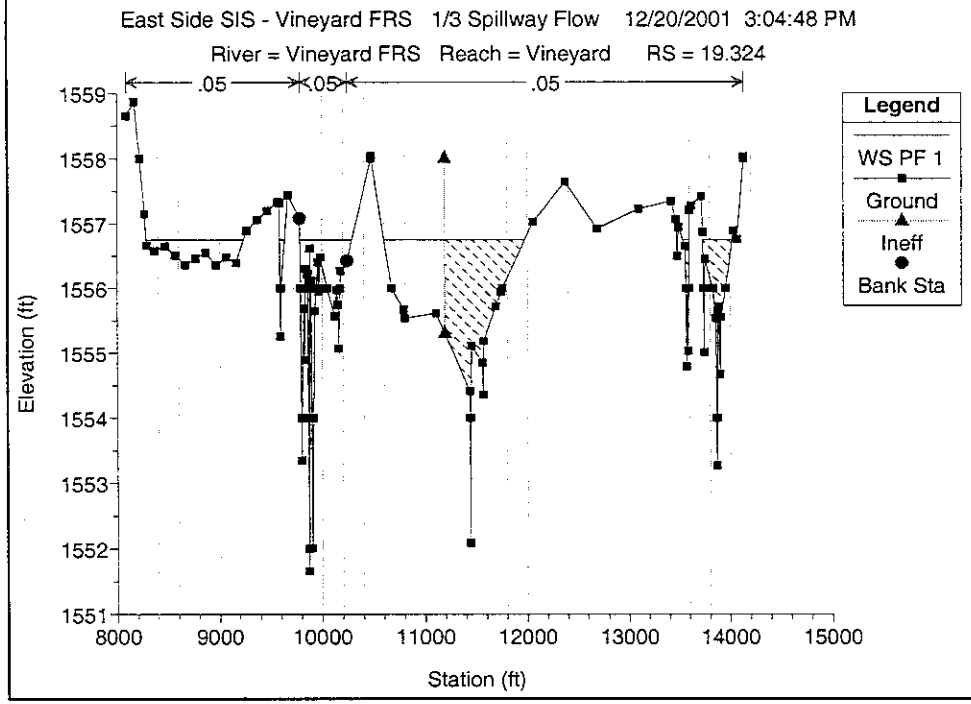
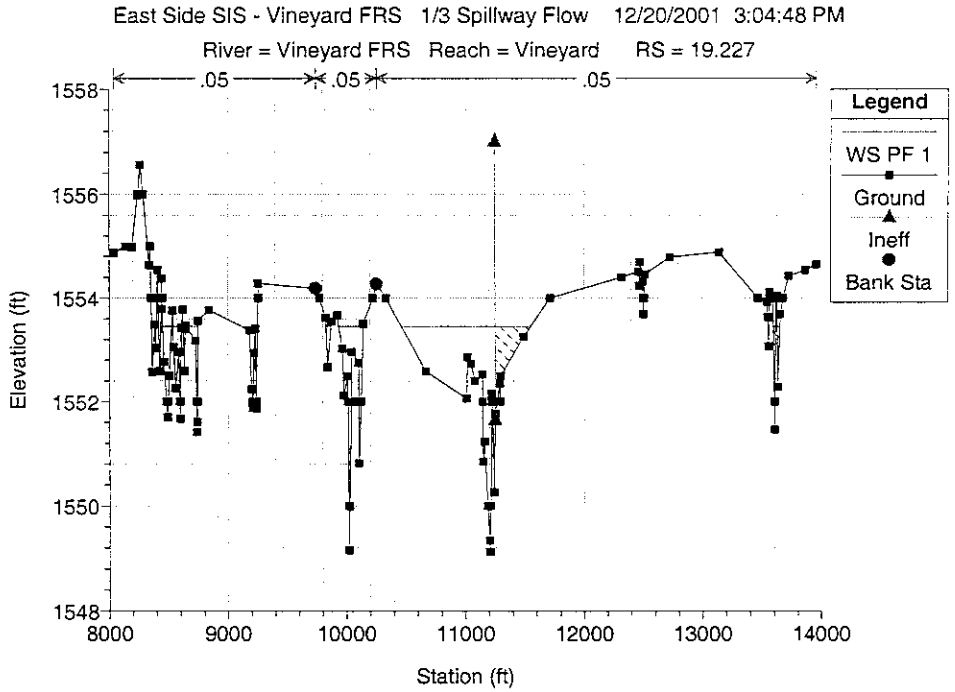
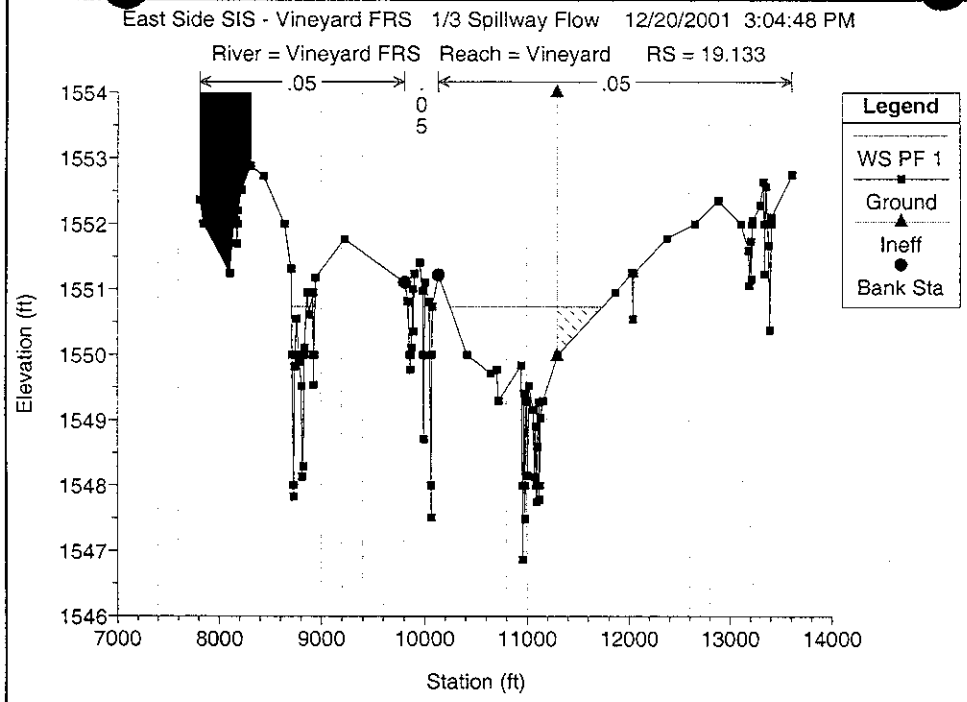
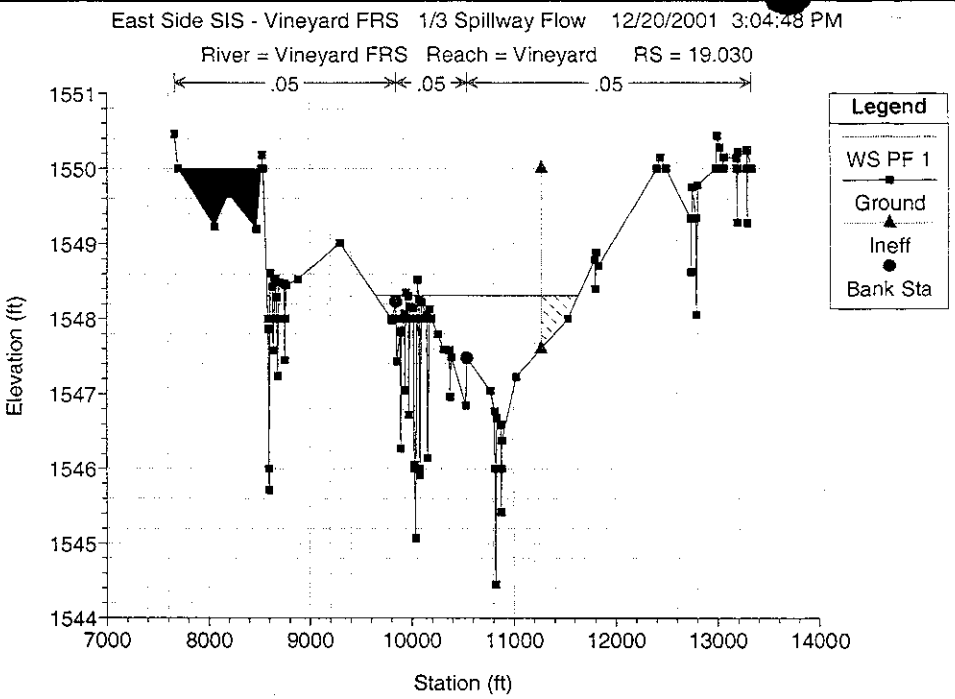
River = Vineyard FRS Reach = Vineyard RS = 19.405
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 19.324
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 19.227
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 19.133
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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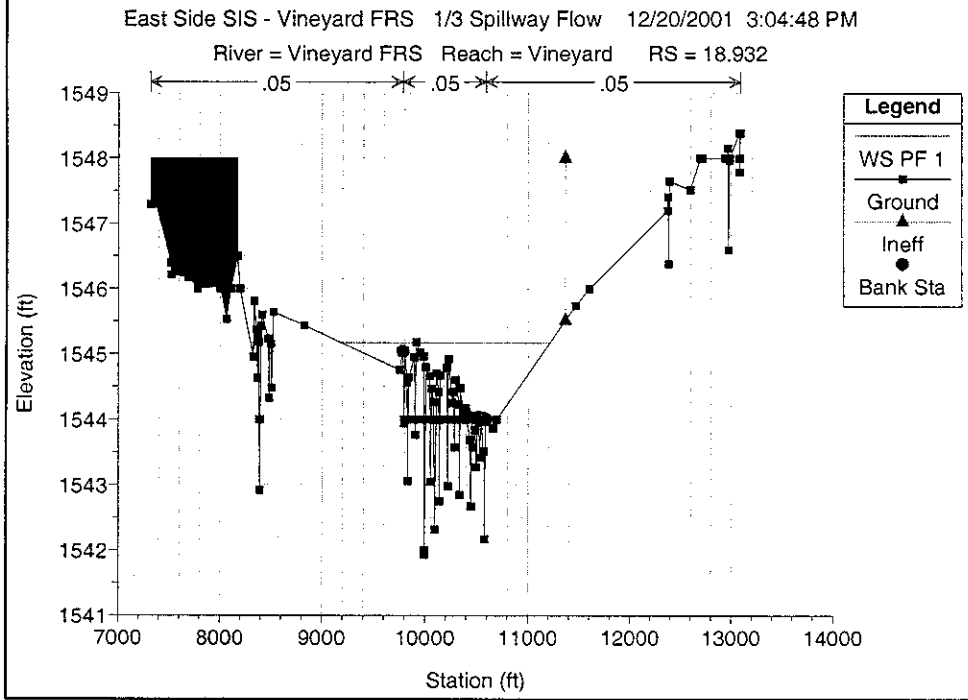
River = Vineyard FRS Reach = Vineyard RS = 19.030
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 18.932
.05
.05
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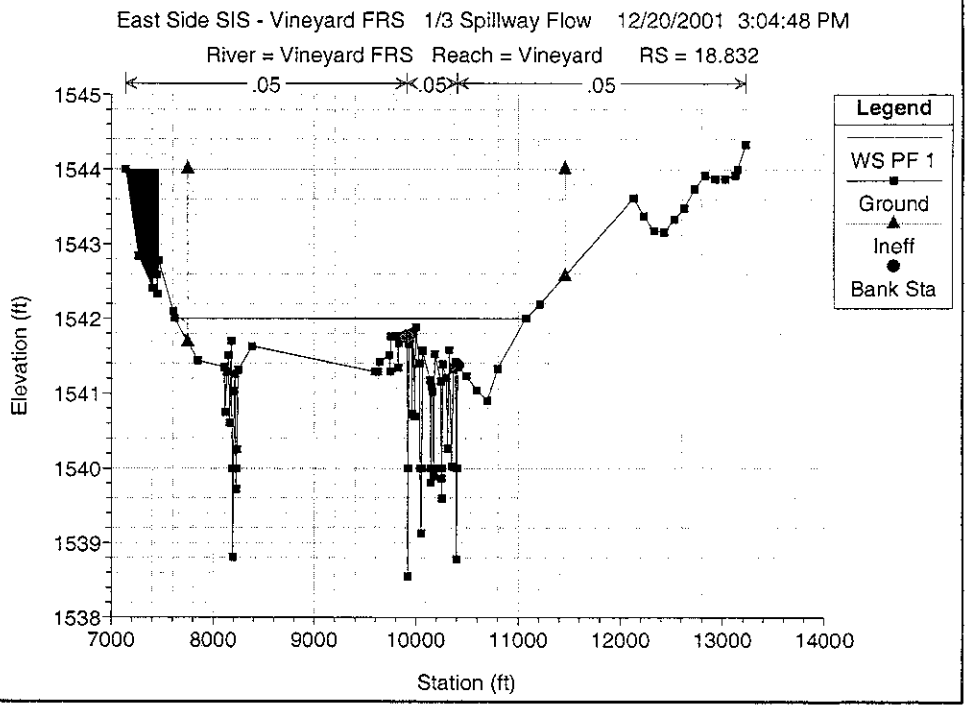
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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River = Vineyard FRS Reach = Vineyard RS = 18.832
.05
.05
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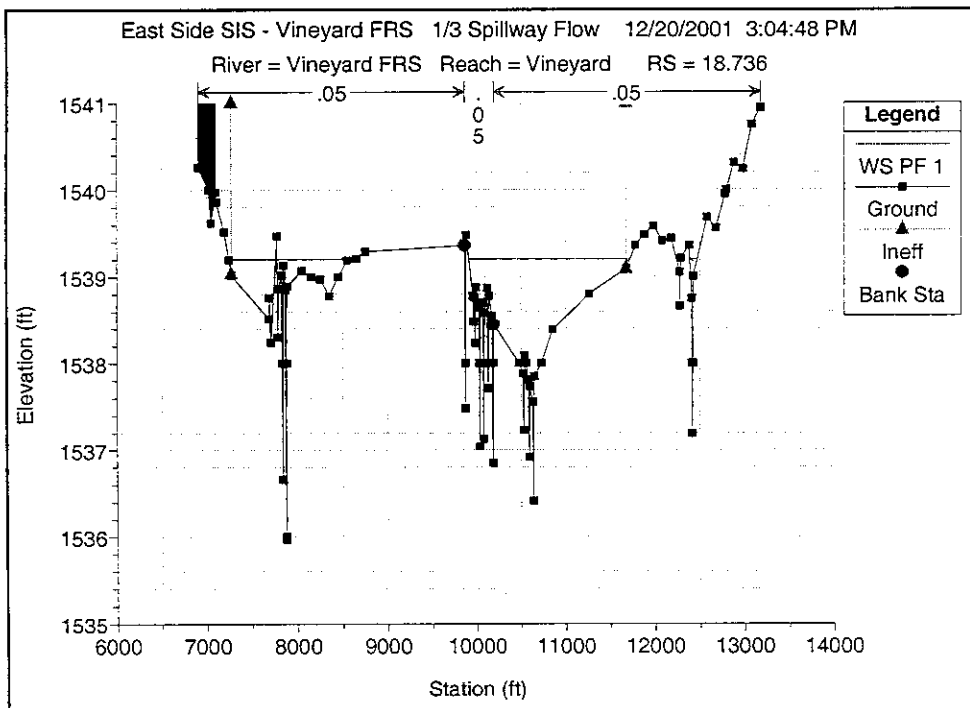
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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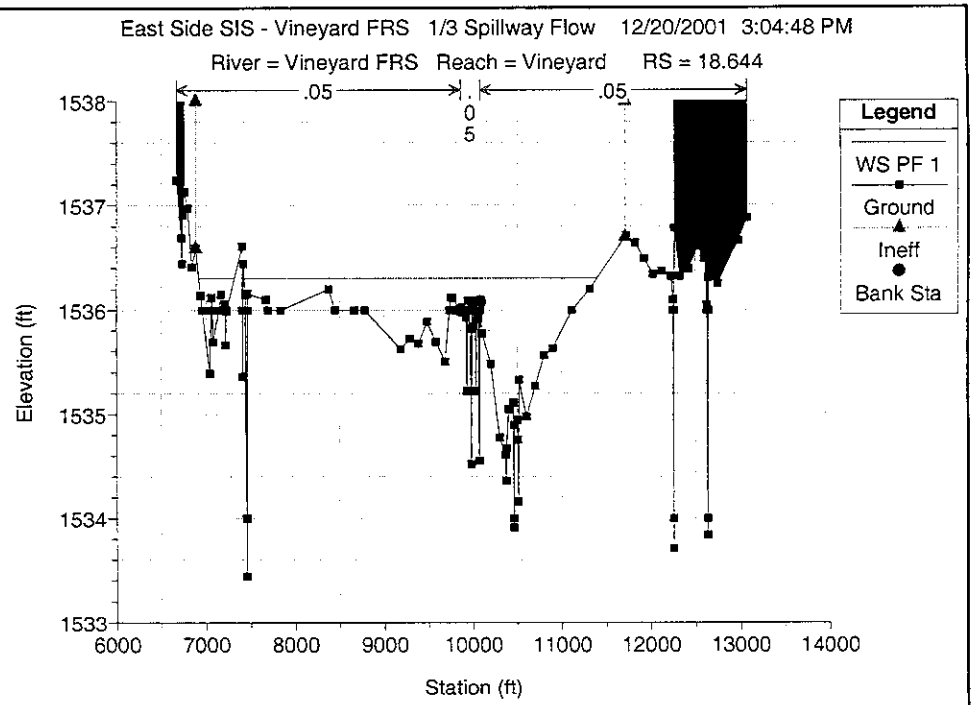
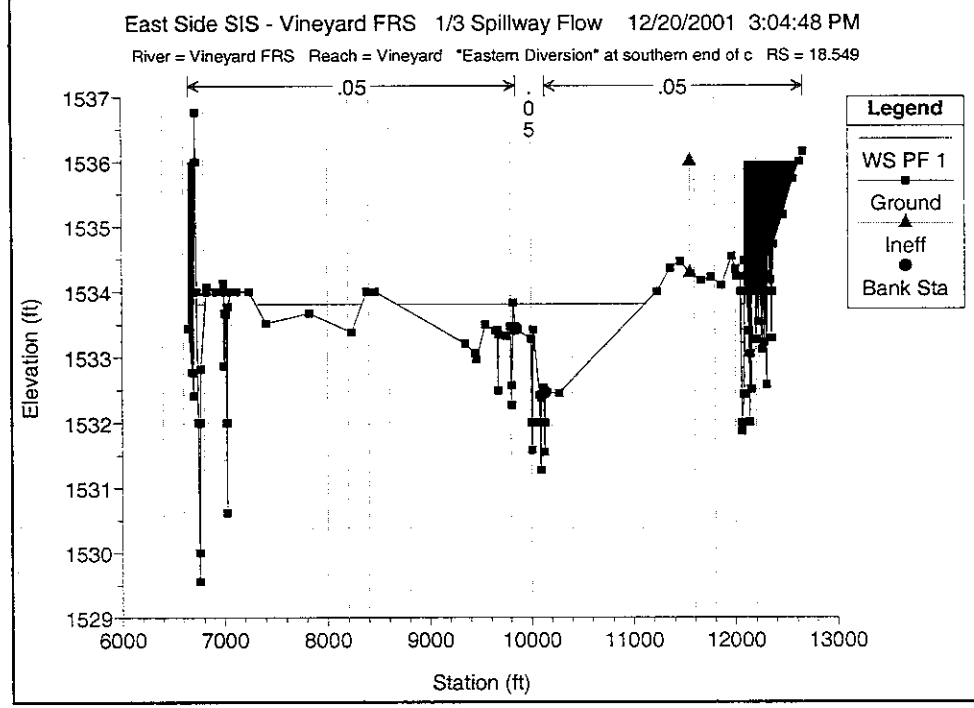
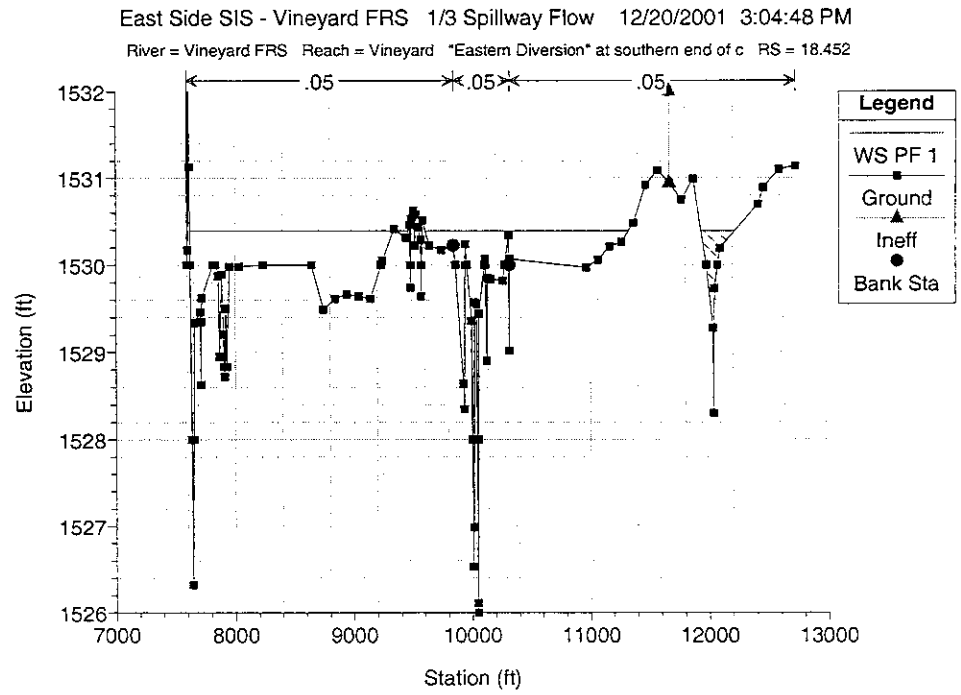
River = Vineyard FRS Reach = Vineyard RS = 18.736
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 18.644
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard "Eastern Diversion" at southern end of c RS = 18.549
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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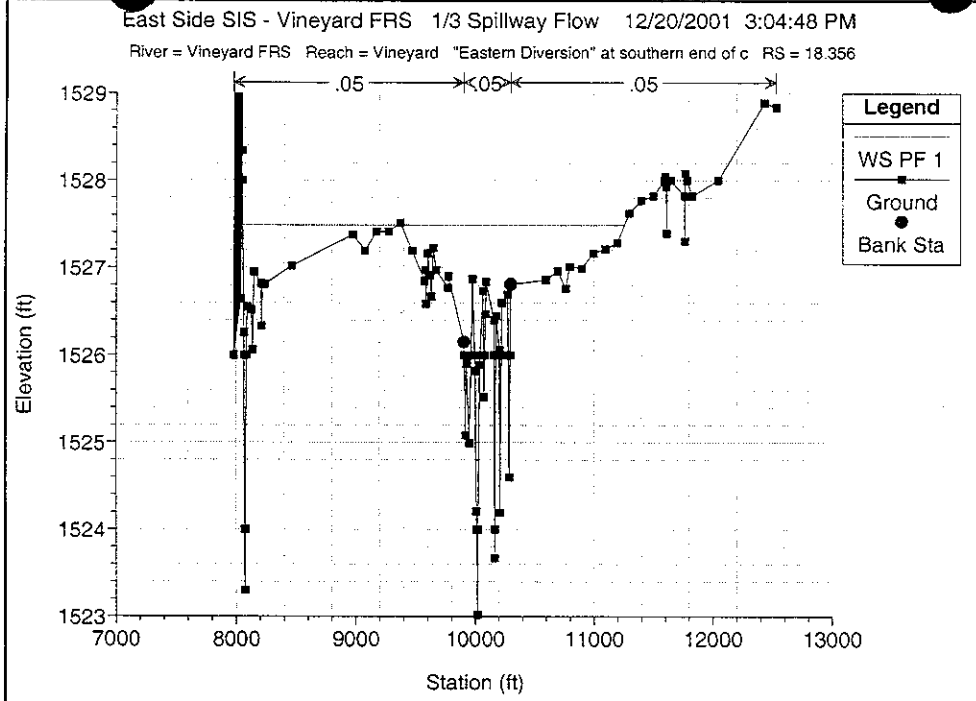
River = Vineyard FRS Reach = Vineyard "Eastern Diversion" at southern end of c RS = 18.452
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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River = Vineyard FRS Reach = Vineyard "Eastern Diversion" at southern end of c RS = 18.356
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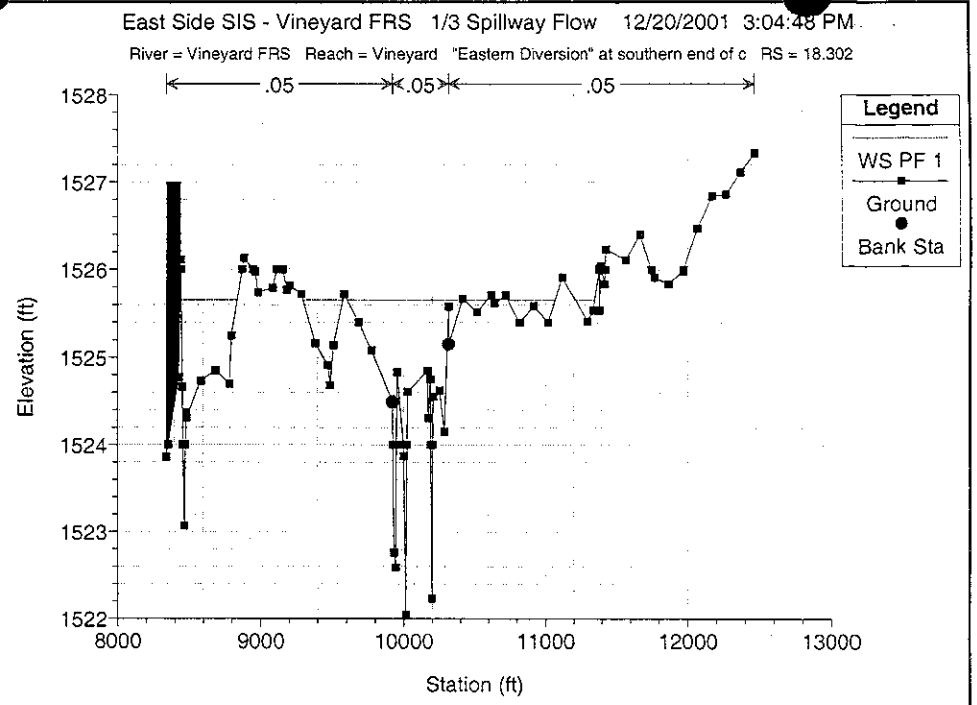
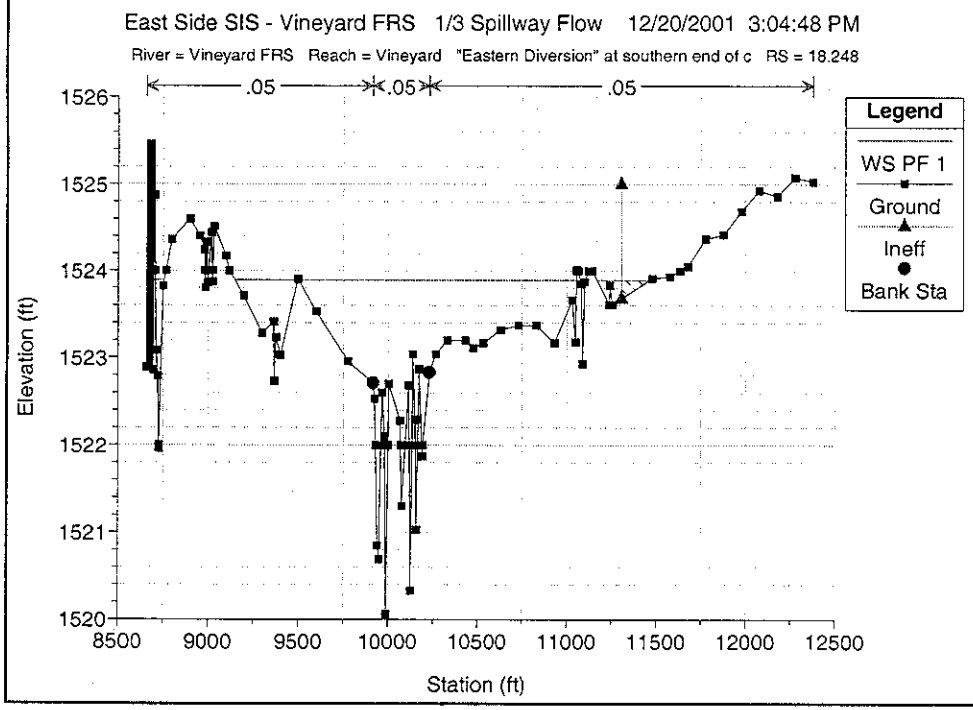
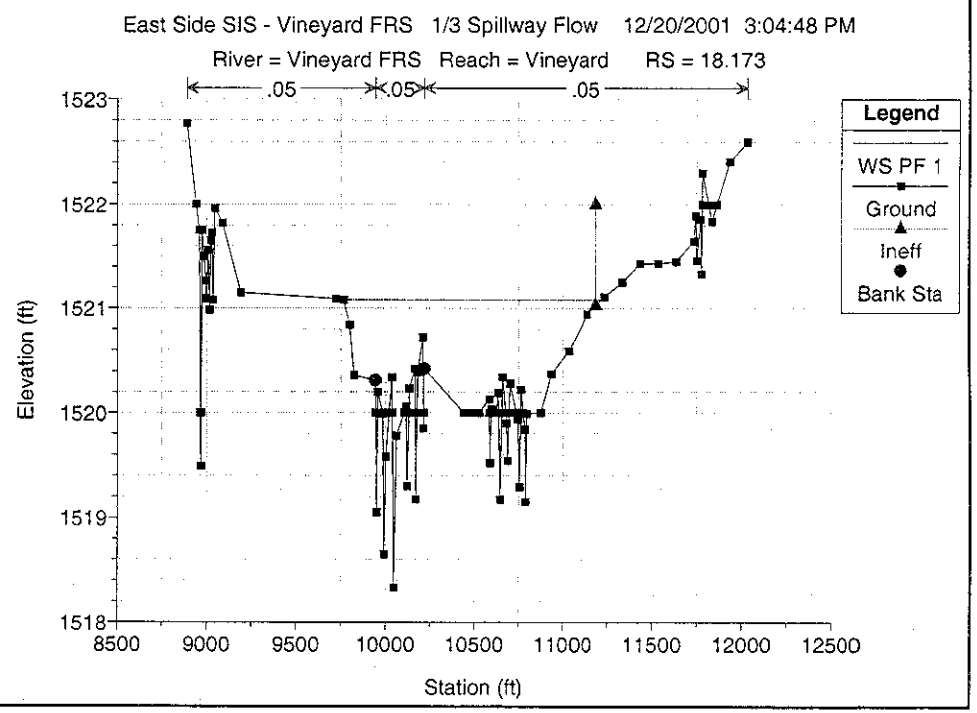
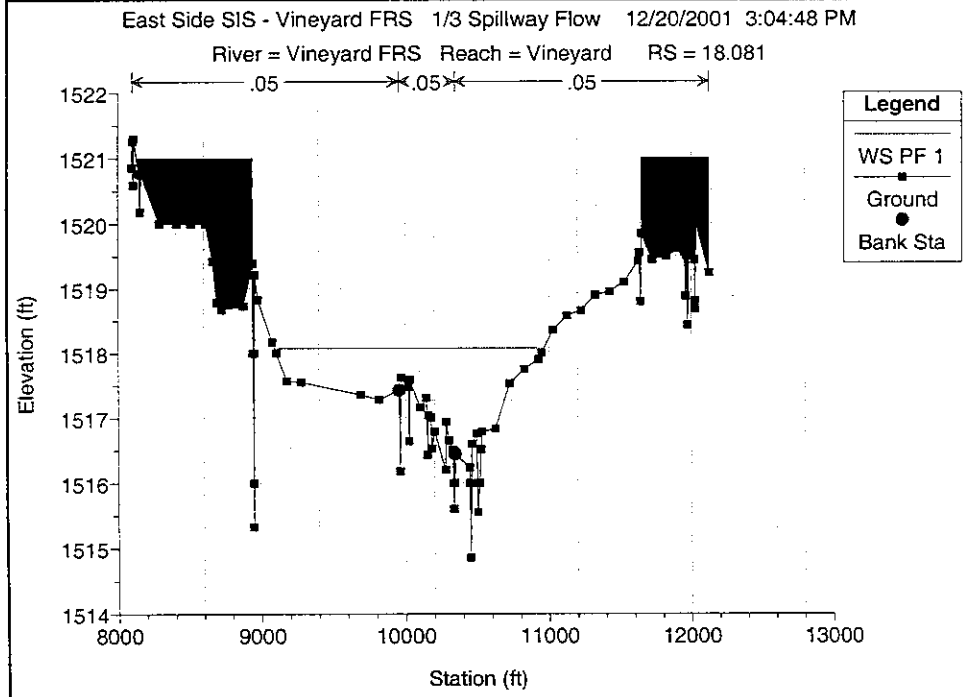
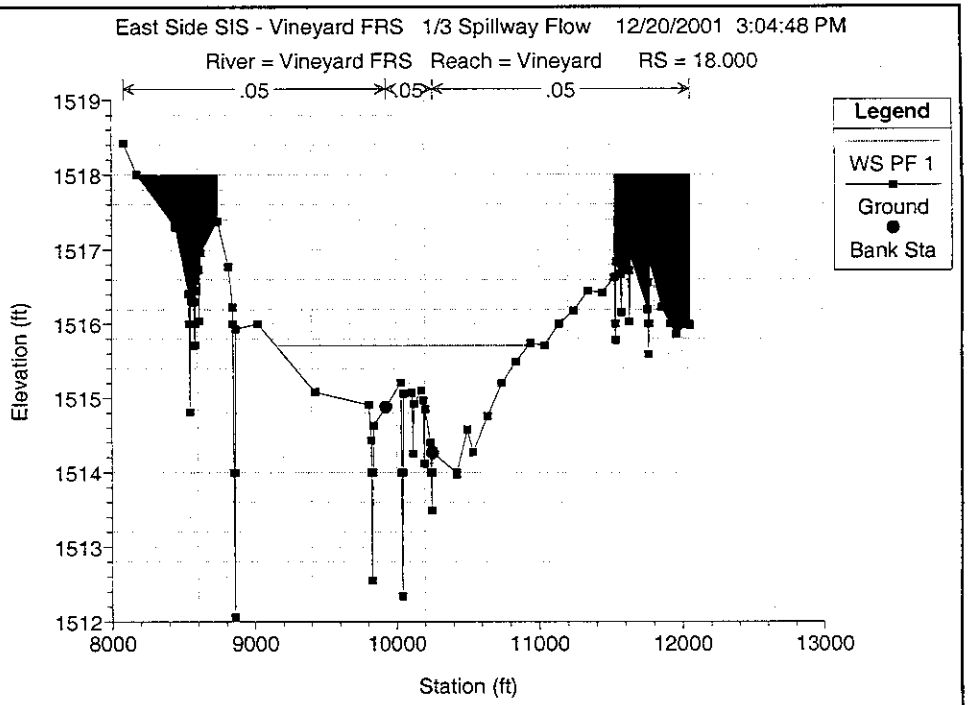
.05
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

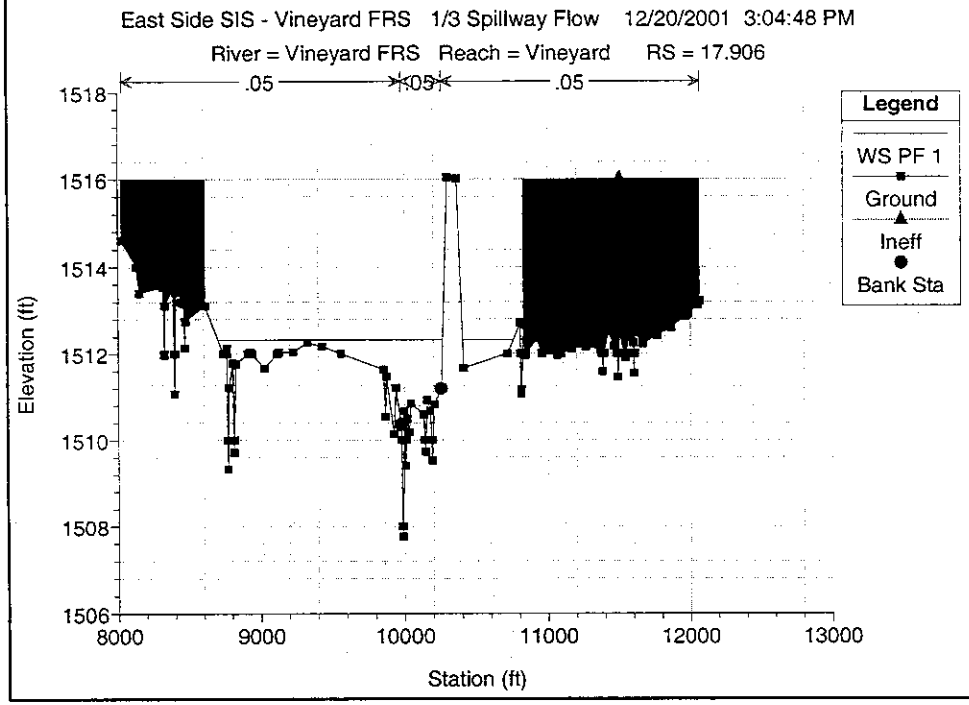

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard "Eastern Diversion" at southern end of c RS = 18.302
.05
.05
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

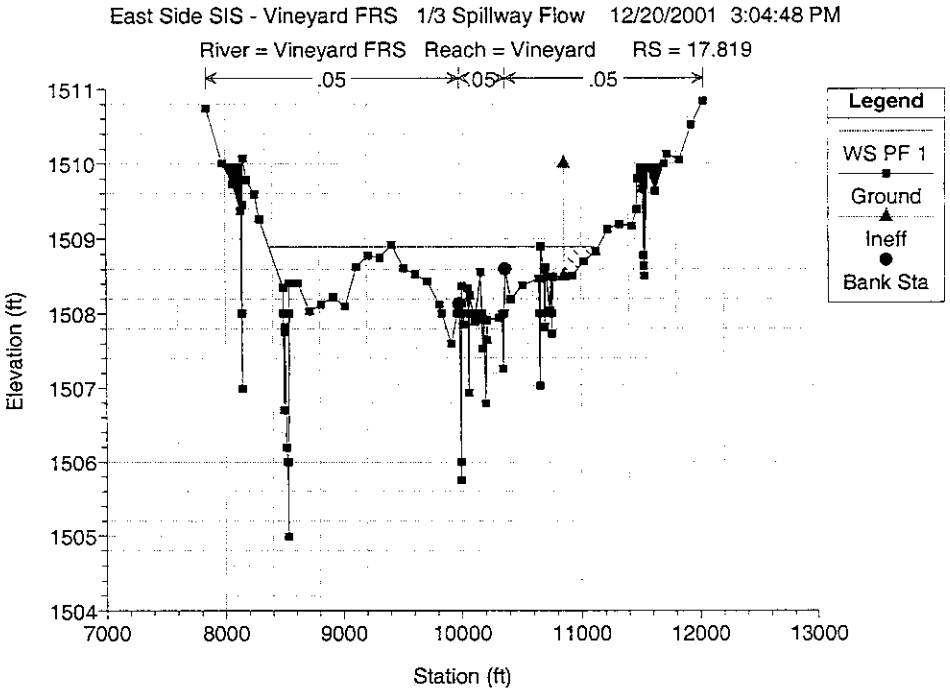

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard "Eastern Diversion" at southern end of c RS = 18.248
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

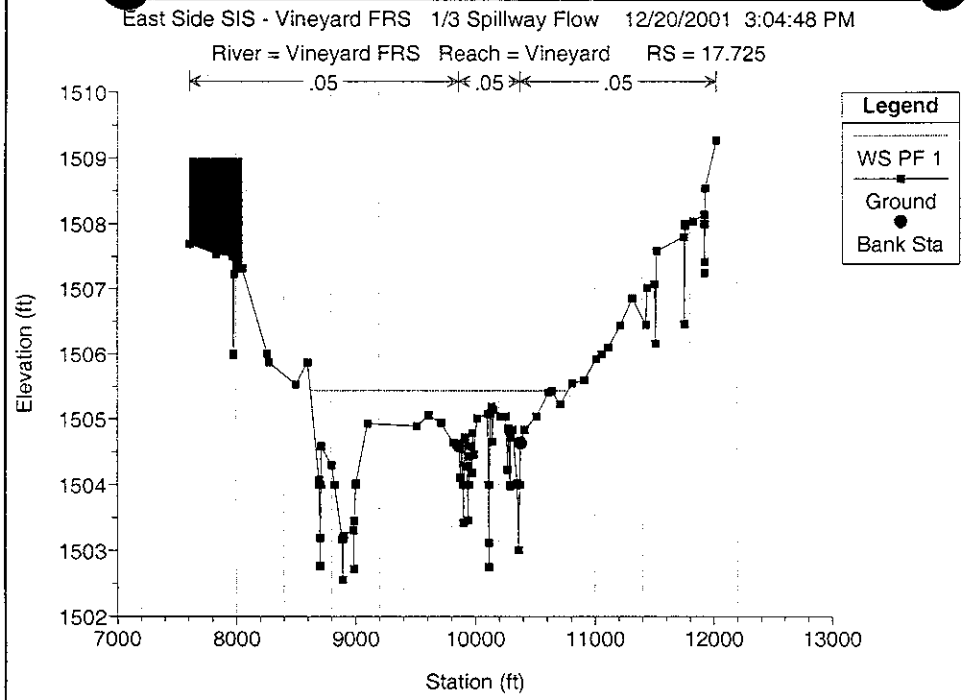

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 18.173
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

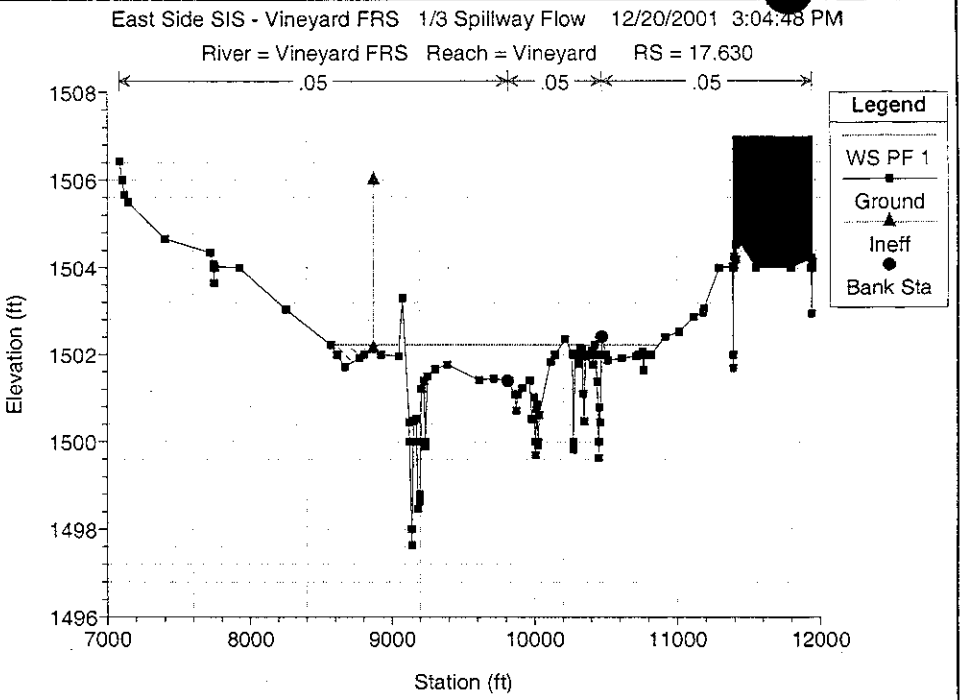

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 18.081
.05
.05
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

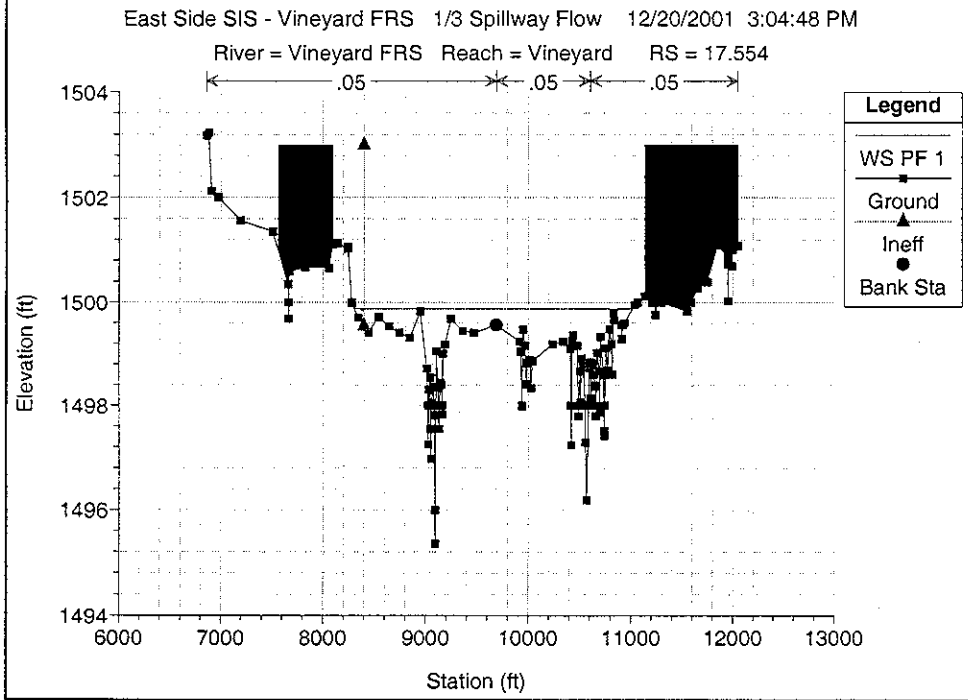

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 18.000
.05
.05
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

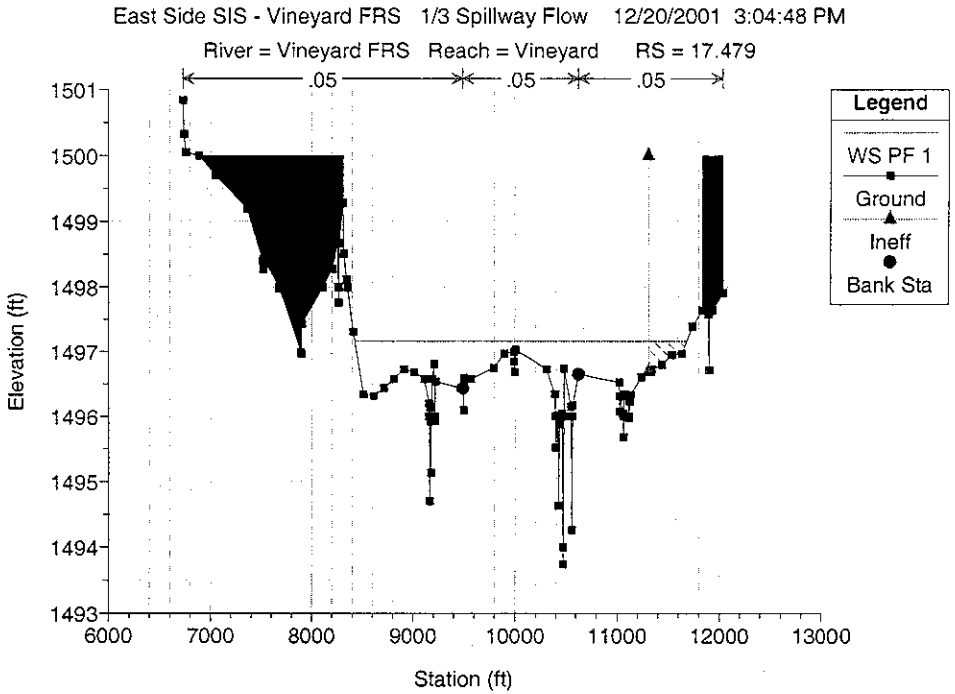

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 17.906
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

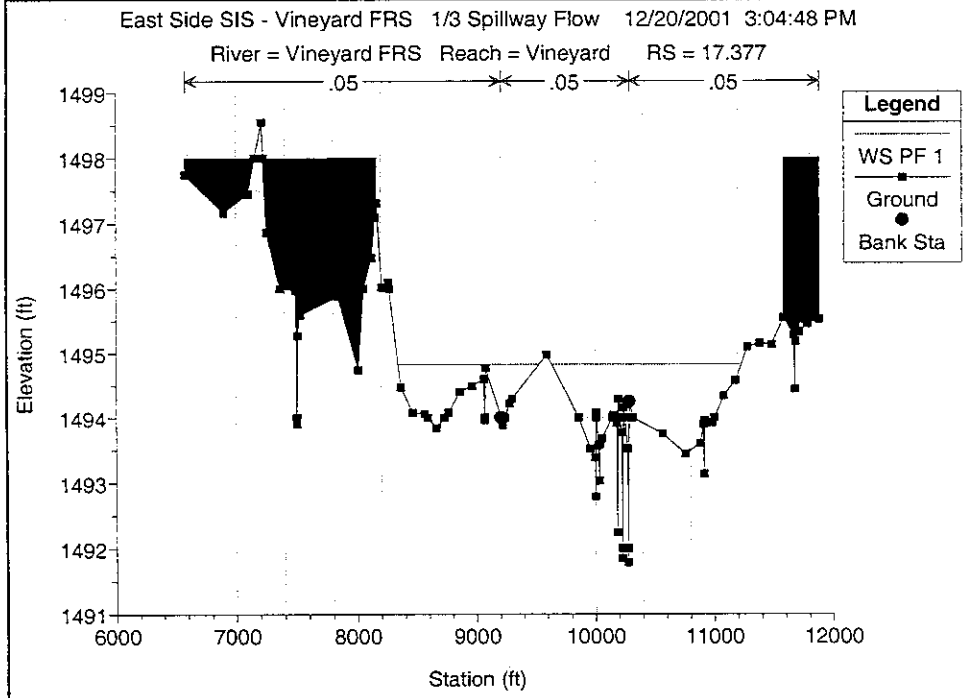

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 17.819
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

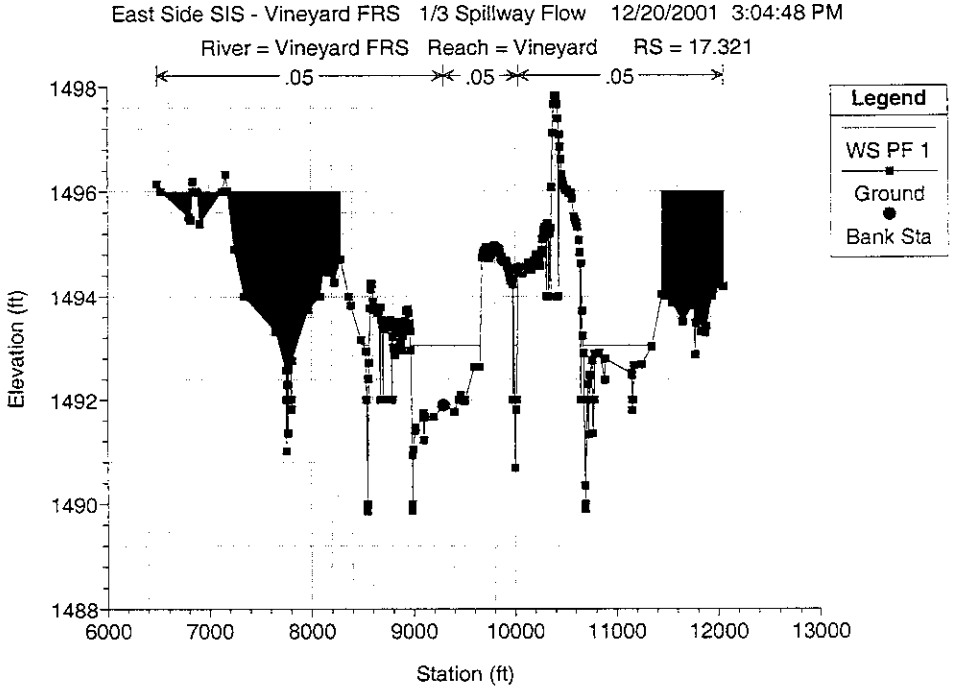

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 17.725
.05
.05
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

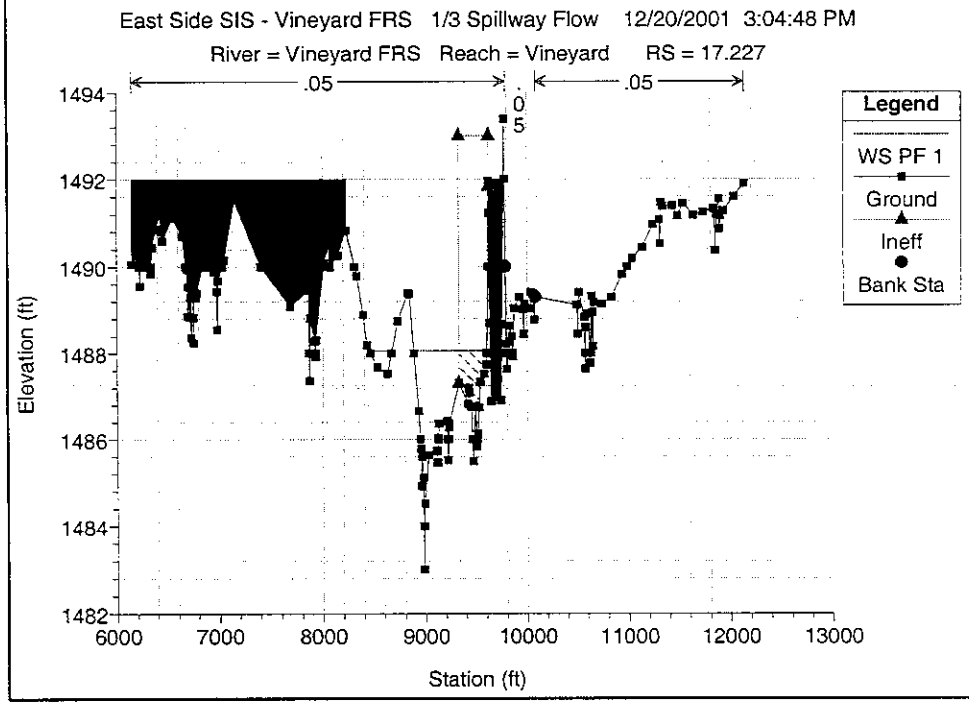

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 17.630
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

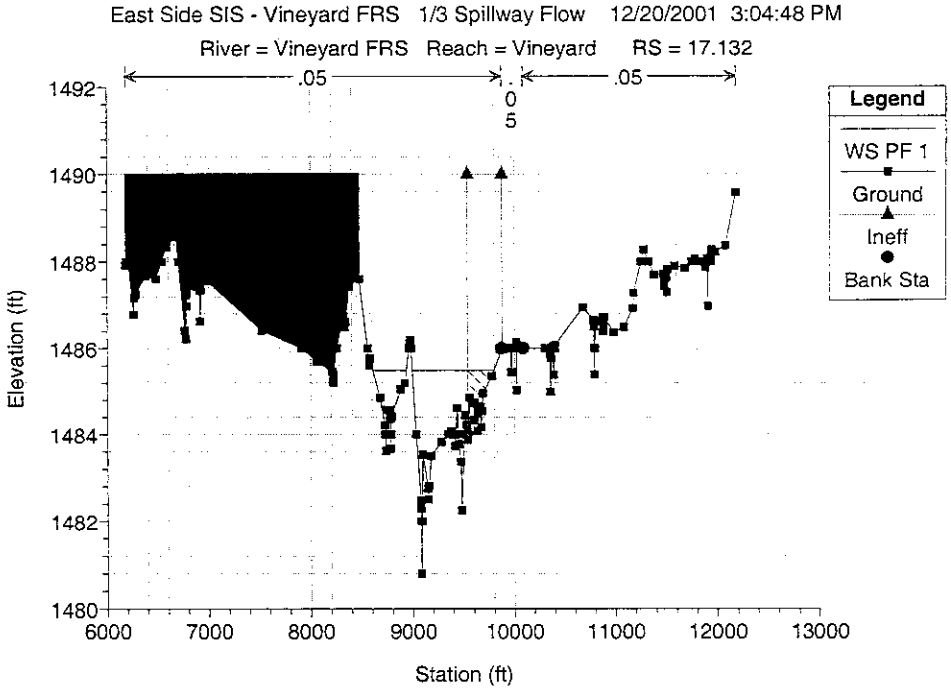

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 17.554
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

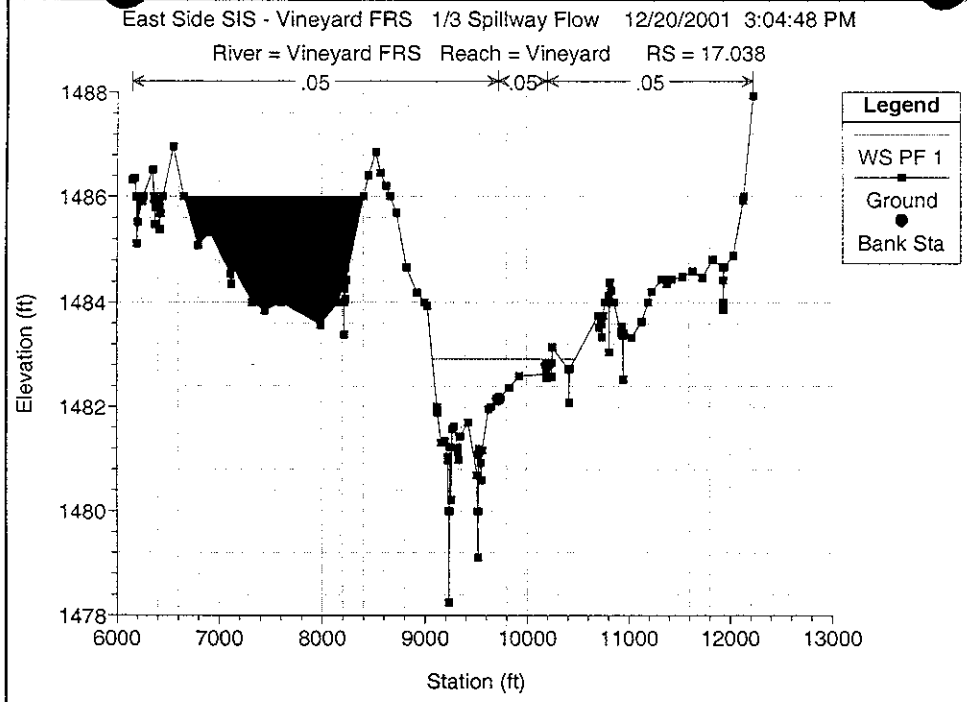

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 17.479
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

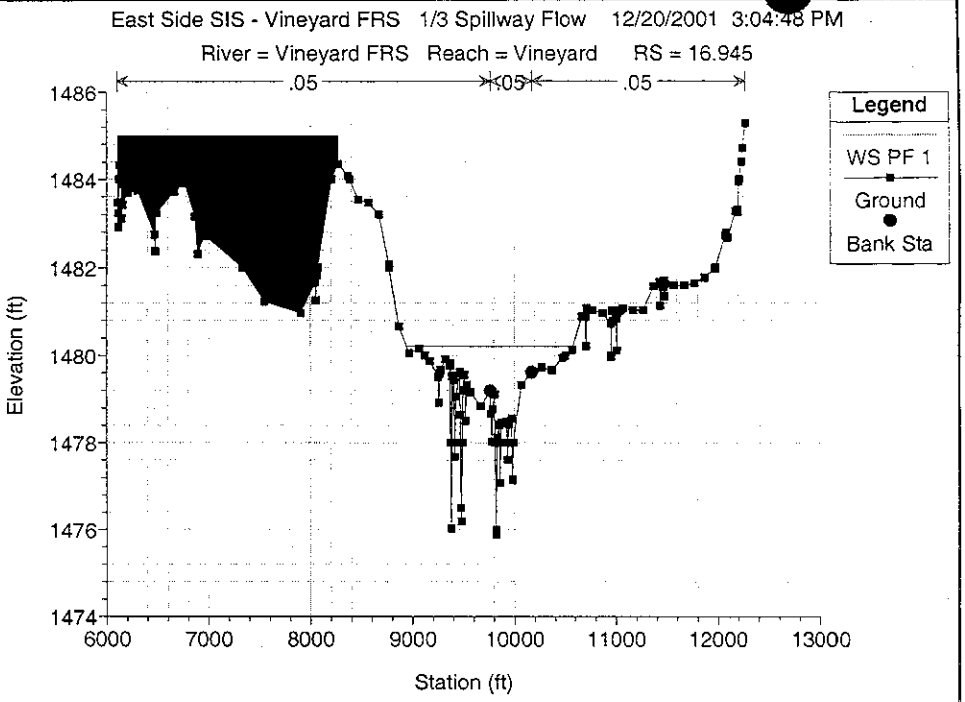

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 17.377
.05
.05
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

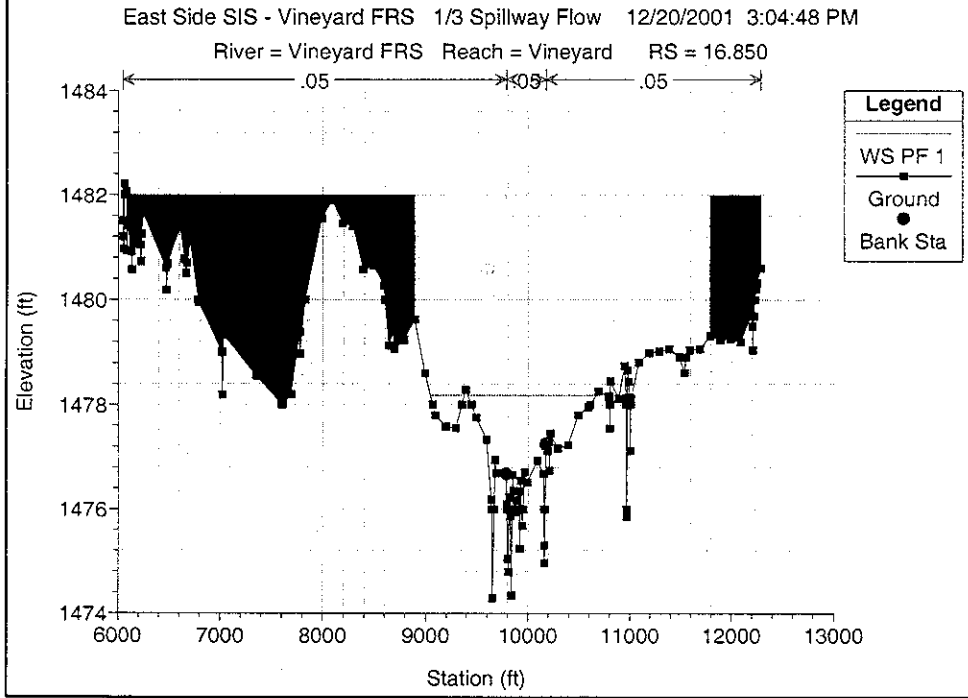

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 17.321
.05
.05
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

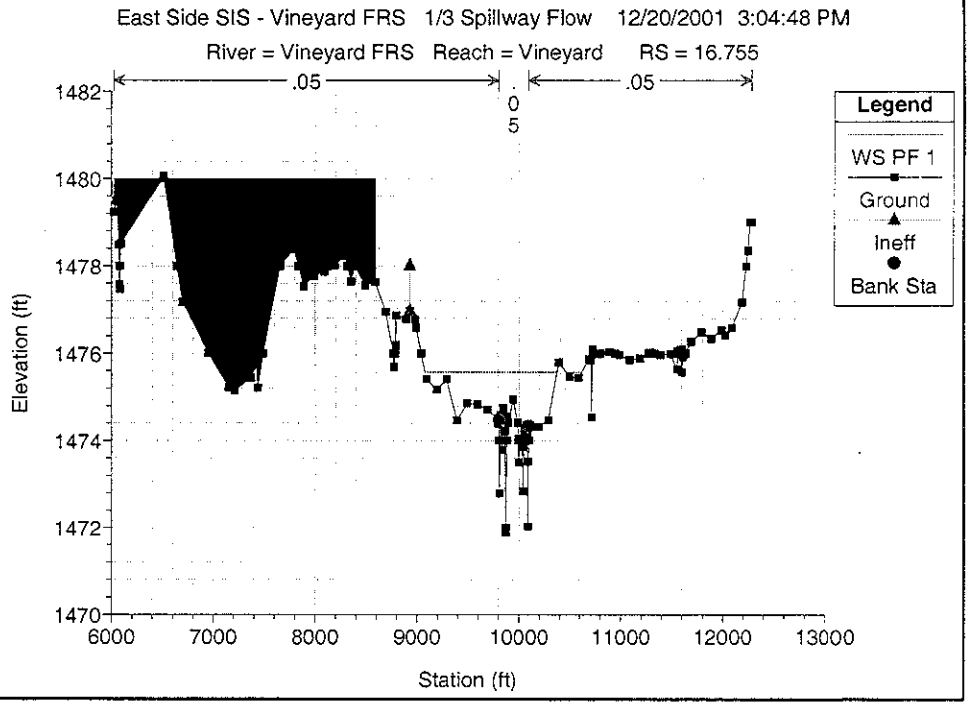

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 17.227
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

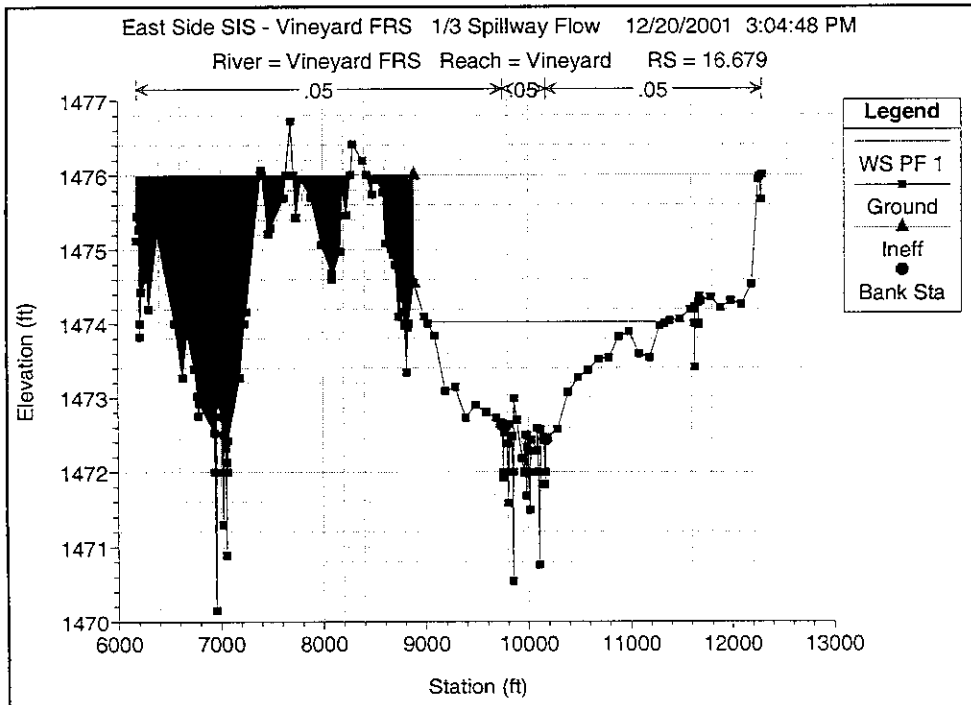

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 17.132
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

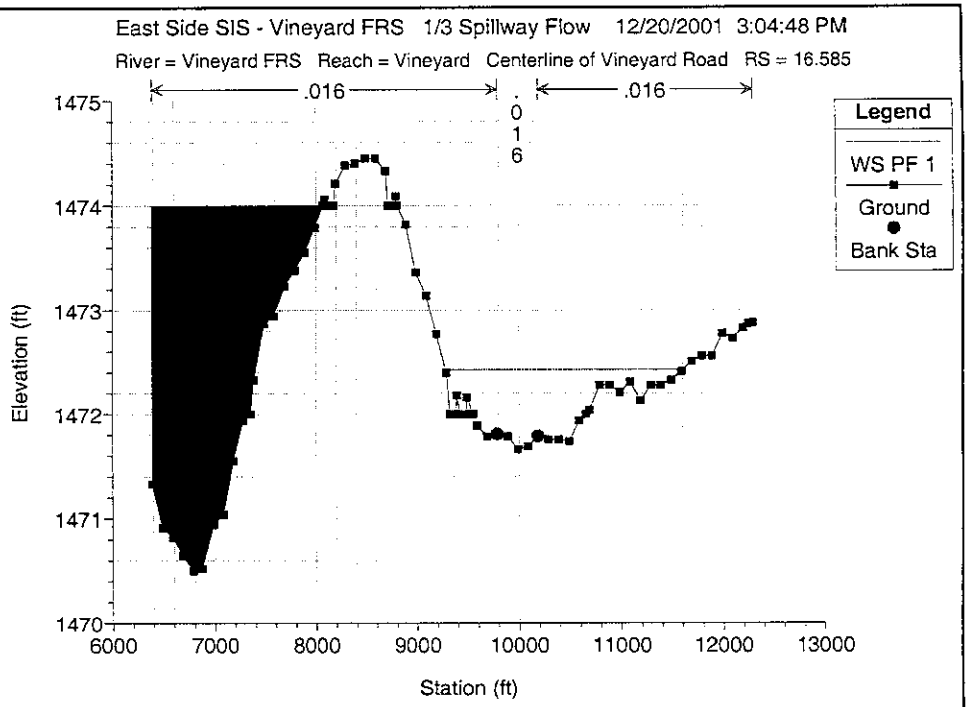

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 17.038
.05
.05
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

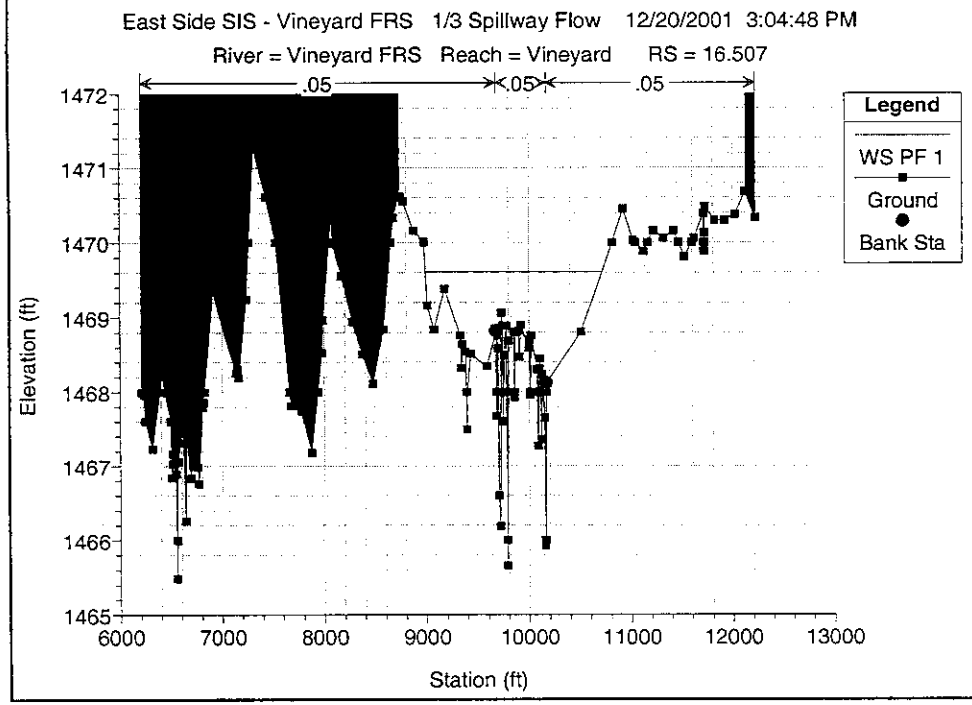

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 16.945
.05
.05
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

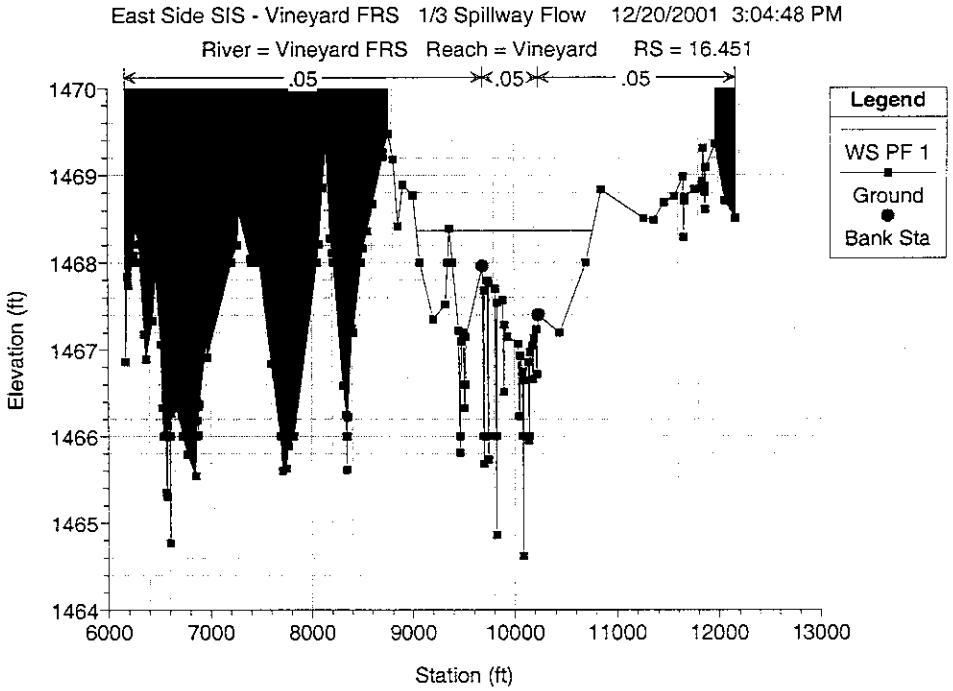

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 16.850
.05
.05
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

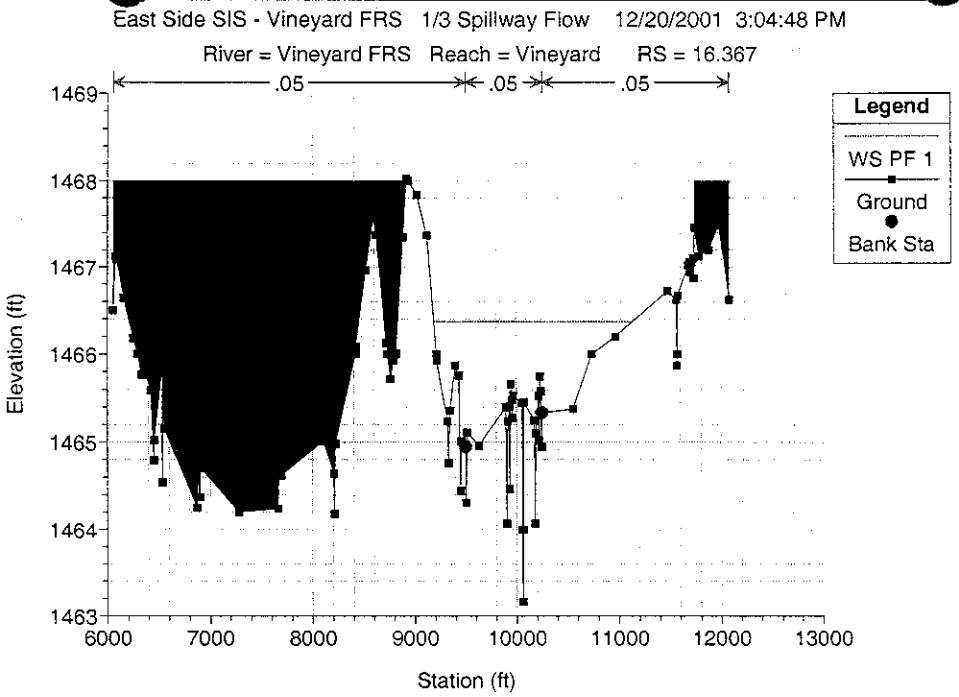

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 16.755
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

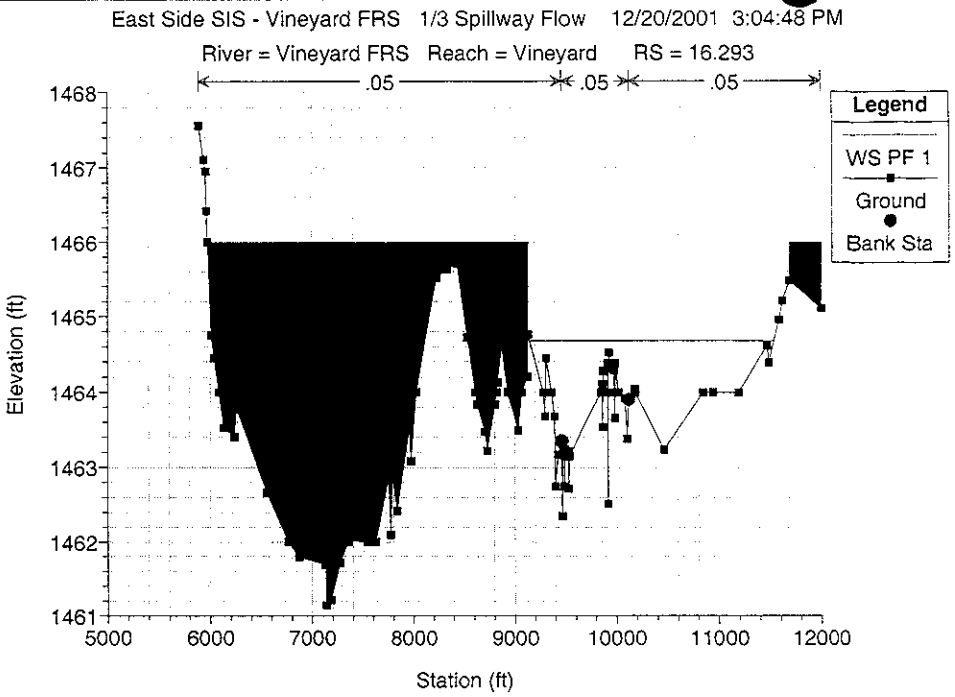

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 16.679
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

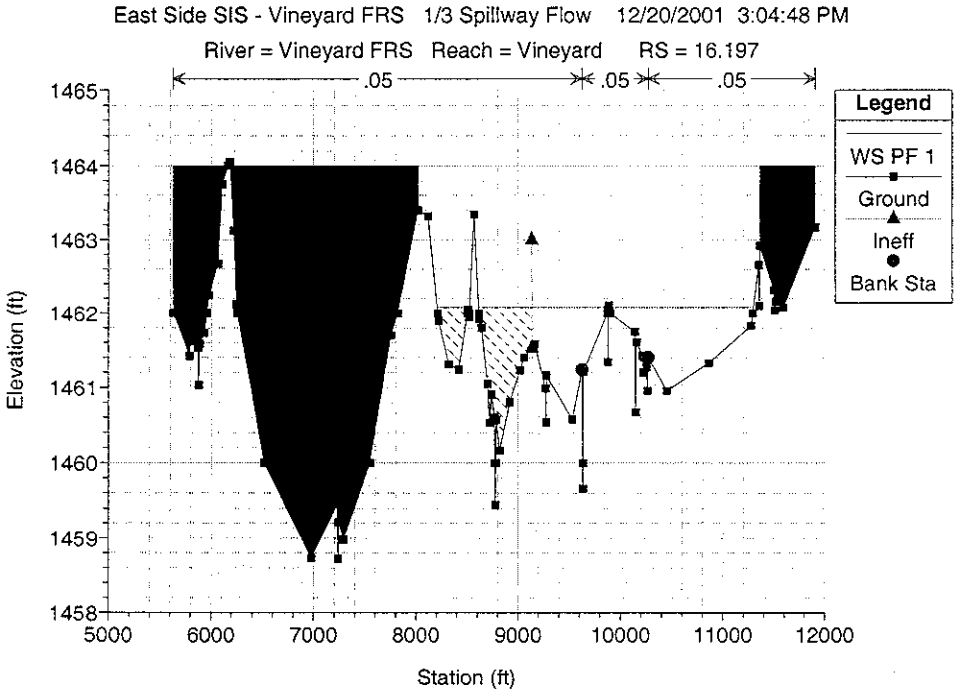

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard Centerline of Vineyard Road RS = 16.585
.016
.016
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

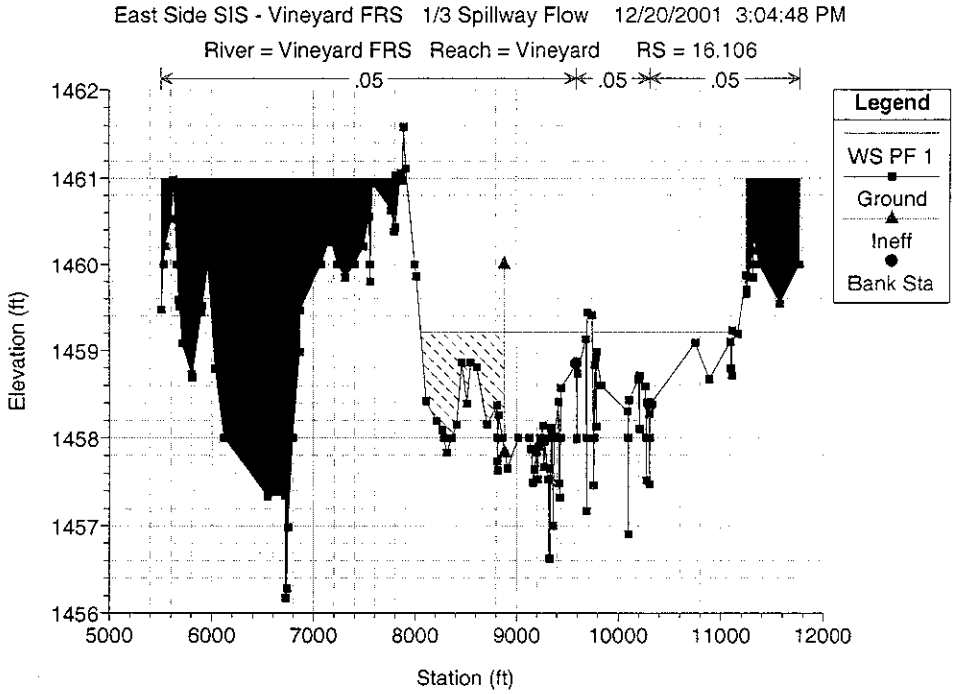

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 16.507
.05
.05
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

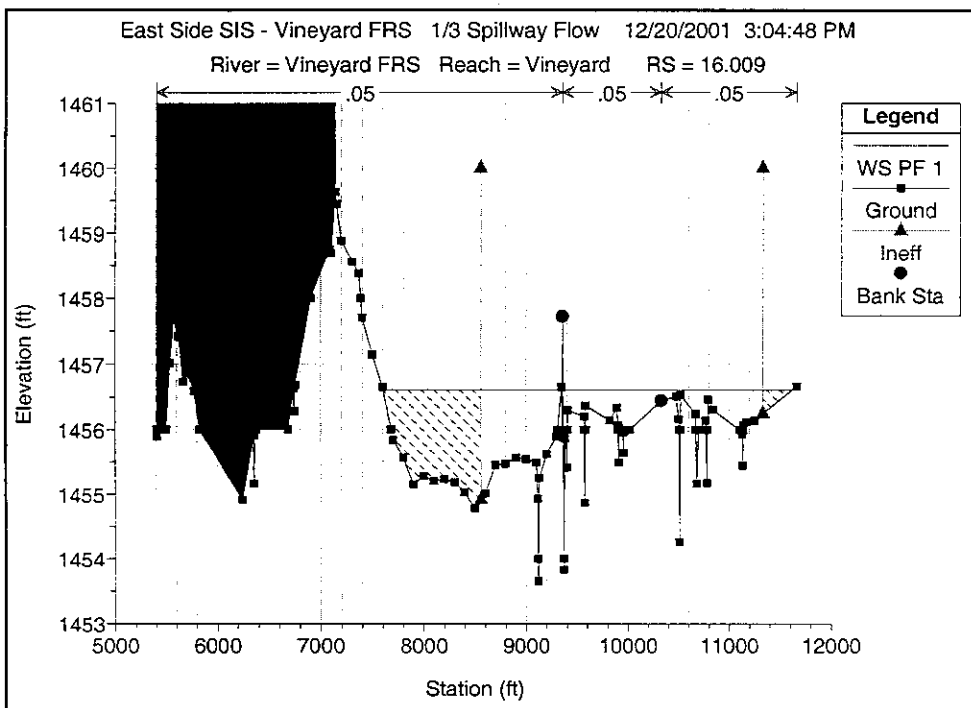

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 16.451
.05
.05
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

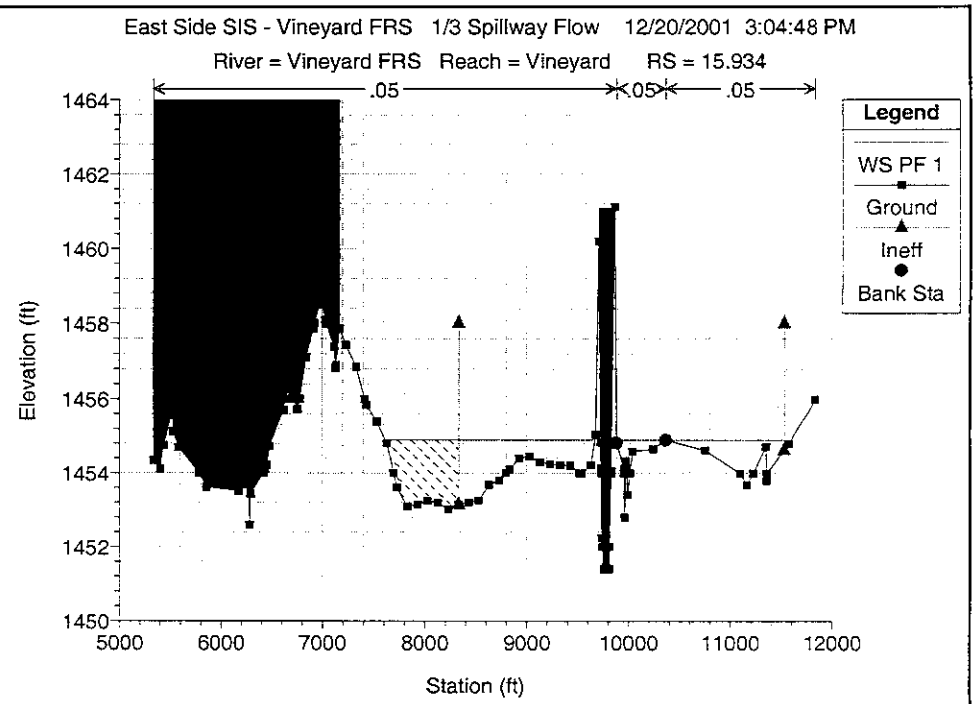

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 16.367
.05
.05
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

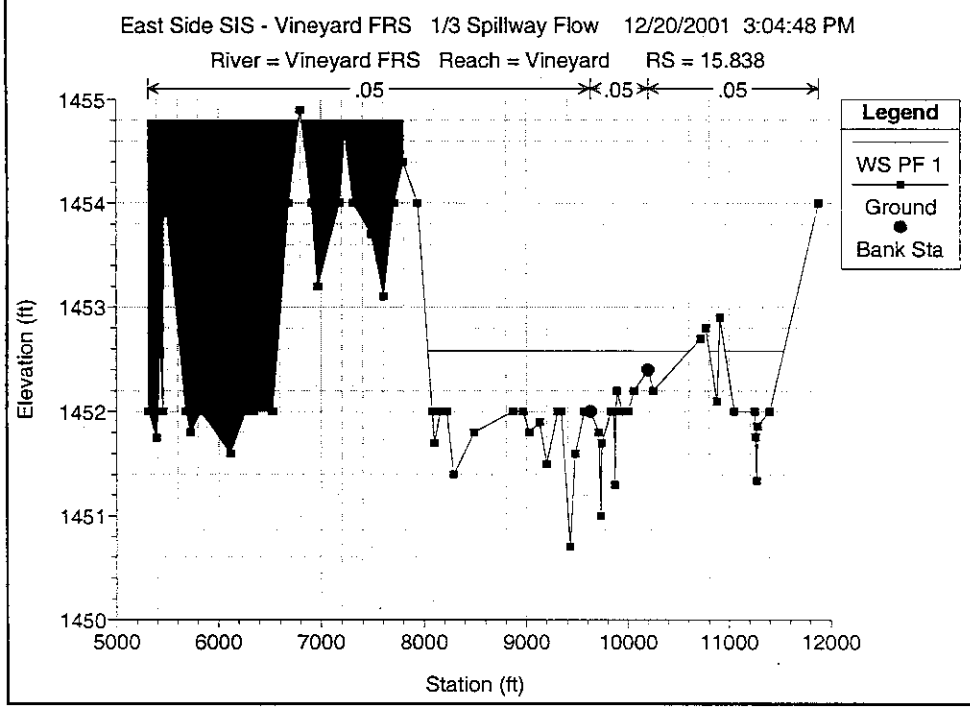

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 16.293
.05
.05
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

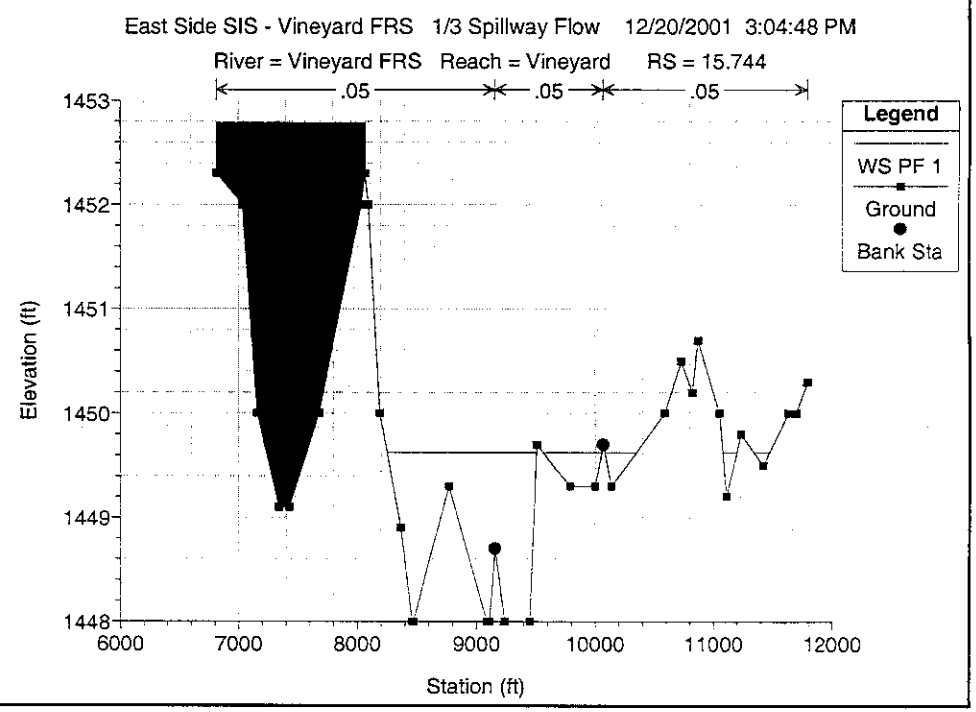

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 16.197
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

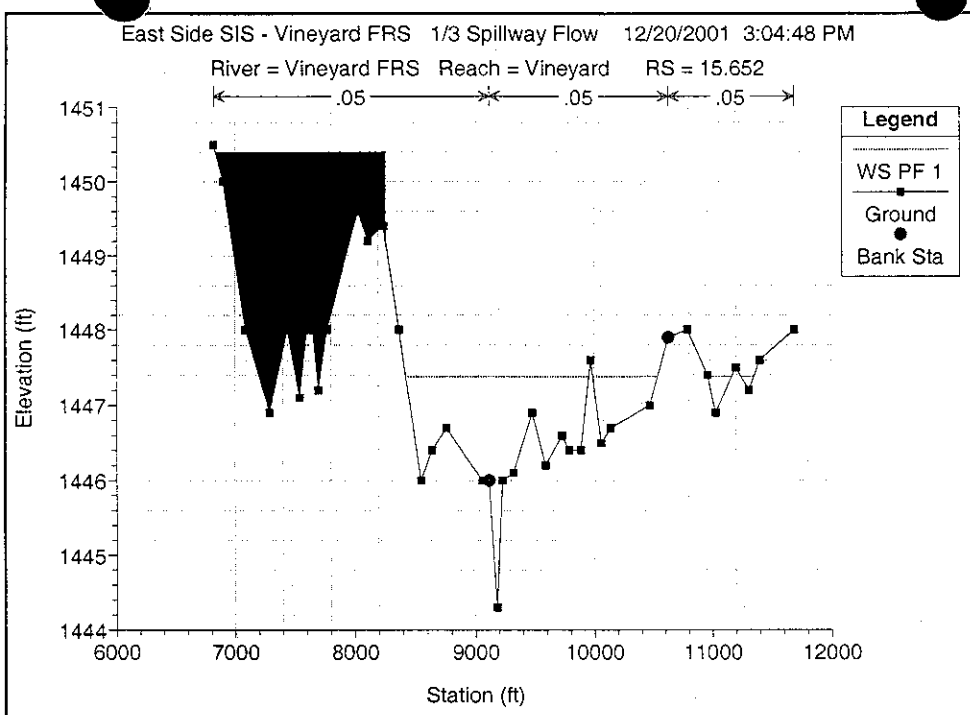

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 16.106
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

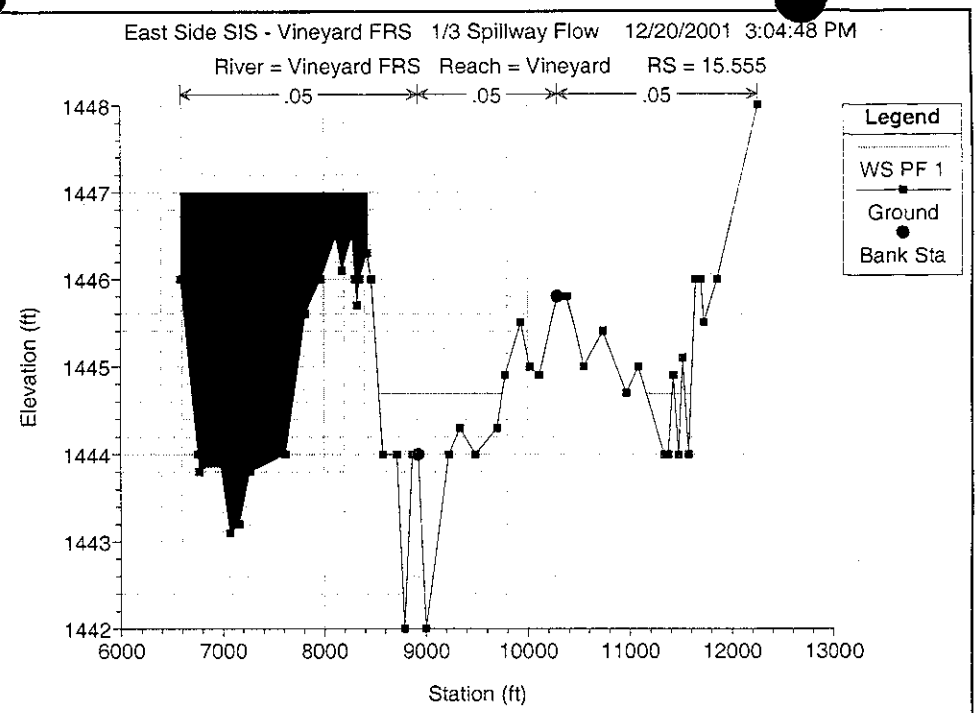

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 16.009
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

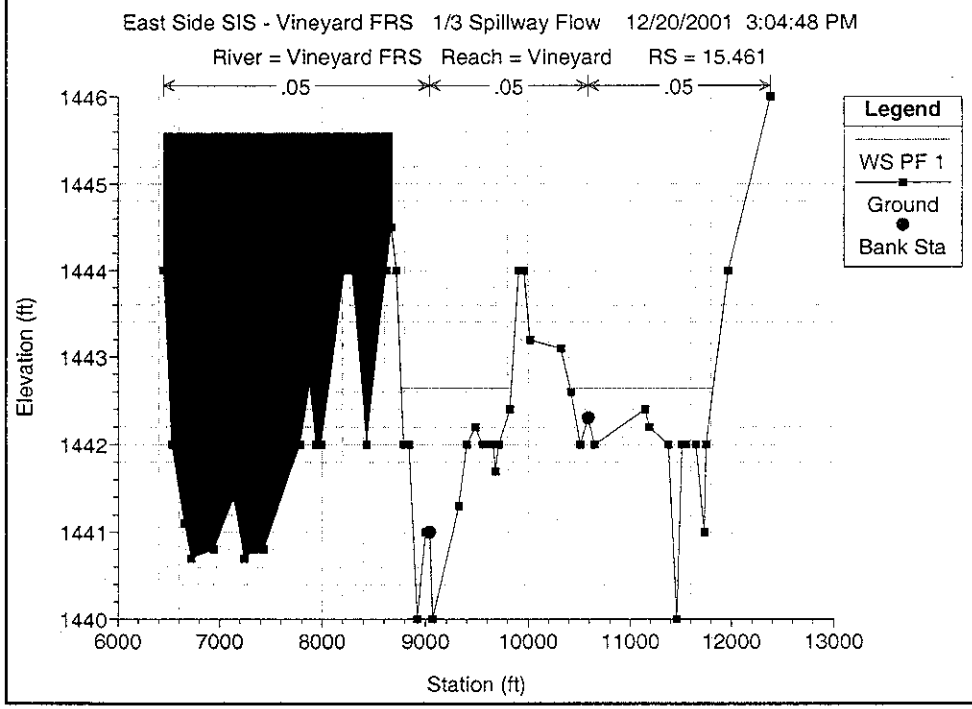

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 15.934
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

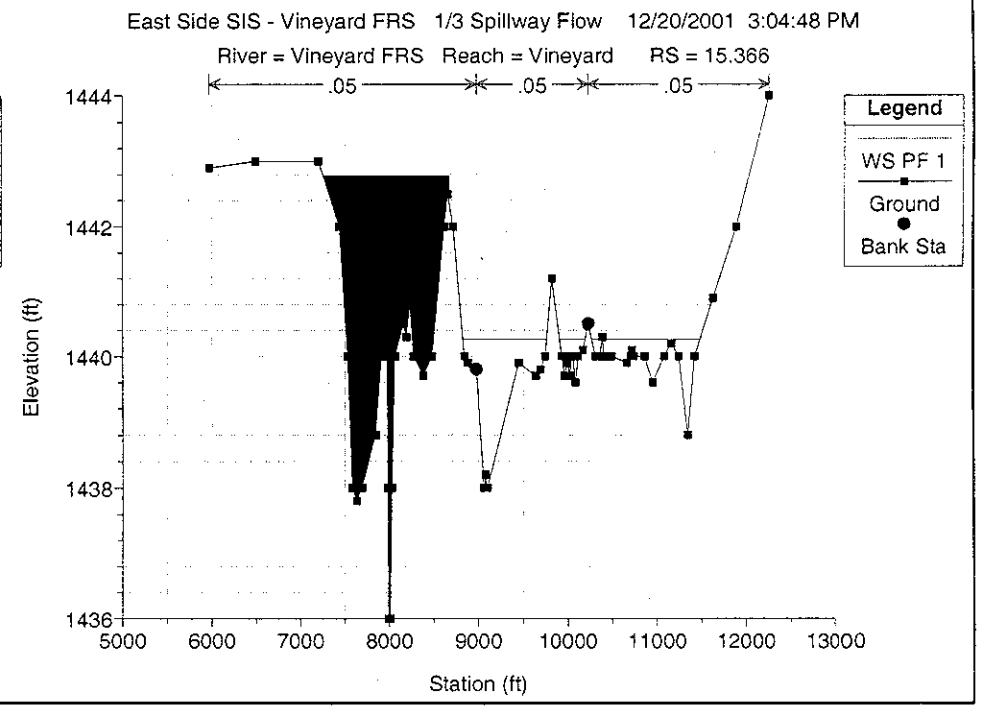

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 15.838
.05
.05
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

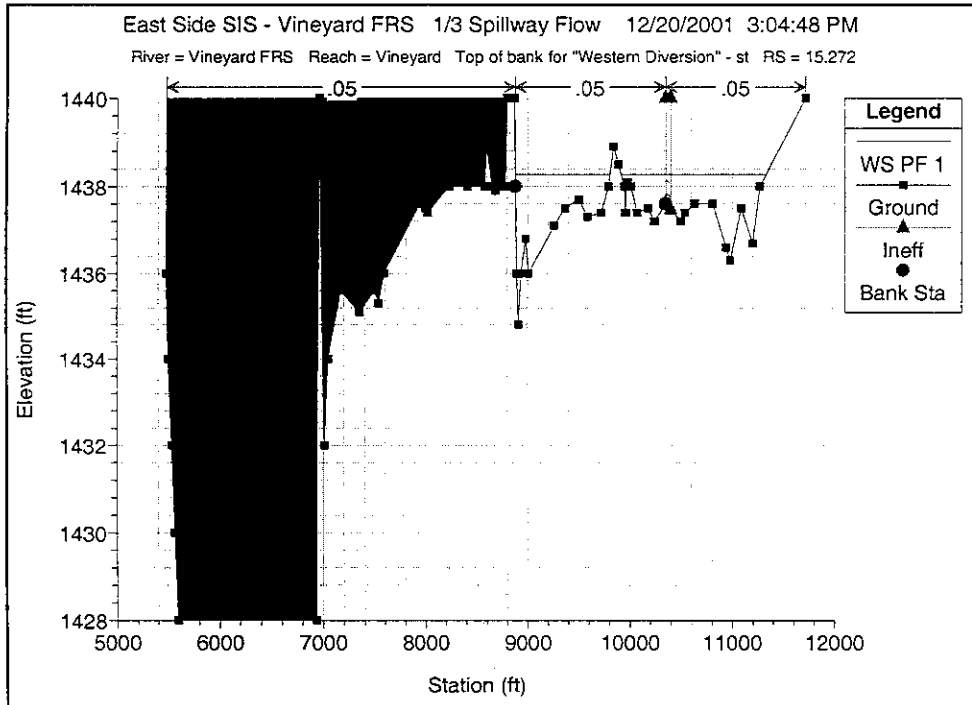

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 15.744
.05
.05
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

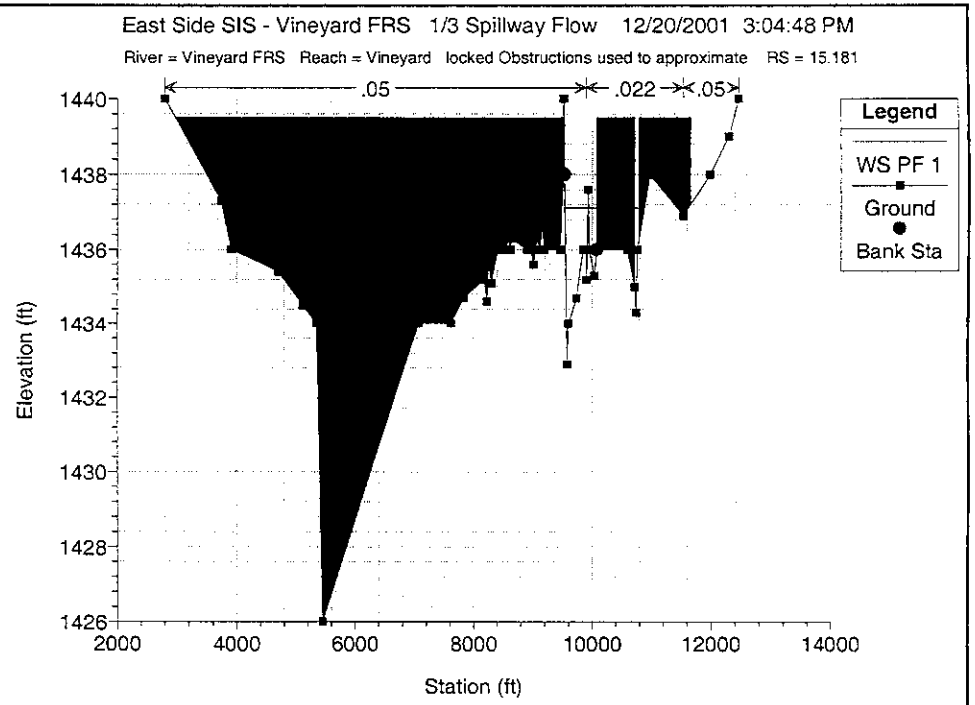

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 15.652
.05
.05
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

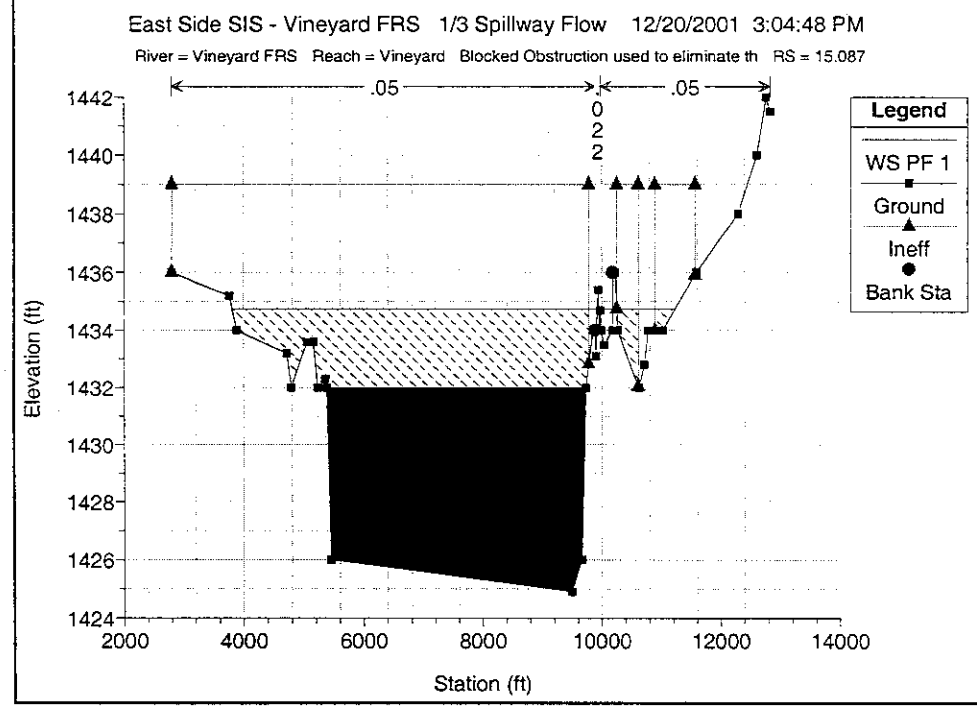

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 15.555
.05
.05
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

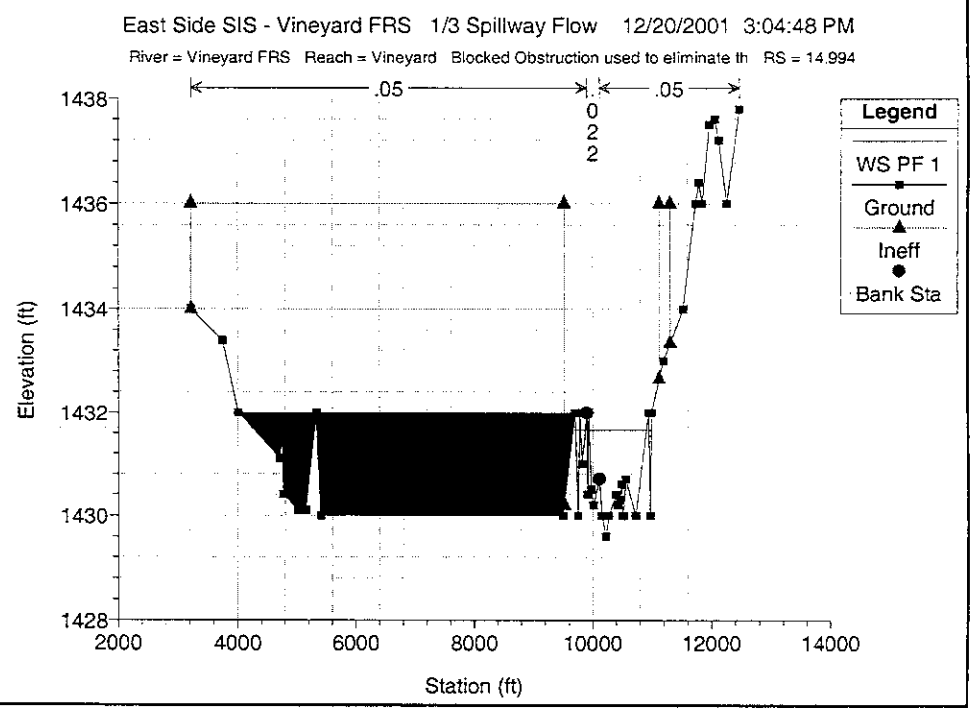

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 15.461
.05
.05
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

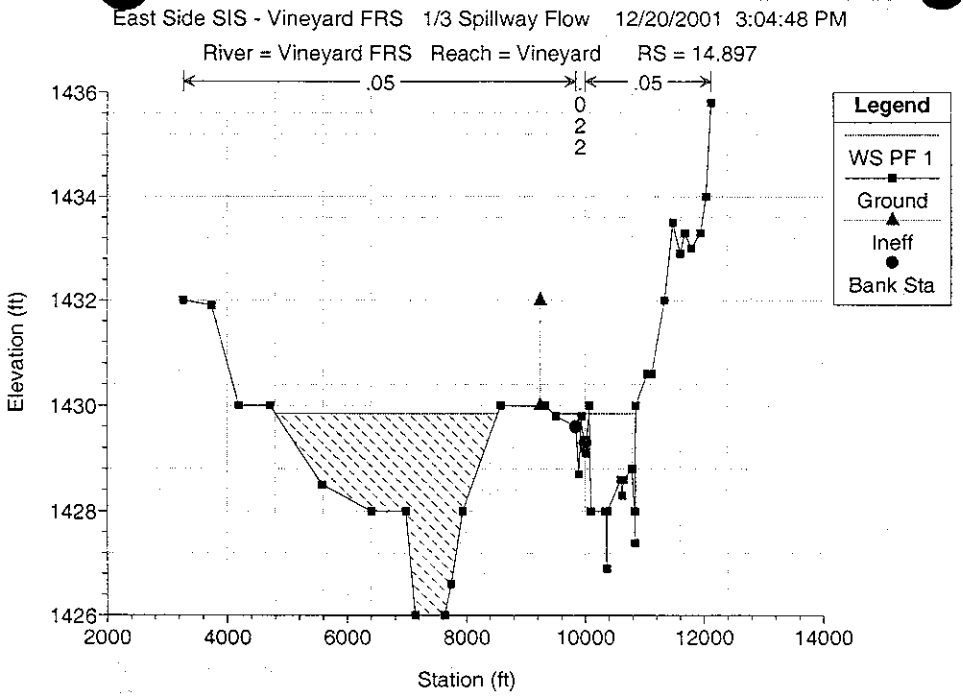

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 15.366
.05
.05
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

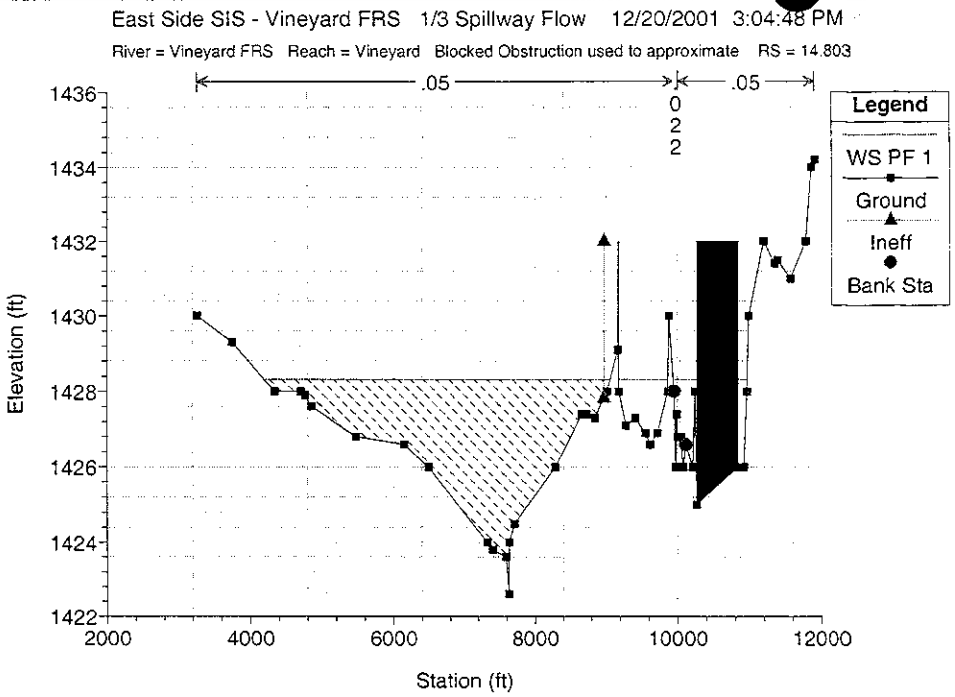

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard Top of bank for "Western Diversion" - st RS = 15.272
.05
.05
.05
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

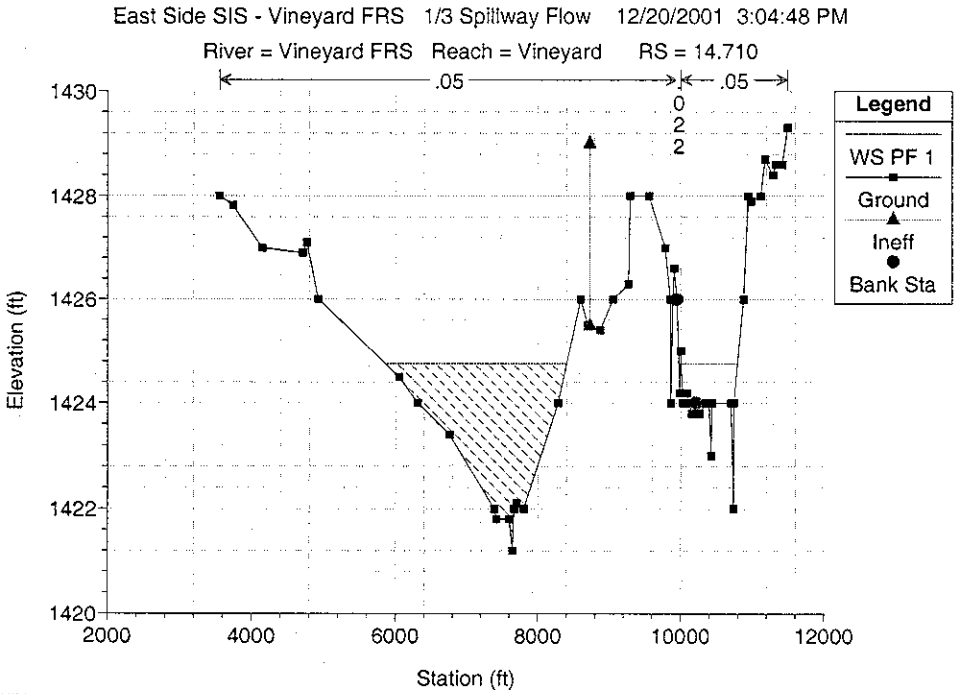

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard locked Obstructions used to approximate RS = 15.181
.05
.022
.05
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

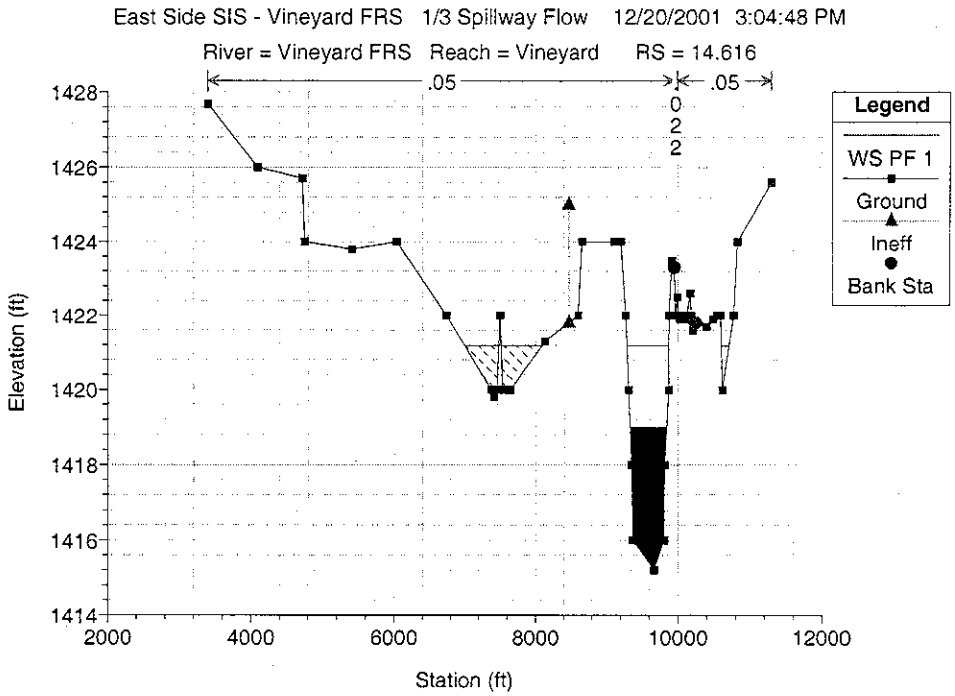

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard Blocked Obstruction used to eliminate th RS = 15.087
.05
.05
0
2
2
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

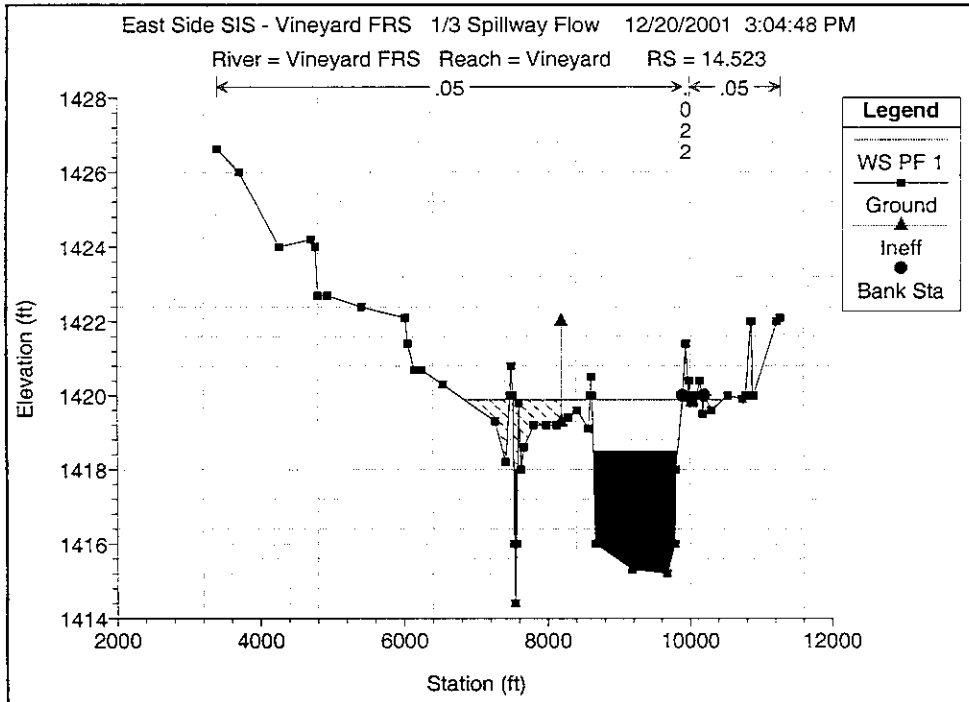

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard Blocked Obstruction used to eliminate th RS = 14.994
.05
.05
0
2
2
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

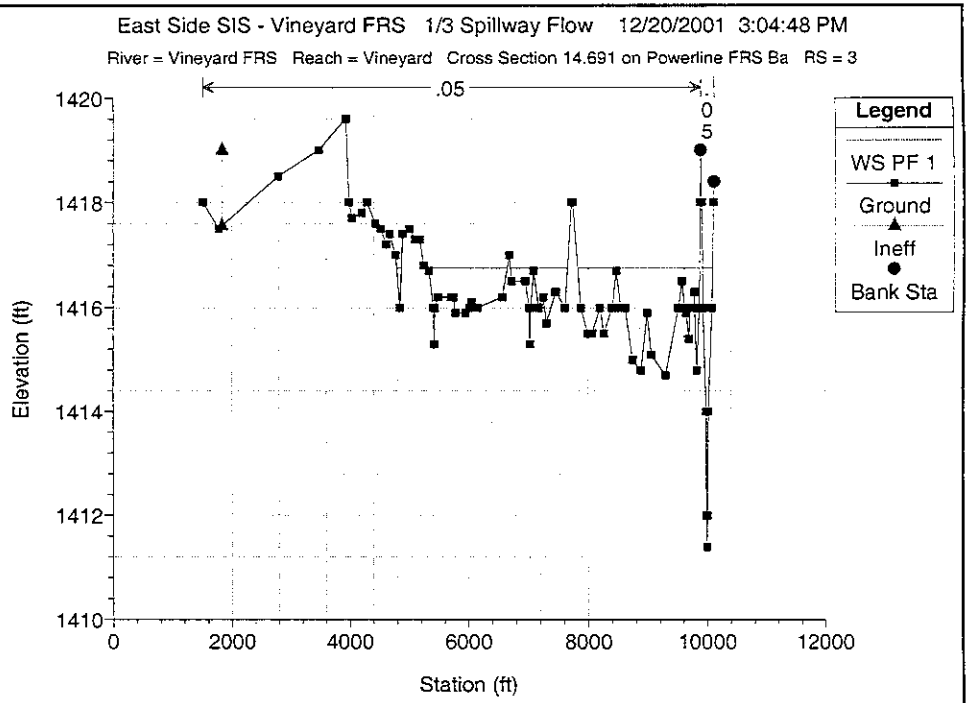

East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 14.897
.05
.05
0
2
2
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard Blocked Obstruction used to approximate RS = 14.803
.05
.05
0
2
2
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 14.710
.05
.05
0
2
2
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 14.616
.05
.05
0
2
2
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard RS = 14.523
.05
.05
0
2
2
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1428
1426
1424
1422
1420
1418
1416
1414
2000
4000
6000
8000
10000
12000
Station (ft)


East Side SIS - Vineyard FRS 1/3 Spillway Flow 12/20/2001 3:04:48 PM
River = Vineyard FRS Reach = Vineyard Cross Section 14.691 on Powerline FRS Ba RS = 3
.05
0
5
Legend
WS PF 1
Ground
Ineff
Bank Sta
Elevation (ft)
1420
1418
1416
1414
1412
1410
0
2000
4000
6000
8000
10000
12000
Station (ft)