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BUCKEYE/SUN VALLEY AREA DRAINAGE MASTER STUDY
TECHNICAL DATA NOTEBOOK

CONTRACT FCD 2002C027

VOLUME V-B: AREA 3 HYDRAULICS REPORT

FINAL

PREPARED FOR

Flood Control District of Maricopa County

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Buckeye/Sun Valley Area Drainage Master Study

Contract FCD 2002C027

Technical Data Notebook

Volume V-B: Area 3 Hydraulics Report

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Final

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1 Introduction

1.1 Purpose of the Study

The Flood Control District of Maricopa County (District) contracted with PBS&J to perform the Buckeye/Sun Valley Area Drainage Master Study (ADMS) to identify drainage, erosion, and sediment problems; evaluate existing floodplain delineations and delineate addition floodplains; identify a range of implementable solutions; and develop preliminary development guidelines for the area. The study area encompasses 280 square miles and is divided into four distinct hydrologic regions. Area 3, north of I-10, is the tributary watershed for the Buckeye Flood Retarding Structures #1-3 (Buckeye Structures) and is approximately 90 square miles in size. The Buckeye Structures are located north of and parallel to Interstate 10 (I-10).

Because the Buckeye Structures are very long, the use of level pool routing methods to represent system response during major storms has been questioned. Dynamic routing methods are believed to provide a better assessment of flooding conditions for long dams; however, the modeling is more complex and labor-intensive. As a result, the District has requested that PBS&J evaluate the operation of the Buckeye Structures using an alternative dynamic routing approach.

The purpose of this analysis is to quantify the extent of overtopping by various storm events up to the probable maximum precipitation event (PMP) and develop dynamic stage-frequency relationships for the Buckeye Structures to facilitate dam management and risk assessment. This will be accomplished by conducting an unsteady flow analysis of FRS hydraulics using the U.S. Army Corps of Engineers HEC-RAS (Version 3.1.1) computer program. Associated with the FRS hydraulics analysis, downstream inundation mappings for emergency spillway discharges of the Buckeye Structures from the spillway #2 and #3 to the Roosevelt Irrigation District (RID) canal are developed. The emergency spillway downstream inundation analyses are included in a separate report. Another objective is to determine whether the HEC-RAS model can provide a cost-effective alternative to two-dimensional modeling for this type of study.

1.2 Project Authorization

A notice to proceed (NTP) for this study was issued in June 2003 by the District. The FCD Contract Number for this project is 2002C027.

1.3 Location of Study

Area 3 covers all or part of sections in Township 1N to 3N, Range 3W to 5W, located in the Town of Buckeye, Arizona. A project location map is presented in Figure 1-1. Area 3 is bounded on the south by I-10 and is located between the White Tank Mountains and the Hassayampa River.

1.4 Methodology Used for Hydrology and Hydraulics

The previous hydrology model of the area (Alpha, 1996) was used as a basis for and comparison to the results produced in this study. HEC-1 embedded in WMS version 7.0 (September, 2003) was used to model the hydrologic response of the watershed for eight storm events ranging from the 10-year, 6-hour storm to the PMP event. The HEC-1 parameters were determined using the methods described in the Drainage Design Manual for Maricopa County, Arizona, Volume I, Hydrology, hereinafter referred to as the Hydrology Manual (Sabol et al., 1995). The Soil Conservation Service (SCS), now the Natural Resources Conservation Service principal spillway hydrograph (PSH) method (NRCS, 1975) was used to model the hydrologic response of Area 3 to the 100-year, 10-day storm event.

The unsteady flow module of HEC-RAS version 3.1.1 (May, 2003) was used to model the hydraulic response of the Buckeye Structures for all of the various storm events. The HEC-RAS model parameters were determined using the methods described in the Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics, hereinafter referred to as the Hydraulics Manual (Sabol et al., 1995).

1.5 Acknowledgements

Ms. Valerie Swick, CFM (Project Manager, Flood Control District of Maricopa County) provided guidance during the course of study. Dr. Bing Zhao, P.E. (Engineering Application Development Branch Manager, Engineering Division, Flood Control District of Maricopa County) and Mr. Joe Rumann (Sr. Hydrologist, Engineering Division, Flood Control District of Maricopa County) provided advice on technical issues and other suggestions. Ms. Laurie Miller, P.E. (LTM Engineering, Inc.) assisted with the report. Dr. Mike Johnson, P.E. (Dam Safety Engineer, Arizona Department of Water Resource) contributed discussions about dam overtopping policy in Arizona. Saul Nuccitelli, P.E., Michael Depue, P.E., and Bob Laura, P.E., PBS&J reviewed the model results and suggested debugging techniques.

1.6 Summary of Study Results

Eight storm events (both existing and future conditions) were simulated in the HEC-RAS unsteady models. The results were compared to level pool routing results. A summary of the hydraulic results is presented below:

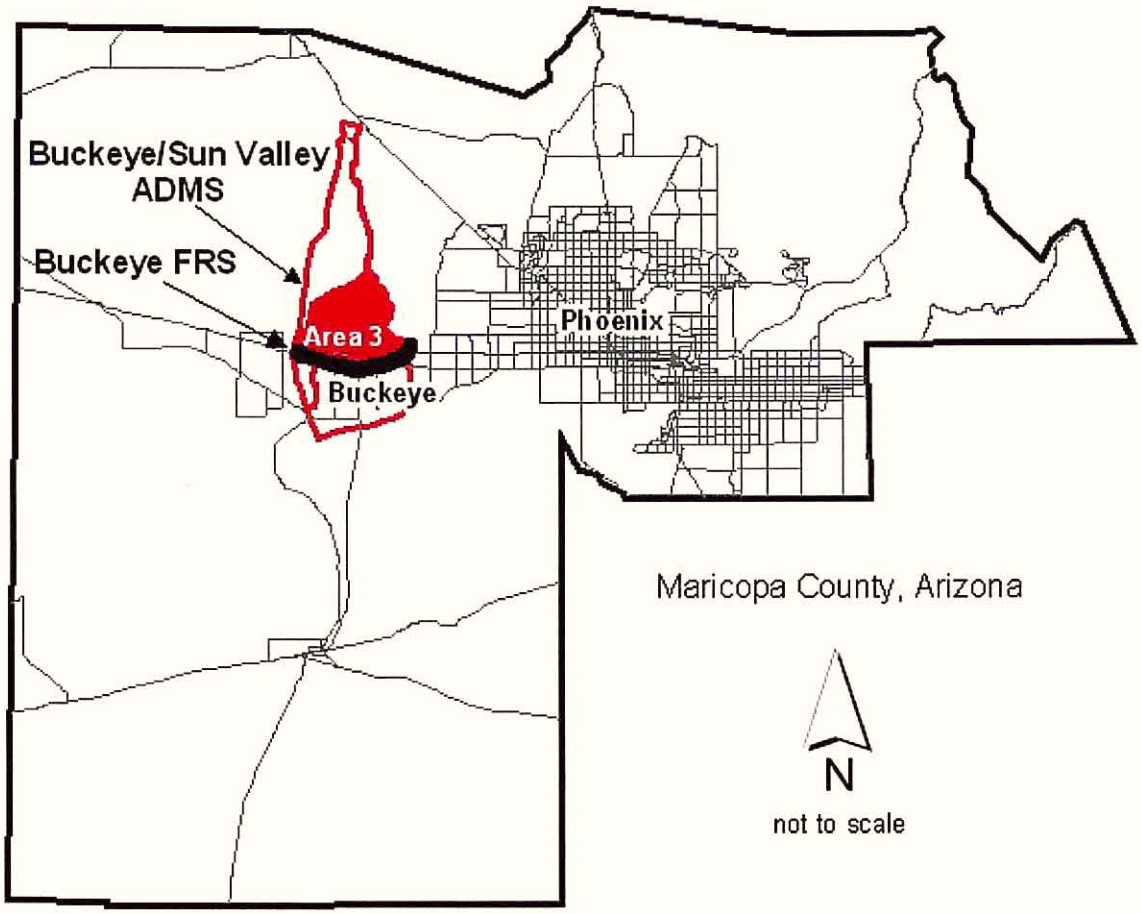
- The original FRS design can safely contain and convey runoff for storms up to the 500-year event without overtopping the emergency spillways.
- Overtopping of the FRS crest during the Probable Maximum Flood (PMF) occurs only on portions of FRS#1 and FRS#2.
- Emergency spillways for all FRSs are overtopped during the PMF, but the discharge capacity of the spillways is not fully utilized.
- The unsteady model analyses can identify problems with existing associated structures (roadways and culverts, principal spillway, etc.) that are ignored in less sophisticated models.

Warning message from the analyses indicated floodways were subject to discharge during a PMF event. Additional analyses with floodway overtopping were conducted. The results highlight the following bullets for future dam rehabilitation.

- The original analyses provide the minimum depths to be leveled for the floodways to avoid overtopped at a PMF event.
- The additional analyses indicate the maximum overtopping discharges for the floodways, which could be a weak link in the Buckeye FRS system.
- Transverse roadways affect the FRS hydraulic characteristics significantly. More discharge could be expected at the emergency spillway if the roadway did not exist.
- The floodway discharge does not affect the emergency spillway hydraulic profile.

Figure 1-1

Buckeye Area 3 ADMS Vicinity Map



2 Flood Control District of Maricopa County Abstract

2.1 General Information

2.1.1 Community Name

The Town of Buckeye, Arizona and unincorporated areas of Maricopa County.

2.1.2 Community Number

040037

2.1.3 County

Maricopa

2.1.4 State

Arizona

2.1.5 Date Study Accepted

N/A

2.1.6 Study Contractor

PBS&J, 7310 N. 16th Street, Suite 310, Phoenix, Arizona, 85020.
Technical contact: Stephen Rogers, P.E., CFM

2.1.7 State Technical Reviewer

N/A

2.1.8 Local Technical Reviewer

Flood Control District of Maricopa County (The District)

2.1.9 River or Stream Name

Hassayampa River and White Tank Wash

2.1.10 Reach Description

The Buckeye Structures were designed and constructed by the NRCS in the 1970s and have a combined contributing drainage area of 90 mi^2. The three FRSs were designed to function as a single system with the detained flows cascading west to the outfall at the Hassayampa River. The structures were designed to provide protection from storms up to the one percent exceedance level. Ungated low-level outlets serve as principal spillways and runoff to the west. Free surface emergency spillways were provided for each FRS to control discharge for storms in excess of a storm event equivalent to "74% of the 100-year storm plus 26% of the probable maximum flood (PMF)". The dam crest, or "emergency spillway freeboard", was designed to contain the PMF without overtopping (NRCS, 1985; Arizona Water Commission, 1979). The principal outlet discharges are routed to each downstream FRS through Buckeye Floodways #2 and #3. Emergency spillway discharges do not cascade to other FRSs but flow generally to the south through the Town of Buckeye toward the Gila River.

2.1.11 Study Type

Detailed hydrology, FRS frequency-stage study.

2.2 Mapping Information

2.2.1 USGS Quad Sheets

N/A

2.2.2 Mapping for Hydrology Study

Ten-foot contours derived from a digital elevation model (DEM) built from mass points on a 50-foot grid and breaklines and one-foot resolution MrSID format orthophotography provided by the District in 2003 were used as the base mapping for the Area 3 hydrology study.

2.2.3 Mapping for Hydraulic Study

Two-foot contours derived from the 50-foot mass points and breaklines digital elevation model (DEM) and one-foot resolution MrSID format orthophotography provided by the District in 2003 were used as the base mapping for the Area 3 hydraulic study.

2.3 Hydrology

2.3.1 Model or Method Used

The US Army Corps of Engineers HEC-1 program was used for this study. Parameters included Green & Ampt rainfall/runoff losses with S-graph unit hydrographs and normal depth routing using 8-point cross sections.

2.3.2 Storm Frequency and Duration

For both existing and future conditions, the following storm frequencies and durations were analyzed:

- 10-year 6-hour
- 10-year 24-hour
- 100-year 6-hour
- 100-year 24-hour
- 100-year 10-day
- 200-year 24-hour
- 500-year 24-hour
- PMP 6-hour
- PMP 72-hour

2.3.3 Hydrograph Type

S-graphs (Mountain and Desert/Rangeland) developed for Maricopa County.

2.3.4 Frequencies Determined

10-year, 100-year, 200-year, 500-year, and PMP

2.3.5 List of Gages used in Frequency Analysis or Calibration

N/A

2.3.6 Rainfall Amounts and Reference

The rainfall amounts were derived from the NOAA Atlas 2 isopluvial maps as provided in the Hydrology Manual for events up to the 100-year return frequency storm. For those events

greater than the 100-year return frequency, the rainfall amounts were derived from a linear extension of the Intensity-Duration-Frequency (I-D-F) relationship in a normal-logarithmic scale (Prefre, ver. 2.1 in DDMSW). PMP amounts were derived based upon the procedures described in the National Weather Service (NWS) Technical Report HMR-49: Probable Maximum Precipitation Estimates, Colorado River and Great Basin Drainages (NWS, 1977).

2.3.7 Unique Conditions and Problems

Special problems encountered in the course of study are discussed in subsequent sections, including:

- Flow splits and diversions among sub-basins
- Reduced conveyance capacity of the culverts along the Sun Valley Parkway due to excessive sedimentation
- Unit hydrograph K_n-values for desert/rangeland
- Future condition assumptions used for hydrology modeling

2.3.8 Coordination of Q's

Peak flows for Area 3 submitted in this report have been coordinated with Julie Cox, hydrologist, Engineering Division in the Flood Control District of Maricopa County throughout the entire project. The hydrologic models were submitted for review to Ms. Cox in October and December 2003 and revised with Ms. Cox's comments. The final peak flows from the PBS&J study were comparable (within 15%) to Alpha's previous study.

2.4 Hydraulics

2.4.1 Model or Method Used

The unsteady flow module established in HEC-RAS (version 3.1.1) developed by the Corps of Engineers (May 2003).

2.4.2 Regime

The flow regime in the unsteady hydraulics model is assumed subcritical for all reaches. Starting boundary conditions for the unsteady models including time steps, initial flows, WSEL profile, and sediment volumes are set up using the default settings in the program with engineering judgments.

2.4.3 Frequencies for which Profiles were computed

For both existing and future conditions, the following storm frequencies and durations were used:

- 10-year 6-hour
- 10-year 24-hour
- 100-year 6-hour
- 100-year 24-hour
- 200-year 24-hour
- 500-year 24-hour
- PMP 6-hour
- PMP 72-hour

2.4.4 Method of Floodway Calculation

N/A

2.4.5 Unique Conditions and Problems

Special problems encountered in the course of study are discussed in subsequent sections, including:

- Comparison of the level pool routing with unsteady hydraulic model results
- Floodway overtopping during the PMF events
- Modeling of roadways transverse to the FRS structure
- Modeling of the emergency spillways and dam crest for overtopping
- Development of suitable rating curves
- Low flow conditions

2.5 Additional Study Information

N/A

3 Mapping and Survey Information

3.1 Field Survey Information

Field investigations were conducted by PBS&J in February 2004. Additional information was collected from the District in 2002 – 2003 and was incorporated into this study.

The PBS&J field investigation mainly focused on the hydraulic elements identification, roughness estimation, and infrastructure updates and modifications as compared to asbuilt plans. For example, the culverts beneath Sun Valley Parkway were originally designed as two 60'' diameter corrugated metal pipes (CMP) (NRCS, 1974), but were replaced with four 10'X10' box culverts. The fields visit photographs and descriptions are documented in Appendix C.

The District field investigations were conducted in 2002 and 2003. These investigations are a part of the District's Dam Safety Monitoring Program. These photographs and survey results were mainly used to update the dam crest and spillway elevations. The original design assigned one constant elevation for each FRS dam crest (NRCS, 1974). Photographs provided by the District (Mr. Larry Lambert, Project Manager – Dam Safety, Planning and Project Management Division) with descriptions are documented in Appendix C.

3.2 Mapping

The District has some older strip mapping of the Buckeye FRSs survey prepared by McLain Harbers Co., Inc. in 1995. This strip mapping was 2-foot contour mapping.

Mapping for the entire study area was prepared for the District by LandData Inc. in 2000. This mapping was prepared with 10-foot grid data derived from 50-foot mass points and break lines and provided 10-foot contour elevations.

New topographic mapping for the southern boundary of Area 3 was prepared for the District by Kenney Aerial Mapping, Inc. in 2003. The new mapping provided 2-foot contour data. Aerial photography was flown in December 2002 as part of the District's ongoing effort to maintain current aerial photography for the entire county. The aerial photography for the study area is 1-foot resolution orthophotography in MrSID format.

The projected coordinates of State Plane NAD 1983, Arizona Central, were used as the horizontal datum and the projected coordinates of NAVD 1988 were used as the vertical datum for all of the mapping.

Vertical data including ground profile and water surface elevation (WSEL) presented in the report use NAVD88 as reference datum unless stated differently.

4 Hydrology

A detailed hydrology study for Area 3 was documented in Appendix E of Volume V-A: **Area 3 Hydrology Report**. The results from the hydrologic analysis were directly input into the hydraulic unsteady models. A summary of peak discharge from the concentration points along the Buckeye FRSs are presented in Table 4-1 (existing conditions) and Table 4-2 (future conditions). The results were verified and in agreement with the indirect methods' results that follow the Hydrology Manual.

Table 4-1

Summary of Peak Discharges at the Concentration Points (CP) along the Buckeye FRSs (Existing Conditions)

FRS	CP	Area [mi^2]	10-YR 6-HR	10-YR 24-HR	100-YR 6-HR	100-YR 24-HR	200-YR 24-HR	500-YR 24-HR	PMP 6-HR	PMP 72-HR
FRS#1	E	31.24	521	1,999	3,755	6,068	7,408	9,286	49,972	29,593
	G	1.12	359	346	928	820	974	1,166	4,114	2,389
	Z	0.66	310	239	694	558	656	787	2,775	1,616
	L	16.73	566	1,362	2,776	3,781	4,677	5,874	29,292	16,926
	M	13.12	880	1,459	2,659	3,327	3,960	4,842	23,749	13,252
	N	4.85	309	566	1,171	1,364	1,620	1,969	9,242	5,177
	O	3.09	319	489	1,057	1,163	1,373	1,657	6,584	3,719
	P	2.44	371	471	1,041	1,073	1,262	1,518	5,837	3,305
	Q	2.23	434	505	1,107	1,111	1,299	1,551	5,816	3,248
	R	0.28	254	179	506	387	450	531	1,716	1,036
FRS#2	S	1.41	621	624	1,542	1,449	1,703	2,030	9,642	4,479
	T	3.04	812	979	2,111	2,151	2,532	3,007	15,022	6,656
	U	1.37	638	615	1,496	1,365	1,598	1,887	8,841	4,033
FRS#3	V	0.66	311	236	664	526	617	735	3,462	1,618
	W	6.74	818	1,471	3,192	3,648	4,382	5,338	28,456	12,909
	X	0.79	358	288	787	645	755	902	4,163	1,994
	Y	0.58	513	371	1,077	837	979	1,158	4,868	2,556

* Unit for discharge: cfs

Table 4-2

Summary of Peak Discharges at the Concentration Points (CP) along the Buckeye FRSs (Future Conditions)

FRS	CP	Area [mi^2]	10-YR 6-HR	10-YR 24-HR	100-YR 6-HR	100-YR 24-HR	200-YR 24-HR	500-YR 24-HR	PMP 6-HR	PMP 72-HR
FRS#1	E	31.24	190	246	1,931	4,024	5,653	7,982	50,490	32,130
	G	1.12	-	2	943	786	1,031	1,229	4,202	2,429
	Z	0.66	-	3	571	476	639	920	2,957	1,719
	L	16.73	386	606	1,863	3,054	4,203	5,843	32,803	18,408
	M	13.12	-	84	2,295	3,011	3,762	4,790	25,268	14,225
	N	4.85	35	110	1,093	1,276	1,712	2,201	9,694	5,469
	O	3.09	33	105	1,022	1,096	1,620	1,980	7,023	3,946
	P	2.44	49	84	908	1,064	1,350	1,615	5,967	3,367
	Q	2.23	68	93	930	1,059	1,329	1,582	5,856	3,268
	R	0.28	-	5	393	296	450	602	1,795	1,081
FRS#2	S	1.41	66	25	1,412	1,339	1,718	2,140	9,757	4,539
	T	3.04	112	209	2,091	2,067	2,608	3,080	15,109	6,696
	U	1.37	214	114	1,504	1,309	1,653	1,939	8,898	4,059
FRS#3	V	0.66	79	31	676	487	619	753	3,483	1,628
	W	6.74	791	1,077	2,647	3,575	4,504	5,465	28,604	12,995
	X	0.79	359	289	788	645	756	902	4,164	1,994
	Y	0.58	512	369	1,075	835	978	1,157	4,867	2,556

* Unit for discharge: cfs

5 Hydraulics

5.1 Method Description

The Buckeye/Sun Valley watershed is in west-central Maricopa County, Arizona, about 30 miles west of central metropolitan Phoenix. The watershed drains south and west from the western slopes of the White Tank Mountains.

The Buckeye FRSs were designed and constructed by the SCS in the 1970s and have a combined contributing drainage area of 90 mi^2. The three FRSs (#1-3) were designed to function as a single system with the detained flows cascading west to the eventual outfall to the Hassayampa River. The structures provided protection to downstream agricultural lands and the Town of Buckeye from storms up to the one percent exceedance level. Ungated low level outlets serve as principal spillways releasing runoff to the west. Free surface emergency spillways were provided for each FRS to control discharge for storms in excess of a storm event equivalent to "74% of the 100-year storm plus 26% of the probable maximum flood (PMF)". The dam crest, termed as "emergency spillway freeboard", was designed to contain the PMF without overtopping (NRCS, 1985; Arizona Water Commission, 1979). The principal outlet discharges are routed to the FRSs through Buckeye Floodways #2 and #3. Emergency spillway discharges do not cascade to other FRSs but flow generally to the south toward the Gila River floodplain (Figure 5-1). Selected engineering design data for the three FRSs are presented in Table 5-1 (Arizona Water Commission, 1979).

The Buckeye FRS system was inspected and assessed by the Corps of Engineers (Arizona Water Commission, 1979) and Dames & Moore (1990) following construction. Both studies included hydrologic analyses for the 100-year and probable maximum precipitation (PMP) events using the HEC-1 level pool routing method, and concluded all three FRSs would not be safe to convey the PMF.

The level pool routing method in HEC-1 was used for FRS design and assessment; however, it cannot model the spatial distribution of flow hydrographs. In addition, it cannot account for many hydraulic conditions including backwater effects, hydraulic structures, and unsteady effects (Fread, et al., 1988). The hydrology used for this report is based on hydrology presented in Appendix E of Volume V-A, Area 3 Hydrology Report.

In terms of risk assessment, quantitative evaluation of water surface elevation (WSEL) corresponding to precipitation frequency is critical to the operator and downstream populations at risk. In this study, unsteady models were selected to develop stage-frequency relationships for the FRSs. The US Army Corps of Engineers HEC-RAS (version 3.1.1, May 2003) computer program was used to establish the models. Hydrologic responses from various storm events including 10-year 6/24-hour, 100-year 6/24-hour, 200/500-year 24-hour, and PMP 6/72-hour were obtained and input in the unsteady models. The starting WSEL was simulated close to zero as there is no base flow in the FRSs. However, it is required to input an initial flow to start the unsteady models. For this analysis, a base flow of 20-50 cfs was used.

Table 5-1

The Buckeye FRSs Engineering Design Data (NRCS, 1974)**

Item	Unit	Buckeye FRS Structures FRS#1	FRS#2	FRS#3
Embankment				
Length	miles	7.0	2.3	3.0
Maximum Height	feet	48.0	26.0	34.0
Crest Elevation	feet	1,088.0*	1,117.0	1,170.0
Principal Spillway				
Conduit Diameter	inches	60.0	48.0	30.0
Emergency Spillway				
Crest Width	feet	800.0	350.0	400.0
Crest Elevation	feet	1,079.8	1,111.2	1,163.2
Reservoir				
Surface Area				
at E. Spillway Crest	acres	1,137.0	150.0	180.0
at Dam Crest	acres	1,952.0	235.0	335.0
Storage Volume				
at E. Spillway Crest	acre feet	8,200.0	780.0	920.0
at Dam Crest	acre feet	19,024.0	1,920.0	2,786.0

*Buckeye FRS #1 embankment crest includes a 5,580-foot-long level section at elevation 1088.0 feet, a 31,500-foot-long level section at elevation 1089.5 feet and a 600-foot-long sloping transition section between the two level sections.

** Vertical Datum NGVD29

5.2 Work Study Maps

Initially, PBS&J tried to set up a single hydraulic model combining all three FRSs; however, the model was unstable due to its length and complexity, and it would have been more difficult to update the results. Consequently, a model was developed for each individual FRS based on the physical characteristics of the structures.

A reduced-scale general HEC-RAS model overview map of the Buckeye FRS system is shown in Figure 5-1 with each FRS delineation and key features identified. In addition, full scale (1"=200') work study maps including hydraulic baseline, property line, PMF boundary, and cross section information are provided in the pockets (Figures 5-2 to 5-17 (Sheets 1 to 16)).

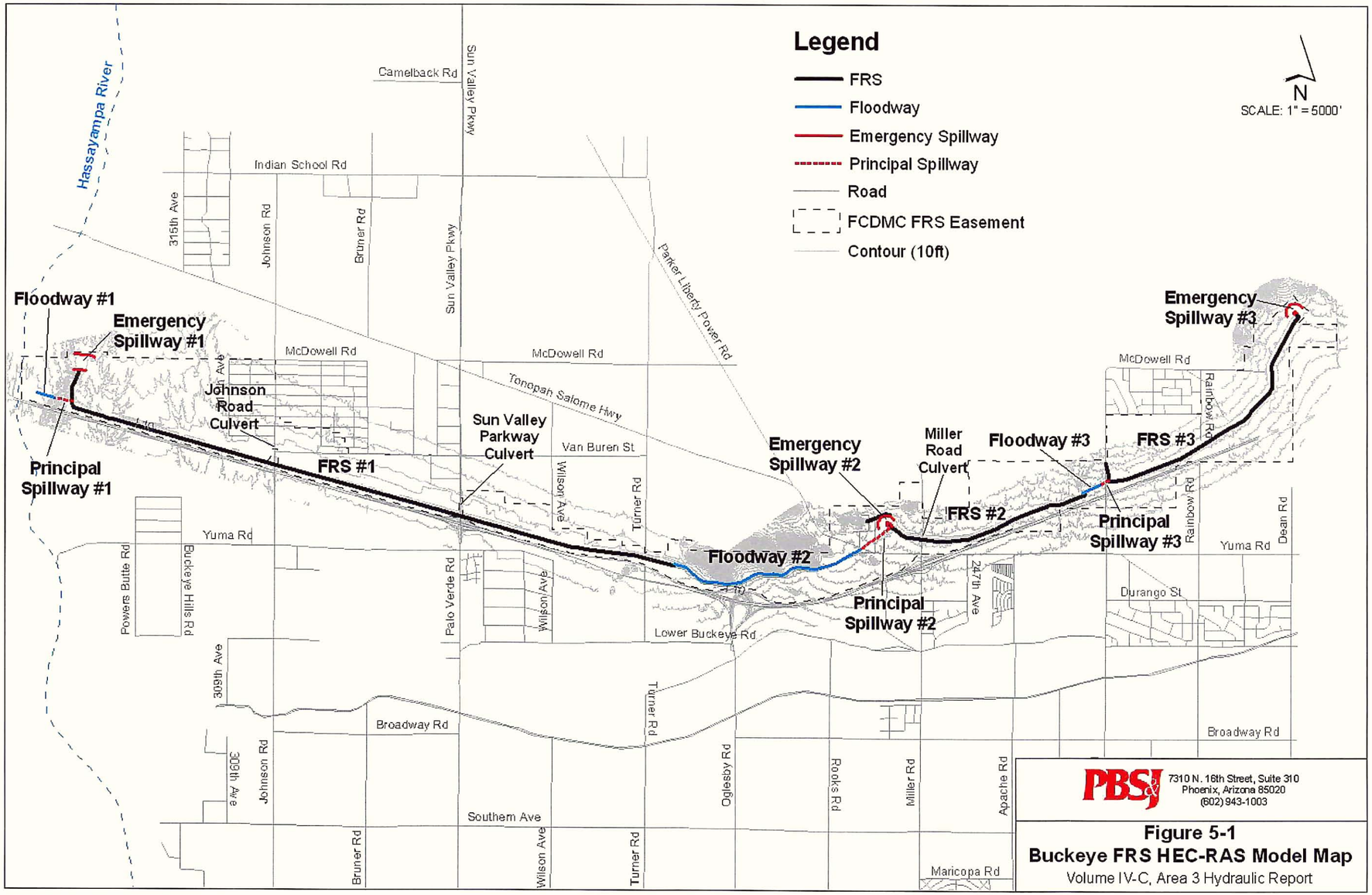


Figure 5-1
Buckeye FRS HEC-RAS Model Map
Volume IV-C, Area 3 Hydraulic Report

5.3 Parameter Estimation

5.3.1 Roughness Coefficients

Elements to determine roughness coefficients include base materials, surface irregularities, obstruction, and vegetation by following "Estimated Manning's Roughness Coefficients for Stream Channels and Flood Plains in Maricopa County, Arizona" (USGS, 1991). The Buckeye FRSs were constructed in 1970's and have been maintained by the District since then. Field investigations indicate that the left overbanks (LOB) from the top of the dam crest to the edge of main channel are covered by flexible turf grasses and underlying firm soil. The main channel has sparse vegetative cover and a combination of firm soil, coarse sand, and fine gravels. The right overbanks (ROB) from the main channel to the edge of the foothills have medium scattered brushes and weeds (Appendix C).

A summary of the roughness coefficients used in the unsteady models is presented in Tables 5-2a and b.

Table 5-2a

Roughness Coefficients for Buckeye FRS #2 & 3

	LOB		Main Channel		ROB	
	n	Description	n	Description	n	Description
n_b	0.020	Firm soil	0.025	Firm soil, coarse sand; and fine gravel	0.020	Firm soil
N_1	0.005	Minor	0.005	Minor	0.005	Minor
N_2	0.004	Negligible	0.004	Negligible	0.004	Negligible
N_3	0.011	Small weeds	0.001	Negligible to small	0.016	Medium brush, weeds
n total	0.040		0.035		0.045	

Table 5-2b

Roughness Coefficients for Buckeye FRS #1

	LOB		Main Channel		ROB	
	n	Description	n	Description	n	Description
n_b	0.020	Firm soil	0.025	Firm soil, coarse sand; and fine gravel	0.020	Firm soil
N_1	0.000	Minor	0.000	Minor	0.005	Minor
N_2	0.000	Negligible	0.000	Negligible	0.004	Negligible
N_3	0.010	Small weeds	0.005	Negligible to small	0.016	Medium brush, weeds
n total	0.030		0.030		0.045	

Where $n = n_b + n_1 + n_2 + n_3$ (Equation 1)

n_b = base value of n for a straight uniform channel,

n_1 = value for surface irregularities,

n_2 = value for obstruction, and

n_3 = value for vegetation.

5.3.2 Expansion and Contraction Coefficients

Expansion and contraction coefficients were applied where flow constrictions or expansions were present or where flow approaches and leaves structures. Expansion coefficients ranged from 0.3 for uniform conditions to 0.5 for sections upstream and downstream of culverts. Contraction coefficients ranged from 0.1 for uniform conditions to 0.3 for sections upstream and downstream of culverts.

5.4 Cross Section Description

WSELs were computed at hydraulic sections along each FRS. The sections were developed using GIS from mapping data prepared by Kenney Aerial Mapping, Inc. in 2003, as-built plans, and field reconnaissance. Sections were generally spaced at 200-foot intervals, and more cross sections were added where structures (roadway, culverts) were encountered along the FRSs. Hydraulic sections were defined by data points oriented from left to right and looking downstream (southwesterly). Transverse stationing increases left to right. The cross section locations are on Figures 2 to 17 (Sheets 1 to 16).

Longitudinal "river mile" stationing increases upstream and reflects the distance in feet between cross sections. The downstream limit of the FRS #1 reach is at the outfall to the Hassayampa River; the downstream limit of the FRS #2 reach is at the end of Floodway #2; and the downstream limit of the FRS #3 reach is at the end of Floodway #3. Each downstream limit river station begins at 0+00.

Vertical control for cross sections and longitudinal profiles is based on the mapping data, which utilizes the North American Vertical Datum of 1988 (NAVD 88). Part of the data for the culverts and principal spillways were obtained from the 1974 as-built plans, which were based on the National Geodetic Vertical Datum of 1929 (NGVD 29). They were converted to NAVD 88 prior to use.

5.5 Modeling Considerations

5.5.1 Hydraulic Jump and Drop Analysis

N/A

5.5.2 Bridges and Culverts

There are three roadways crossing the FRSs (Figure 5-1). A culvert was placed for flow conveyance underneath each roadway. HEC-RAS input data include culvert type, length, upstream and downstream invert elevations, deck width, entrance and exit loss coefficients and weir coefficients. Data for the culverts were obtained from the GIS mapping, field survey, and/or the as-built drawings (NRCS, 1974). Typically, there was no adjustment in culvert geometry to account for potential debris clogging at any culvert. Culvert crossings vary in size, shape, length, and number of barrels. A roughness coefficient of 0.013 was used for all culverts. A detailed hydraulic calculation is provided in the HEC-RAS printout in Appendix E.

The principal spillway of each FRS is also modeled as a culvert, rather than using a rating curve. A thorough discussion of the principal spillway modeling and rating curves is addressed in Section 5.7.1 this report.

5.5.3 Dam Crest and Emergency Spillway

To quantify the extent of overtopping of the FRSs during various storm events, the FRS emergency spillways and the dam crests were modeled as broad-crested weirs. The HEC-RAS program does not allow overlapping of structures in the model. In this case, where a roadway crossed the FRS, the broad-crested weir used to model the dam crest was divided into several segmental weirs. The flow discharge over the weirs was calculated by following the weir equation:

$$Q=CLH^{1.5} \qquad \text{(Equation 2)}$$

Where, Q = flow over the weir (cfs),

C = weir coefficient of discharge,

L = length of the weir perpendicular to the flow (ft), and

H = difference between the reservoir mean water surface elevation and the crest elevation for the weir (ft)

The weir coefficient of discharges for each FRS was taken from Dames & Moore's dam break study (1990).

The geometric data for the dam crests and emergency spillways were obtained from the following sources.

- Field surveys performed by others for the District for an ongoing dam safety assessment (Appendix C).
- New 2-ft contour mapping
- As-built drawings (NRCS, 1974).

5.5.4 Islands and Flow Splits

N/A

5.5.5 Ineffective Flow Areas

N/A

5.5.6 Supercritical Flow

N/A

5.6 Floodway Modeling

N/A

5.7 Problems Encountered During the Study

5.7.1 Special Problems and Solutions

Several technical problems were encountered during development and refinement of the unsteady model. The models were initially developed as simply as possible. When the model achieved a stable condition, more features such as roadways, culverts, principal and emergency spillways, and dam crests were added to the model.

During development of the unsteady model, it became clear that it is very sensitive to the sinuosity of the hydraulic reaches, the complexity of the hydraulic structures, and especially to the computational intervals. The following sections discuss the major constraints encountered and the approach taken for each.

5.7.1.1 Modeling of Roadways Transverse to the FRS

There are three significant existing roads, which cross the dam structures. These are Miller Road, which crosses FRS #2, and the Sun Valley Parkway and Johnson Road crossings of FRS #1. The

impacts of roadways were ignored in the previous study (Dames & Moore, 1990). It had been assumed that the impact of roadways would be negligible since the volume of roadway fill was minimal compared to the storage volume of the dams.

Because of the concentration points distributed on both sides of the intersecting roadway, it seemed possible that the flow could reverse direction over the roadway surface in a severe storm event. Reversal of flow direction over the roadway surface was indeed observed in the HEC-RAS model, and WSELs on each side of the roadway differed due to hydraulic losses as the water overtopped the roadway. The difference between WSELs on both sides significantly reached up to 3 ft at the PMF peak discharges and could not be reasonably ignored. These transverse roadways dramatically changed the hydraulic profiles as designed by the NRCS in 1974.

5.7.1.2 Modeling of the Emergency Spillway and Dam Crest for Overtopping

Two alternatives were considered for modeling the extent of overtopping. The first method assumes that flows are discharged only through the primary and emergency spillways, and water is "stacked" as high as needed to provide the hydraulic head required. This option calculates the highest WSEL and provides the worst-case scenario. This method was used for the analysis in the Spook Hill FRS PMF Hydraulics Study (DMJM, 2002).

The other option includes overtopping discharges. The emergency spillways and the dam crests are treated as lateral broad-crested weirs. Outflow over these weirs only occurs when the WSEL in the FRS is above the crest elevations. This option directly calculates the amount of flow diverted through different areas of the dam spillways or crest. This alternative was used for this study because the District is updating the inundation mapping downstream of each emergency spillway.

5.7.1.3 Rating Curves versus Direct Calculation of the Spillway

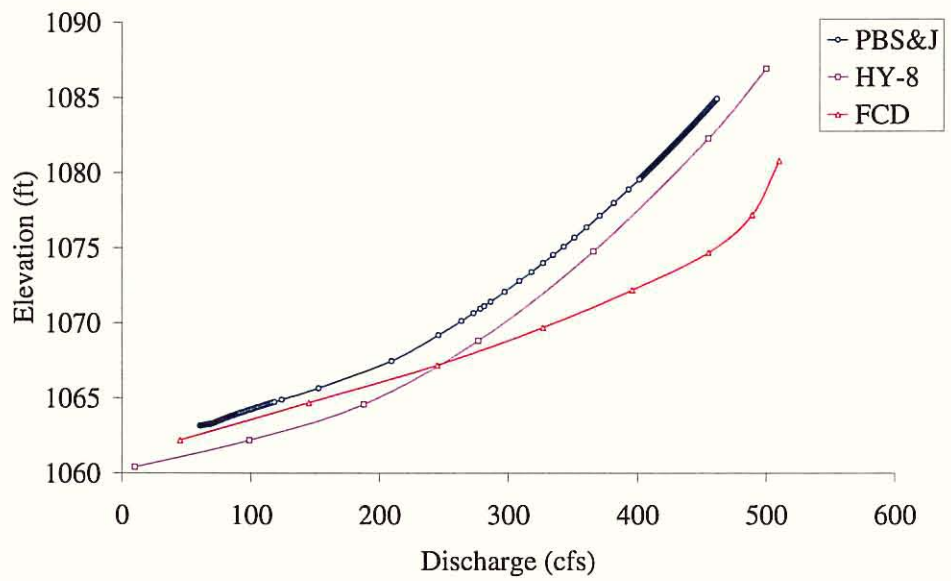
Initially, we planned to use rating curves for the spillways and culverts. The principal outlet rating curves were made available by the District for that purpose. However, the final model did not use the provided rating curves for the following reasons:

- All other structures in the unsteady model are simulated with data from field survey and as-built plans. Using physically based data for culverts rather than rating curves provided a more consistent approach.
- The FRS principal spillways are 600-1,200 feet in length, with more than 20 feet of fall. The rating curve assumes the hydraulic stage-discharge relationships at the upstream and downstream ends of the principal spillway are identical, which does not agree with either the field survey or the modeling results.
- Rating curve cannot consider backwater effects (Figure 5-18).

The stage-discharge relationship at the upstream end of the principal spillway developed from the unsteady model was compared to the rating curve provided by the District and the results from a separate program HY-8 (FHWA, 1995) in Figure 5-18. They are in agreement with each other in general. However, the unsteady model counts dynamic WSEL and discharge, and generally gives a lower discharge for the same stage.

Figure 5-18

Rating Curves from the District and the Unsteady Model by PBS&J



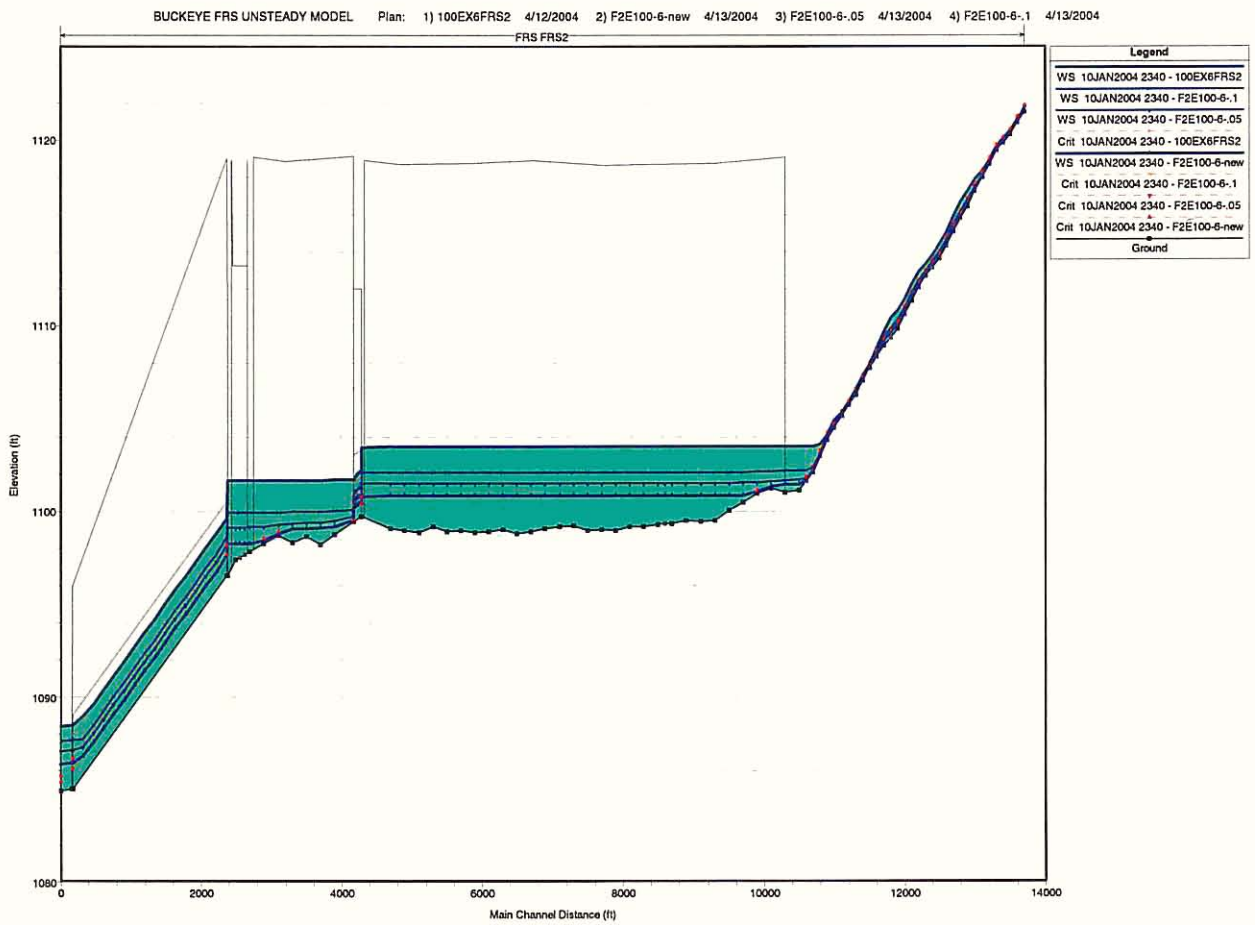
5.7.1.4 Low Flow Conditions

This issue was identified by the District reviewer, Mr. Joe Rumann, Senior Hydrologist. He observed energy grade oscillations at low flow in the FRS#2 Unsteady Model, especially in Floodway No. 3, upstream of FRS #2. When the discharge in the channel is less than 400 cubic feet per second (cfs), the velocity exhibits extreme oscillation, going from zero to 120 feet per second (fps) with associated energy grade oscillations.

PBS&J re-checked the parameters of the FRS unsteady models, and found this oscillation occurred in all FRSs at all storm events. Furthermore, a literature research indicated that HEC-RAS does not handle low flow situations well. Several approaches were tested to mitigate this oscillation, based on discussions with Mr. Rumann. Below is a summary addressing this issue.

1. It appeared that the relatively steep slope of the floodway might be part of the problem, and so allowing the model to run in supercritical mode might mitigate the problem. However, the oscillation still remained even in a mixed flow regime. Therefore, the subcritical mode was used for all the unsteady models.
2. Increasing the initial flow mitigates the oscillation but does not eliminate it. There is no base flow in the FRSs. However, the unsteady model requires an initial flow to start the calculation. To solve this dilemma, a small amount of initial flow was used (20-50cfs). We increased the initial flow up to 100 cfs and less oscillation was observed, but it still existed. Initial flow greater than 100 cfs was considered to distort the overall results.
3. Increasing the water surface calculation tolerance limit (TL) can eliminate the oscillation, but this also decreases accuracy and sensitivity of the model. Different TLs (0.02, 0.05, 0.1, and 0.2 ft) were used to test the results. All of them gave the same maximum WSEL, However, the oscillation did not disappear until TL was set at 0.2 ft. The results indicated at low flow, the higher the TL used, the higher the WSEL was observed. At the end of the simulation (the 10th day) for the FRS#2 unsteady model in the 100-year, 6-hour storm event, the results from TL=0.2 ft is 1.5 ft higher than that from TL=0.02ft (Figure 5-19).
4. A slot channel in the floodway might eliminate the oscillation. References about solutions to low flow oscillation in the HEC-RAS model suggest that placement of an imaginary slot channel two to three feet deep and six inches or less wide at the bottom of the main channel would increase the stability of the model without affecting the final results. In this case, the low flow will be contained within the slot channel; therefore, no oscillation occurs. Since the results of the low flow condition are not considered a major focus in this study and substantial additional effort would be required, it was decided that this alternative would not be investigated as part of this study

Figure 5-19
Impact of Tolerance Limits to Water Surface Calculations



5.7.1.5 Floodway Overtopping during PMF events

The floodways were designed and constructed to convey primary spillway releases (NRCS, 1974), and are adequate for this purpose. However, when the flood pool starts to fill up during a severe storm event, WSEL along the associated floodways exceeds the overbank limits due to backwater effects. This occurs for the PMP 6 & 72 hour storm events. The max WSEL is between one and two feet higher than the bank elevation of Floodway #2 (between FRS #1 and FRS #2) for more than 2 miles, and one foot higher than the bank elevation of Floodway #3 (between FRS #2 and FRS #3) for a quarter mile. As a result the model displays a warning message "*The cross-section end points need to be extended vertically for the computed water surface*" for the floodways. Under this scenario, it will act as a secondary spillway and cause inundations. The model was modified by setting the left overbank of these overtopped floodway segments as lateral broad-crest weirs, and rerun for the PMF event.

For the FRS#2, two scenarios were simulated. One is with Miller Rd., and the other is without. Miller Rd is a dirt road, and could be washed out during a PMF event. The results are shown in

Table 5-3. The original model results were presented as a comparison. The floodway discharge does not affect the emergency spillway hydraulics characteristics at all. However, the dam crest overtopping discharge is lessened and the maximum depth on the dam crest decreases by 0.2 ft. When Miller Rd is assumed washed out, the floodway discharge is reduced by half, and the dam crest overtopping is significantly decreased from 6,856 cfs to 336 cfs. However, the emergency spillway discharge is doubled. The above results are valid since the accuracy of the model is ±0.05 cfs for discharge and ±0.02 ft for WSEL. For the FRS#1, the results showed the same trend as to the FRS#2 (Table 5-4).

Table 5-3

Floodway discharge at the PMF for the FRS#2

		Peak Discharge (cfs)	Max Depth on Weir (ft)
No Floodway Discharge	Floodway #3	0	0.00
	Dam Crest upstream of Miller Rd	10,970	0.91
	Dam Crest downstream of Miller Rd	0	0.00
	Emergency Spillway #2	6,856	3.71
Floodway Discharge with Miller Rd	Floodway #3	4,624	1.86
	Dam Crest upstream of Miller Rd	6,904	0.71
	Dam Crest downstream of Miller Rd	0	0.00
	Emergency Spillway #2	6,856	3.71
Floodway Discharge with Miller Rd Washed Away	Floodway #3	2,258	1.40
	Dam Crest upstream of Miller Rd	336	0.19
	Dam Crest downstream of Miller Rd	0	0.00
	Emergency Spillway #2	12,143	5.40

Table 5-4

Floodway discharge at the PMF for the FRS#1

		Peak Discharge (cfs)	Max Depth on Weir (ft)
No Floodway Discharge	Floodway #2	0	0.00
	Dam Crest upstream of Sun Valley PKWY	25,519	1.30
	Dam Crest downstream of Sun Valley PKWY	0	0.00
	Emergency Spillway #1	18,887	4.23
Floodway Discharge	Floodway #2	8,943	1.88
	Dam Crest upstream of Sun Valley PKWY	15,723	1.11
	Dam Crest downstream of Sun Valley PKWY	0	0.00
	Emergency Spillway #1	18,887	4.23

5.7.2 Modeling Warning and Error Messages

No Error Messages were noted in the model output.

There are several warning messages presented in the model result window.

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.

This type of warning is caused by the rapid change of inflow discharges in the hydrograph, especially under future conditions. Spacing of the cross sections has already been reduced to less than 200 feet. When additional cross sections were applied, the warnings were reduced, but not eliminated. A comparison of the results from 100-foot spacing and 200-foot spacing for the same FRS reach indicated that the WSEL difference was less than 0.02 foot. Therefore, the warning was ignored.

2. Warning: The cross-section end points need to be extended vertically for the computed water surface.

There are floodways connecting the FRS, which are inundated by the flood pool of the FRS dams. This highlighted an issue for the District that the area around the floodway potentially could be flooded in a severe storm event. Additional analysis and floodway overtopping issues were addressed in Section 5.7.1.5.

5.8 Calibration

No calibration was performed because there is no available gage data in the FRSs. However, verification was performed (see Section 5.9.2, this report).

5.9 Final Results

5.9.1 Hydraulic Analysis Results

Overall 48 unsteady hydraulic models were developed for the three FRSs and eight storm events including both existing and future conditions. The models assume the Buckeye FRS system will maintain its structural integrity. Dramatic changes of flow properties such as water elevation, discharge, flow direction, and velocity with the temporal and spatial variations in the FRSs were observed. An additional benefit of the HEC-RAS program is that results of the unsteady model can be presented graphically, illustrating the dynamic hydraulics of the FRSs. Detailed results in the form of avi clips are presented in the attached DVD.

5.9.1.1 Hydraulic Responses up to 500-Year Storm events

The maximum WSEL in each FRS up to the 500-year storm event (existing condition) are presented in Table 5-5. The WSEL under future conditions is 0.2-0.5 ft less due to attenuation of

the peak flow and runoff volumes by detention basins (Volume III-C: Area 3 Hydrology Report). Contrary to the findings of previous studies performed on the structures (Dames & Moore, 1990), the HEC-RAS analysis indicates that the FRS system can safely contain and convey runoff for storms up to the 500-year event without overtopping the emergency spillways.

There are at least two reasons for this result. First, the Dames & Moore study assumed that all three principal spillways in the Buckeye FRS system were plugged. Second, the level pool routing method used in its study assumed the inflow hydrograph in each FRS is a simple addition of multiple inflow hydrographs from the concentration points along the FRS, and no spatial variations were considered.

Table 5-5

Maximum Water Surface Elevations for up to the 500-Year Storm Event (Existing Conditions)

	Water Surface Elevation (ft)		
Storm Event	FRS#1	FRS#2	FRS#3
10-year 6-hour	1075.53	1105.44	1155.77
10-year 24-hour	1074.20	1105.69	1156.59
100-year 6-hour	1080.06	1110.23	1160.47
100-year 24-hour	1078.31	1109.10	1159.47
200-year 24-hour	1079.43	1109.92	1160.24
500-year 24-hour	1081.03	1110.88	1161.29
Emergency Spillway Elevation	1081.97	1113.23	1165.23

5.9.1.2 Hydraulic Response to PMP Events

The three FRSs respond differently to PMP events. The results for all FRS cross sections and culverts/weirs for the PMF are shown in Table 5-6 and Table 5-7, respectively. For future conditions, there is less than 0.2 ft increase of the WSEL in the post-development scenario. In this study, the PMP 6-hour storm is considered to generate the PMF. River stations were assigned a letter after the number to represent concentration points along the FRSs. River stations with an asterisk (*) are interpolated cross sections generated by the HEC-RAS program. Negative values for total discharge and average velocity indicate reverse flow direction.

The maximum WSELs, maximum dam crest and emergency spillway overtopping flows, duration, and water depths for each FRS are presented in Table 5-6. The emergency spillways are overtopped for all three structures; however, only FRS#2 and #1 dam crests are overtopped. The 6-hour PMP storm event creates higher discharges and water depths, but the 72-hour PMP storm event causes 10-60% longer overtopping durations on each emergency spillway.

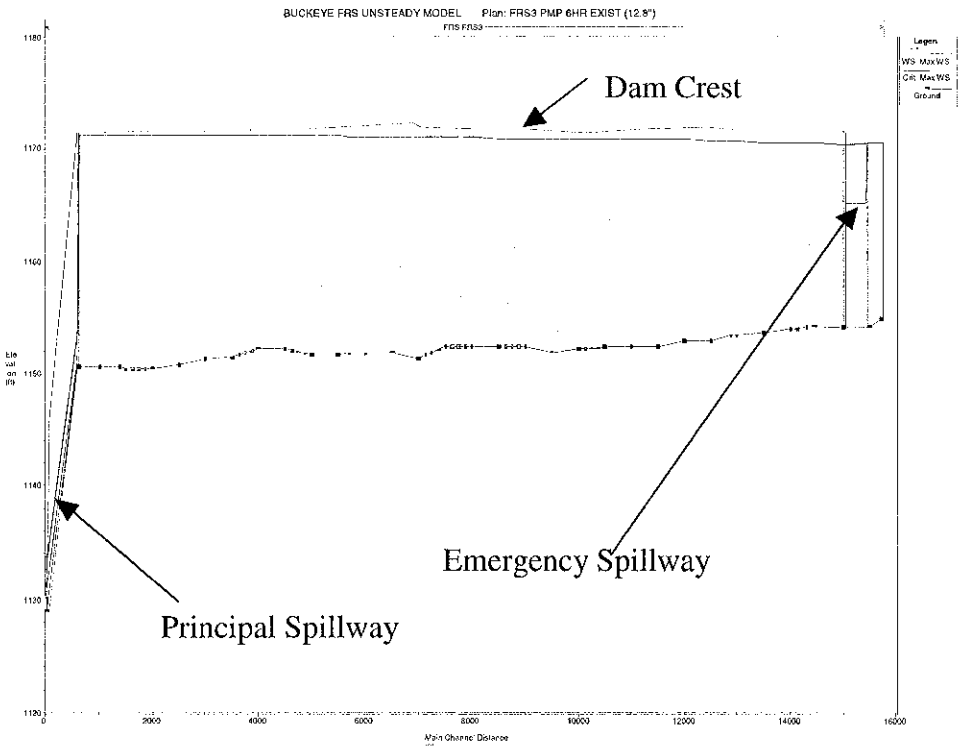
For comparison purpose, the results of the Dames & Moore study (1990) are also presented in Table 5-8. In its analysis, level pool routing was used for FRS stage computations. Besides the routing assumptions previously stated, Dames & Moore further assumed (1) the emergency

spillway capacity was fully utilized, (2) at any given moment, there is only one WSEL at any location within the entire FRS (level pool routing), and (3) impacts of roadways and culverts crossing the FRS were ignored.

For FRS#3, the unsteady hydraulic models consider spatial and temporal variations, and thus give lower maximum WSELs than Dames & Moore's (Table 5-8). As a result, no overtopping on the dam crest is observed in FRS#3 for either the 6-hour or 72-hour PMP events. Principal spillway discharge contributes to lower maximum WSEL in the unsteady model as well. Even with no roadway crossing in FRS#3, there is a 1.2 ft drawdown in the WSEL approaching the emergency spillway located at the upstream end (Figure 5-20).

The maximum WSELs in the Dames & Moore study for FRS#1 and FRS#2 are nearly the same as or even slightly less than the unsteady model results (Table 5-8). The explanation can be found in its assumptions. There are roadways crossing FRS#1 and FRS#2 (Figure 5-1). In order to fully utilize the emergency spillway capacity, there should be enough momentum to drive the flow up to the appropriate stage. The roadways have already consumed a certain amount of momentum, and there is not enough left to drive the flow over the dam crest downstream of the roadway. While the upstream flow overcomes the resistance of roadways and reaches the emergency spillway (i.e., 4.5 miles from the upstream roadway to the emergency spillway for FRS#1), the inflow hydrographs have already begun to recede. The lower momentum also substantially increases the durations of overtopping of dam crests and emergency spillways compared to the results from level pool routing (Table 5-8).

Figure 5-20
Maximum Water Surface Drawdown toward Emergency Spillway for FRS#3 in the 6-hour PMP Event



5.9.2 Verification of Results

As required by the District, level pool routing analyses were conducted for dual purposes – to update the Dames & Moore (1990) study and to compare to the unsteady hydraulic model results.

Unlike the Dames & Moore study, the current level pool routing analyses didn't assume the principal spillway plugged. The rating curves used for principal spillways were provided by the District. Vertical control was based on the NAVD 88 datum.

A summary of the level pool routing results is presented in Table 5-9, and a comparison of the level pool results and the unsteady model results is presented in Table 5-10. Results from both analyses are comparable. However, the interpretations may be different:

- Without consideration of structural impacts, the unsteady model gives lower maximum WSEL than level pool routing does. As shown in Table 5-10, no overtopping occurs in FRS#3. A separate model indicated no dam crest overtopping occurs in FRS#2 if Miller Road is washed away in the PMF (results not shown).
- The level pool routing assumes overtopping occurs on the entire dam crest, while the unsteady model only overtops part of the dam. Therefore, for the same outflow, the unsteady model gives higher overtopping depths.
- The level pool routing sets one water surface elevation throughout the FRS at any moment, which indicates full utilization of the emergency spillway discharge capacity in a dam crest overtopping scenario. Full utilization of the spillway capacity tends to underestimate the outflow on the dam crest compared to the unsteady model (for example, FRS#1 outflows).

5.9.3 Summary of Study Results and Major Conclusions

The unsteady models utilize both flow continuity equation and momentum equation to assess the hydraulic characteristics for the Buckeye Structures. Conclusions from the unsteady model analyses are summarized as following:

- The original FRS design can safely contain and convey runoff for storms up to the 500-year event without overtopping the emergency spillways.
- Overtopping of the FRS crest during a PMF occurs at FRS#1 and FRS#2 out of the three structures but is much shallower than determined in previous studies.
- Overtopping occurs only a portion of dam crest due to crossing roadway constraint.
- Emergency spillway capacities are not fully utilized.
- In the unsteady flow model, start, magnitude, and duration of the maximum water surface elevation at each cross section is dependant on the spatial distribution of concentration points and inflow hydrographs.

- Maximum WSELs seem to be more sensitive to peak discharge than to maximum volumes; the PMP 6-hour storm event is considered as the PMF.
- The unsteady model analyses can identify problems with existing associated structures (roadways and culverts, principal spillway, etc.) that are ignored in less sophisticated models.

Warning message from the analyses indicated floodways were subject to discharge during a PMF event. Additional analyses with floodway overtopping (modeled as lateral broad-crest weir) were conducted. The results highlight the following bullets for future dam rehabilitation.

- The original analyses provide the minimum depths to be leveled for the floodways to avoid overtopped at a PMF event.
- The additional analyses indicate the maximum overtopping discharges for the floodways, which could be a weak link in the Buckeye FRS system.
- Transverse roadways affect the FRS hydraulic characteristics significantly. More discharge could be expected at the emergency spillway if the roadway did not exist.
- The floodway discharge does not affect the emergency spillway hydraulic profile.

Table 5-6

Summary of Hydraulic Results for Normal Cross Sections in the PMF from the Buckeye FRS Unsteady Models (Existing Conditions)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	WSEL (ft)	Crit W.S. (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Sta W.S. Lft (ft)	Sta W.S. Rgt (ft)	Froude No.
FRS3	15750	0.01	1154.89	1170.52		0	6083.88	822.19	86.18	908.36	0.00
FRS3	15700	-0.04	1154.89	1170.52		0	6083.88	822.19	86.18	908.36	0.00
FRS3	15500	-1.38	1154.2	1170.52		0	4323.89	628.63	157.8	786.43	0.00
FRS3	15,450	Lat Struct	Emergency Spillway #3								
FRS3	15,000	-12,009.2	1,154.1	1,170.3		-3.90	4,420.2	814.6	166.37	980.97	0.18
FRS3	14,999	Lat Struct	Begin FRS#3 Dam Crest								
FRS3	14,500	-12,014.8	1,154.2	1,170.5		-3.23	5,534.2	842.2	163.20	1,005.34	0.15
FRS3	14443.5 Y1	-12,017.5	1,154.2	1,170.5		-3.23	5,523.7	842.4	163.15	1,005.58	0.15
FRS3	14295.6*	-11,914.2	1,154.1	1,170.5		-2.86	6,311.6	869.8	162.48	1,032.24	0.13
FRS3	14147.8*	-11911.8	1154.01	1170.54		-2.56	7107.67	899.17	160.24	1059.41	0.12
FRS3	14000	-11915.9	1153.89	1170.56		-2.31	7932.9	937.08	152.76	1089.85	0.1
FRS3	13500	-11914.4	1153.53	1170.59		-2.48	6982.1	856.54	140.11	1147.95	0.12
FRS3	13,000	-11,921.9	1,153.3	1,170.6		-3.15	4,929.6	614.2	135.64	749.85	0.14
FRS3	12889.70 X1	-11,922.6	1,153.3	1,170.6		-3.14	4,939.4	614.9	135.64	750.53	0.14
FRS3	12,500	-11,261.5	1,152.9	1,170.7		-2.54	6,466.3	797.0	156.29	953.26	0.11
FRS3	12,000	-11,265.4	1,152.9	1,170.8		-2.44	6,948.1	883.7	170.02	1,053.72	0.11
FRS3	11,500	-11,263.8	1,152.4	1,170.8		-2.02	8,498.1	1,015.8	155.85	1,171.68	0.09
FRS3	11,000	-11,271.9	1,152.3	1,170.8		-2.10	7,929.6	973.0	119.19	1,092.15	0.09
FRS3	10500	-11283.3	1152.34	1170.88		-2.02	8461.69	1029.2	159.75	1188.96	0.09
FRS3	10375.*	-11294.3	1152.3	1170.88		-1.95	8488.58	998.91	158.52	1157.43	0.08
FRS3	10250.*	-11305.4	1152.26	1170.89		-1.87	8559.92	952.42	158.01	1110.44	0.08
FRS3	10125.*	-11,306.6	1,152.2	1,170.9		-1.80	8,661.7	932.4	157.98	1,090.33	0.08
FRS3	10,000	-11,296.1	1,152.2	1,170.9		-1.73	8,785.5	918.3	158.43	1,076.70	0.07
FRS3	9,500	-11,323.0	1,151.9	1,170.9		-1.60	9,455.1	1,039.2	150.87	1,190.08	0.07
FRS3	9,000	-11,326.8	1,152.4	1,170.9		-1.82	8,999.0	994.7	156.04	1,150.71	0.08

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	WSEL (ft)	Crit W.S. (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Sta W.S. Lft (ft)	Sta W.S. Rgt (ft)	Froude No.
FRS3	8875.*	-11,311.4	1,152.4	1,170.9		-1.89	8,635.2	948.7	156.33	1,105.01	0.08
FRS3	8750.*	-11,344.3	1,152.4	1,170.9		-1.97	8,312.0	909.7	156.68	1,066.41	0.09
FRS3	8625.*	-11328.5	1152.42	1170.94		-2.06	8011.42	892.86	157.08	1049.95	0.09
FRS3	8500	-11345.9	1152.44	1170.95		-2.16	7715.45	881.29	157.53	1038.82	0.09
FRS3	8000	-11367.9	1152.44	1170.96		-2.36	6856.76	943.95	160.62	1104.57	0.11
FRS3	7875.*	-11,407.2	1,152.4	1,171.0		-2.16	7,569.4	967.1	159.78	1,126.83	0.10
FRS3	7750.*	-11,427.4	1,152.4	1,171.0		-1.97	8,289.0	991.5	159.34	1,150.83	0.09
FRS3	7625.*	-11,448.3	1,152.4	1,171.0		-1.81	9,018.7	1,019.2	159.31	1,178.53	0.08
FRS3	7,500	-11,469.8	1,152.4	1,171.0		-1.68	9,758.9	1,049.7	159.58	1,209.29	0.07
FRS3	7375.*	-11,491.6	1,152.1	1,171.0		-1.65	9,905.9	1,075.5	158.40	1,233.85	0.07
FRS3	7250.*	-11,471.1	1,151.9	1,171.0		-1.62	10,067.5	1,099.9	156.86	1,256.72	0.07
FRS3	7125.*	-11494.5	1151.59	1171.03		-1.59	10239.35	1112.03	154.81	1266.83	0.07
FRS3	7000	-11518.5	1151.31	1171.03		-1.55	10418.58	1120.87	152.21	1273.08	0.06
FRS3	6500	-11571.8	1151.88	1171.04		-1.6	9550.88	1006.15	160.32	1166.47	0.07
FRS3	6,000	-11,602.3	1,151.7	1,171.1		-1.52	9,810.5	954.5	155.71	1,110.22	0.06
FRS3	5698.20 W2	-11,605.6	1,151.7	1,171.1		-1.52	9,815.3	954.8	155.69	1,110.48	0.06
FRS3	5,500	-659.5	1,151.7	1,171.1		-0.09	9,612.7	1,013.7	166.76	1,180.46	0.00
FRS3	5,000	-663.5	1,151.6	1,171.1		-0.10	8,947.6	939.9	152.07	1,091.99	0.00
FRS3	4875.*	-664.4	1,151.8	1,171.1		-0.10	8,875.6	942.0	151.85	1,093.87	0.00
FRS3	4750.*	-677.7	1,151.9	1,171.1		-0.11	8,822.3	939.4	151.64	1,091.08	0.00
FRS3	4625.*	-653.49	1152.06	1171.12		-0.11	8793.31	929.85	151.42	1081.27	0
FRS3	4500	-666.32	1152.21	1171.12		-0.11	8787.23	922.61	152.54	1075.15	0
FRS3	4000	-669.6	1152.29	1171.12		-0.12	7737.06	888.06	167.06	1055.12	0.01
FRS3	3875.*	-670.4	1,152.1	1,171.1		-0.11	8,746.4	892.2	165.96	1,058.12	0.00
FRS3	3750.*	-662.3	1,151.8	1,171.1		-0.09	9,734.5	897.4	164.86	1,062.28	0.00
FRS3	3625.*	-671.5	1,151.6	1,171.1		-0.09	10,703.8	902.7	163.76	1,066.47	0.00
FRS3	3,500	-680.5	1,151.4	1,171.1		-0.08	11,651.1	908.5	162.66	1,071.17	0.00
FRS3	3,000	-675.6	1,151.3	1,171.1		-0.07	12,638.7	983.8	162.52	1,146.27	0.00
FRS3	2,500	-673.8	1,150.8	1,171.1		-0.08	12,055.9	956.2	157.08	1,113.30	0.00
FRS3	2000	-677.88	1150.46	1171.12		-0.08	11329.15	941.89	148.74	1090.63	0
FRS3	1875.*	-680.6	1150.43	1171.12		-0.08	11466.63	934.91	152.03	1086.94	0
FRS3	1750.*	-679.75	1150.4	1171.12		-0.08	11601.35	928.27	155.46	1083.73	0
FRS3	1625.*	-682.2	1,150.4	1,171.1		-0.08	11,734.1	923.2	159.01	1,082.21	0.00

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	WSEL (ft)	Crit W.S. (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Sta W.S. Lft (ft)	Sta W.S. Rgt (ft)	Froude No.
FRS3	1,500	-682.5	1,150.3	1,171.1		-0.08	11,864.1	921.2	162.66	1,083.89	0.00
FRS3	1382.00 V1	-683.4	1,150.5	1,171.1		-0.06	14,438.7	1,037.8	168.62	1,206.46	0.00
FRS3	1,000	110.6	1,150.5	1,171.1		0.01	14,439.9	1,037.9	168.61	1,206.50	0.00
FRS3	600	105.8	1,150.5	1,171.1		0.01	14,443.3	1,037.9	168.61	1,206.50	0.00
FRS3	580	Culvert	Principal Spillway #3								
FRS3	11.5	105.79	1129	1134.05		1.15	91.99	27.98	98.47	126.45	0.11
FRS3	0	105.79	1131.13	1134	1132.53	2.04	51.81	26.98	99.34	126.32	0.26
FRS2	13,699	96.3	1,121.5	1,122.7		2.52	38.2	56.2	166.37	222.52	0.54
FRS2	13599.4*	96.2	1,120.9	1,121.9		2.79	34.4	61.4	169.08	230.51	0.66
FRS2	13,499	96.0	1,120.3	1,121.1		3.08	31.2	63.3	170.07	233.32	0.77
FRS2	13399.4*	95.7	1,119.8	1,120.4	1,120.4	3.24	29.5	89.1	174.69	263.83	0.99
FRS2	13,299	92.5	1,119.4	1,119.9	1,120.0	3.72	24.9	112.5	178.16	290.66	1.39
FRS2	13199.4*	91.8	1,118.7	1,119.6		1.14	80.4	149.9	171.87	321.73	0.27
FRS2	13,099	91.1	1,118.0	1,119.6		0.58	158.0	139.7	166.59	306.31	0.10
FRS2	12999.4*	90.9	1,117.2	1,119.6		0.43	211.8	141.9	159.79	301.71	0.06
FRS2	12,899	89.8	1,116.4	1,119.6		0.33	269.3	145.1	152.94	298.03	0.04
FRS2	12799.4*	89.1	1,115.8	1,119.6		0.33	267.3	111.6	150.19	261.81	0.04
FRS2	12,699	88.6	1,115.1	1,119.6		0.38	230.5	81.0	146.22	227.23	0.04
FRS2	12599.4*	85.6	1,114.3	1,119.6		0.27	317.8	100.1	135.93	236.01	0.03
FRS2	12,499	84.5	1,113.6	1,119.6		0.18	521.1	188.1	90.45	278.53	0.02
FRS2	12399.4*	83.7	1,113.1	1,119.6		0.15	655.1	236.6	35.89	272.50	0.01
FRS2	12,299	84.6	1,112.7	1,119.6		0.12	868.6	321.4	26.20	347.56	0.01
FRS2	12199.4*	80.6	1,112.0	1,119.6		0.12	765.4	210.4	28.73	239.13	0.01
FRS2	12,099	78.2	1,111.3	1,119.6		0.12	729.9	207.3	30.62	237.89	0.01
FRS2	11999.4*	77.4	1,110.6	1,119.6		0.10	864.9	215.4	25.64	241.01	0.01
FRS2	11,899	77.5	1,109.8	1,119.6		0.09	1,018.0	236.5	20.90	257.38	0.01
FRS2	11799.4*	75.3	1,109.4	1,119.6		0.07	1,239.6	306.7	18.59	325.27	0.00
FRS2	11,699	73.5	1,108.9	1,119.6		0.06	1,542.9	382.1	20.25	402.32	0.00
FRS2	11599.4*	72.1	1,108.3	1,119.6		0.04	2,221.3	468.4	15.76	484.13	0.00
FRS2	11,499	70.4	1,107.7	1,119.6		0.03	3,027.3	555.7	11.28	566.98	0.00
FRS2	11399.4*	70.2	1,107.0	1,119.6		0.03	3,102.4	550.8	11.08	561.84	0.00
FRS2	11,299	70.2	1,106.3	1,119.6		0.03	3,274.6	684.8	10.88	695.71	0.00
FRS2	11199.4*	67.5	1,105.7	1,119.6		0.02	4,161.4	668.4	15.13	683.52	0.00

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	WSEL (ft)	Crit W.S. (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Sta W.S. Lft (ft)	Sta W.S. Rgt (ft)	Froude No.
FRS2	11,099	68.5	1,105.1	1,119.6		0.02	5,077.4	673.7	19.38	693.05	0.00
FRS2	10999.4*	65.5	1,104.5	1,119.6		0.02	5,275.6	652.8	16.31	669.06	0.00
FRS2	10,899	62.2	1,103.9	1,119.6		0.01	5,400.4	582.9	13.24	596.11	0.00
FRS2	10799.4*	58.3	1,103.0	1,119.6		0.01	7,226.5	809.6	16.83	826.44	0.00
FRS2	10,699	54.1	1,102.1	1,119.6		0.01	9,397.7	965.5	20.43	985.90	0.00
FRS2	10599.4* U	55.9	1,101.6	1,119.6		0.01	9,939.8	1,045.2	15.54	1,060.70	0.00
FRS2	10,499	2,786.9	1,101.1	1,119.5		0.32	10,598.9	1,124.7	10.65	1,135.30	0.01
FRS2	10,299	2,783.8	1,101.0	1,119.5		0.49	9,201.7	1,145.2	17.30	1,162.49	0.02
FRS2	10,299	Lat Struct	Begin FRS#2 Dam Crest								
FRS2	10,099	2,583.9	1,101.2	1,119.5		0.44	9,102.8	1,093.2	17.72	1,110.94	0.02
FRS2	9,899	2,347.1	1,101.0	1,119.5		0.36	10,188.9	1,200.6	22.03	1,222.58	0.02
FRS2	9,699	2,063.2	1,100.5	1,119.5		0.30	10,744.7	1,147.6	19.22	1,166.85	0.01
FRS2	9,499	1,770.7	1,100.0	1,119.5		0.26	10,369.4	948.6	15.70	964.26	0.01
FRS2	9,299	1,400.7	1,099.5	1,119.5		0.18	12,057.7	1,134.2	12.42	1,146.61	0.01
FRS2	9,099	976.4	1,099.5	1,119.5		0.12	12,212.2	1,140.4	8.73	1,149.17	0.00
FRS2	8,899	589.8	1,099.5	1,119.5		0.08	12,107.0	1,308.0	16.30	1,324.25	0.00
FRS2	8,699	153.2	1,099.3	1,119.5		0.02	11,804.2	1,218.4	13.45	1,231.87	0.00
FRS2	8599.41* T	-74.9	1,099.3	1,119.5		-0.01	12,408.1	1,348.6	16.16	1,364.72	0.00
FRS2	8,499	8,020.0	1,099.3	1,119.5		1.03	13,157.9	1,381.1	18.86	1,399.96	0.04
FRS2	8,299	7,583.6	1,099.2	1,119.5		0.98	12,136.2	1,348.2	9.24	1,357.40	0.04
FRS2	8,099	7,166.2	1,099.2	1,119.5		1.11	10,300.8	1,353.3	15.66	1,368.98	0.05
FRS2	7,899	6,729.4	1,099.0	1,119.5		1.08	9,341.2	1,110.8	15.53	1,126.32	0.04
FRS2	7,699	6,304.6	1,099.0	1,119.5		1.03	9,214.2	1,050.3	17.71	1,067.99	0.04
FRS2	7,499	5,875.3	1,098.9	1,119.5		1.07	9,128.9	1,171.9	17.64	1,189.56	0.04
FRS2	7,299	5,509.5	1,099.3	1,119.5		0.91	10,262.3	1,260.8	18.20	1,278.97	0.04
FRS2	7,099	5,331.0	1,099.2	1,119.5		0.80	11,486.7	1,244.3	16.74	1,261.00	0.03
FRS2	6,899	4,986.1	1,099.1	1,119.5		0.71	11,890.0	1,272.3	5.34	1,277.61	0.03
FRS2	6,699	4,588.6	1,098.9	1,119.5		0.67	11,568.3	1,220.4	8.24	1,228.68	0.03
FRS2	6,499	4,402.6	1,098.8	1,119.5		0.67	10,956.7	1,137.6	9.76	1,147.38	0.03
FRS2	6,299	4,083.8	1,099.0	1,119.5		0.53	13,085.4	1,347.5	6.88	1,354.33	0.02
FRS2	6,099	3,737.0	1,098.9	1,119.5		0.59	10,480.8	1,200.4	8.30	1,216.80	0.02
FRS2	5,899	3,380.4	1,098.9	1,119.5		0.57	9,750.5	1,126.8	16.72	1,143.54	0.02
FRS2	5,699	2,992.4	1,098.9	1,119.5		0.52	9,818.1	1,301.1	8.32	1,309.41	0.02

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	WSEL (ft)	Crit W.S. (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Sta W.S. Lft (ft)	Sta W.S. Rgt (ft)	Froude No.
FRS2	5,499	2,587.4	1,098.9	1,119.5		0.36	10,955.8	1,071.8	17.48	1,089.32	0.01
FRS2	5,299	2,160.0	1,099.2	1,119.5		0.34	9,231.8	1,007.9	12.01	1,019.88	0.01
FRS2	5,099	1,747.7	1,098.9	1,119.5		0.29	8,684.3	986.7	9.42	996.08	0.01
FRS2	4,899	1,359.0	1,098.9	1,119.5		0.23	8,173.9	870.5	14.11	884.57	0.01
FRS2	4,699	941.4	1,099.1	1,119.5		0.17	9,038.4	974.3	0.00	974.32	0.01
FRS2	4,286	313.9	1,099.7	1,119.5		0.07	7,419.4	977.2	49.81	1,027.00	0.00
FRS2	4,279	Culvert	underneath Miller Road								
FRS2	4,166	-300.1	1,099.5	1,117.0		-0.08	5,256.9	726.1	58.78	784.90	0.00
FRS2	4,099	Lat Struct	Continue FRS#2 Dam Crest after Miller Road								
FRS2	3,899	-305.5	1,098.7	1,117.0		-0.09	5,082.6	740.1	18.40	758.45	0.00
FRS2	3,699	-306.2	1,098.2	1,117.0		-0.07	6,140.0	751.3	18.78	770.07	0.00
FRS2	3,499	-306.9	1,098.6	1,117.0		-0.07	5,985.9	730.8	14.93	745.78	0.00
FRS2	3,299	-306.7	1,098.3	1,117.0		-0.07	6,340.2	810.7	13.68	824.40	0.00
FRS2	3,099	-300.6	1,098.7	1,117.0		-0.07	6,429.2	799.9	8.51	808.37	0.00
FRS2	2,899	-308.9	1,098.3	1,116.9		-0.07	7,016.3	907.5	7.10	914.55	0.00
FRS2	2,699	-305.8	1,097.9	1,116.9		-0.06	7,486.6	942.0	10.58	952.62	0.00
FRS2	2,649	Lat Struct	Emergency Spillway #2								
FRS2	2624.70*	-1,576.1	1,097.7	1,116.9		-0.31	7,757.8	1,030.4	10.23	1,040.64	0.01
FRS2	2549.99* S	-3,961.4	1,097.5	1,116.9		-0.71	8,083.3	1,066.4	10.70	1,077.09	0.03
FRS2	2,500	1,730.0	1,097.4	1,116.9		0.29	8,335.4	1,079.4	12.53	1,091.90	0.01
FRS2	2,389	152.1	1,096.5	1,116.9		0.04	6,777.8	919.8	27.03	946.80	0.00
FRS2	2,220	Culvert	Principal Spillway #2								
FRS2	150	152.1	1,085.0	1,089.0		2.27	67.0	30.0	167.25	197.23	0.27
FRS2	0	152.0	1,084.9	1,088.9	1,086.8	1.23	124.2	92.5	50.91	143.44	0.17
FRS1	48,900	146.7	1,086.1	1,096.1		0.08	2,605.2	453.7	8.32	462.05	0.00
FRS1	48,700	145.9	1,086.0	1,096.1		0.04	6,711.3	1,082.8	25.34	1,108.15	0.00
FRS1	48399.9* R	145.5	1,085.4	1,096.1		0.03	7,253.0	1,084.8	16.28	1,101.03	0.00
FRS1	48,300	186.8	1,085.2	1,096.1		0.03	7,506.8	1,085.4	13.26	1,098.66	0.00
FRS1	47,900	186.2	1,084.3	1,096.1		0.04	5,970.8	1,189.9	18.77	1,208.65	0.00
FRS1	47699.9* Q	184.8	1,084.2	1,096.1		0.04	6,325.0	911.5	17.62	929.15	0.00
FRS1	47,500	3,873.3	1,084.0	1,096.0		0.92	5,212.7	575.0	16.47	591.47	0.05
FRS1	47,300	3,872.3	1,083.8	1,096.0		0.84	5,086.1	510.9	20.45	531.36	0.04
FRS1	46,300	3,853.1	1,084.0	1,095.4		6.32	679.9	87.9	18.62	106.53	0.35

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	WSEL (ft)	Crit W.S. (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Sta W.S. Lft (ft)	Sta W.S. Rgt (ft)	Froude No.
FRS1	46,100	3,842.4	1,083.9	1,095.2		6.18	648.2	96.3	1.84	98.10	0.38
FRS1	45,900	3,846.3	1,084.0	1,095.2		5.26	755.8	108.5	2.68	111.14	0.32
FRS1	45,700	3,846.1	1,084.1	1,095.1		4.73	851.6	116.5	0.00	116.54	0.28
FRS1	45,500	3,839.9	1,084.0	1,095.0		4.92	806.8	107.4	11.75	119.19	0.30
FRS1	45,300	3,841.0	1,082.9	1,095.0		4.18	984.9	130.7	0.00	130.67	0.24
FRS1	45,100	3,840.7	1,082.7	1,095.1		3.32	1,377.7	185.7	9.59	195.26	0.18
FRS1	44,900	3,842.7	1,082.4	1,095.1		1.84	2,599.1	328.4	10.76	339.15	0.10
FRS1	44,100	3,839.7	1,082.5	1,094.7		4.76	852.7	93.1	11.72	104.79	0.26
FRS1	43,900	3,838.8	1,083.0	1,094.5		5.42	752.3	100.8	0.00	100.82	0.32
FRS1	43,700	3,837.3	1,083.0	1,094.4		5.34	777.5	91.3	12.33	103.65	0.29
FRS1	43,500	3,837.7	1,083.0	1,094.3		5.13	784.8	100.1	6.28	106.36	0.30
FRS1	43,300	3,837.2	1,082.7	1,094.2		5.26	766.6	93.9	7.49	101.41	0.30
FRS1	43,100	3,836.3	1,083.0	1,094.1		4.67	855.4	111.8	8.46	120.25	0.28
FRS1	42,900	3,836.5	1,082.7	1,094.3		2.51	2,059.4	283.4	0.00	283.43	0.14
FRS1	41,700	3,834.7	1,082.7	1,094.1		2.62	1,798.3	244.3	11.68	256.00	0.14
FRS1	41,500	3,835.2	1,082.9	1,094.0		3.39	1,337.3	208.9	13.86	222.78	0.19
FRS1	41,300	3,831.5	1,083.2	1,093.8		4.70	863.6	127.5	3.34	130.85	0.29
FRS1	41,100	3,821.1	1,083.2	1,093.4		6.08	666.8	105.3	1.69	106.98	0.38
FRS1	40,900	3,791.6	1,082.8	1,093.2		6.07	656.1	105.2	0.00	105.15	0.39
FRS1	40,700	3,762.3	1,083.0	1,093.1		5.95	689.4	95.1	13.69	108.79	0.35
FRS1	40,500	3,676.8	1,082.9	1,092.9		5.94	655.5	92.3	14.18	106.51	0.36
FRS1	40,300	3,701.8	1,082.4	1,092.9		4.71	824.5	115.0	7.79	122.82	0.28
FRS1	40,100	3,724.6	1,082.4	1,092.9		3.98	1,050.6	166.0	6.96	172.95	0.24
FRS1	39,900	3,731.5	1,082.2	1,092.9		3.27	1,450.7	238.5	10.22	248.74	0.19
FRS1	39,700	3,678.3	1,082.2	1,092.8		3.62	1,201.6	209.3	13.78	223.04	0.22
FRS1	39,500	3,700.1	1,082.1	1,092.8		3.22	1,533.8	265.5	0.00	265.49	0.19
FRS1	39,300	3,708.2	1,081.2	1,092.9		2.06	2,071.2	297.0	0.00	297.01	0.12
FRS1	39,100	3,712.3	1,081.6	1,092.8		2.08	2,143.2	301.9	0.00	301.87	0.12
FRS1	38,900	3,666.0	1,081.4	1,092.8		2.63	1,675.0	252.4	2.29	254.69	0.15
FRS1	38,700	3,670.7	1,081.3	1,092.8		2.45	1,895.9	284.6	0.00	284.57	0.14
FRS1	38,500	3,660.1	1,081.3	1,092.7		2.51	1,898.7	287.0	0.00	287.01	0.14
FRS1	38,300	3,607.9	1,081.2	1,092.7		2.71	1,699.6	268.4	3.79	272.20	0.15
FRS1	38,100	3,595.1	1,081.6	1,092.7		2.65	1,718.6	242.3	5.83	248.08	0.15

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	WSEL (ft)	Crit W.S. (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Sta W.S. Lft (ft)	Sta W.S. Rgt (ft)	Froude No.
FRS1	37,900	2,783.2	1,081.7	1,092.6		2.69	1,158.3	176.6	0.00	176.59	0.16
FRS1	37,700	2,778.4	1,081.5	1,092.5		2.71	1,045.1	172.2	12.25	184.40	0.19
FRS1	37,600	Lat Struct	Begin FRS#1 Dam Crest								
FRS1	37,500	2,651.9	1,081.4	1,092.5		2.46	1,125.9	191.6	4.61	196.21	0.17
FRS1	37,300	2,378.9	1,081.5	1,092.5		2.23	1,162.6	213.5	0.00	213.47	0.15
FRS1	37,100	2,069.2	1,081.5	1,092.5		1.69	1,381.8	219.1	12.17	231.30	0.10
FRS1	36,900	1,720.6	1,081.4	1,092.5		1.35	1,367.7	239.1	6.58	245.64	0.09
FRS1	36699.98 P	1,338.7	1,081.7	1,092.6		0.71	2,230.2	381.9	0.00	381.94	0.04
FRS1	36,500	2,544.9	1,081.3	1,092.5		1.69	2,375.6	585.7	11.40	597.11	0.10
FRS1	36,300	2,138.0	1,081.2	1,092.5		1.27	2,776.6	590.5	6.63	597.13	0.07
FRS1	36,100	1,717.0	1,081.1	1,092.5		0.95	2,989.5	669.9	0.00	669.85	0.05
FRS1	35,900	1,288.4	1,080.5	1,092.5		0.72	3,086.5	687.5	12.79	700.29	0.04
FRS1	35699.9* O	858.5	1,080.6	1,092.5		0.44	3,337.8	734.2	6.39	740.62	0.02
FRS1	35,500	2,922.4	1,080.7	1,092.5		1.36	3,562.6	781.0	0.00	780.96	0.08
FRS1	35,300	2,520.0	1,080.2	1,092.5		1.11	4,175.5	938.0	10.28	948.31	0.06
FRS1	35,100	2,150.9	1,080.5	1,092.5		0.81	4,868.6	1,000.1	8.01	1,008.10	0.04
FRS1	34,900	1,784.0	1,079.9	1,092.5		0.61	5,456.4	1,098.5	0.00	1,098.52	0.03
FRS1	34,700	1,445.5	1,078.5	1,092.5		0.42	6,479.2	1,178.2	3.66	1,181.89	0.02
FRS1	34,500	1,146.0	1,078.3	1,092.5		0.26	7,313.2	1,340.3	0.27	1,340.52	0.01
FRS1	34,300	856.0	1,078.5	1,092.5		0.17	8,893.8	1,406.3	0.00	1,427.17	0.01
FRS1	34099.98 N	594.7	1,077.9	1,092.5		0.11	8,356.3	1,325.8	0.00	1,325.80	0.01
FRS1	33,900	4,945.4	1,077.2	1,092.5		1.40	6,328.2	1,232.9	10.19	1,243.08	0.07
FRS1	33,700	4,676.9	1,077.0	1,092.5		1.11	6,908.0	1,190.1	10.64	1,200.75	0.05
FRS1	33,500	4,437.3	1,076.7	1,092.5		1.07	7,689.0	1,331.4	7.05	1,338.41	0.05
FRS1	33,300	4,182.1	1,076.4	1,092.5		0.93	8,460.8	1,362.6	3.03	1,365.64	0.04
FRS1	33,100	3,910.6	1,076.1	1,092.5		0.78	9,110.3	1,418.6	0.00	1,418.59	0.04
FRS1	32,900	3,623.8	1,075.6	1,092.5		0.68	10,011.3	1,450.7	13.81	1,464.53	0.03
FRS1	32,700	3,286.9	1,075.2	1,092.5		0.61	10,041.3	1,459.9	9.76	1,469.68	0.03
FRS1	32,500	2,927.3	1,074.8	1,092.5		0.39	12,064.5	1,523.9	7.59	1,531.44	0.02
FRS1	32,300	2,474.7	1,074.4	1,092.5		0.38	11,612.4	1,560.1	0.00	1,560.09	0.02
FRS1	32,100	1,987.2	1,074.2	1,092.5		0.16	14,627.9	1,567.6	10.84	1,578.41	0.01
FRS1	31,900	1,440.3	1,074.0	1,092.5		0.11	15,221.4	1,526.5	0.00	1,526.46	0.00
FRS1	31,700	818.5	1,073.7	1,092.5		0.06	15,419.5	1,488.1	0.00	1,488.10	0.00

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	WSEL (ft)	Crit W.S. (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Sta W.S. Lft (ft)	Sta W.S. Rgt (ft)	Froude No.
FRS1	31,500	178.7	1,073.4	1,092.5		0.01	16,063.6	1,547.3	0.00	1,547.27	0.00
FRS1	31,300	-492.6	1,073.3	1,092.5		-0.04	16,221.1	1,573.8	2.13	1,575.93	0.00
FRS1	31,100	-1,195.6	1,072.9	1,092.5		-0.10	15,680.3	1,548.2	6.68	1,554.92	0.00
FRS1	30,900	-1,922.2	1,072.6	1,092.5		-0.15	16,193.9	1,750.8	0.00	1,750.77	0.01
FRS1	30,700	-2,683.3	1,072.4	1,092.5		-0.28	14,719.8	1,743.9	0.39	1,744.32	0.01
FRS1	30,500	-3,472.0	1,072.2	1,092.5		-0.34	17,194.9	1,810.7	5.13	1,815.83	0.01
FRS1	30,300	-4,245.6	1,071.9	1,092.5		-0.42	16,927.7	1,909.6	0.00	1,909.56	0.02
FRS1	30,100	-4,945.1	1,071.7	1,092.5		-0.44	17,419.2	1,845.1	1.84	1,846.98	0.02
FRS1	29,900	-5,568.6	1,071.6	1,092.5		-0.36	20,191.2	1,809.7	8.91	1,818.56	0.01
FRS1	29,700	-6,103.4	1,071.3	1,092.5		-0.39	20,479.4	1,783.8	0.00	1,783.83	0.02
FRS1	29,500	-6,580.5	1,071.4	1,092.5		-0.42	20,192.0	1,843.5	2.57	1,846.05	0.02
FRS1	29,300	-7,001.3	1,070.8	1,092.5		-0.61	18,548.6	1,885.4	8.77	1,894.20	0.02
FRS1	29,100	-7,403.4	1,070.5	1,092.5		-0.67	18,786.3	1,940.1	0.00	1,940.06	0.03
FRS1	28,900	-7,789.9	1,069.9	1,092.5		-0.71	18,714.7	1,957.2	2.90	1,960.13	0.03
FRS1	28,700	-8,174.0	1,069.9	1,092.5		-0.71	19,468.0	1,940.3	6.95	1,947.23	0.03
FRS1	28,500	-8,583.4	1,069.8	1,092.5		-0.72	19,885.8	2,030.4	5.65	2,036.09	0.03
FRS1	28,300	-9,000.1	1,069.5	1,092.5		-0.65	20,757.5	2,056.2	0.00	2,056.20	0.03
FRS1	28,100	-9,394.8	1,069.1	1,092.5		-0.63	22,417.4	2,102.9	5.17	2,108.02	0.02
FRS1	27,900	-9,815.7	1,068.7	1,092.5		-0.62	23,985.8	2,135.4	0.00	2,135.44	0.02
FRS1	27,700	-10,250.3	1,068.9	1,092.5		-0.62	25,230.1	2,201.1	0.00	2,201.05	0.02
FRS1	27,500	-10,676.8	1,069.0	1,092.5		-0.74	24,122.6	2,103.1	5.48	2,108.59	0.03
FRS1	27,300	-11,087.0	1,068.7	1,092.5		-0.78	24,593.6	2,148.8	13.95	2,162.72	0.03
FRS1	27,100	-11,543.8	1,068.6	1,092.5		-0.76	25,716.9	2,233.2	0.16	2,233.36	0.03
FRS1	26,900	-11,986.1	1,068.6	1,092.5		-0.68	26,884.1	2,257.2	7.75	2,264.97	0.03
FRS1	26,700	-12,324.6	1,068.7	1,092.5		-0.49	30,835.0	2,270.6	4.23	2,274.81	0.02
FRS1	26,500	-12,688.3	1,068.7	1,092.5		-0.50	30,528.9	2,288.8	11.50	2,300.32	0.02
FRS1	26,300	-12,860.6	1,068.2	1,092.5		-0.52	29,701.6	2,243.0	0.00	2,320.52	0.02
FRS1	26,100	-13,119.4	1,068.1	1,092.5		-0.50	32,647.3	2,379.8	4.10	2,383.87	0.02
FRS1	25,900	-13,363.2	1,067.9	1,092.5		-0.49	33,664.2	2,406.8	0.33	2,407.14	0.02
FRS1	25,700	-13,548.9	1,067.7	1,092.5		-0.47	34,923.0	2,487.9	5.00	2,492.89	0.02
FRS1	25,500	-13,695.8	1,067.4	1,092.5		-0.46	36,339.1	2,478.6	12.21	2,490.79	0.02
FRS1	25,300	-13,983.5	1,067.3	1,092.5		-0.47	36,418.3	2,492.9	0.00	2,492.86	0.02
FRS1	25099.98 M	-14,048.2	1,067.5	1,092.5		-0.70	30,970.8	2,567.1	2.92	2,569.98	0.02

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	WSEL (ft)	Crit W.S. (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Sta W.S. Lft (ft)	Sta W.S. Rgt (ft)	Froude No.
FRS1	24,935	5,122.7	1,067.5	1,092.5		0.24	30,715.3	2,655.2	1.81	2,657.04	0.01
FRS1	24,885	Culvert	Sun Valley Parkway								
FRS1	24,700	4,816.7	1,066.9	1,089.3		0.36	20,649.7	2,257.9	18.19	2,276.09	0.02
FRS1	24,699	Lat Struct	Continue FRS#1 Dam Crest after Sun Valley Parkway								
FRS1	24,500	4,726.6	1,066.6	1,089.4		0.27	25,833.0	2,254.1	6.34	2,260.45	0.01
FRS1	24,300	4,647.7	1,066.0	1,089.4		0.24	27,489.4	2,220.5	8.50	2,228.98	0.01
FRS1	24,100	4,561.6	1,065.7	1,089.4		0.17	31,515.5	2,194.7	11.82	2,206.56	0.01
FRS1	23,900	4,498.7	1,065.7	1,089.4		0.17	31,151.2	2,281.1	6.70	2,287.76	0.01
FRS1	23,700	4,385.5	1,065.5	1,089.4		0.16	31,308.3	2,353.6	11.99	2,365.59	0.01
FRS1	23,500	4,327.3	1,065.4	1,089.4		0.16	31,108.2	2,311.9	13.35	2,325.28	0.01
FRS1	23,300	4,268.6	1,065.4	1,089.4		0.16	30,923.2	2,328.6	7.99	2,336.62	0.01
FRS1	23,100	4,211.8	1,065.3	1,089.4		0.16	30,941.0	2,304.8	8.89	2,313.71	0.01
FRS1	22,900	4,202.4	1,065.2	1,089.4		0.16	30,716.1	2,321.1	12.51	2,333.65	0.01
FRS1	22,700	4,147.0	1,065.0	1,089.4		0.16	30,672.3	2,358.2	10.74	2,368.97	0.01
FRS1	22499.99 Z	4,042.0	1,065.2	1,089.4		0.16	30,880.5	2,398.4	0.00	2,398.42	0.01
FRS1	22,300	3,983.7	1,065.1	1,089.4		0.23	26,761.3	2,384.3	7.64	2,391.93	0.01
FRS1	22,100	3,929.7	1,065.0	1,089.4		0.23	26,818.0	2,452.8	11.86	2,464.63	0.01
FRS1	21,900	3,877.0	1,064.7	1,089.4		0.23	26,719.9	2,368.3	9.40	2,377.65	0.01
FRS1	21,700	3,826.3	1,065.0	1,089.4		0.22	26,969.5	2,408.3	6.24	2,414.55	0.01
FRS1	21,500	3,773.1	1,065.0	1,089.4		0.21	27,373.8	2,449.1	11.99	2,461.06	0.01
FRS1	21,300	3,671.4	1,064.9	1,089.4		0.19	29,066.2	2,497.6	9.35	2,506.90	0.01
FRS1	21,100	3,617.1	1,064.8	1,089.4		0.18	30,122.8	2,535.0	7.70	2,542.69	0.01
FRS1	20,900	3,609.0	1,064.5	1,089.4		0.18	30,281.3	2,545.2	10.87	2,556.02	0.01
FRS1	20,700	3,512.1	1,064.1	1,089.4		0.18	29,695.6	2,565.2	9.58	2,574.77	0.01
FRS1	20,500	3,458.8	1,064.2	1,089.4		0.17	30,181.1	2,567.3	7.32	2,574.62	0.01
FRS1	20,300	3,406.2	1,064.1	1,089.4		0.16	31,203.9	2,498.2	11.56	2,509.71	0.01
FRS1	20,100	3,355.0	1,063.8	1,089.4		0.16	31,261.7	2,468.4	0.00	2,468.38	0.01
FRS1	19,900	3,250.3	1,064.1	1,089.4		0.15	31,243.6	2,505.2	0.00	2,505.23	0.01
FRS1	18,700	2,968.1	1,064.1	1,089.4		0.16	28,743.4	2,508.0	11.14	2,519.13	0.01
FRS1	18,500	2,911.0	1,063.8	1,089.4		0.17	28,215.5	2,499.3	12.23	2,511.54	0.01
FRS1	18,300	2,802.4	1,063.7	1,089.4		0.16	29,019.6	2,541.6	9.40	2,551.00	0.01
FRS1	18,100	2,685.4	1,063.7	1,089.4		0.16	29,023.8	2,542.9	10.30	2,553.15	0.01
FRS1	17,900	2,622.1	1,063.6	1,089.4		0.15	29,377.5	2,572.0	10.27	2,582.29	0.01

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	WSEL (ft)	Crit W.S. (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Sta W.S. Lft (ft)	Sta W.S. Rgt (ft)	Froude No.
FRS1	17,700	2,556.5	1,063.7	1,089.4		0.15	29,473.9	2,775.4	7.69	2,783.12	0.01
FRS1	17,500	2,423.8	1,063.5	1,089.4		0.13	32,955.3	2,748.8	6.09	2,754.91	0.00
FRS1	17,300	2,278.9	1,063.3	1,089.4		0.12	32,741.2	2,786.3	5.31	2,809.53	0.00
FRS1	17,100	2,039.5	1,063.6	1,089.4		0.10	35,677.6	3,085.4	8.16	3,093.53	0.00
FRS1	16,900	2,035.2	1,063.0	1,089.4		0.09	37,002.9	3,144.1	7.07	3,151.20	0.00
FRS1	16,700	1,952.0	1,063.1	1,089.4		0.08	40,945.5	3,209.7	7.33	3,216.99	0.00
FRS1	16,500	1,868.8	1,063.0	1,089.4		0.06	46,682.7	3,246.6	10.76	3,257.34	0.00
FRS1	16,300	1,787.1	1,062.3	1,089.4		0.05	45,648.8	3,121.7	6.34	3,128.01	0.00
FRS1	16,100	1,704.9	1,062.6	1,089.4		0.05	46,654.8	3,264.8	10.27	3,275.06	0.00
FRS1	15,900	1,620.4	1,062.4	1,089.4		0.04	54,524.4	3,677.3	10.81	3,688.11	0.00
FRS1	15,700	1,537.3	1,062.5	1,089.4		0.04	49,811.6	3,464.7	9.06	3,473.73	0.00
FRS1	15,500	1,530.0	1,062.7	1,089.4		0.04	50,176.3	3,472.8	5.24	3,478.08	0.00
FRS1	15,100	1,449.2	1,062.5	1,089.4		0.04	48,796.6	3,507.3	11.92	3,519.26	0.00
FRS1	14,900	1,441.7	1,062.5	1,089.4		0.05	47,505.9	3,534.6	0.00	3,534.57	0.00
FRS1	14,700	1,432.5	1,062.5	1,089.4		0.04	48,597.8	3,269.1	4.82	3,273.93	0.00
FRS1	14,500	1,384.9	1,062.5	1,089.4		0.03	50,466.0	3,274.7	6.97	3,281.63	0.00
FRS1	14,300	1,410.7	1,062.5	1,089.4		0.03	50,976.7	3,333.1	0.00	3,333.09	0.00
FRS1	14,100	1,401.3	1,062.7	1,089.4		0.03	49,499.4	3,283.2	11.13	3,566.01	0.00
FRS1	13899.99 L	1,390.9	1,062.5	1,089.4		0.04	49,372.9	3,449.5	11.06	3,460.52	0.00
FRS1	13,700	1,700.9	1,062.8	1,089.4		0.05	50,631.4	3,923.1	11.40	3,934.50	0.00
FRS1	13,650	Culvert	Johnson Road								
FRS1	13,500	-1,572.0	1,062.9	1,087.2		-0.05	41,182.0	3,276.7	20.37	3,297.03	0.00
FRS1	13,499	Lat Struct	Continue FRS#1 Dam Crest after Johnson Road								
FRS1	13,300	-1,574.0	1,062.6	1,087.2		-0.05	42,474.8	3,447.3	19.23	3,466.51	0.00
FRS1	12,900	-1,579.9	1,062.8	1,087.2		-0.05	45,245.5	3,739.2	15.45	3,754.62	0.00
FRS1	12,700	-1,578.2	1,062.7	1,087.2		-0.05	47,244.7	3,530.1	16.55	3,546.66	0.00
FRS1	12,500	-1,586.0	1,062.6	1,087.2		-0.04	50,221.6	3,693.8	12.43	3,706.23	0.00
FRS1	12,300	-1,591.4	1,062.8	1,087.2		-0.05	46,319.1	3,781.9	16.64	3,798.57	0.00
FRS1	11,700	-1,600.2	1,062.9	1,087.2		-0.09	31,667.6	3,063.8	14.07	3,077.85	0.00
FRS1	11,500	-1,588.9	1,062.8	1,087.2		-0.09	30,176.7	2,995.5	16.97	3,012.43	0.00
FRS1	11,300	-1,576.8	1,062.5	1,087.2		-0.08	30,850.1	3,034.9	15.40	3,050.29	0.00
FRS1	11,100	-1,547.3	1,062.6	1,087.2		-0.08	33,209.1	2,938.4	14.38	2,952.74	0.00
FRS1	10,900	-1,566.0	1,062.6	1,087.2		-0.09	30,373.2	2,936.2	11.86	3,066.90	0.00

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	WSEL (ft)	Crit W.S. (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Sta W.S. Lft (ft)	Sta W.S. Rgt (ft)	Froude No.
FRS1	10,700	-1,586.2	1,062.6	1,087.2		-0.09	31,630.7	3,153.4	14.47	3,167.82	0.00
FRS1	10,500	-1,606.9	1,062.6	1,087.2		-0.07	34,386.4	3,012.4	19.65	3,032.04	0.00
FRS1	10,300	-1,627.7	1,062.7	1,087.2		-0.06	36,862.8	3,059.7	21.34	3,080.99	0.00
FRS1	10,100	-1,591.0	1,062.8	1,087.2		-0.06	40,916.9	3,249.2	16.52	3,265.68	0.00
FRS1	9,900	-1,615.6	1,063.0	1,087.2		-0.06	39,800.6	3,095.7	17.14	3,112.82	0.00
FRS1	9699.999 E	-1,593.5	1,063.3	1,087.2		-0.06	36,608.7	2,784.1	15.64	2,799.71	0.00
FRS1	9,500	20,222.4	1,063.5	1,087.2		0.82	38,610.2	3,379.6	14.05	3,393.66	0.03
FRS1	9,300	20,194.2	1,063.4	1,087.2		0.65	40,985.6	3,350.6	18.21	3,368.82	0.03
FRS1	9,100	20,242.3	1,063.3	1,087.2		0.78	38,846.1	3,063.7	17.79	3,081.48	0.03
FRS1	8,900	20,264.5	1,063.1	1,087.2		0.77	40,828.2	3,014.9	17.84	3,073.63	0.03
FRS1	8,700	20,259.4	1,063.3	1,087.1		0.87	38,759.3	3,889.3	18.81	3,908.08	0.03
FRS1	8,500	20,229.0	1,062.6	1,087.1		1.37	30,646.5	4,102.4	22.12	4,124.51	0.05
FRS1	8,300	20,202.5	1,062.7	1,087.1		1.45	25,843.1	4,394.5	18.71	4,413.17	0.05
FRS1	8,100	20,195.2	1,062.8	1,087.1		1.20	30,511.3	3,363.9	16.06	3,379.94	0.04
FRS1	7,900	20,172.7	1,062.5	1,087.1		0.90	35,226.2	3,589.7	16.42	3,606.11	0.04
FRS1	7,700	20,154.1	1,062.7	1,087.1		1.56	26,755.8	3,591.8	16.22	3,607.99	0.06
FRS1	7,500	20,135.6	1,062.9	1,087.1		1.92	17,252.1	2,148.1	18.55	2,166.68	0.08
FRS1	7,300	20,090.7	1,063.0	1,087.1		2.14	16,300.6	2,050.0	19.60	2,069.60	0.09
FRS1	7,100	20,102.0	1,062.9	1,087.1		3.06	14,879.7	2,589.1	18.38	2,607.47	0.13
FRS1	6,900	20,072.5	1,062.7	1,087.0		3.57	12,810.4	2,469.6	16.82	2,486.40	0.15
FRS1	6,700	19,988.1	1,062.9	1,087.0		4.77	9,416.9	2,449.3	22.81	2,472.11	0.21
FRS1	6,500	19,953.9	1,062.9	1,086.9		4.82	8,192.0	1,879.9	19.05	1,898.96	0.22
FRS1	6,300	19,879.8	1,062.6	1,086.8		5.34	7,110.5	1,568.9	19.06	1,587.92	0.23
FRS1	6,100	19,759.0	1,062.3	1,086.6		6.14	5,653.7	1,332.3	21.25	1,353.51	0.27
FRS1	5,900	19,662.7	1,062.7	1,086.5		6.48	4,723.4	1,051.1	19.61	1,070.75	0.29
FRS1	5,700	19,468.7	1,063.2	1,086.3		6.87	4,194.7	913.5	22.60	936.10	0.31
FRS1	5,500	19,361.1	1,062.9	1,086.2		7.07	4,094.6	836.1	23.45	859.58	0.31
FRS1	5,300	19,359.6	1,062.7	1,086.2		6.58	4,401.8	907.0	18.39	925.42	0.30
FRS1	5,100	19,348.2	1,062.7	1,086.1		6.17	5,361.0	1,377.8	20.88	1,398.64	0.27
FRS1	4,900	19,286.3	1,062.7	1,086.1		6.02	5,969.9	1,400.6	18.17	1,418.75	0.27
FRS1	4,700	19,333.8	1,062.4	1,086.1		5.09	7,513.7	1,474.9	6.63	1,481.53	0.23
FRS1	4,500	19,350.8	1,063.2	1,086.2		2.50	10,365.9	1,179.2	9.43	1,188.61	0.10
FRS1	4,300	19,358.2	1,062.7	1,086.2		2.72	11,811.3	1,676.8	9.38	1,686.13	0.11

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	WSEL (ft)	Crit W.S. (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Sta W.S. Lft (ft)	Sta W.S. Rgt (ft)	Froude No.
FRS1	4,100	19,390.0	1,062.4	1,086.2		2.09	16,994.0	1,754.2	6.17	1,760.35	0.08
FRS1	3,900	19,381.0	1,062.7	1,086.2		1.02	28,035.4	1,769.2	3.10	1,772.31	0.04
FRS1	3299.99* G	19,388.9	1,062.8	1,086.2		1.22	28,666.6	2,504.7	4.42	2,509.07	0.05
FRS1	2,700	19,371.3	1,063.0	1,086.2		1.30	30,097.9	3,028.0	5.76	3,033.77	0.05
FRS1	2,699	Lat Struct									
FRS1	1,900	628.2	1,062.6	1,086.2		0.07	20,886.5	3,031.2	18.43	3,049.64	0.00
FRS1	1,700	474.6	1,062.6	1,086.2		0.05	20,886.5	3,031.2	18.43	3,049.64	0.00
FRS1	1,680	Culvert									
FRS1	500	474.5	1,028.1	1,031.3		4.43	110.8	44.1	10.44	54.53	0.47
FRS1	300	474.5	1,028.1	1,031.1		3.78	140.0	56.8	0.00	56.80	0.39
FRS1	100	474.5	1,028.1	1,030.9		2.92	162.4	72.6	26.92	99.47	0.34
FRS1	0	474.4	1,028.0	1,030.8	1,029.4	2.73	175.2	77.5	0.00	77.51	0.32

Table 5-7

Summary of Hydraulic Results for Principal/Emergency Spillway and Dam Crest in the PMF

Principal Spillway #3

Q Culv Group (cfs)	105.79	Culv Full Len (ft)	558.5
# Barrels	1	Culv Vel US (ft/s)	21.55
Q Barrel (cfs)	105.79	Culv Vel DS (ft/s)	21.55
E.G. US. (ft)	1171.15	Culv Inv El Up (ft)	1151.03
W.S. US. (ft)	1171.12	Culv Inv El Dn (ft)	1131.13
E.G. DS (ft)	1134.07	Culv Frctn Ls (ft)	26.28
W.S. DS (ft)	1134.05	Culv Exit Loss (ft)	7.19
Delta EG (ft)	37.08	Culv Entr Loss (ft)	3.61
Delta WS (ft)	37.07	Q Weir (cfs)	
E.G. IC (ft)	1171.15	Weir Sta Lft (ft)	
E.G. OC (ft)	1176.53	Weir Sta Rgt (ft)	
Culvert Control	Inlet	Weir Submerg	
Culv WS Inlet (ft)	1153.53	Weir Max Depth (ft)	
Culv WS Outlet (ft)	1133.63	Weir Avg Depth (ft)	
Culv Nml Depth (ft)	2.5	Weir Flow Area (sq ft)	
Culv Crt Depth (ft)	2.5	Min El Weir Flow (ft)	1171.45

Principal Spillway #2

Q Culv Group (cfs)	152.11	Culv Full Len (ft)	2200
# Barrels	1	Culv Vel US (ft/s)	12.1
Q Barrel (cfs)	152.11	Culv Vel DS (ft/s)	12.12
E.G. US. (ft)	1117.09	Culv Inv El Up (ft)	1096.53
W.S. US. (ft)	1116.94	Culv Inv El Dn (ft)	1085
E.G. DS (ft)	1089.04	Culv Frctn Ls (ft)	24.7
W.S. DS (ft)	1088.96	Culv Exit Loss (ft)	2.2
Delta EG (ft)	28.04	Culv Entr Loss (ft)	1.14
Delta WS (ft)	27.98	Q Weir (cfs)	
E.G. IC (ft)	1105.03	Weir Sta Lft (ft)	
E.G. OC (ft)	1117.09	Weir Sta Rgt (ft)	
Culvert Control	Outlet	Weir Submerg	
Culv WS Inlet (ft)	1100.53	Weir Max Depth (ft)	
Culv WS Outlet (ft)	1088.96	Weir Avg Depth (ft)	
Culv Nml Depth (ft)	4	Weir Flow Area (sq ft)	
Culv Crt Depth (ft)	3.61	Min El Weir Flow (ft)	1119.01

Principal Spillway #1

Q Culv Group (cfs)	474.57	Culv Full Len (ft)	1103.55
# Barrels	1	Culv Vel US (ft/s)	24.17
Q Barrel (cfs)	474.57	Culv Vel DS (ft/s)	24.17
E.G. US. (ft)	1047.09	Culv Inv El Up (ft)	1059.67
W.S. US. (ft)	1086.2	Culv Inv El Dn (ft)	1028.17
E.G. DS (ft)	1031.61	Culv Frctn Ls (ft)	31.5
W.S. DS (ft)	1031.32	Culv Exit Loss (ft)	10.62
Delta EG (ft)	15.47	Culv Entr Loss (ft)	4.54
Delta WS (ft)	54.88	Q Weir (cfs)	
E.G. IC (ft)	1086.2	Weir Sta Lft (ft)	
E.G. OC (ft)	1047.09	Weir Sta Rgt (ft)	
Culvert Control	Outlet	Weir Submerg	
Culv WS Inlet (ft)	1064.67	Weir Max Depth (ft)	
Culv WS Outlet (ft)	1033.17	Weir Avg Depth (ft)	
Culv Nml Depth (ft)	1.07	Weir Flow Area (sq ft)	
Culv Crt Depth (ft)	5	Min El Weir Flow (ft)	1089.99

Emergency Spillway #3

E.G. US. (ft)	1170.51	Weir Sta US (ft)	2.06
W.S. US. (ft)	1170.5	Weir Sta DS (ft)	424.72
E.G. DS (ft)	1170.49	Weir Max Depth (ft)	5.26
W.S. DS (ft)	1170.3	Weir Avg Depth (ft)	5.03
Q US (cfs)	-1.38	Weir Submerg	0
Q Leaving Total (cfs)	12007.21	Min El Weir Flow (ft)	1165.23
Q DS (cfs)	-12009.2	Wr Top Wdth (ft)	422.66
Perc Q Leaving	868055.8	Q Gate Group (cfs)	
Q Weir (cfs)	12007.21	Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)	2124.79	Gate Invert (ft)	

Emergency Spillway #2

E.G. US. (ft)	1116.94	Weir Sta US (ft)	4.02
W.S. US. (ft)	1116.94	Weir Sta DS (ft)	369.18
E.G. DS (ft)	1116.94	Weir Max Depth (ft)	3.71
W.S. DS (ft)	1116.94	Weir Avg Depth (ft)	3.63
Q US (cfs)	-305.79	Weir Submerg	0
Q Leaving Total (cfs)	6856.14	Min El Weir Flow (ft)	1113.23
Q DS (cfs)	152.11	Wr Top Wdth (ft)	365.16
Perc Q Leaving	2242.08	Q Gate Group (cfs)	
Q Weir (cfs)	6856.13	Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)	1324.65	Gate Invert (ft)	

Emergency Spillway #1

E.G. US. (ft)	1086.2	Weir Sta US (ft)	7.46
W.S. US. (ft)	1086.19	Weir Sta DS (ft)	824.56
E.G. DS (ft)	1086.2	Weir Max Depth (ft)	4.23
W.S. DS (ft)	1086.2	Weir Avg Depth (ft)	4.18
Q US (cfs)	19371.3	Weir Submerg	0
Q Leaving Total (cfs)	18887.14	Min El Weir Flow (ft)	1081.97
Q DS (cfs)	474.57	Wr Top Wdth (ft)	817.1
Perc Q Leaving	97.5	Q Gate Group (cfs)	
Q Weir (cfs)	18887.14	Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)	3416.62	Gate Invert (ft)	

FRS#3 Dam Crest

E.G. US. (ft)	1170.49	Weir Sta US (ft)	
W.S. US. (ft)	1170.29	Weir Sta DS (ft)	
E.G. DS (ft)	1171.12	Weir Max Depth (ft)	
W.S. DS (ft)	1171.12	Weir Avg Depth (ft)	
Q US (cfs)	-12009.2	Weir Submerg	
Q Leaving Total (cfs)	0	Min El Weir Flow (ft)	1171.43
Q DS (cfs)	105.79	Wr Top Wdth (ft)	
Perc Q Leaving	0	Q Gate Group (cfs)	
Q Weir (cfs)		Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)		Gate Invert (ft)	

FRS#2 Dam Crest Upstream of Miller Road

E.G. US. (ft)	1119.54	Weir Sta US (ft)	0
W.S. US. (ft)	1119.54	Weir Sta DS (ft)	6014
E.G. DS (ft)	1119.54	Weir Max Depth (ft)	0.91
W.S. DS (ft)	1119.54	Weir Avg Depth (ft)	0.77
Q US (cfs)	2783.8	Weir Submerg	0
Q Leaving Total (cfs)	10970.7	Min El Weir Flow (ft)	1118.61
Q DS (cfs)	313.87	Wr Top Wdth (ft)	6014
Perc Q Leaving	394.09	Q Gate Group (cfs)	
Q Weir (cfs)	10970.7	Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)	4629.24	Gate Invert (ft)	

FRS#1 Dam Crest Upstream of Sun Valley Parkway

E.G. US. (ft)	1092.61	Weir Sta US (ft)	0
W.S. US. (ft)	1092.51	Weir Sta DS (ft)	12464.8
E.G. DS (ft)	1092.5	Weir Max Depth (ft)	1.3
W.S. DS (ft)	1092.5	Weir Avg Depth (ft)	0.82
Q US (cfs)	2778.35	Weir Submerg	0
Q Leaving Total (cfs)	25519	Min El Weir Flow (ft)	1091.2
Q DS (cfs)	-14048.2	Wr Top Wdth (ft)	12464.8
Perc Q Leaving	918.5	Q Gate Group (cfs)	
Q Weir (cfs)	25519	Gate Open Ht (ft)	
Q Gates (cfs)		Gate #Open	
Q Culv (cfs)		Gate Area (sq ft)	
Q Lat RC (cfs)		Gate Submerg	
Weir Flow Area (sq ft)	10221.9	Gate Invert (ft)	

Miller Road Culverts, FRS#2

Q Culv Group (cfs)	3.86	Culv Full Len (ft)	104
# Barrels	1	Culv Vel US (ft/s)	0.23
Q Barrel (cfs)	3.86	Culv Vel DS (ft/s)	0.23
E.G. US. (ft)	1116.95	Culv Inv El Up (ft)	1099.71
W.S. US. (ft)	1119.54	Culv Inv El Dn (ft)	1099.47
E.G. DS (ft)	1116.95	Culv Frctn Ls (ft)	0
W.S. DS (ft)	1116.95	Culv Exit Loss (ft)	0
Delta EG (ft)	0	Culv Entr Loss (ft)	0
Delta WS (ft)	2.59	Q Weir (cfs)	298.77
E.G. IC (ft)	1115.49	Weir Sta Lft (ft)	134.21
E.G. OC (ft)	1116.95	Weir Sta Rgt (ft)	784.96
Culvert Control	Outlet	Weir Submerg	1
Culv WS Inlet (ft)	1103.29	Weir Max Depth (ft)	4.95
Culv WS Outlet (ft)	1103.05	Weir Avg Depth (ft)	3.09
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	2011.85
Culv Crt Depth (ft)	0.36	Min El Weir Flow (ft)	1112.01

Sun Valley Parkway Culvert, FRS#1

Q Culv Group (cfs)	315.71	Culv Full Len (ft)	100
# Barrels	4	Culv Vel US (ft/s)	0.79
Q Barrel (cfs)	78.93	Culv Vel DS (ft/s)	0.79
E.G. US. (ft)	1089.36	Culv Inv El Up (ft)	1067.53
W.S. US. (ft)	1092.5	Culv Inv El Dn (ft)	1066.94
E.G. DS (ft)	1089.35	Culv Frctn Ls (ft)	0
W.S. DS (ft)	1089.34	Culv Exit Loss (ft)	0.01
Delta EG (ft)	0.01	Culv Entr Loss (ft)	0
Delta WS (ft)	3.16	Q Weir (cfs)	4807.02
E.G. IC (ft)	1081.79	Weir Sta Lft (ft)	345.49
E.G. OC (ft)	1089.36	Weir Sta Rgt (ft)	2247.71
Culvert Control	Outlet	Weir Submerg	1
Culv WS Inlet (ft)	1077.53	Weir Max Depth (ft)	10
Culv WS Outlet (ft)	1076.94	Weir Avg Depth (ft)	5.66
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	10759.3
Culv Crt Depth (ft)	1.25	Min El Weir Flow (ft)	1079.36

Johnson Road Culvert, FRS#1

Q Culv Group (cfs)	11.14	Culv Full Len (ft)	100
# Barrels	2	Culv Vel US (ft/s)	0.21
Q Barrel (cfs)	5.57	Culv Vel DS (ft/s)	0.21
E.G. US. (ft)	1087.16	Culv Inv El Up (ft)	1062.79
W.S. US. (ft)	1089.4	Culv Inv El Dn (ft)	1062.7
E.G. DS (ft)	1087.16	Culv Frctn Ls (ft)	0
W.S. DS (ft)	1087.16	Culv Exit Loss (ft)	0
Delta EG (ft)	0	Culv Entr Loss (ft)	0
Delta WS (ft)	2.24	Q Weir (cfs)	1619.93
E.G. IC (ft)	1087.17	Weir Sta Lft (ft)	19.81
E.G. OC (ft)	1087.16	Weir Sta Rgt (ft)	3111.39
Culvert Control	Outlet	Weir Submerg	1
Culv WS Inlet (ft)	1067.79	Weir Max Depth (ft)	10.39
Culv WS Outlet (ft)	1067.7	Weir Avg Depth (ft)	7.07
Culv Nml Depth (ft)		Weir Flow Area (sq ft)	21862.3
Culv Crt Depth (ft)	0.37	Min El Weir Flow (ft)	1076.78

Table 5-8

The Buckeye FRS Structures Hydraulic Responses to the PMP Events (This study and Dames & Moore, 1990)

	Unit	Buckeye FRSs		
		FRS#1	FRS#2	FRS#3
6-hour PMP				
Max. WSEL	ft	1092.5[a] 1093.1[b]	1119.5 1119.2	1170.9 1172.1
Max. Flow on Dam Crest	cfs	25519.0 N/A[*]	10970.7 N/A	0.0 N/A
Max. Water Depth on Dam Crest	ft	1.3 1.9	0.9 0.6	0.0 0.7
Duration of Dam Overtopping	hr	5.0 3.7	4.3 0.8	0.0 0.8
Max. Flow on Emergency Spillway	cfs	18887.1 N/A	6856.1 N/A	12007.2 N/A
Max. Water Depth on Emergency Spillway	ft	4.2 N/A	3.7 N/A	5.3 N/A
Duration of Emergency Spillway Overtopping	hr	75.0 N/A	58.0 N/A	14.0 N/A
72-hour PMP				
Max. WSEL	ft	1092.0 1091.9	1119.0 1117.4	1168.0 1170.0
Max. Flow on Dam Crest	cfs	6183.0 N/A	1641.6 N/A	0.0 N/A
Max. Water Depth on Dam Crest	ft	0.8 0.7	0.4 0.0	0.0 0.0
Duration of Dam Overtopping	hr	4.8 4.0	7.0 0.0	0.0 0.0
Max. Flow on Emergency Spillway	cfs	11117.5 N/A	1523.1 N/A	4147.3 N/A
Max. Water Depth on Emergency Spillway	ft	3.0 N/A	1.4 N/A	2.6 N/A
Duration of Emergency Spillway Overtopping	hr	108 N/A	63.0 N/A	23.5 N/A

[a] Results from PBS&J study,
[b] Results from Dames & Moore result (1990).
[*] N/A represents either "not applicable" or "not available from the report".

Table 5-9

Summary of Buckeye FRS Level Pool Routing Analyses

Item	Unit	FRS#1 (75.76 sq-mi)			FRS#2 (5.87 sq-mi)			FRS#3 (8.77 sq-mi)		
		PMP72hr	PMP6hr	100-yr	PMP72hr	PMP6hr	100-yr	PMP72hr	PMP6hr	100-yr
Peak Discharge	cfs	62,240	98,606	13,161	13,614	30,332	4,380	16,142	35,659	4,489
Time to Peak	hr	39.33	5.92	14.67	36.83	3.83	12.42	37	4.08	12.67
Runoff Volume	ac-ft	24,991	26,508	4,990	2,686	3,286	422	3,740	4,453	617
Runoff Volume	inch	6.20	6.50	1.24	8.65	10.60	1.36	8.00	9.50	1.32
Max WSEL	ft	1090.27	1090.78	1073.88	1119.23	1119.8	1108.8	1191.97	1172.4	1160.43
Max Depth on Dam	ft	0.37	0.88	0.00	0.23	0.80	0.00	0.17	0.60	0.00
Max Storage	ac-ft	22,988	23,851	3,504	1,839	1,954	344	2,846	2,964	520
Max Outflow	cfs	4,674	15,434	330	2,946	18,530	140	3,279	21,509	89
Duration of Overtopping	hr	12.67	10.25	0.00	6.75	3.83	0.00	10.25	4.33	0.00

Table 5-10

Comparison of FRS Level Pool Routing Analyses against Unsteady Hydraulic Models

		Level Pool Routing		Unsteady Hydraulic	
		Max Outflow	Max Depth on Dam Crest	Max Outflow	Max Depth on Dam Crest
FRS#3	PMP72hr	3,277	0.17	none	none
	PMP6hr	21,509	0.60	none	none
FRS#2					
	PMP72hr	2,946	0.23	1,641	0.40
	PMP6hr	18,530	0.80	10,970	0.90
FRS#1					
	PMP72hr	4,674	0.37	6,183	0.80
	PMP6hr	15,434	0.88	25,519	1.30

Appendices

A. References

A.1 Data Collection Summary

The Data Collection Report was submitted on January 5, 2004. The following is the executive summary.

The Flood Control District of Maricopa County (District) contracted with PBS&J to perform the Buckeye/Sun Valley Area Drainage Master Study (ADMS). The study will identify area flooding, drainage, erosion, and sediment problems in the study area; evaluate existing floodplain delineations and delineate addition floodplains; identify a range of implementable solutions; and develop preliminary development guidelines for the area. The data collection task is the first step in this effort, and is the foundation for subsequent detailed studies.

Available mapping was compiled and an inventory is included in this report. A map exhibit prepared for this study includes the boundaries of the study area, known flooding problems, land ownership, and existing and future land uses.

Existing infrastructure and major utilities within the study area were identified and will be integrated into the hydrologic study for each sub-watershed.

Historic flooding events were investigated and information was collected from various sources. Historic flooding descriptions and photos are presented in this report. The log of drainage and flooding complaints maintained by the District was examined. The complaints originating from the study area were reviewed and are summarized in this report. The sites experiencing repetitive flooding will be emphasized in the study.

Previous hydrologic and hydraulic studies related to this study were reviewed and discussed. The studies that could be used as a basis for hydrology in the Buckeye/Sun Valley ADMS were identified. The studies are reviewed in sufficient detail to provide a basis for determining whether updating elements of those studies is feasible and adequate for the purposes of this project.

A.2 Referenced Documents

Arizona Water Commission. 1979. Phase I Inspection Report, National Dam Safety Program, Buckeye Flood Retarding Structures No. 1, 2, and 3. Arizona Department of Water Resources.

DMJM. 2002. Red Mountain Freeway (202L) Power Road to University Drive: Spook Hill Floodwater Retarding Structure Existing Probable Maximum Flood Hydraulics. Prepared for Arizona Department of Transportation.

Dames & Moore. 1990. Phase I Report – Hydrologic Analysis Buckeye FRS #1, #2, and #3. Prepared for the Flood Control District of Maricopa County.

Fread, D.L., McMahon, G.F., and Lewis, Janice m. 1988. Limitations of Level-Pool Routing in Reservoirs. Third Water Resources Operations Management Workshop on Computerized Decision-Support Systems for Water Managers, Fort Collins, Colorado.

Hydrologic Engineering Center (HEC). 2003. HEC-RAS River Analysis System User's Manual. US Army Corps of Engineers.

Hydrologic Engineering Center. 1998. HEC-1 Flood Hydrograph Package, User's Manual. US Army Corps of Engineers.

MAG. 2000. The Digital GIS Land Use Maps for Maricopa County (Updated every 5 years)

NOAA. 1979. HMR No. 49: Probable Maximum Precipitation Estimates, Colorado River and Great Basin Drainages. U.S. Department of Commerce, Silver Spring, Maryland

NRCS. 1964. National Engineering Handbook Section 4 Hydrology, U.S. Department of Agriculture

NRCS. 1974. Buckeye Watershed Protection and Flood Prevention Project, Maricopa County, Arizona: Floodwater Retarding Structures # 1, #2, & #3. Prepared for the Flood Control District of Maricopa County.

NRCS. 1985. Earth Dams and Reservoirs. U.S. Department of Agriculture

NRCS. 2002. Dam, Floodwater Retarding, Natural Resources Conservation Service Conservation Practice Standard, Code 402-1. U.S. Department of Agriculture

Sabol, G.V., et al. 1995. Drainage Design Manual for Maricopa County, Arizona, Volume I, Hydrology. Prepared for the Flood Control District of Maricopa County.

Sabol, G.V., et al. 1995. Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics. Prepared for the Flood Control District of Maricopa County.

USGS. 1991. Estimated Manning's Roughness Coefficients for Stream Channels and Floodplains in Maricopa County, Arizona. Water Resource Diversion, USGS.

C. Survey Field Notes

C.1 Survey Field Notes for Aerial Mapping Control

N/A

C.2 Survey Field Notes for Hydrologic Modeling

See Appendix C.2 in Volume III-C: Area 3 Hydrology Report

C.3 Survey Field Notes for Hydraulic Modeling

C.3.1 Field Investigation by PBS&J

Picture 1
FRS #3 Principal Spillway Inlet

Picture 2
FRS #3 Floodway Looking West

Picture 3
FRS #3 Principal Spillway Outlet

Picture 4
FRS #3 Principal Spillway Outlet

Picture 5
FRS #3 Principal Spillway Outlet

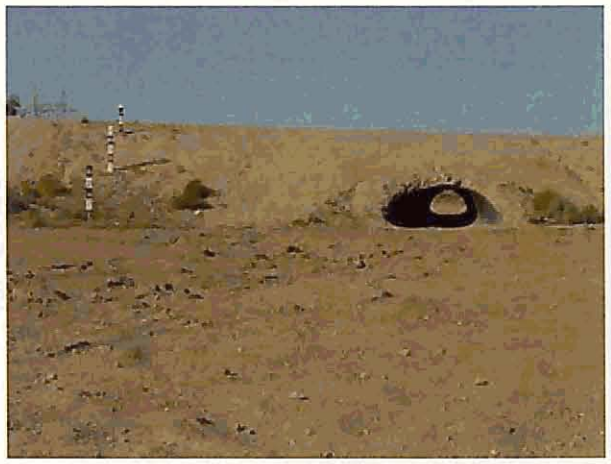
Picture 6
Baffle Chute at End of FRS #3 Floodway

Picture 7
Baffle Chute at End of FRS #3 Floodway

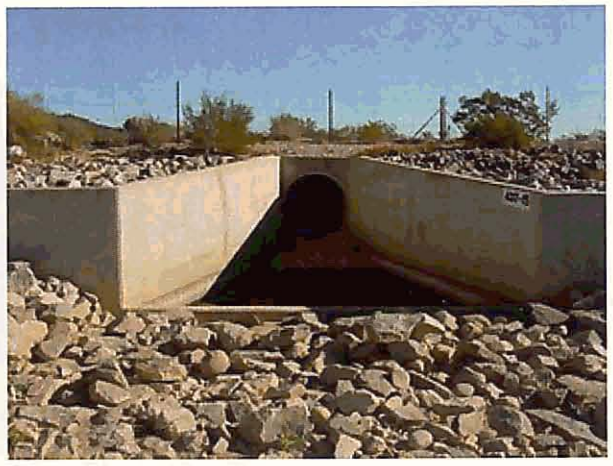
Picture 8
FRS #3 Floodway Looking East

Picture 9
Beginning of FRS #2

Picture 10
Miller Road Culvert (FRS #2)



Picture 11
Miller Road Culvert (FRS #2)



Picture 12
FRS #2 Principal Spillway Outlet

Picture 13
FRS #2 Floodway Looking West

Picture 14
Johnson Road Culvert (FRS #1)

Picture 15
FRS #1 Principal Spillway Inlet

Picture 16
FRS #1 Principal Spillway Inlet

Picture 17
FRS #1 Emergency Spillway Looking East

Picture 18
FRS #1 Emergency Spillway Looking North

Picture 19
FRS #1 Floodway Looking West

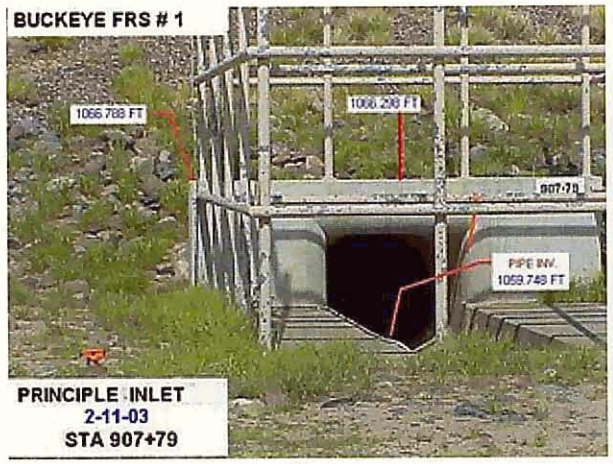
Picture 20
FRS #1 Principal Spillway Outlet

Picture 21
FRS #1 Principal Spillway Outlet

Picture 22
FRS #1 Principal Spillway Outlet

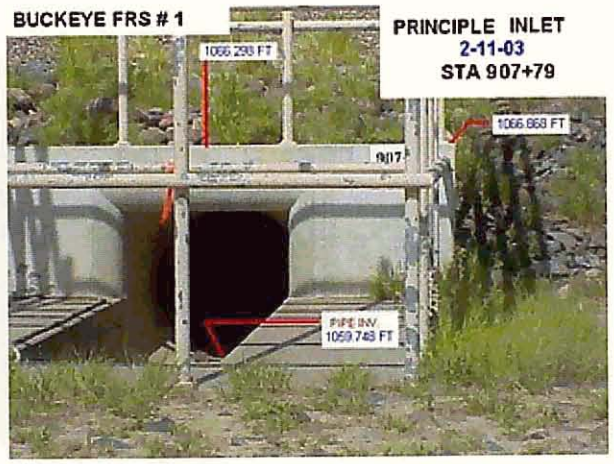
Picture 23
FRS #1 Principal Spillway Outlet

C.3.2 Field Investigation by the District (2002-2003)



Picture 24

FRS #1 Principal Spillway Inlet

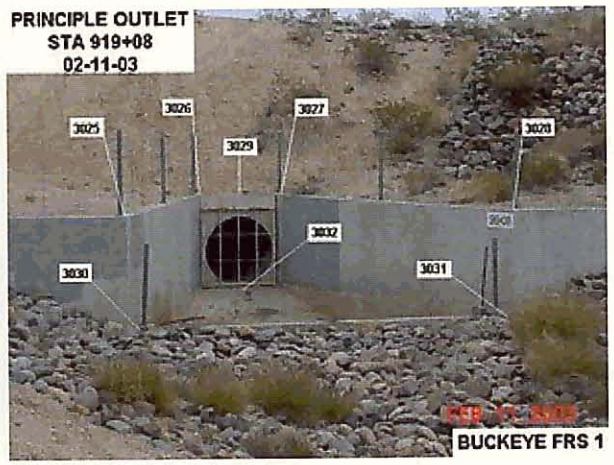


Picture 25

FRS #1 Principal Spillway Inlet

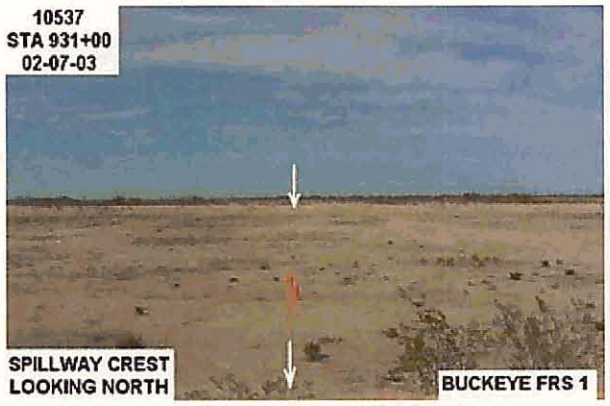
Picture 26

FRS #1 Principal Spillway Outlet

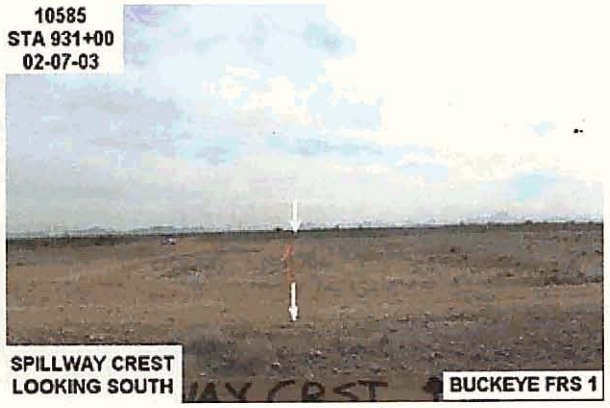


Picture 27

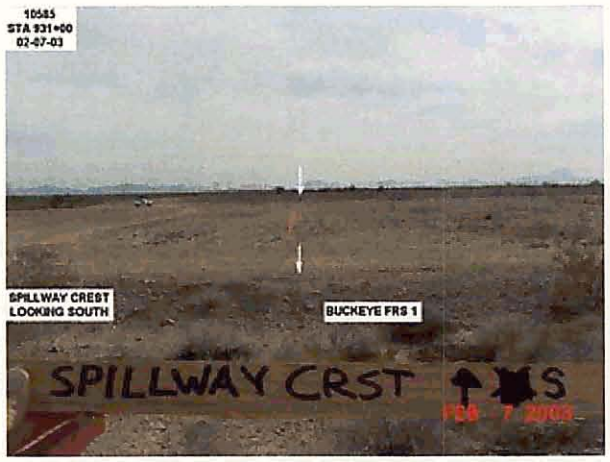
FRS #1 Principal Spillway Outlet



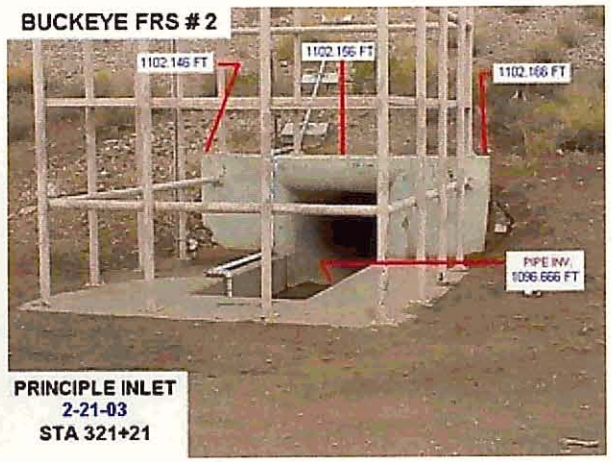
Picture 28
FRS #1 Emergency Spillway



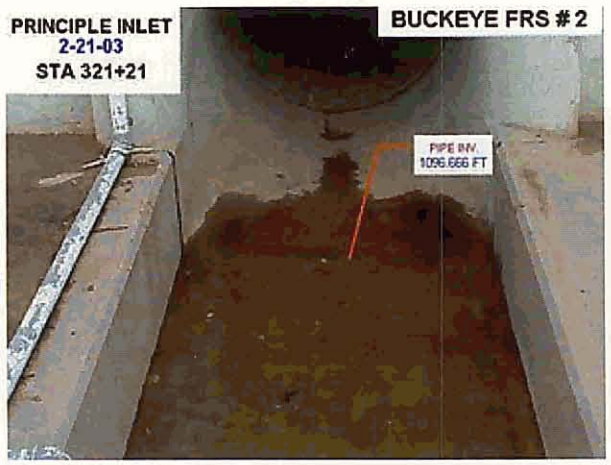
Picture 29
FRS #1 Emergency Spillway



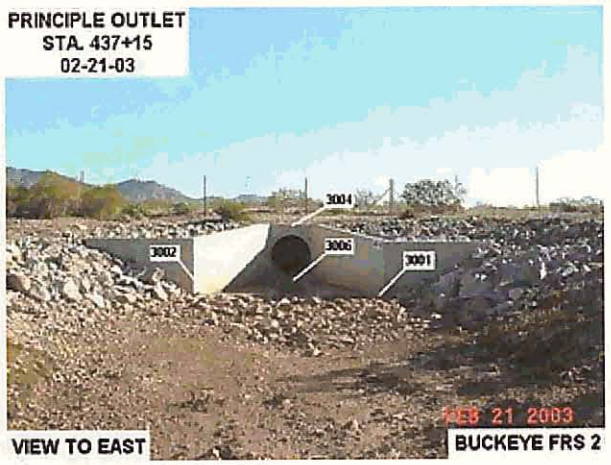
Picture 30
FRS #1 Emergency Spillway



Picture 31
FRS #2 Principal Spillway Inlet



Picture 32
FRS #2 Principal Spillway Inlet



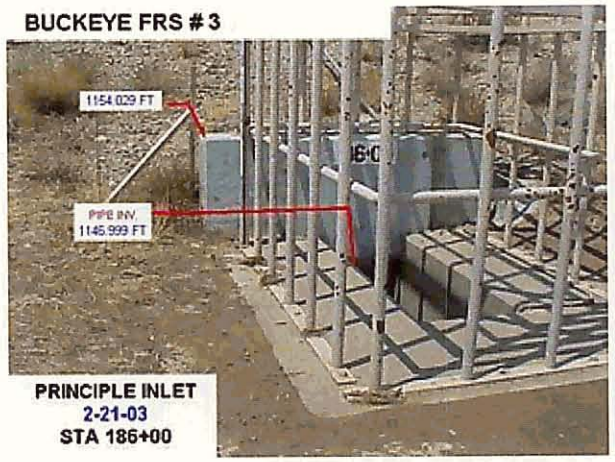
Picture 33
FRS #2 Principal Spillway Outlet

Picture 34

FRS #2 Emergency Spillway

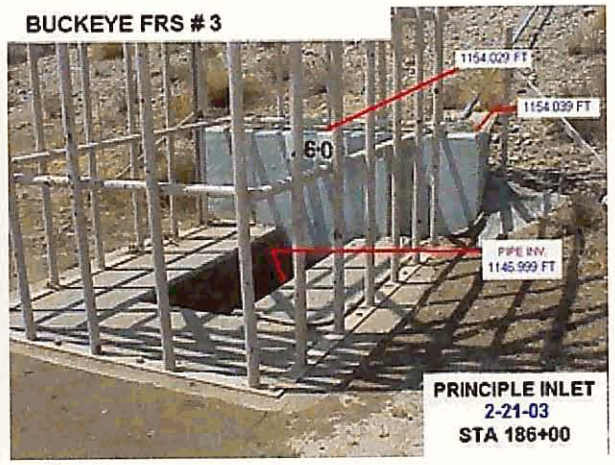
Picture 35

FRS #2 Emergency Spillway



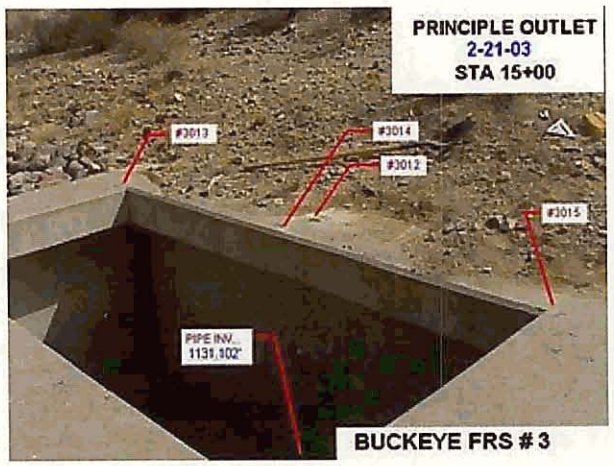
Picture 36

FRS #3 Principal Spillway Inlet



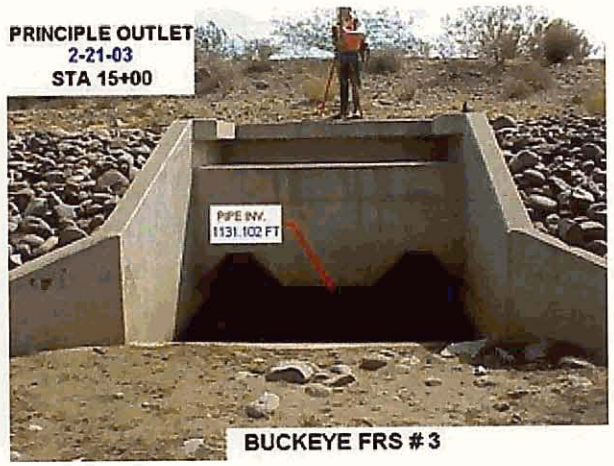
Picture 37

FRS #3 Principal Spillway Inlet



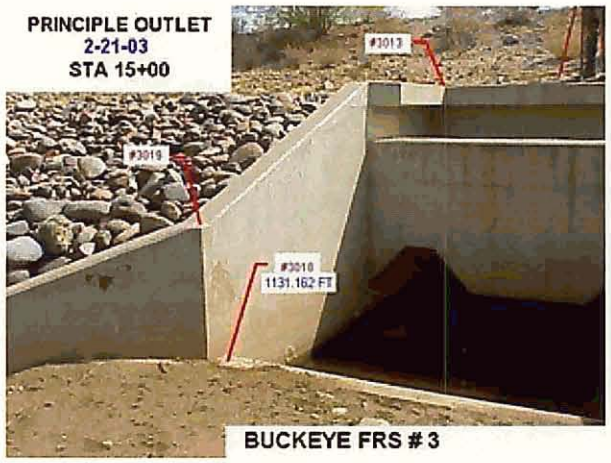
Picture 38

FRS #3 Principal Spillway Outlet



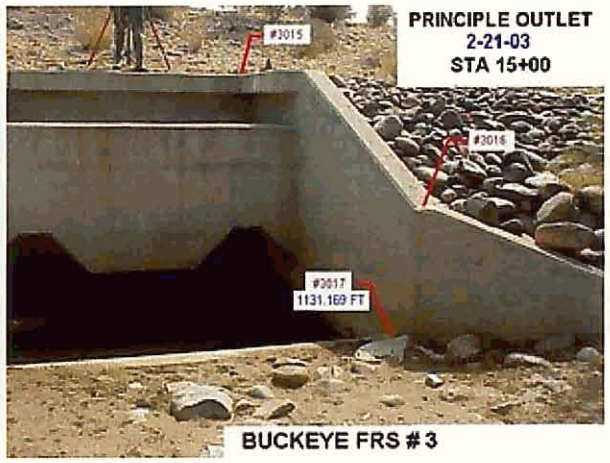
Picture 39

FRS #3 Principal Spillway Outlet



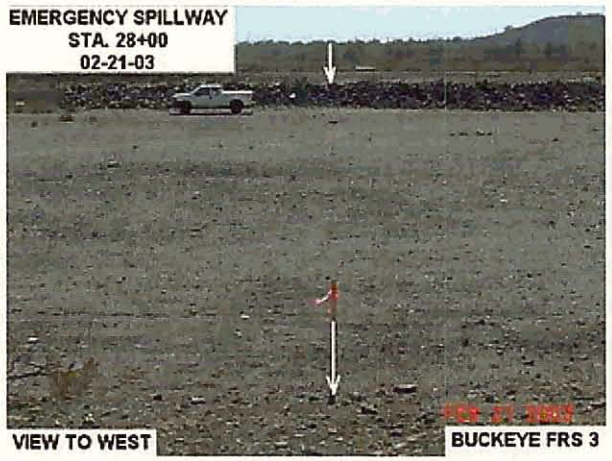
Picture 40

FRS #3 Principal Spillway Outlet



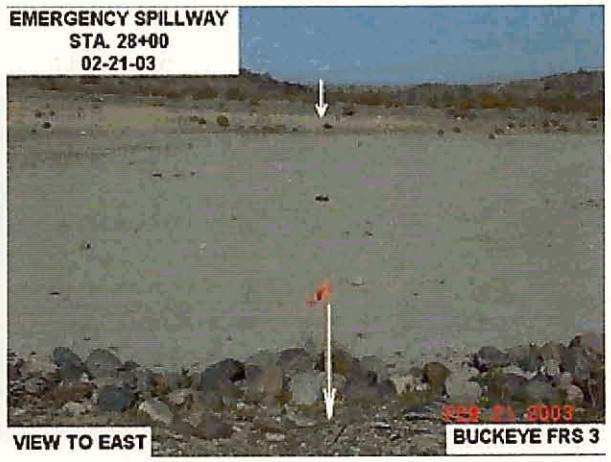
Picture 41

FRS #3 Principal Spillway Outlet



Picture 42

FRS #3 Emergency Spillway



Picture 43

FRS #3 Emergency Spillway

D. Hydrologic Analysis Supporting Documentation

See Appendix E in Volume V-A: Buckeye/Sun Valley ADMS Technical Data Notebook (TDN) - Area 3 Hydrology Report.

E. Hydraulic Analysis Supporting Documentations

E.1 Roughness Coefficient Estimation

See Section 5.3.1.

E.2 Cross Section Plots

See the avi clips in the attached CD.

E.3 Expansion and Contraction Coefficients

See Section 5.3.2.

E.4 Analysis of Structures

See Section 5.9.1.

E.5 Hydraulic Calculations

E.5.1 FRS#1 PMF Unsteady Model

```
                    HEC-RAS Version 3.1.1 May 2003
                     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: BUCKEYE FRS UNSTEADY MODEL
Project File : test_frs.prj
Run Date and Time: 2/20/2004 11:19:15 AM

Project in English units

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

PLAN DATA

Plan Title: FRS1 PMP 6HR EXIST (9.8'')
Plan File : d:\FRS_unsteady\test_frs.p32

          Geometry Title: FRS1
          Geometry File : d:\FRS_unsteady\test_frs.g01

          Flow Title    :
          Flow File     :

Plan Summary Information:
Number of:  Cross Sections =  212    Mulitple Openings  =    0
            Culverts       =    3    Inline Structures  =    0
            Bridges        =    0    Lateral Structures =    4

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


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

GEOMETRY DATA

Geometry Title: FRS1
Geometry File : d:\FRS_unsteady\test_frs.g01

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 48899.98

INPUT
Description:
Station Elevation Data    num=      51
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
    8.32 1093.09   15.45 1092.15   19.25 1091.66   26.27 1090.55      34 1089.28
   38.18 1088.57   48.76 1086.87   60.91  1086.1   63.52 1086.17   68.38  1086.5
   78.29 1087.19   83.64 1087.41   93.05 1087.81  106.36 1088.23  107.81 1088.27
  110.48 1088.31  122.57 1088.39  129.09 1088.65  137.32  1088.8  151.82 1089.13
  152.08 1089.13  152.58 1089.14  174.55 1089.63  181.61 1089.77  194.69 1089.97
  196.37 1089.99  197.28    1090   200.3 1090.03  200.71 1090.03     220 1090.22
  310.92 1090.19  314.45 1090.23     321 1090.39  329.21 1090.59  333.64 1090.72
  343.96 1091.06  356.37 1091.62  358.73 1091.69   363.1 1091.89   379.1 1092.43
  388.25 1092.68  401.83 1093.08  403.01 1093.11   405.2 1093.16  417.77 1093.38
  424.56 1093.48  432.53 1093.62  447.28 1093.78  447.29 1093.78  447.31 1093.78
  462.05 1093.79

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    8.32     .03   26.27     .03  200.71    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         26.27  200.71             199.25     200  200.86             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1096.05  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1096.05  * Reach Len. (ft)         *  199.25  *  200.00  *  200.86  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   74.85  * 1329.27  * 1201.05  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *   74.85  * 1329.27  * 1201.05  *
* Q Total (cfs)           *  146.73  * Flow (cfs)               *    3.40  *  100.36  *   42.97  *
* Top Width (ft)          *  453.73  * Top Width (ft)           *   17.95  *  174.44  *  261.34  *
* Vel Total (ft/s)        *    0.06  * Avg. Vel. (ft/s)         *    0.05  *    0.08  *    0.04  *
* Max Chl Dpth (ft)       *    9.95  * Hydr. Depth (ft)         *    4.17  *    7.62  *    4.60  *
```

```
* Conv. Total (cfs)       *372178.8  * Conv. (cfs)            *  8626.8  *254568.0  *108984.1  *
* Length Wtd. (ft)        *  200.37  * Wetted Per. (ft)       *   21.09  *  174.84  *  263.65  *
* Min Ch El (ft)          * 1086.10  * Shear (lb/sq ft)       *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.36  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)   * 2064.15  * 9771.37  *11637.23  *
* C & E Loss (ft)         *          * Cum SA (acres)         *  156.45  *  470.59  * 1630.70  *
*****************************************************************************************

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: FRS
REACH: FRS1                RS: 48699.98

INPUT
Description:
Station Elevation Data     num=      77
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   25.34 1094.29    27.7 1093.87   30.58 1093.37   40.05 1091.04   53.41 1088.27
   54.77 1087.94   57.26  1087.7  113.66 1086.44  121.93 1086.46  128.39 1086.47
  140.11 1086.32  143.11 1086.28  144.76 1086.26  157.83 1086.03   167.6 1085.99
  172.55 1085.98  181.54 1086.23  190.44 1086.61  201.37 1087.17  213.28 1087.86
  216.09 1087.98  216.72 1088.01  222.96 1088.21  231.44 1088.44  236.12 1088.55
  246.17 1088.72  258.95 1088.92  260.89 1088.94  264.39 1088.99   275.6 1089.09
  281.79 1089.14  303.16 1089.21  304.63 1089.22  305.82 1089.22  319.77 1089.26
  327.47 1089.31  790.87  1089.6  802.94 1089.99  807.06 1090.11  820.32 1090.46
   829.9 1090.68  835.04 1090.82  844.37 1090.98  852.74 1090.94  863.01 1090.96
  875.58 1090.91  879.21  1090.9   885.8  1090.9  893.93 1091.11  898.41 1091.15
  908.64 1091.37  921.25 1091.44  923.36 1091.46  927.22  1091.5  938.09 1091.88
  944.09 1092.03  952.82 1092.16  966.93 1092.43  968.65 1092.45  989.76 1092.56
  996.98 1093.07 1010.07 1093.04  1011.7 1093.08  1012.6 1093.09 1026.42 1093.64
 1035.44 1093.75 1041.14 1093.85  1051.5 1093.85 1055.87 1093.92 1058.28 1093.96
 1066.59 1094.05 1081.12 1094.28 1085.31 1094.36 1092.92 1094.56 1100.03 1094.79
 1103.95 1094.86 1108.15 1094.96

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   25.34     .03   53.41     .03  216.09    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          53.41  216.09            300.61     300  298.07            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1096.05  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1096.05  * Reach Len. (ft)         *  300.61  *  300.00  *  298.07  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  133.38  * 1514.08  * 5063.83  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  133.38  * 1514.08  * 5063.83  *
* Q Total (cfs)           *  145.85  * Flow (cfs)              *    2.93  *   54.91  *   88.01  *
* Top Width (ft)          * 1082.81  * Top Width (ft)          *   28.07  *  162.68  *  892.06  *
* Vel Total (ft/s)        *    0.02  * Avg. Vel. (ft/s)        *    0.02  *    0.04  *    0.02  *
* Max Chl Dpth (ft)       *   10.07  * Hydr. Depth (ft)        *    4.75  *    9.31  *    5.68  *
* Conv. Total (cfs)       *880958.5  * Conv. (cfs)             * 17678.4  *331658.7  *531621.4  *
* Length Wtd. (ft)        *  299.09  * Wetted Per. (ft)        *   30.47  *  162.80  *  893.24  *
* Min Ch El (ft)          * 1085.98  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.45  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 2063.67  * 9764.84  *11622.79  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  156.35  *  469.82  * 1628.05  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 48399.9*

INPUT
Description: CP-R
Station Elevation Data     num=     192
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   16.28 1094.44   18.98 1094.29   19.95 1094.23   22.28 1093.73   26.75 1092.69
   27.06 1092.61   33.13 1091.29   34.19 1091.07    37.9 1090.24   48.43  1087.9
    48.9 1087.79   49.75 1087.68   69.12 1086.34   71.96  1086.2   74.18 1086.09
    78.2 1085.84   79.23 1085.77    79.8 1085.74   80.25 1085.71   84.29 1085.55
   87.65 1085.45   89.35  1085.4   94.29 1085.47   100.9 1085.59  104.33 1085.62
  149.03 1085.75  208.11 1085.95  261.03 1086.14  262.35 1086.14  262.78 1086.14
  263.58 1086.15  274.34 1086.31  279.91 1086.43  280.67 1086.45   285.9 1086.57
  297.45 1086.79  297.46 1086.79  309.03 1086.94  315.03 1087.05  320.59 1087.12
  331.31 1087.24  332.15 1087.24  332.59 1087.25  343.72 1087.34  350.15 1087.37
  355.27 1087.47  359.74 1087.49  365.17 1087.52  366.83 1087.53   367.7 1087.54
   378.4 1087.67  378.91 1087.67  383.96 1087.72  387.95 1087.76  390.83  1087.8
  394.48 1087.86  394.62 1087.86  402.76 1087.91  407.11 1087.93  410.58 1087.97
  412.39 1087.97  413.12 1087.98  414.69 1087.99  417.52 1088.02  426.61 1088.09
  426.68 1088.09  431.62  1088.1  436.83 1088.11  442.77 1088.15  448.93  1088.2
  450.12 1088.21  451.09 1088.21  454.25 1088.24  458.87 1088.28  461.27  1088.3
  462.39 1088.31  468.62 1088.39  474.96 1088.46   485.7 1088.57  491.06 1088.59
  501.38 1088.69  507.15 1088.73  510.14 1088.75  523.25 1088.76  534.58 1088.82
  539.33 1088.85   548.5  1088.9  555.43 1088.92  559.02 1088.94  571.53    1089
  583.46 1089.05  595.63 1089.12  603.72 1089.18   607.9 1089.17  621.09 1089.25
  632.34 1089.31  635.89 1089.35  642.77 1089.47  651.99 1089.61  656.77  1089.7
  668.09 1089.88  681.21 1090.15  684.17 1090.18   689.9 1090.31  700.27 1090.49
  705.65  1090.6  716.36 1090.72  730.09 1090.92  732.46 1090.94  737.04 1090.97
  748.56 1091.01  754.53 1091.05  773.38 1091.13  778.97 1091.15  784.17 1091.16
  796.84 1091.18  803.41 1091.22  812.94 1091.18  827.85 1091.16  829.02 1091.16
  831.29 1091.15  844.01 1091.14  845.12 1091.15  852.29 1091.21  853.79 1091.24
  857.13 1091.31  861.21 1091.39  867.87 1091.46  875.63 1091.53  876.73 1091.54
  878.43 1091.58  879.79 1091.61  887.35 1091.74   893.4  1091.8  894.13  1091.8
  901.17 1091.83  902.45 1091.83  909.49 1091.83  912.63 1091.85  915.57 1091.87
  920.91 1091.91  925.56 1091.99  925.58 1091.99   925.6 1091.99   927.5    1092
  931.13    1092  939.41 1092.03  941.68 1092.03  949.63 1092.08  950.04 1092.09
  951.34  1092.1  954.47 1092.12  957.77 1092.17  963.27 1092.25  968.13  1092.3
  972.69 1092.34  973.86 1092.35  974.48 1092.35   975.2 1092.36  986.63 1092.58
  988.03  1092.6  989.95 1092.63  998.92 1092.71 1005.13 1092.87 1006.06 1092.92
```

```
 1010.98 1093.08 1019.82 1093.18 1021.58 1093.21 1022.15 1093.22  1022.9 1093.23
 1023.36 1093.24 1023.63 1093.24 1034.83 1093.52 1038.25 1093.58 1042.13 1093.67
 1046.75 1093.78  1047.8  1093.8 1054.34 1093.88 1055.14 1093.89 1058.68 1093.97
 1060.63 1094.01 1066.95 1094.13 1067.37 1094.14 1072.24 1094.25 1077.94 1094.37
 1079.14  1094.4 1082.53 1094.47  1088.7 1094.63 1094.45 1094.78 1096.67 1094.83
 1097.63 1094.85 1101.03 1094.92

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**********************************************
   16.28     .03   48.43     .03   378.4    .045


Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          48.43   378.4             100.21     100   99.36             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1096.05  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1096.05  * Reach Len. (ft)        *  100.21  *  100.00  *   99.36  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  148.29  * 3206.23  * 3898.45  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  148.29  * 3206.23  * 3898.45  *
* Q Total (cfs)           *  145.49  * Flow (cfs)              *    2.48  *   92.44  *   50.57  *
* Top Width (ft)          * 1084.75  * Top Width (ft)          *   32.15  *  329.97  *  722.63  *
* Vel Total (ft/s)        *    0.02  * Avg. Vel. (ft/s)        *    0.02  *    0.03  *    0.01  *
* Max Chl Dpth (ft)       *   10.65  * Hydr. Depth (ft)        *    4.61  *    9.72  *    5.39  *
* Conv. Total (cfs)       *1137944.0  * Conv. (cfs)            * 19433.7  *722976.6  *395534.1  *
* Length Wtd. (ft)        *   99.80  * Wetted Per. (ft)        *   34.46  *  330.07  *  723.81  *
* Min Ch El (ft)          * 1085.40  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.47  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 2062.70  * 9748.58  *11592.12  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  156.14  *  468.12  * 1622.52  *
**********************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 48299.98

INPUT
Description:
Station Elevation Data     num=     121
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
**********************************************************************************
   13.26 1094.49    17.09  1094.4    24.17 1092.78     24.5  1092.7    31.93 1091.14
   35.79 1090.26    46.77 1087.77    58.31 1085.53    61.61 1085.21    67.95 1085.29
   76.44 1085.44    80.84 1085.48    281.9 1085.85    283.6 1085.84   284.15 1085.84
  285.18 1085.85   298.98 1086.04   306.13 1086.19   313.82 1086.36   328.63 1086.61
  328.65 1086.61   328.66 1086.61   343.49 1086.78   351.19 1086.91   358.33 1086.99
  372.08 1087.12   373.16 1087.12   373.72 1087.13      388 1087.21   396.25 1087.24
  402.83 1087.35   415.53 1087.39   417.66 1087.41   418.78 1087.41    432.5 1087.56
  441.31 1087.56   447.33 1087.63   458.97 1087.64   462.17 1087.67   463.84 1087.66
  477.01 1087.76   486.37 1087.76   491.84  1087.8   502.42 1087.91   506.68 1087.96
   508.9 1087.98   521.52 1088.18   531.42 1088.32   536.36 1088.34   545.87 1088.47
  551.19 1088.53   553.95 1088.55   566.03 1088.56   576.48 1088.64   580.86 1088.68
  589.31 1088.74    595.7 1088.77   599.01 1088.79   610.54 1088.87   621.54 1088.93
  632.76 1089.03   640.21  1089.1   644.07 1089.09   656.23 1089.19    666.6 1089.27
  669.87 1089.32   676.21 1089.48   684.71 1089.66   689.12 1089.78   699.55 1090.02
  711.65 1090.37   714.38 1090.42   719.66 1090.58   729.22 1090.82   734.18 1090.97
  744.05 1091.12   756.71 1091.39   758.89 1091.41   763.11 1091.45   773.73  1091.5
  779.24 1091.56   796.61 1091.66   801.77 1091.68   806.56 1091.69   818.24 1091.72
   824.3 1091.77   833.08 1091.71   846.83 1091.68   847.91 1091.68      850 1091.67
  862.75 1091.65   869.36 1091.63   877.58 1091.77   891.89 1091.82   893.45 1091.85
  907.25 1092.08   914.42 1092.12   922.09 1092.13    936.9  1092.3   936.92  1092.3
  936.94  1092.3   951.76 1092.24   959.47  1092.3   966.59 1092.35   980.35 1092.41
  981.43 1092.42      982 1092.42   996.26 1092.68  1004.53 1092.77  1011.11 1093.01
 1023.79 1093.23  1025.94 1093.28  1027.06 1093.29  1040.78 1093.54  1049.59 1093.78
 1055.62 1093.89  1067.24 1094.16  1072.12 1094.28  1077.37 1094.41  1094.64 1094.83
 1098.66 1094.91

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**********************************************
   13.26     .03   46.77     .03   432.5    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          46.77   432.5             401.3     400  507.83             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1096.05  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1096.05  * Reach Len. (ft)        *  401.30  *  400.00  *  507.83  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  153.07  * 3822.66  * 3531.06  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  153.07  * 3822.66  * 3531.06  *
* Q Total (cfs)           *  186.81  * Flow (cfs)              *    2.99  *  130.79  *   53.03  *
* Top Width (ft)          * 1085.40  * Top Width (ft)          *   33.51  *  385.73  *  666.16  *
* Vel Total (ft/s)        *    0.02  * Avg. Vel. (ft/s)        *    0.02  *    0.03  *    0.02  *
* Max Chl Dpth (ft)       *   10.84  * Hydr. Depth (ft)        *    4.57  *    9.91  *    5.30  *
* Conv. Total (cfs)       *1247201.0  * Conv. (cfs)            * 19973.4  *873190.7  *354037.2  *
* Length Wtd. (ft)        *  418.91  * Wetted Per. (ft)        *   35.80  *  385.98  *  667.37  *
* Min Ch El (ft)          * 1085.21  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.44  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 2062.35  * 9740.52  *11583.65  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  156.06  *  467.30  * 1620.94  *
**********************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 47899.98

INPUT
Description:
Station Elevation Data     num=      82
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
**********************************************************************************
```

18.77	1094.63	29.05	1092.67	33.77	1091.54	36.74	1090.96	43.71	1089.6
48.79	1088.66	51.2	1088.29	63.79	1086.8	73.34	1085.68	78.81	1085.17
90.29	1084.8	93.81	1084.68	95.49	1084.64	108.82	1084.47	117.64	1084.42
123.83	1084.4	136.85	1084.39	138.83	1084.39	139.79	1084.39	153.85	1084.35
161.93	1084.32	168.85	1084.32	183.42	1084.34	183.87	1084.35	184.08	1084.35
198.87	1084.39	206.22	1084.42	213.88	1084.42	228.37	1084.4	228.89	1084.4
230	1084.4	243.9	1084.36	250.52	1084.35	258.91	1084.37	272.66	1084.37
273.91	1084.38	276.56	1084.39	294.81	1084.46	303.93	1084.51	316.95	1084.57
318.94	1084.61	323.13	1084.65	339.1	1084.88	348.96	1085.2	361.25	1085.56
363.97	1085.92	369.71	1086.45	383.4	1087.6	393.99	1088.6	395.25	1088.76
405.54	1090.11	416.27	1090.41	424	1090.54	427.69	1090.87	439.02	1091.11
449.83	1091.35	462.84	1091.57	469.04	1091.67	471.98	1091.71	484.04	1091.87
494.12	1092.01	499.05	1092.07	509.41	1092.17	514.06	1092.22	516.27	1092.24
529.06	1092.36	538.42	1092.44	544.08	1092.41	555.98	1092.42	559.08	1092.42
560.57	1092.42	1189.45	1095.67	1202.81	1095.87	1204.47	1095.92	1207.96	1096.02
1219.48	1096.44	1224.96	1096.6	1234.48	1096.84	1247.1	1097.05	1249.5	1097.07

1254.53 1097.22 1266.83 1097.53

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
18.77	.03	36.74	.03	538.42	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
36.74	538.42	199.43	200	220.62	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1096.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1096.05	Reach Len. (ft)	199.43	200.00	220.62
Crit W.S. (ft)		Flow Area (sq ft)	57.46	4571.08	1342.28
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	57.46	4571.08	1342.28
Q Total (cfs)	186.15	Flow (cfs)	1.02	172.80	12.33
Top Width (ft)	1189.88	Top Width (ft)	17.97	501.68	670.23
Vel Total (ft/s)	0.03	Avg. Vel. (ft/s)	0.02	0.04	0.01
Max Chl Dpth (ft)	11.73	Hydr. Depth (ft)	3.20	9.11	2.00
Conv. Total (cfs)	1062963.0	Conv. (cfs)	5798.1	986744.6	70420.8
Length Wtd. (ft)	202.38	Wetted Per. (ft)	19.76	502.40	670.24
Min Ch El (ft)	1084.32	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.37	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	2061.38	9701.98	11555.24
C & E Loss (ft)		Cum SA (acres)	155.83	463.23	1613.15

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 47699.9*

INPUT
Description: CP-Q
Station Elevation Data num= 150

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17.62	1094.62	18.65	1094.42	28.28	1092.67	33.18	1091.58	34.63	1091.3
38.93	1090.38	42.44	1089.78	47.35	1088.99	50.83	1088.39	51.44	1088.29
52.66	1088.09	52.99	1088.04	57.1	1087.4	59.06	1087.14	69.25	1085.99
70.89	1085.81	76.98	1085.23	80.18	1084.97	81.41	1084.89	90.7	1084.62
93.55	1084.54	94.91	1084.51	105.7	1084.33	108.63	1084.29	109.52	1084.28
110.36	1084.27	112.84	1084.26	117.85	1084.24	128.39	1084.22	129.99	1084.22
130.77	1084.22	138.86	1084.2	142.15	1084.19	148.69	1084.17	159.52	1084.17
159.58	1084.17	159.61	1084.17	170.77	1084.2	171.12	1084.21	171.28	1084.21
180.95	1084.25	182.61	1084.26	188.25	1084.29	191.9	1084.3	194.12	1084.31
202.34	1084.33	205.22	1084.34	205.62	1084.34	206.47	1084.35	217.12	1084.36
222.19	1084.38	222.91	1084.38	223.75	1084.39	224.19	1084.39	228.62	1084.4
239.16	1084.42	240.12	1084.42	242.15	1084.43	245.15	1084.44	256.13	1084.47
256.47	1084.48	263.12	1084.5	266.55	1084.52	273.1	1084.53	274.62	1084.55
277.83	1084.57	286.39	1084.65	287.96	1084.67	288.76	1084.67	290.07	1084.69
297.63	1084.86	307.04	1085.05	309.13	1085.23	309.35	1085.25	313.53	1085.51
321.05	1085.95	324.02	1086.13	330.75	1086.57	332.13	1086.67	333.1	1086.75
340.98	1087.47	349.2	1087.67	349.86	1087.68	352.14	1087.72	353.32	1087.74
355.13	1087.77	357.95	1087.95	366.64	1088.14	373.55	1088.29	374.92	1088.32
384.89	1088.5	385.61	1088.51	389.64	1088.58	391.89	1088.61	394.95	1088.66
401.13	1088.74	408.86	1088.85	412.64	1088.9	413.34	1088.91	416.34	1088.94
417.9	1088.96	420.58	1088.99	424.14	1089.03	425.83	1089.05	435.63	1089.16
437.75	1089.18	442.8	1089.23	446.58	1089.22	453.02	1089.24	454.53	1089.25
456.6	1089.26	457.59	1089.26	465.42	1089.32	489.83	1089.49	495.03	1089.52
497.7	1089.54	505.8	1089.6	542.37	1089.86	577.67	1090.12	587.05	1090.19
613.49	1090.4	631.7	1090.56	643.11	1090.66	665.49	1090.88	672.7	1090.98
676.38	1091.04	702.32	1091.39	721.06	1091.72	731.95	1091.86	753.31	1092.23
761.53	1092.4	765.73	1092.49	791.16	1092.94	810.41	1093.33	841.15	1093.86
877.48	1094.03	879.99	1094.06	886.41	1094.23	887.51	1094.27	889.84	1094.35
897.54	1094.68	899.74	1094.76	901.19	1094.82	907.55	1095.05	909.62	1095.12
915.98	1095.25	917.58	1095.28	920.94	1095.38	928.97	1095.61	929.15	1095.61

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17.62	.03	47.35	.03	442.8	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
47.35	442.8	199.43	200	220.62	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1096.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1096.05	Reach Len. (ft)	199.43	200.00	220.62
Crit W.S. (ft)		Flow Area (sq ft)	127.55	4047.41	2150.04
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	127.55	4047.41	2150.04
Q Total (cfs)	184.78	Flow (cfs)	2.57	151.55	30.67
Top Width (ft)	911.53	Top Width (ft)	29.73	395.45	486.35
Vel Total (ft/s)	0.03	Avg. Vel. (ft/s)	0.02	0.04	0.01
Max Chl Dpth (ft)	11.88	Hydr. Depth (ft)	4.29	10.23	4.42
Conv. Total (cfs)	1151501.0	Conv. (cfs)	15985.7	944412.1	191102.8
Length Wtd. (ft)	204.01	Wetted Per. (ft)	31.69	395.83	486.84
Min Ch El (ft)	1084.17	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.39	Stream Power (lb/ft s)	0.00	0.00	0.00

```
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)   * 2060.96  * 9682.19  *11546.40  *
* C & E Loss (ft)        *          * Cum SA (acres)         *  155.72  *  461.17  * 1610.22  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 47499.98

INPUT
Description:
Station Elevation Data     num=      74
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
   16.47 1094.62   17.91 1094.32   31.34 1091.94   38.18 1090.33   46.21 1088.71
   57.96 1087.03   60.62 1086.65   61.09  1086.6   62.02  1086.5   75.96 1085.05
   83.06 1084.63  104.82 1084.14   105.5 1084.12  106.14 1084.11  127.93 1084.03
  135.45 1084.02  150.25 1084.02  150.33 1084.02  150.37 1084.02   165.2 1084.11
  172.81 1084.18  180.07 1084.26  194.36 1084.41  194.95 1084.42  195.25 1084.42
  209.82 1084.48  217.69 1084.49  224.69  1084.5  238.48 1084.49  239.57 1084.49
  240.13 1084.49  254.44 1084.55  262.57 1084.62  269.31 1084.72  282.59 1084.93
  284.18 1084.96     285 1084.97  299.06 1085.27  307.44 1085.43  313.93 1085.55
  326.71 1085.74   328.8 1085.77  329.88 1085.78  343.68 1085.98  347.19 1086.02
  352.32 1086.07  358.55 1086.15  370.81 1086.31  373.42 1086.34  374.76 1086.35
  378.83 1086.41   397.2 1086.64  414.93 1086.89  419.64 1086.96  432.92 1087.18
  442.07 1087.36   447.8 1087.47  459.04 1087.74  462.66 1087.87  464.51 1087.96
  477.54 1088.46  486.95 1088.98  492.42 1089.17  503.15 1089.75  507.28 1090.02
  509.39 1090.18  522.16 1090.87  531.83  1091.5  547.27 1092.34  566.78 1092.39
   576.7 1092.99  581.66 1093.34  591.38 1093.69  591.47  1093.7

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   16.47     .03   57.96     .03  347.19    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          57.96  347.19           200.09     200  212.66          .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)         * 1096.04  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)         * 1096.03  * Reach Len. (ft)         *  200.09  *  200.00  *  212.66  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *  222.67  * 3269.30  * 1720.76  *
* E.G. Slope (ft/ft)     *0.000013  * Area (sq ft)            *  222.67  * 3269.30  * 1720.76  *
* Q Total (cfs)          * 3873.27  * Flow (cfs)              *  120.02  * 2992.17  *  761.08  *
* Top Width (ft)         *  575.00  * Top Width (ft)           *   41.49  *  289.23  *  244.28  *
* Vel Total (ft/s)       *    0.74  * Avg. Vel. (ft/s)         *    0.54  *    0.92  *    0.44  *
* Max Chl Dpth (ft)      *   12.01  * Hydr. Depth (ft)         *    5.37  *   11.30  *    7.04  *
* Conv. Total (cfs)      *1055403.0  * Conv. (cfs)             * 32704.7  *815315.8  *207382.6  *
* Length Wtd. (ft)       *  201.64  * Wetted Per. (ft)         *   43.60  *  289.37  *  246.78  *
* Min Ch El (ft)         * 1084.02  * Shear (lb/sq ft)         *    0.00  *    0.01  *    0.01  *
* Alpha                  *    1.26  * Stream Power (lb/ft s)   *    0.00  *    0.01  *    0.00  *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)     * 2060.16  * 9665.40  *11536.59  *
* C & E Loss (ft)        *          * Cum SA (acres)           *  155.56  *  459.59  * 1608.37  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 47299.98

INPUT
Description:
Station Elevation Data     num=      66
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
   20.45 1094.54   22.47 1094.18   28.65 1092.57   44.91  1088.3   50.19 1087.23
   58.49 1086.16   60.59 1085.89   67.35 1085.03   74.32 1084.77   89.79 1083.86
  104.71 1083.78  112.22 1083.78  119.99 1083.83  134.66 1083.92  148.82 1083.98
   157.1 1084.02  169.19 1084.05  179.54 1084.08  192.94 1084.09  201.98 1084.09
  211.32 1084.11  224.42 1084.13  228.67 1084.14  237.05 1084.15  243.55 1084.15
  246.85 1084.15  258.42 1084.15  269.29 1084.14   273.3 1084.13  281.17 1084.13
  288.16 1084.12  291.73 1084.12  303.04 1084.11  314.17  1084.1  317.92 1084.09
  325.28 1084.08  332.78 1084.07  336.61 1084.07  347.66 1084.14  359.05  1084.3
  362.54 1084.37  369.39 1084.59   377.4 1084.84  381.49 1084.97  392.28 1085.39
  403.92 1085.85  407.16 1085.99  413.51 1086.28  413.85 1086.29  422.02 1086.64
  426.37 1086.82  439.66 1087.45   448.8 1087.87  457.62 1088.43  466.64 1088.97
  471.24 1089.31  481.52 1090.32  493.68 1091.63   496.4 1091.96  501.74  1092.6
  511.27 1093.74  516.12 1094.27  530.99 1095.98  538.56 1096.89  545.85 1097.82
  551.79 1098.53

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   20.45     .03   58.49     .03  413.85    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          58.49  413.85          1011.14    1000 1267.77          .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)         * 1096.03  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)         * 1096.02  * Reach Len. (ft)         * 1011.14  * 1000.00  * 1267.77  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *  231.65  * 4167.02  *  687.38  *
* E.G. Slope (ft/ft)     *0.000011  * Area (sq ft)            *  231.65  * 4167.02  *  687.38  *
* Q Total (cfs)          * 3872.29  * Flow (cfs)              *  120.93  * 3509.19  *  242.17  *
* Top Width (ft)         *  510.91  * Top Width (ft)           *   38.04  *  355.36  *  117.51  *
* Vel Total (ft/s)       *    0.76  * Avg. Vel. (ft/s)         *    0.52  *    0.84  *    0.35  *
* Max Chl Dpth (ft)      *   12.24  * Hydr. Depth (ft)         *    6.09  *   11.73  *    5.85  *
* Conv. Total (cfs)      *1175214.0  * Conv. (cfs)             * 36702.6  *1065013.0  * 73498.1  *
* Length Wtd. (ft)       * 1011.64  * Wetted Per. (ft)         *   40.49  *  355.50  *  117.96  *
* Min Ch El (ft)         * 1083.78  * Shear (lb/sq ft)         *    0.00  *    0.01  *    0.00  *
* Alpha                  *    1.14  * Stream Power (lb/ft s)   *    0.00  *    0.01  *    0.00  *
* Frctn Loss (ft)        *    0.04  * Cum Volume (acre-ft)     * 2059.11  * 9648.32  *11530.72  *
* C & E Loss (ft)        *          * Cum SA (acres)           *  155.37  *  458.11  * 1607.49  *
*****************************************************************************************************
```

```
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: FRS
REACH: FRS1                RS: 46299.98

INPUT
Description:
Station Elevation Data     num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   18.62 1093.73   33.05 1089.9   39.11 1088.26    40.8 1087.82   42.96 1087.27
   59.59 1084.04   60.32 1084.04   76.48 1084.08   80.08 1084.08    85.7 1086.57
   95.54 1089.61  100.56 1091.17  108.81 1097.01

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
   18.62     .03    40.8     .03   95.54    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          40.8   95.54            209.42     200   194.4             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1095.97  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.57  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1095.40  * Reach Len. (ft)         *  209.42  *  200.00  *  194.40  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  102.40  *  539.71  *   37.76  *
* E.G. Slope (ft/ft)      *0.000795  * Area (sq ft)            *  102.40  *  539.71  *   37.76  *
* Q Total (cfs)           * 3853.10  * Flow (cfs)              *  369.94  * 3409.98  *   73.18  *
* Top Width (ft)          *   87.91  * Top Width (ft)          *   22.18  *   54.74  *   10.99  *
* Vel Total (ft/s)        *    5.67  * Avg. Vel. (ft/s)        *    3.61  *    6.32  *    1.94  *
* Max Chl Dpth (ft)       *   11.36  * Hydr. Depth (ft)        *    4.62  *    9.86  *    3.43  *
* Conv. Total (cfs)       *136625.5  * Conv. (cfs)             * 13117.5  *120913.1  *  2594.9  *
* Length Wtd. (ft)        *  200.52  * Wetted Per. (ft)        *   24.62  *   56.11  *   12.57  *
* Min Ch El (ft)          * 1084.04  * Shear (lb/sq ft)        *    0.21  *    0.48  *    0.15  *
* Alpha                   *    1.14  * Stream Power (lb/ft s)  *    0.75  *    3.02  *    0.29  *
* Frctn Loss (ft)         *    0.18  * Cum Volume (acre-ft)    * 2055.24  * 9594.30  *11520.17  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  154.67  *  453.41  * 1605.62  *
**********************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 46099.98

INPUT
Description:
Station Elevation Data     num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    1.84  1094.1    2.96 1094.01   21.84 1092.33   22.67 1092.13   40.89 1087.79
   41.84 1087.56   60.98 1084.09   61.84 1083.93   81.07 1084.03   81.84 1084.04
   96.18 1093.88  101.17  1097.3  101.84 1097.74   102.5 1098.18  105.46 1099.99

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
    1.84     .03   22.67     .03   96.18    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          22.67  96.18            207.31     200  196.59             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1095.77  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.58  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1095.19  * Reach Len. (ft)         *  207.31  *  200.00  *  196.59  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   41.93  *  605.00  *    1.26  *
* E.G. Slope (ft/ft)      *0.001005  * Area (sq ft)            *   41.93  *  605.00  *    1.26  *
* Q Total (cfs)           * 3842.43  * Flow (cfs)              *  101.12  * 3740.44  *    0.87  *
* Top Width (ft)          *   96.26  * Top Width (ft)          *   20.83  *   73.51  *    1.92  *
* Vel Total (ft/s)        *    5.93  * Avg. Vel. (ft/s)        *    2.41  *    6.18  *    0.70  *
* Max Chl Dpth (ft)       *   11.26  * Hydr. Depth (ft)        *    2.01  *    8.23  *    0.66  *
* Conv. Total (cfs)       *121217.5  * Conv. (cfs)             *  3189.9  *118000.0  *   27.6  *
* Length Wtd. (ft)        *  200.17  * Wetted Per. (ft)        *   22.02  *   77.43  *    2.32  *
* Min Ch El (ft)          * 1083.93  * Shear (lb/sq ft)        *    0.12  *    0.49  *    0.03  *
* Alpha                   *    1.06  * Stream Power (lb/ft s)  *    0.29  *    3.03  *    0.02  *
* Frctn Loss (ft)         *    0.17  * Cum Volume (acre-ft)    * 2054.89  * 9591.67  *11520.08  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  154.57  *  453.11  * 1605.59  *
**********************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 45899.98

INPUT
Description:
Station Elevation Data     num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    2.68 1094.17   14.91 1092.22   18.66  1091.7   22.87 1091.11   28.86 1089.85
   43.07 1086.57   46.57 1085.99   63.27 1083.99   64.28 1083.99    71.5 1084.03
   83.46  1084.1   99.69 1090.52  103.66 1092.83  106.08 1093.55  108.92  1094.4
  115.93 1096.84

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
```

```
   2.68     .03   18.66     .03  106.08    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         18.66  106.08            204.45     200  200.65            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)         * 1095.60  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.42  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)         * 1095.17  * Reach Len. (ft)         *  204.45  *  200.00  *  200.65  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *   36.25  *  715.23  *    4.27  *
* E.G. Slope (ft/ft)     *0.000713  * Area (sq ft)            *   36.25  *  715.23  *    4.27  *
* Q Total (cfs)          * 3846.29  * Flow (cfs)              *   78.90  * 3764.15  *    3.25  *
* Top Width (ft)         *  108.46  * Top Width (ft)          *   15.98  *   87.42  *    5.06  *
* Vel Total (ft/s)       *    5.09  * Avg. Vel. (ft/s)        *    2.18  *    5.26  *    0.76  *
* Max Chl Dpth (ft)      *   11.18  * Hydr. Depth (ft)        *    2.27  *    8.18  *    0.84  *
* Conv. Total (cfs)      *144064.7  * Conv. (cfs)             *  2955.1  *140988.0  *   121.6  *
* Length Wtd. (ft)       *  200.09  * Wetted Per. (ft)        *   17.17  *   90.08  *    5.32  *
* Min Ch El (ft)         * 1083.99  * Shear (lb/sq ft)        *    0.09  *    0.35  *    0.04  *
* Alpha                  *    1.05  * Stream Power (lb/ft s)   *    0.20  *    1.86  *    0.03  *
* Frctn Loss (ft)        *    0.12  * Cum Volume (acre-ft)    * 2054.70  * 9588.64  *11520.07  *
* C & E Loss (ft)        *          * Cum SA (acres)          *  154.48  *  452.74  * 1605.57  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 45699.98

INPUT
Description:
Station Elevation Data     num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 1093.14    2.58  1093.1   14.59 1091.97   16.23 1091.82   20.55 1090.78
   36.37  1086.9   56.35 1084.13    56.5 1084.11   56.52 1084.11   56.54 1084.11
   76.67 1084.14   92.44 1086.11   96.81 1086.73  102.37 1089.18  106.28 1090.82
  116.96 1095.31  118.62 1095.85

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0     .03   14.59     .03  106.28    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         14.59  106.28            194.42     200  203.77            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)         * 1095.47  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.34  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)         * 1095.13  * Reach Len. (ft)         *  194.42  *  200.00  *  203.77  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *   36.38  *  793.06  *   22.11  *
* E.G. Slope (ft/ft)     *0.000527  * Area (sq ft)            *   36.38  *  793.06  *   22.11  *
* Q Total (cfs)          * 3846.13  * Flow (cfs)              *   69.68  * 3749.96  *   26.49  *
* Top Width (ft)         *  116.54  * Top Width (ft)          *   14.59  *   91.69  *   10.26  *
* Vel Total (ft/s)       *    4.52  * Avg. Vel. (ft/s)        *    1.92  *    4.73  *    1.20  *
* Max Chl Dpth (ft)      *   11.02  * Hydr. Depth (ft)        *    2.49  *    8.65  *    2.16  *
* Conv. Total (cfs)      *167569.4  * Conv. (cfs)             *  3036.0  *163379.2  *  1154.2  *
* Length Wtd. (ft)       *  199.97  * Wetted Per. (ft)        *   16.64  *   93.49  *   11.13  *
* Min Ch El (ft)         * 1084.11  * Shear (lb/sq ft)        *    0.07  *    0.28  *    0.07  *
* Alpha                  *    1.07  * Stream Power (lb/ft s)   *    0.14  *    1.32  *    0.08  *
* Frctn Loss (ft)        *    0.11  * Cum Volume (acre-ft)    * 2054.53  * 9585.18  *11520.00  *
* C & E Loss (ft)        *          * Cum SA (acres)          *  154.41  *  452.33  * 1605.54  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 45499.98

INPUT
Description:
Station Elevation Data     num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   11.75  1092.5   13.58 1092.39   14.43 1092.17   31.41 1087.87   33.58 1087.37
   51.08 1084.35   53.59 1083.98   56.18    1084   73.59 1084.17   76.52 1084.59
   93.59 1086.57   96.87 1087.71  105.15 1090.61   113.6 1093.57  117.23 1094.49
  121.28 1095.52

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
   11.75     .03   14.43     .03  105.15    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         14.43  105.15            204.23     200  196.49            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)         * 1095.36  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.37  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)         * 1094.99  * Reach Len. (ft)         *  204.23  *  200.00  *  196.49  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *    6.96  *  771.32  *   28.47  *
* E.G. Slope (ft/ft)     *0.000583  * Area (sq ft)            *    6.96  *  771.32  *   28.47  *
* Q Total (cfs)          * 3839.88  * Flow (cfs)              *   10.10  * 3794.55  *   35.22  *
* Top Width (ft)         *  107.44  * Top Width (ft)          *    2.68  *   90.72  *   14.04  *
* Vel Total (ft/s)       *    4.76  * Avg. Vel. (ft/s)        *    1.45  *    4.92  *    1.24  *
* Max Chl Dpth (ft)      *   11.01  * Hydr. Depth (ft)        *    2.60  *    8.50  *    2.03  *
* Conv. Total (cfs)      *159056.1  * Conv. (cfs)             *   418.5  *157178.7  *  1459.0  *
* Length Wtd. (ft)       *  200.03  * Wetted Per. (ft)        *    5.20  *   92.43  *   14.72  *
* Min Ch El (ft)         * 1083.98  * Shear (lb/sq ft)        *    0.05  *    0.30  *    0.07  *
* Alpha                  *    1.06  * Stream Power (lb/ft s)   *    0.07  *    1.49  *    0.09  *
* Frctn Loss (ft)        *    0.09  * Cum Volume (acre-ft)    * 2054.44  * 9581.58  *11519.89  *
* C & E Loss (ft)        *          * Cum SA (acres)          *  154.37  *  451.91  * 1605.48  *
*****************************************************************************************
```

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 45299.98

INPUT
Description:
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1091.65	13.18	1091.07	14.81	1091.08	15.19	1090.98	29	1087.19
34.36	1085.73	34.91	1085.58	52.59	1083.39	55.02	1083.19	70.82	1082.99
75.12	1082.89	80.4	1083.94	95.23	1086.4	102.82	1088.55	108.06	1090.12
115.34	1092.3	125.23	1094.08	133.25	1095.44				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	15.19	.03	108.06	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
15.19	108.06	194.09	200	206.06	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1095.26	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.26	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1095.00	Reach Len. (ft)	194.09	200.00	206.06
Crit W.S. (ft)		Flow Area (sq ft)	55.91	880.93	48.03
E.G. Slope (ft/ft)	0.000363	Area (sq ft)	55.91	880.93	48.03
Q Total (cfs)	3840.99	Flow (cfs)	110.07	3681.75	49.16
Top Width (ft)	130.67	Top Width (ft)	15.19	92.87	22.61
Vel Total (ft/s)	3.90	Avg. Vel. (ft/s)	1.97	4.18	1.02
Max Chl Dpth (ft)	12.11	Hydr. Depth (ft)	3.68	9.49	2.12
Conv. Total (cfs)	201514.3	Conv. (cfs)	5774.8	193160.3	2579.1
Length Wtd. (ft)	200.03	Wetted Per. (ft)	18.57	94.58	23.16
Min Ch El (ft)	1082.89	Shear (lb/sq ft)	0.07	0.21	0.05
Alpha	1.11	Stream Power (lb/ft s)	0.13	0.88	0.05
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	2054.29	9577.79	11519.71
C & E Loss (ft)		Cum SA (acres)	154.33	451.49	1605.40

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 45099.98

INPUT
Description:
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.59	1092.67	14.46	1091.49	29.59	1087.6	34.15	1086.64	49.6	1083.41
53.85	1083.26	69.6	1082.74	85.84	1082.94	89.6	1082.98	106.16	1084.67
109.6	1085.05	124.09	1087.29	126.48	1087.66	129.61	1088.14	146.8	1090.25
149.61	1090.6	167.12	1092.27	169.61	1092.54	187.44	1094.27	189.61	1094.5
207.76	1096.26	209.62	1096.45	211.04	1096.58				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9.59	.03	29.59	.03	124.09	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
29.59	124.09	179.68	200	233.3	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1095.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1095.05	Reach Len. (ft)	179.68	200.00	233.30
Crit W.S. (ft)		Flow Area (sq ft)	97.71	1023.79	256.20
E.G. Slope (ft/ft)	0.000189	Area (sq ft)	97.71	1023.79	256.20
Q Total (cfs)	3840.74	Flow (cfs)	174.40	3394.38	271.96
Top Width (ft)	185.67	Top Width (ft)	20.00	94.50	71.17
Vel Total (ft/s)	2.79	Avg. Vel. (ft/s)	1.78	3.32	1.06
Max Chl Dpth (ft)	12.31	Hydr. Depth (ft)	4.89	10.83	3.60
Conv. Total (cfs)	279497.0	Conv. (cfs)	12691.5	247014.8	19790.7
Length Wtd. (ft)	202.72	Wetted Per. (ft)	23.01	95.23	71.60
Min Ch El (ft)	1082.74	Shear (lb/sq ft)	0.05	0.13	0.04
Alpha	1.28	Stream Power (lb/ft s)	0.09	0.42	0.04
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	2053.95	9573.42	11518.99
C & E Loss (ft)		Cum SA (acres)	154.25	451.06	1605.17

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: FRS
REACH: FRS1 RS: 44899.98

INPUT
Description:
Station Elevation Data num= 40

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10.76	1092.78	11.53	1092.6	27.79	1088.72	32.04	1087.9	39.49	1085.99
49.63	1083.4	53.31	1082.8	65.24	1082.6	74.59	1082.44	80.85	1082.4
95.86	1082.53	96.47	1082.54	98.15	1082.58	117.14	1083.02	127.69	1083.44
138.41	1083.82	143.31	1084.08	156.81	1084.51	159.69	1084.6	174.53	1085.23
180.96	1085.47	185.85	1085.68	194.7	1086.06	202.24	1086.39	205.76	1086.59
215.47	1087.08	221.37	1087.39	223.51	1087.5	236.98	1088.48	244.78	1089
252.59	1089.64	266.06	1090.68	274.13	1091.18	287.33	1092	294.83	1092.39
308.61	1093.15	328.21	1094.21	329.88	1094.32	332.8	1094.51	339.15	1094.96

```
Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
   10.76     .03   32.04     .03  185.85    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          32.04  185.85          817.2599     800  864.76            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1095.16  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.05  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1095.11  * Reach Len. (ft)         *  817.26  *  800.00  *  864.76  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  103.10  * 1748.18  *  747.81  *
* E.G. Slope (ft/ft)      *0.000054  * Area (sq ft)            *  103.10  * 1748.18  *  747.81  *
* Q Total (cfs)           * 3842.65  * Flow (cfs)              *   99.12  * 3220.44  *  523.09  *
* Top Width (ft)          *  328.39  * Top Width (ft)          *   21.28  *  153.81  *  153.30  *
* Vel Total (ft/s)        *    1.48  * Avg. Vel. (ft/s)        *    0.96  *    1.84  *    0.70  *
* Max Chl Dpth (ft)       *   12.71  * Hydr. Depth (ft)        *    4.84  *   11.37  *    4.88  *
* Conv. Total (cfs)       *520759.1  * Conv. (cfs)             * 13433.3  *436436.0  * 70889.8  *
* Length Wtd. (ft)        *  805.32  * Wetted Per. (ft)        *   24.16  *  154.49  *  153.74  *
* Min Ch El (ft)          * 1082.40  * Shear (lb/sq ft)        *    0.01  *    0.04  *    0.02  *
* Alpha                   *    1.34  * Stream Power (lb/ft s)  *    0.01  *    0.07  *    0.01  *
* Frctn Loss (ft)         *    0.10  * Cum Volume (acre-ft)    * 2053.53  * 9567.05  *11516.31  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  154.17  *  450.49  * 1604.57  *
*****************************************************************************************

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: FRS
REACH: FRS1                RS: 44099.98

INPUT
Description:
Station Elevation Data     num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   11.72 1092.22   12.18  1092.1   16.23 1091.11   31.74 1087.33   33.06 1087.02
   51.75 1082.63   53.92 1082.61   71.77 1082.51   74.79 1082.59   91.79 1083.08
   95.66 1086.26  102.91 1092.97   108.9 1098.51

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
   11.72     .03   33.06     .03  102.91    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          33.06  102.91          209.18     200  195.49            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1095.04  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.33  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1094.71  * Reach Len. (ft)         *  209.18  *  200.00  *  195.49  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  108.84  *  742.25  *    1.64  *
* E.G. Slope (ft/ft)      *0.000429  * Area (sq ft)            *  108.84  *  742.25  *    1.64  *
* Q Total (cfs)           * 3839.72  * Flow (cfs)              *  302.09  * 3536.79  *    0.83  *
* Top Width (ft)          *   93.07  * Top Width (ft)          *   21.34  *   69.85  *    1.88  *
* Vel Total (ft/s)        *    4.50  * Avg. Vel. (ft/s)        *    2.78  *    4.76  *    0.51  *
* Max Chl Dpth (ft)       *   12.20  * Hydr. Depth (ft)        *    5.10  *   10.63  *    0.87  *
* Conv. Total (cfs)       *185411.1  * Conv. (cfs)             * 14587.3  *170783.7  *    40.1  *
* Length Wtd. (ft)        *  200.49  * Wetted Per. (ft)        *   24.45  *   74.13  *    2.56  *
* Min Ch El (ft)          * 1082.51  * Shear (lb/sq ft)        *    0.12  *    0.27  *    0.02  *
* Alpha                   *    1.06  * Stream Power (lb/ft s)  *    0.33  *    1.28  *    0.01  *
* Frctn Loss (ft)         *    0.11  * Cum Volume (acre-ft)    * 2051.54  * 9544.19  *11508.87  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  153.77  *  448.44  * 1603.03  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 43899.98

INPUT
Description:
Station Elevation Data     num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 1091.83   10.58 1090.77   14.56 1090.78   17.33 1090.09   29.85 1087.16
   32.89 1086.45   34.58 1086.06   34.88 1085.99   35.31 1085.94    55.2 1083.02
   69.06 1083.03   75.51 1083.03   84.75 1087.86   90.89 1089.99   95.83  1091.7
  102.24  1095.3

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
       0     .03   14.56     .03   90.89    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          14.56  90.89           201.55     200  200.93            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1094.94  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.44  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1094.50  * Reach Len. (ft)         *  201.55  *  200.00  *  200.93  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   48.68  *  678.58  *   25.04  *
* E.G. Slope (ft/ft)      *0.000676  * Area (sq ft)            *   48.68  *  678.58  *   25.04  *
* Q Total (cfs)           * 3838.76  * Flow (cfs)              *  125.05  * 3676.40  *   37.32  *
* Top Width (ft)          *  100.82  * Top Width (ft)          *   14.56  *   76.33  *    9.93  *
* Vel Total (ft/s)        *    5.10  * Avg. Vel. (ft/s)        *    2.57  *    5.42  *    1.49  *
* Max Chl Dpth (ft)       *   11.48  * Hydr. Depth (ft)        *    3.34  *    8.89  *    2.52  *
* Conv. Total (cfs)       *147631.8  * Conv. (cfs)             *  4809.1  *141387.5  *  1435.1  *
* Length Wtd. (ft)        *  200.08  * Wetted Per. (ft)        *   17.28  *   78.65  *   10.95  *
* Min Ch El (ft)          * 1083.02  * Shear (lb/sq ft)        *    0.12  *    0.36  *    0.10  *
```

```
* Alpha                  *    1.09  * Stream Power (lb/ft s) *    0.31  *    1.97  *    0.14  *
* Frctn Loss (ft)        *    0.12  * Cum Volume (acre-ft)   * 2051.16  * 9540.92  *11508.81  *
* C & E Loss (ft)        *          * Cum SA (acres)         *  153.68  *  448.10  * 1603.01  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 43699.98

INPUT
Description:
Station Elevation Data     num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   12.33 1092.5   13.67 1092.19   18.64 1091.06   30.73 1088.32   32.55 1087.86
   48.32 1084.27  52.77 1083.31   65.91 1083.08   72.99 1082.97   82.56 1083.11
   93.22 1083.29  96.96 1087.28  106.34 1097.27  106.79 1097.69

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   12.33     .03   32.55     .03   96.96     .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          32.55  96.96             178.22     200  210.56            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)         * 1094.82  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.42  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)         * 1094.40  * Reach Len. (ft)         *  178.22  *  200.00  *  210.56  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *   84.99  *  668.69  *   23.81  *
* E.G. Slope (ft/ft)     *0.000537  * Area (sq ft)            *   84.99  *  668.69  *   23.81  *
* Q Total (cfs)          * 3837.31  * Flow (cfs)              *  235.50  * 3568.83  *   32.98  *
* Top Width (ft)         *   91.32  * Top Width (ft)          *   20.22  *   64.41  *    6.69  *
* Vel Total (ft/s)       *    4.94  * Avg. Vel. (ft/s)        *    2.77  *    5.34  *    1.39  *
* Max Chl Dpth (ft)      *   11.43  * Hydr. Depth (ft)        *    4.20  *   10.38  *    3.56  *
* Conv. Total (cfs)      *165658.4  * Conv. (cfs)             * 10166.7  *154068.1  *  1423.6  *
* Length Wtd. (ft)       *  198.82  * Wetted Per. (ft)        *   22.65  *   66.65  *    9.77  *
* Min Ch El (ft)         * 1082.97  * Shear (lb/sq ft)        *    0.13  *    0.34  *    0.08  *
* Alpha                  *    1.11  * Stream Power (lb/ft s)  *    0.35  *    1.79  *    0.11  *
* Frctn Loss (ft)        *    0.11  * Cum Volume (acre-ft)    * 2050.86  * 9537.83  *11508.69  *
* C & E Loss (ft)        *          * Cum SA (acres)          *  153.60  *  447.78  * 1602.97  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 43499.98

INPUT
Description:
Station Elevation Data     num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
    6.28 1092.21    9.23 1091.77   19.05 1090.32   26.72 1089.12   42.29 1085.51
   47.15 1084.35   59.18 1083.31   67.58 1083.04   80.42 1083.24   88.02 1083.31
   92.97 1085.35  104.35 1092.96  108.45 1095.71  108.58 1095.76

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    6.28     .03   26.72     .03  104.35     .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          26.72  104.35            216.85     200  190.14            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)         * 1094.70  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.39  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)         * 1094.31  * Reach Len. (ft)         *  216.85  *  200.00  *  190.14  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *   74.09  *  709.38  *    1.36  *
* E.G. Slope (ft/ft)     *0.000594  * Area (sq ft)            *   74.09  *  709.38  *    1.36  *
* Q Total (cfs)          * 3837.70  * Flow (cfs)              *  196.41  * 3640.55  *    0.74  *
* Top Width (ft)         *  100.08  * Top Width (ft)          *   20.44  *   77.63  *    2.01  *
* Vel Total (ft/s)       *    4.89  * Avg. Vel. (ft/s)        *    2.65  *    5.13  *    0.55  *
* Max Chl Dpth (ft)      *   11.27  * Hydr. Depth (ft)        *    3.62  *    9.14  *    0.67  *
* Conv. Total (cfs)      *157441.2  * Conv. (cfs)             *  8057.9  *149352.9  *    30.4  *
* Length Wtd. (ft)       *  200.84  * Wetted Per. (ft)        *   22.77  *   80.94  *    2.42  *
* Min Ch El (ft)         * 1083.04  * Shear (lb/sq ft)        *    0.12  *    0.33  *    0.02  *
* Alpha                  *    1.06  * Stream Power (lb/ft s)  *    0.32  *    1.67  *    0.01  *
* Frctn Loss (ft)        *    0.12  * Cum Volume (acre-ft)    * 2050.53  * 9534.67  *11508.63  *
* C & E Loss (ft)        *          * Cum SA (acres)          *  153.52  *  447.45  * 1602.95  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 43299.98

INPUT
Description:
Station Elevation Data     num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
    7.49 1092.91   10.45 1092.25   14.14 1091.42   27.57 1088.41   36.16 1086.25
   47.65 1083.32    58.2 1083.01   67.73 1082.68   80.23 1082.85    87.8 1082.96
   94.13 1087.99    99.5 1092.55  107.68 1099.49

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    7.49     .03   27.57     .03    99.5     .045
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         27.57    99.5            204.61     200  197.91            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1094.59  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.41  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1094.17  * Reach Len. (ft)         *  204.61  *  200.00  *  197.91  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   70.51  *  694.58  *    1.55  *
* E.G. Slope (ft/ft)      *0.000590  * Area (sq ft)            *   70.51  *  694.58  *    1.55  *
* Q Total (cfs)           * 3837.20  * Flow (cfs)              *  185.21  * 3651.09  *    0.90  *
* Top Width (ft)          *   93.92  * Top Width (ft)          *   20.08  *   71.93  *    1.91  *
* Vel Total (ft/s)        *    5.01  * Avg. Vel. (ft/s)        *    2.63  *    5.26  *    0.58  *
* Max Chl Dpth (ft)       *   11.49  * Hydr. Depth (ft)        *    3.51  *    9.66  *    0.81  *
* Conv. Total (cfs)       *158041.1  * Conv. (cfs)             *  7628.2  *150375.7  *    37.2  *
* Length Wtd. (ft)        *  200.20  * Wetted Per. (ft)        *   21.84  *   76.01  *    2.51  *
* Min Ch El (ft)          * 1082.68  * Shear (lb/sq ft)        *    0.12  *    0.34  *    0.02  *
* Alpha                   *    1.06  * Stream Power (lb/ft s)   *    0.31  *    1.77  *    0.01  *
* Frctn Loss (ft)         *    0.11  * Cum Volume (acre-ft)     * 2050.17  * 9531.44  *11508.63  *
* C & E Loss (ft)         *          * Cum SA (acres)           *  153.42  *  447.11  * 1602.94  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 43099.98

INPUT
Description:
Station Elevation Data     num=      19
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
    8.46 1092.13    9.33 1092.03   12.84 1091.62   25.81  1088.5   33.12 1086.89
   43.17 1084.76   53.4 1083.03   60.52 1082.98   73.69 1083.02   77.88  1083.1
   93.97  1084.4   95.23 1084.81  102.82    1088  105.62  1089.2   112.6  1092.2
  114.25 1092.87  116.56 1093.26  134.53 1097.57  135.23 1097.68

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
    8.46     .03   25.81     .03  114.25    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         25.81  114.25            193.76     200  207.96            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1094.47  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.33  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1094.14  * Reach Len. (ft)         *  193.76  *  200.00  *  207.96  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   62.91  *  788.33  *    4.12  *
* E.G. Slope (ft/ft)      *0.000498  * Area (sq ft)            *   62.91  *  788.33  *    4.12  *
* Q Total (cfs)           * 3836.34  * Flow (cfs)              *  150.49  * 3683.52  *    2.33  *
* Top Width (ft)          *  111.79  * Top Width (ft)          *   17.35  *   88.44  *    6.00  *
* Vel Total (ft/s)        *    4.49  * Avg. Vel. (ft/s)        *    2.39  *    4.67  *    0.57  *
* Max Chl Dpth (ft)       *   11.16  * Hydr. Depth (ft)        *    3.63  *    8.91  *    0.69  *
* Conv. Total (cfs)       *171861.4  * Conv. (cfs)             *  6741.8  *165015.2  *   104.4  *
* Length Wtd. (ft)        *  200.58  * Wetted Per. (ft)        *   19.76  *   90.74  *    6.13  *
* Min Ch El (ft)          * 1082.98  * Shear (lb/sq ft)        *    0.10  *    0.27  *    0.02  *
* Alpha                   *    1.05  * Stream Power (lb/ft s)   *    0.24  *    1.26  *    0.01  *
* Frctn Loss (ft)         *    0.04  * Cum Volume (acre-ft)     * 2049.86  * 9528.04  *11508.62  *
* C & E Loss (ft)         *          * Cum SA (acres)           *  153.33  *  446.74  * 1602.92  *
*****************************************************************************************

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: FRS
REACH: FRS1                RS: 42899.98

INPUT
Description:
Station Elevation Data     num=      29
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 1091.87    7.12 1091.37   14.57 1090.98   20.65 1089.34    21.3 1089.16
   34.59 1085.72   49.29 1083.58   54.62 1082.76   59.42 1082.76   74.64 1082.71
   91.47 1082.76   94.67 1082.78  112.55 1083.24  114.69  1083.3  116.62 1083.57
  134.72 1086.18  137.86 1086.32  173.82 1086.82  174.77 1086.83  175.81 1086.93
  214.82 1087.78  231.01 1089.47  234.85 1089.75  239.07 1090.01  254.87 1091.15
  269.15 1092.88   274.9 1093.26  288.21 1094.86  290.84 1095.23

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
       0     .03   34.59     .03  137.86    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         34.59  137.86           1179.29    1200 1329.92            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1094.36  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.08  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1094.29  * Reach Len. (ft)         * 1179.29  * 1200.00  * 1329.92  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  161.47  * 1104.89  *  793.05  *
* E.G. Slope (ft/ft)      *0.000109  * Area (sq ft)            *  161.47  * 1104.89  *  793.05  *
* Q Total (cfs)           * 3836.50  * Flow (cfs)              *  220.43  * 2769.86  *  846.21  *
* Top Width (ft)          *  283.43  * Top Width (ft)          *   34.59  *  103.27  *  145.57  *
* Vel Total (ft/s)        *    1.86  * Avg. Vel. (ft/s)        *    1.37  *    2.51  *    1.07  *
* Max Chl Dpth (ft)       *   11.58  * Hydr. Depth (ft)        *    4.67  *   10.70  *    5.45  *
* Conv. Total (cfs)       *367016.5  * Conv. (cfs)             * 21087.7  *264976.8  * 80952.0  *
* Length Wtd. (ft)        * 1221.87  * Wetted Per. (ft)        *   37.71  *  103.70  *  145.91  *
* Min Ch El (ft)          * 1082.71  * Shear (lb/sq ft)        *    0.03  *    0.07  *    0.04  *
* Alpha                   *    1.41  * Stream Power (lb/ft s)   *    0.04  *    0.18  *    0.04  *
* Frctn Loss (ft)         *    0.14  * Cum Volume (acre-ft)     * 2049.36  * 9523.69  *11506.71  *
```

```
* C & E Loss (ft)          *          * Cum SA (acres)          *  153.21  *  446.30  * 1602.56  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 41699.98

INPUT
Description:
Station Elevation Data     num=      33
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
   11.68  1092.7   14.52 1092.05   23.37 1090.01   33.45 1088.13   46.81 1084.58
   55.22 1082.73   61.54 1082.71   76.98 1082.75   97.47 1082.96   98.36 1082.97
   98.75 1082.98  113.59 1083.39  120.52 1083.67  128.82 1084.08  142.29 1084.93
  144.04 1085.03  148.12 1085.27  153.42 1085.55  159.27 1085.86  164.06 1086.15
  174.49 1086.86  185.82 1087.68  189.72 1088.02  198.79 1088.81  204.94 1089.27
  207.59 1089.47  214.22 1090.11  229.36 1091.46  235.39 1091.99  249.44  1093.5
  250.62  1093.6  251.13 1093.65  264.06 1094.91

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
   11.68     .03   33.45     .03  153.42    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          33.45  153.42            208.1     200  192.46             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)          * 1094.22  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.09  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1094.13  * Reach Len. (ft)         *  208.10  *  200.00  *  192.46  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   83.31  * 1234.32  *  480.69  *
* E.G. Slope (ft/ft)      *0.000126  * Area (sq ft)            *   83.31  * 1234.32  *  480.69  *
* Q Total (cfs)           * 3834.74  * Flow (cfs)              *  107.08  * 3230.38  *  497.29  *
* Top Width (ft)          *  244.32  * Top Width (ft)          *   21.77  *  119.97  *  102.58  *
* Vel Total (ft/s)        *    2.13  * Avg. Vel. (ft/s)        *    1.29  *    2.62  *    1.03  *
* Max Chl Dpth (ft)       *   11.42  * Hydr. Depth (ft)        *    3.83  *   10.29  *    4.69  *
* Conv. Total (cfs)       *341923.9  * Conv. (cfs)             *  9547.6  *288036.0  * 44340.4  *
* Length Wtd. (ft)        *  199.58  * Wetted Per. (ft)        *   23.67  *  120.70  *  102.95  *
* Min Ch El (ft)          * 1082.71  * Shear (lb/sq ft)        *    0.03  *    0.08  *    0.04  *
* Alpha                   *    1.31  * Stream Power (lb/ft s)  *    0.04  *    0.21  *    0.04  *
* Frctn Loss (ft)         *    0.03  * Cum Volume (acre-ft)    * 2046.04  * 9491.47  *11487.27  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  152.45  *  443.23  * 1598.77  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 41499.98

INPUT
Description:
Station Elevation Data     num=      25
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
   13.86 1092.49   18.49 1092.27   19.38 1092.06    26.7 1090.34   39.26 1087.26
   46.32 1085.58   60.03 1083.11   71.61 1082.98   80.79 1082.88   95.01 1082.99
  101.56 1083.13  113.18 1083.89  122.33 1084.22  137.01 1087.35     142 1088.42
  143.09 1088.67  145.89 1088.82  159.93 1089.53  163.86 1089.83  170.83 1090.32
  184.63 1091.24  199.65 1092.35  205.39 1092.82  220.17  1093.8  222.78 1093.96

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
   13.86     .03   39.26     .03  143.09    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          39.26  143.09            208.8     200  196.37             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)          * 1094.19  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.16  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1094.03  * Reach Len. (ft)         *  208.80  *  200.00  *  196.37  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   95.68  * 1016.33  *  225.30  *
* E.G. Slope (ft/ft)      *0.000227  * Area (sq ft)            *   95.68  * 1016.33  *  225.30  *
* Q Total (cfs)           * 3835.21  * Flow (cfs)              *  163.69  * 3448.02  *  223.51  *
* Top Width (ft)          *  208.92  * Top Width (ft)          *   25.40  *  103.83  *   79.69  *
* Vel Total (ft/s)        *    2.87  * Avg. Vel. (ft/s)        *    1.71  *    3.39  *    0.99  *
* Max Chl Dpth (ft)       *   11.15  * Hydr. Depth (ft)        *    3.77  *    9.79  *    2.83  *
* Conv. Total (cfs)       *254706.6  * Conv. (cfs)             * 10870.8  *228992.2  * 14843.7  *
* Length Wtd. (ft)        *  200.33  * Wetted Per. (ft)        *   27.54  *  104.75  *   79.94  *
* Min Ch El (ft)          * 1082.88  * Shear (lb/sq ft)        *    0.05  *    0.14  *    0.04  *
* Alpha                   *    1.28  * Stream Power (lb/ft s)  *    0.08  *    0.47  *    0.04  *
* Frctn Loss (ft)         *    0.07  * Cum Volume (acre-ft)    * 2045.62  * 9486.31  *11485.71  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  152.34  *  442.71  * 1598.37  *
*****************************************************************************************************

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: FRS
REACH: FRS1                RS: 41299.98

INPUT
Description:
Station Elevation Data     num=      22
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
    3.34 1092.67    5.93 1092.23   15.74 1090.56   23.49 1089.41   29.51 1088.01
   43.64 1084.72   61.75 1083.37   63.79 1083.17   65.38 1083.16    78.2  1083.2
```

```
  83.31  1083.2   83.95 1083.21   84.75 1083.47   104.1 1086.62  119.18 1091.63
 120.84 1092.05  124.25  1092.9  130.76 1093.79  144.41 1095.38  153.77 1096.39
 164.56  1097.5  169.48    1098

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    3.34     .03   29.51     .03  120.84    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          29.51  120.84              203     200  199.35            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1094.13  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.33  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1093.80  * Reach Len. (ft)         *  203.00  *  200.00  *  199.35  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   87.32  *  768.83  *    7.49  *
* E.G. Slope (ft/ft)      *0.000537  * Area (sq ft)            *   87.32  *  768.83  *    7.49  *
* Q Total (cfs)           * 3831.48  * Flow (cfs)              *  215.45  * 3611.35  *    4.67  *
* Top Width (ft)          *  127.51  * Top Width (ft)          *   26.17  *   91.33  *   10.01  *
* Vel Total (ft/s)        *    4.44  * Avg. Vel. (ft/s)        *    2.47  *    4.70  *    0.62  *
* Max Chl Dpth (ft)       *   10.64  * Hydr. Depth (ft)        *    3.34  *    8.42  *    0.75  *
* Conv. Total (cfs)       *165270.0  * Conv. (cfs)             *  9293.6  *155774.8  *   201.6  *
* Length Wtd. (ft)        *  200.13  * Wetted Per. (ft)        *   27.72  *   92.93  *   10.18  *
* Min Ch El (ft)          * 1083.16  * Shear (lb/sq ft)        *    0.11  *    0.28  *    0.02  *
* Alpha                   *    1.07  * Stream Power (lb/ft s)   *    0.26  *    1.30  *    0.02  *
* Frctn Loss (ft)         *    0.14  * Cum Volume (acre-ft)     * 2045.18  * 9482.21  *11485.18  *
* C & E Loss (ft)         *          * Cum SA (acres)           *  152.21  *  442.26  * 1598.17  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 41099.98

INPUT
Description:
Station Elevation Data     num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    1.69 1092.22    3.67 1091.98   15.34  1090.6   21.75 1089.91   37.18  1086.7
   41.82 1085.71   45.75 1085.18   61.88 1083.19   80.84 1083.16   81.95 1083.16
   82.88 1083.48   94.41 1088.74    97.3 1090.04  101.44 1091.89  102.01  1092.2
  102.68 1092.34  107.87 1093.66

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    1.69     .03   21.75     .03    97.3    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          21.75   97.3             201.07     200  199.98            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1093.99  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.56  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1093.43  * Reach Len. (ft)         *  201.07  *  200.00  *  199.98  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   48.02  *  604.64  *   14.14  *
* E.G. Slope (ft/ft)      *0.000976  * Area (sq ft)            *   48.02  *  604.64  *   14.14  *
* Q Total (cfs)           * 3821.12  * Flow (cfs)              *  127.30  * 3675.82  *   18.00  *
* Top Width (ft)          *  105.29  * Top Width (ft)          *   20.06  *   75.55  *    9.68  *
* Vel Total (ft/s)        *    5.73  * Avg. Vel. (ft/s)        *    2.65  *    6.08  *    1.27  *
* Max Chl Dpth (ft)       *   10.27  * Hydr. Depth (ft)        *    2.39  *    8.00  *    1.46  *
* Conv. Total (cfs)       *122339.7  * Conv. (cfs)             *  4075.8  *117687.5  *   576.4  *
* Length Wtd. (ft)        *  200.03  * Wetted Per. (ft)        *   21.41  *   77.62  *   10.30  *
* Min Ch El (ft)          * 1083.16  * Shear (lb/sq ft)        *    0.14  *    0.47  *    0.08  *
* Alpha                   *    1.09  * Stream Power (lb/ft s)   *    0.36  *    2.88  *    0.11  *
* Frctn Loss (ft)         *    0.20  * Cum Volume (acre-ft)     * 2044.86  * 9479.05  *11485.13  *
* C & E Loss (ft)         *          * Cum SA (acres)           *  152.11  *  441.88  * 1598.12  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 40899.98

INPUT
Description:
Station Elevation Data     num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 1090.84   18.19 1090.71   23.84 1089.43   38.23 1086.14   54.58 1083.49
   58.27 1082.81   61.51 1082.86   78.31 1083.06   97.41 1090.38   98.35 1090.69
   98.53 1090.76   99.17 1091.02  107.22 1093.98

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0     .03   18.19     .03   98.53    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          18.19  98.53             210.66     200  193.67            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1093.77  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.56  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1093.22  * Reach Len. (ft)         *  210.66  *  200.00  *  193.67  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   44.44  *  603.56  *    8.06  *
* E.G. Slope (ft/ft)      *0.001058  * Area (sq ft)            *   44.44  *  603.56  *    8.06  *
* Q Total (cfs)           * 3791.55  * Flow (cfs)              *  119.63  * 3662.46  *    9.45  *
* Top Width (ft)          *  105.15  * Top Width (ft)          *   18.19  *   80.34  *    6.62  *
* Vel Total (ft/s)        *    5.78  * Avg. Vel. (ft/s)        *    2.69  *    6.07  *    1.17  *
* Max Chl Dpth (ft)       *   10.41  * Hydr. Depth (ft)        *    2.44  *    7.51  *    1.22  *
* Conv. Total (cfs)       *116586.6  * Conv. (cfs)             *  3678.6  *112617.3  *   290.7  *
* Length Wtd. (ft)        *  200.48  * Wetted Per. (ft)        *   20.57  *   82.55  *    7.06  *
```

```
* Min Ch El (ft)          * 1082.81  * Shear (lb/sq ft)        *    0.14  *    0.48  *    0.08  *
* Alpha                   *    1.07  * Stream Power (lb/ft s) *    0.38  *    2.93  *    0.09  *
* Frctn Loss (ft)         *    0.18  * Cum Volume (acre-ft)   * 2044.65  * 9476.28  *11485.08  *
* C & E Loss (ft)         *          * Cum SA (acres)         *  152.02  *  441.52  * 1598.08  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 40699.98

INPUT
Description:
Station Elevation Data     num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   13.69 1091.79   13.84 1091.75    32.4 1087.37   33.86 1087.03   34.97 1086.79
    43.4 1085.11   54.04 1082.99   55.66 1082.99   74.21 1083.02   88.42 1083.91
   94.39 1084.91   99.26  1087.4  102.18  1088.9  112.54 1095.43

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   13.69     .03   34.97     .03   99.26    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          34.97   99.26            205.41     200  197.03             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)          * 1093.58  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.52  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1093.07  * Reach Len. (ft)         *  205.41  *  200.00  *  197.03  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   80.66  *  580.64  *   28.12  *
* E.G. Slope (ft/ft)      *0.000785  * Area (sq ft)            *   80.66  *  580.64  *   28.12  *
* Q Total (cfs)           * 3762.30  * Flow (cfs)              *  257.44  * 3456.49  *   48.38  *
* Top Width (ft)          *   95.10  * Top Width (ft)          *   21.28  *   64.29  *    9.53  *
* Vel Total (ft/s)        *    5.46  * Avg. Vel. (ft/s)        *    3.19  *    5.95  *    1.72  *
* Max Chl Dpth (ft)       *   10.08  * Hydr. Depth (ft)        *    3.79  *    9.03  *    2.95  *
* Conv. Total (cfs)       *134253.2  * Conv. (cfs)             *  9186.5  *123340.4  *  1726.2  *
* Length Wtd. (ft)        *  200.38  * Wetted Per. (ft)        *   23.14  *   65.38  *   11.10  *
* Min Ch El (ft)          * 1082.99  * Shear (lb/sq ft)        *    0.17  *    0.44  *    0.12  *
* Alpha                   *    1.12  * Stream Power (lb/ft s) *    0.55  *    2.59  *    0.21  *
* Frctn Loss (ft)         *    0.17  * Cum Volume (acre-ft)   * 2044.35  * 9473.56  *11485.00  *
* C & E Loss (ft)         *          * Cum SA (acres)         *  151.92  *  441.19  * 1598.05  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 40499.98

INPUT
Description:
Station Elevation Data     num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   14.18 1091.18   18.44 1090.17    34.7 1086.56   36.95 1086.13    51.8 1083.32
   55.23 1082.89   60.69  1082.9   75.75 1082.92   85.16 1083.27   96.27 1087.77
  103.25 1091.24  112.23 1095.71

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   14.18     .03    34.7     .03  103.25    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          34.7  103.25            198.79     200  201.91             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)          * 1093.38  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.52  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.87  * Reach Len. (ft)         *  198.79  *  200.00  *  201.91  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   82.50  *  570.37  *    2.65  *
* E.G. Slope (ft/ft)      *0.000886  * Area (sq ft)            *   82.50  *  570.37  *    2.65  *
* Q Total (cfs)           * 3676.75  * Flow (cfs)              *  287.42  * 3387.22  *    2.11  *
* Top Width (ft)          *   92.33  * Top Width (ft)          *   20.52  *   68.55  *    3.26  *
* Vel Total (ft/s)        *    5.61  * Avg. Vel. (ft/s)        *    3.48  *    5.94  *    0.80  *
* Max Chl Dpth (ft)       *    9.97  * Hydr. Depth (ft)        *    4.02  *    8.32  *    0.81  *
* Conv. Total (cfs)       *123493.0  * Conv. (cfs)             *  9653.6  *113768.5  *   70.8  *
* Length Wtd. (ft)        *  199.93  * Wetted Per. (ft)        *   22.72  *   70.58  *    3.65  *
* Min Ch El (ft)          * 1082.89  * Shear (lb/sq ft)        *    0.20  *    0.45  *    0.04  *
* Alpha                   *    1.06  * Stream Power (lb/ft s) *    0.70  *    2.66  *    0.03  *
* Frctn Loss (ft)         *    0.14  * Cum Volume (acre-ft)   * 2043.96  * 9470.92  *11484.93  *
* C & E Loss (ft)         *          * Cum SA (acres)         *  151.82  *  440.89  * 1598.02  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 40299.98

INPUT
Description:
Station Elevation Data     num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
    7.79 1091.89    8.16  1091.8   11.42 1091.07   28.22 1087.32   33.93 1086.09
   48.65  1082.7   59.71  1082.6   69.07 1082.41   85.47 1082.67    89.5 1082.72
  104.83 1087.13  109.92 1088.73  111.25 1089.13   116.5 1090.84  130.35 1095.36
  137.03 1096.65  137.55 1096.76

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
```

```
*********************************************
   7.79     .03   28.22     .03   116.5    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         28.22   116.5            189.62     200  209.13            .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1093.23  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.33  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.90  * Reach Len. (ft)         *  189.62  *  200.00  *  209.13  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   67.45  *  750.57  *    6.51  *
* E.G. Slope (ft/ft)      *0.000534  * Area (sq ft)            *   67.45  *  750.57  *    6.51  *
* Q Total (cfs)           * 3701.83  * Flow (cfs)              *  163.23  * 3533.69  *    4.91  *
* Top Width (ft)          *  115.03  * Top Width (ft)          *   20.43  *   88.28  *    6.32  *
* Vel Total (ft/s)        *    4.49  * Avg. Vel. (ft/s)        *    2.42  *    4.71  *    0.75  *
* Max Chl Dpth (ft)       *   10.49  * Hydr. Depth (ft)        *    3.30  *    8.50  *    1.03  *
* Conv. Total (cfs)       *160161.8  * Conv. (cfs)             *  7062.3  *152887.3  *   212.2  *
* Length Wtd. (ft)        *  199.74  * Wetted Per. (ft)        *   21.95  *   90.00  *    6.65  *
* Min Ch El (ft)          * 1082.41  * Shear (lb/sq ft)        *    0.10  *    0.28  *    0.03  *
* Alpha                   *    1.06  * Stream Power (lb/ft s)   *    0.25  *    1.31  *    0.02  *
* Frctn Loss (ft)         *    0.09  * Cum Volume (acre-ft)     * 2043.62  * 9467.89  *11484.91  *
* C & E Loss (ft)         *          * Cum SA (acres)           *  151.73  *  440.53  * 1598.00  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 40099.98

INPUT
Description:
Station Elevation Data    num=      25
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    6.96 1091.38   13.98 1089.96   14.47 1089.86   26.97  1087.3   40.73 1084.31
   46.98 1082.95   61.33 1082.54   66.99 1082.35   72.32 1082.41      87 1082.65
  102.53 1085.26     107 1085.96  111.22 1086.46  127.01 1088.26  128.53 1088.36
  143.74 1089.35  147.02 1089.67  150.11 1089.98  167.03 1092.21  184.94 1094.33
  187.04 1094.56  205.54 1096.63  207.05  1096.8  208.46 1096.96  209.68  1097.1

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    6.96     .03   26.97     .03  128.53    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         26.97  128.53            197.23     200  202.99            .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1093.14  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.23  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.91  * Reach Len. (ft)         *  197.23  *  200.00  *  202.99  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   71.34  *  864.07  *  115.19  *
* E.G. Slope (ft/ft)      *0.000375  * Area (sq ft)            *   71.34  *  864.07  *  115.19  *
* Q Total (cfs)           * 3724.59  * Flow (cfs)              *  150.20  * 3435.82  *  138.57  *
* Top Width (ft)          *  165.99  * Top Width (ft)          *   20.01  *  101.56  *   44.42  *
* Vel Total (ft/s)        *    3.55  * Avg. Vel. (ft/s)        *    2.11  *    3.98  *    1.20  *
* Max Chl Dpth (ft)       *   10.56  * Hydr. Depth (ft)        *    3.57  *    8.51  *    2.59  *
* Conv. Total (cfs)       *192238.9  * Conv. (cfs)             *  7752.4  *177334.7  *  7151.9  *
* Length Wtd. (ft)        *  200.16  * Wetted Per. (ft)        *   21.95  *  102.45  *   44.67  *
* Min Ch El (ft)          * 1082.35  * Shear (lb/sq ft)        *    0.08  *    0.20  *    0.06  *
* Alpha                   *    1.18  * Stream Power (lb/ft s)   *    0.16  *    0.79  *    0.07  *
* Frctn Loss (ft)         *    0.06  * Cum Volume (acre-ft)     * 2043.32  * 9464.18  *11484.62  *
* C & E Loss (ft)         *          * Cum SA (acres)           *  151.64  *  440.09  * 1597.87  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 39899.98

INPUT
Description:
Station Elevation Data    num=      31
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   10.22 1091.51   16.58 1090.03   25.8 1087.88   30.23 1086.82   45.38 1083.46
   50.23 1082.41   64.97 1082.22  70.24 1082.17   84.56 1082.51   90.24 1082.64
  104.14 1083.98  110.25 1084.51  123.74 1085.58  130.25 1086.09  132.94 1086.26
  143.32 1086.92  150.25 1087.37  157.48  1087.7  170.26 1088.36  177.92 1088.66
  190.26 1089.19  202.09 1089.63  210.27 1090.05  221.67 1090.19  230.27 1090.86
  241.26 1092.25  250.28 1093.07  260.85  1094.1  270.28 1095.04  280.43 1096.23
  281.06  1096.3

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   10.22     .03   30.23     .03  132.94    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         30.23  132.94            205.38     200  193.28            .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1093.07  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.14  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.93  * Reach Len. (ft)         *  205.38  *  200.00  *  193.28  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   75.11  *  947.52  *  428.10  *
* E.G. Slope (ft/ft)      *0.000227  * Area (sq ft)            *   75.11  *  947.52  *  428.10  *
* Q Total (cfs)           * 3731.54  * Flow (cfs)              *  127.14  * 3096.10  *  508.31  *
* Top Width (ft)          *  238.52  * Top Width (ft)          *   20.01  *  102.71  *  115.80  *
* Vel Total (ft/s)        *    2.57  * Avg. Vel. (ft/s)        *    1.69  *    3.27  *    1.19  *
* Max Chl Dpth (ft)       *   10.76  * Hydr. Depth (ft)        *    3.75  *    9.23  *    3.70  *
* Conv. Total (cfs)       *247767.5  * Conv. (cfs)             *  8441.6  *205575.1  * 33750.8  *
* Length Wtd. (ft)        *  199.57  * Wetted Per. (ft)        *   21.97  *  103.35  *  116.04  *
* Min Ch El (ft)          * 1082.17  * Shear (lb/sq ft)        *    0.05  *    0.13  *    0.05  *
```

```
* Alpha                  *    1.38  * Stream Power (lb/ft s) *    0.08  *    0.42  *    0.06  *
* Frctn Loss (ft)        *    0.05  * Cum Volume (acre-ft)   * 2042.99  * 9460.02  *11483.35  *
* C & E Loss (ft)        *          * Cum SA (acres)         *  151.55  *  439.62  * 1597.50  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 39699.98

INPUT
Description:
Station Elevation Data     num=      31
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   13.78 1091.02   17.26 1090.12   24.99 1088.13   33.84 1085.79   46.76 1083.59
   53.91 1082.36   68.53 1082.26   73.97 1082.22   90.31 1082.81   94.03 1082.94
  112.07 1085.53  114.09 1085.81  133.85 1087.48  134.15 1087.51  137.67 1087.74
  137.79 1087.75  153.01 1088.77  154.21 1088.85  171.61 1089.92  174.28 1090.09
  177.38 1090.28  194.34 1091.25  208.81 1092.03   214.4 1092.36  220.93 1092.72
  234.46 1093.44  246.01 1094.11  254.52 1094.56  264.47 1095.12  274.58 1095.76
  278.37 1095.97

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   13.78     .03   33.84     .03  137.79    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          33.84  137.79            205.67     200  198.72            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)         * 1093.02  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.19  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)         * 1092.83  * Reach Len. (ft)         *  205.67  *  200.00  *  198.72  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *   88.49  *  905.10  *  208.04  *
* E.G. Slope (ft/ft)     *0.000300  * Area (sq ft)            *   88.49  *  905.10  *  208.04  *
* Q Total (cfs)          * 3678.34  * Flow (cfs)              *  188.93  * 3274.00  *  215.42  *
* Top Width (ft)         *  209.26  * Top Width (ft)          *   20.06  *  103.95  *   85.25  *
* Vel Total (ft/s)       *    3.06  * Avg. Vel. (ft/s)        *    2.13  *    3.62  *    1.04  *
* Max Chl Dpth (ft)      *   10.61  * Hydr. Depth (ft)        *    4.41  *    8.71  *    2.44  *
* Conv. Total (cfs)      *212368.5  * Conv. (cfs)             * 10907.6  *189023.9  * 12437.0  *
* Length Wtd. (ft)       *  200.02  * Wetted Per. (ft)        *   22.54  *  104.54  *   85.40  *
* Min Ch El (ft)         * 1082.22  * Shear (lb/sq ft)        *    0.07  *    0.16  *    0.05  *
* Alpha                  *    1.27  * Stream Power (lb/ft s) *    0.16  *    0.59  *    0.05  *
* Frctn Loss (ft)        *    0.05  * Cum Volume (acre-ft)   * 2042.60  * 9455.77  *11481.94  *
* C & E Loss (ft)        *          * Cum SA (acres)         *  151.46  *  439.15  * 1597.06  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 39499.98

INPUT
Description:
Station Elevation Data     num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 1089.73   11.67 1089.38    17.6 1087.87   21.66 1086.83   32.03 1084.22
   47.24 1082.93   52.39 1082.13   55.88 1082.13   72.74 1082.15   74.36  1082.3
    93.1 1084.09   97.47 1084.42  113.45 1085.77  122.59 1086.09  133.81 1086.49
   147.7 1086.92  154.17 1087.08  172.82 1087.85  173.31 1087.87  174.52 1087.91
  181.78 1088.26  192.78 1088.78  194.88 1088.88   209.9 1089.62  215.23 1089.89
  227.01 1090.52  235.59 1091.01  248.17 1091.81  255.94 1092.27  273.28 1093.28
   276.3 1093.45  289.19 1094.15  296.66 1094.54   298.4 1094.64  317.01 1095.63
  323.52    1096  332.01 1096.48

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0     .03   11.67     .03  113.45    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          11.67  113.45            215.62     200  158.79            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)         * 1092.96  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.13  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)         * 1092.83  * Reach Len. (ft)         *  215.62  *  200.00  *  158.79  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *   38.17  *  892.74  *  602.86  *
* E.G. Slope (ft/ft)     *0.000237  * Area (sq ft)            *   38.17  *  892.74  *  602.86  *
* Q Total (cfs)          * 3700.12  * Flow (cfs)              *   54.82  * 2878.07  *  767.23  *
* Top Width (ft)         *  265.49  * Top Width (ft)          *   11.67  *  101.78  *  152.04  *
* Vel Total (ft/s)       *    2.41  * Avg. Vel. (ft/s)        *    1.44  *    3.22  *    1.27  *
* Max Chl Dpth (ft)      *   10.70  * Hydr. Depth (ft)        *    3.27  *    8.77  *    3.97  *
* Conv. Total (cfs)      *240332.8  * Conv. (cfs)             *  3560.6  *186938.6  * 49833.5  *
* Length Wtd. (ft)       *  194.42  * Wetted Per. (ft)        *   14.77  *  102.70  *  152.21  *
* Min Ch El (ft)         * 1082.13  * Shear (lb/sq ft)        *    0.04  *    0.13  *    0.06  *
* Alpha                  *    1.45  * Stream Power (lb/ft s) *    0.05  *    0.41  *    0.07  *
* Frctn Loss (ft)        *    0.03  * Cum Volume (acre-ft)   * 2042.30  * 9451.64  *11480.09  *
* C & E Loss (ft)        *          * Cum SA (acres)         *  151.38  *  438.68  * 1596.51  *
*****************************************************************************************

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: FRS
REACH: FRS1                RS: 39299.98

INPUT
Description:
```

```
Station Elevation Data     num=      39
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 1090.87   11.51 1087.99   14.58 1087.22   23.42 1085.06   29.09 1083.95
   40.12  1081.6   46.83 1081.48   67.53 1081.22   70.25 1081.22   74.48 1081.39
   93.67 1082.05  105.98 1082.61  112.88 1082.92  117.09 1083.12  134.39 1083.98
  140.51 1084.28  144.43 1084.47  156.54 1085.06  163.92 1085.46  182.87 1086.29
  187.34  1086.5  188.87 1086.57   194.3 1086.82  210.76 1087.52  221.32 1088.06
  234.18 1088.71   254.2 1089.83   257.6 1090.03  259.76 1090.17  272.97 1091.05
  281.01 1091.53  287.53 1092.04  298.22 1092.95  304.43  1093.4  314.11 1094.08
  327.85 1095.03  331.19 1095.23  336.67 1095.64  338.48 1095.77

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0     .03   11.51     .03  188.87    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         11.51  188.87            208.82     200  178.18             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.91  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.06  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.85  * Reach Len. (ft)         *  208.82  *  200.00  *  178.18  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   39.33  * 1653.90  *  377.92  *
* E.G. Slope (ft/ft)      *0.000088  * Area (sq ft)            *   39.33  * 1653.90  *  377.92  *
* Q Total (cfs)           * 3708.22  * Flow (cfs)              *   36.74  * 3401.60  *  269.88  *
* Top Width (ft)          *  297.01  * Top Width (ft)          *   11.51  *  177.36  *  108.14  *
* Vel Total (ft/s)        *    1.79  * Avg. Vel. (ft/s)        *    0.93  *    2.06  *    0.71  *
* Max Chl Dpth (ft)       *   11.63  * Hydr. Depth (ft)        *    3.42  *    9.33  *    3.49  *
* Conv. Total (cfs)       *394402.6  * Conv. (cfs)             *  3908.0  *361790.6  * 28704.0  *
* Length Wtd. (ft)        *  198.21  * Wetted Per. (ft)        *   13.84  *  178.20  *  108.33  *
* Min Ch El (ft)          * 1081.22  * Shear (lb/sq ft)        *    0.02  *    0.05  *    0.02  *
* Alpha                   *    1.22  * Stream Power (lb/ft s)   *    0.01  *    0.11  *    0.01  *
* Frctn Loss (ft)         *    0.02  * Cum Volume (acre-ft)    * 2042.11  * 9445.79  *11478.31  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  151.33  *  438.03  * 1596.04  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 39099.98

INPUT
Description:
Station Elevation Data     num=      39
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0  1089.5    1.12 1087.64    5.21 1086.42   11.76 1084.79   28.05 1082.15
   38.38 1081.57   58.34  1081.6   61.89 1081.61   65.01 1081.68   88.63 1082.39
   91.65 1082.49   104.4    1083  118.27 1083.57  118.57 1083.58  118.92 1083.59
   144.9 1084.61  149.21 1084.76  161.09 1085.19  171.54 1085.56  171.61 1085.56
   179.5 1085.85  198.17 1086.62  209.79 1087.17  224.79 1088.04  240.08 1088.93
  251.43 1089.63  270.38 1090.79  278.06 1091.28  288.63 1091.99  300.67 1092.75
  304.68 1093.02  330.96 1094.73  331.15 1094.74  331.32 1094.75  333.92 1094.92
  357.95  1096.5  361.25 1096.72  373.66 1097.68   374.7 1097.76

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0     .03   11.76     .03  171.61    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         11.76  171.61            200.11     200  201.3             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.89  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.06  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.83  * Reach Len. (ft)         *  200.11  *  200.00  *  201.30  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   75.83  * 1552.14  *  515.20  *
* E.G. Slope (ft/ft)      *0.000085  * Area (sq ft)            *   75.83  * 1552.14  *  515.20  *
* Q Total (cfs)           * 3712.29  * Flow (cfs)              *   95.71  * 3224.43  *  392.14  *
* Top Width (ft)          *  301.87  * Top Width (ft)          *   11.76  *  159.85  *  130.26  *
* Vel Total (ft/s)        *    1.73  * Avg. Vel. (ft/s)        *    1.26  *    2.08  *    0.76  *
* Max Chl Dpth (ft)       *   11.26  * Hydr. Depth (ft)        *    6.45  *    9.71  *    3.96  *
* Conv. Total (cfs)       *402341.4  * Conv. (cfs)             * 10373.5  *349467.3  * 42500.6  *
* Length Wtd. (ft)        *  200.13  * Wetted Per. (ft)        *   16.52  *  160.15  *  130.47  *
* Min Ch El (ft)          * 1081.57  * Shear (lb/sq ft)        *    0.02  *    0.05  *    0.02  *
* Alpha                   *    1.28  * Stream Power (lb/ft s)   *    0.03  *    0.11  *    0.02  *
* Frctn Loss (ft)         *    0.02  * Cum Volume (acre-ft)    * 2041.83  * 9438.43  *11476.48  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  151.27  *  437.26  * 1595.55  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 38899.98

INPUT
Description:
Station Elevation Data     num=      31
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
    2.29 1089.96   12.63 1087.68   19.92 1086.07   28.98 1083.78   50.12 1081.44
   55.67 1081.41   67.23  1081.4   80.32 1081.77   82.36  1081.9   97.82 1083.22
  109.05 1084.21  110.53  1084.3  123.91 1085.02  135.75 1085.67  138.08 1085.79
  140.73 1085.93   153.7 1086.63  162.43  1087.1  170.94 1087.53  189.12 1088.36
  194.76 1088.58  201.14 1088.88  215.82 1089.54  231.34 1090.66   242.5 1091.68
  251.44 1092.58  261.54 1093.19   269.2 1093.69  291.74 1094.56  295.89 1094.66
  300.79 1094.79

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    2.29     .03   28.98     .03   153.7    .045
```

```
Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
         28.98   153.7              203.92     200  193.85          .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.87  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.09  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.78  * Reach Len. (ft)         *  203.92  *  200.00  *  193.85  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  155.05  * 1166.04  *  353.90  *
* E.G. Slope (ft/ft)      *0.000144  * Area (sq ft)            *  155.05  * 1166.04  *  353.90  *
* Q Total (cfs)           * 3665.98  * Flow (cfs)              *  274.03  * 3069.04  *  322.91  *
* Top Width (ft)          *  252.40  * Top Width (ft)          *   26.69  *  124.72  *  100.99  *
* Vel Total (ft/s)        *    2.19  * Avg. Vel. (ft/s)        *    1.77  *    2.63  *    0.91  *
* Max Chl Dpth (ft)       *   11.38  * Hydr. Depth (ft)        *    5.81  *    9.35  *    3.50  *
* Conv. Total (cfs)       *305672.7  * Conv. (cfs)             * 22848.7  *255899.5  * 26924.5  *
* Length Wtd. (ft)        *  199.43  * Wetted Per. (ft)        *   30.22  *  125.02  *  101.19  *
* Min Ch El (ft)          * 1081.40  * Shear (lb/sq ft)        *    0.05  *    0.08  *    0.03  *
* Alpha                   *    1.27  * Stream Power (lb/ft s)  *    0.08  *    0.22  *    0.03  *
* Frctn Loss (ft)         *    0.03  * Cum Volume (acre-ft)    * 2041.30  * 9432.19  *11474.47  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  151.18  *  436.61  * 1595.02  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 38699.98

INPUT
Description:
Station Elevation Data     num=      49
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 1090.49    4.24 1090.35    5.76 1090.09   15.06 1087.56   33.05 1082.67
    33.3 1082.61   33.54 1082.59   47.44 1081.51   61.34 1081.29   61.59 1081.29
   61.85 1081.29   75.74 1081.44   89.13 1082.25   89.88 1082.29   90.65 1082.34
  104.03 1083.17  116.92 1083.76  118.16 1083.82  119.46 1083.88  132.31 1084.43
  142.33 1084.83  144.72 1084.92  146.45    1085  148.26 1085.07   160.6 1085.57
  172.51 1086.01  174.75  1086.1  177.07 1086.21  188.89 1086.78   200.3 1087.31
  205.86 1087.74  228.09  1089.5  231.32 1089.71  234.67 1089.89  255.89 1091.19
  263.47  1091.6  283.68 1092.72   287.9 1092.91  292.28 1093.09  302.05 1093.46
  311.47 1093.84  316.19 1094.01  321.08 1094.21  339.26 1095.01  349.88 1095.54
  358.62 1095.91  367.05  1096.2  372.77 1096.43  376.55 1096.58

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
       0     .03   15.06     .03  142.33    .045

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
         15.06  142.33              195.36     200  206.82          .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.84  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.08  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.76  * Reach Len. (ft)         *  195.36  *  200.00  *  206.82  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   50.38  * 1243.89  *  601.59  *
* E.G. Slope (ft/ft)      *0.000118  * Area (sq ft)            *   50.38  * 1243.89  *  601.59  *
* Q Total (cfs)           * 3670.66  * Flow (cfs)              *   54.54  * 3051.50  *  564.62  *
* Top Width (ft)          *  284.57  * Top Width (ft)          *   15.06  *  127.27  *  142.24  *
* Vel Total (ft/s)        *    1.94  * Avg. Vel. (ft/s)        *    1.08  *    2.45  *    0.94  *
* Max Chl Dpth (ft)       *   11.47  * Hydr. Depth (ft)        *    3.35  *    9.77  *    4.23  *
* Conv. Total (cfs)       *337380.8  * Conv. (cfs)             *  5012.9  *280472.0  * 51896.0  *
* Length Wtd. (ft)        *  201.12  * Wetted Per. (ft)        *   17.69  *  128.06  *  142.47  *
* Min Ch El (ft)          * 1081.29  * Shear (lb/sq ft)        *    0.02  *    0.07  *    0.03  *
* Alpha                   *    1.38  * Stream Power (lb/ft s)  *    0.02  *    0.18  *    0.03  *
* Frctn Loss (ft)         *    0.02  * Cum Volume (acre-ft)    * 2040.82  * 9426.66  *11472.35  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  151.08  *  436.03  * 1594.48  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 38499.98

INPUT
Description:
Station Elevation Data     num=      34
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 1090.16    8.75  1088.1    9.37 1087.96    11.9 1087.42   14.11 1086.85
   39.94  1081.5   40.56 1081.44   54.44 1081.27      67 1081.31    70.5 1081.42
   93.45 1082.66  101.07 1083.11   119.9  1084.1  128.57 1084.51  131.64 1084.65
  139.52 1085.03  146.34 1085.35  153.69 1085.69   162.2 1086.06  172.79 1086.51
  192.77 1087.46  196.24 1087.63  199.24 1087.79  223.34 1089.05  225.68 1089.15
  240.68 1089.73  252.12 1090.18   253.9 1090.29  278.58 1092.14  284.47 1092.56
  305.02 1093.96  315.04 1094.66  331.46 1095.87  336.57 1096.29

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
       0     .03    8.75     .03  128.57    .045

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
          8.75  128.57              190.36     200  211.84          .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.81  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.08  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.73  * Reach Len. (ft)         *  190.36  *  200.00  *  211.84  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   31.53  * 1162.92  *  704.26  *
* E.G. Slope (ft/ft)      *0.000125  * Area (sq ft)            *   31.53  * 1162.92  *  704.26  *
* Q Total (cfs)           * 3660.14  * Flow (cfs)              *   34.13  * 2922.57  *  703.43  *
* Top Width (ft)          *  287.01  * Top Width (ft)          *    8.75  *  119.82  *  158.44  *
* Vel Total (ft/s)        *    1.93  * Avg. Vel. (ft/s)        *    1.08  *    2.51  *    1.00  *
* Max Chl Dpth (ft)       *   11.46  * Hydr. Depth (ft)        *    3.60  *    9.71  *    4.44  *
* Conv. Total (cfs)       *326805.2  * Conv. (cfs)             *  3047.7  *260949.5  * 62808.0  *
```

```
* Length Wtd. (ft)        *  201.96  * Wetted Per. (ft)        *   11.56  *  120.60  *  158.66  *
* Min Ch El (ft)          * 1081.27  * Shear (lb/sq ft)        *    0.02  *    0.08  *    0.03  *
* Alpha                   *    1.41  * Stream Power (lb/ft s) *    0.02  *    0.19  *    0.03  *
* Frctn Loss (ft)         *    0.03  * Cum Volume (acre-ft)   * 2040.64  * 9421.14  *11469.25  *
* C & E Loss (ft)         *          * Cum SA (acres)         *  151.03  *  435.46  * 1593.76  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 38299.98

INPUT
Description:
Station Elevation Data     num=      34
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
    3.79 1090.73   11.25  1088.8    17.2 1087.26   27.02 1084.46   31.81 1083.28
   39.91 1082.38    46.4  1081.5   50.25 1081.41   61.01 1081.19   73.48 1081.24
   79.24  1081.5   90.21 1081.95    96.7 1082.63  118.57 1084.14  119.93 1084.23
  121.87 1084.37  126.68 1084.73  143.16 1085.97  157.91 1086.91  166.38 1087.38
   178.6 1087.96  189.61 1088.49  197.24 1088.83  212.84 1089.52  235.32 1090.51
  236.06 1090.54  236.57 1090.57  259.29 1091.77   275.9 1092.95  282.52 1093.45
  292.05  1094.3  305.74 1095.48  315.23 1096.48  321.53 1097.18

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
    3.79     .03   11.25     .03  126.68    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          11.25  126.68            189.33     200  211.36             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.79  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.10  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.69  * Reach Len. (ft)         *  189.33  *  200.00  *  211.36  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   21.80  * 1118.72  *  559.09  *
* E.G. Slope (ft/ft)      *0.000147  * Area (sq ft)            *   21.80  * 1118.72  *  559.09  *
* Q Total (cfs)           * 3607.92  * Flow (cfs)              *   22.52  * 3036.91  *  548.49  *
* Top Width (ft)          *  268.41  * Top Width (ft)          *    7.46  *  115.43  *  145.52  *
* Vel Total (ft/s)        *    2.12  * Avg. Vel. (ft/s)        *    1.03  *    2.71  *    0.98  *
* Max Chl Dpth (ft)       *   11.50  * Hydr. Depth (ft)        *    2.92  *    9.69  *    3.84  *
* Conv. Total (cfs)       *297581.6  * Conv. (cfs)             *  1857.1  *250484.9  * 45239.6  *
* Length Wtd. (ft)        *  201.42  * Wetted Per. (ft)        *    9.66  *  116.40  *  145.74  *
* Min Ch El (ft)          * 1081.19  * Shear (lb/sq ft)        *    0.02  *    0.09  *    0.04  *
* Alpha                   *    1.41  * Stream Power (lb/ft s) *    0.02  *    0.24  *    0.03  *
* Frctn Loss (ft)         *    0.03  * Cum Volume (acre-ft)   * 2040.52  * 9415.90  *11466.17  *
* C & E Loss (ft)         *          * Cum SA (acres)         *  150.99  *  434.92  * 1593.02  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 38099.98

INPUT
Description:
Station Elevation Data     num=      26
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
    5.83 1091.01    7.02 1090.72   24.57 1086.47   27.15 1085.96   31.54 1085.13
   48.49 1082.29   58.48    1082   69.82 1081.59   89.04 1081.73   91.15 1081.76
   92.39 1081.82  112.48 1082.59  126.31 1083.35  133.81 1083.71  138.75 1084.22
  146.54 1085.02  155.15 1085.95  160.22 1086.19  176.48 1087.09  194.13 1087.81
  197.81 1087.97  204.04 1088.36  219.14  1089.3  228.04 1089.92  240.47 1090.87
  259.82 1095.43

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
    5.83     .03   31.54     .03  138.75    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          31.54  138.75            197.08     200  204.49             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.75  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.09  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.66  * Reach Len. (ft)         *  197.08  *  200.00  *  204.49  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  121.42  * 1083.69  *  513.47  *
* E.G. Slope (ft/ft)      *0.000131  * Area (sq ft)            *  121.42  * 1083.69  *  513.47  *
* Q Total (cfs)           * 3595.09  * Flow (cfs)              *  183.05  * 2868.81  *  543.23  *
* Top Width (ft)          *  242.25  * Top Width (ft)          *   25.71  *  107.21  *  109.33  *
* Vel Total (ft/s)        *    2.09  * Avg. Vel. (ft/s)        *    1.51  *    2.65  *    1.06  *
* Max Chl Dpth (ft)       *   11.07  * Hydr. Depth (ft)        *    4.72  *   10.11  *    4.70  *
* Conv. Total (cfs)       *313834.5  * Conv. (cfs)             * 15979.4  *250433.7  * 47421.4  *
* Length Wtd. (ft)        *  200.25  * Wetted Per. (ft)        *   28.03  *  107.53  *  109.78  *
* Min Ch El (ft)          * 1081.59  * Shear (lb/sq ft)        *    0.04  *    0.08  *    0.04  *
* Alpha                   *    1.34  * Stream Power (lb/ft s) *    0.05  *    0.22  *    0.04  *
* Frctn Loss (ft)         *    0.03  * Cum Volume (acre-ft)   * 2040.21  * 9410.84  *11463.57  *
* C & E Loss (ft)         *          * Cum SA (acres)         *  150.92  *  434.41  * 1592.41  *
*****************************************************************************************

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: FRS
REACH: FRS1                RS: 37899.98

INPUT
Description:
```

```
Station Elevation Data     num=       23
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 1090.18    6.71 1089.85   18.75 1089.02   24.45 1088.59   30.83 1088.08
   39.76 1087.36   55.41 1084.68   60.77  1083.9   72.05 1082.69   81.77 1081.78
   86.38 1081.79  102.79  1081.7  117.34 1083.66  123.79 1084.17   137.4 1086.96
   144.8 1088.17  148.31 1088.46  165.81 1089.01  168.73 1089.97  179.27 1093.45
  186.82 1095.76  202.73 1100.77  207.83  1102.3

Manning's n Values         num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0     .03   39.76     .03  148.31     .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          39.76  148.31            200.24     200  200.19             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.67  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.10  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.56  * Reach Len. (ft)         *  200.24  *  200.00  *  200.19  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  146.44  *  925.70  *   86.17  *
* E.G. Slope (ft/ft)      *0.000171  * Area (sq ft)            *  146.44  *  925.70  *   86.17  *
* Q Total (cfs)           * 2783.21  * Flow (cfs)              *  217.28  * 2488.76  *   77.17  *
* Top Width (ft)          *  176.59  * Top Width (ft)          *   39.76  *  108.55  *   28.28  *
* Vel Total (ft/s)        *    2.40  * Avg. Vel. (ft/s)        *    1.48  *    2.69  *    0.90  *
* Max Chl Dpth (ft)       *   10.86  * Hydr. Depth (ft)        *    3.68  *    8.53  *    3.05  *
* Conv. Total (cfs)       *212805.2  * Conv. (cfs)             * 16613.1  *190291.3  *  5900.8  *
* Length Wtd. (ft)        *  200.01  * Wetted Per. (ft)        *   42.25  *  109.49  *   28.86  *
* Min Ch El (ft)          * 1081.70  * Shear (lb/sq ft)        *    0.04  *    0.09  *    0.03  *
* Alpha                   *    1.15  * Stream Power (lb/ft s)  *    0.05  *    0.24  *    0.03  *
* Frctn Loss (ft)         *    0.04  * Cum Volume (acre-ft)    * 2039.61  * 9406.23  *11462.16  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  150.77  *  433.91  * 1592.08  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 37699.98

INPUT
Description:
Station Elevation Data     num=       25
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   12.25 1090.29   22.31 1089.92   33.25 1089.32   53.25 1088.64   54.26  1088.6
   54.77 1088.54   56.22 1088.24   56.38 1088.21   70.67 1085.56   75.26 1084.23
   84.18 1083.39   96.27 1081.54  115.12 1081.77  117.27 1081.79  121.82 1082.37
  138.28 1084.75  146.05  1086.4  159.28  1089.1  176.51 1090.79  176.99 1090.84
  180.29  1091.3  187.25 1093.35  201.29 1097.82  207.92 1098.97   222.3 1102.42

Manning's n Values         num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   12.25     .03   22.31     .03  176.51     .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          22.31  176.51            198.23     200  202.05             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.62  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.11  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.51  * Reach Len. (ft)         *  198.23  *  200.00  *  202.05  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   24.20  * 1012.86  *    8.06  *
* E.G. Slope (ft/ft)      *0.000246  * Area (sq ft)            *   24.20  * 1012.86  *    8.06  *
* Q Total (cfs)           * 2778.35  * Flow (cfs)              *   29.56  * 2744.63  *    4.16  *
* Top Width (ft)          *  172.15  * Top Width (ft)          *   10.06  *  154.20  *    7.89  *
* Vel Total (ft/s)        *    2.66  * Avg. Vel. (ft/s)        *    1.22  *    2.71  *    0.52  *
* Max Chl Dpth (ft)       *   10.97  * Hydr. Depth (ft)        *    2.41  *    6.57  *    1.02  *
* Conv. Total (cfs)       *177034.5  * Conv. (cfs)             *  1883.8  *174885.6  *   265.2  *
* Length Wtd. (ft)        *  199.97  * Wetted Per. (ft)        *   12.29  *  155.62  *    8.10  *
* Min Ch El (ft)          * 1081.54  * Shear (lb/sq ft)        *    0.03  *    0.10  *    0.02  *
* Alpha                   *    1.03  * Stream Power (lb/ft s)  *    0.04  *    0.27  *    0.01  *
* Frctn Loss (ft)         *    0.04  * Cum Volume (acre-ft)    * 2039.21  * 9401.78  *11461.95  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  150.66  *  433.31  * 1592.00  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

LATERAL STRUCTURE


RIVER: FRS
REACH: FRS1                RS: 37600

INPUT
Description:
Lateral structure position      = Left overbank
Distance from Upstream XS =    99.98
Deck/Roadway Width         =       10
Weir Coefficient           =      2.7
Weir Flow Reference        = Water Surface
 Weir Embankment Coordinates     num =        12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       01091.903    12071091.665    21351091.661    36111091.938    47331091.814
    58271091.411    71441091.202    82031091.685    93011091.696   103601091.625
   114271091.95112464.831091.982

Weir crest shape                          = Broad Crested


LATERAL STRUCTURE OUTPUT  Profile #Max WS  Lat Struct
*********************************************************************
* E.G. US. (ft)           * 1092.61  * Weir Sta US (ft)       *    0.00  *
* W.S. US. (ft)           * 1092.51  * Weir Sta DS (ft)       *12464.83  *
* E.G. DS (ft)            * 1092.50  * Weir Max Depth (ft)    *    1.30  *
* W.S. DS (ft)            * 1092.50  * Weir Avg Depth (ft)    *    0.82  *
* Q US (cfs)              * 2778.35  * Weir Submerg           *    0.00  *
```

```
* Q Leaving Total (cfs)  *25519.02  * Min El Weir Flow (ft)  * 1091.20  *
* Q DS (cfs)             *-14048.20  * Wr Top Wdth (ft)       *12464.83  *
* Perc Q Leaving         *  918.50  * Q Gate Group (cfs)     *          *
* Q Weir (cfs)           *25519.01  * Gate Open Ht (ft)      *          *
* Q Gates (cfs)          *          * Gate #Open             *          *
* Q Culv (cfs)           *          * Gate Area (sq ft)      *          *
* Q Lat RC (cfs)         *          * Gate Submerg           *          *
* Weir Flow Area (sq ft) *10221.87  * Gate Invert (ft)       *          *
*************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 37499.98

INPUT
Description:
Station Elevation Data    num=      25
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
    4.61 1090.92   23.95 1089.51   25.41  1089.4   29.04 1089.35   46.21  1089.1
   58.57 1088.75   67.01 1088.49   67.55 1088.36   82.22 1084.89   87.82 1083.76
  101.77 1082.11  108.62 1081.42  111.35 1081.47  129.42 1081.77  140.49 1083.54
  150.22 1084.68  169.62 1088.54  171.02 1088.81  174.51 1089.24  181.86 1090.07
  191.83 1091.19  198.75 1093.26  212.63 1096.96  227.89  1100.9  233.43  1102.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    4.61     .03   29.04     .03  181.86    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         29.04  181.86            200.05     200  200.01             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.59  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.09  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  200.05  *  200.00  *  200.01  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   59.98  * 1044.36  *   21.51  *
* E.G. Slope (ft/ft)      *0.000192  * Area (sq ft)            *   59.98  * 1044.36  *   21.51  *
* Q Total (cfs)           * 2651.85  * Flow (cfs)              *   71.79  * 2567.31  *   12.75  *
* Top Width (ft)          *  191.60  * Top Width (ft)          *   24.43  *  152.82  *   14.35  *
* Vel Total (ft/s)        *    2.36  * Avg. Vel. (ft/s)        *    1.20  *    2.46  *    0.59  *
* Max Chl Dpth (ft)       *   11.08  * Hydr. Depth (ft)        *    2.46  *    6.83  *    1.50  *
* Conv. Total (cfs)       *191278.3  * Conv. (cfs)             *  5178.2  *185180.3  *   919.7  *
* Length Wtd. (ft)        *  200.00  * Wetted Per. (ft)        *   26.07  *  154.19  *   14.60  *
* Min Ch El (ft)          * 1081.42  * Shear (lb/sq ft)        *    0.03  *    0.08  *    0.02  *
* Alpha                   *    1.06  * Stream Power (lb/ft s)  *    0.03  *    0.20  *    0.01  *
* Frctn Loss (ft)         *    0.03  * Cum Volume (acre-ft)    * 2039.02  * 9397.06  *11461.88  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  150.58  *  432.61  * 1591.95  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 37299.98

INPUT
Description:
Station Elevation Data    num=      29
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 1090.66    2.64 1090.64   11.97  1090.2   18.81  1089.9   20.78  1089.8
   34.99 1089.48   41.58 1089.37   51.17  1089.3   62.38 1089.15   82.02 1088.75
   82.57 1088.74   83.19 1088.73    84.7 1088.41  103.99 1083.87   111.7 1083.29
  124.79 1081.48  140.84 1081.62  145.59 1081.66  157.44 1083.51  166.39 1085.03
  169.97 1085.76   187.2 1089.31  191.19 1089.58  199.11  1090.1     208 1091.02
  228.24  1096.5   228.8 1096.62  230.17 1097.02   249.6 1102.26

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0     .03   51.17     .03  191.19    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         51.17  191.19            201.21     200  199.11             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.58  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.07  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  201.21  *  200.00  *  199.11  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  137.63  *  982.56  *   42.40  *
* E.G. Slope (ft/ft)      *0.000153  * Area (sq ft)            *  137.63  *  982.56  *   42.40  *
* Q Total (cfs)           * 2378.87  * Flow (cfs)              *  159.34  * 2193.12  *   26.41  *
* Top Width (ft)          *  213.47  * Top Width (ft)          *   51.17  *  140.02  *   22.28  *
* Vel Total (ft/s)        *    2.05  * Avg. Vel. (ft/s)        *    1.16  *    2.23  *    0.62  *
* Max Chl Dpth (ft)       *   11.02  * Hydr. Depth (ft)        *    2.69  *    7.02  *    1.90  *
* Conv. Total (cfs)       *192181.5  * Conv. (cfs)             * 12872.4  *177175.7  *  2133.4  *
* Length Wtd. (ft)        *  200.12  * Wetted Per. (ft)        *   53.04  *  141.45  *   22.55  *
* Min Ch El (ft)          * 1081.48  * Shear (lb/sq ft)        *    0.02  *    0.07  *    0.02  *
* Alpha                   *    1.12  * Stream Power (lb/ft s)  *    0.03  *    0.15  *    0.01  *
* Frctn Loss (ft)         *    0.02  * Cum Volume (acre-ft)    * 2038.57  * 9392.40  *11461.73  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  150.41  *  431.93  * 1591.86  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 37099.98

INPUT
Description:
Station Elevation Data    num=      28
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
```

```
   12.17 1090.74   15.06 1090.58   20.46 1090.06   35.96 1088.15   44.23 1087.69
   56.87 1086.98   60.27 1086.89   71.46 1086.74   77.77  1086.7   80.52 1086.77
  107.72 1085.72  110.55 1085.14  119.58 1083.65  140.24 1081.57  140.48 1081.55
  140.58 1081.55  161.38 1081.53  170.61 1083.17  182.29 1084.67  200.11 1088.73
  200.64 1088.85  203.19 1089.43  209.01 1089.77  224.09 1090.35  230.67 1092.37
     245  1095.9   260.7 1100.46   265.9 1102.08

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
   12.17     .03    80.52     .03   200.11    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          80.52  200.11            200.88     200  200.17             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.57  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.04  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.53  * Reach Len. (ft)         *  200.88  *  200.00  *  200.17  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  309.51  *  999.71  *   72.55  *
* E.G. Slope (ft/ft)      *0.000070  * Area (sq ft)            *  309.51  *  999.71  *   72.55  *
* Q Total (cfs)           * 2069.18  * Flow (cfs)              *  343.31  * 1691.11  *   34.75  *
* Top Width (ft)          *  219.13  * Top Width (ft)          *   68.35  *  119.59  *   31.19  *
* Vel Total (ft/s)        *    1.50  * Avg. Vel. (ft/s)        *    1.11  *    1.69  *    0.48  *
* Max Chl Dpth (ft)       *   11.00  * Hydr. Depth (ft)        *    4.53  *    8.36  *    2.33  *
* Conv. Total (cfs)       *248164.5  * Conv. (cfs)             * 41174.3  *202822.1  *  4168.1  *
* Length Wtd. (ft)        *  200.10  * Wetted Per. (ft)        *   70.32  *  120.59  *   31.61  *
* Min Ch El (ft)          * 1081.53  * Shear (lb/sq ft)        *    0.02  *    0.04  *    0.01  *
* Alpha                   *    1.14  * Stream Power (lb/ft s)  *    0.02  *    0.06  *    0.00  *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)    * 2037.54  * 9387.85  *11461.47  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  150.13  *  431.34  * 1591.74  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 36899.98

INPUT
Description:
Station Elevation Data     num=      29
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    6.58 1091.13   12.11 1090.66   27.62 1089.45   43.31 1088.59   48.65 1088.23
   59.71 1088.06   69.69 1087.92   74.49 1087.97   90.72 1088.21  105.69 1087.85
  111.75 1087.83  116.29 1086.72   124.3 1084.75  132.79 1082.59  136.88 1082.47
  153.82 1081.43  168.07 1081.61  174.85 1081.64  188.89 1084.02  195.89 1085.31
  199.25 1085.93  214.37 1089.16  216.92 1089.71  230.45 1090.37  237.95  1090.7
  253.49 1094.41  258.99 1095.86  261.64 1096.53  280.02 1102.03

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
    6.58     .03    48.65     .03   216.92    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          48.65  216.92            198.28     200  226.77             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.56  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.03  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.54  * Reach Len. (ft)         *  198.28  *  200.00  *  226.77  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  124.80  * 1187.02  *   55.87  *
* E.G. Slope (ft/ft)      *0.000056  * Area (sq ft)            *  124.80  * 1187.02  *   55.87  *
* Q Total (cfs)           * 1720.56  * Flow (cfs)              *   93.11  * 1606.10  *   21.35  *
* Top Width (ft)          *  239.06  * Top Width (ft)          *   42.07  *  168.27  *   28.72  *
* Vel Total (ft/s)        *    1.26  * Avg. Vel. (ft/s)        *    0.75  *    1.35  *    0.38  *
* Max Chl Dpth (ft)       *   11.11  * Hydr. Depth (ft)        *    2.97  *    7.05  *    1.94  *
* Conv. Total (cfs)       *230336.8  * Conv. (cfs)             * 12464.8  *215013.5  *  2858.5  *
* Length Wtd. (ft)        *  200.25  * Wetted Per. (ft)        *   43.58  *  169.73  *   28.96  *
* Min Ch El (ft)          * 1081.43  * Shear (lb/sq ft)        *    0.01  *    0.02  *    0.01  *
* Alpha                   *    1.10  * Stream Power (lb/ft s)  *    0.01  *    0.03  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 2036.53  * 9382.83  *11461.17  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  149.88  *  430.68  * 1591.60  *
*****************************************************************************************

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: FRS
REACH: FRS1                RS: 36699.98

INPUT
Description: CP-P
Station Elevation Data     num=      35
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0  1090.6   17.28 1089.56   18.89 1089.54   22.93 1089.14   39.68 1087.49
  122.22 1087.31  122.84 1087.31  133.43 1084.97  143.63 1082.76  162.47 1082.11
  164.43 1081.93  169.34 1081.87  185.22 1081.74  191.51 1081.88  206.01    1082
  220.54 1082.26   226.8 1082.46  242.55 1082.74  247.59 1082.83  249.59 1083.06
  268.38 1086.35  278.62 1088.08  289.17 1089.54  305.93 1090.11  307.66 1090.17
  309.96 1090.22  315.75 1090.35  327.44  1090.6  330.76 1090.67  343.62 1090.83
  351.55 1090.99  365.73 1091.23  372.34 1091.34  376.01  1091.4  381.94 1091.51

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
       0     .03   122.22     .03   289.17    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          122.22 289.17            201.38     200  219.61             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
```

```
* E.G. Elev (ft)          * 1092.56  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.56  * Reach Len. (ft)         *  201.38  *  200.00  *  219.61  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  557.11  * 1497.91  *  175.21  *
* E.G. Slope (ft/ft)      *0.000011  * Area (sq ft)            *  557.11  * 1497.91  *  175.21  *
* Q Total (cfs)           * 1338.70  * Flow (cfs)              *  249.31  * 1060.23  *   29.16  *
* Top Width (ft)          *  381.94  * Top Width (ft)          *  122.22  *  166.95  *   92.77  *
* Vel Total (ft/s)        *    0.60  * Avg. Vel. (ft/s)        *    0.45  *    0.71  *    0.17  *
* Max Chl Dpth (ft)       *   10.82  * Hydr. Depth (ft)        *    4.56  *    8.97  *    1.89  *
* Conv. Total (cfs)       *402775.1  * Conv. (cfs)             * 75009.1  *318993.2  *  8772.8  *
* Length Wtd. (ft)        *  203.02  * Wetted Per. (ft)        *  124.31  *  168.02  *   93.84  *
* Min Ch El (ft)          * 1081.74  * Shear (lb/sq ft)        *    0.00  *    0.01  *    0.00  *
* Alpha                   *    1.21  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)    * 2034.98  * 9376.67  *11460.57  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  149.50  *  429.91  * 1591.29  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 36499.98

INPUT
Description:
Station Elevation Data     num=      47
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    11.4  1090.6   14.63 1090.24   32.19 1088.12  108.08 1087.99  115.37 1088.16
  130.92 1086.64  136.17 1086.42  149.32 1083.48  156.96 1081.88  159.99 1081.82
  177.76 1081.29  189.07 1081.47  198.55 1081.56  218.14 1086.39  219.34 1086.65
  222.36 1087.42  302.52 1088.36  317.12  1088.9  323.32  1089.2  333.31 1089.41
  344.11 1089.64   349.5  1089.7  364.91 1089.83  368.43 1089.85   385.7 1089.94
  392.58 1089.97   406.5 1090.05  421.65 1090.13  427.29 1090.18  441.46 1090.28
  448.09 1090.33  450.72 1090.34  468.88 1090.47  479.79 1090.54  489.68  1090.6
  508.86 1090.68  510.47 1090.68  514.51 1090.71  531.27 1090.82  537.93 1090.95
  552.06 1091.23     567 1091.52  572.86 1091.63  587.54 1091.85  593.65 1091.93
  596.08 1091.95  597.11 1091.96

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    11.4     .03  115.37     .03  222.36    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        115.37  222.36             199.18     200  202.22            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)          * 1092.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.03  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.51  * Reach Len. (ft)         *  199.18  *  200.00  *  202.22  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  435.95  *  933.69  * 1005.99  *
* E.G. Slope (ft/ft)      *0.000066  * Area (sq ft)            *  435.95  *  933.69  * 1005.99  *
* Q Total (cfs)           * 2544.90  * Flow (cfs)              *  449.18  * 1576.22  *  519.50  *
* Top Width (ft)          *  585.71  * Top Width (ft)          *  103.97  *  106.99  *  374.75  *
* Vel Total (ft/s)        *    1.07  * Avg. Vel. (ft/s)        *    1.03  *    1.69  *    0.52  *
* Max Chl Dpth (ft)       *   11.22  * Hydr. Depth (ft)        *    4.19  *    8.73  *    2.68  *
* Conv. Total (cfs)       *313977.8  * Conv. (cfs)             * 55417.5  *194466.4  * 64093.9  *
* Length Wtd. (ft)        *  200.35  * Wetted Per. (ft)        *  106.03  *  108.28  *  375.34  *
* Min Ch El (ft)          * 1081.29  * Shear (lb/sq ft)        *    0.02  *    0.04  *    0.01  *
* Alpha                   *    1.75  * Stream Power (lb/ft s)  *    0.02  *    0.06  *    0.01  *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)    * 2032.69  * 9371.08  *11457.60  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  148.98  *  429.28  * 1590.11  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 36299.98

INPUT
Description:
Station Elevation Data     num=      38
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    6.63  1090.4   22.78 1088.58   27.24 1088.16   40.64 1086.89  130.31 1086.89
  132.66 1086.43  134.95 1086.06  150.92 1083.49  160.12  1082.6  171.54 1081.21
  187.59 1081.45  192.15 1081.49  205.83 1083.65  212.76 1084.84  215.06 1085.44
  297.46 1086.84  315.83 1087.53  324.94 1088.02  336.44 1088.79  352.41 1089.22
  357.06 1089.37  371.02  1089.5  377.67 1089.57  379.87 1089.59  398.28 1089.73
  407.34 1089.79   418.9 1089.87  434.81 1089.88  439.51 1089.89  517.22 1090.24
  521.96 1090.35  536.22 1090.61  542.58 1090.72  544.69 1090.76  563.19 1091.05
  574.29  1091.2   583.8 1091.33  597.13 1091.48

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    6.63     .03  130.31     .03  215.06    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        130.31  215.06             199.11     200  201.18            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)          * 1092.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.02  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.52  * Reach Len. (ft)         *  199.11  *  200.00  *  201.18  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  639.34  *  800.73  * 1336.52  *
* E.G. Slope (ft/ft)      *0.000033  * Area (sq ft)            *  639.34  *  800.73  * 1336.52  *
* Q Total (cfs)           * 2138.04  * Flow (cfs)              *  538.61  * 1014.85  *  584.58  *
* Top Width (ft)          *  590.50  * Top Width (ft)          *  123.68  *   84.75  *  382.07  *
* Vel Total (ft/s)        *    0.77  * Avg. Vel. (ft/s)        *    0.84  *    1.27  *    0.44  *
* Max Chl Dpth (ft)       *   11.31  * Hydr. Depth (ft)        *    5.17  *    9.45  *    3.50  *
* Conv. Total (cfs)       *371218.8  * Conv. (cfs)             * 93516.1  *176204.5  *101498.3  *
* Length Wtd. (ft)        *  200.08  * Wetted Per. (ft)        *  125.98  *   85.51  *  383.20  *
* Min Ch El (ft)          * 1081.21  * Shear (lb/sq ft)        *    0.01  *    0.02  *    0.01  *
* Alpha                   *    1.68  * Stream Power (lb/ft s)  *    0.01  *    0.02  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 2030.23  * 9367.10  *11452.16  *
```

```
* C & E Loss (ft)          *           * Cum SA (acres)          *  148.46  *  428.84  * 1588.35  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 36099.98

INPUT
Description:
Station Elevation Data     num=      54
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*****************************************************************************************
       0  1090.2     3.02 1089.97     19.7 1088.55    40.22 1086.38   104.62  1086.4
  122.31 1086.29   127.94 1085.59   131.27 1085.18   142.83 1084.16   157.91 1082.02
  163.35 1081.05   181.56 1081.06   183.88 1081.06   200.12 1082.32    204.4  1082.9
  216.81 1086.02   307.01 1086.78    317.8 1087.48   327.53  1088.1   344.45 1088.63
  348.05 1088.78   360.09 1089.01   368.57 1089.14    371.1 1089.18   389.09 1089.32
  397.74 1089.36   409.61 1089.36   424.39 1089.42   430.13 1089.43   449.36 1089.63
  450.66 1089.64   451.04 1089.65   471.18 1089.93   477.69 1090.02    491.7 1090.22
  504.33 1090.39   512.22  1090.5   530.98 1090.74   532.74 1090.76   533.84 1090.78
  538.62 1090.84   553.27 1091.02   567.21 1091.18   573.79 1091.26   583.89 1091.35
  594.31 1091.46   610.92 1091.56   614.83 1091.58   627.89 1091.64   635.35 1091.68
  637.57 1091.69   655.87 1091.81   664.22 1091.88   669.85 1091.92

Manning's n Values         num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
*********************************************
       0      .03   122.31      .03   216.81     .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
        122.31  216.81            200.76     200  199.08              .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)          * 1092.53  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.53  * Reach Len. (ft)         *  200.76  *  200.00  *  199.08  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  670.08  *  907.55  * 1411.86  *
* E.G. Slope (ft/ft)      *0.000018  * Area (sq ft)            *  670.08  *  907.55  * 1411.86  *
* Q Total (cfs)           * 1717.02  * Flow (cfs)              *  433.49  *  860.22  *  423.31  *
* Top Width (ft)          *  669.85  * Top Width (ft)          *  122.31  *   94.50  *  453.04  *
* Vel Total (ft/s)        *    0.57  * Avg. Vel. (ft/s)        *    0.65  *    0.95  *    0.30  *
* Max Chl Dpth (ft)       *   11.46  * Hydr. Depth (ft)        *    5.48  *    9.60  *    3.12  *
* Conv. Total (cfs)       *403051.1  * Conv. (cfs)             *101756.9  *201927.3  * 99366.9  *
* Length Wtd. (ft)        *  199.94  * Wetted Per. (ft)        *  124.82  *   95.32  *  453.72  *
* Min Ch El (ft)          * 1081.06  * Shear (lb/sq ft)        *    0.01  *    0.01  *    0.00  *
* Alpha                   *    1.75  * Stream Power (lb/ft s)  *    0.00  *    0.01  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 2027.24  * 9363.18  *11445.81  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  147.90  *  428.43  * 1586.42  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 35899.98

INPUT
Description:
Station Elevation Data     num=      56
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*****************************************************************************************
   12.79 1090.31    19.96 1089.35    33.38 1087.46   115.74 1086.85   129.03 1086.03
  130.95 1085.98   136.33 1085.84   140.75 1084.89   156.92  1081.3   158.83 1081.19
  177.51 1080.45   190.37 1080.92    198.1 1081.21   210.83 1084.37   218.69 1086.06
  301.06 1086.58    319.9 1087.09   321.65 1087.12   327.01 1087.27   342.24 1087.68
  347.17 1087.73   362.83 1087.94   374.43 1088.06   383.42 1088.18    401.7  1088.5
  404.01 1088.54   411.12  1088.7    424.6 1089.02   428.97 1089.11   445.19 1089.46
  456.24 1089.62   465.78 1089.76    483.5 1089.95   486.37 1089.98   495.21 1090.06
  506.97 1090.16   521.19 1090.27   527.56 1090.33   537.73 1090.41   548.15  1090.5
  565.31 1090.68   568.74 1090.72    579.3 1090.84   587.35 1090.93   589.33 1090.95
   603.9 1091.13   609.92  1091.2   620.43 1091.32   630.51 1091.44   647.11 1091.62
   651.1 1091.66   663.39 1091.75   671.69 1091.81   674.38 1091.83   692.28 1091.97
  700.29 1092.06

Manning's n Values         num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
*********************************************
   12.79      .03   130.95      .03   218.69     .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
        130.95  218.69            199.96     200  200.13              .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)          * 1092.53  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.53  * Reach Len. (ft)         *  199.96  *  200.00  *  200.13  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  610.76  *  882.50  * 1593.23  *
* E.G. Slope (ft/ft)      *0.000010  * Area (sq ft)            *  610.76  *  882.50  * 1593.23  *
* Q Total (cfs)           * 1288.35  * Flow (cfs)              *  281.75  *  637.96  *  368.63  *
* Top Width (ft)          *  687.50  * Top Width (ft)          *  118.16  *   87.74  *  481.60  *
* Vel Total (ft/s)        *    0.42  * Avg. Vel. (ft/s)        *    0.46  *    0.72  *    0.23  *
* Max Chl Dpth (ft)       *   12.08  * Hydr. Depth (ft)        *    5.17  *   10.06  *    3.31  *
* Conv. Total (cfs)       *407927.4  * Conv. (cfs)             * 89210.1  *201997.2  *116720.2  *
* Length Wtd. (ft)        *  200.03  * Wetted Per. (ft)        *  120.60  *   88.83  *  482.12  *
* Min Ch El (ft)          * 1080.45  * Shear (lb/sq ft)        *    0.00  *    0.01  *    0.00  *
* Alpha                   *    1.84  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 2024.28  * 9359.07  *11438.94  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  147.34  *  428.01  * 1584.29  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
```

REACH: FRS1 RS: 35699.9*

INPUT
Description: CP-N
Station Elevation Data num= 118

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6.39	1090.28	13.65	1089.47	22.07	1088.49	24.2	1088.32	27.22	1087.83
30.86	1087.48	44.55	1086.25	105.58	1085.9	110.54	1085.87	114.99	1085.71
123.98	1085.4	125.93	1085.36	129.68	1085.14	130.99	1085.07	135.16	1084.44
140.24	1083.65	147.86	1082.47	150.39	1081.97	152.19	1081.77	158.94	1081.08
169.78	1080.58	185.85	1081.03	195.51	1081.31	202.74	1082.12	204.08	1082.29
206.28	1082.83	211.41	1084.07	221.24	1086.3	305.71	1086.72	310.07	1086.96
317.14	1087.43	330.39	1087.53	331.01	1087.53	332.27	1087.55	336.32	1087.63
338.05	1087.65	352.95	1087.84	354.48	1087.86	355	1087.86	355.51	1087.86
356.31	1087.87	359.8	1087.91	374.68	1088.11	376.69	1088.14	381.61	1088.21
389.2	1088.31	393.86	1088.38	398.89	1088.45	406.91	1088.57	413.05	1088.67
418.61	1088.75	421.1	1088.79	428.76	1088.91	432.21	1088.97	432.22	1088.97
432.26	1088.98	443.3	1089.16	448.02	1089.23	451.41	1089.28	457.5	1089.37
465.51	1089.49	470.59	1089.55	477.42	1089.62	482.8	1089.68	487.71	1089.74
489.77	1089.76	506.82	1089.91	508.1	1089.92	508.95	1089.93	509.46	1089.93
509.92	1089.93	511.58	1089.95	519.45	1090.01	524.9	1090.05	528.14	1090.08
532.14	1090.11	540.35	1090.18	547.31	1090.24	547.47	1090.24	554.34	1090.3
558.7	1090.34	565.31	1090.39	566.49	1090.4	576.55	1090.49	584.01	1090.56
585.68	1090.57	590.89	1090.62	595.05	1090.66	598.75	1090.69	604.85	1090.75
609.31	1090.8	610.14	1090.8	618.82	1090.89	620.96	1090.91	624.04	1090.94
634.61	1091.04	636.67	1091.06	643.16	1091.13	643.21	1091.13	654.5	1091.24
659.91	1091.3	662.4	1091.33	665.37	1091.36	670.2	1091.41	681.58	1091.52
683.27	1091.54	685.21	1091.55	687.58	1091.57	700.77	1091.67	700.83	1091.67
709.78	1091.73	710.51	1091.73	712.68	1091.75	719.94	1091.8	731.99	1091.89
735.81	1091.92	739.12	1091.95	740.62	1091.97				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6.39	.03	125.93	.03	221.24	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
125.93	221.24	199.96	200	200.13	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1092.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1092.53	Reach Len. (ft)	199.96	200.00	200.13
Crit W.S. (ft)		Flow Area (sq ft)	700.49	962.86	1674.39
E.G. Slope (ft/ft)	0.000004	Area (sq ft)	700.49	962.86	1674.39
Q Total (cfs)	858.51	Flow (cfs)	210.64	419.56	228.30
Top Width (ft)	734.23	Top Width (ft)	119.54	95.31	519.38
Vel Total (ft/s)	0.26	Avg. Vel. (ft/s)	0.30	0.44	0.14
Max Chl Dpth (ft)	11.95	Hydr. Depth (ft)	5.86	10.10	3.22
Conv. Total (cfs)	453368.1	Conv. (cfs)	111238.1	221567.6	120562.5
Length Wtd. (ft)	200.02	Wetted Per. (ft)	122.02	96.15	519.99
Min Ch El (ft)	1080.58	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.81	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	2021.27	9354.84	11431.44
C & E Loss (ft)		Cum SA (acres)	146.80	427.59	1581.99

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 35499.98

INPUT
Description:
Station Elevation Data num= 67

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1090.25	15.85	1088.81	18.01	1088.75	24.75	1087.53	38.59	1085.16
100.32	1084.92	109.84	1084.85	120.9	1084.75	124.42	1084.4	134.33	1083.61
141.48	1083.04	151.88	1081.26	162.05	1080.71	201.59	1081.6	203.2	1081.67
205.84	1082.31	223.78	1086.54	314.4	1086.88	326.66	1088.11	341.54	1087.96
347.24	1088.03	365.08	1088.04	367.28	1088.04	367.82	1088.04	368.68	1088.05
388.39	1088.31	395.82	1088.43	408.97	1088.64	422.96	1088.83	429.55	1088.93
450.1	1089.17	450.12	1089.17	450.16	1089.18	470.7	1089.39	477.24	1089.45
491.28	1089.57	504.38	1089.67	511.85	1089.73	531.52	1089.87	532.43	1089.88
532.98	1089.88	535.25	1089.9	549.54	1090	553.01	1090.03	566.11	1090.14
573.58	1090.21	585.8	1090.32	594.16	1090.39	612.95	1090.54	614.74	1090.56
620.33	1090.6	635.31	1090.72	640.09	1090.76	655.89	1090.89	667.23	1090.98
676.46	1091.06	694.37	1091.22	697.04	1091.25	705.41	1091.33	717.62	1091.44
721.51	1091.47	738.2	1091.59	748.65	1091.65	758.77	1091.71	775.79	1091.83
779.35	1091.86	780.96	1091.88						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	120.9	.03	223.78	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
120.9	223.78	200.21	200	200	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1092.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1092.51	Reach Len. (ft)	200.21	200.00	200.00
Crit W.S. (ft)		Flow Area (sq ft)	788.45	1041.63	1732.54
E.G. Slope (ft/ft)	0.000035	Area (sq ft)	788.45	1041.63	1732.54
Q Total (cfs)	2922.39	Flow (cfs)	791.17	1414.22	717.01
Top Width (ft)	780.96	Top Width (ft)	120.90	102.88	557.18
Vel Total (ft/s)	0.82	Avg. Vel. (ft/s)	1.00	1.36	0.41
Max Chl Dpth (ft)	11.80	Hydr. Depth (ft)	6.52	10.12	3.11
Conv. Total (cfs)	496333.4	Conv. (cfs)	134370.6	240188.0	121774.8
Length Wtd. (ft)	200.06	Wetted Per. (ft)	123.53	103.70	557.89
Min Ch El (ft)	1080.71	Shear (lb/sq ft)	0.01	0.02	0.01
Alpha	1.79	Stream Power (lb/ft s)	0.01	0.03	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	2017.86	9350.23	11423.61
C & E Loss (ft)		Cum SA (acres)	146.25	427.13	1579.52

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 35299.98

INPUT
Description:
Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10.28	1090.38	12.2	1090.28	26.84	1087.54	32.78	1086.41	43.42	1084.93
135.66	1084.47	142.83	1083.52	144.57	1083.15	156.24	1080.68	197.39	1080.16
205.33	1082.05	217.97	1084.9	300.27	1085.24	313.89	1085.98	320.85	1086.28
341.03	1087.21	341.43	1087.23	342.64	1087.25	362	1087.55	368.18	1087.63
382.58	1087.82	391.36	1087.93	403.15	1088.08	407.94	1088.13	423.73	1088.31
424.5	1088.31	427.72	1088.34	444.31	1088.46	449.6	1088.49	464.88	1088.59
476.73	1088.68	485.46	1088.75	503.87	1088.9	506.04	1088.92	512.81	1088.98
526.61	1089.11	531.01	1089.15	547.19	1089.29	558.15	1089.39	567.77	1089.47
573.63	1089.52	588.35	1089.64	597.89	1089.72	608.92	1089.8	612.43	1089.82
629.5	1089.95	639.57	1090.02	650.08	1090.09	666.71	1090.21	670.65	1090.23
682.98	1090.34	691.23	1090.42	693.85	1090.44	711.8	1090.62	720.99	1090.7
732.38	1090.79	748.13	1090.84	752.96	1090.85	768.05	1090.9	772.46	1090.91
773.53	1090.92	789.03	1091.02	794.11	1091.05	802.41	1091.13	814.69	1091.25
829.55	1091.4	835.26	1091.45	853.13	1091.62	855.84	1091.65	856.7	1091.65
876.42	1091.83	883.84	1091.9	896.99	1092.02	910.98	1092.14	917.57	1092.2
938.12	1092.4	938.15	1092.4	938.16	1092.4	938.22	1092.4	954.72	1092.58
958.73	1092.62	965.26	1092.69	979.3	1092.84	992.4	1092.96	999.88	1093.03
1019.54	1093.18	1020.46	1093.19	1023.31	1093.21	1041.03	1093.35	1047.62	1093.41

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
10.28	.03	135.66	.03	217.97	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
135.66	217.97	199.94	200	200.2	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1092.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1092.51	Reach Len. (ft)	199.94	200.00	200.20
Crit W.S. (ft)		Flow Area (sq ft)	882.94	902.92	2389.67
E.G. Slope (ft/ft)	0.000021	Area (sq ft)	882.94	902.92	2389.67
Q Total (cfs)	2520.01	Flow (cfs)	724.09	1001.43	794.49
Top Width (ft)	938.03	Top Width (ft)	125.38	82.31	730.34
Vel Total (ft/s)	0.60	Avg. Vel. (ft/s)	0.82	1.11	0.33
Max Chl Dpth (ft)	12.35	Hydr. Depth (ft)	7.04	10.97	3.27
Conv. Total (cfs)	551585.7	Conv. (cfs)	158490.6	219194.8	173900.3
Length Wtd. (ft)	200.06	Wetted Per. (ft)	127.98	83.21	730.41
Min Ch El (ft)	1080.16	Shear (lb/sq ft)	0.01	0.01	0.00
Alpha	1.97	Stream Power (lb/ft s)	0.01	0.02	0.00
Prctn Loss (ft)	0.00	Cum Volume (acre-ft)	2014.02	9345.77	11414.15
C & E Loss (ft)		Cum SA (acres)	145.68	426.71	1576.56

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 35099.98

INPUT
Description:
Station Elevation Data num= 104

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.01	1090.26	19.09	1088.51	28.58	1086.78	44.03	1085.24	49.14	1084.61
65.35	1084.3	69.71	1084.21	71.07	1084.21	90.27	1084.22	98.11	1084.23
110.84	1084.27	125.15	1083.96	131.4	1083.84	149.94	1082.31	151.24	1082.2
151.97	1082.14	152.19	1082.14	172.53	1081.4	185.01	1081.41	193.1	1080.47
206.27	1082.42	213.66	1082.87	295.93	1084.27	314.42	1084.69	316.49	1084.68
323.02	1085.18	337.06	1086.12	341.47	1086.19	357.62	1086.43	368.51	1086.59
378.19	1086.73	395.54	1086.96	398.75	1087.01	408.92	1087.14	419.32	1087.26
422.59	1087.3	439.88	1087.49	449.62	1087.58	460.45	1087.69	476.66	1087.8
481.01	1087.83	494.81	1087.9	501.58	1087.93	503.71	1087.94	522.14	1088.03
533.45	1088.12	542.71	1088.19	550.04	1088.26	563.27	1088.39	580.7	1088.57
583.84	1088.61	584.82	1088.62	604.4	1088.82	611.86	1088.89	624.97	1089.02
638.9	1089.14	645.54	1089.2	649.6	1089.23	666.1	1089.37	666.59	1089.37
682.79	1089.52	686.66	1089.55	692.98	1089.6	707.23	1089.73	720.01	1089.84
727.8	1089.91	732.56	1089.95	748.36	1090.12	752.48	1090.16	765.75	1090.3
768.93	1090.34	774.1	1090.39	789.49	1090.52	801.13	1090.6	810.06	1090.66
828.17	1090.77	830.62	1090.78	838.38	1090.85	851.19	1090.96	865.31	1091.13
871.75	1091.21	881.89	1091.34	892.32	1091.46	909.29	1091.68	912.88	1091.73
924.28	1091.86	933.45	1091.97	936.33	1091.99	954.01	1092.15	963.37	1092.2
974.58	1092.27	990.41	1092.38	995.14	1092.41	998.04	1092.43	1010.17	1092.53
1014.63	1092.57	1015.71	1092.57	1031.23	1092.7	1036.28	1092.75	1044.49	1092.81
1056.84	1092.9	1064.41	1092.94	1077.41	1093.02	1086.49	1093.09		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8.01	.03	125.15	.03	213.66	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
125.15	213.66	196.61	200	205.92	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1092.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1092.51	Reach Len. (ft)	196.61	200.00	205.92
Crit W.S. (ft)		Flow Area (sq ft)	847.67	921.43	3099.48
E.G. Slope (ft/ft)	0.000012	Area (sq ft)	847.67	921.43	3099.48
Q Total (cfs)	2150.89	Flow (cfs)	532.12	746.61	872.16
Top Width (ft)	1000.09	Top Width (ft)	117.14	88.51	794.44
Vel Total (ft/s)	0.44	Avg. Vel. (ft/s)	0.63	0.81	0.28
Max Chl Dpth (ft)	12.04	Hydr. Depth (ft)	7.24	10.41	3.90
Conv. Total (cfs)	625471.0	Conv. (cfs)	154737.6	217110.6	253622.8

```
* Length Wtd. (ft)        *  201.51  * Wetted Per. (ft)        *  119.81  *   88.81  *  794.54  *
* Min Ch El (ft)          * 1080.47  * Shear (lb/sq ft)        *    0.01  *    0.01  *    0.00  *
* Alpha                   *    1.83  * Stream Power (lb/ft s) *    0.00  *    0.01  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)   * 2010.04  * 9341.58  *11401.54  *
* C & E Loss (ft)         *          * Cum SA (acres)         *  145.12  *  426.32  * 1573.06  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 34899.98

INPUT
Description:
Station Elevation Data     num=     111
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
       0 1089.73   17.19 1089.58   25.72 1087.96   37.39 1085.68   49.27 1084.58
    57.6  1083.5   72.84  1083.2    77.8 1083.11    96.4 1083.34      98 1083.35
  107.63 1083.53  116.88 1083.71   118.2 1083.72  134.57 1083.54   138.4 1083.48
  151.69 1081.68  152.24 1081.61  158.61 1080.51  199.01 1079.94  205.29 1080.63
  219.21 1083.41  222.97 1084.26  340.43 1085.53  346.75 1085.65  360.63 1085.86
  364.44 1085.91  380.83  1086.1  382.11 1086.12  391.15 1086.21  401.03 1086.31
  417.48 1086.43  421.23 1086.46  435.16 1086.58  441.44 1086.63  449.79 1086.73
  461.64 1086.87  473.35 1087.01  481.84 1087.11  496.91 1087.26  502.04 1087.31
  520.47 1087.44  522.24 1087.45  532.91 1087.53  541.26 1087.58  542.45  1087.6
  558.93 1087.72  562.65 1087.78  576.62 1087.91  582.85 1087.99   594.3 1088.14
  603.05 1088.24  611.98 1088.37  623.25 1088.48  629.67 1088.55  643.46 1088.63
  661.82 1088.73  663.66 1088.74  674.68 1088.79  683.86 1088.83  685.39 1088.84
  704.06 1088.92  718.07 1088.98  724.27 1089.02  735.76 1089.09  744.47 1089.15
  756.06 1089.26  764.67 1089.34  779.62 1089.49  784.87 1089.55  803.17 1089.72
  805.07 1089.74  806.49 1089.76  816.44 1089.86  824.16 1089.94  825.28 1089.94
  841.85 1090.12  845.48 1090.16   850.3 1090.22  865.68 1090.38  873.86 1090.47
  885.88 1090.59  897.42 1090.71  906.08 1090.79  920.97 1090.95  926.29    1091
  930.27 1091.04  946.49 1091.21  947.94 1091.22  958.19 1091.33  965.63 1091.41
  966.69 1091.42  968.09 1091.43  986.89 1091.62  991.66 1091.67 1007.09 1091.81
 1015.21 1091.89  1027.3    1092 1038.77  1092.1 1047.5 1092.17 1054.03 1092.21
  1067.7 1092.28 1071.72 1092.31  1087.9  1092.4  1089.4 1092.42 1099.96 1092.53
  1108.1 1092.61 1109.45 1092.62 1128.31 1092.87 1133.01 1092.93 1148.51 1093.12
 1149.16 1093.13

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
       0     .03  134.57     .03  222.97    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        134.57  222.97            199.83     200  200.84              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)          * 1092.52  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.52  * Reach Len. (ft)         *  199.83  *  200.00  *  200.84  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1006.20  *  997.52  * 3452.63  *
* E.G. Slope (ft/ft)      *0.000006  * Area (sq ft)            * 1006.20  *  997.52  * 3452.63  *
* Q Total (cfs)           * 1783.95  * Flow (cfs)              *  464.98  *  613.41  *  705.56  *
* Top Width (ft)          * 1098.52  * Top Width (ft)          *  134.57  *   88.40  *  875.55  *
* Vel Total (ft/s)        *    0.33  * Avg. Vel. (ft/s)        *    0.46  *    0.61  *    0.20  *
* Max Chl Dpth (ft)       *   12.58  * Hydr. Depth (ft)        *    7.48  *   11.28  *    3.94  *
* Conv. Total (cfs)       *719468.7  * Conv. (cfs)             *187525.6  *247388.7  *284554.3  *
* Length Wtd. (ft)        *  200.30  * Wetted Per. (ft)        *  137.86  *   89.03  *  875.59  *
* Min Ch El (ft)          * 1079.94  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.89  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)   * 2005.86  * 9337.18  *11386.05  *
* C & E Loss (ft)         *          * Cum SA (acres)         *  144.56  *  425.91  * 1569.11  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 34699.98

INPUT
Description:
Station Elevation Data     num=     123
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
    3.66 1091.31   14.98 1088.83   23.84 1087.01   38.24 1083.83   44.01 1082.46
   61.52 1082.51   64.19 1082.52   66.23 1082.54   81.57 1082.77   84.03 1082.81
   84.37 1082.82   84.79 1082.82  104.54 1083.24  119.65 1083.33  124.72 1083.36
  131.33 1082.56  141.16 1081.52  144.89 1081.13  155.26  1079.8  165.07 1078.66
  173.07 1078.53  185.25 1078.51  201.14 1080.36  205.42 1080.74  224.42 1083.73
  366.83 1084.45  368.96 1084.53  384.99 1084.93  386.76 1084.97  387.01 1084.98
  404.57 1085.25  407.18 1085.29  422.39 1085.45  427.36  1085.5  433.86 1085.56
  447.54 1085.72  457.12 1085.82  467.71 1085.96  480.39 1086.11  487.89  1086.2
  493.62 1086.26  508.06 1086.44  526.94 1086.67  528.24 1086.69  536.69 1086.78
  547.03 1086.89  548.42  1086.9  564.84 1087.02  568.59 1087.05  573.48 1087.07
  588.77 1087.15  596.75  1087.2  608.94 1087.27  620.02 1087.38  629.12 1087.46
  636.07 1087.53   649.3 1087.66  653.89 1087.69  669.47 1087.79  671.69  1087.8
  688.41 1087.88  689.65 1087.88  689.83 1087.88  709.82 1088.03   713.1 1088.07
     730 1088.29  736.38 1088.37  750.18 1088.56  759.65 1088.67  770.35 1088.78
  782.92  1088.9  790.53 1088.96  806.19 1089.08  810.71 1089.11  829.46 1089.22
  830.88 1089.22  840.11 1089.27  849.77 1089.31  851.06 1089.32  867.57 1089.41
  871.23 1089.43  876.01 1089.46  891.41 1089.58  899.27 1089.62  911.59  1089.7
  922.54 1089.77  931.76 1089.81  945.81 1089.94  951.94 1089.98  969.09 1090.24
  972.11 1090.29  991.82 1090.66  992.23 1090.67  992.29 1090.67  992.36 1090.67
 1012.47 1091.01 1015.62 1091.06 1032.64 1091.29  1038.9 1091.36 1052.82 1091.53
 1063.46 1091.64 1072.99 1091.74 1085.44 1091.84 1093.17  1091.9 1108.72 1092.02
 1113.35 1092.05 1131.98 1092.18 1133.52 1092.19 1143.53 1092.25  1152.5 1092.31
  1153.7 1092.32  1170.3 1092.43 1173.88 1092.46 1178.53 1092.49 1194.05 1092.61
 1205.93 1092.69 1214.23 1092.74 1223.73 1092.78  1234.4 1092.81 1248.34 1092.86
 1254.58 1092.89 1259.35 1092.93 1271.67 1093.01

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
    3.66     .03  124.72     .03  224.42    .045
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        124.72  224.42             200.7     200  199.09              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.52  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.52  * Reach Len. (ft)         *  200.70  *  200.00  *  199.09  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1003.27  * 1199.44  * 4276.53  *
* E.G. Slope (ft/ft)      *0.000003  * Area (sq ft)            * 1003.27  * 1199.44  * 4276.53  *
* Q Total (cfs)           * 1445.52  * Flow (cfs)              *  324.92  *  501.84  *  618.77  *
* Top Width (ft)          * 1178.23  * Top Width (ft)          *  121.06  *   99.70  *  957.47  *
* Vel Total (ft/s)        *    0.22  * Avg. Vel. (ft/s)        *    0.32  *    0.42  *    0.14  *
* Max Chl Dpth (ft)       *   14.01  * Hydr. Depth (ft)        *    8.29  *   12.03  *    4.47  *
* Conv. Total (cfs)       *894679.6  * Conv. (cfs)             *201102.1  *310603.9  *382973.7  *
* Length Wtd. (ft)        *  199.80  * Wetted Per. (ft)        *  123.23  *  100.33  *  957.52  *
* Min Ch El (ft)          * 1078.51  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.87  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 2001.25  * 9332.13  *11368.23  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  143.97  *  425.48  * 1564.88  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 34499.98

INPUT
Description:
Station Elevation Data    num=     115
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
      .27 1091.41     9.7 1089.72   20.49 1088.04   33.43 1084.98   40.71 1083.25
    57.15 1082.59   60.92 1082.35   80.87 1082.36   81.14 1082.36   82.67 1082.38
    98.95 1082.59  101.36 1082.62  116.56 1082.62  121.57 1082.57  128.32 1082.03
    139.4 1081.21  141.79 1081.03  152.03  1080.1  162.01 1079.08  175.76 1078.53
   182.23 1078.29  199.47 1078.67  202.44 1078.71  219.54 1079.81  222.66 1080.01
    223.2 1080.04  242.88 1081.27  246.92 1081.43  263.09 1081.96  263.47 1081.97
   270.64 1082.26  283.31  1082.7  292.71 1083.09  303.53 1083.61  318.07 1084.43
   323.75  1084.7  650.17 1086.85  667.43 1087.03  673.89 1087.08  687.65 1087.29
   697.61 1087.38  707.87 1087.48  721.33 1087.57  728.09  1087.6  745.05 1087.73
    748.3 1087.75  767.03 1087.91  768.33 1087.93  768.52 1087.93  785.94 1088.13
   788.74 1088.16   792.5 1088.21  808.95 1088.42  816.21  1088.5  829.17 1088.65
   839.94 1088.73  849.39 1088.81   856.4 1088.84   869.6 1088.92  874.01 1088.95
   889.82 1089.05   903.9 1089.18  910.04 1089.23   911.1 1089.24  930.26 1089.46
   934.81  1089.5  950.47  1089.7  962.09 1089.84  970.69 1089.91  982.25 1090.03
   990.91 1090.14 1005.98 1090.26 1011.12 1090.28 1014.93 1090.28 1031.34  1090.4
  1032.55  1090.4 1040.77 1090.45 1050.16 1090.49 1051.56  1090.5 1067.78 1090.62
  1071.77 1090.64  1085.4 1090.76 1091.99 1090.79 1103.01 1090.89 1112.21 1090.95
  1124.58 1091.06 1132.42 1091.11 1138.24 1091.15 1152.64 1091.25 1155.86 1091.26
  1172.86 1091.35 1173.48 1091.36 1177.65 1091.38 1191.08 1091.46 1193.08 1091.47
   1208.7 1091.61 1213.29 1091.66 1219.47 1091.72 1233.51 1091.88 1243.18 1091.96
  1253.73 1092.06 1261.55  1092.1 1273.94 1092.16 1290.62 1092.22 1294.16 1092.23
  1314.35 1092.32 1314.38 1092.32 1314.52 1092.32 1334.59 1092.45 1349.63 1092.62
  1354.81 1092.66 1367.24  1092.8 1375.03  1092.9 1384.86 1092.94 1394.02 1093.04

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
      .27     .03  116.56     .03  323.75    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        116.56  323.75             200.03     200  200.75              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.52  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.52  * Reach Len. (ft)         *  200.03  *  200.00  *  200.75  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  950.84  * 2371.35  * 3990.98  *
* E.G. Slope (ft/ft)      *0.000001  * Area (sq ft)            *  950.84  * 2371.35  * 3990.98  *
* Q Total (cfs)           * 1146.00  * Flow (cfs)              *  194.65  *  613.65  *  337.69  *
* Top Width (ft)          * 1340.25  * Top Width (ft)          *  116.29  *  207.19  * 1016.77  *
* Vel Total (ft/s)        *    0.16  * Avg. Vel. (ft/s)        *    0.20  *    0.26  *    0.08  *
* Max Chl Dpth (ft)       *   14.23  * Hydr. Depth (ft)        *    8.18  *   11.45  *    3.93  *
* Conv. Total (cfs)       *1112812.0  * Conv. (cfs)             *189014.7  *595884.2  *327912.9  *
* Length Wtd. (ft)        *  200.28  * Wetted Per. (ft)        *  118.26  *  207.52  * 1016.80  *
* Min Ch El (ft)          * 1078.29  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.84  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1996.75  * 9323.94  *11349.34  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  143.42  *  424.77  * 1560.37  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 34299.98

INPUT
Description:
Station Elevation Data    num=      87
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
        0 1090.96    7.65 1089.94   17.51 1088.89   31.38 1085.81   37.72 1084.41
     55.1 1082.44   57.94 1082.04   74.32 1082.02   78.16 1082.02   78.82 1082.04
    98.38 1082.43  102.54 1082.51  118.59  1082.9  126.27 1082.65  138.81 1082.48
   142.72  1081.8  149.98 1080.54  159.03 1078.79   173.7 1078.58  179.24 1078.49
   197.42 1078.61  199.46 1078.63  200.97 1078.64  211.19 1078.72  218.59 1078.78
   219.68 1078.79  236.19 1079.13  239.89 1079.19  244.87 1079.86  260.11 1081.57
   268.58 1082.81  719.28 1085.16   725.1 1085.14     743 1085.13  745.32 1085.15
   747.04 1085.19  758.68 1085.28  764.65  1085.4  765.54 1085.32  782.27 1085.47
   785.75  1085.5  790.44 1085.57  805.97 1085.85  814.16 1085.94  826.19 1086.15
   837.88 1086.36  846.41 1087.05 1068.79 1089.46 1081.72 1089.71 1089.01 1089.86
  1098.81 1090.11 1109.23 1090.59 1116.95 1090.51 1129.44 1090.66 1146.25 1090.69
  1149.66 1090.83 1152.19 1090.83  1169.3 1091.02  1169.8 1091.02 1169.88 1091.03
  1169.97 1091.03 1190.09 1091.22 1205.02  1091.2 1210.31 1091.23 1222.64 1091.02
  1230.53 1091.02 1240.26 1091.43 1250.74 1091.47 1264.86 1091.73 1270.96 1091.87
```

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 1275.49 1091.93 1291.18 1092.28  1293.1 1092.28 1306.17 1092.38 1310.72 1092.42
  1311.4 1092.42 1312.29 1092.42 1331.61 1092.34 1345.95 1092.23 1351.83  1092.3
 1363.57 1092.41 1372.05 1092.46 1381.17 1092.71 1392.26 1092.62 1398.79 1092.38
 1412.48 1092.35 1427.17 1092.38

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
       0     .03  118.59     .03  268.58    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        118.59  268.58            200.2     200  235.01             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1092.52  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.52  * Reach Len. (ft)         *  200.20  *  200.00  *  235.01  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  971.74  * 1886.17  * 6035.89  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  971.74  * 1886.17  * 6035.89  *
* Q Total (cfs)           *  855.96  * Flow (cfs)              *  125.78  *  328.21  *  401.98  *
* Top Width (ft)          * 1406.30  * Top Width (ft)          *  118.59  *  149.99  * 1137.72  *
* Vel Total (ft/s)        *    0.10  * Avg. Vel. (ft/s)        *    0.13  *    0.17  *    0.07  *
* Max Chl Dpth (ft)       *   14.03  * Hydr. Depth (ft)        *    8.19  *   12.58  *    5.31  *
* Conv. Total (cfs)       *1314194.0  * Conv. (cfs)            *193114.4  *503908.6  *617171.4  *
* Length Wtd. (ft)        *  212.94  * Wetted Per. (ft)        *  120.91  *  150.57  * 1137.97  *
* Min Ch El (ft)          * 1078.49  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.74  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1992.33  * 9314.16  *11326.23  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  142.88  *  423.95  * 1555.41  *
**********************************************************************************************

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: FRS
REACH: FRS1                RS: 34099.98

INPUT
Description: CP-0
Station Elevation Data    num=     120
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
       0 1090.37    4.79 1089.96   13.72 1089.81   28.52 1086.02   33.93 1084.62
   37.95 1083.85   123.4 1082.62  135.02 1082.67  138.62  1081.9  147.12 1080.09
  155.24 1078.54  161.25 1078.36  175.45 1078.18  194.56 1077.87  195.67 1077.85
  202.03 1077.89  215.89 1077.97  296.75 1078.41  313.16 1078.31  316.97 1078.31
  336.89 1078.51  337.19 1078.52  338.91 1078.61  357.41 1079.51  360.61 1080.03
  377.62 1083.65  579.79  1086.1  597.82 1086.24  600.01 1086.26  601.64 1086.27
  612.65  1086.4  620.23  1086.5  621.53 1086.51  640.44  1086.7  654.47 1086.84
  660.66 1086.86  672.09 1086.99  680.88 1087.05   692.7 1087.18  701.09 1087.27
  716.42 1087.41  721.31 1087.46  724.94 1087.48  741.53 1087.59  742.55  1087.6
  749.52 1087.63  760.17 1087.68  761.75 1087.68  777.79 1087.76  781.96 1087.77
   795.4 1087.88  802.18 1087.93  813.02 1088.04   822.4 1088.16  830.63 1088.24
  842.61  1088.4  848.25 1088.45  862.83 1088.59  882.46 1088.79  883.05 1088.79
  883.47 1088.79  886.39 1088.83  901.09 1088.97  903.26    1089  906.19 1089.03
  923.48 1089.19   929.9 1089.24   943.7 1089.33  953.62 1089.41  963.92 1089.47
  977.34 1089.56  984.13 1089.59 1001.07 1089.67 1004.35 1089.68 1023.27 1089.76
 1024.39 1089.76 1024.57 1089.77 1024.79 1089.77 1044.78 1089.97 1059.62 1090.12
    1065 1090.19 1077.24 1090.36 1085.22 1090.46 1094.85  1090.6 1105.44 1090.74
 1112.47 1090.79 1125.65 1090.85 1143.39  1090.9 1145.87  1090.9  1147.7 1090.92
 1160.14 1091.01 1165.32 1091.05 1166.09 1091.05 1167.11 1091.06  1186.3 1091.28
 1200.55 1091.41 1206.52 1091.47 1214.56 1091.53 1226.74  1091.6 1235.77 1091.66
 1246.95 1091.73    1262  1091.9 1267.17 1091.95 1271.01 1091.98 1287.39 1092.21
 1297.01 1092.31 1307.61  1092.4 1309.43 1092.42 1327.82 1092.53 1333.16 1092.55
 1348.04  1092.6 1356.87 1092.66 1368.26 1092.73  1380.6 1092.85 1388.47 1092.93
 1394.32    1093 1408.69 1093.13 1428.04 1093.24 1428.91 1093.25 1429.05 1093.25

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
       0     .03  135.02     .03  377.62    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        135.02  377.62            198.51     200  235.57             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1092.52  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.52  * Reach Len. (ft)         *  198.51  *  200.00  *  235.57  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1083.10  * 3343.09  * 3930.15  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 1083.10  * 3343.09  * 3930.15  *
* Q Total (cfs)           *  594.67  * Flow (cfs)              *   84.23  *  377.35  *  133.08  *
* Top Width (ft)          * 1325.80  * Top Width (ft)          *  135.02  *  242.60  *  948.18  *
* Vel Total (ft/s)        *    0.07  * Avg. Vel. (ft/s)        *    0.08  *    0.11  *    0.03  *
* Max Chl Dpth (ft)       *   14.67  * Hydr. Depth (ft)        *    8.02  *   13.78  *    4.14  *
* Conv. Total (cfs)       *1496275.0  * Conv. (cfs)            *211945.7  *949474.8  *334854.9  *
* Length Wtd. (ft)        *  208.85  * Wetted Per. (ft)        *  137.92  *  243.48  *  948.23  *
* Min Ch El (ft)          * 1077.85  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.82  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1987.61  * 9302.16  *11299.35  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  142.30  *  423.05  * 1549.78  *
**********************************************************************************************

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: FRS
REACH: FRS1                RS: 33899.98

INPUT
Description:
Station Elevation Data    num=     127
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
   10.19 1090.73   23.52 1087.53   30.34  1085.9   31.26 1085.71  110.92 1082.32
```

```
 122.88 1082.27  131.06 1082.26  133.16 1081.91  145.79 1079.78   151.2    1079
 168.69 1078.09  171.35 1077.88   190.7  1077.3  191.49 1077.28   191.6 1077.28
 211.64 1077.15   214.5  1077.2  231.78 1077.61  237.41 1077.96  251.93  1079.2
 260.31 1081.03  272.07 1083.97  329.02 1084.56  332.51  1084.5  351.93 1084.56
 352.65 1084.57  357.89 1084.63   372.8 1084.82  374.83 1084.84  392.94 1085.15
 397.74 1085.16  413.09 1085.39  420.64 1085.45  433.23  1085.6   443.1 1085.71
 453.38 1085.87  461.08 1085.98  473.52 1086.21  489.35 1086.56  493.66 1086.65
 512.26 1087.07  513.81  1087.1  525.07 1087.32  533.95 1087.49  550.98 1087.76
  554.1 1087.82  558.07 1087.87  574.24 1088.02  580.97 1088.02  594.39 1087.98
 603.88 1087.98  614.53 1087.95  622.88 1087.99  634.68    1088  649.69 1088.09
 654.82 1088.16  672.59 1088.42  674.97 1088.46  692.26  1088.8   694.8 1088.85
 695.11 1088.85  712.78 1089.18  715.26 1089.23  730.76 1089.44   735.4 1089.51
  741.3 1089.59  755.55 1089.75  764.21 1089.83  775.69 1089.94   784.7 1090.02
 795.83 1090.09  802.67 1090.13  815.98 1090.16  820.65 1090.18  836.12 1090.17
 855.83 1090.19  856.27 1090.19  859.45  1090.2  874.58 1090.24  876.41 1090.24
 892.56 1090.36  896.56 1090.38  910.54  1090.5   916.7 1090.54  928.52 1090.64
 936.85 1090.74   946.5 1090.83  956.99 1090.98  964.48 1091.06  977.14 1091.22
 993.25 1091.36  997.28 1091.39 1016.16 1091.51 1017.43 1091.52 1026.63 1091.58
1036.39 1091.63 1037.57 1091.63 1039.06 1091.64 1057.72 1091.71 1072.35 1091.76
1077.86 1091.78 1084.87  1091.8 1098.01 1091.85 1108.31 1091.86 1118.15 1091.87
1130.68 1091.89 1138.29  1091.9 1144.26  1091.9 1158.44 1091.91 1176.49 1091.94
1178.58 1091.94 1193.82 1092.02 1198.19 1092.05 1198.73 1092.06 1199.39 1092.06
1218.87 1092.24 1234.15 1092.39 1239.02 1092.45  1245.2 1092.52 1259.16 1092.68
1270.11 1092.84 1279.31 1092.93 1291.01 1093.04 1299.45 1093.14 1306.07 1093.21
 1319.6 1093.33 1331.62 1093.43

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
   10.19     .03  131.06     .03  272.07    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        131.06  272.07              200     200  201.67            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.52  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.02  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  200.00  *  200.00  *  201.67  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  971.74  * 1941.65  * 3414.84  *
* E.G. Slope (ft/ft)      *0.000024  * Area (sq ft)            *  971.74  * 1941.65  * 3414.84  *
* Q Total (cfs)           * 4945.43  * Flow (cfs)              *  941.31  * 2716.42  * 1287.70  *
* Top Width (ft)          * 1232.89  * Top Width (ft)          *  120.87  *  141.01  *  971.01  *
* Vel Total (ft/s)        *    0.78  * Avg. Vel. (ft/s)        *    0.97  *    1.40  *    0.38  *
* Max Chl Dpth (ft)       *   15.35  * Hydr. Depth (ft)        *    8.04  *   13.77  *    3.52  *
* Conv. Total (cfs)       *1001434.0 * Conv. (cfs)             *190613.3  *550065.6  *260755.3  *
* Length Wtd. (ft)        *  200.43  * Wetted Per. (ft)        *  123.30  *  141.94  *  971.07  *
* Min Ch El (ft)          * 1077.15  * Shear (lb/sq ft)        *    0.01  *    0.02  *    0.01  *
* Alpha                   *    2.11  * Stream Power (lb/ft s)  *    0.01  *    0.03  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1982.93  * 9290.02  *11279.49  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  141.72  *  422.17  * 1544.59  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 33699.98

INPUT
Description:
Station Elevation Data     num=     136
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
   10.64 1091.13    11.2    1091     15.9 1089.85    30.78 1086.22    32.81 1085.78
   50.93 1081.62   55.72 1081.69    71.07 1081.98    78.62 1082.14    91.21 1082.43
  101.53  1082.6  111.36 1082.76   124.43 1082.58    131.5 1082.48   137.29 1081.68
  147.34 1080.29  151.65 1079.73   170.24 1078.02   171.79 1077.87   183.09 1077.39
  191.94 1077.02  193.15 1077.02   212.08 1076.98   216.05 1077.12   232.23 1077.54
  238.96 1078.02  252.37 1078.61   261.86 1081.19   312.81 1084.02   330.57 1083.83
  332.95 1083.72  350.28 1083.98    353.1 1084.02   353.48 1084.03   373.24 1084.35
  388.74 1084.59  393.39 1084.64   406.72 1084.84   413.53 1084.92   422.19 1085.02
  433.67 1085.18   445.1 1085.34   453.82 1085.47      468 1085.76   473.96 1085.88
   490.9 1086.26  494.11 1086.33   513.81 1086.73   514.25 1086.74    514.6 1086.74
  517.47 1086.79  532.57 1087.05    534.4 1087.08   550.55  1087.3   554.54 1087.34
  559.62 1087.41  574.69 1087.59   582.52 1087.68   594.83 1087.81   604.49 1087.84
  614.98 1087.87  622.46 1087.84   635.12  1087.8   651.24  1087.8   655.27 1087.78
  674.14  1087.9  675.41 1087.91    676.4 1087.92   684.66 1087.99   695.55 1088.08
  697.05  1088.1   715.7 1088.26   730.33 1088.38   735.84 1088.42   748.31 1088.54
  755.99  1088.6  766.29  1088.7   776.13 1088.82   784.27 1088.89   796.28 1089.04
  802.25 1089.09  816.42 1089.25   834.47 1089.44   836.57 1089.45   851.84 1089.59
  856.19 1089.62  856.71 1089.63   874.16 1089.74   876.86 1089.77   880.28 1089.79
     897 1089.88  903.19  1089.9   917.15 1089.95   926.09 1089.98   937.29 1090.01
  948.99 1090.09  957.44 1090.15    971.9 1090.34   977.58 1090.41    994.8 1090.67
  997.72 1090.71 1017.71    1091  1017.87    1091  1019.03 1091.02  1038.01 1091.25
 1053.95 1091.38 1058.16 1091.43  1063.52 1091.46   1078.3 1091.54  1089.91  1091.6
 1098.45 1091.65 1109.33 1091.74  1118.59 1091.81  1125.86 1091.88  1138.74    1092
 1155.14 1092.15 1158.88 1092.18  1178.04 1092.32  1179.03 1092.33  1186.22 1092.38
 1199.17 1092.48 1215.75 1092.67  1219.32 1092.71  1223.85 1092.78  1239.46    1093
 1251.71 1093.15 1259.61 1093.24  1269.66 1093.32  1279.75  1093.4  1287.67 1093.46
 1299.89 1093.54 1315.47 1093.69  1320.04 1093.74  1323.63 1093.78  1340.18 1093.99
 1345.94 1094.06

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
   10.64     .03   131.5     .03  312.81    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          131.5  312.81           200.07     200  200.15            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  200.07  *  200.00  *  200.15  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1071.04  * 2340.72  * 3496.25  *
* E.G. Slope (ft/ft)      *0.000017  * Area (sq ft)            * 1071.04  * 2340.72  * 3496.25  *
* Q Total (cfs)           * 4676.89  * Flow (cfs)              *  912.81  * 2591.60  * 1172.48  *
* Top Width (ft)          * 1190.11  * Top Width (ft)          *  120.86  *  181.31  *  887.94  *
* Vel Total (ft/s)        *    0.68  * Avg. Vel. (ft/s)        *    0.85  *    1.11  *    0.34  *
* Max Chl Dpth (ft)       *   15.52  * Hydr. Depth (ft)        *    8.86  *   12.91  *    3.94  *
```

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* Conv. Total (cfs)       *1148241.0  * Conv. (cfs)            *224107.6  *636273.8  *287859.1  *
* Length Wtd. (ft)        *  200.06   * Wetted Per. (ft)       *  123.35  *  182.06  *  888.00  *
* Min Ch El (ft)          * 1076.98   * Shear (lb/sq ft)       *    0.01  *    0.01  *    0.00  *
* Alpha                   *    1.85   * Stream Power (lb/ft s) *    0.01  *    0.01  *    0.00  *
* Frctn Loss (ft)         *    0.00   * Cum Volume (acre-ft)   * 1978.24  * 9280.19  *11263.49  *
* C & E Loss (ft)         *           * Cum SA (acres)         *  141.16  *  421.43  * 1540.29  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 33499.98

INPUT
Description:
Station Elevation Data    num=     144
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
    7.05 1091.08   24.73 1087.81   27.19 1087.28   42.71 1084.03   47.34 1083.01
   53.23 1082.94   67.48 1082.48   76.14 1082.61   87.63 1082.74   99.04 1082.82
  107.77 1082.93  121.95 1082.57  127.92 1082.48  131.29    1082  132.59 1081.82
  148.06  1079.7  150.57 1079.42  168.21 1077.76  168.55 1077.74  171.45 1077.61
  188.35 1076.83  190.66 1076.83   208.5 1076.69  213.56 1076.78  228.64 1077.05
  236.47 1077.33  248.79 1077.75  259.37 1080.27  268.93  1082.3   373.9 1085.27
   389.8 1085.24   396.8 1085.14  409.94 1085.02   419.7 1084.94  430.09 1084.92
  442.61 1084.97  450.23 1085.02  465.51 1085.18  470.38 1085.22  488.42 1085.38
  490.52  1085.4  492.16 1085.41  505.83 1085.47  510.67  1085.5  511.32  1085.5
  530.81 1085.55  534.23 1085.55  550.96 1085.66  557.13  1085.7   571.1 1085.87
  580.04 1085.97  591.25 1086.12  602.94 1086.29  611.39 1086.39  618.01 1086.47
  631.54 1086.69  635.99 1086.74  651.68 1086.96  653.97 1086.98  671.82  1087.2
  671.95  1087.2  673.01 1087.21  689.92 1087.39  691.97 1087.41   707.9 1087.55
  712.11 1087.59  725.88 1087.69  732.26 1087.74  743.86 1087.81   752.4 1087.86
  761.84 1087.91  772.55 1087.97  779.82 1088.01  792.69 1088.08   797.8 1088.11
  812.84  1088.2  815.78 1088.22  832.98 1088.35  833.76 1088.36   840.2 1088.42
  853.13 1088.53  854.89 1088.54  873.27  1088.7  877.79 1088.73  893.42 1088.87
   900.7 1088.93  913.56 1089.04   923.6 1089.14   933.7 1089.23  946.51 1089.36
  953.85 1089.43  969.41 1089.61  973.99 1089.66  992.32  1089.9  994.14 1089.92
 1007.39  1090.1 1014.28 1090.19 1031.52 1090.35 1034.43 1090.38 1038.13 1090.41
 1054.57 1090.48 1067.48 1090.51 1074.72 1090.55 1083.93 1090.62 1094.86 1090.65
 1103.43 1090.69 1115.01 1090.83 1129.74 1090.95 1135.15 1090.99 1139.38 1091.02
  1155.3 1091.06 1174.57 1091.17 1175.44 1091.18 1193.32 1091.36 1195.59 1091.38
 1198.46 1091.41 1215.73 1091.62 1229.28 1091.72 1235.87 1091.78 1244.27 1091.85
 1256.02 1091.87 1265.24 1091.89 1276.16 1091.97 1290.07 1091.96 1296.31 1091.98
 1301.19 1092.04 1316.45 1092.07 1335.88 1092.46  1336.6 1092.48 1337.15 1092.48
 1341.77 1092.55 1356.74 1092.74 1358.79 1092.76 1376.89 1092.96 1391.09 1093.14
 1397.03 1093.24 1409.06 1093.39 1417.18  1093.5  1427.5 1093.63 1437.32 1093.75
 1450.41 1093.91 1457.47 1093.99 1473.31 1094.19 1475.19 1094.21

Manning's n Values        num=      3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    7.05     .03  127.92     .03  268.93    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        127.92  268.93            200.04     200  200.15             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  200.04  *  200.00  *  200.15  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1001.34  * 1999.83  * 4687.79  *
* E.G. Slope (ft/ft)      *0.000014  * Area (sq ft)            * 1001.34  * 1999.83  * 4687.79  *
* Q Total (cfs)           * 4437.28  * Flow (cfs)              *  745.94  * 2149.71  * 1541.63  *
* Top Width (ft)          * 1331.36  * Top Width (ft)          *  120.87  *  141.01  * 1069.48  *
* Vel Total (ft/s)        *    0.58  * Avg. Vel. (ft/s)        *    0.74  *    1.07  *    0.33  *
* Max Chl Dpth (ft)       *   15.81  * Hydr. Depth (ft)        *    8.28  *   14.18  *    4.38  *
* Conv. Total (cfs)       *1193250.0  * Conv. (cfs)            *200594.6  *578089.4  *414565.5  *
* Length Wtd. (ft)        *  200.06  * Wetted Per. (ft)        *  123.11  *  141.84  * 1069.56  *
* Min Ch El (ft)          * 1076.69  * Shear (lb/sq ft)        *    0.01  *    0.01  *    0.00  *
* Alpha                   *    2.07  * Stream Power (lb/ft s)  *    0.01  *    0.01  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1973.48  * 9270.23  *11244.69  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  140.61  *  420.69  * 1535.79  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 33299.98

INPUT
Description:
Station Elevation Data    num=     160
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
    3.03 1091.11   19.84 1089.04   23.18 1088.52   37.82 1085.76   43.32 1084.77
   50.32 1083.99   63.47  1082.2   73.23 1082.19   83.61 1082.12   96.13  1082.2
  103.75  1082.2  109.73 1082.15   123.9  1081.9   129.3 1081.45  141.94 1080.41
  144.04 1080.34  145.69 1080.02  159.38 1078.17  164.19 1077.51  164.84 1077.48
  184.33 1076.65  187.75 1076.62  204.48 1076.41   217.6 1076.54  224.62 1076.62
  235.58 1076.93  244.77  1077.2  253.56 1078.54  264.91 1080.65  325.18  1083.9
  325.35 1083.89  326.58 1083.89  345.49 1083.77  348.08 1083.77  365.64 1083.78
  370.98 1083.81  385.78  1083.9  393.89 1083.94  405.93 1083.97  415.36 1083.95
  426.07 1084.01  433.34 1084.06  446.21  1084.2   462.6  1084.4  466.36 1084.45
   469.3  1084.5   486.5 1084.66  487.28 1084.67  493.76 1084.72  506.65 1084.83
  523.24 1085.02  526.79 1085.05  541.22  1085.2  546.94 1085.26   559.2 1085.34
  567.08  1085.4  577.18 1085.44  587.23  1085.5  595.15 1085.54  607.37 1085.65
  622.93 1085.83  627.52 1085.87   631.1  1085.9  647.66 1086.08  649.08  1086.1
  660.95 1086.22  667.81 1086.29  668.74 1086.29  687.95 1086.48  691.65 1086.52
   708.1 1086.66  714.55 1086.72  728.24 1086.83  737.46 1086.91  748.38 1087.01
  760.36 1087.11  768.53 1087.18  783.26 1087.27  788.67 1087.31  792.91 1087.35
  808.82 1087.46  810.89 1087.48  828.13 1087.62  828.96 1087.63  829.07 1087.63
  849.11  1087.8  851.98 1087.83  869.25 1087.99   882.8 1088.12   889.4  1088.2
  897.79  1088.3  909.54 1088.43  918.76 1088.53  929.69 1088.62   943.6 1088.72
  949.83 1088.77   966.5 1088.91  969.98 1088.94  989.41 1089.15  990.12 1089.15
  990.67 1089.16  995.32  1089.2 1008.65 1089.33 1010.27 1089.34 1012.31 1089.36
 1030.41 1089.47 1044.61 1089.55 1050.56 1089.59 1058.12 1089.64  1070.7 1089.74
 1080.57 1089.83 1090.84 1089.92 1103.93 1090.05 1110.99 1090.13 1116.53 1090.19
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 1131.13 1090.37 1149.74 1090.59 1151.28 1090.61 1152.48 1090.63 1162.51 1090.74
 1171.42 1090.83 1172.64 1090.85 1191.57 1091.04 1195.55 1091.08 1211.71 1091.24
 1218.45  1091.3 1231.86 1091.43 1241.35  1091.5    1252 1091.59 1264.26 1091.68
 1272.15 1091.71 1287.16 1091.84 1292.29 1091.86 1310.07 1092.02 1312.43 1092.03
 1329.69  1092.2 1332.27 1092.22 1332.58 1092.22 1332.97 1092.23 1352.72  1092.4
 1368.23 1092.52 1372.87 1092.55 1386.21 1092.63 1393.01 1092.65 1404.17 1092.72
 1413.16 1092.76 1424.59 1092.84  1433.3 1092.91 1447.49 1093.09 1453.45 1093.15
  1470.4  1093.4 1473.59 1093.44  1493.3  1093.7 1493.74  1093.7 1496.88 1093.73
 1513.88 1093.88 1530.03    1094 1534.03 1094.03 1539.11 1094.09 1539.23 1094.09

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
    3.03     .03   123.9     .03  264.91    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         123.9  264.91            200.39     200  200.24              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  200.39  *  200.00  *  200.24  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  978.04  * 2048.06  * 5434.73  *
* E.G. Slope (ft/ft)      *0.000010  * Area (sq ft)            *  978.04  * 2048.06  * 5434.73  *
* Q Total (cfs)           * 4182.07  * Flow (cfs)              *  613.70  * 1914.35  * 1654.02  *
* Top Width (ft)          * 1362.61  * Top Width (ft)          *  120.87  *  141.01  * 1100.73  *
* Vel Total (ft/s)        *    0.49  * Avg. Vel. (ft/s)        *    0.63  *    0.93  *    0.30  *
* Max Chl Dpth (ft)       *   16.09  * Hydr. Depth (ft)        *    8.09  *   14.52  *    4.94  *
* Conv. Total (cfs)       *1315553.0  * Conv. (cfs)            *193051.5  *602196.9  *520304.9  *
* Length Wtd. (ft)        *  200.15  * Wetted Per. (ft)        *  122.94  *  141.60  * 1100.86  *
* Min Ch El (ft)          * 1076.41  * Shear (lb/sq ft)        *    0.01  *    0.01  *    0.00  *
* Alpha                   *    2.02  * Stream Power (lb/ft s)  *    0.00  *    0.01  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1968.94  * 9260.94  *11221.43  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  140.05  *  420.04  * 1530.80  *
**********************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                 RS: 33099.98

INPUT
Description:
Station Elevation Data     num=      156
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
       0 1090.76     .99 1090.63   18.44    1089   32.15 1085.63   38.58 1083.99
   50.13  1081.8   58.73 1080.72   69.66 1080.73   78.87 1080.79    86.1 1080.85
   99.02 1080.94  104.08 1080.95  119.16 1080.97  122.07 1080.88   139.3 1080.32
  140.59  1080.1  146.37  1079.1  158.04 1077.09  159.45 1076.84  161.23 1076.79
  179.58 1076.26  184.11 1076.22  199.73 1076.05  207.01 1076.18  219.88 1076.41
   229.9 1076.84  240.02 1077.24  252.79 1078.51  260.16 1079.15  275.68 1081.31
  280.31 1081.91  340.74 1082.37  355.88 1082.69  360.88 1082.79  373.85 1083.15
  381.02 1083.29  391.84  1083.5  401.17 1083.62  409.83 1083.73  421.31 1083.84
  435.92 1083.95  441.46    1084  458.81 1084.11   461.6 1084.12   481.7 1084.27
  481.74 1084.27  482.02 1084.27  499.75 1084.44  501.89 1084.47  517.74 1084.62
  522.03 1084.67  535.73 1084.76  542.17 1084.81  553.71 1084.86  562.32  1084.9
  571.69 1084.97  582.46 1085.05  589.68 1085.15   602.6  1085.3  607.66 1085.37
  622.75 1085.55  625.65 1085.58  642.89 1085.75  643.64 1085.76  649.84 1085.81
  663.03 1085.93  664.83 1085.94  683.18 1086.06  687.72 1086.08  703.32 1086.14
  710.61 1086.17  723.47 1086.23  733.56 1086.33  743.61 1086.41  756.39 1086.56
  763.75 1086.66  779.28 1086.84   783.9  1086.9  802.18 1087.06  804.04 1087.08
  817.67  1087.2  823.48 1087.25  824.18 1087.26  825.07 1087.27  844.33 1087.46
  859.46 1087.63  864.47 1087.69  870.85 1087.76  884.61 1087.92  895.42 1088.05
  904.76 1088.15  916.63 1088.28   924.9 1088.36  931.39 1088.42  945.04 1088.54
  962.41  1088.7  965.19 1088.72  967.36 1088.74  985.33 1088.89  985.49 1088.89
 1005.48 1089.03 1021.32 1089.15 1025.62 1089.18 1031.09 1089.23 1045.76 1089.35
 1053.98 1089.43 1065.91 1089.55 1076.86 1089.65 1086.05 1089.74 1093.25  1089.8
 1106.19 1089.91 1122.65 1090.06 1126.34 1090.09 1129.23 1090.12 1146.48 1090.31
 1153.32  1090.4 1166.62 1090.57 1183.18 1090.72 1186.77 1090.77 1201.16 1090.81
 1206.91 1090.84 1214.21 1090.86 1227.05 1090.87 1237.11 1090.92  1247.2 1090.94
    1260 1091.05 1267.34  1091.1 1282.89 1091.26 1287.49  1091.3 1305.78 1091.52
 1307.63 1091.55 1321.15 1091.71 1327.77 1091.78 1345.05 1091.93 1347.92 1091.95
 1363.02 1092.02 1368.06 1092.04 1381.01 1092.11  1388.2 1092.15 1397.35 1092.25
 1408.35 1092.37 1416.98 1092.48 1428.49 1092.63 1434.97 1092.71 1448.63 1092.87
 1452.95 1092.91 1468.78 1093.08 1488.91  1093.3 1488.92  1093.3 1488.97  1093.3
 1506.91 1093.51 1509.06 1093.53  1511.8 1093.56 1529.21 1093.75 1534.69 1093.79
 1544.92 1093.89

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
       0     .03  119.16     .03  280.31    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         119.16  280.31            200.06     200  200.25              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  200.06  *  200.00  *  200.25  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1080.59  * 2341.36  * 5688.37  *
* E.G. Slope (ft/ft)      *0.000007  * Area (sq ft)            * 1080.59  * 2341.36  * 5688.37  *
* Q Total (cfs)           * 3910.58  * Flow (cfs)              *  611.18  * 1835.94  * 1463.45  *
* Top Width (ft)          * 1418.59  * Top Width (ft)          *  119.16  *  161.15  * 1138.28  *
* Vel Total (ft/s)        *    0.43  * Avg. Vel. (ft/s)        *    0.57  *    0.78  *    0.26  *
* Max Chl Dpth (ft)       *   16.45  * Hydr. Depth (ft)        *    9.07  *   14.53  *    5.00  *
* Conv. Total (cfs)       *1467043.0  * Conv. (cfs)            *229282.7  *688749.3  *549011.3  *
* Length Wtd. (ft)        *  200.11  * Wetted Per. (ft)        *  121.87  *  161.77  * 1138.34  *
* Min Ch El (ft)          * 1076.05  * Shear (lb/sq ft)        *    0.00  *    0.01  *    0.00  *
* Alpha                   *    1.97  * Stream Power (lb/ft s)  *    0.00  *    0.01  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1964.20  * 9250.86  *11195.87  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  139.50  *  419.35  * 1525.66  *
**********************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION
```

```
RIVER: FRS
REACH: FRS1                RS: 32899.98

INPUT
Description:
Station Elevation Data     num=     133
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   13.81 1090.24   20.35 1088.67   33.95 1085.34   43.24 1083.17    54.1  1080.6
   62.62  1080.4   74.24 1080.41    80.6  1080.4   94.38 1080.47   98.58 1080.48
  114.53 1080.56  116.57 1080.53  133.64 1080.25  134.67 1080.23   134.8 1080.21
  136.01 1079.98  154.81 1076.49  157.69 1076.41  174.96 1076.03  180.59 1075.92
   195.1 1075.55  203.48 1075.75  215.24 1075.98  226.37 1076.58  235.39 1077.03
  249.26 1078.41  255.53    1079  272.15 1080.94  275.68 1081.39  276.77 1081.44
  597.97  1082.7  602.16 1083.05  618.12 1084.07  620.15 1084.15  637.11 1084.76
  638.26  1084.8  638.41 1084.81   658.4 1085.24   674.1 1085.48  678.55 1085.51
   684.2 1085.53  698.69 1085.68  710.07 1085.78  718.83 1085.84  729.97 1085.97
  738.98 1086.07  752.87 1086.21  759.12 1086.27  775.76 1086.37  779.26 1086.39
  782.01 1086.41  799.41 1086.53  804.94 1086.59  819.55 1086.74  835.97 1086.98
  839.69 1087.03  844.43 1087.09  859.84  1087.3  871.93 1087.45  879.98 1087.54
  890.21 1087.65  900.12 1087.76   907.9 1087.86  920.27    1088  935.99  1088.2
  940.41 1088.26  943.88 1088.29  960.56 1088.47  972.76 1088.54   980.7 1088.58
  997.83 1088.64 1000.84 1088.66 1015.81 1088.77 1020.99 1088.81 1027.56 1088.88
 1041.13 1089.02 1050.45 1089.12 1061.27 1089.24 1069.76 1089.31 1081.42 1089.42
 1096.23 1089.56 1101.56  1089.6 1119.13 1089.78  1121.7 1089.81 1140.59 1090.01
 1141.85 1090.03  1159.7  1090.2 1161.99 1090.22 1177.68 1090.32 1182.13 1090.34
 1195.66 1090.42 1202.28 1090.47 1210.69 1090.54 1222.42 1090.63 1233.58 1090.72
 1242.57  1090.8 1256.46 1090.89 1262.71 1090.94 1279.36 1091.05 1282.85 1091.08
 1302.25 1091.23    1303 1091.23 1303.57 1091.24 1308.41 1091.27 1321.56 1091.34
 1323.14 1091.35 1325.14 1091.36 1343.28 1091.44 1348.04 1091.48 1363.43 1091.57
 1370.92 1091.65 1383.57 1051.79  1393.5  1091.9 1403.71 1091.99 1411.48 1092.07
 1423.86 1092.15 1429.47  1092.2   1444 1092.34 1462.49 1092.48 1464.14  1092.5
 1465.43 1092.51 1476.24 1092.58 1484.29 1092.63 1485.38 1092.64 1504.43 1092.84
 1519.39 1093.05 1524.57 1093.15 1531.16 1093.23 1544.72  1093.4 1554.05 1093.47
 1564.86 1093.58 1576.95 1093.67 1581.53 1093.69

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
   13.81     .03  136.01     .03  276.77    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        136.01  276.77             200.3     200  201.19              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  200.30  *  200.00  *  201.19  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1274.78  * 2143.05  * 6593.48  *
* E.G. Slope (ft/ft)      *0.000005  * Area (sq ft)            * 1274.78  * 2143.05  * 6593.48  *
* Q Total (cfs)           * 3623.79  * Flow (cfs)              *  658.47  * 1446.66  * 1518.65  *
* Top Width (ft)          * 1450.72  * Top Width (ft)          *  122.20  *  140.76  * 1187.76  *
* Vel Total (ft/s)        *    0.36  * Avg. Vel. (ft/s)        *    0.52  *    0.68  *    0.23  *
* Max Chl Dpth (ft)       *   16.95  * Hydr. Depth (ft)        *   10.43  *   15.22  *    5.55  *
* Conv. Total (cfs)       *1628669.0 * Conv. (cfs)             *295942.2  *650186.1  *682540.9  *
* Length Wtd. (ft)        *  200.54  * Wetted Per. (ft)        *  125.63  *  141.36  * 1187.87  *
* Min Ch El (ft)          * 1075.55  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.93  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1958.79  * 9240.56  *11167.64  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  138.95  *  418.66  * 1520.31  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 32699.98

INPUT
Description:
Station Elevation Data     num=     147
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
    9.76 1091.02    17.4 1088.97    29.9 1085.87   39.71 1083.47   50.05 1080.79
    57.7 1080.16   70.19 1079.77   86.07 1079.73   90.33 1079.71   93.67 1079.72
  110.48 1079.78   121.5 1079.61  130.62 1079.46  131.86 1079.28  145.38 1077.63
  150.76 1076.97  154.75  1076.8  170.91 1075.82  177.65 1075.62  191.05 1075.17
  200.53  1075.3   211.2 1075.42  223.42 1075.88  231.34 1076.15  246.32 1077.41
  251.48 1077.95  269.21 1081.14  271.63 1081.65  277.55 1082.77  533.49  1083.2
   543.9 1083.42  553.64 1083.71  566.79 1083.87  573.78 1083.93  589.68 1084.03
  593.92 1084.07  612.58 1084.21  614.07 1084.21  624.96 1084.34  634.21 1084.44
   651.2 1084.66  654.35 1084.68  658.35 1084.71   674.5 1084.85  687.17 1084.99
  694.64 1085.07  704.14  1085.2  714.78 1085.34  723.14 1085.44  734.93 1085.59
  749.92 1085.72  755.07 1085.77  759.11  1085.8  775.21 1085.96  792.79 1086.23
  795.36 1086.26  813.07  1086.6   815.5 1086.64  818.59 1086.69  835.65 1086.96
  849.03 1087.08  855.79 1087.15  864.38 1087.21  875.93 1087.29  885.01 1087.38
  896.08 1087.48  910.16 1087.66  916.22 1087.73  920.97 1087.76  936.36  1087.9
  955.94 1087.92  956.51 1087.92  956.94 1087.92  960.62 1087.92  974.93  1087.9
  976.65 1087.91  992.92 1088.01  996.79 1088.04 1001.72  1088.1 1016.94 1088.29
 1024.61  1088.4 1037.08 1088.58 1047.51 1088.72 1057.22 1088.86  1070.4 1089.03
 1077.37 1089.13 1093.29 1089.31 1097.51 1089.36 1116.18 1089.54 1117.65 1089.55
  1118.8 1089.56 1128.44 1089.64 1136.79  1089.7  1137.8 1089.71 1154.78 1089.82
 1157.94 1089.84 1172.76 1089.94 1178.09 1089.98 1184.85 1090.03 1198.23 1090.13
 1208.73 1090.21 1218.37 1090.27 1226.71 1090.32 1238.52  1090.4  1244.7 1090.43
 1258.66 1090.54 1276.42  1090.7  1278.8 1090.71 1280.67 1090.74 1296.27 1090.91
 1298.65 1090.93 1298.95 1090.93 1299.31 1090.94 1319.09  1091.1  1322.2 1091.12
 1339.23 1091.22 1345.09 1091.29 1359.38 1091.48 1367.98 1091.57 1379.52 1091.72
 1390.87 1091.79 1399.67 1091.83 1413.77 1091.86 1419.81 1091.87 1436.66 1091.95
 1439.95 1091.99 1442.53 1092.04  1460.1 1092.36 1464.09 1092.42 1480.24 1092.66
 1496.49 1092.88 1500.38 1092.93 1505.33 1092.98 1520.53 1093.16 1532.46 1093.24
 1540.67  1093.3 1551.11 1093.37 1560.81 1093.39 1568.43 1093.42 1580.96 1093.54
 1596.89 1093.67  1601.1 1093.69 1619.78 1093.85 1621.24 1093.86 1631.92 1093.94
 1641.39 1094.02 1652.09 1094.11

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
    9.76     .03  130.62     .03  277.55    .045

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

```
        130.62  277.55            200.53     200   241.6              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  200.53  *  200.00  *  241.60  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1288.89  * 2267.09  * 6485.35  *
* E.G. Slope (ft/ft)      *0.000004  * Area (sq ft)            * 1288.89  * 2267.09  * 6485.35  *
* Q Total (cfs)           * 3286.91  * Flow (cfs)              *  602.93  * 1372.93  * 1311.05  *
* Top Width (ft)          * 1459.92  * Top Width (ft)          *  120.86  *  146.93  * 1192.13  *
* Vel Total (ft/s)        *    0.33  * Avg. Vel. (ft/s)        *    0.47  *    0.61  *    0.20  *
* Max Chl Dpth (ft)       *   17.33  * Hydr. Depth (ft)        *   10.66  *   15.43  *    5.44  *
* Conv. Total (cfs)       *1660644.0  * Conv. (cfs)            *304617.3  *693642.8  *662383.7  *
* Length Wtd. (ft)        *  214.01  * Wetted Per. (ft)        *  123.66  *  147.67  * 1192.18  *
* Min Ch El (ft)          * 1075.17  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.96  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1952.90  * 9230.44  *11137.43  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  138.39  *  418.00  * 1514.82  *
*****************************************************************************************

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: FRS
REACH: FRS1                RS: 32499.98

INPUT
Description:
Station Elevation Data    num=     173
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
    7.59 1090.22   18.69 1088.15   27.74 1086.29   39.24 1083.84   47.88 1082.05
   54.67 1081.06   68.03 1079.59   72.65 1079.46   88.17 1079.08  107.91 1078.97
  108.31 1078.97  108.62 1078.97  111.23 1078.89   126.6 1078.43  128.46 1078.38
   130.8 1078.19   133.2 1078.02   148.6 1076.91  162.58 1075.94  168.74 1075.56
  176.58 1075.28  188.89 1074.83  198.55 1074.79  209.03 1074.81  222.36  1074.8
  229.17 1074.79  245.26 1074.86  249.32 1074.88   252.5 1074.91  269.46 1075.03
  279.06 1075.11   289.6 1075.19  306.46 1075.34  309.75 1075.36  324.44 1075.55
  329.89  1075.6  336.82 1075.73  350.04 1076.08  360.41 1076.67  370.18 1076.97
   378.4 1077.79  390.32 1078.97  405.49 1080.86   406.1 1080.91  410.47 1081.24
  414.36 1081.39  430.61 1081.81  446.88 1082.09  450.75 1082.16  468.32 1082.24
   470.9 1082.27  474.17  1082.3  491.04 1082.37  497.06 1082.45  511.18  1082.6
  522.27 1082.74  531.33 1082.88  542.84 1082.96  551.47 1083.02  558.24 1083.08
  571.61 1083.09  588.62  1083.4  591.76 1083.43  594.22 1083.47   611.9 1083.61
   614.7 1083.62  632.05 1083.64   634.4 1083.68  652.19 1083.85  666.15 1084.02
  672.33 1084.13  680.19 1084.25  692.48 1084.43  703.08 1084.61  712.62  1084.8
  725.96 1084.98  732.76 1085.08  748.86 1085.11  752.91 1085.13  771.75 1085.14
  773.05 1085.15  782.53 1085.16  792.04 1085.17  793.19 1085.17  794.64 1085.18
  813.34 1085.28  828.01 1085.41  833.48 1085.43     846 1085.55  853.62 1085.62
  863.31 1085.71  873.77 1085.78  881.97 1085.84  893.91 1085.97  899.95 1086.04
  914.05 1086.29  931.99 1086.64   934.2 1086.68  935.92 1086.71  950.35 1086.97
  954.34 1087.04  954.88 1087.05  974.49 1087.31  977.75 1087.34  994.63 1087.51
 1000.66 1087.56 1014.77 1087.68 1023.55 1087.74 1034.92 1087.84 1046.45 1087.94
 1055.06 1088.03 1069.33 1088.16  1075.2 1088.22 1092.22 1088.39 1095.35 1088.41
 1115.12 1088.58 1115.49 1088.59 1118.18  1088.6 1133.76  1088.7 1135.63 1088.71
 1138.01 1088.73 1155.78 1088.83  1160.9 1088.87 1175.92 1088.96 1187.72 1089.06
 1196.06  1089.1 1206.68 1089.18 1216.21 1089.27 1229.57 1089.42 1236.35  1089.5
 1241.67 1089.56 1256.49 1089.75 1275.36 1089.98 1276.64 1089.99    1286 1090.09
 1296.78  1090.2 1313.61 1090.36 1316.92 1090.39 1331.59 1090.52 1337.07 1090.57
 1344.03 1090.62 1357.21 1090.72 1367.57 1090.81 1377.36 1090.89 1385.54 1090.98
  1397.5 1091.11  1412.7 1091.28 1417.64 1091.33 1421.52 1091.37 1437.79 1091.53
  1439.5 1091.55 1453.83 1091.67 1457.49  1091.7 1457.93 1091.71 1458.48 1091.71
 1478.07 1091.91 1481.38 1091.95 1498.22 1092.16 1511.44 1092.31 1518.36 1092.39
 1527.15 1092.47  1538.5 1092.56 1550.05 1092.63 1558.65 1092.69  1565.4 1092.75
 1578.79 1092.84 1595.83    1093 1598.93 1093.03 1618.73 1093.24 1619.08 1093.25
 1619.35 1093.25 1621.66 1093.28  1624.4 1093.31

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    7.59     .03   133.2     .03   406.1    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          133.2   406.1             208.1     200  227.31             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  208.10  *  200.00  *  227.31  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1373.16  * 4518.18  * 6173.14  *
* E.G. Slope (ft/ft)      *0.000001  * Area (sq ft)            * 1373.16  * 4518.18  * 6173.14  *
* Q Total (cfs)           * 2927.26  * Flow (cfs)              *  399.01  * 1760.02  *  768.23  *
* Top Width (ft)          * 1523.85  * Top Width (ft)          *  125.61  *  272.90  * 1125.34  *
* Vel Total (ft/s)        *    0.24  * Avg. Vel. (ft/s)        *    0.29  *    0.39  *    0.12  *
* Max Chl Dpth (ft)       *   17.71  * Hydr. Depth (ft)        *   10.93  *   16.56  *    5.49  *
* Conv. Total (cfs)       *2415757.0  * Conv. (cfs)            *329291.0  *1452476.0  *633989.5  *
* Length Wtd. (ft)        *  209.97  * Wetted Per. (ft)        *  128.90  *  273.25  * 1125.42  *
* Min Ch El (ft)          * 1074.79  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.81  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1946.77  * 9214.86  *11102.33  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  137.82  *  417.03  * 1508.39  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 32299.98

INPUT
Description:
Station Elevation Data    num=     175
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
       0 1090.45    11.4 1089.67   20.01  1088.7   33.8 1085.52   40.54 1083.92
   60.51  1079.9   61.07 1079.77   61.41 1079.76   62.92 1079.69   78.09 1079.02
```

81.6	1078.88	94.76	1078.74	102.13	1078.69	113.93	1078.62	122.66	1078.6
128.1	1078.53	136.7	1078.01	143.19	1077.61	151.63	1076.52	163.72	1075.1
167.35	1075	184.24	1074.64	194.06	1074.58	204.77	1074.44	220.77	1074.73
225.3	1074.81	240.33	1075.44	245.83	1075.67	247.48	1075.89	266.36	1078.34
274.19	1078.78	286.89	1079.65	294.8	1079.87	307.42	1080.19	319.52	1080.34
327.61	1080.44	327.94	1080.44	328.15	1080.44	329.04	1080.46	344.82	1080.68
348.47	1080.74	354.31	1080.82	369	1080.99	378.16	1081.07	389.53	1081.22
394.83	1081.25	410.06	1081.38	417.75	1081.42	428.17	1081.5	430.59	1081.51
444.85	1081.61	451.12	1081.62	461.16	1081.65	471.64	1081.78	478.18	1081.87
492.17	1081.99	494.85	1082.02	506.45	1082.14	512.7	1082.22	514.58	1082.23
533.23	1082.4	541.29	1082.45	553.76	1082.54	568	1082.66	574.29	1082.72
594.7	1083.01	594.82	1083.01	595.16	1083.02	615.34	1083.37	621.42	1083.44
635.87	1083.65	648.13	1083.82	656.4	1083.95	674.84	1084.25	676.93	1084.29
683.86	1084.41	697.46	1084.62	701.55	1084.65	717.99	1084.83	728.26	1084.87
738.52	1084.92	754.97	1085.03	759.05	1085.05	772.56	1085.15	778.25	1085.22
779.57	1085.23	781.68	1085.25	800.1	1085.42	811.6	1085.54	820.63	1085.6
828.27	1085.65	841.16	1085.78	844.94	1085.79	861.27	1085.91	861.69	1085.91
861.81	1085.92	882.22	1086.11	888.52	1086.18	902.75	1086.33	915.23	1086.46
923.27	1086.54	941.94	1086.75	943.8	1086.77	949.98	1086.86	964.33	1087.07
968.64	1087.13	984.86	1087.36	994.97	1087.45	1005.39	1087.55	1022.07	1087.64
1025.92	1087.66	1038.69	1087.78	1046.45	1087.85	1061.66	1088	1066.97	1088.05
1078.33	1088.14	1087.5	1088.24	1102.2	1088.39	1108.03	1088.44	1111.66	1088.47
1127.39	1088.62	1128.56	1088.63	1145	1088.76	1149.09	1088.8	1155.62	1088.85
1169.62	1088.96	1182.33	1089.08	1190.15	1089.14	1195.02	1089.18	1210.68	1089.32
1216.09	1089.37	1231.2	1089.51	1235.75	1089.55	1251.73	1089.71	1262.46	1089.82
1272.26	1089.93	1289.17	1090.15	1292.79	1090.19	1304.8	1090.32	1313.32	1090.41
1315.87	1090.43	1333.85	1090.53	1342.58	1090.56	1354.38	1090.6	1369.3	1090.66
1374.9	1090.68	1393.5	1090.81	1395.06	1090.82	1395.43	1090.82	1396.01	1090.83
1415.96	1091	1428.41	1091.13	1436.49	1091.21	1445.08	1091.32	1457.02	1091.47
1476.14	1091.69	1477.55	1091.7	1478.42	1091.71	1482.21	1091.75	1498.08	1091.9
1502.85	1091.94	1518.6	1092.08	1529.55	1092.19	1539.13	1092.29	1556.26	1092.47
1559.66	1092.5	1570.92	1092.63	1580.19	1092.74	1582.97	1092.78	1600.72	1092.99
1611.78	1093.13	1621.25	1093.24	1636.4	1093.4	1641.78	1093.46	1647.02	1093.51

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	136.7	.03	319.52	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
136.7	319.52	200.63	200	546.37	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1092.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1092.51	Reach Len. (ft)	200.63	200.00	546.37
Crit W.S. (ft)		Flow Area (sq ft)	1437.54	2882.04	7292.80
E.G. Slope (ft/ft)	0.000002	Area (sq ft)	1437.54	2882.04	7292.80
Q Total (cfs)	2474.65	Flow (cfs)	413.00	1099.39	962.27
Top Width (ft)	1560.09	Top Width (ft)	136.70	182.82	1240.57
Vel Total (ft/s)	0.21	Avg. Vel. (ft/s)	0.29	0.38	0.13
Max Chl Dpth (ft)	18.07	Hydr. Depth (ft)	10.52	15.76	5.88
Conv. Total (cfs)	2017102.0	Conv. (cfs)	336635.5	896117.9	784348.9
Length Wtd. (ft)	282.48	Wetted Per. (ft)	139.84	183.24	1240.64
Min Ch El (ft)	1074.44	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.88	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1940.06	9197.87	11067.19
C & E Loss (ft)		Cum SA (acres)	137.19	415.99	1502.22

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: FRS
REACH: FRS1 RS: 32099.98

INPUT
Description:
Station Elevation Data num= 183

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10.84	1090.28	23.74	1087.18	31.37	1085.52	50.46	1080.9	51.89	1080.57
52.79	1080.47	56.66	1080.23	72.42	1079.25	77.17	1079.22	92.95	1079.03
102.8	1079.17	113.48	1079.32	119.46	1079.4	134.01	1079.63	136.14	1079.6
145.36	1079.59	152.81	1079.56	154.54	1079.54	168.66	1077.81	169.48	1077.71
175.07	1076.91	186.15	1075.61	195.59	1074.8	202.82	1074.57	216.12	1074.2
234.08	1074.48	236.65	1074.52	237.42	1074.53	257.18	1074.82	264.13	1074.9
277.71	1075.08	290.85	1075.22	298.24	1075.3	317.55	1075.54	318.77	1075.55
322.78	1075.6	339.29	1075.83	352.85	1075.94	359.82	1075.96	370.97	1075.95
380.35	1075.96	386.2	1075.97	400.88	1075.97	411.48	1075.97	419.54	1075.99
421.41	1076	424.4	1076.01	441.94	1076.1	452.88	1076.17	462.47	1076.22
469.55	1076.26	482.99	1076.31	500.19	1076.37	503.52	1076.39	504.52	1076.4
524.05	1076.55	536.24	1076.65	544.58	1076.71	557.94	1076.79	565.11	1076.83
569.57	1076.87	585.64	1076.94	588.89	1076.96	606.17	1077.09	611.36	1077.13
626.69	1077.3	638.07	1077.39	647.22	1077.49	664.79	1077.59	667.75	1077.62
677.6	1077.7	688.28	1077.81	691.49	1077.85	708.81	1078.08	719.61	1078.3
729.34	1078.47	744.91	1078.88	749.87	1079.01	766.3	1079.64	770.4	1079.8
786.3	1080.72	790.92	1081.07	802.97	1082.08	811.45	1082.87	825.04	1083.89
825.94	1083.97	831.98	1084.49	851.75	1085.24	852.51	1085.27	852.97	1085.28
855.01	1085.31	873.04	1085.64	878.46	1085.72	893.57	1086.07	905.17	1086.23
914.1	1086.42	919.66	1086.48	934.62	1086.61	943.72	1086.68	955.15	1086.76
958.59	1086.8	975.68	1086.95	985.3	1087.03	996.21	1087.14	1012.01	1087.24
1016.74	1087.28	1032.42	1087.41	1036.35	1087.44	1037.27	1087.44	1053.02	1087.64
1057.8	1087.69	1065.43	1087.8	1078.32	1087.97	1086.36	1088.08	1098.85	1088.24
1103.03	1088.3	1119.38	1088.51	1121.13	1088.53	1139.91	1088.75	1145.56	1088.8
1160.44	1088.96	1172.27	1089.06	1180.97	1089.15	1198.98	1089.29	1201.5	1089.31
1209.83	1089.36	1219.73	1089.43	1222.03	1089.44	1225.69	1089.47	1242.55	1089.61
1252.4	1089.72	1263.08	1089.84	1269.74	1089.92	1283.61	1090.09	1298.54	1090.22
1303.08	1090.27	1304.14	1090.28	1305.82	1090.29	1324.67	1090.42	1336.42	1090.5
1345.2	1090.56	1353.09	1090.63	1365.73	1090.73	1385.95	1090.92	1386.25	1090.92
1386.44	1090.92	1387.24	1090.93	1406.78	1091.13	1419.78	1091.23	1427.31	1091.32
1439.37	1091.43	1447.84	1091.51	1466.08	1091.66	1468.37	1091.68	1469.78	1091.7
1475.95	1091.75	1488.9	1091.85	1492.79	1091.87	1509.43	1092	1519.5	1092.05
1529.95	1092.12	1546.21	1092.21	1550.48	1092.25	1564.66	1092.37	1571.01	1092.43
1572.92	1092.45	1591.54	1092.64	1599.63	1092.74	1612.07	1092.87	1626.34	1093.02
1632.6	1093.07	1653.05	1093.18	1653.13	1093.18	1653.17	1093.18	1653.36	1093.19
1673.65	1093.38	1679.76	1093.44	1694.18	1093.58	1706.47	1093.69	1714.71	1093.77
1733.18	1093.95	1735.24	1093.97	1738.81	1094				

```
Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**********************************************
   10.84     .03  152.81     .03  825.94    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        152.81  825.94            200.05     200  201.58            .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.51  * Reach Len. (ft)         *  200.05  *  200.00  *  201.58  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1607.33  *10467.87  * 2552.73  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 1607.33  *10467.87  * 2552.73  *
* Q Total (cfs)           * 1987.21  * Flow (cfs)              *  205.86  * 1682.21  *   99.15  *
* Top Width (ft)          * 1567.57  * Top Width (ft)          *  141.97  *  673.13  *  752.47  *
* Vel Total (ft/s)        *    0.14  * Avg. Vel. (ft/s)        *    0.13  *    0.16  *    0.04  *
* Max Chl Dpth (ft)       *   18.31  * Hydr. Depth (ft)        *   11.32  *   15.55  *    3.39  *
* Conv. Total (cfs)       *3814087.0  * Conv. (cfs)            *395103.4  *3228685.0  *190297.9  *
* Length Wtd. (ft)        *  200.08  * Wetted Per. (ft)        *  145.38  *  673.62  *  752.55  *
* Min Ch El (ft)          * 1074.20  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.28  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1933.05  * 9167.23  *11005.45  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  136.55  *  414.02  * 1489.72  *
**********************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 31899.98

INPUT
Description:
Station Elevation Data     num=     177
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
**********************************************************************************
       0 1089.98     7.68 1089.34    16.18 1089.14    34.39 1084.53    36.71 1083.93
   44.38 1082.27    57.24 1079.59    71.49 1079.02    77.76 1078.77     87.8  1078.7
   98.29 1078.59   114.52 1078.73   118.82 1078.76    121.5 1078.78   133.09 1078.95
  139.35 1079.03   141.23 1079.04   159.88 1079.21   171.51 1079.11   180.41 1078.82
  184.59    1078   194.64 1076.04   200.93 1075.02   204.86 1074.66   221.46 1074.13
  221.53 1074.13    221.8 1074.13   238.19 1073.96   241.99 1073.99   248.07  1074.1
  262.52 1074.37   271.53 1074.53   283.05 1074.73   301.48 1075.02   303.58 1075.05
  304.87 1075.07   310.51 1075.15   324.11 1075.34   328.19 1075.37   344.63 1075.51
  354.91 1075.55   365.16 1075.56   381.62 1075.66   385.69 1075.67   399.21 1075.79
   404.9 1075.83   406.22 1075.84   421.57 1075.92   426.75 1075.92   438.24  1075.9
  447.28 1075.89   461.74 1075.88   467.81 1075.85   471.58 1075.85   487.91 1075.86
  488.33 1075.85   488.46 1075.85   508.86 1075.88   521.59  1075.9   529.39 1075.91
  538.26 1075.93   549.92 1075.95   554.93 1075.97   570.45 1076.03   571.61 1076.04
  576.62 1076.08   590.98 1076.21    595.3 1076.27   611.51 1076.48   622.01 1076.57
  632.03 1076.66   648.71 1076.66   652.56 1076.66   665.32 1076.68   673.09 1076.68
   688.3  1076.8   693.62 1076.86   704.97 1077.01   714.15 1077.15   728.85 1077.44
  734.68 1077.55   738.31 1077.64   754.03 1078.03   755.21 1078.06   755.55 1078.07
  775.73  1078.6   782.26 1078.81   796.26 1079.23   808.97 1079.87   816.79 1080.24
  835.69 1081.82   837.32 1081.95   842.74 1082.55   857.85 1084.05   861.98 1084.35
   862.4 1084.38   878.38 1085.18    889.1 1085.53   898.91 1085.86   915.81 1086.23
  919.43 1086.31   921.68 1086.36   931.44 1086.52   938.36 1086.65   939.96 1086.66
  955.03 1086.85   960.49  1086.9   969.24 1086.97   981.02 1087.08   988.37 1087.14
 1001.55 1087.22  1005.04 1087.26  1020.15 1087.38  1021.71 1087.39  1022.08  1087.4
 1022.65  1087.4  1042.61 1087.58  1049.36 1087.59  1063.14 1087.69  1071.73 1087.78
 1083.66  1087.9  1102.79 1088.13  1104.19 1088.15  1105.07 1088.15  1108.85 1088.19
 1124.72 1088.33   1138.4 1088.41  1145.25 1088.46   1156.2 1088.53  1165.78 1088.57
 1182.91 1088.65  1186.31 1088.66  1197.56 1088.73  1206.84 1088.79  1209.63 1088.83
 1227.36 1089.08  1236.33 1089.22  1247.89 1089.43  1263.04 1089.66  1268.42 1089.75
 1286.26 1089.97  1288.44    1090  1288.95 1090.01  1305.12 1090.19  1309.48 1090.23
 1321.79 1090.35  1330.01 1090.43  1343.18 1090.56  1350.54 1090.64  1355.12 1090.71
 1371.06 1090.92  1371.79 1090.93  1374.97 1090.98  1391.59 1091.26  1396.59 1091.33
 1412.12 1091.54   1423.3 1091.63  1432.65  1091.7  1450.01  1091.8  1453.18 1091.82
 1463.68  1091.9  1473.71 1091.98  1488.49 1092.11  1494.24 1092.17  1503.43 1092.27
 1514.76 1092.37  1530.14 1092.55  1535.29 1092.61   1538.5 1092.64  1552.38 1092.81
 1555.17 1092.84  1555.82 1092.85  1571.84 1093.06  1576.35 1093.13  1583.57 1093.24
 1596.88 1093.45  1605.17 1093.57

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**********************************************
       0     .03  171.51     .03  861.98    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        171.51  861.98            202.19     200  177.81            .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.51  * Reach Len. (ft)         *  202.19  *  200.00  *  177.81  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1943.89  *10965.08  * 2312.42  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 1943.89  *10965.08  * 2312.42  *
* Q Total (cfs)           * 1440.25  * Flow (cfs)              *  168.94  * 1209.47  *   61.84  *
* Top Width (ft)          * 1526.46  * Top Width (ft)          *  171.51  *  690.47  *  664.48  *
* Vel Total (ft/s)        *    0.09  * Avg. Vel. (ft/s)        *    0.09  *    0.11  *    0.03  *
* Max Chl Dpth (ft)       *   18.55  * Hydr. Depth (ft)        *   11.33  *   15.88  *    3.48  *
* Conv. Total (cfs)       *4083529.0  * Conv. (cfs)            *478981.3  *3429211.0  *175336.8  *
* Length Wtd. (ft)        *  199.43  * Wetted Per. (ft)        *  175.19  *  691.11  *  664.55  *
* Min Ch El (ft)          * 1073.96  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.24  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1924.89  * 9118.02  *10994.19  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  135.83  *  410.89  * 1486.44  *
**********************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 31699.98

INPUT
Description:
```

Station Elevation Data num= 173

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1090.8	4.1	1090.24	20.06	1088.69	32.47	1085.61	40.78	1083.5
60.84	1079.16	61.49	1079.01	63.23	1078.95	78.17	1078.53	82.21	1078.42
89.21	1078.41	102.92	1078.36	117.58	1078.47	123.64	1078.52	127.12	1078.55
140.01	1078.69	144.35	1078.73	145.95	1078.75	165.07	1078.96	174.32	1078.88
185.78	1078.88	200	1077.85	202.69	1077.65	206.5	1077.53	216.8	1075.62
227.21	1073.9	231.05	1073.85	247.93	1073.74	259.42	1073.88	268.64	1073.94
273.94	1074.04	289.36	1074.28	290.25	1074.29	293.58	1074.31	310.07	1074.42
316.16	1074.4	330.79	1074.34	344.53	1074.35	351.5	1074.34	370.36	1074.48
371.82	1074.49	372.22	1074.49	372.89	1074.5	392.93	1074.71	401.26	1074.81
413.65	1074.95	429.63	1075.14	434.36	1075.2	447.15	1075.34	455.08	1075.43
469.71	1075.55	475.79	1075.59	486.02	1075.64	496.51	1075.66	514.74	1075.63
517.22	1075.63	518.64	1075.62	523.93	1075.63	537.94	1075.66	551.27	1075.72
558.65	1075.76	571.48	1075.79	579.37	1075.81	583.9	1075.81	600.09	1075.84
600.72	1075.84	616.53	1075.89	620.8	1075.91	628.21	1075.93	641.52	1075.99
656.58	1076.01	662.23	1076.04	665.47	1076.05	677.5	1076.1	682.94	1076.13
684.95	1076.16	703.66	1076.44	713.32	1076.67	724.37	1076.92	741.69	1077.33
745.09	1077.41	754.28	1077.6	765.8	1077.83	770.06	1077.9	786.52	1078.18
798.43	1078.44	807.23	1078.62	826.79	1079.21	827.95	1079.24	831.06	1079.41
844.92	1080.16	848.66	1080.44	861.24	1081.73	869.38	1082.66	877.55	1083.6
881	1083.98	890.1	1084.99	893.87	1085.27	907.84	1086.01	910.81	1086.17
911.9	1086.18	931.53	1086.63	940.27	1086.73	952.24	1086.89	968.64	1087.07
972.96	1087.11	984.62	1087.23	993.67	1087.33	997.01	1087.37	1014.39	1087.56
1024.37	1087.67	1035.1	1087.78	1053.74	1087.97	1055.82	1088	1061.41	1088.07
1076.53	1088.26	1089.62	1088.44	1097.24	1088.55	1110.48	1088.74	1117.96	1088.82
1138.19	1089.02	1138.68	1089.03	1138.85	1089.03	1159.39	1089.17	1171.2	1089.26
1180.11	1089.33	1195.59	1089.48	1200.82	1089.54	1214.97	1089.7	1221.54	1089.77
1223.96	1089.79	1242.25	1089.95	1252.33	1090.01	1262.97	1090.08	1280.69	1090.22
1283.68	1090.24	1291.75	1090.35	1304.4	1090.51	1309.06	1090.58	1325.11	1090.8
1337.43	1090.98	1345.83	1091.09	1365.8	1091.36	1366.54	1091.37	1368.53	1091.39
1387.26	1091.59	1399.59	1091.68	1407.97	1091.73	1415.91	1091.78	1428.69	1091.86
1445.32	1092.01	1449.4	1092.04	1450.91	1092.06	1470.12	1092.28	1479.27	1092.4
1490.83	1092.54	1507.64	1092.75	1511.55	1092.8	1522.1	1092.93	1530.1	1093.02
1532.26	1093.05	1536.01	1093.09	1552.98	1093.29	1564.38	1093.41	1573.69	1093.52
1592.75	1093.71	1594.41	1093.73	1598.88	1093.77	1615.12	1093.92	1621.12	1093.98
1635.84	1094.09	1649.49	1094.2	1652.91	1094.23				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	185.78	.03	907.84	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
185.78	907.84	200	200	202.22	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

* E.G. Elev (ft)	* 1092.51	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.00	* Wt. n-Val.	* 0.030	* 0.030	* 0.045 *
* W.S. Elev (ft)	* 1092.51	* Reach Len. (ft)	* 200.00	* 200.00	* 202.22 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	* 2144.25	*11525.96	* 1749.29 *
* E.G. Slope (ft/ft)	*0.000000	* Area (sq ft)	* 2144.25	*11525.96	* 1749.29 *
* Q Total (cfs)	* 818.50	* Flow (cfs)	* 102.79	* 692.63	* 23.08 *
* Top Width (ft)	* 1488.10	* Top Width (ft)	* 185.78	* 722.06	* 580.26 *
* Vel Total (ft/s)	* 0.05	* Avg. Val. (ft/s)	* 0.05	* 0.06	* 0.01 *
* Max Chl Dpth (ft)	* 18.77	* Hydr. Depth (ft)	* 11.54	* 15.96	* 3.01 *
* Conv. Total (cfs)	*4274124.0	* Conv. (cfs)	*536745.6	*3616843.0	*120535.7 *
* Length Wtd. (ft)	* 200.06	* Wetted Per. (ft)	* 188.73	* 722.79	* 580.30 *
* Min Ch El (ft)	* 1073.74	* Shear (lb/sq ft)	* 0.00	* 0.00	* 0.00 *
* Alpha	* 1.19	* Stream Power (lb/ft s)	* 0.00	* 0.00	* 0.00 *
* Frctn Loss (ft)	* 0.00	* Cum Volume (acre-ft)	* 1915.40	* 9066.39	*10985.90 *
* C & E Loss (ft)	*	* Cum SA (acres)	* 135.00	* 407.65	* 1483.90 *

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 31499.98

INPUT
Description:
Station Elevation Data num= 164

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1090.82	9.31	1089.62	20.1	1088.57	37.68	1084.81	40.82	1084.13
42.62	1083.75	49.3	1082.35	58.93	1080.34	61.53	1079.83	66.05	1079.6
82.25	1078.46	94.42	1078.33	102.96	1078.21	122.79	1078.39	123.68	1078.4
124.19	1078.41	126.08	1078.43	140.5	1078.64	144.39	1078.69	151.16	1078.78
165.11	1078.96	179.53	1079.07	185.82	1079.11	202.86	1078.84	206.54	1078.79
207.89	1078.59	213.73	1077.89	227.25	1076.26	236.26	1075.42	247.97	1074.03
264.63	1073.55	268.68	1073.43	271.01	1073.47	279.64	1073.54	289.4	1073.62
303.64	1073.71	310.12	1073.75	321.36	1073.8	330.83	1073.85	349.73	1073.98
351.55	1073.99	352.58	1074	356.43	1074.04	537.98	1074.59	548.32	1074.62
558.69	1074.65	576.69	1074.92	579.41	1074.97	586.78	1075.09	597.29	1075.26
600.13	1075.31	613.6	1075.47	620.84	1075.57	629.92	1075.67	641.56	1075.81
646.23	1075.89	662.27	1076.17	662.54	1076.17	663.56	1076.2	682.99	1076.62
690.15	1076.72	703.7	1076.95	711.48	1077.01	724.42	1077.13	740.34	1077.29
744.11	1077.32	745.13	1077.34	746.89	1077.36	765.85	1077.6	776.73	1077.74
786.56	1077.87	793.06	1077.95	807.28	1078.16	817.13	1078.31	827.99	1078.52
832	1078.61	848.71	1078.96	858.31	1079.32	869.42	1079.83	874.62	1080.18
890.14	1081.54	893.91	1081.92	910.85	1083.63	917.11	1084.06	923.3	1084.55
931.57	1085.21	939.87	1085.67	952.28	1086.1	970.69	1086.55	973	1086.61
973.85	1086.62	993.71	1086.99	1002.22	1087.12	1014.43	1087.31	1030.59	1087.52
1035.14	1087.59	1047.47	1087.7	1055.86	1087.78	1070.39	1087.9	1076.57	1087.94
1087.31	1088.04	1097.29	1088.13	1103.02	1088.18	1118	1088.33	1119.33	1088.34
1124.25	1088.39	1138.72	1088.54	1144.05	1088.59	1159.43	1088.75	1172.42	1088.87
1180.15	1088.95	1200.79	1089.11	1200.86	1089.11	1201.04	1089.11	1221.58	1089.28
1233.52	1089.41	1242.3	1089.48	1257.53	1089.71	1263.01	1089.78	1277.82	1090
1283.72	1090.09	1298.78	1090.26	1304.44	1090.33	1315.1	1090.44	1325.15	1090.53
1342.64	1090.7	1345.87	1090.73	1347.72	1090.76	1354.6	1090.84	1366.58	1090.98
1380.35	1091.15	1387.3	1091.24	1399.38	1091.38	1408.01	1091.47	1427.75	1091.66
1428.73	1091.67	1429.29	1091.68	1431.38	1091.69	1449.44	1091.82	1456.11	1091.86
1470.16	1091.91	1484.48	1091.97	1490.88	1091.98	1508.16	1092.09	1511.59	1092.12
1512.85	1092.13	1532.31	1092.33	1541.21	1092.43	1553.02	1092.58	1569.58	1092.77
1573.74	1092.82	1584.94	1092.96	1594.45	1093.08	1597.95	1093.11	1615.17	1093.3
1626.32	1093.4	1635.88	1093.49	1654.69	1093.68	1656.6	1093.69	1661.73	1093.75
1677.31	1093.93	1683.06	1094	1698.03	1094.15	1709.81	1094.29		

Manning's n Values num= 3

```
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
       0     .03  213.73     .03   923.3    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        213.73   923.3               200     200  200.34             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.51  * Reach Len. (ft)         *  200.00  *  200.00  *  200.34  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 2502.24  *11667.18  * 1894.20  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 2502.24  *11667.18  * 1894.20  *
* Q Total (cfs)           *  178.67  * Flow (cfs)              *   25.15  *  148.31  *    5.21  *
* Top Width (ft)          * 1547.27  * Top Width (ft)          *  213.73  *  709.57  *  623.97  *
* Vel Total (ft/s)        *    0.01  * Avg. Vel. (ft/s)        *    0.01  *    0.01  *    0.00  *
* Max Chl Dpth (ft)       *   19.08  * Hydr. Depth (ft)        *   11.71  *   16.44  *    3.04  *
* Conv. Total (cfs)       *4499497.0  * Conv. (cfs)            *633420.8  *3734954.0  *131122.9  *
* Length Wtd. (ft)        *  200.01  * Wetted Per. (ft)        *  216.57  *  710.06  *  624.06  *
* Min Ch El (ft)          * 1073.43  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.20  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1904.74  * 9013.15  *10977.44  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  134.09  *  404.36  * 1481.10  *
**********************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 31299.98

INPUT
Description:
Station Elevation Data     num=     172
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
    2.13 1090.96   15.21 1089.74   30.43 1086.18   34.76 1085.17   35.93  1084.9
   37.95 1084.44   56.65 1080.23   67.39 1079.13   77.36 1078.72   94.69 1078.36
   98.08 1078.27  100.01 1078.26  107.21 1078.25  118.79 1078.24  132.64  1078.4
  139.51 1078.52  151.43 1078.72  160.22 1078.87   179.8 1079.12  180.94 1079.14
  181.58 1079.14     184 1079.15  201.65 1079.14  208.17 1078.86  221.63  1078.5
  222.37 1078.48  230.53 1077.28  243.08 1075.42  246.84    1075  260.78  1073.9
   263.8 1073.65   264.9 1073.65  284.51 1073.34  293.27 1073.41  305.23 1073.56
   312.1 1073.59  325.94 1073.59  328.41 1073.59  337.56 1073.59  346.66 1073.61
  350.01 1073.63  367.37 1073.72  377.35 1073.78  388.09 1073.86  406.75 1073.99
   408.8    1074  414.34 1074.06  429.52 1074.25   442.6 1074.45  450.23 1074.55
  463.48 1074.63  470.95 1074.69  491.12 1074.77  491.66 1074.77  507.86 1074.91
  512.38 1074.94  524.18 1075.08  533.09 1075.17  548.59 1075.29  553.81 1075.33
   556.8 1075.33  567.91 1075.37  574.52 1075.39  589.43 1075.44  595.24 1075.47
  605.33 1075.57  615.95 1075.65   633.7 1075.91  636.67 1075.95  638.37 1075.98
   644.7 1076.08  657.38 1076.27  662.07 1076.35   678.1  1076.6  690.43 1076.88
  698.81 1077.08  798.26 1078.94  802.39 1078.97  803.91 1078.98   823.1 1079.15
  832.28 1079.27  843.82 1079.41  860.65 1079.72  864.53 1079.79  875.04 1080.14
  883.07 1080.43  885.25 1080.54  889.02  1080.8  905.96 1081.85  917.38 1082.74
  922.34 1083.11  926.68 1083.44  932.01 1083.88   947.4 1084.96  951.82 1085.17
  964.65 1085.76  968.11  1085.9  974.12 1086.05  988.83 1086.41  997.28 1086.46
 1009.54 1086.55 1028.61 1086.61  1029.9 1086.61 1030.26 1086.62 1030.86 1086.62
 1050.97 1086.92 1062.53  1087.2 1071.68 1087.25 1078.84 1087.36  1092.4 1087.48
 1105.39  1087.6 1113.11 1087.69 1115.97 1087.74 1133.83 1088.14 1144.33 1088.47
 1154.54  1088.8  1172.7 1089.22 1175.26 1089.27 1182.17 1089.34 1195.97 1089.43
 1201.07 1089.43 1216.69 1089.42 1229.44 1089.42 1237.41 1089.43 1257.81 1089.44
 1258.12 1089.44 1258.95 1089.45 1274.61 1089.49 1278.84 1089.53 1290.92 1089.63
 1299.55 1089.73 1307.24 1089.85 1320.27 1089.99 1323.55 1090.05 1335.73 1090.23
 1340.98 1090.31 1356.17 1090.36  1361.7 1090.33 1372.49 1090.36 1382.41 1090.27
 1399.65 1090.44 1403.13 1090.47 1412.52 1090.52 1423.84 1090.62 1437.74 1090.81
 1444.56 1090.96 1456.39 1091.16 1465.27 1091.32 1484.76 1091.53 1485.99 1091.54
  1489.3 1091.56  1506.7 1091.73 1513.12 1091.79 1527.42 1091.92 1541.49 1092.13
 1548.13  1092.2 1566.08 1092.43 1568.85 1092.47 1569.86 1092.47 1589.56 1092.59
 1598.23 1092.64 1610.28  1092.7  1626.6 1092.85 1630.99  1092.9 1642.86 1093.04
 1649.82 1093.13 1651.71 1093.15 1654.97 1093.21 1672.42 1093.51 1683.34 1093.74
 1693.14 1093.94 1704.87 1094.17

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
    2.13     .03  221.63     .03  922.34    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        221.63  922.34               200     200  278.43             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.51  * Reach Len. (ft)         *  200.00  *  200.00  *  278.43  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 2610.15  *11395.21  * 2215.75  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 2610.15  *11395.21  * 2215.75  *
* Q Total (cfs)           * -492.59  * Flow (cfs)              *  -73.86  * -400.47  *  -18.26  *
* Top Width (ft)          * 1573.80  * Top Width (ft)          *  219.50  *  700.71  *  653.59  *
* Vel Total (ft/s)        *   -0.03  * Avg. Vel. (ft/s)        *   -0.03  *   -0.04  *   -0.01  *
* Max Chl Dpth (ft)       *   19.17  * Hydr. Depth (ft)        *   11.89  *   16.26  *    3.39  *
* Conv. Total (cfs)       *4454314.0  * Conv. (cfs)            *667929.4  *3621297.0  *165087.7  *
* Length Wtd. (ft)        *  205.84  * Wetted Per. (ft)        *  222.27  *  701.17  *  653.74  *
* Min Ch El (ft)          * 1073.34  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.22  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1893.00  * 8960.20  *10967.99  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  133.09  *  401.13  * 1478.16  *
**********************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 31099.98

INPUT
Description:
Station Elevation Data     num=     177
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

```
*****************************************************************************
    6.68 1090.77    7.92 1090.52   27.39 1086.29   39.56 1083.42   48.11 1081.46
   55.88 1079.83   68.82 1077.94   72.19 1077.88    84.7 1077.55   89.54 1077.42
   91.32 1077.41  110.25 1077.31  119.69 1077.38  130.97 1077.44  137.45 1077.51
  151.69 1077.67  161.48 1077.77   172.4 1077.89  186.39 1078.02  193.12 1078.08
   204.8 1078.01  213.83 1078.02  227.72 1077.18  233.17 1076.85  234.55 1076.81
  235.33 1076.67  238.26 1076.17  251.64 1073.89  255.26 1073.49  267.96 1073.18
  275.98 1072.92   289.9 1072.97  296.69 1072.95  300.58 1072.97  315.05 1073.01
   317.4 1073.01  333.21 1073.04  338.12 1073.06  346.64 1073.12  358.83 1073.19
  365.84 1073.25  379.55 1073.39  391.84 1073.51  400.27  1073.6  403.37 1073.62
  420.98 1073.72  431.74 1073.81   441.7 1073.86  460.11  1074.1  462.41 1074.13
  463.73 1074.15  468.62  1074.2  480.04 1074.34  483.13 1074.37  488.48 1074.39
  503.84  1074.5  512.67 1074.55  524.56 1074.63  528.98 1074.67  545.27 1074.84
   545.4 1074.84  565.99 1075.11  573.59 1075.23   586.7 1075.44  601.96 1075.66
  607.42 1075.74  622.18 1075.91  628.13 1075.97  643.18  1076.1  648.85 1076.18
  659.49 1076.41  669.56 1076.73  687.07 1078.28  690.28 1078.49  692.12 1078.71
  698.96 1079.35  710.99 1080.49  724.75 1081.67  731.71 1082.12  735.44 1082.28
   743.8 1082.63  752.42 1083.04  772.16 1083.46  773.14 1083.48  773.69 1083.48
  775.75 1083.49  793.85 1083.57  800.53 1083.59  814.57 1083.67   828.9 1083.85
  835.28 1083.93  852.53 1084.17     856 1084.21  857.27 1084.23  876.71 1084.48
  885.64 1084.61  897.43  1084.8  914.01 1085.07  918.14 1085.15  929.31 1085.31
  938.86 1085.45  942.38 1085.48  959.57 1085.68  969.46 1085.79  980.29 1085.88
  985.77 1085.94    1001 1086.09 1006.09 1086.16 1018.39 1086.33 1021.72 1086.36
 1034.71 1086.51 1042.43 1086.59 1055.86 1086.71 1063.15 1086.78 1067.33 1086.81
 1082.87  1086.9 1083.86 1086.91 1084.23 1086.91 1104.58 1087.06  1112.6  1087.1
 1125.29 1087.18 1132.59 1087.24 1146.01 1087.31 1159.66 1087.45 1165.22 1087.53
 1166.72 1087.55 1169.32 1087.59 1187.44 1087.97 1197.85 1088.24 1208.15  1088.5
 1214.16 1088.63 1228.87 1088.91 1236.44 1089.02 1249.58 1089.24 1254.43 1089.33
  1270.3 1089.62 1279.41 1089.79 1291.01 1090.01 1311.17 1090.13 1311.73 1090.13
 1313.22 1090.12 1332.45 1089.94 1339.54 1089.89 1353.16 1089.93 1367.91 1090.14
 1373.88 1090.21    1390  1090.6 1394.59 1090.73 1396.28 1090.77 1415.31 1091.14
 1424.65  1091.2 1436.02 1091.28 1453.02 1091.33 1456.73 1091.34 1466.78 1091.39
 1477.45 1091.44 1481.39 1091.47 1498.16 1091.65 1509.76  1091.8 1518.88 1091.94
 1538.12  1092.2 1539.59 1092.22 1543.56 1092.29 1560.31 1092.61 1566.49 1092.76
 1581.03 1093.05 1594.86 1093.32 1601.74 1093.43 1620.35 1093.75 1622.46 1093.79
 1623.22  1093.8 1643.17 1094.17 1651.59 1094.31 1663.89 1094.54 1679.96 1094.79
  1684.6 1094.87 1686.79  1094.9

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
    6.68     .03   227.72     .03   735.44    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        227.72  735.44                 200     200   200.3             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *     0.00 * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.51  * Reach Len. (ft)         *  200.00  *  200.00  *  200.30  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 2886.34  * 8863.20  * 3930.76  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 2886.34  * 8863.20  * 3930.76  *
* Q Total (cfs)           *-1195.61  * Flow (cfs)              * -228.66  * -859.48  * -107.47  *
* Top Width (ft)          * 1548.24  * Top Width (ft)          *  221.04  *  507.72  *  819.48  *
* Vel Total (ft/s)        *   -0.08  * Avg. Vel. (ft/s)        *   -0.08  *   -0.10  *   -0.03  *
* Max Chl Dpth (ft)       *   19.59  * Hydr. Depth (ft)        *   13.06  *   17.46  *    4.80  *
* Conv. Total (cfs)       *4106598.0 * Conv. (cfs)             *  *785395.9  *2952067.0  *369136.0  *
* Length Wtd. (ft)        *  200.03  * Wetted Per. (ft)        *  224.15  *  508.27  *  819.57  *
* Min Ch El (ft)          * 1072.92  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.38  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Prctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1880.38  * 8913.70  *10948.35  *
* C & E Loss (ft)         *          * Cum SA (acres)           *  132.08  *  398.35  * 1473.46  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 30899.98

INPUT
Description:
Station Elevation Data    num=     199
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************
       0 1089.84     6.53 1089.55    13.64 1088.49       26 1085.69    34.36  1083.8
   54.37  1079.4    55.07 1079.25    55.48  1079.2    56.98  1079.1    75.79 1077.85
    88.1 1077.38     96.5 1077.16    111.1 1076.96   117.22 1076.86   133.76  1076.9
  137.93 1076.92   139.47 1076.93   158.65 1077.11   167.83 1077.22   179.36 1077.36
   196.2 1077.56   200.08 1077.62   210.54 1077.51   218.61 1077.42   220.79 1077.39
  224.57 1076.98   227.09 1076.77   241.51 1075.56   251.23 1074.27   262.22 1073.32
  281.31 1072.67   282.94 1072.61   287.32 1072.68   300.18  1072.9   303.65 1072.94
   316.5 1072.97   324.37 1072.96   332.81 1072.91   345.08 1072.82   349.12 1072.82
   364.1  1072.9    365.8 1072.92   366.42 1072.92   386.51 1073.18   398.06 1073.27
  407.23  1073.3   414.38  1073.3   427.94  1073.3   440.88 1073.35   448.66 1073.39
  451.53 1073.43   469.37 1073.68   479.63 1073.87   490.09 1074.05   508.26 1074.34
   510.8 1074.38   517.67 1074.45   531.52  1074.6   536.62 1074.65   552.23  1074.8
  564.99 1074.94   572.95 1075.03   593.36 1075.32   593.66 1075.32   594.45 1075.34
  610.14 1075.62   614.38 1075.69   621.73 1075.81   635.09 1076.05    650.1 1076.29
  655.81  1076.4   659.08 1076.47   671.23  1076.8   675.39 1076.91   676.52 1076.94
  691.71 1077.64   697.24 1078.01   708.02 1078.78   717.95 1079.79   735.21 1081.65
  738.67 1081.86   740.65 1082.16    742.7 1082.27   748.01 1082.56   759.38  1083.1
  763.58 1083.17    780.1 1083.49   791.95 1083.61   800.81 1083.73   820.32 1083.96
  821.53 1083.98   822.22 1083.99   824.79 1084.02   838.54 1084.22   842.24 1084.25
  854.85 1084.43   862.96 1084.45   877.06 1084.66   883.68 1084.75   887.48  1084.8
  901.58 1085.11   903.79 1085.16   904.39 1085.17    920.1 1085.51   925.11 1085.59
  933.79 1085.75   945.82 1085.98   952.73 1086.12   966.54 1086.37   969.04 1086.41
  978.36 1086.54   985.35 1086.64   987.25 1086.66   990.52 1086.68  1007.96 1086.83
 1018.89 1086.92  1028.68     1087  1034.29 1087.05  1049.39 1087.24  1055.14 1087.34
 1070.11 1087.61  1075.63   1087.7  1090.82 1087.94     1104 1088.09  1111.54 1088.16
 1131.92 1088.33  1132.25 1088.33   1148.5 1088.35  1152.97 1088.38  1164.81 1088.39
 1173.69 1088.45  1189.11 1088.57   1194.4 1088.58  1197.43 1088.56  1208.71 1088.63
 1215.12 1088.63  1217.48 1088.67  1235.83 1088.73  1245.85 1088.87  1256.55 1088.96
 1274.22  1089.1  1277.26 1089.13  1285.49 1089.23  1297.98 1089.24  1302.59 1089.23
 1318.69 1089.19  1327.95 1089.17  1339.41 1089.18  1359.32 1089.36  1360.12 1089.36
 1362.28  1089.4  1380.84 1089.67  1387.69 1089.74  1401.55 1089.92  1416.06 1089.94
 1422.27 1089.98  1439.06 1089.94  1442.98 1089.95  1444.42 1089.97   1463.7 1090.19
 1472.79 1090.29  1484.41 1090.42  1501.16 1090.52  1505.13 1090.55  1515.84 1090.57
 1525.84 1090.61  1529.53 1090.67  1546.56 1090.85   1557.9     1091  1567.27 1091.12
 1586.27  1091.3  1587.99 1091.32  1592.62 1091.37   1608.7 1091.54  1614.64 1091.56
 1629.42  1091.7  1643.01 1091.71  1650.13 1091.74   1669.4 1091.83  1670.85 1091.84
```

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 1671.38 1091.84 1691.56 1092.01 1699.74 1092.06 1712.28 1092.16 1728.11 1092.27
 1732.99 1092.31 1746.19 1092.44 1753.71 1092.55 1756.48 1092.59 1774.42 1092.91
 1784.73 1093.02 1795.14  1093.2 1813.22 1093.44 1815.85 1093.48 1822.97 1093.53
 1836.57 1093.63 1849.99 1093.74 1857.28 1093.78 1861.41 1093.82

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***********************************************
       0     .03  227.09     .03   742.7    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        227.09   742.7             200.36     200  354.06             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.51  * Reach Len. (ft)         *  200.36  *  200.00  *  354.06  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3004.20  * 9105.13  * 4084.53  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3004.20  * 9105.13  * 4084.53  *
* Q Total (cfs)           *-1922.15  * Flow (cfs)              * -374.67  *-1391.43  * -156.05  *
* Top Width (ft)          * 1750.77  * Top Width (ft)          *  227.09  *  515.61  * 1008.07  *
* Vel Total (ft/s)        *   -0.12  * Avg. Vel. (ft/s)        *   -0.12  *   -0.15  *   -0.04  *
* Max Chl Dpth (ft)       *   19.90  * Hydr. Depth (ft)        *   13.23  *   17.66  *    4.05  *
* Conv. Total (cfs)       *4222163.0  * Conv. (cfs)            *823000.4  *3056393.0  *342769.2  *
* Length Wtd. (ft)        *  222.85  * Wetted Per. (ft)        *  230.96  *  516.07  * 1008.15  *
* Min Ch El (ft)          * 1072.61  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.42  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1866.86  * 8872.45  *10929.92  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  131.05  *  396.00  * 1469.25  *
**********************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 30699.98

INPUT
Description:
Station Elevation Data     num=      111
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
     .39 1090.27   15.49 1087.39   21.14  1086.6   35.93 1083.01    40.6  1081.9
   41.89 1081.59   56.86 1078.52   62.64 1077.65   73.11 1076.98   83.39 1076.46
   89.37 1076.33  104.14 1076.09  105.63 1076.08  110.99 1076.08  124.89 1076.08
   130.2 1076.13  145.64 1076.24  154.39 1076.38  166.39 1076.53  170.65 1076.63
  186.06 1076.89  187.14 1076.91  187.55 1076.91  207.89  1077.1  219.42  1076.9
  227.35 1076.73  228.64  1076.7   244.9 1074.68  249.39 1074.18  261.13 1073.29
  270.14 1072.66  284.44 1072.35  290.89 1072.35   300.7 1072.46  311.64 1072.58
  330.93 1072.68  332.39 1072.69   336.2 1072.71  349.47 1072.79  353.14 1072.81
  365.73 1072.94  373.89 1073.03  381.99  1073.2  394.64 1073.49  398.24 1073.65
  411.26 1074.26  415.39 1074.45  416.96 1074.52  436.14 1075.57  445.64  1076.1
  456.89 1076.77  474.31 1078.01  477.64 1078.24  486.33 1078.89  498.39  1079.7
  502.99 1079.91  517.84 1080.71  519.14 1080.78  528.29 1081.06  539.89 1081.46
  544.55  1081.5  560.64 1082.05   561.4 1082.08  581.39 1082.67  593.31 1082.71
  602.14 1083.09  609.57 1083.04 1219.91 1087.69 1224.64 1087.73 1237.01    1088
 1245.39 1088.17 1248.59 1088.21 1266.14 1088.36 1277.26  1088.5 1286.89 1088.58
 1305.94 1088.86 1307.64 1088.88 1312.08 1088.95 1328.39 1089.16 1334.62 1089.24
 1349.14 1089.43  1363.3 1089.61 1369.89 1089.68 1387.15 1089.88 1390.64 1089.91
 1391.97 1089.93 1411.39 1090.15 1420.65 1090.27 1432.14 1090.41 1449.33 1090.65
 1452.89 1090.69 1462.22  1090.8 1473.64 1090.94 1487.42 1091.01 1494.39 1091.07
 1660.39 1091.33 1678.74 1091.54 1681.14 1091.57 1687.42 1091.64 1701.89 1091.86
 1707.41 1091.92 1722.64 1092.17 1731.26  1092.4 1743.39 1092.48 1747.52  1092.6
 1762.48 1092.84 1764.14 1092.88 1764.77 1092.89 1784.89 1093.47 1793.44 1093.71
 1804.34 1094.11

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***********************************************
     .39     .03  227.35     .03  517.84    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        227.35  517.84             200     200  213.28             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.51  * Reach Len. (ft)         *  200.00  *  200.00  *  213.28  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3156.18  * 5149.89  * 6413.75  *
* E.G. Slope (ft/ft)      *0.000001  * Area (sq ft)            * 3156.18  * 5149.89  * 6413.75  *
* Q Total (cfs)           *-2683.30  * Flow (cfs)              * -735.19  *-1423.78  * -524.33  *
* Top Width (ft)          * 1743.93  * Top Width (ft)          *  226.96  *  290.49  * 1226.48  *
* Vel Total (ft/s)        *   -0.18  * Avg. Vel. (ft/s)        *   -0.23  *   -0.28  *   -0.08  *
* Max Chl Dpth (ft)       *   20.16  * Hydr. Depth (ft)        *   13.91  *   17.73  *    5.23  *
* Conv. Total (cfs)       *3265179.0  * Conv. (cfs)            *894620.4  *1732528.0  *638030.4  *
* Length Wtd. (ft)        *  203.69  * Wetted Per. (ft)        *  230.55  *  290.93  * 1226.57  *
* Min Ch El (ft)          * 1072.35  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.71  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1852.69  * 8839.72  *10887.26  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  130.01  *  394.15  * 1460.17  *
**********************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 30499.98

INPUT
Description:
Station Elevation Data     num=      194
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    5.13 1090.17    5.44 1090.12    6.56 1089.85   21.68 1086.17   25.88 1085.21
   33.25 1083.58   46.62 1080.51   61.93 1078.16   67.38 1077.13   81.62  1076.7
   86.72 1076.54   88.13 1076.52   90.61 1076.53  108.88 1076.55  119.28 1076.62
  129.63  1076.7  147.96 1076.78  150.38 1076.79  156.69 1076.82  171.12 1076.89
  176.63  1076.9  191.88 1077.05  205.31 1076.97  212.63 1077.01  225.14 1076.38
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 231.76 1076.05  233.02 1075.98  233.38 1075.95  249.28 1073.28  254.13  1072.8
 262.66 1072.51  274.88 1072.22   281.8 1072.19  295.62  1072.3  298.04 1072.35
 306.83 1072.55   314.3 1072.71  316.38 1072.76  320.02 1072.83  337.13 1073.16
 348.69 1073.37  357.88 1073.48  363.08 1073.55  378.63 1073.81  381.89 1073.89
 399.38 1074.27  406.05 1074.58  420.12 1075.19  434.72 1076.55  440.88 1077.12
 455.86 1078.13  456.97  1078.2  461.63 1078.48   463.4 1078.55  482.38 1079.32
 493.12 1079.52  503.13 1079.67  520.75 1079.88  523.88 1079.91  532.03 1080.01
  541.9 1080.12  544.62 1080.15  558.16 1080.28  565.38 1080.34  578.11  1080.4
 586.13 1080.44  606.78 1080.53  606.88 1080.53   607.1 1080.53  627.63  1080.7
 635.46 1080.72  648.38 1080.86  655.69 1080.93  669.12 1081.02  682.17 1081.14
 688.21 1081.21  689.88 1081.23  692.81 1081.25  710.63  1081.4  720.72 1081.41
 731.38 1081.48  750.17  1081.6  752.13 1081.61  753.23 1081.62  757.24 1081.67
 772.88 1081.83  785.74 1082.01  793.62 1082.07  807.52 1082.16  814.38 1082.22
  832.3 1082.31  835.13 1082.33  850.77 1082.41  855.88 1082.44  867.03 1082.51
 876.63 1082.59  893.55 1082.79  897.38 1082.83  907.38 1082.95  918.12 1083.08
 922.22 1083.11  938.88 1083.26   950.9 1083.33  959.63 1083.38  979.58  1083.5
 980.38  1083.5  982.44 1083.52  997.08 1083.64 1001.13 1083.67 1008.25 1083.74
1021.88 1083.88 1029.58 1083.98 1042.62 1084.14 1045.84 1084.18 1057.51 1084.33
1063.38 1084.41 1065.61 1084.43 1084.13 1084.66 1094.28 1084.75 1104.88 1084.85
1122.96 1085.03 1125.63 1085.06 1132.58 1085.15 1146.38  1085.3 1159.64 1085.45
1167.12 1085.59 1180.31 1085.74 1187.88  1085.8 1207.64 1085.88 1208.63 1085.89
1224.66 1085.88 1229.38  1085.9 1240.92 1085.95 1250.13 1086.02 1266.35 1086.16
1270.88  1086.2 1282.71 1086.33 1291.62 1086.47 1295.03 1086.51 1312.38 1086.74
1323.71 1086.88 1333.13 1086.99 1352.38 1087.25 1353.88 1087.27 1357.78 1087.34
1374.63 1087.59 1381.06 1087.68 1395.37 1087.87 1409.73 1088.03 1416.12 1088.08
1432.85 1088.19 1436.88 1088.22 1438.41 1088.22 1457.63 1088.26 1467.09 1088.29
1478.38 1088.31 1495.76 1088.41 1499.13 1088.43 1507.91 1088.55 1519.87 1088.71
1524.44 1088.79 1540.62 1089.06 1553.12 1089.24 1561.38 1089.34 1581.79 1089.52
1582.13 1089.52 1582.99 1089.53 1602.88 1089.65 1614.82 1089.73 1623.63 1089.84
1631.07 1089.89 1644.37 1090.01 1658.05 1090.07 1665.12 1090.12 1667.82 1090.15
1685.88  1090.3 1696.11 1090.43 1706.63 1090.55 1725.18 1090.82 1727.38 1090.86
1728.62 1090.89 1733.12 1090.96 1748.13 1091.22 1753.85  1091.3 1768.87 1091.55
1782.53 1091.76 1789.62 1091.87 1808.19 1092.28 1810.38 1092.33 1826.16 1092.84
1831.13 1093.03 1842.41 1093.37 1851.88 1093.74 1860.64 1093.98

Manning's n Values          num=      3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
    5.13     .03  225.14     .03  455.86    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        225.14  455.86             200     200  200.75              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.51  * Reach Len. (ft)         *  200.00  *  200.00  *  200.75  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3063.22  * 4272.93  * 9858.77  *
* E.G. Slope (ft/ft)      *0.000001  * Area (sq ft)            * 3063.22  * 4272.93  * 9858.77  *
* Q Total (cfs)           *-3472.04  * Flow (cfs)              * -845.09  *-1440.17  *-1186.78  *
* Top Width (ft)          * 1810.70  * Top Width (ft)          *  220.01  *  230.72  * 1359.97  *
* Vel Total (ft/s)        *   -0.20  * Avg. Vel. (ft/s)        *   -0.28  *   -0.34  *   -0.12  *
* Max Chl Dpth (ft)       *   20.32  * Hydr. Depth (ft)        *   13.92  *   18.52  *    7.25  *
* Conv. Total (cfs)       *3567199.0  * Conv. (cfs)            *  868255.9  *1479637.0  *1219306.0  *
* Length Wtd. (ft)        *  200.23  * Wetted Per. (ft)        *  223.76  *  231.15  * 1360.07  *
* Min Ch El (ft)          * 1072.19  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.73  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1838.41  * 8818.09  *10847.42  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  128.98  *  392.95  * 1453.84  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 30299.98

INPUT
Description:
Station Elevation Data     num=     208
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0  1089.8     5.7 1089.68   12.77 1088.61   21.95 1086.36   33.52 1083.54
   53.92 1078.77   54.27 1078.68   55.17 1078.55   75.02    1076   86.97 1075.83
   95.77 1075.71  111.27 1075.77  116.52 1075.79  130.24 1075.87  137.27 1075.91
  139.95 1075.93  158.02 1076.05  168.26 1076.15  178.77 1076.25  184.52 1076.32
  199.52 1076.49  205.31 1076.47  220.27 1076.33  223.97 1075.99  233.28 1075.12
  241.02 1074.27  249.54 1073.41  261.77 1072.51  280.37 1071.97  282.52 1071.91
  283.33 1071.92  303.27 1072.11  312.01 1072.23  324.02 1072.39  340.68 1072.67
  344.77 1072.74  355.45 1072.93  363.33 1073.07  365.52 1073.11  369.36 1073.18
  386.27 1073.47  398.04 1073.74  407.02 1073.92  412.11 1074.08  427.77 1074.84
  430.51 1075.05  444.62 1076.14  448.52 1076.48  455.39 1077.01  469.27 1078.16
  473.94  1078.4  484.07 1078.92  490.02 1079.31  493.38 1079.38  505.58 1079.59
  509.64 1079.66  510.77 1079.67  512.75 1079.69  531.52 1079.85  541.43 1079.98
  552.27 1080.11  570.11 1080.33  573.02 1080.36  580.65  1080.4  590.93 1080.45
  593.77 1080.49  598.78 1080.55  614.52 1080.67  623.43 1080.77  635.27 1080.85
  639.69 1080.89  655.71 1080.95  656.02 1080.95  656.14 1080.96  676.77 1081.13
  684.81 1081.21  697.52 1081.31  704.72 1081.35  718.27 1081.51  720.98 1081.54
  730.78 1081.66  737.24 1081.72  739.02 1081.74  753.49 1081.92  759.77 1082.01
  769.74 1082.17  780.52 1082.32     786 1082.41  801.27 1082.58  802.26  1082.6
  805.85 1082.63  822.02 1082.77  828.19 1082.83  842.77 1082.95  856.87  1083.1
  863.52 1083.16  880.92 1083.38  884.27 1083.42   899.8 1083.61  905.02 1083.69
  916.05 1083.82  925.77 1083.96   942.9 1084.19  946.52 1084.23  948.57 1084.26
  955.98 1084.33  967.27 1084.42  981.08 1084.46  988.02 1084.47 1000.25 1084.53
 1008.77 1084.56 1028.93 1084.73 1029.52 1084.74 1029.85 1084.74 1031.06 1084.76
 1050.27 1084.97 1057.61 1085.07 1071.02 1085.24 1086.28 1085.42 1091.77 1085.48
 1106.12 1085.62 1112.52 1085.68 1114.96 1085.71 1133.27 1085.88 1143.64    1086
 1154.02 1086.11 1172.31 1086.33 1174.77 1086.36 1181.19 1086.42 1192.41 1086.51
 1195.52 1086.53 1200.99 1086.58 1216.27 1086.71 1229.67 1086.86 1237.02 1086.93
 1256.26 1087.19 1257.77 1087.21  1273.7 1087.43 1278.52  1087.5 1289.96 1087.62
 1299.27  1087.7  1315.7 1087.78 1320.02 1087.81 1331.33 1087.85 1340.77 1087.88
 1344.37  1087.9 1361.52 1087.98 1373.05 1088.07 1382.27 1088.14 1401.73 1088.29
 1403.02  1088.3 1406.39 1088.33 1423.77 1088.46  1430.4  1088.5 1444.52  1088.6
 1459.08 1088.64 1465.27 1088.66 1481.47 1088.71 1486.02 1088.73 1487.76 1088.74
 1506.77  1088.9 1516.43 1088.99 1527.52 1089.11 1545.11  1089.3 1548.27 1089.33
 1556.53 1089.43 1569.02 1089.61 1573.79 1089.67 1589.77  1089.9 1602.46 1090.04
 1610.52 1090.13 1631.14 1090.31 1631.27 1090.31  1631.6 1090.32 1652.02 1090.48
 1659.82 1090.54 1672.77 1090.63 1688.49 1090.74 1693.52 1090.77 1706.67 1090.88
 1714.27 1090.94 1717.17 1090.96 1735.02 1091.11 1745.85 1091.17 1755.77 1091.25
 1774.52 1091.28 1776.52 1091.29 1781.73 1091.31 1797.27 1091.39  1803.2 1091.47
 1818.02 1091.61 1831.87  1091.8 1838.77 1091.86 1856.81 1092.04 1859.52 1092.07
```

```
 1860.55 1092.08 1880.27 1092.23 1889.23 1092.32 1901.02 1092.42  1917.9 1092.59
 1921.77 1092.63 1931.87 1092.73 1942.52 1092.81 1946.59 1092.85 1963.27 1093.01
 1975.27 1093.17 1984.02 1093.29 1999.76 1093.53

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0     .03  223.97     .03  473.94    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        223.97  473.94              200     200  235.02             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.51  * Reach Len. (ft)         *  200.00  *  200.00  *  235.02  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3174.36  * 4677.95  * 9075.41  *
* E.G. Slope (ft/ft)      *0.000001  * Area (sq ft)            * 3174.36  * 4677.95  * 9075.41  *
* Q Total (cfs)           *-4245.56  * Flow (cfs)              *-1083.01  *-1942.74  *-1219.81  *
* Top Width (ft)          * 1909.56  * Top Width (ft)          *  223.97  *  249.97  * 1435.62  *
* Vel Total (ft/s)        *   -0.25  * Avg. Vel. (ft/s)        *   -0.34  *   -0.42  *   -0.13  *
* Max Chl Dpth (ft)       *   20.60  * Hydr. Depth (ft)        *   14.17  *   18.71  *    6.32  *
* Conv. Total (cfs)       *3565802.0  * Conv. (cfs)            *  909606.5  *1631689.0  *1024506.0  *
* Length Wtd. (ft)        *  209.48  * Wetted Per. (ft)        *  228.12  *  250.32  * 1435.71  *
* Min Ch El (ft)          * 1071.91  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.81  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1824.09  * 8797.54  *10803.79  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  127.96  *  391.85  * 1447.40  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                 RS: 30099.98

INPUT
Description:
Station Elevation Data     num=     210
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    1.84 1090.61    8.13 1089.75   22.59 1086.62   24.38 1086.17   30.89 1084.58
   43.34 1081.55   48.09 1080.63   64.09  1077.1   73.15 1076.57   84.84    1076
  105.44 1075.58  105.59 1075.58  105.95 1075.58  126.34 1075.68  134.12 1075.83
  147.09 1076.05  162.79 1076.33  167.84 1076.42  170.69 1076.46  181.02 1076.54
  188.59 1076.59  203.21 1076.56  209.34 1076.51  220.15 1076.06   226.4 1075.86
  230.09 1075.74  248.82  1073.3  250.84 1073.07  251.97 1072.97  256.09 1072.74
  271.59 1071.88   277.5 1071.87  292.34  1071.7  306.18 1071.92  313.09 1072.02
  331.16 1072.23  333.26 1072.25  333.84 1072.26  349.51 1072.42  354.59 1072.46
  363.53 1072.57  375.34 1072.71  382.02  1072.8  396.09 1073.06  406.22 1073.27
  416.84 1073.51  430.79 1073.98  437.59 1074.26  447.05 1074.86  458.34 1075.68
  463.31 1076.03  479.09 1077.25  479.56 1077.27   481.3 1077.38  499.84 1078.37
  506.91 1078.63  520.59 1079.12  535.59 1079.48  539.25 1079.56  541.34  1079.6
  556.36 1080.05  560.84 1080.06  562.09 1080.03  564.27 1080.08  642.13 1080.08
  645.09 1080.12   650.3 1080.21  665.84 1080.44  674.63 1080.51  686.59 1080.63
  690.89 1080.64   706.5 1080.74  707.15 1080.74  707.34 1080.74  707.65 1080.75
  728.09 1080.94  736.33 1081.02  748.84 1081.16  755.92 1081.26  769.59 1081.35
  781.57 1081.47  790.34 1081.56  793.68 1081.59  811.09  1081.8  822.35 1081.92
  831.84 1082.03  851.03 1082.27  852.59 1082.29  856.63 1082.34  869.72 1082.51
  873.34 1082.55  885.97 1082.69  894.09 1082.78  908.38 1082.91  914.84 1082.98
  918.49 1083.03  931.71 1083.14  934.75 1083.17  935.59 1083.18  937.06  1083.2
  956.34 1083.47  965.74 1083.59  977.09 1083.75  994.41 1083.98  997.84 1084.02
 1006.77 1084.15 1018.59 1084.33 1023.09 1084.38 1039.34 1084.58 1048.54 1084.66
 1060.09 1084.79 1080.44 1084.96 1080.84 1084.96 1081.84 1084.97 1101.59 1085.11
 1113.56 1085.19 1122.34 1085.26 1129.82 1085.33 1143.09 1085.45 1156.91 1085.59
 1163.84 1085.67 1166.48 1085.69 1184.59 1085.89 1195.16 1085.99 1205.34 1086.09
 1223.83 1086.24 1226.09 1086.26 1231.97 1086.31 1246.84 1086.42 1252.51 1086.46
 1267.59 1086.58 1281.19  1086.7 1288.34 1086.77 1307.04 1086.95 1309.09 1086.97
 1309.86 1086.98 1329.84  1087.2 1338.54  1087.3 1350.59 1087.44 1367.22 1087.62
 1371.34 1087.67 1382.11 1087.78 1392.09  1087.9 1395.89 1087.94 1412.83 1088.14
 1424.57 1088.28 1433.59 1088.39 1453.25  1088.6 1454.34 1088.62 1454.95 1088.62
 1457.18 1088.65 1475.09 1088.84 1481.92 1088.93 1495.84 1089.12  1510.6 1089.37
 1516.59 1089.46 1532.24 1089.68 1537.33 1089.74 1539.28 1089.76 1558.08 1089.88
 1567.95 1089.96 1578.84 1090.02 1596.63 1090.26 1599.59 1090.29 1607.32 1090.41
 1620.34 1090.61  1625.3 1090.67 1641.09 1090.89 1653.98 1091.02 1661.83  1091.1
 1682.38 1091.29 1682.58 1091.29 1682.66  1091.3 1703.34 1091.44 1711.33 1091.49
 1724.09 1091.57 1740.01 1091.68 1744.84 1091.71 1757.45 1091.81 1765.59 1091.87
 1768.69 1091.89 1786.33 1092.02 1797.36 1092.09 1807.08 1092.18 1826.04 1092.32
 1827.84 1092.33 1832.52 1092.37 1848.59 1092.52 1854.72  1092.6 1869.34 1092.77
 1883.39 1092.96 1890.09 1093.04 1907.59 1093.28 1910.83 1093.33 1912.07 1093.34
 1931.58 1093.64 1942.65  1093.8 1952.34 1093.91 1969.42 1094.07 1973.09 1094.11
 1982.65 1094.19 1993.84 1094.28  1998.1 1094.32 2014.59 1094.48 2026.78 1094.55
 2035.33 1094.63 2055.45 1094.77 2056.08 1094.77 2057.72 1094.79 2058.19  1094.8

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    1.84     .03   226.4     .03  539.25    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         226.4  539.25              200     200  366.28             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.51  * Reach Len. (ft)         *  200.00  *  200.00  *  366.28  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3177.14  * 5691.37  * 8550.64  *
* E.G. Slope (ft/ft)      *0.000002  * Area (sq ft)            * 3177.14  * 5691.37  * 8550.64  *
* Q Total (cfs)           *-4945.07  * Flow (cfs)              *-1171.49  *-2504.50  *-1269.09  *
* Top Width (ft)          * 1845.14  * Top Width (ft)          *  224.56  *  312.85  * 1307.73  *
* Vel Total (ft/s)        *   -0.28  * Avg. Vel. (ft/s)        *   -0.37  *   -0.44  *   -0.15  *
* Max Chl Dpth (ft)       *   20.81  * Hydr. Depth (ft)        *   14.15  *   18.19  *    6.54  *
* Conv. Total (cfs)       *3846792.0  * Conv. (cfs)            *  911304.3  *1948260.0  *987228.1  *
* Length Wtd. (ft)        *  229.98  * Wetted Per. (ft)        *  227.99  *  313.24  * 1307.81  *
* Min Ch El (ft)          * 1071.70  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.69  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1809.51  * 8773.74  *10756.24  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  126.93  *  390.56  * 1440.00  *
*****************************************************************************************
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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: FRS
REACH: FRS1                RS: 29899.98

INPUT
Description:
Station Elevation Data     num=      202
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    8.91 1089.93   10.83 1089.43   29.66 1084.51   39.51 1082.08   50.41 1079.32
   68.19  1076.3   71.16  1075.7   78.93 1075.44    89.1  1075.1   91.91 1075.04
   96.86 1075.05  112.66 1075.02  121.61  1075.1  133.41 1075.22  137.86 1075.27
     154 1075.45  154.16 1075.45  154.22 1075.45  174.91 1075.63  182.89 1075.68
  195.66 1075.76  211.57 1075.77  216.41 1075.78  228.48 1075.57  229.07 1075.56
  237.16 1075.27  251.67 1072.71  257.91 1072.11  268.92 1071.86  278.66 1071.68
   297.6 1071.99  299.41 1072.01  300.43 1072.02  304.13 1072.08  316.69 1072.28
  320.16 1072.34  332.95 1072.39  340.91 1072.43  354.95 1072.42  361.66 1072.43
  365.46 1072.44  379.21 1072.41  382.41  1072.4  397.97 1072.38  403.16 1072.36
  412.31 1072.33  423.91 1072.29  440.99 1072.21  444.66 1072.18  446.74 1072.17
  454.27 1072.11  465.41 1072.03  469.67 1071.99  486.16 1071.83  498.34 1071.72
  506.91 1071.64  527.02 1071.59  527.66 1071.59  529.34  1071.6  548.41 1071.74
  560.53 1071.85  569.16 1071.92  576.79 1071.96  589.91 1072.03  604.41 1072.08
  610.66 1072.09  625.56 1072.11  631.41 1072.11  641.82  1072.1  652.16 1072.11
   670.4 1072.12  672.91 1072.12  674.33 1072.12  679.48 1072.15  693.66 1072.24
  699.08  1072.4  714.41 1072.71  727.75 1073.78  735.16 1074.14  754.54 1077.22
  755.61 1077.39  755.91 1077.43  756.43 1077.47  776.66 1079.48   778.4 1079.54
  785.11 1079.79  797.41  1080.3  804.38 1080.46  818.16 1080.79  820.64 1080.83
  829.61 1080.96  836.89 1081.08  838.91 1081.11  842.46 1081.14  859.66 1081.32
  871.14 1081.44  880.41 1081.53  885.66 1081.59  901.16 1081.79  904.68 1081.84
  921.91  1082.1  928.49 1082.18  942.66 1082.36  957.17 1082.48  963.41 1082.54
  979.74 1082.67  984.16 1082.72  985.84 1082.74 1004.91 1082.94 1014.52 1083.04
 1025.66 1083.17  1043.2 1083.36 1046.41  1083.4 1054.82 1083.49 1064.49 1083.65
 1067.16 1083.69 1080.74 1083.91 1087.91 1084.01 1100.55  1084.2 1108.66 1084.34
 1129.23 1084.75 1129.41 1084.75 1129.88 1084.76 1145.76 1085.18 1150.16 1085.29
  1157.9 1085.51 1170.91 1085.87 1186.58 1086.32 1191.66 1086.48 1204.95 1086.81
 1212.41 1086.95 1215.26 1086.98 1233.16 1087.24 1243.31 1087.36 1253.91 1087.44
 1259.57 1087.54 1274.66 1087.77 1280.02 1087.86 1295.41 1087.98 1301.29 1087.95
 1316.16 1087.92 1329.96  1087.9 1336.91 1087.87 1355.09 1087.91 1357.66 1087.92
 1358.64 1087.93 1378.41 1088.06 1387.32 1088.13 1399.16 1088.21 1415.99 1088.33
 1419.91 1088.36 1430.15 1088.43 1440.66 1088.51 1444.67 1088.54 1461.41 1088.66
 1473.34 1088.74 1482.16 1088.81 1502.02 1088.93 1502.91 1088.94 1505.23 1088.95
 1523.66 1089.08  1530.7 1089.14 1544.41 1089.28 1559.37 1089.46 1565.16 1089.53
 1580.29 1089.74 1585.91 1089.83 1588.05 1089.87 1606.66 1090.14 1616.73 1090.27
 1627.41 1090.38  1645.4 1090.57 1648.16  1090.6 1655.36 1090.67 1668.91 1090.81
 1674.08 1090.87 1689.66 1091.04 1702.76  1091.2 1710.41 1091.31 1730.43 1091.64
    1731 1091.65 1731.16 1091.65 1731.43 1091.65 1751.91 1092.02 1760.11 1092.12
 1772.66 1092.31 1788.79  1092.4 1793.41 1092.42 1805.49 1092.45 1814.16 1092.48
 1817.47  1092.5 1834.91 1092.58 1846.15 1092.68 1855.66 1092.75 1874.82 1092.93
 1876.41 1092.95 1880.56 1092.99 1897.16 1093.17  1903.5 1093.28 1917.91 1093.51
 1932.18 1093.78 1936.31 1093.86

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    8.91     .03  228.48     .03   778.4    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        228.48   778.4               200     200  200.53             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.51  * Reach Len. (ft)         *  200.00  *  200.00  *  200.53  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3325.99  *10916.83  * 5948.39  *
* E.G. Slope (ft/ft)      *0.000001  * Area (sq ft)            * 3325.99  *10916.83  * 5948.39  *
* Q Total (cfs)           *-5568.64  * Flow (cfs)              * -992.87  *-3949.51  * -626.26  *
* Top Width (ft)          * 1809.65  * Top Width (ft)          *  219.57  *  549.92  * 1040.16  *
* Vel Total (ft/s)        *   -0.28  * Avg. Vel. (ft/s)        *   -0.30  *   -0.36  *   -0.11  *
* Max Chl Dpth (ft)       *   20.92  * Hydr. Depth (ft)        *   15.15  *   19.85  *    5.72  *
* Conv. Total (cfs)       *5584836.0  * Conv. (cfs)            *  995759.6  *3960994.0  *628082.4  *
* Length Wtd. (ft)        *  200.06  * Wetted Per. (ft)        *  223.81  *  550.61  * 1040.27  *
* Min Ch El (ft)          * 1071.59  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.45  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1794.58  * 8735.61  *10695.28  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  125.91  *  388.58  * 1430.13  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 29699.98

INPUT
Description:
Station Elevation Data     num=      182
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 1089.84    8.45 1089.24   16.93 1087.74    24.7 1085.85   37.68 1082.71
   52.85 1079.18   58.43 1077.89   60.56 1077.68   79.18 1075.02  224.43 1074.85
  229.98 1074.38  232.62 1074.16  245.18 1073.28  261.29 1072.22  265.93 1071.83
  278.05 1071.57  490.71 1071.34  494.18 1071.34  496.14 1071.34  503.26 1071.35
  514.93 1071.36  528.66 1071.39  535.68 1071.41  548.06 1071.43  556.43 1071.45
  561.17 1071.45  577.18 1071.45  577.43 1071.45  578.32 1071.44  593.68  1071.4
  597.93 1071.39  605.41 1071.37  618.68 1071.32  634.09 1071.32  639.43 1071.32
  642.45 1071.34   653.4  1071.4  660.18 1071.43  662.77 1071.46  680.93 1071.67
  691.44 1071.87  701.68 1072.05  720.12 1072.45  722.43  1072.5  728.46 1072.77
  739.99 1073.32  743.18 1073.51  756.24 1074.85  763.93 1076.13   772.5 1077.38
  784.68 1078.86  793.52 1079.29  803.53 1079.77  805.43 1079.84  821.27 1080.27
  826.18 1080.37  837.53 1080.58  846.93 1080.74   863.5 1080.99  867.68 1081.05
   878.6  1081.2  886.29  1081.3  888.43 1081.33  892.18 1081.38  909.18 1081.58
  920.85 1081.72  929.93 1081.83  935.07  1081.9  950.68  1082.1  953.67 1082.14
  967.58 1082.32  971.43 1082.37  978.21 1082.45  992.18 1082.65  1000.1 1082.77
 1012.93 1082.94 1016.35    1083 1028.73 1083.21  1032.6 1083.28 1033.68 1083.29
 1035.57 1083.34 1054.43 1083.81 1064.25 1084.05 1075.18 1084.36 1092.92 1084.64
```

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1095.93 1084.71 1103.81 1084.77 1116.68 1084.86  1121.6 1084.92 1137.43 1084.99
1150.28 1085.26 1158.18 1085.31 1178.87 1085.81 1178.93 1085.81 1178.95 1085.81
1199.68 1086.42 1207.63 1086.65 1220.43 1087.01 1236.31 1087.44 1241.18 1087.59
1253.94 1087.86 1261.93 1088.02 1264.98 1088.06 1282.68 1088.31 1293.66 1088.44
1303.43 1088.56 1322.34 1088.67 1324.18 1088.69 1329.01 1088.69 1344.93 1088.72
1351.01 1088.74 1365.68 1088.76 1379.69 1088.78 1386.43  1088.8 1404.07 1088.86
1407.18 1088.88 1408.36 1088.88 1427.93    1089 1437.04 1089.04 1448.68 1089.15
1465.72 1089.26 1469.43  1089.3 1479.14 1089.38 1490.18 1089.48 1494.39 1089.51
1510.93 1089.67 1523.07 1089.77 1531.68 1089.85 1551.75 1090.03 1552.43 1090.04
1554.21 1090.06 1573.18  1090.3 1580.42 1090.39 1593.93 1090.57  1609.1 1090.75
1614.68 1090.82 1629.28 1090.93 1635.43 1090.97 1637.78 1090.98 1656.18 1091.04
1666.45 1091.09 1676.93 1091.15 1695.13  1091.3 1697.68 1091.33 1704.34 1091.39
1715.38 1091.51 1718.43 1091.54 1723.81  1091.6 1739.18  1091.8 1752.48 1092.02
1759.93 1092.15 1779.42 1092.46 1780.68 1092.48 1781.16 1092.48 1801.43 1092.67
1809.84 1092.73 1822.18 1092.81 1838.51 1092.91 1842.93 1092.92 1854.48 1092.97
1863.68 1093.02 1867.19 1093.05 1884.43 1093.13 1895.87 1093.22 1905.18 1093.27
1924.54 1093.43 1925.93 1093.44 1929.55 1093.48 1946.68 1093.65 1953.22 1093.72
1967.43 1093.88  1981.9 1094.06 1988.18 1094.12 2004.62 1094.29 2008.93 1094.33
2010.57 1094.35 2029.68 1094.48 2039.25 1094.59 2050.43 1094.71 2067.93 1094.75
2071.18 1094.79 2071.85 1094.79

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***********************************************
       0     .03  229.98     .03  793.52    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        229.98  793.52              200     200  200.21             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.51  * Reach Len. (ft)         *  200.00  *  200.00  *  200.21  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3447.04  *11492.35  * 5539.96  *
* E.G. Slope (ft/ft)      *0.000001  * Area (sq ft)            * 3447.04  *11492.35  * 5539.96  *
* Q Total (cfs)           *-6103.37  * Flow (cfs)              *-1070.21  *-4431.59  * -601.57  *
* Top Width (ft)          * 1783.83  * Top Width (ft)          *  229.98  *  563.54  *  990.31  *
* Vel Total (ft/s)        *   -0.30  * Avg. Vel. (ft/s)        *   -0.31  *   -0.39  *   -0.11  *
* Max Chl Dpth (ft)       *   21.19  * Hydr. Depth (ft)        *   14.99  *   20.39  *    5.59  *
* Conv. Total (cfs)       *5848288.0 * Conv. (cfs)             *1025485.0 *4246376.0 *576427.1  *
* Length Wtd. (ft)        *  200.02  * Wetted Per. (ft)        *  234.17  *  564.03  *  990.43  *
* Min Ch El (ft)          * 1071.32  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.42  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1779.03  * 8684.16  *10668.84  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  124.88  *  386.02  * 1425.45  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                 RS: 29499.98

INPUT
Description:
Station Elevation Data     num=     180
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*****************************************************************************
    2.57 1090.48     7.46 1089.75    23.32 1086.07    23.72 1085.97    25.14 1085.61
   44.07  1080.8    51.3 1079.09    64.82 1075.81    79.97 1074.91   229.59 1074.82
  230.82 1074.78   250.35 1072.77   251.57 1072.62   252.04 1072.61   272.32 1071.35
  413.87 1071.44   417.57 1071.43   430.13 1071.45   438.32 1071.47   452.78 1071.54
  459.07 1071.56   462.64 1071.59   475.55 1071.66   478.89 1071.68   479.82 1071.68
  481.45 1071.69   500.57  1071.8    511.4 1071.84   521.32 1071.87   527.66  1071.9
  542.07 1071.94   543.92 1071.94   550.62 1071.95   562.82 1071.96   645.82    1072
  653.51  1072.2   666.57 1072.54   682.19 1072.85   687.32 1072.99   690.23 1073.06
  700.76 1073.19   706.49 1073.28   708.07  1073.3   722.74 1073.82   728.82  1074.1
  739.54 1074.93   749.57 1075.61   755.26 1076.14   770.32 1077.99   771.51 1078.16
  775.82 1078.79   787.76 1080.49   791.07 1080.85   791.25 1080.86   796.89 1081.06
  811.82 1081.58   825.57 1081.88   832.57 1082.04   850.89 1082.34   853.32 1082.38
  854.25 1082.39   874.07 1082.67   882.92 1082.79   894.82 1082.97    911.6 1083.23
  915.57  1083.3   925.96 1083.46   936.32 1083.62   950.33 1083.81   957.07 1083.94
  966.59 1084.04   977.82 1084.24   997.63 1084.55   998.57 1084.56 1001.02 1084.61
 1015.36  1084.9  1019.32    1085  1026.31 1085.13  1040.07 1085.39  1054.98 1085.58
 1060.82 1085.63   1076.1 1085.73  1081.57 1085.76  1083.66 1085.77  1102.32 1085.77
 1112.34 1085.77  1123.07 1085.73  1141.01  1085.7  1143.82  1085.7  1151.16 1085.69
 1164.57 1085.67  1169.69 1085.66  1185.32 1085.65  1198.37 1085.69  1206.07 1085.75
 1226.23 1086.11  1226.82 1086.12  1227.04 1086.12  1247.57 1086.43  1255.72 1086.53
 1268.32 1086.63   1284.4 1086.72  1289.07 1086.73  1291.72 1086.77   1301.3 1086.77
 1309.82 1086.79  1313.07  1086.8  1330.57 1087.02  1341.75 1087.17  1351.32 1087.28
 1370.43  1087.5  1372.08 1087.52  1376.37 1087.58  1392.82 1087.83   1399.1  1087.9
 1413.57 1088.07  1427.78 1088.13  1434.32 1088.18  1451.43 1088.41  1455.07 1088.46
 1456.45 1088.48  1475.82 1088.79  1485.13 1088.88  1496.57    1089  1513.81 1089.13
 1517.32 1089.16  1526.51 1089.24  1538.07 1089.32  1542.48 1089.37  1558.82 1089.53
 1571.16 1089.68  1579.57 1089.78  1599.84 1090.04  1600.33 1090.05  1601.57 1090.06
 1616.85 1090.26  1621.07 1090.31  1628.51  1090.4  1641.82 1090.56  1649.36 1090.65
 1662.57 1090.81  1676.64    1091  1683.32 1091.08  1685.88 1091.12  1704.07  1091.3
 1714.55  1091.4  1724.83 1091.46  1743.23  1091.6  1745.57 1091.61   1746.9 1091.62
 1751.71 1091.66  1763.16 1091.73  1766.32 1091.75  1779.41 1091.84  1787.07  1091.9
 1800.58 1092.03  1807.82 1092.09  1826.78  1092.3  1828.57 1092.32  1829.26 1092.32
 1849.33 1092.54  1857.94 1092.63  1870.07 1092.76  1886.61 1092.92  1890.82 1092.97
 1901.84 1093.07  1911.57 1093.16  1915.29 1093.19  1932.32 1093.33  1943.96 1093.44
 1953.07 1093.51  1972.64 1093.71  1973.83 1093.72  1976.91 1093.76  1994.57 1093.98
 2001.32 1094.06  2015.32 1094.23  2029.99 1094.37  2036.07 1094.43  2049.87 1094.57

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***********************************************
    2.57     .03  229.59     .03  791.25    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        229.59  791.25              200     200  394.67             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  200.00  *  200.00  *  394.67  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3465.92  *11213.08  * 5513.02  *
* E.G. Slope (ft/ft)      *0.000001  * Area (sq ft)            * 3465.92  *11213.08  * 5513.02  *
* Q Total (cfs)           *-6580.52  * Flow (cfs)              *-1211.09  *-4734.02  * -635.41  *
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* Top Width (ft)          * 1843.48  * Top Width (ft)          *  227.02  *  561.66  * 1054.80  *
* Vel Total (ft/s)        *   -0.33  * Avg. Vel. (ft/s)        *   -0.35  *   -0.42  *   -0.12  *
* Max Chl Dpth (ft)       *   21.15  * Hydr. Depth (ft)        *   15.27  *   19.96  *    5.23  *
* Conv. Total (cfs)       *5677635.0  * Conv. (cfs)             *1044924.0  *4084481.0  *548229.1  *
* Length Wtd. (ft)        *  237.99  * Wetted Per. (ft)        *  230.80  *  562.23  * 1054.88  *
* Min Ch El (ft)          * 1071.35  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.43  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)   * 1763.16  * 8632.04  *10643.44  *
* C & E Loss (ft)         *          * Cum SA (acres)         *  123.83  *  383.44  * 1420.75  *
*****************************************************************************************
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Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 29299.98

INPUT
Description:
Station Elevation Data num= 207

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.77	1089.86	13.17	1088.71	29.52	1084.35	41.84	1081.26	50.27	1079.1
70.52	1075.81	201.35	1075.81	216.27	1075.63	217.6	1075.59	222.44	1075.29
229.72	1074.82	237.02	1074.35	242.58	1073.72	257.77	1071.5	271.26	1071.1
278.52	1070.93	297.51	1070.77	299.27	1070.76	299.93	1070.77	320.02	1070.95
331.4	1070.99	340.77	1071	357.29	1071.03	361.52	1071.04	372.58	1071.08
382.27	1071.12	396.42	1071.24	403.02	1071.41	412.68	1071.55	423.77	1072.32
443.32	1073.96	444.52	1074.05	445.19	1074.15	447.64	1074.24	465.27	1075.36
477.71	1076.6	486.02	1077.46	500.67	1077.96	501.41	1077.93	522.71	1078.68
527.52	1078.73	529.35	1078.73	589.77	1078.84	631.27	1079.21	644.05	1079.4
652.02	1079.47	672.73	1079.86	672.77	1079.86	672.85	1079.86	693.52	1079.77
705.29	1079.8	714.27	1080.26	721.55	1080.39	735.02	1080.58	747.92	1080.81
755.77	1080.93	770.32	1081.11	776.52	1081.21	787.43	1081.33	797.27	1081.34
816.11	1081.39	818.02	1081.38	819.09	1081.4	822.99	1081.37	835.34	1081.32
838.77	1081.34	851.6	1081.45	859.52	1081.34	873.46	1081.32	880.27	1081.44
884.12	1081.48	898.05	1081.77	901.02	1081.86	916.63	1081.98	921.77	1082.03
930.83	1082.17	942.52	1082.38	959.5	1082.67	963.27	1082.74	973.12	1082.88
981.65	1082.98	984.02	1083.01	997.91	1083.24	1004.77	1083.37	1014.17	1083.55
1025.52	1083.75	1045.53	1084	1046.27	1084.01	1046.68	1084.01	1048.19	1084.03
1067.02	1084.26	1074.21	1084.36	1087.77	1084.53	1102.88	1084.75	1108.52	1084.83
1123.26	1085.05	1129.27	1085.13	1131.56	1085.16	1150.02	1085.37	1160.24	1085.48
1170.77	1085.59	1188.91	1085.8	1191.52	1085.83	1198.32	1085.91	1212.27	1086.06
1217.59	1086.12	1233.02	1086.26	1246.27	1086.37	1253.77	1086.43	1273.4	1086.56
1274.52	1086.57	1274.94	1086.57	1295.27	1086.66	1303.62	1086.71	1316.02	1086.76
1332.3	1086.88	1336.77	1086.92	1348.46	1087.06	1357.52	1087.18	1360.97	1087.23
1378.27	1087.5	1388.06	1087.64	1399.02	1087.77	1404.32	1087.82	1419.77	1087.97
1423.52	1088	1440.52	1088.14	1447	1088.19	1461.27	1088.32	1475.68	1088.43
1482.02	1088.48	1498.6	1088.62	1502.77	1088.66	1504.35	1088.68	1523.52	1088.87
1533.03	1088.98	1544.27	1089.1	1561.71	1089.28	1565.02	1089.31	1573.66	1089.39
1583.14	1089.48	1585.77	1089.51	1599.4	1089.64	1606.52	1089.71	1619.06	1089.83
1627.27	1089.91	1647.74	1090.11	1648.02	1090.11	1648.17	1090.11	1648.73	1090.12
1664.42	1090.27	1668.77	1090.32	1676.42	1090.41	1689.52	1090.56	1696.94	1090.65
1710.27	1090.82	1713.19	1090.86	1723.8	1090.99	1731.02	1091.07	1733.77	1091.1
1751.77	1091.29	1762.44	1091.4	1772.52	1091.49	1791.12	1091.67	1793.27	1091.69
1798.87	1091.74	1814.02	1091.84	1819.8	1091.88	1834.77	1091.96	1848.47	1092.07
1855.52	1092.12	1873.93	1092.3	1876.27	1092.33	1877.15	1092.34	1897.02	1092.53
1905.83	1092.62	1917.77	1092.72	1934.5	1092.88	1938.52	1092.91	1949.01	1093.01
1959.27	1093.1	1963.18	1093.15	1980.02	1093.31	1991.86	1093.45	2000.77	1093.54
2020.53	1093.74	2021.52	1093.75	2024.07	1093.77	2042.27	1093.89	2049.21	1093.94
2063.02	1094.05	2077.89	1094.17	2083.77	1094.22	2099.14	1094.34	2103.34	1094.37
2104.52	1094.38	2106.56	1094.4	2125.27	1094.53	2135.24	1094.61	2146.02	1094.66
2163.92	1094.82	2166.77	1094.84	2174.21	1094.89	2187.52	1094.97	2192.59	1095.01
2208.27	1095.11	2208.87	1095.12						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8.77	.03	229.72	.03	501.41	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
229.72	501.41	200	200	203.38	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

```
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  200.00  *  200.00  *  203.38  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3306.33  * 5417.56  * 9824.71  *
* E.G. Slope (ft/ft)      *0.000003  * Area (sq ft)            * 3306.33  * 5417.56  * 9824.71  *
* Q Total (cfs)           *-7001.25  * Flow (cfs)              *-1657.95  *-3328.30  *-2015.01  *
* Top Width (ft)          * 1885.43  * Top Width (ft)          *  220.95  *  271.69  * 1392.79  *
* Vel Total (ft/s)        *   -0.38  * Avg. Vel. (ft/s)        *   -0.50  *   -0.61  *   -0.21  *
* Max Chl Dpth (ft)       *   21.74  * Hydr. Depth (ft)        *   14.96  *   19.94  *    7.05  *
* Conv. Total (cfs)       *4145740.0  * Conv. (cfs)             *981741.5  *1970828.0  *1193171.0  *
* Length Wtd. (ft)        *  201.02  * Wetted Per. (ft)        *  225.26  *  272.17  * 1392.90  *
* Min Ch El (ft)          * 1070.76  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.76  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)   * 1747.62  * 8593.86  *10573.96  *
* C & E Loss (ft)         *          * Cum SA (acres)         *  122.80  *  381.53  * 1409.67  *
*****************************************************************************************
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Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 29099.98

INPUT
Description:
Station Elevation Data num= 208

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1089.18	5.22	1088.43	16.48	1087.86	22.84	1086.21	37.22	1082.48
45.91	1080.3	55.36	1077.94	57.97	1077.26	62.57	1076.97	78.72	1075.21
223.97	1075.3	231.54	1074.35	234.64	1073.96	244.73	1072.93	263.32	1071.37
265.48	1071.15	271.12	1070.95	286.22	1070.47	291.99	1070.53	306.97	1070.58
320.67	1070.77	327.72	1070.89	346.18	1070.99	347.98	1071	348.47	1071.01
364.23	1071.11	369.23	1071.15	378.02	1071.26	389.98	1071.39	396.74	1071.58
410.72	1072.16	413	1072.32	421.26	1073.12	431.47	1074.08	435.38	1074.45

```
 452.22 1076.14  464.05  1076.8  465.27 1076.87  472.97 1077.32  492.73 1077.97
 493.73 1078.01  496.32 1078.06  514.48 1078.36   526.8  1078.5  535.22 1078.67
 543.05 1078.77  555.97 1078.97  571.39 1079.18  576.72 1079.23  578.76 1079.27
 597.47 1079.48  608.08 1079.57  618.23 1079.74  624.34 1079.79  638.98 1079.95
 646.46 1080.03  659.72 1080.11  664.79 1080.19  680.47 1080.33  689.36  1080.4
 701.22 1080.57  721.53 1080.72  721.97 1080.73  722.14 1080.73  742.73  1080.8
 750.82 1080.85  763.48 1080.89  779.49 1081.04  784.22 1081.07  796.59 1081.29
 803.16 1081.42  804.97 1081.43  819.42 1081.52  825.72  1081.5  835.66 1081.52
 846.47 1081.41  851.92 1081.44  867.23 1081.68  871.66 1081.73  887.98 1082.02
  894.2 1082.13  908.72 1082.42  922.88  1082.6  929.47  1082.7  946.73 1082.83
 950.22 1082.85  951.55 1082.87  970.97 1083.05  980.23 1083.17  991.73 1083.33
1008.91 1083.55 1012.48  1083.6 1021.79 1083.72 1033.22 1083.86 1037.58 1083.91
1053.97 1084.14 1066.26 1084.28 1074.72 1084.37 1094.94 1084.52 1095.47 1084.52
1096.86 1084.54 1116.23 1084.71 1123.61  1084.8 1136.98 1084.94 1152.29 1085.15
1157.72 1085.22 1171.93 1085.41 1178.47 1085.49 1180.97 1085.52 1199.22 1085.71
1209.64  1085.8 1219.97 1085.89 1238.32 1086.04 1240.72 1086.06    1247 1086.11
1261.48 1086.21 1266.99 1086.24 1282.22 1086.35 1295.67 1086.44 1302.97  1086.5
1322.06 1086.62 1323.72 1086.62 1324.35 1086.62 1344.47 1086.71 1353.02 1086.75
1365.22 1086.83  1381.7 1086.89 1385.98 1086.91 1397.14 1086.99 1406.72  1087.1
1410.38 1087.07 1427.47 1087.19 1439.05 1087.46 1448.22 1087.54 1467.73 1087.68
1468.97 1087.68  1472.2 1087.72 1489.72 1087.91 1496.41 1088.01 1510.47 1088.22
1525.08 1088.45 1531.22 1088.54  1534.7 1088.58 1547.27 1088.73 1550.95 1088.77
1551.97 1088.79 1553.76  1088.8 1572.72 1088.93 1582.44 1089.01 1593.47 1089.09
1599.72 1089.15 1614.22 1089.33 1622.34 1089.43 1634.97 1089.59  1639.8 1089.63
1655.72 1089.78 1668.47 1089.91 1676.47 1089.97 1697.15 1090.19 1697.22 1090.19
1697.41 1090.19 1717.97 1090.38 1725.83 1090.44 1738.72 1090.55  1754.5 1090.69
1759.47 1090.74 1772.47 1090.92 1780.22 1091.01 1783.18 1091.05 1800.97 1091.28
1811.86 1091.39 1821.72  1091.5 1840.53 1091.68 1842.47  1091.7 1847.55 1091.75
1863.22 1091.87 1869.21 1091.92 1883.97 1092.04 1897.89 1092.16 1904.72 1092.22
1922.61 1092.37 1925.47 1092.39 1926.56  1092.4 1946.22 1092.55 1955.24 1092.62
1966.97 1092.71 1983.91 1092.86 1987.72 1092.89 1997.68 1092.99 2008.47 1093.11
2012.59 1093.16 2029.22 1093.35 2038.64 1093.44 2049.97 1093.58  2054.9 1093.63
2070.72  1093.8 2071.16 1093.81 2072.75 1093.82 2091.47 1094.03 2098.62 1094.12
2112.22 1094.28  2127.3 1094.47 2132.97 1094.55 2147.81 1094.72 2153.72 1094.78
2155.97  1094.8 2174.47 1094.98 2184.36 1095.06

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**************************************************
       0     .03  231.54     .03  465.27    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        231.54  465.27              200     200   200.1              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  200.00  *  200.00  *  200.10  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3457.36  * 4766.70  *10562.23  *
* E.G. Slope (ft/ft)      *0.000003  * Area (sq ft)            * 3457.36  * 4766.70  *10562.23  *
* Q Total (cfs)           *-7403.43  * Flow (cfs)              *-1858.10  *-3194.16  *-2351.18  *
* Top Width (ft)          * 1940.06  * Top Width (ft)          *  231.54  *  233.73  * 1474.79  *
* Vel Total (ft/s)        *   -0.39  * Avg. Vel. (ft/s)        *   -0.54  *   -0.67  *   -0.22  *
* Max Chl Dpth (ft)       *   22.03  * Hydr. Depth (ft)        *   14.93  *   20.39  *    7.16  *
* Conv. Total (cfs)       *4080195.0  * Conv. (cfs)            *1024037.0  *1760372.0  *1295786.0  *
* Length Wtd. (ft)        *  200.03  * Wetted Per. (ft)        *  236.43  *  234.13  * 1474.90  *
* Min Ch El (ft)          * 1070.47  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.82  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Prctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1732.09  * 8570.48  *10526.36  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  121.76  *  380.37  * 1402.97  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                 RS: 28899.98

INPUT
Description:
Station Elevation Data     num=     203
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
     2.9 1090.39      19 1087.04   23.65    1086    38.9 1082.26    44.4 1080.92
   55.15 1078.36   65.16 1076.33   82.78 1075.67   85.91 1075.51   87.67 1075.46
   94.06 1075.39  106.65 1075.27  111.46 1075.31   127.4 1075.39  140.14 1075.56
  148.15 1075.66  168.81 1075.94   168.9 1075.94  169.13 1075.94  189.66 1076.05
  197.49 1075.94  210.41 1075.84  217.72 1075.62  231.15 1075.03  231.82  1074.9
   244.2 1072.42  250.24 1071.14   251.9 1070.92  254.84  1070.8  272.65 1070.29
  282.75 1070.03  293.41 1069.87     299 1069.88  314.16 1070.04  319.27 1070.14
  334.91 1070.44  340.87 1070.57  355.65 1070.84  364.03 1070.98   376.4 1071.21
  394.33 1071.59  397.15 1071.66  398.22 1071.73  417.91 1072.66   426.9 1073.67
  438.66 1075.12  455.58 1076.59  459.41 1076.96   469.4 1077.44  472.07 1077.56
  480.15 1077.93  494.08 1078.29   500.9 1078.43  510.34 1078.56  521.65 1078.67
  526.59 1078.72  542.41 1078.81  542.85 1078.82  544.47 1078.83  563.16 1078.95
  570.28 1078.98  583.91 1079.08  591.61 1079.15  604.65 1079.21  607.87 1079.24
  619.53 1079.45   625.4 1079.54  627.64 1079.59  646.15 1079.82  656.31 1079.94
  666.91 1080.04  684.99 1080.18  687.66 1080.19  694.61 1080.25  708.41 1080.38
  721.66 1080.52  729.15  1080.6  742.34 1080.75   749.9 1080.83  769.67 1081.05
  770.65 1081.06  771.02 1081.07  791.41 1081.29  802.95 1081.41  812.16 1081.53
  828.38 1081.69  832.91 1081.73  844.74 1081.84  853.65  1081.9  857.06 1081.93
   874.4 1082.07  885.73 1082.19  895.15 1082.27  914.41  1082.5   915.9 1082.51
  919.81 1082.57  936.66 1082.78  943.09 1082.87  957.41 1083.06  971.76 1083.21
  978.15 1083.28  994.88 1083.41   998.9 1083.44 1000.44 1083.45 1019.65 1083.58
 1029.12 1083.67 1040.41 1083.76 1057.79 1083.96 1061.16 1083.99 1069.94 1084.08
 1081.91  1084.2 1095.57 1084.31 1102.65 1084.39 1115.15 1084.55  1123.4 1084.63
 1143.82 1085.17 1220.08 1085.37 1227.15 1085.43 1229.85 1085.47  1247.9  1085.7
 1258.53 1085.83 1268.65 1085.96  1287.2 1086.25 1289.41 1086.28 1295.15 1086.39
 1310.16 1086.65 1315.88 1086.73 1330.91 1086.94 1344.56 1087.07 1351.65 1087.13
 1370.22 1087.29  1372.4  1087.3 1373.23 1087.31 1393.16 1087.47 1401.91 1087.54
 1413.91 1087.62 1430.59 1087.75 1434.66 1087.78 1445.29 1087.87 1455.41 1087.95
 1459.26 1087.98 1476.15 1088.13 1487.94 1088.24  1496.9 1088.34 1516.62 1088.56
 1517.66 1088.58 1520.35 1088.61 1538.41 1088.85  1545.3 1088.94 1559.16 1089.14
 1573.97 1089.31  1579.9 1089.38 1595.42 1089.49 1600.65 1089.52 1602.65 1089.53
 1621.41 1089.59 1631.33 1089.64 1642.16 1089.69    1660 1089.78 1662.91 1089.79
 1670.49 1089.84 1683.66 1089.92 1688.68 1089.98  1704.4 1090.16 1717.36 1090.36
 1725.15 1090.48 1745.55 1090.78 1745.91 1090.79 1746.03 1090.79 1766.66 1090.96
 1774.71 1091.01 1787.41 1091.08 1803.38 1091.19 1808.16 1091.22 1820.63 1091.33
  1828.9 1091.39 1832.06 1091.43 1849.66 1091.57 1860.74 1091.69 1870.41 1091.77
 1889.41 1091.97 1891.16 1091.99 1895.69 1092.03 1911.91 1092.17 1918.09 1092.21
 1932.66  1092.3 1946.77  1092.4  1953.4 1092.44 1970.76  1092.6 1974.16 1092.63
```

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 1989.68 1092.79 1994.91 1092.85 2004.12 1092.97 2015.66  1093.1 2022.18 1093.17
 2036.41 1093.36 2045.83 1093.46 2057.16 1093.59 2070.95 1093.74 2077.91 1093.82
 2087.21 1093.92 2098.66 1094.03 2107.45 1094.11

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
     2.9     .03  231.82     .03  472.07    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        231.82  472.07              200     200   200.1              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  200.00  *  200.00  *  200.10  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3372.01  * 4924.89  *10417.75  *
* E.G. Slope (ft/ft)      *0.000004  * Area (sq ft)            * 3372.01  * 4924.89  *10417.75  *
* Q Total (cfs)           *-7789.88  * Flow (cfs)              *-1897.79  *-3485.80  *-2406.30  *
* Top Width (ft)          * 1957.23  * Top Width (ft)          *  228.92  *  240.25  * 1488.06  *
* Vel Total (ft/s)        *   -0.42  * Avg. Vel. (ft/s)        *   -0.56  *   -0.71  *   -0.23  *
* Max Chl Dpth (ft)       *   22.63  * Hydr. Depth (ft)        *   14.73  *   20.50  *    7.00  *
* Conv. Total (cfs)       *4075266.0  * Conv. (cfs)            *992824.8  *1823590.0  *1258851.0  *
* Length Wtd. (ft)        *  200.03  * Wetted Per. (ft)        *  232.66  *  240.94  * 1488.15  *
* Min Ch El (ft)          * 1069.87  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.83  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Prctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)   * 1716.41  * 8548.23  *10478.18  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  120.71  *  379.28  * 1396.17  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 28699.98

INPUT
Description:
Station Elevation Data     num=     216
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    6.95  1090.2   10.85 1089.82   17.73  1088.1    31.6 1084.59   39.46 1082.62
   52.35 1079.54   55.71 1078.78    67.9 1076.67   71.97 1075.91    73.1 1075.78
   75.08 1075.71   93.85 1074.93  103.76 1074.93   114.6 1074.89  132.44 1075.09
  135.35 1075.12  142.98 1075.17   156.1 1075.26  161.11 1075.31  176.85  1075.4
  189.79 1075.59   197.6 1075.68  218.04  1075.4  218.28 1075.39  218.35 1075.39
  233.61  1074.4  234.54 1074.34   239.1 1073.73   250.8 1071.62  259.85 1070.58
  275.82 1070.09   280.6 1069.94  283.31 1069.92  293.11  1069.9  301.35 1069.89
  304.49 1069.91   322.1    1070  333.17 1070.09  342.85 1070.17  361.85 1070.41
   363.6 1070.43  368.18 1070.51  384.35 1070.78  390.52 1070.95   405.1 1071.29
  413.36 1071.66  425.85  1072.4  443.25 1074.05  445.88 1074.32   446.6  1074.4
  447.88 1074.54  467.35 1075.98  476.55 1076.45  479.73 1076.74   488.1 1077.52
  494.64  1077.6  508.85    1078  518.31 1078.04   529.6 1078.04  533.91 1078.11
  550.35 1078.08  559.67 1078.75   571.1 1078.83  591.26 1078.87  591.85 1078.88
  593.39 1078.92   612.6 1079.44  619.94 1079.45  633.35 1079.59  648.61 1079.43
   654.1 1079.44  668.45 1079.71  674.85 1079.86  689.72 1080.08   695.6 1080.11
  705.96 1080.17  716.35 1080.24  722.23 1080.29   737.1 1080.48  738.49  1080.5
  743.52 1080.56  757.85 1080.75  763.32 1080.78   778.6 1080.91     792 1081.13
  799.35 1081.23  818.59 1081.35   820.1 1081.36  820.67 1081.36  840.85 1081.53
  849.35 1081.63   861.6 1081.75  878.03  1081.9  882.35 1081.94  893.66 1082.02
   903.1 1082.07   906.7 1082.08  923.85 1082.18  935.38  1082.3   944.6 1082.39
  964.06 1082.56  965.35 1082.58  968.72 1082.62   986.1 1082.85  992.73 1082.96
 1006.85 1083.19 1021.41 1083.32 1027.6 1083.38 1043.79 1083.48 1047.36  1083.5
 1048.35 1083.51 1063.61 1083.63  1069.1 1083.67 1078.76 1083.71 1089.85  1083.8
 1096.13 1083.86  1110.6 1084.03 1118.86 1084.15 1131.35 1084.32 1136.11 1084.36
  1152.1 1084.46 1164.79 1084.58 1172.85 1084.64 1193.47 1084.83  1193.6 1084.83
 1193.92 1084.83 1209.92    1085 1214.35 1085.06 1222.14 1085.13  1235.1 1085.26
 1250.82 1085.33 1255.85 1085.36    1269 1085.39  1276.6 1085.41  1279.5 1085.43
 1297.35 1085.52 1308.17 1085.65  1318.1 1085.75 1336.85 1086.03 1338.85 1086.06
 1344.06 1086.13  1359.6 1086.33 1365.53 1086.38 1380.35 1086.54  1394.2  1086.7
  1401.1 1086.78 1419.13    1087 1421.85 1087.03 1422.88 1087.05  1442.6 1087.28
 1451.57  1087.4 1463.35 1087.54 1480.24 1087.76  1484.1 1087.82  1494.2 1087.95
 1504.85 1088.09 1508.92 1088.13  1525.6 1088.33  1537.6 1088.42 1546.35 1088.49
 1566.27  1088.6  1567.1 1088.61 1569.27 1088.62 1583.83 1088.71 1587.85 1088.74
 1600.08 1088.84  1608.6  1088.9 1623.62 1089.03 1629.35 1089.07 1644.33 1089.19
  1650.1 1089.24  1652.3 1089.26 1670.85 1089.44 1680.98 1089.57  1691.6 1089.69
 1709.65 1089.92 1712.35 1089.95 1719.41 1090.04  1733.1 1090.22 1738.33 1090.29
 1753.85 1090.48 1767.01  1090.6  1774.6 1090.68 1794.47 1090.83 1795.15 1090.83
 1795.35 1090.83 1795.68 1090.84  1816.1 1090.97 1824.36 1091.05 1836.85 1091.15
 1853.04 1091.36  1857.6 1091.42 1869.54 1091.59 1878.35 1091.71 1881.71 1091.75
  1899.1 1091.96 1910.39 1092.09 1919.85 1092.19 1939.07 1092.41  1940.6 1092.43
 1941.46 1092.44 1944.61 1092.47 1957.72 1092.63 1961.35 1092.67 1967.74 1092.72
  1982.1 1092.87 1996.42 1092.98 2002.85 1093.04 2019.68 1093.18  2023.6 1093.21
  2025.1 1093.22 2044.35 1093.36 2053.77 1093.43  2065.1  1093.5 2082.45 1093.61
  2085.8 1093.62

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
    6.95     .03  233.61     .03  479.73    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        233.61  479.73              200     200  204.41              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  200.00  *  200.00  *  204.41  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3417.84  * 5135.75  *10914.43  *
* E.G. Slope (ft/ft)      *0.000004  * Area (sq ft)            * 3417.84  * 5135.75  *10914.43  *
* Q Total (cfs)           *-8174.00  * Flow (cfs)              *-1932.64  *-3643.13  *-2598.23  *
* Top Width (ft)          * 1940.28  * Top Width (ft)          *  226.66  *  246.12  * 1467.50  *
* Vel Total (ft/s)        *   -0.42  * Avg. Vel. (ft/s)        *   -0.57  *   -0.71  *   -0.24  *
* Max Chl Dpth (ft)       *   22.61  * Hydr. Depth (ft)        *   15.08  *   20.87  *    7.44  *
* Conv. Total (cfs)       *4319758.0  * Conv. (cfs)            *1021354.0  *1925302.0  *1373102.0  *
* Length Wtd. (ft)        *  201.36  * Wetted Per. (ft)        *  230.64  *  246.65  * 1467.65  *
* Min Ch El (ft)          * 1069.89  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.80  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Prctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)   * 1700.82  * 8525.14  *10429.18  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  119.66  *  378.16  * 1389.38  *
```

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

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 28499.98

INPUT
Description:
Station Elevation Data     num=     229
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************************
    5.65 1090.06    16.93 1088.37    36.83 1083.63    37.68 1083.43    39.89 1082.92
   54.42 1079.57    58.43 1078.64    65.51 1077.82    79.18 1075.67    94.19 1075.22
   99.93 1075.01   103.18 1074.98   114.96 1074.91   119.44 1074.89   120.68 1074.89
   135.7 1074.94   141.43 1074.96   151.54 1075.03   162.18  1075.1   168.21 1075.14
  182.93 1075.22   184.47 1075.23   190.03 1075.25   200.73 1075.29   203.68 1075.29
  208.89  1075.2   224.43 1074.92   233.99 1073.59   237.57 1073.09   245.18 1072.21
  249.49 1071.71   265.09 1070.42   265.93 1070.35   266.24 1070.35   286.68 1069.82
  294.92 1069.86   307.43 1069.89    323.6 1070.01   328.18 1070.05   340.17 1070.02
  348.93 1069.99   352.27 1069.99   369.68 1069.93   380.95 1069.97   390.43    1070
  409.63 1070.61   411.18 1070.65   415.23 1070.97   428.31 1072.02   431.93 1072.38
  444.57 1073.79   452.68 1074.79   466.98 1076.32   473.43 1076.99   477.08 1077.27
   490.3 1077.79   494.18 1077.94   495.66 1077.97   505.86 1078.17   514.93 1078.35
  524.33 1078.48   535.68 1078.62   553.01  1078.8   556.43 1078.83   565.37  1078.9
  577.18 1078.96   581.69 1078.99   597.93 1079.05   607.14 1079.15   618.68 1079.33
  623.39 1079.43   639.43  1079.8   640.43 1079.82   660.18 1080.14   667.73  1080.2
  680.93 1080.33   688.41 1080.37   701.68 1080.44    715.5 1080.51   722.43 1080.54
  725.08 1080.56   743.18 1080.67   753.75 1080.76   763.93 1080.84   782.43 1081.02
  784.68 1081.05   790.57 1081.11   805.43 1081.29   811.11 1081.35   826.18 1081.54
  839.78 1081.66   846.93 1081.74   865.64 1081.84   867.24 1081.85   867.68 1081.85
  868.46 1081.86   888.43 1081.94   897.14     1082   909.18 1082.06   925.81 1082.18
  929.93 1082.21    940.7 1082.29   948.51 1082.35   950.68 1082.36   964.77 1082.47
  971.43 1082.52   983.17  1082.6   992.18 1082.66  1011.84  1082.8  1012.93 1082.81
 1015.78 1082.83  1033.68 1082.97  1040.52 1083.04  1054.43 1083.17   1069.2 1083.29
 1075.18 1083.33  1090.84 1083.44  1095.93 1083.47  1097.87 1083.49  1116.68 1083.64
 1126.55 1083.76  1137.43 1083.88  1155.22 1084.09  1158.18 1084.13  1165.91 1084.22
 1176.11 1084.32  1178.93 1084.36  1192.37 1084.52  1199.68 1084.61  1212.58 1084.79
 1220.43  1084.9  1240.98 1085.23  1241.18 1085.24  1241.25 1085.24  1261.93 1085.52
 1273.64 1085.61  1282.68 1085.68  1298.61 1085.77  1303.43 1085.79  1316.05 1085.86
 1324.18 1085.89  1327.28 1085.91  1344.93 1085.95  1355.96    1086  1365.68    1086
 1384.64 1085.96  1386.43 1085.96  1391.11 1085.84  1407.18 1085.54  1413.32 1085.64
 1427.93 1086.37  1441.99 1086.39  1448.68 1086.53  1466.18 1086.56  1469.43  1086.6
 1470.67 1086.62  1490.18 1086.79  1499.34 1086.98  1510.93 1087.24  1528.02 1087.63
 1531.68 1087.73  1541.25 1087.86  1552.43 1087.99   1556.7 1088.04  1573.18 1088.17
 1585.37 1088.29  1593.93 1088.38  1614.05 1088.64  1614.68 1088.65  1616.32 1088.67
 1635.43 1088.83  1642.73 1088.93  1656.18 1089.04  1671.4 1089.28  1676.93 1089.33
 1691.38 1089.48  1697.68 1089.53  1700.08 1089.56  1718.43  1089.7  1728.76 1089.85
 1739.18 1089.96  1745.09 1090.04  1759.93 1090.25  1766.45 1090.33  1780.68 1090.49
 1786.11 1090.52  1801.43 1090.62  1814.79 1090.69  1822.18 1090.74  1841.52 1090.89
 1842.93  1090.9  1843.46 1090.91  1863.68 1091.11  1875.14  1091.2  1884.43  1091.3
 1900.82 1091.46  1905.18  1091.5  1916.58 1091.61  1925.93 1091.71  1929.49 1091.74
 1946.68  1091.9  1958.17 1091.96  1967.43 1092.01  1986.84  1092.1  1988.18  1092.1
 1991.66 1092.12  2008.93 1092.23  2021.45 1092.37  2029.68 1092.43   2037.7 1092.52
 2050.43 1092.66  2066.72 1092.84  2071.18 1092.89  2072.87 1092.91  2091.93 1093.12
 2101.56 1093.22  2112.68 1093.34  2130.24 1093.48  2133.43  1093.5  2141.79 1093.57
 2154.18 1093.67  2158.91 1093.72  2174.93 1093.88  2187.59 1094.02  2195.68 1094.11
 2216.27 1094.29  2216.43 1094.29  2216.86  1094.3  2228.45 1094.37

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
    5.65     .03   233.99     .03   505.86    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        233.99  505.86            203.12     200  227.43             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  203.12  *  200.00  *  227.43  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3428.86  * 5578.82  *10878.12  *
* E.G. Slope (ft/ft)      *0.000004  * Area (sq ft)            * 3428.86  * 5578.82  *10878.12  *
* Q Total (cfs)           *-8583.35  * Flow (cfs)              *-1985.07  *-4018.36  *-2579.91  *
* Top Width (ft)          * 2030.44  * Top Width (ft)          *  228.34  *  271.87  * 1530.23  *
* Vel Total (ft/s)        *   -0.43  * Avg. Vel. (ft/s)        *   -0.58  *   -0.72  *   -0.24  *
* Max Chl Dpth (ft)       *   22.68  * Hydr. Depth (ft)        *   15.02  *   20.52  *    7.11  *
* Conv. Total (cfs)       *4418079.0  * Conv. (cfs)            *1021770.0  *2068359.0  *1327950.0  *
* Length Wtd. (ft)        *  207.53  * Wetted Per. (ft)        *  232.36  *  272.41  * 1530.33  *
* Min Ch El (ft)          * 1069.82  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.81  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1685.11  * 8500.54  *10378.05  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  118.62  *  376.97  * 1382.34  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 28299.98

INPUT
Description:
Station Elevation Data     num=     227
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************************
       0 1089.81    18.29 1087.09    29.7 1084.06    39.4 1081.39    58.39  1077.3
   60.51 1076.87    61.59  1076.8   81.63 1075.25   93.48 1074.99   102.73 1074.74
  120.87 1074.73   123.09 1074.72  123.85 1074.73  138.87 1074.94   144.96 1075.03
  157.24 1075.24   166.07 1075.39  170.43 1075.45  183.35 1075.61   187.18 1075.65
  189.12 1075.64   208.29 1075.69  221.01 1075.32   229.4 1075.15   234.97 1074.01
  245.83 1071.79   249.33 1071.02  250.51 1070.79  265.11 1069.78   271.62 1069.69
  284.78 1069.62   292.73 1069.53  296.66 1069.55  308.31 1069.66   312.44  1069.7
  313.84 1069.72   328.22 1069.91  334.95 1069.99  348.54  1070.1   356.06 1070.17
  370.79 1070.33   377.17 1070.41  391.34 1070.64  398.29 1070.78   412.31 1071.07
   419.4  1071.2   433.27 1071.48  440.51 1071.62  444.19 1071.71   461.62 1072.11
  476.08 1072.54   482.73 1072.74  495.74 1073.11  503.84 1073.33   517.57 1073.68
  524.95 1073.87   539.85  1074.2  546.06 1074.35  558.23  1074.6   564.91 1074.74
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  567.17 1074.78  580.69 1075.05  588.28 1075.22  596.46 1075.39   609.4  1075.8
  612.24 1075.92  620.71 1076.45   630.5 1077.06   635.5  1077.5  642.85 1078.14
  651.61 1078.91  667.38 1079.53  672.73  1079.8  683.19 1079.97  693.84 1080.12
  699.26 1080.16  714.95 1080.28  731.15 1080.39  736.06 1080.42  745.67  1080.5
  757.17 1080.59  763.03 1080.67  778.28 1080.83  794.91 1081.02  799.39 1081.06
   801.6 1081.06  808.15 1081.11   820.5 1081.17   826.8 1081.22  841.61 1081.31
  858.68 1081.52  862.72 1081.57  870.63 1081.69  883.84 1081.86  890.57 1081.91
  904.94 1082.07  922.45 1082.25  926.06 1082.29  933.11 1082.37  947.17 1082.52
  954.33 1082.56  968.28 1082.65  986.22 1082.77  989.39 1082.79  995.59 1082.86
  1010.5 1083.01  1018.1 1083.11 1031.61 1083.27 1049.99 1083.51 1052.72 1083.54
 1058.07  1083.6 1073.03 1083.79 1081.87 1083.87 1094.94    1084 1113.75 1084.15
 1116.05 1084.16 1120.55  1084.2 1132.96 1084.31 1137.16 1084.35 1145.64 1084.45
 1158.27  1084.6 1177.52 1084.78 1179.38  1084.8 1183.03 1084.82  1200.5 1084.88
  1209.4  1084.9 1221.61 1084.93 1241.28 1085.04 1242.72 1085.05 1245.51 1085.07
 1263.83 1085.24 1274.97 1085.35 1284.94 1085.46 1290.75 1085.52 1306.05 1085.69
 1307.99 1085.71 1327.16 1085.92 1336.94 1086.02 1348.27 1086.13 1368.82  1086.3
 1369.38 1086.31 1370.47 1086.32 1390.49 1086.47  1400.7 1086.57  1411.6 1086.67
 1432.59  1086.9 1432.71  1086.9 1432.77  1086.9 1432.95  1086.9 1453.83 1087.15
 1464.48 1087.28 1474.94 1087.41 1495.43 1087.61 1496.05 1087.62 1496.36 1087.62
 1517.16  1087.7 1528.24 1087.74 1538.27 1087.77  1557.9 1087.91 1559.38 1087.93
 1560.12 1087.93 1580.49 1088.17 1592.01 1088.34  1601.6 1088.46 1620.39 1088.74
 1622.71 1088.77 1623.89 1088.79 1643.82 1089.04 1653.68 1089.13 1664.93 1089.23
 1669.46 1089.25 1682.87 1089.34 1686.05 1089.35 1687.66 1089.36 1707.15 1089.48
 1719.55 1089.61 1728.27 1089.69 1745.35 1089.88 1749.38 1089.92 1764.13    1090
 1770.49 1090.06 1783.31  1090.1  1791.6 1090.12  1795.7 1090.14 1807.82 1090.21
 1812.71 1090.23 1815.19 1090.27 1833.82 1090.52 1847.08 1090.73 1854.93 1090.86
 1870.31 1091.04 1876.04  1091.1 1878.97 1091.11 1897.15 1091.22 1910.84 1091.31
 1918.26 1091.35 1932.79 1091.48 1937.71 1091.52 1939.38 1091.53 1953.49 1091.65
 1960.48 1091.71 1974.61 1091.82  1981.6 1091.88 1985.05 1091.91 1995.27 1091.97
 2002.71 1092.01  2006.5 1092.04 2023.82 1092.15 2038.38  1092.3 2044.93 1092.37
 2057.74 1092.52 2066.04 1092.61 2070.26 1092.65 2087.15 1092.82 2102.15 1092.92
 2108.26 1092.97 2120.23 1093.06 2129.37 1093.13 2134.03 1093.17 2150.48 1093.34
 2165.91 1093.52 2171.59 1093.59 2182.71 1093.71  2192.7 1093.82  2197.8 1093.88
 2213.82 1094.03 2216.73 1094.06

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**********************************************
       0     .03  234.97     .03  642.85    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        234.97  642.85             200.27     200  202.26              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  200.27  *  200.00  *  202.26  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3533.82  * 8222.31  * 9001.34  *
* E.G. Slope (ft/ft)      *0.000003  * Area (sq ft)            * 3533.82  * 8222.31  * 9001.34  *
* Q Total (cfs)           *-9000.11  * Flow (cfs)              *-1863.37  *-5330.63  *-1806.11  *
* Top Width (ft)          * 2056.20  * Top Width (ft)          *  234.97  *  407.88  * 1413.35  *
* Vel Total (ft/s)        *   -0.43  * Avg. Vel. (ft/s)        *   -0.53  *   -0.65  *   -0.20  *
* Max Chl Dpth (ft)       *   22.97  * Hydr. Depth (ft)        *   15.04  *    20.16  *    6.37  *
* Conv. Total (cfs)       *5088714.0  * Conv. (cfs)            *1053558.0  *3013971.0  *1021185.0  *
* Length Wtd. (ft)        *  200.53  * Wetted Per. (ft)        *  239.30  *  408.40  * 1413.47  *
* Min Ch El (ft)          * 1069.53  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.67  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1668.87  * 8468.86  *10326.15  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  117.54  *  375.41  * 1374.66  *
**********************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 28099.98

INPUT
Description:
Station Elevation Data     num=     226
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
**********************************************************************************
    5.17 1090.37    13.39 1088.94    26.28 1085.32    29.18 1084.48    37.75 1082.05
   44.96 1080.02    47.39 1079.37    60.74 1076.53    68.5 1075.32    76.52 1074.99
   89.61 1074.62   100.23 1074.51   110.72 1074.43   116.08 1074.47   131.84 1074.57
  139.63 1074.66   152.94 1074.84   162.71 1074.97   171.18 1075.07   174.06 1075.11
  186.97 1075.26   195.17 1075.34   211.73 1075.13   216.28 1075.11   218.53 1075.03
  225.19 1074.33   235.88 1073.25   237.39  1073.1   243.61 1072.21    258.5 1069.65
  265.87 1069.47   279.61 1069.14   281.64 1069.13   287.67 1069.16   297.42  1069.2
  300.72 1069.23    313.2 1069.51   321.83 1069.69   328.98 1069.76   342.94 1069.83
  344.76 1069.83   350.15 1069.85   364.05 1069.88   371.15 1069.99   385.17 1070.19
  403.03  1070.7   406.28 1070.79   412.63 1070.96   427.39 1071.33   439.43 1071.49
   448.5 1071.61   466.79  1071.8   469.61 1071.83   475.11 1071.91   490.72 1072.18
  502.55 1072.45   511.83 1072.65   518.33 1072.78   532.94 1073.04   537.59 1073.09
  554.05 1073.26   562.44 1073.32   575.16  1073.4   581.45 1073.43   596.27 1073.52
  600.06 1073.62   617.38 1074.14   626.21 1074.71   638.49 1075.46   656.46 1076.71
   658.1 1076.82   659.61 1076.93   662.55 1077.08   680.71 1077.89   689.98 1077.99
  701.83 1078.18   721.86 1078.27   722.94 1078.27   725.03 1078.28   744.05  1078.3
  753.75 1078.32   765.16 1078.35   785.63  1078.5   786.27  1078.5   787.51 1078.52
  807.38 1078.74   817.52 1078.86   828.49    1079    849.4 1079.25    849.6 1079.25
  849.98 1079.26   870.71 1079.65   881.28 1079.97   891.82  1080.2   912.47 1080.64
  912.94 1080.65   913.17 1080.65   934.05 1080.97   945.05 1081.18   955.16 1081.39
  974.95 1081.91   976.27 1081.94   976.93 1081.95   997.38 1082.31  1007.49  1082.4
 1018.49 1082.53  1023.27 1082.56  1037.43 1082.68  1039.6 1082.69   1040.7  1082.7
 1060.71 1082.84   1070.6 1082.91  1081.82 1082.97   1099.9 1083.13  1102.93 1083.16
 1104.47 1083.18  1124.04 1083.46  1136.35 1083.57  1145.15 1083.62  1162.39 1083.66
 1166.26 1083.68  1168.24 1083.69  1187.38 1083.77  1200.12 1083.75  1208.49 1083.82
 1224.87 1083.31   1229.6 1083.24     1232 1083.27  1250.71 1084.03  1263.89 1084.14
 1271.82 1084.27  1287.35 1084.25  1291.51 1084.26  1292.93 1084.21  1295.77  1084.3
 1314.04  1084.5  1327.66 1084.82  1335.15    1085  1349.82 1085.37  1356.26 1085.51
 1359.53 1085.58  1377.37 1085.91  1391.42  1086.1  1398.48 1086.19  1412.31 1086.31
 1419.59 1086.37  1423.31 1086.39   1440.7  1086.5  1455.19 1086.56  1461.82  1086.6
 1474.79 1086.71  1482.92 1086.78  1487.07 1086.82  1504.04    1087  1518.95 1087.15
 1525.15 1087.21  1537.27 1087.32  1546.26 1087.41  1550.84 1087.45  1567.37 1087.62
 1582.73 1087.79  1588.48 1087.85  1599.74 1087.98  1609.59  1088.1  1614.61 1088.15
  1630.7 1088.34  1646.49 1088.53  1651.81  1088.6  1662.22 1088.72  1672.92 1088.85
 1678.37 1088.91  1694.03 1089.08  1710.26 1089.25  1715.15  1089.3  1724.71 1089.39
 1736.26 1089.48  1742.14 1089.53  1757.36 1089.65  1774.02 1089.79  1778.48 1089.83
 1787.19 1089.91  1799.59 1090.02  1805.91 1090.07   1820.7 1090.19   1837.8 1090.33
 1841.81 1090.36  1849.66 1090.42  1862.92 1090.52  1869.68 1090.56  1884.03 1090.64
 1901.56 1090.73  1905.14 1090.75  1912.14  1090.8  1926.25 1090.89  1933.44 1090.95
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 1947.36 1091.08 1965.33 1091.31 1968.47 1091.34 1974.63 1091.45 1989.59 1091.69
 1997.22 1091.81  2010.7 1092.02  2029.1 1092.16 2031.81 1092.19 2033.14  1092.2
 2037.11  1092.2 2048.92  1092.2 2052.92 1092.17 2060.98 1092.11 2074.03 1092.08
 2092.86 1092.28 2095.14 1092.29 2099.58 1092.35 2116.25 1092.65 2124.75 1092.73
 2137.36 1092.88 2156.63 1093.01 2158.47 1093.02 2162.06 1093.04 2179.58 1093.16
 2188.51 1093.24 2200.69 1093.34  2220.4 1093.55  2221.8 1093.56 2224.55 1093.59
  2225.3  1093.6

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
    5.17     .03  235.88     .03  656.46    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        235.88  656.46            200.27     200  200.25             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                  *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.               *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)          *  200.27  *  200.00  *  200.25  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)        * 3594.49  * 8722.38  *10100.53  *
* E.G. Slope (ft/ft)      *0.000003  * Area (sq ft)             * 3594.49  * 8722.38  *10100.53  *
* Q Total (cfs)           *-9394.80  * Flow (cfs)               *-1850.75  *-5494.62  *-2049.43  *
* Top Width (ft)          * 2102.85  * Top Width (ft)           *  230.71  *  420.58  * 1451.56  *
* Vel Total (ft/s)        *   -0.42  * Avg. Vel. (ft/s)         *   -0.51  *   -0.63  *   -0.20  *
* Max Chl Dpth (ft)       *   23.37  * Hydr. Depth (ft)         *   15.58  *   20.74  *    6.96  *
* Conv. Total (cfs)       *5572129.0  * Conv. (cfs)             *1097692.0  *3258902.0  *1215535.0  *
* Length Wtd. (ft)        *  200.11  * Wetted Per. (ft)         *  234.79  *  421.01  * 1451.72  *
* Min Ch El (ft)          * 1069.13  * Shear (lb/sq ft)         *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.67  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     * 1652.49  * 8429.96  *10281.80  *
* C & E Loss (ft)         *          * Cum SA (acres)           *  116.47  *  373.51  * 1368.01  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 27899.98

INPUT
Description:
Station Elevation Data     num=     237
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*************************************************************************************
       0 1090.03    13.53 1089.68    14.52  1089.4    17.48 1088.52    30.31 1084.62
   34.64 1083.35    43.4 1081.07    55.75 1077.68    61.87 1076.52    76.87 1074.67
   77.65 1074.65    79.96  1074.6    97.98 1074.22   107.16 1074.24   119.09 1074.24
  124.98 1074.28    140.2  1074.4   142.44 1074.42   161.31 1074.58   172.32 1074.69
  182.42 1074.79    188.1 1074.86   203.53 1075.03   203.88 1075.03   204.92 1075.02
  224.64 1074.84   235.44 1073.53   238.84 1072.95   245.75 1071.76   251.22 1070.98
  266.86 1069.34    267.4 1069.32   287.97 1068.69   298.55 1068.81   309.08 1069.03
  329.88 1069.57    330.2 1069.57   330.35 1069.58   351.31 1069.77   362.23 1069.88
  372.42 1069.97   377.45 1070.05   392.36 1070.36   393.23 1070.37   393.53 1070.38
  394.12 1070.39   414.64 1070.88      426  1071.1   435.75 1071.29   454.84 1071.55
  456.34 1071.57   456.86 1071.58   457.88 1071.59   477.97 1071.89    487.9 1072.09
  499.08  1072.3   503.69 1072.39   517.32 1072.67   519.47 1072.71   520.19 1072.72
  521.65 1072.75    541.3 1073.16   551.03 1073.35   562.41 1073.56   566.81 1073.62
   579.8 1073.78   582.58 1073.81   583.52 1073.83   585.42 1073.85   604.64 1074.05
  614.14 1074.26   625.75 1074.65   642.28 1075.46    645.7 1075.62   646.86 1075.67
   660.2 1076.23   661.48 1076.28   667.97 1076.53   677.26 1076.78   689.08 1077.04
  704.75 1077.21   710.19 1077.28    724.6 1077.38    731.3 1077.44   740.37 1077.49
  752.41 1077.61   756.15 1077.63   767.24 1077.77   771.93 1077.81   773.52 1077.82
  787.71 1077.91   794.63 1077.98   808.61    1078   815.75 1078.01   819.27 1077.99
  829.72 1078.03   836.85 1078.04   840.49 1078.05   857.97 1078.16   866.61 1078.21
  879.08 1078.31   882.39 1078.33    892.2 1078.43   898.17 1078.48   900.19 1078.51
  913.94 1078.65    921.3 1078.75   929.72 1078.84   942.41 1078.99    945.5 1079.02
   954.67  1079.1   963.52 1079.18   968.03 1079.19   984.63 1079.28   999.91 1079.34
 1005.74 1079.37  1017.16  1079.5  1026.85 1079.63  1031.79  1079.7  1047.96 1079.97
 1063.68 1080.15  1069.07 1080.22  1079.64 1080.28  1090.18 1080.34  1095.56  1080.4
 1111.29 1080.56  1127.44 1080.86  1132.41 1080.95  1142.12 1081.14  1153.52 1081.35
 1159.32 1081.43  1174.63 1081.63  1191.21 1081.82  1195.74 1081.87  1204.59 1081.98
 1216.85 1082.13   1223.1 1082.23  1237.96 1082.44  1254.98    1083  1259.07 1083.14
 1267.08 1083.65  1280.18 1084.49  1286.86 1084.68  1301.29 1085.11  1318.74 1085.31
  1322.4 1085.35  1329.56 1085.38  1343.51 1085.42  1350.63 1085.44  1364.62 1085.46
 1382.52  1085.5  1385.73  1085.5  1392.04 1085.51  1406.85 1085.54  1414.39 1085.59
 1427.96 1085.66  1446.28  1085.8  1449.07 1085.82  1454.52 1085.82  1470.18 1085.81
 1478.16  1085.8  1491.29 1085.76  1510.05 1085.58   1512.4  1085.6    1517 1085.64
 1533.51 1085.96  1545.11 1086.24  1554.62 1086.25  1573.81 1086.44  1575.73 1086.47
 1579.48 1086.51  1596.84 1086.64   1605.7 1087.06  1617.96 1087.44  1637.58 1087.94
 1639.06 1087.99  1641.96 1088.03  1660.18 1088.25  1669.47 1088.34  1681.29 1088.46
 1701.35 1088.68   1702.4 1088.68  1704.44  1088.7  1723.51 1088.84  1733.23 1088.93
 1744.62    1089  1750.24 1089.01  1765.73  1089.1  1766.02  1089.1  1766.91 1089.11
 1786.84 1089.16     1797 1089.27  1807.95 1089.33  1828.88 1089.51  1829.06 1089.51
  1829.4 1089.51  1850.17 1089.71   1860.7 1089.84  1871.29 1089.97  1876.48 1090.05
 1891.88 1090.22  1892.39 1090.23  1892.65 1090.23  1913.51  1090.4  1924.54 1090.44
 1934.62 1090.48  1954.36 1090.61  1955.73 1090.62  1956.42 1090.63  1976.84 1091.01
 1986.94 1091.23  1997.95 1091.46  2016.83 1091.74  2019.06 1091.77  2020.19 1091.77
 2040.17  1091.9  2052.07 1091.91  2061.28 1091.93  2079.32    1092  2082.39 1092.02
 2083.95 1092.03   2103.5 1092.21  2115.84 1092.34  2124.61 1092.42   2141.8 1092.55
 2145.73 1092.58  2147.72  1092.6  2166.83 1092.75  2179.61 1092.88  2187.95 1092.97
 2204.28 1093.16  2209.06 1093.22  2211.49 1093.25  2230.17 1093.49  2243.37 1093.64
 2251.28 1093.74  2253.25 1093.76

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
       0     .03  238.84     .03   660.2    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        238.84   660.2            200.27     200  200.02             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                  *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.               *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)          *  200.27  *  200.00  *  200.02  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)        * 3674.82  * 8747.08  *11563.89  *
* E.G. Slope (ft/ft)      *0.000003  * Area (sq ft)             * 3674.82  * 8747.08  *11563.89  *
* Q Total (cfs)           *-9815.73  * Flow (cfs)               *-1853.38  *-5451.22  *-2511.14  *
* Top Width (ft)          * 2135.44  * Top Width (ft)           *  238.84  *  421.36  * 1475.24  *
```

```
* Vel Total (ft/s)        *   -0.41  * Avg. Vel. (ft/s)        *   -0.50  *   -0.62  *   -0.22  *
* Max Chl Dpth (ft)       *   23.81  * Hydr. Depth (ft)        *   15.39  *   20.76  *    7.84  *
* Conv. Total (cfs)       *5889343.0  * Conv. (cfs)            *1112009.0  *3270678.0  *1506656.0  *
* Length Wtd. (ft)        *  200.06  * Wetted Per. (ft)        *  243.35  *  421.71  * 1475.41  *
* Min Ch El (ft)          * 1068.69  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.65  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)   * 1635.78  * 8389.85  *10232.01  *
* C & E Loss (ft)         *          * Cum SA (acres)         *  115.39  *  371.58  * 1361.28  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 27699.98

INPUT
Description:
Station Elevation Data    num=     244
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 1090.43   13.42 1088.74   19.66 1087.26   29.21 1084.41   40.77 1081.09
   44.99 1079.97   57.46 1077.01   61.89 1075.96   64.13 1075.84   82.99 1074.22
   92.33 1073.98  104.11 1073.78  119.94 1073.71  123.88  1073.7  125.22  1073.7
  139.66 1073.84  146.33 1073.91  155.44 1074.04  167.44 1074.21  171.22 1074.27
  182.42 1074.46     187 1074.53  188.55 1074.56  191.67 1074.59  209.66 1074.86
  223.55 1074.82  230.77 1074.79  237.11 1073.55   244.9 1072.03  250.12 1070.89
  251.88 1070.54  265.89 1069.34  272.99 1069.07  287.33 1068.99   294.1 1068.88
  307.38 1069.24  315.22 1069.47  329.01 1069.74  336.32 1069.82  344.79 1069.85
  357.44 1069.86  369.86 1069.85  378.55 1069.84  392.13 1069.87  399.66 1069.89
  407.91 1069.99  420.77 1070.14  432.34 1070.31  441.88 1070.43  446.74 1070.46
  462.99 1070.61  478.62 1070.74   484.1 1070.81   486.8 1070.86  494.82 1071.04
  502.59 1071.23  505.21 1071.26  518.36 1071.61  526.32 1071.83  534.14 1071.96
  547.43 1072.35  549.92 1072.38   557.3 1072.53  568.54 1072.74  581.47 1072.92
  589.66 1073.15  597.25 1073.29  610.76 1073.66  613.03 1073.72  619.78 1073.94
  628.81 1074.2   631.88 1074.33  638.04 1074.68  652.99 1075.45  660.38 1075.93
  670.68 1076.54   674.1 1076.74  676.16 1076.84  682.26 1077.05  695.21 1077.49
  707.72 1077.65  716.32 1077.76   723.5  1077.8  737.43 1077.88  744.74  1077.9
  758.54 1077.94  770.83 1077.94  779.65 1077.94  786.61 1077.95  800.76 1077.91
  807.21 1077.92  818.17 1077.93  821.87 1077.93  833.95 1077.99  842.98 1078.05
  861.22 1078.21   864.1 1078.23  865.51 1078.24   869.7 1078.27   885.2 1078.39
  893.11  1078.4  906.32 1078.44     925 1078.43  927.43 1078.43  932.18 1078.43
   944.4 1078.45  948.54 1078.47  960.18 1078.59  969.65  1078.7  975.96 1078.81
  990.76 1079.04  994.66 1079.09 1011.87 1079.34  1023.3 1079.49 1032.98 1079.61
 1052.53 1079.87 1054.09 1079.89 1057.13 1079.93 1070.63 1080.13  1075.2  1080.2
 1084.42 1080.34 1096.31 1080.51 1102.19  1080.6 1117.43 1080.81 1117.97 1080.82
 1119.62 1080.84 1133.76 1081.01 1138.53 1081.05 1148.18 1081.16 1159.65 1081.29
 1180.07 1081.44 1180.76 1081.45  1182.1 1081.45 1196.87 1081.39 1201.87 1081.41
 1212.65 1081.39 1222.98 1081.44 1243.84  1081.6 1244.09  1081.6 1244.21  1081.6
 1244.58 1081.61  1265.2 1081.82 1275.71 1081.93 1286.31 1082.05 1307.05 1082.27
 1307.33 1082.28 1307.42 1082.28  1307.6 1082.28 1328.53  1082.5 1338.89 1082.62
 1349.64 1082.72 1369.54 1082.92 1370.75 1082.93 1371.37 1082.93 1391.87 1083.15
 1403.25 1083.27 1412.97 1083.37 1417.78 1083.42 1432.02 1083.53 1434.09 1083.55
 1435.13 1083.56  1455.2 1083.71 1467.02 1083.83 1476.31 1083.92  1494.5 1084.17
 1496.68 1084.21 1497.42 1084.22 1512.46 1084.47 1518.53 1084.57 1528.23 1084.73
 1539.64 1084.89 1544.01 1084.96 1556.97  1085.1 1560.75 1085.14 1562.67 1085.16
 1581.86  1085.4 1594.55 1085.67 1602.97 1085.83 1619.46 1086.18 1624.08 1086.29
 1626.44 1086.36  1645.2 1086.76 1658.33 1087.16 1666.31 1087.41 1681.94 1087.84
 1687.42 1087.95  1690.2 1087.97 1708.53 1088.13 1722.09 1088.29 1729.64 1088.34
 1744.42 1088.56 1750.75 1088.66 1753.97 1088.72 1771.86    1089 1785.86 1089.19
 1792.97 1089.31 1806.89 1089.37 1814.08 1089.37 1817.74 1089.38 1835.19  1089.4
 1849.62 1089.62  1856.3 1089.71 1869.37 1089.89 1875.38 1089.96 1877.41    1090
 1881.51 1090.07 1898.52 1090.32  1913.4 1090.53 1919.64 1090.62 1931.86 1090.78
 1940.74 1090.88 1945.28 1090.92 1961.86 1091.08 1977.16 1091.17 1982.97  1091.2
 1994.34 1091.26 2004.08 1091.31 2009.04 1091.33 2025.19 1091.43 2040.93 1091.53
  2046.3 1091.56 2056.81 1091.63 2067.41  1091.7 2072.81 1091.73 2088.52 1091.85
 2104.69 1091.99 2109.63 1092.04 2119.29 1092.13 2127.85  1092.2 2130.74 1092.17
 2136.58 1092.18 2151.85 1092.21 2168.46 1092.22 2172.97 1092.23 2181.78 1092.27
 2194.08 1092.31 2200.34 1092.49 2215.18 1092.74 2232.23 1092.88  2236.3 1092.91
  2238.3 1092.92 2244.26 1092.99 2257.41 1093.15 2258.18 1093.16

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
       0     .03  237.11     .03  670.68    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        237.11  670.68             200.27     200  432.54             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  200.27  *  200.00  *  432.54  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3725.54  * 9176.63  *12327.88  *
* E.G. Slope (ft/ft)      *0.000003  * Area (sq ft)            * 3725.54  * 9176.63  *12327.88  *
* Q Total (cfs)           *-10250.30  * Flow (cfs)              *-1875.51  *-5694.50  *-2680.29  *
* Top Width (ft)          * 2201.05  * Top Width (ft)          *  237.11  *  433.57  * 1530.37  *
* Vel Total (ft/s)        *   -0.41  * Avg. Vel. (ft/s)        *   -0.50  *   -0.62  *   -0.22  *
* Max Chl Dpth (ft)       *   23.62  * Hydr. Depth (ft)        *   15.71  *   21.17  *    8.06  *
* Conv. Total (cfs)       *6255511.0  * Conv. (cfs)             *1144578.0  *3475215.0  *1635718.0  *
* Length Wtd. (ft)        *  274.32  * Wetted Per. (ft)        *  241.17  *  434.06  * 1530.50  *
* Min Ch El (ft)          * 1068.88  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.65  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)   * 1618.76  * 8348.71  *10177.15  *
* C & E Loss (ft)         *          * Cum SA (acres)         *  114.29  *  369.61  * 1354.38  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 27499.98

INPUT
Description:
Station Elevation Data    num=     254
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
    5.48 1090.39   13.12    1089   26.59 1085.14   35.75 1082.46    47.7 1079.04
```

53.79	1077.83	68.81	1074.54	85.67	1074.03	89.92	1073.83	92.01	1073.78
98.23	1073.71	107.79	1073.59	111.03	1073.56	123.57	1073.53	132.14	1073.56
139.35	1073.64	153.25	1073.81	155.13	1073.83	160.71	1073.91	174.36	1074.1
181.32	1074.17	195.47	1074.33	202.47	1074.35	216.58	1074.25	223.19	1073.95
234.03	1073.47	237.69	1073.03	238.74	1072.82	249.81	1070.61	258.81	1069.51
276.97	1069.04	279.92	1068.96	285.67	1068.95	297.14	1068.96	301.03	1068.97
312.92	1069.14	322.14	1069.26	328.71	1069.32	343.25	1069.4	344.49	1069.41
348.15	1069.42	360.27	1069.46	364.36	1069.48	372.62	1069.56	385.47	1069.68
404.51	1070.14	406.58	1070.18	410.63	1070.38	427.69	1071.17	439.16	1072.13
448.8	1072.65	454.94	1072.97	469.92	1073.82	470.72	1073.84	473.11	1073.91
486.5	1074.18	491.02	1074.38	502.28	1074.6	509.01	1074.85	512.14	1074.96
532.04	1075.44	533.25	1075.47	533.84	1075.47	535.59	1075.51	549.62	1075.69
554.36	1075.78	565.4	1075.85	575.47	1075.98	595.81	1076.13	596.58	1076.14
598.07	1076.15	612.73	1076.13	617.69	1076.15	628.51	1076.18	638.8	1076.23
644.29	1076.25	659.91	1076.35	660.55	1076.35	675.85	1076.35	681.02	1076.38
691.46	1076.5	702.13	1076.63	707.41	1076.77	723.03	1077	723.24	1077.01
723.35	1077.01	744.35	1077.25	754.74	1077.32	765.46	1077.38	770.52	1077.39
785.51	1077.52	786.3	1077.53	786.58	1077.53	787.11	1077.54	807.69	1077.8
817.86	1077.93	828.8	1078.07	847.99	1078.29	849.91	1078.32	850.88	1078.33
871.02	1078.6	882.77	1078.77	892.13	1078.9	896.75	1078.97	910.47	1079.21
913.24	1079.25	914.65	1079.28	934.35	1079.6	946.53	1079.76	955.46	1079.86
959.87	1079.88	972.95	1080	975.66	1080.02	976.57	1080.03	978.41	1080.04
997.69	1080.19	1010.3	1080.31	1018.79	1080.41	1035.43	1080.58	1038.78	1080.6
1039.9	1080.61	1042.18	1080.62	1061.02	1080.68	1070.33	1080.69	1082.13	1080.78
1097.91	1080.96	1103.24	1081.03	1117.67	1081.18	1124.35	1081.26	1137.84	1081.38
1145.46	1081.45	1149.23	1081.49	1160.39	1081.59	1166.57	1081.65	1169.72	1081.68
1187.68	1081.85	1196.57	1081.91	1208.79	1082	1212.34	1082.01	1222.87	1082.05
1229.9	1082.08	1233.48	1082.09	1251.01	1082.13	1265.37	1082.17	1272.13	1082.18
1275.46	1082.19	1285.35	1082.22	1293.23	1082.25	1307.02	1082.3	1314.35	1082.34
1329.14	1082.43	1335.46	1082.47	1347.83	1082.57	1354.36	1082.62	1356.57	1082.65
1361.02	1082.71	1377.68	1082.94	1385.91	1083.09	1398.79	1083.34	1410.31	1083.54
1419.9	1083.69	1424.79	1083.74	1441.01	1083.92	1456.67	1084.06	1462.12	1084.11
1472.79	1084.21	1480.59	1084.28	1483.23	1084.31	1496.37	1084.43	1504.34	1084.5
1512.15	1084.58	1525.45	1084.73	1535.27	1084.94	1546.56	1085.18	1559.48	1085.65
1567.67	1085.96	1575.26	1086.26	1588.79	1086.86	1591.04	1086.91	1597.75	1087.11
1606.83	1087.35	1609.9	1087.45	1622.61	1087.69	1631.01	1087.9	1647.97	1088.15
1652.12	1088.21	1660.23	1088.28	1669.95	1088.35	1673.23	1088.37	1679.86	1088.41
1694.34	1088.5	1701.5	1088.55	1715.45	1088.66	1722.7	1088.73	1736.56	1088.88
1743.62	1088.95	1757.67	1089.11	1775.51	1089.27	1778.78	1089.31	1780.4	1089.32
1785.19	1089.37	1796.18	1089.48	1799.89	1089.52	1811.96	1089.69	1821	1089.81
1839.28	1090.08	1842.11	1090.12	1843.51	1090.14	1847.67	1090.2	1859.29	1090.37
1863.23	1090.42	1875.07	1090.56	1884.34	1090.66	1903.04	1090.81	1905.45	1090.83
1910.15	1090.84	1926.56	1090.9	1938.19	1090.95	1947.67	1091	1966.81	1091.16
1968.78	1091.17	1969.75	1091.18	1972.62	1091.21	1989.89	1091.38	1998.69	1091.46
2011	1091.57	2017.08	1091.62	2032.11	1091.75	2032.86	1091.75	2035.11	1091.77
2048.64	1091.89	2053.22	1091.95	2064.42	1092.06	2074.34	1092.17	2094.35	1092.37
2095.44	1092.38	2097.59	1092.4	2111.76	1092.53	2116.56	1092.57	2127.54	1092.67
2137.67	1092.75	2143.32	1092.81	2158.78	1092.93	2159.09	1092.93	2160.07	1092.94
2179.89	1093.13	2190	1093.23	2201	1093.34	2221.88	1093.55	2222.11	1093.55
2222.54	1093.55	2238	1093.68	2243.22	1093.73	2252.26	1093.8		

```
Manning's n Values          num=       3
    Sta   n Val      Sta   n Val      Sta   n Val
*****************************************
    5.48     .03  238.74     .03  509.01    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        238.74  509.01            200.27     200  227.74             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  200.27  *  200.00  *  227.74  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3804.10  * 5861.98  *14456.49  *
* E.G. Slope (ft/ft)      *0.000004  * Area (sq ft)            * 3804.10  * 5861.98  *14456.49  *
* Q Total (cfs)           *-10676.80  * Flow (cfs)             *-2314.22  *-4359.78  *-4002.80  *
* Top Width (ft)          * 2103.11  * Top Width (ft)          *  233.26  *  270.27  * 1599.58  *
* Vel Total (ft/s)        *   -0.44  * Avg. Vel. (ft/s)        *   -0.61  *   -0.74  *   -0.28  *
* Max Chl Dpth (ft)       *   23.55  * Hydr. Depth (ft)        *   16.31  *   21.69  *    9.04  *
* Conv. Total (cfs)       *5524183.0  * Conv. (cfs)            *1197378.0  *2255752.0  *2071053.0  *
* Length Wtd. (ft)        *  210.98  * Wetted Per. (ft)        *  237.46  *  270.70  * 1599.72  *
* Min Ch El (ft)          * 1068.95  * Shear (lb/sq ft)        *    0.00  *    0.01  *    0.00  *
* Alpha                   *    1.71  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1601.46  * 8314.18  *10044.17  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  113.21  *  368.00  * 1338.84  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 27299.98

INPUT
Description:
Station Elevation Data     num=     269
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*****************************************************************************************
   13.95  1089.8   14.37 1089.68    15.6 1089.31   30.15 1084.79   35.06 1083.34
   44.99 1080.76   56.18 1077.72   61.71  1076.6   77.29 1073.99   77.49 1073.98
   78.08 1073.98   93.26 1073.83    98.4 1073.73  109.04 1073.66  119.51 1073.58
  124.82 1073.58  140.56 1073.65   140.6 1073.65  140.62 1073.65  156.38  1073.8
  161.73 1073.85  172.16 1073.94  182.84 1074.03  187.94 1074.05  203.03 1074.07
  203.95 1074.07  204.41 1074.06  225.06 1073.58  235.28 1072.67  240.86 1071.95
  246.17 1071.27  251.05 1070.67  265.52 1069.43  266.83  1069.3  267.28 1069.27
  282.61  1068.8  288.39 1068.69  300.06 1068.74   309.5 1068.76  314.17 1068.82
     328    1069  329.95 1069.03  330.62 1069.03  345.73 1069.17  351.72 1069.24
  363.83 1069.36  372.84 1069.45  377.29 1069.52  390.48  1069.7  393.07 1069.74
  393.95 1069.75  408.84 1070.14  415.06  1070.4   427.6 1071.47  436.17 1072.02
   440.4 1072.36  452.95 1073.36  456.18 1073.61  457.28 1073.65  459.48 1073.71
  472.55 1074.06  478.39 1074.22  491.36 1074.41   499.5 1074.54  503.52 1074.58
  515.44 1074.67   519.3  1074.7  520.61 1074.71  523.25 1074.72  541.72 1074.81
  550.86 1074.86  562.83 1074.89  577.92 1074.94  583.95 1074.96  598.19 1075.07
  605.06 1075.15  613.97 1075.32  626.17 1075.57   640.4 1075.85  645.54 1075.96
  647.28 1075.99  661.32  1076.2  668.39  1076.3   677.1 1076.41   689.5 1076.58
  692.88 1076.62  702.87 1076.74  708.66 1076.81  710.61 1076.83  724.43 1076.97
  731.72 1077.04  746.43 1077.14  752.83 1077.18  755.99  1077.2  765.35 1077.26
  773.94 1077.31  778.31 1077.34  795.05 1077.42  803.33 1077.47  816.16 1077.56
  827.84 1077.67  837.27 1077.76  850.67  1077.9  858.39 1077.97  866.45 1078.05
   879.5 1078.18  882.22 1078.21  890.32 1078.29     898 1078.37  900.61 1078.39
  913.78 1078.52  921.72 1078.59  937.73 1078.72  942.83 1078.77  952.79 1078.85
```

961.12	1078.92	963.94	1078.94	976.9	1079.05	985.05	1079.12	992.68	1079.18
1006.16	1079.29	1008.46	1079.31	1015.27	1079.36	1024.24	1079.42	1027.27	1079.44
1033.38	1079.48	1048.38	1079.58	1065.27	1079.68	1069.49	1079.71	1077.76	1079.76
1090.6	1079.9	1103.13	1080.05	1111.71	1080.15	1129.04	1080.37	1132.83	1080.42
1134.7	1080.44	1140.24	1080.52	1153.93	1080.83	1160.92	1080.97	1175.05	1081.28
1182.03	1081.43	1196.16	1081.7	1197.81	1081.73	1202.71	1081.83	1213.59	1082.01
1217.27	1082.08	1229.37	1082.29	1238.38	1082.48	1245.15	1082.62	1259.49	1082.97
1260.92	1083.01	1265.19	1083.12	1276.71	1083.23	1280.6	1083.27	1292.49	1083.39
1301.71	1083.49	1320.34	1083.64	1322.82	1083.66	1324.05	1083.67	1327.68	1083.68
1339.83	1083.64	1343.93	1083.62	1355.61	1083.57	1365.04	1083.55	1371.38	1083.53
1386.16	1083.53	1390.16	1083.53	1407.27	1083.59	1415.99	1083.67	1428.38	1083.74
1447.87	1083.82	1449.49	1083.83	1450.28	1083.82	1452.63	1083.82	1466.06	1083.85
1470.6	1083.89	1481.84	1084.01	1491.71	1084.16	1511.64	1084.94	1512.82	1084.98
1513.4	1085.01	1515.11	1085.1	1533.93	1086.04	1543.52	1086.31	1555.04	1086.62
1560.73	1086.71	1576.15	1086.98	1576.51	1086.99	1577.6	1087	1597.26	1087.26
1607.29	1087.35	1618.37	1087.45	1623.85	1087.51	1639.48	1087.65	1639.63	1087.65
1640.08	1087.66	1655.41	1087.77	1660.6	1087.79	1671.19	1087.81	1681.71	1087.83
1702.55	1087.94	1702.82	1087.95	1718.52	1088.1	1723.93	1088.22	1734.83	1088.34
1745.04	1088.46	1750.08	1088.52	1765.03	1088.72	1765.87	1088.73	1766.15	1088.74
1766.71	1088.74	1787.26	1088.94	1797.43	1089.01	1808.37	1089.11	1813.21	1089.13
1827.51	1089.25	1828.99	1089.26	1829.48	1089.26	1844.76	1089.36	1850.59	1089.49
1862.36	1089.68	1871.7	1089.81	1876.32	1089.86	1890	1090.09	1892.81	1090.13
1894.25	1090.14	1913.93	1090.23	1926.13	1090.28	1935.04	1090.31	1939.44	1090.33
1952.47	1090.43	1956.15	1090.45	1971	1090.61	1977.26	1090.66	1989.89	1090.8
1998.37	1090.9	2002.55	1090.94	2014.95	1091.06	2018.33	1091.09	2019.48	1091.1
2034.11	1091.26	2040.59	1091.34	2053.67	1091.47	2061.7	1091.56	2065.67	1091.58
2077.43	1091.64	2082.81	1091.67	2085.55	1091.69	2103.92	1091.8	2117.43	1091.93
2125.03	1092.01	2139.92	1092.2	2144.57	1092.26	2146.14	1092.29	2160.34	1092.47
2167.25	1092.56	2176.12	1092.66	2188.37	1092.78	2202.39	1092.92	2209.48	1092.99
2223.46	1093.17	2230.59	1093.26	2244.97	1093.46	2251.7	1093.55	2264.87	1093.73
2272.81	1093.83	2276.85	1093.87	2293.92	1094.03	2293.93	1094.03		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
13.95	.03	203.03	.03	472.55	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
203.03	472.55	200.27	200	205.15	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1092.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1092.50	Reach Len. (ft)	200.27	200.00	205.15
Crit W.S. (ft)		Flow Area (sq ft)	3080.52	5888.19	15624.84
E.G. Slope (ft/ft)	0.000004	Area (sq ft)	3080.52	5888.19	15624.84
Q Total (cfs)	-11087.00	Flow (cfs)	-1939.39	-4578.38	-4569.23
Top Width (ft)	2148.77	Top Width (ft)	189.08	269.52	1690.17
Vel Total (ft/s)	-0.45	Avg. Vel. (ft/s)	-0.63	-0.78	-0.29
Max Chl Dpth (ft)	23.81	Hydr. Depth (ft)	16.29	21.85	9.24
Conv. Total (cfs)	5513997.0	Conv. (cfs)	964536.1	2277004.0	2272457.0
Length Wtd. (ft)	202.08	Wetted Per. (ft)	193.82	269.91	1690.32
Min Ch El (ft)	1068.69	Shear (lb/sq ft)	0.00	0.01	0.00
Alpha	1.74	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1585.63	8287.21	9965.54
C & E Loss (ft)		Cum SA (acres)	112.24	366.76	1330.24

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 27099.98

INPUT
Description:
Station Elevation Data num= 267

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
.16	1090.43	14.45	1088.75	21.27	1087.2	35.04	1083.25	42.38	1081.1
46.01	1080.12	56.76	1077.51	61.79	1076.27	63.49	1075.88	77.57	1074.19
84.6	1073.83	98.8	1073.59	105.71	1073.43	119.24	1073.44	124.9	1073.45
126.82	1073.45	140.68	1073.47	147.93	1073.46	156.46	1073.47	169.04	1073.47
172.24	1073.49	181.72	1073.57	188.02	1073.62	190.16	1073.65	194.45	1073.7
211.27	1073.99	219.58	1073.99	232.38	1074	235.36	1073.66	241.86	1072.45
244.2	1072.01	251.13	1070.7	253.49	1070.3	258.22	1070.08	274.6	1068.98
282.69	1068.77	295.71	1068.64	298.47	1068.66	306.68	1068.76	314.25	1068.84
316.82	1068.88	321.98	1068.91	337.93	1069.05	345.82	1069.06	359.04	1069.07
369.16	1069.11	380.15	1069.16	393.16	1069.31	401.26	1069.43	417.64	1069.8
422.37	1069.89	424.71	1069.98	431.64	1070.3	440.49	1070.69	443.48	1070.86
456.27	1071.64	464.6	1072.13	481.41	1072.8	485.71	1072.97	494.12	1073.25
503.61	1073.6	506.82	1073.69	519.39	1074.06	527.93	1074.25	531.15	1074.32
535.17	1074.41	549.04	1074.64	550.95	1074.68	556.6	1074.77	570.15	1074.97
577.05	1075.04	591.26	1075.22	608.94	1075.38	612.37	1075.42	614.06	1075.43
619.08	1075.47	629.84	1075.54	633.48	1075.56	645.62	1075.63	654.59	1075.68
672.71	1075.79	675.7	1075.8	681.56	1075.84	696.81	1075.99	704.59	1076.09
717.93	1076.24	724.51	1076.32	739.04	1076.52	740.29	1076.54	744.04	1076.6
760.15	1076.84	771.85	1077.01	781.26	1077.11	800.25	1077.32	802.37	1077.35
803.42	1077.36	806.52	1077.39	823.48	1077.56	832.13	1077.61	844.59	1077.68
850.75	1077.69	865.7	1077.74	868.99	1077.77	886.81	1077.94	898.08	1078.17
907.92	1078.33	927.78	1078.58	929.03	1078.6	931.48	1078.62	950.14	1078.77
959.66	1078.82	971.25	1078.9	991.54	1078.97	992.37	1078.98	993.96	1078.98
1008.55	1079.01	1013.48	1079.02	1024.33	1079.03	1034.59	1079.03	1040.1	1079.03
1055.7	1079.04	1055.88	1079.04	1056.44	1079.04	1076.81	1079.13	1087.44	1079.23
1097.92	1079.32	1118.92	1079.53	1119.03	1079.53	1119.08	1079.54	1140.14	1079.81
1150.56	1079.94	1161.25	1080.07	1166.34	1080.15	1181.4	1080.32	1182.36	1080.33
1182.85	1080.33	1203.47	1080.62	1213.67	1080.81	1224.58	1080.94	1229.45	1081.02
1243.88	1081.21	1245.23	1081.23	1245.7	1081.24	1246.62	1081.25	1266.81	1081.46
1276.79	1081.54	1287.92	1081.64	1306.36	1081.79	1309.03	1081.81	1324.13	1081.92
1330.14	1081.97	1342.27	1082.08	1351.25	1082.15	1368.84	1082.39	1371.46	1082.43
1372.36	1082.45	1387.24	1082.73	1393.47	1082.86	1403.02	1083.07	1414.58	1083.33
1418.8	1083.44	1431.32	1083.76	1434.59	1083.85	1435.69	1083.88	1437.92	1083.95
1456.8	1084.55	1466.15	1084.82	1477.91	1085.16	1493.8	1085.48	1499.02	1085.57
1501.68	1085.6	1520.14	1085.83	1533.57	1085.93	1541.25	1086	1556.28	1086.11
1560.82	1086.15	1562.36	1086.16	1576.6	1086.28	1583.47	1086.34	1592.38	1086.42
1604.58	1086.55	1608.16	1086.59	1618.76	1086.71	1625.69	1086.79	1629.22	1086.82
1646.8	1086.99	1655.5	1087.06	1667.91	1087.15	1671.27	1087.18	1681.24	1087.28
1689.02	1087.36	1702.83	1087.53	1710.13	1087.61	1718.61	1087.7	1731.25	1087.81
1743.72	1087.9	1750.17	1087.94	1752.35	1087.95	1765.95	1088.03	1773.47	1088.09
1781.73	1088.15	1794.58	1088.29	1806.2	1088.41	1813.29	1088.49	1815.69	1088.52
1820.52	1088.58	1836.8	1088.76	1844.84	1088.84	1857.91	1088.99	1860.62	1089.02

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 1868.68 1089.08  1876.4 1089.15 1879.02 1089.17 1892.18 1089.27 1900.13 1089.32
 1916.17 1089.42 1921.24 1089.46 1923.74 1089.48 1931.15 1089.54 1939.52 1089.62
 1942.35 1089.64 1948.05 1089.69 1963.46 1089.86 1971.08 1089.94 1984.57 1090.09
 1993.64 1090.19 2005.68 1090.34 2018.41 1090.48 2026.79 1090.57 2043.71 1090.75
 2047.91  1090.8 2056.12 1090.89 2069.02 1091.04 2075.59 1091.11 2090.13 1091.28
 2107.47 1091.43 2111.24 1091.46  2113.1 1091.47  2118.6  1091.5 2128.88 1091.55
 2132.35 1091.58 2144.66 1091.65 2153.46  1091.7 2160.43 1091.77 2174.57 1091.88
 2181.07 1091.94 2195.68 1092.09 2203.12 1092.17 2216.79 1092.31 2235.01 1092.52
  2237.9 1092.55 2243.56 1092.61 2255.11 1092.73 2259.01 1092.77 2270.89 1092.85
 2280.12 1092.93 2298.78 1093.07 2301.23 1093.08 2302.45 1093.09 2306.04 1093.12
 2322.35 1093.25 2330.66 1093.33 2343.46 1093.43 2362.54 1093.59 2364.57  1093.6
 2368.52 1093.63 2371.21 1093.64

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**********************************************
     .16     .03  232.38     .03  531.15    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        232.38  531.15            200.27     200  245.98             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  200.27  *  200.00  *  245.98  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3710.72  * 6555.85  *15450.28  *
* E.G. Slope (ft/ft)      *0.000004  * Area (sq ft)            * 3710.72  * 6555.85  *15450.28  *
* Q Total (cfs)           *-11543.80  * Flow (cfs)             *-2250.06  *-4961.59  *-4332.15  *
* Top Width (ft)          * 2233.20  * Top Width (ft)          *  232.22  *  298.77  * 1702.21  *
* Vel Total (ft/s)        *   -0.45  * Avg. Vel. (ft/s)        *   -0.61  *   -0.76  *   -0.28  *
* Max Chl Dpth (ft)       *   23.86  * Hydr. Depth (ft)        *   15.98  *   21.94  *    9.08  *
* Conv. Total (cfs)       *5915067.0  * Conv. (cfs)            *1152937.0  *2542329.0  *2219801.0  *
* Length Wtd. (ft)        *  214.77  * Wetted Per. (ft)        *  236.18  *  299.25  * 1702.33  *
* Min Ch El (ft)          * 1068.64  * Shear (lb/sq ft)        *    0.00  *    0.01  *    0.00  *
* Alpha                   *    1.72  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1570.02  * 8258.64  * 9892.36  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  111.27  *  365.45  * 1322.25  *
**********************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                 RS: 26899.98

INPUT
Description:
Station Elevation Data     num=      263
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
    7.75 1090.73   14.81  1089.4   28.86 1085.26   30.59 1084.75   35.72 1083.26
   49.97 1079.11   62.15 1076.19   71.08 1074.34   77.92 1073.64   92.19 1072.94
    98.2 1072.82   113.3 1072.54  125.26 1072.51  134.41  1072.5  141.04 1072.52
  155.53 1072.56  156.83 1072.56  160.68 1072.57   172.6 1072.61  176.64 1072.63
  188.38 1072.65  197.75 1072.71  216.65 1072.76  218.86 1072.77  223.16 1072.72
  235.72 1072.54  239.97 1072.27  244.29 1071.62  251.49 1070.55  261.08 1069.55
  267.27 1069.32  282.19 1068.83  283.05 1068.82  285.64 1068.79  298.83 1068.65
   303.3 1068.63  312.31 1068.66  324.41 1068.67   330.4 1068.69  345.52 1068.75
  346.18 1068.75  348.12 1068.75  366.63 1068.77  376.07  1068.8  387.74 1068.84
  407.96 1069.04  408.85 1069.05   410.6 1069.06  429.97 1069.31  440.85 1069.43
  451.07 1069.58  456.63 1069.66  472.19  1069.9  473.08 1069.92   493.3 1070.35
  503.97  1070.6  514.41 1070.86  519.75 1070.95  535.52 1071.33  535.56 1071.34
  556.63 1071.92  567.08  1072.2  577.74 1072.56  598.04 1073.25  598.64 1073.27
  598.85 1073.28  614.42 1073.79  619.96    1074   630.2 1074.28  641.07 1074.64
  660.52  1075.2  662.18 1075.24  663.03 1075.26  683.07 1075.77   683.3 1075.78
  693.32 1076.03  704.41  1076.3   709.1  1076.4     723 1076.71  725.51 1076.75
  726.79 1076.76  746.63    1077  756.43 1077.12  767.74 1077.32  772.21 1077.37
  785.48 1077.66     788 1077.69  788.85  1077.7  790.56 1077.72  809.96 1077.95
  819.56    1078  831.07 1078.24  847.96 1078.54  852.18 1078.58   866.9 1078.67
  873.29 1078.74  886.21 1078.82   894.4 1078.87  898.45 1078.88  910.44 1078.94
  914.23 1078.93  915.51 1078.92  930.01 1078.79  936.62 1078.76  945.79 1078.68
  957.74 1078.68  961.57 1078.69  972.91 1078.77  977.35  1078.8  978.85 1078.81
  993.13  1078.9  999.96 1078.97 1013.74 1079.11 1021.07 1079.18 1024.69  1079.2
 1035.4 1079.31 1042.18 1079.38 1056.24 1079.48 1063.29 1079.55 1072.02  1079.6
 1084.4 1079.69  1087.8 1079.71 1097.88 1079.78 1103.58 1079.81 1105.51 1079.82
 1109.4 1079.84 1126.62 1079.93 1135.14 1079.99 1147.73 1080.06 1160.36 1080.16
 1168.84 1080.22 1173.16 1080.26 1189.95 1080.43 1205.05 1080.59 1211.06 1080.66
 1222.83 1080.77 1229.81 1080.84 1232.18 1080.86 1245.59 1080.97 1253.28 1081.03
 1261.37  1081.1  1274.4  1081.2 1277.15 1081.24 1285.32 1081.32 1292.93  1081.4
 1295.51 1081.41  1300.7 1081.45 1316.62 1081.59 1324.49 1081.69 1337.73 1081.91
 1340.27 1081.95  1347.8  1082.1 1358.84  1082.3 1371.82 1082.51 1379.95 1082.69
 1396.35 1083.12 1401.06 1083.22 1410.28 1083.42 1419.16 1083.61 1422.17 1083.67
 1428.23 1083.79 1443.28 1084.12 1450.73 1084.24 1464.39 1084.48 1472.75 1084.57
 1485.51 1084.73 1498.07 1084.73 1506.62 1084.79 1523.89 1084.71 1527.73 1084.68
 1535.24 1084.51  1545.4 1084.28 1548.84 1084.32 1561.18    1085 1569.95 1085.07
 1576.96 1085.22 1591.06 1085.36 1592.74 1085.38 1597.72 1085.44 1612.17 1085.63
  1624.3 1085.75 1633.28 1085.87 1640.08 1085.92 1654.39 1086.12 1655.86 1086.13
  1660.2  1086.2 1671.63 1086.33  1675.5 1086.37  1683.3 1086.46 1696.61 1086.61
 1703.19  1086.7 1717.72 1086.87 1722.68 1086.93 1734.75 1087.05 1738.83 1087.08
 1750.53 1087.18 1759.95 1087.27 1778.95 1087.45 1781.06 1087.46 1782.09 1087.47
 1785.16  1087.5 1802.17 1087.67 1810.84 1087.78 1823.28 1087.91 1829.42 1087.98
 1844.39 1088.18 1847.64 1088.22  1865.5 1088.38 1876.76 1088.42 1886.61 1088.55
 1892.54 1088.58 1907.72 1088.71 1910.12 1088.73  1924.1 1088.75 1928.83 1088.74
 1938.38 1088.83 1949.94 1088.96 1970.26 1089.16 1971.05 1089.17  1972.6 1089.19
 1992.16 1089.39 2002.99 1089.51 2013.28 1089.66 2034.03  1089.9 2034.39  1089.9
 2034.55  1089.9 2035.07 1089.91 2050.33 1090.04  2055.5 1090.09 2065.91 1090.14
 2076.61  1090.2  2081.9 1090.24 2097.56 1090.32 2097.68 1090.32 2097.72 1090.32
 2113.46 1090.49 2118.83 1090.55 2129.68  1090.7 2139.94 1090.84 2160.04 1091.14
 2161.05 1091.16 2161.56 1091.17 2182.16 1091.49 2193.44 1091.66 2203.27  1091.8
 2222.52 1092.01 2224.38 1092.03 2225.33 1092.05 2245.49 1092.27 2255.47 1092.39
  2266.6 1092.52 2271.25 1092.58 2284.99 1092.76 2287.03 1092.79 2287.72  1092.8
  2302.8 1093.02 2308.83 1093.12 2318.58 1093.26 2329.94 1093.42 2347.48 1093.59
 2351.05 1093.63 2352.86 1093.64 2371.77  1093.7

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**********************************************
    7.75     .03  235.72     .03  683.07    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        235.72  683.07            211.96     200  449.29             .1       .3
```

```
CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  211.96  *  200.00  *  449.29  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3895.03  * 9679.60  *13309.50  *
* E.G. Slope (ft/ft)      *0.000003  * Area (sq ft)            * 3895.03  * 9679.60  *13309.50  *
* Q Total (cfs)           *-11986.10  * Flow (cfs)             *-2228.67  *-6555.07  *-3202.36  *
* Top Width (ft)          * 2257.22  * Top Width (ft)          *  227.97  *  447.35  * 1581.90  *
* Vel Total (ft/s)        *   -0.45  * Avg. Vel. (ft/s)        *   -0.57  *   -0.68  *   -0.24  *
* Max Chl Dpth (ft)       *   23.87  * Hydr. Depth (ft)        *   17.09  *   21.64  *    8.41  *
* Conv. Total (cfs)       *6804276.0  * Conv. (cfs)            *1265173.0  *3721186.0  *1817916.0  *
* Length Wtd. (ft)        *  245.58  * Wetted Per. (ft)        *  231.93  *  447.64  * 1582.04  *
* Min Ch El (ft)          * 1068.63  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.65  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1552.53  * 8221.37  * 9811.16  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  110.21  *  363.74  * 1312.98  *
*****************************************************************************************

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: FRS
REACH: FRS1                RS: 26699.98

INPUT
Description:
Station Elevation Data    num=     274
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
    4.23 1090.62   18.75 1087.01      26 1085.52   28.89 1084.67   35.62 1082.74
   44.12 1080.31   47.77 1079.23   59.34 1076.37   69.55  1074.1   86.24 1072.74
   91.32 1072.43  105.01 1072.07  113.09 1071.97  133.32 1071.82  134.86  1071.8
  136.88  1071.8  150.68 1071.84  156.63 1071.86  171.52 1071.93   178.4 1071.97
  187.51 1072.03  196.36 1072.09  200.17 1072.11  211.59 1072.17  221.94  1072.1
   226.8 1072.04  238.14  1071.5  243.71 1071.22  245.01 1071.12   247.9 1070.91
  265.48 1069.22   286.1 1068.87  287.25 1068.85  288.77 1068.85  309.02 1068.74
  318.16  1068.7  330.79 1068.66   339.4 1068.66  352.56 1068.65  363.83 1068.66
  374.33 1068.69  390.04 1068.79   396.1 1068.84  400.66 1068.89  417.87 1069.06
  438.86 1069.22  439.64 1069.23  440.67 1069.23  455.18 1069.25  461.41 1069.24
  470.39 1069.23  483.18 1069.19  485.62 1069.19   491.3 1069.18  504.95 1069.18
  515.24  1069.2  526.72 1069.22   531.3 1069.22  541.93 1069.24   548.5 1069.25
  561.74 1069.27  570.27 1069.29  576.97 1069.29  592.04  1069.3  592.57  1069.3
  613.81 1069.29  629.82 1069.32  635.58 1069.33   643.2 1069.37  653.09  1069.4
  657.35 1069.42  668.31 1069.46  679.12 1069.51  693.83 1069.56  700.89 1069.56
   706.2 1069.57  722.66 1069.58   744.4 1069.63  744.43 1069.63  744.46 1069.63
  759.66 1069.67   766.2 1069.69  782.58 1069.74  787.97 1069.76   795.1 1069.79
  805.33  1069.9  809.74 1069.95  820.56 1070.05  831.51 1070.14  835.78 1070.18
  845.73 1070.28  851.01 1070.34  853.28 1070.38  866.24 1070.52  875.05 1070.66
  881.45 1070.72  896.36 1070.67  896.82 1070.67  897.16 1070.67  918.59 1070.82
  935.36 1071.15  940.36 1071.24  946.99 1071.41  957.57 1071.79  962.13    1072
  973.54  1072.4   983.9 1072.78  997.63 1073.17 1003.25 1073.33 1005.68 1073.38
 1018.48 1073.69 1027.45 1073.82  1033.7 1073.96 1048.26 1074.21 1048.92 1074.23
 1049.22 1074.23 1064.15 1074.75 1070.99 1075.04 1088.12 1076.09 1092.76 1076.37
 1098.89 1076.81 1109.82 1077.55 1114.52 1077.87  1114.8 1077.89 1125.04 1078.59
 1136.29 1079.36 1140.27 1079.58 1149.52 1080.02  1155.5 1080.29 1158.07 1080.35
  1164.5 1080.46 1179.84 1080.76 1200.15 1081.04 1201.16 1081.05 1201.61 1081.05
  1202.7 1081.04 1223.38 1081.02 1231.62 1080.97 1245.15 1080.87 1250.79 1080.82
 1266.92 1080.76 1277.29 1080.73 1288.69 1080.74 1301.42  1080.8 1307.74 1080.89
 1310.46 1080.93 1322.97 1081.14 1332.23 1081.29 1338.18 1081.43 1352.05 1081.72
    1354 1081.77 1355.46 1081.81 1375.77 1082.44 1383.86 1082.67 1397.54 1083.08
 1399.09 1083.11 1402.68  1083.2 1419.31 1083.59 1429.54 1083.71 1441.08 1083.88
 1453.32 1083.99 1462.85 1084.07 1475.21 1084.18 1484.62 1084.25 1503.95 1084.45
 1506.39 1084.48 1508.23  1084.5 1528.16 1084.74 1546.42 1084.96 1549.93    1085
 1554.58 1085.03 1566.56 1085.11  1571.7 1085.16 1581.77 1085.21 1593.47 1085.29
   1597 1085.31 1605.21 1085.39 1612.22 1085.44 1615.24 1085.47 1627.45  1085.6
 1637.02 1085.71 1655.85 1085.94 1657.89 1085.96 1658.79 1085.97 1673.12 1086.14
 1680.56 1086.22 1699.19 1086.43 1702.33 1086.47 1703.57 1086.48 1706.48  1086.5
  1718.8 1086.61  1724.1 1086.66 1737.38 1086.74 1745.87  1086.8 1749.24 1086.82
 1757.11 1086.88 1767.64 1086.94 1775.57 1087.04 1789.41 1087.19 1807.74 1087.46
 1810.15 1087.48 1811.18  1087.5 1825.36 1087.63 1832.95 1087.77 1840.59 1087.84
 1854.72 1088.07 1855.82 1088.08 1858.37 1088.11 1871.04 1088.18 1876.49 1088.25
 1886.27 1088.33 1898.26 1088.47 1901.48  1088.5 1909.01 1088.59 1916.71 1088.64
 1920.03 1088.69 1931.94  1088.8  1941.8 1088.94 1959.63 1089.14 1963.57 1089.17
 1977.61 1089.29 1985.34 1089.36 2004.72 1089.54 2007.11 1089.56 2008.06 1089.57
 2010.27 1089.59 2023.28 1089.72 2028.88 1089.78 2042.92 1089.91 2050.65 1089.98
 2053.74 1090.01  2060.9 1090.06 2068.95 1090.12 2072.42 1090.14 2084.18 1090.24
  2094.2 1090.32 2099.41 1090.38 2111.54 1090.51 2114.63 1090.55 2115.97 1090.56
  2119.3 1090.61 2137.74 1090.84 2157.49 1091.11 2159.51 1091.14 2162.16 1091.18
 2181.28 1091.46 2195.68 1091.67 2203.05 1091.77  2212.8 1091.89 2224.82 1092.03
 2233.88 1092.12 2246.59 1092.25 2251.65  1092.3 2263.43  1092.4 2268.36 1092.44
 2282.09 1092.57 2290.13 1092.65 2310.26 1092.85  2311.9 1092.87 2314.07 1092.89
 2333.67  1093.1 2348.45 1093.26 2355.44 1093.33 2364.69 1093.43 2373.45 1093.53
 2377.21 1093.55 2388.67  1093.7 2398.98 1093.75 2403.89 1093.81 2415.33 1093.92
 2420.75 1093.98 2424.84 1094.03 2442.52 1094.23 2450.12 1094.31

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    4.23     .03   226.8     .03  1114.8    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          226.8  1114.8            201.77     200  229.11             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.50  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  201.77  *  200.00  *  229.11  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3862.85  *19593.39  * 7378.72  *
* E.G. Slope (ft/ft)      *0.000002  * Area (sq ft)            * 3862.85  *19593.39  * 7378.72  *
* Q Total (cfs)           *-12324.60  * Flow (cfs)             *-1604.14  *-9661.77  *-1058.69  *
* Top Width (ft)          * 2270.58  * Top Width (ft)          *  222.57  *  888.00  * 1160.01  *
* Vel Total (ft/s)        *   -0.40  * Avg. Vel. (ft/s)        *   -0.42  *   -0.49  *   -0.14  *
* Max Chl Dpth (ft)       *   23.85  * Hydr. Depth (ft)        *   17.36  *   22.06  *    6.36  *
* Conv. Total (cfs)       *9736560.0  * Conv. (cfs)            *1267284.0  *7632897.0  *836379.1  *
* Length Wtd. (ft)        *  202.56  * Wetted Per. (ft)        *  226.61  *  888.28  * 1160.17  *
* Min Ch El (ft)          * 1068.65  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.34  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
```

```
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)   * 1533.66  * 8154.17  * 9704.47  *
* C & E Loss (ft)        *          * Cum SA (acres)         *  109.12  *  360.68  * 1298.84  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 26499.98

INPUT
Description:
Station Elevation Data     num=     269
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************************
    11.5 1089.82    14.77 1088.99    22.39  1086.8    33.27 1083.66    41.47 1081.52
   55.05 1077.87    73.03 1074.28    75.67 1073.75    76.82 1073.55     90.9 1072.71
   98.59 1072.55   106.12 1072.44   120.36 1072.33   123.65 1072.35   136.56 1072.44
  142.12  1072.5   151.79  1072.6   163.89 1072.66   167.02 1072.68   174.28 1072.69
  185.66 1072.69   194.24 1072.66   207.44 1072.61   212.69 1072.53   224.92 1072.16
  229.21 1072.06   232.43 1071.76   245.85 1070.66   250.98 1070.24   258.36 1069.57
  272.75 1068.84   275.55 1068.82   294.52 1068.67   304.03  1068.7   316.29 1068.73
  326.18 1068.74   334.49 1068.73   338.06 1068.73   347.01 1068.72   359.83 1068.71
  376.81  1068.8    381.6 1068.84   395.38 1069.05   403.37 1069.19   410.61 1069.29
  425.14 1069.44   427.45 1069.45   441.06 1069.52   446.91 1069.55   456.28 1069.58
  468.68 1069.62   478.08 1069.67   486.73 1069.71   490.45 1069.73   499.78 1069.83
  512.22 1069.94   517.17 1069.99   528.71 1070.08    532.4 1070.11   533.99 1070.11
  537.97 1070.13   555.76 1070.19   562.85 1070.19   577.53 1070.19   579.34 1070.19
   599.3 1070.12   614.35 1070.08   621.07 1070.07   623.75 1070.07   629.98  1070.1
  642.84 1070.14   652.54 1070.19   664.61 1070.24   680.61  1070.3   684.64 1070.31
  686.39 1070.32   699.87 1070.32   708.16 1070.34   715.09 1070.35   729.93 1070.38
  731.24 1070.39    751.7 1070.47   760.76 1070.52   773.47 1070.58   781.87 1070.61
  795.24 1070.66   806.44  1070.7   817.01 1070.74   832.51 1070.82   838.78 1070.85
   843.5 1070.88   860.55 1070.99    881.7 1071.12   882.32 1071.13   882.56 1071.13
  883.14 1071.13   897.79 1071.11   904.09 1071.09   913.01 1071.03   925.86 1070.96
  933.77 1070.97   947.63 1071.01   958.08 1071.13    969.4 1071.25    984.4 1071.49
  991.17 1071.61  1004.35 1071.92  1012.94 1072.16  1034.46 1072.78  1034.71 1072.78
 1034.81 1072.79  1035.03  1072.8  1050.03 1073.35  1056.48 1073.62  1072.66 1074.64
 1078.25 1074.98  1085.67 1075.54  1100.02 1076.62  1110.85 1077.39  1121.79 1078.17
 1126.15 1078.45  1136.29 1079.08  1141.38 1079.39  1143.57 1079.52  1156.61 1080.21
 1165.34 1080.66  1166.57 1080.71  1171.82 1080.91  1186.93 1081.44  1187.05 1081.44
 1187.11 1081.44  1202.27 1081.82  1208.88 1081.93   1217.5 1082.06  1230.65 1082.27
 1232.73 1082.29  1237.56 1082.37  1247.94 1082.49  1252.42 1082.56  1263.62 1082.68
 1274.19 1082.77   1278.4 1082.78   1288.2 1082.83  1295.96 1082.84  1301.81 1082.85
 1317.73 1082.85  1338.82 1082.92  1339.29 1082.92   1339.5 1082.92  1354.52 1082.97
 1361.27 1083.01  1369.74 1083.07  1383.04 1083.18  1384.97 1083.21  1389.46 1083.28
 1400.19 1083.42  1404.81 1083.48  1416.38 1083.64  1426.58 1083.79  1430.64 1083.84
 1440.09 1083.95  1445.87 1084.01  1448.35 1084.04  1461.09 1084.12  1470.12  1084.2
 1476.32 1084.22  1490.73 1084.31  1491.53 1084.31  1491.89 1084.31  1492.76 1084.32
 1513.66 1084.38  1521.99 1084.41  1535.43 1084.47  1541.35 1084.53   1557.2 1084.69
 1569.15 1084.85  1578.97 1084.99  1591.99 1085.13  1600.74 1085.22  1613.33  1085.3
 1622.52 1085.34  1642.62 1085.42  1644.29 1085.43     1659 1085.53  1666.05 1085.57
 1683.72 1085.72  1687.82 1085.75  1693.26  1085.8  1704.68 1085.92  1709.59 1085.96
 1721.92  1086.1  1731.36 1086.21  1735.12 1086.26  1743.88 1086.37  1753.14  1086.5
  1760.1 1086.59  1774.91 1086.79   1780.8 1086.87  1794.51    1087  1796.68 1087.02
 1811.25 1087.18  1818.45 1087.25  1826.47 1087.34  1840.22 1087.54   1841.7 1087.56
 1845.15 1087.61  1861.99  1087.8  1874.68 1087.88  1883.76 1087.96  1887.37     1088
 1895.78 1088.11  1905.53  1088.2  1917.82 1088.28   1927.3 1088.38  1933.05   1088.4
 1946.41 1088.39  1948.26 1088.39  1949.07 1088.39  1963.49 1088.44  1970.84 1088.47
 1989.26 1088.62  1992.61 1088.65  1993.94 1088.66  1997.04 1088.69  2014.38 1088.94
 2027.44 1089.12  2036.15 1089.24  2047.68 1089.43  2054.84 1089.58  2057.92 1089.62
 2065.64 1089.75  2079.69 1089.99  2085.29 1090.08  2098.31 1090.28  2101.46 1090.32
 2115.73 1090.48  2123.23 1090.53  2130.96 1090.61     2145 1090.74  2146.18 1090.76
 2148.94 1090.79  2161.41 1090.93  2166.77 1090.97  2180.22 1091.07  2188.54 1091.14
 2199.57 1091.21  2210.31  1091.3   2218.4 1091.36  2232.09 1091.48  2250.21 1091.66
 2252.76 1091.71  2253.86 1091.72   2256.6 1091.76  2275.63 1092.05  2294.79  1092.4
  2297.4 1092.45  2300.84 1092.51  2319.17 1092.89  2332.98 1093.08  2340.94 1093.19
  2344.1 1093.24  2351.47 1093.31  2362.71 1093.45  2374.55 1093.58  2384.48 1093.68
  2402.1 1093.87  2406.25 1093.92  2409.36 1093.95  2410.27 1093.96

Manning's n Values         num=       3
    Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
    11.5     .03   212.69     .03  1166.57     .045

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        212.69 1166.57             201.77     200  209.33               .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)         * 1092.51  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)         * 1092.50  * Reach Len. (ft)         *  201.77  *  200.00  *  209.33  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       * 3446.97  *20372.13  * 6709.76  *
* E.G. Slope (ft/ft)     *0.000002  * Area (sq ft)            * 3446.97  *20372.13  * 6709.76  *
* Q Total (cfs)          *-12688.30  * Flow (cfs)             *-1475.44  *-10255.51  * -957.35  *
* Top Width (ft)         * 2288.82  * Top Width (ft)          *  201.19  *  953.88  * 1133.75  *
* Vel Total (ft/s)       *   -0.42  * Avg. Vel. (ft/s)        *   -0.43  *   -0.50  *   -0.14  *
* Max Chl Dpth (ft)      *   23.83  * Hydr. Depth (ft)        *   17.13  *   21.36  *    5.92  *
* Conv. Total (cfs)      *9607126.0  * Conv. (cfs)            *1117148.0  *7765107.0  *724871.1  *
* Length Wtd. (ft)       *  200.87  * Wetted Per. (ft)        *  205.94  *  954.29  * 1133.83  *
* Min Ch El (ft)         * 1068.67  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                  *    1.32  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)    * 1516.73  * 8062.42  * 9667.42  *
* C & E Loss (ft)        *          * Cum SA (acres)          *  108.14  *  356.45  * 1292.81  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 26299.98

INPUT
Description:
Station Elevation Data     num=     265
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************************
       0 1090.16     6.82 1089.33    16.42 1088.16    23.66 1086.04    38.19 1081.71
   57.45 1076.44     59.2 1075.96    59.96 1075.77    61.85 1075.51    81.73 1072.03
```

```
  89.65 1071.92  103.51 1071.75  108.09 1071.73  125.28 1071.65  135.32 1071.68
 147.05 1071.68  158.72 1071.74  168.82 1071.79    181 1071.96  190.59 1072.05
 209.34 1072.35  212.36  1072.4  226.67 1072.39  234.13 1072.34   241.9 1071.48
 244.25 1071.05   255.9 1068.91  259.98 1068.73  277.67 1068.22    291 1068.22
 299.44  1068.2  310.61 1068.27  321.21 1068.35   329.2 1068.41  342.98  1068.5
 361.25 1068.62   363.7 1068.64  364.75 1068.65  378.91 1068.76  386.52 1068.82
 394.14 1068.89  408.29 1069.04  409.37 1069.06  411.87 1069.08  430.06 1069.29
 443.77 1069.37  451.83 1069.42  462.51 1069.43  470.26 1069.44   473.6 1069.44
 481.96 1069.45  495.37 1069.45  513.14  1069.5  515.93 1069.51  517.14 1069.51
 520.16 1069.52  538.91  1069.6  546.38 1069.62  560.68 1069.67  561.61 1069.68
 563.78 1069.68  582.45 1069.74  592.05 1069.77  604.23 1069.82   614.4 1069.85
    626 1069.87  637.73 1069.88  647.77 1069.89  665.04 1069.91  669.54 1069.91
 672.92 1069.92   691.3 1069.94  698.63 1069.97  713.07 1070.11  713.85 1070.11
 715.67 1070.13  734.85 1070.25  744.31  1070.3  756.62 1070.37   766.3 1070.39
 778.39  1070.4   787.5 1070.37  800.16 1070.31  816.93 1070.23  821.93 1070.21
 835.64 1070.22   843.7 1070.25  863.88 1070.42  865.47 1070.43  867.57 1070.45
 881.32 1070.57  887.24 1070.62  896.55 1070.67  909.01 1070.73  911.77 1070.74
  918.2 1070.74  930.78 1070.74  940.26 1070.74  952.55 1070.72  957.44 1070.75
 968.83 1070.92  974.32 1070.99   987.9 1071.28  996.09 1071.46 1016.64 1072.12
1017.86 1072.15 1018.34 1072.17 1019.46 1072.23 1033.56 1072.87 1039.63 1073.16
1048.79 1073.62  1061.4 1074.29 1070.09 1074.79 1079.23  1075.3 1083.17 1075.54
1094.46 1076.16 1104.94  1076.8 1109.69 1077.01 1120.73 1077.65 1124.91 1077.89
1126.71    1078 1136.63  1078.6 1140.14 1078.81 1148.48 1079.31 1155.36 1079.73
1170.25 1080.52 1170.58 1080.54 1171.36 1080.58 1185.81 1081.31 1192.02 1081.59
1201.03 1082.02 1213.79 1082.53 1216.25 1082.62 1221.99 1082.75 1231.48 1082.95
1235.57 1083.01  1245.8 1083.07 1257.34 1083.15 1261.93 1083.16 1272.62 1083.25
1279.11 1083.28 1283.99 1083.33 1300.88 1083.46 1322.18 1083.63 1322.65 1083.63
1323.26 1083.64 1338.05  1083.7 1344.42 1083.74 1353.28 1083.78 1366.19 1083.84
 1368.5 1083.86 1373.89  1083.9 1387.96 1084.01 1398.56 1084.12 1409.73 1084.24
1424.52 1084.41  1429.4 1084.46  1431.5 1084.48 1436.76 1084.55 1453.27 1084.76
1474.94 1085.05 1475.04 1085.05 1475.15 1085.05 1496.81 1085.29 1505.52 1085.35
1518.58 1085.43 1525.79 1085.47 1540.35 1085.56  1551.2 1085.67 1562.12 1085.78
1566.41 1085.83 1576.42 1085.95 1581.64 1086.02 1583.89 1086.05 1596.87  1086.2
1605.66  1086.3 1612.09 1086.36 1627.05 1086.53 1627.32 1086.53 1627.43 1086.53
1642.54  1086.7  1649.2 1086.78 1657.76 1086.88 1670.97 1087.03 1672.99 1087.06
1677.68 1087.11 1688.22 1087.23 1692.75 1087.28 1703.43 1087.39 1714.52 1087.51
1728.32 1087.65 1733.88  1087.7 1736.29 1087.72 1749.11 1087.87 1758.06 1087.98
1764.34 1088.08 1778.95 1088.29 1779.56  1088.3 1779.83 1088.31 1794.79 1088.52
 1801.6  1088.6 1818.68 1088.76 1823.37  1088.8 1829.57 1088.84 1840.46  1088.9
1845.14 1088.93 1855.68 1089.01 1866.91 1089.11  1870.9 1089.16 1880.21 1089.32
1888.68 1089.45 1895.06 1089.56 1910.45 1089.81 1930.84 1090.15 1932.22 1090.17
1947.02 1090.34 1953.99 1090.46 1971.44 1090.66 1975.76 1090.69 1977.47 1090.69
1981.48 1090.71  1992.7  1090.7 1997.53 1090.75 2009.63 1090.78  2019.3 1090.78
 2032.1 1090.83 2041.07 1090.86 2047.82 1090.93 2062.84 1091.03 2082.74 1091.29
2084.61 1091.32 2086.02 1091.34 2106.38 1091.65 2124.21 1091.88 2128.15 1091.92
2133.37 1091.97 2149.92  1092.1  2162.4 1092.19  2171.7 1092.26  2175.4 1092.29
2184.01 1092.36 2190.61  1092.4 2193.47 1092.42 2200.59 1092.47 2215.24 1092.58
2234.63 1092.69    2237  1092.7 2238.78  1092.7 2258.77 1092.68 2276.98 1092.54
2280.54 1092.51 2285.27 1092.48 2302.31 1092.39 2315.17 1092.47 2324.09 1092.52
 2335.9 1092.69 2345.86 1092.87 2353.36 1093.02 2367.63 1093.32 2373.31 1093.42
2386.53  1093.6  2389.4 1093.63 2391.55 1093.65 2411.17 1093.77 2418.36  1093.8

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**************************************************
       0     .03   234.13     .03 1136.63     .045

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        234.13 1136.63              201.77     200  206.74              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.50  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  201.77  *  200.00  *  206.74  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 4057.50  *19809.57  * 5834.54  *
* E.G. Slope (ft/ft)      *0.000002  * Area (sq ft)            * 4057.50  *19809.57  * 5834.54  *
* Q Total (cfs)           *-12860.60  * Flow (cfs)             *-1777.34  *-10284.47  * -798.79  *
* Top Width (ft)          * 2243.00  * Top Width (ft)          *  234.13  *  902.50  * 1106.37  *
* Vel Total (ft/s)        *   -0.43  * Avg. Vel. (ft/s)        *   -0.44  *   -0.52  *   -0.14  *
* Max Chl Dpth (ft)       *   24.30  * Hydr. Depth (ft)        *   17.33  *   21.95  *    5.27  *
* Conv. Total (cfs)       *9615106.0  * Conv. (cfs)            *1328813.0  *7689088.0  *597205.5  *
* Length Wtd. (ft)        *  200.75  * Wetted Per. (ft)        *  238.65  *  903.00  * 1106.53  *
* Min Ch El (ft)          * 1068.20  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.30  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1499.35  * 7970.17  * 9637.28  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  107.13  *  352.19  * 1287.43  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 26099.98

INPUT
Description:
Station Elevation Data     num=     245
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************************
     4.1 1090.94    10.37  1089.4    25.87 1086.34    32.05 1084.43    46.41 1079.95
   47.27 1079.69    47.64 1079.57    48.57 1079.29    69.42 1072.96    86.76 1071.78
   91.18 1071.25    97.04 1071.22   112.95 1071.14   123.39 1071.19   134.72 1071.23
  147.67 1071.25   156.49 1071.27   169.07  1071.3   178.26 1071.33   184.28 1071.38
  198.31 1071.52   200.04 1071.54   214.73 1071.73   221.81 1071.75   229.96 1071.71
  243.58 1071.28   247.75 1070.63   248.93 1070.44   260.41 1068.48   265.35 1068.09
  277.71 1068.06   287.12 1068.07   299.57 1068.13   308.89 1068.17   321.31 1068.19
  330.66  1068.2   336.53 1068.18    350.2 1068.14   351.75 1068.14   352.43 1068.14
   354.1 1068.14    374.2 1068.17   653.99 1068.81   656.25 1068.81   657.21 1068.81
  671.46 1068.76   678.98 1068.75   686.69 1068.73   700.76 1068.72   704.63 1068.73
  722.53 1068.76   732.37 1068.79    744.3 1068.83   755.26 1068.89   766.07 1068.94
  778.04 1069.02   787.84 1069.11    805.9 1069.28   809.61 1069.31   823.71 1069.44
  831.38 1069.52   850.59 1069.69   853.15 1069.71   856.52 1069.73   874.92 1069.84
  888.78 1069.86   896.69 1069.88   899.84 1069.88   907.15 1069.86   915.05 1069.84
  918.46 1069.83   926.98 1069.75   940.23 1069.63   957.79 1069.41      962 1069.36
  975.96 1069.28   983.77 1069.31  1003.36  1069.8  1005.54 1069.85  1008.42 1069.96
 1021.63 1070.46  1027.31 1070.69  1036.85 1071.16  1049.08  1071.8  1052.07 1072.01
 1059.05 1072.47   1067.3 1073.03  1070.85 1073.25  1082.52 1074.01  1092.62 1074.56
 1097.75 1074.76  1109.68 1075.27  1112.98 1075.41  1114.39 1075.48  1118.62 1075.62
 1128.19 1075.95  1136.16 1076.18  1143.43 1076.29  1157.93 1076.32  1158.64 1076.32
 1160.32 1076.32  1173.87 1076.35  1179.71 1076.39   1189.1 1076.75  1201.48 1077.26
```

```
 1204.32 1077.54 1210.95 1078.32 1219.55 1079.22 1223.25 1079.78 1232.51 1080.43
 1245.01 1081.38 1261.58 1081.75 1265.22 1081.83 1266.78 1081.86  1270.7 1081.91
 1288.55 1082.13 1295.66 1082.21 1310.32  1082.4 1312.21 1082.43  1332.1  1082.7
 1347.09 1082.93 1353.87 1083.03 1362.85 1083.17 1371.78 1083.29 1375.64 1083.36
 1387.01 1083.53 1397.41  1083.7 1402.24 1083.77 1413.48 1083.92 1419.18 1083.99
 1432.69 1084.05 1440.95 1084.16 1447.91 1084.19 1462.72 1084.36 1463.13 1084.36
 1464.11 1084.37 1478.36  1084.5 1484.49  1084.6 1499.85 1084.84 1506.26 1084.91
 1508.81 1084.94 1514.74 1085.03 1524.04 1085.12 1528.03 1085.21 1539.25 1085.28
  1549.8 1085.37 1554.48 1085.39 1565.38 1085.39  1569.7 1085.38 1571.57 1085.39
 1576.24 1085.39 1593.34 1085.39 1614.43  1085.4 1615.11 1085.41 1616.01 1085.41
  1630.6 1085.43 1636.88 1085.41 1645.83  1085.5 1658.65 1085.51 1666.64 1085.58
 1680.42  1085.7 1690.81 1085.79 1702.19 1085.91 1717.27 1086.05 1723.96 1086.12
 1737.17 1086.25 1745.73 1086.29  1767.2 1086.49  1767.5 1086.49 1767.62 1086.49
  1767.9  1086.5 1782.84 1086.68 1789.27 1086.75 1805.39 1086.91 1811.05 1086.97
 1818.54 1087.04 1832.82 1087.18 1843.58  1087.3 1854.59 1087.42 1869.16 1087.57
 1874.19 1087.62 1876.36 1087.65 1889.42 1087.76 1898.13 1087.83  1919.8 1087.96
  1919.9 1087.96 1935.09 1088.04 1941.67  1088.1 1958.16 1088.26 1963.44  1088.3
 1965.54 1088.33 1970.43 1088.38 1980.76 1088.47 1985.21 1088.51 1995.98  1088.6
 2006.98 1088.65 2021.06 1088.66 2028.75 1088.67 2034.54 1088.71 2050.52 1088.81
 2071.69 1089.06 2072.29 1089.07 2072.73 1089.07 2094.06 1089.31 2110.92 1089.55
 2115.83 1089.61 2122.33 1089.66  2137.6 1089.82 2149.12 1089.92 2159.37 1090.03
 2172.96 1090.08 2181.14 1090.12  2193.9 1090.26 2202.91 1090.31 2209.13 1090.38
 2223.59 1090.57 2224.35 1090.58 2224.68 1090.59 2239.57 1090.78 2246.45 1090.89
 2263.69 1091.04 2268.22 1091.08 2274.22 1091.11    2290 1091.23 2301.88 1091.42
 2311.77 1091.56 2324.86 1091.74 2333.54 1091.82 2340.08  1091.9 2355.31 1092.08
 2375.49 1092.37 2377.08 1092.39 2378.26 1092.41 2398.84 1092.74 2416.46 1092.97
 2420.61 1093.02 2426.12 1093.07 2442.39 1093.24 2454.65 1093.36 2464.16 1093.47
 2467.95 1093.52 2476.75 1093.63 2485.93 1093.75 2492.84 1093.83 2502.51 1093.95

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
     4.1     .03  243.58     .03 1118.62    .045

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        243.58 1118.62              220.61     200  165.36              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**************************************************************************************
* E.G. Elev (ft)          * 1092.50  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  220.61  *  200.00  *  165.36  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 4309.20  *20265.23  * 8072.90  *
* E.G. Slope (ft/ft)      *0.000002  * Area (sq ft)            * 4309.20  *20265.23  * 8072.90  *
* Q Total (cfs)           *-13119.40  * Flow (cfs)             *-1807.26  *-10168.56  *-1143.58  *
* Top Width (ft)          * 2379.77  * Top Width (ft)          *  239.48  *  875.04  * 1265.25  *
* Vel Total (ft/s)        *   -0.40  * Avg. Vel. (ft/s)        *   -0.42  *   -0.50  *   -0.14  *
* Max Chl Dpth (ft)       *   24.44  * Hydr. Depth (ft)        *   17.99  *   23.16  *    6.38  *
* Conv. Total (cfs)       *10518600.0  * Conv. (cfs)           *1448983.0  *8152735.0  *916878.3  *
* Length Wtd. (ft)        *  199.74  * Wetted Per. (ft)        *  243.62  *  875.46  * 1265.55  *
* Min Ch El (ft)          * 1068.06  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.37  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1479.97  * 7878.18  * 9604.27  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  106.03  *  348.11  * 1281.80  *
**************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 25899.98

INPUT
Description:
Station Elevation Data     num=     201
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
**************************************************************************************
     .33 1091.05   17.84 1088.44   22.84 1087.51   28.16 1085.94   45.35 1080.92
   61.43 1076.38   65.66 1075.19   67.86 1074.56   80.51 1071.65   90.36 1070.85
  105.02 1071.13  112.87  1071.2  121.25 1071.16  135.38 1071.09  148.61    1071
  157.89 1070.95  169.58 1070.91   180.4 1070.91   192.2 1071.05  202.91 1071.19
  214.35 1071.32  225.42  1071.5  235.79 1071.23  243.79    1071  247.93 1070.63
  250.59 1070.35   260.9 1069.25  270.44    1068  273.48 1067.99  279.37 1067.93
  288.33 1067.86  671.66 1068.51  675.61 1068.51  679.82 1068.51  698.12 1068.54
  715.25 1068.57  720.63 1068.59  733.64 1068.61  743.14 1068.61  758.84 1068.62
  765.65 1068.62  778.17 1068.64  788.16  1068.6  802.43 1068.56  810.67 1068.53
  819.45 1068.52  833.18  1068.5  846.02 1068.54  852.39 1068.58  855.69  1068.6
  867.23  1068.7  878.19 1068.79  882.08 1068.81   889.6 1068.85   900.7 1068.91
  912.55 1068.94  923.21 1068.97  933.19 1069.01  941.45 1069.05  945.72 1069.06
   959.1 1069.16  968.23 1069.22  971.14 1069.24  976.78 1069.29  985.98 1069.36
  990.74 1069.38 1005.65 1069.48 1013.25 1069.53 1015.67 1069.55 1020.36 1069.59
 1030.52 1069.68 1035.76 1069.76 1052.19 1070.09 1058.27 1070.19 1063.95 1070.39
 1075.05 1070.81 1080.78 1071.09 1089.89  1071.6 1103.29 1072.59 1104.73 1072.66
 1107.54 1072.82  1125.8 1073.87 1145.28 1074.27 1148.31 1074.34 1151.13 1074.43
 1159.31  1074.6 1170.82 1074.85 1178.96 1075.05 1193.33 1075.32 1194.72 1075.36
 1215.84 1076.18  1238.3 1079.44 1238.32 1079.45 1238.35 1079.45 1253.17 1081.25
 1260.85 1081.54 1268.01 1081.76 1281.89 1082.04 1283.36 1082.07 1284.93 1082.07
 1575.99 1084.11 1587.01 1084.29  1598.5  1084.5 1610.75 1084.68 1621.01 1084.83
 1630.59 1084.93 1643.52 1085.04  1657.3 1085.18 1666.02 1085.25  1668.8 1085.27
 1674.18 1085.36 1683.64 1085.48 1688.53 1085.55 1698.48 1085.63 1711.04 1085.79
 1713.33 1085.81 1717.77 1085.84 1728.17 1085.89 1733.55 1085.96 1743.02 1086.04
 1756.06 1086.23 1761.36 1086.29 1778.57 1086.46 1787.55 1086.53 1801.08 1086.63
 1804.95 1086.67 1823.59 1086.85 1832.09 1086.94  1846.1 1087.11 1848.53 1087.14
 1868.61 1087.36 1876.61 1087.43 1891.12 1087.57 1891.45 1087.58 1892.12 1087.58
  1906.3 1087.71 1913.63 1087.79 1921.15 1087.87 1935.71 1088.04 1935.99 1088.05
 1936.14 1088.05 1936.58 1088.05 1958.65 1088.31  1979.3 1088.55 1981.16 1088.57
 1983.13 1088.59 2003.67 1088.79 2022.89 1088.96 2026.18 1088.97 2029.67 1089.01
 2048.68 1089.16 2066.48 1089.33 2069.59 1089.36 2071.19 1089.38 2084.43 1089.49
  2093.7 1089.64 2099.28  1089.7 2110.07 1089.81 2116.21 1089.87 2122.76 1089.91
 2138.72 1090.03 2153.66 1090.14 2161.23 1090.19 2169.31 1090.24 2183.74 1090.34
 2188.33 1090.39 2197.24 1090.47 2203.18 1090.54 2206.25 1090.57 2218.02 1090.77
 2228.76 1090.92 2240.83  1091.1 2251.27 1091.24 2262.41 1091.35 2273.78 1091.47
 2284.41 1091.58 2296.29 1091.68 2308.96 1091.81 2318.79 1091.89    2328 1091.95
 2336.77 1091.99 2341.31 1092.05  2355.5 1092.16 2363.82 1092.22 2371.59 1092.27
 2386.33 1092.36 2402.05 1092.47 2408.84 1092.51 2415.18 1092.57 2431.34 1092.73
  2448.6 1092.92 2453.85 1092.98 2455.52    1093 2458.77 1093.04 2470.36 1093.18
 2476.36 1093.25 2495.15 1093.45 2498.87 1093.49 2502.35 1093.53 2521.38 1093.73
 2531.25 1093.83

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
```

```
    .33     .03  225.42     .03 1159.31    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        225.42 1159.31             205.4     200  204.41             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)         * 1092.50  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)         * 1092.50  * Reach Len. (ft)         *  205.40  *  200.00  *  204.41  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       * 3936.64  *21885.02  * 7842.50  *
* E.G. Slope (ft/ft)     *0.000001  * Area (sq ft)            * 3936.64  *21885.02  * 7842.50  *
* Q Total (cfs)          *-13363.20  * Flow (cfs)             *-1569.81  *-10727.59  *-1065.80  *
* Top Width (ft)         * 2406.81  * Top Width (ft)          *  225.09  *  933.89  * 1247.83  *
* Vel Total (ft/s)       *   -0.40  * Avg. Vel. (ft/s)        *   -0.40  *   -0.49  *   -0.14  *
* Max Chl Dpth (ft)      *   24.64  * Hydr. Depth (ft)        *   17.49  *   23.43  *    6.28  *
* Conv. Total (cfs)      *11055280.0  * Conv. (cfs)           *1298693.0  *8874861.0  *881728.9  *
* Length Wtd. (ft)       *  200.97  * Wetted Per. (ft)        *  229.02  *  934.19  * 1248.27  *
* Min Ch El (ft)         * 1067.86  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                  *    1.35  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)    * 1459.09  * 7781.41  * 9574.06  *
* C & E Loss (ft)        *          * Cum SA (acres)          *  104.85  *  343.95  * 1277.03  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 25699.98

INPUT
Description:
Station Elevation Data    num=     277
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
       5 1090.89    9.68 1089.87   21.43 1087.23   27.51 1085.43   36.28 1082.98
   50.02 1078.96   53.26 1078.08   65.97 1074.62   72.53 1072.81   93.09 1070.75
   95.03 1070.48   96.85 1070.49  110.49 1070.46  117.54  1070.5  139.64 1070.74
  140.05 1070.75  140.18 1070.75  140.44 1070.75  155.02  1070.8  162.56 1070.77
  184.03 1070.73  185.07 1070.73  186.18 1070.76  207.58 1071.17  227.62 1071.47
  229.25 1071.49  230.09  1071.5  244.09 1070.81  245.64 1070.64   252.6 1069.87
  258.94 1069.07   271.2  1068.3  275.11 1068.03  279.27    1068  297.62 1067.77
  314.79 1067.82  320.13 1067.83  325.82 1067.85  342.64 1067.92  358.37 1067.95
  365.15 1067.95  377.69 1067.93  387.66 1067.91  401.96 1067.87  410.17 1067.84
  418.91 1067.85  432.68 1067.86  445.55 1067.92   451.9 1067.95  455.19 1067.96
  466.74 1068.01   477.7 1068.03  481.59 1068.01  489.14 1067.99   500.2 1067.94
  512.01 1067.87  522.71  1067.8  532.73 1067.77  540.97 1067.73  545.22 1067.72
  558.55 1067.77  567.73 1067.79  570.65 1067.81  576.32 1067.84  590.24 1067.93
  600.34 1067.98  612.75 1068.05  615.18 1068.06  619.91 1068.08  635.26 1068.17
  651.65 1068.28  657.77 1068.32  659.72 1068.33  663.49 1068.35  674.56 1068.41
  680.28 1068.43  689.41 1068.46  702.79 1068.47  707.08 1068.47   725.3 1068.45
  744.75 1068.44   747.8 1068.43  750.67 1068.44  770.32 1068.44  778.46 1068.46
  792.83 1068.52  794.26 1068.53  815.34 1068.63     823 1068.65  837.85  1068.7
  860.36 1068.74  867.53 1068.75  881.43 1068.76  882.37 1068.76  882.86 1068.76
  884.38 1068.76  905.37 1068.78  912.06 1068.79  925.02  1068.8  927.88  1068.8
  941.75 1068.83  950.39 1068.86   956.6 1068.88   968.6 1068.94  971.44 1068.96
   972.9 1068.97  986.28 1069.11  995.41  1069.2 1012.19 1069.42 1017.92 1069.48
 1024.02 1069.51 1040.43 1069.63 1055.78 1069.65  1060.5 1069.66 1062.94 1069.65
 1075.34 1069.65 1085.45 1069.64 1099.37 1069.88 1107.96 1070.11 1117.12 1070.85
 1130.47 1071.82 1142.96 1072.55 1152.97 1073.08  1164.4 1073.52 1175.48 1074.03
 1186.55 1074.56 1197.99 1075.12 1208.93 1075.71 1220.51 1076.39 1225.59 1076.65
 1230.14 1076.89 1243.02 1077.48 1256.75 1077.74 1265.53 1077.96 1273.73 1078.03
 1283.16 1078.08 1288.03 1078.09    1298 1078.32 1310.54 1078.48 1312.84 1078.61
 1317.31 1078.97 1333.05 1080.31 1349.85    1081 1355.56 1081.28 1357.37 1081.32
  1360.9  1081.4 1372.22 1081.68 1378.07 1081.84  1396.4 1082.21 1400.58  1082.3
 1401.91 1082.33 1404.49 1082.36 1416.75 1082.57 1423.09 1082.66  1431.6 1082.78
  1445.6 1082.94 1448.08 1082.97 1461.29 1083.11 1468.11 1083.18 1489.49 1083.41
 1490.62 1083.42 1491.66 1083.43 1505.81  1083.6 1513.13 1083.67 1520.66 1083.75
 1535.25 1083.89 1535.63 1083.89 1536.04  1083.9 1558.14 1084.15 1565.19 1084.23
 1578.84 1084.38 1580.65 1084.41 1594.88 1084.56 1603.16 1084.62 1622.42 1084.77
 1625.67 1084.79 1639.41 1084.93 1648.18    1085 1654.25 1085.07 1666.01 1085.19
 1669.09 1085.22 1670.69 1085.24 1675.68 1085.27  1693.2  1085.4  1709.6 1085.45
 1713.63 1085.47 1715.71 1085.49 1728.48 1085.65 1738.22 1085.77 1743.32 1085.83
 1753.19 1085.96 1758.16 1086.04 1760.73 1086.07    1773 1086.21 1783.24 1086.35
 1796.78 1086.49 1805.75 1086.58 1817.53 1086.69 1828.26 1086.83 1840.37 1086.97
 1850.77  1087.1 1861.86 1087.26 1873.28  1087.4 1883.96 1087.52 1895.79 1087.62
  1906.6 1087.71  1918.3 1087.89 1921.44 1087.93 1927.54 1088.04 1936.28 1088.12
  1940.8 1088.18 1954.96 1088.33 1963.31  1088.4 1971.13 1088.46 1985.82 1088.53
  2001.5 1088.62 2008.33 1088.63 2014.72 1088.64 2030.84 1088.65 2048.05 1088.72
 2053.35 1088.72 2058.31 1088.77 2075.86 1088.81  2094.6 1088.92 2098.37 1088.94
 2101.89 1088.96 2120.88 1089.03 2129.25 1089.03 2143.39 1089.15  2144.1 1089.17
 2145.48 1089.17  2165.9 1089.35 2187.69 1089.62 2188.41 1089.64 2188.63 1089.64
 2189.07 1089.64 2203.48 1089.77 2210.92 1089.87 2232.66 1089.99 2233.43 1089.99
 2234.24 1090.01 2255.94 1090.36 2276.24 1090.74 2278.45 1090.76 2292.54 1090.75
 2300.96 1090.85 2307.38 1090.81 2319.83  1091.1 2322.23 1091.12 2323.46 1091.14
 2327.34 1091.17 2345.97 1091.32 2363.42 1091.42 2368.48 1091.44 2373.88 1091.46
 2390.99 1091.48 2407.01  1091.5  2413.5  1091.5 2420.43 1091.55 2436.01 1091.75
  2450.6  1091.9 2455.82 1091.97 2458.52 1091.99 2470.67 1092.17 2481.03 1092.32
 2485.51 1092.38 2494.19 1092.52 2503.54 1092.65 2513.52 1092.76 2526.05  1092.9
 2537.78 1093.04 2548.56 1093.16 2560.06 1093.32 2571.07 1093.47 2574.57 1093.51
 2581.36 1093.61 2585.64 1093.67

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
       5     .03  229.25     .03 1225.59    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        229.25 1225.59             205.4     200  202.62             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)         * 1092.50  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)         * 1092.50  * Reach Len. (ft)         *  205.40  *  200.00  *  202.62  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       * 4077.53  *23295.58  * 7549.84  *
* E.G. Slope (ft/ft)     *0.000001  * Area (sq ft)            * 4077.53  *23295.58  * 7549.84  *
* Q Total (cfs)          *-13548.90  * Flow (cfs)             *-1607.06  *-10987.59  * -954.25  *
* Top Width (ft)         * 2487.89  * Top Width (ft)          *  224.25  *  996.34  * 1267.30  *
* Vel Total (ft/s)       *   -0.39  * Avg. Vel. (ft/s)        *   -0.39  *   -0.47  *   -0.13  *
* Max Chl Dpth (ft)      *   24.78  * Hydr. Depth (ft)        *   18.18  *   23.38  *    5.96  *
* Conv. Total (cfs)      *11631150.0  * Conv. (cfs)           *1379595.0  *9432375.0  *819183.0  *
```

```
* Length Wtd. (ft)        *  200.86  * Wetted Per. (ft)        *  228.39  *  996.70  * 1267.50  *
* Min Ch El (ft)          * 1067.72  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.33  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1440.20  * 7677.69  * 9537.95  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  103.79  *  339.52  * 1271.13  *
*****************************************************************************************************

Warning: The cross-section end points had to be extonded vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 25499.98

INPUT
Description:
Station Elevation Data     num=     279
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
   12.21 1090.24   20.91  1087.6   34.72 1083.35   47.64 1079.53   53.96 1077.64
   57.23 1076.69   67.46 1073.83   79.74 1070.43   83.65 1069.97   91.23 1069.98
   98.49 1069.97  102.25    1070  114.01 1070.12  124.76 1070.18  134.81 1070.27
  147.27 1070.35  160.56  1070.2  169.78  1070.1   178.4 1070.03  187.56 1069.93
  192.29 1069.95  202.39 1070.12   214.8 1070.32  217.24 1070.36  221.99 1070.32
  237.31 1070.32  241.78 1069.97  253.65 1069.04  259.81 1068.66  261.77 1068.54
  265.58  1068.4  276.62  1067.8  282.32 1067.77   300.2 1067.79  304.83 1067.78
  309.17 1067.81  321.15 1067.89  327.34 1067.93  346.75 1067.98  349.85 1067.99
  352.76 1067.99  365.68 1067.96  372.36 1067.94  380.52  1067.9  394.87 1067.83
  395.37 1067.83  396.35 1067.83  410.21 1067.78  417.38 1067.75  425.06 1067.76
  439.89 1067.78  439.93 1067.78  454.75 1067.84   462.4 1067.87  469.59 1067.86
  483.52 1067.86  484.44 1067.86  484.91 1067.86  499.27 1067.76  507.42 1067.71
  514.12 1067.66   527.1 1067.58  528.96 1067.57  529.93 1067.56  532.93 1067.55
  552.44 1067.47  570.69 1067.43   573.5 1067.43  574.95 1067.42  579.48 1067.42
  597.46  1067.4  603.19 1067.41  614.28 1067.41  619.97 1067.42  626.02 1067.45
  642.47 1067.51  657.87 1067.62  662.55 1067.65  664.98 1067.66   677.4 1067.72
  687.49 1067.75  692.24 1067.76  701.46 1067.77  707.09 1067.77     710 1067.78
  721.94 1067.75  732.51 1067.73  745.04 1067.72  751.62 1067.72  755.02 1067.72
  766.47 1067.77  777.53  1067.8  788.63 1067.86  800.04 1067.89  810.99 1067.93
  822.55 1067.95  832.22 1067.99  845.06 1068.04  858.76 1068.08  867.57  1068.1
  875.81 1068.09  885.22 1068.08  890.08 1068.08  900.06 1068.04  912.59 1068.03
  914.91 1068.03   919.4 1068.05   935.1 1068.12  951.85 1068.31  957.61 1068.38
  962.99 1068.44  974.28 1068.57  980.12 1068.62   998.4 1068.75 1002.63 1068.78
 1003.96 1068.79 1006.58  1068.8 1018.81 1068.88 1025.13 1068.93 1044.95  1069.1
 1047.64 1069.12 1050.17 1069.15 1063.35 1069.31 1070.15 1069.43 1078.19 1069.56
 1092.66 1069.83 1093.03 1069.84 1093.75 1069.85 1115.17 1070.03 1137.33 1070.56
 1137.68 1070.57 1138.04 1070.59 1160.19 1071.81 1167.25 1072.25 1180.92 1072.47
  1182.1 1072.53  1182.7 1072.57 1196.94 1074.11 1205.21 1074.85 1211.78 1075.35
 1224.51 1076.09 1226.63 1076.21 1227.72 1076.27 1231.13 1076.37  1237.5 1076.57
 1250.23 1076.96  1268.1 1077.18 1271.15 1077.22 1272.74 1077.23    1286 1077.43
 1295.25  1077.7 1300.84  1077.9 1311.69 1078.64 1317.76 1079.01 1362.78 1079.55
 1375.07 1079.59 1385.29 1079.92 1398.86 1080.43 1404.75 1080.61  1407.8 1080.68
 1419.59  1080.7  1430.3    1081 1442.45 1081.36 1452.81 1081.58 1464.12 1081.79
 1475.32    1082 1486.04 1082.24 1493.82 1082.35 1497.83 1082.41 1510.41 1082.63
 1520.34 1082.78 1529.63 1082.99 1542.85  1083.2 1553.19 1083.37 1565.36 1083.55
 1573.22 1083.65 1587.87 1083.78 1597.72 1083.85 1610.38 1083.91 1616.81 1083.94
 1632.89 1084.03 1642.26 1084.14  1655.4 1084.29  1660.4 1084.36 1677.91 1084.58
 1696.61 1084.74 1700.42 1084.79 1703.98 1084.81 1716.47 1084.89 1722.93 1084.93
 1731.31    1085 1745.44 1085.17 1746.16 1085.17 1747.57 1085.19 1767.95 1085.43
  1789.7 1085.64 1790.46 1085.65 1791.15 1085.66 1805.54 1085.78 1812.96 1085.85
 1834.74 1086.08 1835.47 1086.09 1836.24  1086.1 1857.98 1086.37 1864.91 1086.46
 1878.33 1086.63 1880.49 1086.65 1894.59 1086.75    1903 1086.81 1909.44 1086.84
 1921.92 1086.97 1925.51    1087 1929.34 1087.05 1948.02 1087.27 1965.51 1087.48
 1970.53 1087.55 1975.89  1087.6 1993.04 1087.76  1998.5  1087.8  2009.1 1087.89
 2013.34 1087.93 2015.55 1087.96 2028.19 1088.12 2038.06  1088.2 2052.68 1088.38
 2060.57 1088.46 2068.98 1088.54 2083.08 1088.67 2096.27  1088.8 2105.59 1088.88
 2115.52 1089.01  2128.1 1089.14 2139.86 1089.29 2150.61 1089.42 2162.07 1089.53
 2173.12 1089.62 2183.45 1089.65 2191.47 1089.64 2195.63 1089.67 2206.32 1089.69
 2218.13 1089.72 2221.16 1089.73 2227.04 1089.76 2240.64  1089.8 2255.17 1089.92
 2263.15 1089.98 2270.63 1090.05 2285.66 1090.16 2295.39 1090.22 2308.17 1090.34
 2310.22 1090.36 2314.22 1090.41 2325.07 1090.54 2330.68 1090.61 2348.26 1090.89
 2353.19 1090.96  2357.8 1091.05  2375.7 1091.36 2394.81 1091.68 2398.21 1091.74
 2401.38 1091.79 2420.72 1092.06 2441.35 1092.28 2443.23  1092.3 2444.97 1092.31
 2465.74  1092.4  2487.9 1092.49 2488.25 1092.49 2488.56 1092.49 2510.76 1092.58
 2532.15 1092.76 2533.27 1092.77 2534.45 1092.78 2555.78 1093.02 2562.57 1093.12
 2575.74  1093.3 2578.29 1093.32    2581 1093.34 2599.79 1093.54

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
   12.21     .03  241.78     .03  1237.5    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        241.78  1237.5             205.4     200  202.62             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)          * 1092.50  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  205.40  *  200.00  *  202.62  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 4456.33  *23723.34  * 8159.41  *
* E.G. Slope (ft/ft)      *0.000001  * Area (sq ft)            * 4456.33  *23723.34  * 8159.41  *
* Q Total (cfs)           *-13695.80  * Flow (cfs)             *-1758.04  *-10886.49  *-1051.27  *
* Top Width (ft)          * 2478.58  * Top Width (ft)          *  229.57  *  995.72  * 1253.29  *
* Vel Total (ft/s)        *   -0.38  * Avg. Vel. (ft/s)        *   -0.39  *   -0.46  *   -0.13  *
* Max Chl Dpth (ft)       *   25.10  * Hydr. Depth (ft)        *   19.41  *   23.83  *    6.51  *
* Conv. Total (cfs)       *12237270.0  * Conv. (cfs)            *1570822.0  *9727132.0  *939313.1  *
* Length Wtd. (ft)        *  200.88  * Wetted Per. (ft)        *  234.73  *  996.03  * 1253.44  *
* Min Ch El (ft)          * 1067.40  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.33  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1420.08  * 7569.75  * 9501.41  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  102.72  *  334.95  * 1265.26  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 25299.98

INPUT
Description:
```

```
Station Elevation Data     num=      299
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*******************************************************************************
       0 1089.99     9.75 1089.79     16.9 1088.64    39.32     1082    39.41 1081.97
   39.49 1081.94    61.92 1075.24    69.13 1073.15    83.08 1070.26    84.43 1069.99
   85.86 1069.97   106.94 1069.69   126.67 1069.72    128.5 1069.72   129.45 1069.72
  143.34 1069.74   151.96 1069.78   158.18  1069.8   170.26 1069.89   174.47 1069.92
  178.96 1069.96   196.98 1070.14   202.72 1070.18   213.84 1070.26   219.49 1070.28
  225.51 1070.16   235.33 1069.98      242 1069.85   247.25 1069.43   257.43 1068.41
   262.1 1067.92    264.5  1067.8   272.05 1067.67   287.01 1067.47   291.78 1067.45
  301.02 1067.43   309.53 1067.41    318.6  1067.4   332.04 1067.42   344.61  1067.4
  351.16 1067.42   354.55  1067.4   365.15 1067.35   377.06 1067.29    388.2 1067.26
  395.69 1067.26   399.56 1067.26   410.54 1067.26   422.07 1067.26   425.37 1067.26
  431.79 1067.26   440.22 1067.28   444.58 1067.27   455.06 1067.29   467.09 1067.26
  469.91 1067.27   475.38 1067.27    489.6 1067.29   504.79 1067.29   512.11 1067.31
  518.96  1067.3   534.62 1067.33   544.13 1067.33   557.13 1067.33   562.54 1067.32
  579.64 1067.31   597.88 1067.32   602.15 1067.32    603.5 1067.32   606.13 1067.32
  618.34 1067.33   624.66 1067.33   633.19 1067.34   647.17 1067.35   648.04 1067.35
  649.72 1067.36   662.88  1067.4   669.67 1067.42   690.97 1067.46   692.18 1067.47
  693.31 1067.47   707.41 1067.56   714.69 1067.63   722.26 1067.77    736.9 1067.98
  737.09 1067.98   737.21 1067.98   751.94 1068.21   759.72 1068.24   780.49  1068.3
  782.22  1068.3   796.48 1068.31   804.73 1068.25   824.07 1068.27   827.24 1068.28
  830.62  1068.3   849.75 1068.51   867.66 1068.58   872.26 1068.63   877.16 1068.64
  894.77 1068.77   900.38 1068.79   911.25 1068.77   915.22 1068.78   917.28 1068.77
  923.71 1068.81   939.79 1068.93   954.84  1069.1   959.76 1069.18    962.3 1069.21
  970.25 1069.28   984.81 1069.44   989.45 1069.48   998.43 1069.53  1004.29 1069.58
 1007.32 1069.59  1016.8 1069.62  1029.83 1069.67  1033.97 1069.67  1042.02 1069.64
 1048.81 1069.64  1052.33 1069.65  1063.66 1069.65  1074.84 1069.73   1078.5 1069.73
 1085.61 1069.79  1093.35 1069.83  1097.35 1069.85   1108.2 1069.89  1119.86 1069.97
 1123.04 1070.04  1129.19 1070.19  1142.38  1070.5  1152.73 1071.07  1164.89 1072.28
 1167.57 1072.52  1172.77 1073.03  1182.41 1073.94  1187.39 1074.36  1197.25 1075.08
  1209.9 1075.78   1212.1 1075.84  1216.36 1075.96  1226.94 1076.27  1232.41  1076.4
 1241.79 1076.57   1245.4 1076.62  1254.92 1076.77  1256.63  1076.8  1259.95 1076.85
 1277.43  1077.2  1286.32 1077.44  1299.94 1077.85  1301.17  1077.9  1303.54    1078
 1316.01  1078.5  1322.45 1078.79  1330.85 1079.16  1344.96  1079.8  1345.69 1079.83
 1347.13 1079.89  1367.47  1080.7  1389.18 1081.36  1389.98 1081.39  1390.72 1081.41
 1405.07 1081.75  1412.49  1081.9  1434.31 1082.22  1434.99 1082.23  1435.73 1082.24
  1457.5 1082.48  1477.89  1082.7  1480.01 1082.73  1482.27 1082.75  1502.52 1082.98
 1508.97 1083.05  1521.48 1083.21  1523.82 1083.24  1525.03 1083.25  1528.82 1083.31
 1549.55 1083.55  1553.51 1083.61  1565.07 1083.78  1568.36 1083.81  1570.05 1083.84
 1575.36  1083.9  1592.56 1084.05  1598.04 1084.08  1608.66 1084.21  1612.89 1084.25
 1615.07 1084.28  1627.72 1084.37  1637.58 1084.48  1642.57 1084.51  1652.25 1084.59
 1657.41 1084.62  1660.09 1084.64  1672.26 1084.72   1682.6 1084.79   1687.1 1084.83
 1695.84  1084.9  1701.95 1084.93  1705.11 1084.96  1716.79 1085.04  1727.62 1085.14
 1731.64 1085.17  1739.43 1085.24  1750.13 1085.33  1761.55 1085.41  1772.64 1085.49
 1783.01 1085.56  1795.15 1085.61   1808.1 1085.68  1817.66 1085.71  1826.59 1085.79
 1840.16 1085.88  1854.65 1086.05  1862.67 1086.15  1865.23 1086.19  1870.18 1086.25
 1880.08 1086.35  1885.18 1086.37  1894.92 1086.44  1907.69 1086.51  1909.77 1086.52
 1913.77 1086.56   1930.2 1086.71  1947.74 1086.95  1952.71 1087.02  1957.36  1087.1
 1975.22 1087.28  1994.29 1087.48  1997.73 1087.51  2000.95 1087.55  2013.67 1087.61
 2020.24 1087.64  2040.84 1087.76  2042.75 1087.77  2044.54 1087.79  2065.26 1087.94
 2087.38  1088.1  2087.77  1088.1  2088.13  1088.1  2110.28 1088.15  2131.71 1088.06
 2132.79 1088.08  2147.26 1088.34   2155.3 1088.45   2175.3  1088.7  2176.95 1088.73
 2177.81 1088.75   2191.8 1088.93  2200.32 1089.03  2218.89 1089.22  2222.82 1089.26
 2227.02 1089.28  2245.33 1089.45  2251.17 1089.53  2262.48 1089.62  2267.84 1089.68
 2280.85 1089.94  2290.35 1090.04   2295.7 1090.14  2306.07  1090.3  2312.87 1090.41
 2320.12 1090.51  2335.38 1090.76  2349.66 1090.95  2357.88 1091.03  2366.66 1091.06
 2380.39 1091.12  2384.76 1091.15  2393.25 1091.21  2399.61 1091.28   2402.9  1091.3
 2414.45  1091.5  2425.41 1091.66  2436.83 1091.83  2447.92 1092.02  2459.75 1092.15
 2470.43 1092.28  2480.41 1092.34  2492.94  1092.5   2506.3 1092.65  2515.45 1092.75
    2524 1092.84   2533.2 1092.91  2537.96 1092.97  2552.85 1093.13  2560.47  1093.2
 2562.89 1093.23  2567.59 1093.28  2577.73 1093.35  2582.98 1093.42   2599.4 1093.61
 2605.49 1093.68  2611.18 1093.74  2627.99 1093.88  2644.16 1094.04

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0     .03  235.33     .03  1245.4    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        235.33  1245.4            106.14     200  672.37             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.50  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  106.14  *  200.00  *  672.37  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 4383.07  *23932.78  * 8102.41  *
* E.G. Slope (ft/ft)      *0.000001  * Area (sq ft)            * 4383.07  *23932.78  * 8102.41  *
* Q Total (cfs)           *-13983.50 * Flow (cfs)              *-1721.59  *-11195.48  *-1066.43  *
* Top Width (ft)          * 2492.86  * Top Width (ft)          *  235.33  * 1010.07  * 1247.46  *
* Vel Total (ft/s)        *   -0.38  * Avg. Vel. (ft/s)        *   -0.39  *   -0.47  *   -0.13  *
* Max Chl Dpth (ft)       *   25.24  * Hydr. Depth (ft)        *   18.63  *   23.69  *    6.50  *
* Conv. Total (cfs)       *12211470.0 * Conv. (cfs)            *1503421.0 *9776760.0 *931292.0  *
* Length Wtd. (ft)        *  260.49  * Wetted Per. (ft)        *  240.51  * 1010.42  * 1247.62  *
* Min Ch El (ft)          * 1067.26  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.33  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1399.24  * 7460.35  * 9463.59  *
* C & E Loss (ft)         *          * Cum SA (acres)           *  101.63  *  330.34  * 1259.45  *
*****************************************************************************************

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: FRS
REACH: FRS1                RS: 25099.98

INPUT
Description: CP-M
Station Elevation Data     num=      278
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*******************************************************************************
    2.92 1090.72    16.61 1087.87    23.58 1086.78    43.58 1081.29     44.1 1081.15
   44.24 1081.11    60.51  1077.9    64.89 1076.26    72.32 1075.29    85.55 1073.38
   93.34  1072.7   106.21 1071.75   109.76 1071.54   123.51 1070.73   126.86 1070.69
  128.03 1070.69   147.52  1070.6   155.89 1070.61   168.18 1070.64   175.42 1070.65
  188.84 1070.65   203.44 1070.62   209.49 1070.64    211.6  1070.6   229.62  1070.3
  230.15 1070.29   239.46 1069.56   250.81 1068.82   267.31 1067.97   271.46 1067.66
  283.36 1067.65   290.32 1067.63   292.12 1067.64   306.74 1067.75   312.78  1067.8
  323.15 1067.84   333.44 1067.87   350.88 1067.87   354.09 1067.87   355.98 1067.87
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  363.3 1067.85   372.4 1067.82  374.75 1067.82  388.81 1067.74  395.41 1067.72
 406.59 1067.67  416.06 1067.63  421.64 1067.62  436.72 1067.58  438.06 1067.58
 443.22 1067.57  454.47 1067.58  457.38 1067.58  462.31 1067.58  478.04 1067.59
  487.3 1067.61  498.69 1067.61  503.71 1067.62  519.35 1067.62  523.15 1067.62
 540.01 1067.61  552.96 1067.61  560.67  1067.6  573.73 1067.56  581.32 1067.56
 585.78 1067.57  601.98 1067.52  603.08 1067.51  622.64 1067.51  635.03 1067.52
 643.29 1067.56   657.3 1067.74  663.95 1067.79  683.01 1068.48  684.61 1068.54
 685.16 1068.64  705.26  1071.7   717.1 1073.65  725.92 1075.23  728.92 1075.42
 733.52  1075.7  746.58 1075.63  787.89 1076.24  796.58 1076.41  808.55 1076.67
  815.6 1076.76  829.21 1076.93  832.01 1076.95  842.87 1077.06  849.86 1077.12
 864.84 1077.22  870.52 1077.28  880.15 1077.36  891.18 1077.44  897.66 1077.49
 911.84 1077.63  922.79 1077.73  932.49 1077.82  935.87 1077.85  953.15 1078.02
 963.73 1078.12  973.81 1078.23  979.75  1078.3  994.46 1078.44 1002.73 1078.52
1015.12 1078.64 1019.44 1078.68 1035.78 1078.84 1047.29 1078.95 1056.44 1079.04
1075.15  1079.2 1077.09 1079.22 1078.23 1079.23 1082.65 1079.27 1094.64 1079.37
1097.75 1079.39 1111.06 1079.52 1118.41 1079.58 1127.48 1079.66 1139.06 1079.79
1143.89 1079.83 1159.72 1080.01 1162.58 1080.04 1176.72 1080.18 1180.38 1080.22
1193.13 1080.34 1201.04 1080.43 1209.55 1080.51 1221.69 1080.65 1225.97 1080.69
1242.35 1080.85 1242.52 1080.85 1263.01 1081.04 1275.21 1081.17 1283.67 1081.26
   1298 1081.41 1304.32 1081.48 1308.04 1081.52 1322.44 1081.66 1324.45 1081.68
1324.98 1081.69 1325.86  1081.7 1345.64  1081.9 1357.29 1082.03 1366.29 1082.13
1381.57  1082.3 1386.95 1082.36 1402.37 1082.52 1407.61 1082.58 1409.43 1082.59
1428.26 1082.77 1437.28 1082.85 1448.92 1082.95 1455.77    1083 1469.58 1083.12
1472.19 1083.14  1482.3 1083.22 1490.23 1083.28 1492.99  1083.3 1510.89 1083.44
1521.43 1083.54 1531.55 1083.64 1537.85 1083.73 1552.21 1083.92 1554.26 1083.94
1562.23 1084.04 1572.86 1084.16 1576.56 1084.19 1593.52 1084.33 1604.42  1084.4
1614.18 1084.46 1619.92 1084.49 1634.84 1084.61 1636.33 1084.62 1642.16 1084.66
1655.49 1084.77 1660.13 1084.81 1676.15 1084.93 1687.99 1085.03 1696.81  1085.1
1715.84 1085.26 1717.46 1085.27 1722.08 1085.31 1738.12 1085.43  1743.7 1085.48
1758.78  1085.6 1767.65 1085.67 1779.44 1085.77 1784.07 1085.82 1800.09 1085.98
1802.01    1086 1820.75 1086.22 1827.28 1086.29 1841.41 1086.45 1855.13 1086.58
1862.06 1086.64 1866.14 1086.67 1881.95 1086.82 1882.72 1086.83 1882.99 1086.83
1903.38    1087 1910.85 1087.04 1924.04 1087.12  1938.7 1087.23 1944.69 1087.28
1961.87 1087.48 1965.35 1087.52 1981.05 1087.64 1986.01 1087.65 1997.46  1087.7
2006.66 1087.76 2022.27 1087.91 2027.32 1087.94  2041.8 1088.11 2047.98 1088.18
2050.13 1088.21 2068.63 1088.39 2077.98 1088.48 2089.29 1088.58 2095.95 1088.64
2109.95 1088.76 2121.73 1088.86 2130.61 1088.94 2133.69 1088.96 2151.26 1089.09
2161.55 1089.13 2171.92 1089.19 2189.41 1089.27 2192.58 1089.29 2201.66 1089.36
2210.85 1089.44 2213.24 1089.46 2217.26  1089.5 2233.89 1089.68 2243.69 1089.79
2254.55 1089.88  2260.1 1089.91 2275.21 1089.96 2276.51 1089.97 2281.59 1089.98
2295.86 1090.02 2300.83 1090.08 2316.52 1090.24 2328.69 1090.35 2337.18 1090.45
2356.55 1090.51 2357.84 1090.51 2361.51 1090.52 2378.49 1090.56  2384.4 1090.58
2399.15 1090.63 2412.26 1090.72 2419.81 1090.77 2440.11 1090.94 2440.46 1090.94
2441.45 1090.95 2461.12 1091.19 2467.97 1091.26 2481.78 1091.45 2495.83  1091.6
2502.44 1091.68 2521.38  1091.9 2523.09 1091.92 2523.68 1091.92 2543.75 1092.17
2551.54 1092.27 2564.41 1092.43 2579.39 1092.61 2585.06 1092.67  2601.3 1092.85
2605.72  1092.9 2607.25 1092.92 2626.38 1093.14 2635.11 1093.25 2647.03 1093.38
2662.96 1093.58 2667.69 1093.63 2670.05 1093.66

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*****************************************************
    2.92     .03  229.62     .03  728.92    .045

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        229.62  728.92              59.96  164.82  178.34             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.50  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *    0.030 *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *    59.96 *  164.82  *  178.34  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 4002.99 *12147.46  *14820.33  *
* E.G. Slope (ft/ft)      *0.000003  * Area (sq ft)            * 4002.99 *12147.46  *14820.33  *
* Q Total (cfs)           *-14048.20  * Flow (cfs)             *-2238.85 *-8499.48  *-3309.88  *
* Top Width (ft)          * 2567.06  * Top Width (ft)          *  226.70 *  499.30  * 1841.06  *
* Vel Total (ft/s)        *   -0.45  * Avg. Vel. (ft/s)        *   -0.56 *   -0.70  *   -0.22  *
* Max Chl Dpth (ft)       *   24.99  * Hydr. Depth (ft)        *   17.66 *   24.33  *    8.05  *
* Conv. Total (cfs)       *8342469.0  * Conv. (cfs)            *1329530.0 *5047380.0  *1965558.0  *
* Length Wtd. (ft)        *  147.83  * Wetted Per. (ft)        *  230.53 *  499.95  * 1841.15  *
* Min Ch El (ft)          * 1067.51  * Shear (lb/sq ft)        *    0.00 *    0.00  *    0.00  *
* Alpha                   *    1.74  * Stream Power (lb/ft s)  *    0.00 *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1389.02 * 7377.52  * 9286.68  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  101.07 *  326.88  * 1235.61  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 24935.17

INPUT
Description:
Station Elevation Data     num=     291
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
    1.81 1090.78    6.23 1089.84   21.81 1087.63   26.58 1086.38   41.82 1083.26
   46.93 1082.34   61.82 1080.68   67.27 1080.17   81.82 1079.15   87.62 1078.94
  101.82 1078.53  107.97 1078.46  121.83 1078.33  135.22 1078.16  141.83 1078.11
  148.66 1078.04  161.83  1077.8  174.56 1077.54  181.84 1077.44  189.35 1077.31
  201.84 1077.01   209.7 1076.84  221.84 1076.52  230.04 1076.24  235.37 1076.11
  241.84 1075.95  253.25 1075.67  261.85 1075.32  272.92 1075.07  281.85 1074.82
  292.59  1074.6  301.85 1074.45  312.25 1074.25  321.86 1074.13  331.78 1074.03
  341.86 1073.86   351.6 1073.71  361.86 1073.61  372.46 1073.52  381.86 1073.37
  392.81  1073.3  401.87 1073.19  413.16 1073.12  421.87 1073.01  430.28 1072.85
  441.87 1072.72  449.95 1072.52  461.88 1072.29  469.63 1072.03  481.88 1071.55
   489.3 1071.31  501.88 1071.02  514.88 1070.54  521.88 1070.32  528.64 1070.15
  541.89 1069.78  548.31 1069.69  561.89 1069.67  567.98 1069.61  581.89 1069.57
  596.27 1069.31   601.9 1069.14  607.33 1068.67   621.9 1068.53     627 1067.99
   641.9 1067.75  657.31 1067.58   661.9 1067.53  677.66 1067.58  681.91  1067.6
  686.01 1067.76  701.91 1068.02  705.68 1068.34  721.91 1068.41  725.35  1068.6
  740.57 1068.85  741.92 1068.87  745.03 1068.86  761.92 1069.22  764.69 1069.14
  781.92 1069.43  784.36 1069.29  801.92 1070.45  804.03 1070.48  821.93 1071.86
  823.71 1071.91  841.93 1072.63  860.77 1073.29  861.93 1073.32  863.04 1073.34
  881.94 1074.08  901.46 1075.09  901.94 1075.11  921.81 1076.11  921.94 1076.12
  929.43 1076.43  941.94 1076.93  942.15 1076.94  961.95  1077.2  981.07 1077.39
  981.95 1077.41  982.85 1077.42 1001.95 1077.65 1003.19 1077.66 1021.96 1077.96
 1023.54 1077.98 1041.96 1078.26 1043.89 1078.27 1061.96 1078.47 1064.23 1078.48
 1081.96 1078.64  1099.1 1078.78 1101.97  1078.8 1104.92 1078.83 1121.97 1078.98
 1125.27 1079.02 1141.97 1079.19 1158.12 1079.37 1161.98 1079.41 1165.96 1079.45
 1181.98 1079.64 1186.31 1079.69 1201.98 1079.87 1206.65 1079.92 1221.98 1080.05
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 1236.8 1080.18 1241.99 1080.22 1247.35 1080.28 1261.99 1080.38 1276.14 1080.52
1281.99 1080.59 1288.03 1080.66    1302 1080.86 1308.39  1080.9    1322 1081.02
1335.15 1081.06    1342 1081.09 1349.07 1081.12    1362 1081.15 1369.43 1081.19
1382.01 1081.22 1389.77 1081.25 1402.01 1081.28 1413.84 1081.33 1422.01 1081.35
1430.46 1081.37 1442.02 1081.43 1453.18 1081.49 1462.02 1081.53 1471.15 1081.56
1482.02 1081.63 1491.49 1081.67 1502.02 1081.76 1511.85 1081.87 1522.03 1081.99
1531.86 1082.11 1542.03 1082.27 1552.53 1082.38 1562.03 1082.48 1572.80 1082.56
1582.04 1082.65 1593.23 1082.76 1602.04 1082.86 1613.57    1083 1622.04 1083.11
1633.92 1083.28 1642.04 1083.42 1654.27  1083.6 1662.05 1083.74 1674.61 1083.91
1682.05 1084.02 1694.96 1084.16 1702.05 1084.23  1715.3 1084.39 1722.06 1084.45
1735.65 1084.62 1742.06  1084.7    1756 1084.88 1762.06 1084.96 1776.34 1085.15
1782.06 1085.23 1796.69 1085.41 1802.07 1085.47 1817.04 1085.65 1822.07  1085.7
1837.38 1085.85 1842.07 1085.88 1857.72 1086.01 1862.07 1086.03 1878.07 1086.19
1882.08 1086.21 1898.42 1086.38 1902.08 1086.41 1918.76 1086.56 1922.08 1086.59
1939.11 1086.69 1942.09 1086.71 1959.46 1086.78 1962.09 1086.79  1979.8 1086.82
1982.09 1086.83 2000.14 1086.82 2002.09 1086.83  2020.5 1086.83  2022.1 1086.83
2040.84  1086.9  2042.1  1086.9 2061.18 1086.95  2062.1 1086.95 2081.54 1086.99
2082.11 1086.99 2101.88 1087.05 2102.11 1087.05 2115.27 1087.09 2122.11 1087.11
2122.22 1087.11 2142.12 1087.14 2142.58 1087.14 2162.12 1087.19 2162.92 1087.19
2182.12 1087.37 2183.26 1087.38 2202.12 1087.75 2203.61 1087.76 2222.13 1088.15
2223.96 1088.17 2242.13 1088.51  2244.3 1088.56 2262.13  1088.8 2264.64 1088.84
2282.14 1089.01    2285 1089.05 2302.14 1089.18 2305.34 1089.24 2322.14 1089.35
2338.37 1089.43 2342.14 1089.46 2346.03 1089.49 2362.15 1089.71 2366.38 1089.75
2382.15 1090.01 2386.72 1090.07 2402.15 1090.27 2407.07 1090.35 2422.16 1090.55
2427.42 1090.62 2442.16 1090.79 2447.76 1090.84 2462.16 1090.94 2468.11 1090.98
2482.16 1091.09 2488.45 1091.17 2502.17 1091.31  2508.8 1091.39 2522.17 1091.51
2529.15 1091.57 2542.17 1091.66 2549.49 1091.69 2562.18 1091.77 2569.84 1091.81
2582.18  1091.9 2590.18 1091.95 2602.18 1092.04 2610.53  1092.1 2622.18  1092.2
2630.88 1092.27 2642.19 1092.37 2651.22 1092.45 2662.19 1092.55 2671.57 1092.62
2682.19 1092.71 2691.91 1092.77  2702.2 1092.84 2712.26 1092.92  2722.2 1092.99
2732.61 1093.09  2742.2 1093.17 2752.95 1093.28  2762.2 1093.38 2771.14 1093.47
2782.21 1093.58 2790.81 1093.66 2802.21 1093.76 2810.48 1093.83 2822.21 1093.93
2830.15    1094 2842.22 1094.11 2854.69 1094.23 2862.22  1094.3 2869.49 1094.37
2870.41 1094.38

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
    1.81     .03  235.37     .03  941.94    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        235.37  941.94             241.54  235.18  240.22             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1092.50  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1092.50  * Reach Len. (ft)         *  241.54  *  235.18  *  240.22  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 2946.55  *14724.73  *13043.96  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 2946.55  *14724.73  *13043.96  *
* Q Total (cfs)           * 5122.72  * Flow (cfs)              *  504.35  * 3547.98  * 1070.39  *
* Top Width (ft)          * 2655.23  * Top Width (ft)          *  233.56  *  706.57  * 1715.10  *
* Vel Total (ft/s)        *    0.17  * Avg. Vel. (ft/s)        *    0.17  *    0.24  *    0.08  *
* Max Chl Dpth (ft)       *   24.97  * Hydr. Depth (ft)        *   12.62  *   20.84  *    7.61  *
* Conv. Total (cfs)       *7971637.0  * Conv. (cfs)            *784829.3  *5521132.0  *1665675.0  *
* Length Wtd. (ft)        *  235.18  * Wetted Per. (ft)        *  236.28  *  706.95  * 1715.19  *
* Min Ch El (ft)          * 1067.53  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.60  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *          * Cum Volume (acre-ft)    * 1384.24  * 7326.68  * 9229.64  *
* C & E Loss (ft)         *          * Cum SA (acres)          *  100.75  *  324.60  * 1228.33  *
*****************************************************************************************

CULVERT


RIVER: FRS
REACH: FRS1                RS: 24885.17

INPUT
Description: Sun Valley PKWY
Distance from Upstream XS =   67.59
Deck/Roadway Width        =     100
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
     num=     273
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*********************************************************************
       0 1094.93             6.55 1094.86              13  1094.8
   26.34 1094.66               33  1094.6           46.13 1094.47
      53  1094.4            65.92 1094.27              73 1094.19
   85.71 1094.04            93.01 1093.94          105.52 1093.75
  113.01 1093.63           125.31 1093.43          133.01  1093.3
   145.1  1093.1           153.01 1092.97          164.89 1092.77
  165.45 1092.76           173.01 1092.64          184.64 1092.44
  193.01 1092.31           204.39 1092.11          213.01 1091.96
  224.14 1091.76           231.96 1091.63          233.01 1091.61
   243.9 1091.42           253.02 1091.26          263.66 1091.09
  273.02 1090.91           283.41 1090.76          293.02 1090.55
  303.16 1090.33           313.02  1090.1          322.91 1089.88
  333.02 1089.64           342.66 1089.42          353.02 1089.17
  362.41 1088.95           373.03  1088.7          382.17 1088.48
  393.03 1088.22           401.92 1088.01          413.03 1087.74
  421.68 1087.54           433.03 1087.26          441.43 1087.06
  453.03 1086.77           461.18 1086.57          473.03 1086.28
  480.93 1086.08           493.04 1085.79          500.69  1085.6
  513.04  1085.3           520.44 1085.12          533.04 1084.83
  540.19 1084.65           553.04 1084.35          559.94 1084.19
  573.04 1083.89           579.69 1083.73          593.04 1083.42
  599.45 1083.27           613.04 1082.96          613.64 1082.95
  619.29 1082.81           633.04  1082.5          639.36 1082.36
  653.05 1082.07           659.44 1081.94          673.05 1081.69
  679.51 1081.59           693.05 1081.39          694.45 1081.37
  699.64 1081.29           713.05 1081.09          719.94 1080.99
  732.79  1080.8           733.05  1080.8          740.24  1080.7
  753.05 1080.51           760.53 1080.42          773.05 1080.27
  780.83  1080.2           793.06 1080.07          801.13    1080
  813.06  1079.9           821.43 1079.83          833.06 1079.72
  841.72 1079.65           853.06 1079.56          862.02  1079.5
  873.06 1079.43           882.33  1079.4          893.07 1079.38
  902.62 1079.36           913.07 1079.36          922.92 1079.35
  933.07 1079.35           943.21 1079.36          953.07 1079.36
  963.51 1079.37           973.07 1079.38          983.82  1079.4
  993.08 1079.41          1004.11 1079.44         1013.08 1079.47
 1024.41 1079.54          1033.08  1079.6          1044.7 1079.68
```

1053.08	1079.75	1065	1079.84	1073.09	1079.9
1085.31	1080	1093.09	1080.06	1105.6	1080.17
1113.09	1080.23	1125.9	1080.34	1133.09	1080.4
1146.19	1080.5	1153.09	1080.57	1166.5	1080.65
1173.1	1080.72	1186.79	1080.75	1193.1	1080.8
1207.09	1080.86	1213.1	1080.9	1227.39	1081
1233.1	1081.04	1247.68	1081.15	1253.1	1081.19
1267.99	1081.31	1273.11	1081.34	1288.28	1081.46
1293.11	1081.49	1308.58	1081.62	1313.11	1081.65
1328.88	1081.77	1333.11	1081.81	1349.18	1081.94
1353.12	1081.96	1356.94	1081.99	1373.12	1082.13
1376.65	1082.15	1393.12	1082.29	1396.36	1082.32
1413.12	1082.46	1416.07	1082.48	1433.12	1082.64
1435.79	1082.66	1453.13	1082.82	1455.51	1082.84
1473.13	1082.99	1475.22	1083.01	1493.13	1083.16
1494.93	1083.17	1513.13	1083.32	1514.65	1083.33
1533.13	1083.47	1534.36	1083.48	1553.14	1083.63
1554.08	1083.64	1573.14	1083.79	1573.79	1083.79
1593.14	1083.94	1593.51	1083.94	1613.14	1084.1
1613.22	1084.1	1619.04	1084.15	1632.94	1084.26
1633.15	1084.26	1652.66	1084.41	1653.15	1084.42
1672.37	1084.57	1673.15	1084.57	1692.08	1084.72
1693.15	1084.73	1711.79	1084.88	1713.15	1084.89
1731.52	1085.03	1733.16	1085.05	1751.23	1085.19
1753.16	1085.21	1770.94	1085.35	1773.16	1085.37
1790.65	1085.5	1793.16	1085.52	1810.37	1085.66
1813.16	1085.68	1830.09	1085.82	1833.17	1085.84
1849.8	1085.97	1853.17	1086	1869.51	1086.13
1873.17	1086.16	1876.92	1086.19	1893.17	1086.32
1897.22	1086.36	1913.18	1086.49	1928.66	1086.61
1933.18	1086.65	1948.37	1086.78	1953.18	1086.82
1968.09	1086.94	1973.18	1086.98	1987.8	1087.1
1993.18	1087.15	2007.52	1087.27	2013.19	1087.31
2027.24	1087.43	2033.19	1087.48	2039.31	1087.53
2053.19	1087.65	2059.61	1087.7	2073.19	1087.81
2086.37	1087.92	2093.19	1087.98	2106.1	1088.08
2113.2	1088.14	2125.81	1088.24	2133.2	1088.31
2145.52	1088.41	2153.2	1088.47	2165.23	1088.58
2173.2	1088.64	2184.95	1088.74	2193.21	1088.82
2204.67	1088.92	2213.21	1088.99	2224.38	1089.11
2233.21	1089.19	2244.09	1089.32	2253.21	1089.4
2263.81	1089.5	2273.21	1089.56	2283.52	1089.63
2293.22	1089.65	2303.24	1089.72	2313.22	1089.8
2323.48	1089.89	2333.22	1089.97	2342.67	1090.05
2353.22	1090.14	2362.38	1090.21	2373.22	1090.31
2382.09	1090.39	2393.23	1090.48	2401.82	1090.56
2413.23	1090.66	2421.53	1090.73	2433.23	1090.83
2441.24	1090.9	2453.23	1091.01	2460.95	1091.08
2473.23	1091.19	2480.68	1091.25	2493.24	1091.37
2500.39	1091.43	2513.24	1091.56	2520.1	1091.62
2533.24	1091.75	2539.81	1091.81	2553.24	1091.94
2559.53	1092	2573.25	1092.13	2579.25	1092.18
2593.25	1092.31	2598.96	1092.36	2613.25	1092.49
2618.67	1092.54	2633.25	1092.66	2635.92	1092.69

Upstream Bridge Cross Section Data
Station Elevation Data num= 291

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1.81	1090.78	6.23	1089.84	21.81	1087.63	26.58	1086.38	41.82	1083.26
46.93	1082.34	61.82	1080.68	67.27	1080.17	81.82	1079.15	87.62	1078.94
101.82	1078.53	107.97	1078.46	121.83	1078.33	135.22	1078.16	141.83	1078.11
148.66	1078.04	161.83	1077.8	174.56	1077.54	181.84	1077.44	189.35	1077.31
201.84	1077.01	209.7	1076.84	221.84	1076.52	230.04	1076.24	235.37	1076.11
241.84	1075.95	253.25	1075.67	261.85	1075.32	272.92	1075.07	281.85	1074.82
292.59	1074.6	301.85	1074.45	312.25	1074.25	321.86	1074.13	331.78	1074.03
341.86	1073.86	351.6	1073.71	361.86	1073.61	372.46	1073.52	381.86	1073.37
392.81	1073.3	401.87	1073.19	413.16	1073.12	421.87	1073.01	430.28	1072.85
441.87	1072.72	449.95	1072.52	461.88	1072.29	469.63	1072.03	481.88	1071.55
489.3	1071.31	501.88	1071.02	514.88	1070.54	521.88	1070.32	528.64	1070.15
541.89	1069.78	548.31	1069.69	561.89	1069.67	567.98	1069.61	581.89	1069.57
596.27	1069.31	601.9	1069.14	607.33	1068.67	621.9	1068.53	627	1067.99
641.9	1067.75	657.31	1067.58	661.9	1067.53	677.66	1067.58	681.91	1067.6
686.01	1067.76	701.91	1068.02	705.68	1068.34	721.91	1068.41	725.35	1068.6
740.57	1068.85	741.92	1068.87	745.03	1068.86	761.92	1069.22	764.69	1069.14
781.92	1069.43	784.36	1069.29	801.92	1070.45	804.03	1070.48	821.93	1071.86
823.71	1071.91	841.93	1072.63	860.77	1073.29	861.93	1073.32	863.04	1073.34
881.94	1074.08	901.46	1075.09	901.94	1075.11	921.81	1076.11	921.94	1076.12
929.43	1076.43	941.94	1076.93	942.15	1076.94	961.95	1077.2	981.07	1077.39
981.95	1077.41	982.85	1077.42	1001.95	1077.65	1003.19	1077.66	1021.96	1077.96
1023.54	1077.98	1041.96	1078.26	1043.89	1078.27	1061.96	1078.47	1064.23	1078.48
1081.96	1078.64	1099.1	1078.78	1101.97	1078.8	1104.92	1078.83	1121.97	1078.98
1125.27	1079.02	1141.97	1079.19	1158.12	1079.37	1161.98	1079.41	1165.96	1079.45
1181.98	1079.64	1186.31	1079.69	1201.98	1079.87	1206.65	1079.92	1221.98	1080.05
1236.8	1080.18	1241.99	1080.22	1247.35	1080.28	1261.99	1080.38	1276.14	1080.52
1281.99	1080.55	1288.03	1080.66	1302	1080.86	1308.39	1080.9	1322	1081.02
1335.15	1081.06	1342	1081.09	1349.07	1081.12	1362	1081.15	1369.43	1081.19
1382.01	1081.22	1389.77	1081.25	1402.01	1081.28	1413.84	1081.33	1422.01	1081.35
1430.46	1081.37	1442.02	1081.43	1453.18	1081.49	1462.02	1081.53	1471.15	1081.56
1482.02	1081.63	1491.49	1081.67	1502.02	1081.76	1511.85	1081.87	1522.03	1081.99
1531.86	1082.11	1542.03	1082.27	1552.53	1082.38	1562.03	1082.48	1572.88	1082.56
1582.04	1082.65	1593.23	1082.76	1602.04	1082.86	1613.57	1083	1622.04	1083.11
1633.92	1083.28	1642.04	1083.42	1654.27	1083.6	1662.05	1083.74	1674.61	1083.91
1682.05	1084.02	1694.96	1084.16	1702.05	1084.23	1715.3	1084.39	1722.06	1084.45
1735.65	1084.62	1742.06	1084.7	1756	1084.88	1762.06	1084.96	1776.34	1085.15
1782.06	1085.23	1796.69	1085.41	1802.07	1085.47	1817.04	1085.65	1822.07	1085.7
1837.38	1085.85	1842.07	1085.88	1857.72	1086.01	1862.07	1086.03	1878.07	1086.19
1882.08	1086.21	1898.42	1086.38	1902.08	1086.41	1918.76	1086.56	1922.08	1086.59
1939.11	1086.69	1942.09	1086.71	1959.46	1086.78	1962.09	1086.79	1979.8	1086.82
1982.09	1086.83	2000.14	1086.82	2002.09	1086.83	2020.5	1086.83	2022.1	1086.83
2040.84	1086.9	2042.1	1086.9	2061.18	1086.95	2062.1	1086.95	2081.54	1086.99
2082.11	1086.99	2101.88	1087.05	2102.11	1087.05	2115.27	1087.09	2122.11	1087.11
2122.22	1087.11	2142.12	1087.14	2142.58	1087.14	2162.12	1087.19	2162.92	1087.19
2182.12	1087.37	2183.26	1087.38	2202.12	1087.75	2203.61	1087.76	2222.13	1088.15
2223.96	1088.17	2242.13	1088.51	2244.3	1088.56	2262.13	1088.8	2264.64	1088.84
2282.14	1089.01	2285	1089.05	2302.14	1089.18	2305.34	1089.24	2322.14	1089.35
2338.37	1089.43	2342.14	1089.46	2346.03	1089.49	2362.15	1089.71	2366.38	1089.75
2382.15	1090.01	2386.72	1090.07	2402.15	1090.27	2407.07	1090.35	2422.16	1090.55
2427.42	1090.62	2442.16	1090.79	2447.76	1090.84	2462.16	1090.94	2468.11	1090.98
2482.16	1091.09	2488.45	1091.17	2502.17	1091.31	2508.8	1091.39	2522.17	1091.51
2529.15	1091.57	2542.17	1091.66	2549.49	1091.69	2562.18	1091.77	2569.84	1091.81
2582.18	1091.9	2590.18	1091.95	2602.18	1092.04	2610.53	1092.1	2622.18	1092.2
2630.88	1092.27	2642.19	1092.37	2651.22	1092.45	2662.19	1092.55	2671.57	1092.62
2682.19	1092.71	2691.91	1092.77	2702.2	1092.84	2712.26	1092.92	2722.2	1092.99

2732.61	1093.09	2742.2	1093.17	2752.95	1093.28	2762.2	1093.38	2771.14	1093.47
2782.21	1093.58	2790.81	1093.66	2802.21	1093.76	2810.48	1093.83	2822.21	1093.93
2830.15	1094	2842.22	1094.11	2854.69	1094.23	2862.22	1094.3	2869.49	1094.37
2870.41	1094.38								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1.81	.03	235.37	.03	941.94	.045

Bank Sta: Left	Right	Coeff Contr.	Expan.
235.37	941.94	.1	.3

Downstream Deck/Roadway Coordinates
num= 273

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	1094.93		6.55	1094.86		13	1094.8	
26.34	1094.66		33	1094.6		46.13	1094.47	
53	1094.4		65.92	1094.27		73	1094.19	
85.71	1094.04		93.01	1093.94		105.52	1093.75	
113.01	1093.63		125.31	1093.43		133.01	1093.3	
145.1	1093.1		153.01	1092.97		164.89	1092.77	
165.45	1092.76		173.01	1092.64		184.64	1092.44	
193.01	1092.31		204.39	1092.11		213.01	1091.96	
224.14	1091.76		231.96	1091.63		233.01	1091.61	
243.9	1091.42		253.02	1091.26		263.66	1091.09	
273.02	1090.91		283.41	1090.76		293.02	1090.55	
303.16	1090.33		313.02	1090.1		322.91	1089.88	
333.02	1089.64		342.66	1089.42		353.02	1089.17	
362.41	1088.95		373.03	1088.7		382.17	1088.48	
393.03	1088.22		401.92	1088.01		413.03	1087.74	
421.68	1087.54		433.03	1087.26		441.43	1087.06	
453.03	1086.77		461.18	1086.57		473.03	1086.28	
480.93	1086.08		493.04	1085.79		500.69	1085.6	
513.04	1085.3		520.44	1085.12		533.04	1084.83	
540.19	1084.65		553.04	1084.35		559.94	1084.19	
573.04	1083.89		579.69	1083.73		593.04	1083.42	
599.45	1083.27		613.04	1082.96		613.64	1082.95	
619.29	1082.81		633.04	1082.5		639.36	1082.36	
653.05	1082.07		659.44	1081.94		673.05	1081.69	
679.51	1081.59		693.05	1081.39		694.45	1081.37	
699.64	1081.29		713.05	1081.09		719.94	1080.99	
732.79	1080.8		733.05	1080.8		740.24	1080.7	
753.05	1080.51		760.53	1080.42		773.05	1080.27	
780.83	1080.2		793.06	1080.07		801.13	1080	
813.06	1079.9		821.43	1079.83		833.06	1079.72	
841.72	1079.65		853.06	1079.56		862.02	1079.5	
873.06	1079.43		882.33	1079.4		893.07	1079.38	
902.62	1079.36		913.07	1079.36		922.92	1079.35	
933.07	1079.35		943.21	1079.36		953.07	1079.36	
963.51	1079.37		973.07	1079.38		983.82	1079.4	
993.08	1079.41		1004.11	1079.44		1013.08	1079.47	
1024.41	1079.54		1033.08	1079.6		1044.7	1079.68	
1053.08	1079.75		1065	1079.84		1073.09	1079.9	
1085.31	1080		1093.09	1080.06		1105.6	1080.17	
1113.09	1080.23		1125.9	1080.34		1133.09	1080.4	
1146.19	1080.5		1153.09	1080.57		1166.5	1080.65	
1173.1	1080.72		1186.79	1080.75		1193.1	1080.8	
1207.09	1080.86		1213.1	1080.9		1227.39	1081	
1233.1	1081.04		1247.68	1081.15		1253.1	1081.19	
1267.99	1081.31		1273.11	1081.34		1288.28	1081.46	
1293.11	1081.49		1308.58	1081.62		1313.11	1081.65	
1328.88	1081.77		1333.11	1081.81		1349.18	1081.94	
1353.12	1081.96		1356.94	1081.99		1373.12	1082.13	
1376.65	1082.15		1393.12	1082.29		1396.36	1082.32	
1413.12	1082.46		1416.07	1082.48		1433.12	1082.64	
1435.79	1082.66		1453.13	1082.82		1455.51	1082.84	
1473.13	1082.99		1475.22	1083.01		1493.13	1083.16	
1494.93	1083.17		1513.13	1083.32		1514.65	1083.33	
1533.13	1083.47		1534.36	1083.48		1553.14	1083.63	
1554.08	1083.64		1573.14	1083.79		1573.79	1083.79	
1593.14	1083.94		1593.51	1083.94		1613.14	1084.1	
1613.22	1084.1		1619.04	1084.15		1632.94	1084.26	
1633.15	1084.26		1652.66	1084.41		1653.15	1084.42	
1672.37	1084.57		1673.15	1084.57		1692.08	1084.72	
1693.15	1084.73		1711.79	1084.88		1713.15	1084.89	
1731.52	1085.03		1733.16	1085.05		1751.23	1085.19	
1753.16	1085.21		1770.94	1085.35		1773.16	1085.37	
1790.65	1085.5		1793.16	1085.52		1810.37	1085.66	
1813.16	1085.68		1830.09	1085.82		1833.17	1085.84	
1849.8	1085.97		1853.17	1086		1869.51	1086.13	
1873.17	1086.16		1876.92	1086.19		1893.17	1086.32	
1897.22	1086.36		1913.18	1086.49		1928.66	1086.61	
1933.18	1086.65		1948.37	1086.78		1953.18	1086.82	
1968.09	1086.94		1973.18	1086.98		1987.8	1087.1	
1993.18	1087.15		2007.52	1087.27		2013.19	1087.31	
2027.24	1087.43		2033.19	1087.48		2039.31	1087.53	
2053.19	1087.65		2059.61	1087.7		2073.19	1087.81	
2086.37	1087.92		2093.19	1087.98		2106.1	1088.08	
2113.2	1088.14		2125.81	1088.24		2133.2	1088.31	
2145.52	1088.41		2153.2	1088.47		2165.23	1088.58	
2173.2	1088.64		2184.95	1088.74		2193.21	1088.82	
2204.67	1088.92		2213.21	1088.99		2224.38	1089.11	
2233.21	1089.19		2244.09	1089.32		2253.21	1089.4	
2263.81	1089.5		2273.21	1089.56		2283.52	1089.63	
2293.22	1089.65		2303.24	1089.72		2313.22	1089.8	
2323.48	1089.89		2333.22	1089.97		2342.67	1090.05	
2353.22	1090.14		2362.38	1090.21		2373.22	1090.31	
2382.09	1090.39		2393.23	1090.48		2401.82	1090.56	
2413.23	1090.66		2421.53	1090.73		2433.23	1090.83	
2441.24	1090.9		2453.23	1091.01		2460.95	1091.08	
2473.23	1091.19		2480.68	1091.25		2493.24	1091.37	
2500.39	1091.43		2513.24	1091.56		2520.1	1091.62	
2533.24	1091.75		2539.81	1091.81		2553.24	1091.94	
2559.53	1092		2573.25	1092.13		2579.25	1092.18	
2593.25	1092.31		2598.96	1092.36		2613.25	1092.49	
2618.67	1092.54		2633.25	1092.66		2635.92	1092.69	

Downstream Bridge Cross Section Data
Station Elevation Data num= 267

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4.81	1090.68	15.13	1089.8	25.79	1088.21	35.14	1086.13	46.15	1085.24

```
  55.14 1083.55   66.49 1082.82   75.14 1081.84   83.49 1081.21   95.14 1080.67
 107.19 1080.38  115.15 1080.17  127.53 1079.95  135.15 1079.83  147.87 1079.62
 155.15 1079.54  162.18 1079.43  175.16 1079.19  188.57 1078.88  195.16 1078.72
 208.91 1078.39  215.16 1078.27   227.2 1077.99  229.25 1077.94  235.16 1077.85
 240.86 1077.74  255.17 1077.41  269.95 1077.08  275.17 1076.93  290.29 1076.66
 295.17 1076.56  310.64 1076.33  315.17 1076.25  319.55 1076.19  335.18 1075.96
 351.33 1075.71  355.18 1075.64  371.68 1075.32  375.18 1075.26  392.03  1074.8
 395.19 1074.73  398.24 1074.66  415.19 1074.13  432.72 1073.56  435.19  1073.5
 437.57 1073.42  455.19 1072.84  457.25 1072.77   475.2  1072.2  493.76 1071.73
  495.2  1071.7  496.59 1071.69   515.2 1071.33  534.45 1070.97  535.21 1070.97
 535.93 1070.96  555.21 1070.44  575.14 1069.13  575.21 1069.13  575.27 1069.13
 579.12 1068.77  594.94 1067.35  595.21 1067.29  614.62 1066.94  615.22 1066.93
 615.83 1066.94  635.22 1067.28  636.18 1067.45  655.22  1068.3  656.52 1068.41
 675.23 1070.45  676.87 1070.64  695.23 1073.67  697.22 1073.81  715.23 1076.08
 717.56 1076.14   725.4 1076.27  735.23 1076.44  737.91 1076.45  755.24 1076.57
 758.26  1076.6  775.24 1076.87   778.6 1076.88  795.24 1077.01  798.94    1077
 815.25 1077.05   819.3 1077.07  835.25 1077.16  839.64 1077.18  855.25 1077.26
 859.98 1077.27  875.25 1077.36  890.01 1077.52  895.26 1077.55  909.68 1077.65
 915.26 1077.67  921.02 1077.68  935.26 1077.69  941.36 1077.71  955.27 1077.74
 961.72 1077.79  975.27 1077.88  982.06 1077.93  995.27 1078.04  1002.4 1078.08
1015.27 1078.17 1022.76 1078.19 1035.28 1078.25  1043.1 1078.24 1055.28 1078.27
1063.44 1078.27 1075.28 1078.31 1083.79 1078.35 1095.29  1078.4 1104.14  1078.5
1115.29 1078.58 1124.48 1078.76 1135.29 1078.87 1144.83 1079.06 1155.29 1079.17
1165.18 1079.21  1175.3 1079.37 1185.52 1079.63  1195.3  1079.9 1204.74 1080.05
 1215.3 1080.15 1355.32 1080.66 1362.11 1080.77 1375.33 1081.04 1388.98 1081.21
1395.33 1081.25 1409.33 1081.41 1415.33 1081.46 1429.67 1081.61 1435.33 1081.67
1440.79 1081.72 1455.34 1081.86 1470.37 1081.99 1475.34 1082.04 1490.71 1082.19
1495.34 1082.23 1511.05 1082.38 1515.35 1082.42 1531.41 1082.57 1535.35 1082.61
1539.15 1082.64 1555.35 1082.79 1558.82 1082.82 1575.35 1082.95 1592.45 1083.07
1595.36 1083.09 1612.79 1083.22 1615.36 1083.23 1633.13  1083.4 1635.36 1083.42
1653.47 1083.59 1655.37 1083.61 1657.18 1083.63 1675.37 1083.82 1694.17 1084.02
1695.37 1084.03 1714.51 1084.23 1715.37 1084.23 1734.87 1084.43 1735.38 1084.43
1755.21 1084.62 1755.38 1084.62 1755.53 1084.62 1764.96  1084.7 1775.38  1084.8
1775.55  1084.8 1795.39 1084.95 1814.55 1085.12 1815.39 1085.13 1834.22 1085.31
1835.39 1085.33 1836.59 1085.34 1855.39  1085.5 1856.94 1085.51  1875.4 1085.63
1877.29 1085.65  1895.4 1085.79  1912.9 1085.97  1915.4    1086 1917.98 1086.03
1935.41 1086.23 1938.33 1086.27 1955.41 1086.48 1971.91 1086.68 1975.41 1086.72
1991.58 1086.89 1995.41 1086.93 1999.36 1086.96 2015.42 1087.09 2019.71 1087.12
2035.42 1087.24 2040.05 1087.27 2055.42 1087.34  2060.4 1087.37 2075.43  1087.4
2080.75 1087.44 2095.43 1087.54 2101.09 1087.56 2115.43 1087.65 2121.44  1087.7
2135.43 1087.86 2141.79 1087.92 2155.44 1088.07 2168.63 1088.21 2175.44 1088.28
2182.48 1088.35 2195.44 1088.49 2202.82 1088.56 2215.45 1088.69 2223.17 1088.77
2235.45  1088.9 2243.52 1088.98 2255.45 1089.13 2266.98 1089.25 2275.45 1089.34
2286.66 1089.41 2295.46 1089.49 2304.56 1089.58 2315.46 1089.63  2324.9 1089.72
2335.46  1089.8 2345.24  1089.9 2355.47 1089.98  2365.6 1090.09 2375.47 1090.18
2385.94  1090.3 2395.47 1090.41 2406.28 1090.53 2415.47 1090.63 2426.63 1090.75
2435.48 1090.85 2446.98 1090.98 2455.48 1091.09 2467.32 1091.23 2475.48 1091.33
2487.66 1091.42 2495.49  1091.5 2508.02 1091.54 2515.49 1091.59 2528.36  1091.7
2535.49 1091.76  2548.7 1091.88 2555.49 1091.94 2569.06 1092.07  2575.5 1092.12
 2589.4 1092.25  2595.5 1092.31 2609.74 1092.45  2615.5  1092.5 2630.09 1092.64
2635.51  1092.7 2650.44 1092.85 2655.51  1092.9 2670.78 1093.06 2675.51 1093.11
2691.13 1093.27 2695.51 1093.32 2711.48 1093.48 2715.52 1093.53 2731.82 1093.68
2735.52 1093.71 2737.35 1093.72

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
    4.81     .03   227.2     .03   725.4    .045

Bank Sta: Left   Right    Coeff Contr.   Expan.
          227.2   725.4             .1       .3

Upstream Embankment side slope              =       4 horiz. to 1.0 vertical
Downstream Embankment side slope            =       4 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise     Span
Culvert #1          Box        10       10
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
              67.59     100    .0013    .0013        0                  .5                 1
Number of Barrels =  4
Upstream   Elevation =  1067.53
Centerline Stations
    Sta.    Sta.    Sta.    Sta.
     635     646     657     668
Downstream Elevation =  1066.94
Centerline Stations
    Sta.    Sta.    Sta.    Sta.
     605     616     627     638

CULVERT OUTPUT  Profile #Max WS  Culv Group:  Culvert #1
*********************************************************************
* Q Culv Group (cfs)      *  315.71  * Culv Full Len (ft)      *  100.00  *
* # Barrels               *       4  * Culv Vel US (ft/s)      *    0.79  *
* Q Barrel (cfs)          *   78.93  * Culv Vel DS (ft/s)      *    0.79  *
* E.G. US. (ft)           * 1089.36  * Culv Inv El Up (ft)    * 1067.53  *
* W.S. US. (ft)           * 1092.50  * Culv Inv El Dn (ft)    * 1066.94  *
* E.G. DS (ft)            * 1089.35  * Culv Frctn Ls (ft)     *    0.00  *
* W.S. DS (ft)            * 1089.34  * Culv Exit Loss (ft)    *    0.01  *
* Delta EG (ft)           *    0.01  * Culv Entr Loss (ft)    *    0.00  *
* Delta WS (ft)           *    3.16  * Q Weir (cfs)           * 4807.02  *
* E.G. IC (ft)            * 1081.79  * Weir Sta Lft (ft)      *  345.49  *
* E.G. OC (ft)            * 1089.36  * Weir Sta Rgt (ft)      * 2247.71  *
* Culvert Control         *  Outlet  * Weir Submerg           *    1.00  *
* Culv WS Inlet (ft)      * 1077.53  * Weir Max Depth (ft)    *   10.00  *
* Culv WS Outlet (ft)     * 1076.94  * Weir Avg Depth (ft)    *    5.66  *
* Culv Nml Depth (ft)     *          * Weir Flow Area (sq ft) *10759.34  *
* Culv Crt Depth (ft)     *    1.25  * Min El Weir Flow (ft)  * 1079.36  *
*********************************************************************

Warning: The weir over culvert is submerged.
Warning: During the culvert inlet computations, the program could not balance the culvert/weir flow.  The
         reported inlet energy grade answer may not be valid.

CROSS SECTION
```

```
RIVER: FRS
REACH: FRS1                RS: 24699.98

INPUT
Description:
Station Elevation Data     num=      267
     Sta    Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*******************************************************************************************
    4.81 1090.68    15.13  1089.8    25.79 1088.21    35.14 1086.13    46.15 1085.24
   55.14 1083.55    66.49 1082.82    75.14 1081.84    83.49 1081.21    95.14 1080.67
  107.19 1080.38   115.15 1080.17   127.53 1079.95   135.15 1079.83   147.87 1079.62
  155.15 1079.54   162.18 1079.43   175.16 1079.19   188.57 1078.88   195.16 1078.72
  208.91 1078.39   215.16 1078.27    227.2 1077.99   229.25 1077.94   235.16 1077.85
  240.86 1077.74   255.17 1077.41   269.95 1077.08   275.17 1076.93   290.29 1076.66
  295.17 1076.56   310.64 1076.33   315.17 1076.25   319.55 1076.19   335.18 1075.96
  351.33 1075.71   355.18 1075.64   371.68 1075.32   375.18 1075.26   392.03  1074.8
  395.19 1074.73   398.24 1074.66   415.19 1074.13   432.72 1073.56   435.19  1073.5
  437.57 1073.42   455.19 1072.84   457.25 1072.77    475.2  1072.2   493.76 1071.73
   495.2  1071.7   496.59 1071.69    515.2 1071.33   534.45 1070.97   535.21 1070.97
  535.93 1070.96   555.21 1070.44   575.14 1069.13   575.21 1069.13   575.27 1069.13
  579.12 1068.77   594.94 1067.35   595.21 1067.29   614.62 1066.94   615.22 1066.93
  615.83 1066.94   635.22 1067.28   636.18 1067.45   655.22  1068.3   656.52 1068.41
  675.23 1070.45   676.87 1070.64   695.23 1073.67   697.22 1073.81   715.23 1076.08
  717.56 1076.14    725.4 1076.27   735.23 1076.44   737.91 1076.45   755.24 1076.57
  758.26  1076.6   775.24 1076.87    778.6 1076.88   795.24 1077.01   798.94    1077
  815.25 1077.05    819.3 1077.07   835.25 1077.16   839.64 1077.18   855.25 1077.26
  859.98 1077.27   875.25 1077.36   890.01 1077.52   895.26 1077.55   909.68 1077.65
  915.26 1077.67   921.02 1077.68   935.26 1077.69   941.36 1077.71   955.27 1077.74
  961.72 1077.79   975.27 1077.88   982.06 1077.93   995.27 1078.04   1002.4 1078.08
 1015.27 1078.17  1022.76 1078.19  1035.28 1078.25   1043.1 1078.24  1055.28 1078.27
 1063.44 1078.27  1075.28 1078.31  1083.79 1078.35  1095.29  1078.4  1104.14  1078.5
 1115.29 1078.58  1124.48 1078.76  1135.29 1078.87  1144.83 1079.06  1155.29 1079.17
 1165.18 1079.21   1175.3 1079.37  1185.52 1079.63   1195.3  1079.9  1204.74 1080.05
  1215.3 1080.15  1355.32 1080.66  1362.11 1080.77  1375.33 1081.04  1388.98 1081.21
 1395.33 1081.25  1409.33 1081.41  1415.33 1081.46  1429.67 1081.61  1435.33 1081.67
 1440.79 1081.72  1455.34 1081.86  1470.37 1081.99  1475.34 1082.04  1490.71 1082.19
 1495.34 1082.23  1511.05 1082.38  1515.35 1082.42  1531.41 1082.57  1535.35 1082.61
 1539.15 1082.64  1555.35 1082.79  1558.82 1082.82  1575.35 1082.95  1592.45 1083.07
 1595.36 1083.09  1612.79 1083.22  1615.36 1083.23  1633.13  1083.4  1635.36 1083.42
 1653.47 1083.59  1655.37 1083.61  1657.18 1083.63  1675.37 1083.82  1694.17 1084.02
 1695.37 1084.03  1714.51 1084.23  1715.37 1084.23  1734.87 1084.43  1735.38 1084.43
 1755.21 1084.62  1755.38 1084.62  1755.53 1084.62  1764.96  1084.7  1775.38  1084.8
 1775.55  1084.8  1795.39 1084.95  1814.55 1085.12  1815.39 1085.13  1834.22 1085.31
 1835.39 1085.33  1836.59 1085.34  1855.39  1085.5  1856.94 1085.51  1875.4 1085.63
 1877.29 1085.65   1895.4 1085.79   1912.9 1085.97   1915.4    1086  1917.98 1086.03
 1935.41 1086.23  1938.33 1086.27  1955.41 1086.48  1971.91 1086.68  1975.41 1086.72
 1991.58 1086.89  1995.41 1086.93  1999.36 1086.96  2015.42 1087.09  2019.71 1087.12
 2035.42 1087.24  2040.05 1087.27  2055.42 1087.34   2060.4 1087.37  2075.43  1087.4
 2080.75 1087.44  2095.43 1087.54  2101.09 1087.56  2115.43 1087.65  2121.44  1087.7
 2135.43 1087.86  2141.79 1087.92  2155.44 1088.07  2168.63 1088.21  2175.44 1088.28
 2182.48 1088.35  2195.44 1088.49  2202.82 1088.56  2215.45 1088.69  2223.17 1088.77
 2235.45  1088.9  2243.52 1088.98  2255.45 1089.13  2266.98 1089.25  2275.45 1089.34
 2286.66 1089.41  2295.46 1089.49  2304.56 1089.58  2315.46 1089.63   2324.9 1089.72
 2335.46  1089.8  2345.24  1089.9  2355.47 1089.98   2365.6 1090.09  2375.47 1090.18
 2385.94  1090.3  2395.47 1090.41  2406.28 1090.53  2415.47 1090.63  2426.63 1090.75
 2435.48 1090.85  2446.98 1090.98  2455.48 1091.09  2467.32 1091.23  2475.48 1091.33
 2487.66 1091.42  2495.49  1091.5  2508.02 1091.54  2515.49 1091.59  2528.36  1091.7
 2535.49 1091.76  2548.7 1091.88  2555.49 1091.94  2569.06 1092.07   2575.5 1092.12
  2589.4 1092.25   2595.5 1092.31  2609.74 1092.45   2615.5  1092.5  2630.09 1092.64
 2635.51  1092.7  2650.44 1092.85  2655.51  1092.9  2670.78 1093.06  2675.51 1093.11
 2691.13 1093.27  2695.51 1093.32  2711.48 1093.48  2715.52 1093.53  2731.82 1093.68
 2735.52 1093.71  2737.35 1093.72

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
    4.81     .03    227.2     .03    725.4    .045

Bank Sta: Left    Right     Lengths: Left Channel    Right      Coeff Contr.    Expan.
          227.2   725.4              206.3     200   209.17              .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.35  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.34  * Reach Len. (ft)         *  206.30  *  200.00  *  209.17  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1721.54  * 8193.87  *10734.24  *
* E.G. Slope (ft/ft)      *0.000001  * Area (sq ft)            * 1721.54  * 8193.87  *10734.24  *
* Q Total (cfs)           * 4816.65  * Flow (cfs)              *  392.73  * 2967.10  * 1456.83  *
* Top Width (ft)          * 2257.91  * Top Width (ft)          *  209.01  *  498.20  * 1550.69  *
* Vel Total (ft/s)        *    0.23  * Avg. Vel. (ft/s)        *    0.23  *    0.36  *    0.14  *
* Max Chl Dpth (ft)       *   22.41  * Hydr. Depth (ft)        *    8.24  *   16.45  *    6.92  *
* Conv. Total (cfs)       *4256399.0 * Conv. (cfs)             *347046.5  *2621978.0  *1287374.0  *
* Length Wtd. (ft)        *  203.11  * Wetted Per. (ft)        *  209.66  *  498.99  * 1550.76  *
* Min Ch El (ft)          * 1066.93  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.66  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1371.29  * 7264.81  * 9164.07  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   99.52  *  321.35  * 1219.33  *
*****************************************************************************************

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

LATERAL STRUCTURE


RIVER: FRS
REACH: FRS1                RS: 24699

INPUT
Description:
Lateral structure position     = Left overbank
Distance from Upstream XS =      .98
Deck/Roadway Width        =       10
Weir Coefficient          =      2.7
Weir Flow Reference       = Water Surface
 Weir Embankment Coordinates    num =       11
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*******************************************************************************************
       01091.982    10601091.899    22841091.717    35241091.261     4448 1091.31
    56691091.408    66031091.615    78141091.142    90031090.982   100981090.997
   107001091.754
```

Weir crest shape = Broad Crested

LATERAL STRUCTURE OUTPUT Profile #Max WS Lat Struct

E.G. US. (ft)	1089.35	Weir Sta US (ft)			
W.S. US. (ft)	1089.34	Weir Sta DS (ft)			
E.G. DS (ft)	1089.40	Weir Max Depth (ft)			
W.S. DS (ft)	1089.40	Weir Avg Depth (ft)			
Q US (cfs)	4816.65	Weir Submerg			
Q Leaving Total (cfs)	0.00	Min El Weir Flow (ft)		1090.98	
Q DS (cfs)	1390.91	Wr Top Wdth (ft)			
Perc Q Leaving	0.00	Q Gate Group (cfs)			
Q Weir (cfs)		Gate Open Ht (ft)			
Q Gates (cfs)		Gate #Open			
Q Culv (cfs)		Gate Area (sq ft)			
Q Lat RC (cfs)		Gate Submerg			
Weir Flow Area (sq ft)		Gate Invert (ft)			

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 24499.98

INPUT
Description:
Station Elevation Data num= 256

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
.59	1090.33	11.91	1088.39	20.59	1087.42	28.97	1085.23	40.6	1082.1
52.61	1078.74	60.6	1076.45	68.32	1074.35	80.6	1071.12	87.99	1070.32
100.6	1069.89	113.65	1069.92	120.61	1069.9	133.99	1070.38	140.61	1070.55
154.33	1070.5	160.61	1070.68	174.68	1070.49	180.62	1070.44	195.03	1070.56
200.62	1070.56	206.02	1070.58	220.62	1070.67	225.68	1070.58	227.68	1070.54
240.62	1070.28	256.07	1068.45	260.63	1068.03	276.41	1067.22	280.63	1066.94
284.7	1066.87	300.63	1066.66	317.11	1066.64	320.64	1066.62	324.05	1066.63
340.64	1066.67	357.79	1066.73	360.64	1066.73	363.38	1066.73	380.64	1066.75
398.49	1066.75	400.65	1066.74	402.73	1066.74	420.65	1066.73	439.18	1066.72
440.65	1066.72	442.07	1066.72	460.66	1066.74	479.87	1066.82	480.66	1066.82
481.41	1066.82	500.66	1066.89	520.56	1066.96	520.66	1066.96	520.75	1066.96
526.27	1066.99	540.67	1067.07	540.91	1067.07	560.67	1067.06	579.76	1066.96
580.67	1066.95	581.6	1066.95	600.68	1066.83	619.11	1066.76	620.68	1066.76
622.29	1066.76	640.68	1066.74	642.64	1066.78	660.68	1066.87	662.99	1067.03
680.69	1067.41	683.33	1067.96	700.69	1071.37	717.46	1074.61	720.69	1075.28
724.02	1075.22	735.99	1075.31	740.7	1075.35	780.7	1075.63	785.06	1075.67
800.7	1075.9	815.82	1075.99	820.71	1075.98	835.49	1076.03	840.71	1076.04
855.16	1076.14	860.71	1076.17	874.84	1076.26	880.72	1076.3	894.5	1076.41
900.72	1076.46	907.14	1076.54	920.72	1076.68	927.48	1076.72	940.72	1076.76
947.84	1076.76	960.73	1076.77	968.18	1076.77	980.73	1076.8	988.52	1076.86
1000.73	1076.98	1008.86	1077.13	1020.74	1077.36	1032.2	1077.58	1040.74	1077.74
1049.56	1077.84	1060.74	1077.96	1069.9	1078.01	1080.74	1078.06	1090.26	1078.08
1100.75	1078.09	1110.6	1078.18	1120.75	1078.23	1130.55	1078.22	1140.75	1078.49
1220.76	1079.12	1232.68	1079.46	1240.77	1079.69	1253.02	1079.84	1260.77	1079.94
1273.37	1080.03	1280.77	1080.09	1293.71	1080.17	1300.78	1080.22	1307.6	1080.29
1320.78	1080.41	1334.41	1080.58	1340.78	1080.65	1354.75	1080.81	1360.78	1080.88
1375.1	1081.03	1380.79	1081.08	1395.44	1081.22	1400.79	1081.27	1415.79	1081.38
1420.79	1081.42	1436.14	1081.5	1440.8	1081.53	1456.48	1081.61	1460.8	1081.63
1476.83	1081.72	1480.8	1081.75	1497.17	1081.85	1500.8	1081.87	1517.52	1081.97
1520.81	1082	1537.87	1082.11	1540.81	1082.13	1558.21	1082.25	1560.81	1082.27
1578.56	1082.42	1580.82	1082.44	1598.91	1082.62	1600.82	1082.64	1602.66	1082.66
1620.82	1082.83	1622.33	1082.85	1640.82	1083.03	1659.95	1083.26	1660.83	1083.27
1680.29	1083.53	1680.83	1083.54	1700.63	1083.77	1700.83	1083.77	1712.1	1083.88
1720.69	1083.96	1720.84	1083.96	1740.36	1084.11	1740.84	1084.11	1760.03	1084.26
1760.84	1084.26	1779.7	1084.4	1780.84	1084.41	1799.37	1084.52	1800.85	1084.53
1819.04	1084.61	1820.85	1084.62	1838.71	1084.69	1840.85	1084.7	1843.05	1084.71
1860.86	1084.81	1863.41	1084.83	1880.86	1084.99	1883.75	1085.02	1900.86	1085.22
1904.09	1085.26	1920.86	1085.48	1937.07	1085.73	1940.87	1085.78	1956.74	1085.98
1960.87	1086.03	1976.41	1086.15	1980.87	1086.18	1996.09	1086.3	2000.88	1086.34
2060.88	1086.71	2074.77	1087.03	2080.89	1087.17	2094.44	1087.34	2100.89	1087.43
2114.11	1087.56	2120.89	1087.62	2133.78	1087.72	2140.9	1087.78	2153.45	1087.88
2160.9	1087.94	2173.12	1088.08	2180.9	1088.17	2192.79	1088.33	2200.9	1088.47
2212.47	1088.66	2220.91	1088.81	2232.13	1088.97	2240.91	1089.1	2249.98	1089.23
2260.91	1089.35	2270.32	1089.42	2280.92	1089.51	2290.67	1089.51	2300.92	1089.52
2311.02	1089.53	2320.92	1089.54	2331.36	1089.65	2340.92	1089.75	2351.71	1089.9
2360.93	1090.04	2372.06	1090.18	2380.93	1090.32	2392.4	1090.47	2400.93	1090.6
2412.75	1090.74	2420.94	1090.85	2433.1	1090.95	2440.94	1091.01	2453.44	1091.09
2460.94	1091.14	2473.78	1091.25	2480.94	1091.33	2494.13	1091.5	2500.95	1091.59
2514.48	1091.74	2520.95	1091.81	2534.82	1091.83	2540.95	1091.85	2555.17	1091.84
2560.96	1091.84	2575.52	1092	2580.96	1092.04	2595.86	1092.35	2600.96	1092.43
2605.88	1092.47	2620.96	1092.72	2636.56	1092.76	2640.97	1092.77	2645.23	1092.8
2647.43	1092.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
.59	.03	227.68	.03	735.99	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
227.68	735.99	214.92	200	219.5	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1089.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1089.35	Reach Len. (ft)	214.92	200.00	219.50
Crit W.S. (ft)		Flow Area (sq ft)	3406.03	11029.90	11397.06
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	3406.03	11029.90	11397.06
Q Total (cfs)	4726.59	Flow (cfs)	728.88	2985.70	1012.01
Top Width (ft)	2254.12	Top Width (ft)	221.34	508.31	1524.46
Vel Total (ft/s)	0.18	Avg. Vel. (ft/s)	0.21	0.27	0.09
Max Chl Dpth (ft)	22.72	Hydr. Depth (ft)	15.39	21.70	7.48
Conv. Total (cfs)	6720065.0	Conv. (cfs)	1036292.0	4244940.0	1438833.0
Length Wtd. (ft)	206.40	Wetted Per. (ft)	223.72	509.25	1524.55
Min Ch El (ft)	1066.62	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.64	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1359.15	7220.68	9110.94
C & E Loss (ft)		Cum SA (acres)	98.50	319.03	1211.94

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 24299.98

INPUT
Description:
Station Elevation Data num= 230

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1.26	1090.46	3.25	1090.26	21.28	1087.12	40.98	1081.48	41.3	1081.39
41.58	1081.3	47.95	1079.46	61.32	1075.6	61.94	1075.48	81.34	1070.5
99.07	1069.89	101.36	1069.82	118.24	1069.65	121.38	1069.64	124.81	1069.66
141.4	1069.68	156.57	1069.85	161.42	1069.9	166.73	1069.95	181.44	1070.14
187.68	1070.18	201.46	1070.3	208.64	1070.26	221.48	1070.27	226.08	1070.2
233.21	1070.08	241.5	1069.69	250.55	1068.76	261.52	1067.57	271.5	1067.11
281.54	1066.46	292.46	1066.31	301.56	1066.13	313.42	1066.08	321.58	1066.04
334.37	1066.03	341.6	1066.03	355.33	1066.05	361.62	1066.05	376.29	1066.1
381.64	1066.12	386.53	1066.13	401.66	1066.18	418.2	1066.21	421.68	1066.21
439.16	1066.23	441.7	1066.24	460.11	1066.29	461.72	1066.29	463.18	1066.29
481.74	1066.3	482.34	1066.3	495.98	1066.3	501.51	1066.31	501.76	1066.31
520.67	1066.34	521.78	1066.34	522.98	1066.34	541.8	1066.34	559	1066.28
561.82	1066.27	578.17	1066.19	581.84	1066.17	585.85	1066.16	601.86	1066.14
606.81	1066.18	621.88	1066.31	627.77	1066.38	641.9	1066.58	654.81	1066.78
661.92	1066.89	673.98	1067.18	681.94	1067.41	690.63	1067.96	701.96	1068.47
711.59	1069.42	721.98	1070.18	732.55	1071.17	742	1072.07	750.64	1072.78
762.02	1073.45	769.8	1073.86	782.04	1074.33	782.4	1074.34	795.41	1074.66
802.06	1074.77	816.37	1074.95	822.08	1075	827.29	1075.01	842.1	1075.05
858.29	1075.09	862.12	1075.11	879.24	1075.25	882.14	1075.29	900.2	1075.46
902.16	1075.5	921.15	1075.64	922.18	1075.64	942.11	1075.75	942.2	1075.75
944.02	1075.76	962.22	1075.79	1287.21	1076.61	1302.56	1078.46	1306.38	1078.72
1322.58	1079.46	1340.28	1080.05	1342.6	1080.13	1344.71	1080.17	1362.62	1080.54
1363.87	1080.56	1382.64	1080.8	1392.06	1080.89	1402.66	1080.99	1403.15	1080.99
1422.68	1081.14	1424.11	1081.15	1442.7	1081.27	1445.06	1081.29	1462.72	1081.42
1478.85	1081.57	1482.74	1081.6	1486.97	1081.64	1502.76	1081.8	1517.18	1081.95
1522.78	1082.01	1528.88	1082.07	1542.8	1082.22	1549.85	1082.28	1562.82	1082.39
1570.8	1082.45	1582.84	1082.54	1591.76	1082.6	1602.86	1082.66	1613	1082.73
1622.88	1082.79	1632.17	1082.87	1642.9	1082.94	1654.63	1083.04	1662.92	1083.12
1675.58	1083.24	1682.94	1083.32	1696.54	1083.45	1702.96	1083.5	1708.82	1083.56
1722.98	1083.67	1727.98	1083.72	1743	1083.83	1759.4	1083.95	1763.02	1083.98
1780.37	1084.11	1783.04	1084.14	1801.32	1084.28	1803.06	1084.3	1804.64	1084.31
1823.08	1084.46	1823.8	1084.46	1840.09	1084.61	1842.97	1084.64	1843.1	1084.64
1862.13	1084.88	1863.12	1084.89	1881.3	1085.14	1883.14	1085.17	1885.15	1085.19
1903.16	1085.42	1906.1	1085.44	1923.18	1085.62	1938.78	1085.78	1943.2	1085.81
1957.94	1085.9	1963.22	1085.93	1977.11	1085.91	1983.24	1085.92	1989.92	1085.96
2003.26	1085.99	2010.89	1086.13	2023.28	1086.34	2034.6	1086.53	2043.3	1086.69
2053.77	1086.86	2063.32	1087.01	2072.93	1087.1	2083.34	1087.21	2094.71	1087.31
2103.36	1087.38	2115.67	1087.49	2123.38	1087.57	2130.42	1087.64	2143.4	1087.74
2149.58	1087.82	2163.42	1087.99	2168.74	1088.1	2183.44	1088.43	2199.49	1088.8
2203.46	1088.89	2220.44	1089.21	2223.48	1089.26	2241.41	1089.54	2243.5	1089.57
2262.37	1089.79	2263.52	1089.8	2283.32	1089.94	2283.54	1089.94	2288.12	1089.97
2303.56	1090.04	2304.28	1090.05	2323.58	1090.13	2325.23	1090.14	2343.6	1090.18
2346.19	1090.19	2363.62	1090.24	2367.14	1090.26	2383.64	1090.36	2388.1	1090.38
2403.66	1090.49	2409.05	1090.53	2423.68	1090.62	2430.01	1090.66	2443.7	1090.73
2450.96	1090.79	2463.72	1090.87	2471.93	1090.95	2483.74	1091.06	2492.89	1091.15
2503.76	1091.27	2513.84	1091.38	2523.78	1091.51	2532.86	1091.63	2540.25	1091.72

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1.26	.03	226.08	.03	782.4	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
226.08	782.4	229.54	200	708.31	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1089.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1089.35	Reach Len. (ft)	229.54	200.00	708.31
Crit W.S. (ft)		Flow Area (sq ft)	3461.74	12226.15	11801.50
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	3461.74	12226.15	11801.50
Q Total (cfs)	4647.70	Flow (cfs)	675.71	2980.80	991.19
Top Width (ft)	2220.48	Top Width (ft)	217.58	556.32	1446.58
Vel Total (ft/s)	0.17	Avg. Vel. (ft/s)	0.20	0.24	0.08
Max Chl Dpth (ft)	23.32	Hydr. Depth (ft)	15.91	21.98	8.16
Conv. Total (cfs)	7404367.0	Conv. (cfs)	1076489.0	4748793.0	1579086.0
Length Wtd. (ft)	268.94	Wetted Per. (ft)	220.06	556.75	1446.80
Min Ch El (ft)	1066.03	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.58	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1342.21	7167.29	9052.49
C & E Loss (ft)		Cum SA (acres)	97.42	316.59	1204.46

Warning: The conveyance ratio (upstream 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: FRS
REACH: FRS1 RS: 24099.99

INPUT
Description:
Station Elevation Data num= 260

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1090.2	13.72	1089.21	16.01	1088.53	32.08	1083.63	33.92	1083.07
34.22	1082.97	54.12	1076.85	57.79	1075.85	74.33	1071.32	81.36	1071.15
94.53	1070.14	104.93	1070.01	114.73	1069.78	128.5	1069.74	134.94	1069.7
152.07	1069.78	155.14	1069.78	157.43	1069.8	173.5	1069.98	175.11	1070
175.34	1070	175.65	1070.01	195.55	1070.24	210.47	1070.25	215.75	1070.18
222.32	1069.82	222.78	1069.8	235.95	1069.29	245.82	1068.22	256.16	1066.87
269.92	1066.51	276.36	1066.15	281.18	1066.12	296.56	1066.12	314.93	1066.05
316.76	1066.04	317.07	1066.04	336.97	1065.92	340.63	1065.91	357.17	1065.87
364.2	1065.87	377.37	1065.87	387.78	1065.87	397.58	1065.84	404.92	1065.76
417.78	1065.74	422.6	1065.73	437.98	1065.65	456.35	1065.72	457.95	1065.73
458.19	1065.73	458.49	1065.73	478.39	1065.84	482.06	1065.84	498.59	1065.87
505.62	1065.85	518.79	1065.81	528.66	1065.78	539	1065.78	546.34	1065.81
559.2	1065.88	576.34	1066	579.4	1066.03	597.77	1066.12	599.61	1066.13
599.91	1066.13	619.81	1066.17	623.48	1066.16	640.01	1066.17	647.05	1066.15
660.22	1066.14	670.62	1066.1	680.42	1066.08	694.19	1066.04	700.62	1066.02
717.76	1066.15	720.82	1066.16	739.18	1066.56	741.03	1066.6	741.33	1066.6
761.23	1066.42	776.15	1066.41	781.43	1066.38	788.48	1066.35	801.64	1066.36

```
  812.04 1066.39  821.84 1066.44  835.61  1066.5  842.04 1066.55  859.19 1066.61
  862.25 1066.62  864.54 1066.63   880.6 1066.65  882.45 1066.65  882.75 1066.66
  902.65  1066.7  906.32 1066.71  922.86 1066.77   929.9 1066.79  943.06 1066.83
  953.46 1066.85  963.26 1066.86  977.03 1066.89  983.47 1066.89 1000.61 1066.98
 1003.67 1066.99 1022.02 1067.16 1023.64 1067.17 1023.87 1067.17 1041.32 1067.33
 1044.07 1067.34 1058.99 1067.34 1064.28 1067.35 1076.67 1067.26 1084.48 1067.24
 1094.35 1067.24 1104.68 1067.34 1118.45 1067.71 1124.89 1067.86 1129.71 1068.04
 1145.09 1068.48 1147.38 1068.54 1163.44 1068.95 1165.29    1069  1165.6 1069.01
  1185.5 1069.66 1189.16 1069.84  1205.7 1070.66 1212.74 1071.13  1225.9 1071.97
 1236.31 1073.15 1246.11 1074.03 1259.87 1076.11 1266.31 1077.19 1283.45 1079.02
 1283.96 1079.09 1286.51 1079.42 1304.87 1079.96 1306.48 1080.01 1306.71 1080.01
 1307.02 1080.02 1326.92 1080.32 1330.58 1080.36 1347.12 1080.53 1359.52 1080.62
 1367.32 1080.69 1377.19 1080.77 1387.53 1080.85  1401.3 1080.99 1407.73 1081.06
 1424.87 1081.27 1427.93  1081.3 1446.29 1081.52 1448.14 1081.54 1465.58 1081.75
 1468.34 1081.78 1483.26 1081.96 1488.54 1082.02 1495.58 1082.08 1508.74 1082.21
 1519.15 1082.29 1528.95 1082.35 1542.72 1082.45 1549.15 1082.48 1553.97 1082.51
 1569.35 1082.62 1571.65 1082.64 1587.71 1082.76 1589.32 1082.77 1589.56 1082.77
 1589.86 1082.78 1609.76 1082.96 1613.43 1082.99 1629.96 1083.17    1637 1083.25
 1650.17 1083.39 1660.57 1083.49 1670.37 1083.57 1677.71 1083.62 1690.57 1083.74
 1707.71 1083.92 1710.77 1083.95 1729.13 1084.16 1730.98 1084.18 1731.28 1084.19
 1751.18 1084.37 1754.85 1084.39 1771.39 1084.49 1783.78 1084.61 1791.59 1084.66
 1801.99 1084.78 1811.79 1084.91 1825.56 1085.11 1831.99 1085.21 1849.14 1085.46
  1852.2  1085.5 1870.55 1085.73  1872.4 1085.76  1872.7 1085.76  1892.6 1085.97
 1896.27 1085.99 1912.81 1086.11 1919.85  1086.1 1933.01 1086.08 1943.41 1086.04
 1953.21 1085.98 1966.98 1086.09 1973.42 1086.13 1990.56 1086.33 1993.62 1086.36
 2011.97 1086.66 2013.82 1086.69 2014.12 1086.69 2034.02 1086.92 2037.69 1086.95
 2054.23 1087.09 2066.62 1087.23 2074.43 1087.31  2084.3 1087.44 2094.63 1087.57
  2108.4 1087.76 2114.84 1087.85 2131.98 1088.15 2135.04  1088.2 2153.39 1088.53
 2155.24 1088.56 2155.54 1088.57 2175.45  1088.9 2179.11 1088.96 2195.65 1089.21
 2202.69  1089.3 2215.85 1089.46 2226.26 1089.54 2236.05 1089.62 2249.82  1089.7
 2256.26 1089.75  2273.4 1089.83 2276.46 1089.85 2294.81 1089.94 2296.66 1089.95
 2296.97 1089.95 2316.87 1090.09 2320.53 1090.11 2337.07 1090.24 2344.11  1090.3
 2357.27  1090.4 2367.68 1090.47 2377.48 1090.54 2391.24 1090.62 2397.68 1090.66
 2414.82 1090.78 2417.88 1090.81 2436.23 1090.98 2438.08    1091 2438.39 1091.01
 2458.29 1091.23 2461.96 1091.27 2478.49 1091.49 2490.89 1091.66 2497.97 1091.74

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
       0     .03  222.32     .03 1283.96    .045

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        222.32 1283.96            201.71     200  200.72               .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.35  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.35  * Reach Len. (ft)         *  201.71  *  200.00  *  200.72  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3414.32  *23465.28  * 4635.94  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3414.32  *23465.28  * 4635.94  *
* Q Total (cfs)           * 4561.56  * Flow (cfs)              *  459.27  * 3910.36  *  191.92  *
* Top Width (ft)          * 2194.74  * Top Width (ft)          *  210.50  * 1061.64  *  922.60  *
* Vel Total (ft/s)        *    0.14  * Avg. Vel. (ft/s)        *    0.13  *    0.17  *    0.04  *
* Max Chl Dpth (ft)       *   23.70  * Hydr. Depth (ft)        *   16.22  *   22.10  *    5.02  *
* Conv. Total (cfs)       *10673170.0  * Conv. (cfs)           *1074614.0  *9149492.0  *449066.4  *
* Length Wtd. (ft)        *  200.20  * Wetted Per. (ft)        *  213.15  * 1062.38  *  922.68  *
* Min Ch El (ft)          * 1065.65  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.23  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1324.09  * 7085.35  * 8918.85  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   96.29  *  312.88  * 1185.20  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                 RS: 23899.99

INPUT
Description:
Station Elevation Data     num=     272
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*****************************************************************************************
      .4 1090.47     1.68 1090.17    20.61 1087.07    34.79 1082.83    40.81 1081.03
   48.82 1078.71    61.01 1075.06    70.15 1072.52    81.22 1070.38    95.96 1070.24
  101.42 1070.22   105.5 1070.21   121.62 1070.23   134.14 1070.21   140.86  1070.2
  141.83 1070.19   158.53 1070.18   162.03 1070.18   166.67 1070.21   182.23 1070.33
  193.89 1070.49   202.43 1070.58   213.81 1070.52   222.64 1070.58   224.17 1070.55
  229.24 1070.46   242.84 1069.49   260.95 1067.48   263.04 1067.17    264.6  1067.1
  275.56 1066.73   283.25 1066.48   284.52 1066.45   303.45 1066.01   317.63  1065.8
  323.65 1065.73   331.66 1065.75   343.86 1065.74   355.23 1065.87   364.06 1065.95
  378.81 1066.08   384.26 1066.12   388.34 1066.12   404.47 1066.14   416.98 1066.11
  424.67 1066.09   441.38 1066.04   444.87 1066.03   459.05 1065.99   465.07 1065.96
  473.08 1065.94   485.28 1065.92   496.65 1065.91   505.48  1065.9   512.09 1065.89
  525.68  1065.9   529.76 1065.91   545.89 1065.93   558.4 1065.94   566.09 1065.94
  567.36 1065.94   586.29  1065.9   590.94  1065.9   606.5 1065.88   614.51 1065.91
   626.7 1065.93   638.07     1066   646.9 1066.06   653.51 1066.12    667.1 1066.22
  685.22 1066.32   687.31 1066.34   699.82 1066.33   707.51 1066.33   708.78 1066.33
  727.71 1066.28   732.36 1066.27   747.92 1066.23   759.57 1066.22   768.12 1066.21
  777.25 1066.22   788.32 1066.23   803.07  1066.3   808.53 1066.32   826.64 1066.44
  828.73 1066.45   841.24 1066.51   848.93 1066.55   850.21 1066.55   869.13 1066.59
  873.78  1066.6   889.34 1066.63   897.35 1066.65   909.54 1066.68   920.92  1066.7
  929.74 1066.72   944.49 1066.71   949.95 1066.71   954.03  1066.7   970.15 1066.66
  971.71 1066.66   982.67 1066.65   989.38 1066.65   990.35 1066.65   991.63 1066.66
 1010.56 1066.76   1015.2  1066.8 1030.76 1066.91 1042.42 1066.98 1050.96 1067.04
 1062.34 1067.13 1071.17  1067.2 1085.91 1067.32 1091.37 1067.37 1109.48 1067.75
 1111.57 1067.79 1124.09 1068.31 1131.78 1068.63 1133.05 1068.66 1151.98  1069.2
 1156.62 1069.28 1172.18 1069.49 1180.19 1069.82 1192.38 1070.18 1203.76 1071.16
 1212.59 1071.91 1227.34 1073.68 1232.79 1074.31  1250.9    1077 1252.99 1077.31
  1265.5 1078.76  1273.2 1079.61 1274.47 1079.65 1275.81 1079.69  1293.4 1080.23
 1298.05  1080.3  1313.6 1080.52 1321.61  1080.6 1333.81 1080.71 1345.18 1080.82
 1354.01  1080.9 1368.76 1081.07 1374.21 1081.13 1392.32 1081.33 1394.41 1081.36
 1406.92 1081.46 1414.62 1081.52 1415.89 1081.53 1434.82 1081.66    1449 1081.77
 1455.02 1081.83 1466.68 1081.92 1475.23    1082  1486.6 1082.11 1495.43  1082.2
 1510.18 1082.38 1515.63 1082.44 1533.75 1082.68 1535.84 1082.71 1537.39 1082.73
 1548.34 1082.88 1556.04 1082.98 1557.31 1082.99 1576.24  1083.2 1580.89 1083.23
 1596.44 1083.38 1604.46 1083.46 1616.65 1083.56 1628.02 1083.68 1636.85 1083.75
  1651.6 1083.91 1657.05 1083.95 1675.17 1084.14 1677.26 1084.16 1689.76 1084.28
 1697.46 1084.36 1698.73 1084.37 1717.66 1084.55 1722.31 1084.59 1737.87 1084.72
 1745.88 1084.77 1758.07 1084.86 1769.44 1084.93 1778.27 1084.99 1793.02 1085.08
 1798.47 1085.12 1816.59 1085.24 1818.68 1085.25 1831.18 1085.33 1838.88 1085.37
 1855.59 1085.41 1859.08 1085.42 1919.69 1085.64 1934.44 1086.01  1939.9 1086.15
 1943.98 1086.18  1960.1 1086.33 1961.66 1086.35 1972.61 1086.56 1979.33 1086.68
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 1980.3  1086.7 2081.32  1087.3 2099.43 1087.53 2101.52 1087.55 2114.03 1087.72
2121.72 1087.83    2123 1087.84 2141.93 1088.04 2146.57 1088.08 2162.13 1088.21
2170.14 1088.27 2182.33 1088.35 2193.71 1088.42 2202.54 1088.47 2217.28 1088.61
2222.74 1088.65 2240.85 1088.86 2242.94 1088.89 2255.45 1089.03 2263.15 1089.12
2264.42 1089.13 2283.35 1089.31 2287.99 1089.35 2303.55 1089.48 2311.56 1089.55
2323.75 1089.66 2335.13 1089.76 2343.96 1089.85 2358.71 1089.97 2364.16 1090.02
2382.27 1090.12 2384.36 1090.13 2396.87 1090.21 2404.57 1090.26 2405.84 1090.27
2424.77 1090.45 2438.95 1090.65 2444.97 1090.73 2456.63 1090.87 2465.18 1090.97
2476.55 1091.05 2485.38 1091.11 2491.98 1091.15 2505.58 1091.23 2509.66 1091.25
2525.78 1091.37 2538.29 1091.46 2545.02 1091.51 2545.99 1091.52  2562.7 1091.64
2566.19 1091.67 2580.37 1091.76 2586.39  1091.8 2598.05 1091.87  2606.6 1091.92
2615.73 1091.98  2626.8 1092.05 2633.41  1092.1    2647 1092.19 2651.08 1092.23
2667.21 1092.37 2679.71 1092.51 2686.44 1092.59 2687.41  1092.6 2704.12 1092.79
2707.61 1092.83 2712.26 1092.88 2727.81 1093.05 2739.47 1093.17 2748.02 1093.27
2757.15 1093.35 2767.49 1093.46

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
      .4     .03  224.17     .03 1275.81    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        224.17 1275.81            201.71     200  200.72              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**************************************************************************************************
* E.G. Elev (ft)          * 1089.35  * Element                  *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.               *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.35  * Reach Len. (ft)          *  201.71  *  200.00  *  200.72  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)        * 3412.12  *23161.69  * 4577.44  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)             * 3412.12  *23161.69  * 4577.44  *
* Q Total (cfs)           * 4498.65  * Flow (cfs)               *  451.50  * 3869.59  *  177.56  *
* Top Width (ft)          * 2281.06  * Top Width (ft)           *  217.47  * 1051.64  * 1011.95  *
* Vel Total (ft/s)        *    0.14  * Avg. Vel. (ft/s)         *    0.13  *    0.17  *    0.04  *
* Max Chl Dpth (ft)       *   23.62  * Hydr. Depth (ft)         *   15.69  *   22.02  *    4.52  *
* Conv. Total (cfs)       *10473880.0  * Conv. (cfs)            *  *1051204.0  *9009279.0  *413393.2  *
* Length Wtd. (ft)        *  200.20  * Wetted Per. (ft)         *  219.96  * 1052.45  * 1012.01  *
* Min Ch El (ft)          * 1065.73  * Shear (lb/sq ft)         *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.24  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     * 1308.29  * 6978.31  * 8897.62  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   95.30  *  308.02  * 1180.74  *
**************************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 23699.99

INPUT
Description:
Station Elevation Data     num=     293
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
    6.03 1090.69   16.96 1088.23   26.23 1085.39   38.59 1081.63   46.44 1079.29
   52.32 1077.58   66.64 1073.52   85.72 1070.82   86.84 1070.59   87.67  1070.6
   93.52 1070.61  105.35 1070.66  107.05 1070.65   109.3 1070.66  127.25 1070.81
   140.7 1070.83  147.45 1070.86  156.43  1070.9  167.66 1070.92  176.06 1070.97
  187.86 1071.05  203.58 1071.12  208.06 1071.15  223.29 1070.93  227.14 1070.87
  228.27 1070.86  234.93 1070.04  246.77 1068.56  248.47 1068.32  264.45 1066.79
  268.67 1066.49  274.29 1066.36  288.87 1065.98   299.8 1065.85  309.08 1065.74
  317.48 1065.64  329.28 1065.49  335.16 1065.47  349.48  1065.5  368.57 1065.65
  369.69 1065.66  376.35  1065.7  388.19 1065.77  389.89 1065.78  405.87 1065.81
  410.09 1065.82  415.71 1065.83   430.3 1065.86  441.22 1065.91   450.5 1065.96
   458.9 1066.01   470.7 1066.07  486.42 1066.13   490.9 1066.14  509.99 1066.15
  511.11 1066.15  511.94 1066.15  517.77 1066.14  531.31 1066.13  533.56 1066.13
  551.51 1066.15  564.97 1066.16  571.72 1066.16   580.7 1066.15  591.92 1066.14
  604.27 1066.12  612.12  1066.1  627.84 1066.12  632.33 1066.11  635.68 1066.13
  652.53 1066.19  653.36 1066.19   659.2 1066.22  672.73 1066.28  674.98 1066.28
  692.94 1066.32  698.55 1066.32  713.14 1066.29  722.12 1066.28  733.34 1066.27
  741.75 1066.28  753.54 1066.29  769.26 1066.33  773.75 1066.34  792.83  1066.4
  793.95  1066.4  800.62 1066.43  812.46 1066.48  814.15 1066.49  816.41  1066.5
  834.36 1066.57  839.97 1066.58  854.56  1066.6  865.49  1066.6  874.76  1066.6
  883.17  1066.6  894.97  1066.6  910.68 1066.62  915.17 1066.62  934.25 1066.62
  935.37 1066.62  942.04 1066.59  955.57 1066.53  957.83 1066.53  975.78 1066.45
   981.4 1066.47  995.98  1066.5 1004.96 1066.58 1016.18 1066.68 1024.59 1066.77
 1036.39  1066.9 1042.27 1066.95 1056.59 1067.05 1075.67 1067.02 1076.79 1067.02
 1083.46 1067.04    1097  1067.1 1112.98 1067.73  1117.2 1067.95 1122.82 1068.26
  1137.4 1069.18 1146.38 1069.43 1157.61 1069.79 1169.96 1070.15 1177.81 1070.35
 1183.69 1070.61 1198.01 1071.35 1217.09 1072.96 1218.22 1073.05 1224.88 1074.09
 1238.42 1076.23 1240.67 1076.56 1258.62 1079.56 1264.24 1079.66 1266.24 1079.71
 1278.82 1080.04  1287.8 1080.11 1299.03 1080.26 1311.38 1080.36 1319.23 1080.43
 1334.95 1080.56 1339.43 1080.59 1358.52 1080.73 1359.64 1080.74  1366.3 1080.79
 1379.84  1080.9 1382.09 1080.92 1400.04  1081.1 1405.66 1081.16 1420.25 1081.34
 1431.17 1081.47 1440.45 1081.59 1448.85 1081.69 1460.65 1081.84 1476.37 1082.06
 1480.85 1082.11 1499.94 1082.34 1501.06 1082.35 1501.89 1082.36 1507.72 1082.41
 1519.56 1082.52 1521.26 1082.54 1537.24 1082.64 1541.46 1082.66 1554.92 1082.71
 1561.67 1082.73 1570.65 1082.75 1581.87 1082.79 1594.22 1082.87 1602.07 1082.91
 1617.79 1083.07 1622.28 1083.11 1641.37 1083.33 1642.48 1083.35 1643.31 1083.35
 1649.15 1083.42 1662.68 1083.57 1664.93 1083.59 1682.89 1083.78  1688.5 1083.83
 1703.09 1083.98 1712.08 1084.07 1723.29 1084.19 1735.65 1084.31 1743.49 1084.39
 1759.21 1084.53  1763.7 1084.57 1782.79 1084.71  1783.9 1084.71 1790.57 1084.74
  1804.1 1084.78 1877.07 1085.31 1884.92 1085.56 1900.63 1085.76 1905.12 1085.81
 1924.21 1085.91 1925.32 1085.91 1926.15 1085.91 1931.98 1085.94 1945.52 1085.99
 1961.51 1086.09 1965.73  1086.1 1971.34 1086.13 1985.93 1086.23 1994.92  1086.3
 2006.13 1086.38 2018.49 1086.47 2026.34 1086.52 2042.06 1086.64 2046.54 1086.68
 2065.63 1086.85 2066.74 1086.87  2073.4 1086.94 2086.95 1087.08  2089.2 1087.11
 2107.15  1087.3 2112.77 1087.35 2127.35 1087.49 2136.34 1087.58 2147.56 1087.68
 2159.91 1087.79 2167.76 1087.86 2183.48 1087.99 2187.96 1088.03 2207.05 1088.13
 2208.17 1088.14 2214.82 1088.16 2228.37 1088.21 2230.62 1088.22 2248.57 1088.32
 2254.19 1088.38 2268.77 1088.53 2277.76 1088.63 2288.98 1088.76 2301.33 1088.87
 2309.18 1088.94  2324.9 1089.05 2329.38 1089.09 2348.48 1089.22 2349.59 1089.23
 2356.24 1089.28 2369.79 1089.38 2385.77 1089.49 2389.99 1089.53 2403.45 1089.63
  2410.2 1089.68 2421.13 1089.78  2430.4 1089.84  2438.8 1089.93  2450.6 1090.05
 2456.48 1090.12  2470.8  1090.3  2489.9 1090.54 2491.01 1090.55 2491.84 1090.56
 2497.66 1090.63 2509.51 1090.77 2511.21 1090.79 2527.19 1090.96 2531.41 1091.01
 2544.87 1091.12 2551.62 1091.18 2562.55 1091.22 2571.82 1091.26 2580.23 1091.29
 2592.02 1091.33 2607.74 1091.43 2612.23 1091.46 2615.58 1091.49 2632.43 1091.66
 2633.26 1091.67 2639.09 1091.73 2650.94 1091.86 2652.63 1091.88 2668.61 1092.05
 2672.83 1092.08 2686.29 1092.24 2693.04  1092.3 2703.97 1092.42 2713.24 1092.54
 2721.65 1092.62 2733.44 1092.77 2749.16 1092.93 2753.65 1092.97    2757 1092.99
 2773.85 1093.13 2774.68 1093.14 2780.51 1093.18 2792.36 1093.27 2794.05 1093.28
  2796.3  1093.3 2814.26 1093.46 2826.44 1093.59
```

```
Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
    6.03      .03  223.29      .03 1266.24     .045

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        223.29 1266.24              201.71     200  200.72            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.35  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.35  * Reach Len. (ft)         *  201.71  *  200.00  *  200.72  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3298.85  *23021.79  * 4987.68  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3298.85  *23021.79  * 4987.68  *
* Q Total (cfs)           * 4385.54  * Flow (cfs)              *  425.78  * 3770.01  *  189.75  *
* Top Width (ft)          * 2353.60  * Top Width (ft)          *  211.30  * 1042.95  * 1099.35  *
* Vel Total (ft/s)        *    0.14  * Avg. Vel. (ft/s)        *    0.13  *    0.16  *    0.04  *
* Max Chl Dpth (ft)       *   23.88  * Hydr. Depth (ft)        *   15.61  *   22.07  *    4.54  *
* Conv. Total (cfs)       *10431500.0  * Conv. (cfs)           *1012756.0  *8967393.0  *451346.7  *
* Length Wtd. (ft)        *  200.20  * Wetted Per. (ft)        *  213.78  * 1043.90  * 1099.40  *
* Min Ch El (ft)          * 1065.47  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.26  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1292.75  * 6872.29  * 8875.58  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   94.31  *  303.22  * 1175.87  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 23499.99

INPUT
Description:
Station Elevation Data     num=     299
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
       0 1090.16    12.01 1089.76     28.7 1084.67    32.21 1083.66    34.84 1082.86
   52.42 1077.43    53.25 1077.19    72.62 1071.82    75.84 1071.72    92.82 1070.39
   99.41  1070.3   113.03    1070   122.99    1070   133.23 1069.98   146.55 1070.11
  153.43 1070.16   158.58 1070.21   173.64 1070.38   176.26 1070.41   193.84 1070.61
  194.67 1070.62   211.62 1070.74   214.04 1070.73   217.26 1070.59   223.56  1070.5
  234.24 1070.35   246.97 1068.47   254.45 1067.32   264.65 1066.47   274.65 1066.12
  282.33 1065.99   294.85 1065.85   311.54 1065.66   315.06 1065.63   335.12 1065.44
  335.26 1065.44   336.09 1065.45   355.46 1065.57   358.69  1065.6   375.67 1065.76
  388.39  1065.8   395.87 1065.84   405.83 1065.86   416.07 1065.89    429.4 1065.98
  436.28 1066.04   452.96 1066.24   456.48 1066.29   476.54 1066.48   476.68 1066.48
  477.51 1066.49   496.88 1066.54   500.11 1066.55   517.09 1066.55   523.67 1066.53
  537.29  1066.5   547.25 1066.41   557.49 1066.33   570.82 1066.22    577.7 1066.18
  594.39 1066.21    597.9 1066.22   617.96 1066.33    618.1 1066.33   618.93 1066.34
  635.88 1066.43   638.31 1066.44   653.56  1066.5   658.51 1066.52   671.24 1066.56
  678.71 1066.59   688.91 1066.62   698.91 1066.64   706.59 1066.66   719.12 1066.69
  735.82 1066.69   739.32 1066.69   759.38 1066.62   759.52 1066.62   760.34 1066.62
  779.73 1066.52   794.98 1066.48   799.93 1066.46   812.66 1066.45   820.13 1066.45
  830.09 1066.49   840.34 1066.53   853.66 1066.63   860.54 1066.69   877.24 1066.76
  880.74 1066.78    900.8  1066.7   900.94  1066.7   901.76 1066.69   918.72 1066.58
  921.15 1066.56    936.4 1066.49   941.35 1066.47   954.08 1066.45   961.55 1066.44
  971.76 1066.46   981.76 1066.48   989.43 1066.52  1001.96 1066.62  1007.11 1066.67
 1022.16 1066.84  1024.79 1066.88  1042.37 1067.15  1042.47 1067.15  1043.19 1067.15
 1062.57 1067.35  1065.79 1067.36  1082.77  1067.4  1089.37 1067.54  1102.98 1067.76
 1112.94 1068.31  1123.18 1068.82   1136.5  1069.4  1143.38 1069.74  1160.08 1070.22
 1163.59 1070.34  1183.65 1071.03  1183.79 1071.03  1184.61 1071.09  1203.99  1072.4
 1207.21 1072.83  1224.19  1074.8  1230.79 1075.81   1244.4 1077.98  1254.36 1078.79
 1256.47 1079.01   1264.6 1079.88  1277.93 1080.17   1284.8  1080.3   1301.5 1080.56
 1305.01 1080.61  1325.07 1080.89  1325.21 1080.89  1326.03  1080.9  1345.41 1081.09
 1348.64 1081.11  1365.62 1081.21  1372.21 1081.27  1385.82 1081.37  1395.78 1081.48
 1406.02 1081.59  1419.35 1081.76  1426.23 1081.84  1442.92 1082.01  1446.43 1082.04
 1466.49 1082.19  1466.63 1082.19  1467.45  1082.2  1486.83 1082.31  1502.09 1082.37
 1507.04 1082.39  1519.77 1082.42  1527.24 1082.45   1539.2 1082.49  1547.44 1082.52
 1560.77 1082.59  1567.65 1082.61  1584.34 1082.75  1587.85 1082.78  1590.48 1082.81
 1608.05 1083.05  1608.15 1083.06  1608.87 1083.07  1625.83  1083.3  1628.26 1083.32
 1631.48 1083.35  1648.46  1083.5  1655.06 1083.54  1660.66 1083.61  1678.62 1083.66
 1688.87 1083.71  1702.19 1083.81  1709.07 1083.86  1714.22 1083.89  1729.27 1084.01
  1731.9 1084.02  1749.47 1084.11  1749.58 1084.11  1750.29 1084.11  1767.25 1084.12
 1769.68 1084.12   1772.9 1084.13  1789.88 1084.18  1796.48 1084.29  1810.09 1084.48
 1820.04 1084.69  1830.29 1084.89  1843.61 1085.07  1850.49 1085.18  1855.64 1085.24
 1870.69  1085.4  1890.75 1085.58   1890.9 1085.59  1891.72 1085.59   1911.1 1085.71
 1914.32 1085.73   1931.3 1085.82   1937.9 1085.85  1951.51 1085.92  1961.47 1085.97
 1971.71 1086.02  1985.03 1086.12  1991.91 1086.17  1997.06 1086.24  2012.12 1086.41
 2014.74 1086.44  2032.32 1086.69  2032.42 1086.69  2033.14  1086.7  2052.52 1086.95
 2055.74 1086.98  2072.72 1087.18  2079.32 1087.25  2092.93 1087.39  2102.89 1087.49
 2113.13 1087.59  2120.81 1087.65  2133.33 1087.76  2150.03 1087.86  2153.54 1087.88
  2173.6 1087.95  2173.74 1087.95  2174.56 1087.96  2193.94 1088.07   2209.2 1088.22
 2214.15 1088.28  2226.87 1088.43  2234.35 1088.52  2244.55 1088.61  2254.55 1088.71
 2262.23 1088.75  2274.75 1088.84  2291.45 1088.96  2294.96 1088.99  2297.58 1089.02
 2315.16 1089.22  2315.26 1089.22  2315.98 1089.23  2335.36 1089.48  2350.62 1089.66
 2355.57 1089.71   2368.3 1089.81  2375.77 1089.88  2385.73 1089.95  2395.97 1090.02
  2409.3 1090.11  2416.18 1090.15  2432.87 1090.27  2436.38 1090.29  2439.01 1090.31
 2456.58 1090.44  2456.68 1090.44  2457.39 1090.45  2474.36 1090.59  2476.79 1090.61
 2492.04 1090.75  2496.99 1090.79  2509.72 1090.93  2517.19 1091.01  2527.39 1091.11
 2537.39 1091.23  2545.07 1091.28   2557.6  1091.4  2562.75 1091.42   2577.8 1091.52
 2580.43 1091.54     2598 1091.63  2598.11 1091.63  2598.81 1091.63  2618.21 1091.77
 2633.46 1091.91  2638.41 1091.94  2651.14 1092.08  2658.61 1092.16  2668.82 1092.29
 2678.82 1092.42  2686.49  1092.5  2699.02 1092.65  2704.17 1092.68  2719.22  1092.8
 2721.85 1092.81  2739.43 1092.91  2739.53 1092.91  2740.23 1092.91  2757.21    1093
 2759.63 1093.01  2774.88  1093.1  2779.83 1093.13  2792.56 1093.24  2800.04  1093.3
    2810 1093.42  2820.24 1093.54  2827.92 1093.63  2829.89 1093.65

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
       0      .03  223.56      .03 1256.47     .045

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        223.56 1256.47              201.71     200  200.72            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.35  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.35  * Reach Len. (ft)         *  201.71  *  200.00  *  200.72  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3386.05  *22719.92  * 5002.26  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3386.05  *22719.92  * 5002.26  *
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* Q Total (cfs)          * 4327.25  * Flow (cfs)              *  443.46  * 3690.62  *  193.16  *
* Top Width (ft)         * 2311.93  * Top Width (ft)          *  210.21  * 1032.91  * 1068.81  *
* Vel Total (ft/s)       *    0.14  * Avg. Vel. (ft/s)        *    0.13  *    0.16  *    0.04  *
* Max Chl Dpth (ft)      *   23.91  * Hydr. Depth (ft)        *   16.11  *   22.00  *    4.68  *
* Conv. Total (cfs)      *10352690.0  * Conv. (cfs)           *1060953.0  *8829601.0  *462131.9  *
* Length Wtd. (ft)       *  200.21  * Wetted Per. (ft)        *  212.81  * 1033.75  * 1068.91  *
* Min Ch El (ft)         * 1065.44  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                  *    1.26  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)    * 1277.27  * 6767.28  * 8852.57  *
* C & E Loss (ft)        *          * Cum SA (acres)          *   93.33  *  298.45  * 1170.88  *
*****************************************************************************************************
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CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 23299.99

INPUT
Description:
Station Elevation Data num= 299

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1090.43	14	1088.54	19.02	1087.77	36.06	1082.51	39.22	1081.54
53.74	1077.17	59.43	1075.47	66.99	1074.11	79.63	1071.03	90.56	1070.66
99.83	1070.38	114.14	1070.17	120.04	1070.07	137.7	1070	140.24	1069.98
142.13	1069.98	155.42	1070.01	159.81	1070.02	160.44	1070.03	161.27	1070.04
180.65	1070.19	195.16	1070.35	200.85	1070.41	208.41	1070.34	221.05	1070.35
223.52	1070.19	231.98	1069.62	241.25	1069.28	255.56	1066.89	261.46	1065.92
265.87	1065.69	281.66	1065.68	283.55	1065.67	296.84	1065.63	301.23	1065.62
301.86	1065.62	302.69	1065.61	322.07	1065.44	326.27	1065.43	342.27	1065.37
349.84	1065.45	362.47	1065.59	371.94	1065.69	382.68	1065.79	389.62	1065.83
402.88	1065.89	420.55	1065.94	423.08	1065.95	438.26	1065.98	443.29	1065.99
444.11	1065.99	463.49	1066.01	467.69	1066.01	483.69	1066	491.26	1065.99
503.89	1065.96	514.82	1065.95	524.1	1065.93	531.04	1065.91	544.3	1065.89
561.97	1065.87	564.5	1065.87	579.69	1065.89	584.71	1065.89	585.54	1065.9
604.91	1065.98	609.11	1066	625.11	1066.08	632.68	1066.1	645.32	1066.14
656.25	1066.18	665.52	1066.2	679.82	1066.26	685.72	1066.28	690.14	1066.3
705.92	1066.37	707.81	1066.38	721.11	1066.42	725.49	1066.43	726.13	1066.43
726.96	1066.44	746.33	1066.48	750.53	1066.49	766.53	1066.53	778.52	1066.6
786.74	1066.65	797.67	1066.73	806.94	1066.82	821.24	1066.91	827.14	1066.95
831.56	1066.95	847.35	1066.96	862.53	1066.93	866.91	1066.92	867.55	1066.92
868.38	1066.92	887.75	1066.86	891.95	1066.84	907.96	1066.79	915.52	1066.77
928.16	1066.74	937.62	1066.76	948.36	1066.77	962.67	1066.82	968.57	1066.84
986.23	1066.96	988.77	1066.97	1003.95	1067.24	1008.97	1067.33	1104.09	1068.53
1109.99	1068.49	1127.65	1070.69	1130.19	1070.98	1145.37	1071.39	1150.39	1071.5
1151.22	1071.53	1170.6	1072.08	1185.11	1073.14	1190.8	1073.71	1198.36	1074.74
1211	1076.5	1221.93	1077.75	1231.2	1079	1245.51	1079.48	1246.56	1079.51
1251.41	1079.64	1269.08	1079.96	1271.61	1080.01	1273.5	1080.03	1286.79	1080.16
1291.18	1080.2	1291.81	1080.2	1308.85	1080.28	1312.02	1080.29	1316.22	1080.31
1332.22	1080.37	1339.79	1080.43	1352.42	1080.54	1363.35	1080.65	1372.63	1080.74
1379.57	1080.81	1392.83	1080.93	1397.24	1080.97	1413.03	1081.09	1428.2	1081.19
1433.23	1081.23	1434.06	1081.23	1453.44	1081.35	1457.64	1081.37	1473.64	1081.49
1481.21	1081.55	1493.84	1081.67	1504.77	1081.78	1514.05	1081.9	1528.35	1082.05
1534.25	1082.12	1551.92	1082.27	1554.45	1082.29	1569.63	1082.43	1574.66	1082.48
1575.49	1082.49	1594.86	1082.73	1599.06	1082.79	1615.06	1083.02	1622.63	1083.1
1635.27	1083.26	1646.2	1083.36	1655.47	1083.44	1669.77	1083.55	1675.67	1083.59
1693.34	1083.72	1695.87	1083.74	1711.05	1083.85	1715.44	1083.88	1716.08	1083.88
1716.91	1083.89	1736.28	1083.99	1740.48	1084.04	1756.48	1084.25	1764.05	1084.41
1776.69	1084.67	1787.62	1084.84	1796.89	1084.95	1811.19	1085.14	1817.09	1085.21
1834.76	1085.38	1837.3	1085.4	1852.47	1085.43	1856.86	1085.43	1857.5	1085.44
1874.54	1085.44	1877.7	1085.44	1892.22	1085.53	1897.9	1085.55	1905.47	1085.63
1918.11	1085.78	1929.04	1085.92	1938.31	1086.05	1945.25	1086.13	1958.51	1086.29
1962.93	1086.34	1978.72	1086.5	1980.61	1086.52	1993.89	1086.63	1998.92	1086.67
2015.96	1086.78	2019.12	1086.8	2023.33	1086.83	2039.33	1086.93	2046.89	1087
2059.53	1087.1	2068.99	1087.17	2079.73	1087.27	2086.67	1087.34	2099.94	1087.47
2104.35	1087.53	2120.14	1087.71	2122.03	1087.73	2135.31	1087.86	2139.71	1087.9
2140.34	1087.91	2141.17	1087.91	2160.55	1087.97	2175.06	1087.99	2180.75	1088
2192.74	1088.06	2200.95	1088.09	2210.42	1088.17	2221.15	1088.25	2228.09	1088.32
2241.36	1088.44	2259.03	1088.62	2261.56	1088.65	2263.45	1088.66	2276.73	1088.8
2281.13	1088.85	2281.76	1088.85	2282.59	1088.86	2301.97	1089.05	2316.48	1089.17
2322.17	1089.22	2334.16	1089.33	2342.37	1089.4	2353.3	1089.53	2362.58	1089.63
2376.88	1089.8	2382.78	1089.87	2400.45	1090.07	2402.98	1090.1	2418.15	1090.27
2422.55	1090.32	2423.18	1090.32	2440.23	1090.5	2443.39	1090.53	2457.9	1090.65
2463.59	1090.69	2475.58	1090.77	2483.79	1090.83	2494.72	1090.92	2504	1090.99
2510.94	1091.05	2524.2	1091.16	2528.61	1091.2	2544.4	1091.34	2559.58	1091.46
2564.61	1091.51	2565.43	1091.51	2584.81	1091.67	2589.01	1091.7	2605.01	1091.84
2617	1091.95	2625.21	1092.01	2634.68	1092.1	2645.42	1092.19	2659.72	1092.31
2665.62	1092.36	2683.29	1092.51	2685.82	1092.53	2701	1092.65	2705.39	1092.69
2706.03	1092.7	2723.07	1092.83	2726.23	1092.86	2730.43	1092.9	2746.43	1093.03
2754	1093.12	2766.64	1093.26	2776.1	1093.38	2786.84	1093.51	2793.78	1093.6
2807.04	1093.75	2811.46	1093.81	2827.24	1093.97	2829.13	1093.99	2842.42	1094.11
2846.81	1094.15	2847.45	1094.15	2848.29	1094.16	2865.66	1094.24		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	223.52	.03	1246.56	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
223.52	1246.56	201.71	200	200.72	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

```
*****************************************************************************************************
* E.G. Elev (ft)         * 1089.35  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)         * 1089.35  * Reach Len. (ft)         *  201.71  *  200.00  *  200.72  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       * 3393.76  *22347.16  * 5182.32  *
* E.G. Slope (ft/ft)     *0.000000  * Area (sq ft)            * 3393.76  *22347.16  * 5182.32  *
* Q Total (cfs)          * 4268.57  * Flow (cfs)              *  439.64  * 3625.98  *  202.94  *
* Top Width (ft)         * 2328.63  * Top Width (ft)          *  215.53  * 1023.04  * 1090.06  *
* Vel Total (ft/s)       *    0.14  * Avg. Vel. (ft/s)        *    0.13  *    0.16  *    0.04  *
* Max Chl Dpth (ft)      *   23.98  * Hydr. Depth (ft)        *   15.75  *   21.84  *    4.75  *
* Conv. Total (cfs)      *10176060.0  * Conv. (cfs)           *1048082.0  *8644168.0  *483809.9  *
* Length Wtd. (ft)       *  200.21  * Wetted Per. (ft)        *  217.98  * 1023.96  * 1090.11  *
* Min Ch El (ft)         * 1065.37  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                  *    1.27  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)    * 1261.57  * 6663.82  * 8829.10  *
* C & E Loss (ft)        *          * Cum SA (acres)          *   92.35  *  293.73  * 1165.91  *
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CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 23099.99

INPUT
Description:
Station Elevation Data num= 278

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4.41	1090.69	9.59	1089.14	24.62	1085.63	33.15	1083.02	44.82	1079.51
56.73	1076.16	65.02	1073.73	80.3	1071.91	85.23	1071.04	103.86	1070.57
105.43	1070.54	114.77	1070.46	125.63	1070.39	127.44	1070.39	145.84	1070.44
151.01	1070.49	166.04	1070.66	174.57	1070.81	186.24	1071.01	198.15	1071.19
206.44	1071.34	212.66	1071.32	222.76	1071.33	226.65	1071.34	230.33	1071.02
246.85	1068.54	256.18	1067.32	267.05	1065.99	268.86	1065.96	287.26	1065.8
292.43	1065.73	307.46	1065.58	316	1065.48	327.66	1065.32	590.3	1065.62
601.57	1065.63	610.51	1065.65	619.24	1065.69	630.71	1065.75	645.98	1065.86
650.91	1065.9	669.55	1066.02	671.12	1066.03	680.45	1066.07	691.32	1066.11
693.13	1066.12	711.52	1066.18	716.69	1066.2	731.72	1066.26	740.26	1066.31
751.93	1066.37	763.84	1066.43	772.13	1066.46	787.4	1066.47	792.33	1066.48
810.97	1066.48	812.54	1066.48	821.87	1066.53	831.38	1066.58	832.74	1066.59
834.55	1066.61	852.94	1066.83	866.73	1066.95	873.15	1067	884.41	1066.96
893.35	1066.93	905.26	1066.83	913.55	1066.78	928.83	1066.73	933.75	1066.73
937.44	1066.76	953.96	1066.86	963.29	1066.96	974.16	1067.09	975.97	1067.12
994.36	1067.4	999.54	1067.53	1014.57	1067.88	1025.83	1068.28	1034.77	1068.62
1043.51	1068.9	1054.97	1069.22	1070.25	1069.26	1075.18	1069.3	1078.86	1069.33
1095.38	1069.58	1096.54	1069.63	1104.71	1070.08	1115.58	1070.68	1117.39	1070.77
1135.79	1071.7	1140.96	1071.82	1155.99	1072.21	1164.52	1072.55	1176.19	1072.92
1188.1	1074.07	1196.4	1074.7	1211.67	1076.51	1216.6	1077.12	1235.24	1078.48
1236.8	1078.65	1238.18	1078.69	1246.13	1078.9	1257	1079.2	1258.81	1079.22
1277.21	1079.49	1290.99	1079.66	1297.41	1079.74	1305.95	1079.83	1317.61	1079.96
1329.52	1080.1	1337.82	1080.2	1353.09	1080.36	1358.02	1080.42	1376.66	1080.62
1378.22	1080.63	1379.38	1080.64	1387.56	1080.73	1398.43	1080.85	1414.74	1081.04
1418.63	1081.09	1423.8	1081.16	1438.83	1081.36	1447.37	1081.48	1459.03	1081.64
1470.94	1081.79	1479.24	1081.89	1485.45	1081.94	1499.44	1082.07	1503.13	1082.09
1519.64	1082.21	1528.98	1082.29	1539.85	1082.37	1541.65	1082.39	1560.05	1082.57
1565.22	1082.62	1580.25	1082.76	1588.79	1082.83	1600.46	1082.91	1609.19	1082.95
1620.66	1083.03	1635.93	1083.09	1640.86	1083.11	1659.51	1083.18	1661.07	1083.18
1670.4	1083.24	1681.27	1083.3	1683.08	1083.32	1701.47	1083.54	1706.64	1083.63
1721.67	1083.88	1730.22	1083.98	1741.88	1084.11	1753.79	1084.22	1762.08	1084.3
1777.35	1084.43	1782.28	1084.48	1800.93	1084.63	1802.49	1084.64	1803.65	1084.65
1811.82	1084.71	1821.33	1084.79	1822.69	1084.8	1839	1084.93	1842.89	1084.95
1856.68	1085.08	1863.1	1085.12	1871.64	1085.2	1883.3	1085.32	1892.04	1085.42
1903.5	1085.55	1909.72	1085.63	1923.7	1085.79	1927.39	1085.82	1943.91	1085.97
1945.07	1085.98	1953.23	1086.04	1964.11	1086.12	1980.43	1086.25	1984.31	1086.28
1989.49	1086.32	2004.52	1086.45	2015.78	1086.55	2024.72	1086.63	2036.63	1086.73
2044.92	1086.8	2051.14	1086.85	2065.13	1086.97	2083.77	1087.1	2085.33	1087.11
2094.65	1087.14	2104.17	1087.17	2105.53	1087.17	2121.85	1087.23	2125.73	1087.25
2139.52	1087.37	2145.94	1087.42	2157.2	1087.57	2166.14	1087.69	2174.88	1087.81
2186.35	1087.98	2201.62	1088.19	2206.55	1088.26	2210.24	1088.3	2226.75	1088.52
2236.07	1088.64	2245.59	1088.76	2246.95	1088.77	2263.27	1088.96	2267.16	1089.01
2280.95	1089.14	2287.36	1089.2	2295.91	1089.24	2307.56	1089.32	2319.47	1089.38
2327.77	1089.43	2343.04	1089.52	2347.97	1089.55	2351.66	1089.57	2368.17	1089.68
2369.34	1089.69	2377.5	1089.74	2387.01	1089.8	2388.38	1089.82	2390.18	1089.83
2408.58	1090	2422.37	1090.14	2428.78	1090.21	2440.05	1090.32	2448.99	1090.41
2457.72	1090.48	2469.19	1090.58	2475.4	1090.63	2489.39	1090.75	2508.04	1090.92
2509.59	1090.93	2510.76	1090.94	2518.92	1091.02	2528.43	1091.1	2529.8	1091.11
2531.61	1091.13	2550	1091.3	2563.79	1091.41	2570.2	1091.48	2581.47	1091.56
2590.41	1091.64	2599.15	1091.7	2610.61	1091.78	2616.82	1091.83	2630.81	1091.92
2649.46	1092.06	2651.02	1092.08	2652.18	1092.09	2660.34	1092.15	2669.86	1092.23
2671.22	1092.24	2687.53	1092.36	2691.42	1092.39	2696.6	1092.42	2711.63	1092.5
2720.17	1092.56	2731.83	1092.62	2740.57	1092.7	2752.03	1092.79	2758.25	1092.87
2772.24	1093.02	2775.92	1093.06	2792.44	1093.18	2801.76	1093.18	2812.64	1093.16
2828.96	1093.08	2832.85	1093.07	2838.02	1093.09	2853.05	1093.14	2864.31	1093.35
2873.25	1093.52	2885.16	1093.75	2892.94	1093.92				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4.41	.03	222.76	.03	1238.18	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
222.76	1238.18	208.5	200	134.89	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1089.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1089.35	Reach Len. (ft)	208.50	200.00	134.89
Crit W.S. (ft)		Flow Area (sq ft)	3318.82	22231.20	5390.96
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	3318.82	22231.20	5390.96
Q Total (cfs)	4211.84	Flow (cfs)	421.30	3574.20	216.34
Top Width (ft)	2304.82	Top Width (ft)	213.88	1015.42	1075.53
Vel Total (ft/s)	0.14	Avg. Vel. (ft/s)	0.13	0.16	0.04
Max Chl Dpth (ft)	24.03	Hydr. Depth (ft)	15.52	21.89	5.01
Conv. Total (cfs)	10149800.0	Conv. (cfs)	1015255.0	8613199.0	521349.1
Length Wtd. (ft)	197.42	Wetted Per. (ft)	216.23	1016.18	1075.59
Min Ch El (ft)	1065.32	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.28	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1246.03	6561.49	8804.74
C & E Loss (ft)		Cum SA (acres)	91.35	289.05	1160.92

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 22899.99

INPUT
Description:
Station Elevation Data num= 308

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6.39	1091.13	17.13	1088.01	26.85	1085.78	43.29	1080.64	47.32	1079.38
61.81	1075.14	67.79	1073.42	69.45	1073.23	88.26	1070.14	95.6	1070.06
108.72	1069.94	121.76	1069.93	129.19	1069.93	147.92	1069.94	149.66	1069.94
155.91	1069.95	170.13	1069.98	174.07	1070.01	190.59	1070.13	200.23	1070.2
211.06	1070.29	218.02	1070.21	223.6	1070.14	231.53	1070.04	250.01	1068.11
252	1067.89	252.54	1067.86	272.47	1066.36	278.7	1066.26	292.93	1066.05
304.86	1065.89	313.4	1065.79	331.01	1065.62	333.87	1065.59	344.11	1065.6
352.5	1065.6	354.34	1065.61	357.17	1065.62	374.8	1065.66	383.33	1065.68
395.27	1065.7	409.49	1065.73	415.74	1065.74	435.64	1065.8	436.21	1065.8
436.57	1065.8	438.22	1065.81	453.37	1065.84	456.67	1065.86	461.8	1065.86
477.14	1065.88	487.96	1065.87	497.61	1065.86	514.11	1065.78	518.08	1065.77

532.32	1065.61	537.43	1065.55	538.54	1065.54	554.24	1065.35	559.01	1065.3
566.42	1065.28	579.48	1065.23	592.58	1065.33	599.95	1065.39	604.68	1065.44
620.41	1065.59	626.42	1065.65	640.88	1065.77	644.9	1065.8	661.35	1065.93
671.05	1065.99	681.82	1066.07	697.21	1066.16	702.28	1066.19	705.54	1066.21
720.52	1066.28	722.35	1066.29	722.75	1066.3	739.16	1066.35	743.22	1066.37
749.52	1066.4	763.69	1066.44	775.68	1066.5	784.16	1066.53	801.84	1066.63
804.62	1066.65	814.62	1066.7	823.22	1066.74	825.09	1066.75	828	1066.76
845.56	1066.85	854.16	1066.89	866.03	1066.96	873.65	1067.02	886.49	1067.12
890.47	1067.16	906.96	1067.38	908.73	1067.4	927.43	1067.66	932.62	1067.73
947.9	1067.91	957.71	1068.03	968.36	1068.17	984.93	1068.54	988.83	1068.61
1002.83	1069.01	1009.3	1069.19	1011.09	1069.24	1029.77	1069.69	1037.25	1069.84
1050.23	1070.09	1063.41	1070.27	1070.7	1070.38	1089.56	1070.84	1091.17	1070.87
1096.93	1071.09	1109.01	1071.52	1111.64	1071.64	1115.72	1071.75	1132.1	1072.2
1141.88	1072.36	1152.57	1072.56	1168.04	1073.12	1173.04	1073.27	1176.25	1073.48
1191.03	1074.97	1193.06	1075.16	1193.51	1075.21	1209.87	1077.02	1213.97	1077.57
1220.35	1077.72	1226.96	1078.07	1234.44	1078.46	1246.5	1078.72	1254.91	1078.89
1272.66	1079.28	1275.38	1079.32	1285.13	1079.51	1295.85	1079.71	1310.74	1079.91
1316.31	1079.97	1324.97	1080.07	1336.78	1080.18	1351.13	1080.31	1357.25	1080.36
1377.29	1080.48	1377.72	1080.49	1379.24	1080.49	1398.19	1080.59	1403.44	1080.66
1418.65	1080.81	1429.6	1080.96	1439.12	1081.08	1455.76	1081.27	1459.59	1081.32
1473.34	1081.46	1480.06	1081.53	1481.92	1081.54	1500.52	1081.74	1508.07	1081.81
1520.99	1081.95	1529.28	1082.04	1541.46	1082.15	1546.09	1082.2	1561.93	1082.35
1567.44	1082.39	1579.72	1082.48	1582.39	1082.5	1596.53	1082.5	1602.86	1082.5
1613.34	1082.49	1623.33	1082.48	1638.85	1082.65	1643.8	1082.7	1661.54	1083.07
1663.77	1083.11	1664.26	1083.12	1680.59	1083.5	1684.73	1083.57	1697.4	1083.73
1705.2	1083.83	1714.2	1083.9	1725.67	1084.02	1743.48	1084.15	1746.13	1084.17
1755.64	1084.22	1764.64	1084.27	1766.6	1084.28	1769.64	1084.29	1787.07	1084.38
1795.8	1084.46	1807.54	1084.55	1821.96	1084.72	1828	1084.79	1848.11	1085.07
1848.47	1085.07	1849.75	1085.09	1865.51	1085.34	1868.94	1085.39	1882.32	1085.59
1889.41	1085.69	1899.13	1085.8	1909.88	1085.92	1915.94	1085.95	1930.34	1086.04
1943.85	1086.11	1950.81	1086.15	1952.73	1086.16	1971.28	1086.28	1983.18	1086.35
1991.75	1086.42	2005.05	1086.51	2012.21	1086.55	2016.81	1086.58	2032.68	1086.68
2033.62	1086.68	2037.95	1086.71	2050.43	1086.78	2053.15	1086.8	2057.37	1086.82
2073.62	1086.93	2084.05	1087.01	2094.08	1087.07	2109.68	1087.2	2114.55	1087.25
2117.67	1087.28	2132.05	1087.42	2134.49	1087.44	2135.02	1087.44	2151.3	1087.6
2155.49	1087.65	2161.99	1087.71	2175.95	1087.84	2188.15	1087.96	2196.42	1088.04
2201.73	1088.09	2216.89	1088.25	2218.54	1088.27	2226.15	1088.35	2235.35	1088.45
2237.36	1088.48	2252.17	1088.64	2257.82	1088.71	2266.63	1088.8	2278.29	1088.93
2285.78	1089.01	2298.76	1089.13	2302.6	1089.16	2319.23	1089.28	2319.41	1089.28
2320.26	1089.29	2339.69	1089.38	2353.03	1089.46	2360.16	1089.5	2371.25	1089.62
2380.63	1089.72	2386.65	1089.79	2401.1	1089.97	2414.36	1090.1	2421.57	1090.17
2437.09	1090.29	2442.03	1090.33	2453.89	1090.44	2462.5	1090.5	2475.88	1090.63
2482.97	1090.71	2487.52	1090.76	2503.44	1090.93	2504.33	1090.93	2508.46	1090.97
2523.9	1091.11	2537.96	1091.18	2544.37	1091.23	2554.76	1091.28	2564.84	1091.35
2580.51	1091.47	2585.31	1091.51	2588.39	1091.54	2602.56	1091.66	2605.2	1091.68
2605.77	1091.69	2622	1091.83	2626.24	1091.86	2638.82	1091.96	2646.71	1092.02
2655.63	1092.08	2667.18	1092.17	2685.13	1092.27	2687.64	1092.29	2696.66	1092.35
2706.07	1092.41	2708.11	1092.42	2722.87	1092.58	2728.58	1092.63	2739.68	1092.79
2749.05	1092.91	2756.5	1092.97	2769.51	1093.09	2773.31	1093.08	2789.98	1093.09
2790.12	1093.09	2790.77	1093.09	2810.45	1093.07	2815.92	1093.09	2830.92	1093.13
2842.07	1093.32	2851.38	1093.47	2866.73	1093.79				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6.39	.03	223.6	.03	1226.96	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
223.6	1226.96	205.15	200	151	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1089.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1089.35	Reach Len. (ft)	205.15	200.00	151.00
Crit W.S. (ft)		Flow Area (sq ft)	3403.68	21708.22	5604.15
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	3403.68	21708.22	5604.15
Q Total (cfs)	4202.37	Flow (cfs)	450.44	3521.67	230.26
Top Width (ft)	2321.14	Top Width (ft)	211.09	1003.36	1106.69
Vel Total (ft/s)	0.14	Avg. Vel. (ft/s)	0.13	0.16	0.04
Max Chl Dpth (ft)	24.12	Hydr. Depth (ft)	16.12	21.64	5.06
Conv. Total (cfs)	9958871.0	Conv. (cfs)	1067460.0	8345744.0	545667.3
Length Wtd. (ft)	197.73	Wetted Per. (ft)	213.63	1003.86	1106.77
Min Ch El (ft)	1065.23	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.28	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1229.94	6460.61	8787.72
C & E Loss (ft)		Cum SA (acres)	90.34	284.42	1157.54

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 22699.99

INPUT
Description:
Station Elevation Data num= 294

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6.9	1090.39	8.68	1089.93	27.64	1084.63	34.86	1082.43	48.39	1078.35
63.51	1074.19	69.14	1072.59	83.9	1070.58	89.89	1069.87	104.85	1069.73
110.63	1069.67	121.11	1069.66	131.38	1069.64	149.46	1069.56	152.13	1069.55
159.12	1069.54	172.87	1069.54	178.1	1069.58	193.62	1069.71	202.42	1069.78
214.37	1069.76	222.18	1069.53	234.34	1069.16	234.94	1069.15	235.11	1069.13
235.4	1069.1	255.86	1066.78	267.47	1066.05	276.61	1065.82	283.72	1065.71
297.36	1065.58	309.55	1065.51	318.1	1065.45	321.35	1065.45	338.85	1065.45
350	1065.46	359.59	1065.46	378.65	1065.44	380.34	1065.44	384.77	1065.42
401.09	1065.37	407.29	1065.36	421.83	1065.31	435.94	1065.29	442.58	1065.27
459.99	1065.23	463.33	1065.22	464.6	1065.21	484.08	1065.11	493.25	1065.06
504.82	1065.02	521.9	1065	525.57	1065.03	535.21	1065.17	546.32	1065.33
550.54	1065.39	567.06	1065.64	576.43	1065.74	587.81	1065.89	592.7	1065.93
608.56	1066.04	608.95	1066.04	610.42	1066.05	625.22	1066.12	629.3	1066.14
636.49	1066.2	650.05	1066.3	665.13	1066.4	670.8	1066.44	685.64	1066.47
690.27	1066.48	691.54	1066.48	693.79	1066.48	712.29	1066.48	722.44	1066.5
733.04	1066.52	751.09	1066.6	753.79	1066.61	760.86	1066.66	771.58	1066.72
774.53	1066.74	787.83	1066.83	795.28	1066.87	808.38	1066.96	816.03	1067.02
836.08	1067.18	836.77	1067.18	852.88	1067.32	857.52	1067.36	869.14	1067.47
878.27	1067.55	894.33	1067.69	899.01	1067.73	911.3	1067.86	919.76	1067.95
934.19	1068.1	940.51	1068.16	950.44	1068.26	961.25	1068.35	980.28	1068.56
982	1068.58	986.5	1068.66	999.23	1068.88	1002.75	1068.95	1008.93	1069.16
1023.49	1069.53	1037.57	1069.93	1044.24	1070.07	1061.72	1070.7	1064.99	1070.83
1066.22	1070.91	1085.73	1072.1	1096.8	1073.06	1106.48	1073.74	1113.06	1074.28
1127.23	1074.77	1136.94	1075.08	1147.97	1075.38	1152.17	1075.54	1168.72	1076.24

```
1180.82 1077.06 1189.47 1077.51 1207.73 1078.44 1209.47 1078.53 1210.22 1078.55
1210.63 1078.56 1212.16  1078.6 1230.96 1079.14 1238.12 1079.27 1251.71  1079.5
1266.77  1079.7 1272.46 1079.77 1287.37 1079.93  1293.2    1080 1295.41 1080.02
1313.95 1080.18 1324.07 1080.29  1334.7 1080.38 1352.72 1080.58 1355.44  1080.6
1362.59 1080.68 1376.19 1080.81 1381.37 1080.86 1396.94 1081.01 1405.77 1081.11
1417.69 1081.22 1422.03 1081.27 1437.81  1081.4  1438.3 1081.41 1438.43 1081.41
1454.55 1081.52 1459.18 1081.55 1470.82 1081.63 1479.93 1081.69 1495.96 1081.83
1500.67 1081.87 1513.03 1081.98 1521.42 1082.01  1524.6 1082.06 1542.17 1082.19
1552.13 1082.27 1562.91 1082.37 1568.39  1082.4 1583.66 1082.35 1708.14 1082.86
1725.15 1083.21 1728.89 1083.37 1738.68 1083.46 1749.63 1083.57 1763.53 1083.67
1770.38 1083.73 1779.79 1083.79 1791.13 1083.89  1811.1 1084.03 1811.88 1084.04
 1813.9 1084.05 1828.57  1084.2 1832.62 1084.26 1844.83  1084.4 1853.37 1084.51
 1861.1 1084.62 1874.12  1084.8 1877.35 1084.85 1889.12 1085.04 1893.62 1085.09
1894.86 1085.12 1897.04 1085.15 1915.61 1085.41 1925.69  1085.5 1936.36 1085.61
1954.34  1085.7  1957.1 1085.72 1958.66 1085.74 1964.33 1085.77 1974.93 1085.84
1977.85 1085.86 1991.18 1085.97  1998.6 1086.03 2007.44 1086.11 2019.34 1086.21
2023.71 1086.24 2039.55 1086.36 2040.09 1086.36 2040.29 1086.36 2060.84 1086.52
 2072.5 1086.61 2081.59 1086.69 2097.59 1086.84 2102.33 1086.88 2105.02  1086.9
2114.77    1087 2121.27 1087.06 2123.08 1087.08 2126.24 1087.11 2143.83 1087.28
2154.88 1087.38 2164.57 1087.48 2183.54 1087.67 2185.32 1087.68 2186.33 1087.69
2189.99 1087.73 2202.58 1087.85 2206.06 1087.88 2218.84 1087.99 2226.81 1088.05
2240.84 1088.15 2247.56  1088.2 2251.37 1088.23  2265.2 1088.33 2268.31 1088.36
2269.48 1088.37 2289.05 1088.56 2298.13 1088.67  2309.8  1088.8 2316.42 1088.88
2330.55 1089.03 2340.42 1089.12 2348.94 1089.19 2351.29 1089.21  2365.2 1089.32
2372.04 1089.38 2384.07 1089.49 2392.79 1089.58 2397.73 1089.64 2413.53 1089.83
2413.98 1089.83 2415.63 1089.85 2430.25 1090.02 2434.28 1090.06 2441.38 1090.13
2455.03 1090.25 2462.77 1090.31 2475.77 1090.41 2490.85 1090.53 2496.52 1090.57
2511.55 1090.68 2517.27 1090.72 2527.82 1090.81 2538.02 1090.88 2544.07 1090.93
2558.76 1091.04 2560.34 1091.05 2566.07  1091.1 2579.51 1091.21 2592.86 1091.33
2600.26 1091.39 2609.13 1091.48    2621 1091.57 2625.38 1091.62 2641.28 1091.77
2641.65 1091.77 2641.75 1091.77 2641.92 1091.77  2662.5 1091.97 2674.17 1092.06
2683.24 1092.15 2690.43 1092.21 2703.99 1092.35 2706.69 1092.38  2716.5 1092.48
2722.95 1092.55 2724.74 1092.57 2739.22 1092.72 2745.48 1092.77 2755.47 1092.86
2766.23 1092.88 2771.74 1092.93 2786.98 1093.01 2791.72 1093.06 2807.72 1093.22
2820.53 1093.41 2828.47 1093.55 2842.46 1093.85 2848.41 1093.96

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
     6.9     .03  222.18     .03 1207.73    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        222.18 1207.73            199.92     200  202.49              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**************************************************************************************
* E.G. Elev (ft)          * 1089.35  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.35  * Reach Len. (ft)         *  199.92  *  200.00  *  202.49  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3473.28  *21162.15  * 6036.86  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3473.28  *21162.15  * 6036.86  *
* Q Total (cfs)           * 4147.00  * Flow (cfs)              *  466.87  * 3426.90  *  253.23  *
* Top Width (ft)          * 2358.22  * Top Width (ft)          *  211.44  *  985.55  * 1161.24  *
* Vel Total (ft/s)        *    0.14  * Avg. Vel. (ft/s)        *    0.13  *    0.16  *    0.04  *
* Max Chl Dpth (ft)       *   24.35  * Hydr. Depth (ft)        *   16.43  *   21.47  *    5.20  *
* Conv. Total (cfs)       *9796191.0 * Conv. (cfs)             *1102864.0 *8095140.0 *598187.2 *
* Length Wtd. (ft)        *  200.15  * Wetted Per. (ft)        *  213.98  *  985.99  * 1161.30  *
* Min Ch El (ft)          * 1065.00  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.30  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1213.75  * 6362.20  * 8767.54  *
* C & E Loss (ft)         *          * Cum Sh (acres)          *   89.34  *  279.85  * 1153.61  *
**************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 22499.99

INPUT
Description: CP-Z
Station Elevation Data     num=     295
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
       0 1088.97   13.52 1088.77   26.21 1084.94   34.26 1082.48   54.81 1076.36
   55.01  1076.3   55.11 1076.27    55.5 1076.18   71.38  1072.2   75.75 1071.19
   83.42 1070.83   96.49 1069.73  103.92 1069.54  117.23 1069.35  120.19 1069.33
  130.94  1069.3  137.97 1069.29  140.63  1069.3  158.72 1069.36  169.24 1069.41
  179.46 1069.46  197.85 1069.55   200.2 1069.56  206.39 1069.52   217.8 1069.46
  220.94 1069.39  222.31 1069.33  234.07  1068.8  241.68 1068.17  255.05 1066.83
  262.43 1066.02  266.61 1065.81  281.84 1065.39  282.88 1065.36  283.17 1065.35
  299.15 1065.19  303.91 1065.16  312.27 1065.18  324.65 1065.19  340.87 1065.28
  345.39 1065.31  347.96 1065.32  357.29 1065.37  364.23  1065.4  366.14 1065.41
  369.49 1065.42  386.88 1065.45  398.09 1065.46  407.62 1065.47   426.7 1065.45
  428.36 1065.45  429.31 1065.45  432.74 1065.44  445.57 1065.43  449.11 1065.43
  461.84 1065.46  469.85 1065.47  483.91 1065.52  490.59 1065.55  508.19 1065.64
  511.33 1065.66  512.52 1065.67  532.07  1065.8  541.13 1065.85  552.82 1065.92
  569.73    1066  573.56 1066.02  583.64 1066.05   594.3 1066.08  598.34  1066.1
  615.04 1066.14  626.94 1066.18  635.78 1066.21  655.55 1066.27  656.53 1066.27
  659.09 1066.28  673.35 1066.35  677.27 1066.37  689.61 1066.44  698.01 1066.48
  712.76 1066.49  718.75 1066.52  734.54 1066.45  739.49 1066.43  741.37 1066.42
  760.24 1066.38  770.96 1066.42  780.98 1066.46  787.23 1066.52  801.72 1066.61
  809.99 1066.67  822.46 1066.79  836.04 1066.88  843.21 1066.92  855.79 1066.98
  863.95 1067.02   884.4 1067.19  884.69 1067.19  885.44  1067.2  905.43  1067.5
  913.01 1067.63  926.17 1067.85  941.61 1068.11  946.92  1068.2  960.87 1068.44
  967.66 1068.56  982.46  1068.8   988.4  1068.9  998.73 1069.09 1009.14 1069.28
 1027.43 1069.63 1029.88 1069.67 1036.32 1069.78 1050.63    1070 1056.04 1070.17
 1071.37 1070.58 1080.08 1071.03 1092.11 1071.84 1111.77 1073.45 1112.85 1073.55
 1113.26 1073.58 1133.59 1075.36 1141.86 1075.86 1154.33 1076.91 1170.46 1077.42
 1175.08 1077.51 1179.34 1077.61 1187.22  1077.8 1193.96 1077.98 1195.82 1078.02
 1210.24 1078.34 1216.56 1078.44 1227.68 1078.59  1237.3 1078.73 1256.28 1078.94
 1258.04 1078.96 1262.67 1079.01 1278.79 1079.19  1284.9 1079.26 1299.53 1079.43
 1307.85 1079.52 1320.27 1079.65 1338.12 1079.82 1341.01 1079.85  1342.1 1079.86
 1361.75 1080.04 1370.71 1080.12  1382.5 1080.23 1399.32 1080.38 1403.24 1080.42
 1413.57 1080.51 1423.98 1080.62 1427.92 1080.66 1444.72 1080.82 1456.53 1080.94
 1465.47 1081.02 1485.14 1081.21 1486.21 1081.22 1489.02 1081.25 1503.08 1081.39
 1506.95 1081.42 1519.34 1081.56 1527.69 1081.64 1542.35 1081.84 1548.43 1081.92
 1564.47 1082.17 1568.16 1082.22 1569.18 1082.24 1584.42 1082.42 1589.92  1082.5
 1600.69 1082.58 1610.66  1082.7 1628.17 1082.83  1631.4 1082.85 1639.92 1082.89
 1652.14 1082.94 1656.78 1082.95 1672.89 1083.02 1685.38 1083.08 1693.63 1083.12
 1713.99 1083.26 1714.37 1083.26 1715.36 1083.27 1735.11 1083.44 1742.59 1083.51
 1755.85 1083.65  1771.2 1083.81  1776.6 1083.87 1790.81 1084.02 1795.93 1084.07
 1797.34 1084.08  1812.2 1084.19 1818.08 1084.25 1828.46 1084.33 1838.82 1084.42
 1857.02 1084.62 1859.56 1084.64 1861.01 1084.66 1866.25 1084.72 1880.31  1084.9
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1893.54 1085.03 1901.05 1085.11 1914.23 1085.21 1921.79 1085.26 1926.08  1085.3
 1941.7  1085.4 1942.35  1085.4 1942.53  1085.4 1958.62 1085.56 1963.28 1085.59
1971.45 1085.67 1984.02 1085.81 1991.16 1085.88 2004.76 1086.03 2017.15 1086.14
 2025.5 1086.21 2039.97 1086.33 2046.24 1086.39 2056.24  1086.5 2066.99 1086.61
 2072.5 1086.68 2087.73 1086.87 2088.78 1086.88  2092.6 1086.93 2105.05 1087.07
2108.47 1087.11 2121.31 1087.24 2129.21 1087.33 2137.58 1087.41 2149.95 1087.53
2153.85 1087.57 2168.05 1087.68 2170.13  1087.7  2170.7  1087.7 2171.69 1087.71
2191.44 1087.86 2202.66 1087.95 2212.18 1088.01 2228.91 1088.12 2232.92 1088.14
 2235.2 1088.15  2243.5 1088.21 2251.46 1088.25 2253.66 1088.26 2267.74 1088.37
2274.41 1088.42 2286.12 1088.51 2295.15 1088.59 2314.73 1088.74 2315.89 1088.75
2318.95 1088.77 2332.82 1088.86 2336.63 1088.89 2349.09 1088.97 2357.37 1089.04
2365.35 1089.11 2378.11  1089.2  2394.4  1089.3 2398.86 1089.36 2400.55 1089.38
 2419.6 1089.62 2430.43 1089.71 2440.34 1089.86 2457.76 1090.13 2461.08 1090.18
2469.85 1090.31 2479.23 1090.41 2481.83 1090.44 2486.36 1090.49 2502.57 1090.65
2511.78 1090.75 2523.31 1090.88 2528.05 1090.93 2544.05  1091.1 2544.31 1091.11
2545.29 1091.12 2560.58 1091.24 2564.79 1091.27 2576.86 1091.36 2585.54 1091.43
2600.79 1091.54 2606.28 1091.57 2620.74 1091.68 2625.66 1091.72 2627.02 1091.74
2641.93 1091.85 2647.76 1091.91  2658.2 1091.99  2668.5 1092.08 2674.47 1092.14
2689.25 1092.31 2696.18 1092.43 2707.01 1092.61 2709.99 1092.66 2711.13 1092.68

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
       0     .03   222.31     .03 1179.34     .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        222.31 1179.34            200.05     200  583.08              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.35  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *    0.030 *    0.030 *    0.045 *
* W.S. Elev (ft)          * 1089.35  * Reach Len. (ft)         *   200.05 *   200.00 *   583.08 *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3512.07 *20846.68 * 6521.79 *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3512.07 *20846.68 * 6521.79 *
* Q Total (cfs)           * 4042.02  * Flow (cfs)              *  448.05 * 3322.16 *  271.81 *
* Top Width (ft)          * 2398.42  * Top Width (ft)          *  222.31 *  957.03 * 1219.08 *
* Vel Total (ft/s)        *    0.13  * Avg. Vel. (ft/s)        *    0.13 *    0.16 *    0.04 *
* Max Chl Dpth (ft)       *   24.19  * Hydr. Depth (ft)        *   15.80 *   21.78 *    5.35 *
* Conv. Total (cfs)       *9795451.0  * Conv. (cfs)            *1085804.0 *8050941.0 *658706.8 *
* Length Wtd. (ft)        *  258.93  * Wetted Per. (ft)        *  225.21 *  957.49 * 1219.14 *
* Min Ch El (ft)          * 1065.16  * Shear (lb/sq ft)        *    0.00 *    0.00 *    0.00 *
* Alpha                   *    1.33  * Stream Power (lb/ft s)  *    0.00 *    0.00 *    0.00 *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1197.72 * 6265.76 * 8738.35 *
* C & E Loss (ft)         *          * Cum SA (acres)          *   88.35 *  275.39 * 1148.07 *
*****************************************************************************************

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: FRS
REACH: FRS1                RS: 22299.99

INPUT
Description:
Station Elevation Data    num=     303
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************************
       0 1090.34    5.83 1089.74   20.28 1086.67   28.68  1084.1   41.02 1080.36
   45.71 1079.05   61.77 1074.33   74.35 1071.97   82.51 1070.26  102.99 1069.99
  103.26 1069.98  103.41 1069.98  103.97 1069.98  124.01 1069.98  131.62 1070.01
  144.75 1070.06  160.26 1070.19   165.5 1070.24  179.25 1070.39  186.24 1070.46
   188.9 1070.48  206.99 1070.66  217.54 1070.57   224.5 1070.49  227.73 1070.45
  246.17 1068.07  248.48 1067.82  254.54 1067.25  266.05 1066.17  269.22 1065.95
  282.31 1065.46  289.97 1065.27  298.58 1065.18  310.71  1065.1  314.83 1065.08
  329.82 1065.08  331.46 1065.08  332.08 1065.08  352.21 1065.05  360.71 1065.09
  372.95 1065.11  389.35  1065.3   393.7 1065.35  405.11 1065.51  414.44 1065.63
  417.99 1065.67  435.19  1065.9  444.95    1066  455.93 1066.08  475.26 1066.29
  476.68  1066.3  480.39 1066.39  559.66  1067.2  561.17 1067.22  580.41 1067.44
  591.32 1067.93  601.15 1068.34  607.58 1069.05   621.9 1070.67  630.96 1071.46
  640.11 1072.24  642.64 1072.46  647.08 1072.67  663.39 1073.44  675.72 1073.76
  684.13 1073.97  704.35 1074.35  704.88 1074.35  706.25 1074.37  710.46 1074.42
  725.62 1074.62  732.99 1074.71  746.37 1074.84  761.63    1075  767.11 1075.06
  781.53  1075.2  786.49 1075.25  787.86 1075.26  802.76 1075.39   808.6 1075.45
   818.9 1075.55  829.35 1075.65  847.53 1075.82   850.1 1075.84  856.82 1075.89
  870.84 1076.01  884.07 1076.11  891.59 1076.18  900.33 1076.26  912.33 1076.37
   916.6 1076.42   932.1 1076.57  932.86 1076.57  933.08 1076.57  949.12 1076.75
  953.82 1076.79  962.08 1076.85  974.57 1076.96  990.72 1077.07  995.31  1077.1
 1007.39 1077.18 1014.18 1077.23 1016.06 1077.24 1030.45 1077.36  1036.8 1077.41
 1046.71 1077.49 1057.55 1077.59 1062.98 1077.63  1078.3 1077.77 1079.24 1077.78
 1082.67 1077.81 1099.04 1077.94 1105.26    1078 1119.79 1078.13 1133.89 1078.28
 1140.53 1078.35 1157.96 1078.53 1161.28 1078.56 1162.53 1078.58 1182.02 1078.75
 1193.08 1078.82 1202.77  1078.9 1219.81 1079.02 1223.51 1079.04 1233.24 1079.11
 1244.26  1079.2 1248.44 1079.23 1265.01 1079.36 1277.08 1079.47 1285.75 1079.56
 1290.67 1079.61  1306.5 1079.77 1306.93 1079.77 1308.53 1079.79  1323.2 1079.93
 1327.24 1079.97 1334.36 1080.03 1347.99 1080.14 1362.99 1080.26 1368.73 1080.31
 1383.81 1080.44 1389.48 1080.49 1391.63 1080.51 1410.22 1080.69 1420.26 1080.78
 1430.97 1080.86  1448.9 1080.98 1451.71    1081  1459.1 1081.04 1472.46  1081.1
 1477.53 1081.13  1493.2  1081.2 1506.17 1081.27 1513.95 1081.31 1518.36 1081.34
 1534.38 1081.43 1534.62 1081.43 1534.69 1081.43 1550.89 1081.55 1555.44 1081.57
 1567.15 1081.66 1576.19 1081.73 1592.08 1081.87 1596.93 1081.92 1599.68 1081.94
 1609.67 1082.05 1617.68 1082.13 1620.72 1082.15 1638.42  1082.3 1649.35 1082.35
 1659.17  1082.4 1677.99 1082.49 1679.91  1082.5 1684.95 1082.54 1700.66 1082.67
 1706.62 1082.73  1721.4  1082.9 1729.79 1082.99 1742.15 1083.11 1760.24 1083.26
 1762.31 1083.27 1762.89 1083.28 1778.58 1083.42 1783.64 1083.46 1794.84 1083.61
 1804.39 1083.73 1811.11 1083.83 1825.13 1084.04 1827.37 1084.07 1835.52 1084.18
 1845.88 1084.31  1859.9 1084.42 1866.62 1084.47 1876.17 1084.53 1887.37  1084.6
 1907.08 1084.71 1908.11 1084.72 1910.81 1084.74 1924.96 1084.82 1928.86 1084.84
 1941.22 1084.91  1949.6 1084.97 1957.49 1085.01 1970.35  1085.1 1973.75 1085.12
  1986.1 1085.21  1991.1 1085.25 1992.99 1085.28 2011.84 1085.46 2022.53 1085.57
 2032.59  1085.7  2038.8 1085.74 2053.33 1085.89 2061.38 1085.93 2074.08 1086.02
 2087.59 1086.13 2094.82 1086.18 2103.86 1086.31 2115.57 1086.41 2136.17 1086.73
 2136.31 1086.73 2136.67 1086.73 2152.65 1086.98 2157.06 1087.03 2168.92 1087.14
  2177.8 1087.22 2185.18 1087.27 2198.55 1087.38 2201.44  1087.4 2211.95 1087.49
 2219.29 1087.56 2233.97 1087.69 2240.04 1087.76 2250.24 1087.87 2260.78    1088
 2266.49 1088.09 2281.53  1088.3 2287.24 1088.38 2302.28 1088.57 2315.28  1088.7
 2323.02 1088.76 2331.55 1088.82 2343.77 1088.89 2362.52 1089.04 2364.51 1089.05
 2365.26 1089.06 2385.26 1089.27  2393.9 1089.38    2406 1089.53 2412.87 1089.63
 2426.75 1089.84 2429.14 1089.88 2437.81 1090.02  2445.4 1090.14 2447.49 1090.17
 2451.18 1090.22 2468.24 1090.45 2477.93 1090.53 2488.98 1090.63 2494.19 1090.67
```

```
 2509.73 1090.79 2510.46 1090.79 2513.09 1090.82 2526.72 1090.94 2530.48 1090.97
 2542.98  1091.1 2551.22 1091.18 2565.72  1091.3 2571.97 1091.35  2575.5 1091.37
 2588.38 1091.41 2592.71 1091.42 2608.03 1091.44 2613.46 1091.46 2622.99  1091.5
  2634.2 1091.54 2651.63 1091.58 2654.95 1091.59 2656.83 1091.59 2663.66 1091.61
 2673.09 1091.63  2675.7 1091.63 2680.27 1091.64 2696.44 1091.65 2705.62 1091.69
 2717.19 1091.66 2721.88 1091.71 2737.93 1091.76 2738.15 1091.77 2738.95 1091.78
 2754.41 1092.03 2758.68 1092.08 2770.68 1092.19 2779.42 1092.27 2786.94 1092.37
 2800.17 1092.56 2803.21 1092.58 2814.23 1092.66 2819.46  1092.7 2820.91 1092.71
 2835.72 1092.73 2841.66 1092.75 2841.82 1092.75

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
       0     .03   224.5     .03  710.46    .045

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
          224.5  710.46            198.14     200  219.92            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.36  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.36  * Reach Len. (ft)         *  198.14  *  200.00  *  219.92  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3453.14  *10524.10  *12784.06  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3453.14  *10524.10  *12784.06  *
* Q Total (cfs)           * 3983.67  * Flow (cfs)              *  633.74  * 2387.18  *  962.75  *
* Top Width (ft)          * 2384.29  * Top Width (ft)          *  216.86  *  485.96  * 1681.47  *
* Vel Total (ft/s)        *    0.15  * Avg. Vel. (ft/s)        *    0.18  *    0.23  *    0.08  *
* Max Chl Dpth (ft)       *   24.30  * Hydr. Depth (ft)        *   15.92  *   21.66  *    7.60  *
* Conv. Total (cfs)       *6753455.0  * Conv. (cfs)            *1074365.0  *4046948.0  *1632142.0  *
* Length Wtd. (ft)        *  204.78  * Wetted Per. (ft)        *  219.34  *  486.50  * 1681.55  *
* Min Ch El (ft)          * 1065.05  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.70  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1181.73  * 6193.74  * 8609.14  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   87.34  *  272.08  * 1128.66  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                 RS: 22099.99

INPUT
Description:
Station Elevation Data      num=      314
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
    8.67 1090.24   18.66 1087.47    29.3 1084.08   47.15 1078.52   49.93 1077.66
   51.58 1077.17   58.11 1075.46   70.57  1072.2    84.5 1070.11    91.2 1069.61
  102.44 1069.53  111.83  1069.5  130.08 1069.53  132.47 1069.55  139.46 1069.58
   153.1 1069.62  157.73 1069.65  173.73 1069.74  185.37  1069.8  194.37 1069.83
  213.02 1069.73     215 1069.73   220.8 1069.54  224.54 1069.38  235.63 1068.89
  240.67 1068.32  256.27 1066.32  268.32 1065.84   276.9  1065.4  295.96 1065.09
  297.53 1065.06  302.15 1065.04  318.17 1064.96  331.38    1065   338.8 1065.03
  347.84 1065.12  359.43 1065.22   378.9 1065.44  380.07 1065.45  383.48 1065.48
   400.7 1065.61  406.54 1065.63  421.33 1065.65  430.13 1065.64  441.97 1065.65
  446.59 1065.67   462.6 1065.76  464.83 1065.78  483.23 1066.03  489.49 1066.18
  503.87 1066.48  517.13 1066.91   524.5 1067.15  528.89 1067.31  545.13 1067.87
  545.34 1067.87  546.18  1067.9  565.77 1068.48  572.42 1068.82   586.4 1069.42
  600.07  1070.7  607.03  1071.3  611.17 1071.76  627.51 1073.18  627.67 1073.19
  627.71 1073.19  648.03    1074   648.3 1074.01  655.36  1074.1  668.93 1074.22
  683.01 1074.28  689.57 1074.27  693.47 1074.28  708.86 1074.28  709.92 1074.27
   710.2 1074.27  726.39  1074.3  730.83 1074.32   738.3 1074.36  751.47 1074.44
  765.94 1074.53   772.1 1074.57  775.76 1074.61   790.2 1074.69  792.74 1074.71
  793.59 1074.72  813.37 1074.86  825.14 1074.97     834 1075.01   841.6  1075.1
  854.64 1075.17  858.05 1075.22  871.55 1075.36  875.27 1075.41  890.97 1075.64
   895.9  1075.7  904.18 1075.81  916.54 1075.97  923.89 1076.06  937.17 1076.23
  940.35 1076.26  952.89 1076.38   957.8 1076.43  973.27 1076.53  978.44 1076.56
  989.72 1076.65  999.07 1076.69 1014.76  1076.8  1019.7 1076.84 1022.64 1076.87
 1034.23 1076.97 1040.34 1077.04 1042.41 1077.07 1060.97 1077.31 1072.02  1077.5
  1081.6 1077.66 1088.48 1077.77 1102.24 1077.99 1115.58 1078.14  1121.4 1078.21
 1122.87 1078.22 1137.85 1078.37  1143.5  1078.4  1154.3  1078.5 1164.14 1078.57
 1170.77 1078.63 1184.77 1078.74 1196.91 1078.85 1205.41 1078.93 1220.14 1079.08
 1226.04 1079.14  1236.6 1079.26 1246.67 1079.37 1253.06 1079.44 1267.31 1079.58
 1269.51  1079.6 1278.26 1079.67 1287.94 1079.74 1302.43 1079.86 1308.57  1079.9
 1318.87 1079.99  1329.2 1080.08 1335.35 1080.14 1349.84 1080.28 1359.61 1080.37
 1368.26 1080.45 1370.47 1080.47 1384.73 1080.59  1391.1 1080.64  1401.8 1080.73
 1411.74 1080.83 1417.64  1080.9 1432.37 1081.07 1434.11 1081.09 1440.94 1081.19
    1453 1081.35 1467.02 1081.53 1473.64 1081.61 1483.48 1081.69 1494.27 1081.81
 1512.39 1081.94  1514.9 1081.95 1516.39 1081.96 1522.29 1081.99 1532.86 1082.04
 1535.54 1082.05 1549.31  1082.1 1556.17 1082.13 1565.77 1082.19  1576.8 1082.25
 1582.23  1082.3 1597.44 1082.44 1603.63 1082.51 1615.14 1082.62 1618.07 1082.65
 1631.61 1082.76  1638.7 1082.83 1650.62 1082.93 1659.34 1082.99 1664.52 1083.01
 1679.97 1083.11 1680.98 1083.11 1684.98 1083.12  1700.6 1083.16 1713.89  1083.2
 1721.24 1083.24 1730.36 1083.32 1741.87 1083.43 1761.21 1083.68 1762.51  1083.7
 1763.27 1083.71 1766.31 1083.75 1783.14 1083.95 1788.85 1083.99 1803.77 1084.11
 1816.49 1084.18 1824.41 1084.23 1844.14 1084.32 1845.04 1084.32 1845.57 1084.32
 1847.66 1084.33 1862.02 1084.37 1865.67 1084.39 1878.49 1084.44 1886.31 1084.48
 1894.94 1084.54 1906.94 1084.61  1911.4 1084.65 1927.57 1084.76 1927.86 1084.77
 1929.01 1084.78 1944.32 1084.89 1948.21 1084.92 1954.73 1084.96 1968.84 1085.07
 1977.24 1085.15 1989.47 1085.26 2010.01 1085.49 2010.11 1085.49 2010.15 1085.49
 2010.34 1085.49 2026.61 1085.69 2030.74 1085.73 2043.07 1085.86 2051.37 1085.93
 2065.31 1086.03 2072.01 1086.09 2091.69 1086.24 2092.45 1086.24 2092.64 1086.24
  2108.9 1086.36 2113.28 1086.38 2125.37 1086.47 2133.91 1086.53 2141.82 1086.59
 2154.54 1086.68 2173.03 1086.84 2175.18 1086.85  2175.9 1086.86 2195.81 1087.03
 2207.65 1087.13 2216.44 1087.21 2231.18 1087.32 2237.08 1087.37 2240.57  1087.4
 2254.38 1087.46 2257.03 1087.48 2257.71 1087.48 2273.49 1087.62 2278.34 1087.64
 2286.48 1087.67 2298.97 1087.74  2306.4 1087.78 2319.61 1087.76 2335.72 1087.82
 2339.33 1087.85 2340.24 1087.85 2341.77 1087.86 2360.87 1088.12 2369.42 1088.12
 2381.51 1088.23  2388.7 1088.28 2402.14 1088.58 2405.15  1088.6 2417.06  1088.8
 2421.62 1088.86 2422.78 1088.88 2438.08 1089.04 2443.41 1089.12 2454.53  1089.2
 2464.04 1089.35    2471 1089.42 2484.68 1089.62 2498.41 1089.89 2505.31    1090
 2520.37 1090.16 2525.94  1090.2 2536.83 1090.17 2546.58 1090.21 2553.28  1090.2
 2567.21 1090.32 2569.75 1090.32 2579.75 1090.42  2586.2 1090.44 2587.84 1090.46
 2602.66 1090.47 2608.48 1090.54 2618.24 1090.63 2629.11 1090.69 2645.89 1090.82
 2649.74 1090.86 2652.03 1090.88 2661.09 1090.94 2668.49 1090.97 2670.38 1090.98
 2673.53 1091.01 2691.01 1091.13 2701.17 1091.24 2711.64 1091.35 2717.87 1091.43
 2732.28 1091.65 2742.43 1091.78 2752.91  1091.9 2756.47 1091.91 2773.55 1091.95
 2783.71 1091.97 2794.18 1091.96 2811.76 1091.97 2814.81 1091.98 2816.62    1092
 2823.78 1092.09 2833.08 1092.21 2835.45 1092.23 2842.25 1092.49

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
```

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*********************************************
    8.67      .03  224.54      .03  648.03     .045

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.    Expan.
        224.54  648.03              202.64     200  190.98              .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.36  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.36  * Reach Len. (ft)         *  202.64  *  200.00  *  190.98  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3530.56  * 9412.23  *13875.22  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3530.56  * 9412.23  *13875.22  *
* Q Total (cfs)           * 3929.72  * Flow (cfs)              *  673.19  * 2196.64  * 1059.89  *
* Top Width (ft)          * 2452.78  * Top Width (ft)          *  212.68  *  423.49  * 1816.60  *
* Vel Total (ft/s)        *    0.15  * Avg. Vel. (ft/s)        *    0.19  *    0.23  *    0.08  *
* Max Chl Dpth (ft)       *   24.40  * Hydr. Depth (ft)        *   16.60  *   22.23  *    7.64  *
* Conv. Total (cfs)       *6588137.0 * Conv. (cfs)             *1128591.0 *3682646.0 *1776900.0 *
* Length Wtd. (ft)        *  197.97  * Wetted Per. (ft)        *  215.33  *  423.94  * 1816.60  *
* Min Ch El (ft)          * 1064.96  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.78  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1165.84  * 6147.97  * 8541.84  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   86.36  *  269.99  * 1119.83  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 21899.99

INPUT
Description:
Station Elevation Data     num=     322
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 1089.58   12.22 1089.29   23.35 1085.86   33.01 1082.88   38.38 1081.22
   53.81 1076.48   54.56 1076.27   57.21 1075.52   74.61 1070.76   81.54 1070.52
   95.41  1069.6  103.11 1069.58  116.2 1069.61  119.29 1069.62  130.15 1069.66
  135.48 1069.68     137 1069.69  139.72 1069.71   157.8 1069.84  168.82 1069.97
  178.59 1070.06  184.02 1070.12  199.39 1070.33  203.08 1070.31  220.19 1070.21
  225.08 1069.69     227 1069.48  240.99 1068.46   256.1 1066.58  261.78 1065.72
  264.94 1065.58  276.02  1065.1  282.58 1064.83  297.31  1064.7  303.38 1064.68
  314.29 1064.85  324.18 1064.97  343.37 1065.47  344.97 1065.51  348.96 1065.58
  365.77 1065.87  372.47 1065.94  386.57 1066.11  401.56 1066.23  407.36 1066.28
  421.89 1066.35  428.16 1066.39  430.66  1066.4  448.96  1066.5  459.74 1066.58
  469.76 1066.66  475.32 1066.71  490.55 1066.83   491.5 1066.84  494.83 1066.86
  511.35 1066.95  517.93 1066.97  532.15 1067.02  540.05 1067.03  552.94 1067.05
  556.23 1067.07  567.76 1067.26  573.74 1067.37  576.12 1067.54  594.54 1068.68
  605.21 1069.76  615.34 1070.75  620.96 1071.29  635.86 1072.59  636.13 1072.61
  637.14 1072.67   640.7 1072.83  653.32 1073.44  656.93 1073.57  669.51 1073.91
  677.73 1074.08  685.69 1074.23  698.52 1074.41  701.87 1074.45  713.63 1074.56
  719.32 1074.61  721.58 1074.63  740.12 1074.78  750.68 1074.86  760.92 1074.94
   766.6 1074.99  781.71  1075.1  782.79 1075.11  786.57 1075.13  802.51 1075.26
  815.16 1075.35  823.31 1075.42  831.34 1075.47   844.1 1075.57  859.51 1075.67
   864.9  1075.7  879.89 1075.79   885.7 1075.83  896.07 1075.89   906.5 1075.98
  912.25 1076.02   927.3 1076.17  928.44 1076.18  932.44 1076.22  944.62 1076.32
  948.09 1076.36   960.8 1076.45  968.89 1076.52  976.98 1076.57  989.69 1076.66
 1005.38 1076.78 1010.48 1076.82 1025.53 1076.97 1031.28 1077.02 1041.61 1077.12
 1052.08 1077.22 1057.89 1077.26 1072.88 1077.36 1074.08 1077.36 1078.31 1077.38
 1090.26 1077.43 1093.67 1077.45 1106.44 1077.54 1114.47 1077.56 1122.62 1077.66
 1135.27 1077.71 1138.81 1077.75 1151.25 1077.80 1154.99 1077.92 1156.06 1077.93
 1157.98 1077.95 1176.86 1078.21 1187.35 1078.33 1197.66  1078.5 1203.54 1078.57
 1218.46 1078.78 1219.72 1078.79 1224.18 1078.84 1239.25 1079.01 1252.08 1079.14
 1260.05 1079.21 1268.28 1079.29 1280.85 1079.41 1284.46 1079.44 1297.12 1079.56
 1300.63 1079.59 1301.64  1079.6 1303.44 1079.61 1322.44 1079.76 1333.01 1079.83
 1343.24 1079.89 1349.19 1079.93 1364.04 1080.03 1365.37 1080.04 1370.06 1080.08
 1381.55 1080.18 1384.83 1080.21 1390.72 1080.28 1405.63 1080.43 1413.92 1080.51
 1426.43 1080.64  1430.1 1080.67 1442.99 1080.78 1446.28 1080.81 1447.22 1080.82
 1448.91 1080.83 1468.02 1080.99 1476.65 1081.09 1488.92 1081.19 1494.83 1081.25
 1509.62  1081.4 1511.01 1081.41 1515.93 1081.46 1530.41  1081.6 1536.18 1081.65
 1551.21 1081.79 1565.28  1081.9 1572.01 1081.95 1588.86 1082.05 1591.93 1082.07
  1592.8 1082.07 1594.36 1082.08  1613.6 1082.17 1624.29 1082.22  1634.4 1082.27
 1640.47 1082.31  1655.2  1082.4 1656.66 1082.41  1661.8 1082.45 1672.84 1082.54
 1675.99 1082.57 1689.02 1082.71 1696.79  1082.8 1710.75 1082.98 1717.59 1083.08
 1721.39 1083.12 1734.74 1083.31 1737.57 1083.34 1738.38 1083.36 1753.76 1083.54
 1759.18 1083.61 1768.93 1083.71 1779.98 1083.82 1786.11 1083.86 1800.78 1083.95
 1802.31 1083.96 1807.67 1083.98 1818.49 1084.03 1821.57 1084.04 1827.12 1084.06
 1842.37 1084.15 1850.85 1084.23 1863.17 1084.32 1880.61  1084.5 1883.22 1084.53
 1883.97 1084.53  1899.4  1084.7 1904.76 1084.76 1915.58 1084.88 1925.56 1084.99
 1931.77 1085.05 1946.36 1085.22 1953.54 1085.29 1967.15 1085.44 1972.57  1085.5
 1987.95 1085.65 2001.67 1085.78 2008.75 1085.84 2012.68 1085.87 2026.48     1086
 2028.86 1086.02 2029.55 1086.02 2045.04 1086.17 2050.34 1086.22 2059.86 1086.32
 2071.14 1086.45 2077.41 1086.53 2091.94 1086.68 2093.89 1086.69 2099.41 1086.74
 2109.77 1086.82 2112.73 1086.84 2118.04 1086.86 2133.53 1086.94 2147.13 1087.04
 2154.33  1087.1 2172.35 1087.31 2175.13 1087.34 2190.69 1087.53 2195.92  1087.6
 2206.87 1087.71 2216.72 1087.81 2223.05 1087.86 2237.52 1087.97 2239.23 1087.98
 2245.28 1088.04 2255.42 1088.13 2258.31 1088.15  2263.5 1088.22 2279.11 1088.41
  2292.6 1088.58 2299.91 1088.66 2318.22 1088.86 2320.16 1088.88 2320.71 1088.88
 2336.34 1089.01  2341.5 1089.05 2352.51 1089.14  2362.3 1089.22  2368.7 1089.27
  2383.1 1089.41 2384.89 1089.42 2391.16 1089.47 2401.07 1089.53 2403.89 1089.56
 2417.25 1089.62 2424.69 1089.67 2433.43 1089.71 2445.49 1089.75 2464.09 1089.83
 2466.29 1089.83 2481.98 1089.91 2487.08 1089.94 2498.16    1090 2507.88 1090.06
 2514.35 1090.09 2528.68 1090.14 2530.53 1090.15 2537.03 1090.17 2546.71  1090.2
 2549.47 1090.21 2562.89 1090.28 2570.27 1090.32 2583.53 1090.45 2591.07 1090.52
 2609.96 1090.72 2611.44 1090.74 2611.87 1090.75 2627.62 1090.92 2632.66 1090.97
  2643.8 1091.08 2653.46 1091.16 2670.81 1091.25 2674.26 1091.27 2676.17 1091.29
  2682.9 1091.33 2692.35  1091.4 2695.06 1091.42  2699.9 1091.45 2715.85 1091.57
 2724.72 1091.62 2736.65 1091.67 2740.91 1091.69 2755.84 1091.79 2757.08 1091.79
 2757.45  1091.8 2758.08 1091.79 2778.24 1091.73 2789.46 1091.74 2799.04 1091.77
 2805.64 1092.11 2813.56  1092.6

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0     .03  225.08     .03  635.86     .045

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.    Expan.
        225.08  635.86              202.24     200  192.15              .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.36  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
```

```
* W.S. Elev (ft)          * 1089.36  * Reach Len. (ft)        *  202.24  *  200.00  *  192.15  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)      * 3516.69  * 9240.93  *13962.26  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)           * 3516.69  * 9240.93  *13962.26  *
* Q Total (cfs)           * 3877.00  * Flow (cfs)             *  652.19  * 2140.37  * 1084.44  *
* Top Width (ft)          * 2368.26  * Top Width (ft)         *  215.68  *  410.78  * 1741.79  *
* Vel Total (ft/s)        *    0.15  * Avg. Vel. (ft/s)       *    0.19  *    0.23  *    0.08  *
* Max Chl Dpth (ft)       *   24.68  * Hydr. Depth (ft)       *   16.30  *   22.50  *    8.02  *
* Conv. Total (cfs)       *6601627.0  * Conv. (cfs)           *1110522.0  *3644556.0  *1846549.0  *
* Length Wtd. (ft)        *  198.23  * Wetted Per. (ft)       *  218.45  *  411.28  * 1741.90  *
* Min Ch El (ft)          * 1064.68  * Shear (lb/sq ft)       *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.76  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)   * 1149.45  * 6105.15  * 8480.82  *
* C & E Loss (ft)         *          * Cum SA (acres)         *   85.36  *  268.08  * 1112.03  *
*****************************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 21699.99

INPUT
Description:
Station Elevation Data     num=     311
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
       0 1090.17    8.91 1089.01    16.2 1087.24    30.1 1083.18   37.15  1081.1
   52.67 1076.86    58.1 1075.35   60.55 1074.87   79.05 1070.69   91.01  1069.6
     100 1068.98  119.79 1068.28  120.67 1068.23  120.95 1068.23  136.64 1068.72
  141.91 1068.67  152.61 1068.52  162.86 1068.64  168.58 1068.51  183.81 1068.62
  184.54 1068.61  186.91 1068.76  204.76 1069.04  212.86 1069.01  222.38 1068.84
  225.71 1068.78  243.32 1067.43  246.67 1066.93  254.03 1066.39  267.62 1065.62
  280.35 1065.19  288.57 1065.04  296.31    1065  309.52 1065.04  321.14  1065.2
  330.47 1065.35   334.7 1065.42  351.43 1065.73  365.16 1065.92  372.38 1066.03
  388.26 1066.19  393.33 1066.24  408.09 1066.34  414.28 1066.38  426.09 1066.43
  435.23 1066.46  455.38 1066.51  455.99 1066.51  456.19 1066.51  456.54 1066.52
  477.14 1066.55     487  1066.6  498.09 1066.65  503.89 1066.71  519.04 1066.87
   522.5 1066.92  539.99 1067.14  547.92 1067.24  560.95  1067.4  578.39 1067.79
   581.9 1067.85  589.62 1068.31  602.85 1069.14  615.66 1070.26   623.8    1071
  631.63 1071.62  644.75 1072.52   647.6 1072.66   647.7 1072.66  656.73 1073.06
   665.7 1073.46  669.77 1073.58  686.66 1074.16  700.23 1074.41  707.61 1074.59
  723.85 1074.83  727.44 1074.88  728.56  1074.9   743.4 1075.09  749.51 1075.16
  759.37 1075.27  770.46 1075.39  775.33 1075.43  780.96 1075.58   791.3 1075.58
  791.41 1075.58  791.61 1075.59  812.37 1075.77  822.07 1075.86  833.32 1075.96
  852.53 1076.13  854.27 1076.15  855.17 1076.15  858.08 1076.17  871.14 1076.24
  875.22 1076.26  887.11 1076.28  896.17  1076.3  913.46 1076.34  917.12 1076.35
  919.04 1076.37   925.2 1076.41  938.08 1076.48  943.91 1076.51  959.03 1076.63
  974.38 1076.76  979.98 1076.82  982.92 1076.85  992.31 1076.96  998.88 1077.05
 1000.93 1077.08 1014.84 1077.27 1021.88 1077.37 1030.81 1077.46 1042.84 1077.58
 1059.43  1077.7 1063.79 1077.74 1078.72 1077.84 1084.74 1077.88 1094.68 1077.93
 1105.69 1077.97 1126.55 1078.05 1126.65 1078.05 1142.59 1078.12  1147.6 1078.15
 1158.56 1078.21 1168.55 1078.27 1174.52 1078.32  1189.5 1078.47 1190.48 1078.48
 1193.67 1078.52 1206.45 1078.71 1210.45 1078.76 1218.06 1078.82  1231.4 1078.96
 1248.52 1079.01 1252.36 1079.02 1260.79 1079.06 1273.31 1079.12 1278.98 1079.16
 1294.26 1079.28 1309.45 1079.41 1315.21 1079.46  1327.9 1079.57 1334.19 1079.64
 1336.16 1079.66 1350.16 1079.81 1357.11 1079.88 1366.12 1079.98 1378.07 1080.12
  1382.1 1080.16 1395.02 1080.32 1398.07 1080.35 1399.02 1080.36 1400.83 1080.39
 1419.97 1080.61    1430 1080.71 1440.92 1080.84 1445.96 1080.89 1461.87 1081.06
 1461.94 1081.06 1462.14 1081.06  1477.9 1081.18 1482.82 1081.22 1493.87 1081.28
 1503.78 1081.34 1522.67 1081.45 1524.73 1081.46  1525.8 1081.47 1529.26  1081.5
 1545.68 1081.62 1557.74 1081.73 1566.63 1081.82 1583.59 1081.97 1587.58    1082
 1596.37 1082.06 1605.63 1082.12 1608.54 1082.14 1614.05 1082.18 1629.49 1082.28
 1637.58 1082.35 1650.44 1082.44 1663.48 1082.56 1671.39 1082.63 1674.97 1082.66
 1692.34  1082.8 1705.43  1082.9  1713.3 1082.95 1717.41 1082.99  1730.6 1083.08
 1733.38  1083.1 1734.25 1083.11 1735.89 1083.13  1755.2  1083.3 1765.31 1083.41
 1776.15 1083.51 1781.27 1083.56  1797.1 1083.69 1797.25  1083.7 1797.72  1083.7
 1813.22 1083.81 1818.06 1083.84 1827.28  1083.9 1839.01 1083.98 1845.15 1084.03
 1859.96 1084.13 1864.84 1084.16 1877.09 1084.27 1880.91  1084.3 1893.05 1084.42
 1901.86  1084.5 1918.66 1084.68 1922.81 1084.73 1924.98 1084.75 1931.96 1084.82
 1943.77 1084.95 1949.12 1084.99 1964.72 1085.12 1979.58 1085.21 1985.67 1085.25
 1988.86 1085.27 1999.07 1085.34 2004.82 1085.38 2006.62 1085.39 2010.04 1085.42
 2027.57 1085.58  2040.5 1085.71 2048.52  1085.8 2052.73 1085.85 2066.19    1086
 2069.48 1086.04 2084.66 1086.24 2090.43 1086.31 2100.62 1086.43 2111.38 1086.55
 2131.88 1086.72 2132.33 1086.72 2133.31 1086.73 2148.53 1086.84 2153.28 1086.88
 2164.49 1086.97 2174.24 1087.06 2180.46 1087.12 2195.19 1087.25 2196.44 1087.27
 2200.43  1087.3  2212.4 1087.43 2216.14 1087.46 2228.37 1087.61 2237.09 1087.69
 2244.33 1087.78 2258.04 1087.92  2260.3 1087.94 2267.54 1088.02    2279 1088.14
 2284.19 1088.19 2299.95 1088.33 2314.65 1088.49  2320.9 1088.54 2334.66 1088.68
 2341.85 1088.75  2356.1 1088.86  2362.8 1088.93 2375.57 1089.06 2383.76 1089.12
 2388.04 1089.15 2401.77 1089.27    2404 1089.29 2404.71  1089.3 2419.97 1089.39
 2425.66 1089.44 2436.49 1089.52 2446.61 1089.58 2466.95  1089.7 2467.56  1089.7
 2468.89 1089.71 2483.84 1089.79 2488.52 1089.81 2499.81 1089.88 2509.47 1089.93
 2527.87 1090.04 2530.42 1090.06 2531.75 1090.07 2536.01  1090.1 2547.72 1090.18
 2551.37 1090.21 2563.68 1090.29 2572.32 1090.36 2579.64 1090.41 2593.27 1090.52
 2595.61 1090.54 2603.12 1090.61 2611.59 1090.68 2614.23  1090.7 2627.55 1090.85
 2635.18 1090.92 2643.52 1091.02 2656.13 1091.17 2670.24 1091.23 2677.08 1091.27
 2691.42 1091.25 2698.03 1091.24 2710.64 1091.32 2718.98 1091.39 2723.36 1091.39
 2737.36 1091.37 2739.94 1091.37  2741.1 1091.38 2760.89  1091.5 2771.56 1091.97
 2779.81 1092.36

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
       0     .03  222.38     .03   647.7    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        222.38   647.7            193.76     200  226.87            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)          * 1089.36  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.36  * Reach Len. (ft)         *  193.76  *  200.00  *  226.87  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3633.30  * 9516.09  *13820.08  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3633.30  * 9516.09  *13820.08  *
* Q Total (cfs)           * 3826.28  * Flow (cfs)              *  668.19  * 2132.82  * 1025.28  *
* Top Width (ft)          * 2408.31  * Top Width (ft)          *  216.14  *  425.32  * 1766.85  *
* Vel Total (ft/s)        *    0.14  * Avg. Vel. (ft/s)        *    0.18  *    0.22  *    0.07  *
* Max Chl Dpth (ft)       *   24.36  * Hydr. Depth (ft)        *   16.81  *   22.37  *    7.82  *
* Conv. Total (cfs)       *6710472.0  * Conv. (cfs)            *1171859.0  *3740498.0  *1798114.0  *
* Length Wtd. (ft)        *  205.90  * Wetted Per. (ft)        *  218.65  *  425.66  * 1766.95  *
* Min Ch El (ft)          * 1065.00  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.76  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)   * 1132.85  * 6062.09  * 8419.54  *
```

```
* C & E Loss (ft)          *          * Cum SA (acres)          *   84.36  *  266.16  * 1104.29  *
*****************************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 21499.99

INPUT
Description:
Station Elevation Data     num=     306
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
    7.96 1090.56   26.97 1084.89   28.52 1084.47   33.46 1083.03   49.08  1078.5
   53.99 1077.27   69.65 1073.16   81.01 1071.29   90.21 1069.35  108.03 1069.32
  110.78 1069.33  119.48 1069.36  129.05  1069.4  131.34  1069.4  135.06  1069.4
   151.9 1069.44  162.08 1069.49  172.47 1069.53   189.1 1069.67  193.03  1069.7
   205.5 1069.73  213.59 1069.73  216.13 1069.57  224.92 1069.35  234.16 1069.11
  243.15 1067.92  254.72 1066.14  261.81  1065.7  275.28 1065.15  278.41 1065.09
  291.53 1064.99  295.85 1064.96  297.19 1064.97  316.41 1065.11   328.2 1065.24
  336.98 1065.35  351.24 1065.53  357.54 1065.61  377.55 1065.82   378.1 1065.83
  394.58 1065.92  398.67 1065.93  411.19  1065.9  419.23 1065.87  432.32 1065.83
  439.79  1065.8  459.34 1065.85  460.35 1065.86  463.57 1065.88  480.92 1066.04
  494.16  1066.2  501.48  1066.3  510.76 1066.43  522.04 1066.57  540.41 1066.81
  542.61 1066.83  549.59 1066.94  563.17 1067.14  567.43 1067.21  583.74 1067.47
  593.74  1067.6   604.3 1067.76  610.33 1067.85  624.86 1068.35  635.62 1069.13
  645.43 1069.86  660.13 1071.14  665.99 1071.65  675.52 1071.95   683.4 1072.31
  686.55 1072.46  768.81 1073.71   776.3 1073.94  789.37 1074.22   792.9 1074.29
  807.66 1074.61  809.49 1074.65  809.94 1074.66  826.09 1074.96   830.5 1075.06
  837.67 1075.22  851.06 1075.47  859.28 1075.59  871.63  1075.8  875.88 1075.84
  892.19 1076.06  892.48 1076.06  893.69 1076.08  909.07 1076.27  912.75 1076.32
  925.67 1076.48  933.32 1076.57  945.76 1076.71  953.88 1076.79  958.86 1076.82
  974.44    1077  979.71 1077.05  992.06 1077.16  995.01 1077.19 1008.65 1077.25
 1015.57 1077.32 1026.83 1077.38 1036.13  1077.4 1041.84 1077.39  1056.7 1077.44
 1065.73 1077.45 1077.26 1077.46 1091.62 1077.45 1097.82 1077.48 1108.23 1077.64
 1118.39 1077.62 1134.92 1077.76 1138.95 1077.83 1141.42 1077.87 1151.75 1078.03
 1158.01 1078.16 1159.51 1078.11 1174.61 1078.24 1180.08 1078.42  1191.2 1078.53
 1200.64  1078.6  1207.8 1078.64 1221.21 1078.82 1237.78    1079 1241.77 1079.03
 1257.59  1079.1 1262.33 1079.14 1274.19 1079.17  1282.9 1079.27 1290.78 1079.31
 1303.46 1079.46 1307.38  1079.5 1323.81 1079.69 1323.97 1079.69 1324.02 1079.69
 1324.09 1079.69 1344.59 1079.91  1351.1 1079.99 1365.15 1080.16 1378.13 1080.34
 1385.71 1080.45 1390.36 1080.52 1406.28 1080.73 1406.95 1080.74 1409.82 1080.78
 1423.55 1080.94 1426.84 1080.97 1432.18 1081.02  1447.4 1081.16 1459.21 1081.25
 1467.97 1081.33 1486.23 1081.48 1488.53  1081.5 1495.85 1081.56 1506.53 1081.65
 1509.09 1081.67 1523.13  1081.8 1529.66 1081.85 1539.72 1081.94 1550.22 1082.03
 1556.32 1082.09 1570.78  1082.2 1572.92 1082.22 1581.87 1082.29 1589.52 1082.35
 1591.35 1082.36 1606.11 1082.49 1611.91 1082.56 1622.71 1082.66 1632.47 1082.75
 1648.36 1082.86 1653.04  1082.9  1655.9 1082.92  1667.9 1082.98  1673.6 1083.01
 1675.39 1083.03 1694.17 1083.16 1705.69 1083.26 1714.73 1083.33 1722.29 1083.39
 1735.29  1083.5 1753.91 1083.66 1755.86 1083.68 1772.07  1083.8 1776.42 1083.84
 1788.67 1083.91 1796.98 1083.96 1805.27    1084 1817.55 1084.07 1821.87  1084.1
 1838.11 1084.19 1839.94 1084.21 1858.67 1084.34 1864.55 1084.39 1879.24 1084.51
 1891.57 1084.61  1899.8 1084.68  1918.6 1084.84 1920.36 1084.86 1921.44 1084.87
 1925.97  1084.9 1940.93 1085.02 1945.63 1085.06 1961.49 1085.16 1971.23 1085.23
 1982.05 1085.31 1999.67 1085.44 2002.62 1085.46 2004.42 1085.47 2011.98 1085.52
 2021.02 1085.58 2023.18  1085.6 2026.69 1085.62 2043.74 1085.71 2054.21 1085.76
 2064.31 1085.82 2070.81 1085.85 2084.87 1085.95  2087.4 1085.96 2098.01 1086.06
    2104 1086.11 2105.44 1086.13 2120.59 1086.26    2126 1086.31  2137.2 1086.39
 2146.56 1086.45 2153.79 1086.49 2167.13 1086.54 2170.39 1086.56 2184.03 1086.63
 2187.69 1086.65 2188.83 1086.67 2208.25 1086.87 2215.85 1086.96 2228.82 1087.13
 2242.88 1087.27 2249.38 1087.36 2253.37 1087.41 2269.94 1087.56 2270.06 1087.57
 2290.51 1087.79 2303.15 1087.93 2311.07    1088 2319.75 1088.09 2331.63  1088.2
 2336.34 1088.24  2352.2 1088.37 2352.94 1088.37 2356.07 1088.39 2369.54 1088.46
 2372.76 1088.49 2386.14 1088.56 2393.32 1088.62 2402.73 1088.69 2413.89 1088.77
 2432.04 1088.94 2434.45 1088.97 2435.92 1088.99  2442.1 1089.08 2452.52 1089.23
 2455.01 1089.27 2459.06 1089.33 2475.58 1089.57 2485.72 1089.69 2496.14 1089.82
 2513.11 1089.99  2516.7 1090.03 2528.13 1090.17  2535.5 1090.26 2537.27 1090.28
 2552.09 1090.52 2557.83 1090.61 2568.69 1090.78  2578.4 1090.99 2585.28 1090.99
 2598.96 1091.03 2614.15 1090.76 2619.52 1090.65 2635.08 1090.77 2640.09  1090.8
 2648.23 1090.92 2660.65 1091.14 2675.25 1091.34 2681.21 1091.43 2700.17 1091.56
 2701.78 1091.57 2702.27 1091.57 2722.34 1091.68  2729.3 1091.72  2742.9 1091.81
 2751.25 1091.86 2763.47 1091.95 2767.85 1091.98 2784.03 1092.11 2784.44 1092.12
 2786.19 1092.14 2801.04 1092.35  2804.6 1092.39 2810.37 1092.46 2825.16 1092.65
 2837.39  1092.8 2845.72 1092.91 2864.41 1093.19 2866.28 1093.22 2872.22 1093.32
 2883.55 1093.46

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    7.96     .03  224.92     .03   683.4    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        224.92   683.4            200.46     200   219.9             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)          * 1089.36  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.36  * Reach Len. (ft)         *  200.46  *  200.00  *  219.90  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3526.68  *10324.30  *13522.80  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3526.68  *10324.30  *13522.80  *
* Q Total (cfs)           * 3773.07  * Flow (cfs)              *  613.11  * 2219.41  *  940.55  *
* Top Width (ft)          * 2449.07  * Top Width (ft)          *  212.93  *  458.48  * 1777.66  *
* Vel Total (ft/s)        *    0.14  * Avg. Vel. (ft/s)        *    0.17  *    0.21  *    0.07  *
* Max Chl Dpth (ft)       *   24.40  * Hydr. Depth (ft)        *   16.56  *   22.52  *    7.61  *
* Conv. Total (cfs)       *6928244.0  * Conv. (cfs)            *1125821.0  *4075350.0  *1727073.0  *
* Length Wtd. (ft)        *  204.74  * Wetted Per. (ft)        *  215.54  *  458.90  * 1777.77  *
* Min Ch El (ft)          * 1064.96  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.75  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1116.93  * 6016.54  * 8348.34  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   83.41  *  264.13  * 1095.06  *
*****************************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 21299.99

INPUT
Description:
Station Elevation Data     num=     320
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

```
*****************************************************************************
       0  1090.7   10.05 1089.26   14.41 1088.72   15.48 1088.48   30.96 1083.86
   36.08  1082.4   44.51 1080.14   56.66 1076.79   71.77 1073.27   77.25 1071.99
   94.18 1070.46   97.84 1070.18   99.03 1070.18  118.43 1069.96  126.29 1069.96
  139.03 1069.93  153.55 1069.95  159.61 1069.94  178.32 1069.97  179.84 1069.97
  180.21 1069.97  196.37 1069.96   200.8 1069.97  212.91 1069.79  221.39 1069.61
  225.15 1069.39  229.46 1069.13  241.98 1067.75  262.45 1065.46  262.57 1065.45
   262.6 1065.45  283.16  1064.9  289.86 1064.91  303.75  1064.9  317.12 1065.02
  324.34 1065.08  344.38 1065.29  344.93 1065.29  346.59 1065.31  361.79 1065.46
  365.52 1065.48  371.65 1065.51  386.11 1065.58  394.88 1065.57   406.7 1065.54
  411.41 1065.52  427.29 1065.45  427.96 1065.45  430.73 1065.44  447.88 1065.38
  453.43 1065.37  468.47 1065.32  480.69 1065.31  489.06 1065.31  507.95 1065.43
  509.65 1065.44  514.86  1065.5  530.24 1065.65  535.21 1065.69  550.83 1065.82
  562.47 1065.88  571.42 1065.92  589.74 1066.05  592.01 1066.06  593.38 1066.08
     599 1066.14   612.6 1066.31  626.47  1066.5  633.19 1066.59  644.27 1066.78
  653.78 1066.91  671.53 1067.47  674.37 1067.53  683.13 1067.87  694.96 1068.46
  709.17 1068.91  715.55 1069.13  726.05 1068.87  736.14 1069.33  753.31  1071.2
  756.73 1071.46  763.19 1071.93  767.26 1072.22  775.35 1072.84  777.32 1072.96
  791.88 1073.66  797.91 1073.87  808.42 1074.13   818.5 1074.31  824.97 1074.42
  839.09 1074.62  841.51 1074.65  851.41 1074.77  859.68 1074.88  874.59 1075.09
  880.27 1075.15  889.62 1075.25  900.86 1075.39  916.88 1075.52  921.45 1075.57
  935.54 1075.67  942.05 1075.72   957.3 1075.86  962.63  1075.9  971.41 1075.99
  983.22 1076.12  998.67 1076.25 1003.82  1076.3 1006.92 1076.33 1019.67 1076.43
 1023.47 1076.46 1024.4 1076.47 1040.01 1076.62    1045 1076.68 1056.56  1076.8
 1065.58 1076.89 1080.45 1076.99 1086.18 1077.04 1089.64 1077.06 1103.81 1077.14
 1106.77 1077.16 1107.71 1077.17 1127.36  1077.3 1139.27 1077.38 1147.95 1077.43
  1155.8 1077.51 1168.54 1077.61 1187.94 1077.83 1189.13 1077.84 1205.44 1078.03
 1209.72 1078.08 1221.98  1078.2 1230.31 1078.28 1238.51 1078.35  1250.9 1078.45
 1271.29 1078.64 1271.49 1078.64 1272.08 1078.65 1292.08 1078.88 1304.69 1079.03
 1312.67 1079.13 1325.81 1079.27 1333.26 1079.34 1337.77 1079.38 1353.85 1079.53
 1354.31 1079.54 1356.22 1079.56 1370.86 1079.72 1374.44 1079.76 1380.34 1079.84
 1395.03 1080.04 1403.93 1080.16 1415.62 1080.33 1434.86 1080.55 1436.21 1080.56
 1440.35  1080.6  1456.8 1080.76 1462.12 1080.82 1477.39 1080.96 1489.38 1081.08
 1497.98 1081.15 1503.19  1081.2 1518.57 1081.37 1519.73 1081.38 1524.49 1081.44
 1539.16 1081.62 1543.91 1081.66 1559.75 1081.82 1571.17 1081.87 1580.34 1081.91
  1585.9 1081.92 1600.93 1081.95 1602.44 1081.95 1608.62 1081.96 1618.98 1081.98
 1621.52 1081.99 1625.69 1082.01 1642.11 1082.04 1652.95 1082.11  1662.7 1082.14
 1668.61 1082.18 1683.29 1082.31 1685.15 1082.33 1692.76  1082.4 1701.69 1082.48
 1703.88 1082.49 1718.23 1082.59 1724.47 1082.62 1734.78 1082.68 1745.06 1082.76
 1751.32 1082.79 1765.65 1082.91  1776.9 1082.97 1786.24 1083.02 1789.27 1083.04
 1806.83 1083.13 1816.53 1083.17 1827.42 1083.23 1834.02 1083.28 1848.01  1083.3
 1850.57 1083.33 1861.03 1083.38 1867.11 1083.43  1868.6 1083.43 1871.05 1083.44
 1889.19  1083.6  1900.2 1083.63 1909.78 1083.64 1916.73 1083.66 1930.37 1083.77
 1933.28 1083.81 1945.17 1083.94 1950.97 1084.01 1952.84 1084.03 1971.55 1084.26
  1980.1  1084.4 1992.15 1084.56 2007.36 1084.74 2012.73  1084.8 2015.99 1084.83
  2029.3 1084.99 2032.53 1085.02 2033.33 1085.03 2049.08 1085.19 2053.92 1085.25
 2065.61 1085.37  2074.5  1085.5 2089.15 1085.67  2095.1 1085.73  2098.7 1085.77
 2113.43 1085.85 2115.69 1085.86 2116.41 1085.87 2136.28 1085.97 2148.32 1086.06
 2156.87 1086.15 2164.87 1086.21 2177.46 1086.34 2197.57  1086.5 2198.05  1086.5
 2198.19  1086.5 2218.64  1086.6 2225.45 1086.64 2239.23 1086.72 2252.71 1086.87
 2259.82 1086.95 2264.12 1087.02 2280.41 1087.23 2280.65 1087.23 2281.71 1087.24
    2301 1087.45 2307.25 1087.51 2321.59 1087.64 2330.29 1087.72 2342.18 1087.82
 2346.83 1087.86 2362.77 1088.01 2365.85 1088.04 2383.36 1088.24 2389.03 1088.31
 2403.95 1088.49 2416.29 1088.62 2424.54 1088.73 2443.55 1088.93 2445.13 1088.95
 2446.08 1088.95 2449.98 1088.98 2465.72  1089.1 2470.81 1089.13 2486.31 1089.22
 2495.71 1089.28  2506.9 1089.36 2525.34 1089.51 2527.49 1089.53 2534.11 1089.55
 2545.33 1089.59 2548.08  1089.6  2552.6 1089.61 2568.67 1089.67 2578.41 1089.84
 2589.26 1090.02 2607.12 1090.18 2609.85 1090.21  2611.5 1090.24 2618.25 1090.33
 2630.44  1090.5 2634.38 1090.57 2651.03 1090.86 2661.65 1090.94 2671.62 1091.02
 2688.91 1091.17 2692.21 1091.19 2694.21 1091.23 2702.38 1091.37 2710.75 1091.51
  2712.8 1091.54 2727.29 1091.75 2733.39 1091.85 2743.43 1091.96 2753.98 1092.03
 2760.38 1092.04 2774.57 1092.12 2776.92 1092.12 2786.52 1092.15 2793.46 1092.15
 2795.16 1092.16    2810 1092.15 2815.75 1092.16 2826.54 1092.18 2836.34 1092.19
 2852.48  1092.3 2856.93 1092.33 2870.66 1092.51 2876.16 1092.59 2877.52 1092.61
 2879.75 1092.65 2898.11 1092.95 2909.25  1093.1  2918.7 1093.24 2924.09  1093.3

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
       0     .03  225.15     .03  763.19     .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        225.15  763.19             202.3     200  188.12              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.36  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.36  * Reach Len. (ft)         *  202.30  *  200.00  *  188.12  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3442.10  *12357.13  *13267.00  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3442.10  *12357.13  *13267.00  *
* Q Total (cfs)           * 3671.44  * Flow (cfs)              *  510.75  * 2353.73  *  806.96  *
* Top Width (ft)          * 2497.55  * Top Width (ft)          *  215.80  *  538.04  * 1743.71  *
* Vel Total (ft/s)        *    0.13  * Avg. Vel. (ft/s)        *    0.15  *    0.19  *    0.06  *
* Max Chl Dpth (ft)       *   24.46  * Hydr. Depth (ft)        *   15.95  *   22.97  *    7.61  *
* Conv. Total (cfs)       *7709930.0  * Conv. (cfs)            *1072569.0  *4942770.0  *1694590.0  *
* Length Wtd. (ft)        *  197.71  * Wetted Per. (ft)        *  218.14  *  538.46  * 1743.85  *
* Min Ch El (ft)          * 1064.90  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.70  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1100.89  * 5964.47  * 8280.72  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   82.42  *  261.84  * 1086.17  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 21099.99

INPUT
Description:
Station Elevation Data     num=     324
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 1090.81    2.24 1090.56   12.03 1088.41   18.52 1087.14    20.3 1086.62
    34.8 1082.25   41.03 1080.37   51.92 1077.31   61.76 1074.48   80.44 1069.61
    82.5 1069.08   87.93 1068.93  103.23 1068.78  116.23 1068.71  123.96 1068.69
  132.51 1068.65  144.69 1068.59  163.83 1068.49  165.43 1068.48  166.02 1068.49
  186.16 1068.59  197.65 1068.73  206.89 1068.85  223.06 1068.72  224.29 1068.71
  227.62 1068.69  239.73 1067.37  248.36  1066.3  251.59 1066.18  269.09 1065.02
  280.12 1064.92  289.82 1064.76  308.64 1064.86  310.55 1064.86  315.63 1064.91
  331.29 1065.08   344.2 1065.21  352.02 1065.28  360.49 1065.35  372.75 1065.42
  391.53  1065.4  393.49  1065.4  394.21 1065.39  414.22 1065.21  422.74 1065.17
  434.95 1065.09  451.26  1065.2  455.68 1065.22  467.43 1065.37  476.42 1065.48
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490.77	1065.6	497.15	1065.65	507.05	1065.65	517.88	1065.66	536.83	1065.63
538.62	1065.63	543.33	1065.63	555.91	1065.63	559.35	1065.63	572.19	1065.63
580.08	1065.64	588.48	1065.69	600.81	1065.78	604.76	1065.83	619.23	1066.06
621.05	1066.08	621.55	1066.09	622.41	1066.11	642.28	1066.43	653.62	1066.58
663.01	1066.71	669.9	1066.8	683.74	1066.97	686.18	1067.01	695.14	1067.16
702.47	1067.29	704.48	1067.34	718.75	1067.97	725.21	1068.39	736.51	1069.3
745.94	1070.07	751.32	1070.45	766.68	1071.62	767.61	1071.68	769.01	1071.77
771.03	1071.91	787.41	1072.94	800.18	1073.34	808.14	1073.56	816.46	1073.74
828.87	1074	846.93	1074.41	849.03	1074.45	849.61	1074.46	865.31	1074.77
870.34	1074.84	881.6	1074.98	891.07	1075.1	897.88	1075.17	911.8	1075.32
922.83	1075.42	930.45	1075.49	932.54	1075.51	936.18	1075.54	953.27	1075.69
964.7	1075.78	974	1075.86	979.3	1075.91	994.73	1076.01	995.59	1076.01
998.74	1076.04	1011.87	1076.16	1015.47	1076.19	1028.16	1076.35	1036.2	1076.46
1050.28	1076.67	1056.93	1076.75	1060.73	1076.79	1074.64	1076.98	1077.67	1077.02
1078.8	1077.03	1098.4	1077.23	1107.32	1077.27	1119.13	1077.34	1135.84	1077.36
1139.87	1077.37	1150.53	1077.39	1158.43	1077.39	1160.6	1077.4	1174.72	1077.46
1181.33	1077.48	1191	1077.53	1202.06	1077.57	1207.29	1077.61	1222.8	1077.73
1226.43	1077.78	1243.53	1078.01	1249.94	1078.07	1264.26	1078.26	1272.43	1078.35
1284.99	1078.44	1302.34	1078.58	1304.99	1078.6	1305.73	1078.6	1321.28	1078.72
1326.46	1078.76	1335.52	1078.84	1347.19	1078.93	1353.85	1078.98	1367.92	1079.09
1370.13	1079.11	1378.24	1079.16	1388.66	1079.22	1402.71	1079.3	1409.39	1079.34
1418.99	1079.41	1430.12	1079.49	1449.61	1079.72	1450.85	1079.73	1454.14	1079.78
1467.84	1079.94	1471.59	1079.98	1484.12	1080.11	1492.32	1080.2	1500.41	1080.28
1513.05	1080.38	1516.69	1080.41	1530.03	1080.5	1532.98	1080.52	1533.79	1080.53
1535.19	1080.53	1554.52	1080.65	1563.71	1080.71	1575.25	1080.79	1592.24	1080.93
1595.99	1080.96	1605.94	1081.03	1614.41	1081.09	1616.72	1081.11	1620.76	1081.14
1637.45	1081.26	1646.97	1081.35	1658.18	1081.44	1663.25	1081.48	1678.92	1081.61
1679.54	1081.61	1681.84	1081.63	1695.82	1081.73	1699.65	1081.77	1712.11	1081.86
1720.38	1081.94	1734.86	1082.06	1741.11	1082.12	1744.68	1082.15	1757.74	1082.25
1761.85	1082.29	1763.38	1082.3	1782.58	1082.45	1791.91	1082.53	1803.31	1082.62
1809.81	1082.68	1824.04	1082.8	1833.64	1082.88	1844.78	1082.97	1848.96	1083
1865.51	1083.11	1874.96	1083.19	1886.24	1083.26	1891.24	1083.33	1906.97	1083.51
1907.53	1083.52	1909.54	1083.55	1923.81	1083.76	1927.71	1083.82	1934.53	1083.9
1948.44	1084.07	1963.06	1084.14	1969.17	1084.18	1972.66	1084.2	1985.44	1084.25
1988.94	1084.27	1989.91	1084.27	2005.23	1084.4	2010.64	1084.44	2021.52	1084.57
2031.37	1084.67	2048.63	1084.86	2052.11	1084.9	2054.09	1084.92	2061.34	1085.01
2070.37	1085.12	2072.84	1085.15	2086.66	1085.32	2093.57	1085.42	2102.93	1085.54
2114.3	1085.69	2119.22	1085.75	2135.04	1085.95	2137.24	1085.98	2155.77	1086.16
2168.07	1086.24	2176.5	1086.31	2184.36	1086.36	2197.23	1086.45	2200.65	1086.47
2213.14	1086.55	2216.93	1086.58	2217.97	1086.58	2233.22	1086.68	2238.7	1086.73
2248.3	1086.83	2259.43	1086.93	2265.78	1087.01	2280.17	1087.19	2282.06	1087.21
2289.04	1087.3	2300.9	1087.44	2314.63	1087.55	2321.63	1087.6	2333.87	1087.67
2342.36	1087.71	2347.21	1087.75	2363.1	1087.85	2364.94	1087.87	2383.83	1088.04
2390.92	1088.1	2404.56	1088.24	2419.45	1088.4	2425.29	1088.46	2428.62	1088.5
2440.84	1088.63	2446.03	1088.68	2461.19	1088.83	2466.76	1088.87	2477.48	1088.96
2487.49	1089.02	2505.02	1089.07	2508.22	1089.08	2516.75	1089.11	2526.34	1089.15
2528.96	1089.16	2542.62	1089.36	2549.69	1089.46	2558.91	1089.49	2570.42	1089.54
2575.19	1089.57	2591.16	1089.67	2591.47	1089.68	2592.64	1089.7	2607.75	1089.99
2611.89	1090.06	2619.12	1090.14	2632.62	1090.26	2647.64	1090.41	2653.36	1090.46
2668.54	1090.63	2674.09	1090.69	2689.18	1090.84	2694.82	1090.9	2704.69	1091.01
2715.55	1091.13	2721.75	1091.2	2736.29	1091.35	2738.03	1091.37	2744.44	1091.42
2757.02	1091.53	2761.74	1091.57	2777.75	1091.7	2786.88	1091.76	2798.48	1091.88
2818.78	1092.08	2819.22	1092.08	2819.46	1092.09	2820.35	1092.09	2835.74	1092.23
2839.95	1092.27	2852.03	1092.39	2860.68	1092.45	2868.31	1092.54	2881.41	1092.64
2896.25	1092.75	2902.15	1092.8	2904.36	1092.82	2912.91	1092.9		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	224.29	.03	769.01	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
224.29	769.01	200.32	200	198.42	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1089.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1089.36	Reach Len. (ft)	200.32	200.00	198.42
Crit W.S. (ft)		Flow Area (sq ft)	3681.25	12634.41	13807.12
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	3681.25	12634.41	13807.12
Q Total (cfs)	3617.07	Flow (cfs)	535.52	2279.28	802.27
Top Width (ft)	2534.99	Top Width (ft)	216.59	544.72	1773.68
Vel Total (ft/s)	0.12	Avg. Vel. (ft/s)	0.15	0.18	0.06
Max Chl Dpth (ft)	24.60	Hydr. Depth (ft)	17.00	23.19	7.78
Conv. Total (cfs)	8073313.0	Conv. (cfs)	1195274.0	5087366.0	1790674.0
Length Wtd. (ft)	199.70	Wetted Per. (ft)	219.33	545.08	1773.81
Min Ch El (ft)	1064.76	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.69	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1084.35	5907.10	8222.26
C & E Loss (ft)		Cum SA (acres)	81.42	259.35	1078.58

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 20899.99

INPUT
Description:
Station Elevation Data num= 325

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5.21	1090.94	17.69	1087.46	25.96	1084.76	40.55	1080.24	46.72	1078.33
62.78	1074.01	67.47	1072.76	69.26	1072.51	88.22	1068.88	98.95	1068.8
108.97	1068.67	115.2	1068.66	129.73	1068.64	137.7	1068.64	150.48	1068.65
155.37	1068.67	171.23	1068.74	184.08	1068.9	191.99	1068.98	212.62	1069.16
212.71	1069.16	212.74	1069.16	212.78	1069.16	224.39	1068.88	233.49	1068.66
241.48	1067.49	254.25	1065.1	270.19	1064.82	275	1064.73	287.55	1064.64
295.75	1064.59	298.89	1064.59	316.51	1064.53	326.47	1064.52	337.26	1064.5
356.3	1064.49	358.01	1064.49	362.46	1064.49	378.77	1064.49	385	1064.52
399.52	1064.56	413.7	1064.64	420.27	1064.67	437.39	1064.75	441.02	1064.77
442.41	1064.78	461.78	1064.88	471.12	1064.96	482.53	1065.05	488.98	1065.13
503.28	1065.27	512.31	1065.35	524.04	1065.44	537.74	1065.51	544.79	1065.53
553.99	1065.53	565.54	1065.51	585.93	1065.52	586.3	1065.52	586.49	1065.52
587.24	1065.52	607.05	1065.68	619	1065.83	627.8	1065.94	635.25	1066.09
648.56	1066.36	662.16	1066.76	669.31	1066.97	684	1067.45	690.06	1067.67
700.26	1068.05	710.81	1068.44	716.51	1068.67	731.57	1069.32	737.09	1069.64
749.01	1070.34	752.32	1070.56	758.15	1071.01	771.89	1072.05	773.07	1072.14
781.51	1072.74	793.83	1073.58	812.01	1074.27	814.58	1074.36	830.27	1074.58
835.33	1074.64	846.52	1074.76	856.09	1074.86	872.97	1075.06	876.84	1075.1
886.93	1075.22	895.28	1075.3	897.59	1075.32	911.53	1075.45	918.34	1075.53
927.78	1075.63	939.1	1075.78	944.03	1075.82	959.85	1075.99	960.28	1075.99

961.85	1076	976.54	1076.08	980.6	1076.1	987.78	1076.14	1001.36	1076.2
1016.49	1076.28	1022.11	1076.31	1025.28	1076.34	1036.77	1076.4	1042.86	1076.44
1057.8	1076.55	1063.62	1076.58	1074.05	1076.67	1084.37	1076.75	1102.6	1076.9
1105.12	1076.93	1106.54	1076.93	1111.7	1076.96	1122.79	1077.03	1125.87	1077.05
1131.3	1077.08	1146.63	1077.15	1160	1077.23	1167.38	1077.28	1186.62	1077.45
1188.13	1077.46	1188.71	1077.47	1208.89	1077.69	1220.3	1077.82	1229.64	1077.93
1236.56	1078.02	1250.39	1078.18	1252.81	1078.21	1261.55	1078.29	1269.06	1078.37
1271.15	1078.39	1274.82	1078.42	1291.9	1078.54	1303.52	1078.63	1312.65	1078.69
1332.22	1078.84	1333.41	1078.85	1336.47	1078.87	1350.32	1078.98	1354.16	1079.01
1366.57	1079.13	1374.91	1079.2	1382.82	1079.29	1395.67	1079.44	1399.07	1079.47
1411.39	1079.62	1415.33	1079.67	1416.42	1079.68	1418.34	1079.69	1437.17	1079.85
1447.83	1079.91	1457.92	1079.96	1464.08	1080	1478.68	1080.08	1486.31	1080.14
1499.43	1080.24	1504.45	1080.29	1520.18	1080.42	1533.15	1080.54	1540.94	1080.61
1545.34	1080.65	1561.23	1080.8	1561.59	1080.8	1561.69	1080.81	1561.86	1080.81
1582.44	1081	1590.56	1081.06	1603.2	1081.16	1619.26	1081.26	1623.95	1081.29
1626.6	1081.31	1636.16	1081.36	1644.7	1081.41	1659.09	1081.5	1665.46	1081.54
1675.34	1081.62	1686.21	1081.7	1705.38	1081.9	1706.96	1081.92	1711.08	1081.96
1724.1	1082.11	1727.71	1082.15	1734.08	1082.2	1748.47	1082.33	1756.6	1082.39
1769.22	1082.47	1786.01	1082.59	1789.97	1082.62	1791.49	1082.63	1810.73	1082.77
1820.19	1082.85	1831.48	1082.94	1837.86	1082.99	1852.23	1083.11	1854.11	1083.13
1860.93	1083.18	1870.37	1083.27	1872.99	1083.29	1877.59	1083.32	1893.74	1083.44
1902.87	1083.48	1914.49	1083.54	1919.12	1083.57	1935.25	1083.67	1935.37	1083.67
1935.86	1083.68	1956	1083.91	1963.71	1083.99	1976.75	1084.16	1992.41	1084.31
1997.51	1084.36	2010.78	1084.49	2016.63	1084.54	2018.26	1084.56	2032.88	1084.7
2039.01	1084.77	2049.14	1084.87	2059.76	1084.98	2065.39	1085.04	2080.52	1085.18
2085.69	1085.22	2101.27	1085.35	2107.23	1085.39	2122.02	1085.49	2135.93	1085.58
2142.77	1085.63	2146.65	1085.66	2160.62	1085.77	2162.9	1085.78	2163.53	1085.79
2179.14	1085.92	2184.28	1085.95	2193.34	1086.02	2205.03	1086.11	2211.64	1086.16
2225.79	1086.28	2227.9	1086.3	2235.54	1086.37	2244.15	1086.45	2246.54	1086.47
2260.4	1086.62	2267.29	1086.69	2279.45	1086.83	2288.05	1086.93	2308.16	1087.14
2308.8	1087.14	2310.47	1087.16	2329.55	1087.32	2341.66	1087.41	2350.3	1087.45
2365.56	1087.56	2371.06	1087.59	2374.16	1087.6	2385.39	1087.7	2390.41	1087.74
2391.81	1087.75	2394.26	1087.78	2412.56	1087.95	2422.92	1088.09	2433.32	1088.23
2439.17	1088.32	2454.07	1088.48	2460.32	1088.54	2474.82	1088.67	2480.38	1088.73
2495.58	1088.88	2509.08	1088.88	2516.33	1088.88	2535.24	1088.92	2536.68	1088.92
2537.08	1088.92	2552.93	1089.28	2557.83	1089.41	2569.18	1089.52	2578.59	1089.62
2595.19	1089.74	2599.34	1089.77	2610.16	1089.88	2620.09	1089.97	2634.19	1090.13
2640.85	1090.19	2652.59	1090.3	2661.6	1090.4	2666.69	1090.44	2682.35	1090.58
2682.95	1090.59	2685.08	1090.61	2703.11	1090.76	2715.44	1090.85	2723.86	1090.93
2731.69	1090.98	2744.61	1091.1	2747.94	1091.12	2760	1091.21	2765.37	1091.24
2767.41	1091.26	2786.12	1091.39	2796.7	1091.48	2806.87	1091.57	2812.95	1091.64
2827.62	1091.79	2834.93	1091.87	2848.38	1092	2861.71	1092.12	2869.13	1092.19
2882.23	1092.3	2889.88	1092.36	2894.21	1092.38	2909.85	1092.47	2910.46	1092.48
2910.64	1092.48	2910.93	1092.48	2931.39	1092.56	2942.97	1092.63	2952.14	1092.67
2968.34	1092.81	2972.9	1092.85	2975.47	1092.88	2984.78	1092.98	2991.82	1093.06

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5.21	.03	224.39	.03	771.89	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
224.39	771.89	196.57	200	218.04	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1089.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1089.36	Reach Len. (ft)	196.57	200.00	218.04
Crit W.S. (ft)		Flow Area (sq ft)	3665.42	12791.87	13824.01
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	3665.42	12791.87	13824.01
Q Total (cfs)	3609.02	Flow (cfs)	529.75	2288.80	790.46
Top Width (ft)	2545.15	Top Width (ft)	213.52	547.50	1784.13
Vel Total (ft/s)	0.12	Avg. Vel. (ft/s)	0.14	0.18	0.06
Max Chl Dpth (ft)	24.87	Hydr. Depth (ft)	17.17	23.36	7.75
Conv. Total (cfs)	8160307.0	Conv. (cfs)	1197822.0	5175182.0	1787304.0
Length Wtd. (ft)	203.32	Wetted Per. (ft)	216.29	547.97	1784.27
Min Ch El (ft)	1064.49	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.70	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	1067.46	5848.73	8159.33
C & E Loss (ft)		Cum SA (acres)	80.43	256.85	1070.47

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 20699.99

INPUT
Description:
Station Elevation Data num= 342

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1090.34	9.36	1089.41	14.15	1088.4	25.99	1084.67	34.69	1082.02
42.62	1079.74	55.24	1076.39	59.25	1075.43	75.79	1071.97	76.27	1071.9
96.34	1069.59	109.14	1069.45	116.88	1069.38	129.4	1069.26	137.43	1069.21
156.28	1068.89	157.98	1068.86	163.48	1068.81	178.53	1068.68	183.16	1068.71
199.07	1068.84	208.92	1068.82	219.62	1068.67	225.63	1068.12	236.92	1067.08
240.17	1066.89	250.68	1065.83	260.72	1064.92	263.8	1064.87	281.27	1064.57
290.69	1064.49	301.81	1064.39	317.56	1064.31	322.36	1064.28	337.89	1064.21
342.91	1064.19	344.45	1064.19	363.46	1064.14	375.21	1064.14	384.01	1064.14
398.21	1064.19	404.55	1064.22	425.09	1064.36	425.1	1064.36	441.72	1064.54
445.65	1064.58	458.36	1064.73	466.2	1064.82	474.98	1064.93	486.74	1065.05
491.61	1065.1	507.29	1065.2	512.29	1065.22	527.84	1065.29	541.5	1065.34
548.39	1065.38	559.5	1065.44	568.93	1065.48	574.76	1065.52	589.48	1065.63
591.39	1065.65	599.5	1065.73	608.02	1065.81	610.03	1065.83	613.27	1065.88
630.58	1066.12	640.15	1066.37	651.13	1066.62	667.03	1067.14	671.67	1067.28
686.7	1067.75	691.16	1067.89	692.22	1067.92	693.92	1067.98	712.77	1068.56
720.79	1068.89	733.32	1069.4	747.68	1070.2	753.86	1070.54	757.69	1070.83
773.91	1072.15	774.31	1072.18	774.41	1072.19	775.79	1072.3	790.94	1073.5
794.96	1073.8	801.44	1074.05	815.51	1074.69	824.2	1074.89	836.05	1075.12
840.83	1075.17	856.6	1075.39	857.46	1075.4	861.11	1075.44	877.15	1075.61
882.08	1075.66	897.7	1075.82	908.97	1075.93	918.24	1076.01	923.98	1076.05
938.79	1076.2	948.32	1076.28	959.34	1076.37	973.87	1076.45	979.89	1076.48
990.49	1076.53	1000.44	1076.56	1016.5	1076.61	1020.98	1076.63	1023.76	1076.64
1035.52	1076.7	1041.53	1076.73	1043.38	1076.75	1062.08	1076.91	1073.64	1077.03
1082.63	1077.12	1090.27	1077.21	1103.17	1077.38	1106.9	1077.43	1122.74	1077.7
1123.53	1077.71	1123.72	1077.72	1140.16	1077.94	1144.27	1078	1150.91	1078.04
1164.82	1078.11	1177.78	1078.13	1185.36	1078.13	1204.67	1078.2	1205.91	1078.2
1209.94	1078.24	1226.46	1078.38	1231.55	1078.42	1247.01	1078.58	1256.56	1078.68
1267.56	1078.8	1285.31	1079	1288.1	1079.03	1289.82	1079.05	1297.14	1079.12
1306.45	1079.21	1308.65	1079.23	1312.2	1079.25	1329.2	1079.38	1339.07	1079.43
1349.75	1079.51	1365.96	1079.63	1370.3	1079.66	1372.97	1079.68	1384.35	1079.77

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 1389.6 1079.81 1390.84 1079.82 1406.23  1079.9 1411.39 1079.92 1419.72 1079.94
1431.94 1079.96  1446.6 1080.01 1452.49 1080.03 1456.11 1080.05 1471.55 1080.16
1472.74 1080.17 1473.03 1080.18 1473.48 1080.18 1493.58 1080.38 1500.36 1080.45
1514.13 1080.59 1522.64 1080.66 1534.68 1080.76 1539.27  1080.8 1555.22 1080.93
1555.89 1080.94 1558.76 1080.96 1575.77 1081.13 1581.01 1081.18 1596.32 1081.35
 1607.9 1081.46 1616.87 1081.56 1634.78 1081.72 1637.42 1081.74 1639.04 1081.76
1645.96 1081.82 1655.67 1081.89 1657.96 1081.92  1672.3 1082.02 1678.51 1082.08
1688.93 1082.16 1699.06 1082.24 1715.42  1082.4 1719.61 1082.44 1722.18 1082.48
1733.17 1082.62 1740.15  1082.7  1742.3 1082.72  1760.7 1082.93 1772.07    1083
1781.25 1083.06 1788.71 1083.09  1801.8 1083.15 1820.37 1083.24 1821.97 1083.25
1822.34 1083.26  1838.6 1083.38 1842.89 1083.42 1855.22 1083.52 1863.44 1083.59
1871.85 1083.67 1883.99 1083.78 1888.48 1083.82 1904.53 1083.97 1905.11 1083.98
1907.58    1084 1925.08 1084.17 1930.48 1084.22 1945.63 1084.35    1955 1084.42
1966.18  1084.5 1971.62 1084.53 1986.73 1084.64 1988.26 1084.65 1994.78 1084.69
2004.89 1084.75 2007.27 1084.77 2011.12 1084.79 2027.82 1084.89    2038 1084.95
2048.37 1085.01 2064.88 1085.11 2068.92 1085.14 2081.99 1085.24 2088.04 1085.29
2089.47 1085.31 2104.66 1085.46 2110.01 1085.52 2121.29 1085.62 2130.56 1085.71
2137.93 1085.77 2151.11  1085.9 2154.55 1085.92 2169.19 1086.06 2171.66 1086.08
2172.41 1086.09  2192.2 1086.24 2199.29  1086.3 2212.75  1086.4 2226.18 1086.51
 2233.3 1086.56 2253.06 1086.73 2253.85 1086.74 2256.39 1086.76 2270.95  1086.9
2274.39 1086.93 2287.58 1087.08 2294.94 1087.15 2306.82 1087.27 2315.49 1087.36
2320.84  1087.4 2336.04 1087.51  2343.6 1087.54 2354.11 1087.59 2356.59  1087.6
2370.73 1087.73 2377.13 1087.78 2387.47 1087.92 2397.68 1088.06 2403.99 1088.11
2418.23 1088.23  2430.8 1088.28 2437.26  1088.3 2438.78 1088.31 2453.88 1088.42
2459.32 1088.46 2468.11 1088.65 2479.87 1088.91 2494.99 1088.94 2500.42 1089.95
2518.01 1088.99  2520.4    1089 2520.97    1089 2537.02  1089.1 2541.51 1089.12
2553.66 1089.21 2562.06 1089.26 2575.63 1089.37 2582.61 1089.43 2586.91 1089.47
2603.16 1089.62 2603.55 1089.62 2605.21 1089.64 2623.71 1089.79 2636.81 1089.89
2644.25 1089.95 2653.44 1090.02  2664.8 1090.11 2670.06 1090.15 2685.35 1090.28
2686.69 1090.29 2692.42 1090.34 2703.32 1090.43  2705.9 1090.45 2710.05 1090.48
2726.44 1090.62 2736.58 1090.72 2746.99 1090.82 2763.81 1090.99 2767.54 1091.03
2779.62 1091.15 2786.46 1091.22 2788.09 1091.24  2803.1 1091.38 2808.63 1091.43
2819.73 1091.53 2829.18 1091.61 2836.35 1091.67 2849.73 1091.79 2852.99 1091.82
2866.83 1091.97 2870.28 1092.01 2886.24 1092.16 2890.82 1092.21 2902.88  1092.3
2911.37 1092.37  2919.5 1092.44 2931.92 1092.53 2936.13 1092.56 2952.47 1092.69
2952.77 1092.69 2954.03  1092.7 2969.39 1092.82 2973.02 1092.85 2978.86 1092.89
2993.56 1093.01 3002.65 1093.08 3014.11 1093.17 3019.28 1093.21 3034.66 1093.33
3035.91 1093.34 3041.23 1093.39 3055.21 1093.51 3069.17 1093.63 3075.76  1093.7
3086.39  1093.8  3090.8 1093.85

Manning's n Values          num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
*****************************************************
       0      .03   225.63      .03   775.79     .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        225.63  775.79             205.17     200  170.88             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.36  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.36  * Reach Len. (ft)         *  205.17  *  200.00  *  170.88  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3626.96  *12896.42  *13172.17  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3626.96  *12896.42  *13172.17  *
* Q Total (cfs)           * 3512.06  * Flow (cfs)              *  510.69  * 2284.89  *  716.48  *
* Top Width (ft)          * 2565.19  * Top Width (ft)          *  216.05  *  550.16  * 1798.98  *
* Vel Total (ft/s)        *    0.12  * Avg. Vel. (ft/s)        *    0.14  *    0.18  *    0.05  *
* Max Chl Dpth (ft)       *   25.22  * Hydr. Depth (ft)        *   16.79  *   23.44  *    7.32  *
* Conv. Total (cfs)       *8030838.0  * Conv. (cfs)            *1168933.0  *5229934.0  *1639971.0  *
* Length Wtd. (ft)        *  194.87  * Wetted Per. (ft)        *  218.52  *  550.48  * 1799.13  *
* Min Ch El (ft)          * 1064.14  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.71  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Prctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1051.01  * 5789.76  * 8091.76  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   79.46  *  254.33  * 1061.51  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 20499.99

INPUT
Description:
Station Elevation Data     num=     348
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************************
       0  1090.77    13.95  1088.09     20.1  1087.27    34.28  1082.98      41  1080.97
    43.9  1080.15    61.89    1075    71.52  1072.56    82.79  1069.65   103.33  1068.55
  103.68  1068.54   103.83  1068.54   124.58   1068.4   133.79  1068.36   145.47  1068.32
  163.75  1068.27   166.37  1068.26   172.39  1068.29   183.81  1068.36   187.27  1068.39
  193.71  1068.45   208.16  1068.61   223.68  1068.45   228.13  1068.41   229.06   1068.4
  241.45  1066.96   247.97  1066.18   249.95  1065.86   253.64  1065.73   270.85  1064.65
  280.05  1064.51   291.75  1064.41    296.1  1064.39    310.5  1064.32   312.64  1064.31
  328.18  1064.29   333.54  1064.29   344.22   1064.3   354.43   1064.3   373.49   1064.3
  375.33   1064.3   376.31   1064.3   379.56   1064.3   396.22  1064.27   403.44  1064.26
  417.12  1064.23   424.43  1064.25   438.01  1064.28   440.47   1064.3   448.62  1064.37
  456.52  1064.43   458.91  1064.45   472.55  1064.63    479.8  1064.75    488.6  1064.92
   500.7  1065.17   504.64  1065.25   517.67  1065.49   520.68  1065.55   521.6  1065.56
  536.72  1065.74   542.49  1065.77   552.76   1065.8   563.39  1065.84   583.22  1065.93
  584.28  1065.94   586.73  1065.95   600.88     1066   605.18  1066.02   616.93  1066.06
  626.07  1066.09   632.97  1066.14   646.97  1066.25   649.02  1066.28   655.79  1066.39
  665.06  1066.53   667.86  1066.59    673.1   1066.7   688.76  1067.02   703.06  1067.23
  709.65  1067.34   713.18   1067.4   724.84  1067.58   729.22  1067.65   730.55  1067.68
  733.03  1067.83   751.44  1068.64   762.98  1069.74   772.34  1070.68   792.27  1072.59
  792.95  1072.65   793.24  1072.68    793.9  1072.72   809.43  1073.69   814.13  1073.91
  825.47  1074.26   835.03  1074.52   852.87  1074.88   855.92  1074.94   862.96  1075.05
  876.82  1075.25   889.64  1075.38   897.72  1075.47   912.79  1075.53   918.61  1075.55
  921.71  1075.55   932.01  1075.56   937.76  1075.56   939.51  1075.57    953.8  1075.62
   960.4  1075.66   972.72   1075.8    981.3  1075.89  1001.06  1076.12  1001.92  1076.13
 1002.19  1076.13  1017.97  1076.29  1023.09  1076.33  1034.01  1076.43  1043.98  1076.51
 1050.05  1076.56  1064.88   1076.7  1066.09  1076.71  1070.11  1076.75  1085.77  1076.92
 1092.56     1077  1106.67  1077.16  1114.21  1077.23  1127.57  1077.42  1130.26  1077.45
 1139.17  1077.58   1146.3  1077.67  1148.46  1077.69  1162.35  1077.83  1169.36   1077.9
 1182.45  1077.97  1190.25  1078.02  1194.42  1078.04  1208.23  1078.11  1211.15  1078.12
  1212.4  1078.13  1232.05  1078.27  1242.55  1078.35  1252.94  1078.44  1258.59  1078.49
 1273.84  1078.65  1277.28  1078.69  1294.73  1078.89  1306.71  1079.04  1315.63  1079.15
 1322.76  1079.23  1336.52  1079.41   1338.8  1079.43  1346.34  1079.52  1354.84  1079.61
 1357.42  1079.63  1370.89  1079.69  1378.31  1079.72  1392.18   1079.7  1399.21  1079.69
  1415.4   1079.7  1419.01   1079.7   1420.1   1079.7  1435.04  1079.82    1441  1079.87
 1451.09  1079.99  1461.89  1080.11  1467.13  1080.17  1482.79  1080.33  1484.45  1080.34
 1503.69  1080.48  1512.02  1080.55  1524.58  1080.65  1541.99  1080.86  1545.48   1080.9
 1553.51  1081.02  1563.39  1081.15  1566.37  1081.19  1571.94  1081.26  1587.27  1081.42
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1601.91  1081.5 1608.16 1081.54 1622.57 1081.59 1627.54 1081.61 1629.06 1081.61
1643.59 1081.66 1649.95 1081.69 1659.63 1081.72 1670.85 1081.78 1675.68 1081.81
1691.62 1081.92 1691.72 1081.92 1691.75 1081.93 1691.79 1081.93 1712.64 1082.13
 1723.8 1082.23 1733.54 1082.34 1751.72 1082.49 1754.43 1082.52 1755.89 1082.53
1760.68 1082.56 1771.93 1082.65 1775.33 1082.67 1781.68 1082.72 1796.22 1082.83
1804.01  1082.9 1817.12 1083.02 1820.05 1083.04 1829.74 1083.11 1838.02 1083.17
1852.13 1083.22 1858.91 1083.26 1868.17 1083.29 1879.81 1083.35 1898.79 1083.55
 1900.7 1083.58  1916.3 1083.84  1921.6 1083.91 1932.34 1084.09  1942.5 1084.21
1948.38 1084.28 1963.39 1084.46 1964.43 1084.47 1967.85 1084.51 1984.29 1084.68
1991.41 1084.74 2005.18 1084.86 2021.37 1084.97 2026.08    1085 2036.91 1085.07
2044.63 1085.11 2046.97 1085.13 2060.67 1085.22 2067.87 1085.25 2081.29 1085.31
2088.76 1085.35 2105.96 1085.43 2108.79 1085.45 2109.66 1085.46 2124.84 1085.56
2130.55 1085.61 2140.88 1085.68 2151.45 1085.76 2156.92  1085.8 2172.34  1085.9
2175.02 1085.92 2193.24 1086.05 2205.05 1086.17 2214.14 1086.23  2231.1 1086.41
2235.03 1086.46 2237.13 1086.49 2244.07 1086.57 2255.93 1086.69 2261.07 1086.75
2276.82 1086.93 2285.26 1087.02 2297.72 1087.19 2301.29 1087.22 2313.13 1087.36
2318.61 1087.42 2333.38 1087.51 2339.51 1087.55 2349.42 1087.61  2360.4  1087.7
2380.91  1087.9  2381.3  1087.9 2382.19 1087.91 2397.55 1088.03  2402.2 1088.06
2413.58 1088.12 2423.09 1088.17 2429.63 1088.22 2443.99 1088.35 2445.67 1088.38
2451.24 1088.51 2461.71 1088.73 2464.88  1088.8  2470.8 1088.81 2485.78 1088.81
2500.76 1088.83 2506.67 1088.83  2520.3 1088.93 2527.57 1088.98 2541.91  1089.1
2548.47 1089.16 2560.68 1089.26 2569.36 1089.33    2574 1089.36 2589.36 1089.46
2590.26 1089.47 2590.64 1089.47 2611.15 1089.62 2622.12 1089.72 2632.05 1089.81
2638.17 1089.86 2652.94 1089.99 2658.41 1090.04 2673.84 1090.16 2680.52 1090.21
2694.73  1090.3 2702.33 1090.36 2715.63 1090.47 2718.38  1090.5 2727.47  1090.6
2736.52 1090.69 2740.44 1090.73 2757.42 1090.91  2766.5    1091 2778.32 1091.12
2782.54 1091.16 2796.53  1091.3 2798.59 1091.32 2799.21 1091.33 2814.62 1091.46
2820.11 1091.51 2830.67 1091.58    2841 1091.65 2846.71 1091.69  2861.9 1091.81
2862.75 1091.81 2865.58 1091.84 2882.79 1091.98 2894.83 1092.08 2903.69 1092.16
2920.22  1092.3 2924.59 1092.34 2926.91 1092.36 2934.64 1092.42 2942.95 1092.49
2945.48 1092.51 2950.18 1092.55 2966.38 1092.69 2975.04 1092.77 2987.27 1092.88
2991.09 1092.91  3003.7 1093.02 3007.12 1093.05 3008.17 1093.06 3023.17 1093.19
3029.06 1093.24 3040.06 1093.32 3049.96 1093.39 3055.24 1093.44 3070.85 1093.57
3071.29 1093.58 3072.75 1093.59 3082.78 1093.69

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
       0     .03  228.13     .03  792.27    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        228.13  792.27             198.12     200  211.36              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.36  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.36  * Reach Len. (ft)         *  198.12  *  200.00  *  211.36  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3749.52  *13241.11  *13190.51  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3749.52  *13241.11  *13190.51  *
* Q Total (cfs)           * 3458.84  * Flow (cfs)              *  510.64  * 2254.32  *  693.88  *
* Top Width (ft)          * 2567.30  * Top Width (ft)          *  220.81  *  564.14  * 1782.35  *
* Vel Total (ft/s)        *    0.11  * Avg. Vel. (ft/s)        *    0.14  *    0.17  *    0.05  *
* Max Chl Dpth (ft)       *   25.13  * Hydr. Depth (ft)        *   16.98  *   23.47  *    7.40  *
* Conv. Total (cfs)       *8244853.0  * Conv. (cfs)            *1217214.0  *5373638.0  *1654001.0  *
* Length Wtd. (ft)        *  202.06  * Wetted Per. (ft)        *  223.46  *  564.57  * 1782.48  *
* Min Ch El (ft)          * 1064.23  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.69  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1033.64  * 5729.76  * 8040.05  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   78.43  *  251.77  * 1054.48  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 20299.99

INPUT
Description:
Station Elevation Data     num=     321
     Sta    Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************************
    6.13 1090.81   17.21 1087.86   26.89 1084.72      44 1079.58   47.65 1078.49
   57.11 1076.03    68.4 1073.15   82.19 1070.01   89.16 1068.77   98.44  1068.6
  109.92 1068.53  130.22 1068.49  130.67 1068.49  131.86 1068.49  151.43 1068.47
  158.95 1068.49  172.19  1068.5  179.66 1068.56  192.94 1068.65   206.6 1068.69
  212.16 1068.71   213.7 1068.69  216.42  1068.5     228 1068.12  234.46 1067.91
  245.16  1066.4  255.22 1064.67   273.9 1064.33  275.97 1064.28  277.13 1064.26
  281.35 1064.24  296.73 1064.18  302.64 1064.18  317.49 1064.15  331.37 1064.14
  338.24 1064.13  356.08 1064.12     359 1064.12  374.61 1064.18  379.76 1064.19
  388.85 1064.23  400.51 1064.31   407.1 1064.36  421.27 1064.43  423.35 1064.45
  430.83 1064.53  587.32 1065.31  602.04 1065.39  608.08 1065.41  618.75 1065.43
  628.84 1065.48  647.49  1065.5   649.6 1065.51  650.78 1065.51  655.07 1065.52
  670.35  1065.6  683.28 1065.72  691.11 1065.81  699.52 1065.93  711.87 1066.07
  729.81 1066.31  732.62 1066.34   733.7 1066.37  753.38 1067.01  762.44 1068.04
  774.14 1069.09  780.75 1069.82  794.89 1071.64  796.99 1071.89     798 1071.97
  804.55 1072.51  813.23 1073.28  815.65 1073.43  819.92 1073.46  836.41 1073.42
  848.66 1073.52  857.17 1073.35  861.97 1073.55  877.92 1073.77  878.21  1073.8
  879.29 1073.77  898.68 1073.68  906.12 1073.85  919.44  1074.6  926.95 1074.76
  940.19 1074.77   943.2  1074.8  954.04 1074.95  959.45 1075.07  960.95 1075.09
   963.6 1075.12  981.71 1075.34  991.94 1075.44 1002.46 1075.54 1021.07 1075.68
 1023.22 1075.71 1024.42 1075.73 1028.78 1075.74 1040.67  1075.8 1043.98 1075.82
 1049.81 1075.87 1064.73 1075.92 1073.16 1075.84 1085.49    1076  1089.4 1076.09
 1103.53 1076.28 1105.66  1076.3 1106.25 1076.31 1107.29 1076.31    1127 1076.52
 1136.03 1076.56 1147.76 1076.59 1164.76 1076.69 1168.52 1076.65 1170.64 1076.75
 1178.27 1076.76 1186.88  1076.8 1189.27 1076.81  1193.5 1076.81 1210.03 1076.98
 1222.24 1077.25 1230.79 1077.43 1250.97  1077.7 1251.55 1077.71 1251.86 1077.71
 1253.01 1077.73  1272.3    1078 1284.35 1078.15 1293.06 1078.28 1300.59 1078.33
 1313.82 1078.45 1327.76 1078.49 1334.57 1078.51 1349.33 1078.54 1355.33 1078.58
 1365.57 1078.65 1376.09 1078.73 1381.83 1078.79 1396.84  1078.9 1398.07 1078.91
  1402.5 1078.94 1414.31 1079.04  1417.6 1079.06  1423.4 1079.11 1438.36 1079.25
 1446.81 1079.33 1459.12 1079.47 1463.05 1079.51 1477.25 1079.69  1479.3 1079.71
 1479.87 1079.72 1495.54 1079.88 1500.63 1079.94 1511.79 1080.02 1521.39 1080.11
 1538.35  1080.2 1542.14 1080.23 1544.28 1080.24 1551.99 1080.27 1560.52 1080.31
  1562.9 1080.32 1576.77  1080.4 1583.66 1080.44 1593.02 1080.51 1604.41 1080.58
 1609.26 1080.63 1625.17 1080.76 1626.74 1080.77 1641.76 1080.94 1645.93 1080.98
    1658 1081.13 1666.68 1081.22 1682.03 1081.41 1687.44 1081.49 1690.49 1081.53
 1701.47 1081.67  1708.2 1081.76 1710.77 1081.79 1728.95 1081.98 1739.51 1082.08
 1749.71 1082.15 1768.25 1082.32 1770.47 1082.34 1771.71 1082.35 1776.22 1082.39
 1787.96 1082.49 1791.22 1082.52 1804.21 1082.62 1811.98 1082.66 1820.45 1082.73
 1832.74 1082.81 1836.69 1082.84 1850.96 1082.96  1853.5 1082.98 1869.19 1083.14
 1874.25 1083.19 1885.43 1083.32 1895.01 1083.45 1901.68 1083.53 1915.77 1083.73
 1925.71 1083.85 1936.52 1083.99 1940.67 1084.04 1957.28 1084.22 1969.41 1084.36
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1978.04 1084.45  1982.9  1084.5  1998.8 1084.65 1999.15 1084.65 2000.46 1084.66
 2015.4 1084.75 2019.55 1084.78 2031.64 1084.85 2040.31 1084.91 2047.88 1084.95
2061.07 1085.04 2064.14 1085.06  2075.2 1085.13 2080.38 1085.17 2081.82 1085.17
2084.36 1085.19 2102.58  1085.3 2112.86 1085.37 2123.34 1085.43 2129.12 1085.48
2144.09 1085.61 2149.94 1085.67 2164.85 1085.84 2177.85 1086.01 2185.61 1086.11
2199.32 1086.32 2206.36 1086.41 2210.34 1086.47 2224.68 1086.68 2226.59  1086.7
2227.12 1086.71 2242.83 1086.97 2247.88 1087.07 2256.79 1087.16 2268.63  1087.3
2285.53 1087.41 2289.39 1087.44 2405.29 1088.44 2413.93 1088.68 2429.21 1088.89
2434.69 1088.98 2448.92 1089.06 2454.02 1089.08 2455.45 1089.08 2470.26 1089.09
 2476.2  1089.1 2486.51 1089.16 2496.96 1089.24 2502.76  1089.3 2517.72 1089.44
2523.65 1089.48 2538.47  1089.6  2551.5 1089.67 2559.23 1089.69 2567.74 1089.72
2579.99 1089.77  2598.4 1089.93 2600.23 1089.95 2600.74 1089.96 2616.48 1090.16
 2621.5 1090.23 2632.72 1090.35 2642.25 1090.46 2648.96 1090.51 2663.01 1090.64
2665.21 1090.65 2673.14 1090.72 2681.45 1090.79 2683.77 1090.81 2687.85 1090.85
2704.53 1090.96 2716.59 1091.05 2725.28 1091.11 2730.19 1091.14 2746.04 1091.27
2747.89 1091.28 2762.69  1091.4  2766.8 1091.43 2778.93 1091.52 2787.55 1091.58
 2802.8 1091.69 2808.31 1091.72 2811.42 1091.74 2822.63 1091.82 2829.07 1091.87
2843.91 1091.98 2849.83 1092.03 2860.15 1092.13 2870.58 1092.23 2876.41 1092.29
2891.34 1092.43 2892.65 1092.45 2897.38 1092.49 2908.89 1092.59  2912.1 1092.61
2917.75 1092.65 2932.85 1092.77 2941.39 1092.83 2953.61 1092.92 2957.63 1092.95
2972.11 1093.08 2973.88 1093.09 2974.37  1093.1 2990.12 1093.22 2995.12 1093.26
3006.36 1093.34 3015.88 1093.39  3032.7 1093.48 3036.64 1093.51 3038.86 1093.52
3046.86 1093.57  3055.1 1093.63  3057.4 1093.64 3071.34 1093.75 3078.15 1093.81
 3081.1 1093.83

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    6.13     .03     228     .03     798    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           228     798            200.62     200  196.54            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.37  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.37  * Reach Len. (ft)         *  200.62  *  200.00  *  196.54  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3752.41  *13655.44  *13796.01  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3752.41  *13655.44  *13796.01  *
* Q Total (cfs)           * 3406.17  * Flow (cfs)              *  484.28  * 2203.55  *  718.34  *
* Top Width (ft)          * 2498.15  * Top Width (ft)          *  216.44  *  570.00  * 1711.71  *
* Vel Total (ft/s)        *    0.11  * Avg. Vel. (ft/s)        *    0.13  *    0.16  *    0.05  *
* Max Chl Dpth (ft)       *   25.25  * Hydr. Depth (ft)        *   17.34  *   23.96  *    8.06  *
* Conv. Total (cfs)       *8682787.0  * Conv. (cfs)            *1234501.0  *5617146.0  *1831141.0  *
* Length Wtd. (ft)        *  199.37  * Wetted Per. (ft)        *  219.20  *  570.56  * 1711.89  *
* Min Ch El (ft)          * 1064.12  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.66  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    * 1016.57  * 5668.01  * 7974.58  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   77.44  *  249.17  * 1046.01  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 20099.99

INPUT
Description:
Station Elevation Data     num=     338
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 1089.03    3.06 1088.79   13.22 1089.31    32.2 1083.46   34.02 1082.89
   38.55 1081.55   54.83 1076.76   61.35  1075.1   75.63 1071.43    90.5 1069.73
   96.43 1068.77  111.22 1068.62  117.24 1068.56  119.65 1068.55  138.04 1068.54
   148.8 1068.53  158.85 1068.53  164.41 1068.54  179.65 1068.55  183.88 1068.56
  196.76 1068.61  200.45 1068.63  207.09 1068.52  221.26 1068.34  228.42 1067.64
  236.24 1066.88  242.06 1066.49  256.55 1064.94  262.06 1064.33  277.62 1063.95
  283.66 1063.82   293.8 1063.82  304.47 1063.83  309.97 1063.87  325.27 1064.01
  326.15 1064.01  329.21 1064.04  342.32 1064.17  346.08 1064.21  352.84 1064.27
  366.88 1064.38  374.66 1064.42  387.68 1064.47  390.83 1064.49  401.87  1064.5
  408.49 1064.52  423.19 1064.56  429.29 1064.58  439.36 1064.62  450.09 1064.65
  469.43 1064.74   470.9 1064.75  471.71 1064.76  474.54 1064.78  637.32 1064.78
  644.32 1064.81  658.13 1064.83  665.79 1064.86  678.93 1064.95  681.96 1064.98
  692.54 1065.07  698.13 1065.12  699.74 1065.13  702.62 1065.17  720.54 1065.42
  731.76 1065.73  741.34 1065.99  746.65 1066.27  762.15 1067.26   765.2 1067.63
     779 1069.36  782.95 1069.87  795.17 1071.44  803.75 1072.51  811.35  1073.2
  811.82 1073.23  824.56 1074.04  827.51 1074.08  837.86 1074.25  843.69 1074.34
  845.36 1074.36  848.36 1074.38  866.16 1074.49  877.51 1074.62  886.97 1074.76
  906.66 1074.97  907.77 1074.98  908.38 1074.99  910.53 1075.01  924.56 1075.11
  928.57 1075.14  940.72 1075.24  949.38 1075.31  964.95 1075.46  970.18 1075.51
  973.07 1075.55  983.19 1075.64  990.98 1075.72 1005.42 1075.84 1011.79 1075.89
 1023.25 1075.98 1032.59 1076.05  1052.4 1076.18  1053.4 1076.18 1055.86 1076.19
  1074.2 1076.31 1086.28 1076.39   1095 1076.44 1102.46 1076.49 1115.81 1076.58
 1118.64 1076.59 1128.53 1076.67 1134.81  1076.7 1136.61 1076.72 1150.98  1076.8
 1157.41 1076.85 1168.99 1076.91 1178.22 1076.95 1198.15  1077.1 1199.02 1077.11
 1201.19 1077.13 1215.67 1077.23 1219.82 1077.27 1231.85 1077.34 1240.63 1077.43
 1248.02 1077.53 1261.43 1077.63  1264.2 1077.66 1273.86 1077.65 1282.23 1077.65
 1285.58 1077.65 1303.04 1077.69 1312.71 1077.76 1323.84 1077.75 1343.88 1077.95
 1344.64 1077.95 1345.06 1077.96 1346.52 1077.98 1361.24  1078.2 1365.45 1078.19
 1373.03 1078.26 1386.25  1078.4 1393.57 1078.48 1407.05 1078.63 1419.18 1078.71
 1427.86 1078.78  1442.1 1078.91 1448.66 1078.99 1458.27 1079.07 1469.47 1079.14
 1489.62 1079.31 1490.27 1079.32 1491.85 1079.34 1506.79 1079.54 1511.07  1079.6
 1522.96 1079.76 1531.87 1079.91 1539.14 1079.98 1552.68 1080.22 1555.31 1080.24
 1564.52 1080.37 1571.49 1080.46 1573.48 1080.49 1577.07 1080.54 1594.29 1080.73
 1606.22 1080.88 1615.09 1080.98   1620 1081.04 1635.89 1081.24 1637.18 1081.26
 1652.35 1081.45  1656.7 1081.51 1668.52 1081.62  1677.5  1081.7 1693.67  1081.8
  1698.3 1081.83 1700.87 1081.84 1709.85  1081.9 1719.11 1081.94 1722.81 1081.97
 1739.91 1082.09 1751.97 1082.18 1760.71 1082.25 1781.11 1082.43 1781.52 1082.44
 1782.52 1082.45 1797.91 1082.59 1802.32 1082.63 1814.09 1082.74 1823.13 1082.82
 1830.25 1082.89 1843.93 1083.01 1846.42 1083.03 1855.17  1083.1 1864.73 1083.17
 1868.56  1083.2 1885.53 1083.33 1894.95 1083.41 1906.34 1083.54 1911.12 1083.59
 1927.14  1083.8  1927.3  1083.8 1927.84  1083.8 1947.95 1084.02 1959.64  1084.1
 1968.75 1084.16 1985.15 1084.25 1989.55 1084.27 1991.99 1084.28 2000.51 1084.33
 2010.36 1084.39 2024.34  1084.5 2031.16 1084.54 2040.51 1084.65 2051.96 1084.75
  2072.6     1085 2072.77    1085 2073.17 1085.01 2089.02 1085.23 2093.57 1085.29
  2105.2 1085.45 2114.37 1085.58 2121.38 1085.68 2135.18 1085.87 2137.55  1085.9
 2145.84 1086.01 2153.72 1086.11 2155.98 1086.14 2160.04 1086.19 2176.79 1086.41
 2186.06 1086.53 2197.59 1086.67 2218.34 1086.88 2218.39 1086.88 2218.51 1086.88
 2234.59 1086.99 2239.19 1087.02 2250.76 1086.94    2260  1086.9 2266.94 1086.86
  2280.8 1086.76  2283.1 1086.82 2291.17    1087 2299.28 1087.18 2301.61 1087.23
 2305.79 1087.27 2322.41 1087.44 2331.63 1087.55 2343.21 1087.75  2347.8 1087.84
 2363.83 1088.24 2363.97 1088.24 2364.02 1088.24 2380.15 1088.42 2384.82 1088.48
```

2396.31	1088.59	2405.62	1088.69	2412.49	1088.77	2426.43	1088.92	2428.66	1088.94
2436.5	1089.01	2444.84	1089.09	2447.23	1089.11	2461.01	1089.27	2468.03	1089.36
2477.19	1089.49	2488.84	1089.68	2493.36	1089.74	2509.16	1089.97	2509.53	1089.97
2509.64	1089.97	2525.7	1090.15	2530.45	1090.2	2538.97	1090.28	2551.25	1090.39
2568.12	1090.48	2572.05	1090.5	2574.23	1090.51	2581.83	1090.55	2590.4	1090.58
2592.85	1090.6	2606.57	1090.71	2613.66	1090.77	2622.74	1090.88	2634.46	1090.98
2654.5	1091.16	2655.09	1091.16	2655.26	1091.17	2671.26	1091.28	2676.07	1091.31
2687.44	1091.39	2696.87	1091.45	2703.61	1091.51	2717.68	1091.62	2719.79	1091.64
2727.16	1091.72	2735.95	1091.81	2738.48	1091.83	2752.13	1091.97	2759.28	1092.04
2772.16	1092.15	2780.09	1092.22	2784.48	1092.25	2799.83	1092.37	2800.65	1092.37
2800.89	1092.38	2816.83	1092.49	2821.69	1092.53	2830.46	1092.6	2842.5	1092.7
2849.17	1092.77	2863.3	1092.9	2865.34	1092.91	2872.49	1092.98	2881.51	1093.07
2884.11	1093.09	2888.76	1093.14	2904.91	1093.28	2913.86	1093.35	2925.71	1093.45
2945.15	1093.58	2946.21	1093.59	2946.51	1093.59	2962.38	1093.67	2967.32	1093.69
2978.55	1093.77	2988.12	1093.84	3005.35	1094.01	3008.93	1094.04	3010.9	1094.06
3017.82	1094.13	3029.73	1094.24	3043.25	1094.36	3050.53	1094.43	3059.43	1094.52
3071.34	1094.65	3075.59	1094.68	3086.77	1094.8				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	228.42	.03	811.82	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
228.42	811.82	200.23	200	199.28	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1089.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1089.37	Reach Len. (ft)	200.23	200.00	199.28
Crit W.S. (ft)		Flow Area (sq ft)	3737.52	14046.61	13477.56
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	3737.52	14046.61	13477.56
Q Total (cfs)	3354.95	Flow (cfs)	451.85	2215.24	687.87
Top Width (ft)	2468.38	Top Width (ft)	228.42	583.40	1656.56
Vel Total (ft/s)	0.11	Avg. Vel. (ft/s)	0.12	0.16	0.05
Max Chl Dpth (ft)	25.55	Hydr. Depth (ft)	16.36	24.08	8.14
Conv. Total (cfs)	8779934.0	Conv. (cfs)	1182484.0	5797298.0	1800152.0
Length Wtd. (ft)	199.89	Wetted Per. (ft)	231.51	583.98	1656.68
Min Ch El (ft)	1063.82	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.64	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	999.33	5604.41	7913.05
C & E Loss (ft)		Cum SA (acres)	76.41	246.52	1038.41

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 19899.99

INPUT
Description:
Station Elevation Data num= 336

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1088.7	4.94	1087.72	9.73	1086.79	11.68	1086.19	30.55	1080.39
40.97	1077.43	51.37	1074.38	70.27	1069.54	72.19	1069.05	76.9	1068.86
93.01	1068.47	99.56	1068.47	113.83	1068.7	128.87	1068.66	134.65	1068.67
137.84	1068.59	148.86	1068.62	153.98	1068.67	155.48	1068.68	158.16	1068.7
176.29	1068.82	187.45	1068.88	197.11	1068.93	216.75	1068.71	217.93	1068.7
218.58	1068.64	218.88	1068.6	220.83	1068.33	234.73	1066.59	238.75	1065.84
250.87	1064.63	259.58	1064.28	267.03	1064.2	280.39	1064.07	292.79	1064.12
301.22	1064.16	315.47	1064.21	322.04	1064.22	331.61	1064.24	342.86	1064.23
347.77	1064.27	363.68	1064.33	573.84	1064.1	580.63	1064.1	589.99	1064.09
592.7	1064.1	597.6	1064.11	613.52	1064.17	622.29	1064.24	634.34	1064.33
652.6	1064.51	655.16	1064.53	656.19	1064.54	675.98	1064.68	685.5	1064.71
696.8	1064.74	703.03	1064.76	717.62	1064.81	719.17	1064.82	724.56	1064.87
735.32	1064.99	738.44	1065.04	744.09	1065.25	759.26	1065.7	773.38	1066.81
780.08	1067.26	783.77	1067.65	796.52	1069.01	799.91	1069.38	800.9	1069.49
802.68	1069.65	820.03	1071.43	821.72	1071.6	832.22	1072.33	842.54	1072.85
861.27	1073.72	863.36	1073.83	864.51	1073.87	868.49	1074.03	880.65	1074.55
884.18	1074.67	890.57	1074.79	905	1075.14	919.86	1075.31	925.82	1075.39
940.45	1075.49	945.25	1075.52	946.64	1075.53	961.4	1075.62	967.47	1075.67
977.54	1075.76	988.28	1075.87	1007.75	1076.06	1009.1	1076.07	1009.85	1076.08
1012.41	1076.1	1029.93	1076.26	1037.05	1076.32	1050.74	1076.43	1066.35	1076.56
1071.57	1076.6	1074.44	1076.63	1084.37	1076.72	1090.59	1076.78	1092.39	1076.81
1106.73	1076.98	1113.21	1077.07	1122.88	1077.19	1134.03	1077.34	1154.23	1077.54
1154.85	1077.55	1155.18	1077.55	1156.34	1077.56	1171.33	1077.66	1175.67	1077.69
1187.47	1077.76	1196.49	1077.82	1212.83	1077.95	1217.31	1077.99	1219.76	1078.01
1228.29	1078.08	1238.13	1078.16	1242.12	1078.18	1258.95	1078.29	1268.21	1078.35
1279.77	1078.41	1284.36	1078.44	1300.26	1078.55	1300.59	1078.55	1300.71	1078.55
1321.41	1078.75	1330.02	1078.85	1342.23	1078.98	1359.31	1079.19	1363.05	1079.24
1372.22	1079.35	1381.25	1079.45	1383.87	1079.48	1397.4	1079.61	1404.69	1079.69
1417.9	1079.8	1425.51	1079.86	1429.69	1079.9	1444.19	1080	1445.84	1080.02
1446.33	1080.02	1447.2	1080.02	1467.15	1080.14	1476.5	1080.18	1487.97	1080.24
1494.29	1080.28	1508.79	1080.37	1510.44	1080.38	1516.14	1080.43	1529.61	1080.54
1535.09	1080.59	1550.43	1080.73	1558.89	1080.82	1571.25	1080.94	1575.03	1080.97
1588.11	1081.09	1592.07	1081.13	1593.68	1081.15	1612.89	1081.34	1622.98	1081.44
1633.71	1081.56	1639.63	1081.62	1654.53	1081.76	1660.07	1081.8	1671.92	1081.89
1675.35	1081.92	1688.06	1082	1696.17	1082.06	1710.86	1082.18	1716.99	1082.23
1720.37	1082.27	1732.03	1082.39	1737.81	1082.45	1740.17	1082.47	1758.63	1082.68
1768.8	1082.79	1779.45	1082.9	1784.96	1082.95	1800.28	1083.11	1803.99	1083.14
1821.09	1083.31	1833.4	1083.43	1841.92	1083.52	1849.55	1083.58	1862.74	1083.71
1865.7	1083.72	1875.96	1083.79	1883.56	1083.84	1898	1083.91	1904.38	1083.94
1915.94	1084	1925.19	1084.05	1945.24	1084.18	1946.02	1084.19	1946.44	1084.19
1947.91	1084.2	1962.59	1084.33	1966.84	1084.36	1978.74	1084.5	1987.66	1084.58
1994.88	1084.67	2008.48	1084.8	2011.03	1084.83	2019.88	1084.91	2027.18	1084.98
2029.3	1084.99	2033.13	1085.02	2050.12	1085.15	2062.42	1085.26	2070.94	1085.33
2075.62	1085.37	2091.76	1085.56	2091.84	1085.56	2107.93	1085.73	2112.58	1085.78
2124.07	1085.9	2133.4	1086	2150.32	1086.19	2154.22	1086.23	2156.36	1086.26
2163.8	1086.36	2172.51	1086.5	2175.04	1086.54	2188.67	1086.66	2195.86	1086.72
2204.81	1086.81	2216.68	1086.83	2220.96	1086.9	2235.76	1087.14	2237.1	1087.16
2237.5	1087.17	2253.25	1087.12	2258.32	1087.11	2267.49	1087.04	2279.14	1086.91
2285.55	1087.11	2299.96	1087.57	2301.7	1087.61	2307.73	1087.69	2317.85	1087.81
2320.78	1087.84	2326.09	1087.87	2341.6	1087.93	2355.39	1088.03	2362.42	1088.06
2366.3	1088.09	2379.68	1088.27	2382.44	1088.31	2383.24	1088.32	2398.59	1088.54
2404.06	1088.63	2414.73	1088.76	2424.88	1088.91	2430.89	1088.98	2445.7	1089.14
2447.04	1089.15	2451.65	1089.16	2463.18	1089.21	2466.52	1089.22	2472.57	1089.25
2487.34	1089.29	2501.87	1089.35	2508.17	1089.38	2523.61	1089.46	2527.78	1089.49
2528.98	1089.5	2543.92	1089.67	2549.81	1089.72	2560.07	1089.9	2570.62	1090.06
2589.76	1090.37	2591.45	1090.4	2592.37	1090.41	2595.58	1090.47	2608.52	1090.68

```
2612.27 1090.76 2624.67 1091.01 2633.09 1091.19 2648.35 1091.42 2653.91  1091.5
2656.96 1091.51 2667.53 1091.51 2673.11 1091.49 2674.73 1091.49 2689.26 1091.39
2695.55 1091.37 2706.95  1091.4 2716.37  1091.4 2721.55 1091.43 2737.19 1091.56
 2737.7 1091.56  2739.5 1091.58 2758.01 1091.77    2770 1091.92 2778.83 1092.03
2786.15 1092.12 2799.65 1092.27 2811.46 1092.38 2818.44 1092.44 2820.47 1092.45
 2834.6 1092.55 2841.29  1092.6 2850.74 1092.66 2862.11 1092.75 2866.89 1092.78
2882.93 1092.87 2883.03 1092.87 2883.42 1092.88 2899.18 1093.02 2903.75 1093.06
2915.34 1093.24 2924.57 1093.35 2941.31 1093.56 2945.39 1093.62 2947.63 1093.65
2955.38 1093.74 2966.21 1093.87 2970.61 1093.93 2987.03 1094.13 2999.91 1094.27
3007.85 1094.36 3012.22 1094.39 3027.35  1094.5 3028.37 1094.51 3028.67 1094.51
 3029.2 1094.52 3049.49 1094.67 3060.66 1094.78 3070.31  1094.9 3076.82 1094.99
3082.82 1095.07

Manning's n Values          num=       3
    Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
       0     .03  218.88     .03  820.03    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        218.88  820.03             1195.9    1200 1343.59             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.37  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.37  * Reach Len. (ft)         * 1195.90  * 1200.00  * 1343.59  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3781.60  *14721.39  *12740.62  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3781.60  *14721.39  *12740.62  *
* Q Total (cfs)           * 3250.32  * Flow (cfs)              *  447.28  * 2218.12  *  584.91  *
* Top Width (ft)          * 2505.23  * Top Width (ft)          *  218.88  *  601.15  * 1685.20  *
* Vel Total (ft/s)        *    0.10  * Avg. Vel. (ft/s)        *    0.12  *    0.15  *    0.05  *
* Max Chl Dpth (ft)       *   25.30  * Hydr. Depth (ft)        *   17.28  *   24.49  *    7.56  *
* Conv. Total (cfs)       *9004764.0  * Conv. (cfs)             *1239155.0  *6145152.0  *1620457.0  *
* Length Wtd. (ft)        * 1234.02  * Wetted Per. (ft)        *  222.23  *  601.71  * 1685.37  *
* Min Ch El (ft)          * 1064.07  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.64  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  982.05  * 5538.37  * 7853.08  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   75.38  *  243.80  * 1030.76  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 18699.99

INPUT
Description:
Station Elevation Data     num=     334
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
    3.23 1091.71     7.16 1090.61    23.78 1085.44    23.87 1085.41    44.33 1079.01
   57.06 1075.49    64.87 1073.54    77.48 1070.96   126.51 1070.71   131.2 1070.63
  147.05 1070.44   156.87 1070.09   167.6 1069.69   173.5 1069.46   188.15    1069
  190.13 1068.96   198.59 1068.83   206.76 1068.69   208.69 1068.65   211.79 1068.56
  229.24 1068.06   231.25 1067.85   311.42  1066.4   319.25 1066.17   331.96  1066.1
  339.83 1065.49   352.51 1064.77   372.97 1064.34   373.06 1064.34    373.1 1064.34
  373.31 1064.34   389.74 1064.23    393.6 1064.22   406.37 1064.18   414.15 1064.17
   426.7 1064.15   434.69 1064.14   439.63 1064.14   455.24 1064.17   456.27 1064.18
  460.68 1064.23   475.79  1064.4   489.54 1064.65   496.33 1064.78   506.17 1064.99
  516.87 1065.22    522.8 1065.38   537.42 1065.79   539.44 1065.88   548.04 1066.27
  556.08 1066.62   557.97 1066.71   561.01 1066.89   578.51 1067.92   587.87 1068.53
  599.06 1069.27   614.74 1070.32    619.6 1070.65    626.3 1070.96    635.4 1071.38
  640.15  1071.6    641.6 1071.62    660.7 1071.93   668.46    1072   681.24 1072.11
  695.33 1072.26   701.79 1072.33   722.19 1072.58   722.33 1072.58   722.76 1072.59
  739.05 1072.79   742.88 1072.83   755.68 1073.01   763.42 1073.08   772.31  1073.2
  783.97 1073.32   788.94 1073.37   804.51 1073.54   805.58 1073.55   810.12  1073.6
  825.06 1073.74   829.64 1073.77   845.61 1073.88   856.51 1073.93   866.15 1073.98
  883.37 1074.11    886.7 1074.13   897.48 1074.27   905.38 1074.37   907.24 1074.39
  910.23 1074.42   927.79 1074.63   938.65 1074.71   948.33 1074.72   963.96 1074.72
  968.88 1074.74   971.92 1074.74   984.85 1074.77   988.55 1074.79   989.43 1074.79
  990.82  1074.8  1009.97 1074.94  1021.82 1075.01  1030.52 1075.05  1044.55 1075.05
 1051.06 1075.07  1055.09 1075.09  1071.61 1075.09  1072.21 1075.09  1088.35 1075.24
 1092.15 1075.24  1098.28  1075.3   1112.7  1075.5  1125.14 1075.71  1133.24 1075.86
    1152 1076.16  1153.79 1076.19  1159.57 1076.29  1171.52 1076.49  1174.34 1076.55
 1188.15 1076.75  1194.88 1076.86  1205.73 1076.97  1215.43 1077.06  1221.43 1077.11
 1235.97 1077.25  1238.06 1077.27  1246.93 1077.37  1256.52 1077.47  1259.46  1077.5
 1277.07 1077.69  1286.32  1077.8  1297.61 1077.93   1304.6 1078.01  1318.16  1078.2
 1321.23 1078.24   1334.3 1078.47   1338.7 1078.55  1340.05 1078.57  1359.25 1078.92
 1366.91 1079.05  1379.79 1079.28  1387.76 1079.39  1400.34 1079.54   1404.4 1079.58
 1420.88 1079.73  1421.03 1079.73  1421.66 1079.74  1437.66 1079.88  1441.43 1079.92
 1454.29 1080.08  1461.98 1080.19  1470.93 1080.31  1482.52 1080.48  1487.57 1080.54
 1503.07 1080.75   1504.2 1080.76  1509.03 1080.82  1520.83 1080.99  1523.61 1081.02
 1537.46 1081.19  1544.16 1081.27   1554.1 1081.37  1564.71 1081.48  1570.74 1081.53
 1585.25 1081.67  1587.37 1081.69  1596.39 1081.77    1604 1081.84  1605.79 1081.86
 1620.63 1082.01  1626.34 1082.05  1635.55 1082.13  1646.89 1082.25  1662.41 1082.44
 1667.43 1082.51  1683.75 1082.71  1687.17 1082.76  1687.98 1082.77   1703.8 1082.91
 1708.52 1082.95  1720.44 1083.04  1729.07 1083.12  1737.07 1083.19  1749.62 1083.33
 1769.86 1083.59  1770.16 1083.59  1771.11 1083.61  1786.97 1083.82  1790.71 1083.87
 1796.73 1083.95  1811.25 1084.15  1823.59  1084.3   1831.8  1084.4  1850.45 1084.59
 1852.34 1084.61  1858.47 1084.65  1870.14 1084.73  1872.89 1084.75  1877.32 1084.78
 1893.43 1084.87  1903.41 1084.94  1913.98 1085.05  1931.04 1085.09  1934.53  1085.1
 1936.67 1085.08  1945.83 1085.08  1955.07 1085.07  1957.91 1085.15  1975.62 1085.53
 1984.77 1085.73  1996.16 1085.94  2011.63 1086.09  2016.71 1086.12   2033.2 1086.24
 2037.25 1086.26   2038.5 1086.26   2057.8 1086.37  2065.36 1086.41  2078.35 1086.47
 2092.22 1086.57  2098.89  1086.6  2119.09 1086.71  2119.44 1086.72  2120.56 1086.72
 2139.98 1086.82  2145.95 1086.83  2160.53 1086.88  2172.81 1086.92  2181.07 1086.95
 2199.68 1087.06  2201.62 1087.08  2207.92 1087.15  2219.44 1087.20  2222.17 1087.32
 2226.54 1087.38  2242.71 1087.57   2253.4  1087.6  2263.26 1087.64  2280.27 1087.66
  2283.8 1087.67  2295.28 1087.74  2304.35 1087.79  2307.13  1087.8  2324.89 1087.86
 2333.99 1087.91  2345.44 1087.95  2360.86 1088.06  2365.99 1088.09  2382.64 1088.21
 2386.53 1088.24  2387.72 1088.24  2407.07 1088.36  2414.58 1088.39  2427.62 1088.45
 2441.45 1088.53  2448.17 1088.57  2468.31 1088.75  2468.71 1088.75    2470 1088.77
 2485.59 1088.96  2489.26 1088.99  2502.22 1089.18   2509.8 1089.25  2522.04 1089.41
 2530.35 1089.52  2535.49 1089.57   2550.9  1089.8  2552.12 1089.81  2557.37  1089.9
 2571.44  1090.1  2575.76 1090.17  2591.99 1090.39  2602.63 1090.52  2612.53 1090.62
 2629.49 1090.76  2633.08 1090.78  2644.73 1090.87  2653.62 1090.93  2656.35 1090.94
 2674.17 1091.01  2683.22 1091.02  2694.71 1091.04  2710.08 1091.04  2715.26 1091.05
 2732.09 1091.07   2735.8 1091.06  2736.95 1091.07  2756.35 1091.11  2763.81 1091.15
  2776.9 1091.22  2790.67 1091.29  2797.44 1091.34  2817.54 1091.43  2817.99 1091.44
 2819.45 1091.44  2838.53 1091.55   2844.4 1091.58  2859.08 1091.62  2871.26  1091.7
 2879.63 1091.76  2898.13 1091.89  2900.17 1091.91  2906.81 1091.94  2920.72 1092.12
```

```
 2924.99 1092.18 2941.26 1092.38 2951.85 1092.53 2961.81 1092.67 2978.72 1092.91
 2982.35 1092.96 2994.17 1093.13  3002.9 1093.22 3005.58 1093.25 3023.44 1093.44
 3032.44 1093.54 3043.99 1093.66 3059.31 1093.81 3064.54 1093.86 3081.53 1094.02
 3085.08 1094.04 3086.17 1094.05 3105.63 1094.16 3113.03 1094.22 3126.17 1094.32
  3139.9 1094.43 3146.72 1094.48 3166.76 1094.62 3167.26 1094.63  3168.9 1094.64
 3187.81 1094.77 3193.62 1094.81 3208.35 1094.93 3211.81 1094.96

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
    3.23     .03   77.48     .03   626.3    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          77.48   626.3            198.34     200  205.47             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.37  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.37  * Reach Len. (ft)         *  198.34  *  200.00  *  205.47  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  657.99  *12226.55  *15858.83  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  657.99  *12226.55  *15858.83  *
* Q Total (cfs)           * 2968.05  * Flow (cfs)              *   61.33  * 2003.70  *  903.02  *
* Top Width (ft)          * 2507.99  * Top Width (ft)          *   66.34  *  548.82  * 1892.83  *
* Vel Total (ft/s)        *    0.10  * Avg. Vel. (ft/s)        *    0.09  *    0.16  *    0.06  *
* Max Chl Dpth (ft)       *   25.23  * Hydr. Depth (ft)        *    9.92  *   22.28  *    8.38  *
* Conv. Total (cfs)       *7099827.0  * Conv. (cfs)            *146701.2  *4793017.0  *2160109.0  *
* Length Wtd. (ft)        *  201.52  * Wetted Per. (ft)        *   68.90  *  549.11  * 1892.95  *
* Min Ch El (ft)          * 1064.14  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.81  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  921.10  * 5167.19  * 7412.01  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   71.47  *  227.96  *  975.58  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 18499.99

INPUT
Description:
Station Elevation Data    num=     317
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
       0 1090.59   12.86 1089.31   21.56 1086.55   33.33 1082.92   51.62 1077.43
    53.8 1076.76   55.19 1076.38   61.62 1074.76      72 1072.11   74.27 1071.54
   77.77 1071.35  135.67 1070.88  139.25 1070.83  155.77 1070.42  156.06 1070.41
  156.13 1070.41  172.88  1069.8   176.6 1069.67  189.69 1069.33  197.07 1069.18
   206.5 1069.13  217.53 1068.94  223.32 1068.87  232.75 1068.22     238 1067.86
  240.12 1067.45  324.19 1066.31  340.34 1065.77  340.99 1065.73  344.05 1065.56
  357.81 1064.79  360.81 1064.64  365.45 1064.52  381.27    1064  391.61  1063.9
  401.74 1063.75  408.25 1063.76  422.21 1063.81   438.2 1063.95  441.88 1063.98
  442.67 1063.99  458.68 1064.21  463.14 1064.28  470.06 1064.42  483.61 1064.68
  492.31 1064.87  504.07 1065.12  509.12 1065.24  524.54 1065.63  525.94 1065.68
  532.35 1065.97  542.75 1066.41  545.01 1066.53  559.56 1067.54  565.48 1067.97
  574.68  1068.7  585.94 1069.59  593.18 1070.18  606.41 1071.25  615.56 1071.89
   626.5 1072.66  626.88 1072.69  643.62 1073.36  647.35 1073.46  660.43 1073.68
  667.81 1073.79  677.24 1073.88  688.28    1074  694.05 1074.05  708.75 1074.19
  710.87  1074.2  720.64 1074.27  729.21 1074.32  731.59 1074.34  749.68 1074.48
  761.31  1074.6  770.15 1074.67  778.12 1074.76  790.61 1074.87  794.92 1074.93
  811.08 1075.12  811.74 1075.13  814.79 1075.17  828.55 1075.34  831.55 1075.38
  845.37 1075.55  852.02 1075.63  862.35 1075.77  872.49 1075.89  878.99 1075.95
  892.95 1076.17  908.94 1076.36  913.42 1076.42  929.42 1076.59  933.89 1076.66
  940.81 1076.75  954.35 1076.94  963.05 1077.07  974.82 1077.21  993.12 1077.37
  995.29 1077.39  996.68  1077.4 1003.09 1077.44 1013.48 1077.49 1015.75 1077.51
 1019.27 1077.53 1036.22 1077.59 1045.42 1077.63 1056.69 1077.67 1071.57 1077.71
 1077.15 1077.72 1080.74 1077.72 1097.23 1077.68 1097.62 1077.68 1097.73 1077.68
 1118.09 1077.58 1131.17 1077.56 1138.56 1077.55 1150.03  1077.6 1159.03 1077.63
 1176.19 1077.72 1179.49 1077.73 1181.61 1077.74 1191.37 1077.77 1198.42 1077.79
 1199.96  1077.8 1202.33  1077.8 1220.43 1077.82 1228.49 1077.84 1240.89 1077.89
 1254.64 1077.99 1261.36 1078.04  1280.8 1078.19 1281.83  1078.2 1282.48 1078.21
 1285.52 1078.23  1299.3 1078.34 1302.29 1078.36 1306.95 1078.39 1322.76 1078.51
 1332.92  1078.6 1343.23 1078.68 1349.74 1078.76  1363.7  1078.9 1366.54 1078.93
 1379.67 1079.07 1384.16 1079.11  1385.4 1079.12 1404.63 1079.26 1411.56  1079.3
  1425.1 1079.37 1437.71 1079.46 1445.57 1079.52 1463.86  1079.7 1466.03 1079.72
 1473.82  1079.8  1486.5 1079.93 1501.04 1080.06 1506.97 1080.11 1516.17 1080.19
 1527.43  1080.3 1534.67 1080.37  1547.9  1080.5 1567.97 1080.73 1568.37 1080.73
 1568.47 1080.73 1588.84 1080.95 1594.63 1081.01  1609.3 1081.13 1620.78 1081.22
 1629.77 1081.28 1646.93 1081.47 1650.24  1081.5 1662.11 1081.72 1669.17 1081.84
  1670.7 1081.87 1685.98 1082.15 1691.17 1082.24 1702.79 1082.41 1711.64 1082.52
  1719.6 1082.58 1732.11 1082.63 1736.41 1082.64 1752.57 1082.69 1753.23 1082.69
 1756.26 1082.72 1773.04 1082.85  1777.7 1082.91 1793.51 1083.09 1803.84 1083.25
 1813.97  1083.4    1830 1083.52 1834.44 1083.57 1850.41 1083.55  1854.1 1083.54
 1854.91 1083.54 1856.16 1083.53 1875.38 1083.43 1887.73 1083.34 1895.84 1083.27
 1908.46 1083.48 1916.31  1083.6 1934.61 1083.81 1936.78 1083.84 1944.56  1083.9
 1957.25 1084.02 1960.76 1084.05 1977.71  1084.2 1986.91 1084.29 1998.18 1084.41
 2013.07 1084.57 2018.65 1084.63  2038.7 1084.81 2039.11 1084.82 2039.23 1084.82
 2059.58 1084.96 2065.37 1085.02 2080.05 1085.16 2091.53 1085.34 2100.52 1085.49
 2117.68 1085.76 2120.98 1085.81 2132.84 1085.97 2141.45 1086.09 2143.83 1086.12
 2161.92 1086.34 2169.98 1086.37 2182.38 1086.42 2196.14 1086.44 2202.85 1086.44
 2222.29 1086.77 2223.32 1086.78 2226.99 1086.83 2243.79 1087.01 2248.44 1087.04
 2264.25  1087.1  2274.6 1087.14 2284.72 1087.18 2300.75 1087.27 2305.19  1087.3
 2321.14 1087.41 2325.65 1087.44  2326.9 1087.45 2346.12 1087.62 2353.05 1087.69
 2366.59 1087.82 2379.21 1087.95 2387.06 1088.03 2405.36 1088.25 2407.52 1088.27
 2415.29 1088.37 2427.99 1088.55 2431.51  1088.6 2448.46 1088.81 2457.67 1088.92
 2468.92 1089.03 2483.81 1089.17 2489.39 1089.22 2509.44 1089.36 2509.86 1089.36
 2526.59 1089.49 2530.33 1089.52 2536.12 1089.58 2550.79 1089.72 2560.22 1089.85
 2571.26 1089.94 2588.43 1090.09 2591.73 1090.13 2593.84 1090.14 2603.58 1090.17
 2610.65 1090.18 2612.19 1090.19 2614.58 1090.19 2632.66 1090.22 2644.28 1090.26
 2653.13  1090.3 2666.88  1090.4  2673.6 1090.44  2677.9 1090.48 2694.06 1090.62
 2697.73 1090.65 2714.53 1090.82 2719.19 1090.86    2735 1091.02 2745.34 1091.04
 2755.46 1091.07  2771.5 1091.11 2775.93 1091.12 2791.88 1091.49  2796.4  1091.6
 2797.65 1091.61 2816.87 1091.76  2823.8 1091.77 2837.33 1091.81 2849.95 1091.86
  2857.8  1091.9 2876.11 1092.02 2878.27 1092.04 2886.02 1092.11 2898.73 1092.22
 2902.26 1092.26  2919.2 1092.45 2928.41 1092.55 2939.67 1092.68 2954.57 1092.84
 2960.14  1092.9 2980.16 1093.07  2980.6 1093.08 2980.72 1093.08 3001.07 1093.28
 3006.87 1093.35 3021.54 1093.51 3033.02 1093.64 3042.01 1093.74 3059.18 1093.93
 3062.47 1093.97 3062.49 1093.97

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
       0     .03  232.75     .03  615.56    .045
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        232.75  615.56            204.72     200  181.41              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.37  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.37  * Reach Len. (ft)         *  204.72  *  200.00  *  181.41  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3611.01  * 8920.30  *15684.19  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3611.01  * 8920.30  *15684.19  *
* Q Total (cfs)           * 2910.95  * Flow (cfs)              *  485.25  * 1527.50  *  898.20  *
* Top Width (ft)          * 2499.31  * Top Width (ft)          *  220.52  *  382.81  * 1895.98  *
* Vel Total (ft/s)        *    0.10  * Avg. Vel. (ft/s)        *    0.13  *    0.17  *    0.06  *
* Max Chl Dpth (ft)       *   25.62  * Hydr. Depth (ft)        *   16.37  *   23.30  *    8.27  *
* Conv. Total (cfs)       *6864939.0  * Conv. (cfs)            *  *1144366.0  *3602328.0  *2118245.0  *
* Length Wtd. (ft)        *  194.80  * Wetted Per. (ft)        *  223.12  *  383.16  * 1896.12  *
* Min Ch El (ft)          * 1063.75  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.82  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  911.38  * 5118.64  * 7337.62  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   70.81  *  225.82  *  966.65  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 18299.99

INPUT
Description:
Station Elevation Data    num=     312
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
       0 1091.29      13 1088.64   13.21 1088.63   13.73 1088.47   29.52 1083.65
   33.99 1082.29   45.73 1078.81   54.77 1076.24   61.93 1074.45  117.12 1071.89
  128.84 1071.87   137.9 1071.91   157.8 1071.38  158.68 1071.36  159.17 1071.34
  160.92 1071.29  175.38  1070.9  179.46 1070.76  191.58 1070.49  200.25 1070.33
  207.79 1070.08  221.03 1069.73  232.99 1068.01  234.52 1067.79  241.81 1066.69
  331.56 1066.05  345.72 1065.34  360.52 1064.56   366.5  1064.2  369.85 1064.11
   381.7 1063.85  386.05 1063.75  387.29 1063.73  389.48 1063.74  408.07 1063.71
  418.44 1063.82  428.85 1063.92  434.67    1064  449.63  1064.2  450.88 1064.22
  455.29 1064.29  470.41 1064.52  483.29 1064.76  491.19 1064.89   499.5 1065.07
  511.98 1065.31  528.89 1065.82  532.76 1065.94  548.11 1066.66  553.54 1066.92
  564.32 1067.51  574.32 1068.14  580.53 1068.62  595.11 1069.91  596.73 1070.06
  602.49 1070.56  610.07 1071.22  615.89 1071.73  621.16 1071.94  636.67  1072.7
  650.12  1072.9  657.45 1073.01  676.08 1073.16  677.76 1073.18  678.23 1073.18
  679.08 1073.19  699.02 1073.36  708.04 1073.45   719.8 1073.56     737 1073.73
  740.58 1073.77  742.58  1073.8  749.68 1073.86  758.78 1073.96  761.36 1073.98
  765.96 1074.01  782.14 1074.16   791.2 1074.25  802.93 1074.31  823.27 1074.45
  823.61 1074.46  823.71 1074.46  823.88 1074.46  844.49 1074.62  852.83 1074.68
  865.27 1074.77  872.22 1074.82  886.06  1074.9  896.87 1074.97  906.84 1075.04
  920.84 1075.16  927.62  1075.2  939.71  1075.3   948.4 1075.38  968.67 1075.56
  969.18 1075.56  969.47 1075.57  970.47 1075.57  985.66 1075.67  989.97  1075.7
  997.63 1075.72 1010.75 1075.74 1018.08 1075.76 1031.53  1075.8 1044.06 1075.91
 1052.31 1075.99 1066.69 1076.17 1073.09 1076.25 1084.51 1076.36 1093.88 1076.46
 1099.11 1076.51 1114.66 1076.64 1117.66 1076.66 1135.44  1076.8 1147.72  1076.9
 1156.22 1076.97 1171.39 1077.11 1177.01 1077.15 1180.14 1077.18 1191.26 1077.28
 1197.79 1077.33 1200.35 1077.35 1218.57 1077.49 1228.75 1077.57 1239.35 1077.64
 1258.27 1077.81 1260.13 1077.83 1261.17 1077.84 1264.85 1077.88 1280.91 1078.04
 1287.23  1078.1  1301.7 1078.24 1309.78 1078.29 1322.48 1078.41 1325.99 1078.43
 1338.45 1078.53  1342.2 1078.56 1343.26 1078.57  1358.4 1078.71 1364.04 1078.77
 1374.61 1078.87 1384.82 1078.97 1403.07 1079.11 1405.61 1079.13 1412.04 1079.15
 1423.23 1079.19 1426.39  1079.2 1439.43 1079.25 1447.17 1079.28 1460.99 1079.37
 1467.95 1079.41 1485.64 1079.56 1488.74 1079.59 1504.26 1079.72 1509.52 1079.76
 1518.91 1079.83  1530.3 1079.92 1536.67 1079.98 1551.08 1080.09 1559.24 1080.16
 1571.86 1080.28 1576.83 1080.33 1592.65 1080.49 1605.79 1080.64 1613.43 1080.72
  1617.7 1080.78 1632.83 1080.98 1634.21     1081 1634.75     1081 1654.99 1081.28
 1666.32 1081.42 1675.78 1081.53 1682.52  1081.6 1696.56 1081.74 1698.73 1081.76
 1706.43 1081.83 1717.34 1081.94 1731.14 1082.05 1738.12 1082.12 1747.35 1082.21
  1758.9 1082.34 1763.55 1082.43 1779.69 1082.73 1780.02 1082.73 1800.47 1083.09
 1812.17  1083.2 1821.25 1083.28 1837.47 1083.34 1842.03 1083.36 1853.62 1083.26
 1860.79  1083.2 1862.81 1083.19 1866.43 1083.21  1883.6  1083.3 1895.39 1083.37
 1904.38 1083.42 1924.35 1083.56 1925.16 1083.56 1925.61 1083.57 1927.22 1083.59
 1941.82 1083.76 1945.94  1083.8 1953.31 1083.88 1966.73 1084.04 1982.27 1084.21
 1987.51 1084.28 2000.81 1084.43 2008.29 1084.52 2011.23 1084.56 2029.07 1084.76
 2040.19 1084.87 2049.85 1084.96 2069.15 1085.12 2070.63 1085.13 2074.41 1085.16
 2091.42 1085.27 2098.11 1085.31  2112.2 1085.39 2127.07 1085.45 2132.98 1085.48
 2148.01 1085.55 2153.76 1085.59 2156.03  1085.6 2174.54 1085.87 2184.98 1086.16
 2195.33 1086.41 2213.94 1086.62 2216.11 1086.64  2221.6 1086.64 2236.89 1086.66
  2242.9 1086.68 2257.67 1086.75 2271.86 1086.91 2278.46 1086.98  2295.2 1087.19
 2298.35 1087.23 2299.24 1087.24 2300.82 1087.25 2320.02 1087.46 2329.78 1087.54
  2340.8 1087.62 2358.74 1087.75 2361.58 1087.77 2368.79 1087.82 2382.37 1087.93
  2387.7 1087.97 2403.15 1088.09 2416.66 1088.19 2423.93 1088.25 2442.38 1088.37
 2444.71 1088.39 2445.62  1088.4 2465.49 1088.56 2474.58 1088.65 2486.28 1088.76
 2503.54 1088.92 2507.06 1088.96 2515.98 1089.04 2527.84 1089.15  2532.5  1089.2
 2548.62 1089.35 2561.46 1089.48 2569.41 1089.55 2589.57 1089.68 2590.19 1089.69
 2590.42 1089.69 2610.97 1089.81 2619.38 1089.87 2631.75 1089.95 2648.34 1090.08
 2652.53 1090.12 2663.17 1090.21 2673.32 1090.29  2677.3 1090.33  2694.1  1090.5
 2706.26 1090.64 2714.88 1090.74 2735.22 1090.85 2735.66 1090.86 2736.76 1090.87
 2752.11    1091 2756.45 1091.02 2764.18 1091.18 2777.23 1091.49 2784.52 1091.48
 2798.01 1091.51 2810.36 1091.57 2818.79 1091.61 2833.14 1091.72 2839.57 1091.75
 2851.06 1091.84 2860.35 1091.91 2880.02 1092.09 2881.14  1092.1 2883.96 1092.13
 2901.92 1092.34 2908.97 1092.43  2922.7  1092.6 2937.93 1092.76 2943.48 1092.82
 2957.55 1092.94 2964.26    1093 2966.89 1093.02 2985.05 1093.18 2995.85 1093.29
 3005.83 1093.39 3024.81 1093.58 3026.61  1093.6 3031.15 1093.63 3047.39 1093.76
 3053.77 1093.82 3065.66 1093.91

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0     .03  232.99     .03  610.07    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        232.99  610.07            200.86     200  196.99              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.37  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.37  * Reach Len. (ft)         *  200.86  *  200.00  *  196.99  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3440.00  * 8889.94  *16689.63  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3440.00  * 8889.94  *16689.63  *
* Q Total (cfs)           * 2802.44  * Flow (cfs)              *  420.41  * 1453.08  *  928.95  *
```

```
* Top Width (ft)          * 2541.60  * Top Width (ft)          *  223.59  *  377.08  * 1940.93  *
* Vel Total (ft/s)        *    0.10  * Avg. Vel. (ft/s)        *    0.12  *    0.16  *    0.06  *
* Max Chl Dpth (ft)       *   25.66  * Hydr. Depth (ft)        *   15.39  *   23.58  *    8.60  *
* Conv. Total (cfs)       *6977714.0  * Conv. (cfs)            *1046774.0  *3617979.0  *2312960.0  *
* Length Wtd. (ft)        *  199.14  * Wetted Per. (ft)        *  225.91  *  377.45  * 1941.06  *
* Min Ch El (ft)          * 1063.71  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.84  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)   *  894.82  * 5077.76  * 7270.21  *
* C & E Loss (ft)         *          * Cum SA (acres)         *   69.77  *  224.07  *  958.66  *
*****************************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 18099.99

INPUT
Description:
Station Elevation Data     num=      312
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
       0 1092.19   14.09 1088.34   18.74 1086.94   27.24 1084.24   39.59 1080.37
   56.76 1075.28   60.43 1074.16   69.23 1071.77  122.97 1071.37  140.18 1071.16
  143.81  1071.1  145.32 1071.03  164.66 1070.15  174.83 1069.84  185.51 1069.45
  191.32 1069.41  206.35 1069.33  211.13 1069.27   227.2 1068.92  231.19 1068.23
  233.88 1067.77  331.42 1066.22  336.32 1065.94  352.27 1064.63  353.03  1064.6
  373.11 1063.82  381.46  1063.8  393.96 1063.72  400.77 1063.74   414.8 1063.81
  416.88 1063.83  423.98 1063.88  435.65 1063.96   440.5    1064   456.5 1064.14
  470.01 1064.36  477.34 1064.47  494.92 1064.89  497.44 1064.95  498.19 1064.96
  513.55 1065.39  519.03 1065.56  529.66 1065.95  539.88 1066.37  545.77 1066.66
  560.72 1067.57  561.89 1067.65  565.87 1068.02  581.57 1069.43  588.09 1069.97
  602.41 1071.26  606.08 1071.44  617.61 1071.99  623.26 1072.29  626.33 1072.36
  636.82 1072.53  642.45 1072.62   644.1 1072.64  658.56 1072.73  664.95 1072.78
  674.67 1072.86  685.79 1072.96  706.16 1073.19  706.64  1073.2  707.77 1073.21
     723 1073.39  727.48 1073.44  735.68 1073.52  748.33 1073.65  755.23 1073.71
  769.17 1073.83  778.72 1073.89  787.45 1073.94  790.02 1073.95  794.71 1073.97
  810.87 1074.06  824.24 1074.16  831.71 1074.21  835.79 1074.25  849.67  1074.4
  852.56 1074.43  853.75 1074.45   873.4 1074.66  883.27 1074.76  894.25 1074.88
  912.79 1075.07  915.09 1075.09  916.34  1075.1  920.62 1075.15  932.46 1075.28
  935.94 1075.31   942.3 1075.38  956.78 1075.55  971.82 1075.71  977.63 1075.77
  991.56 1075.89  998.47 1075.95 1013.01 1076.05 1019.32 1076.11 1030.86  1076.2
 1040.16 1076.27 1045.24  1076.3 1061.01 1076.42 1062.51 1076.43 1081.85 1076.57
 1093.57 1076.68  1102.7 1076.74 1119.41 1076.87 1123.54 1076.91  1125.8 1076.92
 1133.46 1076.96 1144.39 1077.01 1148.94 1077.01 1165.24 1077.04 1174.13 1077.06
 1186.08  1077.1 1204.42 1077.24 1206.93 1077.26 1207.97 1077.28 1227.77 1077.49
 1237.49 1077.61 1248.62 1077.74    1267 1077.97 1269.46    1078 1275.36 1078.07
 1286.91  1078.2 1290.31 1078.24 1303.03 1078.37 1311.16 1078.44 1319.14 1078.52
    1332 1078.62 1335.24 1078.65 1346.31 1078.74 1352.85  1078.8 1355.56 1078.82
 1373.69    1079 1385.07 1079.09 1394.54 1079.18 1414.59 1079.32 1415.38 1079.32
 1417.26 1079.33 1431.91  1079.4 1436.23 1079.43 1444.12 1079.48 1457.07 1079.56
 1464.14 1079.64 1477.92 1079.76 1488.21 1079.87 1498.76 1079.98 1512.47 1080.15
 1519.61 1080.22 1532.67 1080.37 1540.46 1080.47  1544.7 1080.53 1559.15 1080.72
  1561.3 1080.75 1562.18 1080.77 1582.15 1081.11 1593.04 1081.29 1602.99 1081.47
 1609.14 1081.56 1623.84 1081.79  1630.1 1081.86 1641.37 1081.98 1644.68 1082.03
 1650.74  1082.1 1665.53 1082.24 1673.59 1082.33 1686.37 1082.44  1689.7 1082.47
 1701.06 1082.57 1707.22 1082.61 1709.77 1082.63 1728.06 1082.83  1739.3 1082.95
 1748.91 1083.06 1768.82 1083.36 1769.75 1083.37    1772  1083.4  1790.6 1083.58
 1802.48 1083.39 1811.44 1083.22 1827.85 1083.07 1832.29 1083.04 1834.71 1083.04
 1842.95 1083.08 1850.82 1083.13 1853.13 1083.14 1857.37 1083.18 1873.98 1083.32
 1886.88  1083.4 1894.82 1083.45  1913.9 1083.55 1915.67 1083.57  1916.4 1083.58
 1936.52 1083.79 1945.92 1083.89 1957.36 1084.04 1975.44 1084.19 1978.21 1084.22
 1984.85 1084.27 1999.05 1084.37 2004.95  1084.4  2019.9 1084.49 2034.47 1084.56
 2040.74 1084.59 2055.79 1084.66 2061.59  1084.7    2064 1084.71 2082.43 1084.87
 2093.51 1084.99 2103.28 1085.12 2123.03 1085.55 2124.12 1085.58 2126.74 1085.63
 2144.97 1086.01 2152.55 1085.94 2165.81 1085.85 2182.06 1085.74 2186.66 1085.73
 2197.69 1085.82  2207.5 1085.91 2211.58 1085.96 2228.35  1086.2  2241.1 1086.33
  2249.2 1086.41 2268.65 1086.55 2270.04 1086.56 2270.62 1086.56 2290.89 1086.68
 2300.13 1086.73 2311.73 1086.78 2329.65 1086.87 2332.58 1086.89 2339.59 1086.94
 2353.42 1087.07 2359.18 1087.14 2374.27 1087.34 2388.69 1087.54 2395.11 1087.63
 2410.54 1087.86 2415.96 1087.93 2418.21 1087.96  2436.8 1088.21 2447.73 1088.35
 2457.65 1088.46 2477.24 1088.67  2478.5 1088.68 2481.49 1088.71 2499.34 1088.88
 2506.76 1088.96 2520.19 1089.08 2536.28 1089.23 2541.03 1089.27 2552.44 1089.37
 2561.88 1089.45  2565.8 1089.48 2582.72 1089.62 2595.32 1089.74 2603.57 1089.83
 2623.38 1090.12 2624.17 1090.13 2624.41 1090.14 2624.83 1090.14 2645.26 1090.43
  2656.4 1090.51  2666.1 1090.58 2672.52 1090.53 2686.95 1090.43 2688.63 1090.42
 2694.33 1090.38 2707.79 1090.33 2713.39 1090.46 2728.64 1090.94 2742.91 1091.02
 2749.49 1091.06 2765.29 1091.31 2770.33 1091.38 2772.43  1091.4 2791.18 1091.61
 2801.94 1091.71 2812.02  1091.8 2831.46 1091.93 2832.87 1091.94 2836.23 1091.96
 2853.71 1092.05 2860.98 1092.09 2874.56 1092.18  2890.5  1092.3  2895.4 1092.34
 2907.18 1092.45 2916.25 1092.55 2920.01 1092.58 2937.09 1092.73 2949.53 1092.79
 2957.94 1092.84 2978.13 1092.93 2978.78 1092.93 2979.06 1092.93 2999.63 1093.09
 3008.57 1093.18 3020.48  1093.3 3038.09 1093.47 3041.32  1093.5 3049.08 1093.56
 3062.17 1093.67 3067.61 1093.71 3083.01 1093.81 3097.12  1093.9 3103.86 1093.93
 3120.02 1094.02 3124.13 1094.04

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
       0     .03  231.19     .03  606.08    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        231.19  606.08            201.12     200  196.15             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)          * 1089.38  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.38  * Reach Len. (ft)         *  201.12  *  200.00  *  196.15  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3581.15  * 8783.65  *16659.05  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3581.15  * 8783.65  *16659.05  *
* Q Total (cfs)           * 2685.35  * Flow (cfs)              *  433.12  * 1368.00  *  884.23  *
* Top Width (ft)          * 2542.85  * Top Width (ft)          *  220.89  *  374.89  * 1947.07  *
* Vel Total (ft/s)        *    0.09  * Avg. Vel. (ft/s)        *    0.12  *    0.16  *    0.05  *
* Max Chl Dpth (ft)       *   25.66  * Hydr. Depth (ft)        *   16.21  *   23.43  *    8.56  *
* Conv. Total (cfs)       *6988138.0  * Conv. (cfs)            *1127107.0  *3559975.0  *2301057.0  *
* Length Wtd. (ft)        *  198.92  * Wetted Per. (ft)        *  223.57  *  375.26  * 1947.19  *
* Min Ch El (ft)          * 1063.72  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.83  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)   *  878.63  * 5037.18  * 7194.80  *
* C & E Loss (ft)         *          * Cum SA (acres)         *   68.75  *  222.35  *  949.86  *
*****************************************************************************************************

CROSS SECTION
```

```
RIVER: FRS
REACH: FRS1                RS: 17899.99

INPUT
Description:
Station Elevation Data     num=     326
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
     .08 1091.51    3.91  1091.4   11.14  1089.1   24.84 1084.99   32.07 1082.68
   45.77 1078.31   55.53 1075.59   66.71 1072.51   71.69 1071.96   129.5 1070.95
  144.03 1070.66  150.43 1070.47  160.04 1070.09  171.36 1069.65  176.03 1069.51
  191.16 1069.13  192.29  1069.1  208.02 1068.81  213.22 1068.65  224.01 1068.32
  230.37 1067.75  234.15 1067.41     240 1066.37  313.89 1065.61  317.88 1065.75
   326.8 1065.62  338.81 1065.34  351.96 1064.18  359.74 1063.81  374.43 1063.63
  380.67 1063.56  383.95 1063.56  394.62 1063.56   401.6 1063.56  404.71 1063.57
  422.53  1063.6  431.94 1063.66  443.46 1063.75  462.44 1064.07  464.39  1064.1
  465.26 1064.12  485.32 1064.59  495.53 1064.89  506.25 1065.21   525.8 1065.91
  527.18 1065.96  530.26 1066.08   543.9 1066.58  548.11 1066.73   559.9 1067.32
  569.05 1067.84  586.35 1069.38  589.98 1069.68  598.08 1070.28  600.25 1070.43
  610.91 1071.18  623.87 1071.56  631.84 1071.73   646.9 1071.95  652.77 1072.04
  655.86 1072.09  665.89  1072.2  671.86 1072.28   673.7 1072.28  677.18 1072.28
  694.63 1072.31  703.84 1072.33  715.56 1072.38  733.72 1072.57  735.83 1072.61
  736.49 1072.61  737.73 1072.63  757.42  1072.9     760 1072.98  778.35 1073.08
  798.27 1073.11  799.20 1073.11  801.54 1073.12  815.81 1073.22  820.22 1073.28
   831.8 1073.41  841.15 1073.53  858.82 1073.71  862.08 1073.75  863.79 1073.77
  869.35 1073.82  879.79 1073.91  883.01 1073.93   889.1 1073.96  903.94 1074.08
  919.38 1074.17  924.87 1074.21  937.18 1074.28   945.8 1074.32  959.76 1074.42
  966.73  1074.5  979.92 1074.69  987.66 1074.78  991.74 1074.84 1004.99 1075.03
 1007.74 1075.08 1008.59 1075.09 1023.74  1075.3 1029.52 1075.35 1039.73 1075.45
 1050.46 1075.54 1070.75  1075.7 1071.39 1075.71 1071.72 1075.71 1072.81 1075.72
 1092.32 1075.91 1101.01    1076 1113.25 1076.12 1119.71 1076.18 1134.18 1076.34
 1135.69 1076.35 1140.63  1076.4 1155.11 1076.56 1167.69 1076.69 1176.04 1076.79
 1183.68 1076.88 1196.97 1077.05 1199.67  1077.1 1208.45 1077.23 1215.67 1077.34
  1217.9 1077.38 1222.11 1077.43 1238.83 1077.67 1252.39 1077.82 1259.76  1077.9
 1276.27 1078.05 1280.69 1078.08 1282.66  1078.1 1301.63 1078.25 1312.94 1078.37
 1322.56 1078.46 1343.21 1078.69 1343.49 1078.69 1344.08  1078.7 1364.42 1078.94
 1375.62 1079.07 1385.35 1079.19 1403.76 1079.39 1406.28 1079.42  1407.6 1079.43
 1411.91 1079.46 1427.21 1079.57 1434.04 1079.62 1448.14 1079.71 1455.58 1079.76
 1469.07 1079.88 1479.73    1080    1490  1080.1 1503.57  1080.3 1510.93 1080.41
 1524.85 1080.67 1531.86 1080.81 1535.56 1080.88 1547.54 1081.07 1551.55 1081.13
  1552.8 1081.15 1567.55 1081.33 1573.73 1081.41 1585.41 1081.55 1594.66 1081.64
 1615.37 1081.83 1615.59 1081.83 1615.68 1081.83 1636.52 1081.96 1645.96 1082.02
 1657.45  1082.1 1676.23 1082.26 1678.38 1082.28 1683.19 1082.34 1699.31 1082.54
 1711.49 1082.82 1720.24 1083.03 1736.78 1083.48 1741.17 1083.59 1743.49 1083.58
    1751 1083.49  1762.1 1083.36 1767.05 1083.33 1783.04 1083.25 1797.33 1083.31
 1803.97 1083.34 1818.82 1083.43  1824.9 1083.47  1827.6 1083.51 1845.83 1083.71
 1857.88 1083.86 1866.76 1083.97 1886.64 1084.21 1887.69 1084.22 1888.15 1084.23
 1908.62 1084.47 1918.43 1084.56 1929.55 1084.66  1948.7  1084.7 1950.48 1084.71
 1954.46 1084.71 1971.41 1084.72 1978.97 1084.73 1992.34 1084.78 2009.25 1084.82
 2013.27 1084.84 2022.28 1084.88 2034.21 1084.94 2039.52 1084.99 2055.14 1085.11
  2069.8 1085.35 2076.07 1085.46  2090.1 1085.69    2097 1085.81 2100.07 1085.78
 2117.93 1085.64 2130.34  1085.7 2138.86 1085.74 2157.92 1085.92 2159.79 1085.93
 2160.62 1085.94 2180.72 1086.12  2190.9  1086.2 2201.65 1086.28 2221.17 1086.44
 2222.58 1086.45 2225.73 1086.49 2243.51 1086.68 2251.45 1086.74 2264.44 1086.84
 2281.71 1086.92 2285.38 1086.94 2293.56 1086.99 2306.31 1087.08 2311.99 1087.14
 2327.24 1087.29 2342.26 1087.44 2348.17 1087.51 2361.38 1087.62  2369.1 1087.69
 2372.54 1087.72 2390.03 1087.86 2402.82 1087.96 2410.96 1088.02 2429.19 1088.21
 2431.89 1088.25 2433.09 1088.26 2452.82 1088.51 2463.36 1088.57 2473.75 1088.66
 2479.24 1088.68 2494.68 1088.71 2497.01 1088.71 2515.61 1088.73 2527.22 1088.73
 2536.55 1088.74 2554.19 1088.87 2557.48 1088.89  2559.2 1088.92 2564.83 1089.03
 2578.41  1089.3 2584.46 1089.42 2599.34 1089.74 2614.74 1089.95 2620.27 1090.03
 2632.65 1090.09  2641.2 1090.13 2645.01 1090.17 2662.13 1090.38 2675.29 1090.63
 2683.06 1090.78 2700.47 1090.85 2703.99 1090.87 2705.56 1090.89 2724.92 1091.21
 2735.83 1091.39 2745.85 1091.54 2766.11 1091.77 2766.79 1091.78 2768.29 1091.79
 2787.72 1091.88 2796.38 1091.95 2808.65 1092.07 2826.66 1092.21 2829.58 1092.23
 2836.11 1092.24 2850.51 1092.26 2856.93  1092.3 2871.44 1092.37  2887.2 1092.58
 2892.37 1092.64 2903.93 1092.83  2913.3 1092.97 2917.48 1093.01 2934.23 1093.16
 2947.75 1093.26 2955.16 1093.28 2971.75 1093.42 2976.09 1093.45 2978.03 1093.46
 2997.02 1093.56 3008.31 1093.64 3017.96 1093.68 3038.57 1093.68 3038.89 1093.67
 3039.57 1093.68 3059.82  1093.7 3068.85 1093.76 3080.75 1093.77 3099.12 1093.85
 3101.68 1093.86 3107.38 1093.89 3119.02 1093.94 3122.61 1093.98  3129.4    1094
 3143.54 1094.09    3151 1094.15 3164.47 1094.11  3175.2 1094.16  3185.4 1094.22
 3189.95 1094.25 3206.33 1094.37 3220.22 1094.55 3227.26 1094.63 3243.03  1094.9
 3244.62 1094.92

Manning's n Values         num=       3
    Sta   n Val     Sta   n Val     Sta   n Val
**************************************************
     .08     .03  230.37     .03  600.25    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        230.37  600.25            195.69     200  214.59             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.38  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.38  * Reach Len. (ft)         *  195.69  *  200.00  *  214.59  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3611.06  * 8853.65  *16912.78  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3611.06  * 8853.65  *16912.78  *
* Q Total (cfs)           * 2622.06  * Flow (cfs)              *  422.13  * 1340.88  *  859.04  *
* Top Width (ft)          * 2572.02  * Top Width (ft)          *  220.10  *  369.88  * 1982.04  *
* Vel Total (ft/s)        *    0.09  * Avg. Vel. (ft/s)        *    0.12  *    0.15  *    0.05  *
* Max Chl Dpth (ft)       *   25.82  * Hydr. Depth (ft)        *   16.41  *   23.94  *    8.53  *
* Conv. Total (cfs)       *7117684.0  * Conv. (cfs)            *1145894.0  *3639879.0  *2331911.0  *
* Length Wtd. (ft)        *  204.02  * Wetted Per. (ft)        *  222.68  *  370.24  * 1982.18  *
* Min Ch El (ft)          * 1063.56  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.85  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  862.02  * 4996.69  * 7119.21  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   67.73  *  220.64  *  941.02  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 17699.99

INPUT
Description:
Station Elevation Data     num=     305
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

```
*****************************************************************************
      0 1091.09    5.15 1090.07   13.35 1087.84    21.6 1085.42   33.98  1081.7
  38.07 1080.47   54.18 1075.74   54.61 1075.62   54.76 1075.58   75.25 1070.26
   82.4 1070.48   95.88 1070.09  110.05 1070.64  116.51  1070.9  135.53 1070.82
 137.15  1070.8  153.27 1070.15  157.78 1069.93  165.34 1069.74  178.42 1069.33
  186.2 1069.24  199.05 1069.21  216.88 1068.79  219.68 1068.72  220.63 1068.59
 226.93 1067.81  240.32 1066.14  248.27  1065.5  260.95  1064.1  358.86 1063.84
 364.12 1063.71  367.24 1063.71  379.58 1063.72   383.7 1063.72  384.75 1063.73
 400.16 1063.79  405.38 1063.81  414.14 1063.95  426.02 1064.13  441.79 1064.56
 446.65 1064.68  449.54 1064.77  460.93 1065.08  465.99 1065.22  467.28 1065.25
 482.45 1065.66  487.91 1065.78  498.91 1066.09  508.55 1066.38  524.73 1067.03
 529.18  1067.2  531.82 1067.33  542.27 1067.94  549.81 1068.38  552.37  1068.6
 570.45 1070.12   581.2 1071.09  591.08 1071.94  593.51 1072.07  597.66 1072.28
 611.71 1072.74  614.12 1072.79  623.62 1072.93  630.57 1073.04  632.35 1073.05
 635.31 1073.06  652.98 1073.05  663.49 1073.05  673.62 1073.09   690.6 1073.18
 694.25 1073.19  696.42 1073.21  704.97 1073.27  712.87 1073.34  714.88 1073.36
 718.24  1073.4  735.52  1073.6  745.89 1073.73  756.15 1073.85  773.53 1074.06
 776.78 1074.09  778.71 1074.11  786.32  1074.2  797.42 1074.33  801.18 1074.37
 818.05 1074.55  828.09 1074.65  838.68 1074.77  856.47 1074.98  859.32 1075.01
 867.66 1075.13  877.46 1075.26  879.95 1075.28  893.92 1075.46  900.58 1075.51
 910.37 1075.59  921.22 1075.66   939.4 1075.81  941.85 1075.83  943.29 1075.84
 949.01 1075.89  962.48 1076.01  967.05 1076.06  983.11 1076.22   994.7 1076.33
1003.75 1076.42 1022.35  1076.6 1024.38 1076.62 1030.36 1076.67 1042.04 1076.77
1045.01 1076.79 1049.99 1076.83 1065.65 1076.96 1074.97 1077.05 1086.28 1077.19
1105.29 1077.43 1106.92 1077.45 1107.89 1077.46  1111.7 1077.51 1124.34 1077.65
1127.55 1077.69 1132.93 1077.74 1148.18 1077.89 1160.57 1077.99 1168.82 1078.07
1188.22 1078.22 1189.45 1078.23 1190.17 1078.24 1193.05 1078.26 1210.08 1078.38
1215.86 1078.41 1230.72  1078.5 1243.51 1078.56 1251.35 1078.58 1271.16 1078.62
1271.98 1078.62  1274.4 1078.61 1288.92 1078.55 1292.62 1078.55 1305.39  1078.5
1313.25 1078.49 1321.84 1078.51 1333.88 1078.55  1338.3 1078.59 1354.52 1078.76
1354.76 1078.76 1355.75 1078.77 1375.15 1078.97 1381.73 1079.01 1395.78 1079.11
1409.38 1079.18 1416.41 1079.22 1437.03 1079.45 1437.05 1079.45  1437.1 1079.46
1457.68 1079.91 1469.97  1080.2 1478.32  1080.4 1492.32 1080.67 1498.95 1080.81
1502.89 1080.87 1518.45 1081.12 1519.35 1081.13 1519.58 1081.14 1519.96 1081.14
1540.22 1081.41 1552.27 1081.54 1560.85 1081.62 1575.25 1081.72 1581.48 1081.78
1585.19 1081.82 1599.79 1081.95 1602.12 1081.97  1602.9 1081.98 1622.75 1082.21
1634.56 1082.41 1643.38 1082.54 1651.02 1082.65 1664.02 1082.83 1681.14 1082.69
1683.94 1082.67 1684.65 1082.66 1685.83 1082.66 1705.28 1082.72 1713.48 1082.89
1725.92 1083.12 1741.12 1083.36 1746.55 1083.41 1762.49 1083.53 1767.18 1083.57
1768.77 1083.57 1787.82 1083.53 1799.14 1083.43 1808.45 1083.38 1824.06 1083.26
1829.08 1083.23 1832.07 1083.22 1843.84 1083.15 1848.52 1083.12 1849.71 1083.12
1851.71 1083.12 1870.35 1083.08 1879.36 1083.05 1890.98 1083.04 1906.99 1083.01
1911.61 1083.01 1914.36 1083.01 1925.18 1083.01 1932.25 1083.02 1934.64 1083.02
1952.88 1083.06 1962.29  1083.1 1973.52 1083.16 1989.94 1083.38 1994.15 1083.44
2006.53 1083.62 2014.78 1083.73 2017.58 1083.72 2035.42 1083.64 2045.23  1083.7
2056.05 1083.74 2072.88 1083.89 2076.68 1083.92 2087.88 1084.01 2097.32 1084.08
2100.51  1084.1 2117.95 1084.21 2128.16 1084.26 2138.58  1084.3 2155.81 1084.32
2159.22 1084.33 2169.22 1084.34 2179.85 1084.35 2183.45  1084.4 2200.48 1084.68
 2211.1 1084.91 2221.12 1085.13 2238.75 1085.46 2241.75 1085.51 2250.57 1085.67
2262.38 1085.89 2266.39 1085.97 2283.02 1086.27 2294.04 1086.43 2303.65 1086.58
2321.68 1086.73 2324.28 1086.75 2331.92 1086.78 2344.92 1086.83 2349.32 1086.88
2365.55 1087.02 2376.97 1087.19 2386.18 1087.33 2404.62 1087.53 2406.82 1087.56
2413.26 1087.57 2427.45 1087.58 2432.26 1087.55 2448.08 1087.42 2459.91 1087.36
2468.72  1087.3 2487.55 1087.49 2489.35  1087.5 2494.62 1087.64 2509.98    1088
 2515.2 1088.09 2530.62  1088.3 2542.84 1088.28 2551.25 1088.24 2570.49 1088.23
2571.88 1088.22 2575.97  1088.2 2592.52 1088.07 2598.14 1087.95 2613.15  1087.7
2625.78 1087.86 2633.78 1087.92 2653.42 1088.07 2654.42 1088.07 2657.31 1088.08
2675.05 1088.13 2681.07 1088.14 2695.68 1088.24 2708.71 1088.37 2716.32 1088.49
2736.36 1088.76 2736.95 1088.77 2738.66  1088.8 2757.58 1089.06 2770.21 1089.21
2778.21 1089.32 2786.66 1089.42 2798.85 1089.62 2803.13 1089.68 2819.48 1089.95
2820.01 1089.96 2840.11 1090.25 2852.51 1090.48 2860.75 1090.59 2868.96 1090.79
2881.38 1091.04 2901.36 1091.41 2902.01 1091.42 2902.23 1091.42 2909.36 1091.53

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***********************************************
       0     .03  226.93     .03  593.51    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        226.93  593.51            202.87     200   190.4              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.38  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.38  * Reach Len. (ft)         *  202.87  *  200.00  *  190.40  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3613.67  * 8742.45  *17117.75  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3613.67  * 8742.45  *17117.75  *
* Q Total (cfs)           * 2556.49  * Flow (cfs)              *  422.21  * 1316.59  *  817.69  *
* Top Width (ft)          * 2775.42  * Top Width (ft)          *  219.24  *  366.58  * 2189.61  *
* Vel Total (ft/s)        *    0.09  * Avg. Vel. (ft/s)        *    0.12  *    0.15  *    0.05  *
* Max Chl Dpth (ft)       *   25.67  * Hydr. Depth (ft)        *   16.48  *   23.85  *    7.82  *
* Conv. Total (cfs)       *6960715.0 * Conv. (cfs)             *1149568.0 *3584776.0 *2226372.0  *
* Length Wtd. (ft)        *  197.08  * Wetted Per. (ft)        *  222.01  *  367.03  * 2189.75  *
* Min Ch El (ft)          * 1063.71  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.95  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  845.80  * 4956.30  * 7035.39  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   66.74  *  218.95  *  930.74  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                 RS: 17499.99

INPUT
Description:
Station Elevation Data     num=     237
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*****************************************************************************
      .5 1090.65     4.74 1089.62   21.32 1086.67   30.44 1083.84   42.15 1080.23
   46.58 1078.88    61.89 1074.42   62.72 1074.17   62.97  1074.1   63.41 1074.02
    83.8 1069.39    95.01 1069.06  104.62 1069.01  122.07 1069.04  125.44 1069.03
   127.3 1069.04   133.69  1069.1  146.27 1069.22   151.4 1069.29   167.1 1069.52
  180.74  1069.7   187.92 1069.79  205.48 1069.94     208 1069.96  208.74 1069.96
  224.14 1069.81   227.96 1069.65  229.57 1069.58  240.29 1067.43  250.39 1064.89
  256.43 1064.24   271.22 1063.81  272.57 1063.79  277.28 1063.73  292.04 1063.59
  298.07 1063.57   312.86 1063.52     321 1063.52  333.69 1063.47  349.07 1063.52
  354.51 1063.54   356.73 1063.56  375.34 1063.72  386.06 1063.81  396.16 1063.88
  415.39 1064.02   416.99 1064.03  420.86 1064.05     434 1064.12  437.81 1064.16
  450.14 1064.28   458.63 1064.49  466.28 1064.72  479.46 1065.33  482.43 1065.48
  492.65  1065.9   500.28  1066.2   503.4 1066.23  521.11 1066.53  530.84 1066.64
  541.93 1066.85   562.06 1068.09  562.76 1068.12  563.13 1068.16  564.44  1068.3
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 579.27 1069.89  583.58 1070.35  591.39 1070.97  599.22  1071.7  604.41 1072.18
 611.56 1072.41  625.23 1072.83  636.24 1072.99  646.05 1073.14  650.06 1073.17
 666.88  1073.3  679.39 1073.36   687.7  1073.4  708.03 1073.48  708.41 1073.48
 708.53 1073.48  708.72 1073.48  729.35 1073.55   740.7 1073.57  750.18 1073.59
 756.84 1073.61    771 1073.64  772.98 1073.65  779.82 1073.68  791.82 1073.73
 796.72 1073.73  812.65 1073.77  821.41 1073.75  833.47  1073.7  851.62  1073.6
  854.3 1073.59  869.83 1073.57  875.12 1073.58  884.72 1073.69  895.95 1073.83
 914.05 1074.12  916.77 1074.16  923.41 1074.25   937.6 1074.43  950.55 1074.55
 958.42 1074.61  972.72  1074.7  979.24 1074.74  982.83 1074.74  995.21 1074.75
 998.98 1074.77 1000.07 1074.78 1002.05 1074.78 1020.89 1074.83 1031.38 1074.83
1041.72 1074.85 1060.72 1074.83 1062.54 1074.84    1067 1074.83 1079.68 1074.84
1083.37 1074.83 1095.82 1074.87 1104.19  1074.9 1111.97 1074.96 1125.01 1075.07
1138.79 1075.12 1145.84 1075.16  1160.4 1075.24 1166.66 1075.23 1176.53 1075.35
1187.49 1075.32 1192.67 1075.41 1208.31 1075.44 1208.82 1075.45 1210.58 1075.47
1224.96 1075.71 1229.14 1075.73  1241.1 1075.99 1249.96 1076.04 1266.05 1076.21
1270.79  1076.3 1273.39 1076.33 1282.37 1076.43 1289.53 1076.56 1291.61 1076.59
1295.38 1076.65  1764.7 1080.82 1770.57 1080.83 1784.93 1080.98  1791.4 1081.05
1794.03 1081.08 1812.22 1081.24 1823.36 1081.29 1833.04 1081.32 1852.69 1081.34
1853.87 1081.34 1856.72 1081.33  1874.7  1081.3 1882.03 1081.29 1895.52 1081.26
1911.37  1081.2 1916.34 1081.21 1928.52 1081.26 1937.17 1081.32  1940.7 1081.35
1957.99 1081.55 1970.03 1081.71 1978.82 1081.83 1999.36 1082.09 1999.64  1082.1
2000.31  1082.1 2020.46 1082.28 2028.69 1082.34 2041.29 1082.45 2058.02 1082.56
2062.11  1082.6  2072.1 1082.66 2082.94 1082.74 2087.36 1082.79 2103.76 1083.01
2116.69 1083.19 2124.59 1083.31 2143.89 1083.56 2145.41 1083.59 2146.02 1083.59
2166.23 1083.86 2175.36 1083.95 2187.06 1084.09 2204.69 1084.25 2207.88 1084.28
2215.68 1084.37 2225.77 1084.49 2228.71 1084.54 2234.02 1084.63 2249.53 1084.87
2258.06    1085 2451.77 1085.61 2457.78 1085.64 2468.68 1085.71  2478.6 1085.77
2498.02 1085.69 2499.42 1085.69 2502.86 1085.69 2520.25 1085.76 2532.47 1085.99
2541.07 1086.12 2556.68 1086.25  2561.9 1086.33 2564.76 1086.37 2574.65 1086.42
2582.72 1086.46 2586.01 1086.47 2603.55 1086.59 2615.35 1086.82 2624.37 1086.98
2644.68 1087.31  2645.2 1087.32 2646.45 1087.34 2666.02 1087.69 2674.01 1087.81
2686.84 1088.06 2703.35 1088.39 2707.67 1088.49 2718.24 1088.67 2728.49 1088.84
2732.68 1088.93 2749.32 1089.26 2762.01 1089.53 2770.14 1089.68 2790.03 1090.03
2790.97 1090.04 2791.34 1090.05 2811.79 1090.29 2820.67 1090.43 2832.62 1090.57
2850.01 1090.77 2853.44 1090.81

Manning's n Values          num=       3
    Sta   n Val     Sta   n Val     Sta   n Val
**************************************************
     .5     .03  227.96     .03  599.22    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        227.96  599.22             205.37     200  180.29             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**************************************************************************************************
* E.G. Elev (ft)          * 1089.38  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.38  * Reach Len. (ft)         *  205.37  *  200.00  *  180.29  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3641.93  * 8929.47  *20383.93  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3641.93  * 8929.47  *20383.93  *
* Q Total (cfs)           * 2423.81  * Flow (cfs)              *  357.14  * 1136.84  *  929.84  *
* Top Width (ft)          * 2748.82  * Top Width (ft)          *  221.87  *  371.26  * 2155.69  *
* Vel Total (ft/s)        *    0.07  * Avg. Vel. (ft/s)        *    0.10  *    0.13  *    0.05  *
* Max Chl Dpth (ft)       *   25.91  * Hydr. Depth (ft)        *   16.42  *   24.05  *    9.46  *
* Conv. Total (cfs)       *7845356.0  * Conv. (cfs)             *1155969.0  *3679710.0  *3009677.0  *
* Length Wtd. (ft)        *  193.70  * Wetted Per. (ft)        *  224.50  *  372.10  * 2155.83  *
* Min Ch El (ft)          * 1063.47  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.81  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  828.90  * 4915.73  * 6953.43  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   65.71  *  217.25  *  921.25  *
**************************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 17299.99

INPUT
Description:
Station Elevation Data     num=     235
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**************************************************************************************
     .01 1090.54   17.71 1086.67   21.29 1086.07   22.95 1085.57   27.54  1084.2
   38.57 1080.97   42.58 1079.74   54.17 1076.26   63.86 1073.47   84.64 1068.44
   85.15 1068.31   86.02 1068.25  100.98 1067.26  106.43 1067.13  116.58 1066.96
  127.71  1066.9  132.18 1066.92  144.49 1067.04     149 1067.09  151.56 1067.12
  170.28 1067.37  185.03 1067.46  191.56 1067.51  202.97 1067.54  210.21 1067.57
  212.85 1067.55  225.81 1067.33  228.77 1067.23  234.13 1067.04  251.95 1064.61
  255.42 1064.18  257.02  1064.1  261.45    1064  272.62  1063.8   276.7  1063.7
  288.22 1063.59  297.98 1063.52  468.25 1063.33  475.47 1063.35  489.53 1063.55
  495.34 1063.73  510.82 1064.22  522.29 1064.64   532.1 1064.99  553.13 1065.72
  553.38 1065.73  553.82 1065.75   569.1 1066.53  574.67 1066.95  586.59 1067.98
  595.95 1068.75   604.6 1069.34   612.3 1069.86  615.92  1070.1  617.24 1070.16
  631.52 1070.53  638.52 1070.54  647.12 1070.59   659.8 1070.51  670.77 1070.55
  681.09 1070.58  686.98 1070.64  702.37  1070.8  720.44 1071.08  723.65 1071.14
  729.25 1071.23  740.74 1071.43  744.93 1071.49  753.91 1071.66  766.22 1071.89
  771.96 1071.98   787.5  1072.3  787.73  1072.3  808.79  1072.7  820.83 1072.92
  830.07 1073.07  846.19 1073.37  851.35 1073.46   854.3 1073.52  872.64 1073.89
  887.76  1074.2  893.92 1074.32  904.67 1074.58   912.4 1074.73  915.21 1074.79
  921.23 1074.93  936.49 1075.24  954.69 1075.55  957.77  1075.6  963.15 1075.65
  974.81 1075.74  979.06 1075.78  990.41 1075.84 1000.34 1075.89 1006.01 1075.91
 1021.62 1075.99 1037.23 1076.06 1042.91 1076.09 1052.82 1076.17 1064.19 1076.27
 1068.44 1076.33  1080.1 1076.49 1084.04 1076.54 1085.48 1076.56 1099.64 1076.77
 1106.76 1076.86 1122.01 1077.09 1128.04 1077.18 1130.85 1077.21 1138.58 1077.35
 1149.32 1077.52 1155.47 1077.61 1170.61 1077.79 1188.93 1078.01 1191.89 1078.03
 1197.05 1078.09 1213.17 1078.22 1224.48 1078.27 1234.46 1078.35 1240.08 1078.35
 1255.53 1078.49 1255.74 1078.49 1271.29 1078.51 1277.03 1078.55 1289.32 1078.57
 1298.31 1078.57 1302.49 1078.57 1314.01 1078.64 1318.09 1078.65 1319.59 1078.67
 1322.78 1078.72 1340.88 1078.95  1349.3 1079.05 1362.16 1079.25 1372.47 1079.34
 1383.44 1079.42 1389.71 1079.52 1404.73 1079.67 1423.18 1079.95 1426.01 1079.98
 1427.33 1079.98 1430.95 1080.03 1442.93 1080.12  1447.3 1080.18 1456.64 1080.26
 1468.58 1080.29 1474.13 1080.33 1489.43 1080.55 1489.86 1080.55 1490.11 1080.55
 1511.15 1080.72 1523.57 1080.74 1532.43 1080.77  1858.2 1080.84 1872.97 1081.06
 1891.66 1081.18 1894.25  1081.2 1898.75 1081.24 1911.06 1081.36 1915.54  1081.4
 1926.65 1081.52 1936.82 1081.64 1942.27 1081.69 1957.23 1081.89  1958.1  1081.9
 1958.59  1081.9 1979.39 1082.11 1992.06 1082.24 2000.67 1082.33 2015.71 1082.52
 2021.95  1082.6 2025.52 1082.65 2043.23 1082.91 2058.99 1083.08 2064.52 1083.15
 2074.18 1083.21  2085.8 1083.28 2092.45 1083.33 2107.09 1083.44 2125.91 1083.71
 2128.37 1083.74 2132.66 1083.79 2149.65 1083.96 2159.37 1084.05 2170.94 1084.13
 2191.14 1084.27 2192.22 1084.28 2192.84 1084.29  2213.5 1084.49  2226.3 1084.62
 2234.79  1084.7 2249.61 1084.84 2256.07  1084.9 2259.76 1084.93 2277.36 1085.03
 2285.55 1085.07 2298.64 1085.14 2301.15 1085.15 2308.08 1085.18 2319.92 1085.22
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 2326.69 1085.24 2527.47 1085.39 2532.76 1085.47 2541.99 1085.65 2554.04 1085.89
 2560.94 1086.01 2575.33 1086.29  2594.4 1086.62 2596.61 1086.66 2600.46 1086.73
 2613.24 1086.96 2617.89 1087.05 2627.87 1087.23 2639.18 1087.43 2644.45 1087.51
 2658.94  1087.7 2660.46 1087.72 2661.33 1087.73 2681.75 1088.07 2691.26 1088.26
 2703.03 1088.55 2717.42 1088.76 2724.31 1088.86 2728.25 1088.91  2745.6 1089.08
 2761.72 1089.24 2766.88 1089.27 2775.88  1089.3 2788.16 1089.36 2795.18 1089.41
 2809.45 1089.38 2828.64 1089.63 2830.73 1089.64 2834.36  1089.7 2852.02 1089.93

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
     .01      .03  228.77      .03   604.6    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        228.77   604.6            206.07     200  181.48             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1089.38  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.38  * Reach Len. (ft)         *  206.07  *  200.00  *  181.48  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 4000.86  * 9394.87  *19345.50  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 4000.86  * 9394.87  *19345.50  *
* Q Total (cfs)           * 2278.94  * Flow (cfs)              *  380.59  * 1125.08  *  773.27  *
* Top Width (ft)          * 2786.33  * Top Width (ft)          *  223.46  *  375.83  * 2187.04  *
* Vel Total (ft/s)        *    0.07  * Avg. Vel. (ft/s)        *    0.10  *    0.12  *    0.04  *
* Max Chl Dpth (ft)       *   26.05  * Hydr. Depth (ft)        *   17.90  *   25.00  *    8.85  *
* Conv. Total (cfs)       *8053063.0  * Conv. (cfs)            *1344891.0  *3975670.0  *2732502.0  *
* Length Wtd. (ft)        *  194.60  * Wetted Per. (ft)        *  226.29  *  376.20  * 2187.21  *
* Min Ch El (ft)          * 1063.33  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.89  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  810.88  * 4873.66  * 6871.22  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   64.66  *  215.54  *  912.26  *
**********************************************************************************************

Warning: Divided flow computed for this cross-section.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 17099.99

INPUT
Description:
Station Elevation Data     num=      275
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
     1.5 1090.69     8.93 1089.23    18.95 1087.26    23.35 1085.94    34.64 1082.34
    45.2 1079.02    58.65 1074.72    64.47 1072.86    67.04 1072.05    79.66 1068.68
   88.89 1066.75    94.83 1066.44   108.37 1066.32   110.73  1066.3   112.58  1066.3
  132.58 1066.27   140.37  1066.3   154.42  1066.4   155.54 1066.41   158.09 1066.43
  170.72 1066.55   176.27 1066.61   190.51 1066.74   198.11 1066.81   201.07 1066.83
   207.8 1066.85   216.24 1066.88   219.96 1066.85   229.48  1066.4   238.02 1066.14
   241.8 1066.03   257.52 1064.53   263.65 1064.03   268.44 1063.95    285.5 1063.63
  307.24 1063.55   307.31 1063.55   307.34 1063.55   322.48 1063.57   329.18 1063.59
  337.66 1063.62   351.03 1063.66   352.84 1063.66   356.96 1063.66   372.88 1063.65
  385.34 1063.65   394.72 1063.64   406.68 1063.66   416.57 1063.68   428.73 1063.74
  438.41 1063.82    456.4 1063.97   460.26    1064   463.28 1064.03   482.11 1064.17
  502.25 1064.34   503.95 1064.35   504.61 1064.36   506.12 1064.37   519.79 1064.41
  525.79 1064.43   534.96 1064.46   547.64 1064.54   550.14 1064.57   555.83 1064.64
  565.31 1064.78   569.49 1064.87    580.5 1065.22   591.33  1065.7   595.67 1066.02
  605.55 1066.76   613.18 1067.37    618.2 1067.78   619.14 1067.86   635.02 1069.28
  641.21 1069.74   655.27  1070.4   656.38 1070.47   656.87 1070.48    658.1 1070.51
  678.71 1071.04   686.73  1071.2   700.56 1071.67   704.99 1071.82    722.4  1072.4
  732.27 1072.58   744.25 1072.85   754.71 1072.89    766.1 1072.93   775.01 1072.96
  787.94 1072.97   792.98    1073   804.43 1072.94   808.15 1072.93   809.78  1072.9
 1268.54 1075.79 1278.63 1075.83 1290.39 1075.74 1301.61 1075.78 1312.23 1075.84
 1320.54 1075.94 1334.08 1076.12 1351.33 1076.16 1354.51 1076.16 1355.92 1076.17
  1369.7 1076.34 1377.77 1076.41 1384.87 1076.51 1399.61 1076.65 1400.05 1076.65
 1401.05 1076.66 1421.46 1076.78 1437.44 1077.02  1443.3  1077.1 1450.77 1077.25
 1460.76 1077.47 1465.15 1077.57 1476.41 1077.82 1486.99 1078.04 1491.11 1078.13
 1500.49 1078.33 1506.28 1078.44 1508.84 1078.48 1727.29 1079.43 1749.09 1079.85
 1749.14 1079.85 1749.18 1079.85 1770.99 1080.25 1788.14 1080.49 1792.83 1080.55
 1798.81  1080.6 1814.67  1080.7 1827.11  1080.8 1836.52 1080.87 1848.53 1080.96
 1858.37 1081.03 1866.08 1081.07 1880.21 1081.16 1898.24 1081.29 1902.06 1081.32
 1905.04 1081.34  1923.9 1081.51 1944.01 1081.66 1945.75 1081.67 1947.96 1081.68
  1967.6  1081.8 1982.98 1081.93 1989.44 1081.99 1997.68 1082.12 2011.28 1082.33
 2021.95  1082.5 2033.13 1082.67  2047.4 1082.85 2054.98 1082.95 2067.83 1083.06
 2076.82 1083.15 2083.02 1083.19 2097.12 1083.29 2098.67 1083.29 2099.88 1083.29
 2120.51 1083.34 2138.84 1083.27 2142.36 1083.26 2143.72 1083.23 2146.84 1083.19
  2158.9 1083.02 2164.21 1083.02 2177.81 1083.12 2186.05 1083.16 2196.56 1083.32
 2207.89 1083.46 2216.78 1083.55 2229.74 1083.67 2246.27 1083.78 2251.59 1083.82
 2255.75 1083.83 2273.43 1083.85 2294.71 1083.77 2295.28 1083.76 2295.99 1083.76
 2317.12 1083.66 2325.85 1083.63 2338.97 1083.62 2341.02 1083.62 2345.71 1083.61
 2360.81 1083.62 2372.64  1083.6 2382.66  1083.6 2395.43 1083.51  2404.5 1083.43
  2416.9 1083.47 2426.35  1083.4 2432.09 1083.53 2445.15  1083.6 2448.19 1083.62
 2450.57 1083.65 2470.04 1083.99 2489.54 1084.28 2491.88 1084.32 2494.87 1084.38
 2513.73 1084.83 2528.51 1085.06 2535.58  1085.2 2544.59 1085.39 2557.42 1085.67
 2567.47 1085.92 2579.27 1086.22  2594.3 1086.46 2601.11 1086.57 2606.44 1086.65
 2622.96 1086.89 2644.02 1087.19  2644.8  1087.2 2645.41 1087.21 2666.65  1087.5
 2684.38 1087.83 2688.49 1087.89 2693.74 1087.98 2710.34 1088.23 2723.34  1088.4
 2732.18  1088.5 2743.46  1088.6  2750.8 1088.64 2754.03 1088.67 2762.31 1088.66
 2775.88 1088.63 2781.15 1088.58 2793.18 1088.56 2796.33 1088.55 2797.72 1088.55
 2801.27 1088.52 2819.56 1088.38 2840.24 1088.09 2841.41 1088.07  2842.9 1088.07
 2863.26 1088.34 2879.21 1088.44  2885.1  1088.5 2892.61 1088.45 2906.95 1088.32
 2918.18 1088.18 2928.79 1088.11 2942.33 1088.13 2950.64 1088.16 2957.14 1088.21
 2972.49 1088.35 2992.05 1088.59 2994.33 1088.61  3008.8 1088.78 3016.17 1088.84
 3035.07 1089.04 3038.02 1089.07 3041.77  1089.1 3059.87  1089.2 3074.04 1089.26
 3081.71 1089.29 3091.49 1089.36 3103.56 1089.49 3113.01 1089.61  3125.4 1089.77
 3141.21 1089.99 3147.25 1090.07 3151.98 1090.12 3169.09 1090.35 3190.95 1090.65
 3212.79 1091.02 3221.29 1091.18 3234.64 1091.39 3240.65 1091.43 3256.48  1091.5
 3266.83 1091.51 3278.33 1091.61 3290.37 1091.78 3300.17 1091.95 3305.88 1092.01

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
     1.5      .03  238.02      .03   618.2    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        238.02   618.2            209.69     200  184.29             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
```

```
* E.G. Elev (ft)          * 1089.38  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.38  * Reach Len. (ft)         *  209.69  *  200.00  *  184.29  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 4328.14  * 9538.42  *21811.03  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 4328.14  * 9538.42  *21811.03  *
* Q Total (cfs)           * 2039.48  * Flow (cfs)              *  355.54  *  957.30  *  726.64  *
* Top Width (ft)          * 3085.37  * Top Width (ft)          *  229.86  *  380.18  * 2475.33  *
* Vel Total (ft/s)        *    0.06  * Avg. Vel. (ft/s)        *    0.08  *    0.10  *    0.03  *
* Max Chl Dpth (ft)       *   25.83  * Hydr. Depth (ft)        *   18.83  *   25.09  *    8.81  *
* Conv. Total (cfs)       *8623026.0  * Conv. (cfs)            *1503249.0  *4047524.0  *3072253.0  *
* Length Wtd. (ft)        *  196.17  * Wetted Per. (ft)        *  233.09  *  380.38  * 2475.59  *
* Min Ch El (ft)          * 1063.55  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.93  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  791.18  * 4830.20  * 6785.48  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   63.59  *  213.80  *  902.55  *
**********************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 16899.99

INPUT
Description:
Station Elevation Data    num=     269
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
     .93 1090.51    5.35  1089.7   17.27 1087.51   23.48 1085.73    32.1 1083.22
   46.03 1078.97   46.93 1078.68   48.67 1078.14   68.58 1072.02   90.18 1066.56
   91.12  1066.3   91.98 1066.26  226.41 1066.04   239.7 1065.62  248.04 1065.15
  248.96  1065.1  254.53 1064.77  265.25  1064.3  269.36 1064.11   271.5 1064.04
  284.19  1063.8  294.05 1063.66  308.56 1063.51   316.6 1063.42  328.67 1063.29
  339.14 1063.14   343.5  1063.1  351.87 1063.05  361.69 1063.01  373.16 1063.07
  384.24 1063.15  387.98 1063.17  395.19 1063.21  406.79 1063.26  417.65 1063.28
  429.33 1063.31   438.5 1063.34  451.88 1063.39   466.4 1063.46  474.43 1063.49
  481.82 1063.54  496.98 1063.62  506.62 1063.69  519.53 1063.79  521.44 1063.81
  525.13 1063.84  542.07    1064  560.45 1064.29  564.62 1064.36  568.45 1064.47
  587.17 1065.08  595.59 1065.54  609.71 1066.47  611.77 1066.77  630.15 1069.63
  632.26 1069.96  654.51 1073.32  654.81 1073.36  655.08 1073.37  677.35 1073.84
  698.39 1074.19  699.39  1074.2  699.91  1074.2  714.21 1074.36  722.45 1074.44
  729.04 1074.51  741.71 1074.67  743.87 1074.68     745 1074.69  748.56 1074.73
  767.55 1074.87  785.02 1074.96  788.36 1074.97  790.09 1074.98  795.59 1074.98
  812.64 1074.98  818.01 1074.97  828.34 1074.97  835.19 1074.97  842.62 1074.95
  857.74 1074.92  871.65 1074.82  877.33 1074.78  880.28 1074.78  889.64 1074.78
  902.83 1074.72  906.98 1074.71  914.97 1074.81  925.38 1074.89  936.68 1075.03
  947.93 1075.16  951.47 1075.18  958.29 1075.23  970.48 1075.26  981.13 1075.19
  993.02 1075.17  995.95 1075.15  1001.6 1075.12 1015.57 1075.06 1025.62 1075.02
 1038.12 1075.01 1044.92 1074.99 1060.66 1074.96  1070.1 1074.93 1083.21 1074.84
 1088.23 1074.81 1099.75 1074.79 1105.76 1074.79 1114.59 1074.84  1128.3 1074.89
 1131.54 1074.91 1144.24 1074.95 1150.85 1074.91 1159.07 1074.84 1376.33 1075.07
 1391.44 1075.28 1396.33 1075.38 1398.87  1075.4 1406.94 1075.44 1421.42 1075.64
 1434.75 1075.85 1440.81 1076.01 1443.97 1075.99 1455.64 1076.11 1466.52 1076.22
 1470.46 1076.27 1478.06 1076.44 1489.07 1076.65    1501 1076.84 1511.61 1077.01
 1521.39 1077.15 1529.79 1077.24 1534.16 1077.33 1548.03  1077.6 1556.71 1077.73
 1559.44 1077.71  1564.7 1077.72 1624.35 1078.34 1642.07 1078.78  1646.9 1078.88
 1651.33 1078.93 1669.44 1079.05 1689.11 1079.11 1691.99 1079.11 1694.64 1079.12
 1714.54 1079.21 1736.13 1079.49 1737.09  1079.5 1737.96 1079.52 1759.64 1079.75
 1781.27 1079.76 1782.18 1079.76 1783.16 1079.76 1804.73 1079.74 1824.58 1079.84
 1827.28 1079.85 1830.18 1079.87 1849.82 1079.96 1867.91 1080.08 1872.37 1080.14
 1885.66 1080.22 1894.92 1080.31 1911.22  1080.3 1917.47  1080.3 1930.15 1080.23
 1940.01 1080.23 1954.54 1080.25 1962.56 1080.26 1971.27 1080.32 1985.11 1080.41
 1997.85 1080.53 2007.66 1080.62  2018.3 1080.79  2030.2 1080.96 2041.16 1081.09
 2052.75 1081.24 2065.32 1081.37  2075.3 1081.46 2084.48 1081.55 2097.85 1081.68
 2112.35 1081.81 2120.39 1081.88 2127.79 1081.92 2142.94 1081.94 2323.32  1082.1
 2344.37  1082.2 2345.87 1082.21 2347.48 1082.22 2368.41 1082.44 2387.68  1082.7
 2390.96 1082.74 2394.51 1082.78 2413.51    1083    2431 1083.23 2434.32 1083.29
 2436.06 1083.31 2449.15 1083.55  2458.6 1083.76 2463.98 1083.85 2474.32 1084.12
 2481.15 1084.29 2488.56 1084.45  2503.7 1084.75 2508.47 1084.82 2517.63    1085
 2526.25 1085.12 2535.59 1085.18  2548.8 1085.23 2560.95 1085.31 2571.34 1085.41
 2582.62 1085.71 2593.89 1085.98 2604.26 1086.17 2616.44 1086.37 2629.65 1086.52
 2638.98  1086.6 2647.58 1086.64 2661.53 1086.67 2676.67 1086.69 2684.08 1086.66
 2690.89 1086.68 2887.01 1087.33 2894.01 1087.37 2907.47 1087.39 2909.55  1087.4
 2911.81  1087.4  2932.1  1087.5 2950.78 1087.55 2954.65 1087.56 2958.83 1087.58
 2977.19 1087.66  2994.1 1087.78 2999.74 1087.83 3005.86 1087.92 3022.29 1088.16
 3037.41 1088.37 3044.84 1088.48 3052.89 1088.59 3067.39 1088.78 3080.72 1088.92
 3089.93    1089 3099.92 1089.03 3112.48 1089.09 3124.05 1089.14 3135.03 1089.22
 3146.94 1089.34 3157.57 1089.45 3167.36 1089.57 3180.12 1089.77 3193.97 1089.97
 3202.67 1090.11 3210.67 1090.23 3225.21 1090.44    3241 1090.74 3247.76 1090.86
 3253.99 1090.99 3264.72 1091.19 3270.31 1091.28 3288.03 1091.43 3292.86 1091.48
 3294.38 1091.48  3297.3 1091.49 3309.21 1091.51 3315.41 1091.57 3335.05 1091.84
 3337.95 1091.87 3338.87 1091.88 3340.62 1091.91 3351.85 1092.06

Manning's n Values        num=      3
     Sta   n Val     Sta   n Val     Sta   n Val
**************************************************
     .93     .03  248.04     .03  654.51    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        248.04  654.51             204.8     200  208.47            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1089.38  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.38  * Reach Len. (ft)         *  204.80  *  200.00  *  208.47  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 4609.91  *10132.86  *22260.08  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 4609.91  *10132.86  *22260.08  *
* Q Total (cfs)           * 2035.19  * Flow (cfs)              *  363.76  *  961.34  *  710.09  *
* Top Width (ft)          * 3144.13  * Top Width (ft)          *  240.97  *  406.47  * 2496.69  *
* Vel Total (ft/s)        *    0.06  * Avg. Vel. (ft/s)        *    0.08  *    0.09  *    0.03  *
* Max Chl Dpth (ft)       *   26.37  * Hydr. Depth (ft)        *   19.13  *   24.93  *    8.92  *
* Conv. Total (cfs)       *9057953.0  * Conv. (cfs)            *1618965.0  *4278622.0  *3160366.0  *
* Length Wtd. (ft)        *  204.02  * Wetted Per. (ft)        *  244.17  *  407.09  * 2496.81  *
* Min Ch El (ft)          * 1063.01  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.89  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  769.67  * 4785.04  * 6692.26  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   62.46  *  212.00  *  892.03  *
**********************************************************************************************

CROSS SECTION


RIVER: FRS
```

REACH: FRS1 RS: 16699.99

INPUT
Description:
Station Elevation Data num= 246

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4.71	1090.02	16.78	1087.1	27.26	1084.01	31.61	1082.79	39.98	1080.32
46.44	1078.43	49.81	1077.42	60.48	1074.43	72.36	1071.16	76.1	1070.36
83.29	1069.44	90.93	1068.28	245.04	1066.43	248.59	1065.99	252.74	1065.53
256.55	1065.24	268.87	1064.07	275.28	1063.95	283.69	1063.77	297.83	1063.63
298.52	1063.63	299.86	1063.62	320.38	1063.49	342.63	1063.25	342.92	1063.24
343.18	1063.24	357.84	1063.14	365.47	1063.13	386.5	1063.17	388.02	1063.18
402.33	1063.26	410.57	1063.31	429.81	1063.49	433.11	1063.51	436.69	1063.53
455.66	1063.65	473.13	1063.66	476.46	1063.65	478.21	1063.65	491.3	1063.6
500.76	1063.58	506.13	1063.56	516.44	1063.52	520.95	1063.5	523.31	1063.5
535.78	1063.47	545.85	1063.48	550.61	1063.51	559.75	1063.63	565.43	1063.71
568.4	1063.77	577.77	1064.15	590.95	1064.64	595.1	1064.87	603.07	1065.51
609.92	1066	613.49	1066.37	624.8	1067.83	636.04	1069.18	639.58	1069.55
646.39	1070.68	647.6	1070.84	950.98	1071.25	951.7	1071.28	965.81	1071.44
974.25	1071.57	992.91	1071.62	996.8	1071.64	1010.3	1071.57	1019.35	1071.52
1025.12	1071.55	1036.22	1071.44	1041.9	1071.38	1054.78	1071.52	1064.44	1071.5
1079.54	1071.65	1086.99	1071.73	1099.27	1071.75	1109.54	1071.74	1114.1	1071.69
1122.85	1071.61	1132.08	1071.52	1142.1	1071.51	1154.63	1071.48	1166.17	1071.49
1173.4	1071.5	1177.18	1071.48	1188.24	1071.64	1199.73	1071.7	1203.07	1071.82
1209.48	1072.13	1222.27	1072.68	1236.15	1073.14	1244.82	1073.45	1252.79	1073.63
1267.37	1074.04	1277.21	1074.24	1289.92	1074.58	1296.12	1074.68	1312.47	1074.95
1321.69	1075.01	1335.01	1075.2	1339.43	1075.24	1357.56	1075.42	1377.23	1075.53
1380.11	1075.54	1382.75	1075.54	1395.83	1075.52	1402.65	1075.53	1410.66	1075.53
1425.2	1075.58	1426.06	1075.58	1612.37	1075.82	1628.13	1076.13	1642.64	1076.38
1650.68	1076.53	1659.39	1076.67	1673.22	1076.89	1685.95	1077.09	1695.77	1077.26
1706.42	1077.41	1718.32	1077.57	1729.27	1077.71	1740.86	1077.83	1753.45	1077.93
1763.41	1077.99	1772.58	1078.07	1785.96	1078.19	1800.48	1078.28	2011.43	1078.56
2032.47	1078.81	2033.98	1078.83	2035.62	1078.85	2056.53	1079.07	2075.79	1079.36
2079.08	1079.42	2082.64	1079.46	2101.63	1079.6	2119.1	1079.64	2124.17	1079.65
2129.67	1079.66	2146.72	1079.69	2162.41	1079.75	2169.27	1079.77	2176.7	1079.82
2191.81	1079.91	2205.73	1080.21	2214.36	1080.39	2223.72	1080.71	2236.91	1081.17
2249.05	1081.45	2508.94	1082.68	2530.02	1083.05	2552.26	1083.38	2552.58	1083.38
2552.91	1083.39	2575.12	1083.84	2595.57	1084.26	2597.67	1084.3	2599.94	1084.35
2620.22	1084.81	2638.89	1085.2	2642.76	1085.28	2646.97	1085.34	2665.31	1085.58
2682.2	1085.84	2687.86	1085.93	2693.99	1086.03	2710.41	1086.3	2725.51	1086.47
2732.95	1086.54	2741.02	1086.63	2755.5	1086.77	2768.83	1086.84	2778.05	1086.89
2788.05	1086.94	2800.6	1086.96	2812.14	1087.02	2823.15	1087.05	2834.21	1087.05
2845.69	1087.12	2849.03	1087.14	2855.46	1087.21	2863.86	1087.28	2868.24	1087.34
2878.69	1087.42	2890.79	1087.53	2898.78	1087.55	2913.33	1087.57	2929.13	1087.59
2935.88	1087.58	2942.09	1087.6	2958.43	1087.68	2976.15	1087.83	2980.97	1087.87
2985.41	1087.92	3003.52	1088.13	3023.18	1088.48	3026.07	1088.53	3028.72	1088.56
3048.62	1088.79	3070.21	1088.82	3071.17	1088.82	3072.03	1088.82	3093.71	1088.63
3115.35	1088.48	3116.26	1088.48	3117.24	1088.48	3138.81	1088.62	3158.67	1088.91
3161.35	1088.96	3175.26	1089.18	3183.9	1089.23	3190.09	1089.35	3201.99	1089.31
3206.45	1089.33	3211.29	1089.34	3229	1089.48	3245.3	1089.61	3249.41	1089.65
3251.54	1089.66	3258.32	1089.7	3274.09	1089.9	3288.61	1090.11	3293.89	1090.26
3296.64	1090.22	3308.71	1090.49	3319.19	1090.65	3323.55	1090.74	3331.93	1090.9
3341.74	1091.08	3352.37	1091.25	3364.28	1091.46	3375.24	1091.68	3386.83	1091.93
3399.4	1092.22	3409.38	1092.44	3418.55	1092.62	3431.92	1092.88	3446.42	1093.17
3454.47	1093.3	3461.87	1093.45	3477.02	1093.73	3493.45	1093.99	3499.56	1094.07
3500.54	1094.08								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4.71	.03	245.04	.03	647.6	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
245.04	647.6	208.58	200	333.46	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1089.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1089.39	Reach Len. (ft)	208.58	200.00	333.46
Crit W.S. (ft)		Flow Area (sq ft)	4348.10	10153.44	26443.93
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	4348.10	10153.44	26443.93
Q Total (cfs)	1951.96	Flow (cfs)	291.46	848.94	811.56
Top Width (ft)	3209.65	Top Width (ft)	237.71	402.56	2569.39
Vel Total (ft/s)	0.05	Avg. Vel. (ft/s)	0.07	0.08	0.03
Max Chl Dpth (ft)	26.26	Hydr. Depth (ft)	18.29	25.22	10.29
Conv. Total (cfs)	9936552.0	Conv. (cfs)	1483685.0	4321563.0	4131305.0
Length Wtd. (ft)	247.93	Wetted Per. (ft)	240.46	403.07	2569.56
Min Ch El (ft)	1063.13	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.81	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	748.61	4738.47	6575.71
C & E Loss (ft)		Cum SA (acres)	61.33	210.14	879.91

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 16499.99

INPUT
Description:
Station Elevation Data num= 283

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10.76	1089.03	33.03	1082.47	33.3	1082.39	33.54	1082.32	48.21	1077.84
55.85	1075.58	63.04	1073.41	76.86	1069.5	78.4	1069.07	80.06	1068.76
100.95	1064.2	221.14	1064.18	229.41	1064.19	236.23	1064.2	250.12	1063.91
255.81	1063.76	258.77	1063.68	270.64	1063.59	281.33	1063.51	285.46	1063.5
293.43	1063.5	303.87	1063.49	315.12	1063.47	326.42	1063.45	336.75	1063.4
344.79	1063.35	348.97	1063.33	359.61	1063.25	371.51	1063.13	374.43	1063.12
380.07	1063.08	389.27	1063.02	394.06	1062.99	409.25	1063.11	416.61	1063.15
418.92	1063.18	423.38	1063.23	439.16	1063.42	456.27	1063.5	461.7	1063.53
466.7	1063.52	478.24	1063.49	484.25	1063.46	493.07	1063.42	506.8	1063.35
507.89	1063.35	510.01	1063.35	529.35	1063.4	550.33	1063.57	551.89	1063.58
552.38	1063.59	553.33	1063.59	567.21	1063.7	574.44	1063.72	582.04	1063.76
596.64	1063.75	596.99	1063.75	611.69	1063.74	619.54	1063.69	626.53	1063.64
639.95	1063.55	642.08	1063.54	644.38	1063.53	664.63	1063.43	671.01	1063.43
683.27	1063.51	685.84	1063.52	687.18	1063.53	700.66	1063.71	709.72	1063.87
715.5	1063.95	726.59	1064.13	732.27	1064.21	738.44	1064.22	754.82	1064.27
759.98	1064.25	769.9	1064.25	777.36	1064.29	785.46	1064.35	799.92	1064.45
813.22	1064.56	819.3	1064.64	822.46	1064.69	832.49	1064.9	845.01	1065.14
848.96	1065.23	856.53	1065.33	863.78	1065.43	867.56	1065.46	879.52	1065.58

890.1	1065.66	893.44	1065.74	899.85	1065.83	912.65	1066.18	926.54	1066.57
935.2	1066.82	943.16	1066.96	952.75	1067.11	957.08	1067.23	957.75	1067.25
967.58	1067.22	980.29	1067.71	982.4	1067.78	986.47	1067.95	1002.84	1068.14
1246.37	1071.39	1250.06	1071.49	1264.15	1071.38	1273.41	1071.52	1289.68	1071.7
1295.96	1071.79	1308.63	1071.95	1318.51	1072.19	1333	1072.49	1341.05	1072.67
1353.12	1072.72	1363.6	1072.89	1376.32	1072.84	1386.15	1072.84	1397.6	1072.78
1490.87	1072.99	1498.88	1073.1	1506.26	1073.35	1521.43	1073.84	1537.89	1074.17
1543.98	1074.27	1549.57	1074.32	1566.53	1074.52	1584.93	1074.6	1766.15	1074.85
1769.45	1074.94	1773.03	1074.96	1792	1075.14	1809.47	1075.11	1812.8	1075.14
1814.55	1075.17	1820.06	1075.27	1837.1	1075.61	1842.47	1075.78	1852.78	1075.94
1859.64	1076.08	1867.08	1076.31	1882.19	1076.8	1886.95	1076.99	1896.09	1077.36
1904.74	1077.68	1914.11	1077.95	1927.29	1078.31	1939.41	1078.58	1949.83	1078.71
1961.14	1078.81	2130.21	1079.28	2149.25	1079.66	2152.76	1079.72	2155.99	1079.79
2175.31	1080.1	2196.28	1080.37	2197.85	1080.39	2199.3	1080.41	2285.94	1080.62
2288.04	1080.67	2302.15	1080.81	2310.59	1080.99	2329.25	1081.34	2333.14	1081.38
2337.36	1081.45	2355.69	1081.67	2372.56	1081.95	2376.29	1081.96	2378.24	1081.96
2391.12	1081.86	2400.78	1081.89	2405.94	1081.84	2415.88	1081.88	2423.33	1081.89
2431.41	1081.91	2445.88	1081.9	2459.19	1081.97	2468.42	1082.03	2478.44	1082.14
2490.97	1082.28	2502.51	1082.41	2513.52	1082.54	2525.46	1082.52	2536.07	1082.62
2545.82	1082.77	2558.61	1083	2572.49	1083.18	2581.16	1083.3	2589.14	1083.39
2603.71	1083.55	2619.52	1083.71	2626.26	1083.8	2632.46	1083.9	2648.81	1084.16
2666.55	1084.23	2671.35	1084.25	2675.77	1084.26	2693.9	1084.48	2713.58	1084.68
2716.45	1084.73	2719.09	1084.76	2738.99	1084.99	2760.6	1085.2	2761.54	1085.21
2762.4	1085.22	2784.09	1085.51	2805.71	1085.84	2806.63	1085.85	2821.15	1086.04
2829.18	1086.06	2849.03	1086.12	2851.73	1086.14	2854.65	1086.18	2874.28	1086.42
2892.34	1086.65	2896.83	1086.71	2901.68	1086.73	2919.37	1086.85	2935.66	1086.9
2941.92	1086.93	2948.71	1086.97	2964.47	1087.06	2978.98	1087.17	2987.02	1087.2
2999.09	1087.2	3009.56	1087.18	3022.29	1087.18	3032.11	1087.28	3042.76	1087.34
3054.66	1087.42	3065.61	1087.47	3077.2	1087.58	3089.79	1087.79	3099.75	1087.96
3108.92	1088.08	3122.3	1088.21	3136.82	1088.37	3144.85	1088.44	3152.23	1088.53
3167.4	1088.69	3183.84	1088.83	3189.94	1088.89	3195.55	1088.92	3212.49	1089
3230.87	1089.05	3235.04	1089.06	3238.87	1089.08	3257.58	1089.39	3266.01	1089.55
3280.13	1089.67	3282.18	1089.7	3302.68	1089.89	3310.49	1089.97	3325.22	1090.07
3325.32	1090.07	3325.5	1090.07	3340.14	1090.28	3347.77	1090.32	3354.97	1090.41
3368.81	1090.54	3369.8	1090.56	3370.32	1090.56	3384.63	1090.81	3392.87	1090.98
3412.13	1091.32	3415.42	1091.37	3418.98	1091.43	3437.97	1091.67	3455.44	1091.82
3460.51	1091.85	3466	1091.93	3483.06	1092.14	3498.75	1092.4	3505.61	1092.49
3513.04	1092.6	3528.15	1092.82	3542.08	1093.01	3550.7	1093.12	3560.06	1093.21
3573.25	1093.32	3577.4	1093.35	3584.56	1093.43				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
10.76	.03	229.41	.03	957.08	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
229.41	957.08	206.35	200	228.51	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1089.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1089.39	Reach Len. (ft)	206.35	200.00	228.51
Crit W.S. (ft)		Flow Area (sq ft)	4452.94	18430.72	23799.03
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	4452.94	18430.72	23799.03
Q Total (cfs)	1868.79	Flow (cfs)	229.71	1112.06	527.03
Top Width (ft)	3246.58	Top Width (ft)	218.65	727.67	2300.26
Vel Total (ft/s)	0.04	Avg. Vel. (ft/s)	0.05	0.06	0.02
Max Chl Dpth (ft)	26.40	Hydr. Depth (ft)	20.37	25.33	10.35
Conv. Total (cfs)	13230260.0	Conv. (cfs)	1626220.0	7872913.0	3731125.0
Length Wtd. (ft)	207.38	Wetted Per. (ft)	222.41	727.72	2300.45
Min Ch El (ft)	1062.99	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.64	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	727.54	4672.85	6383.40
C & E Loss (ft)		Cum SA (acres)	60.24	207.55	861.27

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 16299.99

INPUT
Description:
Station Elevation Data num= 373

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1089.8	6.32	1089.39	17.62	1087.27	27.94	1084.22	40.17	1080.6
50.81	1077.28	62.72	1073.55	65.64	1072.68	71.25	1071.02	85.26	1066.84
100.46	1065.02	107.81	1063.9	114.56	1063.7	130.36	1063.16	139.78	1062.95
152.9	1062.73	157.89	1062.66	175.45	1062.42	194.51	1062.34	198	1062.32
201.2	1062.34	220.55	1062.57	221.02	1062.58	241.54	1063.03	243.09	1063.06
244.52	1063.07	258.4	1063.15	265.64	1063.26	273.23	1063.24	287.83	1063.23
288.19	1063.23	288.57	1063.23	310.73	1063.08	331.14	1063.07	333.29	1063.06
347.38	1063.13	355.83	1063.14	374.46	1063.22	378.38	1063.24	391.86	1063.29
400.93	1063.32	417.77	1063.37	423.47	1063.39	436.35	1063.43	446.02	1063.47
451.17	1063.49	461.09	1063.5	466.01	1063.51	468.57	1063.52	480.84	1063.54
491.11	1063.54	504.41	1063.55	513.66	1063.54	523.71	1063.54	536.21	1063.53
547.72	1063.52	558.76	1063.53	569.81	1063.5	581.31	1063.44	591.04	1063.4
599.46	1063.37	603.85	1063.34	614.29	1063.35	626.4	1063.35	634.35	1063.4
643.94	1063.47	648.95	1063.49	664.79	1063.59	671.5	1063.63	677.66	1063.65
694.04	1063.69	711.81	1063.75	716.59	1063.76	720.98	1063.77	732.91	1063.79
739.14	1063.8	747.75	1063.79	761.68	1063.78	762.58	1063.78	764.3	1063.78
784.23	1063.79	805.87	1064.05	806.78	1064.06	807.61	1064.07	829.32	1064.49
836.72	1064.6	850.93	1064.71	851.88	1064.72	852.89	1064.72	874.42	1064.74
881.2	1064.73	894.24	1064.71	896.97	1064.71	899.92	1064.73	919.52	1064.8
937.56	1065.02	940.52	1065.07	942.06	1065.09	946.95	1065.19	964.61	1065.52
970.17	1065.64	980.87	1065.88	987.16	1066.02	993.98	1066.21	1009.71	1066.61
1014.66	1066.75	1024.18	1067.12	1029.49	1067.34	1032.25	1067.48	1041	1067.94
1054.8	1068.67	1059.14	1068.93	1067.5	1069.38	1073.98	1069.73	1077.35	1069.87
1088.03	1070.24	1099.9	1070.71	1101.37	1070.74	1110.82	1070.94	1118.46	1071.04
1122.45	1071.07	1133.29	1071.18	1144.99	1071.17	1148.11	1071.21	1154.13	1071.22
1162.95	1071.23	1167.54	1071.25	1182.08	1071.47	1190.09	1071.6	1197.45	1071.72
1207.44	1071.92	1212.63	1071.95	1229.12	1072.22	1235.18	1072.32	1240.76	1072.45
1251.91	1072.7	1257.73	1072.81	1276.14	1073.08	1280.27	1073.13	1281.57	1073.14
1284.08	1073.14	1302.82	1073.02	1323.16	1072.78	1325.37	1072.75	1326.06	1072.74
1327.39	1072.75	1340.88	1072.86	1347.92	1073.01	1355.72	1073.14	1370.47	1073.45
1370.54	1073.45	1370.7	1073.45	1393.01	1073.69	1414.03	1073.81	1415.56	1073.81
1429.86	1074.1	1438.11	1074.3	1457.34	1074.62	1460.66	1074.64	1464.25	1074.62
1483.2	1074.5	1500.66	1074.39	1505.75	1074.39	1511.27	1074.52	1528.3	1074.83
1543.97	1075.28	1550.84	1075.47	1558.3	1075.65	1573.39	1076.02	1587.28	1076.18

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 1595.94 1076.25 1605.33 1076.24 1618.49  1076.2  1630.6  1075.9 1641.04 1075.57
 1652.36 1075.87 1663.58 1076.02 1673.91 1076.34 1686.13  1076.6 1699.38 1076.71
 1708.68  1076.8 1717.23  1076.8 1731.22 1076.53 1746.41 1076.25 1753.77 1076.11
 1760.55 1076.05 1776.32 1076.23 1793.44 1076.51 1798.87 1076.57 1803.86 1076.64
 1815.41 1076.81 1821.41 1076.84 1830.23 1076.95 1843.96 1077.13 1845.06 1077.15
 1847.18 1077.19 1866.51 1077.21 1887.49 1077.27 1889.06 1077.28 1890.49 1077.28
 1911.61 1077.16  1933.8 1076.99 1934.15    1077 1934.51    1077  1956.7 1076.93
 1977.12 1076.99 1979.25 1077.01 1981.55 1077.03 2001.79 1077.34 2020.43 1077.49
 2024.34 1077.53 2028.57 1077.53 2046.89 1077.58 2063.75 1077.46 2069.43  1077.5
  2075.6 1077.55 2091.98 1077.69 2107.07 1077.86 2114.53 1077.98 2122.62  1078.1
 2137.08 1078.42 2150.38 1078.66 2159.63 1078.79 2169.65 1078.84 2182.17 1078.92
  2193.7 1078.99 2204.72 1079.07 2216.68 1079.24 2227.27  1079.4 2237.01  1079.5
 2245.43 1079.78 2249.82  1079.9 2263.71 1080.31 2272.36 1080.53 2275.08 1080.63
 2280.32 1080.69 2294.91 1081.12 2310.74 1081.25 2317.46 1081.31 2323.64 1081.28
    2340 1081.42 2357.76 1081.97 2362.55 1082.15 2364.05 1082.22 2366.96 1082.27
  2385.1 1082.59 2393.71 1082.74 2407.65 1083.02 2410.27 1083.07  2430.2 1083.41
 2451.82 1083.72 2452.74 1083.73 2453.59 1083.74 2475.29 1083.87  2496.9 1084.21
 2497.84 1084.23 2498.84 1084.25 2520.38 1084.74 2540.22 1085.09 2542.93 1085.13
 2545.87 1085.15 2565.48 1085.35 2583.53  1085.5 2588.03 1085.54  2592.9 1085.57
 2610.57 1085.66 2626.84 1085.73 2633.12 1085.74 2639.92 1085.79 2655.67 1085.91
 2670.17 1086.06 2678.22 1086.12 2686.95 1086.25 2700.77 1086.42 2713.48 1086.62
 2723.31 1086.75 2733.98 1086.84 2745.86 1086.93  2756.8 1086.94 2764.43 1086.93
 2768.41 1086.95 2779.25 1086.87 2790.95 1086.89 2794.09 1086.87 2800.11 1086.87
  2813.5 1086.85 2828.03  1086.8 2836.05 1086.79 2843.42  1086.8 2858.59 1086.84
 2875.06 1087.01 2881.14 1087.07 2886.74 1087.08 2903.69 1087.08 2922.09 1087.06
 2926.24 1087.06 2930.05  1087.1 2948.79 1087.29 2969.12 1087.63 2971.33 1087.67
 2973.37 1087.68 2993.88 1087.86 3001.68 1087.93 3016.43    1088 3016.51 1088.01
 3016.69 1088.01 3038.98 1088.31    3060 1088.56 3061.52 1088.58 3063.17 1088.59
 3084.07 1088.72 3103.32 1088.91 3106.62 1088.96  3110.2 1089.03 3129.16 1089.41
 3146.63 1089.78 3151.71 1089.87 3157.23 1089.97 3174.26 1090.27 3189.94 1090.65
 3196.81 1090.81 3204.25 1090.97 3219.36 1091.33 3233.26 1091.49 3238.94 1091.55
  3241.9 1091.57 3251.27 1091.63 3264.45 1091.73 3276.57 1091.82    3287 1091.92
  3298.3 1092.02 3309.54 1092.14 3319.89 1092.21 3327.91 1092.28 3332.09 1092.33
 3345.33 1092.49 3354.64  1092.6 3363.21 1092.69 3377.19 1092.77 3392.36  1092.8
 3399.73 1092.82 3406.52 1092.85 3422.28 1092.95 3439.38 1093.11 3444.83 1093.16
 3446.54 1093.17 3449.84 1093.19 3467.38 1093.29 3486.41 1093.34 3489.93 1093.35
 3493.15 1093.35 3512.47 1093.33 3533.44 1093.31 3535.02 1093.31 3536.46 1093.32
 3557.57 1093.39 3579.78 1093.59 3580.11 1093.59 3580.47 1093.59 3602.66 1093.77
  3623.1  1093.9 3625.21 1093.92  3627.5 1093.93 3647.76 1094.01 3666.42 1094.08
  3670.3  1094.1 3674.52 1094.12 3692.85 1094.21 3709.73 1094.33  3715.4 1094.36
 3721.55 1094.42 3737.95 1094.55 3746.16 1094.63

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**************************************************
       0     .03    71.25     .03 1101.37     .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         71.25 1101.37             204.55     200  215.36             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**************************************************************************************
* E.G. Elev (ft)          * 1089.39  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *     0.00 * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.39  * Reach Len. (ft)         *  204.55  *  200.00  *  215.36  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  558.31  *25876.15  *19214.30  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  558.31  *25876.15  *19214.30  *
* Q Total (cfs)           * 1787.14  * Flow (cfs)              *   14.50  * 1408.34  *  364.31  *
* Top Width (ft)          * 3121.67  * Top Width (ft)          *   64.91  * 1030.12  * 2026.64  *
* Vel Total (ft/s)        *     0.04 * Avg. Vel. (ft/s)        *    0.03  *    0.05  *    0.02  *
* Max Chl Dpth (ft)       *    27.07 * Hydr. Depth (ft)        *    8.60  *   25.12  *    9.48  *
* Conv. Total (cfs)       *13941150.0 * Conv. (cfs)            *  113079.5 *10986170.0 *2841905.0 *
* Length Wtd. (ft)        *   202.89 * Wetted Per. (ft)        *   67.52  * 1031.08  * 2026.85  *
* Min Ch El (ft)          * 1062.32  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *     1.57 * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *     0.00 * Cum Volume (acre-ft)    *  715.67  * 4571.13  * 6270.58  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   59.57  *  203.51  *  849.92  *
**************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 16099.99

INPUT
Description:
Station Elevation Data     num=     357
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
    4.63 1090.26   11.62 1089.18   25.03 1085.67   26.44 1085.33   27.18 1085.12
   29.51 1084.43   49.73 1078.51    56.1 1076.56   68.34 1072.83   70.92 1072.04
   72.27 1071.64   76.54 1070.48   94.82 1065.36  100.59  1064.7  111.66 1064.06
  115.41 1063.84  117.37 1063.75  130.25 1063.55  139.92 1063.54  293.35 1063.34
  297.75 1063.29  308.18  1063.2   320.3 1063.03  328.24 1062.94  337.84 1062.82
  342.84 1062.76   358.7 1062.68   365.4 1062.64   367.5 1062.63  371.55 1062.63
  382.33 1062.63  387.94 1062.63  405.73 1062.76  410.49 1062.79  411.99 1062.81
  414.86 1062.84  433.04 1063.02  452.75 1063.13  455.58 1063.15  456.47 1063.15
  458.18 1063.15   471.3 1063.13  478.13 1063.14  486.12 1063.13  500.68 1063.15
  500.95 1063.15  501.49 1063.15  523.22 1063.25  544.81 1063.39  545.77  1063.4
  560.27 1063.54  568.32 1063.61  588.13 1063.84  590.87 1063.87  604.76    1064
  613.41 1064.07  631.44  1064.1  635.96 1064.11  640.86 1064.11  658.51  1064.1
  674.76 1064.12  678.89 1064.12  681.06 1064.13  693.73 1064.15  703.61 1064.17
  708.56 1064.18  718.07  1064.2  726.15 1064.22  734.91 1064.25   748.7  1064.3
  761.38 1064.33  771.25 1064.36   782.7 1064.38  793.79 1064.39   804.7 1064.41
  816.34 1064.42  827.19 1064.46  838.89 1064.49  848.02 1064.52  861.43 1064.56
  875.99 1064.61  883.99 1064.63  891.33 1064.68  906.53  1064.8  916.15 1064.89
  929.08 1065.02  930.99 1065.04  934.65 1065.08  951.63 1065.22  970.05 1065.38
  974.17 1065.42  977.96 1065.45  996.72 1065.54 1005.12 1065.59 1019.27 1065.63
 1021.28 1065.64 1041.82 1065.74 1049.61 1065.77 1064.36 1065.89 1064.59  1065.9
 1086.91 1066.28  1107.9 1066.92 1108.93 1066.95 1109.46 1066.97 1123.76 1067.43
    1132 1067.63 1138.58 1067.77 1151.23 1068.19 1154.55 1068.31 1158.16 1068.48
  1177.1 1069.31 1194.54 1069.51 1197.89 1069.51 1199.65 1069.52 1205.19 1069.59
  1222.2 1069.81 1225.55 1069.94 1227.55 1070.01 1237.86 1070.22 1244.74 1070.41
 1252.22 1070.64 1267.29 1071.17 1272.04 1071.31 1281.17 1071.87 1289.84 1072.39
 1299.24 1072.46 1312.38 1072.64 1316.52 1072.63 1324.48  1072.6 1331.35 1072.55
 1334.93 1072.57 1346.27  1072.6 1357.48 1072.62 1361.01 1072.66  1367.8  1072.7
 1375.83 1072.76 1380.03  1072.8 1390.67 1073.19 1402.58 1073.53  1405.5 1073.58
 1411.11 1073.66 1425.12 1073.84 1440.32 1074.05 1447.67 1074.14 1454.43 1074.24
 1470.22 1074.48 1487.35 1074.62 1492.77 1074.67 1497.75  1074.7 1515.31 1074.74
 1534.38 1074.68 1537.86 1074.67 1541.06 1074.68 1560.41 1074.75  1581.4 1074.84
 1740.79  1075.7 1757.63 1076.36 1763.33 1076.48 1776.21 1076.69 1785.88 1076.88
 1800.95 1077.12 1808.43 1077.15  1820.7 1077.13 1830.98 1077.24 1844.27 1077.36
 1853.52 1077.34 1863.57 1077.31 1876.07 1077.25 1887.58  1077.3 1898.62 1077.34
```

```
1910.59  1077.5 1921.17 1077.62  1930.9 1077.78 1943.72 1077.94 1957.62 1078.15
1966.26 1078.25 1974.21 1078.37 1988.81 1078.59 2004.65 1078.76 2011.36 1078.79
2017.52 1078.84  2033.9 1079.01 2051.67 1079.39 2056.45 1079.46 2060.84 1079.52
   2079 1079.76  2098.7 1079.86 2101.54 1079.86 2104.16 1079.87 2124.09 1079.92
2145.73  1080.1 2146.64 1080.11 2147.47 1080.12 2169.19 1080.34 2190.79 1080.61
2191.41 1080.62 2191.74 1080.62 2206.23 1080.82 2214.28 1080.94 2221.07 1081.04
 2234.1 1081.19 2236.83 1081.19 2239.78 1081.19 2259.38 1081.19 2265.55 1081.16
2277.42 1081.25 2281.93 1081.29 2286.81 1081.34 2304.47 1081.52 2320.73 1081.64
2327.02 1081.69 2333.84 1081.77 2349.57 1081.94 2364.04 1082.08 2372.11 1082.11
2380.86 1082.07 2394.66 1082.02 2407.36 1081.98 2417.21 1081.98 2427.89 1082.08
2439.76 1082.15 2450.68 1082.23 2462.31 1082.37 2474.92 1082.48 2484.85 1082.56
   2494 1082.64  2507.4 1082.82 2521.95 1082.96 2529.95 1083.06 2537.31 1083.17
2552.49 1083.35 2568.98 1083.58 2575.04 1083.67 2580.62 1083.75 2597.59 1084.02
   2616  1084.3 2620.14 1084.36 2623.94 1084.41 2642.68 1084.75 2663.02 1084.98
2665.23 1085.01 2667.25 1085.02 2687.78 1085.08 2710.05  1085.1 2710.33  1085.1
2710.56  1085.1 2732.88 1085.15 2740.07 1085.17 2753.89 1085.18 2754.89 1085.19
2755.42 1085.19 2757.08 1085.19 2777.97 1085.23 2784.55 1085.36  2797.2 1085.56
2800.52 1085.59  2804.1 1085.65 2823.06 1085.95 2840.52  1086.2 2845.61 1086.27
2851.13 1086.37 2868.16 1086.55 2883.83 1086.73  2890.7 1086.81 2898.16 1086.98
2913.25 1087.17 2927.14 1087.43  2935.8 1087.55 2945.19 1087.68 2958.35  1087.8
2970.46 1087.92  2980.9 1088.01 2992.22 1087.98 3003.44 1087.97 3013.77 1087.96
3025.99 1087.95 3039.24 1087.89 3048.54 1087.85 3057.09 1087.82 3071.09 1087.76
3086.27 1087.84 3093.63 1087.88 3095.95 1087.91 3100.41 1087.95 3110.78 1088.06
3116.10  1088.1 3125.61 1088.19 3138.73 1088.34 3143.72 1088.41 3161.27 1088.55
3180.33 1088.64 3183.82 1088.66 3187.04 1088.66 3206.37 1088.74 3227.35 1088.86
3228.92 1088.87 3230.35 1088.88 3251.47  1089.1 3273.67 1089.37 3274.01 1089.38
3274.38 1089.38 3296.56 1089.64 3316.98 1089.77 3319.11 1089.79 3321.41 1089.79
3341.65 1089.84 3348.04 1089.84  3360.3  1089.9 3362.86  1089.9  3364.2  1089.9
3368.43 1089.93 3386.75 1090.01 3403.62 1090.17  3409.3 1090.22 3422.17 1090.22
3431.84 1090.23 3446.93    1090 3454.39 1089.88 3462.49  1089.9 3476.94 1089.91
3490.24  1090.2 3499.49 1090.37 3509.51 1090.39 3522.04 1090.47 3533.56 1089.87
3544.58 1089.66 3556.54 1089.61 3567.13 1090.13 3576.87  1090.4 3589.68  1091.1
3603.57 1091.47 3612.22 1091.69 3620.18 1091.76 3634.77 1091.76  3650.6 1091.94
3657.32    1092  3663.5  1092.1 3679.86 1092.42 3697.62 1092.64 3702.41 1092.69
3706.82 1092.72 3724.96 1092.83 3744.65 1092.97 3747.51 1092.99 3750.14 1093.01
3770.06 1093.19 3791.68 1093.36  3792.6 1093.37 3792.89 1093.37 3793.45 1093.37
3815.15 1093.49 3836.76 1093.62 3837.37 1093.62  3837.7 1093.62 3852.21 1093.74
3860.25 1093.81 3878.32 1093.99

Manning's n Values          num=       3
     Sta    n Val     Sta    n Val     Sta    n Val
*********************************************************
    4.63      .03   76.54      .03 1225.55     .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          76.54 1225.55             204.4     200  201.26             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.39  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.39  * Reach Len. (ft)         *  204.40  *  200.00  *  201.26  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  606.91  *28485.90  *17562.03  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  606.91  *28485.90  *17562.03  *
* Q Total (cfs)           * 1704.94  * Flow (cfs)              *   15.02  * 1405.32  *  284.60  *
* Top Width (ft)          * 3264.78  * Top Width (ft)          *   66.27  * 1149.01  * 2049.51  *
* Vel Total (ft/s)        *    0.04  * Avg. Vel. (ft/s)        *    0.02  *    0.05  *    0.02  *
* Max Chl Dpth (ft)       *   26.76  * Hydr. Depth (ft)        *    9.16  *   24.79  *    8.57  *
* Conv. Total (cfs)       *14546600.0 * Conv. (cfs)            *  128174.9  *11990230.0  *2428188.0  *
* Length Wtd. (ft)        *  200.30  * Wetted Per. (ft)        *   68.93  * 1149.86  * 2049.69  *
* Min Ch El (ft)          * 1062.63  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.54  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *  712.93  * 4446.33  * 6179.67  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   59.26  *  198.51  *  839.84  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                 RS: 15899.99

INPUT
Description:
Station Elevation Data     num=     173
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    8.53 1090.04   16.46 1087.78   31.08 1083.22    40.9  1080.2   53.63 1076.25
   55.73 1075.62   59.77 1074.45   76.18 1069.68   85.39 1067.39   98.72 1065.39
  103.09 1065.26  121.27 1064.69  129.87 1064.54  143.82 1064.22   146.4 1064.19
  159.52 1064.05  166.37 1064.02  188.03 1064.08  188.91 1064.09  189.72 1064.09
  211.46  1064.2  221.47 1064.15  233.03  1064.1  233.67 1064.09  234.01 1064.09
   248.5 1063.67  256.56  1063.4  263.33 1063.19  276.35 1062.95   279.1  1062.9
  282.08 1062.89  301.65 1062.81  319.67 1062.79  322.64 1062.79   324.2 1062.79
  329.11 1062.78  346.74 1062.74   352.3 1062.71  362.98 1062.65  367.13 1062.62
  369.29 1062.61  376.14 1062.56  391.84 1062.45  396.79 1062.43  406.29  1062.4
  414.39 1062.39  423.17 1062.48  436.94 1062.61  441.28 1062.67  449.61  1062.8
   456.1  1062.9  459.48 1062.94  470.19 1063.06  482.03  1063.2  485.75 1063.23
  492.92 1063.28  504.58 1063.36  517.22 1063.42  527.12 1063.47  530.24 1063.48
  536.24  1063.5  545.07 1063.54  549.67 1063.55  564.25  1063.6  572.22 1063.63
  579.56 1063.65  594.77 1063.69  611.27 1063.76  617.31 1063.78  622.87 1063.81
  634.05 1063.85  639.86 1063.86  658.31  1063.9  662.41 1063.91   663.7 1063.91
  666.19 1063.91  678.53 1063.93  684.96 1063.93  705.33 1063.95  707.51 1063.95
  708.18 1063.95   709.5 1063.95  730.05 1063.93  752.35 1063.88   752.6 1063.88
  752.81 1063.88  775.15 1063.81  796.13 1063.75  797.69 1063.75  799.38 1063.75
  820.24 1063.77  839.44 1063.85  842.79 1063.87  846.41 1063.91  865.33 1064.11
  882.76 1064.27  887.88 1064.31  893.43 1064.36  910.43 1064.51  926.08 1064.71
  932.98 1064.79  940.46 1064.89  955.53 1065.08  969.39 1065.23  978.07 1065.32
  987.49 1065.43 1000.62 1065.56 1012.71 1065.69 1023.17 1065.83 1034.41 1065.95
 1045.72  1066.1 1049.24 1066.13 1056.02 1066.19 1068.26 1066.32 1078.89  1066.4
 1090.81 1066.46 1093.73 1066.49 1099.33 1066.53 1108.56  1066.6 1113.36 1066.62
 1123.38 1066.76  1135.9 1066.92 1142.65  1067.1 1158.45 1067.56 1167.87    1068
    1181 1068.56 1185.96 1068.75 1203.55 1069.22  3568.3 1087.92 3571.03 1088.13
 3573.98 1088.02 3593.57 1088.01 3611.61 1088.28 3616.12 1088.42  3629.4 1088.86
 3638.67 1088.98 3644.23 1089.07 3654.93 1088.81 3659.06 1088.74 3661.22 1088.79
 3668.04 1088.91 3683.76 1089.32 3698.24 1089.55 3706.31 1089.69 3715.06 1089.81
 3728.86 1090.04 3741.56  1090.2  3751.4 1090.56 3762.09 1090.32 3773.96 1090.23
 3784.88 1090.32  3796.5 1090.45 3809.12 1090.66 3819.05 1090.88 3828.19 1091.15
  3841.6 1091.75 3856.14 1092.29 3864.14  1092.7 3871.51 1092.83 3886.69 1093.09
 3903.17 1093.31 3909.24 1093.38 3914.82 1093.45 3931.79 1093.64 3950.19 1093.87
 3954.33 1093.91 3958.13 1093.95 3976.88 1094.15 3985.29 1094.21 3999.43 1094.36
 4001.45 1094.38 4021.97 1094.48 4026.68  1094.5

Manning's n Values          num=       3
```

```
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
    8.53     .03   76.18     .03 1203.55    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          76.18 1203.55             204.4     200  201.87             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)         * 1089.39  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)         * 1089.39  * Reach Len. (ft)         *  204.40  *  200.00  *  200.87  *
* Crit W.S. (ft)         *         * Flow Area (sq ft)        *  649.46  *28195.87  *25679.09  *
* E.G. Slope (ft/ft)     *0.000000  * Area (sq ft)            *  649.46  *28195.87  *25679.09  *
* Q Total (cfs)          * 1620.41  * Flow (cfs)              *   14.53  * 1201.16  *  404.73  *
* Top Width (ft)         * 3677.29  * Top Width (ft)          *   65.37  * 1127.37  * 2484.56  *
* Vel Total (ft/s)       *    0.03  * Avg. Vel. (ft/s)        *    0.02  *    0.04  *    0.02  *
* Max Chl Dpth (ft)      *   27.00  * Hydr. Depth (ft)        *    9.94  *   25.01  *   10.34  *
* Conv. Total (cfs)      *16107550.0 * Conv. (cfs)            *144416.2  *11939950.0  *4023185.0  *
* Length Wtd. (ft)       *  200.21  * Wetted Per. (ft)        *   68.28  * 1127.90  * 2484.67  *
* Min Ch El (ft)         * 1062.39  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                  *    1.60  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)    *  709.99  * 4316.21  * 6079.78  *
* C & E Loss (ft)        *         * Cum SA (acres)           *   58.95  *  193.28  *  829.37  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 15699.99

INPUT
Description:
Station Elevation Data     num=     339
      Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
        0 1090.65   11.51 1089.05   16.05 1088.41   20.98 1086.86    38.6 1081.36
    54.82 1076.18   61.15 1074.18      68 1072.19   83.69 1067.61   98.14 1066.27
   106.24 1065.74  118.29 1065.35  128.79 1065.16  141.45 1065.02  151.33 1064.91
   162.78 1064.88  173.88 1064.82   177.6 1064.83  184.76 1064.83  196.43 1064.82
   207.27  1064.8  218.98 1064.74  222.09  1064.7  226.03 1064.61  228.08 1064.57
   236.92 1064.43  241.53 1064.32  251.75 1063.88  264.07 1063.38  271.39 1063.18
   286.62 1062.87  296.24 1062.78  309.17 1062.71  314.71  1062.7  331.72 1062.66
   340.72  1062.6  354.26 1062.52  358.03 1062.52  370.37 1062.51  376.81 1062.52
    397.2 1062.72  399.36 1062.75  401.34 1062.77   421.9 1062.96  429.69 1063.01
   444.45 1063.09  444.52 1063.09  444.66 1063.09     467 1063.16  487.97 1063.19
   489.01  1063.2  489.55  1063.2  491.25 1063.19   512.1  1063.2  531.28 1063.13
   534.64 1063.13  538.28 1063.13  557.19 1063.14   574.6 1063.16  579.74 1063.18
   585.31 1063.19  602.28 1063.24  617.91 1063.28  622.47 1063.29  624.83 1063.31
   637.29 1063.36  647.38 1063.42  652.12 1063.46  661.24 1063.53  669.93  1063.6
   679.36  1063.7  692.47 1063.83  704.55 1063.93  715.02 1063.98  726.39 1063.95
   737.57 1063.93  747.86 1063.85  760.12 1063.76  773.41 1063.67  782.67  1063.6
   791.18 1063.55  805.21 1063.48  820.44 1063.42  827.76 1063.39  834.49 1063.38
   850.31 1063.37  867.47 1063.46  872.85 1063.49  877.81 1063.59   895.4 1063.99
   914.49 1064.55  917.95 1064.64  921.12  1064.7  940.49 1064.99  961.52 1065.08
   963.04 1065.09  964.44  1065.1  985.59 1065.22 1007.76 1065.43 1008.14 1065.44
  1022.83 1065.42 1030.69 1065.35 1051.07 1065.14 1053.23 1065.13 1067.31 1065.06
  1075.78  1065.1 1094.38 1065.15 1098.33 1065.17  1102.6  1065.2 1120.88 1065.32
   1137.7 1065.64 1143.42 1065.77 1149.63 1066.06 1165.97 1066.79 1181.01 1067.55
  1188.52 1067.91 1196.66 1068.12 1211.06  1068.5 1224.33  1068.5 1233.61 1068.49
  1243.68 1068.57 1256.16 1068.66 1267.64 1068.86 1278.71 1069.09 1290.71 1069.67
  1301.26 1070.13 1310.96 1070.87 1319.41 1071.52  1323.8 1071.88 1334.23 1072.77
  1346.35 1074.05 1348.41 1074.19 1349.06 1074.23 1354.28 1074.35  1368.9 1074.57
  1384.76 1074.73 1391.44  1074.8 1397.59 1074.86 1413.99 1074.94 1431.79 1075.06
  1436.54 1075.09  1440.9 1075.12 1459.09 1075.23 1478.82 1075.38 1481.63  1075.4
  1484.22 1075.42 1504.18 1075.42 1910.04 1075.92 1917.38 1076.02 1932.58 1076.22
  1949.09 1076.51 1955.13 1076.58 1960.69  1076.7 1977.68 1076.93 1996.11 1077.23
  2000.22 1077.29    2004 1077.35 2022.78 1077.56 2043.14 1077.78 2045.32 1077.81
  2047.32 1077.83 2067.87 1077.95 2090.17 1078.09 2090.42 1078.09 2090.63 1078.09
  2112.96 1078.23 2133.94 1078.39 2135.51  1078.4  2149.8 1078.51 2158.06 1078.55
  2164.63 1078.61 2177.26 1078.72 2179.45 1078.74  2180.6 1078.75 2194.28 1078.96
  2203.15 1079.08 2220.57 1079.32  2225.7 1079.43 2231.25 1079.54 2248.25 1079.87
   2263.9 1080.16  2270.8 1080.26 2278.28 1080.34 2293.34 1080.47 2307.21 1080.52
  2315.89 1080.47 2325.31 1080.47 2338.44 1080.44 2350.52 1080.48 2360.98 1080.53
  2372.34 1080.59 2383.53 1080.64 2393.84 1080.72 2406.08 1080.82 2419.36 1080.99
  2428.63 1081.11 2437.15 1081.22 2451.17 1081.39 2466.38 1081.51 2473.72 1081.57
  2480.46  1081.6 2496.27 1081.61 2513.42 1081.62 2518.81 1081.63 2523.78 1081.65
  2541.37 1081.73 2560.44 1081.86 2563.91 1081.88  2567.1 1081.91 2586.46 1082.12
  2607.47  1082.4 2609.01 1082.42 2610.42 1082.43 2631.55 1082.65 2653.73 1082.74
   2654.1 1082.74  2668.8 1082.82 2676.65 1082.87 2697.04 1083.01 2699.19 1083.02
  2713.29 1083.14 2721.74  1083.2 2740.36 1083.35 2744.29 1083.38 2748.55 1083.41
  2766.83 1083.54 2783.67 1083.66 2787.42 1083.68 2789.39 1083.68 2795.58 1083.74
  2811.93 1083.83 2826.98  1083.9 2834.48 1083.94 2842.61 1083.95 2857.03 1083.96
  2870.31 1083.92 2879.57 1083.83 2889.63 1083.83 2902.12 1083.81 2913.62 1084.08
  2924.67 1084.34 2936.66 1084.57 2947.22 1084.74 2956.94 1084.86 2969.76 1084.99
  2983.69 1085.08 2992.31 1085.14 3000.25 1085.18 3014.86 1085.24 3030.71 1085.45
   3037.4 1085.51 3043.56 1085.57 3054.34 1085.67 3059.96 1085.72 3077.73 1085.81
   3082.5 1085.84 3086.88 1085.87 3105.05    1086 3124.77 1086.19  3127.6 1086.22
  3130.19 1086.25 3150.14 1086.48 3171.79 1086.63 3172.69 1086.64 3173.51 1086.65
   3187.8  1086.8 3195.24 1086.84 3202.62 1086.91 3216.83 1087.01 3217.45 1087.01
  3217.78 1087.01 3218.82 1087.01 3240.33 1087.07 3260.14 1087.31 3262.88 1087.36
  3265.85 1087.29 3285.43 1087.08 3303.46 1087.51 3306.42 1087.67 3307.98 1087.68
  3312.87 1087.75 3330.52 1087.99 3336.08 1088.05 3346.77  1088.2 3350.91 1088.24
  3353.07 1088.27 3365.74  1088.4 3375.62 1088.53 3390.08 1088.67 3395.39 1088.72
  3398.17 1088.75 3406.93 1088.83 3420.71 1088.94  3433.4 1089.05 3443.26 1089.12
  3453.96 1089.22 3465.81 1089.31 3476.71 1089.42 3488.35 1089.54 3500.98 1089.67
   3510.9 1089.77 3520.03 1089.86 3533.45 1089.98 3548.01 1090.09 3555.99 1090.15
  3558.51 1090.16 3563.35  1090.2 3578.55 1090.43 3595.04 1090.82 3601.09 1090.94
  3606.66 1091.07 3617.82 1091.29 3623.64 1091.43 3632.65 1091.56 3646.19 1091.73
  3649.98 1091.76 3668.73 1091.79 3689.09  1091.9 3691.28 1091.91 3693.29 1091.93
  3713.83 1092.11 3721.62 1092.19 3736.37 1092.44  3736.6 1092.45 3751.28 1092.63
  3758.92 1092.72 3779.92 1092.88 3781.47 1092.89 3783.14  1092.9 3804.02 1093.02
  3823.24 1093.25 3826.57 1093.28 3830.17 1093.29 3849.11 1093.39 3866.55 1093.52
  3871.66 1093.54  3877.2 1093.58 3894.21 1093.69 3897.15 1093.71

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
       0     .03   61.15     .03 1348.41    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          61.15 1348.41             204.4     200  201.27             .1       .3
```

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1089.39	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.00	Wt. n-Val.	0.030	0.030	0.045	
W.S. Elev (ft)	1089.39	Reach Len. (ft)	204.40	200.00	201.27	
Crit W.S. (ft)		Flow Area (sq ft)	367.30	31500.38	17943.88	
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	367.30	31500.38	17943.88	
Q Total (cfs)	1537.29	Flow (cfs)	6.38	1289.80	241.11	
Top Width (ft)	3464.67	Top Width (ft)	52.09	1287.26	2125.32	
Vel Total (ft/s)	0.03	Avg. Vel. (ft/s)	0.02	0.04	0.01	
Max Chl Dpth (ft)	26.88	Hydr. Depth (ft)	7.05	24.47	8.44	
Conv. Total (cfs)	15663380.0	Conv. (cfs)	65033.6	13141680.0	2456670.0	
Length Wtd. (ft)	200.21	Wetted Per. (ft)	54.35	1288.62	2125.42	
Min Ch El (ft)	1062.51	Shear (lb/sq ft)	0.00	0.00	0.00	
Alpha	1.51	Stream Power (lb/ft s)	0.00	0.00	0.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	707.60	4179.17	5979.20	
C & E Loss (ft)		Cum SA (acres)	58.68	187.74	818.74	

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 15499.99

INPUT
Description:
Station Elevation Data num= 389

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1.91	1089.96	5.54	1089.34	22.56	1086.5	41.03	1081.17	45.11	1080
48.85	1078.83	61.22	1074.99	67.66	1073.08	88.05	1067.53	90.2	1066.92
90.87	1066.87	92.17	1066.82	105.7	1066.41	112.75	1066.21	135.08	1066.16
135.3	1066.16	135.49	1066.16	157.84	1066.29	178.8	1066.36	179.84	1066.36
180.39	1066.37	194.68	1066.41	202.94	1066.46	209.5	1066.48	222.12	1066.45
225.48	1066.43	227.49	1066.31	229.14	1066.21	248.03	1065.41	265.43	1063.8
270.58	1063.43	283.65	1063.05	293.13	1062.89	308.74	1062.77	315.68	1062.72
323.19	1062.72	338.22	1062.72	352.06	1062.73	360.77	1062.73	370.22	1062.73
383.32	1062.73	395.38	1062.74	402.27	1062.76	405.87	1062.77	417.1	1062.78
428.41	1062.8	438.7	1062.8	450.96	1062.86	464.27	1063.06	473.51	1063.16
482.01	1063.29	496.05	1063.43	511.3	1063.39	518.6	1063.38	525.32	1063.35
541.15	1063.27	558.32	1063.28	563.7	1063.28	568.64	1063.29	586.25	1063.3
595.04	1063.31	608.79	1063.32	611.95	1063.32	631.34	1063.37	639.53	1063.39
653.89	1063.45	655.26	1063.45	676.43	1063.45	698.58	1063.16	698.98	1063.16
699.41	1063.15	721.53	1062.88	741.9	1062.84	744.08	1062.84	746.43	1062.85
766.63	1062.88	785.22	1062.9	789.17	1062.9	793.46	1062.91	811.72	1062.95
828.53	1063.04	834.27	1063.07	840.49	1063.12	856.82	1063.25	871.84	1063.39
879.36	1063.45	887.52	1063.53	901.91	1063.65	915.16	1063.79	924.46	1063.9
934.55	1064.02	947	1064.19	958.47	1064.31	969.55	1064.41	981.57	1064.44
992.1	1064.49	1001.79	1064.43	1010.24	1064.39	1014.64	1064.38	1025.07	1064.34
1037.2	1064.37	1039.9	1064.39	1045.11	1064.41	1054.72	1064.46	1059.74	1064.47
1075.63	1064.55	1082.29	1064.59	1088.42	1064.61	1104.84	1064.64	1122.65	1064.64
1127.38	1064.64	1131.74	1064.65	1149.93	1064.72	1169.67	1064.94	1172.48	1064.97
1175.05	1065.06	1195.02	1065.82	1216.7	1066.72	1217.57	1066.77	1218.36	1066.77
1240.12	1066.9	1261.68	1067.16	1262.67	1067.17	1277.16	1067.46	1285.22	1067.58
1304.99	1068.07	1307.76	1068.15	1321.64	1068.76	1330.31	1069.21	1348.31	1070.09
1352.86	1070.31	1357.79	1070.51	1375.41	1071.29	1391.63	1071.81	1397.95	1071.97
1404.81	1072.11	1417.78	1072.37	1420.5	1072.42	1434.94	1072.87	1443.05	1073.18
1451.84	1073.42	1465.59	1073.82	1478.26	1074.16	1488.14	1074.37	1498.87	1074.52
1510.69	1074.76	1521.57	1074.76	1533.23	1074.76	1545.9	1074.74	1555.79	1074.73
1564.88	1074.74	1578.33	1074.8	1592.92	1074.82	1600.88	1074.83	1608.2	1074.84
1623.43	1074.94	1639.95	1075	1645.97	1075.03	1651.51	1075.04	1668.52	1075.09
1686.98	1075.22	1691.07	1075.25	1694.83	1075.28	1707.18	1075.45	1713.62	1075.52
1722.02	1075.61	1736.16	1075.72	1736.84	1075.72	1738.15	1075.73	1758.71	1075.9
1781.03	1076.03	1781.26	1076.04	1781.46	1076.04	1803.81	1076.27	1824.78	1076.45
1826.36	1076.46	1828.06	1076.46	1848.9	1076.52	1868.09	1076.49	1871.45	1076.47
1875.08	1076.45	1894	1076.38	1911.4	1076.52	1916.54	1076.58	1922.11	1076.63
1939.09	1076.82	1954.72	1076.88	1961.64	1076.88	1969.14	1076.89	1984.18	1076.91
1998.04	1076.92	2006.73	1076.95	2016.17	1077	2029.28	1077.05	2041.36	1077.02
2051.83	1076.99	2063.19	1076.89	2074.38	1076.81	2084.67	1076.91	2096.92	1076.93
2110.22	1076.98	2119.47	1076.98	2127.98	1076.84	2137.21	1076.56	2142.02	1076.41
2157.25	1076.75	2164.57	1076.81	2166.86	1076.82	2171.3	1076.86	2187.11	1077.28
2204.27	1077.44	2209.66	1077.48	2211.35	1077.54	2214.61	1077.55	2232.21	1078.04
2251.3	1078.62	2254.75	1078.74	2257.92	1078.81	2277.3	1079.04	2298.33	1079.17
2299.85	1079.19	2301.25	1079.2	2322.4	1079.39	2344.56	1079.73	2344.95	1079.74
2345.35	1079.75	2367.49	1080.23	2387.88	1080.76	2390.04	1080.81	2392.38	1080.86
2412.59	1081.32	2431.19	1081.71	2435.13	1081.78	2439.41	1081.84	2457.68	1082.06
2474.5	1082.21	2480.23	1082.28	2486.43	1082.35	2502.78	1082.51	2517.82	1082.62
2525.32	1082.68	2533.46	1082.79	2547.87	1082.94	2561.13	1083.1	2570.42	1083.21
2580.49	1083.31	2592.97	1083.43	2604.45	1083.57	2615.52	1083.7	2627.52	1083.82
2638.06	1083.92	2647.77	1084.02	2656.21	1084.09	2660.61	1084.14	2671.04	1084.31
2683.16	1084.47	2685.86	1084.52	2691.08	1084.57	2705.7	1084.7	2721.57	1084.83
2728.25	1084.89	2734.4	1084.94	2750.8	1085.06	2768.6	1085.14	2773.34	1085.16
2777.71	1085.17	2795.89	1085.22	2815.63	1085.31	2818.44	1085.32	2821.02	1085.3
2840.99	1085.1	2862.66	1084.81	2863.54	1084.8	2864.34	1084.82	2886.08	1085.48
2907.65	1085.95	2908.63	1085.97	2909.68	1085.98	2931.18	1086.28	2950.97	1086.44
2953.73	1086.46	2956.7	1086.46	2976.27	1086.5	2994.29	1086.55	2998.82	1086.57
3003.74	1086.59	3021.37	1086.66	3037.6	1086.73	3043.91	1086.75	3050.76	1086.76
3066.46	1086.81	3071.41	1086.83	3080.92	1086.85	3086.24	1086.89	3089.01	1086.9
3097.79	1086.92	3111.56	1086.97	3124.23	1087.01	3134.11	1087.07	3144.81	1087.12
3156.65	1087.19	3167.54	1087.21	3179.2	1087.25	3191.84	1087.27	3201.75	1087.29
3210.86	1087.28	3224.29	1087.33	3238.87	1087.36	3246.84	1087.39	3254.18	1087.42
3269.39	1087.5	3279.01	1087.58	3291.94	1087.64	3293.83	1087.66	3297.5	1087.67
3314.48	1087.78	3332.92	1087.88	3337.03	1087.9	3340.81	1087.92	3359.58	1088.1
3379.95	1088.33	3382.13	1088.36	3384.12	1088.38	3404.68	1088.57	3426.98	1088.77
3427.22	1088.77	3427.44	1088.77	3449.77	1089.01	3470.75	1089.32	3472.32	1089.34
3474.01	1089.35	3494.86	1089.56	3514.06	1089.55	3517.41	1089.54	3521.03	1089.6
3539.96	1089.82	3557.39	1090.03	3562.5	1090.09	3568.06	1090.15	3585.05	1090.31
3600.7	1090.48	3607.6	1090.56	3615.09	1090.65	3630.15	1090.81	3644.02	1090.95
3649.72	1090.99	3652.7	1091.02	3664.55	1091.11	3675.24	1091.19	3687.33	1091.29
3697.79	1091.38	3709.14	1091.47	3720.34	1091.55	3730.64	1091.63	3742.88	1091.71
3756.16	1091.76	3765.43	1091.8	3773.96	1091.8	3787.98	1091.79	3803.19	1091.8
3810.53	1091.8	3817.27	1091.84	3827.67	1091.91	3833.07	1091.96	3842.49	1092.05
3855.62	1092.2	3857.32	1092.22	3860.58	1092.26	3878.17	1092.47	3897.25	1092.7
3900.72	1092.74	3901.8	1092.75	3903.91	1092.78	3923.27	1092.93	3944.28	1093
3945.81	1093	3947.22	1093.01	3968.36	1093.06	3990.54	1093.1	3990.91	1093.1
4005.61	1093.24	4013.45	1093.41	4020.44	1093.48	4033.85	1093.76	4035.26	1093.79
4036	1093.8	4050.09	1093.99	4058.55	1094.06	4062.39	1094.06		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1.91	.03	67.66	.03	1417.78	.045

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Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         67.66 1417.78             408.8     400  407.41            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************
* E.G. Elev (ft)         * 1089.39  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)         * 1089.39  * Reach Len. (ft)         *  408.80  *  400.00  *  407.41  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *  454.18  *33133.92  *16588.22  *
* E.G. Slope (ft/ft)     *0.000000  * Area (sq ft)            *  454.18  *33133.92  *16588.22  *
* Q Total (cfs)          * 1530.03  * Flow (cfs)               *    7.83  * 1313.56  *  208.65  *
* Top Width (ft)         * 3472.84  * Top Width (ft)           *   62.42  * 1350.12  * 2060.30  *
* Vel Total (ft/s)       *    0.03  * Avg. Vel. (ft/s)         *    0.02  *    0.04  *    0.01  *
* Max Chl Dpth (ft)      *   26.67  * Hydr. Depth (ft)         *    7.28  *   24.54  *    8.05  *
* Conv. Total (cfs)      *16134670.0 * Conv. (cfs)             * 82548.0  *13851870.0  *2200253.0  *
* Length Wtd. (ft)       *  401.54  * Wetted Per. (ft)         *   64.61  * 1351.23  * 2060.46  *
* Min Ch El (ft)         * 1062.72  * Shear (lb/sq ft)         *    0.00  *    0.00  *    0.00  *
* Alpha                  *    1.48  * Stream Power (lb/ft s)    *    0.00  *    0.00  *    0.00  *
* Prctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)     *  705.67  * 4030.79  * 5899.42  *
* C & E Loss (ft)        *          * Cum SA (acres)            *   58.41  *  181.68  *  809.07  *
**********************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 15099.99

INPUT
Description:
Station Elevation Data    num=     332
      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
**********************************************************************************
    11.92 1089.24    20.09 1086.94    34.46 1082.65    35.82  1082.2    57.01 1075.25
    64.58  1072.9    79.13 1068.28    79.56 1068.15    80.01  1068.1   102.11 1065.03
   122.45  1064.3    123.9 1064.24   124.66 1064.23   257.36 1063.58   259.94 1063.39
   268.12 1063.16   282.48 1062.69   295.71 1062.61   305.03 1062.57   315.15  1062.6
   327.58 1062.63   339.02 1062.64   350.13 1062.62   362.17 1062.59   372.68 1062.56
   382.34 1062.52   395.22 1062.51    409.2 1062.55   417.77 1062.57   425.65 1062.66
   440.32 1062.84   456.23 1063.03   462.87 1063.11   468.97 1063.16   485.41 1063.29
   503.26 1063.35   507.96 1063.37   512.28 1063.37   530.51 1063.38   550.28 1063.28
   553.05 1063.27   553.93 1063.26    555.6 1063.26   568.75 1063.21    575.6 1063.16
   597.31 1063.12   598.15 1063.12   598.41 1063.12   598.92 1063.12    620.7 1063.17
   642.23 1063.21   643.25 1063.22   644.34 1063.21   665.79 1063.13   685.54 1063.12
   688.34 1063.12   691.36 1063.13   710.89 1063.19   728.86 1063.25   733.43 1063.27
   738.39 1063.28   755.98 1063.32   772.17 1063.31   778.53 1063.31   785.42 1063.29
   801.08 1063.25   815.49 1063.19   823.62 1063.15   832.44 1063.09   846.17    1063
   858.81 1062.94   868.72 1062.88   879.47  1062.9   891.27 1062.91   902.12 1062.96
   913.82 1063.05    926.5 1063.44   936.36 1063.68   945.44 1064.18    954.3 1064.67
   958.91 1064.86   969.13 1065.17   981.46  1065.4   983.95 1065.41   988.75 1065.43
     1004 1065.47  1020.55 1065.41  1026.55 1065.39  1032.07 1065.43   1049.1 1065.61
  1067.58  1065.9  1071.64 1065.96  1075.38 1066.03  1094.19  1066.5  1114.61 1066.76
  1116.74 1066.79  1118.69 1066.79  1139.29 1066.73  1161.64 1066.73  1161.84 1066.73
  1162.02 1066.73  1184.38  1066.8  1205.33 1066.86  1206.38 1066.86  1206.93 1066.87
  1208.67 1066.87  1229.48 1066.94  1236.04 1067.03  1248.64 1067.19  1252.03 1067.23
  1255.69 1067.28  1274.57 1067.52  1280.53 1067.59  1291.96 1067.72  1297.12 1067.78
  1302.71 1067.93  1319.67 1068.38  1335.27 1069.15  1342.21 1069.49  1349.75 1069.83
  1364.76 1070.51  1378.59 1070.83  1387.31 1071.02  1396.77 1071.22  1409.86 1071.49
   1421.9 1071.72  1432.41 1071.95  1443.79 1072.25   1454.3 1072.52  1454.95 1072.54
  1465.21 1072.85   1477.5  1073.2  1490.82  1073.5  1500.05 1073.72  1508.54 1073.98
  1522.59 1074.41  1537.85  1074.7  1545.14 1074.88  1551.85 1074.95  1567.69 1075.14
  1584.88  1075.2  1590.24 1075.22  1595.16 1075.24  1612.78 1075.32  1631.91 1075.44
  1635.33 1075.46  1638.48 1075.48  1651.24 1075.58  1657.88 1075.63  1678.93 1075.86
  1680.43 1075.87  1680.89 1075.88  1681.79 1075.89  1702.98 1076.16  1725.11 1076.35
  1725.52 1076.36  1725.96 1076.36  1748.07 1076.55  1768.42 1076.75  1770.62 1076.77
  1772.99 1076.79  1793.16 1076.97  1811.74 1077.11  1815.71 1077.14  1820.02 1077.17
  1838.26 1077.31  1855.06 1077.47   1860.8 1077.53  1867.04 1077.61  1883.35 1077.79
  1898.37 1077.99   1905.9 1078.09  1914.07 1078.21  1928.45  1078.4  1941.68 1078.55
     1951 1078.66   1961.1 1078.76  1973.54 1078.88     1985 1078.98  1996.09 1079.09
  2008.12 1079.23  2018.64 1079.35  2028.31 1079.47  2041.18 1079.63  2055.15 1079.78
  2063.73 1079.87  2071.63 1079.94  2081.26 1080.01  2086.28 1080.05  2102.17 1080.19
  2108.83 1080.25  2110.91 1080.28  2114.95 1080.33  2125.75 1080.48  2131.37 1080.54
   2149.2 1080.79  2153.92 1080.86   2155.4 1080.88  2158.26 1080.91  2176.47 1081.13
  2196.23 1081.35  2199.02 1081.38  2201.58  1081.4  2221.57 1081.66  2243.26 1081.98
  2244.11 1081.99  2244.89 1082.01  2266.66  1082.3   2288.2  1082.6  2289.21 1082.61
  2290.29 1082.63  2311.75 1082.91  2331.52 1083.22   2334.3 1083.26  2337.31 1083.29
  2356.85  1083.5  2374.83 1083.64   2379.4 1083.67  2384.34 1083.71  2401.94 1083.85
  2418.16 1084.06  2424.49 1084.14  2431.37 1084.21  2447.04 1084.39  2897.99 1084.69
  2901.64 1084.71  2920.53 1084.78  2937.93 1084.83  2943.08 1084.84  2948.66 1084.86
  2965.63 1084.92  2981.25 1084.96  2988.18 1084.97  2995.69 1084.99  3010.73 1085.03
  3024.56  1085.1  3030.28 1085.13  3033.27 1085.16  3042.72 1085.23  3055.82 1085.32
  3059.95 1085.34  3067.88  1085.4  3074.77 1085.46  3078.37 1085.49   3089.6 1085.58
  3100.91 1085.66   3111.2 1085.73  3119.26 1085.79  3123.46 1085.83  3134.08  1085.9
  3146.01 1086.02  3154.51 1086.09  3168.55 1086.23   3183.8 1086.39  3191.11 1086.46
  3197.82 1086.53  3213.65 1086.66  3230.82 1086.81   3236.2 1086.86  3241.14  1086.9
  3258.75 1087.11  3277.85 1087.21  3281.29 1087.23  3284.45 1087.23  3303.84 1087.23
  3324.88 1087.24  3326.39 1087.24  3327.77 1087.25  3348.94 1087.38  3371.09 1087.54
  3371.48 1087.55  3371.91 1087.55  3394.03 1088.06   3414.4 1088.52  3416.58 1088.57
  3418.93 1088.61  3439.12     1089  3445.48 1089.06  3457.72  1089.2  3461.68 1089.22
  3475.15  1089.2  3484.22 1089.22  3501.03 1089.24  3506.77 1089.25  3512.99 1089.32
  3529.32 1089.51  3544.34 1089.77  3551.86 1089.93  3560.02 1090.13  3574.41 1090.47
  3587.66 1090.77  3596.96 1090.97  3607.04 1091.18   3619.5 1091.44  3630.97 1091.68
  3642.05 1091.89  3654.07 1092.09   3664.6 1092.28  3667.92 1092.32  3674.29  1092.4
  3687.15 1092.58   3701.1 1092.75   3709.7 1092.85   3712.4 1092.88  3717.61 1092.95
  3732.24 1093.11  3742.06 1093.19  3754.79 1093.27  3756.89 1093.28  3760.92  1093.3
  3777.34 1093.31  3795.15 1093.38  3799.89 1093.39  3801.38 1093.39  3804.24 1093.41
   3816.2 1093.42  3822.43 1093.44  3831.03 1093.44  3844.98 1093.43  3847.55 1093.42
  3867.53 1093.39  3875.51 1093.39  3890.07 1093.54  3890.87 1093.55  3912.62 1093.72
  3934.18 1093.92  3934.83 1093.93  3935.17 1093.93  3949.66 1093.98  3957.72 1094.06
  3964.48 1094.13  3973.49 1094.21

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
   11.92     .03   79.56     .03  981.46    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         79.56  981.46             204.4     200   209.5            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************
* E.G. Elev (ft)         * 1089.39  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)         * 1089.39  * Reach Len. (ft)         *  204.40  *  200.00  *  209.50  *
```

```
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  710.89  *23459.48  *24626.27  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  710.89  *23459.48  *24626.27  *
* Q Total (cfs)           * 1449.15  * Flow (cfs)              *   16.86  * 1051.05  *  381.25  *
* Top Width (ft)          * 3507.34  * Top Width (ft)          *   67.64  *  901.90  * 2537.80  *
* Vel Total (ft/s)        *    0.03  * Avg. Vel. (ft/s)        *    0.02  *    0.04  *    0.02  *
* Max Chl Dpth (ft)       *   26.88  * Hydr. Depth (ft)        *   10.51  *   26.01  *    9.70  *
* Conv. Total (cfs)       *14061300.0  * Conv. (cfs)           *163554.3  *10198460.0  *3699283.0  *
* Length Wtd. (ft)        *  202.59  * Wetted Per. (ft)        *   71.01  *  902.20  * 2538.01  *
* Min Ch El (ft)          * 1062.51  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.73  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  700.21  * 3770.95  * 5706.68  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   57.80  *  171.34  *  787.57  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 14899.99

INPUT
Description:
Station Elevation Data    num=     374
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
       0 1089.39    9.48 1088.93    20.4  1086.8   31.84 1083.42   39.14 1081.47
   42.95 1080.16   55.01 1076.35    65.5 1073.05   75.15 1070.23   88.05 1066.64
  102.04 1065.88  110.59  1065.3  118.46 1065.11  128.12 1064.91  133.14 1064.84
  142.94 1064.79  155.69 1064.78  157.78 1064.79  161.78 1064.82  170.24 1064.95
  196.09 1065.18  200.79 1065.23  205.09 1065.27  223.33 1065.35  227.43 1065.29
  231.91 1065.22  245.88 1065.09  248.41 1064.91  268.43 1063.33  290.15 1062.64
  290.97 1062.61  291.73 1062.61  313.52 1062.56  335.04 1062.65  336.07 1062.65
  337.18 1062.65  358.61 1062.63  378.36 1062.59  381.16 1062.58  384.21 1062.58
  403.71 1062.55  421.67 1062.56  426.26 1062.55  431.23 1062.55  448.81 1062.57
  464.99 1062.55  471.35 1062.54  478.26 1062.54   493.9 1062.53   508.3 1062.56
  513.65 1062.57  516.45 1062.57  525.29 1062.61     539 1062.68  543.32  1062.7
  551.61 1062.77  561.54 1062.84  572.31 1062.92  584.09 1062.99  594.94 1063.02
  606.64 1063.03  619.33 1063.01  629.18 1063.01  638.25 1063.04  651.73 1063.08
  666.37  1063.2  674.28 1063.27  681.56 1063.32  696.83 1063.42  713.39 1063.39
  719.38 1063.39  724.88 1063.36  741.92  1063.3  760.42 1063.23  764.47 1063.22
  768.19  1063.2  787.02 1063.12  807.45 1063.06  809.56 1063.06  811.51 1063.06
  832.11 1063.14  854.47 1063.28  854.66 1063.28  854.82 1063.28  877.21 1063.37
  898.13 1063.48  899.75 1063.48   901.5 1063.49   922.3 1063.58  941.46 1063.81
  944.85 1063.86  958.52 1064.28   967.4 1064.58  984.77 1065.02  989.95 1065.17
  995.56 1065.26 1012.49 1065.53 1028.08 1065.69 1035.04 1065.75 1042.58 1065.76
 1170.33 1066.28 1183.66 1066.44 1192.87 1066.58 1201.34 1066.59 1210.59 1066.62
 1215.42 1066.63 1225.43 1066.72 1237.97 1066.86 1240.26  1066.9 1244.66 1066.99
 1260.51  1067.3 1277.72 1067.61 1283.06 1067.71 1287.98 1067.79 1305.61 1068.03
 1324.74 1068.43 1328.16 1068.49 1331.29 1068.62  1350.7  1069.5 1371.77 1070.47
 1373.25 1070.53  1374.6 1070.57  1395.8 1071.11 1417.92  1071.6 1418.34 1071.61
  1418.8 1071.62 1435.14 1071.96 1440.89 1072.08 1461.23 1072.69 1463.44 1072.76
 1465.83 1072.84 1485.99 1073.51 1504.55 1073.93 1508.54 1074.02 1512.85 1074.16
 1531.08 1074.69 1547.87 1075.09 1553.63  1075.2 1559.88 1075.28 1576.18 1075.46
 1591.18 1075.63 1596.14 1075.68 1598.72  1075.7 1606.91 1075.78 1621.27 1075.89
 1625.79 1075.92  1634.5 1076.01 1640.63 1076.05 1643.82 1076.08 1653.94 1076.17
 1666.36 1076.26 1670.28 1076.29 1677.81 1076.35 1688.92 1076.41 1700.96 1076.46
 1711.46 1076.51 1721.12 1076.55 1734.01 1076.61 1747.99 1076.68 1756.56 1076.72
 1764.44 1076.77  1779.1 1076.86 1795.01    1077 1801.65 1077.06 1807.75 1077.12
  1824.2 1077.29 1842.04 1077.49 1846.75 1077.55 1851.07  1077.6 1869.29 1077.77
 1889.07 1077.86 1891.84 1077.88 1894.39 1077.88 1914.39 1077.89 1936.09 1077.98
 1936.93 1077.98  1937.7 1077.99 1952.02 1078.15 1959.49 1078.22 1981.02 1078.45
 1982.03 1078.46 1983.12 1078.47 2004.58 1078.69 2024.33 1078.88 2027.13 1078.91
 2030.15 1078.93 2049.67 1079.05 2067.65 1079.18 2070.66  1079.2 2072.22 1079.22
 2085.48  1079.3 2094.77 1079.42 2100.31 1079.47 2110.96 1079.59 2117.31 1079.66
  2124.2 1079.74 2139.86 1079.92 2154.27  1080.1 2162.41  1080.2 2171.23 1080.35
 2184.96 1080.58  2197.6  1080.8 2207.51 1080.98 2218.26 1081.14 2230.05  1081.3
 2240.91  1081.4  2252.6 1081.49 2265.29 1081.57 2275.15 1081.64 2284.22 1081.72
  2297.7 1081.86 2312.32 1082.03 2320.24 1082.11 2327.54 1082.19 2342.79 1082.33
 2359.34  1082.5 2365.34 1082.56 2370.85 1082.64 2387.88 1082.87 2406.36 1083.16
 2410.43 1083.22 2414.17 1083.28 2432.98 1083.56  2453.4 1083.81 2455.52 1083.83
 2457.48 1083.85 2478.08 1084.08 2500.42  1084.3 2500.62  1084.3  2500.8  1084.3
 2523.17 1084.51 2544.12 1084.74 2545.72 1084.76 2559.99 1084.86 2568.26 1084.95
 2587.43 1085.07 2590.81 1085.09 2604.48 1085.14 2613.36 1085.19 2630.74 1085.24
 2635.91 1085.25  2641.5 1085.28 2658.45 1085.34 2674.06 1085.46    2681 1085.51
 2688.53 1085.61 2703.55 1085.81 2717.37    1086  2726.1  1086.1 2735.56 1086.22
 2748.65 1086.38 2760.69 1086.53 2771.19  1086.6 2782.58 1086.67 2793.74 1086.73
 2804.01 1086.76 2816.29 1086.77 2829.61 1086.78 2838.83 1086.79 2841.73  1086.8
 2847.32  1086.8 2856.57  1086.8 2861.38  1086.8  2871.4 1086.84 2883.93 1086.82
 2890.64 1086.84 2901.05 1086.88 2906.47 1086.89 2923.67 1086.98 2929.02 1087.02
 2933.95 1087.05 2951.57 1087.23 2970.69 1087.49 2974.12 1087.54 2977.26 1087.58
 2996.67 1087.91 3017.72 1088.09 3019.21 1088.11 3020.58 1088.12 3041.76 1088.31
 3063.89 1088.52 3064.31 1088.52 3064.75 1088.52 3086.86 1088.69 3093.82 1088.73
 3107.21 1088.75 3108.65 1088.74  3109.4 1088.74 3111.77 1088.72 3131.95 1088.58
 3150.53 1088.52  3154.5 1088.49 3167.96 1088.34 3177.04 1088.26 3182.79 1088.16
 3193.84 1088.06 3197.62 1088.02 3199.59 1088.03 3212.44 1088.02 3222.14 1088.12
 3227.28 1088.14 3237.16 1088.24 3244.69 1088.32 3252.85 1088.42 3267.24 1088.58
 3280.47 1088.74 3286.59 1088.79 3289.78 1088.83 3301.42 1088.89 3312.33 1088.95
 3316.25 1088.98 3323.78    1089 3334.88 1088.98  3345.9 1088.98 3357.42 1088.94
 3360.74 1088.95  3367.1 1088.93 3379.97  1088.9 3393.94 1088.86 3402.52 1088.84
 3410.41 1088.82 3425.07 1088.84 3440.96 1088.86 3447.61 1088.87 3453.74 1088.86
 3470.16 1088.88 3487.99 1088.87 3492.71 1088.87 3497.05 1088.89 3515.26 1089.14
 3535.02  1089.4  3537.8 1089.43 3540.36 1089.46 3553.51  1089.5 3560.35 1089.57
 3582.04 1089.78  3582.9 1089.79 3583.68  1089.8 3605.45 1090.03 3626.99 1090.43
 3627.99 1090.44 3629.08 1090.46 3650.54 1090.86 3670.31 1091.24 3673.09 1091.29
  3676.1 1091.32 3695.63 1091.58 3713.62 1091.82 3718.18 1091.89 3723.12 1091.97
 3740.73 1092.26 3746.28 1092.33 3756.94 1092.47  3761.1 1092.53 3763.28 1092.56
 3770.15 1092.65 3785.83 1092.85 3790.76  1092.9 3800.26 1093.03 3808.37 1093.13
 3817.18 1093.22 3830.92 1093.34 3835.25 1093.37 3843.57 1093.45 3850.07 1093.51
 3853.47 1093.56  3864.9 1093.67 3876.02 1093.81 3879.74 1093.85 3886.88 1093.93
 3898.56 1094.05 3911.23 1094.14 3921.11  1094.2 3921.15  1094.2

Manning's n Values        num=      3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
       0     .03  227.43     .03 1035.04    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        227.43 1035.04             204.4     200  249.22             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.39  * Element                 *  Left OB *  Channel * Right OB *
```

```
* Vel Head (ft)          *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)         * 1089.39  * Reach Len. (ft)         *  204.40  *  200.00  *  249.22  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       * 4255.31  *21084.49  *22166.12  *
* E.G. Slope (ft/ft)     *0.000000  * Area (sq ft)            * 4255.31  *21084.49  *22166.12  *
* Q Total (cfs)          * 1441.71  * Flow (cfs)              *  153.77  *  960.27  *  327.66  *
* Top Width (ft)         * 3534.57  * Top Width (ft)          *  227.43  *  807.61  * 2499.53  *
* Vel Total (ft/s)       *    0.03  * Avg. Vel. (ft/s)        *    0.04  *    0.05  *    0.01  *
* Max Chl Dpth (ft)      *   26.86  * Hydr. Depth (ft)        *   18.71  *   26.11  *    8.87  *
* Conv. Total (cfs)      *13797070.0 * Conv. (cfs)            *1471597.0  *9189767.0  *3135710.0  *
* Length Wtd. (ft)       *  210.13  * Wetted Per. (ft)        *  230.65  *  807.72  * 2499.74  *
* Min Ch El (ft)         * 1062.53  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                  *    1.71  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)    *  688.56  * 3668.69  * 5594.16  *
* C & E Loss (ft)        *          * Cum SA (acres)          *   57.11  *  167.42  *  775.45  *
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Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 14699.99

INPUT
Description:
Station Elevation Data num= 380

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1.32	1090.2	22.83	1085.24	23.87	1084.96	24.98	1084.61	46.41	1078.09
66.14	1072.3	67.99	1071.75	68.96	1071.49	82.82	1068.26	91.51	1066.84
97.65	1066.55	109.46	1066.02	114.05	1065.81	119.04	1065.74	136.6	1065.45
152.77	1065.46	159.15	1065.48	171.79	1065.57	181.7	1065.67	196.08	1065.76
204.25	1065.81	213.09	1065.75	225.81	1065.7	226.79	1065.7	239.4	1065.15
249.34	1064.62	260.12	1064.03	271.89	1063.28	282.71	1063.03	294.44	1062.82
307.15	1062.75	316.98	1062.7	326.03	1062.69	339.53	1062.65	354.18	1062.71
362.08	1062.73	369.35	1062.73	384.62	1062.68	401.21	1062.51	407.17	1062.45
412.66	1062.45	429.72	1062.5	448.23	1062.59	452.27	1062.61	455.98	1062.62
474.82	1062.67	483.19	1062.69	497.36	1062.73	499.29	1062.73	519.91	1062.82
527.68	1062.85	542.46	1062.91	542.6	1062.91	565	1062.99	585.92	1063.05
587.55	1063.05	589.31	1063.05	610.1	1063.03	629.23	1063.06	632.65	1063.06
636.34	1063.07	655.19	1063.11	672.56	1063.11	677.74	1063.11	683.37	1063.12
700.29	1063.13	715.87	1063.15	722.84	1063.16	730.39	1063.16	745.39	1063.17
759.18	1063.14	767.93	1063.12	777.42	1063.11	790.48	1063.09	802.5	1063.16
813.03	1063.21	824.45	1063.34	835.57	1063.45	845.81	1063.53	858.12	1063.63
871.47	1063.67	880.67	1063.69	889.13	1063.8	898.39	1063.91	903.21	1063.98
918.5	1064.24	925.76	1064.36	932.44	1064.42	948.31	1064.49	965.53	1064.63
970.86	1064.66	975.76	1064.7	993.41	1064.91	1012.56	1065	1015.95	1065.02
1019.08	1065.02	1038.5	1065.06	1059.58	1064.97	1061.05	1064.96	1062.39	1064.96
1083.6	1064.98	1105.7	1064.88	1106.14	1064.87	1106.61	1064.87	1128.69	1064.71
1149.02	1065.33	1151.24	1065.41	1165.31	1066.1	1173.78	1066.35	1192.33	1066.46
1196.33	1066.49	1209.79	1066.63	1218.88	1066.82	1235.65	1067.3	1241.43	1067.44
1247.7	1067.5	1263.98	1067.67	1278.96	1067.77	1286.52	1067.8	1294.72	1067.91
1309.07	1068.04	1322.28	1068.56	1331.62	1068.99	1341.74	1069.48	1354.16	1070.11
1365.6	1070.4	1376.71	1070.64	1388.77	1070.92	1399.26	1071.14	1408.91	1071.34
1421.81	1071.61	1435.8	1071.89	1444.35	1072.03	1452.22	1072.24	1457.88	1072.39
1466.9	1072.64	1482.83	1073.14	1489.45	1073.34	1495.54	1073.5	1512	1073.85
1529.85	1074.32	1534.55	1074.44	1538.85	1074.57	1557.09	1075.02	1576.88	1075.33
1579.64	1075.38	1582.17	1075.41	1595.33	1075.58	1602.19	1075.65	1610.16	1075.74
1624.73	1075.89	1625.49	1075.9	1647.28	1076.11	1668.8	1076.32	1669.83	1076.33
1670.94	1076.33	1692.37	1076.52	1712.12	1076.63	1714.92	1076.64	1717.96	1076.66
1737.47	1076.73	1755.43	1076.82	1760.02	1076.85	1764.99	1076.89	1782.57	1077.03
1798.74	1077.16	1805.11	1077.21	1812.02	1077.26	1827.66	1077.37	1842.06	1077.48
1850.21	1077.54	1859.05	1077.62	1872.76	1077.73	1885.37	1077.84	1895.3	1077.92
1906.07	1077.99	1917.85	1078.07	1928.7	1078.13	1936.38	1078.17	1940.4	1078.2
1953.09	1078.29	1962.94	1078.36	1966.05	1078.38	1972.01	1078.43	1985.49	1078.54
2000.12	1078.62	2008.04	1078.67	2015.32	1078.7	2030.59	1078.75	2040.18	1078.77
2053.14	1078.82	2058.64	1078.84	2075.68	1078.93	2084.67	1079	2098.23	1079.14
2101.95	1079.19	2120.78	1079.48	2141.2	1079.83	2143.32	1079.87	2145.27	1079.9
2165.87	1080.25	2188.23	1080.6	2188.42	1080.6	2188.58	1080.6	2210.97	1080.86
2231.9	1080.99	2233.51	1080.99	2235.26	1081	2256.06	1081.09	2275.22	1081.21
2278.61	1081.24	2282.29	1081.27	2301.16	1081.43	2318.53	1081.58	2323.71	1081.62
2329.32	1081.67	2346.25	1081.81	2361.84	1081.93	2368.8	1081.98	2376.34	1082.02
2391.35	1082.08	2405.16	1082.11	2413.89	1082.12	2423.37	1082.15	2436.44	1082.18
2448.47	1082.25	2458.99	1082.31	2470.4	1082.38	2481.53	1082.44	2491.79	1082.53
2504.08	1082.62	2517.42	1082.76	2526.63	1082.86	2535.1	1082.96	2549.18	1083.11
2564.45	1083.24	2571.73	1083.31	2578.42	1083.36	2588.84	1083.44	2594.27	1083.49
2603.68	1083.57	2616.82	1083.68	2618.5	1083.69	2621.74	1083.72	2639.37	1083.84
2658.5	1083.98	2661.92	1084	2665.05	1084.03	2684.46	1084.19	2705.53	1084.36
2707.01	1084.37	2708.36	1084.37	2729.56	1084.48	2751.68	1084.56	2752.1	1084.57
2752.56	1084.57	2774.66	1084.67	2794.99	1084.81	2797.2	1084.82	2799.58	1084.84
2819.75	1085	2838.31	1085.17	2842.3	1085.21	2846.61	1085.26	2864.84	1085.45
2881.63	1085.62	2887.39	1085.68	2893.64	1085.72	2909.94	1085.83	2924.94	1085.92
2932.48	1085.96	2940.67	1086	2955.03	1086.09	2968.26	1086.13	2977.58	1086.17
2987.7	1086.24	3000.13	1086.33	3011.57	1086.46	3022.68	1086.6	3034.72	1086.71
3045.22	1086.81	3048.52	1086.84	3054.89	1086.88	3063.35	1086.94	3067.77	1086.97
3081.75	1087.12	3090.32	1087.21	3098.2	1087.31	3107.84	1087.49	3112.86	1087.55
3128.77	1087.7	3135.41	1087.76	3137.5	1087.79	3141.51	1087.82	3152.32	1087.95
3157.96	1087.96	3175.8	1088.09	3180.51	1088.14	3181.99	1088.17	3184.84	1088.2
3203.05	1088.45	3211.65	1088.6	3225.6	1088.84	3226.47	1088.84	3228.15	1088.86
3241.29	1089.01	3248.15	1089.09	3256.13	1089.18	3270.69	1089.35	3271.46	1089.36
3293.25	1089.66	3300.62	1089.79	3314.78	1090.02	3315.44	1090.03	3315.79	1090.03
3316.88	1090.05	3338.34	1090.31	3358.09	1090.52	3360.89	1090.56	3363.91	1090.62
3383.43	1090.96	3401.41	1091.33	3405.98	1091.38	3410.94	1091.44	3428.53	1091.63
3444.72	1091.85	3451.07	1091.93	3457.96	1092	3473.62	1092.16	3478.55	1092.2
3488.03	1092.27	3493.39	1092.31	3496.17	1092.31	3504.99	1092.3	3518.72	1092.31
3523.04	1092.3	3531.36	1092.31	3541.27	1092.32	3552.02	1092.35	3563.81	1092.38
3574.67	1092.38	3586.36	1092.38	3599.05	1092.38	3608.91	1092.38	3617.98	1092.34
3631.46	1092.24	3641.67	1092.11	3654	1091.96	3656.49	1091.92	3661.3	1091.85
3676.55	1091.62	3693.1	1091.34	3699.1	1091.23	3704.61	1091.18	3721.64	1091.18
3730.64	1091.23	3744.19	1091.3	3747.93	1091.3	3766.74	1091.38	3787.16	1091.59
3789.28	1091.61	3791.24	1091.64	3811.84	1091.97	3834.18	1092.24	3834.38	1092.24
3834.56	1092.24	3849.26	1092.26	3856.93	1092.28	3864.1	1092.25	3877.88	1092.26
3879.48	1092.26	3881.2	1092.29	3902.02	1092.65	3921.19	1092.95	3923.41	1092.99
3924.57	1093.01	3928.23	1093.08	3947.12	1093.45	3953.07	1093.6	3961.64	1093.81

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1.32	.03	225.81	.03	1263.98	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
225.81	1263.98	204.4	200	242.46	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1089.39	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.00	Wt. n-Val.	0.030	0.030	0.045	
W.S. Elev (ft)	1089.39	Reach Len. (ft)	204.40	200.00	242.46	
Crit W.S. (ft)		Flow Area (sq ft)	4185.34	26464.10	17948.34	
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	4185.34	26464.10	17948.34	
Q Total (cfs)	1432.53	Flow (cfs)	136.11	1058.57	237.85	
Top Width (ft)	3269.12	Top Width (ft)	221.00	1038.17	2009.95	
Vel Total (ft/s)	0.03	Avg. Vel. (ft/s)	0.03	0.04	0.01	
Max Chl Dpth (ft)	26.94	Hydr. Depth (ft)	18.94	25.49	8.93	
Conv. Total (cfs)	15362900.0	Conv. (cfs)	1459731.0	11352390.0	2550781.0	
Length Wtd. (ft)	205.60	Wetted Per. (ft)	223.99	1038.30	2010.14	
Min Ch El (ft)	1062.45	Shear (lb/sq ft)	0.00	0.00	0.00	
Alpha	1.51	Stream Power (lb/ft s)	0.00	0.00	0.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	668.75	3559.53	5479.41	
C & E Loss (ft)		Cum SA (acres)	56.05	163.18	762.55	

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 14499.99

INPUT
Description:
Station Elevation Data num= 368

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5.64	1089.77	14.67	1087.22	23.55	1084.65	28.19	1083.15	42.84	1078.56
50.73	1076.12	53.22	1075.37	57.98	1073.99	68.04	1071.06	73.28	1069.66
89.88	1066.53	95.83	1065.25	97.7	1065.17	101.31	1064.99	118.38	1064.19
136.9	1063.9	140.92	1063.83	144.62	1063.84	163.47	1063.88	183.93	1064.04
186.02	1064.06	187.94	1064.08	208.56	1064.36	225.02	1064.43	230.95	1064.45
231.12	1064.45	231.25	1064.44	253.66	1063.82	274.56	1063.08	276.21	1063.03
277.98	1063.01	298.76	1062.75	317.88	1062.66	321.3	1062.64	325.01	1062.63
343.85	1062.55	361.19	1062.51	366.4	1062.51	372.04	1062.51	388.94	1062.52
404.51	1062.64	411.49	1062.69	419.07	1062.75	434.04	1062.91	447.83	1062.95
453.59	1062.99	456.59	1063	468.42	1062.96	479.13	1062.91	491.14	1062.88
501.68	1062.88	513.12	1062.9	524.23	1062.91	534.46	1062.9	546.78	1062.89
560.15	1062.86	569.33	1062.84	577.77	1062.83	591.87	1062.81	607.17	1062.86
614.42	1062.87	621.08	1062.93	636.97	1063.06	654.2	1063.26	659.51	1063.32
664.4	1063.37	682.06	1063.5	701.23	1063.51	704.61	1063.51	707.71	1063.5
727.15	1063.44	748.25	1063.34	749.71	1063.34	751.03	1063.33	772.25	1063.2
794.35	1063.11	794.8	1063.11	795.28	1063.11	817.35	1063.18	837.66	1063.33
839.13	1063.34	839.89	1063.35	842.31	1063.37	862.44	1063.53	880.98	1063.59
884.99	1063.59	889.33	1063.59	907.54	1063.58	924.29	1063.61	930.08	1063.62
936.36	1063.62	952.63	1063.62	967.6	1063.57	975.18	1063.55	983.39	1063.62
997.72	1063.69	1010.92	1063.84	1020.28	1063.94	1030.42	1064	1042.82	1064.07
1054.24	1064.11	1065.37	1064.12	1077.45	1064.07	1087.92	1064.03	1097.55	1063.95
1106.04	1063.88	1110.46	1063.85	1124.47	1063.75	1133.01	1063.7	1135.69	1063.7
1140.87	1063.73	1150.53	1063.78	1155.56	1063.82	1165.36	1063.96	1178.1	1064.14
1180.18	1064.16	1184.18	1064.16	1200.65	1064.15	1218.52	1064.12	1223.2	1064.12
1227.5	1064.12	1245.75	1064.12	1265.55	1064.16	1268.3	1064.16	1270.81	1064.18
1290.84	1064.36	1312.58	1064.57	1313.39	1064.58	1314.12	1064.59	1335.94	1064.7
1357.45	1064.85	1358.48	1064.85	1359.6	1064.87	1381.03	1065.17	1400.76	1065.49
1403.58	1065.54	1406.63	1065.59	1426.13	1065.93	1444.07	1066.27	1448.67	1066.34
1453.66	1066.43	1471.22	1066.76	1487.39	1067.23	1493.77	1067.43	1500.69	1067.72
1516.31	1068.33	1530.7	1069.18	1538.87	1069.72	1550.89	1070.77	1561.41	1071.75
1574.02	1072.95	1578.98	1073.43	1583.96	1073.91	1594.74	1074.68	1606.51	1075.67
1617.33	1075.92	1629.05	1076.22	1641.77	1076.38	1651.6	1076.51	1660.64	1076.61
1674.15	1076.75	1688.8	1076.88	1696.69	1076.94	1703.97	1076.98	1719.24	1077.05
1735.83	1077.13	1741.79	1077.15	1747.28	1077.19	1764.34	1077.31	1782.85	1077.52
1786.89	1077.56	1790.59	1077.61	1809.43	1077.8	1829.87	1077.96	1831.98	1077.98
1833.91	1077.99	1854.53	1078.11	1876.91	1078.23	1877.08	1078.24	1877.22	1078.24
1891.96	1078.39	1899.62	1078.46	1906.78	1078.53	1920.54	1078.67	1922.17	1078.69
1923.93	1078.69	1944.72	1078.81	1963.85	1078.88	1966.09	1078.88	1967.26	1078.89
1980.92	1078.95	1989.81	1079.01	1995.75	1079.05	2007.17	1079.15	2012.36	1079.19
2017.98	1079.24	2034.91	1079.39	2050.49	1079.56	2057.46	1079.63	2065.01	1079.71
2080	1079.86	2093.8	1079.99	2102.55	1080.07	2112.04	1080.17	2125.1	1080.29
2137.12	1080.39	2147.64	1080.48	2159.07	1080.57	2170.19	1080.64	2180.43	1080.72
2192.74	1080.82	2206.09	1080.91	2215.29	1080.98	2223.74	1081.04	2237.83	1081.11
2253.12	1081.17	2260.38	1081.2	2267.06	1081.23	2282.93	1081.34	2300.15	1081.54
2305.48	1081.59	2310.38	1081.65	2328.03	1081.81	2347.18	1081.93	2350.57	1081.94
2353.69	1081.96	2373.12	1082.03	2394.2	1082.08	2395.67	1082.09	2397.01	1082.09
2418.21	1082.11	2440.32	1082.21	2440.76	1082.21	2441.23	1082.22	2463.31	1082.37
2483.64	1082.51	2485.85	1082.53	2488.26	1082.53	2508.4	1082.56	2526.95	1082.57
2529.58	1082.57	2530.95	1082.58	2544.41	1082.66	2553.5	1082.75	2570.26	1082.94
2576.05	1083.02	2582.31	1083.09	2598.59	1083.29	2613.59	1083.43	2621.14	1083.49
2633.37	1083.59	2643.69	1083.67	2656.9	1083.8	2666.23	1083.91	2677.86	1084.08
2688.78	1084.22	2700.21	1084.37	2711.33	1084.5	2723.39	1084.6	2733.88	1084.69
2743.53	1084.76	2756.42	1084.86	2770.42	1085.01	2778.97	1085.1	2786.84	1085.2
2801.52	1085.39	2817.45	1085.57	2824.07	1085.64	2830.16	1085.68	2846.61	1085.78
2864.47	1085.87	2869.16	1085.89	2873.47	1085.92	2891.71	1086.04	2911.5	1086.2
2914.26	1086.23	2916.78	1086.25	2936.8	1086.37	2958.53	1086.52	2959.35	1086.53
2960.11	1086.53	2981.9	1086.65	2989.26	1086.67	3003.42	1086.77	3004.09	1086.78
3004.44	1086.78	3005.55	1086.79	3026.99	1087.02	3046.73	1087.31	3049.54	1087.36
3052.57	1087.39	3072.09	1087.64	3090.05	1087.88	3093.06	1087.92	3094.64	1087.93
3107.89	1088.04	3117.18	1088.07	3133.36	1088.22	3139.73	1088.29	3146.63	1088.37
3162.28	1088.56	3176.67	1088.63	3182.03	1088.65	3184.82	1088.66	3196.86	1088.77
3207.37	1088.81	3219.99	1088.88	3229.92	1088.97	3241.35	1089.07	3252.47	1089.16
3256.18	1089.21	3263.31	1089.26	3271	1089.33	3275.01	1089.34	3285.84	1089.43
3297.56	1089.53	3306.63	1089.61	3320.11	1089.71	3334.74	1089.82	3342.66	1089.89
3349.94	1089.95	3365.2	1090.1	3381.77	1090.15	3387.75	1090.18	3393.25	1090.18
3410.3	1090.21	3419.28	1090.22	3432.85	1090.23	3436.57	1090.25	3455.39	1090.46
3463.77	1090.58	3477.94	1090.82	3479.88	1090.86	3500.49	1091.21	3508.26	1091.3
3523.03	1091.45	3523.09	1091.45	3523.2	1091.45	3537.92	1091.62	3545.58	1091.72
3552.74	1091.81	3566.52	1091.98	3568.13	1092	3569.88	1092.02	3590.68	1092.29
3597.23	1092.38	3609.83	1092.55	3612.06	1092.59	3613.23	1092.6	3626.89	1092.72
3635.77	1092.84	3653.15	1092.98	3658.32	1093.04	3671.38	1093.17	3680.87	1093.24
3696.46	1093.38	3703.42	1093.45	3710.96	1093.52	3725.96	1093.67	3739.77	1093.77
3748.51	1093.83	3760.35	1093.9	3771.06	1093.94	3775.17	1093.96	3783.09	1093.96
3793.6	1093.95	3805.01	1093.97	3813.95	1093.99				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5.64	.03	225.02	.03	1606.51	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
225.02	1606.51	204.4	200	202.18	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1089.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1089.40	Reach Len. (ft)	204.40	200.00	202.18
Crit W.S. (ft)		Flow Area (sq ft)	4408.80	34622.35	11434.83
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	4408.80	34622.35	11434.83
Q Total (cfs)	1384.91	Flow (cfs)	125.91	1152.37	106.63
Top Width (ft)	3274.66	Top Width (ft)	218.05	1381.49	1675.12
Vel Total (ft/s)	0.03	Avg. Vel. (ft/s)	0.03	0.03	0.01
Max Chl Dpth (ft)	26.89	Hydr. Depth (ft)	20.22	25.06	6.83
Conv. Total (cfs)	17646240.0	Conv. (cfs)	1604347.0	14683190.0	1358701.0
Length Wtd. (ft)	200.56	Wetted Per. (ft)	221.39	1381.88	1675.19
Min Ch El (ft)	1062.51	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.33	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	648.59	3419.29	5397.63
C & E Loss (ft)		Cum SA (acres)	55.02	157.63	752.30

CROSS SECTION

RIVER: PRS
REACH: PRS1 RS: 14299.99

INPUT
Description:
Station Elevation Data num= 379

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1088.66	10.5	1088.38	12.75	1088.2	13.93	1087.96	27.59	1083.97
36.48	1081.32	42.42	1079.44	53.81	1075.74	59.03	1074.07	64.68	1072.37
81.58	1067.28	97.13	1065.4	104.13	1064.81	111.71	1064.63	126.67	1064.24
140.44	1064.15	149.22	1064.08	158.74	1064.06	171.77	1064.03	183.76	1064.05
194.31	1064.1	205.77	1064.2	216.86	1064.29	227.08	1064.24	228.84	1064.23
239.41	1064.19	252.79	1063.62	261.95	1063.29	270.39	1063.09	284.51	1062.81
299.82	1062.82	307.05	1062.82	313.7	1062.84	329.6	1062.84	346.85	1062.82
352.15	1062.81	357.02	1062.81	374.69	1062.8	393.87	1062.8	397.24	1062.8
400.33	1062.8	413.13	1062.8	419.79	1062.79	440.9	1062.75	442.34	1062.75
442.79	1062.75	443.65	1062.75	457.61	1062.74	464.88	1062.74	486.97	1062.71
487.43	1062.72	487.93	1062.71	509.98	1062.73	530.28	1062.88	532.52	1062.9
534.95	1062.92	555.07	1063.11	573.6	1063.19	577.62	1063.2	581.98	1063.17
600.17	1063.1	616.91	1062.9	622.72	1062.84	629.01	1062.82	645.26	1062.77
660.22	1062.79	667.81	1062.81	676.04	1062.81	690.36	1062.82	703.54	1062.8
712.9	1062.78	723.06	1062.76	735.45	1062.73	746.85	1062.72	758	1062.7
770.09	1062.7	780.55	1062.69	790.18	1062.68	803.1	1062.67	817.12	1062.65
825.64	1062.63	833.49	1062.61	848.19	1062.58	864.15	1062.55	870.74	1062.54
876.8	1062.53	893.28	1062.53	911.17	1062.63	915.83	1062.65	920.12	1062.69
938.38	1062.86	958.2	1063.08	960.93	1063.11	963.43	1063.14	983.47	1063.33
1005.22	1063.48	1006.02	1063.49	1006.74	1063.5	1028.57	1063.62	1050.06	1063.68
1051.11	1063.68	1052.25	1063.68	1073.67	1063.65	1093.37	1063.54	1095.24	1063.54
1096.21	1063.53	1099.28	1063.52	1118.76	1063.42	1124.89	1063.41	1136.7	1063.38
1139.73	1063.37	1141.31	1063.37	1146.3	1063.4	1163.85	1063.47	1180.01	1063.66
1186.4	1063.74	1193.33	1063.78	1208.95	1063.91	1223.32	1063.92	1231.49	1063.92
1240.36	1063.95	1254.04	1063.99	1266.64	1064.09	1276.59	1064.17	1287.39	1064.25
1299.14	1064.35	1309.95	1064.37	1321.69	1064.4	1334.42	1064.42	1344.23	1064.44
1353.27	1064.45	1366.78	1064.53	1381.44	1064.67	1389.33	1064.74	1396.58	1064.85
1411.88	1065.06	1428.47	1065.2	1434.42	1065.27	1439.9	1065.3	1456.97	1065.36
1475.5	1065.92	1479.52	1066.03	1483.22	1066.22	1502.06	1067.16	1522.53	1067.86
1524.61	1067.93	1525.27	1067.96	1526.53	1068.01	1547.16	1069	1569.55	1072.14
1569.71	1072.16	1569.84	1072.18	1592.26	1074.75	1594.11	1074.84	1613.16	1075.81
1614.8	1075.87	1616.57	1075.92	1637.35	1076.43	1656.47	1076.66	1659.9	1076.7
1663.61	1076.73	1682.44	1076.87	1699.79	1077.01	1704.99	1077.06	1710.63	1077.12
1727.54	1077.28	1743.11	1077.41	1750.09	1077.46	1757.66	1077.5	1772.63	1077.57
1786.42	1077.65	1795.18	1077.69	1804.68	1077.78	1817.73	1077.9	1829.74	1078.01
1840.28	1078.1	1851.71	1078.19	1862.83	1078.28	1873.05	1078.35	1885.37	1078.44
1898.74	1078.51	1907.92	1078.57	1916.36	1078.6	1930.47	1078.65	1940.47	1078.68
1953.01	1078.74	1959.68	1078.79	1975.56	1078.89	1984.95	1079.01	1998.11	1079.18
2002.99	1079.25	2020.65	1079.49	2039.82	1079.71	2043.2	1079.75	2046.31	1079.78
2065.75	1079.96	2086.85	1080.13	2088.3	1080.14	2089.63	1080.15	2110.85	1080.26
2132.94	1080.33	2133.24	1080.33	2133.39	1080.33	2148.06	1080.42	2155.94	1080.47
2176.26	1080.62	2178.49	1080.64	2180.9	1080.66	2201.04	1080.83	2219.57	1080.98
2223.58	1081.01	2227.93	1081.04	2246.13	1081.18	2262.88	1081.28	2268.68	1081.32
2274.96	1081.36	2291.22	1081.44	2296.34	1081.46	2306.2	1081.52	2311.18	1081.55
2313.77	1081.57	2326	1081.64	2336.32	1081.69	2340.83	1081.72	2349.51	1081.75
2355.67	1081.79	2358.87	1081.8	2370.49	1081.85	2381.42	1081.9	2392.84	1081.97
2403.96	1082.05	2416.04	1082.18	2426.51	1082.29	2436.15	1082.41	2449.06	1082.55
2463.06	1082.61	2471.6	1082.66	2479.46	1082.64	2494.15	1082.6	2510.09	1082.66
2516.7	1082.69	2522.78	1082.75	2539.25	1082.82	2557.12	1082.89	2561.79	1082.92
2563.26	1082.92	2566.09	1082.92	2578.09	1083.03	2584.34	1083.05	2604.15	1083.16
2606.89	1083.18	2607.75	1083.18	2609.4	1083.19	2622.57	1083.41	2629.44	1083.48
2637.41	1083.59	2651.99	1083.64	2652.23	1083.64	2652.72	1083.64	2674.53	1083.66
2696.04	1083.85	2697.08	1083.86	2698.2	1083.87	2719.63	1084.09	2739.35	1084.32
2742.17	1084.35	2745.23	1084.39	2764.72	1084.58	2782.67	1084.75	2787.27	1084.79
2792.25	1084.81	2809.81	1084.88	2825.98	1084.94	2832.36	1084.98	2839.28	1085.06
2854.91	1085.23	2869.3	1085.42	2877.46	1085.52	2886.31	1085.62	2900.01	1085.8
2912.61	1085.98	2922.55	1086.17	2933.33	1086.35	2945.1	1086.54	2955.92	1086.66
2967.65	1086.77	2978.46	1086.85	2990.19	1086.93	2993.29	1086.95	2999.25	1087.01
3008.12	1087.08	3012.74	1087.13	3027.39	1087.33	3035.29	1087.44	3042.56	1087.56
3057.84	1087.73	3074.41	1087.85	3080.38	1087.9	3085.88	1087.94	3102.93	1088.08
3121.44	1088.26	3125.48	1088.3	3129.19	1088.32	3148.03	1088.4	3168.47	1088.52
3170.58	1088.52	3172.5	1088.54	3193.12	1088.68	3215.5	1088.87	3215.67	1088.87
3215.82	1088.87	3230.55	1089	3238.22	1089.06	3259.13	1089.2	3260.76	1089.21
3262.53	1089.21	3283.31	1089.26	3302.45	1089.26	3305.86	1089.27	3309.55	1089.28
3328.41	1089.36	3345.77	1089.49	3350.95	1089.53	3364	1089.62	3373.5	1089.66
3389.08	1089.75	3396.05	1089.79	3403.61	1089.84	3418.6	1089.95	3432.4	1090.02
3441.15	1090.06	3450.64	1090.09	3463.69	1090.17	3475.71	1090.29	3482.63	1090.39
3486.24	1090.4	3497.66	1090.51	3508.79	1090.63	3519.02	1090.74	3527.12	1090.85
3531.33	1090.9	3541.94	1091.02	3553.88	1091.11	3556.78	1091.14	3562.34	1091.18
3576.43	1091.29	3591.72	1091.39	3598.98	1091.44	3605.65	1091.47	3616.09	1091.53
3621.52	1091.53	3638.74	1091.56	3644.07	1091.58	3645.74	1091.58	3648.98	1091.6
3666.62	1091.69	3685.77	1091.87	3689.17	1091.9	3690.23	1091.91	3692.29	1091.93
3711.71	1092.13	3732.79	1092.24	3734.26	1092.25	3735.6	1092.25	3749.55	1092.27
3756.81	1092.31	3778.92	1092.57	3779.36	1092.58	3779.82	1092.59	3801.9	1093.09
3808.86	1093.17	3822.23	1093.34	3824.45	1093.37	3826.85	1093.4	3847	1093.59
3865.55	1093.8	3868.17	1093.83	3869.54	1093.84	3878.62	1093.92		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	228.84	.03	1594.11	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
228.84	1594.11	116.22	200	277.6	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1089.40	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.00	Wt. n-Val.	0.030	0.030	0.045	
W.S. Elev (ft)	1089.40	Reach Len. (ft)	116.22	200.00	277.60	
Crit W.S. (ft)		Flow Area (sq ft)	4475.66	34850.14	11650.88	
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	4475.66	34850.14	11650.88	
Q Total (cfs)	1410.72	Flow (cfs)	125.23	1177.85	107.64	
Top Width (ft)	3333.09	Top Width (ft)	228.84	1365.27	1738.98	
Vel Total (ft/s)	0.03	Avg. Vel. (ft/s)	0.03	0.03	0.01	
Max Chl Dpth (ft)	26.86	Hydr. Depth (ft)	19.56	25.53	6.70	
Conv. Total (cfs)	17919060.0	Conv. (cfs)	1590683.0	14961160.0	1367212.0	
Length Wtd. (ft)	202.25	Wetted Per. (ft)	232.85	1365.76	1739.07	
Min Ch El (ft)	1062.53	Shear (lb/sq ft)	0.00	0.00	0.00	
Alpha	1.34	Stream Power (lb/ft s)	0.00	0.00	0.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	627.74	3259.81	5344.06	
C & E Loss (ft)		Cum SA (acres)	53.97	151.32	744.37	

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 14099.99

INPUT
Description:
Station Elevation Data num= 367

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.3	1089.93	30.22	1083.84	30.69	1083.7	31.44	1083.45	52.08	1076.46
64.7	1072.59	73.47	1069.9	87.81	1067.36	94.86	1066.27	99.18	1066.06
116.25	1065.31	133.65	1064.86	137.65	1064.74	144.16	1064.64	159.04	1064.52
168.13	1064.54	180.43	1064.52	200.53	1064.5	201.46	1064.5	201.83	1064.5
202.61	1064.49	223.22	1064.28	223.74	1064.27	232.48	1064.08	244.61	1063.77
247.99	1063.67	256.89	1063.44	266	1063.23	271.56	1063.19	287.39	1063.07
306.04	1063.02	308.78	1063.01	313.26	1063.01	330.18	1062.98	340.52	1062.92
351.57	1062.87	369.62	1062.74	372.96	1062.72	374.99	1062.72	394.35	1062.71
409.48	1062.8	415.75	1062.84	425.98	1062.93	437.14	1063.01	443.95	1063.06
458.53	1063.2	478.43	1063.44	479.92	1063.46	482.35	1063.49	501.31	1063.72
512.91	1063.79	522.71	1063.8	538.71	1063.7	544.1	1063.66	547.38	1063.6
565.49	1063.33	581.86	1063.21	586.88	1063.18	595.07	1063.18	608.27	1063.17
616.34	1063.16	629.66	1063.17	650.82	1063.27	651.06	1063.27	651.43	1063.27
672.45	1063.3	685.29	1063.3	693.84	1063.29	707.8	1063.32	713.18	1063.32
715.23	1063.32	719.77	1063.32	736.63	1063.28	754.25	1063.28	758.02	1063.26
764.17	1063.27	779.41	1063.29	788.73	1063.36	800.8	1063.37	820.53	1063.52
822.19	1063.53	823.21	1063.53	843.59	1063.48	857.68	1063.52	864.98	1063.51
876.89	1063.51	886.37	1063.53	892.16	1063.59	907.76	1063.71	926.64	1063.77
929.15	1063.79	933.25	1063.81	950.54	1063.87	961.12	1064	971.94	1064.15
989.62	1064.43	993.33	1064.47	995.6	1064.49	1014.72	1064.82	1030.07	1064.99
1036.12	1065.12	1045.98	1065.19	1057.51	1065.2	1064.55	1065.17	1078.9	1065.2
1099.03	1065.63	1100.29	1065.66	1102.34	1065.7	1116.36	1066.05	1121.68	1066.1
1131.87	1066.23	1143.07	1066.33	1147.38	1066.39	1158.71	1066.54	1162.88	1066.61
1164.47	1066.63	1178.38	1066.83	1185.86	1066.98	1193.89	1067.02	1207.25	1067.08
1215.07	1067.03	1224.91	1066.97	1228.64	1066.94	1240.41	1066.87	1250.03	1066.8
1255.92	1066.81	1271.43	1066.77	1271.44	1066.77	1292.82	1066.73	1305.89	1066.7
1314.21	1066.7	1327.8	1066.64	1335.6	1066.63	1340.37	1066.54	1357	1066.18
1374.85	1065.88	1378.39	1065.76	1384.16	1065.79	1399.78	1065.88	1409.32	1065.98
1421.17	1066.11	1440.52	1066.18	1442.56	1066.2	1443.8	1066.21	1463.96	1066.38
1478.28	1066.56	1485.35	1066.66	1496.89	1066.93	1506.74	1067.19	1512.76	1067.56
1528.13	1068.49	1547.23	1071.31	1549.53	1071.64	1553.26	1072.15	1566.05	1073.9
1570.92	1074.6	1573.52	1074.65	1581.71	1074.79	1592.31	1075.07	1609.62	1075.29
1613.7	1075.35	1616.19	1075.38	1635.09	1075.63	1650.67	1075.8	1656.48	1075.86
1665.98	1075.96	1677.88	1076.09	1685.15	1076.19	1699.27	1076.37	1719.62	1076.68
1720.66	1076.7	1722.34	1076.72	1742.05	1077.01	1754.1	1077.16	1763.44	1077.27
1778.71	1077.43	1784.84	1077.5	1788.58	1077.54	1806.23	1077.71	1823.06	1077.87
1827.62	1077.91	1835.07	1077.97	1849.01	1078.08	1857.54	1078.14	1870.41	1078.22
1891.43	1078.38	1891.8	1078.38	1892.01	1078.38	1913.19	1078.61	1926.49	1078.8
1934.58	1078.91	1947.8	1079.06	1955.97	1079.15	1960.97	1079.19	1977.37	1079.28
1995.44	1079.36	1998.76	1079.37	2004.16	1079.39	2020.15	1079.46	2029.93	1079.52
2041.54	1079.58	2060.53	1079.7	2062.27	1079.71	2062.93	1079.71	2077.77	1079.8
2084.32	1079.84	2098.87	1079.9	2105.72	1079.93	2116.89	1079.99	2127.11	1080.04
2133.36	1080.09	2148.5	1080.19	2167.83	1080.33	2169.9	1080.35	2173.25	1080.37
2191.29	1080.52	2202.31	1080.61	2212.68	1080.7	2229.61	1080.85	2234.07	1080.89
2236.79	1080.92	2255.46	1081.1	2271.26	1081.25	2276.85	1081.3	2285.98	1081.39
2298.25	1081.51	2305.74	1081.58	2319.64	1081.71	2340.22	1081.85	2341.03	1081.86
2342.35	1081.87	2362.42	1081.99	2374.7	1082.07	2383.81	1082.12	2398.7	1082.2
2405.21	1082.23	2418.92	1082.3	2426.6	1082.38	2443.65	1082.53	2447.99	1082.56
2455.07	1082.61	2465.44	1082.7	2469.38	1082.72	2480.95	1082.81	2490.78	1082.87
2496.46	1082.91	2511.43	1083	2512.17	1083.01	2512.61	1083.01	2533.56	1083.15
2547.09	1083.22	2554.95	1083.26	2567.8	1083.32	2576.34	1083.35	2581.57	1083.38
2597.73	1083.46	2616.04	1083.59	2619.13	1083.6	2624.16	1083.65	2640.52	1083.78
2650.52	1083.86	2661.91	1083.97	2680.52	1084.05	2683.3	1084.06	2685	1084.08
2704.7	1084.2	2719.48	1084.36	2726.09	1084.43	2736.89	1084.56	2747.48	1084.7
2753.95	1084.77	2768.87	1084.94	2788.43	1085.12	2790.26	1085.14	2791.08	1085.14
2793.25	1085.16	2811.66	1085.29	2822.91	1085.33	2833.05	1085.4	2849.62	1085.45
2854.44	1085.46	2868.61	1085.49	2875.83	1085.47	2884.12	1085.49	2897.22	1085.41
2905.97	1085.44	2918.61	1085.65	2926.34	1085.73	2940.01	1085.89	2946.15	1085.96
2961.4	1086.11	2962.34	1086.13	2982.79	1086.37	2995.3	1086.52	3004.19	1086.63
3018.7	1086.85	3025.58	1086.94	3029.77	1087	3046.97	1087.26	3064.25	1087.42
3068.36	1087.47	3075.07	1087.51	3085.71	1087.58	3089.75	1087.62	3101.22	1087.7
3111.14	1087.8	3116.72	1087.86	3131.44	1088.01	3132.54	1088.02	3133.21	1088.03
3153.93	1088.21	3167.68	1088.34	3175.32	1088.41	3187.79	1088.52	3194.25	1088.57
3196.71	1088.59	3202.16	1088.62	3218.1	1088.73	3236.64	1088.88	3239.5	1088.9
3240.78	1088.91	3244.16	1088.94	3256.28	1089.06	3260.89	1089.12	3271.79	1089.24
3282.28	1089.36	3300.52	1089.54	3303.67	1089.57	3305.6	1089.59	3325.07	1089.73
3333.81	1089.78	3346.46	1089.86	3356.89	1089.9	3367.85	1089.95	3374.55	1089.97
3389.24	1090.03	3409.03	1090.12	3410.63	1090.13	3413.24	1090.14	3432.02	1090.24
3443.5	1090.31	3453.42	1090.35	3469.61	1090.41	3473.38	1090.42	3474.81	1090.43
3477.99	1090.44	3496.2	1090.51	3504.39	1090.57	3517.59	1090.68	3519.89	1090.67
3525.98	1090.65	3538.99	1090.57	3546.93	1090.05	3560.38	1089.23	3581.42	1089.85
3581.77	1089.86	3582.34	1089.88	3603.16	1090.45	3615.89	1090.73	3624.55	1090.93
3628.45	1091.01	3638.7	1091.16	3643.95	1091.25	3645.95	1091.29	3659.45	1091.51
3667.34	1091.53	3667.88	1091.54						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
9.3	.03	73.47	.03	1573.52	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
73.47	1573.52	47.8	200	507.44	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1089.40	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.00	Wt. n-Val.	0.030	0.030	0.045	
W.S. Elev (ft)	1089.40	Reach Len. (ft)	47.80	200.00	507.44	
Crit W.S. (ft)		Flow Area (sq ft)	601.75	36829.54	12068.05	
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	601.75	36829.54	12068.05	
Q Total (cfs)	1401.31	Flow (cfs)	10.80	1269.78	120.73	
Top Width (ft)	3283.15	Top Width (ft)	62.34	1500.05	1720.77	
Vel Total (ft/s)	0.03	Avg. Vel. (ft/s)	0.02	0.03	0.01	
Max Chl Dpth (ft)	26.69	Hydr. Depth (ft)	9.65	24.55	7.01	
Conv. Total (cfs)	16999320.0	Conv. (cfs)	130974.6	15403740.0	1464604.0	
Length Wtd. (ft)	242.59	Wetted Per. (ft)	65.32	1500.94	1720.85	
Min Ch El (ft)	1062.71	Shear (lb/sq ft)	0.00	0.00	0.00	
Alpha	1.36	Stream Power (lb/ft s)	0.00	0.00	0.00	
Prctn Loss (ft)	0.00	Cum Volume (acre-ft)	620.97	3095.25	5268.48	
C & E Loss (ft)		Cum SA (acres)	53.59	144.74	733.35	

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 13899.99

INPUT
Description: CP - L
Station Elevation Data num= 376

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7.75	1090.36	15.33	1088.15	28.03	1084.46	39.75	1080.54	48.32	1077.83
64.16	1072.99	68.6	1071.68	88.57	1067.1	88.89	1067.03	90.38	1066.98
109.17	1066.52	112.99	1066.43	129.45	1066.03	137.41	1065.87	149.74	1065.62
161.83	1065.43	170.02	1065.26	186.24	1065.05	190.31	1064.98	210.25	1064.7
210.59	1064.7	210.65	1064.7	225.64	1064.54	230.88	1064.49	235.07	1064.38
251.16	1064.1	259.49	1063.9	271.44	1063.63	283.91	1063.57	291.73	1063.5
308.32	1063.45	312.01	1063.45	330.11	1063.48	332.3	1063.49	332.73	1063.49
352.58	1063.65	357.16	1063.66	372.87	1063.71	381.57	1063.69	393.15	1063.62
405.99	1063.56	413.44	1063.47	430.4	1063.39	433.72	1063.35	449.97	1063.2
454	1063.16	470.77	1063	474.29	1062.96	488.11	1062.89	494.57	1062.81
505.47	1062.75	514.86	1062.67	528.07	1062.6	535.14	1062.58	540.16	1062.57
555.43	1062.55	557.51	1062.55	569.84	1062.54	575.71	1062.55	576.9	1062.55
595.99	1062.55	601.32	1062.55	616.28	1062.54	625.73	1062.54	636.56	1062.55
650.15	1062.58	656.85	1062.61	674.57	1062.63	677.13	1062.64	689.7	1062.64
697.42	1062.64	698.98	1062.65	717.7	1062.71	723.4	1062.73	737.99	1062.78
747.81	1062.81	758.27	1062.83	772.24	1062.88	778.56	1062.89	796.65	1062.93
798.84	1062.93	809.56	1062.92	819.12	1062.89	821.06	1062.88	839.41	1062.84
845.48	1062.84	859.69	1062.84	869.9	1062.86	879.98	1062.89	894.32	1062.92
900.26	1062.94	918.73	1062.98	920.55	1062.99	929.43	1063.01	940.83	1063.04
943.14	1063.05	961.11	1063.08	967.56	1063.1	981.4	1063.13	991.98	1063.15
1001.68	1063.17	1016.4	1063.22	1021.97	1063.23	1040.81	1063.38	1042.25	1063.39
1049.29	1063.48	1062.54	1063.66	1077.96	1064.07	1082.82	1064.26	1089.65	1065.14
1103.1	1065.43	1112.66	1067.16	1123.39	1067.76	1138.48	1068.5	1143.67	1068.83
1147.35	1068.97	1150.41	1069.07	1163.96	1069.5	1169.15	1069.55	1184.24	1069.72
1187.31	1069.76	1204.53	1069.94	1211.73	1070.02	1224.81	1070.29	1236.14	1070.37
1245.09	1070.43	1260.56	1070.46	1265.38	1070.46	1284.97	1070.5	1285.66	1070.5
1289.02	1070.52	1305.95	1070.61	1309.39	1070.63	1326.23	1070.76	1333.81	1070.74
1346.52	1070.79	1358.22	1070.76	1366.8	1070.75	1382.64	1070.75	1387.08	1070.74
1407.06	1070.78	1407.37	1070.78	1408.88	1070.78	1427.65	1070.89	1431.47	1070.93
1447.94	1071.1	1455.89	1071.23	1468.22	1071.4	1480.3	1071.64	1488.51	1071.78
1504.72	1071.94	1508.79	1072	1528.75	1072.18	1529.08	1072.18	1529.14	1072.18
1549.36	1072.86	1553.55	1073.05	1569.64	1074.24	1577.97	1074.35	1589.93	1073.75
1602.38	1073.91	1610.21	1074.4	1626.81	1074.54	1630.5	1074.56	1648.61	1074.69
1650.78	1074.71	1651.22	1074.72	1671.07	1075.1	1675.63	1075.14	1691.35	1075.24
1700.05	1075.29	1711.64	1075.05	1724.47	1075.22	1731.92	1075.52	1748.89	1075.48
1752.2	1075.42	1792.77	1076.04	1797.71	1076.14	1813.06	1076.43	1822.13	1076.55
1833.34	1076.63	1841.29	1076.63	1853.63	1076.77	1858.65	1076.9	1873.91	1077.07
1875.99	1077.08	1888.34	1077.2	1893.34	1077.26	1894.2	1077.27	1910.7	1077.43
1914.48	1077.45	1928.04	1077.53	1934.76	1077.56	1944.22	1077.63	1955.05	1077.66
1968.63	1077.83	1975.33	1077.93	1993.05	1078.15	1995.62	1078.19	2008.2	1078.34
2015.9	1078.44	2017.46	1078.46	2036.19	1078.7	2041.88	1078.75	2056.47	1078.89
2066.3	1078.96	2076.75	1079.05	2090.71	1079.09	2097.04	1079.14	2115.13	1079.21
2117.32	1079.23	2128.06	1079.3	2137.61	1079.36	2139.55	1079.35	2157.89	1079.39
2163.96	1079.39	2178.18	1079.45	2188.38	1079.53	2198.46	1079.61	2212.79	1079.8
2218.74	1079.85	2237.21	1080.03	2239.03	1080.03	2247.93	1080.04	2259.31	1080.03
2261.63	1080.04	2279.6	1080.16	2286.04	1080.25	2299.88	1080.41	2310.46	1080.52
2320.17	1080.62	2334.87	1080.73	2340.45	1080.78	2359.29	1080.85	2360.74	1080.87
2367.79	1080.89	2381.02	1080.9	2383.71	1080.92	2401.3	1081.07	2408.12	1081.31
2421.59	1081.53	2432.54	1081.64	2441.87	1081.76	2456.95	1081.94	2462.16	1081.99
2481.38	1082.24	2482.44	1082.26	2487.65	1082.31	2502.73	1082.46	2505.79	1082.48
2523.01	1082.59	2530.2	1082.65	2543.29	1082.7	2554.62	1082.84	2563.58	1082.91
2579.04	1083.09	2583.86	1083.15	2603.46	1083.34	2604.15	1083.35	2607.53	1083.38
2621.98	1083.52	2624.43	1083.55	2627.87	1083.59	2644.72	1083.81	2652.28	1083.9
2665	1084.05	2676.7	1084.13	2685.28	1084.19	2701.12	1084.28	2705.57	1084.31
2725.54	1084.45	2725.85	1084.45	2727.39	1084.46	2743.42	1084.6	2746.14	1084.63
2749.95	1084.64	2766.42	1084.76	2778.12	1084.78	2786.71	1084.73	2798.79	1084.71
2806.99	1084.68	2823.2	1085	2827.28	1085.01	2830.17	1085.1	2847.26	1085.36
2847.56	1085.37	2864.86	1085.63	2867.85	1085.66	2872.03	1085.7	2888.13	1085.84
2896.45	1085.9	2908.41	1086	2916.9	1086.08	2928.7	1086.19	2945.28	1086.33
2948.98	1086.37	2967.12	1086.5	2969.27	1086.51	2969.7	1086.52	2989.55	1086.66
2994.12	1086.7	3009.84	1086.77	3018.53	1086.81	3030.12	1086.73	3042.95	1086.8
3050.4	1086.79	3067.36	1087.02	3070.69	1087.1	3086.98	1087.34	3090.97	1087.39
3091.78	1087.39	3111.26	1087.52	3116.2	1087.55	3131.54	1087.56	3140.61	1087.6
3151.83	1087.62	3165.03	1087.71	3172.11	1087.67	3189.44	1087.88	3192.39	1087.93
3194.48	1087.93	3206.85	1088.02	3212.68	1088.04	3213.87	1088.04	3232.96	1088.08
3246.52	1088.18	3253.25	1088.23	3263.88	1088.36	3273.53	1088.46	3287.11	1088.66
3293.82	1088.73	3311.53	1088.98	3314.1	1088.99	3315.92	1088.99	3326.71	1089
3334.39	1088.99	3335.95	1088.98	3354.67	1088.64	3360.36	1088.54	3374.95	1088.44
3384.77	1088.41	3395.24	1088.44	3409.19	1088.53	3415.52	1088.6	3420.02	1088.62
3435.81	1088.66	3437.36	1088.7	3446.57	1088.95	3454.71	1089.17	3456.09	1089.21
3472.05	1089.88	3476.38	1090.04	3489.41	1090.25	3496.66	1090.35	3506.85	1090.43
3516.94	1090.51	3524.11	1090.53	3537.23	1090.65	3541.45	1090.67	3557.51	1090.93
3558.8	1090.95	3566.44	1091.08	3577.8	1091.24	3580.11	1091.26	3598.08	1091.44
3604.52	1091.48	3618.37	1091.58	3628.94	1091.66	3638.65	1091.73	3653.36	1091.86
3658.94	1091.9	3677.77	1091.97	3679.22	1091.98	3680.24	1091.98	3686.3	1091.94
3699.06	1091.85								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7.75	.03	88.57	.03	1150.41	.045

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         88.57 1150.41             46.15     200  217.62            .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1089.40  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.40  * Reach Len. (ft)         *   46.15  *  200.00  *  217.62  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  907.06  *27326.76  *21139.11  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  907.06  *27326.76  *21139.11  *
* Q Total (cfs)           * 1390.91  * Flow (cfs)              *   20.80  * 1088.36  *  281.75  *
* Top Width (ft)          * 3449.47  * Top Width (ft)          *   77.51  * 1061.84  * 2310.11  *
* Vel Total (ft/s)        *    0.03  * Avg. Vel. (ft/s)        *    0.02  *    0.04  *    0.01  *
* Max Chl Dpth (ft)       *   26.86  * Hydr. Depth (ft)        *   11.70  *   25.74  *    9.15  *
* Conv. Total (cfs)       *15074780.0  * Conv. (cfs)           *225424.7  *11795770.0  *3053584.0  *
* Length Wtd. (ft)        *  201.54  * Wetted Per. (ft)        *   80.70  * 1062.17  * 2310.34  *
* Min Ch El (ft)          * 1062.54  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.62  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  620.14  * 2947.97  * 5075.06  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   53.51  *  138.86  *  709.87  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 13699.99

INPUT
Description:
Station Elevation Data     num=     438
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************************
    6.88 1090.67     8.81 1090.12    26.88 1085.06    28.46 1084.54    46.89 1078.98
   48.12 1078.62    66.89 1073.34    67.77 1073.15    86.89 1068.93    87.43 1068.92
   106.9 1068.75   107.09 1068.75   117.95 1068.29   126.74 1067.94    126.9 1067.94
  146.39 1067.67    146.9 1067.66   166.05 1067.55   166.91 1067.53   185.71  1067.4
  186.91 1067.38   205.36 1067.33   206.91  1067.3   225.02 1067.18   226.92 1067.14
  231.17  1067.1   244.67 1066.98   246.92 1066.93   264.32 1066.68   266.92 1066.59
  283.98 1066.32   286.93 1066.22   303.64 1065.88   306.93 1065.81   323.29 1065.11
  326.93 1065.02   342.94 1064.64   346.93  1064.5   362.61 1064.35   366.94 1064.11
  382.26 1063.93   386.94  1063.8   401.91 1063.72   406.94 1063.68   421.57 1063.64
  426.95 1063.67   441.22 1063.61   446.95 1063.55   460.88 1063.52   466.95 1063.45
  480.54 1063.39   486.96 1063.31   500.19 1063.23   506.96 1063.11   519.84 1063.04
  526.96 1062.97   539.49 1062.95   546.97 1062.96   559.16 1062.97   566.97 1062.99
  578.81 1063.02   586.97 1063.02   598.46 1063.03   606.98 1063.03   618.12 1063.01
  626.98 1062.99   637.77 1062.94   646.98 1062.89   657.43 1062.85   666.98  1062.9
  677.09 1062.92   686.99 1062.98   696.74 1063.01   706.99 1063.03   716.39 1063.04
  726.99 1063.02   736.06 1062.99      747 1062.96   755.71 1062.92      767 1062.87
  778.69 1062.82      787 1062.79   799.06 1062.76   807.01 1062.76   819.42 1062.78
  827.01 1062.81   834.33  1062.8   847.01 1062.79   860.15 1062.79   867.02 1062.78
  880.51 1062.82   887.02 1062.84   900.87 1062.93   907.02 1062.97   912.94 1063.02
  927.03 1063.14    941.6 1063.23   947.03 1063.28   961.96 1063.31   967.03 1063.36
  982.32 1063.32   987.03 1063.33   991.57 1063.31  1007.04 1063.24  1023.05  1063.2
 1027.04 1063.18  1043.41 1063.32  1047.04 1063.32  1063.79 1063.53  1067.05 1063.55
 1070.19  1063.6  1087.05 1063.88  1104.51 1064.48  1107.05 1064.57  1124.88 1066.71
 1127.06 1067.04  1145.24  1069.2  1147.06 1069.41  1148.81 1069.49  1151.25 1069.64
 1167.06 1070.61  1168.46 1070.64  1187.07  1071.2  1188.12 1071.21  1207.07 1071.47
 1207.78 1071.47  1227.07 1071.56  1227.43 1071.56  1247.08 1071.54  1247.09 1071.54
 1247.99 1071.54  1267.08 1071.56  1267.42 1071.56  1287.08 1071.76  1287.78 1071.77
 1307.09 1072.09  1325.71 1072.28  1327.09 1072.29  1345.36 1072.43  1347.09 1072.45
 1365.01 1072.58  1367.09  1072.6  1384.68 1072.61   1387.1 1072.61  1404.33  1072.6
  1407.1 1072.59  1423.98 1072.67   1427.1 1072.68  1443.64 1072.91  1447.11 1072.94
 1463.29 1073.15  1467.11  1073.2  1482.95 1073.18  1487.11 1073.19  1502.61 1073.15
 1507.12 1073.14  1522.26 1073.11  1527.12 1073.08  1541.91  1073.1  1547.12  1073.1
 1561.58 1073.41  1567.13 1073.57  1581.23  1074.3  1587.13 1074.59  1600.88  1074.9
 1607.13 1075.04  1620.53 1075.23  1627.14  1075.3  1640.19  1075.5  1647.14  1075.6
 1659.85 1075.76  1667.14 1075.85   1679.5 1075.97  1687.14 1076.04  1699.16 1076.15
 1707.15 1076.21  1718.81  1076.3  1727.15 1076.37  1738.46 1076.43  1747.15 1076.48
 1758.13 1076.53  1767.16 1076.57  1777.78 1076.66  1787.16 1076.73  1797.43 1076.84
 1807.16 1076.95  1817.09 1077.05  1827.17 1077.14  1836.74 1077.23  1847.17  1077.3
  1856.4 1077.37  1867.17 1077.44  1876.05  1077.5  1887.18 1077.58  1895.71 1077.64
 1907.18 1077.71  1915.36 1077.75  1927.18  1077.8  1935.02  1077.8  1947.19  1077.8
 1954.68  1077.8  1967.19 1077.78  1974.33 1077.81  1987.19 1077.85  1993.98 1077.93
  2007.2 1078.07  2013.64 1078.15   2027.2  1078.3   2033.3 1078.36   2047.2 1078.48
 2052.95 1078.53   2067.2 1078.63  2072.61 1078.67  2087.21 1078.74  2092.26 1078.77
 2107.21 1078.82  2111.91 1078.83  2127.21 1078.82  2131.57 1078.81  2147.22 1078.77
 2151.23 1078.75  2167.22 1078.74  2170.88 1078.74  2187.22 1078.78  2190.53 1078.79
 2207.23 1078.85   2210.2 1078.87  2227.23 1079.03  2229.85 1079.05  2247.23 1079.25
  2249.5 1079.27  2267.24 1079.47  2269.16 1079.49  2287.24 1079.68  2288.81 1079.68
 2307.24 1079.84  2308.47 1079.85  2327.25 1080.01  2328.13 1080.02  2347.25 1080.22
 2347.78 1080.23  2367.25 1080.46  2367.43 1080.47  2378.01 1080.58  2387.08 1080.67
 2387.25 1080.67  2406.75 1080.83  2407.26 1080.83   2426.4 1080.92  2427.26 1080.93
 2446.05 1080.97  2447.26 1080.98  2465.71 1080.99  2467.27 1080.99  2485.37 1081.04
 2487.27 1081.05  2505.02 1081.31  2507.27 1081.34  2524.68 1081.62  2527.28 1081.64
 2544.33 1081.76  2547.28 1081.78  2563.98 1081.88  2567.28  1081.9  2583.65 1081.98
 2587.29 1081.99   2603.3 1081.94  2607.29 1081.96  2622.95 1081.81  2627.29 1081.84
 2631.78 1081.89   2647.3 1082.22  2662.26 1082.32   2667.3 1082.37  2681.92 1082.53
  2687.3 1082.56  2692.87 1082.58  2707.31 1082.72  2721.23 1082.84  2727.31 1082.87
 2740.88 1082.97  2747.31 1083.01  2753.96 1083.03  2767.31 1083.14   2780.2 1083.21
 2787.32 1083.22  2799.85 1083.27  2807.32 1083.27  2815.05 1083.39  2827.32 1083.48
 2839.16  1083.6  2847.33 1083.67  2858.82 1083.76  2867.33 1083.81  2876.14 1083.83
 2887.33 1083.91  2898.13 1083.98  2907.34 1084.04  2916.87 1084.12  2927.34 1084.19
 2937.43  1084.3  2947.34 1084.38  2957.09 1084.47  2967.35 1084.57  2976.75 1084.62
 2987.35 1084.68  2998.32 1084.74  3007.35 1084.77  3018.68 1084.81  3027.36 1084.85
 3035.71  1084.9  3047.36 1084.98  3055.37 1085.04  3067.36 1085.12  3079.78 1085.18
 3087.36 1085.24  3094.68 1085.29  3107.37 1085.27  3120.51 1085.28  3127.37 1085.29
 3133.99 1085.28  3147.37 1085.13  3153.65 1085.17  3167.38 1085.51   3181.6 1085.54
 3187.38 1085.58  3201.96 1085.43  3207.38 1085.45   3212.6 1085.48  3227.39 1085.76
 3242.69 1085.92  3247.39 1085.95  3251.92 1085.97  3267.39 1086.06  3271.57 1086.03
  3287.4 1086.07  3303.78 1086.12   3307.4 1086.07  3447.42 1087.24  3448.47 1087.24
 3467.42  1087.3  3487.05 1087.38  3487.43 1087.38  3487.78 1087.38  3507.43 1087.35
 3507.44 1087.35  3508.05 1087.33  3546.75 1087.32  3547.44 1087.32   3566.4 1087.38
 3567.44 1087.38  3586.05 1087.46  3587.44 1087.46  3605.72 1087.48  3607.45 1087.48
 3609.24 1087.49  3627.45 1087.54  3802.27 1087.98  3807.48 1088.01  3821.92 1088.29
 3827.48 1088.32  3841.57 1088.49  3847.48 1088.52   3853.6 1088.54  3867.49 1088.75
 3880.89 1088.92  3887.49 1088.97  3894.32 1089.02  3907.49 1089.22  3914.69 1089.27
  3927.5 1089.34   3967.5 1089.66  3975.77 1089.74  3987.51  1089.9  3998.82 1090.17
 4007.51 1090.22  4018.47  1090.5  4027.51 1090.57  4036.86 1090.49  4047.52 1090.58
 4057.79 1090.66  4067.52 1090.65  4077.44 1090.76  4087.52 1090.81  4097.09 1090.87
 4107.52 1091.13  4116.75 1091.16  4127.53 1091.27   4136.4 1091.29  4147.53  1091.3
 4159.05 1091.44  4167.53 1091.45  4175.72 1091.46  4187.54 1091.46  4195.37  1091.5
 4207.54 1091.51  4215.02 1091.54  4227.54 1091.76  4234.67 1091.77  4247.55 1091.72
```

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 4254.34 1091.73 4267.55 1091.83 4273.99 1091.88 4287.55  1091.9 4293.64 1091.93
 4307.56 1091.88 4321.96 1091.93 4327.56 1091.97 4332.96 1092.04 4347.56 1092.45
 4352.61  1092.5 4367.57 1092.65 4372.27 1092.69 4387.57 1092.86 4391.92  1092.9
 4407.57    1093 4411.57 1093.01 4427.57 1093.09 4444.14  1093.2 4447.58 1093.17
 4450.89 1093.21 4467.58 1093.35 4470.54 1093.39 4487.58 1093.55 4490.19 1093.55
 4507.59 1093.67 4525.59 1093.82 4527.59 1093.75 4529.51 1093.83 4547.59 1094.07
 4549.16  1094.1  4567.6 1094.35 4568.82 1094.38  4587.6 1094.58 4588.47 1094.59
  4607.6 1094.71 4608.13 1094.72 4623.48 1094.81

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
    6.88     .03   86.89     .03 1151.25    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          86.89 1151.25             230.51     200  218.39             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**************************************************************************************
* E.G. Elev (ft)          * 1089.40  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1089.40  * Reach Len. (ft)         *  230.51  *  200.00  *  218.39  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  811.59  *26706.22  *23113.58  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  811.59  *26706.22  *23113.58  *
* Q Total (cfs)           * 1700.89  * Flow (cfs)              *   22.19  * 1315.47  *  363.24  *
* Top Width (ft)          * 3923.11  * Top Width (ft)          *   75.49  * 1064.36  * 2783.25  *
* Vel Total (ft/s)        *    0.03  * Avg. Vel. (ft/s)        *    0.03  *    0.05  *    0.02  *
* Max Chl Dpth (ft)       *   26.64  * Hydr. Depth (ft)        *   10.75  *   25.09  *    8.30  *
* Conv. Total (cfs)       *14655250.0  * Conv. (cfs)           *191175.4  *11334330.0  *3129748.0  *
* Length Wtd. (ft)        *  200.00  * Wetted Per. (ft)        *   78.25  * 1064.75  * 2783.42  *
* Min Ch El (ft)          * 1062.76  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.72  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *          * Cum Volume (acre-ft)    *  619.23  * 2823.93  * 4964.52  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   53.43  *  133.98  *  697.15  *
**************************************************************************************

CULVERT


RIVER: FRS
REACH: FRS1                RS: 13649.99

INPUT
Description: CULVRET CROSSING JOHNSON ROAD
Distance from Upstream XS =       50
Deck/Roadway Width        =      100
Weir Coefficient          =      2.6
Upstream  Deck/Roadway Coordinates
    num=        4
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*********************************************************************
       0 1087.73           381.5 1076.77         1497.81 1076.77
 4483.93    1096

Upstream Bridge Cross Section Data
Station Elevation Data     num=     438
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**************************************************************************************
    6.88 1090.67    8.81 1090.12   26.88 1085.06   28.46 1084.54   46.89 1078.98
   48.12 1078.62   66.89 1073.34   67.77 1073.15   86.89 1068.93   87.43 1068.92
   106.9 1068.75  107.09 1068.75  117.95 1068.29  126.74 1067.94   126.9 1067.94
  146.39 1067.67   146.9 1067.66  166.05 1067.55  166.91 1067.53  185.71  1067.4
  186.91 1067.38  205.36 1067.33  206.91  1067.3  225.02 1067.18  226.92 1067.14
  231.17  1067.1  244.67 1066.98  246.92 1066.93  264.32 1066.68  266.92 1066.59
  283.98 1066.32  286.93 1066.22  303.64 1065.88  306.93 1065.81  323.29 1065.11
  326.93 1065.02  342.94 1064.64  346.93  1064.5  362.61 1064.35  366.94 1064.11
  382.26 1063.93  386.94  1063.8  401.91 1063.72  406.94 1063.68  421.57 1063.64
  426.95 1063.67  441.22 1063.61  446.95 1063.55  460.88 1063.52  466.95 1063.45
  480.54 1063.39  486.96 1063.31  500.19 1063.23  506.96 1063.11  519.84 1063.04
  526.96 1062.97  539.49 1062.95  546.97 1062.96  559.16 1062.97  566.97 1062.99
  578.81 1063.02  586.97 1063.02  598.46 1063.03  606.98 1063.03  618.12 1063.01
  626.98 1062.99  637.77 1062.94  646.98 1062.89  657.43 1062.85  666.98  1062.9
  677.09 1062.92  686.99 1062.98  696.74 1063.01  706.99 1063.03  716.39 1063.04
  726.99 1063.02  736.06 1062.99     747 1062.96  755.71 1062.92     767 1062.87
  778.69 1062.82     787 1062.79  799.06 1062.76  807.01 1062.76  819.42 1062.78
  827.01 1062.81  834.33  1062.8  847.01 1062.79  860.15 1062.79  867.02 1062.78
  880.51 1062.82  887.02 1062.84  900.87 1062.93  907.02 1062.97  912.94 1063.02
  927.03 1063.14   941.6 1063.23  947.03 1063.28  961.96 1063.31  967.03 1063.36
  982.32 1063.32  987.03 1063.33  991.57 1063.31 1007.04 1063.24 1023.05  1063.2
 1027.04 1063.18 1043.41 1063.32 1047.04 1063.32 1063.79 1063.53 1067.05 1063.55
 1070.19  1063.6 1087.05 1063.88 1104.51 1064.48 1107.05 1064.57 1124.88 1066.71
 1127.06 1067.04 1145.24  1069.2 1147.06 1069.41 1148.81 1069.49 1151.25 1069.64
 1167.06 1070.61 1168.46 1070.64 1187.07  1071.2 1188.12 1071.21 1207.07 1071.47
 1207.78 1071.47 1227.07 1071.56 1227.43 1071.56 1247.08 1071.54 1247.09 1071.54
 1247.99 1071.54 1267.08 1071.56 1267.42 1071.56 1287.08 1071.76 1287.78 1071.77
 1307.09 1072.09 1325.71 1072.28 1327.09 1072.29 1345.36 1072.43 1347.09 1072.45
 1365.01 1072.58 1367.09  1072.6 1384.68 1072.61  1387.1 1072.61 1404.33  1072.6
  1407.1 1072.59 1423.98 1072.67  1427.1 1072.68 1443.64 1072.91 1447.11 1072.94
 1463.29 1073.15 1467.11  1073.2 1482.95 1073.18 1487.11 1073.19 1502.61 1073.15
 1507.12 1073.14 1522.26 1073.11 1527.12 1073.08 1541.91  1073.1 1547.12  1073.1
 1561.58 1073.41 1567.13 1073.57 1581.23  1074.3 1587.13 1074.59 1600.88  1074.9
 1607.13 1075.04 1620.53 1075.23 1627.14  1075.3 1640.19  1075.5 1647.14  1075.6
 1659.85 1075.76 1667.14 1075.85  1679.5 1075.97 1687.14 1076.04 1699.16 1076.15
 1707.15 1076.21 1718.81  1076.3 1727.15 1076.37 1738.46 1076.43 1747.15 1076.48
 1758.13 1076.53 1767.16 1076.57 1777.78 1076.66 1787.16 1076.73 1797.43 1076.84
 1807.16 1076.95 1817.09 1077.05 1827.17 1077.14 1836.74 1077.23 1847.17  1077.3
  1856.4 1077.37 1867.17 1077.44 1876.05  1077.5 1887.18 1077.58 1895.71 1077.64
 1907.18 1077.71 1915.36 1077.75 1927.18  1077.8 1935.02  1077.8 1947.19  1077.8
 1954.68  1077.8 1967.19 1077.78 1974.33 1077.81 1987.19 1077.85 1993.98 1077.93
  2007.2 1078.07 2013.64 1078.15  2027.2  1078.3  2033.3 1078.36  2047.2 1078.48
 2052.95 1078.53  2067.2 1078.63 2072.61 1078.67 2087.21 1078.74 2092.26 1078.77
 2107.21 1078.82 2111.91 1078.83 2127.21 1078.82 2131.57 1078.81 2147.22 1078.77
 2151.23 1078.75 2167.22 1078.74 2170.88 1078.74 2187.22 1078.78 2190.53 1078.79
 2207.23 1078.85  2210.2 1078.87 2227.23 1079.03 2229.85 1079.05 2247.23 1079.25
  2249.5 1079.27 2267.24 1079.47 2269.16 1079.49 2287.24 1079.68 2288.81 1079.68
 2307.24 1079.84 2308.47 1079.85 2327.25 1080.01 2328.13 1080.02 2347.25 1080.22
 2347.78 1080.23 2367.25 1080.46 2367.43 1080.47 2378.01 1080.58 2387.08 1080.67
 2387.25 1080.67 2406.75 1080.83 2407.26 1080.83  2426.4 1080.92 2427.26 1080.93
 2446.05 1080.97 2447.26 1080.98 2465.71 1080.99 2467.27 1080.99 2485.37 1081.04
 2487.27 1081.05 2505.02 1081.31 2507.27 1081.34 2524.68 1081.62 2527.28 1081.64
 2544.33 1081.76 2547.28 1081.78 2563.98 1081.88 2567.28  1081.9 2583.65 1081.98
 2587.29 1081.99  2603.3 1081.94 2607.29 1081.96 2622.95 1081.81 2627.29 1081.84
 2631.78 1081.89  2647.3 1082.22 2662.26 1082.32  2667.3 1082.37 2681.92 1082.53
  2687.3 1082.56 2692.87 1082.58 2707.31 1082.72 2721.23 1082.84 2727.31 1082.87
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2740.88 1082.97 2747.31 1083.01 2753.96 1083.03 2767.31 1083.14  2780.2 1083.21
2787.32 1083.22 2799.85 1083.27 2807.32 1083.27 2815.05 1083.39 2827.32 1083.48
2839.16  1083.6 2847.33 1083.67 2858.82 1083.76 2867.33 1083.81 2876.14 1083.83
2887.33 1083.91 2898.13 1083.98 2907.34 1084.04 2916.87 1084.12 2927.34 1084.19
2937.43  1084.3 2947.34 1084.38 2957.09 1084.47 2967.35 1084.57 2976.75 1084.62
2987.35 1084.68 2998.32 1084.74 3007.35 1084.77 3018.68 1084.81 3027.36 1084.85
3035.71  1084.9 3047.36 1084.98 3055.37 1085.04 3067.36 1085.12 3079.78 1085.18
3087.36 1085.24 3094.68 1085.29 3107.37 1085.27 3120.51 1085.28 3127.37 1085.29
3133.99 1085.28 3147.37 1085.13 3153.65 1085.17 3167.38 1085.51  3181.6 1085.54
3187.38 1085.58 3201.96 1085.43 3207.38 1085.45  3212.6 1085.48 3227.39 1085.76
3242.69 1085.92 3247.39 1085.95 3251.92 1085.97 3267.39 1086.06 3271.57 1086.03
 3287.4 1086.07 3303.78 1086.12  3307.4 1086.07 3447.42 1087.24 3448.47 1087.24
3467.42  1087.3 3487.05 1087.38 3487.43 1087.38 3487.78 1087.38 3507.43 1087.35
3507.44 1087.35 3508.05 1087.33 3546.75 1087.32 3547.44 1087.32  3566.4 1087.38
3567.44 1087.38 3586.05 1087.46 3587.44 1087.46 3605.72 1087.48 3607.45 1087.48
3609.24 1087.49 3627.45 1087.54 3802.27 1087.98 3807.48 1088.01 3821.92 1088.29
3827.48 1088.32 3841.57 1088.49 3847.48 1088.52  3853.6 1088.54 3867.49 1088.75
3880.89 1088.92 3887.49 1088.97 3894.32 1089.02 3907.49 1089.22 3914.69 1089.27
 3927.5 1089.34  3967.5 1089.66 3975.77 1089.74 3987.51  1089.9 3998.82 1090.17
4007.51 1090.22 4018.47  1090.5 4027.51 1090.57 4036.86 1090.49 4047.52 1090.58
4057.79 1090.66 4067.52 1090.65 4077.44 1090.76 4087.52 1090.81 4097.09 1090.87
4107.52 1091.13 4116.75 1091.16 4127.53 1091.27  4136.4 1091.29 4147.53  1091.3
4159.05 1091.44 4167.53 1091.46 4175.72 1091.46 4187.54 1091.46 4195.37  1091.5
4207.54 1091.51 4215.02 1091.54 4227.54 1091.76 4234.67 1091.77 4247.55 1091.72
4254.34 1091.73 4267.55 1091.83 4273.99 1091.88 4287.55  1091.9 4293.64 1091.93
4307.56 1091.88 4321.96 1091.93 4327.56 1091.97 4332.96 1092.04 4347.56 1092.45
4352.61  1092.5 4367.57 1092.65 4372.27 1092.69 4387.57 1092.86 4391.92  1092.9
4407.57    1093 4411.57 1093.01 4427.57 1093.09 4444.14  1093.2 4447.58 1093.17
4450.89 1093.21 4467.58 1093.35 4470.54 1093.39 4487.58 1093.55 4490.19 1093.55
4507.59 1093.67 4525.59 1093.82 4527.59 1093.75 4529.51 1093.83 4547.59 1094.07
4549.16  1094.1  4567.6 1094.35 4568.82 1094.38  4587.6 1094.58 4588.47 1094.59
 4607.6 1094.71 4608.13 1094.72 4623.48 1094.81
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Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6.88	.03	86.89	.03	1151.25	.045

Bank Sta: Left Right Coeff Contr. Expan.
86.89 1151.25 .1 .3

Downstream Deck/Roadway Coordinates
num= 4

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	1087.73		381.5	1076.77		1497.81	1076.77	
4483.93	1096							

Downstream Bridge Cross Section Data
Station Elevation Data num= 452

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6.45	1090.34	19.79	1087.27	26.45	1086.01	40.03	1082.08	46.45	1080.24
60.27	1076.31	66.45	1074.53	80.51	1071.4	86.46	1069.78	100.75	1069.16
106.46	1068.73	120.99	1068.15	126.46	1067.91	141.22	1067.46	146.46	1067.3
161.46	1066.95	166.46	1066.83	181.7	1066.64	186.46	1066.59	201.93	1066.54
206.46	1066.54	222.18	1066.63	226.47	1066.67	233.22	1066.71	242.42	1066.76
246.47	1066.8	262.65	1066.62	266.47	1066.58	282.89	1066.19	286.47	1066.09
303.13	1065.51	306.47	1065.41	323.36	1064.88	326.47	1064.81	343.6	1064.21
346.47	1064.14	363.84	1063.68	366.48	1063.62	384.08	1063.34	386.48	1063.31
404.32	1063.1	406.48	1063.09	424.56	1063.03	426.48	1063.02	444.79	1062.96
446.48	1062.95	465.03	1062.88	466.48	1062.88	485.27	1062.95	486.48	1062.95
487.66	1062.95	506.48	1063.07	507.42	1063.07	526.49	1063.14	527.2	1063.14
546.49	1063.17	566.22	1063.2	566.49	1063.2	586.46	1063.22	586.49	1063.22
588.59	1063.22	606.49	1063.23	606.7	1063.23	626.49	1063.21	626.93	1063.21
646.49	1063.19	665.59	1063.16	666.5	1063.16	685.36	1063.09	686.5	1063.08
687.65	1063.08	706.5	1062.98	724.9	1062.97	726.5	1062.97	728.13	1062.98
746.5	1063.03	764.44	1063.08	766.5	1063.08	768.6	1063.09	786.5	1063.09
803.99	1063.08	806.51	1063.08	809.08	1063.08	826.51	1063.09	843.52	1063.13
846.51	1063.14	849.56	1063.15	866.51	1063.2	883.06	1063.26	886.51	1063.27
890.03	1063.27	906.51	1063.32	922.6	1063.36	926.51	1063.35	930.5	1063.32
946.51	1063.19	962.15	1062.92	966.52	1062.87	970.99	1062.89	986.52	1062.9
1001.68	1063.34	1006.52	1063.42	1011.46	1063.5	1026.52	1063.69	1031.7	1063.75
1046.52	1063.93	1051.93	1064.01	1066.52	1064.27	1080.76	1064.77	1086.52	1064.92
1092.41	1065.21	1106.53	1066.12	1112.65	1066.83	1126.53	1068.37	1132.89	1069.02
1146.53	1070.22	1153.13	1070.62	1157.11	1070.83	1166.53	1071.34	1173.36	1071.62
1186.53	1072.04	1193.6	1072.22	1206.53	1072.41	1213.84	1072.43	1226.53	1072.51
1234.07	1072.52	1246.54	1072.6	1254.32	1072.63	1266.54	1072.73	1274.56	1072.81
1286.54	1072.94	1294.79	1073.06	1306.54	1073.22	1315.03	1073.35	1326.54	1073.52
1335.27	1073.62	1346.54	1073.73	1355.5	1073.79	1366.54	1073.86	1375.74	1073.91
1386.55	1073.96	1395.99	1074.01	1406.55	1074.06	1416.22	1074.1	1426.55	1074.14
1436.46	1074.16	1446.55	1074.2	1456.7	1074.25	1466.55	1074.3	1476.93	1074.4
1486.55	1074.49	1497.17	1074.57	1506.55	1074.66	1517.41	1074.73	1526.55	1074.79
1537.65	1074.86	1546.56	1074.91	1557.89	1075	1566.56	1075.06	1578.13	1075.18
1586.56	1075.24	1598.36	1075.39	1606.56	1075.47	1618.6	1075.61	1626.56	1075.7
1638.84	1075.8	1646.56	1075.89	1659.07	1075.96	1666.56	1076.01	1679.31	1076.07
1686.57	1076.1	1699.56	1076.17	1706.57	1076.23	1719.79	1076.32	1726.57	1076.35
1740.03	1076.36	1746.57	1076.37	1760.27	1076.41	1766.57	1076.42	1780.5	1076.51
1786.57	1076.54	1800.74	1076.65	1806.57	1076.69	1820.98	1076.78	1826.58	1076.81
1841.22	1076.88	1846.58	1076.91	1861.46	1077.04	1866.58	1077.09	1881.7	1077.24
1886.58	1077.31	1901.93	1077.43	1906.58	1077.45	1922.17	1077.55	1926.58	1077.53
1942.41	1077.46	1946.58	1077.51	1962.64	1077.7	1966.58	1077.73	1982.89	1077.82
1986.59	1077.85	2003.13	1077.91	2006.59	1077.93	2023.36	1077.97	2026.59	1077.98
2043.6	1078.09	2046.59	1078.1	2063.84	1078.27	2066.59	1078.29	2084.07	1078.45
2086.59	1078.47	2104.31	1078.64	2106.59	1078.66	2124.56	1078.82	2126.6	1078.83
2144.79	1078.95	2146.6	1078.95	2165.03	1079.01	2166.6	1079.02	2185.27	1079.04
2186.6	1079.05	2205.5	1079.14	2206.6	1079.15	2225.74	1079.28	2226.6	1079.28
2245.98	1079.41	2246.6	1079.41	2266.22	1079.57	2266.61	1079.57	2286.46	1079.78
2286.61	1079.78	2298.89	1079.92	2306.61	1080	2306.7	1080	2326.61	1080.28
2326.93	1080.29	2346.61	1080.58	2347.17	1080.58	2366.61	1080.83	2367.41	1080.84
2386.61	1081.02	2387.64	1081.03	2406.62	1081.2	2407.89	1081.21	2426.62	1081.4
2428.13	1081.41	2446.62	1081.6	2448.36	1081.61	2466.62	1081.73	2468.6	1081.73
2486.62	1081.77	2488.84	1081.77	2506.62	1081.81	2509.07	1081.82	2526.62	1081.87
2529.31	1081.88	2546.62	1081.96	2563.53	1082.08	2566.63	1082.1	2569.79	1082.12
2586.63	1082.26	2590.03	1082.29	2606.63	1082.42	2622.84	1082.51	2626.63	1082.53
2642.61	1082.61	2646.63	1082.64	2650.74	1082.67	2666.63	1082.77	2682.14	1082.88
2686.63	1082.92	2701.92	1083	2706.64	1083.04	2711.46	1083.07	2726.64	1083.16
2731.7	1083.19	2746.64	1083.3	2761.23	1083.42	2766.64	1083.45	2772.17	1083.49
2786.64	1083.61	2800.77	1083.71	2806.64	1083.75	2812.64	1083.82	2826.64	1083.93
2840.31	1084.1	2846.65	1084.19	2853.13	1084.25	2866.65	1084.41	2873.36	1084.44
2886.65	1084.53	2899.62	1084.59	2906.65	1084.62	2913.84	1084.69	2926.65	1084.75
2939.16	1084.72	2946.65	1084.71	2958.93	1084.65	2966.65	1084.61	2974.55	1084.59
2986.66	1084.61	2998.47	1084.64	3006.66	1084.64	3018.24	1084.64	3026.66	1084.64
3035.27	1084.66	3046.66	1084.65	3057.78	1084.71	3066.66	1084.77	3075.74	1084.88

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 3086.66 1085.01 3095.98 1085.13 3106.66 1085.28 3117.09 1085.39 3126.67  1085.5
 3136.46 1085.59 3146.67 1085.67  3156.7 1085.71 3166.67 1085.75  3176.4  1085.8
 3186.67 1085.81 3197.17 1085.85 3206.67 1085.92 3217.41 1085.99 3226.67 1086.05
 3235.71 1086.11 3246.67 1086.19 3255.48 1086.27 3266.68  1086.4 3278.13 1086.69
 3286.68 1086.87 3295.03  1087.1 3306.68 1087.45  3318.6 1087.52 3326.68 1087.55
 3338.84 1087.47 3346.68  1087.4 3354.33 1087.41 3366.68 1087.38 3379.31 1087.39
 3386.68 1087.42 3399.55  1087.4 3406.68  1087.4 3413.65 1087.44 3426.69 1087.49
 3440.03 1087.59 3446.69 1087.67 3460.27  1087.8 3466.69 1087.88 3472.96 1087.92
 3486.69 1088.04 3492.72 1088.08 3506.69 1088.16 3520.98 1088.25 3526.69 1088.29
 3532.26 1088.31 3546.69 1088.37 3552.03 1088.39  3566.7 1088.44  3581.7 1088.56
  3586.7 1088.59 3601.93 1088.74  3606.7 1088.79 3622.17 1088.95  3626.7 1088.99
 3631.12 1089.02  3646.7 1089.16 3650.89 1089.18  3666.7 1089.27 3682.88 1089.33
  3686.7 1089.35 3703.12 1089.49 3706.71 1089.53 3723.36 1089.78 3726.71 1089.85
 3729.97 1089.91 3746.71 1090.14 3749.74 1090.18 3766.71 1090.35 3784.07 1090.48
 3786.71 1090.51 3804.31 1090.72 3806.71 1090.76 3809.05 1090.78 3826.71 1091.06
 3828.81 1091.04 3846.71 1091.05 3865.03  1090.9 3866.72 1090.88 3868.36 1090.88
 3886.72 1090.81 3888.13 1090.83 3906.72 1090.92 3925.74 1091.06 3926.72 1091.07
 3945.98 1091.38 3946.72 1091.39 3947.44  1091.4 3966.72 1091.64 3967.21 1091.65
 3986.72 1091.83 3986.97 1091.83 4006.73 1092.01 4006.75 1092.01 4009.19 1092.03
 4026.73 1092.14 4026.93 1092.14 4046.73 1092.25 4047.17 1092.26 4066.73  1092.5
 4067.41 1092.51 4086.73 1092.68 4087.64 1092.69 4106.73 1092.74 4107.88 1092.75
 4126.73 1092.76 4128.12 1092.77 4146.73 1092.82 4148.35 1092.83 4166.74 1092.81
  4168.6 1092.81 4186.74  1092.8 4188.84 1092.81 4206.74 1093.04 4209.07 1093.08
 4226.74 1093.22 4243.99 1093.27 4246.74 1093.27 4249.55 1093.27 4266.74 1093.26
 4283.53 1093.32 4286.74 1093.34 4290.02 1093.37 4306.75 1093.59 4323.07 1093.91
 4326.75 1093.98 4342.84 1094.23 4346.75 1094.28 4350.74  1094.3 4366.75 1094.44
 4382.38 1094.54 4386.75 1094.54 4391.21 1094.57 4406.75 1094.66 4421.92 1094.74
 4426.75 1094.77 4431.69  1094.8 4446.76 1094.87 4461.47 1094.95 4466.76 1094.97
 4472.17 1095.01 4484.93 1095.07

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    6.45     .03  233.22     .03 1157.11    .045

Bank Sta: Left   Right    Coeff Contr.   Expan.
        233.22 1157.11              .1       .3

Upstream Embankment side slope              =       4 horiz. to 1.0 vertical
Downstream Embankment side slope            =       4 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Culvert #1      Pipe Arch      5    6.88
FHWA Chart # 34- 18 inch corner radius; Corrugated metal
FHWA Scale # 1 - 90 Degree headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                 50     100     .013     .013        0                  .5                 1
Number of Barrels =  2
Upstream   Elevation =  1062.79
Centerline Stations
    Sta.    Sta.
     690   700.5
Downstream Elevation =  1062.7
Centerline Stations
    Sta.    Sta.
     690   700.5

CULVERT OUTPUT  Profile #Max WS  Culv Group:  Culvert #1
*********************************************************************
* Q Culv Group (cfs)      *   11.14  * Culv Full Len (ft)      *  100.00  *
* # Barrels               *       2  * Culv Vel US (ft/s)      *    0.21  *
* Q Barrel (cfs)          *    5.57  * Culv Vel DS (ft/s)      *    0.21  *
* E.G. US. (ft)           * 1087.16  * Culv Inv El Up (ft)    * 1062.79  *
* W.S. US. (ft)           * 1089.40  * Culv Inv El Dn (ft)    * 1062.70  *
* E.G. DS (ft)            * 1087.16  * Culv Frctn Ls (ft)     *    0.00  *
* W.S. DS (ft)            * 1087.16  * Culv Exit Loss (ft)    *    0.00  *
* Delta EG (ft)           *    0.00  * Culv Entr Loss (ft)    *    0.00  *
* Delta WS (ft)           *    2.24  * Q Weir (cfs)           * 1619.93  *
* E.G. IC (ft)            * 1087.17  * Weir Sta Lft (ft)      *   19.81  *
* E.G. OC (ft)            * 1087.16  * Weir Sta Rgt (ft)      * 3111.39  *
* Culvert Control         *  Outlet  * Weir Submerg           *    1.00  *
* Culv WS Inlet (ft)      * 1067.79  * Weir Max Depth (ft)    *   10.39  *
* Culv WS Outlet (ft)     * 1067.70  * Weir Avg Depth (ft)    *    7.07  *
* Culv Nml Depth (ft)     *          * Weir Flow Area (sq ft) *21862.32  *
* Culv Crt Depth (ft)     *    0.37  * Min El Weir Flow (ft)  * 1076.78  *
*********************************************************************

Warning: During subcritical analysis, while trying to calculate culvert and weir flow, the program could not
         get a balance of energy within the specified tolerance and number of trials.  The program used
         the solution with the minimum error.
Warning: The weir over culvert is submerged.
Warning: During the culvert inlet computations, the program could not balance the culvert/weir flow.  The
         reported inlet energy grade answer may not be valid.
Warning: During the culvert outlet computations, the program could not balance the culvert/weir flow.  The
         reported outlet energy grade answer may not be valid.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 13499.99

INPUT
Description:
Station Elevation Data     num=     452
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*****************************************************************************************
    6.45 1090.34   19.79 1087.27   26.45 1086.01   40.03 1082.08   46.45 1080.24
   60.27 1076.31   66.45 1074.53   80.51  1071.4   86.46 1069.78  100.75 1069.16
  106.46 1068.73  120.99 1068.15  126.46 1067.91  141.22 1067.46  146.46  1067.3
  161.46 1066.95  166.46 1066.83   181.7 1066.64  186.46 1066.59  201.93 1066.54
  206.46 1066.54  222.18 1066.63  226.47 1066.67  233.22 1066.71  242.42 1066.76
  246.47  1066.8  262.65 1066.62  266.47 1066.58  282.89 1066.19  286.47 1066.09
  303.13 1065.51  306.47 1065.41  323.36 1064.88  326.47 1064.81   343.6 1064.21
  346.47 1064.14  363.84 1063.68  366.48 1063.62  384.08 1063.34  386.48 1063.31
  404.32  1063.1  406.48 1063.09  424.56 1063.03  426.48 1063.02  444.79 1062.96
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 446.48 1062.95  465.03 1062.88  466.48 1062.88  485.27 1062.95  486.48 1062.95
 487.66 1062.95  506.48 1063.07  507.42 1063.07  526.49 1063.14   527.2 1063.14
 546.49 1063.17  566.22  1063.2  566.49  1063.2  586.46 1063.22  586.49 1063.22
 588.59 1063.22  606.49 1063.23   606.7 1063.23  626.49 1063.21  626.93 1063.21
 646.49 1063.19  665.59 1063.16   666.5 1063.16  685.36 1063.09   686.5 1063.08
 687.65 1063.08   706.5 1062.98   724.9 1062.97   726.5 1062.97  728.13 1062.98
  746.5 1063.03  764.44 1063.08   766.5 1063.08   768.6 1063.09   786.5 1063.09
 803.99 1063.08  806.51 1063.08  809.08 1063.08  826.51 1063.09  843.52 1063.13
 846.51 1063.14  849.56 1063.15  866.51  1063.2  883.06 1063.26  886.51 1063.27
 890.03 1063.27  906.51 1063.32   922.6 1063.36  926.51 1063.35   930.5 1063.32
 946.51 1063.19   962.15 1062.92  966.52 1062.87  970.99 1062.89  986.52  1062.9
1001.68 1063.34 1006.52 1063.42 1011.46  1063.5 1026.52 1063.69 1031.7 1063.75
1046.52 1063.93 1051.93 1064.01 1066.52 1064.27 1080.76 1064.77 1086.52 1064.92
1092.41 1065.21 1106.53 1066.12 1112.65 1066.83 1126.53 1068.37 1132.89 1069.02
1146.53 1070.22 1153.13 1070.62 1157.11 1070.83 1166.53 1071.34 1173.36 1071.62
1186.53 1072.04  1193.6 1072.22 1206.53 1072.41 1213.84 1072.43 1226.53 1072.51
1234.07 1072.52 1246.54  1072.6 1254.32 1072.63 1266.54 1072.73 1274.56 1072.81
1286.54 1072.94 1294.79 1073.06 1306.54 1073.22 1315.03 1073.35 1326.54 1073.52
1335.27 1073.62 1346.54 1073.73  1355.5 1073.79 1366.54 1073.86 1375.74 1073.91
1386.55 1073.96 1395.99 1074.01 1406.55 1074.06 1416.22  1074.1 1426.55 1074.14
1436.46 1074.16 1446.55  1074.2  1456.7 1074.25 1466.55  1074.3 1476.93  1074.4
1486.55 1074.49 1497.17 1074.57 1506.55 1074.66 1517.41 1074.73 1526.55 1074.79
1537.65 1074.86 1546.56 1074.91 1557.89    1075 1566.56 1075.06 1578.13 1075.18
1586.56 1075.24 1598.36 1075.39 1606.56 1075.47  1618.6 1075.61 1626.56  1075.7
1638.84  1075.8 1646.56 1075.89 1659.07 1075.96 1666.56 1076.01 1679.31 1076.07
1686.57  1076.1 1699.56 1076.17 1706.57 1076.23 1719.79 1076.32 1726.57 1076.35
1740.03 1076.36 1746.57 1076.37 1760.27 1076.41 1766.57 1076.42  1780.5 1076.51
1786.57 1076.54 1800.74 1076.65 1806.57 1076.69 1820.98 1076.78 1826.58 1076.81
1841.22 1076.88 1846.58 1076.91 1861.46 1077.04 1866.58 1077.09  1881.7 1077.24
1886.58 1077.31 1901.93 1077.43 1906.58 1077.45 1922.17 1077.55 1926.58 1077.53
1942.41 1077.46 1946.58 1077.51 1962.64  1077.7 1966.58 1077.73 1982.89 1077.82
1986.59 1077.85 2003.13 1077.91 2006.59 1077.93 2023.36 1077.97 2026.59 1077.98
 2043.6 1078.09 2046.59  1078.1 2063.84 1078.27 2066.59 1078.29 2084.07 1078.45
2086.59 1078.47 2104.31 1078.64 2106.59 1078.66 2124.56 1078.82  2126.6 1078.83
2144.79 1078.95  2146.6 1078.95 2165.03 1079.01  2166.6 1079.02 2185.27 1079.04
 2186.6 1079.05  2205.5 1079.14  2206.6 1079.15 2225.74 1079.28  2226.6 1079.28
2245.98 1079.41  2246.6 1079.41 2266.22 1079.57 2266.61 1079.57 2286.46 1079.78
2286.61 1079.78 2298.89 1079.92 2306.61    1080  2306.7    1080 2326.61 1080.28
2326.93 1080.29 2346.61 1080.58 2347.17 1080.58 2366.61 1080.83 2367.41 1080.84
2386.61 1081.02 2387.64 1081.03 2406.62  1081.2 2407.89 1081.21 2426.62  1081.4
2428.13 1081.41 2446.62  1081.6 2448.36 1081.61 2466.62 1081.73  2468.6 1081.73
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2529.31 1081.88 2546.62 1081.96 2563.53 1082.08 2566.63  1082.1 2569.79 1082.12
2586.63 1082.26 2590.03 1082.29 2606.63 1082.42 2622.84 1082.51 2626.63 1082.53
2642.61 1082.61 2646.63 1082.64 2650.74 1082.67 2666.63 1082.77 2682.14 1082.88
2686.63 1082.92 2701.92    1083 2706.64 1083.04 2711.46 1083.07 2726.64 1083.16
 2731.7 1083.19 2746.64  1083.3 2761.23 1083.42 2766.64 1083.45 2772.17 1083.49
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3235.71 1086.11 3246.67 1086.19 3255.48 1086.27 3266.68  1086.4 3278.13 1086.69
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3631.12 1089.02  3646.7 1089.16 3650.89 1089.18  3666.7 1089.27 3682.88 1089.33
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3786.71 1090.51 3804.31 1090.72 3806.71 1090.76 3809.05 1090.78 3826.71 1091.06
3828.81 1091.04 3846.71 1091.05 3865.03  1090.9 3866.72 1090.88 3868.36 1090.88
3886.72 1090.81 3888.13 1090.83 3906.72 1090.92 3925.74 1091.06 3926.72 1091.07
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 4168.6 1092.81 4186.74  1092.8 4188.84 1092.81 4206.74 1093.04 4209.07 1093.08
4226.74 1093.22 4243.99 1093.27 4246.74 1093.27 4249.55 1093.27 4266.74 1093.26
4283.53 1093.32 4286.74 1093.34 4290.02 1093.37 4306.75 1093.59 4323.07 1093.91
4326.75 1093.98 4342.84 1094.23 4346.75 1094.28 4350.74  1094.3 4366.75 1094.44
4382.38 1094.54 4386.75 1094.54 4391.21 1094.57 4406.75 1094.66 4421.92 1094.74
4426.75 1094.77 4431.69  1094.8 4446.76 1094.87 4461.47 1094.95 4466.76 1094.97
4472.17 1095.01 4484.93 1095.07

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**********************************************
    6.45     .03  233.22     .03 1157.11    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        233.22 1157.11             132.76     200  220.23              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**************************************************************************************
* E.G. Elev (ft)          * 1087.16  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.16  * Reach Len. (ft)         *  132.76  *  200.00  *  220.23  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3474.94  *21485.17  *16221.91  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3474.94  *21485.17  *16221.91  *
* Q Total (cfs)           *-1572.03  * Flow (cfs)              * -146.06  *-1151.40  * -274.57  *
* Top Width (ft)          * 3276.66  * Top Width (ft)          *  212.85  *  923.89  * 2139.92  *
* Vel Total (ft/s)        *   -0.04  * Avg. Vel. (ft/s)        *   -0.04  *   -0.05  *   -0.02  *
* Max Chl Dpth (ft)       *   24.29  * Hydr. Depth (ft)        *   16.33  *   23.26  *    7.58  *
* Conv. Total (cfs)       *11834540.0  * Conv. (cfs)           *1099508.0  *8667954.0  *2067000.0  *
* Length Wtd. (ft)        *  197.02  * Wetted Per. (ft)        *  215.20  *  924.24  * 2140.02  *
* Min Ch El (ft)          * 1062.87  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.59  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  607.89  * 2713.30  * 4865.91  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   52.67  *  129.42  *  684.81  *
**************************************************************************************

LATERAL STRUCTURE


RIVER: FRS
```

```
REACH: FRS1                RS: 13499

INPUT
Description:
Lateral structure position      = Left overbank
Distance from Upstream XS =      .99
Deck/Roadway Width        =      10
Weir Coefficient          =     2.7
Weir Flow Reference       = Water Surface
 Weir Embankment Coordinates    num =       11
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************************
       01091.169     13701091.907     2478  1091.8     34721091.505     46321091.593
    58171092.081     70061091.827     79001091.969     85001090.161     96501089.758
   108001089.875

Weir crest shape                          = Broad Crested


LATERAL STRUCTURE OUTPUT  Profile #Max WS  Lat Struct
*************************************************************************
* E.G. US. (ft)           * 1087.16  * Weir Sta US (ft)        *          *
* W.S. US. (ft)           * 1087.16  * Weir Sta DS (ft)        *          *
* E.G. DS (ft)            * 1086.20  * Weir Max Depth (ft)     *          *
* W.S. DS (ft)            * 1086.19  * Weir Avg Depth (ft)     *          *
* Q US (cfs)              *-1572.03  * Weir Submerg            *          *
* Q Leaving Total (cfs)   *    0.00  * Min El Weir Flow (ft)   * 1089.76   *
* Q DS (cfs)              *19371.30  * Wr Top Wdth (ft)        *          *
* Perc Q Leaving          *    0.00  * Q Gate Group (cfs)      *          *
* Q Weir (cfs)            *          * Gate Open Ht (ft)        *          *
* Q Gates (cfs)           *          * Gate #Open               *          *
* Q Culv (cfs)            *          * Gate Area (sq ft)        *          *
* Q Lat RC (cfs)          *          * Gate Submerg             *          *
* Weir Flow Area (sq ft)  *          * Gate Invert (ft)         *          *
*************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 13299.99

INPUT
Description:
Station Elevation Data    num=     459
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************************
       0  1089.76     6.42  1088.55    17.99  1087.49    24.82  1085.67    38.08  1082.31
   43.23  1080.79    58.16  1076.38    61.63   1075.4    78.24  1070.71    80.04  1070.47
   98.33  1066.52    98.44  1066.51    99.75  1066.47   116.84    1066   118.41  1065.95
  135.25  1065.82   138.49  1065.77   153.65  1065.58   158.57  1065.51   172.06  1065.49
  178.66  1065.44   190.47  1065.53   198.74  1065.54   208.87  1065.62   218.82  1065.68
  227.28  1065.61   238.91  1065.64   241.08  1065.62   252.85   1065.5   258.99  1065.21
  274.95  1063.47   279.07   1063.2    282.5  1063.11   299.15  1062.74    300.9  1062.73
  319.24  1062.64   319.31  1062.64   320.11  1062.64   337.71  1062.67   339.32  1062.67
  356.12  1062.71    359.4  1062.72   374.53  1062.75   379.49  1062.76   392.93  1062.76
  399.57  1062.76   411.34  1062.74   419.65  1062.73   429.74   1062.7   439.73  1062.68
  448.14  1062.66   459.82  1062.63   466.55  1062.61    479.9  1062.57   484.95  1062.58
  499.98  1062.56   503.36  1062.57   520.07   1062.6   521.76   1062.6   540.15  1062.66
  540.17  1062.66   540.47  1062.66   558.58  1062.69   560.23   1062.7   576.98  1062.71
  580.32  1062.72   595.39  1062.73    600.4  1062.73   613.79  1062.73   620.48  1062.73
   632.2  1062.72   640.56  1062.72   650.61  1062.71   660.65  1062.69   669.01  1062.69
  680.73  1062.68   687.42   1062.7   700.81  1062.74   705.82  1062.77    720.9  1062.87
  724.23   1062.9   740.98  1063.05   742.64  1063.06   760.82  1063.23   761.04  1063.23
  761.06  1063.23   761.08  1063.23   781.14  1063.37   783.17  1063.38   801.23  1063.47
  805.27  1063.48   821.31  1063.58   827.37   1063.6   841.39  1063.69   849.47   1063.7
  861.48  1063.74   871.47   1063.8   881.56  1063.83   889.87  1063.89   901.64  1063.98
  908.28  1064.03   921.72  1064.16   937.85  1064.33   941.81  1064.36   945.09  1064.39
  961.89  1064.64    963.5  1064.67   981.18  1065.02   981.97  1065.04   982.04  1065.04
 1002.06  1065.55  1004.14  1065.66  1022.14  1066.32  1026.25  1066.73  1042.22  1068.27
 1048.34  1068.66   1062.3  1069.66  1073.93  1070.09  1082.39  1070.12  1092.53  1070.23
  1094.5  1070.26  1102.47  1070.38  1114.63  1070.53  1122.55  1070.64  1136.72  1070.79
 1142.64  1070.84  1158.82  1071.07  1162.72  1071.12  1180.91  1071.49   1182.8  1071.52
 1184.36  1071.53  1201.54  1071.69  1202.88   1071.7  1203.01   1071.7  1222.97  1071.89
 1239.58  1072.05  1243.05  1072.08  1257.98   1072.2  1263.13  1072.25  1276.39  1072.38
 1283.22  1072.45  1294.79  1072.57   1303.3  1072.66   1313.2  1072.75  1323.38  1072.82
 1331.61  1072.89  1343.46  1072.94  1350.01  1072.98  1363.55  1073.01  1368.42  1073.03
 1383.63  1073.09  1386.82   1073.1  1403.71  1073.23  1405.23  1073.24  1421.89  1073.36
  1423.8  1073.38  1423.99  1073.38  1443.88  1073.52  1446.08  1073.54  1463.96  1073.67
 1468.18   1073.7  1484.05  1073.83  1490.27  1073.89  1504.13  1074.03  1512.37  1074.11
 1524.21  1074.24  1534.06  1074.36  1544.29  1074.48  1552.47  1074.58  1564.38  1074.73
 1578.66  1074.89  1584.46  1074.95  1600.76  1075.06  1604.54  1075.09  1622.86  1075.19
 1624.63   1075.2  1642.25  1075.31  1644.71  1075.32  1644.95  1075.32  1664.79  1075.41
 1667.05  1075.43  1684.87  1075.51  1689.14  1075.54  1704.96  1075.65  1718.12  1075.76
 1725.04  1075.82  1736.53  1075.92  1745.12  1075.99  1754.93  1076.07  1765.21  1076.14
 1777.53  1076.23  1785.29  1076.29  1799.63  1076.38  1805.37  1076.42  1821.73  1076.51
 1825.45  1076.52  1843.82  1076.61  1845.54  1076.62   1862.6  1076.73  1865.62  1076.75
 1883.77  1076.88   1885.7  1076.89  1902.17  1077.06  1905.79   1077.1  1920.58  1077.27
 1925.87  1077.33  1938.98  1077.48  1945.95  1077.56  1957.39  1077.67  1966.03  1077.75
 1975.79  1077.86  1986.12  1077.96   1994.2  1078.07   2006.2  1078.16  2012.61  1078.18
 2026.28  1078.23  2031.01  1078.24  2046.37  1078.29  2049.42  1078.31  2066.45  1078.44
 2067.83  1078.44  2082.96  1078.55  2086.23  1078.58  2086.53  1078.58  2104.64  1078.66
 2106.62  1078.67  2123.04  1078.72   2126.7  1078.74  2141.45  1078.82  2146.78  1078.85
 2159.85  1078.95  2166.86     1079  2178.26  1079.09  2186.95  1079.17  2196.67  1079.25
 2207.03  1079.35  2215.06  1079.42  2227.11  1079.53  2233.47   1079.6   2247.2  1079.76
 2251.87  1079.84  2267.28  1080.07  2270.28  1080.12  2287.36  1080.33  2288.69  1080.35
 2303.32  1080.51  2307.09  1080.55  2307.44  1080.55   2325.5  1080.72  2327.53  1080.74
  2343.9  1080.86  2347.61  1080.89  2362.31  1080.98  2367.69  1081.01  2729.18  1081.28
 2730.42  1081.29  2744.03  1081.49  2748.83  1081.56  2749.27  1081.57  2749.79  1081.58
 2769.35  1081.83  2785.64  1082.05  2789.43   1082.1  2793.98  1082.15  2809.52  1082.32
 2816.07  1082.38   2829.6  1082.52  2840.86  1082.66  2849.68  1082.73  2859.26  1082.84
 2869.77  1082.95  2882.37  1083.08  2889.85  1083.17  2896.07  1083.24  2909.93  1083.37
 2926.56  1083.48  2930.01  1083.51  2948.66  1083.65   2950.1  1083.66  2951.28  1083.68
 2964.38  1083.82  2969.69  1083.88  2970.18  1083.88  2970.75  1083.89  2990.26  1084.11
 2992.85  1084.12  3010.35  1084.28  3024.91  1084.38  3030.43  1084.42  3037.05  1084.44
 3264.17  1085.12  3271.42  1085.14  3282.58  1085.31  3291.51  1085.45  3300.98  1085.51
 3311.59   1085.6  3319.39  1085.65  3331.67  1085.76   3337.8  1085.85  3351.75  1086.06
  3356.2  1086.09  3371.84  1086.18  3374.61   1086.2  3391.92   1086.3  3393.01  1086.32
 3405.09  1086.46     3412  1086.54  3412.69  1086.55  3432.09  1086.85  3448.23  1087.06
 3452.17   1087.1  3456.89  1087.11  3472.25  1087.19  3478.98   1087.2  3492.33  1087.23
 3503.45  1087.29  3512.42  1087.36  3521.86  1087.45   3532.5   1087.6  3540.26  1087.66
 3552.58  1087.79  3567.36  1087.83  3572.67  1087.84  3589.46  1087.87  3592.75  1087.87
 3595.48  1087.88  3612.83  1087.94  3613.88  1087.95  3625.44  1088.01  3632.28  1088.04
 3632.91  1088.04  3633.66  1088.05     3653  1088.12  3669.09  1088.13  3673.08  1088.13
```

```
 3687.5 1088.14 3693.16 1088.15 3699.95  1088.2 3713.25 1088.26 3724.31 1088.37
3733.33 1088.46 3742.72 1088.61 3753.41 1088.78 3761.12 1088.91 3773.49 1089.12
3779.53 1089.18 3793.58 1089.32 3797.94 1089.34 3813.66 1089.37 3816.34 1089.38
3833.74  1089.4 3834.75 1089.41  3845.8 1089.46 3853.15  1089.5 3853.83  1089.5
3871.56 1089.66 3873.91 1089.67 3876.72  1089.7 3893.99 1089.87 3898.82 1089.86
3914.07 1089.85 3926.78 1089.91 3934.16 1089.94 3943.01 1090.04 3954.24 1090.12
3965.11 1090.29 3974.32 1090.36 3987.21 1090.43 3994.41 1090.46  4009.3 1090.36
4014.49 1090.36  4018.8 1090.39 4034.57 1090.33  4037.2 1090.35 4054.66 1090.53
4055.61 1090.53 4066.16 1090.59 4074.74 1090.64 4075.59 1090.64 4094.82 1090.71
4097.69 1090.73  4114.9 1090.82 4119.78 1090.85 4134.99 1090.93 4141.88 1090.97
4155.07 1091.01 4163.98 1091.06 4175.15 1091.09 4184.45 1091.15 4195.23 1091.22
4208.17 1091.36 4215.32 1091.44 4230.27 1091.63  4235.4  1091.7 4239.67 1091.74
4255.48 1091.87 4258.07 1091.88 4275.57 1091.86 4276.48 1091.86 4286.51 1091.84
4294.89 1091.82 4295.65 1091.81 4313.29 1091.86 4315.73 1091.86 4331.69 1091.95
4335.81 1091.97 4350.09 1092.02  4355.9 1092.04  4368.5 1092.01 4375.98 1092.01
4386.91    1092 4396.06 1092.02 4407.04 1092.15 4416.15 1092.22 4423.72 1092.32
4436.23 1092.51 4442.12 1092.58 4456.31 1092.78 4460.53 1092.86  4476.4 1093.07
4478.94 1093.09 4496.48 1093.18 4497.34 1093.19 4506.87 1093.26 4515.75 1093.33
4516.56 1093.33 4517.53 1093.34 4536.64 1093.31 4539.63  1093.3 4556.73    1093
4570.97 1093.19 4576.81 1093.26 4589.37 1093.68 4596.89 1093.82 4607.78 1093.86
4616.98 1093.87 4628.01 1093.81 4637.06 1093.77 4650.11 1093.73 4657.14 1093.71
   4663 1093.69 4677.23 1093.65 4694.31 1093.57 4697.31 1093.56  4699.8 1093.54
4717.39 1093.45  4718.2 1093.45 4727.22 1093.46 4736.61 1093.48 4737.47 1093.48
4755.02  1093.7 4757.56 1093.74 4773.42 1094.02 4777.64  1094.1 4791.83 1094.38
4797.72 1094.49 4810.24 1094.74 4817.81 1094.89  4821.6 1094.95

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
       0     .03  241.08     .03  1094.5    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        241.08  1094.5             444.85     400  739.85             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.16  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.16  * Reach Len. (ft)         *  444.85  *  400.00  *  739.85  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3909.51  *19943.06  *18622.23  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3909.51  *19943.06  *18622.23  *
* Q Total (cfs)           *-1573.97  * Flow (cfs)              * -173.48  *-1076.55  * -323.94  *
* Top Width (ft)          * 3447.28  * Top Width (ft)          *  221.85  *  853.42  * 2372.01  *
* Vel Total (ft/s)        *   -0.04  * Avg. Vel. (ft/s)        *   -0.04  *   -0.05  *   -0.02  *
* Max Chl Dpth (ft)       *   24.60  * Hydr. Depth (ft)        *   17.62  *   23.37  *    7.85  *
* Conv. Total (cfs)       *11801700.0  * Conv. (cfs)           *  *1300745.0  *8072026.0  *2428930.0  *
* Length Wtd. (ft)        *  462.57  * Wetted Per. (ft)        *  224.56  *  853.72  * 2372.09  *
* Min Ch El (ft)          * 1062.56  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.65  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  596.64  * 2618.19  * 4777.83  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   52.00  *  125.34  *  673.40  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 12899.99

INPUT
Description:
Station Elevation Data     num=     247
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 1088.67     .96  1088.5    12.1 1088.19   19.93 1085.78   32.13 1082.24
   38.91 1080.19   52.16 1076.24   57.88 1074.77   72.19 1071.08   76.85 1070.44
   92.22 1067.42   95.82  1067.3  212.41 1067.04  222.14  1066.9  228.63  1066.8
  232.44 1066.79  247.59 1065.72  252.47 1065.62  266.56 1064.59   272.5 1063.74
  285.54 1063.49  292.54 1063.35  304.51 1063.26  312.57 1063.19  323.48 1063.13
   332.6 1063.08  342.45 1063.04  352.63    1063  361.43 1062.99  372.66 1062.96
   380.4 1062.95  392.69  1062.9  399.37 1062.89  412.72 1062.84  418.34 1062.84
  432.75 1062.79  437.32  1062.8  452.78 1062.79  456.29  1062.8  472.82 1062.82
  475.26 1062.82  492.85 1062.86  494.23 1062.86  512.88 1062.92  513.21 1062.92
  519.13 1062.94  532.18 1062.97  532.91 1062.98  551.15 1062.99  552.94    1063
  570.12 1062.99  572.97 1062.99   589.1 1062.97     593 1062.96  608.07 1062.92
  613.03 1062.91  627.04 1062.87  633.06 1062.85     646 1062.85   653.1 1062.85
  664.97  1062.9  673.13 1062.94  683.95 1062.99  693.16 1063.05  702.92 1063.08
  713.19 1063.13  721.89 1063.15  733.22 1063.15  740.86 1063.15  753.25 1063.15
  759.84 1063.16  773.28 1063.16  778.81 1063.16  793.31 1063.13  797.78 1063.13
  813.34 1063.12  816.75 1063.12  833.38 1063.17  835.73 1063.18  853.41 1063.21
   854.7 1063.21  873.44 1063.29  873.67 1063.29  877.92 1063.36  892.64  1063.6
  893.47 1063.61  911.62 1063.95   913.5    1064  930.59 1064.26  933.53 1064.32
  949.56 1064.45  953.56  1064.5  968.53 1064.55  973.59 1064.57  987.51 1064.63
  993.62 1064.64 1006.48 1064.73 1013.66 1064.74 1025.44 1064.79 1033.69 1064.81
 1044.41 1064.85 1053.72 1064.93 1063.39 1065.06 1073.75 1065.21 1082.36 1065.22
 1093.78 1065.26 1101.33 1065.25 1113.81 1065.25  1120.3  1065.3 1133.84 1065.47
 1139.28 1065.52 1153.87 1065.64 1158.25 1065.69 1173.91 1065.86 1177.22 1065.91
 1193.94 1066.14 1196.19 1066.18 1213.97 1066.43 1215.17 1066.45    1234 1066.71
 1234.14 1066.72 1236.69 1066.76 1253.11 1067.02 1254.03 1067.03 1272.08 1067.32
 1274.06 1067.36 1291.05 1067.88 1294.09 1067.95 1310.03    1069 1314.12 1069.14
    1329 1070.25 1334.15 1070.33 1347.97 1070.42 1354.19 1070.74 1366.94  1071.1
 1373.22 1071.01 1374.22 1070.99 1385.91 1071.48 1394.25 1071.39 1434.31 1071.87
 1442.82 1072.22 1454.34    1073  1461.8 1073.15 1474.37 1073.81 1480.77 1073.89
  1494.4 1074.28 1499.74 1074.35 1514.43  1074.6 1518.71 1074.64 1534.47 1074.79
 1537.69 1074.82  1554.5 1074.95 1556.66 1074.97 1574.53 1075.12 1575.63 1075.12
 1594.56 1075.27  1594.6 1075.27 1595.47 1075.28 1613.58 1075.41 1614.59 1075.42
 1632.55 1075.53 1634.62 1075.54 1651.52 1075.66 1654.65 1075.68 1670.49 1075.83
 1674.68 1075.87 4288.89 1090.06 4298.76 1089.89  4310.1 1090.07 4318.79 1090.12
 4326.56 1090.21 4338.83 1090.37 4345.53  1090.4 4358.86 1090.45 4364.51 1090.46
 4378.89 1090.54 4394.96 1090.57 4398.92 1090.57 4402.44  1090.6 4418.95 1090.67
 4421.41 1090.69 4438.98 1090.82 4458.61    1091 4459.01 1091.01  4465.7 1091.08
 4478.33 1091.22 4479.04 1091.22  4497.3 1091.43 4499.08 1091.44 4501.05 1091.46
 4519.11 1091.61 4535.25 1091.71 4539.14 1091.72 4554.22  1091.8 4559.17 1091.81
 4573.19 1091.87  4579.2 1091.89 4592.17  1091.9 4599.23 1091.94 4611.14  1091.9
 4619.26 1091.98 4630.11 1092.02 4639.29  1092.1 4649.08 1092.15 4659.32 1092.21
 4670.77 1092.28 4679.35 1092.34 4687.03 1092.39 4699.39 1092.47    4706 1092.51
 4719.42 1092.57 4734.41 1092.65 4739.45 1092.69 4755.63 1092.86 4759.48 1092.92
 4762.91 1092.98 4779.51 1093.24 4798.06 1093.49 4799.54 1093.51 4819.27 1093.68
 4819.57 1093.68 4819.82 1093.68 4824.48 1093.71  4838.8 1093.83  4839.6 1093.84
 4857.77 1093.97 4859.63 1093.98 4876.74 1094.07 4879.67 1094.08 4895.71  1094.2
  4899.7 1094.21 4904.14 1094.27 4919.73 1094.43 4933.66 1094.57 4939.76 1094.64
 4952.63 1094.95 4959.79 1095.06 4967.78 1095.15 4979.82 1095.31 4990.58 1095.31
 4999.85 1095.32 5009.55 1095.27 5019.88 1095.28 5028.52 1095.32 5039.91 1095.42
 5047.49  1095.5 5048.61 1095.51
```

```
Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
       0     .03  222.14     .03 1373.22    .045

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.    Expan.
        222.14 1373.22            233.17     200  175.35              .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.16  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.16  * Reach Len. (ft)         *  233.17  *  200.00  *  175.35  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3425.71  *26122.76  *15697.01  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3425.71  *26122.76  *15697.01  *
* Q Total (cfs)           *-1579.85  * Flow (cfs)              * -130.08  *-1233.10  * -216.67  *
* Top Width (ft)          * 3739.18  * Top Width (ft)          *  206.69  * 1151.08  * 2381.40  *
* Vel Total (ft/s)        *   -0.03  * Avg. Vel. (ft/s)        *   -0.04  *   -0.05  *   -0.01  *
* Max Chl Dpth (ft)       *   24.37  * Hydr. Depth (ft)        *   16.57  *   22.69  *    6.59  *
* Conv. Total (cfs)       *13285710.0  * Conv. (cfs)           *1093891.0  *10369710.0  *1822113.0  *
* Length Wtd. (ft)        *  198.85  * Wetted Per. (ft)        *  209.28  * 1151.35  * 2381.51  *
* Min Ch El (ft)          * 1062.79  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.55  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  559.18  * 2406.69  * 4486.38  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   49.81  *  116.13  *  633.03  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 12699.99

INPUT
Description:
Station Elevation Data     num=     403
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
    8.17 1089.44    20.66 1086.04    28.17 1084.06    40.47  1080.5    48.17 1078.33
   60.28 1074.75    68.17 1072.39    80.09 1069.09    88.17 1066.81     99.9 1065.72
  219.02 1065.71   228.18 1065.76   238.6 1065.23   248.18 1065.17   258.41 1064.39
  268.18 1063.11   278.22 1063.01   288.18 1062.94   298.03 1062.95   308.18 1062.95
  317.85 1062.96   328.18 1062.95   337.67 1062.94   348.19 1062.92   357.48 1062.88
  368.19 1062.84   377.29  1062.8   388.19 1062.76    397.1 1062.74   408.19 1062.71
  416.92  1062.7   428.19 1062.69   436.73  1062.7   448.19 1062.72   456.54 1062.74
  468.19 1062.79   476.35 1062.82   488.19 1062.87   496.16 1062.88   508.19 1062.89
  515.98 1062.88   528.19 1062.87   535.79 1062.87   548.19 1062.84   555.61 1062.84
   568.2  1062.8   575.42  1062.8    588.2 1062.78   595.23  1062.8    608.2 1062.87
  615.05 1062.91    628.2 1063.03   634.86 1063.08    648.2 1063.19   654.67 1063.22
   668.2 1063.31   674.48 1063.32    688.2 1063.37   694.29 1063.35    708.2 1063.33
  714.11 1063.38    728.2 1063.42   733.92 1063.47    748.2 1063.56   753.73 1063.59
   768.2 1063.65   773.54 1063.66   788.21 1063.68   793.36 1063.68   808.21 1063.67
  813.18 1063.68   828.21 1063.71   832.99 1063.73   848.21 1063.74    852.8 1063.77
  868.21 1063.73   872.61 1063.81   888.21 1063.96   892.42 1064.04   908.21 1064.33
  912.24 1064.37   928.21 1064.55   932.05 1064.57   948.21 1064.62   951.86 1064.61
  968.21 1064.59   971.67 1064.58   988.21 1064.65   991.48 1064.66  1008.22 1064.93
  1011.3 1064.95  1028.22 1065.14  1031.12 1065.14  1048.22 1065.21  1050.93 1065.21
 1068.22 1065.15  1070.74 1065.18  1088.22 1065.34  1090.55 1065.38  1108.22 1065.59
 1110.36 1065.59  1128.22 1065.61  1130.18 1065.61  1148.22 1065.59  1149.99  1065.6
 1168.22 1065.67   1169.8 1065.67  1188.22 1065.77  1189.61 1065.77  1208.22 1065.76
 1209.42 1065.79  1228.23 1066.08  1229.25 1066.13  1248.23 1066.85  1249.06  1066.9
 1268.23 1067.92  1268.87 1067.99  1288.23 1069.59  1288.68 1069.63  1308.23 1071.67
 1308.49 1071.68  1328.23 1073.01  1328.31 1073.01  1334.02 1072.93  2208.27 1076.22
 2219.89 1076.37  2228.27 1076.44   2239.7 1076.57  2248.27 1076.67  2259.51  1076.8
 2268.27  1076.9  2279.32 1077.06  2288.27 1077.16  2299.13 1077.27  2308.27 1077.32
 2318.95 1077.35  2328.28 1077.41  2338.77 1077.47  2348.28 1077.53  2358.58 1077.57
 2368.28 1077.66  2378.39 1077.73  2388.28 1077.86   2398.2 1077.98  2408.28 1078.14
 2418.02 1078.28  2428.28 1078.41  2437.83 1078.49  2448.28 1078.57  2457.64 1078.63
 2468.28 1078.63  2477.45 1078.74  2488.28 1078.81  2497.26 1078.88  2508.28 1078.93
 2517.07 1078.98  2528.28 1079.05  2536.89  1079.1  2548.29 1079.18  2556.71 1079.22
 2568.29 1079.28  2576.52 1079.31  2588.29  1079.4  2596.33 1079.44  2608.29 1079.58
 2616.14  1079.6  2628.29 1079.63  2635.96 1079.63  2648.29 1079.54  2655.77 1079.57
 2668.29 1079.66  2675.58 1079.74  2688.29 1079.97  2695.39 1080.05  2708.29 1080.23
  2715.2 1080.31  2728.29 1080.45  2735.02 1080.53  2748.29 1080.67  2754.83 1080.73
  2768.3 1080.83  2774.65 1080.88   2788.3 1080.93   2802.2 1080.97   2808.3 1081.01
 2822.39 1081.06   2828.3 1081.09  2834.09 1081.13   2848.3 1081.18   2853.9 1081.21
  2868.3 1081.29  2882.97  1081.4   2888.3 1081.43  2893.52 1081.45   2908.3 1081.57
 2913.33  1081.6   2928.3 1081.78  2943.54 1082.02   2948.3 1082.09  2963.73  1082.3
  2968.3 1082.37  2972.77 1082.43  2988.31 1082.58  2992.59 1082.62  3008.31 1082.75
  3012.4 1082.78  3028.31 1082.92  3044.51 1083.06  3048.31 1083.09  3052.03 1083.11
 3068.31 1083.22  3071.84 1083.25  3088.31 1083.36  3091.65 1083.38  3108.31 1083.49
 3111.46 1083.51  3128.31 1083.63  3131.28 1083.67  3148.31 1083.99  3151.09 1084.04
 3168.31 1084.48   3170.9 1084.52  3188.31 1084.78  3190.71 1084.78  3208.31 1084.75
 3210.53 1084.75  3228.32 1084.67  3230.35 1084.67  3248.32  1084.7  3250.16 1084.72
 3268.32 1084.81  3269.97 1084.83  3288.32 1084.95  3289.78 1084.96  3308.32 1085.07
 3309.59 1085.08  3328.32 1085.18  3329.41 1085.19  3348.32 1085.32  3349.22 1085.33
 3368.32 1085.52  3387.78  1085.6  3388.32  1085.6  3407.97 1085.48  3408.32 1085.48
 3408.65 1085.48  3428.33 1085.39  3444.35 1085.61  3448.33 1085.66   3468.1 1086.04
 3468.33 1086.04  3487.91 1086.39  3488.33  1086.4  3507.72 1086.64  3508.33 1086.65
 3527.54 1086.92  3528.33 1086.93  3529.13 1086.95  3548.33 1087.18  3549.32 1087.19
 3568.33 1087.33  3569.51 1087.33  3588.33 1087.43   3589.7 1087.42  3608.33 1087.49
  3626.6 1087.56  3628.33 1087.57  3630.09 1087.56  3648.34 1087.54  3650.29 1087.55
 3668.34 1087.58  3686.04 1087.75  3688.34 1087.78  3705.85 1087.85  3708.34 1087.86
 3725.67 1088.11  3728.34 1088.15  3745.48 1088.17  3748.34 1088.17  3765.29  1088.1
 3768.34 1088.09   3785.1 1088.02  3788.34 1088.01  3791.63 1088.03  3808.34 1088.05
 3811.82 1088.08  3828.34 1088.18  3832.01 1088.22  3848.34 1088.38  3864.36 1088.57
 3868.35 1088.61  3872.41 1088.65  3888.35 1088.79  3903.98  1088.9  3908.35 1088.93
  3923.8 1089.06  3928.35 1089.11  3932.98 1089.14  3948.35 1089.29  3953.17 1089.29
 3968.35 1089.41  3983.23 1089.46  3988.35 1089.44  4003.04 1089.44  4008.35 1089.45
 4013.75 1089.47  4028.35 1089.55  4042.67 1089.58  4048.35 1089.59  4062.48 1089.51
 4068.35 1089.48  4074.32 1089.45  4088.36 1089.43  4094.53 1089.42  4108.36  1089.6
 4121.92 1089.73  4128.36 1089.73  4141.74 1089.68  4148.36 1089.66  4155.1 1089.64
 4168.36 1089.51  4181.36 1089.31  4188.36  1089.3  4201.17 1089.18  4208.36  1089.2
 4220.98 1089.27  4228.36 1089.37   4240.8 1089.62  4248.36 1089.77  4260.61 1089.92
 4268.36 1089.99  4280.42 1090.05  4288.37  1090.1  4296.45 1090.22  4308.37  1090.4
 4316.64 1090.35  4328.37 1090.33  4339.87 1090.37  4348.37 1090.38  4359.68 1090.45
 4368.37 1090.49  4379.49 1090.58  4388.37 1090.64   4399.3 1090.73  4408.37  1090.8
 4419.11 1090.89  4428.37 1090.94  4438.93 1091.01  4448.37 1091.06  4458.74 1091.12
 4468.37 1091.16  4478.55 1091.19  4488.37 1091.21  4498.36 1091.25  4508.38 1091.25
 4518.57 1091.36  4528.38 1091.42  4538.76 1091.66  4548.38 1091.76  4557.81 1091.85
 4568.38 1092.05  4577.62 1092.11  4588.38 1092.21  4597.43 1092.26  4608.38  1092.3
 4617.24 1092.35  4628.38 1092.39  4637.06 1092.43  4648.38 1092.47  4659.91 1092.55
 4668.38  1092.6  4676.68 1092.69  4688.38 1092.85  4696.49 1092.99  4708.38 1093.19
```

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 4716.3  1093.3 4728.39 1093.52 4736.13 1093.59 4748.39 1093.75 4755.94 1093.81
4768.39 1093.92 4775.75 1093.97 4788.39 1094.05 4795.56 1094.09 4808.39 1094.11
4815.37 1094.16 4828.39 1094.18 4841.65 1094.36 4848.39 1094.43    4855  1094.5
4868.39 1094.65 4874.81 1094.81 4888.39 1095.02 4902.22 1095.17 4908.39 1095.26
4914.43 1095.26  4928.4 1095.28 4934.26 1095.26  4948.4 1095.27 4954.07  1095.3
 4968.4 1095.42 4973.88 1095.47 4977.68 1095.51

Manning's n Values          num=       3
    Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    8.17     .03  219.02     .03 1334.02    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        219.02 1334.02            221.11     200  181.52             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.16  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.16  * Reach Len. (ft)         *  221.11  *  200.00  *  181.52  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3524.22  *25358.28  *18362.16  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3524.22  *25358.28  *18362.16  *
* Q Total (cfs)           *-1578.18  * Flow (cfs)              * -133.53  *-1158.91  * -285.74  *
* Top Width (ft)          * 3530.11  * Top Width (ft)          *  202.47  * 1115.00  * 2212.64  *
* Vel Total (ft/s)        *   -0.03  * Avg. Vel. (ft/s)        *   -0.04  *   -0.05  *   -0.02  *
* Max Chl Dpth (ft)       *   24.47  * Hydr. Depth (ft)        *   17.41  *   22.74  *    8.30  *
* Conv. Total (cfs)       *13726360.0 * Conv. (cfs)            *1161353.0  *10079740.0  *2485263.0  *
* Length Wtd. (ft)        *  197.90  * Wetted Per. (ft)        *  205.36  * 1115.41  * 2212.71  *
* Min Ch El (ft)          * 1062.69  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.52  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  540.58  * 2288.50  * 4417.83  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   48.72  *  110.93  *  623.79  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 12499.99

INPUT
Description:
Station Elevation Data     num=     382
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
    4.22 1089.46   16.36 1086.06   24.23 1083.95   31.73 1081.68   44.23 1077.84
   51.29 1075.67   64.24  1071.8   77.76 1068.31   84.24 1066.62   98.22 1066.28
  104.25 1066.06  118.69 1065.83  124.25 1065.69  139.15  1065.5  144.26 1065.35
  159.61 1065.23  164.26 1065.13  180.08 1065.14  184.27 1065.14  200.54 1065.29
  204.27 1065.34  206.72 1065.35  221.01 1065.43  224.28 1065.46  241.47 1065.29
  244.28 1065.25  261.93 1063.31  264.29 1063.02  282.39 1062.73  284.29 1062.71
  302.86 1062.65   304.3 1062.64  323.32 1062.66   324.3 1062.67  343.79  1062.8
  344.31  1062.8  364.25    1063  364.31    1063   366.9 1063.02  384.32 1063.14
  384.71 1063.14  404.32 1063.14  405.17 1063.14  424.33 1063.14  425.64 1063.15
  444.33 1063.25   446.1 1063.27  464.34 1063.42  466.57 1063.43  484.34 1063.57
  487.03 1063.59  504.35 1063.68  507.49 1063.69  524.35 1063.78  527.95 1063.79
  544.36  1063.9  548.42 1063.92  564.36 1064.04  568.88 1064.06  584.37 1064.15
  589.35 1064.17  604.37 1064.23  609.81 1064.28  624.38  1064.4  630.27 1064.46
  644.38 1064.62  650.73  1064.7  664.39 1064.91   671.2 1064.97  684.39 1065.13
  691.66 1065.15   704.4 1065.23  712.13 1065.25   724.4 1065.29  732.59  1065.3
  744.41 1065.29  753.06  1065.3  764.41 1065.27  773.51 1065.27  784.42 1065.21
  793.98  1065.2  804.42  1065.1  814.44 1065.11  824.43 1065.14  834.91 1065.07
  844.43 1065.07  855.37 1065.05  864.44 1065.06  875.84 1065.11  884.44 1065.17
  892.66 1065.22  904.45 1065.33  912.23 1065.36  924.45 1065.45  937.23 1065.42
  944.46 1065.38  957.69 1065.33  964.46 1065.26  978.16 1065.35  984.47 1065.37
  998.62 1065.39 1004.47 1065.43 1019.08 1065.44 1024.48 1065.44 1039.54  1065.5
 1044.48 1065.52 1060.01 1065.62 1064.49 1065.66 1080.47 1065.72 1084.49 1065.74
 1100.94 1065.78  1104.5 1065.78  1121.4 1065.86  1124.5 1065.88 1141.86 1065.99
 1144.51 1066.01 1162.32  1066.1 1164.51 1066.12 1182.79 1066.26 1184.52 1066.27
 1203.25 1066.46 1204.52 1066.47 1223.72 1066.66 1224.53 1066.67 1244.18 1066.89
 1244.53 1066.89 1259.75 1067.25 1264.54 1067.37 1264.64 1067.37 1284.54 1068.24
  1285.1 1068.25 1302.83 1068.87 2328.74 1076.46 2344.81 1076.57 2349.21 1076.62
 2364.81 1076.81 2369.68 1076.88 2384.82 1077.08 2390.14 1077.15 2404.82 1077.33
  2410.6 1077.39 2424.83 1077.56 2431.06 1077.62 2444.83 1077.77 2451.53 1077.82
 2464.84 1077.94 2471.99    1078 2484.84 1078.11 2492.46 1078.17 2504.85 1078.29
 2512.92 1078.34 2524.85 1078.44 2533.38 1078.46 2544.86  1078.5 2553.84 1078.51
 2564.86 1078.53 2574.31 1078.55 2584.87 1078.59 2594.77 1078.64 2604.87  1078.7
 2615.24 1078.79 2624.88 1078.87  2635.7 1078.99 2644.88  1079.1 2656.17 1079.26
 2664.89 1079.36 2676.62 1079.49 2684.89 1079.56 2697.09  1079.6  2704.9 1079.61
 2717.55 1079.63  2724.9 1079.65 2738.02 1079.69 2744.91 1079.74 2758.48 1079.84
 2764.91  1079.9 2778.95 1080.05 2784.92  1080.1  2799.4 1080.24 2804.92 1080.27
  2810.2  1080.3 2824.93 1080.42 2840.33 1080.57 2844.93  1080.6  2860.8 1080.75
 2864.94  1080.8 2881.26 1080.89 2884.94 1080.92 2901.73 1080.98 2904.95 1080.99
 2908.02    1081 2924.95  1081.1 2942.65 1081.24 2944.96 1081.26 2963.11 1081.44
 2964.96 1081.46 2983.58 1081.64 2984.97 1081.66 3004.04 1081.74 3004.97 1081.74
 3024.51 1081.96 3024.98 1081.97 3044.96 1082.11 3044.98 1082.11 3045.45 1082.11
 3064.99 1082.06 3065.43 1082.06 3084.99 1082.12  3085.9 1082.12    3105 1082.13
 3106.36 1082.13    3125  1082.1 3126.83 1082.11 3145.01 1082.15 3147.29 1082.16
 3165.02 1082.33 3167.75 1082.35 3185.02 1082.54 3188.21 1082.55 3205.02 1082.69
 3208.68  1082.7 3225.03 1082.79 3229.14 1082.82 3245.04 1082.91 3260.22 1083.07
 3265.04 1083.12 3270.07 1083.21 3285.05 1083.45 3290.54 1083.54 3305.05  1083.7
 3318.92 1083.77 3325.06 1083.78 3331.46 1083.79 3345.06 1083.84 3351.92  1083.9
 3365.07    1084 3377.62 1084.09 3385.07 1084.15 3397.19  1084.2 3405.08 1084.24
 3413.32 1084.29 3425.08 1084.34 3433.77 1084.44 3445.09 1084.54 3454.24 1084.63
 3465.09 1084.72 3475.45 1084.82  3485.1 1084.93 3495.17 1085.03  3505.1 1085.11
 3515.63  1085.1 3525.11 1085.15 3536.1 1085.18 3545.11 1085.24 3556.55 1085.39
 3565.12  1085.5 3573.29 1085.62 3585.12 1085.77 3597.48    1086 3605.13 1086.16
 3617.95 1086.38 3625.13 1086.49 3638.41 1086.35 3645.14 1086.29 3658.88  1086.4
 3665.14  1086.5 3679.33 1086.74 3685.15 1086.83  3699.8 1087.07 3705.15 1087.15
 3720.26 1087.29 3725.16 1087.29 3740.73  1087.4 3745.16 1087.35 3749.39 1087.39
 3765.17 1087.55 3768.96 1087.58 3785.17 1087.67 3802.12 1087.58 3805.18 1087.54
 3808.09 1087.53 3825.18 1087.33 3843.05 1087.21 3845.19 1087.21 3847.23 1087.22
 3865.19 1087.21 3883.98 1087.27  3885.2 1087.27 3904.44 1087.25  3905.2 1087.25
  3924.9 1087.28 3925.21 1087.28  3938.3 1087.36 3945.21 1087.41 3964.63 1087.57
 3965.22 1087.57 3965.83 1087.58 3985.22  1087.7 4003.76 1087.78 4005.23 1087.78
 4006.76 1087.78 4025.23 1087.86 4027.22 1087.87 4045.24 1087.91 4062.45 1087.96
 4065.24 1087.98 4068.14 1087.98 4085.25 1088.19 4101.59 1088.31 4105.25 1088.31
 4121.16 1088.49 4125.26 1088.52 4129.54 1088.56 4145.26 1088.74    4150 1088.81
 4165.27 1088.92 4179.85 1088.98 4185.27 1089.05 4190.92 1089.15 4205.28 1089.32
 4211.39 1089.36 4225.28 1089.49 4231.85 1089.52 4245.29 1089.61 4252.32 1089.64
 4265.29 1089.68 4272.78 1089.69  4285.3 1089.78 4293.25 1089.82  4305.3 1089.92
 4316.82 1090.05 4325.31 1090.11 4336.39 1090.22 4345.31 1090.28 4354.63 1090.33
 4365.32 1090.36 4375.52 1090.34 4385.32 1090.39 4395.08 1090.48 4405.33 1090.61
 4416.03 1090.67 4425.33 1090.77 4436.48 1090.85 4445.34 1090.96 4456.95  1091.2
```

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 4465.34 1091.32 4477.41 1091.57 4485.35 1091.67 4497.88 1091.87 4505.35 1091.96
 4518.34  1092.1 4525.36 1092.16 4538.81 1092.21 4545.36 1092.23 4551.62 1092.26
 4565.37 1092.29 4579.73 1092.37 4585.37 1092.41  4600.2  1092.6 4605.38 1092.65
 4620.66 1092.92 4625.38 1092.98 4641.12 1093.26 4645.39 1093.33 4649.46 1093.39
 4665.39 1093.64 4682.06 1093.86  4685.4 1093.91 4702.51  1094.1  4705.4 1094.14
 4722.98 1094.28 4725.41  1094.3 4743.44 1094.36 4745.41 1094.37 4747.28 1094.38
 4765.42  1094.4 4766.86  1094.4 4785.42 1094.42 4786.42 1094.44 4805.43 1094.69
 4805.99  1094.7 4807.49 1094.74

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**********************************************
    4.22     .03  206.72     .03 1302.83    .045

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        206.72 1302.83              206.79     200  202.06              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**************************************************************************************
* E.G. Elev (ft)          * 1087.16  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.16  * Reach Len. (ft)         *  206.79  *  200.00  *  202.06  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3394.80  *24412.01  *22414.77  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3394.80  *24412.01  *22414.77  *
* Q Total (cfs)           *-1586.04  * Flow (cfs)              * -127.27  *-1086.49  * -372.28  *
* Top Width (ft)          * 3693.80  * Top Width (ft)          *  194.29  * 1096.11  * 2403.40  *
* Vel Total (ft/s)        *   -0.03  * Avg. Vel. (ft/s)        *   -0.04  *   -0.04  *   -0.02  *
* Max Chl Dpth (ft)       *   24.52  * Hydr. Depth (ft)        *   17.47  *   22.27  *    9.33  *
* Conv. Total (cfs)       *13970700.0  * Conv. (cfs)           *1121059.0  *9570364.0  *3279280.0  *
* Length Wtd. (ft)        *  200.98  * Wetted Per. (ft)        *  197.20  * 1096.29  * 2403.49  *
* Min Ch El (ft)          * 1062.64  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.54  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  523.02  * 2174.24  * 4332.87  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   47.71  *  105.86  *  614.17  *
**************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                 RS: 12299.99

INPUT
Description:
Station Elevation Data     num=     358
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
       0 1088.84    8.24 1087.46   15.23 1087.52   28.71 1084.07   35.24 1082.44
   49.17 1078.55   55.24 1076.84   69.63    1073   75.25 1071.48   90.09 1069.99
   95.25 1069.35  110.56 1068.87  115.26 1068.61  131.02 1068.33  135.26 1068.19
  151.49 1068.12  155.27 1068.09  171.95 1068.23  175.27 1068.25  192.41 1068.53
  195.28 1068.56  212.87 1068.64  215.28 1068.66  219.52 1068.58  233.34 1068.32
  235.29 1068.27   253.8 1064.78  255.29 1064.58  274.27 1063.01   275.3 1062.88
  294.73 1062.76   295.3 1062.75  315.19  1062.9  315.31  1062.9  320.14 1062.95
  335.31 1063.09  335.65 1063.09  355.32 1063.25  356.12 1063.26  375.32 1063.41
  376.58 1063.43  395.33 1063.58  397.05  1063.6  415.33 1063.74  417.51 1063.75
  435.34 1063.87  437.97 1063.88  455.34 1063.95  458.44 1063.96  475.35 1064.04
   478.9 1064.06  495.35 1064.17  499.37  1064.2  515.36 1064.33  519.83 1064.36
  535.36 1064.47   540.3 1064.51  555.37 1064.59  560.76 1064.64  575.37 1064.74
  581.22 1064.81  595.38 1064.91  601.68 1064.94  615.38 1064.94  628.48 1064.85
  635.39 1064.83  642.61  1064.8  655.39 1064.67  663.08 1064.63   675.4 1064.58
  683.54 1064.55   695.4 1064.54     704 1064.51  715.41 1064.49  724.46 1064.46
  735.41 1064.45  744.93 1064.45  755.42  1064.5  765.39 1064.55  775.42 1064.62
  785.86 1064.71  795.43  1064.8  806.32 1064.91  815.43 1065.02  826.78 1065.12
  835.44 1065.22  847.24  1065.3  855.44 1065.38  867.71 1065.49  875.45 1065.56
  888.17 1065.68  895.46 1065.73  902.41 1065.78  915.46 1065.87   929.1 1065.91
  935.46 1065.94  949.56 1065.88  955.47 1065.86  970.02 1065.81  975.48  1065.8
  990.49 1065.93  995.48 1065.98 1000.24 1066.04 1015.49 1066.18 1031.42 1066.21
 1035.49 1066.22 1051.88 1066.16  1055.5 1066.14 1072.34 1066.16  1075.5 1066.16
  1092.8 1066.28 1095.51 1066.31 1113.27 1066.41 1115.51 1066.42 1133.73  1066.5
 1135.52 1066.51  1154.2 1066.57 1155.52 1066.58 1174.66 1066.68 1175.53 1066.69
 1195.13 1066.86 1195.53 1066.86 1212.98 1067.05 1215.54 1067.07 1215.59 1067.08
 1235.54 1067.41 1236.05 1067.43 1255.55 1068.34 1256.52 1068.45 1275.55 1070.34
 1276.98 1070.48  1288.5 1071.75 1900.31 1074.78 1915.71 1074.83 1931.81 1074.89
 1935.72 1074.87 1952.28 1074.98 1955.72 1074.99 1972.74 1075.12 1975.73 1075.15
 1978.58 1075.17 1995.73 1075.28 1998.14  1075.3 2015.74 1075.42 2034.13 1075.52
 2035.74 1075.54  2054.6 1075.63 2055.75 1075.64 2075.06 1075.73 2075.75 1075.74
  2076.4 1075.74 2095.76 1075.79 2105.84 1075.86 2115.54 1075.92 2115.76 1075.93
 2115.98 1075.93 2135.77 1076.16 2136.45 1076.17 2155.77 1076.45 2156.91 1076.46
 2175.78 1076.71 2177.38 1076.72 2195.78 1076.89 2213.38 1077.11 2215.79 1077.14
  2218.3 1077.18 2235.79 1077.44 2238.76 1077.48  2255.8 1077.67 2259.23 1077.71
  2275.8  1077.9 2279.69 1077.94 2295.81 1078.13  2311.2 1078.33 2315.81 1078.39
 2320.62 1078.44 2335.82  1078.6 2341.08 1078.64 2355.82 1078.75 2361.54 1078.87
 2375.83 1079.08 2382.01 1079.19 2395.83 1079.43 2409.03 1079.57 2415.84 1079.61
 2422.94 1079.63 2435.84 1079.73  2443.4 1079.78 2455.85 1079.87 2463.87 1079.92
 2475.85    1080  2487.3 1080.03 2615.89 1080.32 2627.57 1080.36 2635.89 1080.41
 2643.83 1080.42  2655.9 1080.43  2668.5 1080.42  2675.9 1080.44 2688.96 1080.44
 2695.91 1080.45 2702.54 1080.43 2715.91 1080.45  2722.1 1080.43 2735.92 1080.49
 2750.35 1080.56 2755.92 1080.59 2770.82 1080.67 2775.93 1080.71 2791.28 1080.82
 2795.93 1080.85 2800.37 1080.89 2815.94 1081.01 2819.94 1081.04 2835.94 1081.16
 2852.67 1081.23 2855.95 1081.27 2873.13 1081.32 2875.95 1081.34  2893.6 1081.39
 2895.96 1081.39 2914.06 1081.53 2915.96 1081.53 2917.77 1081.54 2935.97 1081.68
 2954.99 1081.74 2955.97 1081.74 2975.45 1081.93 2975.98 1081.94 2995.91 1082.04
 2995.98 1082.04 2998.69 1082.06 3015.99 1082.17 3016.38 1082.17 3035.99 1082.25
 3036.84 1082.26    3056 1082.42 3057.31 1082.43    3076 1082.69 3077.77  1082.7
 3096.01 1082.87 3098.23 1082.88 3116.01 1082.93 3118.69 1082.94 3136.02 1082.85
 3139.16 1082.87 3156.02 1082.91 3159.62 1082.94 3176.03 1083.09 3180.09 1083.13
 3196.03 1083.33 3200.55 1083.35 3216.04 1083.44 3221.02 1083.45 3236.04 1083.45
 3241.47 1083.46 3256.05 1083.53 3261.94 1083.55 3276.05 1083.63  3282.4 1083.65
 3296.06 1083.67 3302.87  1083.7 3316.06 1083.72 3323.33 1083.77 3336.07 1083.83
  3343.8 1083.87 3356.07 1083.94 3364.25 1083.96 3376.08 1084.03 3384.72 1084.04
 3396.08 1084.08 3405.19 1084.12 3416.09 1084.17 3425.65 1084.25 3436.09 1084.36
 3446.12 1084.45  3456.1 1084.66 3466.58 1084.76  3476.1 1085.02 3487.04 1085.08
 3496.11 1085.15  3507.5 1085.19 3516.11 1085.09 3527.97 1085.13 3536.12 1085.06
 3548.43 1085.19 3556.12 1085.22  3568.9 1085.36 3576.13 1085.44 3589.36 1085.41
 3596.13 1085.43 3609.82 1085.61 3616.14 1085.72 3630.28 1085.89 3636.14 1085.98
 3650.75  1086.1 3656.15 1086.15 3671.21 1086.28 3676.15 1086.32 3691.68 1086.47
 3696.16 1086.51 3712.14 1086.68 3716.16 1086.71  3732.6 1086.85 3736.17 1086.86
 3753.06 1086.92 3756.17  1086.9 3773.53 1086.95 3776.18 1086.95 3793.99  1087.1
 3796.18 1087.13 3814.46 1087.36 3816.19  1087.4 3834.92 1087.66 3836.19 1087.68
 3855.39 1087.92  3856.2 1087.93 3875.84  1088.1  3876.2 1088.11 3876.53 1088.11
 3891.54 1088.19  3896.1 1088.22 3896.21 1088.22 3896.31 1088.22 3916.21 1088.36
 3935.24 1088.59 3936.22  1088.6  3954.8 1088.78 3956.22  1088.8  3957.7 1088.81
 3976.23 1089.02 3993.93 1089.25 3996.23 1089.28  4013.5 1089.53 4016.24 1089.57
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 4019.09 1089.61 4036.24 1089.87 4052.64 1090.13 4056.25 1090.18  4072.2 1090.43
 4076.25 1090.49 4080.49 1090.56 4096.26 1090.83 4111.33 1091.17 4116.26 1091.28
 4121.41 1091.38 4136.27 1091.68 4141.87 1091.68 4156.27 1091.72 4170.04  1091.9
 4176.28 1092.01  4189.6 1092.53 4196.28 1092.83 4203.27 1092.98 4216.29 1093.26
 4223.73 1093.32 4236.29 1093.41  4248.3 1093.44

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
       0     .03  219.52     .03  1288.5    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        219.52  1288.5            631.79     600 1082.42             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.16  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.16  * Reach Len. (ft)         *  631.79  *  600.00  * 1082.42  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3111.09  *23392.29  *19815.68  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3111.09  *23392.29  *19815.68  *
* Q Total (cfs)           *-1591.35  * Flow (cfs)              * -119.27  *-1144.43  * -327.65  *
* Top Width (ft)          * 3781.93  * Top Width (ft)          *  202.88  * 1068.98  * 2510.07  *
* Vel Total (ft/s)        *   -0.03  * Avg. Vel. (ft/s)        *   -0.04  *   -0.05  *   -0.02  *
* Max Chl Dpth (ft)       *   24.41  * Hydr. Depth (ft)        *   15.33  *   21.88  *    7.89  *
* Conv. Total (cfs)       *12599450.0  * Conv. (cfs)            *944289.6  *9060987.0  *2594175.0  *
* Length Wtd. (ft)        *  734.67  * Wetted Per. (ft)        *  205.09  * 1069.62  * 2510.14  *
* Min Ch El (ft)          * 1062.75  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.60  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  507.58  * 2064.50  * 4234.92  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   46.77  *  100.89  *  602.77  *
*****************************************************************************************

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: FRS
REACH: FRS1                RS: 11699.99

INPUT
Description:
Station Elevation Data     num=     399
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
    1.46 1090.64    18.09 1086.05    21.51 1085.23    39.66 1079.64    41.56 1079.09
   61.23  1073.3    61.61 1073.18    66.64 1072.08    81.66 1068.86    82.79 1068.83
   211.8  1068.6   219.16 1068.53   222.01  1068.5   230.53 1067.72   242.06 1066.08
  249.26 1064.91    262.1 1063.44      268 1063.34   282.15 1063.03   286.73 1062.99
   302.2 1062.91   320.01 1062.94   322.25 1062.94    324.2 1062.95    342.3 1063.07
  342.92 1063.07   351.88 1063.13   362.35 1063.19   363.13 1063.19    382.4 1063.26
  384.71 1063.27   402.45 1063.29   406.27 1063.29    422.5 1063.28   427.83 1063.29
  442.55 1063.27    449.4  1063.3    462.6 1063.31   470.96 1063.39   482.65 1063.43
  492.53 1063.63    502.7 1063.78   514.09 1064.15   522.75 1064.45   535.66 1064.95
   542.8 1065.24   557.22 1065.88   562.85  1066.1   578.79    1067   582.89 1067.22
  600.36 1068.19   602.94 1068.35   621.92 1069.04   622.99 1069.09   637.12 1069.28
  643.04 1069.36   643.48 1069.36   649.35 1069.39   663.09 1069.46   680.11 1069.49
  683.14 1069.49   686.62 1069.49   703.19  1069.5   708.18 1069.51   723.24 1069.53
  729.75 1069.54   743.29 1069.58   755.05 1069.64   763.34 1069.68   773.77 1069.79
  783.39 1069.87   792.51    1070   803.44 1070.13   811.25 1070.33   823.49 1070.59
  829.97 1070.91   843.54 1071.43   848.71 1071.85   863.59 1072.75    880.7 1073.61
  883.63 1073.71   902.27 1074.09   903.68 1074.11   922.36 1074.19   923.73 1074.19
  923.83 1074.19   943.78 1074.22    945.4 1074.22   963.83 1074.28   966.96  1074.3
  983.88  1074.4   988.52 1074.43  1003.93 1074.53   1010.1 1074.55  1023.98 1074.63
 1031.66 1074.68  1044.03 1074.75  1053.22 1074.84  1064.08 1074.94  1074.79 1075.07
 1084.13 1075.17  1096.35 1075.25  1104.18 1075.29  1117.92 1075.36  1124.23 1075.38
 1139.48 1075.46  1144.28 1075.48  1161.05 1075.54  1164.33 1075.55  1182.61 1075.57
 1184.38 1075.57  1204.17 1075.61  1204.43 1075.61   1207.6 1075.63  1224.47 1075.71
 1225.75 1075.72  1244.52 1075.85  1247.31 1075.87  1264.57 1075.99  1268.87 1076.01
 1284.62 1076.12  1290.44 1076.17  1304.67  1076.3  1312.01 1076.39  1324.72 1076.56
 1333.57 1076.69  1344.77 1076.86  1355.14    1077  1364.82 1077.14  1373.22 1077.22
 1384.87 1077.33  1398.26 1077.46  1404.92 1077.52  1419.83 1077.67  1424.97 1077.71
  1441.4 1077.85  1445.02 1077.87  1462.96 1077.95  1465.07 1077.95  1484.52 1077.97
 1485.12 1077.97  1492.84 1077.97  1505.16 1077.97  1506.09 1077.97  1525.21 1078.05
 1527.66 1078.06  1545.26 1078.18  1560.55 1078.27  1565.31 1078.29  1579.28 1078.33
 1585.36 1078.35  1592.35 1078.36  1605.41 1078.36  1613.91 1078.39  1625.46  1078.4
 1635.49 1078.55  1645.51  1078.7  1654.21 1078.86  1665.56 1079.05  1672.95 1079.15
 1685.61  1079.3  1700.18 1079.43  1705.66 1079.48  1721.74 1079.58  1725.71  1079.6
 1743.31 1079.67  1745.76 1079.68  1747.87 1079.69  1765.81 1079.74  1778.09 1079.78
 1785.86 1079.81  1786.44 1079.81  1805.91 1079.89    1808  1079.9  1825.95 1080.01
 1829.56 1080.04    1846 1080.16  1851.14 1080.19  1866.05 1080.29   1872.7 1080.33
  1886.1  1080.4  1894.26 1080.44  1906.15 1080.49  1915.83 1080.53   1926.2 1080.57
  1935.2  1080.6  1946.25 1080.64  1958.96 1080.71   1966.3 1080.76  1980.52 1080.88
 1986.35 1080.94  2002.09 1081.06   2006.4 1081.09  2010.14 1081.09  2026.45 1081.12
 2045.22 1081.09   2046.5 1081.09  2063.33 1081.07  2066.55 1081.06  2066.79 1081.06
  2086.6 1081.05  2088.35 1081.04  2106.65 1081.02  2122.52 1081.06   2126.7 1081.07
 2141.26 1081.16  2146.74 1081.19  2153.05 1081.23  2166.79 1081.33  2174.61 1081.37
 2186.84 1081.45  2196.18  1081.5  2206.89 1081.57  2217.74 1081.64  2226.94 1081.69
  2239.3 1081.78  2246.99 1081.82  2260.88 1081.89  2267.04 1081.92  2282.44 1082.01
 2287.09 1082.03    2304 1082.14  2307.14 1082.16  2325.57  1082.3  2327.19 1082.31
 2347.13 1082.45  2347.24 1082.45  2348.57 1082.46  2367.29 1082.54  2384.79 1082.56
 2387.34 1082.56  2390.26 1082.55  2407.39 1082.55  2411.83 1082.52  2427.44 1082.48
 2433.39 1082.46  2447.48 1082.41  2454.95 1082.41  2467.53 1082.37  2476.53 1082.39
 2487.58 1082.39  2498.09 1082.44  2507.63 1082.49  2519.65 1082.57  2527.68  1082.6
 2541.22 1082.69  2547.73 1082.73  2562.78 1082.86  2567.78 1082.91  2584.35 1083.04
 2587.83 1083.06  2605.91 1083.22  2607.88 1083.23  2627.48 1083.37  2627.93 1083.38
 2633.81 1083.42  2647.98 1083.52  2649.04 1083.53  2668.03 1083.67   2670.6 1083.68
 2688.08 1083.84  2703.24 1084.01  2708.13 1084.05  2713.74 1084.11  2728.18 1084.26
  2735.3 1084.33  2748.22 1084.45  2756.87 1084.57  2768.27 1084.73  2778.44 1084.88
 2788.32 1085.03   2796.9 1085.06  2808.37 1085.09  2821.56 1084.99  2828.42 1084.94
 2843.13 1084.89  2848.47 1084.87  2864.69 1085.18  2868.52 1085.24  2886.26 1085.56
 2888.57  1085.6  2890.57 1085.61  2908.62 1085.79  2919.06 1085.88  2928.67 1085.98
 2929.39 1085.98  2948.72  1086.1  2950.95 1086.11  2968.77 1086.17  2972.52  1086.2
 2988.82 1086.32  2994.09 1086.37  3008.87 1086.51  3015.65 1086.58  3028.92 1086.71
 3040.43 1086.85  3048.97 1086.94  3058.78 1087.02  3069.01 1087.12  3080.34 1087.17
 3089.06 1087.21  3096.62 1087.24  3109.11 1087.28  3115.36 1087.31  3129.16 1087.39
 3145.04 1087.52  3149.21 1087.55  3152.82 1087.57  3169.26 1087.67  3171.56 1087.68
 3189.31 1087.71   3204.3 1087.74  3209.36 1087.75  3209.74 1087.75  3229.41 1087.84
 3246.49 1087.94  3249.46 1087.95  3252.87 1087.98  3269.51 1088.11  3274.43 1088.18
 3289.56 1088.38  3302.69 1088.55  3309.61 1088.65  3317.57 1088.71  3329.66 1088.82
 3339.13 1088.87   3349.7 1088.96  3358.89 1088.97  3369.75 1088.98  3382.26 1089.02
  3389.8 1089.03  3403.83 1089.15  3409.85 1089.21  3415.09  1089.2   3429.9 1089.18
```

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 3446.95 1089.34 3449.95 1089.37 3468.52  1089.8    3470 1089.83 3471.28 1089.85
 3489.54 1090.36 3490.05 1090.38 3490.08 1090.38  3510.1 1090.35 3511.65 1090.31
 3530.15 1089.91 3533.22 1089.87  3550.2 1089.64 3554.78 1089.64 3570.25 1089.65
 3576.34 1089.68  3590.3 1089.83 3597.91 1089.87 3610.35 1090.02 3619.48 1090.08
  3630.4 1090.15 3641.04 1090.18 3650.45 1090.19 3662.61 1090.18  3670.5 1090.16
 3684.17 1090.22 3690.54 1090.18 3705.73 1090.29 3710.59 1090.29  3727.3 1090.43
 3730.64 1090.45 3748.87 1090.65 3750.69 1090.68 3770.43  1090.9 3770.74 1090.91
 3774.78 1090.93 3790.79 1091.03 3791.99 1091.03 3810.84 1091.12 3813.56 1091.13
 3830.89 1091.24 3845.94 1091.38 3850.94 1091.43 3864.66 1091.53 3870.99 1091.58
 3878.26  1091.6 3891.04 1091.64 3902.14 1091.63 3911.09 1091.63 3920.86 1091.63
 3931.14 1091.69  3939.6 1091.75 3951.19 1091.87 3958.33 1092.01 3971.23 1092.22
 3986.08 1092.62 3991.28 1092.76 4007.64 1092.84 4011.33 1092.85 4014.53  1092.9
 4031.38 1093.16 4050.78 1093.38 4051.43 1093.38 4058.43 1093.42

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    1.46     .03  219.16     .03  649.35    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        219.16  649.35            209.27     200  196.45             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.16  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.16  * Reach Len. (ft)         *  209.27  *  200.00  *  196.45  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3189.70  * 9641.02  *18836.85  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3189.70  * 9641.02  *18836.85  *
* Q Total (cfs)           *-1600.21  * Flow (cfs)              * -216.83  * -842.23  * -541.15  *
* Top Width (ft)          * 3063.78  * Top Width (ft)          *  205.09  *  430.19  * 2428.50  *
* Vel Total (ft/s)        *   -0.05  * Avg. Vel. (ft/s)        *   -0.07  *   -0.09  *   -0.03  *
* Max Chl Dpth (ft)       *   24.25  * Hydr. Depth (ft)        *   15.55  *   22.41  *    7.76  *
* Conv. Total (cfs)       *7206779.0  * Conv. (cfs)            *976521.3  *3793094.0  *2437165.0  *
* Length Wtd. (ft)        *  200.00  * Wetted Per. (ft)        *  207.57  *  430.65  * 2428.66  *
* Min Ch El (ft)          * 1062.91  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.93  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *  461.89  * 1837.00  * 3754.68  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   43.81  *   90.56  *  541.41  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                 RS: 11499.99

INPUT
Description:
Station Elevation Data     num=     411
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    6.87 1090.18   17.23 1087.08   26.96 1084.14    39.4  1080.4   47.05 1078.12
   61.58 1074.41   67.14  1072.9   83.77 1072.11   87.22 1071.85   90.08 1071.77
  107.31 1071.45  120.4 1071.28   127.4 1071.19  145.15 1070.97  147.49 1070.96
   150.3 1070.93  167.58 1070.71  181.87 1070.46  187.67 1070.37  200.22 1070.14
  207.76 1069.99  216.85 1069.51  224.64 1069.17  227.85 1069.03  239.03  1067.2
  247.93 1065.89   261.2 1064.42  268.02 1063.44  273.66 1063.31  288.11 1062.95
  305.57 1062.84   308.2 1062.82  310.37 1062.82  328.29 1062.86  333.44 1062.88
  348.38 1062.95  349.93 1062.96  368.47 1063.03   383.8 1063.07  388.56 1063.09
  402.16  1063.1  408.64 1063.09  420.52 1063.04  428.73 1062.97  438.65 1062.92
  448.82 1062.88  460.83 1063.05  468.91 1063.14  475.59 1063.27     489 1063.64
  493.95 1063.75  509.09 1064.18   512.3 1064.28  529.18 1064.69  546.48 1065.17
  549.27 1065.24  549.55 1065.25  569.35 1065.99  571.73 1066.11  589.44 1067.06
   604.1  1067.4  609.53 1067.68  622.45 1068.02  629.62 1068.21  633.82 1068.24
  638.27 1068.27  649.71 1068.51  659.17 1068.55   669.8 1068.57  682.63 1068.67
  689.89 1068.73  695.88 1068.82  709.98 1068.95  726.99 1069.13  730.06 1069.17
   732.6 1069.24  750.15 1069.62  750.96 1069.68  759.52 1070.17  769.32 1070.75
  770.24 1070.79  771.36 1070.97  790.33 1073.77  793.53 1073.89  810.42 1074.37
  815.71 1074.45  830.51 1074.65  837.89 1074.73   850.6 1074.84  860.08 1074.95
  870.69 1075.02  882.26 1075.17  890.77 1075.25  904.43 1075.47  910.86 1075.56
  926.61 1075.74  930.95 1075.81  948.79 1075.84  951.04 1075.86  970.98 1075.86
  971.13 1075.86  972.56 1075.86  991.22  1075.9  993.16 1075.91 1011.31 1075.97
 1015.33 1075.99 1031.39 1076.02 1037.51 1076.04 1051.48 1076.07  1059.7 1076.08
 1071.57 1076.08 1081.88 1076.06 1091.66 1076.04 1104.06 1076.01 1111.75 1075.98
 1126.23 1075.93 1131.84  1075.9 1148.41 1075.87 1151.93 1075.86  1170.6 1075.95
 1172.02 1075.96  1185.6 1076.07  1192.1 1076.12 1192.78 1076.13 1212.19 1076.22
 1214.96 1076.23 1232.28 1076.23 1237.13 1076.24 1252.37 1076.26 1259.32  1076.3
 1272.46 1076.38  1281.5 1076.45 1292.55 1076.53 1303.68  1076.6 1312.64 1076.63
 1325.86 1076.68 1332.73 1076.68 1348.04 1076.67 1352.81 1076.66 1370.22 1076.53
  1372.9  1076.5  1392.4 1076.47 1392.99 1076.46 1398.64 1076.51 1411.84 1076.61
 1413.08 1076.62 1430.19 1076.72 1433.17 1076.74 1448.55 1076.81 1453.26 1076.84
 1466.91 1076.89 1473.35 1076.95 1485.26 1077.04 1493.44 1077.11 1503.62 1077.22
 1513.52  1077.3 1521.98 1077.36 1533.61 1077.44 1540.33 1077.51  1553.7 1077.55
 1558.69 1077.56 1573.79 1077.56 1592.02 1077.67 1593.88 1077.67 1611.67  1077.8
 1613.97 1077.82  1614.2 1077.83 1634.06    1078 1636.38 1078.02 1654.15 1078.16
 1668.84 1078.27 1674.23 1078.31 1680.74 1078.39 1694.32 1078.55 1702.92 1078.63
 1714.41 1078.73  1725.1 1078.79  1734.5 1078.84 1747.29 1078.91 1754.59 1078.98
 1769.46 1079.01 1774.68 1079.06 1791.64 1079.05 1794.77 1079.08 1813.82 1079.32
 1814.85 1079.33 1824.71 1079.64 1834.94 1079.97 1852.41 1080.33 1855.03 1080.36
 1870.77 1080.52 1875.12 1080.57 1880.36 1080.63 1895.21 1080.78 1902.54 1080.85
  1915.3 1080.98 1925.85 1081.08 1935.39 1081.16 1946.91 1081.24 1955.48 1081.32
 1969.09 1081.38 1975.56 1081.41 1991.26 1081.44 1995.65 1081.44 2013.44 1081.46
 2015.74 1081.46 2017.63 1081.46 2035.83 1081.49 2035.99 1081.49 2037.75  1081.5
 2054.35 1081.54 2055.92 1081.55 2057.81 1081.56 2076.01 1081.69 2079.99 1081.73
  2096.1 1081.89 2102.16 1081.93 2116.19 1082.05 2124.34 1082.09 2136.27 1082.15
 2146.14 1082.19 2156.36 1082.23 2168.71 1082.26 2176.45 1082.29 2182.85  1082.3
 2196.54 1082.34 2201.21 1082.35 2216.63 1082.39 2235.25 1082.45 2236.72 1082.46
 2250.79 1082.51 2256.81 1082.54 2257.43 1082.54  2276.9 1082.61    2293 1082.66
 2296.98 1082.68 2301.79  1082.7 2317.07 1082.76 2323.97  1082.8 2337.16 1082.88
 2346.15 1082.94 2357.25 1083.01 2368.33 1083.08 2377.34 1083.14 2384.79 1083.19
 2397.43 1083.29 2412.69 1083.41 2417.52 1083.44 2434.87 1083.59 2437.61 1083.62
 2457.05 1083.76 2457.69 1083.76 2463.82 1083.79 2477.78 1083.84 2479.23 1083.84
 2497.87 1083.88 2513.29 1083.91 2517.96 1083.92  2523.6 1083.93 2538.05 1083.98
 2545.77 1084.01 2558.14 1084.07 2567.95 1084.14 2578.23 1084.21 2590.13 1084.33
 2598.32  1084.4 2612.32  1084.5  2618.4 1084.55 2634.49 1084.59 2638.49 1084.61
 2656.67 1084.67 2658.58 1084.68 2676.86 1084.74 2678.67 1084.75 2678.85 1084.75
 2698.76 1084.82 2715.22 1084.93 2718.85 1084.96 2723.22 1084.98 2738.94 1085.03
 2745.39 1085.01 2759.02 1084.95 2767.57 1084.98 2779.11    1085 2788.66 1085.04
  2799.2  1085.1 2807.02  1085.2 2819.29  1085.4 2834.12 1085.55 2839.38 1085.59
 2856.29 1085.74 2859.47 1085.77 2878.47 1085.96 2879.56 1085.97 2880.44 1085.98
  2889.9 1086.07 2899.65 1086.17 2900.65 1086.18 2919.73 1086.35 2922.84 1086.38
 2939.82 1086.51 2945.02 1086.56 2959.91 1086.67 2967.19 1086.73    2980 1086.84
 2990.59 1086.94 3000.09 1087.03 3011.56 1087.15 3020.18 1087.24 3033.74 1087.39
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3040.27 1087.45 3045.66 1087.48 3060.36 1087.61 3064.02 1087.62 3080.44  1087.7
3100.28 1087.75 3100.53 1087.75 3100.73 1087.75 3102.94 1087.76 3120.62 1087.83
3137.46 1087.94 3140.71 1087.96 3144.64 1087.98  3160.8 1088.08 3166.82 1088.12
3180.89 1088.19 3192.53 1088.25 3200.98 1088.29 3211.18 1088.35 3221.07 1088.41
3233.36 1088.48 3241.15 1088.53 3247.59 1088.58 3261.24 1088.67 3277.72 1088.81
3281.33 1088.84  3299.9 1088.99 3301.42    1089 3302.67 1089.01 3315.97 1089.06
3321.51 1089.09 3322.08  1089.1  3341.6 1089.34 3344.26 1089.39 3361.69 1089.73
3366.44  1089.7 3381.78 1089.64 3388.62 1089.67 3401.86 1089.77  3410.8  1089.9
3421.95 1090.11 3432.98 1090.22 3442.04 1090.33 3455.16 1090.42 3462.13 1090.44
3477.34 1090.41 3482.22 1090.39 3499.53 1090.31 3502.31 1090.29  3521.7 1090.24
 3522.4 1090.23 3529.02 1090.25 3542.48  1090.3 3543.88  1090.3 3562.57 1090.38
3566.06  1090.4 3582.66 1090.48 3588.25 1090.51 3602.75 1090.59 3610.43 1090.63
3622.84 1090.69  3632.6 1090.74 3642.93  1090.8 3654.78 1090.86 3663.02 1090.91
3676.96 1090.98 3683.11 1091.02 3699.15 1091.11 3703.19 1091.14 3721.32 1091.27
3723.28 1091.28 3742.06 1091.44 3743.25 1091.45 3743.37 1091.45  3743.5 1091.45
3763.46 1091.59 3779.97 1091.77 3783.55  1091.8 3798.33 1092.05 3803.64 1092.12
3810.05 1092.21 3823.73  1092.5 3835.05 1092.67 3843.82  1092.8  3853.4 1092.85
3863.91 1092.96 3876.58 1092.98 3883.99 1092.98 3890.12 1092.96 3904.08 1092.94
3908.47 1092.95 3924.17 1093.03 3943.13 1093.23 3944.26 1093.24  3955.1 1093.19
3964.35 1093.15 3981.91 1093.39 3984.44 1093.42 4000.26 1093.56 4004.53 1093.59
4011.51 1093.67

Manning's n Values          num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
*********************************************
    6.87      .03   224.64      .03   633.82      .045

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.    Expan.
          224.64  633.82              203.76     200  200.95              .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.16  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.16  * Reach Len. (ft)         *  203.76  *  200.00  *  200.95  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 2919.04  * 9317.86  *17939.77  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 2919.04  * 9317.86  *17939.77  *
* Q Total (cfs)           *-1588.90  * Flow (cfs)              * -194.91  * -863.22  * -530.77  *
* Top Width (ft)          * 2995.46  * Top Width (ft)          *  207.67  *  409.18  * 2378.61  *
* Vel Total (ft/s)        *   -0.05  * Avg. Vel. (ft/s)        *   -0.07  *   -0.09  *   -0.03  *
* Max Chl Dpth (ft)       *   24.34  * Hydr. Depth (ft)        *   14.06  *   22.77  *    7.54  *
* Conv. Total (cfs)       *6819435.0  * Conv. (cfs)            *836555.3  *3704876.0  *2278003.0  *
* Length Wtd. (ft)        *  200.72  * Wetted Per. (ft)        *  209.73  *  409.68  * 2378.95  *
* Min Ch El (ft)          * 1062.82  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.98  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  447.21  * 1793.48  * 3671.76  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   42.82  *   88.63  *  530.58  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 11299.99

INPUT
Description:
Station Elevation Data     num=     390
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************************
   11.78 1088.31   27.43 1083.34   31.87 1081.96   49.61 1076.55   51.96 1075.82
   71.79 1071.48   72.05  1071.4   72.26 1071.39    74.5  1071.3   90.61 1070.63
   92.14 1070.58   93.96 1070.55  112.23  1070.2  116.15 1070.19  132.31 1070.09
  138.33 1070.16   152.4  1070.3  160.51 1070.39  172.49 1070.54  182.69  1070.6
  192.58 1070.68  204.86 1070.37  212.67 1070.31  219.12 1070.15  224.57 1069.56
  232.76 1068.68  237.48 1067.59  252.85 1064.05  255.83  1063.7  272.94 1063.17
  274.19 1063.13  287.54  1062.9  293.02  1062.8  293.59  1062.8  313.11 1062.71
  315.77  1062.7   333.2  1062.7  347.61  1062.7  353.29  1062.7  365.98 1062.64
  373.38 1062.62  382.31 1062.58  393.47  1062.5  404.49  1062.5  413.56 1062.49
  426.67 1062.58  433.65 1062.62  448.85 1062.81  453.73 1062.87  471.03 1063.09
  473.82 1063.13  493.21 1063.34  493.91 1063.35  500.58 1063.44     514 1063.64
   515.4 1063.66  534.09 1063.97  549.56 1064.34  554.18 1064.45  567.91 1064.99
  574.27 1065.31  581.93 1065.85  594.35  1066.6  604.63  1067.3  614.39 1067.95
  614.44 1067.95  622.98 1068.44  634.53 1068.93  641.34 1069.25  654.62 1069.72
   659.7 1069.98  674.71 1070.63  692.83 1071.58   694.8 1071.68  696.42 1071.71
  713.61 1072.46  714.78 1072.51  714.89 1072.52  733.13 1072.69  915.77  1073.3
  926.65 1073.47  935.86 1073.62  936.82 1073.63  955.95 1073.63     959 1073.62
  976.04 1073.54  981.17 1073.54  996.13 1073.57 1003.36 1073.58 1016.22 1073.61
 1025.54 1073.62 1036.31  1073.6 1047.72 1073.62  1056.4 1073.61  1069.9 1073.62
 1076.48 1073.69 1092.08 1073.66 1096.57 1073.77 1114.26 1073.97 1116.66 1074.01
 1136.44 1074.44 1136.75 1074.45 1139.69 1074.53 1155.35 1074.94 1156.84 1074.96
 1173.71 1075.24 1176.93 1075.28  1180.8 1075.33 1197.02 1075.53 1202.98 1075.61
 1217.11 1075.75 1225.16 1075.86 1237.19 1075.98 1247.34 1076.06 1257.28 1076.13
 1269.52 1076.18 1277.37 1076.22  1291.7 1076.44 1297.46  1076.5 1313.88 1076.69
 1317.55 1076.71 1336.06 1076.85 1337.64 1076.86 1352.73 1076.97 1357.73    1077
 1358.24 1077.01 1377.81 1077.14 1380.42 1077.17  1397.9 1077.29 1412.37 1077.42
 1417.99 1077.47 1430.72  1077.6 1438.08 1077.68 1446.96 1077.74 1458.17 1077.81
 1469.14 1077.83 1478.26 1077.84 1491.33 1077.87 1498.35 1077.87 1504.15 1077.88
 1518.44 1077.93 1522.51 1077.96 1538.52 1078.12 1557.86 1078.38 1558.61 1078.39
 1565.77 1078.45 1577.59 1078.55  1578.7 1078.56 1580.05 1078.57 1598.79  1078.7
 1602.23 1078.71 1618.88  1078.8 1632.66 1078.85 1638.97 1078.86 1651.01 1078.92
 1659.06 1078.95 1669.37 1079.07 1679.15 1079.17 1690.95 1079.32 1699.23 1079.42
 1706.08  1079.5 1719.32 1079.69 1724.45 1079.76 1739.41 1079.98 1757.48 1080.08
  1759.5  1080.1 1778.81 1080.09 1779.52 1080.09 1779.59 1080.09 1779.67 1080.09
 1799.68 1080.28 2090.19 1080.85 2101.01 1080.99 2112.37 1081.13  2121.1 1081.21
 2128.31 1081.26 2141.19 1081.42 2146.67 1081.45 2161.28 1081.58 2170.91 1081.71
 2181.36 1081.72 2201.09 1081.85 2201.45 1081.86 2204.89 1081.88 2221.54 1081.97
 2223.27 1081.98 2241.63  1082.1 2245.45 1082.12 2261.72 1082.23 2275.18 1082.32
 2281.81 1082.36 2293.53 1082.42  2301.9 1082.46 2311.99 1082.53 2321.99  1082.6
 2334.17 1082.71 2342.07 1082.78 2356.35  1082.9 2362.16 1082.95 2366.96 1082.99
 2382.25 1083.11 2400.71 1083.23 2402.34 1083.24 2417.92 1083.35 2422.43 1083.38
 2422.89 1083.38 2442.52 1083.54 2445.07 1083.57 2462.61 1083.71 2467.26 1083.74
  2482.7 1083.85 2489.43 1083.89 2502.78 1083.97 2511.61 1084.04 2522.87 1084.13
 2533.79 1084.21 2542.96 1084.28 2555.98 1084.35 2563.05  1084.4  2568.9 1084.42
 2583.14 1084.46 2600.33 1084.53 2603.23 1084.54 2622.51 1084.65 2623.32 1084.66
 2630.96  1084.7 2643.41 1084.77 2644.69 1084.78 2663.49 1084.89 2679.04 1084.93
 2683.58 1084.95  2697.4 1084.91 2703.67  1084.9 2711.24 1084.84 2723.76 1084.75
 2733.41 1084.67 2743.85 1084.56  2755.6 1084.67 2763.94 1084.72 2777.78 1084.84
 2784.03  1084.9 2789.19 1084.93 2804.12 1085.03 2822.13  1085.1  2824.2 1085.12
    2844 1085.19 2844.29 1085.19 2844.32 1085.19 2864.38 1085.27  2866.5 1085.28
 2884.47 1085.42 2888.68 1085.45 2904.56 1085.62 2910.86 1085.67 2924.65 1085.81
 2933.03 1085.89 2944.74    1086 2954.41  1086.1 2964.82 1086.26  2977.4 1086.43
 2984.91 1086.52 2991.12 1086.59    3005 1086.74 3009.48 1086.78 3025.09 1086.92
 3043.94 1087.09 3045.18  1087.1 3046.19 1087.11 3057.04 1087.24 3065.27 1087.34
```

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3066.12 1087.35 3085.36 1087.58  3088.3 1087.59 3105.45 1087.72 3110.48 1087.73
3125.53 1087.77 3132.66 1087.78 3145.62 1087.81 3154.84 1087.88 3165.71 1087.96
 3174.7 1088.11  3185.8 1088.29  3199.2  1088.5 3205.89 1088.61 3221.38 1088.76
3225.98 1088.79 3243.57 1088.85 3246.07 1088.85 3265.74 1088.84 3266.16 1088.84
3270.07 1088.88 3286.24 1089.05 3303.21 1089.32 3306.33 1089.37  3310.1 1089.34
3326.42 1089.21 3332.29 1089.22 3346.51 1089.23 3358.27 1089.36  3366.6 1089.44
3376.64 1089.48 3386.69 1089.53 3398.82 1089.55 3406.78 1089.57    3421 1089.62
3426.87 1089.63 3443.19 1089.71 3446.95 1089.72 3465.36 1089.81 3467.04 1089.82
3468.42 1089.83 3483.11 1089.91 3486.78 1089.93 3487.13 1089.93 3505.14 1090.03
3507.22 1090.04 3509.72 1090.05 3527.31 1090.12 3541.85 1090.17  3547.4 1090.19
3560.21 1090.21 3567.49 1090.23 3576.27 1090.24 3587.58 1090.23 3596.93 1090.24
3607.66 1090.27 3615.29 1090.31 3627.75 1090.37 3642.81 1090.45 3647.84 1090.48
   3652 1090.49 3667.93 1090.53 3670.36 1090.52 3688.02 1090.51 3696.15 1090.57
3708.11 1090.67 3709.34 1090.69  3728.2 1091.08 3743.78 1091.37 3748.28 1091.44
3753.71 1091.53 3768.37 1091.79 3775.89 1091.96 3788.46 1092.25 3798.86 1092.48
3808.55 1092.64 3820.25 1092.69 3828.64 1092.73 3842.43 1092.73 3848.73 1092.69
3853.93 1092.67 3868.82 1092.63 3886.79 1092.51 3888.91 1092.49 3890.65 1092.48
3908.99 1092.19  3909.2 1092.19 3927.37 1092.04 3929.08 1092.03 3931.15 1092.03
3949.17 1092.06 3953.33  1092.1 3969.26 1092.24 3982.44 1092.36 3989.35 1092.42
3997.69 1092.44 4009.44 1092.53 4019.87 1092.51 4029.53 1092.49 4037.51 1092.48
4049.62 1092.48 4064.23 1092.52  4069.7 1092.54 4086.41 1092.66 4089.79 1092.69
4108.59 1092.88 4109.88 1092.89 4122.23 1093.03 4129.97 1093.12 4130.77 1093.13
4150.06 1093.32 4152.95 1093.35 4170.15 1093.48 4175.13 1093.52 4190.24 1093.66
4197.31 1093.71 4210.33 1093.82  4219.5 1093.88 4230.41 1093.95 4237.19 1094.01

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**********************************************
   11.78     .03  192.58     .03  713.61    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
        192.58  713.61            206.95     200   194.5              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**************************************************************************************
* E.G. Elev (ft)          * 1087.16  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.16  * Reach Len. (ft)         *  206.95  *  200.00  *  194.50  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 2493.96  *11328.83  *17027.30  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 2493.96  *11328.83  *17027.30  *
* Q Total (cfs)           *-1576.75  * Flow (cfs)              * -156.53  * -957.03  * -463.18  *
* Top Width (ft)          * 3034.88  * Top Width (ft)          *  177.18  *  521.03  * 2336.68  *
* Vel Total (ft/s)        *   -0.05  * Avg. Vel. (ft/s)        *   -0.06  *   -0.08  *   -0.03  *
* Max Chl Dpth (ft)       *   24.67  * Hydr. Depth (ft)        *   14.08  *   21.74  *    7.29  *
* Conv. Total (cfs)       *7193829.0 * Conv. (cfs)             *  714181.2  *4366401.0  *2113247.0  *
* Length Wtd. (ft)        *  198.86  * Wetted Per. (ft)        *  179.40  *  521.90  * 2336.75  *
* Min Ch El (ft)          * 1062.49  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.89  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  434.55  * 1746.08  * 3591.10  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   41.92  *   86.50  *  519.70  *
**************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 11099.99

INPUT
Description:
Station Elevation Data    num=     385
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
**********************************************************************************
       0 1089.61     5.98 1089.04     15.4 1086.93    27.37 1083.57    35.54 1081.26
   50.27 1076.96    55.69 1075.32    73.15 1070.86    75.83 1070.07   196.69 1069.01
  210.49  1068.8   216.83 1068.75   229.61 1068.12   233.38 1067.94   236.98 1067.81
  256.28  1063.7   257.12 1063.56    263.3 1063.32   277.26 1062.86   279.17 1062.85
  297.41 1062.67   302.05 1062.67   317.55 1062.69   324.94 1062.66    337.7 1062.64
  347.84 1062.64   357.84 1062.64   370.72 1062.67   377.98 1062.68   393.61 1062.75
  398.13 1062.77   416.51  1062.9   418.27 1062.91   431.17 1063.06   438.41 1063.15
  439.39 1063.16   458.56 1063.42    473.6 1063.59    478.7 1063.65   485.18 1063.85
  498.84 1064.15   508.07 1064.58   518.99 1065.05   530.95 1065.47   539.13 1065.78
  545.55 1065.98   559.27  1066.4   563.53 1066.59   579.42 1067.17      597 1067.89
  599.06 1067.97   599.56 1067.99   599.62 1067.99    619.7 1068.65   622.51 1068.75
  639.85 1069.19   645.41 1069.25   659.99 1069.34   668.29 1069.46   680.13  1069.4
  691.18 1069.65   700.28 1069.92   714.08 1070.18   720.42  1070.4   736.96  1070.5
  740.57 1070.47   759.85 1070.55   760.71 1070.52   766.93 1070.62   780.85 1070.76
  782.74 1070.77      801 1071.03   805.64 1071.06   821.14 1071.21   828.52 1071.29
  841.28 1071.36   851.41 1071.46   861.43 1071.46   874.31 1071.37   881.57 1071.29
  897.19 1071.02   901.71 1071.08   920.08 1071.48   921.86  1071.5   923.24 1071.52
  934.81 1071.76      942 1071.91   942.98 1071.91   962.14 1071.84   965.86 1071.83
  982.29 1071.81   988.75 1071.89  1002.43 1072.19  1011.65 1072.33  1022.57 1072.47
 1034.54 1072.53  1042.72 1072.59  1057.42 1072.67  1062.86  1072.7  1080.31 1072.95
    1083 1072.99  1102.69 1073.26  1103.15 1073.26  1103.21 1073.26  1123.29  1073.4
 1126.09 1073.42  1143.43 1073.56  1157.05 1073.61  1163.58 1073.66  1171.88 1073.73
 1183.72 1073.84  1194.76 1073.99  1203.86 1074.11  1217.65 1074.31  1224.01 1074.34
 1240.55 1074.62  1244.15 1074.67  1263.44  1074.9  1264.29 1074.91  1270.57 1074.97
 1284.44  1075.1  1286.32 1075.11  1304.58 1075.23  1309.21 1075.24  1324.72 1075.31
 1332.11 1075.32  1344.87 1075.32  1354.99 1075.36  1365.01 1075.36  1377.88 1075.44
 1385.16 1075.48  1400.78 1075.48   1405.3 1075.48  1423.66 1075.36  1425.44 1075.36
 1438.45 1075.37  1445.59 1075.37   1462.8 1075.56  1465.73 1075.59  1480.79  1075.8
 1485.87 1075.89  1498.78 1076.09  1506.02 1076.21  1516.76 1076.35  1526.16 1076.46
 1538.11  1076.6   1546.3 1076.69  1552.73 1076.72  1566.45 1076.75  1570.72 1076.75
 1586.59 1076.79   1588.7 1076.78  1606.33 1076.98  1606.73 1076.98  1606.78 1076.98
 1626.88 1076.91  1629.68 1076.92  1647.02 1076.98  1660.64 1077.02  1667.16 1077.04
 1678.63 1077.14  1687.31 1077.14  1696.61 1077.25  1707.45 1077.29   1714.6 1077.31
 1727.59 1077.37  1744.12 1077.47  1747.74 1077.51  1767.01 1077.58  1767.88 1077.59
 1768.56 1077.59  1774.21 1077.64  1786.54 1077.77  1788.03  1077.8  1789.91 1077.83
 1808.17 1078.18  1812.79 1078.21  1828.31 1078.37   1840.5 1078.43  1848.45 1078.45
 1858.49 1078.51   1868.6 1078.55  1876.46 1078.57  1888.74 1078.67  1894.45 1078.72
 1908.88 1078.95  1912.44 1079.02  1929.03 1079.25  1930.42 1079.28  1942.08 1079.42
 1949.17 1079.52  1950.13 1079.52  1969.32 1079.72  1973.02 1079.75  1989.46 1079.89
 1995.91 1079.93   2009.6 1080.03   2018.8 1080.11  2029.75 1080.19  2041.69  1080.3
 2049.89 1080.36  2064.58 1080.45  2070.03 1080.49   2074.3 1080.52  2090.18 1080.61
 2092.29 1080.62  2109.97 1080.73  2110.32 1080.73  2110.36 1080.73  2130.46 1080.86
 2133.25 1080.87  2150.61 1080.98  2156.15 1081.03  2170.75 1081.13  2179.03 1081.24
 2190.89 1081.35  2201.92 1081.49  2211.04  1081.6  2224.81 1081.74  2231.18 1081.82
  2247.7 1081.97  2251.32 1082.01  2270.59 1082.15  2271.47 1082.16  2277.84 1082.19
 2290.13 1082.24  2291.61 1082.25  2308.12 1082.29  2311.75 1082.31  2316.38 1082.31
  2331.9 1082.33  2339.26 1082.35  2352.04 1082.38  2362.15 1082.45  2372.19 1082.52
 2380.06 1082.58  2392.33 1082.69  2407.93  1082.8  2412.47 1082.82  2430.82 1082.89
 2432.62  1082.9  2445.72 1082.96  2452.76 1082.98  2453.72 1082.99   2472.9 1083.12
  2476.6 1083.15  2493.05 1083.26  2499.49  1083.3  2513.19 1083.36  2522.38 1083.37
 2533.33 1083.37  2545.27 1083.34  2553.48 1083.31  2568.16 1083.22  2573.62 1083.19
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2591.05	1083.14	2593.76	1083.14	2613.6	1083.23	2613.91	1083.24	2613.95	1083.24
2634.05	1083.58	2636.83	1083.61	2654.19	1083.94	2659.72	1083.97	2674.34	1084.08
2682.62	1084.1	2694.48	1084.17	2703.8	1084.4	2714.62	1084.61	2728.39	1084.82
2734.77	1084.92	2751.28	1085.11	2754.91	1085.15	2774.17	1085.4	2775.05	1085.41
2775.74	1085.42	2781.48	1085.5	2793.73	1085.69	2795.2	1085.71	2811.71	1085.93
2815.34	1085.98	2819.95	1086.04	2835.48	1086.2	2842.85	1086.28	2855.63	1086.4
2865.73	1086.5	2875.77	1086.59	2888.62	1086.7	2895.91	1086.76	2911.52	1086.83
2916.06	1086.86	2934.4	1086.97	2936.2	1086.98	2949.36	1087.12	2955.59	1087.19
2956.35	1087.19	2973.58	1087.3	2976.49	1087.32	2991.57	1087.38	2996.63	1087.43
3009.54	1087.48	3016.78	1087.54	3025.96	1087.54	3036.92	1087.51	3048.85	1087.49
3057.06	1087.47	3071.74	1087.45	3077.21	1087.44	3094.63	1087.39	3097.35	1087.38
3117.24	1087.45	3117.46	1087.45	3117.49	1087.45	3117.52	1087.45	3137.64	1087.72
3140.42	1087.75	3157.78	1087.97	3163.3	1087.98	3177.92	1088.02	3186.19	1088.01
3198.07	1087.99	3209.09	1087.99	3218.21	1087.96	3231.97	1088.11	3238.35	1088.17
3254.86	1088.51	3258.5	1088.58	3277.75	1088.55	3278.64	1088.54	3285.12	1088.55
3298.78	1088.55	3315.3	1088.67	3318.93	1088.7	3333.29	1088.73	3339.07	1088.74
3346.42	1088.72	3359.21	1088.7	3369.26	1088.65	3379.36	1088.61	3392.2	1088.57
3399.5	1088.57	3415.09	1088.56	3419.64	1088.6	3423.21	1088.63	3439.79	1088.67
3453	1088.83	3459.19	1088.92	3459.93	1088.92	3460.87	1088.93	3480.08	1089.2
3495.15	1089.32	3500.22	1089.35	3513.14	1089.45	3520.36	1089.49	3529.54	1089.57
3540.5	1089.66	3552.43	1089.77	3560.65	1089.85	3567.09	1089.91	3580.79	1090.01
3598.22	1090.17	3600.94	1090.19	3620.88	1090.37	3621.08	1090.37	3621.1	1090.37
3641.22	1090.47	3643.99	1090.49	3661.37	1090.57	3666.89	1090.64	3681.51	1090.71
3689.77	1090.78	3701.65	1090.81	3712.66	1090.84	3721.8	1090.85	3735.56	1090.94
3741.94	1090.97	3758.44	1091.11	3762.08	1091.13	3781.33	1091.24	3782.23	1091.24
3788.75	1091.26	3802.37	1091.31	3804.22	1091.32	3822.51	1091.53	3826.91	1091.63

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	229.61	.03	597	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
229.61	597	207	200	191.93	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1087.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1087.16	Reach Len. (ft)	207.00	200.00	191.93
Crit W.S. (ft)		Flow Area (sq ft)	3267.36	8487.10	21454.61
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	3267.36	8487.10	21454.61
Q Total (cfs)	-1547.33	Flow (cfs)	-203.74	-704.57	-639.02
Top Width (ft)	2938.36	Top Width (ft)	215.23	367.39	2355.74
Vel Total (ft/s)	-0.05	Avg. Vel. (ft/s)	-0.06	-0.08	-0.03
Max Chl Dpth (ft)	24.52	Hydr. Depth (ft)	15.18	23.10	9.11
Conv. Total (cfs)	7480812.0	Conv. (cfs)	985015.9	3406348.0	3089448.0
Length Wtd. (ft)	197.85	Wetted Per. (ft)	217.59	367.94	2355.89
Min Ch El (ft)	1062.64	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.85	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	420.87	1700.59	3505.19
C & E Loss (ft)		Cum SA (acres)	40.99	84.46	509.22

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 10899.99

INPUT
Description:
Station Elevation Data num= 368

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1089.71	10.18	1087.55	18.2	1085.68	19.86	1085.16	38.49	1079.57
51.66	1075.48	58.78	1073.34	68.99	1070.25	79.08	1067.85	93.33	1067.27
99.37	1066.88	117.81	1066.65	119.66	1066.6	128.53	1066.6	139.95	1066.55
142.31	1066.57	231.77	1066.28	240.28	1065.92	241.41	1065.89	246.89	1065.26
261.7	1063.18	264.77	1063.13	281.99	1062.64	289.25	1062.62	302.29	1062.6
311.5	1062.58	322.58	1062.59	338.23	1062.7	342.87	1062.74	362.73	1062.97
363.16	1062.98	365.24	1063	383.45	1063.19	387.22	1063.22	403.75	1063.35
411.71	1063.38	424.04	1063.47	436.19	1063.51	444.33	1063.57	460.69	1063.82
464.62	1063.87	483.6	1065.03	484.91	1065.1	485.18	1065.14	505.21	1067.5
519.36	1069.38	525.5	1070.21	533.45	1071.06	536.69	1071.41	545.79	1071.9
558.65	1072.13	566.08	1072.2	583.15	1072.42	586.37	1072.43	601.96	1072.58
606.66	1072.63	607.63	1072.64	626.96	1072.71	632.12	1072.72	647.25	1072.71
656.61	1072.71	667.54	1072.71	681.1	1072.7	687.83	1072.68	705.6	1072.67
708.12	1072.66	720.31	1072.7	728.42	1072.72	730.09	1072.73	748.71	1072.83
754.57	1072.89	769	1073.03	779.06	1073.13	789.29	1073.24	803.56	1073.35
809.58	1073.4	828.05	1073.5	829.87	1073.5	838.67	1073.53	850.17	1073.55
852.54	1073.55	870.46	1073.55	877.03	1073.58	890.75	1073.63	901.52	1073.73
911.04	1073.83	926.01	1074	931.33	1074.07	950.5	1074.27	951.63	1074.29
957.02	1074.33	971.92	1074.46	974.99	1074.5	992.21	1074.68	999.48	1074.77
1012.5	1074.92	1023.98	1075.04	1032.79	1075.13	1048.47	1075.27	1053.08	1075.31
1072.96	1075.43	1073.38	1075.44	1075.39	1075.45	1093.67	1075.57	1097.44	1075.62
1113.96	1075.81	1121.94	1075.93	1134.25	1076.1	1146.43	1076.24	1154.54	1076.32
1170.92	1076.43	1174.83	1076.45	1193.74	1076.53	1195.13	1076.54	1195.41	1076.54
1215.42	1076.54	1229.56	1076.51	1235.71	1076.51	1244.39	1076.52	1256	1076.53
1268.08	1076.57	1276.29	1076.6	1293.37	1076.62	1296.59	1076.63	1312.1	1076.58
1316.18	1076.56	1316.88	1076.57	1333.5	1076.57	1337.17	1076.59	1342.35	1076.6
1357.46	1076.58	1366.85	1076.56	1377.75	1076.53	1391.34	1076.48	1398.04	1076.46
1402.78	1076.46	1418.34	1076.42	1420.1	1076.43	1430.45	1076.43	1437.43	1076.43
1438.63	1076.44	1440.31	1076.44	1458.92	1076.46	1464.81	1076.47	1479.21	1076.65
1489.3	1076.73	1499.5	1076.88	1506.72	1076.99	1519.8	1077.13	1524.04	1077.19
1540.09	1077.48	1548.8	1077.64	1560.38	1077.86	1562.76	1077.89	1580.67	1078.15
1593.32	1078.27	1600.96	1078.34	1610.65	1078.4	1621.25	1078.48	1627.97	1078.52
1641.55	1078.62	1660.73	1078.75	1661.84	1078.76	1662.61	1078.76	1667.17	1078.79
1682.13	1078.87	1685.22	1078.88	1702.42	1078.95	1709.72	1078.96	1722.71	1078.98
1734.2	1078.99	1743.01	1079.01	1758.69	1079.04	1763.3	1079.06	1783.18	1079.14
1783.59	1079.15	1785.52	1079.15	1803.88	1079.23	1807.68	1079.24	1824.17	1079.28
1832.17	1079.29	1844.46	1079.29	1856.66	1079.32	1864.76	1079.34	1881.14	1079.44
1885.05	1079.47	1903.88	1079.62	1905.34	1079.63	1905.64	1079.63	1925.63	1079.85
1930.13	1079.9	1945.92	1080.08	1954.62	1080.16	1966.21	1080.25	1974.41	1080.27
1986.51	1080.31	1991.73	1080.32	2006.8	1080.36	2022.23	1080.48	2027.09	1080.52
2028.1	1080.53	2047.38	1080.73	2052.58	1080.75	2067.68	1080.87	2078.34	1080.92
2087.97	1080.97	2101.56	1081.06	2108.26	1081.09	2126.05	1081.15	2128.55	1081.16
2140.58	1081.17	2148.84	1081.16	2150.55	1081.17	2169.13	1081.17	2182.27	1081.19
2189.43	1081.19	2199.59	1081.22	2209.72	1081.22	2224.01	1081.2	2230.01	1081.21
2248.51	1081.15	2250.3	1081.14	2258.95	1081.15	2270.59	1081.23	2273	1081.26
2290.89	1081.48	2297.49	1081.52	2311.18	1081.68	2321.98	1081.71	2331.47	1081.8
2346.47	1081.85	2351.76	1081.88	2370.96	1081.93	2372.05	1081.94	2377.3	1081.96
2392.34	1082	2395.45	1082.01	2412.64	1082.09	2419.94	1082.11	2432.93	1082.17
2442.1	1082.25	2453.22	1082.36	2459.43	1082.46	2473.51	1082.78	2476.75	1082.83

```
 2493.8 1083.11 2494.07 1083.11 2495.66 1083.13 2514.09 1083.31  2517.9 1083.36
2534.39 1083.51 2546.03  1083.6 2554.68 1083.68 2566.88 1083.81 2574.97 1083.87
2591.38 1084.05 2595.26 1084.09 2614.01 1084.35 2615.55 1084.37 2615.87 1084.38
2635.85 1084.61 2649.97 1084.83 2656.14 1084.94 2664.85 1085.18 2676.43 1085.51
2689.34 1085.72 2696.72 1085.84 2713.83 1086.01 2717.01 1086.05 2732.37 1086.16
 2737.3 1086.19 2738.32 1086.19  2757.6 1086.21 2771.22 1086.22 2777.89 1086.26
 2787.3 1086.33 2798.18 1086.42  2811.8 1086.56 2818.47 1086.62 2836.28 1086.75
2838.76 1086.76 2840.51 1086.76 2850.73 1086.84 2857.83 1086.89 2859.06  1086.9
2875.16 1086.93 2879.35 1086.97 2885.26 1086.99 2899.64 1086.97 2909.79 1086.97
2919.93 1087.04 2927.12 1087.06 2940.22 1087.16 2958.74  1087.3 2960.51 1087.33
2969.08 1087.37 2980.81 1087.41 2983.23  1087.4  3001.1 1087.41 3007.71 1087.37
3021.39 1087.32 3032.21 1087.26 3041.68 1087.19  3056.7 1087.17 3061.97 1087.14
3081.19 1087.21 3082.27 1087.22 3087.44 1087.27 3102.56 1087.42 3105.68 1087.45
3122.85 1087.64 3130.17 1087.67 3143.14 1087.71 3154.66 1087.69 3163.43 1087.67
3179.15 1087.58 3183.72 1087.55 3203.64 1087.64 3204.02 1087.64 3205.79 1087.67
 3221.6 1087.98 3224.31 1088.03 3238.92 1087.97  3244.6 1087.95 3256.24  1087.9
3264.89 1087.88 3273.56 1087.94 3285.18 1088.01 3290.89 1088.07 3305.47 1088.07
3324.15 1088.12 3325.77 1088.13 3342.85 1088.33 3346.06 1088.33 3360.17 1088.57
3366.35 1088.65 3377.49 1088.89 3386.64 1089.04 3394.81 1089.17 3406.93 1089.31
3424.06 1089.46 3427.23 1089.49 3429.46 1089.49 3442.51 1089.57 3447.52 1089.59
3448.55  1089.6 3467.81 1089.65 3473.04 1089.68  3488.1 1089.74 3497.53 1089.82
3508.39 1089.92 3516.06    1090 3528.69 1090.14 3546.51 1090.31 3548.98 1090.33
3560.86 1090.41 3569.27 1090.46 3585.36 1090.55 3589.56 1090.58 3602.68 1090.64
3609.85 1090.69 3619.99 1090.77 3630.15 1090.84 3637.32 1090.94 3650.44 1091.05
3654.65 1091.11 3670.73 1091.16 3678.94 1091.15

Manning's n Values          num=       3
    Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
       0     .03  231.77     .03  533.45    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        231.77  533.45            204.43     200  214.26              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.16  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.16  * Reach Len. (ft)         *  204.43  *  200.00  *  214.26  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3789.45  * 6936.46  *19647.24  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3789.45  * 6936.46  *19647.24  *
* Q Total (cfs)           *-1566.02  * Flow (cfs)              * -292.59  * -653.68  * -619.75  *
* Top Width (ft)          * 2936.17  * Top Width (ft)          *  219.91  *  301.68  * 2414.58  *
* Vel Total (ft/s)        *   -0.05  * Avg. Vel. (ft/s)        *   -0.08  *   -0.09  *   -0.03  *
* Max Chl Dpth (ft)       *   24.58  * Hydr. Depth (ft)        *   17.23  *   22.99  *    8.14  *
* Conv. Total (cfs)       *6646444.0  * Conv. (cfs)            *1241789.0  *2774319.0  *2630337.0  *
* Length Wtd. (ft)        *  206.03  * Wetted Per. (ft)        *  222.68  *  302.29  * 2414.70  *
* Min Ch El (ft)          * 1062.58  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.96  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  404.10  * 1665.18  * 3414.64  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   39.95  *   82.92  *  498.71  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 10699.99

INPUT
Description:
Station Elevation Data     num=      344
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    1.68 1090.38   13.46 1087.37    22.2 1085.54   40.05 1080.44   42.71 1079.66
   44.39 1079.12    51.7 1076.91   63.23 1073.41   77.78 1069.04   83.75 1067.47
   93.23 1067.04  119.82 1066.29  124.78 1066.41  141.48 1066.32  145.29 1066.29
  146.42 1066.27  227.35 1066.08  230.69 1065.85  231.25 1065.81  247.87 1064.51
  252.78 1064.24  268.38 1063.19  279.38 1063.02   288.9 1062.84  305.97  1062.7
  309.42 1062.68  321.03 1062.64  329.93 1062.62  332.56 1062.62  350.45 1062.64
  361.67 1062.65  370.96 1062.65  385.75 1062.64  391.48 1062.63   410.8 1062.73
  411.99 1062.74  412.34 1062.75  432.51  1063.1  438.93 1063.22  453.02 1063.46
  465.52 1063.65  473.54 1063.76  492.12 1064.27  494.06 1064.31  500.58 1064.68
  514.57 1065.61  518.71  1065.9  535.09 1067.02   545.3 1067.31   555.6 1067.65
  571.89 1067.75  576.12 1067.82  590.36 1067.88  596.63 1067.89  598.49 1067.91
  616.37 1068.15  617.15 1068.16  628.86 1068.58  637.67 1068.64  651.67 1069.06
  658.18 1069.29  678.26 1069.89   678.7  1069.9  680.14 1069.93  699.21 1070.29
  704.85  1070.4  719.73 1070.59  731.45 1070.73  970.78 1070.97  986.43 1071.26
  997.37 1071.32 1006.94 1071.45 1023.96 1071.56 1027.46 1071.59 1039.25 1071.64
 1047.98  1071.8 1063.04 1072.01 1068.49 1072.13 1077.15  1072.2 1089.01 1072.57
 1103.74 1072.62 1109.52 1072.71 1113.14 1072.81 1129.02 1073.02 1129.84 1073.03
 1130.04 1073.03 1130.34 1073.04 1150.55 1073.67 1156.93 1073.77 1171.07  1074.2
 1183.51 1074.33 1191.59 1074.38 1210.11 1074.54  1212.1 1074.55  1218.8 1074.58
 1232.62 1074.74  1236.7 1074.83 1253.13  1075.1 1263.44 1075.32 1273.65 1075.57
 1280.14 1075.77 1294.16  1076.1 1296.84 1076.16 1308.58 1076.41 1314.68 1076.53
 1316.47 1076.54 1335.19 1076.69 1343.07 1076.76 1355.71 1076.84 1363.64 1076.91
 1376.23 1077.04 1380.34 1077.08 1396.74 1077.24 1397.04 1077.24 1398.36 1077.25
 1417.26  1077.4 1422.85 1077.43 1437.77 1077.53 1449.44 1077.62 1458.29 1077.67
 1476.03 1077.84  1478.8 1077.86 1488.14 1077.95 1499.32 1078.12 1502.62 1078.16
 1519.83 1078.38 1530.64  1078.5 1540.35 1078.59 1547.34 1078.67 1560.86 1078.81
 1577.91 1079.05 1581.38 1079.09 1582.41  1079.1  1601.9 1079.36 1608.99 1079.44
 1622.41 1079.62 1635.58 1079.76 1642.93 1079.85 1662.18 1080.04 1663.44 1080.05
 1667.69 1080.08 1683.96 1080.16 1688.77 1080.18 1704.47 1080.21 1714.33 1080.23
 1724.99 1080.28 1741.95 1080.38  1745.5  1080.4 1757.47 1080.47 1766.02 1080.51
 1768.54 1080.52 1786.54 1080.56 1795.14 1080.58 1807.05 1080.61 1814.52 1080.64
 1827.57 1080.69 1847.24 1080.84 1848.08 1080.85 1848.33 1080.85  1868.6 1081.04
 1874.92  1081.1 1889.11 1081.23 1901.51 1081.33 1909.63 1081.39 1914.72 1081.42
 1930.14  1081.5 1937.02  1081.5 1948.12 1081.48 1950.66 1081.47 1964.82 1081.44
 1971.18 1081.43 1981.29 1081.47 1991.69 1081.49 2007.88 1081.62 2012.21 1081.65
 2026.79 1081.76 2031.61 1081.79 2032.72 1081.79 2034.47  1081.8 2053.24 1081.87
 2061.06 1081.92 2073.75 1081.96 2087.65 1082.02 2094.27 1082.03 2098.41 1082.04
 2114.78 1082.08 2115.11 1082.08 2116.58 1082.09 2131.81 1082.14  2135.3 1082.15
 2148.51 1082.21 2155.81 1082.24 2165.21  1082.3 2176.33 1082.35 2194.02 1082.38
 2196.85 1082.39 2206.36 1082.37 2217.36 1082.33 2220.61 1082.33 2237.88 1082.31
 2248.71  1082.3 2258.39 1082.32 2265.41 1082.32 2278.91  1082.4 2296.13 1082.53
 2299.42 1082.56  2300.4 1082.56 2319.94 1082.53 2326.99 1082.46 2340.45 1082.34
 2348.91 1082.26 2360.97 1082.12 2380.17 1082.09 2381.49 1082.08 2385.91 1082.11
    2402 1082.27 2406.76 1082.32 2422.52 1082.51 2433.36 1082.63 2443.03 1082.74
 2449.11 1082.81 2463.55 1082.98 2465.81 1083.01 2475.68 1083.14 2482.51 1083.23
 2484.06 1083.26 2486.54 1083.29 2504.58 1083.55 2513.13 1083.64  2525.1  1083.8
 2539.72 1083.89 2545.61 1083.94 2565.46 1084.08 2566.13 1084.08 2566.32 1084.09
 2586.64  1084.4 2592.91 1084.47 2607.16  1084.6  2619.5 1084.75 2627.67 1084.82
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 2646.1 1085.17 2648.19  1085.2 2655.24 1085.28 2666.19 1085.38  2668.7 1085.41
2682.89 1085.49 2689.22 1085.53 2699.28 1085.61 2709.74 1085.69 2716.29 1085.74
2730.25 1085.83 2732.99 1085.84 2745.01 1085.87 2750.77 1085.89 2752.46 1085.89
2771.28 1085.95 2779.06 1086.01  2791.8 1086.07 2805.65 1086.13 2812.31 1086.13
2832.24 1086.15 2832.83 1086.15 2834.79 1086.15 2849.89 1086.22 2853.34 1086.24
2858.83 1086.26 2873.86 1086.31 2883.29 1086.35 2894.37 1086.38 2899.99 1086.41
2914.89 1086.44 2924.57  1086.5 2935.41 1086.54 2938.61 1086.57 2955.92 1086.71
 2965.2 1086.79 2976.44 1086.89 2991.79 1086.98 2996.95 1087.02 3000.18 1087.01
3014.35    1087 3016.88 1086.99 3017.47 1086.99 3033.58  1086.9 3037.98 1086.87
3044.98 1086.85  3058.5 1086.79 3066.98 1086.81 3079.02 1086.88 3083.68  1086.9
3099.53 1086.98 3104.13 1086.99 3120.05 1087.03 3124.75 1087.03 3140.56  1087.1
3150.48 1087.14 3161.08 1087.11 3177.94 1087.23 3181.59 1087.26  3193.9 1087.54
3202.11 1087.72 3204.53 1087.72 3222.62  1087.8 3231.13 1087.78 3243.14 1087.79
3257.72 1087.86 3263.65  1087.9 3283.68 1088.09 3284.17  1088.1 3284.31  1088.1
3304.69 1088.37  3310.9 1088.44  3325.2 1088.62 3337.49 1088.79 3345.72 1088.88
3364.09 1089.18 3366.23 1089.21 3373.45 1089.35 3384.28 1089.54 3386.75 1089.58
3400.97 1089.76 3407.26 1089.82 3417.67 1089.85 3427.78 1089.89 3434.37 1089.87
3448.29 1089.87 3451.06 1089.87 3463.23 1089.88 3468.81 1089.88 3470.45  1089.9
3489.32 1090.02 3497.05  1090.1 3509.84 1090.22 3523.64 1090.34 3530.36 1090.39
3550.24  1090.5 3550.87 1090.51 3553.01 1090.52 3567.96 1090.58 3571.39  1090.6
3576.83 1090.63  3591.9 1090.69 3603.41 1090.77 3604.53 1090.78

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
    1.68     .03  230.69     .03  616.37    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        230.69  616.37            201.68     200  302.86              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**************************************************************************************
* E.G. Elev (ft)          * 1087.16  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.16  * Reach Len. (ft)         *  201.68  *  200.00  *  302.86  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3718.47  * 8772.07  *19140.16  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 3718.47  * 8772.07  *19140.16  *
* Q Total (cfs)           *-1586.20  * Flow (cfs)              * -270.85  * -776.19  * -539.16  *
* Top Width (ft)          * 3153.35  * Top Width (ft)          *  216.22  *  385.68  * 2551.45  *
* Vel Total (ft/s)        *   -0.05  * Avg. Vel. (ft/s)        *   -0.07  *   -0.09  *   -0.03  *
* Max Chl Dpth (ft)       *   24.54  * Hydr. Depth (ft)        *   17.20  *   22.74  *    7.50  *
* Conv. Total (cfs)       *7125060.0  * Conv. (cfs)            *1216637.0  *3486554.0  *2421868.0  *
* Length Wtd. (ft)        *  226.00  * Wetted Per. (ft)        *  219.02  *  385.90  * 2551.60  *
* Min Ch El (ft)          * 1062.62  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.99  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  386.48  * 1629.12  * 3319.25  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   38.93  *   81.34  *  486.50  *
**************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 10499.99

INPUT
Description:
Station Elevation Data     num=     306
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
    6.51 1090.52   21.12 1086.78   27.13 1085.44   30.71 1084.21   44.91 1079.33
   47.77 1078.34   48.73 1078.03   68.39 1071.47   76.34 1069.44   89.02 1066.02
  103.94 1064.66  109.65 1063.95  126.53 1063.93  130.28 1063.95  145.99 1064.04
  150.91 1064.06  162.45 1063.87  171.54 1063.71  186.76  1063.4  192.17 1063.28
  208.14 1063.29   212.8 1063.31  214.37  1063.3  228.42 1063.38  233.42 1063.41
  241.98 1063.27  254.05 1063.12  261.26 1062.98  274.68 1062.77  277.72 1062.73
  289.75 1062.66  294.19 1062.64  295.31 1062.63  310.65 1062.72  315.94 1062.76
  324.79 1062.86  336.57 1062.98  352.39 1063.01   357.2 1063.03  371.37 1063.03
  377.83 1063.03     380 1063.05  398.46 1063.13  407.61  1063.2  419.09 1063.28
  435.22 1063.38  439.72  1063.4  452.99 1063.37  458.86 1063.35  460.34 1063.35
  475.32 1063.26  480.97 1063.26  491.79 1063.43   501.6 1063.52  518.03 1063.54
  522.23 1063.69  534.61 1063.95  542.86 1064.22  545.64 1064.22  563.49 1064.25
  573.25 1064.23  584.12 1064.18  600.86 1064.33  604.75 1064.35  616.23 1064.62
  625.38 1064.85  628.46  1064.9  646.01 1065.19  656.07  1065.2  666.63 1065.24
  683.67 1065.09  687.26 1065.08  697.85 1064.98  707.89 1064.95  711.28    1065
  728.52 1065.23  738.89 1065.32  749.15  1065.4   766.5  1065.7  769.78 1065.72
  779.46 1066.06  790.41 1066.47   794.1 1066.55  811.04 1067.11  821.71 1067.11
  823.02 1067.13  831.66 1067.27  849.31 1067.31   852.3 1067.33  861.08 1067.55
  872.92 1067.87  876.92 1068.01  893.55 1068.61  904.53 1068.94  914.18  1069.2
  932.14 1069.64  934.81 1069.71   936.4 1069.76   942.7 1069.98  952.86 1070.35
  955.44 1070.43  959.74 1070.58  976.07 1071.25  987.35 1071.63   996.7 1071.96
 1002.27 1072.04 1698.08 1078.87 1710.35 1078.89 1718.71  1078.9 1732.73 1079.01
 1739.34 1079.06 1758.87  1079.2 1759.97  1079.2 1760.33  1079.2  1780.6  1079.3
 1787.94 1079.36 1801.23 1079.44 1809.15 1079.49 1821.85 1079.63 1840.49 1079.78
 1842.08 1079.79 1842.48  1079.8 1843.15  1079.8 1863.11 1079.94 1870.76 1080.02
 1883.74 1080.13 1898.37 1080.26 1904.37 1080.31 1922.11 1080.33    1925 1080.33
 1925.97 1080.33 1945.63 1080.21 1953.58 1080.22 1966.26 1080.27 1981.18 1080.33
 1986.89 1080.41 2003.72 1080.71 2007.52 1080.79 2008.79 1080.81 2028.14 1081.22
 2039.68 1081.39 2048.77 1081.44 2056.15 1081.49  2069.4 1081.56 2085.34 1081.69
 2089.08 1081.73 2090.03 1081.74 2105.54 1081.92 2110.66 1081.97 2122.02 1082.08
 2131.29 1082.15 2146.82 1082.26 2151.92 1082.29 2154.95 1082.31 2166.96 1082.37
 2172.55 1082.42 2174.43 1082.43 2193.18 1082.55 2202.04 1082.57 2213.81 1082.63
 2229.65 1082.67 2234.43 1082.69 2248.58 1082.76 2255.06 1082.79 2270.21  1082.9
 2275.69 1082.94 2284.86 1082.99 2296.32 1083.05 2312.46 1083.09 2316.95  1083.1
 2330.19 1083.14 2337.58 1083.15 2340.07 1083.16 2358.21 1083.26 2367.68 1083.32
 2378.84 1083.42 2385.49 1083.48 2399.46 1083.58 2411.81 1083.65 2420.09 1083.69
 2422.89 1083.71 2440.72 1083.79 2450.49 1083.83 2461.35 1083.86  2478.1 1083.92
 2481.98 1083.93 2493.43 1083.98 2500.75 1084.01 2502.61 1084.02 2505.71 1084.03
 2523.24 1084.13 2533.32 1084.15 2543.87 1084.19 2560.92 1084.13  2564.5 1084.12
 2566.62 1084.12 2575.05  1084.1 2585.13 1084.08 2588.53 1084.12 2605.75 1084.28
 2616.02 1084.38 2626.38 1084.48 2632.49 1084.53 2647.01 1084.65 2656.67 1084.73
 2667.64 1084.82 2671.35 1084.85 2688.27 1084.99 2698.96 1085.08  2708.9 1085.17
 2714.82 1085.22 2729.53 1085.32 2731.29 1085.33 2738.29 1085.36 2750.16  1085.4
 2754.17 1085.42 2770.79 1085.46 2781.77 1085.52 2791.42 1085.56 2797.16  1085.6
 2812.04 1085.73 2813.62 1085.75  2819.9 1085.84  2830.1 1085.97 2832.67 1086.01
 2846.56 1086.18  2853.3 1086.26 2863.03 1086.33 2873.93 1086.41  2892.2 1086.51
 2894.56 1086.53 2895.96 1086.53 2901.51 1086.55 2915.19 1086.58 2919.81 1086.59
 2935.82 1086.61 2947.41 1086.64 2956.45 1086.65 2961.83 1086.65 2977.08 1086.68
 2983.13  1086.7 2994.77 1086.76 2997.71 1086.78 3002.63 1086.82 3018.33 1086.96
  3027.7 1087.08 3038.96 1087.28 3044.16 1087.35 3059.59 1087.78 3064.75 1087.88
 3080.22 1088.16 3085.45 1088.16 3100.85 1088.19 3110.03 1088.15 3121.48 1087.91
 3140.66 1087.96 3142.11 1087.97 3146.37 1088.07 3162.74 1088.45 3168.27 1088.49
 3183.36 1088.54 3195.88 1088.57 3203.99 1088.55 3223.48 1088.66 3224.62 1088.66
 3227.99 1088.68 3245.25 1088.78 3251.09 1088.85 3265.88 1088.99 3278.69 1089.11
```

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 3286.51 1089.19  3306.3 1089.24 3307.14 1089.24  3309.6 1089.25 3327.77 1089.31
 3340.57 1089.43  3348.4 1089.48 3357.03 1089.55 3369.03 1089.64 3389.12 1089.76
 3389.66 1089.76 3389.96 1089.76 3391.22 1089.77 3410.28 1089.88 3416.72 1089.93
 3430.91 1090.03 3444.33 1090.19 3451.54 1090.26 3471.94  1090.5 3472.17  1090.5
 3472.84 1090.51  3492.8 1090.61 3499.55 1090.63 3513.43 1090.68  3521.7 1090.67
 3534.06 1090.67 3554.46 1090.61 3554.64 1090.61 3554.69 1090.61 3554.76 1090.61
 3575.32 1090.71 3587.57  1090.9 3595.95 1091.03 3604.04 1091.19 3616.57 1091.44
 3625.65 1091.57

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***********************************************
    6.51     .03   76.34     .03 1002.27    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          76.34 1002.27             200.01     200  202.13              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.16  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.16  * Reach Len. (ft)         *  200.01  *  200.00  *  202.13  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  500.53  *20393.23  *13492.66  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  500.53  *20393.23  *13492.66  *
* Q Total (cfs)           *-1606.85  * Flow (cfs)              *  -17.16  *-1326.34  * -263.36  *
* Top Width (ft)          * 3012.39  * Top Width (ft)          *   56.69  *  925.93  * 2029.77  *
* Vel Total (ft/s)        *   -0.05  * Avg. Vel. (ft/s)        *   -0.03  *   -0.07  *   -0.02  *
* Max Chl Dpth (ft)       *   24.53  * Hydr. Depth (ft)        *    8.83  *   22.02  *    6.65  *
* Conv. Total (cfs)       *9610217.0  * Conv. (cfs)            *102609.1  *7932522.0  *1575086.0  *
* Length Wtd. (ft)        *  200.32  * Wetted Per. (ft)        *   59.44  *  926.64  * 2029.84  *
* Min Ch El (ft)          * 1062.63  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.63  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  376.71  * 1562.16  * 3205.80  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   38.30  *   78.33  *  470.57  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 10299.99

INPUT
Description:
Station Elevation Data     num=     344
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   13.89 1089.54   14.32 1089.41   16.06 1088.85   34.51 1082.93   40.74 1080.83
   55.14 1075.96   68.35 1071.74   75.77 1069.36   95.96 1064.82    96.4  1064.7
   97.68 1064.63  282.06 1062.89  289.21 1062.86  302.69 1062.78  316.81 1062.79
  323.32 1062.79  327.19 1062.83  570.87 1062.73  587.38 1062.75   591.5 1062.75
  592.88 1062.77  612.12 1062.91  620.49 1063.01  632.75 1063.16  648.09 1063.26
  653.38 1063.29     669 1063.31  674.01 1063.32   675.7 1063.32  694.64 1063.38
  703.31 1063.43  715.27 1063.51  730.92 1063.63   735.9 1063.67  750.62 1063.88
  756.53 1063.97  758.52 1064.01  777.15 1064.38  786.13 1064.59  797.79 1064.82
  813.73 1065.43  818.41 1065.59  832.24 1066.08  839.04 1066.32  841.34 1066.38
  848.78 1066.59  859.67 1066.89  868.95 1067.17   880.3 1067.45  896.56 1067.84
  900.93 1067.93  913.85 1068.22  921.56  1068.4  924.16 1068.43  942.19 1068.79
  951.76 1068.81  962.82 1068.97  979.37 1069.31  983.44 1069.43  995.47 1069.71
 1004.07 1069.91 1006.97 1069.96  1024.7 1070.32 1034.58 1070.47 1045.33 1070.64
 1062.19    1071 1065.96 1071.05  1068.2 1071.08 1077.09 1071.38 1086.59 1071.71
 1101.13 1072.18 1107.22 1072.43  1117.4 1072.72 1127.85 1073.01 1145.01 1073.47
 1148.48 1073.55 1150.54 1073.59 1158.71 1073.72 1169.11 1073.86  1519.8 1074.36
 1529.28 1074.61 1540.43 1074.93 1559.11 1075.34 1561.05 1075.38 1566.79 1075.48
 1581.68 1075.74 1586.72 1075.91 1602.31 1076.35 1614.32 1076.87 1622.94 1077.17
 1641.93 1077.63 1643.57 1077.67 1648.41 1077.72  1664.2 1077.85 1669.53 1077.87
 1684.83 1077.89 1693.95 1077.94 1705.46 1078.19 1724.75 1078.53 1726.09 1078.54
 1730.03 1078.58 1746.72  1078.7 1752.36 1078.77 1767.34 1078.89 1779.96 1079.06
 1787.97 1079.16 1792.75 1079.21  1808.6 1079.42 1809.21 1079.43 1811.65 1079.45
 1825.68 1079.55 1829.23 1079.57 1835.17 1079.61 1849.86 1079.67 1862.78 1079.81
 1870.49 1079.86 1890.39 1080.13 1891.12 1080.14 1891.55 1080.14 1893.26 1080.17
 1911.75 1080.37 1924.49 1080.46 1932.38 1080.54  1945.6 1080.62 1953.01 1080.66
  1973.2 1080.75 1973.63 1080.76 1974.88 1080.76 1994.26 1080.76 2000.81 1080.76
 2014.89 1080.73 2028.42 1080.72 2035.52 1080.71 2056.03 1080.74 2056.15 1080.74
  2056.5 1080.74 2076.78 1080.79 2083.63 1080.84 2097.41  1080.9 2105.62 1080.92
 2118.04 1081.01 2122.08 1081.01 2138.12 1081.13 2138.55 1081.13 2138.67 1081.13
 2138.84 1081.13  2159.3 1081.26 2166.45 1081.32 2179.92 1081.42 2194.06 1081.53
 2200.55 1081.58 2204.42 1081.61 2219.74 1081.73 2221.18 1081.74 2237.36 1081.86
 2241.81 1081.89 2253.82 1081.98 2262.44 1082.03 2270.29 1082.08 2283.07 1082.15
 2301.35 1082.19  2303.7  1082.2 2304.48  1082.2 2530.62  1083.1  2546.2 1083.36
 2551.24 1083.45 2552.95 1083.47 2571.87  1083.7 2580.55  1083.8  2592.5  1083.9
 2608.16 1084.04 2613.13 1084.08 2627.82 1084.18 2632.55 1084.21 2633.76 1084.22
 2649.03 1084.25 2654.39 1084.28 2665.49 1084.26 2675.02  1084.3 2681.96 1084.27
 2695.65 1084.29 2709.44  1084.3 2716.28  1084.3 2731.36 1084.47 2736.91 1084.52
 2747.83 1084.62 2757.53  1084.7  2773.8 1084.76 2778.16 1084.78 2780.76  1084.8
 2791.06 1084.86 2798.79  1084.9  2813.7 1085.03 2819.42 1085.07 2829.01 1085.14
 2840.05 1085.24 2856.62 1085.32 2860.68 1085.34 2863.09 1085.33 2872.67 1085.33
 2881.31 1085.35 2884.23 1085.36 2901.94 1085.45 2911.83 1085.53 2922.56 1085.69
 2939.44 1085.84 2943.19 1085.88 2954.29 1085.98 2963.82 1086.04 2978.37 1086.16
 2984.45 1086.22 2994.83 1086.33 3005.08 1086.48 3022.25 1086.73 3025.71 1086.77
 3027.76 1086.79 3035.91  1086.9 3046.34 1087.04 3049.86 1087.05 3066.97 1087.14
 3077.47 1087.15  3087.6 1087.17 3105.07 1087.36 3108.23 1087.38 3117.53 1087.38
 3128.86 1087.36 3132.68 1087.33 3149.48 1087.18  3159.5  1087.2 3170.11 1087.24
 3187.89  1087.4 3190.74 1087.42 3199.14 1087.49 3211.37  1087.6 3225.37 1087.67
    3232 1087.67 3243.11 1087.65 3252.63 1087.67 3270.71  1087.7 3273.26 1087.71
 3274.76 1087.72 3280.76 1087.78 3293.89  1087.9  3307.7 1088.05 3314.52 1088.14
 3325.92 1088.22 3335.15  1088.3 3353.53 1088.28 3355.77 1088.29  3357.1  1088.3
 3362.37 1088.28  3376.4 1088.27 3381.14 1088.31 3397.03  1088.5 3408.75 1088.63
 3417.66 1088.74 3436.35 1088.98 3438.29 1089.01 3443.99 1089.07 3458.92 1089.23
 3463.96 1089.26 3479.55 1089.34 3491.56 1089.33 3500.18 1089.31 3519.17 1089.36
  3520.8 1089.36 3525.61  1089.4 3538.24 1089.52 3541.43 1089.54 3554.71  1089.7
 3562.06 1089.77 3574.39 1089.94 3582.69 1090.06 3587.64 1090.14 3603.32 1090.31
  3604.1 1090.32 3607.23 1090.34 3623.95 1090.45  3629.6 1090.47 3644.58 1090.51
  3657.2 1090.55 3665.21 1090.57 3684.81  1090.8 3685.84 1090.81 3688.85 1090.85
 3706.47  1091.1 3719.37 1090.97 3727.09 1090.91 3735.84 1090.88 3747.72 1090.85
  3752.3 1090.86 3768.35 1090.88 3768.78 1090.88 3770.47 1090.89 3788.98 1091.01
 3795.24 1091.08 3809.61 1091.18 3822.84 1091.34 3830.24 1091.38 3834.64 1091.42
 3850.87 1091.59 3852.08 1091.59 3867.58 1091.53  3871.5 1091.51 3884.04 1091.46
 3892.12 1091.34 3905.67  1091.3 3912.76 1091.32 3916.97 1091.34 3933.38 1091.25
 3933.45 1091.25  3933.7 1091.26 3954.01 1091.36 3966.38 1091.46 3974.64  1091.5
 3982.84 1091.57 3995.27 1091.67 4015.31 1091.88 4015.77 1091.88  4015.9 1091.89
 4032.25 1092.12 4036.53 1092.18 4048.71 1092.34 4057.16  1092.4 4065.18 1092.49
 4077.79 1092.56 4081.64  1092.6 4096.93 1092.76 4098.41 1092.78 4114.58 1092.95
 4119.04    1093 4126.51 1093.02 4139.67 1093.07 4154.12 1093.03  4160.3 1093.02
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 4163.98 1093.02 4178.55 1093.03 4180.45 1093.03 4180.93 1093.04 4196.92 1093.22
 4201.56 1093.25 4213.38 1093.41 4222.19 1093.51 4222.79 1093.51

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   13.89     .03   75.77     .03 1169.11    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          75.77 1169.11             200.01     200  202.13              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.16  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.16  * Reach Len. (ft)         *  200.01  *  200.00  *  202.13  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  485.90  *23714.88  *12662.04  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  485.90  *23714.88  *12662.04  *
* Q Total (cfs)           *-1627.66  * Flow (cfs)              *  -15.22  *-1388.28  * -224.16  *
* Top Width (ft)          * 3059.65  * Top Width (ft)          *   54.43  * 1093.34  * 1911.88  *
* Vel Total (ft/s)        *   -0.04  * Avg. Vel. (ft/s)        *   -0.03  *   -0.06  *   -0.02  *
* Max Chl Dpth (ft)       *   24.43  * Hydr. Depth (ft)        *    8.93  *   21.69  *    6.62  *
* Conv. Total (cfs)       *10706500.0 * Conv. (cfs)            *100114.4  *9131918.0  *1474464.0  *
* Length Wtd. (ft)        *  200.45  * Wetted Per. (ft)        *   57.27  * 1094.01  * 1911.98  *
* Min Ch El (ft)          * 1062.73  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.53  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  374.45  * 1460.90  * 3145.12  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   38.04  *   73.70  *  461.43  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 10099.99

INPUT
Description:
Station Elevation Data     num=     353
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 1090.46    11.6 1088.46   18.47 1086.64   29.98 1082.98    39.1 1080.15
   57.59 1074.02   59.73 1073.32   66.04 1071.39   80.36 1067.04    85.2 1066.49
  100.99 1063.94   112.8 1063.73  278.44 1062.93  286.65 1062.84  306.05 1062.98
  307.28 1062.99   310.9 1063.01  327.91  1063.1  333.65 1063.14  348.53 1063.27
  361.26 1063.33  369.16 1063.38  388.87 1063.38  389.79 1063.38  392.52 1063.37
   406.8 1063.33  410.42 1063.31  423.27 1063.23  431.05 1063.19  444.08 1063.15
  451.68  1063.1  471.69 1063.16  472.31 1063.16  474.13 1063.16  492.94  1063.2
  499.29 1063.12  513.57 1062.99  526.89 1062.92   534.2 1062.85   554.5 1062.83
  554.82 1062.83  555.75 1062.83  575.45 1062.81  582.11 1062.86  596.08 1062.94
  609.72 1063.14  616.71 1063.25  637.32 1063.53  637.34 1063.53  637.37 1063.53
  657.97 1063.78  664.93 1063.82   678.6 1063.89  692.53 1063.96  699.23 1063.98
  718.99 1064.12  719.86 1064.13  720.14 1064.13  740.49 1064.29  747.75 1064.36
  761.11 1064.46  775.36 1064.54  781.74 1064.58  800.61 1064.69  802.37  1064.7
  802.96 1064.72     823 1065.18  830.57 1065.37  843.63 1065.68  858.17 1065.91
  864.26 1066.02  871.64 1066.13  882.22 1066.29  884.89 1066.33  885.79 1066.35
  905.52 1066.81  913.39 1067.03  926.15 1067.38     941 1067.62  946.78 1067.75
  963.84 1068.14   967.4 1068.22   968.6 1068.23  988.03 1068.57  999.62 1068.67
 1008.66 1068.77 1016.08 1068.85 1029.29  1068.9 1032.55 1068.93 1045.45 1068.97
 1049.92    1069 1051.43 1069.03 1070.55 1069.35 1079.03 1069.57 1091.18 1069.82
 1106.64 1070.24 1111.81 1070.37 1114.88 1070.44 1127.07 1070.76 1132.43 1070.87
 1134.24  1070.9 1153.06 1071.19 1161.85 1071.32 1173.69 1071.51 1189.45 1071.84
 1194.32 1071.96 1208.69 1072.22 1214.95 1072.32 1230.15 1072.52 1235.58 1072.63
 1246.62  1072.7 1256.21 1072.88 1272.28 1073.19 1276.84 1073.24 1290.31 1073.55
 1297.47 1073.71 1299.88 1073.75  1318.1    1074 1327.49 1074.12 1338.72 1074.22
 1355.09 1074.36 1359.35 1074.38    2102 1078.03 2102.89 1078.04 2106.48 1078.05
 2122.62 1078.16 2128.08 1078.14 2143.25 1078.18 2155.68 1078.18 2163.88 1078.17
 2183.29 1078.36 2184.51 1078.37  2188.1 1078.39 2205.14 1078.51  2210.9 1078.58
 2225.77 1078.72 2238.51 1078.82  2246.4 1078.88  2251.1 1078.92 2267.03 1078.82
 2267.56 1078.81 2269.72 1078.84 2287.66    1079 2293.72 1079.04 2308.29 1079.07
 2321.32 1079.21 2328.91  1079.2 2348.93 1079.36 2349.54 1079.37 2351.34 1079.37
 2366.37 1079.39 2370.17 1079.46 2376.54 1079.47  2390.8 1079.61 2404.15 1079.61
 2411.43 1079.68 2431.75 1079.89 2432.06  1079.9 2432.96 1079.91 2452.69 1080.36
 2459.36 1080.49 2473.32 1080.81 2481.64  1080.9 2493.95 1081.02 2514.58 1081.29
  2535.2 1081.38 2542.18 1081.45 2555.83 1081.56 2563.97 1081.59 2576.46 1081.67
 2580.43 1081.67 2596.18 1081.67 2596.91 1081.67 2597.09 1081.67 2597.39 1081.67
 2617.72 1081.83 2624.99 1081.91 2638.35 1082.07  2652.6 1082.21 2658.98 1082.28
  2677.8 1082.44 2679.61 1082.45 2680.21 1082.46 2700.24 1082.57 2707.82 1082.68
 2720.86 1082.78 2735.42 1082.99 2741.49 1083.05  2745.1  1083.1 2759.42 1083.09
 2762.12 1083.09 2763.03  1083.1 2782.75 1083.22 2790.63 1083.37 2803.38  1083.6
 2810.24 1083.79 2824.01 1083.89 2841.04 1084.03 2844.64 1084.06 2860.38  1084.2
 2865.27 1084.24 2876.84 1084.42  2885.9 1084.48 2901.06 1084.56 2906.53 1084.61
 2909.77 1084.62 2922.66  1084.7 2926.25 1084.72 2927.15 1084.73 2942.71  1084.8
 2947.78 1084.82 2956.27 1084.88 2968.41 1084.93 2983.88 1085.02 2989.04 1085.08
 2992.12 1085.12 3004.28 1085.03 3009.67 1085.04 3011.49 1085.06  3030.3 1085.53
  3039.1 1085.62 3050.93 1085.71  3066.7 1085.89 3071.56 1085.95 3085.89 1086.13
 3092.19 1086.22 3094.31 1086.23 3112.82 1086.44 3121.91  1086.5 3133.44 1086.57
 3149.52 1086.64 3154.07 1086.66 3167.51 1086.67  3174.7 1086.69 3177.13  1086.7
 3195.33 1086.78 3204.74  1086.8 3215.96 1086.87 3232.34 1086.89 3236.59 1086.91
 3239.12 1086.91 3249.13 1086.95 3255.58    1087 3257.22 1087.02 3272.05 1087.26
 3277.85 1087.31 3288.51 1087.46 3298.48 1087.47 3315.16 1087.45 3319.11 1087.45
 3330.75 1087.42 3339.73 1087.45 3354.38  1087.6 3360.36 1087.65 3370.38 1087.69
 3380.99 1087.77 3397.98 1087.76 3401.62 1087.77 3412.37 1087.79 3420.25 1087.82
 3422.25 1087.82 3425.59 1087.83 3442.88 1087.84  3453.2  1087.9 3463.51 1087.95
 3469.66 1087.99 3484.14 1088.08 3493.98 1088.13 3502.59 1088.18 3504.77 1088.19
 3508.41 1088.21  3525.4 1088.35 3535.52 1088.47 3546.02 1088.57 3551.99 1088.64
 3566.65  1088.8  3575.6 1088.89 3587.28 1088.97 3591.22 1088.95 3607.91 1088.91
 3618.83 1088.95 3628.54 1088.89 3646.44 1089.01 3649.17 1089.04 3657.21  1089.1
 3667.26  1089.2  3669.8 1089.21 3683.72 1089.35 3690.43 1089.38 3700.18 1089.47
 3711.05 1089.53 3716.66 1089.56 3731.69 1089.64 3738.83 1089.67 3752.31 1089.78
 3756.86 1089.81 3772.94 1089.93 3782.53 1090.01 3793.57 1090.05 3798.99 1090.09
  3814.2 1090.17 3815.46 1090.17 3820.45  1090.2 3831.92 1090.32 3834.83 1090.34
 3848.39 1090.48 3855.46 1090.55 3867.29  1090.7 3876.09 1090.81 3881.33 1090.87
 3896.72 1091.07 3897.79 1091.09 3902.07 1091.14 3917.34 1091.34  3922.5 1091.39
 3937.97 1091.58  3947.2 1091.65  3958.6 1091.74 3977.72 1091.84 3979.23 1091.85
 3980.13 1091.86 3983.69 1091.87 3996.59  1091.9 3999.86 1091.91 4005.33 1091.93
 4020.49    1092 4029.52 1092.09 4041.12 1092.17    4046 1092.23 4061.75 1092.38
 4065.31 1092.42 4082.38 1092.71 4088.14 1092.76 4103.01 1092.91 4115.75 1092.87
 4123.63 1092.89 4128.33 1092.92 4144.26 1092.85  4144.8 1092.86 4146.92 1092.87
 4161.26 1093.04 4164.89 1092.99 4177.73 1093.18 4185.52 1093.33 4194.19 1093.38
 4206.15 1093.46 4226.18 1093.54 4226.78 1093.54 4228.54 1093.56 4247.41 1093.76
 4260.06 1093.95 4268.04 1094.05 4272.74 1094.08

Manning's n Values          num=       3
```

```
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0     .03   80.36     .03  871.64     .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          80.36  871.64            200.01     200  201.86            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)         * 1087.16  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)         * 1087.16  * Reach Len. (ft)         *  200.01  *  200.00  *  201.86  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *  643.94  *18596.03  *21676.93  *
* E.G. Slope (ft/ft)     *0.000000  * Area (sq ft)            *  643.94  *18596.03  *21676.93  *
* Q Total (cfs)          *-1590.97  * Flow (cfs)              *  -21.23  *-1112.07  * -457.67  *
* Top Width (ft)         * 3249.17  * Top Width (ft)          *   63.84  *  791.28  * 2394.04  *
* Vel Total (ft/s)       *   -0.04  * Avg. Vel. (ft/s)        *   -0.03  *   -0.06  *   -0.02  *
* Max Chl Dpth (ft)      *   24.35  * Hydr. Depth (ft)        *   10.09  *   23.50  *    9.05  *
* Conv. Total (cfs)      *10809010.0  * Conv. (cfs)           *144261.8  *7555374.0  *3109376.0  *
* Length Wtd. (ft)       *  200.54  * Wetted Per. (ft)        *   66.94  *  791.55  * 2394.19  *
* Min Ch El (ft)         * 1062.81  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                  *    1.75  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)    *  371.86  * 1363.77  * 3065.45  *
* C & E Loss (ft)        *          * Cum SA (acres)          *   37.77  *   69.37  *  451.44  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 9899.999

INPUT
Description:
Station Elevation Data     num=     441
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*****************************************************************************************
    4.98 1090.72    21.77  1085.8    25.61 1084.83    27.9 1084.14    36.97 1081.24
   46.24 1078.28    60.84 1073.67    66.87 1071.75    77.3 1068.76     87.5 1066.04
   93.77 1065.29   108.13 1064.46   110.23 1064.43  118.59 1064.35   128.76 1064.25
  132.19 1064.26   149.39 1064.34   159.64 1064.33  170.01 1064.31    176.1 1064.25
  190.64 1064.08    200.2 1063.95   211.27 1063.82  215.01  1063.8   221.69 1063.74
   231.9 1063.64   242.62 1063.53   252.53 1063.45  270.22  1063.2   273.16 1063.16
  281.82 1063.09   293.79    1063   297.83 1063.03  314.42 1063.16   325.43 1063.25
  335.04 1063.35   353.04 1063.45   355.67 1063.46  363.43  1063.5    376.3 1063.56
  380.65 1063.58   396.93 1063.63   408.26 1063.66  417.56 1063.67   435.86 1063.65
  438.19 1063.65   445.05 1063.65   458.82 1063.62  472.51 1063.67   479.45 1063.65
  491.07 1063.68   500.08 1063.71   518.68 1063.78  520.71 1063.79   526.67 1063.82
  541.33 1063.89   546.29 1063.91   561.96 1063.99   573.9 1064.05   582.59 1064.09
   601.5  1064.2   603.22  1064.2   608.29 1064.24  623.85 1064.37   629.11 1064.44
  644.48 1064.61   656.71 1064.83   665.11 1064.95  670.11 1065.04   685.74 1065.35
   689.9  1065.4   706.37 1065.58   711.93 1065.59     727 1065.65   739.54 1065.71
  747.62 1065.75   767.14 1065.94   768.25 1065.95  771.52 1065.99   788.88 1066.18
  794.75 1066.37   809.51 1066.78   822.35 1067.14  830.14 1067.39   849.96 1067.66
  850.77 1067.67   853.14  1067.7    871.4 1067.93  877.57 1067.99   892.03 1068.14
  895.13 1068.19   905.18 1068.36   912.66 1068.47  932.78 1068.85   933.29 1068.86
  934.76 1068.86   950.05 1068.86   953.91 1068.84  966.51 1068.73   974.54 1068.68
  987.99 1068.71   995.17  1068.7   1015.6 1068.82  1015.8 1068.82  1016.38 1068.82
 1036.43 1068.99  1043.21 1069.06  1057.06 1069.15  1065.31 1069.08  1077.69 1069.14
 1081.78 1069.16     1098  1069.4  1098.24 1069.41  1098.32 1069.41  1114.72 1069.63
 1118.94 1069.67  1126.02 1069.78  1139.57 1069.97  1153.63 1070.13   1160.2 1070.22
 1179.61 1070.34  1180.83 1070.35  1197.05 1070.35  1201.46 1070.31  1208.85 1070.23
 1222.09 1070.21  1236.45 1070.36  1242.72  1070.4  1261.22 1070.91  1263.35 1070.97
 1264.06 1070.97  1283.98 1071.11  1295.85 1071.16  1304.61 1071.37  1319.27 1071.42
 1325.23 1071.44  1342.84 1071.49  1345.86 1071.49  1346.88 1071.52  1366.49 1071.57
 1374.49 1071.65  1387.12 1071.71  1394.65 1071.95  1407.75 1072.13  1411.11 1072.19
 1424.46 1072.31  1427.59 1072.35  1428.38 1072.36   1429.7 1072.38  1449.01 1072.62
  1457.3 1072.62  1469.64 1072.68  1484.91 1072.74  1490.27 1072.74  1506.08 1072.92
  1510.9 1072.96  1512.52 1072.97  1531.52 1073.04  1540.13 1073.09  1552.15 1073.07
 1567.73  1073.2  1572.78 1073.12   1587.7 1073.36  1593.41  1073.4  1595.34 1073.41
 1614.04 1073.38  1622.94 1073.45  1634.67 1073.43  1650.55 1073.66   1655.3 1073.72
 1669.32 1073.98  1674.59 1074.09  1675.93  1074.1  1691.06 1074.37  1696.55 1074.42
 1707.52 1074.58  1717.18 1074.63  1723.99 1074.71  1737.81 1074.85  1740.45 1074.87
 1750.93 1074.96  1758.44 1075.06  1760.98 1075.06  1779.07  1075.2  1789.86 1075.29
  1799.7 1075.28  1806.32 1075.32  1820.33 1075.32  1822.79 1075.33  1832.55 1075.31
 1840.96 1075.31   1843.8 1075.32  1861.59 1075.34  1871.41 1075.09  1882.22 1075.06
 1899.01  1075.7  1902.84 1075.77  1914.17 1075.95  1923.47 1076.07  1926.62  1076.1
  1944.1 1076.27  1954.22 1076.38  1964.73 1076.54  1981.83  1076.8  1985.36  1076.9
 1987.46 1076.95  1995.79 1077.14  2003.93 1077.38  2005.99  1077.4  2020.39 1077.68
 2026.62 1077.78  2037.05  1077.9  2047.25 1078.04  2064.65 1078.22  2067.88 1078.26
  2077.4 1078.31  2088.51  1078.4  2102.73 1078.47  2109.13 1078.56  2119.19 1078.62
 2129.76 1078.77  2147.46 1078.89  2150.39 1078.91  2159.02    1079  2171.02 1079.18
 2175.07 1079.26  2191.65 1079.56  2202.68 1079.77  2212.28 1079.98  2217.99 1080.11
 2232.91 1080.44  2240.63 1080.62  2253.54 1080.89  2257.89 1080.96  2274.17  1081.2
  2285.5 1081.36  2294.79 1081.49  2300.33 1081.59  2315.43 1081.82   2316.8 1081.84
 2322.25 1081.93  2336.05 1082.15  2340.71 1082.22  2356.68 1082.47  2368.32 1082.67
 2377.31  1082.8  2382.66 1082.88  2397.94 1083.16  2399.14 1083.18  2403.87 1083.25
  2415.6 1083.41  2418.57 1083.45  2423.53 1083.51   2439.2  1083.7  2451.14 1083.82
 2459.83 1083.91  2478.74 1084.09  2480.46  1084.1  2485.49 1084.14  2501.08 1084.27
 2506.35 1084.31  2521.71 1084.46  2533.96  1084.5  2542.34 1084.56  2561.57 1084.57
 2562.97 1084.57  2567.11 1084.61  2580.27 1084.72   2583.6 1084.72  2589.17 1084.73
 2604.23 1084.77  2616.78 1084.81  2624.86 1084.83  2644.38 1084.89  2645.49 1084.89
 2646.14 1084.89  2648.73 1084.89  2666.12 1084.86     2672 1084.82  2686.75 1084.76
  2699.6 1084.65  2707.37 1084.59  2727.21 1084.63    2728 1084.63  2730.34 1084.65
 2748.63 1084.88  2754.81 1084.92  2769.26 1085.07  2777.88 1085.11  2789.89 1085.11
 2794.34 1085.08  2810.52 1084.89  2811.96 1084.87  2827.27 1084.64  2831.15  1084.6
 2843.74 1084.52  2851.78 1084.52  2865.24 1084.69  2872.41 1084.77  2876.68 1084.83
 2893.04 1084.94  2893.14 1084.94  2893.57 1084.94  2913.66 1084.92  2920.45 1084.92
 2934.29 1084.84  2948.06 1084.92  2954.92 1084.91  2975.19 1085.09  2975.55 1085.09
 2991.94 1085.33  2996.18 1085.37  3003.28 1085.46  3016.81 1085.62  3030.88 1085.83
 3037.44 1085.92  3041.35 1085.98  3056.81 1086.23  3057.81 1086.25  3058.07 1086.25
 3074.28 1086.55   3078.7  1086.6  3086.09  1086.7  3099.33 1086.95  3107.22 1087.09
 3119.95 1087.24  3138.43 1087.39  3140.14  1087.4  3140.58 1087.41   3141.3 1087.41
 3161.21 1087.62  3173.07 1087.82  3181.84 1087.98  3189.55 1088.12  3202.47 1088.35
 3220.05  1088.6   3223.1 1088.64  3224.12 1088.65  3243.73 1088.85  3251.73 1088.91
 3264.36 1089.01  3279.33 1089.11  3284.99 1089.14  3301.66 1089.25  3305.62 1089.28
 3306.94 1089.28  3326.24 1089.37  3334.55 1089.44  3346.87  1089.5  3362.16 1089.64
  3367.5 1089.68  3383.28 1089.84  3387.15 1089.88  3388.13 1089.89  3389.76 1089.91
 3408.76 1090.12  3420.08 1090.24  3429.39 1090.32  3436.55 1090.39  3450.02 1090.45
  3464.9 1090.47  3470.65 1090.46  3472.58 1090.46  3491.27 1090.46  3500.19 1090.45
  3511.9 1090.43   3527.8  1090.4  3532.53 1090.39  3546.52 1090.37  3551.82 1090.37
 3553.16 1090.37   3555.4 1090.37  3573.79 1090.37  3583.01 1090.38  3594.42 1090.39
 3610.61 1090.44  3615.05 1090.44  3628.14 1090.56  3634.15 1090.61  3635.68 1090.62
 3650.62 1090.79  3656.31 1090.86  3667.08 1090.96  3676.94 1091.06  3683.56 1091.09
```

```
3697.56 1091.18 3700.02 1091.19 3709.76 1091.24 3718.19 1091.28 3732.95 1091.34
3738.82 1091.37 3748.65 1091.42 3759.45 1091.47 3765.89 1091.49 3780.08 1091.53
3791.36 1091.54 3800.71 1091.54 3815.28 1091.55 3821.34 1091.57 3831.76 1091.59
3841.97 1091.65 3848.22 1091.65 3862.59 1091.76 3864.69 1091.77 3872.98 1091.84
3881.15 1091.89 3883.22 1091.92 3886.68 1091.96 3903.85 1092.16 3914.09 1092.29
3924.48 1092.42 3930.56 1092.49 3945.11 1092.66  3954.6 1092.76 3963.49 1092.85
3965.74 1092.88 3979.95 1093.03 3986.37  1093.1 3996.43 1093.19    4007 1093.27
4012.89 1093.31 4027.63 1093.37 4029.36 1093.39 4036.22 1093.43 4045.82 1093.49
4048.26 1093.51 4052.32 1093.55 4068.88 1093.69 4079.93 1093.79 4089.51 1093.87
4095.23 1093.91 4110.14 1094.05 4117.84 1094.11 4128.16 1094.17 4130.77 1094.19
4144.62 1094.23  4151.4 1094.26 4162.75 1094.31 4172.03 1094.34 4177.56 1094.36
4182.87  1094.4

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
    4.98     .03     77.3     .03  895.13     .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          77.3  895.13             200.01     200  201.73              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.16  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.16  * Reach Len. (ft)         *  200.01  *  200.00  *  201.73  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  552.02  *18414.13  *20834.41  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  552.02  *18414.13  *20834.41  *
* Q Total (cfs)           *-1615.59  * Flow (cfs)              *  -17.98  *-1124.03  * -473.58  *
* Top Width (ft)          * 3095.68  * Top Width (ft)          *   60.16  *  817.83  * 2217.69  *
* Vel Total (ft/s)        *   -0.04  * Avg. Vel. (ft/s)        *   -0.03  *   -0.06  *   -0.02  *
* Max Chl Dpth (ft)       *   24.16  * Hydr. Depth (ft)        *    9.18  *   22.52  *    9.39  *
* Conv. Total (cfs)       *10448880.0  * Conv. (cfs)           *  116311.1  *7269704.0  *3062867.0  *
* Length Wtd. (ft)        *  200.49  * Wetted Per. (ft)        *   62.92  *  818.30  * 2217.86  *
* Min Ch El (ft)          * 1063.00  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.67  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  369.11  * 1278.81  * 2966.95  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   37.49  *   65.68  *  440.75  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 9699.999

INPUT
Description: CP - E
Station Elevation Data     num=     341
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*******************************************************************************
    9.29 1089.12    10.72 1088.65    29.92 1082.82    38.33 1080.04    50.55 1076.05
   65.93 1071.52    71.18 1069.93    86.67 1067.27    91.81 1066.44    93.54 1066.43
  112.44 1066.17   121.14 1066.16   133.07 1066.15   148.75 1065.97    153.7 1065.92
  168.29 1065.67   174.33 1065.57   176.36 1065.55   194.95 1065.37   206.04 1065.24
  215.58 1065.12   216.62 1065.09   231.57 1064.68   236.21 1064.55   249.91 1063.99
  256.84 1063.71   259.18 1063.67   277.47 1063.29   286.78 1063.38    298.1 1063.48
   314.4 1063.68   318.73 1063.73   331.53 1063.81   339.36 1063.86     342 1063.86
  359.98 1063.92   369.61 1063.94   380.61 1063.96   397.21    1064   401.24    1064
  413.15 1064.05   420.11 1064.07   421.87 1064.09   436.57 1064.21   442.5 1064.26
  452.43 1064.35   463.13 1064.43   480.04 1064.58   483.76  1064.6   494.76 1064.73
  502.44  1064.8   504.39 1064.81   518.91 1064.87   525.02  1064.9   535.25 1064.92
  545.65 1064.91   562.85 1064.96   566.27 1064.99   576.38 1065.05    586.9 1065.13
  590.46 1065.16   607.53 1065.34   618.06 1065.43   628.16 1065.52   645.68 1065.62
  648.79 1065.64   657.99 1065.73   669.42 1065.86   673.28 1065.87   690.05 1065.94
  700.88 1065.96   710.68 1065.98   728.49 1066.05   731.31 1066.07   739.61 1066.13
  751.94 1066.17   756.09  1066.2   772.56 1066.27   782.38 1066.34   793.19 1066.67
  798.84 1066.79   813.82 1067.36   821.23 1067.55   834.45 1067.89   838.92 1067.98
  855.08 1068.25   866.52 1068.36   875.71 1068.46   894.13 1068.61   896.34 1068.63
  902.85 1068.68   915.12 1068.78   916.97 1068.79   921.73 1068.89    937.6 1069.17
  947.04 1069.42   958.23 1069.68   976.95 1070.07   978.85  1070.1   984.47 1070.17
  999.48 1070.34  1004.56 1070.41  1020.11 1070.59  1032.16 1070.79  1040.74 1070.95
 1059.77 1070.96  1061.37 1070.98  1066.08 1071.01     1082 1071.14  1087.37 1071.19
 1102.63 1071.35  1114.98 1071.38  1123.26 1071.42  1907.16 1076.58  1915.57 1076.72
 1927.79 1076.86  1943.18 1077.14  1948.42 1077.23  1963.88 1077.46  1969.05 1077.56
 1984.47 1077.82  1989.67  1077.9  1998.39 1078.03   2010.3  1078.2     2026 1078.43
 2030.93 1078.51   2045.5 1078.78  2051.56  1078.9   2053.6 1078.95  2072.19 1079.33
 2083.27 1079.46  2092.82 1079.49  2108.82 1079.58  2113.45 1079.62  2127.11 1079.71
 2134.08 1079.75  2136.43 1079.79   2154.7 1080.08  2164.03 1080.26  2175.33 1080.47
 2182.07 1080.57  2195.96 1080.75  2198.53 1080.82  2208.73 1080.99     2215 1081.11
 2216.59 1081.12  2219.24 1081.17  2237.22 1081.57  2246.85 1081.73  2257.85 1081.94
 2274.46 1082.16  2278.48  1082.2  2290.35 1082.33  2299.11 1082.43  2302.07 1082.46
 2319.74 1082.66  2329.67 1082.78  2340.37  1082.9  2357.28 1083.09  2360.99 1083.13
 2371.96 1083.26  2381.62 1083.37  2384.88 1083.41  2402.25 1083.62  2412.49  1083.7
 2422.88 1083.77   2440.1 1083.81  2443.51  1083.8  2453.58  1083.9     2462 1083.95
 2464.14 1083.97  2478.48 1084.21  2484.77  1084.3  2494.94 1084.47   2505.4 1084.63
 2511.41 1084.74  2526.03     1085 2527.87 1085.03   2535.2 1085.11  2546.66 1085.22
 2550.52 1085.24  2567.28 1085.33  2578.14 1085.38  2587.91 1085.41  2605.74  1085.6
 2608.54 1085.62  2616.81 1085.76  2629.17 1085.95  2643.14 1086.14   2649.8  1086.2
 2660.95 1086.25  2670.43 1086.31  2688.55 1086.37  2691.06 1086.38  2692.54 1086.38
 2698.43 1086.41  2709.01 1086.46  2711.69 1086.48  2725.48 1086.57  2732.32 1086.62
 2743.77 1086.72  2752.95 1086.79  2758.41 1086.84  2773.57 1086.96  2774.87 1086.97
 2780.05 1087.01  2791.35 1087.09   2794.2 1087.11  2798.98 1087.15  2814.83 1087.28
 2826.59 1087.39  2835.46 1087.46  2840.74  1087.5  2856.09 1087.63  2861.67 1087.67
 2876.72 1087.76   2881.8 1087.78  2897.35 1087.83  2909.41 1087.84  2917.98 1087.83
 2937.02 1087.81   2938.6  1087.8  2943.29 1087.79  2959.23 1087.73  2972.48  1087.7
 2979.86 1087.71  2992.23 1087.77  3000.49 1087.79  3019.83 1087.92  3021.12 1087.93
 3024.91 1087.94  3038.35 1087.99  3041.75 1088.01  3047.44 1088.02  3062.38 1088.03
 3071.28 1088.01  3083.01     1088 3087.75     1088 3103.64 1088.01  3104.21 1088.01
 3106.52 1088.02  3120.69 1088.06  3124.27 1088.08  3544.36 1088.17  3557.47 1088.28
 3565.29 1088.36   3578.1 1088.49  3596.23 1088.67  3598.23 1088.69  3598.73  1088.7
 3614.69 1088.79  3619.36 1088.82  3627.18 1088.86  3639.99 1088.94  3647.62 1088.98
 3660.62 1089.08  3664.09 1089.09  3677.84 1089.13  3681.25 1089.15  3697.03 1089.27
 3701.88 1089.31  3713.49 1089.41   3722.5 1089.48  3737.61 1089.66  3743.14 1089.71
 3759.46 1090.07  3762.89 1090.15  3763.76 1090.16  3779.36 1090.38  3784.39 1090.47
 3795.82 1090.57  3805.02 1090.71  3812.29 1090.77  3825.65 1090.94  3828.76 1090.97
 3841.08 1091.05  3845.23 1091.07  3846.28 1091.09  3848.03  1091.1  3866.91 1091.22
 3875.64 1091.18  3887.54 1091.24  3894.62  1091.3  3908.17 1091.26   3922.7 1091.28
 3927.56  1091.3  3928.79 1091.31  3944.03 1091.47  3949.42 1091.49  3958.46 1091.61
 3970.05 1091.76  3976.96  1091.8  3990.68 1091.87  3993.43  1091.9  4004.32 1091.95
 4011.31    1092  4013.67 1092.01  4031.94 1092.24  4042.83 1092.35  4052.57 1092.42
 4068.89 1092.51   4073.2 1092.53  4085.93 1092.49  4092.23 1092.47  4093.83 1092.47
  4108.7 1092.53  4114.46 1092.55  4125.16 1092.62  4135.08 1092.65  4141.63 1092.68
 4155.71 1092.73  4167.54 1092.84  4176.34 1092.95  4179.31 1092.97  4196.97 1093.16
```

```
 4207.5 1093.21  4217.6 1093.27 4234.53 1093.38 4238.23 1093.39 4249.16 1093.48
 4256.9 1093.58 4258.86  1093.6 4262.13 1093.62 4279.49  1093.8 4289.83 1093.94
4300.12 1093.84  4306.3 1093.92 4320.75 1093.88 4322.77 1093.87 4330.78 1093.87
4339.23  1093.9 4341.37 1093.91  4355.7 1094.05    4362 1094.08 4372.16 1094.22
4382.63 1094.26 4400.17 1094.34 4403.26 1094.36  4405.1 1094.36  4412.4 1094.41
4420.87  1094.5

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
    9.29     .03    86.67     .03   915.12    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          86.67  915.12            201.41     200   186.6              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.16  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.16  * Reach Len. (ft)         *  201.41  *  200.00  *  186.60  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  769.79  *17970.71  *17868.21  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  769.79  *17970.71  *17868.21  *
* Q Total (cfs)           *-1593.54  * Flow (cfs)              *  -29.74  *-1131.71  * -432.09  *
* Top Width (ft)          * 2784.07  * Top Width (ft)          *   71.03  *  828.45  * 1884.59  *
* Vel Total (ft/s)        *   -0.04  * Avg. Vel. (ft/s)        *   -0.04  *   -0.06  *   -0.02  *
* Max Chl Dpth (ft)       *   23.87  * Hydr. Depth (ft)        *   10.84  *   21.69  *    9.48  *
* Conv. Total (cfs)       *9747219.0  * Conv. (cfs)            *181904.6  *6922363.0  *2642952.0  *
* Length Wtd. (ft)        *  196.24  * Wetted Per. (ft)        *   73.87  *  828.60  * 1884.70  *
* Min Ch El (ft)          * 1063.29  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.58  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  366.08  * 1195.28  * 2877.33  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   37.19  *   61.90  *  431.25  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 9499.999

INPUT
Description:
Station Elevation Data     num=     316
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*****************************************************************************************
       0 1089.91     3.12  1089.4    17.42 1086.45    22.89 1084.79    38.18 1080.15
    51.6 1076.34    58.93 1074.24    63.07 1073.49    78.02 1071.93    79.68 1071.74
   80.31 1071.71   204.2 1071.01   209.32 1070.82   213.99 1070.67   224.96 1070.33
  227.82 1069.82   245.71 1066.52   252.56 1065.63   266.46 1063.46   281.27 1063.68
  287.22 1063.75   290.58  1063.8   302.72    1064   307.97 1064.08   309.98  1064.1
  328.72 1064.24   338.69 1064.29   349.48 1064.32   367.39 1064.35   370.23 1064.35
  377.62 1064.35   390.99 1064.37    396.1  1064.4   411.74 1064.48   424.81 1064.61
  432.49 1064.68   452.52  1064.9   453.25 1064.91   469.33  1064.9      474 1064.86
  482.23 1064.73   494.75 1064.62   510.93 1064.46   515.51 1064.45   527.42 1064.33
  534.34 1064.32   536.26 1064.32   539.65 1064.34   557.01 1064.37   568.36 1064.52
  577.77 1064.63   597.06 1064.74   598.52 1064.75   602.31 1064.77   619.28 1064.94
  625.77 1065.01   640.03 1065.11   654.47 1065.26   660.78 1065.35   677.21 1065.49
  681.53 1065.54   683.19 1065.53   702.29 1065.48    711.9 1065.45   723.04 1065.53
   740.6 1065.68    743.8 1065.73   752.11 1065.85   764.55  1066.1   769.31  1066.2
   785.3 1066.81   798.02 1066.92   806.06 1067.01   826.73 1067.14   826.81 1067.14
  826.85 1067.14   827.01 1067.14    843.1 1067.34   847.57 1067.37   859.35 1067.54
  868.32 1067.64   884.14 1067.71   889.07 1067.75   901.91 1067.75   909.82 1067.73
  912.86 1067.72   930.58 1067.67   937.28 1067.64   941.56 1067.62   951.33 1067.59
  956.85 1067.59   972.09 1067.59   976.81 1067.62   992.84 1067.71   998.98 1067.73
 1013.59 1067.72  1027.69 1067.94  1034.35 1067.97  1051.71 1068.47   1055.1 1068.59
 1070.61 1069.05  1075.86 1069.15   1085.1 1069.34  1096.61 1069.57  1113.81 1069.89
 1117.36 1069.95  1126.61 1070.09  1138.11 1070.24  1142.53  1070.3  1158.87 1070.49
 1168.11 1070.53  1179.62 1070.62  1184.36 1070.45  1200.38 1070.59  1200.61  1070.6
 1201.51 1070.61  1216.86 1070.77  1221.13 1070.79  1228.64 1070.87  1241.88 1071.11
 1257.35 1071.24  1262.64  1071.3   1276.4 1071.33  1283.39 1071.35  1286.07 1071.36
 1304.14 1071.39  1314.77 1071.43   1324.9 1071.49  1343.48 1071.61  1345.65 1071.64
  1351.3 1071.66   1366.4 1071.73  1372.19 1071.74  1387.16 1071.79   1400.9 1071.85
 1407.91 1071.88   1426.2 1071.94  1428.67 1071.94  1429.61 1071.94  1449.42 1071.85
 1460.63 1071.78  1470.17 1071.88  1487.02 1072.12  1490.93 1072.15   1501.1 1072.37
 1511.68 1072.61  1525.63 1072.93  1532.43 1073.08  1541.88 1073.29  1553.19 1073.53
 1573.14 1073.91  1573.94 1073.93     1576 1073.96  1594.69 1074.32  1601.86 1074.41
 1615.45 1074.64  1623.14 1074.79   1636.2    1075  1650.89 1075.36  1655.64 1075.48
 1656.96 1075.51  1659.27 1075.57  1677.71 1075.95  1687.98 1076.12  1698.46 1076.22
 1716.68 1076.31  1719.21 1076.32  1725.79 1076.37  1739.97 1076.44   1745.4 1076.55
 1760.72 1076.86  1774.11 1077.11  1781.48  1077.3  1800.69  1077.7  1801.89 1077.72
 1802.23 1077.73  1818.14 1078.03  1822.98 1078.08   1834.4 1078.21  1843.74  1078.3
 1850.65 1078.41  1864.49 1078.59  1875.58 1078.72  1885.25 1078.82   1899.4 1078.95
    1906 1079.02  1917.65 1079.12  1926.75  1079.2  1946.35 1079.35   1947.5 1079.36
 1950.48 1079.37  1968.26 1079.45  3171.97 1085.44  3180.82  1085.5  3192.72  1085.6
 3209.52 1085.75  3213.47 1085.79  3223.76 1085.91  3234.23 1086.02  3248.21 1086.18
 3254.98 1086.25  3266.95 1086.34  3275.74 1086.43  3295.65 1086.61  3296.49 1086.62
 3298.66 1086.64  3317.24 1086.79  3329.45 1086.83  3337.99 1086.86   3345.7 1086.88
 3358.75 1086.88  3373.56 1086.95   3379.5 1086.98  3381.77 1087.01  3400.26 1087.22
 3410.71 1087.36  3421.01 1087.49  3439.19 1087.68  3441.76 1087.71  3448.46 1087.76
 3462.52 1087.86   3467.9 1087.91  3483.27 1088.05  3496.61 1088.18  3504.02 1088.28
 3508.22 1088.31  3523.36 1088.36  3524.78 1088.37  3525.32 1088.37  3545.53 1088.56
 3556.97 1088.72  3566.28 1088.83  3573.22 1088.93  3587.04 1089.12  3598.26 1089.28
 3605.72  1089.4  3607.79 1089.43  3621.97 1089.59  3628.55 1089.64  3640.15  1089.7
  3649.3 1089.75  3668.86 1089.85  3670.05 1089.85  3673.15 1089.88  3686.97    1090
 3690.81 1090.02  3697.57 1090.08  3711.56 1090.21  3719.48 1090.26  3732.31 1090.34
 3735.73 1090.34  3748.05  1090.4  3751.98 1090.42  3753.07 1090.43  3754.99 1090.44
 3773.82 1090.53  3784.48 1090.57  3794.57  1090.6  3800.73 1090.62  3815.33 1090.66
 3822.95 1090.68  3836.08 1090.75  3849.48  1090.8  3856.84 1090.83  3869.82 1090.88
 3877.59 1090.92  3881.98 1090.94  3897.84 1090.99  3898.23 1090.99  3898.34 1090.99
 3914.48 1091.18   3919.1 1091.22  3927.23 1091.32  3939.85 1091.49  3946.98 1091.57
  3960.6 1091.61  3963.23 1091.63  3972.74 1091.72  3979.49 1091.79  3981.36 1091.81
 3984.66 1091.83  4002.11 1092.03  4013.36 1092.08  4022.86 1092.14  4042.07 1092.32
 4043.62 1092.33  4047.64 1092.37  4060.74 1092.53  4064.37 1092.55  4076.99 1092.64
 4085.13 1092.64  4093.24 1092.68  4105.88 1092.67  4109.49 1092.68  4122.54 1092.76
 4125.74 1092.79  4126.63  1092.8  4128.19 1092.82  4147.39 1093.12   4156.9 1093.22
 4168.14  1093.4  4185.61 1093.49   4188.9 1093.52  4190.74 1093.54  4197.44 1093.57
 4206.99 1093.63  4209.65 1093.65  4223.24 1093.77   4230.4 1093.78  4239.49 1093.87
 4251.15 1093.99  4255.75 1094.04  4271.91 1094.17     4272 1094.17  4272.34 1094.17
  4279.8 1094.22

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
       0     .03   213.99     .03   937.28    .045
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        213.99  937.28            200.01     200  201.18            .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.15  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.15  * Reach Len. (ft)         *  200.01  *  200.00  *  201.18  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 2708.54  *15620.49  *20281.20  *
* E.G. Slope (ft/ft)      *0.000005  * Area (sq ft)            * 2708.54  *15620.49  *20281.20  *
* Q Total (cfs)           *20222.41  * Flow (cfs)              * 1613.87  *12778.88  * 5829.66  *
* Top Width (ft)          * 3379.61  * Top Width (ft)          *  199.94  *  723.29  * 2456.38  *
* Vel Total (ft/s)        *    0.52  * Avg. Vel. (ft/s)        *    0.60  *    0.82  *    0.29  *
* Max Chl Dpth (ft)       *   23.69  * Hydr. Depth (ft)        *   13.55  *   21.60  *    8.26  *
* Conv. Total (cfs)       *9489633.0  * Conv. (cfs)            *757330.6  *5996659.0  *2735644.0  *
* Length Wtd. (ft)        *  200.27  * Wetted Per. (ft)        *  201.94  *  723.91  * 2456.51  *
* Min Ch El (ft)          * 1063.46  * Shear (lb/sq ft)        *    0.00  *    0.01  *    0.00  *
* Alpha                   *    1.73  * Stream Power (lb/ft s)   *    0.00  *    0.01  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  358.03  * 1118.16  * 2795.62  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   36.56  *   58.34  *  421.96  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 9299.999

INPUT
Description:
Station Elevation Data    num=     457
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
    4.78 1090.85   15.05 1088.08   25.54 1084.98   44.06 1079.69   46.29 1079.04
   47.54  1078.7    52.1 1077.59    63.8 1074.69   67.04 1074.15   72.76 1074.03
    87.8 1073.77  101.47 1073.59  108.55 1073.48  112.55 1073.44     127 1073.34
   128.8 1073.32   129.3 1073.32  130.18 1073.33  150.06  1073.4  158.89 1073.44
  170.81 1073.52   187.6 1073.52  191.57 1073.53   201.9 1073.34  212.32  1073.1
  212.92 1072.97   216.3 1072.25  233.07 1069.09  245.02 1066.62  253.82 1064.64
  273.72 1063.49  274.58 1063.43   276.8 1063.45  295.33 1063.69  302.43 1063.78
  316.09 1063.97  331.14 1064.04  336.84 1064.08   351.7 1064.11  356.31 1064.12
  357.59 1064.12  372.56 1064.15  378.35 1064.18  388.81 1064.22   399.1 1064.29
  405.06 1064.32  419.85 1064.39  421.32 1064.39  426.59  1064.4  440.61 1064.42
  445.97 1064.43  461.36 1064.43  474.69 1064.54  482.11 1064.58  501.49 1064.91
  502.87 1064.93  503.39 1064.94  523.62 1065.22   532.1 1065.24  544.38 1065.29
   560.8 1065.33  565.13 1065.34  576.39  1065.5  585.88 1065.64  589.51 1065.71
  606.64 1066.14  618.23 1065.35  627.39 1066.56  646.93 1066.78  648.14  1066.8
  651.29  1066.8   668.9 1066.75  675.64 1066.71  689.65 1066.54  704.35 1066.57
   710.4 1066.53  726.19 1066.62  731.16 1066.66  733.06 1066.68  751.91 1066.88
  761.77 1066.94  772.67 1067.02  790.47 1067.18  793.42  1067.2  801.09 1067.34
  814.17 1067.55  819.18 1067.59  834.93 1067.71  847.89 1067.74  855.68  1067.8
  875.99 1067.95  876.43 1067.95   876.6 1067.95  897.19 1068.08  905.31 1068.09
  917.94 1068.12  925.08 1068.13  938.69 1068.14  950.89 1068.16  957.59 1068.15
  958.14 1068.15  959.45 1068.14  962.73 1068.13   980.2 1068.14  991.43 1068.13
 1000.96 1068.17 1020.14 1068.17 1021.71 1068.18 1025.78 1068.17 1042.46 1068.32
 1055.09 1068.35 1063.21 1068.38 1077.56 1068.48 1083.97 1068.51 1100.68 1068.55
 1104.72 1068.57 1106.27 1068.59 1125.48 1068.75 1134.97 1068.83 1146.23 1068.93
 1163.68 1068.99 1166.98 1068.99 1175.58 1069.04 1187.74 1069.05 1192.39 1069.06
 1208.49 1069.05  1221.1 1069.11 1229.24 1069.17 1249.81 1069.24    1250 1069.25
 1250.48 1069.24 1266.35 1069.17 1270.75 1069.13  1282.6 1069.06  1291.5 1069.02
 1298.85    1069 1312.26 1069.09  1315.1 1069.11 1325.38 1069.26 1333.01 1069.45
 1335.93 1069.61 1353.77 1070.27 1363.85 1070.62 1374.52  1071.1  1380.1 1071.32
 1395.27 1071.95 1400.28 1072.15 1416.03 1072.53 1422.06 1072.62 1436.78 1072.92
 1450.77 1073.04 1457.53 1073.14 1475.17 1073.13  1477.6 1073.12 1478.29 1073.12
 1493.86 1073.09 1499.04 1073.06 1508.18 1073.04 1519.79 1073.03  1536.9 1072.98
 1540.55 1072.97 1550.07 1072.93  1561.3 1072.92  1565.6 1072.93 1582.06 1072.94
 1594.31 1072.97 1602.81 1072.97 1623.01 1073.01 1623.56 1073.01 1623.87 1073.01
 1624.96 1073.01 1644.32 1073.03 1656.36 1073.09 1665.07 1073.18 1680.44 1073.35
 1685.82 1073.41 1699.86 1073.53 1706.58 1073.61 1709.14 1073.63 1727.33 1073.79
 1737.85 1073.87 1748.08 1073.93 1766.56 1074.02 1768.84 1074.04 1774.76 1074.09
 1789.59 1074.26 1795.27 1074.29 1810.35 1074.53 1823.98 1074.67  1831.1 1074.76
 1849.66 1074.91 1851.38 1074.93 1851.85 1074.93 1867.63 1075.14  1872.6 1075.16
 1881.39 1075.21 1893.36 1075.33  1910.1 1075.52 1914.11 1075.58 1924.56 1075.75
 1934.87 1075.88 1938.81 1075.96 1955.62 1076.35 1957.52 1076.67 1976.37 1076.86
 1996.23 1077.13 1997.13 1077.14 1997.63 1077.14 1999.46 1077.14 2013.88 1077.09
 2017.88 1077.14 2024.94 1077.16 2038.63 1077.14 2053.64 1077.43 2059.39 1077.54
 2074.36 1078.05 2080.14 1078.25 2095.14  1078.5 2100.89 1078.61 2111.06 1078.65
 2121.65 1078.68 2139.77 1078.55  2142.4 1078.53 2149.26 1078.44 2163.16 1078.26
 2168.48 1078.29 2183.91 1078.39 2192.64 1078.57 2204.66 1078.82 2224.15 1079.31
 2225.14 1079.33 2225.42 1079.34 2225.89 1079.35 2246.17 1079.74 2257.64 1079.89
 2266.92 1080.05 2273.89 1080.07 2287.68 1080.21 2299.05 1080.22 2308.43 1080.22
 2312.02 1080.23 2329.18 1080.28  2338.9 1080.21 2349.94 1080.09 2369.44 1079.79
 2370.69 1079.78 2373.95 1079.77 2391.45 1079.68 2398.15 1079.74  2412.2 1079.93
 2420.15 1080.05 2432.95 1080.18  2436.4  1080.2 2448.85  1080.2 2452.65  1080.2
 2453.71 1080.21 2455.56 1080.21 2474.46 1080.18 2484.27  1080.2 2495.21 1080.21
 2512.98 1080.49 2515.97 1080.53 2517.65 1080.55 2523.75 1080.65  2533.9 1080.78
 2536.72 1080.83 2550.15 1080.91 2557.47 1081.06 2566.41 1081.16 2578.23 1081.52
 2582.66 1081.61 2598.65 1081.99 2598.91    1082 2598.98    1082 2615.16  1082.1
 2619.74 1082.11 2627.81 1082.07 2640.49 1082.02 2656.52  1081.9 2661.24 1081.87
 2663.91 1081.91 2673.55 1081.98 2680.16 1082.04    2682 1082.04 2685.22 1082.05
 2702.75  1082.2 2712.66 1082.16  2723.5  1082.1 2728.91 1082.03 2744.26 1081.92
 2745.16 1081.91 2748.45  1081.9 2761.41 1081.85 2765.01 1081.88 2777.66 1081.94
 2785.76 1081.98 2800.06 1081.97 2806.52 1082.03 2810.16 1082.05 2823.34  1082.1
 2826.41 1082.12 2827.27 1082.12 2842.67 1082.19 2848.02 1082.21 2858.92 1082.24
 2868.78  1082.3 2875.17 1082.34 2889.53 1082.38 2898.24 1082.45 2910.28 1082.53
 2914.89 1082.62 2931.04 1082.83  2943.6 1082.96 2951.79 1083.11 2972.31 1083.44
 2972.55 1083.44 2972.67 1083.44 2973.34 1083.45 2988.92 1083.58  2993.3 1083.67
 3005.17 1083.79 3014.05 1083.88 3021.42 1083.94 3034.81 1084.03 3048.04 1084.22
 3055.56 1084.34 3070.17 1084.53 3076.31 1084.59 3086.42 1084.69 3097.07 1084.72
 3115.85 1084.82 3117.82 1084.84 3122.94 1084.91 3135.18  1085.1 3138.57 1085.16
 3151.43 1085.34 3159.33 1085.45 3167.68 1085.57 3180.08 1085.67 3183.93 1085.78
 3197.84 1086.01 3200.18 1086.06 3200.84 1086.06 3201.98 1086.08 3221.59 1086.44
 3230.69 1086.51 3242.34 1086.65 3248.93 1086.65  3263.1  1086.6 3272.74 1086.54
 3281.43 1086.52 3283.85 1086.53 3297.68 1086.53  3304.6 1086.53 3316.82 1086.54
 3325.36 1086.55 3330.18 1086.50 3346.11 1086.71 3346.43 1086.71 3347.64 1086.74
 3366.86 1087.12 3378.94 1087.28 3387.62 1087.37 3395.19 1087.44 3408.37  1087.5
 3422.53 1087.54 3429.13 1087.55 3443.94 1087.66 3449.88 1087.69  3460.2 1087.77
 3470.63  1087.8 3476.45 1087.84 3491.39 1087.94  3492.7 1087.96 3497.43 1087.99
 3512.14 1088.12 3517.77 1088.13 3532.89 1088.18 3546.48 1088.26 3553.65 1088.28
 3557.69  1088.3 3572.33 1088.41 3573.94 1088.43  3574.4 1088.43 3590.19  1088.4
 3595.15 1088.43 3606.44  1088.5 3615.91 1088.54 3632.61 1088.57 3636.66 1088.61
 3638.96 1088.64 3647.23 1088.64 3657.42 1088.73 3661.32 1088.75 3678.17 1088.96
 3687.71 1089.14 3698.92 1089.23 3703.96  1089.3 3719.67 1089.34 3722.13 1089.34
```

```
 3736.46 1089.41 3740.43 1089.42 3752.71 1089.53 3761.18 1089.57 3768.96 1089.65
 3781.94 1089.75  3785.2 1089.78 3797.02 1089.96 3802.69 1090.08 3817.71 1090.43
 3823.44 1090.55 3833.96 1090.77  3844.2 1090.94 3850.21 1090.99 3864.95 1091.14
 3871.92 1091.16 3885.71 1091.22 3898.96 1091.29 3906.46 1091.39 3915.22 1091.51
 3927.21 1091.67 3931.47 1091.72 3946.82 1091.91 3947.96 1091.92 3963.97 1092.05
 3968.72 1092.09  3977.1 1092.15 3989.47  1092.2 4005.82 1092.29 4010.23 1092.29
 4012.72 1092.31 4021.71 1092.43 4028.97 1092.53 4030.98 1092.56 4045.22 1092.79
 4051.73  1092.9 4061.47 1093.06 4072.49 1093.22 4077.72 1093.29 4093.24 1093.47
 4096.61  1093.5 4113.99 1093.59 4120.65 1093.62 4134.75 1093.67 4149.36 1093.69
  4155.5  1093.7 4171.51 1093.73 4175.23 1093.74 4176.25 1093.74 4191.48 1093.88
 4197.01 1093.93 4207.73  1094.1 4217.76 1094.14 4223.98 1094.25 4238.52 1094.36
 4246.41 1094.47 4258.41 1094.67

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
    4.78     .03  212.92     .03 1436.78    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        212.92 1436.78            200.01     200  201.19              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.15  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.15  * Reach Len. (ft)         *  200.01  *  200.00  *  201.19  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 2323.72  *24239.49  *14422.35  *
* E.G. Slope (ft/ft)      *0.000003  * Area (sq ft)            * 2323.72  *24239.49  *14422.35  *
* Q Total (cfs)           *20194.21  * Flow (cfs)              * 1077.28  *15837.46  * 3279.47  *
* Top Width (ft)          * 3350.61  * Top Width (ft)          *  194.71  * 1223.86  * 1932.04  *
* Vel Total (ft/s)        *    0.49  * Avg. Vel. (ft/s)        *    0.46  *    0.65  *    0.23  *
* Max Chl Dpth (ft)       *   23.72  * Hydr. Depth (ft)        *   11.93  *   19.81  *    7.46  *
* Conv. Total (cfs)       *11200410.0  * Conv. (cfs)           *597494.1  *8784002.0  *1818910.0  *
* Length Wtd. (ft)        *  200.29  * Wetted Per. (ft)        *  196.46  * 1224.84  * 1932.18  *
* Min Ch El (ft)          * 1063.43  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.46  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Prctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  346.48  * 1026.66  * 2715.48  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   35.65  *   53.87  *  411.82  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                 RS: 9099.999

INPUT
Description:
Station Elevation Data     num=      299
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 1089.85   10.73 1089.17   24.01 1085.36   31.48 1083.26   34.34 1082.51
   52.24 1077.59   63.05 1075.99   72.99 1074.15   91.76 1073.32   93.74 1073.24
   94.86 1073.22   98.91 1073.12   114.5 1072.73  120.46 1072.68  135.25 1072.55
  149.18 1072.54  156.01 1072.53   173.8 1072.45  176.76 1072.45  177.88 1072.42
  197.51 1072.05  206.59 1071.24  213.23 1070.86  218.26 1070.58   235.3  1067.8
  239.02 1067.17   248.7 1065.73  259.77 1064.11  264.01 1064.04  280.53 1063.32
  292.72 1063.45  301.28 1063.53  321.42 1063.66  322.03 1063.67   323.6 1063.67
  342.79 1063.67  354.88 1063.65  363.54 1063.63  378.85 1063.58  384.29 1063.57
   398.5 1063.55  405.05 1063.54  407.55 1063.55   425.8 1063.62  436.26 1063.73
  446.55 1063.85  464.96 1064.12  467.31 1064.16   473.4  1064.2  488.06 1064.33
  493.67 1064.43  508.82 1064.66  522.39 1065.01  529.57 1065.16   548.3 1065.35
  723.34 1066.79  737.11 1066.95  752.05 1067.16  757.86 1067.24  761.14 1067.23
  772.99 1067.18  777.39 1067.17  778.61 1067.18  780.76 1067.21  799.37 1067.34
  809.47 1067.56  820.12 1067.83  826.14 1067.99  840.87 1068.21  842.39 1068.23
  847.89 1068.27  861.63 1068.37  866.89 1068.44  882.38 1068.64  895.59 1069.22
  903.13 1069.51  922.79 1070.72  923.89 1070.78   939.9  1071.6  944.64 1071.74
  953.01 1071.95   965.4 1072.47  974.22  1072.6 1719.93 1073.93 1733.28  1074.1
 1736.18 1074.13 1746.67 1074.26 1752.43 1074.31 1754.03 1074.33 1756.84 1074.34
 1774.79 1074.48 1785.56 1074.52 1795.54 1074.57 1814.26 1074.57 1816.29 1074.57
 1821.57 1074.57 1837.05 1074.56 1842.97 1074.62  1857.8  1074.7 1871.68 1074.85
 1878.55 1074.93 1896.47 1075.32 1899.31 1075.37 1900.39 1075.39 1920.06 1075.79
  1929.1 1075.88 1940.81 1076.02  1957.8 1076.18 1961.57 1076.22 1971.36 1076.31
 1982.32  1076.4  1996.2 1076.49 2003.08 1076.54 2012.45 1076.54 2023.83 1076.56
  2028.7 1076.53 2044.58  1076.5 2044.95  1076.5 2046.26  1076.5 2065.34 1076.54
 2072.64 1076.57 2086.09 1076.62 2101.34 1076.69 2106.84 1076.71 2121.16 1076.76
  2127.6 1076.79 2130.05  1076.8 2148.35 1076.84 2158.76 1076.92  2169.1 1077.01
 2187.47 1077.11 2189.86 1077.14 2196.06 1077.16 2210.61 1077.23 2223.71 1077.35
 2231.37 1077.43 2239.96 1077.54 2252.12 1077.73 2256.21  1077.8 2270.96 1078.02
 2272.87 1078.05  2273.6 1078.05 2293.62 1078.24  2302.3 1078.28 2314.38 1078.33
 2321.21 1078.39 2335.13 1078.55 2345.86  1078.8 2353.71 1078.98 2355.89 1078.99
 2359.73 1079.06 2376.64 1079.41 2388.43 1079.72 2397.39 1079.94 2417.14 1080.44
 2418.15 1080.46 2418.71 1080.48 2420.76 1080.53  2438.9 1080.81 2451.21 1080.98
 2459.65 1081.05 2474.56  1081.2 2480.41 1081.26 2495.66 1081.37 2499.97 1081.41
 2501.16 1081.42 2503.27 1081.42 2521.91 1081.46 2532.47 1081.41 2542.67 1081.35
 2548.72 1081.28 2563.42 1081.15 2570.55  1081.1 2581.22 1081.09 2584.18 1081.11
 2597.47 1081.29 2604.93 1081.33 2613.72 1081.44 2625.68 1081.54 2629.97 1081.53
 2645.45 1081.63 2646.22 1081.64 2646.44 1081.64 2662.47 1081.66 2667.19 1081.68
 2678.72 1081.71 2687.94 1081.74 2694.97 1081.79  2708.7 1081.86 2711.22 1081.88
 2720.35 1081.91 2727.47 1081.93 2729.45 1081.94 2732.93 1081.96  2750.2 1082.07
 2761.64 1082.17 2770.96 1082.39 2790.35  1082.5 2791.71 1082.52 2792.48 1082.52
 2795.25 1082.51 2808.73 1082.52 2812.47 1082.51 2824.98 1082.43 2833.22  1082.6
 2847.77  1082.8 2853.97 1082.83 2857.48 1082.87 2870.15 1083.11 2874.73 1083.23
 2876.47 1083.28 2895.48 1083.81 2906.23 1084.08 2916.23 1084.34 2922.48  1084.5
 2936.99 1084.85 2945.05 1085.04 2957.74 1085.29 2971.23 1085.46 2978.49  1085.6
 2987.48 1085.68 2999.25 1085.91 3003.73 1085.96 3019.95 1086.25 3019.98 1086.25
   3020 1086.25 3036.24 1086.42 3040.76 1086.48 3052.49 1086.63 3061.51 1086.77
 3068.74  1086.9 3082.26 1087.16 3094.85 1087.43 3103.02 1087.59 3117.49 1087.76
 3123.77 1087.84 3134.85    1088 3144.52 1088.12 3149.99 1088.19 3165.28 1088.43
 3166.24 1088.44 3169.74 1088.48 3182.49 1088.61 3186.03 1088.67 3198.74 1088.84
 3206.78 1088.93 3214.99 1089.02 3227.54 1089.13 3231.24 1089.15 3244.64 1089.21
 3247.49 1089.23 3248.29 1089.23 3249.68 1089.24 3269.04 1089.37 3279.99 1089.51
  3289.8 1089.64 3296.25 1089.73 3310.55 1089.93  3312.5 1089.95 3319.54 1090.02
 3331.31 1090.13 3335.81 1090.15 3352.06 1090.23 3361.25 1090.27 3372.81 1090.27
  3377.5 1090.26 3393.57 1090.21 3393.75 1090.21 3394.44  1090.2    3410 1090.12
 3414.32  1090.1 3421.94  1090.1 3435.07 1090.07  3442.5 1090.09 3455.83 1090.15
 3458.75 1090.18 3469.34 1090.26 3476.58 1090.32 3479.35 1090.33 3497.33 1090.43
 3508.05 1090.45 3518.09 1090.48 3523.75  1090.5 3538.84 1090.52    3540 1090.52
 3544.24 1090.54 3559.59  1090.6 3565.48 1090.65 3580.35 1090.77 3588.76 1090.85
  3601.1 1090.98 3605.01 1091.02 3619.14 1091.19 3621.86 1091.23 3637.51 1091.44
 3642.61  1091.5 3653.77 1091.64 3663.36 1091.76  3676.3 1091.93

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
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**********************************************
       0     .03  213.23     .03  974.22    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        213.23  974.22             200.16     200  199.84             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.15  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.15  * Reach Len. (ft)         *  200.16  *  200.00  *  199.84  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 2436.02  *15888.65  *20521.44  *
* E.G. Slope (ft/ft)      *0.000004  * Area (sq ft)            * 2436.02  *15888.65  *20521.44  *
* Q Total (cfs)           *20242.29  * Flow (cfs)              * 1346.12  *12446.87  * 6449.30  *
* Top Width (ft)          * 3063.69  * Top Width (ft)          *  195.44  *  760.99  * 2107.26  *
* Vel Total (ft/s)        *    0.52  * Avg. Vel. (ft/s)        *    0.55  *    0.78  *    0.31  *
* Max Chl Dpth (ft)       *   23.83  * Hydr. Depth (ft)        *   12.46  *   20.88  *    9.74  *
* Conv. Total (cfs)       *9698734.0  * Conv. (cfs)            *644968.8  *5963699.0  *3090066.0  *
* Length Wtd. (ft)        *  199.95  * Wetted Per. (ft)        *  197.11  *  761.65  * 2107.37  *
* Min Ch El (ft)          * 1063.32  * Shear (lb/sq ft)        *    0.00  *    0.01  *    0.00  *
* Alpha                   *    1.58  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  335.55  *  934.54  * 2634.78  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   34.76  *   49.31  *  402.49  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 8899.999

INPUT
Description:
Station Elevation Data     num=      255
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
       0 1090.63      .2  1090.6   18.68 1086.98   25.83 1084.96   39.44  1081.1
   54.65 1077.25   60.21 1075.75   74.53 1075.06   80.97 1074.81   83.47 1074.75
  101.74 1074.25  112.28 1074.14  122.51 1073.98  128.26 1073.97  143.27 1074.02
  148.87 1074.06  164.04 1074.19  169.91 1074.18   184.8 1074.22  198.73 1073.91
  205.57 1073.77  210.64 1072.98   223.2 1071.01  226.33 1070.48  227.54 1070.23
   247.1 1065.88  256.36  1064.9  267.87 1063.28  285.17 1063.22  288.63 1063.22
  297.54 1063.24   309.4 1063.28  313.99 1063.26  330.16 1063.21   342.8 1063.17
  350.93 1063.14  371.62 1063.16  371.69 1063.16  371.87 1063.16  392.46 1063.26
  400.43 1063.31  413.23 1063.39  429.25 1063.63  433.99 1063.69   446.2 1063.99
  454.76 1064.19  469.12 1064.37  475.52 1064.43  486.88 1064.46  496.29  1064.5
  501.59 1064.53  517.05  1064.6  520.54 1064.63  537.82 1064.78  550.28  1064.8
  558.59 1064.84  573.33 1064.94  579.35 1064.98  594.88 1065.21  600.12 1065.29
   615.2 1065.54  620.88 1065.63  630.96 1065.73  641.65 1065.85  659.78 1065.96
  662.42 1065.98  669.22 1066.03  683.18 1066.14  696.36 1066.25  703.95 1066.32
   717.4 1066.42  724.71 1066.47  743.55 1066.59  745.05  1066.6  745.48  1066.6
  746.22  1066.6  766.24 1066.64  777.52 1066.64  787.01 1066.65  793.75  1066.7
  807.78 1066.72  809.98 1066.72  817.88 1066.73  828.54 1066.75  832.66 1066.82
  849.31 1067.07  861.49 1067.39  870.07 1067.57   890.3 1068.89 1887.59 1073.63
 1898.84 1073.82 1908.36 1073.94 1927.65 1074.25 1929.12 1074.28 1932.91 1074.33
 1949.89 1074.49 1956.46 1074.53 1970.65 1074.62 1985.28  1074.7 1991.42 1074.73
 2007.24 1074.79 2012.19 1074.81  2014.1 1074.82 2032.95 1074.92 2042.91 1075.03
 2053.72 1075.15 2071.72 1075.37 2074.48 1075.39 2081.58 1075.46 2095.25 1075.72
 2100.54 1075.81 2116.01 1076.13 2129.36 1076.26 2136.78 1076.35 2155.92 1076.62
 2157.55 1076.64 2173.42 1076.86 2178.31 1077.01 2189.65 1077.18 2199.08  1077.4
  2215.8 1077.78 2219.84 1077.86 2230.25 1078.06 2238.35 1078.17 2240.61  1078.2
 2244.62 1078.25 2261.37 1078.42 2273.43  1078.5 2282.14 1078.55 2287.04  1078.5
 2302.91 1078.58 2303.27 1078.56 2304.59 1078.59  2319.5 1078.62 2323.67 1078.67
 2335.73 1078.66 2344.44 1078.75 2359.88 1078.98  2365.2 1078.81 2368.19  1078.9
 2378.92 1079.23 2385.97 1079.26  2388.7 1079.28 2406.73 1079.26 2416.89 1079.34
  2427.5 1079.76 2433.12 1079.85 2448.27 1079.68 2453.25 1079.74 2469.03  1079.8
 2481.81 1080.02  2489.8 1080.11 2498.04 1080.04 2510.56 1080.26 2514.28 1080.35
 2527.59 1080.63 2531.33 1080.69 2546.74 1080.95 2552.09 1081.05 2561.59 1081.21
 2572.86  1081.4 2590.41 1081.59 2593.63 1081.61 2595.43  1081.6 2601.92 1081.65
 2614.39 1081.71  2627.9 1081.81 2635.16  1081.9 2644.13    1082 2655.92 1082.19
 2676.26 1082.54  2676.6 1082.55 2676.69 1082.55 2692.83 1082.79 2697.46 1082.86
 2709.05 1082.96 2718.22 1083.04 2725.28 1083.06 2738.99  1083.1 2741.52 1083.12
  2750.6  1083.2 2757.75 1083.26 2759.75 1083.25 2773.98 1083.58 2780.52 1083.67
 2792.12 1083.84 2801.29 1083.96 2820.93 1083.97 2822.05 1083.97 2822.67 1083.97
 2824.93 1083.97  2838.9 1083.96 2842.82 1083.96 2855.14 1084.49 2863.58 1084.78
 2871.37 1084.99 2884.35 1085.38 2899.27 1085.71 2905.11 1085.82 2907.38 1085.84
 2925.88 1085.95 2936.19 1086.14 2946.65 1086.23 2952.53 1086.28 2967.41 1086.51
 2968.76 1086.53  2973.6 1086.58 2984.99 1086.66 2988.18 1086.69 2993.82 1086.77
 3008.94 1086.91 3017.46    1087 3029.71 1087.18 3033.68 1087.18 3047.94 1087.23
 3050.47 1087.23 3051.45 1087.23 3071.24 1087.13 3082.38  1087.2    3092  1087.3
 3109.08  1087.7 3112.77 1087.81 3114.84 1087.87 3122.27 1088.02 3131.08 1088.19
 3133.54 1088.22  3137.9 1088.28  3154.3  1088.5 3163.53 1088.57 3175.07 1088.67
 3179.77 1088.69 3195.83 1088.85  3196.6 1088.85  3216.6 1088.93 3228.46 1088.92
 3237.37 1088.97 3253.16 1089.08 3258.13  1089.1 3260.92 1089.14 3270.94 1089.26
 3277.15 1089.32  3278.9 1089.34 3293.39 1089.55 3299.66 1089.62 3309.62 1089.71
 3320.43 1089.74 3471.94 1089.86 3486.55  1090.1 3488.16 1090.11 3493.95 1090.16
 3504.39 1090.25 3507.32 1090.28  3512.5 1090.31 3528.08  1090.4 3541.31  1090.4

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
       0     .03  210.64     .03   890.3    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        210.64   890.3             200.02     200  201.31             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.15  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.15  * Reach Len. (ft)         *  200.02  *  200.00  *  201.31  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 2179.79  *14795.22  *23853.21  *
* E.G. Slope (ft/ft)      *0.000004  * Area (sq ft)            * 2179.79  *14795.22  *23853.21  *
* Q Total (cfs)           *20264.50  * Flow (cfs)              * 1076.38  *11359.58  * 7828.54  *
* Top Width (ft)          * 3014.85  * Top Width (ft)          *  192.80  *  679.66  * 2142.39  *
* Vel Total (ft/s)        *    0.50  * Avg. Vel. (ft/s)        *    0.49  *    0.77  *    0.33  *
* Max Chl Dpth (ft)       *   24.01  * Hydr. Depth (ft)        *   11.31  *   21.77  *   11.13  *
* Conv. Total (cfs)       *10182520.0  * Conv. (cfs)           *540858.1  *5707968.0  *3933690.0  *
* Length Wtd. (ft)        *  200.47  * Wetted Per. (ft)        *  194.41  *  680.60  * 2142.53  *
* Min Ch El (ft)          * 1063.14  * Shear (lb/sq ft)        *    0.00  *    0.01  *    0.00  *
* Alpha                   *    1.56  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  324.95  *  864.10  * 2533.00  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   33.87  *   46.00  *  392.75  *
*****************************************************************************************
```

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 8699.999

INPUT
Description:
Station Elevation Data num= 258

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2.96	1091.5	15.18	1088.04	23.72	1085.93	44	1080.61	44.49	1080.48
45.75	1080.24	65.26	1076.87	77.23	1076.32	86.02	1075.92	93.46	1075.73
106.79	1075.48	109.68	1075.43	120.08	1075.37	127.55	1075.32	130.44	1075.32
148.32	1075.34	159.26	1075.34	169.08	1075.38	188.08	1075.19	189.85	1075.17
194.41	1075.02	206.57	1074.45	210.62	1074.26	216.89	1072.69	231.38	1069.07
245.71	1066.07	252.15	1064.63	268.75	1063.64	272.91	1063.43	274.52	1063.43
293.68	1063.28	303.34	1063.29	314.44	1063.3	332.15	1063.34	336.21	1063.35
343.08	1063.36	355.98	1063.37	360.97	1063.37	376.74	1063.34	389.78	1063.35
397.51	1063.34	417.42	1063.47	418.09	1063.47	418.27	1063.47	434.32	1063.7
439.04	1063.78	450.54	1064	459.8	1064.2	476.23	1064.45	480.57	1064.53
491.75	1064.67	499.24	1064.76	501.34	1064.78	515.47	1064.94	522.1	1065
533.86	1065.07	542.87	1065.16	547.94	1065.24	563.63	1065.36	564.16	1065.37
566.09	1065.42	584.4	1065.89	591.49	1066.11	605.17	1066.48	620.31	1066.87
625.93	1067.02	640.43	1067.3	646.7	1067.42	661.56	1067.68	667.46	1067.79
677.78	1067.99	688.23	1068.19	706.75	1068.42	708.99	1068.45	714.76	1068.44
729.76	1068.43	735.56	1068.39	750.53	1068.3	764.39	1068.42	771.29	1068.46
775.18	1068.52	789.1	1068.72	792.06	1068.76	793.2	1068.77	812.82	1068.98
822.01	1069.08	833.59	1069.22	850.83	1069.49	854.35	1069.54	863.43	1069.9
875.12	1070.39	879.65	1070.89	895.89	1072.57	908.46	1074.11	916.65	1075.16
2993.22	1081.23	2998.88	1081.08	3013.99	1081.08	3015.11	1081.08	3019.15	1081.1
3031.34	1081.1	3034.76	1081.11	3040.8	1081.11	3055.52	1081.12	3069.61	1081.1
3076.29	1081.1	3093.48	1081.08	3096.27	1081.08	3097.05	1081.07	3112.5	1081.01
3117.82	1081.01	3128.73	1080.98	3138.58	1081.01	3156.06	1081.05	3159.35	1081.05
3161.2	1081.06	3167.81	1081.08	3180.12	1081.14	3193.65	1081.24	3200.88	1081.34
3213.69	1081.45	3221.65	1081.52	3242.15	1081.66	3242.35	1081.67	3242.41	1081.67
3242.51	1081.67	3263.18	1081.89	3274.82	1082.01	3283.94	1081.88	3291.05	1081.92
3304.71	1081.69	3307.27	1081.69	3316.48	1081.84	3323.51	1082.09	3325.48	1082.1
3339.74	1082.35	3346.24	1082.34	3357.77	1082.29	3367.01	1082.34	3386.59	1082.08
3387.77	1082.09	3390.82	1082.12	3404.66	1082.51	3408.54	1082.52	3420.89	1082.61
3429.3	1082.54	3437.13	1082.59	3450.07	1082.45	3453.36	1082.54	3465.16	1082.53
3469.59	1082.63	3470.84	1082.63	3473.03	1082.61	3491.6	1083.16	3502.06	1083.32
3512.37	1083.08	3530.66	1083.45	3533.13	1083.46	3539.49	1083.49	3550.75	1083.68
3553.9	1083.58	3566.98	1083.62	3574.66	1083.51	3588.3	1083.6	3595.43	1083.6
3599.45	1083.6	3613.83	1083.71	3616.2	1083.76	3617.11	1083.76	3636.96	1084
3648.13	1084.14	3657.73	1084.22	3664.37	1084.31	3678.49	1084.39	3688.16	1084.46
3699.26	1084.58	3713.07	1084.72	3720.02	1084.75	3729.3	1084.84	3740.79	1084.88
3745.52	1084.93	3761.56	1085.1	3761.75	1085.1	3762.5	1085.12	3777.99	1085.46
3782.32	1085.51	3790	1085.54	3803.09	1085.7	3818.82	1085.86	3823.85	1085.92
3836.83	1086.05	3844.62	1086.17	3859.14	1086.4	3865.38	1086.48	3875.37	1086.67
3886.15	1086.83	3905.26	1087.1	3906.91	1087.13	3907.84	1087.14	3911.16	1087.18
3924.07	1087.29	3927.68	1087.32	3934.08	1087.36	3948.45	1087.46	3956.54	1087.56
3969.21	1087.67	3972.76	1087.74	3985.5	1087.9	3988.99	1087.95	3989.98	1087.96
3991.7	1087.98	4010.74	1088.28	4020.52	1088.41	4031.51	1088.57	4037.69	1088.63
4052.28	1088.73	4059.84	1088.75	4070.16	1088.78	4073.04	1088.79	4086.38	1088.82
4093.81	1088.84	4106.97	1088.89	4114.57	1088.92	4118.85	1088.95	4134.18	1089.04
4135.08	1089.05	4135.34	1089.05	4151.31	1089.22	4156.1	1089.27	4167.55	1089.43
4176.87	1089.54	4183.78	1089.63	4197.64	1089.8	4200	1089.82	4208.51	1089.91
4216.24	1090	4218.4	1090.02	4222.23	1090.04	4239.17	1090.11	4251.05	1090.11
4259.93	1090.12	4264.93	1090.23	4280.7	1090.37	4282.84	1090.42	4297.4	1090.77
4301.46	1090.87	4313.62	1091.24	4322.23	1091.62	4329.86	1091.85	4343	1092.17
4346.09	1092.26	4357.18	1092.34	4362.32	1092.42	4363.76	1092.44	4378.55	1093.14
4384.53	1093.23	4395.12	1093.53	4395.13	1093.53				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2.96	.03	206.57	.03	916.65	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
206.57	916.65	200.02	200	596.62	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1087.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1087.14	Reach Len. (ft)	200.02	200.00	596.62
Crit W.S. (ft)		Flow Area (sq ft)	1908.56	14563.68	22287.03
E.G. Slope (ft/ft)	0.000005	Area (sq ft)	1908.56	14563.68	22287.03
Q Total (cfs)	20259.44	Flow (cfs)	1034.97	12646.73	6577.74
Top Width (ft)	3889.27	Top Width (ft)	187.76	710.08	2991.43
Vel Total (ft/s)	0.52	Avg. Vel. (ft/s)	0.54	0.87	0.30
Max Chl Dpth (ft)	23.86	Hydr. Depth (ft)	10.16	20.51	7.45
Conv. Total (cfs)	8646223.0	Conv. (cfs)	441699.5	5397310.0	2807214.0
Length Wtd. (ft)	342.82	Wetted Per. (ft)	188.97	711.58	2991.51
Min Ch El (ft)	1063.28	Shear (lb/sq ft)	0.00	0.01	0.00
Alpha	1.88	Stream Power (lb/ft s)	0.00	0.01	0.00
Prctn Loss (ft)	0.00	Cum Volume (acre-ft)	315.56	796.70	2426.38
C & E Loss (ft)		Cum SA (acres)	32.99	42.81	380.88

Warning: The conveyance ratio (upstream 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: FRS
REACH: FRS1 RS: 8499.999

INPUT
Description:
Station Elevation Data num= 163

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9.31	1090.46	11.27	1090.04	18.26	1088.17	30.08	1085	34.66	1083.74
50.84	1079.08	59.96	1076.45	71.61	1073.59	203.13	1073.45	207.54	1073.22
216.97	1072.93	236.36	1068.06	237.74	1067.74	241.27	1067	258.5	1063.57
265.18	1063.35	279.27	1062.77	293.99	1062.81	300.03	1062.81	315.6	1062.85
320.8	1062.86	322.8	1062.86	341.56	1062.87	351.62	1062.87	362.33	1062.86
380.44	1062.79	383.1	1062.79	384.58	1062.77	389.94	1062.73	400.82	1062.65

```
 403.86 1062.64  409.25 1062.68  424.63 1062.72  438.07 1062.98  445.39 1063.14
 449.51 1063.26  464.27 1063.63  466.16 1063.69  466.88 1063.73  486.92  1064.9
  495.7 1066.41  507.69 1067.95  524.51 1071.91  528.46 1072.89   538.6 1074.34
 549.22 1075.65  549.94 1075.63 3953.55 1086.37  3954.8 1086.36  3955.5 1086.36
3958.02 1086.35 3975.57 1086.32 3982.37 1086.34 3996.33 1086.35 4004.19 1086.38
 4017.1 1086.44 4020.42 1086.46 4032.35 1086.52 4036.66 1086.55 4037.86 1086.56
4039.99 1086.58 4058.63  1086.7 4069.12 1086.77  4079.4 1086.85 4085.36 1086.88
4100.16 1086.99 4101.58 1086.99 4106.69 1087.03 4120.93 1087.11 4126.44 1087.15
4141.69 1087.26 4155.25 1087.37 4162.46 1087.45 4181.02 1087.64 4182.74 1087.66
4183.22 1087.66 4198.98 1087.78 4203.99 1087.82  4215.2 1087.89 4224.75 1087.96
4231.43 1087.99 4245.52 1088.08 4255.35 1088.13 4266.29 1088.19 4280.13 1088.27
4287.05 1088.33 4296.36 1088.38 4307.82  1088.5 4312.59 1088.53 4328.58 1088.68
4328.82 1088.68  4329.7 1088.69 4345.05 1088.87 4349.35 1088.93 4361.29  1089.1
4370.11 1089.18 4377.52 1089.26 4390.88 1089.32 4404.03 1089.36 4411.65 1089.36
4426.21  1089.4 4432.41  1089.4 4442.44 1089.43 4453.18 1089.47 4458.67  1089.5
4473.94 1089.61 4474.91 1089.62 4478.37 1089.65 4491.14 1089.76 4494.71 1089.79
4501.04 1089.86 4515.47    1090 4529.85 1090.18 4536.24 1090.26 4539.83 1090.29
 4552.7 1090.41 4556.06 1090.44 4557.01 1090.45 4572.29 1090.48 4577.77  1090.5
4588.53 1090.51 4598.54 1090.56 4604.76 1090.58 4619.31 1090.67 4627.03 1090.72
4640.07 1090.85 4645.12 1090.89 4660.84 1091.02 4669.68 1091.07  4681.6 1091.16
4685.91 1091.16 4701.37 1091.27 4702.15 1091.27 4702.37 1091.27 4718.38 1091.35
4723.13 1091.34 4731.56 1091.35  4743.9 1091.36 4750.84 1091.36 4764.67 1091.43
4767.07 1091.45  4775.7 1091.58  4783.3 1091.67 4785.43 1091.68 4799.53 1091.84
 4806.2 1091.93 4815.77 1091.99 4826.96 1092.11    4832 1092.12 4847.73 1092.19
4850.04 1092.21 4868.49 1092.29 4875.64  1092.3 4889.26 1092.37 4904.46 1092.15
4910.03 1092.08 4913.15 1092.11 4924.38 1092.31 4929.39 1092.42 4930.79 1092.41
4933.27 1092.45 4951.56 1092.66 4954.45 1092.69

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
    9.31     .03  203.13     .03  549.94    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        203.13  549.94             200.02     200  201.29              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.15  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.02  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.14  * Reach Len. (ft)         *  200.02  *  200.00  *  201.29  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 2131.22  * 7543.54  *20971.70  *
* E.G. Slope (ft/ft)      *0.000013  * Area (sq ft)            * 2131.22  * 7543.54  *20971.70  *
* Q Total (cfs)           *20228.97  * Flow (cfs)              * 1927.63  *10299.78  * 8001.56  *
* Top Width (ft)          * 4102.39  * Top Width (ft)          *  181.01  *  346.81  * 3574.57  *
* Vel Total (ft/s)        *    0.66  * Avg. Vel. (ft/s)        *    0.90  *    1.37  *    0.38  *
* Max Chl Dpth (ft)       *   24.50  * Hydr. Depth (ft)        *   11.77  *   21.75  *    5.87  *
* Conv. Total (cfs)       *5694913.0  * Conv. (cfs)            *  542671.4  *2899621.0  *2252621.0  *
* Length Wtd. (ft)        *  200.40  * Wetted Per. (ft)        *  182.84  *  348.93  * 3574.59  *
* Min Ch El (ft)          * 1062.64  * Shear (lb/sq ft)        *    0.01  *    0.02  *    0.00  *
* Alpha                   *    2.49  * Stream Power (lb/ft s)  *    0.01  *    0.02  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  306.29  *  745.95  * 2130.13  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   32.15  *   40.39  *  335.92  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                 RS: 8299.999

INPUT
Description:
Station Elevation Data     num=     227
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*****************************************************************************
       0 1089.91   14.15 1088.57    23.8 1085.52   34.92 1082.04   52.61 1075.72
   55.68 1074.62   63.59 1071.83   76.45 1067.36   81.42 1067.22   97.21 1065.61
  110.24  1065.5  117.98 1065.48  137.93 1064.95  138.75 1064.93  139.06 1064.92
  159.51 1064.44  263.34 1062.88  283.13 1062.75  284.11 1062.73   286.6 1062.74
  304.87 1062.81  311.94 1062.82  325.64 1062.84  340.76 1062.95   346.4 1063.01
  360.94 1063.04  367.17 1063.05  369.58 1063.08  387.93 1063.25  398.39 1063.54
   408.7  1063.8  427.21 1064.62  429.47  1064.7  435.27 1065.06  450.23 1065.97
  456.02 1066.19     471 1066.81  484.84  1067.2  491.76  1067.4  495.66 1067.59
   509.6    1068  512.53 1068.12  528.11 1071.25  533.29 1072.46  544.35 1074.07
  554.06 1074.46  570.47  1074.3  571.29 1074.29  574.83 1074.18  583.94  1074.3
  595.59 1074.51   600.1 1074.64  616.36 1075.14  628.92 1075.43  637.12 1075.57
  641.73 1075.66  657.89 1076.01  657.97 1076.01  658.27 1076.02  678.65 1076.31
  686.55 1076.42  699.42 1076.59  715.36  1076.8  720.19 1076.86  732.61 1077.01
  739.12 1077.08  740.95 1077.11  744.18 1077.15  761.72 1077.33     773  1077.5
  782.48 1077.62  801.81 1077.95  803.25 1077.98  806.95 1078.04  824.01 1078.29
  830.63 1078.38  844.78 1078.57  859.44 1078.68  865.55 1078.73  881.28 1078.76
  885.21 1078.76  886.31 1078.76  901.44 1078.84  907.08 1078.88  917.07 1079.01
  927.84 1079.19  945.89 1079.57  948.61 1079.63  955.62 1079.78  969.37 1080.06
   982.6 1080.27  990.14 1080.38 1003.52 1080.55 1010.91 1080.64 1029.95 1080.79
 1031.67  1080.8 1032.34 1080.81 1052.44 1080.92 1061.15 1080.97  1073.2 1081.03
 1089.96 1081.16 1093.97 1081.18 1096.22 1081.19 1104.29 1081.24 1114.74 1081.31
 1118.78 1081.34  1135.5 1081.44  1147.6 1081.52 1156.27 1081.57 1176.41 1081.71
 1177.03 1081.71 1178.62 1081.72  1197.8 1081.86 1205.22  1081.9 1218.57    1082
 1234.04 1082.09 1239.33 1082.13 1252.95 1082.22  1260.1 1082.25 1262.86 1082.27
 1280.86 1082.38 1290.99 1082.44 1301.63 1082.53 1307.22 1082.57 1322.39 1082.69
 1327.29 1082.72 1343.16 1082.81 1355.92 1082.85 1363.92 1082.87 1372.16  1082.9
 1384.69 1082.96 1401.62 1083.08 1405.46  1083.1 1406.93 1083.12 1426.22 1083.27
 1435.75 1083.36 1446.99 1083.47 1464.56 1083.65 1467.75 1083.68 1469.54  1083.7
 1475.97 1083.76 4226.36 1084.83 4229.59 1084.84 4230.84 1084.85 4250.36 1084.96
 4261.34 1085.06 4271.12  1085.2 4288.47 1085.46 4291.89  1085.5 4293.81 1085.51
 4300.69 1085.63 4310.04 1085.76 4312.66  1085.8 4326.27 1085.97 4333.42 1086.05
  4346.1 1086.18 4354.19 1086.26 4358.74  1086.3 4374.95 1086.49 4375.03 1086.49
 4395.72  1086.9 4407.43 1087.09 4416.48 1087.15 4423.66 1087.15 4437.25  1087.2
 4449.37 1087.25 4456.13 1087.28 4458.02 1087.31 4472.36 1087.48 4478.78 1087.63
 4488.58 1087.68 4499.55 1087.82 4504.82 1087.71 4520.31 1087.83 4521.05 1087.85
  4523.7 1087.85 4537.28  1087.8 4541.08 1087.85 4553.51 1087.66 4561.84 1087.74
 4576.62 1087.29 4582.61 1087.37 4598.04 1087.46  4602.2 1087.61 4603.38 1087.59
 4618.44 1087.89 4624.14 1087.58 4634.67 1087.62 4644.91 1087.67  4650.9 1087.67
 4665.67 1087.68 4667.13 1087.75 4672.37 1087.68 4683.36 1087.81 4686.44 1087.72
 4691.89 1087.87  4707.2 1088.08 4715.82  1088.2 4727.97 1088.03 4732.06 1088.07
  4746.7 1088.04 4748.29 1088.07 4748.74 1088.08 4764.52 1088.51  4769.5 1088.46
 4780.75 1088.68 4790.27 1088.53 4807.15  1088.9 4811.03 1089.04 4821.04  1089.3
 4829.44 1089.51  4831.8 1089.49 4845.68 1089.39 4852.56  1089.9 4861.91 1089.78
 4873.33    1091  4893.6 1091.99 4894.09 1092.02 4895.37 1092.07  4910.6 1091.89
 4914.86 1091.98 4926.83 1092.04 4935.63 1092.19 4943.06 1092.24 4956.39 1092.42
  4959.3 1092.43 4960.58 1092.45

Manning's n Values          num=       3
```

```
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0     .03   55.68     .03  544.35    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          55.68  544.35            200.02     200  201.29             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.15  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.03  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.13  * Reach Len. (ft)         *  200.02  *  200.00  *  201.29  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  223.94  *10754.18  *14864.97  *
* E.G. Slope (ft/ft)      *0.000014  * Area (sq ft)            *  223.94  *10754.18  *14864.97  *
* Q Total (cfs)           *20202.46  * Flow (cfs)              *  132.71  *15574.32  * 4495.43  *
* Top Width (ft)          * 4394.46  * Top Width (ft)          *   36.97  *  488.67  * 3868.82  *
* Vel Total (ft/s)        *    0.78  * Avg. Vel. (ft/s)        *    0.59  *    1.45  *    0.30  *
* Max Chl Dpth (ft)       *   24.40  * Hydr. Depth (ft)        *    6.06  *   22.01  *    3.84  *
* Conv. Total (cfs)       *5411329.0  * Conv. (cfs)            * 35546.6  *4171581.0  *1204102.0  *
* Length Wtd. (ft)        *  200.36  * Wetted Per. (ft)        *   39.03  *  490.69  * 3868.91  *
* Min Ch El (ft)          * 1062.73  * Shear (lb/sq ft)        *    0.00  *    0.02  *    0.00  *
* Alpha                   *    2.68  * Stream Power (lb/ft s)  *    0.00  *    0.03  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  300.88  *  703.94  * 2047.33  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   31.65  *   38.47  *  318.72  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 8099.999

INPUT
Description:
Station Elevation Data    num=     185
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    1.86 1091.38   16.57 1086.98   22.63 1085.52   38.23 1080.45   43.39 1078.76
   45.38 1078.12   64.16 1072.16    74.2 1069.99   84.92 1067.29   198.5 1066.73
  209.52 1066.71  218.28 1066.48  230.28 1066.09  247.09 1064.36  251.05    1064
  261.23 1063.39  271.81 1062.82  275.91 1062.85  292.58  1062.9  304.72 1062.96
  313.35 1063.02  333.54 1063.01  334.11 1063.02  335.58 1063.02  354.88 1063.03
  362.35 1063.06  375.64 1063.13  391.17 1063.23  396.41 1063.26  409.91  1063.4
  417.17 1063.48  419.99 1063.52  437.94 1063.76   448.8 1063.88  458.71 1063.97
  477.61 1064.08  479.47 1064.09  484.25 1064.11  500.24 1064.24  506.43 1064.43
     521 1064.87  535.25 1067.74  541.77 1068.72  558.58 1071.65  561.66 1072.19
  562.53 1072.27   577.9 1072.53   583.3 1072.68  594.13 1072.89   595.5 1072.99
  604.07  1073.6  610.36 1073.79  624.83 1073.93  632.91 1074.16   645.6 1074.39
  650.51 1074.53  666.36 1074.98  679.32 1075.36  687.13 1075.61  707.25 1076.17
  707.89 1076.18  708.13 1076.19  728.66 1076.58  736.96 1076.66  749.43 1076.75
  765.77 1076.85  770.19 1076.87  781.58    1077   788.9 1077.06  790.96 1077.09
  805.14 1077.27  811.72 1077.38  821.37 1077.43  832.49 1077.56   837.6 1077.55
  853.25 1077.68  855.92  1077.7  874.02 1077.78  886.29 1077.84  894.79 1077.95
  902.53 1077.95 2752.92 1081.81  2763.7 1081.86 2782.85 1081.95 2784.47 1081.95
 2785.37 1081.96 2788.63 1081.98 2805.24 1082.11 2811.66 1082.15    2826 1082.26
 2834.07 1082.31 2846.77 1082.37  2850.3 1082.39 2862.96 1082.44 2866.54 1082.46
 2867.53 1082.47  2869.3 1082.49  2888.3 1082.65 2898.99 1082.76 2909.06 1082.89
 2915.22 1082.95 2929.83 1083.11 2931.46 1083.12 2937.31 1083.16  2950.6 1083.25
 2955.74 1083.27 2971.36 1083.36 2984.56 1083.42 2992.13 1083.47 3011.64 1083.58
 3012.61 1083.59 3012.89 1083.59 3028.85 1083.68 3033.66 1083.71 3045.08 1083.79
 3054.42 1083.84 3061.31 1083.89 3075.19 1083.98 3085.98 1084.07 3095.95 1084.16
 3099.82 1084.19 3116.72 1084.34 3128.63 1084.42 3137.49 1084.48 3142.47 1084.49
 3158.25 1084.53  3158.7 1084.53 3160.31 1084.53 3179.02 1084.53 3186.27 1084.52
 3199.78 1084.51 3215.08 1084.55 3220.55 1084.56 3234.64 1084.65 3239.85 1084.69
 3241.31 1084.71 3256.09 1084.85 3262.08 1084.92 3272.32 1085.05 3282.85 1085.15
 3288.55 1085.21 3303.61 1085.36 3308.98 1085.45 3324.38 1085.74 3330.34 1085.88
 3345.14 1086.32 3359.16 1086.61 3365.91 1086.82 3369.71 1086.93 3383.31  1087.2
 3385.94 1087.26 3386.68 1087.27 3402.17 1087.52 3407.44 1087.57 3416.79 1087.66
 3428.21 1087.74 3434.64 1087.76 3448.97 1087.84 3450.86 1087.84 3457.65 1087.85
 3469.74  1087.9 3474.42 1087.92  3490.5 1088.01 3499.56 1088.07 3511.27 1088.16
 3531.98  1088.4 3532.03  1088.4 3532.04  1088.4 3548.26 1088.62  3552.8 1088.71
 3560.87 1088.87 3573.57 1089.13 3580.71 1089.38 3594.33 1089.75 3596.95 1089.84
 3606.32 1090.06 3613.18 1090.22  3615.1 1090.24  3618.5 1090.31 3635.87 1090.62
 3645.65  1090.8 3656.63 1091.07 3676.13 1091.43  3677.4 1091.45 3680.66 1091.49

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    1.86     .03   198.5     .03   595.5    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          198.5  595.5            198.95     200  260.51             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.15  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.13  * Reach Len. (ft)         *  198.95  *  200.00  *  260.51  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 2996.52  * 8746.08  *18768.73  *
* E.G. Slope (ft/ft)      *0.000009  * Area (sq ft)            * 2996.52  * 8746.08  *18768.73  *
* Q Total (cfs)           *20195.21  * Flow (cfs)              * 2921.82  *10465.57  * 6807.83  *
* Top Width (ft)          * 3363.88  * Top Width (ft)          *  182.44  *  397.00  * 2784.44  *
* Vel Total (ft/s)        *    0.66  * Avg. Vel. (ft/s)        *    0.98  *    1.20  *    0.36  *
* Max Chl Dpth (ft)       *   24.31  * Hydr. Depth (ft)        *   16.42  *   22.03  *    6.74  *
* Conv. Total (cfs)       *6560110.0  * Conv. (cfs)            *949107.6  *3399583.0  *2211419.0  *
* Length Wtd. (ft)        *  218.03  * Wetted Per. (ft)        *  185.30  *  397.84  * 2784.55  *
* Min Ch El (ft)          * 1062.82  * Shear (lb/sq ft)        *    0.01  *    0.01  *    0.00  *
* Alpha                   *    2.11  * Stream Power (lb/ft s)  *    0.01  *    0.02  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  293.49  *  659.17  * 1969.62  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   31.14  *   36.43  *  303.35  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 7899.999

INPUT
Description:
Station Elevation Data    num=     199
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 1088.86   11.06 1088.74   15.13 1087.53   31.75 1082.45    43.3 1079.47
```

```
   52.45 1076.98   71.49  1074.2   73.14 1073.91   77.69 1073.82   93.83 1073.47
   99.67 1073.36  114.53 1073.14  127.85    1073  135.22 1072.93  155.59 1073.05
  155.92 1073.05  156.03 1073.05  176.61 1073.17  184.21 1073.15  197.12 1073.16
   197.3 1073.16  212.39 1072.85     218 1072.75  233.48 1068.24   237.6 1066.99
  238.69 1066.72  240.58 1066.39  259.39 1062.89  270.29 1062.61  280.08 1062.53
  286.64 1062.63  300.77 1062.93  311.37 1063.36  321.47 1063.75  325.12 1063.91
  342.16 1064.71   353.3 1065.18  719.65 1066.31  735.35 1066.36  747.83 1066.71
  756.04 1066.67  776.02 1067.66  776.73  1067.7   778.7 1067.75  797.43 1068.71
  804.19 1069.52  818.12 1071.24  832.38 1071.86  838.81 1072.32  856.59 1073.03
  858.89 1073.09  859.51 1073.12  860.55 1073.11   880.2 1072.92  888.74 1072.66
  916.92 1073.16  921.59 1073.48  924.29 1073.62  934.48 1074.04  942.28 1074.36
  956.99 1074.45 3156.52 1084.13 3164.23 1084.14 3177.22 1084.13 3193.27 1084.16
 3196.93 1084.17 3197.91 1084.17 3213.29 1084.27 3218.61  1084.3 3227.76 1084.38
  3239.3 1084.47 3245.99 1084.51 3259.99 1084.62 3271.16  1084.7 3278.68 1084.75
 3280.69 1084.76 3295.03 1084.82 3301.38 1084.85 3311.39 1084.86 3322.07  1084.9
 3340.49    1085 3342.77    1085 3349.04 1085.05 3360.43 1085.13 3363.46 1085.15
 3376.78 1085.23 3384.16 1085.28 3393.13 1085.34 3404.85  1085.4 3409.49 1085.44
 3425.54 1085.56 3425.84 1085.56 3426.93 1085.57 3442.18 1085.75 3446.24  1085.8
 3453.21 1085.87 3466.93 1086.03 3474.88 1086.13 3487.63 1086.23 3504.82 1086.39
 3508.32 1086.42 3523.94 1086.56 3529.01 1086.61 3540.28 1086.68 3549.71 1086.74
 3565.94 1086.84  3570.4 1086.87 3572.98 1086.89 3582.71 1086.95 3589.34 1087.02
 3591.09 1087.03 3594.13 1087.04 3611.79 1087.18 3622.03 1087.25 3632.48 1087.27
 3638.38 1087.29 3653.18 1087.33  3660.6 1087.36 3673.87 1087.43 3687.44 1087.54
 3694.56 1087.61 3703.78 1087.73 3715.26 1087.89 3720.13 1087.94 3735.95  1088.1
 3736.48  1088.1 3738.49 1088.11 3752.83 1088.21 3756.65 1088.23 3763.21 1088.27
 3777.34 1088.38 3785.54 1088.48 3798.03 1088.51 3801.88 1088.54 3816.38 1088.56
 3818.73 1088.56 3834.58 1088.58 3839.42 1088.57 3850.93 1088.54 3860.12 1088.57
 3875.94 1088.61 3880.81 1088.63 3883.63 1088.67 3894.27 1088.64  3901.5 1088.66
 3904.11 1088.66  3922.2  1088.8 3932.68 1088.91 3942.89    1089 3949.03 1089.07
 3963.58 1089.27 3972.15 1089.33 3981.73 1089.39 3984.28 1089.42 3998.08 1089.47
 4004.97 1089.51 4016.84 1089.61 4025.67 1089.67 4030.78 1089.72 4046.36 1089.81
 4050.04 1089.82 4067.05 1089.87 4079.83 1089.91 4087.75 1089.92 4096.18 1089.96
 4108.44 1090.02 4112.53 1090.05 4127.94 1090.21 4129.14 1090.23 4129.56 1090.23
 4149.83 1090.49 4157.74 1090.57 4170.52  1090.7 4177.93 1090.76 4191.22 1090.85
 4205.83 1090.93 4211.91 1090.96 4214.11 1090.97 4232.61 1091.05 4242.29 1091.13
  4253.3  1091.2 4259.68 1091.25 4273.99 1091.41 4276.03 1091.43 4283.71 1091.48
 4292.38 1091.54 4294.69 1091.54 4308.73 1091.55 4315.38 1091.54 4326.83 1091.55
 4336.07 1091.55 4355.01 1091.63 4356.77 1091.64  4361.6 1091.67 4374.13 1091.76
 4377.46 1091.77 4390.48 1091.84 4398.15 1091.85 4406.83 1091.87

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*****************************************************
       0     .03  197.12     .03  956.99    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        197.12  956.99              200     200  213.09             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.14  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.14  * Reach Len. (ft)         *  200.00  *  200.00  *  213.09  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 2156.15  *15049.00  *18021.05  *
* E.G. Slope (ft/ft)      *0.000006  * Area (sq ft)            * 2156.15  *15049.00  *18021.05  *
* Q Total (cfs)           *20172.66  * Flow (cfs)              * 1373.77  *13504.11  * 5294.78  *
* Top Width (ft)          * 3589.69  * Top Width (ft)          *  180.70  *  759.87  * 2649.12  *
* Vel Total (ft/s)        *    0.57  * Avg. Vel. (ft/s)        *    0.64  *    0.90  *    0.29  *
* Max Chl Dpth (ft)       *   24.60  * Hydr. Depth (ft)        *   11.93  *   19.80  *    6.80  *
* Conv. Total (cfs)       *8139415.0  * Conv. (cfs)            *  554298.4  *5448739.0  *2136378.0  *
* Length Wtd. (ft)        *  204.82  * Wetted Per. (ft)        *  182.35  *  761.44  * 2649.15  *
* Min Ch El (ft)          * 1062.53  * Shear (lb/sq ft)        *    0.00  *    0.01  *    0.00  *
* Alpha                   *    1.80  * Stream Power (lb/ft s)   *    0.00  *    0.01  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *  281.72  *  604.55  * 1859.61  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   30.31  *   33.78  *  287.10  *
*****************************************************************************************

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.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 7699.999

INPUT
Description:
Station Elevation Data     num=     214
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 1090.41    6.69 1088.76   18.13  1086.8   34.88 1081.83   38.82 1080.65
   49.71 1077.58   59.51 1074.83   63.05 1074.66   80.21 1072.91   91.24 1072.91
   100.9 1072.86  119.42 1073.24   121.6 1073.28   127.6 1073.42  142.29 1073.75
   147.6 1073.83  162.98 1074.08  175.78 1074.18  183.68 1074.25  196.97 1073.98
  203.96 1073.84  204.37 1073.83  205.48 1073.68  225.07 1070.53  232.14  1068.7
  245.76 1065.15  260.33 1063.65  266.45 1062.71  283.37 1062.83  287.15 1062.87
   288.5 1062.92  307.84 1063.57  316.69 1064.02  328.54 1064.61   335.4 1065.07
  349.23 1065.99  351.75 1066.19  361.26 1066.95  369.92 1067.63  371.05  1067.7
  373.05 1067.83  390.62 1069.07   400.8 1069.77  411.31 1070.37  417.15 1070.73
     432 1071.74  439.15 1072.37   452.7 1073.63  457.59 1074.04  473.39 1075.75
 3080.82 1084.32 3082.19 1084.31 3087.39 1084.28 3098.54 1084.23 3101.51 1084.22
 3114.89 1084.23  3122.2 1084.23  3134.8 1084.27  3142.9  1084.3  3147.6 1084.32
 3163.59 1084.41 3163.94 1084.41 3165.27 1084.41 3180.29  1084.4 3184.29  1084.4
 3196.64 1084.36 3204.98 1084.37 3212.99 1084.43 3225.67 1084.57 3229.34 1084.61
 3243.16 1084.76 3246.37  1084.8 3247.52 1084.81 3267.06 1084.94 3278.39 1084.99
 3287.76 1085.03 3303.89 1085.12 3308.45 1085.15 3321.05 1085.26 3327.44 1085.32
 3329.14 1085.33 3343.79 1085.47 3349.84  1085.5 3360.14 1085.58 3370.53 1085.65
 3376.49 1085.67 3391.23 1085.82 3398.94 1085.87 3411.92 1085.94 3416.61 1085.96
 3432.61 1086.06 3444.79 1086.15 3453.31 1086.22 3458.24 1086.24    3474 1086.38
 3474.59 1086.38 3476.83 1086.39 3490.94 1086.44 3494.69 1086.45 3507.29 1086.45
 3515.39 1086.47 3523.64  1086.5 3536.08 1086.55 3539.99 1086.58 3554.72 1086.65
 3556.34 1086.66 3556.78 1086.66 3557.51 1086.67 3577.47 1086.82 3585.69  1086.9
 3598.16 1087.03 3605.39  1087.1 3618.86 1087.24 3621.74 1087.27 3632.61 1087.38
 3638.09 1087.45 3639.55 1087.47 3654.44 1087.66 3660.25 1087.72 3670.79 1087.86
 3680.94 1087.96 3687.14 1088.03 3701.63 1088.17  3710.5 1088.24 3722.33 1088.32
  3726.6 1088.35 3743.02 1088.45 3754.78 1088.54 3763.71  1088.6 3782.96 1088.72
 3784.41 1088.72 3788.38 1088.74 3801.58 1088.79  3805.1 1088.82 3817.94 1088.87
 3825.79 1088.92 3834.29 1088.95 3846.49 1089.02 3850.64 1089.05 3866.27 1089.18
 3866.99 1089.18 3867.18 1089.18 3867.51 1089.19 3887.88 1089.43 3899.69 1089.57
 3908.57 1089.65 3923.86 1089.77 3929.26 1089.82 3932.39 1089.85 3944.16 1089.91
 3949.96 1089.95 3952.05 1089.95 3970.65    1090 3980.23    1090 3991.35 1090.02
 3997.79 1090.05 4012.04 1090.12 4014.14 1090.14 4022.06  1090.2 4032.73 1090.28
 4036.59  1090.3 4053.43 1090.39 4063.19  1090.4 4074.12 1090.42 4079.53 1090.44
```

```
 4094.82 1090.47 4099.94  1090.5 4115.51 1090.59 4128.59  1090.7  4136.2 1090.75
 4144.94 1090.83  4156.9 1090.93 4161.28 1090.96 4177.59 1091.08 4177.63 1091.08
 4177.83 1091.08 4198.28  1091.2 4205.68 1091.24 4218.98 1091.31 4233.86 1091.41
 4239.67 1091.45 4243.03 1091.47 4255.72 1091.54 4259.38 1091.56 4260.37 1091.56
 4275.74 1091.58 4281.06 1091.58 4292.09 1091.61 4301.75 1091.62  4318.4 1091.73
 4322.45 1091.76 4324.79 1091.77 4333.61 1091.85 4341.13 1091.92 4343.14 1091.94
 4346.59 1091.96 4363.83 1092.08 4374.76 1092.12 4384.53 1092.16 4402.95 1092.22
 4405.22 1092.22 4411.49 1092.24 4422.88 1092.28 4425.92 1092.29 4439.23 1092.34
 4446.61 1092.37 4455.58  1092.4 4467.31 1092.46 4471.94 1092.47    4488 1092.59
 4489.39 1092.62 4508.69 1093.14 4520.98 1095.83 4529.39 1097.41

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
       0     .03  196.97     .03  473.39    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        196.97  473.39              200     200  201.66             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.15  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.02  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.13  * Reach Len. (ft)         *  200.00  *  200.00  *  201.66  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 2119.29  * 5269.42  *19367.10  *
* E.G. Slope (ft/ft)      *0.000020  * Area (sq ft)            * 2119.29  * 5269.42  *19367.10  *
* Q Total (cfs)           *20154.13  * Flow (cfs)              * 2385.28  * 8224.33  * 9544.53  *
* Top Width (ft)          * 3591.76  * Top Width (ft)          *  180.75  *  276.42  * 3134.60  *
* Vel Total (ft/s)        *    0.75  * Avg. Vel. (ft/s)        *    1.13  *    1.56  *    0.49  *
* Max Chl Dpth (ft)       *   24.42  * Hydr. Depth (ft)        *   11.73  *   19.06  *    6.18  *
* Conv. Total (cfs)       *4546843.0  * Conv. (cfs)            *  538126.9  *1855437.0  *2153279.0  *
* Length Wtd. (ft)        *  200.64  * Wetted Per. (ft)        *  182.58  *  278.00  * 3134.62  *
* Min Ch El (ft)          * 1062.71  * Shear (lb/sq ft)        *    0.01  *    0.02  *    0.01  *
* Alpha                   *    2.22  * Stream Power (lb/ft s)  *    0.02  *    0.04  *    0.00  *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)    *  271.90  *  557.90  * 1768.16  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   29.48  *   31.40  *  272.95  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                 RS: 7499.999

INPUT
Description:
Station Elevation Data      num=      219
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
     3.8 1091.42      21 1086.39   24.49  1085.3   25.74 1084.93   45.18 1079.11
   53.93  1077.1   65.88 1073.86    82.1 1073.33   86.57 1073.21   98.89 1072.87
  107.27 1072.62  110.29 1072.52  127.96 1072.08  138.47  1071.8  148.65 1071.63
  166.65  1070.9  169.35 1070.81  176.79 1070.42  190.04 1069.92  192.41 1069.83
  194.83 1069.73  210.74 1069.11  223.01  1067.8  231.43  1067.1  251.19 1064.17
  252.12 1064.01  254.68 1063.87  272.82 1062.91  285.36 1063.25  293.51 1063.53
  301.71 1063.95   314.2  1064.7  332.57 1066.23   334.9 1066.43  343.38 1067.21
  350.75 1067.89  355.59 1068.31  363.92    1069  376.29 1070.08   392.1  1071.2
  396.98 1071.54  410.45 1072.38  417.67 1072.84  420.28 1073.04  438.37 1074.39
  448.46 1075.13  459.06 1075.91  476.64 1076.17  479.75 1076.27  546.96  1076.9
  562.53 1077.37  563.31 1077.39  566.23 1077.44  583.22 1077.73  589.37 1077.81
  603.92 1077.98  617.55 1078.17  624.61 1078.26  644.13 1078.46   645.3 1078.47
  645.73 1078.47     666 1078.74   673.9 1078.89  686.69 1079.13 1452.37 1079.92
 1462.98 1080.08 1473.06 1080.36 1491.16 1080.63 1493.75 1080.66 1495.25 1080.69
  1500.9 1080.79 1514.45 1080.97 1527.95 1081.21 1535.14  1081.3 1547.53 1081.47
 1555.83 1081.62  1575.7  1081.9 1576.53 1081.92  1578.8 1081.96 1597.22 1082.32
 1603.89 1082.44 1617.92  1082.7 1632.06  1082.9 1638.61 1082.98 1656.68 1083.15
  1659.3 1083.18 1660.25 1083.18    1680 1083.33 1688.43  1083.4 1700.69 1083.48
 1716.61 1083.65 1721.39 1083.69 1734.57 1083.86  1740.5 1083.93 1742.08 1083.95
 1744.79 1083.98 1762.77  1084.2 1772.98  1084.3 1783.47 1084.43 1801.15 1084.65
 1804.16 1084.68  1805.9  1084.7 1812.46 1084.78 1822.25  1084.9 1824.86 1084.93
 1829.34 1084.98 1845.55 1085.14 1857.51 1085.24 1866.24 1085.31  1871.3 1085.35
 1886.94 1085.48 1887.65 1085.49 1890.35 1085.52 1907.63 1085.68 1913.88 1085.73
 1928.32 1085.87 1942.06 1085.96 1949.02 1086.02 1968.23 1086.15 1969.71 1086.16
 1985.75 1086.23 1990.41 1086.24 1998.43 1086.26  2011.1 1086.28 2018.45 1086.29
 2031.79 1086.31  2034.8 1086.32 2046.13 1086.37 2051.15 1086.38 2052.49 1086.39
 2054.78 1086.39 2073.18 1086.46 2083.85  1086.5 2093.88 1086.52  2100.2 1086.54
 2114.57 1086.58 2116.55 1086.59 2124.02 1086.62 2132.89 1086.66 2135.26  1086.7
 2149.25 1086.85 2155.96 1086.94 2167.51 1087.12 2176.65 1087.26 2195.69 1087.53
 2197.35 1087.56 2201.91  1087.6 2218.04 1087.75 2230.99 1087.83 2238.73 1087.87
 2247.35 1087.91 2259.43 1087.96  2263.7 1087.98  2279.8 1088.05 2280.05 1088.05
 2280.12 1088.05  2296.4 1088.12 2300.82 1088.13 2308.41 1088.15 2321.51 1088.18
  2329.1  1088.2  2342.2  1088.2 2345.45 1088.19 2357.68 1088.07  2361.8 1088.04
  2362.9 1088.02 2364.78    1088 2383.59 1087.82  2394.5 1087.92 2404.28 1088.05
 2410.84 1088.09 2424.98 1088.14  2427.2 1088.14 2435.57 1088.12 2445.67 1088.07
 2449.32 1088.04 2466.37 1087.89 2476.25  1087.8 2487.06 1087.67 2505.68 1087.67
 2507.75 1087.66 2508.94 1087.67 2513.47  1087.7  2525.3 1087.76  2656.1 1087.84
 2669.24 1088.18 2672.44 1088.26  2673.3 1088.28 2688.79 1088.54    2694 1088.61
 2702.95 1088.73 2714.69 1088.91  2721.5 1089.09 2735.38 1089.39 2737.85 1089.46
 2747.13 1089.74  2754.2 1089.97 2756.08 1090.01 2770.54 1090.31 2776.77 1090.41
 2786.89 1090.53 2797.47 1090.64 2815.68  1090.8 2818.16 1090.82 2825.02 1090.89
 2835.95 1090.99 2838.85 1091.02 2852.29 1091.18 2859.55 1091.26 2868.64 1091.37
 2880.24  1091.5 2884.99 1091.54 2900.94 1091.68 2902.91  1091.7 2921.63 1091.84
  2928.4 1091.85 2942.32 1091.92 2956.58  1091.9 2960.14  1091.9

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
     3.8     .03   65.88     .03  479.75    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         65.88  479.75            200.01     200  201.66             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.15  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.04  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.11  * Reach Len. (ft)         *  200.01  *  200.00  *  201.66  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  324.38  * 7163.05  * 9764.64  *
* E.G. Slope (ft/ft)      *0.000034  * Area (sq ft)            *  324.38  * 7163.05  * 9764.64  *
* Q Total (cfs)           *20135.56  * Flow (cfs)              *  328.30  *13769.23  * 6038.03  *
* Top Width (ft)          * 2148.13  * Top Width (ft)          *   47.33  *  413.87  * 1686.93  *
* Vel Total (ft/s)        *    1.17  * Avg. Vel. (ft/s)        *    1.01  *    1.92  *    0.62  *
* Max Chl Dpth (ft)       *   24.20  * Hydr. Depth (ft)        *    6.85  *   17.31  *    5.79  *
* Conv. Total (cfs)       *3466316.0  * Conv. (cfs)            *  56517.0  *2370358.0  *1039441.0  *
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```
* Length Wtd. (ft)        *  200.54  * Wetted Per. (ft)        *   49.17  *  414.80  * 1687.00  *
* Min Ch El (ft)          * 1062.91  * Shear (lb/sq ft)        *    0.01  *    0.04  *    0.01  *
* Alpha                   *    1.95  * Stream Power (lb/ft s) *    0.01  *    0.07  *    0.01  *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)   *  266.29  *  529.36  * 1700.73  *
* C & E Loss (ft)         *          * Cum SA (acres)         *   28.96  *   29.81  *  261.79  *
*****************************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 7299.999

INPUT
Description:
Station Elevation Data    num=     258
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
   11.49 1089.39   17.93 1087.57   32.18 1083.54   40.44 1081.23   52.87 1077.76
   71.53 1076.45   73.57 1076.34    74.3 1076.33   94.26 1075.82  105.84 1075.74
  114.95  1075.7  130.66 1075.71  135.65 1075.71  149.42 1075.73  156.34 1075.73
  158.85 1075.75  177.04 1075.79  187.02 1075.74  191.92 1075.69  197.73 1075.63
  215.21 1072.83  218.42 1072.52  220.29 1071.98   227.3 1070.06  239.12 1066.78
  243.38  1066.2  259.81 1063.03  271.57 1063.23  280.51 1063.27  299.75    1066
   301.2 1066.22  305.19  1066.8  313.78 1068.02  318.39 1068.68  321.89 1068.98
  334.74 1069.53  342.59 1069.79  356.11 1070.34  363.28 1070.34  367.43  1070.5
  383.09 1071.26  383.98 1071.31   384.3 1071.32  404.67 1072.25  412.47 1072.61
  425.36 1073.16  440.65 1074.04  446.06 1074.31  460.98 1075.35  465.53 1075.68
  466.75 1075.76  481.89 1076.11  549.53 1076.68  563.63 1077.34  570.22 1077.63
  581.56 1077.92  590.91 1078.17  596.34 1078.26  611.61 1078.58  616.75 1078.71
   632.3 1079.12  637.92 1079.21    653 1079.49   666.1 1079.51  673.69 1079.55
  694.28 1079.54  694.38 1079.54  694.44 1079.54  694.64 1079.54  715.08 1079.57
  722.46 1079.59  735.77 1079.63  743.48 1079.64  756.46 1079.67  772.53 1079.69
  777.16  1079.7  792.54 1079.74  797.85 1079.76  807.01 1079.82  818.55 1079.89
  825.23 1079.92  839.24    1080  841.58    1080  850.42 1080.01  859.93 1080.01
  863.37 1080.01  880.63 1079.99  891.55 1079.97  901.32 1079.98  906.98 1079.98
  922.01    1080  923.33    1080  928.31 1080.01  942.71 1080.04  947.91 1080.05
   963.4 1080.09 1596.08 1080.34 1604.91 1080.59 1624.26 1081.02 1625.61 1081.06
 1626.38 1081.05 1629.31 1081.06  1646.3 1081.06 1652.44 1081.18 1666.99 1081.26
 1680.62 1081.37 1687.69 1081.48  1707.2 1081.86 1708.38 1081.87 1708.81 1081.88
 1729.08 1082.45 1740.83 1082.73 1749.77 1082.97 1765.16 1083.23 1770.46 1083.34
 1785.08 1083.35 1789.88 1083.35 1791.16 1083.37 1793.35  1083.4 1811.85 1083.64
 1822.58 1083.91 1832.54 1084.07 1838.93 1084.27 1853.24 1084.59 1855.28 1084.64
 1862.98 1084.81 1873.93 1085.05 1877.89  1085.1 1894.63 1085.34 1906.07 1085.43
 1915.32 1085.51 1920.68 1085.54 1936.01 1085.66 1937.03 1085.67 1940.87  1085.7
 1953.38  1085.8 1956.71 1085.84 1969.72 1085.96  1977.4 1086.05 1986.08 1086.17
 1998.09 1086.32 2018.76 1086.56 2018.79 1086.56 2035.13 1086.74 2039.48 1086.78
 2051.48 1086.91 2060.18 1087.01 2067.82 1087.08 2080.87 1087.22 2084.18 1087.24
 2096.65 1087.37 2100.53 1087.41 2101.56 1087.42 2103.34 1087.44 2122.26  1087.6
 2131.52 1087.67 2142.95 1087.75  2159.7 1087.89 2163.65 1087.92 2165.93 1087.91
 2174.53 1087.94 2182.28 1087.94 2184.34 1087.96 2198.63 1087.94 2205.03 1087.99
 2216.06 1088.15 2225.73 1088.33 2231.33 1088.46 2246.42 1088.71 2247.67 1088.73
 2252.42  1088.8 2264.03 1088.97 2267.12 1089.01 2272.43 1089.07 2287.81 1089.23
 2300.61 1089.31  2308.5 1089.35 2328.78 1089.42  2329.2 1089.42 2329.43 1089.42
 2330.32 1089.42 2349.89  1089.5 2362.13 1089.59 2370.59 1089.66 2385.15  1089.8
 2391.28 1089.85 2394.83 1089.89 2408.21 1090.01 2411.97 1090.03 2413.33 1090.04
 2432.67 1090.18 2443.87 1090.27 2453.36 1090.32 2460.23 1090.36 2474.06 1090.43
 2486.09 1090.49 2492.93 1090.52 2494.75 1090.52 2509.28 1090.56 2515.44 1090.57
 2525.62  1090.6 2536.14 1090.62 2541.98 1090.64 2556.83 1090.68 2558.33 1090.69
 2563.98 1090.71 2577.52 1090.76 2591.03 1090.81 2598.22 1090.83  2610.6 1090.85
 2618.91 1090.87 2623.72 1090.88 2639.61 1090.89 2641.87  1090.9  2660.3 1090.94
 2672.78 1091.01 2680.99 1091.07 2695.14 1091.17 2701.69 1091.22 2705.47 1091.25
 2719.76 1091.26 2721.82 1091.26 2722.38 1091.26 2738.18 1091.22 2743.08 1091.22
 2751.51 1091.18 2763.77 1091.14 2779.68    1091 2784.46 1090.99 2797.64 1090.99
 2803.57 1091.01 2805.16 1090.99 2819.92 1091.17 2825.85 1091.18 2836.28  1091.3
 2846.54 1091.42 2864.23 1091.55 2867.24 1091.57 2875.54 1091.56 2885.32 1091.51
 2887.93  1091.5 2892.41 1091.47 2908.62 1091.34 2918.03 1091.24 2929.32 1091.18
 2934.38 1091.12 2950.01 1091.03 2953.43 1091.01 2970.71 1090.99 2983.42 1090.96
  2991.4 1090.99 2999.77 1091.01 3012.09 1091.11 3016.13 1091.17 3031.32  1091.4
 3032.48 1091.41 3032.79 1091.42 3046.43 1091.68

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   11.49     .03  191.92     .03  481.89    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        191.92  481.89            200.59     200  199.97              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)          * 1087.14  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.04  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.10  * Reach Len. (ft)         *  200.59  *  200.00  *  199.97  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1701.48  * 4879.12  * 9720.03  *
* E.G. Slope (ft/ft)      *0.000044  * Area (sq ft)            * 1701.48  * 4879.12  * 9720.03  *
* Q Total (cfs)           *20090.66  * Flow (cfs)              * 2550.33  *10441.55  * 7098.77  *
* Top Width (ft)          * 2050.00  * Top Width (ft)          *  172.32  *  289.97  * 1587.71  *
* Vel Total (ft/s)        *    1.23  * Avg. Vel. (ft/s)        *    1.50  *    2.14  *    0.73  *
* Max Chl Dpth (ft)       *   24.07  * Hydr. Depth (ft)        *    9.87  *   16.83  *    6.12  *
* Conv. Total (cfs)       *3039764.0  * Conv. (cfs)             *  385871.3  *1579832.0  *1074061.0  *
* Length Wtd. (ft)        *  200.07  * Wetted Per. (ft)        *  173.67  *  291.91  * 1587.82  *
* Min Ch El (ft)          * 1063.03  * Shear (lb/sq ft)        *    0.03  *    0.05  *    0.02  *
* Alpha                   *    1.88  * Stream Power (lb/ft s) *    0.04  *    0.10  *    0.01  *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)   *  261.64  *  501.72  * 1655.63  *
* C & E Loss (ft)         *          * Cum SA (acres)         *   28.45  *   28.20  *  254.21  *
*****************************************************************************************************

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

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 7099.999

INPUT
Description:
Station Elevation Data    num=     157
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
       0 1090.68    9.11 1089.35   18.65 1087.01   35.35 1082.58   39.38 1081.46
   41.68 1080.82    50.1  1079.1   57.96 1077.36   60.12 1077.08   63.88 1077.04
```

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  80.85 1076.94   92.41 1076.99  101.58 1077.03  120.94 1077.16  122.32 1077.17
 125.97 1077.18  143.05 1077.19  149.47 1077.19  163.78 1077.18     178 1077.26
 184.52  1077.3  191.61 1077.35  201.83 1077.42  204.52 1077.43  205.25 1077.37
  220.8 1072.61  225.98 1070.96  237.08 1067.55  246.72 1064.67  253.36 1063.66
 267.45 1062.87  269.65 1063.14   277.7 1064.88  288.18 1067.14  292.12 1068.15
 308.92 1072.65  320.65 1074.84  325.16 1075.89  329.65 1076.94  605.95 1077.09
 619.92 1077.49  627.88 1077.68  640.65 1077.96  644.17 1078.04  657.03  1078.3
 661.39 1078.39  676.73 1078.76  682.12 1078.87  693.02 1079.05  702.85 1079.22
 720.07 1079.45  723.59  1079.5  725.58 1079.54  732.91 1079.61  741.86 1079.71
 744.32 1079.74  748.61 1079.78  765.05 1079.98  777.14  1080.1  785.79  1080.2
 805.67 1080.38  806.52 1080.39  808.77 1080.41  823.28 1080.53  827.25 1080.56
  834.2 1080.61  847.99 1080.72  862.73 1080.84  868.72 1080.89  884.63 1081.03
 889.45 1081.07   904.7 1081.23  910.19 1081.28  919.79 1081.35  930.92 1081.46
 937.26 1081.49  951.65 1081.53  953.55 1081.53   960.5 1081.53  969.84 1081.53
 972.39 1081.53  976.86 1081.53  993.12 1081.54  1002.4 1081.58 1013.85 1081.62
1033.91 1081.74 1034.59 1081.75 1036.37 1081.75 1055.32 1081.83 1062.44 1081.84
1076.05 1081.86 1090.97 1081.88 1096.79 1081.89 1112.23 1081.91 1116.38 1081.92
1117.52 1081.92 1132.67 1081.92 1138.26 1081.91 1148.03 1081.92 1158.99 1081.92
1176.56 1081.95 1179.72 1081.95  1188.1 1081.96 2451.62 1085.33  2465.2 1085.32
 2467.9 1085.35 2477.83 1085.59 2484.19 1085.79 2485.93 1085.81 2488.97 1085.86
2506.66 1086.25 2517.49 1086.36 2527.39 1086.47 2546.03 1086.47 2548.13 1086.47
2549.32 1086.53 2553.71 1086.45 2565.61 1086.41 2568.86 1086.41 2581.88 1086.88
 2589.6 1086.69 2598.17 1086.84 2610.33 1087.15 2614.46 1087.24 2629.57 1087.37
2631.06  1087.4 2647.02 1087.88  2651.8 1087.95 2660.15 1088.13 2672.53 1088.48
2679.59 1088.66 2693.26 1088.76 2705.43 1088.86    2714    1089 2728.44  1089.3
2734.73 1089.43 2745.74 1089.77 2755.46 1090.02 2761.01 1090.13  2776.2 1090.38
2777.28  1090.4 2781.31 1090.48 2793.57 1090.72 2796.93  1090.8  2802.8  1090.9
2817.66 1091.18 2826.14  1091.3  2838.4 1091.38 2842.42 1091.47 2857.17 1091.57
 2858.7 1091.59 2859.13  1091.6 2874.99 1091.92 2879.86 1091.97 2891.28 1092.15
 2900.6 1092.19 2903.22 1092.21

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0     .03  191.61     .03  329.65    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        191.61  329.65              200     200  200.22              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1087.15  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.07  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1087.08  * Reach Len. (ft)         *  200.00  *  200.00  *  200.22  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1531.20  * 2360.08  *10988.36  *
* E.G. Slope (ft/ft)      *0.000090  * Area (sq ft)            * 1531.20  * 2360.08  *10988.36  *
* Q Total (cfs)           *20102.03  * Flow (cfs)              * 3058.36  * 7226.66  * 9817.00  *
* Top Width (ft)          * 2589.09  * Top Width (ft)          *  173.23  *  138.04  * 2277.82  *
* Vel Total (ft/s)        *    1.35  * Avg. Vel. (ft/s)        *    2.00  *    3.06  *    0.89  *
* Max Chl Dpth (ft)       *   24.21  * Hydr. Depth (ft)        *    8.84  *   17.10  *    4.82  *
* Conv. Total (cfs)       *2121177.0  * Conv. (cfs)            *322720.2  *762561.4  *1035895.0  *
* Length Wtd. (ft)        *  200.10  * Wetted Per. (ft)        *  174.44  *  141.65  * 2277.89  *
* Min Ch El (ft)          * 1062.87  * Shear (lb/sq ft)        *    0.05  *    0.09  *    0.03  *
* Alpha                   *    2.39  * Stream Power (lb/ft s)   *    0.10  *    0.29  *    0.02  *
* Frctn Loss (ft)         *    0.02  * Cum Volume (acre-ft)    *  254.20  *  485.10  * 1608.09  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   27.66  *   27.22  *  245.34  *
**********************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 6899.999

INPUT
Description:
Station Elevation Data     num=     164
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
***********************************************************************************
    2.62 1090.86    6.44    1090   20.43 1086.01   23.36 1085.17   24.46 1084.86
   44.09 1079.49   52.98 1079.24   64.82 1078.47   81.51 1078.44   85.56  1078.4
    96.3 1078.54  106.29 1078.66  120.42 1078.74  127.02 1078.74  136.71  1078.7
  147.76 1078.63  152.99 1078.56  168.49  1078.4  172.16 1078.27  189.23 1077.73
  191.53 1077.48  201.84 1076.35  209.96 1074.66  224.16 1070.47  230.69 1068.53
  234.41  1067.4  248.03 1063.88  250.69 1063.17  251.42 1063.04  266.97 1062.73
  272.16 1063.08  281.23 1065.77  292.89 1069.15  299.55 1071.07  313.62 1075.14
   323.9 1077.05   331.6 1078.33  737.72 1079.17  749.03 1079.54  755.47 1079.73
  769.76 1080.04   779.1 1080.21  790.49 1080.41  804.32 1080.53  811.23 1080.58
  820.61 1080.64  831.96 1080.72  851.83 1080.95  852.69 1080.96  853.18 1080.96
  854.96 1080.99  869.46 1081.18  873.43 1081.24  880.36 1081.32  894.16 1081.49
  908.89 1081.64  914.89  1081.7  930.83 1081.87  934.59 1081.91  935.63 1081.92
  950.88 1082.08  956.36 1082.12  967.16 1082.18   977.1  1082.2  983.44 1082.22
  997.83 1082.27 1006.69 1082.32 1018.56 1082.41  1032.3 1082.52 1039.29 1082.58
 1048.57 1082.66 1060.03 1082.74 1064.86 1082.78 1080.76 1082.85 1081.15 1082.85
 1082.57 1082.86 1101.49 1082.93 1108.61 1082.98 1122.23 1083.07 1137.14 1083.18
 1142.96 1083.22 1158.43 1083.31 1162.57 1083.33  1163.7 1083.34 1165.67 1083.35
 1184.43 1083.44 1195.13 1083.49 1205.16 1083.54 1222.73 1083.61 1225.89 1083.63
  1227.7 1083.64 1234.29 1083.66 1246.63 1083.68 1251.26 1083.68 1267.36 1083.73
 1279.79 1083.75  1288.1 1083.77 1292.82 1083.76 1308.83 1083.71 1310.17  1083.7
 1329.56 1083.57 1341.68 1083.53  1350.3 1083.52 1357.96 1083.54 1371.03 1083.58
 1374.24 1083.59 1386.03 1083.66 1391.76 1083.68 1393.91  1083.7  1412.5 1083.82
 1423.09  1083.9 1433.23 1084.01 1450.98 1084.14 1453.96 1084.17 2428.44 1084.93
 2432.66    1085 2448.16 1085.48 2448.95 1085.54 2449.17 1085.55 2449.54 1085.56
  2469.9 1086.71 2481.51 1086.98 2490.64 1087.09  2506.6 1087.43 2511.37 1087.54
 2514.09 1087.62 2524.03 1087.84  2532.1 1088.04 2535.13 1088.12 2552.83 1088.59
 2563.66 1088.88 2573.57 1089.16 2592.19 1089.61  2594.3 1089.66  2599.9 1089.77
 2611.78    1090 2615.04 1090.06 2628.07 1090.26 2635.77 1090.37 2644.35 1090.48
  2656.5 1090.63 2660.63 1090.67 2675.76 1090.86 2677.24 1090.88  2693.2 1091.07
 2697.97 1091.13 2706.31 1091.21  2718.7 1091.34 2725.76 1091.39 2739.44 1091.48
 2751.63 1091.56 2760.17 1091.61 2774.62 1091.71  2780.9 1091.75  2790.9 1091.77
 2801.64 1091.77 2807.18 1091.71 2822.37 1091.57 2823.47 1091.56  2827.5 1091.52
 2839.75  1091.4  2843.1 1091.38 2848.96 1091.42 2858.62 1091.47

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
    2.62     .03  191.53     .03   331.6    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        191.53   331.6            200.32     200  199.89              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1087.14  * Element                 *  Left OB *  Channel * Right OB *
```

* Vel Head (ft)	* 0.10	* Wt. n-Val.	* 0.030	* 0.030	* 0.045	*
* W.S. Elev (ft)	* 1087.04	* Reach Len. (ft)	* 200.32	* 200.00	* 199.89	*
* Crit W.S. (ft)	*	* Flow Area (sq ft)	* 1353.94	* 2388.06	* 9068.37	*
* E.G. Slope (ft/ft)	*0.000123	* Area (sq ft)	* 1353.94	* 2388.06	* 9068.37	*
* Q Total (cfs)	*20072.50	* Flow (cfs)	* 2898.03	* 8525.96	* 8648.51	*
* Top Width (ft)	* 2469.58	* Top Width (ft)	* 174.71	* 140.07	* 2154.80	*
* Vel Total (ft/s)	* 1.57	* Avg. Vel. (ft/s)	* 2.14	* 3.57	* 0.95	*
* Max Chl Dpth (ft)	* 24.31	* Hydr. Depth (ft)	* 7.75	* 17.05	* 4.21	*
* Conv. Total (cfs)	*1811516.0	* Conv. (cfs)	*261543.2	*769456.6	*780516.6	*
* Length Wtd. (ft)	* 200.01	* Wetted Per. (ft)	* 175.79	* 143.93	* 2154.88	*
* Min Ch El (ft)	* 1062.73	* Shear (lb/sq ft)	* 0.06	* 0.13	* 0.03	*
* Alpha	* 2.63	* Stream Power (lb/ft s)	* 0.13	* 0.45	* 0.03	*
* Frctn Loss (ft)	* 0.03	* Cum Volume (acre-ft)	* 247.58	* 474.20	* 1562.00	*
* C & E Loss (ft)	*	* Cum SA (acres)	* 26.86	* 26.58	* 235.15	*

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 6699.999

INPUT
Description:
Station Elevation Data num= 145

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.61	1089.91	17.22	1088.53	33.37	1083.96	45.97	1081.91	54.13	1080.19
58.73	1080.03	74.89	1079.39	74.97	1079.39	75.3	1079.38	95.65	1079.06
103.47	1079.11	116.4	1079.11	132.22	1079.4	137.16	1079.46	149.97	1079.63
156.19	1079.7	157.92	1079.7	160.97	1079.66	178.68	1079.5	188.68	1079.21
194.57	1079.11	199.44	1079.03	218.48	1073.37	220.2	1072.96	221.16	1072.67
224.63	1071.63	240.95	1066.71	247.23	1065.8	261.71	1062.86	275.99	1064.37
282.47	1064.67	299.3	1069.9	302.37	1070.86	303.23	1071.12	304.74	1071.57
323.99	1077.27	333.49	1079.43	419.75	1079.94	427.78	1080.18	448.5	1080.73
448.54	1080.73	448.55	1080.73	448.64	1080.73	469.3	1081.09	477.25	1081.18
490.06	1081.33	506	1081.45	510.82	1081.49	523.3	1081.54	529.77	1081.56
531.58	1081.56	534.76	1081.56	552.34	1081.57	937.29	1081.77	946.75	1081.86
966.04	1082.05	967.51	1082.06	968.33	1082.07	971.3	1082.1	988.27	1082.26
994.8	1082.31	1009.03	1082.42	1017.06	1082.5	1029.78	1082.6	1045.96	1082.75
1050.54	1082.78	1065.78	1082.92	1071.3	1082.97	1082.02	1083.06	1092.06	1083.15
1109.81	1083.31	1112.82	1083.33	1114.51	1083.34	1120.62	1083.4	1130.75	1083.5
1133.58	1083.54	1138.56	1083.58	1154.34	1083.73	1163.24	1083.78	1175.09	1083.87
1195.29	1084	1195.85	1084	1196.06	1084	1216.61	1084.17	1224.81	1084.22
1237.37	1084.32	1253.56	1084.35	1258.13	1084.36	1269.96	1084.34	1278.89	1084.31
1282.32	1084.31	1299.64	1084.28	1311.07	1084.33	1320.4	1084.36	1339.82	1084.52
1341.16	1084.53	1341.91	1084.54	1344.62	1084.56	1361.92	1084.71	1368.58	1084.77
1382.68	1084.88	1397.33	1084.98	1403.44	1085.02	1419.29	1085.1	1424.2	1085.13
1439.37	1085.19	1444.95	1085.21	1454.84	1085.24	1465.71	1085.27	2719.94	1087.36
2731.99	1087.92	2748.69	1088.58	2752.75	1088.72	2763.27	1089.02	2771.27	1089.26
2773.5	1089.32	2787.52	1089.37	2794.26	1089.44	2806.19	1089.47	2815.02	1089.47
2820.01	1089.49	2835.78	1089.61	2836.25	1089.6	2837.94	1089.62	2856.54	1089.77
2863.69	1089.87	2877.3	1090.05	2884.98	1090.16	2898.06	1090.35	2901.22	1090.34
2912.61	1090.36	2918.81	1090.36	2921.2	1090.34	2939.57	1090.19	2949.95	1090.11
2960.33	1089.93	2966.19	1089.88	2981.09	1090.34	2982.43	1090.42	2987.28	1090.52
3001.85	1090.81	3007.46	1090.88	3022.61	1091.11	3031.16	1091.2	3040.18	1091.28

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
12.61	.03	194.57	.03	333.49	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
194.57	333.49	200	200	200.16	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

* E.G. Elev (ft)	* 1087.16	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.22	* Wt. n-Val.	* 0.030	* 0.030	* 0.045	*
* W.S. Elev (ft)	* 1086.95	* Reach Len. (ft)	* 200.00	* 200.00	* 200.16	*
* Crit W.S. (ft)	*	* Flow Area (sq ft)	* 1171.89	* 2299.54	* 5945.44	*
* E.G. Slope (ft/ft)	*0.000229	* Area (sq ft)	* 1171.89	* 2299.54	* 5945.44	*
* Q Total (cfs)	*19988.10	* Flow (cfs)	* 3149.76	*10965.40	* 5872.94	*
* Top Width (ft)	* 2449.30	* Top Width (ft)	* 171.76	* 138.92	* 2138.62	*
* Vel Total (ft/s)	* 2.12	* Avg. Vel. (ft/s)	* 2.69	* 4.77	* 0.99	*
* Max Chl Dpth (ft)	* 24.09	* Hydr. Depth (ft)	* 6.82	* 16.55	* 2.78	*
* Conv. Total (cfs)	*1321027.0	* Conv. (cfs)	*208169.8	*724710.7	*388146.3	*
* Length Wtd. (ft)	* 200.04	* Wetted Per. (ft)	* 172.54	* 143.27	* 2138.66	*
* Min Ch El (ft)	* 1062.86	* Shear (lb/sq ft)	* 0.10	* 0.23	* 0.04	*
* Alpha	* 3.09	* Stream Power (lb/ft s)	* 0.26	* 1.09	* 0.04	*
* Frctn Loss (ft)	* 0.05	* Cum Volume (acre-ft)	* 241.77	* 463.44	* 1527.55	*
* C & E Loss (ft)	*	* Cum SA (acres)	* 26.06	* 25.94	* 225.30	*

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 6499.999

INPUT
Description:
Station Elevation Data num= 229

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1090.6	6.98	1089.82	16.97	1087.44	34.65	1082.67	37.73	1081.84
39.46	1081.54	45.7	1081.16	55.71	1080.31	58.49	1080.28	63.41	1080.18
79.24	1079.73	92.16	1079.64	100	1079.57	104.43	1079.59	120.37	1079.61
120.67	1079.61	120.76	1079.61	120.91	1079.61	141.52	1079.64	153.16	1079.65
162.28	1079.67	178.41	1079.43	183.04	1079.39	192.84	1078.44	195.04	1078.23
203.8	1077.22	207.16	1076.16	224.56	1070.64	235.92	1067.28	245.31	1064.39
264.67	1063.07	266.07	1062.92	266.86	1062.96	269.7	1063.5	283.1	1065.64
286.83	1066.69	293.42	1068.72	307.59	1073.17	322.17	1077.12	328.35	1078.89
390.62	1080.52	408.43	1080.64	411.38	1080.64	419.03	1080.88	429.29	1081.21
432.14	1081.3	437.18	1081.39	452.9	1081.69	461.77	1081.8	473.66	1081.94
493.7	1082.13	494.42	1082.14	494.69	1082.14	515.17	1082.31	523.44	1082.36
535.93	1082.45	542.98	1082.48	556.69	1082.55	568.36	1082.56	577.45	1082.56
580.94	1082.54	598.21	1082.43	609.7	1082.39	618.97	1082.34	638.45	1082.41
639.73	1082.42	640.44	1082.42	643.03	1082.44	660.48	1082.57	667.2	1082.6
681.24	1082.68	695.95	1082.68	702	1082.69	717.7	1082.66	721.65	1082.65
722.76	1082.64	737.89	1082.64	743.52	1082.64	754.14	1082.66	764.28	1082.68
770.38	1082.7	785.04	1082.79	786.62	1082.8	792.36	1082.85	805.8	1082.96
810.96	1082.97	826.55	1083.05	839.71	1083.05	847.31	1083.05	867.02	1083.07
867.84	1083.07	868.07	1083.07	868.47	1083.07	888.83	1083.07	900.33	1083.02

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 909.59 1082.92  925.97 1082.64  930.35 1082.57  932.81 1082.51  941.69 1082.39
 949.05 1082.26  951.11 1082.26  954.73 1082.29  971.86 1082.39  983.48 1082.54
 992.62 1082.67  997.78 1082.73 1013.38  1082.9 1016.36 1082.92 1034.14 1083.04
1040.98 1083.06 1054.9 1083.09 1069.73 1083.14 1075.66 1083.14 1091.03 1083.18
1095.24 1083.18 1096.41 1083.19 1111.49 1083.17 1117.17 1083.16 1127.72 1083.11
1137.93 1082.97 1143.96  1082.9 1158.69 1082.65 1165.69 1082.67 1176.45 1082.79
1179.45 1082.86 1192.69 1083.31 1200.21 1083.41 1213.49 1083.54 1220.96 1083.62
1240.36 1083.73 1241.43 1083.74 1241.73 1083.74 1242.25 1083.74 1262.48 1083.89
1273.91 1084.01 1283.24 1084.11 1299.75 1084.24    1304 1084.29  1306.4 1084.33
1315.02 1084.43 1322.64 1084.54 1324.76 1084.55 1328.51 1084.57 1345.52 1084.83
1357.26 1084.92 1366.28 1084.99 1386.01 1085.18 1387.04 1085.19 1389.69 1085.22
1407.79 1085.49 1414.76 1085.55 1428.55 1085.68 1443.51 1085.77 1449.31 1085.81
1464.35 1085.89 1468.82  1085.9 1470.07 1085.92 1485.07    1086 1490.83 1086.04
1501.31 1086.08 1511.59  1086.1 1529.77 1086.09 1532.34 1086.09 1539.02 1086.08
1550.03 1086.06  1553.1 1086.06 1566.27 1086.05 1573.86 1086.05 1582.52 1086.05
1594.62 1086.04 1598.76 1086.04 1613.69 1086.06 1615.38 1086.06 1631.25  1086.1
1636.14 1086.11 1644.77 1086.15  1656.9 1086.19 1673.53 1086.24 1677.65 1086.26
1679.98 1086.27 1688.36 1086.29 2798.62 1089.39 2800.73 1089.43 2808.34 1089.54
2816.97 1089.66 2819.38  1089.7 2823.62 1089.75 2840.14 1089.96 2849.45 1090.05
2860.89 1090.13  2865.7 1090.17 2881.65 1090.26    2883 1090.27 2902.41 1090.37
2909.87 1090.42 2923.17 1090.51 2938.62 1090.67 2943.93 1090.71 2957.67 1090.89
2964.69 1090.98 2979.39 1091.13 2985.45 1091.19 2995.64 1091.22  3006.2 1091.24
3011.88 1091.23 3026.96 1091.19 3028.12 1091.19 3032.34 1091.19 3047.72 1091.14
3053.64 1091.18 3068.48 1091.26 3082.39 1091.45 3089.24 1091.53    3107 1091.72
3109.34 1091.75    3110 1091.75 3111.14 1091.76 3130.75 1091.86  3139.9 1091.89
3151.51 1091.93 3158.07 1091.96 3172.27 1092.08 3181.67 1092.22 3190.55 1092.36
3193.03 1092.42  3197.4 1092.49 3213.79 1092.75 3214.02 1092.75

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*****************************************************
       0     .03  162.28     .03  328.35    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        162.28  328.35               200     200  200.01              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.12  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.24  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1086.88  * Reach Len. (ft)         *  200.00  *  200.00  *  200.01  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  914.35  * 2521.55  * 4756.07  *
* E.G. Slope (ft/ft)      *0.000260  * Area (sq ft)            *  914.35  * 2521.55  * 4756.07  *
* Q Total (cfs)           *19953.91  * Flow (cfs)              * 2505.12  *12146.86  * 5301.93  *
* Top Width (ft)          * 1879.91  * Top Width (ft)          *  143.23  *  166.07  * 1570.61  *
* Vel Total (ft/s)        *    2.44  * Avg. Vel. (ft/s)        *    2.74  *    4.82  *    1.11  *
* Max Chl Dpth (ft)       *   23.96  * Hydr. Depth (ft)        *    6.38  *   15.18  *    3.03  *
* Conv. Total (cfs)       *1237078.0  * Conv. (cfs)             *155309.5  *753065.5  *328702.5  *
* Length Wtd. (ft)        *  200.00  * Wetted Per. (ft)        *  143.98  *  170.31  * 1570.69  *
* Min Ch El (ft)          * 1062.92  * Shear (lb/sq ft)        *    0.10  *    0.24  *    0.05  *
* Alpha                   *    2.60  * Stream Power (lb/ft s)   *    0.28  *    1.16  *    0.05  *
* Frctn Loss (ft)         *    0.05  * Cum Volume (acre-ft)     *  236.98  *  452.37  * 1502.97  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   25.34  *   25.24  *  216.78  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 6299.999

INPUT
Description:
Station Elevation Data     num=      231
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
    1.98 1091.21   17.52 1087.21   22.74 1085.78   24.74 1085.32    43.5 1080.49
    53.5 1080.19   64.26 1079.87   82.25 1079.65   85.02 1079.61   92.19 1079.59
  105.77 1079.58  111.01  1079.6  126.53 1079.67   135.3 1079.69  147.29  1079.7
  166.85 1079.69  168.05 1079.69  184.02 1079.35  188.81 1079.36  190.08 1079.15
  200.27 1077.45  209.57 1074.72  216.51 1072.48  230.33 1068.17  241.51 1065.08
  251.08 1062.59  265.24 1062.76  271.84 1063.28  283.52 1066.57   292.6 1068.92
  297.73 1070.42  313.36 1075.17  316.18 1075.98  330.22 1079.97  396.39 1081.22
  398.52 1081.24  417.15 1081.31  427.27 1081.42  437.91 1081.55  443.91 1081.58
  458.67 1081.69  465.51 1081.74  479.43 1081.84  484.78 1081.89  500.19    1082
  513.53 1082.11  520.95 1082.16  540.18 1082.32  541.37 1082.33   541.7 1082.33
  542.28 1082.34  562.46 1082.46  571.04 1082.49  583.22 1082.54  599.79 1082.59
  603.98 1082.61  606.34 1082.62  614.85 1082.61  622.58 1082.61  624.74  1082.6
  628.54  1082.6   645.5 1082.58   657.3 1082.68  666.26 1082.76  686.05 1082.92
  687.01 1082.93  689.51 1082.95  707.77  1083.1  720.04 1083.16  728.53 1083.27
  743.55 1083.34  749.29 1083.36  752.53 1083.37  764.17 1083.41  768.77 1083.42
  770.05 1083.43   772.3 1083.44  790.81 1083.53  801.05 1083.58  811.56 1083.63
  817.49 1083.67  832.32 1083.74  838.84 1083.79  853.08  1083.9  866.22 1084.02
  873.84 1084.05  887.31 1084.09   894.6 1084.12  913.51 1084.14  915.36 1084.14
  916.07 1084.14  936.12 1084.16  944.82 1084.18  956.88 1084.21  973.57 1084.19
  977.64 1084.19  988.17 1084.11  998.39 1084.02 1002.32 1083.99 1019.15 1083.85
 1031.08 1083.89 1039.91 1083.87 1044.89 1083.91 1060.67 1084.09 1062.84 1084.11
 1081.43 1084.36 1093.62 1084.48 1102.19 1084.52 1109.87 1084.56 1122.94  1084.6
 1126.11 1084.61 1137.51 1084.63  1143.7 1084.63 1146.08 1084.63 1164.46 1084.62
 1174.84 1084.61 1185.22  1084.6 1203.59  1084.6 1205.98 1084.59 1212.17  1084.6
 1226.74 1084.61  1239.8 1084.65  1247.5 1084.69 1261.09 1084.81 1268.25 1084.86
 1272.29 1084.87 1286.83 1084.91 1289.01 1084.92 1289.84 1084.91 1309.77  1084.7
 1318.59 1084.78 1330.53 1084.77 1347.35 1085.03 1351.29  1085.1  1361.5 1085.19
 1369.75 1085.26 1372.05 1085.28    1386 1085.38  1392.8 1085.45 1402.23 1085.55
 1413.56 1085.66 1418.47 1085.72 1434.32 1085.89 1434.72  1085.9 1436.17 1085.91
 1450.96 1086.08 1455.08 1086.12 1462.36 1086.19 1475.84 1086.33 1491.11 1086.45
  1496.6 1086.49 1510.83 1086.53 1517.36 1086.54 1532.18 1086.52 1538.12 1086.51
 1548.62 1086.53 1558.88 1086.54 1564.67 1086.58 1579.63 1086.69  1585.5 1086.76
 1597.15 1086.89 1600.39 1086.93 1606.12 1086.98 1621.15 1087.14 1629.63 1087.22
 1641.91 1087.31 1660.17 1087.45 1662.67 1087.46 1663.62 1087.47 1683.43 1087.64
 1692.37 1087.71 1704.18  1087.8 1710.85 1087.84 1724.94 1087.91 1727.09 1087.92
 1734.83 1087.95 1743.34 1087.98  1745.7 1087.98 1759.58 1088.04 1766.46 1088.06
 1778.63 1088.09 1787.22 1088.12 1792.07 1088.13 1807.98 1088.11 1809.49 1088.11
 1824.54 1088.11 1828.74 1088.11 1836.14 1088.12 1849.49 1088.11 1864.89 1088.15
 1870.25 1088.15 1884.16  1088.2 1889.52 1088.22 1891.01 1088.23 1905.76  1088.3
 1911.77 1088.33  1922.4 1088.39 1932.53 1088.44 1951.15 1088.55 1953.29 1088.57
 1958.83 1088.59 1974.04 1088.65  1979.9 1088.64 1994.81 1088.65 2008.65 1088.63
 2015.56 1088.62  2033.5 1088.57 2036.32 1088.56 2051.94 1088.48 2576.05 1088.94
  2583.7 1089.15  2596.8 1089.58 2612.45 1089.81 2617.56 1089.91 2630.83    1090
 2636.68 1090.03 2638.32 1090.04 2641.21 1090.05 2659.08 1090.08 2669.96 1090.06
 2679.84 1090.05 2929.48 1089.95  2949.7 1090.42 2957.47 1090.56 2970.46  1090.8
 2977.79 1090.95 2991.21 1091.19 3004.15 1091.47 3011.97 1091.61 3014.98 1091.65
 3017.11 1091.69
```

```
Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
    1.98     .03  190.08     .03  330.22    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        190.08  330.22               200     200  200.01             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.09  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.30  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1086.79  * Reach Len. (ft)         *  200.00  *  200.00  *  200.01  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1114.43  * 2338.48  * 3657.55  *
* E.G. Slope (ft/ft)      *0.000285  * Area (sq ft)            * 1114.43  * 2338.48  * 3657.55  *
* Q Total (cfs)           *19879.80  * Flow (cfs)              * 3239.17  *12488.50  * 4152.13  *
* Top Width (ft)          * 1568.85  * Top Width (ft)          *  171.02  *  140.14  * 1257.70  *
* Vel Total (ft/s)        *    2.80  * Avg. Vel. (ft/s)        *    2.91  *    5.34  *    1.14  *
* Max Chl Dpth (ft)       *   24.20  * Hydr. Depth (ft)        *    6.52  *   16.69  *    2.91  *
* Conv. Total (cfs)       *1178093.0 * Conv. (cfs)             *  191955.5 *740078.7 *246058.7 *
* Length Wtd. (ft)        *  200.00  * Wetted Per. (ft)        *  171.85  *  144.79  * 1257.74  *
* Min Ch El (ft)          * 1062.59  * Shear (lb/sq ft)        *    0.12  *    0.29  *    0.05  *
* Alpha                   *    2.50  * Stream Power (lb/ft s)  *    0.34  *    1.53  *    0.06  *
* Frctn Loss (ft)         *    0.07  * Cum Volume (acre-ft)    *  232.32  *  441.21  * 1483.65  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   24.62  *   24.53  *  210.29  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 6099.999

INPUT
Description:
Station Elevation Data     num=     227
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    9.38 1089.33   16.47 1087.73   30.14 1084.59   45.22 1082.66    50.9 1081.75
   65.63 1081.16   70.34 1080.97   71.66 1080.92   86.58 1080.63   92.42 1080.52
  102.72 1080.48  113.17 1080.42  119.07 1080.43  133.94 1080.48  135.32 1080.47
   140.3 1080.48  154.69  1080.5  160.24 1080.45  175.45  1080.4  188.99 1079.54
  190.76 1079.51  196.21 1079.43  200.29 1078.16  214.96 1073.58  216.53 1073.09
  216.97 1072.95  217.74 1072.72  237.73 1066.67  246.49 1065.16  258.49 1062.31
  265.25  1062.6  279.24 1064.37  289.62 1067.55     300 1070.77  303.99 1071.97
  320.76 1077.09  332.74 1080.44  383.04 1081.31   395.2 1081.25   403.8 1081.29
  411.45 1081.53  424.55 1082.03  427.68 1082.11  438.96  1082.2  445.31 1082.27
  447.75 1082.27  466.07 1082.22   476.5 1082.42  486.83 1082.67  505.25 1082.87
  507.59 1082.89   508.9  1082.9  513.62 1082.93  528.35 1083.01  534.01 1083.03
   549.1 1083.09  562.76 1083.15  569.86 1083.18  588.29 1083.31  590.62 1083.33
  606.36 1083.39  611.38  1083.4   622.6 1083.35  632.14 1083.27  649.02 1083.19
   652.9 1083.17  655.08 1083.18  662.96 1083.24  673.66 1083.34  677.77 1083.37
  694.42 1083.49  706.53 1083.53  715.18 1083.58  735.28 1083.64  735.93 1083.64
  737.62 1083.65  756.69 1083.74  764.03 1083.79  777.45 1083.88  792.78 1084.02
  798.21 1084.07  801.27 1084.11  812.28 1084.21  818.97 1084.27  821.53 1084.29
  839.73 1084.44  850.28  1084.5  860.48 1084.57  879.04 1084.65  881.24 1084.66
  882.48 1084.66  886.95 1084.67  898.72  1084.7     902  1084.7  914.96 1084.73
  922.76 1084.75  931.21 1084.78  943.52 1084.84  961.62 1084.94  964.28 1084.96
  965.29 1084.96  985.04 1085.08  994.05 1085.13 1005.79  1085.2  1022.8 1085.26
 1026.55 1085.28 1028.67 1085.29 1036.29 1085.29 1047.31  1085.3 1051.55  1085.3
 1068.07 1085.31 1080.31 1085.35 1088.83 1085.39 1109.06 1085.58 1109.59 1085.59
 1109.88 1085.59 1110.95  1085.6 1130.34 1085.81 1137.81 1085.86  1151.1 1085.97
 1158.61 1086.02 1171.86 1086.07 1174.85 1086.09 1185.62 1086.12 1192.62 1086.13
 1207.34 1086.17 1213.38 1086.19 1223.58 1086.21 1234.14 1086.25 1252.82 1086.33
  1254.9 1086.34 1256.06 1086.35 1260.28 1086.38 1275.66 1086.48 1281.57  1086.5
 1296.41 1086.57 1310.32 1086.58 1317.17 1086.58 1321.03 1086.58  1626.6 1087.06
 1628.55 1087.09 1633.61 1087.15 1649.31 1087.33 1655.35 1087.39 1670.07 1087.54
  1684.1 1087.67 1690.83 1087.74 1694.61 1087.78 1708.27 1087.91 1710.86 1087.94
 1711.59 1087.94 1712.85 1087.96 1732.34 1088.17 1743.34 1088.29  1753.1  1088.4
 1759.59 1088.45 1773.86 1088.59 1775.83  1088.6 1782.94 1088.65 1794.62 1088.73
 1808.32 1088.82 1815.38 1088.86 1824.56 1088.92 1836.14 1088.96 1840.81 1088.98
  1856.9 1089.06 1857.61 1089.06 1877.65 1089.23 1889.53 1089.36 1898.41 1089.43
 1914.12 1089.54 1919.17 1089.58 1932.27 1089.64 1939.93 1089.67  1954.5  1089.7
 1960.69  1089.7 1971.63 1089.73 1981.45 1089.76 1986.99 1089.77  2002.2 1089.83
 2006.94 1089.85 2022.96  1089.9 2035.72 1089.94 2043.72 1089.95 2051.96 1089.97
 2064.48 1089.98 2081.61 1089.99 2085.24 1089.99 2086.63 1089.99    2106 1089.96
 2115.38 1089.95 2126.76 1089.94 2144.13 1089.96 2147.51 1089.97 2156.27 1089.98
 2165.66 1089.97 2168.27 1089.98  2181.9 1089.96 2189.03 1089.98 2198.15 1089.97
 2209.79 1089.97 2214.39 1089.97 2230.55 1089.96 2230.63 1089.96 2230.93 1089.96
 2251.31 1089.99 2396.62    1090  2409.3 1090.12 2417.38 1090.17 2425.55 1090.23
 2438.14 1090.26 2454.93 1090.29 2458.89 1090.29 2749.51 1090.46  2750.4 1090.48
 2753.59 1090.53 2766.64 1090.71 2770.27 1090.77 2776.69 1090.86 2791.03 1091.06
 2805.44 1091.26 2811.79 1091.34 2815.37 1091.39 2828.26 1091.57 2832.55 1091.63
 2834.19 1091.65 2847.13 1091.83

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
    9.38     .03  190.76     .03  332.74    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        190.76  332.74               200.37     200  199.67             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1087.07  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.44  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1086.63  * Reach Len. (ft)         *  200.37  *  200.00  *  199.67  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  927.28  * 2302.34  * 2424.08  *
* E.G. Slope (ft/ft)      *0.000391  * Area (sq ft)            *  927.28  * 2302.34  * 2424.08  *
* Q Total (cfs)           *19758.96  * Flow (cfs)              * 2814.60  *14126.91  * 2817.46  *
* Top Width (ft)          * 1332.25  * Top Width (ft)          *  169.51  *  141.98  * 1020.77  *
* Vel Total (ft/s)        *    3.49  * Avg. Vel. (ft/s)        *    3.04  *    6.14  *    1.16  *
* Max Chl Dpth (ft)       *   24.32  * Hydr. Depth (ft)        *    5.47  *   16.22  *    2.37  *
* Conv. Total (cfs)       *999165.3  * Conv. (cfs)             *  142327.7 *714365.4 *142472.2 *
* Length Wtd. (ft)        *  200.01  * Wetted Per. (ft)        *  169.98  *  146.84  * 1020.81  *
* Min Ch El (ft)          * 1062.31  * Shear (lb/sq ft)        *    0.13  *    0.38  *    0.06  *
* Alpha                   *    2.33  * Stream Power (lb/ft s)  *    0.40  *    2.35  *    0.07  *
* Frctn Loss (ft)         *    0.09  * Cum Volume (acre-ft)    *  227.64  *  430.56  * 1469.69  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   23.84  *   23.89  *  205.06  *
*****************************************************************************************

CROSS SECTION
```

RIVER: FRS
REACH: FRS1 RS: 5899.999

INPUT
Description:
Station Elevation Data num= 261

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1090.16	6.52	1089.47	16.88	1087.15	22.72	1085.7	37.66	1081.87
43.35	1081.62	58.45	1081.27	64.41	1081.22	79.24	1081.05	93.4	1081.06
100.02	1081.06	116.78	1081.11	119.91	1081.12	120.81	1081.13	122.39	1081.14
141.59	1081.22	152.32	1081.34	162.38	1081.43	180.38	1081.28	183.17	1081.26
184.71	1081.08	190.21	1079.93	192.47	1079.5	200.92	1077.87	203.95	1077.01
217.12	1073.03	224.74	1070.76	233.31	1068.32	245.52	1064.81	249.51	1064.03
263.64	1062.92	265.72	1062.71	266.31	1062.71	281.92	1065.12	287.1	1066.54
296.35	1069.42	307.88	1073.12	325.34	1078.29	328.67	1079.34	337.06	1081.4
395.32	1081.38	410.5	1081.58	411.81	1081.6	412.32	1081.62	432.6	1082.68
441.31	1082.83	453.38	1083.07	460.12	1083.16	474.17	1083.35	483.93	1083.49
494.95	1083.64	508.71	1083.77	515.74	1083.82	528.29	1083.86	536.52	1083.89
557.29	1083.93	557.31	1083.93	557.32	1083.93	557.35	1083.93	578.1	1083.96
586.28	1083.97	598.88	1083.98	605.92	1083.97	619.67	1083.96	630.79	1083.93
640.45	1083.9	654.52	1083.9	661.24	1083.91	673.26	1084	682.03	1084.07
686.92	1084.13	702.81	1084.28	703.11	1084.29	704.22	1084.3	719.32	1084.45
723.6	1084.48	731.25	1084.54	744.38	1084.65	760.23	1084.77	765.17	1084.8
777.64	1084.88	784.12	1084.92	785.96	1084.94	800.32	1085.05	806.74	1085.12
818.23	1085.23	827.53	1085.31	832.72	1085.35	848.31	1085.44	848.92	1085.44
851.08	1085.45	869.1	1085.53	876.21	1085.56	889.89	1085.63	905.2	1085.71
910.67	1085.74	924.5	1085.78	931.46	1085.79	946.12	1085.77	952.24	1085.77
963.19	1085.77	973.03	1085.77	978.52	1085.78	993.82	1085.82	997.93	1085.83
1014.6	1085.91	1021.17	1085.96	1035.39	1086.06	1050.17	1086.24	1056.17	1086.31
1071.37	1086.48	1076.96	1086.55	1079.16	1086.56	1097.74	1086.69	1108.16	1086.73
1118.53	1086.78	1137.14	1086.87	1139.32	1086.88	1144.79	1086.92	1156.72	1087
1160.1	1087.01	1172.92	1087.09	1180.89	1087.14	1189.12	1087.18	1201.67	1087.27
1205.32	1087.3	1218.22	1087.41	1222.46	1087.44	1224.12	1087.45	1243.24	1087.52
1253.12	1087.5	1264.03	1087.48	1282.11	1087.45	1284.82	1087.44	1291.66	1087.47
1302.53	1087.51	1305.6	1087.52	1311.1	1087.56	1326.39	1087.7	1334.92	1087.77
1347.17	1087.88	1365.08	1088	1367.96	1088.02	1383.52	1088.07	1388.74	1088.1
1398.08	1088.13	1409.53	1088.16	1415.92	1088.17	1430.32	1088.19	1438.52	1088.2
1451.1	1088.19	1464.52	1088.16	1471.89	1088.16	1480.72	1088.15	1492.67	1088.16
1511.94	1088.21	1513.12	1088.22	1513.46	1088.22	1514.06	1088.22	1534.25	1088.3
1545.52	1088.33	1555.03	1088.36	1561.73	1088.37	1575.82	1088.39	1577.92	1088.39
1585.37	1088.35	1596.6	1088.31	1610.32	1088.11	1617.39	1087.93	1626.53	1087.74
1638.18	1087.45	1642.72	1087.39	1658.81	1087.4	1658.96	1087.4	1659.02	1087.4
1679.75	1087.9	1691.33	1088.11	1700.54	1088.25	1717.01	1088.4	1721.32	1088.44
1732.23	1088.49	1742.11	1088.53	1756.13	1088.55	1762.89	1088.57	1774.99	1088.58
1783.68	1088.6	1788.52	1088.61	1804.46	1088.59	1805.66	1088.59	1825.25	1088.62
1832.98	1088.6	1846.04	1088.58	1861.97	1088.3	1866.82	1088.27	1879.1	1088.44
1887.61	1088.64	1890.96	1088.68	1908.39	1088.87	1919.96	1088.98	1929.18	1089.07
1948.95	1089.29	1949.96	1089.3	1952.52	1089.34	1970.75	1089.59	1977.94	1089.69
1991.54	1089.91	2006.94	1090.1	2012.32	1090.17	2015.33	1090.19	2025.95	1090.24
2031.53	1090.27	2033.11	1090.28	2035.93	1090.28	2053.89	1090.29	2064.92	1090.31
2074.68	1090.32	2093.92	1090.4	2095.46	1090.41	2099.38	1090.44	2112.52	1090.53
2116.25	1090.56	2122.9	1090.61	2137.04	1090.72	2144.93	1090.79	2157.82	1090.89
2161.13	1090.91	2172.81	1090.99	2177.33	1091.02	2178.61	1091.03	2193.52	1091.11
2199.39	1091.14	2209.72	1091.18	2220.18	1091.21	2238.88	1091.28	2240.97	1091.29
2242.13	1091.29	2246.24	1091.31	2258.32	1091.35	2261.75	1091.36	2267.87	1091.38
2282.54	1091.45	2296.86	1091.49	2303.32	1091.52	2319.67	1091.45	2324.11	1091.42
2339.32	1091.17	2344.9	1091.05	2354.85	1090.88	2365.68	1090.66	2383.84	1090.74
2386.47	1090.73	2393.1	1090.89	2404.12	1091.16	2407.25	1091.23	2412.83	1091.34
2428.04	1091.69	2436.53	1091.81	2448.82	1091.94	2452.72	1091.97	2466.52	1092.03
2467.59	1092.03								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	180.38	.03	337.06	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
180.38	337.06	200	200	200.02	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1087.00	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.53	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1086.47	Reach Len. (ft)	200.00	200.00	200.02
Crit W.S. (ft)		Flow Area (sq ft)	788.04	2360.38	1574.97
E.G. Slope (ft/ft)	0.000480	Area (sq ft)	788.04	2360.38	1574.97
Q Total (cfs)	19662.72	Flow (cfs)	2461.24	15305.73	1895.75
Top Width (ft)	1051.14	Top Width (ft)	160.77	156.68	733.69
Vel Total (ft/s)	4.16	Avg. Vel. (ft/s)	3.12	6.48	1.20
Max Chl Dpth (ft)	23.76	Hydr. Depth (ft)	4.90	15.06	2.15
Conv. Total (cfs)	897580.3	Conv. (cfs)	112352.7	698688.7	86538.8
Length Wtd. (ft)	200.00	Wetted Per. (ft)	161.36	161.56	733.74
Min Ch El (ft)	1062.71	Shear (lb/sq ft)	0.15	0.44	0.06
Alpha	1.97	Stream Power (lb/ft s)	0.46	2.84	0.08
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)	223.69	419.85	1460.52
C & E Loss (ft)		Cum SA (acres)	23.08	23.20	201.04

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 5699.999

INPUT
Description:
Station Elevation Data num= 236

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
3.7	1091.23	17.45	1087.7	24.48	1085.79	39.13	1082.57	45.27	1081.83
56.25	1081.66	66.06	1081.57	71.53	1081.55	86.84	1081.45	87.73	1081.45
90.88	1081.44	107.63	1081.39	114.24	1081.39	128.41	1081.38	136.33	1081.37
149.2	1081.37	164.31	1081.43	169.98	1081.44	172.22	1081.38	190.77	1081.38
191.65	1081.11	201.22	1078.21	211.56	1075.26	217.33	1073.5	232.34	1068.9
233.53	1068.55	237.74	1067.39	253.13	1063.23	259.2	1063.42	273.91	1063.24
288.19	1067.07	294.7	1068.5	311.17	1073.7	314.53	1074.75	315.49	1075.05
317.18	1075.57	336.27	1081.32	343.19	1081.85	433.16	1082.64	440.2	1082.96
444.13	1083.03	458.03	1083.23	460.99	1083.27	462.15	1083.28	481.77	1083.43
492.73	1083.51	502.56	1083.57	508.93	1083.62	523.35	1083.72	531.46	1083.78
541.34	1083.84	544.13	1083.86	549.13	1083.89	564.92	1083.99	578.12	1084.08
585.7	1084.14	604.89	1084.26	606.14	1084.27	606.49	1084.27	607.11	1084.28
627.28	1084.36	638.53	1084.4	648.06	1084.41	654.73	1084.43	668.85	1084.48

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 670.94 1084.49  678.32 1084.55  689.63 1084.64  694.09 1084.69  710.42 1084.87
 719.53 1084.99   731.2 1085.16  751.75 1085.35  751.93 1085.36  751.99 1085.36
 752.08 1085.36  772.78 1085.46  781.07  1085.5  793.56 1085.55  810.07 1085.64
 814.35 1085.65  816.74 1085.67  825.18 1085.72  832.93 1085.77  835.13 1085.78
 839.06  1085.8  855.92 1085.91  868.05 1085.96   876.7 1086.01  881.54 1086.03
 897.49 1086.07   898.6 1086.08  918.28 1086.16  930.14 1086.26  939.06 1086.32
 955.03 1086.48  959.85 1086.53  972.04 1086.63  978.73 1086.69  980.63  1086.7
 984.02 1086.73 1001.42 1086.86 1013.02 1086.95 1022.21 1087.01 1042.01 1087.16
1042.99 1087.16 1043.53 1087.16 1045.47 1087.18 1059.74 1087.26 1063.78 1087.29
   1071 1087.32 1084.56 1087.39    1100 1087.43 1105.35 1087.45 1118.89 1087.49
1126.14 1087.51 1140.74 1087.54 1146.92 1087.56 1156.93 1087.59 1167.71 1087.64
1173.13 1087.67 1188.49 1087.74 1189.34 1087.75 1192.33 1087.76 1205.54 1087.82
1209.28 1087.84 1221.73  1087.9 1230.07 1087.94 1237.93 1087.99 1250.85 1088.05
1265.75 1088.13 1271.64 1088.16 1286.54 1088.22 1292.42 1088.24 1302.94 1088.29
1313.21 1088.33 1318.93 1088.35    1334 1088.47 1339.18  1088.5 1354.78 1088.61
1367.53 1088.71 1375.57 1088.76 1389.93 1088.84 1396.35 1088.89 1412.62 1088.96
1416.14 1088.97 1417.14 1088.98 1432.33 1089.03 1437.92 1089.02 1447.91 1089.02
1458.71 1089.03 1464.74 1089.04  1479.5 1089.08 1480.94 1089.08 1486.04  1089.1
1497.13 1089.15 1500.28 1089.17 1505.89 1089.21 1521.07  1089.3 1534.89  1089.4
1541.85 1089.44 1559.47 1089.52 1561.93 1089.53 1562.64 1089.53 1563.89 1089.53
1583.42 1089.57 1594.34 1089.59 1604.21 1089.58 1621.87 1089.58    1625 1089.59
1626.73 1089.59 1632.91 1089.59 1642.93  1089.6 1645.78 1089.59 1659.14  1089.6
1666.57 1089.61 1679.85 1089.62 1687.35 1089.62 1691.53 1089.63 1706.33 1089.61
1708.14  1089.6 1708.85  1089.6 1728.92  1089.5 1737.84 1089.54 1749.71 1089.55
1766.83 1089.84  1770.5 1089.88 1779.76 1090.02 1788.74 1090.13 1791.28 1090.16
1804.94 1090.27 1812.07 1090.33 1821.14 1090.35 1832.85 1090.43 1837.33 1090.44
1853.19 1090.51 1853.64 1090.51 1853.81 1090.51 1874.43  1090.6 1882.81 1090.59
1895.21 1090.61  1911.8 1090.62    1916 1090.62 1926.62 1090.69 1934.54 1090.75
1936.79 1090.76 1950.74 1090.81 1957.57 1090.85 1966.93 1090.81 1978.36 1090.81
1983.14 1090.78 1999.14 1090.67 1999.34 1090.67 2000.05 1090.66 2019.93 1090.43
2027.76 1090.32 2040.71 1090.14 2056.76 1090.09  2061.5 1090.06 2073.48 1090.23
2082.29  1090.4 2096.53 1090.63 2103.07  1090.8 2114.75 1091.07 2123.86 1091.29
2128.94 1091.35 2144.64 1091.53 2146.91 1091.54 2165.43 1091.62 2172.73 1091.63
2186.21 1091.66 2193.74 1091.67    2207  1091.7 2220.34 1091.77 2227.79 1091.81
2228.53 1091.82

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
     3.7     .03  191.65     .03  343.19    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        191.65  343.19               200     200  200.02             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1086.91  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.61  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1086.30  * Reach Len. (ft)         *  200.00  *  200.00  *  200.02  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  766.39  * 2281.85  * 1146.47  *
* E.G. Slope (ft/ft)      *0.000542  * Area (sq ft)            *  766.39  * 2281.85  * 1146.47  *
* Q Total (cfs)           *19468.69  * Flow (cfs)              * 2415.32  *15685.83  * 1367.54  *
* Top Width (ft)          *  913.50  * Top Width (ft)          *  169.05  *  151.54  *  592.91  *
* Vel Total (ft/s)        *    4.64  * Avg. Vel. (ft/s)        *    3.15  *    6.87  *    1.19  *
* Max Chl Dpth (ft)       *   23.07  * Hydr. Depth (ft)        *    4.53  *   15.06  *    1.93  *
* Conv. Total (cfs)       *836467.4  * Conv. (cfs)             *103773.5  *673937.9  * 58756.0  *
* Length Wtd. (ft)        *  200.00  * Wetted Per. (ft)        *  169.55  *  156.71  *  592.93  *
* Min Ch El (ft)          * 1063.23  * Shear (lb/sq ft)        *    0.15  *    0.49  *    0.07  *
* Alpha                   *    1.83  * Stream Power (lb/ft s)  *    0.48  *    3.39  *    0.08  *
* Frctn Loss (ft)         *    0.11  * Cum Volume (acre-ft)    *  220.12  *  409.20  * 1454.27  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   22.32  *   22.49  *  197.99  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 5499.999

INPUT
Description:
Station Elevation Data     num=     209
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*******************************************************************************************
    9.66 1089.83    17.45 1087.76    30.44 1084.32    46.44 1082.62    51.23 1081.89
   63.33 1081.47    70.09 1081.23    72.01 1081.19    86.29     1081    92.8 1080.95
   102.5 1080.97   113.59  1081.1    118.7 1081.14   134.37  1081.3   136.76 1081.31
  155.16 1081.37    167.3 1081.31   175.94 1081.11    183.5 1080.89   190.77 1080.09
  196.73 1079.43   199.69 1078.57   210.19  1075.4   217.51 1073.18    232.1 1068.86
   238.3     1067    248.3  1064.4   259.09 1062.88   278.38 1064.07   279.87 1064.12
  280.69 1064.36   283.62  1065.3    296.9 1069.62   300.66 1070.83   307.38 1072.99
  321.44 1077.54   329.29 1079.92    383.8  1082.1   394.36 1082.06   404.59 1081.96
  423.35 1082.48   425.37 1082.53   430.48 1082.68    442.7 1083.03   446.16 1083.09
  452.34 1083.17   466.94 1083.39   481.34 1083.56   487.73 1083.64   503.91 1083.79
   507.5 1083.83   508.51 1083.84    523.7 1083.95    529.3     1084   539.32  1084.1
  550.09 1084.18   556.09 1084.22   570.87 1084.31    572.3 1084.31   577.34 1084.32
  591.66 1084.33    597.3 1084.34   612.44 1084.34    626.3 1084.36   633.23 1084.37
   637.1 1084.39   650.76 1084.42    653.3 1084.43   654.02 1084.43   655.29 1084.44
   674.8 1084.61   685.69 1084.72   695.59 1084.85    701.9 1084.91   716.37 1085.06
   724.2 1085.12   737.16 1085.21   742.27 1085.24   757.95 1085.35   771.26 1085.45
  778.73  1085.5    782.9 1085.54   797.63 1085.66   799.52 1085.68   800.26 1085.68
   820.3 1085.85   829.25 1085.92   841.09 1086.03   858.24 1086.16   861.88 1086.19
  871.05 1086.23   880.09 1086.26   882.66 1086.27    896.3 1086.31   903.45 1086.35
   912.5  1086.4   924.23 1086.49   944.49 1086.69   945.02  1086.7    961.1 1086.87
   965.8 1086.93    977.3 1087.07   986.59 1087.19    993.5 1087.26  1007.38 1087.43
 1009.69 1087.44  1017.91  1087.5  1028.16 1087.56  1032.2 1087.56  1048.95 1087.55
 1061.19 1087.52  1069.73  1087.5  1090.19 1087.43  1090.52 1087.43  1091.35 1087.43
 1111.31 1087.47  1123.1 1087.54  1132.09 1087.59  1148.17 1087.68  1152.88  1087.7
  1155.5 1087.71  1164.78 1087.77   1171.7  1087.8  1173.66 1087.81  1177.16 1087.83
 1194.45 1087.91  1204.09 1087.95  1215.23 1088.01   1220.3     1088  1236.02 1088.04
  1236.5 1088.04   1238.2 1088.03  1256.81 1087.92  1264.14 1087.92  1277.59 1087.86
 1293.14 1087.94  1298.38 1087.95  1311.64 1087.97   1317.5 1087.97  1319.16 1087.98
 1322.13     1088  1339.95 1088.14   1349.9  1088.4  1360.74 1088.54   1366.1 1088.61
 1381.52  1088.8   1382.3 1088.81  1385.07 1088.84  1402.31 1089.04  1409.11 1089.11
 1423.09 1089.26   1430.9 1089.32  1443.88 1089.42  1458.49 1089.51   1463.3 1089.55
 1464.67 1089.56   1467.1 1089.57  1485.45 1089.69  1496.08 1089.72  1506.24 1089.76
 1525.08 1089.75  1527.02 1089.75   1528.1 1089.76  1531.93 1089.76   1544.3  1089.8
 1547.81 1089.81  1554.07 1089.84  1568.59 1089.92   1576.7 1089.97  1589.38 1090.04
  1592.9 1090.06  1605.35 1090.12  1610.17 1090.15  1612.06 1090.16  1630.95 1090.26
 1641.05 1090.33  1651.74  1090.4   1657.7 1090.44  1672.52 1090.52   1673.9 1090.53
 1678.78 1090.55  1693.31 1090.61  1699.04 1090.64   1714.1 1090.72  1728.03 1090.81
 1734.88 1090.86  1752.22 1091.02   1754.9 1091.04  1755.67 1091.04   1771.1 1091.21
 1776.45 1091.26   1787.3 1091.36  1797.24 1091.42  1803.51 1091.45  1818.02 1091.52
 1825.64 1091.54  1838.81 1091.58   1852.1 1091.61   1859.6 1091.65  1872.99 1091.75
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 1880.38 1091.79 1899.07 1091.93  1900.7 1091.95 1901.17 1091.95 1901.99 1091.95
 1921.95    1092 1933.11 1091.99 1942.74 1091.98 1946.61 1091.97

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
    9.66     .03  190.77     .03  329.29    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        190.77  329.29             199.17     200  200.66             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1086.81  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.64  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1086.17  * Reach Len. (ft)         *  199.17  *  200.00  *  200.66  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  764.54  * 2192.06  * 1138.03  *
* E.G. Slope (ft/ft)      *0.000537  * Area (sq ft)            *  764.54  * 2192.06  * 1138.03  *
* Q Total (cfs)           *19361.08  * Flow (cfs)              * 2411.69  *15500.90  * 1448.49  *
* Top Width (ft)          *  836.13  * Top Width (ft)          *  167.32  *  138.52  *  530.29  *
* Vel Total (ft/s)        *    4.73  * Avg. Vel. (ft/s)        *    3.15  *    7.07  *    1.27  *
* Max Chl Dpth (ft)       *   23.29  * Hydr. Depth (ft)        *    4.57  *   15.82  *    2.15  *
* Conv. Total (cfs)       *835605.8  * Conv. (cfs)             *104086.3  *669004.0  * 62515.5  *
* Length Wtd. (ft)        *  199.92  * Wetted Per. (ft)        *  167.77  *  143.32  *  530.36  *
* Min Ch El (ft)          * 1062.88  * Shear (lb/sq ft)        *    0.15  *    0.51  *    0.07  *
* Alpha                   *    1.85  * Stream Power (lb/ft s)  *    0.48  *    3.62  *    0.09  *
* Frctn Loss (ft)         *    0.10  * Cum Volume (acre-ft)    *  216.61  *  398.93  * 1449.03  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   21.55  *   21.83  *  195.41  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 5299.999

INPUT
Description:
Station Elevation Data     num=     171
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
       0 1089.84     2.03 1089.77    16.05 1086.78    18.32 1086.17    26.69 1083.98
   36.78 1081.41    40.55 1081.22    57.51 1079.78    69.03 1079.53    78.24 1079.24
   97.51 1079.21    98.96 1079.21   102.84 1079.23   119.69 1079.38   132.38 1079.54
  140.42 1079.65   154.46 1079.82   161.15 1079.92   164.96 1079.98   178.99 1079.77
  181.25 1079.75   181.88 1079.75   189.99 1079.19   197.54 1078.67    202.6 1077.71
  211.42 1074.92   223.33 1071.15   230.13 1069.08   244.06 1064.85   255.14 1063.62
  264.78 1062.74   268.38 1063.71   285.51 1067.35   296.86 1070.81   306.24 1073.66
  325.34 1079.27   326.97 1079.77   331.29 1080.81   389.15 1081.53   393.06 1081.48
  407.44 1081.37   409.88 1081.35   410.78 1081.39   430.61 1082.27   439.26 1082.47
  451.34 1082.77   467.74 1083.01   472.06 1083.07   483.59 1083.22   492.79 1083.36
  496.22 1083.39   513.52 1083.59    524.7 1083.67   534.24 1083.76   553.18 1083.92
  554.97 1083.94   559.74 1083.98    575.7  1084.1   588.57 1084.18   596.43 1084.24
  610.14 1084.32   617.16 1084.35   621.16 1084.36   635.89 1084.43   637.88 1084.43
  638.62 1084.44   658.61 1084.56   670.04 1084.68   679.34 1084.77   686.33 1084.85
  700.07 1085.01   712.05 1085.11   718.92 1085.17   720.79 1085.19   724.06 1085.21
  741.52 1085.33   752.54  1085.4   762.25 1085.45   781.02 1085.57   782.98 1085.58
  788.19  1085.6   800.38 1085.67    803.7 1085.68   816.67  1085.7   824.43 1085.71
  832.97 1085.71   845.16 1085.72   849.26 1085.72   864.34 1085.74   865.89 1085.74
  866.46 1085.75   886.62 1085.84   894.94 1085.93   907.34 1086.02   923.42 1086.14
  928.07 1086.17    940.5 1086.23   947.02 1086.26    948.8 1086.27    951.9 1086.27
 1379.09 1086.62  1384.08 1086.66   1397.4 1086.84  1404.81 1086.93  1419.51 1087.27
 1425.53 1087.31  1436.05 1087.44  1446.26 1087.58   1452.1 1087.62  1466.99 1087.79
 1473.55 1087.84  1487.72 1087.98  1500.97 1088.05  1508.44 1088.15  1517.26 1088.21
 1529.17 1088.38  1549.69 1088.46   1549.9 1088.46  1549.97 1088.46  1570.63 1088.46
 1578.45 1088.53  1591.36  1088.6  1606.93 1088.76  1612.08 1088.81  1625.85 1088.89
 1631.32 1088.91  1632.81 1088.91  1647.61 1088.92  1653.54 1088.95   1663.9 1089.02
 1674.27 1089.07  1680.19 1089.18  1694.99 1089.23  1696.49 1089.26     1702 1089.36
 1715.72 1089.61  1720.85 1089.68  1736.45 1089.93  1749.33 1090.12  1757.18 1090.22
 1777.81 1090.51   1777.9 1090.51  1778.14 1090.52  1794.25 1090.75  1798.63  1090.8
 1806.29 1090.92  1819.36 1091.12  1826.83 1091.21  1840.09  1091.4   1854.3 1091.49
 1860.82 1091.53  1875.71 1091.57  1881.54 1091.58  1891.72  1091.6  1902.27 1091.62
  1920.2 1091.65     1923 1091.66  1924.58 1091.66  1930.45 1091.67  1943.73 1091.68
 1948.68 1091.71  1964.45 1091.76  1977.16 1091.85  1985.18 1091.92  2005.64 1092.08
 2005.91 1092.08   2006.6 1092.09  2022.35 1092.29  2026.64 1092.33  2038.64 1092.47
 2042.91 1092.51

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
       0     .03  189.99     .03  331.29    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        189.99  331.29              200     200     200             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1086.69  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.53  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1086.15  * Reach Len. (ft)         *  200.00  *  200.00  *  200.00  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1035.27  * 2159.81  * 1206.71  *
* E.G. Slope (ft/ft)      *0.000486  * Area (sq ft)            * 1035.27  * 2159.81  * 1206.71  *
* Q Total (cfs)           *19359.55  * Flow (cfs)              * 3735.65  *14215.34  * 1408.57  *
* Top Width (ft)          *  907.04  * Top Width (ft)          *  171.60  *  141.30  *  594.13  *
* Vel Total (ft/s)        *    4.40  * Avg. Vel. (ft/s)        *    3.61  *    6.58  *    1.17  *
* Max Chl Dpth (ft)       *   23.41  * Hydr. Depth (ft)        *    6.03  *   15.29  *    2.03  *
* Conv. Total (cfs)       *878265.0  * Conv. (cfs)             *169471.2  *644892.8  * 63901.1  *
* Length Wtd. (ft)        *  200.00  * Wetted Per. (ft)        *  172.31  *  145.92  *  594.18  *
* Min Ch El (ft)          * 1062.74  * Shear (lb/sq ft)        *    0.18  *    0.45  *    0.06  *
* Alpha                   *    1.78  * Stream Power (lb/ft s)  *    0.66  *    2.96  *    0.07  *
* Frctn Loss (ft)         *    0.09  * Cum Volume (acre-ft)    *  212.49  *  388.94  * 1443.63  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   20.77  *   21.18  *  192.82  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 5099.999

INPUT
Description:
Station Elevation Data     num=     170
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
```

```
*****************************************************************************
    6.28 1090.07    7.44 1089.74   27.01  1084.5   38.19 1081.24   47.73 1078.93
    64.4 1078.45   68.46  1078.3   70.78  1078.3   79.31 1078.45   87.08 1078.57
   89.19 1078.61  103.37 1079.14  109.92 1079.39  121.36 1079.59  130.65 1079.77
  149.84 1079.88  151.37 1079.89  155.47  1079.9   172.1 1079.97  178.32 1079.99
  192.83  1079.9  194.49 1079.48   206.8 1076.41  213.56 1075.22  231.62 1069.66
  233.71 1069.02  234.28 1068.84  250.01 1064.37  255.01 1063.19   266.3 1062.72
  275.74 1063.06  292.24 1067.91  296.47 1068.98  298.88 1069.81  307.76 1072.69
  315.18 1075.13  317.19 1075.78  331.46 1080.12  379.38 1081.39  380.34 1081.35
  383.92 1081.34  400.11 1081.27  406.16 1081.37  420.83 1081.57  434.63 1082.03
  441.56 1082.26  445.52 1082.34  460.07 1082.61  461.81 1082.65  462.29 1082.66
  463.11 1082.67  483.02 1082.89  491.59 1082.98  503.74  1083.1  520.07 1083.26
  524.47  1083.3  526.98 1083.33  536.21  1083.4  543.27 1083.46   545.2 1083.47
  559.56 1083.56  565.93 1083.61  577.03 1083.67  586.66 1083.72  592.15 1083.74
  607.38 1083.83  612.37 1083.85  628.11 1083.93  633.99 1083.95  648.84 1084.03
  662.47 1084.11  669.56 1084.16  673.62 1084.19  688.52 1084.29  689.91  1084.3
  690.29  1084.3   706.2 1084.38  711.02  1084.4  722.49 1084.45  731.75  1084.5
 1345.98 1085.22 1353.58 1085.37 1357.92 1085.44 1373.87 1085.76 1374.21 1085.77
 1374.31 1085.77 1374.46 1085.77 1395.03  1086.1 1402.94 1086.19 1415.76 1086.35
 1431.42 1086.43 1436.49 1086.46 1439.38 1086.47 1450.02 1086.53 1457.22 1086.58
  1459.9 1086.66 1477.94 1087.03 1488.26  1087.3 1498.67 1087.63 1504.55 1087.72
  1519.4 1087.98 1520.84 1087.99 1526.18 1088.04 1540.13 1088.16 1545.34 1088.18
 1560.86 1088.18 1573.82 1088.17 1581.58 1088.14  1602.3 1088.08 1602.31 1088.08
 1602.32 1088.08 1618.61 1087.92 1623.04 1087.93  1634.9 1087.81 1643.77 1087.86
 1651.19 1087.99  1664.5 1087.93 1678.48 1087.98 1683.77 1088.01 1685.22 1087.99
 1687.74 1088.02 1705.95 1088.33 1716.37 1088.51 1726.68 1088.71  1744.7    1089
 1747.41 1089.04 1748.95 1089.06 1754.63 1089.13 1765.24 1089.27 1768.13 1089.31
 1773.18 1089.37 1788.86 1089.56 1801.66 1089.71 1809.59  1089.8 1830.14 1089.97
 1830.32 1089.97 1830.41 1089.97 1830.77 1089.98 1851.04  1090.1 1858.62 1090.14
 1871.77  1090.2  1887.1  1090.3  1892.5 1090.33 1895.58 1090.36 1906.93 1090.49
 1913.23 1090.56 1915.58 1090.59 1933.96 1090.82 1944.46 1090.93 1954.68 1091.02
 1972.54 1091.08 1975.41 1091.09 1983.08 1091.09 1993.34 1091.11 1996.14 1091.12
 2009.63 1091.16 2016.87 1091.19 2025.92 1091.23 2037.59  1091.3 2057.98  1091.4
 2058.32  1091.4 2059.23 1091.41  2074.8 1091.47 2079.05 1091.49  2091.1 1091.56
 2099.78 1091.64 2114.94 1091.84  2120.5 1091.91 2135.38 1092.12 2137.31 1092.15

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
    6.28     .03  194.49     .03  331.46    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        194.49  331.46               200     200     200              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1086.59  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.45  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1086.14  * Reach Len. (ft)         *  200.00  *  200.00  *  200.00  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1097.47  * 2180.81  * 2082.71  *
* E.G. Slope (ft/ft)      *0.000406  * Area (sq ft)            * 1097.47  * 2180.81  * 2082.71  *
* Q Total (cfs)           *19348.19  * Flow (cfs)              * 3728.08  *13457.11  * 2163.01  *
* Top Width (ft)          * 1377.76  * Top Width (ft)          *  173.61  *  136.97  * 1067.18  *
* Vel Total (ft/s)        *    3.61  * Avg. Vel. (ft/s)        *    3.40  *    6.17  *    1.04  *
* Max Chl Dpth (ft)       *   23.42  * Hydr. Depth (ft)        *    6.32  *   15.92  *    1.95  *
* Conv. Total (cfs)       *960671.2  * Conv. (cfs)             *185105.5  *668168.7  *107397.0  *
* Length Wtd. (ft)        *  200.00  * Wetted Per. (ft)        *  174.65  *  141.75  * 1067.23  *
* Min Ch El (ft)          * 1062.72  * Shear (lb/sq ft)        *    0.16  *    0.39  *    0.05  *
* Alpha                   *    2.21  * Stream Power (lb/ft s)  *    0.54  *    2.40  *    0.05  *
* Frctn Loss (ft)         *    0.08  * Cum Volume (acre-ft)    *  207.60  *  378.97  * 1436.08  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   19.98  *   20.55  *  189.01  *
*****************************************************************************************

CROSS SECTION


RIVER: PRS
REACH: PRS1                RS: 4899.999

INPUT
Description:
Station Elevation Data     num=     179
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   11.49 1087.82   19.74 1085.68   32.22 1082.53   36.03 1081.89   50.05 1080.76
   52.95 1080.52   68.62 1080.02   73.67 1079.95   84.91    1080    94.4 1080.17
  110.98  1080.7  115.13 1080.83  117.49 1080.87   126.2 1080.94  133.78 1081.02
  135.86 1081.01  139.46 1080.98  156.59 1080.88  166.37 1080.78  177.31 1080.54
  182.67 1080.43  193.37 1079.78  198.04 1079.49  198.96 1079.22  202.35 1078.16
  218.77 1072.96   224.9 1071.08  239.49 1066.63  247.84 1064.49  260.22 1062.66
  278.51 1063.95  280.95 1064.19  296.71 1069.52  301.68 1071.13  310.34 1073.89
  322.41 1077.89   329.3 1080.05  394.48  1081.9  405.32 1082.09  424.26 1082.57
  426.05 1082.62   430.8 1082.69  446.77 1082.91  452.74 1082.92   467.5 1082.94
  475.94 1082.94  488.23 1082.95  492.23 1082.95  506.96 1082.99  508.52 1082.99
  508.95 1082.99  524.81 1083.06  529.68 1083.06   541.1 1083.09  550.41 1083.08
  557.41 1083.08  571.14 1083.13   573.7 1083.13   583.1 1083.19  591.87 1083.26
  606.28 1083.33  612.59 1083.36  622.58 1083.39  633.32 1083.39 1110.06 1082.78
 1116.15  1082.9 1130.78 1083.05 1136.25  1083.1 1151.51 1083.36 1164.73 1083.55
 1172.24 1083.69 1192.31 1084.13 1192.97 1084.15 1209.11 1084.48  1213.7 1084.55
 1221.69 1084.67 1234.42 1084.86  1241.7 1084.94 1255.15 1085.13 1268.46 1085.23
 1274.28 1085.28 1275.88 1085.29 1278.65  1085.3 1296.61  1085.3 1306.88 1085.31
 1317.33 1085.36 1335.61 1085.55 1338.06 1085.58 1344.61 1085.64 1355.75 1085.73
 1358.79 1085.77 1364.09 1085.82 1379.52 1085.95 1392.57 1086.02 1400.24 1086.07
 1420.75 1086.09 1420.92 1086.09 1420.97 1086.09 1586.79 1086.22 1600.14 1086.47
 1607.52 1086.65  1620.4 1086.85 1628.25 1086.96 1648.88  1087.2 1648.98  1087.2
 1649.02  1087.2 1649.21  1087.2 1665.31  1087.3  1669.7 1087.35 1677.36 1087.36
 1801.51 1087.48 1811.95 1087.55  1814.8 1087.57 1828.24 1087.59 1835.53 1087.68
 1848.24 1087.68 1856.25 1087.67 1860.83 1087.71 1876.98 1087.42 1877.13 1087.42
 1877.67 1087.43 1897.71 1087.86  1905.2  1088.1 1918.44  1088.4    1926 1088.57
 1939.16 1088.83  1942.3 1088.87 1953.81 1089.03 1959.89 1089.11 1962.16 1089.14
 1980.62 1089.33 1990.64 1089.48 2001.35 1089.58 2019.12 1089.85 2022.08 1089.89
 2029.96 1089.99  2042.8 1090.15 2056.35 1090.23 2063.53 1090.26 2076.08 1090.25
 2084.26 1090.24 2104.56 1090.18 2104.98 1090.18 2105.23 1090.18 2106.12 1090.18
 2121.52 1090.17 2125.71 1090.18 2133.04 1090.24 2146.44 1090.33 2161.52 1090.54
 2167.17  1090.6 2170.39  1090.6 2182.26 1090.64  2187.9 1090.65    2190 1090.65
 2208.62 1090.55 2218.48 1090.57 2229.35 1090.65 2246.96 1090.79 2250.08 1090.84
 2258.41 1090.95 2270.81 1091.13 2275.44 1091.14 2291.54  1091.3 2300.74 1091.38
 2312.26 1091.19  2332.4 1091.45 2332.99 1091.45 2334.57 1091.46 2349.61 1091.68
 2353.72  1091.7 2365.91 1091.93 2374.44 1092.01 2389.36 1092.22 2395.17 1092.33
 2398.49 1092.39 2410.71 1092.51  2415.9 1092.58 2417.09 1092.59

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
```

```
   11.49     .03  193.37     .03   329.3    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        193.37   329.3              200     200     200             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1086.49  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.40  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1086.09  * Reach Len. (ft)         *  200.00  *  200.00  *  200.00  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  904.23  * 2163.67  * 2902.03  *
* E.G. Slope (ft/ft)      *0.000388  * Area (sq ft)            *  904.23  * 2163.67  * 2902.03  *
* Q Total (cfs)           *19286.28  * Flow (cfs)              * 2627.07  *13034.43  * 3624.78  *
* Top Width (ft)          * 1400.58  * Top Width (ft)          *  175.20  *  135.93  * 1089.45  *
* Vel Total (ft/s)        *    3.23  * Avg. Vel. (ft/s)        *    2.91  *    6.02  *    1.25  *
* Max Chl Dpth (ft)       *   23.43  * Hydr. Depth (ft)        *    5.16  *   15.92  *    2.66  *
* Conv. Total (cfs)       *979714.9  * Conv. (cfs)             *133451.3  *662130.3  *184133.3  *
* Length Wtd. (ft)        *  200.00  * Wetted Per. (ft)        *  175.80  *  140.89  * 1089.51  *
* Min Ch El (ft)          * 1062.66  * Shear (lb/sq ft)        *    0.12  *    0.37  *    0.06  *
* Alpha                   *    2.49  * Stream Power (lb/ft s)  *    0.36  *    2.24  *    0.08  *
* Frctn Loss (ft)         *    0.07  * Cum Volume (acre-ft)    *  203.00  *  369.00  * 1424.63  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   19.18  *   19.92  *  184.06  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 4699.999

INPUT
Description:
Station Elevation Data     num=      140
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
       0 1087.28    7.96 1085.88    9.49 1085.72   13.58 1084.84   30.22 1081.55
   36.44 1081.28   50.95 1080.68   64.92 1080.38   71.67 1080.22   75.53 1080.21
   89.73 1080.25   91.82 1080.26    92.4 1080.26  108.11 1080.49  113.13 1080.57
  124.41 1080.72  133.86 1080.81  140.71 1080.84  154.58 1080.82  165.87 1080.46
  175.31 1080.18  178.84 1079.53  184.81 1078.84  196.04 1077.55  207.32 1073.88
  216.77 1070.79  222.17 1069.06   237.5 1064.17  242.03 1063.69  258.22  1062.4
  264.28 1063.83  278.95 1066.59  287.34 1069.19  299.68 1073.16  318.18 1078.95
  320.41 1079.66  321.23 1079.75  323.99 1080.26 1079.68 1081.53 1087.33 1082.46
 1101.99  1083.3 1108.06 1083.54 1118.66 1083.78 1128.79 1084.03 1147.14 1084.36
 1149.51 1084.41 1155.83 1084.47 1170.24 1084.53 1183.44 1084.63 1190.97 1084.76
 1199.74 1084.86  1211.7 1085.09 1231.98 1085.28 1232.32 1085.29 1232.43 1085.28
 1248.62 1085.25 1253.15 1085.27 1264.91  1085.2 1273.88  1085.1 1281.21 1085.06
 1294.61 1084.92  1297.5 1084.93 1308.13 1085.06 1315.33  1085.1 1318.02 1085.14
 1336.06 1085.28 1346.37 1085.31 1356.79 1085.49 1362.67 1085.51 1377.52 1085.74
 1378.96 1085.74 1384.29 1085.76 1398.25 1085.75 1403.46 1085.79 1418.97 1085.74
 1431.94 1085.76  1439.7 1085.75 1460.42 1085.87 1460.43 1085.87 1481.16 1086.11
 1493.01 1086.24 1501.89 1086.42 1509.31 1086.46 1522.61 1086.59 1536.58 1086.62
 1543.34 1086.65 1558.18 1086.74 1564.07 1086.83 1574.34 1086.95 1584.79 1087.06
 1602.82 1087.22 1605.52 1087.24 1612.74 1087.34 1626.25 1087.54 1639.65 1087.68
 1646.98 1087.77 1655.94 1087.86 1667.71 1087.99 1672.24 1088.03 1688.43 1088.19
 1688.88 1088.19 1709.16 1088.35 1716.74 1088.39 1729.89 1088.46  1737.4 1088.49
 1750.62 1088.54 1765.03  1088.6 1771.34 1088.62 1786.28 1088.73 1792.07 1088.79
 1802.18 1088.91  1812.8 1088.97 1830.66 1089.12 1833.53 1089.13 1841.19  1089.2
 1854.25 1089.31 1867.75 1089.39 1874.98 1089.45 1887.61 1089.48 1895.71 1089.47
 1900.33 1089.44 1916.44 1089.43 2123.71  1089.6 2143.93    1090 2144.44 1090.01
 2145.79 1090.05 2165.17  1090.6 2172.41 1090.77  2185.9 1091.14 2193.61  1091.3
 2206.63 1091.55 2221.93 1091.79 2226.19 1091.85 2227.35 1091.87 2229.37  1091.9
 2248.08 1092.12 2258.78 1092.22 2268.81 1092.35 2275.07  1092.4 2281.65 1092.47

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************
       0     .03  184.81     .03  323.99    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        184.81  323.99            200.15     200  199.89             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1086.37  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.25  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1086.11  * Reach Len. (ft)         *  200.15  *  200.00  *  199.89  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  915.47  * 2203.44  * 4394.79  *
* E.G. Slope (ft/ft)      *0.000277  * Area (sq ft)            *  915.47  * 2203.44  * 4394.79  *
* Q Total (cfs)           *19333.75  * Flow (cfs)              * 2243.86  *11207.84  * 5882.05  *
* Top Width (ft)          * 1474.90  * Top Width (ft)          *  178.18  *  139.18  * 1157.54  *
* Vel Total (ft/s)        *    2.57  * Avg. Vel. (ft/s)        *    2.45  *    5.09  *    1.34  *
* Max Chl Dpth (ft)       *   23.71  * Hydr. Depth (ft)        *    5.14  *   15.83  *    3.80  *
* Conv. Total (cfs)       *1160777.0  * Conv. (cfs)             *134719.1  *672906.4  *353151.8  *
* Length Wtd. (ft)        *  200.00  * Wetted Per. (ft)        *  178.76  *  143.92  * 1157.65  *
* Min Ch El (ft)          * 1062.40  * Shear (lb/sq ft)        *    0.09  *    0.27  *    0.07  *
* Alpha                   *    2.45  * Stream Power (lb/ft s)  *    0.22  *    1.35  *    0.09  *
* Frctn Loss (ft)         *    0.02  * Cum Volume (acre-ft)    *  198.82  *  358.97  * 1407.88  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   18.37  *   19.29  *  178.90  *
*****************************************************************************************

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.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 4499.999

INPUT
Description:
Station Elevation Data     num=      147
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
       0 1088.75   17.24 1084.04    27.4 1081.45   37.98 1079.56   56.54 1078.36
   58.72 1078.22   59.95 1078.16   64.46 1078.06   76.23 1077.77   79.46 1077.75
    92.5 1077.68   100.2 1077.71  113.68  1077.5  120.93 1077.41  125.06 1077.23
   140.1 1076.77  141.33 1076.72  141.67  1076.7  142.25 1076.67  162.41 1074.72
  173.88 1075.31  183.15 1075.22  186.65 1074.95   199.4 1073.96  203.88 1073.96
  215.75 1070.57  224.62  1068.1  227.97 1067.37  245.36 1063.19  411.27 1068.19
  427.97 1068.48     432 1068.59   434.3 1068.78  442.66 1069.16  450.56 1069.59
  452.74 1069.69  456.54 1069.99  473.48 1071.52  483.12 1072.31  494.22 1072.99
  499.39 1073.38  514.95 1074.24  515.67 1074.28  518.31 1074.39  535.69 1075.16
```

```
 548.22 1075.53  556.43  1075.7  570.83 1075.72  577.17 1075.79  580.78 1075.79
 593.95 1075.85  597.05 1075.88  597.91 1075.89   599.4 1075.91  618.65  1076.2
 627.97 1076.32  639.38 1076.38  656.54 1076.97  660.12 1077.02  669.58 1077.39
 678.43 1077.72  680.86 1077.79   694.7 1078.11   701.6 1078.38  710.98 1078.67
 722.34 1079.05  742.26 1079.34  743.07 1079.35  743.53 1079.36  745.22 1079.45
 759.81 1080.28  763.81 1080.54  776.08 1081.22  784.55 1081.72   799.4 1082.31
 805.29 1082.56  808.64 1082.66  820.86 1082.96  826.03 1083.07  827.98  1083.1
 846.77  1083.4  856.54 1083.55   867.5 1083.67  885.11 1083.89  888.24 1083.91
  896.5 1084.02  906.29 1084.14  908.98 1084.18  913.69 1084.24  929.72 1084.43
 938.84 1084.55  950.46 1084.65  970.83 1084.79  971.19 1084.79  971.39 1084.79
 972.14  1084.8  987.67 1084.92  991.93 1084.93 1003.95 1085.02 1012.67 1085.08
1027.97 1085.23 1033.41 1085.27  1036.5  1085.3 1047.78 1085.41 1054.15 1085.46
1056.54 1085.49 1074.88 1085.63 1085.12  1085.7 1095.62 1085.78 1113.69 1085.89
1116.36 1085.91 1123.42 1085.96 1134.15 1086.02  1137.1 1086.03 1150.42 1086.07
1157.84 1086.09  1166.7 1086.09 1178.57 1086.12 1182.98 1086.14 1199.05 1086.24
1199.31 1086.25 1199.41 1086.25 1220.05 1086.44 1227.97 1086.53 1240.79 1086.67
1256.55 1086.79 1261.53 1086.83  1274.7 1086.86 1282.26  1086.9 1296.91 1086.93
   1303 1086.97 1313.68 1087.01 1323.74 1087.03 1329.46 1087.03 2588.76 1088.46
2599.41 1088.83  2609.5 1088.97 2627.98 1089.26 2630.24 1089.25  2636.2 1089.28
2650.98 1089.36 2656.55 1089.55 2671.72 1090.03 2685.12 1090.63 2692.45 1090.84
2711.84 1091.41 2713.19 1091.42

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***********************************************
       0     .03  186.65     .03  535.69    .045

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
        186.65  535.69               200     200     200            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1086.26  * Element                  *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.08  * Wt. n-Val.               *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1086.18  * Reach Len. (ft)          *  200.00  *  200.00  *  200.00  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)        * 1453.36  * 6172.72  * 2739.84  *
* E.G. Slope (ft/ft)      *0.000056  * Area (sq ft)             * 1453.36  * 6172.72  * 2739.84  *
* Q Total (cfs)           *19350.84  * Flow (cfs)               * 2174.62  *15421.72  * 1754.50  *
* Top Width (ft)          * 1179.19  * Top Width (ft)           *  177.22  *  349.04  *  652.92  *
* Vel Total (ft/s)        *    1.87  * Avg. Vel. (ft/s)         *    1.50  *    2.50  *    0.64  *
* Max Chl Dpth (ft)       *   22.99  * Hydr. Depth (ft)         *    8.20  *   17.68  *    4.20  *
* Conv. Total (cfs)       *2595512.0  * Conv. (cfs)             *291680.1  *2068502.0  *235329.7  *
* Length Wtd. (ft)        *  200.00  * Wetted Per. (ft)         *  178.19  *  350.77  *  653.09  *
* Min Ch El (ft)          * 1063.19  * Shear (lb/sq ft)         *    0.03  *    0.06  *    0.01  *
* Alpha                   *    1.51  * Stream Power (lb/ft s)   *    0.04  *    0.15  *    0.01  *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)     *  193.38  *  339.74  * 1391.51  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   17.55  *   18.17  *  174.74  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 4299.999

INPUT
Description:
Station Elevation Data     num=     127
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
***************************************************************************
    3.59 1088.14   10.82 1085.67   24.33 1081.16   27.11 1080.25   37.25 1076.81
   45.06 1074.21   48.01 1073.98    65.8 1071.63   76.58 1071.36   86.54 1071.02
  105.15 1070.59  107.28 1070.54  112.89 1070.42  124.76 1070.15  128.02 1070.05
  141.03  1069.8  148.75 1069.59  157.31 1069.43  169.49  1069.1  173.59 1069.02
  187.72 1068.57  188.53 1068.54  190.23 1068.48  190.86 1068.44  210.97 1067.51
  219.44 1066.52  231.71 1065.39  238.68 1064.09  252.44 1062.65  254.97 1062.73
  264.17 1063.86  273.18 1064.98  276.58 1065.75  314.66 1068.17   321.8 1068.62
  333.73 1069.38   335.4 1069.37   339.8 1069.66  352.62 1070.58  356.14 1070.66
   362.3  1070.8  376.87 1071.23  385.17 1071.44  397.61 1071.64  415.45 1072.18
  418.35 1072.27     434 1072.73  439.09 1072.85  448.01 1072.87  459.82 1072.88
  466.54 1072.88  480.56  1072.9  491.09 1073.06   501.3 1073.24  515.37 1073.57
  522.04 1073.65  533.72 1073.68  542.78 1073.75  562.29 1073.92  563.52 1073.93
  566.73 1074.01  580.48 1074.41  584.25  1074.5  590.87 1074.76  604.99 1075.24
  613.03 1075.51  625.73 1075.97  629.31 1076.07  642.36 1076.34  646.47 1076.44
  648.01 1076.49  667.21 1077.07  676.58 1077.38  687.94 1077.71   694.4 1077.79
  708.68 1078.09     718 1078.27  729.42 1078.45  743.23 1079.04  750.16 1079.12
   762.3 1079.19   770.9 1079.41  853.85 1080.54  869.28  1081.5  874.59 1081.73
  876.59  1081.8  895.32 1082.48  905.15 1082.74  916.06 1082.99  922.27 1083.09
   936.8 1083.58  938.54 1083.61  944.92 1083.78  957.54 1084.11  971.09 1084.36
  978.28 1084.51  987.37 1084.64  999.01 1084.83 1003.65 1084.87 1019.75 1085.05
 1019.92 1085.06 1020.56 1085.06 1040.49 1085.25 1048.01  1085.3 1061.23 1085.37
 1076.59 1085.41 1081.97 1085.42 1676.59 1085.67 1683.37 1086.02 1687.23 1086.22
 1701.32    1087 1704.11 1087.15 1705.16 1087.18 1724.85 1087.88 1733.73 1088.06
 1745.59 1088.32 1752.34 1088.42 1766.33 1088.62 1776.95 1088.68 2906.92  1089.9
 2911.54 1089.84 2927.66 1090.46 2933.73 1090.77 2948.39 1091.99 2962.31 1092.43
 2969.13 1092.66 2979.63 1092.85

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***********************************************
    3.59     .03    65.8     .03  352.62    .045

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
           65.8  352.62               200     200     200            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1086.25  * Element                  *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.09  * Wt. n-Val.               *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1086.16  * Reach Len. (ft)          *  200.00  *  200.00  *  200.00  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)        *  486.49  * 5157.87  * 6166.90  *
* E.G. Slope (ft/ft)      *0.000064  * Area (sq ft)             *  486.49  * 5157.87  * 6166.90  *
* Q Total (cfs)           *19358.19  * Flow (cfs)               *  792.65  *14034.33  * 4531.21  *
* Top Width (ft)          * 1676.75  * Top Width (ft)           *   56.42  *  286.82  * 1333.51  *
* Vel Total (ft/s)        *    1.64  * Avg. Vel. (ft/s)         *    1.63  *    2.72  *    0.73  *
* Max Chl Dpth (ft)       *   23.51  * Hydr. Depth (ft)         *    8.62  *   17.98  *    4.62  *
* Conv. Total (cfs)       *2414531.0  * Conv. (cfs)             *98867.0  *1750491.0  *565173.5  *
* Length Wtd. (ft)        *  200.00  * Wetted Per. (ft)         *   58.54  *  287.57  * 1333.73  *
* Min Ch El (ft)          * 1062.65  * Shear (lb/sq ft)         *    0.03  *    0.07  *    0.02  *
* Alpha                   *    2.09  * Stream Power (lb/ft s)   *    0.05  *    0.20  *    0.01  *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)     *  188.93  *  313.73  * 1371.07  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   17.02  *   16.71  *  170.18  *
*****************************************************************************************
```

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 4099.999

INPUT
Description:
Station Elevation Data num= 139

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1087.21	7.59	1085.95	8.09	1085.86	8.23	1085.83	24.37	1080.71
28.97	1079.19	40.65	1075.43	49.71	1072.66	65.62	1069.45	70.45	1068.2
83.23	1067.73	91.19	1067.45	105.74	1067.36	111.92	1067.33	122.02	1067.3
132.66	1067.3	138.3	1067.28	153.4	1067.28	154.57	1067.28	158.87	1067.27
174.14	1067.24	179.89	1067.16	185.31	1067.15	194.88	1067.12	208.47	1066.53
215.61	1066.44	219.68	1065.96	234.52	1064.12	235.95	1063.94	236.35	1063.89
237.04	1063.87	257.09	1062.4	268.51	1064.36	277.83	1066.52	294.18	1069.82
298.57	1070.73	385.79	1071.03	402.26	1070.6	414.99	1070.26	423	1070.16
431.26	1070.19	443.73	1070.35	447.54	1070.41	461.43	1070.77	463.82	1070.83
464.47	1070.85	480.09	1070.99	485.21	1071.04	496.37	1070.79	505.95	1070.8
512.64	1070.46	526.68	1070.45	537.07	1070.27	547.42	1070.11	561.46	1070.2
568.16	1069.77	577.74	1070.44	588.9	1071.18	594.02	1071.45	609.64	1072.66
612.71	1072.75	630.38	1073.33	642.85	1073.64	651.11	1074.17	665.61	1074.54
671.85	1074.63	675.4	1074.55	688.35	1075.21	691.68	1075.28	894.19	1076.34
899.97	1076.58	915.27	1077.13	919.54	1077.26	920.71	1077.32	935.81	1077.77
941.45	1078.05	952.09	1078.38	962.18	1078.94	968.37	1079.25	982.92	1079.77
984.63	1079.57	990.91	1079.83	1003.66	1080.09	1008.47	1080.16	1444.74	1080.4
1456.63	1080.81	1459.9	1080.98	1465.61	1081.22	1480.64	1081.81	1489.18	1082.11
1501.37	1082.59	1505.46	1082.68	1520.38	1083.41	1521.74	1083.47	1522.11	1083.48
1522.76	1083.51	1542.85	1084.26	1554.29	1084.42	1563.59	1084.85	1579.9	1085.05
1584.33	1085.07	1586.84	1085.03	1596.02	1085.11	1605.06	1085.16	1608.48	1085.19
1625.8	1085.21	1637.04	1085.44	1646.54	1085.64	1665.62	1085.88	1895.4	1086.62
1898.58	1086.77	1916.14	1087.71	1922.76	1087.98	1936.87	1088.6	1944.91	1088.88
1957.61	1089.33	1974.22	1089.78	1978.35	1089.9	1979.91	1089.92	1999.09	1090.21
2010.01	1090.32	2019.83	1090.42	2037.05	1090.56	2040.56	1090.59	2049.86	1090.66
2061.3	1090.74	2065.62	1090.77	2082.04	1090.9	2094.19	1091.01	2102.78	1091.08
2122.76	1091.28	2123.52	1091.29	2125.5	1091.31	2140.21	1091.47	2144.26	1091.51
2151.34	1091.59	2164.99	1091.75	2179.91	1091.92	2180.07	1091.93		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.03	70.45	.03	298.57	.045

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
70.45 298.57 200.79 200 199.42 .1 .3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1086.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.030	0.030	0.045
W.S. Elev (ft)	1086.19	Reach Len. (ft)	200.79	200.00	199.42
Crit W.S. (ft)		Flow Area (sq ft)	614.30	4476.42	11903.28
E.G. Slope (ft/ft)	0.000034	Area (sq ft)	614.30	4476.42	11903.28
Q Total (cfs)	19389.97	Flow (cfs)	776.95	9357.14	9255.88
Top Width (ft)	1754.17	Top Width (ft)	64.28	228.12	1461.78
Vel Total (ft/s)	1.14	Avg. Vel. (ft/s)	1.26	2.09	0.78
Max Chl Dpth (ft)	23.79	Hydr. Depth (ft)	9.56	19.62	8.14
Conv. Total (cfs)	3332126.0	Conv. (cfs)	133517.8	1608005.0	1590603.0
Length Wtd. (ft)	199.82	Wetted Per. (ft)	66.83	229.20	1462.17
Min Ch El (ft)	1062.40	Shear (lb/sq ft)	0.02	0.04	0.02
Alpha	1.89	Stream Power (lb/ft s)	0.02	0.09	0.01
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	186.40	291.61	1329.58
C & E Loss (ft)		Cum SA (acres)	16.74	15.53	163.77

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: FRS
REACH: FRS1 RS: 3899.999

INPUT
Description:
Station Elevation Data num= 181

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1087.09	12.03	1083.63	21.58	1080.48	32.83	1076.89	50.69	1071.19
53.63	1070.24	60.98	1068.28	71.43	1065.42	74.43	1064.99	79.8	1064.88
95.23	1064.49	103.8	1064.5	116.03	1064.65	119.98	1064.69	133.84	1064.72
136.16	1064.72	136.83	1064.71	138.01	1064.71	157.63	1064.66	168.52	1064.69
178.42	1064.77	182.27	1064.8	196.23	1064.89	199.22	1064.9	200.88	1064.88
206.7	1064.81	220.02	1064.54	225.34	1064.03	240.82	1062.65	341.77	1062.97
344.82	1062.92	352.43	1062.91	362.68	1062.87	365.61	1062.86	378.86	1062.9
386.41	1062.94	395.05	1063	407.21	1063.09	425.29	1063.31	428.01	1063.34
429.09	1063.38	448.81	1063.96	458.2	1064.28	469.61	1064.69	475.94	1064.9
490.41	1065.3	498.15	1065.48	511.21	1065.74	524.49	1066.01	532	1066.17
540.66	1066.28	552.8	1066.45	571	1066.57	947.98	1067.69	953.04	1067.9
968.78	1068.44	982.15	1068.91	989.58	1069.13	993.71	1069.22	1008.18	1069.51
1009.89	1069.54	1010.38	1069.55	1011.26	1069.55	1031.18	1069.59	1042.24	1069.64
1051.98	1069.65	1187.87	1072	1197.57	1072.02	1204.05	1072.18	1218.37	1072.18
1220.23	1072.23	1226.76	1072.07	1239.17	1072.14	1244.12	1072.22	1259.97	1072.66
1273.23	1072.65	1280.77	1072.81	1299.62	1072.28	1301.56	1072.23	1317.31	1072.85
1322.36	1072.62	1331.44	1072.67	1343.16	1072.9	1349.67	1073.03	1363.96	1073.23
1372.48	1073.36	1384.76	1073.53	1389.66	1073.51	1405.56	1073.57	1418.77	1073.53
1426.36	1073.47	1430.57	1073.49	1445.35	1074.04	1447.16	1074.13	1447.87	1074.12
1467.96	1074.8	1476.98	1075.06	1488.75	1075.63	1506.09	1076.47	1509.55	1076.7
1518.21	1077.3	1527.65	1078.12	1530.35	1078.22	1543.83	1078.91	1551.15	1079.08
1560.01	1079.58	1571.95	1080.48	1576.19	1080.71	1591.07	1081.65	1592.75	1081.75
1593.41	1081.77	1613.55	1082.43	1622.52	1082.55	1634.35	1082.7	1651.63	1082.81
1655.15	1082.82	1663.92	1082.88	1673.27	1082.9	1675.95	1082.92	1680.74	1082.94
1696.74	1082.99	1705.64	1083.04	1717.54	1083.36	1736.79	1084.16	1738.34	1084.23
1738.95	1084.28	1759.14	1085.45	1768.06	1085.97	1779.94	1086.61	1797.17	1087.29
1800.74	1087.42	1809.65	1087.62	1821.54	1087.78	1826.28	1087.78	1842.34	1087.81
1855.39	1087.73	1863.14	1087.7	1867.43	1087.69	1882.51	1087.67	1883.61	1087.66
1883.93	1087.66	1884.49	1087.66	1904.73	1087.62	1913.6	1087.68	1925.53	1087.66
1942.71	1087.56	1946.33	1087.52	1955.37	1087.43	1967.13	1087.25	1971.82	1087.18
1987.93	1086.89	1996.87	1086.69	2008.73	1086.6	2028.24	1086.48	2029.23	1086.49
2029.53	1086.49	2030.04	1086.49	2050.32	1086.61	2059.14	1086.77	2071.12	1086.91
2077.78	1086.94	2091.92	1086.83	2101.1	1086.85	2112.72	1087.2	2117.36	1087.45

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2133.52 1088.36  2142.5 1088.85 2154.32 1089.45 2173.95 1090.21 2175.12 1090.25
2175.58 1090.26 2195.92 1090.75 2204.68  1090.9 2216.72 1091.12 2233.79 1091.37
2237.52 1091.43 2246.82 1091.58 2255.76 1091.71 2258.31 1091.75 2271.94 1091.98
2278.41 1092.08

Manning's n Values          num=       3
    Sta   n Val      Sta   n Val      Sta   n Val
**********************************************
      0     .03    206.7     .03      571    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        206.7     571             600.05     600  599.84             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1086.21  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1086.20  * Reach Len. (ft)         *  600.05  *  600.00  *  599.84  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 3630.03  * 8106.46  *16298.96  *
* E.G. Slope (ft/ft)      *0.000007  * Area (sq ft)            * 3630.03  * 8106.46  *16298.96  *
* Q Total (cfs)           *19380.96  * Flow (cfs)              * 3159.22  * 8260.29  * 7961.45  *
* Top Width (ft)          * 1769.21  * Top Width (ft)          *  203.60  *  364.30  * 1201.31  *
* Vel Total (ft/s)        *    0.69  * Avg. Vel. (ft/s)        *    0.87  *    1.02  *    0.49  *
* Max Chl Dpth (ft)       *   23.55  * Hydr. Depth (ft)        *   17.83  *   22.25  *   13.57  *
* Conv. Total (cfs)       *7451198.0  * Conv. (cfs)            *  1214592.0  *3175749.0  *3060857.0  *
* Length Wtd. (ft)        *  599.93  * Wetted Per. (ft)        *  206.75  *  364.43  * 1201.74  *
* Min Ch El (ft)          * 1062.65  * Shear (lb/sq ft)        *    0.01  *    0.01  *    0.01  *
* Alpha                   *    1.39  * Stream Power (lb/ft s)  *    0.01  *    0.01  *    0.00  *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)    *  176.62  *  262.73  * 1265.03  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   16.12  *   14.17  *  157.67  *
**********************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 3299.99*

INPUT
Description: CP - G
Station Elevation Data    num=     276
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
**********************************************************************************
       0  1087.46    11.87  1084.06    15.22  1083.03    21.3  1081.15    29.28  1078.72
    32.4  1077.78    36.32   1076.6    40.19   1075.5   50.03  1072.98    52.93  1072.23
    53.6  1072.08    56.56  1071.38    57.41  1071.22   58.95  1071.01    60.19  1070.83
    70.5  1069.34    73.46  1069.11    78.51  1069.03   78.77  1069.03    89.29  1068.94
      94   1068.9     99.6  1068.94   102.45  1068.94  105.65  1068.95   114.53  1068.96
  118.42  1068.97    120.7  1068.96   122.02  1068.95  126.59  1068.95    132.1  1068.94
  134.39  1068.93   135.06  1068.92   136.22  1068.92  138.39  1068.91   141.79   1068.9
  154.74  1069.04   155.59  1069.04   162.89  1069.14  166.34   1069.2   176.11   1069.4
  177.63  1069.43   179.91  1069.48   183.99  1069.56  193.69  1069.72   196.64  1069.77
  198.28  1069.78   199.59  1069.79   203.85  1069.81  204.02  1069.81   204.96  1069.79
  206.94  1069.45   219.01  1067.29    223.7   1066.3     225  1066.04   232.93  1064.48
  242.42  1062.84   301.12  1063.67   302.72  1063.67  304.54  1063.65   306.31  1063.65
  309.09  1063.74   309.16  1063.74   315.21  1063.93  316.96  1063.98   319.11  1064.06
  324.87  1064.26   329.38  1064.43   334.55  1064.64  341.81  1064.92   352.61  1065.39
  354.23  1065.46   354.88  1065.51   358.75  1065.73  366.66  1066.18    370.2   1066.4
  372.27  1066.52   379.08  1066.95   382.86  1067.18  390.98  1067.64   391.51  1067.67
  396.13  1067.91   403.93  1068.28   411.86  1068.67  416.35   1068.9   421.52  1069.12
  428.77  1069.43   434.09  1069.63   439.65  1069.62  941.39  1070.63   948.12  1070.74
  969.07  1071.03   986.87  1071.28   996.76   1071.4 1002.25  1071.45  1021.51  1071.61
 1023.79  1071.63  1024.44  1071.63  1025.61  1071.63 1052.13  1071.68  1066.85  1071.72
 1079.81  1071.73  1260.67  1073.07  1273.58  1073.09 1282.21  1073.18  1301.27  1073.19
 1303.74  1073.22  1312.43  1073.15  1328.95   1073.2 1335.54  1073.24  1356.63  1073.48
 1374.28  1073.49  1384.32  1073.58  1409.41  1073.34 1411.99  1073.32  1432.95  1073.65
 1439.67  1073.54  1451.76  1073.57  1467.36   1073.7 1476.02  1073.78  1495.04  1073.89
 1506.38  1073.97  1522.72  1074.07  1529.25  1074.06 1550.41  1074.11  1567.99  1074.11
 1578.09  1074.09   1583.7   1074.1  1603.37  1074.39 1605.78  1074.44  1606.72  1074.44
 1633.46   1074.8  1645.47  1074.94  1661.13  1075.24 1684.21  1075.68  1688.82   1075.8
 1700.34  1076.11  1712.91  1076.53   1716.5  1076.59 1721.99   1076.7  1734.44  1076.97
 1735.05  1076.98  1738.66  1077.02  1740.13  1077.03 1744.18   1077.1  1755.33  1077.41
 1755.98  1077.43  1763.57  1077.66  1771.87  1078.01 1772.01  1078.01  1777.51   1078.2
 1787.02  1078.57  1788.68  1078.63  1792.74  1078.77 1797.31  1078.93  1799.55  1079.01
 1800.43  1079.03  1805.36  1079.16  1810.47  1079.26 1822.03  1079.47  1827.23  1079.57
 1833.92  1079.66   1838.7  1079.71  1839.17  1079.71 1850.43  1079.84  1854.26  1079.89
 1854.92   1079.9  1855.37   1079.9  1867.19     1080 1872.04  1080.05  1877.92   1080.1
 1880.82  1080.12   1882.6  1080.13  1888.72  1080.19 1893.06  1080.23  1894.28  1080.24
 1905.39   1080.3     1906  1080.31  1906.72  1080.31 1908.11  1080.32  1910.29  1080.34
 1916.66  1080.37  1922.06  1080.41  1927.73  1080.42 1937.96  1080.44  1938.73  1080.45
  1944.8  1080.47   1949.8  1080.49   1955.4  1080.56 1965.64  1080.74  1965.81  1080.75
 1970.67  1080.87  1972.08   1080.9  1974.62  1080.96 1988.75  1081.28  1991.26  1081.33
 1993.32  1081.37  1994.14   1081.4  1996.54  1081.47 2005.43  1081.72  2021.01  1082.14
 2021.52  1082.16   2022.1  1082.17   2022.4  1082.18  2023.5  1082.21  2032.88  1082.49
 2035.35  1082.56  2038.77  1082.66  2048.27  1082.95 2048.69  1082.96  2055.44  1083.14
 2068.42  1083.48  2071.63  1083.57  2072.11  1083.59 2074.15  1083.64  2076.38   1083.7
 2081.19  1083.78  2088.24  1083.92  2088.79  1083.93 2104.06  1084.08  2110.37  1084.11
 2131.74  1084.24  2149.11  1084.28  2159.43  1084.32 2165.14  1084.34  2185.21  1084.44
 2186.67  1084.44   2187.1  1084.44  2187.84  1084.44 2214.78  1084.56  2226.59  1084.65
 2242.47  1084.72  2265.33  1084.78  2270.15  1084.79 2282.18   1084.8  2297.83  1084.79
 2304.08  1084.79  2325.52  1084.75  2337.42  1084.71  2353.2  1084.75  2379.17  1084.82
 2380.49  1084.83  2380.89  1084.83  2381.57  1084.84 2408.56  1085.03   2420.3  1085.17
 2436.24  1085.32  2445.11  1085.38  2463.92  1085.42 2476.14  1085.49  2491.61  1085.74
 2497.78   1085.9  2519.29  1086.46  2531.24  1086.77 2546.98  1087.15   2573.1  1087.66
 2574.66  1087.69  2575.27   1087.7  2588.97  1087.89 2591.53  1087.97  2602.34  1088.21
    2614  1088.43  2630.03  1088.75  2652.75  1089.18 2655.66  1089.23  2657.71  1089.27
 2658.08  1089.28  2670.09  1089.61  2672.33  1089.67 2681.99  1090.16  2682.07  1090.16
 2685.38  1090.36  2689.01  1090.58     2695  1090.72 2703.52  1090.87  2705.68  1090.91
 2712.14  1090.96

Manning's n Values          num=       3
    Sta   n Val      Sta   n Val      Sta   n Val
**********************************************
      0     .03   204.02     .03   439.65    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        204.02  439.65           600.05     600  599.84             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1086.21  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1086.19  * Reach Len. (ft)         *  600.05  *  600.00  *  599.84  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 2897.41  * 4832.25  *20936.93  *
```

```
* E.G. Slope (ft/ft)      *0.000011  * Area (sq ft)            * 2897.41  * 4832.25  *20936.93  *
* Q Total (cfs)           *19388.88  * Flow (cfs)              * 2799.47  * 5909.17  *10680.24  *
* Top Width (ft)          * 2504.65  * Top Width (ft)          *  199.60  *  235.63  * 2069.42  *
* Vel Total (ft/s)        *    0.68  * Avg. Vel. (ft/s)        *    0.97  *    1.22  *    0.51  *
* Max Chl Dpth (ft)       *   23.35  * Hydr. Depth (ft)        *   14.52  *   20.51  *   10.12  *
* Conv. Total (cfs)       *5870678.0  * Conv. (cfs)             *847640.8  *1789211.0  *3233826.0  *
* Length Wtd. (ft)        *  599.90  * Wetted Per. (ft)        *  201.84  *  236.42  * 2069.58  *
* Min Ch El (ft)          * 1062.84  * Shear (lb/sq ft)        *    0.01  *    0.01  *    0.01  *
* Alpha                   *    1.60  * Stream Power (lb/ft s)   *    0.01  *    0.02  *    0.00  *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)    *  131.66  *  173.62  * 1008.65  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   13.34  *   10.03  *  135.15  *
*****************************************************************************************************
```

CROSS SECTION

RIVER: FRS
REACH: FRS1 RS: 2699.999

INPUT
Description:
Station Elevation Data num= 100

```
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
       0 1087.83   15.02 1083.55    28.9 1079.54   35.84 1077.57   39.66 1076.63
    52.9  1074.1   55.82 1073.51   56.66 1073.41   58.18  1073.4   77.48 1073.17
   88.12 1073.26   98.29 1073.38  104.26 1073.36  119.11 1073.22  120.42 1073.21
  124.93 1073.19  136.57 1073.12  139.93  1073.1  152.71 1073.41  160.75  1073.6
   175.3 1074.08  181.57 1074.29  196.97 1074.71  201.17 1074.81  201.34 1074.81
  202.39 1074.78  204.58 1074.14  223.21 1068.45  233.47 1065.56  244.02 1063.03
  263.15 1064.37  264.84 1064.38  265.77 1064.58  269.01 1065.24  281.93 1067.89
  285.66 1068.63  292.43    1070  306.48 1072.76  308.29 1072.67  1909.5 1074.96
 1925.81 1075.03 1930.32 1075.05 1932.16 1075.06 1951.14 1075.27 1961.43 1075.31
 1971.96 1075.54 1990.71 1075.97 1992.78 1076.02 1997.85  1076.1  2013.6 1076.42
 2019.99 1076.51 2034.42 1076.63 2049.27 1076.82 2055.23 1076.87 2069.88 1077.03
 2074.67 1077.09 2076.05  1077.1 2090.81 1077.25 2096.87 1077.31 2107.83 1077.42
 2117.69 1077.53 2123.11 1077.59 2138.51 1077.71 2139.27 1077.72 2141.91 1077.73
 2159.33 1077.86  2166.4 1077.87 2180.14  1077.9 2187.72 1077.92 2200.96 1077.97
 2213.95 1078.13 2220.02 1078.22 2221.78 1078.24 2224.96 1078.28  2242.6 1078.47
 2252.32 1078.55 2263.42 1078.66 2283.52 1078.84 2284.24 1078.85 2284.62 1078.85
 2285.99 1078.87 2300.78 1079.05 2305.06 1079.11 2316.92  1079.3 2325.87 1079.47
 2342.08 1079.77 2346.69 1079.87 2349.23 1079.93 2358.02 1080.06 2367.51 1080.23
 2992.07 1085.27 2995.26 1085.38 3075.34 1087.06 3078.37 1087.13 3096.16 1087.73
 3108.32 1088.61 3116.98 1089.36 3124.47 1089.56  3137.8 1089.81 3145.86 1089.85
```

Manning's n Values num= 3

```
     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************
       0     .03  201.34     .03  308.29    .045
```

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
201.34 308.29 795.62 800 814.11 .1 .3

CROSS SECTION OUTPUT Profile #Max WS

```
*****************************************************************************************************
* E.G. Elev (ft)          * 1086.20  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1086.19  * Reach Len. (ft)         *  795.62  *  800.00  *  814.11  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 2183.23  * 1966.15  *25948.54  *
* E.G. Slope (ft/ft)      *0.000015  * Area (sq ft)            * 2183.23  * 1966.15  *25948.54  *
* Q Total (cfs)           *19371.30  * Flow (cfs)              * 2058.67  * 2559.94  *14752.69  *
* Top Width (ft)          * 3028.01  * Top Width (ft)          *  195.58  *  106.95  * 2725.48  *
* Vel Total (ft/s)        *    0.64  * Avg. Vel. (ft/s)        *    0.94  *    1.30  *    0.57  *
* Max Chl Dpth (ft)       *   23.16  * Hydr. Depth (ft)        *   11.16  *   18.38  *    9.52  *
* Conv. Total (cfs)       *5053847.0  * Conv. (cfs)             *537094.1  *667871.5  *3848882.0  *
* Length Wtd. (ft)        *  810.14  * Wetted Per. (ft)        *  197.23  *  109.47  * 2725.55  *
* Min Ch El (ft)          * 1063.03  * Shear (lb/sq ft)        *    0.01  *    0.02  *    0.01  *
* Alpha                   *    1.36  * Stream Power (lb/ft s)   *    0.01  *    0.02  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *   96.67  *  126.80  *  685.83  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   10.62  *    7.67  *  102.14  *
*****************************************************************************************************
```

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

LATERAL STRUCTURE

RIVER: FRS
REACH: FRS1 RS: 2699

INPUT
Description: EMERGENCY SPILLWAY #1
Lateral structure position = Right overbank
Distance from Upstream XS = .999
Deck/Roadway Width = 10
Weir Coefficient = 2.7
Weir Flow Reference = Water Surface
Weir Embankment Coordinates num = 4

```
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************
       01089.875       161081.968      8161081.968      8321089.875
```

Weir crest shape = Broad Crested

LATERAL STRUCTURE OUTPUT Profile #Max WS Lat Struct

```
*********************************************************************
* E.G. US. (ft)           * 1086.20  * Weir Sta US (ft)       *    7.46  *
* W.S. US. (ft)           * 1086.19  * Weir Sta DS (ft)       *  824.56  *
* E.G. DS (ft)            * 1086.20  * Weir Max Depth (ft)    *    4.23  *
* W.S. DS (ft)            * 1086.20  * Weir Avg Depth (ft)    *    4.18  *
* Q US (cfs)              *19371.30  * Weir Submerg           *    0.00  *
* Q Leaving Total (cfs)   *18887.14  * Min El Weir Flow (ft)  * 1081.97  *
* Q DS (cfs)              *  474.57  * Wr Top Wdth (ft)       *  817.10  *
* Perc Q Leaving          *   97.50  * Q Gate Group (cfs)     *          *
* Q Weir (cfs)            *18887.14  * Gate Open Ht (ft)      *          *
* Q Gates (cfs)           *          * Gate #Open             *          *
* Q Culv (cfs)            *          * Gate Area (sq ft)      *          *
* Q Lat RC (cfs)          *          * Gate Submerg           *          *
* Weir Flow Area (sq ft)  * 3416.62  * Gate Invert (ft)       *          *
*********************************************************************
```

CROSS SECTION

```
RIVER: FRS
REACH: FRS1                RS: 1900.000

INPUT
Description:
Station Elevation Data     num=      154
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
    7.28 1088.89   11.05 1088.11   27.54 1083.84   34.54 1082.25   47.79 1079.19
   50.33 1079.05   68.05 1077.03   74.45 1076.92   88.31 1076.57   98.59 1076.46
  108.56 1076.36  122.71 1076.22  128.82 1076.17  146.84 1076.01  149.07 1075.98
  150.68 1075.97  160.72 1075.95  169.33 1075.94  170.97 1075.97  189.59 1076.21
   195.1 1076.32  209.84 1076.57  219.23 1076.74   230.1 1076.93  243.36 1077.14
  250.35 1077.27  267.49 1077.41  270.61 1077.45  286.92 1077.37  290.32 1077.35
  290.87 1077.36  305.83 1076.84  307.77 1076.77  311.12 1076.72  325.22 1072.31
  331.38 1070.39  339.87 1067.89  351.63 1064.37     364 1063.33  371.89  1062.8
  388.14 1062.66  392.15 1062.62  412.26 1062.78   412.4 1062.78  412.49 1062.78
   413.1 1062.81  429.94 1063.36  432.66 1063.47  447.41 1065.56  452.91 1066.69
  460.52 1068.77  473.17 1072.26  482.32 1074.68  491.18 1077.04  813.94 1077.89
  817.52 1077.93   831.4  1078.1  837.78 1078.18  846.59 1078.29  858.04 1078.43
  866.31 1078.55  878.29 1078.69  883.76 1078.74  898.55 1078.91  901.21 1078.93
  917.85 1079.04  918.67 1079.05   918.8 1079.05  936.12 1079.21  939.06 1079.24
  943.11 1079.29  959.32 1079.47  971.03 1079.65  979.57 1079.78  988.48 1079.93
 2275.96 1080.98 2294.35 1081.02 2296.21 1081.02 2305.92 1081.07 2315.01 1081.12
 2316.47 1081.13 2318.49 1081.14 2336.73 1081.34 2349.91 1081.47 2356.98 1081.53
 2366.74  1081.6 2377.24 1081.68 2384.82  1081.7 2397.49 1081.74    2415 1081.75
 2417.75 1081.75 2419.74 1081.75 2432.11 1081.74 2437.19 1081.74 2438.01 1081.74
 2439.13 1081.73 2458.26 1081.72  2472.1 1081.72 2478.52 1081.71 2487.39 1081.71
 2498.77  1081.7 2511.52 1081.69 2519.03 1081.68 2535.65 1081.68 2539.29 1081.68
 2541.91 1081.68  2558.3 1081.71 2559.37 1081.71 2559.54 1081.71 2576.82 1081.75
  2579.8 1081.76  2583.9 1081.77 2600.05  1081.8 2611.73 1081.81 2620.31 1081.82
 2629.18 1081.84 2640.57 1081.86 2646.63 1081.87 2660.82 1081.89 2664.09  1081.9
 2681.08 1081.94 2684.48 1081.94 2701.33 1081.95 2716.46 1081.93 2721.59 1081.94
 2728.68 1081.94 2741.85 1081.93 2751.37 1081.94  2762.1 1081.94 2768.82 1081.96
 2782.36 1081.97 2801.07    1082 2802.61 1082.01 2803.73 1082.01 2810.68 1082.02
 2822.87 1082.03  2825.2 1082.02 2960.81 1082.11 2964.66  1082.2 2978.26 1082.32
 2984.92 1082.38 2995.73  1082.4 3005.18 1082.44 3013.18 1082.58 3025.43 1082.84
 3030.63 1083.29 3045.69 1085.22 3048.09 1085.78 3063.05 1089.83 3065.54 1090.49
 3065.94 1090.58 3082.99 1090.96  3086.2 1090.98 3089.21 1090.87

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    7.28     .03  305.83     .03  491.18    .045

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
        305.83  491.18             207.33     200  198.31              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1086.20  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1086.20  * Reach Len. (ft)         *  207.33  *  200.00  *  198.31  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 2541.91  * 3542.48  *14802.11  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 2541.91  * 3542.48  *14802.11  *
* Q Total (cfs)           *  628.24  * Flow (cfs)              *  100.73  *  232.20  *  295.31  *
* Top Width (ft)          * 3031.21  * Top Width (ft)          *  287.40  *  185.35  * 2558.46  *
* Vel Total (ft/s)        *    0.03  * Avg. Vel. (ft/s)        *    0.04  *    0.07  *    0.02  *
* Max Chl Dpth (ft)       *   23.58  * Hydr. Depth (ft)        *    8.84  *   19.11  *    5.79  *
* Conv. Total (cfs)       *3350809.0  * Conv. (cfs)            *537239.0  *1238483.0  *1575086.0  *
* Length Wtd. (ft)        *  200.38  * Wetted Per. (ft)        *  288.38  *  188.91  * 2558.74  *
* Min Ch El (ft)          * 1062.62  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    2.24  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *   53.52  *   76.21  *  305.03  *
* C & E Loss (ft)         *          * Cum SA (acres)          *    6.21  *    4.99  *   52.76  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 1700

INPUT
Description:
Station Elevation Data     num=      154
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
    7.28 1088.89   11.05 1088.11   27.54 1083.84   34.54 1082.25   47.79 1079.19
   50.33 1079.05   68.05 1077.03   74.45 1076.92   88.31 1076.57   98.59 1076.46
  108.56 1076.36  122.71 1076.22  128.82 1076.17  146.84 1076.01  149.07 1075.98
  150.68 1075.97  160.72 1075.95  169.33 1075.94  170.97 1075.97  189.59 1076.21
   195.1 1076.32  209.84 1076.57  219.23 1076.74   230.1 1076.93  243.36 1077.14
  250.35 1077.27  267.49 1077.41  270.61 1077.45  286.92 1077.37  290.32 1077.35
  290.87 1077.36  305.83 1076.84  307.77 1076.77  311.12 1076.72  325.22 1072.31
  331.38 1070.39  339.87 1067.89  351.63 1064.37     364 1063.33  371.89  1062.8
  388.14 1062.66  392.15 1062.62  412.26 1062.78   412.4 1062.78  412.49 1062.78
   413.1 1062.81  429.94 1063.36  432.66 1063.47  447.41 1065.56  452.91 1066.69
  460.52 1068.77  473.17 1072.26  482.32 1074.68  491.18 1077.04  813.94 1077.89
  817.52 1077.93   831.4  1078.1  837.78 1078.18  846.59 1078.29  858.04 1078.43
  866.31 1078.55  878.29 1078.69  883.76 1078.74  898.55 1078.91  901.21 1078.93
  917.85 1079.04  918.67 1079.05   918.8 1079.05  936.12 1079.21  939.06 1079.24
  943.11 1079.29  959.32 1079.47  971.03 1079.65  979.57 1079.78  988.48 1079.93
 2275.96 1080.98 2294.35 1081.02 2296.21 1081.02 2305.92 1081.07 2315.01 1081.12
 2316.47 1081.13 2318.49 1081.14 2336.73 1081.34 2349.91 1081.47 2356.98 1081.53
 2366.74  1081.6 2377.24 1081.68 2384.82  1081.7 2397.49 1081.74    2415 1081.75
 2417.75 1081.75 2419.74 1081.75 2432.11 1081.74 2437.19 1081.74 2438.01 1081.74
 2439.13 1081.73 2458.26 1081.72  2472.1 1081.72 2478.52 1081.71 2487.39 1081.71
 2498.77  1081.7 2511.52 1081.69 2519.03 1081.68 2535.65 1081.68 2539.29 1081.68
 2541.91 1081.68  2558.3 1081.71 2559.37 1081.71 2559.54 1081.71 2576.82 1081.75
  2579.8 1081.76  2583.9 1081.77 2600.05  1081.8 2611.73 1081.81 2620.31 1081.82
 2629.18 1081.84 2640.57 1081.86 2646.63 1081.87 2660.82 1081.89 2664.09  1081.9
 2681.08 1081.94 2684.48 1081.94 2701.33 1081.95 2716.46 1081.93 2721.59 1081.94
 2728.68 1081.94 2741.85 1081.93 2751.37 1081.94  2762.1 1081.94 2768.82 1081.96
 2782.36 1081.97 2801.07    1082 2802.61 1082.01 2803.73 1082.01 2810.68 1082.02
 2822.87 1082.03  2825.2 1082.02 2960.81 1082.11 2964.66  1082.2 2978.26 1082.32
 2984.92 1082.38 2995.73  1082.4 3005.18 1082.44 3013.18 1082.58 3025.43 1082.84
 3030.63 1083.29 3045.69 1085.22 3048.09 1085.78 3063.05 1089.83 3065.54 1090.49
 3065.94 1090.58 3082.99 1090.96  3086.2 1090.98 3089.21 1090.87

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
```

```
*********************************************
    7.28     .03  305.83     .03  491.18    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        305.83  491.18           1407.33    1400 1398.31            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1086.20  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.030  *   0.030  *   0.045  *
* W.S. Elev (ft)          * 1086.20  * Reach Len. (ft)         * 1407.33  * 1400.00  * 1398.31  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 2541.91  * 3542.48  *14802.11  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 2541.91  * 3542.48  *14802.11  *
* Q Total (cfs)           *  474.57  * Flow (cfs)              *   76.09  *  175.40  *  223.08  *
* Top Width (ft)          * 3031.21  * Top Width (ft)          *  287.40  *  185.35  * 2558.46  *
* Vel Total (ft/s)        *    0.02  * Avg. Vel. (ft/s)        *    0.03  *    0.05  *    0.02  *
* Max Chl Dpth (ft)       *   23.58  * Hydr. Depth (ft)        *    8.84  *   19.11  *    5.79  *
* Conv. Total (cfs)       *3350809.0  * Conv. (cfs)            *537239.0  *1238483.0  *1575086.0  *
* Length Wtd. (ft)        * 1400.00  * Wetted Per. (ft)        *  288.38  *  188.91  * 2558.74  *
* Min Ch El (ft)          * 1062.62  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    2.24  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *          * Cum Volume (acre-ft)    *   41.42  *   59.95  *  237.64  *
* C & E Loss (ft)         *          * Cum SA (acres)          *    4.84  *    4.14  *   41.11  *
*****************************************************************************************

CULVERT


RIVER: FRS
REACH: FRS1                RS: 1680

INPUT
Description: PRICIPAL SPILLWAY
Distance from Upstream XS =       20
Deck/Roadway Width        = 1103.55
Weir Coefficient          =      2.6
Upstream  Deck/Roadway Coordinates
    num=      2
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
*********************************************
       01089.975           3089.51089.975

Upstream Bridge Cross Section Data
Station Elevation Data     num=      154
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
    7.28 1088.89   11.05 1088.11   27.54 1083.84   34.54 1082.25   47.79 1079.19
   50.33 1079.05   68.05 1077.03   74.45 1076.92   88.31 1076.57   98.59 1076.46
  108.56 1076.36  122.71 1076.22  128.82 1076.17  146.84 1076.01  149.07 1075.98
  150.68 1075.97  160.72 1075.95  169.33 1075.94  170.97 1075.97  189.59 1076.21
   195.1 1076.32  209.84 1076.57  219.23 1076.74   230.1 1076.93  243.36 1077.14
  250.35 1077.27  267.49 1077.41  270.61 1077.45  286.92 1077.37  290.32 1077.35
  290.87 1077.36  305.83 1076.84  307.77 1076.77  311.12 1076.72  325.22 1072.31
  331.38 1070.39  339.87 1067.89  351.63 1064.37     364 1063.33  371.89  1062.8
  388.14 1062.66  392.15 1062.62  412.26 1062.78   412.4 1062.78  412.49 1062.78
   413.1 1062.81  429.94 1063.36  432.66 1063.47  447.41 1065.56  452.91 1066.69
  460.52 1068.77  473.17 1072.26  482.32 1074.68  491.18 1077.04  813.94 1077.89
  817.52 1077.93   831.4  1078.1  837.78 1078.18  846.59 1078.29  858.04 1078.43
  866.31 1078.55  878.29 1078.69  883.76 1078.74  898.55 1078.91  901.21 1078.93
  917.85 1079.04  918.67 1079.05   918.8 1079.05  936.12 1079.21  939.06 1079.24
  943.11 1079.29  959.32 1079.47  971.03 1079.65  979.57 1079.78  988.48 1079.93
 2275.96 1080.98 2294.35 1081.02 2296.21 1081.02 2305.92 1081.07 2315.01 1081.12
 2316.47 1081.13 2318.49 1081.14 2336.73 1081.34 2349.91 1081.47 2356.98 1081.53
 2366.74  1081.6 2377.24 1081.68 2384.82  1081.7 2397.49 1081.74    2415 1081.75
 2417.75 1081.75 2419.74 1081.75 2432.11 1081.74 2437.19 1081.74 2438.01 1081.74
 2439.13 1081.73 2458.26 1081.72  2472.1 1081.72 2478.52 1081.71 2487.39 1081.71
 2498.77  1081.7 2511.52 1081.69 2519.03 1081.68 2535.65 1081.68 2539.29 1081.68
 2541.91 1081.68  2558.3 1081.71 2559.37 1081.71 2559.54 1081.71 2576.82 1081.75
  2579.8 1081.76  2583.9 1081.77 2600.05  1081.8 2611.73 1081.81 2620.31 1081.82
 2629.18 1081.84 2640.57 1081.86 2646.63 1081.87 2660.82 1081.89 2664.09  1081.9
 2681.08 1081.94 2684.48 1081.94 2701.33 1081.95 2716.46 1081.93 2721.59 1081.94
 2728.68 1081.94 2741.85 1081.93 2751.37 1081.94  2762.1 1081.94 2768.82 1081.96
 2782.36 1081.97 2801.07    1082 2802.61 1082.01 2803.73 1082.01 2810.68 1082.02
 2822.87 1082.03  2825.2 1082.02 2960.81 1082.11 2964.66  1082.2 2978.26 1082.32
 2984.92 1082.38 2995.73  1082.4 3005.18 1082.44 3013.18 1082.58 3025.43 1082.84
 3030.63 1083.29 3045.69 1085.22 3048.09 1085.78 3063.05 1089.83 3065.54 1090.49
 3065.94 1090.58 3082.99 1090.96  3086.2 1090.98 3089.21 1090.87

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
    7.28     .03  305.83     .03  491.18    .045

Bank Sta: Left   Right    Coeff Contr.   Expan.
        305.83  491.18              .1       .3

Downstream  Deck/Roadway Coordinates
    num=      2
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
*********************************************
       0 1037.26             79.9 1037.26

Downstream Bridge Cross Section Data
Station Elevation Data     num=       13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
       0 1036.07    2.51 1034.92    5.03 1033.76    9.46 1031.74   17.241028.389
   23.25  1028.1   34.81  1028.1   43.99  1028.1   47.45 1029.43   64.72 1034.04
   68.32 1034.89   74.56 1036.38    79.9 1037.26

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
       0     .03   17.24     .03   68.32    .045

Bank Sta: Left   Right    Coeff Contr.   Expan.
         17.24   68.32              .1       .3

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
```

```
Weir crest shape                          = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Culvert #1      Circular      5
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 1 - Square edge entrance with headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                20 1103.55    .0012    .0012        0                  .5                  1
Upstream   Elevation =  1059.668
           Centerline Station =  400
Downstream Elevation =  1028.168
           Centerline Station =  23.25

CULVERT OUTPUT  Profile #Max WS  Culv Group:  Culvert #1
*********************************************************************
* Q Culv Group (cfs)      *  474.57  * Culv Full Len (ft)     * 1103.55  *
* # Barrels               *       1  * Culv Vel US (ft/s)     *   24.17  *
* Q Barrel (cfs)          *  474.57  * Culv Vel DS (ft/s)     *   24.17  *
* E.G. US. (ft)           * 1047.09  * Culv Inv El Up (ft)   * 1059.67  *
* W.S. US. (ft)           * 1086.20  * Culv Inv El Dn (ft)   * 1028.17  *
* E.G. DS (ft)            * 1031.61  * Culv Frctn Ls (ft)    *   31.50  *
* W.S. DS (ft)            * 1031.32  * Culv Exit Loss (ft)   *   10.62  *
* Delta EG (ft)           *   15.47  * Culv Entr Loss (ft)   *    4.54  *
* Delta WS (ft)           *   54.88  * Q Weir (cfs)          *          *
* E.G. IC (ft)            * 1086.20  * Weir Sta Lft (ft)     *          *
* E.G. OC (ft)            * 1047.09  * Weir Sta Rgt (ft)     *          *
* Culvert Control         *  Outlet  * Weir Submerg          *          *
* Culv WS Inlet (ft)      * 1064.67  * Weir Max Depth (ft)   *          *
* Culv WS Outlet (ft)     * 1033.17  * Weir Avg Depth (ft)   *          *
* Culv Nml Depth (ft)     *    1.07  * Weir Flow Area (sq ft) *          *
* Culv Crt Depth (ft)     *    5.00  * Min El Weir Flow (ft) * 1089.99  *
*********************************************************************

Note:    Culvert critical depth exceeds the height of the culvert.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 500.000

INPUT
Description:
Station Elevation Data     num=      13
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 1036.07    2.51 1034.92    5.03 1033.76    9.46 1031.74   17.241028.389
   23.25  1028.1   34.81  1028.1   43.99  1028.1   47.45 1029.43   64.72 1034.04
   68.32 1034.89   74.56 1036.38   79.9 1037.26

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0     .03   17.24     .03   68.32    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          17.24   68.32             200     200     200          .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1031.61  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.29  * Wt. n-Val.              *   0.030  *   0.030  *         *
* W.S. Elev (ft)          * 1031.32  * Reach Len. (ft)         *  200.00  *  200.00  *  200.00 *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *    9.97  *  100.80  *         *
* E.G. Slope (ft/ft)      *0.002163  * Area (sq ft)            *    9.97  *  100.80  *         *
* Q Total (cfs)           *  474.52  * Flow (cfs)              *   28.00  *  446.52  *         *
* Top Width (ft)          *   44.09  * Top Width (ft)           *    6.80  *   37.29  *         *
* Vel Total (ft/s)        *    4.28  * Avg. Vel. (ft/s)         *    2.81  *    4.43  *         *
* Max Chl Dpth (ft)       *    3.22  * Hydr. Depth (ft)         *    1.47  *    2.70  *         *
* Conv. Total (cfs)       * 10203.8  * Conv. (cfs)              *   602.1  *  9601.7  *         *
* Length Wtd. (ft)        *  200.00  * Wetted Per. (ft)         *    7.41  *   37.79  *         *
* Min Ch El (ft)          * 1028.10  * Shear (lb/sq ft)         *    0.18  *    0.36  *         *
* Alpha                   *    1.03  * Stream Power (lb/ft s)   *    0.51  *    1.60  *         *
* Frctn Loss (ft)         *    0.34  * Cum Volume (acre-ft)     *    0.19  *    1.40  *    0.06 *
* C & E Loss (ft)         *          * Cum SA (acres)           *    0.09  *    0.56  *    0.05 *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 300.000

INPUT
Description:
Station Elevation Data     num=      11
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 1030.02    2.81 1029.26    4.82 1028.72    5.57 1028.59    15.3 1028.08
   25.56 1028.08   34.14 1028.08   46.29  1028.5   62.71 1032.51   67.03 1033.52
   68.95 1033.63

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0     .03    15.3     .03   46.29    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          15.3   46.29             200     200     200          .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1031.26  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.20  * Wt. n-Val.              *   0.030  *   0.030  *   0.045 *
* W.S. Elev (ft)          * 1031.07  * Reach Len. (ft)         *  200.00  *  200.00  *  200.00 *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   36.56  *   89.99  *   13.48 *
* E.G. Slope (ft/ft)      *0.001405  * Area (sq ft)            *   36.56  *   89.99  *   13.48 *
* Q Total (cfs)           *  474.47  * Flow (cfs)              *  115.17  *  339.98  *   19.32 *
* Top Width (ft)          *   56.80  * Top Width (ft)           *   15.30  *   30.99  *   10.51 *
* Vel Total (ft/s)        *    3.39  * Avg. Vel. (ft/s)         *    3.15  *    3.78  *    1.43 *
* Max Chl Dpth (ft)       *    2.99  * Hydr. Depth (ft)         *    2.39  *    2.90  *    1.28 *
```

```
* Conv. Total (cfs)       * 12658.6  * Conv. (cfs)            *  3072.6  *  9070.4  *   515.6  *
* Length Wtd. (ft)        *  200.00  * Wetted Per. (ft)       *    16.54  *    31.00  *   10.82  *
* Min Ch El (ft)          * 1028.08  * Shear (lb/sq ft)       *     0.19  *     0.25  *    0.11  *
* Alpha                   *    1.11  * Stream Power (lb/ft s) *     0.61  *     0.96  *    0.16  *
* Frctn Loss (ft)         *    0.26  * Cum Volume (acre-ft)   *     0.09  *     0.96  *    0.03  *
* C & E Loss (ft)         *          * Cum SA (acres)         *     0.04  *     0.40  *    0.02  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: 100.000

INPUT
Description:
Station Elevation Data     num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 1031.57    5.25 1031.61    7.21 1031.64   12.37 1031.53   27.59 1030.83
   27.94 1030.81   40.86 1028.05   88.02 1028.05   89.69 1029.28   90.16 1029.37
  100.65 1031.05  105.97  1031.9   110.9 1032.24   111.7 1032.23

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0     .03   27.59     .03  100.65    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          27.59  100.65            100.02     100     100             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)          * 1030.99  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.13  * Wt. n-Val.              *   0.030  *   0.030  *          *
* W.S. Elev (ft)          * 1030.86  * Reach Len. (ft)         *  100.02  *  100.00  *  100.00  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *    0.01  *  162.39  *          *
* E.G. Slope (ft/ft)      *0.001192  * Area (sq ft)            *    0.01  *  162.39  *          *
* Q Total (cfs)           *  474.45  * Flow (cfs)              *    0.00  *  474.45  *          *
* Top Width (ft)          *   72.55  * Top Width (ft)          *    0.67  *   71.88  *          *
* Vel Total (ft/s)        *    2.92  * Avg. Vel. (ft/s)        *    0.11  *    2.92  *          *
* Max Chl Dpth (ft)       *    2.81  * Hydr. Depth (ft)        *    0.02  *    2.26  *          *
* Conv. Total (cfs)       * 13744.3  * Conv. (cfs)             *     0.0  * 13744.3  *          *
* Length Wtd. (ft)        *  100.00  * Wetted Per. (ft)        *    0.67  *   72.70  *          *
* Min Ch El (ft)          * 1028.05  * Shear (lb/sq ft)        *    0.00  *    0.17  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *    0.00  *    0.49  *          *
* Frctn Loss (ft)         *    0.11  * Cum Volume (acre-ft)   *    0.00  *    0.38  *          *
* C & E Loss (ft)         *          * Cum SA (acres)         *    0.00  *    0.17  *          *
*****************************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS1                RS: -0.000

INPUT
Description:
Station Elevation Data     num=      12
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 1030.01    2.69 1029.59    6.95 1028.93   19.24 1028.01   42.52 1028.01
   60.72 1028.05   64.08 1028.47   78.04 1030.86   81.46 1031.45   92.65 1031.25
  102.19 1030.97   103.5 1030.91

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0     .03    2.69     .03   78.04    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          2.69   78.04                  0       0       0             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)          * 1030.88  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.11  * Wt. n-Val.              *   0.030  *   0.030  *          *
* W.S. Elev (ft)          * 1030.77  * Reach Len. (ft)         *          *          *          *
* Crit W.S. (ft)          * 1029.42  * Flow Area (sq ft)       *    2.61  *  172.63  *          *
* E.G. Slope (ft/ft)      *0.001001  * Area (sq ft)            *    2.61  *  172.63  *          *
* Q Total (cfs)           *  474.40  * Flow (cfs)              *    3.37  *  471.03  *          *
* Top Width (ft)          *   77.51  * Top Width (ft)          *    2.69  *   74.82  *          *
* Vel Total (ft/s)        *    2.71  * Avg. Vel. (ft/s)        *    1.29  *    2.73  *          *
* Max Chl Dpth (ft)       *    2.76  * Hydr. Depth (ft)        *    0.97  *    2.31  *          *
* Conv. Total (cfs)       * 14996.0  * Conv. (cfs)             *   106.5  * 14889.5  *          *
* Length Wtd. (ft)        *          * Wetted Per. (ft)        *    3.48  *   75.13  *          *
* Min Ch El (ft)          * 1028.01  * Shear (lb/sq ft)        *    0.05  *    0.14  *          *
* Alpha                   *    1.01  * Stream Power (lb/ft s) *    0.06  *    0.39  *          *
* Frctn Loss (ft)         *          * Cum Volume (acre-ft)   *          *          *          *
* C & E Loss (ft)         *          * Cum SA (acres)         *          *          *          *
*****************************************************************************************************

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

SUMMARY OF MANNING'S N VALUES

River:FRS
*************************************************************
*     Reach       *   River Sta.   *   n1    *   n2    *   n3    *
*************************************************************
*FRS1             *   48899.98     *    .03  *    .03  *   .045  *
*FRS1             *   48699.98     *    .03  *    .03  *   .045  *
*FRS1             *   48399.9*     *    .03  *    .03  *   .045  *
*FRS1             *   48299.98     *    .03  *    .03  *   .045  *
*FRS1             *   47899.98     *    .03  *    .03  *   .045  *
*FRS1             *   47699.9*     *    .03  *    .03  *   .045  *
*FRS1             *   47499.98     *    .03  *    .03  *   .045  *
*FRS1             *   47299.98     *    .03  *    .03  *   .045  *
*FRS1             *   46299.98     *    .03  *    .03  *   .045  *
*FRS1             *   46099.98     *    .03  *    .03  *   .045  *
*FRS1             *   45899.98     *    .03  *    .03  *   .045  *
*FRS1             *   45699.98     *    .03  *    .03  *   .045  *
```

*FRS1	*	45499.98	*	.03*	.03*	.045*
*FRS1	*	45299.98	*	.03*	.03*	.045*
*FRS1	*	45099.98	*	.03*	.03*	.045*
*FRS1	*	44899.98	*	.03*	.03*	.045*
*FRS1	*	44099.98	*	.03*	.03*	.045*
*FRS1	*	43899.98	*	.03*	.03*	.045*
*FRS1	*	43699.98	*	.03*	.03*	.045*
*FRS1	*	43499.98	*	.03*	.03*	.045*
*FRS1	*	43299.98	*	.03*	.03*	.045*
*FRS1	*	43099.98	*	.03*	.03*	.045*
*FRS1	*	42899.98	*	.03*	.03*	.045*
*FRS1	*	41699.98	*	.03*	.03*	.045*
*FRS1	*	41499.98	*	.03*	.03*	.045*
*FRS1	*	41299.98	*	.03*	.03*	.045*
*FRS1	*	41099.98	*	.03*	.03*	.045*
*FRS1	*	40899.98	*	.03*	.03*	.045*
*FRS1	*	40699.98	*	.03*	.03*	.045*
*FRS1	*	40499.98	*	.03*	.03*	.045*
*FRS1	*	40299.98	*	.03*	.03*	.045*
*FRS1	*	40099.98	*	.03*	.03*	.045*
*FRS1	*	39899.98	*	.03*	.03*	.045*
*FRS1	*	39699.98	*	.03*	.03*	.045*
*FRS1	*	39499.98	*	.03*	.03*	.045*
*FRS1	*	39299.98	*	.03*	.03*	.045*
*FRS1	*	39099.98	*	.03*	.03*	.045*
*FRS1	*	38899.98	*	.03*	.03*	.045*
*FRS1	*	38699.98	*	.03*	.03*	.045*
*FRS1	*	38499.98	*	.03*	.03*	.045*
*FRS1	*	38299.98	*	.03*	.03*	.045*
*FRS1	*	38099.98	*	.03*	.03*	.045*
*FRS1	*	37899.98	*	.03*	.03*	.045*
*FRS1	*	37699.98	*	.03*	.03*	.045*
*FRS1	*	37600	*Lat Struct*		*	*
*FRS1	*	37499.98	*	.03*	.03*	.045*
*FRS1	*	37299.98	*	.03*	.03*	.045*
*FRS1	*	37099.98	*	.03*	.03*	.045*
*FRS1	*	36899.98	*	.03*	.03*	.045*
*FRS1	*	36699.98	*	.03*	.03*	.045*
*FRS1	*	36499.98	*	.03*	.03*	.045*
*FRS1	*	36299.98	*	.03*	.03*	.045*
*FRS1	*	36099.98	*	.03*	.03*	.045*
*FRS1	*	35899.98	*	.03*	.03*	.045*
*FRS1	*	35699.9*	*	.03*	.03*	.045*
*FRS1	*	35499.98	*	.03*	.03*	.045*
*FRS1	*	35299.98	*	.03*	.03*	.045*
*FRS1	*	35099.98	*	.03*	.03*	.045*
*FRS1	*	34899.98	*	.03*	.03*	.045*
*FRS1	*	34699.98	*	.03*	.03*	.045*
*FRS1	*	34499.98	*	.03*	.03*	.045*
*FRS1	*	34299.98	*	.03*	.03*	.045*
*FRS1	*	34099.98	*	.03*	.03*	.045*
*FRS1	*	33899.98	*	.03*	.03*	.045*
*FRS1	*	33699.98	*	.03*	.03*	.045*
*FRS1	*	33499.98	*	.03*	.03*	.045*
*FRS1	*	33299.98	*	.03*	.03*	.045*
*FRS1	*	33099.98	*	.03*	.03*	.045*
*FRS1	*	32899.98	*	.03*	.03*	.045*
*FRS1	*	32699.98	*	.03*	.03*	.045*
*FRS1	*	32499.98	*	.03*	.03*	.045*
*FRS1	*	32299.98	*	.03*	.03*	.045*
*FRS1	*	32099.98	*	.03*	.03*	.045*
*FRS1	*	31899.98	*	.03*	.03*	.045*
*FRS1	*	31699.98	*	.03*	.03*	.045*
*FRS1	*	31499.98	*	.03*	.03*	.045*
*FRS1	*	31299.98	*	.03*	.03*	.045*
*FRS1	*	31099.98	*	.03*	.03*	.045*
*FRS1	*	30899.98	*	.03*	.03*	.045*
*FRS1	*	30699.98	*	.03*	.03*	.045*
*FRS1	*	30499.98	*	.03*	.03*	.045*
*FRS1	*	30299.98	*	.03*	.03*	.045*
*FRS1	*	30099.98	*	.03*	.03*	.045*
*FRS1	*	29899.98	*	.03*	.03*	.045*
*FRS1	*	29699.98	*	.03*	.03*	.045*
*FRS1	*	29499.98	*	.03*	.03*	.045*
*FRS1	*	29299.98	*	.03*	.03*	.045*
*FRS1	*	29099.98	*	.03*	.03*	.045*
*FRS1	*	28899.98	*	.03*	.03*	.045*
*FRS1	*	28699.98	*	.03*	.03*	.045*
*FRS1	*	28499.98	*	.03*	.03*	.045*
*FRS1	*	28299.98	*	.03*	.03*	.045*
*FRS1	*	28099.98	*	.03*	.03*	.045*
*FRS1	*	27899.98	*	.03*	.03*	.045*
*FRS1	*	27699.98	*	.03*	.03*	.045*
*FRS1	*	27499.98	*	.03*	.03*	.045*
*FRS1	*	27299.98	*	.03*	.03*	.045*
*FRS1	*	27099.98	*	.03*	.03*	.045*
*FRS1	*	26899.98	*	.03*	.03*	.045*
*FRS1	*	26699.98	*	.03*	.03*	.045*
*FRS1	*	26499.98	*	.03*	.03*	.045*
*FRS1	*	26299.98	*	.03*	.03*	.045*
*FRS1	*	26099.98	*	.03*	.03*	.045*
*FRS1	*	25899.98	*	.03*	.03*	.045*
*FRS1	*	25699.98	*	.03*	.03*	.045*
*FRS1	*	25499.98	*	.03*	.03*	.045*
*FRS1	*	25299.98	*	.03*	.03*	.045*
*FRS1	*	25099.98	*	.03*	.03*	.045*
*FRS1	*	24935.17	*	.03*	.03*	.045*
*FRS1	*	24885.17	*Culvert *		*	*
*FRS1	*	24699.98	*	.03*	.03*	.045*
*FRS1	*	24699	*Lat Struct*		*	*
*FRS1	*	24499.98	*	.03*	.03*	.045*
*FRS1	*	24299.98	*	.03*	.03*	.045*
*FRS1	*	24099.99	*	.03*	.03*	.045*
*FRS1	*	23899.99	*	.03*	.03*	.045*
*FRS1	*	23699.99	*	.03*	.03*	.045*
*FRS1	*	23499.99	*	.03*	.03*	.045*
*FRS1	*	23299.99	*	.03*	.03*	.045*
*FRS1	*	23099.99	*	.03*	.03*	.045*
*FRS1	*	22899.99	*	.03*	.03*	.045*
*FRS1	*	22699.99	*	.03*	.03*	.045*
*FRS1	*	22499.99	*	.03*	.03*	.045*
*FRS1	*	22299.99	*	.03*	.03*	.045*
*FRS1	*	22099.99	*	.03*	.03*	.045*
*FRS1	*	21899.99	*	.03*	.03*	.045*

*FRS1	*	21699.99	* .03*	.03*	.045*
*FRS1	*	21499.99	* .03*	.03*	.045*
*FRS1	*	21299.99	* .03*	.03*	.045*
*FRS1	*	21099.99	* .03*	.03*	.045*
*FRS1	*	20899.99	* .03*	.03*	.045*
*FRS1	*	20699.99	* .03*	.03*	.045*
*FRS1	*	20499.99	* .03*	.03*	.045*
*FRS1	*	20299.99	* .03*	.03*	.045*
*FRS1	*	20099.99	* .03*	.03*	.045*
*FRS1	*	19899.99	* .03*	.03*	.045*
*FRS1	*	18699.99	* .03*	.03*	.045*
*FRS1	*	18499.99	* .03*	.03*	.045*
*FRS1	*	18299.99	* .03*	.03*	.045*
*FRS1	*	18099.99	* .03*	.03*	.045*
*FRS1	*	17899.99	* .03*	.03*	.045*
*FRS1	*	17699.99	* .03*	.03*	.045*
*FRS1	*	17499.99	* .03*	.03*	.045*
*FRS1	*	17299.99	* .03*	.03*	.045*
*FRS1	*	17099.99	* .03*	.03*	.045*
*FRS1	*	16899.99	* .03*	.03*	.045*
*FRS1	*	16699.99	* .03*	.03*	.045*
*FRS1	*	16499.99	* .03*	.03*	.045*
*FRS1	*	16299.99	* .03*	.03*	.045*
*FRS1	*	16099.99	* .03*	.03*	.045*
*FRS1	*	15899.99	* .03*	.03*	.045*
*FRS1	*	15699.99	* .03*	.03*	.045*
*FRS1	*	15499.99	* .03*	.03*	.045*
*FRS1	*	15099.99	* .03*	.03*	.045*
*FRS1	*	14899.99	* .03*	.03*	.045*
*FRS1	*	14699.99	* .03*	.03*	.045*
*FRS1	*	14499.99	* .03*	.03*	.045*
*FRS1	*	14299.99	* .03*	.03*	.045*
*FRS1	*	14099.99	* .03*	.03*	.045*
*FRS1	*	13899.99	* .03*	.03*	.045*
*FRS1	*	13699.99	* .03*	.03*	.045*
*FRS1	*	13649.99	*Culvert *	*	*
*FRS1	*	13499.99	* .03*	.03*	.045*
*FRS1	*	13499	*Lat Struct*	*	*
*FRS1	*	13299.99	* .03*	.03*	.045*
*FRS1	*	12899.99	* .03*	.03*	.045*
*FRS1	*	12699.99	* .03*	.03*	.045*
*FRS1	*	12499.99	* .03*	.03*	.045*
*FRS1	*	12299.99	* .03*	.03*	.045*
*FRS1	*	11699.99	* .03*	.03*	.045*
*FRS1	*	11499.99	* .03*	.03*	.045*
*FRS1	*	11299.99	* .03*	.03*	.045*
*FRS1	*	11099.99	* .03*	.03*	.045*
*FRS1	*	10899.99	* .03*	.03*	.045*
*FRS1	*	10699.99	* .03*	.03*	.045*
*FRS1	*	10499.99	* .03*	.03*	.045*
*FRS1	*	10299.99	* .03*	.03*	.045*
*FRS1	*	10099.99	* .03*	.03*	.045*
*FRS1	*	9899.999	* .03*	.03*	.045*
*FRS1	*	9699.999	* .03*	.03*	.045*
*FRS1	*	9499.999	* .03*	.03*	.045*
*FRS1	*	9299.999	* .03*	.03*	.045*
*FRS1	*	9099.999	* .03*	.03*	.045*
*FRS1	*	8899.999	* .03*	.03*	.045*
*FRS1	*	8699.999	* .03*	.03*	.045*
*FRS1	*	8499.999	* .03*	.03*	.045*
*FRS1	*	8299.999	* .03*	.03*	.045*
*FRS1	*	8099.999	* .03*	.03*	.045*
*FRS1	*	7899.999	* .03*	.03*	.045*
*FRS1	*	7699.999	* .03*	.03*	.045*
*FRS1	*	7499.999	* .03*	.03*	.045*
*FRS1	*	7299.999	* .03*	.03*	.045*
*FRS1	*	7099.999	* .03*	.03*	.045*
*FRS1	*	6899.999	* .03*	.03*	.045*
*FRS1	*	6699.999	* .03*	.03*	.045*
*FRS1	*	6499.999	* .03*	.03*	.045*
*FRS1	*	6299.999	* .03*	.03*	.045*
*FRS1	*	6099.999	* .03*	.03*	.045*
*FRS1	*	5899.999	* .03*	.03*	.045*
*FRS1	*	5699.999	* .03*	.03*	.045*
*FRS1	*	5499.999	* .03*	.03*	.045*
*FRS1	*	5299.999	* .03*	.03*	.045*
*FRS1	*	5099.999	* .03*	.03*	.045*
*FRS1	*	4899.999	* .03*	.03*	.045*
*FRS1	*	4699.999	* .03*	.03*	.045*
*FRS1	*	4499.999	* .03*	.03*	.045*
*FRS1	*	4299.999	* .03*	.03*	.045*
*FRS1	*	4099.999	* .03*	.03*	.045*
*FRS1	*	3899.999	* .03*	.03*	.045*
*FRS1	*	3299.99*	* .03*	.03*	.045*
*FRS1	*	2699.999	* .03*	.03*	.045*
*FRS1	*	2699	*Lat Struct*	*	*
*FRS1	*	1900.000	* .03*	.03*	.045*
*FRS1	*	1700	* .03*	.03*	.045*
*FRS1	*	1680	*Culvert *	*	*
*FRS1	*	500.000	* .03*	.03*	.045*
*FRS1	*	300.000	* .03*	.03*	.045*
*FRS1	*	100.000	* .03*	.03*	.045*
*FRS1	*	-0.000	* .03*	.03*	.045*

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SUMMARY OF REACH LENGTHS

River: FRS

Reach	River Sta.	Left	Channel	Right
*FRS1	48899.98	199.25	200	200.86
*FRS1	48699.98	300.61	300	298.07
*FRS1	48399.9	100.21	100	99.36
*FRS1	48299.98	401.3	400	507.83
*FRS1	47899.98	199.43	200	220.62
*FRS1	47699.9	199.43	200	220.62
*FRS1	47499.98	200.09	200	212.66
*FRS1	47299.98	1011.14	1000	1267.77
*FRS1	46299.98	209.42	200	194.4
*FRS1	46099.98	207.31	200	196.59
*FRS1	45899.98	204.45	200	200.65

*FRS1	*	45699.98	*	194.42*	200*	203.77*
*FRS1	*	45499.98	*	204.23*	200*	196.49*
*FRS1	*	45299.98	*	194.09*	200*	206.06*
*FRS1	*	45099.98	*	179.68*	200*	233.3*
*FRS1	*	44899.98	*	817.2599*	800*	864.76*
*FRS1	*	44099.98	*	209.18*	200*	195.49*
*FRS1	*	43899.98	*	201.55*	200*	200.93*
*FRS1	*	43699.98	*	178.22*	200*	210.56*
*FRS1	*	43499.98	*	216.85*	200*	190.14*
*FRS1	*	43299.98	*	204.61*	200*	197.91*
*FRS1	*	43099.98	*	193.76*	200*	207.96*
*FRS1	*	42899.98	*	1179.29*	1200*	1329.92*
*FRS1	*	41699.98	*	208.1*	200*	192.46*
*FRS1	*	41499.98	*	208.8*	200*	196.37*
*FRS1	*	41299.98	*	203*	200*	199.35*
*FRS1	*	41099.98	*	201.07*	200*	199.98*
*FRS1	*	40899.98	*	210.66*	200*	193.67*
*FRS1	*	40699.98	*	205.41*	200*	197.03*
*FRS1	*	40499.98	*	198.79*	200*	201.91*
*FRS1	*	40299.98	*	189.62*	200*	209.13*
*FRS1	*	40099.98	*	197.23*	200*	202.99*
*FRS1	*	39899.98	*	205.38*	200*	193.28*
*FRS1	*	39699.98	*	205.67*	200*	198.72*
*FRS1	*	39499.98	*	215.62*	200*	158.79*
*FRS1	*	39299.98	*	208.82*	200*	178.18*
*FRS1	*	39099.98	*	200.11*	200*	201.3*
*FRS1	*	38899.98	*	203.92*	200*	193.85*
*FRS1	*	38699.98	*	195.36*	200*	206.82*
*FRS1	*	38499.98	*	190.36*	200*	211.84*
*FRS1	*	38299.98	*	189.33*	200*	211.36*
*FRS1	*	38099.98	*	197.08*	200*	204.49*
*FRS1	*	37899.98	*	200.24*	200*	200.19*
*FRS1	*	37699.98	*	198.23*	200*	202.05*
*FRS1	*	37600	*Lat Struct*		*	*
*FRS1	*	37499.98	*	200.05*	200*	200.01*
*FRS1	*	37299.98	*	201.21*	200*	199.11*
*FRS1	*	37099.98	*	200.88*	200*	200.17*
*FRS1	*	36899.98	*	198.28*	200*	226.77*
*FRS1	*	36699.98	*	201.38*	200*	219.61*
*FRS1	*	36499.98	*	199.18*	200*	202.22*
*FRS1	*	36299.98	*	199.11*	200*	201.18*
*FRS1	*	36099.98	*	200.75*	200*	199.08*
*FRS1	*	35899.98	*	199.96*	200*	200.13*
*FRS1	*	35699.9*	*	199.96*	200*	200.13*
*FRS1	*	35499.98	*	200.21*	200*	200*
*FRS1	*	35299.98	*	199.94*	200*	200.2*
*FRS1	*	35099.98	*	196.61*	200*	205.92*
*FRS1	*	34899.98	*	199.83*	200*	200.84*
*FRS1	*	34699.98	*	200.7*	200*	199.09*
*FRS1	*	34499.98	*	200.03*	200*	200.75*
*FRS1	*	34299.98	*	200.2*	200*	235.01*
*FRS1	*	34099.98	*	198.51*	200*	235.57*
*FRS1	*	33899.98	*	200*	200*	201.67*
*FRS1	*	33699.98	*	200.07*	200*	200.15*
*FRS1	*	33499.98	*	200.04*	200*	200.15*
*FRS1	*	33299.98	*	200.39*	200*	200.24*
*FRS1	*	33099.98	*	200.06*	200*	200.25*
*FRS1	*	32899.98	*	200.3*	200*	201.19*
*FRS1	*	32699.98	*	200.53*	200*	241.6*
*FRS1	*	32499.98	*	208.1*	200*	227.31*
*FRS1	*	32299.98	*	200.63*	200*	546.37*
*FRS1	*	32099.98	*	200.05*	200*	201.58*
*FRS1	*	31899.98	*	202.19*	200*	177.81*
*FRS1	*	31699.98	*	200*	200*	202.22*
*FRS1	*	31499.98	*	200*	200*	200.34*
*FRS1	*	31299.98	*	200*	200*	278.43*
*FRS1	*	31099.98	*	200*	200*	200.3*
*FRS1	*	30899.98	*	200.36*	200*	354.06*
*FRS1	*	30699.98	*	200*	200*	213.28*
*FRS1	*	30499.98	*	200*	200*	200.75*
*FRS1	*	30299.98	*	200*	200*	235.02*
*FRS1	*	30099.98	*	200*	200*	366.28*
*FRS1	*	29899.98	*	200*	200*	200.53*
*FRS1	*	29699.98	*	200*	200*	200.21*
*FRS1	*	29499.98	*	200*	200*	394.67*
*FRS1	*	29299.98	*	200*	200*	203.38*
*FRS1	*	29099.98	*	200*	200*	200.1*
*FRS1	*	28899.98	*	200*	200*	200.1*
*FRS1	*	28699.98	*	200*	200*	204.41*
*FRS1	*	28499.98	*	203.12*	200*	227.43*
*FRS1	*	28299.98	*	200.27*	200*	202.26*
*FRS1	*	28099.98	*	200.27*	200*	200.25*
*FRS1	*	27899.98	*	200.27*	200*	200.02*
*FRS1	*	27699.98	*	200.27*	200*	432.54*
*FRS1	*	27499.98	*	200.27*	200*	227.74*
*FRS1	*	27299.98	*	200.27*	200*	205.15*
*FRS1	*	27099.98	*	200.27*	200*	245.98*
*FRS1	*	26899.98	*	211.96*	200*	449.29*
*FRS1	*	26699.98	*	201.77*	200*	229.11*
*FRS1	*	26499.98	*	201.77*	200*	209.33*
*FRS1	*	26299.98	*	201.77*	200*	206.74*
*FRS1	*	26099.98	*	220.61*	200*	165.36*
*FRS1	*	25899.98	*	205.4*	200*	204.41*
*FRS1	*	25699.98	*	205.4*	200*	202.62*
*FRS1	*	25499.98	*	205.4*	200*	202.62*
*FRS1	*	25299.98	*	106.14*	200*	672.37*
*FRS1	*	25099.98	*	59.96*	164.82*	178.34*
*FRS1	*	24935.17	*	241.54*	235.18*	240.22*
*FRS1	*	24885.17	*Culvert *		*	*
*FRS1	*	24699.98	*	206.3*	200*	209.17*
*FRS1	*	24699	*Lat Struct*		*	*
*FRS1	*	24499.98	*	214.92*	200*	219.5*
*FRS1	*	24299.98	*	229.54*	200*	708.31*
*FRS1	*	24099.99	*	201.71*	200*	200.72*
*FRS1	*	23899.99	*	201.71*	200*	200.72*
*FRS1	*	23699.99	*	201.71*	200*	200.72*
*FRS1	*	23499.99	*	201.71*	200*	200.72*
*FRS1	*	23299.99	*	201.71*	200*	200.72*
*FRS1	*	23099.99	*	208.5*	200*	134.89*
*FRS1	*	22899.99	*	205.15*	200*	151*
*FRS1	*	22699.99	*	199.92*	200*	202.49*
*FRS1	*	22499.99	*	200.05*	200*	583.08*
*FRS1	*	22299.99	*	198.14*	200*	219.92*
*FRS1	*	22099.99	*	202.64*	200*	190.98*

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*FRS1          *   21899.99   *  202.24*     200*   192.15*
*FRS1          *   21699.99   *  193.76*     200*   226.87*
*FRS1          *   21499.99   *  200.46*     200*    219.9*
*FRS1          *   21299.99   *   202.3*     200*   188.12*
*FRS1          *   21099.99   *  200.32*     200*   198.42*
*FRS1          *   20899.99   *  196.57*     200*   218.04*
*FRS1          *   20699.99   *  205.17*     200*   170.88*
*FRS1          *   20499.99   *  198.12*     200*   211.36*
*FRS1          *   20299.99   *  200.62*     200*   196.54*
*FRS1          *   20099.99   *  200.23*     200*   199.28*
*FRS1          *   19899.99   *  1195.9*    1200*  1343.59*
*FRS1          *   18699.99   *  198.34*     200*   205.47*
*FRS1          *   18499.99   *  204.72*     200*   181.41*
*FRS1          *   18299.99   *  200.86*     200*   196.99*
*FRS1          *   18099.99   *  201.12*     200*   196.15*
*FRS1          *   17899.99   *  195.69*     200*   214.59*
*FRS1          *   17699.99   *  202.87*     200*    190.4*
*FRS1          *   17499.99   *  205.37*     200*   180.29*
*FRS1          *   17299.99   *  206.07*     200*   181.48*
*FRS1          *   17099.99   *  209.69*     200*   184.29*
*FRS1          *   16899.99   *   204.8*     200*   208.47*
*FRS1          *   16699.99   *  208.58*     200*   333.46*
*FRS1          *   16499.99   *  206.35*     200*   228.51*
*FRS1          *   16299.99   *  204.55*     200*   215.36*
*FRS1          *   16099.99   *   204.4*     200*   201.26*
*FRS1          *   15899.99   *   204.4*     200*   200.87*
*FRS1          *   15699.99   *   204.4*     200*   201.27*
*FRS1          *   15499.99   *   408.8*     400*   407.41*
*FRS1          *   15099.99   *   204.4*     200*    209.5*
*FRS1          *   14899.99   *   204.4*     200*   249.22*
*FRS1          *   14699.99   *   204.4*     200*   242.46*
*FRS1          *   14499.99   *   204.4*     200*   202.18*
*FRS1          *   14299.99   *  116.22*     200*    277.6*
*FRS1          *   14099.99   *    47.8*     200*   507.44*
*FRS1          *   13899.99   *   46.15*     200*   217.62*
*FRS1          *   13699.99   *  230.51*     200*   218.39*
*FRS1          *   13649.99   *Culvert  *       *        *
*FRS1          *   13499.99   *  132.76*     200*   220.23*
*FRS1          *   13499      *Lat Struct*       *        *
*FRS1          *   13299.99   *  444.85*     400*   739.85*
*FRS1          *   12899.99   *  233.17*     200*   175.35*
*FRS1          *   12699.99   *  221.11*     200*   181.52*
*FRS1          *   12499.99   *  206.79*     200*   202.06*
*FRS1          *   12299.99   *  631.79*     600*  1082.42*
*FRS1          *   11699.99   *  209.27*     200*   196.45*
*FRS1          *   11499.99   *  203.76*     200*   200.95*
*FRS1          *   11299.99   *  206.95*     200*    194.5*
*FRS1          *   11099.99   *     207*     200*   191.93*
*FRS1          *   10899.99   *  204.43*     200*   214.26*
*FRS1          *   10699.99   *  201.68*     200*   302.86*
*FRS1          *   10499.99   *  200.01*     200*   202.13*
*FRS1          *   10299.99   *  200.01*     200*   202.13*
*FRS1          *   10099.99   *  200.01*     200*   201.86*
*FRS1          *   9899.999   *  200.01*     200*   201.73*
*FRS1          *   9699.999   *  201.41*     200*    186.6*
*FRS1          *   9499.999   *  200.01*     200*   201.18*
*FRS1          *   9299.999   *  200.01*     200*   201.19*
*FRS1          *   9099.999   *  200.16*     200*   199.84*
*FRS1          *   8899.999   *  200.02*     200*   201.31*
*FRS1          *   8699.999   *  200.02*     200*   596.62*
*FRS1          *   8499.999   *  200.02*     200*   201.29*
*FRS1          *   8299.999   *  200.02*     200*   201.29*
*FRS1          *   8099.999   *  198.95*     200*   260.51*
*FRS1          *   7899.999   *     200*     200*   213.09*
*FRS1          *   7699.999   *     200*     200*   201.66*
*FRS1          *   7499.999   *  200.01*     200*   201.66*
*FRS1          *   7299.999   *  200.59*     200*   199.97*
*FRS1          *   7099.999   *     200*     200*   200.22*
*FRS1          *   6899.999   *  200.32*     200*   199.89*
*FRS1          *   6699.999   *     200*     200*   200.16*
*FRS1          *   6499.999   *     200*     200*   200.01*
*FRS1          *   6299.999   *     200*     200*   200.01*
*FRS1          *   6099.999   *  200.37*     200*   199.67*
*FRS1          *   5899.999   *     200*     200*   200.02*
*FRS1          *   5699.999   *     200*     200*   200.02*
*FRS1          *   5499.999   *  199.17*     200*   200.66*
*FRS1          *   5299.999   *     200*     200*      200*
*FRS1          *   5099.999   *     200*     200*      200*
*FRS1          *   4899.999   *     200*     200*      200*
*FRS1          *   4699.999   *  200.15*     200*   199.89*
*FRS1          *   4499.999   *     200*     200*      200*
*FRS1          *   4299.999   *     200*     200*      200*
*FRS1          *   4099.999   *  200.79*     200*   199.42*
*FRS1          *   3899.999   *  600.05*     600*   599.84*
*FRS1          *   3299.99*   *  600.05*     600*   599.84*
*FRS1          *   2699.999   *  795.62*     800*   814.11*
*FRS1          *   2699       *Lat Struct*       *        *
*FRS1          *   1900.000   *  207.33*     200*   198.31*
*FRS1          *   1700       *  1407.33*   1400*  1398.31*
*FRS1          *   1680       *Culvert  *       *        *
*FRS1          *   500.000    *     200*     200*      200*
*FRS1          *   300.000    *     200*     200*      200*
*FRS1          *   100.000    *  100.02*     100*      100*
*FRS1          *   -0.000     *       0*       0*        0*
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SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: FRS

*****************************************************
*     Reach       *   River Sta.   * Contr.  * Expan.  *
*****************************************************
*FRS1            *   48899.98*       .1*       .3*
*FRS1            *   48699.98*       .1*       .3*
*FRS1            *   48399.9**       .1*       .3*
*FRS1            *   48299.98*       .1*       .3*
*FRS1            *   47899.98*       .1*       .3*
*FRS1            *   47699.9**       .1*       .3*
*FRS1            *   47499.98*       .1*       .3*
*FRS1            *   47299.98*       .1*       .3*
*FRS1            *   46299.98*       .1*       .3*
*FRS1            *   46099.98*       .1*       .3*
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*FRS1          *    45899.98*       .1*       .3*
*FRS1          *    45699.98*       .1*       .3*
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*FRS1          *    45299.98*       .1*       .3*
*FRS1          *    45099.98*       .1*       .3*
*FRS1          *    44899.98*       .1*       .3*
*FRS1          *    44099.98*       .1*       .3*
*FRS1          *    43899.98*       .1*       .3*
*FRS1          *    43699.98*       .1*       .3*
*FRS1          *    43499.98*       .1*       .3*
*FRS1          *    43299.98*       .1*       .3*
*FRS1          *    43099.98*       .1*       .3*
*FRS1          *    42899.98*       .1*       .3*
*FRS1          *    41699.98*       .1*       .3*
*FRS1          *    41499.98*       .1*       .3*
*FRS1          *    41299.98*       .1*       .3*
*FRS1          *    41099.98*       .1*       .3*
*FRS1          *    40899.98*       .1*       .3*
*FRS1          *    40699.98*       .1*       .3*
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*FRS1          *    37899.98*       .1*       .3*
*FRS1          *    37699.98*       .1*       .3*
*FRS1          *    37600    *Lat Struct*         *
*FRS1          *    37499.98*       .1*       .3*
*FRS1          *    37299.98*       .1*       .3*
*FRS1          *    37099.98*       .1*       .3*
*FRS1          *    36899.98*       .1*       .3*
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*FRS1          *    36499.98*       .1*       .3*
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*FRS1          *    36099.98*       .1*       .3*
*FRS1          *    35899.98*       .1*       .3*
*FRS1          *    35699.9**       .1*       .3*
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*FRS1          *    33299.98*       .1*       .3*
*FRS1          *    33099.98*       .1*       .3*
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*FRS1          *    32699.98*       .1*       .3*
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*FRS1          *    32099.98*       .1*       .3*
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*FRS1          *    31699.98*       .1*       .3*
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*FRS1          *    31299.98*       .1*       .3*
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*FRS1          *    30699.98*       .1*       .3*
*FRS1          *    30499.98*       .1*       .3*
*FRS1          *    30299.98*       .1*       .3*
*FRS1          *    30099.98*       .1*       .3*
*FRS1          *    29899.98*       .1*       .3*
*FRS1          *    29699.98*       .1*       .3*
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*FRS1          *    28899.98*       .1*       .3*
*FRS1          *    28699.98*       .1*       .3*
*FRS1          *    28499.98*       .1*       .3*
*FRS1          *    28299.98*       .1*       .3*
*FRS1          *    28099.98*       .1*       .3*
*FRS1          *    27899.98*       .1*       .3*
*FRS1          *    27699.98*       .1*       .3*
*FRS1          *    27499.98*       .1*       .3*
*FRS1          *    27299.98*       .1*       .3*
*FRS1          *    27099.98*       .1*       .3*
*FRS1          *    26899.98*       .1*       .3*
*FRS1          *    26699.98*       .1*       .3*
*FRS1          *    26499.98*       .1*       .3*
*FRS1          *    26299.98*       .1*       .3*
*FRS1          *    26099.98*       .1*       .3*
*FRS1          *    25899.98*       .1*       .3*
*FRS1          *    25699.98*       .1*       .3*
*FRS1          *    25499.98*       .1*       .3*
*FRS1          *    25299.98*       .1*       .3*
*FRS1          *    25099.98*       .1*       .3*
*FRS1          *    24935.17*       .1*       .3*
*FRS1          *    24885.17*Culvert  *          *
*FRS1          *    24699.98*       .1*       .3*
*FRS1          *    24699    *Lat Struct*         *
*FRS1          *    24499.98*       .1*       .3*
*FRS1          *    24299.98*       .1*       .3*
*FRS1          *    24099.99*       .1*       .3*
*FRS1          *    23899.99*       .1*       .3*
*FRS1          *    23699.99*       .1*       .3*
*FRS1          *    23499.99*       .1*       .3*
*FRS1          *    23299.99*       .1*       .3*
*FRS1          *    23099.99*       .1*       .3*
*FRS1          *    22899.99*       .1*       .3*
*FRS1          *    22699.99*       .1*       .3*
*FRS1          *    22499.99*       .1*       .3*
*FRS1          *    22299.99*       .1*       .3*
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*FRS1          *   22099.99*       .1*       .3*
*FRS1          *   21899.99*       .1*       .3*
*FRS1          *   21699.99*       .1*       .3*
*FRS1          *   21499.99*       .1*       .3*
*FRS1          *   21299.99*       .1*       .3*
*FRS1          *   21099.99*       .1*       .3*
*FRS1          *   20899.99*       .1*       .3*
*FRS1          *   20699.99*       .1*       .3*
*FRS1          *   20499.99*       .1*       .3*
*FRS1          *   20299.99*       .1*       .3*
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*FRS1          *   18499.99*       .1*       .3*
*FRS1          *   18299.99*       .1*       .3*
*FRS1          *   18099.99*       .1*       .3*
*FRS1          *   17899.99*       .1*       .3*
*FRS1          *   17699.99*       .1*       .3*
*FRS1          *   17499.99*       .1*       .3*
*FRS1          *   17299.99*       .1*       .3*
*FRS1          *   17099.99*       .1*       .3*
*FRS1          *   16899.99*       .1*       .3*
*FRS1          *   16699.99*       .1*       .3*
*FRS1          *   16499.99*       .1*       .3*
*FRS1          *   16299.99*       .1*       .3*
*FRS1          *   16099.99*       .1*       .3*
*FRS1          *   15899.99*       .1*       .3*
*FRS1          *   15699.99*       .1*       .3*
*FRS1          *   15499.99*       .1*       .3*
*FRS1          *   15099.99*       .1*       .3*
*FRS1          *   14899.99*       .1*       .3*
*FRS1          *   14699.99*       .1*       .3*
*FRS1          *   14499.99*       .1*       .3*
*FRS1          *   14299.99*       .1*       .3*
*FRS1          *   14099.99*       .1*       .3*
*FRS1          *   13899.99*       .1*       .3*
*FRS1          *   13699.99*       .1*       .3*
*FRS1          *   13649.99*Culvert  *         *
*FRS1          *   13499.99*       .1*       .3*
*FRS1          *   13499    *Lat Struct*         *
*FRS1          *   13299.99*       .1*       .3*
*FRS1          *   12899.99*       .1*       .3*
*FRS1          *   12699.99*       .1*       .3*
*FRS1          *   12499.99*       .1*       .3*
*FRS1          *   12299.99*       .1*       .3*
*FRS1          *   11699.99*       .1*       .3*
*FRS1          *   11499.99*       .1*       .3*
*FRS1          *   11299.99*       .1*       .3*
*FRS1          *   11099.99*       .1*       .3*
*FRS1          *   10899.99*       .1*       .3*
*FRS1          *   10699.99*       .1*       .3*
*FRS1          *   10499.99*       .1*       .3*
*FRS1          *   10299.99*       .1*       .3*
*FRS1          *   10099.99*       .1*       .3*
*FRS1          *   9899.999*       .1*       .3*
*FRS1          *   9699.999*       .1*       .3*
*FRS1          *   9499.999*       .1*       .3*
*FRS1          *   9299.999*       .1*       .3*
*FRS1          *   9099.999*       .1*       .3*
*FRS1          *   8899.999*       .1*       .3*
*FRS1          *   8699.999*       .1*       .3*
*FRS1          *   8499.999*       .1*       .3*
*FRS1          *   8299.999*       .1*       .3*
*FRS1          *   8099.999*       .1*       .3*
*FRS1          *   7899.999*       .1*       .3*
*FRS1          *   7699.999*       .1*       .3*
*FRS1          *   7499.999*       .1*       .3*
*FRS1          *   7299.999*       .1*       .3*
*FRS1          *   7099.999*       .1*       .3*
*FRS1          *   6899.999*       .1*       .3*
*FRS1          *   6699.999*       .1*       .3*
*FRS1          *   6499.999*       .1*       .3*
*FRS1          *   6299.999*       .1*       .3*
*FRS1          *   6099.999*       .1*       .3*
*FRS1          *   5899.999*       .1*       .3*
*FRS1          *   5699.999*       .1*       .3*
*FRS1          *   5499.999*       .1*       .3*
*FRS1          *   5299.999*       .1*       .3*
*FRS1          *   5099.999*       .1*       .3*
*FRS1          *   4899.999*       .1*       .3*
*FRS1          *   4699.999*       .1*       .3*
*FRS1          *   4499.999*       .1*       .3*
*FRS1          *   4299.999*       .1*       .3*
*FRS1          *   4099.999*       .1*       .3*
*FRS1          *   3899.999*       .1*       .3*
*FRS1          *   3299.99**       .1*       .3*
*FRS1          *   2699.999*       .1*       .3*
*FRS1          *   2699    *Lat Struct*         *
*FRS1          *   1900.000*       .1*       .3*
*FRS1          *   1700    *       .1*       .3*
*FRS1          *   1680    *Culvert  *         *
*FRS1          *   500.000 *       .1*       .3*
*FRS1          *   300.000 *       .1*       .3*
*FRS1          *   100.000 *       .1*       .3*
*FRS1          *   -0.000  *       .1*       .3*
*****************************************************
```

E.5.2 FRS#2 PMF Unsteady Model

```
                    HEC-RAS Version 3.1.1 May 2003
                     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: BUCKEYE FRS UNSTEADY MODEL
Project File : test_frs.prj
Run Date and Time: 4/20/2004 9:53:38 AM

Project in English units

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

PLAN DATA

Plan Title: FRS2 PMP 6HR (13.6'')
Plan File : d:\FRS_unsteady\test_frs.p31

          Geometry Title: FRS#2 WITH MODIFIED XS CREST FL (FINAL)
          Geometry File : d:\FRS_unsteady\test_frs.g13

          Flow Title    :
          Flow File     :

Plan Summary Information:
Number of:  Cross Sections =   78    Mulitple Openings  =    0
            Culverts       =    2    Inline Structures  =    0
            Bridges        =    0    Lateral Structures =    3

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

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

GEOMETRY DATA

Geometry Title: FRS#2 WITH MODIFIED XS CREST FL (FINAL)
Geometry File : d:\FRS_unsteady\test_frs.g13

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 13699.41

INPUT
Description: Upstream from FRS#3
Station Elevation Data    num=      66
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
    7.11 1130.43    21.3  1129.5   28.81 1128.55  122.02 1128.52  137.28 1128.01
  139.96  1127.5  158.32 1123.99  158.78 1123.88  158.97 1123.83  174.05 1121.48
  180.67 1121.47  196.85 1121.92  202.36 1122.07  209.94 1122.31  219.88  1122.6
  224.05 1122.72  235.15 1122.85  245.75 1122.95  250.42 1123.08  261.57 1123.13
  265.71 1123.18  267.44 1123.19  271.69 1123.24  289.14 1123.59   309.1 1123.84
  310.83 1123.88  311.52 1123.91   313.2 1123.91   326.8 1124.25  332.53 1124.26
  342.08 1124.68  343.71 1124.68  354.22 1124.68  364.83 1124.68  372.63  1124.8
  375.91 1124.82   387.9 1125.23  397.61 1125.28  403.18 1125.48  416.45 1125.37
  418.46 1125.41   419.3 1125.41  433.73 1125.54    441  1125.6  458.78  1125.8
  462.69 1125.85  468.08 1125.93  479.56 1126.19  484.38 1126.27  494.83 1126.56
  506.08 1126.68   510.1 1126.76   519.7 1126.84  525.38 1126.95  527.77 1126.97
  540.66 1127.23  549.47 1127.33  571.03 1127.67  571.16 1127.67   571.2 1127.68
  571.33 1127.69  592.85 1129.38  601.76 1130.02  614.55 1131.02  617.03 1131.09
   619.3 1131.22

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*******************************************
    7.11     .04  139.96    .035  343.71    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        139.96  343.71             100.12     100  102.83             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*******************************************************************************************
* E.G. Elev (ft)          * 1122.78  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.10  * Wt. n-Val.              *          *    0.035 *         *
* W.S. Elev (ft)          * 1122.68  * Reach Len. (ft)         *  100.12  *   100.00 *  102.83  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *          *    38.15 *          *
* E.G. Slope (ft/ft)      *0.005929  * Area (sq ft)            *          *    38.15 *          *
* Q Total (cfs)           *   96.25  * Flow (cfs)               *          *    96.25 *          *
```

* Top Width (ft)	*	56.15	* Top Width (ft)	*		*	56.15	*		*	
* Vel Total (ft/s)	*	2.52	* Avg. Vel. (ft/s)	*		*	2.52	*		*	
* Max Chl Dpth (ft)	*	1.21	* Hydr. Depth (ft)	*		*	0.68	*		*	
* Conv. Total (cfs)	*	1250.0	* Conv. (cfs)	*		*	1250.0	*		*	
* Length Wtd. (ft)	*	100.00	* Wetted Per. (ft)	*		*	56.26	*		*	
* Min Ch El (ft)	*	1121.47	* Shear (lb/sq ft)	*		*	0.25	*		*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	0.63	*		*	
* Frctn Loss (ft)	*	0.74	* Cum Volume (acre-ft)	*	327.14	*	781.62	*	1082.74	*	
* C & E Loss (ft)	*		* Cum SA (acres)	*	33.02	*	49.66	*	182.69	*	

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 13599.4*

INPUT
Description:
Station Elevation Data num= 145

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15.82	1129.68	21.24	1129.22	29.54	1128.52	34.13	1128	36.8	1127.69
38.29	1127.62	126.93	1127.53	128.13	1127.5	141.04	1126.51	141.68	1126.46
144.27	1126.05	147.38	1125.57	149.89	1125.16	161.43	1122.92	164.39	1122.51
164.9	1122.43	165.11	1122.39	169.84	1121.81	175.47	1121.37	181.63	1120.91
188.89	1120.88	189.38	1120.88	202.21	1121.21	206.59	1121.32	209.64	1121.41
212.6	1121.49	218.71	1121.65	220.49	1121.7	223.8	1121.79	230.28	1121.9
232.6	1121.93	241.01	1122.04	244.72	1122.13	248.03	1122.16	250.93	1122.19
253.57	1122.21	256.85	1122.26	257.84	1122.26	258.22	1122.27	261.6	1122.31
271.59	1122.5	275.44	1122.56	277.37	1122.58	291.28	1122.73	291.51	1122.74
292.65	1122.76	293.2	1122.78	294.53	1122.78	305.32	1122.99	306.69	1122.99
309.87	1123	317.45	1123.21	318.74	1123.22	323.66	1123.22	326.92	1123.23
328.3	1123.23	334.58	1123.23	350.58	1123.23	362.34	1123.29	367.28	1123.3
385.35	1123.51	393.23	1123.52	395.5	1123.56	399.99	1123.6	400.91	1123.62
408.39	1123.78	409.45	1123.79	415.65	1123.85	425.69	1123.92	428.39	1123.93
431.42	1123.97	432.69	1123.98	439.54	1124.06	441.21	1124.07	441.92	1124.08
452.64	1124.21	454.44	1124.23	458.15	1124.27	464.07	1124.39	465.4	1124.4
474.38	1124.47	475.49	1124.5	478.16	1124.52	486.92	1124.62	490.61	1124.64
492.2	1124.66	498.1	1124.74	498.36	1124.75	506.22	1124.8	506.84	1124.81
509.78	1124.85	516.78	1124.9	521.2	1124.96	523.07	1124.98	523.53	1124.99
527.62	1125.04	530.79	1125.07	539.3	1125.19	544.07	1125.26	546.55	1125.3
555.41	1125.39	555.49	1125.39	555.53	1125.39	563.51	1125.48	566.92	1125.52
569.57	1125.55	571.76	1125.56	578.35	1125.62	584.04	1125.65	587.99	1125.69
589.78	1125.72	592.6	1125.78	594.03	1125.8	596.2	1125.85	604.23	1126.04
611.6	1126.25	615.63	1126.37	620.45	1126.49	628.91	1126.73	632.66	1126.84
636.68	1126.97	646.92	1127.23	652.92	1127.29	658.34	1127.38	661.42	1127.41
661.61	1127.42	661.67	1127.42	661.87	1127.43	669.14	1127.66	669.77	1127.69
671.28	1127.74	681.2	1128	685.38	1128.17	692.63	1128.4	694.31	1128.46
701.61	1128.72	704.05	1128.81	707.74	1128.99	709.9	1129.1	717.83	1129.48
723.58	1129.8	727.02	1129.98	730.76	1130.13	734.07	1130.28	734.18	1130.29

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
15.82	.04	144.27	.035	318.74	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
144.27	318.74	100.12	100	102.83	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

* E.G. Elev (ft)	*	1122.02	* Element	*	Left OB	*	Channel	*	Right OB	*	
* Vel Head (ft)	*	0.12	* Wt. n-Val.	*		*	0.035	*		*	
* W.S. Elev (ft)	*	1121.90	* Reach Len. (ft)	*	100.12	*	100.00	*	102.83	*	
* Crit W.S. (ft)	*		* Flow Area (sq ft)	*		*	34.44	*		*	
* E.G. Slope (ft/ft)	*	0.009378	* Area (sq ft)	*		*	34.44	*		*	
* Q Total (cfs)	*	96.21	* Flow (cfs)	*		*	96.21	*		*	
* Top Width (ft)	*	61.42	* Top Width (ft)	*		*	61.42	*		*	
* Vel Total (ft/s)	*	2.79	* Avg. Vel. (ft/s)	*		*	2.79	*		*	
* Max Chl Dpth (ft)	*	1.02	* Hydr. Depth (ft)	*		*	0.56	*		*	
* Conv. Total (cfs)	*	993.5	* Conv. (cfs)	*		*	993.5	*		*	
* Length Wtd. (ft)	*	100.00	* Wetted Per. (ft)	*		*	61.48	*		*	
* Min Ch El (ft)	*	1120.88	* Shear (lb/sq ft)	*		*	0.33	*		*	
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	0.92	*		*	
* Frctn Loss (ft)	*	1.12	* Cum Volume (acre-ft)	*	327.14	*	781.54	*	1082.74	*	
* C & E Loss (ft)	*		* Cum SA (acres)	*	33.02	*	49.52	*	182.69	*	

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 13499.41

INPUT
Description:
Station Elevation Data num= 84

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
24.53	1128.92	29.76	1128.38	42.21	1127.09	46.23	1126.7	133	1126.53
145.47	1124.99	148.59	1124.6	151.97	1124.18	154.7	1123.81	167.24	1121.34
176.39	1120.47	182.51	1120.38	197.1	1120.28	198.08	1120.28	213.07	1120.62
219.78	1120.77	228.34	1120.98	241.47	1121.22	243.61	1121.27	248.72	1121.34
258.89	1121.5	263.17	1121.54	273.63	1121.63	284.86	1121.73	293.77	1121.75
300.35	1121.76	304.71	1121.77	306.55	1121.78	393.33	1121.79	396.37	1121.86
403.6	1121.94	415.02	1122.11	423.3	1122.26	436.72	1122.45	455.23	1122.66
457.47	1122.68	458.41	1122.69	472.75	1122.9	480.11	1122.98	488.02	1123.19
501.8	1123.28	503.29	1123.33	506.86	1123.34	518.57	1123.48	523.5	1123.49
533.85	1123.64	545.19	1123.68	549.12	1123.71	558.48	1123.71	564.39	1123.76
566.88	1123.78	572.97	1123.84	588.58	1123.95	594.95	1124.01	610.11	1124.16
610.22	1124.16	610.27	1124.16	625.49	1124.32	631.97	1124.34	640.77	1124.43
653.66	1124.49	656.05	1124.53	661.73	1124.65	675.36	1125.01	685.22	1125.33
697.05	1125.71	713.36	1126.32	718.74	1126.52	732.42	1126.95	740.44	1126.99
747.69	1127.12	762.13	1127.26	762.97	1127.27	764.98	1127.3	778.25	1127.31
783.83	1127.42	793.52	1127.5	805.52	1127.72	808.79	1127.78	816.61	1128.07
827.21	1128.41	834.89	1128.75	848.91	1129.35	849.06	1129.36		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
24.53	.04	148.59	.035	293.77	.045

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

```
      148.59  293.77            100.07     100  166.68              .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1121.22  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.15  * Wt. n-Val.              *          *    0.035 *          *
* W.S. Elev (ft)          * 1121.07  * Reach Len. (ft)         *  100.07  *   100.00 *   166.68 *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *          *    31.18 *          *
* E.G. Slope (ft/ft)      *0.013512  * Area (sq ft)            *          *    31.18 *          *
* Q Total (cfs)           *   95.97  * Flow (cfs)               *          *    95.97 *          *
* Top Width (ft)          *   63.25  * Top Width (ft)           *          *    63.25 *          *
* Vel Total (ft/s)        *    3.08  * Avg. Vel. (ft/s)         *          *     3.08 *          *
* Max Chl Dpth (ft)       *    0.79  * Hydr. Depth (ft)         *          *     0.49 *          *
* Conv. Total (cfs)       *   825.6  * Conv. (cfs)              *          *    825.6 *          *
* Length Wtd. (ft)        *  100.00  * Wetted Per. (ft)         *          *    63.29 *          *
* Min Ch El (ft)          * 1120.28  * Shear (lb/sq ft)         *          *     0.42 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *     1.28 *          *
* Frctn Loss (ft)         *    1.81  * Cum Volume (acre-ft)     *  327.14  *   781.47 * 1082.74  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   33.02  *    49.38 *  182.69  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 13399.4*

INPUT
Description:
Station Elevation Data     num=      164
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
   17.19 1128.53   19.78 1128.41   22.61 1128.15   25.97 1127.84   34.52 1127.11
   35.53 1126.98   38.12 1126.68    39.7  1126.6   46.92 1126.56   75.79 1126.35
   78.75 1126.35   79.99 1126.35   93.48 1126.37  100.93 1126.38  108.23 1126.38
  121.87 1126.38  122.98 1126.36  125.61 1126.33  129.73 1126.26  142.67  1125.3
   142.8 1125.29   145.9 1124.79  149.75 1124.16  152.86 1123.63  154.54  1123.3
  162.39 1121.87  165.58  1121.3  167.12  1121.1  173.19 1120.59  177.53 1120.15
  179.22 1120.04  181.74 1119.99  184.49 1119.97  187.92 1119.96  201.09 1119.84
  201.58 1119.84  205.43 1119.89   214.6 1120.01  215.45 1120.03  216.07 1120.04
  229.32 1120.17  234.73 1120.18  235.98 1120.19  243.19 1120.25   244.5 1120.25
   247.6 1120.27  251.38  1120.3  254.26 1120.33  257.06 1120.37  264.02 1120.44
  270.92 1120.52  271.02 1120.52   273.8 1120.56  280.61 1120.63  283.56 1120.67
   284.8 1120.68  287.83 1120.73  298.66 1120.88  301.15 1120.91  306.06 1120.99
  311.75 1121.06  312.54 1121.07  312.86 1121.08  313.61 1121.08  317.78 1121.15
   326.4 1121.28  332.38 1121.36  340.27 1121.45  341.12 1121.46  342.15 1121.47
  346.62 1121.51  350.94 1121.55  354.14 1121.58   359.6 1121.63   368.01  1121.7
  371.44 1121.73  374.94 1121.77  379.62 1121.82  381.21 1121.83  381.88 1121.83
  383.51 1121.85  395.75 1121.95  400.71    1122  407.43 1122.06  409.61 1122.08
  412.63 1122.12  421.16 1122.19  425.44 1122.21  428.28 1122.22  429.01 1122.22
  429.48 1122.23  455.54 1122.32  475.79 1122.39  485.96 1122.49  487.94 1122.55
  492.65 1122.63  500.08 1122.79  503.73 1122.88  505.47 1122.93   514.2 1123.17
   522.6 1123.39  526.25 1123.46  527.71 1123.48  528.32 1123.49  536.25 1123.66
  537.66  1123.7  542.45 1123.79  547.59 1123.95  556.56 1124.09  557.53 1124.12
  559.86 1124.15  567.48  1124.3  569.38 1124.33  570.69 1124.34  577.42 1124.47
  582.88 1124.53  584.81 1124.56  587.36  1124.6  593.46 1124.66   597.3 1124.73
  598.92 1124.75  602.89 1124.82  613.05 1124.98  615.09 1125.01  616.19 1125.03
  617.19 1125.05  627.06  1125.2  627.13  1125.2  627.17  1125.2  637.07 1125.35
  641.29 1125.39  647.02 1125.48   648.8  1125.5  655.41 1125.56  656.96 1125.59
  660.66 1125.68  662.97 1125.74  669.53  1125.9  675.95 1126.09  683.65 1126.32
  694.26 1126.68  697.67 1126.79  697.77  1126.8  706.67 1127.06  709.75 1127.09
  711.89  1127.1  716.61 1127.19  726.01  1127.3  726.42  1127.3  726.56 1127.31
  727.86 1127.33   736.5 1127.37  740.13 1127.44  746.44 1127.51  747.65 1127.54
  754.25 1127.59  756.38 1127.61  756.56 1127.61  761.47 1127.76  768.37 1127.94
  773.37 1128.12  780.58 1128.38  782.49 1128.44  782.59 1128.45

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
   17.19     .04   145.9    .035  421.16    .045

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
          145.9  421.16             100.07     100  166.68              .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1120.60  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.16  * Wt. n-Val.              *          *    0.035 *          *
* W.S. Elev (ft)          * 1120.44  * Reach Len. (ft)         *  100.07  *   100.00 *   166.68 *
* Crit W.S. (ft)          * 1120.43  * Flow Area (sq ft)       *          *    29.53 *          *
* E.G. Slope (ft/ft)      *0.025444  * Area (sq ft)            *          *    29.53 *          *
* Q Total (cfs)           *   95.73  * Flow (cfs)               *          *    95.73 *          *
* Top Width (ft)          *   89.14  * Top Width (ft)           *          *    89.14 *          *
* Vel Total (ft/s)        *    3.24  * Avg. Vel. (ft/s)         *          *     3.24 *          *
* Max Chl Dpth (ft)       *    0.60  * Hydr. Depth (ft)         *          *     0.33 *          *
* Conv. Total (cfs)       *   600.2  * Conv. (cfs)              *          *    600.2 *          *
* Length Wtd. (ft)        *  100.00  * Wetted Per. (ft)         *          *    89.16 *          *
* Min Ch El (ft)          * 1119.84  * Shear (lb/sq ft)         *          *     0.53 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *     1.71 *          *
* Frctn Loss (ft)         *    3.64  * Cum Volume (acre-ft)     *  327.14  *   781.40 * 1082.74  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   33.02  *    49.20 *  182.69  *
*****************************************************************************************

Warning: The conveyance ratio (upstream 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: FRS
REACH: FRS2                RS: 13299.41

INPUT
Description:
Station Elevation Data     num=       85
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
    9.84 1128.13   12.53 1128.15   18.94 1127.64    27.8 1127.02   31.53 1126.52
   40.65 1126.43   70.57 1126.06   73.63 1126.07   74.92 1126.07    88.9 1126.15
   96.62 1126.18  104.18 1126.18  118.31 1126.21  119.46 1126.18  122.19 1126.12
     140 1125.61  143.22 1124.98   152.9 1123.09   161.7 1121.58  165.28    1121
  173.81 1120.34  180.56 1119.64  183.39 1119.57  190.32 1119.56  205.08 1119.41
   211.1 1119.46  225.45 1119.62  226.78 1119.64  227.74 1119.65  248.47 1119.78
  256.94 1119.76  270.17  1119.8  272.21  1119.8  277.07 1119.81  287.48 1119.86
```

```
 291.86  1119.9  302.75 1119.98  313.55 1120.06  318.04 1120.11   328.7  1120.2
 333.31 1120.26  335.25 1120.28  339.99 1120.34  356.94 1120.56  377.41 1120.82
 378.64 1120.83  379.14 1120.84  380.32 1120.85  400.33 1121.16  409.68 1121.28
 422.02 1121.41  424.96 1121.44  431.95 1121.49  443.72  1121.6  452.25 1121.68
 465.41 1121.79  470.78 1121.85  483.57 1121.99  486.06 1122.01  487.11 1122.01
 489.66 1122.03   508.8 1122.18  527.08 1122.39  530.49 1122.42   535.2 1122.49
 548.55 1122.63  552.19 1122.67  564.49 1122.85  573.88    1123  586.83 1123.54
 595.58 1124.18  601.91 1124.46  617.27 1125.17  623.53  1125.4  638.46 1126.05
 638.97 1126.07  654.09 1126.55  660.66 1126.73  676.75 1127.07  682.35  1127.2
 690.08 1127.34  699.92 1127.54  704.05 1127.43  715.19 1127.53  716.12 1127.54

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
    9.84     .04  143.22    .035  548.55    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
        143.22  548.55            100.54     100  157.38              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1120.10  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.21  * Wt. n-Val.              *          *    0.035 *          *
* W.S. Elev (ft)          * 1119.89  * Reach Len. (ft)         *  100.54  *  100.00  *  157.38  *
* Crit W.S. (ft)          * 1119.95  * Flow Area (sq ft)       *          *    24.89 *          *
* E.G. Slope (ft/ft)      *0.057262  * Area (sq ft)            *          *    24.89 *          *
* Q Total (cfs)           *   92.48  * Flow (cfs)              *          *    92.48 *          *
* Top Width (ft)          *  112.50  * Top Width (ft)          *          *   112.50 *          *
* Vel Total (ft/s)        *    3.72  * Avg. Vel. (ft/s)        *          *     3.72 *          *
* Max Chl Dpth (ft)       *    0.48  * Hydr. Depth (ft)        *          *     0.22 *          *
* Conv. Total (cfs)       *   386.5  * Conv. (cfs)             *          *    386.5 *          *
* Length Wtd. (ft)        *  100.00  * Wetted Per. (ft)        *          *   112.52 *          *
* Min Ch El (ft)          * 1119.41  * Shear (lb/sq ft)        *          *     0.79 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)  *          *     2.94 *          *
* Frctn Loss (ft)         *    0.49  * Cum Volume (acre-ft)    *  327.14  *  781.33  * 1082.74  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   33.02  *   48.97  *  182.69  *
*****************************************************************************************

Warning: The conveyance ratio (upstream 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: FRS
REACH: FRS2                RS: 13199.4*

INPUT
Description:
Station Elevation Data     num=     122
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    8.01 1126.96   10.74 1126.97   17.25 1126.71   24.15 1126.47   26.25 1126.34
   30.04 1125.98   37.64 1125.73    39.3 1125.61    46.6 1125.07   49.74 1124.99
   62.06  1124.9   69.69 1124.84   70.61 1124.84    72.8 1124.86   74.11 1124.88
   77.52 1124.91   88.31 1125.01   91.47 1125.04   92.98 1125.05   96.15 1125.06
   97.35 1125.06  103.82 1125.07  108.44 1125.08  112.33  1125.1  118.18 1125.06
  119.34 1125.03  122.12 1124.98  123.91 1124.94  133.19  1124.7  139.37 1124.58
   140.2 1124.52  143.48 1124.02  152.47 1122.62  155.11 1122.24  155.95 1122.09
  158.38 1121.65  160.65 1121.24  163.98 1120.66   171.9 1119.64  172.93 1119.49
  178.04 1118.91  178.18  1118.9  180.81 1118.85  187.25 1118.83  188.59 1118.81
  200.96  1118.7  205.24 1118.73  210.27 1118.78  215.42 1118.84  216.37 1118.86
  217.05 1118.86  231.76 1118.99  236.81 1119.01  236.95 1119.01  237.77 1119.01
  247.16 1119.05  248.61 1119.06  252.06 1119.07  259.45 1119.12  262.56 1119.15
  263.39 1119.15  270.29 1119.21  272.66 1119.23  277.95 1119.26  281.14 1119.28
  288.71 1119.32  289.95 1119.34  291.98 1119.36  293.36 1119.37  296.72  1119.4
  308.49 1119.51  308.75 1119.51  323.28 1119.66  324.15 1119.67  324.51 1119.67
  325.35 1119.68  339.49 1119.85  339.55 1119.86  344.34 1119.91  346.18 1119.95
  354.94 1120.08  357.03 1120.12  361.99 1120.18  369.65  1120.3  370.34 1120.31
   376.4 1120.41  380.19 1120.47  385.74 1120.67  389.55 1120.82  396.21 1121.07
  398.63 1121.15   400.4 1121.21  401.14 1121.23  402.95 1121.29  416.02 1121.72
  416.54 1121.75  429.51 1122.42  431.93 1122.55  435.27 1122.73  442.04 1123.07
  444.75 1123.22  446.74 1123.27  453.47 1123.44   458.6 1123.59  465.68 1123.95
  469.34 1124.24  470.47 1124.33  473.93 1124.51  482.33 1124.97  485.75 1125.13
  487.56 1125.23  493.91 1125.56  494.19 1125.58  502.46 1125.92  506.05 1126.06
  514.85 1126.34  517.91 1126.45  522.14 1126.57  527.52 1126.74  529.78 1126.72
  535.87 1126.85  536.38 1126.86

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
    8.01     .04  143.48    .035  444.75    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
        143.48  444.75            100.54     100  157.38              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.66  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.02  * Wt. n-Val.              *          *    0.035 *          *
* W.S. Elev (ft)          * 1119.64  * Reach Len. (ft)         *  100.54  *  100.00  *  157.38  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *          *    80.38 *          *
* E.G. Slope (ft/ft)      *0.001663  * Area (sq ft)            *          *    80.38 *          *
* Q Total (cfs)           *   91.84  * Flow (cfs)              *          *    91.84 *          *
* Top Width (ft)          *  149.86  * Top Width (ft)          *          *   149.86 *          *
* Vel Total (ft/s)        *    1.14  * Avg. Vel. (ft/s)        *          *     1.14 *          *
* Max Chl Dpth (ft)       *    0.94  * Hydr. Depth (ft)        *          *     0.54 *          *
* Conv. Total (cfs)       *  2252.3  * Conv. (cfs)             *          *   2252.3 *          *
* Length Wtd. (ft)        *  100.00  * Wetted Per. (ft)        *          *   149.91 *          *
* Min Ch El (ft)          * 1118.70  * Shear (lb/sq ft)        *          *     0.06 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)  *          *     0.06 *          *
* Frctn Loss (ft)         *    0.04  * Cum Volume (acre-ft)    *  327.14  *  781.21  * 1082.74  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   33.02  *   48.67  *  182.69  *
*****************************************************************************************

Warning: The conveyance ratio (upstream 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: FRS
REACH: FRS2                RS: 13099.41
```

```
INPUT
Description:
Station Elevation Data     num=      42
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
    6.18 1125.78   22.57 1125.78   36.27 1125.01   45.36 1123.79   48.55 1123.68
   61.06 1123.65   69.74 1123.62   76.76 1123.74   90.92 1123.92   92.46 1123.94
   96.89 1123.94  108.16 1123.98  112.11 1124.01  123.86 1123.81  133.29  1123.6
  139.56 1123.53  143.73 1123.07  154.48 1121.87  155.26 1121.74   157.5  1121.3
  170.95 1118.75  175.67 1118.16  185.42 1118.08  196.85 1117.98  202.35 1118.02
  218.04 1118.25  218.12 1118.25  233.75  1118.4  239.23 1118.45  249.45 1118.45
  260.41 1118.46  278.73 1118.55   281.6 1118.58  296.56    1119  302.79 1119.22
  312.26 1120.18  323.97 1121.27  339.35 1123.56  340.95 1123.81  345.16 1124.45
  348.28 1124.91  356.64 1126.18

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    6.18     .04  143.73    .035  340.95    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        143.73  340.95             99.47     100  101.62             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.58  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *          *    0.035 *          *
* W.S. Elev (ft)          * 1119.58  * Reach Len. (ft)         *   99.47  *   100.00 *  101.62  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *          *   157.95 *          *
* E.G. Slope (ft/ft)      *0.000157  * Area (sq ft)            *          *   157.95 *          *
* Q Total (cfs)           *   91.05  * Flow (cfs)               *          *    91.05 *          *
* Top Width (ft)          *  139.72  * Top Width (ft)           *          *   139.72 *          *
* Vel Total (ft/s)        *    0.58  * Avg. Vel. (ft/s)         *          *     0.58 *          *
* Max Chl Dpth (ft)       *    1.60  * Hydr. Depth (ft)         *          *     1.13 *          *
* Conv. Total (cfs)       *  7271.7  * Conv. (cfs)              *          *   7271.7 *          *
* Length Wtd. (ft)        *  100.00  * Wetted Per. (ft)         *          *   139.87 *          *
* Min Ch El (ft)          * 1117.98  * Shear (lb/sq ft)         *          *     0.01 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *     0.01 *          *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)     *  327.14  *   780.94 * 1082.74  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   33.02  *    48.34 *  182.69  *
*****************************************************************************************

Warning: The conveyance ratio (upstream 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: FRS
REACH: FRS2                RS: 12999.4*

INPUT
Description:
Station Elevation Data     num=      89
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
    9.98 1126.05    12.6 1125.98   19.61  1125.6   25.62 1125.31   28.91 1125.05
   32.39 1124.72    38.7 1124.47   45.22 1123.95   47.37 1123.77   50.42 1123.67
   54.81  1123.6   61.54 1123.53   62.36 1123.53   70.65 1123.52   77.24 1123.58
   77.35 1123.58    79.5 1123.58   90.86  1123.6   92.33  1123.6   94.16 1123.59
   96.56 1123.59   99.66  1123.6  107.32 1123.54  110.48 1123.52  111.09 1123.52
  122.08 1123.27  122.31 1123.26  126.81 1123.13  131.31 1122.98  137.29 1122.81
  139.41 1122.64  141.27 1122.48   144.6 1122.19  147.72  1121.7  151.28 1121.18
  152.01 1121.05  154.09 1120.65  166.62 1118.27  167.66 1118.11  171.01 1117.82
  180.09 1117.61   184.6  1117.5  190.73 1117.21  196.45 1117.27  199.86 1117.32
  208.18 1117.46  211.29 1117.54  212.77 1117.58  212.85 1117.58  223.14 1117.85
  229.11 1118.02  231.85  1118.1  234.81 1118.12  238.09 1118.14  245.44  1118.2
  252.42 1118.25  253.06 1118.26  254.78 1118.26  256.84 1118.26  272.98 1118.34
  275.89 1118.37  278.88 1118.42  282.98 1118.51  293.55 1118.81  294.44 1118.88
  297.94 1119.19  300.92 1119.47  309.71 1120.56  310.77  1120.7   314.1  1121.1
  322.95 1122.06  327.87 1122.73  334.67 1123.52  338.95 1123.97  340.61 1124.15
  346.16 1124.57  349.64 1124.84  353.84 1125.11  355.44 1125.21  360.46 1125.53
  362.34 1125.67  363.65 1125.76  369.69  1126.2  375.03 1126.55  378.94  1126.8
  387.73 1127.32  388.18 1127.34  389.37  1127.4  389.93 1127.43

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    9.98     .04  141.27    .035  340.61    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        141.27  340.61             99.47     100  101.62             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.57  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *          *    0.035 *          *
* W.S. Elev (ft)          * 1119.57  * Reach Len. (ft)         *   99.47  *   100.00 *  101.62  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *          *   211.75 *          *
* E.G. Slope (ft/ft)      *0.000060  * Area (sq ft)            *          *   211.75 *          *
* Q Total (cfs)           *   90.92  * Flow (cfs)               *          *    90.92 *          *
* Top Width (ft)          *  141.92  * Top Width (ft)           *          *   141.92 *          *
* Vel Total (ft/s)        *    0.43  * Avg. Vel. (ft/s)         *          *     0.43 *          *
* Max Chl Dpth (ft)       *    2.36  * Hydr. Depth (ft)         *          *     1.49 *          *
* Conv. Total (cfs)       * 11726.7  * Conv. (cfs)              *          *  11726.7 *          *
* Length Wtd. (ft)        *  100.00  * Wetted Per. (ft)         *          *   142.13 *          *
* Min Ch El (ft)          * 1117.21  * Shear (lb/sq ft)         *          *     0.01 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *     0.00 *          *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *  327.14  *   780.51 * 1082.74  *
* C & E Loss (ft)         *      '   * Cum SA (acres)           *   33.02  *    48.02 *  182.69  *
*****************************************************************************************

Warning: The conveyance ratio (upstream 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: FRS
REACH: FRS2                RS: 12899.41

INPUT
Description:
Station Elevation Data     num=      52
```

```
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   13.77 1126.31   16.27 1126.18   22.95 1125.42    31.8 1124.52   35.12 1124.05
   47.34  1123.8   56.47 1123.54   62.88 1123.41   77.83 1123.43   79.99  1123.4
   93.95 1123.24   99.19 1123.25  109.49 1123.04  120.54 1122.72  125.04 1122.55
  137.04    1122  138.82 1121.89   141.9 1121.71  144.79 1121.11  163.25 1117.61
  178.93 1116.96  184.61 1116.43  194.09 1116.58  202.73 1116.73  205.96 1116.85
  218.27 1117.36  227.32 1117.77   233.8 1117.83  248.68 1118.05  249.34 1118.06
  251.13 1118.06  270.03 1118.14  280.42 1118.33  291.39 1118.64  295.95 1119.26
  308.18 1121.05  312.74 1121.72  327.04 1123.48   334.1  1124.1  340.27 1124.48
   349.6 1125.06  355.45 1125.43  365.22  1125.9  373.65  1126.3  376.81 1126.49
  389.18 1127.19  398.16 1127.65  404.73 1127.95  419.52 1128.56  420.27 1128.58
  422.27 1128.64  423.22 1128.67

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   13.77     .04  138.82    .035  340.27    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        138.82  340.27             99.56     100  110.47              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.57  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *          *    0.035 *          *
* W.S. Elev (ft)          * 1119.56  * Reach Len. (ft)         *   99.56  *  100.00  *  110.47  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *          *  269.26  *          *
* E.G. Slope (ft/ft)      *0.000027  * Area (sq ft)            *          *  269.26  *          *
* Q Total (cfs)           *   89.75  * Flow (cfs)               *          *   89.75  *          *
* Top Width (ft)          *  145.08  * Top Width (ft)           *          *  145.08  *          *
* Vel Total (ft/s)        *    0.33  * Avg. Vel. (ft/s)         *          *    0.33  *          *
* Max Chl Dpth (ft)       *    3.13  * Hydr. Depth (ft)         *          *    1.86  *          *
* Conv. Total (cfs)       * 17238.9  * Conv. (cfs)              *          * 17238.9  *          *
* Length Wtd. (ft)        *  100.00  * Wetted Per. (ft)         *          *  145.40  *          *
* Min Ch El (ft)          * 1116.43  * Shear (lb/sq ft)         *          *    0.00  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *    0.00  *          *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *  327.14  *  779.96  * 1082.74  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   33.02  *   47.69  *  182.69  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 12799.4*

INPUT
Description:
Station Elevation Data     num=      82
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   12.99 1125.27   15.51 1125.19   22.26 1124.78   25.94 1124.58   31.21 1123.88
   34.56 1123.37   37.54 1123.09   46.91 1122.93   56.14 1122.73   62.62 1122.61
   68.49 1122.57    69.5 1122.57   77.72 1122.62   79.91 1122.62   89.77 1122.61
   94.01  1122.6   98.57 1122.62   99.31 1122.62  109.72 1122.51  111.05 1122.49
  113.83 1122.45  120.88  1122.2  125.43 1122.02  132.32 1121.71  137.56 1121.27
  139.36  1121.1  142.11 1120.87  144.68 1120.43   145.1 1120.37  155.73 1118.68
  161.15 1117.71  175.13 1116.38  180.14 1115.75   180.2 1115.75  187.24 1115.86
  193.66 1115.97  196.06 1116.04  203.74 1116.29  205.21 1116.35  211.93 1116.62
  213.07 1116.64  216.75 1116.78  227.81 1117.24   228.3 1117.26  229.63  1117.3
  234.51 1117.47  243.67 1117.69  245.93 1117.77  251.39  1118.3  259.54 1118.16
  262.93 1119.76  263.45 1119.86  272.02 1121.47  274.46 1121.93   275.4 1122.11
   278.8 1122.68  286.03 1123.63  291.28  1124.2  295.86 1124.61  296.87 1124.74
  303.21 1124.87  307.82 1124.97   311.6 1125.06  318.49 1125.22  318.79 1125.22
  319.53 1125.24  321.46 1125.27  333.76  1125.4  337.94 1125.46  352.16 1125.69
  357.48 1125.79  378.35 1126.17  393.49 1126.43  404.57  1126.6  410.16 1126.67
  418.72 1126.86  425.44 1126.99  428.36 1127.01  429.51 1127.04  430.78 1127.06
  434.15 1127.12  435.76 1127.16

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   12.99     .04  139.36    .035  295.86    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        139.36  295.86             99.56     100  110.47              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.56  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *          *    0.035 *          *
* W.S. Elev (ft)          * 1119.56  * Reach Len. (ft)         *   99.56  *  100.00  *  110.47  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *          *  267.34  *          *
* E.G. Slope (ft/ft)      *0.000019  * Area (sq ft)            *          *  267.34  *          *
* Q Total (cfs)           *   89.08  * Flow (cfs)               *          *   89.08  *          *
* Top Width (ft)          *  111.62  * Top Width (ft)           *          *  111.62  *          *
* Vel Total (ft/s)        *    0.33  * Avg. Vel. (ft/s)         *          *    0.33  *          *
* Max Chl Dpth (ft)       *    3.81  * Hydr. Depth (ft)         *          *    2.40  *          *
* Conv. Total (cfs)       * 20269.8  * Conv. (cfs)              *          * 20269.8  *          *
* Length Wtd. (ft)        *  100.00  * Wetted Per. (ft)         *          *  112.02  *          *
* Min Ch El (ft)          * 1115.75  * Shear (lb/sq ft)         *          *    0.00  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *    0.00  *          *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *  327.14  *  779.35  * 1082.74  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   33.02  *   47.39  *  182.69  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 12699.41

INPUT
Description:
Station Elevation Data     num=      36
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
    12.2 1124.23   25.29 1124.11   37.01  1122.2   68.29 1121.72   69.31 1121.73
   89.79 1121.93   98.68    1122  111.29 1121.97   114.1 1121.97  121.23 1121.68
  132.79 1121.18   139.9 1120.32  144.94 1119.71  154.29 1118.59  175.74 1115.07
  175.79 1115.06  191.19 1115.31  197.29 1115.49  211.32 1116.86  218.79 1117.34
  230.25 1120.35  237.45 1122.33  240.29 1123.07  251.45 1124.75  252.87 1124.96
  261.79 1124.99  268.28 1125.02  283.29 1125.12  283.71 1125.12  284.76 1125.12
```

```
 304.78 1125.01  412.28 1125.26  424.32 1125.42  433.78 1125.51  437.89 1125.49
 448.29 1125.64

Manning's n Values          num=      3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    12.2     .04   139.9    .035  251.45    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        139.9  251.45             102.12     100   98.24              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.56  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *          *    0.035 *         *
* W.S. Elev (ft)          * 1119.56  * Reach Len. (ft)         *  102.12  *   100.00 *   98.24  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *          *   230.47 *          *
* E.G. Slope (ft/ft)      *0.000021  * Area (sq ft)            *          *   230.47 *          *
* Q Total (cfs)           *   88.63  * Flow (cfs)               *          *    88.63 *          *
* Top Width (ft)          *   81.01  * Top Width (ft)           *          *    81.01 *          *
* Vel Total (ft/s)        *    0.38  * Avg. Vel. (ft/s)         *          *     0.38 *          *
* Max Chl Dpth (ft)       *    4.50  * Hydr. Depth (ft)         *          *     2.84 *          *
* Conv. Total (cfs)       * 19529.3  * Conv. (cfs)              *          * 19529.3  *          *
* Length Wtd. (ft)        *   100.00 * Wetted Per. (ft)         *          *    81.73 *          *
* Min Ch El (ft)          * 1115.06  * Shear (lb/sq ft)         *          *     0.00 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *     0.00 *          *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *  327.14  *   778.78 * 1082.74  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   33.02  *    47.17 *  182.69  *
*****************************************************************************************

Warning: The conveyance ratio (upstream 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: FRS
REACH: FRS2                RS: 12599.4*

INPUT
Description:
Station Elevation Data     num=     106
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   16.06 1124.08   28.43 1122.88   29.01 1122.84   37.12 1121.59   40.61 1121.29
   44.72 1121.24   58.19 1121.05   61.03 1121.02   70.76 1120.87   71.56 1120.85
   72.57 1120.84   79.24  1120.8   82.73 1120.76   92.84 1120.67   100.3 1120.59
  101.64 1120.59   109.9 1120.51  114.11 1120.42  116.89 1120.37  121.36  1120.2
  123.95 1120.09  135.39  1119.6  142.27 1119.03  142.42 1119.02  142.74 1118.98
  147.87 1118.36   157.5  1117.2  157.97 1117.15  161.81 1116.67  172.49 1115.22
  181.15 1114.33   181.2 1114.32  189.27 1114.42  194.47 1114.53  199.73 1114.68
  206.03 1115.11  208.47 1115.31  211.82 1115.62  216.86    1116  218.26  1116.1
  227.69 1117.87  228.13 1117.97  230.85 1118.56  234.34 1119.24  236.78  1119.7
   246.4 1120.89   246.7 1120.91  248.64  1121.1   252.1 1121.28  258.51 1121.69
  262.69 1121.81  267.36 1121.95  270.32 1122.12  272.92 1122.25  280.43 1122.65
  282.62 1122.77  283.52 1122.78  296.57 1123.16  297.24 1123.18  297.89  1123.2
  298.89 1123.22  305.74 1123.36  313.14 1123.44  326.66 1123.52  328.41 1123.54
  329.35 1123.54  330.44 1123.52  332.61  1123.5  341.16  1123.6  343.67 1123.64
  348.23 1123.75  358.93 1124.13  364.78 1124.33  374.19 1124.48  384.81 1124.67
   388.4 1124.76  389.45 1124.77   400.2 1125.07  404.71 1125.16  412.01 1125.33
  419.98 1125.49  434.51 1125.74  435.24 1125.75  436.99 1125.77  447.43 1125.92
  450.49 1125.95  459.25 1126.06  465.76  1126.1  471.05 1126.15  481.02 1126.21
  489.19 1126.26  494.67 1126.28  496.28 1126.28  499.84  1126.3  506.48 1126.36
  511.54  1126.4  518.81 1126.49  520.77 1126.51   526.8 1126.57  533.72 1126.67
  540.19 1126.73  541.37 1126.75   541.9 1126.76  542.06 1126.76  553.72 1126.98
  556.58 1127.04

Manning's n Values          num=      3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   16.06     .04  142.42    .035   246.4    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        142.42   246.4             102.12     100   98.24              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.56  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *    0.035 *         *
* W.S. Elev (ft)          * 1119.56  * Reach Len. (ft)         *  102.12  *   100.00 *   98.24  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *    1.74  *   316.05 *          *
* E.G. Slope (ft/ft)      *0.000008  * Area (sq ft)            *    1.74  *   316.05 *          *
* Q Total (cfs)           *   85.59  * Flow (cfs)               *    0.08  *    85.52 *          *
* Top Width (ft)          *  100.08  * Top Width (ft)           *    6.49  *    93.59 *          *
* Vel Total (ft/s)        *    0.27  * Avg. Vel. (ft/s)         *    0.04  *     0.27 *          *
* Max Chl Dpth (ft)       *    5.24  * Hydr. Depth (ft)         *    0.27  *     3.38 *          *
* Conv. Total (cfs)       * 30083.7  * Conv. (cfs)              *    26.9  * 30056.8  *          *
* Length Wtd. (ft)        *  100.00  * Wetted Per. (ft)         *    6.51  *    94.27 *          *
* Min Ch El (ft)          * 1114.32  * Shear (lb/sq ft)         *    0.00  *     0.00 *          *
* Alpha                   *    1.01  * Stream Power (lb/ft s)   *    0.00  *     0.00 *          *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *  327.14  *   778.15 * 1082.74  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   33.02  *    46.97 *  182.69  *
*****************************************************************************************

Warning: The conveyance ratio (upstream 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: FRS
REACH: FRS2                RS: 12499.41

INPUT
Description:
Station Elevation Data     num=      75
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   19.92 1123.94   32.16 1121.65   40.76  1120.4   48.28 1120.35    61.6 1120.17
   64.41 1120.16   74.04    1120   82.43  1119.8   85.89 1119.68  103.27  1119.2
  112.77 1119.03  124.11 1118.61   144.8 1117.72  144.95 1117.72  145.29 1117.67
  161.15 1115.75  165.78 1115.33  177.26 1114.06  186.62 1113.58  193.39 1113.63
  207.46 1114.01  209.51 1114.13  216.55 1114.77  225.64 1115.53   228.3  1115.9
  241.35 1117.02  241.76 1117.05  249.13 1117.59  257.89  1118.4  269.97  1118.9
```

274.01	1119.22	287.81	1120.24	290.81	1120.47	292.04	1120.49	311.65	1121.27
322.37	1121.62	332.48	1121.81	350.94	1122.01	353.32	1122.06	354.61	1122.07
359.06	1121.98	370.74	1122.17	374.16	1122.26	380.39	1122.46	395	1123.2
402.99	1123.59	415.83	1123.88	430.33	1124.25	435.24	1124.42	436.67	1124.45
451.35	1125.03	457.51	1125.21	467.48	1125.53	478.35	1125.83	498.19	1126.31
499.19	1126.34	501.58	1126.38	515.84	1126.65	520.02	1126.71	531.97	1126.92
540.86	1126.99	548.09	1127.09	561.7	1127.19	572.85	1127.27	580.34	1127.3
582.54	1127.31	596.47	1127.4	603.37	1127.44	615.98	1127.59	624.21	1127.68
644.1	1128	644.83	1128.01	645.05	1128.02	660.96	1128.34	664.87	1128.44

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
19.92	.04	144.95	.035	241.35	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
144.95	241.35	103.92	100	95.43	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1119.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1119.55	Reach Len. (ft)	103.92	100.00	95.43
Crit W.S. (ft)		Flow Area (sq ft)	43.77	432.52	44.82
E.G. Slope (ft/ft)	0.000003	Area (sq ft)	43.77	432.52	44.82
Q Total (cfs)	84.47	Flow (cfs)	2.24	79.55	2.67
Top Width (ft)	188.07	Top Width (ft)	54.50	96.40	37.18
Vel Total (ft/s)	0.16	Avg. Vel. (ft/s)	0.05	0.18	0.06
Max Chl Dpth (ft)	5.97	Hydr. Depth (ft)	0.80	4.49	1.21
Conv. Total (cfs)	52904.3	Conv. (cfs)	1404.6	49825.9	1673.8
Length Wtd. (ft)	100.15	Wetted Per. (ft)	54.53	96.76	37.27
Min Ch El (ft)	1113.58	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.22	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	327.09	777.29	1082.68
C & E Loss (ft)		Cum SA (acres)	32.94	46.75	182.65

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 12399.4*

INPUT
Description:
Station Elevation Data num= 110

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14.43	1123.41	26.7	1121.06	26.8	1121.05	34.5	1119.77	35.33	1119.62
40.68	1118.99	42.87	1118.97	56.22	1118.78	59.04	1118.75	68.7	1118.6
77.11	1118.44	80.58	1118.35	98.01	1117.98	107.53	1117.83	113.04	1117.68
114.76	1117.66	118.9	1117.54	131.14	1117.17	134.81	1117.03	139.38	1116.76
139.65	1116.74	139.8	1116.73	140.2	1116.69	153.05	1115.41	158.66	1114.88
159.22	1114.83	164.05	1114.39	170.68	1113.72	177.42	1113.39	179.01	1113.35
188.32	1113.14	194.69	1113.25	197.4	1113.32	207.93	1113.68	209.78	1113.77
209.86	1113.78	216.48	1114.7	216.77	1114.74	225.04	1116.12	227.54	1116.61
231.24	1117.23	236.11	1117.54	239.82	1117.79	240.12	1117.81	245.48	1118.12
251.86	1118.56	260.66	1118.87	263.6	1119.04	273.64	1119.62	275.83	1119.75
276.72	1119.76	289.98	1120.21	291	1120.24	291.21	1120.24	298.8	1120.4
301.27	1120.43	306.16	1120.48	319.6	1120.57	321.14	1120.59	321.34	1120.59
322.28	1120.6	323.33	1120.59	325.51	1120.56	334.02	1120.63	336.51	1120.67
341.04	1120.76	350.12	1121.06	351.68	1121.11	355.45	1121.25	357.5	1121.33
362.06	1121.42	366.84	1121.5	377.4	1121.69	380.98	1121.78	382.02	1121.79
387.57	1121.95	392.7	1122.12	397.19	1122.24	404.45	1122.45	408.03	1122.55
412.36	1122.67	419.69	1122.87	426.8	1123.04	427.53	1123.06	429.27	1123.1
434.17	1123.2	439.65	1123.35	442.7	1123.43	451.4	1123.65	451.81	1123.66
457.87	1123.75	463.13	1123.85	470.2	1123.96	473.04	1124.01	481.16	1124.18
483.91	1124.23	486.61	1124.26	488.21	1124.28	498.35	1124.42	503.38	1124.48
506.26	1124.53	512.56	1124.66	516.03	1124.72	518.55	1124.79	523.88	1124.96
533.03	1125.07	533.56	1125.08	533.72	1125.08	545.3	1125.26	548.15	1125.31

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
14.43	.04	139.8	.035	239.82	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
139.8	239.82	103.92	100	95.43	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1119.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1119.55	Reach Len. (ft)	103.92	100.00	95.43
Crit W.S. (ft)		Flow Area (sq ft)	145.51	481.33	28.22
E.G. Slope (ft/ft)	0.000002	Area (sq ft)	145.51	481.33	28.22
Q Total (cfs)	83.70	Flow (cfs)	8.62	74.00	1.08
Top Width (ft)	236.61	Top Width (ft)	103.91	100.02	32.68
Vel Total (ft/s)	0.13	Avg. Vel. (ft/s)	0.06	0.15	0.04
Max Chl Dpth (ft)	6.41	Hydr. Depth (ft)	1.40	4.81	0.86
Conv. Total (cfs)	65673.9	Conv. (cfs)	6762.7	58067.1	844.1
Length Wtd. (ft)	100.57	Wetted Per. (ft)	103.97	100.49	32.73
Min Ch El (ft)	1113.14	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.30	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	326.86	776.24	1082.60
C & E Loss (ft)		Cum SA (acres)	32.76	46.53	182.57

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 12299.41

INPUT
Description:
Station Elevation Data num= 40

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.94	1122.88	21.34	1120.46	29.06	1119.02	35.26	1117.62	107.82	1116.54
109.54	1116.55	125.97	1116.25	129.65	1116.14	134.23	1115.79	134.65	1115.75
149.77	1114.49	156.81	1113.96	169.89	1112.75	179.39	1112.71	190.01	1112.69
198.53	1112.94	210.13	1113.42	216.68	1114.69	230.25	1118.22	234.81	1118.39
238.29	1118.57	269.71	1119.2	270.48	1119.21	276.78	1119.17	289.23	1119.12

290.6	1119.14	307.38	1119.02	310.72	1119.05	314.86	1119.11	330.84	1119.14
343.66	1119.43	350.96	1119.66	360.03	1119.9	371.08	1120.4	382.6	1120.75
391.19	1121.18	405.19	1121.58	411.31	1121.8	416.23	1122.12	431.43	1122.19

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8.94	.04	134.65	.035	238.29	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
134.65	238.29	101.46	100	98.46	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

			Left OB	Channel	Right OB
E.G. Elev (ft)	1119.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1119.55	Reach Len. (ft)	101.46	100.00	98.46
Crit W.S. (ft)		Flow Area (sq ft)	275.20	542.01	51.34
E.G. Slope (ft/ft)	0.000001	Area (sq ft)	275.20	542.01	51.34
Q Total (cfs)	84.57	Flow (cfs)	18.04	65.56	0.97
Top Width (ft)	321.36	Top Width (ft)	108.45	103.64	109.27
Vel Total (ft/s)	0.10	Avg. Vel. (ft/s)	0.07	0.12	0.02
Max Chl Dpth (ft)	6.86	Hydr. Depth (ft)	2.54	5.23	0.47
Conv. Total (cfs)	89027.2	Conv. (cfs)	18992.4	69010.3	1024.5
Length Wtd. (ft)	100.25	Wetted Per. (ft)	108.68	104.36	109.28
Min Ch El (ft)	1112.69	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.29	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	326.36	775.06	1082.52
C & E Loss (ft)		Cum SA (acres)	32.50	46.29	182.42

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 12199.4*

INPUT
Description:
Station Elevation Data num= 116

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14.42	1121.9	16.03	1121.73	26.35	1119.95	33.78	1118.71	34.3	1118.61
39.7	1117.84	39.75	1117.83	57.72	1117.72	74.01	1117.69	78.56	1117.68
83.57	1117.63	99.4	1117.51	105.49	1117.41	109.56	1117.35	111.21	1117.34
120.25	1117.19	127.02	1116.9	130.56	1116.73	133.6	1116.51	134.97	1116.42
135.37	1116.39	141.46	1115.96	149.15	1114.85	150.26	1114.7	155.57	1114.03
163.65	1112.93	167.49	1112.61	175.77	1112.33	176.15	1112.32	185.82	1112.01
194.49	1112.27	195.92	1112.31	203.15	1112.55	209.67	1113.2	210.98	1113.42
217.43	1114.54	220.47	1115.15	230.94	1118.04	233.51	1118.73	237.79	1119.48
238.92	1119.54	243.04	1119.77	243.77	1119.81	252.52	1120.07	262.16	1120.22
266.11	1120.32	269.69	1120.35	279.72	1120.39	290.78	1120.42	293.32	1120.43
295.62	1120.44	302.58	1120.5	304.04	1120.5	306.92	1120.51	315.98	1120.56
319.39	1120.59	320.52	1120.59	321.53	1120.59	334.12	1120.74	339.57	1120.82
342.08	1120.86	342.16	1120.87	347.72	1120.94	360.41	1121.12	361.33	1121.13
373.38	1121.31	373.96	1121.32	374.92	1121.33	376.63	1121.36	380.29	1121.45
388.14	1121.67	388.52	1121.68	390.94	1121.72	402.13	1121.95	412.25	1122.11
415.72	1122.15	418.42	1122.19	425.21	1122.31	429.33	1122.36	438.17	1122.47
442.71	1122.5	442.93	1122.51	451.13	1122.61	456.53	1122.67	456.54	1122.68
464.08	1122.74	470.13	1122.81	473.73	1122.83	477.04	1122.86	483.73	1122.99
491.1	1123.12	494.67	1123.15	497.33	1123.17	505.42	1123.3	510.94	1123.35
515.92	1123.43	516.5	1123.44	524.54	1123.63	528.89	1123.76	532.78	1123.88
538.13	1124.01	541.84	1124.14	551.74	1124.49	554.8	1124.61	559.31	1124.76
565.34	1124.97	570.9	1125.12	576.96	1125.32	578.94	1125.4	580.23	1125.44
591.28	1125.59	592.54	1125.61	605.59	1125.79	606.14	1125.8	606.64	1125.8
609.03	1125.83								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
14.42	.04	135.37	.035	243.04	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
135.37	243.04	101.46	100	98.46	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

			Left OB	Channel	Right OB
E.G. Elev (ft)	1119.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	1119.55	Reach Len. (ft)	101.46	100.00	98.46
Crit W.S. (ft)		Flow Area (sq ft)	208.19	557.24	
E.G. Slope (ft/ft)	0.000001	Area (sq ft)	208.19	557.24	
Q Total (cfs)	80.62	Flow (cfs)	11.56	69.06	
Top Width (ft)	210.40	Top Width (ft)	106.64	103.76	
Vel Total (ft/s)	0.11	Avg. Vel. (ft/s)	0.06	0.12	
Max Chl Dpth (ft)	7.54	Hydr. Depth (ft)	1.95	5.37	
Conv. Total (cfs)	84151.7	Conv. (cfs)	12069.3	72082.4	
Length Wtd. (ft)	100.16	Wetted Per. (ft)	106.80	104.78	
Min Ch El (ft)	1112.01	Shear (lb/sq ft)	0.00	0.00	
Alpha	1.23	Stream Power (lb/ft s)	0.00	0.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	325.80	773.80	1082.46
C & E Loss (ft)		Cum SA (acres)	32.25	46.05	182.29

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 12099.41

INPUT
Description:
Station Elevation Data num= 81

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19.91	1120.91	21.45	1120.9	39	1118.32	44.19	1118.04	61.5	1118.09
77.15	1118.29	81.52	1118.34	86.33	1118.32	101.54	1118.33	107.39	1118.22
121.57	1118	134.39	1117.13	136.09	1117.03	141.59	1116.72	149.53	1115
161.62	1112.72	172.56	1111.95	181.64	1111.33	191.66	1111.63	201.67	1111.91
210.72	1113.2	221.69	1114.94	233.8	1118.42	241.72	1120.61	247.79	1120.97
248.87	1121.04	261.74	1121.47	275.94	1121.66	281.76	1121.83	287.03	1121.85
301.79	1121.82	318.07	1121.77	321.81	1121.76	325.2	1121.76	341.84	1121.81
360.2	1122.01	361.86	1122.01	363.35	1122.02	381.89	1122.34	393.6	1122.59
401.91	1122.77	420.59	1123.16	421.94	1123.19	439.68	1123.6	441.96	1123.64

```
  444.47 1123.69  461.98 1124.24  465.54 1124.32  482.01 1124.78  496.92 1125.09
  502.03 1125.17  515.99 1125.39  522.06 1125.45  535.07 1125.57  542.08 1125.58
  554.16 1125.66  562.11 1125.69  573.23 1125.72  582.13 1125.78  592.31 1125.75
  602.16 1125.84  613.01 1125.93  622.18 1125.89  634.09 1126.03  642.21 1126.04
  649.55 1126.11  662.23 1126.29  668.64 1126.45  682.25 1126.75  687.71 1126.97
  702.28 1127.51  706.79 1127.71   722.3 1128.24  739.42 1128.64  742.33 1128.72
  760.49 1129.04  762.35 1129.08  781.56  1129.4  782.38 1129.41  783.11 1129.42
  786.63 1129.48

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   19.91     .04  136.09    .035  247.79    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        136.09  247.79             97.18     100  104.12             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.55  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *         *
* W.S. Elev (ft)          * 1119.55  * Reach Len. (ft)         *   97.18  *  100.00  *  104.12  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  146.88  *  582.99  *         *
* E.G. Slope (ft/ft)      *0.000001  * Area (sq ft)            *  146.88  *  582.99  *         *
* Q Total (cfs)           *   78.17  * Flow (cfs)               *    6.23  *   71.95  *         *
* Top Width (ft)          *  207.27  * Top Width (ft)           *  105.47  *  101.80  *         *
* Vel Total (ft/s)        *    0.11  * Avg. Vel. (ft/s)         *    0.04  *    0.12  *         *
* Max Chl Dpth (ft)       *    8.22  * Hydr. Depth (ft)         *    1.39  *    5.73  *         *
* Conv. Total (cfs)       * 85336.3  * Conv. (cfs)              *  6798.6  * 78537.7  *         *
* Length Wtd. (ft)        *   99.74  * Wetted Per. (ft)         *  105.61  *  103.14  *         *
* Min Ch El (ft)          * 1111.33  * Shear (lb/sq ft)         *    0.00  *    0.00  *         *
* Alpha                   *    1.23  * Stream Power (lb/ft s)   *    0.00  *    0.00  *         *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *  325.38  *  772.49  * 1082.46  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   32.00  *   45.82  *  182.29  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 11999.4*

INPUT
Description:
Station Elevation Data     num=      119
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   14.02 1120.95   15.59 1120.86   16.79  1120.7   31.42  1118.8   33.46 1118.53
   33.97 1118.48   38.75 1118.22   48.42 1117.96   53.91 1117.84   56.38 1117.83
   65.42 1117.82   72.31 1117.81   73.84 1117.81   76.76 1117.82   81.66  1117.8
   82.41  1117.8   93.78 1117.71   97.15 1117.67   99.41 1117.63  103.11 1117.53
  113.72 1117.28  117.55 1117.15   130.6 1116.36  131.94 1116.29  132.33 1116.27
  133.74 1116.19  137.62 1115.77  145.24 1114.31  151.52  1113.2  154.91  1112.6
  156.85 1112.29  167.36  1111.3  169.56 1111.09  176.08 1110.57   186.6 1110.83
  186.63 1110.83   195.4 1111.07  197.18 1111.16  203.06 1111.77  206.71 1112.24
  214.72 1113.33  218.26 1114.12  219.53 1114.48  231.02  1117.7  234.04 1118.54
  239.36 1119.44  245.76 1119.87  246.43 1119.92  250.11 1120.07  254.41 1120.25
  263.22 1120.46  263.94 1120.49  266.34 1120.58  266.83 1120.59   270.1 1120.63
  279.26 1120.67  289.36 1120.72  291.68 1120.73  293.78 1120.74  304.11 1120.84
  308.51 1120.91   315.5 1121.01  316.53 1121.02  317.45 1121.03  318.63 1121.06
  328.95 1121.23  332.95 1121.31  336.22 1121.38  341.37 1121.49  352.96 1121.73
   353.8 1121.75  364.81   1122  366.22 1122.02  367.78 1122.05  370.92 1122.14
  378.64 1122.37  380.85 1122.41  391.07 1122.68  397.63 1122.81  400.32 1122.86
  403.49 1122.91  412.15 1123.04  415.92 1123.07  423.19 1123.14  423.99 1123.15
  428.34 1123.18  435.83 1123.24  440.77 1123.28   442.2 1123.29  447.67 1123.31
  453.19 1123.35   459.5 1123.34  465.62  1123.4  472.35 1123.45  475.48 1123.45
  478.04 1123.45  485.43 1123.54  490.46 1123.55  495.02  1123.6  502.88 1123.71
  506.86  1123.8   515.3 1123.98  518.69 1124.09  522.67 1124.22  527.73 1124.39
  527.77  1124.4  530.53  1124.5  531.35 1124.53  540.15 1124.79  550.77 1125.01
  552.09 1125.04  552.58 1125.05  563.85 1125.23     565 1125.25  575.92 1125.41
  576.92 1125.43  577.43 1125.43  577.88 1125.44  580.07 1125.47

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   14.02     .04  132.33    .035  245.76    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        132.33  245.76             97.18     100  104.12             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.55  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *         *
* W.S. Elev (ft)          * 1119.55  * Reach Len. (ft)         *   97.18  *  100.00  *  104.12  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  194.91  *  669.97  *         *
* E.G. Slope (ft/ft)      *0.000001  * Area (sq ft)            *  194.91  *  669.97  *         *
* Q Total (cfs)           *   77.36  * Flow (cfs)               *    7.92  *   69.44  *         *
* Top Width (ft)          *  215.38  * Top Width (ft)           *  106.69  *  108.68  *         *
* Vel Total (ft/s)        *    0.09  * Avg. Vel. (ft/s)         *    0.04  *    0.10  *         *
* Max Chl Dpth (ft)       *    8.98  * Hydr. Depth (ft)         *    1.83  *    6.16  *         *
* Conv. Total (cfs)       *105664.7  * Conv. (cfs)              * 10812.5  * 94852.2  *         *
* Length Wtd. (ft)        *   99.69  * Wetted Per. (ft)         *  106.81  *  110.02  *         *
* Min Ch El (ft)          * 1110.57  * Shear (lb/sq ft)         *    0.00  *    0.00  *         *
* Alpha                   *    1.23  * Stream Power (lb/ft s)   *    0.00  *    0.00  *         *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *  325.00  *  771.06  * 1082.46  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   31.77  *   45.58  *  182.29  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 11899.41

INPUT
Description:
Station Elevation Data     num=       43
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    8.14 1120.99   10.95 1120.68   25.85 1118.99   28.44 1118.67   43.15 1117.86
   48.74  1117.6   60.46 1117.44   69.03 1117.31   77.76 1117.27   89.33 1117.09
   95.06 1116.97  109.63  1116.5  128.18 1115.52  128.58  1115.5  129.93 1115.43
  146.97 1112.63  150.22 1112.09  164.27 1110.39  170.52 1109.82  181.57 1110.03
```

190.82	1110.27	198.87	1110.84	211.12	1112.25	216.17	1113.67	231.41	1117.86
243.72	1118.77	245.41	1118.9	250.78	1119.29	251.71	1119.35	268.08	1119.93
272.01	1120.06	277.57	1120.15	292.31	1120.44	302.68	1120.62	312.6	1120.73
319.98	1120.88	332.9	1120.99	351.22	1121.24	353.2	1121.28	354.59	1121.3
362.64	1121.38	371.89	1121.45	373.5	1121.46				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8.14	.04	128.58	.035	243.72	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
128.58	243.72	96.93	100	102.57	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1119.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1119.55	Reach Len. (ft)	96.93	100.00	102.57
Crit W.S. (ft)		Flow Area (sq ft)	244.75	768.79	4.44
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	244.75	768.79	4.44
Q Total (cfs)	77.46	Flow (cfs)	9.31	68.10	0.04
Top Width (ft)	236.48	Top Width (ft)	107.68	115.14	13.66
Vel Total (ft/s)	0.08	Avg. Vel. (ft/s)	0.04	0.09	0.01
Max Chl Dpth (ft)	9.73	Hydr. Depth (ft)	2.27	6.68	0.33
Conv. Total (cfs)	130642.9	Conv. (cfs)	15706.7	114866.9	69.3
Length Wtd. (ft)	99.58	Wetted Per. (ft)	107.79	116.44	13.69
Min Ch El (ft)	1109.82	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.22	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	324.51	769.40	1082.45
C & E Loss (ft)		Cum SA (acres)	31.53	45.32	182.28

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 11799.4*

INPUT
Description:
Station Elevation Data num= 98

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14.19	1120.09	16.24	1119.88	16.85	1119.79	23.74	1118.84	30.95	1117.89
33.4	1117.55	33.52	1117.54	36.18	1117.34	40.85	1117.08	47.31	1116.79
52.6	1116.57	58.18	1116.43	63.68	1116.34	68.08	1116.25	71.79	1116.2
80.04	1116.13	80.16	1116.13	90.99	1116.07	96.41	1116.03	101.33	1115.96
102.16	1115.95	104.38	1115.93	110.19	1115.87	119.91	1115.67	124.15	1115.53
127.73	1115.44	128.11	1115.44	129.73	1115.41	135.46	1115.04	142.71	1114.21
150.12	1112.78	154.01	1112.03	155.38	1111.79	160.51	1110.9	163.44	1110.46
170.83	1109.87	174.18	1109.64	178.31	1109.36	180.1	1109.41	189.38	1109.62
198.64	1109.87	199.01	1109.89	206.7	1110.7	208.57	1110.94	218.97	1112.08
219.71	1112.22	224.02	1113.33	237.03	1116.63	239.28	1117.23	240.42	1117.42
249.41	1117.91	251.61	1118.02	254.14	1118.14	256.87	1118.26	258.76	1118.33
262.17	1118.45	263.56	1118.49	269.11	1118.62	274.33	1118.68	281.34	1118.79
288.03	1118.89	289.91	1118.92	293.58	1118.97	293.91	1118.97	302.22	1119.11
305.48	1119.17	305.82	1119.17	307.06	1119.19	321.05	1119.47	324.26	1119.53
330.29	1119.65	336.63	1119.77	339.76	1119.83	347.71	1119.96	352.2	1120.04
354.59	1120.08	354.76	1120.09	364.16	1120.28	365.62	1120.31	367	1120.33
367.77	1120.35	369.13	1120.37	383.35	1120.67	384.94	1120.7	391.47	1120.85
398.92	1120.98	411.95	1121.16	412.33	1121.16	414.49	1121.2	415.29	1121.22
417.37	1121.24	421.27	1121.28	428.18	1121.35	429.4	1121.36	430.07	1121.36
440.42	1121.44	443.23	1121.45	445.64	1121.46				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
14.19	.04	128.11	.035	251.61	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
128.11	251.61	96.93	100	102.57	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1119.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1119.55	Reach Len. (ft)	96.93	100.00	102.57
Crit W.S. (ft)		Flow Area (sq ft)	328.77	861.86	48.96
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	328.77	861.86	48.96
Q Total (cfs)	75.25	Flow (cfs)	11.99	62.68	0.58
Top Width (ft)	306.68	Top Width (ft)	109.52	123.50	73.66
Vel Total (ft/s)	0.06	Avg. Vel. (ft/s)	0.04	0.07	0.01
Max Chl Dpth (ft)	10.19	Hydr. Depth (ft)	3.00	6.98	0.66
Conv. Total (cfs)	159353.4	Conv. (cfs)	25388.9	132733.5	1231.0
Length Wtd. (ft)	99.52	Wetted Per. (ft)	109.69	124.74	73.68
Min Ch El (ft)	1109.36	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.25	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	323.87	767.53	1082.39
C & E Loss (ft)		Cum SA (acres)	31.29	45.05	182.17

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 11699.41

INPUT
Description:
Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
20.25	1119.19	22.18	1119	29.25	1117.83	38.47	1116.41	40.98	1116.17
45.38	1115.93	61.72	1115.35	71.05	1115.14	82.44	1114.99	102.39	1115.11
103.18	1115.12	105.27	1115.16	119.91	1115.39	123.91	1115.35	127.64	1115.37
136.2	1115.43	144.64	1114.78	159.4	1111.63	165.37	1110.36	168.78	1109.79
181.29	1109.15	186.1	1108.9	187.89	1108.96	206.83	1109.48	216.4	1110.83
227.56	1111.98	244.9	1116.01	248.29	1116.89	257.3	1117.21	259.5	1117.27
266.5	1117.48	269.02	1117.54	282.8	1117.75	289.75	1117.75	299.08	1117.8
310.48	1117.87	315.37	1117.88	331.21	1118.14	331.66	1118.15	333.31	1118.17
351.94	1118.54	364.24	1118.78	372.67	1118.95	387.42	1119.24	393.4	1119.36
396.81	1119.44	409.32	1119.69	413.1	1119.78	414.13	1119.8	415.93	1119.84
434.86	1120.36	445.67	1120.66	455.59	1120.84	472.94	1121.08	476.32	1121.14

```
  485.34 1121.24  494.54 1121.33  497.05 1121.34  510.83 1121.45  517.78 1121.46

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   20.25     .04  127.64    .035   259.5    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        127.64   259.5             95.38     100  108.92             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.55  * Element                  *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.               *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.55  * Reach Len. (ft)          *   95.38  *  100.00  *  108.92  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)        *  407.46  *  956.72  *  178.76  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)             *  407.46  *  956.72  *  178.76  *
* Q Total (cfs)           *   73.53  * Flow (cfs)               *   13.85  *   57.09  *    2.59  *
* Top Width (ft)          *  382.07  * Top Width (ft)           *  107.39  *  131.86  *  142.82  *
* Vel Total (ft/s)        *    0.05  * Avg. Vel. (ft/s)         *    0.03  *    0.06  *    0.01  *
* Max Chl Dpth (ft)       *   10.65  * Hydr. Depth (ft)         *    3.79  *    7.26  *    1.25  *
* Conv. Total (cfs)       *194769.0  * Conv. (cfs)              * 36683.6  *151230.7  *  6854.8  *
* Length Wtd. (ft)        *   99.57  * Wetted Per. (ft)         *  108.00  *  133.16  *  142.84  *
* Min Ch El (ft)          * 1108.90  * Shear (lb/sq ft)         *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.32  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *  323.05  *  765.45  * 1082.12  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   31.05  *   44.75  *  181.92  *
*****************************************************************************************

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: FRS
REACH: FRS2                RS: 11599.4*

INPUT
Description:
Station Elevation Data     num=     165
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   15.76 1118.82   17.83  1118.6   17.95 1118.59    22.6 1117.73   25.39 1117.22
   32.05 1116.07   35.26 1115.45   36.52 1115.25   37.95 1115.11   42.65 1114.73
   46.16 1114.48   57.28 1114.26   60.14 1114.22   66.56 1114.18   70.12 1114.14
   74.36 1114.12   78.04 1114.11   82.31 1114.11   88.45 1114.15    98.8 1114.19
  102.56 1114.21  103.65  1114.2   104.5 1114.19  106.73 1114.19  110.53 1114.17
  119.57 1114.07   122.4 1114.05  126.68 1113.96  130.67 1113.91  130.76 1113.91
  139.97 1113.02  140.24 1113.01  149.67    1112  153.64 1111.34  159.98 1110.52
  166.17 1109.84  171.53 1109.24  172.84 1109.11  176.66  1108.8  179.99 1108.69
  190.64 1108.44  196.01 1108.31  197.51 1108.31  198.89 1108.34  199.34 1108.35
  212.22 1108.54  218.69 1108.65  220.55 1108.79  226.93 1109.29  228.47 1109.41
  239.87 1110.06  240.46 1110.13  242.21 1110.36  243.77 1110.66  257.59 1113.03
  261.05 1113.66  263.87 1113.87  270.26 1114.39  272.51 1114.56  281.35 1115.43
  281.88 1115.49  282.45 1115.53  284.54 1115.65  288.87  1115.9  292.66  1116.1
  297.47 1116.31  303.24 1116.53  312.55 1116.87  313.07 1116.89  313.84 1116.91
  315.48 1116.95  324.43 1117.11   324.5 1117.12  328.66 1117.22  335.03 1117.33
  340.53 1117.41  344.26 1117.47  345.63 1117.48  348.51 1117.52  356.21 1117.57
  359.86 1117.62  360.12 1117.63  366.81 1117.65  368.53 1117.68  375.46 1117.81
   377.4 1117.83  381.54 1117.88     388  1117.9  391.05 1117.95  395.75 1117.94
  396.53 1117.94  398.59 1117.94  399.36 1117.95  406.64 1118.09  409.19  1118.1
  414.58 1118.23  419.77 1118.29  422.24 1118.33  430.37 1118.45  431.38 1118.48
  437.83 1118.62  440.96 1118.68   447.6 1118.84  451.56 1118.91  452.52 1118.93
  453.43 1118.95  462.16  1119.1  467.01 1119.19  469.03 1119.23  480.64 1119.47
  484.62 1119.56  488.18 1119.65  492.36 1119.74  500.22 1119.92  502.64 1119.98
   508.5 1120.13  513.67 1120.26  515.12 1120.28  515.81  1120.3  525.72 1120.49
     530 1120.58  531.41 1120.61   536.3 1120.71   536.5 1120.71  538.27 1120.75
  541.36 1120.83  546.69 1120.96   546.9 1120.97     547 1120.97  547.27 1120.98
   562.6 1121.26  568.09 1121.36   573.9 1121.46   578.2 1121.54  579.73 1121.57
  592.47 1121.77  593.79 1121.79  599.87 1121.87  609.39 1121.99  609.52    1122
  612.75 1122.03  621.06 1122.11  624.98 1122.15  631.65  1122.2  639.34 1122.29
  640.58  1122.3  642.25 1122.32  645.15 1122.37  645.79 1122.38  656.18 1122.51
  660.66 1122.58  665.46 1122.66  671.77 1122.75  674.03 1122.79  676.47 1122.83
  678.82 1122.86  680.78 1122.88  684.62 1122.92  687.37 1122.96  695.22 1123.04
  702.96 1123.11  704.46 1123.13  705.81 1123.14  711.85 1123.16  716.41 1123.17

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   15.76     .04  130.67    .035  272.51    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        130.67  272.51             95.38     100  108.92             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.55  * Element                  *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.               *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.55  * Reach Len. (ft)          *   95.38  *  100.00  *  108.92  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)        *  551.27  * 1281.62  *  388.38  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)             *  551.27  * 1281.62  *  388.38  *
* Q Total (cfs)           *   72.11  * Flow (cfs)               *   13.36  *   54.31  *    4.44  *
* Top Width (ft)          *  468.37  * Top Width (ft)           *  114.91  *  141.84  *  211.62  *
* Vel Total (ft/s)        *    0.03  * Avg. Vel. (ft/s)         *    0.02  *    0.04  *    0.01  *
* Max Chl Dpth (ft)       *   11.24  * Hydr. Depth (ft)         *    4.80  *    9.04  *    1.84  *
* Conv. Total (cfs)       *312384.4  * Conv. (cfs)              * 57889.9  *235277.3  * 19217.2  *
* Length Wtd. (ft)        *   99.81  * Wetted Per. (ft)         *  115.99  *  142.53  *  211.72  *
* Min Ch El (ft)          * 1108.31  * Shear (lb/sq ft)         *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.39  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *  322.00  *  762.88  * 1081.41  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   30.80  *   44.44  *  181.48  *
*****************************************************************************************

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: FRS
REACH: FRS2                RS: 11499.41
```

INPUT
Description:
Station Elevation Data num= 110

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.28	1118.46	13.61	1118.19	18.56	1117.19	28.63	1115.26	33.39	1114.2
43.66	1113.15	55.51	1113.08	65.4	1113.14	73.71	1113.16	77.63	1113.18
88.72	1113.28	99.75	1113.3	103.75	1113.31	112.24	1113.13	121.87	1112.79
133.7	1112.45	133.8	1112.45	143.98	1110.62	159.09	1108.66	166.1	1108.23
178.87	1107.88	188.22	1107.75	205.93	1107.73	208.92	1107.73	210.33	1107.74
223.94	1107.77	232.45	1107.84	238.97	1107.96	252.78	1108.15	254.57	1108.21
256.16	1108.46	276.69	1110.76	285.51	1111.86	298.06	1113.43	298.8	1113.55
299.61	1113.61	314.09	1114.63	320.92	1115	329.1	1115.39	343.04	1116.02
344.13	1116.06	346.45	1116.15	359.15	1116.48	365.15	1116.68	374.18	1116.87
387.27	1117.12	389.21	1117.14	393.3	1117.22	404.22	1117.29	409.39	1117.38
419.25	1117.43	431.51	1117.68	434.27	1117.7	440.14	1117.76	449.3	1117.73
453.62	1117.8	464.32	1117.71	475.74	1117.92	479.35	1117.92	486.99	1118.12
494.36	1118.17	497.86	1118.23	509.39	1118.38	519.97	1118.62	524.41	1118.71
533.83	1118.96	539.44	1119.06	542.09	1119.1	554.47	1119.3	564.21	1119.49
580.68	1119.84	586.33	1119.97	591.37	1120.1	608.45	1120.51	627.52	1121.01
629.58	1121.05	630.56	1121.07	644.61	1121.33	652.68	1121.52	659.62	1121.64
674.35	1122	674.65	1122.01	674.79	1122.01	675.17	1122.02	696.91	1122.35
704.7	1122.45	719.03	1122.65	721.2	1122.68	741.15	1122.9	749.77	1123.01
763.27	1123.15	768.04	1123.19	779.82	1123.28	785.38	1123.33	794.84	1123.39
807.5	1123.51	809.87	1123.54	814.89	1123.61	829.62	1123.81	842.78	1124.05
851.73	1124.2	854.94	1124.27	861.73	1124.38	869.96	1124.49	873.85	1124.54
884.99	1124.68	895.97	1124.78	900.01	1124.82	908.58	1124.86	915.04	1124.87

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.28	.04	133.7	.035	285.51	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
133.7	285.51	101.71	100	96.25	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

			Left OB	Channel	Right OB
E.G. Elev (ft)	1119.55	Element			
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1119.55	Reach Len. (ft)	101.71	100.00	96.25
Crit W.S. (ft)		Flow Area (sq ft)	710.14	1637.51	679.67
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	710.14	1637.51	679.67
Q Total (cfs)	70.36	Flow (cfs)	12.82	51.41	6.13
Top Width (ft)	555.70	Top Width (ft)	122.42	151.81	281.47
Vel Total (ft/s)	0.02	Avg. Vel. (ft/s)	0.02	0.03	0.01
Max Chl Dpth (ft)	11.82	Hydr. Depth (ft)	5.80	10.79	2.41
Conv. Total (cfs)	463425.2	Conv. (cfs)	84445.4	338606.3	40373.6
Length Wtd. (ft)	99.99	Wetted Per. (ft)	123.99	152.34	281.69
Min Ch El (ft)	1107.73	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.46	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	320.62	759.53	1080.08
C & E Loss (ft)		Cum SA (acres)	30.54	44.10	180.86

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 11399.4*

INPUT
Description:
Station Elevation Data num= 179

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
11.08	1118.21	13.45	1118.02	16.09	1117.69	18.47	1117.22	28.69	1115.28
29.06	1115.2	31.33	1114.78	32.2	1114.58	33.53	1114.42	43.95	1113.75
55.98	1113.55	66.02	1113.44	74.46	1113.34	78.44	1113.3	89.69	1113.19
100.89	1113.05	104.95	1113	113.57	1112.79	123.35	1112.49	135.35	1112.16
135.45	1112.16	137.96	1111.97	138.15	1111.94	138.71	1111.85	145.25	1110.8
154.26	1109.59	159.79	1108.61	160.26	1108.55	166.54	1107.92	170.35	1107.61
178.83	1107.32	182.57	1107.22	186.45	1107.15	187.83	1107.13	196.51	1107.06
202.54	1107.01	204.88	1107	206.37	1107	207.94	1107.01	218.39	1107.04
223.07	1107.05	225.85	1107.07	232.44	1107.14	232.54	1107.15	239.79	1107.34
245.31	1107.48	246.48	1107.51	249.53	1107.73	255.15	1108.05	257.14	1108.18
258.91	1108.39	260.54	1108.56	264.79	1109.1	274.58	1110.57	281.74	1111.61
284.26	1111.99	288.63	1112.43	291.55	1112.69	301.79	1113.7	302.4	1113.77
303.06	1113.81	303.53	1113.85	308.87	1114.19	314.88	1114.53	320.45	1114.79
327.13	1115.07	327.34	1115.08	336.54	1115.48	338.51	1115.55	339.4	1115.57
341.29	1115.63	347.31	1115.78	351.66	1115.89	356.55	1116.04	363.92	1116.2
364.2	1116.21	374.61	1116.44	375.23	1116.45	376.19	1116.47	379.53	1116.55
388.44	1116.68	391.87	1116.76	392.66	1116.77	400.71	1116.88	407.2	1117.03
410.72	1117.11	412.97	1117.14	417.76	1117.22	419.54	1117.24	425.24	1117.28
428.76	1117.34	437.5	1117.38	446.82	1117.57	446.92	1117.57	447.12	1117.57
447.21	1117.57	449.76	1117.59	456	1117.73	462.01	1117.8	464.87	1117.85
467.09	1117.88	474.28	1118	474.87	1118.01	482.92	1118.17	486.54	1118.23
487.05	1118.24	494.23	1118.4	498.81	1118.48	500.97	1118.51	502.54	1118.54
507.02	1118.6	511.08	1118.66	518.61	1118.79	519.03	1118.8	526.97	1118.93
530.21	1118.99	532.47	1119.02	537.08	1119.11	541.19	1119.19	546.94	1119.29
555.14	1119.43	557.88	1119.47	566.91	1119.65	570.7	1119.71	572.38	1119.73
573.18	1119.75	584.65	1119.88	585.54	1119.9	586.86	1119.92	590.29	1119.97
591.24	1119.98	596.9	1120.04	606.82	1120.19	608.92	1120.22	609.17	1120.23
609.28	1120.23	609.59	1120.23	613.21	1120.27	626.79	1120.4	627.34	1120.41
633.69	1120.47	640.88	1120.55	645.39	1120.6	646.76	1120.62	647.16	1120.62
662	1120.77	663.45	1120.79	666.72	1120.83	668.56	1120.85	670.48	1120.87
681.5	1120.99	685.39	1121.03	686.69	1121.04	695.01	1121.11	696.23	1121.13
699.55	1121.16	706.65	1121.21	707.27	1121.22	717.6	1121.29	719.53	1121.31
723.63	1121.35	723.9	1121.35	733.68	1121.46	735.65	1121.48	746.4	1121.62
751.56	1121.68	753.7	1121.7	756.32	1121.75	761.86	1121.81	766.54	1121.86
768.58	1121.88	771.76	1121.92	779.23	1121.99	780.85	1122.01	786.51	1122.05
789.81	1122.08	793.11	1122.11	800.1	1122.15	805.38	1122.17		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
11.08	.04	135.35	.035	291.55	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
135.35	291.55	101.71	100	96.25	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1119.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1119.55	Reach Len. (ft)	101.71	100.00	96.25
Crit W.S. (ft)		Flow Area (sq ft)	715.94	1720.55	665.92
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	715.94	1720.55	665.92
Q Total (cfs)	70.17	Flow (cfs)	12.24	52.13	5.80
Top Width (ft)	550.76	Top Width (ft)	124.27	156.20	270.29
Vel Total (ft/s)	0.02	Avg. Vel. (ft/s)	0.02	0.03	0.01
Max Chl Dpth (ft)	12.55	Hydr. Depth (ft)	5.76	11.02	2.46
Conv. Total (cfs)	485406.7	Conv. (cfs)	84694.7	360615.0	40097.0
Length Wtd. (ft)	100.00	Wetted Per. (ft)	125.98	156.85	270.43
Min Ch El (ft)	1107.00	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.45	Stream Power (lb/ft s)	0.00	0.00	0.00
Prctn Loss (ft)	0.00	Cum Volume (acre-ft)	318.96	755.67	1078.59
C & E Loss (ft)		Cum SA (acres)	30.25	43.75	180.25

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 11299.41

INPUT
Description:
Station Elevation Data num= 74

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10.88	1117.97	15.96	1117.71	29.13	1115.23	31.43	1114.87	32.32	1114.67
137.01	1111.86	139.51	1111.95	139.7	1111.94	140.23	1111.86	155.18	1109.78
160.94	1108.46	170.64	1107.1	182.38	1106.61	186.11	1106.53	195.78	1106.39
201.58	1106.29	203.82	1106.27	217.05	1106.32	225.26	1106.34	232.52	1106.45
246.69	1106.93	247.98	1106.97	251.33	1107.38	263.45	1108.49	268.13	1109.15
278.91	1111.11	289.57	1112.93	294.38	1113.33	297.59	1113.51	306.87	1114.04
311.01	1114.27	325.32	1114.75	332.45	1115.04	340.79	1115.22	353.88	1115.54
362.43	1115.78	375.32	1116.15	387.2	1116.47	396.76	1116.72	417.97	1117.22
418.13	1117.22	418.2	1117.22	433.6	1117.5	439.63	1117.62	449.07	1117.76
461.07	1117.94	464.54	1117.99	473.52	1118.1	480	1118.17	482.51	1118.19
495.47	1118.32	503.95	1118.35	510.94	1118.41	525.38	1118.44	526.4	1118.44
529.06	1118.44	541.87	1118.44	546.82	1118.46	557.34	1118.47	568.26	1118.53
572.81	1118.56	584.62	1118.66	588.28	1118.7	589.7	1118.72	603.75	1118.88
611.14	1118.96	619.22	1119.04	632.58	1119.09	640.16	1119.14	654.01	1119.2
665.62	1119.27	675.45	1119.33	681.09	1119.36	695.71	1119.46		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
10.88	.04	137.01	.035	297.59	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
137.01	297.59	101.17	100	100.9	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1119.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1119.55	Reach Len. (ft)	101.17	100.00	100.90
Crit W.S. (ft)		Flow Area (sq ft)	721.57	1802.13	750.85
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	721.57	1802.13	750.85
Q Total (cfs)	70.17	Flow (cfs)	11.80	53.11	5.26
Top Width (ft)	684.83	Top Width (ft)	126.13	160.58	398.12
Vel Total (ft/s)	0.02	Avg. Vel. (ft/s)	0.02	0.03	0.01
Max Chl Dpth (ft)	13.28	Hydr. Depth (ft)	5.72	11.22	1.89
Conv. Total (cfs)	504819.4	Conv. (cfs)	84889.5	382094.0	37836.0
Length Wtd. (ft)	100.26	Wetted Per. (ft)	128.03	161.47	398.28
Min Ch El (ft)	1106.27	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.54	Stream Power (lb/ft s)	0.00	0.00	0.00
Prctn Loss (ft)	0.00	Cum Volume (acre-ft)	317.28	751.63	1077.03
C & E Loss (ft)		Cum SA (acres)	29.96	43.38	179.51

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 11199.4*

INPUT
Description:
Station Elevation Data num= 159

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15.13	1118.02	20.1	1117.56	25.66	1116.66	31.34	1115.41	32.98	1115.07
35.22	1114.63	36.09	1114.43	47.21	1113	47.53	1112.96	48.53	1112.91
63.73	1111.92	68.76	1111.85	79.94	1111.65	90.31	1111.58	96.13	1111.56
111.86	1111.48	112.33	1111.47	113.78	1111.45	128.53	1111.25	133.41	1111.12
138.46	1110.96	141.01	1110.96	141.21	1110.95	141.75	1110.9	144.48	1110.66
154.28	1109.41	157	1108.95	160.01	1108.31	162.87	1107.8	172.76	1106.48
174.95	1106.29	175.53	1106.27	177.35	1106.21	184.73	1105.98	188.54	1105.91
191.07	1105.86	195.6	1105.79	198.4	1105.77	204.32	1105.72	206.6	1105.71
211.52	1105.73	214.52	1105.73	222.06	1105.77	222.43	1105.77	223.58	1105.78
230.35	1105.79	232.59	1105.79	238.26	1105.79	243.12	1105.78	246.18	1105.77
253.65	1105.71	254.77	1105.72	258.17	1105.73	264.68	1105.77	271.52	1105.8
274.56	1105.84	277.57	1105.88	279.99	1105.94	289.37	1106.7	290.44	1106.79
293.24	1107.16	294.37	1107.29	303.33	1108.47	306.33	1108.95	307.23	1109.1
314.17	1110.45	316.21	1110.84	325.09	1112.46	329.1	1112.99	331.77	1113.29
332.51	1113.38	333.57	1113.45	336.82	1113.61	340.8	1113.8	344.82	1113.99
349.87	1114.16	354.18	1114.32	358.74	1114.45	365.67	1114.66	366.17	1114.67
373.78	1114.82	375.87	1114.87	382.47	1114.98	386.5	1115.04	394.82	1115.18
397.55	1115.23	398.76	1115.24	402.46	1115.3	407.35	1115.37	415.07	1115.47
418.9	1115.49	419.23	1115.49	428.2	1115.57	431.36	1115.6	448.82	1115.82
448.97	1115.82	449.04	1115.82	459.87	1115.93	462.59	1115.95	464.02	1115.97
468.1	1116.03	469.88	1116.07	479.06	1116.28	480.25	1116.3	484.27	1116.43
490.72	1116.55	494.1	1116.61	496.55	1116.66	502.83	1116.75	505.95	1116.8
509.13	1116.86	511.57	1116.9	512.85	1116.93	524.17	1117.13	527.64	1117.19
529.14	1117.22	532.42	1117.29	533.74	1117.33	539.21	1117.45	545.45	1117.58
549.32	1117.65	553.25	1117.73	554.24	1117.75	556.83	1117.79	561.74	1117.89
569.28	1118.02	570.99	1118.05	574.1	1118.1	578.05	1118.15	584.33	1118.24

592.68	1118.37	594.34	1118.39	594.94	1118.4	599.37	1118.45	610.65	1118.58
610.85	1118.58	614.36	1118.63	614.41	1118.64	615.79	1118.65	626.94	1118.78
629.45	1118.82	636.04	1118.92	636.63	1118.92	643.22	1119.01	644.49	1119.03
657.48	1119.2	657.72	1119.2	659.53	1119.23	664.85	1119.31	665.02	1119.31
675.82	1119.44	678.32	1119.47	679.41	1119.49	686.49	1119.59	689.6	1119.63
699.16	1119.77	701.08	1119.8	704.65	1119.84	718.86	1120.05		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
15.13	.04	138.46	.035	331.77	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
138.46	331.77	101.17	100	100.9	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

			Left OB	Channel	Right OB
E.G. Elev (ft)	1119.55	Element			
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1119.55	Reach Len. (ft)	101.17	100.00	100.90
Crit W.S. (ft)		Flow Area (sq ft)	847.12	2367.54	946.71
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	847.12	2367.54	946.71
Q Total (cfs)	67.53	Flow (cfs)	10.77	50.97	5.79
Top Width (ft)	668.39	Top Width (ft)	123.33	193.31	351.75
Vel Total (ft/s)	0.02	Avg. Vel. (ft/s)	0.01	0.02	0.01
Max Chl Dpth (ft)	13.84	Hydr. Depth (ft)	6.87	12.25	2.69
Conv. Total (cfs)	705366.6	Conv. (cfs)	112500.1	532388.2	60478.3
Length Wtd. (ft)	100.26	Wetted Per. (ft)	125.32	194.22	351.82
Min Ch El (ft)	1105.71	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.44	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	315.46	746.84	1075.06
C & E Loss (ft)		Cum SA (acres)	29.67	42.98	178.64

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 11099.41

INPUT
Description:
Station Elevation Data num= 91

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
19.38	1118.06	29.67	1116.69	35.22	1115.28	50.73	1111.63	51.05	1111.56
52.02	1111.49	66.88	1109.92	71.79	1109.93	82.72	1109.84	92.86	1109.97
98.54	1110.09	113.92	1110.36	114.38	1110.37	115.79	1110.36	130.21	1110.36
134.98	1110.25	139.92	1110.07	146.05	1109.84	156.04	1108.66	161.88	1107.51
177.11	1105.57	177.71	1105.55	179.56	1105.51	193.55	1105.23	198.17	1105.15
209.38	1105.14	219.23	1105.18	225.22	1105.19	240.3	1105.27	241.04	1105.27
243.33	1105.28	256.87	1105.31	261.36	1105.32	272.71	1105.31	282.42	1105.28
288.54	1105.26	303.49	1105.14	304.38	1105.16	307.1	1105.17	320.21	1105.28
324.55	1105.33	336.05	1107.08	345.61	1108.9	351.88	1110.24	365.96	1113.07
366.67	1113.21	367.7	1113.29	370.86	1113.42	383.54	1113.88	387.73	1114.05
399.37	1114.29	408.8	1114.46	415.21	1114.53	429.86	1114.59	431.04	1114.59
434.63	1114.6	446.88	1114.57	450.92	1114.51	462.71	1114.4	490.4	1114.43
493.05	1114.42	498.4	1114.47	510.2	1114.83	514.11	1115.02	526.04	1115.29
535.17	1115.46	541.87	1115.65	556.24	1116.04	557.7	1116.1	562.17	1116.29
573.54	1116.73	577.3	1116.87	589.37	1117.33	598.36	1117.66	605.21	1117.83
619.43	1118.23	621.04	1118.25	625.93	1118.35	636.88	1118.5	640.49	1118.57
652.71	1118.71	661.55	1118.88	668.53	1119	682.61	1119.31	684.37	1119.35
689.7	1119.48	700.2	1119.69	703.68	1119.77	710.56	1119.93	724.74	1120.25
742.01	1120.64								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
19.38	.04	139.92	.035	365.96	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
139.92	365.96	100.01	100	103.39	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

			Left OB	Channel	Right OB
E.G. Elev (ft)	1119.55	Element			
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1119.55	Reach Len. (ft)	100.01	100.00	103.39
Crit W.S. (ft)		Flow Area (sq ft)	966.48	2971.78	1139.15
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	966.48	2971.78	1139.15
Q Total (cfs)	68.54	Flow (cfs)	10.48	51.69	6.37
Top Width (ft)	673.67	Top Width (ft)	120.54	226.04	327.09
Vel Total (ft/s)	0.01	Avg. Vel. (ft/s)	0.01	0.02	0.01
Max Chl Dpth (ft)	14.41	Hydr. Depth (ft)	8.02	13.15	3.48
Conv. Total (cfs)	929089.2	Conv. (cfs)	142038.8	700645.8	86404.6
Length Wtd. (ft)	100.33	Wetted Per. (ft)	122.82	227.08	327.20
Min Ch El (ft)	1105.14	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.37	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	313.35	740.71	1072.65
C & E Loss (ft)		Cum SA (acres)	29.39	42.50	177.86

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 10999.4*

INPUT
Description:
Station Elevation Data num= 159

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16.31	1118.08	18.48	1117.82	25.07	1116.59	26.83	1116.28	32.51	1114.94
33.97	1114.6	36.92	1113.87	48.37	1111.01	48.69	1110.93	49.46	1110.8
49.69	1110.77	57.52	1109.63	64.88	1109.16	64.96	1109.16	69.9	1109.09
78.14	1108.94	80.45	1108.91	81.08	1108.91	87.46	1108.93	91.45	1108.95
95.95	1108.99	97.25	1109	98.74	1109.01	111.42	1109.2	112.98	1109.21
113.45	1109.22	114.89	1109.22	119.35	1109.22	126.92	1109.21	129.64	1109.21
134.51	1109.13	139.57	1109.02	139.9	1109.02	141.98	1108.88	147.3	1108.33

148.27	1108.19	155.09	1107.26	157.35	1106.96	159.89	1106.74	167.26	1105.88
168.21	1105.79	174.8	1105.45	181.33	1105.09	186.46	1104.84	187.22	1104.83
189.55	1104.82	192.25	1104.8	194.45	1104.78	201.11	1104.71	207.19	1104.65
207.56	1104.64	209.7	1104.61	213.02	1104.57	213.94	1104.57	227.15	1104.49
232.5	1104.52	235.75	1104.52	243.93	1104.56	244.33	1104.56	245.58	1104.56
252.92	1104.58	255.36	1104.58	261.52	1104.58	266.79	1104.56	270.11	1104.55
278.22	1104.49	279.29	1104.51	282.55	1104.52	289.4	1104.57	291.79	1104.58
298.29	1104.63	299.05	1104.64	303.5	1104.67	305.36	1104.8	307.44	1104.95
317.3	1105.7	318.93	1105.85	325.5	1106.54	328.77	1107.12	332.5	1107.83
336.3	1108.58	343.55	1109.97	346.07	1110.32	353.2	1111.31	353.8	1111.41
353.93	1111.42	354.66	1111.49	357.32	1111.66	362.48	1111.99	365.31	1112.13
367.97	1112.25	371.49	1112.41	381.26	1112.74	382.05	1112.76	389.18	1113.07
391.33	1113.16	394.57	1113.25	401.59	1113.42	406.87	1113.49	407.86	1113.5
410.88	1113.54	417.36	1113.61	421.16	1113.7	424.56	1113.72	432.71	1113.79
434.46	1113.81	443.37	1113.94	457.72	1114.17	459.95	1114.2	460.29	1114.21
464.44	1114.29	469.39	1114.45	474.35	1114.6	477.64	1114.74	487.48	1115
487.66	1115.01	495.33	1115.2	495.42	1115.2	499.4	1115.3	500.95	1115.35
511.48	1115.64	513.02	1115.67	514.25	1115.72	518	1115.85	518.97	1115.88
521.44	1115.97	527.56	1116.15	530.71	1116.25	538.53	1116.48	540.85	1116.56
547.46	1116.77	548.4	1116.8	554.16	1116.95	558.09	1117.05	566.1	1117.26
567.45	1117.28	571.56	1117.36	573.49	1117.4	577.64	1117.47	580.76	1117.52
583.79	1117.58	590.28	1117.67	594.05	1117.72	597.2	1117.78	599.51	1117.82
601.48	1117.85	607.34	1117.93	616.76	1118.09	619.17	1118.13	620.65	1118.15
625.12	1118.22	625.52	1118.23	633.94	1118.36	636.32	1118.4	636.86	1118.41
642.64	1118.49	651.54	1118.62	654.55	1118.66	659.06	1118.86		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
16.31	.04	139.57	.035	353.2	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
139.57	353.2	100.01	100	103.39	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1119.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1119.55	Reach Len. (ft)	100.01	100.00	103.39
Crit W.S. (ft)		Flow Area (sq ft)	1091.77	2955.03	1228.81
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	1091.77	2955.03	1228.81
Q Total (cfs)	65.47	Flow (cfs)	11.30	47.56	6.61
Top Width (ft)	652.75	Top Width (ft)	123.26	213.63	315.86
Vel Total (ft/s)	0.01	Avg. Vel. (ft/s)	0.01	0.02	0.01
Max Chl Dpth (ft)	15.06	Hydr. Depth (ft)	8.86	13.83	3.89
Conv. Total (cfs)	992922.3	Conv. (cfs)	171417.8	721307.1	100197.3
Length Wtd. (ft)	100.36	Wetted Per. (ft)	125.65	214.35	316.67
Min Ch El (ft)	1104.49	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.36	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	310.99	733.91	1069.84
C & E Loss (ft)		Cum SA (acres)	29.11	41.99	177.09

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 10899.41

INPUT
Description:
Station Elevation Data num= 75

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.24	1118.11	15.46	1117.87	22.19	1116.27	31.29	1114.26	34.3	1113.47
47.12	1110.09	55.36	1108.57	62.96	1108.39	76.43	1108.01	78.79	1107.98
85.96	1107.94	94.63	1107.91	97.49	1107.91	110.45	1108.06	118.55	1108.09
126.29	1108.07	139.21	1107.98	139.62	1107.98	142.12	1107.76	149.72	1106.64
157.95	1105.41	160.68	1105.03	173.79	1104.17	181.74	1104.16	189.62	1104.09
202.8	1104.13	205.46	1104.13	213.49	1104.09	221.28	1104.06	223.86	1104.03
228.98	1103.99	244.93	1103.85	252.95	1103.85	265.99	1103.92	268.78	1103.93
277.26	1103.99	284.62	1104.03	287.05	1104.06	300.45	1104.36	308.12	1104.69
316.29	1106.09	329.18	1108.48	332.12	1108.76	340.44	1109.56	341.03	1109.62
347.95	1110.33	350.24	1110.5	363.79	1111.22	371.3	1111.83	379.61	1112.27
392.37	1112.63	395.45	1112.83	404.8	1113.17	413.43	1113.47	427.12	1113.99
434.49	1114.25	449.13	1114.72	455.56	1114.94	458.78	1115.01	468.56	1115.28
474.62	1115.42	476.62	1115.49	490.45	1115.74	497.68	1115.93	506.29	1116.14
518.75	1116.41	522.11	1116.49	532.34	1116.69	537.94	1116.78	539.81	1116.8
553.78	1116.94	560.87	1116.97	569.61	1117.04	581.93	1117.07	596.11	1117.09

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
13.24	.04	139.21	.035	340.44	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
139.21	340.44	100.05	100	100.96	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1119.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1119.55	Reach Len. (ft)	100.05	100.00	100.96
Crit W.S. (ft)		Flow Area (sq ft)	1221.56	2946.40	1232.46
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	1221.56	2946.40	1232.46
Q Total (cfs)	62.18	Flow (cfs)	11.88	43.58	6.73
Top Width (ft)	582.87	Top Width (ft)	125.97	201.23	255.67
Vel Total (ft/s)	0.01	Avg. Vel. (ft/s)	0.01	0.01	0.01
Max Chl Dpth (ft)	15.70	Hydr. Depth (ft)	9.70	14.64	4.82
Conv. Total (cfs)	1066039.0	Conv. (cfs)	203622.5	747074.2	115342.3
Length Wtd. (ft)	100.15	Wetted Per. (ft)	128.51	201.87	258.30
Min Ch El (ft)	1103.85	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.32	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	308.33	727.14	1066.91
C & E Loss (ft)		Cum SA (acres)	28.82	41.52	176.42

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 10799.4*

INPUT
Description:
Station Elevation Data num= 188

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16.83	1117.78	19.04	1117.44	23.22	1116.51	25.73	1115.84	32.78	1114.03
34.77	1113.57	37.76	1112.82	44.41	1111.15	48.71	1110	50.5	1109.61
58.68	1108.17	61.72	1107.88	64.64	1107.55	65.61	1107.49	66.24	1107.48
79.62	1107.14	80.59	1107.12	81.96	1107.09	86.82	1106.98	89.09	1106.97
96.51	1106.92	97.7	1106.91	100.54	1106.89	108.02	1106.86	112.45	1106.88
113.42	1106.88	121.47	1106.83	125.9	1106.79	128.39	1106.76	129.16	1106.75
129.21	1106.75	141.99	1106.49	142.39	1106.48	144.4	1106.36	144.79	1106.33
150.73	1105.75	152.09	1105.55	159.99	1104.39	160.93	1104.26	162.61	1104.1
172.7	1103.57	175.2	1103.5	177.44	1103.51	182.84	1103.49	190.4	1103.43
191.84	1103.43	193.97	1103.43	194.66	1103.43	203.06	1103.42	205.61	1103.41
210.48	1103.39	213.32	1103.36	216.63	1103.33	220.8	1103.28	223.28	1103.24
227	1103.19	228.2	1103.17	238.61	1103.02	243.51	1102.98	247.52	1102.98
259.39	1103.01	260.72	1103.01	261.17	1103.01	263.8	1103.04	267.29	1103.06
273.93	1103.12	277.87	1103.15	278.74	1103.16	287.06	1103.18	287.14	1103.18
290.09	1103.2	296.31	1103.26	300.35	1103.31	306.82	1103.44	312.58	1103.61
313.88	1103.64	314.5	1103.7	316.39	1103.82	326.59	1105.03	331.44	1105.62
339.97	1107.1	342.68	1107.66	346.35	1108.29	349.01	1108.74	353.16	1109.14
356.74	1109.33	357.82	1109.38	364.18	1109.67	364.67	1109.68	364.84	1109.7
370.54	1109.86	374.74	1109.95	375.55	1109.96	379.31	1110.03	386.43	1110.05
393.78	1110.19	397.31	1110.22	399.64	1110.24	407.98	1110.4	408.18	1110.4
408.25	1110.41	413.43	1110.47	419.06	1110.49	422.72	1110.62	428.7	1110.77
429.94	1110.79	437.19	1110.74	440.82	1110.96	451.66	1110.86	451.69	1110.86
451.79	1110.86	452.14	1110.87	457.8	1110.98	462.57	1111.05	466.13	1111.19
473.44	1111.27	474.98	1111.33	480.6	1111.52	484.32	1111.58	490.83	1111.69
515.98	1112.13	529.52	1112.36	549.59	1112.68	552.94	1112.79	556.42	1112.92
560.45	1113.07	567.42	1113.3	568.23	1113.32	571.33	1113.4	574.15	1113.45
581.89	1113.6	582.21	1113.61	583.21	1113.62	592.11	1113.68	593.09	1113.69
596.35	1113.69	603.25	1113.71	603.97	1113.72	606.92	1113.74	610.82	1113.74
614.84	1113.77	625.3	1113.9	625.72	1113.91	627.01	1113.94	632.33	1114.08
636.6	1114.2	639.76	1114.31	645.61	1114.54	647.48	1114.61	654.23	1114.88
658.35	1115.05	661.43	1115.19	668.7	1115.49	669.22	1115.52	670.82	1115.6
683.17	1116.24	684.32	1116.29	690.49	1116.6	690.98	1116.62	697.64	1116.87
701.86	1117.05	709.29	1117.26	712.11	1117.34	712.73	1117.36	714.63	1117.42
719.57	1117.55	723.01	1117.64	726.58	1117.72	732.47	1117.82	741.05	1117.97
748.67	1118.05	754.07	1118.1	755.52	1118.11	758.44	1118.14	761.7	1118.17
767.11	1118.21	769.99	1118.23	775.68	1118.28	777.76	1118.29	784.46	1118.34
797.29	1118.43	798.93	1118.44	800.39	1118.46	802.24	1118.47	810.63	1118.55
813.39	1118.59	821.5	1118.7	826.44	1118.78				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
16.83	.04	141.99	.035	356.74	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
141.99	356.74		100.05	100 100.96	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

* E.G. Elev (ft)	* 1119.55	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.00	* Wt. n-Val.	* 0.040	* 0.035	* 0.045 *
* W.S. Elev (ft)	* 1119.55	* Reach Len. (ft)	* 100.05	* 100.00	* 100.96 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	* 1324.59	* 3311.31	* 2590.60 *
* E.G. Slope (ft/ft)	*0.000000	* Area (sq ft)	* 1324.59	* 3311.31	* 2590.60 *
* Q Total (cfs)	* 58.34	* Flow (cfs)	* 9.95	* 37.03	* 11.36 *
* Top Width (ft)	* 809.61	* Top Width (ft)	* 125.16	* 214.75	* 469.70 *
* Vel Total (ft/s)	* 0.01	* Avg. Vel. (ft/s)	* 0.01	* 0.01	* 0.00 *
* Max Chl Dpth (ft)	* 16.57	* Hydr. Depth (ft)	* 10.58	* 15.42	* 5.52 *
* Conv. Total (cfs)	*1369578.0	* Conv. (cfs)	*233563.2	*869324.3	*266690.1 *
* Length Wtd. (ft)	* 100.24	* Wetted Per. (ft)	* 128.09	* 215.34	* 470.61 *
* Min Ch El (ft)	* 1102.98	* Shear (lb/sq ft)	* 0.00	* 0.00	* 0.00 *
* Alpha	* 1.42	* Stream Power (lb/ft s)	* 0.00	* 0.00	* 0.00 *
* Frctn Loss (ft)	* 0.00	* Cum Volume (acre-ft)	* 305.41	* 719.95	* 1062.48 *
* C & E Loss (ft)	*	* Cum SA (acres)	* 28.53	* 41.04	* 175.58 *

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 10699.41

INPUT
Description:
Station Elevation Data num= 118

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
20.43	1117.45	26.77	1116.15	36.27	1113.36	47.83	1110.6	52.1	1109.43
65.02	1107.26	67.93	1106.67	68.89	1106.58	83.77	1106.25	89.96	1106.01
99.59	1105.93	111.02	1105.73	115.43	1105.71	128.79	1105.5	131.26	1105.45
132.08	1105.43	144.78	1105	147.09	1104.92	153.15	1104.65	162.93	1103.24
174.21	1102.8	178.76	1102.85	192.56	1102.76	194.6	1102.75	195.27	1102.75
210.43	1102.67	216.33	1102.59	226.27	1102.38	237.4	1102.15	242.1	1102.11
256.33	1102.12	257.92	1102.12	258.46	1102.12	273.76	1102.28	279.52	1102.32
289.59	1102.33	300.59	1102.34	305.43	1102.37	320.1	1102.66	321.65	1102.68
322.4	1102.77	342.71	1104.44	352.93	1106.13	363.77	1108.52	368.75	1109
373.04	1109.1	383.87	1109.36	384.59	1109.36	384.83	1109.38	400.42	1109.4
405.9	1109.42	416.26	1109.26	426.96	1109.33	432.09	1109.28	447.63	1109.22
447.92	1109.2	448.02	1109.21	463.76	1108.99	469.09	1109.15	479.59	1109.29
490.15	1109.07	495.43	1109.46	511.21	1109.1	511.25	1109.1	511.4	1109.1
527.09	1109.17	532.28	1109.38	542.92	1109.41	553.34	1109.77	558.75	1109.81
653.76	1110.76	658.65	1110.92	669.58	1111.34	679.72	1111.67	685.42	1111.83
700.78	1112.08	701.25	1112.08	702.71	1112.09	717.09	1112.08	721.84	1112.05
732.92	1112	742.9	1111.96	748.75	1111.97	763.97	1112.13	764.59	1112.14
766.47	1112.19	780.42	1112.6	785.03	1112.78	796.26	1113.27	806.09	1113.72
812.08	1114.01	827.15	1114.76	827.91	1114.8	830.24	1114.94	848.22	1116.08
859.58	1116.75	869.28	1117.17	875.42	1117.49	890.34	1117.97	891.25	1118.01
894.01	1118.1	911.4	1118.63	919.98	1118.79	932.47	1119.05	951.43	1119.25
953.53	1119.27	957.79	1119.32	970.41	1119.43	974.59	1119.45	982.88	1119.52
995.66	1119.63	1014.33	1119.8	1016.72	1119.82	1021.55	1119.87	1033.75	1120.03
1037.78	1120.11	1049.58	1120.32	1056.77	1120.48				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

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*********************************************
  20.43      .04  144.78     .035  373.04     .045

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        144.78  373.04              97.48     100  154.49            .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.55  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.55  * Reach Len. (ft)         *   97.48  *  100.00  *  154.49  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1426.31  * 3698.75  * 4272.66  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 1426.31  * 3698.75  * 4272.66  *
* Q Total (cfs)           *   54.07  * Flow (cfs)               *    8.03  *   30.44  *   15.61  *
* Top Width (ft)          *  965.47  * Top Width (ft)           *  124.35  *  228.26  *  612.86  *
* Vel Total (ft/s)        *    0.01  * Avg. Vel. (ft/s)         *    0.01  *    0.01  *    0.00  *
* Max Chl Dpth (ft)       *   17.44  * Hydr. Depth (ft)         *   11.47  *   16.20  *    6.97  *
* Conv. Total (cfs)       *1783172.0  * Conv. (cfs)             *264712.3  *1003708.0  *514751.0  *
* Length Wtd. (ft)        *  111.69  * Wetted Per. (ft)         *  127.73  *  228.88  *  613.09  *
* Min Ch El (ft)          * 1102.11  * Shear (lb/sq ft)         *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.41  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Prctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *  302.25  *  711.91  * 1054.53  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   28.25  *   40.53  *  174.32  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 10599.4*

INPUT
Description: Concentration Point U
Station Elevation Data      num=      244
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*********************************************************************************
   15.54 1117.97   18.23 1117.69   22.02 1116.92   24.73 1116.25   31.73 1114.65
   33.22 1114.35   36.74 1113.44   43.54  1111.7   47.91 1110.52    48.2 1110.45
   57.94 1108.16   61.11 1107.59   63.18 1107.19   64.08 1107.08   65.07 1107.01
   75.83 1106.65   79.13 1106.54   80.27 1106.51    86.6 1106.28   93.14 1106.15
   96.44 1106.11  100.33 1106.04  108.12 1105.96  112.63 1105.95  121.52 1105.88
  126.28  1105.8  126.93 1105.79  128.81 1105.76  129.65 1105.74  138.09 1105.54
  142.62 1105.34   142.7 1105.33   145.9 1105.03  150.85 1104.54  154.51 1104.04
  159.41  1103.2  162.67 1102.82  168.39 1102.46  170.53 1102.41  174.49 1102.31
  176.12 1102.27  184.41 1102.14   186.3 1102.14  190.87 1102.16  192.84 1102.16
  198.11 1102.16  209.55 1102.13  209.91 1102.13  210.46 1102.13  210.82 1102.12
  213.35 1102.11  214.31 1102.11  226.26 1102.06  235.83 1102.01   237.2    1102
  242.97 1101.95   244.2 1101.93  245.36 1101.92  251.11 1101.86  257.17 1101.79
  258.32 1101.78  259.68 1101.77  268.98 1101.68  274.12 1101.64   276.4 1101.63
  280.79 1101.61  291.26 1101.62  292.46 1101.62  292.96 1101.63  301.47 1101.65
  303.78 1101.65  304.12 1101.65  304.56 1101.65  309.46 1101.71  315.79 1101.75
  325.97 1101.86   326.8 1101.86  327.46 1101.87  331.06  1101.9  335.17 1101.95
  339.12 1101.98  342.47    1102   349.8 1102.07  350.79 1102.08  358.98 1102.14
  362.45 1102.19  365.78 1102.22  370.85 1102.29  372.82 1102.31  374.12 1102.33
  375.48 1102.36  385.79 1102.61  391.99 1102.77  394.14 1102.82  396.39 1102.87
  397.45 1102.94  397.48 1102.94   408.5 1103.54  409.12 1103.56  410.63 1103.67
  420.78 1104.35     425 1104.74  426.99 1104.92  432.46 1105.58   441.5 1106.77
  441.84 1106.81  444.12 1107.17  450.43 1108.13  455.78 1108.96  457.59  1109.2
  458.01 1109.23  464.83 1109.92  467.45 1110.11  471.07 1110.29  475.78 1110.49
  481.48 1110.76  482.06 1110.77  482.17 1110.78   482.4 1110.79  497.22 1111.19
   497.4  1111.2     498 1111.22  498.33 1111.22  502.67 1111.29  512.63 1111.35
  513.94 1111.37  520.87 1111.48  522.93  1111.5  527.86  1111.5  529.87 1111.51
  542.81 1111.55  543.09 1111.54  543.18 1111.55  543.43 1111.55  545.81 1111.54
  551.57 1111.52  558.32 1111.48  563.45 1111.56  573.55 1111.64   583.7 1111.54
  588.78 1111.74  603.96 1111.57     604 1111.57  604.14 1111.57  619.23 1111.62
  624.23 1111.73  634.46 1111.75  644.48 1111.94  649.68 1111.96  701.25 1112.27
  714.64 1112.56  721.11 1112.65  723.81 1112.69  741.07  1112.8  745.77 1112.88
  746.35  1112.9  756.28 1113.08  766.04 1113.24  771.52 1113.31  784.86 1113.41
  786.29 1113.44  786.74 1113.45  788.15 1113.48  791.44 1113.53  800.79 1113.74
  801.98 1113.77  806.55 1113.87  813.99 1114.05  816.74 1114.09   817.2 1114.09
  823.35  1114.2   826.8 1114.24  832.43 1114.33  832.68 1114.34  836.54 1114.41
  847.07 1114.57  847.67 1114.59   848.6 1114.61  849.47 1114.63  859.09 1114.91
  862.89    1115  864.54 1115.04  867.33 1115.13  877.71 1115.48  878.13 1115.49
  880.48 1115.57  881.63 1115.61  887.58 1115.77  893.34 1115.94  896.42 1116.02
  904.19  1116.3  907.84  1116.4  908.57 1116.42  910.81 1116.49  912.36 1116.54
  926.73 1117.06   928.1 1117.12  928.28 1117.13  932.06 1117.26  939.03 1117.51
  944.23 1117.66  948.36 1117.78  949.28 1117.81  954.26 1117.98  961.47 1118.15
  968.61 1118.32  969.49 1118.34  971.82  1118.4  972.14 1118.41   976.1  1118.5
  986.41  1118.7  988.87 1118.74  992.05 1118.78  994.38 1118.81  997.12 1118.85
 1000.01 1118.89 1009.14 1119.03 1016.92 1119.11 1023.91 1119.19 1027.37 1119.22
 1029.39 1119.24 1033.49 1119.28 1039.47 1119.33 1039.84 1119.33 1040.77 1119.34
 1045.63 1119.39 1049.65 1119.43 1057.62 1119.51 1062.02 1119.56 1069.91 1119.61
 1077.07 1119.66 1084.57 1119.74 1087.65 1119.78 1087.87 1119.78 1090.17 1119.79
 1094.81 1119.81 1095.13 1119.81 1103.59 1119.92 1106.55 1119.94 1107.11 1119.95
 1110.43 1120.02 1119.54  1120.2 1121.77 1120.22 1128.69 1120.31

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   15.54      .04  142.62     .035  471.07     .045

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        142.62  471.07              97.48     100  154.49            .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.55  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.55  * Reach Len. (ft)         *   97.48  *  100.00  *  154.49  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1391.91  * 5399.14  * 3148.72  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 1391.91  * 5399.14  * 3148.72  *
* Q Total (cfs)           *   55.89  * Flow (cfs)               *    6.85  *   40.37  *    8.66  *
* Top Width (ft)          * 1045.16  * Top Width (ft)           *  127.08  *  328.45  *  589.63  *
* Vel Total (ft/s)        *    0.01  * Avg. Vel. (ft/s)         *    0.00  *    0.01  *    0.00  *
* Max Chl Dpth (ft)       *   17.94  * Hydr. Depth (ft)         *   10.95  *   16.44  *    5.34  *
* Conv. Total (cfs)       *2048957.0  * Conv. (cfs)             *251279.8  *1480068.0  *317609.3  *
* Length Wtd. (ft)        *  103.64  * Wetted Per. (ft)         *  129.93  *  329.06  *  589.75  *
* Min Ch El (ft)          * 1101.61  * Shear (lb/sq ft)         *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.41  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Prctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *  299.10  *  701.46  * 1041.37  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   27.97  *   39.89  *  172.19  *
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Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 10499.41

INPUT
Description:
Station Elevation Data num= 132

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
10.65	1118.49	13.4	1118.48	20.04	1117.12	28.71	1115.69	32.31	1114.69
44.01	1111.52	53.96	1108.54	59.32	1107.53	72.24	1106.95	75.61	1106.81
89.92	1106.34	97.26	1106.22	105.23	1106.2	118.91	1106.18	124.44	1106.1
135.84	1105.93	140.47	1105.68	140.57	1105.67	151.13	1104.32	162.22	1102.24
166.44	1101.82	176.63	1101.64	181.75	1101.54	183.87	1101.52	197.05	1101.47
205.53	1101.48	212.36	1101.5	227.18	1101.5	227.65	1101.5	228.83	1101.49
248.83	1101.41	263	1101.34	270.48	1101.29	273.57	1101.27	281.03	1101.23
288.88	1101.18	292.13	1101.18	304.18	1101.13	313.79	1101.12	319.48	1101.11
333.22	1101.13	334.79	1101.13	335.44	1101.14	350.09	1101.18	357.09	1101.26
365.4	1101.29	378.75	1101.44	380.7	1101.45	385.43	1101.5	396	1101.64
400.4	1101.68	411.31	1101.83	422.05	1101.95	426.61	1102.04	437.62	1102.21
441.92	1102.28	443.7	1102.31	457.22	1102.67	465.36	1102.9	472.52	1103.11
487.01	1103.69	487.83	1103.7	489.81	1103.83	503.13	1104.62	508.66	1105.16
518.44	1106.09	530.31	1107.44	533.74	1107.87	542.02	1108.83	549.04	1109.68
551.96	1109.92	564.35	1111.18	569.09	1111.48	573.62	1111.76	579.65	1112.19
594.21	1112.99	594.96	1113.03	595.27	1113.03	610.26	1113.48	616.92	1113.64
625.56	1113.75	638.58	1113.89	640.87	1113.91	646.4	1113.96	790.14	1114.2
803	1114.63	809.21	1114.75	811.8	1114.8	833.45	1114.85	870.43	1114.76
876.75	1114.98	885.73	1115.4	898.4	1116.08	901.04	1116.17	907.39	1116.42
916.35	1116.7	920.06	1116.81	931.64	1117.05	941.71	1117.33	946.95	1117.42
959.59	1117.71	962.25	1117.76	963.36	1117.79	977.56	1117.88	985.02	1118.03
992.87	1118.04	1006.67	1118.14	1008.16	1118.16	1011.79	1118.2	1023.47	1118.33
1028.32	1118.41	1040.03	1118.57	1049.97	1118.71	1054.08	1118.78	1063.98	1118.84
1069.39	1118.87	1071.63	1118.89	1077.04	1118.93	1093.28	1119.08	1099.99	1119.17
1114.93	1119.28	1115.29	1119.29	1116.18	1119.29	1136.59	1119.56	1151.04	1119.63
1158.24	1119.71	1161.2	1119.76	1168.38	1119.75	1176.51	1119.85	1179.89	1119.86
1191.82	1120.12	1200.61	1120.15						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
10.65	.04	140.47	.035	569.09	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
140.47	569.09	197.94	200	333.9	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1119.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1119.54	Reach Len. (ft)	197.94	200.00	333.90
Crit W.S. (ft)		Flow Area (sq ft)	1354.45	7144.93	2099.53
E.G. Slope (ft/ft)	0.000001	Area (sq ft)	1354.45	7144.93	2099.53
Q Total (cfs)	2786.93	Flow (cfs)	277.79	2314.73	194.41
Top Width (ft)	1124.65	Top Width (ft)	129.82	428.62	566.21
Vel Total (ft/s)	0.26	Avg. Vel. (ft/s)	0.21	0.32	0.09
Max Chl Dpth (ft)	18.43	Hydr. Depth (ft)	10.43	16.67	3.71
Conv. Total (cfs)	2380553.0	Conv. (cfs)	237287.2	1977204.0	166061.3
Length Wtd. (ft)	227.95	Wetted Per. (ft)	132.25	429.35	566.34
Min Ch El (ft)	1101.11	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.33	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	296.02	687.06	1032.06
C & E Loss (ft)		Cum SA (acres)	27.68	39.02	170.14

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: FRS
REACH: FRS2 RS: 10299.41

INPUT
Description:
Station Elevation Data num= 156

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17.3	1118.58	17.42	1118.56	17.7	1118.48	32.5	1114.19	39.3	1112.32
47.6	1110.05	61.3	1106.07	62.68	1105.85	65.7	1105.8	77.77	1105.69
83.3	1105.55	92.85	1105.47	105.3	1105.44	107.94	1105.45	113.72	1105.43
123.02	1105.41	127.3	1105.36	138.08	1104.96	138.12	1104.96	149.3	1103.83
153.2	1103.24	161.72	1102.39	168.29	1101.66	171.3	1101.47	183.37	1101.28
193.3	1101.11	198.46	1101.07	209.73	1101.05	213.54	1101.04	215.3	1101.04
228.64	1101.13	237.3	1101.35	243.72	1101.48	257.73	1102.89	258.81	1102.96
259.3	1103.04	273.89	1105.51	281.3	1106.88	288.98	1107.4	303.05	1108.08
303.3	1108.09	304.06	1108.07	305.74	1108.21	319.15	1108.7	325.3	1108.9
334.23	1109.1	347.3	1109.3	349.33	1109.26	353.75	1109.29	364.41	1109.2
369.3	1109.2	379.5	1109.09	391.3	1109.15	394.58	1109.16	401.75	1109.25
409.67	1109.28	413.3	1109.32	424.75	1109.42	435.3	1109.55	439.85	1109.58
449.77	1109.66	457.3	1109.73	470.02	1109.71	479.3	1109.74	485.1	1109.73
497.77	1109.8	500.19	1109.81	501.3	1109.83	515.27	1110	523.3	1110.13
530.37	1110.31	545.3	1110.67	545.78	1110.69	567.3	1111.22	575.62	1111.43
589.3	1111.71	590.71	1111.74	593.79	1111.79	605.79	1111.97	611.3	1112.02
620.89	1112.12	633.3	1112.28	635.96	1112.3	641.8	1112.38	651.06	1112.49
655.3	1112.57	666.14	1112.7	677.3	1112.92	681.23	1112.99	689.8	1113.14
696.31	1113.24	699.3	1113.29	711.4	1113.46	721.3	1113.55	726.48	1113.64
737.81	1113.76	741.58	1113.83	743.3	1113.86	756.66	1114.15	765.3	1114.28
771.75	1114.39	785.82	1114.6	786.83	1114.61	787.3	1114.62	801.92	1114.82
809.3	1114.94	817	1115.03	831.3	1115.24	832.1	1115.25	833.82	1115.27
847.18	1115.32	853.3	1115.36	862.27	1115.4	875.3	1115.53	877.35	1115.55
881.84	1115.62	892.44	1115.7	897.3	1115.77	910.38	1115.97	919.3	1116.09
929.84	1116.25	937.69	1116.35	941.3	1116.41	952.79	1116.55	963.3	1116.69
967.87	1116.74	977.85	1116.89	982.96	1116.95	985.3	1116.97	998.04	1117.13
1007.3	1117.28	1013.13	1117.36	1025.85	1117.55	1028.21	1117.59	1029.3	1117.6
1043.31	1117.74	1051.3	1117.82	1058.39	1117.87	1073.3	1118.02	1073.48	1118.02
1073.86	1118.03	1088.56	1118.24	1095.3	1118.33	1103.65	1118.45	1117.31	1118.68
1121.87	1118.76	1139.3	1119.06	1148.91	1119.23	1161.31	1119.52	1169.87	1119.68

```
 1183.3 1119.95 1194.17 1120.11 1205.31 1120.32 1209.25 1120.37 1217.89  1120.5
1221.97 1120.56

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    17.3     .04  138.08    .035  303.05    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        138.08  303.05            205.12     200  199.25            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.54  * Element                  *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.               *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.54  * Reach Len. (ft)          *  205.12  *  200.00  *  199.25  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)        * 1396.05  * 2725.33  * 5080.37  *
* E.G. Slope (ft/ft)      *0.000003  * Area (sq ft)             * 1396.05  * 2725.33  * 5080.37  *
* Q Total (cfs)           * 2783.80  * Flow (cfs)               *  466.64  * 1337.38  *  979.77  *
* Top Width (ft)          * 1145.19  * Top Width (ft)           *  120.78  *  164.97  *  859.44  *
* Vel Total (ft/s)        *    0.30  * Avg. Vel. (ft/s)         *    0.33  *    0.49  *    0.19  *
* Max Chl Dpth (ft)       *   18.50  * Hydr. Depth (ft)         *   11.56  *   16.52  *    5.91  *
* Conv. Total (cfs)       *1558146.0  * Conv. (cfs)             *261189.1  *748558.8  *548398.4  *
* Length Wtd. (ft)        *  200.60  * Wetted Per. (ft)         *  123.52  *  165.61  *  859.54  *
* Min Ch El (ft)          * 1101.04  * Shear (lb/sq ft)         *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.61  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *  289.77  *  664.41  * 1004.55  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   27.11  *   37.66  *  164.67  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

LATERAL STRUCTURE


RIVER: FRS
REACH: FRS2                RS: 10299

INPUT
Description:
Lateral structure position      = Left overbank
Distance from Upstream XS =      .43
Deck/Roadway Width          =      10
Weir Coefficient            =     2.7
Weir Flow Reference         = Water Surface
 Weir Embankment Coordinates     num =        7
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*********************************************************************************************
       01119.078     9821118.737    25851118.612    35751118.894    44701118.746
    55111118.676    60141118.914

Weir crest shape                          = Broad Crested


LATERAL STRUCTURE OUTPUT  Profile #Max WS  Lat Struct
*********************************************************************
* E.G. US. (ft)           * 1119.54  * Weir Sta US (ft)        *    0.00  *
* W.S. US. (ft)           * 1119.54  * Weir Sta DS (ft)        * 6014.00  *
* E.G. DS (ft)            * 1119.54  * Weir Max Depth (ft)     *    0.91  *
* W.S. DS (ft)            * 1119.54  * Weir Avg Depth (ft)     *    0.77  *
* Q US (cfs)              * 2783.80  * Weir Submerg            *    0.00  *
* Q Leaving Total (cfs)   *10970.73  * Min El Weir Flow (ft)   * 1118.61  *
* Q DS (cfs)              *  313.87  * Wr Top Wdth (ft)        * 6014.00  *
* Perc Q Leaving          *  394.09  * Q Gate Group (cfs)      *          *
* Q Weir (cfs)            *10970.73  * Gate Open Ht (ft)       *          *
* Q Gates (cfs)           *          * Gate #Open               *          *
* Q Culv (cfs)            *          * Gate Area (sq ft)        *          *
* Q Lat RC (cfs)          *          * Gate Submerg             *          *
* Weir Flow Area (sq ft)  * 4629.24  * Gate Invert (ft)         *          *
*********************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 10099.41

INPUT
Description:
Station Elevation Data     num=      152
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*********************************************************************************************
   17.72 1118.57   19.23 1118.41   23.27 1117.42   34.77 1114.94   39.08 1113.69
    50.3 1110.73   60.44  1107.8   65.83 1106.68    80.2 1105.74    81.8 1105.63
   82.76 1105.63  103.17 1105.32  112.43 1105.32  124.53 1105.26  127.97 1105.17
  137.13 1104.82   143.5 1104.59  144.52 1104.52  145.89 1104.43  159.03 1103.06
  167.25 1101.88  174.57 1101.35  188.61 1101.23   190.1 1101.21  194.06 1101.22
  205.63 1101.22  209.98 1101.23  221.17 1101.25  231.34 1101.25   236.7 1101.24
     251 1101.25  252.23 1101.24   252.7 1101.25  267.76 1101.41  274.06 1101.52
   283.3 1101.79  295.42 1102.27  298.83 1102.43  307.93 1103.33  314.36 1103.87
  316.78 1104.22   329.9 1106.82  338.14 1107.92  341.59 1108.04  345.43 1108.18
  359.51 1108.62  360.96 1108.66  364.86 1108.73   376.5 1108.92  380.87 1108.95
  392.03 1109.12  402.23 1109.19  407.56 1109.25   421.8 1109.24   423.1 1109.25
  423.59 1109.25  438.63 1109.33  444.95 1109.34  454.16 1109.35  466.31 1109.37
   469.7 1109.38  478.72 1109.44  485.23 1109.54  487.67 1109.58  500.76 1109.83
  509.04 1109.98   516.3 1110.16   530.4 1110.45  531.83  1110.5  535.65  1110.6
  547.36 1110.94  551.76 1111.03   562.9 1111.31  573.12 1111.49  578.43 1111.59
  592.59 1111.78  593.96  1111.8  594.48 1111.81   609.5  1112.1  615.84 1112.19
  625.03 1112.37   637.2 1112.57  640.56 1112.61  649.52 1112.83   656.1 1112.97
  658.57    1113  671.63 1113.22  679.93 1113.42  687.16 1113.51  701.29 1113.86
  706.45 1113.94  718.23 1114.08  722.65 1114.16  733.76 1114.22  744.01 1114.39
  749.29 1114.41  763.38 1114.63  764.83 1114.64  765.37 1114.65  780.36 1114.69
  786.73 1114.78  795.89 1114.84   808.1 1115.03  811.43 1115.08  820.32  1115.2
  826.96 1115.29  829.46 1115.34  842.49 1115.58  850.82 1115.71  858.03 1115.85
  872.18 1116.02  873.56 1116.04  877.24  1116.1  889.09 1116.34  893.54 1116.41
  904.63 1116.62   914.9 1116.82  920.16 1116.92  934.17 1117.24  935.69 1117.27
  936.27 1117.28  951.23 1117.65  957.63 1117.76  966.76 1117.97  978.99 1118.19
  982.29 1118.29  991.11 1118.51  997.83 1118.68 1000.35 1118.73 1013.36 1119.02
 1021.71 1119.17 1028.89 1119.21 1043.07 1119.39 1044.43 1119.37 1048.04 1119.38
 1059.96 1119.38 1064.44 1119.39 1075.49 1119.32  1085.8 1119.28 1091.02 1119.36
 1104.97 1119.45 1106.56 1119.46 1107.16 1119.46 1108.46 1119.49 1128.52 1119.91
 1137.62  1120.1 1149.88 1120.35 1161.91 1120.54 1171.24 1120.67 1184.22 1120.81
  1192.6 1120.92 1194.37 1120.93
```

```
Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**********************************************
   17.72     .04  144.52    .035  341.59    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        144.52  341.59             199.14     200  202.02             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1119.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.54  * Reach Len. (ft)         *  199.14  *  200.00  *  202.02  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1432.83  * 3369.31  * 4300.67  *
* E.G. Slope (ft/ft)      *0.000002  * Area (sq ft)            * 1432.83  * 3369.31  * 4300.67  *
* Q Total (cfs)           * 2583.89  * Flow (cfs)              *  412.00  * 1475.35  *  696.53  *
* Top Width (ft)          * 1093.22  * Top Width (ft)          *  126.80  *  197.07  *  769.35  *
* Vel Total (ft/s)        *    0.28  * Avg. Vel. (ft/s)        *    0.29  *    0.44  *    0.16  *
* Max Chl Dpth (ft)       *   18.33  * Hydr. Depth (ft)        *   11.30  *   17.10  *    5.59  *
* Conv. Total (cfs)       *1659141.0  * Conv. (cfs)            *264551.6  *947340.7  *447248.7  *
* Length Wtd. (ft)        *  200.44  * Wetted Per. (ft)        *  129.31  *  197.69  *  769.47  *
* Min Ch El (ft)          * 1101.21  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.61  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  283.11  *  650.41  *  983.09  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   26.53  *   36.83  *  160.95  *
**********************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 9899.414

INPUT
Description:
Station Elevation Data     num=     134
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
   22.03 1118.01   27.18 1117.05   37.47 1113.89   40.65 1110.73   52.92 1109.48
   63.91 1106.48   68.37 1105.23   70.11 1104.97   83.82 1104.79   91.58 1104.67
   99.26 1104.65  113.04 1104.77   114.7 1104.78     119 1104.79  130.15 1104.85
  134.51 1104.81  143.65 1104.24   145.6 1104.12  155.97 1103.01  174.09 1101.55
  177.43 1101.32  191.94 1101.09   198.9 1101.06  207.39 1101.05  220.36 1101.05
  222.83 1101.04  229.18 1101.02  241.83 1100.98  253.72 1100.99   263.3 1101.07
  284.26 1101.52  284.62 1101.53  284.76 1101.53  300.06  1102.2  306.22 1102.44
  315.51 1103.38  327.69 1105.05  330.95  1105.5  339.34 1106.46   346.4 1107.34
  349.15 1107.54  351.43 1107.64  361.85 1108.11  370.62 1108.39  377.29 1108.54
  392.08 1108.77  392.74 1108.78  394.43 1108.79  413.55 1108.95  423.63 1109.03
  435.01 1109.09  439.08 1109.14  449.52 1109.25  454.52  1109.3  456.47 1109.31
  469.97 1109.56  477.94  1109.7  485.41 1109.85  499.41 1110.24  500.86 1110.27
  504.61  1110.4  516.31 1110.63  520.87  1110.8  531.75 1110.96  542.33 1111.27
   547.2 1111.31   559.7 1111.62  562.65 1111.67   563.8  1111.7  578.09 1111.93
  585.26  1112.1  593.54 1112.24  606.73 1112.57  608.98  1112.6  614.79 1112.75
  624.43 1112.86  628.19 1112.94  639.88 1113.01  649.66 1113.17  655.32 1113.19
  669.88 1113.33  670.77 1113.33  671.12 1113.33  686.21  1113.3  692.58 1113.29
  701.67 1113.23  714.05 1113.17  717.11 1113.17  724.97 1113.36  732.55 1113.61
  735.52 1113.68     748 1114.07  756.98 1114.27  763.44 1114.43  778.44 1114.69
   778.9 1114.69  780.05  1114.7  794.34 1114.84  799.91 1114.86 1026.03 1115.01
 1036.02  1115.2 1041.47 1115.35 1055.49 1115.63 1056.93 1115.66 1057.48 1115.68
 1072.37 1116.02 1078.95 1116.11 1087.81  1116.3 1100.41 1116.42 1103.26 1116.47
 1110.58 1116.52  1118.7 1116.65 1121.88 1116.67 1134.16 1116.86 1143.34 1116.96
  1149.6 1117.07 1164.81 1117.31 1165.04 1117.32 1165.67 1117.33 1180.49 1117.79
 1186.27 1118.06 1195.94 1118.39 1207.74 1118.98 1211.39  1119.1 1220.76 1119.47
 1226.83 1119.71  1229.2 1119.79 1234.59 1119.92 1250.67  1120.4 1257.72  1120.6
 1272.13 1120.94 1273.17 1120.97 1275.84 1121.04 1282.58 1121.15

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**********************************************
   22.03     .04  143.65    .035  351.43    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        143.65  351.43             200.4     200   200.4             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1119.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.54  * Reach Len. (ft)         *  200.40  *  200.00  *  200.40  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1474.80  * 3575.36  * 5138.75  *
* E.G. Slope (ft/ft)      *0.000002  * Area (sq ft)            * 1474.80  * 3575.36  * 5138.75  *
* Q Total (cfs)           * 2347.06  * Flow (cfs)              *  360.69  * 1282.93  *  703.44  *
* Top Width (ft)          * 1200.55  * Top Width (ft)          *  121.62  *  207.78  *  871.15  *
* Vel Total (ft/s)        *    0.23  * Avg. Vel. (ft/s)        *    0.24  *    0.36  *    0.14  *
* Max Chl Dpth (ft)       *   18.56  * Hydr. Depth (ft)        *   12.13  *   17.21  *    5.90  *
* Conv. Total (cfs)       *1848118.0  * Conv. (cfs)            *284016.3  *1010201.0  *553900.3  *
* Length Wtd. (ft)        *  200.19  * Wetted Per. (ft)        *  124.95  *  208.25  *  871.30  *
* Min Ch El (ft)          * 1100.98  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.61  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  276.47  *  634.47  *  961.20  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   25.96  *   35.90  *  157.15  *
**********************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 9699.414

INPUT
Description:
Station Elevation Data     num=     141
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
   19.22 1118.42   26.16 1117.12   40.65 1112.84   41.65 1112.57   44.23 1111.85
   57.12 1108.26   62.08 1106.77   72.59  1104.5   83.51 1103.68   88.07 1103.62
   99.93 1103.45  103.55 1103.39  104.94 1103.38  119.02 1103.47  126.37 1103.52
   134.5 1103.48  147.79 1103.34  149.95 1103.15  149.97 1103.15  155.63 1102.34
  165.44 1100.94  169.22 1100.69  180.92  1100.6  190.65 1100.48   196.4 1100.47
  211.33 1100.58  211.87 1100.59  212.08 1100.59  227.35 1100.71  233.51  1100.8
```

```
 242.82 1100.84  254.94 1100.97  258.29 1101.02  267.03 1101.14  273.77 1101.25
 276.37 1101.33  289.25 1102.08   297.8  1102.3  304.72 1102.69  319.23 1104.07
 320.19 1104.19  322.73 1104.28  332.75  1104.5  335.68 1104.57  340.65 1104.95
 351.15 1105.15  362.09  1105.5  366.62 1105.49  378.43  1105.6   382.1 1105.66
 383.51 1105.68  397.57 1105.82  404.94  1105.9  413.05 1106.03  426.37 1106.28
 428.53 1106.33  434.13 1106.48   447.8 1106.85  456.34  1107.1  469.23 1107.48
 489.83 1108.01  490.66 1108.03  491.17 1108.04  512.09 1108.45  521.38 1108.62
 533.52 1108.73  536.85  1108.8  545.53 1108.91  552.32 1109.01  554.95 1109.04
 567.81 1109.37  576.37  1109.5  583.28  1109.7  597.81 1110.01  598.75 1110.03
 601.22  1110.1  614.23 1110.44  619.23 1110.55   629.7 1110.75  640.66 1111.04
 645.18 1111.06  656.93 1111.37  660.66 1111.45  662.09  1111.5  676.13 1111.72
 683.52 1111.95  700.14 1112.34  704.95 1112.41  712.62 1112.57  722.55 1112.74
 726.38 1112.84  738.03 1113.04  747.81 1113.33  753.51  1113.5  768.33 1114.02
 768.98 1114.03  769.24 1114.04  784.45 1114.26  790.67 1114.42  804.63 1114.68
 812.09 1114.78  815.41 1114.67  824.02 1114.87  830.88 1114.87  833.53 1114.93
 846.36 1115.23  854.95 1115.36 1032.07 1116.14 1046.82 1117.06 1047.54  1117.1
1047.81 1117.11 1063.01 1117.61 1069.25 1117.89 1078.49 1118.09 1090.67 1118.46
1093.97 1118.52 1102.53  1118.7 1109.44 1118.81  1112.1 1118.86 1124.92    1119
1133.53 1119.11 1140.39 1119.18 1154.96 1119.39 1155.86  1119.4 1158.22 1119.45
1171.34 1119.59 1176.39 1119.72 1186.82  1119.9 1197.82  1120.3 1202.29  1120.4
1213.92 1120.79 1217.77  1120.9 1219.25 1120.93 1233.24  1121.3 1240.68 1121.55
1248.71 1121.76 1262.11 1122.21  1264.2 1122.25 1269.62 1122.42 1279.67 1122.59
1283.54 1122.78

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
   19.22     .04  149.95    .035  332.75    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        149.95  332.75            192.65     200  212.87             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.54  * Reach Len. (ft)         *  192.65  *  200.00  *  212.87  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1669.02  * 3290.64  * 5785.08  *
* E.G. Slope (ft/ft)      *0.000001  * Area (sq ft)            * 1669.02  * 3290.64  * 5785.08  *
* Q Total (cfs)           * 2063.15  * Flow (cfs)              *  346.43  *  995.41  *  721.32  *
* Top Width (ft)          * 1147.63  * Top Width (ft)          *  130.73  *  182.80  *  834.09  *
* Vel Total (ft/s)        *    0.19  * Avg. Vel. (ft/s)        *    0.21  *    0.30  *    0.12  *
* Max Chl Dpth (ft)       *   19.07  * Hydr. Depth (ft)        *   12.77  *   18.00  *    6.94  *
* Conv. Total (cfs)       *1986809.0  * Conv. (cfs)            *  333608.4  *958574.6  *694626.0  *
* Length Wtd. (ft)        *  203.69  * Wetted Per. (ft)        *  133.72  *  183.08  *  834.30  *
* Min Ch El (ft)          * 1100.47  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.54  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  269.24  *  618.71  *  936.07  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   25.38  *   35.00  *  153.22  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 9499.415

INPUT
Description:
Station Elevation Data     num=     147
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    15.7 1118.54    30.5 1115.37   30.53 1115.37   30.55 1115.36   45.36 1111.16
    53.1 1109.17   60.19 1107.08   73.81 1105.21   75.02 1104.96   75.65 1104.94
   89.84  1104.3    98.2 1104.14  104.68 1104.04  117.13 1103.99   119.5 1103.97
  120.74 1103.96  134.33  1103.7  143.29 1103.64  145.93 1103.44  149.15  1103.2
  160.44 1101.35  163.99 1100.74  165.84 1100.62  178.81 1100.46  188.38 1100.25
  193.64 1100.18  203.75 1100.13  208.48  1100.1  210.93 1100.09   223.3 1100.04
  233.48 1100.07  238.13 1100.12  247.07 1100.27  252.96 1100.37  256.03  1100.6
  267.79 1102.07  278.58 1103.17  282.61  1103.7  290.38 1104.42  297.45 1105.08
  301.12 1105.24  311.86 1105.48  312.28 1105.49  323.67 1105.84   327.1 1105.87
   333.7 1106.03  341.93 1106.14  346.22 1106.31  356.76 1106.36  368.77  1106.6
  371.58  1106.6  377.02 1106.65  386.41 1106.69  391.31 1106.74  401.25 1106.73
  413.86 1106.83  416.07 1106.83  420.33 1106.87   430.9  1106.9  436.41 1106.97
  445.73 1107.04  458.95 1107.25  460.56 1107.27  463.65 1107.31   481.5 1107.53
  490.22 1107.63  504.05 1107.85  505.05 1107.86  506.96 1107.89  519.87 1108.05
   526.6 1108.18   534.7 1108.29  549.15 1108.48  549.53 1108.49  550.27 1108.49
  564.35 1108.57  571.69 1108.58  579.18 1108.63  593.59 1108.61  594.02 1108.61
  594.24 1108.61  608.84 1108.82  616.79 1108.89  623.67 1109.11   636.9 1109.25
   638.5 1109.29  639.33  1109.3  653.33 1109.76  661.88 1109.84  668.15 1109.94
  680.22 1110.18  682.99 1110.25  684.43 1110.28  697.82 1110.63  706.98 1110.88
  712.64 1111.04  723.53 1111.34  727.47 1111.45  729.53  1111.5   742.3 1111.83
  752.07 1112.07  757.12  1112.2  766.84 1112.45  771.96 1112.59  774.62 1112.66
  786.79 1113.03  797.17 1113.31  810.16 1113.69  816.44 1113.87  819.72 1113.97
  831.27 1114.32  842.26 1114.66   846.1 1114.77  853.47 1115.01  860.92 1115.27
  864.81 1115.42  875.76 1115.85  887.36 1116.27  890.58 1116.44  896.79  1116.7
  905.41 1117.11   909.9 1117.24  924.14 1117.83  932.46 1118.25  940.11  1118.6
  949.89 1119.06     955 1119.19  964.73 1119.56  977.55 1119.91  979.56 1119.98
  983.42 1120.05  994.38 1120.35  1000.1 1120.45 1009.22 1120.65 1022.64 1120.81
 1024.04 1120.84 1026.74 1120.87 1038.87 1121.14 1045.19 1121.22 1053.69 1121.51
 1067.74  1121.8 1068.53 1121.83 1070.05 1121.89 1083.35 1122.46 1090.28 1122.64
 1098.18 1122.89 1112.83 1123.09

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
    15.7     .04  145.93    .035  311.86    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        145.93  311.86            197.76     200  209.49             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.54  * Reach Len. (ft)         *  197.76  *  200.00  *  209.49  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1581.67  * 2981.02  * 5806.70  *
* E.G. Slope (ft/ft)      *0.000001  * Area (sq ft)            * 1581.67  * 2981.02  * 5806.70  *
* Q Total (cfs)           * 1770.74  * Flow (cfs)              *  271.72  *  768.64  *  730.38  *
* Top Width (ft)          *  948.56  * Top Width (ft)          *  130.23  *  165.93  *  652.40  *
* Vel Total (ft/s)        *    0.17  * Avg. Vel. (ft/s)        *    0.17  *    0.26  *    0.13  *
* Max Chl Dpth (ft)       *   19.50  * Hydr. Depth (ft)        *   12.15  *   17.97  *    8.90  *
```

```
* Conv. Total (cfs)       *1996056.0  * Conv. (cfs)            *306292.0  *866450.2  *823313.7  *
* Length Wtd. (ft)        *  203.28   * Wetted Per. (ft)       *  132.89  *  166.41  *  652.60  *
* Min Ch El (ft)          * 1100.04   * Shear (lb/sq ft)       *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.37   * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00   * Cum Volume (acre-ft)   *  262.05  *  604.31  *  907.75  *
* C & E Loss (ft)         *           * Cum SA (acres)         *   24.80  *   34.20  *  149.59  *
*****************************************************************************************************
```

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 9299.414

INPUT
Description:
Station Elevation Data num= 169

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
12.42	1118.91	19.91	1118.14	27.1	1117.59	31.17	1116.45	41.77	1113.11
54.14	1109.48	56.45	1108.8	60.54	1107.5	71.12	1104.23	77.12	1103.23
85.81	1102.68	100.1	1102.44	100.49	1102.44	101.17	1102.44	115.16	1102.47
123.07	1102.49	129.84	1102.51	141.3	1102.53	141.81	1102.53	144.51	1102.53
146.05	1102.44	159.19	1101.34	169.02	1100.57	173.86	1100.29	182.44	1100.09
188.54	1099.96	192	1099.91	203.22	1099.79	214.97	1099.72	217.89	1099.7
223.07	1099.66	232.58	1099.6	237.95	1099.56	247.25	1099.51	260.93	1099.5
261.93	1099.51	263.71	1099.52	276.61	1099.59	283.9	1099.68	291.28	1099.78
304.34	1100	305.96	1100.03	306.88	1100.05	320.63	1100.42	329.86	1100.83
335.31	1101.06	344.97	1102.13	349.99	1102.53	352.83	1103.08	363.05	1103.83
365.86	1104.17	385.61	1105.34	398.78	1105.3	421.76	1105.5	423.37	1105.5
426.24	1105.55	438.05	1105.69	444.73	1105.83	452.73	1105.96	466.87	1106.25
467.4	1106.26	467.71	1106.26	482.08	1106.41	490.69	1106.5	496.75	1106.59
507.5	1106.74	511.43	1106.8	513.66	1106.84	526.11	1107.04	536.64	1107.22
540.78	1107.26	548.14	1107.36	555.47	1107.49	559.61	1107.59	570.14	1107.72
582.59	1107.9	584.82	1107.93	588.77	1107.97	599.5	1108.13	605.57	1108.23
614.17	1108.4	628.54	1108.7	628.85	1108.71	629.4	1108.73	643.52	1109.1
651.52	1109.33	658.21	1109.51	670.04	1109.81	672.88	1109.88	674.49	1109.92
687.55	1110.22	697.47	1110.45	702.24	1110.56	710.67	1110.75	716.91	1110.89
720.44	1110.97	731.59	1111.23	743.42	1111.5	746.26	1111.56	751.3	1111.68
760.94	1111.89	766.4	1112	775.62	1112.19	789.37	1112.5	790.29	1112.51
791.94	1112.55	812.35	1112.96	819.65	1113.11	832.57	1113.42	834.33	1113.46
835.32	1113.48	849.01	1113.75	858.3	1113.89	863.68	1113.97	873.2	1114.1
878.36	1114.15	881.27	1114.16	893.03	1114.26	904.25	1114.33	907.71	1114.37
913.83	1114.47	922.39	1114.6	927.23	1114.66	937.06	1114.81	950.2	1115.08
951.74	1115.09	954.47	1115.13	966.41	1115.27	973.18	1115.37	981.1	1115.43
995.1	1115.51	995.77	1115.51	996.16	1115.51	1010.45	1115.62	1019.13	1115.67
1025.13	1115.84	1035.73	1116.07	1039.8	1116.18	1042.11	1116.22	1054.48	1117.15
1065.08	1117.99	1069.15	1118.1	1076.37	1118.33	1083.84	1118.58	1088.06	1118.72
1098.51	1118.86	1111.03	1119.07	1113.18	1119.09	1117	1119.14	1127.87	1119.28
1134.01	1119.37	1142.54	1119.48	1156.99	1119.7	1157.22	1119.71	1157.63	1119.71
1171.9	1119.97	1179.96	1120.11	1186.57	1120.23	1198.27	1120.45	1201.25	1120.52
1202.94	1120.55	1215.92	1120.84	1225.92	1121.06	1230.61	1121.16	1238.9	1121.35
1245.28	1121.48	1248.89	1121.55	1259.95	1121.75	1261.6	1121.77		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
12.42	.04	141.3	.035	365.86	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
141.3	365.86	202.38	200	194.79	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

```
*****************************************************************************************************
* E.G. Elev (ft)          * 1119.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.54  * Reach Len. (ft)         *  202.38  *  200.00  *  194.79  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1582.20  * 4279.83  * 6195.68  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 1582.20  * 4279.83  * 6195.68  *
* Q Total (cfs)           * 1400.68  * Flow (cfs)              *  178.67  *  750.51  *  471.50  *
* Top Width (ft)          * 1134.19  * Top Width (ft)          *  128.88  *  224.56  *  780.75  *
* Vel Total (ft/s)        *    0.12  * Avg. Vel. (ft/s)        *    0.11  *    0.18  *    0.08  *
* Max Chl Dpth (ft)       *   20.04  * Hydr. Depth (ft)        *   12.28  *   19.06  *    7.94  *
* Conv. Total (cfs)       *2417456.0  * Conv. (cfs)            *308365.6  *1295315.0  *813775.2  *
* Length Wtd. (ft)        *  198.50  * Wetted Per. (ft)        *  131.66  *  224.85  *  780.98  *
* Min Ch El (ft)          * 1099.50  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.49  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  254.87  *  587.64  *  878.89  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   24.21  *   33.31  *  146.14  *
*****************************************************************************************************
```

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 9099.414

INPUT
Description:
Station Elevation Data num= 161

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.73	1118.58	14.85	1117.35	23.57	1115.98	28.08	1114.64	38.41	1111.68
50.6	1108.27	53.25	1107.51	58.37	1106.19	68.09	1103.48	73.12	1103.23
82.93	1103.18	95.64	1102.96	97.77	1102.95	101.89	1102.95	112.61	1102.95
118.16	1102.9	127.45	1102.83	135.63	1102.35	140.68	1102.06	142.29	1101.92
145.41	1101.67	163.2	1100.26	171.97	1099.78	185.71	1099.54	186.81	1099.53
188.93	1099.52	201.65	1099.47	208.23	1099.47	216.49	1099.49	230.75	1099.52
231.33	1099.52	232.44	1099.52	246.17	1099.6	253.27	1099.68	261.01	1099.77
275.79	1100.13	275.85	1100.13	275.96	1100.14	290.69	1100.58	298.31	1100.85
319.48	1101.67	320.83	1101.72	335.21	1102.66	343.35	1103.17	350.05	1103.82
351.19	1103.87	363	1104.39	364.89	1104.52	365.87	1104.55	379.73	1105
388.38	1105.23	394.57	1105.35	406.52	1105.55	409.41	1105.62	410.9	1105.65
424.25	1105.85	433.42	1105.91	439.09	1106.01	450.03	1106.06	453.93	1106.11
455.94	1106.12	468.77	1106.39	478.46	1106.48	483.61	1106.6	493.56	1106.76
498.45	1106.88	500.98	1106.92	513.29	1107.22	523.5	1107.4	528.13	1107.51
537.08	1107.65	542.97	1107.76	546.02	1107.81	557.81	1108.09	568.54	1108.29
572.65	1108.4	580.6	1108.58	587.49	1108.75	591.06	1108.83	602.33	1109.11
613.58	1109.34	617.17	1109.41	624.12	1109.55	632.01	1109.71	636.1	1109.77
646.85	1109.86	658.61	1109.9	661.69	1109.91	667.63	1109.95	676.53	1110.02

```
 681.13 1110.08  691.37 1110.26  703.65 1110.44  706.21 1110.49  711.15 1110.57
 721.05 1110.74  726.17 1110.82  735.89 1110.94  748.69 1111.09  750.73 1111.11
 754.67 1111.17  765.57 1111.32  771.21 1111.42  780.41 1111.62  793.73 1111.89
 795.25 1111.93  798.19    1112  810.09 1112.27  816.25 1112.38  824.93 1112.56
 838.77 1112.81  839.77 1112.83  841.71 1112.87  854.61 1113.14  861.29 1113.31
 869.45 1113.49  883.81 1113.86  884.29 1113.87  885.22 1113.89  899.13 1114.19
 906.33 1114.35  913.97 1114.45  928.74 1114.68  928.81 1114.68  928.84 1114.68
 943.65 1114.82  951.36 1114.91  958.49    1115  972.26 1115.11  973.33 1115.11
 973.88 1115.12  988.17 1115.28   996.4 1115.35 1015.78 1115.66 1017.85  1115.7
1018.92 1115.72 1032.69 1115.95 1041.44 1116.08 1047.53 1116.17  1059.3 1116.36
1062.37 1116.43 1063.96 1116.46 1077.21  1116.8 1086.48 1117.01 1092.05 1117.15
1102.81 1117.44    1109 1117.66 1115.62 1117.96 1131.52 1118.76 1136.57 1119.11
1146.33 1119.43 1151.41 1119.63 1154.03 1119.67 1166.25 1119.93 1176.55 1120.07
1181.08 1120.11 1189.85 1120.22 1195.92  1120.3 1199.07 1120.34 1210.76 1120.45
1210.98 1120.46

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
    8.73     .04  135.63    .035  351.19    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        135.63  351.19            194.53     200  210.99              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.54  * Reach Len. (ft)         *  194.53  *  200.00  *  210.99  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1593.61  * 4092.16  * 6526.38  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 1593.61  * 4092.16  * 6526.38  *
* Q Total (cfs)           *  976.43  * Flow (cfs)              *  126.82  *  497.45  *  352.15  *
* Top Width (ft)          * 1140.44  * Top Width (ft)          *  126.90  *  215.56  *  797.98  *
* Vel Total (ft/s)        *    0.08  * Avg. Vel. (ft/s)        *    0.08  *    0.12  *    0.05  *
* Max Chl Dpth (ft)       *   20.07  * Hydr. Depth (ft)        *   12.56  *   18.98  *    8.18  *
* Conv. Total (cfs)       *2425189.0  * Conv. (cfs)            *314995.1  *1235537.0  *874656.1  *
* Length Wtd. (ft)        *  203.15  * Wetted Per. (ft)        *  129.84  *  215.77  *  798.18  *
* Min Ch El (ft)          * 1099.47  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.47  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  247.49  *  568.42  *  850.44  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   23.62  *   32.30  *  142.61  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 8899.414

INPUT
Description:
Station Elevation Data     num=     173
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    16.3 1118.51      27 1117.34   30.83 1117.02    33.2 1116.38   45.36 1112.82
   56.71 1109.66    59.9 1108.78   65.06 1107.25   74.43 1104.55   80.22  1103.6
   88.96 1103.02  103.12 1102.92  103.49 1102.92  103.73 1102.92  118.03 1102.94
  127.23 1102.92  132.55 1102.87  141.17 1102.57  147.09  1102.4  148.58 1102.31
  150.74 1102.19  161.62 1101.43  174.25 1100.36  176.15 1100.23  179.23 1100.14
  190.68 1099.84  197.76 1099.69  205.21 1099.58  217.28 1099.51  221.27 1099.49
  234.28 1099.52  244.77 1099.64  255.34 1099.84  263.34 1100.03  268.28  1100.5
  277.87 1101.42  291.79 1102.41   292.4 1102.44   293.4 1102.47  306.93  1102.9
   315.3 1103.04  321.47 1103.18  331.46  1103.4     336 1103.52  338.81 1103.61
   350.53  1104.2  362.31 1104.71  365.07 1104.88  368.04 1104.97  369.52 1105.02
   379.59 1105.41  385.82 1105.54  394.12 1105.74  407.58 1105.92  408.66 1105.93
   409.33 1105.94  423.19 1106.13  432.84 1106.25  437.72  1106.3  445.64 1106.38
   452.26 1106.49  456.35 1106.57  466.78 1106.73  479.85 1106.91  481.31 1106.93
    483.7 1106.96  495.85 1107.18  503.36 1107.31  510.38 1107.45  521.75 1107.64
   524.91  1107.7  526.87 1107.74  539.45 1107.98  550.37 1108.15  553.97 1108.22
   559.81 1108.31  573.88 1108.48  583.04 1108.61  597.39 1108.79  597.57  1108.8
   597.87  1108.8  612.11 1109.02   620.9 1109.14  626.64 1109.23  635.92 1109.37
   641.16 1109.48   644.4 1109.55   655.7 1109.79  667.91  1110.1  670.23 1110.16
   673.98 1110.26  684.76  1110.7  691.42 1110.97   699.3  1111.3  712.04 1111.84
   713.83 1111.88  714.93 1111.91  728.35 1112.19  738.44 1112.43  742.89 1112.53
    750.1 1112.69  757.42 1112.75  761.94 1112.79  771.95 1112.87  785.45 1112.93
   786.49 1112.94  788.16 1112.94  888.21 1113.14  902.33 1113.44  902.73 1113.45
   902.99 1113.46  917.27 1113.84   926.5 1114.01   931.8 1114.13  940.39 1114.29
   946.33 1114.36     950 1114.42  960.87 1114.59  973.51 1114.87   975.4 1114.91
   978.45 1114.96  989.92 1115.12  997.02 1115.24 1004.46 1115.37 1016.51 1115.49
  1018.99 1115.51 1020.53 1115.54 1033.52 1115.69 1044.03 1115.92 1048.06 1115.99
  1054.57 1116.06 1062.58 1116.12 1067.54  1116.2 1077.11 1116.34 1091.05 1116.39
  1091.65  1116.4 1092.63  1116.4 1106.18 1115.92 1114.56 1116.06 1120.71 1115.96
  1130.69 1116.22 1135.25  1116.4 1138.07 1116.46 1149.77 1116.72 1161.57 1117.01
   1164.3 1117.07 1168.74 1117.18 1178.84 1117.42 1185.08 1117.52 1193.37 1117.66
  1206.79 1117.83 1208.59 1117.86 1211.47 1117.89  1232.1 1118.14 1236.96  1118.2
  1244.85 1118.27 1251.49 1118.37 1255.61  1118.4 1266.03 1118.55 1279.11  1118.7
  1280.56 1118.73 1282.91 1118.77 1295.09 1119.01 1302.62 1119.12 1309.63 1119.28
  1320.97 1119.46 1324.15 1119.54 1326.13 1119.58 1338.68 1119.85 1349.64    1120
  1353.22 1120.06 1359.03 1120.13 1363.12 1120.23

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
    16.3     .04  148.58    .035  368.04    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        148.58  368.04            203.26     200  217.44              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.54  * Reach Len. (ft)         *  203.26  *  200.00  *  217.44  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1634.39  * 3971.61  * 6501.00  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 1634.39  * 3971.61  * 6501.00  *
* Q Total (cfs)           *  589.77  * Flow (cfs)              *   83.75  *  304.23  *  201.78  *
* Top Width (ft)          * 1307.95  * Top Width (ft)          *  132.28  *  219.46  *  956.21  *
* Vel Total (ft/s)        *    0.05  * Avg. Vel. (ft/s)        *    0.05  *    0.08  *    0.03  *
* Max Chl Dpth (ft)       *   20.05  * Hydr. Depth (ft)        *   12.36  *   18.10  *    6.80  *
* Conv. Total (cfs)       *2251435.0  * Conv. (cfs)            *319727.2  *1161401.0  *770306.7  *
* Length Wtd. (ft)        *  206.89  * Wetted Per. (ft)        *  135.25  *  219.70  *  956.38  *
* Min Ch El (ft)          * 1099.49  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
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* Alpha                  *    1.57  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)   *  240.28  *  549.91  *  818.89  *
* C & E Loss (ft)        *          * Cum SA (acres)         *   23.04  *   31.30  *  138.37  *
*****************************************************************************************
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Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 8699.414

INPUT
Description:
Station Elevation Data num= 178

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.45	1118.18	16.75	1118.24	22.76	1116.93	31.47	1115.28	36.29	1114.01
46.19	1111.44	59.14	1108.19	60.91	1107.71	64.13	1107.04	75.62	1104.19
81.98	1104.02	90.35	1103.88	104.83	1103.68	105.06	1103.68	105.5	1103.68
119.79	1103.65	127.68	1103.58	134.5	1103.46	144.46	1103.31	146.87	1103.27
149.23	1103.21	150.52	1103.07	163.94	1101.23	173.37	1100.32	178.66	1099.96
188.25	1099.63	193.38	1099.45	196.22	1099.41	208.1	1099.34	219.06	1099.46
222.81	1099.5	229.62	1099.69	241.91	1100.13	252.25	1100.62	264.76	1101.82
266.98	1102.09	271	1102.74	281.69	1104.2	287.61	1104.69	293.13	1104.94
296.42	1105.09	310.45	1106.02	311.13	1106.06	312.37	1106.08	333.3	1106.54
340.57	1106.62	353.75	1106.55	355.29	1106.54	356.15	1106.54	370	1106.66
378.99	1106.76	384.73	1106.79	395.12	1106.87	399.44	1106.9	401.84	1106.94
414.17	1107.05	424.68	1107.21	428.88	1107.26	436.5	1107.38	443.6	1107.48
447.53	1107.54	458.32	1107.72	470.38	1107.88	473.04	1107.92	477.87	1107.97
487.75	1108.05	493.22	1108.07	502.48	1108.12	584.61	1108.23	590.79	1108.4
602	1108.82	605.51	1108.94	607.46	1108.97	620.23	1109.23	630.3	1109.31
634.94	1109.33	643.37	1109.31	649.67	1109.28	653.15	1109.34	664.38	1109.26
676	1109.52	679.11	1109.62	684.74	1109.73	698.84	1110.03	708.55	1110.21
721.69	1110.52	723.26	1110.55	726.11	1110.6	737.98	1110.64	744.54	1110.72
752.7	1110.75	767.39	1110.9	767.42	1110.9	767.49	1110.9	782.13	1110.97
790.23	1111.04	796.86	1111.11	808.86	1111.32	811.57	1111.36	813.07	1111.38
826.3	1111.55	835.92	1111.66	841.01	1111.72	850.24	1111.81	855.73	1111.92
858.77	1111.93	870.45	1112.11	881.62	1112.16	885.17	1112.2	891.61	1112.25
904.46	1112.48	920.3	1112.71	927.31	1112.83	932.99	1112.92	944.05	1113.19
950.16	1113.35	958.76	1113.59	973	1114.01	973.49	1114.03	974.36	1114.06
988.21	1114.49	995.85	1114.77	1002.92	1115	1015.74	1115.4	1017.64	1115.45
1018.7	1115.49	1032.36	1115.84	1041.54	1116.09	1047.08	1116.23	1057.11	1116.5
1061.8	1116.59	1064.39	1116.64	1076.52	1116.88	1087.24	1117.12	1091.24	1117.2
1098.49	1117.36	1105.96	1117.48	1110.08	1117.57	1120.68	1117.74	1132.93	1117.99
1135.4	1118.03	1139.86	1118.12	1150.11	1118.28	1155.77	1118.38	1164.83	1118.53
1178.62	1118.77	1179.55	1118.78	1181.24	1118.81	1194.27	1118.99	1201.47	1119.11
1208.99	1119.21	1222.61	1119.43	1223.71	1119.44	1224.31	1119.45	1238.43	1119.62
1247.16	1119.75	1253.15	1119.85	1263.98	1120.04	1267.86	1120.09	1270.01	1120.12
1282.59	1120.26	1292.85	1120.43	1297.3	1120.46	1305.35	1120.57	1312.02	1120.64
1315.7	1120.69	1326.74	1120.76	1338.55	1120.89	1341.46	1120.91	1346.73	1120.98
1356.18	1121.09	1361.4	1121.2	1370.9	1121.36	1384.24	1121.65	1385.62	1121.68
1388.1	1121.73	1400.34	1121.97	1402.54	1122.03				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
13.45	.04	144.46	.035	293.13	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
144.46	293.13	100.62	100	229.61	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

```
*****************************************************************************************
* E.G. Elev (ft)         * 1119.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)         * 1119.54  * Reach Len. (ft)         *  100.62  *  100.00  *  229.61  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       * 1573.02  * 2751.22  * 7479.92  *
* E.G. Slope (ft/ft)     *0.000000  * Area (sq ft)            * 1573.02  * 2751.22  * 7479.92  *
* Q Total (cfs)          *  153.17  * Flow (cfs)              *   21.98  *   59.41  *   71.78  *
* Top Width (ft)         * 1218.42  * Top Width (ft)          *  131.01  *  148.67  *  938.74  *
* Vel Total (ft/s)       *    0.01  * Avg. Vel. (ft/s)        *    0.01  *    0.02  *    0.01  *
* Max Chl Dpth (ft)      *   20.20  * Hydr. Depth (ft)        *   12.01  *   18.51  *    7.97  *
* Conv. Total (cfs)      *2102409.0  * Conv. (cfs)            *301751.1  *815455.2  *985203.1  *
* Length Wtd. (ft)       *  161.47  * Wetted Per. (ft)        *  134.05  *  149.14  *  938.92  *
* Min Ch El (ft)         * 1099.34  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                  *    1.50  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)   *  232.80  *  534.48  *  784.00  *
* C & E Loss (ft)        *          * Cum SA (acres)         *   22.43  *   30.45  *  133.64  *
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Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 8599.41*

INPUT
Description: Concentration Point T
Station Elevation Data num= 332

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16.16	1118.43	19.36	1118.34	22.16	1117.93	25.21	1117.23	33.46	1115.48
33.68	1115.43	37.38	1114.55	38.36	1114.3	39.47	1114.01	46.29	1112.24
47.99	1111.8	60.58	1108.59	62.3	1108.14	62.78	1108.02	65.43	1107.4
67.83	1106.78	76.6	1104.72	77.29	1104.64	82.79	1103.93	83.05	1103.89
86.1	1103.77	90.93	1103.72	96.09	1103.67	105.01	1103.59	105.23	1103.59
105.66	1103.59	109.42	1103.59	113.48	1103.58	119.55	1103.57	121.13	1103.57
127.22	1103.53	132.73	1103.48	133.86	1103.44	143.54	1103.11	145.5	1103.03
146.43	1103	149.26	1102.91	150.81	1102.81	153.96	1102.56	156.54	1102.26
161.39	1101.61	166.92	1100.89	169.21	1100.63	173.38	1100.31	178.24	1100.06
181.89	1099.92	184.58	1099.81	192.79	1099.6	194.55	1099.56	196.09	1099.54
197.9	1099.5	202.25	1099.42	205.66	1099.39	207.24	1099.38	212.2	1099.36
219.92	1099.32	230.49	1099.41	234.08	1099.43	234.11	1099.44	235.26	1099.46
237.46	1099.5	240.68	1099.57	250.61	1099.83	252.53	1099.96	257.6	1100.32
262.51	1100.8	265.95	1101.23	274.58	1102.26	276.72	1102.54	280.6	1103.13
281.11	1103.21	281.3	1103.23	281.66	1103.28	290.91	1104.4	296.62	1104.93
296.65	1104.94	301.95	1105.28	304.56	1105.45	305.21	1105.48	311.71	1105.89
319.11	1106.53	319.78	1106.58	321.01	1106.66	325.21	1106.93	341.75	1107.12
348.95	1107.16	362.01	1107.13	363.54	1107.13	364.39	1107.13	378.11	1107.19
386.34	1107.24	387.02	1107.25	392.71	1107.27	396	1107.28	401.28	1107.28

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 403.01 1107.29  407.29 1107.32  409.66 1107.35  411.19 1107.36   416.2 1107.38
 418.87 1107.42  421.88 1107.44  431.12 1107.55   432.3 1107.56  436.46 1107.61
 441.73 1107.67  444.01 1107.69  446.05 1107.71  451.04 1107.74  454.17 1107.77
 454.94 1107.77  460.97 1107.82   464.6 1107.85  465.63 1107.85   475.9 1107.87
 477.58 1107.88  480.22  1107.9     485 1107.91  487.45 1107.92  490.82 1107.92
 494.79 1107.93  497.16 1107.93  500.21 1107.93  505.75 1107.94  509.39 1107.95
 510.32 1107.95  520.68 1107.99  533.18 1107.97  535.59 1107.99  540.14 1108.02
 550.53 1108.13  556.05 1108.17  565.45 1108.33  578.91 1108.44  580.37 1108.46
 583.13 1108.47  590.77 1108.53  596.89 1108.66  601.77 1108.78     608 1108.96
 610.22 1109.01  611.48 1109.04  613.41 1109.05  624.63 1109.19  626.07 1109.21
 626.12 1109.21  636.04 1109.32  640.64 1109.37  647.49 1109.41  648.99 1109.42
    655 1109.44  655.24 1109.44  658.69  1109.5   669.1 1109.56  669.81 1109.57
 669.93 1109.57  670.36 1109.58  681.33 1109.78  684.41 1109.85  684.84 1109.85
 689.99 1109.97  693.22 1110.04  699.77 1110.17  703.96 1110.27   712.1 1110.45
 713.58 1110.48  714.69  1110.5  716.09 1110.53   726.6 1110.71  728.16 1110.73
 729.63 1110.75  730.98 1110.77  738.95 1110.86  742.74 1110.87  744.55 1110.88
 749.24 1110.92  755.08 1110.95  757.33 1110.96  759.47 1110.97  761.81    1111
 771.89 1111.09  771.91 1111.09  771.98 1111.09  786.49 1111.18  794.52 1111.25
 801.09 1111.31  812.98 1111.46  815.66 1111.49  817.15  1111.5  830.26 1111.63
 839.79 1111.72  844.83 1111.77  853.98 1111.85  859.42 1111.93  862.43 1111.94
 874.01 1112.08  878.88 1112.11  884.04 1112.13  885.07 1112.13  888.59 1112.16
 894.97 1112.19  898.99 1112.24  907.71 1112.36  915.97 1112.46  921.85 1112.53
  923.4 1112.56  923.65 1112.56  927.02 1112.62  930.35 1112.66  935.98 1112.74
 938.57 1112.78  944.71 1112.97  946.94 1113.03  952.99 1113.17  953.49 1113.19
 961.51  1113.3  967.58  1113.4  968.42 1113.41  970.02 1113.44  975.62 1113.46
 976.11 1113.46  976.97 1113.47  983.34 1113.49  990.44  1113.6  990.69  1113.6
 998.26 1113.69  998.28 1113.69 1005.27 1113.89    1013 1114.11 1013.19 1114.12
 1013.3 1114.12 1017.97 1114.22 1019.86 1114.25 1020.91 1114.28 1028.12 1114.41
1034.44 1114.31 1036.17 1114.28 1043.05 1114.34 1043.54 1114.36 1049.03 1114.53
1055.99 1114.75 1057.96 1114.85 1058.97 1114.86 1059.03 1114.86 1062.49 1114.86
1063.61 1114.88 1066.18 1114.91  1078.2 1115.05 1081.89  1115.1 1088.82 1115.25
1092.79 1115.33 1098.97 1115.46 1099.97 1115.51 1102.75 1115.63 1104.75 1115.63
1107.37 1115.69 1111.45 1115.78 1117.67 1115.91 1121.96 1115.86 1127.62 1115.81
1132.59 1115.85  1134.1 1115.88 1136.54 1115.94 1140.96 1116.04 1141.96 1116.06
1150.48 1116.29 1151.12 1116.28 1156.73 1116.28 1160.15 1116.28 1165.71 1116.33
1173.35  1116.4 1177.37 1116.45 1179.37 1116.45 1180.29 1116.45 1181.97 1116.45
1184.95 1116.45  1192.3 1116.65 1194.88 1116.67 1196.22 1116.69 1202.01 1116.89
1207.22 1117.06 1209.46 1117.07 1219.08 1117.09 1222.15 1117.15 1222.96 1117.13
1224.05 1117.11 1224.64  1117.1 1227.94 1117.03 1237.07 1117.11 1238.63 1117.13
1241.94 1117.18 1247.29 1117.35    1252 1117.51 1253.22 1117.52 1263.95 1117.57
 1264.8 1117.57 1266.93 1117.58  1267.8 1117.59 1269.93  1117.6 1270.91 1117.61
1281.84 1117.79 1282.39  1117.8 1287.67 1117.86 1292.56  1118.1 1296.78 1118.28
1296.97 1118.28 1304.95 1118.21 1310.53 1118.14 1311.55 1118.18  1311.7 1118.19
1313.91 1118.26  1315.2  1118.3 1326.14  1118.6 1333.39 1118.01 1337.84  1118.9
1340.73 1118.95 1341.55 1118.97 1345.95 1119.09 1355.31 1119.34 1356.26 1119.36
1356.47 1119.37 1356.89 1119.38 1360.48 1119.46  1369.9 1119.64  1371.4 1119.68
1379.12 1119.82 1383.12 1119.87 1384.48 1119.89 1386.94 1119.92 1399.07 1120.07
1399.89 1120.08 1401.25  1120.1

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
   16.16     .04  143.54    .035  301.95    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        143.54  301.95            100.62     100  229.61             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.54  * Reach Len. (ft)         *  100.62  *  100.00  *  229.61  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1514.52  * 2941.33  * 7952.23  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 1514.52  * 2941.33  * 7952.23  *
* Q Total (cfs)           *  -74.91  * Flow (cfs)               *   -9.99  *  -30.21  *  -34.72  *
* Top Width (ft)          * 1348.56  * Top Width (ft)          *  127.38  *  158.41  * 1062.77  *
* Vel Total (ft/s)        *   -0.01  * Avg. Vel. (ft/s)        *   -0.01  *   -0.01  *    0.00  *
* Max Chl Dpth (ft)       *   20.22  * Hydr. Depth (ft)        *   11.89  *   18.57  *    7.48  *
* Conv. Total (cfs)       *2167147.0 * Conv. (cfs)             *  288879.0  *873842.8  *1004425.0  *
* Length Wtd. (ft)        *  162.37  * Wetted Per. (ft)        *  130.17  *  158.89  * 1062.97  *
* Min Ch El (ft)          * 1099.32  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.57  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  229.23  *  527.94  *  743.33  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   22.13  *   30.10  *  128.36  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 8499.415

INPUT
Description:
Station Elevation Data     num=     159
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************************
   18.86 1118.68    24.69 1118.24    35.67 1115.63    39.48 1114.83    41.51  1114.3
   48.14 1112.59    64.16 1108.44    69.06 1107.13    78.26 1105.11    83.85 1103.77
   86.81 1103.57    96.52 1103.53   109.47  1103.5   113.42 1103.49   120.85  1103.5
  132.12 1103.48   142.62 1102.91   144.91 1102.78   154.78  1102.4   157.79  1102.1
  163.45 1101.35   172.57 1100.21   177.43 1099.91   187.36 1099.73   200.08 1099.48
  202.14 1099.45   206.04 1099.43   216.94 1099.36   222.73 1099.34   231.73 1099.31
  245.38 1099.37   246.51 1099.39   248.63 1099.41    261.3  1099.6   268.04 1100.26
  276.08  1101.5   290.69  1103.6   290.87 1103.63   291.22 1103.66   305.66 1105.18
  310.76 1105.62   313.35 1105.84   320.44 1106.26   333.81 1107.68   394.38 1107.73
  403.95 1107.75   409.18  1107.7      419 1107.76   423.96 1107.77   426.61 1107.81
  438.75 1107.91   449.26     1108   453.54 1108.01   461.59 1108.01   468.32     1108
  471.92 1107.99   483.12 1107.89   494.56 1107.85    497.9 1107.83   504.18  1107.8
  512.69 1107.78   517.22 1107.78   527.48 1107.85   539.87 1107.78   542.26 1107.83
  546.77 1107.87   557.06 1108.09   562.53 1108.16   571.84 1108.47   585.18 1108.67
  586.63  1108.7   589.36 1108.73   607.83 1108.98    616.2 1109.13   630.48 1109.17
  631.96 1109.19   653.13  1109.5   660.57  1109.6   674.54 1109.86   675.36 1109.88
  675.79 1109.89   698.14 1110.08   698.44 1110.29   704.93  1110.4   717.14 1110.72
  719.71 1110.77    721.1  1110.8   734.51 1110.92   743.75  1111.1    749.3  1111.1
  759.73 1111.16   764.08 1111.16    766.4 1111.21   882.39 1112.08    887.5  1112.1
  902.32 1112.15   919.14 1112.32   924.97 1112.37   926.75 1112.41   930.09 1112.46
  941.53 1112.58   947.62 1112.81   956.32 1113.01   970.28 1113.02   971.11 1113.03
  972.69 1113.03   985.89 1112.73   992.93 1112.71  1000.69 1112.61  1015.28 1112.98
 1015.47 1112.99  1015.58 1112.99  1030.26 1113.14  1038.24 1112.67  1045.05 1112.61
 1057.87 1113.08  1059.83 1113.23  1060.89 1113.21  1064.31 1113.16  1083.54 1113.24
 1100.46 1113.59   1104.2 1113.85  1106.19 1113.83  1118.99 1114.15  1128.85 1113.76
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1133.77 1113.74 1143.05 1113.98  1151.5  1114.3 1161.08 1114.12 1174.15 1114.14
1178.14 1114.16 1185.65 1114.05 1192.93 1114.35 1196.81 1114.36 1207.71 1114.95
1219.46 1114.82 1222.51 1114.88 1228.24 1114.57 1237.29 1114.62 1242.11 1114.69
1252.08 1115.19 1264.76 1115.09 1266.87 1115.09 1270.82 1115.08 1281.65 1115.33
1287.42 1115.37 1296.45 1116.11 1310.07 1115.66 1311.23 1115.73 1313.42 1115.85
1332.72 1116.78 1340.81 1117.02 1355.38 1117.62 1355.59 1117.62 1356.01 1117.64
1370.38 1117.96 1378.03 1118.07 1398.61 1118.17 1399.96 1118.18

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**************************************************
   18.86     .04  142.62    .035  310.76    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        142.62  310.76            208.09     200   204.5             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.53  * Reach Len. (ft)         *  208.09  *  200.00  *  204.50  *
* Crit W.S. (ft)          *         * Flow Area (sq ft)        * 1455.01  * 3133.72  * 8569.20  *
* E.G. Slope (ft/ft)      *0.000012  * Area (sq ft)            * 1455.01  * 3133.72  * 8569.20  *
* Q Total (cfs)           * 8020.04  * Flow (cfs)              *  949.77  * 3216.46  * 3853.81  *
* Top Width (ft)          * 1381.10  * Top Width (ft)          *  123.76  *  168.14  * 1089.20  *
* Vel Total (ft/s)        *    0.61  * Avg. Vel. (ft/s)        *    0.65  *    1.03  *    0.45  *
* Max Chl Dpth (ft)       *   20.22  * Hydr. Depth (ft)        *   11.76  *   18.64  *    7.87  *
* Conv. Total (cfs)       *2326907.0  * Conv. (cfs)            *275562.6  *933212.2  *1118132.0  *
* Length Wtd. (ft)        *  202.79  * Wetted Per. (ft)        *  126.40  *  168.68  * 1090.90  *
* Min Ch El (ft)          * 1099.31  * Shear (lb/sq ft)        *    0.01  *    0.01  *    0.01  *
* Alpha                   *    1.53  * Stream Power (lb/ft s)  *    0.01  *    0.01  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  225.80  *  520.97  *  699.78  *
* C & E Loss (ft)         *         * Cum SA (acres)           *   21.84  *   29.72  *  122.69  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 8299.414

INPUT
Description:
Station Elevation Data     num=     160
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*****************************************************************************************
    9.24 1117.65     23.9 1117.21    24.66 1117.02    26.56 1116.43    40.07 1112.21
   45.41 1110.61    55.48 1107.88    66.92 1104.92    70.89 1104.25    80.92 1103.93
   88.43 1103.68    93.33 1103.71   109.94 1103.71   117.12  1103.8   131.45 1103.78
  132.53 1103.77    135.3 1103.62   145.04 1103.24   147.94 1103.13   152.95 1102.51
  163.35 1100.57   174.46  1099.5   189.67  1099.3   194.18 1099.22   195.97 1099.19
   209.6 1099.17   217.48 1099.18   235.67 1099.33   238.99 1099.35   240.42 1099.38
  244.04 1099.43   255.83  1099.6   260.49 1099.68   271.24 1099.89      282 1100.14
  286.65 1100.26   298.41 1100.64   302.06 1100.75   303.51  1100.8   317.47 1101.35
  325.02 1101.67   332.08 1102.02   346.53 1102.66   348.29 1102.74   352.78 1103.36
  363.71 1104.82   368.03 1105.63   379.12 1107.02   381.29    1107   389.54 1106.93
  394.53 1107.04   407.15 1107.83   409.94    1108   411.05 1108.04   425.36 1108.42
  432.56 1108.64   440.77  1108.9   454.07 1109.19   456.17 1109.25   461.52 1109.34
  471.58 1109.53   475.57 1109.59      487 1109.76   497.08  1109.9   502.41 1109.97
  515.89 1110.17   517.82  1110.2   518.59 1110.21   533.24 1110.46    540.1 1110.58
  548.65  1110.7   561.6 1110.97   564.06 1110.98   570.26 1111.08   579.47 1111.19
  583.12 1111.26   594.88 1111.35   604.62 1111.49   610.29 1111.55   624.64 1111.75
   625.7 1111.76   626.13 1111.76   641.11  1111.9   647.64 1111.94   656.52 1111.98
  669.15 1112.03   671.93 1112.01      679    1112   687.34 1111.96   690.65 1111.95
  702.76 1111.81   712.16 1111.78   718.17 1111.73   733.37 1111.71   733.59  1111.7
  733.67  1111.7      749 1111.83   755.18  1111.9   764.41 1112.04   776.69 1112.22
  779.81 1112.25   787.74 1112.34   798.19 1112.46   810.64 1112.52    819.7 1112.62
  840.61 1112.78   841.21 1112.78   842.11 1112.79   862.72 1113.02   872.29 1113.16
  884.23 1113.28    887.7 1113.33   896.49 1113.41   903.11 1113.49   905.73 1113.51
  918.52 1113.63   927.24 1113.69   933.93 1113.64   948.75 1113.52   949.34 1113.47
  950.85 1113.46   964.75 1113.15   970.26 1113.12   980.16 1113.25  1010.99 1113.54
 1013.27 1113.47  1026.41 1113.75  1034.78 1114.15  1041.82 1114.18  1056.29 1114.46
 1057.23 1114.46  1059.59 1114.49  1072.64 1114.61   1077.8  1114.7  1088.05 1114.81
 1099.31 1114.98  1113.97 1115.16  1118.87 1115.22  1120.82 1115.25  1134.28 1115.42
 1142.32 1115.57  1149.69 1115.69  1163.83 1115.94  1168.34 1116.02  1180.51 1116.26
 1185.34 1116.37  1195.93 1116.62  1206.85 1116.82  1211.34 1116.93  1222.71 1117.09
 1226.75 1117.15  1228.36 1117.17  1242.16 1117.36  1249.86 1117.43  1257.58 1117.55
 1271.37 1117.76  1272.99 1117.79  1277.07 1117.86  1288.39 1118.06  1292.88 1118.14
 1303.81 1118.28  1314.39 1118.49  1319.22 1118.48  1331.44 1118.79  1334.63 1118.84
  1335.9 1118.87  1350.04 1118.91   1357.4 1119.06

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**************************************************
    9.24     .04  145.04    .035  381.29    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        145.04  381.29            199.73     200  199.98             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.53  * Reach Len. (ft)         *  199.73  *  200.00  *  199.98  *
* Crit W.S. (ft)          *         * Flow Area (sq ft)        * 1633.96  * 4379.12  * 6123.07  *
* E.G. Slope (ft/ft)      *0.000011  * Area (sq ft)            * 1633.96  * 4379.12  * 6123.07  *
* Q Total (cfs)           * 7583.57  * Flow (cfs)              * 1032.13  * 4285.19  * 2266.25  *
* Top Width (ft)          * 1348.16  * Top Width (ft)          *  135.80  *  236.25  *  976.11  *
* Vel Total (ft/s)        *    0.62  * Avg. Vel. (ft/s)        *    0.63  *    0.98  *    0.37  *
* Max Chl Dpth (ft)       *   20.35  * Hydr. Depth (ft)        *   12.03  *   18.54  *    6.27  *
* Conv. Total (cfs)       *2300289.0  * Conv. (cfs)            *313070.2  *1299807.0  *687411.9  *
* Length Wtd. (ft)        *  199.96  * Wetted Per. (ft)        *  139.49  *  236.89  *  976.72  *
* Min Ch El (ft)          * 1099.17  * Shear (lb/sq ft)        *    0.01  *    0.01  *    0.00  *
* Alpha                   *    1.63  * Stream Power (lb/ft s)  *    0.01  *    0.01  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  218.42  *  503.72  *  665.30  *
* C & E Loss (ft)         *         * Cum SA (acres)           *   21.22  *   28.80  *  117.84  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION
```

RIVER: FRS
REACH: FRS2 RS: 8099.414

INPUT
Description:
Station Elevation Data num= 185

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15.66	1118.3	17.38	1118.46	31.08	1116.06	38.88	1113.97	46.49	1111.97
60.38	1108.5	61.92	1108.07	65.82	1107.43	77.34	1105.09	81.88	1104.71
92.75	1104.49	103.38	1104.44	108.17	1104.49	120.32	1104.69	123.59	1104.74
124.88	1104.74	127.85	1104.75	146.38	1104.75	150.21	1104.3	154.42	1103.8
167.88	1100.65	169.84	1100.35	174.82	1100.18	185.26	1099.78	189.38	1099.61
200.68	1099.32	210.88	1099.19	216.09	1099.18	229.33	1099.23	231.51	1099.24
232.38	1099.24	246.93	1099.44	253.88	1099.53	262.35	1099.7	275.38	1099.98
283.83	1100.21	293.18	1100.47	296.88	1100.56	308.6	1100.88	318.38	1101.25
324.02	1101.45	338.33	1102.49	339.44	1102.55	339.88	1102.64	354.85	1106.33
361.38	1107.35	366.86	1107.73	370.27	1107.97	382.88	1108.72	385.7	1108.76
392.83	1108.91	401.11	1109.05	404.38	1109.14	416.53	1109.11	425.88	1109.22
431.94	1109.25	447.34	1109.33	447.37	1109.33	447.38	1109.33	462.78	1109.54
468.88	1109.63	478.2	1109.84	490.38	1110.09	493.61	1110.17	501.84	1110.36
509.04	1110.52	511.88	1110.57	524.46	1110.84	533.38	1110.95	539.87	1111.05
554.88	1111.26	555.29	1111.27	556.34	1111.28	570.7	1111.41	576.38	1111.49
586.13	1111.63	597.88	1111.8	601.55	1111.88	610.84	1112.03	619.38	1112.16
632.37	1112.36	640.88	1112.48	647.8	1112.59	662.38	1112.87	663.22	1112.89
665.35	1112.94	678.63	1113.21	683.88	1113.32	694.05	1113.52	705.38	1113.73
709.47	1113.79	719.86	1113.97	724.89	1114.05	726.88	1114.08	740.3	1114.24
748.38	1114.38	755.72	1114.47	769.87	1114.68	771.14	1114.7	774.36	1114.74
786.56	1114.9	791.37	1114.96	801.98	1115.08	812.87	1115.24	817.39	1115.28
828.86	1115.43	832.81	1115.48	834.37	1115.5	848.23	1115.61	855.87	1115.69
863.65	1115.74	877.37	1115.84	879.06	1115.85	883.36	1115.88	894.48	1115.98
898.87	1116.03	909.91	1116.13	920.37	1116.25	937.87	1116.45	940.73	1116.48
941.88	1116.5	956.15	1116.64	963.38	1116.73	971.58	1116.78	984.88	1116.91
986.99	1116.91	992.37	1116.94	1002.41	1116.96	1006.38	1116.98	1017.82	1117.02
1027.88	1117.06	1033.25	1117.08	1046.87	1117.12	1048.67	1117.12	1049.38	1117.13
1064.08	1117.15	1070.88	1117.17	1079.5	1117.16	1092.38	1117.15	1094.91	1117.14
1101.37	1117.12	1110.34	1117.11	1113.88	1117.1	1125.75	1117.22	1135.37	1117.28
1141.17	1117.35	1155.87	1117.57	1156.58	1117.58	1156.87	1117.59	1172.01	1117.62
1178.37	1117.63	1187.43	1117.64	1199.87	1117.64	1202.84	1117.65	1210.38	1117.69
1218.26	1117.72	1221.37	1117.73	1233.68	1117.76	1242.87	1117.84	1249.1	1117.84
1264.37	1117.97	1264.51	1117.97	1264.88	1117.97	1279.93	1118.16	1285.87	1118.2
1295.35	1118.39	1307.37	1118.49	1310.77	1118.57	1319.39	1118.71	1326.19	1118.86
1328.87	1118.87	1341.6	1119.11	1350.37	1119.19	1370.55	1119.55	1371.87	1119.58
1373.89	1119.63	1387.86	1119.99	1393.37	1120.11	1403.27	1120.39	1414.87	1120.66
1418.69	1120.76	1428.39	1120.99	1434.11	1121.13	1436.37	1121.18	1444.34	1121.38

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
15.66	.04	150.21	.035	366.86	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
150.21	366.86	201.43	200	196.72	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1119.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1119.52	Reach Len. (ft)	201.43	200.00	196.72
Crit W.S. (ft)		Flow Area (sq ft)	1547.69	4013.27	4739.89
E.G. Slope (ft/ft)	0.000014	Area (sq ft)	1547.69	4013.27	4739.89
Q Total (cfs)	7166.21	Flow (cfs)	1079.18	4440.22	1646.80
Top Width (ft)	1353.32	Top Width (ft)	134.55	216.65	1002.12
Vel Total (ft/s)	0.70	Avg. Vel. (ft/s)	0.70	1.11	0.35
Max Chl Dpth (ft)	20.34	Hydr. Depth (ft)	11.50	18.52	4.73
Conv. Total (cfs)	1918958.0	Conv. (cfs)	288982.4	1188997.0	440978.8
Length Wtd. (ft)	199.51	Wetted Per. (ft)	137.34	217.70	1002.23
Min Ch El (ft)	1099.18	Shear (lb/sq ft)	0.01	0.02	0.00
Alpha	1.78	Stream Power (lb/ft s)	0.01	0.02	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	211.13	484.46	640.36
C & E Loss (ft)		Cum SA (acres)	20.60	27.76	113.30

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 7899.414

INPUT
Description:
Station Elevation Data num= 172

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
15.53	1118.15	29.4	1116.49	31.1	1116.02	35.71	1114.74	46.67	1111.68
50.72	1110.61	62.24	1107.43	72.05	1104.86	77.81	1104.38	93.37	1104.53
93.38	1104.53	108.94	1104.72	114.7	1104.81	124.51	1104.9	136.02	1104.86
140.08	1104.83	146.57	1104.03	151.06	1103.47	157.34	1102.77	161.02	1102.3
178.67	1099.43	186.78	1099.3	199.99	1099.01	202.34	1098.98	208.74	1099
217.91	1099.02	221.31	1099.04	233.48	1099.23	242.63	1099.38	249.05	1099.46
263.96	1099.64	264.62	1099.65	266.41	1099.66	280.19	1099.8	285.28	1099.84
295.75	1100.02	306.61	1100.35	311.32	1100.49	324.09	1102.04	326.88	1102.3
327.93	1102.49	342.46	1105.43	349.25	1106.56	358.03	1107.49	365.05	1108.16
370.57	1108.69	373.59	1108.91	381.76	1109.19	391.9	1109.53	397.83	1109.64
413.22	1109.97	420.29	1110.09	434.54	1110.3	435.86	1110.32	439.44	1110.38
451.43	1110.59	455.87	1110.65	467	1110.87	477.19	1111.07	482.56	1111.16
497.12	1111.43	498.13	1111.44	498.51	1111.45	513.69	1111.65	519.84	1111.74
529.27	1111.85	541.16	1112.03	544.84	1112.07	554.78	1112.22	560.4	1112.3
562.48	1112.34	575.97	1112.52	583.8	1112.64	591.53	1112.75	605.13	1112.97
607.1	1112.99	612.46	1113.08	622.67	1113.23	626.45	1113.29	638.24	1113.44
647.77	1113.59	653.81	1113.62	669.1	1113.75	669.38	1113.75	670.14	1113.75
690.42	1113.82	700.51	1113.84	711.74	1113.93	727.81	1113.93	731.65	1113.91
733.07	1113.91	747.22	1113.95	754.39	1113.92	762.78	1114.1	775.71	1114.18
778.35	1114.25	785.49	1114.39	797.03	1114.64	809.48	1114.94	818.36	1115.13
825.05	1115.26	839.68	1115.53	843.16	1115.58	856.19	1115.79	861.01	1115.87
871.75	1116.06	882.33	1116.27	887.32	1116.37	900.84	1116.66	902.88	1116.71
903.65	1116.72	918.46	1117.04	924.97	1117.18	934.03	1117.36	946.3	1117.6
949.59	1117.66	958.52	1117.82	965.16	1117.93	967.62	1117.97	980.72	1118.13
988.94	1118.25	996.29	1118.3	1010.27	1118.45	1011.86	1118.46	1016.18	1118.5
1027.43	1118.57	1031.59	1118.6	1043	1118.66	1052.91	1118.75	1058.57	1118.77
1073.86	1118.95	1074.13	1118.95	1074.24	1118.95	1089.7	1119.12	1095.56	1119.19

```
1105.26 1119.34 1116.88 1119.44 1120.84 1119.48 1131.53 1119.56 1136.41 1119.61
1138.21 1119.63 1151.97 1119.71 1159.53 1119.77 1167.53 1119.81 1180.85 1119.92
 1183.1 1119.93 1189.21 1119.99 1198.67 1120.08 1202.17 1120.13 1214.24 1120.24
 1223.5 1120.37 1229.81 1120.42 1244.82 1120.58 1245.30 1120.58 1246.89 1120.58
1260.94 1120.62 1266.15 1120.65 1276.51 1120.62 1287.47 1120.55 1292.07 1120.59
1304.56 1120.62 1307.65 1120.63 1308.79 1120.63 1323.22    1121 1330.11 1121.09
1338.78 1121.28 1351.44  1121.5 1354.35 1121.55 1362.24 1121.69 1369.91 1121.82
1372.76 1121.87 1382.75 1122.04

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
   15.53     .04  146.57     .035  365.05     .045

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
        146.57  365.05             198.77     200  202.71              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.53  * Element                  *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.               *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.52  * Reach Len. (ft)          *  198.77  *  200.00  *  202.71  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)        * 1517.55  * 4031.41  * 3792.24  *
* E.G. Slope (ft/ft)      *0.000013  * Area (sq ft)             * 1517.55  * 4031.41  * 3792.24  *
* Q Total (cfs)           * 6729.40  * Flow (cfs)               * 1038.46  * 4356.00  * 1334.94  *
* Top Width (ft)          * 1110.79  * Top Width (ft)           *  131.04  *  218.48  *  761.27  *
* Vel Total (ft/s)        *    0.72  * Avg. Vel. (ft/s)         *    0.68  *    1.08  *    0.35  *
* Max Chl Dpth (ft)       *   20.54  * Hydr. Depth (ft)         *   11.58  *   18.45  *    4.98  *
* Conv. Total (cfs)       *1840992.0  * Conv. (cfs)             *  *284097.0  *1191690.0  *365205.1  *
* Length Wtd. (ft)        *  200.39  * Wetted Per. (ft)         *  134.14  *  219.43  *  761.39  *
* Min Ch El (ft)          * 1098.98  * Shear (lb/sq ft)         *    0.01  *    0.02  *    0.00  *
* Alpha                   *    1.64  * Stream Power (lb/ft s)    *    0.01  *    0.02  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *  204.04  *  465.99  *  621.09  *
* C & E Loss (ft)         *          * Cum SA (acres)            *   19.98  *   26.76  *  109.32  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 7699.414

INPUT
Description:
Station Elevation Data     num=      179
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   17.71 1118.81   19.49  1118.6   24.06 1117.53   34.93 1115.05   39.18 1114.01
   50.38 1111.22   60.65 1108.85   65.82 1107.65   79.08 1105.83   82.12 1105.41
   96.71 1105.42  103.59 1105.41  112.15 1105.56  125.06 1105.67  127.59 1105.66
   134.1 1105.65  143.04  1105.6  146.52 1105.24  146.96 1105.15  158.47 1102.66
  167.99 1100.39  173.92 1099.55  189.12 1099.19  189.37 1099.18  189.46 1099.18
   204.8 1099.04  210.93 1099.07  220.25 1099.18   232.4 1099.42  235.69 1099.47
  244.14 1099.55  253.87 1099.65  260.08 1099.69  275.34  1099.8  295.29 1100.25
   296.8 1100.28  297.46  1100.3  299.16 1100.39  312.91 1101.04  318.27 1101.77
  328.35 1103.69  339.74  1105.5  343.79 1106.03  354.18 1106.96   356.7  1107.2
  359.24 1107.45  361.21  1107.6  374.67 1108.33  382.68  1108.6  390.12 1108.88
  404.15 1109.21  405.57 1109.25   409.2 1109.33     421  1109.6  425.62 1109.68
  436.45 1109.85  447.09 1110.07  451.89 1110.14  464.22 1110.35  467.33 1110.39
  468.55 1110.41  482.78 1110.47  490.02 1110.51  498.22 1110.59  511.49 1110.64
  513.66 1110.68  519.24 1110.74  532.96 1110.95  544.55 1111.18  554.43 1111.26
  559.99 1111.34  574.27 1111.46  575.44 1111.48   575.9 1111.48  590.88 1111.74
  597.37 1111.84  606.32    1112  618.83 1112.18  621.77 1112.24  629.28 1112.36
   637.2 1112.54   640.3 1112.59  652.65 1112.93  661.77 1113.08  668.09 1113.25
  683.24 1113.49  683.53  1113.5   684.3 1113.51  698.98 1113.85  704.71 1113.93
  714.42  1114.2  726.18 1114.37  729.86 1114.45  739.32 1114.58  747.64 1114.74
  752.96  1114.8  769.11 1115.01  788.17  1115.2  790.58 1115.22  791.64 1115.24
  794.34 1115.27  812.05 1115.57  823.38 1115.76  833.52 1115.98  849.36 1116.38
  853.41  1116.5  854.99 1116.52  868.85 1116.77  876.46 1116.88  884.29    1117
  897.93  1117.2  899.73 1117.23  904.38 1117.31  915.18 1117.52   919.4 1117.58
  930.62 1117.83  940.86 1117.98  946.06 1118.07   959.4 1118.28   961.5 1118.32
  962.33 1118.32  976.95 1118.48   983.8 1118.55  992.39 1118.63 1005.27 1118.76
 1007.84 1118.79 1014.43 1118.86 1023.28 1118.97 1026.74 1119.02 1038.72 1119.17
 1048.21 1119.28 1054.17 1119.35 1069.44 1119.54 1069.61 1119.55 1069.67 1119.55
 1085.05 1119.77 1091.14 1119.86 1100.49 1119.98 1112.61 1120.16 1115.93  1120.2
 1124.46  1120.3 1131.38 1120.37 1134.08  1120.4 1146.82 1120.49 1155.55 1120.56
 1162.26 1120.61 1177.02 1120.72  1177.7 1120.72 1179.48 1120.74 1193.15 1120.82
 1198.49 1120.86 1208.59 1120.94 1219.96 1121.06 1224.04  1121.1  1234.5  1121.2
 1241.42 1121.21 1254.92 1121.19 1262.89 1121.16 1270.37 1121.13 1284.36  1121.1
 1285.81 1121.09 1289.52 1121.08 1305.83 1120.86 1316.25  1120.8  1327.3  1120.7
 1332.14 1120.69 1344.54 1120.92 1347.58 1121.08 1348.77 1121.04 1363.02  1121.2
 1370.24 1121.02 1378.46 1121.11  1391.7 1121.33  1393.9 1121.37 1399.56 1121.48
 1409.35 1121.77 1413.17 1121.81 1424.79 1122.12  1426.8 1122.16

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
   17.71     .04  146.96     .035  356.7     .045

Bank Sta: Left   Right    Lengths: Left Channel   Right      Coeff Contr.   Expan.
        146.96  356.7              201.82     200  202.6               .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.53  * Element                  *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.               *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.52  * Reach Len. (ft)          *  201.82  *  200.00  *  202.60  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)        * 1416.80  * 3889.44  * 3907.97  *
* E.G. Slope (ft/ft)      *0.000012  * Area (sq ft)             * 1416.80  * 3889.44  * 3907.97  *
* Q Total (cfs)           * 6304.63  * Flow (cfs)               *  893.86  * 4012.54  * 1398.22  *
* Top Width (ft)          * 1050.28  * Top Width (ft)           *  129.25  *  209.74  *  711.29  *
* Vel Total (ft/s)        *    0.68  * Avg. Vel. (ft/s)         *    0.63  *    1.03  *    0.36  *
* Max Chl Dpth (ft)       *   20.48  * Hydr. Depth (ft)         *   10.96  *   18.54  *    5.49  *
* Conv. Total (cfs)       *1811459.0  * Conv. (cfs)             *  *256826.7  *1152891.0  *401740.7  *
* Length Wtd. (ft)        *  200.96  * Wetted Per. (ft)         *  131.44  *  210.83  *  711.43  *
* Min Ch El (ft)          * 1099.04  * Shear (lb/sq ft)         *    0.01  *    0.01  *    0.00  *
* Alpha                   *    1.63  * Stream Power (lb/ft s)    *    0.01  *    0.01  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *  197.35  *  447.81  *  603.18  *
* C & E Loss (ft)         *          * Cum SA (acres)            *   19.39  *   25.77  *  105.89  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.
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CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 7499.415

INPUT
Description:
Station Elevation Data num= 169

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
17.64	1118.09	29.44	1115.68	33.32	1114.55	44.35	1111.54	50.65	1109.79
54.06	1109.18	71.85	1104.79	86.8	1104.58	93.06	1104.46	96.05	1104.44
104.54	1104.46	111.73	1104.48	114.26	1104.5	127.41	1104.45	135.47	1104.45
143.09	1104.17	145.35	1103.85	156.67	1102.26	158.77	1101.86	164.73	1101.06
174.45	1099.64	177.88	1099.39	190.12	1099.15	199.08	1098.96	205.81	1098.94
220.29	1099.02	221.49	1099.03	224.91	1099.13	237.17	1099.43	241.49	1099.6
252.85	1100.05	262.7	1101.4	283.24	1105.22	283.9	1105.35	285.1	1105.47
299.89	1106.9	304.41	1107.17	305.11	1107.21	315.99	1107.68	326.31	1108.18
331.26	1108.33	345.29	1108.73	346.94	1108.78	347.52	1108.79	362.62	1109.14
368.72	1109.26	378.3	1109.45	389.93	1109.66	393.98	1109.73	405.47	1109.91
411.13	1109.99	414.2	1110.03	432.34	1110.26	446.94	1110.45	453.54	1110.54
465.66	1110.71	474.75	1110.84	488.05	1111.07	495.95	1111.22	503.74	1111.39
517.16	1111.71	519.42	1111.76	525.85	1111.9	535.1	1112.13	538.36	1112.19
550.78	1112.4	559.57	1112.54	577.9	1112.77	580.77	1112.8	586.03	1112.86
597.82	1113	601.98	1113.04	613.5	1113.18	623.18	1113.31	629.18	1113.39
644.39	1113.61	644.87	1113.62	646.22	1113.64	660.55	1113.81	665.59	1113.86
676.23	1113.98	686.8	1114.09	691.91	1114.15	706.41	1114.34	707.59	1114.35
708	1114.35	708.86	1114.36	729.21	1114.65	741.6	1114.81	750.41	1114.93
754.62	1114.99	766.59	1115.1	770.3	1115.14	771.62	1115.15	785.98	1115.3
792.82	1115.34	801.66	1115.41	814.03	1115.45	817.35	1115.46	826.78	1115.45
833.03	1115.46	835.23	1115.47	848.71	1115.49	856.44	1115.5	864.39	1115.53
877.64	1115.61	880.07	1115.63	886.97	1115.69	895.75	1115.8	898.85	1115.85
911.43	1116.02	920.05	1116.17	938.04	1116.45	941.26	1116.5	942.8	1116.52
947.15	1116.58	958.48	1116.66	962.46	1116.68	974.15	1116.76	983.67	1116.82
1003.52	1116.85	1004.87	1116.85	1005.51	1116.85	1007.34	1116.85	1021.19	1116.89
1026.08	1116.93	1036.87	1117.01	1047.28	1117.13	1052.55	1117.19	1067.53	1117.43
1068.23	1117.45	1068.49	1117.45	1083.91	1117.76	1089.69	1117.87	1099.6	1118.1
1110.9	1118.32	1115.28	1118.41	1127.71	1118.62	1132.1	1118.7	1146.64	1118.93
1153.31	1119.02	1167.22	1119.21	1174.51	1119.31	1187.9	1119.5	1193.68	1119.58
1195.72	1119.61	1209.36	1119.76	1216.92	1119.85	1225.04	1119.92	1238.13	1119.99
1240.72	1120.01	1248.09	1120.05	1256.4	1120.11	1259.33	1120.12	1272.08	1120.22
1280.54	1120.28	1287.76	1120.28	1301.74	1120.45	1303.44	1120.48	1308.28	1120.59
1319.12	1120.86	1322.95	1120.96	1334.8	1121.34	1344.15	1121.61	1350.48	1121.78
1365.36	1122.1	1366.17	1122.12	1368.47	1122.16	1371.21	1122.21		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
17.64	.04	145.35	.035	304.41	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
145.35	304.41		197.16	200	204.37	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1119.53	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1119.52	Reach Len. (ft)	197.16	200.00	204.37
Crit W.S. (ft)		Flow Area (sq ft)	1538.17	2904.05	4686.70
E.G. Slope (ft/ft)	0.000013	Area (sq ft)	1538.17	2904.05	4686.70
Q Total (cfs)	5875.29	Flow (cfs)	1073.39	3094.16	1707.74
Top Width (ft)	1171.92	Top Width (ft)	127.71	159.06	885.15
Vel Total (ft/s)	0.64	Avg. Vel. (ft/s)	0.70	1.07	0.36
Max Chl Dpth (ft)	20.58	Hydr. Depth (ft)	12.04	18.26	5.29
Conv. Total (cfs)	1617293.0	Conv. (cfs)	295472.4	851731.8	470088.8
Length Wtd. (ft)	200.93	Wetted Per. (ft)	130.81	159.94	885.26
Min Ch El (ft)	1098.94	Shear (lb/sq ft)	0.01	0.01	0.00
Alpha	1.75	Stream Power (lb/ft s)	0.01	0.02	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	190.50	432.21	583.19
C & E Loss (ft)		Cum SA (acres)	18.80	24.93	102.18

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 7299.414

INPUT
Description:
Station Elevation Data num= 164

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
18.2	1118.21	26.28	1116.84	39.78	1112.98	41.64	1112.47	46.25	1111.3
57	1108.54	61.36	1107.25	72.36	1105.17	82.93	1105.02	99.54	1105.03
104.51	1105.04	107.89	1105.04	126.09	1105.11	133.79	1105.09	147.66	1104.3
149.14	1104.07	150.1	1103.89	152.82	1103.39	164.51	1101.18	169.24	1100.36
179.87	1099.51	190.82	1099.38	195.22	1099.31	206.11	1099.27	210.59	1099.25
212.4	1099.25	225.94	1099.25	233.98	1099.32	241.3	1099.53	255.55	1099.86
256.65	1099.96	259.39	1100.46	272.02	1102.6	277.13	1103.66	287.37	1105.63
298.71	1107.07	302.73	1107.28	304.41	1107.35	312.68	1107.71	320.28	1108.01
325.45	1108.17	341.86	1108.62	361.71	1108.95	363.44	1108.98	364.16	1108.99
365.97	1109.01	379.53	1109.12	385.02	1109.14	394.88	1109.24	406.6	1109.34
410.24	1109.38	419.25	1109.49	425.6	1109.59	428.17	1109.64	440.96	1109.82
449.75	1109.96	456.31	1110.04	471.33	1110.18	472.54	1110.19	487.03	1110.29
492.9	1110.27	525.82	1110.34	533.1	1110.68	536.06	1110.72	548.47	1110.91
557.64	1110.98	563.82	1111.04	579.11	1111.11	655.97	1111.18	665.53	1111.41
671.33	1111.54	685.68	1111.86	686.69	1111.88	687.1	1111.89	702.05	1112.06
708.68	1112.12	717.41	1112.18	730.26	1112.27	738.97	1112.31	748.13	1112.38
751.84	1112.42	763.48	1112.51	773.42	1112.59	778.84	1112.66	792.25	1112.83
794.19	1112.86	794.99	1112.87	809.56	1113.11	816.57	1113.21	824.91	1113.32
838.15	1113.49	840.28	1113.51	845.54	1113.56	855.64	1113.66	859.72	1113.7
870.99	1113.81	881.3	1113.96	886.35	1114.04	898.82	1114.26	901.7	1114.31
902.88	1114.33	917.07	1114.59	924.46	1114.74	932.42	1114.88	946.04	1115.13
947.78	1115.15	952.11	1115.23	963.14	1115.4	967.61	1115.47	978.5	1115.64
989.19	1115.85	993.85	1115.93	1005.4	1116.22	1009.22	1116.3	1010.77	1116.33
1024.58	1116.57	1032.35	1116.72	1039.93	1116.78	1053.92	1117.01	1055.29	1117.02
1058.68	1117.08	1070.65	1117.19	1075.5	1117.26	1086.01	1117.34	1097.08	1117.55
1101.36	1117.57	1111.96	1117.73	1116.73	1117.76	1118.66	1117.8	1132.08	1117.78
1140.23	1117.9	1147.44	1117.94	1161.81	1118.1	1162.79	1118.12	1165.24	1118.13

```
 1178.16  1118.2 1183.39 1118.28 1193.52 1118.49 1204.97 1118.63 1208.87 1118.72
 1218.53  1118.8 1224.24 1118.86 1226.55 1118.88 1239.59 1119.08 1248.12 1119.15
 1254.95 1119.26  1269.7 1119.37  1270.3 1119.38 1271.81  1119.4 1291.28 1119.74
 1301.02 1119.95 1312.85 1120.08 1316.38 1120.14  1325.1 1120.23 1334.43 1120.39
  1347.1 1120.64 1356.01 1120.73 1362.46 1120.84 1377.59 1120.98 1377.81 1120.98
 1378.39 1120.99 1393.18 1121.22 1399.17 1121.29  1402.8 1121.36

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
    18.2     .04   150.1    .035  304.41    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         150.1  304.41             207.5     200   191.3              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1119.53  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.53  * Reach Len. (ft)         *  207.50  *  200.00  *  191.30  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1558.48  * 2822.66  * 5881.19  *
* E.G. Slope (ft/ft)      *0.000010  * Area (sq ft)            * 1558.48  * 2822.66  * 5881.19  *
* Q Total (cfs)           * 5509.54  * Flow (cfs)              *  922.13  * 2581.58  * 2005.83  *
* Top Width (ft)          * 1260.77  * Top Width (ft)          *  131.90  *  154.31  *  974.56  *
* Vel Total (ft/s)        *    0.54  * Avg. Vel. (ft/s)        *    0.59  *    0.91  *    0.34  *
* Max Chl Dpth (ft)       *   20.28  * Hydr. Depth (ft)        *   11.82  *   18.29  *    6.03  *
* Conv. Total (cfs)       *1767969.0 * Conv. (cfs)             *295904.8  *828408.8  *643655.7  *
* Length Wtd. (ft)        *  197.62  * Wetted Per. (ft)        *  134.87  *  155.30  *  974.67  *
* Min Ch El (ft)          * 1099.25  * Shear (lb/sq ft)        *    0.01  *    0.01  *    0.00  *
* Alpha                   *    1.71  * Stream Power (lb/ft s)  *    0.00  *    0.01  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  183.49  *  419.06  *  558.40  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   18.21  *   24.21  *   97.82  *
**********************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 7099.414

INPUT
Description:
Station Elevation Data     num=     164
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
   16.74 1118.67   21.15 1117.72   37.43 1113.93   43.25 1112.42   58.11 1108.61
   66.77 1106.46   78.79 1104.56   83.13 1104.44   99.48 1104.15    99.5 1104.15
    99.6 1104.15  120.16 1104.15  127.51 1104.13  140.84  1104.1  148.53 1103.47
   148.6 1103.46  161.53 1101.86  164.97 1101.37  178.04 1100.08  181.34 1099.72
  182.21 1099.67   197.7 1099.42  202.89 1099.31  214.07 1099.24  223.58 1099.19
  230.45 1099.23  244.26 1099.56  246.81 1099.65   256.5 1100.41  263.18 1100.86
  264.94 1101.05  279.55 1102.42  283.18 1102.72  285.63 1102.93  295.92 1103.14
  306.31 1103.37  312.28 1103.44  326.99 1103.68  328.65 1103.72  334.95 1104.03
  347.68 1104.65  352.23  1105.1  368.36 1106.55  380.32 1107.17  389.05 1108.02
  408.41 1108.38  409.73 1108.38   413.4 1108.43  426.85  1108.5  430.41 1108.53
  443.22 1108.55   451.1 1108.56  464.59 1108.57  471.78 1108.59  491.84 1108.58
  492.33 1108.58  492.46 1108.58   508.7 1108.36  513.15 1108.37  525.07 1108.34
  533.83 1108.45  541.43 1108.52  554.51 1108.75   557.8  1108.8   570.3 1109.02
  574.17 1109.09   575.2  1109.1  590.53  1109.3  595.88 1109.37   606.9 1109.47
  616.56 1109.61  623.28 1109.68  637.25 1109.88  639.65 1109.91  648.75 1110.03
  656.01 1110.15  657.93 1110.18  672.38 1110.37  678.61 1110.46  688.75 1110.59
   699.3 1110.74  705.11 1110.83  719.98 1111.09  721.48 1111.12   727.2 1111.23
  737.85 1111.45  740.66 1111.51  754.22 1111.76  761.35 1111.94  770.58 1112.08
  782.03 1112.32  786.96 1112.39  802.71 1112.56  803.33 1112.57  805.64 1112.59
  819.69 1112.69   823.4 1112.74  836.06 1112.86  844.08 1112.95  852.43 1113.07
  864.76 1113.21   868.8 1113.29  884.09 1113.47  885.16 1113.49  885.45 1113.49
  901.53  1113.8  906.13 1113.87   917.9 1114.12  926.82 1114.24  934.26  1114.4
   947.5 1114.55  950.63 1114.62  962.55 1114.71     967 1114.76  968.18 1114.77
  983.37 1114.99  988.87 1115.03  999.73 1115.19 1009.55 1115.27 1016.11 1115.35
 1030.23 1115.53 1040.99 1115.68 1048.84 1115.81 1050.92 1115.84 1054.46 1115.89
  1071.6 1116.17 1081.58 1116.35 1092.28 1116.52 1110.64 1116.92 1112.97 1116.97
 1119.44 1117.14 1130.68 1117.41 1133.65 1117.48 1147.05  1117.8 1154.33 1117.97
 1163.41 1118.12 1175.02 1118.34 1179.78 1118.39  1195.7 1118.56 1196.16 1118.56
 1197.89 1118.58 1212.53 1118.71 1216.38 1118.76 1228.89 1118.94 1237.07 1119.06
 1245.26 1119.22 1257.75 1119.46 1261.63 1119.54 1276.35 1119.88 1277.99 1119.91
 1278.43 1119.92 1294.36  1120.2 1299.12 1120.29 1310.73 1120.47  1319.8 1120.64
  1327.1 1120.75 1340.48 1120.97 1343.46 1121.01 1354.79 1121.18 1359.84 1121.25
 1361.17 1121.27 1376.21 1121.38 1381.85 1121.43 1388.15 1121.46

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
   16.74     .04  148.53    .035  283.18    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         148.53  283.18             207.82     200  189.84              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1119.53  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.53  * Reach Len. (ft)         *  207.82  *  200.00  *  189.84  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1581.21  * 2580.05  * 7325.47  *
* E.G. Slope (ft/ft)      *0.000007  * Area (sq ft)            * 1581.21  * 2580.05  * 7325.47  *
* Q Total (cfs)           * 5331.04  * Flow (cfs)              *  805.12  * 2073.59  * 2452.33  *
* Top Width (ft)          * 1244.26  * Top Width (ft)          *  131.79  *  134.65  *  977.82  *
* Vel Total (ft/s)        *    0.46  * Avg. Vel. (ft/s)        *    0.51  *    0.80  *    0.33  *
* Max Chl Dpth (ft)       *   20.34  * Hydr. Depth (ft)        *   12.00  *   19.16  *    7.49  *
* Conv. Total (cfs)       *2012889.0 * Conv. (cfs)             *303997.0  *782944.0  *925948.1  *
* Length Wtd. (ft)        *  196.70  * Wetted Per. (ft)        *  134.30  *  135.01  *  978.10  *
* Min Ch El (ft)          * 1099.19  * Shear (lb/sq ft)        *    0.01  *    0.01  *    0.00  *
* Alpha                   *    1.59  * Stream Power (lb/ft s)  *    0.00  *    0.01  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  176.02  *  406.66  *  529.40  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   17.58  *   23.54  *   93.53  *
**********************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
```

```
REACH: FRS2                RS: 6899.414

INPUT
Description:
Station Elevation Data     num=     175
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
    5.34 1118.52    8.08 1118.46   25.51 1116.46   25.94 1116.34    29.3 1115.39
    43.8 1111.28   45.68 1110.76   61.66 1106.35   65.84 1105.19   79.52 1103.92
   86.01 1103.45   97.38 1103.19  106.17 1103.05  115.24 1103.07  126.34 1103.11
  140.72    1103   146.5 1102.93  149.41 1102.62  163.87 1101.05  166.67 1100.77
  185.55 1099.56  186.69 1099.48  186.84 1099.48  204.54 1099.13     207 1099.09
  222.41 1099.08  227.17 1099.09  240.27 1099.39  247.34 1099.55  258.12  1100.3
   267.5 1100.63  275.99 1101.43  287.67 1102.18  293.85 1102.38  301.93  1102.7
  307.83 1102.93  311.71 1102.85     328 1102.97  329.57 1102.99  341.79 1103.19
  347.43  1103.3  348.16 1103.31   365.3 1103.59  368.33 1103.63  383.15 1104.16
   388.5 1104.24  401.01 1104.69  408.66 1104.88  418.88 1105.23  428.83 1105.48
  436.73 1105.74  448.99  1106.1   454.6 1106.29  469.16 1107.19  472.46  1107.3
  489.33  1108.1  490.31 1108.12  498.04 1108.21  508.18 1108.32  509.49 1108.34
  526.04 1108.39  529.66  1108.4  534.34 1108.41  549.82 1108.49  561.76 1108.62
  569.99 1108.63  580.65 1108.69  590.16 1108.81  597.49 1108.89  610.32    1109
  615.34 1109.06  630.49 1109.13   633.2 1109.16  650.65 1109.23  651.07 1109.24
  654.28 1109.33  670.82 1109.89  686.78 1110.32  690.98  1110.4  696.42 1110.48
  711.15 1110.83   722.5 1111.07  731.32 1111.14  742.73 1111.27  751.48 1111.42
  758.23 1111.57  771.65 1111.88  789.03 1112.28  791.81 1112.34  793.95 1112.37
  810.52 1112.74  811.81 1112.77  811.98 1112.77  812.19 1112.78  832.15 1113.17
  847.53 1113.42  852.31 1113.54   858.5  1113.7  872.48 1113.92  883.26 1114.09
  892.64  1114.3   904.8 1114.56  912.81 1114.72  918.97 1114.83  932.98 1115.14
  936.84 1115.21  953.14 1115.62  954.69 1115.65  966.76  1115.9  972.55 1116.01
  973.31 1116.03  990.42 1116.23  993.47 1116.28 1008.27 1116.45 1013.64 1116.51
 1026.14  1116.7 1033.81 1116.77    1044 1116.95 1053.97 1117.08 1061.86 1117.17
 1074.14 1117.46 1079.72 1117.45  1094.3 1117.78 1097.58 1117.78 1114.47 1117.86
 1115.44 1117.87 1123.01  1117.9  1133.3 1117.95 1134.63 1117.96 1151.16 1118.15
  1154.8 1118.17 1169.03 1118.33 1174.97 1118.35 1186.89 1118.49 1195.13 1118.54
 1204.74 1118.69  1215.3 1118.79 1222.61 1118.88 1235.46    1119 1240.46 1119.06
 1255.63 1119.23 1258.32 1119.27  1275.8 1119.49 1276.19  1119.5 1279.25 1119.56
 1294.05 1119.85 1295.96  1119.9 1311.91 1120.29 1316.13 1120.41 1329.77 1120.68
 1336.29 1120.79 1347.63 1120.97 1356.46 1121.06 1365.49 1121.13 1376.62 1121.18
 1383.35 1121.22 1396.79  1121.3  1414.2 1121.44 1416.96 1121.46 1419.07 1121.48
  1435.5 1121.62 1436.93 1121.63 1437.12 1121.63  1454.8 1121.73 1457.29 1121.73
 1472.66 1121.76 1477.45 1121.77 1490.51 1121.84 1497.62 1121.86 1508.38    1122
 1517.79 1122.12 1526.24 1122.29 1537.95 1122.44 1544.09 1122.55 1556.33 1122.84

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    5.34     .04  149.41    .035  301.93    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        149.41  301.93            200.83     200  199.18              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)         * 1119.53  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)         * 1119.53  * Reach Len. (ft)         *  200.83  *  200.00  *  199.18  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       * 1740.54  * 2925.49  * 7223.93  *
* E.G. Slope (ft/ft)     *0.000005  * Area (sq ft)            * 1740.54  * 2925.49  * 7223.93  *
* Q Total (cfs)          * 4986.05  * Flow (cfs)              *  786.44  * 2079.87  * 2119.73  *
* Top Width (ft)         * 1272.27  * Top Width (ft)          *  144.07  *  152.52  *  975.68  *
* Vel Total (ft/s)       *    0.42  * Avg. Vel. (ft/s)        *    0.45  *    0.71  *    0.29  *
* Max Chl Dpth (ft)      *   20.45  * Hydr. Depth (ft)        *   12.08  *   19.18  *    7.40  *
* Conv. Total (cfs)      *2131144.0  * Conv. (cfs)            *336142.0  *888982.7  *906019.1  *
* Length Wtd. (ft)       *  199.79  * Wetted Per. (ft)        *  146.84  *  152.77  *  975.89  *
* Min Ch El (ft)         * 1099.08  * Shear (lb/sq ft)        *    0.00  *    0.01  *    0.00  *
* Alpha                  *    1.59  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)    *  168.09  *  394.02  *  497.70  *
* C & E Loss (ft)        *          * Cum SA (acres)          *   16.92  *   22.89  *   89.27  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 6699.414

INPUT
Description:
Station Elevation Data     num=     147
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
    8.24 1118.37    9.58 1118.18   21.09 1116.19   27.62 1115.08   28.38 1114.93
   45.65  1110.3   48.52 1109.53   63.68  1105.6   68.65 1104.29   81.71 1103.26
   88.79 1102.87   99.74 1102.67  108.92 1102.54  117.77 1102.62  129.06 1102.68
  135.81 1102.67   149.2 1102.57  152.28 1102.14  153.84 1101.93  169.33 1099.69
  171.87 1099.57  189.47 1099.06   189.9 1099.05  193.61 1099.03  207.93 1098.93
   209.6 1098.93  225.96 1098.98  229.74 1099.01  243.99 1099.43  249.87 1099.63
   257.3 1100.42  270.01 1101.58   280.1 1102.33  290.15  1103.1  291.32 1103.15
  298.08 1103.42  310.28 1103.91  316.11 1104.08  330.42 1104.66  334.14 1104.84
  350.55 1106.02  352.17 1106.13  366.14 1106.36  370.21 1106.42  370.69 1106.43
  388.24 1106.89  390.82 1106.93  406.27  1107.2  410.96 1107.25   424.3 1107.36
   431.1 1107.33  442.33 1107.36  451.23 1107.15  460.36 1107.18  471.37 1107.31
  478.39 1107.36   491.5  1107.9  496.43 1107.97  511.64 1108.32  514.46 1108.37
  531.77 1108.68  532.49 1108.68  538.65  1108.8  550.52 1109.01  551.91 1109.03
  568.55 1109.31  572.05 1109.39  586.59 1109.63  592.18 1109.76  604.62 1109.96
  612.32 1110.14  622.65  1110.3  632.45 1110.48  640.68 1110.61  652.59 1110.72
  658.71 1110.82  672.73 1110.94  676.74    1111  692.86 1111.23  694.77 1111.26
  711.17 1111.58  712.81 1111.61    713 1111.62  730.84 1111.99  733.13 1112.03
  748.87 1112.26  753.27 1112.31  766.9 1112.44   773.4 1112.51  784.93 1112.67
  793.54 1112.84  802.95 1112.95  813.68 1113.21  820.99 1113.29  833.81 1113.57
  839.02  1113.6  853.95 1113.79  857.05 1113.69  874.08 1113.79  875.08 1113.83
   883.7 1113.81  894.22  1113.8  895.61 1113.79  934.49 1114.16  947.21 1114.43
  954.63 1114.53  965.24 1114.68  974.76 1114.79  983.27 1114.89   994.9 1115.12
  1001.3 1115.22 1015.03 1115.62 1019.33  1115.7 1035.17 1116.04 1037.36 1116.06
  1055.3 1116.32  1055.4 1116.33 1056.22 1116.33 1073.43 1116.52 1075.44 1116.55
 1077.98 1116.58 1095.58 1116.83 1100.77 1116.94 1115.71  1117.3 1127.52 1117.69
 1135.85 1117.93 1146.37 1118.17 1155.98 1118.41 1169.16 1118.64 1176.12 1118.71
 1181.62 1118.74 1196.26 1118.96 1199.65 1119.02 1216.39 1119.26 1217.68 1119.32
 1228.73 1119.53 1235.71 1119.68 1236.53  1119.7 1253.74 1120.17 1256.66 1120.23
 1271.78 1120.68  1276.8 1120.79 1289.81  1121.1 1296.94 1121.23 1307.84 1121.43
 1317.07 1121.54  1324.2 1121.59
```

```
Manning's n Values          num=      3
    Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
   8.24     .04  152.28    .035  291.32    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        152.28  291.32             200.93     200  198.77            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.53  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.53  * Reach Len. (ft)         *  200.93  *  200.00  *  198.77  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1853.21  * 2704.16  * 7010.88  *
* E.G. Slope (ft/ft)      *0.000005  * Area (sq ft)            * 1853.21  * 2704.16  * 7010.88  *
* Q Total (cfs)           * 4588.58  * Flow (cfs)              *  819.99  * 1822.34  * 1946.25  *
* Top Width (ft)          * 1220.44  * Top Width (ft)          *  144.04  *  139.04  *  937.36  *
* Vel Total (ft/s)        *    0.40  * Avg. Vel. (ft/s)        *    0.44  *    0.67  *    0.28  *
* Max Chl Dpth (ft)       *   20.60  * Hydr. Depth (ft)        *   12.87  *   19.45  *    7.48  *
* Conv. Total (cfs)       *2087113.0  * Conv. (cfs)            *  372973.2  *828889.9  *885249.8  *
* Length Wtd. (ft)        *  199.66  * Wetted Per. (ft)        *  146.96  *  139.39  *  937.58  *
* Min Ch El (ft)          * 1098.93  * Shear (lb/sq ft)        *    0.00  *    0.01  *    0.00  *
* Alpha                   *    1.58  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *  159.81  *  381.10  *  465.15  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   16.26  *   22.22  *   84.90  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 6499.415

INPUT
Description:
Station Elevation Data     num=     138
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*****************************************************************************************
    9.76  1118.11    27.41  1115.53    29.86  1115.02    45.66  1110.29    49.96  1109.11
   63.91  1105.27    70.07  1103.53    82.18   1102.8    90.17  1102.65    99.95  1102.68
  110.27  1102.61   118.69  1102.67   130.37  1102.73   144.67  1102.43   150.47  1102.42
  151.73  1102.21    155.2  1101.62   170.58  1099.05    189.4  1098.86   190.68  1098.83
  202.02  1098.81   209.97  1098.79   210.78  1098.79   228.23  1098.95   230.88  1098.98
  246.48  1099.56   250.98  1099.74   264.74  1101.32   271.08  1102.18   282.99  1103.74
  290.92  1104.78   291.19  1104.82   301.26  1104.97   311.29  1105.19   319.51  1105.21
  331.39  1105.28   337.76  1105.39   351.49  1105.45   356.03  1105.58   371.59  1105.67
  374.28  1105.76    391.7  1106.09   392.54   1106.1    400.9  1106.28   410.79  1106.51
   411.8  1106.52   429.05  1106.91    431.9  1106.97   447.31  1107.28      452  1107.34
  465.56  1107.54    472.1  1107.62   483.82  1107.87   492.21  1108.08   502.08  1108.34
  512.31  1108.64   520.33  1108.83   532.41   1109.2   538.59  1109.35   552.51  1109.72
  556.84  1109.81   572.61  1110.18   575.11  1110.23   592.72  1110.61   593.36  1110.62
  599.77  1110.73   611.61  1110.93   612.82  1110.96   629.87  1111.27   632.92  1111.33
  648.13  1111.63   653.02  1111.73   666.39  1111.93   673.12  1112.07   684.64  1112.15
  693.23  1112.29   702.89  1112.26   713.33  1112.38   721.16  1112.29   733.43   1112.3
  739.41  1112.29   753.53  1112.15   757.67  1112.26   773.63  1112.43   775.92  1112.51
  793.73  1112.72   794.18  1112.73   798.65  1112.72   812.44   1112.8   813.84  1112.81
  830.69  1113.25   833.94  1113.27   848.95  1113.87   854.04  1113.87   867.21  1114.22
  874.14  1114.19   885.46  1114.45   894.24  1114.82   903.72  1115.05   914.35  1115.38
  921.97  1115.58   934.45  1115.89   940.24  1116.01   954.55  1116.27   958.49  1116.33
  974.65  1116.56   976.74  1116.58   994.75  1116.78   995.01  1116.78   997.53   1116.8
 1013.26  1116.93  1014.86  1116.96  1031.52  1117.12  1034.96  1117.16  1049.77  1117.39
 1055.06  1117.47  1068.03  1117.73  1075.16   1117.9  1086.29  1118.16  1095.26  1118.39
 1104.54   1118.6  1115.37  1118.88   1122.8  1119.03  1135.47  1119.31  1141.05  1119.42
 1155.57  1119.67  1159.31  1119.72  1175.67  1119.99  1177.57  1120.02  1195.77  1120.39
 1195.82  1120.39   1196.4   1120.4  1214.09  1120.77  1215.88  1120.81  1232.34  1121.04
 1235.98   1121.1   1250.6  1121.13  1253.97  1121.17

Manning's n Values          num=      3
    Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
   9.76     .04  151.73    .035  290.92    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        151.73  290.92             198.48     200  202.71            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.53  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.53  * Reach Len. (ft)         *  198.48  *  200.00  *  202.71  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1848.07  * 2699.50  * 6409.17  *
* E.G. Slope (ft/ft)      *0.000005  * Area (sq ft)            * 1848.07  * 2699.50  * 6409.17  *
* Q Total (cfs)           * 4402.58  * Flow (cfs)              *  819.97  * 1808.14  * 1774.47  *
* Top Width (ft)          * 1137.62  * Top Width (ft)          *  141.97  *  139.19  *  856.46  *
* Vel Total (ft/s)        *    0.40  * Avg. Vel. (ft/s)        *    0.44  *    0.67  *    0.28  *
* Max Chl Dpth (ft)       *   20.74  * Hydr. Depth (ft)        *   13.02  *   19.39  *    7.48  *
* Conv. Total (cfs)       *2008606.0  * Conv. (cfs)            *  374098.8  *824934.3  *809572.8  *
* Length Wtd. (ft)        *  200.88  * Wetted Per. (ft)        *  145.29  *  139.79  *  856.63  *
* Min Ch El (ft)          * 1098.79  * Shear (lb/sq ft)        *    0.00  *    0.01  *    0.00  *
* Alpha                   *    1.56  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *  151.27  *  368.69  *  434.53  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   15.60  *   21.58  *   80.81  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 6299.414

INPUT
Description:
Station Elevation Data     num=     100
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*****************************************************************************************
    6.88  1118.53    11.79  1117.69    27.04  1114.52    46.7  1108.9    47.2  1108.76
   50.53  1107.81    65.45  1103.54    67.36  1103.02   83.34  1102.2   87.52  1102.06
  101.24  1101.91   107.68  1101.88   119.12  1101.88   127.84  1101.87  137.01  1101.61
   147.9   1101.3     148   1101.3    154.9  1100.71   168.16  1099.43  172.79  1099.31
  188.32  1099.03   190.68  1099.02   208.48  1099.04   208.56  1099.04  209.27  1099.05
```

```
 226.46 1099.21  228.64 1099.24  244.35 1099.67   248.8 1099.87  262.23 1100.49
 268.96 1101.03  280.12 1102.07  289.12 1101.61  298.01 1102.07  300.03 1102.29
 309.28  1103.3   315.9 1103.58  329.45 1104.33  333.79 1104.46  349.61 1104.68
 351.67 1104.74     368 1105.05  369.57 1105.08  369.77 1105.08  387.46 1105.17
 389.93 1105.18  405.34 1105.02  410.09 1105.23  423.23 1104.75  430.25 1104.85
 441.12 1104.79  450.41  1104.8  459.01 1105.05  470.57 1105.34   476.9 1105.72
 490.73 1106.57  494.78 1106.72  510.89 1107.84  833.46 1109.96  834.67 1109.95
 844.23 1110.47  853.62 1111.16  870.45 1112.05  873.78 1112.18  888.34 1112.57
 893.94 1112.81  906.22 1113.11   914.1 1113.43  924.12 1113.52  934.27 1113.95
 942.01 1114.08  954.43 1114.52  959.89 1114.62  974.59    1115  977.78 1115.02
 994.75 1115.04  995.67 1115.08 1002.96 1115.05 1013.56 1114.91 1014.91 1114.92
1031.45  1115.6 1035.07 1115.59 1049.33 1116.33 1055.23 1116.49 1067.23 1116.65
1075.39 1116.91 1085.11 1116.67 1095.55  1116.8    1103 1116.77 1115.71 1116.93
1120.89 1117.04 1135.87 1117.61 1138.78 1117.49 1156.03 1117.48 1156.67 1117.43
 1161.7  1117.6 1174.56  1117.7  1377.8 1119.77 1407.11  1120.8 1408.61 1120.88

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
    6.88     .04   147.9    .035  300.03    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        147.9  300.03             201.05     200  198.54             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.53  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.53  * Reach Len. (ft)         *  201.05  *  200.00  *  198.54  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1906.87  * 2963.47  * 8215.07  *
* E.G. Slope (ft/ft)      *0.000003  * Area (sq ft)            * 1906.87  * 2963.47  * 8215.07  *
* Q Total (cfs)           * 4083.78  * Flow (cfs)              *  682.36  * 1566.49  * 1834.93  *
* Top Width (ft)          * 1347.45  * Top Width (ft)          *  141.02  *  152.13  * 1054.30  *
* Vel Total (ft/s)        *    0.31  * Avg. Vel. (ft/s)        *    0.36  *    0.53  *    0.22  *
* Max Chl Dpth (ft)       *   20.51  * Hydr. Depth (ft)        *   13.52  *   19.48  *    7.79  *
* Conv. Total (cfs)       *2372257.0  * Conv. (cfs)            *396380.2  *909971.5  *1065905.0  *
* Length Wtd. (ft)        *  199.59  * Wetted Per. (ft)        *  144.06  *  152.35  * 1054.69  *
* Min Ch El (ft)          * 1099.02  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.55  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  142.72  *  355.69  *  400.51  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   14.95  *   20.91  *   76.36  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 6099.414

INPUT
Description:
Station Elevation Data    num=      143
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************************
     8.3 1118.55    27.1 1114.23   28.42 1113.95   29.48 1113.67   38.98 1111.11
   47.58  1108.8   48.55 1108.54   49.75 1108.27   68.67  1103.6    83.8 1103.36
   88.79 1103.29  101.91 1103.29  108.92 1103.33  120.02 1103.09  129.04 1103.01
  138.13 1102.41  138.72 1102.36  149.17 1101.41  156.24 1100.79  169.29 1099.53
  174.34 1099.39  189.41    1099  192.45 1098.98  209.54 1098.89  210.56  1098.9
  219.81 1099.02  228.67 1099.13  229.66 1099.15  246.77 1099.85  249.78 1100.01
  264.89 1102.08  269.91 1102.66     283 1103.99  290.03 1104.72  297.79 1105.13
   301.1 1105.31  310.15  1105.8  319.21 1106.09  330.28 1106.38  337.32 1106.52
   350.4 1106.74  355.43 1106.83  370.52 1107.11  373.53 1107.16  390.65 1107.55
  391.64 1107.57  400.64  1107.8  409.75 1108.01  410.77 1108.03  427.85 1108.38
  430.89 1108.45  445.97 1108.67  451.02 1108.76  464.08 1108.92  471.14 1109.04
  482.19 1109.17  491.26 1109.32  500.29 1109.43  511.39  1109.6  525.25 1109.81
  531.51  1109.9  536.51 1109.98  551.63 1110.25  554.61  1110.3  571.76 1110.66
  572.72 1110.68  581.47 1110.87  590.84 1111.07  591.88 1111.09  608.95 1111.36
  612.01  1111.4  627.05  1111.6  632.13 1111.69  645.16 1111.85  652.25 1111.93
  663.27 1112.15  672.37 1112.27  681.37 1112.46   692.5 1112.61  699.48 1112.75
  712.62 1113.03  717.59 1113.14  732.75 1113.56   735.7 1113.61  752.87    1114
   753.8 1114.01   762.3 1114.16  771.92 1114.32  772.99 1114.35  790.03 1114.55
  793.12 1114.62  808.14 1114.83  813.24 1114.94  826.24 1115.11  833.36 1115.26
  844.35 1115.28  853.49 1115.44  862.46 1115.34  873.61 1115.47  880.56 1115.34
  893.73 1115.42  898.67 1115.47  913.86 1115.29  916.78 1115.42  933.98 1115.42
   934.9 1115.45  943.13 1115.84     953 1116.31   954.1 1116.33  971.11 1116.75
  974.23 1116.84  989.22 1116.96  994.35 1117.06 1007.32 1116.85 1014.47 1116.93
 1025.43  1116.9  1034.6 1116.84 1043.54 1116.96 1054.72 1116.85 1061.65 1116.88
 1074.84 1116.92 1079.75 1116.75 1094.97 1116.65 1097.86  1116.9 1115.09 1116.55
 1115.98  1116.6 1123.96 1117.12 1134.08 1117.89 1135.21 1117.91 1136.62 1117.92
 1155.34 1118.49  1170.3 1118.92 1175.46 1118.75 1188.41 1118.99 1195.58 1119.33
 1206.51 1119.56 1215.71 1119.52 1224.62 1119.61 1235.83 1120.27 1242.73  1120.3
 1255.96 1120.61 1272.48 1121.06 1272.63 1121.06

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
     8.3     .04  138.72    .035  297.79    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        138.72  297.79             199.65     200  200.52             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.53  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.53  * Reach Len. (ft)         *  199.65  *  200.00  *  200.52  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1646.97  * 3001.88  * 5831.94  *
* E.G. Slope (ft/ft)      *0.000004  * Area (sq ft)            * 1646.97  * 3001.88  * 5831.94  *
* Q Total (cfs)           * 3736.96  * Flow (cfs)              *  645.18  * 1778.73  * 1313.05  *
* Top Width (ft)          * 1200.44  * Top Width (ft)          *  130.42  *  159.07  *  910.95  *
* Vel Total (ft/s)        *    0.36  * Avg. Vel. (ft/s)        *    0.39  *    0.59  *    0.23  *
* Max Chl Dpth (ft)       *   20.64  * Hydr. Depth (ft)        *   12.63  *   18.87  *    6.40  *
* Conv. Total (cfs)       *1894296.0  * Conv. (cfs)            *327046.6  *901655.1  *665594.7  *
* Length Wtd. (ft)        *  200.12  * Wetted Per. (ft)        *  133.26  *  159.52  *  911.20  *
* Min Ch El (ft)          * 1098.89  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.66  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  134.52  *  342.00  *  368.49  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   14.33  *   20.19  *   71.88  *
*****************************************************************************************

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: FRS
REACH: FRS2 RS: 5899.414

INPUT
Description:
Station Elevation Data num= 144

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
16.72	1118.34	21.64	1117.1	36.86	1112.9	39.67	1112.13	57	1107.42
57.69	1107.29	63.72	1106.39	75.72	1104.56	77.13	1104.38	78.9	1104.37
97.27	1104.12	111.79	1104.12	117.4	1104.14	129.81	1103.88	137.54	1103.8
145.49	1102.9	147.31	1102.69	157.68	1101.68	165.87	1100.82	177.81	1099.6
183.9	1099.44	197.95	1099.06	215.71	1098.87	218.08	1098.85	219.96	1098.86
236.03	1098.99	237.99	1099.01	238.22	1099.01	238.5	1099.02	258.36	1099.79
261.31	1100.4	278.49	1103.46	292.08	1105.22	298.63	1105.82	303.74	1106.01
306.91	1106.13	318.76	1106.66	329.71	1106.9	338.9	1107.12	346.16	1107.27
359.04	1107.57	364.19	1107.67	379.17	1108	398.11	1108.37	399.31	1108.39
400.25	1108.41	408.32	1108.57	418.28	1108.79	419.45	1108.81	436.31	1109.19
439.58	1109.24	454.33	1109.55	459.72	1109.63	472.36	1109.86	479.85	1110.01
490.4	1110.21	499.99	1110.43	508.43	1110.58	520.13	1110.84	526.45	1110.95
540.26	1111.23	544.48	1111.3	560.4	1111.63	562.51	1111.65	580.53	1111.92
580.54	1111.92	580.63	1111.92	598.57	1112.06	600.67	1112.08	616.6	1112.12
620.81	1112.15	634.63	1112.3	640.94	1112.4	652.65	1112.63	661.08	1112.79
670.68	1112.91	681.22	1113.05	688.72	1113.08	701.35	1113.24	706.75	1113.24
721.49	1113.4	724.77	1113.41	741.62	1113.57	742.8	1113.62	752.93	1113.7
760.83	1113.8	761.76	1113.81	778.86	1114.3	781.9	1114.32	796.89	1114.81
802.03	1114.88	814.92	1115.04	822.17	1115.2	832.95	1115.26	842.3	1115.44
850.97	1115.44	862.44	1115.67	869	1115.66	882.58	1115.85	887.04	1115.85
902.71	1115.9	905.07	1115.9	922.85	1115.63	923.09	1115.64	925.22	1115.63
941.12	1115.57	942.98	1115.52	959.15	1116.19	963.12	1116.23	977.18	1116.51
983.26	1116.79	995.21	1117	1003.39	1117.16	1013.24	1117.27	1023.53	1117.36
1031.27	1117.47	1043.67	1117.68	1049.29	1117.79	1063.8	1118.1	1067.32	1118.18
1083.94	1118.55	1085.36	1118.6	1097.53	1118.93	1103.39	1119.09	1104.07	1119.11
1121.41	1119.34	1124.21	1119.36	1139.44	1119.44	1144.35	1119.55	1157.47	1119.87
1164.48	1120.04	1175.5	1120.27	1184.62	1120.44	1193.53	1120.55	1204.75	1120.76
1211.56	1120.84	1224.89	1120.98	1229.59	1121.04	1245.03	1121.14	1247.61	1121.18
1265.16	1121.28	1265.65	1121.29	1269.82	1121.34	1276.23	1121.43		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
16.72	.04	145.49	.035	303.74	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
145.49	303.74	200.08	200	199.89	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1119.54	Element	Left OB	Channel	Right OB	
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045	
W.S. Elev (ft)	1119.53	Reach Len. (ft)	200.08	200.00	199.89	
Crit W.S. (ft)		Flow Area (sq ft)	1601.96	2959.90	5188.61	
E.G. Slope (ft/ft)	0.000004	Area (sq ft)	1601.96	2959.90	5188.61	
Q Total (cfs)	3380.37	Flow (cfs)	599.58	1682.00	1098.79	
Top Width (ft)	1126.82	Top Width (ft)	128.77	158.25	839.80	
Vel Total (ft/s)	0.35	Avg. Vel. (ft/s)	0.37	0.57	0.21	
Max Chl Dpth (ft)	20.68	Hydr. Depth (ft)	12.44	18.70	6.18	
Conv. Total (cfs)	1774502.0	Conv. (cfs)	314746.9	882951.6	576803.3	
Length Wtd. (ft)	199.98	Wetted Per. (ft)	131.70	158.92	839.96	
Min Ch El (ft)	1098.85	Shear (lb/sq ft)	0.00	0.00	0.00	
Alpha	1.66	Stream Power (lb/ft s)	0.00	0.00	0.00	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	127.07	328.31	343.13	
C & E Loss (ft)		Cum SA (acres)	13.73	19.47	67.85	

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 5699.414

INPUT
Description:
Station Elevation Data num= 122

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.32	1117.82	13.92	1116.32	28.46	1112.4	31.96	1111.46	48.59	1107.02
50.01	1106.83	62.33	1105.5	68.72	1104.82	69.56	1104.81	88.86	1104.64
104.15	1104.72	108.99	1104.75	115.09	1104.73	129.12	1104.54	132.25	1104.06
137.85	1103.2	149.26	1101.65	158.29	1100.7	169.39	1099.65	176.34	1099.46
189.52	1099.11	194.38	1099.06	209.66	1098.94	212.43	1098.97	229.79	1099.14
230.48	1099.16	236.4	1099.39	249.92	1099.93	251.69	1100.3	270.06	1104.24
274.46	1104.85	290.19	1106.92	292	1106.96	302.65	1107.2	310.32	1107.41
319.99	1107.55	330.46	1107.79	342.75	1108	350.59	1108.23	365.52	1108.51
370.72	1108.63	388.29	1108.93	390.86	1108.97	392.89	1109.02	410.47	1109.42
410.99	1109.43	428.98	1109.98	431.12	1110.05	433.82	1110.12	451.26	1110.6
456.58	1110.71	471.39	1111.05	479.35	1111.18	491.52	1111.38	501.16	1111.52
511.66	1111.64	524.89	1111.78	531.79	1111.86	547.66	1112.03	551.92	1112.08
570.42	1112.28	572.06	1112.3	573.35	1112.32	584.54	1112.44	591.4	1112.52
592.19	1112.52	609.44	1112.57	612.32	1112.55	844.04	1112.77	853.93	1113.41
862.09	1113.71	874.06	1114.44	880.13	1115.06	894.19	1115.36	898.18	1115.5
914.33	1116.28	916.23	1116.37	932.68	1116.93	934.27	1116.98	934.46	1116.98
952.32	1117.32	954.59	1117.36	970.37	1117.61	974.73	1117.67	988.41	1117.89
994.86	1117.98	1006.46	1118.15	1014.99	1118.27	1024.51	1118.4	1035.13	1118.57
1042.54	1118.64	1055.26	1118.82	1060.59	1118.82	1075.39	1119	1078.64	1118.97
1095.53	1119.09	1096.68	1119.09	1106.75	1119.12	1114.73	1119.12	1115.66	1119.13
1132.77	1119.02	1135.79	1119.03	1150.82	1118.31	1155.93	1118.31	1168.87	1117.79
1176.06	1117.54	1186.91	1117.83	1196.19	1117.96	1204.96	1118.32	1216.33	1118.72
1223.01	1118.79	1236.46	1119.34	1241.05	1119.53	1256.59	1119.36	1259.1	1119.49
1276.73	1118.44	1277.15	1118.43	1280.82	1118.47	1295.19	1118.86	1296.86	1118.89
1298.95	1118.96	1309.41	1119.08						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8.32	.04	132.25	.035	292	.045

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       132.25     292            207.09     200  191.07             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.53  * Reach Len. (ft)         *  207.09  *  200.00  *  191.07  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1505.05  * 2953.83  * 5359.24  *
* E.G. Slope (ft/ft)      *0.000003  * Area (sq ft)            * 1505.05  * 2953.83  * 5359.24  *
* Q Total (cfs)           * 2992.39  * Flow (cfs)              *  511.17  * 1538.24  *  942.98  *
* Top Width (ft)          * 1301.09  * Top Width (ft)          *  123.93  *  159.75  * 1017.41  *
* Vel Total (ft/s)        *    0.30  * Avg. Vel. (ft/s)        *    0.34  *    0.52  *    0.18  *
* Max Chl Dpth (ft)       *   20.59  * Hydr. Depth (ft)        *   12.14  *   18.49  *    5.27  *
* Conv. Total (cfs)       *1699250.0 * Conv. (cfs)             *  290269.7 *873500.4  *535479.6  *
* Length Wtd. (ft)        *  198.24  * Wetted Per. (ft)        *  127.23  *  160.68  * 1018.17  *
* Min Ch El (ft)          * 1098.94  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.82  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  119.93  *  314.74  *  318.93  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   13.15  *   18.74  *   63.59  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 5499.415

INPUT
Description:
Station Elevation Data     num=      99
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   17.48 1117.78   30.66 1114.24   37.48 1112.32   44.18 1110.54   57.48 1106.96
   70.98 1106.24   77.48 1105.57   91.13 1105.31   97.48 1105.12  103.72 1105.01
  117.48 1104.79  131.44 1104.23  137.48 1103.86  139.57 1103.47   151.6 1101.22
  157.48 1100.46  163.26 1100.14  177.49 1099.24  183.12 1099.15  197.49 1098.95
  202.97 1098.94  217.49 1098.91  222.81 1098.91  237.49 1098.91  252.38 1098.94
  257.49 1098.97  262.51 1099.03  277.49 1099.12  282.36 1099.14  297.49 1099.65
   302.2 1100.51  317.49 1102.75  322.05 1103.32  337.49 1105.12   341.9 1105.43
  345.18 1105.62  357.49 1106.34  397.49 1106.32  401.44 1106.41  417.49 1106.46
  421.29 1106.41  437.49 1106.42  441.13 1106.54  457.49 1106.85  460.98 1106.88
  477.49 1107.28  480.83 1107.32  497.49 1107.71  500.67 1107.68   517.5 1108.23
  520.53 1108.17   537.5 1108.61  540.38 1108.53   557.5 1109.17  560.22 1109.12
   577.5 1109.61  580.07  1109.8   597.5 1110.71  599.92 1110.88   617.5 1111.07
  619.77 1111.19   637.5 1111.67  639.61  1111.8   657.5 1112.37  659.46 1112.45
   677.5 1112.86  679.31  1112.9   697.5  1113.1  699.15 1113.11   717.5 1112.98
     719 1112.79   737.5 1112.75  996.87 1115.86  997.51 1115.86 1016.72 1117.11
 1017.51 1117.19 1036.56 1118.03 1037.51 1118.07 1056.41  1118.7 1057.51 1118.73
 1076.26 1119.25 1077.51 1119.28 1096.11 1119.68 1097.51  1119.7 1115.95 1120.07
 1117.51 1120.12  1135.8 1120.54 1137.51 1120.58 1155.65 1120.95 1157.51 1120.99
  1175.5 1121.27 1177.52  1121.3 1195.35 1121.41 1197.52 1121.42  1215.2 1121.41
 1217.52  1121.4 1235.05 1121.62 1237.52 1121.66 1246.14  1121.9

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   17.48     .04  139.57    .035  345.18    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
       139.57  345.18            206.89     200  187.21             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.53  * Reach Len. (ft)         *  206.89  *  200.00  *  187.21  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1461.44  * 3955.23  * 5539.15  *
* E.G. Slope (ft/ft)      *0.000001  * Area (sq ft)            * 1461.44  * 3955.23  * 5539.15  *
* Q Total (cfs)           * 2587.41  * Flow (cfs)              *  331.37  * 1428.24  *  827.80  *
* Top Width (ft)          * 1071.84  * Top Width (ft)          *  122.09  *  205.61  *  744.14  *
* Vel Total (ft/s)        *    0.24  * Avg. Vel. (ft/s)        *    0.23  *    0.36  *    0.15  *
* Max Chl Dpth (ft)       *   20.62  * Hydr. Depth (ft)        *   11.97  *   19.24  *    7.44  *
* Conv. Total (cfs)       *2179002.0 * Conv. (cfs)             *  279061.7 *1202805.0  *697136.1  *
* Length Wtd. (ft)        *  197.49  * Wetted Per. (ft)        *  125.40  *  206.31  *  744.40  *
* Min Ch El (ft)          * 1098.91  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.54  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  112.88  *  298.87  *  295.02  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   12.57  *   17.90  *   59.73  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 5299.414

INPUT
Description:
Station Elevation Data     num=     131
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   12.01 1117.79   21.69 1115.01   32.08 1112.12   44.32 1108.68   52.15 1106.49
   58.78 1105.89   72.21 1105.23   77.32 1105.29   92.28 1105.44  109.92 1105.43
  112.35 1105.45   114.4 1105.41  129.28 1104.82  132.42 1104.69  132.94 1104.59
  139.33 1103.35  151.48 1100.99  152.48 1100.79  153.66 1100.75  172.55 1099.73
  175.53  1099.7  192.62 1099.52   207.1 1099.48  212.69 1099.47  219.27 1099.44
  232.76 1099.38  241.13 1099.34  252.82 1099.28  263.01 1099.24  272.89 1099.16
  284.87 1099.34  292.96 1099.45  306.75  1101.8  313.03 1102.76  328.61 1105.27
  333.09 1106.05  336.89 1106.63  353.16 1108.78  356.16    1109  372.35 1110.17
  373.23 1110.23  382.98 1110.52   393.3 1110.81  394.22 1110.82  413.37 1111.13
  429.59 1111.33  433.43 1111.34  437.96 1111.34   453.5 1111.36  459.82 1111.29
  473.57 1111.16   481.7 1110.97  493.64 1110.81  503.56    1111   513.7 1111.02
  525.43 1111.18  533.77 1111.25   547.3 1111.41  553.84 1111.45  569.17 1111.66
  573.91 1111.71  591.04 1111.96  593.97 1112.02  612.91    1112  614.04 1112.01
  626.64 1111.95  634.11 1111.92  634.77 1111.94  654.18  1112.2  656.65 1112.28
  674.25 1112.78  678.51 1112.89  694.31 1113.23  700.38 1113.31  714.38 1113.65
  722.25 1113.84  734.45 1114.09  744.12 1114.36  754.52 1114.56  765.99 1114.83
  774.58 1115.01  787.86 1115.29  794.65 1115.47  809.72 1115.78  814.72 1115.87
   831.6 1116.22  834.79 1116.27  853.46 1116.63  854.86 1116.65  870.29 1116.92
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  874.56 1116.99  874.92    1117   893.1 1117.28  894.99 1117.31   897.2 1117.34
  915.06 1117.63  919.07 1117.69  935.13 1117.95  948.73 1118.21  955.19 1118.33
  967.26  1118.6  975.26 1118.79  985.81 1119.03  995.33 1119.22 1004.35 1119.37
  1015.4 1119.48 1028.42 1119.64 1035.47 1119.74 1050.29 1119.87 1055.53 1119.92
 1072.16 1119.71  1075.6 1119.71 1094.02 1119.55 1095.67 1119.55 1113.94  1120.1
 1115.74 1120.15  1115.9 1120.15  1135.8 1120.48 1137.76 1120.52 1155.87 1120.66
 1159.63  1120.6 1175.94 1120.64  1181.5 1120.42 1196.01 1120.34 1203.37 1120.16
 1216.07 1119.92 1225.24 1121.18 1236.14  1120.2 1247.11  1120.6 1256.21  1121.9
 1267.47 1122.11

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   12.01     .04  129.28    .035  356.16    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        129.28  356.16            202.79     200  194.68             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**************************************************************************************
* E.G. Elev (ft)          * 1119.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.54  * Reach Len. (ft)         *  202.79  *  200.00  *  194.68  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1385.31  * 4141.71  * 3704.76  *
* E.G. Slope (ft/ft)      *0.000001  * Area (sq ft)            * 1385.31  * 4141.71  * 3704.76  *
* Q Total (cfs)           * 2160.04  * Flow (cfs)              *  303.90  * 1409.60  *  446.53  *
* Top Width (ft)          * 1007.87  * Top Width (ft)          *  117.27  *  226.88  *  663.72  *
* Vel Total (ft/s)        *    0.23  * Avg. Vel. (ft/s)        *    0.22  *    0.34  *    0.12  *
* Max Chl Dpth (ft)       *   20.38  * Hydr. Depth (ft)        *   11.81  *   18.26  *    5.58  *
* Conv. Total (cfs)       *1861816.0  * Conv. (cfs)            *261941.8  *1214991.0  *384883.2  *
* Length Wtd. (ft)        *  199.43  * Wetted Per. (ft)        *  120.63  *  228.02  *  663.87  *
* Min Ch El (ft)          * 1099.16  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.56  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *  106.12  *  280.29  *  275.16  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   12.00  *   16.90  *   56.70  *
**************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 5099.414

INPUT
Description:
Station Elevation Data     num=      112
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    9.42 1118.92   24.27 1115.33   29.56 1113.85   42.27 1110.45    49.7 1108.31
   60.28 1106.21   69.84 1104.61   81.97  1104.5   89.98 1104.43   96.29 1104.41
  110.12 1104.36   114.3 1104.23  130.26 1103.87  132.16 1103.63  132.31 1103.61
  149.59 1101.34   150.4 1101.23   150.5 1101.23  170.54 1099.64  173.35 1099.61
  190.68 1099.36   196.2 1099.31  210.82 1099.16  219.04  1099.1  230.96 1098.99
  241.89 1098.92   251.1 1098.86  264.74 1098.85  271.24 1098.85  287.58 1099.37
  291.38 1099.47  310.42 1101.44  311.52 1101.56  319.64 1103.15  330.38 1105.27
  331.66  1105.5  348.39  1107.4   351.8 1107.74  359.17 1108.15   366.4 1108.55
  371.94 1108.84  384.41 1109.21  392.08 1109.55  401.81 1109.89  412.22 1110.18
  424.66  1110.6  432.36 1110.89   447.5 1111.36   452.5 1111.56  470.34 1112.11
  472.64 1112.19  489.69 1112.75  492.78 1112.85  493.19 1112.86  512.92 1113.44
  516.03 1113.51  533.06 1113.94  538.88    1114   553.2 1114.25  561.73 1114.28
  573.34 1114.39  584.57  1114.4  593.48 1114.46  607.42  1114.4  613.62 1114.41
  630.26 1114.22  633.76 1114.19  653.11  1114.1   653.9 1114.09  659.74 1114.12
  672.52 1114.21  674.04 1114.23  690.52 1114.34  694.18 1114.38  708.54 1114.59
  714.32  1114.8  726.54  1115.1  734.46 1115.31  744.55 1115.56   754.6 1115.79
  767.34 1116.05  774.74 1116.22  780.56 1116.34  794.68 1116.61  813.02 1116.88
  815.02 1116.92  816.58 1116.94  829.78 1117.04  835.16 1117.07  835.87 1117.07
   855.3  1117.2  858.72 1117.22  875.44 1117.31  881.57 1117.29  895.58 1117.37
  904.41 1117.89  915.72 1118.08  927.25  1118.3  935.85 1118.38   950.1 1118.68
  955.99  1118.8  972.94 1119.21  976.13 1119.34  995.79 1119.53  996.27 1119.54
  999.83 1119.58 1016.41 1119.71 1018.64 1119.76 1036.55 1120.09 1041.48 1120.19
 1056.69 1120.49 1065.79 1120.74

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    9.42     .04  132.16    .035  359.17    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        132.16  359.17            198.26     200  202.53             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**************************************************************************************
* E.G. Elev (ft)          * 1119.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.54  * Reach Len. (ft)         *  198.26  *  200.00  *  202.53  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1444.45  * 4212.71  * 3027.18  *
* E.G. Slope (ft/ft)      *0.000001  * Area (sq ft)            * 1444.45  * 4212.71  * 3027.18  *
* Q Total (cfs)           * 1747.68  * Flow (cfs)              *  265.10  * 1209.35  *  273.23  *
* Top Width (ft)          *  986.66  * Top Width (ft)          *  122.74  *  227.01  *  636.91  *
* Vel Total (ft/s)        *    0.20  * Avg. Vel. (ft/s)        *    0.18  *    0.29  *    0.09  *
* Max Chl Dpth (ft)       *   20.69  * Hydr. Depth (ft)        *   11.77  *   18.56  *    4.75  *
* Conv. Total (cfs)       *1807106.0  * Conv. (cfs)            *274118.5  *1250466.0  *282521.1  *
* Length Wtd. (ft)        *  200.18  * Wetted Per. (ft)        *  125.10  *  227.87  *  637.08  *
* Min Ch El (ft)          * 1098.85  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.57  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *   99.54  *  261.11  *  260.12  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   11.44  *   15.86  *   53.80  *
**************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 4899.414

INPUT
Description:
Station Elevation Data     num=       90
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
```

```
   14.11 1117.29   24.65 1115.57   33.27 1113.51   44.75 1110.64   58.75 1108.76
   64.85  1107.7   81.07 1107.36   84.95 1107.28   88.11 1107.27  105.05 1107.05
  120.01 1106.49  125.14 1106.28  125.71 1106.19  126.21  1106.1  145.24 1102.79
  148.03 1102.44  165.34 1099.61  170.35 1099.51  185.44 1099.27  192.67 1099.23
  205.54 1099.17  214.99 1099.11  225.64 1099.04  237.31 1098.99  245.74 1098.94
  259.63 1099.01  265.84 1099.05  281.94 1099.57  285.93 1099.67  304.26 1101.19
  306.03 1101.28  322.02 1104.75  325.76 1105.57  326.13 1105.63  344.04 1108.14
  346.23 1108.39  352.67 1108.67  362.32 1109.09  366.33 1109.27   380.6 1109.85
  386.43 1109.92  393.54 1110.12  406.53 1110.22  415.85 1110.47  426.63 1110.63
  438.17 1110.93  446.73 1111.08  460.49 1111.36  466.82 1111.51  482.81 1111.99
  486.92 1112.12  505.13  1112.6  507.02 1112.65  524.04 1112.91  527.12 1112.96
  527.45 1112.96  547.22 1113.22  549.77 1113.25  567.32 1113.55  572.09 1113.63
  587.42 1113.92  594.41 1113.98  607.51 1114.15  616.73 1114.22  627.61 1114.31
  639.05 1114.46  647.71 1114.53  661.37 1114.78  667.81 1114.86  683.69 1115.17
  687.91 1115.24  706.01 1115.62  708.01 1115.65  726.06 1115.99  728.11 1116.03
  728.33 1116.04  748.21 1116.35  750.65 1116.39   768.3 1116.65  772.97 1116.72
   788.4 1116.95  795.29 1117.05   808.5 1117.28  817.61 1117.39   828.6 1117.45
  839.93  1117.6   848.7 1117.51  862.25 1117.65   868.8 1117.67  884.57 1117.81

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
   14.11     .04  126.21    .035  352.67    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        126.21  352.67             198.2     200  208.65             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *    0.040 *    0.035 *    0.045 *
* W.S. Elev (ft)          * 1119.54  * Reach Len. (ft)         *   198.20 *   200.00 *   208.65 *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  1131.49 *  4136.94 *  2905.51 *
* E.G. Slope (ft/ft)      *0.000001  * Area (sq ft)            *  1131.49 *  4136.94 *  2905.51 *
* Q Total (cfs)           * 1358.98  * Flow (cfs)              *   153.69 *   968.39 *   236.89 *
* Top Width (ft)          *  870.46  * Top Width (ft)          *   112.10 *   226.46 *   531.90 *
* Vel Total (ft/s)        *    0.17  * Avg. Vel. (ft/s)        *     0.14 *     0.23 *     0.08 *
* Max Chl Dpth (ft)       *   20.60  * Hydr. Depth (ft)        *    10.09 *    18.27 *     5.46 *
* Conv. Total (cfs)       *1703196.0  * Conv. (cfs)            *  192623.6 *  1213676.0 *  296896.9 *
* Length Wtd. (ft)        *  201.73  * Wetted Per. (ft)        *   115.34 *   227.74 *   533.73 *
* Min Ch El (ft)          * 1098.94  * Shear (lb/sq ft)        *     0.00 *     0.00 *     0.00 *
* Alpha                   *    1.53  * Stream Power (lb/ft s)  *     0.00 *     0.00 *     0.00 *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *    93.67 *   241.94 *   246.32 *
* C & E Loss (ft)         *          * Cum SA (acres)          *    10.91 *    14.82 *    51.08 *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 4699.414

INPUT
Description:
Station Elevation Data     num=      96
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 1117.52   18.27 1116.69   19.21 1116.74   33.84 1112.58   39.25 1111.04
   57.84 1106.65   59.29 1106.39    60.9 1106.38   79.32 1105.97   82.22 1105.97
   99.36 1105.89  103.54 1105.84  119.39 1105.67  133.45 1104.92  139.43 1104.37
  140.14 1104.21  146.16 1102.81  159.47 1099.89  167.47 1099.64   179.5 1099.25
  188.79 1099.17  199.54 1099.05  209.07 1099.05  219.57 1099.08  231.41 1099.23
  239.61 1099.37  252.73 1099.31  259.65 1099.78  265.77 1100.72  279.68 1101.94
  284.67 1102.06  299.72 1104.44  300.29 1104.46  316.67 1105.16  319.75 1105.24
  322.48 1105.32  339.79 1105.93  341.38 1105.98  359.83 1106.44  368.02 1106.51
  379.86 1106.61  380.61 1106.62   399.9 1106.78  401.92 1106.83  419.93 1107.19
  423.24 1107.48  439.97 1108.29  444.56 1108.87     460 1111.15  465.87 1111.24
  480.04  1111.7  487.18 1111.86  500.08 1112.11  508.49 1112.23  520.11 1112.43
  529.81  1112.4  540.15 1112.56  551.12 1112.69  560.18 1112.82  572.44 1112.59
  580.22 1112.64  615.06 1113.14  620.29 1113.22  636.38 1113.66  640.33 1113.73
  657.69 1113.88  660.36 1113.92  679.01 1114.33   680.4 1114.35  700.32 1114.38
  700.44 1114.38   702.2  1114.4  720.47 1114.45  721.63 1114.46  740.51 1114.57
  860.72 1116.56  870.83 1116.93  880.76 1117.43  892.14 1117.67   900.8 1117.81
  913.46 1118.02  920.83 1118.21  934.77 1118.52  940.87 1118.67  956.08 1119.06
   960.9 1119.18   977.4 1119.62  980.94 1119.72  998.71 1120.15 1000.97 1120.23
 1020.03 1120.65 1021.01 1120.68 1036.37 1121.01 1041.05 1121.11 1041.34 1121.12
 1053.66 1121.37

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
       0     .04  140.14    .035  300.29    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        140.14  300.29             415.71  413.68  402.99             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1119.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *    0.040 *    0.035 *    0.045 *
* W.S. Elev (ft)          * 1119.54  * Reach Len. (ft)         *   415.71 *   413.68 *   402.99 *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  1493.60 *  3080.33 *  4464.49 *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  1493.60 *  3080.33 *  4464.49 *
* Q Total (cfs)           *  941.41  * Flow (cfs)              *   144.74 *   512.16 *   284.51 *
* Top Width (ft)          *  974.32  * Top Width (ft)          *   140.14 *   160.15 *   674.03 *
* Vel Total (ft/s)        *    0.10  * Avg. Vel. (ft/s)        *     0.10 *     0.17 *     0.06 *
* Max Chl Dpth (ft)       *   20.49  * Hydr. Depth (ft)        *    10.66 *    19.23 *     6.62 *
* Conv. Total (cfs)       *1719751.0  * Conv. (cfs)            *  264405.2 *  935603.8 *  519742.2 *
* Length Wtd. (ft)        *  410.84  * Wetted Per. (ft)        *   143.58 *   160.97 *   674.41 *
* Min Ch El (ft)          * 1099.05  * Shear (lb/sq ft)        *     0.00 *     0.00 *     0.00 *
* Alpha                   *    1.63  * Stream Power (lb/ft s)  *     0.00 *     0.00 *     0.00 *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *    87.70 *   225.37 *   228.67 *
* C & E Loss (ft)         *          * Cum SA (acres)          *    10.33 *    13.93 *    48.19 *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 4285.734
```

```
INPUT
Description:
Station Elevation Data     num=     113
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
**********************************************************************************
   49.81 1118.02       67 1115.97   70.02  1115.8   72.27 1115.67   87.56 1113.88
   90.24 1113.55    90.69 1113.53  110.45 1112.03  114.38 1111.96  130.66 1111.43
  138.07 1111.25   150.88 1110.59  161.76 1109.43  171.09 1108.46  178.03 1107.67
  182.11 1106.85   191.31 1105.02  209.14 1103.01  211.52 1102.77  225.35  1101.8
  231.73 1101.45   232.83 1101.42  251.95 1100.29  256.52 1100.23  272.16 1099.71
  280.21 1099.75   292.38 1099.94  301.42 1100.13  312.59 1100.35  319.05 1100.66
  332.81 1101.11   344.63 1103.06  351.27 1104.16  353.02 1104.43  363.15 1105.32
  373.23 1106.23   374.96 1106.29  393.45 1107.05  398.65 1107.19  413.66 1107.64
  422.34 1107.86   433.88 1108.15  446.03 1108.54  454.09 1108.73  469.71 1109.56
   474.3 1109.81   493.41 1111.56  494.52 1111.64  500.94 1111.92  514.73 1112.53
   517.1 1112.59   534.94  1113.1  540.79 1113.19  555.16 1113.47  564.48 1113.52
  575.37 1113.63   588.16  1113.8  595.59 1113.86  611.85 1114.29   615.8 1114.38
  635.54  1114.9   636.01 1114.92  638.73 1114.97  656.23 1115.26  659.23 1115.27
  676.44 1115.47   682.92 1115.42  696.66 1115.45  706.61 1115.43  716.87 1115.37
  730.29  1115.6   737.09 1115.64  753.99 1116.09   757.3 1116.14  776.53 1116.73
  777.51 1116.77   777.68 1116.77  797.73 1117.27  801.37 1117.32  817.94 1117.68
  825.06 1117.72   838.16 1117.89  848.75 1117.86  858.37 1117.87  872.43 1117.88
  878.58 1117.87   896.12 1118.02   898.8 1118.02  914.32 1118.19  919.01 1118.23
  919.81 1118.24   939.23 1118.39   943.5 1118.41  959.44 1118.44  967.19 1118.65
  979.65 1118.74   990.88 1119.03  999.87 1119.14 1014.56 1119.34 1020.08 1119.42
 1038.26 1119.73   1040.3 1119.76 1052.12 1120.07 1060.51 1120.31 1077.07 1120.72
 1080.72 1120.81 1094.69 1121.06 1100.94  1121.2 1109.33 1121.38 1121.15 1121.67
 1133.02 1121.96 1141.37 1122.15 1152.62  1122.5

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**********************************************
   49.81     .04  182.11    .035  344.63    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        182.11  344.63             119.46  119.84     125          .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
**************************************************************************************
* E.G. Elev (ft)          * 1119.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1119.54  * Reach Len. (ft)         *  119.46  *  119.84  *  125.00  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  948.65  * 2942.61  * 3528.09  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  948.65  * 2942.61  * 3528.09  *
* Q Total (cfs)           *  313.87  * Flow (cfs)              *   30.44  *  201.71  *   81.72  *
* Top Width (ft)          *  977.19  * Top Width (ft)          *  132.30  *  162.52  *  682.37  *
* Vel Total (ft/s)        *    0.04  * Avg. Vel. (ft/s)        *    0.03  *    0.07  *    0.02  *
* Max Chl Dpth (ft)       *   19.83  * Hydr. Depth (ft)        *    7.17  *   18.11  *    5.17  *
* Conv. Total (cfs)       *1337259.0  * Conv. (cfs)            *129674.2  *859393.8  *340190.9  *
* Length Wtd. (ft)        *  119.84  * Wetted Per. (ft)        *  134.40  *  163.09  *  682.80  *
* Min Ch El (ft)          * 1099.71  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.82  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *          * Cum Volume (acre-ft)    *   76.05  *  196.77  *  191.70  *
* C & E Loss (ft)         *          * Cum SA (acres)          *    9.03  *   12.40  *   41.92  *
**************************************************************************************

CULVERT


RIVER: FRS
REACH: FRS2                RS: 4278.704

INPUT
Description: CULVERT CROSSING MILLER RD
Distance from Upstream XS =     7.03
Deck/Roadway Width        =      104
Weir Coefficient          =      2.6
Upstream  Deck/Roadway Coordinates
    num=       7
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
**********************************************************************
       0    1119            25.68    1119            75.68    1119
  275.68    1112           325.68    1112           375.68    1112
 1152.62    1119

Upstream Bridge Cross Section Data
Station Elevation Data     num=     113
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
**********************************************************************************
   49.81 1118.02       67 1115.97   70.02  1115.8   72.27 1115.67   87.56 1113.88
   90.24 1113.55    90.69 1113.53  110.45 1112.03  114.38 1111.96  130.66 1111.43
  138.07 1111.25   150.88 1110.59  161.76 1109.43  171.09 1108.46  178.03 1107.67
  182.11 1106.85   191.31 1105.02  209.14 1103.01  211.52 1102.77  225.35  1101.8
  231.73 1101.45   232.83 1101.42  251.95 1100.29  256.52 1100.23  272.16 1099.71
  280.21 1099.75   292.38 1099.94  301.42 1100.13  312.59 1100.35  319.05 1100.66
  332.81 1101.11   344.63 1103.06  351.27 1104.16  353.02 1104.43  363.15 1105.32
  373.23 1106.23   374.96 1106.29  393.45 1107.05  398.65 1107.19  413.66 1107.64
  422.34 1107.86   433.88 1108.15  446.03 1108.54  454.09 1108.73  469.71 1109.56
   474.3 1109.81   493.41 1111.56  494.52 1111.64  500.94 1111.92  514.73 1112.53
   517.1 1112.59   534.94  1113.1  540.79 1113.19  555.16 1113.47  564.48 1113.52
  575.37 1113.63   588.16  1113.8  595.59 1113.86  611.85 1114.29   615.8 1114.38
  635.54  1114.9   636.01 1114.92  638.73 1114.97  656.23 1115.26  659.23 1115.27
  676.44 1115.47   682.92 1115.42  696.66 1115.45  706.61 1115.43  716.87 1115.37
  730.29  1115.6   737.09 1115.64  753.99 1116.09   757.3 1116.14  776.53 1116.73
  777.51 1116.77   777.68 1116.77  797.73 1117.27  801.37 1117.32  817.94 1117.68
  825.06 1117.72   838.16 1117.89  848.75 1117.86  858.37 1117.87  872.43 1117.88
  878.58 1117.87   896.12 1118.02   898.8 1118.02  914.32 1118.19  919.01 1118.23
  919.81 1118.24   939.23 1118.39   943.5 1118.41  959.44 1118.44  967.19 1118.65
  979.65 1118.74   990.88 1119.03  999.87 1119.14 1014.56 1119.34 1020.08 1119.42
 1038.26 1119.73   1040.3 1119.76 1052.12 1120.07 1060.51 1120.31 1077.07 1120.72
 1080.72 1120.81 1094.69 1121.06 1100.94  1121.2 1109.33 1121.38 1121.15 1121.67
 1133.02 1121.96 1141.37 1122.15 1152.62  1122.5

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**********************************************
   49.81     .04  182.11    .035  344.63    .045

Bank Sta: Left   Right    Coeff Contr.   Expan.
        182.11  344.63          .1        .3

Downstream  Deck/Roadway Coordinates
    num=       7
```

```
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*****************************************************************************
       0    1119            25.68    1119            75.68    1119
  275.68    1112           325.68    1112           375.68    1112
 1152.62    1119

Downstream Bridge Cross Section Data
Station Elevation Data     num=     113
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   49.81 1118.02      67 1115.97   70.02  1115.8   72.27 1115.67   87.56 1113.88
   90.24 1113.55   90.69 1113.53  110.45 1112.03  114.38 1111.96  130.66 1111.43
  138.07 1111.25  150.88 1110.59  161.76 1109.43  171.09 1108.46  178.03 1107.67
  182.11 1106.85  191.31 1105.02  209.14 1103.01  211.52 1102.77  225.35  1101.8
  231.73 1101.45  232.83 1101.42  251.95 1099.47  256.52 1099.47  272.16 1099.47
  280.21 1099.47  292.38 1099.47  301.42 1099.47  312.59 1099.47  319.05 1099.47
  332.81 1101.11  344.63 1103.06  351.27 1104.16  353.02 1104.43  363.15 1105.32
  373.23 1106.23  374.96 1106.29  393.45 1107.05  398.65 1107.19  413.66 1107.64
  422.34 1107.86  433.88 1108.15  446.03 1108.54  454.09 1108.73  469.71 1109.56
   474.3 1109.81  493.41 1111.56  494.52 1111.64  500.94 1111.92  514.73 1112.53
   517.1 1112.59  534.94  1113.1  540.79 1113.19  555.16 1113.47  564.48 1113.52
  575.37 1113.63  588.16  1113.8  595.59 1113.86  611.85 1114.29   615.8 1114.38
  635.54  1114.9  636.01 1114.92  638.73 1114.97  656.23 1115.26  659.23 1115.27
  676.44 1115.47  682.92 1115.42  696.66 1115.45  706.61 1115.43  716.87 1115.37
  730.29  1115.6  737.09 1115.64  753.99 1116.09   757.3 1116.14  776.53 1116.73
  777.51 1116.77  777.68 1116.77  797.73 1117.27  801.37 1117.32  817.94 1117.68
  825.06 1117.72  838.16 1117.89  848.75 1117.86  858.37 1117.87  872.43 1117.88
  878.58 1117.87  896.12 1118.02   898.8 1118.02  914.32 1118.19  919.01 1118.23
  919.81 1118.24  939.23 1118.39   943.5 1118.41  959.44 1118.44  967.19 1118.65
  979.65 1118.74  990.88 1119.03  999.87 1119.14 1014.56 1119.34 1020.08 1119.42
 1038.26 1119.73 1040.3 1119.76 1052.12 1120.07 1060.51 1120.31 1077.07 1120.72
 1080.72 1120.81 1094.69 1121.06 1100.94  1121.2 1109.33 1121.38 1121.15 1121.67
 1133.02 1121.96 1141.37 1122.15 1152.62  1122.5

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*****************************************************
   49.81     .04  182.11     .035  344.63     .045

Bank Sta: Left   Right     Coeff Contr.   Expan.
        182.11  344.63              .1       .3

Upstream Embankment side slope                =       2 horiz. to 1.0 vertical
Downstream Embankment side slope              =       2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =      .95
Elevation at which weir flow begins           =
Energy head used in spillway design           =
Spillway height used in design                =
Weir crest shape                              = Broad Crested

Number of Culverts =  1

Culvert Name      Shape      Rise     Span
Culvert #1      Pipe Arch    3.58     4.75
FHWA Chart # 34- 18 inch corner radius; Corrugated metal
FHWA Scale # 1 - 90 Degree headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length     Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
              7.03     104      .013      .013         0                .5                 1
Upstream   Elevation =  1099.71
           Centerline Station =  278.47
Downstream Elevation =  1099.47
           Centerline Station =  278.47

CULVERT OUTPUT  Profile #Max WS  Culv Group:  Culvert #1
*********************************************************************
* Q Culv Group (cfs)      *    3.86  * Culv Full Len (ft)      *  104.00  *
* # Barrels               *       1  * Culv Vel US (ft/s)      *    0.23  *
* Q Barrel (cfs)          *    3.86  * Culv Vel DS (ft/s)      *    0.23  *
* E.G. US. (ft)           * 1116.95  * Culv Inv El Up (ft)    * 1099.71  *
* W.S. US. (ft)           * 1119.54  * Culv Inv El Dn (ft)    * 1099.47  *
* E.G. DS (ft)            * 1116.95  * Culv Frctn Ls (ft)     *    0.00  *
* W.S. DS (ft)            * 1116.95  * Culv Exit Loss (ft)    *    0.00  *
* Delta EG (ft)           *    0.00  * Culv Entr Loss (ft)    *    0.00  *
* Delta WS (ft)           *    2.59  * Q Weir (cfs)           *  298.77  *
* E.G. IC (ft)            * 1115.49  * Weir Sta Lft (ft)      *  134.21  *
* E.G. OC (ft)            * 1116.95  * Weir Sta Rgt (ft)      *  784.96  *
* Culvert Control         *  Outlet  * Weir Submerg           *    1.00  *
* Culv WS Inlet (ft)      * 1103.29  * Weir Max Depth (ft)    *    4.95  *
* Culv WS Outlet (ft)     * 1103.05  * Weir Avg Depth (ft)    *    3.09  *
* Culv Nml Depth (ft)     *          * Weir Flow Area (sq ft) * 2011.85  *
* Culv Crt Depth (ft)     *    0.36  * Min El Weir Flow (ft)  * 1112.01  *
*********************************************************************

Warning: During subcritical analysis, while trying to calculate culvert and weir flow, the program could not
         get a balance of energy within the specified tolerance and number of trials.  The program used
         the solution with the minimum error.
Warning: The weir over culvert is submerged.
Warning: During the culvert inlet computations, the program could not balance the culvert/weir flow.  The
         reported inlet energy grade answer may not be valid.
Warning: During the culvert outlet computations, the program could not balance the culvert/weir flow.  The
         reported outlet energy grade answer may not be valid.

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 4165.899

INPUT
Description:
Station Elevation Data     num=     113
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
   49.81 1118.02      67 1115.97   70.02  1115.8   72.27 1115.67   87.56 1113.88
   90.24 1113.55   90.69 1113.53  110.45 1112.03  114.38 1111.96  130.66 1111.43
  138.07 1111.25  150.88 1110.59  161.76 1109.43  171.09 1108.46  178.03 1107.67
  182.11 1106.85  191.31 1105.02  209.14 1103.01  211.52 1102.77  225.35  1101.8
  231.73 1101.45  232.83 1101.42  251.95 1099.47  256.52 1099.47  272.16 1099.47
  280.21 1099.47  292.38 1099.47  301.42 1099.47  312.59 1099.47  319.05 1099.47
  332.81 1101.11  344.63 1103.06  351.27 1104.16  353.02 1104.43  363.15 1105.32
  373.23 1106.23  374.96 1106.29  393.45 1107.05  398.65 1107.19  413.66 1107.64
  422.34 1107.86  433.88 1108.15  446.03 1108.54  454.09 1108.73  469.71 1109.56
   474.3 1109.81  493.41 1111.56  494.52 1111.64  500.94 1111.92  514.73 1112.53
```

```
  517.1 1112.59  534.94  1113.1  540.79 1113.19  555.16 1113.47  564.48 1113.52
 575.37 1113.63  588.16  1113.8  595.59 1113.86  611.85 1114.29   615.8 1114.38
 635.54  1114.9  636.01 1114.92  638.73 1114.97  656.23 1115.26  659.23 1115.27
 676.44 1115.47  682.92 1115.42  696.66 1115.45  706.61 1115.43  716.87 1115.37
 730.29  1115.6  737.09 1115.64  753.99 1116.09   759.3 1116.14  776.53 1116.73
 777.51 1116.77  777.68 1116.77  797.73 1117.27  801.37 1117.32  817.94 1117.68
 825.06 1117.72  838.16 1117.89  848.75 1117.86  858.37 1117.87  872.43 1117.88
 878.58 1117.87  896.12 1118.02   898.8 1118.02  914.32 1118.19  919.01 1118.23
 919.81 1118.24  939.23 1118.39   943.5 1118.41  959.44 1118.44  967.19 1118.65
 979.65 1118.74  990.88 1119.03  999.87 1119.14 1014.56 1119.34 1020.08 1119.42
1038.26 1119.73  1040.3 1119.76 1052.12 1120.07 1060.51 1120.31 1077.07 1120.72
1080.72 1120.81 1094.69 1121.06 1100.94  1121.2 1109.33 1121.38 1121.15 1121.67
1133.02 1121.96 1141.37 1122.15 1152.62  1122.5

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
   49.81     .04  182.11    .035  344.63    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        182.11  344.63            261.56  266.49  267.71             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**************************************************************************************
* E.G. Elev (ft)          * 1116.95  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1116.95  * Reach Len. (ft)         *  261.56  *  266.49  *  267.71  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  611.06  * 2576.51  * 2069.35  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  611.06  * 2576.51  * 2069.35  *
* Q Total (cfs)           * -300.09  * Flow (cfs)              *  -20.88  * -218.41  *  -60.80  *
* Top Width (ft)          *  726.11  * Top Width (ft)          *  123.33  *  162.52  *  440.27  *
* Vel Total (ft/s)        *   -0.06  * Avg. Vel. (ft/s)        *   -0.03  *   -0.08  *   -0.03  *
* Max Chl Dpth (ft)       *   17.48  * Hydr. Depth (ft)        *    4.95  *   15.85  *    4.70  *
* Conv. Total (cfs)       *945718.9  * Conv. (cfs)             * 65789.9  *608316.9  *191612.2  *
* Length Wtd. (ft)        *  266.16  * Wetted Per. (ft)        *  123.84  *  163.23  *  440.68  *
* Min Ch El (ft)          * 1099.47  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.68  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *   73.91  *  189.18  *  183.67  *
* C & E Loss (ft)         *          * Cum SA (acres)          *    8.68  *   11.95  *   40.31  *
**************************************************************************************

LATERAL STRUCTURE


RIVER: FRS
REACH: FRS2                RS: 4099

INPUT
Description:
Lateral structure position      = Left overbank
Distance from Upstream XS =     .414
Deck/Roadway Width          =     10
Weir Coefficient            =     2.7
Weir Flow Reference         = Water Surface
 Weir Embankment Coordinates    num =        3
     Sta     Elev      Sta     Elev      Sta     Elev
*********************************************
       01119.119     9821118.824    14491119.078

Weir crest shape                            = Broad Crested


LATERAL STRUCTURE OUTPUT  Profile #Max WS  Lat Struct
**********************************************************************
* E.G. US. (ft)           * 1116.95  * Weir Sta US (ft)       *          *
* W.S. US. (ft)           * 1116.95  * Weir Sta DS (ft)       *          *
* E.G. DS (ft)            * 1116.94  * Weir Max Depth (ft)    *          *
* W.S. DS (ft)            * 1116.94  * Weir Avg Depth (ft)    *          *
* Q US (cfs)              * -300.09  * Weir Submerg           *          *
* Q Leaving Total (cfs)   *    0.00  * Min El Weir Flow (ft)  * 1118.82  *
* Q DS (cfs)              * -305.79  * Wr Top Wdth (ft)       *          *
* Perc Q Leaving          *    0.00  * Q Gate Group (cfs)     *          *
* Q Weir (cfs)            *          * Gate Open Ht (ft)       *          *
* Q Gates (cfs)           *          * Gate #Open              *          *
* Q Culv (cfs)            *          * Gate Area (sq ft)       *          *
* Q Lat RC (cfs)          *          * Gate Submerg            *          *
* Weir Flow Area (sq ft)  *          * Gate Invert (ft)        *          *
**********************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 3899.414

INPUT
Description:
Station Elevation Data     num=      99
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*********************************************************************************
   14.71 1117.61   16.22 1117.55   32.64 1113.02   36.38 1112.01   41.16  1110.8
   56.53 1106.84    68.5 1106.78   76.68 1106.91   87.17 1107.08   96.84 1107.21
  110.18 1106.84  116.99 1106.71  126.63 1105.94  133.18 1105.41  137.14  1105.1
  156.19 1100.86  157.29 1100.62  158.15 1100.54  165.08 1100.08  177.45 1099.26
  179.19 1099.24   197.6 1098.85   202.2 1098.84  217.75 1098.74   225.2 1098.91
  237.91 1099.11  248.21 1100.15  258.06 1100.88  271.21 1104.24  278.21 1105.93
  294.22 1108.18  296.43 1108.55  298.37 1108.88  317.22 1109.95  318.52 1110.02
  327.63 1110.34  338.67  1110.7  340.23 1110.73  358.83 1111.15  363.24 1111.22
  378.98 1111.44  386.24 1111.54  399.13 1111.73  409.25 1111.91  419.29 1112.12
  432.25 1112.41  439.44 1112.57  455.26 1112.92  459.59    1113  478.26 1113.34
  479.74 1113.36  490.18 1113.51   499.9 1113.65  501.27 1113.67  520.05 1113.93
  524.27 1113.99   540.2 1114.19  547.28 1114.27  560.36 1114.38  570.28 1114.49
  580.51 1114.52  593.29  1114.6  600.66 1114.58  616.29 1114.63  620.82 1114.66
   639.3 1114.81  640.97 1114.84  652.74    1115   660.2 1115.12  661.12 1115.13
   662.3 1115.14  681.28 1115.56  696.06  1115.9  701.43 1115.98  713.99 1116.24
  721.58 1116.37  731.91 1116.56  741.74 1116.71  754.32 1116.89  761.89    1117
  777.33 1117.29  782.04 1117.36  800.33 1117.73   802.2 1117.75  815.29 1117.95
  822.35 1118.06  823.34 1118.08   842.5 1118.29  846.35 1118.37  862.65 1118.71
  869.36 1118.88  882.81 1119.25  892.36 1119.51  902.96 1119.81  915.36  1120.1
  923.11 1120.29  938.37  1120.6  943.27 1120.69  959.33 1120.96

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
```

```
   14.71     .04  126.63    .035  296.43    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        126.63  296.43             200.72     200  199.52             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1116.95  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1116.95  * Reach Len. (ft)         *  200.72  *  200.00  *  199.52  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  903.43  * 2626.37  * 1552.76  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  903.43  * 2626.37  * 1552.76  *
* Q Total (cfs)           * -305.53  * Flow (cfs)              *  -44.50  * -223.64  *  -37.38  *
* Top Width (ft)          *  740.05  * Top Width (ft)          *  108.23  *  169.80  *  462.02  *
* Vel Total (ft/s)        *   -0.06  * Avg. Vel. (ft/s)        *   -0.05  *   -0.09  *   -0.02  *
* Max Chl Dpth (ft)       *   18.21  * Hydr. Depth (ft)        *    8.35  *   15.47  *    3.36  *
* Conv. Total (cfs)       *940196.8  * Conv. (cfs)             *136951.9  *688224.9  *115020.0  *
* Length Wtd. (ft)        *  200.03  * Wetted Per. (ft)        *  109.59  *  171.27  *  462.14  *
* Min Ch El (ft)          * 1098.74  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.59  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *   69.36  *  173.26  *  172.54  *
* C & E Loss (ft)         *          * Cum SA (acres)          *    7.99  *   10.94  *   37.53  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 3699.414

INPUT
Description:
Station Elevation Data     num=      87
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
   12.19 1118.69    13.9 1118.21   32.36 1113.44   37.08 1112.22   52.53  1108.3
   64.42 1106.42    72.7 1105.62   83.44 1105.56   92.86 1105.51  106.62 1105.37
  113.03 1105.33  129.79 1104.55   133.2 1104.43  137.95 1103.55  152.97 1100.77
  153.37  1100.7  155.97 1100.46  171.51 1098.95  173.54 1098.84  176.15 1098.79
   193.7 1098.39  207.21 1098.28  213.87 1098.23  225.06 1098.22  234.04 1098.28
  245.69 1098.76  254.21 1098.93  268.87 1102.87  274.38 1104.14  292.04 1105.97
  293.98 1106.29  294.54 1106.38  311.23 1107.16  314.71 1107.33  315.23 1107.33
  334.88 1107.89  338.41 1107.93  355.05 1108.39  361.58 1108.51  375.22 1108.83
  384.77 1109.21  395.38  1109.5  407.94 1109.94  415.55 1110.15  431.12 1110.58
  435.72 1110.68  454.29 1111.09  455.89 1111.11   466.5 1111.35  476.06 1111.57
  477.48 1111.61  496.22 1112.04  500.66 1112.08  516.39 1112.25   637.4 1112.49
  639.73 1112.66  657.57 1113.82  671.29 1114.33  677.74 1114.72  686.09 1115.02
   697.9 1115.15     707 1115.19  718.07 1115.48  732.44 1115.82  738.24 1115.92
   742.7 1116.01  758.41 1116.51  777.01 1117.21  778.58 1117.26  796.24 1117.73
  798.74 1117.79  801.98 1117.87  818.91 1118.17  825.16 1118.33  839.08  1118.7
  848.34 1118.95  859.25 1119.32  871.52 1119.61  879.42 1119.82  894.69 1120.13
  899.58 1120.23  917.88 1120.59  919.75 1120.63  932.28 1120.87  939.92 1121.02
  941.06 1121.04  951.41 1121.24

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   12.19     .04  137.95    .035  293.98    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        137.95  293.98             203.2     200  196.42             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1116.95  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1116.95  * Reach Len. (ft)         *  203.20  *  200.00  *  196.42  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1118.65  * 2608.07  * 2413.27  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 1118.65  * 2608.07  * 2413.27  *
* Q Total (cfs)           * -306.17  * Flow (cfs)              *  -49.33  * -193.64  *  -63.19  *
* Top Width (ft)          *  751.29  * Top Width (ft)          *  119.17  *  156.03  *  476.09  *
* Vel Total (ft/s)        *   -0.05  * Avg. Vel. (ft/s)        *   -0.04  *   -0.07  *   -0.03  *
* Max Chl Dpth (ft)       *   18.73  * Hydr. Depth (ft)        *    9.39  *   16.72  *    5.07  *
* Conv. Total (cfs)       *1138907.0  * Conv. (cfs)            *183506.9  *720321.3  *235078.6  *
* Length Wtd. (ft)        *  199.87  * Wetted Per. (ft)        *  120.55  *  157.18  *  476.29  *
* Min Ch El (ft)          * 1098.22  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.59  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *   64.70  *  161.25  *  163.46  *
* C & E Loss (ft)         *          * Cum SA (acres)          *    7.46  *   10.19  *   35.39  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 3499.415

INPUT
Description:
Station Elevation Data     num=     104
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
    6.59 1118.85   23.43 1115.01   26.89 1114.32   29.31 1113.59   43.17 1109.48
   46.6 1108.46    47.2 1108.29   63.88 1103.71  128.41 1103.67  132.72 1103.14
  146.48 1101.45  148.72  1101.2  159.19 1100.12  169.02 1099.12   171.1 1099.08
  189.32 1098.72  195.71 1098.69  209.63 1098.63  219.39 1098.63  229.93 1098.63
  236.67 1098.78  250.23 1099.08  269.54 1102.99  270.54 1103.17  275.22    1104
  287.21 1106.07  290.84  1106.7  294.15 1106.86  311.15 1107.49  318.76 1107.73
  331.45 1108.11  343.37 1108.35  351.75 1108.59  367.98 1108.88  372.06    1109
  391.25 1109.44  392.36 1109.46   392.6 1109.47  412.67 1109.88   417.2 1109.98
  432.97 1110.34  441.81 1110.56  453.27 1110.84  466.42  1111.2  473.58 1111.38
  491.04 1111.83  493.88  1111.9  507.27 1112.14  513.15 1112.23  514.19 1112.25
  530.43 1112.53  534.49  1112.6  547.72 1112.87  554.79 1113.02     565 1113.25
   575.1 1113.53  582.28  1113.7   595.4 1114.11  599.55 1114.19  615.71 1114.61
  616.83 1114.63   623.3 1114.77  636.01 1115.02   638.7 1115.07  656.31 1115.39
  663.31 1115.53  676.62 1115.74  687.92 1115.94  696.92 1116.07  712.54 1116.36
  717.23 1116.43  737.14  1116.8  737.53 1116.81  739.33 1116.84  757.83 1117.15
  761.75 1117.22  778.14 1117.42  786.36 1117.52  798.44 1117.57  810.97 1117.66
  818.75 1117.71  835.59 1117.91  839.05 1117.95  855.35 1118.23  859.35 1118.29
   860.2 1118.31  879.66  1118.7   884.8  1118.8  899.96 1119.21  909.41 1119.42
  920.27 1119.77  934.03 1119.94  940.57 1120.08  958.64 1120.35  960.87 1120.38
  971.38 1120.46  979.72 1120.53  981.18 1120.54  983.25 1120.55 1001.48 1120.53
 1007.86 1120.67 1021.78 1120.99 1032.46 1121.25 1036.85 1121.37
```

```
Manning's n Values          num=      3
    Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    6.59     .04  132.72    .035  287.21    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        132.72  287.21             216.33     200  183.29          .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1116.95  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1116.95  * Reach Len. (ft)         *  216.33  *  200.00  *  183.29  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1227.43  * 2580.25  * 2178.24  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 1227.43  * 2580.25  * 2178.24  *
* Q Total (cfs)           * -306.88  * Flow (cfs)              *  -58.40  * -193.37  *  -55.11  *
* Top Width (ft)          *  730.84  * Top Width (ft)          *  117.79  *  154.49  *  458.57  *
* Vel Total (ft/s)        *   -0.05  * Avg. Vel. (ft/s)        *   -0.05  *   -0.07  *   -0.03  *
* Max Chl Dpth (ft)       *   18.32  * Hydr. Depth (ft)        *   10.42  *   16.70  *    4.75  *
* Conv. Total (cfs)       *1131541.0 * Conv. (cfs)             *215331.1  *713015.8  *203194.0  *
* Length Wtd. (ft)        *  199.73  * Wetted Per. (ft)        *  119.60  *  155.38  *  458.74  *
* Min Ch El (ft)          * 1098.63  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.55  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *   59.23  *  149.34  *  153.11  *
* C & E Loss (ft)         *          * Cum SA (acres)           *    6.91  *    9.48  *   33.28  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 3299.414

INPUT
Description:
Station Elevation Data     num=     114
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    5.66 1118.26   11.06 1117.54   24.24 1114.56   27.28  1113.9   29.37 1113.38
   48.89 1108.58      66 1106.19   70.51 1105.43   72.39 1105.34   76.99 1105.05
   92.12 1104.13  102.62 1103.95  113.74 1103.73  118.38 1103.55  129.74 1103.83
  133.72 1103.85  135.35 1103.69  135.48 1103.66  149.04 1100.12  156.96 1098.95
  175.86 1098.58  178.58 1098.53  182.49 1098.49  200.19 1098.38  212.48 1098.34
  221.81 1098.31  235.23 1098.56  243.42 1098.71   249.1 1099.82  265.03  1102.4
  285.72 1106.63  286.65 1106.84  287.98 1106.89     290 1106.98  308.26 1107.78
  322.33 1108.23  329.88 1108.46  340.73 1108.75  351.49 1108.98  363.69 1109.17
   373.1 1109.29  379.02 1109.36  393.47 1109.57  394.35 1109.58  394.72 1109.59
  395.58 1109.61  416.33 1110.03   432.2 1110.43  437.94 1110.56  446.21 1110.76
  459.56 1111.04  468.82  1111.2  481.17 1111.39  498.96 1111.64  502.79 1111.68
  505.44 1111.72   524.4  1111.9  542.06 1112.08  546.02 1112.09   551.7 1112.13
  567.63 1112.29  578.68 1112.47  589.24 1112.59  604.45 1112.76  610.86 1112.81
   615.3 1112.88  632.47 1113.07  651.93 1113.31  654.09 1113.35   657.2  1113.4
   675.7 1113.64  685.65 1113.92  697.31 1113.92  709.94 1114.22  716.32 1114.46
  718.93 1114.45  725.16 1114.57  740.54 1114.89  761.78 1115.34  762.16 1115.35
  762.69 1115.36  783.77 1115.89   798.4 1116.31  805.39 1116.49  815.44 1116.73
     827 1117.01  835.02  1117.2  848.61 1117.48  868.18 1117.92  870.23 1117.96
  871.64 1117.99  891.84 1118.36  908.26 1118.76  913.46 1118.87  920.92 1119.05
  930.95 1119.27  935.07 1119.38  946.29 1119.53  956.68 1119.76  973.67  1119.9
   978.3 1119.95  981.51 1119.96  999.91    1120 1018.12 1119.99 1021.52 1120.01
 1026.41 1120.11 1043.14 1120.53 1054.75 1120.89 1064.76 1121.19 1079.16 1121.43
 1086.37 1121.55 1091.36 1121.61 1107.98 1121.79  1119.7 1122.01

Manning's n Values          num=      3
    Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
    5.66     .04  135.48    .035     290    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        135.48     290             215.73     200  181.77          .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1116.95  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1116.95  * Reach Len. (ft)         *  215.73  *  200.00  *  181.77  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1189.83  * 2589.15  * 2561.25  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            * 1189.83  * 2589.15  * 2561.25  *
* Q Total (cfs)           * -306.66  * Flow (cfs)              *  -53.18  * -189.75  *  -63.73  *
* Top Width (ft)          *  810.72  * Top Width (ft)          *  121.80  *  154.52  *  534.40  *
* Vel Total (ft/s)        *   -0.05  * Avg. Vel. (ft/s)        *   -0.04  *   -0.07  *   -0.02  *
* Max Chl Dpth (ft)       *   18.64  * Hydr. Depth (ft)        *    9.77  *   16.76  *    4.79  *
* Conv. Total (cfs)       *1156680.0 * Conv. (cfs)             *200588.6  *715712.8  *240378.6  *
* Length Wtd. (ft)        *  199.03  * Wetted Per. (ft)        *  123.07  *  155.84  *  534.51  *
* Min Ch El (ft)          * 1098.31  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.62  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *   53.23  *  137.47  *  143.14  *
* C & E Loss (ft)         *          * Cum SA (acres)           *    6.31  *    8.77  *   31.19  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 3099.414

INPUT
Description:
Station Elevation Data     num=     105
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
    8.28    1117   13.28 1115.81   20.45 1113.77   32.68 1110.32   55.38 1104.48
   57.07 1104.19      61 1104.06   81.47 1103.35   90.29 1103.31  105.86  1103.4
  125.22 1103.85  129.21 1103.61  130.27 1103.55  141.94 1101.69  154.66 1099.47
  160.14 1099.17  171.28 1098.97  179.06 1098.86  195.06 1098.72  200.01 1098.69
  203.45 1098.68  222.89 1098.88  227.85 1098.91  229.99 1098.97  252.25 1101.39
  264.91 1104.05  276.65 1105.81  284.69 1106.21  299.84 1106.95  301.04 1106.99
  303.84 1107.07  325.44 1107.66  334.75 1107.89  349.84 1108.27     358 1108.48
  369.68 1108.72  374.24 1108.82  384.78 1108.98  398.63 1109.19   404.6 1109.29
  423.03 1109.65  439.52 1110.03  447.42 1110.21  465.73 1110.55  471.83 1110.66
  474.45 1110.71  496.22 1111.17  509.37 1111.49  520.62 1111.76   544.3  1112.3
  544.71  1112.3  545.01 1112.31  559.08 1112.61  569.41 1112.84  573.44 1112.92
  579.22 1113.04  587.81 1113.14  593.81 1113.24  602.16 1113.33  614.14  1113.5
  618.21 1113.53  627.62 1113.59   642.6 1113.67  645.25 1113.68  649.06 1113.72
     667 1113.91  683.98 1114.11   691.4 1114.24  708.56 1114.61   715.8 1114.77
```

717.08	1114.79	718.91	1114.82	740.19	1115.34	753.83	1115.59	760.16	1115.74
764.59	1115.85	788.75	1116.46	788.89	1116.46	788.98	1116.47	789.51	1116.48
813.38	1117.07	823.68	1117.32	837.78	1117.63	858.59	1118.03	860.71	1118.07
862.18	1118.1	875.06	1118.29	886.57	1118.58	893.52	1118.7	910.97	1119.03
928.44	1119.09	935.37	1119.1	951.4	1119.18	959.77	1119.23	963.37	1119.32
984.16	1119.69	998.29	1119.96	1008.56	1120.2	1032.35	1120.86	1032.96	1120.87
1033.21	1120.88	1057.35	1121.39	1068.14	1121.53	1081.75	1121.73	1094.97	1122.01

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
8.28	.04	129.21	.035	284.69	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
129.21	284.69	205.5	200	194.64	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

			Left OB	Channel	Right OB
E.G. Elev (ft)	1116.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1116.95	Reach Len. (ft)	205.50	200.00	194.64
Crit W.S. (ft)		Flow Area (sq ft)	1279.88	2532.67	2616.62
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	1279.88	2532.67	2616.62
Q Total (cfs)	-300.63	Flow (cfs)	-58.51	-177.14	-64.98
Top Width (ft)	799.86	Top Width (ft)	120.70	155.48	523.68
Vel Total (ft/s)	-0.05	Avg. Vel. (ft/s)	-0.05	-0.07	-0.02
Max Chl Dpth (ft)	18.27	Hydr. Depth (ft)	10.60	16.29	5.00
Conv. Total (cfs)	1168130.0	Conv. (cfs)	227364.1	688278.6	252487.3
Length Wtd. (ft)	199.71	Wetted Per. (ft)	122.39	156.38	523.80
Min Ch El (ft)	1098.68	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.57	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	47.11	125.71	132.33
C & E Loss (ft)		Cum SA (acres)	5.71	8.06	28.98

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 2899.414

INPUT
Description:
Station Elevation Data num= 80

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1117.32	10.76	1116.75	24.18	1112.89	30.96	1110.91	36.44	1109.45
45.19	1107.09	56.06	1104.63	59.42	1103.84	62.13	1103.79	87.27	1103.43
87.81	1103.43	87.94	1103.43	113.49	1103.05	114.73	1102.96	119.81	1102.61
139.17	1100.37	151.7	1099.24	164.86	1098.71	183.57	1098.42	190.54	1098.36
215.45	1098.28	216.22	1098.28	230.1	1098.63	241.91	1099.13	247.33	1099.98
258.55	1102.69	267.59	1104.7	272.77	1105.76	279.21	1106.09	280.02	1106.12
293.27	1106.68	311.09	1107.01	370.32	1107.18	374.85	1107.33	386.56	1107.75
396.01	1108.02	400.79	1108.16	406.72	1108.4	415.02	1108.7	421.69	1108.99
438.61	1109.68	447.38	1110.06	470.48	1110.79	473.06	1110.87	483.72	1111.06
498.74	1111.32	502.36	1111.38	524.43	1111.71	534.24	1111.85	543.02	1111.89
550.11	1111.99	566.12	1112.13	575.79	1112.22	585.69	1112.28	598	1112.54
601.48	1112.6	615.88	1112.87	627.16	1113.07	629.87	1113.11	652.84	1113.39
661.76	1113.37	678.53	1113.52	693.63	1113.66	704.21	1113.87	725.51	1114.37
806.94	1114.59	821.15	1114.88	832.63	1115.14	853.03	1115.45	858.31	1115.6
880.18	1115.85	883.99	1115.91	884.91	1115.94	909.68	1116.8	916.79	1117.01
935.36	1117.28	948.66	1117.63	961.04	1117.83	969.74	1117.98	972.29	1118.08

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	114.73	.035	280.02	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
114.73	280.02	199.02	200	201.57	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

			Left OB	Channel	Right OB
E.G. Elev (ft)	1116.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1116.94	Reach Len. (ft)	199.02	200.00	201.57
Crit W.S. (ft)		Flow Area (sq ft)	1086.47	2773.36	3156.45
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	1086.47	2773.36	3156.45
Q Total (cfs)	-308.88	Flow (cfs)	-45.77	-188.61	-74.50
Top Width (ft)	907.46	Top Width (ft)	107.63	165.29	634.53
Vel Total (ft/s)	-0.04	Avg. Vel. (ft/s)	-0.04	-0.07	-0.02
Max Chl Dpth (ft)	18.66	Hydr. Depth (ft)	10.09	16.78	4.97
Conv. Total (cfs)	1258971.0	Conv. (cfs)	186539.7	768753.3	303678.1
Length Wtd. (ft)	200.24	Wetted Per. (ft)	109.34	166.24	634.68
Min Ch El (ft)	1098.28	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.66	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	41.53	113.53	119.43
C & E Loss (ft)		Cum SA (acres)	5.18	7.32	26.39

CROSS SECTION

RIVER: FRS
REACH: FRS2 RS: 2699.414

INPUT
Description:
Station Elevation Data num= 94

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4.94	1118.07	11.74	1116.71	30.3	1111.58	44.28	1107.99	55.66	1105.43
76.82	1103.81	81.01	1103.79	95.83	1103.68	106.37	1103.61	109.35	1103.53
121.93	1103.27	126.12	1102.78	131.72	1102.13	141.88	1100.69	157.08	1098.91
174.42	1098.33	182.44	1098.14	206.96	1097.86	207.79	1097.85	210.74	1097.88
233.15	1098.06	239.49	1098.49	250.18	1099.6	258.51	1101.09	272.03	1103.22
283.87	1104.2	291.22	1104.32	292.93	1104.35	304.56	1104.13	309.22	1104.05
325.67	1104.81	334.58	1105.21	337.09	1105.31	359.94	1106.13	369.64	1106.46
385.29	1107.09	402.17	1107.72	410.65	1108.05	434.7	1108.61	436.01	1108.63
449.69	1108.81	461.36	1109.26	463.94	1109.32	467.24	1109.43	478.19	1109.61
486.72	1109.88	492.44	1109.91	499.78	1110.05	512.08	1110.25	532.31	1110.63
537.43	1110.75	555.5	1111.16	562.79	1111.31	564.84	1111.34	588.14	1111.78
597.38	1111.9	613.5	1112.01	629.92	1112.14	638.86	1112.19	662.45	1112.61
663.44	1112.63	664.21	1112.64	677.69	1112.86	689.57	1113.14	691.94	1113.17

```
  694.99 1113.23  714.93 1113.63  727.52 1113.88  740.28  1114.1  760.05 1114.49
  765.64 1114.58  785.35 1114.86     791 1114.94   792.6 1114.97  816.35 1115.38
  825.13  1115.5  841.71  1115.8  857.66 1116.03  867.07 1116.17   890.2  1116.3
  892.43 1116.31  900.26 1116.29  917.78 1116.24  922.74 1116.31  943.14 1116.77
  955.27 1116.99   968.5 1117.24  987.81 1117.27  993.85 1117.29 1117.95 1117.79
 1120.63 1117.93  1130.1 1118.71 1145.99 1119.99 1146.55 1120.03

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
    4.94     .04  126.12    .035  291.22    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        126.12  291.22             45.57   74.71  124.69             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)         * 1116.94  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)         * 1116.94  * Reach Len. (ft)         *   45.57  *   74.71  *  124.69  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       * 1188.74  * 2826.69  * 3471.19  *
* E.G. Slope (ft/ft)     *0.000000  * Area (sq ft)            * 1188.74  * 2826.69  * 3471.19  *
* Q Total (cfs)          * -305.79  * Flow (cfs)              *  -46.96  * -180.33  *  -78.50  *
* Top Width (ft)         *  942.04  * Top Width (ft)          *  115.54  *  165.10  *  661.40  *
* Vel Total (ft/s)       *   -0.04  * Avg. Vel. (ft/s)        *   -0.04  *   -0.06  *   -0.02  *
* Max Chl Dpth (ft)      *   19.09  * Hydr. Depth (ft)        *   10.29  *   17.12  *    5.25  *
* Conv. Total (cfs)      *1348173.0  * Conv. (cfs)            *207042.9  *795035.6  *346094.2  *
* Length Wtd. (ft)       *   79.88  * Wetted Per. (ft)        *  117.09  *  165.77  *  661.58  *
* Min Ch El (ft)         * 1097.85  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                  *    1.66  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)    *   36.33  *  100.67  *  104.10  *
* C & E Loss (ft)        *          * Cum SA (acres)          *    4.67  *    6.56  *   23.40  *
*****************************************************************************************

LATERAL STRUCTURE


RIVER: FRS
REACH: FRS2                RS: 2649.414

INPUT
Description: EMERGENCY SPILLWAY
Lateral structure position      = Right overbank
Distance from Upstream XS =       50
Deck/Roadway Width        =       10
Weir Coefficient          =      2.7
Weir Flow Reference       = Water Surface
 Weir Embankment Coordinates     num =       4
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*****************************************************************
       01118.908    11.61113.233   361.61113.233   373.21118.908

Weir crest shape                          = Broad Crested


LATERAL STRUCTURE OUTPUT  Profile #Max WS  Lat Struct
*******************************************************************
* E.G. US. (ft)          * 1116.94  * Weir Sta US (ft)       *    4.02  *
* W.S. US. (ft)          * 1116.94  * Weir Sta DS (ft)       *  369.18  *
* E.G. DS (ft)           * 1116.94  * Weir Max Depth (ft)    *    3.71  *
* W.S. DS (ft)           * 1116.94  * Weir Avg Depth (ft)    *    3.63  *
* Q US (cfs)             * -305.79  * Weir Submerg           *    0.00  *
* Q Leaving Total (cfs)  * 6856.14  * Min El Weir Flow (ft)  * 1113.23  *
* Q DS (cfs)             *  152.11  * Wr Top Wdth (ft)       *  365.16  *
* Perc Q Leaving         * 2242.08  * Q Gate Group (cfs)     *          *
* Q Weir (cfs)           * 6856.13  * Gate Open Ht (ft)      *          *
* Q Gates (cfs)          *          * Gate #Open             *          *
* Q Culv (cfs)           *          * Gate Area (sq ft)      *          *
* Q Lat RC (cfs)         *          * Gate Submerg           *          *
* Weir Flow Area (sq ft) * 1324.65  * Gate Invert (ft)       *          *
*******************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 2624.70*

INPUT
Description:
Station Elevation Data     num=     175
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*****************************************************************************
    3.09 1118.06     5.19 1117.64    10.66 1116.88    18.16 1115.51    20.61 1114.93
   31.32 1112.25    35.37 1111.28    41.63 1109.76    46.88  1108.5    52.59 1107.22
   59.55 1105.88    66.85 1105.07     69.8 1104.66    82.28 1104.09     83.1 1103.99
   87.01 1103.67    87.77 1103.66    97.69 1103.53   104.22 1103.54   104.27 1103.54
  112.46 1103.47      116 1103.44   119.32 1103.36   121.43 1103.33   131.94 1103.03
  133.32 1102.99   137.99 1102.58    138.6 1102.53   143.52 1102.03   144.61 1101.94
  154.61 1100.89   156.63 1100.68   157.86 1100.57    170.6  1099.4    172.2 1099.27
  174.61 1099.07   185.91 1098.59   186.53 1098.56   186.61 1098.56   195.13 1098.26
  200.87 1098.09   202.61 1098.03   204.62 1097.99    215.2 1097.86   218.61 1097.81
  229.54 1097.73   233.63  1097.7   234.61 1097.69   238.98 1097.69   242.31 1097.71
  246.08 1097.72   254.06 1097.78   262.93 1097.83   267.69 1097.87   269.16 1097.93
  274.87 1098.18   279.78  1098.5   284.25 1098.79   286.97 1098.96    296.4 1099.96
  296.62 1099.99   299.34 1100.24   311.71  1102.1   313.48 1102.29   314.43 1102.39
  322.73 1103.41   325.12 1103.69   329.54 1104.07   330.32  1104.1   333.44 1104.25
  335.09 1104.32    346.3 1104.52   347.69 1104.55    350.8 1104.61   350.94 1104.62
  366.66 1105.64   366.91 1105.66   372.39 1105.97   375.25 1106.12   377.67 1106.24
  386.13 1106.64   393.86 1107.01    399.7 1107.25   405.37 1107.48   409.05 1107.63
  415.33 1107.91   424.15 1108.29   424.59 1108.31   436.79 1108.79   440.42 1108.94
  443.81 1109.07    448.6 1109.25   458.25  1109.5   463.04 1109.64   471.79 1109.86
  473.05 1109.89   479.71 1110.01   482.27 1110.08   486.24 1110.17   497.49  1110.6
  499.98 1110.68   501.18 1110.72   501.48 1110.74   503.16 1110.81   504.23 1110.85
  513.72 1111.19   520.73 1111.51   521.95 1111.55   522.65 1111.56   527.46 1111.57
  534.54 1111.67    546.4 1111.79   565.91 1112.03   570.84 1112.11   588.27 1112.37
   595.3 1112.47   597.27 1112.48   619.74 1112.76   628.65 1112.84   644.19 1112.91
  660.03 1112.99   668.65 1113.02   691.39 1113.29   692.35  1113.3   693.09 1113.31
  706.09 1113.46   717.54 1113.63   719.83 1113.65   722.77 1113.69      742 1113.94
  754.14  1114.1   766.44 1114.24    785.5 1114.49   790.89 1114.54    809.9 1114.72
  815.35 1114.77   816.89 1114.79   839.79 1115.05   848.26 1115.13   864.24 1115.32
  879.62 1115.47    888.7 1115.56      911 1115.65   913.15 1115.65    920.7 1115.64
  937.59 1115.61   942.37 1115.66   962.04 1115.94   973.74 1116.08    986.5 1116.24
  994.85 1116.26  1001.38 1116.31  1005.12 1116.37  1010.94 1116.47   1016.3 1116.56
```

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 1035.16 1116.85 1037.78 1116.89 1039.84 1116.93 1057.56 1117.15 1059.05 1117.17
 1059.24 1117.17 1078.28 1117.51  1080.7 1117.54  1097.5 1117.88 1102.16 1117.96
 1116.74 1118.17 1123.63 1118.27  1130.6 1118.38 1133.19  1118.5 1135.95 1118.69
 1142.32 1119.11 1145.09 1119.29 1155.19    1120 1157.65 1120.18 1158.19 1120.21

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***********************************************
    3.09     .04  137.99    .035  333.44    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        137.99  333.44             45.57   74.71  124.69              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1116.94  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1116.94  * Reach Len. (ft)         *   45.57  *   74.71  *  124.69  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1301.99  * 3417.43  * 3038.37  *
* E.G. Slope (ft/ft)      *0.000001  * Area (sq ft)            * 1301.99  * 3417.43  * 3038.37  *
* Q Total (cfs)           *-1576.06  * Flow (cfs)              * -242.61  *-1048.53  * -284.92  *
* Top Width (ft)          * 1030.41  * Top Width (ft)          *  127.76  *  195.45  *  707.20  *
* Vel Total (ft/s)        *   -0.20  * Avg. Vel. (ft/s)        *   -0.19  *   -0.31  *   -0.09  *
* Max Chl Dpth (ft)       *   19.25  * Hydr. Depth (ft)        *   10.19  *   17.48  *    4.30  *
* Conv. Total (cfs)       *1466418.0  * Conv. (cfs)            *  225730.1  *975586.6  *265101.6  *
* Length Wtd. (ft)        *   77.55  * Wetted Per. (ft)        *  129.13  *  195.99  *  707.39  *
* Min Ch El (ft)          * 1097.69  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.69  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *   35.03  *   95.32  *   94.78  *
* C & E Loss (ft)         *          * Cum SA (acres)           *    4.54  *    6.25  *   21.44  *
**********************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 2549.99*

INPUT
Description:
Station Elevation Data     num=      175
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
    1.24 1118.06     3.55 1117.59     9.58 1117.05    17.84 1116.18    20.54 1115.63
   32.34 1112.92     36.8 1111.91     43.7 1110.32    49.49    1109    55.77 1107.6
   63.44 1106.32    71.49 1105.21    74.73  1104.6    88.48 1104.31    89.39 1104.17
    93.7 1103.54    94.53 1103.53   105.46 1103.34   112.66  1103.4   112.71 1103.39
  121.73 1103.31   125.64 1103.26   129.29  1103.2   131.62 1103.16    143.2 1102.77
  144.72 1102.71   149.86 1102.38   150.56 1102.34   156.25 1101.83   157.51 1101.74
  169.05 1100.84   171.39 1100.67   172.81 1100.58   187.52  1099.5   189.36  1099.4
  192.15 1099.22   205.19 1098.58   205.91 1098.55      206 1098.54   215.84 1098.18
  222.47 1097.96   224.48 1097.88    226.8 1097.84   239.02 1097.68   242.96 1097.62
  255.57 1097.56    260.3 1097.53   261.43 1097.52   270.16 1097.52   273.89 1097.53
  278.09 1097.54   287.01 1097.59   296.91 1097.64   302.23 1097.68   303.87 1097.71
  310.25 1097.87   315.73 1098.05   320.72 1098.22   323.77 1098.32    334.3 1098.84
  334.54 1098.85   337.58 1098.99    351.4 1100.98   353.37 1101.23   354.43 1101.36
   363.7 1102.79   366.37 1103.19    371.3 1103.87   372.18 1103.93   375.66 1104.19
  377.25 1104.29   388.05 1104.92   389.38    1105   392.38 1105.17   392.51 1105.18
  407.65 1106.47   407.89 1106.49   413.17 1106.86   415.92 1107.03   418.25 1107.17
   426.4 1107.65   433.84 1108.11   439.47 1108.37   444.92 1108.63   448.47  1108.8
  454.51  1109.1   463.01 1109.49   463.43 1109.51   475.18 1110.01   478.68 1110.16
  481.94 1110.29   486.55 1110.45   495.84 1110.72   500.45 1110.89   508.88 1111.11
   510.1 1111.14   516.51 1111.29   518.97 1111.41    522.8 1111.53   533.63 1111.95
  536.03 1112.04   537.18 1112.08   537.47 1112.11   539.09  1112.2   540.12 1112.26
  549.26 1112.78      556 1113.19   557.18 1113.22   557.85 1113.23   562.49 1113.24
  569.31 1113.28   580.73 1113.33   599.51 1113.43   604.26 1113.47   621.04 1113.58
  627.81 1113.62   629.71 1113.62   651.35 1113.74   659.93 1113.78   674.89 1113.81
  690.14 1113.85   698.44 1113.86   720.34 1113.98   721.26 1113.98   721.98 1113.99
  734.49 1114.05   745.52 1114.12   747.72 1114.13   750.55 1114.15   769.07 1114.25
  780.76 1114.32    792.6 1114.38   810.96 1114.49   816.15 1114.51   834.45 1114.59
   839.7 1114.61   841.18 1114.62   863.23 1114.73   871.39 1114.76   886.78 1114.84
  901.59 1114.91   910.33 1114.95    931.8 1114.99   933.87 1114.99   941.14 1114.99
  957.41 1114.98   962.01     1115   980.95 1115.12   992.22 1115.18   1004.5 1115.25
 1012.54 1115.26 1018.83 1115.36 1022.43 1115.47 1028.04 1115.64   1033.2  1115.8
 1051.36  1116.3 1053.88 1116.37 1055.86 1116.44 1072.93 1116.82 1074.36 1116.85
 1074.54 1116.85 1092.88 1117.44 1095.21  1117.5 1111.39  1118.1 1115.87 1118.24
 1129.91  1118.6 1136.55 1118.77 1143.26 1118.97 1145.75 1119.08 1148.41 1119.21
 1154.54 1119.51 1157.21 1119.64 1166.94 1120.22  1169.3 1120.36 1169.82 1120.39

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***********************************************
    1.24     .04  149.86    .035  375.66    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        149.86  375.66              30.5      50   83.45              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1116.94  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.01  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1116.93  * Reach Len. (ft)         *   30.50  *   50.00  *   83.45  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       * 1410.37  * 4022.96  * 2649.97  *
* E.G. Slope (ft/ft)      *0.000006  * Area (sq ft)            * 1410.37  * 4022.96  * 2649.97  *
* Q Total (cfs)           *-3961.37  * Flow (cfs)              * -596.51  *-2845.73  * -519.14  *
* Top Width (ft)          * 1066.39  * Top Width (ft)          *  139.16  *  225.80  *  701.43  *
* Vel Total (ft/s)        *   -0.49  * Avg. Vel. (ft/s)        *   -0.42  *   -0.71  *   -0.20  *
* Max Chl Dpth (ft)       *   19.41  * Hydr. Depth (ft)        *   10.13  *   17.82  *    3.78  *
* Conv. Total (cfs)       *1619245.0  * Conv. (cfs)            *  243827.6  *1163216.0  *212201.2  *
* Length Wtd. (ft)        *   52.07  * Wetted Per. (ft)        *  140.48  *  226.34  *  701.71  *
* Min Ch El (ft)          * 1097.52  * Shear (lb/sq ft)        *    0.00  *    0.01  *    0.00  *
* Alpha                   *    1.63  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *   33.61  *   88.94  *   86.64  *
* C & E Loss (ft)         *          * Cum SA (acres)           *    4.40  *    5.89  *   19.42  *
**********************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS2                RS: 2500.000

INPUT
Description: CP- S
```

Station Elevation Data num= 86

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	1118.06	2.45	1117.55	17.63	1116.63	20.49	1116.1	37.76	1112.33
45.08	1110.69	57.9	1107.86	74.59	1105.31	78.03	1104.56	92.63	1104.46
98.17	1103.46	110.66	1103.21	118.3	1103.3	127.94	1103.2	138.44	1103.05
150.73	1102.6	157.8	1102.25	158.57	1102.21	164.77	1101.7	178.71	1100.81
182.81	1100.58	198.84	1099.56	200.85	1099.49	218.1	1098.58	218.88	1098.54
218.98	1098.53	236.92	1097.87	239.11	1097.78	254.96	1097.56	259.25	1097.49
272.99	1097.44	279.38	1097.41	291.03	1097.41	299.52	1097.42	309.06	1097.46
319.65	1097.51	327.1	1097.56	339.79	1097.75	345.13	1097.84	359.92	1098.09
363.17	1098.15	380.06	1100.52	381.2	1100.67	391.12	1102.38	399.25	1103.74
400.19	1103.82	403.92	1104.14	417.28	1105.3	420.33	1105.56	435.32	1107.05
440.46	1107.46	453.35	1108.33	460.6	1108.84	471.39	1109.4	480.73	1109.89
489.42	1110.31	500.87	1110.82	507.46	1111.11	521	1111.53	525.49	1111.73
541.14	1112.15	543.53	1112.3	561.27	1112.99	561.56	1113.02	564.14	1113.2
579.61	1114.31	581.41	1114.35	1024.38	1114.59	1030.51	1114.72	1044.51	1115.29
1062.2	1115.94	1064.65	1116.03	1066.58	1116.11	1083.21	1116.6	1084.61	1116.64
1084.78	1116.64	1102.65	1117.39	1104.92	1117.47	1120.68	1118.25	1125.05	1118.43
1138.72	1118.89	1145.19	1119.11	1156.75	1119.56	1165.32	1119.87	1174.8	1120.37
1177.6	1120.51								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	157.8	.035	403.92	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
157.8	403.92	83.76	110.91	169.56	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

			Left OB	Channel	Right OB
E.G. Elev (ft)	1116.94	Element			
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1116.94	Reach Len. (ft)	83.76	110.91	169.56
Crit W.S. (ft)		Flow Area (sq ft)	1482.48	4439.90	2412.98
E.G. Slope (ft/ft)	0.000001	Area (sq ft)	1482.48	4439.90	2412.98
Q Total (cfs)	1729.95	Flow (cfs)	256.64	1290.07	183.24
Top Width (ft)	1079.37	Top Width (ft)	145.27	246.12	687.98
Vel Total (ft/s)	0.21	Avg. Vel. (ft/s)	0.17	0.29	0.08
Max Chl Dpth (ft)	19.53	Hydr. Depth (ft)	10.21	18.04	3.51
Conv. Total (cfs)	1735854.0	Conv. (cfs)	257518.4	1294472.0	183863.1
Length Wtd. (ft)	113.60	Wetted Per. (ft)	146.61	246.71	688.36
Min Ch El (ft)	1097.41	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.58	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	32.60	84.08	81.79
C & E Loss (ft)		Cum SA (acres)	4.30	5.62	18.09

Warning: The conveyance ratio (upstream 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: FRS
REACH: FRS2 RS: 2389.087

INPUT
Description:
Station Elevation Data num= 77

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.05	1117.94	34.46	1116.41	35.64	1116.18	36.35	1116.32	50.22	1114.32
59.64	1113.94	64.81	1113.44	73.48	1112.43	79.4	1111.65	82.93	1111.34
93.97	1110.23	106.23	1108.96	108.57	1108.93	112.49	1108.38	123.15	1107.37
129.52	1106.72	137.73	1106.78	151.51	1104.75	152.81	1104.63	154.74	1104.46
176.11	1103.51	181.49	1103.24	182.96	1102.96	190.52	1101.52	196.08	1101.02
199.4	1100.54	210.66	1100.77	222.69	1096.525	270.34	1096.525	292.57	1099.27
307.56	1099.8	315.86	1100.81	328.14	1103.07	339.16	1105.29	341.93	1105.8
344.17	1106	346.58	1106.22	356.51	1107.21	362.45	1107.63	371.11	1108.34
385.6	1109.16	385.69	1109.16	385.74	1109.17	400.27	1109.86	409.04	1110.15
414.86	1110.39	424.61	1110.65	429.45	1110.74	432.33	1110.8	443.76	1111.04
455.62	1111.29	458.62	1111.4	463.63	1111.48	473.2	1111.61	478.92	1111.7
487.78	1111.93	502.21	1112.14	502.37	1112.15	502.64	1112.15	516.96	1112.43
525.51	1112.49	531.54	1112.58	541.66	1112.61	546.13	1112.64	548.8	1112.64
560.72	1112.69	921.49	1113.47	925.34	1114.05	931.82	1114.79	939.94	1115.89
944.78	1116.45	954.52	1118.82	968.07	1122.05	969.1	1122.19	970.84	1122.48
983.69	1124.49	991.37	1125.89						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
13.05	.04	182.96	.035	344.17	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
182.96	344.17	2240.31	2239.09	2248.56	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

			Left OB	Channel	Right OB
E.G. Elev (ft)	1116.94	Element			
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1116.94	Reach Len. (ft)	2240.31	2239.09	2248.56
Crit W.S. (ft)		Flow Area (sq ft)	1168.60	2831.67	2777.51
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	1168.60	2831.67	2777.51
Q Total (cfs)	152.11	Flow (cfs)	20.55	100.07	31.49
Top Width (ft)	919.77	Top Width (ft)	155.93	161.21	602.63
Vel Total (ft/s)	0.02	Avg. Vel. (ft/s)	0.02	0.04	0.01
Max Chl Dpth (ft)	20.42	Hydr. Depth (ft)	7.49	17.57	4.61
Conv. Total (cfs)	1226418.0	Conv. (cfs)	165673.8	806859.7	253884.6
Length Wtd. (ft)	2239.09	Wetted Per. (ft)	156.74	162.85	603.06
Min Ch El (ft)	1096.53	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.77	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)	30.05	74.82	71.69
C & E Loss (ft)		Cum SA (acres)	4.01	5.10	15.58

CULVERT

RIVER: FRS
REACH: FRS2 RS: 2220.087

INPUT

```
Description: PRINCIPAL SPILLWAY #2
Distance from Upstream XS =      20
Deck/Roadway Width        =    2200
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
**********************************************
       0    1119            1400    1119

Upstream Bridge Cross Section Data
Station Elevation Data    num=      77
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
   13.05 1117.94   34.46 1116.41   35.64 1116.18   36.35 1116.32   50.22 1114.32
   59.64 1113.94   64.81 1113.44   73.48 1112.43    79.4 1111.65   82.93 1111.34
   93.97 1110.23  106.23 1108.96  108.57 1108.93  112.49 1108.38  123.15 1107.37
  129.52 1106.72  137.73 1106.78  151.51 1104.75  152.81 1104.63  154.74 1104.46
  176.11 1103.51  181.49 1103.24  182.96 1102.96  190.52 1101.52  196.08 1101.02
   199.4 1100.54  210.66 1100.77  222.691096.525  270.341096.525  292.57 1099.27
  307.56  1099.8  315.86 1100.81  328.14 1103.07  339.16 1105.29  341.93  1105.8
  344.17    1106  346.58 1106.22  356.51 1107.21  362.45 1107.63  371.11 1108.34
   385.6 1109.16  385.69 1109.16  385.74 1109.17  400.27 1109.86  409.04 1110.15
  414.86 1110.39  424.61 1110.65  429.45 1110.74  432.33  1110.8  443.76 1111.04
  455.62 1111.29  458.62  1111.4  463.63 1111.48   473.2 1111.61  478.92  1111.7
  487.78 1111.93  502.21 1112.14  502.37 1112.15  502.64 1112.15  516.96 1112.43
  525.51 1112.49  531.54 1112.58  541.66 1112.61  546.13 1112.64   548.8 1112.64
  560.72 1112.69  921.49 1113.47  925.34 1114.05  931.82 1114.79  939.94 1115.89
  944.78 1116.45  954.52 1118.82  968.07 1122.05   969.1 1122.19  970.84 1122.48
  983.69 1124.49  991.37 1125.89

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
   13.05     .04  182.96    .035  344.17    .045

Bank Sta: Left   Right    Coeff Contr.   Expan.
        182.96  344.17              .1       .3

Downstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
**********************************************
       0    1096           292.58    1096

Downstream Bridge Cross Section Data
Station Elevation Data    num=      40
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 1094.84    4.46 1094.68    9.71 1094.47   13.19 1094.32   24.15 1094.05
   37.17 1093.52   38.58 1093.48   40.72 1093.41   53.01 1093.03   61.14  1092.6
   67.45 1092.42   76.98 1092.12   81.88    1092   85.11 1091.85   96.31 1091.64
  109.09 1091.33  110.75 1091.31  113.24 1091.26  123.47 1090.99  133.07 1090.73
  149.51 1090.18  157.04 1089.65  168.47 1088.88  181.02    1085  185.77    1085
  197.34    1089     205 1089.73  207.15 1089.84  211.77 1090.09  222.03 1090.33
  226.21 1090.48  228.98 1090.54  240.64 1090.81  252.95 1090.94  255.07    1091
   258.3 1091.06  269.51 1091.33  276.93 1091.46  283.94 1091.65  292.58 1091.86

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
       0     .04  123.47    .035  207.15    .045

Bank Sta: Left   Right    Coeff Contr.   Expan.
        123.47  207.15              .1       .3

Upstream Embankment side slope              =      2 horiz. to 1.0 vertical
Downstream Embankment side slope            =      2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Culvert #2      Circular      4
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 1 - Square edge entrance with headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                 20    2200     .013     .013        0                .5                 1
Upstream   Elevation =  1096.525
           Centerline Station =  245.98
Downstream Elevation =  1085
           Centerline Station =  183.5

CULVERT OUTPUT  Profile #Max WS  Culv Group:  Culvert #2
*********************************************************************
* Q Culv Group (cfs)      *  152.11  * Culv Full Len (ft)     * 2200.00  *
* # Barrels               *       1  * Culv Vel US (ft/s)     *   12.10  *
* Q Barrel (cfs)          *  152.11  * Culv Vel DS (ft/s)     *   12.12  *
* E.G. US. (ft)           * 1117.09  * Culv Inv El Up (ft)    * 1096.53  *
* W.S. US. (ft)           * 1116.94  * Culv Inv El Dn (ft)    * 1085.00  *
* E.G. DS (ft)            * 1089.04  * Culv Frctn Ls (ft)     *   24.70  *
* W.S. DS (ft)            * 1088.96  * Culv Exit Loss (ft)    *    2.20  *
* Delta EG (ft)           *   28.04  * Culv Entr Loss (ft)    *    1.14  *
* Delta WS (ft)           *   27.98  * Q Weir (cfs)           *          *
* E.G. IC (ft)            * 1105.03  * Weir Sta Lft (ft)      *          *
* E.G. OC (ft)            * 1117.09  * Weir Sta Rgt (ft)      *          *
* Culvert Control         *  Outlet  * Weir Submerg           *          *
* Culv WS Inlet (ft)      * 1100.53  * Weir Max Depth (ft)    *          *
* Culv WS Outlet (ft)     * 1088.96  * Weir Avg Depth (ft)    *          *
* Culv Nml Depth (ft)     *    4.00  * Weir Flow Area (sq ft) *          *
* Culv Crt Depth (ft)     *    3.61  * Min El Weir Flow (ft)  * 1119.01  *
*********************************************************************

Note:    The normal depth exceeds the height of the culvert.  The program assumes that the normal depth
         is equal to the height of the culvert.

CROSS SECTION
```

```
RIVER: FRS
REACH: FRS2                RS: 150.000

INPUT
Description:
Station Elevation Data     num=      40
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 1094.84    4.46 1094.68    9.71 1094.47   13.19 1094.32   24.15 1094.05
   37.17 1093.52   38.58 1093.48   40.72 1093.41   53.01 1093.03   61.14  1092.6
   67.45 1092.42   76.98 1092.12   81.88    1092   85.11 1091.85   96.31 1091.64
  109.09 1091.33  110.75 1091.31  113.24 1091.26  123.47 1090.99  133.07 1090.73
  149.51 1090.18  157.04 1089.65  168.47 1088.88  181.02    1085  185.77    1085
  197.34    1089     205 1089.73  207.15 1089.84  211.77 1090.09  222.03 1090.33
  226.21 1090.48  228.98 1090.54  240.64 1090.81  252.95 1090.94  255.07    1091
   258.3 1091.06  269.51 1091.33  276.93 1091.46  283.94 1091.65  292.58 1091.86

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0     .04  123.47    .035  207.15    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        123.47  207.15            154.04     150  151.45              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*************************************************************************************************
* E.G. Elev (ft)          * 1089.04  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.08  * Wt. n-Val.              *          *    0.035 *         *
* W.S. Elev (ft)          * 1088.96  * Reach Len. (ft)        *  154.04  *   150.00 *  151.45  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *          *    66.95 *          *
* E.G. Slope (ft/ft)      *0.001036  * Area (sq ft)            *          *    66.95 *          *
* Q Total (cfs)           *  152.11  * Flow (cfs)              *          *   152.11 *          *
* Top Width (ft)          *   29.98  * Top Width (ft)          *          *    29.98 *          *
* Vel Total (ft/s)        *    2.27  * Avg. Vel. (ft/s)        *          *     2.27 *          *
* Max Chl Dpth (ft)       *    3.96  * Hydr. Depth (ft)        *          *     2.23 *          *
* Conv. Total (cfs)       *  4725.3  * Conv. (cfs)             *          *   4725.3 *          *
* Length Wtd. (ft)        *  150.00  * Wetted Per. (ft)        *          *    31.23 *          *
* Min Ch El (ft)          * 1085.00  * Shear (lb/sq ft)        *          *     0.14 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)  *          *     0.32 *          *
* Frctn Loss (ft)         *    0.10  * Cum Volume (acre-ft)    *          *     0.33 *    0.00  *
* C & E Loss (ft)         *          * Cum SA (acres)          *          *     0.19 *    0.02  *
*************************************************************************************************

Warning: The conveyance ratio (upstream 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: FRS
REACH: FRS2                RS: 0.000

INPUT
Description:
Station Elevation Data     num=      26
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 1095.73     .86 1095.62   19.09 1093.34   19.84 1093.25   23.59 1092.76
   37.03 1090.99   46.32 1089.54   51.79 1088.78   61.94 1087.17   66.56 1084.94
   69.04 1084.94   73.52 1084.94   81.31 1086.62   91.77 1087.32   96.07  1087.6
  104.05 1087.94  110.83 1088.23   114.5 1088.35  125.59 1088.67  129.62 1088.72
  137.23 1088.82  140.36 1088.87  146.15 1088.93  155.12 1089.09  159.96  1089.2
  160.42 1089.21

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0     .04   19.09    .035  129.62    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         19.09  129.62              0       0       0              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*************************************************************************************************
* E.G. Elev (ft)          * 1088.93  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.02  * Wt. n-Val.              *          *    0.035 *   0.045  *
* W.S. Elev (ft)          * 1088.90  * Reach Len. (ft)        *          *          *          *
* Crit W.S. (ft)          * 1086.80  * Flow Area (sq ft)       *          *   122.92 *    1.23  *
* E.G. Slope (ft/ft)      *0.000474  * Area (sq ft)            *          *   122.92 *    1.23  *
* Q Total (cfs)           *  151.98  * Flow (cfs)              *          *   151.80 *    0.18  *
* Top Width (ft)          *   92.53  * Top Width (ft)          *          *    78.71 *   13.82  *
* Vel Total (ft/s)        *    1.22  * Avg. Vel. (ft/s)        *          *     1.23 *    0.14  *
* Max Chl Dpth (ft)       *    3.96  * Hydr. Depth (ft)        *          *     1.56 *    0.09  *
* Conv. Total (cfs)       *  6981.0  * Conv. (cfs)             *          *   6972.9 *     8.1  *
* Length Wtd. (ft)        *          * Wetted Per. (ft)        *          *    79.59 *   13.82  *
* Min Ch El (ft)          * 1084.94  * Shear (lb/sq ft)        *          *     0.05 *    0.00  *
* Alpha                   *    1.02  * Stream Power (lb/ft s)  *          *     0.06 *    0.00  *
* Frctn Loss (ft)         *          * Cum Volume (acre-ft)    *          *          *          *
* C & E Loss (ft)         *          * Cum SA (acres)          *          *          *          *
*************************************************************************************************

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

SUMMARY OF MANNING'S N VALUES

River:FRS
*************************************************************
*     Reach       *   River Sta.   *   n1    *   n2    *   n3    *
*************************************************************
*FRS2             *    13699.41    *      .04*     .035*     .045*
*FRS2             *    13599.4*    *      .04*     .035*     .045*
*FRS2             *    13499.41    *      .04*     .035*     .045*
*FRS2             *    13399.4*    *      .04*     .035*     .045*
*FRS2             *    13299.41    *      .04*     .035*     .045*
*FRS2             *    13199.4*    *      .04*     .035*     .045*
*FRS2             *    13099.41    *      .04*     .035*     .045*
*FRS2             *    12999.4*    *      .04*     .035*     .045*
*FRS2             *    12899.41    *      .04*     .035*     .045*
*FRS2             *    12799.4*    *      .04*     .035*     .045*
*FRS2             *    12699.41    *      .04*     .035*     .045*
*FRS2             *    12599.4*    *      .04*     .035*     .045*
*FRS2             *    12499.41    *      .04*     .035*     .045*
*FRS2             *    12399.4*    *      .04*     .035*     .045*
```

*FRS2	*	12299.41	* .04*	.035*	.045*
*FRS2	*	12199.4*	* .04*	.035*	.045*
*FRS2	*	12099.41	* .04*	.035*	.045*
*FRS2	*	11999.4*	* .04*	.035*	.045*
*FRS2	*	11899.41	* .04*	.035*	.045*
*FRS2	*	11799.4*	* .04*	.035*	.045*
*FRS2	*	11699.41	* .04*	.035*	.045*
*FRS2	*	11599.4*	* .04*	.035*	.045*
*FRS2	*	11499.41	* .04*	.035*	.045*
*FRS2	*	11399.4*	* .04*	.035*	.045*
*FRS2	*	11299.41	* .04*	.035*	.045*
*FRS2	*	11199.4*	* .04*	.035*	.045*
*FRS2	*	11099.41	* .04*	.035*	.045*
*FRS2	*	10999.4*	* .04*	.035*	.045*
*FRS2	*	10899.41	* .04*	.035*	.045*
*FRS2	*	10799.4*	* .04*	.035*	.045*
*FRS2	*	10699.41	* .04*	.035*	.045*
*FRS2	*	10599.4*	* .04*	.035*	.045*
*FRS2	*	10499.41	* .04*	.035*	.045*
*FRS2	*	10299.41	* .04*	.035*	.045*
*FRS2	*	10299	*Lat Struct*	*	*
*FRS2	*	10099.41	* .04*	.035*	.045*
*FRS2	*	9899.414	* .04*	.035*	.045*
*FRS2	*	9699.414	* .04*	.035*	.045*
*FRS2	*	9499.415	* .04*	.035*	.045*
*FRS2	*	9299.414	* .04*	.035*	.045*
*FRS2	*	9099.414	* .04*	.035*	.045*
*FRS2	*	8899.414	* .04*	.035*	.045*
*FRS2	*	8699.414	* .04*	.035*	.045*
*FRS2	*	8599.41*	* .04*	.035*	.045*
*FRS2	*	8499.415	* .04*	.035*	.045*
*FRS2	*	8299.414	* .04*	.035*	.045*
*FRS2	*	8099.414	* .04*	.035*	.045*
*FRS2	*	7899.414	* .04*	.035*	.045*
*FRS2	*	7699.414	* .04*	.035*	.045*
*FRS2	*	7499.415	* .04*	.035*	.045*
*FRS2	*	7299.414	* .04*	.035*	.045*
*FRS2	*	7099.414	* .04*	.035*	.045*
*FRS2	*	6899.414	* .04*	.035*	.045*
*FRS2	*	6699.414	* .04*	.035*	.045*
*FRS2	*	6499.415	* .04*	.035*	.045*
*FRS2	*	6299.414	* .04*	.035*	.045*
*FRS2	*	6099.414	* .04*	.035*	.045*
*FRS2	*	5899.414	* .04*	.035*	.045*
*FRS2	*	5699.414	* .04*	.035*	.045*
*FRS2	*	5499.415	* .04*	.035*	.045*
*FRS2	*	5299.414	* .04*	.035*	.045*
*FRS2	*	5099.414	* .04*	.035*	.045*
*FRS2	*	4899.414	* .04*	.035*	.045*
*FRS2	*	4699.414	* .04*	.035*	.045*
*FRS2	*	4285.734	* .04*	.035*	.045*
*FRS2	*	4278.704	*Culvert *	*	*
*FRS2	*	4165.899	* .04*	.035*	.045*
*FRS2	*	4099	*Lat Struct*	*	*
*FRS2	*	3899.414	* .04*	.035*	.045*
*FRS2	*	3699.414	* .04*	.035*	.045*
*FRS2	*	3499.415	* .04*	.035*	.045*
*FRS2	*	3299.414	* .04*	.035*	.045*
*FRS2	*	3099.414	* .04*	.035*	.045*
*FRS2	*	2899.414	* .04*	.035*	.045*
*FRS2	*	2699.414	* .04*	.035*	.045*
*FRS2	*	2649.414	*Lat Struct*	*	*
*FRS2	*	2624.70*	* .04*	.035*	.045*
*FRS2	*	2549.99*	* .04*	.035*	.045*
*FRS2	*	2500.000	* .04*	.035*	.045*
*FRS2	*	2389.087	* .04*	.035*	.045*
*FRS2	*	2220.087	*Culvert *	*	*
*FRS2	*	150.000	* .04*	.035*	.045*
*FRS2	*	0.000	* .04*	.035*	.045*

SUMMARY OF REACH LENGTHS

River: FRS

Reach	River Sta.	Left	Channel	Right
*FRS2	* 13699.41	* 100.12*	100*	102.83*
*FRS2	* 13599.4*	* 100.12*	100*	102.83*
*FRS2	* 13499.41	* 100.07*	100*	166.68*
*FRS2	* 13399.4*	* 100.07*	100*	166.68*
*FRS2	* 13299.41	* 100.54*	100*	157.38*
*FRS2	* 13199.4*	* 100.54*	100*	157.38*
*FRS2	* 13099.41	* 99.47*	100*	101.62*
*FRS2	* 12999.4*	* 99.47*	100*	101.62*
*FRS2	* 12899.41	* 99.56*	100*	110.47*
*FRS2	* 12799.4*	* 99.56*	100*	110.47*
*FRS2	* 12699.41	* 102.12*	100*	98.24*
*FRS2	* 12599.4*	* 102.12*	100*	98.24*
*FRS2	* 12499.41	* 103.92*	100*	95.43*
*FRS2	* 12399.4*	* 103.92*	100*	95.43*
*FRS2	* 12299.41	* 101.46*	100*	98.46*
*FRS2	* 12199.4*	* 101.46*	100*	98.46*
*FRS2	* 12099.41	* 97.18*	100*	104.12*
*FRS2	* 11999.4*	* 97.18*	100*	104.12*
*FRS2	* 11899.41	* 96.93*	100*	102.57*
*FRS2	* 11799.4*	* 96.93*	100*	102.57*
*FRS2	* 11699.41	* 95.38*	100*	108.92*
*FRS2	* 11599.4*	* 95.38*	100*	108.92*
*FRS2	* 11499.41	* 101.71*	100*	96.25*
*FRS2	* 11399.4*	* 101.71*	100*	96.25*
*FRS2	* 11299.41	* 101.17*	100*	100.9*
*FRS2	* 11199.4*	* 101.17*	100*	100.9*
*FRS2	* 11099.41	* 100.01*	100*	103.39*
*FRS2	* 10999.4*	* 100.01*	100*	103.39*
*FRS2	* 10899.41	* 100.05*	100*	100.96*
*FRS2	* 10799.4*	* 100.05*	100*	100.96*
*FRS2	* 10699.41	* 97.48*	100*	154.49*
*FRS2	* 10599.4*	* 97.48*	100*	154.49*
*FRS2	* 10499.41	* 197.94*	200*	333.9*
*FRS2	* 10299.41	* 205.12*	200*	199.25*
*FRS2	* 10299	*Lat Struct*	*	*

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*FRS2          *   10099.41    *  199.14*      200*   202.02*
*FRS2          *   9899.414    *   200.4*      200*    200.4*
*FRS2          *   9699.414    *  192.65*      200*   212.87*
*FRS2          *   9499.415    *  197.76*      200*   209.49*
*FRS2          *   9299.414    *  202.38*      200*   194.79*
*FRS2          *   9099.414    *  194.53*      200*   210.99*
*FRS2          *   8899.414    *  203.26*      200*   217.44*
*FRS2          *   8699.414    *  100.62*      100*   229.61*
*FRS2          *   8599.41*    *  100.62*      100*   229.61*
*FRS2          *   8499.415    *  208.09*      200*    204.5*
*FRS2          *   8299.414    *  199.73*      200*   199.98*
*FRS2          *   8099.414    *  201.43*      200*   196.72*
*FRS2          *   7899.414    *  198.77*      200*   202.71*
*FRS2          *   7699.414    *  201.82*      200*    202.6*
*FRS2          *   7499.415    *  197.16*      200*   204.37*
*FRS2          *   7299.414    *   207.5*      200*    191.3*
*FRS2          *   7099.414    *  207.82*      200*   189.84*
*FRS2          *   6899.414    *  200.83*      200*   199.18*
*FRS2          *   6699.414    *  200.93*      200*   198.77*
*FRS2          *   6499.415    *  198.48*      200*   202.71*
*FRS2          *   6299.414    *  201.05*      200*   198.54*
*FRS2          *   6099.414    *  199.65*      200*   200.52*
*FRS2          *   5899.414    *  200.08*      200*   199.89*
*FRS2          *   5699.414    *  207.09*      200*   191.07*
*FRS2          *   5499.415    *  206.89*      200*   187.21*
*FRS2          *   5299.414    *  202.79*      200*   194.68*
*FRS2          *   5099.414    *  198.26*      200*   202.53*
*FRS2          *   4899.414    *   198.2*      200*   208.65*
*FRS2          *   4699.414    *  415.71*   413.68*   402.99*
*FRS2          *   4285.734    *  119.46*   119.84*      125*
*FRS2          *   4278.704    *Culvert  *         *         *
*FRS2          *   4165.899    *  261.56*   266.49*   267.71*
*FRS2          *   4099        *Lat Struct*      *         *
*FRS2          *   3899.414    *  200.72*      200*   199.52*
*FRS2          *   3699.414    *   203.2*      200*   196.42*
*FRS2          *   3499.415    *  216.33*      200*   183.29*
*FRS2          *   3299.414    *  215.73*      200*   181.77*
*FRS2          *   3099.414    *   205.5*      200*   194.64*
*FRS2          *   2899.414    *  199.02*      200*   201.57*
*FRS2          *   2699.414    *   45.57*    74.71*   124.69*
*FRS2          *   2649.414    *Lat Struct*      *         *
*FRS2          *   2624.70*    *   45.57*    74.71*   124.69*
*FRS2          *   2549.99*    *    30.5*       50*    83.45*
*FRS2          *   2500.000    *   83.76*   110.91*   169.56*
*FRS2          *   2389.087    *  2240.31*  2239.09*  2248.56*
*FRS2          *   2220.087    *Culvert  *         *         *
*FRS2          *   150.000     *  154.04*      150*   151.45*
*FRS2          *   0.000       *       0*        0*        0*
*****************************************************************
```

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

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: FRS

```
*****************************************************
*     Reach       *  River Sta.   * Contr.  * Expan.  *
*****************************************************
*FRS2            *   13699.41*       .1*       .3*
*FRS2            *   13599.4**       .1*       .3*
*FRS2            *   13499.41*       .1*       .3*
*FRS2            *   13399.4**       .1*       .3*
*FRS2            *   13299.41*       .1*       .3*
*FRS2            *   13199.4**       .1*       .3*
*FRS2            *   13099.41*       .1*       .3*
*FRS2            *   12999.4**       .1*       .3*
*FRS2            *   12899.41*       .1*       .3*
*FRS2            *   12799.4**       .1*       .3*
*FRS2            *   12699.41*       .1*       .3*
*FRS2            *   12599.4**       .1*       .3*
*FRS2            *   12499.41*       .1*       .3*
*FRS2            *   12399.4**       .1*       .3*
*FRS2            *   12299.41*       .1*       .3*
*FRS2            *   12199.4**       .1*       .3*
*FRS2            *   12099.41*       .1*       .3*
*FRS2            *   11999.4**       .1*       .3*
*FRS2            *   11899.41*       .1*       .3*
*FRS2            *   11799.4**       .1*       .3*
*FRS2            *   11699.41*       .1*       .3*
*FRS2            *   11599.4**       .1*       .3*
*FRS2            *   11499.41*       .1*       .3*
*FRS2            *   11399.4**       .1*       .3*
*FRS2            *   11299.41*       .1*       .3*
*FRS2            *   11199.4**       .1*       .3*
*FRS2            *   11099.41*       .1*       .3*
*FRS2            *   10999.4**       .1*       .3*
*FRS2            *   10899.41*       .1*       .3*
*FRS2            *   10799.4**       .1*       .3*
*FRS2            *   10699.41*       .1*       .3*
*FRS2            *   10599.4**       .1*       .3*
*FRS2            *   10499.41*       .1*       .3*
*FRS2            *   10299.41*       .1*       .3*
*FRS2            *   10299   *Lat Struct*         *
*FRS2            *   10099.41*       .1*       .3*
*FRS2            *   9899.414*       .1*       .3*
*FRS2            *   9699.414*       .1*       .3*
*FRS2            *   9499.415*       .1*       .3*
*FRS2            *   9299.414*       .1*       .3*
*FRS2            *   9099.414*       .1*       .3*
*FRS2            *   8899.414*       .1*       .3*
*FRS2            *   8699.414*       .1*       .3*
*FRS2            *   8599.41**       .1*       .3*
*FRS2            *   8499.415*       .1*       .3*
*FRS2            *   8299.414*       .1*       .3*
*FRS2            *   8099.414*       .1*       .3*
*FRS2            *   7899.414*       .1*       .3*
*FRS2            *   7699.414*       .1*       .3*
*FRS2            *   7499.415*       .1*       .3*
*FRS2            *   7299.414*       .1*       .3*
*FRS2            *   7099.414*       .1*       .3*
*FRS2            *   6899.414*       .1*       .3*
*FRS2            *   6699.414*       .1*       .3*
*FRS2            *   6499.415*       .1*       .3*
*FRS2            *   6299.414*       .1*       .3*
```

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*FRS2          *   6099.414*       .1*       .3*
*FRS2          *   5899.414*       .1*       .3*
*FRS2          *   5699.414*       .1*       .3*
*FRS2          *   5499.415*       .1*       .3*
*FRS2          *   5299.414*       .1*       .3*
*FRS2          *   5099.414*       .1*       .3*
*FRS2          *   4899.414*       .1*       .3*
*FRS2          *   4699.414*       .1*       .3*
*FRS2          *   4285.734*       .1*       .3*
*FRS2          *   4278.704*Culvert  *         *
*FRS2          *   4165.899*       .1*       .3*
*FRS2          *   4099    *Lat Struct*          *
*FRS2          *   3899.414*       .1*       .3*
*FRS2          *   3699.414*       .1*       .3*
*FRS2          *   3499.415*       .1*       .3*
*FRS2          *   3299.414*       .1*       .3*
*FRS2          *   3099.414*       .1*       .3*
*FRS2          *   2899.414*       .1*       .3*
*FRS2          *   2699.414*       .1*       .3*
*FRS2          *   2649.414*Lat Struct*          *
*FRS2          *   2624.70**       .1*       .3*
*FRS2          *   2549.99**       .1*       .3*
*FRS2          *   2500.000*       .1*       .3*
*FRS2          *   2389.087*       .1*       .3*
*FRS2          *   2220.087*Culvert  *         *
*FRS2          *   150.000 *       .1*       .3*
*FRS2          *   0.000   *       .1*       .3*
*****************************************************
```

E.5.3 FRS#3 PMF Unsteady Model

```
                    HEC-RAS Version 3.1.1 May 2003
                    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: BUCKEYE FRS UNSTEADY MODEL
Project File : test_frs.prj
Run Date and Time: 4/20/2004 10:08:35 AM

Project in English units

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

PLAN DATA

Plan Title: FRS3 PMP 6HR EXIST (12.8'')
Plan File : d:\FRS_unsteady\test_frs.p30

          Geometry Title: FRS3 MODIFIED LOB with Intepolations
          Geometry File : d:\FRS_unsteady\test_frs.g04

          Flow Title    :
          Flow File     :

Plan Summary Information:
Number of:  Cross Sections =   62    Mulitple Openings  =    0
            Culverts       =    1    Inline Structures  =    0
            Bridges        =    0    Lateral Structures =    2

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

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

GEOMETRY DATA

Geometry Title: FRS3 MODIFIED LOB with Intepolations
Geometry File : d:\FRS_unsteady\test_frs.g04

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 15750.00

INPUT
Description:
Station Elevation Data     num=      88
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
      67 1171.54      81 1171.54   90.31  1169.7  101.91 1166.82  104.54 1166.17
  106.64 1165.79  125.82 1164.02  132.28  1163.3  133.88 1163.29  157.93  1163.3
  165.83 1163.18  183.57  1162.6  197.79 1160.76  204.12 1159.54  209.21 1158.51
  210.42 1158.36  229.75 1155.88  234.85 1155.55  255.56  1155.1  260.49 1154.99
   261.7 1154.98  286.14 1154.89  289.49 1154.92  293.66 1154.98  303.72 1155.15
  311.78 1155.33  325.63 1156.31  337.26 1157.41  337.42 1157.43  357.58 1159.34
  363.06 1160.03  385.31 1162.64  388.71 1163.08  389.54 1163.12  414.35 1164.08
  421.49 1164.22  439.99 1164.52  453.45 1164.66  465.63 1164.75  474.43 1164.81
  485.42 1164.82  488.66 1164.84  491.28 1164.83  515.05 1164.84  516.91 1164.84
  517.37 1164.84  542.56 1164.92  545.57 1164.93  549.33 1164.94   560.2 1165.06
  581.29 1165.13  593.85  1165.2  602.47 1165.23  613.24 1165.27  619.48 1165.29
   644.8 1165.26  645.13 1165.26  645.15 1165.26   645.2 1165.26  659.39  1165.2
  670.77 1165.16  677.16 1165.15  696.41  1165.1  709.12  1165.1  722.05 1165.11
  741.08 1165.16   747.7 1165.18  773.03  1165.2  773.34  1165.2  787.43 1165.13
  798.98 1165.12  804.99 1165.09  824.62 1165.06  836.96 1165.09  850.26 1165.21
  868.91 1165.54  875.91 1165.75  887.01 1166.16  900.87 1167.33  901.24 1167.42
  901.55 1167.54  904.29 1168.74  927.19 1178.73  932.82 1180.74  952.83 1183.29
  964.78 1184.06  978.48 1184.87  983.26 1185.08

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
      67     .04  210.42    .035  337.26    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        210.42  337.26             44.95      50   54.41             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
```

E.G. Elev (ft)	1170.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1170.52	Reach Len. (ft)	44.95	50.00	54.41
Crit W.S. (ft)		Flow Area (sq ft)	842.34	1883.15	3358.39
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	842.34	1883.15	3358.39
Q Total (cfs)	0.01	Flow (cfs)	0.00	0.01	0.00
Top Width (ft)	822.19	Top Width (ft)	124.24	126.84	571.10
Vel Total (ft/s)	0.00	Avg. Vel. (ft/s)	0.00	0.00	0.00
Max Chl Dpth (ft)	15.63	Hydr. Depth (ft)	6.78	14.85	5.88
Conv. Total (cfs)	954592.6	Conv. (cfs)	111476.8	482270.9	360844.9
Length Wtd. (ft)	51.08	Wetted Per. (ft)	125.27	127.11	572.16
Min Ch El (ft)	1154.89	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.61	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	130.03	1570.15	1472.03
C & E Loss (ft)		Cum SA (acres)	21.10	92.19	216.67

CROSS SECTION

RIVER: FRS
REACH: FRS3 RS: 15700

INPUT
Description:
Station Elevation Data num= 88

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
67	1171.54	81	1171.54	90.31	1169.7	101.91	1166.82	104.54	1166.17
106.64	1165.79	125.82	1164.02	132.28	1163.3	133.88	1163.29	157.93	1163.3
165.83	1163.18	183.57	1162.6	197.79	1160.76	204.12	1159.54	209.21	1158.51
210.42	1158.36	229.75	1155.88	234.85	1155.55	255.56	1155.1	260.49	1154.99
261.7	1154.98	286.14	1154.89	289.49	1154.92	293.66	1154.98	303.72	1155.15
311.78	1155.33	325.63	1156.31	337.26	1157.41	337.42	1157.43	357.58	1159.34
363.06	1160.03	385.31	1162.64	388.71	1163.08	389.54	1163.12	414.35	1164.08
421.49	1164.22	439.99	1164.52	453.45	1164.66	465.63	1164.75	474.43	1164.81
485.42	1164.82	488.66	1164.84	491.28	1164.83	515.05	1164.84	516.91	1164.84
517.37	1164.84	542.56	1164.92	545.57	1164.93	549.33	1164.94	568.2	1165.06
581.29	1165.13	593.85	1165.2	602.47	1165.23	613.24	1165.27	619.48	1165.29
644.8	1165.26	645.13	1165.26	645.15	1165.26	645.2	1165.26	659.39	1165.2
670.77	1165.16	677.16	1165.15	696.41	1165.1	709.12	1165.1	722.05	1165.11
741.08	1165.16	747.7	1165.18	773.03	1165.2	773.34	1165.2	787.43	1165.13
798.98	1165.12	804.99	1165.09	824.62	1165.06	836.96	1165.09	850.26	1165.21
868.91	1165.54	875.91	1165.75	887.01	1166.16	900.87	1167.33	901.24	1167.42
901.55	1167.54	904.29	1168.74	927.19	1178.73	932.82	1180.74	952.83	1183.29
964.78	1184.06	978.48	1184.87	983.26	1185.08				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
67	.04	210.42	.035	337.26	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
210.42	337.26	179.82	200	217.63	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1170.52	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1170.52	Reach Len. (ft)	179.82	200.00	217.63
Crit W.S. (ft)		Flow Area (sq ft)	842.34	1883.15	3358.39
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	842.34	1883.15	3358.39
Q Total (cfs)	-0.04	Flow (cfs)	-0.01	-0.02	-0.02
Top Width (ft)	822.19	Top Width (ft)	124.24	126.84	571.10
Vel Total (ft/s)	0.00	Avg. Vel. (ft/s)	0.00	0.00	0.00
Max Chl Dpth (ft)	15.63	Hydr. Depth (ft)	6.78	14.85	5.88
Conv. Total (cfs)	954592.6	Conv. (cfs)	111476.8	482270.9	360844.9
Length Wtd. (ft)	200.18	Wetted Per. (ft)	125.27	127.11	572.16
Min Ch El (ft)	1154.89	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.61	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	129.16	1567.99	1467.83
C & E Loss (ft)		Cum SA (acres)	20.97	92.04	215.96

CROSS SECTION

RIVER: FRS
REACH: FRS3 RS: 15500.00

INPUT
Description:
Station Elevation Data num= 91

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
130.18	1171.91	144.18	1171.91	145.63	1172.03	167.66	1169.29	183.81	1165.41
188.35	1164.26	191.14	1164.03	202.88	1163.17	214.62	1162.68	221.98	1162.53
238.1	1162.47	260.16	1162.24	261.58	1162.22	263.86	1161.92	272.91	1161.09
285.06	1159.97	298.33	1156.87	308.54	1155.05	319.19	1154.6	332.02	1154.3
336.51	1154.25	355.5	1154.2	374.69	1154.27	378.98	1154.32	391.89	1154.59
402.46	1154.99	412.86	1156.58	418.32	1157.55	425.94	1158.91	446.84	1162.13
449.42	1162.57	451.04	1162.65	464.58	1163.18	472.9	1163.37	479.11	1163.51
489.22	1163.66	496.38	1163.8	507.83	1164.01	519.86	1164.27	522.72	1164.38
527.39	1164.53	543.34	1164.99	565.57	1165.78	566.82	1165.82	580.89	1166.48
590.3	1167	603.75	1167.56	609.95	1167.83	613.78	1168.05	624.5	1168.31
637.26	1168.83	641.92	1168.92	660.74	1169.28	668.11	1169.37	680.1	1169.49
682.65	1169.51	684.22	1169.54	690.81	1169.62	707.7	1169.79	718.27	1169.9
731.18	1169.99	751.81	1170.05	754.66	1170.07	756.45	1170.08	778.14	1170.37
784.42	1170.46	794.63	1170.75	801.62	1170.95	812.79	1171.22	825.1	1171.53
832.8	1171.65	848.58	1171.81	870.98	1171.85	872.06	1171.86	873.79	1171.87
895.54	1172.08	909.16	1172.57	919.02	1172.9	934.79	1173.42	942.5	1173.66
944.34	1173.65	947.33	1173.67	958.88	1173.6	965.98	1173.77	985.51	1173.97
989.46	1174.06	995.77	1174.3	1012.94	1175.1	1023.69	1175.66	1036.42	1176.4
1053.71	1177.04								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
130.18	.04	272.91	.035	418.32	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
272.91	418.32	491.99	500	505.83	.1	.3

```
CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1170.52  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.52  * Reach Len. (ft)         *  491.99  *  500.00  *  505.83  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  751.21  * 2168.36  * 1404.31  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  751.21  * 2168.36  * 1404.31  *
* Q Total (cfs)           *   -1.38  * Flow (cfs)               *   -0.18  *   -1.00  *   -0.20  *
* Top Width (ft)          *  628.63  * Top Width (ft)           *  115.11  *  145.41  *  368.11  *
* Vel Total (ft/s)        *    0.00  * Avg. Vel. (ft/s)         *    0.00  *    0.00  *    0.00  *
* Max Chl Dpth (ft)       *   16.32  * Hydr. Depth (ft)         *    6.53  *   14.91  *    3.81  *
* Conv. Total (cfs)       *765798.4  * Conv. (cfs)             * 97006.4  *555685.3  *113106.7  *
* Length Wtd. (ft)        *  500.59  * Wetted Per. (ft)         *  115.91  *  146.21  *  368.64  *
* Min Ch El (ft)          * 1154.20  * Shear (lb/sq ft)         *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.62  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.03  * Cum Volume (acre-ft)     *  125.87  * 1558.68  * 1455.94  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   20.48  *   91.42  *  213.61  *
*****************************************************************************************

LATERAL STRUCTURE


RIVER: FRS
REACH: FRS3                RS: 15450

INPUT
Description:
Lateral structure position      = Right overbank
Distance from Upstream XS =       50
Deck/Roadway Width        =       10
Weir Coefficient          =      2.5
Weir Flow Reference       = Water Surface
 Weir Embankment Coordinates    num =      4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************
       01171.435    13.61165.233   413.61165.233   427.21171.435

Weir crest shape                          = Broad Crested


LATERAL STRUCTURE OUTPUT  Profile #Max WS  Lat Struct
*****************************************************************
* E.G. US. (ft)           * 1170.51  * Weir Sta US (ft)        *    2.06  *
* W.S. US. (ft)           * 1170.50  * Weir Sta DS (ft)        *  424.72  *
* E.G. DS (ft)            * 1170.49  * Weir Max Depth (ft)     *    5.26  *
* W.S. DS (ft)            * 1170.30  * Weir Avg Depth (ft)     *    5.03  *
* Q US (cfs)              *   -1.38  * Weir Submerg            *    0.00  *
* Q Leaving Total (cfs)   *12007.21  * Min El Weir Flow (ft)   * 1165.23  *
* Q DS (cfs)              *-12009.20  * Wr Top Wdth (ft)       *  422.66  *
* Perc Q Leaving          *868055.80  * Q Gate Group (cfs)     *          *
* Q Weir (cfs)            *12007.21  * Gate Open Ht (ft)       *          *
* Q Gates (cfs)           *          * Gate #Open               *          *
* Q Culv (cfs)            *          * Gate Area (sq ft)        *          *
* Q Lat RC (cfs)          *          * Gate Submerg             *          *
* Weir Flow Area (sq ft)  * 2124.79  * Gate Invert (ft)         *          *
*****************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 15000.00

INPUT
Description:
Station Elevation Data    num=     104
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
  131.11 1171.94  145.11 1171.94   155.8 1170.96  167.32 1170.23  179.64 1168.48
  186.31 1167.52  189.53 1167.03  201.28 1165.19  211.74 1163.63  225.04 1161.84
  225.62 1161.76  233.95 1160.78  241.75 1160.27  256.17  1159.3  261.19 1159.09
  271.59 1158.36  278.38 1157.93  291.14  1156.7  300.59 1155.07  317.56 1154.25
  322.81 1154.19   327.7 1154.19  345.02 1154.14  363.53 1154.29  366.03 1154.32
  367.23 1154.34     381 1154.68  389.44 1154.85  407.96 1158.06  409.51 1158.33
  411.65 1158.81  413.66 1159.33  433.86 1164.49  455.48 1166.09  456.07 1166.11
  456.63 1166.12  478.29 1166.57  485.83 1166.66   500.5 1166.82  501.46 1166.83
  522.71  1166.9  530.77  1166.9  544.93 1166.92  547.43 1166.93  567.14 1167.02
  585.56 1167.05  589.35 1167.07   593.4 1167.06  611.56 1167.08  628.54 1167.11
  633.77 1167.13  639.37 1167.15  650.58 1167.21  655.98 1167.23  665.55 1167.29
   678.2 1167.33  680.53 1167.34  685.35 1167.36  700.41 1167.44  710.48 1167.48
  722.62 1167.48  811.47 1167.71  823.27 1168.15  833.68 1168.43  845.27 1168.72
  855.89 1168.93  869.24 1169.19   878.1 1169.31  890.19  1169.5  900.32  1169.7
  905.17 1169.76  915.21 1169.79  922.53 1169.78  929.37 1169.58  944.74 1169.38
  950.09 1169.38  961.19 1169.31  965.08  1169.6  966.95 1169.66  972.34 1169.88
  989.17 1170.68 1007.16 1171.44    1010 1171.55 1011.38  1171.6 1015.32 1171.74
 1033.59 1172.37 1039.95 1172.62 1053.14 1172.85  1055.8  1172.9  1058.3 1172.96
 1078.01 1173.44 1099.11 1173.93 1100.22 1173.96 1101.27 1173.98 1122.44 1174.52
 1144.25 1175.16 1144.65 1175.17 1145.08 1175.18 1166.86 1175.98 1187.22 1176.47
 1189.07 1176.52 1189.72 1176.53 1191.05 1176.58 1203.41  1177.1

Manning's n Values        num=      3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
  131.11     .04  225.04    .035  407.96    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        225.04  407.96             502.45     500  498.07             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1170.49  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.20  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.29  * Reach Len. (ft)         *  502.45  *  500.00  *  498.07  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  247.63  * 2536.67  * 1635.90  *
* E.G. Slope (ft/ft)      *0.000255  * Area (sq ft)            *  247.63  * 2536.67  * 1635.90  *
* Q Total (cfs)           *-12009.20  * Flow (cfs)              * -380.75  *-9895.59  *-1732.86  *
* Top Width (ft)          *  814.59  * Top Width (ft)           *   58.67  *  162.92  *  573.01  *
* Vel Total (ft/s)        *   -2.72  * Avg. Vel. (ft/s)         *   -1.54  *   -3.90  *   -1.06  *
* Max Chl Dpth (ft)       *   16.15  * Hydr. Depth (ft)         *    4.22  *   13.87  *    2.85  *
* Conv. Total (cfs)       *752593.8  * Conv. (cfs)             * 23861.2  *620137.8  *108594.8  *
* Length Wtd. (ft)        *  499.72  * Wetted Per. (ft)         *   59.28  *  183.58  *  573.92  *
* Min Ch El (ft)          * 1154.14  * Shear (lb/sq ft)         *    0.07  *    0.22  *    0.05  *
* Alpha                   *    1.73  * Stream Power (lb/ft s)   *   -0.10  *   -0.86  *   -0.05  *
* Frctn Loss (ft)         *    0.10  * Cum Volume (acre-ft)     *  120.23  * 1531.68  * 1438.28  *
```

```
* C & E Loss (ft)          *          * Cum SA (acres)          *   19.50  *   89.54  *  208.15  *
*****************************************************************************************************

LATERAL STRUCTURE


RIVER: FRS
REACH: FRS3                RS: 14999

INPUT
Description:
Lateral structure position      = Left overbank
Distance from Upstream XS =       1
Deck/Roadway Width        =      10
Weir Coefficient          =     2.7
Weir Flow Reference       = Water Surface
 Weir Embankment Coordinates    num =       15
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************************
       01171.675    18221171.503    24931171.855    37741171.799    48991171.425
    60661171.776    70211171.812    80341171.879    81641172.206   102041171.748
   112541171.694   112551171.537   122301171.641   132801171.564   143991171.435

Weir crest shape                          = Broad Crested


LATERAL STRUCTURE OUTPUT  Profile #Max WS  Lat Struct
*****************************************************************************
* E.G. US. (ft)           * 1170.49  * Weir Sta US (ft)        *           *
* W.S. US. (ft)           * 1170.29  * Weir Sta DS (ft)        *           *
* E.G. DS (ft)            * 1171.12  * Weir Max Depth (ft)     *           *
* W.S. DS (ft)            * 1171.12  * Weir Avg Depth (ft)     *           *
* Q US (cfs)              *-12009.20  * Weir Submerg            *           *
* Q Leaving Total (cfs)   *    0.00  * Min El Weir Flow (ft)   * 1171.43   *
* Q DS (cfs)              *  105.79  * Wr Top Wdth (ft)        *           *
* Perc Q Leaving          *    0.00  * Q Gate Group (cfs)      *           *
* Q Weir (cfs)            *          * Gate Open Ht (ft)       *           *
* Q Gates (cfs)           *          * Gate #Open              *           *
* Q Culv (cfs)            *          * Gate Area (sq ft)       *           *
* Q Lat RC (cfs)          *          * Gate Submerg            *           *
* Weir Flow Area (sq ft)  *          * Gate Invert (ft)        *           *
*****************************************************************************


CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 14500.00

INPUT
Description:
Station Elevation Data     num=      107
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************************
  144.56 1171.63  157.78 1171.47      167 1169.73  183.75  1165.7  189.44 1164.36
  195.33 1163.08  210.82 1159.48  211.88 1159.23  227.86 1158.26  234.32 1158.03
  247.01  1157.7  256.76 1157.54  261.89 1157.47  271.95 1157.23  276.75 1157.14
   279.2 1157.11  286.71  1156.3  301.64  1155.1  316.06 1154.44  324.08 1154.29
  332.39 1154.29  346.52 1154.24  351.12 1154.28  360.15 1154.37  365.99 1154.42
  368.96 1154.48  378.08 1154.67   391.4 1154.98  395.73 1155.38  400.91 1156.46
  404.26 1157.16  413.84 1159.16  423.77 1160.92  436.28 1163.36  440.35 1163.72
  448.37 1164.16  458.72  1164.7  469.46 1165.04  481.16 1165.43  484.97 1165.54
  492.46  1165.7   503.6 1165.94  514.72 1166.09  526.04 1166.18  536.57 1166.19
  544.46 1166.19  548.48 1166.18  559.33 1166.13  570.92 1166.01  574.21    1166
  580.66 1165.96  593.36 1165.89  606.51 1165.93   615.8 1165.97  624.77 1165.94
  638.24 1165.88   652.2 1165.68  660.68 1165.57  663.44 1165.54  668.87 1165.49
  683.12  1165.4  697.89  1165.1  705.56 1165.02  708.06 1165.04  712.97 1165.12
  722.93 1165.51     728 1165.51  743.57 1165.72  750.44 1165.89  757.08 1165.97
  772.88 1166.33  789.26 1166.23  795.32 1166.28  801.18 1166.36  812.16    1167
  817.76 1167.02   840.2 1166.82  841.91 1166.86  845.28 1167.02  862.64 1167.69
  880.64 1168.23  885.08 1168.33  889.38 1168.43  907.52 1168.72  926.32 1169.02
  929.96 1169.06  933.48 1169.09  952.41 1169.48   960.9 1169.69  974.84 1169.25
  977.58 1169.33  997.28 1170.14  1017.7 1170.92 1019.73 1170.99 1021.69 1171.05
 1035.25 1171.69 1042.16    1172 1050.13 1172.36  1064.6 1172.73    1065 1172.74
 1065.79 1172.76 1087.05 1173.39 1109.07 1173.88 1109.48 1173.89 1109.89  1173.9
 1131.93 1174.59 1152.03 1175.08

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
  144.56     .04  210.82    .035  400.91    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        210.82  400.91             56.77    56.5    56.4             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)          * 1170.57  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.12  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.45  * Reach Len. (ft)         *   56.77  *   56.50  *   56.40  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  259.61  * 2754.41  * 2520.20  *
* E.G. Slope (ft/ft)      *0.000164  * Area (sq ft)            *  259.61  * 2754.41  * 2520.20  *
* Q Total (cfs)           *-12014.80  * Flow (cfs)              * -375.67  *-8883.26  *-2755.87  *
* Top Width (ft)          *  842.15  * Top Width (ft)           *   47.62  *  190.09  *  604.43  *
* Vel Total (ft/s)        *   -2.17  * Avg. Vel. (ft/s)         *   -1.45  *   -3.23  *   -1.09  *
* Max Chl Dpth (ft)       *   16.21  * Hydr. Depth (ft)         *    5.45  *   14.49  *    4.17  *
* Conv. Total (cfs)       *938994.0  * Conv. (cfs)              * 29359.7  *694254.6  *215379.7  *
* Length Wtd. (ft)        *   56.49  * Wetted Per. (ft)         *   48.88  *  190.41  *  605.28  *
* Min Ch El (ft)          * 1154.24  * Shear (lb/sq ft)         *    0.05  *    0.15  *    0.04  *
* Alpha                   *    1.70  * Stream Power (lb/ft s)   *   -0.08  *   -0.48  *   -0.05  *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)     *  117.30  * 1501.31  * 1414.52  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   18.89  *   87.39  *  201.42  *
*****************************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 14443.5

INPUT
Description: Y1
Station Elevation Data     num=      105
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
```

```
*****************************************************************************
 144.56 1171.63  157.78 1171.47     167 1169.73  183.75  1165.7  189.44 1164.36
 195.33 1163.08  210.82 1159.48  211.88 1159.23  227.86 1158.26  234.32 1158.03
 247.01  1157.7  256.76 1157.54  261.89 1157.47  271.95 1157.23  276.75 1157.14
  279.2 1157.11  286.71  1156.3  301.64  1155.1  316.06 1154.44  324.08 1154.29
 332.39 1154.29  346.52 1154.24  351.12 1154.28  360.15 1154.37  365.99 1154.42
 368.96 1154.48  378.08 1154.67   391.4 1154.98  395.73 1155.38  400.91 1156.46
 404.26 1157.16  413.84 1159.16  423.77 1160.92  436.28 1163.36  440.35 1163.72
 448.37 1164.16  458.72  1164.7  469.46 1165.04  481.16 1165.43  484.97 1165.54
 492.46  1165.7   503.6 1165.94  514.72 1166.09  526.04 1166.18  536.57 1166.19
 544.46 1166.19  548.48 1166.18  559.33 1166.13  570.92 1166.01  574.21    1166
 580.66 1165.96  593.36 1165.89  606.51 1165.93   615.8 1165.97  624.77 1165.94
 638.24 1165.88   652.2 1165.68  660.68 1165.57  663.44 1165.54  668.87 1165.49
 683.12  1165.4  697.89  1165.1  705.56 1165.02  708.06 1165.04  712.97 1165.12
 722.93 1165.51     728 1165.51  743.57 1165.72  750.44 1165.89  757.08 1165.97
 772.88 1166.33  789.26 1166.23  795.32 1166.28  801.18 1166.36  812.16    1167
 817.76 1167.02  827.04 1167.43  862.64 1167.69  880.64 1168.23  885.08 1168.33
 889.38 1168.43  907.52 1168.72  926.32 1169.02  929.96 1169.06  933.48 1169.09
 952.41 1169.48   960.9 1169.69  974.84 1169.25  977.58 1169.33  997.28 1170.14
 1017.7 1170.92 1019.73 1170.99 1021.69 1171.05 1035.25 1171.69 1042.16    1172
1050.13 1172.36 1064.6 1172.73    1065 1172.74 1065.79 1172.76 1087.05 1173.39
1109.07 1173.08 1109.48 1173.89 1109.89  1173.9 1131.93 1174.59 1152.03 1175.08

Manning's n Values          num=      3
     Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
  144.56     .04  210.82    .035  400.91    .045

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
        210.82  400.91              148.54  147.83  147.57            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1170.58  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.13  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.46  * Reach Len. (ft)         *  148.54  *  147.83  *  147.57  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  260.04  * 2756.13  * 2507.53  *
* E.G. Slope (ft/ft)      *0.000164  * Area (sq ft)            *  260.04  * 2756.13  * 2507.53  *
* Q Total (cfs)           *-12017.50  * Flow (cfs)             * -376.97  *-8904.66  *-2735.86  *
* Top Width (ft)          *  842.43  * Top Width (ft)          *   47.67  *  190.09  *  604.67  *
* Vel Total (ft/s)        *   -2.18  * Avg. Vel. (ft/s)        *   -1.45  *   -3.23  *   -1.09  *
* Max Chl Dpth (ft)       *   16.22  * Hydr. Depth (ft)        *    5.45  *   14.50  *    4.15  *
* Conv. Total (cfs)       *937921.3  * Conv. (cfs)             * 29421.4  *694975.9  *213524.0  *
* Length Wtd. (ft)        *  147.79  * Wetted Per. (ft)        *   48.92  *  190.41  *  605.51  *
* Min Ch El (ft)          * 1154.24  * Shear (lb/sq ft)        *    0.05  *    0.15  *    0.04  *
* Alpha                   *    1.71  * Stream Power (lb/ft s)  *   -0.08  *   -0.48  *   -0.05  *
* Frctn Loss (ft)         *    0.02  * Cum Volume (acre-ft)    *  116.97  * 1497.74  * 1411.27  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   18.82  *   87.15  *  200.63  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 14295.6*

INPUT
Description:
Station Elevation Data     num=     205
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
  144.53  1171.4  144.56 1171.41  144.61 1171.41  158.49 1171.05     165 1170.16
  168.23 1169.42  183.24 1165.49  185.48 1164.92  185.91  1164.8  191.92 1163.23
  198.08 1161.68  198.14 1161.67  205.94 1159.83  211.47 1158.75  214.49 1158.29
  215.53 1158.12  223.06 1157.78  228.33 1157.55  231.14 1157.44  234.28 1157.38
  237.45 1157.31  249.85 1157.11  252.08 1157.09  259.38 1157.03  264.39    1157
  267.88 1156.95  274.22 1156.87  275.83 1156.85  278.91 1156.76   281.3 1156.69
   284.8 1156.37  288.64 1156.04  299.58  1155.3  303.23 1155.04  312.69  1154.6
  317.32 1154.39  323.33 1154.24  325.15 1154.21  333.27  1154.2  335.32 1154.19
  347.08 1154.12  351.88 1154.16  356.25 1154.19   361.3 1154.23   367.4 1154.28
  367.97 1154.28   370.5 1154.33  380.02 1154.52  381.18 1154.55  388.84  1154.7
  393.92 1154.95  395.64 1155.11  398.44  1155.4  403.85 1156.37  407.27 1156.98
  409.95 1157.47  417.07 1158.82  426.42 1160.41  427.23 1160.54  431.62 1161.32
  436.23 1161.99  440.02 1162.48  444.19 1162.74  452.39 1163.07  453.29  1163.1
  462.97 1163.41  472.53 1163.59  473.96 1163.61  474.96 1163.64  477.12 1163.68
  485.93 1163.85  489.82 1163.92  489.87 1163.92  496.63 1163.99  497.48    1164
  504.03  1164.1  508.88 1164.14  518.01 1164.17   518.3 1164.17  518.62 1164.17
  520.25 1164.19  531.83 1164.26  539.97 1164.27   542.6 1164.29  550.67 1164.34
  554.78 1164.35   558.9 1164.36  561.63 1164.37  564.73 1164.37  565.88 1164.37
  577.73 1164.33   581.1 1164.34  583.31 1164.34  587.69 1164.34  599.78 1164.34
  600.68 1164.34  604.97 1164.38  610.83 1164.42  614.13 1164.45  623.63 1164.53
  626.65 1164.54  632.81 1164.56  640.68 1164.58  646.59  1164.6  648.31 1164.59
  656.93 1164.56  660.86 1164.54  669.54 1164.51  669.99 1164.51  672.36  1164.5
  677.91 1164.46  681.56 1164.45  691.65  1164.4  692.49  1164.4  703.03 1164.28
   707.6 1164.24  713.32 1164.22  715.44 1164.22     718 1164.25  722.45 1164.33
  723.02 1164.34  733.21 1164.68  734.99 1164.69  738.39 1164.71  749.13 1164.85
  754.32 1164.93  756.66 1164.99  761.34 1165.09  763.33 1165.12  768.13 1165.19
  778.33  1165.4  784.29 1165.58  787.31 1165.61     800 1165.68  801.05 1165.69
  804.22 1165.74  807.25 1165.79  813.24  1165.9  821.66  1166.3  824.47 1166.43
   830.2  1166.5  839.69 1166.86  841.34 1166.83  843.34 1166.79  845.12 1166.76
  853.15 1166.58   854.9 1166.62  858.35 1166.76  865.01 1166.98   876.1 1167.33
  886.01  1167.6  886.68 1167.62  887.43 1167.64  894.51 1167.83  899.05 1167.93
  903.45 1168.03  908.34 1168.12     922 1168.38  926.89 1168.47  930.02 1168.53
  933.54 1168.58  941.23 1168.69  944.96 1168.73  948.56 1168.77  951.68 1168.82
  967.78 1169.07  967.92 1169.07  973.35 1169.18   976.6 1169.25  979.63  1169.2
  990.86 1169.02  993.66 1169.09  995.02 1169.13 1008.67 1169.63 1013.81 1169.82
 1016.69 1169.93 1025.74 1170.25 1034.69  1170.6 1036.77 1170.67 1038.36 1170.72
 1038.78 1170.74 1049.56 1171.16 1052.64 1171.29 1059.71 1171.57 1060.03 1171.58
 1067.86 1171.86 1071.84 1171.95  1081.7 1172.16 1082.66 1172.19 1083.07  1172.2
 1083.88 1172.22 1090.45  1172.4 1103.37 1172.79 1105.63 1172.86 1117.94 1173.16
 1125.04 1173.33 1128.15  1173.4 1128.57 1173.41 1128.99 1173.42 1131.33 1173.49
 1146.71 1173.96 1151.53 1174.11 1164.04 1174.42 1168.37 1174.53 1172.09 1174.62

Manning's n Values          num=      3
     Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
  144.53     .04  214.49    .035  403.85    .045

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
        214.49  403.85              148.54  147.83  147.57            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1170.60  * Element                 *  Left OB *  Channel * Right OB *
```

```
* Vel Head (ft)          *    0.09  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)         * 1170.50  * Reach Len. (ft)         *  148.54  *  147.83  *  147.57  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *  326.20  * 2817.68  * 3167.71  *
* E.G. Slope (ft/ft)     *0.000124  * Area (sq ft)            *  326.20  * 2817.68  * 3167.71  *
* Q Total (cfs)          *-11914.20  * Flow (cfs)             * -450.21  *-8044.96  *-3419.04  *
* Top Width (ft)         *  869.75  * Top Width (ft)          *   52.01  *  189.36  *  628.39  *
* Vel Total (ft/s)       *   -1.89  * Avg. Vel. (ft/s)        *   -1.38  *   -2.86  *   -1.08  *
* Max Chl Dpth (ft)      *   16.38  * Hydr. Depth (ft)        *    6.27  *   14.88  *    5.04  *
* Conv. Total (cfs)      *1070866.0  * Conv. (cfs)            * 40465.1  *723092.7  *307308.3  *
* Length Wtd. (ft)       *  147.78  * Wetted Per. (ft)        *   53.45  *  189.60  *  629.04  *
* Min Ch El (ft)         * 1154.12  * Shear (lb/sq ft)        *    0.05  *    0.11  *    0.04  *
* Alpha                  *    1.66  * Stream Power (lb/ft s) *   -0.07  *   -0.33  *   -0.04  *
* Frctn Loss (ft)        *    0.02  * Cum Volume (acre-ft)    *  115.97  * 1488.28  * 1401.65  *
* C & E Loss (ft)        *          * Cum SA (acres)          *   18.65  *   86.50  *  198.54  *
*****************************************************************************************************
```

CROSS SECTION

RIVER: FRS
REACH: FRS3 RS: 14147.8*

INPUT
Description:
Station Elevation Data num= 205

```
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
  144.51 1171.18  144.54 1171.18  144.59 1171.18   159.2 1170.63  166.06 1170.01
  169.45 1169.11  185.26 1164.68  187.61 1164.03  188.07  1163.9  194.39  1162.1
  200.89 1160.28  200.94 1160.26  209.16 1158.29  214.98 1157.35  218.16 1157.11
  219.17 1157.02  226.53 1156.81  231.67 1156.67  234.42 1156.63  237.48 1156.61
  240.58 1156.58  252.69 1156.52  254.86 1156.52  261.99 1156.52  266.89 1156.52
  270.29 1156.51  276.49 1156.51  278.06 1156.51  281.06 1156.37   283.4 1156.27
  286.82 1156.01  290.57 1155.78  301.25  1155.2  304.81 1154.98  314.06 1154.54
  318.57 1154.35  324.45 1154.15  326.22 1154.14  334.15  1154.1  336.16 1154.09
  347.63 1154.01  352.64 1154.03  357.19 1154.06  362.46 1154.09  368.81 1154.13
   369.4 1154.14  372.04 1154.19  381.96 1154.37  383.16  1154.4  391.15 1154.54
  396.44 1154.91  398.24 1155.08  401.15 1155.42  406.78 1156.27  410.29 1156.81
  413.03 1157.23   420.3 1158.49  429.86 1160.04  430.69 1160.17  435.17 1160.89
  439.89 1161.34  443.77 1161.61  448.02 1161.76  456.41 1161.97  457.33    1162
  467.23 1162.12  476.99 1162.18  478.46 1162.19  479.48  1162.2  481.69 1162.21
  490.69 1162.28  494.68  1162.3  494.73  1162.3  501.64  1162.3  502.51 1162.31
   509.2 1162.35  514.15 1162.33  523.49 1162.27  523.78 1162.27  524.12 1162.28
  525.78 1162.29  537.62 1162.34  545.94 1162.36  548.63 1162.39  556.88 1162.48
  561.08 1162.53  565.29 1162.57  568.09 1162.59  571.25 1162.61  572.42 1162.61
  584.54 1162.66  587.98 1162.68  590.24 1162.69  594.73 1162.71  607.09 1162.78
  608.01 1162.79  612.39 1162.85  618.38 1162.93  621.76 1162.97  631.47 1163.09
  634.55 1163.12  640.85 1163.18   648.9 1163.25  654.93 1163.31   656.7 1163.33
   665.5 1163.38  669.53  1163.4   678.4 1163.46  678.85 1163.46  681.28 1163.45
  686.96 1163.43  690.68 1163.42    701  1163.4  701.86  1163.4  712.64 1163.36
   717.3 1163.37  723.16 1163.41  725.32 1163.43  727.93 1163.46  732.48 1163.54
  733.07 1163.56  743.48 1163.85   745.3 1163.88  748.78 1163.91  759.76 1164.05
  765.06 1164.15  767.46  1164.2  772.25 1164.29  774.28 1164.32  779.19  1164.4
  789.61 1164.61  795.71 1164.83  798.79 1164.92  811.77 1165.12  812.84 1165.14
  816.08 1165.23  819.17  1165.3   825.3 1165.44  833.91 1165.76  836.78 1165.87
  842.64 1165.98  852.34  1166.3  854.02 1166.31  856.07 1166.32  857.89 1166.33
   866.1 1166.34  867.89 1166.38  871.41 1166.49  878.23 1166.68  889.56 1166.98
  899.69 1167.21  900.37 1167.23  901.15 1167.25  908.38 1167.43  913.02 1167.53
  917.52 1167.64  922.52 1167.74  936.49 1168.04  941.49 1168.15  944.68 1168.21
  948.28 1168.25  956.14 1168.36  959.95  1168.4  963.63 1168.44  966.83 1168.49
  983.29 1168.66  983.42 1168.66  988.98 1168.76   992.3 1168.81   995.4  1168.8
 1006.88  1168.8 1009.74 1168.85 1011.13 1168.88 1025.09 1169.33 1030.34 1169.51
 1033.29  1169.6 1042.53 1169.92 1051.69 1170.27 1053.81 1170.35 1055.43 1170.41
 1055.86 1170.42 1066.88 1170.78 1070.04 1170.89 1077.26 1171.14 1077.59 1171.15
  1085.6 1171.36 1089.67 1171.45 1099.74 1171.62 1100.73 1171.65 1101.15 1171.66
 1101.97 1171.68 1108.68 1171.86 1121.89 1172.25  1124.2 1172.32 1136.79 1172.65
 1144.05 1172.84 1147.22 1172.92 1147.65 1172.93 1148.08 1172.94 1150.48 1173.01
  1166.2 1173.49 1171.13 1173.62 1183.91 1173.95 1188.35 1174.07 1192.14 1174.16
```

Manning's n Values num= 3

```
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
  144.51     .04  218.16    .035  406.78    .045
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        218.16  406.78             148.54  147.83  147.57            .1       .3
```

CROSS SECTION OUTPUT Profile #Max WS

```
*****************************************************************************************************
* E.G. Elev (ft)         * 1170.61  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.07  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)         * 1170.54  * Reach Len. (ft)         *  148.54  *  147.83  *  147.57  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *  397.73  * 2874.31  * 3835.63  *
* E.G. Slope (ft/ft)     *0.000096  * Area (sq ft)            *  397.73  * 2874.31  * 3835.63  *
* Q Total (cfs)          *-11911.80  * Flow (cfs)             * -513.77  *-7353.59  *-4044.44  *
* Top Width (ft)         *  899.17  * Top Width (ft)          *   57.92  *  188.62  *  652.63  *
* Vel Total (ft/s)       *   -1.68  * Avg. Vel. (ft/s)        *   -1.29  *   -2.56  *   -1.05  *
* Max Chl Dpth (ft)      *   16.53  * Hydr. Depth (ft)        *    6.87  *   15.24  *    5.88  *
* Conv. Total (cfs)      *1214205.0  * Conv. (cfs)            * 52370.4  *749572.8  *412261.9  *
* Length Wtd. (ft)       *  147.77  * Wetted Per. (ft)        *   59.60  *  188.80  *  653.14  *
* Min Ch El (ft)         * 1154.01  * Shear (lb/sq ft)        *    0.04  *    0.09  *    0.04  *
* Alpha                  *    1.60  * Stream Power (lb/ft s) *   -0.05  *   -0.23  *   -0.04  *
* Frctn Loss (ft)        *    0.01  * Cum Volume (acre-ft)    *  114.73  * 1478.62  * 1389.79  *
* C & E Loss (ft)        *          * Cum SA (acres)          *   18.47  *   85.86  *  196.37  *
*****************************************************************************************************
```

CROSS SECTION

RIVER: FRS
REACH: FRS3 RS: 14000.00

INPUT
Description:
Station Elevation Data num= 102

```
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
  144.48 1170.95  144.51 1170.96  144.57 1170.96  167.11 1169.86  187.28 1163.86
  189.75 1163.15  203.69 1158.87  212.38 1156.76  218.49 1155.95  221.83 1155.92
     230 1155.83  235.02 1155.79  240.69 1155.84  257.65 1155.95  272.71 1156.08
  280.29 1156.16  288.84 1155.66  302.92  1155.1  315.02 1154.48  325.56 1154.07
  336.99    1154  348.19 1153.89  358.13 1153.93  370.83 1153.99  385.15 1154.25
  393.46 1154.38  400.83 1155.05  409.72 1156.18   416.1 1156.99   433.3 1159.67
  438.73 1160.46  443.55 1160.69  461.37 1160.89  481.46 1160.77     484 1160.76
```

```
 486.26 1160.74  499.58 1160.68  506.64 1160.61  514.37 1160.61  528.97 1160.38
 529.27 1160.38  529.61 1160.38  551.91 1160.44  571.68 1160.77  574.54 1160.81
 577.77 1160.84  597.18 1161.04  614.39 1161.23  619.81 1161.32  625.93 1161.43
 642.45  1161.7  657.11 1161.92  665.08 1162.06  674.08  1162.2  687.72 1162.41
 699.81  1162.4  710.35 1162.39  722.24 1162.45  732.99 1162.59  742.52 1162.76
 755.62 1163.06  770.39 1163.25  778.26 1163.41  785.23 1163.53  800.89 1163.81
 810.27 1164.22  823.53 1164.56  827.94 1164.72  846.16 1165.22  866.71 1165.78
  868.8 1165.85  870.66  1165.9  891.44 1166.39  913.37 1166.83  914.07 1166.85
 914.86 1166.87   936.7 1167.35  956.08 1167.83  959.34  1167.9  963.02 1167.93
 981.97 1168.16  998.79 1168.25 1004.61 1168.33 1011.17  1168.4 1027.24 1168.63
 1041.5 1169.03 1049.88 1169.28 1059.33 1169.59 1072.51  1170.1 1084.21 1170.39
1095.15 1170.72 1107.49 1170.94 1117.78 1171.08 1126.92 1171.31 1140.42 1171.72
1155.64 1172.15 1163.06 1172.36 1169.63 1172.53 1185.69 1173.01 1203.79 1173.48
1208.32 1173.61  1212.2  1173.7

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
  144.48     .04  221.83    .035  409.72    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        221.83  409.72             496.36     500  501.12             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1170.61  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.05  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.56  * Reach Len. (ft)         *  496.36  *  500.00  *  501.12  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  476.60  * 2927.45  * 4528.84  *
* E.G. Slope (ft/ft)      *0.000076  * Area (sq ft)            *  476.60  * 2927.45  * 4528.84  *
* Q Total (cfs)           *-11915.90 * Flow (cfs)              * -549.18  *-6754.72  *-4612.00  *
* Top Width (ft)          *  937.08  * Top Width (ft)          *   69.07  *  187.89  *  680.13  *
* Vel Total (ft/s)        *   -1.50  * Avg. Vel. (ft/s)        *   -1.15  *   -2.31  *   -1.02  *
* Max Chl Dpth (ft)       *   16.67  * Hydr. Depth (ft)        *    6.90  *   15.58  *    6.66  *
* Conv. Total (cfs)       *1366942.0 * Conv. (cfs)             * 62999.4  *774873.3  *529069.7  *
* Length Wtd. (ft)        *  500.32  * Wetted Per. (ft)        *   71.00  *  188.05  *  680.57  *
* Min Ch El (ft)          * 1153.89  * Shear (lb/sq ft)        *    0.03  *    0.07  *    0.03  *
* Alpha                   *    1.54  * Stream Power (lb/ft s)   *   -0.04  *   -0.17  *   -0.03  *
* Frctn Loss (ft)         *    0.04  * Cum Volume (acre-ft)     *  113.24  * 1468.78  * 1375.62  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   18.25  *   85.22  *  194.12  *
**********************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 13500.00

INPUT
Description:
Station Elevation Data     num=     101
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
  140.11 1170.49  156.29  1170.5  162.48 1170.56  168.65 1169.35  184.86 1165.91
  201.14 1162.32  207.23 1160.98  210.16 1160.69  213.28 1160.38   229.6 1159.48
  245.99 1159.53  251.97 1159.51  257.92 1159.52  274.34 1159.36  290.84 1157.02
  296.71 1156.34  302.55 1155.57  313.57 1154.01  319.08 1153.89   335.7 1153.64
  341.46 1153.53  347.19 1153.54  363.83 1153.59  380.55 1153.92   386.2 1154.01
  391.83 1154.44  408.57 1156.22  410.71 1156.64  425.39 1159.54  430.94  1160.6
  436.46 1161.17  453.31 1162.36  470.25 1162.88  475.68 1163.05   481.1 1163.18
  498.06 1163.73   515.1 1164.54  520.43 1164.73  525.73 1164.76   542.8 1164.63
  559.95 1164.35  565.17 1164.29  570.36 1164.21  587.54 1163.91   604.8 1163.42
  609.91 1163.29     615 1162.94  626.51 1162.21  632.28 1161.84  649.65 1159.27
  654.65 1158.56  659.64 1158.87  677.03 1159.89   694.5 1160.28   699.4 1160.36
  704.27 1160.52  721.77 1161.22  739.36 1163.23  744.14 1163.48  748.91 1163.52
  766.51 1163.77  784.21  1163.7  788.89  1163.9  793.54  1163.6  811.25 1163.03
  829.05 1162.64  833.63 1162.92  838.18 1163.05     856 1164.86  873.91 1165.85
  878.37  1166.4  882.81 1166.71  900.74 1167.97  918.76 1168.84  923.11 1169.06
  927.45 1169.22  945.49 1170.01  963.61 1170.66  967.86 1170.81  972.09 1170.94
  990.23 1171.49 1008.46 1171.92  1012.6 1172.02 1016.72 1172.12 1034.97  1172.2
 1043.77 1172.19 1057.34 1172.23 1061.35 1172.05 1079.71 1170.89 1098.16 1171.97
 1102.09 1171.89 1105.99 1171.71 1124.46  1168.8 1143.02 1170.58 1146.83 1170.41
 1150.62 1171.03  1169.2 1173.11 1187.87  1174.1 1191.57 1174.28 1195.26 1174.36
 1200.91 1174.15

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
  140.11     .04  210.16    .035  410.71    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        210.16  410.71             499.04     500  499.79             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1170.66  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.07  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.59  * Reach Len. (ft)         *  499.04  *  500.00  *  499.79  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  242.53  * 2852.43  * 3887.14  *
* E.G. Slope (ft/ft)      *0.000099  * Area (sq ft)            *  242.53  * 2852.43  * 3887.14  *
* Q Total (cfs)           *-11914.40 * Flow (cfs)              * -203.12  *-7065.26  *-4646.02  *
* Top Width (ft)          *  856.54  * Top Width (ft)          *   70.05  *  200.55  *  585.94  *
* Vel Total (ft/s)        *   -1.71  * Avg. Vel. (ft/s)        *   -0.84  *   -2.48  *   -1.20  *
* Max Chl Dpth (ft)       *   17.06  * Hydr. Depth (ft)        *    3.46  *   14.22  *    6.63  *
* Conv. Total (cfs)       *1196555.0 * Conv. (cfs)             * 20399.4  *709558.8  *466596.4  *
* Length Wtd. (ft)        *  499.92  * Wetted Per. (ft)        *   71.18  *  201.12  *  587.47  *
* Min Ch El (ft)          * 1153.53  * Shear (lb/sq ft)        *    0.02  *    0.09  *    0.04  *
* Alpha                   *    1.44  * Stream Power (lb/ft s)   *   -0.02  *   -0.22  *   -0.05  *
* Frctn Loss (ft)         *    0.06  * Cum Volume (acre-ft)     *  109.14  * 1435.61  * 1327.21  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   17.46  *   82.99  *  186.83  *
**********************************************************************************************

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: FRS
REACH: FRS3                RS: 13000.00

INPUT
Description:
Station Elevation Data     num=      75
```

```
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
  135.64    1170  156.96    1170     158 1169.62  159.04 1169.36  180.36 1163.82
  199.71 1159.17  201.68  1158.7  202.72 1158.43  203.76 1158.38  225.08 1157.87
  246.39 1158.06  247.44 1158.06  248.49 1158.06   269.8 1158.11  291.11 1156.02
  292.16 1155.96  293.21 1155.83  314.52 1153.71  322.32 1153.51  336.88 1153.33
  337.93 1153.33  359.24 1153.36  380.54 1153.71   381.6 1153.73  382.66 1153.79
  403.96 1156.08  414.01 1158.66  425.26 1161.56  426.32 1161.82  427.38 1161.91
  448.68 1162.45  469.98 1163.15  471.04 1163.19  472.11 1163.22   486.3 1163.41
   493.4 1163.68  514.69 1164.48  515.76 1164.51  516.12 1164.53  516.84 1164.56
  538.12 1165.51  559.41 1166.06  560.48 1166.09  561.56 1166.12  582.84 1166.31
  604.13  1166.7   605.2 1166.72  606.28 1166.76  627.56 1167.32  648.84 1168.04
  649.92 1168.07  651.01 1168.11  672.28 1168.76  693.56 1169.23  694.64 1169.26
  695.73 1169.29     717 1169.78  738.28 1170.32  739.37 1170.35  740.45 1170.38
  761.73 1170.88  782.99  1171.2  784.09 1171.21  785.18 1171.24  806.45 1171.67
  827.71 1172.19  828.81 1172.21   829.9 1172.26  851.16 1173.08  872.43 1174.05
  873.52 1174.09   873.9  1174.1  874.63 1174.13  895.89 1174.82  911.91 1175.42

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
  135.64     .04  199.71    .035  414.01    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        199.71  414.01            100.09   110.3  115.35            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1170.73  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.13  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.60  * Reach Len. (ft)         *  100.09  *  110.30  *  115.35  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  276.50  * 3167.54  * 1485.54  *
* E.G. Slope (ft/ft)      *0.000152  * Area (sq ft)            *  276.50  * 3167.54  * 1485.54  *
* Q Total (cfs)           *-11921.90  * Flow (cfs)             * -329.10  *-9964.43  *-1628.37  *
* Top Width (ft)          *  614.21  * Top Width (ft)           *   64.07  *  214.30  *  335.84  *
* Vel Total (ft/s)        *   -2.42  * Avg. Vel. (ft/s)        *   -1.19  *   -3.15  *   -1.10  *
* Max Chl Dpth (ft)       *   17.27  * Hydr. Depth (ft)        *    4.32  *   14.78  *    4.42  *
* Conv. Total (cfs)       *966717.6  * Conv. (cfs)             * 26686.0  *807991.2  *132040.5  *
* Length Wtd. (ft)        *  110.71  * Wetted Per. (ft)        *   66.03  *  215.07  *  336.38  *
* Min Ch El (ft)          * 1153.33  * Shear (lb/sq ft)        *    0.04  *    0.14  *    0.04  *
* Alpha                   *    1.45  * Stream Power (lb/ft s)  *   -0.05  *   -0.44  *   -0.05  *
* Prctn Loss (ft)         *    0.02  * Cum Volume (acre-ft)    *  106.17  * 1401.06  * 1296.39  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   16.69  *   80.61  *  181.55  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 12889.70

INPUT
Description: X1
Station Elevation Data     num=      75
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
  135.64    1170  156.96    1170     158 1169.62  159.04 1169.36  180.36 1163.82
  199.71 1159.17  201.68  1158.7  202.72 1158.43  203.76 1158.38  225.08 1157.87
  246.39 1158.06  247.44 1158.06  248.49 1158.06   269.8 1158.11  291.11 1156.02
  292.16 1155.96  293.21 1155.83  314.52 1153.71  322.32 1153.51  336.88 1153.33
  337.93 1153.33  359.24 1153.36  380.54 1153.71   381.6 1153.73  382.66 1153.79
  403.96 1156.08  414.01 1158.66  425.26 1161.56  426.32 1161.82  427.38 1161.91
  448.68 1162.45  469.98 1163.15  471.04 1163.19  472.11 1163.22   486.3 1163.41
   493.4 1163.68  514.69 1164.48  515.76 1164.51  516.12 1164.53  516.84 1164.56
  538.12 1165.51  559.41 1166.06  560.48 1166.09  561.56 1166.12  582.84 1166.31
  604.13  1166.7   605.2 1166.72  606.28 1166.76  627.56 1167.32  648.84 1168.04
  649.92 1168.07  651.01 1168.11  672.28 1168.76  693.56 1169.23  694.64 1169.26
  695.73 1169.29     717 1169.78  738.28 1170.32  739.37 1170.35  740.45 1170.38
  761.73 1170.88  782.99  1171.2  784.09 1171.21  785.18 1171.24  806.45 1171.67
  827.71 1172.19  828.81 1172.21   829.9 1172.26  851.16 1173.08  872.43 1174.05
  873.52 1174.09   873.9  1174.1  874.63 1174.13  895.89 1174.82  911.91 1175.42

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
  135.64     .04  199.71    .035  414.01    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        199.71  414.01            353.64   389.7  407.56            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1170.75  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.13  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.62  * Reach Len. (ft)         *  353.64  *  389.70  *  407.56  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  277.53  * 3170.96  * 1490.92  *
* E.G. Slope (ft/ft)      *0.000151  * Area (sq ft)            *  277.53  * 3170.96  * 1490.92  *
* Q Total (cfs)           *-11922.60  * Flow (cfs)             * -330.34  *-9959.95  *-1632.32  *
* Top Width (ft)          *  614.89  * Top Width (ft)           *   64.07  *  214.30  *  336.52  *
* Vel Total (ft/s)        *   -2.41  * Avg. Vel. (ft/s)        *   -1.19  *   -3.14  *   -1.09  *
* Max Chl Dpth (ft)       *   17.29  * Hydr. Depth (ft)        *    4.33  *   14.80  *    4.43  *
* Conv. Total (cfs)       *968954.1  * Conv. (cfs)             * 26846.6  *809448.6  *132658.9  *
* Length Wtd. (ft)        *  391.92  * Wetted Per. (ft)        *   66.05  *  215.07  *  337.06  *
* Min Ch El (ft)          * 1153.33  * Shear (lb/sq ft)        *    0.04  *    0.14  *    0.04  *
* Alpha                   *    1.45  * Stream Power (lb/ft s)  *   -0.05  *   -0.44  *   -0.05  *
* Prctn Loss (ft)         *    0.05  * Cum Volume (acre-ft)    *  105.53  * 1393.03  * 1292.45  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   16.54  *   80.07  *  180.66  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 12500.00

INPUT
Description:
Station Elevation Data     num=     100
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
```

```
 156.29 1170.15  164.11  1169.4  174.56 1166.76  184.31 1164.16  198.16 1160.72
 204.52 1159.03  209.29 1158.83  217.14  1158.4  224.73 1157.99  242.46 1157.86
 244.93 1157.84  245.35 1157.84  265.14 1157.89  268.95 1157.69  285.34 1157.16
 292.55 1155.83  305.55 1153.54  316.14 1153.26  325.75 1152.89  339.74 1152.89
 345.96 1152.88  363.34 1152.98  366.16    1153  383.04 1153.32  386.37 1153.38
 386.93 1153.47  406.58 1156.19  410.53 1157.04  414.24  1157.9  426.78  1160.8
 434.13 1161.01  446.99 1161.41  457.72 1161.55  467.19 1161.65  481.32 1161.86
  487.4 1161.92  504.92 1162.11   507.6 1162.13  523.63  1162.2  527.81 1162.22
 528.52 1162.22  548.02 1162.24  552.11 1162.29  568.22 1162.47  575.71 1162.59
 588.42 1162.84  599.31 1163.04  608.63 1163.17   622.9 1163.32  628.84 1163.43
  646.5 1163.84  649.04 1163.91  664.21 1164.48  669.25 1164.67   670.1 1164.69
 689.45 1165.19  703.95 1165.47  709.66 1165.61  717.29 1165.81  729.86 1166.11
 740.89 1166.33  750.07 1166.52  764.49 1166.76  770.27 1166.86  788.08 1167.21
 790.48 1167.25  804.79 1167.54  810.69 1167.65  827.61 1167.91  830.89 1167.99
 845.28 1168.21   851.1 1168.32  862.95 1168.43   871.3 1168.59  880.61 1168.99
 891.51 1169.21  898.28 1169.47  911.71 1169.82  915.95 1169.96  931.92 1170.35
 933.61  1170.4  945.38 1170.54  952.13 1170.68  953.26 1170.72  972.33 1171.43
 976.86 1171.59  992.54 1172.37 1000.46 1172.59 1012.74 1173.03 1024.05 1173.18
1032.95 1173.38  1039.6 1173.51 1053.15 1173.63 1057.27 1173.71 1073.36 1173.96
1074.94 1173.99 1085.96 1174.27 1093.56 1174.46 1094.84 1174.52 1113.56 1175.12

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**************************************************
  156.29     .04  217.14    .035  414.24    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        217.14  414.24            456.24     500  519.56             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1170.79  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.07  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.72  * Reach Len. (ft)         *  456.24  *  500.00  *  519.56  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  421.18  * 3045.30  * 2999.81  *
* E.G. Slope (ft/ft)      *0.000093  * Area (sq ft)            *  421.18  * 3045.30  * 2999.81  *
* Q Total (cfs)           *-11261.50  * Flow (cfs)             * -537.24  *-7722.91  *-3001.35  *
* Top Width (ft)          *  796.97  * Top Width (ft)          *   60.85  *  197.10  *  539.02  *
* Vel Total (ft/s)        *   -1.74  * Avg. Vel. (ft/s)        *   -1.28  *   -2.54  *   -1.00  *
* Max Chl Dpth (ft)       *   17.84  * Hydr. Depth (ft)        *    6.92  *   15.45  *    5.57  *
* Conv. Total (cfs)       *1166566.0  * Conv. (cfs)            * 55652.1  *800007.2  *310906.4  *
* Length Wtd. (ft)        *  503.71  * Wetted Per. (ft)        *   62.78  *  197.85  *  539.47  *
* Min Ch El (ft)          * 1152.88  * Shear (lb/sq ft)        *    0.04  *    0.09  *    0.03  *
* Alpha                   *    1.57  * Stream Power (lb/ft s) *   -0.05  *   -0.23  *   -0.03  *
* Frctn Loss (ft)         *    0.04  * Cum Volume (acre-ft)    *  102.70  * 1365.23  * 1271.44  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   16.04  *   78.23  *  176.56  *
**********************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: PRS
REACH: PRS3                RS: 12000.00

INPUT
Description:
Station Elevation Data     num=     132
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**************************************************************************************
  163.99 1171.01     171 1170.73  181.17 1168.24  191.33 1165.75  198.36 1163.94
  211.66 1160.49  215.54 1159.84  224.19 1158.75  231.99 1157.77  232.74 1157.76
  236.77 1157.66  249.92 1157.33  252.33 1157.27  267.11 1157.28  272.66 1157.27
  284.29  1157.3  292.99  1157.2  301.48 1156.32  313.32 1155.08  318.66 1154.55
  333.66 1153.36  335.85 1153.31  347.83 1153.07  353.03 1152.96  353.99 1152.94
  370.22 1153.02  374.32 1153.04   387.4 1153.18  394.65 1153.29   404.6 1153.64
  414.99 1154.17  421.17  1155.5  421.78 1155.63  435.32 1158.69  438.97 1159.06
  455.65 1160.31  456.15 1160.33  458.88 1160.41  475.98 1160.91  479.82 1160.97
  496.32 1161.19   504.7 1161.33  516.65 1161.52  529.59 1161.68  536.98 1161.82
  542.08 1161.88  557.31 1161.99  559.26 1162.01  569.94 1162.07  576.46 1162.11
  577.64 1162.12  593.64  1162.3  597.98 1162.36  610.83 1162.55  618.31 1162.68
  628.01 1162.85  638.64 1163.04   645.2 1163.17  658.98 1163.45  662.38 1163.52
  679.31 1163.88  679.57 1163.89  680.99 1163.92  696.75 1164.28  699.64 1164.34
  713.94 1164.76  719.97  1164.9  731.12 1165.17  740.31 1165.36  748.32 1165.51
  760.64 1165.72   765.5 1165.81  780.97 1166.09  782.69 1166.12  792.05  1166.3
  799.87 1166.45   801.3 1166.48  817.06 1166.81  821.63  1166.9  834.24 1167.17
  841.97 1167.33  851.43 1167.51   862.3 1167.74  868.61 1167.84  882.63 1168.12
   895.8 1168.17  902.96 1168.51  902.98 1168.51  903.11 1168.51   923.3 1168.87
  937.36 1169.09  943.63 1169.19  954.55 1169.35  963.96 1169.47  971.73 1169.59
   984.3 1169.75  988.92 1169.82 1004.63 1170.05  1006.1 1170.07 1014.16 1170.19
 1023.29 1170.33 1024.96 1170.36 1040.47 1170.56 1045.29 1170.66 1057.66 1170.82
 1065.62 1170.96 1074.84  1171.1 1085.96 1171.29 1092.04 1171.41 1106.29 1171.68
 1109.22 1171.74 1125.22 1172.11 1126.41 1172.13 1126.62 1172.14 1143.59 1172.50
 1146.95 1172.67 1160.78 1173.05 1167.29 1173.22 1177.96 1173.49 1187.62 1173.75
 1195.15 1173.95 1207.95  1174.3 1212.33 1174.41 1220.28 1174.74 1229.52 1174.77
 1236.27 1174.92 1248.62 1175.15  1263.9 1175.53 1268.95 1175.69 1281.08    1176
 1289.28 1176.15 1295.91  1176.2

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**************************************************
  163.99     .04  224.19    .035  421.17    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        224.19  421.17            537.29     500  478.83             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1170.84  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.07  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.77  * Reach Len. (ft)         *  537.29  *  500.00  *  478.83  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  347.23  * 3074.11  * 3526.74  *
* E.G. Slope (ft/ft)      *0.000085  * Area (sq ft)            *  347.23  * 3074.11  * 3526.74  *
* Q Total (cfs)           *-11265.40  * Flow (cfs)             * -402.92  *-7493.18  *-3369.30  *
* Top Width (ft)          *  883.70  * Top Width (ft)          *   54.17  *  196.98  *  632.55  *
* Vel Total (ft/s)        *   -1.62  * Avg. Vel. (ft/s)        *   -1.16  *   -2.44  *   -0.96  *
* Max Chl Dpth (ft)       *   17.83  * Hydr. Depth (ft)        *    6.41  *   15.61  *    5.58  *
* Conv. Total (cfs)       *1223612.0  * Conv. (cfs)            * 43764.1  *813884.9  *365962.4  *
* Length Wtd. (ft)        *  494.27  * Wetted Per. (ft)        *   55.56  *  197.40  *  633.07  *
* Min Ch El (ft)          * 1152.94  * Shear (lb/sq ft)        *    0.03  *    0.08  *    0.03  *
* Alpha                   *    1.63  * Stream Power (lb/ft s) *   -0.04  *   -0.20  *   -0.03  *
* Frctn Loss (ft)         *    0.03  * Cum Volume (acre-ft)    *   98.67  * 1330.11  * 1232.52  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   15.43  *   75.97  *  169.57  *
```

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

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 11500.00

INPUT
Description:
Station Elevation Data     num=      114
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
  155.84 1170.82  158.82 1170.37  175.94 1168.21  181.22 1166.66  196.05 1162.49
  203.62 1160.63   213.3 1157.69  216.15 1156.83  226.01 1156.68  236.26 1156.63
  248.41 1156.71  256.36 1156.73   270.8 1156.64  276.46 1156.66  293.19 1155.67
  296.57 1155.55  315.59 1153.27  316.67 1153.11  326.18 1152.81  336.78 1152.48
  337.98 1152.48  356.88 1152.39  360.38 1152.39  376.99 1152.39  382.78 1152.46
  397.09 1152.64  405.17 1153.56   417.2 1154.61  427.56 1156.72  427.88 1156.78
   437.3 1158.65  449.96 1159.17   457.4 1159.56  472.35 1159.78  477.51 1159.86
  494.75 1160.08  497.61 1160.12  517.14 1160.46  517.72 1160.47  522.75 1160.56
  537.82 1160.79  539.54 1160.81  557.92 1160.99  561.94 1161.04  578.03 1161.17
  584.33 1161.24  598.13 1161.38  606.72 1161.47  618.24 1161.57  629.11 1161.67
  638.34 1161.75  651.51  1161.8  658.45 1161.84  673.91 1161.83  678.55 1161.86
   696.3  1162.1  698.66 1162.13   718.7 1162.66  718.76 1162.66  719.31 1162.68
  738.86 1163.24   741.1 1163.29  758.97 1163.71  763.48 1163.78  779.07 1164.02
  785.88 1164.14  799.18 1164.33  808.28 1164.47  819.28 1164.64  830.67 1164.81
  839.39 1164.95  853.07 1165.19  859.49  1165.3  875.46 1165.62  879.59 1165.71
  882.96 1165.78   899.7 1166.08  915.88 1166.34   919.8  1166.4  920.25 1166.41
  939.91 1166.73  942.64 1166.78  960.01 1167.08  965.04 1167.17  980.12  1167.4
  987.43 1167.52 1000.22  1167.7 1009.83 1167.88 1020.33 1168.08 1032.23 1168.31
 1040.43 1168.49 1054.62 1168.77 1060.53  1168.9 1077.01 1169.22 1080.64  1169.3
 1099.41 1169.62 1100.74 1169.64 1112.44 1169.79 1120.85 1169.91  1121.8 1169.93
 1140.95  1170.3  1144.2 1170.38 1161.06  1170.7 1166.59 1170.77 1181.16 1170.91
 1188.99 1170.96 1201.26 1171.02 1211.39 1171.12 1221.37 1171.19 1233.78 1171.34
 1241.47 1171.43 1256.17 1171.68 1261.58  1171.8 1269.67 1171.97

Manning's n Values         num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
  155.84     .04   213.3    .035  427.88    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         213.3  427.88            577.23     500  455.34             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1170.86  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.04  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.82  * Reach Len. (ft)         *  577.23  *  500.00  *  455.34  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  320.26  * 3494.95  * 4682.86  *
* E.G. Slope (ft/ft)      *0.000055  * Area (sq ft)            *  320.26  * 3494.95  * 4682.86  *
* Q Total (cfs)           *-11263.80  * Flow (cfs)             * -272.89  *-7072.91  *-3918.00  *
* Top Width (ft)          * 1015.84  * Top Width (ft)          *   57.45  *  214.58  *  743.80  *
* Vel Total (ft/s)        *   -1.33  * Avg. Vel. (ft/s)        *   -0.85  *   -2.02  *   -0.84  *
* Max Chl Dpth (ft)       *   18.43  * Hydr. Depth (ft)        *    5.57  *   16.29  *    6.30  *
* Conv. Total (cfs)       *1515298.0  * Conv. (cfs)             * 36711.0  *951505.4  *527081.6  *
* Length Wtd. (ft)        *  487.67  * Wetted Per. (ft)        *   59.08  *  215.22  *  744.11  *
* Min Ch El (ft)          * 1152.39  * Shear (lb/sq ft)        *    0.02  *    0.06  *    0.02  *
* Alpha                   *    1.61  * Stream Power (lb/ft s)  *   -0.02  *   -0.11  *   -0.02  *
* Frctn Loss (ft)         *    0.03  * Cum Volume (acre-ft)    *   94.56  * 1292.40  * 1187.40  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   14.74  *   73.61  *  162.01  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 11000.00

INPUT
Description:
Station Elevation Data     num=      115
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
  119.19 1169.35  139.62 1170.39  142.38 1170.17  144.53 1169.58  161.73 1164.95
  169.87 1162.73   172.2 1162.13  189.72 1158.65   195.2 1157.56  199.39 1157.02
  204.77 1156.99  213.64 1156.87  220.54 1156.88  227.89 1156.89  237.35  1156.9
  245.88 1156.97  269.92 1155.38  270.65 1155.28  271.22 1155.17  275.78 1154.78
  296.56 1152.56  302.49 1152.48   321.9 1152.32  335.07 1152.36  341.92 1152.39
  347.24 1152.47  367.65 1152.81  370.42 1152.87  372.57 1153.17  384.67 1154.47
  397.91 1157.12  398.92 1157.28  400.22 1157.37  421.73 1158.39  423.25 1158.46
  427.43 1158.67  432.79  1158.8  441.67 1158.94  448.59 1159.14  455.92 1159.27
  465.37 1159.62  470.18  1159.7  473.93 1159.83  497.95 1160.48  498.68 1160.49
  499.27  1160.5   503.9 1160.61   524.6 1161.08  530.52 1161.24  541.44 1161.45
  549.94 1161.65  555.69 1161.73  563.09 1161.85  575.28 1162.02  595.67 1162.28
  598.45  1162.3  600.62 1162.35  612.71 1162.51  625.95 1162.73  626.96 1162.75
  628.24 1162.76  641.21 1162.92  651.29 1163.02  660.82 1163.17  669.71  1163.3
  676.63 1163.42  683.97 1163.62  693.39 1163.75  698.22 1163.85  701.97 1163.91
  725.97 1164.22  726.72 1164.23  727.31 1164.24  740.97 1164.46  752.65 1164.63
  755.23 1164.68  758.54 1164.71  769.47 1164.94  777.98 1165.14  791.11 1165.43
  803.32 1165.76  823.69  1166.3  826.48 1166.35  828.66  1166.4  840.73 1166.62
  853.99 1166.91  854.98 1166.92  856.27 1166.95  879.33 1167.34  883.49 1167.44
  888.84 1167.58  897.74 1167.75  904.67  1167.9  921.41 1168.24  930.01 1168.39
   940.5 1168.57  953.99 1168.77  954.76 1168.79  955.35  1168.8  969.01 1169.02
  980.69 1169.19  986.57 1169.29 1006.03 1169.62 1011.76 1169.74 1019.14 1169.81
 1031.36 1169.97 1051.71 1170.21  1056.7 1170.28 1074.18 1170.54 1082.04 1170.66
 1084.29  1170.7 1107.38 1171.12 1116.86 1171.34 1132.72 1171.73 1142.91 1171.97

Manning's n Values         num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
  119.19     .04  189.72    .035  421.73    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         189.72  421.73            508.28     500  493.24             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1170.89  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.05  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.84  * Reach Len. (ft)         *  508.28  *  500.00  *  493.24  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  344.80  * 3685.96  * 3898.83  *
* E.G. Slope (ft/ft)      *0.000061  * Area (sq ft)            *  344.80  * 3685.96  * 3898.83  *
```

```
* Q Total (cfs)          *-11271.90  * Flow (cfs)              * -281.25  *-7729.92  *-3260.73  *
* Top Width (ft)         *  972.96  * Top Width (ft)           *   70.53  *  232.01  *  670.42  *
* Vel Total (ft/s)       *   -1.42  * Avg. Vel. (ft/s)         *   -0.82  *   -2.10  *   -0.84  *
* Max Chl Dpth (ft)      *   18.52  * Hydr. Depth (ft)         *    4.89  *   15.89  *    5.82  *
* Conv. Total (cfs)      *1439016.0  * Conv. (cfs)             * 35905.3  *986832.1  *416278.3  *
* Length Wtd. (ft)       *  498.20  * Wetted Per. (ft)         *   73.47  *  232.76  *  670.55  *
* Min Ch El (ft)         * 1152.32  * Shear (lb/sq ft)         *    0.02  *    0.06  *    0.02  *
* Alpha                  *    1.60  * Stream Power (lb/ft s)   *   -0.01  *   -0.13  *   -0.02  *
* Frctn Loss (ft)        *    0.03  * Cum Volume (acre-ft)     *   90.15  * 1251.19  * 1142.55  *
* C & E Loss (ft)        *          * Cum SA (acres)           *   13.90  *   71.04  *  154.62  *
*****************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 10500.00

INPUT
Description:
Station Elevation Data     num=     143
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
  149.19 1171.66   150.7 1171.59  163.36 1170.59  177.41 1166.84  177.53 1166.81
  177.66 1166.78   191.7 1163.12  204.12 1160.04  207.84 1159.21  217.65 1157.13
  220.04 1156.63  230.82  1156.9   234.2 1156.99  238.01 1157.04  257.53 1157.36
  268.19 1157.42  284.24 1156.48  298.37 1154.34  305.05 1153.24  310.95 1152.94
  328.55 1152.43  337.65 1152.34  358.73 1152.43  361.72 1152.44  364.36 1152.45
  388.91 1152.69  390.06 1152.71  391.07 1152.74  404.22 1153.12  417.78 1154.98
  418.39 1155.06  419.08 1155.18  441.07 1157.14  444.48 1157.45  446.73 1157.37
  449.26 1157.45  471.19 1157.94  479.44    1158  497.91 1158.23   503.4 1158.34
  509.62 1158.47  517.57 1158.66  524.61 1158.62  531.74 1158.64   539.8 1159.99
  551.32 1161.09  569.97 1161.05  578.03 1161.13  600.15 1160.24  604.74 1160.23
  630.32 1160.83  631.44  1160.8  645.09 1161.35  658.15 1161.42  659.26 1161.45
   660.5 1161.48  673.42 1161.74  684.86 1161.99  690.68 1162.18  711.57 1162.85
  715.93 1162.98  720.86 1163.16  738.27 1163.74  744.27 1163.85  751.03  1164.1
  758.44  1164.3  764.98 1164.52   772.6 1164.59  781.21  1164.8  786.77 1164.88
  791.69 1165.03  811.39  1165.3  815.11 1165.33   818.4 1165.45  829.27 1165.71
  841.57 1166.06  843.44  1166.1   845.1 1166.17  871.75 1167.01  871.81 1167.01
  885.94 1167.23  898.52 1167.47  900.11  1167.5  901.92 1167.52  925.23 1167.79
   932.1 1167.93  951.93 1168.22  962.28 1168.38  970.95 1168.52  978.65 1168.61
  985.12 1168.68  992.45 1168.76  999.29 1168.86 1005.36 1168.93 1022.63 1169.13
 1027.63 1169.16 1032.06 1169.21  1041.8 1169.26 1052.81 1169.45 1058.77 1169.49
 1070.13 1169.56 1082.98  1169.8  1084.3 1169.82 1085.48 1169.82 1098.47 1169.92
 1112.19 1170.16 1113.16 1170.17 1138.89 1170.33 1140.98 1170.32 1143.34 1170.32
  1165.6 1170.34 1173.52 1170.44 1183.48 1170.72 1192.31 1170.97 1197.65  1171.1
  1203.7 1171.26 1211.82 1171.46 1219.02 1171.59 1233.87 1171.83 1240.15 1171.93
 1245.72 1172.08 1254.32 1172.25 1264.05 1172.51 1268.49  1172.6 1272.43  1172.7
 1294.23 1173.09 1296.83 1173.13 1299.14 1173.19    1311  1173.4 1324.41 1173.69
 1325.85 1173.72 1339.33 1173.94 1352.55 1174.23 1354.59 1174.27 1367.67 1174.52
 1379.26 1174.78 1384.76 1174.89 1405.97 1175.29 1410.18 1175.36 1414.94 1175.46
 1432.68 1175.81 1438.51 1175.93  1441.4 1175.99

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
  149.19     .04  217.65     .035  441.07     .045

Bank Sta: Left   Right     Lengths: Left Channel   Right     Coeff Contr.   Expan.
        217.65  441.07              125.4     125  128.75              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)         * 1170.92  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.04  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)         * 1170.88  * Reach Len. (ft)         *  125.40  *  125.00  *  128.75  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *  397.00  * 3636.04  * 4428.66  *
* E.G. Slope (ft/ft)     *0.000055  * Area (sq ft)            *  397.00  * 3636.04  * 4428.66  *
* Q Total (cfs)          *-11283.30  * Flow (cfs)              * -387.63  *-7344.45  *-3551.22  *
* Top Width (ft)         * 1029.20  * Top Width (ft)           *   57.90  *  223.42  *  747.89  *
* Vel Total (ft/s)       *   -1.33  * Avg. Vel. (ft/s)         *   -0.98  *   -2.02  *   -0.80  *
* Max Chl Dpth (ft)      *   18.54  * Hydr. Depth (ft)         *    6.86  *   16.27  *    5.92  *
* Conv. Total (cfs)      *1520335.0  * Conv. (cfs)             * 52230.5  *989605.9  *478499.1  *
* Length Wtd. (ft)       *  126.13  * Wetted Per. (ft)         *   59.56  *  224.01  *  748.23  *
* Min Ch El (ft)         * 1152.34  * Shear (lb/sq ft)         *    0.02  *    0.06  *    0.02  *
* Alpha                  *    1.63  * Stream Power (lb/ft s)   *   -0.02  *   -0.11  *   -0.02  *
* Frctn Loss (ft)        *    0.01  * Cum Volume (acre-ft)     *   85.82  * 1209.17  * 1095.40  *
* C & E Loss (ft)        *          * Cum SA (acres)           *   13.15  *   68.43  *  146.59  *
*****************************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 10375.*

INPUT
Description:
Station Elevation Data     num=     267
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
  151.23 1171.51  152.68 1171.41  164.84 1170.31  168.21 1169.52  176.21 1167.32
  178.34 1166.75  178.46 1166.72  178.58 1166.69  184.92 1165.01  192.07 1163.11
  192.34 1163.04  199.17  1161.3     204 1160.04  207.58 1159.18  208.47 1158.97
     217 1157.21  218.08 1156.99  219.66  1156.7  225.82 1156.57  231.67 1156.64
  232.96 1156.66  235.43  1156.7  239.67 1156.74  240.72 1156.75  243.79 1156.77
  246.62 1156.81  261.41 1157.01  263.36 1157.02  267.42 1157.04  273.28 1157.07
  276.31 1156.96     286 1156.18  288.22 1156.01  291.15 1155.81     298 1154.91
  306.88 1153.91  308.64  1153.7  308.84 1153.67  309.02 1153.65  314.32 1153.04
  319.67 1152.82  320.89 1152.78  329.82 1152.58  330.52 1152.57  331.27 1152.55
  340.49 1152.37  350.62  1152.3  354.38 1152.32  364.81 1152.37  372.75 1152.41
   374.4 1152.42  375.89 1152.43   377.2 1152.43  378.66 1152.44  380.25 1152.45
  389.58 1152.55  398.16 1152.64  404.44 1152.71  405.65 1152.74  406.12 1152.75
  406.71 1152.76  420.51 1153.17  421.93 1153.32  431.99 1154.43  434.75 1154.74
  435.39 1154.81  436.12 1154.91  439.13 1155.15   445.7 1155.68  451.52 1156.13
  457.86 1156.66  459.21 1156.78  462.53 1157.07  464.72 1157.05  467.19 1157.16
  471.89 1157.33  480.33 1157.65  488.58    1158  489.53 1158.03  496.63 1158.23
   501.3 1158.39  514.64 1158.72  519.99 1158.88  521.53 1158.93  526.06 1159.03
   530.7 1159.15  533.81 1159.22  540.68 1159.22  541.63 1159.22  547.63 1159.25
  553.53 1160.03  555.49 1160.29   560.1 1160.64  566.73 1161.16  584.91 1161.22
  585.52 1161.23   589.5 1161.28  592.78 1161.31  614.35 1160.74  617.52 1160.75
  618.23 1160.75  618.82 1160.75  618.89 1160.76  633.55 1161.08  643.77  1161.3
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  644.86 1161.29  648.29 1161.41  648.88 1161.43  649.52 1161.45  658.18 1161.74
  664.19 1161.78  670.91 1161.83  671.99 1161.86   673.2 1161.89  677.69 1161.98
  681.51 1162.06   685.8 1162.15  696.96 1162.42  702.64  1162.6  707.09 1162.74
  713.51 1162.94  723.01 1163.23  725.48  1163.3  727.26 1163.35  732.07 1163.52
  736.49 1163.67   745.5 1163.95  749.05 1164.06   754.9 1164.17  761.49 1164.39
  765.89  1164.5  768.72 1164.57   775.1 1164.76   777.5 1164.78  782.53 1164.84
  790.93 1165.03  795.28 1165.09  796.35 1165.11  801.15 1165.24  802.09 1165.25
   809.5 1165.37  820.36 1165.52  823.99 1165.56  824.68 1165.58   827.2 1165.66
   837.8  1165.9  841.49    1166  848.06 1166.17  849.79 1166.22  851.62 1166.26
  853.23 1166.32  854.09 1166.35  873.49  1166.9  879.22 1167.07  879.28 1167.07
  883.48 1167.14  893.06  1167.3  905.33 1167.54  905.48 1167.55  906.88 1167.58
  908.65  1167.6  912.88 1167.66  931.38 1167.92  937.48 1168.05  938.08 1168.06
  939.98 1168.09  942.29 1168.13  955.31 1168.35  957.42 1168.38  967.51 1168.55
  969.48 1168.58  971.67 1168.62  975.97 1168.69  983.48  1168.8  985.94 1168.83
  989.79 1168.89  996.94 1168.98 1001.08 1169.05 1001.47 1169.06 1003.61 1169.09
 1009.53 1169.17 1026.37  1169.4 1030.48 1169.44 1031.25 1169.45 1033.47 1169.47
 1035.57  1169.5 1045.07 1169.57  1055.8 1169.76 1059.88  1169.8 1061.62 1169.81
 1065.47 1169.85 1072.69 1169.91 1077.87 1170.01 1085.23 1170.16 1086.51 1170.18
 1087.66 1170.19 1089.28 1170.21  1093.2 1170.25 1097.46  1170.3 1100.33 1170.33
 1113.71 1170.57 1114.66 1170.58 1118.68 1170.62 1123.83 1170.67 1129.46 1170.72
 1139.17  1170.8 1139.75 1170.81 1141.79 1170.81 1144.09 1170.82 1148.08 1170.84
 1161.45  1170.9  1165.8 1170.92 1173.53 1171.02 1177.47 1171.12 1183.24 1171.27
 1185.12 1171.32 1191.85 1171.49 1193.45 1171.52 1197.06  1171.6 1200.45 1171.68
 1202.96 1171.74 1206.87 1171.83 1210.88 1171.92  1217.9 1172.05 1225.46 1172.17
 1232.38 1172.27 1236.27 1172.33 1238.51 1172.37 1243.94  1172.5 1252.33 1172.66
 1257.44 1172.78 1261.73 1172.88 1261.81 1172.88 1265.67 1172.96 1266.14 1172.97
 1269.99 1173.05 1277.05 1173.16 1289.44 1173.38 1291.25 1173.41 1293.78 1173.45
 1295.08 1173.48 1296.04  1173.5  1307.6 1173.69 1320.68 1173.94 1321.45 1173.95
 1322.09 1173.96 1324.47    1174 1335.23 1174.13 1348.12 1174.35 1350.11 1174.38
 1353.43 1174.42 1353.66 1174.43 1353.86 1174.43 1358.81  1174.5 1362.87 1174.56
 1374.17 1174.75 1379.54 1174.83 1383.26 1174.89 1385.43 1174.93 1400.22 1175.19
 1404.33 1175.26 1408.97 1175.35 1412.66 1175.42 1417.43 1175.51 1426.27 1175.69
 1431.96 1175.81 1434.78 1175.87

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
  151.23     .04     217     .035  459.21     .045

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
           217  459.21              125.4     125  128.75              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1170.93  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.04  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.88  * Reach Len. (ft)         *  125.40  *  125.00  *  128.75  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  385.55  * 3985.48  * 4117.55  *
* E.G. Slope (ft/ft)      *0.000051  * Area (sq ft)            *  385.55  * 3985.48  * 4117.55  *
* Q Total (cfs)           *-11294.30  * Flow (cfs)             * -351.89  *-7783.55  *-3158.86  *
* Top Width (ft)          *  998.91  * Top Width (ft)          *   58.48  *  242.21  *  698.22  *
* Vel Total (ft/s)        *   -1.33  * Avg. Vel. (ft/s)        *   -0.91  *   -1.95  *   -0.77  *
* Max Chl Dpth (ft)       *   18.58  * Hydr. Depth (ft)        *    6.59  *   16.45  *    5.90  *
* Conv. Total (cfs)       *1586366.0  * Conv. (cfs)            * 49425.5  *1093256.0  *443684.3  *
* Length Wtd. (ft)        *  126.01  * Wetted Per. (ft)        *   60.14  *  242.67  *  698.49  *
* Min Ch El (ft)          * 1152.30  * Shear (lb/sq ft)        *    0.02  *    0.05  *    0.02  *
* Alpha                   *    1.59  * Stream Power (lb/ft s)  *   -0.02  *   -0.10  *   -0.01  *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)    *   84.70  * 1198.23  * 1082.77  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   12.98  *   67.76  *  144.45  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 10250.*

INPUT
Description:
Station Elevation Data     num=     267
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************************
  153.27 1171.35  154.66 1171.23  166.33 1170.04  169.56 1169.38  177.23 1167.21
  179.27 1166.65  179.38 1166.63   179.5  1166.6  185.58 1164.96  192.44  1163.1
   192.7 1163.03  199.25 1161.31  203.89 1160.04  207.32 1159.14  208.17 1158.93
  216.35 1157.28  217.54 1157.05  219.29 1156.78  226.07 1156.36  232.51 1156.38
  233.93 1156.39  236.66 1156.41  241.34 1156.43  242.49 1156.44  245.87 1156.45
  248.99 1156.48  265.29 1156.66  267.44 1156.67  271.91  1156.7  278.37 1156.73
  281.71 1156.66  292.38  1155.6  294.83 1155.39  298.06 1155.14  305.61 1154.27
   315.4 1153.48  317.33 1153.32  317.55  1153.3  317.75 1153.28  323.59 1152.83
  329.49 1152.65  330.83 1152.62  340.67 1152.46  341.44 1152.44  342.27 1152.43
  352.42 1152.31  363.59 1152.26  367.53 1152.28  378.46 1152.35  386.78 1152.39
   388.5  1152.4  390.06 1152.41  391.43 1152.42  392.97 1152.43  394.63 1152.44
   404.4 1152.56  413.39 1152.65  419.97 1152.74  421.23 1152.76  421.73 1152.77
  422.35 1152.79  436.81 1153.21   438.3 1153.33  448.83 1154.25  451.72 1154.51
  452.39 1154.57  453.15 1154.65  456.31 1154.86  463.19 1155.36  469.29 1155.78
  475.93  1156.3  477.34 1156.42  480.58  1156.7  482.72 1156.74  485.12 1156.87
   489.7 1157.09  497.93 1157.54  505.97 1158.06   506.9 1158.11  513.81 1158.47
  518.37 1158.72  531.37 1159.21  536.58 1159.43  538.08 1159.49   542.5  1159.6
  547.02 1159.71  550.05 1159.78  556.74 1159.81  557.67 1159.82  563.52 1159.87
  569.27 1160.41  571.18 1160.59  575.67 1160.85  582.13 1161.23  599.86 1161.39
  600.45  1161.4  604.32 1161.45  607.52  1161.5  628.54 1161.25  631.64 1161.27
  632.33 1161.28  632.91 1161.28  632.98 1161.28  647.26 1161.58  657.22 1161.78
  658.29 1161.77  661.63 1161.87   662.2 1161.89  662.82  1161.9  671.26 1162.13
  677.13 1162.18  683.67 1162.25  684.73 1162.27  685.91  1162.3  690.28 1162.38
     694 1162.46  698.19 1162.56  709.06 1162.84  714.59 1163.02  718.93 1163.15
  725.19 1163.34  734.45  1163.6  736.86 1163.67  738.59 1163.72  743.28 1163.88
  747.58 1164.03  756.37 1164.28  759.83 1164.38  765.53 1164.49  771.96 1164.67
  776.24 1164.77     779 1164.83  785.22 1164.99  787.56 1165.02  792.46 1165.08
  800.64 1165.25  804.89 1165.32  805.93 1165.33   810.6 1165.44  811.53 1165.46
  818.74 1165.59  829.33 1165.74  832.86 1165.78  833.54  1165.8  835.99 1165.87
  846.32  1166.1  849.92 1166.18  856.33 1166.34  858.01 1166.38  859.79 1166.42
  861.37 1166.47   862.2 1166.49  881.11 1166.98   886.7 1167.13  886.76 1167.13
  890.85  1167.2  900.19 1167.38  912.14 1167.62  912.29 1167.62  913.66 1167.65
  915.38 1167.68   919.5 1167.75  937.53 1168.05  943.48 1168.18  944.06 1168.19
  945.91 1168.23  948.16 1168.27  960.85  1168.5  962.91 1168.54  972.75 1168.71
  974.66 1168.75   976.8 1168.79  980.99 1168.87  988.31 1168.99  990.71 1169.03
  994.46 1169.09 1001.42 1169.21 1005.47 1169.28 1005.85 1169.29 1007.93 1169.32
  1013.7 1169.42 1030.11 1169.67 1034.12 1169.72 1034.86 1169.73 1037.03 1169.76
 1039.07 1169.79 1048.33 1169.89  1058.8 1170.07 1062.77 1170.11 1064.46 1170.13
 1068.21 1170.18 1075.26 1170.27  1080.3 1170.36 1087.47 1170.52 1088.73 1170.54
 1089.85 1170.56 1091.42 1170.58 1095.24 1170.63  1099.4 1170.69  1102.2 1170.73
 1115.24 1170.98 1116.16 1170.99 1120.07 1171.04  1125.1 1171.11 1130.58 1171.18
 1140.04 1171.28 1140.62 1171.29  1142.6  1171.3 1144.84 1171.32 1148.73 1171.36
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 1161.77 1171.47    1166  1171.5 1173.53 1171.61 1177.38 1171.69    1183 1171.82
 1184.83 1171.86 1191.39 1172.01 1192.95 1172.04 1196.47  1172.1 1199.78 1172.16
 1202.22 1172.22 1206.03  1172.3 1209.94 1172.38 1216.78  1172.5 1224.15 1172.62
 1230.89 1172.72 1234.68 1172.77 1236.86 1172.81 1242.16 1172.92 1250.33 1173.07
 1255.32 1173.18  1259.5 1173.25 1259.58 1173.25 1263.34 1173.33  1263.8 1173.33
 1267.54  1173.4 1274.42 1173.48  1286.5  1173.7 1288.27 1173.73 1290.74 1173.76
    1292 1173.79 1292.93 1173.81 1304.21 1173.97 1316.95 1174.19  1317.7  1174.2
 1318.32 1174.21 1320.64 1174.23 1331.13 1174.32  1343.7 1174.46 1345.64 1174.48
 1348.87 1174.51 1349.09 1174.51 1349.29 1174.52 1354.11 1174.57 1358.07  1174.6
 1369.09 1174.73 1374.31 1174.78 1377.95 1174.81 1380.06 1174.85 1394.47 1175.09
 1398.48 1175.15    1403 1175.24  1406.6  1175.3 1411.25 1175.38 1419.86 1175.57
  1425.4 1175.69 1428.15 1175.75

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
  153.27     .04  216.35    .035  477.34    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        216.35  477.34             125.4     125  128.75             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1170.93  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.04  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.89  * Reach Len. (ft)         *  125.40  *  125.00  *  128.75  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  374.29  * 4343.40  * 3842.23  *
* E.G. Slope (ft/ft)      *0.000046  * Area (sq ft)            *  374.29  * 4343.40  * 3842.23  *
* Q Total (cfs)           *-11305.40  * Flow (cfs)              * -318.98  *-8129.40  *-2857.02  *
* Top Width (ft)          *  952.42  * Top Width (ft)           *   58.34  *  260.99  *  633.10  *
* Vel Total (ft/s)        *   -1.32  * Avg. Vel. (ft/s)         *   -0.85  *   -1.87  *   -0.74  *
* Max Chl Dpth (ft)       *   18.63  * Hydr. Depth (ft)         *    6.42  *   16.64  *    6.07  *
* Conv. Total (cfs)       *1669937.0  * Conv. (cfs)              * 47116.9  *1200805.0  *422014.6  *
* Length Wtd. (ft)        *  125.91  * Wetted Per. (ft)         *   60.00  *  261.37  *  633.35  *
* Min Ch El (ft)          * 1152.26  * Shear (lb/sq ft)         *    0.02  *    0.05  *    0.02  *
* Alpha                   *    1.54  * Stream Power (lb/ft s)    *   -0.02  *   -0.09  *   -0.01  *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)      *   83.60  * 1186.28  * 1071.01  *
* C & E Loss (ft)         *          * Cum SA (acres)            *   12.81  *   67.04  *  142.48  *
*****************************************************************************************

CROSS SECTION


RIVER: PRS
REACH: PRS3                RS: 10125.*

INPUT
Description:
Station Elevation Data     num=     267
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*****************************************************************************************
  155.31  1171.2  156.64 1171.05  167.81 1169.76   170.9 1169.24  178.25  1167.1
  180.21 1166.56  180.31 1166.53  180.43  1166.5  186.25 1164.91  192.81 1163.09
  193.06 1163.02  199.33 1161.33  203.77 1160.04  207.05 1159.11  207.87 1158.88
  215.71 1157.35  217.01 1157.11  218.91 1156.85  226.32 1156.16  233.36 1156.12
  234.91 1156.11  237.89 1156.12     243 1156.13  244.26 1156.13  247.96 1156.12
  251.36 1156.15  269.16 1156.31  271.51 1156.33   276.4 1156.35  283.45 1156.38
   287.1 1156.35  298.77 1155.03  301.44 1154.77  304.97 1154.47  313.21 1153.63
  323.91 1153.05  326.02 1152.93  326.26 1152.92  326.48 1152.91  332.86 1152.63
   339.3 1152.48  340.77 1152.46  351.52 1152.33  352.36 1152.32  353.27 1152.32
  364.36 1152.25  376.56 1152.23  380.68 1152.24   392.1 1152.32   400.8 1152.38
   402.6 1152.39  404.24  1152.4  405.67 1152.41  407.27 1152.42  409.01 1152.43
  419.23 1152.56  428.62 1152.66   435.5 1152.76  436.82 1152.79  437.34  1152.8
  437.98 1152.81   453.1 1153.26  454.66 1153.34  465.67 1154.06   468.7 1154.27
   469.4 1154.32  470.19 1154.38  473.49 1154.58  480.69 1155.04  487.06 1155.42
     494 1155.94  495.47 1156.06  498.63 1156.32  500.71 1156.42  503.06 1156.58
  507.52 1156.86  515.53 1157.44  523.36 1158.11  524.26 1158.19     531  1158.7
  535.43 1159.05  548.09  1159.7  553.18 1159.97  554.64 1160.05  558.93 1160.16
  563.34 1160.28  566.29 1160.33  572.81 1160.41  573.72 1160.42  579.41 1160.48
  585.01 1160.78  586.87 1160.89  591.25 1161.05  597.54 1161.31   614.8 1161.56
  615.38 1161.57  619.15 1161.63  622.26 1161.68  642.74 1161.75  645.75 1161.79
  646.43  1161.8  646.99  1161.8  647.06 1161.81  660.97 1162.07  670.67 1162.25
  671.71 1162.26  674.96 1162.34  675.52 1162.35  676.13 1162.36  684.35 1162.52
  690.06 1162.57  696.44 1162.66  697.46 1162.69  698.61 1162.71  702.87 1162.79
   706.5 1162.87  710.57 1162.98  721.16 1163.27  726.55 1163.44  730.78 1163.57
  736.87 1163.74  745.89 1163.98  748.23 1164.04  749.93 1164.09  754.49 1164.25
  758.68 1164.38  767.24 1164.62  770.61  1164.7  776.16  1164.8  782.42 1164.96
  786.59 1165.05  789.28  1165.1  795.33 1165.23  797.61 1165.26  802.39 1165.33
  810.36 1165.48  814.49 1165.54   815.5 1165.56  820.06 1165.65  820.96 1165.66
  827.99 1165.81   838.3 1165.97  841.74 1166.01   842.4 1166.03  844.79 1166.08
  854.85 1166.29  858.36 1166.37  864.59  1166.5  866.24 1166.54  867.97 1166.58
   869.5 1166.62  870.32 1166.64  888.73 1167.05  894.17 1167.19  894.23 1167.19
  898.21 1167.27  907.31 1167.45  918.96 1167.69   919.1  1167.7  920.43 1167.73
   922.1 1167.76  926.12 1167.84  943.68 1168.18  949.47 1168.31  950.04 1168.32
  951.85 1168.36  954.04  1168.4   966.4 1168.66   968.4  1168.7  977.98 1168.88
  979.85 1168.91  981.93 1168.96  986.01 1169.04  993.14 1169.18  995.47 1169.22
  999.13  1169.3 1005.91 1169.43 1009.85 1169.51 1010.22 1169.52 1012.24 1169.56
 1017.86 1169.66 1033.85 1169.94 1037.75 1170.01 1038.48 1170.02 1040.59 1170.05
 1042.58 1170.08  1051.6 1170.21 1061.79 1170.38 1065.66 1170.43 1067.31 1170.46
 1070.96 1170.51 1077.82 1170.62 1082.74 1170.72 1089.72 1170.88 1090.94 1170.91
 1092.03 1170.92 1093.57 1170.96 1097.29 1171.02 1101.33 1171.09 1104.06 1171.14
 1116.76 1171.39 1117.66  1171.4 1121.47 1171.47 1126.36 1171.55 1131.71 1171.64
 1140.92 1171.76 1141.48 1171.77 1143.41 1171.79  1145.6 1171.82 1149.38 1171.87
 1162.08 1172.04  1166.2 1172.09 1173.54 1172.19 1177.28 1172.26 1182.76 1172.36
 1184.54  1172.4 1190.93 1172.53 1192.45 1172.55 1195.87  1172.6  1199.1 1172.65
 1201.48 1172.69 1205.19 1172.77 1208.99 1172.84 1215.66 1172.96 1222.83 1173.08
 1229.41 1173.16  1233.1 1173.21 1235.22 1173.24 1240.38 1173.34 1248.34 1173.48
 1253.19 1173.57 1257.26 1173.62 1257.34 1173.62    1261 1173.69 1261.45  1173.7
  1265.1 1173.74  1271.8 1173.81 1283.57 1174.03 1285.28 1174.05 1287.69 1174.08
 1288.92  1174.1 1289.83 1174.11 1300.81 1174.26 1313.22 1174.43 1313.95 1174.44
 1314.56 1174.45 1316.82 1174.47 1327.03 1174.51 1339.27 1174.58 1341.16 1174.59
 1344.31  1174.6 1344.53  1174.6 1344.72  1174.6 1349.42 1174.63 1353.27 1174.64
    1364  1174.7 1369.09 1174.72 1372.63 1174.74 1374.68 1174.78 1388.73 1174.99
 1392.62 1175.05 1397.03 1175.12 1400.53 1175.18 1405.06 1175.26 1413.45 1175.45
 1418.85 1175.57 1421.53 1175.63

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
  155.31     .04  215.71    .035  495.47    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        215.71  495.47             125.4     125  128.75             .1       .3
```

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1170.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1170.90	Reach Len. (ft)	125.00	125.00	128.75
Crit W.S. (ft)		Flow Area (sq ft)	363.33	4710.80	3587.53
E.G. Slope (ft/ft)	0.000042	Area (sq ft)	363.33	4710.80	3587.53
Q Total (cfs)	-11306.60	Flow (cfs)	-291.58	-8480.39	-2534.64
Top Width (ft)	932.35	Top Width (ft)	57.73	279.76	594.86
Vel Total (ft/s)	-1.31	Avg. Vel. (ft/s)	-0.80	-1.80	-0.71
Max Chl Dpth (ft)	18.67	Hydr. Depth (ft)	6.29	16.84	6.03
Conv. Total (cfs)	1750324.0	Conv. (cfs)	45137.5	1312811.0	392375.5
Length Wtd. (ft)	125.80	Wetted Per. (ft)	59.41	280.11	595.13
Min Ch El (ft)	1152.23	Shear (lb/sq ft)	0.02	0.04	0.02
Alpha	1.50	Stream Power (lb/ft s)	-0.01	-0.08	-0.01
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	82.54	1173.29	1060.03
C & E Loss (ft)		Cum SA (acres)	12.64	66.26	140.67

CROSS SECTION

RIVER: FRS
REACH: FRS3 RS: 10000.00

INPUT
Description:
Station Elevation Data num= 129

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
157.35	1171.04	172.25	1169.1	179.27	1166.99	186.91	1164.86	193.42	1163.01
199.41	1161.34	207.57	1158.84	215.06	1157.43	216.47	1157.17	226.57	1155.96
235.89	1155.84	246.03	1155.82	250.04	1155.79	253.73	1155.82	275.59	1155.98
280.89	1156	292.5	1156.05	305.15	1154.45	308.05	1154.15	320.82	1152.99
334.71	1152.55	334.97	1152.54	335.21	1152.54	349.12	1152.31	362.37	1152.21
363.28	1152.2	364.27	1152.2	389.53	1152.19	393.83	1152.2	405.75	1152.3
416.7	1152.37	419.9	1152.4	423.39	1152.42	434.05	1152.56	443.85	1152.67
452.95	1152.82	471.02	1153.35	482.51	1153.88	490.67	1154.29	498.18	1154.72
504.83	1155.07	512.07	1155.58	513.61	1155.7	525.33	1156.63	533.13	1157.33
541.63	1158.27	552.5	1159.38	571.19	1160.61	579.66	1160.84	589.76	1161.02
600.75	1161.16	606.82	1161.25	630.31	1161.74	633.98	1161.81	659.87	1162.31
660.53	1162.32	661.14	1162.33	674.68	1162.57	688.3	1162.8	688.84	1162.81
689.43	1162.81	702.99	1162.97	715.46	1163.19	718.99	1163.27	742.62	1163.98
748.55	1164.14	759.61	1164.41	769.78	1164.74	778.11	1164.95	796.94	1165.32
807.67	1165.5	824.1	1165.77	830.39	1165.87	837.23	1166.03	851.26	1166.25
866.79	1166.55	872.86	1166.67	878.43	1166.79	896.35	1167.13	905.58	1167.33
925.91	1167.77	932.74	1167.93	955.47	1168.44	957.78	1168.5	959.91	1168.54
971.94	1168.82	985.03	1169.08	987.06	1169.13	1000.24	1169.42	1014.23	1169.74
1014.59	1169.75	1041.39	1170.29	1044.15	1170.34	1068.55	1170.75	1073.71	1170.84
1085.17	1171.07	1095.71	1171.33	1099.33	1171.4	1103.27	1171.49	1122.87	1171.89
1127.63	1171.99	1132.83	1172.1	1141.8	1172.24	1150.03	1172.39	1162.39	1172.61
1177.19	1172.83	1184.25	1172.94	1191.95	1173.07	1198.42	1173.13	1204.35	1173.24
1221.52	1173.53	1231.51	1173.65	1251.07	1173.96	1255.03	1173.99	1258.67	1174.06
1269.18	1174.14	1280.63	1174.35	1285.84	1174.41	1310.2	1174.69	1312.99	1174.71
1339.75	1174.69	1339.96	1174.69	1340.15	1174.69	1344.72	1174.69	1367.31	1174.66
1369.31	1174.7	1394.47	1175.06	1398.88	1175.13	1414.9	1175.51		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
157.35	.04	215.06	.035	513.61	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
215.06	513.61	465.46	500	544.61	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1170.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1170.90	Reach Len. (ft)	465.46	500.00	544.61
Crit W.S. (ft)		Flow Area (sq ft)	351.92	5086.85	3346.77
E.G. Slope (ft/ft)	0.000038	Area (sq ft)	351.92	5086.85	3346.77
Q Total (cfs)	-11296.10	Flow (cfs)	-266.72	-8797.62	-2231.77
Top Width (ft)	918.28	Top Width (ft)	56.63	298.55	563.09
Vel Total (ft/s)	-1.29	Avg. Vel. (ft/s)	-0.76	-1.73	-0.67
Max Chl Dpth (ft)	18.71	Hydr. Depth (ft)	6.21	17.04	5.94
Conv. Total (cfs)	1834639.0	Conv. (cfs)	43318.3	1428851.0	362469.2
Length Wtd. (ft)	507.54	Wetted Per. (ft)	58.35	298.90	563.42
Min Ch El (ft)	1152.19	Shear (lb/sq ft)	0.01	0.04	0.01
Alpha	1.47	Stream Power (lb/ft s)	-0.01	-0.07	-0.01
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	81.51	1159.24	1049.78
C & E Loss (ft)		Cum SA (acres)	12.48	65.43	138.96

CROSS SECTION

RIVER: FRS
REACH: FRS3 RS: 9500.000

INPUT
Description:
Station Elevation Data num= 137

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150.87	1170.42	152.66	1170.53	173.67	1168.03	180.98	1165.91	194.37	1162.25
195.71	1161.88	196.45	1161.68	210.19	1157.67	210.46	1157.59	219.24	1156.43
225.19	1156.04	236.09	1155.76	239.94	1155.66	242.04	1155.64	249.2	1155.63
264.82	1155.52	277.81	1155.44	284.15	1155.39	287.61	1155.31	298.88	1154.79
310.41	1153.52	319.51	1152.92	328.37	1152.42	333.19	1152.29	343.1	1152.05
355.99	1151.95	357.84	1151.94	361.23	1151.94	372.58	1151.92	378.78	1151.95
399.91	1152.34	401.57	1152.37	402.95	1152.4	416.79	1152.68	424.36	1152.84
431.52	1152.98	444.66	1153.17	446.27	1153.19	447.15	1153.2	450.15	1153.24
469.94	1153.47	486.37	1153.78	492.73	1153.94	500.38	1154.23	515.52	1154.76
528.09	1155.43	534.7	1155.81	538.31	1156.03	546.24	1156.56	550.63	1156.85
561.1	1157.55	564.18	1157.81	569.8	1158.29	578.91	1159.01	583.89	1159.4
593.64	1160.18	606.68	1161.3	608.39	1161.39	611.51	1161.49	629.47	1161.91
651.1	1162.24	652.26	1162.26	652.6	1162.26	653.23	1162.28	667.34	1162.53
675.05	1162.73	694.94	1163.07	696.81	1163.1	697.84	1163.12	701.34	1163.17
720.63	1163.43	726.3	1163.5	736.66	1163.66	741.03	1163.7	743.42	1163.74
755.77	1163.88	766.21	1164.13	770.51	1164.2	778.37	1164.41	789	1164.68
799.99	1164.91	811.79	1165.15	820.08	1165.29	834.58	1165.5	852.05	1165.82
857.37	1165.91	858.93	1165.93	861.8	1166	873.68	1166.22	880.16	1166.36
888.41	1166.5	902.95	1166.78	903.15	1166.78	903.51	1166.79	917.89	1166.94

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 925.75 1167.04  945.22 1167.17  948.53 1167.19  962.11 1167.37  971.32 1167.51
 976.84 1167.58  986.94 1167.76  991.57 1167.82  994.12 1167.87 1002.76 1167.99
 1016.9 1168.18 1028.66 1168.37  1035.8 1168.48  1039.7 1168.52 1050.53 1168.56
1062.49 1168.73 1065.27 1168.81 1070.36 1168.86 1080.01 1168.97 1085.27 1168.89
1103.23 1169.29 1108.07 1169.38 1109.48 1169.41 1112.08 1169.47 1124.23 1169.79
1130.86 1169.85 1153.47 1170.27 1153.64 1170.27  1153.7 1170.27  1153.8 1170.27
1168.44 1170.53 1176.44 1170.69 1195.51 1171.01 1199.23 1171.08 1212.65 1171.33
1222.02 1171.48 1227.39 1171.59 1237.22 1171.74 1242.13 1171.83 1244.81 1171.86
1253.95    1172 1258.61 1172.08

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
  150.87     .04  210.19    .035  546.24    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        210.19  546.24             577.33     500  449.02             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1170.95  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.03  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.92  * Reach Len. (ft)         *  577.33  *  500.00  *  449.02  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  328.79  * 5709.30  * 3416.97  *
* E.G. Slope (ft/ft)      *0.000033  * Area (sq ft)            *  328.79  * 5709.30  * 3416.97  *
* Q Total (cfs)           *-11323.00 * Flow (cfs)              * -213.60  *-9148.23  *-1961.18  *
* Top Width (ft)          * 1039.21  * Top Width (ft)          *   59.32  *  336.05  *  643.84  *
* Vel Total (ft/s)        *   -1.20  * Avg. Vel. (ft/s)        *   -0.65  *   -1.60  *   -0.57  *
* Max Chl Dpth (ft)       *   19.00  * Hydr. Depth (ft)        *    5.54  *   16.99  *    5.31  *
* Conv. Total (cfs)       *1981451.0 * Conv. (cfs)             * 37378.2  *1600880.0  *343192.8  *
* Length Wtd. (ft)        *  490.15  * Wetted Per. (ft)        *   61.41  *  336.36  *  644.12  *
* Min Ch El (ft)          * 1151.92  * Shear (lb/sq ft)        *    0.01  *    0.03  *    0.01  *
* Alpha                   *    1.49  * Stream Power (lb/ft s)   *   -0.01  *   -0.06  *   -0.01  *
* Frctn Loss (ft)         *    0.02  * Cum Volume (acre-ft)    *   77.87  * 1097.27  * 1007.50  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   11.86  *   61.79  *  131.41  *
**********************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 9000.000

INPUT
Description:
Station Elevation Data    num=     137
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
  155.35 1171.03  166.96  1169.4  178.44 1166.46   181.6 1165.66   187.1 1164.28
  201.52 1160.64  215.42 1158.45  221.15 1157.54  224.61 1156.85  225.54 1156.83
  227.14 1156.84  240.17 1156.84   247.7 1156.92  267.18 1156.94  269.47 1156.94
  270.79 1156.93  275.68 1156.49  293.87 1155.42  307.23 1153.75  313.39 1153.01
  316.96 1152.88  328.04 1152.62  340.04 1152.44  347.27 1152.41  357.32 1152.38
  363.13 1152.37  371.97 1152.38  386.21 1152.43  386.61 1152.43  387.31 1152.44
   409.3 1152.69  415.89 1152.74  427.35 1152.84  430.54 1152.87  432.38  1152.9
  445.19 1153.08  455.48 1153.27  459.83 1153.39  467.39 1153.66  470.91  1153.8
  478.56  1154.1  489.11 1154.67  501.65 1155.28  503.76  1155.4  507.43 1155.54
  524.73 1156.46  547.47  1158.1  547.69 1158.12  547.82 1158.13  562.33 1159.49
   570.9 1160.08  576.98 1160.37  587.51 1161.18  591.61 1161.46  593.99  1161.5
  606.26 1161.47  617.07 1161.75  620.91 1161.82  627.56 1161.93  635.55 1162.01
  640.16 1162.14  657.32 1162.55  663.25 1162.67  664.83  1162.7   667.6 1162.76
  679.48 1162.97  686.34 1163.16  694.13 1163.31  707.63 1163.59  709.42 1163.62
  711.84 1163.66  732.51 1164.01  738.05 1164.07  747.68 1164.22   752.7 1164.27
  755.59 1164.31  767.34 1164.44  778.68 1164.65  781.98 1164.69  787.72  1164.8
  801.76 1165.02  820.88 1165.34  824.85  1165.4  827.76 1165.44  840.55 1165.58
  847.94 1165.72   855.2 1165.76   867.8 1165.97  869.85 1165.99  871.02 1166.01
   875.4 1166.05  894.11 1166.24  899.13 1166.31  907.85 1166.39  913.77 1166.44
   917.2 1166.49  929.92  1166.8  940.28 1167.06  947.89 1167.26   957.7 1167.52
  963.37 1167.65  972.35 1167.87  986.45 1168.18  987.92 1168.21 1001.64 1168.47
 1009.54 1168.63 1016.27 1168.72 1027.96 1168.92 1032.62    1169 1045.57 1169.16
 1055.71 1169.26  1060.2 1169.37 1068.01 1169.54 1074.85 1169.71  1078.8 1169.75
 1089.49 1169.94 1101.89 1170.22 1104.14 1170.25 1108.05 1170.33 1118.78 1170.52
 1124.97 1170.65 1133.42 1170.77 1148.06  1170.9 1148.07  1170.9 1148.09  1170.9
 1171.14 1171.19 1177.36 1171.24 1188.14 1171.38    1192 1171.42 1194.23 1171.45
 1202.52 1171.55 1217.31 1171.73 1221.29 1171.78 1228.18 1171.84 1235.92 1171.93
  1240.4 1171.96 1252.43 1172.08

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
  155.35     .04  215.42    .035  470.91    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        215.42  470.91             124.33     125  126.08             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1170.97  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.04  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.93  * Reach Len. (ft)         *  124.33  *  125.00  *  126.08  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  371.51  * 4305.40  * 4322.04  *
* E.G. Slope (ft/ft)      *0.000043  * Area (sq ft)            *  371.51  * 4305.40  * 4322.04  *
* Q Total (cfs)           *-11326.80 * Flow (cfs)              * -301.11  *-7831.21  *-3194.48  *
* Top Width (ft)          *  994.67  * Top Width (ft)          *   59.38  *  255.49  *  679.80  *
* Vel Total (ft/s)        *   -1.26  * Avg. Vel. (ft/s)        *   -0.81  *   -1.82  *   -0.74  *
* Max Chl Dpth (ft)       *   18.56  * Hydr. Depth (ft)        *    6.26  *   16.85  *    6.36  *
* Conv. Total (cfs)       *1736074.0 * Conv. (cfs)             * 46151.9  *1200300.0  *489622.4  *
* Length Wtd. (ft)        *  125.29  * Wetted Per. (ft)        *   60.75  *  255.85  *  680.15  *
* Min Ch El (ft)          * 1152.37  * Shear (lb/sq ft)        *    0.02  *    0.04  *    0.02  *
* Alpha                   *    1.55  * Stream Power (lb/ft s)   *   -0.01  *   -0.08  *   -0.01  *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)    *   73.23  * 1039.80  *  967.61  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   11.07  *   58.40  *  124.59  *
**********************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 8875.*

INPUT
Description:
```

```
Station Elevation Data     num=      289
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
  154.62 1171.17  166.24 1169.58  168.25 1169.13  169.16  1168.9  170.71  1168.5
  177.73  1166.7  180.89 1165.89  186.39 1164.49  191.54 1163.18  200.82 1160.82
  209.43 1159.24  212.81 1158.62  214.73 1158.34  214.83 1158.33  220.42 1157.61
  223.86 1157.07  224.79 1157.05  226.37 1157.04  227.62 1157.03  238.65    1157
  239.32    1157   242.5 1157.03   246.8 1157.07  248.91 1157.07  257.36 1157.09
  262.47 1157.08  266.15 1157.08  268.42 1157.07  269.74 1157.06  272.24 1156.89
  274.59 1156.71  286.28  1156.1   288.5 1155.94  292.66 1155.61  305.93 1153.89
   310.1 1153.37  312.05 1153.16   315.6    1153  316.85 1152.96  326.61  1152.7
  328.09 1152.67  331.72  1152.6  333.91 1152.56  338.53  1152.5  342.68 1152.48
  345.71 1152.46  355.69 1152.41  357.73  1152.4  361.46 1152.39  369.51  1152.4
  370.14 1152.41  382.23 1152.45  382.46 1152.45  382.83 1152.45  383.46 1152.46
  389.49 1152.53  403.47 1152.73  409.46 1152.79  418.65  1152.9  419.89 1152.92
  422.72 1152.95  422.79 1152.95  424.46 1152.99   425.4 1153.01  436.12 1153.23
  444.46 1153.43  445.48 1153.46  449.44 1153.61  455.96 1153.89  456.31 1153.91
  459.52 1154.05  467.75 1154.45  471.74 1154.68  476.68    1155  479.11 1155.09
  484.12 1155.25  492.61 1155.66  494.89 1155.78  495.91 1155.82  498.83 1155.93
  503.71 1156.23  510.84 1156.83  515.13 1156.79  517.46 1156.89  522.85  1157.2
  534.36  1157.9  534.86 1157.92  535.67 1157.99  541.95 1158.52  542.19 1158.54
  542.33 1158.55  553.59 1159.67  557.95    1160  558.87 1160.05  567.18 1160.52
  567.64 1160.54  570.87 1160.67  572.82 1160.74  573.72 1160.78  580.62 1161.19
  585.06 1161.46  589.48  1161.7  592.04 1161.75  592.05 1161.75  599.61 1161.77
  605.25 1161.79   606.9 1161.83  611.28 1161.94  616.89 1162.07   618.9 1162.11
  621.02 1162.15  628.18 1162.27  630.51  1162.3  631.58 1162.31  636.79 1162.38
  641.75  1162.5  649.74 1162.68  654.92  1162.8  660.23 1162.92  663.55 1162.99
  666.61 1163.05  666.92 1163.06  668.31 1163.09  668.97  1163.1   671.3 1163.15
  678.94 1163.28  684.09 1163.37   688.2 1163.48  690.94 1163.54  691.47 1163.56
  695.52 1163.64  699.86 1163.72  707.43 1163.86   714.4    1164  716.33 1164.03
  718.93 1164.08  725.39  1164.2  726.65 1164.22  726.96 1164.22  727.49 1164.23
  738.96  1164.4  741.19 1164.43  745.88 1164.49  747.15  1164.5  757.52 1164.66
  759.45 1164.68  762.93 1164.71  762.98 1164.71  765.11 1164.74  766.04 1164.75
  774.99 1164.85  778.69  1164.9  784.33    1165  786.99 1165.04   790.9 1165.11
  791.42 1165.12  794.45 1165.16     799 1165.23  800.63 1165.27  803.56 1165.32
  811.01 1165.44  815.75 1165.53  822.79 1165.66  823.02 1165.66  823.39 1165.67
  836.34 1165.89  840.61 1165.96  842.02 1165.98  843.75    1166  847.02 1166.05
  855.35 1166.17  857.52  1166.2  859.03 1166.23  861.25 1166.28  865.47 1166.36
  870.14 1166.42  873.29 1166.45  880.48 1166.58  883.05 1166.62  886.86 1166.69
  887.33  1166.7  889.07 1166.72  890.32 1166.75  895.04 1166.81  895.05 1166.81
  899.71 1166.88  915.19 1167.08  918.39 1167.13  918.94 1167.14  919.29 1167.14
  920.59 1167.16  929.98 1167.28  931.07 1167.29  936.36 1167.35  938.17 1167.38
  940.05 1167.41  943.08 1167.49  951.26 1167.68  953.74 1167.74  955.09 1167.78
   957.4 1167.83   964.9 1168.03  967.09 1168.09  973.09 1168.25  976.63 1168.35
   979.1 1168.41  983.22 1168.52  983.66 1168.54  989.76 1168.68   991.1 1168.72
  995.85 1168.84  999.43 1168.93 1014.61 1169.28 1014.89 1169.28 1015.08 1169.29
 1015.19 1169.29 1016.19 1169.31 1027.13 1169.54 1030.97 1169.63  1034.3 1169.71
 1039.13 1169.81 1039.47 1169.82 1046.72 1169.95 1047.16 1169.96 1051.14 1170.03
 1053.53 1170.08 1059.31 1170.17 1063.14 1170.24 1064.32 1170.26 1072.76 1170.39
 1075.14 1170.42 1078.27 1170.46 1079.13 1170.48 1089.19  1170.6 1091.99 1170.66
 1094.02 1170.71 1102.43 1170.88 1109.79 1171.04  1111.1 1171.06 1111.17 1171.06
 1111.22 1171.06 1114.05 1171.08 1123.18 1171.22 1125.56 1171.26 1130.45 1171.38
 1135.18 1171.45 1138.91 1171.53 1141.33 1171.57 1143.06 1171.61 1145.54 1171.65
 1147.19 1171.67 1149.68 1171.72  1157.1  1171.8  1159.2 1171.82 1163.76 1171.92
 1168.91    1172 1172.86 1172.04 1175.03 1172.05 1183.21 1172.07 1188.14 1172.14
 1188.62 1172.14 1188.63 1172.14 1188.65 1172.14 1195.22  1172.2    1207 1172.29
 1207.22 1172.29 1207.37 1172.29 1207.91 1172.29 1213.47 1172.33 1220.17 1172.36
  1226.6 1172.42 1231.78 1172.46 1235.93 1172.49 1238.33 1172.51 1238.96 1172.52
 1243.25 1172.57 1245.83 1172.59 1247.26 1172.61 1255.25 1172.73 1263.19 1172.78
 1265.05  1172.8 1267.47 1172.82 1270.94 1172.85 1274.89 1172.89 1283.22 1172.98
 1284.28 1172.99 1288.05 1173.05 1291.27  1173.1    1301 1173.18

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
  154.62     .04  214.73    .035  459.52    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        214.73  459.52            124.33     125  126.08              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**************************************************************************************
* E.G. Elev (ft)          * 1170.98  * Element                  *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.04  * Wt. n-Val.               *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.94  * Reach Len. (ft)          *  124.33  *  125.00  *  126.08  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)        *  362.69  * 4086.50  * 4185.96  *
* E.G. Slope (ft/ft)      *0.000047  * Area (sq ft)             *  362.69  * 4086.50  * 4185.96  *
* Q Total (cfs)           *-11311.40  * Flow (cfs)              * -305.77  *-7726.58  *-3279.05  *
* Top Width (ft)          *  948.68  * Top Width (ft)           *   58.40  *  244.79  *  645.49  *
* Vel Total (ft/s)        *   -1.31  * Avg. Vel. (ft/s)         *   -0.84  *   -1.89  *   -0.78  *
* Max Chl Dpth (ft)       *   18.55  * Hydr. Depth (ft)         *    6.21  *   16.69  *    6.48  *
* Conv. Total (cfs)       *1657538.0  * Conv. (cfs)             * 44806.2  *1132230.0  *480501.8  *
* Length Wtd. (ft)        *  125.30  * Wetted Per. (ft)         *   59.81  *  245.11  *  645.83  *
* Min Ch El (ft)          * 1152.39  * Shear (lb/sq ft)         *    0.02  *    0.05  *    0.02  *
* Alpha                   *    1.54  * Stream Power (lb/ft s)   *   -0.01  *   -0.09  *   -0.01  *
* Prctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)     *   72.19  * 1027.76  *  955.30  *
* C & E Loss (ft)         *          * Cum SA (acres)           *   10.91  *   57.68  *  122.67  *
**************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 8750.*

INPUT
Description:
Station Elevation Data     num=      289
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
   153.9 1171.31  165.52 1169.76  167.53 1169.37  168.45 1169.15  169.99 1168.75
  177.02 1166.94  180.18 1166.12  185.69 1164.71  190.84 1163.39  200.13    1161
  208.74 1159.19  212.12 1158.48  214.04 1158.23  214.15 1158.22   219.7 1157.69
  223.11 1157.29  224.03 1157.26  225.61 1157.24  226.85 1157.22   237.8 1157.16
  238.47 1157.16  241.62 1157.19   245.9 1157.22  247.99 1157.23  256.39 1157.24
  261.46 1157.22  265.12 1157.21  267.38  1157.2  268.68 1157.19  271.17 1157.07
  273.51 1156.93  285.12 1156.41  287.32  1156.2  291.46 1155.79  304.64 1154.04
  308.78  1153.5  310.72 1153.31  314.24 1153.12  315.49 1153.07  325.17 1152.78
  326.65 1152.74  330.25 1152.66  332.43 1152.61  337.02 1152.56  341.14 1152.53
  344.15 1152.51  354.07 1152.43  356.09 1152.42   359.8 1152.41  367.04 1152.43
  367.61 1152.43   378.5 1152.47  378.71 1152.47  379.04 1152.47  379.61 1152.48
  385.04 1152.55  397.63 1152.77  403.03 1152.85  411.31 1152.98  412.42    1153
  414.98 1153.03  415.04 1153.04  416.55 1153.08  417.39  1153.1  427.04 1153.37
  434.56 1153.61  435.48 1153.65  439.04 1153.82  444.91 1154.14  445.24 1154.15
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 448.12  1154.3  456.94 1154.79  461.22 1155.06   466.5 1155.46  469.11 1155.51
 474.47 1155.61  483.58 1156.04  486.01 1156.16   487.1 1156.21  490.24 1156.33
 495.46 1156.68   503.1 1157.52   507.7 1157.23   510.2 1157.32  515.96 1157.59
  520.3 1158.21  528.83 1158.22  529.71  1158.3  536.43 1158.94  536.68 1158.96
 536.83 1158.98   548.9 1160.22  553.57  1160.5  554.56 1160.55  563.45 1160.95
 563.95 1160.97  567.41 1161.09   569.5 1161.15  570.47 1161.18  577.86 1161.53
 582.61 1161.75  587.34 1161.95  590.09    1162   590.1    1162   598.2 1162.06
 604.24 1162.11     606 1162.14   610.7 1162.26  616.71 1162.39  618.86 1162.43
 621.14 1162.47  628.81 1162.61   631.3 1162.65  632.45 1162.66  638.03 1162.74
 643.34 1162.86   651.9 1163.04  657.45 1163.17  663.14  1163.3   666.7 1163.37
 669.98 1163.43  670.31 1163.44   671.8 1163.47   672.5 1163.49  674.99 1163.53
 683.18 1163.67   688.7 1163.78   693.1 1163.88  696.04 1163.94  696.61 1163.96
 700.94 1164.05  705.59 1164.12   713.7 1164.26  721.17 1164.41  723.23 1164.45
 726.02  1164.5  732.94 1164.63  734.29 1164.66  734.62 1164.66  735.19 1164.67
 747.48 1164.82  749.86 1164.85  754.89 1164.92  756.25 1164.94  767.36  1165.1
 769.43 1165.12  773.15 1165.15  773.21 1165.16  775.49 1165.18  776.49  1165.2
 786.08 1165.29  790.04 1165.35  796.09 1165.47  798.93  1165.5  803.12 1165.58
 803.68 1165.59  806.93 1165.62   811.8 1165.69  813.55 1165.73  816.69  1165.8
 824.66 1165.93  829.74 1166.03  837.29 1166.19  837.52  1166.2  837.92  1166.2
  851.8 1166.44  856.37 1166.52  857.88 1166.54  859.73 1166.57  863.24 1166.62
 872.16 1166.79  874.48 1166.83   876.1 1166.86  878.48 1166.91  883.01 1167.01
 888.01 1167.09  891.38 1167.14  899.08 1167.29  901.84 1167.34  905.92 1167.42
 906.42 1167.43  908.28 1167.46  909.63 1167.49  914.68 1167.57   914.7 1167.58
 919.68 1167.66  936.26 1167.92   939.7 1167.98  940.28 1167.98  940.66 1167.99
 942.05 1168.01  952.11 1168.16  953.27 1168.18  958.94 1168.27  960.88  1168.3
  962.9 1168.34  966.14 1168.41  974.91 1168.62  977.57 1168.69  979.01 1168.72
 981.48 1168.78  989.52    1169  991.87 1169.07   998.3 1169.24 1002.08 1169.35
1004.73 1169.42 1009.15 1169.54 1009.61 1169.55 1016.15 1169.71 1017.59 1169.75
1022.67 1169.88 1026.51 1169.98 1042.77 1170.38 1043.08 1170.38 1043.27 1170.38
1043.39 1170.39 1044.47 1170.42 1056.18 1170.69 1060.29 1170.79 1063.87 1170.88
1069.04    1171 1069.41 1171.01 1077.17 1171.17 1077.64 1171.18 1081.91 1171.27
1084.47 1171.32 1090.65 1171.43 1094.76  1171.5 1096.03 1171.52 1105.07 1171.68
1107.62 1171.71 1110.97 1171.77 1111.89 1171.78 1122.66 1171.94 1125.67    1172
1127.84 1172.05 1136.85 1172.21 1144.74 1172.37 1146.14 1172.39 1146.21 1172.39
1146.27 1172.39  1149.3 1172.42 1159.07 1172.53 1161.63 1172.59 1166.87 1172.72
1171.93 1172.77 1175.93 1172.85 1178.52 1172.89 1180.38 1172.93 1183.03 1172.96
 1184.8 1172.98 1187.47 1173.05 1195.41 1173.07 1197.66 1173.08 1202.55 1173.18
1208.07 1173.28  1212.3  1173.3 1214.62 1173.31 1223.39 1173.29 1228.67 1173.38
1229.18 1173.38  1229.2 1173.38 1229.22 1173.38 1236.25 1173.43 1248.87 1173.46
1249.11 1173.45 1249.26 1173.46 1249.85 1173.46 1255.81 1173.48 1262.98 1173.49
1269.86 1173.51 1275.41 1173.54 1279.87 1173.56 1282.44 1173.58 1283.11 1173.58
 1287.7 1173.63 1290.46 1173.65    1292 1173.67 1300.56 1173.83 1309.06 1173.84
1311.05 1173.84 1313.65 1173.87 1317.36  1173.9  1321.6 1173.94 1330.53 1174.03
1331.65 1174.04 1335.69 1174.14 1339.15 1174.22 1349.57 1174.28

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
   153.9     .04  214.04    .035  448.12    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        214.04  448.12            124.33     125  126.08             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**********************************************************************************************
* E.G. Elev (ft)          * 1170.98  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.04  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.94  * Reach Len. (ft)         *  124.33  *  125.00  *  126.08  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  353.85  * 3869.32  * 4088.79  *
* E.G. Slope (ft/ft)      *0.000051  * Area (sq ft)            *  353.85  * 3869.32  * 4088.79  *
* Q Total (cfs)           *-11344.30  * Flow (cfs)             * -311.42  *-7627.58  *-3405.30  *
* Top Width (ft)          *  909.73  * Top Width (ft)          *   57.36  *  234.08  *  618.29  *
* Vel Total (ft/s)        *   -1.36  * Avg. Vel. (ft/s)        *   -0.88  *   -1.97  *   -0.83  *
* Max Chl Dpth (ft)       *   18.53  * Hydr. Depth (ft)        *    6.17  *   16.53  *    6.61  *
* Conv. Total (cfs)       *1584007.0  * Conv. (cfs)            * 43484.3  *1065041.0  *475482.2  *
* Length Wtd. (ft)        *  125.31  * Wetted Per. (ft)        *   58.81  *  234.38  *  618.67  *
* Min Ch El (ft)          * 1152.41  * Shear (lb/sq ft)        *    0.02  *    0.05  *    0.02  *
* Alpha                   *    1.53  * Stream Power (lb/ft s)  *   -0.02  *   -0.10  *   -0.02  *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)    *   71.16  * 1016.34  *  943.32  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   10.74  *   56.99  *  120.84  *
**********************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 8625.*

INPUT
Description:
Station Elevation Data     num=     289
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
  153.17 1171.45   164.8 1169.94  166.81 1169.62  167.73  1169.4  169.28    1169
   176.3 1167.17  179.47 1166.35  184.98 1164.92  190.13 1163.59  199.43 1161.18
  208.05 1159.15  211.43 1158.35  213.36 1158.13  213.46 1158.12  218.97 1157.76
  222.37 1157.51  223.28 1157.48  224.84 1157.45  226.07 1157.42  236.96 1157.31
  237.62 1157.32  240.75 1157.35     245 1157.37  247.08 1157.38  255.42  1157.4
  260.46 1157.37  264.09 1157.35  266.33 1157.34  267.63 1157.33   270.1 1157.26
  272.42 1157.15  283.95 1156.71  286.14 1156.47  290.25 1155.98  303.34 1154.18
  307.45 1153.62  309.38 1153.46  312.88 1153.25  314.12 1153.17  323.74 1152.86
   325.2 1152.82  328.79 1152.71  330.95 1152.67   335.5 1152.62   339.6 1152.59
  342.59 1152.56  352.44 1152.46  354.45 1152.44  358.14 1152.42  364.58 1152.45
  365.09 1152.46  374.78 1152.49  374.96 1152.49  375.26 1152.49  375.77  1152.5
   380.6 1152.56   391.8 1152.81  396.61  1152.9  403.97 1153.05  404.96 1153.07
  407.23 1153.12  407.29 1153.12  408.63 1153.16  409.38 1153.19  417.97 1153.52
  424.66 1153.79  425.47 1153.84  428.65 1154.04  433.87 1154.38  434.16  1154.4
  436.72 1154.55  446.14 1155.14  450.69 1155.44  456.33 1155.91  459.11 1155.94
  464.83 1155.97  474.54 1156.42  477.14 1156.54   478.3 1156.59  481.64 1156.72
  487.22 1157.13  495.37 1158.22  500.27 1157.68  502.93 1157.76  509.08 1157.97
  522.24 1158.52  522.81 1158.52  523.74 1158.62  530.91 1159.35  531.18 1159.38
  531.34  1159.4  544.21 1160.78  549.19 1161.01  550.24 1161.05  559.73 1161.39
  560.26 1161.41  563.95 1161.52  566.18 1161.56  567.21 1161.59  575.09 1161.86
  580.16 1162.03  585.21 1162.19  588.14 1162.25  588.15 1162.25  596.79 1162.35
  603.23 1162.43  605.11 1162.46  610.12 1162.58  616.53 1162.71  618.83 1162.76
  621.25  1162.8  629.43 1162.95  632.09 1162.99  633.31 1163.01  639.26 1163.11
  644.93 1163.23  654.06 1163.41  659.98 1163.53  666.04 1163.67  669.84 1163.75
  673.34 1163.81  673.69 1163.82  675.28 1163.86  676.03 1163.87  678.69 1163.92
  687.42 1164.07   693.3 1164.18     698 1164.28  701.13 1164.34  701.74 1164.36
  706.37 1164.45  711.33 1164.53  719.97 1164.66  727.93 1164.82  730.14 1164.86
  733.11 1164.92  740.49 1165.07  741.93 1165.09  742.29 1165.09  742.89 1165.11
     756 1165.24  758.54 1165.28   763.9 1165.35  765.36 1165.37   777.2 1165.54
  779.41 1165.57  783.38  1165.6  783.44  1165.6  785.87 1165.63  786.93 1165.64
  797.16 1165.74  801.39 1165.81  807.84 1165.93  810.87 1165.96  815.34 1166.04
```

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 815.93 1166.05   819.4 1166.09  824.59 1166.15  826.46  1166.2  829.81 1166.27
 838.32 1166.42  843.73 1166.54  851.78 1166.72  852.03 1166.73  852.46 1166.74
 867.25 1166.99  872.14 1167.07  873.75  1167.1  875.72 1167.13  879.46  1167.2
 888.98  1167.4  891.45 1167.45  893.18 1167.48  895.72 1167.55  900.54 1167.65
 905.87 1167.76  909.47 1167.82  917.69 1167.99  920.62 1168.05  924.97 1168.14
 925.51 1168.15   927.5 1168.19  928.93 1168.23  934.32 1168.34  934.34 1168.34
 939.66 1168.44  957.34 1168.75     961 1168.82  961.63 1168.83  962.03 1168.84
 963.52 1168.87  974.24 1169.05  975.48 1169.07  981.53 1169.18   983.6 1169.22
 985.74 1169.26  989.21 1169.34  998.55 1169.56 1001.39 1169.63 1002.93 1169.67
1005.57 1169.73 1014.14 1169.97 1016.64 1170.04  1023.5 1170.24 1027.54 1170.35
1030.36 1170.42 1035.07 1170.55 1035.57 1170.57 1042.54 1170.75 1044.07 1170.79
 1049.5 1170.93 1053.59 1171.04 1070.94 1171.47 1071.26 1171.48 1071.47 1171.48
 1071.6 1171.49 1072.74 1171.52 1085.24 1171.83 1089.62 1171.95 1093.43 1172.06
1098.95 1172.18 1099.34 1172.19 1107.62  1172.4 1108.12 1172.41 1112.67 1172.51
 1115.4 1172.57    1122 1172.68 1126.38 1172.75 1127.73 1172.78 1137.37 1172.97
1140.09    1173 1143.66 1173.07 1144.65 1173.09 1156.14 1173.28 1159.34 1173.34
1161.66 1173.38 1171.27 1173.55 1179.68  1173.7 1181.17 1173.73 1181.26 1173.73
1181.31 1173.73 1184.54 1173.75 1194.97 1173.85 1197.69 1173.91 1203.28 1174.05
1208.69 1174.08 1212.95 1174.16 1215.72 1174.22 1217.69 1174.26 1220.53 1174.28
1222.41  1174.3 1225.25 1174.37 1233.73 1174.35 1236.13 1174.34 1241.34 1174.45
1247.22 1174.56 1251.74 1174.57 1254.22 1174.57 1263.56 1174.51 1269.19 1174.62
1269.75 1174.62 1269.76 1174.62 1269.78 1174.62 1277.28 1174.65 1290.74 1174.63
1290.99 1174.62 1291.16 1174.63 1291.78 1174.62 1298.14 1174.62 1305.79 1174.61
1313.13 1174.61 1319.05 1174.63  1323.8 1174.64 1326.54 1174.65 1327.26 1174.65
1332.16 1174.69  1335.1  1174.7 1336.74 1174.74 1345.87 1174.92 1354.94 1174.89
1357.06 1174.89 1359.83 1174.91 1363.79 1174.94 1368.31 1174.99 1377.83 1175.09
1379.03  1175.1 1383.34 1175.22 1387.02 1175.33 1398.14 1175.38

Manning's n Values          num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
  153.17     .04  213.36    .035  436.72    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        213.36  436.72            124.33     125  126.08             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1170.99  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.05  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.94  * Reach Len. (ft)         *  124.33  *  125.00  *  126.08  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  345.41  * 3653.92  * 4012.08  *
* E.G. Slope (ft/ft)      *0.000057  * Area (sq ft)            *  345.41  * 3653.92  * 4012.08  *
* Q Total (cfs)           *-11328.50  * Flow (cfs)             * -318.29  *-7521.70  *-3488.51  *
* Top Width (ft)          *  892.86  * Top Width (ft)          *   56.28  *  223.36  *  613.22  *
* Vel Total (ft/s)        *   -1.41  * Avg. Vel. (ft/s)        *   -0.92  *   -2.06  *   -0.87  *
* Max Chl Dpth (ft)       *   18.52  * Hydr. Depth (ft)        *    6.14  *   16.36  *    6.54  *
* Conv. Total (cfs)       *1504231.0  * Conv. (cfs)            * 42263.4  *998753.5  *463214.5  *
* Length Wtd. (ft)        *  125.32  * Wetted Per. (ft)        *   57.78  *  223.67  *  613.66  *
* Min Ch El (ft)          * 1152.42  * Shear (lb/sq ft)        *    0.02  *    0.06  *    0.02  *
* Alpha                   *    1.54  * Stream Power (lb/ft s) *   -0.02  *   -0.12  *   -0.02  *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)    *   70.17  * 1005.55  *  931.60  *
* C & E Loss (ft)         *          * Cum SA (acres)          *   10.58  *   56.34  *  119.06  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 8500.000

INPUT
Description:
Station Elevation Data     num=      158
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
  152.44 1171.59  166.09 1169.86  167.01 1169.65  168.56 1169.25  189.43 1163.79
  207.36  1159.1  210.74 1158.21  212.67 1158.02  212.77 1158.01   225.3 1157.61
  236.11 1157.47  239.88 1157.51  246.16 1157.53  254.45 1157.55  259.45 1157.51
  269.03 1157.44  282.79 1157.02  284.96 1156.74  306.13 1153.75  312.75 1153.28
  323.76 1152.89  327.32 1152.77  329.47 1152.72  338.06 1152.64  352.81 1152.46
  356.47 1152.44  362.56 1152.48  371.05 1152.51  376.15 1152.58  396.63 1153.13
  399.49  1153.2  401.37 1153.28  414.76 1153.97  422.83 1154.63  425.33  1154.8
  440.17 1155.82  446.16 1156.37  455.19 1156.33   469.5 1156.98  473.05 1157.12
  478.97 1157.58  487.63 1158.91  492.84 1158.12   502.2 1158.35  516.18 1158.83
  516.78 1158.82  517.77 1158.93  539.52 1161.33  545.93 1161.55  556.57 1161.84
  560.49 1161.94  562.86 1161.97  572.33 1162.19   586.2  1162.5  595.38 1162.64
  604.22 1162.78  609.54  1162.9  618.79 1163.08  632.88 1163.34  634.18 1163.36
  656.22 1163.77  662.51  1163.9  672.99 1164.13  677.08  1164.2  679.56 1164.26
  691.66 1164.46   702.9 1164.68  706.23 1164.74  711.79 1164.86  726.24 1165.06
  748.04  1165.5  749.57 1165.53  749.95 1165.53  750.59 1165.55  764.52 1165.66
  772.91 1165.78  789.39 1166.01  793.67 1166.04  796.25 1166.07  808.25 1166.18
  819.59  1166.4  822.81 1166.42  828.19 1166.52  837.39 1166.61  842.93 1166.75
  851.97 1166.91  866.27 1167.25  866.54 1167.26  866.99 1167.27  889.61 1167.66
  895.68 1167.77  905.79 1168.02  910.25 1168.11  912.95 1168.18  923.74 1168.43
  936.29  1168.7  939.41 1168.76   944.6 1168.88  953.98  1169.1  959.63 1169.22
  982.31 1169.67  982.97 1169.68   983.4 1169.69  997.69 1169.96 1006.31 1170.14
 1012.27 1170.27  1022.2  1170.5 1026.85 1170.61 1029.65 1170.68 1041.42 1171.02
 1052.99 1171.35 1055.99 1171.43    1061 1171.57 1070.56 1171.82 1076.32 1171.98
 1099.44 1172.58 1099.66 1172.58  1099.8 1172.59 1114.29 1172.97    1123 1173.23
 1128.86 1173.37  1138.6 1173.64 1143.44 1173.75 1146.34 1173.82    1158 1174.01
 1169.68 1174.26 1172.57 1174.29 1177.41  1174.4 1193.02 1174.68 1216.21 1175.06
  1216.3 1175.06 1216.36 1175.06 1230.87 1175.16  1239.7 1175.39 1245.44 1175.39
 1255.01 1175.58 1260.02 1175.61 1263.04  1175.7 1274.59  1175.6 1286.38 1175.84
 1293.81 1175.83 1303.74 1175.73 1309.72 1175.86 1318.31 1175.88 1332.61  1175.8
 1332.88 1175.79 1333.06  1175.8 1333.72 1175.79  1356.4 1175.71 1371.41 1175.71
 1376.61 1175.75 1379.74 1175.76 1391.18 1176.01 1403.07 1175.93 1410.22 1175.99
 1426.41 1176.15  1434.9 1176.45 1446.71 1176.48

Manning's n Values          num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
  152.44     .04  212.67    .035  425.33    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        212.67  425.33            503.92     500  498.66             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1171.00  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.05  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.95  * Reach Len. (ft)         *  503.92  *  500.00  *  498.66  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  337.04  * 3440.71  * 3937.70  *
* E.G. Slope (ft/ft)      *0.000064  * Area (sq ft)            *  337.04  * 3440.71  * 3937.70  *
```

```
* Q Total (cfs)          *-11345.90  * Flow (cfs)              * -327.44  *-7440.80  *-3577.66  *
* Top Width (ft)         *  881.29   * Top Width (ft)          *   55.14  *  212.66  *  613.49  *
* Vel Total (ft/s)       *   -1.47   * Avg. Vel. (ft/s)        *   -0.97  *   -2.16  *   -0.91  *
* Max Chl Dpth (ft)      *   18.51   * Hydr. Depth (ft)        *    6.11  *   16.18  *    6.42  *
* Conv. Total (cfs)      *1423369.0  * Conv. (cfs)             * 41078.3  *933465.1  *448825.2  *
* Length Wtd. (ft)       *  499.77   * Wetted Per. (ft)        *   56.71  *  212.99  *  614.00  *
* Min Ch El (ft)         * 1152.44   * Shear (lb/sq ft)        *    0.02  *    0.06  *    0.03  *
* Alpha                  *    1.55   * Stream Power (lb/ft s)  *   -0.02  *   -0.14  *   -0.02  *
* Frctn Loss (ft)        *    0.04   * Cum Volume (acre-ft)    *   69.19  *  995.37  *  920.09  *
* C & E Loss (ft)        *           * Cum SA (acres)          *   10.42  *   55.71  *  117.28  *
*****************************************************************************************
```

CROSS SECTION

RIVER: FRS
REACH: FRS3 RS: 8000.000

INPUT
Description:
Station Elevation Data num= 153

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
160.43	1171.01	176.69	1167.01	180.97	1165.77	183.38	1165.18	195.66	1161.74
206.32	1159.79	208.91	1159.55	210.34	1159.41	217.5	1159.22	229.27	1158.93
239.72	1158.77	252.21	1158.83	258.31	1158.81	275.15	1158.81	296.78	1155.48
298.1	1155.34	298.47	1155.27	299.12	1155.19	313.15	1153.01	321.04	1152.78
339.93	1152.49	343.99	1152.44	349.19	1152.46	366.93	1152.48	380.75	1152.64
386.58	1152.7	389.88	1152.78	401.27	1153.13	412.82	1153.89	421.55	1154.88
435.76	1156.66	445.34	1157.93	449.6	1158.47	458.71	1159.63	462.36	1160.08
481.65	1162.31	489.4	1162.71	503.18	1163.31	504.6	1163.36	506.42	1163.4
527.54	1163.83	533.45	1163.91	543.98	1164.07	550.48	1164.15	558.83	1164.24
573.43	1164.36	577.51	1164.39	584.79	1164.49	592.2	1164.54	596.37	1164.59
611.23	1164.75	619.32	1164.83	625.61	1164.93	636.26	1165.04	642.26	1165.09
663.65	1165.35	665.21	1165.37	666.41	1165.4	680.33	1165.6	688.15	1165.67
695.01	1165.77	707.23	1165.89	711.09	1165.94	724.38	1166.14	734.04	1166.27
739.08	1166.34	748.04	1166.49	756.98	1166.63	768.44	1166.78	779.93	1166.81
783.13	1166.83	788.84	1166.89	797.82	1167.07	802.87	1167.1	820.87	1167.26
825.82	1167.32	827.19	1167.34	829.66	1167.35	841.88	1167.6	848.76	1167.66
870.47	1168.09	871.7	1168.12	885.94	1168.42	894.65	1168.53	900.63	1168.64
911.27	1168.72	915.32	1168.78	917.59	1168.78	930.01	1168.92	940.54	1168.89
944.69	1168.93	952.09	1168.93	963.48	1168.95	978.1	1169.01	986.43	1169.05
992.9	1169.08	1003.44	1169.25	1009.37	1169.32	1018.12	1169.46	1032.31	1169.66
1032.81	1169.66	1033.71	1169.67	1055.26	1169.97	1074.52	1170.27	1078.2	1170.34
1091.56	1170.65	1101.15	1170.87	1115.33	1171.26	1120.94	1171.42	1124.09	1171.5
1135.62	1171.81	1147.03	1172.1	1156.14	1172.33	1169.98	1172.63	1187.73	1172.95
1192.92	1173.05	1196.95	1173.13	1215.87	1173.35	1237.77	1173.62	1238.81	1173.62
1253.12	1173.66	1261.76	1173.67	1278.57	1173.73	1282.49	1173.73	1284.7	1173.73
1297.18	1173.79	1307.64	1173.85	1319.38	1173.94	1326.55	1174.01	1330.59	1174.01
1341.23	1174.08	1353.53	1174.17	1355.93	1174.17	1360.2	1174.21	1370.61	1174.36
1376.48	1174.44	1385.3	1174.56	1399.42	1174.83	1399.98	1174.84	1401	1174.86
1414.68	1175.1	1422.36	1175.16	1429.36	1175.24	1441.81	1175.24	1445.31	1175.27
1449.78	1175.31	1468.25	1175.53	1473.42	1175.57	1482.63	1175.64	1488.11	1175.75
1491.2	1175.81	1502.19	1176.11	1513.82	1176.42				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
160.43	.04	208.91	.035	449.6	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
208.91	449.6	124.52	125	125.5	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

```
*****************************************************************************************
* E.G. Elev (ft)         * 1171.03   * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.07   * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)         * 1170.96   * Reach Len. (ft)         *  124.52  *  125.00  *  125.50  *
* Crit W.S. (ft)         *           * Flow Area (sq ft)       *  294.70  * 3731.17  * 2830.89  *
* E.G. Slope (ft/ft)     *0.000081   * Area (sq ft)            *  294.70  * 3731.17  * 2830.89  *
* Q Total (cfs)          *-11367.90  * Flow (cfs)              * -321.99  *-8820.39  *-2225.52  *
* Top Width (ft)         *  943.95   * Top Width (ft)          *   48.29  *  240.69  *  654.97  *
* Vel Total (ft/s)       *   -1.66   * Avg. Vel. (ft/s)        *   -1.09  *   -2.36  *   -0.79  *
* Max Chl Dpth (ft)      *   18.52   * Hydr. Depth (ft)        *    6.10  *   15.50  *    4.32  *
* Conv. Total (cfs)      *1266541.0  * Conv. (cfs)             * 35874.5  *982712.6  *247953.6  *
* Length Wtd. (ft)       *  125.09   * Wetted Per. (ft)        *   49.68  *  241.47  *  655.28  *
* Min Ch El (ft)         * 1152.44   * Shear (lb/sq ft)        *    0.03  *    0.08  *    0.02  *
* Alpha                  *    1.63   * Stream Power (lb/ft s)  *   -0.03  *   -0.18  *   -0.02  *
* Frctn Loss (ft)        *    0.01   * Cum Volume (acre-ft)    *   65.54  *  954.21  *  881.35  *
* C & E Loss (ft)        *           * Cum SA (acres)          *    9.82  *   53.11  *  110.02  *
*****************************************************************************************
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CROSS SECTION

RIVER: FRS
REACH: FRS3 RS: 7875.*

INPUT
Description:
Station Elevation Data num= 321

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
158.43	1171.27	162.5	1170.4	175.3	1167.53	176.93	1167.12	179.74	1166.3
182.24	1165.66	194.98	1162.04	196.5	1161.72	197.76	1161.45	198.1	1161.38
198.67	1161.25	206.03	1159.65	208.72	1159.24	210.15	1159.03	211.6	1158.89
217.3	1158.69	219.68	1158.61	226.28	1158.45	229.06	1158.38	237.73	1158.2
239.51	1158.16	240.95	1158.15	242.82	1158.15	251.99	1158.17	255.64	1158.16
258.08	1158.16	265.95	1158.17	270.31	1158.17	274.91	1158.17	277.88	1157.83
284.99	1157	289.08	1156.49	296.52	1155.39	297.84	1155.24	298.21	1155.18
298.86	1155.1	299.67	1154.98	312.22	1153.09	312.88	1153.01	318.04	1152.84
320.76	1152.76	329.01	1152.62	335.35	1152.52	339.64	1152.47	343.7	1152.43
349.43	1152.46	355.01	1152.47	355.24	1152.47	366.62	1152.54	368.98	1152.55
373.31	1152.6	384.21	1152.72	386.37	1152.74	389.54	1152.77	390.63	1152.79
391.37	1152.8	394.27	1152.87	398.17	1152.98	406.82	1153.21	409.44	1153.34
412.46	1153.5	417.73	1153.78	419.55	1153.88	423.92	1154.25	427.5	1154.56
429.17	1154.71	435.39	1155.3	444.83	1156.2	445.57	1156.27	449.08	1156.65
455.39	1157.31	460.09	1157.78	464.48	1158.25	469.29	1158.77	472.09	1159.07
472.98	1159.16	485.29	1160.31	486.28	1160.41	486.85	1160.46	492.48	1160.98
500.31	1161.34	500.48	1161.35	509.22	1161.68	514.24	1161.88	514.67	1161.9
515.67	1161.95	517.51	1162.02	524.12	1162.27	528.87	1162.45	531.59	1162.59
538.86	1162.85	543.06	1162.98	544.83	1163	553.97	1163.16	555.47	1163.19
557.26	1163.22	562.04	1163.29	562.96	1163.3	570.48	1163.39	571.45	1163.4
576.35	1163.45	585.23	1163.55	589.36	1163.59	594.51	1163.67	596.72	1163.7

```
 598.72 1163.71   601.8 1163.74   604.2 1163.76  608.42 1163.81  621.09 1163.95
 623.44 1163.97  631.61 1164.05  637.97 1164.14  640.63 1164.16  643.46 1164.16
 648.73 1164.18   654.8 1164.19  656.62  1164.2  665.84 1164.46  670.82 1164.53
 676.42 1164.61  677.99 1164.63  679.21 1164.66  679.48 1164.67  685.01 1164.76
 688.21 1164.75  693.27 1164.79  699.21  1164.8  701.18 1164.83  708.11 1164.96
 710.58    1165   713.4 1165.02  718.31 1165.07  720.46  1165.1  724.36 1165.15
  727.6  1165.2  732.95 1165.28  737.79 1165.34   741.8 1165.39  747.56 1165.46
 752.65 1165.52  755.33 1165.56  757.15 1165.59  761.71 1165.65  770.74 1165.76
 777.71 1165.83  782.32  1165.9  784.39 1165.91  793.93 1165.99  795.98 1166.01
 797.17 1166.03  798.59 1166.06  800.08 1166.08  802.94 1166.12  805.64 1166.18
 812.02 1166.34  817.12 1166.41  822.45  1166.5  834.82 1166.65  835.31 1166.66
 840.31 1166.74  841.17 1166.75   841.7 1166.76  844.19 1166.78  844.83 1166.79
 855.36 1166.99  856.55 1167.01   863.5 1167.07  867.21 1167.13  869.55 1167.17
 873.65 1167.22  883.75 1167.39  885.44 1167.42  886.68 1167.44  889.58 1167.49
 901.07  1167.7  909.88 1167.82  911.21 1167.84  911.95 1167.85  912.15 1167.85
 912.49 1167.86  915.92 1167.94  926.34 1168.09  926.67 1168.09  930.77 1168.11
 933.06  1168.1  934.32  1168.1  945.61 1168.18  951.33 1168.16  954.73 1168.19
 956.26  1168.2   956.7 1168.21  960.45 1168.29  963.99 1168.34  967.93 1168.38
 979.07 1168.53  979.44 1168.54  990.16 1168.74  994.22 1168.82  997.31 1168.88
1001.45 1168.94 1002.64 1168.96 1009.17 1169.04 1016.77 1169.21 1019.83 1169.27
1023.82 1169.34 1025.82 1169.38    1029 1169.47 1034.66 1169.54 1039.91  1169.6
 1046.2 1169.68    1049 1169.69 1049.51 1169.68 1050.42 1169.68 1054.11 1169.69
1067.84 1169.91 1068.57 1169.92 1069.55 1169.94  1072.2 1169.97 1090.94 1170.23
1091.66 1170.24 1095.38 1170.31 1106.67 1170.55 1108.89 1170.59 1110.89 1170.63
1113.31 1170.68 1118.58 1170.79 1122.33 1170.88 1132.91 1171.12 1135.69 1171.19
1138.58 1171.25 1139.28 1171.26 1141.76 1171.32 1145.51 1171.42 1153.42  1171.6
1153.46  1171.6 1158.06 1171.71 1164.95 1171.84 1167.66  1171.9 1174.15 1172.05
1180.43 1172.18 1181.86  1172.2 1184.35 1172.26 1188.14 1172.32 1196.06 1172.44
1202.81 1172.55 1206.08  1172.6 1211.33 1172.69  1215.4 1172.77 1223.19 1172.86
1224.45 1172.88 1225.18 1172.88 1234.52 1172.98 1238.64 1173.03 1247.56 1173.13
1252.84 1173.19 1256.65 1173.24  1257.7 1173.24 1262.02 1173.26 1269.93 1173.31
1272.17 1173.32  1280.9 1173.36 1281.23 1173.36  1292.3 1173.41 1297.89 1173.45
1300.85 1173.45 1301.85 1173.46 1304.08 1173.48 1309.62 1173.53 1314.68 1173.55
 1316.7 1173.56 1327.27 1173.65 1333.45 1173.71 1337.06 1173.74 1338.02 1173.75
1339.13 1173.76 1339.69 1173.77 1346.38 1173.86 1350.46 1173.88 1359.43 1173.98
1361.22    1174 1373.65 1174.12 1376.07 1174.14 1378.52 1174.16 1380.39 1174.19
 1381.8 1174.21 1390.91 1174.34  1394.8  1174.4 1396.84 1174.42 1404.17  1174.5
1405.76 1174.51 1417.37 1174.66 1420.03  1174.7 1420.59 1174.71 1421.62 1174.73
1423.19 1174.75 1426.56  1174.8 1435.45 1174.93 1437.39 1174.95 1443.21 1175.01
1448.93 1175.08 1450.29 1175.11 1451.57 1175.11  1456.2 1175.14 1462.87  1175.2
1466.41 1175.25 1470.92 1175.32  1471.3 1175.32 1479.97 1175.48 1489.59  1175.6
1493.67 1175.64 1494.81 1175.65 1495.04 1175.65 1504.12 1175.73 1509.66 1175.82
1512.78 1175.87 1516.04 1175.95 1522.56  1176.1 1523.89 1176.13 1533.88 1176.35
1535.65 1176.39

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
  158.43     .04  208.72    .035  460.09    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        208.72  460.09            124.52     125   125.5              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1171.04  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.06  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1170.98  * Reach Len. (ft)         *  124.52  *  125.00  *  125.50  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  290.93  * 3975.62  * 3302.85  *
* E.G. Slope (ft/ft)      *0.000065  * Area (sq ft)            *  290.93  * 3975.62  * 3302.85  *
* Q Total (cfs)           *-11407.20  * Flow (cfs)             * -280.82  *-8569.22  *-2557.16  *
* Top Width (ft)          *  967.05  * Top Width (ft)          *   48.94  *  251.37  *  666.74  *
* Vel Total (ft/s)        *   -1.51  * Avg. Vel. (ft/s)        *   -0.97  *   -2.16  *   -0.77  *
* Max Chl Dpth (ft)       *   18.55  * Hydr. Depth (ft)        *    5.94  *   15.82  *    4.95  *
* Conv. Total (cfs)       *1413406.0  * Conv. (cfs)            * 34795.2  *1061767.0  *316843.8  *
* Length Wtd. (ft)        *  125.11  * Wetted Per. (ft)        *   50.36  *  251.98  *  667.00  *
* Min Ch El (ft)          * 1152.43  * Shear (lb/sq ft)        *    0.02  *    0.06  *    0.02  *
* Alpha                   *    1.61  * Stream Power (lb/ft s) *   -0.02  *   -0.14  *   -0.02  *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)    *   64.70  *  943.15  *  872.51  *
* C & E Loss (ft)         *          * Cum SA (acres)          *    9.68  *   52.40  *  108.12  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 7750.*

INPUT
Description:
Station Elevation Data     num=     321
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*****************************************************************************************
  156.43 1171.54  160.65 1170.75  173.91 1168.06   175.6 1167.68  178.51 1166.83
   181.1 1166.13  194.29 1162.34  195.87 1161.96  197.18 1161.64  197.52 1161.56
  198.12 1161.41  205.75 1159.52  208.53 1158.94  209.96 1158.65   211.4 1158.41
  217.11 1158.17  219.49 1158.07  226.08  1157.9  228.86 1157.82  237.51  1157.6
  239.29 1157.55  240.74 1157.52   242.6 1157.51  251.76 1157.52  255.41 1157.51
  257.86 1157.51  265.72 1157.52  270.07 1157.53  274.67 1157.53  277.64 1157.31
  284.75 1156.75  288.83 1156.35  296.27  1155.3  297.58 1155.14  297.95 1155.08
   298.6    1155  299.41 1154.89  311.95 1153.07  312.61 1153.01  317.77 1152.82
  320.49 1152.75  328.73 1152.59  335.06 1152.49  339.35 1152.45   343.4 1152.43
  349.67 1152.46  355.77 1152.48  356.02 1152.48  368.45 1152.61  371.03 1152.63
  375.76 1152.68  387.67  1152.8  390.03 1152.82  393.49 1152.85  394.69 1152.87
   395.5 1152.89  398.66 1152.96  402.92 1153.06  412.38 1153.29  415.23  1153.4
  418.54 1153.53  424.29 1153.78  426.28 1153.87  431.06 1154.16  434.97 1154.41
  436.79 1154.54  443.58 1155.02  453.91 1155.74  454.71 1155.79  458.55 1156.13
  465.44 1156.69  470.57  1157.1  475.01 1157.48  479.87 1157.92   482.7 1158.17
   483.6 1158.23  496.04 1159.13  497.04 1159.21  497.62 1159.25   503.3 1159.65
  511.22 1159.97  511.39 1159.98  520.22 1160.26  525.29 1160.46  525.73 1160.47
  526.74 1160.54   528.6 1160.64  535.28 1161.02  540.08 1161.27  542.83  1161.5
  550.17 1161.87  554.42 1162.07  556.21  1162.1  565.44 1162.27  566.96  1162.3
  568.77 1162.34   573.6 1162.43  574.53 1162.44  582.13 1162.53  583.11 1162.54
  588.06 1162.61  597.04 1162.73  601.21 1162.79  606.42 1162.87  608.64  1162.9
  610.67 1162.92  613.78 1162.96  616.21 1162.98  620.47 1163.03  633.27 1163.17
  635.64 1163.19  643.91 1163.27  650.33 1163.34  653.02 1163.37  655.88 1163.34
  661.21 1163.32  667.34 1163.29  669.18 1163.29  678.49 1163.71  683.53 1163.78
  689.18 1163.87  690.77  1163.9     692 1163.93  692.27 1163.93  697.87 1164.04
   701.1 1163.97  706.22 1163.97  712.22 1163.96   714.2    1164  721.21 1164.16
  723.71 1164.21  726.56 1164.22  731.51 1164.27  733.69  1164.3  737.63 1164.36
  740.91 1164.42  746.32  1164.5  751.21 1164.55  755.26 1164.59  761.07 1164.65
  766.22 1164.71  768.92 1164.74  770.77 1164.77  775.37 1164.81   784.5 1164.89
  791.54 1164.94   796.2 1165.01  798.29 1165.03  807.94 1165.17  810.01 1165.21
  811.21 1165.24  812.64 1165.28  814.15  1165.3  817.04 1165.35  819.76 1165.42
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 826.21 1165.61  831.37 1165.72  836.76 1165.84  849.26 1166.05  849.75 1166.06
 854.81 1166.16  855.67 1166.18  856.21 1166.18  858.73  1166.2  859.37 1166.21
 870.01 1166.41  871.21 1166.42  878.24 1166.47  881.99 1166.52  884.36 1166.55
  888.5 1166.59  898.71 1166.73  900.41 1166.75  901.67 1166.76  904.59  1166.8
 916.21 1166.99   925.1  1167.1  926.45 1167.12   927.2 1167.13   927.4 1167.14
 927.74 1167.15  931.21 1167.24  941.74 1167.45  942.08 1167.45  946.22 1167.44
 948.53 1167.41  949.01 1167.41  961.22 1167.44  966.99 1167.41  970.43 1167.48
 971.97 1167.51  972.42 1167.53  976.21 1167.65  979.78 1167.74  983.77 1167.83
 995.03 1168.11   995.4 1168.12 1006.23 1168.49 1010.33 1168.63 1013.46 1168.73
1017.64 1168.84 1018.04 1168.86 1025.45 1169.01 1033.12 1169.22 1036.21 1169.29
1040.25 1169.38 1042.27 1169.45 1045.48 1169.56 1051.21 1169.62  1056.5 1169.68
1062.86 1169.74  1065.7 1169.71 1066.21  1169.7 1067.13 1169.69 1070.85 1169.65
1084.73 1169.92 1085.47 1169.93 1086.46 1169.94 1089.14 1169.97 1108.08  1170.2
1108.81 1170.22 1112.57 1170.28 1123.98  1170.5 1126.21 1170.54 1128.24 1170.57
1130.69 1170.62 1136.01 1170.71  1139.8 1170.79 1150.49 1170.99 1153.29 1171.04
1156.22 1171.08 1156.93 1171.08 1159.43 1171.15 1163.23 1171.24 1171.21 1171.39
1171.26  1171.4  1175.9 1171.49 1182.86 1171.59 1185.61 1171.62 1192.17 1171.77
1198.51 1171.89 1199.95 1171.91 1202.47 1171.96  1206.3 1172.01  1214.3 1172.11
1221.13  1172.2 1224.43 1172.25 1229.73 1172.34 1233.85  1172.4 1241.72  1172.5
1242.99 1172.52 1243.74 1172.52 1253.17 1172.61 1257.33 1172.65 1266.34 1172.75
1271.68 1172.81 1275.54 1172.86  1276.6 1172.86 1280.96 1172.89 1288.95 1172.96
1291.21 1172.98 1300.04 1173.05 1300.37 1173.05 1311.56 1173.12 1317.21 1173.16
 1320.2 1173.18 1321.21 1173.19 1323.47 1173.22 1329.07 1173.31 1334.18 1173.32
1336.21 1173.33  1346.9 1173.44 1353.14 1173.51 1356.79 1173.56 1357.76 1173.57
1358.89 1173.58 1359.45 1173.59 1366.21 1173.71 1370.34 1173.76  1379.4 1173.89
 1381.2 1173.92 1393.76 1174.08 1396.22  1174.1 1398.69 1174.14 1400.58 1174.16
   1402 1174.19 1411.21 1174.33 1415.14 1174.39  1417.2  1174.4 1424.61 1174.45
1426.21 1174.46 1437.94 1174.54 1440.63 1174.57  1441.2 1174.58 1442.25 1174.59
1443.83 1174.61 1447.23 1174.65 1456.22 1174.77 1458.18 1174.78 1464.06 1174.86
1469.84 1174.94 1471.21 1174.97 1472.51 1174.99 1477.19 1175.04 1483.93 1175.16
 1487.5 1175.23 1492.07 1175.32 1492.45 1175.33  1501.2 1175.54 1510.93 1175.67
1515.05 1175.72 1516.21 1175.73 1516.44 1175.74 1525.62 1175.81 1531.21 1175.89
1534.37 1175.94 1537.66    1176 1544.25 1176.12 1545.59 1176.14 1555.69 1176.33
1557.47 1176.36

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
  156.43     .04  208.53    .035  470.57    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        208.53  470.57             124.52     125   125.5              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1171.04  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.05  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.00  * Reach Len. (ft)         *  124.52  *  125.00  *  125.50  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  286.29  * 4220.73  * 3782.03  *
* E.G. Slope (ft/ft)      *0.000053  * Area (sq ft)            *  286.29  * 4220.73  * 3782.03  *
* Q Total (cfs)           *-11427.40  * Flow (cfs)             * -246.00  *-8323.94  *-2857.46  *
* Top Width (ft)          *  991.49  * Top Width (ft)          *   49.19  *  262.04  *  680.25  *
* Vel Total (ft/s)        *   -1.38  * Avg. Vel. (ft/s)        *   -0.86  *   -1.97  *   -0.76  *
* Max Chl Dpth (ft)       *   18.57  * Hydr. Depth (ft)        *    5.82  *   16.11  *    5.56  *
* Conv. Total (cfs)       *1566996.0  * Conv. (cfs)             * 33732.5  *1141431.0  *391832.6  *
* Length Wtd. (ft)        *  125.12  * Wetted Per. (ft)        *   50.68  *  262.53  *  680.51  *
* Min Ch El (ft)          * 1152.43  * Shear (lb/sq ft)        *    0.02  *    0.05  *    0.02  *
* Alpha                   *    1.57  * Stream Power (lb/ft s)  *   -0.02  *   -0.11  *   -0.01  *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)    *   63.88  *  931.39  *  862.31  *
* C & E Loss (ft)         *          * Cum SA (acres)          *    9.54  *   51.67  *  106.18  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 7625.*

INPUT
Description:
Station Elevation Data     num=     321
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
  154.44  1171.8   158.8  1171.1  172.52 1168.58  174.26 1168.25  177.27 1167.36
  179.95 1166.61  193.61 1162.64  195.24 1162.21  196.59 1161.84  196.95 1161.75
  197.57 1161.58  205.46 1159.38  208.34 1158.64  209.77 1158.27  211.21 1157.93
  216.91 1157.64  219.29 1157.52  225.87 1157.36  228.65 1157.27   237.3 1157.01
  239.08 1156.94  240.52 1156.89  242.39 1156.87  251.54 1156.86  255.19 1156.85
  257.63 1156.86  265.48 1156.88  269.84 1156.89  274.43 1156.89  277.39 1156.78
   284.5 1156.49  288.58 1156.21  296.01 1155.21  297.33 1155.04   297.7 1154.99
  298.34 1154.91  299.15  1154.8  311.68 1153.05  312.34    1153  317.49  1152.8
  320.21 1152.73  328.45 1152.56  334.78 1152.46  339.06 1152.44  343.11 1152.42
   349.9 1152.45  356.52 1152.48  356.79 1152.49  370.28 1152.67  373.08  1152.7
  378.21 1152.76  391.13 1152.88  393.69  1152.9  397.45 1152.94  398.74 1152.96
  399.62 1152.97  403.05 1153.05  407.67 1153.15  417.93 1153.37  421.03 1153.45
  424.61 1153.57  430.86 1153.78  433.01 1153.85  438.19 1154.08  442.43 1154.27
  444.42 1154.36  451.78 1154.74  462.98 1155.27  463.85 1155.32  468.01 1155.61
  475.49 1156.08  481.05 1156.42  485.54 1156.71  490.46 1157.06  493.31 1157.26
  494.22 1157.31  506.79 1157.96   507.8 1158.02  508.38 1158.04  514.13 1158.33
  522.13  1158.6   522.3 1158.61  531.23 1158.85  536.35 1159.03  536.79 1159.05
  537.81 1159.12  539.69 1159.26  546.44 1159.76  551.29  1160.1  554.07  1160.4
  561.49 1160.89  565.78 1161.16  567.59 1161.19  576.92 1161.38  578.45 1161.42
  580.28 1161.47  585.16 1161.57   586.1 1161.59  593.78 1161.68  594.77 1161.69
  599.77 1161.78  608.84 1161.92  613.05 1161.99  618.32 1162.08  620.57 1162.11
  622.61 1162.13  625.76 1162.17  628.21  1162.2  632.52 1162.25  645.46 1162.39
  647.85 1162.41   656.2 1162.48  662.69 1162.55  665.41 1162.57   668.3 1162.52
  673.68 1162.46  679.87 1162.39  681.73 1162.37  691.15 1162.95  696.23 1163.02
  701.95 1163.13  703.56 1163.16   704.8 1163.19  705.07  1163.2  710.72 1163.31
  713.99 1163.19  719.16 1163.16  725.22 1163.11  727.23 1163.16  734.31 1163.35
  736.83 1163.41  739.71 1163.41  744.72 1163.47  746.92 1163.51   750.9 1163.58
  754.21 1163.63  759.68 1163.71  764.62 1163.75  768.71 1163.78  774.59 1163.84
  779.79 1163.89  782.52 1163.92  784.38 1163.94  789.04 1163.97  798.26 1164.01
  805.38 1164.04  810.09 1164.12   812.2 1164.16  821.94 1164.35  824.03  1164.4
  825.25 1164.44   826.7 1164.49  828.22 1164.51  831.14 1164.59  833.89 1164.66
  840.41 1164.87  845.62 1165.03  851.06 1165.19  863.69 1165.44  864.19 1165.46
   869.3 1165.58  870.18  1165.6  870.72  1165.6  873.26 1165.63  873.91 1165.64
  884.67 1165.82  885.88 1165.84  892.97 1165.88  896.76 1165.92  899.16 1165.94
  903.34 1165.95  913.66 1166.06  915.38 1166.07  916.65 1166.08  919.61  1166.1
  931.34 1166.27  940.33 1166.39  941.69 1166.41  942.45 1166.42  942.65 1166.42
     943 1166.43   946.5 1166.54  957.14 1166.82  957.48 1166.82  961.66 1166.77
  964.01 1166.73  965.29 1166.71  976.82  1166.7  982.66 1166.67  986.13 1166.77
  987.69 1166.83  988.14 1166.84  991.97    1167  995.58 1167.15  999.61 1167.29
 1010.98 1167.69 1011.36 1167.71 1022.31 1168.23 1026.45 1168.43 1029.61 1168.59
 1033.84 1168.73 1035.05 1168.77 1041.72 1168.97 1049.48 1169.23  1052.6 1169.32
```

```
1056.68 1169.43 1058.72 1169.51 1061.97 1169.66 1067.75  1169.7  1073.1 1169.75
1079.53  1169.8 1082.39 1169.74 1082.91 1169.72 1083.84  1169.7  1087.6 1169.62
1101.63 1169.93 1102.37 1169.93 1103.37 1169.95 1106.08 1169.97 1125.21 1170.18
1125.95 1170.19 1129.75 1170.25 1141.28 1170.45 1143.54 1170.48 1145.58  1170.5
1148.06 1170.55 1153.43 1170.63 1157.26  1170.7 1168.07 1170.85  1170.9 1170.89
1173.86  1170.9 1174.57 1170.91 1177.11 1170.97 1180.94 1171.07 1189.01 1171.19
1189.05 1171.19 1193.75 1171.27 1200.78 1171.33 1203.55 1171.35 1210.18 1171.48
1216.59 1171.61 1218.05 1171.61 1220.59 1171.67 1224.46 1171.71 1232.55 1171.77
1239.44 1171.86 1242.78  1171.9 1248.14 1171.98  1252.3 1172.04 1260.25 1172.14
1261.54 1172.16 1262.29 1172.16 1271.82 1172.24 1276.03 1172.28 1285.13 1172.37
1290.53 1172.43 1294.42 1172.47 1295.49 1172.48  1299.9 1172.52 1307.98 1172.61
1310.26 1172.64 1319.18 1172.74 1319.52 1172.74 1330.82 1172.82 1336.52 1172.88
1339.55 1172.91 1340.57 1172.93 1342.85 1172.97 1348.51 1173.09 1353.67 1173.08
1355.73 1173.11 1366.52 1173.24 1372.84 1173.32 1376.52 1173.37  1377.5 1173.38
1378.64 1173.41 1379.21 1173.42 1386.04 1173.55 1390.21 1173.63 1399.36 1173.81
1401.19 1173.84 1413.88 1174.03 1416.36 1174.07 1418.86 1174.11 1420.76 1174.14
1422.21 1174.16 1431.51 1174.31 1435.48 1174.37 1437.56 1174.38 1445.05 1174.41
1446.67 1174.41 1458.52 1174.42 1461.24 1174.44 1461.82 1174.45 1462.87 1174.46
1464.47 1174.47 1467.91  1174.5 1476.99  1174.6 1478.97 1174.62 1484.91 1174.71
1490.75  1174.8 1492.14 1174.84 1493.45 1174.86 1498.17 1174.95 1504.98 1175.11
 1508.6 1175.21 1513.21 1175.33 1513.59 1175.34 1522.44 1175.61 1532.27 1175.75
1536.44  1175.8  1537.6 1175.82 1537.83 1175.82 1547.11  1175.9 1552.76 1175.97
1555.95    1176 1559.28 1176.05 1565.93 1176.14 1567.29 1176.16 1577.49 1176.31
1579.29 1176.33

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
  154.44     .04  208.34    .035  481.05    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        208.34  481.05            124.52     125   125.5              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1171.05  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.04  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.01  * Reach Len. (ft)         *  124.52  *  125.00  *  125.50  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  280.97  * 4467.45  * 4270.25  *
* E.G. Slope (ft/ft)      *0.000044  * Area (sq ft)            *  280.97  * 4467.45  * 4270.25  *
* Q Total (cfs)           *-11448.30  * Flow (cfs)             * -216.97  *-8103.18  *-3128.15  *
* Top Width (ft)          * 1019.22  * Top Width (ft)          *   49.03  *  272.71  *  697.48  *
* Vel Total (ft/s)        *   -1.27  * Avg. Vel. (ft/s)        *   -0.77  *   -1.81  *   -0.73  *
* Max Chl Dpth (ft)       *   18.59  * Hydr. Depth (ft)        *    5.73  *   16.38  *    6.12  *
* Conv. Total (cfs)       *1726566.0  * Conv. (cfs)            * 32722.1  *1222075.0  *471769.6  *
* Length Wtd. (ft)        *  125.13  * Wetted Per. (ft)        *   50.62  *  273.14  *  697.77  *
* Min Ch El (ft)          * 1152.42  * Shear (lb/sq ft)        *    0.02  *    0.04  *    0.02  *
* Alpha                   *    1.54  * Stream Power (lb/ft s)  *   -0.01  *   -0.08  *   -0.01  *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)    *   63.06  *  918.92  *  850.71  *
* C & E Loss (ft)         *          * Cum SA (acres)          *    9.40  *   50.90  *  104.20  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 7500.000

INPUT
Description:
Station Elevation Data    num=      173
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
  152.44 1172.06  156.95 1171.45  172.93 1168.81  194.61 1162.45  196.01 1162.04
  196.38 1161.94  197.02 1161.74  208.15 1158.33  211.02 1157.45  219.09 1156.97
  225.67 1156.81  237.09 1156.41  240.31 1156.26  242.17 1156.23  254.96  1156.2
  265.25 1156.23   269.6 1156.25  277.15 1156.26  284.25 1156.24  288.33 1156.07
  298.89 1154.71  311.41 1153.03  317.22 1152.78  328.17 1152.53  334.49 1152.43
  342.82 1152.41  357.28 1152.49  357.57  1152.5  372.11 1152.74  380.66 1152.84
  397.35 1152.98   401.4 1153.02  403.74 1153.06  412.42 1153.24  426.82 1153.51
  430.69  1153.6  437.42 1153.78  445.33 1153.99   449.9 1154.12  459.98 1154.46
  472.99 1154.84  477.48 1155.09  491.54 1155.73  496.07 1155.94  503.92 1156.36
  517.54 1156.78  518.56 1156.82  519.15 1156.83  533.21 1157.24  542.23 1157.43
  547.85 1157.62   557.6  1158.5   562.5 1158.92  565.31 1159.31  577.14 1160.25
  588.39 1160.49  591.79 1160.59  597.67 1160.73  606.43 1160.84  611.48 1160.94
  630.22 1161.28  634.56 1161.34  637.74 1161.39  657.64 1161.61   677.8 1161.78
  680.72  1161.7  694.29 1161.46   703.8 1162.19  708.94 1162.27  717.87 1162.46
  723.58 1162.59  726.88 1162.41  738.23 1162.26  749.96 1162.62  752.87 1162.61
  757.93 1162.67  767.52 1162.85  773.04 1162.93  782.17 1162.98  796.12  1163.1
     798 1163.12  819.21 1163.15   826.1 1163.28  838.06 1163.59  840.75 1163.71
  842.29 1163.73  848.02  1163.9  865.37 1164.54  878.13 1164.84  884.68 1165.02
  888.45 1165.06  899.32 1165.24  911.54 1165.31  913.96 1165.33  918.19 1165.32
  928.61  1165.4  934.62 1165.41  956.93 1165.69   957.7  1165.7   957.9  1165.7
  958.25 1165.72  972.54 1166.19  980.78 1166.02  998.32 1165.92 1001.83 1166.06
 1003.86 1166.16 1011.38 1166.55 1026.94 1167.27 1038.38 1167.98 1045.76 1168.44
 1050.03 1168.63 1065.83 1169.24 1073.11 1169.47 1078.45 1169.75  1089.7 1169.82
 1096.19 1169.86 1104.35 1169.58 1118.52 1169.93 1119.27 1169.93 1120.28 1169.95
 1142.35 1170.15 1158.58  1170.4 1162.93 1170.44 1165.43 1170.48 1174.73 1170.61
 1188.51 1170.74 1192.22 1170.73 1198.65 1170.89 1206.85 1170.98 1211.59 1171.05
  1221.5 1171.08 1234.67 1171.32 1236.14 1171.32 1238.71 1171.38 1250.79 1171.44
 1257.76 1171.51 1278.78 1171.78 1280.08  1171.8 1280.84  1171.8 1294.72  1171.9
 1303.92 1171.99 1309.37 1172.05 1318.84 1172.15    1327 1172.26 1338.66 1172.43
 1350.08 1172.52  1358.9 1172.63 1367.95 1172.87 1373.17 1172.85 1392.53 1173.13
 1396.25 1173.19 1397.24  1173.2 1398.97 1173.24 1419.33 1173.72 1439.03 1174.08
 1442.41 1174.14 1455.82 1174.36 1465.49 1174.37  1479.1  1174.3 1485.11 1174.33
 1488.58 1174.35 1499.76 1174.45 1511.66 1174.66 1514.39 1174.74 1519.16 1174.85
 1534.74 1175.35 1543.68 1175.67 1557.82 1175.88 1559.23  1175.9  1580.9  1176.1
 1587.62 1176.16  1599.3 1176.29 1601.12  1176.3

Manning's n Values          num=        3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
  152.44     .04  208.15    .035  491.54    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        208.15  491.54            122.44     125  128.45              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1171.05  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.03  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.02  * Reach Len. (ft)         *  122.44  *  125.00  *  128.45  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  275.21  * 4715.78  * 4767.92  *
* E.G. Slope (ft/ft)      *0.000037  * Area (sq ft)            *  275.21  * 4715.78  * 4767.92  *
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* Q Total (cfs)          *-11469.80  * Flow (cfs)              * -192.53  *-7904.93  *-3372.35  *
* Top Width (ft)         * 1049.71  * Top Width (ft)          *   48.57  *  283.39  *  717.75  *
* Vel Total (ft/s)       *   -1.18  * Avg. Vel. (ft/s)        *   -0.70  *   -1.68  *   -0.71  *
* Max Chl Dpth (ft)      *   18.61  * Hydr. Depth (ft)        *    5.67  *   16.64  *    6.64  *
* Conv. Total (cfs)      *1891570.0  * Conv. (cfs)            * 31751.5  *1303660.0  *556158.6  *
* Length Wtd. (ft)       *  125.93  * Wetted Per. (ft)        *   50.28  *  283.81  *  718.12  *
* Min Ch El (ft)         * 1152.41  * Shear (lb/sq ft)        *    0.01  *    0.04  *    0.02  *
* Alpha                  *    1.51  * Stream Power (lb/ft s)   *   -0.01  *   -0.06  *   -0.01  *
* Prctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)     *   62.27  *  905.75  *  837.69  *
* C & E Loss (ft)        *          * Cum SA (acres)           *    9.26  *   50.10  *  102.16  *
*****************************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 7375.*

INPUT
Description:
Station Elevation Data     num=     340
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
   151.9 1171.84  156.64 1171.27  163.68 1170.27  164.46 1170.13   165.6 1169.91
  173.44  1168.4  184.75 1165.19  189.57 1163.82  196.23 1161.95  196.67 1161.83
  197.71 1161.54  198.09 1161.44  198.77 1161.24  202.12 1160.27  205.82 1159.17
  210.47 1157.85  213.34 1157.03  215.31 1156.83  221.41 1156.52  227.98 1156.35
  229.32 1156.31  230.33 1156.28   239.4 1156.01  242.62 1155.89  244.15 1155.87
  244.48 1155.86  253.53 1155.85  257.26 1155.85  258.57 1155.86  266.01 1155.86
  267.55 1155.86  271.89 1155.88  272.99 1155.89  277.72 1155.83  279.44 1155.81
  286.54 1155.69   287.4 1155.66  290.62 1155.49  301.17 1154.24  301.69 1154.18
  301.82 1154.16  301.91 1154.15  302.37  1154.1  313.69 1152.82  319.49 1152.55
  326.11 1152.35  330.44 1152.25  330.66 1152.25  336.76 1152.17  337.37 1152.16
  345.08 1152.14  346.39 1152.14  354.57 1152.18  361.46 1152.23  361.76 1152.24
  366.63 1152.31   367.4 1152.32  367.91 1152.33  376.92  1152.5  380.22 1152.55
  385.84 1152.65  389.44  1152.7  393.04 1152.76  398.37 1152.84  403.24  1152.9
  405.87 1152.94  407.46 1152.96   409.9    1153  410.57 1153.03  418.95 1153.18
  430.12 1153.39  431.53 1153.41  432.49 1153.43  433.96 1153.46  437.45 1153.53
     438 1153.54  445.02 1153.71  453.26  1153.9  454.01 1153.92  458.03 1154.03
  461.87 1154.14  468.54 1154.34  470.01 1154.38  475.54 1154.53   482.1 1154.71
  482.83 1154.75  486.78 1154.93  493.61 1155.21  495.66 1155.29  497.06 1155.34
  501.44 1155.54  504.86 1155.69  505.88 1155.74  513.58 1156.13  521.92  1156.4
   525.2 1156.53  526.93 1156.63  527.93 1156.69  528.51 1156.71  530.02 1156.79
  540.53 1157.28  542.29  1157.4  547.65 1157.74  551.13 1157.87  555.85  1158.1
  556.64 1158.13   566.2 1158.82  567.95 1158.95     571 1159.12  571.18 1159.14
  573.36 1159.41  573.76 1159.45  584.75 1160.17  585.35  1160.2  596.38 1160.43
  599.07  1160.5  599.71 1160.52  601.82 1160.57  605.48 1160.66  605.89 1160.66
  614.06 1160.78  617.15 1160.84  619.01 1160.88   624.8 1160.99  637.38 1161.22
  641.64 1161.28  643.81 1161.32  644.75 1161.33  647.81 1161.37  650.51 1161.41
  663.14 1161.56  664.26 1161.57  676.23 1161.71  681.74 1161.76  684.02 1161.79
  686.89 1161.75  700.19 1161.64  701.95 1161.75  709.11 1162.22  709.51 1162.25
  714.55 1162.34  719.68 1162.46   723.3 1162.53  724.43 1162.56  727.68 1162.64
   728.9 1162.67  732.13 1162.55  739.76 1162.51  743.26  1162.5  753.39 1162.82
  754.76 1162.85   757.6 1162.86  757.61 1162.86  762.87 1162.92  771.97 1163.08
  777.38 1163.16  779.11 1163.17  785.75 1163.22  786.33 1163.22  795.53 1163.31
  800.01 1163.33  801.08 1163.34  801.85 1163.35  804.83 1163.37  816.39 1163.41
  822.64 1163.44  829.39 1163.56  830.55 1163.59  831.72 1163.61  833.46 1163.65
  841.12 1163.83  843.75 1163.93  845.26 1163.96  850.88  1164.1  856.26 1164.28
  867.89 1164.65   871.4 1164.73   880.4 1164.93  881.99 1164.97  886.82 1165.09
  890.51 1165.13  893.04 1165.17  901.17 1165.31   907.7 1165.37  909.33 1165.38
  913.15 1165.41  915.52 1165.43  919.66 1165.44  923.69 1165.48  929.88 1165.54
  933.42 1165.56  935.77 1165.57     939 1165.62  947.26 1165.73  957.64 1165.88
  958.39 1165.89  958.59 1165.89  958.93 1165.91  959.14 1165.92  972.94 1166.33
  981.02 1166.24  984.15 1166.24  984.86 1166.24  985.19 1166.24  998.21 1166.24
 1000.32 1166.31 1001.65 1166.36 1003.64 1166.44 1010.58 1166.74 1011.01 1166.76
 1015.65 1166.94 1023.12 1167.24 1026.27 1167.36 1030.97  1167.6  1036.3 1167.87
 1037.48 1167.93 1044.72  1168.3 1046.29 1168.36  1048.9 1168.45 1061.05 1168.85
 1061.62 1168.87 1062.02 1168.89 1064.39 1168.96 1071.52 1169.15 1076.76 1169.37
 1076.94 1169.37 1087.74 1169.45 1087.79 1169.45 1094.15  1169.5 1098.99 1169.38
 1102.15  1169.3 1113.45 1169.54 1116.04  1169.6 1116.77  1169.6 1117.76 1169.62
 1122.93 1169.67 1136.91 1169.82 1138.26 1169.83 1139.18 1169.84  1139.4 1169.84
 1153.59 1170.05 1155.31 1170.08 1159.57 1170.12 1162.02 1170.16 1164.89  1170.2
  1168.9 1170.25 1171.14 1170.28 1174.84 1170.31 1184.65 1170.41 1188.28 1170.41
 1190.62 1170.46 1194.58 1170.55 1202.62 1170.63 1207.27  1170.7 1212.77 1170.72
 1214.89 1170.73 1216.33 1170.74 1216.98 1170.74  1223.8 1170.86 1229.89 1170.96
 1231.33 1170.97 1233.85 1171.02 1242.04 1171.08  1245.7 1171.11 1250.71 1171.17
 1252.53 1171.19 1260.87 1171.31 1267.77 1171.42 1273.13  1171.5 1274.41 1171.52
 1275.15 1171.52 1276.19 1171.54 1288.64 1171.67 1288.76 1171.67 1293.48 1171.73
 1297.78 1171.78 1303.12 1171.85 1303.68 1171.86  1312.4 1171.97  1319.2 1172.07
  1320.4 1172.08 1322.18 1172.11 1326.57 1172.18 1331.83 1172.26 1337.51 1172.32
 1343.02 1172.39 1344.92 1172.41 1351.67 1172.51 1360.54 1172.74  1364.5 1172.75
 1365.66 1172.75 1370.65 1172.83 1383.48 1173.03 1384.64 1173.05 1388.28 1173.11
 1389.25 1173.13 1390.95 1173.16 1396.36 1173.29 1398.81 1173.34 1402.43 1173.42
 1410.91 1173.63 1414.14  1173.7 1422.08 1173.87 1430.22 1174.04 1433.53 1174.11
 1440.36 1174.24 1444.79 1174.32 1446.68 1174.35  1447.8 1174.36 1456.15  1174.4
 1460.12  1174.4  1469.5 1174.41 1473.52 1174.45 1475.39 1174.46 1475.44 1174.47
 1478.29  1174.5 1478.79  1174.5 1489.75 1174.62 1490.77 1174.64 1499.23  1174.8
 1501.41 1174.84 1504.09 1174.92 1508.76 1175.03 1516.22 1175.25 1524.04 1175.49
 1524.96 1175.52  1532.8 1175.76 1543.32 1175.93 1546.66 1175.98 1548.04    1176
 1550.67 1176.03 1552.08 1176.05 1554.16 1176.07  1567.4 1176.22 1569.28 1176.25
 1575.87 1176.32 1576.39 1176.32 1582.73 1176.41 1587.32 1176.46  1589.1 1176.48

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
   151.9     .04  210.47    .035  501.44    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        210.47  501.44            122.44     125  128.45             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)         * 1171.05  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.03  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)         * 1171.02  * Reach Len. (ft)         *  122.44  *  125.00  *  128.45  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *  310.05  * 4924.67  * 4671.17  *
* E.G. Slope (ft/ft)     *0.000035  * Area (sq ft)            *  310.05  * 4924.67  * 4671.17  *
* Q Total (cfs)          *-11491.60  * Flow (cfs)              * -218.87  *-8138.59  *-3134.14  *
* Top Width (ft)         * 1075.45  * Top Width (ft)          *   52.07  *  290.97  *  732.41  *
* Vel Total (ft/s)       *   -1.16  * Avg. Vel. (ft/s)        *   -0.71  *   -1.65  *   -0.67  *
* Max Chl Dpth (ft)      *   18.88  * Hydr. Depth (ft)        *    5.95  *   16.93  *    6.38  *
* Conv. Total (cfs)      *1944452.0  * Conv. (cfs)            * 37033.7  *1377102.0  *530316.1  *
* Length Wtd. (ft)       *  125.86  * Wetted Per. (ft)        *   53.77  *  291.33  *  732.72  *
* Min Ch El (ft)         * 1152.14  * Shear (lb/sq ft)        *    0.01  *    0.04  *    0.01  *
```

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* Alpha                  *    1.54  * Stream Power (lb/ft s) *   -0.01  *   -0.06  *   -0.01  *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)   *   61.45  *  891.91  *  823.77  *
* C & E Loss (ft)        *          * Cum SA (acres)         *    9.12  *   49.28  *  100.02  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 7250.*

INPUT
Description:
Station Elevation Data     num=     340
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
  151.35 1171.63  156.32 1171.09  163.71 1170.19  164.53 1170.04  165.73 1169.78
  173.95 1167.99  185.82 1164.73  190.86 1163.33  197.86 1161.45  198.32 1161.33
   199.4 1161.04  199.81 1160.93  200.52 1160.74  204.04 1159.77  207.91 1158.66
  212.79 1157.38  215.66 1156.62  217.62 1156.34  223.72 1156.07   230.3 1155.89
  231.64 1155.85  232.64 1155.83  241.71 1155.62  244.92 1155.52  246.46  1155.5
  246.78  1155.5  255.83 1155.49  259.56 1155.51  260.87 1155.52  268.31  1155.5
  269.84  1155.5  274.19 1155.51  275.27 1155.51  280.01 1155.41  281.73 1155.36
  288.83 1155.15  289.69 1155.11   292.9  1154.9  303.45 1153.77  303.97 1153.72
   304.1  1153.7  304.19 1153.69  304.65 1153.65  315.96  1152.6  321.77 1152.33
  328.38 1152.08  332.71 1151.98  332.93 1151.97  339.02  1151.9  339.64  1151.9
  347.35 1151.86  349.95 1151.86  358.47  1151.9  365.64 1151.96  365.96 1151.97
  371.02 1152.04  371.82 1152.05  372.35 1152.06  381.74 1152.26  385.16 1152.33
  391.02 1152.46  394.76 1152.53  398.52 1152.63  404.06 1152.73  409.13 1152.83
  411.87 1152.88  413.52 1152.91  416.06 1152.95  417.17 1152.97  425.48 1153.13
  437.11 1153.34  438.58 1153.36  439.57 1153.38  441.11  1153.4  444.74 1153.47
  445.31 1153.48  452.61 1153.64   461.2 1153.82  461.97 1153.84  466.16 1153.93
  470.15 1154.03   477.1 1154.22  478.62 1154.26  484.38  1154.4  491.21 1154.59
  491.98 1154.62  496.09 1154.78   503.2 1155.02  505.33  1155.1  506.78 1155.15
  511.35 1155.34  514.69 1155.49   515.7 1155.53  523.24 1155.89  531.41 1156.18
  534.62 1156.34  536.32 1156.47   537.3 1156.55  537.86 1156.59  539.35 1156.71
  549.64 1157.38  551.37 1157.57  556.62 1158.12  560.03 1158.32  564.66 1158.62
  565.43 1158.64   574.8 1159.15  576.52 1159.24   579.5 1159.33  579.68 1159.34
  581.81 1159.56   582.2 1159.59  592.97 1160.13  593.56 1160.16  604.37 1160.37
  607.01 1160.43  607.63 1160.45   609.7  1160.5  613.28 1160.58  613.68 1160.59
   621.7 1160.72  624.72 1160.78  626.55 1160.81  632.22 1160.92  644.55 1161.15
  648.71 1161.22  650.84 1161.26  651.77 1161.27  654.76 1161.31  657.41 1161.36
  669.78 1161.52  670.88 1161.54  682.61  1161.7  688.01 1161.77  690.25  1161.8
  693.05 1161.79  706.09 1161.82  707.82 1161.91  714.82 1162.28  715.22  1162.3
  720.16 1162.41  725.18 1162.54  728.73 1162.61  729.84 1162.63  733.02 1162.73
  734.22 1162.75  737.39 1162.69  744.86 1162.71  748.29 1162.74  758.22 1163.05
  759.56 1163.09  762.34 1163.11  762.35 1163.11  767.21 1163.17  776.42 1163.31
  781.72 1163.39  783.42  1163.4  789.92 1163.46  790.49 1163.46  799.51 1163.55
  803.89 1163.57  804.94 1163.58   805.7 1163.59  808.62 1163.61  819.95 1163.68
  826.07 1163.73  832.69 1163.84  833.82 1163.86  834.97 1163.89  836.68 1163.92
  844.18 1164.08  846.76 1164.16  848.24 1164.18  853.74 1164.31  859.01 1164.45
  870.41 1164.76  873.84 1164.83  882.66 1165.02  884.22 1165.05  888.95 1165.16
  892.57  1165.2  895.05 1165.24  903.02 1165.38  909.42 1165.45  911.01 1165.47
  914.75 1165.51  917.08 1165.54  921.14 1165.56  925.08 1165.61  931.15 1165.68
  934.61 1165.72  936.92 1165.74  940.09 1165.78  948.18 1165.91  958.35 1166.08
  959.09 1166.09  959.28 1166.09  959.62  1166.1  959.82 1166.11  973.34 1166.47
  981.26 1166.46  984.33 1166.48  985.02 1166.48  985.34 1166.48   998.1 1166.55
 1000.17 1166.61 1001.48 1166.65 1003.43 1166.72 1010.22 1166.96 1010.65 1166.97
 1015.19 1167.12 1022.51 1167.35 1025.59 1167.45 1030.21 1167.63 1035.42 1167.84
 1036.58 1167.88 1043.67 1168.16 1045.21  1168.2 1047.77 1168.28 1059.68  1168.6
 1060.23 1168.62 1060.63 1168.62 1062.95 1168.68 1069.94 1168.83 1075.07 1168.99
 1075.25 1168.99 1085.82 1169.08 1085.87 1169.08 1092.11 1169.13 1096.85 1169.07
 1099.95 1169.03 1111.02 1169.22 1113.56 1169.26 1114.28 1169.27 1115.25 1169.28
 1120.31 1169.33 1134.01 1169.51 1135.33 1169.52 1136.23 1169.53 1136.44 1169.54
 1150.35 1169.73 1152.03 1169.75 1156.21  1169.8 1158.61 1169.83 1161.42 1169.87
 1165.35 1169.92 1167.54 1169.95 1171.17 1169.98 1180.78 1170.08 1184.34 1170.09
 1186.63 1170.13 1190.52  1170.2  1198.4 1170.29 1202.95 1170.34 1208.34 1170.38
 1210.42 1170.39 1211.83  1170.4 1212.47 1170.41 1219.15 1170.51 1225.12 1170.61
 1226.53 1170.62    1229 1170.66 1237.02 1170.74  1240.6 1170.77 1245.51 1170.84
 1247.29 1170.87 1255.47    1171 1262.23 1171.13 1267.48 1171.22 1268.73 1171.24
 1269.46 1171.25 1270.48 1171.26 1282.68 1171.44 1282.79 1171.44 1287.43 1171.51
 1291.63 1171.57 1296.87 1171.65 1297.42 1171.66 1305.96 1171.78 1312.62 1171.89
  1313.8 1171.91 1315.54 1171.93 1319.85 1172.01    1325  1172.1 1330.56 1172.17
 1335.97 1172.25 1337.83 1172.28 1344.44  1172.4 1353.13 1172.61 1357.01 1172.64
 1358.15 1172.65 1363.04 1172.73 1375.61 1172.96 1376.74 1172.98 1380.31 1173.04
 1381.26 1173.05 1382.93 1173.09 1388.23  1173.2 1390.63 1173.25 1394.18 1173.33
 1402.48 1173.54 1405.65 1173.62 1413.43 1173.81  1421.4    1174 1424.65 1174.08
 1431.35 1174.23 1435.68 1174.31 1437.53 1174.34 1438.64 1174.36 1446.82 1174.43
  1450.7 1174.45 1459.89 1174.53 1463.83 1174.58 1465.66  1174.6 1465.72  1174.6
  1468.5 1174.64    1469 1174.65 1479.73 1174.79 1480.74  1174.8 1489.03 1174.98
 1491.16 1175.03 1493.79  1175.1 1498.37  1175.2 1505.67 1175.41 1513.33 1175.62
 1514.23 1175.65 1521.92 1175.86 1532.22 1176.02  1535.5 1176.08 1536.85  1176.1
 1539.43 1176.13 1540.81 1176.15 1542.85 1176.18 1555.83 1176.37 1557.67 1176.39
 1564.12 1176.48 1564.63 1176.48 1570.84 1176.57 1575.34 1176.64 1577.09 1176.66

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************
  151.35     .04  212.79    .035  511.35    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        212.79  511.35             122.44     125  128.45              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)         * 1171.06  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.03  * Wt. n-Val.              *    0.040  *    0.035  *    0.045  *
* W.S. Elev (ft)         * 1171.02  * Reach Len. (ft)         *   122.44  *   125.00  *   128.45  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *   347.05  * 5136.05  * 4584.39  *
* E.G. Slope (ft/ft)     *0.000033  * Area (sq ft)            *   347.05  * 5136.05  * 4584.39  *
* Q Total (cfs)          *-11471.10  * Flow (cfs)              * -244.40  *-8316.86  *-2909.85  *
* Top Width (ft)         * 1099.86  * Top Width (ft)          *    55.93  *   298.56  *   745.37  *
* Vel Total (ft/s)       *   -1.14  * Avg. Vel. (ft/s)        *    -0.70  *    -1.62  *    -0.63  *
* Max Chl Dpth (ft)      *    19.16  * Hydr. Depth (ft)        *     6.21  *    17.20  *     6.15  *
* Conv. Total (cfs)      *2002755.0  * Conv. (cfs)             * 42669.3  *1452052.0  *508034.1  *
* Length Wtd. (ft)       *   125.79  * Wetted Per. (ft)        *    57.64  *   298.88  *   745.65  *
* Min Ch El (ft)         * 1151.86  * Shear (lb/sq ft)        *     0.01  *     0.04  *     0.01  *
* Alpha                  *     1.55  * Stream Power (lb/ft s) *    -0.01  *    -0.06  *    -0.01  *
* Frctn Loss (ft)        *     0.00  * Cum Volume (acre-ft)   *    60.52  *   877.48  *   810.12  *
* C & E Loss (ft)        *          * Cum SA (acres)         *     8.97  *    48.43  *    97.84  *
*****************************************************************************************

CROSS SECTION
```

RIVER: FRS
REACH: FRS3 RS: 7125.*

INPUT
Description:
Station Elevation Data num= 340

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
150.8	1171.42	156.01	1170.91	163.74	1170.11	164.6	1169.95	165.85	1169.65
174.46	1167.59	186.88	1164.26	192.16	1162.84	199.48	1160.95	199.96	1160.83
201.1	1160.54	201.52	1160.43	202.26	1160.24	205.95	1159.28	210.01	1158.14
215.11	1156.91	217.98	1156.2	219.94	1155.84	226.04	1155.62	232.61	1155.44
233.95	1155.4	234.95	1155.38	244.01	1155.22	247.23	1155.16	248.76	1155.14
249.09	1155.14	258.13	1155.13	261.86	1155.16	263.17	1155.17	270.6	1155.13
272.14	1155.13	276.48	1155.13	277.57	1155.13	282.3	1154.98	284.02	1154.91
291.11	1154.6	291.97	1154.56	295.19	1154.32	305.73	1153.3	306.25	1153.25
306.38	1153.24	306.47	1153.23	306.93	1153.21	318.24	1152.39	324.04	1152.1
330.65	1151.8	334.98	1151.7	335.2	1151.7	341.29	1151.64	341.9	1151.63
349.61	1151.59	353.51	1151.59	362.37	1151.62	369.82	1151.7	370.15	1151.71
375.42	1151.78	376.25	1151.79	376.8	1151.8	386.55	1152.02	390.11	1152.1
396.19	1152.27	400.09	1152.37	403.99	1152.49	409.75	1152.63	415.02	1152.75
417.86	1152.82	419.58	1152.85	422.22	1152.89	423.38	1152.92	432.01	1153.07
444.09	1153.28	445.62	1153.31	446.66	1153.32	448.25	1153.35	452.02	1153.42
452.62	1153.43	460.21	1153.57	469.13	1153.73	469.94	1153.75	474.28	1153.84
478.44	1153.93	485.65	1154.1	487.24	1154.14	493.23	1154.28	500.33	1154.46
501.12	1154.49	505.39	1154.62	512.78	1154.84	514.99	1154.91	516.51	1154.95
521.25	1155.15	524.53	1155.29	525.51	1155.33	532.89	1155.66	540.9	1155.96
544.05	1156.15	545.71	1156.32	546.67	1156.42	547.22	1156.48	548.67	1156.62
558.76	1157.47	560.45	1157.73	565.59	1158.5	568.93	1158.76	573.46	1159.13
574.22	1159.14	583.39	1159.47	585.08	1159.53	588	1159.53	588.17	1159.53
590.27	1159.71	590.65	1159.73	601.2	1160.1	601.77	1160.11	612.36	1160.31
614.94	1160.36	615.56	1160.38	617.58	1160.42	621.09	1160.51	621.48	1160.51
629.33	1160.65	632.29	1160.71	634.08	1160.75	639.63	1160.86	651.71	1161.09
655.79	1161.16	657.88	1161.2	658.78	1161.21	661.72	1161.26	664.31	1161.31
676.43	1161.48	677.5	1161.5	688.99	1161.7	694.28	1161.77	696.47	1161.81
699.22	1161.84	711.98	1162	713.68	1162.06	720.54	1162.34	720.93	1162.36
725.76	1162.48	730.69	1162.61	734.17	1162.68	735.25	1162.7	738.37	1162.81
739.54	1162.83	742.64	1162.83	749.96	1162.92	753.32	1162.98	763.04	1163.29
764.35	1163.32	767.08	1163.36	767.09	1163.36	771.85	1163.42	780.87	1163.55
786.07	1163.61	787.72	1163.63	794.1	1163.7	794.66	1163.7	803.48	1163.8
807.78	1163.81	808.81	1163.81	809.55	1163.82	812.41	1163.85	823.5	1163.95
829.5	1164.02	835.98	1164.12	837.09	1164.14	838.21	1164.16	839.89	1164.18
847.23	1164.32	849.76	1164.38	851.21	1164.41	856.6	1164.51	861.77	1164.63
872.92	1164.87	876.29	1164.94	884.93	1165.1	886.46	1165.14	891.09	1165.22
894.64	1165.27	897.06	1165.31	904.86	1165.45	911.13	1165.54	912.7	1165.57
916.36	1165.61	918.64	1165.64	922.61	1165.68	926.48	1165.73	932.42	1165.83
935.81	1165.87	938.07	1165.9	941.17	1165.95	949.1	1166.08	959.06	1166.27
959.78	1166.28	959.97	1166.28	960.3	1166.29	960.5	1166.3	973.74	1166.61
981.5	1166.67	984.5	1166.71	985.18	1166.72	985.5	1166.73	998	1166.87
1000.02	1166.92	1001.3	1166.95	1003.21	1167	1009.87	1167.17	1010.28	1167.19
1014.73	1167.29	1021.9	1167.47	1024.92	1167.54	1029.44	1167.66	1034.55	1167.8
1035.68	1167.83	1042.62	1168.01	1044.14	1168.05	1046.64	1168.1	1058.3	1168.34
1058.85	1168.36	1059.23	1168.36	1061.51	1168.4	1068.35	1168.5	1073.38	1168.61
1073.55	1168.61	1083.91	1168.71	1083.96	1168.71	1090.07	1168.77	1094.71	1168.76
1097.74	1168.75	1108.59	1168.89	1111.07	1168.93	1111.78	1168.94	1112.73	1168.95
1117.69	1169	1131.1	1169.2	1132.4	1169.22	1133.28	1169.23	1133.49	1169.23
1147.11	1169.41	1148.76	1169.43	1152.85	1169.48	1155.2	1169.51	1157.96	1169.55
1161.81	1169.6	1163.95	1169.62	1167.51	1169.65	1176.92	1169.75	1180.41	1169.77
1182.65	1169.81	1186.46	1169.86	1194.17	1169.94	1198.63	1169.99	1203.91	1170.03
1205.94	1170.05	1207.32	1170.07	1207.95	1170.07	1214.49	1170.17	1220.34	1170.25
1221.72	1170.27	1224.14	1170.31	1232	1170.39	1235.51	1170.44	1240.32	1170.52
1242.06	1170.55	1250.07	1170.7	1256.69	1170.84	1261.84	1170.94	1263.06	1170.96
1263.77	1170.97	1264.77	1170.99	1276.72	1171.21	1276.83	1171.21	1281.37	1171.3
1285.49	1171.36	1290.61	1171.45	1291.15	1171.46	1299.52	1171.6	1306.05	1171.71
1307.2	1171.73	1308.91	1171.76	1313.12	1171.84	1318.17	1171.93	1323.61	1172.02
1328.91	1172.12	1330.73	1172.15	1337.21	1172.28	1345.72	1172.48	1349.52	1172.54
1350.63	1172.55	1355.42	1172.64	1367.74	1172.88	1368.85	1172.9	1372.35	1172.96
1373.28	1172.98	1374.9	1173.01	1380.1	1173.12	1382.45	1173.16	1385.92	1173.23
1394.06	1173.45	1397.16	1173.53	1404.78	1173.75	1412.59	1173.96	1415.77	1174.05
1422.33	1174.22	1426.58	1174.3	1428.39	1174.34	1429.47	1174.35	1437.48	1174.46
1441.29	1174.5	1450.29	1174.64	1454.15	1174.71	1455.94	1174.73	1455.99	1174.74
1458.72	1174.79	1459.2	1174.8	1469.72	1174.96	1470.7	1174.97	1478.82	1175.16
1480.92	1175.21	1483.48	1175.27	1487.97	1175.38	1495.13	1175.57	1502.63	1175.76
1503.51	1175.78	1511.04	1175.95	1521.13	1176.12	1524.34	1176.18	1525.67	1176.2
1528.19	1176.24	1529.54	1176.26	1531.54	1176.29	1544.25	1176.51	1546.05	1176.54
1552.38	1176.63	1552.87	1176.64	1558.96	1176.74	1563.36	1176.81	1565.08	1176.84

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
150.8	.04	215.11	.035	521.25	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
215.11	521.25	122.44	125	128.45	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1171.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1171.03	Reach Len. (ft)	122.44	125.00	128.45
Crit W.S. (ft)		Flow Area (sq ft)	386.37	5349.80	4503.18
E.G. Slope (ft/ft)	*0.000031	Area (sq ft)	386.37	5349.80	4503.18
Q Total (cfs)	*-11494.50	Flow (cfs)	-269.80	*-8487.17	*-2737.53
Top Width (ft)	1112.03	Top Width (ft)	60.30	306.14	745.58
Vel Total (ft/s)	-1.12	Avg. Vel. (ft/s)	-0.70	-1.59	-0.61
Max Chl Dpth (ft)	19.44	Hydr. Depth (ft)	6.41	17.48	6.04
Conv. Total (cfs)	*2070120.0	Conv. (cfs)	48590.8	*1528511.0	*493018.9
Length Wtd. (ft)	125.73	Wetted Per. (ft)	62.03	306.43	745.89
Min Ch El (ft)	1151.59	Shear (lb/sq ft)	0.01	0.03	0.01
Alpha	1.55	Stream Power (lb/ft s)	-0.01	-0.05	-0.01
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	59.49	862.43	796.73
C & E Loss (ft)		Cum SA (acres)	8.81	47.56	95.64

CROSS SECTION

RIVER: FRS
REACH: FRS3 RS: 7000.000

INPUT
Description:
Station Elevation Data num= 172

```
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
  150.26  1171.2  163.77 1170.03  164.67 1169.86  165.98 1169.52  187.94  1163.8
  193.46 1162.35  201.61 1160.33  207.86 1158.78   212.1 1157.63  217.43 1156.43
  222.26 1155.34  236.26 1154.94  237.26 1154.93  251.07 1154.77  260.43 1154.77
  265.47 1154.83   272.9 1154.77  279.86 1154.76  284.59 1154.56  294.26 1154.01
  308.53 1152.79  308.66 1152.78  308.75 1152.77  309.21 1152.76  332.92 1151.53
  337.47 1151.42  344.17 1151.37  351.87 1151.31  357.08 1151.31  366.27 1151.34
  379.81 1151.51  380.67 1151.52  381.24 1151.53  395.06 1151.88  405.41  1152.2
  409.46 1152.36  415.44 1152.52  423.86 1152.76  429.58 1152.86  451.08 1153.23
  452.67 1153.26  453.74 1153.27  459.31 1153.36   477.9 1153.66  486.72 1153.82
  495.86 1154.02  502.07 1154.15  510.26 1154.36  522.36 1154.66  524.66 1154.72
  526.23 1154.76  531.15 1154.96  534.36 1155.09  550.39 1155.74  553.47 1155.96
     558 1156.54  567.87 1157.57  574.56 1158.88  582.27 1159.64  593.64 1159.82
  596.67 1159.73  598.72 1159.86  609.42 1160.06  622.88 1160.29  625.46 1160.35
  629.28 1160.44  639.86 1160.65  647.05  1160.8  664.91 1161.14  668.67  1161.2
  671.21 1161.26  683.07 1161.44  695.37 1161.69  700.55 1161.77  719.54 1162.22
  726.26  1162.4  736.19 1162.69  740.66 1162.77  743.71 1162.89  755.06 1163.12
  767.87 1163.53  771.82 1163.61  792.03 1163.86  798.27 1163.94  807.46 1164.04
  812.67 1164.04   816.2 1164.09  827.06 1164.22  840.36 1164.41  841.46 1164.43
   843.1 1164.45  864.52  1164.8  878.74 1165.04  888.69 1165.22  899.07 1165.38
  912.85 1165.63  914.38 1165.66  927.87 1165.86  937.01 1166.03  942.26 1166.11
  950.02 1166.26  961.18 1166.49  984.68 1166.95  985.34 1166.96  985.65 1166.97
  999.87 1167.22 1009.51 1167.39 1014.27 1167.47 1021.29 1167.58 1028.67 1167.69
 1033.67 1167.77 1043.06 1167.89 1056.93 1168.09 1057.46  1168.1 1057.84  1168.1
 1071.86 1168.23    1082 1168.34 1092.57 1168.45 1106.16 1168.57 1115.07 1168.67
  1128.2 1168.89 1129.47 1168.91 1130.33 1168.92 1143.87 1169.09 1154.49 1169.22
 1158.26 1169.27 1163.84 1169.32 1178.66 1169.48 1199.48 1169.69 1201.47 1169.71
 1202.82 1169.73 1209.84 1169.82 1226.98 1170.05 1235.12 1170.19 1244.67 1170.39
 1251.15 1170.55 1259.06 1170.72 1270.76 1170.98 1275.31 1171.08 1284.89 1171.26
 1299.47 1171.53 1302.27 1171.58  1306.4 1171.67 1316.67 1171.87 1323.64 1172.02
 1342.03 1172.43 1347.81 1172.54 1359.87  1172.8 1371.97 1173.03 1374.27 1173.07
 1377.67 1173.14 1388.67 1173.45 1396.13 1173.69 1413.31 1174.21 1417.47 1174.29
  1420.3 1174.35 1431.87 1174.55 1444.46 1174.84 1446.27 1174.87 1448.94 1174.94
 1460.67 1175.14 1468.62 1175.34 1484.58 1175.73 1492.79 1175.91 1510.04 1176.22
 1516.95 1176.34 1518.27 1176.37 1520.23  1176.4 1532.67 1176.65 1541.11  1176.8
 1547.07 1176.91 1553.06 1177.02

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
  150.26     .04  217.43    .035  531.15    .045

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.    Expan.
        217.43  531.15              512.33     500  482.31              .1        .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1171.06  * Element                  *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.03  * Wt. n-Val.               *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.03  * Reach Len. (ft)          *  512.33  *  500.00  *  482.31  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)        *  428.14  * 5565.92  * 4424.52  *
* E.G. Slope (ft/ft)      *0.000029  * Area (sq ft)             *  428.14  * 5565.92  * 4424.52  *
* Q Total (cfs)           *-11518.50  * Flow (cfs)              * -294.68  *-8640.54  *-2583.28  *
* Top Width (ft)          * 1120.87  * Top Width (ft)           *   65.22  *  313.72  *  741.93  *
* Vel Total (ft/s)        *   -1.11  * Avg. Vel. (ft/s)         *   -0.69  *   -1.55  *   -0.58  *
* Max Chl Dpth (ft)       *   19.72  * Hydr. Depth (ft)         *    6.56  *   17.74  *    5.96  *
* Conv. Total (cfs)       *2141530.0  * Conv. (cfs)             * 54787.1  *1606457.0  *480285.5  *
* Length Wtd. (ft)        *  496.76  * Wetted Per. (ft)         *   66.96  *  314.00  *  742.32  *
* Min Ch El (ft)          * 1151.31  * Shear (lb/sq ft)         *    0.01  *    0.03  *    0.01  *
* Alpha                   *    1.55  * Stream Power (lb/ft s)   *   -0.01  *   -0.05  *   -0.01  *
* Frctn Loss (ft)         *    0.02  * Cum Volume (acre-ft)     *   58.35  *  846.77  *  783.56  *
* C & E Loss (ft)         *          * Cum SA (acres)           *    8.63  *   46.67  *   93.45  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 6500.000

INPUT
Description:
Station Elevation Data     num=     160
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
  160.32 1171.02   173.2 1168.41  179.62 1166.75  183.16 1165.88  195.36 1162.86
  205.99  1160.2  214.19 1158.34  214.66 1158.23  228.82 1155.81  238.51 1155.49
  251.66 1155.14  256.11 1155.12  274.49 1155.14  297.03  1154.2  297.33 1154.19
  297.56 1154.17  320.16 1152.46  339.01 1151.95  342.99 1151.88  347.87 1151.91
  365.83 1151.99  371.03 1152.04  380.46 1152.16  385.74 1152.22  388.66 1152.26
  400.47 1152.42  411.49 1152.59   415.2 1152.64  421.91 1152.76  434.33 1152.97
  449.56  1153.3  457.16 1153.44  463.36 1153.61  474.09 1153.87     480 1154.09
   500.4 1154.91  502.83 1154.99  503.53 1155.02  504.81 1155.06  518.26 1155.41
  525.67 1155.63  532.97 1155.81  546.26  1156.2   547.7 1156.24   548.5 1156.27
  551.24 1156.48  554.47 1156.69  571.34 1157.79  577.14  1158.5  587.71 1159.77
  591.87 1160.25  594.17 1160.41  606.59 1160.85     617 1161.04  629.16 1161.32
  639.84 1161.58  650.76 1161.83  662.67 1161.98  670.61 1162.15  680.21 1161.94
   685.5 1161.94  694.94 1161.75  708.34 1161.97  709.66 1161.96  712.06 1162.03
  724.38 1162.67  731.17 1162.84  753.51 1163.35  753.82 1163.36  754.01 1163.36
  768.55 1163.75  776.84 1163.97  783.27 1164.15  794.96 1164.48  797.99 1164.58
  799.67 1164.63  812.72    1165  822.51 1165.22  827.44 1165.34  836.41 1165.47
  845.34 1165.62  856.89 1165.81  868.17 1165.99  871.61 1166.06  877.86 1166.17
  891.01 1166.39  907.12 1166.64  913.84 1166.74  915.79 1166.79  919.31 1166.86
   930.5 1167.09  936.68 1167.18  945.23 1167.32  959.51 1167.56  959.96 1167.57
  960.77 1167.58  974.67 1167.86  982.34 1168.03   989.4 1168.19 1002.21 1168.48
 1005.18 1168.55 1008.81 1168.62 1028.01    1169 1033.57  1169.1 1043.66 1169.24
 1048.29  1169.3 1050.84 1169.33 1063.02 1169.48 1073.68 1169.61 1085.11 1169.78
 1096.51 1169.94 1107.19 1170.08 1119.35 1170.24  1121.9 1170.27 1126.56 1170.33
 1136.63 1170.46 1142.18 1170.56 1151.35 1170.72 1165.01 1171.01 1166.08 1171.03
 1168.02 1171.08 1187.85 1171.48 1209.46  1171.9 1210.25 1171.91 1210.68 1171.92
 1224.97  1172.1 1233.51 1172.18  1239.7 1172.24 1250.92 1172.34 1256.35 1172.38
 1269.14  1172.5 1279.18 1172.64 1292.36 1172.87 1298.58 1172.98 1302.02 1173.04
 1313.31 1173.29 1324.85 1173.55 1328.04 1173.63 1333.81 1173.77 1342.75 1173.98
 1347.68 1174.06 1357.48 1174.23 1370.52 1174.45  1372.2 1174.47 1375.27 1174.52
 1386.93 1174.68 1393.35 1174.79 1401.65 1174.89 1416.19 1175.15 1416.71 1175.16
 1439.02 1175.59 1445.81 1175.72 1458.17 1175.96 1460.54    1176 1461.86 1176.02
 1466.37 1176.09 1484.69 1176.37 1499.61  1176.6 1507.52 1176.72  1519.1 1176.92

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
  160.32     .04  214.19    .035  554.47    .045
```

```
Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.    Expan.
        214.19  554.47              490.03     500  515.18          .1          .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1171.07  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.03  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.04  * Reach Len. (ft)         *  490.03  *  500.00  *  515.18  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  334.99  * 5813.34  * 3402.55  *
* E.G. Slope (ft/ft)      *0.000033  * Area (sq ft)            *  334.99  * 5813.34  * 3402.55  *
* Q Total (cfs)           *-11571.80  * Flow (cfs)             * -235.56  *-9326.60  *-2009.64  *
* Top Width (ft)          * 1006.15  * Top Width (ft)          *   53.87  *  340.28  *  612.00  *
* Vel Total (ft/s)        *   -1.21  * Avg. Vel. (ft/s)        *   -0.70  *   -1.60  *   -0.59  *
* Max Chl Dpth (ft)       *   19.16  * Hydr. Depth (ft)        *    6.22  *   17.08  *    5.56  *
* Conv. Total (cfs)       *2029654.0  * Conv. (cfs)             * 41316.1  *1635855.0  *352483.4  *
* Length Wtd. (ft)        *  502.28  * Wetted Per. (ft)        *   55.37  *  340.67  *  612.32  *
* Min Ch El (ft)          * 1151.88  * Shear (lb/sq ft)        *    0.01  *    0.03  *    0.01  *
* Alpha                   *    1.46  * Stream Power (lb/ft s)   *   -0.01  *   -0.06  *   -0.01  *
* Frctn Loss (ft)         *    0.02  * Cum Volume (acre-ft)     *   53.86  *  781.46  *  740.23  *
* C & E Loss (ft)         *          * Cum SA (acres)           *    7.93  *   42.92  *   85.95  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 6000.000

INPUT
Description:
Station Elevation Data    num=     136
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*****************************************************************************************
  154.73 1171.28  170.23 1167.69  178.55 1165.99  183.09 1164.73  202.37 1159.33
  208.12 1158.16  219.92 1155.76  226.19 1154.94  237.66 1154.72  250.01 1154.45
  252.65 1154.44  256.75 1154.44  267.11 1154.48  273.82 1154.52  293.57 1153.78
  296.05 1153.66  297.64 1153.54   310.5 1152.81  321.46 1152.34  330.41  1152.1
  345.28  1151.8  367.23 1151.74  368.36 1151.74   369.1 1151.74   372.5 1151.79
  392.92 1152.02  397.29  1152.1  404.06 1152.29  411.76 1152.51  416.73 1152.63
  439.93 1152.95  440.55 1152.96  440.89 1152.96  464.37 1153.12  469.61 1153.14
  477.72 1153.18  484.07 1153.23  488.19 1153.28  507.34 1153.51  512.01 1153.56
  514.55 1153.62  535.82 1154.27  541.93 1154.53  551.38    1155   556.4 1155.24
  559.64 1155.42  568.39 1156.04  570.86 1156.21  583.46 1157.72  585.32 1157.94
   588.2 1158.26  607.28 1160.42  625.04 1161.41  628.72 1161.56   631.1 1161.64
  643.17 1162.01  654.92 1162.22  661.86 1162.36  678.73 1162.66  686.57 1162.86
  698.69 1162.93  701.03 1162.96  702.55 1162.98  709.61 1163.04  726.37  1163.2
  735.52  1163.3  750.19 1163.53  758.88 1163.71  772.34 1163.85  774.01 1163.88
  777.04 1163.91  797.82 1164.19  809.18 1164.42  821.64 1164.64  831.21 1164.94
  845.46 1165.22  845.68 1165.23     846 1165.24  869.28 1165.81  882.83 1166.12
   893.1 1166.39  903.53 1166.67  916.92    1167  917.99 1167.03  919.66 1167.06
  940.73 1167.49  956.49 1167.75  964.55  1167.9  975.84 1168.11  988.37  1168.3
  993.32 1168.38 1012.19 1168.71 1030.15 1169.12 1036.01 1169.27 1046.72 1169.54
 1059.83 1169.86 1066.97 1170.04 1083.64 1170.45 1103.81 1170.92 1107.46    1171
 1120.49 1171.25 1131.28 1171.44 1140.63  1171.6 1149.42 1171.74  1155.1 1171.82
 1177.46 1172.08 1178.92  1172.1 1181.57 1172.15 1202.73 1172.48 1214.29  1172.7
 1226.55 1172.93 1248.99  1173.4 1250.37 1173.43 1250.66 1173.44 1251.12 1173.45
 1265.13 1173.89 1274.19 1174.18 1279.58 1174.35 1287.95 1174.59 1294.06 1174.75
 1298.01 1174.84 1308.51 1175.09 1321.83 1175.42 1322.98 1175.45 1324.77 1175.48
 1345.64 1175.88  1361.6 1176.13 1369.46 1176.26 1380.84 1176.45 1393.28 1176.74
 1398.43 1176.84 1409.76 1177.05 1417.09 1177.16 1424.23 1177.26 1435.26 1177.41
 1435.32 1177.41

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
  154.73     .04  208.12    .035  568.39    .045

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.    Expan.
        208.12  568.39              301.57   301.8  314.2          .1          .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1171.08  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.03  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.05  * Reach Len. (ft)         *  301.57  *  301.80  *  314.20  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  330.05  * 6339.46  * 3141.03  *
* E.G. Slope (ft/ft)      *0.000028  * Area (sq ft)            *  330.05  * 6339.46  * 3141.03  *
* Q Total (cfs)           *-11602.30  * Flow (cfs)             * -216.66  *-9617.19  *-1768.44  *
* Top Width (ft)          *  954.51  * Top Width (ft)          *   52.41  *  360.27  *  541.83  *
* Vel Total (ft/s)        *   -1.18  * Avg. Vel. (ft/s)        *   -0.66  *   -1.52  *   -0.56  *
* Max Chl Dpth (ft)       *   19.31  * Hydr. Depth (ft)        *    6.30  *   17.60  *    5.80  *
* Conv. Total (cfs)       *2194871.0  * Conv. (cfs)             * 40987.3  *1819337.0  *334546.0  *
* Length Wtd. (ft)        *  303.69  * Wetted Per. (ft)        *   54.00  *  360.70  *  542.21  *
* Min Ch El (ft)          * 1151.74  * Shear (lb/sq ft)        *    0.01  *    0.03  *    0.01  *
* Alpha                   *    1.40  * Stream Power (lb/ft s)   *   -0.01  *   -0.05  *   -0.01  *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)     *   50.12  *  711.72  *  701.54  *
* C & E Loss (ft)         *          * Cum SA (acres)           *    7.33  *   38.90  *   79.13  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 5698.20

INPUT
Description: W2
W2
Station Elevation Data    num=     136
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*****************************************************************************************
  154.73 1171.28  170.23 1167.69  178.55 1165.99  183.09 1164.73  202.37 1159.33
  208.12 1158.16  219.92 1155.76  226.19 1154.94  237.66 1154.72  250.01 1154.45
  252.65 1154.44  256.75 1154.44  267.11 1154.48  273.82 1154.52  293.57 1153.78
  296.05 1153.66  297.64 1153.54   310.5 1152.81  321.46 1152.34  330.41  1152.1
  345.28  1151.8  367.23 1151.74  368.36 1151.74   369.1 1151.74   372.5 1151.79
  392.92 1152.02  397.29  1152.1  404.06 1152.29  411.76 1152.51  416.73 1152.63
  439.93 1152.95  440.55 1152.96  440.89 1152.96  464.37 1153.12  469.61 1153.14
  477.72 1153.18  484.07 1153.23  488.19 1153.28  507.34 1153.51  512.01 1153.56
  514.55 1153.62  535.82 1154.27  541.93 1154.53  551.38    1155   556.4 1155.24
  559.64 1155.42  568.39 1156.04  570.86 1156.21  583.46 1157.72  585.32 1157.94
   588.2 1158.26  607.28 1160.42  625.04 1161.41  628.72 1161.56   631.1 1161.64
```

```
 643.17 1162.01  654.92 1162.22  661.86 1162.36  678.73 1162.66  686.57 1162.86
 698.69 1162.93  701.03 1162.96  702.55 1162.98  709.61 1163.04  726.37  1163.2
 735.52  1163.3  750.19 1163.53  758.88 1163.71  772.34 1163.85  774.01 1163.88
 777.04 1163.91  797.82 1164.19  809.18 1164.42  821.64 1164.64  831.21 1164.94
 845.46 1165.22  845.68 1165.23     846 1165.24  869.28 1165.81  882.83 1166.12
  893.1 1166.39  903.53 1166.67  916.92    1167  917.99 1167.03  919.66 1167.06
 940.73 1167.49  956.49 1167.75  964.55  1167.9  975.84 1168.11  988.37  1168.3
 993.32 1168.38 1012.19 1168.71 1030.15 1169.12 1036.01 1169.27 1046.72 1169.54
1059.83 1169.86 1066.97 1170.04 1083.64 1170.45 1103.81 1170.92 1107.46    1171
1120.49 1171.25 1131.28 1171.44 1140.63  1171.6 1149.42 1171.74  1155.1 1171.82
1177.46 1172.08 1178.92  1172.1 1181.57 1172.15 1202.73 1172.48 1214.29  1172.7
1226.55 1172.93 1248.99  1173.4 1250.37 1173.43 1250.66 1173.44 1251.12 1173.45
1265.13 1173.89 1274.19 1174.18 1279.58 1174.35 1287.95 1174.59 1294.06 1174.75
1298.01 1174.84 1308.51 1175.09 1321.83 1175.42 1322.98 1175.45 1324.77 1175.48
1345.64 1175.88  1361.6 1176.13 1369.46 1176.26 1380.84 1176.45 1393.28 1176.74
1398.43 1176.84 1409.76 1177.05 1417.09 1177.16 1424.23 1177.26 1435.26 1177.41
1435.32 1177.41

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**********************************************
  154.73     .04  208.12    .035  568.39    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        208.12  568.39            198.05   198.2  206.34             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**************************************************************************************
* E.G. Elev (ft)          * 1171.09  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.03  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.06  * Reach Len. (ft)         *  198.05  *  198.20  *  206.34  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  330.31  * 6341.26  * 3143.74  *
* E.G. Slope (ft/ft)      *0.000028  * Area (sq ft)            *  330.31  * 6341.26  * 3143.74  *
* Q Total (cfs)           *-11605.60 * Flow (cfs)              * -216.83  *-9618.88  *-1769.89  *
* Top Width (ft)          *  954.79  * Top Width (ft)          *   52.43  *  360.27  *  542.09  *
* Vel Total (ft/s)        *   -1.18  * Avg. Vel. (ft/s)        *   -0.66  *   -1.52  *   -0.56  *
* Max Chl Dpth (ft)       *   19.32  * Hydr. Depth (ft)        *    6.30  *   17.60  *    5.80  *
* Conv. Total (cfs)       *2196150.0 * Conv. (cfs)             * 41030.3  *1820199.0  *334920.4  *
* Length Wtd. (ft)        *  199.46  * Wetted Per. (ft)        *   54.02  *  360.70  *  542.47  *
* Min Ch El (ft)          * 1151.74  * Shear (lb/sq ft)        *    0.01  *    0.03  *    0.01  *
* Alpha                   *    1.40  * Stream Power (lb/ft s)   *   -0.01  *   -0.05  *   -0.01  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *   47.83  *  667.79  *  678.87  *
* C & E Loss (ft)         *          * Cum SA (acres)           *    6.97  *   36.40  *   75.22  *
**************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 5500.000

INPUT
Description:
Station Elevation Data     num=      130
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
**********************************************************************************
  166.76 1170.42      173 1169.09  182.66 1166.49  187.47 1165.19  190.57 1164.34
     205 1160.27  214.38 1157.68   215.9 1157.38  219.51 1156.67   238.2 1154.76
  245.33 1154.84  256.36  1154.9  262.01 1154.95  272.31 1154.96  285.82 1154.99
  293.21 1154.49  303.18 1153.52  309.63    1153  330.06    1152  333.44 1151.89
   339.6 1151.86  357.26 1151.71  361.04 1151.72  366.91 1151.75  381.07 1151.85
  403.76 1152.07  404.88 1152.08   406.9 1152.12  428.69 1152.45  433.37 1152.55
  440.61 1152.73  447.84  1152.9   452.5 1153.03   474.2 1153.65  476.31 1153.71
  477.47 1153.75  500.13 1154.51  514.32  1155.1  522.69 1155.54  523.94 1155.61
   541.5 1156.65  547.75 1157.01  551.17 1157.22  571.57 1158.77  578.02 1159.26
  588.02 1160.13  592.48 1160.44  595.38 1160.59  606.95 1160.97  619.19 1161.42
  624.87 1161.58     643 1161.96  661.72 1162.32  664.82 1162.35  666.81 1162.39
   676.1 1162.53  690.62 1162.76  698.57 1162.85  714.44 1163.05  722.68 1163.18
  735.42  1163.5  737.13 1163.53  738.25 1163.56   751.6  1163.9  762.06 1164.19
  772.28 1164.41  785.87 1164.65  809.13 1164.89  809.46 1164.89  809.68  1164.9
   810.7 1164.91   833.5 1165.12  845.98 1165.28  857.31 1165.41  867.33 1165.52
  881.12 1165.67  882.83 1165.69  896.26 1165.86  904.94 1166.01  919.68 1166.33
  928.75 1166.54   945.3 1167.01  952.56  1167.2  956.53 1167.31  976.37 1167.77
  993.38 1168.19 1000.18 1168.33 1011.97 1168.58 1023.99 1168.89 1026.44 1168.93
 1030.23 1169.03 1047.81 1169.34 1067.08 1169.68 1071.62 1169.74  1084.3 1169.86
 1095.43 1169.96 1103.93 1170.05 1119.24 1170.19 1140.78 1170.48 1143.06 1170.52
 1156.63 1170.71 1166.87  1170.9  1171.1 1170.96 1177.63 1171.06 1190.68  1171.3
 1214.48 1171.71 1214.49 1171.71 1228.95 1172.06 1238.31 1172.31 1251.33 1172.66
 1262.12 1172.93  1281.8  1173.3 1285.93 1173.38 1286.81  1173.4 1288.18 1173.42
 1301.28 1173.61 1309.74 1173.71 1325.04 1173.95 1330.21 1174.03 1333.55 1174.09
  1349.1 1174.43 1357.36 1174.61 1361.89 1174.72 1373.61 1175.03 1381.18 1175.25
 1398.74 1175.73 1402.54 1175.84 1404.99  1175.9  1416.4 1176.14 1420.37 1176.22

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**********************************************
  166.76     .04   215.9    .035  522.69    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         215.9  522.69            502.66     500  500.31             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**************************************************************************************
* E.G. Elev (ft)          * 1171.11  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.11  * Reach Len. (ft)         *  502.66  *  500.00  *  500.31  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  347.17  * 5415.24  * 3850.31  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  347.17  * 5415.24  * 3850.31  *
* Q Total (cfs)           * -659.50  * Flow (cfs)              *  -15.04  * -509.42  * -135.03  *
* Top Width (ft)          * 1013.70  * Top Width (ft)          *   49.14  *  306.79  *  657.77  *
* Vel Total (ft/s)        *   -0.07  * Avg. Vel. (ft/s)        *   -0.04  *   -0.09  *   -0.04  *
* Max Chl Dpth (ft)       *   19.40  * Hydr. Depth (ft)        *    7.06  *   17.65  *    5.85  *
* Conv. Total (cfs)       *2016259.0 * Conv. (cfs)             * 45994.6  *1557438.0  *412826.1  *
* Length Wtd. (ft)        *  500.12  * Wetted Per. (ft)        *   51.55  *  307.13  *  658.06  *
* Min Ch El (ft)          * 1151.71  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.51  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *   46.29  *  641.04  *  662.30  *
* C & E Loss (ft)         *          * Cum SA (acres)           *    6.74  *   34.89  *   72.38  *
**************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION
```

```
RIVER: FRS
REACH: FRS3                RS: 5000.000

INPUT
Description:
Station Elevation Data     num=     114
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
  152.07 1170.43  169.84 1169.64  175.52 1168.62   184.5 1166.11  198.98 1162.06
  208.12 1159.49   219.3 1156.66  222.44 1155.86  231.53 1154.73  245.89 1154.47
   246.4 1154.47  269.35 1154.61  284.68 1155.06   292.8 1154.97  305.65  1153.8
  316.26 1152.71  322.96 1152.36  339.71 1151.73  347.89 1151.62  361.24 1151.62
  363.17 1151.63  366.23 1151.65  386.63  1151.8  391.52 1151.85  399.52 1151.92
  406.06 1151.98  410.08 1152.01   426.8 1152.21  433.54 1152.29   437.8 1152.36
     457 1152.75  464.25 1152.95  476.08 1153.26  480.46 1153.38  487.37 1153.67
  503.91 1154.38  514.35 1155.59  522.94 1156.83  527.37 1157.47  547.95 1161.47
  550.82 1161.95   551.5 1162.04  552.63 1162.06  566.05 1161.52  574.28 1161.74
  590.91 1161.89  597.73 1161.88  608.52 1161.98  621.19 1161.99  629.19 1162.19
  644.64 1162.31  667.47  1162.6   668.1 1162.61   682.4 1162.56  691.56 1162.97
  696.94 1162.95  705.75  1163.4  715.02 1163.68  729.67 1164.38  738.47 1164.66
  744.03 1164.79  755.13 1164.63  761.93 1165.05  769.67 1165.12  782.31 1165.26
  785.38 1165.25  798.75 1165.24  808.84 1165.53  820.58 1165.71   832.3 1165.89
  850.81 1166.32  855.75 1166.43  858.86 1166.51  879.21 1166.99  897.14 1167.35
  902.66 1167.44  911.39 1167.63  926.12 1167.91  929.65 1167.98  935.42 1168.14
  944.19 1168.35  949.58 1168.52  971.97 1169.11  973.03 1169.14   973.7 1169.16
  996.49 1169.54 1011.98 1169.75 1019.95 1169.81 1032.53 1169.97  1043.4 1170.08
 1050.26 1170.22 1066.86 1170.59 1088.54 1171.06 1090.31 1171.09 1093.11 1171.13
 1113.77 1171.36 1126.82 1171.43 1137.22 1171.51 1153.69  1171.7 1160.68 1171.77
  1165.1 1171.85 1184.14 1172.15 1203.38 1172.64 1205.99 1172.71  1207.6 1172.74
 1214.26 1172.92 1231.05 1173.47 1241.66 1173.77 1254.51 1174.18 1264.16 1174.42
 1277.97 1174.72 1278.72 1174.73 1279.94 1174.76 1297.61 1175.11

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
  152.07     .04   219.3    .035  522.94    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          219.3  522.94             130.8     125  120.94             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1171.11  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.11  * Reach Len. (ft)         *  130.80  *  125.00  *  120.94  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  406.16  * 5412.67  * 3128.77  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  406.16  * 5412.67  * 3128.77  *
* Q Total (cfs)           * -663.49  * Flow (cfs)              *  -16.75  * -536.57  * -110.17  *
* Top Width (ft)          *  939.92  * Top Width (ft)          *   67.23  *  303.64  *  569.05  *
* Vel Total (ft/s)        *   -0.07  * Avg. Vel. (ft/s)        *   -0.04  *   -0.10  *   -0.04  *
* Max Chl Dpth (ft)       *   19.49  * Hydr. Depth (ft)        *    6.04  *   17.83  *    5.50  *
* Conv. Total (cfs)       *1936850.0  * Conv. (cfs)            * 48892.4  *1566355.0  *321602.6  *
* Length Wtd. (ft)        *  124.42  * Wetted Per. (ft)        *   69.63  *  304.15  *  569.67  *
* Min Ch El (ft)          * 1151.62  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.49  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *   41.95  *  578.90  *  622.23  *
* C & E Loss (ft)         *          * Cum SA (acres)          *    6.07  *   31.38  *   65.33  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 4875.*

INPUT
Description:
Station Elevation Data     num=     256
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
  151.85 1170.66  163.72  1169.8  169.46 1169.46  173.99 1168.73  175.08 1168.51
  183.98 1166.03  189.68 1164.43  196.12 1162.64  198.32 1162.02  200.34 1161.46
  207.38 1159.49  218.26 1156.67  218.45 1156.63  221.59 1155.91  225.79 1155.36
  230.69 1154.89  239.74 1154.73  244.82 1154.68  245.06 1154.67  245.57 1154.67
  256.56 1154.74  261.22 1154.79  268.53 1154.86  271.95 1154.95  282.69 1155.26
  283.87 1155.27  291.99 1155.04  299.12 1154.42  304.16 1153.95  304.85 1153.89
  307.45 1153.66  315.46 1152.87  322.17 1152.47  325.63  1152.3  338.93 1151.88
  342.99 1151.83  347.11 1151.77  357.12 1151.77  358.88 1151.78  361.68  1151.8
  365.94 1151.83  380.31 1151.94  381.19 1151.95  384.77 1151.99  387.22 1152.02
  392.08 1152.08  398.05 1152.16  401.12 1152.19  401.72  1152.2  416.99 1152.43
  417.31 1152.44  423.14 1152.52  424.31 1152.54  427.03 1152.59  442.04  1152.9
  444.56 1152.95  447.41 1153.03  450.93 1153.12  451.18 1153.13  461.99 1153.41
  465.99 1153.51   472.3 1153.75  477.51 1153.96   487.4 1154.36  496.93 1155.32
  500.72 1155.79  504.77 1156.29   506.5 1156.48  509.48 1156.81  512.87 1157.31
  524.75 1159.07  531.36 1160.04  532.52 1160.19  534.41 1160.43  535.14  1160.5
  536.34 1160.53  543.01 1160.41  547.55 1160.33   550.6 1160.28  559.04 1160.52
  559.35 1160.53  560.63 1160.56  561.27 1160.57  562.72  1160.6  577.03 1160.92
  579.52 1160.95  584.28 1161.03  592.92 1161.23  595.75  1161.3  597.79 1161.33
  599.88 1161.38   605.2 1161.44  609.22 1161.51  612.96 1161.63  616.04 1161.72
  617.73 1161.77  626.05 1161.92  634.15 1162.02   634.3 1162.02  651.36 1162.28
  652.56  1162.3  653.33 1162.31  658.42 1162.39  659.09  1162.4  670.82 1162.45
  674.29 1162.48  683.53 1162.85  684.03 1162.87  689.07  1162.9  689.75 1162.91
  691.46 1163.02  697.51 1163.25  699.12 1163.32  704.54 1163.47  707.33 1163.56
  708.97 1163.61  717.62 1163.98  724.55 1164.25  725.59 1164.28   730.7 1164.43
   733.9 1164.51  739.81  1164.6  743.68 1164.57  743.84 1164.56  743.95 1164.56
  751.61 1164.49  758.84 1164.82   762.1 1164.84  767.07  1164.9  774.15 1164.99
  780.36 1165.06  780.51 1165.06  783.04 1165.08  783.77 1165.08  789.83 1165.14
  796.12  1165.2  797.98 1165.22  798.61 1165.25  804.35 1165.42  808.71 1165.55
  816.87 1165.71  821.19 1165.78  833.65    1166  834.56 1166.02  835.12 1166.03
  835.36 1166.03     836 1166.05  853.33 1166.42  853.38 1166.42  858.58 1166.52
  861.89 1166.59  864.76 1166.65  871.64 1166.79  882.15 1167.02  883.52 1167.05
   887.7 1167.13   889.9 1167.17  894.96 1167.28  902.58 1167.44  908.16 1167.55
  908.45 1167.56  917.73 1167.76  925.17 1167.91  926.41 1167.94  926.96 1167.95
  928.31 1167.97  933.39 1168.07  937.14 1168.13  940.04  1168.2  943.28 1168.29
  944.67 1168.32   952.6 1168.51  955.37 1168.59  958.33 1168.67  962.93 1168.78
  974.47 1169.07  981.19 1169.23  982.13 1169.26  983.26 1169.29  983.97 1169.31
  992.36 1169.45  999.44 1169.58 1005.44 1169.69  1008.2 1169.74  1017.7  1169.9
 1018.53 1169.92 1020.63 1169.95 1024.67 1170.02 1031.61  1170.1 1033.14 1170.12
 1035.96 1170.17  1044.7 1170.28 1046.51 1170.31 1054.22 1170.41 1057.78 1170.45
 1058.07 1170.45 1065.36 1170.58 1066.78  1170.6 1070.86 1170.68 1072.47 1170.71
 1076.19 1170.79 1083.01 1170.92 1090.73 1171.06 1097.02 1171.17 1106.06 1171.35
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 1107.94 1171.38 1108.99  1171.4 1110.91 1171.42 1112.95 1171.45 1123.19 1171.56
 1127.24 1171.61 1132.88 1171.67  1136.6  1171.7  1145.5 1171.75 1146.75 1171.76
 1157.81 1171.84 1159.11 1171.85 1162.44 1171.88 1163.76  1171.9  1166.8 1171.93
 1175.32 1172.02 1182.02 1172.08 1182.75 1172.08 1187.45 1172.16 1197.01 1172.29
 1200.28 1172.34 1205.27 1172.41 1207.69 1172.44 1214.77  1172.6 1218.54 1172.68
 1227.86  1172.9 1228.14 1172.91 1230.92 1172.96 1232.63 1172.98 1236.79 1173.06
 1239.71 1173.13 1251.42 1173.45 1255.05 1173.54 1257.56 1173.62 1267.09 1173.89
 1268.84 1173.93 1273.31 1174.03  1282.5 1174.29 1287.62 1174.41 1291.56  1174.5
 1292.75 1174.53 1293.27 1174.54 1297.59 1174.62 1306.35  1174.8 1307.44 1174.82
 1308.23 1174.83 1309.53 1174.85 1309.82 1174.86 1317.81 1175.01 1328.08  1175.2
 1328.31  1175.2

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val     Sta   n Val
*********************************************
  151.85     .04  218.45     .035  504.77    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        218.45  504.77             130.8     125  120.94            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1171.12  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *    0.040 *    0.035 *    0.045 *
* W.S. Elev (ft)          * 1171.12  * Reach Len. (ft)         *   130.80 *   125.00 *   120.94 *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   405.22 * 5055.83  * 3414.52  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *   405.22 * 5055.83  * 3414.52  *
* Q Total (cfs)           * -664.43  * Flow (cfs)              *   -17.48 * -517.53  * -129.42  *
* Top Width (ft)          *  942.02  * Top Width (ft)           *    66.60 *  286.32  *  589.10  *
* Vel Total (ft/s)        *   -0.07  * Avg. Vel. (ft/s)         *    -0.04 *   -0.10  *   -0.04  *
* Max Chl Dpth (ft)       *   19.34  * Hydr. Depth (ft)         *     6.08 *   17.66  *    5.80  *
* Conv. Total (cfs)       *1866830.0  * Conv. (cfs)             * 49104.6  *1454095.0  *363630.8  *
* Length Wtd. (ft)        *  124.30  * Wetted Per. (ft)         *    68.78 *  286.74  *  589.53  *
* Min Ch El (ft)          * 1151.77  * Shear (lb/sq ft)         *     0.00 *    0.00  *    0.00  *
* Alpha                   *    1.52  * Stream Power (lb/ft s)   *     0.00 *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *    40.73 *  563.88  *  613.14  *
* C & E Loss (ft)         *          * Cum SA (acres)           *     5.86 *   30.54  *   63.73  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS3                 RS: 4750.*

INPUT
Description:
Station Elevation Data      num=      256
    Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
  151.64 1170.88  163.39 1169.69  169.07 1169.28  173.56 1168.65  174.65  1168.4
  183.46 1165.94   189.1 1164.37  195.48  1162.6  197.67 1161.99  199.66 1161.43
  206.63 1159.49  217.41 1156.64  217.61 1156.59  220.75 1155.96  224.95 1155.38
  229.85 1155.05   238.9  1154.9  243.99 1154.88  244.22 1154.88  244.73 1154.88
  255.74 1154.95  260.39 1155.01  267.71  1155.1  271.13 1155.19  281.88  1155.5
  283.05 1155.47  291.18 1155.12  298.31 1154.52  303.36 1154.04  304.05 1153.99
  306.65 1153.78  314.67 1153.04  321.37 1152.58  324.84 1152.37  338.14 1152.03
   342.2 1151.98  346.33 1151.92  353.01 1151.92   354.6 1151.93  357.13 1151.95
  360.98 1151.98  373.98 1152.08  374.78 1152.09  378.02 1152.13  380.24 1152.16
  384.63 1152.24  390.04 1152.33  392.82 1152.38  393.36 1152.39  407.17 1152.65
  407.47 1152.66  412.74 1152.75   413.8 1152.77  416.26 1152.82  429.84 1153.11
  432.13 1153.16  434.71 1153.22  437.88 1153.31  438.12 1153.31  447.89 1153.55
  451.51 1153.64  457.22 1153.84  461.94    1154  470.89 1154.34  479.51 1155.04
  482.94 1155.38  486.61 1155.74  488.44 1155.89   491.6 1156.15  495.19 1156.53
  507.77 1157.88  514.78 1158.61     516 1158.72  518.01 1158.91  518.77 1158.97
  520.05    1159  527.11 1159.01  531.92 1159.03  535.16 1159.03   544.1 1159.31
  544.43 1159.32  545.78 1159.37  546.46 1159.38  547.99 1159.43  563.16 1159.95
  565.79 1160.02  570.84 1160.18  579.99  1160.5  582.99 1160.61  585.14 1160.69
  587.36 1160.77  592.99 1160.89  597.26 1161.02  601.22 1161.19  604.48 1161.29
  606.27 1161.35  615.08  1161.6  623.66 1161.72  623.82 1161.73  641.89 1162.04
  643.16 1162.07  643.98 1162.09  649.38 1162.19  650.08  1162.2   662.5 1162.33
  666.19 1162.39  675.97 1162.76   676.5 1162.78  681.84 1162.85  682.56 1162.88
  684.37    1163  690.79 1163.19  692.49 1163.24  698.23 1163.39  701.18 1163.48
  702.92 1163.54  712.09 1163.89  719.42 1164.12  720.52 1164.15  725.95  1164.3
  729.33 1164.35  735.59 1164.42  739.69 1164.39  739.87 1164.39  739.97 1164.39
   748.1 1164.36  755.75 1164.58   759.2  1164.6  764.47 1164.68  771.97 1164.79
  778.54 1164.86   778.7 1164.87  781.39  1164.9  782.16 1164.92  788.58 1165.04
  795.24 1165.17  797.22 1165.21  797.89 1165.23  803.97 1165.43  808.58 1165.57
  817.22 1165.77   821.8 1165.86     835  1166.1  835.96 1166.12  836.56 1166.14
  836.81 1166.14  837.49 1166.16  855.85 1166.51  855.91 1166.52  861.41 1166.61
  864.91 1166.67  867.96 1166.73  875.25 1166.86  886.38 1167.08  887.83 1167.11
  892.25 1167.19  894.59 1167.24  899.95 1167.35  908.02 1167.54  913.93 1167.67
  914.24 1167.67  924.07  1167.9  931.95 1168.07  933.27 1168.09  933.84  1168.1
  935.28 1168.13  940.66 1168.22  944.63 1168.29   947.7 1168.35  951.13 1168.44
  952.61 1168.47  961.01 1168.66  963.94 1168.74  967.08 1168.81  971.95 1168.92
  984.18 1169.22   991.3 1169.38  992.29 1169.41  993.49 1169.43  994.24 1169.45
 1003.13 1169.62 1010.63 1169.77 1016.99 1169.87 1019.91 1169.94 1029.97 1170.15
 1030.86 1170.16 1033.08  1170.2 1037.35 1170.28 1044.71  1170.4 1046.33 1170.43
 1049.32 1170.49 1058.57 1170.62 1060.49 1170.65 1068.66 1170.78 1072.43 1170.81
 1072.74 1170.82 1080.46 1170.94 1081.97 1170.96 1086.29 1171.02 1087.99 1171.06
 1091.93 1171.13 1099.16 1171.24 1107.34 1171.37    1114 1171.47 1123.57 1171.64
 1125.57 1171.68 1126.68 1171.69 1128.72 1171.72 1130.88 1171.75 1141.72 1171.86
 1146.01 1171.92 1151.98 1171.98 1155.92 1172.01 1165.36 1172.07 1166.68 1172.08
 1178.39 1172.16 1179.77 1172.18  1183.3 1172.21  1184.7 1172.22 1187.92 1172.25
 1196.94 1172.33 1204.04 1172.39 1204.81  1172.4 1209.79 1172.46 1219.92 1172.58
 1223.39 1172.63 1228.67  1172.7 1231.23 1172.74 1238.74 1172.88 1242.73 1172.94
  1252.6 1173.17  1252.9 1173.18 1255.84 1173.21 1257.65 1173.22 1262.06 1173.28
 1265.15 1173.34 1277.57 1173.61 1281.41 1173.69 1284.06 1173.77 1294.17 1174.06
 1296.01 1174.09 1300.75 1174.16 1310.48  1174.4 1315.91 1174.51 1320.08 1174.61
 1321.35 1174.63  1321.9 1174.65 1326.47 1174.72 1335.76  1174.9  1336.9 1174.92
 1337.75 1174.93 1339.12 1174.95 1339.43 1174.95  1347.9  1175.1 1358.77 1175.29
 1359.02  1175.3

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val     Sta   n Val
*********************************************
  151.64     .04  217.61     .035  486.61    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        217.61  486.61             130.8     125  120.94            .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
```

```
*****************************************************************************************
* E.G. Elev (ft)          * 1171.12  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.               *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.12  * Reach Len. (ft)          *  130.80  *  125.00  *  120.94  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)        *  404.41  * 4702.72  * 3715.15  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)             *  404.41  * 4702.72  * 3715.15  *
* Q Total (cfs)           * -677.68  * Flow (cfs)               *  -18.53  * -504.62  * -154.53  *
* Top Width (ft)          *  939.44  * Top Width (ft)           *   65.97  *  269.00  *  604.47  *
* Vel Total (ft/s)        *   -0.08  * Avg. Vel. (ft/s)         *   -0.05  *   -0.11  *   -0.04  *
* Max Chl Dpth (ft)       *   19.19  * Hydr. Depth (ft)         *    6.13  *   17.48  *    6.15  *
* Conv. Total (cfs)       *1804526.0  * Conv. (cfs)             * 49339.8  *1343715.0  *411471.1  *
* Length Wtd. (ft)        *  124.16  * Wetted Per. (ft)         *   67.95  *  269.34  *  604.79  *
* Min Ch El (ft)          * 1151.92  * Shear (lb/sq ft)         *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.53  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *   39.51  *  549.88  *  603.24  *
* C & E Loss (ft)         *          * Cum SA (acres)           *    5.67  *   29.74  *   62.07  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: PRS
REACH: PRS3                RS: 4625.*

INPUT
Description:
Station Elevation Data     num=     256
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
  151.42  1171.1  163.06 1169.59  168.69  1169.1  173.14 1168.56  174.21 1168.29
  182.94 1165.86  188.53  1164.3  194.85 1162.55  197.01 1161.95  198.99  1161.4
  205.89 1159.48  216.57  1156.6  216.76 1156.56   219.9 1156.01   224.1 1155.41
  229.01  1155.2  238.07 1155.07  243.15 1155.08  243.39 1155.08   243.9 1155.08
  254.91 1155.15  259.57 1155.23  266.89 1155.35  270.31 1155.43  281.06 1155.74
  282.24 1155.68  290.37 1155.19  297.51 1154.62  302.55 1154.12  303.24 1154.08
  305.85 1153.91  313.87  1153.2  320.58  1152.7  324.05 1152.45  337.36 1152.18
  341.42 1152.13  345.55 1152.06  348.89 1152.06  350.31 1152.07  352.58 1152.09
  356.03 1152.12  367.66 1152.22  368.38 1152.23  371.28 1152.28  373.26 1152.31
  377.19  1152.4  382.03 1152.51  384.51 1152.56     385 1152.57  397.36 1152.87
  397.62 1152.88  402.34 1152.98  403.29    1153  405.49 1153.05  417.65 1153.31
  419.69 1153.36     422 1153.42  424.84 1153.49  425.05 1153.49   433.8  1153.7
  437.04 1153.78  442.15 1153.92  446.37 1154.05  454.37 1154.32  462.09 1154.77
  465.16 1154.98  468.45  1155.2  470.37  1155.3  473.71 1155.49   477.5 1155.76
  490.79 1156.68  498.19 1157.18  499.48 1157.26   501.6 1157.39  502.41 1157.43
  503.75 1157.47  511.22 1157.61   516.3 1157.72  519.71 1157.79  529.15  1158.1
   529.5 1158.12  530.93 1158.17  531.64 1158.19  533.27 1158.26  549.28 1158.97
  552.06 1159.09  557.39 1159.32  567.05 1159.77  570.22 1159.93   572.5 1160.04
  574.84 1160.17  580.79 1160.34  585.29 1160.54  589.47 1160.74  592.91 1160.85
   594.8 1160.93  604.11 1161.27  613.18 1161.43  613.34 1161.43  632.43 1161.81
  633.77 1161.85  634.63 1161.86  640.33 1161.98  641.08 1161.99  654.19 1162.21
  658.08 1162.31  668.42 1162.66  668.98 1162.68  674.61 1162.79  675.38 1162.84
  677.29 1162.99  684.06 1163.12  685.85 1163.17  691.92  1163.3  695.04 1163.41
  696.88 1163.46  706.55 1163.81   714.3 1163.99  715.46 1164.01  721.19 1164.17
  724.77  1164.2  731.38 1164.23   735.7 1164.22  735.89 1164.21     736 1164.22
  744.58 1164.22  752.66 1164.35  756.31 1164.37  761.87 1164.45  769.79 1164.58
  776.73 1164.67   776.9 1164.67  779.73 1164.73  780.55 1164.75  787.33 1164.94
  794.37 1165.13  796.45 1165.19  797.16 1165.22  803.58 1165.43  808.45 1165.58
  817.58 1165.84  822.41 1165.93  836.35 1166.21  837.37 1166.23     838 1166.24
  838.27 1166.24  838.98 1166.26  858.37 1166.61  858.43 1166.61  864.24  1166.7
  867.94 1166.76  871.15  1166.8  878.85 1166.92  890.61 1167.15  892.14 1167.18
  896.81 1167.26  899.28  1167.3  904.94 1167.42  913.46 1167.63  919.71 1167.78
  920.03 1167.79  930.41 1168.03  938.73 1168.22  940.12 1168.24  940.73 1168.25
  942.25 1168.28  947.93 1168.38  952.13 1168.44  955.37  1168.5  958.99 1168.59
  960.55 1168.62  969.42 1168.82  972.52  1168.9  975.83 1168.96  980.98 1169.06
  993.88 1169.37  1001.4 1169.53 1002.46 1169.55 1003.72 1169.58 1004.51  1169.6
  1013.9 1169.78 1021.82 1169.95 1028.53 1170.06 1031.62 1170.14 1042.25 1170.39
 1043.18 1170.41 1045.52 1170.46 1050.04 1170.55 1057.81  1170.7 1059.52 1170.74
 1062.67 1170.82 1072.45 1170.95 1074.48 1170.99  1083.1 1171.15 1087.08 1171.18
  1087.4 1171.19 1095.56 1171.29 1097.15 1171.31 1101.71 1171.37 1103.52  1171.4
 1107.68 1171.47  1115.3 1171.57 1123.94 1171.68 1130.98 1171.77 1141.09 1171.94
 1143.19 1171.97 1144.37 1171.99 1146.52 1172.01  1148.8 1172.04 1160.26 1172.17
 1164.79 1172.23 1171.09 1172.29 1175.25 1172.33 1185.21  1172.4 1186.61 1172.41
 1198.98 1172.49 1200.44  1172.5 1204.16 1172.53 1205.64 1172.55 1209.04 1172.58
 1218.57 1172.65 1226.07 1172.71 1226.88 1172.71 1232.14 1172.77 1242.84 1172.88
 1246.49 1172.93 1252.08 1172.99 1254.78 1173.03  1262.7 1173.16 1266.92  1173.2
 1277.35 1173.44 1277.66 1173.44 1280.77 1173.46 1282.68 1173.47 1287.34 1173.49
  1290.6 1173.55 1303.71 1173.78 1307.76 1173.84 1310.57 1173.92 1321.24 1174.23
 1323.19 1174.25 1328.19 1174.29 1338.47 1174.51  1344.2 1174.62 1348.61 1174.71
 1349.94 1174.74 1350.52 1174.75 1355.35 1174.83 1365.16 1175.01 1366.37 1175.02
 1367.26 1175.03 1368.71 1175.04 1369.03 1175.05 1377.98  1175.2 1389.46 1175.39
 1389.73  1175.4

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
  151.42     .04  216.76    .035  468.45    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        216.76  468.45             130.8     125  120.94             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1171.12  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.               *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.12  * Reach Len. (ft)          *  130.80  *  125.00  *  120.94  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)        *  403.54  * 4354.14  * 4035.63  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)             *  403.54  * 4354.14  * 4035.63  *
* Q Total (cfs)           * -653.49  * Flow (cfs)               *  -18.47  * -460.55  * -174.47  *
* Top Width (ft)          *  929.85  * Top Width (ft)           *   65.34  *  251.69  *  612.82  *
* Vel Total (ft/s)        *   -0.07  * Avg. Vel. (ft/s)         *   -0.05  *   -0.11  *   -0.04  *
* Max Chl Dpth (ft)       *   19.06  * Hydr. Depth (ft)         *    6.18  *   17.30  *    6.59  *
* Conv. Total (cfs)       *1753134.0  * Conv. (cfs)             * 49561.6  *1235527.0  *468045.4  *
* Length Wtd. (ft)        *  124.00  * Wetted Per. (ft)         *   67.13  *  251.98  *  613.08  *
* Min Ch El (ft)          * 1152.06  * Shear (lb/sq ft)         *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.53  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)     *   38.30  *  536.88  *  592.48  *
* C & E Loss (ft)         *          * Cum SA (acres)           *    5.47  *   28.99  *   60.38  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION
```

RIVER: FRS
REACH: FRS3 RS: 4500.000

INPUT
Description:
Station Elevation Data num= 147

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
151.2	1171.33	162.73	1169.49	172.71	1168.48	187.95	1164.23	194.21	1162.51
198.31	1161.37	215.72	1156.56	215.91	1156.53	223.26	1155.43	237.23	1155.24
242.32	1155.28	254.08	1155.36	258.74	1155.45	269.49	1155.67	280.25	1155.98
296.7	1154.72	301.75	1154.21	305.05	1154.03	323.26	1152.52	340.64	1152.28
344.77	1152.21	351.07	1152.27	361.97	1152.37	366.28	1152.45	376.21	1152.75
387.78	1153.1	392.78	1153.23	405.45	1153.52	409.29	1153.61	411.8	1153.67
430.8	1154.09	447.38	1154.58	450.28	1154.66	452.31	1154.71	459.82	1154.98
473.81	1155.49	482.96	1155.79	495.32	1156.21	500.67	1156.42	514.21	1156.89
516.08	1156.98	516.83	1157	518.54	1157.09	538.33	1158.16	554.12	1159.04
559.85	1159.39	562.32	1159.56	568.58	1159.79	577.73	1160.3	581.35	1160.42
593.14	1160.94	602.86	1161.14	622.96	1161.57	624.37	1161.62	625.28	1161.64
645.88	1162.09	660.86	1162.57	667.38	1162.74	670.2	1162.97	677.33	1163.05
685.61	1163.22	688.89	1163.33	701.02	1163.72	710.4	1163.88	716.43	1164.04
731.71	1164.05	731.91	1164.04	732.03	1164.05	753.41	1164.13	767.61	1164.38
774.92	1164.47	778.08	1164.55	786.08	1164.84	793.49	1165.09	796.43	1165.21
803.19	1165.44	817.93	1165.9	838.77	1166.34	839.44	1166.35	839.72	1166.35
840.47	1166.37	860.95	1166.71	874.35	1166.88	882.46	1166.99	894.84	1167.21
901.37	1167.32	903.97	1167.36	909.93	1167.49	925.48	1167.9	945.51	1168.37
946.98	1168.39	947.62	1168.4	949.22	1168.44	963.03	1168.65	968.49	1168.77
981.09	1169.05	990	1169.2	1003.59	1169.52	1011.51	1169.68	1024.67	1169.94
1033.01	1170.13	1040.08	1170.25	1054.52	1170.63	1055.5	1170.65	1057.97	1170.71
1070.91	1171	1076.03	1171.14	1086.32	1171.29	1097.54	1171.52	1101.73	1171.55
1112.34	1171.67	1117.14	1171.71	1119.04	1171.75	1123.42	1171.81	1140.55	1171.99
1147.96	1172.07	1162.06	1172.28	1166.73	1172.34	1178.79	1172.47	1183.56	1172.54
1194.58	1172.65	1205.07	1172.72	1221.1	1172.83	1225.02	1172.85	1226.58	1172.87
1230.16	1172.9	1248.09	1173.02	1265.75	1173.17	1269.6	1173.22	1275.48	1173.28
1286.67	1173.44	1291.11	1173.47	1302.09	1173.71	1312.61	1173.71	1329.85	1173.94
1334.12	1173.99	1348.31	1174.4	1355.63	1174.42	1372.49	1174.73	1377.13	1174.82
1379.15	1174.86	1384.23	1174.93	1394.56	1175.11	1398.64	1175.14	1408.06	1175.29
1420.15	1175.48	1420.43	1175.49						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
151.2	.04	215.91	.035	450.28	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
215.91	450.28	498.18	500	508.77	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

* E.G. Elev (ft)	* 1171.12	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.00	* Wt. n-Val.	* 0.040	* 0.035	* 0.045 *
* W.S. Elev (ft)	* 1171.12	* Reach Len. (ft)	* 498.18	* 500.00	* 508.77 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	* 402.54	* 4008.87	* 4375.83 *
* E.G. Slope (ft/ft)	*0.000000	* Area (sq ft)	* 402.54	* 4008.87	* 4375.83 *
* Q Total (cfs)	* -666.32	* Flow (cfs)	* -19.64	* -440.43	* -206.26 *
* Top Width (ft)	* 922.61	* Top Width (ft)	* 63.37	* 234.37	* 624.87 *
* Vel Total (ft/s)	* -0.08	* Avg. Vel. (ft/s)	* -0.05	* -0.11	* -0.05 *
* Max Chl Dpth (ft)	* 18.91	* Hydr. Depth (ft)	* 6.35	* 17.10	* 7.00 *
* Conv. Total (cfs)	*1708081.0	* Conv. (cfs)	* 50338.4	*1129018.0	*528724.4 *
* Length Wtd. (ft)	* 502.29	* Wetted Per. (ft)	* 65.17	* 234.64	* 625.14 *
* Min Ch El (ft)	* 1152.21	* Shear (lb/sq ft)	* 0.00	* 0.00	* 0.00 *
* Alpha	* 1.52	* Stream Power (lb/ft s)	* 0.00	* 0.00	* 0.00 *
* Frctn Loss (ft)	* 0.00	* Cum Volume (acre-ft)	* 37.09	* 524.88	* 580.81 *
* C & E Loss (ft)	*	* Cum SA (acres)	* 5.27	* 28.29	* 58.66 *

CROSS SECTION

RIVER: FRS
REACH: FRS3 RS: 4000.000

INPUT
Description:
Station Elevation Data num= 130

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
167.06	1170.45	168.38	1170.14	171.61	1169.27	183.71	1165.98	188.67	1164.65
199.04	1161.92	210.29	1158.91	213.23	1158.23	214.37	1157.96	224.35	1156.68
229.71	1155.82	231.9	1155.7	245.03	1155.56	253.52	1155.61	260.37	1155.64
275.13	1155.64	275.69	1155.64	277.09	1155.58	296.74	1154.81	306.35	1153.61
318.36	1152.83	321.69	1152.76	329.83	1152.57	339.98	1152.35	352.35	1152.29
361.59	1152.31	382.57	1152.63	383.2	1152.64	383.64	1152.65	404.82	1153.23
413.68	1153.48	426.43	1153.85	429.01	1153.95	435.3	1154.26	448.05	1154.97
453.59	1155.55	456.89	1155.89	469.66	1157.1	488.04	1159.6	490.33	1159.91
491.28	1160.03	493.52	1160.24	512.89	1162.49	530.14	1162.74	534.51	1162.76
536.32	1162.76	540.78	1162.82	551.66	1162.88	556.12	1162.95	566.77	1163.13
577.74	1163.27	582.32	1163.35	593.51	1163.62	597.65	1163.72	599.35	1163.76
612.98	1164.1	620.97	1164.33	640.02	1164.81	642.58	1164.86	643.64	1164.87
646.24	1164.92	658.98	1165.07	664.19	1165.19	676.65	1165.29	685.81	1165.32
698.98	1165.39	704.97	1165.39	707.42	1165.4	713.27	1165.48	729.04	1165.63
749.9	1166.02	750.65	1166.03	750.96	1166.04	751.72	1166.05	766.29	1166.16
772.27	1166.27	786.52	1166.38	793.88	1166.41	804.46	1166.43	815.5	1166.45
827.61	1166.51	837.11	1166.41	842.95	1166.54	857.2	1166.33	858.73	1166.34
859.78	1166.36	880.34	1166.97	896.4	1167.27	901.95	1167.43	909.93	1167.54
919.61	1167.79	923.57	1167.84	933.03	1168.02	945.19	1168.32	962.67	1168.68
966.8	1168.8	980.92	1169.2	988.41	1169.39	1006.28	1169.76	1010.03	1169.85
1015.41	1169.98	1031.64	1170.39	1042.26	1170.78	1053.26	1171.05	1057.58	1171.21
1068.15	1171.52	1074.87	1171.73	1079.53	1171.86	1096.49	1172.4	1103.58	1172.65
1118.1	1173.07	1120.89	1173.15	1134.24	1173.47	1139.72	1173.58	1149.57	1173.82
1161.33	1174.09	1173.62	1174.39	1182.94	1174.58	1189.41	1174.73	1204.56	1175.08
1210.89	1175.21	1226.18	1175.63	1226.36	1175.64	1247.79	1176.05	1262.66	1176.34
1269.4	1176.45	1279.1	1176.64	1287.55	1176.69	1291.02	1176.77	1292.27	1176.79

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
167.06	.04	213.23	.035	453.59	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
213.23	453.59	125.42	125	124.86	.1	.3

```
CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1171.12  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.12  * Reach Len. (ft)         *  125.42  *  125.00  *  124.86  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  315.27  * 4089.28  * 3332.50  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  315.27  * 4089.28  * 3332.50  *
* Q Total (cfs)           * -669.60  * Flow (cfs)              *  -17.84  * -501.29  * -150.47  *
* Top Width (ft)          *  888.06  * Top Width (ft)          *   46.17  *  240.36  *  601.53  *
* Vel Total (ft/s)        *   -0.09  * Avg. Vel. (ft/s)        *   -0.06  *   -0.12  *   -0.05  *
* Max Chl Dpth (ft)       *   18.83  * Hydr. Depth (ft)        *    6.83  *   17.01  *    5.54  *
* Conv. Total (cfs)       *1532345.0  * Conv. (cfs)            * 40831.5  *1147179.0  *344334.6  *
* Length Wtd. (ft)        *  124.98  * Wetted Per. (ft)        *   48.43  *  240.75  *  602.05  *
* Min Ch El (ft)          * 1152.29  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.57  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *   32.99  *  478.41  *  535.79  *
* C & E Loss (ft)         *          * Cum SA (acres)          *    4.65  *   25.57  *   51.50  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 3875.*

INPUT
Description:
Station Elevation Data    num=     258
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
  165.96 1170.45  167.29 1170.12  170.55 1169.22  175.26 1167.91  182.77 1165.83
   186.8 1164.72  187.78 1164.46  190.31 1163.77  198.24 1161.64  199.45 1161.32
  205.35  1159.7  207.64 1159.08   209.6 1158.63  212.57 1158.03  212.77 1157.99
  213.68 1157.79  223.38 1156.44  228.59 1155.59  230.48 1155.43  230.72 1155.42
  238.34 1155.32  243.48 1155.25  251.73 1155.24  253.94 1155.24  255.28 1155.25
  258.39 1155.26  258.81 1155.26  272.24 1155.26  272.73 1155.26  273.28 1155.26
  274.64 1155.21   277.4 1155.11  289.18 1154.72  293.73 1154.55  300.86 1153.81
  303.07 1153.53  306.13 1153.29  314.75 1152.73  317.98 1152.63  319.83 1152.57
  323.07 1152.46  324.33 1152.43   325.9 1152.39  327.12 1152.37  335.76 1152.17
  347.78 1152.06  358.56 1152.08  358.94 1152.09  362.78 1152.13  364.48 1152.15
  368.93  1152.2  375.32 1152.28  377.78 1152.31  383.04 1152.38  383.78 1152.39
  384.29  1152.4  386.14 1152.44  392.78 1152.57  396.98 1152.66  407.77 1152.89
  407.82 1152.89  407.93  1152.9     409 1152.92  418.64 1153.14  419.34 1153.15
  422.77 1153.23  429.48 1153.39  434.22 1153.51  437.23  1153.6  437.77 1153.62
  440.31 1153.72  444.57 1153.88  446.93 1153.98  451.14 1154.15  452.76 1154.22
  459.44 1154.48  461.97 1154.66  465.91 1154.93  468.71 1155.16  469.14  1155.2
  476.38 1155.73  481.67 1156.12   491.5 1157.16  492.84  1157.3  496.34 1157.68
  499.69 1158.04  501.93 1158.28  502.86 1158.37  505.06 1158.54  509.29 1158.93
  514.27 1159.39  524.05 1160.31  525.76 1160.34  537.06  1160.5  540.97 1160.56
  542.21 1160.57  545.25 1160.59  547.03  1160.6   551.4 1160.66  555.59  1160.7
  558.67 1160.73  559.85 1160.74  562.07 1160.76  566.44 1160.84  575.12    1161
  576.89 1161.03  582.63 1161.11  587.64 1161.18  591.57 1161.26  592.13 1161.27
  603.11 1161.52  605.41 1161.57  607.17 1161.61  608.83 1161.65  614.86 1161.79
   622.2 1161.96  628.19 1162.12  630.03 1162.17  640.94 1162.44  648.71 1162.63
  650.98 1162.67  651.22 1162.68  652.26 1162.69  654.81 1162.74   667.3 1162.89
  672.41    1163  673.53 1163.01  673.76 1163.01  674.11 1163.01  684.63 1163.11
  690.31 1163.14  693.61 1163.16  696.54 1163.18  706.53 1163.25  706.76 1163.25
   712.4 1163.26   714.8 1163.27  719.32 1163.33  720.54 1163.35  733.37 1163.48
     736  1163.5  742.11 1163.61  756.13 1163.88  756.46 1163.88  757.19 1163.89
   757.5  1163.9  758.24 1163.91  764.89 1163.97  772.53 1164.06  772.59 1164.06
  778.39 1164.17  787.67 1164.26  792.36 1164.33  792.62 1164.33  799.58 1164.42
   805.5 1164.48  809.96 1164.53  810.45 1164.53  820.78 1164.75  821.96 1164.78
  832.65 1165.02  833.24 1165.03  838.41  1165.1  841.97 1165.15   847.7 1165.38
  851.89 1165.43  854.87 1165.46  856.01 1165.48   858.6 1165.51  861.67 1165.54
  863.17 1165.58   864.2 1165.62   878.8 1166.29  884.36 1166.54  895.61 1166.96
  900.11 1167.12  901.59 1167.19  904.24 1167.31  905.55 1167.36  911.14 1167.54
  913.37 1167.61  920.69  1167.9  922.87 1167.99  924.37 1168.03  926.75 1168.09
  936.03 1168.38  937.15 1168.42  947.15 1168.73  947.95 1168.75   953.6 1168.85
  965.09 1169.06  969.14 1169.16  969.93 1169.18  970.06 1169.18   970.4 1169.18
  982.98 1169.43  986.52 1169.49  990.33 1169.56  992.72  1169.6 1006.65 1169.84
 1007.85 1169.86 1011.53 1169.92 1015.5    1170 1016.8 1170.02 1029.65 1170.32
 1032.72 1170.39 1035.87 1170.49 1038.28 1170.56 1043.13 1170.72 1052.34 1170.94
 1053.92 1170.97 1058.15 1171.12 1061.06  1171.2 1068.52 1171.41 1068.79 1171.42
 1075.11  1171.6 1079.68 1171.73 1083.85 1171.85 1085.24 1171.89 1088.91 1171.99
 1096.31 1172.22 1103.26 1172.45 1106.63 1172.54  1117.5 1172.84 1118.16 1172.86
 1120.23 1172.91 1129.41 1173.09 1133.32 1173.16  1138.7 1173.25 1148.16 1173.42
 1148.35 1173.43 1152.19 1173.51  1154.7 1173.57 1159.89 1173.73 1171.94 1174.12
 1174.98  1174.2 1181.08 1174.37 1183.99 1174.45 1187.42 1174.53 1197.77 1174.76
 1202.28 1174.85 1207.42 1174.95 1208.48 1174.97 1220.54  1175.3 1223.48 1175.38
 1223.65 1175.39 1228.73  1175.5 1243.33 1175.87 1244.66  1175.9 1249.81    1176
 1259.25  1176.2 1265.85 1176.33 1266.11 1176.33 1266.67 1176.34 1275.37 1176.55
 1283.65 1176.66 1287.05 1176.75 1288.28 1176.78

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
  165.96     .04  212.57    .035  465.91    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        212.57  465.91             125.42     125  124.86             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1171.12  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.12  * Reach Len. (ft)         *  125.42  *  125.00  *  124.86  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  327.30  * 4396.58  * 4022.53  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  327.30  * 4396.58  * 4022.53  *
* Q Total (cfs)           * -670.40  * Flow (cfs)              *  -16.36  * -473.62  * -180.42  *
* Top Width (ft)          *  892.16  * Top Width (ft)          *   46.61  *  253.34  *  592.21  *
* Vel Total (ft/s)        *   -0.08  * Avg. Vel. (ft/s)        *   -0.05  *   -0.11  *   -0.04  *
* Max Chl Dpth (ft)       *   19.06  * Hydr. Depth (ft)        *    7.02  *   17.35  *    6.79  *
* Conv. Total (cfs)       *1769375.0  * Conv. (cfs)            * 43175.0  *1250018.0  *476181.5  *
* Length Wtd. (ft)        *  124.97  * Wetted Per. (ft)        *   48.91  *  253.69  *  592.60  *
* Min Ch El (ft)          * 1152.06  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.50  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *   32.06  *  466.23  *  525.25  *
* C & E Loss (ft)         *          * Cum SA (acres)          *    4.52  *   24.86  *   49.79  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.
```

CROSS SECTION

RIVER: FRS
REACH: FRS3 RS: 3750.*

INPUT
Description:
Station Elevation Data num= 258

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
164.86	1170.45	166.21	1170.09	169.5	1169.17	174.24	1167.82	181.83	1165.68
185.9	1164.54	186.88	1164.26	189.44	1163.55	197.45	1161.37	198.67	1161.03
204.63	1159.37	206.93	1158.73	208.91	1158.35	211.91	1157.83	212.1	1157.8
212.99	1157.61	222.41	1156.2	227.46	1155.36	229.31	1155.15	229.53	1155.14
236.94	1155.03	241.92	1154.95	249.94	1154.88	252.08	1154.86	253.39	1154.87
256.4	1154.88	256.81	1154.89	269.86	1154.89	270.33	1154.88	270.86	1154.88
272.18	1154.83	274.87	1154.75	286.31	1154.45	290.73	1154.28	297.65	1153.72
299.8	1153.45	302.77	1153.18	311.13	1152.64	314.28	1152.51	316.07	1152.43
319.22	1152.28	320.44	1152.25	321.96	1152.22	323.15	1152.2	331.54	1152
343.21	1151.83	355.54	1151.86	355.97	1151.86	360.36	1151.89	362.3	1151.9
367.38	1151.96	374.68	1152.03	377.5	1152.07	383.52	1152.13	384.36	1152.14
384.94	1152.15	387.06	1152.18	394.64	1152.3	399.45	1152.38	411.78	1152.59
411.83	1152.59	411.96	1152.59	413.19	1152.61	424.21	1152.81	425	1152.83
428.92	1152.89	436.59	1153.06	442.01	1153.17	445.45	1153.26	446.06	1153.28
448.96	1153.36	453.83	1153.5	456.54	1153.58	461.35	1153.73	463.19	1153.79
470.84	1153.98	473.73	1154.11	478.22	1154.31	480.98	1154.48	481.4	1154.5
488.49	1154.88	493.67	1155.15	503.31	1155.85	504.62	1155.96	508.05	1156.22
511.34	1156.48	513.54	1156.65	514.45	1156.72	516.6	1156.84	520.75	1157.12
525.63	1157.44	535.22	1158.13	536.89	1158.16	547.97	1158.32	551.8	1158.38
553.01	1158.4	556	1158.43	557.74	1158.44	562.02	1158.51	566.13	1158.55
569.14	1158.6	570.3	1158.61	572.48	1158.64	576.77	1158.73	585.28	1158.9
587	1158.93	592.63	1159.02	597.55	1159.1	601.4	1159.17	601.95	1159.18
612.7	1159.42	614.96	1159.47	616.68	1159.5	618.32	1159.54	624.22	1159.66
631.42	1159.83	637.29	1159.97	639.1	1160.02	649.79	1160.26	657.41	1160.45
659.62	1160.49	659.87	1160.5	660.88	1160.51	663.38	1160.55	675.63	1160.71
680.64	1160.81	681.73	1160.82	681.96	1160.82	682.3	1160.82	692.61	1160.93
698.17	1160.97	701.41	1161	704.28	1161.02	714.07	1161.1	714.3	1161.1
719.83	1161.13	722.18	1161.15	726.62	1161.2	727.81	1161.21	740.38	1161.35
742.96	1161.38	748.95	1161.47	762.7	1161.74	763.01	1161.75	763.73	1161.76
764.03	1161.76	764.76	1161.77	771.28	1161.84	778.76	1161.96	778.83	1161.97
784.51	1162.07	793.61	1162.18	798.21	1162.28	798.46	1162.28	805.28	1162.42
811.08	1162.54	815.45	1162.63	815.94	1162.64	826.06	1163.05	827.22	1163.1
837.7	1163.54	838.27	1163.56	843.34	1163.75	846.83	1163.89	852.44	1164.22
856.55	1164.38	859.47	1164.49	860.6	1164.54	863.13	1164.64	866.14	1164.76
867.61	1164.83	868.62	1164.89	882.93	1165.78	888.38	1166.11	899.41	1166.73
903.81	1166.97	905.26	1167.06	907.87	1167.22	909.15	1167.3	914.63	1167.57
916.82	1167.68	923.99	1168.07	926.12	1168.18	927.6	1168.25	929.93	1168.34
939.02	1168.74	940.12	1168.79	949.92	1169.16	950.71	1169.18	956.25	1169.26
967.51	1169.44	971.48	1169.52	972.25	1169.53	972.38	1169.53	972.71	1169.53
985.05	1169.66	988.51	1169.69	992.25	1169.74	994.59	1169.77	1008.24	1169.94
1009.42	1169.95	1013.03	1170	1016.92	1170.04	1018.2	1170.07	1030.79	1170.33
1033.8	1170.39	1036.89	1170.46	1039.25	1170.51	1044	1170.65	1053.03	1170.86
1054.57	1170.9	1058.73	1171.03	1061.58	1171.1	1068.89	1171.3	1069.16	1171.31
1075.34	1171.48	1079.82	1171.59	1083.91	1171.71	1085.28	1171.75	1088.87	1171.83
1096.12	1172.04	1102.94	1172.24	1106.25	1172.33	1116.89	1172.61	1117.54	1172.63
1119.57	1172.67	1128.57	1172.81	1132.41	1172.86	1137.67	1172.91	1146.95	1173.03
1147.14	1173.03	1150.9	1173.11	1153.36	1173.18	1158.44	1173.38	1170.25	1173.84
1173.24	1173.95	1179.21	1174.16	1182.06	1174.26	1185.43	1174.33	1195.57	1174.55
1199.99	1174.63	1205.03	1174.7	1206.07	1174.73	1217.89	1175.05	1220.77	1175.14
1220.94	1175.14	1225.92	1175.26	1240.23	1175.72	1241.54	1175.75	1246.58	1175.84
1255.83	1176.06	1262.31	1176.2	1262.56	1176.21	1263.11	1176.22	1271.63	1176.46
1279.75	1176.63	1283.09	1176.73	1284.29	1176.76				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
164.86	.04	211.91	.035	478.22	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
211.91	478.22	125.42	125	124.86	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1171.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1171.12	Reach Len. (ft)	125.42	125.00	124.86
Crit W.S. (ft)		Flow Area (sq ft)	339.44	4711.97	4683.09
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	339.44	4711.97	4683.09
Q Total (cfs)	-662.32	Flow (cfs)	-14.93	-444.56	-202.83
Top Width (ft)	897.42	Top Width (ft)	47.05	266.31	584.06
Vel Total (ft/s)	-0.07	Avg. Vel. (ft/s)	-0.04	-0.09	-0.04
Max Chl Dpth (ft)	19.29	Hydr. Depth (ft)	7.21	17.69	8.02
Conv. Total (cfs)	2022018.0	Conv. (cfs)	45573.6	1357206.0	619238.7
Length Wtd. (ft)	124.96	Wetted Per. (ft)	49.40	266.64	584.41
Min Ch El (ft)	1151.83	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.42	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	31.10	453.16	512.77
C & E Loss (ft)		Cum SA (acres)	4.38	24.12	48.10

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS3 RS: 3625.*

INPUT
Description:
Station Elevation Data num= 258

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
163.76	1170.45	165.12	1170.07	168.44	1169.11	173.23	1167.73	180.89	1165.53
184.99	1164.35	185.99	1164.07	188.57	1163.34	196.65	1161.09	197.88	1160.74
203.9	1159.04	206.23	1158.37	208.23	1158.07	211.25	1157.63	211.44	1157.6
212.29	1157.44	221.43	1155.96	226.34	1155.12	228.13	1154.87	228.35	1154.86
235.53	1154.74	240.37	1154.64	248.15	1154.51	250.23	1154.48	251.49	1154.5
254.42	1154.51	254.82	1154.51	267.47	1154.51	267.93	1154.5	268.45	1154.49
269.73	1154.46	272.33	1154.4	283.43	1154.17	287.72	1154.02	294.44	1153.63
296.52	1153.37	299.4	1153.06	307.52	1152.54	310.57	1152.38	312.31	1152.29
315.36	1152.1	316.55	1152.07	318.03	1152.04	319.18	1152.02	327.32	1151.82
338.65	1151.6	352.51	1151.63	352.99	1151.64	357.93	1151.65	360.12	1151.66

365.84	1151.71	374.05	1151.79	377.22	1151.82	383.99	1151.88	384.93	1151.89
385.59	1151.89	387.97	1151.92	396.51	1152.02	401.91	1152.09	415.78	1152.28
415.85	1152.28	415.99	1152.28	417.37	1152.3	429.77	1152.49	430.66	1152.5
435.07	1152.56	443.7	1152.72	449.79	1152.83	453.66	1152.91	454.36	1152.93
457.62	1153	463.1	1153.12	466.14	1153.19	471.55	1153.3	473.63	1153.35
482.23	1153.49	485.48	1153.57	490.54	1153.7	493.24	1153.79	493.65	1153.81
500.6	1154.02	505.68	1154.17	515.12	1154.54	516.41	1154.61	519.77	1154.76
522.98	1154.91	525.14	1155.02	526.03	1155.06	528.14	1155.14	532.2	1155.31
536.99	1155.5	546.38	1155.95	548.02	1155.99	558.87	1156.13	562.63	1156.2
563.82	1156.22	566.74	1156.26	568.45	1156.28	572.65	1156.35	576.67	1156.41
579.62	1156.46	580.76	1156.48	582.09	1156.52	587.09	1156.61	595.43	1156.8
597.12	1156.83	602.64	1156.92	607.45	1157.01	611.22	1157.08	611.76	1157.1
622.3	1157.32	624.51	1157.36	626.2	1157.4	627.8	1157.43	633.59	1157.54
640.63	1157.69	646.39	1157.82	648.16	1157.86	658.63	1158.09	666.1	1158.26
668.27	1158.31	668.51	1158.32	669.51	1158.33	671.95	1158.37	683.95	1158.53
688.86	1158.62	689.93	1158.63	690.15	1158.63	690.49	1158.63	700.59	1158.75
706.04	1158.81	709.22	1158.83	712.03	1158.86	721.62	1158.96	721.84	1158.96
727.26	1159	729.57	1159.02	733.91	1159.06	735.07	1159.08	747.4	1159.22
749.92	1159.25	755.79	1159.34	769.26	1159.61	769.57	1159.61	770.27	1159.62
770.57	1159.62	771.28	1159.63	777.67	1159.7	785	1159.87	785.06	1159.87
790.63	1159.97	799.54	1160.1	804.05	1160.22	804.3	1160.23	810.98	1160.43
816.67	1160.59	820.95	1160.72	821.42	1160.74	831.34	1161.35	832.47	1161.43
842.74	1162.05	843.31	1162.08	848.27	1162.4	851.69	1162.63	857.19	1163.06
861.22	1163.33	864.08	1163.52	865.18	1163.6	867.66	1163.77	870.61	1163.97
872.05	1164.07	873.04	1164.15	887.06	1165.26	892.4	1165.68	903.2	1166.5
907.52	1166.82	908.94	1166.94	911.49	1167.14	912.75	1167.23	918.12	1167.61
920.26	1167.75	927.29	1168.24	929.38	1168.38	930.82	1168.47	933.11	1168.6
942.02	1169.1	943.1	1169.17	952.7	1169.6	953.47	1169.61	958.89	1169.68
969.93	1169.82	973.82	1169.87	974.58	1169.89	974.7	1169.89	975.03	1169.88
987.11	1169.88	990.51	1169.88	994.16	1169.91	996.46	1169.93	1009.84	1170.05
1010.99	1170.05	1014.52	1170.07	1018.34	1170.09	1019.59	1170.11	1031.93	1170.34
1034.87	1170.39	1037.9	1170.44	1040.21	1170.47	1044.87	1170.59	1053.72	1170.79
1055.23	1170.82	1059.3	1170.93	1062.09	1171.01	1069.25	1171.19	1069.52	1171.2
1075.58	1171.35	1079.97	1171.46	1083.98	1171.56	1085.31	1171.6	1088.84	1171.66
1095.94	1171.85	1102.62	1172.04	1105.86	1172.12	1116.29	1172.38	1116.93	1172.4
1118.92	1172.43	1127.73	1172.53	1131.49	1172.55	1136.65	1172.58	1145.74	1172.63
1145.92	1172.64	1149.61	1172.71	1152.02	1172.78	1157	1173.02	1168.57	1173.57
1171.49	1173.7	1177.35	1173.95	1180.14	1174.06	1183.44	1174.13	1193.38	1174.34
1197.71	1174.4	1202.65	1174.46	1203.67	1174.49	1215.25	1174.81	1218.07	1174.89
1218.23	1174.9	1223.11	1175.03	1237.13	1175.57	1238.41	1175.59	1243.36	1175.69
1252.42	1175.92	1258.76	1176.08	1259.01	1176.08	1259.55	1176.1	1267.9	1176.37
1275.86	1176.6	1279.12	1176.71	1280.3	1176.74				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
163.76	.04	211.25	.035	490.54	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
211.25	490.54	125.42	125	124.86	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

* E.G. Elev (ft)	* 1171.12	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 0.00	* Wt. n-Val.	* 0.040	* 0.035	* 0.045 *
* W.S. Elev (ft)	* 1171.12	* Reach Len. (ft)	* 125.42	* 125.00	* 124.86 *
* Crit W.S. (ft)	*	* Flow Area (sq ft)	* 351.87	* 5037.33	* 5314.59 *
* E.G. Slope (ft/ft)	*0.000000	* Area (sq ft)	* 351.87	* 5037.33	* 5314.59 *
* Q Total (cfs)	* -671.49	* Flow (cfs)	* -14.10	* -431.05	* -226.34 *
* Top Width (ft)	* 902.71	* Top Width (ft)	* 47.49	* 279.29	* 575.93 *
* Vel Total (ft/s)	* -0.06	* Avg. Vel. (ft/s)	* -0.04	* -0.09	* -0.04 *
* Max Chl Dpth (ft)	* 19.52	* Hydr. Depth (ft)	* 7.41	* 18.04	* 9.23 *
* Conv. Total (cfs)	*2289414.0	* Conv. (cfs)	* 48065.8	*1469652.0	*771696.3 *
* Length Wtd. (ft)	* 124.96	* Wetted Per. (ft)	* 49.90	* 279.62	* 576.34 *
* Min Ch El (ft)	* 1151.60	* Shear (lb/sq ft)	* 0.00	* 0.00	* 0.00 *
* Alpha	* 1.36	* Stream Power (lb/ft s)	* 0.00	* 0.00	* 0.00 *
* Frctn Loss (ft)	* 0.00	* Cum Volume (acre-ft)	* 30.11	* 439.17	* 498.45 *
* C & E Loss (ft)	*	* Cum SA (acres)	* 4.24	* 23.33	* 46.44 *

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION

RIVER: FRS
REACH: FRS3 RS: 3500.000

INPUT
Description:
Station Elevation Data num= 133

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
162.66	1170.45	172.22	1167.64	184.09	1164.17	187.7	1163.12	197.1	1160.46
203.17	1158.71	205.52	1158.02	210.59	1157.43	210.77	1157.41	226.95	1154.59
234.13	1154.45	248.37	1154.1	249.6	1154.12	252.82	1154.13	265.09	1154.13
269.8	1154.04	280.56	1153.9	291.23	1153.54	296.04	1152.95	308.55	1152.15
311.51	1151.92	312.66	1151.89	315.21	1151.85	334.08	1151.37	350.02	1151.41
355.51	1151.41	357.94	1151.42	364.29	1151.47	373.42	1151.54	376.94	1151.57
388.89	1151.66	398.37	1151.75	404.38	1151.81	419.79	1151.97	419.86	1151.97
420.02	1151.97	435.33	1152.16	441.22	1152.22	450.81	1152.38	462.65	1152.58
466.28	1152.64	475.75	1152.79	481.76	1152.88	484.07	1152.92	497.24	1153.03
502.86	1153.08	505.5	1153.11	512.71	1153.17	526.93	1153.23	528.19	1153.26
531.48	1153.3	543.66	1153.5	548.35	1153.55	559.15	1153.81	569.78	1153.95
574.62	1154.05	587.21	1154.26	590.1	1154.33	591.21	1154.35	605.58	1154.7
612.64	1154.83	621.05	1155	634.06	1155.26	642.95	1155.41	655.49	1155.67
667.48	1155.91	676.92	1156.13	698.13	1156.44	698.35	1156.44	698.68	1156.44
713.91	1156.64	719.77	1156.7	729.38	1156.82	741.2	1156.93	754.41	1157.09
762.63	1157.2	775.82	1157.47	784.06	1157.57	791.3	1157.77	805.48	1158.02
810.14	1158.18	822.25	1158.65	826.91	1158.84	837.73	1159.75	848.34	1160.61
853.2	1161.05	865.88	1162.28	868.68	1162.55	869.76	1162.66	872.19	1162.9
891.19	1164.75	907	1166.27	912.62	1166.81	915.12	1167.05	921.61	1167.64
930.59	1168.41	934.05	1168.69	946.07	1169.54	955.47	1170.03	961.54	1170.09
976.9	1170.24	977.02	1170.24	977.34	1170.23	992.5	1170.08	998.33	1170.09
1011.43	1170.15	1019.76	1170.14	1033.07	1170.35	1038.92	1170.42	1041.18	1170.43
1054.41	1170.71	1062.61	1170.91	1069.88	1171.09	1084.04	1171.42	1085.35	1171.45
1088.8	1171.5	1105.47	1171.91	1116.31	1172.17	1126.89	1172.25	1144.53	1172.24
1148.32	1172.31	1150.68	1172.39	1169.75	1173.45	1178.22	1173.87	1191.18	1174.13
1200.26	1174.22	1212.6	1174.56	1220.3	1174.79	1234.03	1175.42	1240.13	1175.53
1255.46	1175.96	1255.99	1175.98	1276.31	1176.73				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

```
 162.66     .04  210.59    .035  502.86    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        210.59  502.86            502.11     500  535.83             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)         * 1171.12  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)         * 1171.12  * Reach Len. (ft)         *  502.11  *  500.00  *  535.83  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *  364.33  * 5370.79  * 5916.02  *
* E.G. Slope (ft/ft)     *0.000000  * Area (sq ft)            *  364.33  * 5370.79  * 5916.02  *
* Q Total (cfs)          * -680.48  * Flow (cfs)              *  -13.41  * -420.43  * -246.64  *
* Top Width (ft)         *  908.51  * Top Width (ft)          *   47.93  *  292.27  *  568.31  *
* Vel Total (ft/s)       *   -0.06  * Avg. Vel. (ft/s)        *   -0.04  *   -0.08  *   -0.04  *
* Max Chl Dpth (ft)      *   19.75  * Hydr. Depth (ft)        *    7.60  *   18.38  *   10.41  *
* Conv. Total (cfs)      *2567885.0  * Conv. (cfs)            * 50598.3  *1586565.0  *930721.4  *
* Length Wtd. (ft)       *  515.99  * Wetted Per. (ft)        *   50.40  *  292.62  *  568.88  *
* Min Ch El (ft)         * 1151.37  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                  *    1.30  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)    *   29.07  *  424.24  *  482.35  *
* C & E Loss (ft)        *          * Cum SA (acres)          *    4.11  *   22.51  *   44.80  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 3000.000

INPUT
Description:
Station Elevation Data     num=     119
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
  160.12 1171.55  162.28 1171.19   168.2  1169.5  177.87 1166.75  181.42 1165.71
  189.05 1163.56  202.72 1159.65  209.37 1158.29  222.67 1155.57  224.01 1155.23
  226.33 1155.22  240.22  1155.1  245.32 1155.11  255.81 1155.39  266.62 1155.69
  284.46 1156.77  286.98  1156.9  287.92 1156.82  302.57 1152.67  309.22 1151.97
  318.17 1151.73  330.52 1151.39  333.75 1151.36  342.59 1151.33  351.82  1151.3
  364.93 1151.34  373.12 1151.39  380.51 1151.45  394.42 1151.65   396.1 1151.68
  400.71 1151.76  415.72 1151.99  427.28 1152.02  437.02 1152.02  441.21 1152.01
  458.01 1151.99  458.32 1151.99  458.84 1151.99  474.04 1152.07  479.62 1152.11
  489.63 1152.22  500.92 1152.32  516.97 1152.49  520.81 1152.54  522.22 1152.56
   536.4 1152.78  543.52 1152.86  551.99 1153.02  564.82  1153.2  567.57 1153.26
   575.1 1153.41  586.12 1153.66  592.49 1153.84  607.42 1154.27  614.34 1154.49
  628.73 1154.94  633.23 1155.08  645.52 1155.52  650.03 1155.66  659.73 1155.91
  671.33 1156.25  676.69 1156.41  691.36 1156.68  692.29 1156.71  692.63 1156.71
  707.87 1157.08  713.93 1157.19  723.46 1157.47  735.23  1157.8  739.05 1157.92
  749.49 1158.24  756.53 1158.49   760.6 1158.65  777.83 1159.29  794.21 1159.84
  799.13 1160.02  807.62  1160.2  820.43 1160.48  832.58 1160.66  841.73 1160.83
  861.45 1161.24  863.03 1161.28  865.75 1161.35  879.35 1161.71  884.33 1161.84
  894.93  1162.2  905.63 1162.53  910.52  1162.7  923.88 1163.19  926.11 1163.28
  926.93  1163.3  941.69 1163.73  948.23 1163.91  957.28 1164.09  969.53  1164.3
     982 1164.46  990.83  1164.6 1004.05 1164.76 1012.13 1164.87 1029.55 1165.07
 1033.43 1165.11 1040.13 1165.18 1050.81  1165.3 1054.73 1165.37 1066.41 1165.57
 1076.03 1165.81 1096.79 1166.49 1097.34 1166.51 1098.26 1166.56 1113.17 1167.36
 1118.64 1167.78 1128.75 1168.92 1139.94 1170.22 1156.39 1172.56 1159.94 1173.04
 1161.23 1173.21 1175.52 1175.11 1182.54 1175.94 1182.86 1175.98

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
  160.12     .04  209.37    .035  441.21    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        209.37  441.21            495.44     500  514.16             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)         * 1171.12  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)         * 1171.12  * Reach Len. (ft)         *  495.44  *  500.00  *  514.16  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *  311.31  * 4137.74  * 8189.64  *
* E.G. Slope (ft/ft)     *0.000000  * Area (sq ft)            *  311.31  * 4137.74  * 8189.64  *
* Q Total (cfs)          * -675.57  * Flow (cfs)              *  -10.28  * -308.16  * -357.14  *
* Top Width (ft)         *  983.75  * Top Width (ft)          *   46.85  *  231.84  *  705.06  *
* Vel Total (ft/s)       *   -0.05  * Avg. Vel. (ft/s)        *   -0.03  *   -0.07  *   -0.04  *
* Max Chl Dpth (ft)      *   19.82  * Hydr. Depth (ft)        *    6.65  *   17.85  *   11.62  *
* Conv. Total (cfs)      *2622600.0  * Conv. (cfs)            * 39892.3  *1196293.0  *1386415.0  *
* Length Wtd. (ft)       *  507.06  * Wetted Per. (ft)        *   48.59  *  232.83  *  705.50  *
* Min Ch El (ft)         * 1151.30  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                  *    1.24  * Stream Power (lb/ft s)   *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)    *   25.18  *  369.67  *  395.59  *
* C & E Loss (ft)        *          * Cum SA (acres)          *    3.56  *   19.51  *   36.97  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 2500.000

INPUT
Description:
Station Elevation Data     num=     119
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
  155.22 1171.52  163.15 1169.82  176.78 1166.36  185.98 1163.53  198.35 1159.91
  208.98 1157.62  216.64 1155.97  218.97 1155.49  219.91 1155.39  222.11 1155.41
  241.47 1155.55  249.71 1155.72  263.04 1156.04  265.07 1156.06  270.15  1156.1
   284.6 1155.96  294.34 1154.05  306.16 1151.87  323.66 1150.96  326.55 1150.91
  327.73 1150.89  341.93 1150.79  349.29 1150.82  357.29 1150.87  370.85 1150.99
  377.16 1151.05  388.03 1151.14  392.41  1151.2   403.4 1151.32  413.98 1151.49
  418.76 1151.58  430.67 1151.79  435.54 1151.88  438.82 1151.92  447.64 1152.06
   457.1 1152.22  474.95 1152.58  478.67 1152.65  484.17  1152.8  500.23 1153.22
  511.07 1153.55  521.79 1153.87  526.36 1154.01  537.68 1154.35  541.72 1154.47
  543.36 1154.53  547.18 1154.66  564.92 1155.25   583.3  1155.9  586.48 1156.01
  591.18 1156.17  603.19 1156.59  608.04 1156.76  618.57 1157.06  629.61 1157.34
  633.93 1157.43  644.68 1157.59  649.31 1157.66  651.17 1157.68  655.54 1157.73
  672.73 1157.94  691.67 1158.14   694.3 1158.17  698.19 1158.21  710.78 1158.32
  715.86 1158.35  727.79 1158.46  737.42 1158.58  751.69 1158.79  758.99 1158.88
```

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  772.26  1159.1  780.55 1159.21  800.02  1159.6  802.12 1159.63     803 1159.65
   805.2 1159.72  823.68 1160.32  836.14 1160.73  845.24 1161.01  858.71 1161.35
   866.8 1161.54  879.84 1161.81  888.37 1162.02  908.39 1162.57  909.93  1162.6
  910.58 1162.62  912.21 1162.65  925.95 1162.89  931.49 1162.99  941.32 1163.06
  953.06 1163.04  956.69 1163.16  965.71 1163.68  974.62  1164.2  980.62 1164.49
  996.18 1165.23 1016.75 1165.94 1017.75 1165.97 1019.21 1166.02 1033.53 1166.46
 1039.31 1166.65 1048.91 1166.97 1060.87 1167.43 1064.27 1167.56 1072.72 1167.93
 1079.64 1168.22 1082.43 1168.38 1095.01 1169.14    1104 1169.91 1110.38 1170.71
 1125.56 1172.85 1125.74 1172.88 1126.23 1172.92 1141.12 1174.47 1147.12 1174.78
 1156.48 1175.21 1168.69 1175.75 1179.73 1176.22 1187.37 1176.52

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
  155.22     .04  208.98    .035  447.64    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        208.98  447.64            498.81     500  514.15             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**************************************************************************************************
* E.G. Elev (ft)          * 1171.12  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.12  * Reach Len. (ft)         *  498.81  *  500.00  *  514.15  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  349.76  * 4335.58  * 7370.53  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  349.76  * 4335.58  * 7370.53  *
* Q Total (cfs)           * -673.84  * Flow (cfs)              *  -12.11  * -339.02  * -322.71  *
* Top Width (ft)          *  956.23  * Top Width (ft)          *   51.90  *  238.66  *  665.66  *
* Vel Total (ft/s)        *   -0.06  * Avg. Vel. (ft/s)        *   -0.03  *   -0.08  *   -0.04  *
* Max Chl Dpth (ft)       *   20.33  * Hydr. Depth (ft)        *    6.74  *   18.17  *   11.07  *
* Conv. Total (cfs)       *2523586.0  * Conv. (cfs)            * 45336.7  *1269671.0  *1208577.0  *
* Length Wtd. (ft)        *  505.96  * Wetted Per. (ft)        *   53.66  *  239.32  *  666.05  *
* Min Ch El (ft)          * 1150.79  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.29  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *   21.42  *  321.04  *  303.76  *
* C & E Loss (ft)         *          * Cum SA (acres)          *    3.00  *   16.81  *   28.88  *
**************************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 2000.000

INPUT
Description:
Station Elevation Data     num=     136
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
  145.28 1171.77  148.68 1171.13  166.89 1168.79  174.52 1166.54   188.5 1162.48
  193.18 1161.13  202.33 1158.49  210.11 1156.24  221.83 1155.58  231.72 1154.62
  245.98 1154.51  253.33 1154.48  258.41  1154.6  274.94 1154.77  281.87 1154.56
  296.55 1153.17   298.8 1152.96  312.53 1151.73  318.16 1151.35  327.86 1150.89
  339.77 1150.54   351.6 1150.48  361.38 1150.46  368.14 1150.51  382.99 1150.62
   389.2 1150.71  404.41 1151.04  404.54 1151.04   404.6 1151.04  419.88 1151.35
  426.21 1151.43  441.29 1151.51  447.02 1151.56  450.54 1151.58  457.22 1151.69
  469.43 1151.89  475.34 1152.07  477.88 1152.14  491.03 1152.53  510.03 1153.38
  511.88 1153.46  512.65  1153.5  514.45 1153.58  534.25 1154.48  551.03 1154.97
  555.87 1155.12  557.89 1155.21  562.85 1155.42  573.22 1155.84  577.47 1155.99
   587.6 1156.59  599.08 1157.37  615.65 1157.81   620.7 1157.94  634.56 1158.06
   642.3 1158.31   649.9 1158.45  663.92 1158.83  668.46 1158.94  685.52 1159.32
  697.34 1159.49  707.13 1159.67  721.27 1159.88  728.74 1159.98   741.9 1160.28
  750.35 1160.48  757.24 1160.66  771.96 1161.14  772.58 1161.15  774.08  1161.2
  793.57  1161.7  807.07 1162.05  815.18 1162.25  826.88 1162.57  833.91 1162.74
  836.79 1162.82  843.64 1162.99   858.4 1163.37  864.58 1163.54   879.7 1163.97
  880.01 1163.97  895.25 1164.44  901.62  1164.6  910.59 1164.83  923.23 1165.15
  925.92 1165.19   932.5 1165.39  944.84 1165.72  953.37 1166.02  966.45 1166.41
  985.32 1166.99  988.06 1167.08 1002.59 1167.22 1009.67 1167.34 1026.53 1167.44
 1031.28 1167.45 1038.13 1167.62 1052.89    1168 1063.93  1168.8  1074.5  1169.6
 1090.93 1171.15 1094.61  1171.5 1096.11 1171.56 1109.94 1171.65 1117.72 1171.71
 1125.27  1171.8 1139.33 1171.94  1140.6 1171.96 1143.75 1172.03 1160.94 1172.47
 1171.28 1172.73 1182.54 1172.94 1196.55 1173.14 1204.16 1173.24 1209.42 1173.28
 1225.76 1173.41 1245.99 1173.62 1247.38 1173.63 1249.36 1173.66 1263.28 1173.91
 1268.98 1174.05 1278.62 1174.22 1290.59 1174.59 1293.96 1174.69 1302.17 1175.02
 1309.29 1175.18 1312.21 1175.29 1324.62 1175.48 1333.81 1176.09 1339.95 1176.24
 1354.98  1176.4  1355.3 1176.39 1355.43  1176.4 1355.73 1176.42 1377.03 1177.08
 1385.84 1177.34

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
  145.28     .04  202.33    .035  475.34    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        202.33  475.34            130.93     125  120.51             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
**************************************************************************************************
* E.G. Elev (ft)          * 1171.12  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.12  * Reach Len. (ft)         *  130.93  *  125.00  *  120.51  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  287.08  * 5086.71  * 5955.36  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  287.08  * 5086.71  * 5955.36  *
* Q Total (cfs)           * -677.88  * Flow (cfs)              *   -8.89  * -421.01  * -247.98  *
* Top Width (ft)          *  941.89  * Top Width (ft)          *   53.59  *  273.01  *  615.29  *
* Vel Total (ft/s)        *   -0.06  * Avg. Vel. (ft/s)        *   -0.03  *   -0.08  *   -0.04  *
* Max Chl Dpth (ft)       *   20.66  * Hydr. Depth (ft)        *    5.36  *   18.63  *    9.68  *
* Conv. Total (cfs)       *2440426.0  * Conv. (cfs)            * 32010.5  *1515676.0  *892739.2  *
* Length Wtd. (ft)        *  123.49  * Wetted Per. (ft)        *   55.20  *  273.57  *  615.68  *
* Min Ch El (ft)          * 1150.46  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.37  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *   17.77  *  266.96  *  225.12  *
* C & E Loss (ft)         *          * Cum SA (acres)          *    2.39  *   13.87  *   21.32  *
**************************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 1875.*

INPUT
Description:
Station Elevation Data     num=     257
```

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
149.56	1171.62	153.03	1170.92	157.53	1170.2	168.81	1168.23	171.63	1167.74
173.35	1167.23	179.43	1165.4	188.06	1162.84	193.71	1161.18	194.27	1161.01
198.49	1159.78	207.32	1157.2	207.83	1157.09	211.63	1156.21	215.28	1155.36
226.49	1154.79	230.87	1154.42	235.95	1154.05	241.88	1154.03	249.59	1153.99
254.56	1153.98	256.62	1153.99	261.48	1154.12	272.12	1154.29	277.3	1154.35
278.23	1154.33	283.93	1154.06	297.97	1152.68	300.12	1152.47	300.29	1152.46
301.63	1152.32	301.92	1152.3	302.37	1152.27	313.26	1151.47	318.65	1151.16
325.61	1150.88	327.93	1150.79	332.61	1150.68	339.32	1150.51	349.28	1150.46
350.64	1150.45	359.99	1150.43	362.8	1150.43	367.24	1150.46	370.21	1150.48
379	1150.53	380.56	1150.54	386.48	1150.58	387.74	1150.59	393.29	1150.65
395.21	1150.68	397.27	1150.72	409.96	1150.92	410.1	1150.92	410.17	1150.92
411.41	1150.94	417.96	1151.06	426.92	1151.22	427.61	1151.23	433.81	1151.31
433.86	1151.31	443.82	1151.39	450.38	1151.45	457.54	1151.53	459.35	1151.55
460.02	1151.55	460.52	1151.56	462.42	1151.6	467.84	1151.7	476.22	1151.86
481.23	1151.97	487.08	1152.14	487.7	1152.16	490.18	1152.24	494.23	1152.36
502.96	1152.62	505.7	1152.73	516.59	1153.18	521.44	1153.37	523.24	1153.44
523.99	1153.47	525.74	1153.54	534.24	1153.88	538.94	1154.07	541.95	1154.2
545	1154.31	555.84	1154.58	560.33	1154.7	561.3	1154.72	561.32	1154.72
566.03	1154.85	567.99	1154.92	572.81	1155.09	578.7	1155.3	582.9	1155.43
583.66	1155.45	587.03	1155.56	596.88	1156.06	597.06	1156.07	606.02	1156.55
608.05	1156.67	615.44	1156.86	624.16	1157.07	628.37	1157.16	629.08	1157.18
633.81	1157.25	642.56	1157.35	650.08	1157.58	650.73	1157.59	652.19	1157.62
657.47	1157.74	658.88	1157.78	671.11	1158.15	673.09	1158.21	675.53	1158.29
677.02	1158.33	692.12	1158.78	695.45	1158.86	703.61	1159.07	705.58	1159.12
713.13	1159.34	717.81	1159.46	726.89	1159.68	734.12	1159.85	734.15	1159.86
740.16	1160.05	746.95	1160.25	755.17	1160.5	761.87	1160.72	761.92	1160.72
762.53	1160.75	776.19	1161.24	776.79	1161.25	778.25	1161.31	780.78	1161.39
784.88	1161.51	791.23	1161.7	797.2	1161.87	807.24	1162.17	810.33	1162.26
817.52	1162.45	818.22	1162.47	829.59	1162.82	836.44	1163.01	839.24	1163.09
845.9	1163.28	848.34	1163.35	851.96	1163.45	860.25	1163.68	864.96	1163.81
866.26	1163.85	874.31	1164.09	880.97	1164.28	881.27	1164.28	891.01	1164.57
896.09	1164.74	896.67	1164.75	902.29	1164.89	909.38	1165.08	911.01	1165.12
919.02	1165.33	923.3	1165.44	925.92	1165.48	927.76	1165.53	932.32	1165.67
941.39	1165.9	944.32	1165.98	952.62	1166.24	962.56	1166.52	963.74	1166.55
964.49	1166.58	965.34	1166.6	967.99	1166.68	983.69	1167.16	986.1	1167.24
986.36	1167.25	991.11	1167.33	1000.49	1167.48	1007.37	1167.63	1008.45	1167.64
1019.66	1167.79	1023.77	1167.84	1028.39	1167.89	1030.82	1167.96	1035.05	1168.08
1048.22	1168.44	1049.41	1168.47	1053.18	1168.71	1060.14	1169.15	1070.42	1169.83
1071.03	1169.88	1075.53	1170.23	1076.78	1170.33	1086.4	1171.08	1089.98	1171.36
1091.44	1171.41	1097.89	1171.48	1104.89	1171.55	1111.47	1171.62	1112.46	1171.63
1119.8	1171.75	1120.25	1171.76	1133.47	1171.99	1133.88	1172	1134.71	1172.01
1137.77	1172.09	1142.61	1172.22	1154.49	1172.53	1162.44	1172.73	1164.55	1172.79
1164.96	1172.8	1174.06	1172.96	1175.5	1172.99	1187.32	1173.17	1189.12	1173.2
1190.98	1173.23	1196.53	1173.31	1201.64	1173.37	1209.68	1173.46	1217.53	1173.54
1221.7	1173.59	1232.04	1173.72	1237.21	1173.78	1238.56	1173.8	1240.07	1173.82
1240.49	1173.83	1254.02	1174.06	1254.39	1174.06	1259.57	1174.18	1268.94	1174.35
1276.66	1174.56	1276.75	1174.57	1276.81	1174.57	1277.1	1174.58	1280.58	1174.68
1283.86	1174.76	1291.85	1175.05	1295.18	1175.12	1298.77	1175.2	1299.12	1175.21
1301.61	1175.29	1313.56	1175.47	1313.68	1175.47	1321.47	1175.91	1322.62	1175.97
1328.59	1176.12	1333.76	1176.19	1343.21	1176.31	1343.52	1176.3	1343.64	1176.31
1343.83	1176.32	1343.94	1176.32	1350.3	1176.5	1364.65	1176.9	1366.18	1176.94
1368.66	1177	1373.22	1177.12						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
149.56	.04	207.83	.035	487.7	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
207.83	487.7	130.93	125	120.51	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1171.12	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	0.045
W.S. Elev (ft)	1171.12	Reach Len. (ft)	130.93	125.00	120.51
Crit W.S. (ft)		Flow Area (sq ft)	349.93	5311.91	5804.79
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	349.93	5311.91	5804.79
Q Total (cfs)	-680.60	Flow (cfs)	-11.70	-433.47	-235.43
Top Width (ft)	934.91	Top Width (ft)	55.80	279.87	599.24
Vel Total (ft/s)	-0.06	Avg. Vel. (ft/s)	-0.03	-0.08	-0.04
Max Chl Dpth (ft)	20.69	Hydr. Depth (ft)	6.27	18.98	9.69
Conv. Total (cfs)	2517037.0	Conv. (cfs)	43266.4	1603089.0	870681.1
Length Wtd. (ft)	123.60	Wetted Per. (ft)	57.63	280.27	599.59
Min Ch El (ft)	1150.43	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.37	Stream Power (lb/ft s)	0.00	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	16.82	252.04	208.85
C & E Loss (ft)		Cum SA (acres)	2.23	13.08	19.64

CROSS SECTION

RIVER: FRS
REACH: FRS3 RS: 1750.*

INPUT
Description:
Station Elevation Data num= 257

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
153.83	1171.48	157.38	1170.7	161.98	1169.83	173.5	1167.31	176.37	1166.68
178.12	1166.16	184.33	1164.27	193.15	1161.6	198.91	1159.88	199.49	1159.71
203.79	1158.43	212.81	1155.77	213.33	1155.69	216.96	1155.08	220.44	1154.48
231.15	1153.99	235.33	1153.71	240.18	1153.48	245.84	1153.49	253.2	1153.47
257.94	1153.47	259.92	1153.5	264.56	1153.64	274.72	1153.87	279.66	1153.92
280.55	1153.91	285.99	1153.55	299.39	1152.19	301.45	1151.98	301.6	1151.97
302.89	1151.83	303.16	1151.81	303.59	1151.78	313.99	1151.2	319.13	1150.98
325.78	1150.76	327.99	1150.7	332.46	1150.61	338.87	1150.49	348.38	1150.43
349.68	1150.43	358.61	1150.4	364.21	1150.4	369.05	1150.43	372.27	1150.44
381.84	1150.49	383.53	1150.51	389.98	1150.54	391.34	1150.55	397.38	1150.6
399.46	1150.62	401.71	1150.64	415.51	1150.8	415.67	1150.8	415.74	1150.8
417.08	1150.82	424.22	1150.93	433.95	1151.08	434.71	1151.09	441.46	1151.19
441.5	1151.19	452.33	1151.31	459.48	1151.4	467.26	1151.5	469.23	1151.53
469.96	1151.53	470.51	1151.54	472.57	1151.59	478.47	1151.72	487.58	1151.91
493.02	1152.04	499.39	1152.24	500.07	1152.26	502.47	1152.33	506.41	1152.46
514.9	1152.7	517.56	1152.8	528.14	1153.21	532.86	1153.36	534.6	1153.42
535.33	1153.45	537.03	1153.5	545.3	1153.78	549.86	1153.95	552.78	1154.05
555.75	1154.14	566.29	1154.36	570.65	1154.45	571.59	1154.47	571.61	1154.47
576.18	1154.57	578.09	1154.63	582.78	1154.77	588.49	1154.93	592.58	1155.02
593.31	1155.03	596.59	1155.13	606.17	1155.52	606.34	1155.53	615.05	1155.87
617.02	1155.97	624.2	1156.15	632.68	1156.32	636.77	1156.41	637.45	1156.43

```
 642.05 1156.52  650.55 1156.65  657.87 1156.85   658.5 1156.87  659.91  1156.9
 665.05 1157.04  666.42 1157.08   678.3 1157.48  680.22 1157.54  682.59 1157.64
 684.04 1157.69  698.71 1158.25  701.95 1158.35  709.89 1158.64  711.79 1158.72
 719.14    1159  723.69 1159.17   732.5 1159.48  739.54 1159.73  739.56 1159.73
 745.41 1159.97     752 1160.22  759.99 1160.53   766.5 1160.78  766.54 1160.79
 767.14 1160.81  780.41 1161.34     781 1161.36  782.41 1161.41  784.88  1161.5
 788.86 1161.65  795.03 1161.85  800.83 1162.05  810.59 1162.38  813.59 1162.47
 820.58 1162.68  821.26  1162.7  832.31 1163.06  838.96 1163.27  841.68 1163.36
 848.16 1163.56  850.53 1163.64  854.04 1163.74  862.11 1163.98  866.68 1164.12
 867.95 1164.16  875.77 1164.41  882.24 1164.58  882.53 1164.59     892 1164.85
 896.93 1165.03   897.5 1165.05  902.95 1165.19  909.85 1165.36  911.43 1165.41
 919.22 1165.63  923.38 1165.73  925.92 1165.77  927.71 1165.82  932.14 1165.94
 940.95 1166.17   943.8 1166.24  951.86 1166.47  961.53 1166.72  962.67 1166.75
 963.41 1166.77  964.23 1166.79   966.8 1166.87  982.06 1167.34   984.4 1167.41
 984.65 1167.42  989.27 1167.52  998.38 1167.74 1005.07 1167.92 1006.13 1167.94
1017.02 1168.16 1021.01 1168.25  1025.5 1168.34 1027.86 1168.41 1031.97 1168.53
1044.77 1168.91 1045.92 1168.94 1049.59 1169.15 1056.36 1169.51 1066.35 1170.06
1066.94 1170.09 1071.31 1170.37 1072.52 1170.44 1081.88 1171.01 1085.35 1171.22
1086.77 1171.27 1093.04 1171.36 1099.84 1171.45 1106.24 1171.54 1107.19 1171.56
1114.33 1171.71 1114.76 1171.72 1127.62 1172.04 1128.01 1172.05 1128.82 1172.07
 1131.8 1172.15  1136.5 1172.28 1148.04 1172.58 1155.77 1172.79 1157.82 1172.84
1158.22 1172.85 1167.06 1173.01 1168.46 1173.04 1179.95 1173.23  1181.7 1173.26
1183.51 1173.29 1188.89 1173.38 1193.86 1173.46 1201.67 1173.57 1209.31 1173.67
1213.36 1173.73  1223.4 1173.87 1228.43 1173.95 1229.74 1173.96 1231.21 1173.99
1231.61 1173.99 1244.77  1174.2 1245.12 1174.21 1250.15 1174.32 1259.26 1174.48
1266.76 1174.66 1266.86 1174.67 1266.91 1174.67  1267.2 1174.67 1270.58 1174.76
1273.76 1174.84 1281.52 1175.08 1284.77 1175.14 1288.25 1175.22 1288.59 1175.23
1291.01 1175.29 1302.62 1175.45 1302.74 1175.46 1310.31 1175.81 1311.43 1175.86
1317.23    1176 1322.25 1176.08 1331.43 1176.21 1331.74 1176.21 1331.86 1176.21
1332.04 1176.22 1332.14 1176.23 1338.33 1176.38 1352.27 1176.72 1353.76 1176.75
1356.17 1176.81  1360.6  1176.9

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
  153.83     .04  213.33    .035  500.07    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        213.33  500.07            130.93     125  120.51              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1171.12  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.12  * Reach Len. (ft)         *  130.93  *  125.00  *  120.51  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  415.38  * 5532.76  * 5653.21  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  415.38  * 5532.76  * 5653.21  *
* Q Total (cfs)           * -679.75  * Flow (cfs)              *  -14.70  * -442.75  * -222.30  *
* Top Width (ft)          *  928.27  * Top Width (ft)          *   57.87  *  286.74  *  583.66  *
* Vel Total (ft/s)        *   -0.06  * Avg. Vel. (ft/s)        *   -0.04  *   -0.08  *   -0.04  *
* Max Chl Dpth (ft)       *   20.72  * Hydr. Depth (ft)        *    7.18  *   19.30  *    9.69  *
* Conv. Total (cfs)       *2592688.0  * Conv. (cfs)            * 56086.5  *1688717.0  *847885.2  *
* Length Wtd. (ft)        *  123.72  * Wetted Per. (ft)        *   59.94  *  287.02  *  583.99  *
* Min Ch El (ft)          * 1150.40  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.37  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *   15.67  *  236.48  *  193.00  *
* C & E Loss (ft)         *          * Cum SA (acres)          *    2.06  *   12.26  *   18.00  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 1625.*

INPUT
Description:
Station Elevation Data     num=     257
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
  158.11 1171.33  161.73 1170.49  166.42 1169.46  178.18  1166.4  181.11 1165.63
   182.9 1165.09  189.24 1163.13  198.23 1160.35  204.12 1158.57   204.7  1158.4
   209.1 1157.08   218.3 1154.33  218.84 1154.29  222.29 1153.95  225.61  1153.6
   235.8  1153.2  239.79 1152.99  244.41 1152.91   249.8 1152.94  256.82 1152.95
  261.33 1152.96  263.21 1153.01  267.63 1153.16  277.31 1153.45  282.01  1153.5
  282.86  1153.5  288.04 1153.05  300.82  1151.7  302.77 1151.49  302.92 1151.48
  304.14 1151.33  304.41 1151.31  304.82  1151.3  314.72 1150.94  319.62 1150.79
  325.95 1150.63  328.06  1150.6  332.32 1150.55  338.42 1150.46  347.48 1150.41
  348.72  1150.4  357.23 1150.37  365.63 1150.37  370.85 1150.39  374.34 1150.41
  384.67 1150.46  386.51 1150.47  393.47  1150.5  394.95  1150.5  401.47 1150.54
  403.72 1150.55  406.15 1150.57  421.06 1150.68  421.23 1150.68  421.31 1150.68
  422.76 1150.69  430.47  1150.8  440.99 1150.95  441.81 1150.96   449.1 1151.07
  449.15 1151.07  460.85 1151.22  468.57 1151.34  476.98 1151.47  479.11  1151.5
   479.9 1151.51  480.49 1151.52  482.72 1151.58  489.09 1151.73  498.94 1151.96
  504.82 1152.12   511.7 1152.33  512.43 1152.35  514.77 1152.43  518.59 1152.55
  526.83 1152.79  529.41 1152.87  539.69 1153.23  544.27 1153.36  545.97  1153.4
  546.67 1153.42  548.33 1153.46  556.35 1153.68  560.78 1153.82  563.62 1153.91
   566.5 1153.97  576.73 1154.13  580.96 1154.21  581.88 1154.22  581.89 1154.22
  586.34  1154.3  588.19 1154.34  592.74 1154.44  598.29 1154.56  602.26 1154.61
  602.97 1154.62  606.16  1154.7  615.45 1154.99  615.62    1155  624.07  1155.2
  625.99 1155.26  632.96 1155.43  641.19 1155.58  645.16 1155.65  645.83 1155.67
   650.3 1155.78  658.55 1155.94  665.65 1156.12  666.26 1156.14  667.64 1156.17
  672.62 1156.33  673.95 1156.37  685.49  1156.8  687.36 1156.87  689.66 1156.98
  691.07 1157.05  705.31 1157.71  708.46 1157.85  716.16 1158.22  718.01 1158.31
  725.14 1158.67  729.56 1158.89  738.12 1159.29  744.95  1159.6  744.97 1159.61
  750.65  1159.9  757.05 1160.19  764.81 1160.55  771.13 1160.85  771.17 1160.85
  771.75 1160.88  784.64 1161.44  785.21 1161.46  786.58 1161.52  788.97 1161.62
  792.84 1161.78  798.83 1162.01  804.47 1162.22  813.94 1162.58  816.86 1162.68
  823.64  1162.9   824.3 1162.92  835.03 1163.31  841.49 1163.54  844.13 1163.63
  850.42 1163.85  852.72 1163.93  856.13 1164.04  863.96 1164.29   868.4 1164.43
  869.63 1164.47  877.22 1164.72  883.51 1164.89  883.79 1164.89  892.98 1165.14
  897.78 1165.33  898.32 1165.35  903.62 1165.48  910.31 1165.65  911.85  1165.7
  919.41 1165.92  923.45 1166.01  925.92 1166.06  927.66  1166.1  931.96 1166.22
  940.52 1166.43  943.28  1166.5  951.11 1166.69  960.49 1166.91  961.61 1166.94
  962.32 1166.96  963.12 1166.98  965.62 1167.06  980.43 1167.51  982.71 1167.58
  982.95 1167.59  987.43 1167.72  996.28    1168 1002.78 1168.21  1003.8 1168.24
 1014.37 1168.54 1018.25 1168.65 1022.61 1168.78  1024.9 1168.86 1028.89 1168.99
 1041.32 1169.38 1042.44 1169.42    1046 1169.58 1052.57 1169.86 1062.27 1170.28
 1062.84 1170.31 1067.09  1170.5 1068.27 1170.56 1077.35 1170.94 1080.72 1171.08
  1082.1 1171.12 1088.19 1171.23 1094.79 1171.35    1101 1171.46 1101.93 1171.48
 1108.86 1171.66 1109.28 1171.67 1121.76 1172.09 1122.15  1172.1 1122.93 1172.12
 1125.82  1172.2 1130.38 1172.34 1141.59 1172.64 1149.09 1172.84 1151.08  1172.9
 1151.47 1172.91 1160.06 1173.06 1161.42 1173.09 1172.57 1173.29 1174.27 1173.32
 1176.03 1173.36 1181.26 1173.46 1186.08 1173.54 1193.67 1173.68 1201.08  1173.8
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 1205.02 1173.86 1214.77 1174.03 1219.64 1174.11 1220.92 1174.13 1222.34 1174.15
 1222.74 1174.16 1235.51 1174.35 1235.86 1174.35 1240.74 1174.45 1249.59 1174.61
 1256.87 1174.76 1256.96 1174.77 1257.01 1174.77 1257.29 1174.77 1260.57 1174.85
 1263.66 1174.91  1271.2  1175.1 1274.35 1175.17 1277.73 1175.24 1278.06 1175.24
 1280.41 1175.29 1291.69 1175.44  1291.8 1175.44 1299.15  1175.7 1300.23 1175.74
 1305.87 1175.88 1310.75 1175.98 1319.66 1176.12 1319.95 1176.12 1320.07 1176.12
 1320.25 1176.13 1320.35 1176.13 1326.35 1176.26  1339.9 1176.54 1341.34 1176.57
 1343.68 1176.61 1347.98 1176.68

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
  158.11     .04  218.84    .035  512.43    .045

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        218.84  512.43              130.92     125  120.51             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1171.12  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.12  * Reach Len. (ft)         *  130.92  *  125.00  *  120.51  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  483.67  * 5748.77  * 5501.69  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  483.67  * 5748.77  * 5501.69  *
* Q Total (cfs)           * -682.24  * Flow (cfs)              *  -18.05  * -453.49  * -210.70  *
* Top Width (ft)          *  923.20  * Top Width (ft)          *   59.83  *  293.59  *  569.78  *
* Vel Total (ft/s)        *   -0.06  * Avg. Vel. (ft/s)        *   -0.04  *   -0.08  *   -0.04  *
* Max Chl Dpth (ft)       *   20.75  * Hydr. Depth (ft)        *    8.08  *   19.58  *    9.66  *
* Conv. Total (cfs)       *2666235.0 * Conv. (cfs)             * 70529.3  *1772260.0  *823445.8  *
* Length Wtd. (ft)        *  123.83  * Wetted Per. (ft)        *   62.19  *  293.79  *  570.11  *
* Min Ch El (ft)          * 1150.37  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.37  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *   14.32  *  220.29  *  177.57  *
* C & E Loss (ft)         *          * Cum SA (acres)          *    1.88  *   11.43  *   16.41  *
*****************************************************************************************

CROSS SECTION


RIVER: PRS
REACH: PRS3                RS: 1500.000

INPUT
Description:
Station Elevation Data      num=      127
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
  162.39 1171.19  170.87 1169.09  182.86 1165.48  187.68 1164.02  203.32 1159.11
  209.92 1157.09  223.79  1152.9  224.34 1152.89  227.62 1152.82  244.25 1152.28
  253.76  1152.4  264.72 1152.45   279.9 1153.03  285.18 1153.08  304.24 1150.99
   305.4 1150.84  305.65 1150.82  306.04 1150.82  326.12 1150.51  332.17 1150.48
  346.58 1150.38  355.84 1150.34  367.05 1150.34  372.66 1150.36  387.51 1150.42
  389.48 1150.43  398.55 1150.46  407.98 1150.49  410.59  1150.5  428.44 1150.57
  436.72 1150.67  448.91 1150.83  456.74 1150.95  469.37 1151.14  488.99 1151.48
  489.84 1151.49  492.87 1151.57   510.3 1152.01  524.01 1152.42   524.8 1152.45
  530.77 1152.65  541.27 1152.94  551.24 1153.26   567.4 1153.58   571.7  1153.7
  574.45 1153.77  587.17 1153.91  591.28 1153.96  592.17 1153.97  608.09 1154.19
  612.63  1154.2   624.9 1154.46   633.1 1154.52  641.72 1154.72  653.56 1154.89
  658.54 1155.05  674.03 1155.41  675.36 1155.45  681.49 1155.67  694.49  1156.2
  698.09 1156.41  714.96 1157.34  724.23 1157.91  735.43  1158.6  750.36 1159.48
  755.89 1159.82   775.8 1160.91  776.36 1160.94  793.07 1161.74  796.82 1161.92
  802.63 1162.16  817.29 1162.79   826.7 1163.12  837.75 1163.56  854.91 1164.22
  858.22 1164.33  870.12 1164.74  878.68 1165.04  893.97 1165.43  899.15 1165.65
  910.78 1165.94  919.61 1166.22  927.61 1166.39  940.08  1166.7  959.46 1167.11
  960.54 1167.13  961.23 1167.15  964.43 1167.25  981.01 1167.75  985.59 1167.92
 1001.47 1168.54 1011.73 1168.91 1021.94 1169.31 1037.87 1169.85 1042.41 1170.01
 1058.75 1170.53 1062.87 1170.64 1064.01 1170.67 1083.34 1171.11 1095.77 1171.38
  1103.8 1171.63 1116.28 1172.15 1124.27  1172.4 1142.42  1172.9 1144.73 1172.97
 1153.06 1173.11  1165.2 1173.35 1168.55 1173.42 1185.66 1173.79 1196.67    1174
 1206.13 1174.18 1213.48 1174.32 1226.59  1174.5 1246.97 1174.86 1247.06 1174.87
 1247.11 1174.87 1247.38 1174.87 1263.93 1175.19 1267.53 1175.26 1280.75 1175.43
 1287.99  1175.6 1299.24 1175.87 1308.46 1176.03 1314.38 1176.14 1328.92 1176.38
 1331.19 1176.41 1335.36 1176.46

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
  162.39     .04  224.34    .035   524.8    .045

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.   Expan.
        224.34   524.8              118.44     118  125.33             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1171.12  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.12  * Reach Len. (ft)         *  118.44  *  118.00  *  125.33  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  554.18  * 5960.43  * 5349.51  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  554.18  * 5960.43  * 5349.51  *
* Q Total (cfs)           * -682.54  * Flow (cfs)              *  -21.58  * -462.44  * -198.52  *
* Top Width (ft)          *  921.23  * Top Width (ft)          *   61.68  *  300.46  *  559.09  *
* Vel Total (ft/s)        *   -0.06  * Avg. Vel. (ft/s)        *   -0.04  *   -0.08  *   -0.04  *
* Max Chl Dpth (ft)       *   20.78  * Hydr. Depth (ft)        *    8.99  *   19.84  *    9.57  *
* Conv. Total (cfs)       *2735963.0 * Conv. (cfs)             * 86497.6  *1853679.0  *795786.0  *
* Length Wtd. (ft)        *  120.22  * Wetted Per. (ft)        *   64.35  *  300.63  *  559.46  *
* Min Ch El (ft)          * 1150.34  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.37  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *   12.76  *  203.49  *  162.56  *
* C & E Loss (ft)         *          * Cum SA (acres)          *    1.70  *   10.58  *   14.84  *
*****************************************************************************************

CROSS SECTION


RIVER: PRS
REACH: PRS3                RS: 1382.00

INPUT
Description: V1
Station Elevation Data      num=      140
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
  163.74 1171.47  175.95  1170.6  184.15  1169.6   196.5 1165.76  204.55 1163.24
  222.07  1157.9  224.96 1157.01  236.26 1154.82   236.3 1154.81  245.37 1153.11
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  247.66 1153.08  265.77 1152.78  277.78  1152.9  286.18 1152.97  294.75 1152.95
  306.58 1152.85  311.72 1152.46  326.99 1151.21  337.14 1150.94  347.39 1150.68
  349.98 1150.67   367.8 1150.53  375.57 1150.54   388.2 1150.54  396.58 1150.61
  408.61 1150.73  426.73 1150.93  429.01 1150.96  437.98 1151.03  449.42  1151.1
  464.46 1151.18  469.82  1151.2   477.9 1151.24  490.23  1151.3  503.48 1151.38
  510.63 1151.42  515.38 1151.44  531.04 1151.54  532.35 1151.55  538.81 1151.58
  551.44 1151.64  554.64 1151.66  571.85 1151.73  580.23 1151.76  592.26 1151.83
  605.81 1151.85  612.66 1151.88   616.9 1151.92  631.38 1152.07  633.07 1152.09
  639.66 1152.21  651.15 1152.42  653.47 1152.46  656.97 1152.54  673.88 1152.93
  682.55 1153.11  694.28 1153.37  708.14  1153.7  714.69 1153.85  733.72 1154.44
  735.09 1154.47     736  1154.5   740.5 1154.64  752.97 1155.03   755.5 1155.07
  759.29 1155.12   775.9 1155.49  784.88 1155.61  796.31 1155.87  810.46 1156.19
  816.72 1156.34  836.05  1156.7  837.12 1156.71  841.33 1156.73  857.53 1156.83
  861.63 1156.85  877.93 1156.91  888.74 1157.07  898.34 1157.27  912.79 1157.84
  918.74 1158.04  938.37 1159.31  939.15 1159.36  939.66 1159.39  942.18 1159.59
  959.55 1160.91  963.95 1161.26  979.96 1162.52  989.54 1163.26 1000.36 1164.12
 1015.12 1164.97 1020.77 1165.34 1024.51 1165.49 1041.17 1165.91 1043.02 1165.91
 1061.58 1165.85 1066.28 1165.53 1081.99 1165.02 1091.86 1165.69 1102.39 1165.47
 1117.45 1166.78  1122.8 1167.12 1143.03 1168.61  1143.2 1168.62 1143.86 1168.66
 1163.61 1169.74 1177.25 1170.28 1184.01 1170.51 1194.19 1170.81 1204.42 1171.05
 1219.77 1171.59 1224.82 1171.72 1228.16 1171.83  1244.7 1172.44 1245.23 1172.46
 1245.36 1172.46 1265.63 1172.98 1270.94 1173.16 1286.04  1173.5 1296.52 1173.83
 1306.44 1174.06 1313.02  1174.2 1326.85  1174.6 1345.54 1174.91 1346.96 1174.92
 1347.26 1174.93 1347.68 1174.93 1367.66 1175.19 1373.26 1175.28 1388.06 1175.53
 1398.85 1175.82 1408.47 1176.08 1424.43 1176.51 1428.88 1176.63 1431.81 1176.72
 1446.38 1177.11 1448.79 1177.17 1449.28 1177.19 1450.02  1177.2 1458.39 1177.34

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
  163.74     .04  236.26    .035   616.9    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        236.26   616.9             281.56     382  274.67             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1171.12  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.12  * Reach Len. (ft)         *  281.56  *  382.00  *  274.67  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  502.31  * 7433.85  * 6502.55  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  502.31  * 7433.85  * 6502.55  *
* Q Total (cfs)           * -683.38  * Flow (cfs)              *  -13.89  * -457.07  * -212.42  *
* Top Width (ft)          * 1037.84  * Top Width (ft)          *   67.64  *  380.64  *  589.56  *
* Vel Total (ft/s)        *   -0.05  * Avg. Vel. (ft/s)        *   -0.03  *   -0.06  *   -0.03  *
* Max Chl Dpth (ft)       *   20.59  * Hydr. Depth (ft)        *    7.43  *   19.53  *   11.03  *
* Conv. Total (cfs)       *3420588.0  * Conv. (cfs)            * 69538.5  *2287830.0  *1063219.0  *
* Length Wtd. (ft)        *  346.60  * Wetted Per. (ft)        *   69.82  *  380.88  *  590.13  *
* Min Ch El (ft)          * 1150.53  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.28  * Stream Power (lb/ft s)  *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)    *   11.32  *  185.35  *  145.51  *
* C & E Loss (ft)         *          * Cum SA (acres)          *    1.52  *    9.65  *   13.19  *
*****************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 1000.000

INPUT
Description:
Station Elevation Data     num=     140
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
  163.74 1171.47  175.95  1170.6  184.15  1169.6   196.5 1165.76  204.55 1163.24
  222.07  1157.9  224.96 1157.01  236.26 1154.82   236.3 1154.81  245.37 1153.11
  247.66 1153.08  265.77 1152.78  277.78  1152.9  286.18 1152.97  294.75 1152.95
  306.58 1152.85  311.72 1152.46  326.99 1151.21  337.14 1150.94  347.39 1150.68
  349.98 1150.67   367.8 1150.53  375.57 1150.54   388.2 1150.54  396.58 1150.61
  408.61 1150.73  426.73 1150.93  429.01 1150.96  437.98 1151.03  449.42  1151.1
  464.46 1151.18  469.82  1151.2   477.9 1151.24  490.23  1151.3  503.48 1151.38
  510.63 1151.42  515.38 1151.44  531.04 1151.54  532.35 1151.55  538.81 1151.58
  551.44 1151.64  554.64 1151.66  571.85 1151.73  580.23 1151.76  592.26 1151.83
  605.81 1151.85  612.66 1151.88   616.9 1151.92  631.38 1152.07  633.07 1152.09
  639.66 1152.21  651.15 1152.42  653.47 1152.46  656.97 1152.54  673.88 1152.93
  682.55 1153.11  694.28 1153.37  708.14  1153.7  714.69 1153.85  733.72 1154.44
  735.09 1154.47     736  1154.5   740.5 1154.64  752.97 1155.03   755.5 1155.07
  759.29 1155.12   775.9 1155.49  784.88 1155.61  796.31 1155.87  810.46 1156.19
  816.72 1156.34  836.05  1156.7  837.12 1156.71  841.33 1156.73  857.53 1156.83
  861.63 1156.85  877.93 1156.91  888.74 1157.07  898.34 1157.27  912.79 1157.84
  918.74 1158.04  938.37 1159.31  939.15 1159.36  939.66 1159.39  942.18 1159.59
  959.55 1160.91  963.95 1161.26  979.96 1162.52  989.54 1163.26 1000.36 1164.12
 1015.12 1164.97 1020.77 1165.34 1024.51 1165.49 1041.17 1165.91 1043.02 1165.91
 1061.58 1165.85 1066.28 1165.53 1081.99 1165.02 1091.86 1165.69 1102.39 1165.47
 1117.45 1166.78  1122.8 1167.12 1143.03 1168.61  1143.2 1168.62 1143.86 1168.66
 1163.61 1169.74 1177.25 1170.28 1184.01 1170.51 1194.19 1170.81 1204.42 1171.05
 1219.77 1171.59 1224.82 1171.72 1228.16 1171.83  1244.7 1172.44 1245.23 1172.46
 1245.36 1172.46 1265.63 1172.98 1270.94 1173.16 1286.04  1173.5 1296.52 1173.83
 1306.44 1174.06 1313.02  1174.2 1326.85  1174.6 1345.54 1174.91 1346.96 1174.92
 1347.26 1174.93 1347.68 1174.93 1367.66 1175.19 1373.26 1175.28 1388.06 1175.53
 1398.85 1175.82 1408.47 1176.08 1424.43 1176.51 1428.88 1176.63 1431.81 1176.72
 1446.38 1177.11 1448.79 1177.17 1449.28 1177.19 1450.02  1177.2 1458.39 1177.34

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
  163.74     .04  236.26    .035   616.9    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        236.26   616.9             400     400     400             .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************
* E.G. Elev (ft)          * 1171.12  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.12  * Reach Len. (ft)         *  400.00  *  400.00  *  400.00  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  502.39  * 7434.27  * 6503.20  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  502.39  * 7434.27  * 6503.20  *
* Q Total (cfs)           *  110.56  * Flow (cfs)              *    2.25  *   73.95  *   34.37  *
* Top Width (ft)          * 1037.89  * Top Width (ft)          *   67.65  *  380.64  *  589.60  *
* Vel Total (ft/s)        *    0.01  * Avg. Vel. (ft/s)        *    0.00  *    0.01  *    0.01  *
* Max Chl Dpth (ft)       *   20.59  * Hydr. Depth (ft)        *    7.43  *   19.53  *   11.03  *
* Conv. Total (cfs)       *3420948.0  * Conv. (cfs)            * 69545.4  *2288044.0  *1063358.0  *
```

```
* Length Wtd. (ft)        *  400.00  * Wetted Per. (ft)        *   69.84  *  380.88  *  590.16  *
* Min Ch El (ft)          * 1150.53  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.28  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *    0.00  * Cum Volume (acre-ft)   *    8.07  *  120.16  *  104.51  *
* C & E Loss (ft)         *          * Cum SA (acres)         *    1.09  *    6.32  *    9.47  *
*****************************************************************************************************

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 600

INPUT
Description:
Station Elevation Data    num=     137
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
  163.74 1171.47  175.95  1170.6  184.15  1169.6   196.5 1165.76  204.55 1163.24
  222.07  1157.9  224.96 1157.01  236.26 1154.82   236.3 1154.81  245.37 1153.11
  247.66 1153.08  265.77 1152.78  277.78  1152.9  286.18 1152.97  294.75 1152.95
  306.58 1152.85  311.721151.033  349.981151.033   367.81151.033  375.57 1150.54
   388.2 1150.54  396.58 1150.61  408.61 1150.73  426.73 1150.93  429.01 1150.96
  437.98 1151.03  449.42  1151.1  464.46 1151.18  469.82  1151.2   477.9 1151.24
  490.23  1151.3  503.48 1151.38  510.63 1151.42  515.38 1151.44  531.04 1151.54
  532.35 1151.55  538.81 1151.58  551.44 1151.64  554.64 1151.66  571.85 1151.73
  580.23 1151.76  592.26 1151.83  605.81 1151.85  612.66 1151.88   616.9 1151.92
  631.38 1152.07  633.07 1152.09  639.66 1152.21  651.15 1152.42  653.47 1152.46
  656.97 1152.54  673.88 1152.93  682.55 1153.11  694.28 1153.37  708.14  1153.7
  714.69 1153.85  733.72 1154.44  735.09 1154.47     736  1154.5   740.5 1154.64
  752.97 1155.03   755.5 1155.07  759.29 1155.12   775.9 1155.49  784.88 1155.61
  796.31 1155.87  810.46 1156.19  816.72 1156.34  836.05  1156.7  837.12 1156.71
  841.33 1156.73  857.53 1156.83  861.63 1156.85  877.93 1156.91  888.74 1157.07
  898.34 1157.27  912.79 1157.84  918.74 1158.04  938.37 1159.31  939.15 1159.36
  939.66 1159.39  942.18 1159.59  959.55 1160.91  963.95 1161.26  979.96 1162.52
  989.54 1163.26 1000.36 1164.12 1015.12 1164.97 1020.77 1165.34 1024.51 1165.49
 1041.17 1165.91 1043.02 1165.91 1061.58 1165.85 1066.28 1165.53 1081.99 1165.02
 1091.86 1165.69 1102.39 1165.47 1117.45 1166.78  1122.8 1167.12 1143.03 1168.61
  1143.2 1168.62 1143.86 1168.66 1163.61 1169.74 1177.25 1170.28 1184.01 1170.51
 1194.19 1170.81 1204.42 1171.05 1219.77 1171.59 1224.82 1171.72 1228.16 1171.83
  1244.7 1172.44 1245.23 1172.46 1245.36 1172.46 1265.63 1172.98 1270.94 1173.16
 1286.04  1173.5 1296.52 1173.83 1306.44 1174.06 1313.02  1174.2 1326.85  1174.6
 1345.54 1174.91 1346.96 1174.92 1347.26 1174.93 1347.68 1174.93 1367.66 1175.19
 1373.26 1175.28 1388.06 1175.53 1398.85 1175.82 1408.47 1176.08 1424.43 1176.51
 1428.88 1176.63 1431.81 1176.72 1446.38 1177.11 1448.79 1177.17 1449.28 1177.19
 1450.02  1177.2 1458.39 1177.34

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
  163.74     .04  236.26    .035   616.9    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        236.26   616.9              600     600     600              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
*****************************************************************************************************
* E.G. Elev (ft)          * 1171.12  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.00  * Wt. n-Val.              *   0.040  *   0.035  *   0.045  *
* W.S. Elev (ft)          * 1171.12  * Reach Len. (ft)         *  600.00  *  600.00  *  600.00  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *  502.39  * 7437.73  * 6503.20  *
* E.G. Slope (ft/ft)      *0.000000  * Area (sq ft)            *  502.39  * 7437.73  * 6503.20  *
* Q Total (cfs)           *  105.79  * Flow (cfs)              *    2.15  *   70.77  *   32.88  *
* Top Width (ft)          * 1037.89  * Top Width (ft)          *   67.65  *  380.64  *  589.60  *
* Vel Total (ft/s)        *    0.01  * Avg. Vel. (ft/s)        *    0.00  *    0.01  *    0.01  *
* Max Chl Dpth (ft)       *   20.58  * Hydr. Depth (ft)        *    7.43  *   19.54  *   11.03  *
* Conv. Total (cfs)       *3421705.0  * Conv. (cfs)            * 69545.4  *2288802.0  *1063358.0  *
* Length Wtd. (ft)        *  600.00  * Wetted Per. (ft)        *   69.84  *  381.14  *  590.16  *
* Min Ch El (ft)          * 1150.54  * Shear (lb/sq ft)        *    0.00  *    0.00  *    0.00  *
* Alpha                   *    1.28  * Stream Power (lb/ft s) *    0.00  *    0.00  *    0.00  *
* Frctn Loss (ft)         *          * Cum Volume (acre-ft)   *    3.46  *   51.88  *   44.79  *
* C & E Loss (ft)         *          * Cum SA (acres)         *    0.47  *    2.82  *    4.06  *
*****************************************************************************************************

CULVERT


RIVER: FRS
REACH: FRS3                RS: 580

INPUT
Description:
Distance from Upstream XS =       10
Deck/Roadway Width        =    558.5
Weir Coefficient          =      2.6
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
*********************************************
       01171.435            16001171.435

Upstream Bridge Cross Section Data
Station Elevation Data    num=     137
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
  163.74 1171.47  175.95  1170.6  184.15  1169.6   196.5 1165.76  204.55 1163.24
  222.07  1157.9  224.96 1157.01  236.26 1154.82   236.3 1154.81  245.37 1153.11
  247.66 1153.08  265.77 1152.78  277.78  1152.9  286.18 1152.97  294.75 1152.95
  306.58 1152.85  311.721151.033  349.981151.033   367.81151.033  375.57 1150.54
   388.2 1150.54  396.58 1150.61  408.61 1150.73  426.73 1150.93  429.01 1150.96
  437.98 1151.03  449.42  1151.1  464.46 1151.18  469.82  1151.2   477.9 1151.24
  490.23  1151.3  503.48 1151.38  510.63 1151.42  515.38 1151.44  531.04 1151.54
  532.35 1151.55  538.81 1151.58  551.44 1151.64  554.64 1151.66  571.85 1151.73
  580.23 1151.76  592.26 1151.83  605.81 1151.85  612.66 1151.88   616.9 1151.92
  631.38 1152.07  633.07 1152.09  639.66 1152.21  651.15 1152.42  653.47 1152.46
  656.97 1152.54  673.88 1152.93  682.55 1153.11  694.28 1153.37  708.14  1153.7
  714.69 1153.85  733.72 1154.44  735.09 1154.47     736  1154.5   740.5 1154.64
  752.97 1155.03   755.5 1155.07  759.29 1155.12   775.9 1155.49  784.88 1155.61
  796.31 1155.87  810.46 1156.19  816.72 1156.34  836.05  1156.7  837.12 1156.71
  841.33 1156.73  857.53 1156.83  861.63 1156.85  877.93 1156.91  888.74 1157.07
  898.34 1157.27  912.79 1157.84  918.74 1158.04  938.37 1159.31  939.15 1159.36
  939.66 1159.39  942.18 1159.59  959.55 1160.91  963.95 1161.26  979.96 1162.52
  989.54 1163.26 1000.36 1164.12 1015.12 1164.97 1020.77 1165.34 1024.51 1165.49
 1041.17 1165.91 1043.02 1165.91 1061.58 1165.85 1066.28 1165.53 1081.99 1165.02
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 1091.86 1165.69 1102.39 1165.47 1117.45 1166.78  1122.8 1167.12 1143.03 1168.61
  1143.2 1168.62 1143.86 1168.66 1163.61 1169.74 1177.25 1170.28 1184.01 1170.51
 1194.19 1170.81 1204.42 1171.05 1219.77 1171.59 1224.82 1171.72 1228.16 1171.83
  1244.7 1172.44 1245.23 1172.46 1245.36 1172.46 1265.63 1172.98 1270.94 1173.16
 1286.04  1173.5 1296.52 1173.83 1306.44 1174.06 1313.02  1174.2 1326.85  1174.6
 1345.54 1174.91 1346.96 1174.92 1347.26 1174.93 1347.68 1174.93 1367.66 1175.19
 1373.26 1175.28 1388.06 1175.53 1398.85 1175.82 1408.47 1176.08 1424.43 1176.51
 1428.88 1176.63 1431.81 1176.72 1446.38 1177.11 1448.79 1177.17 1449.28 1177.19
 1450.02  1177.2 1458.39 1177.34

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val     Sta   n Val
**********************************************
  163.74     .04  236.26    .035   616.9    .045

Bank Sta: Left   Right    Coeff Contr.   Expan.
        236.26   616.9              .1       .3

Downstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
**********************************************
       0    1150              300    1150

Downstream Bridge Cross Section Data
Station Elevation Data    num=      30
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
   58.62 1141.34   78.56 1139.55   80.89 1139.43   81.68 1139.26    83.3 1138.89
   96.62 1136.04  103.16    1129  111.58    1129  125.43 1133.69  128.76 1134.86
   147.7 1141.51  165.89 1142.65  169.97 1142.99  174.22  1143.2  192.25 1143.96
  201.27 1144.37  214.52 1144.98  219.67 1145.21  236.79 1145.59  253.22 1145.81
  259.06 1145.92  261.06 1145.96  265.13 1146.02  281.33 1146.13  296.88 1146.22
   303.6 1146.28  310.59 1146.28  325.87 1146.27   335.8  1146.3  345.46 1146.46

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val     Sta   n Val
**********************************************
   58.62     .04   80.89    .035  147.7    .045

Bank Sta: Left   Right    Coeff Contr.   Expan.
         80.89   147.7              .1       .3

Upstream Embankment side slope              =       1 horiz. to 1.0 vertical
Downstream Embankment side slope            =       1 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  1

Culvert Name     Shape      Rise    Span
Culvert #1      Circular     2.5
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 1 - Square edge entrance with headwall
Solution Criteria = Inlet control
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                 20   558.5     .012     .012        0                  .5                 1
Upstream   Elevation =  1151.033
           Centerline Station =  336.79
Downstream Elevation =  1131.133
           Centerline Station =  107

CULVERT OUTPUT  Profile #Max WS  Culv Group:  Culvert #1
**********************************************************************
* Q Culv Group (cfs)      *  105.79  * Culv Full Len (ft)     *  558.50  *
* # Barrels               *       1  * Culv Vel US (ft/s)     *   21.55  *
* Q Barrel (cfs)          *  105.79  * Culv Vel DS (ft/s)     *   21.55  *
* E.G. US. (ft)           * 1171.15  * Culv Inv El Up (ft)   * 1151.03  *
* W.S. US. (ft)           * 1171.12  * Culv Inv El Dn (ft)   * 1131.13  *
* E.G. DS (ft)            * 1134.07  * Culv Frctn Ls (ft)    *   26.28  *
* W.S. DS (ft)            * 1134.05  * Culv Exit Loss (ft)   *    7.19  *
* Delta EG (ft)           *   37.08  * Culv Entr Loss (ft)   *    3.61  *
* Delta WS (ft)           *   37.07  * Q Weir (cfs)          *          *
* E.G. IC (ft)            * 1171.15  * Weir Sta Lft (ft)     *          *
* E.G. OC (ft)            * 1176.53  * Weir Sta Rgt (ft)     *          *
* Culvert Control         *   Inlet  * Weir Submerg          *          *
* Culv WS Inlet (ft)      * 1153.53  * Weir Max Depth (ft)   *          *
* Culv WS Outlet (ft)     * 1133.63  * Weir Avg Depth (ft)   *          *
* Culv Nml Depth (ft)     *    2.50  * Weir Flow Area (sq ft) *          *
* Culv Crt Depth (ft)     *    2.50  * Min El Weir Flow (ft) * 1171.45  *
**********************************************************************

Note:    Culvert critical depth exceeds the height of the culvert.

CROSS SECTION


RIVER: FRS
REACH: FRS3                RS: 11.5

INPUT
Description:
Station Elevation Data    num=      30
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
   58.62 1141.34   78.56 1139.55   80.89 1139.43   81.68 1139.26    83.3 1138.89
   96.62 1136.04  103.16    1129  111.58    1129  125.43 1133.69  128.76 1134.86
   147.7 1141.51  165.89 1142.65  169.97 1142.99  174.22  1143.2  192.25 1143.96
  201.27 1144.37  214.52 1144.98  219.67 1145.21  236.79 1145.59  253.22 1145.81
  259.06 1145.92  261.06 1145.96  265.13 1146.02  281.33 1146.13  296.88 1146.22
   303.6 1146.28  310.59 1146.28  325.87 1146.27   335.8  1146.3  345.46 1146.46

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val     Sta   n Val
**********************************************
   58.62     .04   80.89    .035  147.7    .045

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         80.89   147.7             11.5    11.5    11.5              .1       .3

CROSS SECTION OUTPUT  Profile #Max WS
```

E.G. Elev (ft)	1134.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.		0.035	
W.S. Elev (ft)	1134.05	Reach Len. (ft)	11.50	11.50	11.50
Crit W.S. (ft)		Flow Area (sq ft)		91.99	
E.G. Slope (ft/ft)	0.000172	Area (sq ft)		91.99	
Q Total (cfs)	105.79	Flow (cfs)		105.79	
Top Width (ft)	27.98	Top Width (ft)		27.98	
Vel Total (ft/s)	1.15	Avg. Vel. (ft/s)		1.15	
Max Chl Dpth (ft)	5.05	Hydr. Depth (ft)		3.29	
Conv. Total (cfs)	8061.2	Conv. (cfs)		8061.2	
Length Wtd. (ft)	11.50	Wetted Per. (ft)		31.02	
Min Ch El (ft)	1129.00	Shear (lb/sq ft)		0.03	
Alpha	1.00	Stream Power (lb/ft s)		0.04	
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)		0.02	
C & E Loss (ft)		Cum SA (acres)		0.01	

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

CROSS SECTION

RIVER: FRS
REACH: FRS3 RS: 0.00

INPUT
Description:
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
58.62	1141.34	78.56	1139.55	80.89	1139.43	81.68	1139.26	83.3	1138.89
96.62	1136.04	103.16	1131.133	111.58	1131.133	125.43	1133.69	128.76	1134.86
147.7	1141.51	165.89	1142.65	169.97	1142.99	174.22	1143.2	192.25	1143.96
201.27	1144.37	214.52	1144.98	219.67	1145.21	236.79	1145.59	253.22	1145.81
259.06	1145.92	261.06	1145.96	265.13	1146.02	281.33	1146.13	296.88	1146.22
303.6	1146.28	310.59	1146.28	325.87	1146.27	335.8	1146.3	345.46	1146.46

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
58.62	.04	80.89	.035	147.7	.045

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
80.89	147.7	0	0	0	.1	.3

CROSS SECTION OUTPUT Profile #Max WS

E.G. Elev (ft)	1134.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.035	
W.S. Elev (ft)	1134.00	Reach Len. (ft)			
Crit W.S. (ft)	1132.53	Flow Area (sq ft)		51.81	
E.G. Slope (ft/ft)	0.001029	Area (sq ft)		51.81	
Q Total (cfs)	105.79	Flow (cfs)		105.79	
Top Width (ft)	26.98	Top Width (ft)		26.98	
Vel Total (ft/s)	2.04	Avg. Vel. (ft/s)		2.04	
Max Chl Dpth (ft)	2.87	Hydr. Depth (ft)		1.92	
Conv. Total (cfs)	3297.2	Conv. (cfs)		3297.2	
Length Wtd. (ft)		Wetted Per. (ft)		28.23	
Min Ch El (ft)	1131.13	Shear (lb/sq ft)		0.12	
Alpha	1.00	Stream Power (lb/ft s)		0.24	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

SUMMARY OF MANNING'S N VALUES

River:FRS

Reach	River Sta.	n1	n2	n3
FRS3	15750.00	.04	.035	.045
FRS3	15700	.04	.035	.045
FRS3	15500.00	.04	.035	.045
FRS3	15450	Lat Struct		
FRS3	15000.00	.04	.035	.045
FRS3	14999	Lat Struct		
FRS3	14500.00	.04	.035	.045
FRS3	14443.5	.04	.035	.045
FRS3	14295.6	.04	.035	.045
FRS3	14147.8	.04	.035	.045
FRS3	14000.00	.04	.035	.045
FRS3	13500.00	.04	.035	.045
FRS3	13000.00	.04	.035	.045
FRS3	12889.70	.04	.035	.045
FRS3	12500.00	.04	.035	.045
FRS3	12000.00	.04	.035	.045
FRS3	11500.00	.04	.035	.045
FRS3	11000.00	.04	.035	.045
FRS3	10500.00	.04	.035	.045
FRS3	10375.	.04	.035	.045
FRS3	10250.	.04	.035	.045
FRS3	10125.	.04	.035	.045
FRS3	10000.00	.04	.035	.045
FRS3	9500.000	.04	.035	.045
FRS3	9000.000	.04	.035	.045
FRS3	8875.	.04	.035	.045
FRS3	8750.	.04	.035	.045
FRS3	8625.	.04	.035	.045
FRS3	8500.000	.04	.035	.045
FRS3	8000.000	.04	.035	.045
FRS3	7875.	.04	.035	.045
FRS3	7750.	.04	.035	.045
FRS3	7625.	.04	.035	.045
FRS3	7500.000	.04	.035	.045
FRS3	7375.	.04	.035	.045
FRS3	7250.	.04	.035	.045
FRS3	7125.	.04	.035	.045
FRS3	7000.000	.04	.035	.045
FRS3	6500.000	.04	.035	.045
FRS3	6000.000	.04	.035	.045

```
*FRS3          *   5698.20     *      .04*     .035*     .045*
*FRS3          *   5500.000    *      .04*     .035*     .045*
*FRS3          *   5000.000    *      .04*     .035*     .045*
*FRS3          *   4875.*      *      .04*     .035*     .045*
*FRS3          *   4750.*      *      .04*     .035*     .045*
*FRS3          *   4625.*      *      .04*     .035*     .045*
*FRS3          *   4500.000    *      .04*     .035*     .045*
*FRS3          *   4000.000    *      .04*     .035*     .045*
*FRS3          *   3875.*      *      .04*     .035*     .045*
*FRS3          *   3750.*      *      .04*     .035*     .045*
*FRS3          *   3625.*      *      .04*     .035*     .045*
*FRS3          *   3500.000    *      .04*     .035*     .045*
*FRS3          *   3000.000    *      .04*     .035*     .045*
*FRS3          *   2500.000    *      .04*     .035*     .045*
*FRS3          *   2000.000    *      .04*     .035*     .045*
*FRS3          *   1875.*      *      .04*     .035*     .045*
*FRS3          *   1750.*      *      .04*     .035*     .045*
*FRS3          *   1625.*      *      .04*     .035*     .045*
*FRS3          *   1500.000    *      .04*     .035*     .045*
*FRS3          *   1382.00     *      .04*     .035*     .045*
*FRS3          *   1000.000    *      .04*     .035*     .045*
*FRS3          *   600         *      .04*     .035*     .045*
*FRS3          *   580         *Culvert  *        *         *
*FRS3          *   11.5        *      .04*     .035*     .045*
*FRS3          *   0.00        *      .04*     .035*     .045*
*****************************************************************

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

SUMMARY OF REACH LENGTHS

River: FRS
*****************************************************************
*     Reach      *   River Sta.   *  Left   * Channel *  Right  *
*****************************************************************
*FRS3           *   15750.00     *    44.95*       50*    54.41*
*FRS3           *   15700        *   179.82*      200*   217.63*
*FRS3           *   15500.00     *   491.99*      500*   505.83*
*FRS3           *   15450        *Lat Struct*        *         *
*FRS3           *   15000.00     *   502.45*      500*   498.07*
*FRS3           *   14999        *Lat Struct*        *         *
*FRS3           *   14500.00     *    56.77*     56.5*     56.4*
*FRS3           *   14443.5      *   148.54*   147.83*   147.57*
*FRS3           *   14295.6*     *   148.54*   147.83*   147.57*
*FRS3           *   14147.8*     *   148.54*   147.83*   147.57*
*FRS3           *   14000.00     *   496.36*      500*   501.12*
*FRS3           *   13500.00     *   499.04*      500*   499.79*
*FRS3           *   13000.00     *   100.09*    110.3*   115.35*
*FRS3           *   12889.70     *   353.64*    389.7*   407.56*
*FRS3           *   12500.00     *   456.24*      500*   519.56*
*FRS3           *   12000.00     *   537.29*      500*   478.83*
*FRS3           *   11500.00     *   577.23*      500*   455.34*
*FRS3           *   11000.00     *   508.28*      500*   493.24*
*FRS3           *   10500.00     *    125.4*      125*   128.75*
*FRS3           *   10375.*      *    125.4*      125*   128.75*
*FRS3           *   10250.*      *    125.4*      125*   128.75*
*FRS3           *   10125.*      *    125.4*      125*   128.75*
*FRS3           *   10000.00     *   465.46*      500*   544.61*
*FRS3           *   9500.000     *   577.33*      500*   449.02*
*FRS3           *   9000.000     *   124.33*      125*   126.08*
*FRS3           *   8875.*       *   124.33*      125*   126.08*
*FRS3           *   8750.*       *   124.33*      125*   126.08*
*FRS3           *   8625.*       *   124.33*      125*   126.08*
*FRS3           *   8500.000     *   503.92*      500*   498.66*
*FRS3           *   8000.000     *   124.52*      125*    125.5*
*FRS3           *   7875.*       *   124.52*      125*    125.5*
*FRS3           *   7750.*       *   124.52*      125*    125.5*
*FRS3           *   7625.*       *   124.52*      125*    125.5*
*FRS3           *   7500.000     *   122.44*      125*   128.45*
*FRS3           *   7375.*       *   122.44*      125*   128.45*
*FRS3           *   7250.*       *   122.44*      125*   128.45*
*FRS3           *   7125.*       *   122.44*      125*   128.45*
*FRS3           *   7000.000     *   512.33*      500*   482.31*
*FRS3           *   6500.000     *   490.03*      500*   515.18*
*FRS3           *   6000.000     *   301.57*    301.8*    314.2*
*FRS3           *   5698.20      *   198.05*    198.2*   206.34*
*FRS3           *   5500.000     *   502.66*      500*   500.31*
*FRS3           *   5000.000     *    130.8*      125*   120.94*
*FRS3           *   4875.*       *    130.8*      125*   120.94*
*FRS3           *   4750.*       *    130.8*      125*   120.94*
*FRS3           *   4625.*       *    130.8*      125*   120.94*
*FRS3           *   4500.000     *   498.18*      500*   508.77*
*FRS3           *   4000.000     *   125.42*      125*   124.86*
*FRS3           *   3875.*       *   125.42*      125*   124.86*
*FRS3           *   3750.*       *   125.42*      125*   124.86*
*FRS3           *   3625.*       *   125.42*      125*   124.86*
*FRS3           *   3500.000     *   502.11*      500*   535.83*
*FRS3           *   3000.000     *   495.44*      500*   514.16*
*FRS3           *   2500.000     *   498.81*      500*   514.15*
*FRS3           *   2000.000     *   130.93*      125*   120.51*
*FRS3           *   1875.*       *   130.93*      125*   120.51*
*FRS3           *   1750.*       *   130.93*      125*   120.51*
*FRS3           *   1625.*       *   130.92*      125*   120.51*
*FRS3           *   1500.000     *   118.44*      118*   125.33*
*FRS3           *   1382.00      *   281.56*      382*   274.67*
*FRS3           *   1000.000     *      400*      400*      400*
*FRS3           *   600          *      600*      600*      600*
*FRS3           *   580          *Culvert  *        *         *
*FRS3           *   11.5         *     11.5*     11.5*     11.5*
*FRS3           *   0.00         *        0*        0*        0*
*****************************************************************

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

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: FRS

*****************************************************
*     Reach      *   River Sta.   * Contr.  * Expan.  *
*****************************************************
*FRS3           *   15750.00*       .1*       .3*
*FRS3           *   15700   *       .1*       .3*
*FRS3           *   15500.00*       .1*       .3*
*FRS3           *   15450   *Lat Struct*         *
```

```
*FRS3          *    15000.00*       .1*       .3*
*FRS3          *    14999   *Lat Struct*         *
*FRS3          *    14500.00*       .1*       .3*
*FRS3          *    14443.5 *       .1*       .3*
*FRS3          *    14295.6**       .1*       .3*
*FRS3          *    14147.8**       .1*       .3*
*FRS3          *    14000.00*       .1*       .3*
*FRS3          *    13500.00*       .1*       .3*
*FRS3          *    13000.00*       .1*       .3*
*FRS3          *    12889.70*       .1*       .3*
*FRS3          *    12500.00*       .1*       .3*
*FRS3          *    12000.00*       .1*       .3*
*FRS3          *    11500.00*       .1*       .3*
*FRS3          *    11000.00*       .1*       .3*
*FRS3          *    10500.00*       .1*       .3*
*FRS3          *    10375.* *       .1*       .3*
*FRS3          *    10250.* *       .1*       .3*
*FRS3          *    10125.* *       .1*       .3*
*FRS3          *    10000.00*       .1*       .3*
*FRS3          *    9500.000*       .1*       .3*
*FRS3          *    9000.000*       .1*       .3*
*FRS3          *    8875.*  *       .1*       .3*
*FRS3          *    8750.*  *       .1*       .3*
*FRS3          *    8625.*  *       .1*       .3*
*FRS3          *    8500.000*       .1*       .3*
*FRS3          *    8000.000*       .1*       .3*
*FRS3          *    7875.*  *       .1*       .3*
*FRS3          *    7750.*  *       .1*       .3*
*FRS3          *    7625.*  *       .1*       .3*
*FRS3          *    7500.000*       .1*       .3*
*FRS3          *    7375.*  *       .1*       .3*
*FRS3          *    7250.*  *       .1*       .3*
*FRS3          *    7125.*  *       .1*       .3*
*FRS3          *    7000.000*       .1*       .3*
*FRS3          *    6500.000*       .1*       .3*
*FRS3          *    6000.000*       .1*       .3*
*FRS3          *    5698.20 *       .1*       .3*
*FRS3          *    5500.000*       .1*       .3*
*FRS3          *    5000.000*       .1*       .3*
*FRS3          *    4875.*  *       .1*       .3*
*FRS3          *    4750.*  *       .1*       .3*
*FRS3          *    4625.*  *       .1*       .3*
*FRS3          *    4500.000*       .1*       .3*
*FRS3          *    4000.000*       .1*       .3*
*FRS3          *    3875.*  *       .1*       .3*
*FRS3          *    3750.*  *       .1*       .3*
*FRS3          *    3625.*  *       .1*       .3*
*FRS3          *    3500.000*       .1*       .3*
*FRS3          *    3000.000*       .1*       .3*
*FRS3          *    2500.000*       .1*       .3*
*FRS3          *    2000.000*       .1*       .3*
*FRS3          *    1875.*  *       .1*       .3*
*FRS3          *    1750.*  *       .1*       .3*
*FRS3          *    1625.*  *       .1*       .3*
*FRS3          *    1500.000*       .1*       .3*
*FRS3          *    1382.00 *       .1*       .3*
*FRS3          *    1000.000*       .1*       .3*
*FRS3          *    600     *       .1*       .3*
*FRS3          *    580     *Culvert  *         *
*FRS3          *    11.5    *       .1*       .3*
*FRS3          *    0.00    *       .1*       .3*
```

E.5.4 FRS#1 PMF Level Pool Routing

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN  1998            *
*            VERSION 4.1            *
*                                   *
*  RUN DATE   09MAR04  TIME  11:07:00  *
*                                   *
*************************************

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

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

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

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

1                                          HEC-1 INPUT                                                    PAGE  1

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

        1           ID   Buckeye/Sun Valley ADMS, FCD No. 2002C027
        2           ID   FRS Level Pool Routing - FRS#1
        3           ID   PBS&J, Job No. 540293.2031, March 2004
        4           ID   PMP 6-hour
        5           ID   Rainfall Loss Method - Green & Ampt
        6           ID   Unit Hydrograph Method - FCDMC S-Graph
        7           ID   Channel Routing Method - Normal Depth
        8           ID   Land Use - FCDMC GIS Data: mag_landuse (2000)
        9           ID   Soil Data - USDA SCS Soil Survey (1972 & 1981)
       10           ID   Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
                    *DIAGRAM
       11           IT       5  1JAN94       0    2000
       12           IO       3
       13           IN       5 01JAN94       0
       14           JD     9.8    0.01
                    * PMP 6-hour FRS1
       15           PI   0.021   0.021   0.021   0.022   0.022   0.023   0.023   0.023   0.024   0.025
       16           PI   0.025   0.025   0.031   0.031   0.031   0.031   0.032   0.032   0.032   0.034
       17           PI   0.036   0.038   0.041   0.044   0.081   0.082   0.083   0.086   0.088   0.092
       18           PI   0.093   0.106   0.111   0.121   0.135   0.155   2.124   1.234   0.891   0.548
       19           PI    0.48   0.411   0.212   0.206   0.199   0.192   0.182   0.175   0.077   0.071
       20           PI   0.066   0.062   0.059   0.056   0.053   0.051   0.049   0.048   0.047   0.045
       21           PI   0.031   0.031    0.03   0.029   0.029   0.029   0.028   0.028   0.027   0.027
       22           PI   0.027   0.026

       23           KK      J1
       24           KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
       25           KM      L=4.09      Lca=1.78      S=70.82      Kn=0.055      LAG=75.0
       26           KM      S-GRAPH TYPE=DESERT RANGELAND
       27           KO       0       0     0.0       1      22
       28           BA  1.7341
       29           LG    0.35    0.35    3.25   0.652     0.0
                    * J1
       30           UI     0.0   77.85   77.85   77.85  158.13   251.7  335.81  417.88  494.16  554.74
       31           UI  644.32  684.11  713.07  746.04  746.04  734.85  705.46  668.29  587.67  533.19
       32           UI  468.25  415.23  374.67  332.03  295.07  263.53  233.62  213.16  176.19  163.14
       33           UI  146.76  131.28  119.37  107.76   82.51   82.51   80.76   53.29   53.29   53.29
       34           UI   53.29    52.6   18.95   18.95   18.95   18.95   18.95   18.95   18.95   18.95
       35           UI   18.95   18.95   18.95   18.95   18.95   18.95

       36           KK   J1-J2    CNAME     J2R
       37           KO       0       0     0.0       0      22
       38           RS      16    FLOW     0.0     0.0
       39           RC   0.055    0.04   0.055 24090.0  0.0086     0.0
                    * J1-J2
       40           RX     0.0   161.0   247.0   254.0   271.0   279.0   393.0   660.0
       41           RY    17.0    12.5    12.2    10.8    10.0    12.1    12.9    17.0

       42           KK      J2
       43           KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
       44           KM      L=5.18      Lca=2.51      S=45.01      Kn=0.050      LAG=93.0
       45           KM      S-GRAPH TYPE=DESERT RANGELAND
       46           KO       0       0     0.0       1      22
       47           BA  3.6379
       48           LG   0.349   0.348   3.623   0.495   0.281
                    * J2
1                                          HEC-1 INPUT                                                    PAGE  2

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

       49           UI     0.0  131.71  131.71  131.71  131.71   310.0  410.19   529.5  653.07  756.36
       50           UI  857.31  932.01 1064.78 1131.28 1183.02 1211.17 1262.18 1262.18 1262.18  1218.5
       51           UI 1189.1 1123.15 1016.12  925.88  854.59  766.34  699.91  639.83  585.77  530.32
       52           UI  484.42  440.99  403.55  360.62  330.98   294.1  269.83   248.3  236.22  201.95
       53           UI  201.95   172.6   139.6   139.6   139.6  118.12   90.16   90.16   90.16   90.16
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 54          UI   90.16   79.42   32.06   32.06   32.06   32.06   32.06   32.06   32.06   32.06
 55          UI   32.06   32.06   32.06   32.06   32.06   32.06   32.06   32.06   32.06     0.0

 56          KK    K3RB   CNAME   J2-K3
 57          KO       0       0     0.0       0      22
 58          HC       2     0.0

 59          KK   J2-K3   CNAME    K3RB
 60          KO       0       0     0.0       0      22
 61          RS       3    FLOW     0.0     0.0
 62          RC    0.05   0.048    0.05  4072.0  0.0059     0.0
             * J2-K3
 63          RX     0.0   390.0   490.0   502.0   520.0   532.0   632.0  1022.0
 64          RY    20.0    14.5    11.5    10.0    10.0    11.5    14.5    20.0

 65          KK      K1
 66          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 67          KM      L=3.23     Lca=1.84     S=681.00     Kn=0.050     LAG=40.0
 68          KM      S-GRAPH TYPE=PHOENIX MOUNTAIN
 69          KO       0       0     0.0       1      22
 70          BA   1.543
 71          LG   0.112   0.255   4.382   0.365   21.06
             * K1
 72          UI     0.0  129.88  168.84  442.11  706.31  896.38 1061.91 1457.77 1111.25  821.11
 73          UI  726.82  641.11  561.31  488.34  403.67  331.29  304.06  271.41  213.37  169.75
 74          UI  154.58  142.25  108.11   99.57   85.17   63.56   63.56   63.56   38.81   24.89
 75          UI   24.89   24.89   24.89   24.89   24.89   24.89   24.89     0.0

 76          KK   K1-K2   CNAME     K2R
 77          KO       0       0     0.0       0      22
 78          RS       9    FLOW     0.0     0.0
 79          RC   0.048    0.05   0.048 30021.0   0.015     0.0
             * K1-K2
 80          RX     0.0    20.0    55.0    85.0   235.0   259.0   289.0   309.0
 81          RY    22.0    21.0    20.0    10.0    10.0    20.0    21.0    22.0

 82          KK      K2
 83          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 84          KM      L=7.3      Lca=4.04     S=108.84     Kn=0.055     LAG=119.0
 85          KM      S-GRAPH TYPE=DESERT RANGELAND
 86          KO       0       0     0.0       1      22
 87          BA   2.365
 88          LG   0.341   0.346   4.471   0.348   1.018
             * K2
 89          UI     0.0   66.91   66.91   66.91   66.91   66.91  132.91  192.38  234.97  273.87
 90          UI  324.09  369.36  410.96  453.67  472.54  532.28  558.99   587.9  605.63  610.31
 91          UI  641.26  641.26  641.26  641.26  620.87  601.29  597.45  565.84  516.46  476.06
 92          UI  460.97  411.12  386.21  359.14  335.65  312.63  290.38  266.75  251.32  236.77
 93          UI  209.97   203.8  183.22  181.03  149.42  149.42  135.15  126.15  126.15  109.44
 94          UI   102.6   102.6   98.17   70.92   70.92   70.92   70.92   70.92   46.43    45.8
1                                                HEC-1 INPUT                                          PAGE  3
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 95          UI    45.8    45.8    45.8    45.8    45.8    45.8   16.92   16.29   16.29   16.29
 96          UI   16.29   16.29   16.29   16.29   16.29   16.29   16.29   16.29   16.29   16.29
 97          UI   16.29   16.29   16.29   16.29   16.29   16.29   16.29   16.29     0.0

 98          KK    K3RA   CNAME   K2-K3
 99          KO       0       0     0.0       0      22
100          HC       2     0.0

101          KK   K2-K3   CNAME    K3RA
102          KO       0       0     0.0       0      22
103          RS      19    FLOW     0.0     0.0
104          RC    0.05   0.048    0.05 25950.0  0.0084     0.0
             * K2-K3
105          RX     0.0   390.0   490.0   502.0   520.0   532.0   632.0  1022.0
106          RY    20.0    14.5    11.5    10.0    10.0    11.5    14.5    20.0

107          KK      F1
108          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
109          KM      L=4.07     Lca=1.63     S=441.98     Kn=0.050     LAG=46.0
110          KM      S-GRAPH TYPE=PHOENIX MOUNTAIN
111          KO       0       0     0.0       1      22
112          BA  2.7854
113          LG   0.299    0.33   4.322   0.361   14.271
             * F1
114          UI     0.0  203.88  203.88  570.72  906.57 1255.03 1478.42 1724.35 2318.93 1830.17
115          UI  1348.3 1190.57 1067.92  966.08  849.55  752.02   639.8  527.23  486.03  447.26
116          UI  380.98  319.46  260.51  239.96  223.29  181.76   156.3   156.3  107.68   99.77
117          UI   99.77   99.77   67.24   39.08   39.08   39.08   39.08   39.08   39.08   39.08
118          UI   39.08   39.08   39.08     0.0

119          KK   F1-F2   CNAME     F2R
120          KO       0       0     0.0       0      22
121          RS       3    FLOW     0.0     0.0
122          RC   0.053   0.045   0.055  8635.0   0.012     0.0
             * F1-F2
123          RX     0.0    60.0   120.0   146.0   178.0   208.0   268.0   328.0
124          RY    27.0    26.0    25.0    10.0    10.0    24.0    26.0    28.0

125          KK      F2
126          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
127          KM      L=3.88     Lca=1.76     S=161.6      Kn=0.050     LAG=57.0
128          KM      S-GRAPH TYPE=PHOENIX MOUNTAIN
129          KO       0       0     0.0       1      22
130          BA  2.5261
131          LG    0.35    0.35   4.311   0.375   3.026
             * F2
132          UI     0.0  149.21  149.21  254.97  495.63  697.83  908.32 1043.12 1160.83 1374.76
133          UI  1770.7 1344.86 1025.23  904.53  840.52  763.84  704.22  635.65  584.61  511.95
134          UI  443.72  385.73  360.15  340.51  311.99  256.37  232.28  190.66  185.65  163.43
135          UI  163.43  124.69   114.4   114.4   99.09   73.02   73.02   73.02   73.02   72.49
136          UI    28.6    28.6    28.6    28.6    28.6    28.6    28.6    28.6    28.6    28.6
137          UI    28.6    28.6    28.6     0.0
1                                                HEC-1 INPUT                                          PAGE  4
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

138          KK     F3R   CNAME   F2-F3
139          KO       0       0     0.0       0      22
140          HC       2     0.0
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141          KK   F2-F3   CNAME     F3R
142          KO       0       0     0.0       0      22
143          RS       4    FLOW     0.0     0.0
144          RC    0.05   0.047   0.048  7059.0    0.01     0.0
             * F2-F3
145          RX     0.0   350.0   425.0   455.0   472.0   499.0   569.0   900.0
146          RY    20.0    15.0    13.0    10.0    10.0    12.0    14.0    20.0

147          KK      F3
148          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
149          KM      L=2.71     Lca=1.26     S=81.34     Kn=0.055     LAG=54.0
150          KM      S-GRAPH TYPE=DESERT RANGELAND
151          KO       0       0     0.0       1      22
152          BA  0.7363
153          LG    0.35    0.35   3.266   0.647     0.0
             * F3
154          UI     0.0   45.91   45.91   90.33  163.23  236.71  300.13  352.45  401.74  427.37
155          UI  439.96  431.69  405.94  355.21   304.4  256.17  219.35  187.61  158.44  134.39
156          UI  113.72   96.06   85.15   70.39   60.25   48.66   46.54   31.43   31.43   31.43
157          UI   21.41   11.17   11.17   11.17   11.17   11.17   11.17   11.17   11.17   11.17
158          UI     0.0

159          KK    E4RB   CNAME   F3-E4
160          KO       0       0     0.0       0      22
161          HC       2     0.0

162          KK   F3-E4   CNAME    E4RB
163          KO       0       0     0.0       0      22
164          RS      16    FLOW     0.0     0.0
165          RC    0.05   0.044    0.05 27656.0  0.0072     0.0
             * F3-E4
166          RX     0.0   570.0   650.0   690.0   705.0   735.0   810.0  1200.0
167          RY    20.0    14.0    13.0    10.0    10.0    12.5    14.5    20.0

168          KK      H1
169          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
170          KM      L=2.41     Lca=1.09     S=64.59     Kn=0.055     LAG=51.0
171          KM      S-GRAPH TYPE=DESERT RANGELAND
172          KO       0       0     0.0       1      22
173          BA  1.0659
174          LG    0.35    0.35   2.733   0.945     0.0
             * H1
175          UI     0.0   70.37   70.37  156.66   277.5  386.06  480.97  578.94  629.54  674.37
176          UI  672.09   639.6  573.43  484.81  406.97  343.94  290.29   244.6  205.26  171.38
177          UI  143.71  125.13   107.9   82.11   74.58   59.77   48.17   48.17   44.02   17.13
178          UI   17.13   17.13   17.13   17.13   17.13   17.13   17.13   17.13     0.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

179          KK   H1-H2   CNAME     H2R
180          KO       0       0     0.0       0      22
181          RS      16    FLOW     0.0     0.0
182          RC   0.053    0.05   0.053 21738.0  0.0082     0.0
             * H1-H2
183          RX     0.0   330.0   430.0   465.0   495.0   530.0   630.0   960.0
184          RY    17.0    14.0    12.0    10.0    10.0    12.0    14.0    17.0

185          KK      E1
186          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
187          KM      L=2.51     Lca=1.13     S=178.34     Kn=0.055     LAG=43.0
188          KM      S-GRAPH TYPE=PHOENIX MOUNTAIN
189          KO       0       0     0.0       1      22
190          BA  0.9558
191          LG    0.35   0.378   5.377   0.222    0.69
             * E1
192          UI     0.0   74.84   77.93  239.12  368.21  486.14  570.74  714.05  832.68  536.61
193          UI  451.09   405.2  360.47  317.65  278.73  233.73  192.22  176.81  160.96  130.73
194          UI  107.54   95.41   81.97    76.8   57.38   57.38    44.3   36.62   36.62   36.62
195          UI   23.52   14.34   14.34   14.34   14.34   14.34   14.34   14.34   14.34   14.34
196          UI     0.0

197          KK   E1-E2   CNAME     E2R
198          KO       0       0     0.0       0      22
199          RS       5    FLOW     0.0     0.0
200          RC    0.05   0.047   0.046 11365.0   0.016     0.0
             * E1-E2
201          RX     0.0    65.0   140.0   170.0   185.0   200.0   270.0   340.0
202          RY    24.0    21.0    17.0    10.0    10.0    14.0    18.0    22.0

203          KK      E2
204          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
205          KM      L=2.92     Lca=0.80     S=96.39     Kn=0.055     LAG=45.0
206          KM      S-GRAPH TYPE=DESERT RANGELAND
207          KO       0       0     0.0       1      22
208          BA  1.9794
209          LG    0.35    0.36   5.043   0.256     0.0
             * E2
210          UI     0.0   148.1   148.1  438.18  692.22  945.05 1155.78 1316.09 1414.16 1406.52
211          UI  1318.3 1126.95  936.66   762.6   633.5  522.15  428.87  348.36   287.6  240.69
212          UI  199.81  156.97  132.73  101.38  101.38   74.46   36.05   36.05   36.05   36.05
213          UI   36.05   36.05   36.05   36.05

214          KK     E3R   CNAME   E2-E3
215          KO       0       0     0.0       0      22
216          HC       2     0.0

217          KK   E2-E3   CNAME     E3R
218          KO       0       0     0.0       0      22
219          RS       8    FLOW     0.0     0.0
220          RC   0.052   0.046   0.052 19626.0  0.0088     0.0
             * E2-E3
221          RX     0.0   133.0   173.0   213.0   223.0   263.0   303.0   403.0
222          RY    22.0    17.0    14.0    10.0    10.0    15.0    18.0    22.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

223          KK      E3
224          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
225          KM      L=3.87     Lca=1.99     S=49.65     Kn=0.050     LAG=75.0
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226          KM      S-GRAPH TYPE=DESERT RANGELAND
227          KO       0       0     0.0       1      22
228          BA  2.4882
229          LG    0.35    0.35   4.358   0.347     0.0
             * E3
230          UI     0.0   111.7   111.7   111.7  226.89  361.15  481.85  599.61  709.05  795.97
231          UI  924.52   981.6 1023.16 1070.47 1070.47 1054.42 1012.24  958.91  843.22  765.06
232          UI  671.88  595.79   537.6  476.41  423.39  378.12  335.21  305.85  252.82  234.09
233          UI  210.58  188.38  171.28  154.62  118.39  118.39  115.88   76.46   76.46   76.46
234          UI   76.46   75.48   27.19   27.19   27.19   27.19   27.19   27.19   27.19   27.19
235          UI   27.19   27.19   27.19   27.19   27.19   27.19

236          KK    E4RA   CNAME   E3-E4
237          KO       0       0     0.0       0      22
238          HC       2     0.0

239          KK   E3-E4   CNAME    E4RA
240          KO       0       0     0.0       0      22
241          RS       9    FLOW     0.0     0.0
242          RC   0.056   0.049   0.056 13855.0  0.0048     0.0
             * E3-E4
243          RX     0.0   570.0   650.0   690.0   705.0   735.0   810.0  1200.0
244          RY    21.0    14.0    13.0    10.0    10.0    12.5    14.5    21.0

245          KK      H2
246          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
247          KM      L=4.41      Lca=2.60      S=44.71      Kn=0.050      LAG=89.0
248          KM      S-GRAPH TYPE=DESERT RANGELAND
249          KO       0       0     0.0       1      22
250          BA  1.4003
251          LG    0.35    0.35   3.222   0.664     0.0
             * H2
252          UI     0.0   52.97   52.97   52.97   52.97  142.96  178.43  226.95  274.77  319.65
253          UI  365.43  394.29  441.22  466.81  479.41  507.67  507.67  507.67  494.57  478.69
254          UI  456.78  413.67  373.55  343.54  306.19   279.6  254.36  232.34  208.24  189.81
255          UI  169.48  155.77  145.05  121.27  117.27   99.87   99.87   83.39   81.23   75.87
256          UI   56.15   56.15   56.15   49.16   36.26   36.26   36.26   36.26   36.26   27.61
257          UI   12.89   12.89   12.89   12.89   12.89   12.89   12.89   12.89   12.89   12.89
258          UI   12.89   12.89   12.89   12.89   12.89   12.89     0.0

259          KK      E4
260          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
261          KM      L=5.36      Lca=2.81      S=38.26      Kn=0.050      LAG=102.0
262          KM      S-GRAPH TYPE=DESERT RANGELAND
263          KO       0       0     0.0       1      22
264          BA  3.0419
265          LG    0.35    0.35   3.816   0.439     0.0
             * E4
266          UI     0.0  100.41  100.41  100.41  100.41   158.4  288.68  358.14  433.81  515.03
267          UI   586.7  661.72  710.89  802.46  849.75  890.64  905.96  962.27  962.27  962.27
268          UI  958.04  920.58  904.74  855.35  781.12  712.29  671.26  604.24  557.18   512.1
1                                          HEC-1 INPUT                                          PAGE  7

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

269          UI  469.44  435.74  392.69  363.68  334.36  307.93  277.84  264.87  224.22  220.82
270          UI   189.3   189.3   167.8  153.96  153.96  127.89  106.43  106.43  106.43  101.84
271          UI   68.73   68.73   68.73   68.73   68.73   68.73    56.9   24.44   24.44   24.44
272          UI   24.44   24.44   24.44   24.44   24.44   24.44   24.44   24.44   24.44   24.44
273          UI   24.44   24.44   24.44   24.44   24.44   24.44

274          KK     E5R   CNAME  E4H2E5
275          KO       0       0     0.0       0      22
276          HC       5     0.0

277          KK  E4H2E5   CNAME     E5R
278          KO       0       0     0.0       0      22
279          RS       9    FLOW     0.0     0.0
280          RC    0.06    0.05    0.06 15206.0  0.0051     0.0
             * E4H2-E5
281          RX     0.0  1010.0  1080.0  1090.0  1110.0  1120.0  1190.0  2200.0
282          RY    27.0    16.0    15.0    10.0    10.0    14.0    16.0    27.0

283          KK      K3
284          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
285          KM      L=4.92      Lca=2.65      S=44.16      Kn=0.050      LAG=94.0
286          KM      S-GRAPH TYPE=DESERT RANGELAND
287          KO       0       0     0.0       1      22
288          BA  1.6364
289          LG    0.35    0.35   3.421   0.582     0.0
             * K3
290          UI     0.0   58.61   58.61   58.61   58.61  132.91  178.83  231.78  287.29  333.51
291          UI  374.73  416.16  465.16  498.52  523.45  535.39  561.71  561.71  561.71  546.66
292          UI  529.11  508.44  466.94  418.32  391.42  351.43  318.39  291.69  266.79  243.88
293          UI  222.25  205.35  179.75  166.96  157.98  130.88  127.86   110.5   110.5   92.87
294          UI   89.87   88.91   62.12   62.12   62.12   62.12   41.11   40.12   40.12   40.12
295          UI   40.12   40.12   23.62   14.27   14.27   14.27   14.27   14.27   14.27   14.27
296          UI   14.27   14.27   14.27   14.27   14.27   14.27   14.27   14.27   14.27   14.27

297          KK      E5
298          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
299          KM      L=3.01      Lca=1.41      S=28.56      Kn=0.050      LAG=66.0
300          KM      S-GRAPH TYPE=DESERT RANGELAND
301          KO       0       0     0.0       1      22
302          BA  1.3075
303          LG   0.347   0.344    3.94   0.429   0.968
             * E5
304          UI     0.0    66.7    66.7    66.7  187.26  261.44  342.24  416.67  480.36  556.15
305          UI  597.84  622.72  639.22  635.89  605.55  574.14  496.32  443.74  383.07  336.76
306          UI  298.38  258.84  227.02  198.06  176.33  148.94  129.75  120.65  102.28   94.78
307          UI    70.7    70.7   61.36   45.66   45.66   45.66   45.66   18.07   16.23   16.23
308          UI   16.23   16.23   16.23   16.23   16.23   16.23   16.23   16.23   16.23     0.0

309          KK     E6R   CNAME  E5K2E6
310          KO       0       0     0.0       0      22
311          HC       5     0.0
1                                          HEC-1 INPUT                                          PAGE  8

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

312          KK  E5K2E6   CNAME     E6R
313          KO       0       0     0.0       0      22
314          RS       4    FLOW     0.0     0.0
```

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315          RC   0.063   0.051   0.063  5083.0  0.0037     0.0
             * E5K3-E6
316          RX     0.0   850.0   980.0   990.0  1030.0  1040.0  1230.0  2020.0
317          RY    25.0    13.0    13.0    10.0    10.0    12.0    12.0    25.0

318          KK      E6
319          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
320          KM      L=3.04     Lca=1.06     S=34.17     Kn=0.050     LAG=57.0
321          KM      S-GRAPH TYPE=DESERT RANGELAND
322          KO       0       0     0.0       1      22
323          BA  2.0375
324          LG   0.343   0.336   4.356   0.367   0.711
             * E6
325          UI     0.0  120.35  120.35  205.65  403.41  574.76  733.18  874.37 1018.75 1083.35
326          UI  1153.3 1153.39 1099.93 1038.74  882.55  767.05  653.67   562.5   487.2  412.36
327          UI  353.58  303.13  257.86   226.9  190.07  175.46  127.56  127.56   96.59   82.38
328          UI   82.38   82.38   36.98   29.29   29.29   29.29   29.29   29.29   29.29   29.29
329          UI   29.29   29.29     0.0

330          KK       E   CNAME     ECP
331          KO       0       0     0.0       0      22
332          HC       2     0.0

333          KK     ECP   CNAME       E
334          KO       0       0     0.0       0      22
335          RN     ECP

336          KK      G1
337          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
338          KM      L=2.38     Lca=1.08     S=33.76     Kn=0.045     LAG=47.0
339          KM      S-GRAPH TYPE=DESERT RANGELAND
340          KO       0       0     0.0       1      22
341          BA  1.1192
342          LG    0.35    0.35   4.688   0.298     0.0
             * G1
343          UI     0.0   80.18   80.18  213.21  355.01  484.39  602.77  698.96  750.35  768.35
344          UI  735.76  667.1  553.81  458.12  381.96   318.8  263.39  222.24  176.97  151.15
345          UI  124.99  103.3   84.98   70.61   54.88   54.88   43.59   19.51   19.51   19.51
346          UI   19.51   19.51   19.51   19.51   19.51     0.0

347          KK     GCP   CNAME       G
348          KO       0       0     0.0       0      22
349          RN     GCP

350          KK   FRS1A   CNAME   E & G
351          KO       0       0     0.0       0      22
352          HC       2   32.36
1                                        HEC-1 INPUT                                                    PAGE  9

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


353          KK      Q1
354          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
355          KM      L=5.23     Lca=2.81     S=228.56     Kn=0.055     LAG=78.0
356          KM      S-GRAPH TYPE=PHOENIX MOUNTAIN
357          KO       0       0     0.0       1      22
358          BA  2.2336
359          LG    0.35    0.35   4.203    0.39  12.313
             * Q1
360          UI     0.0   96.42   96.42   96.42   170.9  292.35  386.45  493.18  585.93  645.92
361          UI  711.02  763.18  869.42 1043.58 1161.91  814.93  681.34  610.73  571.35  541.64
362          UI  505.03  473.57  449.52  412.98  385.87  360.82  325.28  298.43  254.89  242.17
363          UI  233.02  221.76  208.77   201.6  161.51   158.4  132.21   123.2   123.2  106.72
364          UI   105.6   105.6   84.69   73.92   73.92   73.92   73.92   47.72   47.18   47.18
365          UI   47.18   47.18   47.18   47.18   28.58   18.48   18.48   18.48   18.48   18.48
366          UI   18.48   18.48   18.48   18.48   18.48   18.48   18.48   18.48   18.48   18.48
367          UI   18.48   18.48   18.48

368          KK     QCP   CNAME       Q
369          KO       0       0     0.0       0      22
370          RN     QCP

371          KK      P1
372          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
373          KM      L=6.39     Lca=2.62     S=200.13     Kn=0.055     LAG=85.0
374          KM      S-GRAPH TYPE=PHOENIX MOUNTAIN
375          KO       0       0     0.0       1      22
376          BA  2.4365
377          LG    0.35    0.35   4.193   0.396   6.712
             * P1
378          UI     0.0   96.51   96.51   96.51   112.8  277.47  344.99   422.5  544.66  601.48
379          UI  664.09   718.1  766.78  866.24 1024.06 1185.36  901.23  714.77  637.57  587.86
380          UI  562.05  530.68  496.62  470.96  448.38   414.0  389.12  369.81  331.31   304.2
381          UI  272.76  252.72  236.15  228.64  221.98  205.23   201.8  160.29  158.56  138.12
382          UI  123.32  123.32  114.16   105.7   105.7   105.7   75.58   73.99   73.99   73.99
383          UI   73.99   51.24   47.23   47.23   47.23   47.23   47.23   47.23   47.23   22.52
384          UI    18.5    18.5    18.5    18.5    18.5    18.5    18.5    18.5    18.5    18.5
385          UI    18.5    18.5    18.5    18.5    18.5    18.5    18.5    18.5    18.5     0.0

386          KK     PCP   CNAME       P
387          KO       0       0     0.0       0      22
388          RN     PCP

389          KK      N1
390          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
391          KM      L=2.79     Lca=1.44     S=340.38     Kn=0.050     LAG=40.0
392          KM      S-GRAPH TYPE=PHOENIX MOUNTAIN
393          KO       0       0     0.0       1      22
394          BA   1.524
395          LG    0.35    0.35   4.075   0.419    8.38
             * N1
396          UI     0.0  128.28  166.76  436.67  697.62  885.35 1048.84 1439.82 1097.57   811.0
397          UI  717.87  633.22  554.39  482.33   398.7  327.21  300.32  268.07  210.75  167.66
398          UI  152.67   140.5  106.78   98.35   84.12   62.78   62.78   62.78   38.33   24.59
399          UI   24.59   24.59   24.59   24.59   24.59   24.59   24.59     0.0
1                                        HEC-1 INPUT                                                    PAGE 10

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


400          KK   N1-N2   CNAME     N2R
401          KO       0       0     0.0       0      22
402          RS      17    FLOW     0.0     0.0
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403          RC    0.05    0.047    0.05 26511.0  0.0115     0.0
             * N1-N2
404          RX     0.0    280.0    350.0    358.0    367.0    381.0    451.0    730.0
405          RY    17.0     13.0     11.5     10.0     10.0     11.5     13.0     17.0

406          KK      N2
407          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
408          KM      L=5.64      Lca=3.27      S=170.14      Kn=0.055      LAG=91.0
409          KM      S-GRAPH TYPE=PHOENIX MOUNTAIN
410          KO       0        0      0.0        1       22
411          BA  3.3254
412          LG    0.35     0.35    4.117    0.405     2.67
             * N2
413          UI     0.0   123.04   123.04   123.04   123.04   310.82   395.95   496.74   616.34   730.85
414          UI  796.44   869.05   928.55   990.24  1125.95  1316.06  1517.94  1186.36   925.57   834.34
415          UI  764.31   726.51   694.11   654.42    619.9   586.86   557.14   517.77   491.74    466.8
416          UI  422.37   387.25    352.0   325.27   302.29   296.75   282.99   272.23   257.26   234.33
417          UI  202.13   202.13   163.14   157.21   157.21   143.92   134.76   134.76   134.76   103.63
418          UI   94.33    94.33    94.33    94.33    83.75    60.21    60.21    60.21    60.21    60.21
419          UI   60.21    60.21    60.21    32.52    23.58    23.58    23.58    23.58    23.58    23.58
420          UI   23.58    23.58    23.58    23.58    23.58    23.58    23.58    23.58    23.58    23.58
421          UI   23.58    23.58    23.58    23.58    23.58

422          KK       N    CNAME      NCP
423          KO       0        0      0.0        0       22
424          HC       2      0.0

425          KK     NCP    CNAME        N
426          KO       0        0      0.0        0       22
427          RN     NCP

428          KK      O1
429          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
430          KM      L=5.20      Lca=2.79      S=64.07      Kn=0.055      LAG=100.0
431          KM      S-GRAPH TYPE=PHOENIX MOUNTAIN
432          KO       0        0      0.0        1       22
433          BA  3.0883
434          LG    0.35     0.35    4.189    0.393    2.105
             * O1
435          UI     0.0   103.98   103.98   103.98   103.98   181.97   298.95   378.66   446.43   550.06
436          UI  624.46   676.83   731.54   781.25   824.52   905.38  1042.04  1204.77  1242.7   887.05
437          UI   765.3    690.9   643.35   614.88   590.49   558.55   530.78   506.48   485.09   454.93
438          UI  429.36   410.34    388.6   356.95   326.56    302.9   274.89   260.97   254.42   242.21
439          UI  239.16   221.76   217.42   189.46   170.83   170.83   140.46   132.86   132.86   129.07
440          UI  113.88   113.88   113.88   113.88    79.72    79.72    79.72    79.72    79.72    79.72
441          UI   50.88    50.88    50.88    50.88    50.88    50.88    50.88    50.88    50.88    32.31
442          UI   19.93    19.93    19.93    19.93    19.93    19.93    19.93    19.93    19.93    19.93
443          UI   19.93    19.93    19.93    19.93    19.93    19.93    19.93    19.93    19.93    19.93
444          UI   19.93    19.93    19.93      0.0
1                                                HEC-1 INPUT                                                    PAGE 11

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


445          KK     OCP    CNAME        O
446          KO       0        0      0.0        0       22
447          RN     OCP

448          KK      M1
449          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
450          KM      L=4.99      Lca=1.81      S=302.46      Kn=0.050      LAG=56.0
451          KM      S-GRAPH TYPE=PHOENIX MOUNTAIN
452          KO       0        0      0.0        1       22
453          BA  5.5949
454          LG    0.35     0.35    4.306    0.347   17.122
             * M1
455          UI     0.0   336.39   336.39   603.82  1137.33  1624.75  2070.76  2388.19  2652.37  3233.29
456          UI  4005.2  2791.27   2249.2  1997.59  1849.54  1685.71  1552.54  1393.19  1268.31  1104.08
457          UI  946.29   845.54   793.05   739.37   664.77   552.64   468.14   429.83   388.56   368.42
458          UI  333.06    257.9    257.9    257.9   168.35   164.62   164.62   164.62   164.62    94.92
459          UI   64.47    64.47    64.47    64.47    64.47    64.47    64.47    64.47    64.47    64.47
460          UI   64.47    64.47      0.0

461          KK   M1-M2    CNAME     M2R
462          KO       0        0      0.0        0       22
463          RS      20     FLOW      0.0      0.0
464          RC    0.04     0.04    0.045 38719.0  0.0133     0.0
             * M1-M2
465          RX     0.0    961.0   1028.0   1051.0   1136.0   1153.0   1193.0   1900.0
466          RY    15.5     12.0     11.8     10.3     10.0     11.0     11.2     15.5

467          KK      M2
468          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
469          KM      L=7.60      Lca=3.07      S=88.36      Kn=0.050      LAG=103.0
470          KM      S-GRAPH TYPE=DESERT RANGELAND
471          KO       0        0      0.0        1       22
472          BA  7.5274
473          LG    0.35     0.35    3.952    0.446    0.287
             * M2
474          UI     0.0   246.06   246.06   246.06   246.06   366.94   707.43   862.03  1046.84  1248.07
475          UI  1424.7  1592.75  1748.11  1929.89  2062.25  2176.05  2221.53  2334.54  2358.09  2358.09
476          UI  2358.0  2271.78  2217.13  2123.85  1976.02  1771.84  1691.54   1501.0   1393.0  1284.99
477          UI  1178.7   1088.8   995.34    919.2   857.56   754.59   708.67   673.74   569.64   549.46
478          UI  488.21   463.89   446.34   377.29   377.29   364.18    260.8    260.8    260.8    260.8
479          UI  201.47   168.43   168.43   168.43   168.43   168.43   168.43    90.19    59.89    59.89
480          UI   59.89    59.89    59.89    59.89    59.89    59.89    59.89    59.89    59.89    59.89
481          UI   59.89    59.89    59.89    59.89    59.89    59.89      0.0

482          KK       M    CNAME     MCP
483          KO       0        0      0.0        0       22
484          HC       2      0.0

485          KK     MCP    CNAME        M
486          KO       0        0      0.0        0       22
487          RN     MCP
1                                                HEC-1 INPUT                                                    PAGE 12

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


488          KK      Z1
489          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
490          KM      L=1.70      Lca=0.66      S=47.00      Kn=0.055      LAG=39.0
491          KM      S-GRAPH TYPE=DESERT RANGELAND
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492          KO       0       0     0.0       1      22
493          BA  0.6644
494          LG   0.321   0.292   4.004    0.43   2.909
             * Z1
495          UI     0.0   57.36   79.51  205.31  321.74  423.99  504.02  545.15   540.9  493.68
496          UI  399.44  319.16  256.25  205.08  164.89  127.64  104.63   87.85    60.8   54.09
497          UI   39.26   39.26   21.79   13.96   13.96   13.96   13.96   13.96   13.96     0.0

498          KK     ZCP   CNAME       Z
499          KO       0       0     0.0       0      22
500          RN     ZCP

501          KK      L1
502          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
503          KM      L=4.93     Lca=2.29     S=308.27     Kn=0.050     LAG=61.0
504          KM      S-GRAPH TYPE=PHOENIX MOUNTAIN
505          KO       0       0     0.0       1      22
506          BA  3.5462
507          LG   0.271   0.318   4.357   0.352  16.317
             * L1
508          UI     0.0  195.74  195.74  266.93  603.63  823.25 1120.55 1287.07 1452.32 1611.06
509          UI  1991.3 2326.75 1575.05 1312.31 1173.42 1097.38 1002.28  929.54  850.49  775.65
510          UI  701.21  620.51  525.99  484.91  458.87  430.63  397.34  321.56  290.98  250.11
511          UI  241.82  214.38  214.38  171.29  150.06  150.06  149.52   95.79   95.79   95.79
512          UI   95.79   95.79    79.7   37.52   37.52   37.52   37.52   37.52   37.52   37.52
513          UI   37.52   37.52   37.52   37.52   37.52   37.52   37.52     0.0

514          KK   L1-L2   CNAME     L2R
515          KO       0       0     0.0       0      22
516          RS      10    FLOW     0.0     0.0
517          RC   0.046   0.045   0.046 28949.0  0.0147     0.0
             * L1-L2
518          RX     0.0    80.0   165.0   200.0   215.0   255.0   340.0   420.0
519          RY    19.0    17.0    14.0    10.0    10.0    14.0    18.0    22.0

520          KK      L2
521          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
522          KM      L=5.21     Lca=2.40     S=82.13     Kn=0.055     LAG=90.0
523          KM      S-GRAPH TYPE=DESERT RANGELAND
524          KO       0       0     0.0       1      22
525          BA  7.3294
526          LG    0.35    0.35   4.202   0.399     0.0
             * L2
527          UI     0.0   274.2   274.2   274.2   274.2  716.34  906.16 1156.59 1406.58 1625.88
528          UI  1873.4 2006.82 2272.85 2404.02 2469.24 2608.71 2627.71 2627.71 2580.41  2477.2
529          UI  2404.5 2210.07 1962.85 1830.08 1638.23 1474.72 1349.05 1231.09 1114.64 1013.65
530          UI  919.78  837.26  750.77  677.65  612.28  548.01  516.93   470.8  420.43  420.43
531          UI  319.44  290.62  290.62  290.62  200.87  187.69  187.69  187.69  187.69  187.69
532          UI   88.02   66.74   66.74   66.74   66.74   66.74   66.74   66.74   66.74   66.74
533          UI   66.74   66.74   66.74   66.74   66.74   66.74   66.74
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

534          KK     L3R   CNAME   L2-L3
535          KO       0       0     0.0       0      22
536          HC       2     0.0

537          KK   L2-L3   CNAME     L3R
538          KO       0       0     0.0       0      22
539          RS      11    FLOW     0.0     0.0
540          RC    0.05    0.04    0.06 20567.0  0.0084     0.0
             * L2-L3
541          RX     0.0  1093.0  1210.0  1215.0  1225.0  1232.0  1372.0  2000.0
542          RY    18.0    11.8    11.7    10.0    10.0    11.7    11.8    18.0

543          KK      L3
544          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
545          KM      L=4.75     Lca=2.00     S=44.27     Kn=0.055     LAG=91.0
546          KM      S-GRAPH TYPE=DESERT RANGELAND
547          KO       0       0     0.0       1      22
548          BA  5.8518
549          LG   0.341   0.328    3.98   0.419    1.05
             * L3
550          UI     0.0  216.51  216.51  216.51  216.51  546.97  701.79   899.0 1098.31 1266.31
551          UI  1460.0 1557.79  1786.1 1888.63 1950.16 2034.92 2074.91 2074.91 2053.75 1965.49
552          UI  1920.6 1789.16 1583.48 1486.06 1313.63 1207.77 1091.42  994.62  909.22  825.02
553          UI  759.89  663.97  614.46  574.55  483.47  461.44  408.18  402.68  331.99  331.99
554          UI  296.91  229.48  229.48  229.48  197.56  148.21  148.21  148.21  148.21  148.21
555          UI  121.69    52.7    52.7    52.7    52.7    52.7    52.7    52.7    52.7    52.7
556          UI    52.7    52.7    52.7    52.7    52.7    52.7    52.7     0.0

557          KK       L   CNAME     LCP
558          KO       0       0     0.0       0      22
559          HC       2     0.0

560          KK     LCP   CNAME       L
561          KO       0       0     0.0       0      22
562          RN     LCP

563          KK      R1
564          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
565          KM      L=1.01     Lca=0.46     S=213.31     Kn=0.050     LAG=19.0
566          KM      S-GRAPH TYPE=PHOENIX MOUNTAIN
567          KO       0       0     0.0       1      22
568          BA  0.2836
569          LG    0.35    0.35   4.358   0.374   8.387
             * R1
570          UI     0.0   62.13  235.96  401.77  464.88  281.67  216.06   150.6  113.69   76.27
571          UI   57.54   39.69   27.52   24.53    9.63    9.63    9.63    9.63     0.0

572          KK     RCP   CNAME       R
573          KO       0       0     0.0       0      22
574          RN     RCP
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

575          KK    FRS1   CNAME   E, G, L, Z, M, N, O, P, Q, & R
576          KO       0       0     0.0       0      22
577          HC       9   75.76
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578          KK  ROUTE         FRS#1 LEVEL POOL ROUTING
579          KM                RESERVIOR ASSUMED EMPTY
580          KO       1
581          RS       1    STOR       0
582          ST  1089.9    5880     2.7     1.5
583          SW    5880    5880   37600
584          SE  1089.9  1091.7  1091.7
585          SS    1082     800     2.7     1.5
586          SQ      10  100.08  152.04  209.57   246.1  286.59  351.31     381     407  429.51
587          SE  1060.4 1064.25 1065.66 1067.48  1069.2 1071.43 1075.09    1078 1080.05 1081.99
588          SV       0     100     528    1261    2246    3491    5068    8087    9567   12622
589          SV   16336   20732
590          SE  1061.4 1063.86 1066.36 1068.86 1071.36 1073.86 1076.36 1079.96 1081.36 1083.86
591          SE  1086.4 1088.96
592          ZZ
1
             SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   23         J1
              V
              V
   36       J1-J2
              .
              .
   42         .          J2
              .           .
              .           .
   56       K3RB............
              V
              V
   59       J2-K3
              .
              .
   65         .          K1
              .           V
              .           V
   76         .       K1-K2
              .           .
              .           .
   82         .           .          K2
              .           .           .
              .           .           .
   98         .        K3RA............
              .           V
              .           V
  101         .       K2-K3
              .           .
              .           .
  107         .           .          F1
              .           .           V
              .           .           V
  119         .           .       F1-F2
              .           .           .
              .           .           .
  125         .           .           .          F2
              .           .           .           .
              .           .           .           .
  138         .           .         F3R............
              .           .           V
              .           .           V
  141         .           .       F2-F3
              .           .           .
              .           .           .
  147         .           .           .          F3
              .           .           .           .
              .           .           .           .
  159         .           .        E4RB............
              .           .           V
              .           .           V
  162         .           .       F3-E4
              .           .           .
              .           .           .
  168         .           .           .          H1
              .           .           .           V
              .           .           .           V
  179         .           .           .       H1-H2
              .           .           .           .
              .           .           .           .
  185         .           .           .           .         E1
              .           .           .           .          V
              .           .           .           .          V
  197         .           .           .           .      E1-E2
              .           .           .           .           .
              .           .           .           .           .
  203         .           .           .           .           .          E2
              .           .           .           .           .           .
              .           .           .           .           .           .
  214         .           .           .           .        E3R............
              .           .           .           .           V
              .           .           .           .           V
  217         .           .           .           .      E2-E3
              .           .           .           .           .
              .           .           .           .           .
  223         .           .           .           .           .          E3
              .           .           .           .           .           .
              .           .           .           .           .           .
  236         .           .           .           .       E4RA............
              .           .           .           .           V
              .           .           .           .           V
  239         .           .           .           .      E3-E4
              .           .           .           .           .
              .           .           .           .           .
  245         .           .           .           .           .          H2
              .           .           .           .           .           .
              .           .           .           .           .           .
  259         .           .           .           .           .           .          E4
              .           .           .           .           .           .           .
              .           .           .           .           .           .           .
  274         .           .        E5R.......................................
              .           .           V
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                 .
                 .           .           V
277              .           .     E4H2E5
                 .           .           .
283              .           .           .        K3
                 .           .           .         .
                 .           .           .         .
297              .           .           .         .        E5
                 .           .           .         .         .
                 .           .           .         .         .
309           E6R.......................................
                V
                V
312        E5K2E6
                .
                .
318              .        E6
                 .         .
                 .         .
330             E............
                V
                V
333            ECP
                .
                .
336              .        G1
                 .         V
                 .         V
347              .       GCP
                 .         .
                 .         .
350        FRS1A............
                .
                .
353              .        Q1
                 .         V
                 .         V
368              .       QCP
                 .         .
                 .         .
371              .         .        P1
                 .         .         V
                 .         .         V
386              .         .       PCP
                 .         .         .
                 .         .         .
389              .         .         .        N1
                 .         .         .         V
                 .         .         .         V
400              .         .         .      N1-N2
                 .         .         .         .
                 .         .         .         .
406              .         .         .         .        N2
                 .         .         .         .         .
                 .         .         .         .         .
422              .         .         .         N............
                 .         .         .         V
                 .         .         .         V
425              .         .         .       NCP
                 .         .         .         .
                 .         .         .         .
428              .         .         .         .        O1
                 .         .         .         .         V
                 .         .         .         .         V
445              .         .         .         .       OCP
                 .         .         .         .         .
                 .         .         .         .         .
448              .         .         .         .         .        M1
                 .         .         .         .         .         V
                 .         .         .         .         .         V
461              .         .         .         .         .      M1-M2
                 .         .         .         .         .         .
                 .         .         .         .         .         .
467              .         .         .         .         .         .        M2
                 .         .         .         .         .         .         .
                 .         .         .         .         .         .         .
482              .         .         .         .         .         M............
                 .         .         .         .         .         V
                 .         .         .         .         .         V
485              .         .         .         .         .       MCP
                 .         .         .         .         .         .
                 .         .         .         .         .         .
488              .         .         .         .         .         .        Z1
                 .         .         .         .         .         .         V
                 .         .         .         .         .         .         V
498              .         .         .         .         .         .       ZCP
                 .         .         .         .         .         .         .
                 .         .         .         .         .         .         .
501              .         .         .         .         .         .         .        L1
                 .         .         .         .         .         .         .         V
                 .         .         .         .         .         .         .         V
514              .         .         .         .         .         .         .      L1-L2
                 .         .         .         .         .         .         .         .
                 .         .         .         .         .         .         .         .
520              .         .         .         .         .         .         .         .        L2
                 .         .         .         .         .         .         .         .         .
                 .         .         .         .         .         .         .         .         .
534              .         .         .         .         .         .         .         .      L3R............
                 .         .         .         .         .         .         .         .         V
                 .         .         .         .         .         .         .         .         V
537              .         .         .         .         .         .         .         .      L2-L3
                 .         .         .         .         .         .         .         .         .
                 .         .         .         .         .         .         .         .         .
543              .         .         .         .         .         .         .         .         .        L3
                 .         .         .         .         .         .         .         .         .         .
                 .         .         .         .         .         .         .         .         .         .
557              .         .         .         .         .         .         .         .         .         L............
                 .         .         .         .         .         .         .         .         .         V
                 .         .         .         .         .         .         .         .         .         V
560              .         .         .         .         .         .         .         .         .       LCP
                 .         .         .         .         .         .         .         .         .         .
                 .         .         .         .         .         .         .         .         .         .
563              .         .         .         .         .         .         .         .         .         .        R1
                 .         .         .         .         .         .         .         .         .         .         V
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                .         .         .         .         .         .         .         .         V
  572           .         .         .         .         .         .         .         .       RCP
                .         .         .         .         .         .         .         .         .
                .         .         .         .         .         .         .         .         .
  575        FRS1.......................................................................................
                V
                V
  578      ROUTE

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN   1998              *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   09MAR04  TIME  11:07:00  *
*                                      *
****************************************

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


                        Buckeye/Sun Valley ADMS, FCD No. 2002C027
                        FRS Level Pool Routing - FRS#1
                        PBS&J, Job No. 540293.2031, March 2004
                        PMP 6-hour
                        Rainfall Loss Method - Green & Ampt
                        Unit Hydrograph Method - FCDMC S-Graph
                        Channel Routing Method - Normal Depth
                        Land Use - FCDMC GIS Data: mag_landuse (2000)
                        Soil Data - USDA SCS Soil Survey (1972 & 1981)
                        Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)

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

  13 IN          TIME DATA FOR INPUT TIME SERIES
                       JXMIN          5  TIME INTERVAL IN MINUTES
                      JXDATE     1JAN94  STARTING DATE
                      JXTIME          0  STARTING TIME

     IT          HYDROGRAPH TIME DATA
                       NMIN          5  MINUTES IN COMPUTATION INTERVAL
                      IDATE     1JAN94  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ       2000  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE     7JAN94  ENDING DATE
                     NDTIME       2235  ENDING TIME
                      ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL    0.08 HOURS
                      TOTAL TIME BASE  166.58 HOURS

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

  14 JD          INDEX STORM NO. 1
                       STRM       9.80  PRECIPITATION DEPTH
                       TRDA       0.01  TRANSPOSITION DRAINAGE AREA

  15 PI            PRECIPITATION PATTERN
                     0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.03
                     0.02      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
                     0.04      0.04      0.04      0.04      0.08      0.08      0.08      0.09      0.09      0.09
                     0.09      0.11      0.11      0.12      0.13      0.15      2.12      1.23      0.89      0.55
                     0.48      0.41      0.21      0.21      0.20      0.19      0.18      0.18      0.08      0.07
                     0.07      0.06      0.06      0.06      0.05      0.05      0.05      0.05      0.05      0.05
                     0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
                     0.03      0.03

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


           **************
           *            *
  23 KK    *     J1     *
           *            *
           **************
                        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN.
                        L=4.09     Lca=1.78     S=70.82     Kn=0.055     LAG=75.0
                        S-GRAPH TYPE=DESERT RANGELAND

  27 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

  28 BA          SUBBASIN CHARACTERISTICS
                      TAREA       1.73  SUBBASIN AREA

  29 LG          GREEN AND AMPT LOSS RATE
                      STRTL       0.35  STARTING LOSS
                        DTH       0.35  MOISTURE DEFICIT
                       PSIF       3.25  WETTING FRONT SUCTION
```

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                    XKSAT        0.65  HYDRAULIC CONDUCTIVITY
                    RTIMP        0.00  PERCENT IMPERVIOUS AREA

  28 UI         INPUT UNITGRAPH,  56 ORDINATES,  VOLUME = 1.00
                     0.0      77.8      77.8      77.8     158.1     251.7     335.8     417.9     494.2     554.7
                   644.3     684.1     713.1     746.0     746.0     734.8     705.5     668.3     587.7     533.2
                   468.3     415.2     374.7     332.0     295.1     263.5     233.6     213.2     176.2     163.1
                   146.8     131.3     119.4     107.8      82.5      82.5      80.8      53.3      53.3      53.3
                    53.3      52.6      19.0      19.0      19.0      19.0      19.0      19.0      19.0      19.0
                    19.0      19.0      19.0      19.0      19.0      19.0
                                                                    ***

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

                      HYDROGRAPH AT STATION       J1
                    TRANSPOSITION AREA      0.0 SQ MI

    TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.87, TOTAL EXCESS =    5.93

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    4090.      4.42                 1105.        276.         92.          40.
                        (INCHES)    5.927       5.927       5.927        5.927
                         (AC-FT)     548.        548.        548.         548.

                      CUMULATIVE AREA =    1.73 SQ MI


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


            **************
            *            *
  36 KK     *     J1-J2  *        CNAME     J2R
            *            *
            **************

  37 KO         OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

  38 RS         STORAGE ROUTING
                      NSTPS          16  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC        0.00  INITIAL CONDITION
                          X        0.00 WORKING R AND D COEFFICIENT

  39 RC         NORMAL DEPTH CHANNEL
                        ANL       0.055  LEFT OVERBANK N-VALUE
                       ANCH       0.040  MAIN CHANNEL N-VALUE
                        ANR       0.055  RIGHT OVERBANK N-VALUE
                      RLNTH      24090.  REACH LENGTH
                        SEL      0.0086  ENERGY SLOPE
                      ELMAX         0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                         CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
  41 RY       ELEVATION    17.00     12.50     12.20     10.80     10.00     12.10     12.90     17.00
  40 RX       DISTANCE      0.00    161.00    247.00    254.00    271.00    279.00    393.00    660.00
                                                                    ***

                                         COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

           STORAGE       0.00      0.94      3.76      8.05     13.01     18.63     25.40     51.42     96.58    151.53
           OUTFLOW       0.00      1.89     12.03     37.11     75.52    126.93    193.98    319.45    555.86    913.74
         ELEVATION      10.00     10.37     10.74     11.11     11.47     11.84     12.21     12.58     12.95     13.32

           STORAGE     214.05    284.14    361.81    447.05    539.87    640.26    748.22    863.76    986.87   1117.56
           OUTFLOW    1384.50   1972.22   2682.51   3521.53   4495.70   5611.47   6875.29   8293.57   9872.60  11618.65
         ELEVATION      13.68     14.05     14.42     14.79     15.16     15.53     15.89     16.26     16.63     17.00

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

                      HYDROGRAPH AT STATION    J1-J2
                    TRANSPOSITION AREA      0.0 SQ MI            *

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    3547.      5.67                 1101.        276.         92.          40.
                        (INCHES)    5.903       5.927       5.927        5.927
                         (AC-FT)     546.        548.        548.         548.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      28.       5.67                   10.          2.          1.           0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
    14.80       5.67                 12.95       10.84       10.28        10.12

                      CUMULATIVE AREA =    1.73 SQ MI
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 42 KK    *     J2     *
          *            *
          **************
                          THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                          L=5.18     Lca=2.51     S=45.01     Kn=0.050     LAG=93.0
                          S-GRAPH TYPE=DESERT RANGELAND

 46 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

 47 BA          SUBBASIN CHARACTERISTICS
                      TAREA       3.64  SUBBASIN AREA

 48 LG          GREEN AND AMPT LOSS RATE
                      STRTL       0.35  STARTING LOSS
                        DTH       0.35  MOISTURE DEFICIT
                       PSIF       3.62  WETTING FRONT SUCTION
                      XKSAT       0.50  HYDRAULIC CONDUCTIVITY
                      RTIMP       0.28  PERCENT IMPERVIOUS AREA

 47 UI          INPUT UNITGRAPH,  69 ORDINATES,  VOLUME = 1.00
                     0.0     131.7     131.7     131.7     131.7     310.0     410.2     529.5     653.1     756.4
                   857.3     932.0    1064.8    1131.3    1183.0    1211.2    1262.2    1262.2    1262.2    1218.5
                  1189.1    1123.2    1016.1     925.9     854.6     766.3     699.9     639.8     585.8     530.3
                   484.4     441.0     403.5     360.6     331.0     294.1     269.8     248.3     236.2     201.9
                   201.9     172.6     139.6     139.6     139.6     118.1      90.2      90.2      90.2      90.2
                    90.2      79.4      32.1      32.1      32.1      32.1      32.1      32.1      32.1      32.1
                    32.1      32.1      32.1      32.1      32.1      32.1      32.1      32.1      32.1
                                                                      ***

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

                       HYDROGRAPH AT STATION      J2
                     TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.56, TOTAL EXCESS =    6.24

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                         (CFS)
+    7410.      4.67                2436.        610.        203.         88.
                       (INCHES)     6.226       6.234       6.234        6.234
                        (AC-FT)     1208.       1209.       1209.        1209.

                     CUMULATIVE AREA =    3.64 SQ MI


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

          **************
          *            *
 56 KK    *    K3RB    *        CNAME   J2-K3
          *            *
          **************

 57 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


 58 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                      ***

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

                       HYDROGRAPH AT STATION     K3RB
                     TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                         (CFS)
+    7691.      5.42                3526.        886.        295.        128.
                       (INCHES)     6.103       6.135       6.135        6.135
                        (AC-FT)     1748.       1758.       1758.        1758.

                     CUMULATIVE AREA =    5.37 SQ MI


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

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                *              *
59 KK           *    J2-K3     *        CNAME    K3RB
                *              *
                **************

60 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT      0.083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

61 RS           STORAGE ROUTING
                     NSTPS          3  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       0.00  INITIAL CONDITION
                         X       0.00 WORKING R AND D COEFFICIENT

62 RC           NORMAL DEPTH CHANNEL
                       ANL      0.050  LEFT OVERBANK N-VALUE
                      ANCH      0.048  MAIN CHANNEL N-VALUE
                       ANR      0.050  RIGHT OVERBANK N-VALUE
                     RLNTH      4072.  REACH LENGTH
                       SEL     0.0059  ENERGY SLOPE
                     ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
64 RY        ELEVATION   20.00    14.50    11.50    10.00    10.00    11.50    14.50    20.00
63 RX        DISTANCE     0.00   390.00   490.00   502.00   520.00   532.00   632.00  1022.00
                                                          ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE      0.00     1.09     2.60     4.54     7.72    12.64    19.28    27.65    37.74    49.76
          OUTFLOW      0.00    16.16    56.92   126.16   248.87   439.23   717.23  1099.96  1602.93  2194.44
        ELEVATION     10.00    10.53    11.05    11.58    12.11    12.63    13.16    13.68    14.21    14.74

          STORAGE     65.15    84.22   106.96   133.37   163.46   197.22   234.64   275.75   320.52   368.97
          OUTFLOW   2928.06  3898.43  5132.05  6657.02  8501.16 10691.52 13254.31 16214.91 19597.95 23427.37
        ELEVATION     15.26    15.79    16.32    16.84    17.37    17.89    18.42    18.95    19.47    20.00

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

                     HYDROGRAPH AT STATION    J2-K3
                   TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR    166.58-HR
+   (CFS)      (HR)
                         (CFS)
+    7594.     5.58       3520.       886.        295.        128.
                      (INCHES)     6.091       6.135       6.135       6.135
                       (AC-FT)     1745.       1758.       1758.       1758.

 PEAK STORAGE  TIME                     MAXIMUM AVERAGE STORAGE
                                  6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)     (HR)
      50.      5.58                25.          6.          2.          1.

  PEAK STAGE   TIME                      MAXIMUM AVERAGE STAGE
                                  6-HR       24-HR       72-HR    166.58-HR
+   (FEET)     (HR)
    17.11      5.58               15.04       11.38       10.46       10.20

                      CUMULATIVE AREA =    5.37 SQ MI


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

                **************
                *            *
65 KK           *       K1   *
                *            *
                **************
                          THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                          L=3.23     Lca=1.84     S=681.00     Kn=0.050     LAG=40.0
                          S-GRAPH TYPE=PHOENIX MOUNTAIN

69 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                      IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT      0.083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

70 BA          SUBBASIN CHARACTERISTICS
                     TAREA       1.54  SUBBASIN AREA

71 LG          GREEN AND AMPT LOSS RATE
                     STRTL       0.11  STARTING LOSS
                       DTH       0.25  MOISTURE DEFICIT
                      PSIF       4.38  WETTING FRONT SUCTION
                     XKSAT       0.37  HYDRAULIC CONDUCTIVITY
                     RTIMP      21.06  PERCENT IMPERVIOUS AREA

70 UI          INPUT UNITGRAPH,  37 ORDINATES,  VOLUME = 1.00
```

```
                0.0     129.9     168.8     442.1     706.3     896.4    1061.9    1457.8    1111.3     821.1
              726.8     641.1     561.3     488.3     403.7     331.3     304.1     271.4     213.4     169.8
              154.6     142.3     108.1      99.6      85.2      63.6      63.6      63.6      38.8      24.9
               24.9      24.9      24.9      24.9      24.9      24.9      24.9
                                                                  ***

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

                HYDROGRAPH AT STATION       K1
               TRANSPOSITION AREA      0.0 SQ MI

  TOTAL RAINFALL =    9.80, TOTAL LOSS =    2.35, TOTAL EXCESS =    7.45

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                     (CFS)
+   6266.      3.75              1229.        308.        103.          44.
               (INCHES)          7.406       7.433       7.433       7.433
                (AC-FT)           609.        612.        612.        612.

               CUMULATIVE AREA =    1.54 SQ MI


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


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          *            *
 76 KK    *    K1-K2   *        CNAME     K2R
          *            *
          **************

 77 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          3  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.083  TIME INTERVAL IN HOURS


          HYDROGRAPH ROUTING DATA

 78 RS        STORAGE ROUTING
                    NSTPS          9  NUMBER OF SUBREACHES
                     ITYP       FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC       0.00  INITIAL CONDITION
                        X       0.00 WORKING R AND D COEFFICIENT

 79 RC        NORMAL DEPTH CHANNEL
                      ANL      0.048  LEFT OVERBANK N-VALUE
                     ANCH      0.050  MAIN CHANNEL N-VALUE
                      ANR      0.048  RIGHT OVERBANK N-VALUE
                    RLNTH      30021. REACH LENGTH
                      SEL     0.0150  ENERGY SLOPE
                    ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 81 RY      ELEVATION     22.00     21.00     20.00     10.00     10.00     20.00     21.00     22.00
 80 RX      DISTANCE       0.00     20.00     55.00     85.00    235.00    259.00    289.00    309.00
                                                                  ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE       0.00     66.03    133.55    202.55    273.04    345.01    418.47    493.41    569.84    647.75
          OUTFLOW       0.00    255.25    812.84   1602.75   2597.39   3780.49   5141.19   6671.70   8366.20  10220.27
        ELEVATION      10.00     10.63     11.26     11.89     12.53     13.16     13.79     14.42     15.05     15.68

          STORAGE     727.14    808.02    890.38    974.23   1059.56   1146.38   1234.91   1335.62   1453.03   1582.03
          OUTFLOW   12230.46  14394.06  16708.95  19173.47  21786.34  24546.56  27506.27  30916.01  34595.77  38573.95
        ELEVATION      16.32     16.95     17.58     18.21     18.84     19.47     20.11     20.74     21.37     22.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    24547. TO    30916.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                HYDROGRAPH AT STATION    K1-K2
               TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                     (CFS)
+   4912.      4.58              1215.        308.        103.          44.
               (INCHES)          7.319       7.433       7.433       7.433
                (AC-FT)           602.        612.        612.        612.

 PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
                                   6-HR       24-HR       72-HR    166.58-HR
+ (AC-FT)      (HR)
      45.      4.58                16.          4.          1.          1.

 PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                   6-HR       24-HR       72-HR    166.58-HR
+  (FEET)      (HR)
    13.68      4.58               11.34       10.35       10.12       10.05

               CUMULATIVE AREA =    1.54 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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              **************
              *            *
 82 KK        *     K2     *
              *            *
              **************
                          THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                          L=7.3     Lca=4.04     S=108.84     Kn=0.055     LAG=119.0
                          S-GRAPH TYPE=DESERT RANGELAND

 86 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  Ppunch COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

 87 BA          SUBBASIN CHARACTERISTICS
                      TAREA       2.37  SUBBASIN AREA

 88 LG          GREEN AND AMPT LOSS RATE
                     STRTL       0.34  STARTING LOSS
                       DTH       0.35  MOISTURE DEFICIT
                      PSIF       4.47  WETTING FRONT SUCTION
                     XKSAT       0.35  HYDRAULIC CONDUCTIVITY
                     RTIMP       1.02  PERCENT IMPERVIOUS AREA

 87 UI          INPUT UNITGRAPH,  80 ORDINATES,  VOLUME = 1.00
                      0.0      66.9      66.9      66.9      66.9      66.9     132.9     192.4     235.0     273.9
                    324.1     369.4     411.0     453.7     472.5     532.3     559.0     587.9     605.6     610.3
                    641.3     641.3     641.3     641.3     620.9     601.3     597.5     565.8     516.5     476.1
                    461.0     411.1     386.2     359.1     335.6     312.6     290.4     266.8     251.3     236.8
                    210.0     203.8     183.2     181.0     149.4     149.4     135.1     126.2     126.2     109.4
                    102.6     102.6      98.2      70.9      70.9      70.9      70.9      70.9      46.4      45.8
                     45.8      45.8      45.8      45.8      45.8      45.8      16.9      16.3      16.3      16.3
                     16.3      16.3      16.3      16.3      16.3      16.3      16.3      16.3      16.3      16.3
                     16.3      16.3      16.3      16.3      16.3      16.3      16.3      16.3
                                                                      ***

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

                       HYDROGRAPH AT STATION       K2
                     TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.20, TOTAL EXCESS =    6.60

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR        72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    4031.      5.00                1650.         420.         140.          60.
                        (INCHES)    6.486        6.599        6.599        6.599
                         (AC-FT)     818.         832.         832.         832.

                       CUMULATIVE AREA =    2.37 SQ MI


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


              **************
              *            *
 98 KK        *    K3RA    *        CNAME   K2-K3
              *            *
              **************

 99 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


100 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                      ***

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

                       HYDROGRAPH AT STATION     K3RA
                     TRANSPOSITION AREA      0.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR        72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    8400.      4.58                2851.         728.         243.         105.
                        (INCHES)    6.783        6.929        6.929        6.929
                         (AC-FT)    1414.        1444.        1444.        1444.

                       CUMULATIVE AREA =    3.91 SQ MI


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


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            *            *
101 KK      *     K2-K3  *      . CNAME    K3RA
            *            *
            **************

102 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

103 RS          STORAGE ROUTING
                     NSTPS         19  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       0.00  INITIAL CONDITION
                         X       0.00 WORKING R AND D COEFFICIENT

104 RC          NORMAL DEPTH CHANNEL
                       ANL      0.050  LEFT OVERBANK N-VALUE
                      ANCH      0.048  MAIN CHANNEL N-VALUE
                       ANR      0.050  RIGHT OVERBANK N-VALUE
                     RLNTH     25950.  REACH LENGTH
                       SEL     0.0084  ENERGY SLOPE
                     ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
106 RY       ELEVATION    20.00    14.50    11.50    10.00    10.00    11.50    14.50    20.00
105 RX       DISTANCE      0.00   390.00   490.00   502.00   520.00   532.00   632.00  1022.00

                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE      0.00     6.96    16.57    28.91    49.23    80.55   122.87   176.19   240.52   317.10
          OUTFLOW      0.00    19.28    67.92   150.54   296.96   524.09   855.80  1312.48  1912.62  2618.41
        ELEVATION     10.00    10.53    11.05    11.58    12.11    12.63    13.16    13.68    14.21    14.74

          STORAGE    415.21   536.73   681.64   849.96  1041.69  1256.81  1495.34  1757.27  2042.61  2351.35
          OUTFLOW   3493.77  4651.61  6123.56  7943.16 10143.59 12757.13 15815.05 19347.64 23384.29 27953.56
        ELEVATION     15.26    15.79    16.32    16.84    17.37    17.89    18.42    18.95    19.47    20.00

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

                     HYDROGRAPH AT STATION    K2-K3
                   TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                              6-HR       24-HR       72-HR    166.58-HR
+   (CFS)      (HR)
                 (CFS)
+   7696.      5.92          2832.        728.        243.        105.
                (INCHES)     6.738       6.929       6.929       6.929
                 (AC-FT)     1404.       1444.       1444.       1444.

 PEAK STORAGE  TIME                     MAXIMUM AVERAGE STORAGE
                              6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)     (HR)
     44.      5.92            17.          5.          2.          1.

 PEAK STAGE    TIME                      MAXIMUM AVERAGE STAGE
                              6-HR       24-HR       72-HR    166.58-HR
+   (FEET)     (HR)
    16.77     5.92           14.36       11.33       10.44       10.19

                     CUMULATIVE AREA =    3.91 SQ MI


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


            **************
            *            *
107 KK      *        F1  *
            *            *
            **************
                     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                     L=4.07     Lca=1.63     S=441.98     Kn=0.050     LAG=46.0
                     S-GRAPH TYPE=PHOENIX MOUNTAIN

111 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

112 BA          SUBBASIN CHARACTERISTICS
                      TAREA       2.79  SUBBASIN AREA

113 LG          GREEN AND AMPT LOSS RATE
                      STRTL       0.30  STARTING LOSS
                        DTH       0.33  MOISTURE DEFICIT
                       PSIF       4.32  WETTING FRONT SUCTION
                      XKSAT       0.36  HYDRAULIC CONDUCTIVITY
                      RTIMP      14.27  PERCENT IMPERVIOUS AREA

112 UI          INPUT UNITGRAPH,  43 ORDINATES,  VOLUME = 1.00
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                0.0     203.9     203.9     570.7     906.6    1255.0    1478.4    1724.3    2318.9    1830.2
             1348.3    1190.6    1067.9     966.1     849.5     752.0     639.8     527.2     486.0     447.3
              381.0     319.5     260.5     240.0     223.3     181.8     156.3     156.3     107.7      99.8
               99.8      99.8      67.2      39.1      39.1      39.1      39.1      39.1      39.1      39.1
               39.1      39.1      39.1
                                                                  ***

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

                  HYDROGRAPH AT STATION      F1
                TRANSPOSITION AREA      0.0 SQ MI

  TOTAL RAINFALL =    9.80, TOTAL LOSS =    2.75, TOTAL EXCESS =    7.05

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                        (CFS)
+  10195.      3.83                 2102.        528.        176.         76.
                      (INCHES)      7.018       7.043       7.043       7.043
                       (AC-FT)      1043.       1046.       1046.       1046.

                     CUMULATIVE AREA =    2.79 SQ MI


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


          **************
          *            *
 119 KK   *    F1-F2   *        CNAME     F2R
          *            *
          **************

 120 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

 121 RS          STORAGE ROUTING
                      NSTPS          3  NUMBER OF SUBREACHES
                       ITYP       FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       0.00  INITIAL CONDITION
                          X       0.00 WORKING R AND D COEFFICIENT

 122 RC          NORMAL DEPTH CHANNEL
                        ANL      0.053  LEFT OVERBANK N-VALUE
                       ANCH      0.045  MAIN CHANNEL N-VALUE
                        ANR      0.055  RIGHT OVERBANK N-VALUE
                      RLNTH      8635.  REACH LENGTH
                        SEL     0.0120  ENERGY SLOPE
                       ELMAX        0.  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 124 RY       ELEVATION    27.00     26.00     25.00     10.00     10.00     24.00     26.00     28.00
 123 RX       DISTANCE      0.00     60.00    120.00    146.00    178.00    208.00    268.00    328.00
                                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE       0.00      6.35     13.40     21.13     29.56     38.67     48.47     58.96     70.14     82.02
          OUTFLOW       0.00    107.34    346.23    693.22   1142.64   1693.43   2346.53   3103.94   3968.24   4942.36
        ELEVATION      10.00     10.95     11.89     12.84     13.79     14.74     15.68     16.63     17.58     18.53

          STORAGE      94.58    107.83    121.77    136.40    151.72    167.85    188.27    221.11    269.94    328.87
          OUTFLOW    6029.45   7232.78   8555.71  10001.62  11573.93  13322.32  15434.74  18043.70  21220.46  25206.69
        ELEVATION      19.47     20.42     21.37     22.32     23.26     24.21     25.16     26.11     27.05     28.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     8556. TO    15435.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                  HYDROGRAPH AT STATION    F1-P2
                TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                        (CFS)
+   9757.      4.00                 2100.        528.        176.         76.
                      (INCHES)      7.010       7.043       7.043       7.043
                       (AC-FT)      1041.       1046.       1046.       1046.

 PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)     (HR)
      45.      4.00                   12.          3.          1.          0.

  PEAK STAGE   TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (FEET)      (HR)
    22.16      4.00                14.07       11.04       10.35       10.15

                     CUMULATIVE AREA =    2.79 SQ MI
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
125 KK      *     F2     *
            *            *
            **************
                                THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                                L=3.88     Lca=1.76     S=161.6     Km=0.050     LAG=57.0
                                S-GRAPH TYPE=PHOENIX MOUNTAIN

129 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

130 BA          SUBBASIN CHARACTERISTICS
                      TAREA       2.53  SUBBASIN AREA

131 LG          GREEN AND AMPT LOSS RATE
                      STRTL       0.35  STARTING LOSS
                        DTH       0.35  MOISTURE DEFICIT
                       PSIF       4.31  WETTING FRONT SUCTION
                      XKSAT       0.38  HYDRAULIC CONDUCTIVITY
                      RTIMP       3.03  PERCENT IMPERVIOUS AREA

130 UI          INPUT UNITGRAPH,  53 ORDINATES,  VOLUME = 1.00
                        0.0     149.2     149.2     255.0     495.6     697.8     908.3    1043.1    1160.8    1374.8
                     1770.7    1344.9    1025.2     904.5     840.5     763.8     704.2     635.7     584.6     512.0
                      443.7     385.7     360.1     340.5     312.0     256.4     232.3     190.7     185.6     163.4
                      163.4     124.7     114.4     114.4      99.1      73.0      73.0      73.0      73.0      72.5
                       28.6      28.6      28.6      28.6      28.6      28.6      28.6      28.6      28.6      28.6
                       28.6      28.6      28.6
                                                                   ***

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

                       HYDROGRAPH AT STATION       F2
                      TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.22, TOTAL EXCESS =    6.58

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                        (CFS)
+   7826.      4.00                1783.        447.        149.          64.
                      (INCHES)     6.563       6.574       6.574       6.574
                       (AC-FT)      884.        886.        886.        886.

                      CUMULATIVE AREA =    2.53 SQ MI


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

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            *            *
138 KK      *    F3R     *        CNAME   F2-F3
            *            *
            **************

139 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


140 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                   ***

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

                       HYDROGRAPH AT STATION      F3R
                      TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                        (CFS)
+  17583.      4.00                3883.        974.        325.         140.
                      (INCHES)     6.798       6.820       6.820       6.820
                       (AC-FT)     1926.       1932.       1932.       1932.

                      CUMULATIVE AREA =    5.31 SQ MI


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

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            *            *
141 KK      *   F2-F3    *        CNAME     F3R
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142 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

143 RS          STORAGE ROUTING
                     NSTPS          4  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       0.00  INITIAL CONDITION
                         X       0.00 WORKING R AND D COEFFICIENT

144 RC          NORMAL DEPTH CHANNEL
                       ANL      0.050  LEFT OVERBANK N-VALUE
                      ANCH      0.047  MAIN CHANNEL N-VALUE
                       ANR      0.048  RIGHT OVERBANK N-VALUE
                     RLNTH      7059.  REACH LENGTH
                       SEL     0.0100  ENERGY SLOPE
                     ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                      --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
146 RY       ELEVATION   20.00    15.00    13.00    10.00    10.00    12.00    14.00    20.00
145 RX       DISTANCE     0.00   350.00   425.00   455.00   472.00   499.00   569.00   900.00

                                                   ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE      0.00     1.98     5.01     9.10    14.26    21.13    30.08    41.98    57.21    76.43
          OUTFLOW      0.00    21.52    80.11   182.08   339.35   578.23   912.17  1384.38  1993.58  2773.24
        ELEVATION     10.00    10.53    11.05    11.58    12.11    12.63    13.16    13.68    14.21    14.74

          STORAGE    100.00   129.00   163.62   203.86   249.72   301.20   358.29   421.01   489.34   563.29
          OUTFLOW   3753.72  4984.69  6520.49  8396.24 10645.84 13301.79 16395.23 19956.21 24013.72 28595.92
        ELEVATION     15.26    15.79    16.32    16.84    17.37    17.89    18.42    18.95    19.47    20.00

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

                    HYDROGRAPH AT STATION    F2-F3
                  TRANSPOSITION AREA       0.0 SQ MI

 PEAK FLOW     TIME                    MAXIMUM AVERAGE FLOW
                                 6-HR       24-HR       72-HR    166.58-HR
+   (CFS)      (HR)
                        (CFS)
+  16518.      4.25              3882.        974.        325.        140.
                      (INCHES)   6.795       6.820       6.820       6.820
                       (AC-FT)   1925.       1932.       1932.       1932.

 PEAK STORAGE  TIME                    MAXIMUM AVERAGE STORAGE
                                 6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)     (HR)
     90.       4.25                24.          6.          2.          1.

 PEAK STAGE    TIME                    MAXIMUM AVERAGE STAGE
                                 6-HR       24-HR       72-HR    166.58-HR
+   (FEET)     (HR)
    18.44      4.25             14.05       11.08       10.36       10.16

                     CUMULATIVE AREA =    5.31 SQ MI


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

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          *            *
147 KK    *        F3  *
          *            *
          **************
                        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                        L=2.71     Lca=1.26     S=81.34     Kn=0.055     LAG=54.0
                        S-GRAPH TYPE=DESERT RANGELAND

151 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

152 BA          SUBBASIN CHARACTERISTICS
                      TAREA       0.74  SUBBASIN AREA

153 LG          GREEN AND AMPT LOSS RATE
                      STRTL       0.35  STARTING LOSS
                        DTH       0.35  MOISTURE DEFICIT
                       PSIF       3.27  WETTING FRONT SUCTION
                      XKSAT       0.65  HYDRAULIC CONDUCTIVITY
                      RTIMP       0.00  PERCENT IMPERVIOUS AREA

152 UI          INPUT UNITGRAPH,  40 ORDINATES,  VOLUME = 1.00
                        0.0     45.9     45.9     90.3    163.2    236.7    300.1    352.5    401.7    427.4
                      440.0    431.7    405.9    355.2    304.4    256.2    219.4    187.6    158.4    134.4
```

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                    113.7      96.1      85.2      70.4      60.3      48.7      46.5      31.4      31.4      31.4
                     21.4      11.2      11.2      11.2      11.2      11.2      11.2      11.2      11.2      11.2
                                                                          ***

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

                      HYDROGRAPH AT STATION       F3
                     TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.86, TOTAL EXCESS =    5.94

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    2279.      4.08                469.        117.         39.         17.
                        (INCHES)    5.927       5.927       5.927       5.927
                         (AC-FT)     233.        233.        233.        233.

                       CUMULATIVE AREA =    0.74 SQ MI


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


            **************
            *            *
  159 KK    *     E4RB   *        CNAME   F3-E4
            *            *
            **************

  160 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           3  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                         IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2        2000  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT       0.083  TIME INTERVAL IN HOURS


  161 HC          HYDROGRAPH COMBINATION
                        ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                          ***

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

                      HYDROGRAPH AT STATION     E4RB
                     TRANSPOSITION AREA      0.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+   18583.      4.25                4351.       1091.        364.        157.
                        (INCHES)    6.690       6.712       6.712       6.712
                         (AC-FT)    2158.       2165.       2165.       2165.

                       CUMULATIVE AREA =    6.05 SQ MI


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


            **************
            *            *
  162 KK    *    F3-E4   *        CNAME    E4RB
            *            *
            **************

  163 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           3  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                         IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2        2000  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT       0.083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

  164 RS          STORAGE ROUTING
                        NSTPS          16  NUMBER OF SUBREACHES
                         ITYP        FLOW  TYPE OF INITIAL CONDITION
                       RSVRIC        0.00  INITIAL CONDITION
                            X        0.00 WORKING R AND D COEFFICIENT

  165 RC          NORMAL DEPTH CHANNEL
                          ANL       0.050  LEFT OVERBANK N-VALUE
                         ANCH       0.044  MAIN CHANNEL N-VALUE
                          ANR       0.050  RIGHT OVERBANK N-VALUE
                        RLNTH     27656.   REACH LENGTH
                          SEL     0.0072   ENERGY SLOPE
                        ELMAX        0.0   MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
  167 RY        ELEVATION     20.00     14.00     13.00     10.00     10.00     12.50     14.50     20.00
  166 RX        DISTANCE       0.00    570.00    650.00    690.00    705.00    735.00    810.00   1200.00
                                                                          ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE       0.00      7.24     18.94     35.09     55.69     80.89    114.30    165.50    237.58    333.08
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          OUTFLOW      0.00     17.84     68.48    159.06    297.23    496.12    791.35   1220.81   1805.32   2575.66
        ELEVATION     10.00     10.53     11.05     11.58     12.11     12.63     13.16     13.68     14.21     14.74

          STORAGE    456.87    609.84    791.98   1003.31   1243.81   1513.49   1812.35   2140.39   2497.61   2884.01
          OUTFLOW   3588.93   4905.89   6567.34   8612.18  11077.44  13998.50  17409.34  21342.73  25830.37  30903.07
        ELEVATION     15.26     15.79     16.32     16.84     17.37     17.89     18.42     18.95     19.47     20.00

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

                    HYDROGRAPH AT STATION    F3-E4
                  TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+   (CFS)      (HR)
                         (CFS)
+   15312.     5.42                4334.       1091.        364.        157.
                       (INCHES)    6.662       6.712       6.712       6.712
                        (AC-FT)    2149.       2165.       2165.       2165.

 PEAK STORAGE  TIME                        MAXIMUM AVERAGE STORAGE
                                   6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)     (HR)
     102.      5.42                  32.          8.          3.          1.

 PEAK STAGE    TIME                        MAXIMUM AVERAGE STAGE
                                   6-HR       24-HR       72-HR    166.58-HR
+   (FEET)     (HR)
    18.10      5.42                14.52       11.28       10.43       10.18

                       CUMULATIVE AREA =    6.05 SQ MI


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


            **************
            *            *
 168 KK     *     H1     *
            *            *
            **************
                         THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                         L=2.41     Lca=1.09     S=64.59     Kn=0.055     LAG=51.0
                         S-GRAPH TYPE=DESERT RANGELAND

 172 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS

               SUBBASIN RUNOFF DATA

 173 BA          SUBBASIN CHARACTERISTICS
                      TAREA       1.07  SUBBASIN AREA

 174 LG          GREEN AND AMPT LOSS RATE
                      STRTL       0.35  STARTING LOSS
                        DTH       0.35  MOISTURE DEFICIT
                       PSIF       2.73  WETTING FRONT SUCTION
                      XKSAT       0.94  HYDRAULIC CONDUCTIVITY
                      RTIMP       0.00  PERCENT IMPERVIOUS AREA

 173 UI          INPUT UNITGRAPH,  30 ORDINATES,  VOLUME = 1.00
                       0.0      70.4      70.4     156.7     277.5     386.1     481.0     578.9     629.5     674.4
                     672.9     639.6     573.4     484.8     407.0     343.9     290.3     244.6     205.3     171.4
                     143.7     125.1     107.9      92.1      74.6      59.8      48.2      48.2      44.0      17.1
                      17.1      17.1      17.1      17.1      17.1      17.1      17.1      17.1
                                                                    ***

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

                    HYDROGRAPH AT STATION        H1
                  TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    4.28, TOTAL EXCESS =    5.52

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+   (CFS)      (HR)
                         (CFS)
+    3278.     4.00                 632.        158.         53.         23.
                       (INCHES)    5.513       5.513       5.513       5.513
                        (AC-FT)     313.        313.        313.        313.

                       CUMULATIVE AREA =    1.07 SQ MI


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


            **************
            *            *
 179 KK     *   H1-H2    *        CNAME     H2R
            *            *
            **************

 180 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
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                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.083  TIME INTERVAL IN HOURS


            HYDROGRAPH ROUTING DATA

181 RS        STORAGE ROUTING
                   NSTPS         16  NUMBER OF SUBREACHES
                    ITYP       FLOW  TYPE OF INITIAL CONDITION
                  RSVRIC       0.00  INITIAL CONDITION
                       X       0.00 WORKING R AND D COEFFICIENT

182 RC        NORMAL DEPTH CHANNEL
                     ANL      0.053  LEFT OVERBANK N-VALUE
                    ANCH      0.050  MAIN CHANNEL N-VALUE
                     ANR      0.053  RIGHT OVERBANK N-VALUE
                    RLNTH    21738.  REACH LENGTH
                     SEL     0.0082  ENERGY SLOPE
                    ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                CROSS-SECTION DATA
                      --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
184 RY      ELEVATION    17.00    14.00    12.00    10.00    10.00    12.00    14.00    17.00
183 RX      DISTANCE      0.00   330.00   430.00   465.00   495.00   530.00   630.00   960.00

                                                    ***

                                COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

        STORAGE       0.00     6.70    15.77    27.22    41.03    57.21    76.49   102.13   134.55   173.74
        OUTFLOW       0.00    16.70    58.37   126.11   222.86   351.72   537.47   790.13  1109.13  1505.72
      ELEVATION      10.00    10.37    10.74    11.11    11.47    11.84    12.21    12.58    12.95    13.32

        STORAGE     219.70   272.52   337.26   416.89   511.43   620.88   745.22   884.47  1038.61  1207.66
        OUTFLOW    1989.85  2560.43  3201.85  4005.41  4987.65  6167.19  7562.62  9192.10 11073.17 13222.82
      ELEVATION      13.68    14.05    14.42    14.79    15.16    15.53    15.89    16.26    16.63    17.00

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

                   HYDROGRAPH AT STATION    H1-H2
                 TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                     MAXIMUM AVERAGE FLOW
                              6-HR       24-HR       72-HR    166.58-HR
+   (CFS)      (HR)
                   (CFS)
+    2659.     5.25          627.        158.         53.          23.
                (INCHES)    5.473       5.513       5.513        5.513
                (AC-FT)      311.        313.        313.         313.

 PEAK STORAGE  TIME                    MAXIMUM AVERAGE STORAGE
                              6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)     (HR)
      18.      5.25            5.          1.          0.           0.

 PEAK STAGE    TIME                     MAXIMUM AVERAGE STAGE
                              6-HR       24-HR       72-HR    166.58-HR
+   (FEET)     (HR)
    14.11     5.25           11.73       10.46       10.15        10.07

                CUMULATIVE AREA =    1.07 SQ MI


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


          **************
          *            *
185 KK    *        E1  *
          *            *
          **************
                   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                   L=2.51     Lca=1.13     S=178.34     Kn=0.055     LAG=43.0
                   S-GRAPH TYPE=PHOENIX MOUNTAIN

189 KO        OUTPUT CONTROL VARIABLES
                   IPRNT          3  PRINT CONTROL
                   IPLOT          0  PLOT CONTROL
                   QSCAL         0.  HYDROGRAPH PLOT SCALE
                   IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                    IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                   ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                   ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                  TIMINT      0.083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

190 BA        SUBBASIN CHARACTERISTICS
                   TAREA       0.96  SUBBASIN AREA

191 LG        GREEN AND AMPT LOSS RATE
                   STRTL       0.35  STARTING LOSS
                     DTH       0.38  MOISTURE DEFICIT
                    PSIF       5.38  WETTING FRONT SUCTION
                   XKSAT       0.22  HYDRAULIC CONDUCTIVITY
                   RTIMP       0.69  PERCENT IMPERVIOUS AREA

190 UI        INPUT UNITGRAPH,  40 ORDINATES,  VOLUME = 1.00
                     0.0      74.8      77.9     239.1     368.2     486.1     570.7     714.0     832.7     536.6
                   451.1     405.2     360.5     317.6     278.7     233.7     192.2     176.8     161.0     130.7
                   107.5      95.4      82.0      76.8      57.4      57.4      44.3      36.6      36.6      36.6
                    23.5      14.3      14.3      14.3      14.3      14.3      14.3      14.3      14.3      14.3

                                                    ***
      WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO

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

                   HYDROGRAPH AT STATION       E1
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                    TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    2.82, TOTAL EXCESS =    6.98

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    3742.      3.75                716.        179.         60.         26.
                       (INCHES)    6.970       6.972       6.972       6.972
                        (AC-FT)     355.        355.        355.        355.

                     CUMULATIVE AREA =    0.96 SQ MI


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


           **************
           *            *
 197 KK    *     E1-E2  *        CNAME     E2R
           *            *
           **************

 198 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

 199 RS          STORAGE ROUTING
                      NSTPS           5  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC        0.00  INITIAL CONDITION
                          X        0.00 WORKING R AND D COEFFICIENT

 200 RC          NORMAL DEPTH CHANNEL
                        ANL       0.050  LEFT OVERBANK N-VALUE
                       ANCH       0.047  MAIN CHANNEL N-VALUE
                        ANR       0.046  RIGHT OVERBANK N-VALUE
                      RLNTH      11365.  REACH LENGTH
                        SEL      0.0160  ENERGY SLOPE
                      ELMAX         0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 202 RY       ELEVATION    24.00     21.00     17.00     10.00     10.00     14.00     18.00     22.00
 201 RX       DISTANCE      0.00     65.00    140.00    170.00    185.00    200.00    270.00    340.00
                                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

           STORAGE       0.00      3.45      8.04     13.77     20.64     28.65     38.11     50.48     65.93     84.48
           OUTFLOW       0.00     38.88    134.39    287.78    504.85    792.01   1178.42   1686.02   2329.98   3135.02
         ELEVATION      10.00     10.74     11.47     12.21     12.95     13.68     14.42     15.16     15.89     16.63

           STORAGE     106.36    133.12    165.02    202.05    244.22    291.52    344.20    401.79    462.55    526.37
           OUTFLOW    4181.24   5514.04   7122.61   9043.64  11310.31  13952.30  16988.35  20719.38  25006.86  29755.25
         ELEVATION      17.37     18.11     18.84     19.58     20.32     21.05     21.79     22.53     23.26     24.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    16988. TO    29755.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                      HYDROGRAPH AT STATION    E1-E2
                    TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    3363.      4.08                716.        179.         60.         26.
                       (INCHES)    6.968       6.972       6.972       6.972
                        (AC-FT)     355.        355.        355.        355.

 PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
                                    6-HR       24-HR       72-HR    166.58-HR
+ (AC-FT)      (HR)
      18.      4.08                  5.          1.          0.          0.

 PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                    6-HR       24-HR       72-HR    166.58-HR
+   (FEET)     (HR)
    16.79      4.08                12.42       10.61       10.20       10.09

                     CUMULATIVE AREA =    0.96 SQ MI


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


           **************
           *            *
 203 KK    *        E2  *
           *            *
           **************
                          THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                          L=2.92     Lca=0.80     S=96.39     Kn=0.055     LAG=45.0
                          S-GRAPH TYPE=DESERT RANGELAND
```

```
207 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

208 BA          SUBBASIN CHARACTERISTICS
                      TAREA       1.98  SUBBASIN AREA

209 LG          GREEN AND AMPT LOSS RATE
                      STRTL       0.35  STARTING LOSS
                        DTH       0.36  MOISTURE DEFICIT
                       PSIF       5.04  WETTING FRONT SUCTION
                      XKSAT       0.26  HYDRAULIC CONDUCTIVITY
                      RTIMP       0.00  PERCENT IMPERVIOUS AREA

208 UI          INPUT UNITGRAPH,  34 ORDINATES,  VOLUME = 1.00
                      0.0     148.1     148.1     438.2     692.2     945.0    1155.8    1316.1    1414.2    1406.5
                   1318.3    1126.9     936.7     762.6     633.5     522.2     428.9     348.4     287.6     240.7
                    199.8     157.0     132.7     101.4     101.4      74.5      36.0      36.0      36.0      36.0
                     36.0      36.0      36.0      36.0
                                                                                  ***

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

                       HYDROGRAPH AT STATION       E2
                    TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    2.93, TOTAL EXCESS =    6.87

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                         (CFS)
+    7614.      3.92                1462.        365.        122.          53.
                      (INCHES)      6.865       6.865       6.865        6.865
                       (AC-FT)       725.        725.        725.         725.

                     CUMULATIVE AREA =    1.98 SQ MI


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


            **************
            *            *
214 KK      *     E3R    *        CNAME   E2-E3
            *            *
            **************

215 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


216 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

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

                       HYDROGRAPH AT STATION      E3R
                    TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                         (CFS)
+   10614.      4.00                2178.        545.        182.          78.
                      (INCHES)      6.898       6.900       6.900        6.900
                       (AC-FT)      1080.       1080.       1080.        1080.

                     CUMULATIVE AREA =    2.94 SQ MI


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


            **************
            *            *
217 KK      *    E2-E3   *        CNAME     E3R
            *            *
            **************

218 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS
```

```
                HYDROGRAPH ROUTING DATA

 219 RS           STORAGE ROUTING
                       NSTPS          8  NUMBER OF SUBREACHES
                        ITYP       FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC       0.00  INITIAL CONDITION
                           X       0.00 WORKING R AND D COEFFICIENT

 220 RC           NORMAL DEPTH CHANNEL
                         ANL      0.052  LEFT OVERBANK N-VALUE
                        ANCH      0.046  MAIN CHANNEL N-VALUE
                         ANR      0.052  RIGHT OVERBANK N-VALUE
                       RLNTH     19626.  REACH LENGTH
                         SEL     0.0088  ENERGY SLOPE
                       ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 222 RY        ELEVATION    22.00    17.00    14.00    10.00    10.00    15.00    18.00    22.00
 221 RX        DISTANCE      0.00   133.00   173.00   213.00   223.00   263.00   303.00   403.00 ,

                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE       0.00     4.46    12.16    23.09    37.26    54.67    75.30    99.31   127.12   159.32
          OUTFLOW       0.00    17.99    71.91   171.61   326.85   546.66   839.54  1245.78  1763.03  2443.65
        ELEVATION      10.00    10.63    11.26    11.89    12.53    13.16    13.79    14.42    15.05    15.68

          STORAGE     196.31   238.10   285.68   340.54   404.21   477.16   559.38   650.87   751.64   861.68
          OUTFLOW    3245.98  4181.33  5241.23  6464.67  7871.66  9500.43 11369.89 13498.84 15905.50 18607.47
        ELEVATION      16.32    16.95    17.58    18.21    18.84    19.47    20.11    20.74    21.37    22.00

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

                      HYDROGRAPH AT STATION    E2-E3
                    TRANSPOSITION AREA      0.0 SQ MI

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    9511.      4.58      2171.       545.        182.         78.
                      (INCHES)     6.878       6.900       6.900       6.900
                       (AC-FT)     1077.       1080.       1080.       1080.

 PEAK STORAGE   TIME                       MAXIMUM AVERAGE STORAGE
                                    6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      60.       4.58                16.          4.          1.          1.

  PEAK STAGE    TIME                        MAXIMUM AVERAGE STAGE
                                    6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
    19.48       4.58               14.06       11.07       10.36       10.15

                      CUMULATIVE AREA =    2.94 SQ MI


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

            **************
            *            *
 223 KK     *     E3     *
            *            *
            **************
                         THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                         L=3.87     Lca=1.99     S=49.65     Kn=0.050     LAG=75.0
                         S-GRAPH TYPE=DESERT RANGELAND

 227 KO           OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                        IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT      0.083  TIME INTERVAL IN HOURS

                SUBBASIN RUNOFF DATA

 228 BA           SUBBASIN CHARACTERISTICS
                       TAREA       2.49  SUBBASIN AREA

 229 LG           GREEN AND AMPT LOSS RATE
                       STRTL       0.35  STARTING LOSS
                         DTH       0.35  MOISTURE DEFICIT
                        PSIF       4.36  WETTING FRONT SUCTION
                       XKSAT       0.35  HYDRAULIC CONDUCTIVITY
                       RTIMP       0.00  PERCENT IMPERVIOUS AREA

 228 UI           INPUT UNITGRAPH,  56 ORDINATES,  VOLUME = 1.00
                         0.0     111.7     111.7     111.7     226.9     361.1     481.9     599.6     709.0     796.0
                       924.5     981.6    1023.2    1070.5    1070.5    1054.4    1012.2     958.9     843.2     765.1
                       671.9     595.8     537.6     476.4     423.4     378.1     335.2     305.9     252.8     234.1
                       210.6     188.4     171.3     154.6     118.4     118.4     115.9      76.5      76.5      76.5
                        76.5      75.5      27.2      27.2      27.2      27.2      27.2      27.2      27.2      27.2
                        27.2      27.2      27.2      27.2      27.2      27.2

                                                          ***

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

                      HYDROGRAPH AT STATION        E3
                    TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.22, TOTAL EXCESS =    6.58
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```
 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR    166.58-HR
+  (CFS)       (HR)
                        (CFS)
+   6325.      4.42                1760.         440.         147.          63.
                      (INCHES)     6.577        6.577        6.577        6.577
                       (AC-FT)      873.         873.         873.         873.

                      CUMULATIVE AREA =    2.49 SQ MI


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


            **************
            *            *
 236 KK     *     E4RA   *        CNAME   E3-E4
            *            *
            **************

 237 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.083  TIME INTERVAL IN HOURS

 238 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***

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

                       HYDROGRAPH AT STATION     E4RA
                     TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR    166.58-HR
+  (CFS)       (HR)
                        (CFS)
+  15715.      4.50                3926.         985.         328.         142.
                      (INCHES)     6.731        6.752        6.752        6.752
                       (AC-FT)     1947.        1953.        1953.        1953.

                      CUMULATIVE AREA =    5.42 SQ MI


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


            **************
            *            *
 239 KK     *    E3-E4   *        CNAME    E4RA
            *            *
            **************

 240 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.083  TIME INTERVAL IN HOURS

               HYDROGRAPH ROUTING DATA

 241 RS          STORAGE ROUTING
                      NSTPS           9  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC        0.00  INITIAL CONDITION
                          X        0.00 WORKING R AND D COEFFICIENT

 242 RC          NORMAL DEPTH CHANNEL
                        ANL       0.056  LEFT OVERBANK N-VALUE
                       ANCH       0.049  MAIN CHANNEL N-VALUE
                        ANR       0.056  RIGHT OVERBANK N-VALUE
                      RLNTH      13855.  REACH LENGTH
                        SEL      0.0048  ENERGY SLOPE
                      ELMAX         0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 244 RY       ELEVATION    21.00     14.00     13.00     10.00     10.00     12.50     14.50     21.00
 243 RX       DISTANCE      0.00    570.00    650.00    690.00    705.00    735.00    810.00   1200.00
                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE       0.00      4.11     10.93     20.44     32.65     48.20     71.41    107.03    155.32    217.98
          OUTFLOW       0.00     15.64     60.97    143.10    269.42    460.58    756.91   1181.25   1763.59   2537.59
        ELEVATION      10.00     10.58     11.16     11.74     12.32     12.89     13.47     14.05     14.63     15.21

          STORAGE     295.72    388.53    496.42    619.39    757.43    910.56   1078.76   1262.04   1460.39   1673.83
          OUTFLOW    3553.34   4843.95   6440.75   8373.45  10670.43  13358.92  16465.17  20014.61  24031.90  28541.07
        ELEVATION      15.79     16.37     16.95     17.53     18.11     18.68     19.26     19.84     20.42     21.00

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

                       HYDROGRAPH AT STATION    E3-E4
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                    TRANSPOSITION AREA      0.0 SQ MI

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+   14181.      5.25      3911.       985.        328.        142.
                       (INCHES)     6.706       6.752       6.752       6.752
                        (AC-FT)     1940.       1953.       1953.       1953.

 PEAK STORAGE   TIME                        MAXIMUM AVERAGE STORAGE
                                    6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
     106.       5.25                33.         8.          3.          1.

  PEAK STAGE    TIME                        MAXIMUM AVERAGE STAGE
                                    6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
    18.84       5.25               14.84      11.38       10.46       10.20

                    CUMULATIVE AREA =    5.42 SQ MI


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


            **************
            *            *
  245 KK    *     H2     *
            *            *
            **************
                         THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                         L=4.41     Lca=2.60     S=44.71     Kn=0.050     LAG=89.0
                         S-GRAPH TYPE=DESERT RANGELAND

  249 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                        IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT      0.083  TIME INTERVAL IN HOURS


                SUBBASIN RUNOFF DATA

  250 BA          SUBBASIN CHARACTERISTICS
                       TAREA       1.40  SUBBASIN AREA

  251 LG          GREEN AND AMPT LOSS RATE
                       STRTL       0.35  STARTING LOSS
                         DTH       0.35  MOISTURE DEFICIT
                        PSIF       3.22  WETTING FRONT SUCTION
                       XKSAT       0.66  HYDRAULIC CONDUCTIVITY
                       RTIMP       0.00  PERCENT IMPERVIOUS AREA

  250 UI          INPUT UNITGRAPH,  66 ORDINATES,  VOLUME = 1.00
                       0.0      53.0      53.0      53.0      53.0     143.0     178.4     226.9     274.8     319.6
                     365.4     394.3     441.2     466.8     479.4     507.7     507.7     507.7     494.6     478.7
                     456.8     413.7     373.5     343.5     306.2     279.6     254.4     232.3     208.2     189.8
                     169.5     155.8     145.1     121.3     117.3      99.9      99.9      83.4      81.2      75.9
                      56.2      56.2      56.2      49.2      36.3      36.3      36.3      36.3      36.3      27.6
                      12.9      12.9      12.9      12.9      12.9      12.9      12.9      12.9      12.9      12.9
                      12.9      12.9      12.9      12.9      12.9      12.9
                                                                  ***

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

                         HYDROGRAPH AT STATION       H2
                       TRANSPOSITION AREA      0.0 SQ MI

    TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.89, TOTAL EXCESS =    5.91

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    2836.      4.58       889.        222.         74.          32.
                       (INCHES)     5.905       5.907       5.907       5.907
                        (AC-FT)      441.        441.        441.        441.

                       CUMULATIVE AREA =    1.40 SQ MI


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


            **************
            *            *
  259 KK    *     E4     *
            *            *
            **************
                         THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                         L=5.36     Lca=2.81     S=38.26     Kn=0.050     LAG=102.0
                         S-GRAPH TYPE=DESERT RANGELAND

  263 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                        IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT      0.083  TIME INTERVAL IN HOURS
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              SUBBASIN RUNOFF DATA

 264 BA          SUBBASIN CHARACTERISTICS
                       TAREA         3.04  SUBBASIN AREA

 265 LG          GREEN AND AMPT LOSS RATE
                       STRTL         0.35  STARTING LOSS
                         DTH         0.35  MOISTURE DEFICIT
                        PSIF         3.82  WETTING FRONT SUCTION
                       XKSAT         0.44  HYDRAULIC CONDUCTIVITY
                       RTIMP         0.00  PERCENT IMPERVIOUS AREA

 264 UI          INPUT UNITGRAPH,  76 ORDINATES,  VOLUME = 1.00
                        0.0     100.4     100.4     100.4     100.4     158.4     288.7     358.1     433.8     515.0
                      586.7     661.7     710.9     802.5     849.8     890.6     906.0     962.3     962.3     962.3
                      958.0     920.6     904.7     855.3     781.1     712.3     671.3     604.2     557.2     512.1
                      469.4     435.7     392.7     363.7     334.4     307.9     277.8     264.9     224.2     220.8
                      189.3     189.3     167.8     154.0     154.0     127.9     106.4     106.4     106.4     101.8
                       68.7      68.7      68.7      68.7      68.7      68.7      56.9      24.4      24.4      24.4
                       24.4      24.4      24.4      24.4      24.4      24.4      24.4      24.4      24.4      24.4
                       24.4      24.4      24.4      24.4      24.4      24.4
                                                                     ***

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

                       HYDROGRAPH AT STATION       E4
                     TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.45, TOTAL EXCESS =    6.35

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    5792.      4.75                2064.        519.        173.         75.
                        (INCHES)    6.309       6.348       6.348       6.348
                         (AC-FT)    1024.       1030.       1030.       1030.

                       CUMULATIVE AREA =    3.04 SQ MI


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


            **************
            *            *
 274 KK     *     E5R    *        CNAME  E4H2E5
            *            *
            **************

 275 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.083  TIME INTERVAL IN HOURS

 276 HC          HYDROGRAPH COMBINATION
                      ICOMP           5  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                     ***

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

                       HYDROGRAPH AT STATION       E5R
                     TRANSPOSITION AREA      0.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+   37770.      5.33               11760.       2976.        992.        429.
                        (INCHES)    6.440       6.518       6.518       6.518
                         (AC-FT)    5832.       5902.       5902.       5902.

                       CUMULATIVE AREA =   16.98 SQ MI


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


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            *            *
 277 KK     *   E4H2E5   *        CNAME     E5R
            *            *
            **************

 278 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

 279 RS          STORAGE ROUTING
                       NSTPS           9  NUMBER OF SUBREACHES
                        ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC        0.00  INITIAL CONDITION
                           X        0.00 WORKING R AND D COEFFICIENT
```

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280 RC          NORMAL DEPTH CHANNEL
                      ANL        0.060  LEFT OVERBANK N-VALUE
                     ANCH        0.050  MAIN CHANNEL N-VALUE
                      ANR        0.060  RIGHT OVERBANK N-VALUE
                    RLNTH       15206.  REACH LENGTH
                      SEL       0.0051  ENERGY SLOPE
                    ELMAX          0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                      --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
282 RY      ELEVATION   27.00    16.00    15.00    10.00    10.00    14.00    16.00    27.00
281 RX      DISTANCE     0.00  1010.00  1080.00  1090.00  1110.00  1120.00  1190.00  2200.00

                                                    ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE      0.00     6.88    15.01    24.40    35.05    48.23    72.35   123.48   220.45   368.75
          OUTFLOW      0.00    36.33   119.46   244.19   410.95   634.79   965.05  1492.64  2392.32  3894.78
        ELEVATION     10.00    10.89    11.79    12.68    13.58    14.47    15.37    16.26    17.16    18.05

          STORAGE    568.36   819.29  1121.54  1475.11  1879.99  2336.20  2843.72  3402.57  4012.73  4674.21
          OUTFLOW   6159.78  9333.24 13549.93 18936.08 25611.25 33689.50 43280.32 54489.30 67418.59 82167.41
        ELEVATION     18.95    19.84    20.74    21.63    22.53    23.42    24.32    25.21    26.11    27.00

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

                     HYDROGRAPH AT STATION   E4H2E5
                   TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+   34789.      6.00             11737.      2976.        992.        429.
                        (INCHES)   6.427      6.518       6.518       6.518
                         (AC-FT)   5820.      5902.       5902.       5902.

 PEAK STORAGE  TIME                      MAXIMUM AVERAGE STORAGE
                                  6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
     266.      6.00               101.        26.          9.          4.

 PEAK STAGE    TIME                      MAXIMUM AVERAGE STAGE
                                  6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
    23.52      6.00              19.44      12.88       10.96       10.41

                       CUMULATIVE AREA =   16.98 SQ MI


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

            **************
            *            *
283 KK      *        K3  *
            *            *
            **************
                       THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                       L=4.92      Lca=2.65     S=44.16     Kn=0.050     LAG=94.0
                       S-GRAPH TYPE=DESERT RANGELAND

287 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                      IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT      0.083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

288 BA          SUBBASIN CHARACTERISTICS
                     TAREA       1.64  SUBBASIN AREA

289 LG          GREEN AND AMPT LOSS RATE
                     STRTL       0.35  STARTING LOSS
                       DTH       0.35  MOISTURE DEFICIT
                      PSIF       3.42  WETTING FRONT SUCTION
                     XKSAT       0.58  HYDRAULIC CONDUCTIVITY
                     RTIMP       0.00  PERCENT IMPERVIOUS AREA

288 UI          INPUT UNITGRAPH,  70 ORDINATES,  VOLUME = 1.00
                      0.0      58.6      58.6      58.6      58.6     132.9     178.8     231.8     287.3     333.5
                    374.7     416.2     465.2     498.5     523.5     535.4     561.7     561.7     561.7     546.7
                    529.1     508.4     466.9     418.3     391.4     351.4     318.4     291.7     266.8     243.9
                    222.3     205.4     179.8     167.0     158.0     130.9     127.9     110.5     110.5      92.9
                     89.9      88.9      62.1      62.1      62.1      62.1      41.1      40.1      40.1      40.1
                     40.1      40.1      23.6      14.3      14.3      14.3      14.3      14.3      14.3      14.3
                     14.3      14.3      14.3      14.3      14.3      14.3      14.3      14.3      14.3      14.3

                                                    ***

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

                     HYDROGRAPH AT STATION       K3
                   TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.75, TOTAL EXCESS =    6.05

 PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    3219.      4.67             1063.       266.         89.         38.
                        (INCHES)   6.037      6.045       6.045       6.045
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                    (AC-FT)      527.        528.        528.        528.

                    CUMULATIVE AREA =    1.64 SQ MI


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


          **************
          *            *
297 KK    *        E5  *
          *            *
          **************
                         THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                         L=3.01     Lca=1.41     S=28.56     Km=0.050     LAG=66.0
                         S-GRAPH TYPE=DESERT RANGELAND

301 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

302 BA          SUBBASIN CHARACTERISTICS
                      TAREA       1.31  SUBBASIN AREA

303 LG          GREEN AND AMPT LOSS RATE
                     STRTL       0.35  STARTING LOSS
                       DTH       0.34  MOISTURE DEFICIT
                      PSIF       3.94  WETTING FRONT SUCTION
                     XKSAT       0.43  HYDRAULIC CONDUCTIVITY
                     RTIMP       0.97  PERCENT IMPERVIOUS AREA

302 UI          INPUT UNITGRAPH,  49 ORDINATES,  VOLUME = 1.00
                      0.0      66.7      66.7      66.7     187.3     261.4     342.2     416.7     480.4     556.2
                    597.8     622.7     639.2     635.9     605.5     574.1     496.3     443.7     383.1     336.8
                    298.4     258.8     227.0     198.1     176.3     148.9     129.8     120.7     102.3      94.8
                     70.7      70.7      61.4      45.7      45.7      45.7      45.7      18.1      16.2      16.2
                     16.2      16.2      16.2      16.2      16.2      16.2      16.2      16.2      16.2
                                                                                   ***

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

                       HYDROGRAPH AT STATION        E5
                     TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.40, TOTAL EXCESS =    6.40

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR        72-HR    166.58-HR
+   (CFS)       (HR)
                         (CFS)
+    3618.      4.25                899.         225.          75.          32.
                       (INCHES)    6.395        6.398        6.398        6.398
                        (AC-FT)     446.         446.         446.         446.

                       CUMULATIVE AREA =    1.31 SQ MI


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


          **************
          *            *
309 KK    *       E6R  *        CNAME  E5K2E6
          *            *
          **************

310 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


311 HC          HYDROGRAPH COMBINATION
                      ICOMP          5  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                   ***

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

                       HYDROGRAPH AT STATION       E6R
                     TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR        72-HR    166.58-HR
+   (CFS)       (HR)
                         (CFS)
+   50380.      6.00               19763.       5081.        1694.         732.
                       (INCHES)    6.292        6.470        6.470        6.470
                        (AC-FT)    9800.       10078.       10078.       10078.

                       CUMULATIVE AREA =   29.20 SQ MI
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
312 KK    *   E5K2E6   *        CNAME     E6R
          *            *
          **************

313 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

314 RS          STORAGE ROUTING
                      NSTPS          4  NUMBER OF SUBREACHES
                       ITYP       FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       0.00  INITIAL CONDITION
                          X       0.00 WORKING R AND D COEFFICIENT

315 RC          NORMAL DEPTH CHANNEL
                        ANL      0.063  LEFT OVERBANK N-VALUE
                       ANCH      0.051  MAIN CHANNEL N-VALUE
                        ANR      0.063  RIGHT OVERBANK N-VALUE
                      RLNTH      5083.  REACH LENGTH
                        SEL     0.0037  ENERGY SLOPE
                      ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
317 RY       ELEVATION     25.00     13.00     13.00     10.00     10.00     12.00     12.00     25.00
316 RX       DISTANCE       0.00    850.00    980.00    990.00   1030.00   1040.00   1230.00   2020.00

                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE       0.00      3.99      8.58     22.39     52.12     99.42    156.30    222.75    298.76    384.35
          OUTFLOW       0.00     49.27    161.50    386.77    952.69   2001.02   3550.10   5626.98   8271.21  11524.71
        ELEVATION      10.00     10.79     11.58     12.37     13.16     13.95     14.74     15.53     16.32     17.11

          STORAGE     479.52    584.25    698.55    822.43    955.88   1098.90   1251.48   1413.65   1585.38   1766.68
          OUTFLOW   15429.52  20027.18  25358.44  31463.22  38380.62  46148.91  54805.64  64387.62  74930.98  86471.26
        ELEVATION      17.89     18.68     19.47     20.26     21.05     21.84     22.63     23.42     24.21     25.00

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

                     HYDROGRAPH AT STATION   E5K2E6
                   TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)      (HR)
                          (CFS)
+   49700.     6.17                19701.       5081.       1694.        732.
                        (INCHES)   6.272       6.470       6.470        6.470
                         (AC-FT)   9769.      10078.      10078.       10078.

 PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)     (HR)
     290.      6.17                  137.         36.         12.           5.

 PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)     (HR)
    22.17      6.17                 18.11       12.68       10.89        10.39

                       CUMULATIVE AREA =   29.20 SQ MI


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

          **************
          *            *
318 KK    *     E6     *
          *            *
          **************
                        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                        L=3.04     Lca=1.06     S=34.17     Kn=0.050     LAG=57.0
                        S-GRAPH TYPE=DESERT RANGELAND

322 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

323 BA          SUBBASIN CHARACTERISTICS
                      TAREA       2.04  SUBBASIN AREA

324 LG          GREEN AND AMPT LOSS RATE
                      STRTL       0.34  STARTING LOSS
                        DTH       0.34  MOISTURE DEFICIT
                       PSIF       4.36  WETTING FRONT SUCTION
```

```
                    XKSAT        0.37  HYDRAULIC CONDUCTIVITY
                    RTIMP        0.71  PERCENT IMPERVIOUS AREA

 323 UI          INPUT UNITGRAPH,  42 ORDINATES,  VOLUME = 1.00
                      0.0     120.3     120.3     205.6     403.4     574.8     733.2     874.4    1018.8    1083.3
                   1153.3    1153.4    1099.9    1038.7     882.5     767.0     653.7     562.5     487.2     412.4
                    353.6     303.1     257.9     226.9     190.1     175.5     127.6     127.6      96.6      82.4
                     82.4      82.4      37.0      29.3      29.3      29.3      29.3      29.3      29.3      29.3
                     29.3      29.3
                                                                    ***
     ***            ***            ***            ***            ***

                      HYDROGRAPH AT STATION       E6
                    TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.24, TOTAL EXCESS =    6.56

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                         (CFS)
+   6400.      4.17                1434.        359.        120.         52.
                       (INCHES)    6.543       6.544       6.544      6.544
                        (AC-FT)     711.        711.        711.       711.

                     CUMULATIVE AREA =    2.04 SQ MI


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

            **************
            *            *
 330 KK     *          E *        CNAME     ECP
            *            *
            **************

 331 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           3  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        2000  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       0.083  TIME INTERVAL IN HOURS

 332 HC          HYDROGRAPH COMBINATION
                    ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                    ***
     ***            ***            ***            ***            ***

                      HYDROGRAPH AT STATION        E
                    TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                         (CFS)
+  49972.      6.17                20856.       5439.       1813.        784.
                       (INCHES)    6.207       6.475       6.475      6.475
                        (AC-FT)   10342.      10789.      10789.     10789.

                     CUMULATIVE AREA =   31.24 SQ MI


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

            **************
            *            *
 333 KK     *        ECP *        CNAME       E
            *            *
            **************

 334 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           3  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        2000  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       0.083  TIME INTERVAL IN HOURS

               HYDROGRAPH ROUTING DATA

 335 RN          NO ROUTING
                                                                    ***
     ***            ***            ***            ***            ***

                      HYDROGRAPH AT STATION      ECP
                    TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                         (CFS)
+  49972.      6.17                20856.       5439.       1813.        784.
                       (INCHES)    6.207       6.475       6.475      6.475
                        (AC-FT)   10342.      10789.      10789.     10789.
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                    CUMULATIVE AREA =   31.24 SQ MI

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

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          *            *
336 KK    *     G1     *
          *            *
          **************
                         THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                         L=2.38      Lca=1.08      S=33.76      Kn=0.045      LAG=47.0
                         S-GRAPH TYPE=DESERT RANGELAND

340 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

341 BA          SUBBASIN CHARACTERISTICS
                      TAREA       1.12  SUBBASIN AREA

342 LG          GREEN AND AMPT LOSS RATE
                      STRTL       0.35  STARTING LOSS
                        DTH       0.35  MOISTURE DEFICIT
                       PSIF       4.69  WETTING FRONT SUCTION
                      XKSAT       0.30  HYDRAULIC CONDUCTIVITY
                      RTIMP       0.00  PERCENT IMPERVIOUS AREA

341 UI          INPUT UNITGRAPH,  35 ORDINATES,  VOLUME = 1.00
                       0.0      80.2      80.2     213.2     355.0     484.4     602.8     699.0     750.3     768.3
                     735.8     667.1     553.8     458.1     382.0     318.8     263.4     222.2     177.0     151.1
                     125.0     103.3      85.0      70.6      54.9      54.9      43.6      19.5      19.5      19.5
                      19.5      19.5      19.5      19.5      19.5
                                                                  ***

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

                       HYDROGRAPH AT STATION       G1
                     TRANSPOSITION AREA       0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.06, TOTAL EXCESS =    6.74

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    4114.      3.92                810.         203.          68.          29.
                       (INCHES)    6.731        6.731        6.731        6.731
                        (AC-FT)     402.         402.         402.         402.

                     CUMULATIVE AREA =    1.12 SQ MI

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

          **************
          *            *
347 KK    *    GCP     *        CNAME       G
          *            *
          **************

348 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

349 RN          NO ROUTING
                                                                  ***

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

                       HYDROGRAPH AT STATION      GCP
                     TRANSPOSITION AREA       0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    4114.      3.92                810.         203.          68.          29.
                       (INCHES)    6.731        6.731        6.731        6.731
                        (AC-FT)     402.         402.         402.         402.

                     CUMULATIVE AREA =    1.12 SQ MI

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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                *            *
 350 KK         *    FRS1A   *        CNAME   E & G
                *            *
                **************

 351 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


 352 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                       HYDROGRAPH AT STATION    FRS1A
                     TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                         (CFS)
+   50034.      6.17                21581.       5642.       1881.         813.
                       (INCHES)      6.201       6.484       6.484       6.484
                        (AC-FT)    10702.      11191.      11191.      11191.

                       CUMULATIVE AREA =   32.36 SQ MI


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


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                *            *
 353 KK         *      Q1    *
                *            *
                **************
                                THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                                L=5.23     Lca=2.81     S=228.56     Kn=0.055     LAG=78.0
                                S-GRAPH TYPE=PHOENIX MOUNTAIN

 357 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


               SUBBASIN RUNOFF DATA

 358 BA          SUBBASIN CHARACTERISTICS
                      TAREA       2.23  SUBBASIN AREA

 359 LG          GREEN AND AMPT LOSS RATE
                      STRTL       0.35  STARTING LOSS
                        DTH       0.35  MOISTURE DEFICIT
                       PSIF       4.20  WETTING FRONT SUCTION
                      XKSAT       0.39  HYDRAULIC CONDUCTIVITY
                      RTIMP      12.31  PERCENT IMPERVIOUS AREA

 358 UI          INPUT UNITGRAPH,  73 ORDINATES,  VOLUME = 1.00
                       0.0      96.4      96.4      96.4     170.9     292.4     386.5     493.2     585.9     645.9
                     711.0     763.2     869.4    1043.6    1161.9     814.9     681.3     610.7     571.3     541.6
                     505.0     473.6     449.5     413.0     385.9     360.8     325.3     298.4     254.9     242.2
                     233.0     221.8     208.8     201.6     161.5     158.4     132.2     123.2     123.2     106.7
                     105.6     105.6      84.7      73.9      73.9      73.9      73.9      47.7      47.2      47.2
                      47.2      47.2      47.2      47.2      28.6      18.5      18.5      18.5      18.5      18.5
                      18.5      18.5      18.5      18.5      18.5      18.5      18.5      18.5      18.5      18.5
                      18.5      18.5      18.5

                                                                  ***

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

                       HYDROGRAPH AT STATION       Q1
                     TRANSPOSITION AREA      0.0 SQ MI

    TOTAL RAINFALL =    9.80, TOTAL LOSS =    2.94, TOTAL EXCESS =    6.86

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                         (CFS)
+    5816.      4.25                 1624.        412.        137.         59.
                       (INCHES)      6.761       6.857       6.857       6.857
                        (AC-FT)       805.        817.        817.        817.

                       CUMULATIVE AREA =    2.23 SQ MI


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


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                *            *
 368 KK         *      QCP   *        CNAME       Q
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            *            *
            **************

 369 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                        IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT      0.083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

 370 RN          NO ROUTING
                                                                  ***

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

                        HYDROGRAPH AT STATION      QCP
                      TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    5816.      4.25                1624.        412.        137.          59.
                        (INCHES)    6.761       6.857       6.857        6.857
                         (AC-FT)     805.        817.        817.         817.

                        CUMULATIVE AREA =    2.23 SQ MI


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


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            *            *
 371 KK     *        P1  *
            *            *
            **************
                          THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                          L=6.39     Lca=2.62     S=200.13     Kn=0.055     LAG=85.0
                          S-GRAPH TYPE=PHOENIX MOUNTAIN

 375 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                        IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT      0.083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

 376 BA          SUBBASIN CHARACTERISTICS
                       TAREA        2.44  SUBBASIN AREA

 377 LG          GREEN AND AMPT LOSS RATE
                       STRTL        0.35  STARTING LOSS
                         DTH        0.35  MOISTURE DEFICIT
                        PSIF        4.19  WETTING FRONT SUCTION
                       XKSAT        0.40  HYDRAULIC CONDUCTIVITY
                       RTIMP        6.71  PERCENT IMPERVIOUS AREA

 376 UI          INPUT UNITGRAPH,  79 ORDINATES,  VOLUME = 1.00
                       0.0      96.5      96.5      96.5     112.8     277.5     345.0     422.5     544.7     601.5
                     664.1     718.1     766.8     866.2    1024.1    1185.4     901.2     714.8     637.6     587.9
                     562.0     530.7     496.6     471.0     448.4     414.0     389.1     369.8     331.3     304.2
                     272.8     252.7     236.1     228.6     222.0     205.2     201.8     160.3     158.6     138.1
                     123.3     123.3     114.2     105.7     105.7     105.7      75.6      74.0      74.0      74.0
                      74.0      51.2      47.2      47.2      47.2      47.2      47.2      47.2      47.2      22.5
                      18.5      18.5      18.5      18.5      18.5      18.5      18.5      18.5      18.5      18.5
                      18.5      18.5      18.5      18.5      18.5      18.5      18.5      18.5      18.5
                                                                  ***

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

                        HYDROGRAPH AT STATION       P1
                      TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.15, TOTAL EXCESS =    6.65

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    5837.      4.33                1717.        436.        145.          63.
                        (INCHES)    6.553       6.649       6.649        6.649
                         (AC-FT)     852.        864.        864.         864.

                        CUMULATIVE AREA =    2.44 SQ MI


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


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            *            *
 386 KK     *       PCP  *        CNAME       P
            *            *
            **************
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387 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

388 RN          NO ROUTING
                                                                  ***

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

                       HYDROGRAPH AT STATION      PCP
                     TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+   (CFS)      (HR)
                          (CFS)
+    5837.     4.33                1717.        436.        145.          63.
                       (INCHES)    6.553       6.649       6.649        6.649
                        (AC-FT)     852.        864.        864.         864.

                      CUMULATIVE AREA =    2.44 SQ MI


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


            **************
            *            *
389 KK      *      N1    *
            *            *
            **************
                          THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                          L=2.79     Lca=1.44     S=340.38     Kn=0.050     LAG=40.0
                          S-GRAPH TYPE=PHOENIX MOUNTAIN

393 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

394 BA          SUBBASIN CHARACTERISTICS
                      TAREA       1.52  SUBBASIN AREA

395 LG          GREEN AND AMPT LOSS RATE
                      STRTL       0.35  STARTING LOSS
                        DTH       0.35  MOISTURE DEFICIT
                       PSIF       4.07  WETTING FRONT SUCTION
                      XKSAT       0.42  HYDRAULIC CONDUCTIVITY
                      RTIMP       8.38  PERCENT IMPERVIOUS AREA

394 UI          INPUT UNITGRAPH,  37 ORDINATES,  VOLUME = 1.00
                        0.0     128.3     166.8     436.7     697.6     885.3    1048.8    1439.8    1097.6     811.0
                      717.9     633.2     554.4     482.3     398.7     327.2     300.3     268.1     210.8     167.7
                      152.7     140.5     106.8      98.3      84.1      62.8      62.8      62.8      38.3      24.6
                       24.6      24.6      24.6      24.6      24.6      24.6      24.6
                                                                  ***

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

                       HYDROGRAPH AT STATION      N1
                     TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.14, TOTAL EXCESS =    6.66

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+   (CFS)      (HR)
                          (CFS)
+    5936.     3.75                1087.        272.         91.          39.
                       (INCHES)    6.633       6.644       6.644        6.644
                        (AC-FT)     539.        540.        540.         540.

                      CUMULATIVE AREA =    1.52 SQ MI


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


            **************
            *            *
400 KK      *    N1-N2   *        CNAME     N2R
            *            *
            **************

401 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
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                    ISAV2        2000  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       0.083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

402 RS        STORAGE ROUTING
                 NSTPS          17  NUMBER OF SUBREACHES
                  ITYP        FLOW  TYPE OF INITIAL CONDITION
                RSVRIC        0.00  INITIAL CONDITION
                     X        0.00 WORKING R AND D COEFFICIENT

403 RC        NORMAL DEPTH CHANNEL
                   ANL       0.050  LEFT OVERBANK N-VALUE
                  ANCH       0.047  MAIN CHANNEL N-VALUE
                   ANR       0.050  RIGHT OVERBANK N-VALUE
                 RLNTH      26511.  REACH LENGTH
                   SEL      0.0115  ENERGY SLOPE
                 ELMAX         0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
405 RY      ELEVATION    17.00     13.00     11.50     10.00     10.00     11.50     13.00     17.00
404 RX      DISTANCE      0.00    280.00    350.00    358.00    367.00    381.00    451.00    730.00

                                                          ***

                                    COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE       0.00      2.62      6.46     11.51     17.76     28.04     46.00     71.68    105.06    147.57
          OUTFLOW       0.00      6.54     23.72     52.83     95.68    169.86    286.37    461.11    707.80   1024.91
        ELEVATION      10.00     10.37     10.74     11.11     11.47     11.84     12.21     12.58     12.95     13.32

          STORAGE     201.58    267.13    344.23    432.87    533.06    644.80    768.07    902.89   1049.26   1207.17
          OUTFLOW    1452.39   2010.36   2715.16   3582.35   4626.84   5862.90   7304.30   8964.33  10855.88  12991.49
        ELEVATION      13.68     14.05     14.42     14.79     15.16     15.53     15.89     16.26     16.63     17.00

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

                     HYDROGRAPH AT STATION    N1-N2
                   TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+   (CFS)      (HR)
                        (CFS)
+    4349.     5.08                1085.        272.         91.         39.
                      (INCHES)    6.620       6.644       6.644       6.644
                      (AC-FT)      538.        540.        540.        540.

 PEAK STORAGE  TIME                        MAXIMUM AVERAGE STORAGE
                                    6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)     (HR)
      30.      5.08                   8.          2.          1.          0.

 PEAK STAGE    TIME                        MAXIMUM AVERAGE STAGE
                                    6-HR       24-HR       72-HR    166.58-HR
+   (FEET)     (HR)
    15.06      5.08                12.56       10.69       10.23       10.10

                     CUMULATIVE AREA =    1.52 SQ MI


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

            **************
            *            *
406 KK      *        N2  *
            *            *
            **************
                         THE POLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                         L=5.64     Lca=3.27     S=170.14     Kn=0.055     LAG=91.0
                         S-GRAPH TYPE=PHOENIX MOUNTAIN

410 KO        OUTPUT CONTROL VARIABLES
                 IPRNT           3  PRINT CONTROL
                 IPLOT           0  PLOT CONTROL
                 QSCAL          0.  HYDROGRAPH PLOT SCALE
                 IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                  IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                 ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                 ISAV2        2000  LAST ORDINATE PUNCHED OR SAVED
                TIMINT       0.083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

411 BA        SUBBASIN CHARACTERISTICS
                 TAREA        3.33  SUBBASIN AREA

412 LG        GREEN AND AMPT LOSS RATE
                 STRTL        0.35  STARTING LOSS
                   DTH        0.35  MOISTURE DEFICIT
                  PSIF        4.12  WETTING FRONT SUCTION
                 XKSAT        0.41  HYDRAULIC CONDUCTIVITY
                 RTIMP        2.67  PERCENT IMPERVIOUS AREA

411 UI        INPUT UNITGRAPH,  85 ORDINATES,  VOLUME = 1.00
                   0.0     123.0     123.0     123.0     123.0     310.8     396.0     496.7     616.3     730.8
                 796.4     869.0     928.5     990.2    1125.9    1316.1    1517.9    1186.4     925.6     834.3
                 764.3     726.5     694.1     654.4     619.9     586.9     557.1     517.8     491.7     466.8
                 422.4     387.3     352.0     325.3     302.3     296.8     283.0     272.2     257.3     234.3
                 202.1     202.1     163.1     157.2     157.2     143.9     134.8     134.8     134.8     103.6
                  94.3      94.3      94.3      94.3      83.8      60.2      60.2      60.2      60.2      60.2
                  60.2      60.2      60.2      32.5      23.6      23.6      23.6      23.6      23.6      23.6
                  23.6      23.6      23.6      23.6      23.6      23.6      23.6      23.6      23.6      23.6
                  23.6      23.6      23.6      23.6      23.6

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

                    HYDROGRAPH AT STATION       N2
                  TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.30, TOTAL EXCESS =    6.50

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    7496.      4.42                2287.        581.        194.          84.
                        (INCHES)    6.393       6.498       6.498       6.498
                         (AC-FT)    1134.       1152.       1152.       1152.

                       CUMULATIVE AREA =    3.33 SQ MI


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


            **************
            *            *
  422 KK    *        N   *        CNAME     NCP
            *            *
            **************

  423 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE
                        IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                         IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT      0.083  TIME INTERVAL IN HOURS

  424 HC          HYDROGRAPH COMBINATION
                        ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                    HYDROGRAPH AT STATION        N
                  TRANSPOSITION AREA      0.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    9242.      5.00                3369.        853.        284.         123.
                        (INCHES)    6.459       6.544       6.544       6.544
                         (AC-FT)    1671.       1692.       1692.       1692.

                       CUMULATIVE AREA =    4.85 SQ MI


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


            **************
            *            *
  425 KK    *       NCP  *        CNAME       N
            *            *
            **************

  426 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE
                        IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                         IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT      0.083  TIME INTERVAL IN HOURS

               HYDROGRAPH ROUTING DATA

  427 RN          NO ROUTING

                                                                  ***

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

                    HYDROGRAPH AT STATION      NCP
                  TRANSPOSITION AREA      0.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    9242.      5.00                3369.        853.        284.         123.
                        (INCHES)    6.459       6.544       6.544       6.544
                         (AC-FT)    1671.       1692.       1692.       1692.

                       CUMULATIVE AREA =    4.85 SQ MI


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


            **************
            *            *
  428 KK    *        01  *
            *            *
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                    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                    L=5.20     Lca=2.79     S=64.07     Kn=0.055     LAG=100.0
                    S-GRAPH TYPE=PHOENIX MOUNTAIN

432 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

433 BA          SUBBASIN CHARACTERISTICS
                      TAREA       3.09  SUBBASIN AREA

434 LG          GREEN AND AMPT LOSS RATE
                      STRTL       0.35  STARTING LOSS
                        DTH       0.35  MOISTURE DEFICIT
                       PSIF       4.19  WETTING FRONT SUCTION
                      XKSAT       0.39  HYDRAULIC CONDUCTIVITY
                      RTIMP       2.10  PERCENT IMPERVIOUS AREA

433 UI          INPUT UNITGRAPH,  93 ORDINATES,  VOLUME = 1.00
                        0.0     104.0     104.0     104.0     104.0     182.0     299.0     378.7     446.4     550.1
                      624.5     676.8     731.5     781.3     824.5     905.4    1042.0    1204.8    1242.7     807.0
                      765.3     690.9     643.3     614.9     590.5     558.5     530.8     506.5     485.1     454.9
                      429.4     410.3     388.6     357.0     326.6     302.9     274.9     261.0     254.4     242.2
                      239.2     221.8     217.4     189.5     170.8     170.8     140.5     132.9     132.9     129.1
                      113.9     113.9     113.9     113.9      79.7      79.7      79.7      79.7      79.7      79.7
                       50.9      50.9      50.9      50.9      50.9      50.9      50.9      50.9      50.9      32.3
                       19.9      19.9      19.9      19.9      19.9      19.9      19.9      19.9      19.9      19.9
                       19.9      19.9      19.9      19.9      19.9      19.9      19.9      19.9      19.9      19.9
                       19.9      19.9      19.9
                                                                  ***

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

                       HYDROGRAPH AT STATION       01
                     TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.29, TOTAL EXCESS =    6.51

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    6584.      4.58                2113.        540.        180.          78.
                        (INCHES)    6.362       6.505       6.505        6.505
                         (AC-FT)    1048.       1071.       1071.        1071.

                       CUMULATIVE AREA =    3.09 SQ MI


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


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            *            *
445 KK      *     OCP    *        CNAME       O
            *            *
            **************

446 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

447 RN          NO ROUTING
                                                                  ***

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

                       HYDROGRAPH AT STATION      OCP
                     TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    6584.      4.58                2113.        540.        180.          78.
                        (INCHES)    6.362       6.505       6.505        6.505
                         (AC-FT)    1048.       1071.       1071.        1071.

                       CUMULATIVE AREA =    3.09 SQ MI


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


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            *            *
448 KK      *     M1     *
            *            *
            **************
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                    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                    L=4.99     Lca=1.81     S=302.46     Kn=0.050     LAG=56.0
                    S-GRAPH TYPE=PHOENIX MOUNTAIN

452 KO        OUTPUT CONTROL VARIABLES
                 IPRNT          3  PRINT CONTROL
                 IPLOT          0  PLOT CONTROL
                 QSCAL         0.  HYDROGRAPH PLOT SCALE
                 IPNCH          1  Ppunch COMPUTED HYDROGRAPH
                  IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                 ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                 ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                TIMINT      0.083  TIME INTERVAL IN HOURS


           SUBBASIN RUNOFF DATA

453 BA        SUBBASIN CHARACTERISTICS
                 TAREA       5.59  SUBBASIN AREA

454 LG        GREEN AND AMPT LOSS RATE
                 STRTL       0.35  STARTING LOSS
                   DTH       0.35  MOISTURE DEFICIT
                  PSIF       4.31  WETTING FRONT SUCTION
                 XKSAT       0.35  HYDRAULIC CONDUCTIVITY
                 RTIMP      17.12  PERCENT IMPERVIOUS AREA

453 UI        INPUT UNITGRAPH,  52 ORDINATES,  VOLUME = 1.00
                   0.0     336.4     336.4     603.8    1137.3    1624.8    2070.8    2388.2    2652.4    3233.3
              4005.2    2791.3    2249.2    1997.6    1849.5    1685.7    1552.5    1393.2    1268.3    1104.1
               946.3     845.5     793.0     739.4     664.8     552.6     468.1     429.8     388.6     368.4
               333.1     257.9     257.9     257.9     168.4     164.6     164.6     164.6     164.6      94.9
                64.5      64.5      64.5      64.5      64.5      64.5      64.5      64.5      64.5      64.5
                64.5      64.5
                                                          ***

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

                   HYDROGRAPH AT STATION       M1
                 TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    2.66, TOTAL EXCESS =    7.14

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                  (CFS)
+   18369.      3.92              4262.       1073.        358.        155.
                (INCHES)         7.083       7.129       7.129       7.129
                (AC-FT)          2113.       2127.       2127.       2127.

                 CUMULATIVE AREA =    5.59 SQ MI


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


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          *            *
461 KK    *    M1-M2   *        CNAME     M2R
          *            *
          **************

462 KO        OUTPUT CONTROL VARIABLES
                 IPRNT          3  PRINT CONTROL
                 IPLOT          0  PLOT CONTROL
                 QSCAL         0.  HYDROGRAPH PLOT SCALE
                 IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                  IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                 ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                 ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                TIMINT      0.083  TIME INTERVAL IN HOURS


           HYDROGRAPH ROUTING DATA

463 RS        STORAGE ROUTING
                 NSTPS         20  NUMBER OF SUBREACHES
                  ITYP       FLOW  TYPE OF INITIAL CONDITION
                RSVRIC       0.00  INITIAL CONDITION
                     X       0.00 WORKING R AND D COEFFICIENT

464 RC        NORMAL DEPTH CHANNEL
                   ANL      0.040  LEFT OVERBANK N-VALUE
                  ANCH      0.040  MAIN CHANNEL N-VALUE
                   ANR      0.045  RIGHT OVERBANK N-VALUE
                 RLNTH     38719.  REACH LENGTH
                   SEL     0.0133  ENERGY SLOPE
                 ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
466 RY     ELEVATION     15.50     12.00     11.80     10.30     10.00     11.00     11.20     15.50
465 RX     DISTANCE       0.00    961.00   1028.00   1051.00   1136.00   1153.00   1193.00   1900.00
                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

        STORAGE       0.00     11.18     35.47     62.18     93.32    138.13    196.35    275.22    388.08    533.64
        OUTFLOW       0.00     14.90     93.45    224.24    409.05    667.47   1015.19   1494.80   2155.84   3041.09
      ELEVATION      10.00     10.29     10.58     10.87     11.16     11.45     11.74     12.03     12.32     12.61

        STORAGE     711.89    922.84   1166.49   1442.83   1751.88   2093.62   2468.05   2875.18   3315.01   3787.54
        OUTFLOW    4191.29   5643.45   7432.01   9589.48  12146.85  15133.83  18579.05  22510.24  26954.29  31937.40
      ELEVATION      12.89     13.18     13.47     13.76     14.05     14.34     14.63     14.92     15.21     15.50

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

                   HYDROGRAPH AT STATION    M1-M2
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                    TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR        24-HR        72-HR    166.58-HR
+  (CFS)       (HR)
                          (CFS)
+  13673.      5.58       4244.       1073.        358.         155.
                       (INCHES)      7.053       7.129        7.129        7.129
                        (AC-FT)      2105.       2127.        2127.        2127.

 PEAK STORAGE  TIME                         MAXIMUM AVERAGE STORAGE
                                   6-HR        24-HR        72-HR    166.58-HR
+  (AC-FT)     (HR)
     96.       5.58                33.          9.           3.           1.

 PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                   6-HR        24-HR        72-HR    166.58-HR
+  (FEET)      (HR)
    14.20      5.58               12.42       10.73        10.24        10.10

                     CUMULATIVE AREA =    5.59 SQ MI


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


            **************
            *            *
 467 KK     *     M2     *
            *            *
            **************
                        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                        L=7.60     Lca=3.07     S=88.36     Kn=0.050     LAG=103.0
                        S-GRAPH TYPE=DESERT RANGELAND

 471 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

 472 BA          SUBBASIN CHARACTERISTICS
                      TAREA       7.53  SUBBASIN AREA

 473 LG          GREEN AND AMPT LOSS RATE
                      STRTL       0.35  STARTING LOSS
                        DTH       0.35  MOISTURE DEFICIT
                       PSIF       3.95  WETTING FRONT SUCTION
                      XKSAT       0.45  HYDRAULIC CONDUCTIVITY
                      RTIMP       0.29  PERCENT IMPERVIOUS AREA

 472 UI          INPUT UNITGRAPH,  76 ORDINATES,  VOLUME = 1.00
                     0.0     246.1     246.1     246.1     246.1     366.9     707.4     862.0    1046.8    1248.1
                  1424.7    1592.8    1748.1    1929.9    2062.3    2176.1    2221.5    2334.5    2358.1    2358.1
                  2358.0    2271.8    2217.1    2123.9    1976.0    1771.8    1691.5    1501.0    1393.0    1285.0
                  1178.7    1088.8     995.3     919.2     857.6     754.6     708.7     673.7     569.6     549.5
                   488.2     463.9     446.3     377.3     377.3     364.2     260.8     260.8     260.8     260.8
                   201.5     168.4     168.4     168.4     168.4     168.4     168.4      90.2      59.9      59.9
                    59.9      59.9      59.9      59.9      59.9      59.9      59.9      59.9      59.9      59.9
                    59.9      59.9      59.9      59.9      59.9      59.9
                                                                      ***

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

                       HYDROGRAPH AT STATION       M2
                    TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.48, TOTAL EXCESS =    6.32

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR        24-HR        72-HR    166.58-HR
+  (CFS)       (HR)
                          (CFS)
+  14132.      4.83       5078.       1278.        426.         184.
                       (INCHES)      6.273       6.312        6.312        6.312
                        (AC-FT)      2518.       2534.        2534.        2534.

                     CUMULATIVE AREA =    7.53 SQ MI


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


            **************
            *            *
 482 KK     *     M      *        CNAME     MCP
            *            *
            **************

 483 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS


 484 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
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                                                                    ***
     ***            ***            ***            ***            ***

                      HYDROGRAPH AT STATION        M
                    TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                         (CFS)
+  23749.      5.42                9264.       2350.        783.        339.
                        (INCHES)    6.564       6.660       6.660       6.660
                         (AC-FT)    4594.       4661.       4661.       4661.

                       CUMULATIVE AREA =   13.12 SQ MI


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


           **************
           *            *
 485 KK    *      MCP   *        CNAME       M
           *            *
           **************

 486 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

 487 RN          NO ROUTING
                                                                    ***
     ***            ***            ***            ***            ***

                      HYDROGRAPH AT STATION      MCP
                    TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                         (CFS)
+  23749.      5.42                9264.       2350.        783.        339.
                        (INCHES)    6.564       6.660       6.660       6.660
                         (AC-FT)    4594.       4661.       4661.       4661.

                       CUMULATIVE AREA =   13.12 SQ MI


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


           **************
           *            *
 488 KK    *        Z1  *
           *            *
           **************
                         THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                         L=1.70     Lca=0.66     S=47.00     Kn=0.055     LAG=39.0
                         S-GRAPH TYPE=DESERT RANGELAND

 492 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

 493 BA          SUBBASIN CHARACTERISTICS
                      TAREA       0.66  SUBBASIN AREA

 494 LG          GREEN AND AMPT LOSS RATE
                      STRTL       0.32  STARTING LOSS
                        DTH       0.29  MOISTURE DEFICIT
                       PSIF       4.00  WETTING FRONT SUCTION
                      XKSAT       0.43  HYDRAULIC CONDUCTIVITY
                      RTIMP       2.91  PERCENT IMPERVIOUS AREA

 493 UI          INPUT UNITGRAPH,  29 ORDINATES,  VOLUME = 1.00
                       0.0      57.4      79.5     205.3     321.7     424.0     504.0     545.2     540.9     493.7
                     399.4     319.2     256.3     205.1     164.9     127.6     104.6      87.8      60.8      54.1
                      39.3      39.3      21.8      14.0      14.0      14.0      14.0      14.0      14.0
                                                                    ***
     ***            ***            ***            ***            ***

                      HYDROGRAPH AT STATION       Z1
                    TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.24, TOTAL EXCESS =    6.56
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  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    2775.      3.83                 468.        117.         39.          17.
                        (INCHES)    6.547       6.550       6.550        6.550
                         (AC-FT)     232.        232.        232.         232.

                       CUMULATIVE AREA =    0.66 SQ MI


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


            **************
            *            *
  498 KK    *      ZCP   *        CNAME       Z
            *            *
            **************

  499 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE
                        IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                         IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT      0.083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

  500 RN          NO ROUTING
                                                          ***

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

                        HYDROGRAPH AT STATION      ZCP
                       TRANSPOSITION AREA      0.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    2775.      3.83                 468.        117.         39.          17.
                        (INCHES)    6.547       6.550       6.550        6.550
                         (AC-FT)     232.        232.        232.         232.

                       CUMULATIVE AREA =    0.66 SQ MI


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


            **************
            *            *
  501 KK    *       L1   *
            *            *
            **************
                        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                        L=4.93     Lca=2.29     S=108.27     Kn=0.050     LAG=61.0
                        S-GRAPH TYPE=PHOENIX MOUNTAIN

  505 KO          OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE
                        IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                         IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT      0.083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

  506 BA          SUBBASIN CHARACTERISTICS
                        TAREA       3.55  SUBBASIN AREA

  507 LG          GREEN AND AMPT LOSS RATE
                        STRTL       0.27  STARTING LOSS
                          DTH       0.32  MOISTURE DEFICIT
                         PSIF       4.36  WETTING FRONT SUCTION
                        XKSAT       0.35  HYDRAULIC CONDUCTIVITY
                        RTIMP      16.32  PERCENT IMPERVIOUS AREA

  506 UI          INPUT UNITGRAPH,  57 ORDINATES,  VOLUME = 1.00
                        0.0     195.7     195.7     266.9     603.6     823.3    1120.6    1287.1    1452.3    1611.1
                     1991.3    2326.8    1575.1    1312.3    1173.4    1097.4    1002.3     929.5     850.5     775.7
                      701.2     620.5     526.0     484.9     458.9     430.6     397.3     321.6     291.0     250.1
                      241.8     214.4     214.4     171.3     150.1     150.1     149.5      95.8      95.8      95.8
                       95.8      95.8      79.7      37.5      37.5      37.5      37.5      37.5      37.5      37.5
                       37.5      37.5      37.5      37.5      37.5      37.5      37.5
                                                          ***

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

                        HYDROGRAPH AT STATION       L1
                       TRANSPOSITION AREA      0.0 SQ MI

    TOTAL RAINFALL =    9.80, TOTAL LOSS =    2.63, TOTAL EXCESS =    7.17

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+   11153.      4.00                2713.        684.        228.          98.
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                    (INCHES)     7.113       7.169       7.169       7.169
                     (AC-FT)     1345.       1356.       1356.       1356.

                    CUMULATIVE AREA =    3.55 SQ MI


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


          **************
          *            *
514 KK    *    L1-L2   *        CNAME     L2R
          *            *
          **************

515 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT      0.083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

516 RS          STORAGE ROUTING
                     NSTPS         10  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       0.00  INITIAL CONDITION
                         X       0.00 WORKING R AND D COEFFICIENT

517 RC          NORMAL DEPTH CHANNEL
                       ANL      0.046  LEFT OVERBANK N-VALUE
                      ANCH      0.045  MAIN CHANNEL N-VALUE
                       ANR      0.046  RIGHT OVERBANK N-VALUE
                     RLNTH     28949.  REACH LENGTH
                       SEL     0.0147  ENERGY SLOPE
                     ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
519 RY       ELEVATION    19.00     17.00     14.00     10.00     10.00     14.00     18.00     22.00
518 RX       DISTANCE      0.00     80.00    165.00    200.00    215.00    255.00    340.00    420.00

                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE       0.00      8.78     22.53     41.26     64.95     93.61    127.25    167.67    220.78    287.03
          OUTFLOW       0.00     33.02    124.37    285.11    527.76    864.27   1305.94   1955.40   2820.12   3902.96
        ELEVATION      10.00     10.63     11.26     11.89     12.53     13.16     13.79     14.42     15.05     15.68

          STORAGE     366.43    458.97    565.96    689.16    828.33    980.43   1138.16   1301.19   1469.53   1643.17
          OUTFLOW    5239.75   6862.20   8773.58  11051.45  13733.67  17039.73  20837.71  25056.13  29692.24  34745.19
        ELEVATION      16.32     16.95     17.58     18.21     18.84     19.47     20.11     20.74     21.37     22.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    29692. TO    34745.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                     HYDROGRAPH AT STATION    L1-L2
                  TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)      (HR)
                     (CFS)
+    9356.      4.75                 2706.        684.        228.         98.
                  (INCHES)          7.094       7.169       7.169       7.169
                   (AC-FT)          1342.       1356.       1356.       1356.

 PEAK STORAGE   TIME                       MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      60.       4.75                   20.          5.          2.          1.

 PEAK STAGE     TIME                        MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
    17.74       4.75                14.10       11.13       10.38       10.16

                  CUMULATIVE AREA =    3.55 SQ MI


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


          **************
          *            *
520 KK    *      L2    *
          *            *
          **************
                         THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                         L=5.21     Lca=2.40     S=82.13     Kn=0.055     LAG=90.0
                         S-GRAPH TYPE=DESERT RANGELAND

524 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                      IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
```

```
                    TIMINT       0.083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

525 BA          SUBBASIN CHARACTERISTICS
                      TAREA        7.33  SUBBASIN AREA

526 LG          GREEN AND AMPT LOSS RATE
                     STRTL        0.35  STARTING LOSS
                       DTH        0.35  MOISTURE DEFICIT
                      PSIF        4.20  WETTING FRONT SUCTION
                     XKSAT        0.40  HYDRAULIC CONDUCTIVITY
                     RTIMP        0.00  PERCENT IMPERVIOUS AREA

525 UI          INPUT UNITGRAPH,  67 ORDINATES,  VOLUME = 1.00
                      0.0     274.2     274.2     274.2     274.2     716.3     906.2    1156.6    1406.6    1625.9
                   1873.4    2006.8    2272.9    2404.0    2469.2    2608.7    2627.7    2627.7    2580.4    2477.2
                   2404.5    2210.1    1962.8    1830.1    1638.2    1474.7    1349.1    1231.1    1114.6    1013.7
                    919.8     837.3     750.8     677.7     612.3     548.0     516.9     470.8     420.4     420.4
                    319.4     290.6     290.6     290.6     200.9     187.7     187.7     187.7     187.7     187.7
                     88.0      66.7      66.7      66.7      66.7      66.7      66.7      66.7      66.7      66.7
                     66.7      66.7      66.7      66.7      66.7      66.7      66.7
                                                                      ***

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

                      HYDROGRAPH AT STATION       L2
                    TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.39, TOTAL EXCESS =    6.41

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+   15687.      4.58               5051.       1264.        421.        182.
                        (INCHES)   6.407       6.413       6.413       6.413
                         (AC-FT)   2505.       2507.       2507.       2507.

                       CUMULATIVE AREA =    7.33 SQ MI


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

            **************
            *            *
534 KK      *     L3R    *        CNAME   L2-L3
            *            *
            **************

535 XO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT      0.083  TIME INTERVAL IN HOURS

536 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                      ***

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

                      HYDROGRAPH AT STATION      L3R
                    TRANSPOSITION AREA      0.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+   24861.      4.75               7746.       1948.        649.        281.
                        (INCHES)   6.622       6.660       6.660       6.660
                         (AC-FT)   3841.       3863.       3863.       3863.

                       CUMULATIVE AREA =   10.88 SQ MI


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

            **************
            *            *
537 KK      *    L2-L3   *        CNAME     L3R
            *            *
            **************

538 RO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT      0.083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

539 RS          STORAGE ROUTING
                     NSTPS         11  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
```

```
                    RSVRIC        0.00  INITIAL CONDITION
                         X        0.00 WORKING R AND D COEFFICIENT

540 RC          NORMAL DEPTH CHANNEL
                       ANL       0.050  LEFT OVERBANK N-VALUE
                      ANCH       0.040  MAIN CHANNEL N-VALUE
                       ANR       0.060  RIGHT OVERBANK N-VALUE
                     RLNTH       20567.  REACH LENGTH
                       SEL      0.0084  ENERGY SLOPE
                     ELMAX         0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
542 RY        ELEVATION    18.00     11.80     11.70     10.00     10.00     11.70     11.80     18.00
541 RX        DISTANCE      0.00   1093.00   1210.00   1215.00   1225.00   1232.00   1372.00   2000.00

                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE       0.00      2.28      5.16      8.62     12.68     66.27    150.20    257.36    387.76    541.39
          OUTFLOW       0.00      8.50     28.70     60.15    103.56    286.69    729.81   1443.59   2460.82   3815.87
        ELEVATION      10.00     10.42     10.84     11.26     11.68     12.11     12.53     12.95     13.37     13.79

          STORAGE     718.26    918.37   1141.71   1388.28   1658.09   1951.14   2267.42   2606.93   2969.68   3355.67
          OUTFLOW    5542.53   7673.58  10240.75  13274.76  16805.46  20861.85  25472.19  30664.07  36464.44  42899.71
        ELEVATION      14.21     14.63     15.05     15.47     15.89     16.32     16.74     17.16     17.58     18.00

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

                     HYDROGRAPH AT STATION    L2-L3
                   TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                        (CFS)
+  22692.      5.58                7626.       1948.        649.        281.
                      (INCHES)     6.519       6.660       6.660       6.660
                       (AC-FT)     3781.       3863.       3863.       3863.

 PEAK STORAGE  TIME                        MAXIMUM AVERAGE STORAGE
                                    6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)     (HR)
     189.      5.58                  76.         20.          7.          3.

 PEAK STAGE    TIME                        MAXIMUM AVERAGE STAGE
                                    6-HR       24-HR       72-HR    166.58-HR
+   (FEET)     (HR)
    16.48      5.58                14.21       11.40       10.47       10.20

                     CUMULATIVE AREA =    10.88 SQ MI


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

            **************
            *            *
543 KK      *     L3     *
            *            *
            **************
                      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                      L=4.75     Lca=2.00     S=44.27     Km=0.055     LAG=91.0
                      S-GRAPH TYPE=DESERT RANGELAND

547 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

548 BA          SUBBASIN CHARACTERISTICS
                      TAREA       5.85  SUBBASIN AREA

549 LG          GREEN AND AMPT LOSS RATE
                      STRTL       0.34  STARTING LOSS
                        DTH       0.33  MOISTURE DEFICIT
                       PSIF       3.98  WETTING FRONT SUCTION
                      XKSAT       0.42  HYDRAULIC CONDUCTIVITY
                      RTIMP       1.05  PERCENT IMPERVIOUS AREA

548 UI          INPUT UNITGRAPH,  67 ORDINATES,  VOLUME = 1.00
                        0.0     216.5     216.5     216.5     216.5     547.0     701.8     899.0    1098.3    1266.3
                     1460.0    1557.8    1786.1    1888.6    1950.2    2034.9    2074.9    2074.9    2053.8    1965.5
                     1920.6    1789.2    1583.5    1486.1    1313.6    1207.8    1091.4     994.6     909.2     825.0
                      759.9     664.0     614.5     574.5     483.5     461.4     408.2     402.7     332.0     332.0
                      296.9     229.5     229.5     229.5     197.6     148.2     148.2     148.2     148.2     148.2
                      121.7      52.7      52.7      52.7      52.7      52.7      52.7      52.7      52.7      52.7
                       52.7      52.7      52.7      52.7      52.7      52.7      52.7

                                                          ***

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

                     HYDROGRAPH AT STATION       L3
                   TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.34, TOTAL EXCESS =    6.46

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                        (CFS)
```

```
+  12449.      4.58                 4056.       1016.        339.        146.
                          (INCHES)  6.444       6.455       6.455       6.455
                           (AC-FT)  2011.       2015.       2015.       2015.

                         CUMULATIVE AREA =    5.85 SQ MI


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

            **************
            *            *
 557 KK     *        L   *        CNAME     LCP
            *            *
            **************

 558 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS

 559 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

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

                        HYDROGRAPH AT STATION        L
                      TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                          (CFS)
+  29292.      5.50                11459.       2963.        988.        427.
                          (INCHES)  6.369       6.588       6.588       6.588
                           (AC-FT)  5682.       5878.       5878.       5878.

                         CUMULATIVE AREA =   16.73 SQ MI


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

            **************
            *            *
 560 KK     *       LCP  *        CNAME       L
            *            *
            **************

 561 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

 562 RN           NO ROUTING
                                                                  ***

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

                        HYDROGRAPH AT STATION      LCP
                      TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                          (CFS)
+  29292.      5.50                11459.       2963.        988.        427.
                          (INCHES)  6.369       6.588       6.588       6.588
                           (AC-FT)  5682.       5878.       5878.       5878.

                         CUMULATIVE AREA =   16.73 SQ MI


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

            **************
            *            *
 563 KK     *        R1  *
            *            *
            **************
                          THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                          L=1.01     Lca=0.46     S=213.31     Kn=0.050     LAG=19.0
                          S-GRAPH TYPE=PHOENIX MOUNTAIN

 567 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
```

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                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

568 BA        SUBBASIN CHARACTERISTICS
                    TAREA       0.28  SUBBASIN AREA

569 LG        GREEN AND AMPT LOSS RATE
                    STRTL       0.35  STARTING LOSS
                      DTH       0.35  MOISTURE DEFICIT
                     PSIF       4.36  WETTING FRONT SUCTION
                    XKSAT       0.37  HYDRAULIC CONDUCTIVITY
                    RTIMP       8.39  PERCENT IMPERVIOUS AREA

568 UI        INPUT UNITGRAPH,  18 ORDINATES,  VOLUME = 1.00
                     0.0      62.1     236.0     401.8     464.9     281.7     216.1     150.6     113.7      76.3
                    57.5      39.7      27.5      24.5       9.6       9.6       9.6       9.6
                                                                   ***

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

                      HYDROGRAPH AT STATION       R1
                    TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =    9.80, TOTAL LOSS =    3.04, TOTAL EXCESS =    6.76

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                         (CFS)
+   1716.       3.42                205.         51.         17.          7.
                        (INCHES)   6.735       6.739       6.739       6.739
                         (AC-FT)    102.        102.        102.        102.

                       CUMULATIVE AREA =    0.28 SQ MI


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


            **************
            *            *
572 KK      *      RCP   *        CNAME       R
            *            *
            **************

573 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          3  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

574 RN        NO ROUTING
                                                                   ***

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

                      HYDROGRAPH AT STATION      RCP
                    TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                         (CFS)
+   1716.       3.42                205.         51.         17.          7.
                        (INCHES)   6.735       6.739       6.739       6.739
                         (AC-FT)    102.        102.        102.        102.

                       CUMULATIVE AREA =    0.28 SQ MI


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


            **************
            *            *
575 KK      *     FRS1   *        CNAME   E, G, L, Z, M, N, O, P, Q, & R
            *            *
            **************

576 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          3  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.083  TIME INTERVAL IN HOURS

577 HC        HYDROGRAPH COMBINATION
                    ICOMP          9  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                   ***

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

```
                    HYDROGRAPH AT STATION     FRS1
                  TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     166.58-HR
+   (CFS)       (HR)
                          (CFS)
+  98606.       5.92                51661.      13365.       4455.       1925.
                        (INCHES)    6.340       6.561       6.561       6.561
                         (AC-FT)   25617.      26508.      26508.      26508.

                       CUMULATIVE AREA =   75.76 SQ MI


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


          **************
          *            *
578 KK    *    ROUTE   *            FRS#1 LEVEL POOL ROUTING
          *            *
          **************
                                  RESERVIOR ASSUMED EMPTY

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

              HYDROGRAPH ROUTING DATA

581 RS          STORAGE ROUTING
                      NSTPS          1  NUMBER OF SUBREACHES
                       ITYP       STOR  TYPE OF INITIAL CONDITION
                     RSVRIC       0.00  INITIAL CONDITION
                          X       0.00 WORKING R AND D COEFFICIENT

588 SV            STORAGE        0.0     100.0     528.0    1261.0    2246.0    3491.0    5068.0    8087.0    9567.0   12622.0
                               16336.0   20732.0

590 SE          ELEVATION      1061.40   1063.86   1066.36   1068.86   1071.36   1073.86   1076.36   1079.96   1081.36   1083.86
                               1086.40   1088.96

586 SQ          DISCHARGE        10.       100.      152.      210.      246.      287.      351.      381.      407.      430.

587 SE          ELEVATION      1060.40   1064.25   1065.66   1067.48   1069.20   1071.43   1075.09   1078.00   1080.05   1081.99

585 SS          SPILLWAY
                      CREL     1082.00  SPILLWAY CREST ELEVATION
                     SPWID      800.00  SPILLWAY WIDTH
                      COQW        2.70  WEIR COEFFICIENT
                      EXPW        1.50  EXPONENT OF HEAD

582 ST          TOP OF DAM
                      TOPEL    1089.90  ELEVATION AT TOP OF DAM
                    DAMWID     5880.00  DAM WIDTH
                      COQD        2.70  WEIR COEFFICIENT
                      EXPD        1.50  EXPONENT OF HEAD

    SW          DAM WIDTH      5880.00   5880.00  37600.00
    SE          ELEVATION      1089.90   1091.70   1091.70
                                                   ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

                                  (INCLUDING FLOW OVER DAM)

          STORAGE       0.00      0.00    100.00    166.77    408.17    528.00    856.38   1261.00   1394.95   2246.00
          OUTFLOW      10.00     33.40     90.95    100.08    152.04    174.17    209.57    238.88    246.10    285.32
        ELEVATION    1060.40   1061.40   1063.86   1064.25   1065.66   1066.36   1067.48   1068.86   1069.20   1071.36

          STORAGE    2280.89   3491.00   4266.87   5068.00   6443.34   8087.00   8182.23   9567.00  10336.87  12622.00
          OUTFLOW     286.59    329.56    351.31    364.27    381.00    405.86    407.00    422.20    429.51    451.21
        ELEVATION    1071.43   1073.86   1075.09   1076.36   1078.00   1079.96   1080.05   1081.36   1081.99   1083.86

          STORAGE   16336.00  20732.00
          OUTFLOW     480.68    510.39
        ELEVATION    1086.40   1088.96
*****************************************************************************************************************************

                                  HYDROGRAPH AT    ROUTE
                                TRANSPOSITION AREA      0.0 SQ MI

*****************************************************************************************************************************
                                                                                                                                
                                                                                                                                
 DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                           *                                           *
  1 JAN 0000  1      33.      0.0  1061.4 * 3 JAN 0735 668     510.  20725.7  1089.0 * 5 JAN 15101335     495.  18418.0  1087.6
  1 JAN 0005  2       0.      0.0  1061.4 * 3 JAN 0740 669     510.  20722.1  1089.0 * 5 JAN 15151336     495.  18414.6  1087.6
  1 JAN 0010  3      33.      0.0  1061.4 * 3 JAN 0745 670     510.  20718.6  1089.0 * 5 JAN 15201337     495.  18411.3  1087.6
  1 JAN 0015  4       0.      0.0  1061.4 * 3 JAN 0750 671     510.  20715.0  1089.0 * 5 JAN 15251338     495.  18407.9  1087.6
  1 JAN 0020  5      33.      0.0  1061.4 * 3 JAN 0755 672     510.  20711.5  1088.9 * 5 JAN 15301339     495.  18404.6  1087.6
  1 JAN 0025  6       0.      0.0  1061.4 * 3 JAN 0800 673     510.  20707.9  1088.9 * 5 JAN 15351340     495.  18401.2  1087.6
  1 JAN 0030  7      33.      0.0  1061.4 * 3 JAN 0805 674     510.  20704.3  1088.9 * 5 JAN 15401341     495.  18397.8  1087.6
  1 JAN 0035  8       0.      0.0  1061.4 * 3 JAN 0810 675     510.  20700.8  1088.9 * 5 JAN 15451342     495.  18394.5  1087.6
  1 JAN 0040  9      33.      0.0  1061.4 * 3 JAN 0815 676     510.  20697.2  1088.9 * 5 JAN 15501343     495.  18391.1  1087.6
  1 JAN 0045 10       0.      0.0  1061.4 * 3 JAN 0820 677     510.  20693.6  1088.9 * 5 JAN 15551344     495.  18387.8  1087.6
  1 JAN 0050 11      33.      0.0  1061.4 * 3 JAN 0825 678     510.  20690.1  1088.9 * 5 JAN 16001345     495.  18384.4  1087.6
  1 JAN 0055 12      33.      0.0  1061.4 * 3 JAN 0830 679     510.  20686.5  1088.9 * 5 JAN 16051346     495.  18381.1  1087.6
  1 JAN 0100 13      33.      0.0  1061.4 * 3 JAN 0835 680     510.  20682.9  1088.9 * 5 JAN 16101347     494.  18377.7  1087.6
  1 JAN 0105 14      33.      0.0  1061.4 * 3 JAN 0840 681     510.  20679.4  1088.9 * 5 JAN 16151348     494.  18374.4  1087.6
  1 JAN 0110 15      33.      0.1  1061.4 * 3 JAN 0845 682     510.  20675.8  1088.9 * 5 JAN 16201349     494.  18371.0  1087.6
  1 JAN 0115 16      33.      0.2  1061.4 * 3 JAN 0850 683     510.  20672.3  1088.9 * 5 JAN 16251350     494.  18367.7  1087.6
  1 JAN 0120 17      34.      0.3  1061.4 * 3 JAN 0855 684     510.  20668.7  1088.9 * 5 JAN 16301351     494.  18364.3  1087.6
  1 JAN 0125 18      34.      0.5  1061.4 * 3 JAN 0900 685     510.  20665.1  1088.9 * 5 JAN 16351352     494.  18361.0  1087.6
  1 JAN 0130 19      34.      0.7  1061.4 * 3 JAN 0905 686     510.  20661.6  1088.9 * 5 JAN 16401353     494.  18357.6  1087.6
  1 JAN 0135 20      34.      1.0  1061.4 * 3 JAN 0910 687     510.  20658.0  1088.9 * 5 JAN 16451354     494.  18354.2  1087.6
  1 JAN 0140 21      34.      1.3  1061.4 * 3 JAN 0915 688     510.  20654.4  1088.9 * 5 JAN 16501355     494.  18350.9  1087.6
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1	JAN	0145	22	34.	1.7	1061.4	*	3	JAN	0920	689	510.	20650.9	1088.9	*	5 JAN 16551356	494. 18347.5 1087.6
1	JAN	0150	23	35.	2.1	1061.5	*	3	JAN	0925	690	510.	20647.3	1088.9	*	5 JAN 17001357	494. 18344.2 1087.6
1	JAN	0155	24	35.	2.5	1061.5	*	3	JAN	0930	691	510.	20643.7	1088.9	*	5 JAN 17051358	494. 18340.8 1087.6
1	JAN	0200	25	35.	3.0	1061.5	*	3	JAN	0935	692	510.	20640.2	1088.9	*	5 JAN 17101359	494. 18337.5 1087.6
1	JAN	0205	26	35.	3.5	1061.5	*	3	JAN	0940	693	510.	20636.6	1088.9	*	5 JAN 17151360	494. 18334.1 1087.6
1	JAN	0210	27	36.	4.1	1061.5	*	3	JAN	0945	694	510.	20633.1	1088.9	*	5 JAN 17201361	494. 18330.8 1087.6
1	JAN	0215	28	36.	4.7	1061.5	*	3	JAN	0950	695	510.	20629.5	1088.9	*	5 JAN 17251362	494. 18327.4 1087.6
1	JAN	0220	29	36.	5.3	1061.5	*	3	JAN	0955	696	510.	20625.9	1088.9	*	5 JAN 17301363	494. 18324.1 1087.6
1	JAN	0225	30	37.	6.1	1061.5	*	3	JAN	1000	697	510.	20622.4	1088.9	*	5 JAN 17351364	494. 18320.7 1087.6
1	JAN	0230	31	37.	6.9	1061.6	*	3	JAN	1005	698	510.	20618.8	1088.9	*	5 JAN 17401365	494. 18317.4 1087.6
1	JAN	0235	32	38.	7.7	1061.6	*	3	JAN	1010	699	510.	20615.2	1088.9	*	5 JAN 17451366	494. 18314.0 1087.6
1	JAN	0240	33	38.	8.7	1061.6	*	3	JAN	1015	700	510.	20611.7	1088.9	*	5 JAN 17501367	494. 18310.6 1087.5
1	JAN	0245	34	39.	10.0	1061.6	*	3	JAN	1020	701	510.	20608.1	1088.9	*	5 JAN 17551368	494. 18307.3 1087.5
1	JAN	0250	35	40.	11.6	1061.7	*	3	JAN	1025	702	510.	20604.5	1088.9	*	5 JAN 18001369	494. 18303.9 1087.5
1	JAN	0255	36	41.	13.9	1061.7	*	3	JAN	1030	703	510.	20601.0	1088.9	*	5 JAN 18051370	494. 18300.6 1087.5
1	JAN	0300	37	43.	17.0	1061.8	*	3	JAN	1035	704	509.	20597.4	1088.9	*	5 JAN 18101371	494. 18297.2 1087.5
1	JAN	0305	38	46.	21.3	1061.9	*	3	JAN	1040	705	509.	20593.9	1088.9	*	5 JAN 18151372	494. 18293.9 1087.5
1	JAN	0310	39	54.	35.6	1062.3	*	3	JAN	1045	706	509.	20590.3	1088.9	*	5 JAN 18201373	494. 18290.5 1087.5
1	JAN	0315	40	71.	65.8	1063.0	*	3	JAN	1050	707	509.	20586.7	1088.9	*	5 JAN 18251374	494. 18287.2 1087.5
1	JAN	0320	41	93.	111.7	1063.9	*	3	JAN	1055	708	509.	20583.2	1088.9	*	5 JAN 18301375	494. 18283.8 1087.5
1	JAN	0325	42	102.	176.1	1064.3	*	3	JAN	1100	709	509.	20579.6	1088.9	*	5 JAN 18351376	494. 18280.5 1087.5
1	JAN	0330	43	121.	266.1	1064.8	*	3	JAN	1105	710	509.	20576.0	1088.9	*	5 JAN 18401377	494. 18277.1 1087.5
1	JAN	0335	44	148.	390.0	1065.6	*	3	JAN	1110	711	509.	20572.5	1088.9	*	5 JAN 18451378	494. 18273.8 1087.5
1	JAN	0340	45	177.	550.4	1066.4	*	3	JAN	1115	712	509.	20568.9	1088.9	*	5 JAN 18501379	494. 18270.4 1087.5
1	JAN	0345	46	198.	748.0	1067.1	*	3	JAN	1120	713	509.	20565.3	1088.9	*	5 JAN 18551380	494. 18267.0 1087.5
1	JAN	0350	47	219.	982.9	1067.9	*	3	JAN	1125	714	509.	20561.8	1088.9	*	5 JAN 19001381	494. 18263.7 1087.5
1	JAN	0355	48	238.	1253.8	1068.8	*	3	JAN	1130	715	509.	20558.2	1088.9	*	5 JAN 19051382	494. 18260.3 1087.5
1	JAN	0400	49	254.	1559.6	1069.6	*	3	JAN	1135	716	509.	20554.7	1088.9	*	5 JAN 19101383	494. 18257.0 1087.5
1	JAN	0405	50	269.	1896.0	1070.5	*	3	JAN	1140	717	509.	20551.1	1088.9	*	5 JAN 19151384	494. 18253.6 1087.5
1	JAN	0410	51	286.	2263.4	1071.4	*	3	JAN	1145	718	509.	20547.5	1088.9	*	5 JAN 19201385	494. 18250.3 1087.5
1	JAN	0415	52	300.	2663.8	1072.2	*	3	JAN	1150	719	509.	20544.0	1088.9	*	5 JAN 19251386	494. 18246.9 1087.5
1	JAN	0420	53	315.	3092.8	1073.1	*	3	JAN	1155	720	509.	20540.4	1088.8	*	5 JAN 19301387	494. 18243.6 1087.5
1	JAN	0425	54	331.	3544.6	1073.9	*	3	JAN	1200	721	509.	20536.8	1088.8	*	5 JAN 19351388	494. 18240.2 1087.5
1	JAN	0430	55	344.	4012.0	1074.7	*	3	JAN	1205	722	509.	20533.3	1088.8	*	5 JAN 19401389	494. 18236.9 1087.5
1	JAN	0435	56	355.	4488.7	1075.4	*	3	JAN	1210	723	509.	20529.7	1088.8	*	5 JAN 19451390	494. 18233.5 1087.5
1	JAN	0440	57	363.	4970.7	1076.2	*	3	JAN	1215	724	509.	20526.2	1088.8	*	5 JAN 19501391	493. 18230.2 1087.5
1	JAN	0445	58	369.	5458.4	1076.8	*	3	JAN	1220	725	509.	20522.6	1088.8	*	5 JAN 19551392	493. 18226.8 1087.5
1	JAN	0450	59	375.	5956.1	1077.4	*	3	JAN	1225	726	509.	20519.0	1088.8	*	5 JAN 20001393	493. 18223.4 1087.5
1	JAN	0455	60	381.	6467.7	1078.0	*	3	JAN	1230	727	509.	20515.5	1088.8	*	5 JAN 20051394	493. 18220.1 1087.5
1	JAN	0500	61	389.	6998.0	1078.7	*	3	JAN	1235	728	509.	20511.9	1088.8	*	5 JAN 20101395	493. 18216.7 1087.5
1	JAN	0505	62	398.	7550.3	1079.3	*	3	JAN	1240	729	509.	20508.3	1088.8	*	5 JAN 20151396	493. 18213.4 1087.5
1	JAN	0510	63	406.	8123.3	1080.0	*	3	JAN	1245	730	509.	20504.8	1088.8	*	5 JAN 20201397	493. 18210.0 1087.5
1	JAN	0515	64	413.	8718.7	1080.6	*	3	JAN	1250	731	509.	20501.2	1088.8	*	5 JAN 20251398	493. 18206.7 1087.5
1	JAN	0520	65	420.	9330.1	1081.1	*	3	JAN	1255	732	509.	20497.6	1088.8	*	5 JAN 20301399	493. 18203.3 1087.5
1	JAN	0525	66	426.	9953.3	1081.7	*	3	JAN	1300	733	509.	20494.1	1088.8	*	5 JAN 20351400	493. 18200.0 1087.5
1	JAN	0530	67	432.	10585.8	1082.2	*	3	JAN	1305	734	509.	20490.5	1088.8	*	5 JAN 20401401	493. 18196.6 1087.5
1	JAN	0535	68	438.	11226.5	1082.7	*	3	JAN	1310	735	509.	20487.0	1088.8	*	5 JAN 20451402	493. 18193.3 1087.5
1	JAN	0540	69	444.	11876.2	1083.2	*	3	JAN	1315	736	509.	20483.4	1088.8	*	5 JAN 20501403	493. 18189.9 1087.5
1	JAN	0545	70	450.	12535.3	1083.8	*	3	JAN	1320	737	509.	20479.8	1088.8	*	5 JAN 20551404	493. 18186.6 1087.5
1	JAN	0550	71	456.	13202.4	1084.3	*	3	JAN	1325	738	509.	20476.3	1088.8	*	5 JAN 21001405	493. 18183.2 1087.5
1	JAN	0555	72	461.	13876.6	1084.7	*	3	JAN	1330	739	509.	20472.7	1088.8	*	5 JAN 21051406	493. 18179.8 1087.5
1	JAN	0600	73	467.	14551.1	1085.2	*	3	JAN	1335	740	509.	20469.1	1088.8	*	5 JAN 21101407	493. 18176.5 1087.5
1	JAN	0605	74	472.	15219.2	1085.6	*	3	JAN	1340	741	509.	20465.6	1088.8	*	5 JAN 21151408	493. 18173.1 1087.5
1	JAN	0610	75	477.	15874.1	1086.1	*	3	JAN	1345	742	509.	20462.0	1088.8	*	5 JAN 21201409	493. 18169.8 1087.5
1	JAN	0615	76	482.	16509.6	1086.5	*	3	JAN	1350	743	509.	20458.4	1088.8	*	5 JAN 21251410	493. 18166.4 1087.5
1	JAN	0620	77	486.	17121.0	1086.9	*	3	JAN	1355	744	509.	20454.9	1088.8	*	5 JAN 21301411	493. 18163.1 1087.5
1	JAN	0625	78	490.	17705.5	1087.2	*	3	JAN	1400	745	508.	20451.3	1088.8	*	5 JAN 21351412	493. 18159.7 1087.5
1	JAN	0630	79	494.	18260.5	1087.5	*	3	JAN	1405	746	508.	20447.8	1088.8	*	5 JAN 21401413	493. 18156.4 1087.5
1	JAN	0635	80	497.	18785.7	1087.8	*	3	JAN	1410	747	508.	20444.2	1088.8	*	5 JAN 21451414	493. 18153.0 1087.5
1	JAN	0640	81	501.	19280.4	1088.1	*	3	JAN	1415	748	508.	20440.6	1088.8	*	5 JAN 21501415	493. 18149.7 1087.5
1	JAN	0645	82	504.	19745.1	1088.4	*	3	JAN	1420	749	508.	20437.1	1088.8	*	5 JAN 21551416	493. 18146.3 1087.5
1	JAN	0650	83	507.	20181.3	1088.6	*	3	JAN	1425	750	508.	20433.5	1088.8	*	5 JAN 22001417	493. 18142.9 1087.5
1	JAN	0655	84	509.	20589.7	1088.9	*	3	JAN	1430	751	508.	20429.9	1088.8	*	5 JAN 22051418	493. 18139.6 1087.5
1	JAN	0700	85	512.	20971.2	1089.1	*	3	JAN	1435	752	508.	20426.4	1088.8	*	5 JAN 22101419	493. 18136.2 1087.4
1	JAN	0705	86	514.	21328.0	1089.3	*	3	JAN	1440	753	508.	20422.8	1088.8	*	5 JAN 22151420	493. 18132.9 1087.4
1	JAN	0710	87	517.	21661.9	1089.5	*	3	JAN	1445	754	508.	20419.2	1088.8	*	5 JAN 22201421	493. 18129.5 1087.4
1	JAN	0715	88	519.	21973.2	1089.7	*	3	JAN	1450	755	508.	20415.7	1088.8	*	5 JAN 22251422	493. 18126.2 1087.4
1	JAN	0720	89	521.	22263.7	1089.9	*	3	JAN	1455	756	508.	20412.1	1088.8	*	5 JAN 22301423	493. 18122.8 1087.4
1	JAN	0725	90	1169.	22532.0	1090.0	*	3	JAN	1500	757	508.	20408.6	1088.8	*	5 JAN 22351424	493. 18119.5 1087.4
1	JAN	0730	91	2786.	22774.6	1090.1	*	3	JAN	1505	758	508.	20405.0	1088.8	*	5 JAN 22401425	493. 18116.1 1087.4
1	JAN	0735	92	4676.	22988.2	1090.3	*	3	JAN	1510	759	508.	20401.4	1088.8	*	5 JAN 22451426	493. 18112.8 1087.4
1	JAN	0740	93	6590.	23172.6	1090.4	*	3	JAN	1515	760	508.	20397.9	1088.8	*	5 JAN 22501427	493. 18109.4 1087.4
1	JAN	0745	94	8401.	23329.9	1090.5	*	3	JAN	1520	761	508.	20394.3	1088.8	*	5 JAN 22551428	493. 18106.1 1087.4
1	JAN	0750	95	10020.	23460.5	1090.5	*	3	JAN	1525	762	508.	20390.7	1088.8	*	5 JAN 23001429	493. 18102.7 1087.4
1	JAN	0755	96	11417.	23567.1	1090.6	*	3	JAN	1530	763	508.	20387.2	1088.8	*	5 JAN 23051430	493. 18099.3 1087.4
1	JAN	0800	97	12581.	23652.7	1090.7	*	3	JAN	1535	764	508.	20383.6	1088.8	*	5 JAN 23101431	493. 18096.0 1087.4
1	JAN	0805	98	13522.	23719.8	1090.7	*	3	JAN	1540	765	508.	20380.0	1088.8	*	5 JAN 23151432	493. 18092.6 1087.4
1	JAN	0810	99	14248.	23770.5	1090.7	*	3	JAN	1545	766	508.	20376.5	1088.8	*	5 JAN 23201433	493. 18089.3 1087.4
1	JAN	0815	100	14782.	23807.2	1090.8	*	3	JAN	1550	767	508.	20372.9	1088.8	*	5 JAN 23251434	493. 18085.9 1087.4
1	JAN	0820	101	15143.	23831.7	1090.8	*	3	JAN	1555	768	508.	20369.4	1088.7	*	5 JAN 23301435	492. 18082.6 1087.4
1	JAN	0825	102	15354.	23845.9	1090.8	*	3	JAN	1600	769	508.	20365.8	1088.7	*	5 JAN 23351436	492. 18079.2 1087.4
1	JAN	0830	103	15434.	23851.4	1090.8	*	3	JAN	1605	770	508.	20362.2	1088.7	*	5 JAN 23401437	492. 18075.9 1087.4
1	JAN	0835	104	15406.	23849.5	1090.8	*	3	JAN	1610	771	508.	20358.7	1088.7	*	5 JAN 23451438	492. 18072.5 1087.4
1	JAN	0840	105	15285.	23841.3	1090.8	*	3	JAN	1615	772	508.	20355.1	1088.7	*	5 JAN 23501439	492. 18069.2 1087.4
1	JAN	0845	106	15087.	23827.9	1090.8	*	3	JAN	1620	773	508.	20351.5	1088.7	*	5 JAN 23551440	492. 18065.8 1087.4
1	JAN	0850	107	14828.	23810.3	1090.8	*	3	JAN	1625	774	508.	20348.0	1088.7	*	6 JAN 00001441	492. 18062.5 1087.4
1	JAN	0855	108	14522.	23789.3	1090.7	*	3	JAN	1630	775	508.	20344.4	1088.7	*	6 JAN 00051442	492. 18059.1 1087.4
1	JAN	0900	109	14176.	23765.5	1090.7	*	3	JAN	1635	776	508.	20340.8	1088.7	*	6 JAN 00101443	492. 18055.7 1087.4
1	JAN	0905	110	13799.	23739.2	1090.7	*	3	JAN	1640	777	508.	20337.3	1088.7	*	6 JAN 00151444	492. 18052.4 1087.4
1	JAN	0910	111	13403.	23711.4	1090.7	*	3	JAN	1645	778	508.	20333.7	1088.7	*	6 JAN 00201445	492. 18049.0 1087.4
1	JAN	0915	112	12990.	23682.0	1090.7	*	3	JAN	1650	779	508.	20330.2	1088.7	*	6 JAN 00251446	492. 18045.7 1087.4
1	JAN	0920	113	12570.	23651.8	1090.7	*	3	JAN	1655	780	508.	20326.6	1088.7	*	6 JAN 00301447	492. 18042.3 1087.4
1	JAN	0925	114	12140.	23620.6	1090.6	*	3	JAN	1700	781	508.	20323.0	1088.7	*	6 JAN 00351448	492. 18039.0 1087.4
1	JAN	0930	115	11701.	23588.3	1090.6	*	3	JAN	1705	782	508.	20319.5	1088.7	*	6 JAN 00401449	492. 18035.6 1087.4
1	JAN	0935	116	11260.	23555.4	1090.6	*	3	JAN	1710	783	508.	20315.9	1088.7	*	6 JAN 00451450	492. 18032.3 1087.4
1	JAN	0940	117	10819.	23522.1	1090.6	*	3	JAN	1715	784	508.	20312.3	1088.7	*	6 JAN 00501451	492. 18028.9 1087.4
1	JAN	0945	118	10382.	23488.5	1090.6	*	3	JAN	1720	785	508.	20308.8	1088.7	*	6 JAN 00551452	492. 18025.6 1087.4
1	JAN	0950	119	9954.	23455.2	1090.5	*	3	JAN	1725	786	508.	20305.2	1088.7	*	6 JAN 01001453	492. 18022.2 1087.4
1	JAN	0955	120	9537.	23422.3	1090.5	*	3	JAN	1730	787	507.	20301.6	1088.7	*	6 JAN 01051454	492. 18018.9 1087.4
1	JAN	1000	121	9134.	23390.0	1090.5	*	3	JAN	1735	788	507.	20298.1	1088.7	*	6 JAN 01101455	492. 18015.5 1087.4
1	JAN	1005	122	8746.	23358.4	1090.5	*	3	JAN	1740	789	507.	20294.5	1088.7	*	6 JAN 01151456	492. 18012.1 1087.4
1	JAN	1010	123	8368.	23327.1	1090.5	*	3	JAN	1745	790	507.	20291.0	1088.7	*	6 JAN 01201457	492. 18008.8 1087.4
1	JAN	1015	124	7999.	23296.1	1090.5	*	3	JAN	1750	791	507.	20287.4	1088.7	*	6 JAN 01251458	492. 18005.4 1087.4
1	JAN	1020	125	7643.	23265.7	1090.4	*	3	JAN	1755	792	507.	20283.8	1088.7	*	6 JAN 01301459	492. 18002.1 1087.4
1	JAN	1025	126	7300.	23235.9	1090.4	*	3	JAN	1800	793	507.	20280.3	1088.7	*	6 JAN 01351460	492. 17998.7 1087.4
1	JAN	1030	127	6972.	23207.0	1090.4	*	3	JAN	1805	794	507.	20276.7	1088.7	*	6 JAN 01401461	492. 17995.4 1087.4
1	JAN	1035	128	6659.	23178.9	1090.4	*	3	JAN	1810	795	507.	20273.1	1088.7	*	6 JAN 01451462	492. 17992.0 1087.4
1	JAN	1040	129	6358.	23151.5	1090.4	*	3	JAN	1815	796	507.	20269.6	1088.7	*	6 JAN 01501463	492. 17988.7 1087.4
1	JAN	1045	130	6069.	23124.6	1090.4	*	3	JAN	1820	797	507.	20266.0	1088.7	*	6 JAN 01551464	492. 17985.3 1087.4
1	JAN	1050	131	5791.	23098.4	1090.3	*	3	JAN	1825	798	507.	20262.4	1088.7	*	6 JAN 02001465	492. 17982.0 1087.4
1	JAN	1055	132	5525.	23072.9	1090.3	*	3	JAN	1830	799	507.	20258.9	1088.7	*	6 JAN 02051466	492. 17978.6 1087.4
1	JAN	1100	133	5269.	23047.9	1090.3	*	3	JAN	1835	800	507.	20255.3	1088.7	*	6 JAN 02101467	492. 17975.3 1087.4
1	JAN	1105	134	5027.	23023.8	1090.3	*	3	JAN	1840	801	507.	20251.8	1088.7	*	6 JAN 02151468	492. 17971.9 1087.4
1	JAN	1110	135	4797.	23000.5	1090.3	*	3	JAN	1845	802	507.	20248.2	1088.7	*	6 JAN 02201469	492. 17968.5 1087.4

1 JAN 1115 136	4579.	22978.1	1090.3 *	3 JAN 1850 803	507.	20244.6	1088.7 *	6 JAN 02251470	492.	17965.2	1087.3
1 JAN 1120 137	4373.	22956.5	1090.3 *	3 JAN 1855 804	507.	20241.1	1088.7 *	6 JAN 02301471	492.	17961.8	1087.3
1 JAN 1125 138	4178.	22935.8	1090.2 *	3 JAN 1900 805	507.	20237.5	1088.7 *	6 JAN 02351472	492.	17958.5	1087.3
1 JAN 1130 139	3992.	22915.6	1090.2 *	3 JAN 1905 806	507.	20233.9	1088.7 *	6 JAN 02401473	492.	17955.1	1087.3
1 JAN 1135 140	3818.	22896.4	1090.2 *	3 JAN 1910 807	507.	20230.4	1088.7 *	6 JAN 02451474	492.	17951.8	1087.3
1 JAN 1140 141	3651.	22877.7	1090.2 *	3 JAN 1915 808	507.	20226.8	1088.7 *	6 JAN 02501475	492.	17948.4	1087.3
1 JAN 1145 142	3495.	22859.9	1090.2 *	3 JAN 1920 809	507.	20223.2	1088.7 *	6 JAN 02551476	492.	17945.1	1087.3
1 JAN 1150 143	3347.	22842.7	1090.2 *	3 JAN 1925 810	507.	20219.7	1088.7 *	6 JAN 03001477	492.	17941.7	1087.3
1 JAN 1155 144	3207.	22826.1	1090.2 *	3 JAN 1930 811	507.	20216.1	1088.7 *	6 JAN 03051478	492.	17938.4	1087.3
1 JAN 1200 145	3075.	22810.2	1090.2 *	3 JAN 1935 812	507.	20212.6	1088.7 *	6 JAN 03101479	491.	17935.0	1087.3
1 JAN 1205 146	2949.	22794.9	1090.2 *	3 JAN 1940 813	507.	20209.0	1088.7 *	6 JAN 03151480	491.	17931.6	1087.3
1 JAN 1210 147	2831.	22780.2	1090.2 *	3 JAN 1945 814	507.	20205.4	1088.7 *	6 JAN 03201481	491.	17928.3	1087.3
1 JAN 1215 148	2720.	22766.2	1090.1 *	3 JAN 1950 815	507.	20201.9	1088.7 *	6 JAN 03251482	491.	17924.9	1087.3
1 JAN 1220 149	2614.	22752.6	1090.1 *	3 JAN 1955 816	507.	20198.3	1088.6 *	6 JAN 03301483	491.	17921.6	1087.3
1 JAN 1225 150	2514.	22739.6	1090.1 *	3 JAN 2000 817	507.	20194.7	1088.6 *	6 JAN 03351484	491.	17918.2	1087.3
1 JAN 1230 151	2420.	22727.0	1090.1 *	3 JAN 2005 818	507.	20191.2	1088.6 *	6 JAN 03401485	491.	17914.9	1087.3
1 JAN 1235 152	2329.	22714.8	1090.1 *	3 JAN 2010 819	507.	20187.6	1088.6 *	6 JAN 03451486	491.	17911.5	1087.3
1 JAN 1240 153	2242.	22702.9	1090.1 *	3 JAN 2015 820	507.	20184.0	1088.6 *	6 JAN 03501487	491.	17908.2	1087.3
1 JAN 1245 154	2159.	22691.3	1090.1 *	3 JAN 2020 821	507.	20180.5	1088.6 *	6 JAN 03551488	491.	17904.8	1087.3
1 JAN 1250 155	2081.	22680.2	1090.1 *	3 JAN 2025 822	507.	20176.9	1088.6 *	6 JAN 04001489	491.	17901.5	1087.3
1 JAN 1255 156	2005.	22669.3	1090.1 *	3 JAN 2030 823	507.	20173.4	1088.6 *	6 JAN 04051490	491.	17898.1	1087.3
1 JAN 1300 157	1932.	22658.6	1090.1 *	3 JAN 2035 824	507.	20169.8	1088.6 *	6 JAN 04101491	491.	17894.8	1087.3
1 JAN 1305 158	1862.	22648.2	1090.1 *	3 JAN 2040 825	507.	20166.2	1088.6 *	6 JAN 04151492	491.	17891.4	1087.3
1 JAN 1310 159	1794.	22637.9	1090.1 *	3 JAN 2045 826	507.	20162.7	1088.6 *	6 JAN 04201493	491.	17888.0	1087.3
1 JAN 1315 160	1729.	22627.8	1090.1 *	3 JAN 2050 827	507.	20159.1	1088.6 *	6 JAN 04251494	491.	17884.7	1087.3
1 JAN 1320 161	1666.	22618.0	1090.1 *	3 JAN 2055 828	506.	20155.5	1088.6 *	6 JAN 04301495	491.	17881.3	1087.3
1 JAN 1325 162	1606.	22608.3	1090.1 *	3 JAN 2100 829	506.	20152.0	1088.6 *	6 JAN 04351496	491.	17878.0	1087.3
1 JAN 1330 163	1549.	22599.1	1090.0 *	3 JAN 2105 830	506.	20148.4	1088.6 *	6 JAN 04401497	491.	17874.6	1087.3
1 JAN 1335 164	1494.	22590.1	1090.0 *	3 JAN 2110 831	506.	20144.8	1088.6 *	6 JAN 04451498	491.	17871.3	1087.3
1 JAN 1340 165	1442.	22581.3	1090.0 *	3 JAN 2115 832	506.	20141.3	1088.6 *	6 JAN 04501499	491.	17867.9	1087.3
1 JAN 1345 166	1392.	22572.7	1090.0 *	3 JAN 2120 833	506.	20137.7	1088.6 *	6 JAN 04551500	491.	17864.6	1087.3
1 JAN 1350 167	1346.	22564.5	1090.0 *	3 JAN 2125 834	506.	20134.2	1088.6 *	6 JAN 05001501	491.	17861.2	1087.3
1 JAN 1355 168	1301.	22556.6	1090.0 *	3 JAN 2130 835	506.	20130.6	1088.6 *	6 JAN 05051502	491.	17857.9	1087.3
1 JAN 1400 169	1258.	22548.8	1090.0 *	3 JAN 2135 836	506.	20127.0	1088.6 *	6 JAN 05101503	491.	17854.5	1087.3
1 JAN 1405 170	1217.	22541.3	1090.0 *	3 JAN 2140 837	506.	20123.5	1088.6 *	6 JAN 05151504	491.	17851.2	1087.3
1 JAN 1410 171	1178.	22533.9	1090.0 *	3 JAN 2145 838	506.	20119.9	1088.6 *	6 JAN 05201505	491.	17847.8	1087.3
1 JAN 1415 172	1141.	22526.8	1090.0 *	3 JAN 2150 839	506.	20116.3	1088.6 *	6 JAN 05251506	491.	17844.4	1087.3
1 JAN 1420 173	1106.	22519.9	1090.0 *	3 JAN 2155 840	506.	20112.8	1088.6 *	6 JAN 05301507	491.	17841.1	1087.3
1 JAN 1425 174	1073.	22513.2	1090.0 *	3 JAN 2200 841	506.	20109.2	1088.6 *	6 JAN 05351508	491.	17837.7	1087.3
1 JAN 1430 175	1041.	22506.7	1090.0 *	3 JAN 2205 842	506.	20105.6	1088.6 *	6 JAN 05401509	491.	17834.4	1087.3
1 JAN 1435 176	1010.	22500.4	1090.0 *	3 JAN 2210 843	506.	20102.1	1088.6 *	6 JAN 05451510	491.	17831.0	1087.3
1 JAN 1440 177	981.	22494.1	1090.0 *	3 JAN 2215 844	506.	20098.5	1088.6 *	6 JAN 05501511	491.	17827.7	1087.3
1 JAN 1445 178	953.	22488.0	1090.0 *	3 JAN 2220 845	506.	20095.0	1088.6 *	6 JAN 05551512	491.	17824.3	1087.3
1 JAN 1450 179	926.	22482.1	1090.0 *	3 JAN 2225 846	506.	20091.4	1088.6 *	6 JAN 06001513	491.	17821.0	1087.3
1 JAN 1455 180	901.	22476.5	1090.0 *	3 JAN 2230 847	506.	20087.8	1088.6 *	6 JAN 06051514	491.	17817.6	1087.3
1 JAN 1500 181	878.	22471.0	1090.0 *	3 JAN 2235 848	506.	20084.3	1088.6 *	6 JAN 06101515	491.	17814.3	1087.3
1 JAN 1505 182	855.	22465.6	1090.0 *	3 JAN 2240 849	506.	20080.7	1088.6 *	6 JAN 06151516	491.	17810.9	1087.3
1 JAN 1510 183	833.	22460.3	1090.0 *	3 JAN 2245 850	506.	20077.1	1088.6 *	6 JAN 06201517	491.	17807.6	1087.3
1 JAN 1515 184	812.	22455.3	1090.0 *	3 JAN 2250 851	506.	20073.6	1088.6 *	6 JAN 06251518	491.	17804.2	1087.3
1 JAN 1520 185	793.	22450.3	1090.0 *	3 JAN 2255 852	506.	20070.0	1088.6 *	6 JAN 06301519	491.	17800.8	1087.3
1 JAN 1525 186	774.	22445.5	1090.0 *	3 JAN 2300 853	506.	20066.4	1088.6 *	6 JAN 06351520	491.	17797.5	1087.3
1 JAN 1530 187	756.	22440.6	1090.0 *	3 JAN 2305 854	506.	20062.9	1088.6 *	6 JAN 06401521	491.	17794.1	1087.2
1 JAN 1535 188	739.	22436.0	1090.0 *	3 JAN 2310 855	506.	20059.3	1088.6 *	6 JAN 06451522	491.	17790.8	1087.2
1 JAN 1540 189	723.	22431.6	1089.9 *	3 JAN 2315 856	506.	20055.8	1088.6 *	6 JAN 06501523	490.	17787.4	1087.2
1 JAN 1545 190	708.	22427.2	1089.9 *	3 JAN 2320 857	506.	20052.2	1088.6 *	6 JAN 06551524	490.	17784.1	1087.2
1 JAN 1550 191	693.	22422.8	1089.9 *	3 JAN 2325 858	506.	20048.6	1088.6 *	6 JAN 07001525	490.	17780.7	1087.2
1 JAN 1555 192	679.	22418.6	1089.9 *	3 JAN 2330 859	506.	20045.1	1088.6 *	6 JAN 07051526	490.	17777.4	1087.2
1 JAN 1600 193	665.	22414.4	1089.9 *	3 JAN 2335 860	506.	20041.5	1088.6 *	6 JAN 07101527	490.	17774.0	1087.2
1 JAN 1605 194	653.	22410.4	1089.9 *	3 JAN 2340 861	506.	20037.9	1088.6 *	6 JAN 07151528	490.	17770.7	1087.2
1 JAN 1610 195	641.	22406.5	1089.9 *	3 JAN 2345 862	506.	20034.4	1088.6 *	6 JAN 07201529	490.	17767.3	1087.2
1 JAN 1615 196	629.	22402.5	1089.9 *	3 JAN 2350 863	506.	20030.8	1088.6 *	6 JAN 07251530	490.	17764.0	1087.2
1 JAN 1620 197	618.	22398.7	1089.9 *	3 JAN 2355 864	506.	20027.2	1088.5 *	6 JAN 07301531	490.	17760.6	1087.2
1 JAN 1625 198	608.	22394.9	1089.9 *	4 JAN 0000 865	506.	20023.7	1088.5 *	6 JAN 07351532	490.	17757.2	1087.2
1 JAN 1630 199	598.	22391.2	1089.9 *	4 JAN 0005 866	506.	20020.1	1088.5 *	6 JAN 07401533	490.	17753.9	1087.2
1 JAN 1635 200	589.	22387.6	1089.9 *	4 JAN 0010 867	506.	20016.6	1088.5 *	6 JAN 07451534	490.	17750.5	1087.2
1 JAN 1640 201	581.	22384.0	1089.9 *	4 JAN 0015 868	506.	20013.0	1088.5 *	6 JAN 07501535	490.	17747.2	1087.2
1 JAN 1645 202	573.	22380.5	1089.9 *	4 JAN 0020 869	506.	20009.4	1088.5 *	6 JAN 07551536	490.	17743.8	1087.2
1 JAN 1650 203	565.	22376.9	1089.9 *	4 JAN 0025 870	505.	20005.9	1088.5 *	6 JAN 08001537	490.	17740.5	1087.2
1 JAN 1655 204	558.	22373.6	1089.9 *	4 JAN 0030 871	505.	20002.3	1088.5 *	6 JAN 08051538	490.	17737.1	1087.2
1 JAN 1700 205	551.	22370.2	1089.9 *	4 JAN 0035 872	505.	19998.7	1088.5 *	6 JAN 08101539	490.	17733.8	1087.2
1 JAN 1705 206	545.	22366.8	1089.9 *	4 JAN 0040 873	505.	19995.2	1088.5 *	6 JAN 08151540	490.	17730.4	1087.2
1 JAN 1710 207	540.	22363.5	1089.9 *	4 JAN 0045 874	505.	19991.6	1088.5 *	6 JAN 08201541	490.	17727.1	1087.2
1 JAN 1715 208	535.	22360.1	1089.9 *	4 JAN 0050 875	505.	19988.0	1088.5 *	6 JAN 08251542	490.	17723.7	1087.2
1 JAN 1720 209	530.	22356.8	1089.9 *	4 JAN 0055 876	505.	19984.5	1088.5 *	6 JAN 08301543	490.	17720.3	1087.2
1 JAN 1725 210	526.	22353.4	1089.9 *	4 JAN 0100 877	505.	19980.9	1088.5 *	6 JAN 08351544	490.	17717.0	1087.2
1 JAN 1730 211	523.	22350.1	1089.9 *	4 JAN 0105 878	505.	19977.4	1088.5 *	6 JAN 08401545	490.	17713.6	1087.2
1 JAN 1735 212	521.	22346.7	1089.9 *	4 JAN 0110 879	505.	19973.8	1088.5 *	6 JAN 08451546	490.	17710.3	1087.2
1 JAN 1740 213	521.	22343.4	1089.9 *	4 JAN 0115 880	505.	19970.2	1088.5 *	6 JAN 08501547	490.	17706.9	1087.2
1 JAN 1745 214	521.	22340.0	1089.9 *	4 JAN 0120 881	505.	19966.7	1088.5 *	6 JAN 08551548	490.	17703.6	1087.2
1 JAN 1750 215	521.	22336.7	1089.9 *	4 JAN 0125 882	505.	19963.1	1088.5 *	6 JAN 09001549	490.	17700.2	1087.2
1 JAN 1755 216	521.	22333.3	1089.9 *	4 JAN 0130 883	505.	19959.5	1088.5 *	6 JAN 09051550	490.	17696.9	1087.2
1 JAN 1800 217	521.	22330.0	1089.9 *	4 JAN 0135 884	505.	19956.0	1088.5 *	6 JAN 09101551	490.	17693.5	1087.2
1 JAN 1805 218	521.	22326.6	1089.9 *	4 JAN 0140 885	505.	19952.4	1088.5 *	6 JAN 09151552	490.	17690.2	1087.2
1 JAN 1810 219	521.	22323.2	1089.9 *	4 JAN 0145 886	505.	19948.8	1088.5 *	6 JAN 09201553	490.	17686.8	1087.2
1 JAN 1815 220	521.	22319.9	1089.9 *	4 JAN 0150 887	505.	19945.3	1088.5 *	6 JAN 09251554	490.	17683.5	1087.2
1 JAN 1820 221	521.	22316.5	1089.9 *	4 JAN 0155 888	505.	19941.7	1088.5 *	6 JAN 09301555	490.	17680.1	1087.2
1 JAN 1825 222	521.	22313.2	1089.9 *	4 JAN 0200 889	505.	19938.2	1088.5 *	6 JAN 09351556	490.	17676.7	1087.2
1 JAN 1830 223	521.	22309.8	1089.9 *	4 JAN 0205 890	505.	19934.6	1088.5 *	6 JAN 09401557	490.	17673.4	1087.2
1 JAN 1835 224	521.	22306.5	1089.9 *	4 JAN 0210 891	505.	19931.0	1088.5 *	6 JAN 09451558	490.	17670.0	1087.2
1 JAN 1840 225	521.	22303.1	1089.9 *	4 JAN 0215 892	505.	19927.5	1088.5 *	6 JAN 09501559	490.	17666.7	1087.2
1 JAN 1845 226	521.	22299.8	1089.9 *	4 JAN 0220 893	505.	19923.9	1088.5 *	6 JAN 09551560	490.	17663.3	1087.2
1 JAN 1850 227	521.	22296.4	1089.9 *	4 JAN 0225 894	505.	19920.3	1088.5 *	6 JAN 10001561	490.	17660.0	1087.2
1 JAN 1855 228	521.	22293.1	1089.9 *	4 JAN 0230 895	505.	19916.8	1088.5 *	6 JAN 10051562	490.	17656.6	1087.2
1 JAN 1900 229	521.	22289.7	1089.9 *	4 JAN 0235 896	505.	19913.2	1088.5 *	6 JAN 10101563	490.	17653.3	1087.2
1 JAN 1905 230	521.	22286.4	1089.9 *	4 JAN 0240 897	505.	19909.7	1088.5 *	6 JAN 10151564	490.	17649.9	1087.2
1 JAN 1910 231	521.	22283.0	1089.9 *	4 JAN 0245 898	505.	19906.1	1088.5 *	6 JAN 10201565	490.	17646.6	1087.2
1 JAN 1915 232	521.	22279.4	1089.9 *	4 JAN 0250 899	505.	19902.5	1088.5 *	6 JAN 10251566	490.	17643.2	1087.2
1 JAN 1920 233	521.	22275.9	1089.9 *	4 JAN 0255 900	505.	19899.0	1088.5 *	6 JAN 10301567	489.	17639.9	1087.2
1 JAN 1925 234	521.	22272.3	1089.9 *	4 JAN 0300 901	505.	19895.4	1088.5 *	6 JAN 10351568	489.	17636.5	1087.2
1 JAN 1930 235	521.	22268.7	1089.9 *	4 JAN 0305 902	505.	19891.8	1088.5 *	6 JAN 10401569	489.	17633.1	1087.2
1 JAN 1935 236	521.	22265.2	1089.9 *	4 JAN 0310 903	505.	19888.3	1088.5 *	6 JAN 10451570	489.	17629.8	1087.2
1 JAN 1940 237	521.	22261.6	1089.9 *	4 JAN 0315 904	505.	19884.7	1088.5 *	6 JAN 10501571	489.	17626.4	1087.2
1 JAN 1945 238	521.	22258.1	1089.8 *	4 JAN 0320 905	505.	19881.1	1088.5 *	6 JAN 10551572	489.	17623.1	1087.1
1 JAN 1950 239	521.	22254.5	1089.8 *	4 JAN 0325 906	505.	19877.6	1088.5 *	6 JAN 11001573	489.	17619.7	1087.1
1 JAN 1955 240	521.	22250.9	1089.8 *	4 JAN 0330 907	505.	19874.0	1088.5 *	6 JAN 11051574	489.	17616.4	1087.1
1 JAN 2000 241	521.	22247.4	1089.8 *	4 JAN 0335 908	505.	19870.4	1088.5 *	6 JAN 11101575	489.	17613.0	1087.1
1 JAN 2005 242	521.	22243.8	1089.8 *	4 JAN 0340 909	505.	19866.9	1088.5 *	6 JAN 11151576	489.	17609.7	1087.1
1 JAN 2010 243	521.	22240.2	1089.8 *	4 JAN 0345 910	505.	19863.3	1088.5 *	6 JAN 11201577	489.	17606.3	1087.1
1 JAN 2015 244	521.	22236.7	1089.8 *	4 JAN 0350 911	504.	19859.8	1088.5 *	6 JAN 11251578	489.	17603.0	1087.1
1 JAN 2020 245	521.	22233.1	1089.8 *	4 JAN 0355 912	504.	19856.2	1088.4 *	6 JAN 11301579	489.	17599.6	1087.1
1 JAN 2025 246	521.	22229.5	1089.8 *	4 JAN 0400 913	504.	19852.6	1088.4 *	6 JAN 11351580	489.	17596.3	1087.1
1 JAN 2030 247	520.	22226.0	1089.8 *	4 JAN 0405 914	504.	19849.1	1088.4 *	6 JAN 11401581	489.	17592.9	1087.1
1 JAN 2035 248	520.	22222.4	1089.8 *	4 JAN 0410 915	504.	19845.5	1088.4 *	6 JAN 11451582	489.	17589.5	1087.1
1 JAN 2040 249	520.	22218.9	1089.8 *	4 JAN 0415 916	504.	19841.9	1088.4 *	6 JAN 11501583	489.	17586.2	1087.1

1	JAN	2045	250	520.	22215.3	1089.8	*	4	JAN	0420	917	504.	19838.4	1088.4	*	6	JAN	11551584	489.	17582.8	1087.1
1	JAN	2050	251	520.	22211.7	1089.8	*	4	JAN	0425	918	504.	19834.8	1088.4	*	6	JAN	12001585	489.	17579.5	1087.1
1	JAN	2055	252	520.	22208.2	1089.8	*	4	JAN	0430	919	504.	19831.3	1088.4	*	6	JAN	12051586	489.	17576.1	1087.1
1	JAN	2100	253	520.	22204.6	1089.8	*	4	JAN	0435	920	504.	19827.7	1088.4	*	6	JAN	12101587	489.	17572.8	1087.1
1	JAN	2105	254	520.	22201.0	1089.8	*	4	JAN	0440	921	504.	19824.1	1088.4	*	6	JAN	12151588	489.	17569.4	1087.1
1	JAN	2110	255	520.	22197.5	1089.8	*	4	JAN	0445	922	504.	19820.6	1088.4	*	6	JAN	12201589	489.	17566.1	1087.1
1	JAN	2115	256	520.	22193.9	1089.8	*	4	JAN	0450	923	504.	19817.0	1088.4	*	6	JAN	12251590	489.	17562.7	1087.1
1	JAN	2120	257	520.	22190.3	1089.8	*	4	JAN	0455	924	504.	19813.4	1088.4	*	6	JAN	12301591	489.	17559.4	1087.1
1	JAN	2125	258	520.	22186.8	1089.8	*	4	JAN	0500	925	504.	19809.9	1088.4	*	6	JAN	12351592	489.	17556.0	1087.1
1	JAN	2130	259	520.	22183.2	1089.8	*	4	JAN	0505	926	504.	19806.3	1088.4	*	6	JAN	12401593	489.	17552.7	1087.1
1	JAN	2135	260	520.	22179.7	1089.8	*	4	JAN	0510	927	504.	19802.7	1088.4	*	6	JAN	12451594	489.	17549.3	1087.1
1	JAN	2140	261	520.	22176.1	1089.8	*	4	JAN	0515	928	504.	19799.2	1088.4	*	6	JAN	12501595	489.	17545.9	1087.1
1	JAN	2145	262	520.	22172.5	1089.8	*	4	JAN	0520	929	504.	19795.6	1088.4	*	6	JAN	12551596	489.	17542.6	1087.1
1	JAN	2150	263	520.	22169.0	1089.8	*	4	JAN	0525	930	504.	19792.1	1088.4	*	6	JAN	13001597	489.	17539.2	1087.1
1	JAN	2155	264	520.	22165.4	1089.8	*	4	JAN	0530	931	504.	19788.5	1088.4	*	6	JAN	13051598	489.	17535.9	1087.1
1	JAN	2200	265	520.	22161.8	1089.8	*	4	JAN	0535	932	504.	19784.9	1088.4	*	6	JAN	13101599	489.	17532.5	1087.1
1	JAN	2205	266	520.	22158.3	1089.8	*	4	JAN	0540	933	504.	19781.4	1088.4	*	6	JAN	13151600	489.	17529.2	1087.1
1	JAN	2210	267	520.	22154.7	1089.8	*	4	JAN	0545	934	504.	19777.8	1088.4	*	6	JAN	13201601	489.	17525.8	1087.1
1	JAN	2215	268	520.	22151.1	1089.8	*	4	JAN	0550	935	504.	19774.2	1088.4	*	6	JAN	13251602	489.	17522.5	1087.1
1	JAN	2220	269	520.	22147.6	1089.8	*	4	JAN	0555	936	504.	19770.7	1088.4	*	6	JAN	13301603	489.	17519.1	1087.1
1	JAN	2225	270	520.	22144.0	1089.8	*	4	JAN	0600	937	504.	19767.1	1088.4	*	6	JAN	13351604	489.	17515.8	1087.1
1	JAN	2230	271	520.	22140.5	1089.8	*	4	JAN	0605	938	504.	19763.5	1088.4	*	6	JAN	13401605	489.	17512.4	1087.1
1	JAN	2235	272	520.	22136.9	1089.8	*	4	JAN	0610	939	504.	19760.0	1088.4	*	6	JAN	13451606	489.	17509.0	1087.1
1	JAN	2240	273	520.	22133.3	1089.8	*	4	JAN	0615	940	504.	19756.4	1088.4	*	6	JAN	13501607	489.	17505.7	1087.1
1	JAN	2245	274	520.	22129.8	1089.8	*	4	JAN	0620	941	504.	19752.9	1088.4	*	6	JAN	13551608	489.	17502.3	1087.1
1	JAN	2250	275	520.	22126.2	1089.8	*	4	JAN	0625	942	504.	19749.3	1088.4	*	6	JAN	14001609	489.	17499.0	1087.1
1	JAN	2255	276	520.	22122.6	1089.8	*	4	JAN	0630	943	504.	19745.7	1088.4	*	6	JAN	14051610	489.	17495.6	1087.1
1	JAN	2300	277	520.	22119.1	1089.8	*	4	JAN	0635	944	504.	19742.2	1088.4	*	6	JAN	14101611	488.	17492.3	1087.1
1	JAN	2305	278	520.	22115.5	1089.8	*	4	JAN	0640	945	504.	19738.6	1088.4	*	6	JAN	14151612	488.	17488.9	1087.1
1	JAN	2310	279	520.	22111.9	1089.8	*	4	JAN	0645	946	504.	19735.0	1088.4	*	6	JAN	14201613	488.	17485.6	1087.1
1	JAN	2315	280	520.	22108.4	1089.8	*	4	JAN	0650	947	504.	19731.5	1088.4	*	6	JAN	14251614	488.	17482.2	1087.1
1	JAN	2320	281	520.	22104.8	1089.8	*	4	JAN	0655	948	504.	19727.9	1088.4	*	6	JAN	14301615	488.	17478.9	1087.1
1	JAN	2325	282	520.	22101.3	1089.8	*	4	JAN	0700	949	504.	19724.3	1088.4	*	6	JAN	14351616	488.	17475.5	1087.1
1	JAN	2330	283	520.	22097.7	1089.8	*	4	JAN	0705	950	504.	19720.8	1088.4	*	6	JAN	14401617	488.	17472.2	1087.1
1	JAN	2335	284	520.	22094.1	1089.8	*	4	JAN	0710	951	504.	19717.2	1088.4	*	6	JAN	14451618	488.	17468.8	1087.1
1	JAN	2340	285	520.	22090.6	1089.8	*	4	JAN	0715	952	504.	19713.7	1088.4	*	6	JAN	14501619	488.	17465.4	1087.1
1	JAN	2345	286	520.	22087.0	1089.7	*	4	JAN	0720	953	503.	19710.1	1088.4	*	6	JAN	14551620	488.	17462.1	1087.1
1	JAN	2350	287	520.	22083.4	1089.7	*	4	JAN	0725	954	503.	19706.5	1088.4	*	6	JAN	15001621	488.	17458.7	1087.1
1	JAN	2355	288	519.	22079.9	1089.7	*	4	JAN	0730	955	503.	19703.0	1088.4	*	6	JAN	15051622	488.	17455.4	1087.1
2	JAN	0000	289	519.	22076.3	1089.7	*	4	JAN	0735	956	503.	19699.4	1088.4	*	6	JAN	15101623	488.	17452.0	1087.0
2	JAN	0005	290	519.	22072.7	1089.7	*	4	JAN	0740	957	503.	19695.8	1088.4	*	6	JAN	15151624	488.	17448.7	1087.0
2	JAN	0010	291	519.	22069.2	1089.7	*	4	JAN	0745	958	503.	19692.3	1088.4	*	6	JAN	15201625	488.	17445.3	1087.0
2	JAN	0015	292	519.	22065.6	1089.7	*	4	JAN	0750	959	503.	19688.7	1088.4	*	6	JAN	15251626	488.	17442.0	1087.0
2	JAN	0020	293	519.	22062.1	1089.7	*	4	JAN	0755	960	503.	19685.1	1088.4	*	6	JAN	15301627	488.	17438.6	1087.0
2	JAN	0025	294	519.	22058.5	1089.7	*	4	JAN	0800	961	503.	19681.6	1088.3	*	6	JAN	15351628	488.	17435.3	1087.0
2	JAN	0030	295	519.	22054.9	1089.7	*	4	JAN	0805	962	503.	19678.0	1088.3	*	6	JAN	15401629	488.	17431.9	1087.0
2	JAN	0035	296	519.	22051.4	1089.7	*	4	JAN	0810	963	503.	19674.5	1088.3	*	6	JAN	15451630	488.	17428.6	1087.0
2	JAN	0040	297	519.	22047.8	1089.7	*	4	JAN	0815	964	503.	19670.9	1088.3	*	6	JAN	15501631	488.	17425.2	1087.0
2	JAN	0045	298	519.	22044.2	1089.7	*	4	JAN	0820	965	503.	19667.3	1088.3	*	6	JAN	15551632	488.	17421.8	1087.0
2	JAN	0050	299	519.	22040.7	1089.7	*	4	JAN	0825	966	503.	19663.8	1088.3	*	6	JAN	16001633	488.	17418.5	1087.0
2	JAN	0055	300	519.	22037.1	1089.7	*	4	JAN	0830	967	503.	19660.2	1088.3	*	6	JAN	16051634	488.	17415.1	1087.0
2	JAN	0100	301	519.	22033.5	1089.7	*	4	JAN	0835	968	503.	19656.6	1088.3	*	6	JAN	16101635	488.	17411.8	1087.0
2	JAN	0105	302	519.	22030.0	1089.7	*	4	JAN	0840	969	503.	19653.1	1088.3	*	6	JAN	16151636	488.	17408.4	1087.0
2	JAN	0110	303	519.	22026.4	1089.7	*	4	JAN	0845	970	503.	19649.5	1088.3	*	6	JAN	16201637	488.	17405.1	1087.0
2	JAN	0115	304	519.	22022.9	1089.7	*	4	JAN	0850	971	503.	19645.9	1088.3	*	6	JAN	16251638	488.	17401.7	1087.0
2	JAN	0120	305	519.	22019.3	1089.7	*	4	JAN	0855	972	503.	19642.4	1088.3	*	6	JAN	16301639	488.	17398.4	1087.0
2	JAN	0125	306	519.	22015.7	1089.7	*	4	JAN	0900	973	503.	19638.8	1088.3	*	6	JAN	16351640	488.	17395.0	1087.0
2	JAN	0130	307	519.	22012.2	1089.7	*	4	JAN	0905	974	503.	19635.3	1088.3	*	6	JAN	16401641	488.	17391.7	1087.0
2	JAN	0135	308	519.	22008.6	1089.7	*	4	JAN	0910	975	503.	19631.7	1088.3	*	6	JAN	16451642	488.	17388.3	1087.0
2	JAN	0140	309	519.	22005.0	1089.7	*	4	JAN	0915	976	503.	19628.1	1088.3	*	6	JAN	16501643	488.	17385.0	1087.0
2	JAN	0145	310	519.	22001.5	1089.7	*	4	JAN	0920	977	503.	19624.6	1088.3	*	6	JAN	16551644	488.	17381.6	1087.0
2	JAN	0150	311	519.	21997.9	1089.7	*	4	JAN	0925	978	503.	19621.0	1088.3	*	6	JAN	17001645	488.	17378.2	1087.0
2	JAN	0155	312	519.	21994.3	1089.7	*	4	JAN	0930	979	503.	19617.4	1088.3	*	6	JAN	17051646	488.	17374.9	1087.0
2	JAN	0200	313	519.	21990.8	1089.7	*	4	JAN	0935	980	503.	19613.9	1088.3	*	6	JAN	17101647	488.	17371.5	1087.0
2	JAN	0205	314	519.	21987.2	1089.7	*	4	JAN	0940	981	503.	19610.3	1088.3	*	6	JAN	17151648	488.	17368.2	1087.0
2	JAN	0210	315	519.	21983.7	1089.7	*	4	JAN	0945	982	503.	19606.7	1088.3	*	6	JAN	17201649	488.	17364.8	1087.0
2	JAN	0215	316	519.	21980.1	1089.7	*	4	JAN	0950	983	503.	19603.2	1088.3	*	6	JAN	17251650	488.	17361.5	1087.0
2	JAN	0220	317	519.	21976.5	1089.7	*	4	JAN	0955	984	503.	19599.6	1088.3	*	6	JAN	17301651	488.	17358.1	1087.0
2	JAN	0225	318	519.	21973.0	1089.7	*	4	JAN	1000	985	503.	19596.1	1088.3	*	6	JAN	17351652	488.	17354.8	1087.0
2	JAN	0230	319	519.	21969.4	1089.7	*	4	JAN	1005	986	503.	19592.5	1088.3	*	6	JAN	17401653	488.	17351.4	1087.0
2	JAN	0235	320	519.	21965.8	1089.7	*	4	JAN	1010	987	503.	19588.9	1088.3	*	6	JAN	17451654	488.	17348.1	1087.0
2	JAN	0240	321	519.	21962.3	1089.7	*	4	JAN	1015	988	503.	19585.4	1088.3	*	6	JAN	17501655	487.	17344.7	1087.0
2	JAN	0245	322	519.	21958.7	1089.7	*	4	JAN	1020	989	503.	19581.8	1088.3	*	6	JAN	17551656	487.	17341.4	1087.0
2	JAN	0250	323	519.	21955.1	1089.7	*	4	JAN	1025	990	503.	19578.2	1088.3	*	6	JAN	18001657	487.	17338.0	1087.0
2	JAN	0255	324	519.	21951.6	1089.7	*	4	JAN	1030	991	503.	19574.7	1088.3	*	6	JAN	18051658	487.	17334.6	1087.0
2	JAN	0300	325	519.	21948.0	1089.7	*	4	JAN	1035	992	503.	19571.1	1088.3	*	6	JAN	18101659	487.	17331.3	1087.0
2	JAN	0305	326	519.	21944.5	1089.7	*	4	JAN	1040	993	503.	19567.5	1088.3	*	6	JAN	18151660	487.	17327.9	1087.0
2	JAN	0310	327	519.	21940.9	1089.7	*	4	JAN	1045	994	502.	19564.0	1088.3	*	6	JAN	18201661	487.	17324.6	1087.0
2	JAN	0315	328	519.	21937.3	1089.7	*	4	JAN	1050	995	502.	19560.4	1088.3	*	6	JAN	18251662	487.	17321.2	1087.0
2	JAN	0320	329	519.	21933.8	1089.7	*	4	JAN	1055	996	502.	19556.9	1088.3	*	6	JAN	18301663	487.	17317.9	1087.0
2	JAN	0325	330	518.	21930.2	1089.7	*	4	JAN	1100	997	502.	19553.3	1088.3	*	6	JAN	18351664	487.	17314.5	1087.0
2	JAN	0330	331	518.	21926.6	1089.7	*	4	JAN	1105	998	502.	19549.7	1088.3	*	6	JAN	18401665	487.	17311.2	1087.0
2	JAN	0335	332	518.	21923.1	1089.7	*	4	JAN	1110	999	502.	19546.2	1088.3	*	6	JAN	18451666	487.	17307.8	1087.0
2	JAN	0340	333	518.	21919.5	1089.7	*	4	JAN	11151000		502.	19542.6	1088.3	*	6	JAN	18501667	487.	17304.5	1087.0
2	JAN	0345	334	518.	21915.9	1089.6	*	4	JAN	11201001		502.	19539.0	1088.3	*	6	JAN	18551668	487.	17301.1	1087.0
2	JAN	0350	335	518.	21912.4	1089.6	*	4	JAN	11251002		502.	19535.5	1088.3	*	6	JAN	19001669	487.	17297.8	1087.0
2	JAN	0355	336	518.	21908.8	1089.6	*	4	JAN	11301003		502.	19531.9	1088.3	*	6	JAN	19051670	487.	17294.4	1087.0
2	JAN	0400	337	518.	21905.3	1089.6	*	4	JAN	11351004		502.	19528.6	1088.3	*	6	JAN	19101671	487.	17291.0	1087.0
2	JAN	0405	338	518.	21901.7	1089.6	*	4	JAN	11401005		502.	19525.0	1088.3	*	6	JAN	19151672	487.	17287.7	1087.0
2	JAN	0410	339	518.	21898.1	1089.6	*	4	JAN	11451006		502.	19521.6	1088.3	*	6	JAN	19201673	487.	17284.3	1087.0
2	JAN	0415	340	518.	21894.6	1089.6	*	4	JAN	11501007		502.	19518.3	1088.3	*	6	JAN	19251674	487.	17281.0	1087.0
2	JAN	0420	341	518.	21891.0	1089.6	*	4	JAN	11551008		502.	19514.7	1088.3	*	6	JAN	19301675	487.	17277.6	1086.9
2	JAN	0425	342	518.	21887.4	1089.6	*	4	JAN	12001009		502.	19511.4	1088.2	*	6	JAN	19351676	487.	17274.3	1086.9
2	JAN	0430	343	518.	21883.9	1089.6	*	4	JAN	12051010		502.	19508.0	1088.2	*	6	JAN	19401677	487.	17270.9	1086.9
2	JAN	0435	344	518.	21880.3	1089.6	*	4	JAN	12101011		502.	19504.7	1088.2	*	6	JAN	19451678	487.	17267.6	1086.9
2	JAN	0440	345	518.	21876.8	1089.6	*	4	JAN	12151012		502.	19501.3	1088.2	*	6	JAN	19501679	487.	17264.2	1086.9
2	JAN	0445	346	518.	21873.2	1089.6	*	4	JAN	12201013		502.	19498.0	1088.2	*	6	JAN	19551680	487.	17260.9	1086.9
2	JAN	0450	347	518.	21869.6	1089.6	*	4	JAN	12251014		502.	19494.6	1088.2	*	6	JAN	20001681	487.	17257.5	1086.9
2	JAN	0455	348	518.	21866.1	1089.6	*	4	JAN	12301015		502.	19491.2	1088.2	*	6	JAN	20051682	487.	17254.1	1086.9
2	JAN	0500	349	518.	21862.5	1089.6	*	4	JAN	12351016		502.	19487.9	1088.2	*	6	JAN	20101683	487.	17250.8	1086.9
2	JAN	0505	350	518.	21858.9	1089.6	*	4	JAN	12401017		502.	19484.5	1088.2	*	6	JAN	20151684	487.	17247.4	1086.9
2	JAN	0510	351	518.	21855.4	1089.6	*	4	JAN	12451018		502.	19481.2	1088.2	*	6	JAN	20201685	487.	17244.1	1086.9
2	JAN	0515	352	518.	21851.8	1089.6	*	4	JAN	12501019		502.	19477.8	1088.2	*	6	JAN	20251686	487.	17240.7	1086.9
2	JAN	0520	353	518.	21848.2	1089.6	*	4	JAN	12551020		502.	19474.5	1088.2	*	6	JAN	20301687	487.	17237.4	1086.9
2	JAN	0525	354	518.	21844.7	1089.6	*	4	JAN	13001021		502.	19471.1	1088.2	*	6	JAN	20351688	487.	17234.0	1086.9
2	JAN	0530	355	518.	21841.1	1089.6	*	4	JAN	13051022		502.	19467.8	1088.2	*	6	JAN	20401689	487.	17230.7	1086.9
2	JAN	0535	356	518.	21837.6	1089.6	*	4	JAN	13101023		502.	19464.4	1088.2	*	6	JAN	20451690	487.	17227.3	1086.9
2	JAN	0540	357	518.	21834.0	1089.6	*	4	JAN	13151024		502.	19461.1	1088.2	*	6	JAN	20501691	487.	17224.0	1086.9
2	JAN	0545	358	518.	21830.4	1089.6	*	4	JAN	13201025		502.	19457.7	1088.2	*	6	JAN	20551692	487.	17220.6	1086.9
2	JAN	0550	359	518.	21826.9	1089.6	*	4	JAN	13251026		502.	19454.3	1088.2	*	6	JAN	21001693	487.	17217.3	1086.9
2	JAN	0555	360	518.	21823.3	1089.6	*	4	JAN	13301027		502.	19451.0	1088.2	*	6	JAN	21051694	487.	17213.9	1086.9
2	JAN	0600	361	518.	21819.7	1089.6	*	4	JAN	13351028		502.	19447.6	1088.2	*	6	JAN	21101695	487.	17210.5	1086.9
2	JAN	0605	362	518.	21816.2	1089.6	*	4	JAN	13401029		502.	19444.3	1088.2	*	6	JAN	21151696	487.	17207.2	1086.9
2	JAN	0610	363	518.	21812.6	1089.6	*	4	JAN	13451030		502.	19440.9	1088.2	*	6	JAN	21201697	487.	17203.8	1086.9

2	JAN	0615	364	518.	21809.0	1089.6	*	4	JAN	13501031	502.	19437.6	1088.2	*	6	JAN	21251698	487.	17200.5	1086.9
2	JAN	0620	365	518.	21805.5	1089.6	*	4	JAN	13551032	502.	19434.2	1088.2	*	6	JAN	21301699	487.	17197.1	1086.9
2	JAN	0625	366	518.	21801.9	1089.6	*	4	JAN	14001033	502.	19430.9	1088.2	*	6	JAN	21351700	486.	17193.8	1086.9
2	JAN	0630	367	518.	21798.4	1089.6	*	4	JAN	14051034	502.	19427.5	1088.2	*	6	JAN	21401701	486.	17190.4	1086.9
2	JAN	0635	368	518.	21794.8	1089.6	*	4	JAN	14101035	502.	19424.2	1088.2	*	6	JAN	21451702	486.	17187.1	1086.9
2	JAN	0640	369	518.	21791.2	1089.6	*	4	JAN	14151036	502.	19420.8	1088.2	*	6	JAN	21501703	486.	17183.7	1086.9
2	JAN	0645	370	518.	21787.7	1089.6	*	4	JAN	14201037	502.	19417.5	1088.2	*	6	JAN	21551704	486.	17180.4	1086.9
2	JAN	0650	371	517.	21784.1	1089.6	*	4	JAN	14251038	501.	19414.1	1088.2	*	6	JAN	22001705	486.	17177.0	1086.9
2	JAN	0655	372	517.	21780.5	1089.6	*	4	JAN	14301039	501.	19410.7	1088.2	*	6	JAN	22051706	486.	17173.7	1086.9
2	JAN	0700	373	517.	21777.0	1089.6	*	4	JAN	14351040	501.	19407.4	1088.2	*	6	JAN	22101707	486.	17170.3	1086.9
2	JAN	0705	374	517.	21773.4	1089.6	*	4	JAN	14401041	501.	19404.0	1088.2	*	6	JAN	22151708	486.	17166.9	1086.9
2	JAN	0710	375	517.	21769.8	1089.6	*	4	JAN	14451042	501.	19400.7	1088.2	*	6	JAN	22201709	486.	17163.6	1086.9
2	JAN	0715	376	517.	21766.3	1089.6	*	4	JAN	14501043	501.	19397.3	1088.2	*	6	JAN	22251710	486.	17160.2	1086.9
2	JAN	0720	377	517.	21762.7	1089.6	*	4	JAN	14551044	501.	19394.0	1088.2	*	6	JAN	22301711	486.	17156.9	1086.9
2	JAN	0725	378	517.	21759.2	1089.6	*	4	JAN	15001045	501.	19390.6	1088.2	*	6	JAN	22351712	486.	17153.5	1086.9
2	JAN	0730	379	517.	21755.6	1089.6	*	4	JAN	15051046	501.	19387.3	1088.2	*	6	JAN	22401713	486.	17150.2	1086.9
2	JAN	0735	380	517.	21752.0	1089.6	*	4	JAN	15101047	501.	19383.9	1088.2	*	6	JAN	22451714	486.	17146.8	1086.9
2	JAN	0740	381	517.	21748.5	1089.6	*	4	JAN	15151048	501.	19380.6	1088.2	*	6	JAN	22501715	486.	17143.5	1086.9
2	JAN	0745	382	517.	21744.9	1089.5	*	4	JAN	15201049	501.	19377.2	1088.2	*	6	JAN	22551716	486.	17140.1	1086.9
2	JAN	0750	383	517.	21741.3	1089.5	*	4	JAN	15251050	501.	19373.9	1088.2	*	6	JAN	23001717	486.	17136.8	1086.9
2	JAN	0755	384	517.	21737.8	1089.5	*	4	JAN	15301051	501.	19370.5	1088.2	*	6	JAN	23051718	486.	17133.4	1086.9
2	JAN	0800	385	517.	21734.2	1089.5	*	4	JAN	15351052	501.	19367.1	1088.2	*	6	JAN	23101719	486.	17130.1	1086.9
2	JAN	0805	386	517.	21730.6	1089.5	*	4	JAN	15401053	501.	19363.8	1088.2	*	6	JAN	23151720	486.	17126.7	1086.9
2	JAN	0810	387	517.	21727.1	1089.5	*	4	JAN	15451054	501.	19360.4	1088.2	*	6	JAN	23201721	486.	17123.3	1086.9
2	JAN	0815	388	517.	21723.5	1089.5	*	4	JAN	15501055	501.	19357.1	1088.2	*	6	JAN	23251722	486.	17120.0	1086.9
2	JAN	0820	389	517.	21720.0	1089.5	*	4	JAN	15551056	501.	19353.7	1088.2	*	6	JAN	23301723	486.	17116.6	1086.9
2	JAN	0825	390	517.	21716.4	1089.5	*	4	JAN	16001057	501.	19350.4	1088.2	*	6	JAN	23351724	486.	17113.3	1086.9
2	JAN	0830	391	517.	21712.8	1089.5	*	4	JAN	16051058	501.	19347.0	1088.2	*	6	JAN	23401725	486.	17109.9	1086.9
2	JAN	0835	392	517.	21709.3	1089.5	*	4	JAN	16101059	501.	19343.7	1088.2	*	6	JAN	23451726	486.	17106.6	1086.8
2	JAN	0840	393	517.	21705.7	1089.5	*	4	JAN	16151060	501.	19340.3	1088.1	*	6	JAN	23501727	486.	17103.2	1086.8
2	JAN	0845	394	517.	21702.1	1089.5	*	4	JAN	16201061	501.	19337.0	1088.1	*	6	JAN	23551728	486.	17099.9	1086.8
2	JAN	0850	395	517.	21698.6	1089.5	*	4	JAN	16251062	501.	19333.6	1088.1	*	7	JAN	00001729	486.	17096.5	1086.8
2	JAN	0855	396	517.	21695.0	1089.5	*	4	JAN	16301063	501.	19330.3	1088.1	*	7	JAN	00051730	486.	17093.2	1086.8
2	JAN	0900	397	517.	21691.4	1089.5	*	4	JAN	16351064	501.	19326.9	1088.1	*	7	JAN	00101731	486.	17089.8	1086.8
2	JAN	0905	398	517.	21687.9	1089.5	*	4	JAN	16401065	501.	19323.5	1088.1	*	7	JAN	00151732	486.	17086.4	1086.8
2	JAN	0910	399	517.	21684.3	1089.5	*	4	JAN	16451066	501.	19320.2	1088.1	*	7	JAN	00201733	486.	17083.1	1086.8
2	JAN	0915	400	517.	21680.8	1089.5	*	4	JAN	16501067	501.	19316.8	1088.1	*	7	JAN	00251734	486.	17079.7	1086.8
2	JAN	0920	401	517.	21677.2	1089.5	*	4	JAN	16551068	501.	19313.5	1088.1	*	7	JAN	00301735	486.	17076.4	1086.8
2	JAN	0925	402	517.	21673.6	1089.5	*	4	JAN	17001069	501.	19310.1	1088.1	*	7	JAN	00351736	486.	17073.0	1086.8
2	JAN	0930	403	517.	21670.1	1089.5	*	4	JAN	17051070	501.	19306.8	1088.1	*	7	JAN	00401737	486.	17069.7	1086.8
2	JAN	0935	404	517.	21666.5	1089.5	*	4	JAN	17101071	501.	19303.4	1088.1	*	7	JAN	00451738	486.	17066.3	1086.8
2	JAN	0940	405	517.	21662.9	1089.5	*	4	JAN	17151072	501.	19300.1	1088.1	*	7	JAN	00501739	486.	17063.0	1086.8
2	JAN	0945	406	517.	21659.4	1089.5	*	4	JAN	17201073	501.	19296.7	1088.1	*	7	JAN	00551740	486.	17059.6	1086.8
2	JAN	0950	407	517.	21655.8	1089.5	*	4	JAN	17251074	501.	19293.4	1088.1	*	7	JAN	01001741	486.	17056.3	1086.8
2	JAN	0955	408	517.	21652.2	1089.5	*	4	JAN	17301075	501.	19290.0	1088.1	*	7	JAN	01051742	486.	17052.9	1086.8
2	JAN	1000	409	517.	21648.7	1089.5	*	4	JAN	17351076	501.	19286.7	1088.1	*	7	JAN	01101743	486.	17049.6	1086.8
2	JAN	1005	410	517.	21645.1	1089.5	*	4	JAN	17401077	501.	19283.3	1088.1	*	7	JAN	01151744	485.	17046.2	1086.8
2	JAN	1010	411	517.	21641.6	1089.5	*	4	JAN	17451078	501.	19279.9	1088.1	*	7	JAN	01201745	485.	17042.8	1086.8
2	JAN	1015	412	517.	21638.0	1089.5	*	4	JAN	17501079	501.	19276.6	1088.1	*	7	JAN	01251746	485.	17039.5	1086.8
2	JAN	1020	413	516.	21634.4	1089.5	*	4	JAN	17551080	501.	19273.2	1088.1	*	7	JAN	01301747	485.	17036.1	1086.8
2	JAN	1025	414	516.	21630.9	1089.5	*	4	JAN	18001081	501.	19269.9	1088.1	*	7	JAN	01351748	485.	17032.8	1086.8
2	JAN	1030	415	516.	21627.3	1089.5	*	4	JAN	18051082	500.	19266.5	1088.1	*	7	JAN	01401749	485.	17029.4	1086.8
2	JAN	1035	416	516.	21623.7	1089.5	*	4	JAN	18101083	500.	19263.2	1088.1	*	7	JAN	01451750	485.	17026.1	1086.8
2	JAN	1040	417	516.	21620.2	1089.5	*	4	JAN	18151084	500.	19259.8	1088.1	*	7	JAN	01501751	485.	17022.7	1086.8
2	JAN	1045	418	516.	21616.6	1089.5	*	4	JAN	18201085	500.	19256.5	1088.1	*	7	JAN	01551752	485.	17019.4	1086.8
2	JAN	1050	419	516.	21613.0	1089.5	*	4	JAN	18251086	500.	19253.1	1088.1	*	7	JAN	02001753	485.	17016.0	1086.8
2	JAN	1055	420	516.	21609.5	1089.5	*	4	JAN	18301087	500.	19249.8	1088.1	*	7	JAN	02051754	485.	17012.7	1086.8
2	JAN	1100	421	516.	21605.9	1089.5	*	4	JAN	18351088	500.	19246.4	1088.1	*	7	JAN	02101755	485.	17009.3	1086.8
2	JAN	1105	422	516.	21602.4	1089.5	*	4	JAN	18401089	500.	19243.0	1088.1	*	7	JAN	02151756	485.	17006.0	1086.8
2	JAN	1110	423	516.	21598.8	1089.5	*	4	JAN	18451090	500.	19239.7	1088.1	*	7	JAN	02201757	485.	17002.6	1086.8
2	JAN	1115	424	516.	21595.2	1089.5	*	4	JAN	18501091	500.	19236.3	1088.1	*	7	JAN	02251758	485.	16999.2	1086.8
2	JAN	1120	425	516.	21591.7	1089.5	*	4	JAN	18551092	500.	19233.0	1088.1	*	7	JAN	02301759	485.	16995.9	1086.8
2	JAN	1125	426	516.	21588.1	1089.5	*	4	JAN	19001093	500.	19229.6	1088.1	*	7	JAN	02351760	485.	16992.5	1086.8
2	JAN	1130	427	516.	21584.5	1089.5	*	4	JAN	19051094	500.	19226.3	1088.1	*	7	JAN	02401761	485.	16989.2	1086.8
2	JAN	1135	428	516.	21581.0	1089.5	*	4	JAN	19101095	500.	19222.9	1088.1	*	7	JAN	02451762	485.	16985.8	1086.8
2	JAN	1140	429	516.	21577.4	1089.5	*	4	JAN	19151096	500.	19219.6	1088.1	*	7	JAN	02501763	485.	16982.5	1086.8
2	JAN	1145	430	516.	21573.8	1089.5	*	4	JAN	19201097	500.	19216.2	1088.1	*	7	JAN	02551764	485.	16979.1	1086.8
2	JAN	1150	431	516.	21570.3	1089.4	*	4	JAN	19251098	500.	19212.9	1088.1	*	7	JAN	03001765	485.	16975.8	1086.8
2	JAN	1155	432	516.	21566.7	1089.4	*	4	JAN	19301099	500.	19209.5	1088.1	*	7	JAN	03051766	485.	16972.4	1086.8
2	JAN	1200	433	516.	21563.2	1089.4	*	4	JAN	19351100	500.	19206.2	1088.1	*	7	JAN	03101767	485.	16969.1	1086.8
2	JAN	1205	434	516.	21559.6	1089.4	*	4	JAN	19401101	500.	19202.8	1088.1	*	7	JAN	03151768	485.	16965.7	1086.8
2	JAN	1210	435	516.	21556.0	1089.4	*	4	JAN	19451102	500.	19199.4	1088.1	*	7	JAN	03201769	485.	16962.4	1086.8
2	JAN	1215	436	516.	21552.5	1089.4	*	4	JAN	19501103	500.	19196.1	1088.1	*	7	JAN	03251770	485.	16959.0	1086.8
2	JAN	1220	437	516.	21548.9	1089.4	*	4	JAN	19551104	500.	19192.7	1088.1	*	7	JAN	03301771	485.	16955.6	1086.8
2	JAN	1225	438	516.	21545.3	1089.4	*	4	JAN	20001105	500.	19189.4	1088.1	*	7	JAN	03351772	485.	16952.3	1086.8
2	JAN	1230	439	516.	21541.8	1089.4	*	4	JAN	20051106	500.	19186.0	1088.1	*	7	JAN	03401773	485.	16948.9	1086.8
2	JAN	1235	440	516.	21538.2	1089.4	*	4	JAN	20101107	500.	19182.7	1088.1	*	7	JAN	03451774	485.	16945.6	1086.8
2	JAN	1240	441	516.	21534.6	1089.4	*	4	JAN	20151108	500.	19179.3	1088.1	*	7	JAN	03501775	485.	16942.2	1086.8
2	JAN	1245	442	516.	21531.1	1089.4	*	4	JAN	20201109	500.	19176.0	1088.1	*	7	JAN	03551776	485.	16938.9	1086.8
2	JAN	1250	443	516.	21527.5	1089.4	*	4	JAN	20251110	500.	19172.6	1088.1	*	7	JAN	04001777	485.	16935.5	1086.7
2	JAN	1255	444	516.	21524.0	1089.4	*	4	JAN	20301111	500.	19169.3	1088.0	*	7	JAN	04051778	485.	16932.2	1086.7
2	JAN	1300	445	516.	21520.4	1089.4	*	4	JAN	20351112	500.	19165.9	1088.0	*	7	JAN	04101779	485.	16928.8	1086.7
2	JAN	1305	446	516.	21516.8	1089.4	*	4	JAN	20401113	500.	19162.6	1088.0	*	7	JAN	04151780	485.	16925.5	1086.7
2	JAN	1310	447	516.	21513.3	1089.4	*	4	JAN	20451114	500.	19159.2	1088.0	*	7	JAN	04201781	485.	16922.1	1086.7
2	JAN	1315	448	516.	21509.7	1089.4	*	4	JAN	20501115	500.	19155.8	1088.0	*	7	JAN	04251782	485.	16918.8	1086.7
2	JAN	1320	449	516.	21506.1	1089.4	*	4	JAN	20551116	500.	19152.5	1088.0	*	7	JAN	04301783	485.	16915.4	1086.7
2	JAN	1325	450	516.	21502.6	1089.4	*	4	JAN	21001117	500.	19149.1	1088.0	*	7	JAN	04351784	485.	16912.0	1086.7
2	JAN	1330	451	516.	21499.0	1089.4	*	4	JAN	21051118	500.	19145.8	1088.0	*	7	JAN	04401785	485.	16908.7	1086.7
2	JAN	1335	452	516.	21495.4	1089.4	*	4	JAN	21101119	500.	19142.4	1088.0	*	7	JAN	04451786	485.	16905.3	1086.7
2	JAN	1340	453	516.	21491.9	1089.4	*	4	JAN	21151120	500.	19139.1	1088.0	*	7	JAN	04501787	485.	16902.0	1086.7
2	JAN	1345	454	515.	21488.3	1089.4	*	4	JAN	21201121	500.	19135.7	1088.0	*	7	JAN	04551788	484.	16898.6	1086.7
2	JAN	1350	455	515.	21484.8	1089.4	*	4	JAN	21251122	500.	19132.4	1088.0	*	7	JAN	05001789	484.	16895.3	1086.7
2	JAN	1355	456	515.	21481.2	1089.4	*	4	JAN	21301123	500.	19129.0	1088.0	*	7	JAN	05051790	484.	16891.9	1086.7
2	JAN	1400	457	515.	21477.6	1089.4	*	4	JAN	21351124	500.	19125.7	1088.0	*	7	JAN	05101791	484.	16888.6	1086.7
2	JAN	1405	458	515.	21474.1	1089.4	*	4	JAN	21401125	500.	19122.3	1088.0	*	7	JAN	05151792	484.	16885.2	1086.7
2	JAN	1410	459	515.	21470.5	1089.4	*	4	JAN	21451126	499.	19119.0	1088.0	*	7	JAN	05201793	484.	16881.9	1086.7
2	JAN	1415	460	515.	21466.9	1089.4	*	4	JAN	21501127	499.	19115.6	1088.0	*	7	JAN	05251794	484.	16878.5	1086.7
2	JAN	1420	461	515.	21463.4	1089.4	*	4	JAN	21551128	499.	19112.2	1088.0	*	7	JAN	05301795	484.	16875.2	1086.7
2	JAN	1425	462	515.	21459.8	1089.4	*	4	JAN	22001129	499.	19108.9	1088.0	*	7	JAN	05351796	484.	16871.8	1086.7
2	JAN	1430	463	515.	21456.2	1089.4	*	4	JAN	22051130	499.	19105.5	1088.0	*	7	JAN	05401797	484.	16868.4	1086.7
2	JAN	1435	464	515.	21452.7	1089.4	*	4	JAN	22101131	499.	19102.2	1088.0	*	7	JAN	05451798	484.	16865.1	1086.7
2	JAN	1440	465	515.	21449.1	1089.4	*	4	JAN	22151132	499.	19098.8	1088.0	*	7	JAN	05501799	484.	16861.7	1086.7
2	JAN	1445	466	515.	21445.6	1089.4	*	4	JAN	22201133	499.	19095.5	1088.0	*	7	JAN	05551800	484.	16858.4	1086.7
2	JAN	1450	467	515.	21442.0	1089.4	*	4	JAN	22251134	499.	19092.1	1088.0	*	7	JAN	06001801	484.	16855.0	1086.7
2	JAN	1455	468	515.	21438.4	1089.4	*	4	JAN	22301135	499.	19088.8	1088.0	*	7	JAN	06051802	484.	16851.7	1086.7
2	JAN	1500	469	515.	21434.9	1089.4	*	4	JAN	22351136	499.	19085.4	1088.0	*	7	JAN	06101803	484.	16848.3	1086.7
2	JAN	1505	470	515.	21431.3	1089.4	*	4	JAN	22401137	499.	19082.1	1088.0	*	7	JAN	06151804	484.	16845.0	1086.7
2	JAN	1510	471	515.	21427.7	1089.4	*	4	JAN	22451138	499.	19078.7	1088.0	*	7	JAN	06201805	484.	16841.6	1086.7
2	JAN	1515	472	515.	21424.2	1089.4	*	4	JAN	22501139	499.	19075.4	1088.0	*	7	JAN	06251806	484.	16838.3	1086.7
2	JAN	1520	473	515.	21420.6	1089.4	*	4	JAN	22551140	499.	19072.0	1088.0	*	7	JAN	06301807	484.	16834.9	1086.7
2	JAN	1525	474	515.	21417.0	1089.4	*	4	JAN	23001141	499.	19068.6	1088.0	*	7	JAN	06351808	484.	16831.5	1086.7
2	JAN	1530	475	515.	21413.5	1089.4	*	4	JAN	23051142	499.	19065.3	1088.0	*	7	JAN	06401809	484.	16828.2	1086.7
2	JAN	1535	476	515.	21409.9	1089.4	*	4	JAN	23101143	499.	19061.9	1088.0	*	7	JAN	06451810	484.	16824.8	1086.7
2	JAN	1540	477	515.	21406.4	1089.4	*	4	JAN	23151144	499.	19058.6	1088.0	*	7	JAN	06501811	484.	16821.5	1086.7

2	JAN	1545	478	515.	21402.8	1089.4	*	4	JAN	23201145	499.	19055.2	1088.0	*	7	JAN	06551812	484.	16818.1	1086.7
2	JAN	1550	479	515.	21399.2	1089.3	*	4	JAN	23251146	499.	19051.9	1088.0	*	7	JAN	07001813	484.	16814.8	1086.7
2	JAN	1555	480	515.	21395.7	1089.3	*	4	JAN	23301147	499.	19048.5	1088.0	*	7	JAN	07051814	484.	16811.4	1086.7
2	JAN	1600	481	515.	21392.1	1089.3	*	4	JAN	23351148	499.	19045.2	1088.0	*	7	JAN	07101815	484.	16808.1	1086.7
2	JAN	1605	482	515.	21388.5	1089.3	*	4	JAN	23401149	499.	19041.8	1088.0	*	7	JAN	07151816	484.	16804.7	1086.7
2	JAN	1610	483	515.	21385.0	1089.3	*	4	JAN	23451150	499.	19038.5	1088.0	*	7	JAN	07201817	484.	16801.4	1086.7
2	JAN	1615	484	515.	21381.4	1089.3	*	4	JAN	23501151	499.	19035.1	1088.0	*	7	JAN	07251818	484.	16798.0	1086.7
2	JAN	1620	485	515.	21377.8	1089.3	*	4	JAN	23551152	499.	19031.8	1088.0	*	7	JAN	07301819	484.	16794.7	1086.7
2	JAN	1625	486	515.	21374.3	1089.3	*	5	JAN	00001153	499.	19028.4	1088.0	*	7	JAN	07351820	484.	16791.3	1086.7
2	JAN	1630	487	515.	21370.7	1089.3	*	5	JAN	00051154	499.	19025.0	1088.0	*	7	JAN	07401821	484.	16787.9	1086.7
2	JAN	1635	488	515.	21367.2	1089.3	*	5	JAN	00101155	499.	19021.7	1088.0	*	7	JAN	07451822	484.	16784.6	1086.7
2	JAN	1640	489	515.	21363.6	1089.3	*	5	JAN	00151156	499.	19018.3	1088.0	*	7	JAN	07501823	484.	16781.2	1086.7
2	JAN	1645	490	515.	21360.0	1089.3	*	5	JAN	00201157	499.	19015.0	1088.0	*	7	JAN	07551824	484.	16777.9	1086.7
2	JAN	1650	491	515.	21356.5	1089.3	*	5	JAN	00251158	499.	19011.6	1088.0	*	7	JAN	08001825	484.	16774.5	1086.7
2	JAN	1655	492	515.	21352.9	1089.3	*	5	JAN	00301159	499.	19008.3	1088.0	*	7	JAN	08051826	484.	16771.2	1086.7
2	JAN	1700	493	515.	21349.3	1089.3	*	5	JAN	00351160	499.	19004.9	1088.0	*	7	JAN	08101827	484.	16767.8	1086.7
2	JAN	1705	494	515.	21345.8	1089.3	*	5	JAN	00401161	499.	19001.6	1088.0	*	7	JAN	08151828	484.	16764.5	1086.6
2	JAN	1710	495	515.	21342.2	1089.3	*	5	JAN	00451162	499.	18998.2	1088.0	*	7	JAN	08201829	484.	16761.1	1086.6
2	JAN	1715	496	514.	21338.6	1089.3	*	5	JAN	00501163	499.	18994.9	1087.9	*	7	JAN	08251830	484.	16757.8	1086.6
2	JAN	1720	497	514.	21335.1	1089.3	*	5	JAN	00551164	499.	18991.5	1087.9	*	7	JAN	08301831	484.	16754.4	1086.6
2	JAN	1725	498	514.	21331.5	1089.3	*	5	JAN	01001165	499.	18988.1	1087.9	*	7	JAN	08351832	483.	16751.1	1086.6
2	JAN	1730	499	514.	21328.0	1089.3	*	5	JAN	01051166	499.	18984.8	1087.9	*	7	JAN	08401833	483.	16747.7	1086.6
2	JAN	1735	500	514.	21324.4	1089.3	*	5	JAN	01101167	499.	18981.4	1087.9	*	7	JAN	08451834	483.	16744.3	1086.6
2	JAN	1740	501	514.	21320.8	1089.3	*	5	JAN	01151168	499.	18978.1	1087.9	*	7	JAN	08501835	483.	16741.0	1086.6
2	JAN	1745	502	514.	21317.3	1089.3	*	5	JAN	01201169	499.	18974.7	1087.9	*	7	JAN	08551836	483.	16737.6	1086.6
2	JAN	1750	503	514.	21313.7	1089.3	*	5	JAN	01251170	498.	18971.4	1087.9	*	7	JAN	09001837	483.	16734.3	1086.6
2	JAN	1755	504	514.	21310.1	1089.3	*	5	JAN	01301171	498.	18968.0	1087.9	*	7	JAN	09051838	483.	16730.9	1086.6
2	JAN	1800	505	514.	21306.6	1089.3	*	5	JAN	01351172	498.	18964.7	1087.9	*	7	JAN	09101839	483.	16727.6	1086.6
2	JAN	1805	506	514.	21303.0	1089.3	*	5	JAN	01401173	498.	18961.3	1087.9	*	7	JAN	09151840	483.	16724.2	1086.6
2	JAN	1810	507	514.	21299.4	1089.3	*	5	JAN	01451174	498.	18958.0	1087.9	*	7	JAN	09201841	483.	16720.9	1086.6
2	JAN	1815	508	514.	21295.9	1089.3	*	5	JAN	01501175	498.	18954.6	1087.9	*	7	JAN	09251842	483.	16717.5	1086.6
2	JAN	1820	509	514.	21292.3	1089.3	*	5	JAN	01551176	498.	18951.3	1087.9	*	7	JAN	09301843	483.	16714.2	1086.6
2	JAN	1825	510	514.	21288.8	1089.3	*	5	JAN	02001177	498.	18947.9	1087.9	*	7	JAN	09351844	483.	16710.8	1086.6
2	JAN	1830	511	514.	21285.2	1089.3	*	5	JAN	02051178	498.	18944.5	1087.9	*	7	JAN	09401845	483.	16707.5	1086.6
2	JAN	1835	512	514.	21281.6	1089.3	*	5	JAN	02101179	498.	18941.2	1087.9	*	7	JAN	09451846	483.	16704.1	1086.6
2	JAN	1840	513	514.	21278.1	1089.3	*	5	JAN	02151180	498.	18937.8	1087.9	*	7	JAN	09501847	483.	16700.7	1086.6
2	JAN	1845	514	514.	21274.5	1089.3	*	5	JAN	02201181	498.	18934.5	1087.9	*	7	JAN	09551848	483.	16697.4	1086.6
2	JAN	1850	515	514.	21270.9	1089.3	*	5	JAN	02251182	498.	18931.1	1087.9	*	7	JAN	10001849	483.	16694.0	1086.6
2	JAN	1855	516	514.	21267.4	1089.3	*	5	JAN	02301183	498.	18927.8	1087.9	*	7	JAN	10051850	483.	16690.7	1086.6
2	JAN	1900	517	514.	21263.8	1089.3	*	5	JAN	02351184	498.	18924.4	1087.9	*	7	JAN	10101851	483.	16687.3	1086.6
2	JAN	1905	518	514.	21260.3	1089.3	*	5	JAN	02401185	498.	18921.1	1087.9	*	7	JAN	10151852	483.	16684.0	1086.6
2	JAN	1910	519	514.	21256.7	1089.3	*	5	JAN	02451186	498.	18917.7	1087.9	*	7	JAN	10201853	483.	16680.6	1086.6
2	JAN	1915	520	514.	21253.1	1089.3	*	5	JAN	02501187	498.	18914.4	1087.9	*	7	JAN	10251854	483.	16677.3	1086.6
2	JAN	1920	521	514.	21249.6	1089.3	*	5	JAN	02551188	498.	18911.0	1087.9	*	7	JAN	10301855	483.	16673.9	1086.6
2	JAN	1925	522	514.	21246.0	1089.3	*	5	JAN	03001189	498.	18907.7	1087.9	*	7	JAN	10351856	483.	16670.6	1086.6
2	JAN	1930	523	514.	21242.4	1089.3	*	5	JAN	03051190	498.	18904.3	1087.9	*	7	JAN	10401857	483.	16667.2	1086.6
2	JAN	1935	524	514.	21238.9	1089.3	*	5	JAN	03101191	498.	18900.9	1087.9	*	7	JAN	10451858	483.	16663.8	1086.6
2	JAN	1940	525	514.	21235.3	1089.3	*	5	JAN	03151192	498.	18897.6	1087.9	*	7	JAN	10501859	483.	16660.5	1086.6
2	JAN	1945	526	514.	21231.7	1089.3	*	5	JAN	03201193	498.	18894.2	1087.9	*	7	JAN	10551860	483.	16657.1	1086.6
2	JAN	1950	527	514.	21228.2	1089.2	*	5	JAN	03251194	498.	18890.9	1087.9	*	7	JAN	11001861	483.	16653.8	1086.6
2	JAN	1955	528	514.	21224.6	1089.2	*	5	JAN	03301195	498.	18887.5	1087.9	*	7	JAN	11051862	483.	16650.4	1086.6
2	JAN	2000	529	514.	21221.1	1089.2	*	5	JAN	03351196	498.	18884.2	1087.9	*	7	JAN	11101863	483.	16647.1	1086.6
2	JAN	2005	530	514.	21217.5	1089.2	*	5	JAN	03401197	498.	18880.8	1087.9	*	7	JAN	11151864	483.	16643.7	1086.6
2	JAN	2010	531	514.	21213.9	1089.2	*	5	JAN	03451198	498.	18877.5	1087.9	*	7	JAN	11201865	483.	16640.4	1086.6
2	JAN	2015	532	514.	21210.4	1089.2	*	5	JAN	03501199	498.	18874.1	1087.9	*	7	JAN	11251866	483.	16637.0	1086.6
2	JAN	2020	533	514.	21206.8	1089.2	*	5	JAN	03551200	498.	18870.8	1087.9	*	7	JAN	11301867	483.	16633.7	1086.6
2	JAN	2025	534	514.	21203.2	1089.2	*	5	JAN	04001201	498.	18867.4	1087.9	*	7	JAN	11351868	483.	16630.3	1086.6
2	JAN	2030	535	514.	21199.7	1089.2	*	5	JAN	04051202	498.	18864.1	1087.9	*	7	JAN	11401869	483.	16627.0	1086.6
2	JAN	2035	536	514.	21196.1	1089.2	*	5	JAN	04101203	498.	18860.7	1087.9	*	7	JAN	11451870	483.	16623.6	1086.6
2	JAN	2040	537	513.	21192.5	1089.2	*	5	JAN	04151204	498.	18857.3	1087.9	*	7	JAN	11501871	483.	16620.2	1086.6
2	JAN	2045	538	513.	21189.0	1089.2	*	5	JAN	04201205	498.	18854.0	1087.9	*	7	JAN	11551872	483.	16616.9	1086.6
2	JAN	2050	539	513.	21185.4	1089.2	*	5	JAN	04251206	498.	18850.6	1087.9	*	7	JAN	12001873	483.	16613.5	1086.6
2	JAN	2055	540	513.	21181.8	1089.2	*	5	JAN	04301207	498.	18847.3	1087.9	*	7	JAN	12051874	483.	16610.2	1086.6
2	JAN	2100	541	513.	21178.3	1089.2	*	5	JAN	04351208	498.	18843.9	1087.9	*	7	JAN	12101875	483.	16606.8	1086.6
2	JAN	2105	542	513.	21174.7	1089.2	*	5	JAN	04401209	498.	18840.6	1087.9	*	7	JAN	12151876	482.	16603.5	1086.6
2	JAN	2110	543	513.	21171.2	1089.2	*	5	JAN	04451210	498.	18837.2	1087.9	*	7	JAN	12201877	482.	16600.1	1086.6
2	JAN	2115	544	513.	21167.6	1089.2	*	5	JAN	04501211	498.	18833.9	1087.9	*	7	JAN	12251878	482.	16596.8	1086.6
2	JAN	2120	545	513.	21164.0	1089.2	*	5	JAN	04551212	498.	18830.5	1087.9	*	7	JAN	12301879	482.	16593.4	1086.5
2	JAN	2125	546	513.	21160.5	1089.2	*	5	JAN	05001213	498.	18827.2	1087.9	*	7	JAN	12351880	482.	16590.1	1086.5
2	JAN	2130	547	513.	21156.9	1089.2	*	5	JAN	05051214	497.	18823.8	1087.8	*	7	JAN	12401881	482.	16586.7	1086.5
2	JAN	2135	548	513.	21153.3	1089.2	*	5	JAN	05101215	497.	18820.4	1087.8	*	7	JAN	12451882	482.	16583.4	1086.5
2	JAN	2140	549	513.	21149.8	1089.2	*	5	JAN	05151216	497.	18817.1	1087.8	*	7	JAN	12501883	482.	16580.0	1086.5
2	JAN	2145	550	513.	21146.2	1089.2	*	5	JAN	05201217	497.	18813.7	1087.8	*	7	JAN	12551884	482.	16576.6	1086.5
2	JAN	2150	551	513.	21142.7	1089.2	*	5	JAN	05251218	497.	18810.4	1087.8	*	7	JAN	13001885	482.	16573.3	1086.5
2	JAN	2155	552	513.	21139.1	1089.2	*	5	JAN	05301219	497.	18807.0	1087.8	*	7	JAN	13051886	482.	16569.9	1086.5
2	JAN	2200	553	513.	21135.5	1089.2	*	5	JAN	05351220	497.	18803.7	1087.8	*	7	JAN	13101887	482.	16566.6	1086.5
2	JAN	2205	554	513.	21132.0	1089.2	*	5	JAN	05401221	497.	18800.3	1087.8	*	7	JAN	13151888	482.	16563.2	1086.5
2	JAN	2210	555	513.	21128.4	1089.2	*	5	JAN	05451222	497.	18797.0	1087.8	*	7	JAN	13201889	482.	16559.9	1086.5
2	JAN	2215	556	513.	21124.8	1089.2	*	5	JAN	05501223	497.	18793.6	1087.8	*	7	JAN	13251890	482.	16556.5	1086.5
2	JAN	2220	557	513.	21121.3	1089.2	*	5	JAN	05551224	497.	18790.3	1087.8	*	7	JAN	13301891	482.	16553.2	1086.5
2	JAN	2225	558	513.	21117.7	1089.2	*	5	JAN	06001225	497.	18786.9	1087.8	*	7	JAN	13351892	482.	16549.8	1086.5
2	JAN	2230	559	513.	21114.1	1089.2	*	5	JAN	06051226	497.	18783.6	1087.8	*	7	JAN	13401893	482.	16546.5	1086.5
2	JAN	2235	560	513.	21110.6	1089.2	*	5	JAN	06101227	497.	18780.2	1087.8	*	7	JAN	13451894	482.	16543.1	1086.5
2	JAN	2240	561	513.	21107.0	1089.2	*	5	JAN	06151228	497.	18776.8	1087.8	*	7	JAN	13501895	482.	16539.8	1086.5
2	JAN	2245	562	513.	21103.5	1089.2	*	5	JAN	06201229	497.	18773.5	1087.8	*	7	JAN	13551896	482.	16536.4	1086.5
2	JAN	2250	563	513.	21099.9	1089.2	*	5	JAN	06251230	497.	18770.1	1087.8	*	7	JAN	14001897	482.	16533.0	1086.5
2	JAN	2255	564	513.	21096.3	1089.2	*	5	JAN	06301231	497.	18766.8	1087.8	*	7	JAN	14051898	482.	16529.7	1086.5
2	JAN	2300	565	513.	21092.8	1089.2	*	5	JAN	06351232	497.	18763.4	1087.8	*	7	JAN	14101899	482.	16526.3	1086.5
2	JAN	2305	566	513.	21089.2	1089.2	*	5	JAN	06401233	497.	18760.1	1087.8	*	7	JAN	14151900	482.	16523.0	1086.5
2	JAN	2310	567	513.	21085.6	1089.2	*	5	JAN	06451234	497.	18756.7	1087.8	*	7	JAN	14201901	482.	16519.6	1086.5
2	JAN	2315	568	513.	21082.1	1089.2	*	5	JAN	06501235	497.	18753.4	1087.8	*	7	JAN	14251902	482.	16516.3	1086.5
2	JAN	2320	569	513.	21078.5	1089.2	*	5	JAN	06551236	497.	18750.0	1087.8	*	7	JAN	14301903	482.	16512.9	1086.5
2	JAN	2325	570	513.	21074.9	1089.2	*	5	JAN	07001237	497.	18746.7	1087.8	*	7	JAN	14351904	482.	16509.6	1086.5
2	JAN	2330	571	513.	21071.4	1089.2	*	5	JAN	07051238	497.	18743.3	1087.8	*	7	JAN	14401905	482.	16506.2	1086.5
2	JAN	2335	572	513.	21067.8	1089.2	*	5	JAN	07101239	497.	18740.0	1087.8	*	7	JAN	14451906	482.	16502.9	1086.5
2	JAN	2340	573	513.	21064.3	1089.2	*	5	JAN	07151240	497.	18736.6	1087.8	*	7	JAN	14501907	482.	16499.5	1086.5
2	JAN	2345	574	513.	21060.7	1089.2	*	5	JAN	07201241	497.	18733.2	1087.8	*	7	JAN	14551908	482.	16496.2	1086.5
2	JAN	2350	575	513.	21057.1	1089.1	*	5	JAN	07251242	497.	18729.9	1087.8	*	7	JAN	15001909	482.	16492.8	1086.5
2	JAN	2355	576	513.	21053.6	1089.1	*	5	JAN	07301243	497.	18726.5	1087.8	*	7	JAN	15051910	482.	16489.4	1086.5
3	JAN	0000	577	513.	21050.0	1089.1	*	5	JAN	07351244	497.	18723.2	1087.8	*	7	JAN	15101911	482.	16486.1	1086.5
3	JAN	0005	578	513.	21046.4	1089.1	*	5	JAN	07401245	497.	18719.8	1087.8	*	7	JAN	15151912	482.	16482.7	1086.5
3	JAN	0010	579	512.	21042.9	1089.1	*	5	JAN	07451246	497.	18716.5	1087.8	*	7	JAN	15201913	482.	16479.4	1086.5
3	JAN	0015	580	512.	21039.3	1089.1	*	5	JAN	07501247	497.	18713.1	1087.8	*	7	JAN	15251914	482.	16476.0	1086.5
3	JAN	0020	581	512.	21035.7	1089.1	*	5	JAN	07551248	497.	18709.8	1087.8	*	7	JAN	15301915	482.	16472.7	1086.5
3	JAN	0025	582	512.	21032.2	1089.1	*	5	JAN	08001249	497.	18706.4	1087.8	*	7	JAN	15351916	482.	16469.3	1086.5
3	JAN	0030	583	512.	21028.6	1089.1	*	5	JAN	08051250	497.	18703.1	1087.8	*	7	JAN	15401917	482.	16466.0	1086.5
3	JAN	0035	584	512.	21025.1	1089.1	*	5	JAN	08101251	497.	18699.7	1087.8	*	7	JAN	15451918	482.	16462.6	1086.5
3	JAN	0040	585	512.	21021.5	1089.1	*	5	JAN	08151252	497.	18696.4	1087.8	*	7	JAN	15501919	482.	16459.3	1086.5
3	JAN	0045	586	512.	21017.9	1089.1	*	5	JAN	08201253	497.	18693.0	1087.8	*	7	JAN	15551920	481.	16455.9	1086.5
3	JAN	0050	587	512.	21014.4	1089.1	*	5	JAN	08251254	497.	18689.6	1087.8	*	7	JAN	16001921	481.	16452.6	1086.5
3	JAN	0055	588	512.	21010.8	1089.1	*	5	JAN	08301255	497.	18686.3	1087.8	*	7	JAN	16051922	481.	16449.2	1086.5
3	JAN	0100	589	512.	21007.2	1089.1	*	5	JAN	08351256	497.	18682.9	1087.8	*	7	JAN	16101923	481.	16445.8	1086.5
3	JAN	0105	590	512.	21003.7	1089.1	*	5	JAN	08401257	497.	18679.6	1087.8	*	7	JAN	16151924	481.	16442.5	1086.5
3	JAN	0110	591	512.	21000.1	1089.1	*	5	JAN	08451258	496.	18676.2	1087.8	*	7	JAN	16201925	481.	16439.1	1086.5

3	JAN 0115	592	512.	20996.5	1089.1 *	5	JAN 08501259	496.	18672.9	1087.8 *	7	JAN 16251926	481.	16435.8	1086.5
3	JAN 0120	593	512.	20993.0	1089.1 *	5	JAN 08551260	496.	18669.5	1087.8 *	7	JAN 16301927	481.	16432.4	1086.5
3	JAN 0125	594	512.	20989.4	1089.1 *	5	JAN 09001261	496.	18666.2	1087.8 *	7	JAN 16351928	481.	16429.1	1086.5
3	JAN 0130	595	512.	20985.9	1089.1 *	5	JAN 09051262	496.	18662.8	1087.8 *	7	JAN 16401929	481.	16425.7	1086.5
3	JAN 0135	596	512.	20982.3	1089.1 *	5	JAN 09101263	496.	18659.5	1087.8 *	7	JAN 16451930	481.	16422.4	1086.5
3	JAN 0140	597	512.	20978.7	1089.1 *	5	JAN 09151264	496.	18656.1	1087.8 *	7	JAN 16501931	481.	16419.0	1086.4
3	JAN 0145	598	512.	20975.2	1089.1 *	5	JAN 09201265	496.	18652.8	1087.7 *	7	JAN 16551932	481.	16415.7	1086.4
3	JAN 0150	599	512.	20971.6	1089.1 *	5	JAN 09251266	496.	18649.4	1087.7 *	7	JAN 17001933	481.	16412.3	1086.4
3	JAN 0155	600	512.	20968.0	1089.1 *	5	JAN 09301267	496.	18646.0	1087.7 *	7	JAN 17051934	481.	16408.9	1086.4
3	JAN 0200	601	512.	20964.5	1089.1 *	5	JAN 09351268	496.	18642.7	1087.7 *	7	JAN 17101935	481.	16405.6	1086.4
3	JAN 0205	602	512.	20960.9	1089.1 *	5	JAN 09401269	496.	18639.3	1087.7 *	7	JAN 17151936	481.	16402.2	1086.4
3	JAN 0210	603	512.	20957.3	1089.1 *	5	JAN 09451270	496.	18636.0	1087.7 *	7	JAN 17201937	481.	16398.9	1086.4
3	JAN 0215	604	512.	20953.8	1089.1 *	5	JAN 09501271	496.	18632.6	1087.7 *	7	JAN 17251938	481.	16395.5	1086.4
3	JAN 0220	605	512.	20950.2	1089.1 *	5	JAN 09551272	496.	18629.3	1087.7 *	7	JAN 17301939	481.	16392.2	1086.4
3	JAN 0225	606	512.	20946.7	1089.1 *	5	JAN 10001273	496.	18625.9	1087.7 *	7	JAN 17351940	481.	16388.8	1086.4
3	JAN 0230	607	512.	20943.1	1089.1 *	5	JAN 10051274	496.	18622.6	1087.7 *	7	JAN 17401941	481.	16385.5	1086.4
3	JAN 0235	608	512.	20939.5	1089.1 *	5	JAN 10101275	496.	18619.2	1087.7 *	7	JAN 17451942	481.	16382.1	1086.4
3	JAN 0240	609	512.	20936.0	1089.1 *	5	JAN 10151276	496.	18615.9	1087.7 *	7	JAN 17501943	481.	16378.8	1086.4
3	JAN 0245	610	512.	20932.4	1089.1 *	5	JAN 10201277	496.	18612.5	1087.7 *	7	JAN 17551944	481.	16375.4	1086.4
3	JAN 0250	611	512.	20928.8	1089.1 *	5	JAN 10251278	496.	18609.2	1087.7 *	7	JAN 18001945	481.	16372.1	1086.4
3	JAN 0255	612	512.	20925.3	1089.1 *	5	JAN 10301279	496.	18605.8	1087.7 *	7	JAN 18051946	481.	16368.7	1086.4
3	JAN 0300	613	512.	20921.7	1089.1 *	5	JAN 10351280	496.	18602.4	1087.7 *	7	JAN 18101947	481.	16365.3	1086.4
3	JAN 0305	614	512.	20918.1	1089.1 *	5	JAN 10401281	496.	18599.1	1087.7 *	7	JAN 18151948	481.	16362.0	1086.4
3	JAN 0310	615	512.	20914.6	1089.1 *	5	JAN 10451282	496.	18595.7	1087.7 *	7	JAN 18201949	481.	16358.6	1086.4
3	JAN 0315	616	512.	20911.0	1089.1 *	5	JAN 10501283	496.	18592.4	1087.7 *	7	JAN 18251950	481.	16355.3	1086.4
3	JAN 0320	617	512.	20907.5	1089.1 *	5	JAN 10551284	496.	18589.0	1087.7 *	7	JAN 18301951	481.	16351.9	1086.4
3	JAN 0325	618	512.	20903.9	1089.1 *	5	JAN 11001285	496.	18585.7	1087.7 *	7	JAN 18351952	481.	16348.6	1086.4
3	JAN 0330	619	512.	20900.3	1089.1 *	5	JAN 11051286	496.	18582.3	1087.7 *	7	JAN 18401953	481.	16345.2	1086.4
3	JAN 0335	620	511.	20896.8	1089.1 *	5	JAN 11101287	496.	18579.0	1087.7 *	7	JAN 18451954	481.	16341.9	1086.4
3	JAN 0340	621	511.	20893.2	1089.1 *	5	JAN 11151288	496.	18575.6	1087.7 *	7	JAN 18501955	481.	16338.5	1086.4
3	JAN 0345	622	511.	20889.6	1089.1 *	5	JAN 11201289	496.	18572.3	1087.7 *	7	JAN 18551956	481.	16335.3	1086.4
3	JAN 0350	623	511.	20886.1	1089.0 *	5	JAN 11251290	496.	18568.9	1087.7 *	7	JAN 19001957	481.	16331.9	1086.4
3	JAN 0355	624	511.	20882.5	1089.0 *	5	JAN 11301291	496.	18565.5	1087.7 *	7	JAN 19051958	481.	16328.5	1086.4
3	JAN 0400	625	511.	20878.9	1089.0 *	5	JAN 11351292	496.	18562.2	1087.7 *	7	JAN 19101959	481.	16325.1	1086.4
3	JAN 0405	626	511.	20875.4	1089.0 *	5	JAN 11401293	496.	18558.8	1087.7 *	7	JAN 19151960	481.	16321.7	1086.4
3	JAN 0410	627	511.	20871.8	1089.0 *	5	JAN 11451294	496.	18555.5	1087.7 *	7	JAN 19201961	481.	16318.3	1086.4
3	JAN 0415	628	511.	20868.3	1089.0 *	5	JAN 11501295	496.	18552.1	1087.7 *	7	JAN 19251962	481.	16314.9	1086.4
3	JAN 0420	629	511.	20864.7	1089.0 *	5	JAN 11551296	496.	18548.8	1087.7 *	7	JAN 19301963	480.	16311.5	1086.4
3	JAN 0425	630	511.	20861.1	1089.0 *	5	JAN 12001297	496.	18545.4	1087.7 *	7	JAN 19351964	480.	16308.2	1086.4
3	JAN 0430	631	511.	20857.6	1089.0 *	5	JAN 12051298	496.	18542.1	1087.7 *	7	JAN 19401965	480.	16304.8	1086.4
3	JAN 0435	632	511.	20854.0	1089.0 *	5	JAN 12101299	496.	18538.7	1087.7 *	7	JAN 19451966	480.	16301.4	1086.4
3	JAN 0440	633	511.	20850.4	1089.0 *	5	JAN 12151300	496.	18535.4	1087.7 *	7	JAN 19501967	480.	16298.0	1086.4
3	JAN 0445	634	511.	20846.9	1089.0 *	5	JAN 12201301	496.	18532.0	1087.7 *	7	JAN 19551968	480.	16294.6	1086.4
3	JAN 0450	635	511.	20843.3	1089.0 *	5	JAN 12251302	495.	18528.7	1087.7 *	7	JAN 20001969	480.	16291.2	1086.4
3	JAN 0455	636	511.	20839.7	1089.0 *	5	JAN 12301303	495.	18525.3	1087.7 *	7	JAN 20051970	480.	16287.8	1086.4
3	JAN 0500	637	511.	20836.2	1089.0 *	5	JAN 12351304	495.	18521.9	1087.7 *	7	JAN 20101971	480.	16284.4	1086.4
3	JAN 0505	638	511.	20832.6	1089.0 *	5	JAN 12401305	495.	18518.6	1087.7 *	7	JAN 20151972	480.	16281.0	1086.4
3	JAN 0510	639	511.	20829.1	1089.0 *	5	JAN 12451306	495.	18515.2	1087.7 *	7	JAN 20201973	480.	16277.6	1086.4
3	JAN 0515	640	511.	20825.5	1089.0 *	5	JAN 12501307	495.	18511.9	1087.7 *	7	JAN 20251974	480.	16274.2	1086.4
3	JAN 0520	641	511.	20821.9	1089.0 *	5	JAN 12551308	495.	18508.5	1087.7 *	7	JAN 20301975	480.	16270.9	1086.4
3	JAN 0525	642	511.	20818.4	1089.0 *	5	JAN 13001309	495.	18505.2	1087.7 *	7	JAN 20351976	480.	16267.5	1086.4
3	JAN 0530	643	511.	20814.8	1089.0 *	5	JAN 13051310	495.	18501.8	1087.7 *	7	JAN 20401977	480.	16264.1	1086.4
3	JAN 0535	644	511.	20811.2	1089.0 *	5	JAN 13101311	495.	18498.5	1087.7 *	7	JAN 20451978	480.	16260.7	1086.3
3	JAN 0540	645	511.	20807.7	1089.0 *	5	JAN 13151312	495.	18495.1	1087.7 *	7	JAN 20501979	480.	16257.3	1086.3
3	JAN 0545	646	511.	20804.1	1089.0 *	5	JAN 13201313	495.	18491.8	1087.7 *	7	JAN 20551980	480.	16253.9	1086.3
3	JAN 0550	647	511.	20800.5	1089.0 *	5	JAN 13251314	495.	18488.4	1087.7 *	7	JAN 21001981	480.	16250.5	1086.3
3	JAN 0555	648	511.	20797.0	1089.0 *	5	JAN 13301315	495.	18485.1	1087.7 *	7	JAN 21051982	480.	16247.1	1086.3
3	JAN 0600	649	511.	20793.4	1089.0 *	5	JAN 13351316	495.	18481.7	1087.6 *	7	JAN 21101983	480.	16243.7	1086.3
3	JAN 0605	650	511.	20789.9	1089.0 *	5	JAN 13401317	495.	18478.3	1087.6 *	7	JAN 21151984	480.	16240.3	1086.3
3	JAN 0610	651	511.	20786.3	1089.0 *	5	JAN 13451318	495.	18475.0	1087.6 *	7	JAN 21201985	480.	16236.9	1086.3
3	JAN 0615	652	511.	20782.7	1089.0 *	5	JAN 13501319	495.	18471.6	1087.6 *	7	JAN 21251986	480.	16233.5	1086.3
3	JAN 0620	653	511.	20779.2	1089.0 *	5	JAN 13551320	495.	18468.3	1087.6 *	7	JAN 21301987	480.	16230.2	1086.3
3	JAN 0625	654	511.	20775.6	1089.0 *	5	JAN 14001321	495.	18464.9	1087.6 *	7	JAN 21351988	480.	16226.8	1086.3
3	JAN 0630	655	511.	20772.0	1089.0 *	5	JAN 14051322	495.	18461.6	1087.6 *	7	JAN 21401989	480.	16223.4	1086.3
3	JAN 0635	656	511.	20768.5	1089.0 *	5	JAN 14101323	495.	18458.2	1087.6 *	7	JAN 21451990	480.	16220.0	1086.3
3	JAN 0640	657	511.	20764.9	1089.0 *	5	JAN 14151324	495.	18454.9	1087.6 *	7	JAN 21501991	480.	16216.6	1086.3
3	JAN 0645	658	511.	20761.3	1089.0 *	5	JAN 14201325	495.	18451.5	1087.6 *	7	JAN 21551992	480.	16213.2	1086.3
3	JAN 0650	659	511.	20757.8	1089.0 *	5	JAN 14251326	495.	18448.2	1087.6 *	7	JAN 22001993	480.	16209.8	1086.3
3	JAN 0655	660	511.	20754.2	1089.0 *	5	JAN 14301327	495.	18444.8	1087.6 *	7	JAN 22051994	480.	16206.4	1086.3
3	JAN 0700	661	511.	20750.7	1089.0 *	5	JAN 14351328	495.	18441.5	1087.6 *	7	JAN 22101995	480.	16203.0	1086.3
3	JAN 0705	662	510.	20747.1	1089.0 *	5	JAN 14401329	495.	18438.1	1087.6 *	7	JAN 22151996	480.	16199.6	1086.3
3	JAN 0710	663	510.	20743.5	1089.0 *	5	JAN 14451330	495.	18434.7	1087.6 *	7	JAN 22201997	480.	16196.2	1086.3
3	JAN 0715	664	510.	20740.0	1089.0 *	5	JAN 14501331	495.	18431.4	1087.6 *	7	JAN 22251998	480.	16192.9	1086.3
3	JAN 0720	665	510.	20736.4	1089.0 *	5	JAN 14551332	495.	18428.0	1087.6 *	7	JAN 22301999	480.	16189.5	1086.3
3	JAN 0725	666	510.	20732.8	1089.0 *	5	JAN 15001333	495.	18424.7	1087.6 *	7	JAN 22352000	479.	16186.1	1086.3
3	JAN 0730	667	510.	20729.3	1089.0 *	5	JAN 15051334	495.	18421.3	1087.6 *					
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PEAK OUTFLOW IS 15434. AT TIME 8.50 HOURS

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	166.58-HR
+ (CFS)	(HR)	(CFS)				
+ 15434.	8.50		7492.	2322.	1114.	749.
		(INCHES)	0.919	1.140	1.641	2.552
		(AC-FT)	3715.	4605.	6630.	10311.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	166.58-HR
+ (AC-FT)	(HR)				
23851.	8.50	23202.	22414.	21306.	18845.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	166.58-HR
+ (FEET)	(HR)				
1090.78	8.50	1090.40	1089.94	1089.29	1087.48

CUMULATIVE AREA = 75.76 SQ MI

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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	J1	4090.	4.42	1105.	276.	92.	1.73		

+	ROUTED TO	J1-J2	3547.	5.67	1101.	276.	92.	1.73	14.80 5.67
+	HYDROGRAPH AT	J2	7410.	4.67	2436.	610.	203.	3.64	
+	2 COMBINED AT	K3RB	7691.	5.42	3526.	886.	295.	5.37	
+	ROUTED TO	J2-K3	7594.	5.58	3520.	886.	295.	5.37	17.11 5.58
+	HYDROGRAPH AT	K1	6266.	3.75	1229.	308.	103.	1.54	
+	ROUTED TO	K1-K2	4912.	4.58	1215.	308.	103.	1.54	13.68 4.58
+	HYDROGRAPH AT	K2	4031.	5.00	1650.	420.	140.	2.37	
+	2 COMBINED AT	K3RA	8400.	4.58	2851.	728.	243.	3.91	
+	ROUTED TO	K2-K3	7696.	5.92	2832.	728.	243.	3.91	16.77 5.92
+	HYDROGRAPH AT	F1	10195.	3.83	2102.	528.	176.	2.79	
+	ROUTED TO	F1-F2	9757.	4.00	2100.	528.	176.	2.79	22.16 4.00
+	HYDROGRAPH AT	F2	7826.	4.00	1783.	447.	149.	2.53	
+	2 COMBINED AT	F3R	17583.	4.00	3883.	974.	325.	5.31	
+	ROUTED TO	F2-F3	16518.	4.25	3882.	974.	325.	5.31	18.44 4.25
+	HYDROGRAPH AT	F3	2279.	4.08	469.	117.	39.	0.74	
+	2 COMBINED AT	E4RB	18583.	4.25	4351.	1091.	364.	6.05	
+	ROUTED TO	F3-E4	15312.	5.42	4334.	1091.	364.	6.05	18.10 5.42
+	HYDROGRAPH AT	H1	3278.	4.00	632.	158.	53.	1.07	
+	ROUTED TO	H1-H2	2659.	5.25	627.	158.	53.	1.07	14.11 5.25
+	HYDROGRAPH AT	E1	3742.	3.75	716.	179.	60.	0.96	
+	ROUTED TO	E1-E2	3363.	4.08	716.	179.	60.	0.96	16.79 4.08
+	HYDROGRAPH AT	E2	7614.	3.92	1462.	365.	122.	1.98	
+	2 COMBINED AT	E3R	10614.	4.00	2178.	545.	182.	2.94	
+	ROUTED TO	E2-E3	9511.	4.58	2171.	545.	182.	2.94	19.48 4.58
+	HYDROGRAPH AT	E3	6325.	4.42	1760.	440.	147.	2.49	
+	2 COMBINED AT	E4RA	15715.	4.50	3926.	985.	328.	5.42	
+	ROUTED TO	E3-E4	14181.	5.25	3911.	985.	328.	5.42	18.84 5.25
+	HYDROGRAPH AT	H2	2836.	4.58	889.	222.	74.	1.40	
+	HYDROGRAPH AT	E4	5792.	4.75	2064.	519.	173.	3.04	
+	5 COMBINED AT	E5R	37770.	5.33	11760.	2976.	992.	16.98	
+	ROUTED TO	E4H2E5	34789.	6.00	11737.	2976.	992.	16.98	23.52 6.00
+	HYDROGRAPH AT	K3	3219.	4.67	1063.	266.	89.	1.64	
+	HYDROGRAPH AT	E5	3618.	4.25	899.	225.	75.	1.31	
+	5 COMBINED AT	E6R	50380.	6.00	19763.	5081.	1694.	29.20	

```
                ROUTED TO
+                          E5K2E6    49700.   6.17    19701.    5081.    1694.    29.20
+                                                                                          22.17      6.17
                HYDROGRAPH AT
+                               E6    6400.   4.17     1434.     359.     120.     2.04
                2 COMBINED AT
+                                E    49972.   6.17    20856.    5439.    1813.    31.24
                ROUTED TO
+                              ECP    49972.   6.17    20856.    5439.    1813.    31.24
                HYDROGRAPH AT
+                               G1    4114.   3.92      810.     203.      68.     1.12
                ROUTED TO
+                              GCP    4114.   3.92      810.     203.      68.     1.12
                2 COMBINED AT
+                            FRS1A   50034.   6.17    21581.    5642.    1881.    32.36
                HYDROGRAPH AT
+                               Q1    5816.   4.25     1624.     412.     137.     2.23
                ROUTED TO
+                              QCP    5816.   4.25     1624.     412.     137.     2.23
                HYDROGRAPH AT
+                               P1    5837.   4.33     1717.     436.     145.     2.44
                ROUTED TO
+                              PCP    5837.   4.33     1717.     436.     145.     2.44
                HYDROGRAPH AT
+                               N1    5936.   3.75     1087.     272.      91.     1.52
                ROUTED TO
+                            N1-N2    4349.   5.08     1085.     272.      91.     1.52
+                                                                                          15.06      5.08
                HYDROGRAPH AT
+                               N2    7496.   4.42     2287.     581.     194.     3.33
                2 COMBINED AT
+                                N    9242.   5.00     3369.     853.     284.     4.85
                ROUTED TO
+                              NCP    9242.   5.00     3369.     853.     284.     4.85
                HYDROGRAPH AT
+                               O1    6584.   4.58     2113.     540.     180.     3.09
                ROUTED TO
+                              OCP    6584.   4.58     2113.     540.     180.     3.09
                HYDROGRAPH AT
+                               M1   18369.   3.92     4262.    1073.     358.     5.59
                ROUTED TO
+                            M1-M2   13673.   5.58     4244.    1073.     358.     5.59
+                                                                                          14.20      5.58
                HYDROGRAPH AT
+                               M2   14132.   4.83     5078.    1278.     426.     7.53
                2 COMBINED AT
+                                M    23749.   5.42     9264.    2350.     783.    13.12
                ROUTED TO
+                              MCP    23749.   5.42     9264.    2350.     783.    13.12
                HYDROGRAPH AT
+                               Z1    2775.   3.83      468.     117.      39.     0.66
                ROUTED TO
+                              ZCP    2775.   3.83      468.     117.      39.     0.66
                HYDROGRAPH AT
+                               L1   11153.   4.00     2713.     684.     228.     3.55
                ROUTED TO
+                            L1-L2    9356.   4.75     2706.     684.     228.     3.55
+                                                                                          17.74      4.75
                HYDROGRAPH AT
+                               L2   15687.   4.58     5051.    1264.     421.     7.33
                2 COMBINED AT
+                              L3R   24861.   4.75     7746.    1948.     649.    10.88
                ROUTED TO
+                            L2-L3   22692.   5.58     7626.    1948.     649.    10.88
+                                                                                          16.48      5.58
                HYDROGRAPH AT
+                               L3   12449.   4.58     4056.    1016.     339.     5.85
                2 COMBINED AT
+                                L    29292.   5.50    11459.    2963.     988.    16.73
                ROUTED TO
+                              LCP    29292.   5.50    11459.    2963.     988.    16.73
                HYDROGRAPH AT
+                               R1    1716.   3.42      205.      51.      17.     0.28
                ROUTED TO
+                              RCP    1716.   3.42      205.      51.      17.     0.28
                9 COMBINED AT
+                             FRS1   98606.   5.92    51661.   13365.    4455.    75.76
                ROUTED TO
```

```
+                    ROUTE      15434.    8.50        7492.        2322.        1114.       75.76
+                                                                                                        1090.78        8.50
1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION   ROUTE
                     (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ..............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                  ELEVATION       1061.40           1082.00          1089.90
                                  STORAGE              0.             10349.           22346.
                                  OUTFLOW             33.               430.             521.

                 RATIO     MAXIMUM     MAXIMUM    MAXIMUM    MAXIMUM    DURATION    TIME OF     TIME OF
                   OF     RESERVOIR     DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW  FAILURE
                  PMF      W.S.ELEV   OVER DAM    AC-FT       CFS       HOURS        HOURS      HOURS

                 1.00      1090.78      0.88      23851.     15434.     10.25        8.50       0.00


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

E.5.5 FRS#2 PMF Level Pool Routing

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN  1998               *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   09MAR04  TIME  13:46:26  *
*                                      *
****************************************
```

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

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

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

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

```
1                                          HEC-1 INPUT                                                          PAGE  1

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

    1           ID   Buckeye/Sun Valley ADMS, FCD No. 2002C027
    2           ID   FRS Level Pool Routing - FRS#2
    3           ID   PBS&J, Job No. 540293.2031, March 2004
    4           ID   PMP 6-hour
    5           ID   Rainfall Loss Method - Green & Ampt
    6           ID   Unit Hydrograph Method - FCDMC S-Graph
    7           ID   Channel Routing Method - Normal Depth
    8           ID   Land Use - FCDMC GIS Data: mag_landuse (2000)
    9           ID   Soil Data - USDA SCS Soil Survey (1972 & 1981)
   10           ID   Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
                *DIAGRAM
   11           IT       5  1JAN94       0    2000
   12           IO       3
   13           IN       5 01JAN94       0
   14           JD    13.6    0.01
                * PMP 6-hour FRS2
   15           PI   0.029   0.029   0.029    0.03    0.03   0.031   0.032   0.032   0.033   0.034
   16           PI   0.034   0.035   0.043   0.043   0.043   0.043   0.044   0.044   0.045   0.047
   17           PI   0.049   0.053   0.057   0.061   0.112   0.114   0.115   0.119   0.123   0.127
   18           PI   0.129   0.147   0.154   0.168   0.187   0.215   2.948   1.712   1.236   0.761
   19           PI   0.666   0.571   0.295   0.285   0.276   0.266   0.252   0.243   0.107   0.099
   20           PI   0.092   0.087   0.082   0.078   0.073   0.071   0.068   0.067   0.066   0.063
   21           PI   0.043   0.043   0.042   0.041   0.041    0.04   0.039   0.039   0.038   0.037
   22           PI   0.037   0.036

   23           KK      T1
   24           KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
   25           KM      L=4.34     Lca=1.58     S=274.89     Kn=0.050     LAG=51.0
   26           KM      S-GRAPH TYPE=PHOENIX MOUNTAIN
   27           KO       0       0     0.0       1      22
   28           BA  3.0415
   29           LG    0.35    0.35   4.644   0.299  11.497
                * T1
   30           UI     0.0   200.8   200.8  447.02  773.33 1107.71 1336.75 1525.87 1807.83 2359.26
   31           UI  1728.6 1335.29 1184.68 1081.59  978.95  886.26  793.63  697.43  590.13  511.99
   32           UI  476.04  440.92  386.02  329.88  260.38  252.47  219.92  219.92  155.92  153.94
   33           UI  153.94  103.27   98.26   98.26   98.26   91.33   38.49   38.49   38.49   38.49
   34           UI   38.49   38.49   38.49   38.49   38.49   38.49   38.49   38.49

   35           KK     TCP   CNAME       T
   36           KO       0       0     0.0       0      22
   37           RN     TCP

   38           KK      U1
   39           KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
   40           KM      L=2.37     Lca=1.03     S=326.50     Kn=0.050     LAG=33.0
   41           KM      S-GRAPH TYPE=PHOENIX MOUNTAIN
   42           KO       0       0     0.0       1      22
   43           BA  1.3705
   44           LG    0.35    0.37   5.258   0.233   6.449
                * U1
   45           UI     0.0  139.83   266.2  626.33  919.49 1139.88 1569.26 1014.69  819.13  707.21
   46           UI  603.81  505.84  395.99  334.05  299.65  225.43  178.67   155.8  129.72   107.2
   47           UI   86.65   68.43   68.43   50.61    26.8    26.8    26.8    26.8    26.8    26.8
   48           UI    26.8     0.0
1                                          HEC-1 INPUT                                                          PAGE  2

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

   49           KK     UCP   CNAME       U
   50           KO       0       0     0.0       0      22
   51           RN     UCP

   52           KK      S1
```

```
53          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
54          KM      L=2.32    Lca=0.52     S=143.99     Kn=0.050     LAG=29.0
55          KM      S-GRAPH TYPE=PHOENIX MOUNTAIN
56          KO       0        0     0.0        1       22
57          BA  1.4105
58          LG    0.35     0.35   4.484    0.352    6.918
            * S1
59          UI     0.0  163.76  399.96  863.78 1191.38 1674.04 1389.89  974.39  824.12  687.96
60          UI  554.64  420.01  366.82  290.75  215.71   183.9  145.46  125.55   85.13   80.14
61          UI   72.14   31.39   31.39   31.39   31.39   31.39   31.39     0.0

62          KK     SCP   CNAME       S
63          KO       0       0     0.0       0      22
64          RN     SCP

65          KK    FRS2   CNAME    S, T, & U
66          KO       0       0     0.0       0      22
67          HC       3    5.82

68          KK  ROUTE          FRS#2 LEVEL POOL ROUTING
69          KM                 RESERVIOR ASSUMED EMPTY
70          KO       1
71          RS       1   STOR        0
72          ST    1119    9455     2.7     1.5
73          SS  1113.2     350     2.7     1.5
74          SQ      15      85     122     131     139     147     157
75          SE  1098.5 1100.99 1103.49 1105.99 1108.49 1110.99 1113.49
76          SV     0.8      18      73     169     318     528     825     973    1131    1303
77          SV    1494    1592
78          SE  1098.5 1100.99 1103.49 1105.99 1108.49 1110.99 1113.49 1114.49 1115.49 1116.49
79          SE  1117.5 1117.99
80          ZZ
1
              SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   23          T1
                V
                V
   35         TCP
                .
                .
   38           .          U1
                .           V
                .           V
   49           .         UCP
                .           .
                .           .
   52           .           .          S1
                .           .           V
                .           .           V
   62           .           .         SCP
                .           .           .
                .           .           .
   65        FRS2.......................
                V
                V
   68       ROUTE

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            JUN   1998                *
*          VERSION 4.1                 *
*                                      *
*  RUN DATE   09MAR04  TIME  13:46:26  *
*                                      *
****************************************

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

                        Buckeye/Sun Valley ADMS, FCD No. 2002C027
                        FRS Level Pool Routing - FRS#2
                        PBS&J, Job No. 540293.2031, March 2004
                        PMP 6-hour
                        Rainfall Loss Method - Green & Ampt
                        Unit Hydrograph Method - FCDMC S-Graph
                        Channel Routing Method - Normal Depth
                        Land Use - FCDMC GIS Data: mag_landuse (2000)
                        Soil Data - USDA SCS Soil Survey (1972 & 1981)
                        Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)

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

  13 IN          TIME DATA FOR INPUT TIME SERIES
                      JXMIN          5  TIME INTERVAL IN MINUTES
                     JXDATE     1JAN94  STARTING DATE
                     JXTIME          0  STARTING TIME

     IT          HYDROGRAPH TIME DATA
                       NMIN          5  MINUTES IN COMPUTATION INTERVAL
                      IDATE     1JAN94  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ       2000  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE     7JAN94  ENDING DATE
                     NDTIME       2235  ENDING TIME
                      ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL    0.08 HOURS
                      TOTAL TIME BASE  166.58 HOURS

          ENGLISH UNITS
               DRAINAGE AREA          SQUARE MILES
               PRECIPITATION DEPTH    INCHES
               LENGTH, ELEVATION      FEET
```

```
            FLOW                    CUBIC FEET PER SECOND
            STORAGE VOLUME          ACRE-FEET
            SURFACE AREA            ACRES
            TEMPERATURE             DEGREES FAHRENHEIT

  14 JD       INDEX STORM NO. 1
                 STRM        13.60  PRECIPITATION DEPTH
                 TRDA         0.01  TRANSPOSITION DRAINAGE AREA

  15 PI         PRECIPITATION PATTERN
                  0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
                  0.03      0.03      0.04      0.04      0.04      0.04      0.04      0.04      0.05      0.05
                  0.05      0.05      0.06      0.06      0.11      0.11      0.12      0.12      0.12      0.13
                  0.13      0.15      0.15      0.17      0.19      0.21      2.95      1.71      1.24      0.76
                  0.67      0.57      0.30      0.28      0.28      0.27      0.25      0.24      0.11      0.10
                  0.09      0.09      0.08      0.08      0.07      0.07      0.07      0.07      0.07      0.06
                  0.04      0.04      0.04      0.04      0.04      0.04      0.04      0.04      0.04      0.04
                  0.04      0.04

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

            **************
            *            *
  23 KK     *        T1  *
            *            *
            **************
                        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                        L=4.34     Lca=1.58     S=274.89     Kn=0.050     LAG=51.0
                        S-GRAPH TYPE=PHOENIX MOUNTAIN

  27 KO       OUTPUT CONTROL VARIABLES
                 IPRNT            3  PRINT CONTROL
                 IPLOT            0  PLOT CONTROL
                 QSCAL           0.  HYDROGRAPH PLOT SCALE
                 IPNCH            1  Ppunch COMPUTED HYDROGRAPH
                  IOUT           22  SAVE HYDROGRAPH ON THIS UNIT
                 ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                 ISAV2         2000  LAST ORDINATE PUNCHED OR SAVED
                TIMINT        0.083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

  28 BA       SUBBASIN CHARACTERISTICS
                 TAREA         3.04  SUBBASIN AREA

  29 LG       GREEN AND AMPT LOSS RATE
                 STRTL         0.35  STARTING LOSS
                   DTH         0.35  MOISTURE DEFICIT
                  PSIF         4.64  WETTING FRONT SUCTION
                 XKSAT         0.30  HYDRAULIC CONDUCTIVITY
                 RTIMP        11.50  PERCENT IMPERVIOUS AREA

  28 UI       INPUT UNITGRAPH,  48 ORDINATES,  VOLUME = 1.00
                   0.0     200.8     200.8     447.0     773.3    1107.7    1336.8    1525.9    1807.8    2359.3
                1728.6    1335.3    1184.7    1081.6     979.0     886.3     793.6     697.4     590.1     512.0
                 476.0     440.9     386.0     329.9     260.4     252.5     219.9     219.9     155.9     153.9
                 153.9     103.3      98.3      98.3      98.3      91.3      38.5      38.5      38.5      38.5
                  38.5      38.5      38.5      38.5      38.5      38.5      38.5      38.5
                                                                      ***

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

                    HYDROGRAPH AT STATION       T1
                 TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =   13.60, TOTAL LOSS =   2.94, TOTAL EXCESS =   10.66

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR    166.58-HR
+   (CFS)      (HR)
                        (CFS)
+   15022.     3.83              3473.        872.        291.        126.
                      (INCHES)   10.617      10.661      10.661      10.661
                       (AC-FT)    1722.       1729.       1729.       1729.

                     CUMULATIVE AREA =    3.04 SQ MI

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

            **************
            *            *
  35 KK     *       TCP  *        CNAME       T
            *            *
            **************

  36 KO       OUTPUT CONTROL VARIABLES
                 IPRNT            3  PRINT CONTROL
                 IPLOT            0  PLOT CONTROL
                 QSCAL           0.  HYDROGRAPH PLOT SCALE
                 IPNCH            0  PUNCH COMPUTED HYDROGRAPH
                  IOUT           22  SAVE HYDROGRAPH ON THIS UNIT
                 ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                 ISAV2         2000  LAST ORDINATE PUNCHED OR SAVED
                TIMINT        0.083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

  37 RN       NO ROUTING
                                                                      ***

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

                    HYDROGRAPH AT STATION      TCP
```

```
                    TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                         (CFS)
+  15022.      3.83                 3473.       872.        291.        126.
                       (INCHES)   10.617      10.661      10.661      10.661
                        (AC-FT)    1722.       1729.       1729.       1729.

                       CUMULATIVE AREA =    3.04 SQ MI


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


            **************
            *            *
  38 KK     *     U1     *
            *            *
            **************
                          THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                          L=2.37     Lca=1.03     S=326.50     Xn=0.050     LAG=33.0
                          S-GRAPH TYPE=PHOENIX MOUNTAIN

  42 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          1  Ppunch COMPUTED HYDROGRAPH
                        IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT      0.083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

  43 BA          SUBBASIN CHARACTERISTICS
                       TAREA       1.37  SUBBASIN AREA

  44 LG          GREEN AND AMPT LOSS RATE
                       STRTL       0.35  STARTING LOSS
                         DTH       0.37  MOISTURE DEFICIT
                        PSIF       5.26  WETTING FRONT SUCTION
                       XKSAT       0.23  HYDRAULIC CONDUCTIVITY
                       RTIMP       6.45  PERCENT IMPERVIOUS AREA

  43 UI          INPUT UNITGRAPH,  31 ORDINATES,  VOLUME = 1.00
                     0.0     139.8     266.2     626.3     919.5    1139.9    1569.3    1014.7     819.1     707.2
                   603.8     505.8     396.0     334.0     299.6     225.4     178.7     155.8     129.7     107.2
                    86.7      68.4      68.4      50.6      26.8      26.8      26.8      26.8      26.8      26.8
                    26.8
                                                                   ***

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

                       HYDROGRAPH AT STATION       U1
                     TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =   13.60, TOTAL LOSS =    2.86, TOTAL EXCESS =   10.74

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                         (CFS)
+   8841.      3.58                 1579.       395.        132.         57.
                       (INCHES)   10.714      10.730      10.730      10.730
                        (AC-FT)     783.        784.        784.        784.

                       CUMULATIVE AREA =    1.37 SQ MI


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


            **************
            *            *
  49 KK     *    UCP     *        CNAME       U
            *            *
            **************

  50 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                        IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT      0.083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

  51 RN          NO ROUTING
                                                                   ***

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

                       HYDROGRAPH AT STATION      UCP
                     TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                         (CFS)
+   8841.      3.58                 1579.       395.        132.         57.
```

```
                    (INCHES)    10.714      10.730      10.730      10.730
                     (AC-FT)      783.        784.        784.        784.

                    CUMULATIVE AREA =    1.37 SQ MI


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

            **************
            *            *
  52 KK     *        S1  *
            *            *
            **************
                          THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                          L=2.32     Lca=0.52     S=143.99     Kn=0.050     LAG=29.0
                          S-GRAPH TYPE=PHOENIX MOUNTAIN

  56 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                        IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT      0.083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

  57 BA          SUBBASIN CHARACTERISTICS
                       TAREA       1.41  SUBBASIN AREA

  58 LG          GREEN AND AMPT LOSS RATE
                       STRTL       0.35  STARTING LOSS
                         DTH       0.35  MOISTURE DEFICIT
                        PSIF       4.48  WETTING FRONT SUCTION
                       XKSAT       0.35  HYDRAULIC CONDUCTIVITY
                       RTIMP       6.92  PERCENT IMPERVIOUS AREA

  57 UI          INPUT UNITGRAPH,  27 ORDINATES,  VOLUME = 1.00
                       0.0     163.8     400.0     863.8    1191.4    1674.0    1389.9     974.4     824.1     688.0
                     554.6     420.0     366.8     290.8     215.7     183.9     145.5     125.6      85.1      80.1
                      72.1      31.4      31.4      31.4      31.4      31.4      31.4
                                                                      ***
     ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION       S1
                      TRANSPOSITION AREA      0.0 SQ MI

    TOTAL RAINFALL =   13.60, TOTAL LOSS =    3.31, TOTAL EXCESS =   10.29

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    9642.      3.58                 1556.        389.        130.         56.
                       (INCHES)    10.258      10.267      10.267      10.267
                        (AC-FT)      772.        772.        772.        772.

                      CUMULATIVE AREA =    1.41 SQ MI


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

            **************
            *            *
  62 KK     *       SCP  *        CNAME       S
            *            *
            **************

  63 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                        IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT      0.083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

  64 RN          NO ROUTING
                                                                      ***
     ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION      SCP
                      TRANSPOSITION AREA      0.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    9642.      3.58                 1556.        389.        130.         56.
                       (INCHES)    10.258      10.267      10.267      10.267
                        (AC-FT)      772.        772.        772.        772.

                      CUMULATIVE AREA =    1.41 SQ MI
```

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

            **************
            *            *
  65 KK     *    FRS2    *        CNAME    S, T, & U
            *            *
            **************

  66 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                        IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT      0.083  TIME INTERVAL IN HOURS

  67 HC          HYDROGRAPH COMBINATION
                       ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                        HYDROGRAPH AT STATION     FRS2
                       TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)      (HR)
                          (CFS)
+  30332.      3.83                 6605.       1657.        552.        239.
                        (INCHES)  10.552      10.586      10.586      10.586
                         (AC-FT)   3275.       3286.       3286.       3286.

                       CUMULATIVE AREA =    5.82 SQ MI


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

            **************
            *            *
  68 KK     *   ROUTE    *            FRS#2 LEVEL POOL ROUTING
            *            *
            **************
                                     RESERVIOR ASSUMED EMPTY

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

               HYDROGRAPH ROUTING DATA

  71 RS          STORAGE ROUTING
                      NSTPS          1  NUMBER OF SUBREACHES
                       ITYP        TOR  TYPE OF INITIAL CONDITION
                      RSVRIC       0.00  INITIAL CONDITION
                           X       0.00 WORKING R AND D COEFFICIENT

  76 SV            STORAGE         0.8      18.0      73.0     169.0     318.0     528.0     825.0     973.0    1131.0    1303.0
                                1494.0    1592.0

  78 SE          ELEVATION     1098.50   1100.99   1103.49   1105.99   1108.49   1110.99   1113.49   1114.49   1115.49   1116.49
                               1117.50   1117.99

  74 SQ          DISCHARGE        15.       85.      122.      131.      139.      147.      157.

  75 SE          ELEVATION     1098.50   1100.99   1103.49   1105.99   1108.49   1110.99   1113.49

  73 SS          SPILLWAY
                      CREL     1113.20  SPILLWAY CREST ELEVATION
                      SPWID     350.00  SPILLWAY WIDTH
                       COQW       2.70  WEIR COEFFICIENT
                       EXPW       1.50  EXPONENT OF HEAD

  72 ST          TOP OF DAM
                      TOPEL     1119.00  ELEVATION AT TOP OF DAM
                      DAMWID    9455.00  DAM WIDTH
                       COQD       2.70  WEIR COEFFICIENT
                       EXPD       1.50  EXPONENT OF HEAD

                                                                  ***

                                     COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

                                          (INCLUDING FLOW OVER DAM)

          STORAGE       0.80     18.00     73.00    169.00    318.00    528.00    825.00    973.00   1131.00   1303.00
          OUTFLOW      15.00     85.00    122.00    131.00    139.00    147.00    157.00    161.00    165.00    169.00
        ELEVATION    1098.50   1100.99   1103.49   1105.99   1108.49   1110.99   1113.49   1114.49   1115.49   1116.49

          STORAGE    1494.00   1592.00
          OUTFLOW     173.04    175.00
        ELEVATION    1117.50   1117.99
*****************************************************************************************************************************************

                                     HYDROGRAPH AT   ROUTE
                                  TRANSPOSITION AREA      0.0 SQ MI

*****************************************************************************************************************************************
                                                 *                                                 *
 DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE * DA MON HRMN ORD  OUTFLOW  STORAGE   STAGE
                                                 *                                                 *
  1 JAN 0000   1      15.      0.8  1098.5 *  3 JAN 0735 668     165.   1118.1  1115.4 *  5 JAN 15101335     142.    409.7  1109.6
  1 JAN 0005   2      15.      0.8  1098.5 *  3 JAN 0740 669     165.   1116.9  1115.4 *  5 JAN 15151336     142.    408.7  1109.6
  1 JAN 0010   3      15.      0.8  1098.5 *  3 JAN 0745 670     165.   1115.8  1115.4 *  5 JAN 15201337     142.    407.8  1109.6
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1	JAN	0015	4	15.	0.8	1098.5	*	3	JAN	0750	671	165.	1114.6	1115.4	*	5	JAN	15251338	142.	406.8	1109.5
1	JAN	0020	5	15.	0.8	1098.5	*	3	JAN	0755	672	165.	1113.5	1115.4	*	5	JAN	15301339	142.	405.8	1109.5
1	JAN	0025	6	15.	0.8	1098.5	*	3	JAN	0800	673	165.	1112.4	1115.4	*	5	JAN	15351340	142.	404.8	1109.5
1	JAN	0030	7	15.	0.8	1098.5	*	3	JAN	0805	674	164.	1111.2	1115.4	*	5	JAN	15401341	142.	403.8	1109.5
1	JAN	0035	8	15.	0.9	1098.5	*	3	JAN	0810	675	164.	1110.1	1115.4	*	5	JAN	15451342	142.	402.8	1109.5
1	JAN	0040	9	16.	1.1	1098.5	*	3	JAN	0815	676	164.	1109.0	1115.4	*	5	JAN	15501343	142.	401.8	1109.5
1	JAN	0045	10	17.	1.3	1098.6	*	3	JAN	0820	677	164.	1107.8	1115.3	*	5	JAN	15551344	142.	400.9	1109.5
1	JAN	0050	11	18.	1.6	1098.6	*	3	JAN	0825	678	164.	1106.7	1115.3	*	5	JAN	16001345	142.	399.9	1109.5
1	JAN	0055	12	20.	1.9	1098.7	*	3	JAN	0830	679	164.	1105.5	1115.3	*	5	JAN	16051346	142.	398.9	1109.5
1	JAN	0100	13	21.	2.3	1098.7	*	3	JAN	0835	680	164.	1104.4	1115.3	*	5	JAN	16101347	142.	397.9	1109.4
1	JAN	0105	14	23.	2.7	1098.8	*	3	JAN	0840	681	164.	1103.3	1115.3	*	5	JAN	16151348	142.	397.0	1109.4
1	JAN	0110	15	25.	3.2	1098.8	*	3	JAN	0845	682	164.	1102.1	1115.3	*	5	JAN	16201349	142.	396.0	1109.4
1	JAN	0115	16	27.	3.7	1098.9	*	3	JAN	0850	683	164.	1101.0	1115.3	*	5	JAN	16251350	142.	395.0	1109.4
1	JAN	0120	17	29.	4.2	1099.0	*	3	JAN	0855	684	164.	1099.9	1115.3	*	5	JAN	16301351	142.	394.1	1109.4
1	JAN	0125	18	31.	4.8	1099.1	*	3	JAN	0900	685	164.	1098.7	1115.3	*	5	JAN	16351352	142.	393.1	1109.4
1	JAN	0130	19	34.	5.4	1099.2	*	3	JAN	0905	686	164.	1097.6	1115.3	*	5	JAN	16401353	142.	392.1	1109.4
1	JAN	0135	20	36.	6.0	1099.3	*	3	JAN	0910	687	164.	1096.4	1115.3	*	5	JAN	16451354	142.	391.1	1109.4
1	JAN	0140	21	39.	6.6	1099.3	*	3	JAN	0915	688	164.	1095.3	1115.3	*	5	JAN	16501355	142.	390.2	1109.3
1	JAN	0145	22	41.	7.3	1099.4	*	3	JAN	0920	689	164.	1094.2	1115.3	*	5	JAN	16551356	142.	389.2	1109.3
1	JAN	0150	23	44.	8.0	1099.5	*	3	JAN	0925	690	164.	1093.0	1115.2	*	5	JAN	17001357	142.	388.2	1109.3
1	JAN	0155	24	47.	8.7	1099.6	*	3	JAN	0930	691	164.	1091.9	1115.2	*	5	JAN	17051358	142.	387.2	1109.3
1	JAN	0200	25	50.	9.4	1099.7	*	3	JAN	0935	692	164.	1090.7	1115.2	*	5	JAN	17101359	142.	386.3	1109.3
1	JAN	0205	26	53.	10.2	1099.9	*	3	JAN	0940	693	164.	1089.6	1115.2	*	5	JAN	17151360	142.	385.3	1109.3
1	JAN	0210	27	56.	11.0	1100.0	*	3	JAN	0945	694	164.	1088.5	1115.2	*	5	JAN	17201361	142.	384.3	1109.3
1	JAN	0215	28	60.	12.0	1100.1	*	3	JAN	0950	695	164.	1087.3	1115.2	*	5	JAN	17251362	141.	383.3	1109.3
1	JAN	0220	29	66.	13.2	1100.3	*	3	JAN	0955	696	164.	1086.2	1115.2	*	5	JAN	17301363	141.	382.4	1109.3
1	JAN	0225	30	73.	15.0	1100.6	*	3	JAN	1000	697	164.	1085.1	1115.2	*	5	JAN	17351364	141.	381.4	1109.2
1	JAN	0230	31	84.	17.7	1100.9	*	3	JAN	1005	698	164.	1083.9	1115.2	*	5	JAN	17401365	141.	380.4	1109.2
1	JAN	0235	32	87.	21.4	1101.1	*	3	JAN	1010	699	164.	1082.8	1115.2	*	5	JAN	17451366	141.	379.4	1109.2
1	JAN	0240	33	91.	26.5	1101.4	*	3	JAN	1015	700	164.	1081.7	1115.2	*	5	JAN	17501367	141.	378.5	1109.2
1	JAN	0245	34	95.	33.1	1101.7	*	3	JAN	1020	701	164.	1080.6	1115.2	*	5	JAN	17551368	141.	377.5	1109.2
1	JAN	0250	35	101.	41.4	1102.1	*	3	JAN	1025	702	164.	1079.5	1115.2	*	5	JAN	18001369	141.	376.5	1109.2
1	JAN	0255	36	108.	51.6	1102.5	*	3	JAN	1030	703	164.	1078.3	1115.2	*	5	JAN	18051370	141.	375.5	1109.2
1	JAN	0300	37	116.	63.7	1103.1	*	3	JAN	1035	704	164.	1077.2	1115.1	*	5	JAN	18101371	141.	374.6	1109.2
1	JAN	0305	38	122.	78.0	1103.6	*	3	JAN	1040	705	164.	1076.1	1115.1	*	5	JAN	18151372	141.	373.6	1109.2
1	JAN	0310	39	124.	99.6	1104.2	*	3	JAN	1045	706	164.	1075.0	1115.1	*	5	JAN	18201373	141.	372.6	1109.1
1	JAN	0315	40	128.	134.8	1105.1	*	3	JAN	1050	707	164.	1073.9	1115.1	*	5	JAN	18251374	141.	371.6	1109.1
1	JAN	0320	41	132.	192.7	1106.4	*	3	JAN	1055	708	164.	1072.8	1115.1	*	5	JAN	18301375	141.	370.7	1109.1
1	JAN	0325	42	137.	284.2	1107.9	*	3	JAN	1100	709	163.	1071.6	1115.1	*	5	JAN	18351376	141.	369.7	1109.1
1	JAN	0330	43	143.	414.9	1109.6	*	3	JAN	1105	710	163.	1070.5	1115.1	*	5	JAN	18401377	141.	368.7	1109.1
1	JAN	0335	44	149.	584.1	1111.5	*	3	JAN	1110	711	163.	1069.4	1115.1	*	5	JAN	18451378	141.	367.8	1109.1
1	JAN	0340	45	155.	773.4	1113.1	*	3	JAN	1115	712	163.	1068.3	1115.1	*	5	JAN	18501379	141.	366.8	1109.1
1	JAN	0345	46	161.	969.0	1114.5	*	3	JAN	1120	713	163.	1067.2	1115.1	*	5	JAN	18551380	141.	365.8	1109.1
1	JAN	0350	47	166.	1171.9	1115.7	*	3	JAN	1125	714	163.	1066.0	1115.1	*	5	JAN	19001381	141.	364.8	1109.0
1	JAN	0355	48	171.	1374.4	1116.9	*	3	JAN	1130	715	163.	1064.9	1115.1	*	5	JAN	19051382	141.	363.9	1109.0
1	JAN	0400	49	174.	1563.6	1117.8	*	3	JAN	1135	716	163.	1063.8	1115.1	*	5	JAN	19101383	141.	362.9	1109.0
1	JAN	0405	50	178.	1736.0	1118.7	*	3	JAN	1140	717	163.	1062.7	1115.1	*	5	JAN	19151384	141.	361.9	1109.0
1	JAN	0410	51	6369.	1871.8	1119.4	*	3	JAN	1145	718	163.	1061.6	1115.1	*	5	JAN	19201385	141.	361.0	1109.0
1	JAN	0415	52	16164.	1940.4	1119.7	*	3	JAN	1150	719	163.	1060.4	1115.0	*	5	JAN	19251386	141.	360.0	1109.0
1	JAN	0420	53	18530.	1954.5	1119.8	*	3	JAN	1155	720	163.	1059.3	1115.0	*	5	JAN	19301387	141.	359.0	1109.0
1	JAN	0425	54	17856.	1950.5	1119.8	*	3	JAN	1200	721	163.	1058.2	1115.0	*	5	JAN	19351388	141.	358.1	1109.0
1	JAN	0430	55	16392.	1941.8	1119.7	*	3	JAN	1205	722	163.	1057.1	1115.0	*	5	JAN	19401389	140.	357.1	1109.0
1	JAN	0435	56	14792.	1931.9	1119.7	*	3	JAN	1210	723	163.	1056.0	1115.0	*	5	JAN	19451390	140.	356.1	1108.9
1	JAN	0440	57	13234.	1921.9	1119.6	*	3	JAN	1215	724	163.	1054.9	1115.0	*	5	JAN	19501391	140.	355.2	1108.9
1	JAN	0445	58	11850.	1912.7	1119.6	*	3	JAN	1220	725	163.	1053.7	1115.0	*	5	JAN	19551392	140.	354.2	1108.9
1	JAN	0450	59	10585.	1903.9	1119.5	*	3	JAN	1225	726	163.	1052.6	1115.0	*	5	JAN	20001393	140.	353.2	1108.9
1	JAN	0455	60	9442.	1895.7	1119.5	*	3	JAN	1230	727	163.	1051.5	1115.0	*	5	JAN	20051394	140.	352.3	1108.9
1	JAN	0500	61	8441.	1888.3	1119.5	*	3	JAN	1235	728	163.	1050.4	1115.0	*	5	JAN	20101395	140.	351.3	1108.9
1	JAN	0505	62	7525.	1881.2	1119.4	*	3	JAN	1240	729	163.	1049.3	1115.0	*	5	JAN	20151396	140.	350.4	1108.9
1	JAN	0510	63	6717.	1874.6	1119.4	*	3	JAN	1245	730	163.	1048.1	1115.0	*	5	JAN	20201397	140.	349.4	1108.9
1	JAN	0515	64	6034.	1868.9	1119.4	*	3	JAN	1250	731	163.	1047.0	1115.0	*	5	JAN	20251398	140.	348.4	1108.9
1	JAN	0520	65	5435.	1863.7	1119.3	*	3	JAN	1255	732	163.	1045.9	1115.0	*	5	JAN	20301399	140.	347.5	1108.8
1	JAN	0525	66	4869.	1858.6	1119.3	*	3	JAN	1300	733	163.	1044.8	1114.9	*	5	JAN	20351400	140.	346.5	1108.8
1	JAN	0530	67	4338.	1853.7	1119.3	*	3	JAN	1305	734	163.	1043.7	1114.9	*	5	JAN	20401401	140.	345.5	1108.8
1	JAN	0535	68	3887.	1849.3	1119.3	*	3	JAN	1310	735	163.	1042.5	1114.9	*	5	JAN	20451402	140.	344.6	1108.8
1	JAN	0540	69	3465.	1845.0	1119.3	*	3	JAN	1315	736	163.	1041.4	1114.9	*	5	JAN	20501403	140.	343.6	1108.8
1	JAN	0545	70	3052.	1840.6	1119.2	*	3	JAN	1320	737	163.	1040.3	1114.9	*	5	JAN	20551404	140.	342.6	1108.8
1	JAN	0550	71	2692.	1836.6	1119.2	*	3	JAN	1325	738	163.	1039.2	1114.9	*	5	JAN	21001405	140.	341.7	1108.8
1	JAN	0555	72	2394.	1833.2	1119.2	*	3	JAN	1330	739	163.	1038.1	1114.9	*	5	JAN	21051406	140.	340.7	1108.8
1	JAN	0600	73	2148.	1830.2	1119.2	*	3	JAN	1335	740	163.	1037.0	1114.9	*	5	JAN	21101407	140.	339.7	1108.7
1	JAN	0605	74	1912.	1827.3	1119.2	*	3	JAN	1340	741	163.	1035.8	1114.9	*	5	JAN	21151408	140.	338.8	1108.7
1	JAN	0610	75	1679.	1824.2	1119.2	*	3	JAN	1345	742	163.	1034.7	1114.9	*	5	JAN	21201409	140.	337.8	1108.7
1	JAN	0615	76	1479.	1821.5	1119.1	*	3	JAN	1350	743	163.	1033.6	1114.9	*	5	JAN	21251410	140.	336.9	1108.7
1	JAN	0620	77	1311.	1819.1	1119.1	*	3	JAN	1355	744	163.	1032.5	1114.9	*	5	JAN	21301411	140.	335.9	1108.7
1	JAN	0625	78	1170.	1816.9	1119.1	*	3	JAN	1400	745	162.	1031.4	1114.9	*	5	JAN	21351412	140.	334.9	1108.7
1	JAN	0630	79	1049.	1815.0	1119.1	*	3	JAN	1405	746	162.	1030.2	1114.9	*	5	JAN	21401413	140.	334.0	1108.7
1	JAN	0635	80	947.	1813.3	1119.1	*	3	JAN	1410	747	162.	1029.1	1114.8	*	5	JAN	21451414	140.	333.0	1108.7
1	JAN	0640	81	860.	1811.9	1119.1	*	3	JAN	1415	748	162.	1028.0	1114.8	*	5	JAN	21501415	140.	332.0	1108.7
1	JAN	0645	82	787.	1810.6	1119.1	*	3	JAN	1420	749	162.	1026.9	1114.8	*	5	JAN	21551416	139.	331.1	1108.6
1	JAN	0650	83	724.	1809.4	1119.1	*	3	JAN	1425	750	162.	1025.8	1114.8	*	5	JAN	22001417	139.	330.1	1108.6
1	JAN	0655	84	668.	1808.3	1119.1	*	3	JAN	1430	751	162.	1024.7	1114.8	*	5	JAN	22051418	139.	329.1	1108.6
1	JAN	0700	85	619.	1807.3	1119.1	*	3	JAN	1435	752	162.	1023.5	1114.8	*	5	JAN	22101419	139.	328.2	1108.6
1	JAN	0705	86	561.	1806.1	1119.1	*	3	JAN	1440	753	162.	1022.4	1114.8	*	5	JAN	22151420	139.	327.2	1108.6
1	JAN	0710	87	493.	1804.7	1119.1	*	3	JAN	1445	754	162.	1021.3	1114.8	*	5	JAN	22201421	139.	326.3	1108.6
1	JAN	0715	88	428.	1803.1	1119.0	*	3	JAN	1450	755	162.	1020.2	1114.8	*	5	JAN	22251422	139.	325.3	1108.6
1	JAN	0720	89	372.	1801.7	1119.0	*	3	JAN	1455	756	162.	1019.1	1114.8	*	5	JAN	22301423	139.	324.3	1108.6
1	JAN	0725	90	324.	1800.4	1119.0	*	3	JAN	1500	757	162.	1017.9	1114.8	*	5	JAN	22351424	139.	323.4	1108.6
1	JAN	0730	91	284.	1799.1	1119.0	*	3	JAN	1505	758	162.	1016.8	1114.8	*	5	JAN	22401425	139.	322.4	1108.5
1	JAN	0735	92	251.	1798.0	1119.0	*	3	JAN	1510	759	162.	1015.7	1114.8	*	5	JAN	22451426	139.	321.5	1108.5
1	JAN	0740	93	224.	1796.9	1119.0	*	3	JAN	1515	760	162.	1014.6	1114.8	*	5	JAN	22501427	139.	320.5	1108.5
1	JAN	0745	94	204.	1796.0	1119.0	*	3	JAN	1520	761	162.	1013.5	1114.7	*	5	JAN	22551428	139.	319.5	1108.5
1	JAN	0750	95	188.	1795.0	1119.0	*	3	JAN	1525	762	162.	1012.3	1114.7	*	5	JAN	23001429	139.	318.6	1108.5
1	JAN	0755	96	179.	1794.1	1119.0	*	3	JAN	1530	763	162.	1011.2	1114.7	*	5	JAN	23051430	139.	317.6	1108.5
1	JAN	0800	97	179.	1793.1	1119.0	*	3	JAN	1535	764	162.	1010.1	1114.7	*	5	JAN	23101431	139.	316.7	1108.5
1	JAN	0805	98	179.	1792.0	1119.0	*	3	JAN	1540	765	162.	1009.0	1114.7	*	5	JAN	23151432	139.	315.7	1108.5
1	JAN	0810	99	179.	1790.9	1119.0	*	3	JAN	1545	766	162.	1007.9	1114.7	*	5	JAN	23201433	139.	314.8	1108.4
1	JAN	0815	100	179.	1789.8	1119.0	*	3	JAN	1550	767	162.	1006.8	1114.7	*	5	JAN	23251434	139.	313.8	1108.4
1	JAN	0820	101	179.	1788.7	1119.0	*	3	JAN	1555	768	162.	1005.6	1114.7	*	5	JAN	23301435	139.	312.9	1108.4
1	JAN	0825	102	179.	1787.6	1119.0	*	3	JAN	1600	769	162.	1004.5	1114.7	*	5	JAN	23351436	139.	311.9	1108.4
1	JAN	0830	103	179.	1786.4	1119.0	*	3	JAN	1605	770	162.	1003.4	1114.7	*	5	JAN	23401437	139.	311.0	1108.4
1	JAN	0835	104	179.	1785.3	1119.0	*	3	JAN	1610	771	162.	1002.3	1114.7	*	5	JAN	23451438	139.	310.0	1108.4
1	JAN	0840	105	179.	1784.1	1119.0	*	3	JAN	1615	772	162.	1001.2	1114.7	*	5	JAN	23501439	139.	309.1	1108.3
1	JAN	0845	106	179.	1782.9	1118.9	*	3	JAN	1620	773	162.	1000.0	1114.7	*	5	JAN	23551440	138.	308.1	1108.3
1	JAN	0850	107	179.	1781.7	1118.9	*	3	JAN	1625	774	162.	998.9	1114.7	*	6	JAN	00001441	138.	307.1	1108.3
1	JAN	0855	108	179.	1780.5	1118.9	*	3	JAN	1630	775	162.	997.8	1114.6	*	6	JAN	00051442	138.	306.2	1108.3
1	JAN	0900	109	179.	1779.3	1118.9	*	3	JAN	1635	776	162.	996.7	1114.6	*	6	JAN	00101443	138.	305.2	1108.3
1	JAN	0905	110	179.	1778.1	1118.9	*	3	JAN	1640	777	162.	995.6	1114.6	*	6	JAN	00151444	138.	304.3	1108.3
1	JAN	0910	111	179.	1776.9	1118.9	*	3	JAN	1645	778	162.	994.4	1114.6	*	6	JAN	00201445	138.	303.3	1108.2
1	JAN	0915	112	179.	1775.6	1118.9	*	3	JAN	1650	779	162.	993.3	1114.6	*	6	JAN	00251446	138.	302.4	1108.2
1	JAN	0920	113	179.	1774.4	1118.9	*	3	JAN	1655	780	161.	992.2	1114.6	*	6	JAN	00301447	138.	301.4	1108.2
1	JAN	0925	114	179.	1773.2	1118.9	*	3	JAN	1700	781	161.	991.1	1114.6	*	6	JAN	00351448	138.	300.5	1108.2
1	JAN	0930	115	179.	1772.0	1118.9	*	3	JAN	1705	782	161.	990.0	1114.6	*	6	JAN	00401449	138.	299.5	1108.2
1	JAN	0935	116	179.	1770.8	1118.9	*	3	JAN	1710	783	161.	988.9	1114.6	*	6	JAN	00451450	138.	298.6	1108.2
1	JAN	0940	117	179.	1769.5	1118.9	*	3	JAN	1715	784	161.	987.7	1114.6	*	6	JAN	00501451	138.	297.6	1108.1

1	JAN	0945	118	179.	1768.3	1118.9	*	3	JAN	1720	785	161.	986.6	1114.6	*	6	JAN 00551452	138.	296.7	1108.1
1	JAN	0950	119	179.	1767.1	1118.9	*	3	JAN	1725	786	161.	985.5	1114.6	*	6	JAN 01001453	138.	295.7	1108.1
1	JAN	0955	120	178.	1765.9	1118.9	*	3	JAN	1730	787	161.	984.4	1114.6	*	6	JAN 01051454	138.	294.8	1108.1
1	JAN	1000	121	178.	1764.7	1118.9	*	3	JAN	1735	788	161.	983.3	1114.6	*	6	JAN 01101455	138.	293.8	1108.1
1	JAN	1005	122	178.	1763.4	1118.8	*	3	JAN	1740	789	161.	982.1	1114.5	*	6	JAN 01151456	138.	292.9	1108.1
1	JAN	1010	123	178.	1762.2	1118.8	*	3	JAN	1745	790	161.	981.0	1114.5	*	6	JAN 01201457	138.	291.9	1108.1
1	JAN	1015	124	178.	1761.0	1118.8	*	3	JAN	1750	791	161.	979.9	1114.5	*	6	JAN 01251458	138.	291.0	1108.0
1	JAN	1020	125	178.	1759.8	1118.8	*	3	JAN	1755	792	161.	978.8	1114.5	*	6	JAN 01301459	137.	290.0	1108.0
1	JAN	1025	126	178.	1758.6	1118.8	*	3	JAN	1800	793	161.	977.7	1114.5	*	6	JAN 01351460	137.	289.1	1108.0
1	JAN	1030	127	178.	1757.3	1118.8	*	3	JAN	1805	794	161.	976.5	1114.5	*	6	JAN 01401461	137.	288.1	1108.0
1	JAN	1035	128	178.	1756.1	1118.8	*	3	JAN	1810	795	161.	975.4	1114.5	*	6	JAN 01451462	137.	287.2	1108.0
1	JAN	1040	129	178.	1754.9	1118.8	*	3	JAN	1815	796	161.	974.3	1114.5	*	6	JAN 01501463	137.	286.3	1108.0
1	JAN	1045	130	178.	1753.7	1118.8	*	3	JAN	1820	797	161.	973.2	1114.5	*	6	JAN 01551464	137.	285.3	1107.9
1	JAN	1050	131	178.	1752.5	1118.8	*	3	JAN	1825	798	161.	972.1	1114.5	*	6	JAN 02001465	137.	284.4	1107.9
1	JAN	1055	132	178.	1751.2	1118.8	*	3	JAN	1830	799	161.	971.0	1114.5	*	6	JAN 02051466	137.	283.4	1107.9
1	JAN	1100	133	178.	1750.0	1118.8	*	3	JAN	1835	800	161.	969.9	1114.5	*	6	JAN 02101467	137.	282.5	1107.9
1	JAN	1105	134	178.	1748.8	1118.8	*	3	JAN	1840	801	161.	968.8	1114.5	*	6	JAN 02151468	137.	281.5	1107.9
1	JAN	1110	135	178.	1747.6	1118.8	*	3	JAN	1845	802	161.	967.7	1114.5	*	6	JAN 02201469	137.	280.6	1107.9
1	JAN	1115	136	178.	1746.3	1118.8	*	3	JAN	1850	803	161.	966.6	1114.4	*	6	JAN 02251470	137.	279.6	1107.8
1	JAN	1120	137	178.	1745.1	1118.8	*	3	JAN	1855	804	161.	965.5	1114.4	*	6	JAN 02301471	137.	278.7	1107.8
1	JAN	1125	138	178.	1743.9	1118.7	*	3	JAN	1900	805	161.	964.4	1114.4	*	6	JAN 02351472	137.	277.7	1107.8
1	JAN	1130	139	178.	1742.7	1118.7	*	3	JAN	1905	806	161.	963.3	1114.4	*	6	JAN 02401473	137.	276.8	1107.8
1	JAN	1135	140	178.	1741.5	1118.7	*	3	JAN	1910	807	161.	962.2	1114.4	*	6	JAN 02451474	137.	275.9	1107.8
1	JAN	1140	141	178.	1740.2	1118.7	*	3	JAN	1915	808	161.	961.1	1114.4	*	6	JAN 02501475	137.	274.9	1107.8
1	JAN	1145	142	178.	1739.0	1118.7	*	3	JAN	1920	809	161.	960.0	1114.4	*	6	JAN 02551476	137.	274.0	1107.8
1	JAN	1150	143	178.	1737.8	1118.7	*	3	JAN	1925	810	161.	958.9	1114.4	*	6	JAN 03001477	137.	273.0	1107.7
1	JAN	1155	144	178.	1736.6	1118.7	*	3	JAN	1930	811	161.	957.8	1114.4	*	6	JAN 03051478	137.	272.1	1107.7
1	JAN	1200	145	178.	1735.4	1118.7	*	3	JAN	1935	812	161.	956.7	1114.4	*	6	JAN 03101479	136.	271.2	1107.7
1	JAN	1205	146	178.	1734.1	1118.7	*	3	JAN	1940	813	161.	955.6	1114.4	*	6	JAN 03151480	136.	270.2	1107.7
1	JAN	1210	147	178.	1732.9	1118.7	*	3	JAN	1945	814	160.	954.5	1114.4	*	6	JAN 03201481	136.	269.3	1107.7
1	JAN	1215	148	178.	1731.7	1118.7	*	3	JAN	1950	815	160.	953.4	1114.4	*	6	JAN 03251482	136.	268.4	1107.7
1	JAN	1220	149	178.	1730.5	1118.7	*	3	JAN	1955	816	160.	952.3	1114.3	*	6	JAN 03301483	136.	267.4	1107.6
1	JAN	1225	150	178.	1729.3	1118.7	*	3	JAN	2000	817	160.	951.2	1114.3	*	6	JAN 03351484	136.	266.5	1107.6
1	JAN	1230	151	178.	1728.0	1118.7	*	3	JAN	2005	818	160.	950.1	1114.3	*	6	JAN 03401485	136.	265.5	1107.6
1	JAN	1235	152	178.	1726.8	1118.7	*	3	JAN	2010	819	160.	949.0	1114.3	*	6	JAN 03451486	136.	264.6	1107.6
1	JAN	1240	153	178.	1725.6	1118.7	*	3	JAN	2015	820	160.	947.9	1114.3	*	6	JAN 03501487	136.	263.7	1107.6
1	JAN	1245	154	178.	1724.4	1118.7	*	3	JAN	2020	821	160.	946.7	1114.3	*	6	JAN 03551488	136.	262.7	1107.6
1	JAN	1250	155	178.	1723.2	1118.6	*	3	JAN	2025	822	160.	945.6	1114.3	*	6	JAN 04001489	136.	261.8	1107.5
1	JAN	1255	156	178.	1721.9	1118.6	*	3	JAN	2030	823	160.	944.5	1114.3	*	6	JAN 04051490	136.	260.8	1107.5
1	JAN	1300	157	178.	1720.7	1118.6	*	3	JAN	2035	824	160.	943.4	1114.3	*	6	JAN 04101491	136.	259.9	1107.5
1	JAN	1305	158	178.	1719.5	1118.6	*	3	JAN	2040	825	160.	942.3	1114.3	*	6	JAN 04151492	136.	259.0	1107.5
1	JAN	1310	159	178.	1718.3	1118.6	*	3	JAN	2045	826	160.	941.2	1114.3	*	6	JAN 04201493	136.	258.0	1107.5
1	JAN	1315	160	178.	1717.1	1118.6	*	3	JAN	2050	827	160.	940.1	1114.3	*	6	JAN 04251494	136.	257.1	1107.5
1	JAN	1320	161	177.	1715.8	1118.6	*	3	JAN	2055	828	160.	939.0	1114.3	*	6	JAN 04301495	136.	256.2	1107.5
1	JAN	1325	162	177.	1714.6	1118.6	*	3	JAN	2100	829	160.	937.9	1114.3	*	6	JAN 04351496	136.	255.2	1107.4
1	JAN	1330	163	177.	1713.4	1118.6	*	3	JAN	2105	830	160.	936.8	1114.2	*	6	JAN 04401497	136.	254.3	1107.4
1	JAN	1335	164	177.	1712.2	1118.6	*	3	JAN	2110	831	160.	935.7	1114.2	*	6	JAN 04451498	136.	253.4	1107.4
1	JAN	1340	165	177.	1710.9	1118.6	*	3	JAN	2115	832	160.	934.6	1114.2	*	6	JAN 04501499	135.	252.4	1107.4
1	JAN	1345	166	177.	1709.7	1118.6	*	3	JAN	2120	833	160.	933.5	1114.2	*	6	JAN 04551500	135.	251.5	1107.4
1	JAN	1350	167	177.	1708.5	1118.6	*	3	JAN	2125	834	160.	932.4	1114.2	*	6	JAN 05001501	135.	250.6	1107.4
1	JAN	1355	168	177.	1707.3	1118.6	*	3	JAN	2130	835	160.	931.3	1114.2	*	6	JAN 05051502	135.	249.6	1107.3
1	JAN	1400	169	177.	1706.1	1118.6	*	3	JAN	2135	836	160.	930.2	1114.2	*	6	JAN 05101503	135.	248.7	1107.3
1	JAN	1405	170	177.	1704.8	1118.6	*	3	JAN	2140	837	160.	929.1	1114.2	*	6	JAN 05151504	135.	247.8	1107.3
1	JAN	1410	171	177.	1703.6	1118.5	*	3	JAN	2145	838	160.	928.0	1114.2	*	6	JAN 05201505	135.	246.8	1107.3
1	JAN	1415	172	177.	1702.4	1118.5	*	3	JAN	2150	839	160.	926.9	1114.2	*	6	JAN 05251506	135.	245.9	1107.3
1	JAN	1420	173	177.	1701.2	1118.5	*	3	JAN	2155	840	160.	925.8	1114.2	*	6	JAN 05301507	135.	245.0	1107.3
1	JAN	1425	174	177.	1700.0	1118.5	*	3	JAN	2200	841	160.	924.7	1114.2	*	6	JAN 05351508	135.	244.1	1107.2
1	JAN	1430	175	177.	1698.7	1118.5	*	3	JAN	2205	842	160.	923.6	1114.2	*	6	JAN 05401509	135.	243.1	1107.2
1	JAN	1435	176	177.	1697.5	1118.5	*	3	JAN	2210	843	160.	922.5	1114.1	*	6	JAN 05451510	135.	242.2	1107.2
1	JAN	1440	177	177.	1696.3	1118.5	*	3	JAN	2215	844	160.	921.4	1114.1	*	6	JAN 05501511	135.	241.3	1107.2
1	JAN	1445	178	177.	1695.1	1118.5	*	3	JAN	2220	845	160.	920.3	1114.1	*	6	JAN 05551512	135.	240.3	1107.2
1	JAN	1450	179	177.	1693.9	1118.5	*	3	JAN	2225	846	160.	919.2	1114.1	*	6	JAN 06001513	135.	239.4	1107.2
1	JAN	1455	180	177.	1692.6	1118.5	*	3	JAN	2230	847	160.	918.1	1114.1	*	6	JAN 06051514	135.	238.5	1107.2
1	JAN	1500	181	177.	1691.4	1118.5	*	3	JAN	2235	848	159.	917.0	1114.1	*	6	JAN 06101515	135.	237.5	1107.1
1	JAN	1505	182	177.	1690.2	1118.5	*	3	JAN	2240	849	159.	915.9	1114.1	*	6	JAN 06151516	135.	236.6	1107.1
1	JAN	1510	183	177.	1689.0	1118.5	*	3	JAN	2245	850	159.	914.8	1114.1	*	6	JAN 06201517	135.	235.7	1107.1
1	JAN	1515	184	177.	1687.8	1118.5	*	3	JAN	2250	851	159.	913.7	1114.1	*	6	JAN 06251518	135.	234.8	1107.1
1	JAN	1520	185	177.	1686.5	1118.5	*	3	JAN	2255	852	159.	912.6	1114.1	*	6	JAN 06301519	134.	233.8	1107.1
1	JAN	1525	186	177.	1685.3	1118.5	*	3	JAN	2300	853	159.	911.5	1114.1	*	6	JAN 06351520	134.	232.9	1107.1
1	JAN	1530	187	177.	1684.1	1118.5	*	3	JAN	2305	854	159.	910.4	1114.1	*	6	JAN 06401521	134.	232.0	1107.0
1	JAN	1535	188	177.	1682.9	1118.4	*	3	JAN	2310	855	159.	909.3	1114.1	*	6	JAN 06451522	134.	231.1	1107.0
1	JAN	1540	189	177.	1681.7	1118.4	*	3	JAN	2315	856	159.	908.2	1114.1	*	6	JAN 06501523	134.	230.1	1107.0
1	JAN	1545	190	177.	1680.4	1118.4	*	3	JAN	2320	857	159.	907.1	1114.0	*	6	JAN 06551524	134.	229.2	1107.0
1	JAN	1550	191	177.	1679.2	1118.4	*	3	JAN	2325	858	159.	906.0	1114.0	*	6	JAN 07001525	134.	228.3	1107.0
1	JAN	1555	192	177.	1678.0	1118.4	*	3	JAN	2330	859	159.	904.9	1114.0	*	6	JAN 07051526	134.	227.4	1107.0
1	JAN	1600	193	177.	1676.8	1118.4	*	3	JAN	2335	860	159.	903.8	1114.0	*	6	JAN 07101527	134.	226.4	1107.0
1	JAN	1605	194	177.	1675.5	1118.4	*	3	JAN	2340	861	159.	902.7	1114.0	*	6	JAN 07151528	134.	225.5	1106.9
1	JAN	1610	195	177.	1674.3	1118.4	*	3	JAN	2345	862	159.	901.6	1114.0	*	6	JAN 07201529	134.	224.6	1106.9
1	JAN	1615	196	177.	1673.1	1118.4	*	3	JAN	2350	863	159.	900.5	1114.0	*	6	JAN 07251530	134.	223.7	1106.9
1	JAN	1620	197	177.	1671.9	1118.4	*	3	JAN	2355	864	159.	899.4	1114.0	*	6	JAN 07301531	134.	222.8	1106.9
1	JAN	1625	198	177.	1670.7	1118.4	*	4	JAN	0000	865	159.	898.3	1114.0	*	6	JAN 07351532	134.	221.8	1106.9
1	JAN	1630	199	177.	1669.4	1118.4	*	4	JAN	0005	866	159.	897.2	1114.0	*	6	JAN 07401533	134.	220.9	1106.9
1	JAN	1635	200	177.	1668.2	1118.4	*	4	JAN	0010	867	159.	896.1	1114.0	*	6	JAN 07451534	134.	220.0	1106.8
1	JAN	1640	201	177.	1667.0	1118.4	*	4	JAN	0015	868	159.	895.0	1114.0	*	6	JAN 07501535	134.	219.1	1106.8
1	JAN	1645	202	176.	1665.8	1118.4	*	4	JAN	0020	869	159.	893.9	1114.0	*	6	JAN 07551536	134.	218.1	1106.8
1	JAN	1650	203	176.	1664.6	1118.4	*	4	JAN	0025	870	159.	892.7	1113.9	*	6	JAN 08001537	134.	217.2	1106.8
1	JAN	1655	204	176.	1663.3	1118.3	*	4	JAN	0030	871	159.	891.6	1113.9	*	6	JAN 08051538	134.	216.3	1106.8
1	JAN	1700	205	176.	1662.1	1118.3	*	4	JAN	0035	872	159.	890.5	1113.9	*	6	JAN 08101539	133.	215.4	1106.8
1	JAN	1705	206	176.	1660.9	1118.3	*	4	JAN	0040	873	159.	889.4	1113.9	*	6	JAN 08151540	133.	214.5	1106.8
1	JAN	1710	207	176.	1659.7	1118.3	*	4	JAN	0045	874	159.	888.3	1113.9	*	6	JAN 08201541	133.	213.5	1106.7
1	JAN	1715	208	176.	1658.5	1118.3	*	4	JAN	0050	875	159.	887.3	1113.9	*	6	JAN 08251542	133.	212.6	1106.7
1	JAN	1720	209	176.	1657.2	1118.3	*	4	JAN	0055	876	159.	886.2	1113.9	*	6	JAN 08301543	133.	211.7	1106.7
1	JAN	1725	210	176.	1656.0	1118.3	*	4	JAN	0100	877	159.	885.1	1113.9	*	6	JAN 08351544	133.	210.8	1106.7
1	JAN	1730	211	176.	1654.8	1118.3	*	4	JAN	0105	878	159.	884.0	1113.9	*	6	JAN 08401545	133.	209.9	1106.7
1	JAN	1735	212	176.	1653.6	1118.3	*	4	JAN	0110	879	159.	882.9	1113.9	*	6	JAN 08451546	133.	209.0	1106.7
1	JAN	1740	213	176.	1652.4	1118.3	*	4	JAN	0115	880	159.	881.8	1113.9	*	6	JAN 08501547	133.	208.0	1106.6
1	JAN	1745	214	176.	1651.1	1118.3	*	4	JAN	0120	881	159.	880.8	1113.9	*	6	JAN 08551548	133.	207.1	1106.6
1	JAN	1750	215	176.	1649.9	1118.3	*	4	JAN	0125	882	158.	879.7	1113.9	*	6	JAN 09001549	133.	206.2	1106.6
1	JAN	1755	216	176.	1648.7	1118.3	*	4	JAN	0130	883	158.	878.6	1113.9	*	6	JAN 09051550	133.	205.3	1106.6
1	JAN	1800	217	176.	1647.5	1118.3	*	4	JAN	0135	884	158.	877.5	1113.8	*	6	JAN 09101551	133.	204.4	1106.6
1	JAN	1805	218	176.	1646.2	1118.3	*	4	JAN	0140	885	158.	876.4	1113.8	*	6	JAN 09151552	133.	203.5	1106.6
1	JAN	1810	219	176.	1645.0	1118.3	*	4	JAN	0145	886	158.	875.3	1113.8	*	6	JAN 09201553	133.	202.5	1106.6
1	JAN	1815	220	176.	1643.8	1118.2	*	4	JAN	0150	887	158.	874.2	1113.8	*	6	JAN 09251554	133.	201.6	1106.5
1	JAN	1820	221	176.	1642.6	1118.2	*	4	JAN	0155	888	158.	873.2	1113.8	*	6	JAN 09301555	133.	200.7	1106.5
1	JAN	1825	222	176.	1641.4	1118.2	*	4	JAN	0200	889	158.	872.1	1113.8	*	6	JAN 09351556	133.	199.8	1106.5
1	JAN	1830	223	176.	1640.1	1118.2	*	4	JAN	0205	890	158.	871.0	1113.8	*	6	JAN 09401557	133.	198.9	1106.5
1	JAN	1835	224	176.	1638.9	1118.2	*	4	JAN	0210	891	158.	869.9	1113.8	*	6	JAN 09451558	133.	198.0	1106.5
1	JAN	1840	225	176.	1637.7	1118.2	*	4	JAN	0215	892	158.	868.8	1113.8	*	6	JAN 09501559	133.	197.1	1106.5
1	JAN	1845	226	176.	1636.5	1118.2	*	4	JAN	0220	893	158.	867.7	1113.8	*	6	JAN 09551560	132.	196.1	1106.4
1	JAN	1850	227	176.	1635.3	1118.2	*	4	JAN	0225	894	158.	866.7	1113.8	*	6	JAN 10001561	132.	195.2	1106.4
1	JAN	1855	228	176.	1634.0	1118.2	*	4	JAN	0230	895	158.	865.6	1113.8	*	6	JAN 10051562	132.	194.3	1106.4
1	JAN	1900	229	176.	1632.8	1118.2	*	4	JAN	0235	896	158.	864.5	1113.8	*	6	JAN 10101563	132.	193.4	1106.4
1	JAN	1905	230	176.	1631.6	1118.2	*	4	JAN	0240	897	158.	863.4	1113.7	*	6	JAN 10151564	132.	192.5	1106.4
1	JAN	1910	231	176.	1630.4	1118.2	*	4	JAN	0245	898	158.	862.3	1113.7	*	6	JAN 10201565	132.	191.6	1106.4

1	JAN	1915	232	176.	1629.2	1118.2 *	4	JAN	0250	899	158.	861.2	1113.7 *	6	JAN	10251566	132.	190.7	1106.4
1	JAN	1920	233	176.	1627.9	1118.2 *	4	JAN	0255	900	158.	860.2	1113.7 *	6	JAN	10301567	132.	189.8	1106.3
1	JAN	1925	234	176.	1626.7	1118.2 *	4	JAN	0300	901	158.	859.1	1113.7 *	6	JAN	10351568	132.	188.9	1106.3
1	JAN	1930	235	176.	1625.5	1118.2 *	4	JAN	0305	902	158.	858.0	1113.7 *	6	JAN	10401569	132.	188.0	1106.3
1	JAN	1935	236	176.	1624.3	1118.2 *	4	JAN	0310	903	158.	856.9	1113.7 *	6	JAN	10451570	132.	187.1	1106.3
1	JAN	1940	237	176.	1623.1	1118.1 *	4	JAN	0315	904	158.	855.8	1113.7 *	6	JAN	10501571	132.	186.1	1106.3
1	JAN	1945	238	176.	1621.8	1118.1 *	4	JAN	0320	905	158.	854.7	1113.7 *	6	JAN	10551572	132.	185.2	1106.3
1	JAN	1950	239	176.	1620.6	1118.1 *	4	JAN	0325	906	158.	853.7	1113.7 *	6	JAN	11001573	132.	184.3	1106.2
1	JAN	1955	240	176.	1619.4	1118.1 *	4	JAN	0330	907	158.	852.6	1113.7 *	6	JAN	11051574	132.	183.4	1106.2
1	JAN	2000	241	176.	1618.2	1118.1 *	4	JAN	0335	908	158.	851.5	1113.7 *	6	JAN	11101575	132.	182.5	1106.2
1	JAN	2005	242	175.	1617.0	1118.1 *	4	JAN	0340	909	158.	850.4	1113.7 *	6	JAN	11151576	132.	181.6	1106.2
1	JAN	2010	243	175.	1615.7	1118.1 *	4	JAN	0345	910	158.	849.3	1113.7 *	6	JAN	11201577	132.	180.7	1106.2
1	JAN	2015	244	175.	1614.5	1118.1 *	4	JAN	0350	911	158.	848.2	1113.6 *	6	JAN	11251578	132.	179.8	1106.2
1	JAN	2020	245	175.	1613.3	1118.1 *	4	JAN	0355	912	158.	847.1	1113.6 *	6	JAN	11301579	132.	178.9	1106.2
1	JAN	2025	246	175.	1612.1	1118.1 *	4	JAN	0400	913	158.	846.1	1113.6 *	6	JAN	11351580	131.	178.0	1106.1
1	JAN	2030	247	175.	1610.9	1118.1 *	4	JAN	0405	914	158.	845.0	1113.6 *	6	JAN	11401581	131.	177.1	1106.1
1	JAN	2035	248	175.	1609.7	1118.1 *	4	JAN	0410	915	158.	843.9	1113.6 *	6	JAN	11451582	131.	176.2	1106.1
1	JAN	2040	249	175.	1608.6	1118.1 *	4	JAN	0415	916	157.	842.8	1113.6 *	6	JAN	11501583	131.	175.3	1106.1
1	JAN	2045	250	175.	1607.4	1118.1 *	4	JAN	0420	917	157.	841.7	1113.6 *	6	JAN	11551584	131.	174.4	1106.1
1	JAN	2050	251	175.	1606.2	1118.1 *	4	JAN	0425	918	157.	840.6	1113.6 *	6	JAN	12001585	131.	173.5	1106.1
1	JAN	2055	252	175.	1605.0	1118.1 *	4	JAN	0430	919	157.	839.6	1113.6 *	6	JAN	12051586	131.	172.6	1106.0
1	JAN	2100	253	175.	1603.8	1118.0 *	4	JAN	0435	920	157.	838.5	1113.6 *	6	JAN	12101587	131.	171.6	1106.0
1	JAN	2105	254	175.	1602.6	1118.0 *	4	JAN	0440	921	157.	837.4	1113.6 *	6	JAN	12151588	131.	170.7	1106.0
1	JAN	2110	255	175.	1601.4	1118.0 *	4	JAN	0445	922	157.	836.3	1113.6 *	6	JAN	12201589	131.	169.8	1106.0
1	JAN	2115	256	175.	1600.2	1118.0 *	4	JAN	0450	923	157.	835.2	1113.6 *	6	JAN	12251590	131.	168.9	1106.0
1	JAN	2120	257	175.	1599.0	1118.0 *	4	JAN	0455	924	157.	834.1	1113.6 *	6	JAN	12301591	131.	168.0	1106.0
1	JAN	2125	258	175.	1597.8	1118.0 *	4	JAN	0500	925	157.	833.1	1113.5 *	6	JAN	12351592	131.	167.1	1105.9
1	JAN	2130	259	175.	1596.6	1118.0 *	4	JAN	0505	926	157.	832.0	1113.5 *	6	JAN	12401593	131.	166.2	1105.9
1	JAN	2135	260	175.	1595.4	1118.0 *	4	JAN	0510	927	157.	830.9	1113.5 *	6	JAN	12451594	131.	165.3	1105.9
1	JAN	2140	261	175.	1594.2	1118.0 *	4	JAN	0515	928	157.	829.8	1113.5 *	6	JAN	12501595	131.	164.4	1105.9
1	JAN	2145	262	175.	1593.0	1118.0 *	4	JAN	0520	929	157.	828.7	1113.5 *	6	JAN	12551596	130.	163.5	1105.8
1	JAN	2150	263	175.	1591.8	1118.0 *	4	JAN	0525	930	157.	827.6	1113.5 *	6	JAN	13001597	130.	162.6	1105.8
1	JAN	2155	264	175.	1590.6	1118.0 *	4	JAN	0530	931	157.	826.6	1113.5 *	6	JAN	13051598	130.	161.7	1105.8
1	JAN	2200	265	175.	1589.4	1118.0 *	4	JAN	0535	932	157.	825.5	1113.5 *	6	JAN	13101599	130.	160.8	1105.8
1	JAN	2205	266	175.	1588.2	1118.0 *	4	JAN	0540	933	157.	824.4	1113.5 *	6	JAN	13151600	130.	160.0	1105.8
1	JAN	2210	267	175.	1587.0	1118.0 *	4	JAN	0545	934	157.	823.3	1113.5 *	6	JAN	13201601	130.	159.1	1105.7
1	JAN	2215	268	175.	1585.8	1118.0 *	4	JAN	0550	935	157.	822.2	1113.5 *	6	JAN	13251602	130.	158.2	1105.7
1	JAN	2220	269	175.	1584.6	1118.0 *	4	JAN	0555	936	157.	821.1	1113.5 *	6	JAN	13301603	130.	157.3	1105.7
1	JAN	2225	270	175.	1583.4	1117.9 *	4	JAN	0600	937	157.	820.1	1113.4 *	6	JAN	13351604	130.	156.4	1105.7
1	JAN	2230	271	175.	1582.2	1117.9 *	4	JAN	0605	938	157.	819.0	1113.4 *	6	JAN	13401605	130.	155.5	1105.6
1	JAN	2235	272	175.	1581.0	1117.9 *	4	JAN	0610	939	157.	817.9	1113.4 *	6	JAN	13451606	130.	154.6	1105.6
1	JAN	2240	273	175.	1579.8	1117.9 *	4	JAN	0615	940	157.	816.8	1113.4 *	6	JAN	13501607	130.	153.7	1105.6
1	JAN	2245	274	175.	1578.6	1117.9 *	4	JAN	0620	941	157.	815.8	1113.4 *	6	JAN	13551608	129.	152.8	1105.6
1	JAN	2250	275	175.	1577.4	1117.9 *	4	JAN	0625	942	157.	814.7	1113.4 *	6	JAN	14001609	129.	151.9	1105.5
1	JAN	2255	276	175.	1576.3	1117.9 *	4	JAN	0630	943	157.	813.6	1113.4 *	6	JAN	14051610	129.	151.0	1105.5
1	JAN	2300	277	175.	1575.1	1117.9 *	4	JAN	0635	944	157.	812.5	1113.4 *	6	JAN	14101611	129.	150.1	1105.5
1	JAN	2305	278	175.	1573.9	1117.9 *	4	JAN	0640	945	157.	811.5	1113.4 *	6	JAN	14151612	129.	149.2	1105.5
1	JAN	2310	279	175.	1572.7	1117.9 *	4	JAN	0645	946	157.	810.4	1113.4 *	6	JAN	14201613	129.	148.3	1105.5
1	JAN	2315	280	175.	1571.5	1117.9 *	4	JAN	0650	947	156.	809.3	1113.4 *	6	JAN	14251614	129.	147.5	1105.4
1	JAN	2320	281	175.	1570.3	1117.9 *	4	JAN	0655	948	156.	808.3	1113.3 *	6	JAN	14301615	129.	146.6	1105.4
1	JAN	2325	282	175.	1569.1	1117.9 *	4	JAN	0700	949	156.	807.2	1113.3 *	6	JAN	14351616	129.	145.7	1105.4
1	JAN	2330	283	175.	1567.9	1117.9 *	4	JAN	0705	950	156.	806.1	1113.3 *	6	JAN	14401617	129.	144.8	1105.4
1	JAN	2335	284	174.	1566.7	1117.9 *	4	JAN	0710	951	156.	805.0	1113.3 *	6	JAN	14451618	129.	143.9	1105.3
1	JAN	2340	285	174.	1565.5	1117.9 *	4	JAN	0715	952	156.	804.0	1113.3 *	6	JAN	14501619	129.	143.0	1105.3
1	JAN	2345	286	174.	1564.3	1117.9 *	4	JAN	0720	953	156.	802.9	1113.3 *	6	JAN	14551620	128.	142.1	1105.3
1	JAN	2350	287	174.	1563.1	1117.8 *	4	JAN	0725	954	156.	801.8	1113.3 *	6	JAN	15001621	128.	141.3	1105.3
1	JAN	2355	288	174.	1561.9	1117.8 *	4	JAN	0730	955	156.	800.7	1113.3 *	6	JAN	15051622	128.	140.4	1105.2
2	JAN	0000	289	174.	1560.7	1117.8 *	4	JAN	0735	956	156.	799.7	1113.3 *	6	JAN	15101623	128.	139.5	1105.2
2	JAN	0005	290	174.	1559.5	1117.8 *	4	JAN	0740	957	156.	798.6	1113.3 *	6	JAN	15151624	128.	138.6	1105.2
2	JAN	0010	291	174.	1558.3	1117.8 *	4	JAN	0745	958	156.	797.5	1113.3 *	6	JAN	15201625	128.	137.7	1105.2
2	JAN	0015	292	174.	1557.1	1117.8 *	4	JAN	0750	959	156.	796.4	1113.2 *	6	JAN	15251626	128.	136.8	1105.2
2	JAN	0020	293	174.	1555.9	1117.8 *	4	JAN	0755	960	156.	795.4	1113.2 *	6	JAN	15301627	128.	136.0	1105.1
2	JAN	0025	294	174.	1554.7	1117.8 *	4	JAN	0800	961	156.	794.3	1113.2 *	6	JAN	15351628	128.	135.1	1105.1
2	JAN	0030	295	174.	1553.5	1117.8 *	4	JAN	0805	962	156.	793.2	1113.2 *	6	JAN	15401629	128.	134.2	1105.1
2	JAN	0035	296	174.	1552.3	1117.8 *	4	JAN	0810	963	156.	792.2	1113.2 *	6	JAN	15451630	128.	133.3	1105.1
2	JAN	0040	297	174.	1551.1	1117.8 *	4	JAN	0815	964	156.	791.1	1113.2 *	6	JAN	15501631	128.	132.4	1105.0
2	JAN	0045	298	174.	1549.9	1117.8 *	4	JAN	0820	965	156.	790.0	1113.2 *	6	JAN	15551632	127.	131.6	1105.0
2	JAN	0050	299	174.	1548.7	1117.8 *	4	JAN	0825	966	156.	788.9	1113.2 *	6	JAN	16001633	127.	130.7	1105.0
2	JAN	0055	300	174.	1547.5	1117.8 *	4	JAN	0830	967	156.	787.9	1113.2 *	6	JAN	16051634	127.	129.8	1105.0
2	JAN	0100	301	174.	1546.3	1117.8 *	4	JAN	0835	968	156.	786.8	1113.2 *	6	JAN	16101635	127.	128.9	1104.9
2	JAN	0105	302	174.	1545.1	1117.8 *	4	JAN	0840	969	156.	785.7	1113.2 *	6	JAN	16151636	127.	128.1	1104.9
2	JAN	0110	303	174.	1544.0	1117.7 *	4	JAN	0845	970	156.	784.6	1113.2 *	6	JAN	16201637	127.	127.2	1104.9
2	JAN	0115	304	174.	1542.8	1117.7 *	4	JAN	0850	971	156.	783.6	1113.1 *	6	JAN	16251638	127.	126.3	1104.9
2	JAN	0120	305	174.	1541.6	1117.7 *	4	JAN	0855	972	156.	782.5	1113.1 *	6	JAN	16301639	127.	125.4	1104.9
2	JAN	0125	306	174.	1540.4	1117.7 *	4	JAN	0900	973	156.	781.4	1113.1 *	6	JAN	16351640	127.	124.6	1104.8
2	JAN	0130	307	174.	1539.2	1117.7 *	4	JAN	0905	974	155.	780.3	1113.1 *	6	JAN	16401641	127.	123.7	1104.8
2	JAN	0135	308	174.	1538.0	1117.7 *	4	JAN	0910	975	155.	779.3	1113.1 *	6	JAN	16451642	127.	122.8	1104.8
2	JAN	0140	309	174.	1536.8	1117.7 *	4	JAN	0915	976	155.	778.2	1113.1 *	6	JAN	16501643	127.	121.9	1104.8
2	JAN	0145	310	174.	1535.6	1117.7 *	4	JAN	0920	977	155.	777.1	1113.1 *	6	JAN	16551644	127.	121.1	1104.7
2	JAN	0150	311	174.	1534.4	1117.7 *	4	JAN	0925	978	155.	776.1	1113.1 *	6	JAN	17001645	126.	120.2	1104.7
2	JAN	0155	312	174.	1533.2	1117.7 *	4	JAN	0930	979	155.	775.0	1113.1 *	6	JAN	17051646	126.	119.3	1104.7
2	JAN	0200	313	174.	1532.0	1117.7 *	4	JAN	0935	980	155.	773.9	1113.1 *	6	JAN	17101647	126.	118.5	1104.7
2	JAN	0205	314	174.	1530.8	1117.7 *	4	JAN	0940	981	155.	772.8	1113.1 *	6	JAN	17151648	126.	117.6	1104.7
2	JAN	0210	315	174.	1529.6	1117.7 *	4	JAN	0945	982	155.	771.8	1113.0 *	6	JAN	17201649	126.	116.7	1104.6
2	JAN	0215	316	174.	1528.4	1117.7 *	4	JAN	0950	983	155.	770.7	1113.0 *	6	JAN	17251650	126.	115.9	1104.6
2	JAN	0220	317	174.	1527.2	1117.7 *	4	JAN	0955	984	155.	769.6	1113.0 *	6	JAN	17301651	126.	115.0	1104.6
2	JAN	0225	318	174.	1526.0	1117.7 *	4	JAN	1000	985	155.	768.5	1113.0 *	6	JAN	17351652	126.	114.1	1104.6
2	JAN	0230	319	174.	1524.8	1117.7 *	4	JAN	1005	986	155.	767.5	1113.0 *	6	JAN	17401653	126.	113.3	1104.5
2	JAN	0235	320	174.	1523.6	1117.6 *	4	JAN	1010	987	155.	766.4	1113.0 *	6	JAN	17451654	126.	112.4	1104.5
2	JAN	0240	321	174.	1522.4	1117.6 *	4	JAN	1015	988	155.	765.3	1113.0 *	6	JAN	17501655	126.	111.5	1104.5
2	JAN	0245	322	174.	1521.2	1117.6 *	4	JAN	1020	989	155.	764.3	1113.0 *	6	JAN	17551656	126.	110.7	1104.5
2	JAN	0250	323	174.	1520.0	1117.6 *	4	JAN	1025	990	155.	763.2	1113.0 *	6	JAN	18001657	125.	109.8	1104.4
2	JAN	0255	324	174.	1518.8	1117.6 *	4	JAN	1030	991	155.	762.1	1113.0 *	6	JAN	18051658	125.	108.9	1104.4
2	JAN	0300	325	174.	1517.6	1117.6 *	4	JAN	1035	992	155.	761.0	1113.0 *	6	JAN	18101659	125.	108.1	1104.4
2	JAN	0305	326	173.	1516.4	1117.6 *	4	JAN	1040	993	155.	760.0	1112.9 *	6	JAN	18151660	125.	107.2	1104.4
2	JAN	0310	327	173.	1515.2	1117.6 *	4	JAN	1045	994	155.	758.9	1112.9 *	6	JAN	18201661	125.	106.3	1104.4
2	JAN	0315	328	173.	1514.0	1117.6 *	4	JAN	1050	995	155.	757.8	1112.9 *	6	JAN	18251662	125.	105.5	1104.3
2	JAN	0320	329	173.	1512.8	1117.6 *	4	JAN	1055	996	155.	756.8	1112.9 *	6	JAN	18301663	125.	104.6	1104.3
2	JAN	0325	330	173.	1511.7	1117.6 *	4	JAN	1100	997	155.	755.7	1112.9 *	6	JAN	18351664	125.	103.8	1104.3
2	JAN	0330	331	173.	1510.5	1117.6 *	4	JAN	1105	998	155.	754.7	1112.9 *	6	JAN	18401665	125.	102.9	1104.3
2	JAN	0335	332	173.	1509.3	1117.6 *	4	JAN	1110	999	155.	753.6	1112.9 *	6	JAN	18451666	125.	102.0	1104.2
2	JAN	0340	333	173.	1508.1	1117.6 *	4	JAN	1115	1000	155.	752.5	1112.9 *	6	JAN	18501667	125.	101.2	1104.2
2	JAN	0345	334	173.	1506.9	1117.6 *	4	JAN	1120	1001	155.	751.5	1112.9 *	6	JAN	18551668	125.	100.3	1104.2
2	JAN	0350	335	173.	1505.7	1117.6 *	4	JAN	1125	1002	154.	750.4	1112.9 *	6	JAN	19001669	124.	99.5	1104.2
2	JAN	0355	336	173.	1504.5	1117.6 *	4	JAN	1130	1003	154.	749.4	1112.9 *	6	JAN	19051670	124.	98.6	1104.2
2	JAN	0400	337	173.	1503.3	1117.5 *	4	JAN	1135	1004	154.	748.3	1112.8 *	6	JAN	19101671	124.	97.8	1104.1
2	JAN	0405	338	173.	1502.1	1117.5 *	4	JAN	1140	1005	154.	747.2	1112.8 *	6	JAN	19151672	124.	96.9	1104.1
2	JAN	0410	339	173.	1500.9	1117.5 *	4	JAN	1145	1006	154.	746.2	1112.8 *	6	JAN	19201673	124.	96.0	1104.1
2	JAN	0415	340	173.	1499.7	1117.5 *	4	JAN	1150	1007	154.	745.1	1112.8 *	6	JAN	19251674	124.	95.2	1104.1
2	JAN	0420	341	173.	1498.5	1117.5 *	4	JAN	1155	1008	154.	744.1	1112.8 *	6	JAN	19301675	124.	94.3	1104.0
2	JAN	0425	342	173.	1497.3	1117.5 *	4	JAN	1200	1009	154.	743.0	1112.8 *	6	JAN	19351676	124.	93.5	1104.0
2	JAN	0430	343	173.	1496.1	1117.5 *	4	JAN	1205	1010	154.	741.9	1112.8 *	6	JAN	19401677	124.	92.6	1104.0
2	JAN	0435	344	173.	1494.9	1117.5 *	4	JAN	1210	1011	154.	740.9	1112.8 *	6	JAN	19451678	124.	91.8	1104.0
2	JAN	0440	345	173.	1493.7	1117.5 *	4	JAN	1215	1012	154.	739.8	1112.8 *	6	JAN	19501679	124.	90.9	1104.0

2	JAN	0445	346	173.	1492.5	1117.5	*	4 JAN 12201013	154.	738.8	1112.8	*	6 JAN 19551680	124.	90.1	1103.9
2	JAN	0450	347	173.	1491.3	1117.5	*	4 JAN 12251014	154.	737.7	1112.8	*	6 JAN 20001681	124.	89.2	1103.9
2	JAN	0455	348	173.	1490.1	1117.5	*	4 JAN 12301015	154.	736.7	1112.7	*	6 JAN 20051682	123.	88.4	1103.9
2	JAN	0500	349	173.	1488.9	1117.5	*	4 JAN 12351016	154.	735.6	1112.7	*	6 JAN 20101683	123.	87.5	1103.9
2	JAN	0505	350	173.	1487.7	1117.5	*	4 JAN 12401017	154.	734.5	1112.7	*	6 JAN 20151684	123.	86.7	1103.8
2	JAN	0510	351	173.	1486.5	1117.5	*	4 JAN 12451018	154.	733.5	1112.7	*	6 JAN 20201685	123.	85.8	1103.8
2	JAN	0515	352	173.	1485.3	1117.5	*	4 JAN 12501019	154.	732.4	1112.7	*	6 JAN 20251686	123.	85.0	1103.8
2	JAN	0520	353	173.	1484.1	1117.4	*	4 JAN 12551020	154.	731.4	1112.7	*	6 JAN 20301687	123.	84.1	1103.8
2	JAN	0525	354	173.	1482.9	1117.4	*	4 JAN 13001021	154.	730.3	1112.7	*	6 JAN 20351688	123.	83.3	1103.8
2	JAN	0530	355	173.	1481.7	1117.4	*	4 JAN 13051022	154.	729.2	1112.7	*	6 JAN 20401689	123.	82.4	1103.7
2	JAN	0535	356	173.	1480.5	1117.4	*	4 JAN 13101023	154.	728.2	1112.7	*	6 JAN 20451690	123.	81.6	1103.7
2	JAN	0540	357	173.	1479.3	1117.4	*	4 JAN 13151024	154.	727.1	1112.7	*	6 JAN 20501691	123.	80.7	1103.7
2	JAN	0545	358	173.	1478.1	1117.4	*	4 JAN 13201025	154.	726.1	1112.7	*	6 JAN 20551692	123.	79.9	1103.7
2	JAN	0550	359	173.	1476.9	1117.4	*	4 JAN 13251026	154.	725.0	1112.6	*	6 JAN 21001693	123.	79.1	1103.6
2	JAN	0555	360	173.	1475.7	1117.4	*	4 JAN 13301027	154.	724.0	1112.6	*	6 JAN 21051694	122.	78.2	1103.6
2	JAN	0600	361	173.	1474.5	1117.4	*	4 JAN 13351028	154.	722.9	1112.6	*	6 JAN 21101695	122.	77.4	1103.6
2	JAN	0605	362	173.	1473.3	1117.4	*	4 JAN 13401029	154.	721.8	1112.6	*	6 JAN 21151696	122.	76.5	1103.6
2	JAN	0610	363	173.	1472.2	1117.4	*	4 JAN 13451030	153.	720.8	1112.6	*	6 JAN 21201697	122.	75.7	1103.6
2	JAN	0615	364	173.	1471.0	1117.4	*	4 JAN 13501031	153.	719.7	1112.6	*	6 JAN 21251698	122.	74.8	1103.5
2	JAN	0620	365	173.	1469.8	1117.4	*	4 JAN 13551032	153.	718.7	1112.6	*	6 JAN 21301699	122.	74.0	1103.5
2	JAN	0625	366	173.	1468.6	1117.4	*	4 JAN 14001033	153.	717.6	1112.6	*	6 JAN 21351700	122.	73.2	1103.5
2	JAN	0630	367	172.	1467.5	1117.4	*	4 JAN 14051034	153.	716.5	1112.6	*	6 JAN 21401701	122.	72.3	1103.5
2	JAN	0635	368	172.	1466.3	1117.4	*	4 JAN 14101035	153.	715.5	1112.6	*	6 JAN 21451702	121.	71.5	1103.4
2	JAN	0640	369	172.	1465.1	1117.3	*	4 JAN 14151036	153.	714.4	1112.6	*	6 JAN 21501703	120.	70.6	1103.4
2	JAN	0645	370	172.	1463.9	1117.3	*	4 JAN 14201037	153.	713.4	1112.6	*	6 JAN 21551704	120.	69.8	1103.3
2	JAN	0650	371	172.	1462.7	1117.3	*	4 JAN 14251038	153.	712.3	1112.5	*	6 JAN 22001705	119.	69.0	1103.3
2	JAN	0655	372	172.	1461.6	1117.3	*	4 JAN 14301039	153.	711.2	1112.5	*	6 JAN 22051706	119.	68.2	1103.3
2	JAN	0700	373	172.	1460.4	1117.3	*	4 JAN 14351040	153.	710.2	1112.5	*	6 JAN 22101707	118.	67.4	1103.2
2	JAN	0705	374	172.	1459.2	1117.3	*	4 JAN 14401041	153.	709.1	1112.5	*	6 JAN 22151708	118.	66.5	1103.2
2	JAN	0710	375	172.	1458.0	1117.3	*	4 JAN 14451042	153.	708.1	1112.5	*	6 JAN 22201709	117.	65.7	1103.2
2	JAN	0715	376	172.	1456.9	1117.3	*	4 JAN 14501043	153.	707.0	1112.5	*	6 JAN 22251710	117.	64.9	1103.1
2	JAN	0720	377	172.	1455.7	1117.3	*	4 JAN 14551044	153.	706.0	1112.5	*	6 JAN 22301711	116.	64.1	1103.1
2	JAN	0725	378	172.	1454.5	1117.3	*	4 JAN 15001045	153.	704.9	1112.5	*	6 JAN 22351712	115.	63.3	1103.1
2	JAN	0730	379	172.	1453.3	1117.3	*	4 JAN 15051046	153.	703.8	1112.5	*	6 JAN 22401713	115.	62.5	1103.0
2	JAN	0735	380	172.	1452.1	1117.3	*	4 JAN 15101047	153.	702.8	1112.5	*	6 JAN 22451714	114.	61.8	1103.0
2	JAN	0740	381	172.	1451.0	1117.3	*	4 JAN 15151048	153.	701.7	1112.5	*	6 JAN 22501715	114.	61.0	1102.9
2	JAN	0745	382	172.	1449.8	1117.3	*	4 JAN 15201049	153.	700.7	1112.4	*	6 JAN 22551716	113.	60.2	1102.9
2	JAN	0750	383	172.	1448.6	1117.3	*	4 JAN 15251050	153.	699.6	1112.4	*	6 JAN 23001717	113.	59.4	1102.9
2	JAN	0755	384	172.	1447.4	1117.3	*	4 JAN 15301051	153.	698.5	1112.4	*	6 JAN 23051718	112.	58.6	1102.8
2	JAN	0800	385	172.	1446.3	1117.2	*	4 JAN 15351052	153.	697.5	1112.4	*	6 JAN 23101719	112.	57.9	1102.8
2	JAN	0805	386	172.	1445.1	1117.2	*	4 JAN 15401053	153.	696.4	1112.4	*	6 JAN 23151720	111.	57.1	1102.8
2	JAN	0810	387	172.	1443.9	1117.2	*	4 JAN 15451054	153.	695.4	1112.4	*	6 JAN 23201721	111.	56.3	1102.7
2	JAN	0815	388	172.	1442.7	1117.2	*	4 JAN 15501055	153.	694.3	1112.4	*	6 JAN 23251722	110.	55.6	1102.7
2	JAN	0820	389	172.	1441.6	1117.2	*	4 JAN 15551056	153.	693.3	1112.4	*	6 JAN 23301723	110.	54.8	1102.7
2	JAN	0825	390	172.	1440.4	1117.2	*	4 JAN 16001057	153.	692.2	1112.4	*	6 JAN 23351724	109.	54.1	1102.6
2	JAN	0830	391	172.	1439.2	1117.2	*	4 JAN 16051058	152.	691.2	1112.4	*	6 JAN 23401725	109.	53.3	1102.6
2	JAN	0835	392	172.	1438.0	1117.2	*	4 JAN 16101059	152.	690.2	1112.4	*	6 JAN 23451726	108.	52.6	1102.6
2	JAN	0840	393	172.	1436.8	1117.2	*	4 JAN 16151060	152.	689.1	1112.3	*	6 JAN 23501727	108.	51.8	1102.5
2	JAN	0845	394	172.	1435.7	1117.2	*	4 JAN 16201061	152.	688.1	1112.3	*	6 JAN 23551728	107.	51.1	1102.5
2	JAN	0850	395	172.	1434.5	1117.2	*	4 JAN 16251062	152.	687.0	1112.3	*	7 JAN 00001729	107.	50.3	1102.5
2	JAN	0855	396	172.	1433.3	1117.2	*	4 JAN 16301063	152.	686.0	1112.3	*	7 JAN 00051730	106.	49.6	1102.4
2	JAN	0900	397	172.	1432.1	1117.2	*	4 JAN 16351064	152.	684.9	1112.3	*	7 JAN 00101731	106.	48.9	1102.4
2	JAN	0905	398	172.	1431.0	1117.2	*	4 JAN 16401065	152.	683.9	1112.3	*	7 JAN 00151732	105.	48.1	1102.4
2	JAN	0910	399	172.	1429.8	1117.2	*	4 JAN 16451066	152.	682.9	1112.3	*	7 JAN 00201733	105.	47.4	1102.3
2	JAN	0915	400	172.	1428.6	1117.2	*	4 JAN 16501067	152.	681.8	1112.3	*	7 JAN 00251734	104.	46.7	1102.3
2	JAN	0920	401	172.	1427.4	1117.1	*	4 JAN 16551068	152.	680.8	1112.3	*	7 JAN 00301735	104.	46.0	1102.3
2	JAN	0925	402	172.	1426.2	1117.1	*	4 JAN 17001069	152.	679.7	1112.3	*	7 JAN 00351736	103.	45.3	1102.2
2	JAN	0930	403	172.	1425.1	1117.1	*	4 JAN 17051070	152.	678.7	1112.3	*	7 JAN 00401737	103.	44.6	1102.2
2	JAN	0935	404	172.	1423.9	1117.1	*	4 JAN 17101071	152.	677.6	1112.2	*	7 JAN 00451738	102.	43.9	1102.2
2	JAN	0940	405	172.	1422.7	1117.1	*	4 JAN 17151072	152.	676.6	1112.2	*	7 JAN 00501739	102.	43.2	1102.1
2	JAN	0945	406	172.	1421.5	1117.1	*	4 JAN 17201073	152.	675.5	1112.2	*	7 JAN 00551740	101.	42.4	1102.1
2	JAN	0950	407	171.	1420.4	1117.1	*	4 JAN 17251074	152.	674.5	1112.2	*	7 JAN 01001741	101.	41.8	1102.1
2	JAN	0955	408	171.	1419.2	1117.1	*	4 JAN 17301075	152.	673.5	1112.2	*	7 JAN 01051742	101.	41.1	1102.0
2	JAN	1000	409	171.	1418.0	1117.1	*	4 JAN 17351076	152.	672.4	1112.2	*	7 JAN 01101743	100.	40.4	1102.0
2	JAN	1005	410	171.	1416.8	1117.1	*	4 JAN 17401077	152.	671.4	1112.2	*	7 JAN 01151744	100.	39.7	1102.0
2	JAN	1010	411	171.	1415.7	1117.1	*	4 JAN 17451078	152.	670.3	1112.2	*	7 JAN 01201745	99.	39.0	1101.9
2	JAN	1015	412	171.	1414.5	1117.1	*	4 JAN 17501079	152.	669.3	1112.2	*	7 JAN 01251746	99.	38.3	1101.9
2	JAN	1020	413	171.	1413.3	1117.1	*	4 JAN 17551080	152.	668.2	1112.2	*	7 JAN 01301747	98.	37.6	1101.9
2	JAN	1025	414	171.	1412.1	1117.1	*	4 JAN 18001081	152.	667.2	1112.2	*	7 JAN 01351748	98.	37.0	1101.9
2	JAN	1030	415	171.	1410.9	1117.1	*	4 JAN 18051082	152.	666.1	1112.2	*	7 JAN 01401749	97.	36.3	1101.8
2	JAN	1035	416	171.	1409.8	1117.1	*	4 JAN 18101083	152.	665.1	1112.1	*	7 JAN 01451750	97.	35.6	1101.8
2	JAN	1040	417	171.	1408.6	1117.0	*	4 JAN 18151084	152.	664.1	1112.1	*	7 JAN 01501751	96.	35.0	1101.8
2	JAN	1045	418	171.	1407.4	1117.0	*	4 JAN 18201085	152.	663.0	1112.1	*	7 JAN 01551752	96.	34.3	1101.7
2	JAN	1050	419	171.	1406.2	1117.0	*	4 JAN 18251086	152.	662.0	1112.1	*	7 JAN 02001753	96.	33.6	1101.7
2	JAN	1055	420	171.	1405.1	1117.0	*	4 JAN 18301087	151.	660.9	1112.1	*	7 JAN 02051754	95.	33.0	1101.7
2	JAN	1100	421	171.	1403.9	1117.0	*	4 JAN 18351088	151.	659.9	1112.1	*	7 JAN 02101755	95.	32.3	1101.6
2	JAN	1105	422	171.	1402.7	1117.0	*	4 JAN 18401089	151.	658.8	1112.1	*	7 JAN 02151756	94.	31.7	1101.6
2	JAN	1110	423	171.	1401.5	1117.0	*	4 JAN 18451090	151.	657.8	1112.1	*	7 JAN 02201757	94.	31.0	1101.6
2	JAN	1115	424	171.	1400.3	1117.0	*	4 JAN 18501091	151.	656.7	1112.1	*	7 JAN 02251758	93.	30.4	1101.6
2	JAN	1120	425	171.	1399.2	1117.0	*	4 JAN 18551092	151.	655.7	1112.1	*	7 JAN 02301759	93.	29.7	1101.5
2	JAN	1125	426	171.	1398.0	1117.0	*	4 JAN 19001093	151.	654.7	1112.1	*	7 JAN 02351760	92.	29.1	1101.5
2	JAN	1130	427	171.	1396.8	1117.0	*	4 JAN 19051094	151.	653.6	1112.0	*	7 JAN 02401761	92.	28.5	1101.5
2	JAN	1135	428	171.	1395.6	1117.0	*	4 JAN 19101095	151.	652.6	1112.0	*	7 JAN 02451762	92.	27.8	1101.4
2	JAN	1140	429	171.	1394.5	1117.0	*	4 JAN 19151096	151.	651.5	1112.0	*	7 JAN 02501763	91.	27.2	1101.4
2	JAN	1145	430	171.	1393.3	1117.0	*	4 JAN 19201097	151.	650.5	1112.0	*	7 JAN 02551764	91.	26.6	1101.4
2	JAN	1150	431	171.	1392.1	1117.0	*	4 JAN 19251098	151.	649.4	1112.0	*	7 JAN 03001765	90.	26.0	1101.4
2	JAN	1155	432	171.	1390.9	1117.0	*	4 JAN 19301099	151.	648.4	1112.0	*	7 JAN 03051766	90.	25.3	1101.3
2	JAN	1200	433	171.	1389.8	1116.9	*	4 JAN 19351100	151.	647.4	1112.0	*	7 JAN 03101767	90.	24.7	1101.3
2	JAN	1205	434	171.	1388.6	1116.9	*	4 JAN 19401101	151.	646.3	1112.0	*	7 JAN 03151768	89.	24.1	1101.3
2	JAN	1210	435	171.	1387.4	1116.9	*	4 JAN 19451102	151.	645.3	1112.0	*	7 JAN 03201769	89.	23.5	1101.2
2	JAN	1215	436	171.	1386.2	1116.9	*	4 JAN 19501103	151.	644.2	1112.0	*	7 JAN 03251770	88.	22.9	1101.2
2	JAN	1220	437	171.	1385.0	1116.9	*	4 JAN 19551104	151.	643.2	1112.0	*	7 JAN 03301771	88.	22.3	1101.2
2	JAN	1225	438	171.	1383.9	1116.9	*	4 JAN 20001105	151.	642.1	1112.0	*	7 JAN 03351772	87.	21.7	1101.2
2	JAN	1230	439	171.	1382.7	1116.9	*	4 JAN 20051106	151.	641.1	1111.9	*	7 JAN 03401773	87.	21.1	1101.1
2	JAN	1235	440	171.	1381.5	1116.9	*	4 JAN 20101107	151.	640.0	1111.9	*	7 JAN 03451774	87.	20.5	1101.1
2	JAN	1240	441	171.	1380.3	1116.9	*	4 JAN 20151108	151.	639.0	1111.9	*	7 JAN 03501775	86.	19.9	1101.1
2	JAN	1245	442	171.	1379.2	1116.9	*	4 JAN 20201109	151.	638.0	1111.9	*	7 JAN 03551776	86.	19.3	1101.0
2	JAN	1250	443	171.	1378.0	1116.9	*	4 JAN 20251110	151.	636.9	1111.9	*	7 JAN 04001777	85.	18.7	1101.0
2	JAN	1255	444	171.	1376.8	1116.9	*	4 JAN 20301111	151.	635.9	1111.9	*	7 JAN 04051778	85.	18.1	1101.0
2	JAN	1300	445	171.	1375.6	1116.9	*	4 JAN 20351112	151.	634.8	1111.9	*	7 JAN 04101779	83.	17.5	1100.9
2	JAN	1305	446	171.	1374.4	1116.9	*	4 JAN 20401113	151.	633.8	1111.9	*	7 JAN 04151780	81.	17.0	1100.8
2	JAN	1310	447	170.	1373.3	1116.9	*	4 JAN 20451114	151.	632.7	1111.9	*	7 JAN 04201781	79.	16.4	1100.8
2	JAN	1315	448	170.	1372.1	1116.9	*	4 JAN 20501115	150.	631.7	1111.9	*	7 JAN 04251782	76.	15.9	1100.7
2	JAN	1320	449	170.	1370.9	1116.8	*	4 JAN 20551116	150.	630.7	1111.9	*	7 JAN 04301783	74.	15.4	1100.6
2	JAN	1325	450	170.	1369.7	1116.8	*	4 JAN 21001117	150.	629.7	1111.8	*	7 JAN 04351784	72.	14.9	1100.5
2	JAN	1330	451	170.	1368.6	1116.8	*	4 JAN 21051118	150.	628.6	1111.8	*	7 JAN 04401785	70.	14.4	1100.5
2	JAN	1335	452	170.	1367.4	1116.8	*	4 JAN 21101119	150.	627.6	1111.8	*	7 JAN 04451786	68.	13.9	1100.4
2	JAN	1340	453	170.	1366.2	1116.8	*	4 JAN 21151120	150.	626.6	1111.8	*	7 JAN 04501787	66.	13.4	1100.3
2	JAN	1345	454	170.	1365.0	1116.8	*	4 JAN 21201121	150.	625.5	1111.8	*	7 JAN 04551788	65.	13.0	1100.3
2	JAN	1350	455	170.	1363.9	1116.8	*	4 JAN 21251122	150.	624.5	1111.8	*	7 JAN 05001789	63.	12.5	1100.2
2	JAN	1355	456	170.	1362.7	1116.8	*	4 JAN 21301123	150.	623.5	1111.8	*	7 JAN 05051790	61.	12.1	1100.1
2	JAN	1400	457	170.	1361.5	1116.8	*	4 JAN 21351124	150.	622.5	1111.8	*	7 JAN 05101791	59.	11.7	1100.1
2	JAN	1405	458	170.	1360.3	1116.8	*	4 JAN 21401125	150.	621.4	1111.8	*	7 JAN 05151792	58.	11.3	1100.0
2	JAN	1410	459	170.	1359.1	1116.8	*	4 JAN 21451126	150.	620.4	1111.8	*	7 JAN 05201793	56.	10.9	1100.0

2	JAN	1415	460	170.	1358.0	1116.8	*	4	JAN	21501127	150.	619.4	1111.8	*	7	JAN	05251794	55.	10.5	1099.9
2	JAN	1420	461	170.	1356.8	1116.8	*	4	JAN	21551128	150.	618.3	1111.8	*	7	JAN	05301795	53.	10.1	1099.9
2	JAN	1425	462	170.	1355.6	1116.8	*	4	JAN	22001129	150.	617.3	1111.7	*	7	JAN	05351796	52.	9.8	1099.8
2	JAN	1430	463	170.	1354.4	1116.8	*	4	JAN	22051130	150.	616.3	1111.7	*	7	JAN	05401797	50.	9.4	1099.8
2	JAN	1435	464	170.	1353.3	1116.8	*	4	JAN	22101131	150.	615.2	1111.7	*	7	JAN	05451798	49.	9.1	1099.7
2	JAN	1440	465	170.	1352.1	1116.7	*	4	JAN	22151132	150.	614.2	1111.7	*	7	JAN	05501799	47.	8.8	1099.7
2	JAN	1445	466	170.	1350.9	1116.7	*	4	JAN	22201133	150.	613.2	1111.7	*	7	JAN	05551800	46.	8.4	1099.6
2	JAN	1450	467	170.	1349.7	1116.7	*	4	JAN	22251134	150.	612.2	1111.7	*	7	JAN	06001801	45.	8.1	1099.6
2	JAN	1455	468	170.	1348.5	1116.7	*	4	JAN	22301135	150.	611.1	1111.7	*	7	JAN	06051802	44.	7.8	1099.5
2	JAN	1500	469	170.	1347.4	1116.7	*	4	JAN	22351136	150.	610.1	1111.7	*	7	JAN	06101803	42.	7.5	1099.5
2	JAN	1505	470	170.	1346.2	1116.7	*	4	JAN	22401137	150.	609.1	1111.7	*	7	JAN	06151804	41.	7.2	1099.4
2	JAN	1510	471	170.	1345.0	1116.7	*	4	JAN	22451138	150.	608.0	1111.7	*	7	JAN	06201805	40.	7.0	1099.4
2	JAN	1515	472	170.	1343.8	1116.7	*	4	JAN	22501139	150.	607.0	1111.7	*	7	JAN	06251806	39.	6.7	1099.4
2	JAN	1520	473	170.	1342.7	1116.7	*	4	JAN	22551140	150.	606.0	1111.6	*	7	JAN	06301807	38.	6.4	1099.3
2	JAN	1525	474	170.	1341.5	1116.7	*	4	JAN	23001141	150.	604.9	1111.6	*	7	JAN	06351808	37.	6.2	1099.3
2	JAN	1530	475	170.	1340.3	1116.7	*	4	JAN	23051142	150.	603.9	1111.6	*	7	JAN	06401809	36.	5.9	1099.2
2	JAN	1535	476	170.	1339.1	1116.7	*	4	JAN	23101143	150.	602.9	1111.6	*	7	JAN	06451810	35.	5.7	1099.2
2	JAN	1540	477	170.	1337.9	1116.7	*	4	JAN	23151144	149.	601.9	1111.6	*	7	JAN	06501811	34.	5.4	1099.2
2	JAN	1545	478	170.	1336.8	1116.7	*	4	JAN	23201145	149.	600.8	1111.6	*	7	JAN	06551812	33.	5.2	1099.1
2	JAN	1550	479	170.	1335.6	1116.7	*	4	JAN	23251146	149.	599.8	1111.6	*	7	JAN	07001813	32.	5.0	1099.1
2	JAN	1555	480	170.	1334.4	1116.7	*	4	JAN	23301147	149.	598.8	1111.6	*	7	JAN	07051814	31.	4.8	1099.1
2	JAN	1600	481	170.	1333.2	1116.6	*	4	JAN	23351148	149.	597.7	1111.6	*	7	JAN	07101815	30.	4.6	1099.0
2	JAN	1605	482	170.	1332.1	1116.6	*	4	JAN	23401149	149.	596.7	1111.6	*	7	JAN	07151816	29.	4.3	1099.0
2	JAN	1610	483	170.	1330.9	1116.6	*	4	JAN	23451150	149.	595.7	1111.6	*	7	JAN	07201817	29.	4.1	1099.0
2	JAN	1615	484	170.	1329.7	1116.6	*	4	JAN	23501151	149.	594.7	1111.6	*	7	JAN	07251818	28.	4.0	1099.0
2	JAN	1620	485	170.	1328.5	1116.6	*	4	JAN	23551152	149.	593.6	1111.5	*	7	JAN	07301819	27.	3.8	1098.9
2	JAN	1625	486	170.	1327.4	1116.6	*	5	JAN	00001153	149.	592.6	1111.5	*	7	JAN	07351820	26.	3.6	1098.9
2	JAN	1630	487	169.	1326.2	1116.6	*	5	JAN	00051154	149.	591.6	1111.5	*	7	JAN	07401821	26.	3.4	1098.9
2	JAN	1635	488	169.	1325.0	1116.6	*	5	JAN	00101155	149.	590.5	1111.5	*	7	JAN	07451822	25.	3.2	1098.9
2	JAN	1640	489	169.	1323.8	1116.6	*	5	JAN	00151156	149.	589.5	1111.5	*	7	JAN	07501823	24.	3.1	1098.8
2	JAN	1645	490	169.	1322.6	1116.6	*	5	JAN	00201157	149.	588.5	1111.5	*	7	JAN	07551824	24.	2.9	1098.8
2	JAN	1650	491	169.	1321.5	1116.6	*	5	JAN	00251158	149.	587.4	1111.5	*	7	JAN	08001825	23.	2.7	1098.8
2	JAN	1655	492	169.	1320.3	1116.6	*	5	JAN	00301159	149.	586.4	1111.5	*	7	JAN	08051826	22.	2.6	1098.8
2	JAN	1700	493	169.	1319.1	1116.6	*	5	JAN	00351160	149.	585.4	1111.5	*	7	JAN	08101827	22.	2.4	1098.7
2	JAN	1705	494	169.	1317.9	1116.6	*	5	JAN	00401161	149.	584.4	1111.5	*	7	JAN	08151828	21.	2.3	1098.7
2	JAN	1710	495	169.	1316.8	1116.6	*	5	JAN	00451162	149.	583.3	1111.5	*	7	JAN	08201829	20.	2.1	1098.7
2	JAN	1715	496	169.	1315.6	1116.6	*	5	JAN	00501163	149.	582.3	1111.4	*	7	JAN	08251830	20.	2.0	1098.7
2	JAN	1720	497	169.	1314.4	1116.6	*	5	JAN	00551164	149.	581.3	1111.4	*	7	JAN	08301831	19.	1.9	1098.7
2	JAN	1725	498	169.	1313.3	1116.5	*	5	JAN	01001165	149.	580.2	1111.4	*	7	JAN	08351832	19.	1.7	1098.6
2	JAN	1730	499	169.	1312.1	1116.5	*	5	JAN	01051166	149.	579.2	1111.4	*	7	JAN	08401833	18.	1.6	1098.6
2	JAN	1735	500	169.	1311.0	1116.5	*	5	JAN	01101167	149.	578.2	1111.4	*	7	JAN	08451834	18.	1.5	1098.6
2	JAN	1740	501	169.	1309.8	1116.5	*	5	JAN	01151168	149.	577.1	1111.4	*	7	JAN	08501835	17.	1.4	1098.6
2	JAN	1745	502	169.	1308.7	1116.5	*	5	JAN	01201169	149.	576.1	1111.4	*	7	JAN	08551836	17.	1.2	1098.6
2	JAN	1750	503	169.	1307.5	1116.5	*	5	JAN	01251170	149.	575.1	1111.4	*	7	JAN	09001837	16.	1.1	1098.5
2	JAN	1755	504	169.	1306.3	1116.5	*	5	JAN	01301171	149.	574.1	1111.4	*	7	JAN	09051838	16.	1.0	1098.5
2	JAN	1800	505	169.	1305.2	1116.5	*	5	JAN	01351172	149.	573.0	1111.4	*	7	JAN	09101839	15.	0.9	1098.5
2	JAN	1805	506	169.	1304.0	1116.5	*	5	JAN	01401173	148.	572.0	1111.4	*	7	JAN	09151840	15.	0.8	1098.5
2	JAN	1810	507	169.	1302.9	1116.5	*	5	JAN	01451174	148.	571.0	1111.4	*	7	JAN	09201841	15.	0.8	1098.5
2	JAN	1815	508	169.	1301.7	1116.5	*	5	JAN	01501175	148.	570.0	1111.3	*	7	JAN	09251842	15.	0.8	1098.5
2	JAN	1820	509	169.	1300.6	1116.5	*	5	JAN	01551176	148.	568.9	1111.3	*	7	JAN	09301843	15.	0.8	1098.5
2	JAN	1825	510	169.	1299.4	1116.5	*	5	JAN	02001177	148.	567.9	1111.3	*	7	JAN	09351844	15.	0.8	1098.5
2	JAN	1830	511	169.	1298.3	1116.5	*	5	JAN	02051178	148.	566.9	1111.3	*	7	JAN	09401845	15.	0.8	1098.5
2	JAN	1835	512	169.	1297.1	1116.5	*	5	JAN	02101179	148.	565.9	1111.3	*	7	JAN	09451846	15.	0.8	1098.5
2	JAN	1840	513	169.	1295.9	1116.4	*	5	JAN	02151180	148.	564.9	1111.3	*	7	JAN	09501847	15.	0.8	1098.5
2	JAN	1845	514	169.	1294.8	1116.4	*	5	JAN	02201181	148.	563.9	1111.3	*	7	JAN	09551848	15.	0.8	1098.5
2	JAN	1850	515	169.	1293.6	1116.4	*	5	JAN	02251182	148.	562.8	1111.3	*	7	JAN	10001849	15.	0.8	1098.5
2	JAN	1855	516	169.	1292.5	1116.4	*	5	JAN	02301183	148.	561.8	1111.3	*	7	JAN	10051850	15.	0.8	1098.5
2	JAN	1900	517	169.	1291.3	1116.4	*	5	JAN	02351184	148.	560.8	1111.3	*	7	JAN	10101851	15.	0.8	1098.5
2	JAN	1905	518	169.	1290.2	1116.4	*	5	JAN	02401185	148.	559.8	1111.3	*	7	JAN	10151852	15.	0.8	1098.5
2	JAN	1910	519	169.	1289.0	1116.4	*	5	JAN	02451186	148.	558.8	1111.2	*	7	JAN	10201853	15.	0.8	1098.5
2	JAN	1915	520	169.	1287.9	1116.4	*	5	JAN	02501187	148.	557.8	1111.2	*	7	JAN	10251854	15.	0.8	1098.5
2	JAN	1920	521	169.	1286.7	1116.4	*	5	JAN	02551188	148.	556.8	1111.2	*	7	JAN	10301855	15.	0.8	1098.5
2	JAN	1925	522	169.	1285.6	1116.4	*	5	JAN	03001189	148.	555.7	1111.2	*	7	JAN	10351856	15.	0.8	1098.5
2	JAN	1930	523	169.	1284.4	1116.4	*	5	JAN	03051190	148.	554.7	1111.2	*	7	JAN	10401857	15.	0.8	1098.5
2	JAN	1935	524	169.	1283.2	1116.4	*	5	JAN	03101191	148.	553.7	1111.2	*	7	JAN	10451858	15.	0.8	1098.5
2	JAN	1940	525	169.	1282.1	1116.4	*	5	JAN	03151192	148.	552.7	1111.2	*	7	JAN	10501859	15.	0.8	1098.5
2	JAN	1945	526	168.	1280.9	1116.4	*	5	JAN	03201193	148.	551.7	1111.2	*	7	JAN	10551860	15.	0.8	1098.5
2	JAN	1950	527	168.	1279.8	1116.4	*	5	JAN	03251194	148.	550.7	1111.2	*	7	JAN	11001861	15.	0.8	1098.5
2	JAN	1955	528	168.	1278.6	1116.3	*	5	JAN	03301195	148.	549.7	1111.2	*	7	JAN	11051862	15.	0.8	1098.5
2	JAN	2000	529	168.	1277.5	1116.3	*	5	JAN	03351196	148.	548.6	1111.2	*	7	JAN	11101863	15.	0.8	1098.5
2	JAN	2005	530	168.	1276.3	1116.3	*	5	JAN	03401197	148.	547.6	1111.2	*	7	JAN	11151864	15.	0.8	1098.5
2	JAN	2010	531	168.	1275.2	1116.3	*	5	JAN	03451198	148.	546.6	1111.1	*	7	JAN	11201865	15.	0.8	1098.5
2	JAN	2015	532	168.	1274.0	1116.3	*	5	JAN	03501199	148.	545.6	1111.1	*	7	JAN	11251866	15.	0.8	1098.5
2	JAN	2020	533	168.	1272.8	1116.3	*	5	JAN	03551200	148.	544.6	1111.1	*	7	JAN	11301867	15.	0.8	1098.5
2	JAN	2025	534	168.	1271.7	1116.3	*	5	JAN	04001201	148.	543.6	1111.1	*	7	JAN	11351868	15.	0.8	1098.5
2	JAN	2030	535	168.	1270.5	1116.3	*	5	JAN	04051202	147.	542.5	1111.1	*	7	JAN	11401869	15.	0.8	1098.5
2	JAN	2035	536	168.	1269.4	1116.3	*	5	JAN	04101203	147.	541.5	1111.1	*	7	JAN	11451870	15.	0.8	1098.5
2	JAN	2040	537	168.	1268.2	1116.3	*	5	JAN	04151204	147.	540.5	1111.1	*	7	JAN	11501871	15.	0.8	1098.5
2	JAN	2045	538	168.	1267.1	1116.3	*	5	JAN	04201205	147.	539.5	1111.1	*	7	JAN	11551872	15.	0.8	1098.5
2	JAN	2050	539	168.	1265.9	1116.3	*	5	JAN	04251206	147.	538.5	1111.1	*	7	JAN	12001873	15.	0.8	1098.5
2	JAN	2055	540	168.	1264.8	1116.3	*	5	JAN	04301207	147.	537.5	1111.1	*	7	JAN	12051874	15.	0.8	1098.5
2	JAN	2100	541	168.	1263.6	1116.3	*	5	JAN	04351208	147.	536.5	1111.1	*	7	JAN	12101875	15.	0.8	1098.5
2	JAN	2105	542	168.	1262.5	1116.3	*	5	JAN	04401209	147.	535.4	1111.1	*	7	JAN	12151876	15.	0.8	1098.5
2	JAN	2110	543	168.	1261.3	1116.2	*	5	JAN	04451210	147.	534.4	1111.0	*	7	JAN	12201877	15.	0.8	1098.5
2	JAN	2115	544	168.	1260.1	1116.2	*	5	JAN	04501211	147.	533.4	1111.0	*	7	JAN	12251878	15.	0.8	1098.5
2	JAN	2120	545	168.	1259.0	1116.2	*	5	JAN	04551212	147.	532.4	1111.0	*	7	JAN	12301879	15.	0.8	1098.5
2	JAN	2125	546	168.	1257.8	1116.2	*	5	JAN	05001213	147.	531.4	1111.0	*	7	JAN	12351880	15.	0.8	1098.5
2	JAN	2130	547	168.	1256.7	1116.2	*	5	JAN	05051214	147.	530.4	1111.0	*	7	JAN	12401881	15.	0.8	1098.5
2	JAN	2135	548	168.	1255.5	1116.2	*	5	JAN	05101215	147.	529.3	1111.0	*	7	JAN	12451882	15.	0.8	1098.5
2	JAN	2140	549	168.	1254.4	1116.2	*	5	JAN	05151216	147.	528.3	1111.0	*	7	JAN	12501883	15.	0.8	1098.5
2	JAN	2145	550	168.	1253.2	1116.2	*	5	JAN	05201217	147.	527.3	1111.0	*	7	JAN	12551884	15.	0.8	1098.5
2	JAN	2150	551	168.	1252.1	1116.2	*	5	JAN	05251218	147.	526.3	1111.0	*	7	JAN	13001885	15.	0.8	1098.5
2	JAN	2155	552	168.	1250.9	1116.2	*	5	JAN	05301219	147.	525.3	1111.0	*	7	JAN	13051886	15.	0.8	1098.5
2	JAN	2200	553	168.	1249.8	1116.2	*	5	JAN	05351220	147.	524.3	1110.9	*	7	JAN	13101887	15.	0.8	1098.5
2	JAN	2205	554	168.	1248.6	1116.2	*	5	JAN	05401221	147.	523.3	1110.9	*	7	JAN	13151888	15.	0.8	1098.5
2	JAN	2210	555	168.	1247.4	1116.2	*	5	JAN	05451222	147.	522.2	1110.9	*	7	JAN	13201889	15.	0.8	1098.5
2	JAN	2215	556	168.	1246.3	1116.2	*	5	JAN	05501223	147.	521.2	1110.9	*	7	JAN	13251890	15.	0.8	1098.5
2	JAN	2220	557	168.	1245.1	1116.2	*	5	JAN	05551224	147.	520.2	1110.9	*	7	JAN	13301891	15.	0.8	1098.5
2	JAN	2225	558	168.	1244.0	1116.1	*	5	JAN	06001225	147.	519.2	1110.9	*	7	JAN	13351892	15.	0.8	1098.5
2	JAN	2230	559	168.	1242.8	1116.1	*	5	JAN	06051226	147.	518.2	1110.9	*	7	JAN	13401893	15.	0.8	1098.5
2	JAN	2235	560	168.	1241.7	1116.1	*	5	JAN	06101227	147.	517.2	1110.9	*	7	JAN	13451894	15.	0.8	1098.5
2	JAN	2240	561	168.	1240.5	1116.1	*	5	JAN	06151228	147.	516.2	1110.8	*	7	JAN	13501895	15.	0.8	1098.5
2	JAN	2245	562	168.	1239.4	1116.1	*	5	JAN	06201229	147.	515.2	1110.8	*	7	JAN	13551896	15.	0.8	1098.5
2	JAN	2250	563	167.	1238.2	1116.1	*	5	JAN	06251230	146.	514.2	1110.8	*	7	JAN	14001897	15.	0.8	1098.5
2	JAN	2255	564	167.	1237.1	1116.1	*	5	JAN	06301231	146.	513.2	1110.8	*	7	JAN	14051898	15.	0.8	1098.5
2	JAN	2300	565	167.	1235.9	1116.1	*	5	JAN	06351232	146.	512.2	1110.8	*	7	JAN	14101899	15.	0.8	1098.5
2	JAN	2305	566	167.	1234.7	1116.1	*	5	JAN	06401233	146.	511.2	1110.8	*	7	JAN	14151900	15.	0.8	1098.5
2	JAN	2310	567	167.	1233.6	1116.1	*	5	JAN	06451234	146.	510.2	1110.8	*	7	JAN	14201901	15.	0.8	1098.5
2	JAN	2315	568	167.	1232.4	1116.1	*	5	JAN	06501235	146.	509.2	1110.8	*	7	JAN	14251902	15.	0.8	1098.5
2	JAN	2320	569	167.	1231.3	1116.1	*	5	JAN	06551236	146.	508.1	1110.8	*	7	JAN	14301903	15.	0.8	1098.5
2	JAN	2325	570	167.	1230.1	1116.1	*	5	JAN	07001237	146.	507.1	1110.7	*	7	JAN	14351904	15.	0.8	1098.5
2	JAN	2330	571	167.	1229.0	1116.1	*	5	JAN	07051238	146.	506.1	1110.7	*	7	JAN	14401905	15.	0.8	1098.5
2	JAN	2335	572	167.	1227.8	1116.1	*	5	JAN	07101239	146.	505.1	1110.7	*	7	JAN	14451906	15.	0.8	1098.5
2	JAN	2340	573	167.	1226.7	1116.0	*	5	JAN	07151240	146.	504.1	1110.7	*	7	JAN	14501907	15.	0.8	1098.5

2	JAN	2345	574	167.	1225.5	1116.0	*	5 JAN 07201241	146.	503.1	1110.7	*	7 JAN 14551908	15.	0.8	1098.5
2	JAN	2350	575	167.	1224.3	1116.0	*	5 JAN 07251242	146.	502.1	1110.7	*	7 JAN 15001909	15.	0.8	1098.5
2	JAN	2355	576	167.	1223.2	1116.0	*	5 JAN 07301243	146.	501.1	1110.7	*	7 JAN 15051910	15.	0.8	1098.5
3	JAN	0000	577	167.	1222.0	1116.0	*	5 JAN 07351244	146.	500.1	1110.7	*	7 JAN 15101911	15.	0.8	1098.5
3	JAN	0005	578	167.	1220.9	1116.0	*	5 JAN 07401245	146.	499.1	1110.6	*	7 JAN 15151912	15.	0.8	1098.5
3	JAN	0010	579	167.	1219.7	1116.0	*	5 JAN 07451246	146.	498.1	1110.6	*	7 JAN 15201913	15.	0.8	1098.5
3	JAN	0015	580	167.	1218.6	1116.0	*	5 JAN 07501247	146.	497.1	1110.6	*	7 JAN 15251914	15.	0.8	1098.5
3	JAN	0020	581	167.	1217.4	1116.0	*	5 JAN 07551248	146.	496.1	1110.6	*	7 JAN 15301915	15.	0.8	1098.5
3	JAN	0025	582	167.	1216.3	1116.0	*	5 JAN 08001249	146.	495.1	1110.6	*	7 JAN 15351916	15.	0.8	1098.5
3	JAN	0030	583	167.	1215.1	1116.0	*	5 JAN 08051250	146.	494.1	1110.6	*	7 JAN 15401917	15.	0.8	1098.5
3	JAN	0035	584	167.	1214.0	1116.0	*	5 JAN 08101251	146.	493.1	1110.6	*	7 JAN 15451918	15.	0.8	1098.5
3	JAN	0040	585	167.	1212.8	1116.0	*	5 JAN 08151252	146.	492.1	1110.6	*	7 JAN 15501919	15.	0.8	1098.5
3	JAN	0045	586	167.	1211.6	1116.0	*	5 JAN 08201253	146.	491.1	1110.6	*	7 JAN 15551920	15.	0.8	1098.5
3	JAN	0050	587	167.	1210.5	1116.0	*	5 JAN 08251254	146.	490.1	1110.5	*	7 JAN 16001921	15.	0.8	1098.5
3	JAN	0055	588	167.	1209.3	1115.9	*	5 JAN 08301255	146.	489.1	1110.5	*	7 JAN 16051922	15.	0.8	1098.5
3	JAN	0100	589	167.	1208.2	1115.9	*	5 JAN 08351256	145.	488.1	1110.5	*	7 JAN 16101923	15.	0.8	1098.5
3	JAN	0105	590	167.	1207.0	1115.9	*	5 JAN 08401257	145.	487.0	1110.5	*	7 JAN 16151924	15.	0.8	1098.5
3	JAN	0110	591	167.	1205.9	1115.9	*	5 JAN 08451258	145.	486.0	1110.5	*	7 JAN 16201925	15.	0.8	1098.5
3	JAN	0115	592	167.	1204.7	1115.9	*	5 JAN 08501259	145.	485.0	1110.5	*	7 JAN 16251926	15.	0.8	1098.5
3	JAN	0120	593	167.	1203.6	1115.9	*	5 JAN 08551260	145.	484.0	1110.5	*	7 JAN 16301927	15.	0.8	1098.5
3	JAN	0125	594	167.	1202.4	1115.9	*	5 JAN 09001261	145.	483.0	1110.5	*	7 JAN 16351928	15.	0.8	1098.5
3	JAN	0130	595	167.	1201.3	1115.9	*	5 JAN 09051262	145.	482.0	1110.4	*	7 JAN 16401929	15.	0.8	1098.5
3	JAN	0135	596	167.	1200.1	1115.9	*	5 JAN 09101263	145.	481.0	1110.4	*	7 JAN 16451930	15.	0.8	1098.5
3	JAN	0140	597	167.	1198.9	1115.9	*	5 JAN 09151264	145.	480.0	1110.4	*	7 JAN 16501931	15.	0.8	1098.5
3	JAN	0145	598	167.	1197.8	1115.9	*	5 JAN 09201265	145.	479.0	1110.4	*	7 JAN 16551932	15.	0.8	1098.5
3	JAN	0150	599	167.	1196.6	1115.9	*	5 JAN 09251266	145.	478.0	1110.4	*	7 JAN 17001933	15.	0.8	1098.5
3	JAN	0155	600	166.	1195.5	1115.9	*	5 JAN 09301267	145.	477.0	1110.4	*	7 JAN 17051934	15.	0.8	1098.5
3	JAN	0200	601	166.	1194.3	1115.9	*	5 JAN 09351268	145.	476.0	1110.4	*	7 JAN 17101935	15.	0.8	1098.5
3	JAN	0205	602	166.	1193.2	1115.9	*	5 JAN 09401269	145.	475.0	1110.4	*	7 JAN 17151936	15.	0.8	1098.5
3	JAN	0210	603	166.	1192.0	1115.8	*	5 JAN 09451270	145.	474.0	1110.3	*	7 JAN 17201937	15.	0.8	1098.5
3	JAN	0215	604	166.	1190.9	1115.8	*	5 JAN 09501271	145.	473.0	1110.3	*	7 JAN 17251938	15.	0.8	1098.5
3	JAN	0220	605	166.	1189.7	1115.8	*	5 JAN 09551272	145.	472.1	1110.3	*	7 JAN 17301939	15.	0.8	1098.5
3	JAN	0225	606	166.	1188.6	1115.8	*	5 JAN 10001273	145.	471.1	1110.3	*	7 JAN 17351940	15.	0.8	1098.5
3	JAN	0230	607	166.	1187.4	1115.8	*	5 JAN 10051274	145.	470.1	1110.3	*	7 JAN 17401941	15.	0.8	1098.5
3	JAN	0235	608	166.	1186.2	1115.8	*	5 JAN 10101275	145.	469.1	1110.3	*	7 JAN 17451942	15.	0.8	1098.5
3	JAN	0240	609	166.	1185.1	1115.8	*	5 JAN 10151276	145.	468.1	1110.3	*	7 JAN 17501943	15.	0.8	1098.5
3	JAN	0245	610	166.	1183.9	1115.8	*	5 JAN 10201277	145.	467.1	1110.3	*	7 JAN 17551944	15.	0.8	1098.5
3	JAN	0250	611	166.	1182.8	1115.8	*	5 JAN 10251278	145.	466.1	1110.3	*	7 JAN 18001945	15.	0.8	1098.5
3	JAN	0255	612	166.	1181.6	1115.8	*	5 JAN 10301279	145.	465.1	1110.2	*	7 JAN 18051946	15.	0.8	1098.5
3	JAN	0300	613	166.	1180.5	1115.8	*	5 JAN 10351280	145.	464.1	1110.2	*	7 JAN 18101947	15.	0.8	1098.5
3	JAN	0305	614	166.	1179.3	1115.8	*	5 JAN 10401281	145.	463.1	1110.2	*	7 JAN 18151948	15.	0.8	1098.5
3	JAN	0310	615	166.	1178.2	1115.8	*	5 JAN 10451282	144.	462.1	1110.2	*	7 JAN 18201949	15.	0.8	1098.5
3	JAN	0315	616	166.	1177.1	1115.8	*	5 JAN 10501283	144.	461.1	1110.2	*	7 JAN 18251950	15.	0.8	1098.5
3	JAN	0320	617	166.	1175.9	1115.8	*	5 JAN 10551284	144.	460.1	1110.2	*	7 JAN 18301951	15.	0.8	1098.5
3	JAN	0325	618	166.	1174.8	1115.7	*	5 JAN 11001285	144.	459.1	1110.2	*	7 JAN 18351952	15.	0.8	1098.5
3	JAN	0330	619	166.	1173.7	1115.7	*	5 JAN 11051286	144.	458.1	1110.2	*	7 JAN 18401953	15.	0.8	1098.5
3	JAN	0335	620	166.	1172.5	1115.7	*	5 JAN 11101287	144.	457.1	1110.1	*	7 JAN 18451954	15.	0.8	1098.5
3	JAN	0340	621	166.	1171.4	1115.7	*	5 JAN 11151288	144.	456.1	1110.1	*	7 JAN 18501955	15.	0.8	1098.5
3	JAN	0345	622	166.	1170.3	1115.7	*	5 JAN 11201289	144.	455.1	1110.1	*	7 JAN 18551956	15.	0.8	1098.5
3	JAN	0350	623	166.	1169.1	1115.7	*	5 JAN 11251290	144.	454.2	1110.1	*	7 JAN 19001957	15.	0.8	1098.5
3	JAN	0355	624	166.	1168.0	1115.7	*	5 JAN 11301291	144.	453.2	1110.1	*	7 JAN 19051958	15.	0.8	1098.5
3	JAN	0400	625	166.	1166.9	1115.7	*	5 JAN 11351292	144.	452.2	1110.1	*	7 JAN 19101959	15.	0.8	1098.5
3	JAN	0405	626	166.	1165.7	1115.7	*	5 JAN 11401293	144.	451.2	1110.1	*	7 JAN 19151960	15.	0.8	1098.5
3	JAN	0410	627	166.	1164.6	1115.7	*	5 JAN 11451294	144.	450.2	1110.1	*	7 JAN 19201961	15.	0.8	1098.5
3	JAN	0415	628	166.	1163.5	1115.7	*	5 JAN 11501295	144.	449.2	1110.1	*	7 JAN 19251962	15.	0.8	1098.5
3	JAN	0420	629	166.	1162.3	1115.7	*	5 JAN 11551296	144.	448.2	1110.0	*	7 JAN 19301963	15.	0.8	1098.5
3	JAN	0425	630	166.	1161.2	1115.7	*	5 JAN 12001297	144.	447.2	1110.0	*	7 JAN 19351964	15.	0.8	1098.5
3	JAN	0430	631	166.	1160.1	1115.7	*	5 JAN 12051298	144.	446.2	1110.0	*	7 JAN 19401965	15.	0.8	1098.5
3	JAN	0435	632	166.	1158.9	1115.7	*	5 JAN 12101299	144.	445.2	1110.0	*	7 JAN 19451966	15.	0.8	1098.5
3	JAN	0440	633	166.	1157.8	1115.6	*	5 JAN 12151300	144.	444.2	1110.0	*	7 JAN 19501967	15.	0.8	1098.5
3	JAN	0445	634	166.	1156.7	1115.6	*	5 JAN 12201301	144.	443.2	1110.0	*	7 JAN 19551968	15.	0.8	1098.5
3	JAN	0450	635	166.	1155.5	1115.6	*	5 JAN 12251302	144.	442.2	1110.0	*	7 JAN 20001969	15.	0.8	1098.5
3	JAN	0455	636	166.	1154.4	1115.6	*	5 JAN 12301303	144.	441.2	1110.0	*	7 JAN 20051970	15.	0.8	1098.5
3	JAN	0500	637	166.	1153.3	1115.6	*	5 JAN 12351304	144.	440.2	1109.9	*	7 JAN 20101971	15.	0.8	1098.5
3	JAN	0505	638	165.	1152.1	1115.6	*	5 JAN 12401305	144.	439.3	1109.9	*	7 JAN 20151972	15.	0.8	1098.5
3	JAN	0510	639	165.	1151.0	1115.6	*	5 JAN 12451306	144.	438.3	1109.9	*	7 JAN 20201973	15.	0.8	1098.5
3	JAN	0515	640	165.	1149.9	1115.6	*	5 JAN 12501307	144.	437.3	1109.9	*	7 JAN 20251974	15.	0.8	1098.5
3	JAN	0520	641	165.	1148.7	1115.6	*	5 JAN 12551308	144.	436.3	1109.9	*	7 JAN 20301975	15.	0.8	1098.5
3	JAN	0525	642	165.	1147.6	1115.6	*	5 JAN 13001309	143.	435.3	1109.9	*	7 JAN 20351976	15.	0.8	1098.5
3	JAN	0530	643	165.	1146.5	1115.6	*	5 JAN 13051310	143.	434.3	1109.9	*	7 JAN 20401977	15.	0.8	1098.5
3	JAN	0535	644	165.	1145.3	1115.6	*	5 JAN 13101311	143.	433.3	1109.9	*	7 JAN 20451978	15.	0.8	1098.5
3	JAN	0540	645	165.	1144.2	1115.6	*	5 JAN 13151312	143.	432.4	1109.9	*	7 JAN 20501979	15.	0.8	1098.5
3	JAN	0545	646	165.	1143.1	1115.6	*	5 JAN 13201313	143.	431.4	1109.8	*	7 JAN 20551980	15.	0.8	1098.5
3	JAN	0550	647	165.	1141.9	1115.6	*	5 JAN 13251314	143.	430.4	1109.8	*	7 JAN 21001981	15.	0.8	1098.5
3	JAN	0555	648	165.	1140.8	1115.5	*	5 JAN 13301315	143.	429.4	1109.8	*	7 JAN 21051982	15.	0.8	1098.5
3	JAN	0600	649	165.	1139.7	1115.5	*	5 JAN 13351316	143.	428.4	1109.8	*	7 JAN 21101983	15.	0.8	1098.5
3	JAN	0605	650	165.	1138.5	1115.5	*	5 JAN 13401317	143.	427.4	1109.8	*	7 JAN 21151984	15.	0.8	1098.5
3	JAN	0610	651	165.	1137.4	1115.5	*	5 JAN 13451318	143.	426.5	1109.8	*	7 JAN 21201985	15.	0.8	1098.5
3	JAN	0615	652	165.	1136.2	1115.5	*	5 JAN 13501319	143.	425.5	1109.8	*	7 JAN 21251986	15.	0.8	1098.5
3	JAN	0620	653	165.	1135.1	1115.5	*	5 JAN 13551320	143.	424.5	1109.8	*	7 JAN 21301987	15.	0.8	1098.5
3	JAN	0625	654	165.	1134.0	1115.5	*	5 JAN 14001321	143.	423.5	1109.7	*	7 JAN 21351988	15.	0.8	1098.5
3	JAN	0630	655	165.	1132.8	1115.5	*	5 JAN 14051322	143.	422.5	1109.7	*	7 JAN 21401989	15.	0.8	1098.5
3	JAN	0635	656	165.	1131.7	1115.5	*	5 JAN 14101323	143.	421.5	1109.7	*	7 JAN 21451990	15.	0.8	1098.5
3	JAN	0640	657	165.	1130.6	1115.5	*	5 JAN 14151324	143.	420.5	1109.7	*	7 JAN 21501991	15.	0.8	1098.5
3	JAN	0645	658	165.	1129.4	1115.5	*	5 JAN 14201325	143.	419.6	1109.7	*	7 JAN 21551992	15.	0.8	1098.5
3	JAN	0650	659	165.	1128.3	1115.5	*	5 JAN 14251326	143.	418.6	1109.7	*	7 JAN 22001993	15.	0.8	1098.5
3	JAN	0655	660	165.	1127.2	1115.5	*	5 JAN 14301327	143.	417.6	1109.7	*	7 JAN 22051994	15.	0.8	1098.5
3	JAN	0700	661	165.	1126.0	1115.5	*	5 JAN 14351328	143.	416.6	1109.7	*	7 JAN 22101995	15.	0.8	1098.5
3	JAN	0705	662	165.	1124.9	1115.5	*	5 JAN 14401329	143.	415.6	1109.7	*	7 JAN 22151996	15.	0.8	1098.5
3	JAN	0710	663	165.	1123.7	1115.4	*	5 JAN 14451330	143.	414.6	1109.6	*	7 JAN 22201997	15.	0.8	1098.5
3	JAN	0715	664	165.	1122.6	1115.4	*	5 JAN 14501331	143.	413.7	1109.6	*	7 JAN 22251998	15.	0.8	1098.5
3	JAN	0720	665	165.	1121.5	1115.4	*	5 JAN 14551332	143.	412.7	1109.6	*	7 JAN 22301999	15.	0.8	1098.5
3	JAN	0725	666	165.	1120.3	1115.4	*	5 JAN 15001333	143.	411.7	1109.6	*	7 JAN 22352000	15.	0.8	1098.5
3	JAN	0730	667	165.	1119.2	1115.4	*	5 JAN 15051334	143.	410.7	1109.6	*				
							*					*				

****

PEAK OUTFLOW IS 18530. AT TIME 4.33 HOURS

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	166.58-HR
+ (CFS)	(HR)	(CFS)				
+ 18530.	4.33		3022.	887.	406.	240.
		(INCHES)	4.827	5.670	7.788	10.637
		(AC-FT)	1498.	1760.	2417.	3302.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	166.58-HR
+ (AC-FT)	(HR)				
1954.	4.33	1822.	1680.	1341.	760.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE

```
                                        6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
   1119.80      4.33                 1119.14     1118.43     1116.59     1110.91

                          CUMULATIVE AREA =    5.82 SQ MI

1
                                                RUNOFF SUMMARY
                                        FLOW IN CUBIC FEET PER SECOND
                                      TIME IN HOURS,  AREA IN SQUARE MILES

                                   PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM    TIME OF
          OPERATION      STATION   FLOW   PEAK                                            AREA      STAGE     MAX STAGE
+                                                     6-HOUR     24-HOUR     72-HOUR

          HYDROGRAPH AT
+                           T1    15022.   3.83       3473.       872.        291.       3.04
          ROUTED TO
+                          TCP    15022.   3.83       3473.       872.        291.       3.04
          HYDROGRAPH AT
+                           U1     8841.   3.58       1579.       395.        132.       1.37
          ROUTED TO
+                          UCP     8841.   3.58       1579.       395.        132.       1.37
          HYDROGRAPH AT
+                           S1     9642.   3.58       1556.       389.        130.       1.41
          ROUTED TO
+                          SCP     9642.   3.58       1556.       389.        130.       1.41
          3 COMBINED AT
+                         FRS2    30332.   3.83       6605.      1657.        552.       5.82
          ROUTED TO
+                        ROUTE    18530.   4.33       3022.       887.        406.       5.82
+                                                                                        1119.80      4.33
1                                  SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION   ROUTE
                          (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ...............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                   ELEVATION       1098.50           1113.20          1119.00
                                   STORAGE              1.               791.           1794.
                                   OUTFLOW             15.               156.            179.

                     RATIO     MAXIMUM     MAXIMUM     MAXIMUM     MAXIMUM     DURATION    TIME OF     TIME OF
                      OF       RESERVOIR   DEPTH       STORAGE     OUTFLOW     OVER TOP    MAX OUTFLOW FAILURE
                      PMF      W.S.ELEV    OVER DAM    AC-FT       CFS         HOURS       HOURS       HOURS

                     1.00      1119.80      0.80       1954.      18530.        3.83        4.33        0.00

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

E.5.6 FRS#3 PMF Level Pool Routing

```
1*****************************************                    *****************************************
 *                                       *                    *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                    *   U.S. ARMY CORPS OF ENGINEERS        *
 *              JUN   1998               *                    *   HYDROLOGIC ENGINEERING CENTER       *
 *            VERSION 4.1                *                    *         609 SECOND STREET             *
 *                                       *                    *      DAVIS, CALIFORNIA 95616          *
 *  RUN DATE   09MAR04  TIME  16:50:26   *                    *          (916) 756-1104               *
 *                                       *                    *                                       *
 *****************************************                    *****************************************

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

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

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

1                                                HEC-1 INPUT                                                    PAGE  1

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

        1           ID   Buckeye/Sun Valley ADMS, FCD No. 2002C027
        2           ID   FRS Level Pool Routing - FRS#3
        3           ID   PBS&J, Job No. 540293.2031, March 2004
        4           ID   PMF 6-hour
        5           ID   Rainfall Loss Method - Green & Ampt
        6           ID   Unit Hydrograph Method - FCDMC S-Graph
        7           ID   Channel Routing Method - Normal Depth
        8           ID   Land Use - FCDMC GIS Data: mag_landuse (2000)
        9           ID   Soil Data - USDA SCS Soil Survey (1972 & 1981)
       10           ID   Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
                    *DIAGRAM
       11           IT       5  1JAN94       0    2000
       12           IO       3
       13           IN       5 01JAN94       0
       14           JD    12.8    0.01
                    * PMP 6-hour FRS3
       15           PI   0.027   0.027   0.028   0.029   0.029    0.03    0.03    0.03   0.031   0.032
       16           PI   0.032   0.033    0.04    0.04    0.04    0.04   0.041   0.041   0.042   0.044
       17           PI   0.047    0.05   0.054   0.057   0.106   0.107   0.108   0.112   0.115    0.12
       18           PI   0.122   0.139   0.145   0.158   0.176   0.202   2.775   1.611   1.164   0.716
       19           PI   0.627   0.537   0.277   0.269    0.26   0.251   0.237   0.228     0.1   0.093
       20           PI   0.087   0.081   0.077   0.073   0.069   0.067   0.064   0.063   0.062   0.059
       21           PI    0.04    0.04   0.039   0.038   0.038   0.038   0.037   0.037   0.036   0.035
       22           PI   0.035   0.034

       23           KK      Y1
       24           KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
       25           KM      L=1.37     Lca=0.53     S=771.84     Kn=0.050     LAG=17.0
       26           KM      S-GRAPH TYPE=PHOENIX MOUNTAIN
       27           KO       0       0     0.0       1      22
       28           BA  0.5808
       29           LG    0.35    0.35   4.044   0.415  10.947
                    * Y1
       30           UI     0.0  162.05  614.46 1087.12   811.3  562.72  397.42  272.87  186.43   132.2
       31           UI   88.57   57.25   43.55   22.05   22.05   22.05     0.0

       32           KK     YCP   CNAME       Y
       33           KO       0       0     0.0       0      22
       34           RN     YCP

       35           KK      X1
       36           KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
       37           KM      L=2.60     Lca=1.44     S=288.89     Kn=0.050     LAG=40.0
       38           KM      S-GRAPH TYPE=PHOENIX MOUNTAIN
       39           KO       0       0     0.0       1      22
       40           BA  0.7867
       41           LG    0.35    0.35   3.955   0.417  12.555
                    * X1
       42           UI     0.0   66.22   86.09  225.41  360.12  457.02  541.42  743.25  566.57  418.64
       43           UI  370.57  326.87  286.18  248.98  205.81  168.91  155.03  138.38  108.79   86.55
       44           UI   78.81   72.53   55.12   50.77   43.42   32.41   32.41   32.41   19.79   12.69
       45           UI   12.69   12.69   12.69   12.69   12.69   12.69   12.69     0.0
1                                                HEC-1 INPUT                                                    PAGE  2

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

       46           KK     XCP   CNAME       X
       47           KO       0       0     0.0       0      22
       48           RN     XCP

       49           KK      W1
       50           KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
       51           KM      L=3.46     Lca=1.78     S=486.28     Kn=0.050     LAG=44.0
       52           KM      S-GRAPH TYPE=PHOENIX MOUNTAIN
       53           KO       0       0     0.0       1      22
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 54          BA   3.894
 55          LG    0.35    0.35   3.976    0.41  15.199
             * W1
 56          UI     0.0  297.97  297.97  920.94 1416.37 1894.97 2238.82 2710.48 3465.75 2237.36
 57          UI  1844.7 1658.52 1479.19 1314.83 1166.02  980.71   816.4  720.69   665.9  577.11
 58          UI  477.35  380.74  352.03  326.35  259.78  228.45  225.14  145.82  145.82  145.82
 59          UI  145.82   65.63   57.11   57.11   57.11   57.11   57.11   57.11   57.11   57.11
 60          UI   57.11     0.0

 61          KK   W1-W2   CNAME     W2R
 62          KO       0       0     0.0       0      22
 63          RS       6    FLOW     0.0     0.0
 64          RC   0.055    0.05    0.06 11249.0  0.0189     0.0
             * W1-W2
 65          RX     0.0   350.0   372.0   384.0   472.0   489.0   525.0  1005.0
 66          RY    17.5    11.5    11.6    10.0    11.2    13.4    13.8    17.5

 67          KK      W2
 68          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 69          KM      L=3.25     Lca=1.19     S=178.54     Kn=0.050     LAG=44.0
 70          KM      S-GRAPH TYPE=PHOENIX MOUNTAIN
 71          KO       0       0     0.0       1      22
 72          BA  2.8478
 73          LG    0.35    0.35   4.081   0.402   3.547
             * W2
 74          UI     0.0  217.92  217.92  673.51 1035.83 1385.85 1637.32 1982.26  2534.6 1636.25
 75          UI  1349.1 1212.93 1081.78  961.58  852.74  717.22  597.06  527.06  486.99  422.06
 76          UI   349.1  278.45  257.45  238.67  189.98  167.07  164.65  106.64  106.64  106.64
 77          UI  106.64    48.0   41.77   41.77   41.77   41.77   41.77   41.77   41.77   41.77
 78          UI   41.77     0.0

 79          KK       W   CNAME     WCP
 80          KO       0       0     0.0       0      22
 81          HC       2     0.0

 82          KK     WCP   CNAME       W
 83          KO       0       0     0.0       0      22
 84          RN     WCP

 85          KK      V1
 86          KM      THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 87          KM      L=2.86     Lca=1.75     S=344.82     Kn=0.050     LAG=43.0
 88          KM      S-GRAPH TYPE=PHOENIX MOUNTAIN
 89          KO       0       0     0.0       1      22
 90          BA  0.6646
1                                          HEC-1 INPUT                                          PAGE  3

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

 91          LG    0.35    0.35   3.972   0.405  13.864
             * V1
 92          UI     0.0   52.04   54.19  166.27  256.03  338.03  396.86  496.51  578.99  373.13
 93          UI  313.66  281.75  250.64  220.87  193.81  162.52  133.66  122.94  111.92    90.9
 94          UI   74.78   66.34   56.99    53.4    39.9    39.9   30.81   25.47   25.47   25.47
 95          UI   16.36    9.97    9.97    9.97    9.97    9.97    9.97    9.97    9.97    9.97
 96          UI     0.0

 97          KK     VCP   CNAME       V
 98          KO       0       0     0.0       0      22
 99          RN     VCP

100          KK    FRS3   CNAME    V, W, X, & Y
101          KO       0       0     0.0       0      22
102          HC       4    8.77

103          KK   ROUTE          FRS#3 LEVEL POOL ROUTING
104          KM                  RESERVIOR ASSUMED EMPTY
105          KO       1
106          RS       1    STOR       0
107          ST  1171.8   16851     2.7     1.5
108          SS  1165.2     400     2.5     1.5
109          SQ      48      74      82      87      91      95      97
110          SE  1151.6 1154.14 1156.64 1159.14 1161.64 1164.14 1165.64
111          SV       0      17     150     372     659    1017    1280    1481    1702    1948
112          SV    2206    2487
113          SE  1151.6 1154.14 1156.64 1159.14 1161.64 1164.14 1165.64 1166.64 1167.64 1168.64
114          SE  1169.6 1170.64
115          ZZ
1
          SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE    (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   23        Y1
              V
              V
   32       YCP
              .
              .
   35         .          X1
              .           V
              .           V
   46         .         XCP
              .            .
              .            .
   49         .            .          W1
              .            .           V
              .            .           V
   61         .            .       W1-W2
              .            .            .
              .            .            .
   67         .            .            .          W2
              .            .            .           .
              .            .            .           .
   79         .            .           W.............
              .            .           V
              .            .           V
   82         .            .          WCP
              .            .            .
              .            .            .
   85         .            .            .          V1
              .            .            .           V
```

```
                .          .          .          V
  97            .          .          .         VCP
                .          .          .          .
                .          .          .          .
 100        FRS3.....................................
               V
               V
 103       ROUTE

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN   1998              *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   09MAR04  TIME  16:50:26  *
*                                      *
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****************************************
*                                      *
*   U.S. ARMY CORPS OF ENGINEERS       *
*   HYDROLOGIC ENGINEERING CENTER      *
*         609 SECOND STREET            *
*      DAVIS, CALIFORNIA 95616         *
*          (916) 756-1104              *
*                                      *
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                    Buckeye/Sun Valley ADMS, FCD No. 2002C027
                    FRS Level Pool Routing - FRS#3
                    PBS&J, Job No. 540293.2031, March 2004
                    PMP 6-hour
                    Rainfall Loss Method - Green & Ampt
                    Unit Hydrograph Method - FCDMC S-Graph
                    Channel Routing Method - Normal Depth
                    Land Use - FCDMC GIS Data: mag_landuse (2000)
                    Soil Data - USDA SCS Soil Survey (1972 & 1981)
                    Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)

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

 13 IN        TIME DATA FOR INPUT TIME SERIES
                JXMIN          5  TIME INTERVAL IN MINUTES
               JXDATE     1JAN94  STARTING DATE
               JXTIME          0  STARTING TIME

    IT        HYDROGRAPH TIME DATA
                NMIN           5  MINUTES IN COMPUTATION INTERVAL
               IDATE     1JAN94  STARTING DATE
               ITIME       0000  STARTING TIME
                  NQ       2000  NUMBER OF HYDROGRAPH ORDINATES
              NDDATE     7JAN94  ENDING DATE
              NDTIME       2235  ENDING TIME
               ICENT         19  CENTURY MARK

            COMPUTATION INTERVAL    0.08 HOURS
                 TOTAL TIME BASE  166.58 HOURS

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

 14 JD        INDEX STORM NO. 1
                STRM       12.80  PRECIPITATION DEPTH
                TRDA        0.01  TRANSPOSITION DRAINAGE AREA

 15 PI          PRECIPITATION PATTERN
                0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.03
                0.03      0.03      0.04      0.04      0.04      0.04      0.04      0.04      0.04      0.04
                0.05      0.05      0.05      0.06      0.11      0.11      0.11      0.11      0.12      0.12
                0.12      0.14      0.14      0.16      0.18      0.20      2.78      1.61      1.16      0.72
                0.63      0.54      0.28      0.27      0.26      0.25      0.24      0.23      0.10      0.09
                0.09      0.08      0.08      0.07      0.07      0.07      0.06      0.06      0.06      0.06
                0.04      0.04      0.04      0.04      0.04      0.04      0.04      0.04      0.04      0.03
                0.03      0.03

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

          **************
          *            *
 23 KK    *     Y1     *
          *            *
          **************
                    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                    L=1.37     Lca=0.53     S=771.84     Kn=0.050     LAG=17.0
                    S-GRAPH TYPE=PHOENIX MOUNTAIN

 27 KO        OUTPUT CONTROL VARIABLES
                IPRNT          3  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                 IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
               TIMINT      0.083  TIME INTERVAL IN HOURS

           SUBBASIN RUNOFF DATA

 28 BA        SUBBASIN CHARACTERISTICS
                TAREA       0.58  SUBBASIN AREA

 29 LG        GREEN AND AMPT LOSS RATE
                STRTL       0.35  STARTING LOSS
                  DTH       0.35  MOISTURE DEFICIT
                 PSIF       4.04  WETTING FRONT SUCTION
```

```
                    XKSAT        0.41  HYDRAULIC CONDUCTIVITY
                    RTIMP       10.95  PERCENT IMPERVIOUS AREA

  28 UI         INPUT UNITGRAPH,  16 ORDINATES,  VOLUME = 1.00
                     0.0     162.1     614.5    1087.1     811.3     562.7     397.4     272.9     186.4     132.2
                    88.6      57.3      43.5      22.0      22.0      22.0

                                                                   ***

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

                      HYDROGRAPH AT STATION       Y1
                    TRANSPOSITION AREA      0.0 SQ MI

    TOTAL RAINFALL =   12.80, TOTAL LOSS =    3.30, TOTAL EXCESS =    9.50

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    4868.      3.42                591.        148.         49.          21.
                        (INCHES)   9.464       9.470       9.470       9.470
                         (AC-FT)    293.        293.        293.        293.

                       CUMULATIVE AREA =    0.58 SQ MI


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


            **************
            *            *
  32 KK     *       YCP  *        CNAME       Y
            *            *
            **************

  33 KO         OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

  34 RN         NO ROUTING

                                                                   ***

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

                      HYDROGRAPH AT STATION      YCP
                    TRANSPOSITION AREA      0.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    4868.      3.42                591.        148.         49.          21.
                        (INCHES)   9.464       9.470       9.470       9.470
                         (AC-FT)    293.        293.        293.        293.

                       CUMULATIVE AREA =    0.58 SQ MI


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


            **************
            *            *
  35 KK     *        X1  *
            *            *
            **************
                         THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                         L=2.60     Lca=1.44     S=288.89     Kn=0.050     LAG=40.0
                         S-GRAPH TYPE=PHOENIX MOUNTAIN

  39 KO         OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

  40 BA         SUBBASIN CHARACTERISTICS
                      TAREA        0.79  SUBBASIN AREA

  41 LG         GREEN AND AMPT LOSS RATE
                      STRTL        0.35  STARTING LOSS
                        DTH        0.35  MOISTURE DEFICIT
                       PSIF        3.95  WETTING FRONT SUCTION
                      XKSAT        0.42  HYDRAULIC CONDUCTIVITY
                      RTIMP       12.56  PERCENT IMPERVIOUS AREA

  40 UI         INPUT UNITGRAPH,  37 ORDINATES,  VOLUME = 1.00
                     0.0      66.2      86.1     225.4     360.1     457.0     541.4     743.3     566.6     418.6
                   370.6     326.9     286.2     249.0     205.8     168.9     155.0     138.4     108.8      86.6
                    78.8      72.5      55.1      50.8      43.4      32.4      32.4      32.4      19.8      12.7
                    12.7      12.7      12.7      12.7      12.7      12.7      12.7
```

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                                                                    ***

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

                       HYDROGRAPH AT STATION        X1
                     TRANSPOSITION AREA       0.0 SQ MI

   TOTAL RAINFALL =   12.80, TOTAL LOSS =    3.23, TOTAL EXCESS =    9.57

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+   4163.       3.75                806.        202.         67.          29.
                        (INCHES)    9.528       9.552       9.552        9.552
                         (AC-FT)    400.        401.        401.         401.

                       CUMULATIVE AREA =    0.79 SQ MI


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


            **************
            *            *
  46 KK     *     XCP    *        CNAME       X
            *            *
            **************

  47 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

  48 RN          NO ROUTING
                                                                    ***

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

                       HYDROGRAPH AT STATION       XCP
                     TRANSPOSITION AREA       0.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+   4163.       3.75                806.        202.         67.          29.
                        (INCHES)    9.528       9.552       9.552        9.552
                         (AC-FT)    400.        401.        401.         401.

                       CUMULATIVE AREA =    0.79 SQ MI


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


            **************
            *            *
  49 KK     *     W1     *
            *            *
            **************
                          THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                          L=3.46     Lca=1.78     S=486.28     Kn=0.050     LAG=44.0
                          S-GRAPH TYPE=PHOENIX MOUNTAIN

  53 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        2000  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

  54 BA          SUBBASIN CHARACTERISTICS
                      TAREA        3.89  SUBBASIN AREA

  55 LG          GREEN AND AMPT LOSS RATE
                      STRTL        0.35  STARTING LOSS
                        DTH        0.35  MOISTURE DEFICIT
                       PSIF        3.98  WETTING FRONT SUCTION
                      XKSAT        0.41  HYDRAULIC CONDUCTIVITY
                      RTIMP       15.20  PERCENT IMPERVIOUS AREA

  54 UI          INPUT UNITGRAPH,  41 ORDINATES,  VOLUME = 1.00
                     0.0     298.0     298.0     920.9    1416.4    1895.0    2238.8    2710.5    3465.8    2237.4
                  1844.7    1658.5    1479.2    1314.8    1166.0     980.7     816.4     720.7     665.9     577.1
                   477.4     380.7     352.0     326.4     259.8     228.4     225.1     145.8     145.8     145.8
                   145.8      65.6      57.1      57.1      57.1      57.1      57.1      57.1      57.1      57.1
                    57.1
                                                                    ***

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

                       HYDROGRAPH AT STATION        W1
                     TRANSPOSITION AREA       0.0 SQ MI
```

```
    TOTAL RAINFALL =   12.80, TOTAL LOSS =    3.11, TOTAL EXCESS =    9.69

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+   19969.      3.75                4039.       1013.        338.        146.
                        (INCHES)    9.644       9.678       9.678       9.678
                         (AC-FT)    2003.       2010.       2010.       2010.

                        CUMULATIVE AREA =    3.89 SQ MI


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


            **************
            *            *
  61 KK     *    W1-W2   *        CNAME     W2R
            *            *
            **************

  62 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                        IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT      0.083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

  63 RS          STORAGE ROUTING
                       NSTPS          6  NUMBER OF SUBREACHES
                        ITYP       FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC       0.00  INITIAL CONDITION
                           X       0.00 WORKING R AND D COEFFICIENT

  64 RC          NORMAL DEPTH CHANNEL
                         ANL      0.055  LEFT OVERBANK N-VALUE
                        ANCH      0.050  MAIN CHANNEL N-VALUE
                         ANR      0.060  RIGHT OVERBANK N-VALUE
                       RLNTH     11249.  REACH LENGTH
                         SEL     0.0189  ENERGY SLOPE
                       ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
  66 RY        ELEVATION    17.50     11.50     11.60     10.00     11.20     13.40     13.80     17.50
  65 RX        DISTANCE      0.00    350.00    372.00    384.00    472.00    489.00    525.00   1005.00
                                                                    ***
                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

           STORAGE       0.00      1.63      6.51     14.64     25.03     39.55     56.74     76.59     99.10    124.51
           OUTFLOW       0.00      8.74     55.50    163.63    376.20    695.26   1126.27   1675.41   2350.80   3176.83
         ELEVATION      10.00     10.39     10.79     11.18     11.58     11.97     12.37     12.76     13.16     13.55

           STORAGE     155.38    193.51    239.20    292.46    353.29    421.68    497.64    581.17    672.27    770.93
           OUTFLOW    4189.49   5405.80   6864.25   8596.77  10632.45  12998.48  15720.62  18823.51  22330.82  26265.49
         ELEVATION      13.95     14.34     14.74     15.13     15.53     15.92     16.32     16.71     17.11     17.50

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

                      HYDROGRAPH AT STATION    W1-W2
                    TRANSPOSITION AREA      0.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+   17725.      4.17                4036.       1013.        338.        146.
                        (INCHES)    9.636       9.678       9.678       9.678
                         (AC-FT)    2001.       2010.       2010.       2010.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+  (AC-FT)      (HR)
      92.       4.17                  24.          6.          2.          1.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR    166.58-HR
+   (FEET)      (HR)
    16.57       4.17                13.01       10.84       10.28       10.12

                        CUMULATIVE AREA =    3.89 SQ MI


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


            **************
            *            *
  67 KK     *      W2    *
            *            *
            **************
                          THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                          L=3.25     Lca=1.19     S=178.54     Kn=0.050     LAG=44.0
                          S-GRAPH TYPE=PHOENIX MOUNTAIN

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

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                    IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

 72 BA        SUBBASIN CHARACTERISTICS
                    TAREA       2.85  SUBBASIN AREA

 73 LG        GREEN AND AMPT LOSS RATE
                   STRTL       0.35  STARTING LOSS
                     DTH       0.35  MOISTURE DEFICIT
                    PSIF       4.08  WETTING FRONT SUCTION
                   XKSAT       0.40  HYDRAULIC CONDUCTIVITY
                   RTIMP       3.55  PERCENT IMPERVIOUS AREA

 72 UI        INPUT UNITGRAPH,  41 ORDINATES,  VOLUME = 1.00
                     0.0     217.9     217.9     673.5    1035.8    1385.8    1637.3    1982.3    2534.6    1636.3
                  1349.1    1212.9    1081.8     961.6     852.7     717.2     597.1     527.1     487.0     422.1
                   349.1     278.5     257.5     238.7     190.0     167.1     164.6     106.6     106.6     106.6
                   106.6      48.0      41.8      41.8      41.8      41.8      41.8      41.8      41.8      41.8
                    41.8
                                                                  ***

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

                     HYDROGRAPH AT STATION       W2
                   TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =   12.80, TOTAL LOSS =    3.52, TOTAL EXCESS =    9.28

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                          (CFS)
+  14439.      3.75                2835.        709.        236.        102.
                        (INCHES)   9.255       9.265       9.265       9.265
                         (AC-FT)   1406.       1407.       1407.       1407.

                       CUMULATIVE AREA =    2.85 SQ MI


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

            **************
            *            *
 79 KK      *        W   *        CNAME     WCP
            *            *
            **************

 80 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          3  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.083  TIME INTERVAL IN HOURS

 81 HC        HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

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

                     HYDROGRAPH AT STATION       W
                   TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR    166.58-HR
+  (CFS)       (HR)
                          (CFS)
+  28456.      4.08                6868.       1723.        574.        248.
                        (INCHES)   9.472       9.504       9.504       9.504
                         (AC-FT)   3406.       3417.       3417.       3417.

                       CUMULATIVE AREA =    6.74 SQ MI


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

            **************
            *            *
 82 KK      *       WCP  *        CNAME       W
            *            *
            **************

 83 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          3  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

 84 RN        NO ROUTING
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                                                                                  ***
     ***            ***            ***            ***            ***

                      HYDROGRAPH AT STATION      WCP
                    TRANSPOSITION AREA      0.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+   28456.      4.08                6868.       1723.        574.        248.
                        (INCHES)    9.472       9.504       9.504       9.504
                         (AC-FT)    3406.       3417.       3417.       3417.

                       CUMULATIVE AREA =    6.74 SQ MI


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


            **************
            *            *
  85 KK     *       V1   *
            *            *
            **************
                          THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
                          L=2.86     Lca=1.75     S=344.82     Kn=0.050     LAG=43.0
                          S-GRAPH TYPE=PHOENIX MOUNTAIN

  89 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                        IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT      0.083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

  90 BA          SUBBASIN CHARACTERISTICS
                       TAREA       0.66  SUBBASIN AREA

  91 LG          GREEN AND AMPT LOSS RATE
                       STRTL       0.35  STARTING LOSS
                         DTH       0.35  MOISTURE DEFICIT
                        PSIF       3.97  WETTING FRONT SUCTION
                       XKSAT       0.41  HYDRAULIC CONDUCTIVITY
                       RTIMP      13.86  PERCENT IMPERVIOUS AREA

  90 UI          INPUT UNITGRAPH,  40 ORDINATES,  VOLUME = 1.00
                       0.0      52.0      54.2     166.3     256.0     338.0     396.9     496.5     579.0     373.1
                     313.7     281.8     250.6     220.9     193.8     162.5     133.7     122.9     111.9      90.9
                      74.8      66.3      57.0      53.4      39.9      39.9      30.8      25.5      25.5      25.5
                      16.4      10.0      10.0      10.0      10.0      10.0      10.0      10.0      10.0      10.0
                                                                                  ***
     ***            ***            ***            ***            ***

                      HYDROGRAPH AT STATION      V1
                    TRANSPOSITION AREA      0.0 SQ MI

   TOTAL RAINFALL =   12.80, TOTAL LOSS =    3.14, TOTAL EXCESS =    9.66

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR    166.58-HR
+   (CFS)       (HR)
                          (CFS)
+    3462.      3.75                 687.        172.         57.         25.
                        (INCHES)    9.617       9.647       9.647       9.647
                         (AC-FT)     341.        342.        342.        342.

                       CUMULATIVE AREA =    0.66 SQ MI


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


            **************
            *            *
  97 KK     *       VCP  *        CNAME       V
            *            *
            **************

  98 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                        IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2       2000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT      0.083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

  99 RN          NO ROUTING
                                                                                  ***
     ***            ***            ***            ***            ***

                      HYDROGRAPH AT STATION      VCP
                    TRANSPOSITION AREA      0.0 SQ MI
```

```
 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR        24-HR        72-HR     166.58-HR
+  (CFS)       (HR)
                         (CFS)
+   3462.      3.75                687.         172.          57.          25.
                       (INCHES)    9.617        9.647        9.647        9.647
                        (AC-FT)    341.         342.         342.         342.

                       CUMULATIVE AREA =    0.66 SQ MI


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


            **************
            *            *
 100 KK     *     FRS3   *        CNAME    V, W, X, & Y
            *            *
            **************

 101 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2        2000  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT       0.083  TIME INTERVAL IN HOURS

 102 HC          HYDROGRAPH COMBINATION
                       ICOMP           4  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

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

                        HYDROGRAPH AT STATION     FRS3
                      TRANSPOSITION AREA      0.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR        24-HR        72-HR     166.58-HR
+  (CFS)       (HR)
                         (CFS)
+  35659.      4.08                8945.        2245.         748.         323.
                       (INCHES)    9.483        9.521        9.521        9.521
                        (AC-FT)    4435.        4453.        4453.        4453.

                       CUMULATIVE AREA =    8.77 SQ MI


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


            **************
            *            *
 103 KK     *    ROUTE   *              FRS#3 LEVEL POOL ROUTING
            *            *
            **************
                                        RESERVIOR ASSUMED EMPTY

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

              HYDROGRAPH ROUTING DATA

 106 RS          STORAGE ROUTING
                       NSTPS           1  NUMBER OF SUBREACHES
                        ITYP        STOR  TYPE OF INITIAL CONDITION
                      RSVRIC        0.00  INITIAL CONDITION
                           X        0.00 WORKING R AND D COEFFICIENT

 111 SV            STORAGE         0.0      17.0     150.0     372.0     659.0    1017.0    1280.0    1481.0    1702.0    1948.0
                                2206.0    2487.0

 113 SE          ELEVATION     1151.60   1154.14   1156.64   1159.14   1161.64   1164.14   1165.64   1166.64   1167.64   1168.64
                               1169.60   1170.64

 109 SQ          DISCHARGE        48.       74.       82.       87.       91.       95.       97.

 110 SE          ELEVATION     1151.60   1154.14   1156.64   1159.14   1161.64   1164.14   1165.64

 108 SS          SPILLWAY
                       CREL     1165.20  SPILLWAY CREST ELEVATION
                      SPWID      400.00  SPILLWAY WIDTH
                       COQW        2.50  WEIR COEFFICIENT
                       EXPW        1.50  EXPONENT OF HEAD

 107 ST          TOP OF DAM
                      TOPEL     1171.80  ELEVATION AT TOP OF DAM
                     DAMWID    16851.00  DAM WIDTH
                       COQD        2.70  WEIR COEFFICIENT
                       EXPD        1.50  EXPONENT OF HEAD
                                                                  ***

                                        COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

                                                (INCLUDING FLOW OVER DAM)

            STORAGE       0.00      17.00     150.00     372.00     659.00    1017.00    1280.00    1481.00    1702.00    1948.00
            OUTFLOW      48.00      74.00      82.00      87.00      91.00      95.00      97.00      98.33      99.67     101.00
          ELEVATION    1151.60    1154.14    1156.64    1159.14    1161.64    1164.14    1165.64    1166.64    1167.64    1168.64

            STORAGE    2206.00    2487.00
            OUTFLOW     102.28     103.67
```

ELEVATION 1169.60 1170.64

HYDROGRAPH AT ROUTE
TRANSPOSITION AREA 0.0 SQ MI

DA MON HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA MON HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA MON HRMN	ORD	OUTFLOW	STORAGE	STAGE
1 JAN 0000	1	48.	0.0	1151.6	3 JAN 0735	668	103.	2395.9	1170.3	5 JAN 15101335		101.	1932.9	1168.6
1 JAN 0005	2	0.	0.0	1151.6	3 JAN 0740	669	103.	2395.2	1170.3	5 JAN 15151336		101.	1932.2	1168.6
1 JAN 0010	3	48.	0.0	1151.6	3 JAN 0745	670	103.	2394.5	1170.3	5 JAN 15201337		101.	1931.5	1168.6
1 JAN 0015	4	0.	0.0	1151.6	3 JAN 0750	671	103.	2393.7	1170.3	5 JAN 15251338		101.	1930.9	1168.6
1 JAN 0020	5	48.	0.0	1151.6	3 JAN 0755	672	103.	2393.0	1170.3	5 JAN 15301339		101.	1930.2	1168.6
1 JAN 0025	6	0.	0.0	1151.6	3 JAN 0800	673	103.	2392.3	1170.3	5 JAN 15351340		101.	1929.5	1168.6
1 JAN 0030	7	48.	0.0	1151.6	3 JAN 0805	674	103.	2391.6	1170.3	5 JAN 15401341		101.	1928.8	1168.6
1 JAN 0035	8	0.	0.0	1151.6	3 JAN 0810	675	103.	2390.8	1170.3	5 JAN 15451342		101.	1928.1	1168.6
1 JAN 0040	9	48.	0.0	1151.6	3 JAN 0815	676	103.	2390.1	1170.3	5 JAN 15501343		101.	1927.4	1168.6
1 JAN 0045	10	48.	0.0	1151.6	3 JAN 0820	677	103.	2389.4	1170.3	5 JAN 15551344		101.	1926.7	1168.6
1 JAN 0050	11	48.	0.0	1151.6	3 JAN 0825	678	103.	2388.6	1170.3	5 JAN 16001345		101.	1926.0	1168.6
1 JAN 0055	12	48.	0.0	1151.6	3 JAN 0830	679	103.	2387.9	1170.3	5 JAN 16051346		101.	1925.3	1168.5
1 JAN 0100	13	48.	0.1	1151.6	3 JAN 0835	680	103.	2387.2	1170.3	5 JAN 16101347		101.	1924.6	1168.5
1 JAN 0105	14	48.	0.1	1151.6	3 JAN 0840	681	103.	2386.5	1170.3	5 JAN 16151348		101.	1923.9	1168.5
1 JAN 0110	15	48.	0.3	1151.6	3 JAN 0845	682	103.	2385.7	1170.3	5 JAN 16201349		101.	1923.3	1168.5
1 JAN 0115	16	49.	0.4	1151.7	3 JAN 0850	683	103.	2385.0	1170.3	5 JAN 16251350		101.	1922.6	1168.5
1 JAN 0120	17	49.	0.6	1151.7	3 JAN 0855	684	103.	2384.3	1170.3	5 JAN 16301351		101.	1921.9	1168.5
1 JAN 0125	18	49.	0.8	1151.7	3 JAN 0900	685	103.	2383.6	1170.3	5 JAN 16351352		101.	1921.2	1168.5
1 JAN 0130	19	50.	1.0	1151.8	3 JAN 0905	686	103.	2382.8	1170.3	5 JAN 16401353		101.	1920.5	1168.5
1 JAN 0135	20	50.	1.4	1151.8	3 JAN 0910	687	103.	2382.1	1170.3	5 JAN 16451354		101.	1919.8	1168.5
1 JAN 0140	21	51.	1.8	1151.9	3 JAN 0915	688	103.	2381.4	1170.2	5 JAN 16501355		101.	1919.1	1168.5
1 JAN 0145	22	51.	2.3	1151.9	3 JAN 0920	689	103.	2380.7	1170.2	5 JAN 16551356		101.	1918.4	1168.5
1 JAN 0150	23	52.	2.8	1152.0	3 JAN 0925	690	103.	2379.9	1170.2	5 JAN 17001357		101.	1917.7	1168.5
1 JAN 0155	24	53.	3.5	1152.1	3 JAN 0930	691	103.	2379.2	1170.2	5 JAN 17051358		101.	1917.0	1168.5
1 JAN 0200	25	55.	4.3	1152.2	3 JAN 0935	692	103.	2378.5	1170.2	5 JAN 17101359		101.	1916.3	1168.5
1 JAN 0205	26	56.	5.1	1152.4	3 JAN 0940	693	103.	2377.8	1170.2	5 JAN 17151360		101.	1915.7	1168.5
1 JAN 0210	27	57.	6.1	1152.5	3 JAN 0945	694	103.	2377.0	1170.2	5 JAN 17201361		101.	1915.0	1168.5
1 JAN 0215	28	59.	7.2	1152.7	3 JAN 0950	695	103.	2376.3	1170.2	5 JAN 17251362		101.	1914.3	1168.5
1 JAN 0220	29	61.	8.5	1152.9	3 JAN 0955	696	103.	2375.6	1170.2	5 JAN 17301363		101.	1913.6	1168.5
1 JAN 0225	30	63.	10.1	1153.1	3 JAN 1000	697	103.	2374.9	1170.2	5 JAN 17351364		101.	1912.9	1168.5
1 JAN 0230	31	66.	11.9	1153.4	3 JAN 1005	698	103.	2374.1	1170.2	5 JAN 17401365		101.	1912.2	1168.5
1 JAN 0235	32	70.	14.3	1153.7	3 JAN 1010	699	103.	2373.4	1170.2	5 JAN 17451366		101.	1911.5	1168.5
1 JAN 0240	33	74.	17.4	1154.1	3 JAN 1015	700	103.	2372.7	1170.2	5 JAN 17501367		101.	1910.8	1168.5
1 JAN 0245	34	74.	21.4	1154.2	3 JAN 1020	701	103.	2372.0	1170.2	5 JAN 17551368		101.	1910.1	1168.5
1 JAN 0250	35	75.	26.5	1154.3	3 JAN 1025	702	103.	2371.2	1170.2	5 JAN 18001369		101.	1909.4	1168.5
1 JAN 0255	36	75.	33.2	1154.4	3 JAN 1030	703	103.	2370.5	1170.2	5 JAN 18051370		101.	1908.8	1168.5
1 JAN 0300	37	75.	41.6	1154.6	3 JAN 1035	704	103.	2369.8	1170.2	5 JAN 18101371		101.	1908.1	1168.5
1 JAN 0305	38	76.	52.1	1154.8	3 JAN 1040	705	103.	2369.1	1170.2	5 JAN 18151372		101.	1907.4	1168.5
1 JAN 0310	39	77.	69.4	1155.1	3 JAN 1045	706	103.	2368.3	1170.2	5 JAN 18201373		101.	1906.7	1168.5
1 JAN 0315	40	79.	100.6	1155.7	3 JAN 1050	707	103.	2367.6	1170.2	5 JAN 18251374		101.	1906.0	1168.5
1 JAN 0320	41	82.	156.3	1156.7	3 JAN 1055	708	103.	2366.9	1170.2	5 JAN 18301375		101.	1905.3	1168.5
1 JAN 0325	42	84.	241.6	1157.7	3 JAN 1100	709	103.	2366.2	1170.2	5 JAN 18351376		101.	1904.6	1168.5
1 JAN 0330	43	87.	353.3	1158.9	3 JAN 1105	710	103.	2365.4	1170.2	5 JAN 18401377		101.	1903.9	1168.5
1 JAN 0335	44	89.	491.3	1160.2	3 JAN 1110	711	103.	2364.7	1170.2	5 JAN 18451378		101.	1903.2	1168.5
1 JAN 0340	45	91.	659.2	1161.6	3 JAN 1115	712	103.	2364.0	1170.2	5 JAN 18501379		101.	1902.5	1168.5
1 JAN 0345	46	93.	861.1	1163.1	3 JAN 1120	713	103.	2363.3	1170.2	5 JAN 18551380		101.	1901.8	1168.5
1 JAN 0350	47	96.	1083.9	1164.5	3 JAN 1125	714	103.	2362.5	1170.2	5 JAN 19001381		101.	1901.2	1168.4
1 JAN 0355	48	97.	1313.9	1165.8	3 JAN 1130	715	103.	2361.8	1170.2	5 JAN 19051382		101.	1900.5	1168.4
1 JAN 0400	49	99.	1551.8	1167.0	3 JAN 1135	716	103.	2361.1	1170.2	5 JAN 19101383		101.	1899.8	1168.4
1 JAN 0405	50	100.	1794.9	1168.0	3 JAN 1140	717	103.	2360.4	1170.2	5 JAN 19151384		101.	1899.1	1168.4
1 JAN 0410	51	101.	2036.4	1169.0	3 JAN 1145	718	103.	2359.6	1170.2	5 JAN 19201385		101.	1898.4	1168.4
1 JAN 0415	52	103.	2268.5	1169.8	3 JAN 1150	719	103.	2358.9	1170.2	5 JAN 19251386		101.	1897.7	1168.4
1 JAN 0420	53	104.	2485.6	1170.6	3 JAN 1155	720	103.	2358.2	1170.2	5 JAN 19301387		101.	1897.0	1168.4
1 JAN 0425	54	105.	2686.4	1171.4	3 JAN 1200	721	103.	2357.4	1170.2	5 JAN 19351388		101.	1896.3	1168.4
1 JAN 0430	55	4305.	2855.6	1172.0	3 JAN 1205	722	103.	2356.7	1170.2	5 JAN 19401389		101.	1895.6	1168.4
1 JAN 0435	56	18291.	2947.0	1172.3	3 JAN 1210	723	103.	2356.0	1170.2	5 JAN 19451390		101.	1894.9	1168.4
1 JAN 0440	57	21509.	2963.8	1172.4	3 JAN 1215	724	103.	2355.3	1170.2	5 JAN 19501391		101.	1894.2	1168.4
1 JAN 0445	58	20398.	2958.1	1172.4	3 JAN 1220	725	103.	2354.5	1170.1	5 JAN 19551392		101.	1893.6	1168.4
1 JAN 0450	59	18525.	2948.3	1172.3	3 JAN 1225	726	103.	2353.8	1170.1	5 JAN 20001393		101.	1892.9	1168.4
1 JAN 0455	60	16701.	2938.3	1172.3	3 JAN 1230	727	103.	2353.1	1170.1	5 JAN 20051394		101.	1892.2	1168.4
1 JAN 0500	61	15045.	2929.0	1172.3	3 JAN 1235	728	103.	2352.4	1170.1	5 JAN 20101395		101.	1891.5	1168.4
1 JAN 0505	62	13498.	2920.0	1172.2	3 JAN 1240	729	103.	2351.6	1170.1	5 JAN 20151396		101.	1890.8	1168.4
1 JAN 0510	63	12046.	2911.2	1172.2	3 JAN 1245	730	103.	2350.9	1170.1	5 JAN 20201397		101.	1890.1	1168.4
1 JAN 0515	64	10743.	2903.0	1172.2	3 JAN 1250	731	103.	2350.2	1170.1	5 JAN 20251398		101.	1889.4	1168.4
1 JAN 0520	65	9555.	2895.2	1172.2	3 JAN 1255	732	103.	2349.5	1170.1	5 JAN 20301399		101.	1888.7	1168.4
1 JAN 0525	66	8472.	2887.8	1172.1	3 JAN 1300	733	103.	2348.7	1170.1	5 JAN 20351400		101.	1888.0	1168.4
1 JAN 0530	67	7520.	2881.0	1172.1	3 JAN 1305	734	103.	2348.0	1170.1	5 JAN 20401401		101.	1887.3	1168.4
1 JAN 0535	68	6681.	2874.8	1172.1	3 JAN 1310	735	103.	2347.3	1170.1	5 JAN 20451402		101.	1886.7	1168.4
1 JAN 0540	69	5897.	2868.8	1172.1	3 JAN 1315	736	103.	2346.6	1170.1	5 JAN 20501403		101.	1886.0	1168.4
1 JAN 0545	70	5171.	2863.0	1172.0	3 JAN 1320	737	103.	2345.8	1170.1	5 JAN 20551404		101.	1885.3	1168.4
1 JAN 0550	71	4552.	2857.7	1172.0	3 JAN 1325	738	103.	2345.1	1170.1	5 JAN 21001405		101.	1884.6	1168.4
1 JAN 0555	72	4040.	2853.3	1172.0	3 JAN 1330	739	103.	2344.4	1170.1	5 JAN 21051406		101.	1883.9	1168.4
1 JAN 0600	73	3610.	2849.3	1172.0	3 JAN 1335	740	103.	2343.7	1170.1	5 JAN 21101407		101.	1883.2	1168.4
1 JAN 0605	74	3234.	2845.8	1172.0	3 JAN 1340	741	103.	2343.0	1170.1	5 JAN 21151408		101.	1882.5	1168.4
1 JAN 0610	75	2902.	2842.5	1172.0	3 JAN 1345	742	103.	2342.3	1170.1	5 JAN 21201409		101.	1881.8	1168.4
1 JAN 0615	76	2609.	2839.5	1171.9	3 JAN 1350	743	103.	2341.6	1170.1	5 JAN 21251410		101.	1881.1	1168.4
1 JAN 0620	77	2353.	2836.8	1171.9	3 JAN 1355	744	103.	2340.9	1170.1	5 JAN 21301411		101.	1880.4	1168.4
1 JAN 0625	78	2128.	2834.3	1171.9	3 JAN 1400	745	103.	2340.2	1170.1	5 JAN 21351412		101.	1879.7	1168.4
1 JAN 0630	79	1905.	2831.8	1171.9	3 JAN 1405	746	103.	2339.5	1170.1	5 JAN 21401413		101.	1879.1	1168.4
1 JAN 0635	80	1688.	2829.2	1171.9	3 JAN 1410	747	103.	2338.8	1170.1	5 JAN 21451414		101.	1878.4	1168.4
1 JAN 0640	81	1496.	2826.8	1171.9	3 JAN 1415	748	103.	2338.1	1170.1	5 JAN 21501415		101.	1877.7	1168.4
1 JAN 0645	82	1331.	2824.7	1171.9	3 JAN 1420	749	103.	2337.4	1170.1	5 JAN 21551416		101.	1877.0	1168.4
1 JAN 0650	83	1186.	2822.7	1171.9	3 JAN 1425	750	103.	2336.7	1170.1	5 JAN 22001417		101.	1876.3	1168.3
1 JAN 0655	84	1055.	2820.9	1171.9	3 JAN 1430	751	103.	2336.0	1170.1	5 JAN 22051418		101.	1875.6	1168.3
1 JAN 0700	85	938.	2819.2	1171.9	3 JAN 1435	752	103.	2335.3	1170.1	5 JAN 22101419		101.	1874.9	1168.3
1 JAN 0705	86	831.	2817.5	1171.9	3 JAN 1440	753	103.	2334.6	1170.1	5 JAN 22151420		101.	1874.2	1168.3
1 JAN 0710	87	733.	2816.0	1171.9	3 JAN 1445	754	103.	2333.9	1170.1	5 JAN 22201421		101.	1873.5	1168.3
1 JAN 0715	88	641.	2814.4	1171.9	3 JAN 1450	755	103.	2333.2	1170.1	5 JAN 22251422		101.	1872.8	1168.3
1 JAN 0720	89	560.	2813.0	1171.8	3 JAN 1455	756	103.	2332.5	1170.1	5 JAN 22301423		101.	1872.1	1168.3
1 JAN 0725	90	487.	2811.6	1171.8	3 JAN 1500	757	103.	2331.9	1170.1	5 JAN 22351424		101.	1871.5	1168.3
1 JAN 0730	91	424.	2810.3	1171.8	3 JAN 1505	758	103.	2331.2	1170.1	5 JAN 22401425		101.	1870.8	1168.3
1 JAN 0735	92	370.	2809.2	1171.8	3 JAN 1510	759	103.	2330.5	1170.1	5 JAN 22451426		101.	1870.1	1168.3
1 JAN 0740	93	325.	2808.1	1171.8	3 JAN 1515	760	103.	2329.8	1170.1	5 JAN 22501427		101.	1869.4	1168.3
1 JAN 0745	*94	288.	2807.2	1171.8	3 JAN 1520	761	103.	2329.1	1170.1	5 JAN 22551428		101.	1868.7	1168.3
1 JAN 0750	95	258.	2806.5	1171.8	3 JAN 1525	762	103.	2328.4	1170.1	5 JAN 23001429		101.	1868.0	1168.3
1 JAN 0755	96	233.	2805.8	1171.8	3 JAN 1530	763	103.	2327.7	1170.1	5 JAN 23051430		101.	1867.3	1168.3
1 JAN 0800	97	211.	2805.2	1171.8	3 JAN 1535	764	103.	2327.0	1170.0	5 JAN 23101431		101.	1866.6	1168.3
1 JAN 0805	98	192.	2804.6	1171.8	3 JAN 1540	765	103.	2326.3	1170.0	5 JAN 23151432		101.	1865.9	1168.3
1 JAN 0810	99	175.	2804.0	1171.8	3 JAN 1545	766	103.	2325.6	1170.0	5 JAN 23201433		101.	1865.2	1168.3
1 JAN 0815	100	160.	2803.5	1171.8	3 JAN 1550	767	103.	2324.9	1170.0	5 JAN 23251434		101.	1864.5	1168.3
1 JAN 0820	101	147.	2803.0	1171.8	3 JAN 1555	768	103.	2324.2	1170.0	5 JAN 23301435		101.	1863.9	1168.3
1 JAN 0825	102	136.	2802.5	1171.8	3 JAN 1600	769	103.	2323.5	1170.0	5 JAN 23351436		101.	1863.2	1168.3
1 JAN 0830	103	126.	2802.0	1171.8	3 JAN 1605	770	103.	2322.9	1170.0	5 JAN 23401437		101.	1862.5	1168.3

1	JAN 0835	104	118.	2801.6	1171.8	*	3 JAN 1610	771	103.	2322.2	1170.0	*	5 JAN 23451438	101.	1861.8	1168.3
1	JAN 0840	105	112.	2801.1	1171.8	*	3 JAN 1615	772	103.	2321.5	1170.0	*	5 JAN 23501439	101.	1861.1	1168.3
1	JAN 0845	106	107.	2800.7	1171.8	*	3 JAN 1620	773	103.	2320.8	1170.0	*	5 JAN 23551440	101.	1860.4	1168.3
1	JAN 0850	107	105.	2800.3	1171.8	*	3 JAN 1625	774	103.	2320.1	1170.0	*	6 JAN 00001441	101.	1859.7	1168.3
1	JAN 0855	108	105.	2799.8	1171.8	*	3 JAN 1630	775	103.	2319.4	1170.0	*	6 JAN 00051442	101.	1859.0	1168.3
1	JAN 0900	109	105.	2799.3	1171.8	*	3 JAN 1635	776	103.	2318.7	1170.0	*	6 JAN 00101443	101.	1858.3	1168.3
1	JAN 0905	110	105.	2798.8	1171.8	*	3 JAN 1640	777	103.	2318.0	1170.0	*	6 JAN 00151444	101.	1857.6	1168.3
1	JAN 0910	111	105.	2798.3	1171.8	*	3 JAN 1645	778	103.	2317.3	1170.0	*	6 JAN 00201445	101.	1857.0	1168.3
1	JAN 0915	112	105.	2797.7	1171.8	*	3 JAN 1650	779	103.	2316.6	1170.0	*	6 JAN 00251446	101.	1856.3	1168.3
1	JAN 0920	113	105.	2797.1	1171.8	*	3 JAN 1655	780	103.	2315.9	1170.0	*	6 JAN 00301447	100.	1855.6	1168.3
1	JAN 0925	114	105.	2796.5	1171.8	*	3 JAN 1700	781	103.	2315.2	1170.0	*	6 JAN 00351448	100.	1854.9	1168.3
1	JAN 0930	115	105.	2795.9	1171.8	*	3 JAN 1705	782	103.	2314.5	1170.0	*	6 JAN 00401449	100.	1854.2	1168.3
1	JAN 0935	116	105.	2795.3	1171.8	*	3 JAN 1710	783	103.	2313.8	1170.0	*	6 JAN 00451450	100.	1853.5	1168.3
1	JAN 0940	117	105.	2794.6	1171.8	*	3 JAN 1715	784	103.	2313.2	1170.0	*	6 JAN 00501451	100.	1852.8	1168.3
1	JAN 0945	118	105.	2794.0	1171.8	*	3 JAN 1720	785	103.	2312.5	1170.0	*	6 JAN 00551452	100.	1852.1	1168.3
1	JAN 0950	119	105.	2793.3	1171.8	*	3 JAN 1725	786	103.	2311.8	1170.0	*	6 JAN 01001453	100.	1851.4	1168.2
1	JAN 0955	120	105.	2792.7	1171.8	*	3 JAN 1730	787	103.	2311.1	1170.0	*	6 JAN 01051454	100.	1850.7	1168.2
1	JAN 1000	121	105.	2792.0	1171.8	*	3 JAN 1735	788	103.	2310.4	1170.0	*	6 JAN 01101455	100.	1850.0	1168.2
1	JAN 1005	122	105.	2791.4	1171.8	*	3 JAN 1740	789	103.	2309.7	1170.0	*	6 JAN 01151456	100.	1849.4	1168.2
1	JAN 1010	123	105.	2790.7	1171.8	*	3 JAN 1745	790	103.	2309.0	1170.0	*	6 JAN 01201457	100.	1848.7	1168.2
1	JAN 1015	124	105.	2790.0	1171.8	*	3 JAN 1750	791	103.	2308.3	1170.0	*	6 JAN 01251458	100.	1848.0	1168.2
1	JAN 1020	125	105.	2789.4	1171.8	*	3 JAN 1755	792	103.	2307.6	1170.0	*	6 JAN 01301459	100.	1847.3	1168.2
1	JAN 1025	126	105.	2788.7	1171.8	*	3 JAN 1800	793	103.	2306.9	1170.0	*	6 JAN 01351460	100.	1846.6	1168.2
1	JAN 1030	127	105.	2788.0	1171.8	*	3 JAN 1805	794	103.	2306.2	1170.0	*	6 JAN 01401461	100.	1845.9	1168.2
1	JAN 1035	128	105.	2787.3	1171.8	*	3 JAN 1810	795	103.	2305.5	1170.0	*	6 JAN 01451462	100.	1845.2	1168.2
1	JAN 1040	129	105.	2786.6	1171.7	*	3 JAN 1815	796	103.	2304.8	1170.0	*	6 JAN 01501463	100.	1844.5	1168.2
1	JAN 1045	130	105.	2785.9	1171.7	*	3 JAN 1820	797	103.	2304.2	1170.0	*	6 JAN 01551464	100.	1843.8	1168.2
1	JAN 1050	131	105.	2785.2	1171.7	*	3 JAN 1825	798	103.	2303.5	1170.0	*	6 JAN 02001465	100.	1843.1	1168.2
1	JAN 1055	132	105.	2784.6	1171.7	*	3 JAN 1830	799	103.	2302.8	1170.0	*	6 JAN 02051466	100.	1842.4	1168.2
1	JAN 1100	133	105.	2783.9	1171.7	*	3 JAN 1835	800	103.	2302.1	1170.0	*	6 JAN 02101467	100.	1841.8	1168.2
1	JAN 1105	134	105.	2783.2	1171.7	*	3 JAN 1840	801	103.	2301.4	1170.0	*	6 JAN 02151468	100.	1841.1	1168.2
1	JAN 1110	135	105.	2782.5	1171.7	*	3 JAN 1845	802	103.	2300.7	1170.0	*	6 JAN 02201469	100.	1840.4	1168.2
1	JAN 1115	136	105.	2781.8	1171.7	*	3 JAN 1850	803	103.	2300.0	1169.9	*	6 JAN 02251470	100.	1839.7	1168.2
1	JAN 1120	137	105.	2781.1	1171.7	*	3 JAN 1855	804	103.	2299.3	1169.9	*	6 JAN 02301471	100.	1839.0	1168.2
1	JAN 1125	138	105.	2780.4	1171.7	*	3 JAN 1900	805	103.	2298.6	1169.9	*	6 JAN 02351472	100.	1838.3	1168.2
1	JAN 1130	139	105.	2779.7	1171.7	*	3 JAN 1905	806	103.	2297.9	1169.9	*	6 JAN 02401473	100.	1837.6	1168.2
1	JAN 1135	140	105.	2779.0	1171.7	*	3 JAN 1910	807	103.	2297.2	1169.9	*	6 JAN 02451474	100.	1836.9	1168.2
1	JAN 1140	141	105.	2778.3	1171.7	*	3 JAN 1915	808	103.	2296.5	1169.9	*	6 JAN 02501475	100.	1836.2	1168.2
1	JAN 1145	142	105.	2777.6	1171.7	*	3 JAN 1920	809	103.	2295.8	1169.9	*	6 JAN 02551476	100.	1835.5	1168.2
1	JAN 1150	143	105.	2776.8	1171.7	*	3 JAN 1925	810	103.	2295.1	1169.9	*	6 JAN 03001477	100.	1834.8	1168.2
1	JAN 1155	144	105.	2776.1	1171.7	*	3 JAN 1930	811	103.	2294.5	1169.9	*	6 JAN 03051478	100.	1834.2	1168.2
1	JAN 1200	145	105.	2775.4	1171.7	*	3 JAN 1935	812	103.	2293.8	1169.9	*	6 JAN 03101479	100.	1833.5	1168.2
1	JAN 1205	146	105.	2774.7	1171.7	*	3 JAN 1940	813	103.	2293.1	1169.9	*	6 JAN 03151480	100.	1832.8	1168.2
1	JAN 1210	147	105.	2773.9	1171.7	*	3 JAN 1945	814	103.	2292.4	1169.9	*	6 JAN 03201481	100.	1832.1	1168.2
1	JAN 1215	148	105.	2773.2	1171.7	*	3 JAN 1950	815	103.	2291.7	1169.9	*	6 JAN 03251482	100.	1831.4	1168.2
1	JAN 1220	149	105.	2772.5	1171.7	*	3 JAN 1955	816	103.	2291.0	1169.9	*	6 JAN 03301483	100.	1830.7	1168.2
1	JAN 1225	150	105.	2771.8	1171.7	*	3 JAN 2000	817	103.	2290.3	1169.9	*	6 JAN 03351484	100.	1830.0	1168.2
1	JAN 1230	151	105.	2771.0	1171.7	*	3 JAN 2005	818	103.	2289.6	1169.9	*	6 JAN 03401485	100.	1829.3	1168.2
1	JAN 1235	152	105.	2770.3	1171.7	*	3 JAN 2010	819	103.	2288.9	1169.9	*	6 JAN 03451486	100.	1828.6	1168.2
1	JAN 1240	153	105.	2769.6	1171.7	*	3 JAN 2015	820	103.	2288.2	1169.9	*	6 JAN 03501487	100.	1827.9	1168.2
1	JAN 1245	154	105.	2768.9	1171.7	*	3 JAN 2020	821	103.	2287.5	1169.9	*	6 JAN 03551488	100.	1827.3	1168.1
1	JAN 1250	155	105.	2768.1	1171.7	*	3 JAN 2025	822	103.	2286.8	1169.9	*	6 JAN 04001489	100.	1826.6	1168.1
1	JAN 1255	156	105.	2767.4	1171.7	*	3 JAN 2030	823	103.	2286.1	1169.9	*	6 JAN 04051490	100.	1825.9	1168.1
1	JAN 1300	157	105.	2766.7	1171.7	*	3 JAN 2035	824	103.	2285.5	1169.9	*	6 JAN 04101491	100.	1825.2	1168.1
1	JAN 1305	158	105.	2766.0	1171.7	*	3 JAN 2040	825	103.	2284.8	1169.9	*	6 JAN 04151492	100.	1824.5	1168.1
1	JAN 1310	159	105.	2765.2	1171.7	*	3 JAN 2045	826	103.	2284.1	1169.9	*	6 JAN 04201493	100.	1823.8	1168.1
1	JAN 1315	160	105.	2764.5	1171.7	*	3 JAN 2050	827	103.	2283.4	1169.9	*	6 JAN 04251494	100.	1823.1	1168.1
1	JAN 1320	161	105.	2763.8	1171.7	*	3 JAN 2055	828	103.	2282.7	1169.9	*	6 JAN 04301495	100.	1822.4	1168.1
1	JAN 1325	162	105.	2763.1	1171.7	*	3 JAN 2100	829	103.	2282.0	1169.9	*	6 JAN 04351496	100.	1821.7	1168.1
1	JAN 1330	163	105.	2762.3	1171.7	*	3 JAN 2105	830	103.	2281.3	1169.9	*	6 JAN 04401497	100.	1821.0	1168.1
1	JAN 1335	164	105.	2761.6	1171.7	*	3 JAN 2110	831	103.	2280.6	1169.9	*	6 JAN 04451498	100.	1820.3	1168.1
1	JAN 1340	165	105.	2760.9	1171.7	*	3 JAN 2115	832	103.	2279.9	1169.9	*	6 JAN 04501499	100.	1819.7	1168.1
1	JAN 1345	166	105.	2760.2	1171.7	*	3 JAN 2120	833	103.	2279.2	1169.9	*	6 JAN 04551500	100.	1819.0	1168.1
1	JAN 1350	167	105.	2759.4	1171.6	*	3 JAN 2125	834	103.	2278.5	1169.9	*	6 JAN 05001501	100.	1818.3	1168.1
1	JAN 1355	168	105.	2758.7	1171.6	*	3 JAN 2130	835	103.	2277.8	1169.9	*	6 JAN 05051502	100.	1817.6	1168.1
1	JAN 1400	169	105.	2758.0	1171.6	*	3 JAN 2135	836	103.	2277.1	1169.9	*	6 JAN 05101503	100.	1816.9	1168.1
1	JAN 1405	170	105.	2757.2	1171.6	*	3 JAN 2140	837	103.	2276.4	1169.9	*	6 JAN 05151504	100.	1816.2	1168.1
1	JAN 1410	171	105.	2756.5	1171.6	*	3 JAN 2145	838	103.	2275.8	1169.9	*	6 JAN 05201505	100.	1815.5	1168.1
1	JAN 1415	172	105.	2755.8	1171.6	*	3 JAN 2150	839	103.	2275.1	1169.9	*	6 JAN 05251506	100.	1814.8	1168.1
1	JAN 1420	173	105.	2755.1	1171.6	*	3 JAN 2155	840	103.	2274.4	1169.9	*	6 JAN 05301507	100.	1814.1	1168.1
1	JAN 1425	174	105.	2754.3	1171.6	*	3 JAN 2200	841	103.	2273.7	1169.9	*	6 JAN 05351508	100.	1813.4	1168.1
1	JAN 1430	175	105.	2753.6	1171.6	*	3 JAN 2205	842	103.	2273.0	1169.8	*	6 JAN 05401509	100.	1812.7	1168.1
1	JAN 1435	176	105.	2752.9	1171.6	*	3 JAN 2210	843	103.	2272.3	1169.8	*	6 JAN 05451510	100.	1812.1	1168.1
1	JAN 1440	177	105.	2752.2	1171.6	*	3 JAN 2215	844	103.	2271.6	1169.8	*	6 JAN 05501511	100.	1811.4	1168.1
1	JAN 1445	178	105.	2751.4	1171.6	*	3 JAN 2220	845	103.	2270.9	1169.8	*	6 JAN 05551512	100.	1810.7	1168.1
1	JAN 1450	179	105.	2750.7	1171.6	*	3 JAN 2225	846	103.	2270.2	1169.8	*	6 JAN 06001513	100.	1810.0	1168.1
1	JAN 1455	180	105.	2750.0	1171.6	*	3 JAN 2230	847	103.	2269.5	1169.8	*	6 JAN 06051514	100.	1809.3	1168.1
1	JAN 1500	181	105.	2749.3	1171.6	*	3 JAN 2235	848	103.	2268.8	1169.8	*	6 JAN 06101515	100.	1808.6	1168.1
1	JAN 1505	182	105.	2748.5	1171.6	*	3 JAN 2240	849	103.	2268.1	1169.8	*	6 JAN 06151516	100.	1807.9	1168.1
1	JAN 1510	183	105.	2747.8	1171.6	*	3 JAN 2245	850	103.	2267.4	1169.8	*	6 JAN 06201517	100.	1807.2	1168.1
1	JAN 1515	184	105.	2747.1	1171.6	*	3 JAN 2250	851	103.	2266.8	1169.8	*	6 JAN 06251518	100.	1806.5	1168.1
1	JAN 1520	185	105.	2746.4	1171.6	*	3 JAN 2255	852	103.	2266.1	1169.8	*	6 JAN 06301519	100.	1805.8	1168.1
1	JAN 1525	186	105.	2745.6	1171.6	*	3 JAN 2300	853	103.	2265.4	1169.8	*	6 JAN 06351520	100.	1805.2	1168.1
1	JAN 1530	187	105.	2744.9	1171.6	*	3 JAN 2305	854	103.	2264.7	1169.8	*	6 JAN 06401521	100.	1804.5	1168.1
1	JAN 1535	188	105.	2744.2	1171.6	*	3 JAN 2310	855	103.	2264.0	1169.8	*	6 JAN 06451522	100.	1803.8	1168.1
1	JAN 1540	189	105.	2743.5	1171.6	*	3 JAN 2315	856	103.	2263.3	1169.8	*	6 JAN 06501523	100.	1803.1	1168.1
1	JAN 1545	190	105.	2742.7	1171.6	*	3 JAN 2320	857	103.	2262.6	1169.8	*	6 JAN 06551524	100.	1802.4	1168.0
1	JAN 1550	191	105.	2742.0	1171.6	*	3 JAN 2325	858	103.	2261.9	1169.8	*	6 JAN 07001525	100.	1801.7	1168.0
1	JAN 1555	192	105.	2741.3	1171.6	*	3 JAN 2330	859	103.	2261.2	1169.8	*	6 JAN 07051526	100.	1801.0	1168.0
1	JAN 1600	193	105.	2740.6	1171.6	*	3 JAN 2335	860	103.	2260.5	1169.8	*	6 JAN 07101527	100.	1800.3	1168.0
1	JAN 1605	194	105.	2739.8	1171.6	*	3 JAN 2340	861	103.	2259.8	1169.8	*	6 JAN 07151528	100.	1799.6	1168.0
1	JAN 1610	195	105.	2739.1	1171.6	*	3 JAN 2345	862	103.	2259.1	1169.8	*	6 JAN 07201529	100.	1798.9	1168.0
1	JAN 1615	196	105.	2738.4	1171.6	*	3 JAN 2350	863	103.	2258.4	1169.8	*	6 JAN 07251530	100.	1798.2	1168.0
1	JAN 1620	197	105.	2737.7	1171.6	*	3 JAN 2355	864	103.	2257.7	1169.8	*	6 JAN 07301531	100.	1797.6	1168.0
1	JAN 1625	198	105.	2736.9	1171.6	*	4 JAN 0000	865	103.	2257.1	1169.8	*	6 JAN 07351532	100.	1796.9	1168.0
1	JAN 1630	199	105.	2736.2	1171.6	*	4 JAN 0005	866	103.	2256.4	1169.8	*	6 JAN 07401533	100.	1796.2	1168.0
1	JAN 1635	200	105.	2735.5	1171.6	*	4 JAN 0010	867	103.	2255.7	1169.8	*	6 JAN 07451534	100.	1795.5	1168.0
1	JAN 1640	201	105.	2734.8	1171.6	*	4 JAN 0015	868	103.	2255.0	1169.8	*	6 JAN 07501535	100.	1794.8	1168.0
1	JAN 1645	202	105.	2734.0	1171.6	*	4 JAN 0020	869	103.	2254.3	1169.8	*	6 JAN 07551536	100.	1794.1	1168.0
1	JAN 1650	203	105.	2733.3	1171.6	*	4 JAN 0025	870	103.	2253.6	1169.8	*	6 JAN 08001537	100.	1793.4	1168.0
1	JAN 1655	204	105.	2732.6	1171.5	*	4 JAN 0030	871	103.	2252.9	1169.8	*	6 JAN 08051538	100.	1792.7	1168.0
1	JAN 1700	205	105.	2731.9	1171.5	*	4 JAN 0035	872	103.	2252.2	1169.8	*	6 JAN 08101539	100.	1792.0	1168.0
1	JAN 1705	206	105.	2731.1	1171.5	*	4 JAN 0040	873	103.	2251.5	1169.8	*	6 JAN 08151540	100.	1791.3	1168.0
1	JAN 1710	207	105.	2730.4	1171.5	*	4 JAN 0045	874	103.	2250.8	1169.8	*	6 JAN 08201541	100.	1790.6	1168.0
1	JAN 1715	208	105.	2729.7	1171.5	*	4 JAN 0050	875	102.	2250.1	1169.8	*	6 JAN 08251542	100.	1790.0	1168.0
1	JAN 1720	209	105.	2729.0	1171.5	*	4 JAN 0055	876	102.	2249.4	1169.8	*	6 JAN 08301543	100.	1789.3	1168.0
1	JAN 1725	210	105.	2728.2	1171.5	*	4 JAN 0100	877	102.	2248.7	1169.8	*	6 JAN 08351544	100.	1788.6	1168.0
1	JAN 1730	211	105.	2727.5	1171.5	*	4 JAN 0105	878	102.	2248.1	1169.8	*	6 JAN 08401545	100.	1787.9	1168.0
1	JAN 1735	212	105.	2726.8	1171.5	*	4 JAN 0110	879	102.	2247.4	1169.8	*	6 JAN 08451546	100.	1787.2	1168.0
1	JAN 1740	213	105.	2726.0	1171.5	*	4 JAN 0115	880	102.	2246.7	1169.8	*	6 JAN 08501547	100.	1786.5	1168.0
1	JAN 1745	214	105.	2725.3	1171.5	*	4 JAN 0120	881	102.	2246.0	1169.7	*	6 JAN 08551548	100.	1785.8	1168.0
1	JAN 1750	215	105.	2724.6	1171.5	*	4 JAN 0125	882	102.	2245.3	1169.7	*	6 JAN 09001549	100.	1785.1	1168.0
1	JAN 1755	216	105.	2723.9	1171.5	*	4 JAN 0130	883	102.	2244.6	1169.7	*	6 JAN 09051550	100.	1784.4	1168.0
1	JAN 1800	217	105.	2723.1	1171.5	*	4 JAN 0135	884	102.	2243.9	1169.7	*	6 JAN 09101551	100.	1783.7	1168.0

1	JAN	1805	218	105.	2722.4	1171.5	*	4	JAN	0140	885	102.	2243.2	1169.7	*	6	JAN	09151552	100.	1783.0	1168.0
1	JAN	1810	219	105.	2721.7	1171.5	*	4	JAN	0145	886	102.	2242.5	1169.7	*	6	JAN	09201553	100.	1782.4	1168.0
1	JAN	1815	220	105.	2721.0	1171.5	*	4	JAN	0150	887	102.	2241.8	1169.7	*	6	JAN	09251554	100.	1781.7	1168.0
1	JAN	1820	221	105.	2720.2	1171.5	*	4	JAN	0155	888	102.	2241.1	1169.7	*	6	JAN	09301555	100.	1781.0	1168.0
1	JAN	1825	222	105.	2719.5	1171.5	*	4	JAN	0200	889	102.	2240.4	1169.7	*	6	JAN	09351556	100.	1780.3	1168.0
1	JAN	1830	223	105.	2718.8	1171.5	*	4	JAN	0205	890	102.	2239.7	1169.7	*	6	JAN	09401557	100.	1779.6	1168.0
1	JAN	1835	224	105.	2718.1	1171.5	*	4	JAN	0210	891	102.	2239.0	1169.7	*	6	JAN	09451558	100.	1778.9	1168.0
1	JAN	1840	225	105.	2717.3	1171.5	*	4	JAN	0215	892	102.	2238.4	1169.7	*	6	JAN	09501559	100.	1778.2	1167.9
1	JAN	1845	226	105.	2716.6	1171.5	*	4	JAN	0220	893	102.	2237.7	1169.7	*	6	JAN	09551560	100.	1777.5	1167.9
1	JAN	1850	227	105.	2715.9	1171.5	*	4	JAN	0225	894	102.	2237.0	1169.7	*	6	JAN	10001561	100.	1776.8	1167.9
1	JAN	1855	228	105.	2715.2	1171.5	*	4	JAN	0230	895	102.	2236.3	1169.7	*	6	JAN	10051562	100.	1776.1	1167.9
1	JAN	1900	229	105.	2714.4	1171.5	*	4	JAN	0235	896	102.	2235.6	1169.7	*	6	JAN	10101563	100.	1775.5	1167.9
1	JAN	1905	230	105.	2713.7	1171.5	*	4	JAN	0240	897	102.	2234.9	1169.7	*	6	JAN	10151564	100.	1774.8	1167.9
1	JAN	1910	231	105.	2713.0	1171.5	*	4	JAN	0245	898	102.	2234.2	1169.7	*	6	JAN	10201565	100.	1774.1	1167.9
1	JAN	1915	232	105.	2712.3	1171.5	*	4	JAN	0250	899	102.	2233.5	1169.7	*	6	JAN	10251566	100.	1773.4	1167.9
1	JAN	1920	233	105.	2711.5	1171.5	*	4	JAN	0255	900	102.	2232.8	1169.7	*	6	JAN	10301567	100.	1772.7	1167.9
1	JAN	1925	234	105.	2710.8	1171.5	*	4	JAN	0300	901	102.	2232.1	1169.7	*	6	JAN	10351568	100.	1772.0	1167.9
1	JAN	1930	235	105.	2710.1	1171.5	*	4	JAN	0305	902	102.	2231.4	1169.7	*	6	JAN	10401569	100.	1771.3	1167.9
1	JAN	1935	236	105.	2709.4	1171.5	*	4	JAN	0310	903	102.	2230.7	1169.7	*	6	JAN	10451570	100.	1770.6	1167.9
1	JAN	1940	237	105.	2708.6	1171.5	*	4	JAN	0315	904	102.	2230.0	1169.7	*	6	JAN	10501571	100.	1769.9	1167.9
1	JAN	1945	238	105.	2707.9	1171.5	*	4	JAN	0320	905	102.	2229.4	1169.7	*	6	JAN	10551572	100.	1769.2	1167.9
1	JAN	1950	239	105.	2707.2	1171.5	*	4	JAN	0325	906	102.	2228.7	1169.7	*	6	JAN	11001573	100.	1768.5	1167.9
1	JAN	1955	240	105.	2706.5	1171.5	*	4	JAN	0330	907	102.	2228.0	1169.7	*	6	JAN	11051574	100.	1767.9	1167.9
1	JAN	2000	241	105.	2705.7	1171.4	*	4	JAN	0335	908	102.	2227.3	1169.7	*	6	JAN	11101575	100.	1767.2	1167.9
1	JAN	2005	242	105.	2705.0	1171.4	*	4	JAN	0340	909	102.	2226.6	1169.7	*	6	JAN	11151576	100.	1766.5	1167.9
1	JAN	2010	243	105.	2704.3	1171.4	*	4	JAN	0345	910	102.	2225.9	1169.7	*	6	JAN	11201577	100.	1765.8	1167.9
1	JAN	2015	244	105.	2703.6	1171.4	*	4	JAN	0350	911	102.	2225.2	1169.7	*	6	JAN	11251578	100.	1765.1	1167.9
1	JAN	2020	245	105.	2702.8	1171.4	*	4	JAN	0355	912	102.	2224.5	1169.7	*	6	JAN	11301579	100.	1764.4	1167.9
1	JAN	2025	246	105.	2702.1	1171.4	*	4	JAN	0400	913	102.	2223.8	1169.7	*	6	JAN	11351580	100.	1763.7	1167.9
1	JAN	2030	247	105.	2701.4	1171.4	*	4	JAN	0405	914	102.	2223.1	1169.7	*	6	JAN	11401581	100.	1763.0	1167.9
1	JAN	2035	248	105.	2700.7	1171.4	*	4	JAN	0410	915	102.	2222.4	1169.7	*	6	JAN	11451582	100.	1762.3	1167.9
1	JAN	2040	249	105.	2699.9	1171.4	*	4	JAN	0415	916	102.	2221.7	1169.7	*	6	JAN	11501583	100.	1761.6	1167.9
1	JAN	2045	250	105.	2699.2	1171.4	*	4	JAN	0420	917	102.	2221.0	1169.7	*	6	JAN	11551584	100.	1760.9	1167.9
1	JAN	2050	251	105.	2698.5	1171.4	*	4	JAN	0425	918	102.	2220.3	1169.7	*	6	JAN	12001585	100.	1760.3	1167.9
1	JAN	2055	252	105.	2697.8	1171.4	*	4	JAN	0430	919	102.	2219.7	1169.7	*	6	JAN	12051586	100.	1759.6	1167.9
1	JAN	2100	253	105.	2697.0	1171.4	*	4	JAN	0435	920	102.	2219.0	1169.6	*	6	JAN	12101587	100.	1758.9	1167.9
1	JAN	2105	254	105.	2696.3	1171.4	*	4	JAN	0440	921	102.	2218.3	1169.6	*	6	JAN	12151588	100.	1758.2	1167.9
1	JAN	2110	255	105.	2695.6	1171.4	*	4	JAN	0445	922	102.	2217.6	1169.6	*	6	JAN	12201589	100.	1757.5	1167.9
1	JAN	2115	256	105.	2694.8	1171.4	*	4	JAN	0450	923	102.	2216.9	1169.6	*	6	JAN	12251590	100.	1756.8	1167.9
1	JAN	2120	257	105.	2694.1	1171.4	*	4	JAN	0455	924	102.	2216.2	1169.6	*	6	JAN	12301591	100.	1756.1	1167.9
1	JAN	2125	258	105.	2693.4	1171.4	*	4	JAN	0500	925	102.	2215.5	1169.6	*	6	JAN	12351592	100.	1755.4	1167.9
1	JAN	2130	259	105.	2692.7	1171.4	*	4	JAN	0505	926	102.	2214.8	1169.6	*	6	JAN	12401593	100.	1754.7	1167.9
1	JAN	2135	260	105.	2691.9	1171.4	*	4	JAN	0510	927	102.	2214.1	1169.6	*	6	JAN	12451594	100.	1754.0	1167.9
1	JAN	2140	261	105.	2691.2	1171.4	*	4	JAN	0515	928	102.	2213.4	1169.6	*	6	JAN	12501595	100.	1753.4	1167.8
1	JAN	2145	262	105.	2690.5	1171.4	*	4	JAN	0520	929	102.	2212.7	1169.6	*	6	JAN	12551596	100.	1752.7	1167.8
1	JAN	2150	263	105.	2689.8	1171.4	*	4	JAN	0525	930	102.	2212.0	1169.6	*	6	JAN	13001597	100.	1752.0	1167.8
1	JAN	2155	264	105.	2689.0	1171.4	*	4	JAN	0530	931	102.	2211.3	1169.6	*	6	JAN	13051598	100.	1751.3	1167.8
1	JAN	2200	265	105.	2688.3	1171.4	*	4	JAN	0535	932	102.	2210.7	1169.6	*	6	JAN	13101599	100.	1750.6	1167.8
1	JAN	2205	266	105.	2687.6	1171.4	*	4	JAN	0540	933	102.	2210.0	1169.6	*	6	JAN	13151600	100.	1749.9	1167.8
1	JAN	2210	267	105.	2686.9	1171.4	*	4	JAN	0545	934	102.	2209.3	1169.6	*	6	JAN	13201601	100.	1749.2	1167.8
1	JAN	2215	268	105.	2686.1	1171.4	*	4	JAN	0550	935	102.	2208.6	1169.6	*	6	JAN	13251602	100.	1748.5	1167.8
1	JAN	2220	269	105.	2685.4	1171.4	*	4	JAN	0555	936	102.	2207.9	1169.6	*	6	JAN	13301603	100.	1747.8	1167.8
1	JAN	2225	270	105.	2684.7	1171.4	*	4	JAN	0600	937	102.	2207.2	1169.6	*	6	JAN	13351604	100.	1747.1	1167.8
1	JAN	2230	271	105.	2684.0	1171.4	*	4	JAN	0605	938	102.	2206.5	1169.6	*	6	JAN	13401605	100.	1746.4	1167.8
1	JAN	2235	272	105.	2683.2	1171.4	*	4	JAN	0610	939	102.	2205.8	1169.6	*	6	JAN	13451606	100.	1745.8	1167.8
1	JAN	2240	273	105.	2682.5	1171.4	*	4	JAN	0615	940	102.	2205.1	1169.6	*	6	JAN	13501607	100.	1745.1	1167.8
1	JAN	2245	274	105.	2681.8	1171.4	*	4	JAN	0620	941	102.	2204.4	1169.6	*	6	JAN	13551608	100.	1744.4	1167.8
1	JAN	2250	275	105.	2681.1	1171.4	*	4	JAN	0625	942	102.	2203.7	1169.6	*	6	JAN	14001609	100.	1743.7	1167.8
1	JAN	2255	276	105.	2680.3	1171.4	*	4	JAN	0630	943	102.	2203.0	1169.6	*	6	JAN	14051610	100.	1743.0	1167.8
1	JAN	2300	277	105.	2679.6	1171.4	*	4	JAN	0635	944	102.	2202.4	1169.6	*	6	JAN	14101611	100.	1742.3	1167.8
1	JAN	2305	278	105.	2678.9	1171.4	*	4	JAN	0640	945	102.	2201.7	1169.6	*	6	JAN	14151612	100.	1741.6	1167.8
1	JAN	2310	279	105.	2678.2	1171.3	*	4	JAN	0645	946	102.	2201.0	1169.6	*	6	JAN	14201613	100.	1740.9	1167.8
1	JAN	2315	280	105.	2677.4	1171.3	*	4	JAN	0650	947	102.	2200.3	1169.6	*	6	JAN	14251614	100.	1740.2	1167.8
1	JAN	2320	281	105.	2676.7	1171.3	*	4	JAN	0655	948	102.	2199.6	1169.6	*	6	JAN	14301615	100.	1739.5	1167.8
1	JAN	2325	282	105.	2676.0	1171.3	*	4	JAN	0700	949	102.	2198.9	1169.6	*	6	JAN	14351616	100.	1738.8	1167.8
1	JAN	2330	283	105.	2675.3	1171.3	*	4	JAN	0705	950	102.	2198.2	1169.6	*	6	JAN	14401617	100.	1738.2	1167.8
1	JAN	2335	284	105.	2674.5	1171.3	*	4	JAN	0710	951	102.	2197.5	1169.6	*	6	JAN	14451618	100.	1737.5	1167.8
1	JAN	2340	285	105.	2673.8	1171.3	*	4	JAN	0715	952	102.	2196.8	1169.6	*	6	JAN	14501619	100.	1736.8	1167.8
1	JAN	2345	286	105.	2673.1	1171.3	*	4	JAN	0720	953	102.	2196.2	1169.6	*	6	JAN	14551620	100.	1736.1	1167.8
1	JAN	2350	287	105.	2672.4	1171.3	*	4	JAN	0725	954	102.	2195.5	1169.6	*	6	JAN	15001621	100.	1735.4	1167.8
1	JAN	2355	288	105.	2671.6	1171.3	*	4	JAN	0730	955	102.	2194.8	1169.6	*	6	JAN	15051622	100.	1734.7	1167.8
2	JAN	0000	289	105.	2670.9	1171.3	*	4	JAN	0735	956	102.	2194.1	1169.6	*	6	JAN	15101623	100.	1734.0	1167.8
2	JAN	0005	290	105.	2670.2	1171.3	*	4	JAN	0740	957	102.	2193.4	1169.6	*	6	JAN	15151624	100.	1733.3	1167.8
2	JAN	0010	291	105.	2669.5	1171.3	*	4	JAN	0745	958	102.	2192.7	1169.6	*	6	JAN	15201625	100.	1732.6	1167.8
2	JAN	0015	292	105.	2668.7	1171.3	*	4	JAN	0750	959	102.	2192.0	1169.5	*	6	JAN	15251626	100.	1731.9	1167.8
2	JAN	0020	293	105.	2668.0	1171.3	*	4	JAN	0755	960	102.	2191.3	1169.5	*	6	JAN	15301627	100.	1731.2	1167.8
2	JAN	0025	294	105.	2667.3	1171.3	*	4	JAN	0800	961	102.	2190.6	1169.5	*	6	JAN	15351628	100.	1730.6	1167.8
2	JAN	0030	295	105.	2666.5	1171.3	*	4	JAN	0805	962	102.	2190.0	1169.5	*	6	JAN	15401629	100.	1729.9	1167.8
2	JAN	0035	296	105.	2665.8	1171.3	*	4	JAN	0810	963	102.	2189.3	1169.5	*	6	JAN	15451630	100.	1729.2	1167.8
2	JAN	0040	297	105.	2665.1	1171.3	*	4	JAN	0815	964	102.	2188.6	1169.5	*	6	JAN	15501631	100.	1728.5	1167.7
2	JAN	0045	298	105.	2664.4	1171.3	*	4	JAN	0820	965	102.	2187.9	1169.5	*	6	JAN	15551632	100.	1727.8	1167.7
2	JAN	0050	299	105.	2663.6	1171.3	*	4	JAN	0825	966	102.	2187.2	1169.5	*	6	JAN	16001633	100.	1727.1	1167.7
2	JAN	0055	300	105.	2662.9	1171.3	*	4	JAN	0830	967	102.	2186.5	1169.5	*	6	JAN	16051634	100.	1726.4	1167.7
2	JAN	0100	301	105.	2662.2	1171.3	*	4	JAN	0835	968	102.	2185.8	1169.5	*	6	JAN	16101635	100.	1725.7	1167.7
2	JAN	0105	302	105.	2661.5	1171.3	*	4	JAN	0840	969	102.	2185.1	1169.5	*	6	JAN	16151636	100.	1725.0	1167.7
2	JAN	0110	303	105.	2660.7	1171.3	*	4	JAN	0845	970	102.	2184.4	1169.5	*	6	JAN	16201637	100.	1724.3	1167.7
2	JAN	0115	304	105.	2660.0	1171.3	*	4	JAN	0850	971	102.	2183.8	1169.5	*	6	JAN	16251638	100.	1723.7	1167.7
2	JAN	0120	305	105.	2659.3	1171.3	*	4	JAN	0855	972	102.	2183.1	1169.5	*	6	JAN	16301639	100.	1723.0	1167.7
2	JAN	0125	306	105.	2658.6	1171.3	*	4	JAN	0900	973	102.	2182.4	1169.5	*	6	JAN	16351640	100.	1722.3	1167.7
2	JAN	0130	307	105.	2657.8	1171.3	*	4	JAN	0905	974	102.	2181.7	1169.5	*	6	JAN	16401641	100.	1721.6	1167.7
2	JAN	0135	308	105.	2657.1	1171.3	*	4	JAN	0910	975	102.	2181.0	1169.5	*	6	JAN	16451642	100.	1720.9	1167.7
2	JAN	0140	309	105.	2656.4	1171.3	*	4	JAN	0915	976	102.	2180.3	1169.5	*	6	JAN	16501643	100.	1720.2	1167.7
2	JAN	0145	310	104.	2655.7	1171.3	*	4	JAN	0920	977	102.	2179.6	1169.5	*	6	JAN	16551644	100.	1719.5	1167.7
2	JAN	0150	311	104.	2654.9	1171.3	*	4	JAN	0925	978	102.	2178.9	1169.5	*	6	JAN	17001645	100.	1718.8	1167.7
2	JAN	0155	312	104.	2654.2	1171.3	*	4	JAN	0930	979	102.	2178.2	1169.5	*	6	JAN	17051646	100.	1718.1	1167.7
2	JAN	0200	313	104.	2653.5	1171.3	*	4	JAN	0935	980	102.	2177.6	1169.5	*	6	JAN	17101647	100.	1717.4	1167.7
2	JAN	0205	314	104.	2652.8	1171.3	*	4	JAN	0940	981	102.	2176.9	1169.5	*	6	JAN	17151648	100.	1716.7	1167.7
2	JAN	0210	315	104.	2652.0	1171.3	*	4	JAN	0945	982	102.	2176.2	1169.5	*	6	JAN	17201649	100.	1716.1	1167.7
2	JAN	0215	316	104.	2651.3	1171.2	*	4	JAN	0950	983	102.	2175.5	1169.5	*	6	JAN	17251650	100.	1715.4	1167.7
2	JAN	0220	317	104.	2650.6	1171.2	*	4	JAN	0955	984	102.	2174.8	1169.5	*	6	JAN	17301651	100.	1714.7	1167.7
2	JAN	0225	318	104.	2649.9	1171.2	*	4	JAN	1000	985	102.	2174.1	1169.5	*	6	JAN	17351652	100.	1714.0	1167.7
2	JAN	0230	319	104.	2649.1	1171.2	*	4	JAN	1005	986	102.	2173.4	1169.5	*	6	JAN	17401653	100.	1713.3	1167.7
2	JAN	0235	320	104.	2648.4	1171.2	*	4	JAN	1010	987	102.	2172.7	1169.5	*	6	JAN	17451654	100.	1712.6	1167.7
2	JAN	0240	321	104.	2647.7	1171.2	*	4	JAN	1015	988	102.	2172.0	1169.5	*	6	JAN	17501655	100.	1711.9	1167.7
2	JAN	0245	322	104.	2647.0	1171.2	*	4	JAN	1020	989	102.	2171.4	1169.5	*	6	JAN	17551656	100.	1711.2	1167.7
2	JAN	0250	323	104.	2646.2	1171.2	*	4	JAN	1025	990	102.	2170.7	1169.5	*	6	JAN	18001657	100.	1710.5	1167.7
2	JAN	0255	324	104.	2645.5	1171.2	*	4	JAN	1030	991	102.	2170.0	1169.5	*	6	JAN	18051658	100.	1709.8	1167.7
2	JAN	0300	325	104.	2644.8	1171.2	*	4	JAN	1035	992	102.	2169.3	1169.5	*	6	JAN	18101659	100.	1709.1	1167.7
2	JAN	0305	326	104.	2644.1	1171.2	*	4	JAN	1040	993	102.	2168.6	1169.5	*	6	JAN	18151660	100.	1708.5	1167.7
2	JAN	0310	327	104.	2643.3	1171.2	*	4	JAN	1045	994	102.	2167.9	1169.5	*	6	JAN	18201661	100.	1707.8	1167.7
2	JAN	0315	328	104.	2642.6	1171.2	*	4	JAN	1050	995	102.	2167.2	1169.5	*	6	JAN	18251662	100.	1707.1	1167.7
2	JAN	0320	329	104.	2641.9	1171.2	*	4	JAN	1055	996	102.	2166.5	1169.5	*	6	JAN	18301663	100.	1706.4	1167.7
2	JAN	0325	330	104.	2641.2	1171.2	*	4	JAN	1100	997	102.	2165.8	1169.5	*	6	JAN	18351664	100.	1705.7	1167.7
2	JAN	0330	331	104.	2640.4	1171.2	*	4	JAN	1105	998	102.	2165.2	1169.4	*	6	JAN	18401665	100.	1705.0	1167.7

2	JAN	0335	332	104.	2639.7	1171.2	*	4	JAN	1110	999	102.	2164.5	1169.4	*	6	JAN 18451666	100.	1704.3	1167.6
2	JAN	0340	333	104.	2639.0	1171.2	*	4	JAN	11151000		102.	2163.8	1169.4	*	6	JAN 18501667	100.	1703.6	1167.6
2	JAN	0345	334	104.	2638.3	1171.2	*	4	JAN	11201001		102.	2163.1	1169.4	*	6	JAN 18551668	100.	1702.9	1167.6
2	JAN	0350	335	104.	2637.5	1171.2	*	4	JAN	11251002		102.	2162.4	1169.4	*	6	JAN 19001669	100.	1702.2	1167.6
2	JAN	0355	336	104.	2636.8	1171.2	*	4	JAN	11301003		102.	2161.7	1169.4	*	6	JAN 19051670	100.	1701.5	1167.6
2	JAN	0400	337	104.	2636.1	1171.2	*	4	JAN	11351004		102.	2161.0	1169.4	*	6	JAN 19101671	100.	1700.9	1167.6
2	JAN	0405	338	104.	2635.3	1171.2	*	4	JAN	11401005		102.	2160.3	1169.4	*	6	JAN 19151672	100.	1700.2	1167.6
2	JAN	0410	339	104.	2634.6	1171.2	*	4	JAN	11451006		102.	2159.6	1169.4	*	6	JAN 19201673	100.	1699.5	1167.6
2	JAN	0415	340	104.	2633.9	1171.2	*	4	JAN	11501007		102.	2159.0	1169.4	*	6	JAN 19251674	100.	1698.8	1167.6
2	JAN	0420	341	104.	2633.2	1171.2	*	4	JAN	11551008		102.	2158.3	1169.4	*	6	JAN 19301675	100.	1698.2	1167.6
2	JAN	0425	342	104.	2632.4	1171.2	*	4	JAN	12001009		102.	2157.6	1169.4	*	6	JAN 19351676	100.	1697.5	1167.6
2	JAN	0430	343	104.	2631.7	1171.2	*	4	JAN	12051010		102.	2156.9	1169.4	*	6	JAN 19401677	100.	1696.8	1167.6
2	JAN	0435	344	104.	2631.0	1171.2	*	4	JAN	12101011		102.	2156.2	1169.4	*	6	JAN 19451678	100.	1696.1	1167.6
2	JAN	0440	345	104.	2630.3	1171.2	*	4	JAN	12151012		102.	2155.5	1169.4	*	6	JAN 19501679	100.	1695.5	1167.6
2	JAN	0445	346	104.	2629.5	1171.2	*	4	JAN	12201013		102.	2154.8	1169.4	*	6	JAN 19551680	100.	1694.8	1167.6
2	JAN	0450	347	104.	2628.8	1171.2	*	4	JAN	12251014		102.	2154.1	1169.4	*	6	JAN 20001681	100.	1694.1	1167.6
2	JAN	0455	348	104.	2628.1	1171.2	*	4	JAN	12301015		102.	2153.4	1169.4	*	6	JAN 20051682	100.	1693.4	1167.6
2	JAN	0500	349	104.	2627.4	1171.2	*	4	JAN	12351016		102.	2152.8	1169.4	*	6	JAN 20101683	100.	1692.8	1167.6
2	JAN	0505	350	104.	2626.6	1171.2	*	4	JAN	12401017		102.	2152.1	1169.4	*	6	JAN 20151684	100.	1692.1	1167.6
2	JAN	0510	351	104.	2625.9	1171.2	*	4	JAN	12451018		102.	2151.4	1169.4	*	6	JAN 20201685	100.	1691.4	1167.6
2	JAN	0515	352	104.	2625.2	1171.2	*	4	JAN	12501019		102.	2150.7	1169.4	*	6	JAN 20251686	100.	1690.8	1167.6
2	JAN	0520	353	104.	2624.5	1171.1	*	4	JAN	12551020		102.	2150.0	1169.4	*	6	JAN 20301687	100.	1690.1	1167.6
2	JAN	0525	354	104.	2623.7	1171.1	*	4	JAN	13001021		102.	2149.3	1169.4	*	6	JAN 20351688	100.	1689.4	1167.6
2	JAN	0530	355	104.	2623.0	1171.1	*	4	JAN	13051022		102.	2148.6	1169.4	*	6	JAN 20401689	100.	1688.7	1167.6
2	JAN	0535	356	104.	2622.3	1171.1	*	4	JAN	13101023		102.	2147.9	1169.4	*	6	JAN 20451690	100.	1688.1	1167.6
2	JAN	0540	357	104.	2621.6	1171.1	*	4	JAN	13151024		102.	2147.2	1169.4	*	6	JAN 20501691	100.	1687.4	1167.6
2	JAN	0545	358	104.	2620.8	1171.1	*	4	JAN	13201025		102.	2146.6	1169.4	*	6	JAN 20551692	100.	1686.7	1167.6
2	JAN	0550	359	104.	2620.1	1171.1	*	4	JAN	13251026		102.	2145.9	1169.4	*	6	JAN 21001693	100.	1686.0	1167.6
2	JAN	0555	360	104.	2619.4	1171.1	*	4	JAN	13301027		102.	2145.2	1169.4	*	6	JAN 21051694	100.	1685.4	1167.6
2	JAN	0600	361	104.	2618.7	1171.1	*	4	JAN	13351028		102.	2144.5	1169.4	*	6	JAN 21101695	100.	1684.7	1167.6
2	JAN	0605	362	104.	2617.9	1171.1	*	4	JAN	13401029		102.	2143.8	1169.4	*	6	JAN 21151696	100.	1684.0	1167.6
2	JAN	0610	363	104.	2617.2	1171.1	*	4	JAN	13451030		102.	2143.1	1169.4	*	6	JAN 21201697	100.	1683.3	1167.6
2	JAN	0615	364	104.	2616.5	1171.1	*	4	JAN	13501031		102.	2142.4	1169.4	*	6	JAN 21251698	100.	1682.7	1167.6
2	JAN	0620	365	104.	2615.8	1171.1	*	4	JAN	13551032		102.	2141.7	1169.4	*	6	JAN 21301699	100.	1682.0	1167.5
2	JAN	0625	366	104.	2615.0	1171.1	*	4	JAN	14001033		102.	2141.0	1169.4	*	6	JAN 21351700	100.	1681.3	1167.5
2	JAN	0630	367	104.	2614.3	1171.1	*	4	JAN	14051034		102.	2140.4	1169.4	*	6	JAN 21401701	100.	1680.6	1167.5
2	JAN	0635	368	104.	2613.6	1171.1	*	4	JAN	14101035		102.	2139.7	1169.4	*	6	JAN 21451702	100.	1680.0	1167.5
2	JAN	0640	369	104.	2612.9	1171.1	*	4	JAN	14151036		102.	2139.0	1169.4	*	6	JAN 21501703	100.	1679.3	1167.5
2	JAN	0645	370	104.	2612.1	1171.1	*	4	JAN	14201037		102.	2138.3	1169.3	*	6	JAN 21551704	100.	1678.6	1167.5
2	JAN	0650	371	104.	2611.4	1171.1	*	4	JAN	14251038		102.	2137.6	1169.3	*	6	JAN 22001705	100.	1677.9	1167.5
2	JAN	0655	372	104.	2610.7	1171.1	*	4	JAN	14301039		102.	2136.9	1169.3	*	6	JAN 22051706	100.	1677.3	1167.5
2	JAN	0700	373	104.	2610.0	1171.1	*	4	JAN	14351040		102.	2136.2	1169.3	*	6	JAN 22101707	100.	1676.6	1167.5
2	JAN	0705	374	104.	2609.2	1171.1	*	4	JAN	14401041		102.	2135.5	1169.3	*	6	JAN 22151708	100.	1675.9	1167.5
2	JAN	0710	375	104.	2608.5	1171.1	*	4	JAN	14451042		102.	2134.8	1169.3	*	6	JAN 22201709	100.	1675.2	1167.5
2	JAN	0715	376	104.	2607.8	1171.1	*	4	JAN	14501043		102.	2134.2	1169.3	*	6	JAN 22251710	100.	1674.6	1167.5
2	JAN	0720	377	104.	2607.1	1171.1	*	4	JAN	14551044		102.	2133.5	1169.3	*	6	JAN 22301711	99.	1673.9	1167.5
2	JAN	0725	378	104.	2606.3	1171.1	*	4	JAN	15001045		102.	2132.8	1169.3	*	6	JAN 22351712	99.	1673.2	1167.5
2	JAN	0730	379	104.	2605.6	1171.1	*	4	JAN	15051046		102.	2132.1	1169.3	*	6	JAN 22401713	99.	1672.5	1167.5
2	JAN	0735	380	104.	2604.9	1171.1	*	4	JAN	15101047		102.	2131.4	1169.3	*	6	JAN 22451714	99.	1671.9	1167.5
2	JAN	0740	381	104.	2604.1	1171.1	*	4	JAN	15151048		102.	2130.7	1169.3	*	6	JAN 22501715	99.	1671.2	1167.5
2	JAN	0745	382	104.	2603.4	1171.1	*	4	JAN	15201049		102.	2130.0	1169.3	*	6	JAN 22551716	99.	1670.5	1167.5
2	JAN	0750	383	104.	2602.7	1171.1	*	4	JAN	15251050		102.	2129.3	1169.3	*	6	JAN 23001717	99.	1669.8	1167.5
2	JAN	0755	384	104.	2602.0	1171.1	*	4	JAN	15301051		102.	2128.6	1169.3	*	6	JAN 23051718	99.	1669.2	1167.5
2	JAN	0800	385	104.	2601.2	1171.1	*	4	JAN	15351052		102.	2128.0	1169.3	*	6	JAN 23101719	99.	1668.5	1167.5
2	JAN	0805	386	104.	2600.5	1171.1	*	4	JAN	15401053		102.	2127.3	1169.3	*	6	JAN 23151720	99.	1667.8	1167.5
2	JAN	0810	387	104.	2599.8	1171.1	*	4	JAN	15451054		102.	2126.6	1169.3	*	6	JAN 23201721	99.	1667.1	1167.5
2	JAN	0815	388	104.	2599.1	1171.1	*	4	JAN	15501055		102.	2125.9	1169.3	*	6	JAN 23251722	99.	1666.5	1167.5
2	JAN	0820	389	104.	2598.3	1171.1	*	4	JAN	15551056		102.	2125.2	1169.3	*	6	JAN 23301723	99.	1665.8	1167.5
2	JAN	0825	390	104.	2597.6	1171.0	*	4	JAN	16001057		102.	2124.5	1169.3	*	6	JAN 23351724	99.	1665.1	1167.5
2	JAN	0830	391	104.	2596.9	1171.0	*	4	JAN	16051058		102.	2123.8	1169.3	*	6	JAN 23401725	99.	1664.4	1167.5
2	JAN	0835	392	104.	2596.2	1171.0	*	4	JAN	16101059		102.	2123.1	1169.3	*	6	JAN 23451726	99.	1663.8	1167.5
2	JAN	0840	393	104.	2595.4	1171.0	*	4	JAN	16151060		102.	2122.4	1169.3	*	6	JAN 23501727	99.	1663.1	1167.5
2	JAN	0845	394	104.	2594.7	1171.0	*	4	JAN	16201061		102.	2121.7	1169.3	*	6	JAN 23551728	99.	1662.4	1167.5
2	JAN	0850	395	104.	2594.0	1171.0	*	4	JAN	16251062		102.	2121.1	1169.3	*	7	JAN 00001729	99.	1661.7	1167.5
2	JAN	0855	396	104.	2593.3	1171.0	*	4	JAN	16301063		102.	2120.4	1169.3	*	7	JAN 00051730	99.	1661.1	1167.5
2	JAN	0900	397	104.	2592.5	1171.0	*	4	JAN	16351064		102.	2119.7	1169.3	*	7	JAN 00101731	99.	1660.4	1167.5
2	JAN	0905	398	104.	2591.8	1171.0	*	4	JAN	16401065		102.	2119.0	1169.3	*	7	JAN 00151732	99.	1659.7	1167.4
2	JAN	0910	399	104.	2591.1	1171.0	*	4	JAN	16451066		102.	2118.3	1169.3	*	7	JAN 00201733	99.	1659.1	1167.4
2	JAN	0915	400	104.	2590.4	1171.0	*	4	JAN	16501067		102.	2117.6	1169.3	*	7	JAN 00251734	99.	1658.4	1167.4
2	JAN	0920	401	104.	2589.6	1171.0	*	4	JAN	16551068		102.	2116.9	1169.3	*	7	JAN 00301735	99.	1657.7	1167.4
2	JAN	0925	402	104.	2588.9	1171.0	*	4	JAN	17001069		102.	2116.2	1169.3	*	7	JAN 00351736	99.	1657.0	1167.4
2	JAN	0930	403	104.	2588.2	1171.0	*	4	JAN	17051070		102.	2115.5	1169.3	*	7	JAN 00401737	99.	1656.4	1167.4
2	JAN	0935	404	104.	2587.5	1171.0	*	4	JAN	17101071		102.	2114.9	1169.3	*	7	JAN 00451738	99.	1655.7	1167.4
2	JAN	0940	405	104.	2586.7	1171.0	*	4	JAN	17151072		102.	2114.2	1169.3	*	7	JAN 00501739	99.	1655.0	1167.4
2	JAN	0945	406	104.	2586.0	1171.0	*	4	JAN	17201073		102.	2113.5	1169.3	*	7	JAN 00551740	99.	1654.3	1167.4
2	JAN	0950	407	104.	2585.3	1171.0	*	4	JAN	17251074		102.	2112.8	1169.3	*	7	JAN 01001741	99.	1653.7	1167.4
2	JAN	0955	408	104.	2584.6	1171.0	*	4	JAN	17301075		102.	2112.1	1169.3	*	7	JAN 01051742	99.	1653.0	1167.4
2	JAN	1000	409	104.	2583.8	1171.0	*	4	JAN	17351076		102.	2111.4	1169.2	*	7	JAN 01101743	99.	1652.3	1167.4
2	JAN	1005	410	104.	2583.1	1171.0	*	4	JAN	17401077		102.	2110.7	1169.2	*	7	JAN 01151744	99.	1651.6	1167.4
2	JAN	1010	411	104.	2582.4	1171.0	*	4	JAN	17451078		102.	2110.0	1169.2	*	7	JAN 01201745	99.	1651.0	1167.4
2	JAN	1015	412	104.	2581.7	1171.0	*	4	JAN	17501079		102.	2109.3	1169.2	*	7	JAN 01251746	99.	1650.3	1167.4
2	JAN	1020	413	104.	2580.9	1171.0	*	4	JAN	17551080		102.	2108.7	1169.2	*	7	JAN 01301747	99.	1649.6	1167.4
2	JAN	1025	414	104.	2580.2	1171.0	*	4	JAN	18001081		102.	2108.0	1169.2	*	7	JAN 01351748	99.	1648.9	1167.4
2	JAN	1030	415	104.	2579.5	1171.0	*	4	JAN	18051082		102.	2107.3	1169.2	*	7	JAN 01401749	99.	1648.3	1167.4
2	JAN	1035	416	104.	2578.8	1171.0	*	4	JAN	18101083		102.	2106.6	1169.2	*	7	JAN 01451750	99.	1647.6	1167.4
2	JAN	1040	417	104.	2578.0	1171.0	*	4	JAN	18151084		102.	2105.9	1169.2	*	7	JAN 01501751	99.	1646.9	1167.4
2	JAN	1045	418	104.	2577.3	1171.0	*	4	JAN	18201085		102.	2105.2	1169.2	*	7	JAN 01551752	99.	1646.2	1167.4
2	JAN	1050	419	104.	2576.6	1171.0	*	4	JAN	18251086		102.	2104.5	1169.2	*	7	JAN 02001753	99.	1645.6	1167.4
2	JAN	1055	420	104.	2575.9	1171.0	*	4	JAN	18301087		102.	2103.8	1169.2	*	7	JAN 02051754	99.	1644.9	1167.4
2	JAN	1100	421	104.	2575.1	1171.0	*	4	JAN	18351088		102.	2103.1	1169.2	*	7	JAN 02101755	99.	1644.2	1167.4
2	JAN	1105	422	104.	2574.4	1171.0	*	4	JAN	18401089		102.	2102.5	1169.2	*	7	JAN 02151756	99.	1643.5	1167.4
2	JAN	1110	423	104.	2573.7	1171.0	*	4	JAN	18451090		102.	2101.8	1169.2	*	7	JAN 02201757	99.	1642.9	1167.4
2	JAN	1115	424	104.	2572.9	1171.0	*	4	JAN	18501091		102.	2101.1	1169.2	*	7	JAN 02251758	99.	1642.2	1167.4
2	JAN	1120	425	104.	2572.2	1171.0	*	4	JAN	18551092		102.	2100.4	1169.2	*	7	JAN 02301759	99.	1641.5	1167.4
2	JAN	1125	426	104.	2571.5	1171.0	*	4	JAN	19001093		102.	2099.7	1169.2	*	7	JAN 02351760	99.	1640.8	1167.4
2	JAN	1130	427	104.	2570.8	1171.0	*	4	JAN	19051094		102.	2099.0	1169.2	*	7	JAN 02401761	99.	1640.2	1167.4
2	JAN	1135	428	104.	2570.0	1170.9	*	4	JAN	19101095		102.	2098.3	1169.2	*	7	JAN 02451762	99.	1639.5	1167.4
2	JAN	1140	429	104.	2569.3	1170.9	*	4	JAN	19151096		102.	2097.6	1169.2	*	7	JAN 02501763	99.	1638.8	1167.4
2	JAN	1145	430	104.	2568.6	1170.9	*	4	JAN	19201097		102.	2096.9	1169.2	*	7	JAN 02551764	99.	1638.1	1167.4
2	JAN	1150	431	104.	2567.9	1170.9	*	4	JAN	19251098		102.	2096.3	1169.2	*	7	JAN 03001765	99.	1637.5	1167.3
2	JAN	1155	432	104.	2567.1	1170.9	*	4	JAN	19301099		102.	2095.6	1169.2	*	7	JAN 03051766	99.	1636.8	1167.3
2	JAN	1200	433	104.	2566.4	1170.9	*	4	JAN	19351100		102.	2094.9	1169.2	*	7	JAN 03101767	99.	1636.1	1167.3
2	JAN	1205	434	104.	2565.7	1170.9	*	4	JAN	19401101		102.	2094.2	1169.2	*	7	JAN 03151768	99.	1635.4	1167.3
2	JAN	1210	435	104.	2565.0	1170.9	*	4	JAN	19451102		102.	2093.5	1169.2	*	7	JAN 03201769	99.	1634.8	1167.3
2	JAN	1215	436	104.	2564.2	1170.9	*	4	JAN	19501103		102.	2092.8	1169.2	*	7	JAN 03251770	99.	1634.1	1167.3
2	JAN	1220	437	104.	2563.5	1170.9	*	4	JAN	19551104		102.	2092.1	1169.2	*	7	JAN 03301771	99.	1633.4	1167.3
2	JAN	1225	438	104.	2562.8	1170.9	*	4	JAN	20001105		102.	2091.4	1169.2	*	7	JAN 03351772	99.	1632.7	1167.3
2	JAN	1230	439	104.	2562.1	1170.9	*	4	JAN	20051106		102.	2090.7	1169.2	*	7	JAN 03401773	99.	1632.1	1167.3
2	JAN	1235	440	104.	2561.3	1170.9	*	4	JAN	20101107		102.	2090.1	1169.2	*	7	JAN 03451774	99.	1631.4	1167.3
2	JAN	1240	441	104.	2560.6	1170.9	*	4	JAN	20151108		102.	2089.4	1169.2	*	7	JAN 03501775	99.	1630.7	1167.3
2	JAN	1245	442	104.	2559.9	1170.9	*	4	JAN	20201109		102.	2088.7	1169.2	*	7	JAN 03551776	99.	1630.1	1167.3
2	JAN	1250	443	104.	2559.2	1170.9	*	4	JAN	20251110		102.	2088.0	1169.2	*	7	JAN 04001777	99.	1629.4	1167.3
2	JAN	1255	444	104.	2558.4	1170.9	*	4	JAN	20301111		102.	2087.3	1169.2	*	7	JAN 04051778	99.	1628.7	1167.3
2	JAN	1300	445	104.	2557.7	1170.9	*	4	JAN	20351112		102.	2086.6	1169.2	*	7	JAN 04101779	99.	1628.0	1167.3

2	JAN	1305	446	104.	2557.0	1170.9	*	4	JAN	20401113	102.	2085.9	1169.2	*	7	JAN	04151780	99.	1627.4	1167.3
2	JAN	1310	447	104.	2556.3	1170.9	*	4	JAN	20451114	102.	2085.2	1169.2	*	7	JAN	04201781	99.	1626.7	1167.3
2	JAN	1315	448	104.	2555.5	1170.9	*	4	JAN	20501115	102.	2084.5	1169.1	*	7	JAN	04251782	99.	1626.0	1167.3
2	JAN	1320	449	104.	2554.8	1170.9	*	4	JAN	20551116	102.	2083.9	1169.1	*	7	JAN	04301783	99.	1625.3	1167.3
2	JAN	1325	450	104.	2554.1	1170.9	*	4	JAN	21001117	102.	2083.2	1169.1	*	7	JAN	04351784	99.	1624.7	1167.3
2	JAN	1330	451	104.	2553.4	1170.9	*	4	JAN	21051118	102.	2082.5	1169.1	*	7	JAN	04401785	99.	1624.0	1167.3
2	JAN	1335	452	104.	2552.6	1170.9	*	4	JAN	21101119	102.	2081.8	1169.1	*	7	JAN	04451786	99.	1623.3	1167.3
2	JAN	1340	453	104.	2551.9	1170.9	*	4	JAN	21151120	102.	2081.1	1169.1	*	7	JAN	04501787	99.	1622.6	1167.3
2	JAN	1345	454	104.	2551.2	1170.9	*	4	JAN	21201121	102.	2080.4	1169.1	*	7	JAN	04551788	99.	1622.0	1167.3
2	JAN	1350	455	104.	2550.5	1170.9	*	4	JAN	21251122	102.	2079.7	1169.1	*	7	JAN	05001789	99.	1621.3	1167.3
2	JAN	1355	456	104.	2549.7	1170.9	*	4	JAN	21301123	102.	2079.0	1169.1	*	7	JAN	05051790	99.	1620.6	1167.3
2	JAN	1400	457	104.	2549.0	1170.9	*	4	JAN	21351124	102.	2078.3	1169.1	*	7	JAN	05101791	99.	1619.9	1167.3
2	JAN	1405	458	104.	2548.3	1170.9	*	4	JAN	21401125	102.	2077.7	1169.1	*	7	JAN	05151792	99.	1619.3	1167.3
2	JAN	1410	459	104.	2547.6	1170.9	*	4	JAN	21451126	102.	2077.0	1169.1	*	7	JAN	05201793	99.	1618.6	1167.3
2	JAN	1415	460	104.	2546.8	1170.9	*	4	JAN	21501127	102.	2076.3	1169.1	*	7	JAN	05251794	99.	1617.9	1167.3
2	JAN	1420	461	104.	2546.1	1170.9	*	4	JAN	21551128	102.	2075.6	1169.1	*	7	JAN	05301795	99.	1617.2	1167.3
2	JAN	1425	462	104.	2545.4	1170.9	*	4	JAN	22001129	102.	2074.9	1169.1	*	7	JAN	05351796	99.	1616.6	1167.3
2	JAN	1430	463	104.	2544.7	1170.9	*	4	JAN	22051130	102.	2074.2	1169.1	*	7	JAN	05401797	99.	1615.9	1167.3
2	JAN	1435	464	104.	2543.9	1170.9	*	4	JAN	22101131	102.	2073.5	1169.1	*	7	JAN	05451798	99.	1615.2	1167.2
2	JAN	1440	465	104.	2543.2	1170.8	*	4	JAN	22151132	102.	2072.8	1169.1	*	7	JAN	05501799	99.	1614.5	1167.2
2	JAN	1445	466	104.	2542.5	1170.8	*	4	JAN	22201133	102.	2072.1	1169.1	*	7	JAN	05551800	99.	1613.9	1167.2
2	JAN	1450	467	104.	2541.7	1170.8	*	4	JAN	22251134	102.	2071.5	1169.1	*	7	JAN	06001801	99.	1613.2	1167.2
2	JAN	1455	468	104.	2541.0	1170.8	*	4	JAN	22301135	102.	2070.8	1169.1	*	7	JAN	06051802	99.	1612.5	1167.2
2	JAN	1500	469	104.	2540.3	1170.8	*	4	JAN	22351136	102.	2070.1	1169.1	*	7	JAN	06101803	99.	1611.8	1167.2
2	JAN	1505	470	104.	2539.6	1170.8	*	4	JAN	22401137	102.	2069.4	1169.1	*	7	JAN	06151804	99.	1611.2	1167.2
2	JAN	1510	471	104.	2538.8	1170.8	*	4	JAN	22451138	102.	2068.7	1169.1	*	7	JAN	06201805	99.	1610.5	1167.2
2	JAN	1515	472	104.	2538.1	1170.8	*	4	JAN	22501139	102.	2068.0	1169.1	*	7	JAN	06251806	99.	1609.8	1167.2
2	JAN	1520	473	104.	2537.4	1170.8	*	4	JAN	22551140	102.	2067.3	1169.1	*	7	JAN	06301807	99.	1609.1	1167.2
2	JAN	1525	474	104.	2536.7	1170.8	*	4	JAN	23001141	102.	2066.6	1169.1	*	7	JAN	06351808	99.	1608.5	1167.2
2	JAN	1530	475	104.	2535.9	1170.8	*	4	JAN	23051142	102.	2065.9	1169.1	*	7	JAN	06401809	99.	1607.8	1167.2
2	JAN	1535	476	104.	2535.2	1170.8	*	4	JAN	23101143	102.	2065.3	1169.1	*	7	JAN	06451810	99.	1607.1	1167.2
2	JAN	1540	477	104.	2534.5	1170.8	*	4	JAN	23151144	102.	2064.6	1169.1	*	7	JAN	06501811	99.	1606.4	1167.2
2	JAN	1545	478	104.	2533.8	1170.8	*	4	JAN	23201145	102.	2063.9	1169.1	*	7	JAN	06551812	99.	1605.8	1167.2
2	JAN	1550	479	104.	2533.0	1170.8	*	4	JAN	23251146	102.	2063.2	1169.1	*	7	JAN	07001813	99.	1605.1	1167.2
2	JAN	1555	480	104.	2532.3	1170.8	*	4	JAN	23301147	102.	2062.5	1169.1	*	7	JAN	07051814	99.	1604.4	1167.2
2	JAN	1600	481	104.	2531.6	1170.8	*	4	JAN	23351148	102.	2061.8	1169.1	*	7	JAN	07101815	99.	1603.7	1167.2
2	JAN	1605	482	104.	2530.9	1170.8	*	4	JAN	23401149	102.	2061.1	1169.1	*	7	JAN	07151816	99.	1603.1	1167.2
2	JAN	1610	483	104.	2530.1	1170.8	*	4	JAN	23451150	102.	2060.4	1169.1	*	7	JAN	07201817	99.	1602.4	1167.2
2	JAN	1615	484	104.	2529.4	1170.8	*	4	JAN	23501151	102.	2059.7	1169.1	*	7	JAN	07251818	99.	1601.7	1167.2
2	JAN	1620	485	104.	2528.7	1170.8	*	4	JAN	23551152	102.	2059.1	1169.1	*	7	JAN	07301819	99.	1601.1	1167.2
2	JAN	1625	486	104.	2528.0	1170.8	*	5	JAN	00001153	102.	2058.4	1169.1	*	7	JAN	07351820	99.	1600.4	1167.2
2	JAN	1630	487	104.	2527.2	1170.8	*	5	JAN	00051154	102.	2057.7	1169.0	*	7	JAN	07401821	99.	1599.7	1167.2
2	JAN	1635	488	104.	2526.5	1170.8	*	5	JAN	00101155	102.	2057.0	1169.0	*	7	JAN	07451822	99.	1599.0	1167.2
2	JAN	1640	489	104.	2525.8	1170.8	*	5	JAN	00151156	102.	2056.3	1169.0	*	7	JAN	07501823	99.	1598.4	1167.2
2	JAN	1645	490	104.	2525.1	1170.8	*	5	JAN	00201157	102.	2055.6	1169.0	*	7	JAN	07551824	99.	1597.7	1167.2
2	JAN	1650	491	104.	2524.3	1170.8	*	5	JAN	00251158	102.	2054.9	1169.0	*	7	JAN	08001825	99.	1597.0	1167.2
2	JAN	1655	492	104.	2523.6	1170.8	*	5	JAN	00301159	102.	2054.2	1169.0	*	7	JAN	08051826	99.	1596.3	1167.2
2	JAN	1700	493	104.	2522.9	1170.8	*	5	JAN	00351160	102.	2053.5	1169.0	*	7	JAN	08101827	99.	1595.7	1167.2
2	JAN	1705	494	104.	2522.2	1170.8	*	5	JAN	00401161	102.	2052.9	1169.0	*	7	JAN	08151828	99.	1595.0	1167.2
2	JAN	1710	495	104.	2521.4	1170.8	*	5	JAN	00451162	102.	2052.2	1169.0	*	7	JAN	08201829	99.	1594.3	1167.2
2	JAN	1715	496	104.	2520.7	1170.8	*	5	JAN	00501163	102.	2051.5	1169.0	*	7	JAN	08251830	99.	1593.6	1167.1
2	JAN	1720	497	104.	2520.0	1170.8	*	5	JAN	00551164	102.	2050.8	1169.0	*	7	JAN	08301831	99.	1593.0	1167.1
2	JAN	1725	498	104.	2519.3	1170.8	*	5	JAN	01001165	102.	2050.1	1169.0	*	7	JAN	08351832	99.	1592.3	1167.1
2	JAN	1730	499	104.	2518.5	1170.8	*	5	JAN	01051166	102.	2049.4	1169.0	*	7	JAN	08401833	99.	1591.6	1167.1
2	JAN	1735	500	104.	2517.8	1170.8	*	5	JAN	01101167	101.	2048.7	1169.0	*	7	JAN	08451834	99.	1590.9	1167.1
2	JAN	1740	501	104.	2517.1	1170.8	*	5	JAN	01151168	101.	2048.0	1169.0	*	7	JAN	08501835	99.	1590.3	1167.1
2	JAN	1745	502	104.	2516.4	1170.7	*	5	JAN	01201169	101.	2047.3	1169.0	*	7	JAN	08551836	99.	1589.6	1167.1
2	JAN	1750	503	104.	2515.6	1170.7	*	5	JAN	01251170	101.	2046.7	1169.0	*	7	JAN	09001837	99.	1588.9	1167.1
2	JAN	1755	504	104.	2514.9	1170.7	*	5	JAN	01301171	101.	2046.0	1169.0	*	7	JAN	09051838	99.	1588.2	1167.1
2	JAN	1800	505	104.	2514.2	1170.7	*	5	JAN	01351172	101.	2045.3	1169.0	*	7	JAN	09101839	99.	1587.6	1167.1
2	JAN	1805	506	104.	2513.5	1170.7	*	5	JAN	01401173	101.	2044.6	1169.0	*	7	JAN	09151840	99.	1586.9	1167.1
2	JAN	1810	507	104.	2512.7	1170.7	*	5	JAN	01451174	101.	2043.9	1169.0	*	7	JAN	09201841	99.	1586.2	1167.1
2	JAN	1815	508	104.	2512.0	1170.7	*	5	JAN	01501175	101.	2043.2	1169.0	*	7	JAN	09251842	99.	1585.5	1167.1
2	JAN	1820	509	104.	2511.3	1170.7	*	5	JAN	01551176	101.	2042.5	1169.0	*	7	JAN	09301843	99.	1584.9	1167.1
2	JAN	1825	510	104.	2510.5	1170.7	*	5	JAN	02001177	101.	2041.8	1169.0	*	7	JAN	09351844	99.	1584.2	1167.1
2	JAN	1830	511	104.	2509.8	1170.7	*	5	JAN	02051178	101.	2041.1	1169.0	*	7	JAN	09401845	99.	1583.5	1167.1
2	JAN	1835	512	104.	2509.1	1170.7	*	5	JAN	02101179	101.	2040.5	1169.0	*	7	JAN	09451846	99.	1582.8	1167.1
2	JAN	1840	513	104.	2508.4	1170.7	*	5	JAN	02151180	101.	2039.8	1169.0	*	7	JAN	09501847	99.	1582.2	1167.1
2	JAN	1845	514	104.	2507.6	1170.7	*	5	JAN	02201181	101.	2039.1	1169.0	*	7	JAN	09551848	99.	1581.5	1167.1
2	JAN	1850	515	104.	2506.9	1170.7	*	5	JAN	02251182	101.	2038.4	1169.0	*	7	JAN	10001849	99.	1580.8	1167.1
2	JAN	1855	516	104.	2506.2	1170.7	*	5	JAN	02301183	101.	2037.7	1169.0	*	7	JAN	10051850	99.	1580.1	1167.1
2	JAN	1900	517	104.	2505.5	1170.7	*	5	JAN	02351184	101.	2037.0	1169.0	*	7	JAN	10101851	99.	1579.5	1167.1
2	JAN	1905	518	104.	2504.7	1170.7	*	5	JAN	02401185	101.	2036.3	1169.0	*	7	JAN	10151852	99.	1578.8	1167.1
2	JAN	1910	519	104.	2504.0	1170.7	*	5	JAN	02451186	101.	2035.6	1169.0	*	7	JAN	10201853	99.	1578.1	1167.1
2	JAN	1915	520	104.	2503.3	1170.7	*	5	JAN	02501187	101.	2034.9	1169.0	*	7	JAN	10251854	99.	1577.4	1167.1
2	JAN	1920	521	104.	2502.6	1170.7	*	5	JAN	02551188	101.	2034.3	1169.0	*	7	JAN	10301855	99.	1576.8	1167.1
2	JAN	1925	522	104.	2501.8	1170.7	*	5	JAN	03001189	101.	2033.6	1169.0	*	7	JAN	10351856	99.	1576.1	1167.1
2	JAN	1930	523	104.	2501.1	1170.7	*	5	JAN	03051190	101.	2032.9	1169.0	*	7	JAN	10401857	99.	1575.4	1167.1
2	JAN	1935	524	104.	2500.4	1170.7	*	5	JAN	03101191	101.	2032.2	1169.0	*	7	JAN	10451858	99.	1574.7	1167.1
2	JAN	1940	525	104.	2499.7	1170.7	*	5	JAN	03151192	101.	2031.5	1169.0	*	7	JAN	10501859	99.	1574.1	1167.1
2	JAN	1945	526	104.	2498.9	1170.7	*	5	JAN	03201193	101.	2030.8	1168.9	*	7	JAN	10551860	99.	1573.4	1167.1
2	JAN	1950	527	104.	2498.2	1170.7	*	5	JAN	03251194	101.	2030.1	1168.9	*	7	JAN	11001861	99.	1572.7	1167.1
2	JAN	1955	528	104.	2497.5	1170.7	*	5	JAN	03301195	101.	2029.4	1168.9	*	7	JAN	11051862	99.	1572.0	1167.1
2	JAN	2000	529	104.	2496.8	1170.7	*	5	JAN	03351196	101.	2028.7	1168.9	*	7	JAN	11101863	99.	1571.4	1167.0
2	JAN	2005	530	104.	2496.0	1170.7	*	5	JAN	03401197	101.	2028.1	1168.9	*	7	JAN	11151864	99.	1570.7	1167.0
2	JAN	2010	531	104.	2495.3	1170.7	*	5	JAN	03451198	101.	2027.4	1168.9	*	7	JAN	11201865	99.	1570.0	1167.0
2	JAN	2015	532	104.	2494.6	1170.7	*	5	JAN	03501199	101.	2026.7	1168.9	*	7	JAN	11251866	99.	1569.4	1167.0
2	JAN	2020	533	104.	2493.9	1170.7	*	5	JAN	03551200	101.	2026.0	1168.9	*	7	JAN	11301867	99.	1568.7	1167.0
2	JAN	2025	534	104.	2493.1	1170.7	*	5	JAN	04001201	101.	2025.3	1168.9	*	7	JAN	11351868	99.	1568.0	1167.0
2	JAN	2030	535	104.	2492.4	1170.7	*	5	JAN	04051202	101.	2024.6	1168.9	*	7	JAN	11401869	99.	1567.3	1167.0
2	JAN	2035	536	104.	2491.7	1170.7	*	5	JAN	04101203	101.	2023.9	1168.9	*	7	JAN	11451870	99.	1566.7	1167.0
2	JAN	2040	537	104.	2491.0	1170.7	*	5	JAN	04151204	101.	2023.2	1168.9	*	7	JAN	11501871	99.	1566.0	1167.0
2	JAN	2045	538	104.	2490.2	1170.7	*	5	JAN	04201205	101.	2022.5	1168.9	*	7	JAN	11551872	99.	1565.3	1167.0
2	JAN	2050	539	104.	2489.5	1170.6	*	5	JAN	04251206	101.	2021.9	1168.9	*	7	JAN	12001873	99.	1564.6	1167.0
2	JAN	2055	540	104.	2488.8	1170.6	*	5	JAN	04301207	101.	2021.2	1168.9	*	7	JAN	12051874	99.	1564.0	1167.0
2	JAN	2100	541	104.	2488.1	1170.6	*	5	JAN	04351208	101.	2020.5	1168.9	*	7	JAN	12101875	99.	1563.3	1167.0
2	JAN	2105	542	104.	2487.3	1170.6	*	5	JAN	04401209	101.	2019.8	1168.9	*	7	JAN	12151876	99.	1562.6	1167.0
2	JAN	2110	543	104.	2486.6	1170.6	*	5	JAN	04451210	101.	2019.1	1168.9	*	7	JAN	12201877	99.	1561.9	1167.0
2	JAN	2115	544	104.	2485.9	1170.6	*	5	JAN	04501211	101.	2018.4	1168.9	*	7	JAN	12251878	99.	1561.3	1167.0
2	JAN	2120	545	104.	2485.2	1170.6	*	5	JAN	04551212	101.	2017.7	1168.9	*	7	JAN	12301879	99.	1560.6	1167.0
2	JAN	2125	546	104.	2484.4	1170.6	*	5	JAN	05001213	101.	2017.0	1168.9	*	7	JAN	12351880	99.	1559.9	1167.0
2	JAN	2130	547	104.	2483.7	1170.6	*	5	JAN	05051214	101.	2016.3	1168.9	*	7	JAN	12401881	99.	1559.2	1167.0
2	JAN	2135	548	104.	2483.0	1170.6	*	5	JAN	05101215	101.	2015.6	1168.9	*	7	JAN	12451882	99.	1558.6	1167.0
2	JAN	2140	549	104.	2482.3	1170.6	*	5	JAN	05151216	101.	2015.0	1168.9	*	7	JAN	12501883	99.	1557.9	1167.0
2	JAN	2145	550	104.	2481.5	1170.6	*	5	JAN	05201217	101.	2014.3	1168.9	*	7	JAN	12551884	99.	1557.2	1167.0
2	JAN	2150	551	104.	2480.8	1170.6	*	5	JAN	05251218	101.	2013.6	1168.9	*	7	JAN	13001885	99.	1556.5	1167.0
2	JAN	2155	552	104.	2480.1	1170.6	*	5	JAN	05301219	101.	2012.9	1168.9	*	7	JAN	13051886	99.	1555.9	1167.0
2	JAN	2200	553	104.	2479.3	1170.6	*	5	JAN	05351220	101.	2012.2	1168.9	*	7	JAN	13101887	99.	1555.2	1167.0
2	JAN	2205	554	104.	2478.6	1170.6	*	5	JAN	05401221	101.	2011.5	1168.9	*	7	JAN	13151888	99.	1554.5	1167.0
2	JAN	2210	555	104.	2477.9	1170.6	*	5	JAN	05451222	101.	2010.8	1168.9	*	7	JAN	13201889	99.	1553.8	1167.0
2	JAN	2215	556	104.	2477.2	1170.6	*	5	JAN	05501223	101.	2010.1	1168.9	*	7	JAN	13251890	99.	1553.2	1167.0
2	JAN	2220	557	104.	2476.4	1170.6	*	5	JAN	05551224	101.	2009.4	1168.9	*	7	JAN	13301891	99.	1552.5	1167.0
2	JAN	2225	558	104.	2475.7	1170.6	*	5	JAN	06001225	101.	2008.8	1168.9	*	7	JAN	13351892	99.	1551.8	1167.0
2	JAN	2230	559	104.	2475.0	1170.6	*	5	JAN	06051226	101.	2008.1	1168.9	*	7	JAN	13401893	99.	1551.1	1167.0

2	JAN	2235	560	104.	2474.3	1170.6	*	5 JAN 06101227	101.	2007.4	1168.9	*	7 JAN 13451894	99.	1550.5	1167.0
2	JAN	2240	561	104.	2473.5	1170.6	*	5 JAN 06151228	101.	2006.7	1168.9	*	7 JAN 13501895	99.	1549.8	1167.0
2	JAN	2245	562	104.	2472.8	1170.6	*	5 JAN 06201229	101.	2006.0	1168.9	*	7 JAN 13551896	99.	1549.1	1166.9
2	JAN	2250	563	104.	2472.1	1170.6	*	5 JAN 06251230	101.	2005.3	1168.9	*	7 JAN 14001897	99.	1548.4	1166.9
2	JAN	2255	564	104.	2471.4	1170.6	*	5 JAN 06301231	101.	2004.6	1168.9	*	7 JAN 14051898	99.	1547.8	1166.9
2	JAN	2300	565	104.	2470.6	1170.6	*	5 JAN 06351232	101.	2003.9	1168.8	*	7 JAN 14101899	99.	1547.1	1166.9
2	JAN	2305	566	104.	2469.9	1170.6	*	5 JAN 06401233	101.	2003.2	1168.8	*	7 JAN 14151900	99.	1546.4	1166.9
2	JAN	2310	567	104.	2469.2	1170.6	*	5 JAN 06451234	101.	2002.6	1168.8	*	7 JAN 14201901	99.	1545.7	1166.9
2	JAN	2315	568	104.	2468.5	1170.6	*	5 JAN 06501235	101.	2001.9	1168.8	*	7 JAN 14251902	99.	1545.1	1166.9
2	JAN	2320	569	104.	2467.7	1170.6	*	5 JAN 06551236	101.	2001.2	1168.8	*	7 JAN 14301903	99.	1544.4	1166.9
2	JAN	2325	570	104.	2467.0	1170.6	*	5 JAN 07001237	101.	2000.5	1168.8	*	7 JAN 14351904	99.	1543.7	1166.9
2	JAN	2330	571	104.	2466.3	1170.6	*	5 JAN 07051238	101.	1999.8	1168.8	*	7 JAN 14401905	99.	1543.0	1166.9
2	JAN	2335	572	104.	2465.6	1170.6	*	5 JAN 07101239	101.	1999.1	1168.8	*	7 JAN 14451906	99.	1542.4	1166.9
2	JAN	2340	573	104.	2464.8	1170.6	*	5 JAN 07151240	101.	1998.4	1168.8	*	7 JAN 14501907	99.	1541.7	1166.9
2	JAN	2345	574	104.	2464.1	1170.6	*	5 JAN 07201241	101.	1997.7	1168.8	*	7 JAN 14551908	99.	1541.0	1166.9
2	JAN	2350	575	104.	2463.4	1170.6	*	5 JAN 07251242	101.	1997.0	1168.8	*	7 JAN 15001909	99.	1540.4	1166.9
2	JAN	2355	576	104.	2462.7	1170.5	*	5 JAN 07301243	101.	1996.4	1168.8	*	7 JAN 15051910	99.	1539.7	1166.9
3	JAN	0000	577	104.	2461.9	1170.5	*	5 JAN 07351244	101.	1995.7	1168.8	*	7 JAN 15101911	99.	1539.0	1166.9
3	JAN	0005	578	104.	2461.2	1170.5	*	5 JAN 07401245	101.	1995.0	1168.8	*	7 JAN 15151912	99.	1538.3	1166.9
3	JAN	0010	579	104.	2460.5	1170.5	*	5 JAN 07451246	101.	1994.3	1168.8	*	7 JAN 15201913	99.	1537.7	1166.9
3	JAN	0015	580	104.	2459.8	1170.5	*	5 JAN 07501247	101.	1993.6	1168.8	*	7 JAN 15251914	99.	1537.0	1166.9
3	JAN	0020	581	104.	2459.0	1170.5	*	5 JAN 07551248	101.	1992.9	1168.8	*	7 JAN 15301915	99.	1536.3	1166.9
3	JAN	0025	582	104.	2458.3	1170.5	*	5 JAN 08001249	101.	1992.2	1168.8	*	7 JAN 15351916	99.	1535.6	1166.9
3	JAN	0030	583	104.	2457.6	1170.5	*	5 JAN 08051250	101.	1991.5	1168.8	*	7 JAN 15401917	99.	1535.0	1166.9
3	JAN	0035	584	104.	2456.9	1170.5	*	5 JAN 08101251	101.	1990.8	1168.8	*	7 JAN 15451918	99.	1534.3	1166.9
3	JAN	0040	585	104.	2456.1	1170.5	*	5 JAN 08151252	101.	1990.2	1168.8	*	7 JAN 15501919	99.	1533.6	1166.9
3	JAN	0045	586	104.	2455.4	1170.5	*	5 JAN 08201253	101.	1989.5	1168.8	*	7 JAN 15551920	99.	1532.9	1166.9
3	JAN	0050	587	104.	2454.7	1170.5	*	5 JAN 08251254	101.	1988.8	1168.8	*	7 JAN 16001921	99.	1532.3	1166.9
3	JAN	0055	588	104.	2454.0	1170.5	*	5 JAN 08301255	101.	1988.1	1168.8	*	7 JAN 16051922	99.	1531.6	1166.9
3	JAN	0100	589	104.	2453.2	1170.5	*	5 JAN 08351256	101.	1987.4	1168.8	*	7 JAN 16101923	99.	1530.9	1166.9
3	JAN	0105	590	103.	2452.5	1170.5	*	5 JAN 08401257	101.	1986.7	1168.8	*	7 JAN 16151924	99.	1530.2	1166.9
3	JAN	0110	591	103.	2451.8	1170.5	*	5 JAN 08451258	101.	1986.0	1168.8	*	7 JAN 16201925	99.	1529.6	1166.9
3	JAN	0115	592	103.	2451.1	1170.5	*	5 JAN 08501259	101.	1985.3	1168.8	*	7 JAN 16251926	99.	1528.9	1166.9
3	JAN	0120	593	103.	2450.3	1170.5	*	5 JAN 08551260	101.	1984.6	1168.8	*	7 JAN 16301927	99.	1528.2	1166.9
3	JAN	0125	594	103.	2449.6	1170.5	*	5 JAN 09001261	101.	1984.0	1168.8	*	7 JAN 16351928	99.	1527.5	1166.9
3	JAN	0130	595	103.	2448.9	1170.5	*	5 JAN 09051262	101.	1983.3	1168.8	*	7 JAN 16401929	99.	1526.9	1166.8
3	JAN	0135	596	103.	2448.1	1170.5	*	5 JAN 09101263	101.	1982.6	1168.8	*	7 JAN 16451930	99.	1526.2	1166.8
3	JAN	0140	597	103.	2447.4	1170.5	*	5 JAN 09151264	101.	1981.9	1168.8	*	7 JAN 16501931	99.	1525.5	1166.8
3	JAN	0145	598	103.	2446.7	1170.5	*	5 JAN 09201265	101.	1981.2	1168.8	*	7 JAN 16551932	99.	1524.8	1166.8
3	JAN	0150	599	103.	2446.0	1170.5	*	5 JAN 09251266	101.	1980.5	1168.8	*	7 JAN 17001933	99.	1524.2	1166.8
3	JAN	0155	600	103.	2445.2	1170.5	*	5 JAN 09301267	101.	1979.8	1168.8	*	7 JAN 17051934	99.	1523.5	1166.8
3	JAN	0200	601	103.	2444.5	1170.5	*	5 JAN 09351268	101.	1979.1	1168.8	*	7 JAN 17101935	99.	1522.8	1166.8
3	JAN	0205	602	103.	2443.8	1170.5	*	5 JAN 09401269	101.	1978.4	1168.8	*	7 JAN 17151936	99.	1522.1	1166.8
3	JAN	0210	603	103.	2443.1	1170.5	*	5 JAN 09451270	101.	1977.8	1168.8	*	7 JAN 17201937	99.	1521.5	1166.8
3	JAN	0215	604	103.	2442.3	1170.5	*	5 JAN 09501271	101.	1977.1	1168.7	*	7 JAN 17251938	99.	1520.8	1166.8
3	JAN	0220	605	103.	2441.6	1170.5	*	5 JAN 09551272	101.	1976.4	1168.7	*	7 JAN 17301939	99.	1520.1	1166.8
3	JAN	0225	606	103.	2440.9	1170.5	*	5 JAN 10001273	101.	1975.7	1168.7	*	7 JAN 17351940	99.	1519.4	1166.8
3	JAN	0230	607	103.	2440.2	1170.5	*	5 JAN 10051274	101.	1975.0	1168.7	*	7 JAN 17401941	99.	1518.8	1166.8
3	JAN	0235	608	103.	2439.4	1170.5	*	5 JAN 10101275	101.	1974.3	1168.7	*	7 JAN 17451942	99.	1518.1	1166.8
3	JAN	0240	609	103.	2438.7	1170.5	*	5 JAN 10151276	101.	1973.6	1168.7	*	7 JAN 17501943	99.	1517.4	1166.8
3	JAN	0245	610	103.	2438.0	1170.5	*	5 JAN 10201277	101.	1972.9	1168.7	*	7 JAN 17551944	99.	1516.7	1166.8
3	JAN	0250	611	103.	2437.3	1170.5	*	5 JAN 10251278	101.	1972.2	1168.7	*	7 JAN 18001945	99.	1516.1	1166.8
3	JAN	0255	612	103.	2436.5	1170.5	*	5 JAN 10301279	101.	1971.6	1168.7	*	7 JAN 18051946	99.	1515.4	1166.8
3	JAN	0300	613	103.	2435.8	1170.5	*	5 JAN 10351280	101.	1970.9	1168.7	*	7 JAN 18101947	99.	1514.7	1166.8
3	JAN	0305	614	103.	2435.1	1170.4	*	5 JAN 10401281	101.	1970.2	1168.7	*	7 JAN 18151948	99.	1514.0	1166.8
3	JAN	0310	615	103.	2434.4	1170.4	*	5 JAN 10451282	101.	1969.5	1168.7	*	7 JAN 18201949	99.	1513.4	1166.8
3	JAN	0315	616	103.	2433.6	1170.4	*	5 JAN 10501283	101.	1968.8	1168.7	*	7 JAN 18251950	99.	1512.7	1166.8
3	JAN	0320	617	103.	2432.9	1170.4	*	5 JAN 10551284	101.	1968.1	1168.7	*	7 JAN 18301951	99.	1512.0	1166.8
3	JAN	0325	618	103.	2432.2	1170.4	*	5 JAN 11001285	101.	1967.4	1168.7	*	7 JAN 18351952	99.	1511.3	1166.8
3	JAN	0330	619	103.	2431.5	1170.4	*	5 JAN 11051286	101.	1966.7	1168.7	*	7 JAN 18401953	99.	1510.7	1166.8
3	JAN	0335	620	103.	2430.7	1170.4	*	5 JAN 11101287	101.	1966.0	1168.7	*	7 JAN 18451954	99.	1510.0	1166.8
3	JAN	0340	621	103.	2430.0	1170.4	*	5 JAN 11151288	101.	1965.4	1168.7	*	7 JAN 18501955	99.	1509.3	1166.8
3	JAN	0345	622	103.	2429.3	1170.4	*	5 JAN 11201289	101.	1964.7	1168.7	*	7 JAN 18551956	99.	1508.7	1166.8
3	JAN	0350	623	103.	2428.6	1170.4	*	5 JAN 11251290	101.	1964.0	1168.7	*	7 JAN 19001957	98.	1508.0	1166.8
3	JAN	0355	624	103.	2427.8	1170.4	*	5 JAN 11301291	101.	1963.3	1168.7	*	7 JAN 19051958	98.	1507.3	1166.8
3	JAN	0400	625	103.	2427.1	1170.4	*	5 JAN 11351292	101.	1962.6	1168.7	*	7 JAN 19101959	98.	1506.6	1166.8
3	JAN	0405	626	103.	2426.4	1170.4	*	5 JAN 11401293	101.	1961.9	1168.7	*	7 JAN 19151960	98.	1506.0	1166.8
3	JAN	0410	627	103.	2425.7	1170.4	*	5 JAN 11451294	101.	1961.2	1168.7	*	7 JAN 19201961	98.	1505.3	1166.7
3	JAN	0415	628	103.	2424.9	1170.4	*	5 JAN 11501295	101.	1960.5	1168.7	*	7 JAN 19251962	98.	1504.6	1166.7
3	JAN	0420	629	103.	2424.2	1170.4	*	5 JAN 11551296	101.	1959.8	1168.7	*	7 JAN 19301963	98.	1503.9	1166.7
3	JAN	0425	630	103.	2423.5	1170.4	*	5 JAN 12001297	101.	1959.2	1168.7	*	7 JAN 19351964	98.	1503.3	1166.7
3	JAN	0430	631	103.	2422.8	1170.4	*	5 JAN 12051298	101.	1958.5	1168.7	*	7 JAN 19401965	98.	1502.6	1166.7
3	JAN	0435	632	103.	2422.0	1170.4	*	5 JAN 12101299	101.	1957.8	1168.7	*	7 JAN 19451966	98.	1501.9	1166.7
3	JAN	0440	633	103.	2421.3	1170.4	*	5 JAN 12151300	101.	1957.1	1168.7	*	7 JAN 19501967	98.	1501.2	1166.7
3	JAN	0445	634	103.	2420.6	1170.4	*	5 JAN 12201301	101.	1956.4	1168.7	*	7 JAN 19551968	98.	1500.6	1166.7
3	JAN	0450	635	103.	2419.9	1170.4	*	5 JAN 12251302	101.	1955.7	1168.7	*	7 JAN 20001969	98.	1499.9	1166.7
3	JAN	0455	636	103.	2419.1	1170.4	*	5 JAN 12301303	101.	1955.0	1168.7	*	7 JAN 20051970	98.	1499.2	1166.7
3	JAN	0500	637	103.	2418.4	1170.4	*	5 JAN 12351304	101.	1954.3	1168.7	*	7 JAN 20101971	98.	1498.5	1166.7
3	JAN	0505	638	103.	2417.7	1170.4	*	5 JAN 12401305	101.	1953.6	1168.7	*	7 JAN 20151972	98.	1497.9	1166.7
3	JAN	0510	639	103.	2416.9	1170.4	*	5 JAN 12451306	101.	1953.0	1168.7	*	7 JAN 20201973	98.	1497.2	1166.7
3	JAN	0515	640	103.	2416.2	1170.4	*	5 JAN 12501307	101.	1952.3	1168.7	*	7 JAN 20251974	98.	1496.5	1166.7
3	JAN	0520	641	103.	2415.5	1170.4	*	5 JAN 12551308	101.	1951.6	1168.7	*	7 JAN 20301975	98.	1495.8	1166.7
3	JAN	0525	642	103.	2414.8	1170.4	*	5 JAN 13001309	101.	1950.9	1168.7	*	7 JAN 20351976	98.	1495.2	1166.7
3	JAN	0530	643	103.	2414.0	1170.4	*	5 JAN 13051310	101.	1950.2	1168.6	*	7 JAN 20401977	98.	1494.5	1166.7
3	JAN	0535	644	103.	2413.3	1170.4	*	5 JAN 13101311	101.	1949.5	1168.6	*	7 JAN 20451978	98.	1493.8	1166.7
3	JAN	0540	645	103.	2412.6	1170.4	*	5 JAN 13151312	101.	1948.8	1168.6	*	7 JAN 20501979	98.	1493.1	1166.7
3	JAN	0545	646	103.	2411.9	1170.4	*	5 JAN 13201313	101.	1948.1	1168.6	*	7 JAN 20551980	98.	1492.5	1166.7
3	JAN	0550	647	103.	2411.1	1170.4	*	5 JAN 13251314	101.	1947.4	1168.6	*	7 JAN 21001981	98.	1491.8	1166.7
3	JAN	0555	648	103.	2410.4	1170.4	*	5 JAN 13301315	101.	1946.7	1168.6	*	7 JAN 21051982	98.	1491.1	1166.7
3	JAN	0600	649	103.	2409.7	1170.4	*	5 JAN 13351316	101.	1946.0	1168.6	*	7 JAN 21101983	98.	1490.4	1166.7
3	JAN	0605	650	103.	2409.0	1170.4	*	5 JAN 13401317	101.	1945.4	1168.6	*	7 JAN 21151984	98.	1489.8	1166.7
3	JAN	0610	651	103.	2408.2	1170.3	*	5 JAN 13451318	101.	1944.7	1168.6	*	7 JAN 21201985	98.	1489.1	1166.7
3	JAN	0615	652	103.	2407.5	1170.3	*	5 JAN 13501319	101.	1944.0	1168.6	*	7 JAN 21251986	98.	1488.4	1166.7
3	JAN	0620	653	103.	2406.8	1170.3	*	5 JAN 13551320	101.	1943.3	1168.6	*	7 JAN 21301987	98.	1487.7	1166.7
3	JAN	0625	654	103.	2406.1	1170.3	*	5 JAN 14001321	101.	1942.6	1168.6	*	7 JAN 21351988	98.	1487.1	1166.7
3	JAN	0630	655	103.	2405.3	1170.3	*	5 JAN 14051322	101.	1941.9	1168.6	*	7 JAN 21401989	98.	1486.4	1166.7
3	JAN	0635	656	103.	2404.6	1170.3	*	5 JAN 14101323	101.	1941.2	1168.6	*	7 JAN 21451990	98.	1485.7	1166.7
3	JAN	0640	657	103.	2403.9	1170.3	*	5 JAN 14151324	101.	1940.5	1168.6	*	7 JAN 21501991	98.	1485.0	1166.7
3	JAN	0645	658	103.	2403.2	1170.3	*	5 JAN 14201325	101.	1939.8	1168.6	*	7 JAN 21551992	98.	1484.4	1166.7
3	JAN	0650	659	103.	2402.4	1170.3	*	5 JAN 14251326	101.	1939.1	1168.6	*	7 JAN 22001993	98.	1483.7	1166.7
3	JAN	0655	660	103.	2401.7	1170.3	*	5 JAN 14301327	101.	1938.5	1168.6	*	7 JAN 22051994	98.	1483.0	1166.6
3	JAN	0700	661	103.	2401.0	1170.3	*	5 JAN 14351328	101.	1937.8	1168.6	*	7 JAN 22101995	98.	1482.3	1166.6
3	JAN	0705	662	103.	2400.3	1170.3	*	5 JAN 14401329	101.	1937.1	1168.6	*	7 JAN 22151996	98.	1481.7	1166.6
3	JAN	0710	663	103.	2399.5	1170.3	*	5 JAN 14451330	101.	1936.4	1168.6	*	7 JAN 22201997	98.	1481.0	1166.6
3	JAN	0715	664	103.	2398.8	1170.3	*	5 JAN 14501331	101.	1935.7	1168.6	*	7 JAN 22251998	98.	1480.3	1166.6
3	JAN	0720	665	103.	2398.1	1170.3	*	5 JAN 14551332	101.	1935.0	1168.6	*	7 JAN 22301999	98.	1479.6	1166.6
3	JAN	0725	666	103.	2397.4	1170.3	*	5 JAN 15001333	101.	1934.3	1168.6	*	7 JAN 22352000	98.	1478.9	1166.6
3	JAN	0730	667	103.	2396.6	1170.3	*	5 JAN 15051334	101.	1933.6	1168.6	*				
							*					*				

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PEAK OUTFLOW IS 21509. AT TIME 4.67 HOURS

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  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR        72-HR     166.58-HR
+   (CFS)       (HR)
                                   (CFS)
+   21509.      4.67               3307.        905.         371.        216.
                                 (INCHES)      3.506        3.839       4.716       6.365
                                 (AC-FT)       1640.        1796.       2206.       2977.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR        24-HR        72-HR     166.58-HR
+  (AC-FT)      (HR)
    2964.       4.67               2832.        2741.        2531.       2102.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR        24-HR        72-HR     166.58-HR
+   (FEET)      (HR)
   1172.40      4.67             1171.92      1171.58      1170.80     1168.99

                          CUMULATIVE AREA =    8.77 SQ MI

1
                                          RUNOFF SUMMARY
                                   FLOW IN CUBIC FEET PER SECOND
                                TIME IN HOURS,  AREA IN SQUARE MILES

                                                                                                
          OPERATION      STATION     PEAK    TIME OF    AVERAGE FLOW FOR MAXIMUM PERIOD     BASIN    MAXIMUM    TIME OF
+                                    FLOW    PEAK                                          AREA     STAGE      MAX STAGE
                                                         6-HOUR      24-HOUR     72-HOUR
          HYDROGRAPH AT
+                          Y1        4868.   3.42        591.        148.        49.      0.58
          ROUTED TO
+                          YCP       4868.   3.42        591.        148.        49.      0.58
          HYDROGRAPH AT
+                          X1        4163.   3.75        806.        202.        67.      0.79
          ROUTED TO
+                          XCP       4163.   3.75        806.        202.        67.      0.79
          HYDROGRAPH AT
+                          W1       19969.   3.75       4039.       1013.       338.      3.89
          ROUTED TO
+                          W1-W2    17725.   4.17       4036.       1013.       338.      3.89
+                                                                                                16.57      4.17
          HYDROGRAPH AT
+                          W2       14439.   3.75       2835.        709.       236.      2.85
          2 COMBINED AT
+                          W        28456.   4.08       6868.       1723.       574.      6.74
          ROUTED TO
+                          WCP      28456.   4.08       6868.       1723.       574.      6.74
          HYDROGRAPH AT
+                          V1        3462.   3.75        687.        172.        57.      0.66
          ROUTED TO
+                          VCP       3462.   3.75        687.        172.        57.      0.66
          4 COMBINED AT
+                          FRS3     35659.   4.08       8945.       2245.       748.      8.77
          ROUTED TO
+                          ROUTE    21509.   4.67       3307.        905.       371.      8.77
+                                                                                                1172.40    4.67
1
                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    ROUTE
                       (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)

     PLAN  1 ..............                    INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                   ELEVATION      1151.60           1165.20           1171.80
                                   STORAGE           0.              1203.             2800.
                                   OUTFLOW          48.               96.              105.

                   RATIO     MAXIMUM     MAXIMUM     MAXIMUM     MAXIMUM     DURATION    TIME OF     TIME OF
                    OF       RESERVOIR   DEPTH       STORAGE     OUTFLOW     OVER TOP    MAX OUTFLOW FAILURE
                   PMF       W.S.ELEV    OVER DAM    AC-FT       CFS         HOURS       HOURS       HOURS

                   1.00      1172.40     0.60        2964.       21509.      4.33        4.67        0.00

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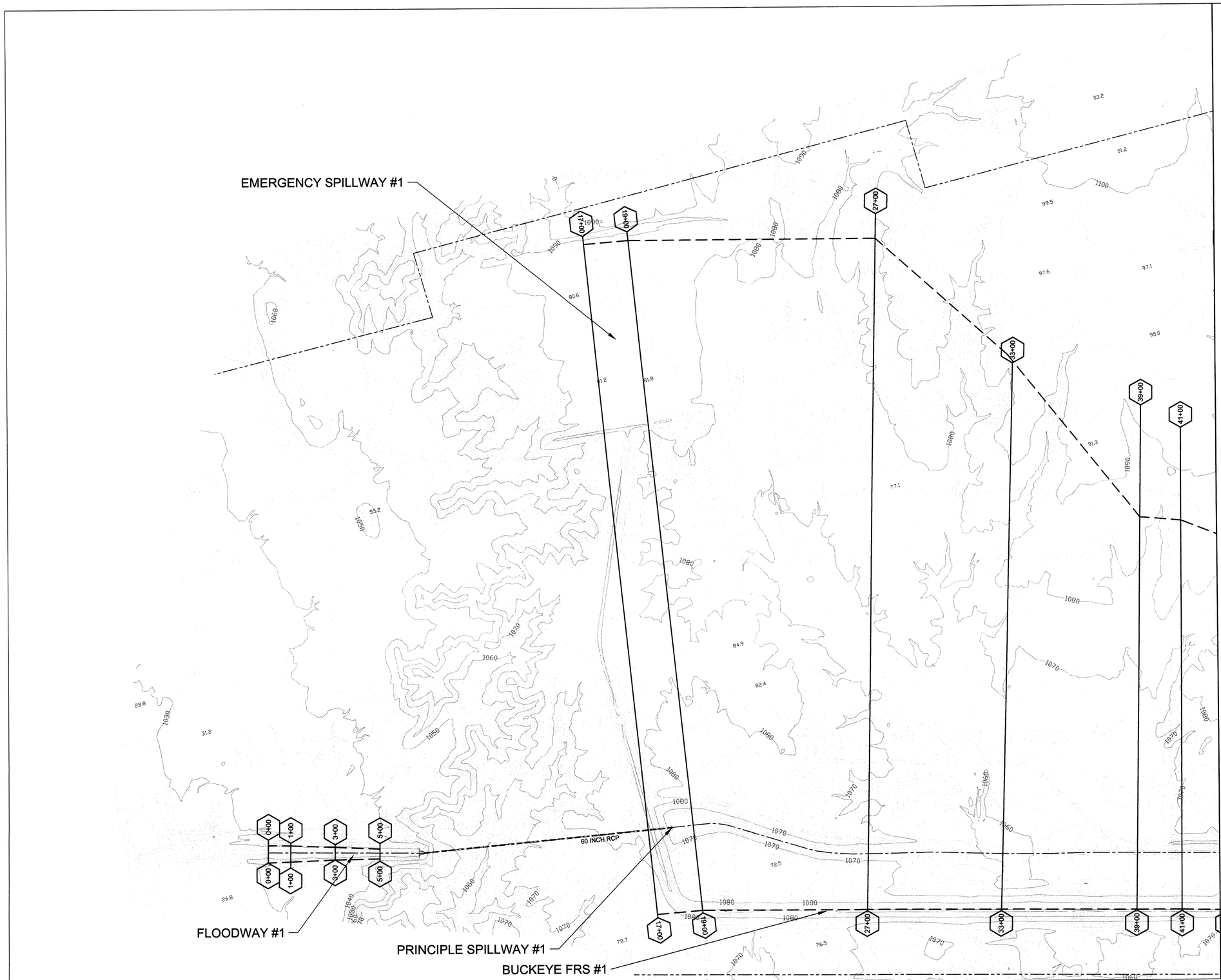

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FCD CONTRACT NO. 2002C027

BUCKEYE/SUN VALLEY
AREA DRAINAGE MASTER STUDY

BUCKEYE FRS
HEC-RAS CROSS-SECTION LOCATION MAP

FINAL

LEGEND

CROSS SECTION LOCATION	2+00 — 2+00
PMF BOUNDARY	
HYDRAULIC CENTERLINE	
FCDMC PROPERTY LINE	

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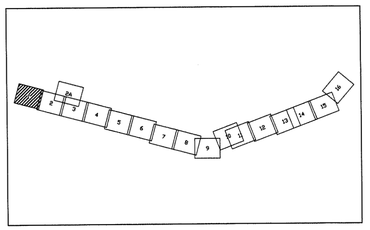
INDEX MAP



N

200 0 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

Registered Professional Engineer (Civil) CERTIFICATE NO. 42881 STEPHEN W. ROGERS Date Signed 4/2/04 Arizona U.S.A.

PBSJ
7310 N. 16th St., Suite 310
Phoenix, Arizona 85020
Phone: (602) 943-1003
Fax: (602) 943-1303

	BY	DATE
DESIGN	JSL	4/04
DESIGN CHK.	WC	4/04
PLANS		
PLANS CHK.		
SUBMITTED BY: DATE		

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

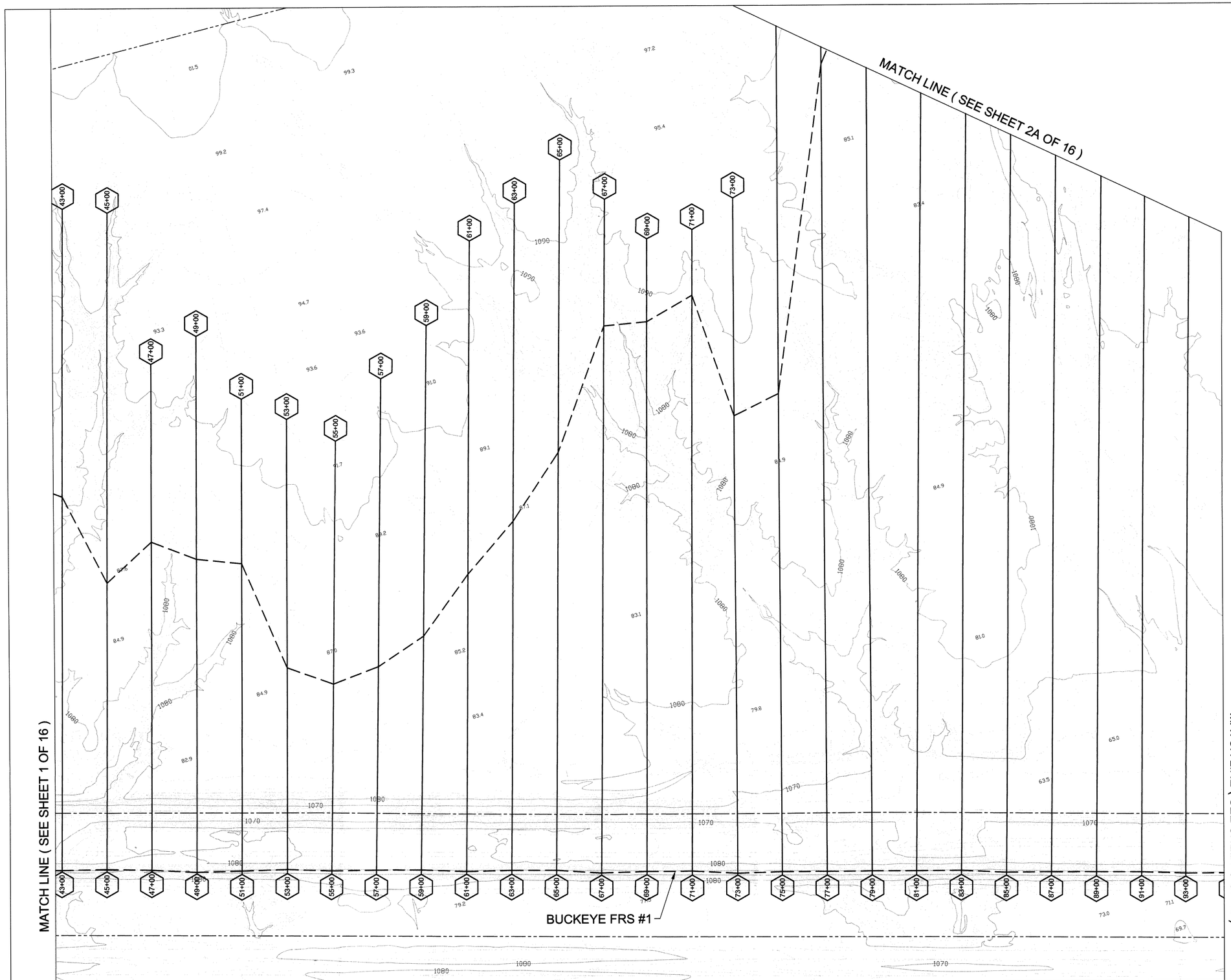
APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 1 OF 16

THE BASEMAP WAS PREPARED BY KENNEY AERIAL MAPPING, INC. USING PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

GROUND CONTROL SURVEY DATA PROVIDED BY
PROJECT ENGINEERING CONSULTANTS, LTD. & HUITT-ZOLLARS, INC.



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FCD CONTRACT NO. 2002C027

BUCKEYE/SUN VALLEY
AREA DRAINAGE MASTER STUDY

BUCKEYE FRS
HEC-RAS CROSS-SECTION LOCATION MAP

FINAL

LEGEND

CROSS SECTION LOCATION	2+00 — 2+00
PMF BOUNDARY	
HYDRAULIC CENTERLINE	
FCDMC PROPERTY LINE	

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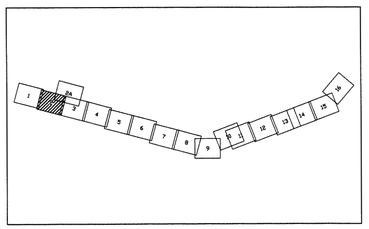
INDEX MAP



Registered Professional Engineer (Civil) CERTIFICATE 42881 STEPHEN W. ROGERS Date Signed 7/14/04 ARIZONA U.S.A.

N

200 0 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

PBSJ
7310 N. 16th St., Suite 310
Phoenix, Arizona 85020
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PLANS CHK.		
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

THE BASEMAP WAS PREPARED BY KENNEY AERIAL MAPPING, INC. USING PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

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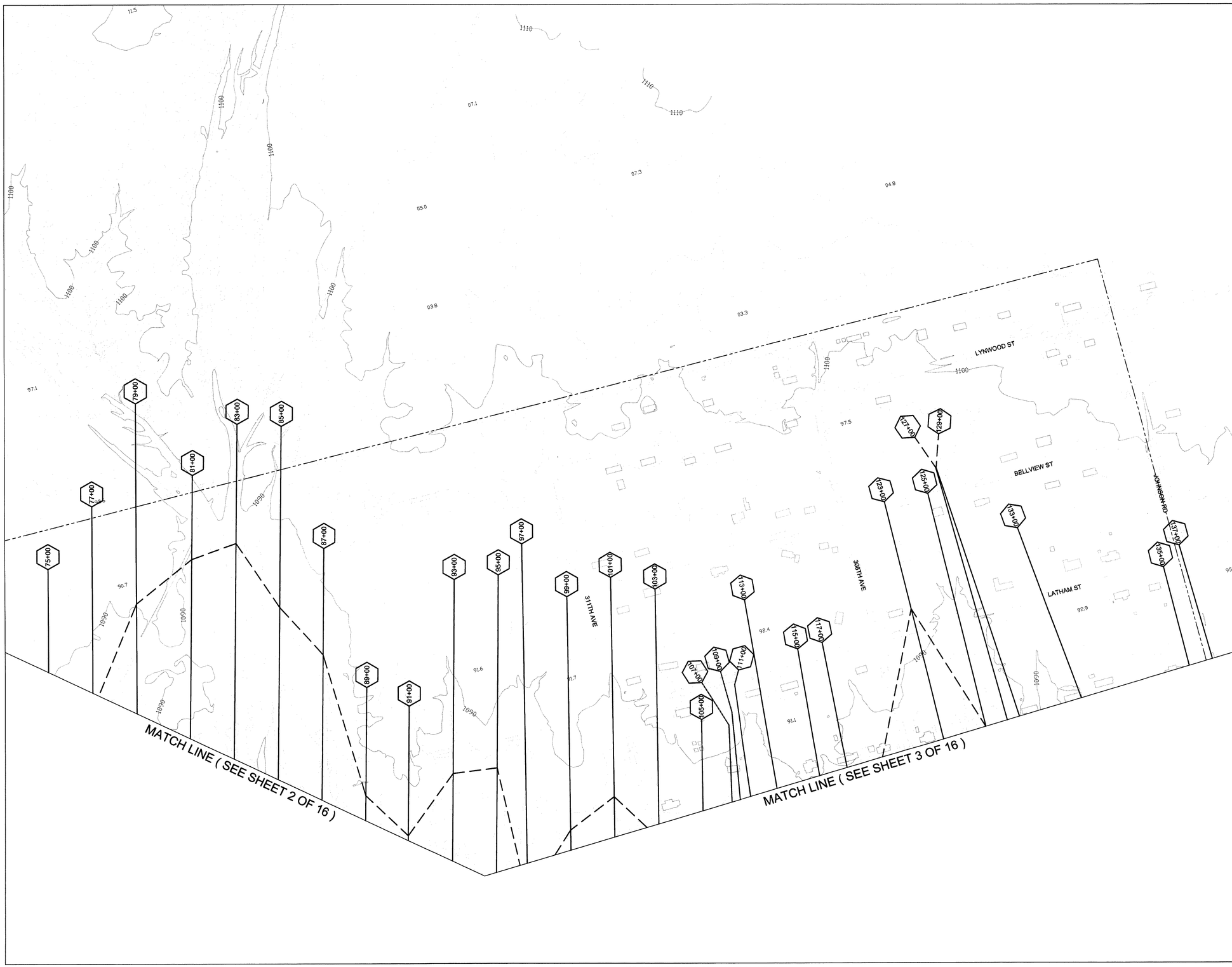

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FCD CONTRACT NO. 2002C027

BUCKEYE/SUN VALLEY
AREA DRAINAGE MASTER STUDY

BUCKEYE FRS
HEC-RAS CROSS-SECTION LOCATION MAP

FINAL

LEGEND

CROSS SECTION LOCATION (2+00 — 2+00)

PMF BOUNDARY

HYDRAULIC CENTERLINE

FCDMC PROPERTY LINE

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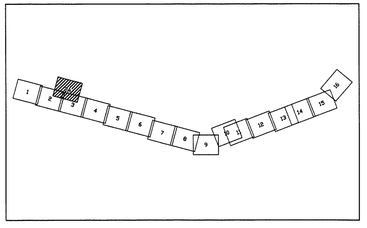

N

200 0 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

Registered Professional Engineer (Civil) CERTIFICATE NO. 42881 STEPHEN W. ROGERS Date Signed 4/14/05 ARIZONA U.S.A.

PBSJ
7310 N. 16th St., Suite 310
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DESIGN CHK.	WC	4/04
PLANS		
PLANS CHK.		
SUBMITTED BY: DATE		

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 2A OF 16

THE BASEMAP WAS PREPARED BY KENNEY AERIAL MAPPING, INC. USING PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

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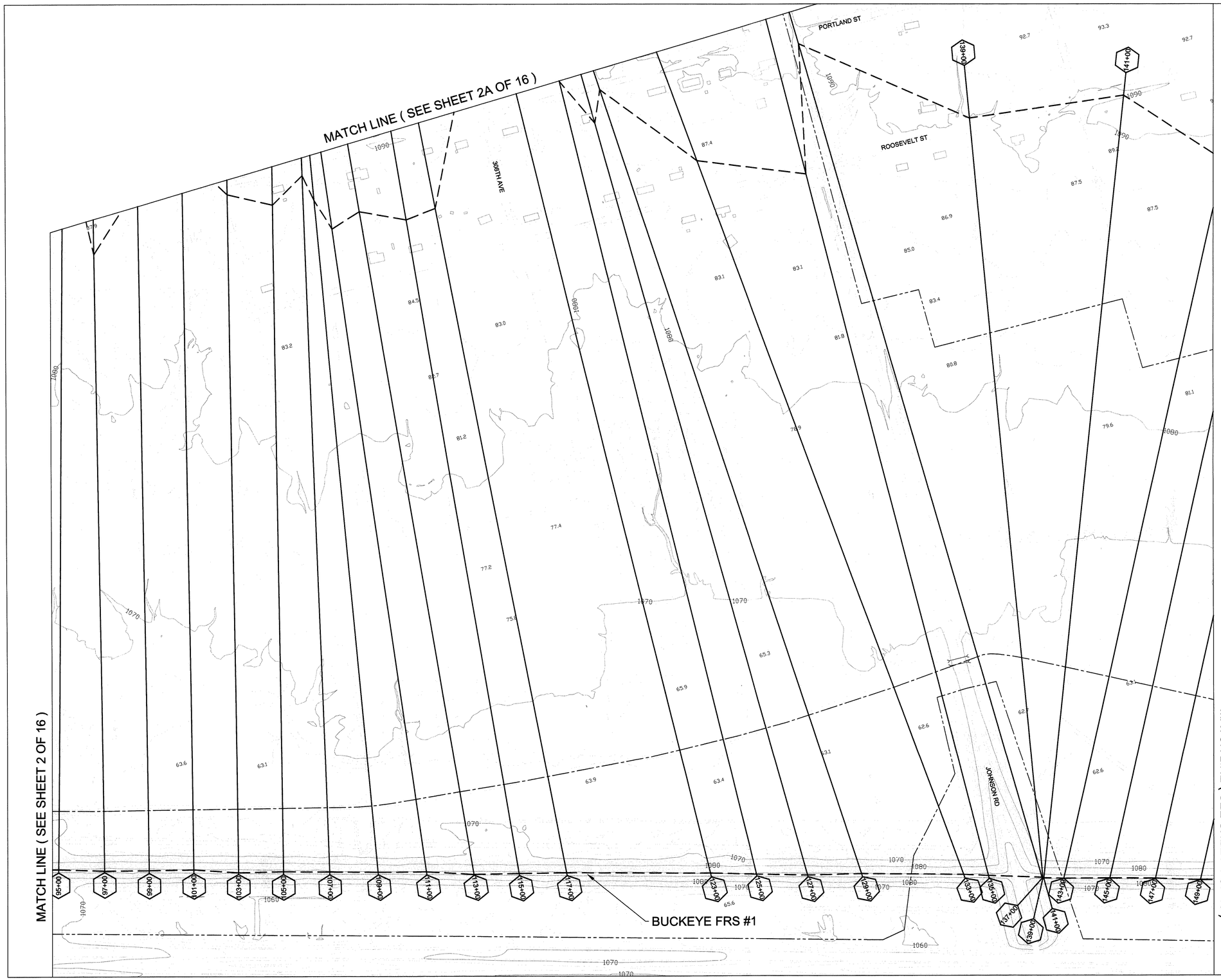

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FCD CONTRACT NO. 2002C027

BUCKEYE/SUN VALLEY
AREA DRAINAGE MASTER STUDY

BUCKEYE FRS
HEC-RAS CROSS-SECTION LOCATION MAP

FINAL

LEGEND

CROSS SECTION LOCATION — 2+00 — 2+00

PMF BOUNDARY

HYDRAULIC CENTERLINE

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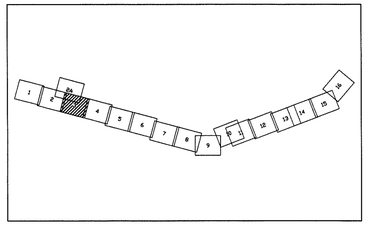

N

200 0 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

Registered Professional Engineer (Civil) CERTIFICATE NO. 42881 STEPHEN W. ROGERS Date Signed 7/12/05 ARIZONA U.S.A.

PBSJ
7310 N. 16th St., Suite 310
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DESIGN	JSL	4/04
DESIGN CHK.	WC	4/04
PLANS		
PLANS CHK.		
SUBMITTED BY: DATE		

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 3 OF 16

THE BASEMAP WAS PREPARED BY KENNEY AERIAL MAPPING, INC. USING PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

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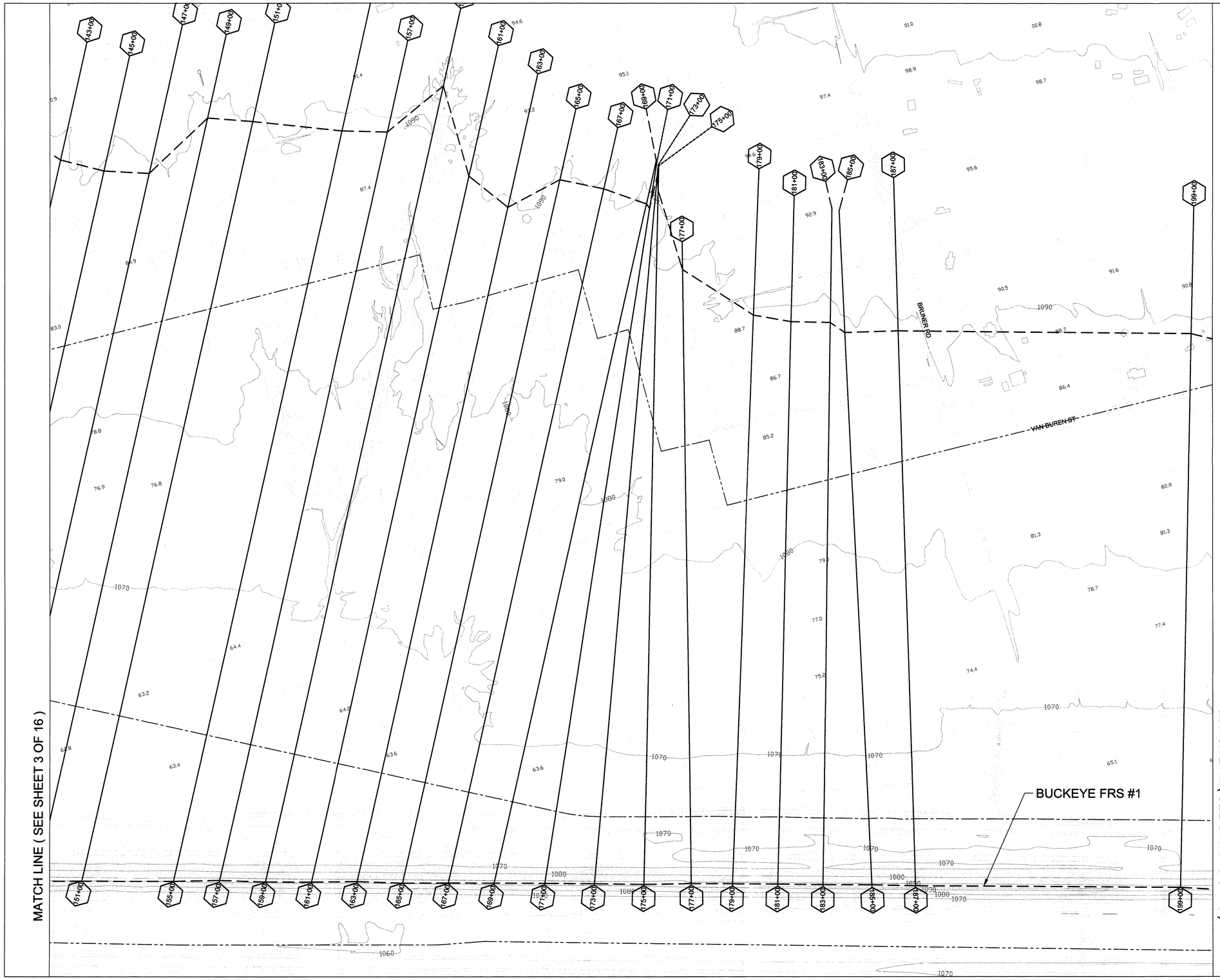

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GROUND CONTROL SURVEY DATA PROVIDED BY PROJECT ENGINEERING CONSULTANTS, LTD. & HUITT-ZOLLARS, INC.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FCD CONTRACT NO. 2002C027

BUCKEYE/SUN VALLEY
AREA DRAINAGE MASTER STUDY

BUCKEYE FRS
HEC-RAS CROSS-SECTION LOCATION MAP

FINAL

LEGEND

CROSS SECTION LOCATION — 2+00 — 2+00

PMF BOUNDARY

HYDRAULIC CENTERLINE

FCDMC PROPERTY LINE

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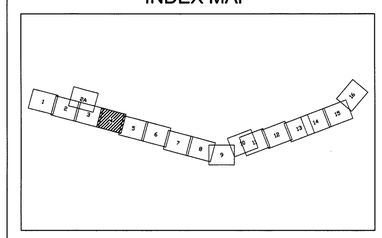

N

200 0 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

Registered Professional Engineer (Civil)
CERTIFICATE NO. 42881
STEPHEN W. ROGERS
Date Signed 7/12/05
Arizona U.S.A.

PBSJ
7310 N. 16th St., Suite 310
Phoenix, Arizona 85020
Phone: (602) 943-1003
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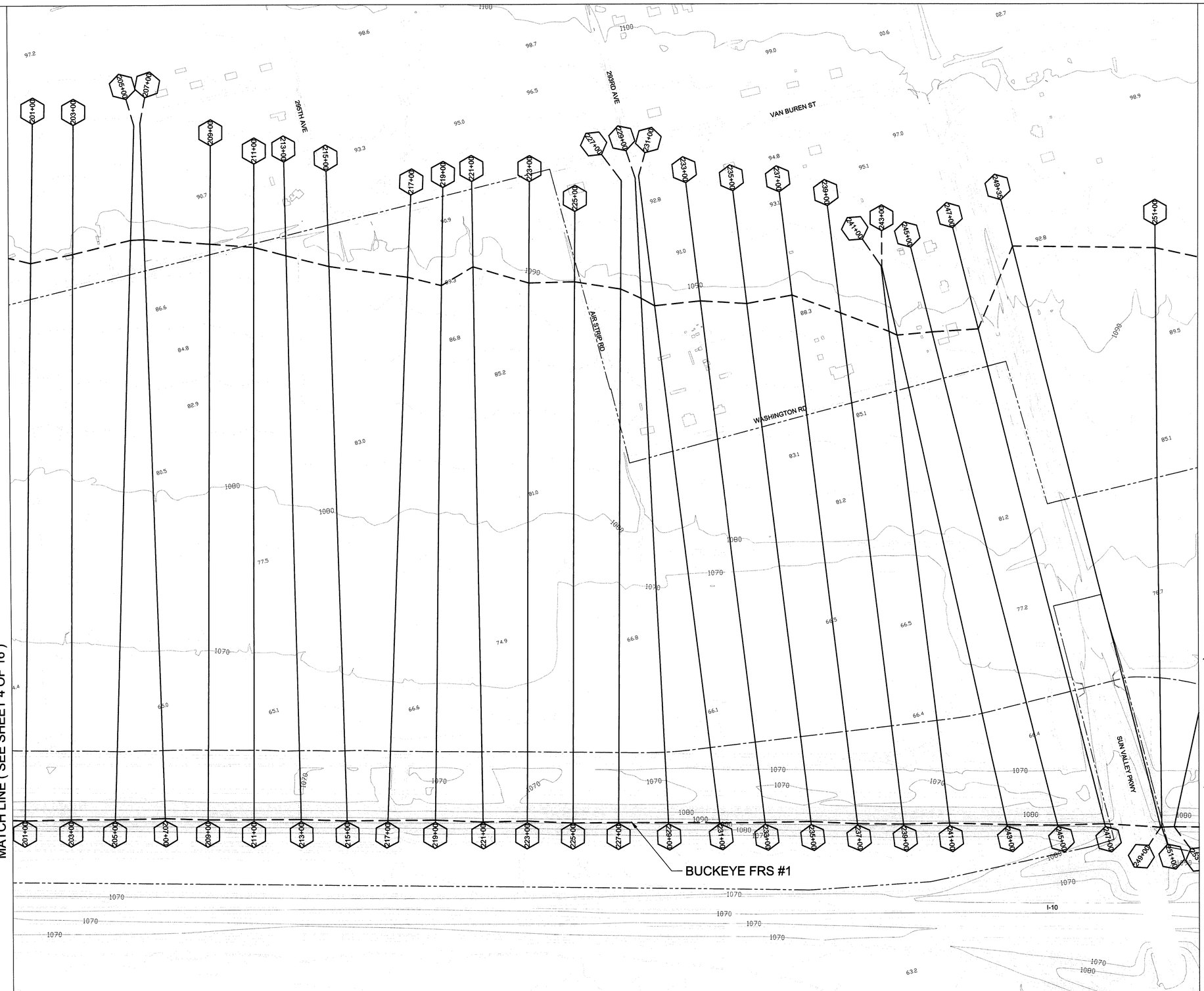
	BY	DATE
DESIGN	JSL	4/04
DESIGN CHK.	WC	4/04
PLANS		
PLANS CHK.		
SUBMITTED BY:		DATE

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FCD CONTRACT NO. 2002C027

BUCKEYE/SUN VALLEY
AREA DRAINAGE MASTER STUDY

BUCKEYE FRS
HEC-RAS CROSS-SECTION LOCATION MAP

FINAL

LEGEND

CROSS SECTION LOCATION	2+00 — 2+00
PMF BOUNDARY	
HYDRAULIC CENTERLINE	
FCDMC PROPERTY LINE	

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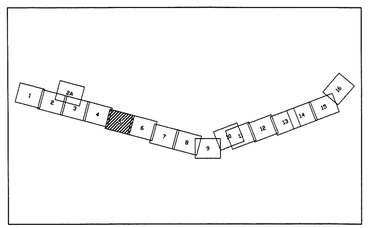

N

200 0 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

Registered Professional Engineer (Civil) CERTIFICATE NO. 42881 STEPHEN W. ROGERS Date Signed 7-19-05 ARIZONA U.S.A.

PBSJ
7310 N. 16th St., Suite 310
Phoenix, Arizona 85020
Phone: (602) 943-1003
Fax: (602) 943-1303

	BY	DATE
DESIGN	JSL	4/04
DESIGN CHK.	WC	4/04
PLANS		
PLANS CHK.		

SUBMITTED BY: DATE

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 5 OF 16

THE BASEMAP WAS PREPARED BY KENNEY AERIAL MAPPING, INC. USING PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

GROUND CONTROL SURVEY DATA PROVIDED BY
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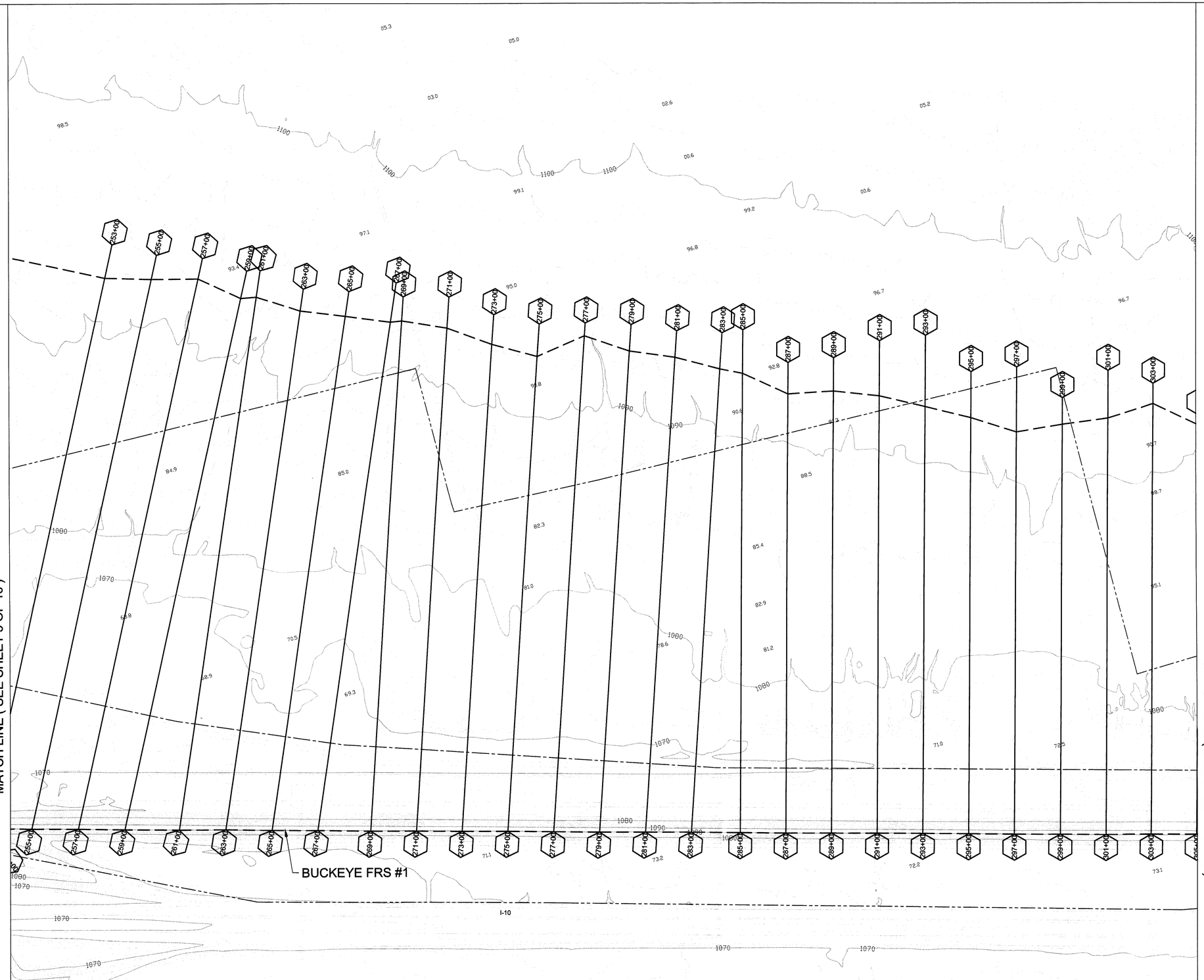

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FCD CONTRACT NO. 2002C027

BUCKEYE/SUN VALLEY
AREA DRAINAGE MASTER STUDY

BUCKEYE FRS
HEC-RAS CROSS-SECTION LOCATION MAP

FINAL

LEGEND

CROSS SECTION LOCATION 2+00 — 2+00

PMF BOUNDARY

HYDRAULIC CENTERLINE

FCDMC PROPERTY LINE

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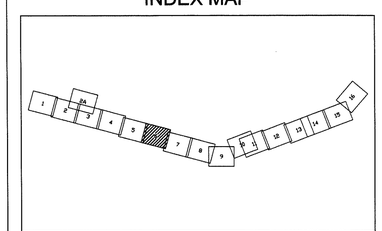

N

200 0 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

Registered Professional Engineer (Civil) CERTIFICATE NO. 42881 STEPHEN W. ROGERS Date Signed 7/1/05 ARIZONA U.S.A.

PBSJ
7310 N. 16th St., Suite 310
Phoenix, Arizona 85020
Phone: (602) 943-1003
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	BY	DATE
DESIGN	JSL	4/04
DESIGN CHK.	WC	4/04
PLANS		
PLANS CHK.		
SUBMITTED BY:		DATE

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 6 OF 16

THE BASEMAP WAS PREPARED BY KENNEY AERIAL MAPPING, INC. USING PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

GROUND CONTROL SURVEY DATA PROVIDED BY
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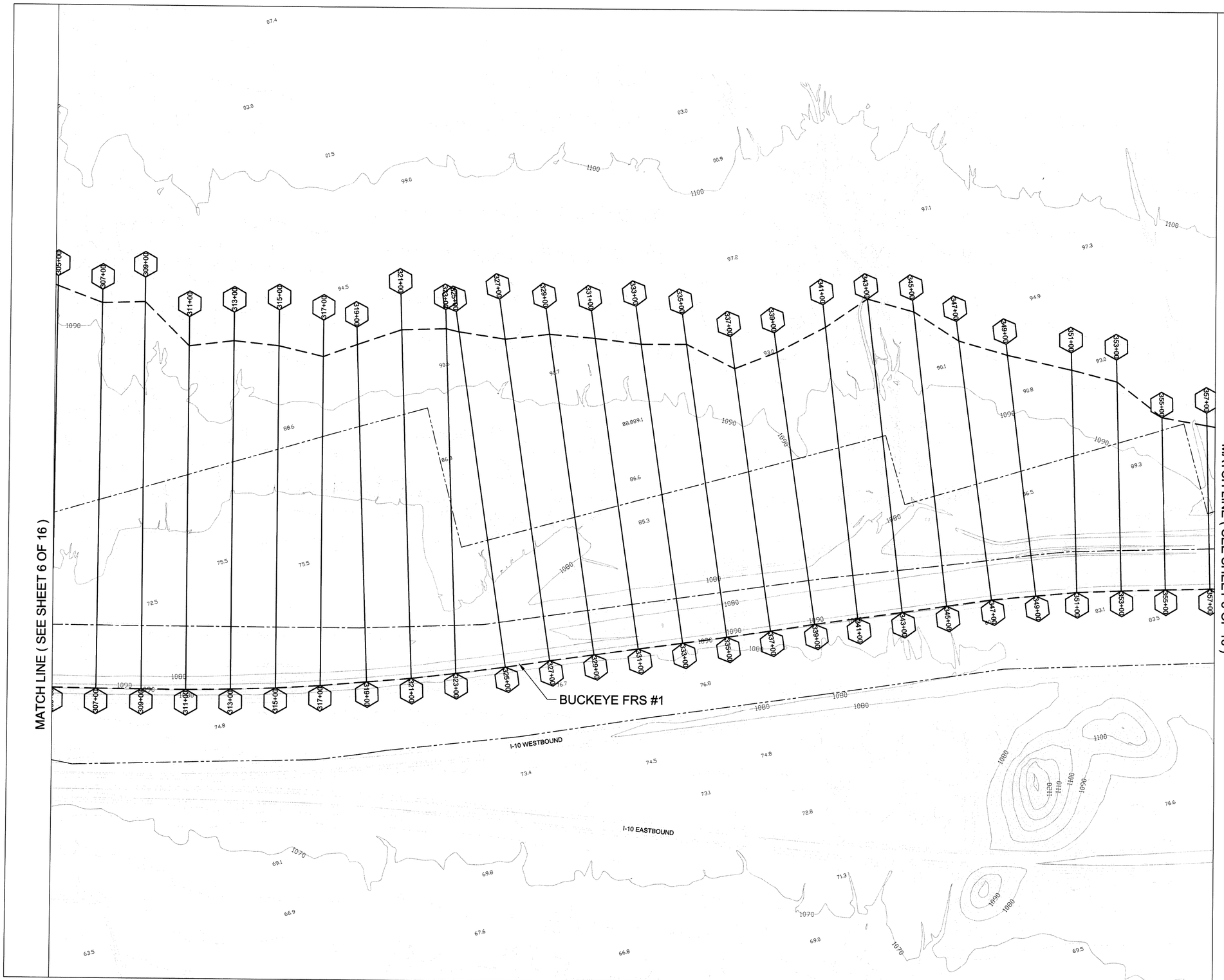

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FCD CONTRACT NO. 2002C027

BUCKEYE/SUN VALLEY
AREA DRAINAGE MASTER STUDY

BUCKEYE FRS
HEC-RAS CROSS-SECTION LOCATION MAP

FINAL

LEGEND

CROSS SECTION LOCATION — 2+00 — 2+00

PMF BOUNDARY

HYDRAULIC CENTERLINE

FCDMC PROPERTY LINE

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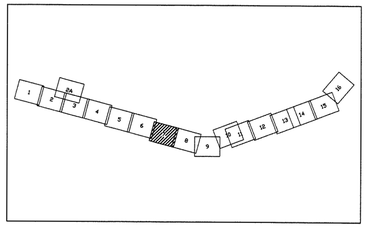

N

200 0 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

Registered Professional Engineer (Civil)
CERTIFICATE NO. 42861
STEPHEN W. ROGERS
Date Signed 7/20/05
ARIZONA U.S.A.

PBSJ
7310 N. 16th St., Suite 310
Phoenix, Arizona 85020
Phone: (602) 943-1003
Fax: (602) 943-1303

	BY	DATE
DESIGN	JSL	4/04
DESIGN CHK.	WC	4/04
PLANS		
PLANS CHK.		

SUBMITTED BY: DATE

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 7 OF 16

THE BASEMAP WAS PREPARED BY KENNEY AERIAL MAPPING, INC. USING PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

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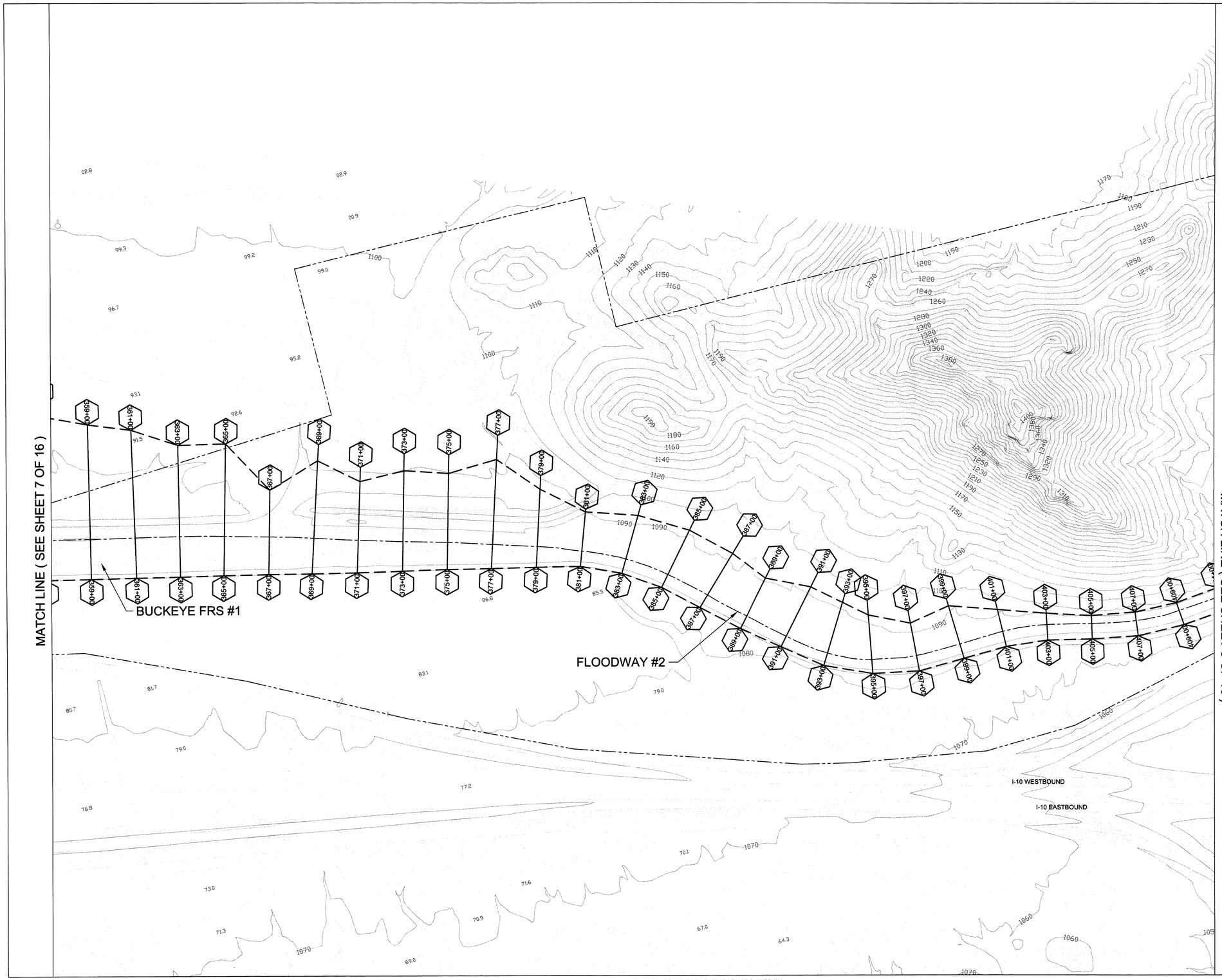

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FCD CONTRACT NO. 2002C027

BUCKEYE/SUN VALLEY
AREA DRAINAGE MASTER STUDY

BUCKEYE FRS
HEC-RAS CROSS-SECTION LOCATION MAP

FINAL

LEGEND

CROSS SECTION LOCATION 2+00 — 2+00

PMF BOUNDARY

HYDRAULIC CENTERLINE

FCDMC PROPERTY LINE

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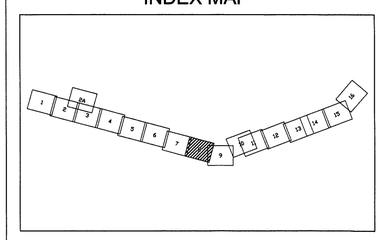

N

200 0 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

Registered Professional Engineer (Civil) CERTIFICATE NO. 42881 STEPHEN W. ROGERS Date Signed 7/10/07 ARIZONA U.S.A.

PBSJ
7310 N. 16th St., Suite 310
Phoenix, Arizona 85020
Phone: (602) 943-1003
Fax: (602) 943-1303

	BY	DATE
DESIGN	JSL	4/04
DESIGN CHK.	WC	4/04
PLANS		
PLANS CHK.		
SUBMITTED BY:		DATE

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

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CHIEF ENGINEER AND GENERAL MANAGER

SHEET 8 OF 16

THE BASEMAP WAS PREPARED BY KENNEY AERIAL MAPPING, INC. USING PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

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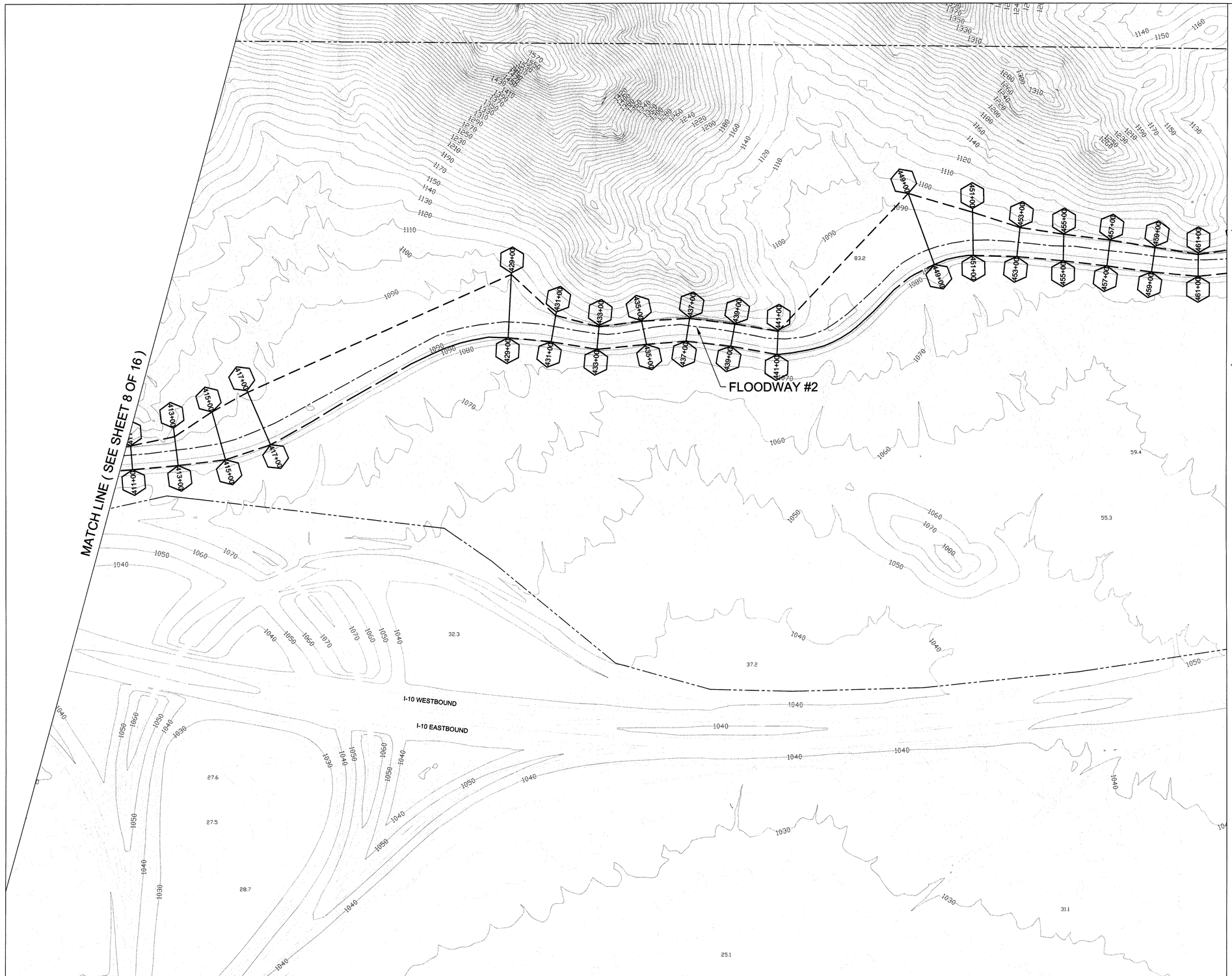

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FCD CONTRACT NO. 2002C027

BUCKEYE/SUN VALLEY
AREA DRAINAGE MASTER STUDY

BUCKEYE FRS
HEC-RAS CROSS-SECTION LOCATION MAP

FINAL

LEGEND

CROSS SECTION LOCATION	2+00 — 2+00
PMF BOUNDARY	
HYDRAULIC CENTERLINE	
FCDMC PROPERTY LINE	

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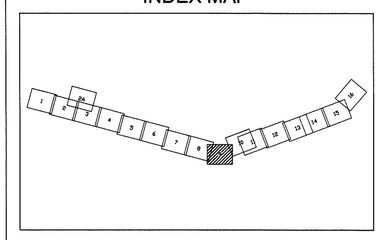

N

200 0 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

Registered Professional Engineer (Civil) CERTIFICATE NO. 42881 STEPHEN W. ROGERS Date Signed 7-12-05

PBSJ
7310 N. 16th St., Suite 310
Phoenix, Arizona 85020
Phone: (602) 943-1003
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DESIGN	JSL	4/04
DESIGN CHK.	WC	4/04
PLANS		
PLANS CHK.		
SUBMITTED BY: DATE		

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 9 OF 16

THE BASEMAP WAS PREPARED BY KENNEY AERIAL MAPPING, INC. USING PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

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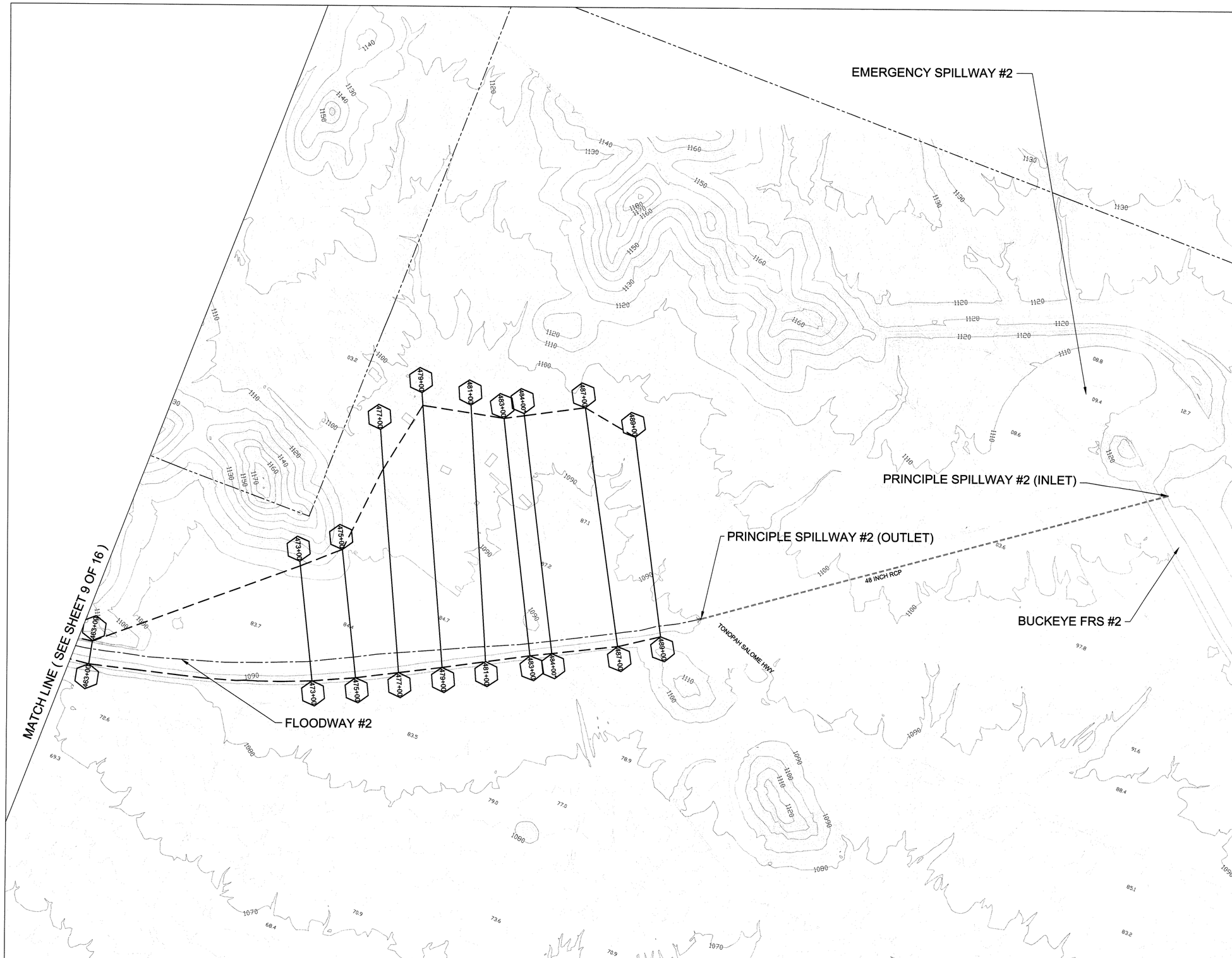

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FCD CONTRACT NO. 2002C027

BUCKEYE/SUN VALLEY
AREA DRAINAGE MASTER STUDY

BUCKEYE FRS
HEC-RAS CROSS-SECTION LOCATION MAP

FINAL

LEGEND

CROSS SECTION LOCATION	2+00 — 2+00
PMF BOUNDARY	
HYDRAULIC CENTERLINE	
FCDMC PROPERTY LINE	

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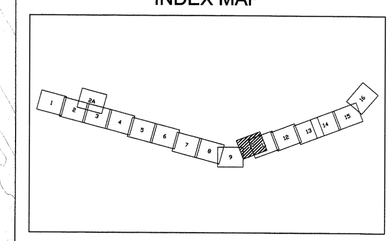

N

200 0 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

Registered Professional Engineer (Civil) CERTIFICATE NO. 42881 STEPHEN M. ROGERS Date Signed 7-09-05 Arizona, U.S.A.

PBSJ
7310 N. 16th St., Suite 310
Phoenix, Arizona 85020
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Fax: (602) 943-1303

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PLANS CHK.		
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 10 OF 16

THE BASEMAP WAS PREPARED BY KENNEY AERIAL MAPPING, INC. USING PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

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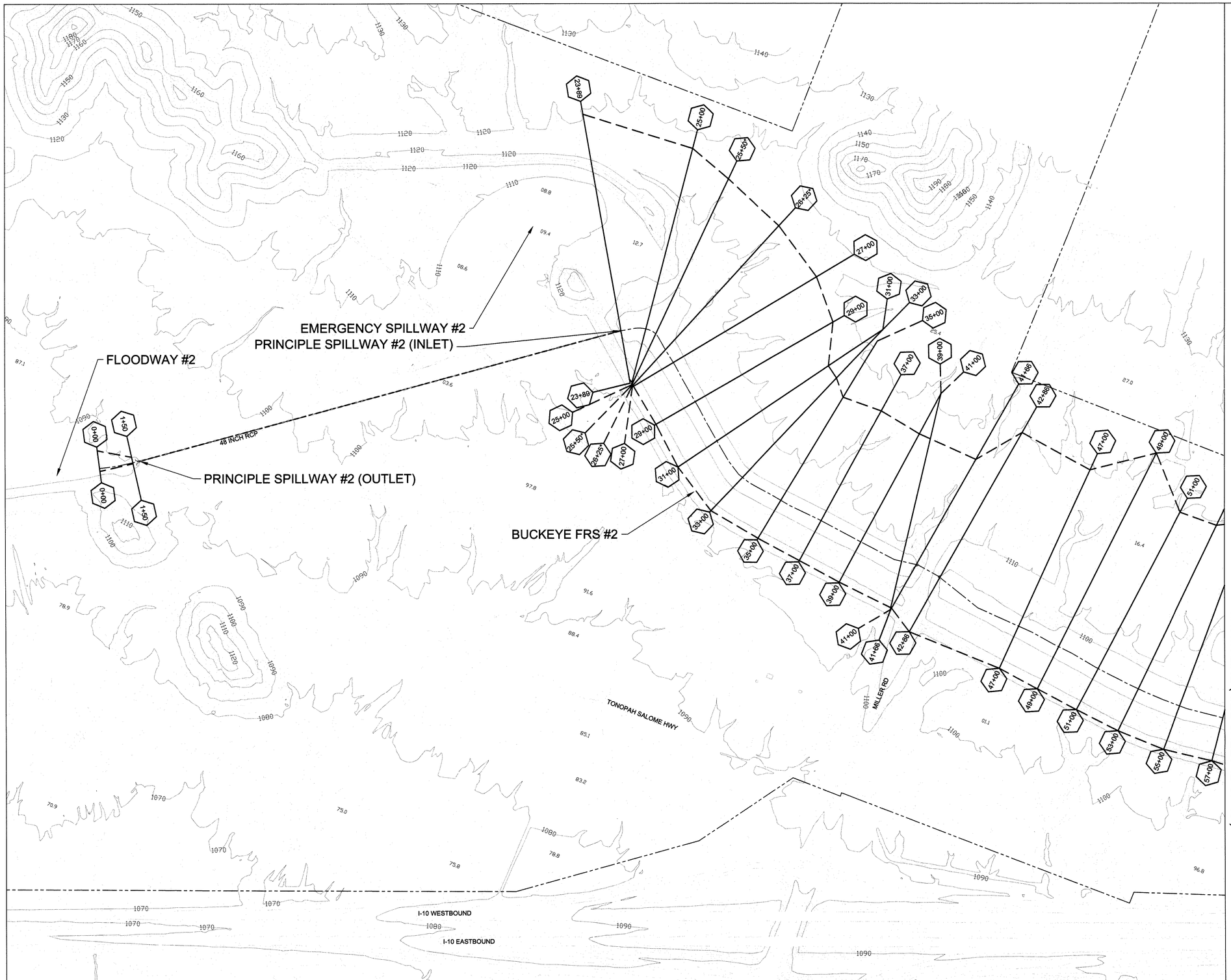


MATCH LINE (SEE SHEET 12 OF 16)

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FCD CONTRACT NO. 2002C027

BUCKEYE/SUN VALLEY
AREA DRAINAGE MASTER STUDY

BUCKEYE FRS
HEC-RAS CROSS-SECTION LOCATION MAP

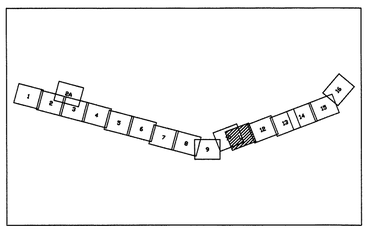
FINAL

LEGEND

CROSS SECTION LOCATION	2+00 — 2+00
PMF BOUNDARY	
HYDRAULIC CENTERLINE	
FCDMC PROPERTY LINE	

NOTES

INDEX MAP



N

200 0 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

Registered Professional Engineer (Civil)
CERTIFICATE NO. 42881
STEPHEN W. ROGERS
Date Signed 7/12/04
ARIZONA U.S.A.

PBSJ
7310 N. 16th St., Suite 310
Phoenix, Arizona 85020
Phone: (602) 943-1003
Fax: (602) 943-1303

	BY	DATE
DESIGN	JSL	4/04
DESIGN CHK.	WC	4/04
PLANS		
PLANS CHK.		
SUBMITTED BY: DATE		

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 11 OF 16

THE BASEMAP WAS PREPARED BY KENNEY AERIAL MAPPING, INC. USING PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

GROUND CONTROL SURVEY DATA PROVIDED BY
PROJECT ENGINEERING CONSULTANTS, LTD. & HUITT-ZOLLARS, INC.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FCD CONTRACT NO. 2002C027

BUCKEYE/SUN VALLEY
AREA DRAINAGE MASTER STUDY

BUCKEYE FRS
HEC-RAS CROSS-SECTION LOCATION MAP

FINAL

LEGEND

CROSS SECTION LOCATION — 2+00 — 2+00

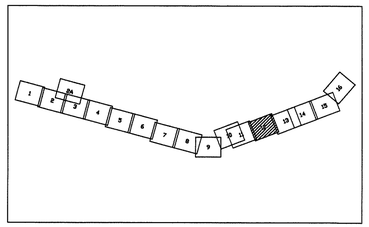
PMF BOUNDARY

HYDRAULIC CENTERLINE

FCDMC PROPERTY LINE

NOTES

INDEX MAP



N

200 0 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

Registered Professional Engineer (Civil)
CERTIFICATE NO. 42881
STEPHEN W. ROGERS
Date Signed 7/16/04
State of Arizona

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7310 N. 16th St., Suite 310
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	BY	DATE
DESIGN	JSL	4/04
DESIGN CHK.	WC	4/04
PLANS		
PLANS CHK.		
SUBMITTED BY: DATE		

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

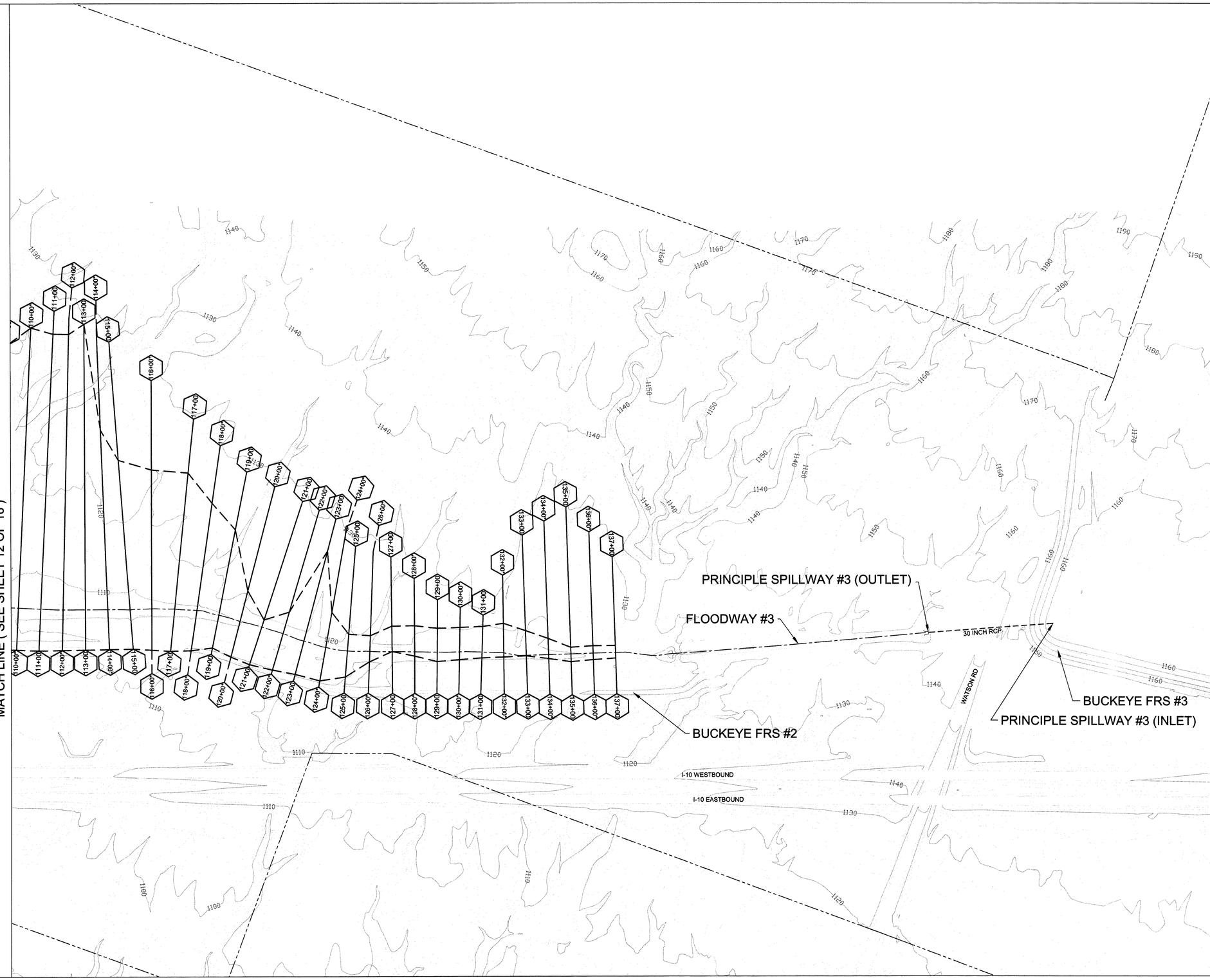
APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 12 OF 16

THE BASEMAP WAS PREPARED BY KENNEY AERIAL MAPPING, INC. USING PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

GROUND CONTROL SURVEY DATA PROVIDED BY PROJECT ENGINEERING CONSULTANTS, LTD. & HUITT-ZOLLARS, INC.



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FCD CONTRACT NO. 2002C027

BUCKEYE/SUN VALLEY
AREA DRAINAGE MASTER STUDY

BUCKEYE FRS
HEC-RAS CROSS-SECTION LOCATION MAP

FINAL

LEGEND

CROSS SECTION LOCATION — 2+00 — 2+00

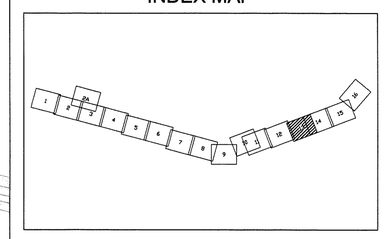
PMF BOUNDARY

HYDRAULIC CENTERLINE

FCDMC PROPERTY LINE

NOTES

INDEX MAP



N

200 0 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

Registered Professional Engineer (Civil) CERTIFICATE NO. 42861 STEPHEN W. ROGERS Date Signed 7/12/05 Not valid until signed

PBSJ
7310 N. 16th St., Suite 310
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	BY	DATE
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PLANS		
PLANS CHK.		
SUBMITTED BY:		DATE

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

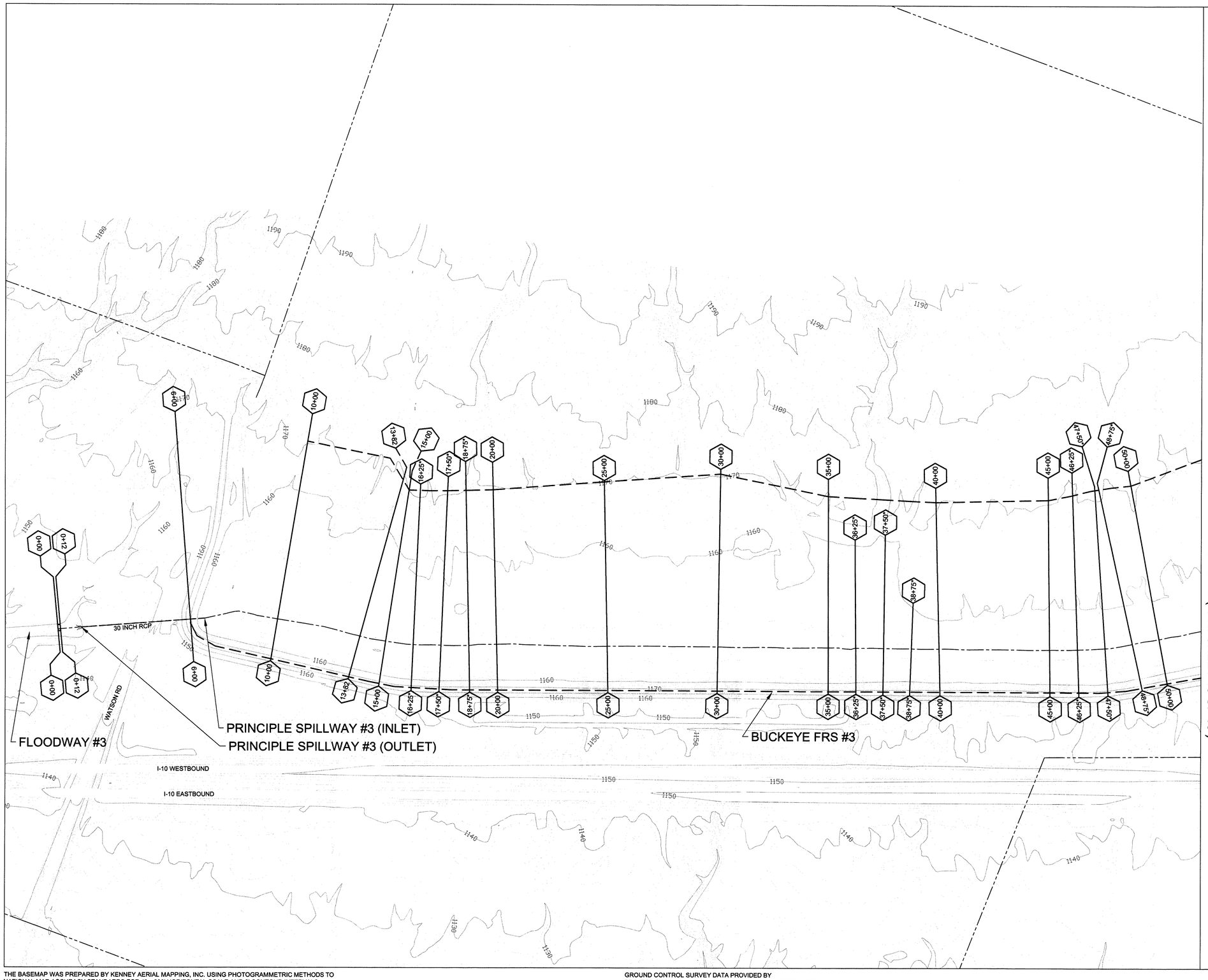
APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 13 OF 16

THE BASEMAP WAS PREPARED BY KENNEY AERIAL MAPPING, INC. USING PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

GROUND CONTROL SURVEY DATA PROVIDED BY
PROJECT ENGINEERING CONSULTANTS, LTD. & HUITT-ZOLLARS, INC.



MATCH LINE (SEE SHEET 15 OF 16)

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
FCD CONTRACT NO. 2002C027

BUCKEYE/SUN VALLEY
AREA DRAINAGE MASTER STUDY

BUCKEYE FRS
HEC-RAS CROSS-SECTION LOCATION MAP

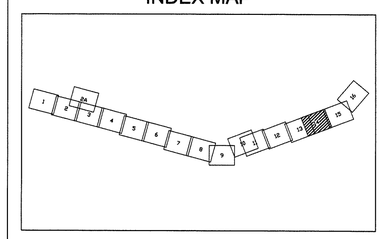
FINAL

LEGEND

CROSS SECTION LOCATION	2+00 — 2+00
PMF BOUNDARY	
HYDRAULIC CENTERLINE	
FCDMC PROPERTY LINE	

NOTES

INDEX MAP



N

200 0 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

Registered Professional Engineer (Civil) CERTIFICATE NO. 42881 STEPHEN W. ROGERS Date Signed 7/2/05 Arizona U.S.A.

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7310 N. 16th St., Suite 310
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	BY	DATE
DESIGN	JSL	4/04
DESIGN CHK.	WC	4/04
PLANS		
PLANS CHK.		
SUBMITTED BY: DATE		

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 14 OF 16

THE BASEMAP WAS PREPARED BY KENNEY AERIAL MAPPING, INC. USING PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

GROUND CONTROL SURVEY DATA PROVIDED BY
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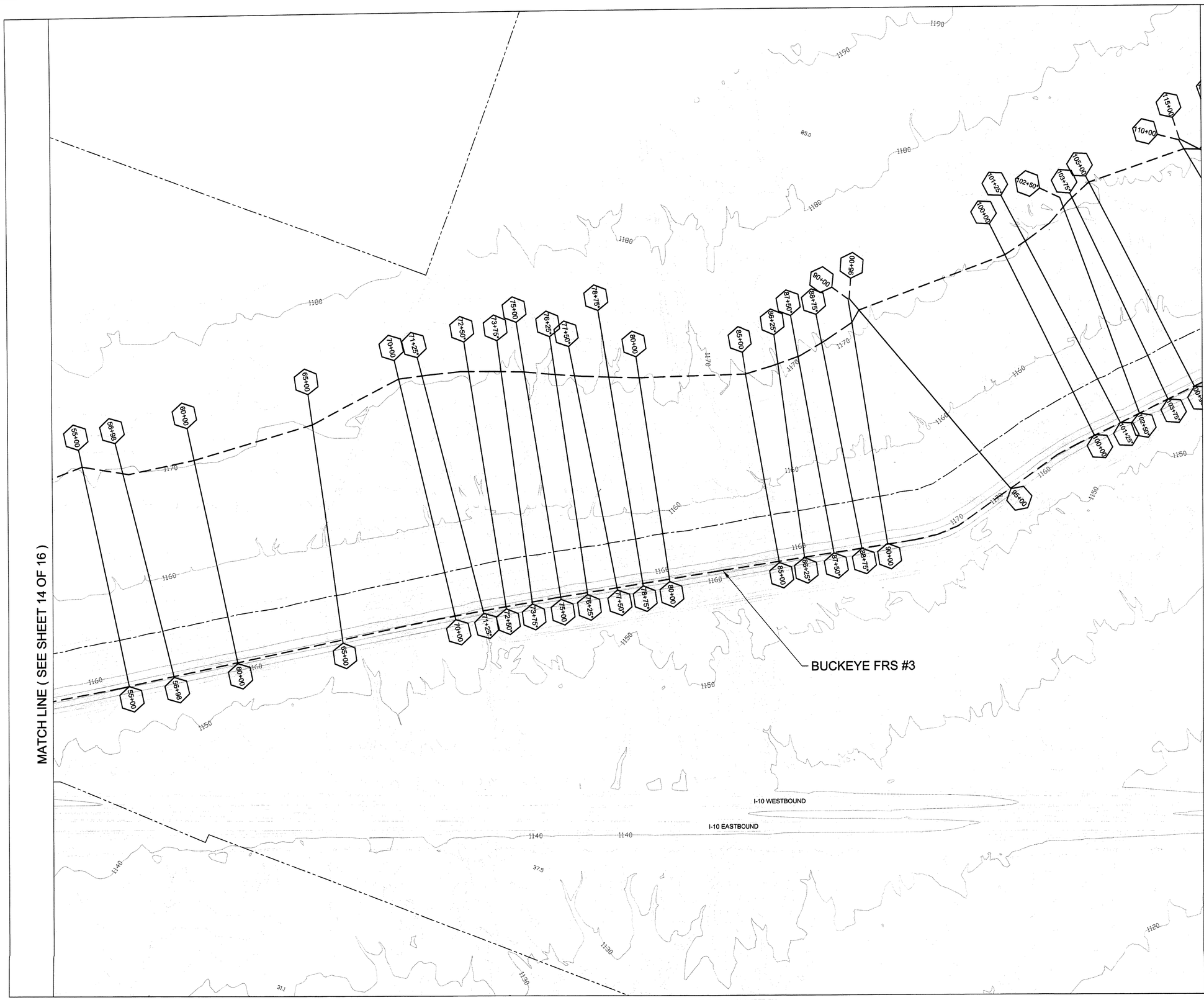

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FCD CONTRACT NO. 2002C027

BUCKEYE/SUN VALLEY
AREA DRAINAGE MASTER STUDY

BUCKEYE FRS
HEC-RAS CROSS-SECTION LOCATION MAP

FINAL

LEGEND

CROSS SECTION LOCATION	2+00 — 2+00
PMF BOUNDARY	
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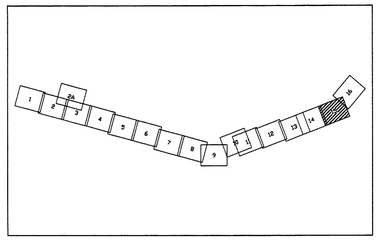
INDEX MAP



N

200 0 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

Registered Professional Engineer (Civil) CERTIFICATE NO. 42881 STEPHEN W. ROGERS Date Signed 4/16/04

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7310 N. 16th St., Suite 310
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DESIGN	JSL	4/04
DESIGN CHK.	WC	4/04
PLANS		
PLANS CHK.		

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

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CHIEF ENGINEER AND GENERAL MANAGER

SHEET 15 OF 16

THE BASEMAP WAS PREPARED BY KENNEY AERIAL MAPPING, INC. USING PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

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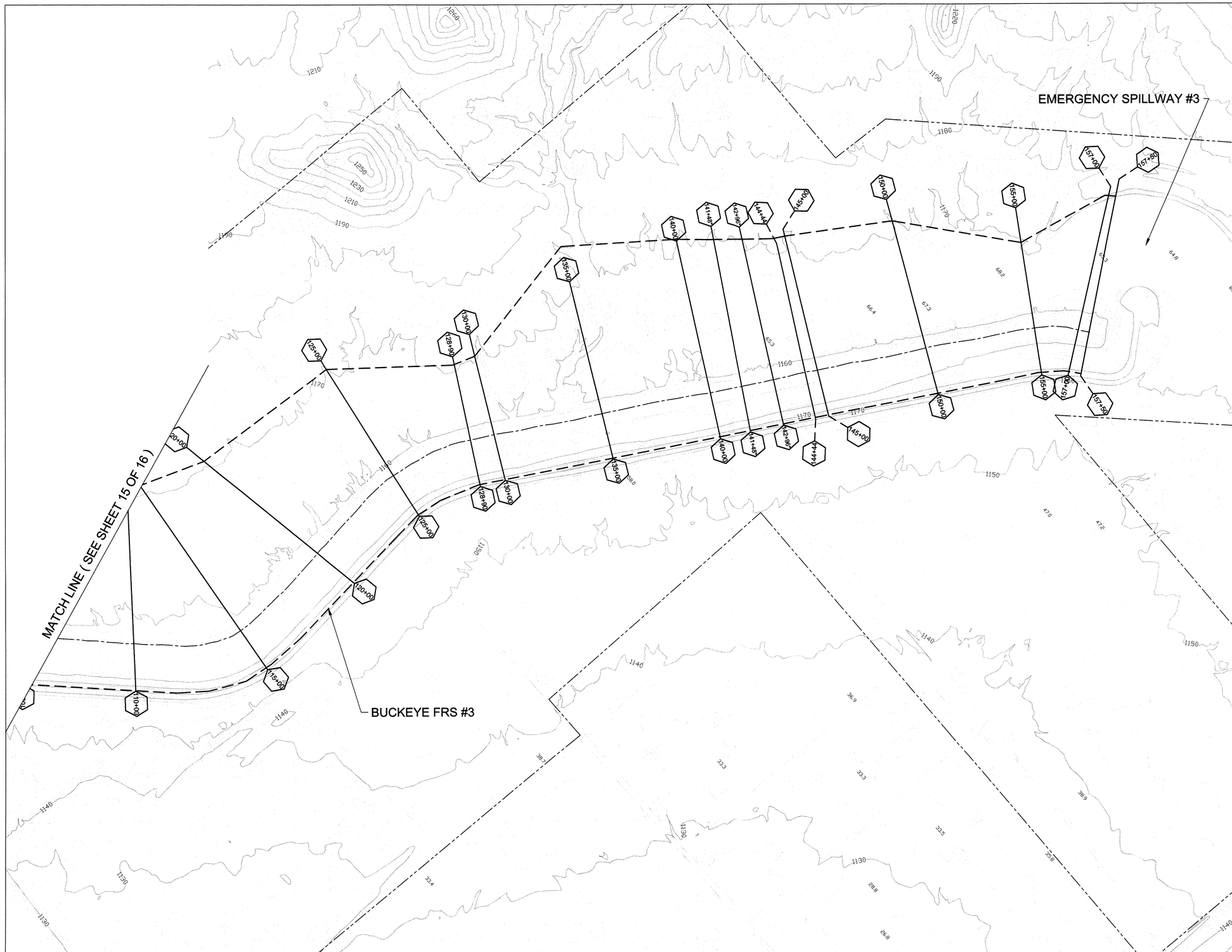

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FCD CONTRACT NO. 2002C027

BUCKEYE/SUN VALLEY
AREA DRAINAGE MASTER STUDY

BUCKEYE FRS
HEC-RAS CROSS-SECTION LOCATION MAP

FINAL

LEGEND

CROSS SECTION LOCATION	2+00 — 2+00
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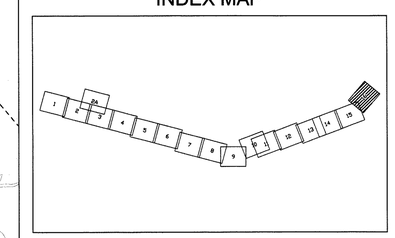
INDEX MAP



N

200 0 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

Registered Professional Engineer (Civil) CERTIFICATE NO. 42881 STEPHEN W. ROGERS Date Signed 7/26/07 ARIZONA U.S.A.

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PLANS CHK.		

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

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CHIEF ENGINEER AND GENERAL MANAGER

SHEET 16 OF 16

THE BASEMAP WAS PREPARED BY KENNEY AERIAL MAPPING, INC. USING PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

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