

Existing.rep

HEC-RAS Version 3.0.1 Mar 2001
U. S. Army Corp of Engineers
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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
XXXXXXXX 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
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PROJECT DATA

Project Title: exist floodway
Project File : fwtrial.prj
Run Date and Time: 12/5/2005 2:31:09 PM

Project in English units

Project Description:

& R SEDGWICK COUNTY FIS
100-YR BACKWATER ANALYSIS
MIDDLE
FORK CALFSKIN CREEK
SEDGWICK COUNTY FIS
100-YR BACKWATER
ANALYSIS
MIDDLE FORK CALFSKIN CREEK

PLAN DATA

Plan Title: Plan 05
Plan File : f:\HYDRO\Projects\Shadow Woods\hecras\Floodway\FWtrial\fwtrial.p05

Geometry Title: Imported Geom bl g2
Geometry File : f:\HYDRO\Projects\Shadow
Woods\hecras\Floodway\FWtrial\fwtrial.g04

Flow Title : Imported Flow 02
Flow File : f:\HYDRO\Projects\Shadow
Woods\hecras\Floodway\FWtrial\fwtrial.f02

Plan Summary Information:

Number of: Cross Sections = 35 Multiple Openings = 0
Culverts = 2 Inline Weirs = 0
Bridges = 0

Computational Information

Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20

Maximum difference tolerance = 0.3
 Flow tolerance factor = 0.001

Computation Options

Critical depth computed only where necessary
 Conveyance Calculation Method: Between every coordinate point (HEC2 Style)
 Friction Slope Method: Average Conveyance
 Computational Flow Regime: Subcritical Flow

Encroachment Data

Equal Conveyance = True
 Left Offset = 0
 Right Offset = 0

River = RIVER-1	Reach = Reach-1	RS	Profile	Method	Value1	Value2
1.913	PF 2	1		1	5500	5680
1.885	PF 2	1		1	5500	5640
1.866	PF 2	1		1	5370	5525
1.858	PF 2	1		1	5330.2	5601.6
1.793	PF 2	1		1	5270	5427
1.736	PF 2	1		1	5250	5355
1.655	PF 2	1		1	5300	5500
1.595	PF 2	1		1	5170	5495
1.576	PF 2	1		1	5200	5450
1.565	PF 2	1		1	5200	5450
1.525	PF 2	1		1	5165	5240
1.493	PF 2	1		1	5130	5250
1.458	PF 2	1		1	5295	5450
1.420	PF 2	1		1	5175	5500
1.385	PF 2	1		1	5190	5595
1.351	PF 2	1		1	5200	5355
1.305	PF 2	1		1	5227	5799
1.269	PF 2	1		1	5529	5685
1.263	PF 2	1		1	5560	5690
1.239	PF 2	1		1	5685	5720
1.232	PF 2	1		1	5538	5577
1.192	PF 2	1		1	5126	5241
1.173	PF 2	1		1	5104.2	5334
1.147	PF 2	1		1	5265	5383
1.103	PF 2	1		1	5145	5682
1.071	PF 2	1		1	5200	5700
.963	PF 2	1		1	5200	6300
.859	PF 2	1		1	5750	5950
0.854	PF 2	1		1	5800	6069.9
0.848	PF 2	1		1	5880	6140.9
0.845	PF 2	1		1	5945	6060
0.83	PF 2	1		1	10280	10360
0.42	PF 2	1		1	10330	10390
0.07	PF 2	1		1	10260	10525
0	PF 2	1		1	10334	10650

FLOW DATA

Flow Title: Imported Flow 02
 Flow File : f:\HYDRO\Projects\Shadow Woods\hecras\Floodway\FWtrial\fwtrial.f02

Flow Data (cfs)

River Reach RS PF 1 PF 2

RIVER-1 Reach-1 Existing.rep
 1.913 1140 1140

Boundary Conditions

River Downstream	Reach	Profile	Upstream
RIVER-1 Known WS = 1322.37	Reach-1	PF 1	
RIVER-1 Known WS = 1323.37	Reach-1	PF 2	

GEOMETRY DATA

Geometry Title: Imported Geom bl g2
 Geometry File : f:\HYDRO\Projects\Shadow Woods\hecras\Floodway\FWtrial\fwtrial.g04

CROSS SECTION RIVER: RIVER-1
 REACH: Reach-1 RS: 1.913

INPUT

Description:

Station	Elevation	Data	num=	33						
Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	
5000	1380.7	5038.3	1380.8	5100.6	1379.2	5150	1378.1	5173.6	1377.5	
5197.8	1377.3	5250	1376.9	5300.9	1376.6	5350	1376.1	5400	1375.7	
5450	1375.2	5475	1374.995	5486.6	1374.9	5500	1374.6	5520	1374.206	
5520.3	1374.2	5528.8	1374.4	5535	1374.063	5550	1373.249	5555	1372.977	
5560.1	1372.7	5570	1373.106	5577	1373.393	5580	1373.516	5596.7	1374.2	
5600	1373.801	5605.8	1373.1	5608	1373.81	5608.9	1374.1	5615	1374.173	
5650.6	1374.6	5678	1375.229	5698.5	1375.7					

Manning's n Values	num=	3
Sta n Val	Sta	n Val
5000 .053	5550	.07
	5580	.051

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	5550	5580		100 147.84	175		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1375.96	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.14	Wt. n-Val.	0.053	0.070
0.051				
W. S. Elev (ft)	1375.81	Reach Len. (ft)	100.00	147.84
175.00				
Crit W. S. (ft)	1375.17	Flow Area (sq ft)	145.05	82.54
152.13				
E. G. Slope (ft/ft)	0.006622	Area (sq ft)	145.05	82.54
152.13				
Q Total (cfs)	1140.00	Flow (cfs)	383.87	279.76
476.38				
Top Width (ft)	312.80	Top Width (ft)	164.30	30.00
118.50				

		Existing rep		
Vel Total (ft/s)	3.00	Avg. Vel. (ft/s)	2.65	3.39
3.13				
Max Chl Dpth (ft)	3.11	Hydr. Depth (ft)	0.88	2.75
1.28				
Conv. Total (cfs)	14009.0	Conv. (cfs)	4717.2	3437.8
5854.0				
Length Wtd. (ft)	144.30	Wetted Per. (ft)	164.34	30.03
118.87				
Min Ch El (ft)	1372.70	Shear (lb/sq ft)	0.36	1.14
0.53				
Alpha	1.03	Stream Power (lb/ft s)	0.97	3.85
1.66				
Frctn Loss (ft)	1.48	Cum Volume (acre-ft)	59.15	101.78
27.11				
C & E Loss (ft)	0.01	Cum SA (acres)	46.04	27.41
16.72				

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

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less

than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E. G. Elev (ft)	1376.08	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.19	Wt. n-Val.	0.053	0.070
0.051				
W. S. Elev (ft)	1375.89	Reach Len. (ft)	100.00	147.84
175.00				
Crit W. S. (ft)	1375.14	Flow Area (sq ft)	87.60	84.84
153.73				
E. G. Slope (ft/ft)	0.007199	Area (sq ft)	87.60	84.84
153.73				
Q Total (cfs)	1140.00	Flow (cfs)	304.46	305.34
530.20				
Top Width (ft)	180.00	Top Width (ft)	50.00	30.00
100.00				
Vel Total (ft/s)	3.50	Avg. Vel. (ft/s)	3.48	3.60
3.45				
Max Chl Dpth (ft)	3.19	Hydr. Depth (ft)	1.75	2.83
1.54				
Conv. Total (cfs)	13435.9	Conv. (cfs)	3588.3	3598.7
6248.9				
Length Wtd. (ft)	147.77	Wetted Per. (ft)	51.33	30.03
100.86				
Min Ch El (ft)	1372.70	Shear (lb/sq ft)	0.77	1.27
0.69				
Alpha	1.00	Stream Power (lb/ft s)	2.67	4.57
2.36				
Frctn Loss (ft)	1.10	Cum Volume (acre-ft)	27.69	108.45
6.31				
C & E Loss (ft)	0.01	Cum SA (acres)	10.63	26.96
3.28				

Existing rep

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

CROSS SECTION RIVER: RIVER-1
 REACH: Reach-1 RS: 1.885

INPUT

Description:

Station		Elevation		Data		num=		22	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5000	1381.1	5100	1377.9	5200	1376.9	5216	1376.8	5255.2	1374
5295.6	1373.7	5350	1374.9	5454.9	1374.2	5500	1373.583	5550	1372.9
5576.9	1370.7	5583.3	1370.8	5587.5	1372.2	5588	1372.156	5602.3	1370.9
5616	1371.2	5621.8	1372.9	5625	1373.055	5630	1373.297	5640	1373.781
5663.1	1374.9	5717.8	1378.1						

Manning's n		Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
5000	.053	5500	.07	5640	.051		

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	5500	5640		90	100.32	120		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1374.46	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.27	Wt. n-Val.	0.053	0.070
0.051				
W. S. Elev (ft)	1374.19	Reach Len. (ft)	90.00	100.32
120.00				
Crit W. S. (ft)		Flow Area (sq ft)	33.00	255.12
1.73				
E. G. Slope (ft/ft)	0.018015	Area (sq ft)	33.00	255.12
1.73				
Q Total (cfs)	1140.00	Flow (cfs)	56.53	1081.11
2.36				
Top Width (ft)	258.23	Top Width (ft)	109.77	140.00
8.46				
Vel Total (ft/s)	3.93	Avg. Vel. (ft/s)	1.71	4.24
1.36				
Max Chl Dpth (ft)	3.49	Hydr. Depth (ft)	0.30	1.82
0.20				
Conv. Total (cfs)	8493.4	Conv. (cfs)	421.2	8054.7
17.6				
Length Wtd. (ft)	102.66	Wetted Per. (ft)	109.79	140.65
8.47				
Min Ch El (ft)	1370.70	Shear (lb/sq ft)	0.34	2.04
0.23				
Alpha	1.11	Stream Power (lb/ft s)	0.58	8.65
0.31				
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	58.95	101.20
26.80				
C & E Loss (ft)	0.07	Cum SA (acres)	45.73	27.13
16.46				

Warning: Divided flow computed for this cross-section.

Existing rep

Warning: The conveyance ratio (upstream 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 OUTPUT Profile #PF 2

E. G. Elev (ft)	1374.99	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.17	Wt. n-Val.		0.070
W. S. Elev (ft)	1374.81	Reach Len. (ft)	90.00	100.32
120.00				
Crit W. S. (ft)		Flow Area (sq ft)		342.16
E. G. Slope (ft/ft)	0.007691	Area (sq ft)		342.16
Q Total (cfs)	1140.00	Flow (cfs)		1140.00
Top Width (ft)	140.00	Top Width (ft)		140.00
Vel Total (ft/s)	3.33	Avg. Vel. (ft/s)		3.33
Max Chl Dpth (ft)	4.11	Hydr. Depth (ft)		2.44
Conv. Total (cfs)	12998.8	Conv. (cfs)		12998.8
Length Wtd. (ft)	100.32	Wetted Per. (ft)		142.91
Min Ch El (ft)	1370.70	Shear (lb/sq ft)		1.15
Alpha	1.00	Stream Power (lb/ft s)		3.83
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	27.59	107.73
6.00				
C & E Loss (ft)	0.04	Cum SA (acres)	10.58	26.67
3.08				

Warning: The conveyance ratio (upstream 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: RIVER-1
REACH: Reach-1 RS: 1.866

INPUT

Description:

Station	Elevation	Data	num=	39	Station	Elevation	Data	num=	39	Station	Elevation
5000	1381.5	5016	1381	5032.6	1380.5	5076.1	1379.2	5090.2	1378.9		
5136.2	1377.6	5147.8	1377.5	5196.4	1377.2	5199.2	1377	5229	1376		
5255.4	1376.1	5272.4	1375.6	5345.6	1373.8	5357.4	1373.6	5365.3	1373.4		
5370	1372.67	5391.7	1369.3	5411.5	1369	5469.8	1368.6	5485.2	1370.5		
5486.7	1371.5	5487.1	1371.9	5489.2	1371.8	5491.8	1371.9	5500	1372.01		
5510	1372.144	5515	1372.211	5521.6	1372.3	5525	1372.339	5574	1372.9		
5577.9	1372.3	5595.5	1369.959	5598.2	1369.6	5599.5	1370.2	5634.8	1374.1		
5672.3	1372.1	5707.5	1380.2	5744.2	1381.3	5747.2	1381.5				

Manning's n Values num= 3

	Sta	n Val	Sta	n Val	Exi sti ng. rep			
	5000	. 053	5370	. 07	Sta	n Val		
					5525	. 051		
Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.
	5370	5525		35	43	85		. 1
								Expan.
								. 3

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1374. 22	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0. 02	Wt. n-Val .	0. 053	0. 070
0. 051				
W. S. Elev (ft)	1374. 20	Reach Len. (ft)	35. 00	43. 00
85. 00				
Crit W. S. (ft)		Flow Area (sq ft)	19. 95	641. 22
277. 66				
E. G. Slope (ft/ft)	0. 000559	Area (sq ft)	19. 95	641. 22
277. 66				
Q Total (cfs)	1140. 00	Flow (cfs)	9. 95	826. 30
303. 75				
Top Width (ft)	351. 86	Top Width (ft)	40. 46	155. 00
156. 40				
Vel Total (ft/s)	1. 21	Avg. Vel. (ft/s)	0. 50	1. 29
1. 09				
Max Chl Dpth (ft)	5. 59	Hydr. Depth (ft)	0. 49	4. 14
1. 78				
Conv. Total (cfs)	48216. 5	Conv. (cfs)	420. 7	34948. 7
12847. 1				
Length Wtd. (ft)	48. 64	Wetted Per. (ft)	40. 53	155. 86
157. 27				
Min Ch El (ft)	1368. 60	Shear (lb/sq ft)	0. 02	0. 14
0. 06				
Alpha	1. 03	Stream Power (lb/ft s)	0. 01	0. 19
0. 07				
Frctn Loss (ft)	0. 03	Cum Volume (acre-ft)	58. 89	100. 17
26. 42				
C & E Loss (ft)	0. 00	Cum SA (acres)	45. 57	26. 79
16. 23				

CROSS SECTION OUTPUT Profile #PF 2

E. G. Elev (ft)	1374. 77	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0. 04	Wt. n-Val .		0. 070
W. S. Elev (ft)	1374. 73	Reach Len. (ft)	35. 00	43. 00
85. 00				
Crit W. S. (ft)		Flow Area (sq ft)		724. 82
E. G. Slope (ft/ft)	0. 000734	Area (sq ft)		724. 82
Q Total (cfs)	1140. 00	Flow (cfs)		1140. 00
Top Width (ft)	155. 00	Top Width (ft)		155. 00
Vel Total (ft/s)	1. 57	Avg. Vel. (ft/s)		1. 57
Max Chl Dpth (ft)	6. 13	Hydr. Depth (ft)		4. 68

Conv. Total (cfs)	42068.8	Existing rep Conv. (cfs)	42068.8
Length Wtd. (ft)	43.00	Wetted Per. (ft)	160.32
Min Ch El (ft)	1368.60	Shear (lb/sq ft)	0.21
Alpha	1.00	Stream Power (lb/ft s)	0.33
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	27.59
6.00			106.50
C & E Loss (ft)	0.01	Cum SA (acres)	10.58
3.08			26.33

CROSS SECTION REACH: Reach-1 RIVER: RIVER-1 RS: 1.858

INPUT

Description:

Station	Elevation	Data	num=	23
Sta	El ev	Sta	El ev	Sta
5000	1380.9	5065.1	1379.1	5148.7
5302.5	1374.7	5330.2	1370.3	5351.9
5454.8	1372.8	5456.8	1372.8	5481.4
5517	1372	5563.1	1370.6	5570.4
5639.4	1377.5	5729.4	1382.8	5749.9
				1377.1
				5191.8
				1376.6
				5254.4
				1375.9
				5358.9
				1370
				5408
				1371.7
				5493.6
				1370.3
				5505.7
				1369.8
				5573
				1369.517
				5601.6
				1371.9

Manning's n Values	num=	3
Sta	n Val	Sta
5000	.053	5330.2
		.07
		5601.6
		.051

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
5330.2	5601.6	260.1	340	360.06	.1	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E. G. El ev (ft)	1374.19	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.	0.053	0.070
0.051				
W. S. El ev (ft)	1374.16	Reach Len. (ft)	260.10	340.00
360.06				
Crit W. S. (ft)		Flow Area (sq ft)	46.88	822.10
17.23				
E. G. Slope (ft/ft)	0.000854	Area (sq ft)	46.88	822.10
17.23				
Q Total (cfs)	1140.00	Flow (cfs)	59.03	1065.18
15.79				
Top Width (ft)	310.95	Top Width (ft)	24.30	271.40
15.25				
Vel Total (ft/s)	1.29	Avg. Vel. (ft/s)	1.26	1.30
0.92				
Max Chl Dpth (ft)	5.46	Hydr. Depth (ft)	1.93	3.03
1.13				
Conv. Total (cfs)	39017.3	Conv. (cfs)	2020.4	36456.4
540.5				
Length Wtd. (ft)	327.13	Wetted Per. (ft)	24.60	272.27
15.42				
Min Ch El (ft)	1368.70	Shear (lb/sq ft)	0.10	0.16
0.06				
Alpha	1.00	Stream Power (lb/ft s)	0.13	0.21

			Exi sti ng. rep		
0. 05	Frctn Loss (ft)	0. 28	Cum Volume (acre-ft)	58. 87	99. 45
26. 13	C & E Loss (ft)	0. 00	Cum SA (acres)	45. 54	26. 58
16. 07					

CROSS SECTION OUTPUT Profile #PF 2

E. G. Elev (ft)	1374. 74	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0. 02	Wt. n-Val .		0. 070
W. S. Elev (ft)	1374. 72	Reach Len. (ft)	260. 10	340. 00
360. 06				
Crit W. S. (ft)		Flow Area (sq ft)		973. 80
E. G. Slope (ft/ft)	0. 000576	Area (sq ft)		973. 80
Q Total (cfs)	1140. 00	Flow (cfs)		1140. 00
Top Width (ft)	271. 40	Top Width (ft)		271. 40
Vel Total (ft/s)	1. 17	Avg. Vel. (ft/s)		1. 17
Max Chl Dpth (ft)	6. 02	Hydr. Depth (ft)		3. 59
Conv. Total (cfs)	47506. 8	Conv. (cfs)		47506. 8
Length Wtd. (ft)	340. 00	Wetted Per. (ft)		279. 51
Min Ch El (ft)	1368. 70	Shear (lb/sq ft)		0. 13
Alpha	1. 00	Stream Power (lb/ft s)		0. 15
Frctn Loss (ft)	0. 30	Cum Volume (acre-ft)	27. 59	105. 66
6. 00				
C & E Loss (ft)	0. 00	Cum SA (acres)	10. 58	26. 12
3. 08				

Warning: The conveyance ratio (upstream 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: RIVER-1
 REACH: Reach-1 RS: 1. 793

INPUT

Description:

Station	Elevation	Data	num=	30						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
5000	1378. 4	5051. 6	1376. 4	5097. 9	1374. 9	5150	1373. 1	5172. 9	1372. 1	
5178. 9	1372. 2	5200	1371. 9	5250	1371. 3	5270	1370. 992	5275	1370. 915	
5276	1370. 9	5284. 2	1370. 7	5300	1371	5315. 5	1371. 1	5325. 5	1371. 2	
5330. 5	1371. 3	5332. 6	1369. 7	5340. 9	1368. 5	5349. 6	1370. 3	5353. 4	1370. 9	
5400	1370. 686	5418. 7	1370. 6	5423	1370. 1	5425	1370. 248	5427	1370. 396	
5450	1372. 1	5500	1376	5539. 1	1378. 7	5550	1379. 3	5575. 5	1380. 5	

Manning's n Values				Existing rep
Sta	n Val	Sta	n Val	Sta
5000	.053	5270	.07	5427
				num=
				3
				Sta
				n Val
				.051

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	5270	5427		209.1	300		.1	.3
				311.1				

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1373.91	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.	0.053	0.070
0.051				
W. S. Elev (ft)	1373.88	Reach Len. (ft)	209.10	300.00
311.10				
Crit W. S. (ft)		Flow Area (sq ft)	255.36	506.88
80.71				
E. G. Slope (ft/ft)	0.000857	Area (sq ft)	255.36	506.88
80.71				
Q Total (cfs)	1140.00	Flow (cfs)	340.78	685.26
113.96				
Top Width (ft)	345.27	Top Width (ft)	142.49	157.00
45.78				
Vel Total (ft/s)	1.35	Avg. Vel. (ft/s)	1.33	1.35
1.41				
Max Chl Dpth (ft)	5.38	Hydr. Depth (ft)	1.79	3.23
1.76				
Conv. Total (cfs)	38950.7	Conv. (cfs)	11643.5	23413.6
3893.6				
Length Wtd. (ft)	268.42	Wetted Per. (ft)	142.53	157.91
45.91				
Min Ch El (ft)	1368.50	Shear (lb/sq ft)	0.10	0.17
0.09				
Alpha	1.00	Stream Power (lb/ft s)	0.13	0.23
0.13				
Frctn Loss (ft)	0.13	Cum Volume (acre-ft)	57.96	94.26
25.73				
C & E Loss (ft)	0.00	Cum SA (acres)	45.05	24.90
15.81				

Warning: The conveyance ratio (upstream 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 OUTPUT Profile #PF 2

E. G. Elev (ft)	1374.43	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.06	Wt. n-Val.		0.070
W. S. Elev (ft)	1374.38	Reach Len. (ft)	209.10	300.00
311.10				
Crit W. S. (ft)		Flow Area (sq ft)		584.99
E. G. Slope (ft/ft)	0.001562	Area (sq ft)		584.99
Q Total (cfs)	1140.00	Flow (cfs)		1140.00

Top Width (ft)	157.00	Existing.rep Top Width (ft)	157.00
Vel Total (ft/s)	1.95	Avg. Vel. (ft/s)	1.95
Max Chl Dpth (ft)	5.87	Hydr. Depth (ft)	3.73
Conv. Total (cfs)	28841.9	Conv. (cfs)	28841.9
Length Wtd. (ft)	300.00	Wetted Per. (ft)	165.27
Min Ch El (ft)	1368.50	Shear (lb/sq ft)	0.35
Alpha	1.00	Stream Power (lb/ft s)	0.67
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	27.59
6.00			99.58
C & E Loss (ft)	0.00	Cum SA (acres)	10.58
3.08			24.45

CROSS SECTION REACH: Reach-1 RIVER: RIVER-1 RS: 1.736

INPUT

Description:

Station	Elevation	Data	num=	17
Sta	El ev	Sta	El ev	Sta
5000	1377.3	5050	1375.8	5095.9
5200	1370.3	5232.8	1370.8	5250
5400	1370.6	5446.6	1373.9	5459.8
5565.5	1381.3	5616.3	1383.6	5512.9

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
5000	.053	5250	.07
		5355	.051

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	5250	5355		433.01	430		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E. G. El ev (ft)	1373.77	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.	0.053	0.070
0.051				
W. S. El ev (ft)	1373.76	Reach Len. (ft)	433.01	430.00
313.04				
Crit W. S. (ft)		Flow Area (sq ft)	466.92	438.20
224.02				
E. G. Slope (ft/ft)	0.000305	Area (sq ft)	466.92	438.20
224.02				
Q Total (cfs)	1140.00	Flow (cfs)	492.80	421.32
225.88				
Top Width (ft)	351.96	Top Width (ft)	157.38	105.00
89.58				
Vel Total (ft/s)	1.01	Avg. Vel. (ft/s)	1.06	0.96
1.01				
Max Chl Dpth (ft)	4.66	Hydr. Depth (ft)	2.97	4.17
2.50				
Conv. Total (cfs)	65229.1	Conv. (cfs)	28197.3	24107.2
12924.6				

Length Wtd. (ft)	408.76	Existing rep	Wetted Per. (ft)	157.56	105.03
89.70					
Min Ch El (ft)	1369.10		Shear (lb/sq ft)	0.06	0.08
0.05					
Alpha	1.01		Stream Power (lb/ft s)	0.06	0.08
0.05					
Frctn Loss (ft)	0.02		Cum Volume (acre-ft)	56.23	91.01
24.64					
C & E Loss (ft)	0.00		Cum SA (acres)	44.33	24.00
15.33					

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.

CROSS SECTION OUTPUT Profile #PF 2

E. G. Elev (ft)	1373.85	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.11	Wt. n-Val.		0.070
W. S. Elev (ft)	1373.74	Reach Len. (ft)	433.01	430.00
313.04				
Crit W. S. (ft)		Flow Area (sq ft)		436.75
E. G. Slope (ft/ft)	0.002476	Area (sq ft)		436.75
Q Total (cfs)	1140.00	Flow (cfs)		1140.00
Top Width (ft)	105.00	Top Width (ft)		105.00
Vel Total (ft/s)	2.61	Avg. Vel. (ft/s)		2.61
Max Chl Dpth (ft)	4.64	Hydr. Depth (ft)		4.16
Conv. Total (cfs)	22908.3	Conv. (cfs)		22908.3
Length Wtd. (ft)	430.67	Wetted Per. (ft)		112.44
Min Ch El (ft)	1369.10	Shear (lb/sq ft)		0.60
Alpha	1.00	Stream Power (lb/ft s)		1.57
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	27.59	96.06
6.00				
C & E Loss (ft)	0.03	Cum SA (acres)	10.58	23.55
3.08				

Warning: The conveyance ratio (upstream 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: RIVER-1
 REACH: Reach-1 RS: 1.655

INPUT

Existing rep

Description:

Station		Elevation		Data		num=		25	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5000	1376	5050	1374.7	5076.8	1374.2	5100	1373.4	5150	1372.1
5205.1	1373.1	5235.5	1370.9	5250	1370.3	5272.9	1368.9	5300	1368
5309.7	1367.3	5319	1366.9	5334.8	1365.1	5390	1364.042	5397.4	1363.9
5415.7	1363.5	5491.9	1363.4	5500	1363.912	5509.3	1364.5	5539.7	1366.5
5547.3	1367.3	5589.9	1377.9	5610.3	1378.3	5617	1378.5	5688.3	1378.9

Manning's n		Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
5000	.053	5390	.07	5500	.051		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	5390	5500		324.06	315.15	190.08	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

Right OB	E. G. Elev (ft)	1373.76	Element	Left OB	Channel
	Vel Head (ft)	0.00	Wt. n-Val.	0.053	0.070
	0.051				
	W. S. Elev (ft)	1373.76	Reach Len. (ft)	324.06	315.15
	190.08				
	Crit W. S. (ft)		Flow Area (sq ft)	1204.55	1123.53
	475.64				
	E. G. Slope (ft/ft)	0.000017	Area (sq ft)	1204.55	1123.53
	475.64				
	Q Total (cfs)	1140.00	Flow (cfs)	468.95	458.22
	212.83				
	Top Width (ft)	483.56	Top Width (ft)	300.32	110.00
	73.24				
	Vel Total (ft/s)	0.41	Avg. Vel. (ft/s)	0.39	0.41
	0.45				
	Max Chl Dpth (ft)	10.36	Hydr. Depth (ft)	4.01	10.21
	6.49				
	Conv. Total (cfs)	279284.9	Conv. (cfs)	114886.5	112258.5
	52140.0				
	Length Wtd. (ft)	299.43	Wetted Per. (ft)	300.64	110.02
	74.16				
	Min Ch El (ft)	1363.40	Shear (lb/sq ft)	0.00	0.01
	0.01				
	Alpha	1.01	Stream Power (lb/ft s)	0.00	0.00
	0.00				
	Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	47.92	83.30
	22.12				
	C & E Loss (ft)	0.00	Cum SA (acres)	42.05	22.94
	14.75				

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

CROSS SECTION OUTPUT Profile #PF 2

Right OB	E. G. Elev (ft)	1373.76	Element	Left OB	Channel
	Vel Head (ft)	0.01	Wt. n-Val.	0.053	0.070

Existing rep

W. S. Elev (ft) 190.08	1373.76	Reach Len. (ft)	324.06	315.15
Crit W. S. (ft)		Flow Area (sq ft)	750.76	1123.65
E. G. Slope (ft/ft)	0.000035	Area (sq ft)	750.76	1123.65
Q Total (cfs)	1140.00	Flow (cfs)	510.35	629.65
Top Width (ft)	200.00	Top Width (ft)	90.00	110.00
Vel Total (ft/s)	0.61	Avg. Vel. (ft/s)	0.68	0.56
Max Chl Dpth (ft)	10.36	Hydr. Depth (ft)	8.34	10.22
Conv. Total (cfs)	191996.3	Conv. (cfs)	85952.9	106043.5
Length Wtd. (ft)	317.14	Wetted Per. (ft)	95.90	119.87
Min Ch El (ft)	1363.40	Shear (lb/sq ft)	0.02	0.02
Alpha	1.03	Stream Power (lb/ft s)	0.01	0.01
Frctn Loss (ft) 6.00	0.01	Cum Volume (acre-ft)	23.85	88.36
C & E Loss (ft) 3.08	0.00	Cum SA (acres)	10.13	22.49

Warning: The conveyance ratio (upstream 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: RIVER-1
REACH: Reach-1 RS: 1.595

INPUT

Description:

Station	Elevation	Data	num=	30	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5000	1373.9	5005.8	1374	5028.7	1373.1	5053.3	1372.6	5071.4	1372.3			
5100	1369.5	5115.4	1369.1	5143	1367.7	5149.7	1366.7	5170	1364.162			
5174.5	1363.6	5210.1	1363.9	5228.2	1363.9	5263.2	1363.8	5292.2	1363.5			
5313.3	1363.6	5485.4	1363.5	5495	1364.556	5515.4	1366.8	5525.3	1369			
5541.1	1369.2	5559	1370	5586.8	1371.4	5634.1	1375.4	5666.8	1377.2			
5681	1378.1	5707.4	1377.6	5753.7	1378.8	5765.2	1379.2	5792.2	1380.8			

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
5000	.053	5170	.07
		5495	.051

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
5170	5495	169	100	95	.1		.3

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1373.76	Element	Left OB	Channel
Right OB		Wt. n-Val.	0.053	0.070
Vel Head (ft)	0.00			
0.051				

W. S. Elev (ft)	1373.75	Existing rep	Reach Len. (ft)	169.00	100.00
95.00			Flow Area (sq ft)	562.18	3283.46
Crit W. S. (ft)			Area (sq ft)	562.18	3283.46
488.29			Flow (cfs)	130.39	893.12
E. G. Slope (ft/ft)	0.000008		Top Width (ft)	157.95	325.00
488.29			Avg. Vel. (ft/s)	0.23	0.27
Q Total (cfs)	1140.00		Hydr. Depth (ft)	3.56	10.10
116.49			Conv. (cfs)	47546.4	325667.5
Top Width (ft)	602.59		Wetted Per. (ft)	158.38	325.10
119.64			Shear (lb/sq ft)	0.00	0.00
Vel Total (ft/s)	0.26		Stream Power (lb/ft s)	0.00	0.00
0.24			Cum Volume (acre-ft)	41.35	67.36
Max Chl Dpth (ft)	10.25		Cum SA (acres)	40.35	21.37
4.08					
Conv. Total (cfs)	415689.7				
42475.8					
Length Wtd. (ft)	109.09				
120.16					
Min Ch El (ft)	1363.50				
0.00					
Alpha	1.01				
0.00					
Frctn Loss (ft)	0.00				
20.02					
C & E Loss (ft)	0.00				
14.33					

CROSS SECTION OUTPUT

Profile #PF 2

E. G. Elev (ft)	1373.76	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.070
W. S. Elev (ft)	1373.75	Reach Len. (ft)	169.00	100.00
95.00		Flow Area (sq ft)		3283.02
Crit W. S. (ft)		Area (sq ft)		3283.02
E. G. Slope (ft/ft)	0.000013	Flow (cfs)		1140.00
Q Total (cfs)	1140.00	Top Width (ft)		325.00
Top Width (ft)	325.00	Avg. Vel. (ft/s)		0.35
Vel Total (ft/s)	0.35	Hydr. Depth (ft)		10.10
Max Chl Dpth (ft)	10.25	Conv. (cfs)		313625.5
Conv. Total (cfs)	313625.5	Wetted Per. (ft)		343.88
Length Wtd. (ft)	100.00	Shear (lb/sq ft)		0.01
Min Ch El (ft)	1363.50	Stream Power (lb/ft s)		0.00
Alpha	1.00	Cum Volume (acre-ft)	21.06	72.41
Frctn Loss (ft)	0.00	Cum SA (acres)	9.79	20.92
6.00				
C & E Loss (ft)	0.00			
3.08				

Existing rep

Warning: The conveyance ratio (upstream 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: RIVER-1
 REACH: Reach-1 RS: 1.576

INPUT

Description:

Station	Elevation	Data	num=	30	Station	Elevation	Station	Elevation	Station	Elevation
4900	1373.8	5000	1373	5050	1372.7	5065.9	1372.6	5100.8	1371	
5134	1368.7	5143.6	1368.4	5150	1369.1	5183.5	1367.3	5200	1361.202	
5201.9	1360.5	5221	1360.5	5239.9	1360.5	5245.5	1360.5	5262.1	1360.5	
5269.4	1360.5	5298.1	1360.5	5312.5	1368.4	5343.4	1367.6	5367.3	1367.7	
5400.8	1366.6	5437.1	1366.1	5450	1366.508	5497.2	1368	5524.3	1369.1	
5586.3	1372	5615.7	1373.3	5669.9	1375.9	5691.4	1377.7	5694	1377.7	

Manning's n	Values	num=	3	Station	n Val
4900	.053	5200	.07	5450	.051

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	5200	5450		116	58		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1373.75	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.	0.053	0.070
0.051				
W. S. Elev (ft)	1373.75	Reach Len. (ft)	116.00	58.00
174.00				
Crit W. S. (ft)	1362.11	Flow Area (sq ft)	720.59	2343.02
680.87				
E. G. Slope (ft/ft)	0.000012	Area (sq ft)	720.59	2343.02
680.87				
Q Total (cfs)	1140.00	Flow (cfs)	192.52	752.29
195.20				
Top Width (ft)	719.23	Top Width (ft)	294.10	250.00
175.14				
Vel Total (ft/s)	0.30	Avg. Vel. (ft/s)	0.27	0.32
0.29				
Max Chl Dpth (ft)	13.25	Hydr. Depth (ft)	2.45	9.37
3.89				
Conv. Total (cfs)	333090.0	Conv. (cfs)	56250.1	219806.5
57033.5				
Length Wtd. (ft)	58.00	Wetted Per. (ft)	295.40	252.19
175.29				
Min Ch El (ft)	1360.50	Shear (lb/sq ft)	0.00	0.01
0.00				
Alpha	1.02	Stream Power (lb/ft s)	0.00	0.00
0.00				
Frctn Loss (ft)		Cum Volume (acre-ft)	38.86	60.90
18.75				
C & E Loss (ft)		Cum SA (acres)	39.47	20.71
14.00				

Existing rep

CROSS SECTION OUTPUT Profile #PF 2

E. G. Elev (ft)	1373.75	Element	Left OB	Channel
Right OB Vel Head (ft)	0.00	Wt. n-Val.		0.070
W. S. Elev (ft)	1373.75	Reach Len. (ft)	116.00	58.00
174.00 Crit W. S. (ft)	1362.11	Flow Area (sq ft)		2342.08
E. G. Slope (ft/ft)	0.000030	Area (sq ft)		2342.08
Q Total (cfs)	1140.00	Flow (cfs)		1140.00
Top Width (ft)	250.00	Top Width (ft)		250.00
Vel Total (ft/s)	0.49	Avg. Vel. (ft/s)		0.49
Max Chl Dpth (ft)	13.25	Hydr. Depth (ft)		9.37
Conv. Total (cfs)	208870.6	Conv. (cfs)		208870.6
Length Wtd. (ft)	58.00	Wetted Per. (ft)		271.98
Min Ch El (ft)	1360.50	Shear (lb/sq ft)		0.02
Alpha	1.00	Stream Power (lb/ft s)		0.01
Frctn Loss (ft)		Cum Volume (acre-ft)	21.06	65.96
6.00		Cum SA (acres)	9.79	20.26
C & E Loss (ft)				
3.08				

CULVERT REACH: Reach-1 RIVER: RIVER-1 RS: 1.573

INPUT

Description:
 Distance from Upstream XS = .5
 Deck/Roadway Width = 57
 Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates

num=	2		
Sta Hi	Cord Lo	Sta Hi	Cord Lo
5000	1373	0	5700
			1373
			0

Upstream Bridge Cross Section Data

Station	Elevation	Data	num=	30					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4900	1373.8	5000	1373	5050	1372.7	5065.9	1372.6	5100.8	1371
5134	1368.7	5143.6	1368.4	5150	1369.1	5183.5	1367.3	5200	1361.202
5201.9	1360.5	5221	1360.5	5239.9	1360.5	5245.5	1360.5	5262.1	1360.5
5269.4	1360.5	5298.1	1360.5	5312.5	1368.4	5343.4	1367.6	5367.3	1367.7
5400.8	1366.6	5437.1	1366.1	5450	1366.508	5497.2	1368	5524.3	1369.1
5586.3	1372	5615.7	1373.3	5669.9	1375.9	5691.4	1377.7	5694	1377.7

Manning's n Values

num=	3				
Sta	n Val	Sta	n Val	Sta	n Val
4900	.053	5200	.07	5450	.051

Existing rep

Bank Sta: Left Right Coeff Contr. Expan.
 5200 5450 .1 .3

Downstream Deck/Roadway Coordinates
 num= 2
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
 5000 1373 0 5700 1373 0

Downstream Bridge Cross Section Data
 Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5000	1374.6	5073.1	1373.3	5114.4	1371.9	5142.3	1370	5161.8	1365.7
5175	1363.986	5184.9	1362.7	5200	1362.601	5245.8	1362.3	5257.7	1359.7
5280.9	1359.7	5297.2	1362.3	5313	1362.8	5333.8	1362.1	5362.3	1362.7
5400	1362.952	5481.8	1363.5	5496.4	1363.5	5531	1366.9	5562	1372.5
5571.8	1369.6	5600	1371.5	5648.4	1373.7	5690.3	1377.8		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
5000	.053	5200	.07	5400	.051

Bank Sta: Left Right Coeff Contr. Expan.
 5200 5400 .1 .3

Upstream Embankment side slope = 0 hori z. to 1.0 vertical
 Downstream Embankment side slope = 0 hori z. to 1.0 vertical
 Maximum allowable submergence for weir flow = .95
 Elevation at which weir flow begins = 1363.9
 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 1.67
 FHWA Chart # 1 - Concrete Pipe Culvert
 FHWA Scale # 1 - Square edge entrance with headwall
 Solution Criteria = Highest U. S. EG

Culvert	Upstrm Dist	Length	n Value	Entrance Loss Coef	Exit Loss Coef
#1	5	57	.013	.5	1

 Upstream Elevation = 1360.5
 Centerline Station = 5261.8
 Downstream Elevation = 1359.5
 Centerline Station = 5268

CULVERT OUTPUT Profile #PF 1
 Culvert ID : Culvert #1

Culv Q (cfs)	34.82	Culv Ful Lngh (ft)	57.00
# Barrels	1	Culv Vel US (ft/s)	15.90
Q Barrel (cfs)	34.82	Culv Vel DS (ft/s)	15.90
E. G. US. (ft)	1373.75	Culv Inv El Up (ft)	1360.50
W. S. US. (ft)	1373.75	Culv Inv El Dn (ft)	1359.50
E. G. DS (ft)	1364.39	Culv Frctn Ls (ft)	3.53
W. S. DS (ft)	1364.33	Culv Ext Lss (ft)	3.87
Delta EG (ft)	9.37	Culv Ent Lss (ft)	1.96
Delta WS (ft)	9.42	Q Weir (cfs)	1104.83
E. G. IC (ft)	1373.75	Weir Sta Lft (ft)	4905.72
E. G. OC (ft)	1373.75	Weir Sta Rgt (ft)	5625.17
Culvert Control	Outlet	Weir Submerg	0.00
Culv WS Inlet (ft)	1362.17	Weir Max Depth (ft)	0.75

Cul v WS Outlet (ft)	1361.17	Existing rep	Weir Avg Depth (ft)	0.70
Cul v Nml Depth (ft)	1.67		Wr Flw Area (sq ft)	501.09
Cul v Crt Depth (ft)	1.67		Min El Weir Flow (ft)	1373.01

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.

Note: Culvert critical depth exceeds the height of the culvert.

CULVERT OUTPUT Profile #PF 2
Culvert ID : Culvert #1

Cul v Q (cfs)	32.96	Cul v Ful Lngh (ft)	57.00
# Barrels	1	Cul v Vel US (ft/s)	15.05
Q Barrel (cfs)	32.96	Cul v Vel DS (ft/s)	15.05
E. G. US (ft)	1373.75	Cul v Inv El Up (ft)	1360.50
W. S. US (ft)	1373.75	Cul v Inv El Dn (ft)	1359.50
E. G. DS (ft)	1365.35	Cul v Frctn Ls (ft)	3.17
W. S. DS (ft)	1365.32	Cul v Ext Lss (ft)	3.48
Delta EG (ft)	8.40	Cul v Ent Lss (ft)	1.76
Delta WS (ft)	8.43	Q Weir (cfs)	1101.20
E. G. IC (ft)	1374.16	Weir Sta Lft (ft)	4905.92
E. G. OC (ft)	1373.75	Weir Sta Rgt (ft)	5625.14
Culvert Control	Outlet	Weir Submerg	0.00
Cul v WS Inlet (ft)	1362.17	Weir Max Depth (ft)	0.75
Cul v WS Outlet (ft)	1361.17	Weir Avg Depth (ft)	0.70
Cul v Nml Depth (ft)	1.67	Wr Flw Area (sq ft)	499.95
Cul v Crt Depth (ft)	1.67	Min El Weir Flow (ft)	1373.01

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: 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.

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.

Note: Culvert critical depth exceeds the height of the culvert.

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 1.565

INPUT

Description:

Station Elevation Data	num=	24
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
5000 1374.6 5073.1 1373.3 5114.4 1371.9 5142.3 1370		
5175 1363.986 5184.9 1362.7 5200 1362.601 5245.8 1362.3		
5280.9 1359.7 5297.2 1362.3 5313 1362.8 5333.8 1362.1		
5400 1362.952 5481.8 1363.5 5496.4 1363.5 5531 1366.9		
5571.8 1369.6 5600 1371.5 5648.4 1373.7 5690.3 1377.8		

Manning's n Values	num=	3
Sta n Val Sta n Val Sta n Val		
5000 .053 5200 .07 5400 .051		

Existing rep

Bank Sta: Left 5200 Right 5400 Lengths: Left Channel 220.08 Right Channel 210 Right 267.96 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1364.39	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.06	Wt. n-Val.	0.053	0.070
0.051				
W. S. Elev (ft)	1364.33	Reach Len. (ft)	220.08	210.00
267.96				
Crit W. S. (ft)		Flow Area (sq ft)	35.67	466.94
106.24				
E. G. Slope (ft/ft)	0.002712	Area (sq ft)	35.67	466.94
106.24				
Q Total (cfs)	1140.00	Flow (cfs)	66.82	906.85
166.34				
Top Width (ft)	332.55	Top Width (ft)	27.67	200.00
104.88				
Vel Total (ft/s)	1.87	Avg. Vel. (ft/s)	1.87	1.94
1.57				
Max Chl Dpth (ft)	4.63	Hydr. Depth (ft)	1.29	2.33
1.01				
Conv. Total (cfs)	21891.4	Conv. (cfs)	1283.1	17414.1
3194.1				
Length Wtd. (ft)	236.45	Wetted Per. (ft)	27.78	200.51
104.92				
Min Ch El (ft)	1359.70	Shear (lb/sq ft)	0.22	0.39
0.17				
Alpha	1.02	Stream Power (lb/ft s)	0.41	0.77
0.27				
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	37.86	59.03
17.17				
C & E Loss (ft)	0.01	Cum SA (acres)	39.04	20.41
13.44				

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

CROSS SECTION OUTPUT Profile #PF 2

E. G. Elev (ft)	1365.35	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.		0.070
0.051				
W. S. Elev (ft)	1365.32	Reach Len. (ft)	220.08	210.00
267.96				
Crit W. S. (ft)		Flow Area (sq ft)		663.33
109.77				
E. G. Slope (ft/ft)	0.000989	Area (sq ft)		663.33
109.77				
Q Total (cfs)	1140.00	Flow (cfs)		974.52
165.48				
Top Width (ft)	250.00	Top Width (ft)		200.00
50.00				
Vel Total (ft/s)	1.47	Avg. Vel. (ft/s)		1.47

		Exi sti ng. rep		
1. 51	Max Chl Dpth (ft)	5. 61	Hydr. Depth (ft)	3. 32
2. 20	Conv. Total (cfs)	36243. 9	Conv. (cfs)	30982. 7
5261. 1	Length Wtd. (ft)	214. 21	Wetted Per. (ft)	203. 23
52. 03	Min Ch El (ft)	1359. 70	Shear (lb/sq ft)	0. 20
0. 13	Alpha	1. 00	Stream Power (lb/ft s)	0. 30
0. 20	Frctn Loss (ft)	0. 46	Cum Volume (acre-ft)	21. 06 63. 96
5. 79	C & E Loss (ft)	0. 02	Cum SA (acres)	9. 79 19. 96
2. 98				

Warning: The conveyance ratio (upstream 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: RIVER-1
 REACH: Reach-1 RS: 1. 525

INPUT

Description:

Station	Elevation	Data	num=	31	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5000	1371. 7	5040. 1	1368. 8	5070. 2	1365. 3	5090. 8	1364. 5	5125. 6	1363. 8			
5130	1363. 82	5147. 7	1363. 9	5154. 4	1364. 3	5165	1363. 391	5168. 4	1363. 1			
5170	1362. 798	5177	1361. 475	5186. 4	1359. 7	5220	1361. 182	5220. 4	1361. 2			
5225	1361. 212	5230	1361. 225	5240	1361. 251	5296. 1	1361. 4	5349. 6	1361. 2			
5387. 4	1361. 2	5418. 7	1360. 3	5435	1363. 529	5440	1364. 519	5450	1366. 5			
5474. 3	1371. 8	5482. 1	1371. 7	5518. 8	1371. 8	5542. 8	1373. 6	5568. 6	1374			
5602. 9	1376. 5											

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
5000	. 053	5165	. 07
		5240	. 051

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	5165	5240		104. 04	169. 02	212. 04	. 1	. 3

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1364. 08	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0. 03	Wt. n-Val.	0. 053	0. 070
0. 051				
W. S. Elev (ft)	1364. 05	Reach Len. (ft)	104. 04	169. 02
212. 04				
Crit W. S. (ft)		Flow Area (sq ft)	8. 46	227. 81
545. 43				
E. G. Slope (ft/ft)	0. 000742	Area (sq ft)	8. 46	227. 81
545. 43				
Q Total (cfs)	1140. 00	Flow (cfs)	2. 31	275. 44
862. 25				
Top Width (ft)	316. 91	Top Width (ft)	44. 31	75. 00
197. 60				
Vel Total (ft/s)	1. 46	Avg. Vel. (ft/s)	0. 27	1. 21

		Existing	rep	
1.58				
Max Chl Dpth (ft)	4.34	Hydr. Depth (ft)	0.19	3.04
2.76				
Conv. Total (cfs)	41842.1	Conv. (cfs)	84.9	10109.6
31647.5				
Length Wtd. (ft)	192.31	Wetted Per. (ft)	44.34	75.36
197.98				
Min Ch El (ft)	1359.70	Shear (lb/sq ft)	0.01	0.14
0.13				
Alpha	1.05	Stream Power (lb/ft s)	0.00	0.17
0.20				
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	37.74	57.36
15.17				
C & E Loss (ft)	0.00	Cum SA (acres)	38.86	19.74
12.51				

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 2

E. G. Elev (ft)	1364.86	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.28	Wt. n-Val.		0.070
W. S. Elev (ft)	1364.58	Reach Len. (ft)	104.04	169.02
212.04				
Crit W. S. (ft)		Flow Area (sq ft)		267.98
E. G. Slope (ft/ft)	0.007997	Area (sq ft)		267.98
Q Total (cfs)	1140.00	Flow (cfs)		1140.00
Top Width (ft)	75.00	Top Width (ft)		75.00
Vel Total (ft/s)	4.25	Avg. Vel. (ft/s)		4.25
Max Chl Dpth (ft)	4.88	Hydr. Depth (ft)		3.57
Conv. Total (cfs)	12747.8	Conv. (cfs)		12747.8
Length Wtd. (ft)	169.02	Wetted Per. (ft)		79.88
Min Ch El (ft)	1359.70	Shear (lb/sq ft)		1.67
Alpha	1.00	Stream Power (lb/ft s)		7.13
Frctn Loss (ft)	0.45	Cum Volume (acre-ft)	21.06	61.71
5.45				
C & E Loss (ft)	0.06	Cum SA (acres)	9.79	19.29
2.82				

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

CROSS SECTION RIVER: RIVER-1
 REACH: Reach-1 RS: 1.493

Existing rep

INPUT

Description:

Station		Elevation		Data		num=		17	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5000	1371.2	5036.7	1367.7	5053.9	1368.9	5100	1365.1	5110	1363.392
5130	1359.976	5132.2	1359.6	5250	1359.688	5265.4	1359.7	5288	1360
5322.6	1362	5366.7	1363.2	5401.8	1365.2	5467	1365.3	5541.4	1366.1
5550.7	1366.5	5618.6	1370.8						

Manning's n		Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
5000	.053	5130	.07	5250	.051		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	5130	5250		152.95	185.06	337.06	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1363.96	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.	0.053	0.070
0.051				
W. S. Elev (ft)	1363.94	Reach Len. (ft)	152.95	185.06
337.06				
Crit W. S. (ft)		Flow Area (sq ft)	45.88	514.58
322.78				
E. G. Slope (ft/ft)	0.000499	Area (sq ft)	45.88	514.58
322.78				
Q Total (cfs)	1140.00	Flow (cfs)	48.17	643.74
448.09				
Top Width (ft)	272.77	Top Width (ft)	23.18	120.00
129.60				
Vel Total (ft/s)	1.29	Avg. Vel. (ft/s)	1.05	1.25
1.39				
Max Chl Dpth (ft)	4.33	Hydr. Depth (ft)	1.98	4.29
2.49				
Conv. Total (cfs)	51049.1	Conv. (cfs)	2157.0	28826.5
20065.6				
Length Wtd. (ft)	224.58	Wetted Per. (ft)	23.51	120.03
129.69				
Min Ch El (ft)	1359.60	Shear (lb/sq ft)	0.06	0.13
0.08				
Alpha	1.01	Stream Power (lb/ft s)	0.06	0.17
0.11				
Frctn Loss (ft)	0.19	Cum Volume (acre-ft)	37.68	55.91
13.06				
C & E Loss (ft)	0.00	Cum SA (acres)	38.78	19.37
11.72				

Warning: The conveyance ratio (upstream 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 OUTPUT Profile #PF 2

E. G. Elev (ft)	1364.34	Element	Left OB	Channel
Right OB				

Vel Head (ft)	0.07	Existing rep Wt. n-Val.		0.070
W. S. Elev (ft)	1364.28	Reach Len. (ft)	152.95	185.06
337.06 Crit W. S. (ft)		Flow Area (sq ft)		555.66
E. G. Slope (ft/ft)	0.001332	Area (sq ft)		555.66
Q Total (cfs)	1140.00	Flow (cfs)		1140.00
Top Width (ft)	120.00	Top Width (ft)		120.00
Vel Total (ft/s)	2.05	Avg. Vel. (ft/s)		2.05
Max Chl Dpth (ft)	4.68	Hydr. Depth (ft)		4.63
Conv. Total (cfs)	31238.5	Conv. (cfs)		31238.5
Length Wtd. (ft)	185.06	Wetted Per. (ft)		128.92
Min Ch El (ft)	1359.60	Shear (lb/sq ft)		0.36
Alpha	1.00	Stream Power (lb/ft s)		0.74
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	21.06	60.11
5.45 C & E Loss (ft)	0.00	Cum SA (acres)	9.79	18.91
2.82				

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: 1.458

INPUT

Description:

Station	Elevation	Data	num=	19					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5000	1371.2	5041	1369.6	5102.4	1366.1	5124.8	1366.7	5180.2	1365.1
5192.7	1364.1	5231.6	1363.6	5244.3	1363.7	5269.8	1363.4	5295	1360.229
5300	1359.6	5450	1361.76	5550	1363.2	5557.5	1364.2	5580.1	1365.7
5599.9	1367.6	5630.1	1370.9	5675.8	1373	5698.1	1374		

Manning's n Values	num=	3			
Sta	n Val	Sta	n Val	Sta	n Val
5000	.053	5295	.07	5450	.051

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	5295	5450		158	385.2	240		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1363.77	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.05	Wt. n-Val.	0.053	0.070
0.051				
W. S. Elev (ft)	1363.72	Reach Len. (ft)	158.00	385.20
240.00				
Crit W. S. (ft)		Flow Area (sq ft)	53.94	475.33
125.22				
E. G. Slope (ft/ft)	0.001707	Area (sq ft)	53.94	475.33
125.22				

Q Total (cfs)	1140.00	Existing rep Flow (cfs)	87.05	879.73
173.22 Top Width (ft)	331.80	Top Width (ft)	72.89	155.00
103.92 Vel Total (ft/s)	1.74	Avg. Vel. (ft/s)	1.61	1.85
1.38 Max Chl Dpth (ft)	4.12	Hydr. Depth (ft)	0.74	3.07
1.20 Conv. Total (cfs)	27591.9	Conv. (cfs)	2106.8	21292.5
4192.6 Length Wtd. (ft)	351.10	Wetted Per. (ft)	73.09	155.06
103.96 Min Ch El (ft)	1359.60	Shear (lb/sq ft)	0.08	0.33
0.13 Alpha	1.03	Stream Power (lb/ft s)	0.13	0.60
0.18 Frctn Loss (ft)	0.50	Cum Volume (acre-ft)	37.50	53.81
11.32 C & E Loss (ft)	0.00	Cum SA (acres)	38.61	18.78
10.81				

CROSS SECTION OUTPUT

Profile #PF 2

E. G. Elev (ft)	1364.02	Element	Left OB	Channel
Right OB Vel Head (ft)	0.08	Wt. n-Val.		0.070
W. S. Elev (ft)	1363.94	Reach Len. (ft)	158.00	385.20
240.00 Crit W. S. (ft)		Flow Area (sq ft)		509.12
E. G. Slope (ft/ft)	0.002396	Area (sq ft)		509.12
Q Total (cfs)	1140.00	Flow (cfs)		1140.00
Top Width (ft)	155.00	Top Width (ft)		155.00
Vel Total (ft/s)	2.24	Avg. Vel. (ft/s)		2.24
Max Chl Dpth (ft)	4.34	Hydr. Depth (ft)		3.28
Conv. Total (cfs)	23288.6	Conv. (cfs)		23288.6
Length Wtd. (ft)	372.86	Wetted Per. (ft)		160.95
Min Ch El (ft)	1359.60	Shear (lb/sq ft)		0.47
Alpha	1.00	Stream Power (lb/ft s)		1.06
Frctn Loss (ft)	0.58	Cum Volume (acre-ft)	21.06	57.85
5.45 C & E Loss (ft)	0.01	Cum SA (acres)	9.79	18.33
2.82				

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

Existing.rep

CROSS SECTION
REACH: Reach-1

RIVER: RIVER-1
RS: 1.420

INPUT

Description:

Station	Elevation	Data	num=	23	Station	Elevation	Station	Elevation	Station	Elevation
5000	1372.4	5029.5	1371.5	5072.3	1367.9	5130.7	1364.1	5150	1363.6	
5155	1362.985	5175	1360.523	5182.5	1359.6	5322.4	1359.6	5330	1362.037	
5335	1363.641	5338.3	1364.7	5343.9	1364.4	5352.9	1362.8	5379.9	1362	
5392.2	1361.5	5408.2	1361.6	5428.4	1362.5	5453.1	1362.4	5477.5	1362.4	
5500	1362.4	5554.8	1364	5600	1366.4					

Manning's n	Values	num=	3
Station	n Val	Station	n Val
5000	.053	5175	.07
		5330	.051

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	5175	5330		213.94	185.06	173.09	.1
							.3

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1363.27	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.04	Wt. n-Val.	0.053	0.070
0.051				
W. S. Elev (ft)	1363.23	Reach Len. (ft)	213.94	185.06
173.09				
Crit W. S. (ft)		Flow Area (sq ft)	29.82	550.35
164.54				
E. G. Slope (ft/ft)	0.001186	Area (sq ft)	29.82	550.35
164.54				
Q Total (cfs)	1140.00	Flow (cfs)	36.94	934.77
168.29				
Top Width (ft)	358.79	Top Width (ft)	22.01	155.00
181.78				
Vel Total (ft/s)	1.53	Avg. Vel. (ft/s)	1.24	1.70
1.02				
Max Chl Dpth (ft)	3.63	Hydr. Depth (ft)	1.35	3.55
0.91				
Conv. Total (cfs)	33096.8	Conv. (cfs)	1072.5	27138.4
4885.9				
Length Wtd. (ft)	185.59	Wetted Per. (ft)	22.18	155.44
182.06				
Min Ch El (ft)	1359.60	Shear (lb/sq ft)	0.10	0.26
0.07				
Alpha	1.10	Stream Power (lb/ft s)	0.12	0.45
0.07				
Frctn Loss (ft)	0.29	Cum Volume (acre-ft)	37.35	49.28
10.52				
C & E Loss (ft)	0.00	Cum SA (acres)	38.44	17.41
10.03				

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 2

E. G. Elev (ft)	1363.43	Element	Left OB	Channel
-----------------	---------	---------	---------	---------

			Exi sti ng. rep	
Right OB				
Vel Head (ft)	0.04	Wt. n-Val.		0.070
0.051				
W. S. Elev (ft)	1363.39	Reach Len. (ft)	213.94	185.06
173.09				
Crit W. S. (ft)		Flow Area (sq ft)		575.23
177.38				
E. G. Slope (ft/ft)	0.001075	Area (sq ft)		575.23
177.38				
Q Total (cfs)	1140.00	Flow (cfs)		946.20
193.80				
Top Width (ft)	309.66	Top Width (ft)		155.00
154.66				
Vel Total (ft/s)	1.51	Avg. Vel. (ft/s)		1.64
1.09				
Max Chl Dpth (ft)	3.79	Hydr. Depth (ft)		3.71
1.15				
Conv. Total (cfs)	34770.7	Conv. (cfs)		28859.8
5910.9				
Length Wtd. (ft)	184.04	Wetted Per. (ft)		158.31
155.96				
Min Ch El (ft)	1359.60	Shear (lb/sq ft)		0.24
0.08				
Alpha	1.07	Stream Power (lb/ft s)		0.40
0.08				
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	21.06	53.06
4.96				
C & E Loss (ft)	0.00	Cum SA (acres)	9.79	16.96
2.40				

Warning: Divided flow computed for this cross-section.

CROSS SECTION RIVER: RIVER-1
 REACH: Reach-1 RS: 1.385

INPUT

Description:

Station	Elevation	Data	num=	12							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5000	1372.4	5026.3	1371.8	5087.1	1367.7	5136	1364.5	5172.4	1361.9		
5190	1360.148	5195.5	1359.6	5595	1362.738	5602.9	1362.8	5635.2	1364.4		
5657.4	1365.5	5718.9	1367.8								

Manning's n Values	num=	3	
Sta	n Val	Sta	n Val
5000	.053	5190	.07
		5595	.051

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	5190	5595		176.94	180	205.02	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1362.98	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.	0.053	0.070
0.051				
W. S. Elev (ft)	1362.95	Reach Len. (ft)	176.94	180.00
205.02				
Crit W. S. (ft)		Flow Area (sq ft)	41.48	726.68
1.61				

E. G. Slope (ft/ft)	0.002185	Existing rep Area (sq ft)	41.48	726.68
1.61				
Q Total (cfs)	1140.00	Flow (cfs)	74.78	1064.57
0.65				
Top Width (ft)	448.08	Top Width (ft)	32.24	405.00
10.84				
Vel Total (ft/s)	1.48	Avg. Vel. (ft/s)	1.80	1.46
0.40				
Max Chl Dpth (ft)	3.35	Hydr. Depth (ft)	1.29	1.79
0.15				
Conv. Total (cfs)	24389.2	Conv. (cfs)	1599.9	22775.4
13.9				
Length Wtd. (ft)	180.00	Wetted Per. (ft)	32.36	405.04
10.84				
Min Ch El (ft)	1359.60	Shear (lb/sq ft)	0.17	0.24
0.02				
Alpha	1.01	Stream Power (lb/ft s)	0.32	0.36
0.01				
Frctn Loss (ft)	0.49	Cum Volume (acre-ft)	37.18	46.56
10.19				
C & E Loss (ft)	0.01	Cum SA (acres)	38.31	16.22
9.64				

CROSS SECTION OUTPUT Profile #PF 2

E. G. Elev (ft)	1363.18	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.		0.070
W. S. Elev (ft)	1363.15	Reach Len. (ft)	176.94	180.00
205.02				
Crit W. S. (ft)		Flow Area (sq ft)		808.89
E. G. Slope (ft/ft)	0.001772	Area (sq ft)		808.89
Q Total (cfs)	1140.00	Flow (cfs)		1140.00
Top Width (ft)	405.00	Top Width (ft)		405.00
Vel Total (ft/s)	1.41	Avg. Vel. (ft/s)		1.41
Max Chl Dpth (ft)	3.55	Hydr. Depth (ft)		2.00
Conv. Total (cfs)	27078.3	Conv. (cfs)		27078.3
Length Wtd. (ft)	180.00	Wetted Per. (ft)		408.45
Min Ch El (ft)	1359.60	Shear (lb/sq ft)		0.22
Alpha	1.00	Stream Power (lb/ft s)		0.31
Frctn Loss (ft)	0.41	Cum Volume (acre-ft)	21.06	50.12
4.61				
C & E Loss (ft)	0.01	Cum SA (acres)	9.79	15.77
2.09				

CROSS SECTION
REACH: Reach-1

RIVER: RIVER-1
RS: 1.351

Existing rep

INPUT

Description:

Station		Elevation		Data		num=		17	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5027.7	1368.9	5062.6	1368.3	5123.1	1365.9	5176	1362.2	5200	1360.106
5205.8	1359.6	5350.8	1359.6	5355	1360.456	5365	1362.494	5366.5	1362.8
5408.2	1363	5459.7	1362.7	5493.1	1362.8	5562.9	1362.6	5603.8	1363.7
5628.7	1364.3	5695.5	1366.3						

Manning's n		Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
5027.7	.053	5200	.07	5355	.051		

Bank	Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
		5200	5355		570	244	92		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

Right OB	E. G. Elev (ft)		1362.48	Element		Left OB	Channel
	Vel Head (ft)		0.09	Wt. n-Val.		0.053	0.070
	0.051						
	W. S. Elev (ft)		1362.38	Reach Len. (ft)		570.00	244.00
	92.00						
	Crit W. S. (ft)			Flow Area (sq ft)		29.79	428.28
	9.12						
	E. G. Slope (ft/ft)		0.003562	Area (sq ft)		29.79	428.28
	9.12						
	Q Total (cfs)		1140.00	Flow (cfs)		56.74	1067.99
	15.27						
	Top Width (ft)		191.09	Top Width (ft)		26.63	155.00
	9.46						
	Vel Total (ft/s)		2.44	Avg. Vel. (ft/s)		1.90	2.49
	1.67						
	Max Chl Dpth (ft)		2.78	Hydr. Depth (ft)		1.12	2.76
	0.96						
	Conv. Total (cfs)		19099.8	Conv. (cfs)		950.6	17893.3
	255.8						
	Length Wtd. (ft)		254.09	Wetted Per. (ft)		26.73	155.11
	9.66						
	Min Ch El (ft)		1359.60	Shear (lb/sq ft)		0.25	0.61
	0.21						
	Alpha		1.02	Stream Power (lb/ft s)		0.47	1.53
	0.35						
	Frctn Loss (ft)		0.19	Cum Volume (acre-ft)		37.03	44.18
	10.17						
	C & E Loss (ft)		0.03	Cum SA (acres)		38.19	15.07
	9.60						

Warning: The conveyance ratio (upstream 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 OUTPUT Profile #PF 2

Right OB	E. G. Elev (ft)		1362.76	Element		Left OB	Channel
----------	-----------------	--	---------	---------	--	---------	---------

Vel Head (ft)	0.09	Existing rep Wt. n-Val.		0.070
W. S. Elev (ft)	1362.67	Reach Len. (ft)	570.00	244.00
92.00 Crit W. S. (ft)		Flow Area (sq ft)		472.46
E. G. Slope (ft/ft)	0.003047	Area (sq ft)		472.46
Q Total (cfs)	1140.00	Flow (cfs)		1140.00
Top Width (ft)	155.00	Top Width (ft)		155.00
Vel Total (ft/s)	2.41	Avg. Vel. (ft/s)		2.41
Max Chl Dpth (ft)	3.07	Hydr. Depth (ft)		3.05
Conv. Total (cfs)	20652.5	Conv. (cfs)		20652.5
Length Wtd. (ft)	244.00	Wetted Per. (ft)		159.88
Min Ch El (ft)	1359.60	Shear (lb/sq ft)		0.56
Alpha	1.00	Stream Power (lb/ft s)		1.36
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	21.06	47.47
4.61 C & E Loss (ft)	0.03	Cum SA (acres)	9.79	14.61
2.09				

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: RIVER-1
REACH: Reach-1 RS: 1.305

INPUT

Description:

Station	Elevation	Data	num=	12							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5000	1369.3	5102	1365.8	5121	1365.1	5178	1363.2	5227	1359.6		
5799	1359.6	5815	1361.9	5836	1362.4	5876	1364.2	5904	1365.1		
5952	1367.1	6018	1369.2								

Manning's n Values	num=	3			
Sta	n Val	Sta	n Val	Sta	n Val
5000	.053	5227	.07	5799	.051

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	5227	5799		89	188	155		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1362.26	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.01	Wt. n-Val.	0.053	0.070
0.051				
W. S. Elev (ft)	1362.25	Reach Len. (ft)	89.00	188.00
155.00				

		Existing	rep		
Crit W. S. (ft)		Flow Area (sq ft)	47.94	1518.12	
26.70		Area (sq ft)	47.94	1518.12	
E. G. Slope (ft/ft)	0.000314	Flow (cfs)	28.71	1094.66	
26.70		Top Width (ft)	36.13	572.00	
Q Total (cfs)	1140.00	Avg. Vel. (ft/s)	0.60	0.72	
16.63		Hydr. Depth (ft)	1.33	2.65	
Top Width (ft)	638.99	Conv. (cfs)	1620.1	61774.5	
30.87		Wetted Per. (ft)	36.22	572.00	
Vel Total (ft/s)	0.72	Shear (lb/sq ft)	0.03	0.05	
0.62		Stream Power (lb/ft s)	0.02	0.04	
Max Chl Dpth (ft)	2.65	Cum Volume (acre-ft)	36.52	38.73	
0.86		Cum SA (acres)	37.78	13.03	
Conv. Total (cfs)	64332.9				
938.3					
Length Wtd. (ft)	186.09				
31.04					
Min Ch El (ft)	1359.60				
0.02					
Alpha	1.00				
0.01					
Frctn Loss (ft)	0.17				
10.13					
C & E Loss (ft)	0.02				
9.55					

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

CROSS SECTION OUTPUT Profile #PF 2

		Element	Left OB	Channel
E. G. Elev (ft)	1362.60	W. n-Val.		0.070
Right OB		Reach Len. (ft)	89.00	188.00
Vel Head (ft)	0.01	Flow Area (sq ft)		1709.30
W. S. Elev (ft)	1362.59	Area (sq ft)		1709.30
155.00		Flow (cfs)		1140.00
Crit W. S. (ft)		Top Width (ft)		572.00
E. G. Slope (ft/ft)	0.000233	Avg. Vel. (ft/s)		0.67
Q Total (cfs)	1140.00	Hydr. Depth (ft)		2.99
Top Width (ft)	572.00	Conv. (cfs)		74757.2
Vel Total (ft/s)	0.67	Wetted Per. (ft)		577.98
Max Chl Dpth (ft)	2.99	Shear (lb/sq ft)		0.04
Conv. Total (cfs)	74757.2	Stream Power (lb/ft s)		0.03
Length Wtd. (ft)	188.00	Cum Volume (acre-ft)	21.06	41.36
Min Ch El (ft)	1359.60			
Alpha	1.00			
Frctn Loss (ft)	0.12			
4.61				

C & E Loss (ft) 2.09 Existing rep Cum SA (acres) 0.01 9.79 12.58

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

CROSS SECTION REACH: Reach-1 RIVER: RIVER-1 RS: 1.269

INPUT

Description:

Station	Elevation	Data	num=	22	Station	Elevation	Station	Elevation	Station	Elevation
5000	1369.8				5130	1364.4	5169	1363.4	5200	1364.6
5244	1365.6				5324	1364.6	5360	1364.7	5402	1364.4
5472	1364				5529	1363.118	5547	1359.6	5673	1359.7
5685	1360.2				5725	1363.3	5779	1364.8	5824	1366.5
5894	1368.5									

Manning's n	Values	num=	3
Station	n Val	Station	n Val
5000	.053	5529	.07
		5685	.051

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	5529	5685		1	30		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1362.08	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.19	Wt. n-Val.		0.070
0.051				
W. S. Elev (ft)	1361.89	Reach Len. (ft)	1.00	30.00
30.00				
Crit W. S. (ft)	1360.95	Flow Area (sq ft)		319.42
11.32				
E. G. Slope (ft/ft)	0.009796	Area (sq ft)		319.42
11.32				
Q Total (cfs)	1140.00	Flow (cfs)		1110.95
29.05				
Top Width (ft)	163.10	Top Width (ft)		149.73
13.37				
Vel Total (ft/s)	3.45	Avg. Vel. (ft/s)		3.48
2.57				
Max Chl Dpth (ft)	2.29	Hydr. Depth (ft)		2.13
0.85				
Conv. Total (cfs)	11518.1	Conv. (cfs)		11224.6
293.5				
Length Wtd. (ft)	30.00	Wetted Per. (ft)		149.97
13.47				
Min Ch El (ft)	1359.60	Shear (lb/sq ft)		1.30
0.51				
Alpha	1.01	Stream Power (lb/ft s)		4.53
1.32				
Frctn Loss (ft)		Cum Volume (acre-ft)	36.48	34.76
10.06				
C & E Loss (ft)		Cum SA (acres)	37.74	11.47
9.48				

Existing rep

CROSS SECTION OUTPUT Profile #PF 2

E. G. Elev (ft)	1362.46	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.14	Wt. n-Val.		0.070
W. S. Elev (ft)	1362.33	Reach Len. (ft)	1.00	30.00
30.00				
Crit W. S. (ft)	1360.94	Flow Area (sq ft)		384.62
E. G. Slope (ft/ft)	0.005771	Area (sq ft)		384.62
Q Total (cfs)	1140.00	Flow (cfs)		1140.00
Top Width (ft)	151.94	Top Width (ft)		151.94
Vel Total (ft/s)	2.96	Avg. Vel. (ft/s)		2.96
Max Chl Dpth (ft)	2.73	Hydr. Depth (ft)		2.53
Conv. Total (cfs)	15006.8	Conv. (cfs)		15006.8
Length Wtd. (ft)	30.00	Wetted Per. (ft)		154.34
Min Ch El (ft)	1359.60	Shear (lb/sq ft)		0.90
Alpha	1.00	Stream Power (lb/ft s)		2.66
Frctn Loss (ft)		Cum Volume (acre-ft)	21.06	36.84
4.61				
C & E Loss (ft)		Cum SA (acres)	9.79	11.02
2.09				

CULVERT REACH: Reach-1 RIVER: RIVER-1 RS: 1.266

INPUT

Description:

Distance from Upstream XS = .5

Deck/Roadway Width = 29

Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates

num= 21			
Sta	Hi	Cord	Lo Cord
5000	1369.8		0
5169	1363.4		0
5298	1365.6		0
5402	1364.4		0
5547	1360		0
5700	1362.1		0
5824	1366.5		0
5071	1367.4		0
5200	1364.6		0
5324	1364.6		0
5472	1364		0
5673	1360		0
5725	1363.3		0
5894	1368.5		0
5130	1364.4		0
5244	1365.6		0
5360	1364.7		0
5525	1363.9		0
5685	1360.2		0
5779	1364.8		0
5929	1369.1		0

Upstream Bridge Cross Section Data

Station Elevation Data num= 22							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5000	1369.8	5071	1367.4	5130	1364.4	5169	1363.4
5244	1365.6	5298	1365.6	5324	1364.6	5360	1364.7
						5402	1364.4

5472	1364	5525	1363.9	5529	1363.118	5547	1359.6	5673	1359.7
5685	1360.2	5700	1362.1	5725	1363.3	5779	1364.8	5824	1366.5
5894	1368.5	5929	1369.1						

Existing rep
 Manni ng' s n Val ues num= 3
 Sta n Val Sta n Val Sta n Val
 5000 .053 5529 .07 5685 .051

Bank Sta: Left Right Coeff Contr. Expan.
 5529 5685 .1 .3

Downstream Deck/Roadway Coordi nates

num= 21														
Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
5000	1369.8		0		5071	1367.4		0		5130	1364.4		0	
5169	1363.4		0		5200	1364.6		0		5244	1365.6		0	
5298	1365.6		0		5324	1364.6		0		5360	1364.7		0	
5402	1364.4		0		5472	1364		0		5525	1363.9		0	
5547	1360		0		5673	1360		0		5685	1360.2		0	
5700	1362.1		0		5725	1363.3		0		5779	1364.8		0	
5824	1366.5		0		5894	1368.5		0		5929	1369.1		0	

Downstream Bridge Cross Secti on Data

Stati on Elevati on Data num= 22									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5000	1369.8	5071	1367.4	5130	1364.4	5169	1363.4	5200	1364.6
5244	1365.6	5298	1365.6	5324	1364.6	5360	1364.7	5402	1364.4
5472	1364	5525	1363.9	5547	1359.6	5560	1359.61	5673	1359.7
5685	1360.2	5700	1362.1	5725	1363.3	5779	1364.8	5824	1366.5
5894	1368.5	5929	1369.1						

Manni ng' s n Val ues num= 3
 Sta n Val Sta n Val Sta n Val
 5000 .053 5560 .07 5673 .051

Bank Sta: Left Right Coeff Contr. Expan.
 5560 5673 .1 .3

Upstream Embankment side slope = 0 hori z. to 1.0 verti cal
 Downstream Embankment side slope = 0 hori z. to 1.0 verti cal
 Maxi m al l owabl e submergence for wei r fl ow = .95
 Elevati on at whi ch wei r fl ow begi ns =
 Energy head used i n spi ll way desi gn =
 Spi ll way hei ght used i n desi gn =
 Wei r crest shape = Broad Crested

Number of Culverts = 1

Culvert Name	Shape	Ri se	Span
Culvert #1	Ci rcul ar	1.5	
FHWA Chart # 1 - Concrete Pi pe Culvert			
FHWA Scale # 1 - Square edge entrance wi th headwal l			
Soluti on Cri teri a = Hi ghest U. S. EG			
Culvert Upstrm Di st	Length	n Value	Entrance Loss Coef
.5	29	.013	.5
Upstream Elevati on	= 1358		
Centerl i ne Stati on	= 5680		
Downstream Elevati on	= 1357		
Centerl i ne Stati on	= 5680		

CULVERT OUTPUT Profile #PF 1
 Culvert ID : Culvert #1

Cul v Q (cfs)	3. 73	Exi sti ng. rep	
# Barrel s	1	Cul v Ful Lngh (ft)	29. 00
Q Barrel (cfs)	3. 73	Cul v Vel US (ft/s)	2. 11
E. G. US. (ft)	1362. 08	Cul v Vel DS (ft/s)	2. 11
W. S. US. (ft)	1361. 89	Cul v Inv El Up (ft)	1358. 00
E. G. DS (ft)	1362. 01	Cul v Inv El Dn (ft)	1357. 00
W. S. DS (ft)	1361. 80	Cul v Frctn Ls (ft)	0. 04
Del ta EG (ft)	0. 07	Cul v Ext Lss (ft)	
Del ta WS (ft)	0. 09	Cul v Ent Lss (ft)	0. 03
E. G. IC (ft)	1362. 10	Q Wei r (cfs)	1136. 27
E. G. OC (ft)	1362. 08	Wei r Sta Lft (ft)	5535. 10
Culvert Control	Outlet	Wei r Sta Rgt (ft)	5700. 22
Cul v WS Inlet (ft)	1359. 50	Wei r Submerg	0. 85
Cul v WS Outlet (ft)	1358. 50	Wei r Max Depth (ft)	2. 11
Cul v Nml Depth (ft)		Wei r Avg Depth (ft)	1. 92
Cul v Crt Depth (ft)	0. 74	Wr Flw Area (sq ft)	317. 02
		Min El Wei r Flow (ft)	1360. 01

CULVERT OUTPUT Profile #PF 2
Culvert ID : Culvert #1

Cul v Q (cfs)	3. 34	Cul v Ful Lngh (ft)	29. 00
# Barrel s	1	Cul v Vel US (ft/s)	1. 89
Q Barrel (cfs)	3. 34	Cul v Vel DS (ft/s)	1. 89
E. G. US. (ft)	1362. 47	Cul v Inv El Up (ft)	1358. 00
W. S. US. (ft)	1362. 33	Cul v Inv El Dn (ft)	1357. 00
E. G. DS (ft)	1362. 41	Cul v Frctn Ls (ft)	0. 03
W. S. DS (ft)	1362. 22	Cul v Ext Lss (ft)	
Del ta EG (ft)	0. 06	Cul v Ent Lss (ft)	0. 03
Del ta WS (ft)	0. 11	Q Wei r (cfs)	1136. 67
E. G. IC (ft)	1362. 46	Wei r Sta Lft (ft)	5533. 11
E. G. OC (ft)	1362. 47	Wei r Sta Rgt (ft)	5707. 54
Culvert Control	Outlet	Wei r Submerg	0. 94
Cul v WS Inlet (ft)	1359. 50	Wei r Max Depth (ft)	2. 46
Cul v WS Outlet (ft)	1358. 50	Wei r Avg Depth (ft)	2. 16
Cul v Nml Depth (ft)		Wr Flw Area (sq ft)	376. 66
Cul v Crt Depth (ft)	0. 70	Min El Wei r Flow (ft)	1360. 01

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: RIVER-1
REACH: Reach-1 RS: 1. 263

INPUT

Descripti on:

Station	Elevation	Data	num=	22					
Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
5000	1369. 8	5071	1367. 4	5130	1364. 4	5169	1363. 4	5200	1364. 6
5244	1365. 6	5298	1365. 6	5324	1364. 6	5360	1364. 7	5402	1364. 4
5472	1364	5525	1363. 9	5547	1359. 6	5560	1359. 61	5673	1359. 7
5685	1360. 2	5700	1362. 1	5725	1363. 3	5779	1364. 8	5824	1366. 5
5894	1368. 5	5929	1369. 1						

Manning's n Values	num=	3
Sta n Val	Sta n Val	Sta n Val
5000 . 053	5560 . 07	5673 . 051

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	5560	5673		19. 95	129	105	. 1
							. 3

CROSS SECTION OUTPUT	Profile #PF	Existing rep		
	1			
E. G. Elev (ft)	1362.01	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.20	Wt. n-Val.	0.053	0.070
0.051				
W. S. Elev (ft)	1361.80	Reach Len. (ft)	19.95	129.00
105.00				
Crit W. S. (ft)		Flow Area (sq ft)	41.00	242.75
32.39				
E. G. Slope (ft/ft)	0.009773	Area (sq ft)	41.00	242.75
32.39				
Q Total (cfs)	1140.00	Flow (cfs)	170.17	848.15
121.68				
Top Width (ft)	161.93	Top Width (ft)	24.27	113.00
24.66				
Vel Total (ft/s)	3.61	Avg. Vel. (ft/s)	4.15	3.49
3.76				
Max Chl Dpth (ft)	2.20	Hydr. Depth (ft)	1.69	2.15
1.31				
Conv. Total (cfs)	11531.4	Conv. (cfs)	1721.3	8579.3
1230.8				
Length Wtd. (ft)	116.31	Wetted Per. (ft)	24.49	113.00
24.77				
Min Ch El (ft)	1359.61	Shear (lb/sq ft)	1.02	1.31
0.80				
Alpha	1.01	Stream Power (lb/ft s)	4.24	4.58
3.00				
Frctn Loss (ft)	1.81	Cum Volume (acre-ft)	36.47	34.57
10.05				
C & E Loss (ft)	0.07	Cum SA (acres)	37.74	11.38
9.46				

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

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

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

CROSS SECTION OUTPUT	Profile #PF			
	2			
E. G. Elev (ft)	1362.41	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.19	Wt. n-Val.		0.070
0.051				
W. S. Elev (ft)	1362.22	Reach Len. (ft)	19.95	129.00
105.00				
Crit W. S. (ft)		Flow Area (sq ft)		289.45
35.70				
E. G. Slope (ft/ft)	0.007697	Area (sq ft)		289.45
35.70				
Q Total (cfs)	1140.00	Flow (cfs)		993.93
146.07				
Top Width (ft)	130.00	Top Width (ft)		113.00

			Exi sti ng. rep		
17. 00	Vel Total (ft/s)	3. 51	Avg. Vel. (ft/s)		3. 43
4. 09	Max Chl Dpth (ft)	2. 61	Hydr. Depth (ft)		2. 56
2. 10	Conv. Total (cfs)	12993. 8	Conv. (cfs)		11328. 9
1665. 0	Length Wtd. (ft)	127. 46	Wetted Per. (ft)		115. 61
18. 43	Min Ch El (ft)	1359. 61	Shear (lb/sq ft)		1. 20
0. 93	Alpha	1. 01	Stream Power (lb/ft s)		4. 13
3. 81	Frctn Loss (ft)	1. 55	Cum Volume (acre-ft)	21. 06	36. 61
4. 59	C & E Loss (ft)	0. 07	Cum SA (acres)	9. 79	10. 92
2. 08					

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

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

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

CROSS SECTION RIVER: RIVER-1
 REACH: Reach-1 RS: 1.239

INPUT

Description:

Station	Elevation	Data	num=	37					
Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
5070	1367.2	5102	1366.2	5148	1364	5177	1362.7	5200	1363.7
5228	1364.3	5251	1363.7	5301	1363.7	5316	1364.3	5363	1364.2
5404	1365.4	5538	1364.5	5565	1365	5572	1365.1	5579	1363.5
5585	1362.6	5588	1362.5	5597	1363.7	5606	1364.2	5612	1364.4
5626	1365.4	5635	1365.2	5645	1363.8	5650	1362.961	5675	1358.768
5676	1358.6	5685	1357.475	5700	1355.6	5711	1353.1	5720	1357.9
5725	1358.162	5741	1359	5752	1361.1	5764	1363.2	5777	1363.9
5831	1364.7	5840	1365						

Manning's n Values	num=	3
Sta n Val	Sta n Val	Sta n Val
5070 .053	5685 .07	5720 .051

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	5685	5720		50	35	20	.1		.3

CROSS SECTION OUTPUT Profile #PF 1

E. G. El ev (ft)	1360.13	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.95	Wt. n-Val.	0.053	0.070
0.051				
W. S. El ev (ft)	1359.17	Reach Len. (ft)	50.00	35.00
20.00				

		Existing	rep		
Crit W. S. (ft)		Flow Area (sq ft)	11.19	125.63	
15.25		Area (sq ft)	11.19	125.63	
E. G. Slope (ft/ft)	0.028378	Flow (cfs)	54.43	1022.23	
15.25		Top Width (ft)	12.41	35.00	
Q Total (cfs)	1140.00	Avg. Vel. (ft/s)	4.86	8.14	
63.34		Hydr. Depth (ft)	0.90	3.59	
Top Width (ft)	69.32	Conv. (cfs)	323.1	6068.2	
21.90		Wetted Per. (ft)	12.53	36.60	
Vel Total (ft/s)	7.50	Shear (lb/sq ft)	1.58	6.08	
4.15		Stream Power (lb/ft s)	7.70	49.48	
Max Chl Dpth (ft)	6.07	Cum Volume (acre-ft)	36.46	34.02	
0.70		Cum SA (acres)	37.73	11.16	
Conv. Total (cfs)	6767.3				
376.0					
Length Wtd. (ft)	34.83				
21.95					
Min Ch El (ft)	1353.10				
1.23					
Alpha	1.09				
5.11					
Frctn Loss (ft)	1.12				
9.99					
C & E Loss (ft)	0.00				
9.41					

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

CROSS SECTION OUTPUT Profile #PF 2

		Element	Left OB	Channel
E. G. Elev (ft)	1360.79	W. n-Val.		0.070
Right OB		Reach Len. (ft)	50.00	35.00
Vel Head (ft)	0.88	Flow Area (sq ft)		151.30
W. S. Elev (ft)	1359.91	Area (sq ft)		151.30
20.00		Flow (cfs)		1140.00
Crit W. S. (ft)	1358.80	Top Width (ft)		35.00
E. G. Slope (ft/ft)	0.022117	Avg. Vel. (ft/s)		7.53
Q Total (cfs)	1140.00	Hydr. Depth (ft)		4.32
Top Width (ft)	35.00	Conv. (cfs)		7665.5
Vel Total (ft/s)	7.53	Wetted Per. (ft)		41.03
Max Chl Dpth (ft)	6.81	Shear (lb/sq ft)		5.09
Conv. Total (cfs)	7665.5	Stream Power (lb/ft s)		38.36
Length Wtd. (ft)	35.00	Cum Volume (acre-ft)	21.06	35.96
Min Ch El (ft)	1353.10	Cum SA (acres)	9.79	10.70
Alpha	1.00			
Frctn Loss (ft)	1.17			
4.55				
C & E Loss (ft)	0.06			

Existing.rep

2.06

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
 Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
 Warning: The cross section had to be extended vertically during the critical depth calculations.
 Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
 Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

CROSS SECTION RIVER: RIVER-1
 REACH: Reach-1 RS: 1.232

INPUT

Description:

Station	Elevation	Data	num=	28
Sta	Elev	Sta	Elev	Sta Elev
5000	1359	5020.7	1357.6	5037.2 1357.4
5200	1351.6	5281.2	1349.9	5333.5 1350.2
5428.4	1349.9	5459.7	1352.6	5490.9 1360.4
5535	1356.678	5538	1356.45	5548 1355.691
5574.1	1356.7	5575	1356.707	5577 1356.723
5612.6	1360.9	5649.6	1363.7	5676.2 1364.3

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
5000	.053	5538	.07
		5577	.051

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	5538	5577		249.92	210.98		.1	.3
Ineffective Flow			num=	1				
888	Sta L	Sta R	Elev	Permanent				
Left Levee		Station=	5490.9	Elevation=	1360.4			

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1359.00	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.95	Wt. n-Val.	0.053	0.070
0.051				
W. S. Elev (ft)	1358.05	Reach Len. (ft)	249.92	210.98
216.92				
Crit W. S. (ft)	1358.05	Flow Area (sq ft)	16.78	115.38
17.71				
E. G. Slope (ft/ft)	0.036445	Area (sq ft)	16.78	115.38
17.71				
Q Total (cfs)	1140.00	Flow (cfs)	87.55	948.39
104.07				
Top Width (ft)	77.80	Top Width (ft)	21.02	39.00
17.79				
Vel Total (ft/s)	7.61	Avg. Vel. (ft/s)	5.22	8.22

		Existing	rep		
5.88					
Max Chl Dpth (ft)	8.15	Hydr. Depth (ft)	0.80		2.96
1.00					
Conv. Total (cfs)	5971.6	Conv. (cfs)	458.6		4967.9
545.1					
Length Wtd. (ft)	214.04	Wetted Per. (ft)	21.08		39.94
17.88					
Min Ch El (ft)	1352.80	Shear (lb/sq ft)	1.81		6.57
2.25					
Alpha	1.06	Stream Power (lb/ft s)	9.45		54.03
13.24					
Frctn Loss (ft)	0.85	Cum Volume (acre-ft)	36.45		33.93
9.98					
C & E Loss (ft)	0.27	Cum SA (acres)	37.71		11.13
9.40					

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

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

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

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

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

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

CROSS SECTION OUTPUT Profile #PF 2

E. G. Elev (ft)	1359.56	Element	Left OB	Channel
Right OB				
Vel Head (ft)	1.48	Wt. n-Val.		0.070
W. S. Elev (ft)	1358.08	Reach Len. (ft)	249.92	210.98
216.92				
Crit W. S. (ft)	1358.08	Flow Area (sq ft)		116.78
E. G. Slope (ft/ft)	0.055686	Area (sq ft)		116.78
Q Total (cfs)	1140.00	Flow (cfs)		1140.00
Top Width (ft)	39.00	Top Width (ft)		39.00
Vel Total (ft/s)	9.76	Avg. Vel. (ft/s)		9.76
Max Chl Dpth (ft)	5.28	Hydr. Depth (ft)		2.99

Conv. Total (cfs)	4830.9	Existing rep Conv. (cfs)	4830.9
Length Wtd. (ft)	210.98	Wetted Per. (ft)	42.93
Min Ch El (ft)	1352.80	Shear (lb/sq ft)	9.46
Alpha	1.00	Stream Power (lb/ft s)	92.32
Frctn Loss (ft)	1.20	Cum Volume (acre-ft)	21.06
4.55			35.85
C & E Loss (ft)	0.42	Cum SA (acres)	9.79
2.06			10.67

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.

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

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

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

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

Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

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

CROSS SECTION RIVER: RIVER-1
 REACH: Reach-1 RS: 1.192

INPUT

Description:

Station	Elevation	Data	num=	21							
Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
5000	1357	5014.6	1355.8	5033.3	1354.7	5050	1353.9	5084.9	1352.9		
5126	1348.342	5137.2	1347.1	5235.9	1347.2	5241	1348.258	5249.4	1350		
5267.6	1350.1	5274.2	1348.7	5283.2	1347.7	5290.3	1350.1	5294.5	1351		
5321.2	1351.3	5350	1352.3	5404.9	1354.9	5426.8	1356.4	5444.1	1361.1		
5515.7	1361.3										

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
5000	.053	5126	.07
		5241	.051

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	5126	5241		182	100	123	.1
							.3

CROSS SECTION OUTPUT Profile #PF 1

Existing rep

E. G. Elev (ft)	1351.28	Element	Left OB	Channel
Right OB Vel Head (ft)	0.06	Wt. n-Val.	0.053	0.070
0.051 W. S. Elev (ft)	1351.22	Reach Len. (ft)	182.00	100.00
123.00 Crit W. S. (ft)		Flow Area (sq ft)	37.26	458.32
99.25 E. G. Slope (ft/ft)	0.001415	Area (sq ft)	37.26	458.32
99.25 Q Total (cfs)	1140.00	Flow (cfs)	49.84	918.99
171.17 Top Width (ft)	213.70	Top Width (ft)	25.92	115.00
72.78 Vel Total (ft/s)	1.92	Avg. Vel. (ft/s)	1.34	2.01
1.72 Max Chl Dpth (ft)	4.12	Hydr. Depth (ft)	1.44	3.99
1.36 Conv. Total (cfs)	30306.2	Conv. (cfs)	1324.9	24430.8
4550.4 Length Wtd. (ft)	103.79	Wetted Per. (ft)	26.08	115.18
73.65 Min Ch El (ft)	1347.10	Shear (lb/sq ft)	0.13	0.35
0.12 Alpha	1.03	Stream Power (lb/ft s)	0.17	0.70
0.21 Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	36.29	32.54
9.69 C & E Loss (ft)	0.01	Cum SA (acres)	37.58	10.76
9.17				

CROSS SECTION OUTPUT Profile #PF 2

E. G. Elev (ft)	1351.48	Element	Left OB	Channel
Right OB Vel Head (ft)	0.09	Wt. n-Val.		0.070
W. S. Elev (ft)	1351.39	Reach Len. (ft)	182.00	100.00
123.00 Crit W. S. (ft)		Flow Area (sq ft)		478.75
E. G. Slope (ft/ft)	0.002019	Area (sq ft)		478.75
Q Total (cfs)	1140.00	Flow (cfs)		1140.00
Top Width (ft)	115.00	Top Width (ft)		115.00
Vel Total (ft/s)	2.38	Avg. Vel. (ft/s)		2.38
Max Chl Dpth (ft)	4.29	Hydr. Depth (ft)		4.16
Conv. Total (cfs)	25371.4	Conv. (cfs)		25371.4
Length Wtd. (ft)	100.00	Wetted Per. (ft)		121.37
Min Ch El (ft)	1347.10	Shear (lb/sq ft)		0.50
Alpha	1.00	Stream Power (lb/ft s)		1.18

Existing rep

Frctn Loss (ft) 4.55	0.11	Cum Volume (acre-ft)	21.06	34.41
C & E Loss (ft) 2.06	0.02	Cum SA (acres)	9.79	10.30

Warning: The conveyance ratio (upstream 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: RIVER-1
REACH: Reach-1 RS: 1.173

INPUT

Description:

Station	Elevation	Data	num=	20	Station	Elevation	Station	Elevation	Station	Elevation
5000	1356.7	5014.5	1355.4	5029.3	1353.7	5082.8	1351.5	5104.2	1351	
5130.3	1349.3	5148.9	1348.5	5163.7	1347.1	5327.8	1347.1	5334	1348.189	
5350	1351	5359.7	1353.2	5394.3	1355.2	5420.8	1356	5440.8	1357.1	
5483.1	1358.5	5496.3	1359.1	5508	1359.2	5526	1360.4	5550	1361.8	

Manning's n	Station	Value	num=	3	Station	Value
0.053	5000	5104.2	0.07	5334	0.051	

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	5104.2	5334		195	136.95	100.05		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

Parameter	Value	Element	Left OB	Channel
E. G. Elev (ft)	1351.16			
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.	0.053	0.070
0.051				
W. S. Elev (ft)	1351.13	Reach Len. (ft)	195.00	136.95
100.05				
Crit W. S. (ft)		Flow Area (sq ft)	0.34	798.58
24.56				
E. G. Slope (ft/ft)	0.000820	Area (sq ft)	0.34	798.58
24.56				
Q Total (cfs)	1140.00	Flow (cfs)	0.04	1113.03
26.92				
Top Width (ft)	251.79	Top Width (ft)	5.43	229.80
16.56				
Vel Total (ft/s)	1.38	Avg. Vel. (ft/s)	0.13	1.39
1.10				
Max Chl Dpth (ft)	4.03	Hydr. Depth (ft)	0.06	3.48
1.48				
Conv. Total (cfs)	39807.2	Conv. (cfs)	1.5	38865.5
940.2				
Length Wtd. (ft)	139.75	Wetted Per. (ft)	5.44	230.03
16.82				
Min Ch El (ft)	1347.10	Shear (lb/sq ft)	0.00	0.18
0.07				
Alpha	1.00	Stream Power (lb/ft s)	0.00	0.25
0.08				
Frctn Loss (ft)	0.16	Cum Volume (acre-ft)	36.21	31.09
9.52				

C & E Loss (ft)	0.00	Existing rep	37.51	10.36
9.05		Cum SA (acres)		

Warning: The conveyance ratio (upstream 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 OUTPUT Profile #PF 2

E. G. Elev (ft)	1351.35	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.		0.070
W. S. Elev (ft)	1351.32	Reach Len. (ft)	195.00	136.95
100.05				
Crit W. S. (ft)		Flow Area (sq ft)		843.40
E. G. Slope (ft/ft)	0.000732	Area (sq ft)		843.40
Q Total (cfs)	1140.00	Flow (cfs)		1140.00
Top Width (ft)	229.80	Top Width (ft)		229.80
Vel Total (ft/s)	1.35	Avg. Vel. (ft/s)		1.35
Max Chl Dpth (ft)	4.22	Hydr. Depth (ft)		3.67
Conv. Total (cfs)	42148.2	Conv. (cfs)		42148.2
Length Wtd. (ft)	136.95	Wetted Per. (ft)		233.49
Min Ch El (ft)	1347.10	Shear (lb/sq ft)		0.16
Alpha	1.00	Stream Power (lb/ft s)		0.22
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	21.06	32.89
4.55				
C & E Loss (ft)	0.01	Cum SA (acres)	9.79	9.91
2.06				

Warning: The conveyance ratio (upstream 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: RIVER-1
 REACH: Reach-1 RS: 1.147

INPUT

Description:

Station	Elevation	Data	num=	18						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
5000	1353.9	5053	1351.9	5109.9	1351	5143.6	1353.1	5168.7	1350.1	
5252.6	1349.8	5261.6	1348.5	5265	1348.158	5275.5	1347.1	5376.4	1347.1	
5383	1348.282	5403.2	1351.9	5417.7	1354.7	5452.4	1355.1	5467.7	1356.2	
5485.5	1356.7	5513	1358.5	5544.7	1359.3					

Manning's n Values			num=	Existing rep
Sta	n Val	Sta	n Val	Sta
5000	.053	5265	.07	5383
				.051

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	5265	5383		240 232.08	388.08		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1350.99	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.07	Wt. n-Val.	0.053	0.070
0.051				
W. S. Elev (ft)	1350.92	Reach Len. (ft)	240.00	232.08
388.08				
Crit W. S. (ft)		Flow Area (sq ft)	109.06	441.46
19.45				
E. G. Slope (ft/ft)	0.001832	Area (sq ft)	109.06	441.46
19.45				
Q Total (cfs)	1140.00	Flow (cfs)	145.46	965.68
28.87				
Top Width (ft)	235.91	Top Width (ft)	103.17	118.00
14.74				
Vel Total (ft/s)	2.00	Avg. Vel. (ft/s)	1.33	2.19
1.48				
Max Chl Dpth (ft)	3.82	Hydr. Depth (ft)	1.06	3.74
1.32				
Conv. Total (cfs)	26636.4	Conv. (cfs)	3398.6	22563.3
674.5				
Length Wtd. (ft)	235.78	Wetted Per. (ft)	103.33	118.16
14.97				
Min Ch El (ft)	1347.10	Shear (lb/sq ft)	0.12	0.43
0.15				
Alpha	1.08	Stream Power (lb/ft s)	0.16	0.93
0.22				
Frctn Loss (ft)	0.08	Cum Volume (acre-ft)	35.97	29.14
9.47				
C & E Loss (ft)	0.02	Cum SA (acres)	37.27	9.82
9.01				

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 OUTPUT Profile #PF 2

E. G. Elev (ft)	1351.18	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.10	Wt. n-Val.		0.070
W. S. Elev (ft)	1351.08	Reach Len. (ft)	240.00	232.08
388.08				
Crit W. S. (ft)		Flow Area (sq ft)		460.61
E. G. Slope (ft/ft)	0.002360	Area (sq ft)		460.61
Q Total (cfs)	1140.00	Flow (cfs)		1140.00

Top Width (ft)	118.00	Existing rep Top Width (ft)	118.00
Vel Total (ft/s)	2.47	Avg. Vel. (ft/s)	2.47
Max Chl Dpth (ft)	3.98	Hydr. Depth (ft)	3.90
Conv. Total (cfs)	23466.4	Conv. (cfs)	23466.4
Length Wtd. (ft)	232.08	Wetted Per. (ft)	123.89
Min Ch El (ft)	1347.10	Shear (lb/sq ft)	0.55
Alpha	1.00	Stream Power (lb/ft s)	1.36
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)	21.06
4.55			30.84
C & E Loss (ft)	0.03	Cum SA (acres)	9.79
2.06			9.36

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

CROSS SECTION RIVER: RIVER-1
 REACH: Reach-1 RS: 1.103

INPUT

Description:

Station	Elevation	Data	num=	20
Sta	El ev	Sta	El ev	Sta
5000	1355.2	5034	1352.8	5048.3
5145	1348.107	5155.2	1347.1	5404.9
5462.8	1347.1	5632	1347.1	5672.9
5713.1	1351.5	5739.9	1355.9	5759.9

Manning's n Values	num=	3
Sta	n Val	Sta
5000	.053	5145
		5682

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	5145	5682		90.96	232.08	233.04	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E. G. El ev (ft)	1350.88	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.	0.053	0.070
0.051				
W. S. El ev (ft)	1350.88	Reach Len. (ft)	90.96	232.08
233.04				
Crit W. S. (ft)		Flow Area (sq ft)	79.01	1926.92
35.37				
E. G. Slope (ft/ft)	0.000131	Area (sq ft)	79.01	1926.92
35.37				
Q Total (cfs)	1140.00	Flow (cfs)	27.47	1096.11
16.43				
Top Width (ft)	648.13	Top Width (ft)	85.71	537.00
25.42				
Vel Total (ft/s)	0.56	Avg. Vel. (ft/s)	0.35	0.57

		Existing rep		
0.46				
Max Chl Dpth (ft)	3.78	Hydr. Depth (ft)	0.92	3.59
1.39				
Conv. Total (cfs)	99657.9	Conv. (cfs)	2401.0	95821.0
1436.0				
Length Wtd. (ft)	227.70	Wetted Per. (ft)	85.83	537.42
25.57				
Min Ch El (ft)	1347.10	Shear (lb/sq ft)	0.01	0.03
0.01				
Alpha	1.02	Stream Power (lb/ft s)	0.00	0.02
0.01				
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	35.45	22.84
9.22				
C & E Loss (ft)	0.00	Cum SA (acres)	36.75	8.07
8.83				

CROSS SECTION OUTPUT Profile #PF 2

		Element	Left OB	Channel
E. G. Elev (ft)	1351.07			
Right OB				
Vel Head (ft)	0.00	Wt. n-Val.		0.070
W. S. Elev (ft)	1351.06	Reach Len. (ft)	90.96	232.08
233.04				
Crit W. S. (ft)		Flow Area (sq ft)		2025.71
E. G. Slope (ft/ft)	0.000122	Area (sq ft)		2025.71
Q Total (cfs)	1140.00	Flow (cfs)		1140.00
Top Width (ft)	537.00	Top Width (ft)		537.00
Vel Total (ft/s)	0.56	Avg. Vel. (ft/s)		0.56
Max Chl Dpth (ft)	3.96	Hydr. Depth (ft)		3.77
Conv. Total (cfs)	103389.3	Conv. (cfs)		103389.3
Length Wtd. (ft)	232.08	Wetted Per. (ft)		543.35
Min Ch El (ft)	1347.10	Shear (lb/sq ft)		0.03
Alpha	1.00	Stream Power (lb/ft s)		0.02
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	21.06	24.22
4.55				
C & E Loss (ft)	0.00	Cum SA (acres)	9.79	7.61
2.06				

Warning: The conveyance ratio (upstream 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: RIVER-1
 REACH: Reach-1 RS: 1.071

INPUT

Existing rep

Description:

Station	Elevation	Data	num=	26	Station	Elevation	Station	Elevation	Station	Elevation
5071.4	1357.5	5079.9	1357.2	5108.8	1351.4	5148.9	1349.4	5166.2	1350	
5175.4	1350.7	5200.1	1347.843	5206.4	1347.1	5507.2	1347.1	5523.7	1349.8	
5538	1349.5	5591.3	1349.6	5607.6	1349.4	5622.4	1348.1	5632.4	1348	
5667.5	1348.9	5694.7	1348.6	5700	1348.8	5729.1	1349.9	5750	1350	
5784.4	1350.8	5801.3	1351.5	5833.6	1352.4	5857.2	1353.5	5885.3	1356.5	
5921.9	1361.6									

Manning's n	Values	num=	3
Station	n Val	Station	n Val
5071.4	.05	5200	.07
		5700	.05

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	5200	5700		50.04	169.02	480.06	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

	E. G. Elev (ft)		Element	Left OB	Channel
Right OB		1350.84			
Vel Head (ft)	0.050	0.01	Wt. n-Val.	0.050	0.070
W. S. Elev (ft)	480.06	1350.84	Reach Len. (ft)	50.04	169.02
Crit W. S. (ft)	76.74		Flow Area (sq ft)	83.25	1502.31
E. G. Slope (ft/ft)	76.74	0.000254	Area (sq ft)	83.25	1502.31
Q Total (cfs)	38.79	1140.00	Flow (cfs)	43.70	1057.51
Top Width (ft)	85.26	665.14	Top Width (ft)	79.88	500.00
Vel Total (ft/s)	0.51	0.69	Avg. Vel. (ft/s)	0.52	0.70
Max Chl Dpth (ft)	0.90	3.74	Hydr. Depth (ft)	1.04	3.00
Conv. Total (cfs)	2434.8	71549.4	Conv. (cfs)	2742.7	66371.8
Length Wtd. (ft)	85.29	185.36	Wetted Per. (ft)	80.12	500.34
Min Ch El (ft)	0.01	1347.10	Shear (lb/sq ft)	0.02	0.05
Alpha	0.01	1.02	Stream Power (lb/ft s)	0.01	0.03
Frctn Loss (ft)	8.92	0.15	Cum Volume (acre-ft)	35.28	13.70
C & E Loss (ft)	8.53	0.02	Cum SA (acres)	36.57	5.31

Warning: The conveyance ratio (upstream 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 OUTPUT Profile #PF 2

	E. G. Elev (ft)		Element	Left OB	Channel
Right OB		1351.03			

Vel Head (ft)	0.01	Existing rep Wt. n-Val.		0.070
W. S. Elev (ft)	1351.02	Reach Len. (ft)	50.04	169.02
480.06 Crit W. S. (ft)		Flow Area (sq ft)		1594.77
E. G. Slope (ft/ft)	0.000245	Area (sq ft)		1594.77
Q Total (cfs)	1140.00	Flow (cfs)		1140.00
Top Width (ft)	500.00	Top Width (ft)		500.00
Vel Total (ft/s)	0.71	Avg. Vel. (ft/s)		0.71
Max Chl Dpth (ft)	3.92	Hydr. Depth (ft)		3.19
Conv. Total (cfs)	72796.6	Conv. (cfs)		72796.6
Length Wtd. (ft)	169.02	Wetted Per. (ft)		505.74
Min Ch El (ft)	1347.10	Shear (lb/sq ft)		0.05
Alpha	1.00	Stream Power (lb/ft s)		0.03
Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	21.06	14.57
4.55				
C & E Loss (ft)	0.03	Cum SA (acres)	9.79	4.85
2.06				

Warning: The conveyance ratio (upstream 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: RIVER-1
REACH: Reach-1 RS: .963

INPUT

Description:

Station	Elevation	Data	num=	22							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5029.9	1358.7	5116.2	1350.8	5132	1349.849	5151.1	1348.7	5167	1350.2		
5179.03	1352	5200	1352.18	5260.79	1352.7	5381	1352.7	5500.44	1352.7		
6005.11	1352.7	6095.2	1352.7	6129.6	1352.9	6164.7	1349.7	6179.3	1348.6		
6295	1348.8	6300	1348.657	6309	1348.4	6343.7	1351.6	6375.1	1352.5		
6434.4	1355	6480	1356								

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
5029.9	.065	5200	.07
		6300	.065

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	5200	6300		875.05	550	480.15	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1350.67	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.20	Wt. n-Val.	0.065	0.070
0.065				

W. S. Elev (ft)	1350.47	Existing rep	Reach Len. (ft)	875.05	550.00
480.15					
Crit W. S. (ft)	1349.90		Flow Area (sq ft)	42.39	235.68
40.63					
E. G. Slope (ft/ft)	0.015665		Area (sq ft)	42.39	235.68
40.63					
Q Total (cfs)	1140.00		Flow (cfs)	124.31	870.45
145.25					
Top Width (ft)	222.21		Top Width (ft)	47.07	143.72
31.42					
Vel Total (ft/s)	3.58		Avg. Vel. (ft/s)	2.93	3.69
3.57					
Max Chl Dpth (ft)	2.07		Hydr. Depth (ft)	0.90	1.64
1.29					
Conv. Total (cfs)	9108.2		Conv. (cfs)	993.2	6954.6
1160.5					
Length Wtd. (ft)	563.56		Wetted Per. (ft)	47.21	143.80
31.52					
Min Ch El (ft)	1348.60		Shear (lb/sq ft)	0.88	1.60
1.26					
Alpha	1.01		Stream Power (lb/ft s)	2.58	5.92
4.51					
Frctn Loss (ft)	8.77		Cum Volume (acre-ft)	35.21	10.33
8.28					
C & E Loss (ft)	0.02		Cum SA (acres)	36.50	4.06
7.89					

Warning: Divided flow computed for this cross-section.

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

CROSS SECTION OUTPUT Profile #PF 2

E. G. Elev (ft)	1350.85	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.35	Wt. n-Val.		0.070
W. S. Elev (ft)	1350.51	Reach Len. (ft)	875.05	550.00
480.15				
Crit W. S. (ft)	1350.05	Flow Area (sq ft)		241.41
E. G. Slope (ft/ft)	0.025331	Area (sq ft)		241.41
Q Total (cfs)	1140.00	Flow (cfs)		1140.00
Top Width (ft)	144.16	Top Width (ft)		144.16
Vel Total (ft/s)	4.72	Avg. Vel. (ft/s)		4.72
Max Chl Dpth (ft)	1.91	Hydr. Depth (ft)		1.67
Conv. Total (cfs)	7162.8	Conv. (cfs)		7162.8
Length Wtd. (ft)	551.43	Wetted Per. (ft)		146.09
Min Ch El (ft)	1348.60	Shear (lb/sq ft)		2.61
Alpha	1.00	Stream Power (lb/ft s)		12.34

Frctn Loss (ft)	8.76	Existing rep Cum Volume (acre-ft)	21.06	11.01
4.55				
C & E Loss (ft)	0.02	Cum SA (acres)	9.79	3.60
2.06				

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

CROSS SECTION RIVER: RIVER-1
REACH: Reach-1 RS: .859

INPUT

Description:

Station	Elevation	Data	num=	21					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5215.3	1349	5229.1	1348.4	5311.1	1347.4	5383.2	1344.4	5409.1	1346
5574.3	1345.3	5644.2	1344.2	5794.7	1341.2	5805.8	1338.9	5881.8	1338.8
	58851339.486		58901340.557		58951341.629		5900		1342.7
	6000		1343.1		6050		1343.2		6150
	6471.8		1349.8		6250		1344.8		6355.5
									1346.7

Manning's n Values	num=	3	
Sta	n Val	Sta	n Val
5215.3	.05	5794.7	.07
		5890	.05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
5794.7	5890	70	26	36	.1	.3	

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1341.89	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.36	Wt. n-Val.	0.050	0.070
0.050				
W. S. Elev (ft)	1341.53	Reach Len. (ft)	70.00	26.00
36.00				
Crit W. S. (ft)		Flow Area (sq ft)	2.77	235.48
2.22				
E. G. Slope (ft/ft)	0.015442	Area (sq ft)	2.77	235.48
2.22				
Q Total (cfs)	1140.00	Flow (cfs)	3.08	1131.92
5.00				
Top Width (ft)	116.50	Top Width (ft)	16.66	95.30
4.55				
Vel Total (ft/s)	4.74	Avg. Vel. (ft/s)	1.12	4.81
2.25				
Max Chl Dpth (ft)	2.73	Hydr. Depth (ft)	0.17	2.47
0.49				
Conv. Total (cfs)	9173.9	Conv. (cfs)	24.8	9108.9
40.2				
Length Wtd. (ft)	32.44	Wetted Per. (ft)	16.66	95.72
4.65				
Min Ch El (ft)	1338.80	Shear (lb/sq ft)	0.16	2.37
0.46				
Alpha	1.02	Stream Power (lb/ft s)	0.18	11.40

		Existing rep		
1.04	Frctn Loss (ft)	0.14	Cum Volume (acre-ft)	34.76 7.35
8.04	C & E Loss (ft)	0.10	Cum SA (acres)	35.86 2.55
7.69				

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 OUTPUT Profile #PF 2

E. G. Elev (ft)	1342.07	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.28	Wt. n-Val.	0.050	0.070
0.050				
W. S. Elev (ft)	1341.79	Reach Len. (ft)	70.00	26.00
36.00				
Crit W. S. (ft)		Flow Area (sq ft)	8.65	259.80
3.53				
E. G. Slope (ft/ft)	0.010890	Area (sq ft)	8.65	259.80
3.53				
Q Total (cfs)	1140.00	Flow (cfs)	11.85	1119.80
8.35				
Top Width (ft)	130.50	Top Width (ft)	29.46	95.30
5.74				
Vel Total (ft/s)	4.19	Avg. Vel. (ft/s)	1.37	4.31
2.36				
Max Chl Dpth (ft)	2.99	Hydr. Depth (ft)	0.29	2.73
0.62				
Conv. Total (cfs)	10924.1	Conv. (cfs)	113.6	10730.6
80.0				
Length Wtd. (ft)	31.97	Wetted Per. (ft)	29.47	95.72
5.87				
Min Ch El (ft)	1338.80	Shear (lb/sq ft)	0.20	1.85
0.41				
Alpha	1.04	Stream Power (lb/ft s)	0.27	7.95
0.97				
Frctn Loss (ft)	0.15	Cum Volume (acre-ft)	20.97	7.84
4.53				
C & E Loss (ft)	0.07	Cum SA (acres)	9.50	2.09
2.03				

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

CROSS SECTION RIVER: RIVER-1
 REACH: Reach-1 RS: 0.854

INPUT

Description:

Station	Elevation	Data	num=	15							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
5325.8	1348.6	5429.4	1344.4	5446.1	1345.5	5589.5	1345.2	5635.7	1344.4		
5651.4	1341.6	5875.4	1339.7	6023.7	1339.2	6069.9	1340.1	6187.3	1340.6		

6201.6	1343.1	6382.6	1346	Existing.rep	6421.7	1346.4	6505.8	1349.2	6633.4	1352.4
Manning's n Values			num=	3						
Sta	n Val	Sta	n Val	Sta	n Val					
5325.8	.05	5875.4	.07	6069.9	.05					
Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.		
	5875.4	6069.9		72 32	38		.1	.3		

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1341.66	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.	0.050	0.070
0.050				
W. S. Elev (ft)	1341.62	Reach Len. (ft)	72.00	32.00
38.00				
Crit W. S. (ft)		Flow Area (sq ft)	217.86	413.33
152.39				
E. G. Slope (ft/ft)	0.001904	Area (sq ft)	217.86	413.33
152.39				
Q Total (cfs)	1140.00	Flow (cfs)	277.30	632.75
229.95				
Top Width (ft)	541.88	Top Width (ft)	224.13	194.50
123.25				
Vel Total (ft/s)	1.45	Avg. Vel. (ft/s)	1.27	1.53
1.51				
Max Chl Dpth (ft)	2.42	Hydr. Depth (ft)	0.97	2.13
1.24				
Conv. Total (cfs)	26127.9	Conv. (cfs)	6355.5	14502.2
5270.2				
Length Wtd. (ft)	39.91	Wetted Per. (ft)	224.14	194.51
123.34				
Min Ch El (ft)	1339.20	Shear (lb/sq ft)	0.12	0.25
0.15				
Alpha	1.02	Stream Power (lb/ft s)	0.15	0.39
0.22				
Frctn Loss (ft)	0.22	Cum Volume (acre-ft)	34.58	7.16
7.98				
C & E Loss (ft)	0.03	Cum SA (acres)	35.67	2.47
7.64				

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

CROSS SECTION OUTPUT Profile #PF 2

E. G. Elev (ft)	1341.85	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.06	Wt. n-Val.	0.050	0.070
W. S. Elev (ft)	1341.79	Reach Len. (ft)	72.00	32.00
38.00				
Crit W. S. (ft)		Flow Area (sq ft)	133.31	445.46
E. G. Slope (ft/ft)	0.002672	Area (sq ft)	133.31	445.46

Q Total (cfs)	1140.00	Existing rep Flow (cfs)	295.64	844.36
Top Width (ft)	269.90	Top Width (ft)	75.40	194.50
Vel Total (ft/s)	1.97	Avg. Vel. (ft/s)	2.22	1.90
Max Chl Dpth (ft)	2.59	Hydr. Depth (ft)	1.77	2.29
Conv. Total (cfs)	22054.0	Conv. (cfs)	5719.4	16334.6
Length Wtd. (ft)	40.28	Wetted Per. (ft)	76.85	196.20
Min Ch El (ft)	1339.20	Shear (lb/sq ft)	0.29	0.38
Alpha	1.01	Stream Power (lb/ft s)	0.64	0.72
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	20.86	7.63
4.53				
C & E Loss (ft)	0.01	Cum SA (acres)	9.41	2.00
2.03				

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

CROSS SECTION RIVER: RIVER-1
 REACH: Reach-1 RS: 0.848

INPUT

Description:

Station	Elevation	Data	num=	22					
Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
5325.2	1350.3	5467.7	1344.3	5481.5	1345.3	5618.6	1344.9	5632.5	1341.6
5642.1	1343.2	5665.3	1343.1	5670.8	1342.3	5855.7	1340.9	5938.3	1340.4
5987	1339.6	6054.5	1340	6140.9	1340.7	6228.2	1341.3	6231.3	1341.8
6254	1341.9	6261.1	1340.3	6276.9	1343.1	6381.6	1344.7	6497.4	1346.5
6548.8	1348.7	6662.5	1351.4						

Manning's n Values	num=	3
Sta n Val	Sta n Val	Sta n Val
5325.2 .05	5938.3 .07	6140.9 .05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
5938.3	6140.9	45	15	102	.1	.3	

CROSS SECTION OUTPUT Profile #PF 1

E. G. El ev (ft)	1341.41	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.35	Wt. n-Val.	0.050	0.070
0.050				
W. S. El ev (ft)	1341.07	Reach Len. (ft)	45.00	15.00
102.00				
Crit W. S. (ft)	1341.07	Flow Area (sq ft)	36.04	198.97
12.62				
E. G. Slope (ft/ft)	0.054415	Area (sq ft)	36.04	198.97
12.62				
Q Total (cfs)	1140.00	Flow (cfs)	134.39	973.42
32.20				

		Existing	rep		
Top Width (ft)	367.72	Top Width (ft)	104.35	202.60	
60.77					
Vel Total (ft/s)	4.60	Avg. Vel. (ft/s)	3.73	4.89	
2.55					
Max Chl Dpth (ft)	1.46	Hydr. Depth (ft)	0.35	0.98	
0.21					
Conv. Total (cfs)	4887.0	Conv. (cfs)	576.1	4172.9	
138.0					
Length Wtd. (ft)	27.28	Wetted Per. (ft)	104.35	202.61	
60.92					
Min Ch El (ft)	1339.60	Shear (lb/sq ft)	1.17	3.34	
0.70					
Alpha	1.05	Stream Power (lb/ft s)	4.38	16.32	
1.80					
Frctn Loss (ft)	0.63	Cum Volume (acre-ft)	34.37	6.94	
7.90					
C & E Loss (ft)	0.04	Cum SA (acres)	35.40	2.32	
7.56					

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

Warning: Divided flow computed for this cross-section.

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

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

CROSS SECTION OUTPUT Profile #PF 2

		Element	Left OB	Channel
E. G. Elev (ft)	1341.60			
Right OB				
Vel Head (ft)	0.20	Wt. n-Val.	0.050	0.070
W. S. Elev (ft)	1341.40	Reach Len. (ft)	45.00	15.00
102.00				
Crit W. S. (ft)		Flow Area (sq ft)	48.03	266.96
E. G. Slope (ft/ft)	0.020104	Area (sq ft)	48.03	266.96
Q Total (cfs)	1140.00	Flow (cfs)	176.53	963.47
Top Width (ft)	260.90	Top Width (ft)	58.30	202.60
Vel Total (ft/s)	3.62	Avg. Vel. (ft/s)	3.68	3.61
Max Chl Dpth (ft)	1.80	Hydr. Depth (ft)	0.82	1.32
Conv. Total (cfs)	8040.1	Conv. (cfs)	1245.0	6795.1
Length Wtd. (ft)	23.12	Wetted Per. (ft)	58.95	203.31

Min Ch El (ft)	1339.60	Existing rep Shear (lb/sq ft)	1.02	1.65
Alpha	1.00	Stream Power (lb/ft s)	3.76	5.95
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	20.71	7.37
4.53				
C & E Loss (ft)	0.00	Cum SA (acres)	9.30	1.86
2.03				

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

CROSS SECTION RIVER: RIVER-1
 REACH: Reach-1 RS: 0.845

INPUT

Description:

Station	Elevation	Data	num=	28							
Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
5363.4	1352.3	5411.6	1349.3	5523.2	1344.2	5547.6	1345.6	5614.8	1344.9		
5630.1	1341.9	5638.4	1343.6	5661.7	1343.5	5679.3	1342.6	5759.9	1341.7		
5859.7	1340.4	5885	1339.6	5974.8	1338.5	5991.3	1338	6031.1	1338.2		
6052.7	1339.2	6120.7	1340.6	6137.5	1339.6	6167.8	1340.9	6292	1341.3		
6311.7	1342	6334.7	1342	6334.7	1342.1	6357	1343.1	6406.8	1344.4		
6440	1344.4	6570.8	1346.6	6703.6	1350.6						

Manning's n Values	num=	3
Sta n Val	Sta n Val	Sta n Val
5363.4 .05	5974.8 .07	6052.7 .05

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
5974.8	6052.7	81	81	81	.1	.3	

CROSS SECTION OUTPUT Profile #PF 1

E. G. El ev (ft)	1340.53	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.21	Wt. n-Val.	0.050	0.070
0.050				
W. S. El ev (ft)	1340.32	Reach Len. (ft)	81.00	81.00
81.00				
Crit W. S. (ft)		Flow Area (sq ft)	121.81	157.21
40.54				
E. G. Slope (ft/ft)	0.012572	Area (sq ft)	121.81	157.21
40.54				
Q Total (cfs)	1140.00	Flow (cfs)	457.03	597.37
85.60				
Top Width (ft)	273.29	Top Width (ft)	112.45	77.90
82.94				
Vel Total (ft/s)	3.57	Avg. Vel. (ft/s)	3.75	3.80
2.11				
Max Chl Dpth (ft)	2.32	Hydr. Depth (ft)	1.08	2.02
0.49				
Conv. Total (cfs)	10167.3	Conv. (cfs)	4076.1	5327.7
763.5				
Length Wtd. (ft)	81.00	Wetted Per. (ft)	112.47	77.93
82.99				
Min Ch El (ft)	1338.00	Shear (lb/sq ft)	0.85	1.58

		Exi sti ng. rep		
0. 38				
Alpha	1. 06	Stream Power (lb/ft s)	3. 19	6. 02
0. 81				
Frctn Loss (ft)	0. 39	Cum Volume (acre-ft)	34. 29	6. 87
7. 84				
C & E Loss (ft)	0. 04	Cum SA (acres)	35. 28	2. 27
7. 39				

Warning: Di vi ded flow computed for thi s cross-secti on.
 Warning: The conveyance ratio (upstream conveyance di vi ded by downstream conveyance) is less than 0. 7 or greater than 1. 4. Thi s may indi cate the need for addi ti onal cross secti ons.

CROSS SECTI ON OUTPUT Profile #PF 2

E. G. Elev (ft)	1341. 35	El ement	Left OB	Channel
Right OB				
Vel Head (ft)	0. 22	Wt. n-Val .	0. 050	0. 070
0. 050				
W. S. Elev (ft)	1341. 13	Reach Len. (ft)	81. 00	81. 00
81. 00				
Crit W. S. (ft)		Flow Area (sq ft)	72. 80	220. 24
13. 51				
E. G. Slope (ft/ft)	0. 007020	Area (sq ft)	72. 80	220. 24
13. 51				
Q Total (cfs)	1140. 00	Flow (cfs)	313. 14	783. 03
43. 84				
Top Width (ft)	115. 00	Top Width (ft)	29. 80	77. 90
7. 30				
Vel Total (ft/s)	3. 72	Avg. Vel. (ft/s)	4. 30	3. 56
3. 25				
Max Chl Dpth (ft)	3. 13	Hydr. Depth (ft)	2. 44	2. 83
1. 85				
Conv. Total (cfs)	13605. 8	Conv. (cfs)	3737. 2	9345. 3
523. 2				
Length Wtd. (ft)	81. 00	Wetted Per. (ft)	32. 06	77. 93
9. 08				
Min Ch El (ft)	1338. 00	Shear (lb/sq ft)	1. 00	1. 24
0. 65				
Alpha	1. 02	Stream Power (lb/ft s)	4. 28	4. 40
2. 12				
Frctn Loss (ft)	0. 34	Cum Volume (acre-ft)	20. 65	7. 29
4. 51				
C & E Loss (ft)	0. 01	Cum SA (acres)	9. 26	1. 81
2. 02				

Warning: The conveyance ratio (upstream conveyance di vi ded by downstream conveyance) is less than 0. 7 or greater than 1. 4. Thi s may indi cate the need for addi ti onal cross secti ons.

CROSS SECTI ON RI VER: RI VER-1
 REACH: Reach-1 RS: 0. 83

INPUT
 Descri pti on:
 Stati on Elevati on Data num= 17

Sta	Elev	Sta	Elev	Existing rep		Sta	Elev	Sta	Elev
9550	1350	9750	1345	10000	1343.1	10100	1342	10200	1340.2
10280	1337.4	10318	1336.6	10328	1335.9	10335	1335.5	10340	1336
10344	1336.6	10473	1341.4	10500	1341.4	10600	1341.3	10700	1341
11300	1345	11650	1350						

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 9550 .05 10318 .07 10344 .05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 10318 10344 1649.21 2165.65 1050.28 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1340.10	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.09	Wt. n-Val.	0.050	0.070
0.050				
W. S. Elev (ft)	1340.01	Reach Len. (ft)	1649.21	2165.65
1050.28				
Crit W. S. (ft)	1338.45	Flow Area (sq ft)	211.60	103.89
156.18				
E. G. Slope (ft/ft)	0.002524	Area (sq ft)	211.60	103.89
156.18				
Q Total (cfs)	1140.00	Flow (cfs)	529.13	278.25
332.61				
Top Width (ft)	230.17	Top Width (ft)	112.55	26.00
91.62				
Vel Total (ft/s)	2.42	Avg. Vel. (ft/s)	2.50	2.68
2.13				
Max Chl Dpth (ft)	4.51	Hydr. Depth (ft)	1.88	4.00
1.70				
Conv. Total (cfs)	22689.2	Conv. (cfs)	10531.3	5538.0
6619.9				
Length Wtd. (ft)	1681.36	Wetted Per. (ft)	112.60	26.11
91.68				
Min Ch El (ft)	1335.50	Shear (lb/sq ft)	0.30	0.63
0.27				
Alpha	1.02	Stream Power (lb/ft s)	0.74	1.68
0.57				
Frctn Loss (ft)	9.05	Cum Volume (acre-ft)	33.98	6.63
7.66				
C & E Loss (ft)	0.03	Cum SA (acres)	35.08	2.17
7.23				

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less

than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross

section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

E. G. Elev (ft)	1341.00	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.18	Wt. n-Val.	0.050	0.070

		Exi sti ng. rep			
0.050	W. S. Elev (ft)	1340.81	Reach Len. (ft)	1649.21	2165.65
1050.28	Crit W. S. (ft)		Flow Area (sq ft)	144.78	124.71
62.60	E. G. Slope (ft/ft)	0.002825	Area (sq ft)	144.78	124.71
62.60	Q Total (cfs)	1140.00	Flow (cfs)	526.69	399.08
214.23	Top Width (ft)	80.00	Top Width (ft)	38.00	26.00
16.00	Vel Total (ft/s)	3.43	Avg. Vel. (ft/s)	3.64	3.20
3.42	Max Chl Dpth (ft)	5.31	Hydr. Depth (ft)	3.81	4.80
3.91	Conv. Total (cfs)	21449.4	Conv. (cfs)	9909.8	7508.7
4030.8	Length Wtd. (ft)	1705.78	Wetted Per. (ft)	41.42	26.11
19.63	Min Ch El (ft)	1335.50	Shear (lb/sq ft)	0.62	0.84
0.56	Alpha	1.01	Stream Power (lb/ft s)	2.24	2.70
1.93	Frctn Loss (ft)	9.05	Cum Volume (acre-ft)	20.45	6.97
4.44	C & E Loss (ft)	0.05	Cum SA (acres)	9.19	1.71
2.00					

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

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

CROSS SECTION RIVER: RIVER-1
 REACH: Reach-1 RS: 0.42

INPUT

Description:

Station	Elevation	Data	num=	16							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
9500	1345	10000	1333.9	10100	1332.8	10200	1331.5	10242	1331		
10385	1327.8	10387	1326.2	10390	1325.3	10391	1325.8	10395	1328.5		
10400	1330.6	10500	1332.5	10600	1333.2	10725	1335	11400	1340		
11700	1345										

Manning's n Values		num=	3
Sta	n Val	Sta	n Val
9500	.05	10385	.072
		10400	.05

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	10385	10400		1300.55	1850	849.15	.1
							.3

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1331.02	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.41	Wt. n-Val.	0.050	0.072

		Exi sti ng. rep			
0.000	W. S. Elev (ft)	1330.61	Reach Len. (ft)	1300.55	1850.00
849.15	Crit W. S. (ft)	1330.21	Flow Area (sq ft)	175.99	45.95
0.00	E. G. Slope (ft/ft)	0.018462	Area (sq ft)	175.99	45.95
0.00	Q Total (cfs)	1140.00	Flow (cfs)	890.59	249.41
0.00	Top Width (ft)	140.76	Top Width (ft)	125.42	15.00
0.35	Vel Total (ft/s)	5.14	Avg. Vel. (ft/s)	5.06	5.43
0.09	Max Chl Dpth (ft)	5.31	Hydr. Depth (ft)	1.40	3.06
0.00	Conv. Total (cfs)	8390.2	Conv. (cfs)	6554.5	1835.6
0.0	Length Wtd. (ft)	1252.30	Wetted Per. (ft)	125.45	17.06
0.35	Min Ch El (ft)	1325.30	Shear (lb/sq ft)	1.62	3.10
	Alpha	1.00	Stream Power (lb/ft s)	8.18	16.85
	Frctn Loss (ft)	6.85	Cum Volume (acre-ft)	26.64	2.91
5.78	C & E Loss (ft)	0.12	Cum SA (acres)	30.57	1.16
6.12					

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less

than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

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

CROSS SECTION OUTPUT Profile #PF 2

E. G. Elev (ft)	1331.90	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.66	Wt. n-Val.	0.050	0.072
W. S. Elev (ft)	1331.24	Reach Len. (ft)	1300.55	1850.00
849.15		Flow Area (sq ft)	155.51	24.96
Crit W. S. (ft)		Area (sq ft)	155.51	24.96
E. G. Slope (ft/ft)	0.013376	Flow (cfs)	1040.88	99.12
Q Total (cfs)	1140.00	Top Width (ft)	55.00	5.00
Top Width (ft)	60.00	Avg. Vel. (ft/s)	6.69	3.97
Vel Total (ft/s)	6.32	Hydr. Depth (ft)	2.83	4.99
Max Chl Dpth (ft)	5.94	Conv. (cfs)	9000.0	857.0
Conv. Total (cfs)	9857.0	Wetted Per. (ft)	57.23	11.64
Length Wtd. (ft)	1227.64			

Min Ch El (ft)	1325.30	Existing rep Shear (lb/sq ft)	2.27	1.79
Alpha	1.06	Stream Power (lb/ft s)	15.19	7.11
Frctn Loss (ft)	6.70	Cum Volume (acre-ft)	14.76	3.25
3.69				
C & E Loss (ft)	0.18	Cum SA (acres)	7.43	0.94
1.81				

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

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

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

CROSS SECTION RIVER: RIVER-1
 REACH: Reach-1 RS: 0.07

INPUT

Description:

Station	Elevation	Data	num=	18					
Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
8700	1335	8875	1330	9400	1325	10000	1323.5	10100	1323.3
10200	1322.8	10312	1323.3	10322	1322.1	10327	1320.7	10329	1319.1
10331	1320.6	10340	1323	10400	1323	10500	1322.8	10600	1322.5
11200	1325	12000	1330	12600	1335				

Manning's n	Values	num=	3
Sta	n Val	Sta	n Val
8700	.06	10312	.07
		10340	.065

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	10312	10340		1499.98	370	1.11	.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E. G. El ev (ft)	1324.05	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.02	Wt. n-Val.	0.060	0.070
0.065				
W. S. El ev (ft)	1324.03	Reach Len. (ft)	1499.98	370.00
1.11				
Crit W. S. (ft)	1323.39	Flow Area (sq ft)	325.35	63.06
591.81				
E. G. Slope (ft/ft)	0.002583	Area (sq ft)	325.35	63.06
591.81				
Q Total (cfs)	1140.00	Flow (cfs)	343.21	112.53
684.26				
Top Width (ft)	1177.27	Top Width (ft)	522.79	28.00
626.47				
Vel Total (ft/s)	1.16	Avg. Vel. (ft/s)	1.05	1.78
1.16				
Max Chl Dpth (ft)	4.93	Hydr. Depth (ft)	0.62	2.25
0.94				
Conv. Total (cfs)	22429.4	Conv. (cfs)	6752.6	2214.0

Existing rep				
13462.8				
Length Wtd. (ft)	923.73	Wetted Per. (ft)	522.79	29.64
626.48				
Min Ch El (ft)	1319.10	Shear (lb/sq ft)	0.10	0.34
0.15				
Alpha	1.07	Stream Power (lb/ft s)	0.11	0.61
0.18				
Frctn Loss (ft)	1.65	Cum Volume (acre-ft)	19.16	0.59
0.01				
C & E Loss (ft)	0.00	Cum SA (acres)	20.89	0.24
0.01				

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

CROSS SECTION OUTPUT Profile #PF 2

Profile #PF 2				
E. G. Elev (ft)	1325.02	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.07	Wt. n-Val.	0.060	0.070
0.065				
W. S. Elev (ft)	1324.96	Reach Len. (ft)	1499.98	370.00
1.11				
Crit W. S. (ft)	1323.78	Flow Area (sq ft)	92.20	89.10
377.98				
E. G. Slope (ft/ft)	0.002944	Area (sq ft)	92.20	89.10
377.98				
Q Total (cfs)	1140.00	Flow (cfs)	177.22	213.73
749.06				
Top Width (ft)	265.00	Top Width (ft)	52.00	28.00
185.00				
Vel Total (ft/s)	2.04	Avg. Vel. (ft/s)	1.92	2.40
1.98				
Max Chl Dpth (ft)	5.86	Hydr. Depth (ft)	1.77	3.18
2.04				
Conv. Total (cfs)	21011.7	Conv. (cfs)	3266.3	3939.3
13806.0				
Length Wtd. (ft)	804.35	Wetted Per. (ft)	53.89	29.64
187.23				
Min Ch El (ft)	1319.10	Shear (lb/sq ft)	0.31	0.55
0.37				
Alpha	1.02	Stream Power (lb/ft s)	0.60	1.33
0.74				
Frctn Loss (ft)	1.61	Cum Volume (acre-ft)	11.06	0.83
0.00				
C & E Loss (ft)	0.01	Cum SA (acres)	5.84	0.24
0.00				

Warning: The cross section had to be extended vertically during the critical depth calculations.
 Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
 Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

Existing rep

CROSS SECTION
REACH: Reach-1

RIVER: RIVER-1
RS: 0

INPUT

Description:

Station		Elevation		Data		num= 24					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8900	1335	9400	1330	9540	1325	10000	1321.9	10100	1320.8		
10200	1320.4	10211	1320.6	10252	1320.8	10290	1320.6	10297	1320.5		
10400	1321.4	10490	1322	10600	1321.1	10621	1320.8	10629	1319.5		
10638	1319.2	10647	1319.6	10650	1322.1	10750	1322.2	10900	1322.8		
11015	1321.9	11600	1325	12400	1330	13000	1335				

Manning's n		Values		num= 3	
Sta	n Val	Sta	n Val	Sta	n Val
8900	.051	10621	.068	10650	.052

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	10621	10650		0	0	0		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

E. G. Elev (ft)	1322.40	Element	Left OB	Channel
Right OB				
Vel Head (ft)	0.03	Wt. n-Val.	0.051	0.068
0.052				
W. S. Elev (ft)	1322.37	Reach Len. (ft)		
Crit W. S. (ft)	1321.38	Flow Area (sq ft)	787.20	76.23
60.57				
E. G. Slope (ft/ft)	0.001312	Area (sq ft)	787.20	76.23
60.57				
Q Total (cfs)	1140.00	Flow (cfs)	1004.89	112.30
22.80				
Top Width (ft)	1010.98	Top Width (ft)	690.74	29.00
291.24				
Vel Total (ft/s)	1.23	Avg. Vel. (ft/s)	1.28	1.47
0.38				
Max Chl Dpth (ft)	3.17	Hydr. Depth (ft)	1.14	2.63
0.21				
Conv. Total (cfs)	31469.8	Conv. (cfs)	27740.2	3100.2
629.4				
Length Wtd. (ft)		Wetted Per. (ft)	690.76	30.02
291.25				
Min Ch El (ft)	1319.20	Shear (lb/sq ft)	0.09	0.21
0.02				
Alpha	1.09	Stream Power (lb/ft s)	0.12	0.31
0.01				
Frctn Loss (ft)		Cum Volume (acre-ft)		
		Cum SA (acres)		

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 2

E. G. Elev (ft)	1323.42	Element	Left OB	Channel
Right OB				

Vel Head (ft)	0.05	Existing rep Wt. n-Val.	0.051	0.068
W. S. Elev (ft)	1323.37	Reach Len. (ft)		
Crit W. S. (ft)	1322.12	Flow Area (sq ft)	550.37	105.23
E. G. Slope (ft/ft)	0.001446	Area (sq ft)	550.37	105.23
Q Total (cfs)	1140.00	Flow (cfs)	943.73	196.27
Top Width (ft)	316.00	Top Width (ft)	287.00	29.00
Vel Total (ft/s)	1.74	Avg. Vel. (ft/s)	1.71	1.87
Max Chl Dpth (ft)	4.17	Hydr. Depth (ft)	1.92	3.63
Conv. Total (cfs)	29977.0	Conv. (cfs)	24815.8	5161.2
Length Wtd. (ft)		Wetted Per. (ft)	289.56	31.29
Min Ch El (ft)	1319.20	Shear (lb/sq ft)	0.17	0.30
Alpha	1.00	Stream Power (lb/ft s)	0.29	0.57
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

Warning: The parabolic search method failed to converge on critical depth. The program will try the cross section slice/secant method to find critical depth.

SUMMARY OF MANNING' S N VALUES

River: RIVER-1

Reach	River Sta.	n1	n2	n3
Reach-1	1.913	.053	.07	.051
Reach-1	1.885	.053	.07	.051
Reach-1	1.866	.053	.07	.051
Reach-1	1.858	.053	.07	.051
Reach-1	1.793	.053	.07	.051
Reach-1	1.736	.053	.07	.051
Reach-1	1.655	.053	.07	.051
Reach-1	1.595	.053	.07	.051
Reach-1	1.576	.053	.07	.051
Reach-1	1.573	Culvert		
Reach-1	1.565	.053	.07	.051
Reach-1	1.525	.053	.07	.051
Reach-1	1.493	.053	.07	.051
Reach-1	1.458	.053	.07	.051
Reach-1	1.420	.053	.07	.051
Reach-1	1.385	.053	.07	.051
Reach-1	1.351	.053	.07	.051
Reach-1	1.305	.053	.07	.051
Reach-1	1.269	.053	.07	.051
Reach-1	1.266	Culvert		

		Exi sti ng. rep		
Reach-1	1. 263	. 053	. 07	. 051
Reach-1	1. 239	. 053	. 07	. 051
Reach-1	1. 232	. 053	. 07	. 051
Reach-1	1. 192	. 053	. 07	. 051
Reach-1	1. 173	. 053	. 07	. 051
Reach-1	1. 147	. 053	. 07	. 051
Reach-1	1. 103	. 053	. 07	. 051
Reach-1	1. 071	. 05	. 07	. 05
Reach-1	. 963	. 065	. 07	. 065
Reach-1	. 859	. 05	. 07	. 05
Reach-1	0. 854	. 05	. 07	. 05
Reach-1	0. 848	. 05	. 07	. 05
Reach-1	0. 845	. 05	. 07	. 05
Reach-1	0. 83	. 05	. 07	. 05
Reach-1	0. 42	. 05	. 072	. 05
Reach-1	0. 07	. 06	. 07	. 065
Reach-1	0	. 051	. 068	. 052

SUMMARY OF REACH LENGTHS

Ri ver: RI VER-1

Reach	Ri ver Sta.	Left	Channel	Ri ght
Reach-1	1. 913	100	147. 84	175
Reach-1	1. 885	90	100. 32	120
Reach-1	1. 866	35	43	85
Reach-1	1. 858	260. 1	340	360. 06
Reach-1	1. 793	209. 1	300	311. 1
Reach-1	1. 736	433. 01	430	313. 04
Reach-1	1. 655	324. 06	315. 15	190. 08
Reach-1	1. 595	169	100	95
Reach-1	1. 576	116	58	174
Reach-1	1. 573	Cul vert		
Reach-1	1. 565	220. 08	210	267. 96
Reach-1	1. 525	104. 04	169. 02	212. 04
Reach-1	1. 493	152. 95	185. 06	337. 06
Reach-1	1. 458	158	385. 2	240
Reach-1	1. 420	213. 94	185. 06	173. 09
Reach-1	1. 385	176. 94	180	205. 02
Reach-1	1. 351	570	244	92
Reach-1	1. 305	89	188	155
Reach-1	1. 269	1	30	30
Reach-1	1. 266	Cul vert		
Reach-1	1. 263	19. 95	129	105
Reach-1	1. 239	50	35	20
Reach-1	1. 232	249. 92	210. 98	216. 92
Reach-1	1. 192	182	100	123
Reach-1	1. 173	195	136. 95	100. 05
Reach-1	1. 147	240	232. 08	388. 08
Reach-1	1. 103	90. 96	232. 08	233. 04
Reach-1	1. 071	50. 04	169. 02	480. 06
Reach-1	. 963	875. 05	550	480. 15
Reach-1	. 859	70	26	36
Reach-1	0. 854	72	32	38
Reach-1	0. 848	45	15	102
Reach-1	0. 845	81	81	81
Reach-1	0. 83	1649. 21	2165. 65	1050. 28
Reach-1	0. 42	1300. 55	1850	849. 15
Reach-1	0. 07	1499. 98	370	1. 11

Reach-1 0 Existing rep 0 0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
 River: RIVER-1

Reach	River Sta.	Contr.	Expan.
Reach-1	1. 913	. 1	. 3
Reach-1	1. 885	. 1	. 3
Reach-1	1. 866	. 1	. 3
Reach-1	1. 858	. 1	. 3
Reach-1	1. 793	. 1	. 3
Reach-1	1. 736	. 1	. 3
Reach-1	1. 655	. 1	. 3
Reach-1	1. 595	. 1	. 3
Reach-1	1. 576	. 1	. 3
Reach-1	1. 573	Cul vert	
Reach-1	1. 565	. 1	. 3
Reach-1	1. 525	. 1	. 3
Reach-1	1. 493	. 1	. 3
Reach-1	1. 458	. 1	. 3
Reach-1	1. 420	. 1	. 3
Reach-1	1. 385	. 1	. 3
Reach-1	1. 351	. 1	. 3
Reach-1	1. 305	. 1	. 3
Reach-1	1. 269	. 1	. 3
Reach-1	1. 266	Cul vert	
Reach-1	1. 263	. 1	. 3
Reach-1	1. 239	. 1	. 3
Reach-1	1. 232	. 1	. 3
Reach-1	1. 192	. 1	. 3
Reach-1	1. 173	. 1	. 3
Reach-1	1. 147	. 1	. 3
Reach-1	1. 103	. 1	. 3
Reach-1	1. 071	. 1	. 3
Reach-1	. 963	. 1	. 3
Reach-1	. 859	. 1	. 3
Reach-1	0. 854	. 1	. 3
Reach-1	0. 848	. 1	. 3
Reach-1	0. 845	. 1	. 3
Reach-1	0. 83	. 1	. 3
Reach-1	0. 42	. 1	. 3
Reach-1	0. 07	. 1	. 3
Reach-1	0	. 1	. 3

Profile Output Table - Standard Table 1

Reach	River Sta	Q Total	Min Ch El	W. S.	El ev	Crit W. S.	E. G.
El ev	E. G. Slope	Flow Area	Top Width	Froude	# Chl	(ft)	
(ft)	(ft/ft)	(sq ft)	(ft)		(ft)	(ft)	
Reach-1	1. 913	1140. 00	1372. 70	1375. 81	1375. 17		
1375. 96	0. 006622	379. 71	312. 80	0. 36			
Reach-1	1. 913	1140. 00	1372. 70	1375. 89	1375. 14		
1376. 08	0. 007199	326. 16	180. 00	0. 38			

Exi sti ng. rep

Reach-1	1. 885		1140. 00	1370. 70	1374. 19	
1374. 46	0. 018015	4. 24	289. 86	258. 23	0. 55	
Reach-1	1. 885		1140. 00	1370. 70	1374. 81	
1374. 99	0. 007691	3. 33	342. 16	140. 00	0. 38	
Reach-1	1. 866		1140. 00	1368. 60	1374. 20	
1374. 22	0. 000559	1. 29	938. 84	351. 86	0. 11	
Reach-1	1. 866		1140. 00	1368. 60	1374. 73	
1374. 77	0. 000734	1. 57	724. 82	155. 00	0. 13	
Reach-1	1. 858		1140. 00	1368. 70	1374. 16	
1374. 19	0. 000854	1. 30	886. 21	310. 95	0. 13	
Reach-1	1. 858		1140. 00	1368. 70	1374. 72	
1374. 74	0. 000576	1. 17	973. 80	271. 40	0. 11	
Reach-1	1. 793		1140. 00	1368. 50	1373. 88	
1373. 91	0. 000857	1. 35	842. 94	345. 27	0. 13	
Reach-1	1. 793		1140. 00	1368. 50	1374. 38	
1374. 43	0. 001562	1. 95	584. 99	157. 00	0. 18	
Reach-1	1. 736		1140. 00	1369. 10	1373. 76	
1373. 77	0. 000305	0. 96	1129. 14	351. 96	0. 08	
Reach-1	1. 736		1140. 00	1369. 10	1373. 74	
1373. 85	0. 002476	2. 61	436. 75	105. 00	0. 23	
Reach-1	1. 655		1140. 00	1363. 40	1373. 76	
1373. 76	0. 000017	0. 41	2803. 72	483. 56	0. 02	
Reach-1	1. 655		1140. 00	1363. 40	1373. 76	
1373. 76	0. 000035	0. 56	1874. 41	200. 00	0. 03	
Reach-1	1. 595		1140. 00	1363. 50	1373. 75	
1373. 76	0. 000008	0. 27	4333. 93	602. 59	0. 02	
Reach-1	1. 595		1140. 00	1363. 50	1373. 75	
1373. 76	0. 000013	0. 35	3283. 02	325. 00	0. 02	
Reach-1	1. 576		1140. 00	1360. 50	1373. 75	1362. 11
1373. 75	0. 000012	0. 32	3744. 48	719. 23	0. 02	
Reach-1	1. 576		1140. 00	1360. 50	1373. 75	1362. 11
1373. 75	0. 000030	0. 49	2342. 08	250. 00	0. 03	
Reach-1	1. 573					
			Cul vert			
Reach-1	1. 565		1140. 00	1359. 70	1364. 33	
1364. 39	0. 002712	1. 94	608. 86	332. 55	0. 22	
Reach-1	1. 565		1140. 00	1359. 70	1365. 32	
1365. 35	0. 000989	1. 47	773. 10	250. 00	0. 14	
Reach-1	1. 525		1140. 00	1359. 70	1364. 05	
1364. 08	0. 000742	1. 21	781. 70	316. 91	0. 12	
Reach-1	1. 525		1140. 00	1359. 70	1364. 58	

			Exi sti ng. rep			
1364. 86	0. 007997	4. 25	267. 98	75. 00		0. 40
Reach-1	1. 493		1140. 00	1359. 60	1363. 94	
1363. 96	0. 000499	1. 25	883. 24	272. 77		0. 11
Reach-1	1. 493		1140. 00	1359. 60	1364. 28	
1364. 34	0. 001332	2. 05	555. 66	120. 00		0. 17
Reach-1	1. 458		1140. 00	1359. 60	1363. 72	
1363. 77	0. 001707	1. 85	654. 49	331. 80		0. 19
Reach-1	1. 458		1140. 00	1359. 60	1363. 94	
1364. 02	0. 002396	2. 24	509. 12	155. 00		0. 22
Reach-1	1. 420		1140. 00	1359. 60	1363. 23	
1363. 27	0. 001186	1. 70	744. 71	358. 79		0. 16
Reach-1	1. 420		1140. 00	1359. 60	1363. 39	
1363. 43	0. 001075	1. 64	752. 61	309. 66		0. 15
Reach-1	1. 385		1140. 00	1359. 60	1362. 95	
1362. 98	0. 002185	1. 46	769. 76	448. 08		0. 19
Reach-1	1. 385		1140. 00	1359. 60	1363. 15	
1363. 18	0. 001772	1. 41	808. 89	405. 00		0. 18
Reach-1	1. 351		1140. 00	1359. 60	1362. 38	
1362. 48	0. 003562	2. 49	467. 19	191. 09		0. 26
Reach-1	1. 351		1140. 00	1359. 60	1362. 67	
1362. 76	0. 003047	2. 41	472. 46	155. 00		0. 24
Reach-1	1. 305		1140. 00	1359. 60	1362. 25	
1362. 26	0. 000314	0. 72	1592. 75	638. 99		0. 08
Reach-1	1. 305		1140. 00	1359. 60	1362. 59	
1362. 60	0. 000233	0. 67	1709. 30	572. 00		0. 07
Reach-1	1. 269		1140. 00	1359. 60	1361. 89	1360. 95
1362. 08	0. 009796	3. 48	330. 74	163. 10		0. 42
Reach-1	1. 269		1140. 00	1359. 60	1362. 33	1360. 94
1362. 46	0. 005771	2. 96	384. 62	151. 94		0. 33
Reach-1	1. 266		Cul vert			
Reach-1	1. 263		1140. 00	1359. 61	1361. 80	
1362. 01	0. 009773	3. 49	316. 13	161. 93		0. 42
Reach-1	1. 263		1140. 00	1359. 61	1362. 22	
1362. 41	0. 007697	3. 43	325. 14	130. 00		0. 38
Reach-1	1. 239		1140. 00	1353. 10	1359. 17	
1360. 13	0. 028378	8. 14	152. 07	69. 32		0. 76
Reach-1	1. 239		1140. 00	1353. 10	1359. 91	1358. 80
1360. 79	0. 022117	7. 53	151. 30	35. 00		0. 64
Reach-1	1. 232		1140. 00	1352. 80	1358. 05	1358. 05
1359. 00	0. 036445	8. 22	149. 86	77. 80		0. 84

				Exi sti ng. rep			
Reach-1	1. 232			1140. 00	1352. 80	1358. 08	1358. 08
1359. 56	0. 055686	9. 76		116. 78	39. 00	0. 99	
Reach-1	1. 192			1140. 00	1347. 10	1351. 22	
1351. 28	0. 001415	2. 01		594. 83	213. 70	0. 18	
Reach-1	1. 192			1140. 00	1347. 10	1351. 39	
1351. 48	0. 002019	2. 38		478. 75	115. 00	0. 21	
Reach-1	1. 173			1140. 00	1347. 10	1351. 13	
1351. 16	0. 000820	1. 39		823. 48	251. 79	0. 13	
Reach-1	1. 173			1140. 00	1347. 10	1351. 32	
1351. 35	0. 000732	1. 35		843. 40	229. 80	0. 12	
Reach-1	1. 147			1140. 00	1347. 10	1350. 92	
1350. 99	0. 001832	2. 19		569. 97	235. 91	0. 20	
Reach-1	1. 147			1140. 00	1347. 10	1351. 08	
1351. 18	0. 002360	2. 47		460. 61	118. 00	0. 22	
Reach-1	1. 103			1140. 00	1347. 10	1350. 88	
1350. 88	0. 000131	0. 57		2041. 30	648. 13	0. 05	
Reach-1	1. 103			1140. 00	1347. 10	1351. 06	
1351. 07	0. 000122	0. 56		2025. 71	537. 00	0. 05	
Reach-1	1. 071			1140. 00	1347. 10	1350. 84	
1350. 84	0. 000254	0. 70		1662. 29	665. 14	0. 07	
Reach-1	1. 071			1140. 00	1347. 10	1351. 02	
1351. 03	0. 000245	0. 71		1594. 77	500. 00	0. 07	
Reach-1	. 963			1140. 00	1348. 60	1350. 47	1349. 90
1350. 67	0. 015665	3. 69		318. 70	222. 21	0. 51	
Reach-1	. 963			1140. 00	1348. 60	1350. 51	1350. 05
1350. 85	0. 025331	4. 72		241. 41	144. 16	0. 64	
Reach-1	. 859			1140. 00	1338. 80	1341. 53	
1341. 89	0. 015442	4. 81		240. 46	116. 50	0. 54	
Reach-1	. 859			1140. 00	1338. 80	1341. 79	
1342. 07	0. 010890	4. 31		271. 98	130. 50	0. 46	
Reach-1	0. 854			1140. 00	1339. 20	1341. 62	
1341. 66	0. 001904	1. 53		783. 59	541. 88	0. 19	
Reach-1	0. 854			1140. 00	1339. 20	1341. 79	
1341. 85	0. 002672	1. 90		578. 76	269. 90	0. 22	
Reach-1	0. 848			1140. 00	1339. 60	1341. 07	1341. 07
1341. 41	0. 054415	4. 89		247. 64	367. 72	0. 87	
Reach-1	0. 848			1140. 00	1339. 60	1341. 40	
1341. 60	0. 020104	3. 61		314. 98	260. 90	0. 55	
Reach-1	0. 845			1140. 00	1338. 00	1340. 32	
1340. 53	0. 012572	3. 80		319. 56	273. 29	0. 47	
Reach-1	0. 845			1140. 00	1338. 00	1341. 13	
1341. 35	0. 007020	3. 56		306. 55	115. 00	0. 37	

Existing rep

Reach-1	0.83		1140.00	1335.50	1340.01	1338.45
1340.10	0.002524	2.68	471.67	230.17	0.24	
Reach-1	0.83		1140.00	1335.50	1340.81	
1341.00	0.002825	3.20	332.08	80.00	0.26	
Reach-1	0.42		1140.00	1325.30	1330.61	1330.21
1331.02	0.018462	5.43	221.94	140.76	0.55	
Reach-1	0.42		1140.00	1325.30	1331.24	
1331.90	0.013376	3.97	180.48	60.00	0.31	
Reach-1	0.07		1140.00	1319.10	1324.03	1323.39
1324.05	0.002583	1.78	980.21	1177.27	0.21	
Reach-1	0.07		1140.00	1319.10	1324.96	1323.78
1325.02	0.002944	2.40	559.28	265.00	0.24	
Reach-1	0		1140.00	1319.20	1322.37	1321.38
1322.40	0.001312	1.47	923.99	1010.98	0.16	
Reach-1	0		1140.00	1319.20	1323.37	1322.12
1323.42	0.001446	1.87	655.60	316.00	0.17	

Profile Output Table - Standard Table 2

Reach Loss (ft)	River Q Left (cfs)	Sta Channel (cfs)	E. G. Q Right (cfs)	El ev Top (ft)	W. S. Width (ft)	El ev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E
Reach-1 0.01	383.87	1.913 279.76	1375.96 476.38	1375.81 312.80	0.14	1.48			
Reach-1 0.01	304.46	1.913 305.34	1376.08 530.20	1375.89 180.00	0.19	1.10			
Reach-1 0.07	56.53	1.885 1081.11	1374.46 2.36	1374.19 258.23	0.27	0.17			
Reach-1 0.04		1.885 1140.00	1374.99	1374.81 140.00	0.17	0.17			
Reach-1 0.00	9.95	1.866 826.30	1374.22 303.75	1374.20 351.86	0.02	0.03			
Reach-1 0.01		1.866 1140.00	1374.77	1374.73 155.00	0.04	0.03			
Reach-1 0.00	59.03	1.858 1065.18	1374.19 15.79	1374.16 310.95	0.03	0.28			
Reach-1 0.00		1.858 1140.00	1374.74	1374.72 271.40	0.02	0.30			
Reach-1 0.00	340.78	1.793 685.26	1373.91 113.96	1373.88 345.27	0.03	0.13			
Reach-1 0.00		1.793 1140.00	1374.43	1374.38 157.00	0.06	0.58			

Exi sti ng. rep

Reach-1	1. 736	1373. 77	1373. 76	0. 02	0. 02
0. 00	492. 80	225. 88	351. 96		
Reach-1	1. 736	1373. 85	1373. 74	0. 11	0. 05
0. 03	1140. 00		105. 00		
Reach-1	1. 655	1373. 76	1373. 76	0. 00	0. 00
0. 00	468. 95	212. 83	483. 56		
Reach-1	1. 655	1373. 76	1373. 76	0. 01	0. 01
0. 00	510. 35		200. 00		
Reach-1	1. 595	1373. 76	1373. 75	0. 00	0. 00
0. 00	130. 39	116. 49	602. 59		
Reach-1	1. 595	1373. 76	1373. 75	0. 00	0. 00
0. 00	1140. 00		325. 00		
Reach-1	1. 576	1373. 75	1373. 75	0. 00	
	192. 52	752. 29	719. 23		
Reach-1	1. 576	1373. 75	1373. 75	0. 00	
	1140. 00		250. 00		
Reach-1	1. 573	Cul vert			
Reach-1	1. 565	1364. 39	1364. 33	0. 06	0. 30
0. 01	66. 82	166. 34	332. 55		
Reach-1	1. 565	1365. 35	1365. 32	0. 03	0. 46
0. 02	974. 52	165. 48	250. 00		
Reach-1	1. 525	1364. 08	1364. 05	0. 03	0. 12
0. 00	2. 31	862. 25	316. 91		
Reach-1	1. 525	1364. 86	1364. 58	0. 28	0. 45
0. 06	1140. 00		75. 00		
Reach-1	1. 493	1363. 96	1363. 94	0. 03	0. 19
0. 00	48. 17	448. 09	272. 77		
Reach-1	1. 493	1364. 34	1364. 28	0. 07	0. 32
0. 00	1140. 00		120. 00		
Reach-1	1. 458	1363. 77	1363. 72	0. 05	0. 50
0. 00	87. 05	173. 22	331. 80		
Reach-1	1. 458	1364. 02	1363. 94	0. 08	0. 58
0. 01	1140. 00		155. 00		
Reach-1	1. 420	1363. 27	1363. 23	0. 04	0. 29
0. 00	36. 94	168. 29	358. 79		
Reach-1	1. 420	1363. 43	1363. 39	0. 04	0. 25
0. 00	946. 20	193. 80	309. 66		
Reach-1	1. 385	1362. 98	1362. 95	0. 03	0. 49
0. 01	74. 78	0. 65	448. 08		
Reach-1	1. 385	1363. 18	1363. 15	0. 03	0. 41

				Exi sti ng. rep			
0. 01		1140. 00		405. 00			
Reach-1		1. 351		1362. 48	1362. 38	0. 09	0. 19
0. 03	56. 74	1067. 99	15. 27	191. 09			
Reach-1		1. 351		1362. 76	1362. 67	0. 09	0. 14
0. 03		1140. 00		155. 00			
Reach-1		1. 305		1362. 26	1362. 25	0. 01	0. 17
0. 02	28. 71	1094. 66	16. 63	638. 99			
Reach-1		1. 305		1362. 60	1362. 59	0. 01	0. 12
0. 01		1140. 00		572. 00			
Reach-1		1. 269		1362. 08	1361. 89	0. 19	
		1110. 95	29. 05	163. 10			
Reach-1		1. 269		1362. 46	1362. 33	0. 14	
		1140. 00		151. 94			
Reach-1		1. 266		Cul vert			
Reach-1		1. 263		1362. 01	1361. 80	0. 20	1. 81
0. 07	170. 17	848. 15	121. 68	161. 93			
Reach-1		1. 263		1362. 41	1362. 22	0. 19	1. 55
0. 07		993. 93	146. 07	130. 00			
Reach-1		1. 239		1360. 13	1359. 17	0. 95	1. 12
0. 00	54. 43	1022. 23	63. 34	69. 32			
Reach-1		1. 239		1360. 79	1359. 91	0. 88	1. 17
0. 06		1140. 00		35. 00			
Reach-1		1. 232		1359. 00	1358. 05	0. 95	0. 85
0. 27	87. 55	948. 39	104. 07	77. 80			
Reach-1		1. 232		1359. 56	1358. 08	1. 48	1. 20
0. 42		1140. 00		39. 00			
Reach-1		1. 192		1351. 28	1351. 22	0. 06	0. 11
0. 01	49. 84	918. 99	171. 17	213. 70			
Reach-1		1. 192		1351. 48	1351. 39	0. 09	0. 11
0. 02		1140. 00		115. 00			
Reach-1		1. 173		1351. 16	1351. 13	0. 03	0. 16
0. 00	0. 04	1113. 03	26. 92	251. 79			
Reach-1		1. 173		1351. 35	1351. 32	0. 03	0. 17
0. 01		1140. 00		229. 80			
Reach-1		1. 147		1350. 99	1350. 92	0. 07	0. 08
0. 02	145. 46	965. 68	28. 87	235. 91			
Reach-1		1. 147		1351. 18	1351. 08	0. 10	0. 07
0. 03		1140. 00		118. 00			
Reach-1		1. 103		1350. 88	1350. 88	0. 00	0. 04
0. 00	27. 47	1096. 11	16. 43	648. 13			

				Exi sti ng. rep			
Reach-1	1. 103			1351. 07	1351. 06	0. 00	0. 04
0. 00	1140. 00				537. 00		
Reach-1	1. 071			1350. 84	1350. 84	0. 01	0. 15
0. 02	43. 70	1057. 51		38. 79	665. 14		
Reach-1	1. 071			1351. 03	1351. 02	0. 01	0. 14
0. 03	1140. 00				500. 00		
Reach-1	. 963			1350. 67	1350. 47	0. 20	8. 77
0. 02	124. 31	870. 45		145. 25	222. 21		
Reach-1	. 963			1350. 85	1350. 51	0. 35	8. 76
0. 02	1140. 00				144. 16		
Reach-1	. 859			1341. 89	1341. 53	0. 36	0. 14
0. 10	3. 08	1131. 92		5. 00	116. 50		
Reach-1	. 859			1342. 07	1341. 79	0. 28	0. 15
0. 07	11. 85	1119. 80		8. 35	130. 50		
Reach-1	0. 854			1341. 66	1341. 62	0. 03	0. 22
0. 03	277. 30	632. 75		229. 95	541. 88		
Reach-1	0. 854			1341. 85	1341. 79	0. 06	0. 23
0. 01	295. 64	844. 36			269. 90		
Reach-1	0. 848			1341. 41	1341. 07	0. 35	0. 63
0. 04	134. 39	973. 42		32. 20	367. 72		
Reach-1	0. 848			1341. 60	1341. 40	0. 20	0. 26
0. 00	176. 53	963. 47			260. 90		
Reach-1	0. 845			1340. 53	1340. 32	0. 21	0. 39
0. 04	457. 03	597. 37		85. 60	273. 29		
Reach-1	0. 845			1341. 35	1341. 13	0. 22	0. 34
0. 01	313. 14	783. 03		43. 84	115. 00		
Reach-1	0. 83			1340. 10	1340. 01	0. 09	9. 05
0. 03	529. 13	278. 25		332. 61	230. 17		
Reach-1	0. 83			1341. 00	1340. 81	0. 18	9. 05
0. 05	526. 69	399. 08		214. 23	80. 00		
Reach-1	0. 42			1331. 02	1330. 61	0. 41	6. 85
0. 12	890. 59	249. 41		0. 00	140. 76		
Reach-1	0. 42			1331. 90	1331. 24	0. 66	6. 70
0. 18	1040. 88	99. 12			60. 00		
Reach-1	0. 07			1324. 05	1324. 03	0. 02	1. 65
0. 00	343. 21	112. 53		684. 26	1177. 27		
Reach-1	0. 07			1325. 02	1324. 96	0. 07	1. 61
0. 01	177. 22	213. 73		749. 06	265. 00		
Reach-1	0			1322. 40	1322. 37	0. 03	
1004. 89	112. 30			22. 80	1010. 98		
Reach-1	0			1323. 42	1323. 37	0. 05	
943. 73	196. 27				316. 00		

Exi sti ng. rep