



KEITH V. CROWE, PE, PLS
CONSULTING ENGINEER

Determination of Base Flood Elevations On the East Branch of Meadow Creek Adjacent to Oak Park Leisure Gardens

Prepared at the Request of
Oak Park Leisure Gardens Home Owner's
Association

Prepared by
Keith V. Crowe
Consulting Engineer



Keith V. Crowe

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Background

Oak Park Leisure Gardens is adjacent to the east branch of Meadow Creek. The area is shown on the Flood Information Rate Map (FIRM) as being subject to flooding during the 100-year flood. However, the area has not been studied in detail and Base Flood Elevations (BFEs) have not been determined. This study will determine the BFEs along the creek.

Hydrology

The computer program HydroCad is used to determine the 100-year flood flow rate. The SCS TR-20 runoff method, the SCS Unit Hydrograph and a Type I 24-hour rainfall pattern are used by the software.

This branch of Meadow Creek has a tributary area of 437 acres. Three land uses are represented...230 acres of open space, 32 acres of typically 1-acre lots and 175 acres of smaller residential lots. A plot of the watershed is included.

The soil type used to determine the various Runoff Curve Numbers (CNs) is based on the NRCS Soil Survey. The Hydrologic Soils Groups (HSGs) vary from "A" through "D". An area weighted average for shed is HSG "C".

Table 2.2 of the TR-55 manual provides the CNs for the various land-uses. CNs used in the study are shown in the following table.

Table 1 Runoff Curve Numbers

	Area	CN	Table 2 section
	(acres)		
Open Space	230	41	2-2d
1-acre lots	32.5	79	2-2a
Smaller lots	174.5	83	2-2a

The Time of Concentration for the watershed is determined using the Lag/CN Method.

The 24-hour rainfall total for the 100-year storm, from the NOAA rainfall data server, is 4.95 inches.

Based on the data provided above, the flow rate in the east branch of Meadow Creek is 115 cubic feet per second.

Detailed computer output and calculations are attached to this report.

Hydraulics

The computer program HEC-RAS is used to determine the water surface profile of the east branch from the confluence of the east branch and main branch of Meadow Creek upstream to James Way.

The starting water surface elevation is the BFE at the confluence as shown on the FIRM panel and Flood Information Study (FIS) for the main branch of Meadow Creek.

Creek cross-sections were measured by MBS Land Surveys and the elevations are based on NAVD '88.

A previous FIRM (06079C136F) showed a "Check Dam" across the creek near unit 35. The check dam no longer exists.

According to the FIS, the roughness coefficient – Manning's "n" – for the channel varies from 0.025 to 0.100 and for the overbank varies from 0.030 to 0.100. Values used for this analysis are 0.035 for the channel and 0.030 for the overbank.

An included figure shows the cross-sections' location and identification.

The results of the HEC-RAS analysis are summarized in table 2. A plot of the limits of the flooding and the BFEs are included as a figure.

The complete HEC-RAS report is attached.

Table 2 HEC-RAS Results

River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)
2468	115	72.67	73.59	73.59	73.86	0.021408	3.99	27.9	54.63
2295	115	65.7	68.16		68.38	0.007647	3.74	30.71	29.82
2185	115	65.22	67.09		67.31	0.012817	3.76	30.58	43.9
2067	115	63.87	65.71		65.92	0.010855	3.74	30.73	39.23
1982	115	62.98	65.15		65.27	0.005349	2.79	41.43	49.99
1898	115	62.45	64.53		64.73	0.007478	3.58	32.36	34.9
1774	115	62.06	64.04		64.12	0.003131	2.37	48.96	51
1674	115	60.44	64.01		64.03	0.000333	1.15	101.06	58.42
1544	115	60.77	64.01		64.01	0.000044	0.57	211.09	87.25
1434	115	58.84	64		64.01	0.000038	0.67	187.88	60
1334	115	56.32	64		64	0.000014	0.47	264.31	69.51
1156	115	54.71	64		64	0.000003	0.27	441.24	71.79
1000	115	54.71	64	56.7	64	0.000003	0.27	441.2	71.79

Conclusion

The analysis clearly shows the east branch of Meadow Creek does not impact units 29 through 54. Units 55 through 60 are within the area of special flood hazard defined by the detailed study for the main branch of the creek.

Figure 1...Watershed Plot

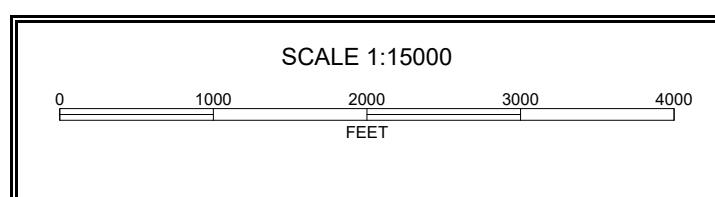
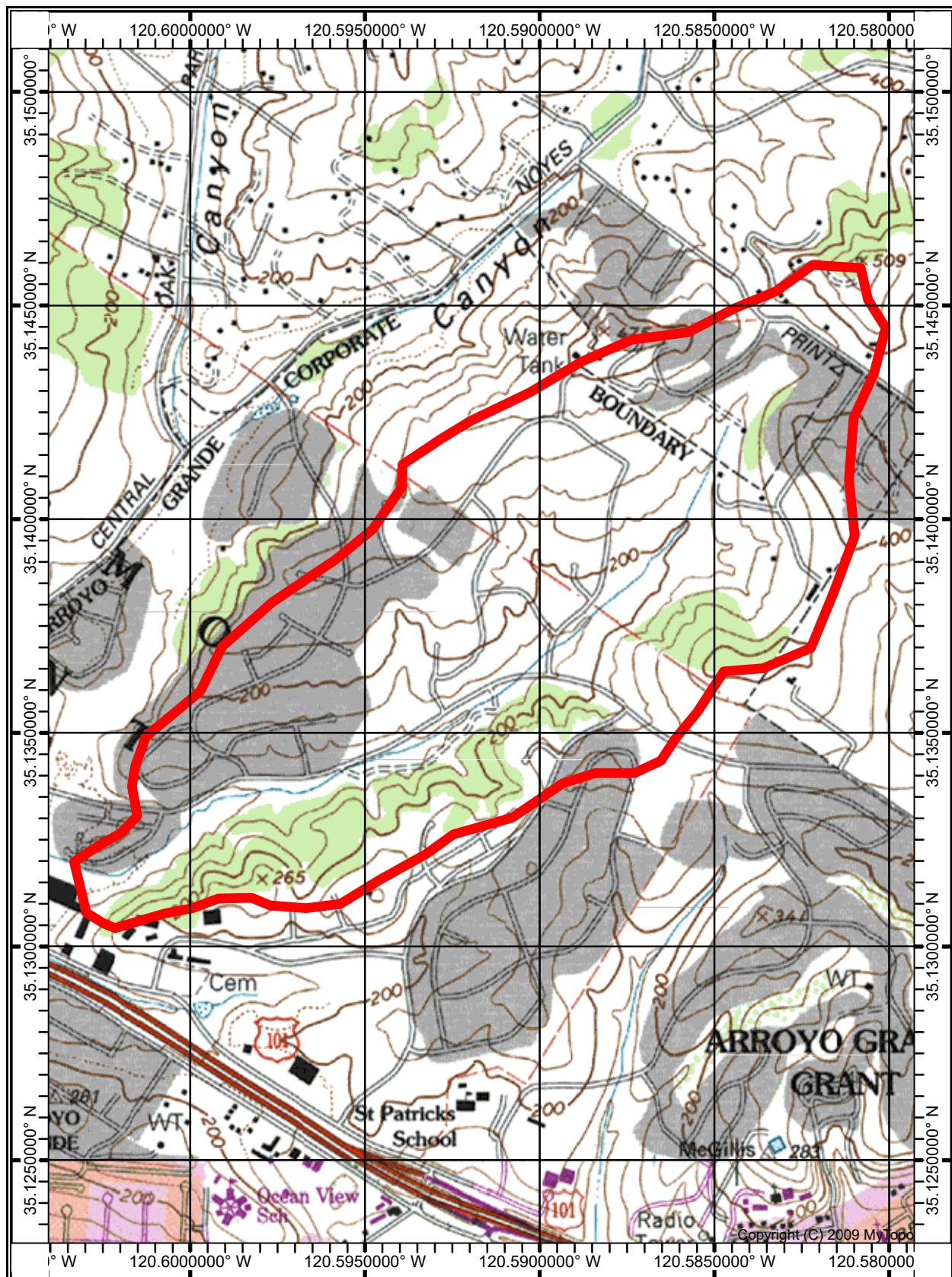


Figure 1 Watershed Plot

Figure 2...Watershed Oblique



Figure 2 Watershed Oblique

Figure 3...Cross-Section Location and Identification



Figure 3 Section Location and Identification

Figure 4...Base Flood Elevations

And

Approximate Flood Line

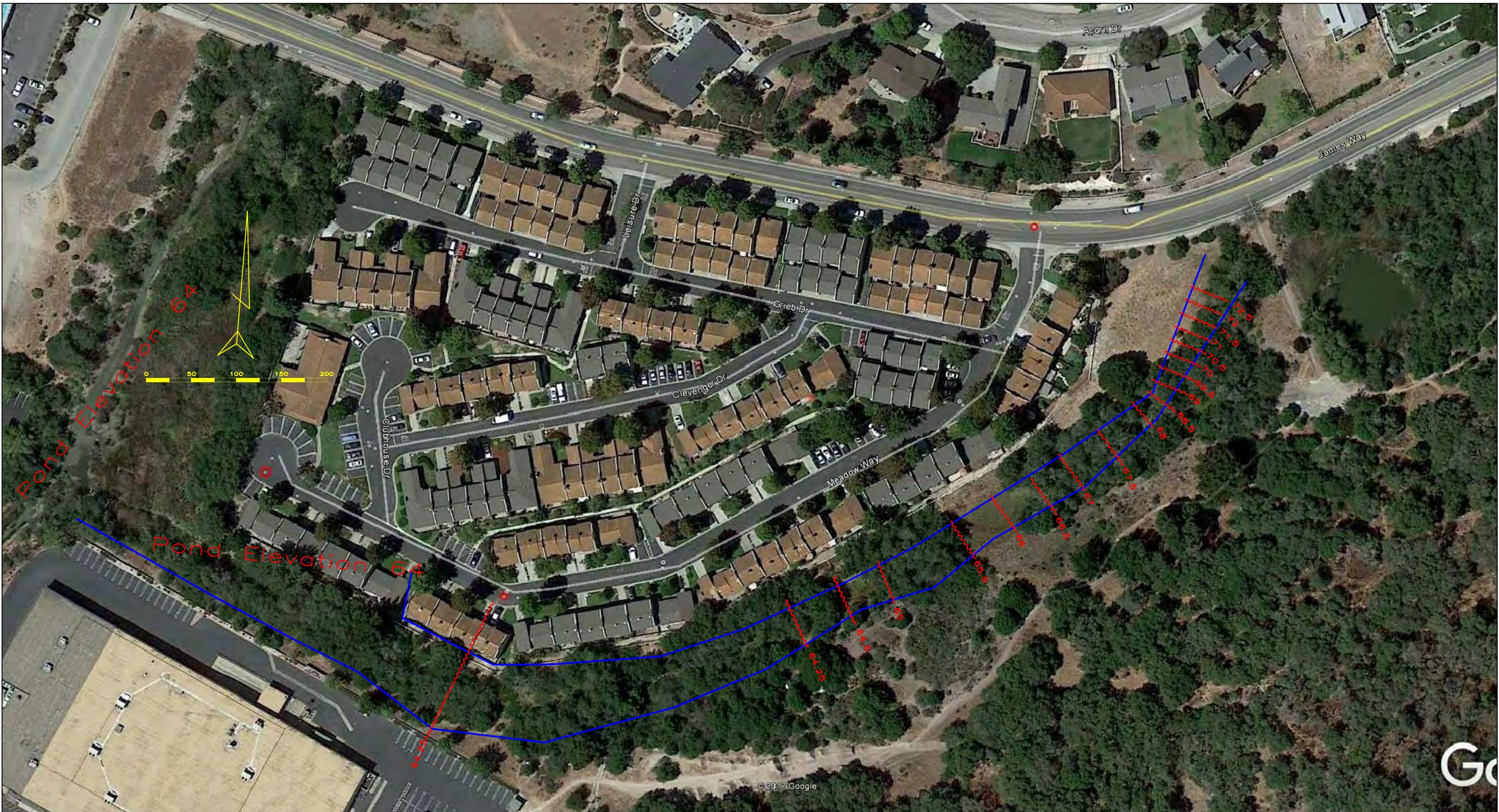


Figure 4 Base Flood Elevations and Approximate Flood Line

Figure 5...Limit of 500-Year Flood



Figure 5 Limit of 500-Year Flood

Hydrologic Soil Group (HSG) Calculations

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI	#	# x A
102	Arnold loamy sand, 5 to 15 percent slopes	A	29.2	6.70%	4	116.8
103	Arnold loamy sand, 15 to 50 percent slopes, MLRA 15	A	15.8	3.60%	4	63.2
108	Briones loamy sand, 15 to 50 percent slopes	A	19.1	4.40%	4	76.4
110	Briones-Tierra complex, 15 to 50 percent slopes	A	49.5	11.30%	4	198
115	Chamise channery loam, 9 to 15 percent slopes, MLRA 15	C	1.6	0.40%	2	3.2
116	Chamise channery loam, 15 to 30 percent slopes, MLRA 15	C	11.2	2.60%	2	22.4
117	Chamise shaly sandy clay loam, 5 to 9 percent slopes	D	3.2	0.70%	1	3.2
126	Corralitos variant loamy sand	A	50.1	11.50%	4	200.4
189	Pismo loamy sand, 9 to 30 percent slopes	D	217.4	49.80%	1	217.4
190	Pismo-Rock outcrop complex, 30 to 75 percent slopes		39.7	9.10%	1	39.7
Totals for Area of Interest			436.7	100.00%	27	940.7
			Average		2.1541 HSG "C"	

4 =A

3 =B

2 =C

1 =D

Technical Report 55

Table 2

Table 2-2a Runoff curve numbers for urban areas ^{1/}

Cover type and hydrologic condition	Cover description	Average percent impervious area ^{2/}	Curve numbers for hydrologic soil group			
			A	B	C	D
<i>Fully developed urban areas (vegetation established)</i>						
Open space (lawns, parks, golf courses, cemeteries, etc.) ^{3/} :						
Poor condition (grass cover < 50%)		68	79	86	89	
Fair condition (grass cover 50% to 75%)		49	69	79	84	
Good condition (grass cover > 75%)		39	61	74	80	
Impervious areas:						
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98	
Streets and roads:						
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98	
Paved; open ditches (including right-of-way)		83	89	92	93	
Gravel (including right-of-way)		76	85	89	91	
Dirt (including right-of-way)		72	82	87	89	
Western desert urban areas:						
Natural desert landscaping (pervious areas only) ^{4/}		63	77	85	88	
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96	
Urban districts:						
Commercial and business		85	89	92	94	95
Industrial		72	81	88	91	93
Residential districts by average lot size:						
1/8 acre or less (town houses)		65	77	85	90	92
1/4 acre		38	61	75	83	87
1/3 acre		30	57	72	81	86
1/2 acre		25	54	70	80	85
1 acre		20	51	68	79	84
2 acres		12	46	65	77	82
<i>Developing urban areas</i>						
Newly graded areas (pervious areas only, no vegetation) ^{5/}			77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).						

^{1/} Average runoff condition, and $I_a = 0.2S$.^{2/} The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.^{3/} CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.^{4/} Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.^{5/} Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Table 2-2b Runoff curve numbers for cultivated agricultural lands^{1/}

Cover type	Treatment ^{2/}	Cover description	Hydrologic condition ^{3/}	Curve numbers for hydrologic soil group			
				A	B	C	D
Fallow	Bare soil		—	77	86	91	94
	Crop residue cover (CR)		Poor	76	85	90	93
			Good	74	83	88	90
Row crops	Straight row (SR)		Poor	72	81	88	91
			Good	67	78	85	89
	SR + CR		Poor	71	80	87	90
			Good	64	75	82	85
	Contoured (C)		Poor	70	79	84	88
			Good	65	75	82	86
	C + CR		Poor	69	78	83	87
			Good	64	74	81	85
	Contoured & terraced (C&T)		Poor	66	74	80	82
			Good	62	71	78	81
Small grain	C&T+ CR		Poor	65	73	79	81
			Good	61	70	77	80
	SR		Poor	65	76	84	88
			Good	63	75	83	87
	SR + CR		Poor	64	75	83	86
			Good	60	72	80	84
	C		Poor	63	74	82	85
			Good	61	73	81	84
	C + CR		Poor	62	73	81	84
			Good	60	72	80	83
Close-seeded or broadcast legumes or rotation meadow	C&T		Poor	61	72	79	82
			Good	59	70	78	81
	C&T+ CR		Poor	60	71	78	81
			Good	58	69	77	80
	SR		Poor	66	77	85	89
			Good	58	72	81	85
	C		Poor	64	75	83	85
			Good	55	69	78	83
	C&T		Poor	63	73	80	83
			Good	51	67	76	80

^{1/} Average runoff condition, and $I_a=0.2S$ ^{2/} Crop residue cover applies only if residue is on at least 5% of the surface throughout the year.^{3/} Hydraulic condition is based on combination factors that affect infiltration and runoff, including (a) density and canopy of vegetative areas, (b) amount of year-round cover, (c) amount of grass or close-seeded legumes, (d) percent of residue cover on the land surface (good $\geq 20\%$), and (e) degree of surface roughness.

Poor: Factors impair infiltration and tend to increase runoff.

Good: Factors encourage average and better than average infiltration and tend to decrease runoff.

Table 2-2c Runoff curve numbers for other agricultural lands¹

Cover type	Cover description	Hydrologic condition	Curve numbers for hydrologic soil group			
			A	B	C	D
Pasture, grassland, or range—continuous forage for grazing. ²	Poor	68	79	86	89	
	Fair	49	69	79	84	
	Good	39	61	74	80	
Meadow—continuous grass, protected from grazing and generally mowed for hay.	—	30	58	71	78	
Brush—brush-weed-grass mixture with brush the major element. ³	Poor	48	67	77	83	
	Fair	35	56	70	77	
	Good	30 ⁴	48	65	73	
Woods—grass combination (orchard or tree farm). ⁵	Poor	57	73	82	86	
	Fair	43	65	76	82	
	Good	32	58	72	79	
Woods. ⁶	Poor	45	66	77	83	
	Fair	36	60	73	79	
	Good	30 ⁴	55	70	77	
Farmsteads—buildings, lanes, driveways, and surrounding lots.	—	59	74	82	86	

¹ Average runoff condition, and $I_a = 0.2S$.² Poor: <50% ground cover or heavily grazed with no mulch.

Fair: 50 to 75% ground cover and not heavily grazed.

Good: >75% ground cover and lightly or only occasionally grazed.

³ Poor: <50% ground cover.

Fair: 50 to 75% ground cover.

Good: >75% ground cover.

⁴ Actual curve number is less than 30; use CN = 30 for runoff computations.⁵ CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.⁶ Poor: Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.

Fair: Woods are grazed but not burned, and some forest litter covers the soil.

Good: Woods are protected from grazing, and litter and brush adequately cover the soil.

Table 2-2d Runoff curve numbers for arid and semiarid rangelands ^{1/}

Cover type	Cover description	Hydrologic condition ^{2/}	Curve numbers for hydrologic soil group		
			A ^{3/}	B	C
Herbaceous—mixture of grass, weeds, and low-growing brush, with brush the minor element.	Poor		80	87	93
	Fair		71	81	89
	Good		62	74	85
Oak-aspen—mountain brush mixture of oak brush, aspen, mountain mahogany, bitter brush, maple, and other brush.	Poor		66	74	79
	Fair		48	57	63
	Good		30	41	48
Pinyon-juniper—pinyon, juniper, or both; grass understory.	Poor		75	85	89
	Fair		58	73	80
	Good		41	61	71
Sagebrush with grass understory.	Poor		67	80	85
	Fair		51	63	70
	Good		35	47	55
Desert shrub—major plants include saltbush, greasewood, creosotebush, blackbrush, bursage, palo verde, mesquite, and cactus.	Poor		63	77	85
	Fair		55	72	81
	Good		49	68	79

^{1/} Average runoff condition, and $I_{av} = 0.2S$. For range in humid regions, use table 2-2c.^{2/} Poor: <30% ground cover (litter, grass, and brush overstory).

Fair: 30 to 70% ground cover.

Good: > 70% ground cover.

^{3/} Curve numbers for group A have been developed only for desert shrub.

Watershed Average Slope Calculation

Watershed Slope Calculation
Contour Lengths

elev	Lengths (ft)			
	ft	ft	ft	ft
80	2865			
120	7272			
160	11190			
200	13648			
240	1061	12423		
280	10313			
320	8115	670		
360	2801	4844		
400	979	1216	1776	1290
440	990	808		
480	304			

Sum of Lengths 82565
 Contour Interval 40
 Area 19035720 sq ft

$$Y = \frac{CI}{A}$$

Slope Y= 0.173495 use for HydroCad
 = 17.3%

NOAA Rainfall Data

NOAA Atlas 14, Volume 6, Version 2
Location name: Arroyo Grande, California,
USA*
Latitude: 35.1375°, **Longitude:** -120.5892°
Elevation: 166.34 ft**
 * source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerials](#)

PF tabular

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.122 (0.109-0.137)	0.153 (0.136-0.173)	0.192 (0.171-0.218)	0.224 (0.197-0.256)	0.265 (0.225-0.316)	0.297 (0.245-0.362)	0.327 (0.263-0.412)	0.359 (0.279-0.466)	0.399 (0.296-0.544)	0.430 (0.306-0.610)
10-min	0.174 (0.156-0.197)	0.219 (0.196-0.247)	0.276 (0.246-0.313)	0.321 (0.283-0.367)	0.380 (0.323-0.453)	0.425 (0.352-0.519)	0.469 (0.377-0.590)	0.514 (0.400-0.667)	0.572 (0.424-0.780)	0.617 (0.439-0.874)
15-min	0.211 (0.189-0.238)	0.265 (0.237-0.299)	0.333 (0.297-0.378)	0.388 (0.342-0.444)	0.460 (0.390-0.548)	0.514 (0.425-0.628)	0.568 (0.456-0.713)	0.621 (0.483-0.807)	0.692 (0.513-0.944)	0.746 (0.531-1.06)
30-min	0.297 (0.266-0.335)	0.373 (0.333-0.421)	0.469 (0.418-0.532)	0.546 (0.482-0.625)	0.648 (0.549-0.772)	0.724 (0.598-0.884)	0.799 (0.642-1.00)	0.875 (0.680-1.14)	0.975 (0.722-1.33)	1.05 (0.747-1.49)
60-min	0.423 (0.379-0.478)	0.531 (0.475-0.600)	0.669 (0.596-0.759)	0.778 (0.686-0.891)	0.923 (0.783-1.10)	1.03 (0.853-1.26)	1.14 (0.915-1.43)	1.25 (0.970-1.62)	1.39 (1.03-1.89)	1.50 (1.07-2.12)
2-hr	0.640 (0.573-0.723)	0.794 (0.709-0.897)	0.985 (0.877-1.12)	1.13 (1.00-1.30)	1.33 (1.12-1.58)	1.47 (1.21-1.79)	1.60 (1.29-2.01)	1.74 (1.35-2.25)	1.91 (1.41-2.60)	2.03 (1.45-2.89)
3-hr	0.812 (0.726-0.916)	1.00 (0.897-1.14)	1.24 (1.11-1.41)	1.42 (1.25-1.63)	1.66 (1.41-1.97)	1.83 (1.51-2.23)	1.99 (1.60-2.50)	2.15 (1.67-2.79)	2.35 (1.74-3.21)	2.50 (1.78-3.55)
6-hr	1.13 (1.01-1.28)	1.40 (1.25-1.58)	1.73 (1.54-1.96)	1.98 (1.75-2.27)	2.30 (1.95-2.74)	2.53 (2.09-3.09)	2.75 (2.21-3.45)	2.96 (2.30-3.84)	3.23 (2.39-4.39)	3.42 (2.44-4.85)
12-hr	1.43 (1.28-1.61)	1.79 (1.60-2.02)	2.23 (1.99-2.53)	2.58 (2.27-2.95)	3.02 (2.56-3.59)	3.33 (2.76-4.07)	3.64 (2.93-4.58)	3.94 (3.07-5.12)	4.33 (3.21-5.90)	4.61 (3.28-6.54)
24-hr	1.79 (1.62-2.02)	2.27 (2.05-2.56)	2.88 (2.59-3.26)	3.36 (3.00-3.85)	4.00 (3.44-4.76)	4.48 (3.76-5.45)	4.95 (4.04-6.20)	5.43 (4.29-7.01)	6.06 (4.57-8.19)	6.53 (4.74-9.18)
2-day	2.18 (1.97-2.47)	2.81 (2.54-3.17)	3.62 (3.26-4.10)	4.27 (3.81-4.89)	5.15 (4.42-6.12)	5.82 (4.88-7.09)	6.50 (5.30-8.13)	7.19 (5.68-9.28)	8.12 (6.13-11.0)	8.83 (6.41-12.4)
3-day	2.46 (2.22-2.77)	3.18 (2.87-3.60)	4.14 (3.73-4.70)	4.93 (4.40-5.64)	6.01 (5.16-7.14)	6.84 (5.73-8.32)	7.68 (6.27-9.61)	8.56 (6.77-11.0)	9.75 (7.36-13.2)	10.7 (7.76-15.0)
4-day	2.68 (2.42-3.02)	3.49 (3.15-3.94)	4.56 (4.11-5.17)	5.45 (4.86-6.24)	6.68 (5.74-7.94)	7.64 (6.41-9.30)	8.63 (7.04-10.8)	9.66 (7.64-12.5)	11.1 (8.36-15.0)	12.2 (8.85-17.1)
7-day	3.14 (2.83-3.54)	4.10 (3.71-4.64)	5.41 (4.87-6.13)	6.50 (5.79-7.43)	8.01 (6.88-9.52)	9.21 (7.72-11.2)	10.4 (8.52-13.1)	11.8 (9.29-15.2)	13.6 (10.2-18.4)	15.0 (10.9-21.1)
10-day	3.50 (3.16-3.95)	4.59 (4.14-5.19)	6.07 (5.46-6.88)	7.31 (6.52-8.37)	9.05 (7.77-10.8)	10.4 (8.74-12.7)	11.9 (9.68-14.8)	13.4 (10.6-17.3)	15.5 (11.7-21.0)	17.2 (12.5-24.2)
20-day	4.39 (3.97-4.95)	5.80 (5.24-6.56)	7.72 (6.95-8.76)	9.35 (8.34-10.7)	11.6 (9.99-13.8)	13.5 (11.3-16.4)	15.4 (12.6-19.3)	17.4 (13.8-22.5)	20.3 (15.3-27.4)	22.6 (16.4-31.7)
30-day	5.32 (4.81-6.00)	7.03 (6.35-7.95)	9.38 (8.44-10.6)	11.4 (10.1-13.0)	14.2 (12.2-16.8)	16.4 (13.8-20.0)	18.8 (15.3-23.5)	21.3 (16.8-27.5)	24.8 (18.7-33.5)	27.6 (20.1-38.9)
45-day	6.42 (5.81-7.25)	8.48 (7.66-9.59)	11.3 (10.2-12.8)	13.7 (12.2-15.6)	17.0 (14.6-20.2)	19.7 (16.5-24.0)	22.5 (18.4-28.2)	25.6 (20.2-33.0)	29.8 (22.5-40.3)	33.2 (24.1-46.6)
60-day	7.51 (6.79-8.48)	9.86 (8.90-11.1)	13.1 (11.8-14.8)	15.8 (14.1-18.1)	19.6 (16.8-23.3)	22.7 (19.0-27.6)	25.9 (21.1-32.4)	29.3 (23.2-37.8)	34.1 (25.7-46.1)	38.0 (27.6-53.3)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

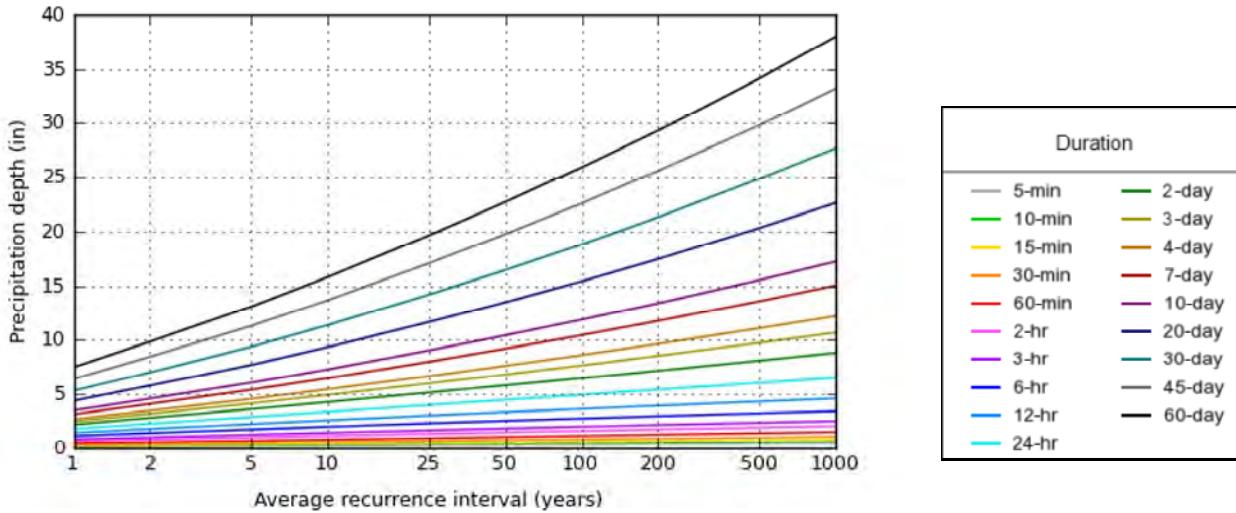
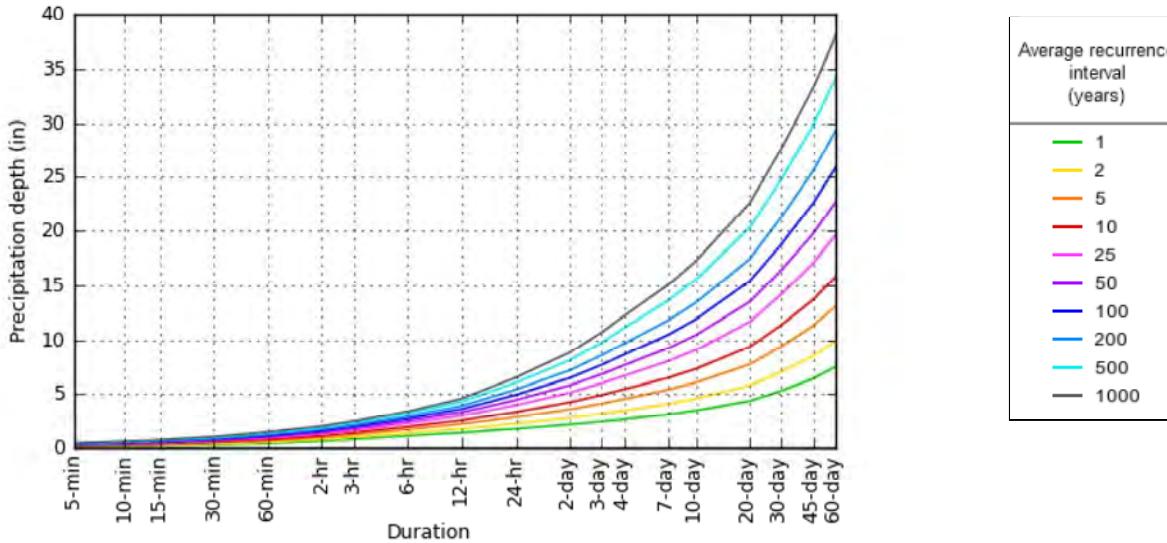
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

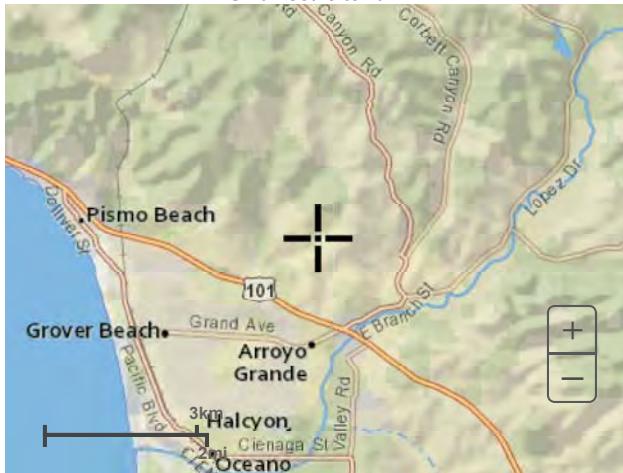
Please refer to NOAA Atlas 14 document for more information.

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PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 35.1375°, Longitude: -120.5892°



Maps & aerials**Small scale terrain****Large scale terrain****Large scale map**

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[US Department of Commerce](#)
[National Oceanic and Atmospheric Administration](#)
[National Weather Service](#)
[National Water Center](#)
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

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HydroCad Report

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
230.000	41	Open space (1S)
32.500	79	one-acre lots (1S)
174.500	83	smaller lots (1S)
437.000	61	TOTAL AREA

Elfers

Prepared by Keith V Crowe, PE

HydroCAD® 10.00-20 s/n 04223 © 2017 HydroCAD Software Solutions LLC

100-year and 500-year, 24-hour storms

Type I 24-hr 100yr Rainfall=4.95"

Printed 9/12/2017

Page 2

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Meadow Creek east Runoff Area=437.000 ac 0.00% Impervious Runoff Depth>1.07"
Flow Length=8,887' Slope=0.1730 '/' Tc=74.0 min CN=61 Runoff=114.83 cfs 39.096 af

Total Runoff Area = 437.000 ac Runoff Volume = 39.096 af Average Runoff Depth = 1.07"
100.00% Pervious = 437.000 ac 0.00% Impervious = 0.000 ac

Elfers

Prepared by Keith V Crowe, PE

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100-year and 500-year, 24-hour storms

Type I 24-hr 100yr Rainfall=4.95"

Printed 9/12/2017

Page 3

Summary for Subcatchment 1S: Meadow Creek east branch

Runoff = 114.83 cfs @ 10.97 hrs, Volume= 39.096 af, Depth> 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type I 24-hr 100yr Rainfall=4.95"

Area (ac)	CN	Description
* 230.000	41	Open space
* 32.500	79	one-acre lots
* 174.500	83	smaller lots
437.000	61	Weighted Average
437.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
74.0	8,887	0.1730	2.00		Lag/CN Method,

Elfers

Prepared by Keith V Crowe, PE

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100-year and 500-year, 24-hour storms

Type I 24-hr 500yr Rainfall=6.00"

Printed 9/12/2017

Page 4

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Meadow Creek east Runoff Area=437.000 ac 0.00% Impervious Runoff Depth>1.64"
Flow Length=8,887' Slope=0.1730 '/' Tc=74.0 min CN=61 Runoff=194.11 cfs 59.794 af

Total Runoff Area = 437.000 ac Runoff Volume = 59.794 af Average Runoff Depth = 1.64"
100.00% Pervious = 437.000 ac 0.00% Impervious = 0.000 ac

Elfers

Prepared by Keith V Crowe, PE

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100-year and 500-year, 24-hour storms

Type I 24-hr 500yr Rainfall=6.00"

Printed 9/12/2017

Page 5

Summary for Subcatchment 1S: Meadow Creek east branch

Runoff = 194.11 cfs @ 10.93 hrs, Volume= 59.794 af, Depth> 1.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type I 24-hr 500yr Rainfall=6.00"

Area (ac)	CN	Description
* 230.000	41	Open space
* 32.500	79	one-acre lots
* 174.500	83	smaller lots
437.000	61	Weighted Average
437.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
74.0	8,887	0.1730	2.00		Lag/CN Method,

HEC-RAS Report

MeadowCreek.rep

HEC-RAS HEC-RAS 5.0.3 September 2016
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

X	X	XXXXXX	XXXX	XXXX	XX	XXXX
X	X	X	X X	X X	X X	X
X	X	X	X	X X	X X	X
XXXXXX	XXXX	X	XXX	XXXX	XXXXXX	XXXX
X	X	X	X	X X	X X	X
X	X	X	X X	X X	X X	X
X	X	XXXXXX	XXXX	X X	X X	XXXXX

PROJECT DATA

Project Title: Meadow Creek
Project File : MeadowCreek.prj
Run Date and Time: 9/6/2017 3:32:33 PM

Project in English units

PLAN DATA

Plan Title: Plan 01
Plan File : d:\!Work\Elfers\HEC-RAS\MeadowCreek.p01

Geometry Title: Meadow Creek
Geometry File : d:\!Work\Elfers\HEC-RAS\MeadowCreek.g01

Flow Title : 100yr

MeadowCreek.rep

Flow File : d:\!Work\Elfers\HEC-RAS\MeadowCreek.f01

Plan Summary Information:

Number of: Cross Sections = 13 Multiple Openings = 0
 Culverts = 0 Inline Structures = 0
 Bridges = 0 Lateral Structures = 0

Computational Information

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

Computation Options

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

FLOW DATA

Flow Title: 100yr
Flow File : d:\!Work\Elfers\HEC-RAS\MeadowCreek.f01

Flow Data (cfs)

* River Reach RS * PF 1 PF 2 *
* Meadow Elfers 2468 * 115 194 *

Boundary Conditions

* River Reach Profile * Upstream Downstream *

MeadowCreek.rep

```
*****
* Meadow          Elfers        PF 1      *           Known WS = 64 *
* Meadow          Elfers        PF 2      *           Known WS = 66.5 *
*****
```

```
*****
```

GEOOMETRY DATA

Geometry Title: Meadow Creek
Geometry File : d:\!Work\Elfers\HEC-RAS\MeadowCreek.g01

CROSS SECTION

RIVER: Meadow
REACH: Elfers RS: 2468

INPUT

Description:

Station Elevation Data num= 6									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
923.5	77.65	948.5	75.75	979.5	73.55	1000	73.03	1020	72.67
1033.5	73.52								

```
*****
```

Manning's n Values num= 3					
Sta	n Val	Sta	n Val	Sta	n Val
923.5	.03	948.5	.035	1020	.03

```
*****
```

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	948.5	1020		173	173	173		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

```
*****
```

* E.G. Elev (ft) * 73.86 * Element * Left OB * Channel * Right OB *

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* Vel Head (ft)	*	0.27	* Wt. n-Val.	*		*	0.035	*	0.030	*
* W.S. Elev (ft)	*	73.59	* Reach Len. (ft)	*	173.00	*	173.00	*	173.00	*
* Crit W.S. (ft)	*	73.59	* Flow Area (sq ft)	*		*	21.16	*	6.75	*
* E.G. Slope (ft/ft)	*	0.021408	* Area (sq ft)	*		*	21.16	*	6.75	*
* Q Total (cfs)	*	115.00	* Flow (cfs)	*		*	84.36	*	30.64	*
* Top Width (ft)	*	54.63	* Top Width (ft)	*		*	41.13	*	13.50	*
* Vel Total (ft/s)	*	4.12	* Avg. Vel. (ft/s)	*		*	3.99	*	4.54	*
* Max Chl Dpth (ft)	*	0.92	* Hydr. Depth (ft)	*		*	0.51	*	0.50	*
* Conv. Total (cfs)	*	786.0	* Conv. (cfs)	*		*	576.6	*	209.4	*
* Length Wtd. (ft)	*	173.00	* Wetted Per. (ft)	*		*	41.14	*	13.60	*
* Min Ch El (ft)	*	72.67	* Shear (lb/sq ft)	*		*	0.69	*	0.66	*
* Alpha	*	1.01	* Stream Power (lb/ft s)	*		*	2.74	*	3.01	*
* Frctn Loss (ft)	*	2.07	* Cum Volume (acre-ft)	*	0.33	*	3.48	*	0.85	*
* C & E Loss (ft)	*	0.01	* Cum SA (acres)	*	0.18	*	1.35	*	0.24	*

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical

depth for the water surface and continued on with the calculations.

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

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

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

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

the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated

water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The

program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	*	74.18	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	0.36	* Wt. n-Val.	*		*	0.035	*	0.030	*
* W.S. Elev (ft)	*	73.82	* Reach Len. (ft)	*	173.00	*	173.00	*	173.00	*

MeadowCreek.rep

* Crit W.S. (ft)	* 73.82	* Flow Area (sq ft)	*	* 30.72	*	9.77	*
* E.G. Slope (ft/ft)	*0.019056	* Area (sq ft)	*	* 30.72	*	9.77	*
* Q Total (cfs)	* 194.00	* Flow (cfs)	*	* 141.01	*	52.99	*
* Top Width (ft)	* 57.78	* Top Width (ft)	*	* 44.28	*	13.50	*
* Vel Total (ft/s)	* 4.79	* Avg. Vel. (ft/s)	*	* 4.59	*	5.42	*
* Max Chl Dpth (ft)	* 1.15	* Hydr. Depth (ft)	*	* 0.69	*	0.72	*
* Conv. Total (cfs)	* 1405.4	* Conv. (cfs)	*	* 1021.5	*	383.8	*
* Length Wtd. (ft)	* 173.00	* Wetted Per. (ft)	*	* 44.30	*	13.83	*
* Min Ch El (ft)	* 72.67	* Shear (lb/sq ft)	*	* 0.82	*	0.84	*
* Alpha	* 1.02	* Stream Power (lb/ft s)	*	* 3.79	*	4.56	*
* Frctn Loss (ft)	* 1.90	* Cum Volume (acre-ft)	*	0.98	*	5.99	*
* C & E Loss (ft)	* 0.04	* Cum SA (acres)	*	0.35	*	1.45	*

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical

depth for the water surface and continued on with the calculations.

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

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

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

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

This may indicate

the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated

water surface came back below critical depth. This indicates that there is not a valid
subcritical answer. The
program defaulted to critical depth.

CROSS SECTION

RIVER: Meadow

REACH: Elfers

RS: 2295

INPUT

MeadowCreek.rep

Description:

Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
849	73.5	924	69.47	963.5	69.34	992.5	67.78	1000	65.7
1013	67.8	1028.5	70.25	1053.5	71.25	1085	71.29	1132	74.71

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
849	.03	963.5	.035	1028.5	.03

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	963.5	1028.5		110	110	110		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 68.38	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.22	* Wt. n-Val.	*	* 0.035	*	*
* W.S. Elev (ft)	* 68.16	* Reach Len. (ft)	* 110.00	* 110.00	* 110.00	*
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	* 30.71	*	*
* E.G. Slope (ft/ft)	* 0.007647	* Area (sq ft)	*	* 30.71	*	*
* Q Total (cfs)	* 115.00	* Flow (cfs)	*	* 115.00	*	*
* Top Width (ft)	* 29.82	* Top Width (ft)	*	* 29.82	*	*
* Vel Total (ft/s)	* 3.74	* Avg. Vel. (ft/s)	*	* 3.74	*	*
* Max Chl Dpth (ft)	* 2.46	* Hydr. Depth (ft)	*	* 1.03	*	*
* Conv. Total (cfs)	* 1315.1	* Conv. (cfs)	*	* 1315.1	*	*
* Length Wtd. (ft)	* 110.00	* Wetted Per. (ft)	*	* 30.31	*	*
* Min Ch El (ft)	* 65.70	* Shear (lb/sq ft)	*	* 0.48	*	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	* 1.81	*	*
* Frctn Loss (ft)	* 1.07	* Cum Volume (acre-ft)	* 0.33	* 3.37	* 0.83	*
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 0.18	* 1.21	* 0.21	*

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

MeadowCreek.rep

CROSS SECTION OUTPUT Profile #PF 2

```
*****
* E.G. Elev (ft)      * 68.92 * Element          * Left OB * Channel * Right OB *
* Vel Head (ft)       * 0.24  * Wt. n-Val.        *           * 0.035  *           *
* W.S. Elev (ft)       * 68.68 * Reach Len. (ft)   * 110.00  * 110.00  * 110.00  *
* Crit W.S. (ft)       * 68.23 * Flow Area (sq ft) *           * 49.53  *           *
* E.G. Slope (ft/ft)   *0.007114 * Area (sq ft)     *           * 49.53  *           *
* Q Total (cfs)        * 194.00 * Flow (cfs)       *           * 194.00  *           *
* Top Width (ft)        * 42.74  * Top Width (ft)    *           * 42.74  *           *
* Vel Total (ft/s)     * 3.92   * Avg. Vel. (ft/s)  *           * 3.92   *           *
* Max Chl Dpth (ft)    * 2.98   * Hydr. Depth (ft) *           * 1.16   *           *
* Conv. Total (cfs)    * 2300.1  * Conv. (cfs)       *           * 2300.1  *           *
* Length Wtd. (ft)      * 110.00 * Wetted Per. (ft) *           * 43.29  *           *
* Min Ch El (ft)        * 65.70   * Shear (lb/sq ft) *           * 0.51   *           *
* Alpha                 * 1.00   * Stream Power (lb/ft s) *           * 1.99   *           *
* Frctn Loss (ft)       * 1.24   * Cum Volume (acre-ft) * 0.98   * 5.83   * 1.49   *
* C & E Loss (ft)       * 0.02   * Cum SA (acres)     * 0.35   * 1.28   * 0.33   *
*****
```

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.

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

the need for additional cross sections.

CROSS SECTION

RIVER: Meadow

REACH: Elfers

RS: 2185

INPUT

Description:

Station	Elevation	Data	num=	9	Sta	Elev	Sta	Elev	Sta	Elev

MeadowCreek.rep

893	72.44	911.5	68.57	949	68.74	990	66.1	1000	65.22
1006	66.84	1017.5	66.95	1029.5	68.59	1063.5	71.35		

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

 893 .03 949 .035 1029.5 .03

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	949	1029.5		118	118	118		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

 * E.G. Elev (ft) * 67.31 * Element * Left OB * Channel * Right OB *
 * Vel Head (ft) * 0.22 * Wt. n-Val. * * 0.035 * *
 * W.S. Elev (ft) * 67.09 * Reach Len. (ft) * 118.00 * 118.00 * 118.00 *
 * Crit W.S. (ft) * * Flow Area (sq ft) * * 30.58 * *
 * E.G. Slope (ft/ft) *0.012817 * Area (sq ft) * * 30.58 * *
 * Q Total (cfs) * 115.00 * Flow (cfs) * * 115.00 * *
 * Top Width (ft) * 43.90 * Top Width (ft) * * 43.90 * *
 * Vel Total (ft/s) * 3.76 * Avg. Vel. (ft/s) * * 3.76 * *
 * Max Chl Dpth (ft) * 1.87 * Hydr. Depth (ft) * * 0.70 * *
 * Conv. Total (cfs) * 1015.8 * Conv. (cfs) * * 1015.8 * *
 * Length Wtd. (ft) * 118.00 * Wetted Per. (ft) * * 44.19 * *
 * Min Ch El (ft) * 65.22 * Shear (lb/sq ft) * * 0.55 * *
 * Alpha * 1.00 * Stream Power (lb/ft s) * * 2.08 * *
 * Frctn Loss (ft) * 1.39 * Cum Volume (acre-ft) * 0.33 * 3.30 * 0.83 *
 * C & E Loss (ft) * 0.00 * Cum SA (acres) * 0.18 * 1.12 * 0.21 *

Warning: The energy loss was greater than 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

MeadowCreek.rep

* E.G. Elev (ft)	*	67.66	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	0.42	* Wt. n-Val.	*		*	0.035	*		*
* W.S. Elev (ft)	*	67.24	* Reach Len. (ft)	*	118.00	*	118.00	*	118.00	*
* Crit W.S. (ft)	*	67.24	* Flow Area (sq ft)	*		*	37.53	*		*
* E.G. Slope (ft/ft)	*	0.020405	* Area (sq ft)	*		*	37.53	*		*
* Q Total (cfs)	*	194.00	* Flow (cfs)	*		*	194.00	*		*
* Top Width (ft)	*	47.38	* Top Width (ft)	*		*	47.38	*		*
* Vel Total (ft/s)	*	5.17	* Avg. Vel. (ft/s)	*		*	5.17	*		*
* Max Chl Dpth (ft)	*	2.02	* Hydr. Depth (ft)	*		*	0.79	*		*
* Conv. Total (cfs)	*	1358.1	* Conv. (cfs)	*		*	1358.1	*		*
* Length Wtd. (ft)	*	118.00	* Wetted Per. (ft)	*		*	47.69	*		*
* Min Ch El (ft)	*	65.22	* Shear (lb/sq ft)	*		*	1.00	*		*
* Alpha	*	1.00	* Stream Power (lb/ft s)	*		*	5.18	*		*
* Frctn Loss (ft)	*	0.63	* Cum Volume (acre-ft)	*	0.98	*	5.72	*	1.49	*
* C & E Loss (ft)	*	0.09	* Cum SA (acres)	*	0.35	*	1.17	*	0.33	*

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical

depth for the water surface and continued on with the calculations.

Warning: The conveyance ratio (upstream conveyance 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

RIVER: Meadow
REACH: Elfers

RS: 2067

INPUT

Description:

MeadowCreek.rep

Station	Elevation	Data	num=	11					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
922	69.82	939	67.03	972	67.01	980.5	65.71	994	64.42
996.5	64.25	1000	63.87	1001.5	64.54	1020	65.72	1034	68.52
1050	69.57								

Manning's n Values	num=	3			
Sta	n Val	Sta	n Val	Sta	n Val
922	.03	980.5	.035	1020	.03

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	980.5	1020		85	85	85		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 65.92	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.22	* Wt. n-Val.	*	*	0.035	*
* W.S. Elev (ft)	* 65.71	* Reach Len. (ft)	* 85.00	* 85.00	* 85.00	*
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	*	30.73	*
* E.G. Slope (ft/ft)	* 0.010855	* Area (sq ft)	*	*	30.73	*
* Q Total (cfs)	* 115.00	* Flow (cfs)	*	*	115.00	*
* Top Width (ft)	* 39.23	* Top Width (ft)	*	*	39.23	*
* Vel Total (ft/s)	* 3.74	* Avg. Vel. (ft/s)	*	*	3.74	*
* Max Chl Dpth (ft)	* 1.84	* Hydr. Depth (ft)	*	*	0.78	*
* Conv. Total (cfs)	* 1103.8	* Conv. (cfs)	*	*	1103.8	*
* Length Wtd. (ft)	* 85.00	* Wetted Per. (ft)	*	*	39.49	*
* Min Ch El (ft)	* 63.87	* Shear (lb/sq ft)	*	*	0.53	*
* Alpha	* 1.00	* Stream Power (lb/ft s)	*	*	1.97	*
* Frctn Loss (ft)	* 0.63	* Cum Volume (acre-ft)	* 0.33	* 3.21	* 0.83	*
* C & E Loss (ft)	* 0.03	* Cum SA (acres)	* 0.18	* 1.01	* 0.21	*

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 66.70	* Element	* Left OB	* Channel	* Right OB	*
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* Vel Head (ft)	*	0.13	*	Wt. n-Val.	*	0.030	*	0.035	*	0.030	*
* W.S. Elev (ft)	*	66.57	*	Reach Len. (ft)	*	85.00	*	85.00	*	85.00	*
* Crit W.S. (ft)	*		*	Flow Area (sq ft)	*	2.44	*	65.05	*	1.82	*
* E.G. Slope (ft/ft)	*	0.002409	*	Area (sq ft)	*	2.44	*	65.05	*	1.82	*
* Q Total (cfs)	*	194.00	*	Flow (cfs)	*	3.37	*	188.15	*	2.48	*
* Top Width (ft)	*	49.42	*	Top Width (ft)	*	5.65	*	39.50	*	4.27	*
* Vel Total (ft/s)	*	2.80	*	Avg. Vel. (ft/s)	*	1.38	*	2.89	*	1.36	*
* Max Chl Dpth (ft)	*	2.70	*	Hydr. Depth (ft)	*	0.43	*	1.65	*	0.43	*
* Conv. Total (cfs)	*	3952.8	*	Conv. (cfs)	*	68.6	*	3833.6	*	50.6	*
* Length Wtd. (ft)	*	85.00	*	Wetted Per. (ft)	*	5.72	*	39.77	*	4.36	*
* Min Ch El (ft)	*	63.87	*	Shear (lb/sq ft)	*	0.06	*	0.25	*	0.06	*
* Alpha	*	1.04	*	Stream Power (lb/ft s)	*	0.09	*	0.71	*	0.09	*
* Frctn Loss (ft)	*	0.08	*	Cum Volume (acre-ft)	*	0.97	*	5.58	*	1.48	*
* C & E Loss (ft)	*	0.03	*	Cum SA (acres)	*	0.35	*	1.05	*	0.33	*

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

RIVER: Meadow

REACH: Elfers

RS: 1982

INPUT

Description:

Station	Elevation	Data	num=	9					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
924	71.59	942	67	961	64.94	995.5	64	1000	62.98
1003	63.34	1007	64.84	1017.5	66.37	1040.5	70.27		

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

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924 .03 961 .035 1017.5 .03

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	961	1017.5		84	84	84		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

```
*****
* E.G. Elev (ft)      * 65.27 * Element          * Left OB * Channel * Right OB *
* Vel Head (ft)       * 0.12  * Wt. n-Val.        * 0.030  * 0.035  *           *
* W.S. Elev (ft)       * 65.15 * Reach Len. (ft)   * 84.00  * 84.00  * 84.00  *
* Crit W.S. (ft)       *           * Flow Area (sq ft) * 0.19   * 41.23  *           *
* E.G. Slope (ft/ft)   *0.005349 * Area (sq ft)     * 0.19   * 41.23  *           *
* Q Total (cfs)        * 115.00 * Flow (cfs)       * 0.15   * 114.85 *           *
* Top Width (ft)        * 49.99 * Top Width (ft)    * 1.89   * 48.09  *           *
* Vel Total (ft/s)     * 2.78  * Avg. Vel. (ft/s)  * 0.79   * 2.79   *           *
* Max Chl Dpth (ft)    * 2.17  * Hydr. Depth (ft)  * 0.10   * 0.86   *           *
* Conv. Total (cfs)     * 1572.3 * Conv. (cfs)       * 2.1    * 1570.2 *           *
* Length Wtd. (ft)      * 84.00 * Wetted Per. (ft)  * 1.90   * 48.54  *           *
* Min Ch El (ft)        * 62.98 * Shear (lb/sq ft)  * 0.03   * 0.28   *           *
* Alpha                 * 1.01  * Stream Power (lb/ft s) * 0.03   * 0.79   *           *
* Frctn Loss (ft)       * 0.53  * Cum Volume (acre-ft) * 0.33   * 3.14   * 0.83  *
* C & E Loss (ft)       * 0.01  * Cum SA (acres)     * 0.18   * 0.92   * 0.21  *
*****
```

CROSS SECTION OUTPUT Profile #PF 2

```
*****
* E.G. Elev (ft)      * 66.59 * Element          * Left OB * Channel * Right OB *
* Vel Head (ft)       * 0.04  * Wt. n-Val.        * 0.030  * 0.035  * 0.030  *
* W.S. Elev (ft)       * 66.55 * Reach Len. (ft)   * 84.00  * 84.00  * 84.00  *
* Crit W.S. (ft)       *           * Flow Area (sq ft) * 11.99  * 115.59 * 0.10   *
* E.G. Slope (ft/ft)   *0.000537 * Area (sq ft)     * 11.99  * 115.59 * 0.10   *
* Q Total (cfs)        * 194.00 * Flow (cfs)       * 11.87  * 182.11 * 0.02   *
* Top Width (ft)        * 72.45 * Top Width (ft)    * 14.87  * 56.50  * 1.08   *
* Vel Total (ft/s)     * 1.52  * Avg. Vel. (ft/s)  * 0.99   * 1.58   * 0.23   *
* Max Chl Dpth (ft)    * 3.57  * Hydr. Depth (ft)  * 0.81   * 2.05   * 0.09   *
* Conv. Total (cfs)     * 8372.9 * Conv. (cfs)       * 512.3  * 7859.6 * 1.0    *
* Length Wtd. (ft)      * 84.00 * Wetted Per. (ft)  * 14.96  * 57.03  * 1.09   *
*****
```

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* Min Ch El (ft)	*	62.98	*	Shear (lb/sq ft)	*	0.03	*	0.07	*	0.00	*
* Alpha	*	1.04	*	Stream Power (lb/ft s)	*	0.03	*	0.11	*	0.00	*
* Frctn Loss (ft)	*	0.04	*	Cum Volume (acre-ft)	*	0.96	*	5.41	*	1.48	*
* C & E Loss (ft)	*	0.00	*	Cum SA (acres)	*	0.33	*	0.96	*	0.32	*

CROSS SECTION

RIVER: Meadow
REACH: Elfers RS: 1898

INPUT

Description:

Station	Elevation	Data	num=	8			
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
968	68.12	986	64.15	999	62.87	1000	62.45
1019	64.51	1043	67.88	1069	68.72	1001	62.89

Manning's n Values	num=	3			
Sta	n Val	Sta	n Val	Sta	n Val
968	.03	986	.035	1019	.03

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	986	1019		124	124	124	.1	.3	

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	64.73	*	Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	0.20	*	Wt. n-Val.	*	0.030	*	0.035	*	0.000	*
* W.S. Elev (ft)	*	64.53	*	Reach Len. (ft)	*	124.00	*	124.00	*	124.00	*
* Crit W.S. (ft)	*		*	Flow Area (sq ft)	*	0.33	*	32.03	*	0.00	*
* E.G. Slope (ft/ft)	*	0.007478	*	Area (sq ft)	*	0.33	*	32.03	*	0.00	*
* Q Total (cfs)	*	115.00	*	Flow (cfs)	*	0.47	*	114.53	*	0.00	*
* Top Width (ft)	*	34.90	*	Top Width (ft)	*	1.74	*	33.00	*	0.16	*

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* Vel Total (ft/s)	*	3.55	* Avg. Vel. (ft/s)	*	1.40	*	3.58	*	0.22	*
* Max Chl Dpth (ft)	*	2.08	* Hydr. Depth (ft)	*	0.19	*	0.97	*	0.01	*
* Conv. Total (cfs)	*	1329.8	* Conv. (cfs)	*	5.4	*	1324.4	*	0.0	*
* Length Wtd. (ft)	*	124.00	* Wetted Per. (ft)	*	1.78	*	33.31	*	0.16	*
* Min Ch El (ft)	*	62.45	* Shear (lb/sq ft)	*	0.09	*	0.45	*		
* Alpha	*	1.01	* Stream Power (lb/ft s)	*	0.12	*	1.61	*		
* Frctn Loss (ft)	*	0.57	* Cum Volume (acre-ft)	*	0.32	*	3.07	*	0.83	*
* C & E Loss (ft)	*	0.03	* Cum SA (acres)	*	0.18	*	0.84	*	0.21	*

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

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

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	*	66.55	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	0.04	* Wt. n-Val.	*	0.030	*	0.035	*	0.030	*
* W.S. Elev (ft)	*	66.51	* Reach Len. (ft)	*	124.00	*	124.00	*	124.00	*
* Crit W.S. (ft)	*		* Flow Area (sq ft)	*	12.62	*	97.25	*	14.23	*
* E.G. Slope (ft/ft)	*	0.000390	* Area (sq ft)	*	12.62	*	97.25	*	14.23	*
* Q Total (cfs)	*	194.00	* Flow (cfs)	*	13.57	*	166.60	*	13.83	*
* Top Width (ft)	*	57.94	* Top Width (ft)	*	10.70	*	33.00	*	14.24	*
* Vel Total (ft/s)	*	1.56	* Avg. Vel. (ft/s)	*	1.08	*	1.71	*	0.97	*
* Max Chl Dpth (ft)	*	4.06	* Hydr. Depth (ft)	*	1.18	*	2.95	*	1.00	*
* Conv. Total (cfs)	*	9820.2	* Conv. (cfs)	*	686.9	*	8433.1	*	700.3	*
* Length Wtd. (ft)	*	124.00	* Wetted Per. (ft)	*	10.95	*	33.31	*	14.38	*
* Min Ch El (ft)	*	62.45	* Shear (lb/sq ft)	*	0.03	*	0.07	*	0.02	*
* Alpha	*	1.09	* Stream Power (lb/ft s)	*	0.03	*	0.12	*	0.02	*
* Frctn Loss (ft)	*	0.02	* Cum Volume (acre-ft)	*	0.94	*	5.20	*	1.47	*
* C & E Loss (ft)	*	0.01	* Cum SA (acres)	*	0.30	*	0.87	*	0.31	*

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.

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CROSS SECTION

RIVER: Meadow
REACH: Elfers RS: 1774

INPUT

Description:

Station	Elevation	Data	num=	10					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
935.5	67.59	945.5	65.49	957.5	63.54	994	62.8	996.5	62.1
1000	62.06	1001	62.29	1007	64.65	1023.5	67.14	1030.5	67.77

Manning's n Values	num=	3			
Sta	n Val	Sta	n Val	Sta	n Val
935.5	.03	957.5	.035	1007	.03

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	957.5	1007		100	100	100	.1		.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 64.12	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.09	* Wt. n-Val.	* 0.030	* 0.035	*	*
* W.S. Elev (ft)	* 64.04	* Reach Len. (ft)	* 100.00	* 100.00	* 100.00	*
* Crit W.S. (ft)	*	* Flow Area (sq ft)	* 0.76	* 48.20	*	*
* E.G. Slope (ft/ft)	*0.003131	* Area (sq ft)	* 0.76	* 48.20	*	*
* Q Total (cfs)	* 115.00	* Flow (cfs)	* 0.82	* 114.18	*	*
* Top Width (ft)	* 51.00	* Top Width (ft)	* 3.06	* 47.94	*	*
* Vel Total (ft/s)	* 2.35	* Avg. Vel. (ft/s)	* 1.09	* 2.37	*	*
* Max Chl Dpth (ft)	* 1.98	* Hydr. Depth (ft)	* 0.25	* 1.01	*	*
* Conv. Total (cfs)	* 2055.2	* Conv. (cfs)	* 14.7	* 2040.5	*	*
* Length Wtd. (ft)	* 100.00	* Wetted Per. (ft)	* 3.10	* 48.40	*	*
* Min Ch El (ft)	* 62.06	* Shear (lb/sq ft)	* 0.05	* 0.19	*	*
* Alpha	* 1.01	* Stream Power (lb/ft s)	* 0.05	* 0.46	*	*

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* Frctn Loss (ft)	*	0.08	*	Cum Volume (acre-ft)	*	0.32	*	2.96	*	0.83	*
* C & E Loss (ft)	*	0.02	*	Cum SA (acres)	*	0.17	*	0.73	*	0.21	*

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

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

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	*	66.52	*	Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	0.01	*	Wt. n-Val.	*	0.030	*	0.035	*	0.030	*
* W.S. Elev (ft)	*	66.51	*	Reach Len. (ft)	*	100.00	*	100.00	*	100.00	*
* Crit W.S. (ft)	*		*	Flow Area (sq ft)	*	26.33	*	169.89	*	11.40	*
* E.G. Slope (ft/ft)	*	0.000109	*	Area (sq ft)	*	26.33	*	169.89	*	11.40	*
* Q Total (cfs)	*	194.00	*	Flow (cfs)	*	18.19	*	170.24	*	5.57	*
* Top Width (ft)	*	78.63	*	Top Width (ft)	*	16.83	*	49.50	*	12.29	*
* Vel Total (ft/s)	*	0.93	*	Avg. Vel. (ft/s)	*	0.69	*	1.00	*	0.49	*
* Max Chl Dpth (ft)	*	4.45	*	Hydr. Depth (ft)	*	1.56	*	3.43	*	0.93	*
* Conv. Total (cfs)	*	18557.9	*	Conv. (cfs)	*	1739.6	*	16285.2	*	533.1	*
* Length Wtd. (ft)	*	100.00	*	Wetted Per. (ft)	*	17.10	*	50.08	*	12.43	*
* Min Ch El (ft)	*	62.06	*	Shear (lb/sq ft)	*	0.01	*	0.02	*	0.01	*
* Alpha	*	1.07	*	Stream Power (lb/ft s)	*	0.01	*	0.02	*	0.00	*
* Frctn Loss (ft)	*	0.01	*	Cum Volume (acre-ft)	*	0.88	*	4.82	*	1.43	*
* C & E Loss (ft)	*	0.00	*	Cum SA (acres)	*	0.26	*	0.75	*	0.27	*

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

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

CROSS SECTION

RIVER: Meadow
REACH: Elfers

RS: 1674

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INPUT

Description:

Station	Elevation	Data	num=	8					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
*****				*****				*****	
956	66.07	970	62.99	996	61.6	1000	60.44	1005	60.58
1008	61.92	1032	65.09	1044	65.99				

Manning's n Values	num=	3							
Sta	n Val	Sta	n Val	Sta	n Val				
*****		*****		*****					
956	.03	970	.035	1032	.03				

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	970	1032		130	130	130		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 64.03	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.02	* Wt. n-Val.	* 0.030	* 0.035	*	*
* W.S. Elev (ft)	* 64.01	* Reach Len. (ft)	* 130.00	* 130.00	* 130.00	*
* Crit W.S. (ft)	*	* Flow Area (sq ft)	* 2.35	* 98.71	*	*
* E.G. Slope (ft/ft)	*0.000333	* Area (sq ft)	* 2.35	* 98.71	*	*
* Q Total (cfs)	* 115.00	* Flow (cfs)	* 1.33	* 113.67	*	*
* Top Width (ft)	* 58.42	* Top Width (ft)	* 4.62	* 53.80	*	*
* Vel Total (ft/s)	* 1.14	* Avg. Vel. (ft/s)	* 0.57	* 1.15	*	*
* Max Chl Dpth (ft)	* 3.57	* Hydr. Depth (ft)	* 0.51	* 1.83	*	*
* Conv. Total (cfs)	* 6305.1	* Conv. (cfs)	* 73.0	* 6232.1	*	*
* Length Wtd. (ft)	* 130.00	* Wetted Per. (ft)	* 4.73	* 54.43	*	*
* Min Ch El (ft)	* 60.44	* Shear (lb/sq ft)	* 0.01	* 0.04	*	*
* Alpha	* 1.02	* Stream Power (lb/ft s)	* 0.01	* 0.04	*	*
* Frctn Loss (ft)	* 0.01	* Cum Volume (acre-ft)	* 0.32	* 2.79	* 0.83	*
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 0.16	* 0.61	* 0.21	*

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

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

CROSS SECTION OUTPUT Profile #PF 2

```
*****
* E.G. Elev (ft)      * 66.51  * Element          * Left OB * Channel * Right OB *
* Vel Head (ft)       * 0.01   * Wt. n-Val.       * 0.030  * 0.035  * 0.030  *
* W.S. Elev (ft)       * 66.50  * Reach Len. (ft)  * 130.00 * 130.00 * 130.00 *
* Crit W.S. (ft)       *        * Flow Area (sq ft) * 27.63  * 249.04 * 11.56  *
* E.G. Slope (ft/ft)   *0.000044 * Area (sq ft)    * 27.63  * 249.04 * 11.56  *
* Q Total (cfs)       * 194.00 * Flow (cfs)      * 13.83  * 176.56 * 3.61   *
* Top Width (ft)       * 88.00  * Top Width (ft)   * 14.00  * 62.00  * 12.00  *
* Vel Total (ft/s)    * 0.67   * Avg. Vel. (ft/s)  * 0.50   * 0.71   * 0.31   *
* Max Chl Dpth (ft)   * 6.06   * Hydr. Depth (ft)  * 1.97   * 4.02   * 0.96   *
* Conv. Total (cfs)   * 29137.3 * Conv. (cfs)     * 2077.5 * 26517.6 * 542.2  *
* Length Wtd. (ft)    * 130.00 * Wetted Per. (ft)  * 14.77  * 62.70  * 12.55  *
* Min Ch El (ft)       * 60.44  * Shear (lb/sq ft) * 0.01   * 0.01   * 0.00   *
* Alpha                 * 1.05   * Stream Power (lb/ft s) * 0.00   * 0.01   * 0.00   *
* Frctn Loss (ft)      * 0.00   * Cum Volume (acre-ft) * 0.82   * 4.34   * 1.40   *
* C & E Loss (ft)      * 0.00   * Cum SA (acres)    * 0.23   * 0.62   * 0.24   *
*****
```

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

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

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

CROSS SECTION

RIVER: Meadow

REACH: Elfers

RS: 1544

INPUT

Description:

Station	Elevation	Data num=	8	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

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*****
*****
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947	64.7	966	61.55	990	60.86	1000	60.77	1014.5	60.86
1022.5	61.11	1030.5	62.53	1042.5	64.76				

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

 947 .03 966 .035 1030.5 .03

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	966	1030.5		110	110	110		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 64.01	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.00	* Wt. n-Val.	* 0.030	* 0.035	* 0.030	*
* W.S. Elev (ft)	* 64.01	* Reach Len. (ft)	* 110.00	* 110.00	* 110.00	*
* Crit W.S. (ft)	*	* Flow Area (sq ft)	* 18.19	* 187.04	* 5.86	*
* E.G. Slope (ft/ft)	*0.000044	* Area (sq ft)	* 18.19	* 187.04	* 5.86	*
* Q Total (cfs)	* 115.00	* Flow (cfs)	* 6.77	* 106.68	* 1.55	*
* Top Width (ft)	* 87.25	* Top Width (ft)	* 14.81	* 64.50	* 7.94	*
* Vel Total (ft/s)	* 0.54	* Avg. Vel. (ft/s)	* 0.37	* 0.57	* 0.26	*
* Max Chl Dpth (ft)	* 3.24	* Hydr. Depth (ft)	* 1.23	* 2.90	* 0.74	*
* Conv. Total (cfs)	* 17382.4	* Conv. (cfs)	* 1023.6	* 16124.4	* 234.3	*
* Length Wtd. (ft)	* 110.00	* Wetted Per. (ft)	* 15.01	* 64.64	* 8.08	*
* Min Ch El (ft)	* 60.77	* Shear (lb/sq ft)	* 0.00	* 0.01	* 0.00	*
* Alpha	* 1.05	* Stream Power (lb/ft s)	* 0.00	* 0.00	* 0.00	*
* Frctn Loss (ft)	* 0.00	* Cum Volume (acre-ft)	* 0.29	* 2.36	* 0.82	*
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 0.13	* 0.43	* 0.20	*

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 66.51	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.00	* Wt. n-Val.	* 0.030	* 0.035	* 0.030	*
* W.S. Elev (ft)	* 66.50	* Reach Len. (ft)	* 110.00	* 110.00	* 110.00	*
* Crit W.S. (ft)	*	* Flow Area (sq ft)	* 64.19	* 348.16	* 34.30	*
* E.G. Slope (ft/ft)	*0.000012	* Area (sq ft)	* 64.19	* 348.16	* 34.30	*

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* Q Total (cfs)	* 194.00	* Flow (cfs)	* 23.49	* 159.63	* 10.88	*
* Top Width (ft)	* 95.50	* Top Width (ft)	* 19.00	* 64.50	* 12.00	*
* Vel Total (ft/s)	* 0.43	* Avg. Vel. (ft/s)	* 0.37	* 0.46	* 0.32	*
* Max Chl Dpth (ft)	* 5.73	* Hydr. Depth (ft)	* 3.38	* 5.40	* 2.86	*
* Conv. Total (cfs)	* 55197.2	* Conv. (cfs)	* 6683.8	* 45417.7	* 3095.6	*
* Length Wtd. (ft)	* 110.00	* Wetted Per. (ft)	* 21.06	* 64.64	* 13.95	*
* Min Ch El (ft)	* 60.77	* Shear (lb/sq ft)	* 0.00	* 0.00	* 0.00	*
* Alpha	* 1.03	* Stream Power (lb/ft s)	* 0.00	* 0.00	* 0.00	*
* Frctn Loss (ft)	* 0.00	* Cum Volume (acre-ft)	* 0.68	* 3.45	* 1.34	*
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	* 0.18	* 0.43	* 0.21	*

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

CROSS SECTION

RIVER: Meadow
REACH: Elfers RS: 1434

INPUT

Description:

Station	Elevation	Data	num=	7			
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
967	63.28	984	59.66	994	59.67	1000	58.84
1015	62.06	1027	63.26			1004	59.2

Manning's n Values	num=	3			
Sta	n Val	Sta	n Val	Sta	n Val
967	.03	984	.035	1015	.03

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	984	1015		100	100	100		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

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```
*****
* E.G. Elev (ft)      * 64.01  * Element          * Left OB * Channel * Right OB *
* Vel Head (ft)       * 0.01   * Wt. n-Val.       * 0.030  * 0.035  * 0.030  *
* W.S. Elev (ft)       * 64.00  * Reach Len. (ft)  * 100.00 * 100.00 * 100.00 *
* Crit W.S. (ft)        *      * Flow Area (sq ft) * 43.01  * 128.80 * 16.08  *
* E.G. Slope (ft/ft)    *0.000038 * Area (sq ft)     * 43.01  * 128.80 * 16.08  *
* Q Total (cfs)        * 115.00 * Flow (cfs)       * 23.30  * 86.01  * 5.69   *
* Top Width (ft)        * 60.00  * Top Width (ft)    * 17.00  * 31.00  * 12.00  *
* Vel Total (ft/s)      * 0.61   * Avg. Vel. (ft/s)  * 0.54   * 0.67   * 0.35   *
* Max Chl Dpth (ft)     * 5.16   * Hydr. Depth (ft)  * 2.53   * 4.15   * 1.34   *
* Conv. Total (cfs)      * 18720.2 * Conv. (cfs)      * 3792.6 * 14000.6 * 927.0  *
* Length Wtd. (ft)       * 100.00 * Wetted Per. (ft)  * 18.10  * 31.44  * 12.80  *
* Min Ch El (ft)         * 58.84  * Shear (lb/sq ft)  * 0.01   * 0.01   * 0.00   *
* Alpha                  * 1.07   * Stream Power (lb/ft s) * 0.00   * 0.01   * 0.00   *
* Frctn Loss (ft)        * 0.00   * Cum Volume (acre-ft) * 0.21   * 1.97   * 0.80   *
* C & E Loss (ft)        * 0.00   * Cum SA (acres)    * 0.09   * 0.31   * 0.17   *
*****
```

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

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

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

CROSS SECTION OUTPUT Profile #PF 2

```
*****
* E.G. Elev (ft)      * 66.50  * Element          * Left OB * Channel * Right OB *
* Vel Head (ft)       * 0.01   * Wt. n-Val.       * 0.030  * 0.035  * 0.030  *
* W.S. Elev (ft)       * 66.50  * Reach Len. (ft)  * 100.00 * 100.00 * 100.00 *
* Crit W.S. (ft)        *      * Flow Area (sq ft) * 85.50  * 206.30 * 46.07  *
* E.G. Slope (ft/ft)    *0.000017 * Area (sq ft)     * 85.50  * 206.30 * 46.07  *
* Q Total (cfs)        * 194.00 * Flow (cfs)       * 45.74  * 128.36 * 19.90  *
* Top Width (ft)        * 60.00  * Top Width (ft)    * 17.00  * 31.00  * 12.00  *
* Vel Total (ft/s)      * 0.57   * Avg. Vel. (ft/s)  * 0.53   * 0.62   * 0.43   *
* Max Chl Dpth (ft)     * 7.66   * Hydr. Depth (ft)  * 5.03   * 6.65   * 3.84   *
* Conv. Total (cfs)      * 46393.7 * Conv. (cfs)      * 10937.4 * 30697.2 * 4759.1 *
* Length Wtd. (ft)       * 100.00 * Wetted Per. (ft)  * 20.60  * 31.44  * 15.30  *
* Min Ch El (ft)         * 58.84  * Shear (lb/sq ft)  * 0.00   * 0.01   * 0.00   *
*****
```

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* Alpha	*	1.04	*	Stream Power (lb/ft s)	*	0.00	*	0.00	*	0.00	*
* Frctn Loss (ft)	*	0.00	*	Cum Volume (acre-ft)	*	0.49	*	2.75	*	1.23	*
* C & E Loss (ft)	*	0.00	*	Cum SA (acres)	*	0.13	*	0.31	*	0.17	*

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

CROSS SECTION

RIVER: Meadow

REACH: Elfers

RS: 1334

INPUT

Description:

Station	Elevation	Data	num=	9					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
941	71.98	964	63.44	983	58.6	999	57.99	1000	56.32
1003	56.32	1005	57.86	1019	62.03	1032	63.58		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
941	.03	983	.035	1019	.03

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	983	1019		108	108	108	.1	.3	

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	*	64.00	*	Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	0.00	*	Wt. n-Val.	*	0.030	*	0.035	*	0.030	*
* W.S. Elev (ft)	*	64.00	*	Reach Len. (ft)	*	108.00	*	108.00	*	108.00	*
* Crit W.S. (ft)	*		*	Flow Area (sq ft)	*	57.03	*	191.74	*	15.53	*
* E.G. Slope (ft/ft)	*	0.000014	*	Area (sq ft)	*	57.03	*	191.74	*	15.53	*
* Q Total (cfs)	*	115.00	*	Flow (cfs)	*	20.79	*	91.00	*	3.21	*

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* Top Width (ft)	*	69.51	* Top Width (ft)	*	20.51	* 36.00	*	13.00	*
* Vel Total (ft/s)	*	0.44	* Avg. Vel. (ft/s)	*	0.36	* 0.47	*	0.21	*
* Max Chl Dpth (ft)	*	7.68	* Hydr. Depth (ft)	*	2.78	* 5.33	*	1.19	*
* Conv. Total (cfs)	*	30216.0	* Conv. (cfs)	*	5462.0	* 23910.0	*	844.0	*
* Length Wtd. (ft)	*	108.00	* Wetted Per. (ft)	*	21.21	* 38.09	*	13.51	*
* Min Ch El (ft)	*	56.32	* Shear (lb/sq ft)	*	0.00	* 0.00	*	0.00	*
* Alpha	*	1.07	* Stream Power (lb/ft s)	*	0.00	* 0.00	*	0.00	*
* Frctn Loss (ft)	*	0.00	* Cum Volume (acre-ft)	*	0.10	* 1.60	*	0.76	*
* C & E Loss (ft)	*	0.00	* Cum SA (acres)	*	0.05	* 0.24	*	0.15	*

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

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than

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

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	*	66.50	* Element	*	Left OB	* Channel	* Right OB	*	
* Vel Head (ft)	*	0.00	* Wt. n-Val.	*	0.030	* 0.035	*	0.030	*
* W.S. Elev (ft)	*	66.50	* Reach Len. (ft)	*	108.00	* 108.00	*	108.00	*
* Crit W.S. (ft)	*		* Flow Area (sq ft)	*	116.73	* 281.75	*	48.03	*
* E.G. Slope (ft/ft)	*	0.000009	* Area (sq ft)	*	116.73	* 281.75	*	48.03	*
* Q Total (cfs)	*	194.00	* Flow (cfs)	*	44.15	* 135.13	*	14.73	*
* Top Width (ft)	*	76.24	* Top Width (ft)	*	27.24	* 36.00	*	13.00	*
* Vel Total (ft/s)	*	0.43	* Avg. Vel. (ft/s)	*	0.38	* 0.48	*	0.31	*
* Max Chl Dpth (ft)	*	10.18	* Hydr. Depth (ft)	*	4.28	* 7.83	*	3.69	*
* Conv. Total (cfs)	*	65195.1	* Conv. (cfs)	*	14835.5	* 45411.0	*	4948.6	*
* Length Wtd. (ft)	*	108.00	* Wetted Per. (ft)	*	28.40	* 38.09	*	16.01	*
* Min Ch El (ft)	*	56.32	* Shear (lb/sq ft)	*	0.00	* 0.00	*	0.00	*
* Alpha	*	1.06	* Stream Power (lb/ft s)	*	0.00	* 0.00	*	0.00	*
* Frctn Loss (ft)	*	0.00	* Cum Volume (acre-ft)	*	0.26	* 2.19	*	1.13	*
* C & E Loss (ft)	*	0.00	* Cum SA (acres)	*	0.08	* 0.24	*	0.15	*

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

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greater than

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

CROSS SECTION

RIVER: Meadow

REACH: Elfers

RS: 1156

INPUT

Description:

Station	Elevation	Data	num=	7					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
950	69.81	967	61.72	972	58.28	996	55.9	1000	54.71
1007	55.76	1034	60.85						

Manning's n Values num= 3

Sta	n	Val	Sta	n	Val	Sta	n	Val
*****	*****	*****	*****	*****	*****	*****	*****	*****
950	.03		967	.035		1007	.03	

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	967	1007		156	156	156		.1	.3

CROSS SECTION OUTPUT Profile #PF 1

*****	*****	*****	*****	*****	*****	*****	*****	*****	*****		
* E.G. Elev (ft)	*	64.00	*	Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	*	0.00	*	Wt. n-Val.	*	0.030	*	0.035	*	0.030	*
* W.S. Elev (ft)	*	64.00	*	Reach Len. (ft)	*	156.00	*	156.00	*	156.00	*
* Crit W.S. (ft)	*		*	Flow Area (sq ft)	*	5.46	*	281.99	*	153.78	*
* E.G. Slope (ft/ft)	*	0.000003	*	Area (sq ft)	*	5.46	*	281.99	*	153.78	*
* Q Total (cfs)	*	115.00	*	Flow (cfs)	*	0.48	*	75.36	*	39.15	*
* Top Width (ft)	*	71.79	*	Top Width (ft)	*	4.79	*	40.00	*	27.00	*
* Vel Total (ft/s)	*	0.26	*	Avg. Vel. (ft/s)	*	0.09	*	0.27	*	0.25	*
* Max Chl Dpth (ft)	*	9.29	*	Hydr. Depth (ft)	*	1.14	*	7.05	*	5.70	*
* Conv. Total (cfs)	*	65602.5	*	Conv. (cfs)	*	276.0	*	42992.4	*	22334.2	*

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* Length Wtd. (ft)	* 156.00	* Wetted Per. (ft)	*	5.31	*	41.44	*	30.63	*
* Min Ch El (ft)	* 54.71	* Shear (lb/sq ft)	*	0.00	*	0.00	*	0.00	*
* Alpha	* 1.01	* Stream Power (lb/ft s)	*	0.00	*	0.00	*	0.00	*
* Frctn Loss (ft)	* 0.00	* Cum Volume (acre-ft)	*	0.02	*	1.01	*	0.55	*
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	0.02	*	0.14	*	0.10	*

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

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 66.50	* Element	*	Left OB	*	Channel	*	Right OB	*
* Vel Head (ft)	* 0.00	* Wt. n-Val.	*	0.030	*	0.035	*	0.030	*
* W.S. Elev (ft)	* 66.50	* Reach Len. (ft)	*	156.00	*	156.00	*	156.00	*
* Crit W.S. (ft)	*	* Flow Area (sq ft)	*	24.01	*	381.99	*	221.28	*
* E.G. Slope (ft/ft)	*0.000003	* Area (sq ft)	*	24.01	*	381.99	*	221.28	*
* Q Total (cfs)	* 194.00	* Flow (cfs)	*	3.44	*	123.33	*	67.24	*
* Top Width (ft)	* 77.05	* Top Width (ft)	*	10.05	*	40.00	*	27.00	*
* Vel Total (ft/s)	* 0.31	* Avg. Vel. (ft/s)	*	0.14	*	0.32	*	0.30	*
* Max Chl Dpth (ft)	* 11.79	* Hydr. Depth (ft)	*	2.39	*	9.55	*	8.20	*
* Conv. Total (cfs)	*112159.4	* Conv. (cfs)	*	1986.2	*	71299.4	*	38873.8	*
* Length Wtd. (ft)	* 156.00	* Wetted Per. (ft)	*	11.12	*	41.44	*	33.13	*
* Min Ch El (ft)	* 54.71	* Shear (lb/sq ft)	*	0.00	*	0.00	*	0.00	*
* Alpha	* 1.03	* Stream Power (lb/ft s)	*	0.00	*	0.00	*	0.00	*
* Frctn Loss (ft)	* 0.00	* Cum Volume (acre-ft)	*	0.09	*	1.37	*	0.79	*
* C & E Loss (ft)	* 0.00	* Cum SA (acres)	*	0.04	*	0.14	*	0.10	*

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

CROSS SECTION

RIVER: Meadow

REACH: Elfers

RS: 1000

INPUT

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Description:

Station Elevation Data num= 7									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
950	69.81	967	61.72	972	58.28	996	55.9	1000	54.71
1007	55.76	1034	60.85						

Manning's n Values num= 3					
Sta	n Val	Sta	n Val	Sta	n Val
*****	*****	*****	*****	*****	*****
950	.03	967	.035	1007	.03

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	967	1007		0	0	0	.1		.3

CROSS SECTION OUTPUT Profile #PF 1

* E.G. Elev (ft)	* 64.00	* Element	* Left OB	* Channel	* Right OB	*
* Vel Head (ft)	* 0.00	* Wt. n-Val.	* 0.030	* 0.035	* 0.030	*
* W.S. Elev (ft)	* 64.00	* Reach Len. (ft)	*	*	*	*
* Crit W.S. (ft)	* 56.70	* Flow Area (sq ft)	* 5.46	* 281.98	* 153.77	*
* E.G. Slope (ft/ft)	*0.000003	* Area (sq ft)	* 5.46	* 281.98	* 153.77	*
* Q Total (cfs)	* 115.00	* Flow (cfs)	* 0.48	* 75.37	* 39.15	*
* Top Width (ft)	* 71.79	* Top Width (ft)	* 4.79	* 40.00	* 27.00	*
* Vel Total (ft/s)	* 0.26	* Avg. Vel. (ft/s)	* 0.09	* 0.27	* 0.25	*
* Max Chl Dpth (ft)	* 9.29	* Hydr. Depth (ft)	* 1.14	* 7.05	* 5.70	*
* Conv. Total (cfs)	* 65594.7	* Conv. (cfs)	* 275.8	* 42987.6	* 22331.3	*
* Length Wtd. (ft)	*	* Wetted Per. (ft)	* 5.31	* 41.44	* 30.63	*
* Min Ch El (ft)	* 54.71	* Shear (lb/sq ft)	* 0.00	* 0.00	* 0.00	*
* Alpha	* 1.01	* Stream Power (lb/ft s)	* 0.00	* 0.00	* 0.00	*
* Frctn Loss (ft)	*	* Cum Volume (acre-ft)	*	*	*	*
* C & E Loss (ft)	*	* Cum SA (acres)	*	*	*	*

CROSS SECTION OUTPUT Profile #PF 2

* E.G. Elev (ft)	* 66.50	* Element	* Left OB	* Channel	* Right OB	*
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* Vel Head (ft)	*	0.00	* Wt. n-Val.	*	0.030	* 0.035	*	0.030	*
* W.S. Elev (ft)	*	66.50	* Reach Len. (ft)	*	*	*	*	*	*
* Crit W.S. (ft)	*	57.12	* Flow Area (sq ft)	*	24.01	* 381.98	*	221.27	*
* E.G. Slope (ft/ft)	*	0.000003	* Area (sq ft)	*	24.01	* 381.98	*	221.27	*
* Q Total (cfs)	*	194.00	* Flow (cfs)	*	3.43	* 123.33	*	67.24	*
* Top Width (ft)	*	77.04	* Top Width (ft)	*	10.04	* 40.00	*	27.00	*
* Vel Total (ft/s)	*	0.31	* Avg. Vel. (ft/s)	*	0.14	* 0.32	*	0.30	*
* Max Chl Dpth (ft)	*	11.79	* Hydr. Depth (ft)	*	2.39	* 9.55	*	8.20	*
* Conv. Total (cfs)	*	112149.8	* Conv. (cfs)	*	1985.7	* 71293.6	*	38870.5	*
* Length Wtd. (ft)	*		* Wetted Per. (ft)	*	11.12	* 41.44	*	33.13	*
* Min Ch El (ft)	*	54.71	* Shear (lb/sq ft)	*	0.00	* 0.00	*	0.00	*
* Alpha	*	1.03	* Stream Power (lb/ft s)	*	0.00	* 0.00	*	0.00	*
* Frctn Loss (ft)	*		* Cum Volume (acre-ft)	*		*			*
* C & E Loss (ft)	*		* Cum SA (acres)	*		*			*

SUMMARY OF MANNING'S N VALUES

River:Meadow

* Reach	*	River Sta.	*	n1	*	n2	*	n3	*
*Elfers	*	2468	*	.03*	.	.035*	.	.03*	
*Elfers	*	2295	*	.03*	.	.035*	.	.03*	
*Elfers	*	2185	*	.03*	.	.035*	.	.03*	
*Elfers	*	2067	*	.03*	.	.035*	.	.03*	
*Elfers	*	1982	*	.03*	.	.035*	.	.03*	
*Elfers	*	1898	*	.03*	.	.035*	.	.03*	
*Elfers	*	1774	*	.03*	.	.035*	.	.03*	
*Elfers	*	1674	*	.03*	.	.035*	.	.03*	
*Elfers	*	1544	*	.03*	.	.035*	.	.03*	
*Elfers	*	1434	*	.03*	.	.035*	.	.03*	
*Elfers	*	1334	*	.03*	.	.035*	.	.03*	
*Elfers	*	1156	*	.03*	.	.035*	.	.03*	
*Elfers	*	1000	*	.03*	.	.035*	.	.03*	

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SUMMARY OF REACH LENGTHS

River: Meadow

* Reach	* River Sta.	* Left	* Channel	* Right
*Elfers	* 2468	*	173*	173*
*Elfers	* 2295	*	110*	110*
*Elfers	* 2185	*	118*	118*
*Elfers	* 2067	*	85*	85*
*Elfers	* 1982	*	84*	84*
*Elfers	* 1898	*	124*	124*
*Elfers	* 1774	*	100*	100*
*Elfers	* 1674	*	130*	130*
*Elfers	* 1544	*	110*	110*
*Elfers	* 1434	*	100*	100*
*Elfers	* 1334	*	108*	108*
*Elfers	* 1156	*	156*	156*
*Elfers	* 1000	*	0*	0*

Profile Output Table - Standard Table 1

* Reach * River Sta * Profile * Q Total * Min Ch El * W.S. Elev * Crit W.S. * E.G. Elev * E.G.

Slope * Vel Chnl * Flow Area * Top Width * Froude # Chl *

* * * (cfs) * (ft) * (ft) * (ft) * (ft) *

(ft/ft) * (ft/s) * (sq ft) * (ft) *

* Elfers * 2468 * PF 1 * 115.00 * 72.67 * 73.59 * 73.59 * 73.86 *

0.021408 * 3.99 * 27.90 * 54.63 * 0.98 *

* Elfers * 2468 * PF 2 * 194.00 * 72.67 * 73.82 * 73.82 * 74.18 *

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0.019056 *	4.59 *	40.49 *	57.78 *	0.97 *				*
*	*	*	*	*	*	*	*	*
*	*	*	*	*				
* Elfers	* 2295	* PF 1	* 115.00 *	65.70 *	68.16 *		*	68.38 *
0.007647 *	3.74 *	30.71 *	29.82 *	0.65 *				
* Elfers	* 2295	* PF 2	* 194.00 *	65.70 *	68.68 *	68.23 *		68.92 *
0.007114 *	3.92 *	49.53 *	42.74 *	0.64 *				
*	*	*	*	*	*	*	*	*
*	*	*	*	*				
* Elfers	* 2185	* PF 1	* 115.00 *	65.22 *	67.09 *		*	67.31 *
0.012817 *	3.76 *	30.58 *	43.90 *	0.79 *				
* Elfers	* 2185	* PF 2	* 194.00 *	65.22 *	67.24 *	67.24 *		67.66 *
0.020405 *	5.17 *	37.53 *	47.38 *	1.02 *				
*	*	*	*	*	*	*	*	*
*	*	*	*	*				
* Elfers	* 2067	* PF 1	* 115.00 *	63.87 *	65.71 *		*	65.92 *
0.010855 *	3.74 *	30.73 *	39.23 *	0.75 *				
* Elfers	* 2067	* PF 2	* 194.00 *	63.87 *	66.57 *		*	66.70 *
0.002409 *	2.89 *	69.31 *	49.42 *	0.40 *				
*	*	*	*	*	*	*	*	*
*	*	*	*	*				
* Elfers	* 1982	* PF 1	* 115.00 *	62.98 *	65.15 *		*	65.27 *
0.005349 *	2.79 *	41.43 *	49.99 *	0.53 *				
* Elfers	* 1982	* PF 2	* 194.00 *	62.98 *	66.55 *		*	66.59 *
0.000537 *	1.58 *	127.68 *	72.45 *	0.19 *				
*	*	*	*	*	*	*	*	*
*	*	*	*	*				
* Elfers	* 1898	* PF 1	* 115.00 *	62.45 *	64.53 *		*	64.73 *
0.007478 *	3.58 *	32.36 *	34.90 *	0.64 *				
* Elfers	* 1898	* PF 2	* 194.00 *	62.45 *	66.51 *		*	66.55 *
0.000390 *	1.71 *	124.10 *	57.94 *	0.18 *				
*	*	*	*	*	*	*	*	*
*	*	*	*	*				
* Elfers	* 1774	* PF 1	* 115.00 *	62.06 *	64.04 *		*	64.12 *
0.003131 *	2.37 *	48.96 *	51.00 *	0.42 *				
* Elfers	* 1774	* PF 2	* 194.00 *	62.06 *	66.51 *		*	66.52 *
0.000109 *	1.00 *	207.63 *	78.63 *	0.10 *				

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*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*
* Elfers	* 1674	* PF 1	* 115.00 *	60.44 *	64.01 *		*	64.03 *	
0.000333 *	1.15 *	101.06 *	58.42 *	0.15 *					
* Elfers	* 1674	* PF 2	* 194.00 *	60.44 *	66.50 *		*	66.51 *	
0.000044 *	0.71 *	288.23 *	88.00 *	0.06 *					
*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*				
* Elfers	* 1544	* PF 1	* 115.00 *	60.77 *	64.01 *		*	64.01 *	
0.000044 *	0.57 *	211.09 *	87.25 *	0.06 *					
* Elfers	* 1544	* PF 2	* 194.00 *	60.77 *	66.50 *		*	66.51 *	
0.000012 *	0.46 *	446.66 *	95.50 *	0.03 *					
*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*				
* Elfers	* 1434	* PF 1	* 115.00 *	58.84 *	64.00 *		*	64.01 *	
0.000038 *	0.67 *	187.88 *	60.00 *	0.06 *					
* Elfers	* 1434	* PF 2	* 194.00 *	58.84 *	66.50 *		*	66.50 *	
0.000017 *	0.62 *	337.87 *	60.00 *	0.04 *					
*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*				
* Elfers	* 1334	* PF 1	* 115.00 *	56.32 *	64.00 *		*	64.00 *	
0.000014 *	0.47 *	264.31 *	69.51 *	0.04 *					
* Elfers	* 1334	* PF 2	* 194.00 *	56.32 *	66.50 *		*	66.50 *	
0.000009 *	0.48 *	446.51 *	76.24 *	0.03 *					
*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*				
* Elfers	* 1156	* PF 1	* 115.00 *	54.71 *	64.00 *		*	64.00 *	
0.000003 *	0.27 *	441.24 *	71.79 *	0.02 *					
* Elfers	* 1156	* PF 2	* 194.00 *	54.71 *	66.50 *		*	66.50 *	
0.000003 *	0.32 *	627.28 *	77.05 *	0.02 *					
*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*				
* Elfers	* 1000	* PF 1	* 115.00 *	54.71 *	64.00 *	56.70 *	64.00 *		
0.000003 *	0.27 *	441.20 *	71.79 *	0.02 *					
* Elfers	* 1000	* PF 2	* 194.00 *	54.71 *	66.50 *	57.12 *	66.50 *		
0.000003 *	0.32 *	627.25 *	77.04 *	0.02 *					

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Profile Output Table - Standard Table 2

* Reach	* River Sta	* Profile	* E.G. Elev	* W.S. Elev	* Vel Head	* Frctn Loss	* C & E Loss	* Q
Left * Q	Channel	Q Right	Top Width	(ft)	(ft)	(ft)	(ft)	(ft)
(cfs)	(cfs)	(cfs)	(ft)					
* Elfers	* 2468	* PF 1	* 73.86	*	73.59 *	0.27 *	2.07 *	0.01 *
* 84.36	* 30.64	* 54.63 *						
* Elfers	* 2468	* PF 2	* 74.18	*	73.82 *	0.36 *	1.90 *	0.04 *
* 141.01	* 52.99	* 57.78 *						
*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*
* Elfers	* 2295	* PF 1	* 68.38	*	68.16 *	0.22 *	1.07 *	0.00 *
* 115.00	*	* 29.82 *						
* Elfers	* 2295	* PF 2	* 68.92	*	68.68 *	0.24 *	1.24 *	0.02 *
* 194.00	*	* 42.74 *						
*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*
* Elfers	* 2185	* PF 1	* 67.31	*	67.09 *	0.22 *	1.39 *	0.00 *
* 115.00	*	* 43.90 *						
* Elfers	* 2185	* PF 2	* 67.66	*	67.24 *	0.42 *	0.63 *	0.09 *
* 194.00	*	* 47.38 *						
*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*
* Elfers	* 2067	* PF 1	* 65.92	*	65.71 *	0.22 *	0.63 *	0.03 *
* 115.00	*	* 39.23 *						
* Elfers	* 2067	* PF 2	* 66.70	*	66.57 *	0.13 *	0.08 *	0.03 *
3.37 *	188.15 *	2.48 *	49.42 *					
*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*
* Elfers	* 1982	* PF 1	* 65.27	*	65.15 *	0.12 *	0.53 *	0.01 *
0.15 *	114.85 *	*	49.99 *					

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* Elfers	* 1982	* PF 2	*	66.59 *	66.55 *	0.04 *	0.04 *	0.00 *
11.87 *	182.11 *	0.02 *	72.45 *	*	*	*	*	*
*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*
* Elfers	* 1898	* PF 1	*	64.73 *	64.53 *	0.20 *	0.57 *	0.03 *
0.47 *	114.53 *	0.00 *	34.90 *					
* Elfers	* 1898	* PF 2	*	66.55 *	66.51 *	0.04 *	0.02 *	0.01 *
13.57 *	166.60 *	13.83 *	57.94 *	*	*	*	*	*
*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*
* Elfers	* 1774	* PF 1	*	64.12 *	64.04 *	0.09 *	0.08 *	0.02 *
0.82 *	114.18 *	*	51.00 *					
* Elfers	* 1774	* PF 2	*	66.52 *	66.51 *	0.01 *	0.01 *	0.00 *
18.19 *	170.24 *	5.57 *	78.63 *	*	*	*	*	*
*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*
* Elfers	* 1674	* PF 1	*	64.03 *	64.01 *	0.02 *	0.01 *	0.00 *
1.33 *	113.67 *	*	58.42 *					
* Elfers	* 1674	* PF 2	*	66.51 *	66.50 *	0.01 *	0.00 *	0.00 *
13.83 *	176.56 *	3.61 *	88.00 *	*	*	*	*	*
*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*
* Elfers	* 1544	* PF 1	*	64.01 *	64.01 *	0.00 *	0.00 *	0.00 *
6.77 *	106.68 *	1.55 *	87.25 *					
* Elfers	* 1544	* PF 2	*	66.51 *	66.50 *	0.00 *	0.00 *	0.00 *
23.49 *	159.63 *	10.88 *	95.50 *	*	*	*	*	*
*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*
* Elfers	* 1434	* PF 1	*	64.01 *	64.00 *	0.01 *	0.00 *	0.00 *
23.30 *	86.01 *	5.69 *	60.00 *					
* Elfers	* 1434	* PF 2	*	66.50 *	66.50 *	0.01 *	0.00 *	0.00 *
45.74 *	128.36 *	19.90 *	60.00 *	*	*	*	*	*
*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*
* Elfers	* 1334	* PF 1	*	64.00 *	64.00 *	0.00 *	0.00 *	0.00 *
20.79 *	91.00 *	3.21 *	69.51 *					
* Elfers	* 1334	* PF 2	*	66.50 *	66.50 *	0.00 *	0.00 *	0.00 *

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44.15 *	135.13 *	14.73 *	76.24 *								
*	*	*	*	*	*	*	*	*	*	*	*
*	*	*	*	*							
* Elfers	* 1156		* PF 1 *	64.00 *	64.00 *	0.00 *	0.00 *	0.00 *	0.00 *		
0.48 *	75.36 *	39.15 *	71.79 *								
* Elfers	* 1156		* PF 2 *	66.50 *	66.50 *	0.00 *	0.00 *	0.00 *	0.00 *		
3.44 *	123.33 *	67.24 *	77.05 *								
*	*	*	*	*	*	*	*	*	*	*	*
*	*	*	*								
* Elfers	* 1000		* PF 1 *	64.00 *	64.00 *	0.00 *		*	*		
0.48 *	75.37 *	39.15 *	71.79 *								
* Elfers	* 1000		* PF 2 *	66.50 *	66.50 *	0.00 *		*	*		
3.43 *	123.33 *	67.24 *	77.04 *								

