USDOT HEC-14 DEPTH OF SCOUR

River Section	d_s = Scour Depth (ft)	R_h = hydraulic radius = depth of flow (ft)	C_s = slope correction coeeficient (Table 5.3[5])	α = coeeficient (Table 5.1[5])	σ = (D84/D16)0.5, material standard deviation (sand = 1.87)	$\sigma^{1/3}$	Q_d = Design Flowrate (cfs)	g (ft/sec^2)	$Q/g^{1/2}R_h^{5/2}$	β = coeeficient (Table 5.1[5])	$(Q/g^{1/2}R_h^{5/2})^{\beta}$	t = time (min)	θ = coeeficient (Table 5.1[5])	$(t/316)^{\theta}$
1	35	36	37	38	39	40	41	42	43	44	45	46	47	48
2	6.6	10.48	1.0150	2.27	1.87	1.23	175.6	32.2	0.087	0.39	0.385946	30	0.06	0.8683
1	2.6	1.56	1.0135	2.27	1.87	1.23	18.5	32.2	1.072	0.39	1.027619	30	0.06	0.8683
0	2.9	2.14	1.0135	2.27	1.87	1.23	25.0	32.2	0.657	0.39	0.848848	30	0.06	0.8683
-1														
-2														
-3														
-4														

CSU EQUATION FOR PIERS

River Section	d = depth of scour (ft)	Y1 = flow depth upstream (m)	K1	K2	K3	K4	b = pier width (m)	Fr = $V/(gy)^{0.5}$	V (mps)	g (m/sec^2)	$(b/Y1)^{0.65}$	$Fr^{0.43}$
1	58	59	60	61	62	63	64	65	66	67	68	69
21												
20												
19												
	4.821	3.143	1	1	1.1	1	0.6096	0.326	1.808	9.81	0.3443	0.6172
18												
	5.461	3.503	1	1	1.1	1	0.6096	0.398	2.335	9.81	0.3209	0.6732
17												
	5.225	3.780	1	1	1.1	1	0.6096	0.338	2.058	9.81	0.3054	0.6272
16												
	5.655	3.860	1	1	1.1	1	0.6096	0.399	2.457	9.81	0.3013	0.6739
15												
	6.041	3.677	1	1	1.1	1	0.6096	0.484	2.909	9.81	0.3110	0.7321

CSU EQUATION FOR PIERS

River Section	d = depth of scour (ft)	Y1 = flow depth upstream (m)	K1	K2	K3	K4	b = pier width (m)	Fr = $V/(gy)^{0.5}$	V (mps)	g (m/sec^2)	$(b/Y1)^{0.65}$	$Fr^{0.43}$
1	58	59	60	61	62	63	64	65	66	67	68	69
14												
	6.132	3.482	1	1	1.1	1	0.6096	0.524	3.064	9.81	0.3222	0.7576
13												
	5.995	3.372	1	1	1.1	1	0.6096	0.510	2.936	9.81	0.3290	0.7489
12												
	5.906	3.262	1	1	1.1	1	0.6096	0.507	2.866	9.81	0.3361	0.7465
11												
	5.925	3.070	1	1	1.1	1	0.6096	0.536	2.942	9.81	0.3496	0.7648
10												
	5.892	2.872	1	1	1.1	1	0.6096	0.559	2.966	9.81	0.3651	0.7787
9												
	6.526	2.762	1	1	1.1	1	0.6096	0.732	3.808	9.81	0.3745	0.8742
8												
	6.552	2.890	1	1	1.1	1	0.6096	0.712	3.790	9.81	0.3636	0.8639

CSU EQUATION FOR PIERS

River Section	d = depth of scour (ft)	Y1 = flow depth upstream (m)	K1	K2	K3	K4	b = pier width (m)	Fr = $V/(gy)^{0.5}$	V (mps)	g (m/sec^2)	$(b/Y1)^{0.65}$	$Fr^{0.43}$
1	58	59	60	61	62	63	64	65	66	67	68	69
7												
	6.650	3.012	1	1	1.1	1	0.6096	0.712	3.872	9.81	0.3540	0.8643
6	7.534	3.253	1	1	1.1	1	0.6096	0.894	5.052	9.81	0.3367	0.9531
5	7.862	3.195	1	1	1.1	1	0.6096	1.002	5.610	9.81	0.3407	1.0009
4	8.034	3.049	1.0	1.0	1.1	1.0	0.6096	1.095	5.988	9.81	0.3512	1.0398
3	8.072	3.085	1	1	1.1	1	0.6096	1.096	6.030	9.81	0.3485	1.0403

CSU EQUATION FOR PIERS

River Section	d = depth of scour (ft)	Y1 = flow depth upstream (m)	K1	K2	K3	K4	b = pier width (m)	Fr = $V/(gy)^{0.5}$	V (mps)	g (m/sec^2)	$(b/Y1)^{0.65}$	$Fr^{0.43}$
1	58	59	60	61	62	63	64	65	66	67	68	69
2	8.112	3.195	1	1	1.1	1	0.6096	1.078	6.034	9.81	0.3407	1.0327
1	5.031	0.476	1	1	1.1	1	0.6096	1.673	3.613	9.81	1.1751	1.2475
0	5.214	0.652	1	1	1.1	1	0.6096	1.405	3.555	9.81	0.9568	1.1575
-1												
-2												
-3												
-4												

USDOT HEC-18 FROEHLICH EQUATION FOR LIVE BED SCOUR AT ABUTMENTS

River Section	d = depth of scour (ft)	K1	K2	Y = flow depth (m)	L' = A/Y	Fr = $V/(gy)^{0.5}$	V (fps)	g (m/sec^2)	A = flow area (m^2)	$(L'/Y)^{0.43}$	$Fr^{0.61}$
1	70	71	72	73	74	75	76	77	78	79	80
21											
20											
19											
	5.52	0.55	1.000	3.143	0.222	2.410	5.930	9.810	0.697	0.320	1.710
18											
	5.60	0.55	1.000	3.503	0.199	2.981	7.660	9.810	0.697	0.291	1.947
17											
	5.34	0.55	1.000	3.780	0.184	2.721	6.750	9.810	0.697	0.273	1.842
16											
	5.48	0.55	1.000	3.860	0.181	3.135	8.060	9.810	0.697	0.268	2.008
15											
	5.76	0.55	1.000	3.677	0.190	3.560	9.540	9.810	0.697	0.279	2.170

USDOT HEC-18 FROEHLICH EQUATION FOR LIVE BED SCOUR AT ABUTMENTS

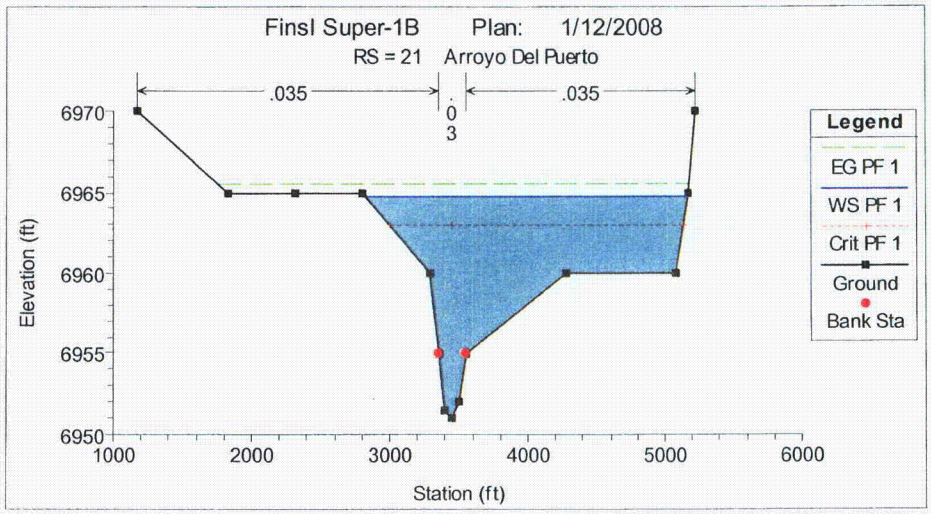
River Section	d = depth of scour (ft)	K1	K2	Y = flow depth (m)	L' = A/Y	Fr = $V/(gy)^{0.5}$	V (fps)	g (m/sec^2)	A = flow area (m^2)	$(L'/Y)^{0.43}$	$Fr^{0.61}$
1	70	71	72	73	74	75	76	77	78	79	80
14											
	5.94	0.55	1.000	3.482	0.200	3.687	10.050	9.810	0.697	0.293	2.216
13											
	5.95	0.55	1.000	3.372	0.207	3.553	9.630	9.810	0.697	0.301	2.167
12											
	5.99	0.55	1.000	3.262	0.214	3.474	9.400	9.810	0.697	0.310	2.137
11											
	6.16	0.55	1.000	3.070	0.227	3.523	9.650	9.810	0.697	0.326	2.156
10											
	6.33	0.55	1.000	2.872	0.243	3.521	9.730	9.810	0.697	0.346	2.155
9											
	6.83	0.55	1.000	2.762	0.252	4.265	12.490	9.810	0.697	0.357	2.422
8											
	6.69	0.55	1.000	2.890	0.241	4.270	12.430	9.810	0.697	0.344	2.424

USDOT HEC-18 FROEHLICH EQUATION FOR LIVE BED SCOUR AT ABUTMENTS

River Section	d = depth of scour (ft)	K1	K2	Y = flow depth (m)	L' = A/Y	Fr = $V/(gy)^{0.5}$	V (fps)	g (m/sec^2)	A = flow area (m^2)	$(L'/Y)^{0.43}$	$Fr^{0.61}$
1	70	71	72	73	74	75	76	77	78	79	80
7											
	6.62	0.55	1.000	3.012	0.231	4.362	12.700	9.810	0.697	0.332	2.456
6	6.84	0.55	1.000	3.253	0.214	5.419	16.570	9.810	0.697	0.310	2.803
5	7.08	0.55	1.000	3.195	0.218	5.872	18.400	9.810	0.697	0.315	2.944
4	7.35	0.55	1.000	3.049	0.229	6.150	19.640	9.810	0.697	0.328	3.028
3	7.33	0.55	1.000	3.085	0.226	6.192	19.780	9.810	0.697	0.325	3.041

USDOT HEC-18 FROEHLICH EQUATION FOR LIVE BED SCOUR AT ABUTMENTS

River Section	d = depth of scour (ft)	K1	K2	Y = flow depth (m)	L' = A/Y	Fr = $V/(gy)^{0.5}$	V (fps)	g (m/sec^2)	A = flow area (m^2)	$(L'/Y)^{0.43}$	$Fr^{0.61}$
1	70	71	72	73	74	75	76	77	78	79	80
2'	7.22	0.55	1.000	3.195	0.218	6.218	19.790	9.810	0.697	0.315	3.049
1	8.72	0.55	1.000	1.427	0.489	3.387	11.850	9.810	0.697	0.631	2.105
0	7.48	0.55	1.000	1.957	0.356	3.460	11.660	9.810	0.697	0.481	2.132
-1											
-2											
-3											
-4											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.03
.035
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WS PF 1
Crit PF 1
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Bank Sta
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6960
6955
6950
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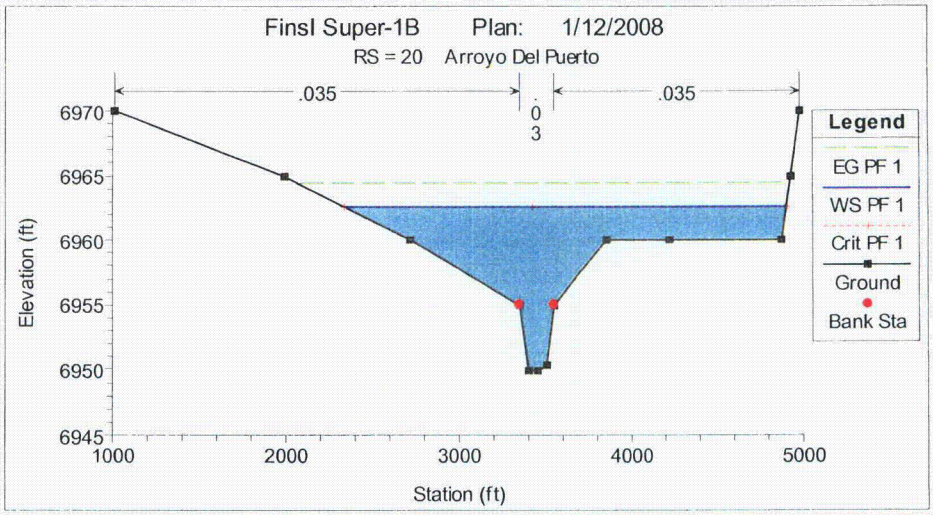
4000
5000
6000
Station (ft)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Crit PF 1
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Bank Sta
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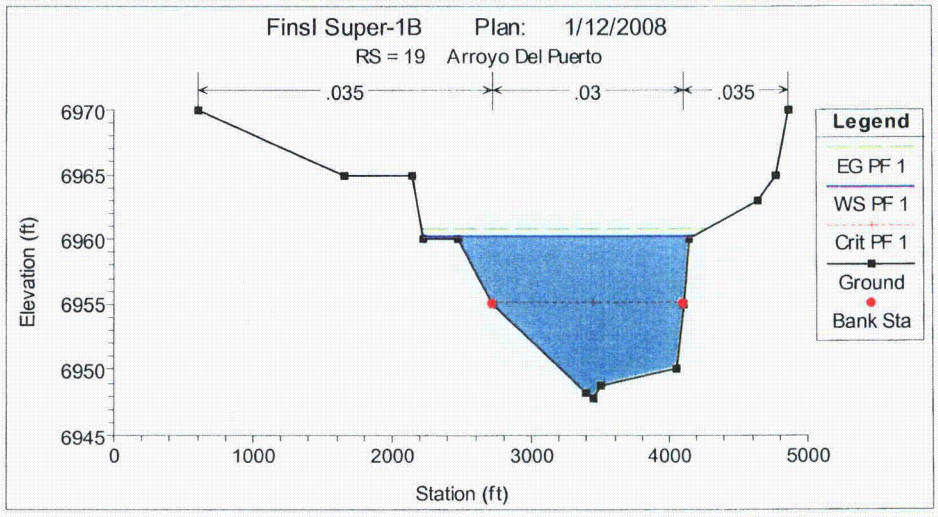
6960
6955
6950
6945
1000
2000
3000
4000
5000
Station (ft)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.035
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WS PF 1
Crit PF 1
Ground
Bank Sta
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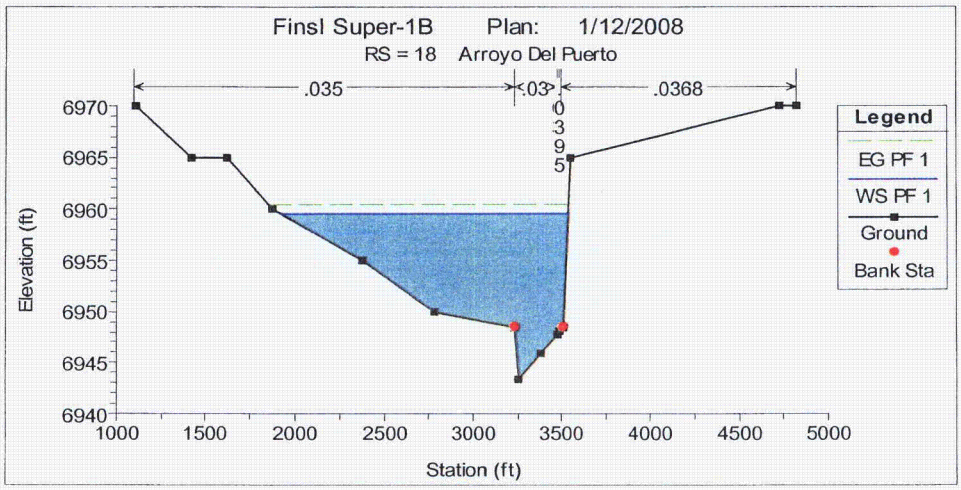
6955
6950
6945
0
1000
2000
3000
4000
5000
Station (ft)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.03
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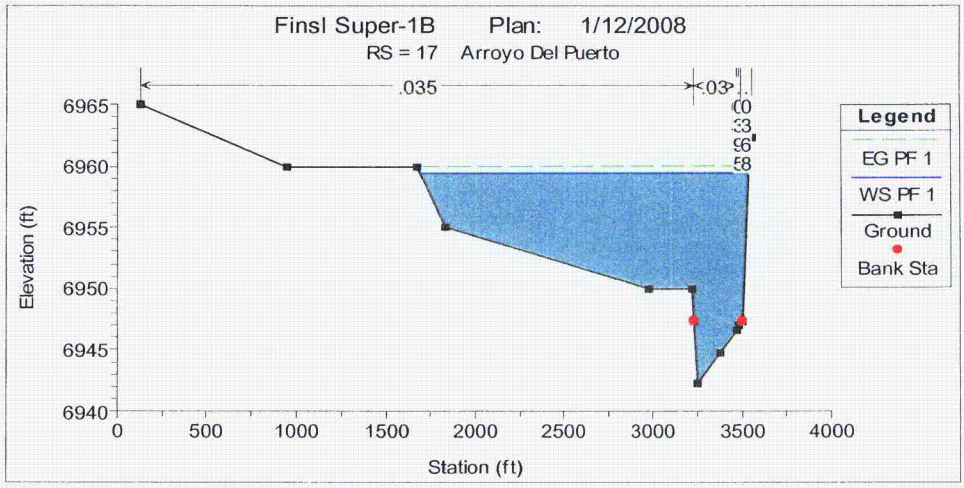
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


Finsl Super-1B Plan: 1/12/2008
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.03
Legend
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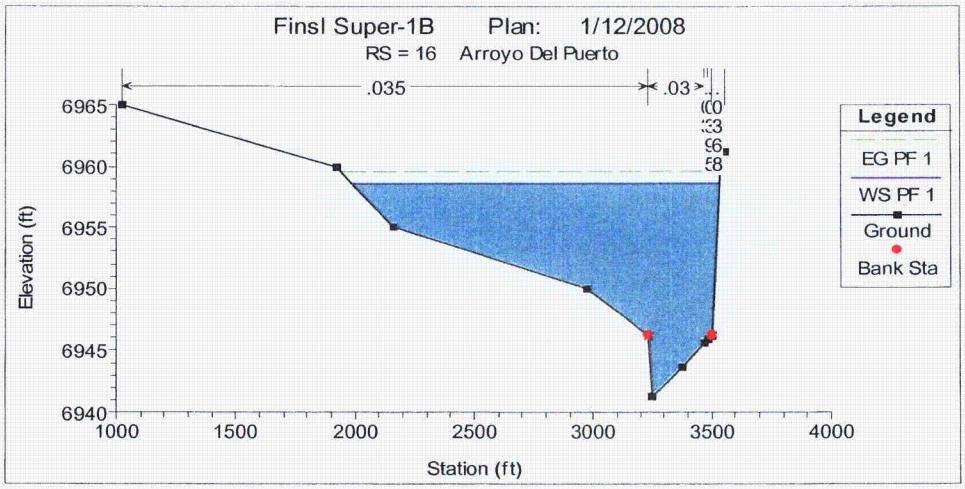
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)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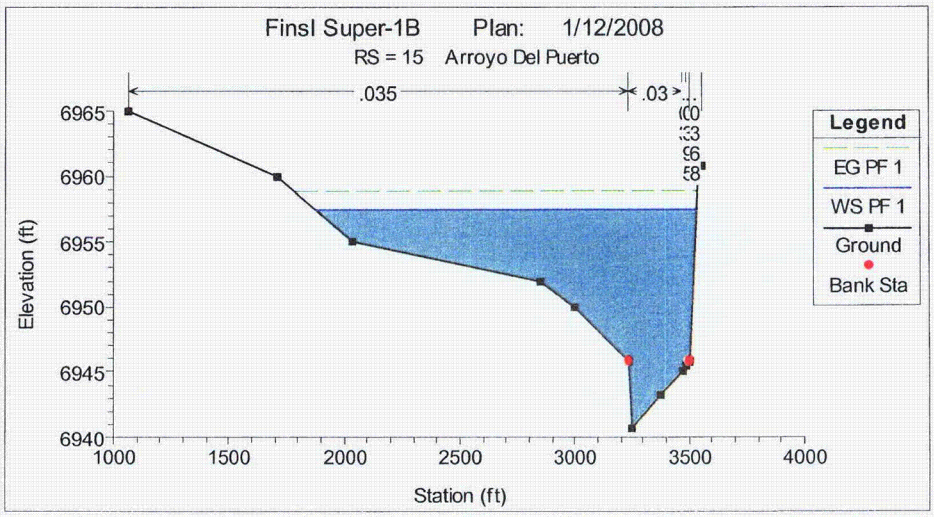
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)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WS PF 1
Ground
Bank Sta
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6945
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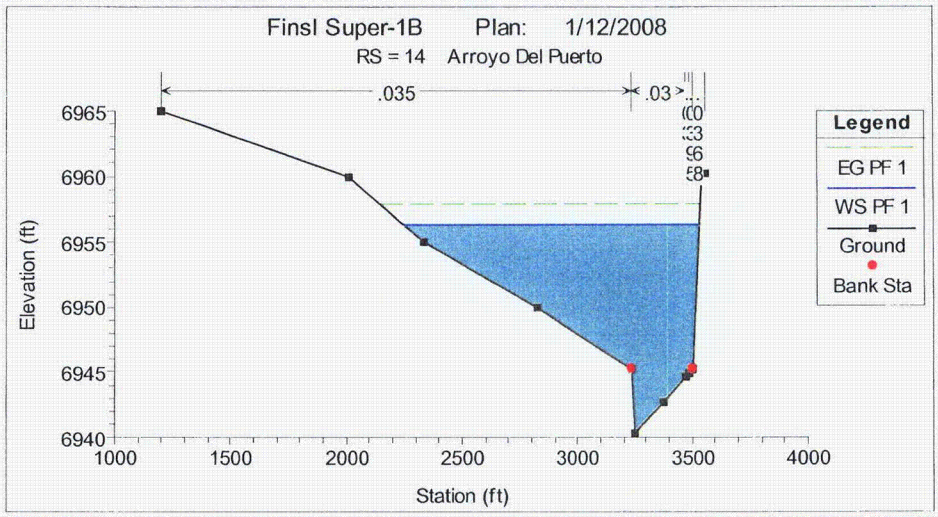
1000
1500
2000
2500
3000
3500
4000
Station (ft)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Ground
Bank Sta
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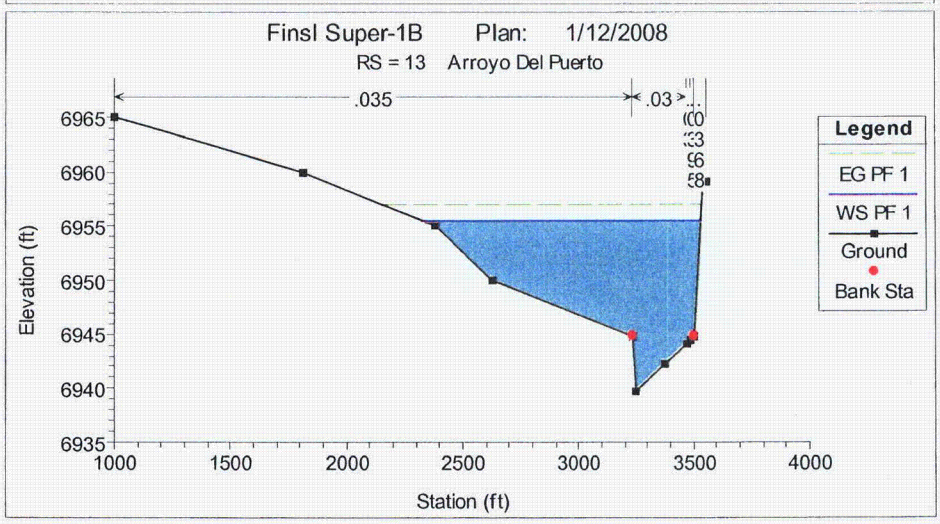
6950
6945
6940
1000
1500
2000
2500
3000
3500
4000
Station (ft)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.03
Legend
EG PF 1
WS PF 1
Ground
Bank Sta
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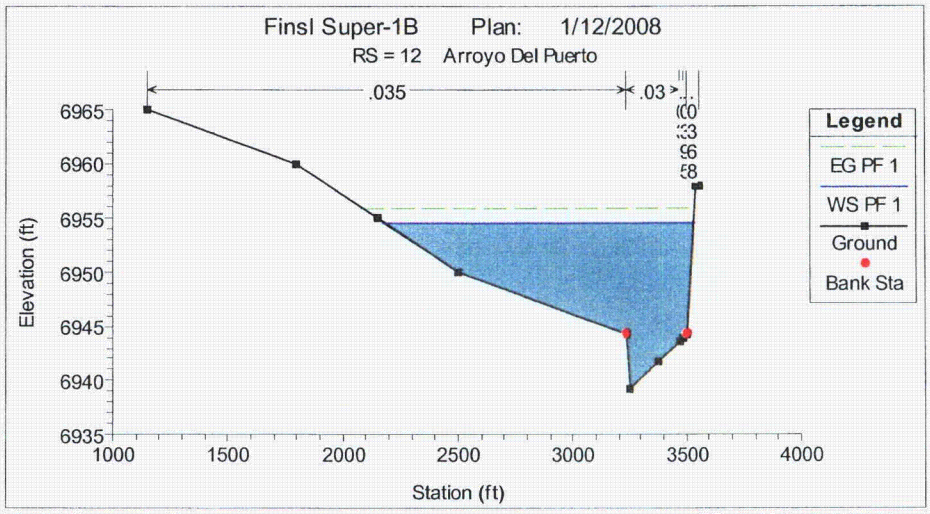
6935
1000
1500
2000
2500
3000
3500
4000
Station (ft)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Legend
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WS PF 1
Ground
Bank Sta
Elevation (ft)
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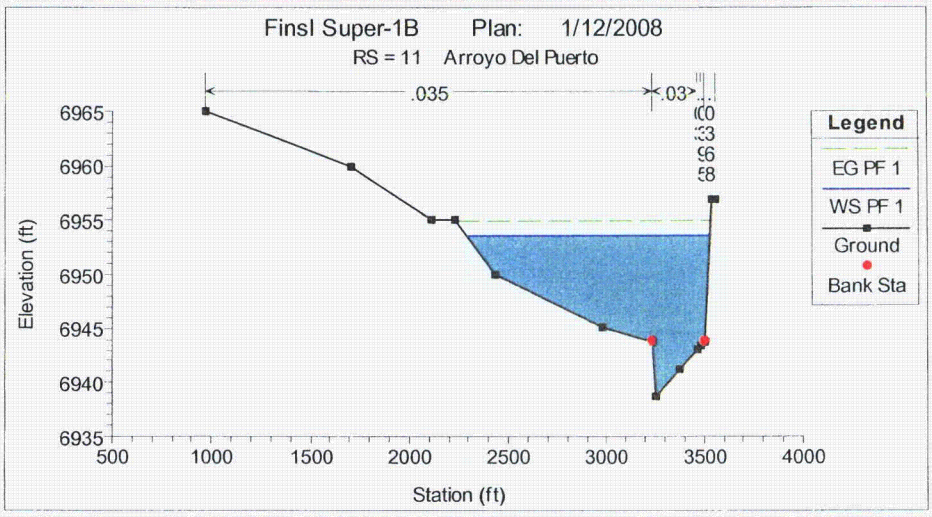
6935
1000
1500
2000
2500
3000
3500
4000
Station (ft)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Legend
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Ground
Bank Sta
Elevation (ft)
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6945
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6935
500
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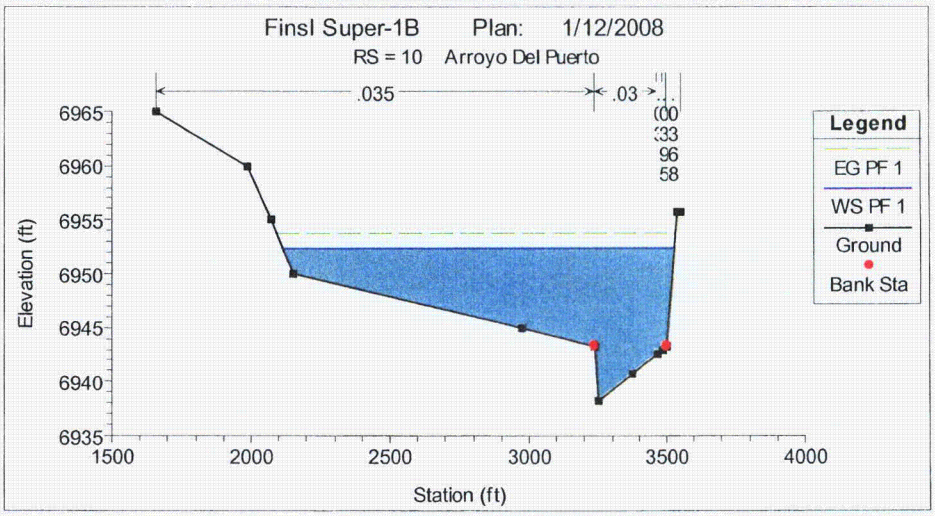
1500
2000
2500
3000
3500
4000
Station (ft)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.03
Legend
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Ground
Bank Sta
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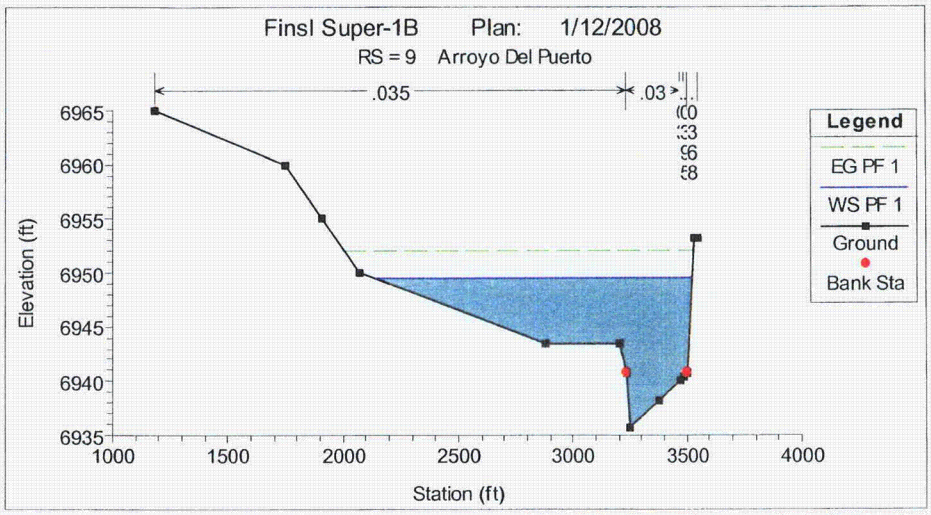
1500
2000
2500
3000
3500
4000
Station (ft)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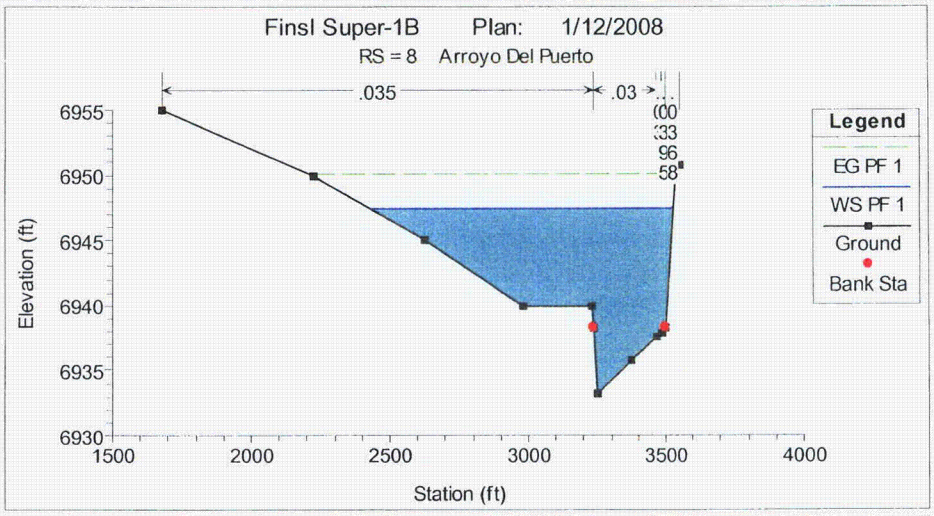
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta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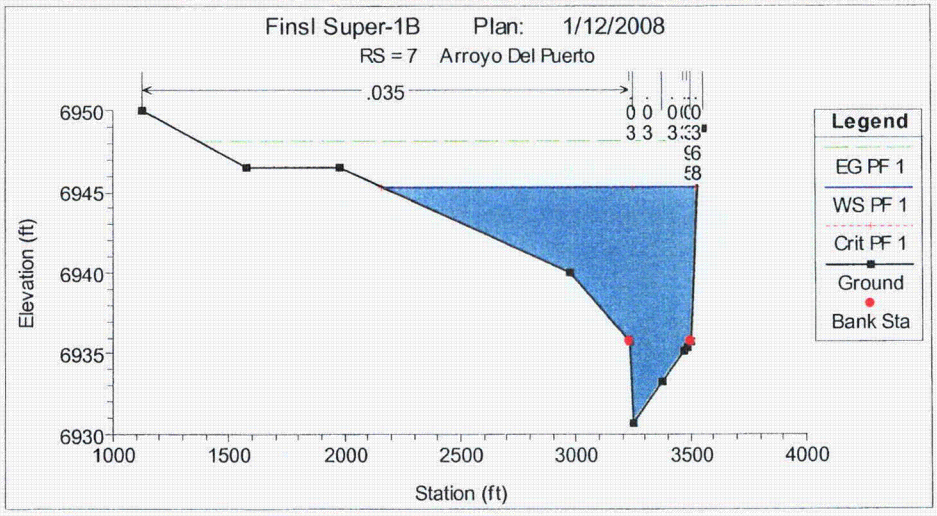
.03
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Ground
Bank Sta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Station (ft)
Legend
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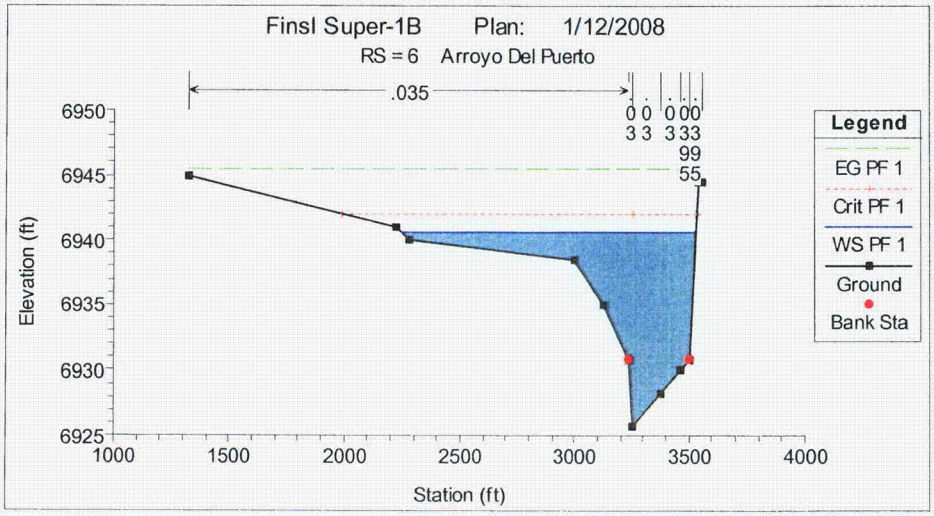
Crit PF 1
Ground
Bank Sta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Station (ft)
Legend
EG PF 1
Crit PF 1
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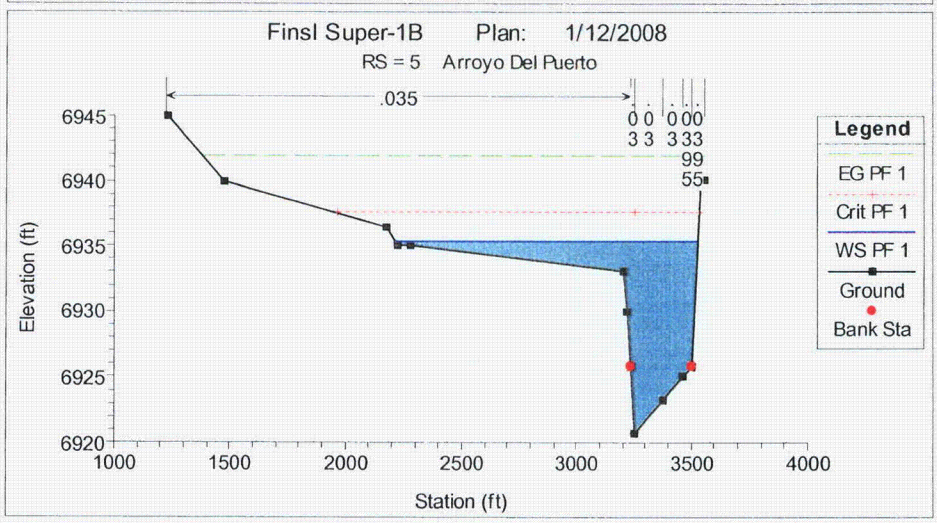
Ground
Bank Sta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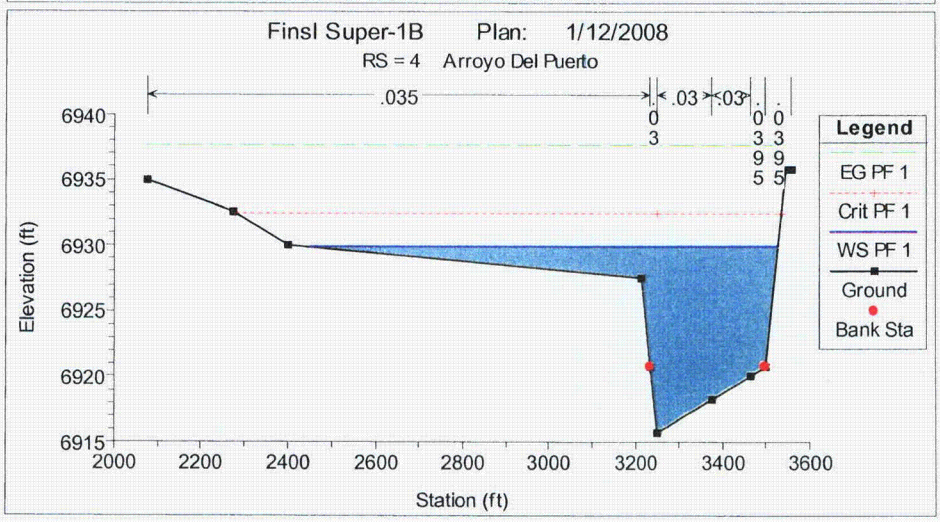
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta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.03
.03
Elevation (ft)
Station (ft)
Legend
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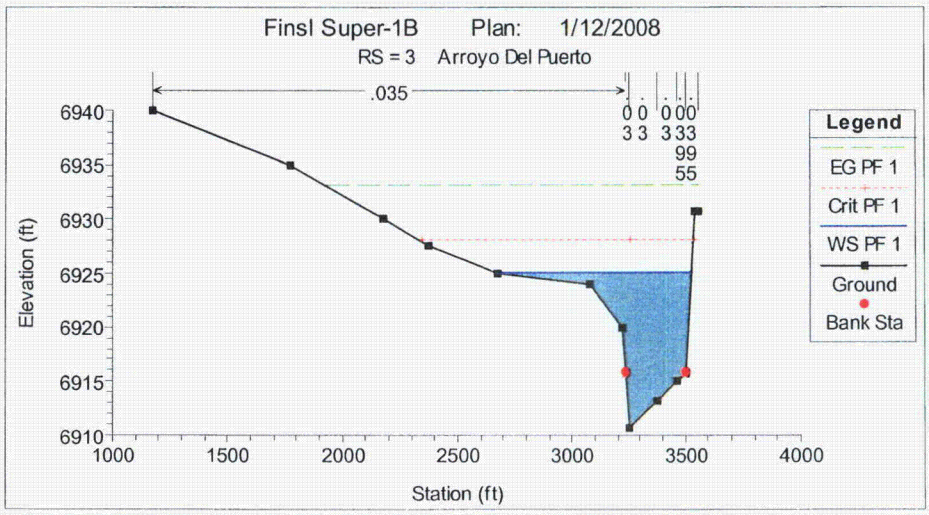
Crit PF 1
WS PF 1
Ground
Bank Sta


Finsl Super-1B Plan: 1/12/2008
RS = 3 Arroyo Del Puerto
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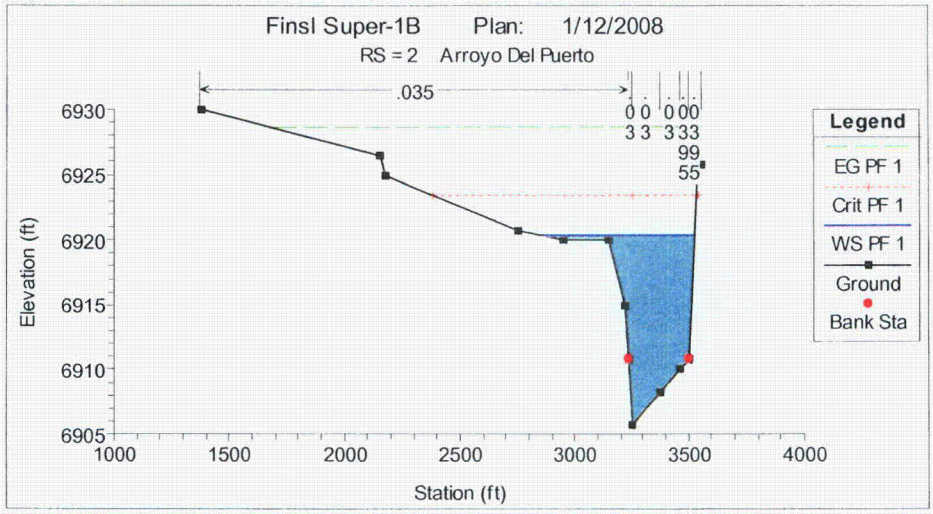
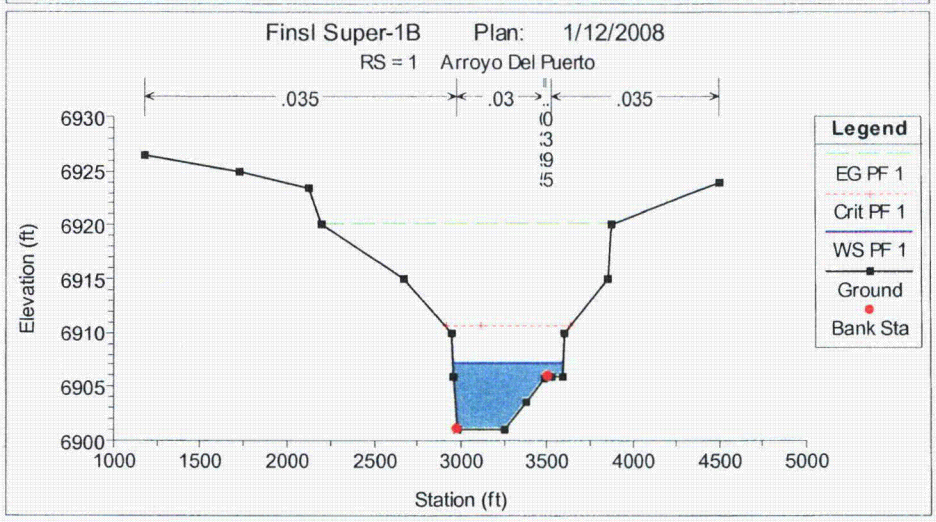
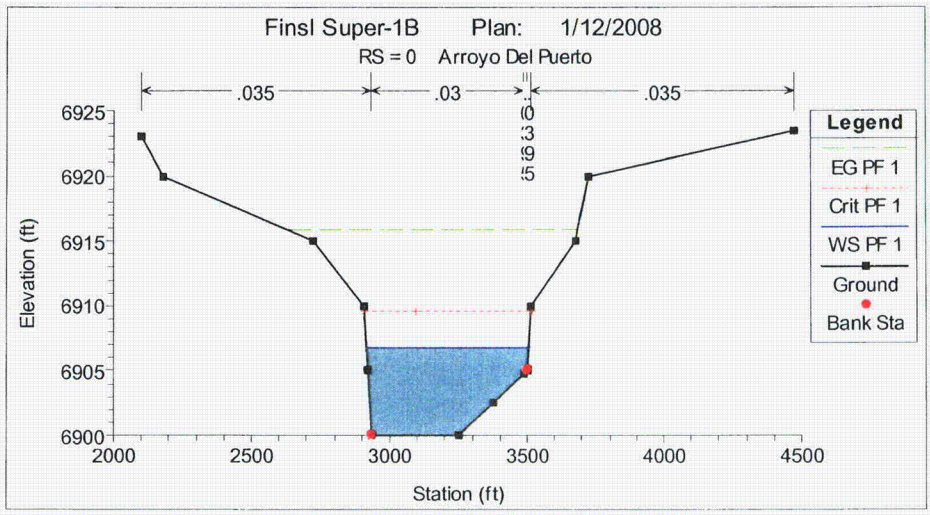
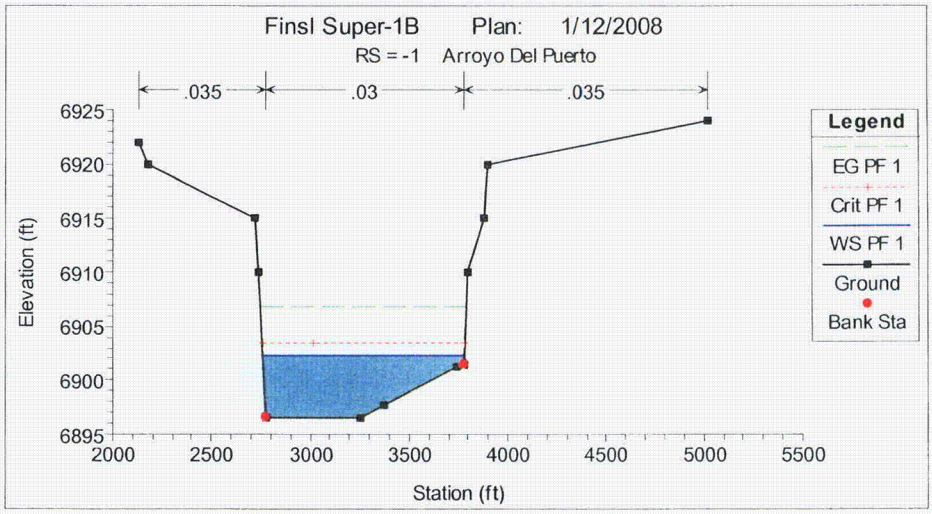
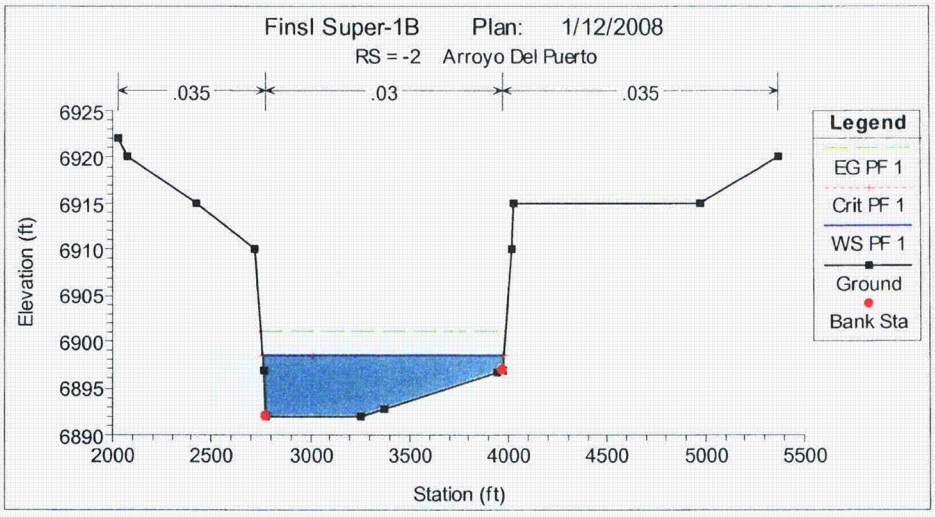
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

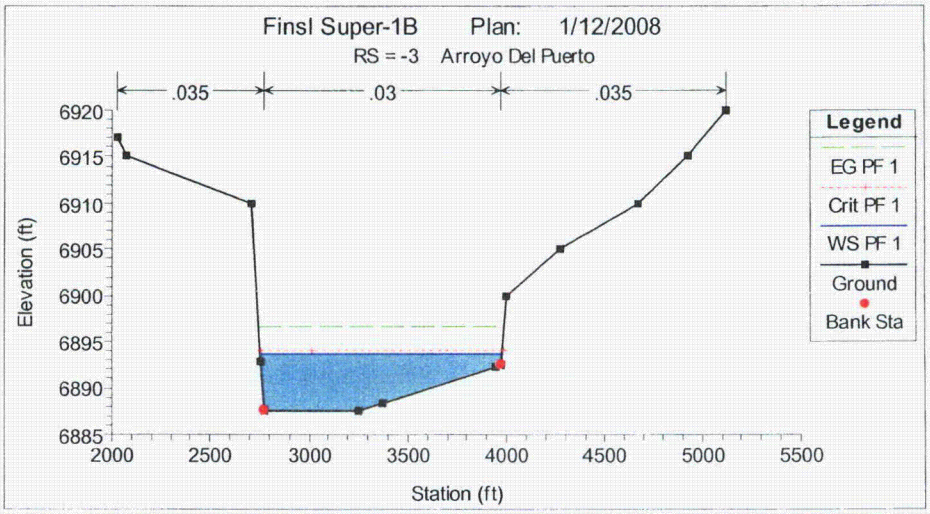

Finsl Super-1B Plan: 1/12/2008
RS = 2 Arroyo Del Puerto
.035
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

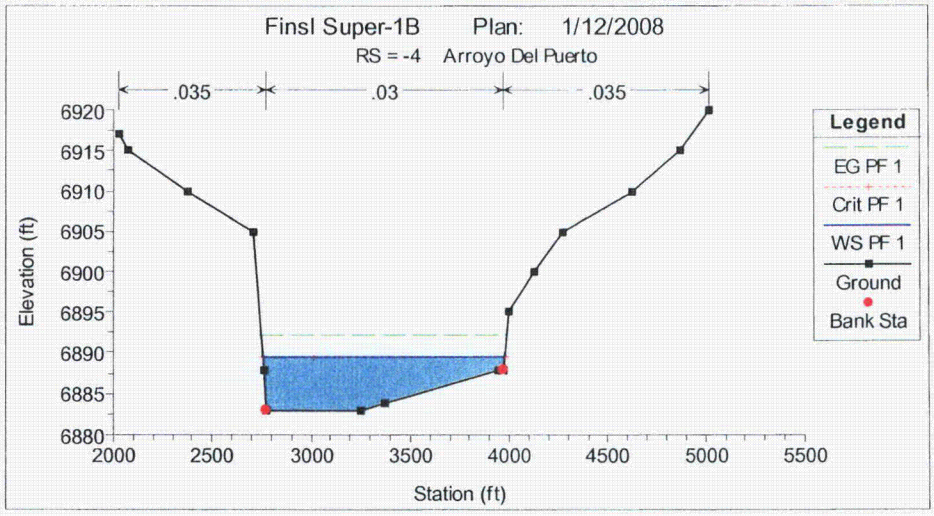

Finsl Super-1B Plan: 1/12/2008
RS = 1 Arroyo Del Puerto
.035
.03
.035
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

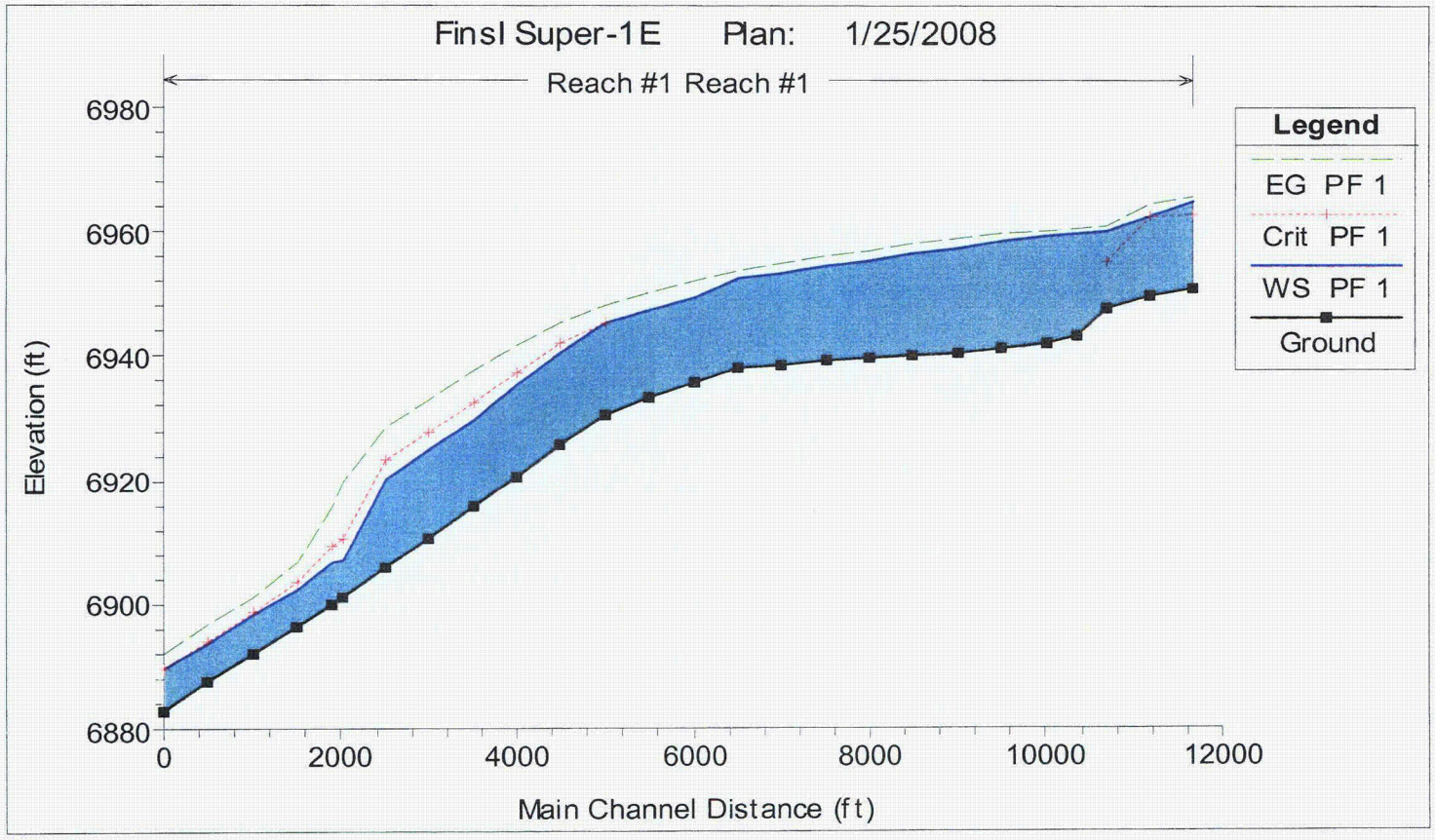

Finsl Super-1B Plan: 1/12/2008
RS = 0 Arroyo Del Puerto
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta


Finsl Super-1B Plan: 1/12/2008
RS = -1 Arroyo Del Puerto
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta


Finsl Super-1B Plan: 1/12/2008
RS = -2 Arroyo Del Puerto
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta


Finsl Super-1B Plan: 1/12/2008
RS = -3 Arroyo Del Puerto
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta


Finsl Super-1B Plan: 1/12/2008
RS = -4 Arroyo Del Puerto
.035
.03
.035
Elevation (ft)
Station (ft)
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Bank Sta


Finsl Super-1E Plan: 1/25/2008
Reach #1 Reach #1
Legend
EG PF 1
Crit PF 1
WS PF 1
Ground
Elevation (ft)
6980
6960
6940
6920
6900
6880
0
2000
4000
6000
8000
10000
12000
Main Channel Distance (ft)

	Reach Lengths				Other Embankment / Channel Data									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Section #	Left Channel	Main Channel	Main Channel Intermediate Reaches	Right Channel	Existing Base Elev	Height Difference (Existing Elev - Proposed Elev)	Proposed Slope from previous Starting Station	Starting Station	End Station for Given Slope	Elevation at Base of Berm (Right Channel Bottom) at Beginning Station	Elevation at Center of Channel or 125' from right channel bottom whcihever is greater	Channel Bottom Width	Proposed Base of Berm (Right Channel Bottom) Elev	Proposed Top of Berm Elevation
21	500	500	250	500	6951	-1.0	0.0032	9675	9425	6952	6951.00	100.00	6952.00	
	500		250				0.0032	9425	9175	6951.2	6950.20	100.00		
20	500	500	250	500	6950	-0.4	0.0032	9175	8925	6950.4	6949.40	100.00	6950.40	
	500		250				0.0032	8925	8675	6949.6	6948.60	100.00		
19	500	325	162.5	275	6949.1	0.3	0.0032	8675	8512.5	6948.8	6947.80	100.00	6948.80	
	500		162.5				0.0032	8512.5	8350	6948.28	6947.28	100.00		6970.00
18	500	350	175	250	6948.5	0.1	0.0032	8350	8175	6948.385	6945.89	250.00	6948.39	6965.00
	500		175				0.0032	8175	8000	6947.825	6945.33	250.00		
17	500	500	250	575	6947.8	0.5	0.0032	8000	7750	6947.265	6944.77	250.00	6947.27	6962.27
	500		250				0.0032	7750	7500	6946.465	6943.97	250.00		
16	500	500	250	575	6947	0.8	0.0010	7500	7250	6946.215	6943.72	250.00	6946.22	6961.22
	500		250				0.0010	7250	7000	6945.965	6943.47	250.00		
15	500	500	250	500	6947.5	1.8	0.0010	7000	6750	6945.715	6943.22	250.00	6945.72	6960.47
	500		250				0.0010	6750	6500	6945.465	6942.97	250.00		
14	500	500	250	500	6949	3.8	0.0010	6500	6250	6945.215	6942.72	250.00	6945.22	6959.72
	500		250				0.0010	6250	6000	6944.965	6942.47	250.00		
13	500	500	250	500	6946.5	1.8	0.0010	6000	5750	6944.715	6942.22	250.00	6944.72	6958.97
	500		250				0.0010	5750	5500	6944.465	6941.97	250.00		
12	500	500	250	500	6946.5	2.3	0.0010	5500	5250	6944.215	6941.72	250.00	6944.22	6958.22
	500		250				0.0010	5250	5000	6943.965	6941.47	250.00		
11	500	500	250	475	6945	1.3	0.0010	5000	4750	6943.715	6941.22	250.00	6943.72	6957.47
	500		250				0.0010	4750	4500	6943.465	6940.97	250.00		
10	500	500	250	475	6944	0.8	0.0010	4500	4250	6943.215	6940.72	250.00	6943.22	6956.72
	500		250				0.0050	4250	4000	6941.965	6939.47	250.00		
9	500	500	250	475	6942.5	1.8	0.0050	4000	3750	6940.715	6938.22	250.00	6940.72	6953.72
	500		250				0.0050	3750	3500	6939.465	6936.97	250.00		
8	500	500	250	450	6938	-0.2	0.0050	3500	3250	6938.215	6935.72	250.00	6938.22	6951.22
	500		250				0.0050	3250	3000	6936.965	6934.47	250.00		
7	500	500	250	500	6933.3	-2.4	0.0050	3000	2750	6935.715	6933.22	250.00	6935.72	6948.72
	500		250				0.0100	2750	2500	6933.215	6930.72	250.00		

	Reach Lengths				Other Embankment / Channel Data									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Section #	Left Channel	Main Channel	Main Channel Intermediate Reaches	Right Channel	Existing Base Elev	Height Difference (Existing Elev - Proposed Elev)	Proposed Slope from previous Starting Station	Starting Station	End Station for Given Slope	Elevation at Base of Berm (Right Channel Bottom) at Beginning Station	Elevation at Center of Channel or 125' from right channel bottom whcihever is greater	Channel Bottom Width	Proposed Base of Berm (Right Channel Bottom) Elev	Proposed Top of Berm Elevation
6	500	500	250	500	6930	-0.7	0.0100	2500	2250	6930.715	6928.22	250.00	6930.72	6943.72
	500		250				0.0100	2250	2000	6928.215	6925.72	250.00		
5	500	500	250	500	6927	1.3	0.0100	2000	1750	6925.715	6923.22	250.00	6925.72	6938.72
	500		250				0.0100	1750	1500	6923.215	6920.72	250.00		
4	500	500	250	500	6923	2.3	0.0100	1500	1250	6920.715	6918.22	250.00	6920.72	6933.22
	500		250				0.0100	1250	1000	6918.215	6915.72	250.00		
3	500	500	250	500	6921	5.3	0.0100	1000	750	6915.715	6913.22	250.00	6915.72	6928.22
	500		250				0.0100	750	500	6913.215	6910.72	250.00		
2	500	500	250	500	6915	4.3	0.0100	500	250	6910.715	6908.22	250.00	6910.72	6923.22
	500		250				0.0100	250	0	6908.215	6905.72	250.00		
1	500	100	50	100	6905	-1.0	0.0090	0	-50	6905.965	6903.47	615.00	6905.97	6905.97
	500		50				0.0090	-50	-100	6905.515	6903.02	545.00		
0	500	400	200	400	6903	-2.1	0.0090	-100	-300	6905.065	6902.57	565.00	6905.07	
	500		200				0.0090	-300	-500	6903.265	6900.77	782.50		
-1	500	500	250	500	6900	-1.5	0.0090	-500	-750	6901.465	6898.97	1000.00	6901.47	
	500		250				0.0090	-750	-1000	6899.215	6896.72	1100.00		
-2	500	500	250	500	6897.5	0.5	0.0090	-1000	-1250	6896.965	6894.47	1200.00	6896.97	
	500		250				0.0090	-1250	-1500	6894.715	6892.22	1200.00		
-3	500	500	250	500	6895	2.5	0.0090	-1500	-1750	6892.465	6889.97	1200.00	6892.47	
	500		250				0.0090	-1750	-2000	6890.215	6887.72	1200.00		
-4	500	500	250	500	6892.5	4.5	0.0090	-2000	-2250	6887.965	6885.47	1200.00	6887.97	
	500	11675	11425					11675						
	TOTALS	12175	11925					11675						

Cut / Fill Berm & Ch

1	16	17	18	19	20	21	22	23	24	25	26	27	28
								Top & Dry Slope Rock Cover			Wet Slope Rock Cover		
Section #	Relative Berm Height from Base of Right Channel Bottom	Avg Relative Berm Height from Base of Right Channel Bottom Between Reaches	Proposed Berm Fill Height at Station	Avg Berm Fill Height Between Reaches	Up Stream Reach	Berm X-Sect Area	Berm Fill Volume (cy)	Dry Slope (cy)	Dry Slope Apron (cy)	Top (cy)	Above Grade Wet Slope (cy)	Wet Slope Apron (cy)	Below Grade Wet Slope (cy)
21													
20													
19				8.25	1335.00	327.94	16214.69	645.0	98.9	185.4	346.0	445.0	
	0.00												
18	16.62	8.31	16.50										
17	15.00	15.81	14.46	15.48	350.00	951.36	12332.46	317.0	25.9	48.6	864.0	622.2	
16	15.00	15.00	14.21	14.34	500.00	832.01	15407.53	420.0	37.0	69.4	1,171.0	888.9	
15	14.75	14.88	12.96	13.59	500.00	757.91	14035.45	398.0	37.0	69.4	1,161.0	888.9	
14	14.50	14.63	10.71	11.84	500.00	598.16	11076.98	347.0	37.0	69.4	1,142.0	888.9	
13	14.25	14.38	12.46	11.59	500.00	576.83	10682.12	339.0	37.0	69.4	1,122.0	888.9	
12	14.00	14.13	11.71	12.09	500.00	619.85	11478.78	354.0	37.0	69.4	1,103.0	888.9	
11	13.75	13.88	12.46	12.09	500.00	619.85	11478.78	354.0	37.0	69.4	1,083.0	888.9	
10	13.50	13.63	12.71	12.59	500.00	664.37	12303.23	369.0	37.0	69.4	1,064.0	888.9	
9	13.00	13.25	11.21	11.96	500.00	608.96	11277.01	350.0	37.0	69.4	1,035.0	888.9	
8	13.00	13.00	13.21	12.21	500.00	630.84	11682.29	358.0	37.0	69.4	1,015.0	888.9	
7	13.00	13.00	15.41	14.31	500.00	829.48	15360.79	419.0	37.0	69.4	1,015.0	888.9	

Cut / Fill Berm & Ch

1	16	17	18	19	20	21	22	23	24	25	26	27	28
								Top & Dry Slope Rock Cover			Wet Slope Rock Cover		
Section #	Relative Berm Height from Base of Right Channel Bottom	Avg Relative Berm Height from Base of Right Channel Bottom Between Reaches	Proposed Berm Fill Height at Station	Avg Berm Fill Height Between Reaches	Up Stream Reach	Berm X-Sect Area	Berm Fill Volume (cy)	Dry Slope (cy)	Dry Slope Apron (cy)	Top (cy)	Above Grade Wet Slope (cy)	Wet Slope Apron (cy)	Below Grade Wet Slope (cy)
6	13.00	13.00	13.71	14.56	500.00	854.89	15831.35	426.0	37.0	69.4	1,985.0		1,527.0
5	13.00	13.00	11.71	12.71	500.00	675.74	12513.68	372.0	37.0	69.4	1,985.0		1,527.0
4	12.50	12.75	10.21	10.96	500.00	525.17	9725.35	321.0	37.0	69.4	1,947.0		1,527.0
3	12.50	12.50	7.21	8.71	500.00	358.58	6640.35	255.0	37.0	69.4	1,909.0		1,527.0
2	12.50	12.50	8.21	7.71	500.00	294.29	5449.79	904.0	444.4	555.6	1,909.0		1,527.0
1	0.00	6.25	0.96	4.59	350.00	132.05	1711.81	376.0	311.1	388.9	668.0		1,069.0
0					100.00			0.0	0.0	0.0	227.0		122.0
-1					400.00								
-2					500.00								
-3					500.00								
-4					500.00								
			Sta 1+50 to Sta 83+50 + 1335 up road		9385.00		205202.43	7324	1399	2151	22751	9956	8826

annel Volumes

1	29	30	31	32	33	34	35	36	37	38	39	40	41
Section #	ds = Scour Depth (ft)	Scour Volume Required (cy/lf)	Scour Volume Provided (cy/lf)	Cut Grade Difference - Base of Berm	Avg Cut/Fill Grade Difference Between Reaches	b = Channel Width	h1	h2	V1 (cut) (Top Trapezoid)	V2 (cut) (Bottom Triangle)	V3 (fill)	Channel Cut Volume	Channel Fill Volume
21													
20													
19	3.69	0.25	0.33										
18	0.4	1.74	1.78	0.12									
17	4.9	1.74	1.78	0.54	0.33	250.00	0.33	5.00	1057.35	8587.96		9645.31	0.00
16	5.8	1.74	1.78	0.79	0.66	250.00	0.66	5.00	3079.76	12268.52		15348.27	0.00
15	6.5	1.74	1.78	1.79	1.29	250.00	1.29	5.00	6040.81	12268.52		18309.33	0.00
14	6.5	1.74	1.78	3.79	2.79	250.00	2.79	5.00	13324.42	12268.52		25592.94	0.00
13	6.0	1.74	1.78	1.79	2.79	250.00	2.79	5.00	13324.42	12268.52		25592.94	0.00
12	5.7	1.74	1.78	2.29	2.04	250.00	2.04	5.00	9651.36	12268.52		21919.88	0.00
11	5.6	1.74	1.78	1.29	1.79	250.00	1.79	5.00	8440.90	12268.52		20709.42	0.00
10	5.3	1.74	1.78	0.79	1.04	250.00	1.04	5.00	4851.18	12268.52		17119.70	0.00
9	6.4	1.74	1.78	1.79	1.29	250.00	1.29	5.00	6040.81	12268.52		18309.33	0.00
8	6.6	1.74	1.78	(0.21)	0.79	250.00	0.79	5.00	3668.49	12268.52		15937.01	0.00
7	7.0	1.74	1.78	(2.41)	(1.31)	250.00	(1.31)	5.00		6663.88	800.57	6663.88	800.57

hannel Volumes

1	29	30	31	32	33	34	35	36	37	38	39	40	41
Section #	ds = Scour Depth (ft)	Scour Volume Required (cy/lf)	Scour Volume Provided (cy/lf)	Cut Grade Difference - Base of Berm	Avg Cut/Fill Grade Difference Between Reaches	b = Channel Width	h1	h2	V1 (cut) (Top Trapezoid)	V2 (cut) (Bottom Triangle)	V3 (fill)	Channel Cut Volume	Channel Fill Volume
6	9.1	3.05	3.05	(0.71)	(1.56)	250.00	(1.56)	5.00		5790.36	1133.90	5790.36	1133.90
5	9.1	3.05	3.05	1.29	0.29	250.00	0.29	5.00	1323.96	12268.52		13592.48	0.00
4	8.9	3.05	3.05	2.29	1.79	250.00	1.79	5.00	8440.90	12268.52		20709.42	0.00
3	9.1	3.05	3.05	5.29	3.79	250.00	3.79	5.00	18319.05	12268.52		30587.57	0.00
2	9.4	3.05	3.05	4.29	4.79	250.00	4.79	5.00	23424.79	12268.52		35693.31	0.00
1	1.3	1.22	1.22	(0.96)	1.66	615.00	1.66	3.75	13341.05	15221.35		28562.41	0.00
0	1.7	1.22	1.22	(2.06)	(1.51)	565.00	(1.51)	3.75		490.27	212.52		
-1				(1.46)	(1.76)	1000.00	(1.76)	2.50		212.09	1153.79		
-2				0.54	(0.46)	1200.00	(0.46)	2.50		2032.27	100.10		
-3				2.54	1.54	1200.00	1.54	2.50	34242.01	27951.39			
-4				4.54	3.54	1200.00	3.54	2.50	79249.79	27951.39			
												330,083.55	1934.47
												Cut	Fill

SUMMARY

Station 83+50 & Extended Berm to Station 1+50	Berm	0	205202
	Channel	330084	1934
	Total	330084	207137

	Downstream Reach Lengths				Other Embankment / Channel Data											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Section #	Left Channel	Main Channel	Main Channel Intermediate Reaches	Right Channel	Approximate Existing Base Elevation at Base of Berm (Right Channel Bottom)	Height Difference (Existing Elev - Proposed Elev)	Proposed Slope from previous Starting Station	Starting Station	End Station for Given Slope	Proposed Elevation at Base of Berm (Right Channel Bottom) at Beginning Station	Proposed Elevation at Center of Channel	Proposed Sloped Channel Bottom Width	Proposed Base of Berm (Right Channel Bottom) Elevation	Proposed Top of Berm Elevation	Relative Berm Height from Base of Right Channel Bottom	Proposed Berm Fill Height
21	500	500	250	500	6951.0	-1.0	0.0032	9675	9425	6952.0	6951.00	100	6952.00			
			250				0.0032	9425	9175	6951.20	6950.20	100				
20	500	500	250	500	6950.0	-0.4	0.0032	9175	8925	6950.40	6949.40	100	6950.40			
			250				0.0032	8925	8675	6949.60	6948.60	100				
19	350	325	162.5	275	6949.1	0.3	0.0032	8675	8513	6948.80	6947.80	100	6948.80			
			162.5				0.0032	8513	8350	6948.28	6947.28	100				
18	425	350	175	250	6948.5	0.1	0.0032	8350	8175	6948.39	6945.89	250	6948.39	6965.00	16.62	16.50
			175				0.0032	8175	8000	6947.83	6945.33	250				
17	450	500	250	575	6947.80	0.5	0.0032	8000	7750	6947.27	6944.77	250	6947.27	6962.27	15.00	14.46
			250				0.0032	7750	7500	6946.47	6943.97	250				
16	425	500	250	575	6947.0	0.8	0.0010	7500	7250	6946.22	6943.72	250	6946.22	6961.22	15.00	14.21
			250				0.0010	7250	7000	6945.97	6943.47	250				
15	500	500	250	500	6947.5	1.8	0.0010	7000	6750	6945.72	6943.22	250	6945.72	6960.47	14.75	12.96
			250				0.0010	6750	6500	6945.47	6942.97	250				
14	500	500	250	500	6949.0	3.8	0.0010	6500	6250	6945.22	6942.72	250	6945.22	6959.72	14.50	10.71
			250				0.0010	6250	6000	6944.97	6942.47	250				
13	500	500	250	500	6946.5	1.8	0.0010	6000	5750	6944.72	6942.22	250	6944.72	6958.97	14.25	12.46
			250				0.0010	5750	5500	6944.47	6941.97	250				
12	500	500	250	500	6946.5	2.3	0.0010	5500	5250	6944.22	6941.72	250	6944.22	6958.22	14.00	11.71
			250				0.0010	5250	5000	6943.97	6941.47	250				
11	525	500	250	475	6945.0	1.3	0.0010	5000	4750	6943.72	6941.22	250	6943.72	6957.47	13.75	12.46
			250				0.0010	4750	4500	6943.47	6940.97	250				
10	525	500	250	475	6944.0	0.8	0.0010	4500	4250	6943.22	6940.72	250	6943.22	6956.72	13.50	12.71
			250				0.0050	4250	4000	6941.97	6939.47	250				
9	525	500	250	475	6942.5	1.8	0.0050	4000	3750	6940.72	6938.22	250	6940.72	6953.72	13.00	11.21

	Downstream Reach Lengths				Other Embankment / Channel Data											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Section #	Left Channel	Main Channel	Main Channel Intermediate Reaches	Right Channel	Approximate Existing Base Elevation at Base of Berm (Right Channel Bottom)	Height Difference (Existing Elev - Proposed Elev)	Proposed Slope from previous Starting Station	Starting Station	End Station for Given Slope	Proposed Elevation at Base of Berm (Right Channel Bottom) at Beginning Station	Proposed Elevation at Center of Channel	Proposed Sloped Channel Bottom Width	Proposed Base of Berm (Right Channel Bottom) Elevation	Proposed Top of Berm Elevation	Relative Berm Height from Base of Right Channel Bottom	Proposed Berm Fill Height
			250				0.0050	3750	3500	6939.47	6936.97	250				
8	550	500	250	450	6938.0	-0.2	0.0050	3500	3250	6938.22	6935.72	250	6938.22	6951.22	13.00	13.21
			250				0.0050	3250	3000	6936.97	6934.47	250				
7	500	500	250	500	6933.3	-2.4	0.0050	3000	2750	6935.72	6933.22	250	6935.72	6948.72	13.00	15.41
			250				0.0100	2750	2500	6933.22	6930.72	250				
6	500	500	250	500	6930.0	-0.7	0.0100	2500	2250	6930.72	6928.22	250	6930.72	6943.72	13.00	13.71
			250				0.0100	2250	2000	6928.22	6925.72	250				
5	500	500	250	500	6927.0	1.3	0.0100	2000	1750	6925.72	6923.22	250	6925.72	6938.72	13.00	11.71
			250				0.0100	1750	1500	6923.22	6920.72	250				
4	500	500	250	500	6923.0	2.3	0.0100	1500	1250	6920.72	6918.22	250	6920.72	6933.22	12.50	10.21
			250				0.0100	1250	1000	6918.22	6915.72	250				
3	500	500	250	500	6921.0	5.3	0.0100	1000	750	6915.72	6913.22	250	6915.72	6928.22	12.50	7.21
			250				0.0100	750	500	6913.22	6910.72	250				
2	500	500	250	500	6915.0	4.3	0.0100	500	250	6910.72	6908.22	250	6910.72	6923.22	12.50	8.21
			250				0.0100	250	0	6908.22	6905.72	250	6908.22	6918.22	10.00	
1	100	100	50	100	6905.0	-1.0	0.0090	0	-50	6905.97	6903.47	615	6905.97	6905.97	0.00	0.96
			50				0.0090	-50	-100	6905.52	6903.02	545				
0	400	400	200	400	6903.0	-2.1	0.0090	-100	-300	6905.07	6902.57	565	6905.07			
			200				0.0090	-300	-500	6903.27	6900.77	783				
-1	500	500	250	500	6900.0	-1.5	0.0090	-500	-750	6901.47	6898.97	1000	6901.47			
			250				0.0090	-750	-1000	6899.22	6896.72	1100				
-2	500	500	250	500	6897.5	0.5	0.0090	-1000	-1250	6896.97	6894.47	1200	6896.97			
			250				0.0090	-1250	-1500	6894.72	6892.22	1200				
-3	500	500	250	500	6895.0	2.5	0.0090	-1500	-1750	6892.47	6889.97	1200	6892.47			
			250				0.0090	-1750	-2000	6890.22	6887.72	1200				
-4	500	500	250	500	6892.5	4.5	0.0090	-2000	-2250	6887.97	6885.47	1200	6887.97			
	Total Length	11675	11425					11675								

HEC-RAS CHANNEL CROSS-SECTION INPUT DATA

1	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Section #	left overbank-6		left overbank-5		left overbank-4		left overbank-3		left overbank-2		left overbank-1		left overbank-1		left bank		left bottom	
	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
21					1,175	6,970	1,825	6,965	2,310	6,965	2,800	6,965	3,285	6,960	3350	6955.00	3400	6951.50
20									1,010	6970.00	1,985	6,965	2,720	6,960	3350	6955.00	3400	6949.90
19					605	6970.00	1660	6965.00	2150	6965.00	2230	6,960	2475	6,960	2720	6955.00	3400	6948.30
18			1,100	6970.00	1,425	6965.00	1,625	6965.00	1,875	6960.00	2,375	6,955	2,775	6,950	3235	6948.39	3250	6943.39
17			130	6965.00	945	6960.00	1675	6960.00	1835	6955.00	2975	6950	3225	6950	3235	6947.27	3250	6942.27
16							1025	6965.00	1920	6960.00	2160	6955	2975	6950	3235	6946.22	3250	6941.22
15					1060.00	6965.00	1710.00	6960.00	2035.00	6955.00	2850	6952	3000	6950	3235	6945.715	3250	6940.72
14					1200.00	6965.00	2010.00	6960.00	2335.00	6955.00	2825	6950	3075	6950	3235	6945.22	3250	6940.22
13							1000	6965.00	1810	6960.00	2380	6955	2625	6950	3235	6944.72	3250	6939.72
12							1150	6965.00	1800	6960.00	2150	6955	2775	6950	3235	6944.22	3250	6939.22
11			970.00	6965.00	1705.00	6960.00	2110.00	6955.00	2235	6955.00	2435	6950	2975	6945.12	3235	6943.72	3250	6938.72
10					1660.00	6965.00	1985.00	6960.00	2070.00	6955.00	2150	6950	2975	6945	3235	6943.22	3250	6938.22
9			1180.00	6965.00	1750.00	6960.00	1910.00	6955.00	2075.00	6950.00	2875	6945	3200	6945	3235	6940.72	3250	6935.72

HEC-RAS CHANNEL CROSS-SECTION INPUT DATA

1	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Section #	left overbank-6		left overbank-5		left overbank-4		left overbank-3		left overbank-2		left overbank-1		left overbank-1		left bank		left bottom	
8							1675	6955.00	2225	6950.00	2625	6945	3075	6940	3235	6938.22	3250	6933.22
7					1125	6950.00	1575	6946.50	1975	6946.50	2075	6945	2975	6940	3235	6935.72	3250	6930.72
6					1325	6945.00	2225	6941.00	2275	6940.00	2975	6935	3125	6935	3235	6930.72	3250	6925.72
5	1225	6945.00	1475	6940.00	2175	6936.50	2225	6935.00	2275	6935.00	3200	6933	3222.1	6930	3235	6925.72	3250	6920.72
4							2075	6935.00	2275	6932.50	2400	6930	3150	6925	3235	6920.72	3250	6915.72
3	1175	6940.00	1775	6935.00	2175	6930.00	2375	6927.60	2675	6925.00	3075	6922	3222.1	6920	3235	6915.72	3250	6910.72
2	1375	6930.00	2150	6926.50	2175	6925.00	2750	6920.70	2950	6920.00	3075	6920	3222.1	6915	3235	6910.72	3250	6905.72
1	1175	6926.50	1725	6925.00	2125	6923.50	2200	6920.00	2675	6915	2947.89	6910	2960.0	6905.97	2975.0	6900.97	3250	6900.97
0			2100	6923.00	2175	6920.00	2725	6915.00			2905.19	6910	2920.0	6905.07	2935.0	6900.07	3250	6900.07
-1							2125	6922.00	2175	6920	2719.39	6915	2734.4	6910.00	2775.0	6896.47	3250	6896.47
-2					2025	6922.00	2075	6920.00	2425	6915	2720.89	6910	2760.0	6896.97	2775.0	6891.97	3250	6891.97
-3							2025	6917.00	2075	6915	2707.39	6910	2758.7	6892.90	2775.0	6887.47	3250	6887.47
-4					2025	6917.00	2075	6915.00	2375	6910	2708.89	6905	2760.0	6887.97	2775.0	6882.97	3250	6882.97

HEC-RAS CHANNEL CROSS-SECTION INPUT DATA

1	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
Section #	Center Channel		right bottom		right bank		right berm		right overbank-1		right overbank-2		right overbank-3		right overbank-4	
	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
21	3450	6951.00	3500	6952.00	3550	6955.00	4275	6960.00	5075	6960.00	5175	6965.00	5225	6970.00		
20	3450	6949.40	3500	6950.40	3550	6955.00	3850	6960.00	4225	6960.00	4875	6960.00	4925	6965.00	4975	6970.00
19	3450	6947.80	3500	6948.80	4050	6950.00	4100	6955.00	4150	6960.00	4650	6963.00	4775	6965.00	4875.00	6970.00
18	3375	6945.89	3500	6948.39	3549.8	6965.00	4725	6970.00	4,825	6,970						
17	3375	6944.77	3500	6947.27	3545.0	6962.27	3560.0	6962.27								
16	3375	6943.72	3500	6946.22	3545.0	6961.22	3560.0	6961.22								
15	3375	6943.22	3500	6945.72	3544.3	6960.47	3559.3	6960.47								
14	3375	6942.72	3500	6945.22	3543.5	6959.72	3558.5	6959.72								
13	3375	6942.22	3500	6944.72	3542.8	6958.97	3557.8	6958.97								
12	3375	6941.72	3500	6944.22	3542.0	6958.22	3557.0	6958.22								
11	3375	6941.22	3500	6943.72	3541.3	6957.47	3556.3	6957.47								
10	3375	6940.72	3500	6943.22	3540.5	6956.72	3555.5	6956.72								
9	3375	6938.22	3500	6940.72	3539.0	6953.72	3554.0	6953.72								

HEC-RAS CHANNEL CROSS-SECTION INPUT DATA

1	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
Section #	Center Channel		right bottom		right bank		right berm		right overbank-1		right overbank-2		right overbank-3		right overbank-4	
8	3375	6935.72	3500	6938.22	3539.0	6951.215	3554.0	6951.22								
			3470	6935.12												
7	3375	6933.22	3500	6935.72	3539.0	6948.72	3554.0	6948.72								
			3470	6930.12												
6	3375	6928.22	3500	6930.72	3539.0	6943.72	3554.0	6943.72								
			3470	6925.12												
5	3375	6923.22	3500	6925.72	3539.0	6938.72	3554.0	6938.72								
			3470	6920.12												
4	3375	6918.22	3500	6920.72	3537.5	6933.22	3552.5	6933.22								
			3470	6915.12												
3	3375	6913.22	3500	6915.72	3537.5	6928.22	3552.5	6928.22								
			3470	6910.12												
2	3375	6908.22	3500	6910.72	3537.5	6923.22	3552.5	6923.22								
1	3375	6903.47	3590	6905.97	3602.1	6910.00	3852.11	6915.00	3877.11	6920	4502.11	6924				
			3470	6904.47												
0	3375	6902.57	3500	6905.07	3514.8	6910.00	3675	6915.00	3725	6920	4475	6923.5				
			3470	6900.87												
-1	3375	6898.97	3775	6901.47	3800.6	6910.00	3875	6915.00	3900	6920	5025	6924				
-2	3375	6894.47	3975	6896.97	4014.1	6910.00	4029.1	6915.00	4975	6915	5375	6920				
-3	3375	6889.97	3975	6892.47	3997.6	6900.00	4275	6905.00	4675	6910	4925	6915	5125	6920		
-4	3375	6885.47	3975	6887.97	3996.1	6895.00	4125	6900.00	4275	6905	4625	6910	4875	6915	5025	6920

	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)	
1	Reach #1	21	PF 1	78000	6951.00	6964.69	6962.92	6965.47	0.001487	10.18	13174.88	2338.38	0.51
2	Reach #1	20	PF 1	78000	6949.90	6962.62	6962.62	6964.31	0.003442	14.63	10249.02	2566.28	0.77
3	Reach #1	19	PF 1	78000	6947.80	6960.19	6955.15	6960.7	0.000659	5.76	14166.35	1954.25	0.33
4	Reach #1	18	PF 1	78000	6943.39	6959.57		6960.39	0.001125	9.4	12453.82	1615.3	0.45
5	Reach #1	17	PF 1	78000	6942.27	6959.36		6959.95	0.000788	8.21	14650.86	1840.67	0.38
6	Reach #1	16	PF 1	78000	6941.22	6958.57		6959.48	0.001093	9.78	12131.67	1548.25	0.45
7	Reach #1	15	PF 1	78000	6940.72	6957.47		6958.82	0.001635	11.65	10642.25	1660.65	0.54
8	Reach #1	14	PF 1	78000	6940.22	6956.33		6957.91	0.001953	12.34	9294.92	1284.45	0.59
9	Reach #1	13	PF 1	78000	6939.72	6955.46		6956.91	0.001872	11.88	9362.03	1204.88	0.58
10	Reach #1	12	PF 1	78000	6939.22	6954.60		6955.95	0.001866	11.64	9821.42	1353.22	0.57
11	Reach #1	11	PF 1	78000	6938.72	6953.48		6954.94	0.002132	12.04	9180.37	1233.3	0.61
12	Reach #1	10	PF 1	78000	6938.22	6952.33		6953.79	0.002372	12.26	9362.41	1414.56	0.63
13	Reach #1	9	PF 1	78000	6935.72	6949.46		6952.1	0.004123	15.82	7473.27	1384.75	0.83
14	Reach #1	8	PF 1	78000	6933.22	6947.38		6950.07	0.003838	15.64	7065.48	1093.19	0.81
15	Reach #1	7	PF 1	78000	6930.72	6945.29	6945.29	6948.06	0.003877	15.89	7413.79	1366.83	0.81
16	Reach #1	6	PF 1	78000	6925.72	6940.57	6942.04	6945.47	0.005996	19.46	5704.52	1282.9	0.98
17	Reach #1	5	PF 1	78000	6920.72	6935.38	6937.53	6941.94	0.007584	21.66	4837.66	1316.49	1.09
18	Reach #1	4	PF 1	78000	6915.72	6929.87	6932.47	6937.64	0.009252	23.25	4243.66	1084.64	1.2
19	Reach #1	3	PF 1	78000	6910.72	6925.02	6927.92	6933.01	0.009183	23.37	4003.01	855.44	1.2
20	Reach #1	2	PF 1	78000	6905.72	6920.38	6923.42	6928.51	0.008764	23.29	3762.85	687.2	1.18
21	Reach #1	1	PF 1	78000	6900.97	6907.16	6910.6	6919.95	0.039376	28.99	2788.64	637.12	2.29
22	Reach #1	0	PF 1	78000	6900.07	6906.81	6909.53	6915.83	0.023508	24.2	3255.05	590.44	1.8
23	Reach #1	-1	PF 1	78000	6896.47	6902.32	6903.47	6906.82	0.015811	17.07	4590.03	1020.1	1.41
24	Reach #1	-2	PF 1	78000	6891.97	6898.51	6898.54	6901.06	0.007777	12.83	6107.49	1224.26	1.01
25	Reach #1	-3	PF 1	78000	6887.47	6893.62	6894.02	6896.62	0.010203	13.92	5626.78	1221.91	1.14
26	Reach #1	-4	PF 1	78000	6882.97	6889.52	6889.53	6892.06	0.007742	12.81	6115.86	1224.3	1.01

Plan: Reach #1 Reach #1 RS: 21 Profile: PF 1									
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)
1	LOB	1175	3350	5158.32	1532.61	519.86	6.61	2.95	3.37
2	Chan	3350	3416.67	7863.49	793.02	66.79	10.08	11.9	9.92
3	Chan	3416.67	3483.33	9645.45	895.8	66.67	12.37	13.44	10.77
4	Chan	3483.33	3550	7547.07	773.58	66.76	9.68	11.6	9.76
5	ROB	3550	5225	47785.67	9179.87	1618.88	61.26	5.67	5.21
Plan: Reach #1 Reach #1 RS: 20 Profile: PF 1									
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)
1	LOB	1010	3350	22118.85	3729.76	1015.11	28.36	3.67	5.93
2	Chan	3350	3416.67	10166.68	720.48	66.93	13.03	10.81	14.11
3	Chan	3416.67	3483.33	13227.46	842.42	66.67	16.96	12.64	15.7
4	Chan	3483.33	3550	9718.07	701.03	66.88	12.46	10.52	13.86
5	ROB	3550	4975	22768.95	4255.32	1351.37	29.19	3.15	5.35
Plan: Reach #1 Reach #1 RS: 19 Profile: PF 1									
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)
1	LOB	605	2720	974.44	704.66	493.06	1.25	1.43	1.38
2	Chan	2720	3180	16384.05	3428.77	460.02	21.01	7.45	4.78
3	Chan	3180	3640	32285.77	5151.02	460.02	41.39	11.2	6.27
4	Chan	3640	4100	28143.84	4744.63	460.25	36.08	10.31	5.93
5	ROB	4100	4875	211.88	137.3	81.5	0.27	1.69	1.54
Plan: Reach #1 Reach #1 RS: 18 Profile: PF 1									
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)
39	Chan	3468.45	3474.76	633.37	74.11	6.31	0.81	11.75	8.55
40	Chan	3474.76	3481.07	622.08	73.31	6.31	0.8	11.62	8.49
41	Chan	3481.07	3487.38	555.72	72.52	6.31	0.71	11.49	7.66
42	Chan	3487.38	3493.69	455.48	71.72	6.31	0.58	11.37	6.35
43	Chan	3493.69	3500	447.08	70.93	6.31	0.57	11.24	6.3
44	ROB	3500	4825	771.37	187.3	35.33	0.99	5.59	4.12
Plan: Reach #1 Reach #1 RS: 17 Profile: PF 1									
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)
39	Chan	3468.45	3474.76	600.36	79.84	6.31	0.77	12.65	7.52
40	Chan	3474.76	3481.07	590.4	79.05	6.31	0.76	12.53	7.47
41	Chan	3481.07	3487.38	528.09	78.25	6.31	0.68	12.4	6.75
42	Chan	3487.38	3493.69	433.45	77.45	6.31	0.56	12.28	5.6
43	Chan	3493.69	3500	426.05	76.66	6.31	0.55	12.15	5.56
44	ROB	3500	3560	795.51	219.12	38.22	1.02	6.04	3.63
Plan: Reach #1 Reach #1 RS: 16 Profile: PF 1									
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)
39	Chan	3468.45	3474.76	731.47	81.49	6.31	0.94	12.91	8.98
40	Chan	3474.76	3481.07	719.61	80.69	6.31	0.92	12.79	8.92
41	Chan	3481.07	3487.38	643.89	79.89	6.31	0.83	12.66	8.06
42	Chan	3487.38	3493.69	528.68	79.1	6.31	0.68	12.54	6.68
43	Chan	3493.69	3500	519.84	78.3	6.31	0.67	12.41	6.64
44	ROB	3500	3560	991.55	228.66	39.04	1.27	6.17	4.34
Plan: Reach #1 Reach #1 RS: 15 Profile: PF 1									
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)
39	Chan	3468.45	3474.76	826.55	77.71	6.31	1.06	12.32	10.64
40	Chan	3474.76	3481.07	812.5	76.91	6.31	1.04	12.19	10.56
41	Chan	3481.07	3487.38	726.43	76.11	6.31	0.93	12.06	9.54
42	Chan	3487.38	3493.69	595.94	75.32	6.31	0.76	11.94	7.91
43	Chan	3493.69	3500	585.47	74.52	6.31	0.75	11.81	7.86
44	ROB	3500	3560	1062.42	207.01	37.15	1.36	5.87	5.13

Plan: Reach #1 Reach #1 RS: 14 Profile: PF 1									
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)
39	Chan	3468.45	3474.76	825.67	73.65	6.31	1.06	11.67	11.21
40	Chan	3474.76	3481.07	810.87	72.86	6.31	1.04	11.55	11.13
41	Chan	3481.07	3487.38	724.29	72.06	6.31	0.93	11.42	10.05
42	Chan	3487.38	3493.69	593.57	71.26	6.31	0.76	11.29	8.33
43	Chan	3493.69	3500	582.56	70.47	6.31	0.75	11.17	8.27
44	ROB	3500	3560	999.18	184.98	35.12	1.28	5.55	5.4
Plan: Reach #1 Reach #1 RS: 13 Profile: PF 1									
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)
39	Chan	3468.45	3474.76	766.89	71.36	6.31	0.98	11.31	10.75
40	Chan	3474.76	3481.07	752.7	70.56	6.31	0.96	11.18	10.67
41	Chan	3481.07	3487.38	671.94	69.76	6.31	0.86	11.06	9.63
42	Chan	3487.38	3493.69	550.32	68.97	6.31	0.71	10.93	7.98
43	Chan	3493.69	3500	539.77	68.17	6.31	0.69	10.8	7.92
44	ROB	3500	3558.1	895.25	173.04	33.96	1.15	5.37	5.17
Plan: Reach #1 Reach #1 RS: 12 Profile: PF 1									
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)
39	Chan	3468.45	3474.76	725.12	69.08	6.31	0.93	10.95	10.5
40	Chan	3474.76	3481.07	711.26	68.28	6.31	0.91	10.82	10.42
41	Chan	3481.07	3487.38	634.56	67.49	6.31	0.81	10.7	9.4
42	Chan	3487.38	3493.69	519.36	66.69	6.31	0.67	10.57	7.79
43	Chan	3493.69	3500	509.07	65.89	6.31	0.65	10.44	7.73
44	ROB	3500	3556.3	817.08	161.82	32.86	1.05	5.19	5.05
Plan: Reach #1 Reach #1 RS: 11 Profile: PF 1									
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)
39	Chan	3468.45	3474.76	702.19	65.13	6.31	0.9	10.32	10.78
40	Chan	3474.76	3481.07	687.96	64.34	6.31	0.88	10.2	10.69
41	Chan	3481.07	3487.38	613.05	63.54	6.31	0.79	10.07	9.65
42	Chan	3487.38	3493.69	501.12	62.74	6.31	0.64	9.94	7.99
43	Chan	3493.69	3500	490.56	61.95	6.31	0.63	9.82	7.92
44	ROB	3500	3554.4	739.7	142.89	30.88	0.95	4.88	5.18
Plan: Reach #1 Reach #1 RS: 10 Profile: PF 1									
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)
39	Chan	3468.45	3474.76	664.48	61.04	6.31	0.85	9.67	10.89
40	Chan	3474.76	3481.07	650.12	60.25	6.31	0.83	9.55	10.79
41	Chan	3481.07	3487.38	578.54	59.45	6.31	0.74	9.42	9.73
42	Chan	3487.38	3493.69	472.2	58.66	6.31	0.61	9.3	8.05
43	Chan	3493.69	3500	461.56	57.86	6.31	0.59	9.17	7.98
44	ROB	3500	3552.5	648.91	124.4	28.8	0.83	4.55	5.22
Plan: Reach #1 Reach #1 RS: 9 Profile: PF 1									0
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)
39	Chan	3468.45	3474.76	821.02	58.73	6.31	1.05	9.31	13.98
40	Chan	3474.76	3481.07	802.57	57.93	6.31	1.03	9.18	13.85
41	Chan	3481.07	3487.38	713.59	57.13	6.31	0.91	9.06	12.49
42	Chan	3487.38	3493.69	581.87	56.34	6.31	0.75	8.93	10.33
43	Chan	3493.69	3500	568.23	55.54	6.31	0.73	8.8	10.23
44	ROB	3500	3552.5	766.6	114.57	27.64	0.98	4.37	6.69
Plan: Reach #1 Reach #1 RS: 8 Profile: PF 1									
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)
39	Chan	3468.45	3474.76	853.54	61.4	6.31	1.09	9.73	13.9
40	Chan	3474.76	3481.07	835.2	60.61	6.31	1.07	9.61	13.78
41	Chan	3481.07	3487.38	743.33	59.81	6.31	0.95	9.48	12.43
42	Chan	3487.38	3493.69	606.79	59.01	6.31	0.78	9.35	10.28
43	Chan	3493.69	3500	593.2	58.22	6.31	0.76	9.23	10.19
44	ROB	3500	3552.5	839.19	125.96	28.98	1.08	4.58	6.66

Plan: Reach #1 Reach #1 RS: 7 Profile: PF 1									
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)
39	Chan	3468.45	3474.76	907.31	63.93	6.31	1.16	10.13	14.19
40	Chan	3474.76	3481.07	888.58	63.14	6.31	1.14	10.01	14.07
41	Chan	3481.07	3487.38	791.53	62.34	6.31	1.01	9.88	12.7
42	Chan	3487.38	3493.69	646.73	61.55	6.31	0.83	9.75	10.51
43	Chan	3493.69	3500	632.85	60.75	6.31	0.81	9.63	10.42
44	ROB	3500	3554.4	946.67	137.37	30.28	1.21	4.78	6.89
Plan: Reach #1 Reach #1 RS: 6 Profile: PF 1									
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	Velocity
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	(ft/s)
37	Chan	3455.83	3462.14	1065.04	67.3	6.31	1.43	10.67	18.17
38	Chan	3462.14	3468.45	903.54	66.51	6.31	1.16	10.54	16.57
39	Chan	3468.45	3474.76	885.58	65.71	6.31	1.14	10.41	13.59
40	Chan	3474.76	3481.07	867.77	64.91	6.31	1.11	10.29	13.48
41	Chan	3481.07	3487.38	850.06	64.11	6.31	1.09	10.16	13.37
42	Chan	3487.38	3493.69	832.57	63.32	6.31	1.07	10.04	13.26
43	Chan	3493.69	3500	815.19	62.52	6.31	1.05	9.91	13.15
44	ROB	3500	3556.3	1185.07	145.6	31.17	1.52	4.92	13.04
Plan: Reach #1 Reach #1 RS: 5 Profile: PF 1									8.14
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	Velocity
37	Chan	3455.83	3462.14	1066.49	66.1	6.31	1.56	10.48	20.19
38	Chan	3462.14	3468.45	985.38	65.3	6.31	1.26	10.35	18.4
39	Chan	3468.45	3474.76	965.44	64.51	6.31	1.24	10.22	15.09
40	Chan	3474.76	3481.07	945.65	63.71	6.31	1.21	10.1	14.97
41	Chan	3481.07	3487.38	926	62.91	6.31	1.19	9.97	14.84
42	Chan	3487.38	3493.69	906.58	62.12	6.31	1.16	9.85	14.72
43	Chan	3493.69	3500	887.29	61.32	6.31	1.14	9.72	14.59
44	ROB	3500	3558.1	1263.25	139.82	30.53	1.62	4.83	14.47
Plan: Reach #1 Reach #1 RS: 4 Profile: PF 1									9.03
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	Velocity
37	Chan	3455.83	3462.14	1035.64	62.9	6.31	1.58	9.97	21.56
38	Chan	3462.14	3468.45	999.83	62.1	6.31	1.28	9.84	19.64
39	Chan	3468.45	3474.76	978.56	61.31	6.31	1.25	9.72	16.1
40	Chan	3474.76	3481.07	957.46	60.51	6.31	1.23	9.59	15.96
41	Chan	3481.07	3487.38	936.52	59.71	6.31	1.2	9.46	15.82
42	Chan	3487.38	3493.69	915.83	58.92	6.31	1.17	9.34	15.68
43	Chan	3493.69	3500	895.29	58.12	6.31	1.15	9.21	15.54
44	ROB	3500	3560	1208.54	125.54	28.93	1.55	4.57	15.4
Plan: Reach #1 Reach #1 RS: 3 Profile: PF 1									9.63
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	Velocity
37	Chan	3455.83	3462.14	1063.18	63.87	6.31	1.62	10.12	21.7
38	Chan	3462.14	3468.45	1022.46	63.07	6.31	1.31	10	19.78
39	Chan	3468.45	3474.76	1001.03	62.27	6.31	1.28	9.87	16.21
40	Chan	3474.76	3481.07	979.79	61.48	6.31	1.26	9.74	16.07
41	Chan	3481.07	3487.38	958.69	60.68	6.31	1.23	9.62	15.94
42	Chan	3487.38	3493.69	937.85	59.89	6.31	1.2	9.49	15.8
43	Chan	3493.69	3500	917.15	59.09	6.31	1.18	9.36	15.66
44	ROB	3500	3560	1258.6	129.78	29.41	1.61	4.65	15.52
Plan: Reach #1 Reach #1 RS: 2 Profile: PF 1									9.7
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	Velocity
37	Chan	3455.83	3462.14	1108.34	66.12	6.31	1.68	10.48	21.71
38	Chan	3462.14	3468.45	1059.79	65.32	6.31	1.36	10.35	19.79
39	Chan	3468.45	3474.76	1038.35	64.53	6.31	1.33	10.23	16.22
40	Chan	3474.76	3481.07	1017.08	63.73	6.31	1.3	10.1	16.09
41	Chan	3481.07	3487.38	995.94	62.93	6.31	1.28	9.97	15.96
42	Chan	3487.38	3493.69	975.06	62.14	6.31	1.25	9.85	15.83
43	Chan	3493.69	3500	954.32	61.34	6.31	1.22	9.72	15.69
44	ROB	3500	3560	1359.39	139.94	30.54	1.74	4.83	15.56

Plan: Reach #1 Reach #1 RS: 1 Profile: PF 1									9.71
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	Velocity
38	Chan	3425	3437.5	561.33	32.01	12.5	0.72	2.56	18.66
39	Chan	3437.5	3450	473	28.88	12.5	0.61	2.31	17.54
40	Chan	3450	3462.5	390.89	25.76	12.5	0.5	2.06	16.38
41	Chan	3462.5	3475	315.17	22.64	12.5	0.4	1.81	15.17
42	Chan	3475	3487.5	231.2	19.51	12.5	0.3	1.56	13.92
43	Chan	3487.5	3500	139.66	16.38	12.5	0.18	1.31	11.85
44	ROB	3500	4502.11	980.59	108.81	93.75	1.26	1.16	8.52
Plan: Reach #1 Reach #1 RS: 0 Profile: PF 1									9.01
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	Velocity
38	Chan	3419.29	3432.74	691.07	43.3	13.46	0.89	3.22	16.84
39	Chan	3432.74	3446.19	597.5	39.68	13.46	0.77	2.95	15.96
40	Chan	3446.19	3459.64	509.45	36.06	13.46	0.65	2.68	15.06
41	Chan	3459.64	3473.1	427.11	32.44	13.46	0.55	2.41	14.13
42	Chan	3473.1	3486.55	336.14	28.82	13.46	0.43	2.14	13.17
43	Chan	3486.55	3500	212.96	25.2	13.46	0.27	1.87	11.66
44	ROB	3500	4475	23.02	4.54	5.5	0.03	0.87	8.45
Plan: Reach #1 Reach #1 RS: -1 Profile: PF 1									5.07
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	Velocity
39	Chan	3655.95	3679.76	392.8	44.62	23.81	0.5	1.87	(ft/s)
40	Chan	3679.76	3703.57	316.89	39.23	23.81	0.41	1.65	8.8
41	Chan	3703.57	3727.38	247.64	33.83	23.81	0.32	1.42	8.08
42	Chan	3727.38	3751.19	185.38	28.44	23.81	0.24	1.19	7.32
43	Chan	3751.19	3775	129.97	22.98	23.81	0.17	0.97	6.52
44	ROB	3775	5025	3.16	1.08	2.69	0	0.43	5.66
Plan: Reach #1 Reach #1 RS: -2 Profile: PF 1									2.91
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	Velocity
39	Chan	3832.14	3860.71	516.64	69.48	28.57	0.66	2.43	(ft/s)
40	Chan	3860.71	3889.29	448.86	63.86	28.57	0.58	2.24	7.44
41	Chan	3889.29	3917.86	384.87	58.23	28.57	0.49	2.04	7.03
42	Chan	3917.86	3946.43	324.87	52.6	28.57	0.42	1.84	6.61
43	Chan	3946.43	3975	268.5	46.92	28.57	0.34	1.64	6.18
44	ROB	3975	5375	10.84	3.57	4.88	0.01	0.77	5.72
Plan: Reach #1 Reach #1 RS: -3 Profile: PF 1									3.04
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	Velocity
39	Chan	3832.14	3860.71	436.46	58.25	28.57	0.56	2.04	(ft/s)
40	Chan	3860.71	3889.29	368.53	52.63	28.57	0.47	1.84	7.49
41	Chan	3889.29	3917.86	305.21	47	28.57	0.39	1.65	7.00
42	Chan	3917.86	3946.43	246.74	41.37	28.57	0.32	1.45	6.49
43	Chan	3946.43	3975	192.87	35.69	28.57	0.25	1.25	5.96
44	ROB	3975	5125	5.67	1.98	3.63	0.01	0.57	5.4
Plan: Reach #1 Reach #1 RS: -4 Profile: PF 1									2.86
	Pos	Left Sta	Right Sta	Flow	Area	W.P.	Percent	Hydr	
		(ft)	(ft)	(cfs)	(sq ft)	(ft)	Conv	Depth(ft)	Velocity
39	Chan	3832.14	3860.71	517.97	69.68	28.57	0.66	2.44	(ft/s)
40	Chan	3860.71	3889.29	450.2	64.06	28.57	0.58	2.24	7.43
41	Chan	3889.29	3917.86	386.21	58.43	28.57	0.5	2.04	7.03
42	Chan	3917.86	3946.43	326.19	52.8	28.57	0.42	1.85	6.61
43	Chan	3946.43	3975	269.8	47.11	28.57	0.35	1.65	6.18
44	ROB	3975	5025	10.95	3.6	4.9	0.01	0.77	5.73

Plan: Reach #1	Reach #1 RS: 21	Profile: PF 1			
E.G. Elev (ft)	6965.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.79	Wt. n-Val.	0.035	0.03	0.035
W.S. Elev (ft)	6964.69	Reach Len. (ft)	525	500	475
Crit W.S. (ft)	6962.92	Flow Area (sq ft)	1532.61	2462.4	9179.87
E.G. Slope (ft/ft)	0.001487	Area (sq ft)	1532.61	2462.4	9179.87
Q Total (cfs)	78000	Flow (cfs)	5158.32	25056.01	47785.67
Top Width (ft)	2338.38	Top Width (ft)	519.64	200	1618.74
Vel Total (ft/s)	5.92	Avg. Vel. (ft/s)	3.37	10.18	5.21
Max Chl Dpth (ft)	13.69	Hydr. Depth (ft)	2.95	12.31	5.67
Conv. Total (cfs)	2022909	Conv. (cfs)	133779.6	649821	1239309
Length Wtd. (ft)	493.06	Wetted Per. (ft)	519.86	200.22	1618.88
Min Ch El (ft)	6951	Shear (lb/sq ft)	0.27	1.14	0.53
Alpha	1.44	Stream Power (lb/ft s)	0.92	11.62	2.74
Frctn Loss (ft)	1.07	Cum Volume (acre-ft)	957.7	1054.07	128.07
C & E Loss (ft)	0.09	Cum SA (acres)	212.8	118.4	30.81

Plan: Reach #1	Reach #1 RS: 12	Profile: PF 1			
E.G. Elev (ft)	6955.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.34	Wt. n-Val.	0.035	0.03	0.037
W.S. Elev (ft)	6954.6	Reach Len. (ft)	500	500	500
Crit W.S. (ft)		Flow Area (sq ft)	6246.29	3413.31	161.82
E.G. Slope (ft/ft)	0.001866	Area (sq ft)	6246.29	3413.31	161.82
Q Total (cfs)	78000	Flow (cfs)	37444.81	39738.11	817.08
Top Width (ft)	1353.22	Top Width (ft)	1057.04	265	31.18
Vel Total (ft/s)	7.94	Avg. Vel. (ft/s)	5.99	11.64	5.05
Max Chl Dpth (ft)	15.38	Hydr. Depth (ft)	5.91	12.88	5.19
Conv. Total (cfs)	1805471	Conv. (cfs)	866737.6	919820.6	18913.1
Length Wtd. (ft)	500	Wetted Per. (ft)	1057.1	265.86	32.86
Min Ch El (ft)	6939.22	Shear (lb/sq ft)	0.69	1.5	0.57
Alpha	1.37	Stream Power (lb/ft s)	4.13	17.42	2.9
Frctn Loss (ft)	1	Cum Volume (acre-ft)	398.47	632.23	16.62
C & E Loss (ft)	0.01	Cum SA (acres)	110.54	83.56	4.15

Plan: Reach #1	Reach #1 RS: 3	Profile: PF 1			
E.G. Elev (ft)	6933.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	7.99	Wt. n-Val.	0.035	0.032	0.039
W.S. Elev (ft)	6925.02	Reach Len. (ft)	500	500	500
Crit W.S. (ft)	6927.92	Flow Area (sq ft)	745.74	3127.48	129.78
E.G. Slope (ft/ft)	0.009183	Area (sq ft)	745.74	3127.48	129.78
Q Total (cfs)	78000	Flow (cfs)	3658.06	73083.34	1258.6
Top Width (ft)	855.44	Top Width (ft)	562.54	265	27.91
Vel Total (ft/s)	19.49	Avg. Vel. (ft/s)	4.91	23.37	9.7
Max Chl Dpth (ft)	14.3	Hydr. Depth (ft)	1.33	11.8	4.65
Conv. Total (cfs)	813946.9	Conv. (cfs)	38172.7	762640.4	13133.8
Length Wtd. (ft)	500	Wetted Per. (ft)	563.28	265.86	29.41
Min Ch El (ft)	6910.72	Shear (lb/sq ft)	0.76	6.74	2.53
Alpha	1.35	Stream Power (lb/ft s)	3.72	157.6	24.53
Frctn Loss (ft)	4.61	Cum Volume (acre-ft)	12.09	306.08	3.22
C & E Loss (ft)	0.02	Cum SA (acres)	8.76	56.19	1.31

Plan: Reach #1	Reach #1 RS: 20	Profile: PF 1			
E.G. Elev (ft)	6964.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.69	Wt. n-Val.	0.035	0.03	0.035
W.S. Elev (ft)	6962.62	Reach Len. (ft)	525	500	475
Crit W.S. (ft)	6962.62	Flow Area (sq ft)	3729.76	2263.94	4255.32
E.G. Slope (ft/ft)	0.003442	Area (sq ft)	3729.76	2263.94	4255.32
Q Total (cfs)	78000	Flow (cfs)	22118.82	33112.26	22768.92
Top Width (ft)	2566.28	Top Width (ft)	1015.09	200	1351.2
Vel Total (ft/s)	7.61	Avg. Vel. (ft/s)	5.93	14.63	5.35
Max Chl Dpth (ft)	12.72	Hydr. Depth (ft)	3.67	11.32	3.15
Conv. Total (cfs)	1329589	Conv. (cfs)	377037.6	564431.8	388119.2
Length Wtd. (ft)	500.02	Wetted Per. (ft)	1015.11	200.47	1351.37
Min Ch El (ft)	6949.9	Shear (lb/sq ft)	0.79	2.43	0.68
Alpha	1.88	Stream Power (lb/ft s)	4.68	35.49	3.62
Frctn Loss (ft)	0.64	Cum Volume (acre-ft)	925.99	1026.95	54.81
C & E Loss (ft)	0.36	Cum SA (acres)	203.55	116.11	14.61

Plan: Reach #1	Reach #1 RS: 11	Profile: PF 1			
E.G. Elev (ft)	6954.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.46	Wt. n-Val.	0.035	0.03	0.037
W.S. Elev (ft)	6953.48	Reach Len. (ft)	525	500	475
Crit W.S. (ft)		Flow Area (sq ft)	5789.93	3247.55	142.89
E.G. Slope (ft/ft)	0.002132	Area (sq ft)	5789.93	3247.55	142.89
Q Total (cfs)	78000	Flow (cfs)	38158.8	39101.5	739.7
Top Width (ft)	1233.3	Top Width (ft)	939	265	29.3
Vel Total (ft/s)	8.5	Avg. Vel. (ft/s)	6.59	12.04	5.18
Max Chl Dpth (ft)	14.75	Hydr. Depth (ft)	6.17	12.25	4.88
Conv. Total (cfs)	1689466	Conv. (cfs)	826512.9	846931.6	16021.7
Length Wtd. (ft)	512.25	Wetted Per. (ft)	939.07	265.86	30.88
Min Ch El (ft)	6938.72	Shear (lb/sq ft)	0.82	1.63	0.62
Alpha	1.3	Stream Power (lb/ft s)	5.41	19.57	3.19
Frctn Loss (ft)	1.15	Cum Volume (acre-ft)	329.39	594	14.87
C & E Loss (ft)	0	Cum SA (acres)	99.08	80.52	3.8

Plan: Reach #1	Reach #1 RS: 2	Profile: PF 1			
E.G. Elev (ft)	6928.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	8.13	Wt. n-Val.	0.035	0.032	0.039
W.S. Elev (ft)	6920.38	Reach Len. (ft)	500	500	500
Crit W.S. (ft)	6923.42	Flow Area (sq ft)	400.85	3222.07	139.94
E.G. Slope (ft/ft)	0.008764	Area (sq ft)	400.85	3222.07	139.94
Q Total (cfs)	78000	Flow (cfs)	1611.27	75029.34	1359.39
Top Width (ft)	687.2	Top Width (ft)	393.23	265	28.98
Vel Total (ft/s)	20.73	Avg. Vel. (ft/s)	4.02	23.29	9.71
Max Chl Dpth (ft)	14.66	Hydr. Depth (ft)	1.02	12.16	4.83
Conv. Total (cfs)	833201.6	Conv. (cfs)	17211.7	801468.8	14521.1
Length Wtd. (ft)	500	Wetted Per. (ft)	394.09	265.86	30.54
Min Ch El (ft)	6905.72	Shear (lb/sq ft)	0.58	6.63	2.51
Alpha	1.22	Stream Power (lb/ft s)	2.24	154.4	24.35
Frctn Loss (ft)	4.48	Cum Volume (acre-ft)	5.51	269.64	1.67
C & E Loss (ft)	0.01	Cum SA (acres)	3.28	53.15	0.98

Plan: Reach #1	Reach #1 RS: 19	Profile: PF 1			
E.G. Elev (ft)	6960.7	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.51	Wt. n-Val.	0.035	0.03	0.035
W.S. Elev (ft)	6960.19	Reach Len. (ft)	350	325	275
Crit W.S. (ft)	6955.15	Flow Area (sq ft)	704.66	13324.39	137.3
E.G. Slope (ft/ft)	0.000659	Area (sq ft)	704.66	13324.39	137.3
Q Total (cfs)	78000	Flow (cfs)	974.45	76813.67	211.88
Top Width (ft)	1954.25	Top Width (ft)	493	1380	81.25
Vel Total (ft/s)	5.51	Avg. Vel. (ft/s)	1.38	5.76	1.54
Max Chl Dpth (ft)	12.39	Hydr. Depth (ft)	1.43	9.66	1.69
Conv. Total (cfs)	3038277	Conv. (cfs)	37957	2992067	8253.4
Length Wtd. (ft)	331.75	Wetted Per. (ft)	493.06	1380.3	81.5
Min Ch El (ft)	6947.8	Shear (lb/sq ft)	0.06	0.4	0.07
Alpha	1.08	Stream Power (lb/ft s)	0.08	2.29	0.11
Frctn Loss (ft)	0.28	Cum Volume (acre-ft)	899.27	937.48	30.86
C & E Loss (ft)	0.03	Cum SA (acres)	194.46	107.04	6.8

Plan: Reach #1	Reach #1 RS: 10	Profile: PF 1			
E.G. Elev (ft)	6953.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.46	Wt. n-Val.	0.035	0.03	0.037
W.S. Elev (ft)	6952.33	Reach Len. (ft)	525	500	475
Crit W.S. (ft)		Flow Area (sq ft)	6162.15	3075.85	124.4
E.G. Slope (ft/ft)	0.002372	Area (sq ft)	6162.15	3075.85	124.4
Q Total (cfs)	78000	Flow (cfs)	39654.78	37696.3	648.91
Top Width (ft)	1414.56	Top Width (ft)	1122.23	265	27.32
Vel Total (ft/s)	8.33	Avg. Vel. (ft/s)	6.44	12.26	5.22
Max Chl Dpth (ft)	14.11	Hydr. Depth (ft)	5.49	11.61	4.55
Conv. Total (cfs)	1601525	Conv. (cfs)	814206.7	773994.4	13323.7
Length Wtd. (ft)	510.95	Wetted Per. (ft)	1122.33	265.86	28.8
Min Ch El (ft)	6938.22	Shear (lb/sq ft)	0.81	1.71	0.64
Alpha	1.35	Stream Power (lb/ft s)	5.23	21	3.34
Frctn Loss (ft)	1.57	Cum Volume (acre-ft)	257.36	557.71	13.41
C & E Loss (ft)	0.12	Cum SA (acres)	86.66	77.48	3.49

Plan: Reach #1	Reach #1 RS: 1	Profile: PF 1			
E.G. Elev (ft)	6919.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	12.8	Wt. n-Val.	0.035	0.03	0.036
W.S. Elev (ft)	6907.16	Reach Len. (ft)	100	100	100
Crit W.S. (ft)	6910.6	Flow Area (sq ft)	57.4	2622.43	108.81
E.G. Slope (ft/ft)	0.039376	Area (sq ft)	57.4	2622.43	108.81
Q Total (cfs)	78000	Flow (cfs)	990.82	76028.59	980.58
Top Width (ft)	637.12	Top Width (ft)	18.56	525	93.56
Vel Total (ft/s)	27.97	Avg. Vel. (ft/s)	17.26	28.99	9.01
Max Chl Dpth (ft)	6.19	Hydr. Depth (ft)	3.09	5	1.16
Conv. Total (cfs)	393078.8	Conv. (cfs)	4993.2	383144	4941.6
Length Wtd. (ft)	100	Wetted Per. (ft)	19.57	525.05	93.75
Min Ch El (ft)	6900.97	Shear (lb/sq ft)	7.21	12.28	2.85
Alpha	1.05	Stream Power (lb/ft s)	124.48	355.96	25.71
Frctn Loss (ft)	8.09	Cum Volume (acre-ft)	2.88	236.1	0.24
C & E Loss (ft)	0.47	Cum SA (acres)	0.91	48.61	0.28

Plan: Reach #1	Reach #1 RS: 18	Profile: PF 1			
E.G. Elev (ft)	6960.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.82	Wt. n-Val.	0.035	0.03	0.037
W.S. Elev (ft)	6959.57	Reach Len. (ft)	425	350	250
Crit W.S. (ft)		Flow Area (sq ft)	8641.91	3624.61	187.3
E.G. Slope (ft/ft)	0.001125	Area (sq ft)	8641.91	3624.61	187.3
Q Total (cfs)	78000	Flow (cfs)	43140.04	34088.6	771.37
Top Width (ft)	1615.3	Top Width (ft)	1316.79	265	33.51
Vel Total (ft/s)	6.26	Avg. Vel. (ft/s)	4.99	9.4	4.12
Max Chl Dpth (ft)	16.18	Hydr. Depth (ft)	6.56	13.68	5.59
Conv. Total (cfs)	2325241	Conv. (cfs)	1286038	1016208	22995.2
Length Wtd. (ft)	391.6	Wetted Per. (ft)	1316.84	265.86	35.33
Min Ch El (ft)	6943.39	Shear (lb/sq ft)	0.46	0.96	0.37
Alpha	1.34	Stream Power (lb/ft s)	2.3	9.01	1.53
Frctn Loss (ft)	0.37	Cum Volume (acre-ft)	861.72	874.26	29.84
C & E Loss (ft)	0.07	Cum SA (acres)	187.19	100.9	6.44

Plan: Reach #1	Reach #1 RS: 9	Profile: PF 1			
E.G. Elev (ft)	6952.1	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.64	Wt. n-Val.	0.035	0.03	0.037
W.S. Elev (ft)	6949.46	Reach Len. (ft)	525	500	475
Crit W.S. (ft)		Flow Area (sq ft)	4380.15	2978.54	114.57
E.G. Slope (ft/ft)	0.004123	Area (sq ft)	4380.15	2978.54	114.57
Q Total (cfs)	78000	Flow (cfs)	30113.21	47120.2	766.6
Top Width (ft)	1384.75	Top Width (ft)	1093.53	265	26.22
Vel Total (ft/s)	10.44	Avg. Vel. (ft/s)	6.87	15.82	6.69
Max Chl Dpth (ft)	13.74	Hydr. Depth (ft)	4.01	11.24	4.37
Conv. Total (cfs)	1214756	Conv. (cfs)	468976.9	733840.3	11938.9
Length Wtd. (ft)	509.19	Wetted Per. (ft)	1093.67	265.86	27.64
Min Ch El (ft)	6935.72	Shear (lb/sq ft)	1.03	2.88	1.07
Alpha	1.56	Stream Power (lb/ft s)	7.09	45.62	7.14
Frctn Loss (ft)	2.02	Cum Volume (acre-ft)	193.83	522.96	12.11
C & E Loss (ft)	0	Cum SA (acres)	73.31	74.44	3.2

Plan: Reach #1	Reach #1 RS: 0	Profile: PF 1			
E.G. Elev (ft)	6915.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	9.02	Wt. n-Val.	0.035	0.03	0.04
W.S. Elev (ft)	6906.81	Reach Len. (ft)	500	400	350
Crit W.S. (ft)	6909.53	Flow Area (sq ft)	68.12	3182.39	4.54
E.G. Slope (ft/ft)	0.023508	Area (sq ft)	68.12	3182.39	4.54
Q Total (cfs)	78000	Flow (cfs)	962.08	77014.9	23.02
Top Width (ft)	590.44	Top Width (ft)	20.22	565	5.22
Vel Total (ft/s)	23.96	Avg. Vel. (ft/s)	14.12	24.2	5.07
Max Chl Dpth (ft)	6.74	Hydr. Depth (ft)	3.37	5.63	0.87
Conv. Total (cfs)	508727.8	Conv. (cfs)	6274.8	502302.8	150.1
Length Wtd. (ft)	400.96	Wetted Per. (ft)	21.32	565.05	5.5
Min Ch El (ft)	6900.07	Shear (lb/sq ft)	4.69	8.27	1.21
Alpha	1.01	Stream Power (lb/ft s)	66.24	200.03	6.14
Frctn Loss (ft)	2.99	Cum Volume (acre-ft)	2.74	229.44	0.11
C & E Loss (ft)	1.13	Cum SA (acres)	0.87	47.36	0.17

Plan: Reach #1	Reach #1 RS: 17	Profile: PF 1			
E.G. Elev (ft)	6959.95	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.6	Wt. n-Val.	0.035	0.03	0.037
W.S. Elev (ft)	6959.36	Reach Len. (ft)	450	500	575
Crit W.S. (ft)		Flow Area (sq ft)	10566.33	3865.41	219.12
E.G. Slope (ft/ft)	0.000788	Area (sq ft)	10566.33	3865.41	219.12
Q Total (cfs)	78000	Flow (cfs)	45467.49	31737	795.51
Top Width (ft)	1840.67	Top Width (ft)	1539.41	265	36.26
Vel Total (ft/s)	5.32	Avg. Vel. (ft/s)	4.3	8.21	3.63
Max Chl Dpth (ft)	17.09	Hydr. Depth (ft)	6.86	14.59	6.04
Conv. Total (cfs)	2778916	Conv. (cfs)	1619876	1130698	28341.8
Length Wtd. (ft)	473.94	Wetted Per. (ft)	1539.85	265.86	38.22
Min Ch El (ft)	6942.27	Shear (lb/sq ft)	0.34	0.72	0.28
Alpha	1.35	Stream Power (lb/ft s)	1.45	5.87	1.02
Frctn Loss (ft)	0.44	Cum Volume (acre-ft)	768.02	844.16	28.67
C & E Loss (ft)	0.03	Cum SA (acres)	173.26	98.77	6.24

Plan: Reach #1	Reach #1 RS: 8	Profile: PF 1			
E.G. Elev (ft)	6950.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.68	Wt. n-Val.	0.035	0.03	0.037
W.S. Elev (ft)	6947.38	Reach Len. (ft)	550	500	450
Crit W.S. (ft)		Flow Area (sq ft)	3848.66	3090.86	125.96
E.G. Slope (ft/ft)	0.003838	Area (sq ft)	3848.66	3090.86	125.96
Q Total (cfs)	78000	Flow (cfs)	28822.12	48338.69	839.19
Top Width (ft)	1093.19	Top Width (ft)	800.7	265	27.49
Vel Total (ft/s)	11.04	Avg. Vel. (ft/s)	7.49	15.64	6.66
Max Chl Dpth (ft)	14.16	Hydr. Depth (ft)	4.81	11.66	4.58
Conv. Total (cfs)	1259046	Conv. (cfs)	465235.8	780264.8	13545.8
Length Wtd. (ft)	517.08	Wetted Per. (ft)	801.04	265.86	28.98
Min Ch El (ft)	6933.22	Shear (lb/sq ft)	1.15	2.79	1.04
Alpha	1.42	Stream Power (lb/ft s)	8.62	43.57	6.94
Frctn Loss (ft)	1.99	Cum Volume (acre-ft)	144.24	488.13	10.8
C & E Loss (ft)	0.01	Cum SA (acres)	61.9	71.4	2.91

Plan: Reach #1	Reach #1 RS: -1	Profile: PF 1			
E.G. Elev (ft)	6906.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.5	Wt. n-Val.	0.035	0.03	0.035
W.S. Elev (ft)	6902.32	Reach Len. (ft)	500	500	500
Crit W.S. (ft)	6903.47	Flow Area (sq ft)	51.35	4538.6	1.08
E.G. Slope (ft/ft)	0.015799	Area (sq ft)	51.35	4538.6	1.08
Q Total (cfs)	78000	Flow (cfs)	541.11	77455.73	3.16
Top Width (ft)	1020.11	Top Width (ft)	17.55	1000	2.55
Vel Total (ft/s)	16.99	Avg. Vel. (ft/s)	10.54	17.07	2.91
Max Chl Dpth (ft)	5.85	Hydr. Depth (ft)	2.93	4.54	0.43
Conv. Total (cfs)	620550.4	Conv. (cfs)	4305	616220.3	25.1
Length Wtd. (ft)	500	Wetted Per. (ft)	18.5	1000.02	2.69
Min Ch El (ft)	6896.47	Shear (lb/sq ft)	2.74	4.48	0.4
Alpha	1	Stream Power (lb/ft s)	28.84	76.4	1.16
Frctn Loss (ft)	7.66	Cum Volume (acre-ft)	2.05	194	0.09
C & E Loss (ft)	1.36	Cum SA (acres)	0.65	40.17	0.13

Plan: Reach #1	Reach #1 RS: 16	Profile: PF 1			
E.G. Elev (ft)	6959.48	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.92	Wt. n-Val.	0.035	0.03	0.037
W.S. Elev (ft)	6958.57	Reach Len. (ft)	425	500	575
Crit W.S. (ft)		Flow Area (sq ft)	7968.63	3934.38	228.66
E.G. Slope (ft/ft)	0.001093	Area (sq ft)	7968.63	3934.38	228.66
Q Total (cfs)	78000	Flow (cfs)	38521.44	38487.01	991.55
Top Width (ft)	1548.25	Top Width (ft)	1246.21	265	37.04
Vel Total (ft/s)	6.43	Avg. Vel. (ft/s)	4.83	9.78	4.34
Max Chl Dpth (ft)	17.35	Hydr. Depth (ft)	6.39	14.85	6.17
Conv. Total (cfs)	2359821	Conv. (cfs)	1165432	1164390	29998.5
Length Wtd. (ft)	466.62	Wetted Per. (ft)	1246.29	265.86	39.04
Min Ch El (ft)	6941.22	Shear (lb/sq ft)	0.44	1.01	0.4
Alpha	1.43	Stream Power (lb/ft s)	2.11	9.87	1.73
Frctn Loss (ft)	0.62	Cum Volume (acre-ft)	672.28	799.4	25.72
C & E Loss (ft)	0.04	Cum SA (acres)	158.87	95.73	5.76

Plan: Reach #1	Reach #1 RS: 7	Profile: PF 1			
E.G. Elev (ft)	6948.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.78	Wt. n-Val.	0.035	0.031	0.037
W.S. Elev (ft)	6945.29	Reach Len. (ft)	500	500	500
Crit W.S. (ft)	6945.29	Flow Area (sq ft)	4079.2	3197.22	137.37
E.G. Slope (ft/ft)	0.003877	Area (sq ft)	4079.2	3197.22	137.37
Q Total (cfs)	78000	Flow (cfs)	26265.01	50788.31	946.67
Top Width (ft)	1366.83	Top Width (ft)	1073.1	265	28.72
Vel Total (ft/s)	10.52	Avg. Vel. (ft/s)	6.44	15.89	6.89
Max Chl Dpth (ft)	14.56	Hydr. Depth (ft)	3.8	12.06	4.78
Conv. Total (cfs)	1252643	Conv. (cfs)	421803.5	815635.9	15203.1
Length Wtd. (ft)	500	Wetted Per. (ft)	1073.15	265.86	30.28
Min Ch El (ft)	6930.72	Shear (lb/sq ft)	0.92	2.91	1.1
Alpha	1.62	Stream Power (lb/ft s)	5.92	46.24	7.57
Frctn Loss (ft)	1.76	Cum Volume (acre-ft)	94.19	452.04	9.44
C & E Loss (ft)	0	Cum SA (acres)	50.07	68.35	2.62

Plan: Reach #1	Reach #1 RS: -2	Profile: PF 1			
E.G. Elev (ft)	6901.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.54	Wt. n-Val.	0.035	0.03	0.035
W.S. Elev (ft)	6898.51	Reach Len. (ft)	500	500	500
Crit W.S. (ft)	6898.54	Flow Area (sq ft)	64.2	6039.72	3.57
E.G. Slope (ft/ft)	0.007777	Area (sq ft)	64.2	6039.72	3.57
Q Total (cfs)	78000	Flow (cfs)	511.32	77477.84	10.84
Top Width (ft)	1224.26	Top Width (ft)	19.63	1200	4.63
Vel Total (ft/s)	12.77	Avg. Vel. (ft/s)	7.96	12.83	3.04
Max Chl Dpth (ft)	6.54	Hydr. Depth (ft)	3.27	5.03	0.77
Conv. Total (cfs)	884493.1	Conv. (cfs)	5798.2	878571.9	123
Length Wtd. (ft)	500	Wetted Per. (ft)	20.69	1200.02	4.88
Min Ch El (ft)	6891.97	Shear (lb/sq ft)	1.51	2.44	0.36
Alpha	1	Stream Power (lb/ft s)	12	31.35	1.08
Frctn Loss (ft)	3.88	Cum Volume (acre-ft)	1.39	133.29	0.06
C & E Loss (ft)	0	Cum SA (acres)	0.44	27.55	0.09

Plan: Reach #1	Reach #1 RS: 15	Profile: PF 1			
E.G. Elev (ft)	6958.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.35	Wt. n-Val.	0.035	0.03	0.037
W.S. Elev (ft)	6957.47	Reach Len. (ft)	500	500	500
Crit W.S. (ft)		Flow Area (sq ft)	6659.63	3775.61	207.01
E.G. Slope (ft/ft)	0.001635	Area (sq ft)	6659.63	3775.61	207.01
Q Total (cfs)	78000	Flow (cfs)	32962.47	43975.11	1062.42
Top Width (ft)	1660.65	Top Width (ft)	1360.41	265	35.24
Vel Total (ft/s)	7.33	Avg. Vel. (ft/s)	4.95	11.65	5.13
Max Chl Dpth (ft)	16.75	Hydr. Depth (ft)	4.9	14.25	5.87
Conv. Total (cfs)	1928811	Conv. (cfs)	815107.4	1087432	26272
Length Wtd. (ft)	500	Wetted Per. (ft)	1360.48	265.86	37.15
Min Ch El (ft)	6940.72	Shear (lb/sq ft)	0.5	1.45	0.57
Alpha	1.62	Stream Power (lb/ft s)	2.47	16.89	2.92
Frctn Loss (ft)	0.89	Cum Volume (acre-ft)	600.92	755.15	22.84
C & E Loss (ft)	0.02	Cum SA (acres)	146.15	92.69	5.28

Plan: Reach #1	Reach #1 RS: 14	Profile: PF 1			
E.G. Elev (ft)	6957.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.58	Wt. n-Val.	0.035	0.03	0.037
W.S. Elev (ft)	6956.33	Reach Len. (ft)	500	500	500
Crit W.S. (ft)		Flow Area (sq ft)	5504.61	3605.33	184.98
E.G. Slope (ft/ft)	0.001953	Area (sq ft)	5504.61	3605.33	184.98
Q Total (cfs)	78000	Flow (cfs)	32493.07	44507.75	999.18
Top Width (ft)	1284.45	Top Width (ft)	986.14	265	33.31
Vel Total (ft/s)	8.39	Avg. Vel. (ft/s)	5.9	12.34	5.4
Max Chl Dpth (ft)	16.1	Hydr. Depth (ft)	5.58	13.61	5.55
Conv. Total (cfs)	1765216	Conv. (cfs)	735349.6	1007254	22612.4
Length Wtd. (ft)	500	Wetted Per. (ft)	986.2	265.86	35.12
Min Ch El (ft)	6940.22	Shear (lb/sq ft)	0.68	1.65	0.64
Alpha	1.45	Stream Power (lb/ft s)	4.02	20.41	3.47
Frctn Loss (ft)	0.96	Cum Volume (acre-ft)	531.1	712.79	20.59
C & E Loss (ft)	0.04	Cum SA (acres)	132.69	89.65	4.89

Plan: Reach #1	Reach #1 RS: 13	Profile: PF 1			
E.G. Elev (ft)	6956.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.45	Wt. n-Val.	0.035	0.03	0.037
W.S. Elev (ft)	6955.46	Reach Len. (ft)	500	500	500
Crit W.S. (ft)		Flow Area (sq ft)	5679.93	3509.06	173.04
E.G. Slope (ft/ft)	0.001872	Area (sq ft)	5679.93	3509.06	173.04
Q Total (cfs)	78000	Flow (cfs)	35432.62	41672.13	895.25
Top Width (ft)	1204.88	Top Width (ft)	907.66	265	32.22
Vel Total (ft/s)	8.33	Avg. Vel. (ft/s)	6.24	11.88	5.17
Max Chl Dpth (ft)	15.74	Hydr. Depth (ft)	6.26	13.24	5.37
Conv. Total (cfs)	1802539	Conv. (cfs)	818829.2	963021.1	20688.7
Length Wtd. (ft)	500	Wetted Per. (ft)	907.73	265.86	33.96
Min Ch El (ft)	6939.72	Shear (lb/sq ft)	0.73	1.54	0.6
Alpha	1.34	Stream Power (lb/ft s)	4.56	18.32	3.08
Frctn Loss (ft)	0.93	Cum Volume (acre-ft)	466.91	671.96	18.54
C & E Loss (ft)	0.03	Cum SA (acres)	121.82	86.6	4.51

Plan: Reach #1	Reach #1 RS: 6	Profile: PF 1			
E.G. Elev (ft)	6945.47	Element	Left OB	Channel	Right OB
Vel Head (ft)	4.9	Wt. n-Val.	0.035	0.032	0.039
W.S. Elev (ft)	6940.57	Reach Len. (ft)	500	500	500
Crit W.S. (ft)	6942.04	Flow Area (sq ft)	2287.16	3271.76	145.6
E.G. Slope (ft/ft)	0.005996	Area (sq ft)	2287.16	3271.76	145.6
Q Total (cfs)	78000	Flow (cfs)	13153.16	63661.77	1185.07
Top Width (ft)	1282.9	Top Width (ft)	988.32	265	29.57
Vel Total (ft/s)	13.67	Avg. Vel. (ft/s)	5.75	19.46	8.14
Max Chl Dpth (ft)	14.85	Hydr. Depth (ft)	2.31	12.35	4.92
Conv. Total (cfs)	1007348	Conv. (cfs)	169869.3	822173.6	15304.8
Length Wtd. (ft)	500	Wetted Per. (ft)	988.46	265.86	31.17
Min Ch El (ft)	6925.72	Shear (lb/sq ft)	0.87	4.61	1.75
Alpha	1.69	Stream Power (lb/ft s)	4.98	89.63	14.23
Frctn Loss (ft)	2.38	Cum Volume (acre-ft)	58.28	415.22	7.85
C & E Loss (ft)	0.21	Cum SA (acres)	38.49	65.31	2.29

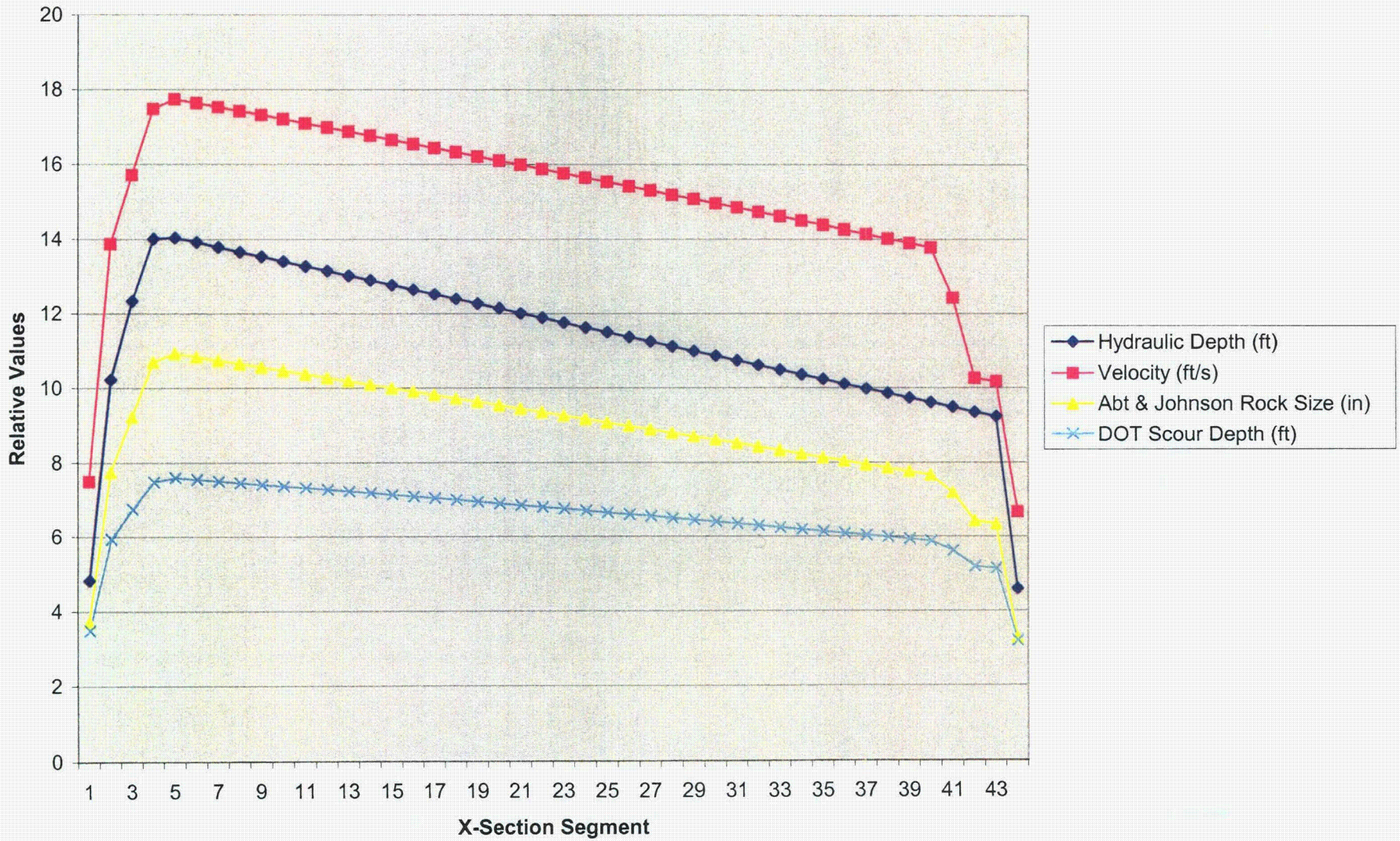
Plan: Reach #1	Reach #1 RS: 5	Profile: PF 1			
E.G. Elev (ft)	6941.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	6.57	Wt. n-Val.	0.035	0.032	0.039
W.S. Elev (ft)	6935.38	Reach Len. (ft)	500	500	500
Crit W.S. (ft)	6937.53	Flow Area (sq ft)	1476.55	3221.3	139.82
E.G. Slope (ft/ft)	0.007584	Area (sq ft)	1476.55	3221.3	139.82
Q Total (cfs)	78000	Flow (cfs)	6970.04	69766.71	1263.25
Top Width (ft)	1316.49	Top Width (ft)	1022.53	265	28.96
Vel Total (ft/s)	16.12	Avg. Vel. (ft/s)	4.72	21.66	9.03
Max Chl Dpth (ft)	14.66	Hydr. Depth (ft)	1.44	12.16	4.83
Conv. Total (cfs)	895691.6	Conv. (cfs)	80038.5	801146.9	14506.2
Length Wtd. (ft)	500	Wetted Per. (ft)	1023.43	265.86	30.53
Min Ch El (ft)	6920.72	Shear (lb/sq ft)	0.68	5.74	2.17
Alpha	1.63	Stream Power (lb/ft s)	3.22	124.24	19.59
Frctn Loss (ft)	3.36	Cum Volume (acre-ft)	36.68	377.95	6.21
C & E Loss (ft)	0.17	Cum SA (acres)	26.95	62.27	1.95

Plan: Reach #1	Reach #1 RS: 4	Profile: PF 1			
E.G. Elev (ft)	6937.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	7.77	Wt. n-Val.	0.035	0.032	0.039
W.S. Elev (ft)	6929.87	Reach Len. (ft)	500	500	500
Crit W.S. (ft)	6932.47	Flow Area (sq ft)	1031.26	3086.85	125.54
E.G. Slope (ft/ft)	0.009252	Area (sq ft)	1031.26	3086.85	125.54
Q Total (cfs)	78000	Flow (cfs)	5016.14	71775.32	1208.54
Top Width (ft)	1084.64	Top Width (ft)	792.2	265	27.45
Vel Total (ft/s)	18.38	Avg. Vel. (ft/s)	4.86	23.25	9.63
Max Chl Dpth (ft)	14.15	Hydr. Depth (ft)	1.3	11.65	4.57
Conv. Total (cfs)	810913.1	Conv. (cfs)	52149.4	746199.3	12564.4
Length Wtd. (ft)	500	Wetted Per. (ft)	793.3	265.86	28.93
Min Ch El (ft)	6915.72	Shear (lb/sq ft)	0.75	6.71	2.51
Alpha	1.48	Stream Power (lb/ft s)	3.65	155.94	24.13
Frctn Loss (ft)	4.18	Cum Volume (acre-ft)	22.29	341.75	4.68
C & E Loss (ft)	0.12	Cum SA (acres)	16.54	59.23	1.63

Plan: Reach #1	Reach #1 RS: -3	Profile: PF 1			
E.G. Elev (ft)	6896.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	3	Wt. n-Val.	0.035	0.03	0.035
W.S. Elev (ft)	6893.62	Reach Len. (ft)	500	500	500
Crit W.S. (ft)	6894.02	Flow Area (sq ft)	56.75	5568.04	1.98
E.G. Slope (ft/ft)	0.010203	Area (sq ft)	56.75	5568.04	1.98
Q Total (cfs)	78000	Flow (cfs)	496.86	77497.47	5.67
Top Width (ft)	1221.91	Top Width (ft)	18.46	1200	3.45
Vel Total (ft/s)	13.86	Avg. Vel. (ft/s)	8.75	13.92	2.86
Max Chl Dpth (ft)	6.15	Hydr. Depth (ft)	3.07	4.64	0.57
Conv. Total (cfs)	772195.1	Conv. (cfs)	4918.9	767220.1	56.1
Length Wtd. (ft)	500	Wetted Per. (ft)	19.46	1200.02	3.63
Min Ch El (ft)	6887.47	Shear (lb/sq ft)	1.86	2.96	0.35
Alpha	1	Stream Power (lb/ft s)	16.27	41.14	0.99
Frctn Loss (ft)	4.39	Cum Volume (acre-ft)	0.69	66.67	0.03
C & E Loss (ft)	0.05	Cum SA (acres)	0.22	13.77	0.05

Plan: Reach #1	Reach #1 RS: -4	Profile: PF 1			
E.G. Elev (ft)	6892.06	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.54	Wt. n-Val.	0.035	0.03	0.035
W.S. Elev (ft)	6889.52	Reach Len. (ft)			
Crit W.S. (ft)	6889.53	Flow Area (sq ft)	64.33	6047.93	3.6
E.G. Slope (ft/ft)	0.007742	Area (sq ft)	64.33	6047.93	3.6
Q Total (cfs)	78000	Flow (cfs)	511.59	77477.46	10.95
Top Width (ft)	1224.3	Top Width (ft)	19.65	1200	4.65
Vel Total (ft/s)	12.75	Avg. Vel. (ft/s)	7.95	12.81	3.04
Max Chl Dpth (ft)	6.55	Hydr. Depth (ft)	3.27	5.04	0.77
Conv. Total (cfs)	886500.4	Conv. (cfs)	5814.4	880561.6	124.5
Length Wtd. (ft)		Wetted Per. (ft)	20.71	1200.02	4.9
Min Ch El (ft)	6882.97	Shear (lb/sq ft)	1.5	2.44	0.36
Alpha	1	Stream Power (lb/ft s)	11.94	31.2	1.08
Frctn Loss (ft)	4.42	Cum Volume (acre-ft)			
C & E Loss (ft)	0.14	Cum SA (acres)			

X-Section 8 Parameters



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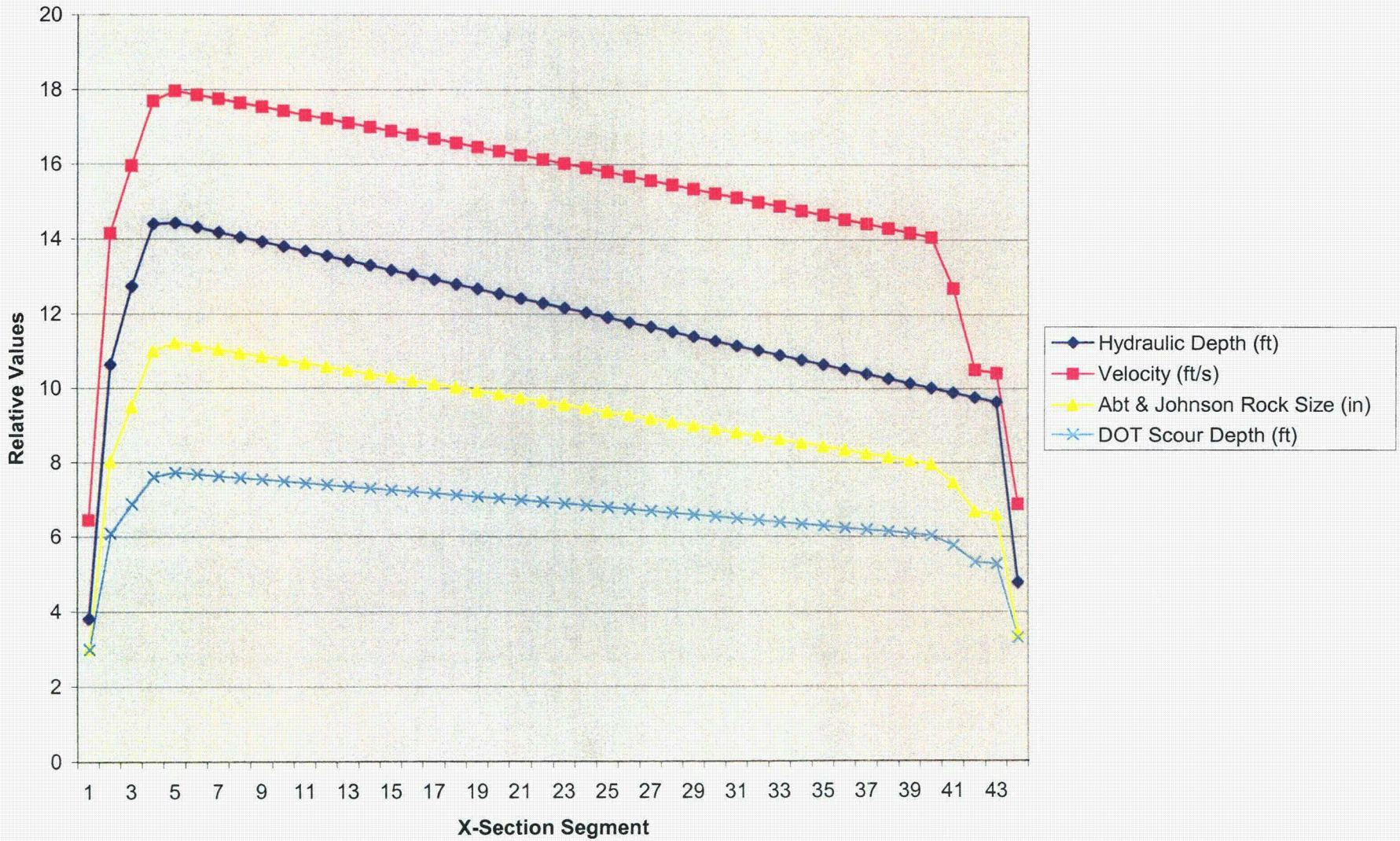

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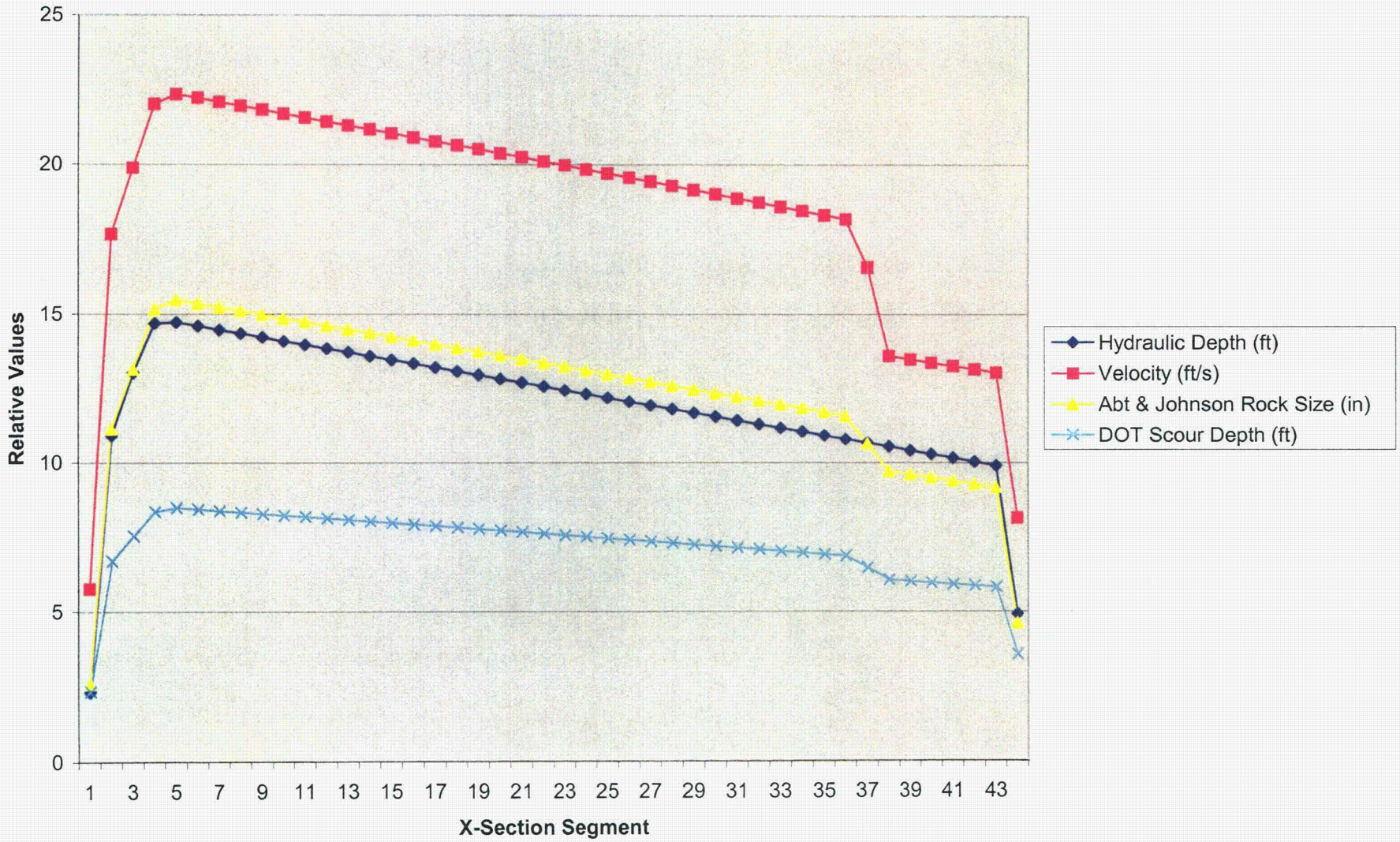

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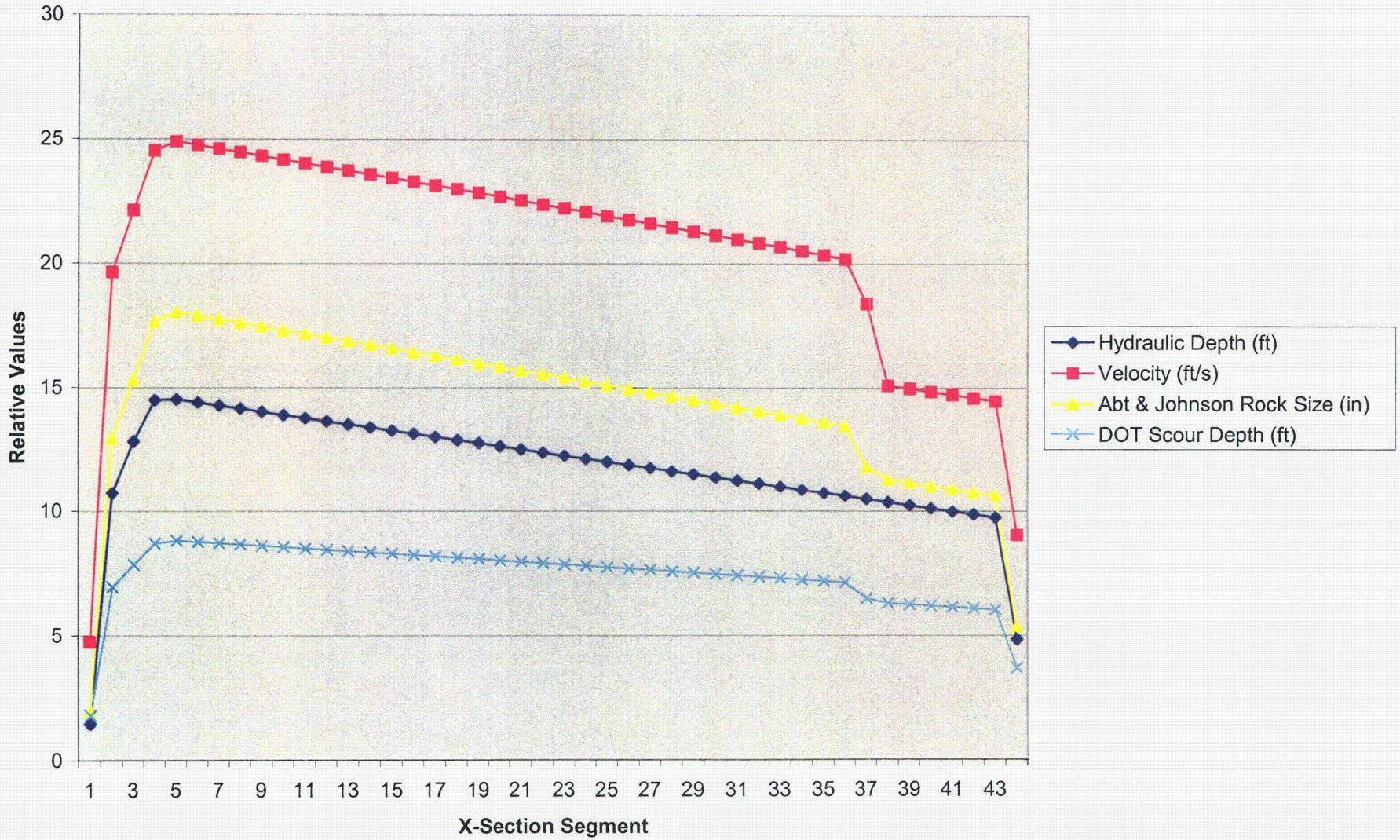
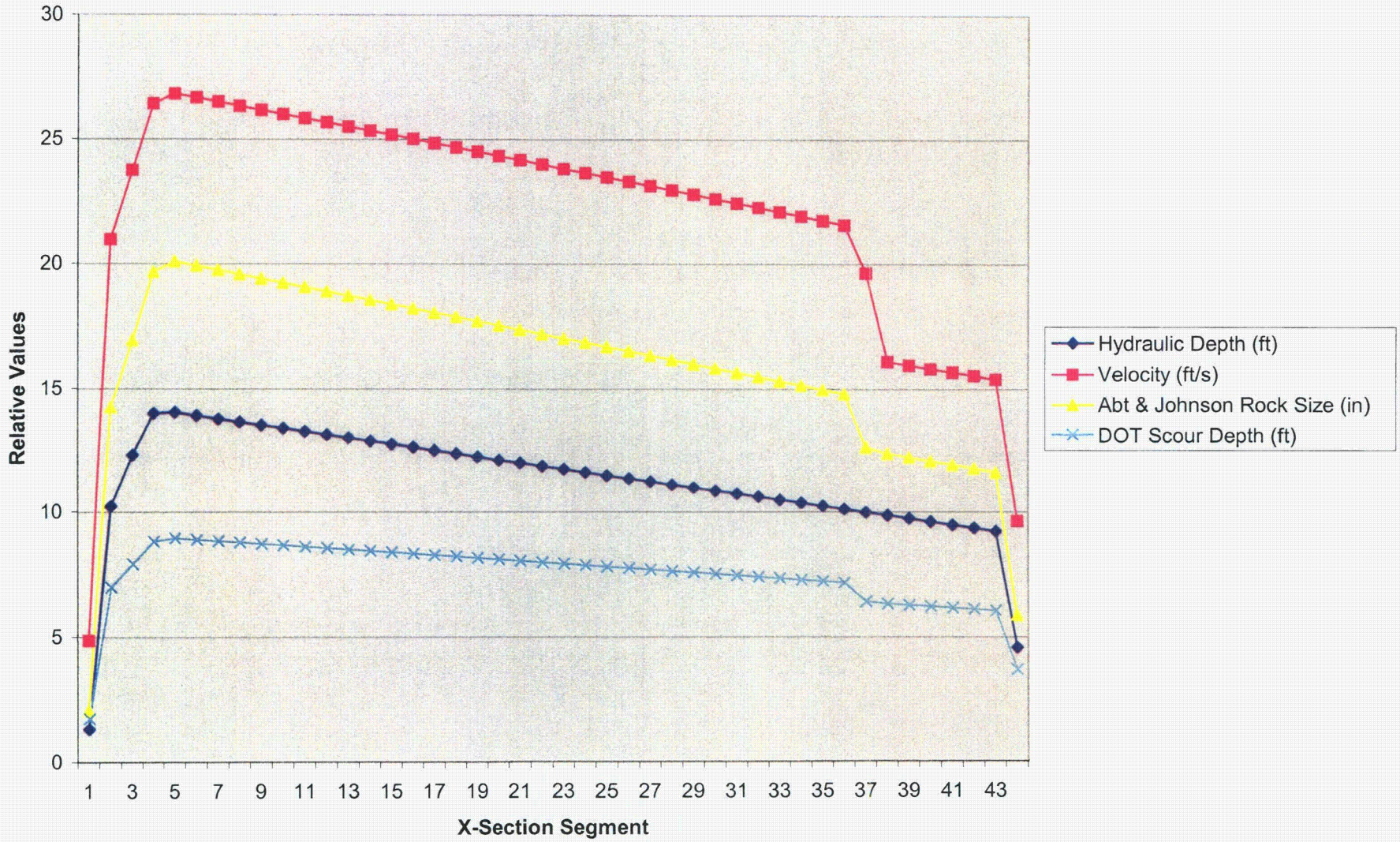


X-Section 4 Parameters



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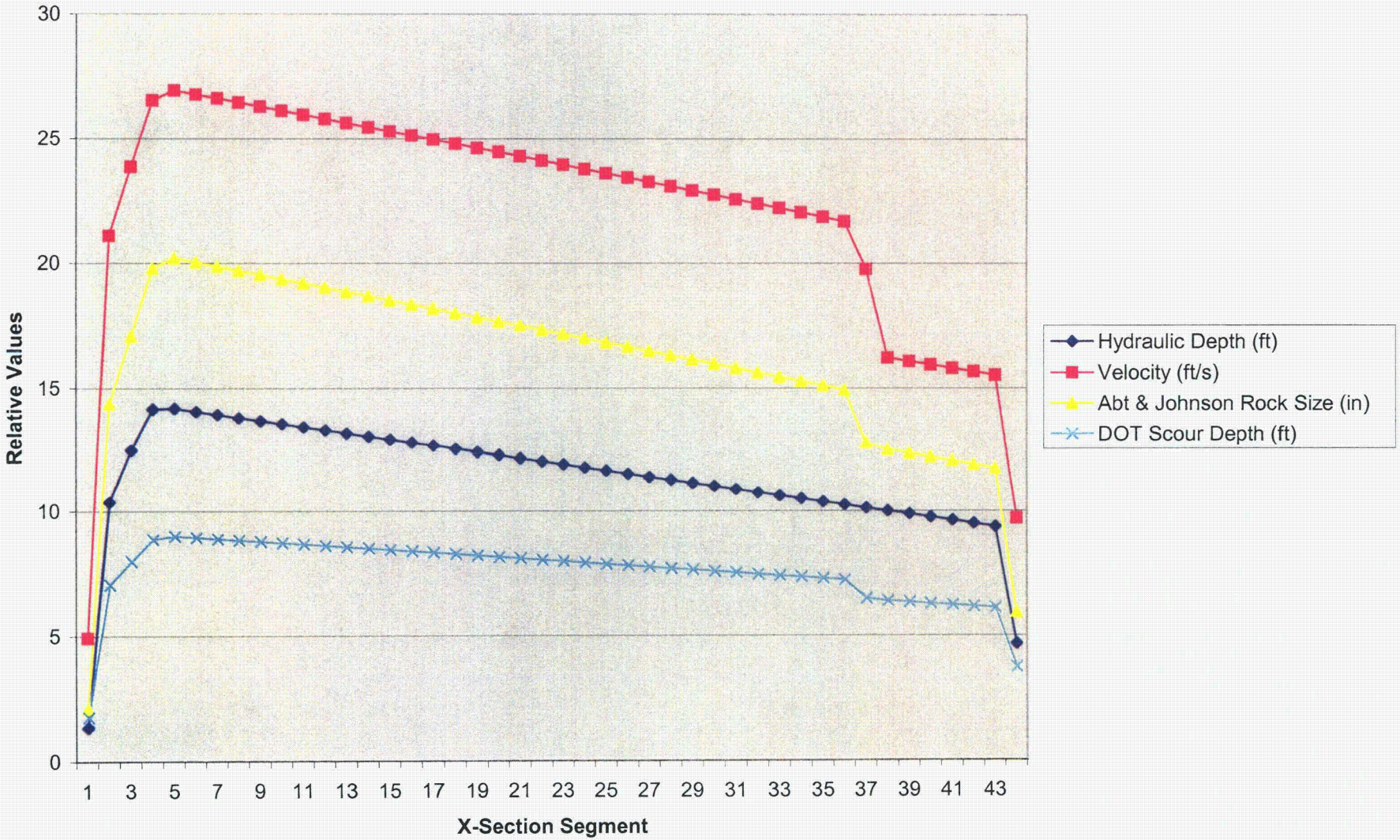

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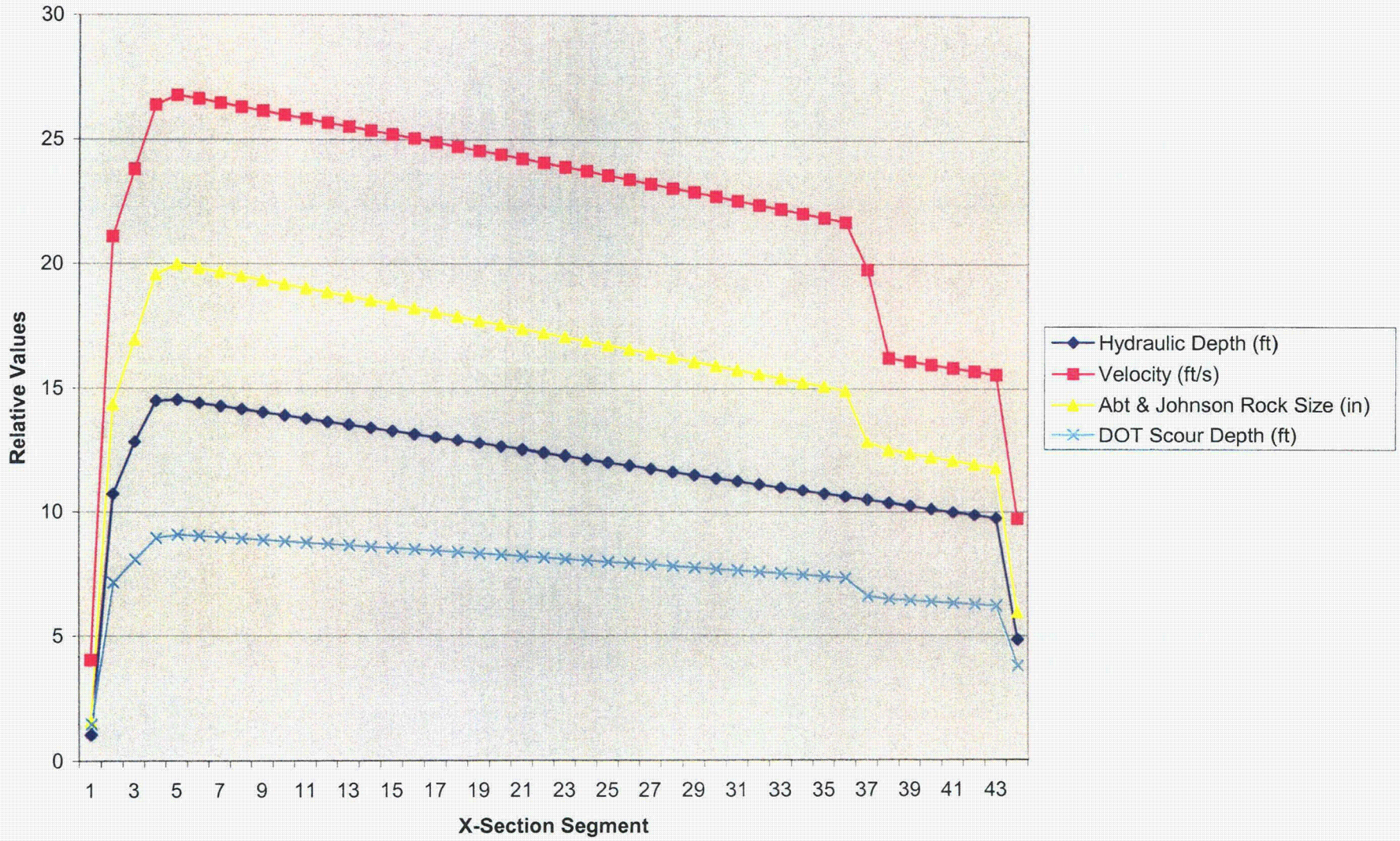

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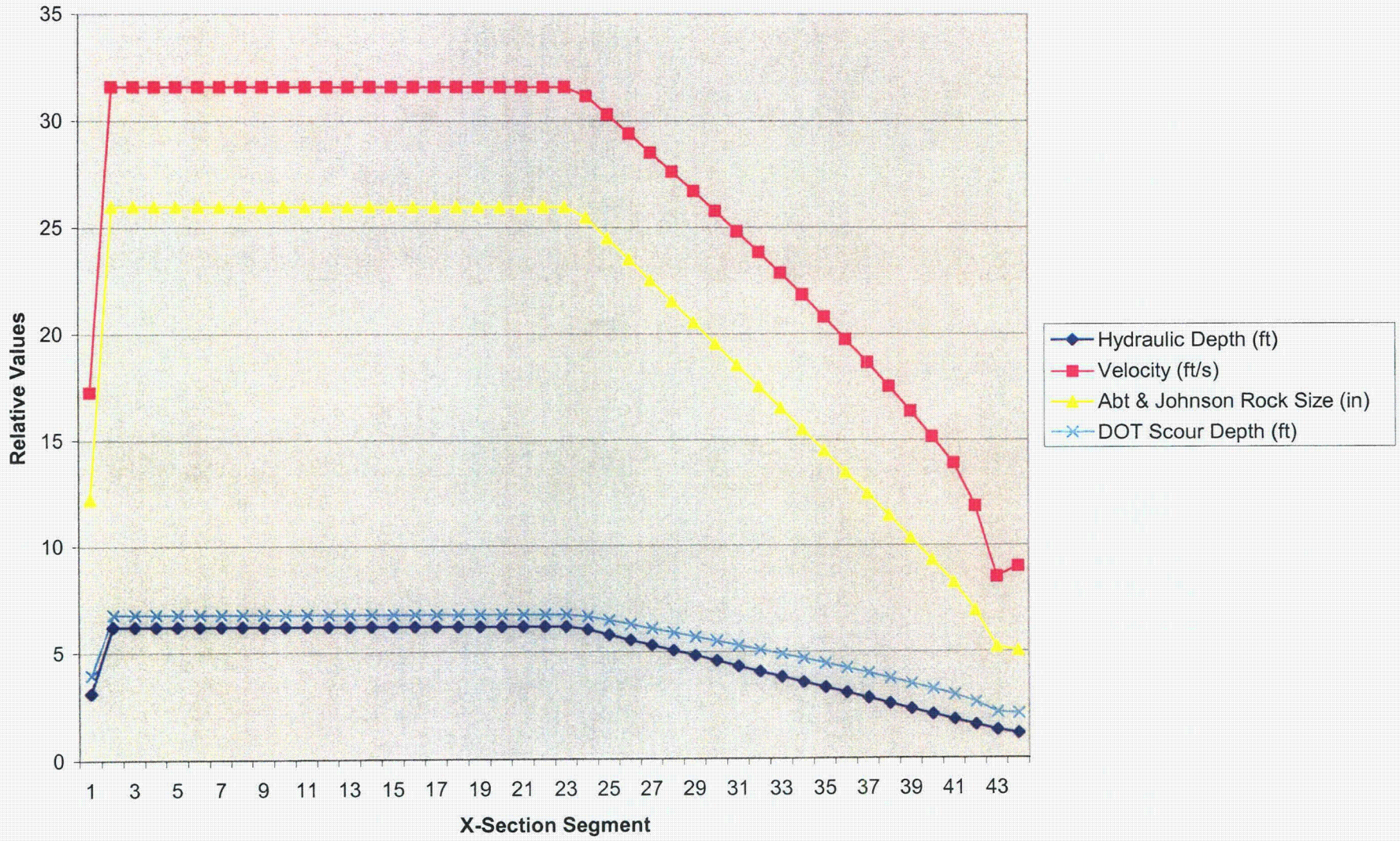
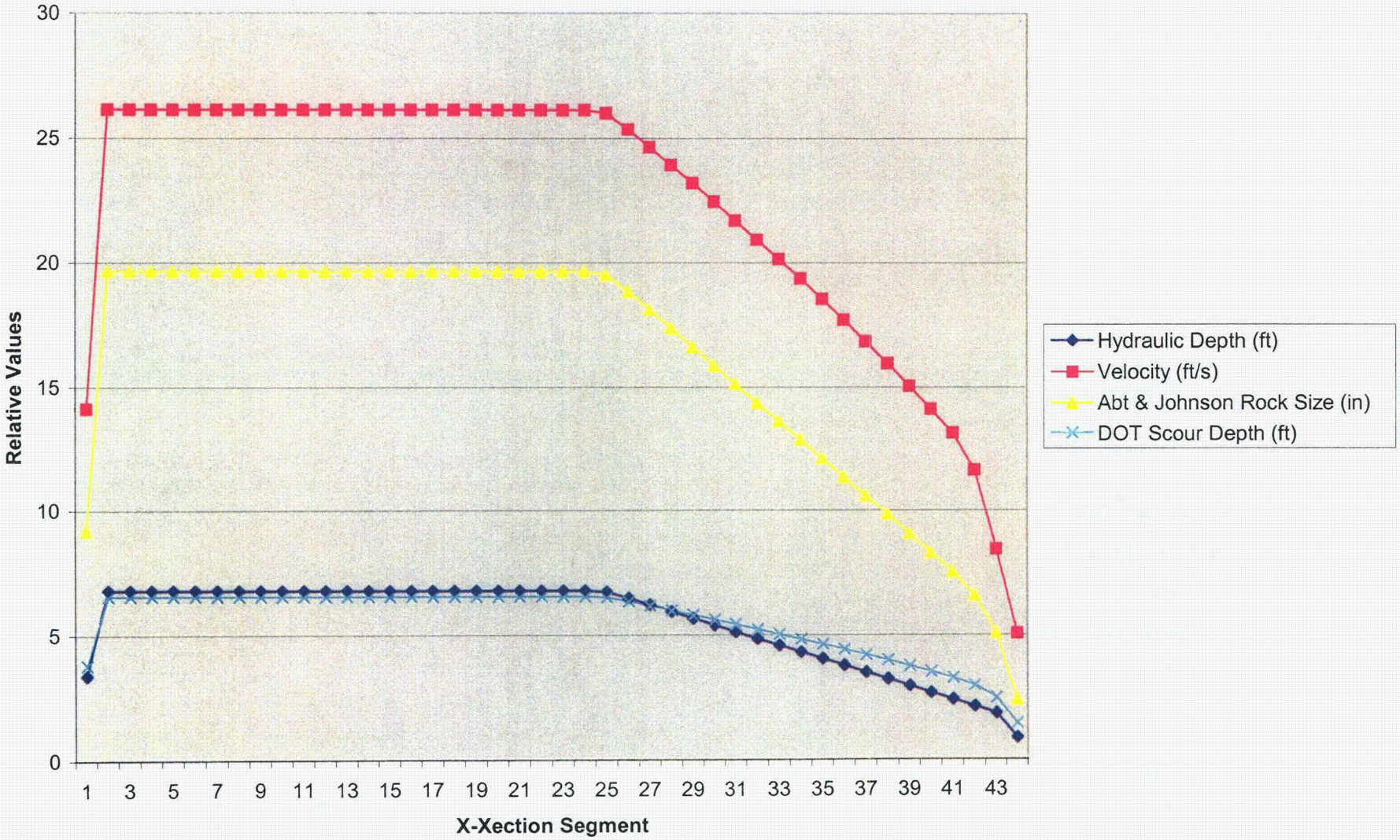
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