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## **Existing Conditions Model Input**

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Goodwi vesDari enEX. rep

HEC-RAS Versi on 4. 1. 0 Jan 2010  
U. S. Army Corps of Engi neers  
Hydrol ogi c Engi neeri ng Center  
609 Second Street  
Davi s, Cal i forni a

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X      X  XXXXXX      XXXX      XXXX      XX      XXXX
X      X  X          X      X      X  X      X
X      X  X          X          X  X      X  X      X
XXXXXXXX XXXX      X          XXX XXXX      XXXXXX      XXXX
X      X  X          X          X  X      X  X      X
X      X  X          X      X      X  X      X  X      X
X      X  XXXXXX      XXXX      X  X      X  X      XXXXX
```

PROJECT DATA

Project Title: Goodwi vesDari en  
Project File : Goodwi vesDari en. prj  
Run Date and Time: 5/12/2011 10:37:22 AM

Project in English units

PLAN DATA

Plan Title: MMI Existing Conditions  
Plan File : p:\1581-05\Desi gn\Comps\Hydraul i cs\Model s\Goodwi vesDari en. p03

Geometry Title: MMI Existing Conditions  
Geometry File :  
p:\1581-05\Desi gn\Comps\Hydraul i cs\Model s\Goodwi vesDari en. g03

Flow Title : MMI Existing Conditions- normal ds  
Flow File :  
p:\1581-05\Desi gn\Comps\Hydraul i cs\Model s\Goodwi vesDari en. f03

Plan Description:  
see notes in geometry

Plan Summary Information:

Number of:	Cross Sections =	105	Multiple Openings =	0
	Culverts =	7	Inline Structures =	7
	Bridges =	8	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

Encroachment Data

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

River	Profile	Reach	Method	Value1	Value2
17555	100yr(incr)	1	185.41	254.8	
17496	100yr(incr)	1	170.11	250.5	
17460	100yr(incr)	1	166.44	253.3	
17398	100yr(incr)	1	202.15	286.66	
17382	100yr(incr)	1	229.91	287.5	
17219	100yr(incr)	1	120	181.5	
16661	100yr(incr)	1	292.7	397.2	
16114	100yr(incr)	1	1087.89	1123.3	
15841	100yr(incr)	1	850	981.2	
15695	100yr(incr)	1	912.12	1006.5	
15579	100yr(incr)	1	930	984.17	
15417	100yr(incr)	1	1010.75	1051.8	
14879	100yr(incr)	1	750	1000	
14633	100yr(incr)	1	350	550	
14611	100yr(incr)	1	400	675	
14601	100yr(incr)	1	330	695	
14595	100yr(incr)	1	28.05	872.71	
14556	100yr(incr)	1	0	844.66	
14524	100yr(incr)	1	425.76	501.85	
14493	100yr(incr)	1	385	500	
14452	100yr(incr)	1	381.75	443.71	
14386	100yr(incr)	1	0	869.14	
14182	100yr(incr)	1	0	967.43	
14147	100yr(incr)	1	0	953.83	
14047	100yr(incr)	1	0	906.41	
13728	100yr(incr)	1	100	190	
13706	100yr(incr)	1	100	190	
13683	100yr(incr)	1	124.03	210	
13653	100yr(incr)	1	80	170	
13351	100yr(incr)	1	95.65	127.65	
13328	100yr(incr)	1	79.57	110.91	
13295	100yr(incr)	1	119.28	150.63	
13260	100yr(incr)	1	114.37	147.7	
13199	100yr(incr)	1	150	299.28	
13132	100yr(incr)	1	180	230	
13017	100yr(incr)	1	220	266.6	
12975	100yr(incr)	1	220.8	274	
12913	100yr(incr)	1	213.87	268.87	
12836	100yr(incr)	1	258	300	
12289	100yr(incr)	1	175	210	
12226	100yr(incr)	1	102.3	147.5	
12167	100yr(incr)	1	120	155	
12144	100yr(incr)	1	110	150	
11951	100yr(incr)	1	120	175	
11930	100yr(incr)	1	150	220	
11869	100yr(incr)	1	138.18	288.18	
11850	100yr(incr)	1	194.67	227.31	
11517	100yr(incr)	1	120	180	
11381	100yr(incr)	1	449.89	575	
11332	100yr(incr)	1	520	640	
11231	100yr(incr)	1	428.39	600	
11206	100yr(incr)	1	460	513	
11078	100yr(incr)	1	563.72	618.69	
10548	100yr(incr)	1	930	972.52	
10522	100yr(incr)	1	955	1002.51	
10454	100yr(incr)	1	1366.09	1400.37	

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10399	100yr (encl)	1	460 510
10075	100yr (encl)	1	575 630
9984	100yr (encl)	1	600 650
9904	100yr (encl)	1	610 680
9865	100yr (encl)	1	600 675
9782	100yr (encl)	1	505 580
9666	100yr (encl)	1	450 570
9623	100yr (encl)	1	510 580
9502	100yr (encl)	1	477. 54 518. 62
9493	100yr (encl)	1	430 517. 5
9401	100yr (encl)	1	330 410
9345	100yr (encl)	1	335 415
8937	100yr (encl)	1	45 96. 02
8804	100yr (encl)	1	241. 25 298. 32
7959	100yr (encl)	1	105. 35 146. 77
7821	100yr (encl)	1	67. 9 100. 4
7779	100yr (encl)	1	67. 15 130
7650	100yr (encl)	1	299. 1 360
7637	100yr (encl)	1	300. 1 360
7519	100yr (encl)	1	277. 32 360. 77
7454	100yr (encl)	1	102. 05 160
7279	100yr (encl)	1	213. 42 262
7253	100yr (encl)	1	150 217
7216	100yr (encl)	1	270 329. 52
7204	100yr (encl)	1	160 220
7160	100yr (encl)	1	111. 98 172. 75
7112	100yr (encl)	1	122. 2 181. 63
6927	100yr (encl)	1	48. 01 101
6882	100yr (encl)	1	219. 55 337. 74
6800	100yr (encl)	1	120 354. 29
6724	100yr (encl)	1	112. 33 341. 67
6579	100yr (encl)	1	0 290. 04
6067	100yr (encl)	1	193. 4 247. 9
5986	100yr (encl)	1	193. 37 268
5726	100yr (encl)	1	207. 31 250. 05
5544	100yr (encl)	1	270 325
5472	100yr (encl)	1	295 338. 4
5241	100yr (encl)	1	430 493. 8
5191	100yr (encl)	1	447. 02 475. 8
4633	100yr (encl)	1	285. 3 375. 2
4593	100yr (encl)	1	303. 2 379. 68
4567	100yr (encl)	1	307. 99 414. 01
4515	100yr (encl)	1	310 425
4477	100yr (encl)	1	289. 33 410
4392	100yr (encl)	1	402. 93 451. 38
4303	100yr (encl)	1	423. 88 475
3473	100yr (encl)	1	295 385
2223	100yr (encl)	1	482 703. 81
0	100yr (encl)	1	314. 14 588. 68

FLOW DATA

Flow Title: MMI Existing Conditions- normal ds

Flow File : p:\1581-05\Desi gn\Comps\Hydraul i cs\Model s\Goodwi vesDari en. f03

Flow Data (cfs)

Ri ver 10yr	Reach 50yr	RS 500-yr	100yr-	100yr (encl)
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Goodwi ves Ri ver mai nstem	Goodwi ves Dari enEX. rep	
542.9	17555	970.8
811.9	1252.2	970.8
Goodwi ves Ri ver mai nstem	15579	1111.5
620.1	1434	1111.5
Goodwi ves Ri ver mai nstem	14879	1250.2
693.5	1613.5	1250.2
Goodwi ves Ri ver mai nstem	11381	1371.8
756.3	1768.3	1371.8
Goodwi ves Ri ver mai nstem	8937	1559.5
852.5	2012.6	1559.5
Goodwi ves Ri ver mai nstem	7821	1642
895.9	2119.6	1642
Goodwi ves Ri ver mai nstem	7253	1742.6
943.8	2249.3	1742.6

Boundary Condi ti ons

Ri ver Downstream	Reach	Profi le	Upstream
Goodwi ves Ri ver mai nstem		100yr-	Normal S = 0.012
Normal S = 0.00035			
Goodwi ves Ri ver mai nstem		100yr(incr)	Normal S = 0.012
Normal S = 0.00035			
Goodwi ves Ri ver mai nstem		10yr	Normal S = 0.012
Normal S = 0.00035			
Goodwi ves Ri ver mai nstem		50yr	Normal S = 0.012
Normal S = 0.00035			

GEOMETRY DATA

Geometry Title: MMI Existing Condi ti ons  
 Geometry File : p:\1581-05\Desi gn\Comps\Hydraul ics\Model s\Goodwi vesDari en. g03

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 17555

INPUT

Description: NEW SURVEY - new upstream li mit of model

EXISTING - added

section with new survey in channel and used town topo for overbank el evati ons.

Station	Elevation	Data	num=	65	Station	Elevation	Station	Elevation	Station	Elevation
0	137.36	12.7	137.31	14.87	137.25	22.15	137	36.5	136.66	
42.62	136.51	52.81	136.33	62.81	136.11	67.78	136	80.35	135.62	
84.88	135.59	108.25	135	121.83	134.1	122.46	134.03	123.06	134	
144.07	134.05	147.11	134.04	149.44	134	158.89	133.95	161.05	133.94	
168.23	133.9	170.54	133.89	173.41	133.86	180.65	133.8	185.72	133.73	
187.47	133.71	194.93	133.62	236.95	133.91	238.16	134	240.39	133.819	
244.3	133.35	247	133	249.8	131.22	250.7	131.24	253	131.21	

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254.5	130.83	254.8	135.11	256.8	134.63	261.5	136.27	264.8	136.75
270.08	138	270.99	138.1	271.24	138.12	278.9	139	289.05	139.82
291.66	140	294.98	140.26	296.48	140.36	301.01	140.71	306.1	141
306.27	141.01	309.71	141.29	313.25	141.63	315.81	142	316.51	142.02
321.01	143	321.35	143.1	325.39	144	326.66	144.07	327.03	144.1
327.37	144.13	330.34	144.41	336.46	145	340.1	145.43	344.35	145.89

Manning's n Values num= 3

Station	Value	Station	Value	Station	Value
0	.1	247	.035	254.8	.045

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

247	254.8	53.91	58.87	62.42	.1	.3
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CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 17496

INPUT  
 Description: NEW - us section of Buttonwood Lane

EXISTING - added section,  
 based on upstream section survey.

Station Elevation Data num= 76

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	136.82	.34	136.83	.91	136.81	5.25	136.65	6.24	136.6
7.64	136.55	16.13	136.31	16.46	136.3	17.01	136.29	17.81	136.28
19.97	136.26	30.54	136	35.73	135.93	66.56	135	97.73	134.35
100.05	134.28	105.76	134.17	109.72	134	130.65	133.55	135.21	133.46
138.77	133.39	148.47	133.26	151.58	133.19	155.93	133.12	157.33	133.1
165.56	133.11	166.34	133.1	182.04	133.03	185.19	133	240	132.701
242.7	132.351	245.5	130.571	246.4	130.591	248.7	130.561	250.2	130.181
250.5	134.461	252.5	133.981	257.2	135.621	260.5	136.101	261.56	137
266.16	137.79	267.46	138	270.61	138.46	273.89	139	278.66	139.33
286.86	140	294.78	140.49	298.24	140.64	301.32	140.84	303.23	140.96
303.38	140.97	303.89	141	304.12	141.12	306.72	142	306.98	142.36
307.39	143	307.69	143.46	308.03	144	308.17	144.21	308.68	145
311.41	145.61	311.72	145.69	312.6	145.86	320.96	145.89	321.88	145.94
322.54	146	324.93	146.13	325.59	146.16	343.61	147	355.71	147.39
382.34	147.43	383.24	147.4	390.92	147.67	391.47	147.61	394.69	147.76
398.78	147.94								

Manning's n Values num= 4

Station	Value	Station	Value	Station	Value	Station	Value
0	.1	242.7	.035	250.5	.045	307.69	.1

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

242.7	250.5	41.8	35.44	36.14	.3	.5
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Blocked Obstructions num= 1

Sta L	Sta R	Elev
310.26	389.25	168

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 17460

INPUT  
 Description: NEW SURVEY - us face of Buttonwood Lane

Goodwi vesDari enEX. rep

EXISTING - added

section with new survey in channel and used town topo for overbank elevations.

Station Elevati on Data num= 74

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	136	12.86	136.04	14.47	136	25.66	135.88	49.82	135.35
52.39	135.28	60.7	135.1	64.02	135	99.34	134.74	107.31	134.03
107.62	134.02	108.17	134	129.06	133.54	134.54	133.17	135.99	133.16
137.17	133.12	138.27	133.1	139.89	133.11	152.67	133.1	157.3	133.38
158.25	133.39	161.31	133.47	167.6	133.44	172.55	133.7	175.96	133.69
185.57	133.67	189.13	133.48	192.05	133.47	193.58	133.51	196.98	133.41
200.51	133.37	201.98	133.35	210.92	133.22	211.95	133.21	215.41	133.18
220.85	133	228.1	133.17	234.7	133.04	243.5	130.01	245.4	129.7
248.4	129.81	250.9	129.8	253.3	129.92	253.3	134.62	258.1	135.94
263.4	137.37	265.36	138	266.56	138.11	271.62	138.49	273.17	138.68
273.6	138.72	275.66	138.93	276.38	139	279.92	139.33	281.72	139.54
282.8	139.67	284.39	139.9	284.76	139.94	285.12	140	288.55	140.5
290.07	140.75	291.6	141	292.19	141.09	296.31	142	297.39	142.27
297.77	142.36	300.45	143	303.52	143.77	304.37	144	305.34	144.25
305.38	144.26	307.21	144.71	308.28	145	315.98	146		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	234.7	.035	253.3	.045

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

234.7	253.3	65.75	62.14	62.72	.3	.5
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Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	230.75	134.7	F

CULVERT

RIVER: Goodwi ves Ri ver  
REACH: mai nstem RS: 17440

INPUT

Description: NEW - Buttonwood Lane - added to model based on survey.

Distance from Upstream XS = 12

Deck/Roadway Width = 42

Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates

num= 8

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
0	135				101	135				223	134.7			
241.5	134.88				241.5	136.09				253.2	136.39			
268	136.65				319	140								

Upstream Bridge Cross Section Data

Station Elevati on Data num= 74

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	136	12.86	136.04	14.47	136	25.66	135.88	49.82	135.35
52.39	135.28	60.7	135.1	64.02	135	99.34	134.74	107.31	134.03
107.62	134.02	108.17	134	129.06	133.54	134.54	133.17	135.99	133.16
137.17	133.12	138.27	133.1	139.89	133.11	152.67	133.1	157.3	133.38
158.25	133.39	161.31	133.47	167.6	133.44	172.55	133.7	175.96	133.69
185.57	133.67	189.13	133.48	192.05	133.47	193.58	133.51	196.98	133.41
200.51	133.37	201.98	133.35	210.92	133.22	211.95	133.21	215.41	133.18
220.85	133	228.1	133.17	234.7	133.04	243.5	130.01	245.4	129.7
248.4	129.81	250.9	129.8	253.3	129.92	253.3	134.62	258.1	135.94
263.4	137.37	265.36	138	266.56	138.11	271.62	138.49	273.17	138.68
273.6	138.72	275.66	138.93	276.38	139	279.92	139.33	281.72	139.54

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282.8	139.67	284.39	139.9	284.76	139.94	285.12	140	288.55	140.5
290.07	140.75	291.6	141	292.19	141.09	296.31	142	297.39	142.27
297.77	142.36	300.45	143	303.52	143.77	304.37	144	305.34	144.25
305.38	144.26	307.21	144.71	308.28	145	315.98	146		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	234.7	.035	253.3	.045

Bank Sta: Left Right Coeff Contr. Expan.

234.7	253.3	.3	.5
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Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	230.75	134.7	F

Downstream Deck/Roadway Coordinates num= 8

Sta	Hi	Cord	Lo Cord	Sta	Hi	Cord	Lo Cord	Sta	Hi	Cord	Lo Cord
0		135		133.96		135		255.96		134.7	
274.46		134.7		274.46		135.86		286.16		136.15	
300.96		136.65		351.96		140					

Downstream Bridge Cross Section Data Station Elevation Data num= 76

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	136	22.54	135	34.69	134.71	42.77	134.62	44.52	134.61
45.29	134.6	47.82	134.59	53.85	134.54	56.01	134.5	62.56	134.35
70.77	134.28	74.84	134	80.83	133.56	83.72	133.38	86.27	133.26
89.69	133.24	93.67	133.17	99.65	133	100.47	132.97	104.02	132.91
106.14	132.93	107.4	132.91	108.5	132.84	115.19	132.45	120.99	132.06
122.23	132	126.85	131.73	128.03	131.66	128.77	131.67	132.53	131.49
138.26	131.52	142.8	131.76	146.38	132	151.91	132.37	160.72	132
178.52	131.74	195.49	131.72	202.59	131.65	214.46	131.66	214.59	131.67
221.09	131.69	233.79	131.7	237.1	131.73	237.94	131.75	240.75	131.76
247.16	131.79	253.86	131.9	254.12	131.91	263.35	132	267.36	131.17
272.76	131.32	277.06	129.88	279.26	129.77	281.86	129.79	283.76	129.31
285.96	129.51	286.66	133.67	296.96	135.72	298.5	136	300.86	136.5
304.56	136.98	304.7	137	307.75	137.3	308.04	137.32	321.05	138
322.15	138.05	322.38	138.07	326.04	138.29	334.02	139	338.25	139.32
341.44	139.59	342.27	139.67	345.57	140	350.36	140.42	356.05	141
360.1	141.3								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.1	272.76	.035	286.66	.045

Bank Sta: Left Right Coeff Contr. Expan.

272.76	286.66	.3	.5
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Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	270.3	134.25	F
291.7	360.1	135.01	F

- Upstream Embankment side slope = 4.1 hori z. to 1.0 verti cal
- Downstream Embankment side slope = 3.4 hori z. to 1.0 verti cal
- Maximum allowable submergence for weir flow = .98
- Elevation at which weir flow begins = 134.7
- Energy head used in spillway design =
- Spillway height used in design =
- Weir crest shape = Broad Crested

Number of Culverts = 1



Culvert Name      Shape      Rise      Span  
 Culvert #1      Circular      4.5  
 FHWA Chart # 1 - Concrete Pipe Culvert  
 FHWA Scale # 1 - Square edge entrance with headwall  
 Solution Criteria = Highest U.S. EG  
 Culvert Upstrm Dist   Length      Top n      Bottom n      Depth Blocked      Entrance Loss Coef  
 Exit Loss Coef  
                          12      42      .013      .013      0      .5

1  
 Number of Barrels = 2  
 Upstream Elevation = 129.72  
 Centerline Stations  
     Sta.      Sta.  
     245      251  
 Downstream Elevation = 129.13  
 Centerline Stations  
     Sta.      Sta.  
     277.96      283.96

CROSS SECTION

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem      RS: 17398

INPUT  
 Description: NEW SURVEY - ds face of Buttonwood Lane

EXISTING - added  
                          section with new survey in channel and used town topo for overbank elevations.

Station Elevation Data		num= 76		Sta		Elev		Sta		Elev	
0	136	22.54	135	34.69	134.71	42.77	134.62	44.52	134.61		
45.29	134.6	47.82	134.59	53.85	134.54	56.01	134.5	62.56	134.35		
70.77	134.28	74.84	134	80.83	133.56	83.72	133.38	86.27	133.26		
89.69	133.24	93.67	133.17	99.65	133	100.47	132.97	104.02	132.91		
106.14	132.93	107.4	132.91	108.5	132.84	115.19	132.45	120.99	132.06		
122.23	132	126.85	131.73	128.03	131.66	128.77	131.67	132.53	131.49		
138.26	131.52	142.8	131.76	146.38	132	151.91	132.37	160.72	132		
178.52	131.74	195.49	131.72	202.59	131.65	214.46	131.66	214.59	131.67		
221.09	131.69	233.79	131.7	237.1	131.73	237.94	131.75	240.75	131.76		
247.16	131.79	253.86	131.9	254.12	131.91	263.35	132	267.36	131.17		
272.76	131.32	277.06	129.88	279.26	129.77	281.86	129.79	283.76	129.31		
285.96	129.51	286.66	133.67	296.96	135.72	298.5	136	300.86	136.5		
304.56	136.98	304.7	137	307.75	137.3	308.04	137.32	321.05	138		
322.15	138.05	322.38	138.07	326.04	138.29	334.02	139	338.25	139.32		
341.44	139.59	342.27	139.67	345.57	140	350.36	140.42	356.05	141		
360.1	141.3										

Manning's n Values		num= 3		Sta		n Val	
0	.1	272.76	.035	286.66	.045		

Bank Sta: Left      Right      Lengths: Left Channel      Right      Coeff Contr.      Expan.  
                          272.76      286.66      17.94      15.98      14.57      .3      .5

Ineffective Flow      num= 2  
 Sta L      Sta R      Elev      Permanent  
     0      270.3      134.25      F  
     291.7      360.1      135.01      F

CROSS SECTION

Goodwiv esDari enEX. rep

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem

RS: 17382

INPUT

Descripti on: 68.0 FEMA AQ - DS of Buttonwood Lane - Upstream Extent of FEMA Model

EXISTING - updated channel with survey, overbank with town topo. Lowered channel n from .045 to .035 for straight rip-rapped. Lowered ROB n-value from .15 to .045 - lawn, some trees.

Station		Elevation		Data		num= 46			
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	135	15.87	134.69	20.53	134.59	26.72	134.38	35.89	134
43.93	133.78	47.95	133.62	48.92	133.58	67.71	133	92.52	132.66
93.6	132.61	96.68	132.54	97.28	132.53	98.92	132.47	99.31	132.45
105.57	132.16	108.23	132.01	108.4	132	114.03	131.64	115.87	131.52
123.8	131	162.7	131.57	163.45	131.56	186.55	131	195.7	130.91
214.46	130.86	229.1	130.93	232.33	131	242.12	131.04	264.1	130.53
271.2	131.52	275.1	129.23	276.8	129.09	278.3	129.06	281.2	129.51
287.5	133.53	300.3	135.34	308.4	137	313.92	137.38	321.27	138
329.86	138.8	332.06	139	334	139.22	335.2	139.34	341.61	140
343.69	140.19								

Manning's n		Values		num= 3	
Sta	n Val	Sta	n Val	Sta	n Val
0	.12	271.2	.035	287.5	.045

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	271.2	287.5		157.12	163.13	.3	.5

CROSS SECTION

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem

RS: 17219

INPUT

Descripti on: SURVEYED - 67.0 FEMA AP - Across narrow armored channel ds of Buttonwood

EXISTING - Updated channel with survey, overbank with town topo. Added levee to keep flow in main channel and out of side drainage until overbanks.

Station		Elevation		Data						num= 54	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	133.11	6.81	133.03	7.91	133	10.82	132.91	18.94	132.55		
29.35	132	36.38	131.25	39.33	131	44.44	130.4	47.7	130		
51.6	129.49	55.53	129	62.61	128.01	62.7	128	69.03	128.02		
78.52	129	80.62	129.07	80.98	129.06	83.9	129.14	94.55	129.22		
100.51	129.3	102.99	129.34	105.25	129.37	118.38	129.57	120.37	129.59		
125.59	129.65	149.98	129.74	154.61	129.61	156.8	128.33	162.2	128.42		
165.9	126.81	168.5	126.47	169.7	126.64	171.2	126.83	173	126.9		
176.1	127.79	181.5	129.65	195	129.94	209.66	132	224.81	132.98		
225.15	133	234.34	133.64	239.6	134	245.83	134.67	250.29	135		
251.48	135.07	252.27	135.12	255.94	135.35	256.78	135.42	266.12	136		
273.97	136.42	275.86	136.5	276.26	136.53	284.91	136.84				

Manning's n		Values		num= 3	
Sta	n Val	Sta	n Val	Sta	n Val
0	.12	154.61	.035	181.5	.045

Goodwi vesDari enEX. rep

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	154.61	181.5		469.76	558.15		.1	.3
Left Levee		Station=	154.61	Elevati on=	129.61			

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 16661

INPUT  
 Descri pti on: SURVEYED - 65.1 FEMA A0 - Across wi de/brai ded secti on ds of Buttonwood

EXI STING - Surveyed channels, overbank from town  
 topo. LOB changed to .085 and .035 for trees and lawn. Channel  
 n-value increased from .04 to .045 for trees and islands. ROB  
 changed to .085 and .035 for trees and lawns

Station		Elevati on Data		num= 85		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	126	19.71	125.87	24.05	125.77	28.46	125.67	33.07	125.58				
39.69	125.39	47.26	125.24	49.86	125.19	57.1	125	67.33	124.82				
67.52	124.81	70.74	124.64	79.17	124.28	82.91	124	128.88	124.31				
129.89	124.39	131.45	124.52	137.33	125	186.38	125.06	191.23	125				
204.32	124.61	206.03	124.57	209.45	124.48	216.52	124.43	222.41	124.31				
224.86	124.28	225.65	124.29	231.72	124.4	239.5	124.52	249.62	124.79				
252.73	124.86	254.89	124.87	256.9	124.8	259.05	124.71	261.59	124.6				
262.39	124.57	265.31	124.43	274.5	124	283	123.72	292.7	123.45				
296.6	120.5	298.8	120.19	301.7	119.81	302.6	119.94	304.2	120.09				
309	120.86	311.8	120.87	324.1	121.09	334.8	122.34	345.7	122.11				
353.1	120.74	356.6	121.44	371.4	121.7	382.9	122.94	385.1	121.54				
389.4	120.94	393.1	120.6	397.2	122.27	414.3	123.14	416.17	123				
419.39	122.89	447.46	122.63	447.61	122.64	449.42	122.67	457.07	122.78				
460.68	123	490.25	123.55	491.13	123.57	501.52	124	510.55	124.46				
520.89	125	539.46	125.86	541.79	125.9	549.57	126	584.42	126.47				
597.18	126.88	600.66	127	602.87	127.16	605.39	127.35	610.24	127.72				
613.41	128	623.84	128.88	625.2	129	626.74	129.14	630.43	129.4				

Manni ng' s n Val ues		num= 5		Sta		n Val		Sta		n Val	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.035	186.38	.085	292.7	.045	397.2	.085	490.25	.035		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	292.7	397.2		555.23	546.9		.1	.3

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 16114

INPUT  
 Descri pti on: SURVEYED - 64.0 FEMA AN - Upstream of Mansfi el d Pl ace

Left  
 home fi ni shed fl oor elevati on at 121.5'.

EXI STING - Channel  
 surveyed, overbank updated with town topo. Increased overbank  
 n-values at homes.

Station		Elevati on Data		num= 166		Sta		Elev		Sta		Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	131.06	.79	131.03	3.59	131	9.66	130.85	10.62	130.77				

Goodwi vesDari enEX. rep

17.29	130.41	22.09	130.31	33.77	130.01	34.03	130	45.12	129.08
45.93	129	47.62	128.87	57.65	128	66.19	127.09	67.09	127
72.23	126.91	75.33	126.76	79.72	126.57	89.52	126.02	89.73	126.01
89.83	126	115.21	125.72	120.91	125.63	126.57	125	156.27	124.56
157.83	124	160.87	123.3	161.91	123	163.46	122.3	164.13	122
168.86	122.01	169.48	122.17	172.52	122.93	172.74	123	174.92	123.65
176.06	124	206.85	123.01	207.05	123	245.74	122.28	246.81	122.26
258.97	122	272.25	122.39	273.7	123	278.64	123.3	283.92	123.63
285.26	123.71	285.99	123.75	290.55	124	343.49	123.26	346.58	123
353.86	122.28	355.84	122	359.97	121.71	361.45	121.62	366.58	121.24
371.79	121	376.98	120.74	396.78	120	445.61	119.27	455.33	119.36
455.61	119.35	472.49	119.3	474.95	119.31	485.45	119.15	489.38	119
521.66	118.99	523.33	118.94	531.24	118.77	540.23	118	582.45	117.71
592.38	117.65	641.4	117	677.21	116.97	685.84	116.8	687.38	116.78
703.6	116.62	724.58	117	823.76	116.37	826.83	116.33	833.05	116.25
837.51	116.19	843.87	116.12	847.98	116.07	854.17	116	857.58	115.21
858.01	115	858.73	114.59	859.94	114	861.59	113.05	861.71	113
880.22	113.44	881.28	113.57	884.82	114	885.39	114.07	886.36	114.19
890.3	114.65	892.51	114.93	892.71	114.95	893.14	115	896.79	115.38
901.18	116	902.6	116.03	903.94	116.06	913.85	116.04	914.37	116
942.54	116.16	943.2	116.15	959.69	116.07	961.26	116.06	966.47	116
1091.1	116.76	1095.9	116.34	1104.6	113.51	1107.1	113.42	1108.8	113.4
1110.7	113.67	1114.5	113.93	1122	114.12	1123.3	115.83	1124.8	115.99
1169.45	117.34	1182.39	117.61	1195.05	118	1208.01	118.51	1219.5	119
1228.82	119.38	1229.16	119.4	1242.9	120	1267.79	120.97	1268.19	120.99
1268.84	121	1273.17	121.02	1296	121.92	1296.36	121.94	1297.75	122
1328.86	122.81	1333.53	123	1348	123.48	1361.75	124	1376.3	124.26
1383.86	124.39	1405.55	124.73	1415.84	125	1503.21	125.3	1543.02	126
1606.27	126.63	1629.18	126.76	1643.28	127	1672.48	127.83	1682.26	128
1733.15	128.92	1735.29	129	1768.01	129.54	1771.1	129.59	1771.47	129.6
1773.87	129.63	1798.35	130	1815.69	130.36	1817.66	130.45	1817.88	130.47
1819.21	130.54	1819.72	130.57	1820.07	130.58	1820.32	130.59	1821.09	130.61
1821.58	130.62								

Manni ng' s n Val ues	num=	7							
Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val
0 .085	901.18	.1	966.47	.085	1095.9	.035	1123.3	.085	
1228.82	.1	1503.21	.085						

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.	
1095.9	1123.3	263.73	273.45	263.27		.1	.3	
Left Levee	Stati on=	1091.1	El evati on=	116.76				
Blocked Obstructi ons	num=	3						
Sta L	Sta R	El ev	Sta L	Sta R	El ev	Sta L	Sta R	El ev
1389.35	1434.53	137.07	1222.58	1260.84	136.5	909.22	962.44	138.74

CROSS SECTI ON

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 15841

INPUT

Descripti on: NEW SURVEY - Constricti on at end of Mansfi el d Pl ace.

Levee

blocks flow from entering the tributary channel to the left, until water raises above bank.

EXISTING - added with channel survey and town topo.

Stati on El evati on Data	num=	154							
Sta El ev	Sta El ev	Sta El ev	Sta El ev	Sta El ev	Sta El ev	Sta El ev	Sta El ev	Sta El ev	Sta El ev

Goodwi vesDari enEX. rep

0	123.39	2.11	123.26	8.01	123	13.37	122.7	15.17	122.45
18.54	122	28.13	121.16	29.58	121	30.54	120.96	30.73	120.95
31.03	120.94	39.29	120.57	46.6	120.37	48.6	120.3	56.08	120
67.2	119.97	67.44	119.96	70.56	119.88	91.45	119.37	91.78	119.36
95.69	119.3	102.82	119.09	106.99	119	109.72	118.91	112.42	118.81
127.74	118.58	129.99	118.54	133.99	118.48	139.21	118.41	140.46	118.37
161.97	118.07	162.52	118.05	163	118.03	164.89	118.02	168.55	118
213.08	117.78	217.74	117.75	240.96	117	277.91	117.41	282.28	117.5
286.28	117.47	289.1	117.48	298.43	117.4	300.3	117.39	301.6	117.38
311.38	117.32	319.14	117.27	320.51	117.26	321.37	117.25	327.83	117.22
329.08	117.2	336.11	117.16	337.89	117.18	339.67	117.13	340.37	117.12
348.64	117.29	354.53	117.34	375.55	117.28	380.74	117.19	386.91	117.17
399.38	117.1	406.92	117	524.68	116.54	531.13	116.38	539.66	116.13
546.78	116.04	548.18	116.01	560.94	116.03	564.22	116.02	564.82	116
628.17	115.33	628.85	115.26	631.34	115	644.99	115.23	647.69	115.37
652.2	115.62	664.24	116	688.84	116.32	694.95	117	704.25	116.96
756.83	116	768.04	115.46	768.71	115.43	776.67	115.11	777.76	115.06
778.24	115.05	779.15	115	788.27	114.39	794.18	114	795.62	113.86
804.17	113	804.62	112.91	809.15	112	831.02	112.48	840.58	113
846.01	113.1	858.24	113.36	863.44	113.47	864.93	113.51	886.78	114
895.07	114.23	904.04	114.38	930.1	115	964.1	115.02	965.1	114.98
965.4	111.53	967.5	111.45	970.4	111.09	972.2	111.18	974.8	111.69
981.2	115.32	993.2	115.19	997.76	116	1009.51	116.07	1020.23	116.33
1035.56	116.71	1043.93	117	1069.47	117.4	1073.62	117.52	1076.77	117.62
1077.07	117.63	1079.5	117.67	1082.18	117.73	1090.51	118	1107.61	118.32
1130.13	118.73	1142.83	119	1185.28	119.69	1187.8	119.74	1201.21	120
1229.86	120.48	1231.08	120.51	1250.48	120.8	1257.71	121	1300.35	121.64
1314.78	122	1330.26	122.31	1332.39	122.35	1370.82	123	1422.16	123.67
1427.61	123.76	1434.41	124	1496.45	124.95	1498.52	125	1512.52	125.24
1515.99	125.29	1543.85	126	1572.21	126.13	1572.76	126.14	1576.48	126.24
1579.48	126.31	1588.31	126.55	1589.26	126.57	1591.83	126.59		

Manni ng' s n Val ues	num=	5							
Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val
0 .085	694.95	.1	768.04	.085	965.1	.035	981.2	.09	

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
965.1	981.2	113.29	145.17	113.19	.1	.3	
Left Levee	Station=	964.1	El evati on=	115.02			
Blocked Obstructi ons	num=	1					
Sta L	Sta R	El ev					
706.41	769.32	129.28					

CROSS SECTI ON

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 15695

INPUT

Descr iption: UPDATED - 62.0 I sl and i n Channel DS of Mansfi el d PI ace

EXI STING - Updated overbank with town topo. Removed upstream cross section - there is not dam structure at this location. Channel does have two sections, around a small island. Removed ineffective flow areas - no structure. LOB and ROB n-values increased from .05 and .04 to .1 - lots of homes and thick trees. Added levee on left to keep flow from entering tributary.

Stati on El evati on Data	num=	160							
Sta El ev	Sta El ev	Sta El ev	Sta El ev	Sta El ev	Sta El ev	Sta El ev	Sta El ev	Sta El ev	Sta El ev
0 124.79	3.1 124.52	6.38 124	10.82 123.44	11.74 123.38					

Goodwi vesDari enEX. rep

15.08	123.17	17.82	123	23.79	122.61	32.82	122	40.7	121.47
41.91	121.42	42.26	121.4	48.49	121	51.52	120.83	66.02	120
66.61	119.96	66.78	119.95	67.06	119.94	70.36	119.77	75.23	119.47
76.87	119.38	79.87	119.21	80.47	119.17	83.11	119	95.79	118.4
102.83	118.07	104.13	118	139.48	117.91	139.93	117.86	140.25	117.83
140.63	117.79	143.17	117.52	148.24	117	281.59	116.63	286.65	116
350.59	116.08	358.3	116.07	362.06	116	391.32	116.43	396.34	117
402.68	116.68	407.69	116	414.04	115.5	419.78	115	439.21	114.81
440.93	114.86	445.29	115	452.13	115.25	458.38	115.47	462.88	115.78
465.13	115.88	466.64	116	514.45	116.78	517.39	116.83	520.19	116.87
523.03	116.92	529.6	117	595.25	117.93	595.51	117.92	596.1	117.93
596.58	117.92	599.2	117.86	610.79	117.79	612.64	117.81	613.92	117.82
618.66	117.87	622.81	118	689.74	117.72	725.99	117	734.02	116.59
746.15	116	758.98	115.78	774.62	115.43	779.23	115.33	793.38	115
856.08	114.24	858.05	114.29	861.15	114.13	861.38	114.14	863.56	114
867.13	113.46	868.84	113.18	869.91	113	870.94	112.65	872.88	112
873.9	111.66	875.76	111	878.8	111.27	881.49	111.49	883.73	112
904.09	112.7	912.79	113	914.76	113.04	934.3	113.33	941.27	113.39
943.86	113.42	959.56	113.4	962.5	113.4	971.5	113.1	972	112.6
986.5	112.6	987.5	113.6	996	113.7	1001.5	113.5	1001.5	109.2
1005.5	109.2	1005.5	113.6	1006.5	113.6	1006.5	114.4	1019.43	115
1027.09	115.65	1030.71	116	1035.78	116.46	1038.05	116.62	1047.16	116.96
1048.22	117	1051.57	117.06	1082.73	118	1083.3	118.05	1085.44	118.23
1091	118.7	1094.36	119	1166.52	119.46	1181.12	119.68	1191.4	120
1211.79	120.45	1235.75	121	1275.11	121.26	1288.33	121.25	1296.21	121.54
1297.67	121.57	1308.79	122	1325.4	122.71	1332.24	123	1334.5	123.19
1337.5	123.48	1341.88	124	1354.97	124.88	1356.57	125	1357.51	125.02
1368.97	125.3	1384.89	126	1439.59	125.98	1441.34	126	1452.61	126.03
1453.68	126.05	1460.46	126.21	1466.7	126.39	1470.23	126.47	1474.84	126.59
1475.52	126.6	1482.08	126.66	1509.22	127	1545.93	126.97	1562.34	126.77
1564.22	126.75	1573	126.65	1576.38	126.61	1586.38	126.5	1621.43	126

Manning's n Values num= 3  
 Sta n Val Sta n Val  
 0 .1 971.5 .035 1006.5 .1

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 971.5 1006.5 109.3 116.27 108.5 .1 .3

Ineffective Flow num= 1  
 Sta L Sta R Elev Permanent  
 0 595.25 117.93 F

Left Levee Station= 943.86 Elevati on= 113.42  
 Blocked Obstructions num= 8  
 Sta L Sta R Elev Sta L Sta R Elev Sta L Sta R Elev  
 1014.88 1059.58 125.95 1091.27 1133.51 128.45 1163.69 1207.42 128.66  
 1248 1307.73 140.78 1363.64 1419.61 149.33 1480.26 1550.66 136.07  
 618.62 714.54 130.1 470.92 548.68 124.95

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 15579

INPUT  
 Descrip tion: NEW SURVEY - downstream of tri butary

EXI STING - surveyed  
 channel and used town topo for ovebank.

Station	Elevati on	Data	num=	251	Sta	Elev	Sta	Elev	Sta	Elev
0	120.26	1.26	120.28	2.09	120.27	2.51	120.26	17.38	120.24	
23.85	120	29.04	119.77	33.94	119.5	36.85	119.32	38.76	119.21	

Goodwi vesDari enEX. rep

42.24	119	42.66	118.96	47.22	118.53	52.46	118.04	52.95	118
54.95	117.73	56.94	117.46	60.41	117	72.82	116.63	78.31	116.37
82.05	116.3	86.68	116	89.89	115.87	93.77	115.72	95.64	115.66
96.01	115.65	96.6	115.64	102.37	115.46	103.96	115.43	107.09	115.39
114.76	115.24	116.81	115.22	125.91	115	126.86	114.99	130.08	114.95
139.62	114.88	145.95	115	159.89	115.46	164.86	115.63	167.83	115.52
171.02	115.49	179.14	115.57	183.62	115.53	185.02	115.5	187.25	115.48
196.24	115.32	202.77	115.27	204.69	115.24	212.99	115.22	224.69	115
234.23	114.88	246.2	115	251.04	115.09	251.41	115.08	259.37	115.14
268.83	115	309.93	114.82	311.38	114.84	320.17	115	334.79	115.11
336.85	115	342.16	114.65	353.94	114	394.08	113.96	399.55	113.98
402.9	113.96	404.52	113.95	408.39	113.9	411.75	113.84	464.07	113.7
468.97	113.73	480.72	113.91	481.77	113.92	490.36	114	503.96	113.47
506.93	113	508.51	112.79	516.15	112.61	518.2	113	519.74	113.41
520.48	113.44	521.01	113.54	524.35	114	526.54	114.26	527.02	114.31
530.01	114.43	530.37	114.46	531.65	114.58	532.09	114.62	532.7	114.68
532.98	114.71	533.53	114.78	534.1	114.82	536.7	114.52	546.18	114.44
546.98	114.4	559.49	114.15	559.61	114.16	568.42	114	574.65	114.31
576.64	114.42	592.7	114.66	596.74	114.79	599.56	114.88	602.34	115
648.15	115.53	648.55	115.59	652.55	116	670.46	116.4	689.27	117
710.46	116.61	718.94	116.5	733.28	116.37	736.85	116.31	751.53	116
756.37	115.91	764.99	115.73	814.55	115	918.64	114.98	919.84	114.88
928.54	114.27	930.93	114.03	931.16	114	934.6	111.34	949.3	110.75
953.1	110.81	953.4	108.94	954.8	108.5	956.9	108.79	958.8	108.86
961.4	109.14	965.6	109.29	971.4	112.31	980	112.33	994.4	113.29
995.57	113.32	1016.87	113.78	1020.36	113.86	1026.89	114	1038.46	114.19
1077.74	115	1093.4	115.14	1097.04	115.25	1114.87	116	1127.41	116.19
1138.1	116.77	1141.73	117	1143.74	117.12	1159.98	118	1160.39	118.02
1160.51	118.03	1160.83	118.04	1166.84	118.36	1179.56	118.88	1181.05	118.93
1182.26	119	1191.02	119.36	1191.77	119.37	1195.76	119.56	1208.24	120
1254.97	120.8	1259.69	121	1260.32	121.03	1264.89	121.19	1282.81	121.86
1286.22	121.96	1288.21	122	1291.98	122.1	1293.06	122.13	1296.56	122.22
1297.64	122.26	1300.19	122.38	1313.77	123	1319.32	123.35	1327.87	124
1331.64	124.27	1341.61	125	1345.26	125.26	1355.5	126	1356.62	126.09
1359.48	126.41	1364.46	127	1365.07	127.3	1366.55	127.99	1366.58	128
1369.11	128.86	1369.57	129	1370.34	129.33	1370.98	129.58	1372.06	130
1373.48	130.77	1374.09	131	1375.58	131.53	1377.32	132	1378.42	132.23
1378.7	132.25	1380.44	132.46	1381.44	132.42	1382.79	132.25	1384.55	132
1385.78	131.86	1386.68	131.63	1388.37	131.26	1389.16	131	1391.6	130.13
1391.98	130	1392.23	129.91	1392.29	129.89	1392.35	129.86	1393.77	129.34
1394.42	129	1396.27	128.04	1396.32	128.01	1396.36	128	1409.7	128.02
1409.77	128.05	1412.22	129	1413.2	129.45	1415.09	130	1417.42	130.83
1417.9	131	1418.24	131.11	1420.46	132	1422.97	132.87	1423.42	133
1423.7	133.12	1425.66	134	1428.8	134.17	1429.9	134.08	1430.01	134.1
1430.34	134	1431.75	133.37	1432.29	133	1434.06	132	1435.56	131
1436.49	130.37	1437.01	130	1438.48	129.04	1438.54	129	1438.73	128.95
1440.36	128.58	1442.19	128.17	1442.59	128.07	1442.69	128.04	1442.93	128
1509.55	127.23	1524.94	127	1545.54	126.62	1556.16	126.44	1584.76	126
1662.27	125.93								

Manning's n Values  
 Sta n Val Sta n Val  
 0 .1 953.1 .035 971.4 .1

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 953.1 971.4 161.72 161.74 160.9 .1 .3

Ineffective Flow num= 1  
 Sta L Sta R Elev Permanent  
 0 689.27 117 F

Blocked Obstructions num= 1  
 Sta L Sta R Elev  
 582.63 620.09 124.33

Goodwiv esDari enEX. rep

CROSS SECTI ON

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem

RS: 15417

INPUT

Descripti on: UPDATED - 61.0 FEMA AM - At Footbri dge?

EXI STING - Updated

overbank with town topo. LOB - changed from .12 to .1 for homes,  
 thick trees.

Station		Elevation		Data		num=		190	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	126	12.24	125.27	12.43	125.26	16.25	125	36.08	124.64
42.48	124	55.46	123.98	67.13	123.24	69.15	123.14	69.69	123.1
71.78	123	90.48	122.08	91.72	122	100.51	121.79	100.82	121.7
103	121	106.17	120.28	107.4	120	110.26	119.51	113.17	119
114.57	118.85	123.06	118	124.83	117.56	127.08	117	129.09	116.84
138.49	116.4	145.75	116	151	115.52	151.26	115.51	153.96	115.44
160.58	115.08	161.72	115	168.44	114.19	170.36	114	177.47	113.23
191.33	113	269.17	112.48	274.08	112.43	279.75	112.32	282.04	112.27
290	112.21	293.34	112.12	297.97	112	470.98	111.52	481.49	111.49
493.13	111.53	502.5	111.61	519.49	111.53	521.81	111.49	522.87	111.5
542.56	111.67	548.07	111.52	548.52	111.53	552.22	111.5	556.91	111.44
562.01	111.32	565.75	111.22	570.96	111	579.03	110.35	581.98	110
584.63	109.17	586.87	109.06	587.15	109	593.96	109.15	598.19	110
604.02	110.74	605.78	111	607.01	111.14	607.84	111.17	612.4	111.36
614.66	111.49	623.56	112	623.78	112.02	636.64	112.9	638.12	113
663.39	113.19	745.87	113.31	751.98	113.34	766.58	113.57	767.02	113.58
769.92	113.61	772.57	113.66	774.45	113.68	781.21	113.71	794.21	114
802.04	114.1	812.03	114.37	823.55	114.6	833.14	115	841.47	115.41
861.3	115.87	865.2	116	867.37	116.07	901.15	117	956.72	116.25
957.57	116.16	959.24	116	969.72	115.21	972.45	115	978.34	114.25
980.2	114	980.98	113.91	981.8	113.82	983.89	113.55	988.57	113
992.47	112.64	999.48	112	1008.5	111.64	1010.27	111.58	1013.61	111.46
1017.46	111.32	1018.33	111.29	1021.66	111.16	1022.53	111.12	1024.54	111.04
1025.44	111	1033	111.9	1035	111.9	1035	108.1	1038	108
1041	107.8	1041.63	111.51	1043.08	111.78	1044.53	112	1046.51	112.2
1053.45	113	1077.93	113.78	1085.08	114	1085.96	114.07	1087.33	114.13
1091.31	114.33	1099.84	114.63	1108.17	114.91	1110.77	115	1117.19	115.22
1126.12	115.68	1130.07	115.87	1132.14	116	1137.66	116.36	1147.88	117
1154.08	117.17	1185.18	118	1202.48	118.49	1206.81	118.97	1206.83	118.98
1207.06	119	1210.27	119.35	1216.92	119.97	1217.08	119.99	1217.22	120
1219.92	120.16	1220.58	120.18	1224.39	120.38	1225.47	120.41	1226.92	120.49
1230.64	120.71	1234.43	120.91	1235.09	120.95	1236.13	121	1239.92	121.07
1243.08	121.14	1246.54	121.2	1249.06	121.18	1252.96	121.22	1255.54	121.25
1259.81	121.31	1263.69	121.36	1269.12	121.29	1273.67	121.3	1276.05	121.33
1294.24	121.7	1304.11	122	1312.91	122.42	1323.44	123	1335.38	123.63
1342.38	124	1360.48	124.97	1361	125	1362.21	125.16	1368.6	126
1374.94	126.95	1375.32	127	1375.79	127.03	1398.31	128	1402.81	128.15
1422.96	128.9	1424.88	128.97	1425.79	129	1446.24	129.98	1447.37	130

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
0	.1	1035	.045	1041.63	.075

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	1035	1041.63		358.57	538.7		.1	.3

Ineffective Flow	num=	1
Sta L	Sta R	Elev
0	901.15	117

Blocked Obstructions	num=	2
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Goodwi vesDari enEX. rep

Sta L Sta R Elev Sta L Sta R Elev  
 816. 7 897. 49 124. 1 632. 95 725. 82 126. 7

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 14879

INPUT  
 Description: NEW SURVEY - addi tional secti on upstream of Hope Pond

Home on  
 Left Finished Floor Elevati on at 109. 86'

EXI STING - surveyed  
 channel , overbank from town topo. LOB changed from .12 to .1 thick  
 trees and homes, some lawn at .035. ROB changed from .075 to .1 -  
 thick trees and homes.

Station	Elevation	Data	num=	184	Station	Elevation	Data	num=	184	Station	Elevation	Data	num=	184
0	127. 1	. 92	127	14. 03	126. 04	14. 55	126	15. 09	125. 95					
26. 14	125	36. 42	124. 12	37. 81	124	40. 02	123. 78	47. 11	123					
52. 13	122. 43	54. 58	122. 15	56. 24	122	63. 58	121. 26	65. 87	121					
69. 22	120. 67	77. 31	120	85. 45	119. 26	89. 79	119	92. 29	118. 37					
93. 82	118	100. 61	117. 29	103. 69	117	110. 14	116. 38	112. 46	116. 15					
114. 34	116	118. 18	115. 87	125. 73	115. 71	126. 77	115. 68	128. 32	115. 64					
140. 62	115. 29	142. 87	115. 23	150. 03	115. 03	151. 19	115	152. 64	114. 53					
153. 33	114. 3	153. 5	114. 24	153. 78	114. 16	154. 98	114. 2	156. 58	114					
165. 26	113. 81	169. 24	113. 72	179. 18	113. 45	181. 45	113. 39	186. 55	113. 29					
188. 38	113. 26	190. 32	113. 25	192. 44	113. 17	193. 24	113. 16	199. 97	113. 01					
200. 39	113	219. 61	112. 74	227. 14	112. 63	229. 97	112. 55	233. 2	112. 43					
237. 3	112. 27	239. 96	112. 21	246. 79	112	284. 11	111. 58	284. 66	111. 57					
285. 54	111. 55	292	111. 49	309. 28	111. 05	310. 02	111. 03	311. 42	111					
330. 52	110. 56	333. 44	110. 52	334. 12	110. 51	336. 18	110. 49	342. 3	110. 43					
344. 79	110. 4	376. 43	110. 13	377. 64	110. 12	380. 13	110. 08	380. 64	110. 07					
388. 94	110	434. 37	110. 35	437. 71	110. 42	441. 26	110. 55	452. 99	111					
466. 85	110. 67	470. 96	110	553. 25	109. 79	561. 26	109	565. 31	108. 58					
568. 94	108	573. 76	108. 43	576. 77	109	582. 16	109. 21	587. 29	109. 33					
594. 32	109. 53	607. 13	109. 87	609. 24	109. 94	609. 69	109. 95	610. 39	109. 97					
613. 18	110	656. 57	110. 23	670. 37	110. 45	691. 33	110. 53	707. 31	110. 78					
708. 58	110. 76	708. 82	110. 75	714. 21	110. 64	727. 17	110. 71	727. 74	110. 7					
729. 56	110. 65	729. 89	110. 63	734. 17	110. 44	735. 84	110. 36	737. 63	110. 27					
742. 24	110	758. 49	109. 24	761. 94	109	763. 65	108. 93	765. 05	108. 89					
775. 12	108. 55	775. 66	108. 54	783. 9	108. 32	784. 6	108. 3	790. 29	108					
794. 72	107. 77	802. 52	107	802. 53	106. 99	818. 84	106. 16	820. 71	106					
822	105. 24	822. 7	104. 91	828. 8	104. 27	831. 7	103. 96	839. 7	103. 61					
843. 6	104. 94	844. 1	106. 61	845. 49	107	846. 52	107. 05	847. 61	107. 1					
853. 78	107. 23	855. 77	107. 35	859. 7	107. 45	860. 89	107. 49	861. 31	107. 51					
862. 64	107. 59	867. 83	107. 75	869. 23	107. 8	874. 79	107. 9	876. 14	107. 94					
878. 31	108	925. 48	108. 24	933. 91	108. 48	954. 54	109	1040. 25	109. 87					
1042. 79	109. 89	1045. 36	109. 9	1048. 6	109. 91	1055. 96	110	1063. 18	110. 53					
1068. 69	111	1072. 94	111. 32	1079. 47	111. 9	1080. 48	112	1088. 82	112. 82					
1089. 9	112. 92	1090. 74	113	1096. 76	113. 58	1101. 14	114	1133. 75	114. 77					
1136. 55	114. 82	1137. 19	114. 83	1138. 55	114. 87	1142. 49	114. 95	1144. 4	115					
1153. 72	115. 45	1157. 54	115. 72	1158. 25	115. 77	1161. 19	116	1170. 42	116. 46					
1179. 28	117	1186. 86	117. 34	1189. 17	117. 46	1197. 24	117. 91	1199. 17	118					
1208. 98	118. 47	1215. 65	119	1219. 34	119. 31	1221. 88	119. 52							

Manni ng' s	n Val ues	num=	5
Sta	n Val	Sta	n Val
0	. 1	607. 13	. 035
		775. 12	. 08
		820. 71	. 045
		844. 1	. 1

Goodwiv esDari enEX. rep

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
820.71	844.1	349.74	245.64	156.54	.1	.3	

Ineffective Flow num= 1  
 Sta L Sta R Elev Permanent  
 0 707.31 110.78 F

Blocked Obstructions num= 2  
 Sta L Sta R Elev Sta L Sta R Elev  
 489.34 519.42 130.15 918.89 999.12 118.18

CROSS SECTION

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem RS: 14633

INPUT  
 Description: UPDATED - 60.4 FEMA AL - U/S Section of Dam #15

EXISTING - Updated overbank with town topo. LOB n-value changed from .055 to .04 for lawn, some trees.

Station		Elevation		Data		num= 136			
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	121	6.1	120.66	15.16	120.17	17.24	120.06	18.35	120
28.18	119.47	35.07	119.09	35.29	119.1	35.53	119.11	36.96	119.12
39.03	119	42.67	118.73	44.14	118.51	46.9	118	51.21	117.5
55.09	117	57.15	116.84	59.22	116.54	60.86	116.3	62.87	116
65.83	115.52	68.78	115	82.04	114.09	83.26	114	83.56	113.99
83.94	113.97	96.92	113.49	104.55	113	150.12	112.74	150.23	112.75
151.3	112.76	154.09	112.64	155.8	112.6	156.18	112.58	165.89	112.29
166.25	112.27	173.19	112	179.61	111.83	184.78	111.63	200.65	111
201.23	110.95	217.11	110	219.29	109.86	231.22	109	256.17	109.15
259.95	110	282.39	109.17	285.43	109	290.16	108.74	291.42	108.67
300.24	108.19	302.06	108.12	302.12	108.11	304.52	108	316.85	107.49
328.63	107	331.3	106.9	351.65	106.05	352.39	106.02	352.81	106.01
353.74	106.02	354.42	106.03	355.35	106.05	377.98	106.42	394.78	106.96
395.29	106.97	396.08	107	398.14	107.1	412.66	107.79	416.75	108
420.5	107.67	423.98	107	425.04	106.79	428.54	106.11	429.11	106
445	103.9	468	103.1	475	103.3	479	101.6	480	101
484.5	100.7	490	100.5	494.5	100.1	495	100.6	501	101.3
501	102.1	501.5	102.5	508	103.3	535	103.7	570	106.4
570.2	106.76	570.73	106.96	570.75	107	630.61	107.08	630.85	107.09
633.54	107.12	640.8	107.3	644.42	107.34	671.96	108	723.33	108.6
728.88	109	733.05	109.14	737.26	109.28	739.89	109.37	753.28	109.81
759.16	110	765.91	110.8	767.66	111	776.05	111.98	776.26	112
776.35	112.01	784.82	113	793.64	113.54	801.83	114	811.14	114.2
819.5	115	821.9	115.36	826.74	116	830.45	116.18	835.44	116.32
836.93	116.34	849.26	117	853.86	117.2	856.75	117.32	860.57	117.44
872.53	118	879.04	118.4	879.53	118.42	886.44	119	894.6	119.68
899.15	120	902.5	120.23	910.97	120.7	913.93	120.84	917.31	121
925.21	121.46								

Manning's n Values num= 3  
 Sta n Val Sta n Val Sta n Val  
 0 .04 425.04 .035 570.2 .04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
425.04	570.2	20.11	22.14	18.55	.3	.5	

Blocked Obstructions num= 1  
 Sta L Sta R Elev  
 0 18.04 152.55

CROSS SECTION

Goodwiv esDari enEX. rep

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem RS: 14611

INPUT  
 Descri pti on: UPDATED - 60.3 U/S Face of Dam #15

EXI STING - Updated overbank  
 with town topo. Added left levee to keep flow from entering low  
 spot until goes over Rabbit Lane. LOB n-value changed from .055  
 to .04 for lawn, some trees.

Station Elevation Data		num= 129		Sta Elev		Sta Elev		Sta Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	121.28	7.26	121	12.1	120.65	24.72	120	28.72	119.73
35.62	119.27	37.04	119.17	39.43	119	45.75	118.54	50.95	118
54.92	117.68	63.45	117	73.34	116.29	77.99	116	90.28	115.24
94.29	115	112.13	114.02	112.49	114	137.43	113.14	140.33	113.08
143.34	113.05	146.87	113	167.93	112.84	170.67	112.76	186.6	112.69
192.63	112.62	195.33	112.54	196.37	112.51	197.91	112.46	199.86	112.4
201.85	112.36	208.21	112.29	209.77	112.25	217.68	112.07	219.02	112
232.21	111.73	234.02	111.65	234.54	111.64	245.42	111	255.4	110.86
259.51	110	262.09	109.87	263.14	109.81	271.95	109.36	274.67	109.26
279.65	109.09	281.98	109	295.29	109.56	295.52	109.61	297.38	110
298.51	110.24	302.08	111	306.87	110.59	315.13	110	316.28	109.93
318.31	109.72	320.09	109.56	322.79	109.28	325.42	109	343.48	108.32
347.76	108	364.86	107.05	365.86	107	366.25	106.98	367.99	106.89
383.51	106.22	393.16	106.03	393.39	106.02	393.73	106.01	400.12	106
400.44	106.01	400.88	106.02	425.42	106.69	434.67	107	458.91	106.4
460.11	106.27	462.49	106	465	103.9	488	103.1	495	103.3
499	101.6	500	101	504.5	100.7	510	100.5	514.5	100.1
515	100.6	521	101.3	521	102.1	521.5	102.5	528	103.3
555	103.7	602.48	106.41	603.01	106.61	603.39	106.75	603.99	107
757.23	108.43	763.62	109	775.76	109.45	791.46	110	795.6	110.62
799.13	111	803.8	111.49	808.56	112	814.17	112.46	816.63	112.76
818.88	113	824.05	113.31	835.14	114	835.45	114.29	841.71	115
845.87	115.26	847.04	115.32	849.46	115.52	853.35	115.82	854.1	115.89
854.91	116	871.49	116.82	872.59	116.85	875.67	117	895.02	117.83
898.94	118	910.08	118.6	916.57	119	925.92	119.63	931.14	120
944.6	120.91	946.2	121	958.93	121.52	960.87	122		

Mannin g' s n Val ues		num= 3		Sta n Val	
Sta	n Val	Sta	n Val	Sta	n Val
0	.04	460.11	.035	603.99	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 460.11 603.99 9.62 10.05 10.85 .3 .5

Ineffecti ve Flow num= 1  
 Sta L Sta R Elev Permanent  
 0 302.08 111 F  
 Left Levee Stati on= 434.67 El evati on= 107

INLI NE STRUCTURE

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem RS: 14609

INPUT  
 Descri pti on: SURVEYED - 60.25 Dam #15 (Upstream of Overbrook Lane)

EXI STING  
 - surveyed dam top and spillway.

Goodwiv esDari enEX. rep

REVDUP - inserted as inline

structure, modeled as a bridge in HEC-2

Distance from Upstream XS = 6.5

Deck/Roadway Width = 3

Weir Coefficient = 2.6

Weir Embankment Coordinates num = 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
434.67	107	452	107.3	470.5	107.3	470.5	105.33	478.2	104.96
486.2	104.86	486.2	107.57	497.8	107.3	512.9	107.17	530.1	106.94
549.9	107.16	569	107.11	587.9	107.14	605.2	107.35		

Upstream Embankment side slope = 0 hori z. to 1.0 vertical

Downstream Embankment side slope = 0 hori z. to 1.0 vertical

Maximum allowable submergence for weir flow = .98

Elevation at which weir flow begins =

Weir crest shape = Broad Crested

CROSS SECTION

RIVER: Goodwiv es Ri ver

REACH: mai nstem RS: 14601

INPUT

Description: SURVEYED - 60.2 D/S Face of Dam #15

EXISTING - channel

surveyed, overbank from town topo.

Station Elevation Data num= 158

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	121	10.92	120.52	16.09	120.15	18.97	120	31.54	119.16
33.86	119	45.37	118.23	48.73	118	52.41	117.73	61.74	117
72.18	116.43	79.07	116	80.64	115.9	95.52	115	97	114.92
107.51	114.27	111.95	114	132.05	113.63	133.3	113.61	134.59	113.59
136.11	113.57	149.55	113	193.86	112.9	198.32	112.82	200.15	112.79
204.43	112.68	207.75	112.61	218.82	112	233.84	111.63	238.13	111.54
239.84	111.49	248.23	111	255.02	110.88	260.26	110	262.3	109.91
264.27	109.8	282.14	109	300.75	109.38	302.4	109.69	302.49	109.7
304.34	110	304.54	110.04	307.29	110.44	307.84	110.5	308.66	110.58
308.94	110.6	309.49	110.64	310.52	110.66	312.68	110.5	316.69	110
323.59	109.33	324.02	109.29	326.3	109	339.78	108.84	341.73	108.69
346.14	108	359.16	107.72	375.18	107	375.81	106.97	383.52	106.58
394.21	106.25	399.06	106.24	405.22	106	437.01	106.97	437.92	107
439.79	106.99	442.14	106.97	443.93	106.94	460.34	106.12	462.67	106
470.4	105.75	470.4	107.3	471.9	107.34	471.9	99.97	475.3	98.65
479.8	99.09	483.4	99.41	486.8	99.93	486.8	107.24	488.2	107.24
488.2	105.95	489.51	106.0426	588.77	106.2	590.85	106.26	597.25	106.17
599.05	106.41	611.25	106.85	612.31	107	647.25	107.17	649.94	107.18
662.47	107.3	674.46	107.39	690.22	107.45	713.13	108	758.33	108.3
761.89	109	766.13	109.42	768.25	109.41	785.07	110	796.73	110.97
796.83	111	800.19	111.4	805.03	111.97	805.3	112	805.73	112.04
810.63	112.31	811.87	112.38	813.85	112.54	814.37	112.59	818.09	112.86
821.17	112.95	823.19	113	829.7	113.25	831.94	113.51	833.12	113.6
834.71	113.77	843.96	114	844.21	114.03	844.58	114.05	850.6	114.58
854.91	114.76	855.69	114.8	856.37	114.84	859.59	115	862.65	115.14
865.68	115.27	871.69	115.53	875.42	115.67	877.31	115.75	882.5	115.95
882.71	115.99	883.72	116	890.97	116.28	892.4	116.34	894.98	116.44
899.67	116.63	903.62	116.79	903.74	116.8	908.21	117	911.96	117.16
912.75	117.2	913.97	117.25	919.39	117.49	925.94	117.79	927.08	117.96
930.63	118	940.06	118.44	942.21	118.53	945.58	118.69	947.16	118.9
952.62	119	953.42	119.04	953.74	119.06	959.24	119.34	961.62	119.46

Goodwiv esDari enEX. rep

962.79 119.52 963.14 119.6 969.14 119.85

Manning's n Values num= 3  
 Sta n Val Sta n Val Sta n Val  
 0 .055 471.9 .035 486.8 .04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 471.9 486.8 5.44 5.45 6.93 .3 .5

CROSS SECTION

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem RS: 14595

INPUT  
 Description: SURVEYED - 59.0 U/S Face of Overbrook Lane

EXISTING - channel  
 surveyed, overbank from town topo.

REVDUP - corrected  
 Ineffective Flow Areas to use 1:1 contraction and min top of road elevation  
 -corrected bank stations to reflect actual top of bank  
 (set in HEC-2 to specify ineffective flow area location)

Station Elevation Data		num= 154									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	121	1.76	120.94	2.88	120.91	5.75	120.73	16.72	120		
18.54	119.81	20.91	119.73	31.87	119	34.21	118.76	42.38	118.26		
46.28	118	55.84	117.25	58.92	117	59.33	116.96	59.44	116.95		
63.31	116.66	73.52	116	77.72	115.74	78.51	115.73	82.17	115.69		
89.41	115.16	91.91	115	107.59	114.4	111.5	114	129.04	113.9		
129.39	113.89	130.18	113.88	150.91	113	201.41	112.92	202.22	112.91		
218.6	112	229.6	111.94	230.25	111.91	230.77	111.9	237.55	111.3		
245.54	111.14	248.73	111.06	249.69	111	253.03	110.7	253.47	110.64		
253.52	110.63	254.71	110.49	257.93	110	260.9	109.88	261.55	109.84		
262.15	109.82	270.14	109.45	271.13	109.4	280.06	109	306.14	109.07		
306.34	109.1	306.54	109.12	307.08	109.17	307.28	109.18	307.73	109.21		
307.9	109.23	308.36	109.26	313.01	109.56	314.73	109.6	315.21	109.58		
315.8	109.54	317.34	109.42	318.15	109.4	319.28	109.37	322.19	109		
332.93	108.76	336.22	108.6	341.77	108.36	344.06	108	358.14	107.74		
369.18	107	377.87	106.89	394.37	106.38	407.97	106	435.59	106.85		
436.52	106.84	438.78	106.83	440.58	106.82	442.52	106.79	443.98	106.78		
460.45	106.06	461.68	106	470.4	105.75	470.4	107.3	471.9	107.34		
471.9	99.97	475.3	98.65	479.8	99.09	483.4	99.41	486.8	99.93		
486.8	107.24	488.2	107.24	488.2	105.95	539.24	106.17	564.06	106.18		
582.32	106.74	587.89	106.8	594.61	107	618.28	107.14	647.75	107.3		
652.54	107.32	662.89	107.42	671.96	107.43	676.52	107.5	696.79	107.57		
714.44	108	756.27	108.41	759.01	109	760.18	109.11	760.51	109.12		
761.19	109.17	763.08	109.36	766.82	109.71	767.25	109.74	768.43	109.86		
772.79	109.84	777.3	110	795.7	110.06	799.05	111	803.49	111.57		
805.59	111.68	809.11	112	815.46	112.46	817.11	112.51	817.9	112.56		
823.34	112.69	830.27	113	831.63	113.13	833.23	113.17	843.32	113.76		
850.74	113.83	852.94	114	870.77	114.74	876.1	114.8	880.45	115		
883.63	115.52	889.08	115.59	896.18	115.68	900.06	115.85	901.25	116		
912.47	116.74	919.67	116.8	923.46	117	927.25	117.56	936.97	117.68		
943.22	118	945.08	118.25	946.95	118.29	952.25	118.73	958.83	118.8		
962.48	119	975.21	119.75	979.82	120	980.3	120.05				

Manning's n Values num= 3  
 Sta n Val Sta n Val Sta n Val  
 0 .055 471.9 .035 486.8 .04

Goodwi vesDari enEX. rep

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 471.9 486.8 45.42 39.78 54.24 .3 .5

CULVERT

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 14580

INPUT  
 Descri pti on: SURVEYED - 58.5 Overbrook Lane -

EXI STI NG - Surveyed cul vert  
 i nverts, road deck.

DUP - Shortened deck and culvert l enght by  
 2 feet to separete structure from face cross sections, now 1 foot  
 away

pei r wi dth i ndi cates possi ble pressure flow and low flow use  
 of momentum or yarnell.

Channel i nvert speci fi ed - entered as  
 cul vert

Distance from Upstream XS = 2  
 Deck/Roadway Wi dth = 31  
 Wei r Coeffi ci ent = 2.6

Upstream Deck/Roadway Coordi nates  
 num= 11

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
332.9		108			378.9		107			462.9	106.67			
476.7	106.62				489.8	106.59				493.3	106.6			
518.2	106.55				541.2	106.59				566.4	106.72			
591.3	106.83				617.3	107.12								

Upstream Bridge Cross Section Data

Stati on El evati on Data num= 154

Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
0	121	1.76	120.94	2.88	120.91	5.75	120.73	16.72	120
18.54	119.81	20.91	119.73	31.87	119	34.21	118.76	42.38	118.26
46.28	118	55.84	117.25	58.92	117	59.33	116.96	59.44	116.95
63.31	116.66	73.52	116	77.72	115.74	78.51	115.73	82.17	115.69
89.41	115.16	91.91	115	107.59	114.4	111.5	114	129.04	113.9
129.39	113.89	130.18	113.88	150.91	113	201.41	112.92	202.22	112.91
218.6	112	229.6	111.94	230.25	111.91	230.77	111.9	237.55	111.3
245.54	111.14	248.73	111.06	249.69	111	253.03	110.7	253.47	110.64
253.52	110.63	254.71	110.49	257.93	110	260.9	109.88	261.55	109.84
262.15	109.82	270.14	109.45	271.13	109.4	280.06	109	306.14	109.07
306.34	109.1	306.54	109.12	307.08	109.17	307.28	109.18	307.73	109.21
307.9	109.23	308.36	109.26	313.01	109.56	314.73	109.6	315.21	109.58
315.8	109.54	317.34	109.42	318.15	109.4	319.28	109.37	322.19	109
332.93	108.76	336.22	108.6	341.77	108.36	344.06	108	358.14	107.74
369.18	107	377.87	106.89	394.37	106.38	407.97	106	435.59	106.85
436.52	106.84	438.78	106.83	440.58	106.82	442.52	106.79	443.98	106.78
460.45	106.06	461.68	106	470.4	105.75	470.4	107.3	471.9	107.34
471.9	99.97	475.3	98.65	479.8	99.09	483.4	99.41	486.8	99.93
486.8	107.24	488.2	107.24	488.2	105.95	539.24	106.17	564.06	106.18
582.32	106.74	587.89	106.8	594.61	107	618.28	107.14	647.75	107.3
652.54	107.32	662.89	107.42	671.96	107.43	676.52	107.5	696.79	107.57
714.44	108	756.27	108.41	759.01	109	760.18	109.11	760.51	109.12
761.19	109.17	763.08	109.36	766.82	109.71	767.25	109.74	768.43	109.86
772.79	109.84	777.3	110	795.7	110.06	799.05	111	803.49	111.57
805.59	111.68	809.11	112	815.46	112.46	817.11	112.51	817.9	112.56
823.34	112.69	830.27	113	831.63	113.13	833.23	113.17	843.32	113.76

Goodwi vesDari enEX. rep

850.74	113.83	852.94	114	870.77	114.74	876.1	114.8	880.45	115
883.63	115.52	889.08	115.59	896.18	115.68	900.06	115.85	901.25	116
912.47	116.74	919.67	116.8	923.46	117	927.25	117.56	936.97	117.68
943.22	118	945.08	118.25	946.95	118.29	952.25	118.73	958.83	118.8
962.48	119	975.21	119.75	979.82	120	980.3	120.05		

Manni ng' s n Val ues num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.055	471.9	.035	486.8	.04

Bank Sta: Left Right Coeff Contr. Expan.

471.9	486.8	.3	.5
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Downstream Deck/Roadway Coordi nates

num= 11

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
305		108			351		107			435	106.67			
448.8	106.62				461.9	106.59				465.4	106.6			
490.3	106.55				513.3	106.59				538.5	106.72			
563.4	106.83				589.4	107.12								

Downstream Bridge Cross Secti on Data

Stati on El evati on Data num= 146

Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
0	118.83	.45	118.77	6.44	118	7.52	117.84	14.01	117
15.97	116.74	21.73	116	28.08	115.27	28.91	115.14	29.84	115
39.12	114.02	39.29	114	40.3	113.92	51.66	113	52.4	112.95
52.6	112.94	57.59	112.77	59.56	112.72	67.93	112.58	76.24	112.15
77.91	112.11	79.14	112	187.99	111.98	205.01	111.57	207.31	111.63
209.15	111.53	215.69	111.6	220.28	111.56	220.71	111.57	222.12	111.58
223.03	111.54	227.07	111.39	234.33	111.41	241.52	111.26	243.98	111.17
252.56	111	259.63	110.67	262.3	110.62	267.9	110.37	268.12	110.36
270.83	110.27	272.99	110.18	274.84	110.13	277.26	110.04	278.1	110
282.36	109.72	291.57	109	294.27	108.82	294.55	108.8	295.13	108.76
296.02	108.69	298.77	108.46	303.04	108.13	304.54	108	327.89	107.3
333.02	107	338.35	106.62	345.14	106.5	347.04	106.45	349.61	106.42
364.96	106.03	365.4	106	376.65	105.14	378.48	105	387.59	104.01
387.77	104	388.49	103.95	393.63	103.82	394.91	103.77	398.1	103.65
401.29	103.5	404.06	103.44	409.09	103.27	410.63	103.24	413.59	103.22
414.67	103.21	418.59	103.32	420.18	103.31	424.63	103.53	430.24	103.48
437.38	103.15	439.11	103	440.57	103.04	444	102.58	444	100.5
447.5	100.21	452.6	99.7	456.96	99.7	458.6	99.61	458.6	103.07
462.28	103.66	462.44	103.73	463.01	104	489.57	104.87	491.64	104.89
500.31	105	501.52	105.07	502.15	105.09	502.32	105.1	510.92	105.62
525.67	105.95	526.63	106	527.36	106.04	527.62	106.05	529.82	106.2
531.88	106.35	542.27	107	606.67	107.94	607.84	108	659.5	108.95
660.67	109	661.12	109.07	668.3	110	680.95	110.12	681.89	110.16
692.9	110.2	696.85	110.69	699.76	110.73	708.48	110.84	709.92	110.88
714.12	111	714.99	111.01	715.75	111.05	725.89	111.41	731.38	111.59
743.24	112	747.99	111.98	759.91	111.84	761.87	112	763.59	112.49
764.98	113	772.42	113.64	773.7	113.74	774.73	113.82	775.43	113.86
776.01	113.88	776.86	114	788.27	114.27	797.33	115	806.17	115.33
809.36	115.36	812.24	115.38	816.34	116	830.38	116.48	834.71	117
844.66	117.39								

Manni ng' s n Val ues num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.055	444	.035	525.67	.055

Bank Sta: Left Right Coeff Contr. Expan.

444	458.6	.3	.5
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Ineffecti ve Fl ow num= 2

Sta L	Sta R	El ev	Permanent
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Goodwi vesDari enEX. rep

0 438.8 106  
463.8 844.66 106

F  
F

Upstream Embankment side slope = 0 hori z. to 1.0 verti cal  
Downstream Embankment side slope = 0 hori z. to 1.0 verti cal  
Maximum allowable submergence for weir flow = .98  
Elevati on at whi ch weir flow begi ns = 107.1  
Energy head used in spi llway design =  
Spi llway hei ght used in desi gn =  
Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name Shape Ri se Span  
Culvert #1 Ci rcular 5  
FHWA Chart # 1 - Concrete Pi pe Culvert  
FHWA Scale # 1 - Square edge entrance wi th headwal l  
Soluti on Cri teria = Hi ghest U. S. EG  
Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef  
Exit Loss Coef  
1 2 31 .025 .025 0 .5

Number of Barrel s = 2  
Upstream El evati on = 99.57  
Centerline Stati ons  
Sta. Sta.  
476 482.5  
Downstream El evati on = 100.32  
Centerline Stati ons  
Sta. Sta.  
448 454.5

CROSS SECTION

RIVER: Goodwi ves Ri ver  
REACH: mai nstem RS: 14556

INPUT

Descripti on: SURVEYED - 58.1 D/S Face of Overbrook Lane

EXI STING - Surveyed

channel, updated overbank with town topo. ROB - i ncreased nvalue  
from .04 to .055 in treed area, lowered to .035 in  
lawn.

REVDUP - corrected Ineffective Flow Areas to use 1:1  
contraction and min top of road elevation  
-corrected bank

stati ons to reflect actual top of bank (set in HEC-2 to speci fy  
i neffective flow area locati on)

Station	Elevation	Data	num=	146	Sta	El ev	Sta	El ev	Sta	El ev
0	118.83	.45	118.77	6.44	118	7.52	117.84	14.01	117	
15.97	116.74	21.73	116	28.08	115.27	28.91	115.14	29.84	115	
39.12	114.02	39.29	114	40.3	113.92	51.66	113	52.4	112.95	
52.6	112.94	57.59	112.77	59.56	112.72	67.93	112.58	76.24	112.15	
77.91	112.11	79.14	112	187.99	111.98	205.01	111.57	207.31	111.63	
209.15	111.53	215.69	111.6	220.28	111.56	220.71	111.57	222.12	111.58	
223.03	111.54	227.07	111.39	234.33	111.41	241.52	111.26	243.98	111.17	
252.56	111	259.63	110.67	262.3	110.62	267.9	110.37	268.12	110.36	
270.83	110.27	272.99	110.18	274.84	110.13	277.26	110.04	278.1	110	



Goodwi vesDari enEX. rep

282.36	109.72	291.57	109	294.27	108.82	294.55	108.8	295.13	108.76
296.02	108.69	298.77	108.46	303.04	108.13	304.54	108	327.89	107.3
333.02	107	338.35	106.62	345.14	106.5	347.04	106.45	349.61	106.42
364.96	106.03	365.4	106	376.65	105.14	378.48	105	387.59	104.01
387.77	104	388.49	103.95	393.63	103.82	394.91	103.77	398.1	103.65
401.29	103.5	404.06	103.44	409.09	103.27	410.63	103.24	413.59	103.22
414.67	103.21	418.59	103.32	420.18	103.31	424.63	103.53	430.24	103.48
437.38	103.15	439.11	103	440.57	103.04	444	102.58	444	100.5
447.5	100.21	452.6	99.7	456.96	99.7	458.6	99.61	458.6	103.07
462.28	103.66	462.44	103.73	463.01	104	489.57	104.87	491.64	104.89
500.31	105	501.52	105.07	502.15	105.09	502.32	105.1	510.92	105.62
525.67	105.95	526.63	106	527.36	106.04	527.62	106.05	529.82	106.2
531.88	106.35	542.27	107	606.67	107.94	607.84	108	659.5	108.95
660.67	109	661.12	109.07	668.3	110	680.95	110.12	681.89	110.16
692.9	110.2	696.85	110.69	699.76	110.73	708.48	110.84	709.92	110.88
714.12	111	714.99	111.01	715.75	111.05	725.89	111.41	731.38	111.59
743.24	112	747.99	111.98	759.91	111.84	761.87	112	763.59	112.49
764.98	113	772.42	113.64	773.7	113.74	774.73	113.82	775.43	113.86
776.01	113.88	776.86	114	788.27	114.27	797.33	115	806.17	115.33
809.36	115.36	812.24	115.38	816.34	116	830.38	116.48	834.71	117
844.66	117.39								

Manning's n Values	num=	3
Sta n Val	Sta n Val	Sta n Val
0 .055	444 .035	525.67 .055

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
444	458.6	9.79 31.9	80.19	.3	.5
Ineffective Flow	num=	2			
Sta L Sta R	El ev	Permanent			
0 438.8	106	F			
463.8 844.66	106	F			

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 14524

INPUT

Description: copy of ds section  
 Station Elevation Data num= 113

Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
0	118.94	1.95	118.79	10.66	118.35	13.24	118.03	15.66	117.76
22.83	117.03	30.55	116.26	33.25	116.03	37.77	115.56	42.54	115.03
48.69	114.36	51.91	114.03	56.21	113.65	61.77	113.11	62.64	113.03
63.24	112.99	68.29	112.6	75.74	112.03	225.52	112.82	227.4	112.92
228.06	112.94	229.53	113	230.62	113.03	234.89	112.99	239.89	112.72
253.09	112.03	262.54	111.76	273.74	111.69	273.9	111.69	277.04	111.64
283.88	111.5	290.88	111.03	298.54	110.35	301	110.03	312.9	109.06
313.28	109.03	314.56	108.94	328.83	108.03	335.68	107.6	345.62	107.03
349.84	106.67	350.03	106.65	353.22	106.4	357.55	106.03	365.88	105.12
367.25	105.03	374.84	104.1	375.06	104.07	375.39	104.03	375.48	104.01
375.81	103.99	377.02	103.86	384.06	103.22	385.9	103.03	402.63	102.92
404.44	103.03	438.81	103.14	439.5	102.06	442.1	101.03	443.9	99.67
450.6	99.58	457.3	99.76	461.7	100.76	461.7	101.86	462.22	103.23
514.07	103.4	531.19	104.03	540.4	104.54	545.31	104.72	548.73	104.9
553.02	105.03	562.76	105.33	564.04	105.36	567.78	105.47	580.52	105.9
581.42	105.93	582.9	106.03	584.34	106.11	586.56	106.26	596.04	107.03
606.81	107.6	611.75	107.85	615.1	108.03	623.13	108.5	631.53	109.03
634.62	109.22	648.51	110.03	649.19	110.04	666.03	110.47	668.53	110.51
680.36	111.03	690.67	111.25	711.69	112.03	717.11	112.11	718.27	112.12
718.96	112.14	728.03	112.32	757.78	112.94	762.13	113.03	778.19	113.94

Goodwi vesDari enEX. rep

779.69	114.03	780.54	114.07	797.37	115.03	813.81	115.93	815.83	116.03
831.18	116.82	835.08	117.03	837.15	117.18	853.89	118.03	863.74	118.57
872.84	119.03	876.72	119.4	879.92	119.71				

Manning's n Values num= 3

Sta n Val	Sta n Val	Sta n Val
0 .055	438.81	.035 596.04

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

438.81	462.22	31	31	31	.3	.5
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CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 14493

INPUT

Descripti on: SURVEYED - 58.0 FEMA AK - D/S Secti on of Overbrook Lane

EXI SITI NG - Suveyed channel , updated overbank with town topo. ROB - inceased nvalue from .04 to .055 in treed area, lowered to .035 in lawn.

REVDUP -corrected bank stations to reflect actual top of bank (set in HEC-2 to speci fy ineffective flow area locati on)

Station Elevati on Data num= 113

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	118.91	1.95	118.77	10.66	118.32	13.24	118	15.66	117.73
22.83	117	30.55	116.24	33.25	116	37.77	115.53	42.54	115
48.69	114.33	51.91	114	56.21	113.62	61.77	113.09	62.64	113
63.24	112.96	68.29	112.57	75.74	112	225.52	112.79	227.4	112.89
228.06	112.91	229.53	112.97	230.62	113	234.89	112.96	239.89	112.7
253.09	112	262.54	111.73	273.74	111.67	273.9	111.66	277.04	111.61
283.88	111.47	290.88	111	298.54	110.32	301	110	312.9	109.03
313.28	109	314.56	108.92	328.83	108	335.68	107.57	345.62	107
349.84	106.64	350.03	106.63	353.22	106.38	357.55	106	365.88	105.1
367.25	105	374.84	104.07	375.06	104.04	375.39	104	375.48	103.99
375.81	103.96	377.02	103.84	384.06	103.2	385.9	103	402.63	102.89
404.44	103	438.81	103.1191	439.5	102.03	442.1	101	443.9	99.64
450.6	99.56	457.3	99.73	461.7	100.74	461.7	101.83	462.22	103.2003
514.07	103.38	531.19	104	540.4	104.51	545.31	104.7	548.73	104.87
553.02	105	562.76	105.3	564.04	105.33	567.78	105.45	580.52	105.87
581.42	105.9	582.9	106	584.34	106.09	586.56	106.23	596.04	107
606.81	107.57	611.75	107.82	615.1	108	623.13	108.47	631.53	109
634.62	109.19	648.51	110	649.19	110.02	666.03	110.44	668.53	110.48
680.36	111	690.67	111.22	711.69	112	717.11	112.08	718.27	112.1
718.96	112.11	728.03	112.29	757.78	112.91	762.13	113	778.19	113.92
779.69	114	780.54	114.04	797.37	115	813.81	115.9	815.83	116
831.18	116.79	835.08	117	837.15	117.15	853.89	118	863.74	118.54
872.84	119	876.72	119.37	879.92	119.68				

Manning's n Values num= 3

Sta n Val	Sta n Val	Sta n Val
0 .055	438.81	.035 596.04

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

438.81	462.22	22.28	40.74	63.42	.3	.5
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INLINE STRUCTURE

Goodwiv esDari enEX. rep

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem RS: 14473

INPUT  
 Descri pti on: NEW SURVEY - Dam #14

EXISTING - Surveyed Dam top. Di mensi ons  
 veri fi ed i n fi el d.

Di stance from Upstream XS = 20.5  
 Deck/Roadway Wi dth = 3  
 Wei r Coeffi ci ent = 2.6  
 Wei r Embankment Coordi nates num = 6

Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
438.81	103.12	442	103.12	442	100.91	456	100.96	456	103.2
462.22	103.2								

Upstream Embankment si de slope = 0 hori z. to 1.0 verti cal  
 Downstream Embankment si de slope = 0 hori z. to 1.0 verti cal  
 Maxi mum allowabl e submergence for wei r fl ow = .98  
 El evati on at whi ch wei r fl ow begi ns =  
 Wei r crest shape = Broad Crested

CROSS SECTION

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem RS: 14452

INPUT  
 Descri pti on: NEW SURVEY - DS of Dam #14  
 HOME on ri ght FF el evati on at  
 104.52'

EXISTING - NEW survey added, overbank from town topo.

Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
0	118.67	2.83	118.52	12.42	118	15.59	117.77	15.86	117.74
23.91	117	30.69	116.46	35.89	116	38.16	115.79	46.45	115
51.73	114.41	55.4	114	57.76	113.73	64.55	113	78.96	112.2
82.91	112	216.53	112.77	216.98	112.79	221.79	113	250.07	112.88
266.16	112.74	270.14	112.73	275.65	112.75	279.17	112.69	285.66	112.54
294.84	112.33	299.44	112.12	301.49	112.02	301.89	112	302.17	111.96
305.72	111.52	309.85	111	310.34	110.94	317.9	110	319.33	109.84
325.59	109.07	325.93	109.03	326.18	109	333.91	108.03	334.13	108
334.34	107.97	334.62	107.94	335.93	107.77	337.27	107.61	342.17	107
346.42	106.5	350.99	106	354.93	105.63	364.05	105	367.84	104.22
368.82	104	370.69	103.61	373.33	103.19	375.46	103	377.85	103.07
378.63	103.26	380.24	103.57	380.89	103.7	381.75	104	389.41	103.68
397.11	103	409.67	102.91	410.14	102.88	414.3	102.66	417.04	102.51
418.47	102.43	419.61	102.37	421.75	102.21	423.32	102.13	424.55	102.05
425.16	102	426.8	101.83	426.8	101.62	426.8	99.11	430	98.63
435	98.04	437.1	98.19	437.1	102.29	443.64	102.17	460.54	101.86
460.85	101.88	464.52	102	496	102.89	499.99	103	500.67	103.02
501.03	103.03	501.78	103.07	507.18	103.34	520.74	104	530.54	104.23
540.88	104.3	548.66	104.38	552.94	104.41	558.98	104.54	573.71	104.87
575.05	104.89	575.26	104.9	575.87	104.91	579.43	105	583.93	105.34
592.91	106	598.03	106.33	618.5	107	633.54	107.13	649.46	108
651.52	108.17	662.53	109	674.5	109.95	675	110	675.99	110.05
686.02	110.57	694.38	110.88	695.04	110.9	695.6	110.91	697.91	111
722.96	111.69	727.69	111.77	733.9	112	761.54	112.8	768.48	112.95
771.48	113	780.57	113.24	787.49	113.47	802.25	114	804.34	114.08

Goodwiv esDari enEX. rep

823.29	115	838.6	115.46	847.42	116	862.02	116.85	864.69	117
871.32	117.5	877.71	118	879.22	118.13	893.87	119	898.97	119.47
902.06	119.76								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.055	221.79	.1	309.85	.055	426.8	.035	443.64	.1
540.88	.055								

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

	426.8	437.1		63	66.43	14.02		.3	.5
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Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
243.63	293.38	123.3	446.87	527.36	111.33

CROSS SECTION

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem RS: 14386

INPUT  
 Description: NEW SURVEY - DS of Dam #13  
 HOME on right FF elevation at  
 104.52'

EXISTING - NEW survey added, overbank from town topo.

Station Elevation Data num= 162

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	118.71	.81	118.73	4.9	118.62	11.77	118.4	19.01	118
26.12	117.42	29.3	117.33	35.59	117	37.4	116.76	42.05	116.49
48.13	116	49.43	115.79	54.89	115.37	58.35	115.03	59.08	115
65.34	114.73	67.68	114.27	69	114.07	70.36	114	85.43	113.32
89.29	113.26	90.72	113.21	91.94	113.18	95.78	113	116.3	112.72
124.32	112.41	124.52	112.4	130.5	112	141.27	111.76	142.82	111.71
152.46	111.65	160.14	111.55	167.91	111.46	198.77	111.21	200.98	111.43
202.17	111.51	205	111.49	206.18	111.54	207.68	111.58	212.41	111.59
212.47	111.58	221.23	111.78	222.86	112	236.44	112.01	237.34	112
239.16	112.05	240.82	112.12	243.1	112.19	245.19	112.31	248.65	112.63
250.01	112.73	250.87	112.82	251.69	112.86	252.32	112.95	252.7	113
277.96	112.78	290.19	112.83	295.68	112.52	297.96	112.59	298.01	112.57
300.11	112.68	301.24	113	305.94	112.94	306.08	112.96	306.35	112.99
314.96	112.91	315.12	112.9	318.3	112.96	318.55	112.94	318.68	112.93
319.03	112.87	322.75	112.5	324.65	112	326.16	111.69	326.62	111.64
327.51	111.51	327.63	111.5	331.38	111	335.46	110.51	339.61	110
343.57	109.56	348.05	109	348.61	108.96	349.02	108.92	354.45	108.4
357.59	108	364.12	107.43	368.85	107	373	106.39	376.16	106
377.36	105.22	377.69	105	378.28	104.63	378.4	103.02	385.1	98.59
386.8	97.7	390.4	97.62	395.8	98.33	399.8	98.3	401.7	98.58
402.3	101.54	405.2	101.31	412.89	101.73	417.83	102	427.23	102.45
431.27	102.57	446.64	103	470.96	103.61	483.69	104	483.95	104.01
485.09	104.04	491.51	104.26	502.11	104.51	524.83	104.67	528.54	104.71
530.58	104.72	541.08	104.94	543.71	105	555.48	105.81	557.93	106
587.69	106.82	594.12	107	611.93	107.65	617.26	107.83	619.65	107.88
621.8	108	635.92	108.99	636.04	109	636.23	109.01	647.91	109.72
652.91	109.97	653.16	109.98	653.65	110	658.45	110.1	659.69	110.15
671.47	110.42	677.01	110.84	678.39	111	680.03	111.14	697.79	112
702.41	112.13	710.21	112.35	732.28	113	746.66	113.48	751.37	113.63
755.6	113.74	763.65	114	770.75	114.28	777.3	114.47	783.2	114.69
789.62	115	802.22	115.15	817.03	116	819.28	116.11	826.19	116.52
833.86	117	841.81	117.68	845.77	118	856.14	118.9	857.9	119
866.82	119.77	869.14	119.96						

Goodwi vesDari enEX. rep

Manni ng' s n Val ues			num=	6			n Val			Sta	n Val
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.055	248.65	.1	318.3	.055	378.28	.035	412.89		.1	
524.83	.055										

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.		
	378.28	402.3		214.8	203.82		.3	.5		
Blocked Obstructi ons			num=	2						
Sta L	Sta R	El ev	Sta L	Sta R	El ev					
264.25	291.73	123.3	413.67	501.52	111.33					

CROSS SECTI ON

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 14182

INPUT  
 Descripti on: UPDATED - 56.0 FEMA AJ - Crest of Dam #12

EXI STING - Updated  
 Overbank El evati ons. ROB - i ncreased n-value at home.

Station	El evati on	Data	num=	140							
Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
0	118.85	1.64	118.84	4.88	118.87	6.02	118.86	9.43	118.87		
13.2	118.82	25.18	118.99	25.62	119	35.21	118.98	45.16	118.72		
47.53	118.7	47.85	118.69	52.93	118.42	53.84	118.37	58.51	118		
65.73	117.51	66.82	117.48	74.36	117	77.31	116.99	77.94	116.97		
98.45	116.31	98.76	116.32	99.49	116.33	100.44	116.35	103.55	116.23		
104.3	116.21	107.26	116	116.5	115.85	124.9	115	147.92	114.26		
151.87	114.15	156.42	114	164.78	113.43	166.72	113	169.55	112.79		
179.5	112	278.79	111.99	283.68	111.58	293.57	111	312.65	110.18		
315.91	110.03	316.05	110.02	316.59	110	334.86	109.02	335.26	109		
361.69	108.52	374.09	108.24	379.89	108.22	393.73	108	423.58	107.95		
425.4	107	430.39	106.62	432.2	106.54	443.32	106	443.38	105.99		
445.96	105.68	449.09	105.5	452.8	105.53	456.87	105.34	458.93	105.33		
461.32	105.25	464.57	105.39	464.7	105.38	466.4	105.23	466.73	105.19		
467.22	105.11	468.11	105	469.88	104.82	470.23	104.77	471.17	104.68		
472.18	104.55	473.39	104.44	473.97	104.36	474.67	104.32	476.88	104		
477	103.98	480.68	103	483.08	102.52	483.86	102.36	485.51	102		
489.61	101.15	490.65	101	495.32	100.58	497.84	100.27	498.93	100.13		
504	99.9	505	99.9	505	99.2	514	99	514	98.5		
516	98.5	516	99	524	99	524	100.1	528.91	100.32		
535.08	101	541.74	101.57	549.29	102	559.78	102.6	566.41	103		
570.26	103.26	580.25	104	590.35	104.52	599.27	105	632.71	105.54		
647.7	105.6	652.79	105.66	654.47	105.67	667.54	106	688.46	106.08		
692.18	106.56	695.43	107	695.97	107.08	703.26	108	705.23	108.22		
712.29	109	723.41	109.87	725.46	110	741.07	110.68	750.18	111		
798.44	111.94	800.71	112	803.74	112.07	814.52	112.52	816.08	112.58		
826.85	113	838.53	113.53	852.31	114	874.99	114.3	882.59	114.63		
885.74	114.69	890.94	115	897.97	115.28	907.05	115.6	918.54	116		
925.22	116.24	945.61	117	952.97	117.36	963.4	118	967.43	118.26		

Manni ng' s n Val ues			num=	5			n Val			Sta	n Val
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.04	505	.045	524	.04	570.26	.1	667.54		.04	

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.			
	505	524		31.84	34.76		.1	.3			
Blocked Obstructi ons			num=	1							
Sta L	Sta R	El ev									
573.35	653.79	114.89									

Goodwi vesDari enEX. rep

CROSS SECTI ON

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 14147

INPUT  
 Descripti on: UPDATED - 55.0 FEMA AI - Toe of Dam #12

EXI STING - Updated  
 Overbank Elevations, used FEMA channel elevations. LOB and ROB -  
 changed n-value from .05 to .1 for trees, .035 for lawn, .1 for  
 home.

Station	Elevation	Data	num=	142	Station	Elevation	Station	Elevation	Station	Elevation
0	118.68	3.17	118.66	15.87	118.51	23.42	118.61	26.48	118.66	
42.05	118.34	48.09	118.08	48.77	118.05	49.99	118	53.85	117.74	
63.82	117	81.45	116.27	81.71	116.26	84.3	116.17	85.19	116.15	
85.39	116.14	89.11	116	98.47	115.9	102.7	115.81	104.33	115.76	
126.32	115	134.49	114.99	146.02	114	152.32	113.85	152.76	113.86	
163.34	113	167.89	112.72	169.36	112.59	170.03	112.52	172.68	112.27	
172.75	112.26	173.35	112.21	173.7	112.2	174.28	112.1	184.3	112	
260.66	111.38	289.61	111.15	292.12	111	308.75	110.77	313.12	110.76	
328.81	110.06	329.66	110	333.68	109.85	353.31	109	361.31	108.26	
362.72	108.13	364.83	108	390.18	107.48	391.05	107.41	391.57	107.4	
392.81	107.3	393.26	107.29	395.92	107	400.17	106.79	413.83	106.23	
414.03	106.24	416.03	106	424.46	105.53	425.16	105.5	429.09	105.22	
429.25	105.21	430.29	105.15	430.41	105.14	432.96	105	439.78	104.62	
440.13	104.6	440.22	104.59	443.79	104.38	448.73	104	453.28	103.53	
454.39	103.47	454.85	103.44	455.85	103.4	456.57	103.34	457.66	103.32	
457.81	103.3	461.86	103	473.15	102.12	474.23	102	480.07	101.47	
484.87	101	485.79	100.87	489.39	100.39	492.33	100	508.97	99.92349	
509.73	99.92	511.96	99	512.69	98.73	514.43	98	514.43	95.1	
531.6	95.1	531.6	98.61	533.32	99	534.71	99.4	536.56	100	
538.32	100.08	538.97	100.09	541.73	101	541.97	101.03	546.65	101.2	
550.6	102	552.94	102.18	554.09	102.27	556.5	102.35	556.7	102.36	
564.51	103	568.21	103.22	578.38	103.57	587.54	104	604.13	104.28	
604.27	104.29	616.28	104.33	648.17	105	667.21	105.82	670.82	106	
672.9	106.22	680.54	107	684.77	107.47	689.81	108	695.53	108.64	
698.86	109	701.81	109.31	711.55	110	719.2	110.38	727.66	110.54	
746.85	111	747.77	111.02	786.67	112	810.44	112.54	826.93	113	
844.46	113.17	858.18	114	877.77	114.86	878.21	114.92	878.8	115	
883.78	115.71	886.24	116	904.55	116.45	924.6	117	932.39	117.24	
950.54	117.66	953.83	117.75							

Manning's n Values	num=	7	Station	n Val	Station	n Val	Station	n Val	Station	n Val
0	.05	260.66	.1	353.31	.035	461.86	.1	509.73	.045	
536.56	.035	727.66	.035							

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 509.73 536.56 49.23 100.19 133.1 .1 .3

Blocked Obstructions num= 1  
 Sta L Sta R Elev  
 272.78 350.46 129.65

CROSS SECTI ON

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 14047

INPUT

Descripti on: NEW SURVEY - between Dams 11 and 12

Home on Right - just  
downstream - Garage floor at 100.72'  
Finished floor of home at  
102.05'

EXISTING - Added based on channel survey and overbank  
with town topo.

Station Elevation Data num= 120									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	118.3	4.86	118.26	22.62	118	55.5	117.21	55.91	117.18
56.21	117.15	58.58	117	60.11	116.9	62.3	116.73	63.1	116.68
64.2	116.6	69.61	116.19	69.73	116.18	72.61	116	78.45	115.79
79.63	115.76	82.1	115.66	87.87	115.56	96.61	115.34	104.13	115.15
109.88	115	112.28	114.88	128.99	114.05	129.22	114	130.06	113.82
133.32	113	173.8	112.24	174.47	112.22	175.23	112.21	180.57	112
260.66	111.77	290.71	111	316.74	110.92	320.26	110.51	322.35	110.27
324.64	110	325.83	109.92	326.27	109.91	351.14	109	365.46	108.19
365.81	108.16	367.49	108	372.06	107.81	388.77	107	396.48	106.66
421.33	106	433.6	105.02	433.77	105	434.31	104.93	441.95	104
445.46	103.58	450.79	103	453.46	102.41	455.45	102	458.21	101.44
458.94	101.29	460.28	101	463.57	100.26	464.8	100	470.39	99.71
475.87	99.45	477.74	99.39	477.95	99.38	481.45	99.3	484.5	99.12
485.97	99.02	486.26	99	508.66	98.34	516.92	98.03	517.6	98
518.47	97.76	519.1	96.38	523.7	95.74	526.6	95.03	532.8	94.7
534.7	94.69	536.9	95.87	543.2	99.58	561.13	101.21	565.83	101.33
574.78	101.63	583.34	101.89	586.03	101.97	586.8	102	588.86	102.12
595.73	102.59	595.78	102.6	597.58	102.75	604.74	103	641.45	103.01
648.67	103.22	669.18	104	716.83	104.86	717.06	104.88	717.26	104.9
718.33	105	718.93	105.05	729.95	106	736.38	106.42	744.32	107
754	107.66	758.98	108	780.31	108.82	784.93	109	799.01	109.27
800.69	109.34	814.55	110	821.3	110.3	823.76	110.41	825.01	110.48
835.45	111	841.48	111.23	844.52	111.35	860.67	112	878.41	112.84
881.03	113	888.27	113.37	892.91	113.56	903.89	114	906.41	114.16

Manning's n Values num= 7									
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	260.66	.1	325.83	.015	421.33	.1	516.92	.035
543.2	.1	641.45	.05						

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	516.92	543.2		381.8	319.57	244.26		.1	.3
Blocked Obstructions num= 1									
Sta L	Sta R	Elev							
271.22	324.88	129.65							

CROSS SECTION

RIVER: Goodwiv es Ri ver  
REACH: mai nstem RS: 13728

INPUT  
Descripti on: UPDATED - 54.4 FEMA AH - U/S Secti on of Dam #11

EXISTING - Updated Overbank Elevations. ROB - i ncreased n-value at home  
area from .05 to .1. Channel n-value decreased from .04 to .03 -  
ponded soft bottom.

DUP - decreased downstream distance by 10  
feet to move face cross section 10 feet away from bridge

Goodwi vesDari enEX. rep

Stati on El evati on Data		num= 78		Sta El ev		Sta El ev		Sta El ev	
Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
0	112	32.55	111.04	32.73	111	33.22	110.93	33.71	110.88
39.21	110.25	40.8	110.15	42.52	110	46.42	109.72	59.89	109
63.09	108.53	66.07	108	73.18	107.28	76.46	107	79.64	106.59
84.71	106	86.17	105.77	90.76	105	91.71	104.77	94.3	104
94.68	103.9	97.03	103.19	97.67	103	99.76	102.18	100.27	102
100.94	101.7	102.58	101	104.03	100.43	105.35	100	106.42	99.7
108.9	99	110.48	98.55	112.96	98	113.37	97.91	117	97.1
139	94.5	153	94.5	154	94.5	163.7	94.5	174	96.6
175.55	97	204.2	97.05	229.4	98	233.14	98.15	253.08	99
268.24	99.35	274.56	100	281.94	100.57	286.89	101	311.71	101.34
314.27	101.36	332.09	101.55	354.15	101.81	363.5	102	383.93	102.69
401.6	103	420.53	103.28	425.58	103.49	427.65	103.56	428.53	103.6
437.93	104	475.46	104.48	481.52	105	490.15	105.29	492.36	105.56
495.56	106	499.42	106.51	503.3	107	510.75	107.95	511.02	107.99
511.11	108	521.56	108.58	522.3	108.62	523.32	108.67	528.51	109
578.1	109.74	591.64	110	592.75	110.05				

Manni ng' s n Val ues		num= 5		Sta n Val		Sta n Val		Sta n Val	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.04	117	.03	175.55	.05	332.09	.1	401.6	.05

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.	
	117	175.55		22.1	21.32		.3	.5	
Blocked Obstructi ons	Sta L	Sta R	El ev	num= 1					
	337.71	383.65	123.7						

CROSS SECTI ON

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 13706

INPUT  
 Descri pti on: UPDATED - 54.3 U/S Face of Dam #11

EXI STING - Updated Overbank  
 Elevati ons. ROB - i ncreased n-value at home area from .05 to .1.  
 Channel n-value decreased from .04 to .03 - ponded soft  
 bottom.

DUP - i ncreased downstream distance to move face cross  
 secti ons 10' from dam structure

Stati on El evati on Data		num= 103		Sta El ev		Sta El ev		Sta El ev	
Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
0	112.5	16.66	112.16	24.31	112	26.15	111.57	28.05	111.12
28.57	111	29.35	110.86	34.47	110	47.63	109.12	49.29	109
50.67	108.88	60.68	108	64.85	107.44	67.82	107	72.45	106.39
75.23	106	78.48	105.5	80.05	105.21	81.27	105	83.33	104.49
85.36	104	88.27	103.13	88.7	103	88.93	102.93	91.94	102
92.91	101.56	94.73	101.01	94.75	101	96.35	100.5	97.92	100
98.34	99.88	99.99	99.42	101.35	99	103.28	98.54	105.97	98
106.49	97.95	108.2	97.83	108.35	97.82	111.56	97.58	111.67	97.57
111.74	97.56	117	97.1	139	94.5	153	94.5	154	94.5
163.7	94.5	174	96.6	177.82	96.59	178.26	96.61	180.91	97
187.89	97.02	188.56	97.1	189.61	97.22	190.06	97.27	190.65	97.35
193.1	97.56	193.59	97.59	194.08	97.61	208.99	98	230.23	98.15
235.67	98.44	246.73	99	261.14	99.5	265.53	99.65	265.69	99.66
271.41	100	276.89	100.65	279.38	101	288.73	100.81	295.14	101
335.09	101.48	360.61	102	366.77	102.21	372.82	102.32	386.38	102.54
395.79	102.57	411.13	103	417.49	103.09	417.87	103.1	424.71	103.34



Goodwies Dari en EX. rep									
440.1	104	460.39	104.03	460.45	104.02	460.98	104.04	473.37	105
488.58	105.31	489.15	105.33	489.71	105.34	491.14	105.33	495.94	106
503.89	106.41	508.33	107	511.33	107.39	515.56	108	526.67	108.72
529.47	108.89	531.35	109	559.98	109.49	563.47	109.54	574.32	109.8
577.98	109.87	582.87	110	584.98	110.1				

Manning's n Values									
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.04	117	.03	174	.05	295.14	.1	386.38	.05

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	117	174		24.19	23.57		.3	.5

Blocked Obstructions num= 1

Sta L	Sta R	Elev
333.14	380.42	123.7

INLINE STRUCTURE

RIVER: Goodwies River  
 REACH: mainstem RS: 13695

INPUT  
 Description: 54.25 Dam #11 (A Bridge structure labeled as a Driveway in HEC-2)

EXISTING - Adjusted stationing to align with updated upstream cross section

REVDUP - inserted as an inline structure, modeled as a bridge in HEC-2

Distance from Upstream XS =	10								
Deck/Roadway Width =	3								
Weir Coefficient =	2.6								
Weir Embankment Coordinates num =	17								
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
117	97.1	139	97.1	139	96	150	95.9	150	96.4
153	96.6	153	95.9	163.7	95.9	163.7	96.5	174	96.6
174	97.5	202	97.9	241	97.9	293	100.4	403	101.9
453	103.4	461	103.9						

Upstream Embankment side slope = 0 horiz. to 1.0 vertical  
 Downstream Embankment side slope = 0 horiz. to 1.0 vertical  
 Maximum allowable submergence for weir flow = .98  
 Elevation at which weir flow begins =  
 Weir crest shape = Broad Crested

CROSS SECTION

RIVER: Goodwies River  
 REACH: mainstem RS: 13683

INPUT  
 Description: UPDATED - 54.2 D/S Face of Dam #11

EXISTING - Updated All elevations with town topography - very shallow water here. ROB - increased n-value at home area from .05 to .1

DUP - decreased

Goodwiv esDari enEX. rep

downstream di stance by 10 feet to move face cross section 10 feet  
away from bridge

Station Elevation Data		num= 142		Station Elevation Data		num= 142		Station Elevation Data		num= 142	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	112.68	6.09	112.44	13.73	112.11	14.71	112.07	17.92	112.07	17.92	112.07
44.04	111.14	44.6	111	45.89	110.64	45.93	110.63	45.98	110.63	45.98	110.63
48.82	110	49.15	109.97	57.86	109	66.45	108.16	67.81	108.16	67.81	108.16
74.89	107.24	75.76	107.16	76.58	107.05	77.01	107	80.05	107	80.05	107
81.94	106	84.09	105.39	84.28	105.34	85.85	105	91.4	105	91.4	105
93.92	104.1	94.48	104	97.57	103.17	97.9	103.09	98.06	103.09	98.06	103.09
98.26	103	101.06	102.12	101.48	102	101.91	101.86	104.54	101.86	104.54	101.86
105.16	100.76	107.31	100	109.08	99.44	110.48	99	112.25	99	112.25	99
113.17	98.16	113.64	98	116.56	97.7	123.17	97	130.17	97	130.17	97
130.98	96	132.17	95.85	138.96	95	145.18	94.79	146.03	94.79	146.03	94.79
146.3	94	146.61	93.07	146.63	93.03	146.64	93	155.3	93	155.3	93
163.53	92.23	166.36	92	176.26	92.01	176.67	92.05	176.72	92.05	176.72	92.05
176.84	92.09	177.6	92.25	178.78	93	178.97	93.24	179.52	93.24	179.52	93.24
179.96	94.69	180.15	95	180.4	95.41	180.83	96	181.02	96	181.02	96
181.38	96.69	181.62	97	182.02	97.52	182.14	97.43	182.93	97.43	182.93	97.43
184.88	96.58	186.55	96.65	189.11	96.56	196.19	96.76	197.63	96.76	197.63	96.76
200.14	97	206.78	97.35	208.28	97.36	208.51	97.4	214.82	97.4	214.82	97.4
233.58	97.46	241.77	97.7	242.22	97.73	246.15	97.93	247.2	97.93	247.2	97.93
255.02	98.25	262.64	98.45	269.54	98.65	269.91	98.66	275.64	98.66	275.64	98.66
277.88	98.91	279.69	99	287.13	99.72	291.32	100	294.95	100	294.95	100
296.84	100.17	325.25	101	334.42	101.11	345.31	101.33	362.88	101.33	362.88	101.33
365.92	101.63	371.1	101.75	374.09	101.76	388.3	102	408.96	102	408.96	102
412.18	102.17	414.91	102.18	419.92	102.27	424.26	102.33	427.3	102.33	427.3	102.33
435.65	102.87	436.7	102.9	437.15	102.91	439.63	103	444.14	103	444.14	103
445.12	103.22	450.64	103.45	451.43	103.48	458.78	104	459.75	104	459.75	104
474.51	105	490.85	105.14	493.12	105.22	501.61	106	509.17	106	509.17	106
512.24	106.96	512.71	107	524.13	107.16	526.77	107.22	527.54	107.22	527.54	107.22
528.51	107.29	529.45	107.33	533.65	107.54	534.57	107.58	538.71	107.58	538.71	107.58
558.04	109	561.2	109.14								

Manning's n Values		num= 5		Manning's n Values		num= 5		Manning's n Values		num= 5	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.04	146.03	.04	182.02	.05	334.42	.1	412.18	.1		

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	146.03	182.02		30.46	29.59	30.13		.3	.5

Blocked Obstructions			num= 1
Sta L	Sta R	Elev	
348.63	401.8	123.7	

CROSS SECTION

RIVER: Goodwiv es Ri ver  
REACH: mai nstem RS: 13653

INPUT  
Description: UPDATED - 54.1 FEMA AG - D/S Section of Dam #11

EXISTING - Updated Overbank Elevations. LOB and ROB - nvalues changed from .04 and .05 to .1 - very dense mature floodplain forest.

Station Elevation Data		num= 147		Station Elevation Data		num= 147		Station Elevation Data		num= 147	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	111.05	4.31	111.13	9.28	111	12.12	110.39	12.26	110.39	12.26	110.39
12.79	110.35	13.3	110.33	15.11	110.44	15.48	110.45	16.67	110.39	16.67	110.39
16.87	110.37	17.86	110.2	18.94	110	20.37	109.75	21.85	109.47	21.85	109.47
22.71	109.3	24.02	109	24.68	108.84	24.87	108.79	27.2	108.21	27.2	108.21
28.02	108	35.7	107.15	36.42	107	37.06	106.83	37.43	106.72	37.43	106.72

Goodwi vesDari enEX. rep

37.83	106.62	39.23	106.2	39.87	106	40.39	105.82	42.85	105
42.98	104.97	47.16	104	49.13	103.19	49.99	103	51.36	102.53
52.58	102.09	52.8	102	53.97	101.53	55.77	101	56.11	100.91
57.04	100.7	58.89	100.28	59.38	100.17	60.03	100	61.79	99.62
64.09	99	71.1	98.04	71.36	98	75.78	97.57	81.74	97
82.18	96.96	91.11	96	93.03	95.78	100.08	95	108.66	94.31
110.86	94.1	111.88	94	112.05	93.76	112.58	93	112.93	92.52
113.31	91.7	114.63	91.7	129.57	91.63	129.99	91.71	130.86	92
133.13	92.65	134.23	93	135.18	93.27	135.82	93.46	138.29	94
140.59	94.23	140.92	94.26	142.43	94.4	145.26	94.66	145.43	94.67
145.58	94.69	148.6	95	153.98	95.48	159.84	96	162.74	96.22
163.51	96.28	164.53	96.36	166.68	96.5	169.5	96.7	172.8	96.87
176.4	97	216.33	97.47	219.52	97.52	221.98	97.64	225.6	98
244.84	98.75	247.19	99	254.06	99.43	255.87	99.49	260.57	99.69
265.01	100	279.76	100.31	295.88	100.27	296.97	100.32	298.43	100.35
299.56	100.37	302.55	100.45	308.35	100.6	311.81	100.78	313.16	100.81
314.1	100.83	316.68	100.8	317.13	100.81	321.26	100.74	324.31	100.75
326.66	100.81	338.7	101	359.82	101.17	363.47	101.19	365.23	101.22
366.7	101.23	384.34	102	393.03	102.17	394.41	102.21	400.22	102.47
406.67	102.37	409.07	102.41	409.8	102.43	410.84	102.41	411.89	102.45
412.07	102.46	412.42	102.48	412.82	102.5	417.98	103	418.15	103.02
422.11	104	425.12	104.4	428.55	105	440.17	105.8	444.03	106
451.15	106.52	454.2	106.72	456.49	106.87	458.68	107	464.04	107.33
476.81	108	479.57	108.31	482.68	108.32	485.21	108.54	487.34	108.6
488.31	108.66	488.36	108.67						

Manning's n Values  
 Station Value Station Value  
 0 .1 110.86  
 .04 138.29 .1

Bank Station: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 110.86 138.29 285.33 302.38 283.89 .3 .5

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 13351

INPUT  
 Description: UPDATED - 53.0 FEMA AF - US section of Driveway

EXISTING - Updated Overbank Elevations. Channel n-value changed from .035 to .04 - bed substrate changes to boulders.

Station	Elevation	Data	num=	160	Station	Elevation	Station	Elevation	Station	Elevation
0	109	31.23	109.47	33.41	110	35.9	109.23	36.04	109	
36.65	108.01	40.43	107.2	41.4	107	43.9	106.26	44.76	106	
46.52	105.47	47.06	105.32	47.86	105.07	48	105.03	48.09	105	
48.34	104.92	51.15	104	52.27	103.63	54.16	103	55.39	102.59	
57.18	102	58.88	101.36	59.85	101	60.67	100.69	62.47	100	
64.22	99.34	65.09	99	65.56	98.81	67.65	98	69.35	97.34	
70.19	97	71.9	96.33	72.72	96	73.7	95.6	75.2	95	
77.78	94.18	78.37	94	80.22	93.34	81.14	93	81.86	92.57	
82.82	92	84.41	91.06	84.51	91	84.62	90.93	85.92	90.2	
86.3	90	86.85	89.69	87.7	89.22	88.19	89.23	90.67	89	
96.44	88.5	98.49	88.1	98.78	88	102.45	87.09	102.8	87	
104	84.8	108	84.7	112	84.8	116	84.6	119	84.8	
120.5	85.3	120.5	88.1	122.75	88.17	128.71	88.97	128.77	88.98	
128.99	89	138.67	89.53	141.25	89.72	145.1	90	146.94	90.38	
150.04	91	151.79	91.49	153.68	92	163.66	92.5	164.28	92.52	
166.86	92.58	167.28	92.6	176.44	93	177.85	93.35	180.86	93.84	

Goodwi vesDari enEX. rep

181.09	93.9	181.83	94	186.02	94.41	187.88	94.59	188.94	94.68
189.52	94.74	190.8	94.82	191.04	94.84	192.81	94.95	192.99	94.96
193.96	95	208.01	94.95	209.28	94.88	209.7	94.87	210.98	94.79
211.6	94.75	212.03	94.73	213.69	94.58	215.46	94.5	215.95	94.48
216.44	94.42	217.21	94.43	217.72	94.36	218.12	94.32	218.8	94.35
222.72	94.43	227.89	94.35	238.36	94	286.7	94.48	289.09	94.52
295.95	94.77	298.25	94.8	302.95	94.76	305.47	94.84	305.72	94.82
308.58	94.9	308.86	94.88	309.33	94.84	309.77	94.8	310.17	94.75
311.38	94.61	313.72	94.34	314.88	94.22	315.3	94.18	316.61	94
329.74	94.38	332.76	95	335.06	95.74	336.03	96	338.52	96.83
338.99	97	339.09	97.03	339.51	97.17	342.16	98	343.88	98.88
344.12	99	344.37	99.12	345.1	99.45	346.24	99.98	346.34	100
350.8	100.9	351.08	100.92	352.35	101	354.92	101.14	357.35	101.21
359.55	101.31	360.6	101.35	360.93	101.38	366.29	102	366.8	102.07
367.32	102.14	371.04	102.34	371.97	102	372.57	101.78	373.15	101.56
374.49	101	375.25	100.67	375.72	100.42	376.27	100.08	376.4	100

Manning's n Values num= 3  
 Station Values Station Values  
 0 .08 102.8 .04 120.5 .05

Bank Station: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 102.8 120.5 22.63 22.79 24.51 .3 .5

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 13328

INPUT  
 Description: UPDATED - 52.4 U/S face of Driveway -

EXISTING - Updated  
 Overbank Elevations and ineffective flow areas. ROBN-value changed from 0.05 to .035 in lawn and .015 at driveway.

REVDUP  
 - corrected Ineffective Flow Areas to use 1:1 contraction and expansion and min top of road elevation

DUP - deleted DS  
 section 52.3, identical to this cross section

Station	Elevation	Data	num=	149	Station	Elevation	Station	Elevation	Station	Elevation
0	109.35	9.48	109.87	11.33	110	15.9	109.7	16.47	109	
16.95	108.42	17.31	108	18.74	107.19	19.16	107	22.4	106.1	
22.77	106	24.15	105.65	26.39	105	28.81	104.31	29.89	104	
30.45	103.84	33.9	103	35.11	102.71	37.55	102.17	38.09	102.05	
38.29	102	38.99	101.77	41.27	101	42.31	100.6	43.1	100.28	
43.83	100	45.62	99.32	46.44	99	47.49	98.64	48.8	98.18	
49.4	98	52.42	97.19	53.1	97	53.23	96.96	53.4	96.92	
56.13	96.25	56.99	96.04	57.05	96.02	57.14	96	59.4	95.42	
60.75	95	61.79	94.26	62.18	94	62.88	93.64	63.49	93.37	
64.45	93	65.02	92.81	67.15	92	68.2	91.44	69.06	91	
70.94	90.05	71.05	90	71.17	89.96	73.35	89.35	74.58	89	
77.4	88.18	78.01	88	78.19	87.95	81.96	87	87	86.2	
89	83.9	92	83.5	94	83.9	97.5	84.4	100.62	87.68	
101	88	102.6	88.18	109.1	88.97	109.42	89	110.75	89.29	
114.23	90	116.02	90.2	118.58	90.56	119.59	90.66	120.2	90.71	
120.47	90.74	121.62	90.95	121.65	90.96	121.9	91	123.86	91.2	
124.43	91.28	126.69	91.55	129.01	91.81	129.07	91.82	130	91.95	
130.34	92	131.45	92.13	134.03	92.44	137.25	92.82	138.71	93	

Goodwi vesDari enEX. rep

140.33	93.19	144.76	93.71	147.16	94	159.51	94.62	164.05	94.89
165.7	95	166.57	95.04	197.97	95.3	207.38	95	232.08	94.02
232.25	94.01	232.37	94	232.87	93.95	243.76	93	245.79	93.01
246.17	93.03	253.95	93.36	259.88	93.65	273.53	93.98	273.98	93.99
274.46	94	295.11	93.91	298.48	93.59	300.22	93.43	300.52	93.4
300.77	93.37	302.12	93.25	304.32	93.02	304.45	93.01	310.37	93.2
310.96	93.29	313.29	93.61	316.12	94	319.95	94.98	320.02	95
320.3	95.08	323.57	96	324.04	96.13	326.92	97	328.44	97.51
329.94	98	331.76	98.62	332.89	99	334.95	99.7	335.72	99.97
335.8	99.99	335.81	100	335.84	100.01	338.1	101	340.89	101.89
341.22	102	341.53	102.07	345.12	103	347.81	103.62	349.37	104
350.88	104.32	353.8	105	354.47	105.07	358	105.39		

Manning's n	Values	num=	5						
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.08	87	.035	102.6	.035	147.16	.015	207.38	.035

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	87	102.6		40.34	33.12		.3	.5
Ineffective Flow	num=	2	Permanent					
Sta L	Sta R	Elev	F					
0	75.5	90.8	F					
108.5	358	90.8	F					

BRIDGE

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 13322

INPUT  
 Descripti on: UPDATED - 52.25 Dri veway -

EXISTING - Updated road deck  
 elevations to tie into side slopes. Increased deck width to 11 feet based on fi eld measurement.

DUP - deleted bridge edge  
 sections 52.2 and 52.3, i dential to sections 52.1 and 52.4

Distance from Upstream XS = 11  
 Deck/Roadway Width = 11  
 Wei r Coeffi ci ent = 2.6

Upstream Deck/Roadway Coordinates	num=	6												
Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
62.18	94	0	85.5	90.8	0	86.5	90.8	89.1						
97.5	90.8	89.1	97.5	90.8	0	147.16	94	0						

Upstream Bridge Cross Section Data

Station Elevati on Data	num=	149							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	109.35	9.48	109.87	11.33	110	15.9	109.7	16.47	109
16.95	108.42	17.31	108	18.74	107.19	19.16	107	22.4	106.1
22.77	106	24.15	105.65	26.39	105	28.81	104.31	29.89	104
30.45	103.84	33.9	103	35.11	102.71	37.55	102.17	38.09	102.05
38.29	102	38.99	101.77	41.27	101	42.31	100.6	43.1	100.28
43.83	100	45.62	99.32	46.44	99	47.49	98.64	48.8	98.18
49.4	98	52.42	97.19	53.1	97	53.23	96.96	53.4	96.92
56.13	96.25	56.99	96.04	57.05	96.02	57.14	96	59.4	95.42
60.75	95	61.79	94.26	62.18	94	62.88	93.64	63.49	93.37
64.45	93	65.02	92.81	67.15	92	68.2	91.44	69.06	91
70.94	90.05	71.05	90	71.17	89.96	73.35	89.35	74.58	89
77.4	88.18	78.01	88	78.19	87.95	81.96	87	87	86.2

Goodwi vesDari enEX. rep

89	83.9	92	83.5	94	83.9	97.5	84.4	100.62	87.68
101	88	102.6	88.18	109.1	88.97	109.42	89	110.75	89.29
114.23	90	116.02	90.2	118.58	90.56	119.59	90.66	120.2	90.71
120.47	90.74	121.62	90.95	121.65	90.96	121.9	91	123.86	91.2
124.43	91.28	126.69	91.55	129.01	91.81	129.07	91.82	130	91.95
130.34	92	131.45	92.13	134.03	92.44	137.25	92.82	138.71	93
140.33	93.19	144.76	93.71	147.16	94	159.51	94.62	164.05	94.89
165.7	95	166.57	95.04	197.97	95.3	207.38	95	232.08	94.02
232.25	94.01	232.37	94	232.87	93.95	243.76	93	245.79	93.01
246.17	93.03	253.95	93.36	259.88	93.65	273.53	93.98	273.98	93.99
274.46	94	295.11	93.91	298.48	93.59	300.22	93.43	300.52	93.4
300.77	93.37	302.12	93.25	304.32	93.02	304.45	93.01	310.37	93.2
310.96	93.29	313.29	93.61	316.12	94	319.95	94.98	320.02	95
320.3	95.08	323.57	96	324.04	96.13	326.92	97	328.44	97.51
329.94	98	331.76	98.62	332.89	99	334.95	99.7	335.72	99.97
335.8	99.99	335.81	100	335.84	100.01	338.1	101	340.89	101.89
341.22	102	341.53	102.07	345.12	103	347.81	103.62	349.37	104
350.88	104.32	353.8	105	354.47	105.07	358	105.39		

Manning's n Values	num=	5							
Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val
0 .08	87	.035	102.6	.035	147.16	.015	207.38	.035	

Bank Sta: Left	Right	Coeff	Contr.	Expan.
87	102.6	.3	.5	

Ineffective Flow	num=	2		
Sta L	Sta R	Elev	Permanent	
0	75.5	90.8	F	
108.5	358	90.8	F	

Downstream Deck/Roadway Coordinates

num=	6								
Sta Hi	Cord Lo	Cord	Sta Hi	Cord Lo	Cord	Sta Hi	Cord Lo	Cord	Sta Hi
55.67	94	0	128.5	90.8	0	129.5	90.8	89.1	
140.5	90.8	89.1	140.5	90.8	0	180.44	94	0	

Downstream Bridge Cross Section Data

Station	Elevation	Data	num=	180						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
0	106.89	.57	106.85	.85	106.8	.98	106.78	1.78	106.62	
2.35	106.5	4.29	106.27	4.62	106	5.38	105.54	6.25	105	
6.58	104.79	7.2	104.41	7.8	104	8.64	103.44	9.29	103	
9.55	102.83	10.81	102	11.69	101.38	12.26	101	12.93	100.55	
13.62	100.03	13.66	100.02	13.78	100	15.55	99.94	17.23	99.89	
18.72	99.84	21.15	99	21.35	98.97	21.69	98.94	24.14	98.85	
26.17	98.77	27.82	98.56	29.31	98.44	29.8	98.31	30.82	98	
31.61	97.89	32.44	97.8	33.45	97.64	35.74	97.48	38.08	97	
39.12	96.86	43.05	96.34	44.29	96.18	44.82	96.14	45.12	96.11	
45.57	96	47.63	95.67	50.59	95.01	50.66	95	54.76	94.25	
55.35	94.22	55.67	94	59.43	93.55	60.29	93.48	61.56	93.45	
64.45	93.01	64.53	93	68.94	92.78	69.8	92.72	72.59	92.64	
75.43	92.45	78.61	92.39	80.99	92.17	81.59	92.16	82.37	92	
86.44	91.63	87.06	91.59	89.49	91.25	90.53	91.2	91.41	91	
91.87	90.33	92.33	90	92.95	89.87	97.28	89.63	97.71	89.55	
98.43	89.48	100.44	89.37	104.38	89.13	104.95	89.07	105.89	89	
109.1	88.75	109.21	88.74	109.31	88.73	110.24	88.7	113.87	88.51	
116.97	88.38	117.86	88.33	118.03	88.3	119.96	88	122.32	87.45	
124.03	87	124.22	86.96	125.15	86.77	125.71	86.61	127.32	86	
129.19	85.19	129.7	85	132	83.9	135	83.5	137	83.9	
140.5	84.4	141.56	85.37	141.93	85.53	142.84	86	143.97	86.58	
144.81	87	148.49	87.21	150.94	87.64	151.11	87.66	151.71	87.74	
151.87	87.76	152.66	88	154.8	88.63	155.9	89	157.07	89.4	
158.77	90	160.95	90.71	162.02	91	165.14	91.34	170.44	92	

Goodwi vesDari enEX. rep

173.71	92.43	176.54	93	178.78	93.59	180.44	94	182.78	94.75
183.65	95	186.32	95.89	186.83	96	189.52	96.42	193.09	97
206.06	97.13	208.66	97	237.61	96.77	237.85	96.79	240.85	96.81
245.03	96.84	248.84	96.78	251.83	96.8	252.04	96.79	254.57	96.42
257.32	96	259.86	95.56	263.14	95	268.28	94.12	269	94
271.12	93.77	275.71	93.29	276.34	93.22	278.05	93.04	278.67	93
350.2	93.51	352.69	94	355.14	94.9	355.43	95	355.62	95.1
357.53	96	359.81	96.66	361.06	97	364.28	97.92	364.56	98
366.84	98.48	367.11	98.52	369.26	98.75	370.08	98.86	370.43	98.92
371.03	99	374.59	99.94	374.78	100	375.91	100.4	377.51	101
378.17	101.27	379.89	102	383.01	102.93	383.25	103	383.39	103.04
386.88	104	392.45	104.9	393.06	105	393.47	105.07	398.66	105.86

Manning's n	Values	num=	5
Sta	n Val	Sta	n Val
0	.08	124.22	.035
		144.81	.035
		193.09	.1
		263.14	.035

Bank Sta: Left Right Coeff Contr. Expan.  
 124.22 144.81 .3 .5

Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 118.38 89.95 F  
 151.62 398.66 89.95 F

Blocked Obstructions num= 1  
 Sta L Sta R Elev  
 203.04 260.67 117.63

Upstream Embankment side slope = 0 hori z. to 1.0 verti cal  
 Downstream Embankment side slope = 0 hori z. to 1.0 verti cal  
 Maximum allowable submergence for weir flow = .98  
 Elevation at which weir flow begins = 90.8  
 Energy head used in spillway design =  
 Spillway height used in design =  
 Weir crest shape = Broad Crested

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy  
 Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Pressure and Weir flow  
 Submerged Inlet Cd =  
 Submerged Inlet + Outlet Cd = .8  
 Max Low Cord = 89.1

Additional Bridge Parameters

Add Friction component to Momentum  
 Do not add Weight component to Momentum  
 Class B flow critical depth computations use critical depth  
 inside the bridge at the upstream end  
 Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 13295

INPUT

Descripti on: UPDATED - 52.1 D/S face of Dri veway -

Goodwiv esDari enEX. rep

EXISTING - Updated

Overbank Elevations and ineffective flow areas. ROBN-value changed from 0.05 to .035 in lawn and .1 at home.

REVDUP -

corrected Ineffective Flow Areas to use 1:1 contraction and expansion and min top of road elevation

DUP - Deleted US

section 52.2, identical to this cross section

Station Elevation Data num= 180									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	106.89	.57	106.85	.85	106.8	.98	106.78	1.78	106.62
2.35	106.5	4.29	106.27	4.62	106	5.38	105.54	6.25	105
6.58	104.79	7.2	104.41	7.8	104	8.64	103.44	9.29	103
9.55	102.83	10.81	102	11.69	101.38	12.26	101	12.93	100.55
13.62	100.03	13.66	100.02	13.78	100	15.55	99.94	17.23	99.89
18.72	99.84	21.15	99	21.35	98.97	21.69	98.94	24.14	98.85
26.17	98.77	27.82	98.56	29.31	98.44	29.8	98.31	30.82	98
31.61	97.89	32.44	97.8	33.45	97.64	35.74	97.48	38.08	97
39.12	96.86	43.05	96.34	44.29	96.18	44.82	96.14	45.12	96.11
45.57	96	47.63	95.67	50.59	95.01	50.66	95	54.76	94.25
55.35	94.22	55.67	94	59.43	93.55	60.29	93.48	61.56	93.45
64.45	93.01	64.53	93	68.94	92.78	69.8	92.72	72.59	92.64
75.43	92.45	78.61	92.39	80.99	92.17	81.59	92.16	82.37	92
86.44	91.63	87.06	91.59	89.49	91.25	90.53	91.2	91.41	91
91.87	90.33	92.33	90	92.95	89.87	97.28	89.63	97.71	89.55
98.43	89.48	100.44	89.37	104.38	89.13	104.95	89.07	105.89	89
109.1	88.75	109.21	88.74	109.31	88.73	110.24	88.7	113.87	88.51
116.97	88.38	117.86	88.33	118.03	88.3	119.96	88	122.32	87.45
124.03	87	124.22	86.96	125.15	86.77	125.71	86.61	127.32	86
129.19	85.19	129.7	85	132	83.9	135	83.5	137	83.9
140.5	84.4	141.56	85.37	141.93	85.53	142.84	86	143.97	86.58
144.81	87	148.49	87.21	150.94	87.64	151.11	87.66	151.71	87.74
151.87	87.76	152.66	88	154.8	88.63	155.9	89	157.07	89.4
158.77	90	160.95	90.71	162.02	91	165.14	91.34	170.44	92
173.71	92.43	176.54	93	178.78	93.59	180.44	94	182.78	94.75
183.65	95	186.32	95.89	186.83	96	189.52	96.42	193.09	97
206.06	97.13	208.66	97	237.61	96.77	237.85	96.79	240.85	96.81
245.03	96.84	248.84	96.78	251.83	96.8	252.04	96.79	254.57	96.42
257.32	96	259.86	95.56	263.14	95	268.28	94.12	269	94
271.12	93.77	275.71	93.29	276.34	93.22	278.05	93.04	278.67	93
350.2	93.51	352.69	94	355.14	94.9	355.43	95	355.62	95.1
357.53	96	359.81	96.66	361.06	97	364.28	97.92	364.56	98
366.84	98.48	367.11	98.52	369.26	98.75	370.08	98.86	370.43	98.92
371.03	99	374.59	99.94	374.78	100	375.91	100.4	377.51	101
378.17	101.27	379.89	102	383.01	102.93	383.25	103	383.39	103.04
386.88	104	392.45	104.9	393.06	105	393.47	105.07	398.66	105.86

Manning's n Values num= 5									
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.08	124.22	.035	144.81	.035	193.09	.1	263.14	.035

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	124.22	144.81		36.38	34.82	28.6		.3	.5

Ineffective Flow num= 2			
Sta L	Sta R	Elev	Permanent
0	118.38	89.95	F
151.62	398.66	89.95	F

Blocked Obstructions num= 1			
Sta L	Sta R	Elev	
203.04	260.67	117.63	



Goodwiv esDari enEX. rep

CROSS SECTI ON

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem

RS: 13260

INPUT

Descripti on: UPDATED - 51.0 FEMA AE - DS secti on of Dri veway

EXI STING -

Updated Overbank Elevati ons. Widened channel to reflect walls around pond, using FEMA bed elevati ons. ROB n-value changed from 0.05 to .035 in lawn and .1 at home.

Station		Elevation Data		num= 175		Station		Elevation	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	107.44	6.08	107.03	7.18	107	9.14	106.81	9.35	106.78
10.01	106.69	12.3	106.38	14.52	106.13	15.1	106	16.65	105.06
16.74	105	16.8	104.96	18.35	104	19.18	103.48	19.95	103
20.66	102.56	21.56	102	22.01	101.72	23.17	101	25.38	100.05
25.51	100	25.6	99.96	26.08	99.77	27.74	99.11	28.07	99
29.65	98.39	30.54	98.08	30.64	98.04	30.81	98	32.75	97.59
34.45	97.4	34.59	97.37	35.41	97.26	37.04	97	38.88	96.86
39	96.85	40.04	96.74	43.54	96.46	43.69	96.44	47.4	96
47.98	95.87	48.56	95.74	49.05	95.63	50.82	95.24	51.01	95.19
51.86	95	53.25	94.69	56.32	94	56.59	93.94	57.79	93.68
59.94	93.2	60.79	93.02	60.84	93.01	60.87	93	65.26	92.57
65.75	92.53	70.29	92.04	70.49	92.02	70.68	92	75.3	91.46
76.57	91.33	78.05	91.2	78.91	91.13	79.11	91.11	80.97	91
88.77	90.78	92.95	90.59	93.83	90.52	94.04	90.5	99.68	90
102.37	89	105.33	88	106.79	87.53	108.31	87	109.74	86.58
111.92	86	113.63	85.52	114.37	85.33	114.6	85.27	115.73	85
115.73	83.9	128	83	140.13	83.9	140.13	85.36	141.32	85.73
142.1	86	143.6	86.56	144.71	87	152.72	87.54	155.28	87.99
155.31	88	155.34	88.01	158.97	89	159.37	89.15	161.56	90
164.18	90.49	166.51	91	168.78	91.53	170.99	92	175.93	92.98
176.04	93	176.1	93.03	177.82	94	178.11	94.16	179.64	95
180.1	95.25	181.5	96	183.71	96.54	185.68	97	189.76	97.55
193.43	98	210.54	97.44	214.22	97.08	214.81	97.04	215.4	97
234.25	96.32	234.46	96.29	236.65	96	252.99	95.16	255.62	95
260.69	94.2	262.04	94	270.67	93.09	271.61	93	274.78	92.79
286.19	92	294.09	92.27	294.39	92.28	294.52	92.29	294.87	92.3
296.32	92.35	296.65	92.36	297.26	92.38	300.37	92.5	309.93	93
317.22	93.23	321.66	93.51	323.61	93.68	326.94	94	328.88	94.26
332.14	94.65	333.13	94.79	334.44	94.93	335.03	95	340	95.41
344.53	95.79	347.25	96	348.51	96.06	348.82	96.07	357.07	96.44
362.5	96.71	368.32	97	369.21	97.2	371.06	97.61	372.06	97.83
372.83	98	374.18	98.36	376.67	99	377.49	99.22	378.39	99.43
378.76	99.52	380.83	100	381.3	100.11	383.59	100.6	385.09	100.94
385.38	101	385.77	101.09	389.71	102	391.3	102.35	393.98	102.92
394.17	102.96	394.36	103	397.19	103.53	399.74	104	400.6	104.19

Manning's n Values		num= 5		Station		n Value		Station	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.08	114.37	.035	140.13	.035	189.76	.1	252.99	.035

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	114.37	140.13		56.11	60.5	60.42		.3	.5
Blocked Obstructions	num= 1								
Sta L	Sta R	Elev							
196.19	242.71	117.63							

CROSS SECTI ON

Goodwi vesDari enEX. rep

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem

RS: 13199

INPUT

Description: NEW SURVEY - Upstream of Dam #10

EXISTING - added section to  
 model based on new survey in channel and overbank from town topo.  
 Added levee on right to keep main channel flow out of low area to  
 right.

Station		Elevation		Data		num= 158					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	108.95	1.4	109	5.55	108.6	5.64	108	5.65	107.95		
5.68	107.75	5.78	107	5.91	106.14	5.93	106	5.97	105.99		
9.59	105	10.36	104.91	11.67	104.87	22.45	104.84	23.26	104.65		
23.5	104.59	23.97	104.5	25.4	104	27.61	103.23	28.29	103		
28.68	102.86	31.16	102	31.18	101.99	33.88	101	35.01	100.51		
36.18	100	38.2	99.24	38.85	99	39.73	98.66	41	98.18		
41.54	98	43.29	97.3	44.04	97	44.44	96.87	47.01	96		
49.37	95.21	49.92	95	50.57	94.89	56.53	94	59.58	93.67		
66.34	93	68.16	92.79	75.18	92	79.14	91.55	84.21	91		
88.78	90.53	93.9	90	94.47	89.95	100.31	89.51	107.09	89.05		
107.35	89.03	107.75	89	111.19	88.73	120.71	88	153.4	87.93		
153.4	84.43	159.1	84.41	163.2	84.21	167.1	84.39	173.2	84.52		
173.2	88.01	190.01	88.48	191.26	88.87	191.52	88.94	191.7	89		
194.36	89.73	194.86	89.87	195.03	89.92	195.32	90	196.87	90.51		
198.34	91	200.7	91.74	201.8	92	203.3	92.23	203.44	92.25		
203.59	92.27	205.6	92.55	206.77	92.69	207	92.71	207.18	92.73		
207.89	92.82	209.41	93	213.18	93.48	214.01	93.59	214.75	93.68		
217.35	94	218.49	94.08	220.51	94.19	221.04	94.22	221.37	94.24		
221.74	94.26	223.61	94.38	225.09	94.41	227.93	94.4	229.17	94.39		
231.02	94.3	233.82	94.27	234.97	94.25	235.97	94.21	240.06	94.07		
240.82	94.06	241.91	94	245.92	93.7	246.19	93.67	247.02	93.56		
247.58	93.51	248.08	93.46	249.11	93.32	250.1	93.22	251.46	93		
252.6	92.71	252.63	92.7	252.79	92.66	253.72	92.42	255.86	92		
256.8	91.91	257.42	91.85	259.23	91.68	259.97	91.63	260.29	91.6		
261.82	91.48	262.95	91.39	264.01	91.28	264.54	91.23	266.34	91.01		
266.39	91	267.91	90.74	272.03	90	273.15	89.75	276.46	89		
276.57	88.99	279.03	89	285.94	89.02	286.82	89.07	301.22	90		
308.44	90.79	309.15	90.86	310.42	91	310.76	91.14	313.89	92		
319.64	92.91	320.23	93	320.45	93.04	321.42	93.24	322.83	93.51		
323.46	93.63	323.81	93.7	325.15	94	325.8	94.16	329.05	95		
332.78	95.83	333.55	96	334.78	96.29	337.96	97	341.25	97.48		
344.68	98	368.53	98.01	380.79	99						

Manning's n Values		num= 6							
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.1	100.31	.04	120.71	.07	153.4	.035	173.2	.035
334.78	.1								

Bank	Sta: Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	153.4	173.2		49.92	67.17		.3	.5
Right Levee		Station=	225.09	Elevation=	94.41			
Blocked Obstructions			num= 2					
	Sta L	Sta R	Elev	Sta L	Sta R	Elev		
	60.6	95.13	105.23	338.46	369.74	118.03		

INLINE STRUCTURE

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem

RS: 13182

Goodwiv esDari enEX. rep

INPUT

Description: NEW SURVEY - DAM #10

EXISTING - Added dam using survey of dam top.

Distance from Upstream XS = 17  
 Deck/Roadway Width = 6  
 Weir Coefficient = 2.6

Weir Embankment Coordinates num = 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
153.4	86.92	157.8	86.82	161.3	86.75	161.3	86.15	169.2	86.14
169.2	86.77	170.5	86.83	170.5	86.78	203.4	86.78		

Upstream Embankment side slope = 0 hori z. to 1.0 vertical  
 Downstream Embankment side slope = 0 hori z. to 1.0 vertical  
 Maximum allowable submergence for weir flow = .98  
 Elevati on at whi ch weir flow be gins =  
 Weir crest shape = Broad Crested

CROSS SECTION

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem RS: 13132

INPUT

Description: NEW SURVEY - Constricti on Downstream of Dam #10

EXISTING -

added section to model based on new survey in channel and overbank from town topo.

Station	Elevation	Data	num=	137	Sta	Elev	Sta	Elev	Sta	Elev
0	108	2.18	108.17	2.36	108.25	4.22	109	5.45	108.47	
5.6	108	5.72	107.66	5.96	107	6.22	106.28	6.28	106.12	
6.32	106	6.35	105.91	6.6	105	8.16	104.63	8.47	104.56	
10.47	104	12.01	103.36	12.94	103	13.39	102.83	15.9	102	
17.88	101.5	18.72	101.39	21.93	101	22.3	100.92	22.53	100.87	
22.89	100.78	26.38	100	27.66	99.72	28.1	99.63	30.65	99.6	
34.01	99.44	34.09	99.43	35.12	99.44	38.21	99	40.73	98.37	
41.56	98	42.85	97.45	43.86	97	44.43	96.82	44.82	96.7	
46.7	96.12	47.14	96	51.37	95.61	56.65	95	66.33	94.37	
67.79	94	69.88	93.28	70.79	93	71.71	92.72	75.08	92	
75.49	91.94	79.82	91.31	83.35	91	86	90.67	87.35	90.45	
92.06	90	97.08	89.7	99.58	89.66	99.63	89.65	108.25	89	
111.31	88.86	114.38	88.66	121.53	88	124.82	87.73	129.06	87.42	
132.4	87.19	134.13	87	136.64	86.88	141.46	86.62	151.35	86	
196.6	85.26	197.4	82.42	199.5	82.12	201.7	82.06	202.8	81.97	
204.5	82.11	204.5	85.92	256.02	86	268.54	86.74	269.54	86.79	
270.36	86.82	272.68	87	275.56	87.56	277.4	88	293.11	87.24	
295.47	87.09	297.77	87	310.86	87.34	311.3	87.36	321.67	88	
323.45	88.1	324.52	88.3	324.93	88.34	325.82	88.5	328.03	89	
331	89.11	331.13	89.14	331.22	89.15	331.57	89.24	332.02	89.31	
334.05	90	335.53	90.17	338.41	91	340.54	91.45	342.44	92	
343.51	92.32	345.63	93	348.93	93.74	349.92	94	351.07	94.2	
355.6	95	357.48	95.28	362.01	96	362.21	96.04	367.52	97	
369.41	97.4	372.16	98	375.15	98.67	376.61	99	377.38	99.19	
377.61	99.25	377.94	99.32	379.95	99.77	381.18	100	384.59	100.71	
385.95	100.99	386.01	101	391.18	101.86	392.15	102	396.76	102.44	
399.78	103	407.23	103.73	407.59	103.76	408.38	103.81	409.42	104	
411.99	104.33	412.96	104.47							

Goodwi vesDari enEX. rep

Manning's n Values		num= 6	
Sta	n Val	Sta	n Val
0	.1	114.38	.04
321.67	.07	151.35	.07
		196.6	.035
		204.5	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	196.6	204.5		117.85	115.47		.3	.5
Blocked Obstructions	num= 1							
Sta L	Sta R	Elev						
72.92	110	105.23						

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 13017

INPUT

Description: UPDATED - 49.1 FEMA AD - US section of Granaston Lane

EXISTING

- Updated using town topo. Increased ROB n-value from .05 to .07
- sparse trees.

Station Elevation Data		num= 146	
Sta	Elev	Sta	Elev
0	106.63	.14	106.67
3.23	105.44	3.64	105
7.83	103.1	7.96	103.06
12.28	102.17	13.3	102
19.71	101.4	21.9	101.28
26.37	100.85	27.76	100.74
30.71	100.46	34.78	100.12
37.03	99.87	38.93	99.59
42.15	99.32	45.09	99
48.08	98.58	52.04	98
56.45	97.35	58.76	97
59.86	96.86	65.61	96.2
66.32	96.11	67.33	96
75.8	95.02	75.8	95
77.27	94.85		
85.76	94	86.55	93.94
91.17	93.55	97.12	93.05
98.2	93		
104.12	92.58	106.31	92.27
106.76	92.22	108.17	92
113.15	91.54		
114.33	91.37	115.14	91.29
115.69	91.21	116.26	91.15
117.36	91		
124.45	90.22	125.86	90
134.21	89.29	137.98	89
142.08	88.81		
151	88.37	152.69	88.3
156.93	88.14	158.67	88.09
161.33	88		
166.63	87.54	169.89	87
173.13	86.37	174.7	86
177.08	85.36		
178.3	85	183.42	84.21
184.68	84	188.18	83.03
188.3	83		
197.59	83.02	199.55	83.05
201.63	83	220.16	82.26
220.95	82.19		
223.04	82	230.98	82.07
234.87	82.28	248.08	82.03
249.95	82		
250.66	81.95	251.2	81.85
255.66	81	263.41	81.04
264.77	82		
264.93	82.11	265.14	82.25
266.22	83	266.41	83.09
266.6	83.18		
268.31	84	269.48	84.41
271.1	85	272.53	85.72
273.03	86		
273.12	86.13	273.61	87
274.45	87.21	277.45	88
278.78	88.25		
279.63	88.42	282.5	89
287.48	89.92	287.69	89.96
287.91	90		
288.33	90.06	292.05	90.55
293.57	90.76	298.32	91
314.61	91.61		
319.88	92	327.33	92.89
328.31	93	331.99	93.52
335.45	94		
336.18	94.09	336.82	94.17
341.19	94.75	342.78	95
347.22	95.42		
353.12	96	359.33	96.61
363.41	97	365.98	97.27
369.4	97.63		
373.18	98	377.97	98.56
382.67	99	388.42	99.36
397.11	100		
398.02	100.06	398.33	100.08
410.59	101	412.31	101.14
422.84	101.96		
423.3	101.99	423.41	102
423.54	102.01	434.89	103
435.54	103.08		
435.91	103.12		

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
0	.04	248.08	.04
		266.6	.07

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	248.08	266.6		34.99	41.82		.3	.5
				42.25				

Goodwi vesDari enEX. rep

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 12975

INPUT

Descripti on: SURVEYED - 49.0 U/S Face of Granaston Lane -

EXISTING -

Surveyed channel, updated overbank with town topo. Updated Ineffective Flow Areas. Increased ROB n-value from .05 to .07 - sparse trees.

REVDUP -

corrected Ineffective Flow Areas to use 1:1 contraction and expansion and min top of road elevation

DUP - deleted DS cross section- inserted in internal section of bridge

Station Elevation Data		num= 125		Station Elevation Data		num= 125		Station Elevation Data		num= 125	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	106.31	.31	106	1.04	105.15	1.17	105	1.55	104.58		
2.07	104	2.24	103.94	5.07	103	6.14	102.72	6.76	102.53		
8.54	102	13.45	101.48	18.01	101	19.51	100.84	27.53	100		
29.95	99.73	30.52	99.67	30.69	99.65	36.7	99	37.23	98.91		
45.6	98	48.62	97.63	52.61	97.23	52.83	97.22	54.38	97		
57.47	96.66	62.23	96	65.49	95.61	71.04	95	73.63	94.75		
76.52	94.46	81.09	94	90.03	93.13	91.42	93	96.74	92.44		
101.4	92	111.17	91.11	111.98	91	127.58	90.55	133.48	90.28		
136.3	90.24	139.26	90	152.55	89.87	153.77	89.83	153.81	89.82		
158.05	89.69	161.32	89.78	163.58	89.42	164.67	89.21	165.7	89		
167.82	88.53	170.27	88	171.71	87.47	172.9	87	173.66	86.71		
174.19	86.5	175.54	86	175.8	85.94	179.85	85	181.71	84.78		
182.51	84.68	187.89	84.08	188.32	84.03	188.42	84.02	188.65	84		
191.59	83.83	193.61	83.74	195.72	83.63	196.72	83.58	236.7	83.48		
241	81.84	245.1	81.51	248.6	81.78	250.9	82.15	259.9	86.7		
266.66	88	269.42	88.53	271.72	89	277.99	89.55	280.14	89.72		
282.01	89.9	283.09	90	284.46	90.06	303.12	90.88	305.97	91		
306.33	91.05	312.32	92	313.66	92.04	313.76	92.05	318.94	93		
321.62	93.05	328.02	94	329.94	94.12	330.18	94.18	334.98	95		
339.08	95.31	344.35	96	349.24	96.58	352.51	97	356.23	97.47		
357.27	97.59	357.64	97.64	360.85	98	368.56	98.86	369.06	98.92		
369.67	98.98	370.01	99	380.89	99.93	381.45	99.98	381.47	99.99		
381.87	100	393.3	100.97	393.44	100.99	393.63	101	407.01	101.7		
409.04	101.86	409.23	101.88	411.29	102	416.68	102.34	420.04	102.61		
424.65	102.77	424.7	102.78	430.68	102.95	431.31	103	431.54	103.03		

Manning's n Values		num= 3	
Sta	n Val	Sta	n Val
0	.04	236.7	.04
		259.9	.07

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	236.7	259.9		58.91	62.38	.3	.5
Ineffective Flow		num= 2					
Sta L	Sta R	Elev	Permanent				
0	216	90.58	F				
272	431.54	90.15	F				

CULVERT

Goodwiv esDari enEX. rep

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem

RS: 12958

INPUT

Description: SURVEYED - 48.15 Granaston Lane -

EXISTING - Surveyed culvert  
 inverts, deck. Measured bridge width in field. Extended bridge  
 deck with town topo.

DUP - internal bridge sections used to  
 insert geometry of RS 48.2 and 48.1

Distance from Upstream XS = 22  
 Deck/Roadway Width = 33  
 Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates  
 num= 17

Sta	Hi	Cord	Lo Cord	Sta	Hi	Cord	Lo Cord	Sta	Hi	Cord	Lo Cord
8.54		102		50		100		116		94	
141.6		92		171.4		91		221.9		90.58	
226.1	90.58			226.1	94.3			229.85	94.3		
229.85	90.98			256.45	90.99			256.45	94.27		
260.2	94.25			260.2	91.01			267.9	90.15		
316	91			338	93						

Upstream Bridge Cross Section Data

Station		Elevation Data		Station		Elevation Data		Station		Elevation Data	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	106.31	.31	106	1.04	105.15	1.17	105	1.55	104.58		
2.07	104	2.24	103.94	5.07	103	6.14	102.72	6.76	102.53		
8.54	102	13.45	101.48	18.01	101	19.51	100.84	27.53	100		
29.95	99.73	30.52	99.67	30.69	99.65	36.7	99	37.23	98.91		
45.6	98	48.62	97.63	52.61	97.23	52.83	97.22	54.38	97		
57.47	96.66	62.23	96	65.49	95.61	71.04	95	73.63	94.75		
76.52	94.46	81.09	94	90.03	93.13	91.42	93	96.74	92.44		
101.4	92	111.17	91.11	111.98	91	127.58	90.55	133.48	90.28		
136.3	90.24	139.26	90	152.55	89.87	153.77	89.83	153.81	89.82		
158.05	89.69	161.32	89.78	163.58	89.42	164.67	89.21	165.7	89		
167.82	88.53	170.27	88	171.71	87.47	172.9	87	173.66	86.71		
174.19	86.5	175.54	86	175.8	85.94	179.85	85	181.71	84.78		
182.51	84.68	187.89	84.08	188.32	84.03	188.42	84.02	188.65	84		
191.59	83.83	193.61	83.74	195.72	83.63	196.72	83.58	236.7	83.48		
241	81.84	245.1	81.51	248.6	81.78	250.9	82.15	259.9	86.7		
266.66	88	269.42	88.53	271.72	89	277.99	89.55	280.14	89.72		
282.01	89.9	283.09	90	284.46	90.06	303.12	90.88	305.97	91		
306.33	91.05	312.32	92	313.66	92.04	313.76	92.05	318.94	93		
321.62	93.05	328.02	94	329.94	94.12	330.18	94.18	334.98	95		
339.08	95.31	344.35	96	349.24	96.58	352.51	97	356.23	97.47		
357.27	97.59	357.64	97.64	360.85	98	368.56	98.86	369.06	98.92		
369.67	98.98	370.01	99	380.89	99.93	381.45	99.98	381.47	99.99		
381.87	100	393.3	100.97	393.44	100.99	393.63	101	407.01	101.7		
409.04	101.86	409.23	101.88	411.29	102	416.68	102.34	420.04	102.61		
424.65	102.77	424.7	102.78	430.68	102.95	431.31	103	431.54	103.03		

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
0	.04	236.7	.04	259.9	.07

Bank Sta: Left Right Coeff Contr. Expan.  
 236.7 259.9 .3 .5

Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 216 90.58 F

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F

272 431.54 90.15

Downstream Deck/Roadway Coordi nates

num= 13				num= 215				num= 4			
Sta	Hi	Cord	Lo Cord	Sta	Hi	Cord	Lo Cord	Sta	Hi	Cord	Lo Cord
168.9		91		217.8	90.43			224.15	90.43		
224.15		94.3		227.9	94.3			227.9	91.03		
254.5		91.06		254.5	94.32			258.25	94.33		
258.25		90.09		269	90.32			313.5	91		
335.5		93									

Downstream Bridge Cross Section Data

Station	Elevation	Data	num= 215	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	102.28	1.03	102	2.43	101.6	4.78	101	6.15	100.86		
6.24	100.85	6.59	100.82	8.66	100.63	10.24	100.54	10.31	100.53		
11.56	100.48	12.27	100.45	12.33	100.44	13.24	100.42	14.28	100.39		
15.07	100.38	16.62	100.32	19.01	100	23.16	99.59	24.71	99.48		
27.24	99.55	28.5	99	28.78	98.94	30.16	98.74	33.97	98		
35.5	97.82	36.89	97.64	40.87	97.34	41.9	97	47.07	96.79		
49.03	96.58	52.65	96.46	53.88	96.36	55.83	96.29	58.7	96.08		
58.98	96.06	61.02	96	63.74	95.97	63.9	95.96	66.84	95.88		
67.24	95.84	71.85	95.66	74.53	95.18	77.01	95	77.33	94.99		
78.87	94.93	82.35	94.83	82.97	94.78	85.96	94.71	89.05	94.42		
90.03	94.41	90.9	94.35	92.57	94.31	93.17	94.23	93.68	94.17		
94.33	94.09	94.61	94.05	95.3	94	110.32	93.84	112.33	93.72		
113.31	93.71	114.49	93.66	120.89	93.59	124.14	93.42	124.65	93.37		
124.91	93.36	125.15	93.35	125.31	93.33	130.86	93	162.72	92.56		
165.17	92	167.37	91.54	169.57	91.09	169.71	91.06	169.95	91		
170.38	90.97	170.69	90.95	171.6	90.89	184.55	90	194.02	90.96		
194.13	91	194.2	91.03	194.62	91.21	196.23	91.9	196.46	92		
208.05	91.83	208.51	91.48	209.12	91	210.06	90.58	210.91	90.22		
210.95	90.2	211.42	90	211.88	89.93	214.87	89.46	216.17	89.22		
217.25	89	218.81	88.49	220.07	88	220.76	87.64	221.97	87		
223.19	86.36	223.88	86	224.35	85.77	225.34	85.29	225.69	85.12		
225.76	85.08	225.92	85	226.05	84.95	228.33	84	230.4	83.24		
230.79	83.1	230.87	83.06	231.05	83	231.17	82.94	231.28	82.88		
233.04	82	233.3	81.59	233.66	81	234.09	80.46	234.34	80.15		
235.19	80	237.5	76.9	240	77.2	244	77.2	246.5	77.7		
248.61	80.47	249.43	81	249.93	81.29	251.11	82	251.45	82.2		
252.71	82.94	252.82	83	252.93	83.04	255.07	84	257.39	84.93		
257.6	85	258.79	85.45	260.21	86	260.52	86.08	260.82	86.16		
261.93	86.35	263.72	86.7	264.08	86.75	264.12	86.76	265.34	86.93		
265.99	87	267.28	87.13	269.16	87.28	269.61	87.29	269.97	87.32		
270.51	87.34	270.82	87.35	271.69	87.43	272.46	87.48	273.36	87.62		
273.53	87.64	274.24	87.77	275.47	88	277.94	88.3	281.64	88.77		
282.19	88.84	283.3	89	286.92	89.35	294.16	90	296.44	90.28		
296.57	90.29	299.87	90.66	300.54	90.76	301.28	90.84	302.37	91		
309.79	91.65	309.99	91.67	311.6	91.81	312.79	91.91	313.94	92		
317.69	92.34	318.03	92.37	319.01	92.46	322.02	92.76	324.29	93		
326.3	93.28	330.41	93.78	332.06	94	332.2	94.02	333.41	94.2		
334.21	94.26	336.91	94.57	341.04	94.85	341.92	94.92	342.49	94.96		
343.03	95	344.1	95.08	345.79	95.22	348.81	95.47	351.72	95.73		
354.71	96	364.05	96.72	365.95	97	379.58	97.88	380.57	97.9		
381.47	98	385.1	98.69	385.59	98.81	386.47	98.95	387.18	99		
403.64	99.06	407.13	100	409.97	100.48	413.1	101	420.61	101.62		
423.19	101.8	425.41	101.86	425.54	101.85	425.72	101.84	426.47	101.98		

Manning's n Values

Station	n Val	Station	n Val	Station	n Val	Station	n Val
0	.07	231.28	.045	251.45	.07	312.79	.04

Bank Sta: Left Right Coeff Contr. Expan.  
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231.28 251.45  
 Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 230.58 88.86 F  
 252.42 426.47 88.86 F

Upstream Embankment side slope = 1.93 hori z. to 1.0 verti cal  
 Downstream Embankment side slope = 1.8 hori z. to 1.0 verti cal  
 Maximum allowable submergence for weir flow = .98  
 Elevati on at whi ch weir flow be gins = 90.15  
 Energy head used in spillway design =  
 Spillway height used in design =  
 Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name Shape Rise Span  
 Culvert #1 Box 6 12  
 FHWA Chart # 10- 90 degree headwall; Chamfered or beveled inlet  
 FHWA Scale # 1 - Inlet edges chamfered 3/4 inch  
 Soluti on Cri teria = Highest U. S. EG  
 Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef  
 Exit Loss Coef  
 1 22 33 .013 .013 0 .5  
 Upstream Elevati on = 81.77  
 Centerline Stati on = 244  
 Downstream Elevati on = 81.3  
 Centerline Stati on = 241.5

CROSS SECTION

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem RS: 12913

INPUT  
 Descripti on: UPDATED - 47.1 D/S Face of Granaston Lane -

EXISTING - Updated overbank with town topo. Used FEMA bed elevations. Updated ineffective flow areas. ROB n-value added forest buffer.

REVDUP - corrected Ineffective Flow Areas to use 1:1 contraction and 1.5:1 expansion and average of min top of road elevation and max low chord

DUP - deleted US cross section- inserted in internal section of bridge

Stati on	Elevati on	Data	num=	215	Sta	Elev	Sta	Elev	Sta	Elev
0	102.28	1.03	102	2.43	101.6	4.78	101	6.15	100.86	
6.24	100.85	6.59	100.82	8.66	100.63	10.24	100.54	10.31	100.53	
11.56	100.48	12.27	100.45	12.33	100.44	13.24	100.42	14.28	100.39	
15.07	100.38	16.62	100.32	19.01	100	23.16	99.59	24.71	99.48	
27.24	99.55	28.5	99	28.78	98.94	30.16	98.74	33.97	98	
35.5	97.82	36.89	97.64	40.87	97.34	41.9	97	47.07	96.79	
49.03	96.58	52.65	96.46	53.88	96.36	55.83	96.29	58.7	96.08	
58.98	96.06	61.02	96	63.74	95.97	63.9	95.96	66.84	95.88	
67.24	95.84	71.85	95.66	74.53	95.18	77.01	95	77.33	94.99	
78.87	94.93	82.35	94.83	82.97	94.78	85.96	94.71	89.05	94.42	
90.03	94.41	90.9	94.35	92.57	94.31	93.17	94.23	93.68	94.17	



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94.33	94.09	94.61	94.05	95.3	94	110.32	93.84	112.33	93.72
113.31	93.71	114.49	93.66	120.89	93.59	124.14	93.42	124.65	93.37
124.91	93.36	125.15	93.35	125.31	93.33	130.86	93	162.72	92.56
165.17	92	167.37	91.54	169.57	91.09	169.71	91.06	169.95	91
170.38	90.97	170.69	90.95	171.6	90.89	184.55	90	194.02	90.96
194.13	91	194.2	91.03	194.62	91.21	196.23	91.9	196.46	92
208.05	91.83	208.51	91.48	209.12	91	210.06	90.58	210.91	90.22
210.95	90.2	211.42	90	211.88	89.93	214.87	89.46	216.17	89.22
217.25	89	218.81	88.49	220.07	88	220.76	87.64	221.97	87
223.19	86.36	223.88	86	224.35	85.77	225.34	85.29	225.69	85.12
225.76	85.08	225.92	85	226.05	84.95	228.33	84	230.4	83.24
230.79	83.1	230.87	83.06	231.05	83	231.17	82.94	231.28	82.88
233.04	82	233.3	81.59	233.66	81	234.09	80.46	234.34	80.15
235.19	80	237.5	76.9	240	77.2	244	77.2	246.5	77.7
248.61	80.47	249.43	81	249.93	81.29	251.11	82	251.45	82.2
252.71	82.94	252.82	83	252.93	83.04	255.07	84	257.39	84.93
257.6	85	258.79	85.45	260.21	86	260.52	86.08	260.82	86.16
261.93	86.35	263.72	86.7	264.08	86.75	264.12	86.76	265.34	86.93
265.99	87	267.28	87.13	269.16	87.28	269.61	87.29	269.97	87.32
270.51	87.34	270.82	87.35	271.69	87.43	272.46	87.48	273.36	87.62
273.53	87.64	274.24	87.77	275.47	88	277.94	88.3	281.64	88.77
282.19	88.84	283.3	89	286.92	89.35	294.16	90	296.44	90.28
296.57	90.29	299.87	90.66	300.54	90.76	301.28	90.84	302.37	91
309.79	91.65	309.99	91.67	311.6	91.81	312.79	91.91	313.94	92
317.69	92.34	318.03	92.37	319.01	92.46	322.02	92.76	324.29	93
326.3	93.28	330.41	93.78	332.06	94	332.2	94.02	333.41	94.2
334.21	94.26	336.91	94.57	341.04	94.85	341.92	94.92	342.49	94.96
343.03	95	344.1	95.08	345.79	95.22	348.81	95.47	351.72	95.73
354.71	96	364.05	96.72	365.95	97	379.58	97.88	380.57	97.9
381.47	98	385.1	98.69	385.59	98.81	386.47	98.95	387.18	99
403.64	99.06	407.13	100	409.97	100.48	413.1	101	420.61	101.62
423.19	101.8	425.41	101.86	425.54	101.85	425.72	101.84	426.47	101.98

Mann ng' s n Val ues	num=	4
Sta n Val	Sta n Val	Sta n Val
0 .07	231.28	.045 251.45 .07 312.79 .04

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
231.28	251.45	76.07	76.56	75.2		.3	.5
Ineffecti ve Flow	num=	2					
Sta L	Sta R	Elev	Permanent				
0	230.58	88.86	F				
252.42	426.47	88.86	F				

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 12836

INPUT  
 Descripti on: SURVEYED - 47.0 FEMA AC - DS secti on of Granaston Lane

EXISTING - Surveyed channel , updated overbank wi th town topo.

Stati on El evati on Data	num=	284
Sta El ev	Sta El ev	Sta El ev
0 103.02 .11 103	.3 102.99 .81 102.97	8.55 102.66
16.48 102.36 16.99 102.35	25.87 102.48 27.56 103	31.19 102.65
33.32 102 37.22 101.77	42.28 101.5 43.07 101.47	43.19 101.46
43.55 101.44 46.68 101.24	47.88 101.14 52.51 101	53.97 100.91
54.2 100.88 54.54 100.86	54.89 100.83 60.16 100.44	65.28 100.03

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65.96	100	66.55	99.9	67.9	99.72	68.56	99.64	68.73	99.62
69.74	99.46	71.44	99.2	71.66	99.16	72.06	99.09	72.11	99.08
72.55	99	72.79	98.92	72.83	98.91	72.89	98.89	73.71	98.6
74.23	98.46	74.42	98.4	74.6	98.34	75.66	98	75.84	97.94
76.05	97.88	76.9	97.59	76.99	97.57	77.48	97.38	78.67	97
79.13	96.92	79.21	96.91	79.45	96.87	79.63	96.84	81.2	96.53
83.6	96.13	83.65	96.12	84.37	96	85.39	95.9	85.53	95.89
86.78	95.77	87.94	95.65	88.92	95.55	89.61	95.47	90.42	95.39
91.52	95.27	93.04	95.07	93.19	95.06	93.26	95.05	93.59	95
94.08	94.94	102.54	94	110.59	93.34	110.9	93.32	115.69	93
119.06	92.67	126.16	92	126.26	91.99	128.73	91.77	131.16	91.56
134.92	91.26	137.42	91	139.26	90.78	143.26	90.37	143.98	90.31
144.79	90.24	145.44	90.16	146.73	90	147.88	89.7	148.2	89.62
149.09	89.43	149.95	89.25	151.12	89.02	151.23	89	151.94	88.86
152.89	88.69	153.76	88.53	154.43	88.41	154.71	88.35	156.52	88.05
156.82	88	157.95	87.78	158.35	87.72	159.2	87.55	161.45	87.23
162.16	87.12	162.29	87.11	163.04	87.03	163.1	87.02	163.4	87
165.05	86.86	165.25	86.84	165.52	86.82	167.33	86.68	167.98	86.65
169.73	86.54	170.92	86.43	172.22	86.34	174.56	86	175.09	85.92
177.72	85.52	180.29	85.08	180.47	85.09	180.77	85.12	180.95	85.17
181.11	85.22	181.63	85.44	183.01	86	183.47	86.14	186.08	86.43
186.56	86.46	187.93	86.52	189.03	86.53	189.94	86.49	190.13	86.5
192.02	86.44	193.79	86.36	194.14	86.34	196.17	86.26	196.57	86.25
196.94	86.24	198.07	86.19	198.35	86.18	200.71	86.08	202.36	86
203.13	85.96	203.46	85.92	204.71	85.83	207.31	85.74	207.58	85.72
209.63	85.74	210.13	85.73	210.44	85.74	211.42	85.75	212	85.81
212.45	85.84	213.14	86	217.07	86.42	219.21	86.72	219.33	86.74
219.88	86.81	221.04	87	221.42	87.15	222.19	87.42	222.25	87.44
222.74	87.59	223.71	87.92	224.08	87.69	224.49	87.75	226.88	87.39
227.27	87.4	227.5	87.41	228.53	87.42	229.24	87.41	231.18	87.38
231.46	87.37	232.39	87.34	234.21	87.31	234.78	87.28	235.21	87.27
237.91	87.14	239.32	87	239.8	86.92	239.97	86.9	240.77	86.79
240.95	86.77	242.3	86.61	242.72	86.55	243.21	86.49	243.92	86.38
244.94	86.26	245.8	86.12	246.47	86	246.88	85.91	247.23	85.84
247.41	85.8	248.7	85.51	249.18	85.4	249.8	85.26	250.97	85
252.23	84.81	252.46	84.77	255.14	84.38	256.92	84.12	257.72	84
258.66	83.75	259.01	83.66	261.51	83	262.78	82.46	263.92	82
264.6	81.77	264.83	81.69	269.37	81.47	277.67	77.79	280.67	77.2
282.87	77.67	288.97	78.34	293.77	83.31	308.44	84	309.64	84.26
309.79	84.28	310.03	84.31	315.31	85	316.44	85.14	316.54	85.15
317.07	85.19	320.28	85.5	323.42	85.73	323.83	85.76	324.19	85.8
326.09	86	326.23	86.01	333.82	86.22	334.27	86.26	338.23	86.63
339.25	86.7	341.85	87	344.82	87.33	349.82	88	350.16	88.04
354.46	88.56	357.84	89	359.54	89.44	362.04	90	364.62	90.97
364.65	90.98	364.7	91	364.82	91.05	367.51	92	369.75	92.72
370.6	93	371.27	93.33	372.71	94	373.47	94.43	374.39	95
377.23	95.45	380.35	96	388.75	96.34	391.38	96.49	394.11	96.53
394.7	96.55	402.35	97	425.83	97.21	430.01	97.4	431.32	97.47
441.33	98	442.96	98.57	443.7	99	445	99.69	445.64	100
446.8	100.57	447.85	101	450.58	101.12	451.14	101.15	451.79	101.18
454.33	101.28	464.84	101.76	465.11	101.77	465.52	101.79	465.98	101.8
466.42	101.81	472.57	102	474.23	102.15	474.57	102.2		

Manning's n Values num= 3  
 Sta n Val Sta n Val  
 0 .07 269.37 .045 293.77 .04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 269.37 293.77 556.33 546.79 510.17 .3 .5  
 Blocked Obstructions num= 3  
 Sta L Sta R Elev Sta L Sta R Elev Sta L Sta R Elev  
 392.66 434.38 109.03 150.97 180.13 100.48 39.49 71.16 111.08

Goodwi vesDari enEX. rep

CROSS SECTI ON

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 12289

INPUT  
 Descri ption: UPDATED - 45.0 FEMA AB - Upstream of Dam #8?

EXI STING - Updated overbank elevations with town topo. Increased ROB nvalue at home.

Station		Elevation Data		num=	117		Station		Elevation	
Sta	Elev	Sta	Elev		Sta	Elev	Sta	Elev	Sta	Elev
0	88.92	1.31	88.86		1.75	88.85	2.16	88.84	4.39	89
25.81	88.16	27.67	88		60.05	87.61	63.26	87.63	68.53	87.67
74.44	87	87.76	86.79		97.92	86	108.68	85.84	111.01	85.77
116.89	85.46	125.32	85		129.11	84.77	132.02	84.64	136.16	84.45
139.13	84.34	143.94	84.01		144.08	84	144.33	83.97	151.83	83
152.54	82.43	153.07	82		153.81	81.41	154.32	81	154.98	80.46
155.56	80	156.26	79.44		156.81	79	157.56	78.4	158.06	78
159.27	77.41	160.16	77		161.23	76.65	162.21	76.36	163.59	76
164.91	75.36	165.38	75		166.22	74.27	166.52	74	167.64	73.01
167.65	72.99	167.68	72.96		168.29	72.26	168.53	72	168.93	71.53
169.38	71	169.76	70.49		170.21	70	172.68	69.27	173.69	69
174.48	68.83	175.16	68.67		176.67	68.35	178.2	68	178.43	67.8
188.43	64.7	196.43	64.7		205.43	66.6	224.43	66.9	239.25	68
245.2	68.42	250.57	68.75		252.93	68.9	254.48	69	260.05	69.51
265.49	70	266.79	70.07		268.92	70.17	271.7	70.28	272.83	70.33
287.97	71	289.86	71.24		296.77	72	298.61	72.21	306.62	73
307.45	73.11	310.06	73.3		310.4	73.33	313.86	73.66	317.18	74
320.06	74.62	321.97	75		324.99	75.74	326.03	76	328.43	76.89
328.78	77	329.84	77.34		331.87	78	334.65	78.99	334.68	79
334.78	79.03	337.88	80		338.85	80.31	340.99	81	357.52	81.6
368.54	82	371.73	82.42		372.89	82.54	373.78	82.65	378.08	83
380.64	83.48	381.43	83.76		382.16	84	384.31	84.48	385.4	84.63
385.66	84.62	386.65	84.83		386.95	84.86	387.27	85	390.53	85.09
390.69	85.12	392.99	85.32							

Manning's n Values		num=	4	
Sta	n Val	Sta	n Val	Sta
0	.12	178.43	.035	205.43
				296.77

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	178.43	205.43		65.15	63.24	33.04		.1	.3

Blocked Obstructions			num=	1	
Sta L	Sta R	Elev			
300.51	342.99	88.33			

CROSS SECTI ON

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 12226

INPUT  
 Descri ption: NEW SURVEY - between Dams # 7 and #8

LEFT Floodwal l @  
 69.58'  
 Left home FFE @ 76.99'  
 Left home Basement floor @  
 68.41'

Goodwiv esDari enEX. rep

EXISTING - Surveyed wet section including floodwall and home on left, extended survey with town topo. Added levee on left to represent floodwall at home. Increased n values at homes.

Station Elevation Data num= 91									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	82.35	7.21	82.28	10.07	82	11.56	81.85	12.79	81.71
13.22	81.66	14.09	81.58	18.76	81	21.29	80.35	22.8	80
25.68	79.13	26.14	79	26.65	78.47	27.09	78	27.94	77.09
28.03	77	28.27	76.74	28.95	76	49.55	75.34	50.78	75.3
54.34	75	55.32	74.57	56.6	74	57.06	73.84	58.91	73
61.18	72.18	61.71	72	62.66	71.67	64.53	71	65.52	70.66
67.39	70	70.21	69.02	70.27	69	70.32	68.99	70.47	68.96
75.49	68	80	67.79	80	69.58	82	69.58	82	67.48
102.3	66.63	108.8	64.75	110.9	64.81	116.3	65.91	126.2	65.9
135	65.04	136.3	64.39	139.4	64.09	140.7	64.16	143	63.92
145.6	64.15	147.5	64.41	147.5	68.49	159.78	69	163.17	69.34
170.31	69.93	170.81	69.97	170.84	69.98	170.99	69.99	171.35	70
176.75	70.16	178.1	70.25	189.88	71	192.71	71.32	197.95	72
200.97	72.44	204.9	73	209.34	73.61	212.09	74	215.46	74.32
221.62	75	224.38	75.56	226.31	76	227.2	76.55	227.91	77
229.34	77.88	229.53	78	230.62	78.67	231.08	78.95	231.14	79
233.34	79.66	234.96	80	242.08	80.91	242.71	81	243.24	81.02
244.12	81.08	257.41	82	261.4	82.4	265.16	82.77	267.49	83
269.91	83.36								

Manning's n Values num= 4							
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.1	82	.035	147.5	.04	192.71	.1

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	102.3	147.5		27.9	58.81		.1	.3
Left Levee		Station=	82	Elevation=	69.58			
Blocked Obstructions num= 2								
Sta L	Sta R	Elev	Sta L	Sta R	Elev			
194.7	239.51	88.33	46.01	75.03	94.85			

CROSS SECTION

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem RS: 12167

INPUT  
 Description: UPDATED - 44.1 FEMA AA - Dam #7

Floodwall @ 69.44'  
 FFE @ 76.99'  
 Basement floor @ 68.41'

EXISTING - Surveyed channel downstream including home and floodwall. Entered floodwall as a levee. Updated elevations with town topo.

Station Elevation Data num= 102									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	81.81	5.03	81.64	5.85	81.53	6.29	81.48	6.68	81.47
12.04	81	14.43	80.75	15.5	80.62	19.96	80	21.06	79.72
23.2	79	24.22	78.13	24.36	78	24.44	77.92	25.41	77
25.51	76.91	26.03	76.41	26.25	76.2	26.46	76	31.01	75.82
51.97	75	53.78	74.2	54.23	74	55.08	73.6	56.37	73
56.63	72.87	58.36	72	58.78	71.76	59.84	71.17	60.15	71
62.31	70.16	62.58	70	63.58	69.6	65.12	69	66.2	68.72

Goodwi vesDari enEX. rep

68.6	68	75.4	68.35	75.92	69	77.43	69.5	77.55	69.5
77.95	69.2	77.99	69	78.01	68.94	78.28	68	83.17	67.54
88.33	67	103.15	66.59	124.97	66	126.84	65.82	834	130.09
132.5	65.4	133	63.3	139.3	63.4	139.4	65.3	151.06	65.68
152.31	66	155	66.25	156.6	66.4	159.14	66.48	160.58	66.55
170.64	67	182.39	67.53	188.18	68	191.45	68.4	196.73	69
199.2	69.64	200.59	70	203.06	70.6	204.61	71	206.2	71.57
207.71	72	211.52	72.87	212.16	73	214.13	73.47	216.47	74
217.35	74.22	220.59	75	222.93	75.72	223.91	76	228.58	76.87
228.97	76.93	229.35	77	230.12	77.18	233.52	78	235.16	78.35
236.83	78.77	237.48	78.92	238.02	79	241.06	79.44	245.29	80
246.86	80.16	248.01	80.24	248.6	80.26	248.9	80.29	250.71	80.55
252.45	80.84	253.25	80.92	253.49	81	255.6	81.52	257.89	82
259.4	82.53	260.98	82.88						

Manning's n Values num= 3  
 Sta n Val Sta n Val Sta n Val  
 0 .1 77.55 .035 151.06 .04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 124.97 151.06 18.53 23.02 25.24 .1 .3  
 Left Levee Station= 77.55 El evati on= 69.5  
 Blocked Obstructions num= 1  
 Sta L Sta R El ev  
 42.6 73.16 94.85

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 12144

INPUT  
 Descri pti on: NEWSURVEY - 44.1 Downstream of Dam #7

Floodwal l @ 69.44'  
 FFE @ 76.99'  
 Basement floor @ 68.41'

EXISTING - Surveyed channel including home and floodwal l. Entered floodwal l as a levee. Updated Overbank with town topo.

Station	Elevati on	Data	num=	108							
Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
0	81.13	3.89	81	10.63	80.41	15.02	80	15.94	79.64		
16.2	79.54	17.76	79	18.29	78.48	18.65	78	19.51	77.09		
19.58	77	19.68	76.89	19.7	76.87	20.47	76.16	20.76	76		
30.47	75.71	49.03	75	50.84	74.21	51.31	74	52.22	73.59		
53.5	73	55.08	72.25	55.6	72	56.17	71.71	57.56	71		
57.74	70.9	59.38	70	60.12	69.53	60.64	69.27	61.21	69		
61.73	68.71	62.84	68	69.2	68.41	80.6	67.85	80.6	69.44		
83	69.44	83	66.59	124	65.39	129.2	62.3	132.5	61.09		
134.6	61.18	138.8	61.9	140.8	62.23	143	65.29	155.67	66		
156.57	66.03	157.36	66.06	159.55	66.14	159.87	66.16	160.29	66.17		
161.89	66.24	171.57	66.6	171.99	66.61	177.55	66.76	183.1	66.94		
183.44	66.95	184.63	67	189.98	67.56	190.77	67.66	191.79	67.84		
192.62	68	193.88	68.29	195.93	68.78	196.89	69	198.44	69.34		
201.46	70	202.99	70.32	206.25	71	209.55	71.69	210.45	71.87		
211.13	72	213.52	72.5	215.92	73	216.65	73.18	217.6	73.41		
217.74	73.44	219.07	73.72	219.67	73.86	220.35	74	220.5	74.03		
221.02	74.15	223.83	74.77	224.55	74.95	224.63	74.96	224.78	75		
227.39	75.32	230.44	75.67	231.51	75.78	231.58	75.79	232.24	75.86		

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232.83	76	243.68	76.7	244.23	76.74	244.69	76.75	248.12	77
249.43	77.35	251.59	78	251.79	78.05	252.08	78.14	253.7	78.63
254.95	79	256.45	79.45	258.32	80	259.52	80.35	261.75	81
264.89	81.3	265.6	81.36	268.29	81.52				

Manni ng' s n Val ues			num= 3		
Sta	n Val	Sta	n Val	Sta	n Val
0	.1	83	.045	143	.05

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	124	143		194.66	193.21		.1	.3
Left Levee		Station=	83	Elevati on=	69.44			
Blocked Obstructi ons		num=	1					
	Sta L	Sta R	Elev					
	38.47	69.2	94.85					

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 11951

INPUT  
 Descri pti on: SURVEYED - 43.0 FEMA Z - U/S secti on of Prospect Avenue

EXI STING - Surveyed channel , updated overbank with town topo. Increased LOB n-value from .04 to .07 for some trees and underbrush.

REVDUP -corrected bank stations to reflect actual top of bank (set in HEC-2 to specify ineffecti ve flow area l ocati on)

Stati on El evati on Data num= 103									
Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
0	75	2.19	74.91	2.86	74.78	3.39	74.67	4.07	74.54
6.97	74	10.05	73.45	12.56	73	14.22	72.74	16.95	72.31
18.34	72.1	18.96	72	26.15	71.35	26.87	71.28	27.94	71.2
29.13	71.07	29.86	71	33.13	70.6	34.52	70.42	36.14	70.23
36.84	70.19	37.96	70	41.22	69.13	41.63	69	44.34	68.25
45.13	68	46.81	67.52	48.82	67	50	66.67	52.36	66
55.52	65.1	55.95	65	72.2	64.8	74.78	64.68	76.04	64.63
76.22	64.62	78.27	64.55	78.37	64.54	79.69	64.51	84.3	64.11
84.85	64.1	85.16	64.07	85.53	64.05	86.29	64.03	86.74	64
121.09	63.54	126.35	63	126.52	62.98	134.7	62	135.16	61.96
135.75	61.91	136.9	61.81	140.53	61.56	140.62	61.55	145.63	61.15
145.87	61.13	147.56	61	148.49	60.56	148.79	60.42	149.12	60.27
149.47	60.1	149.69	60	150	59.5	151	59.08	153.1	57.85
156	57.91	158.3	58.42	161.1	59.16	166.4	63.15	166.54	63
176.36	63.08	182.05	64	199.37	64.78	201.35	64.83	205.06	65
209.56	65.15	222.16	66	228.51	66.16	242.33	67	243.18	67.1
243.88	67.18	245.06	67.33	248.18	67.75	250.03	68	252.79	68.64
254.26	69	254.52	69.08	255.98	69.51	256.2	69.58	257.22	70
260.68	70.81	261.41	71	262.71	71.54	263.71	72	264.24	72.5
264.77	73	265.48	73.67	265.82	74	265.99	74.16	266.87	75
267.3	75.38	267.97	76	269.94	76.13				

Manni ng' s n Val ues			num= 4		
Sta	n Val	Sta	n Val	Sta	n Val
0	.04	55.95	.07	145.63	.045
				166.4	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	145.63	166.4		22.68	21.19		.3	.5

Goodwi vesDari enEX. rep

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 11930

INPUT  
 Description: SURVEYED - 42.0 U/S Face of Prospect Avenue

EXISTING - Channel  
 section surveyed, overbank updated with town topo. Updated  
 Ineffective Flow Areas. Increased LOB n-value from .04 to .07 for  
 some trees and underbrush.

REVDUP - corrected Ineffective Flow  
 Areas to use 1:1 contraction and expansion and min top of road  
 elevation

-corrected bank stations to reflect actual top of bank  
 (set in HEC-2 to specify ineffective flow area location)

Station Elevation Data num= 168									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	73.72	4.43	73.61	7.42	73.56	12.57	73	15.91	72.92
16.19	72.9	16.31	72.89	16.55	72.87	21.16	72.51	23.66	72.27
26.35	72	28.63	71.78	28.76	71.77	29.99	71.64	31.87	71.45
32.47	71.38	33.69	71.27	36.62	71	39.08	70.3	41.01	70.13
42.42	70	45.38	69.12	45.81	69	46.9	68.57	48.41	68
48.98	67.81	50.3	67.37	52.28	67	54.15	66.84	54.22	66.82
56.29	66.69	57.01	66.71	58.56	66.51	60.77	66.39	61.7	66.55
63.92	66.47	67.64	66	71.46	66.39	73.57	66.43	74.8	66.4
75.87	66.41	77.16	66.32	77.61	66.33	79.92	66.22	80.55	66.19
83.71	66.12	84.15	66.09	84.65	66	87.43	65.78	88.3	65.66
89.47	65.5	90.07	65.63	94.78	65	95.65	64.93	104.53	64.43
106.51	64.32	109.03	64.19	110.02	64.14	110.26	64.12	110.87	64
122.39	63.45	126.71	63	134.27	62.7	136.92	62.48	137.9	62.47
140.65	62.07	141.11	62	150.28	61.93	150.49	62	153.22	62.29
153.52	62.32	154.07	62	155.18	61.39	155.92	61	157.2	60.31
157.56	59.68	157.71	59.66	158	58.996	159	58.37	161.1	57.346
164	57.406	166.3	57.916	170.9	57.93	174.4	62.646	175.05	64
175.27	64.32	175.75	64.37	176.08	64.4	176.5	64.44	176.67	64.5
178.21	65	180.15	64.77	184.48	64.76	184.75	64.79	186.24	64.89
187.53	64.98	187.62	64.99	187.85	65	190.69	65.33	191.28	65.39
192.97	65.58	194.29	65.65	194.51	65.67	194.99	65.7	195.64	65.72
197.18	65.78	197.63	65.83	199.1	65.87	199.38	65.89	199.85	65.88
201.38	65.9	208.85	66	214.65	66.09	216.65	66	226.54	66.23
229.62	66.28	237.61	66.46	243.51	66.54	248.74	66.53	253.68	66.62
255.44	66.74	256.15	67	265.5	67.45	265.67	67.61	266.08	68
266.61	68.5	267.15	69	267.66	69.48	268.26	70	268.76	70.46
269.44	71	270.45	71.4	272.57	72	272.99	72.05	273.79	72.13
276.28	72.33	276.56	72.35	277.62	72.4	278.59	72.46	280.61	72.53
282.46	72.71	282.99	72.73	284.49	73	286.7	73.36	287.26	73.44
287.63	73.49	287.89	73.53	288.48	73.59	291.45	73.6	292.49	73.64
296.71	73.97	296.93	74	299.51	74.42	300.43	74.52	303.05	74.54
307.08	74.46	312.41	74.37	314.95	74.24	315.52	74.22	316.22	74.19
317.08	74.16	323.78	75	324.81	75.14	328.05	75.47	330.19	75.71
330.38	75.74	330.54	75.76	331.29	75.74				

Manning's n Values num= 4							
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.04	67.64	.07	153.22	.045	174.4	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	153.22	174.4		59.92	60.56	.3	.5

Goodwiv esDari enEX. rep

Ineffecti ve Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 147.28 67.55 F  
 182.11 331.29 67.98 F

BRI DGE

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem RS: 11911

INPUT  
 Descripti on: SURVEYED - 41.5 Prospect Avenue -

EXI STING - Updated road  
 deck, parapet, arch with survey. Extended road deck with town  
 topo. Changed opening to arch (bridge) from culvert.

DUP - shortened deck and culvert by 2 feet to offset face cross sections  
 by 1 foot US and DS  
 peir width of 0.1 indicated possible pressure  
 flow and low flow use of momentum or yarnell.

Channel invert  
 speci fied so input as culvert

Distance from Upstream XS = 12  
 Deck/Roadway Width = 38  
 Wei r Coeffi ci ent = 2.6

Upstream Deck/Roadway Coordinates														
num=	25													
Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
-30		75			-23		73			23		72		
34		71			47		70			63		69		
92		68			145.7		67.55			152.2		67.55		
152.2	69.52		0		159	69.52	58.37			161.5	69.53		63.15	
164.6	69.535		64		168.8	69.54	63.21			170.9	69.55		57.93	
179.1	69.55		0		179.1	67.98				192	67.98			
216		69				245	70			279	71			
303		72			325		73			341		74		
366		75												

Upstream Bridge Cross Section Data  
 Stati on Elevati on Data num= 168

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	73.72	4.43	73.61	7.42	73.56	12.57	73	15.91	72.92
16.19	72.9	16.31	72.89	16.55	72.87	21.16	72.51	23.66	72.27
26.35	72	28.63	71.78	28.76	71.77	29.99	71.64	31.87	71.45
32.47	71.38	33.69	71.27	36.62	71	39.08	70.3	41.01	70.13
42.42	70	45.38	69.12	45.81	69	46.9	68.57	48.41	68
48.98	67.81	50.3	67.37	52.28	67	54.15	66.84	54.22	66.82
56.29	66.69	57.01	66.71	58.56	66.51	60.77	66.39	61.7	66.55
63.92	66.47	67.64	66	71.46	66.39	73.57	66.43	74.8	66.4
75.87	66.41	77.16	66.32	77.61	66.33	79.92	66.22	80.55	66.19
83.71	66.12	84.15	66.09	84.65	66	87.43	65.78	88.3	65.66
89.47	65.5	90.07	65.63	94.78	65	95.65	64.93	104.53	64.43
106.51	64.32	109.03	64.19	110.02	64.14	110.26	64.12	110.87	64
122.39	63.45	126.71	63	134.27	62.7	136.92	62.48	137.9	62.47
140.65	62.07	141.11	62	150.28	61.93	150.49	62	153.22	62.29
153.52	62.32	154.07	62	155.18	61.39	155.92	61	157.2	60.31
157.56	59.68	157.71	59.66	158	58.996	159	58.37	161.1	57.346
164	57.406	166.3	57.916	170.9	57.93	174.4	62.646	175.05	64
175.27	64.32	175.75	64.37	176.08	64.4	176.5	64.44	176.67	64.5
178.21	65	180.15	64.77	184.48	64.76	184.75	64.79	186.24	64.89



Goodwi vesDari enEX. rep

187.53	64.98	187.62	64.99	187.85	65	190.69	65.33	191.28	65.39
192.97	65.58	194.29	65.65	194.51	65.67	194.99	65.7	195.64	65.72
197.18	65.78	197.63	65.83	199.1	65.87	199.38	65.89	199.85	65.88
201.38	65.9	208.85	66	214.65	66.09	216.65	66	226.54	66.23
229.62	66.28	237.61	66.46	243.51	66.54	248.74	66.53	253.68	66.62
255.44	66.74	256.15	67	265.5	67.45	265.67	67.61	266.08	68
266.61	68.5	267.15	69	267.66	69.48	268.26	70	268.76	70.46
269.44	71	270.45	71.4	272.57	72	272.99	72.05	273.79	72.13
276.28	72.33	276.56	72.35	277.62	72.4	278.59	72.46	280.61	72.53
282.46	72.71	282.99	72.73	284.49	73	286.7	73.36	287.26	73.44
287.63	73.49	287.89	73.53	288.48	73.59	291.45	73.6	292.49	73.64
296.71	73.97	296.93	74	299.51	74.42	300.43	74.52	303.05	74.54
307.08	74.46	312.41	74.37	314.95	74.24	315.52	74.22	316.22	74.19
317.08	74.16	323.78	75	324.81	75.14	328.05	75.47	330.19	75.71
330.38	75.74	330.54	75.76	331.29	75.74				

Manni ng' s n Val ues num= 4

Sta n Val	Sta n Val	Sta n Val	Sta n Val
0 .04	67.64	.07	153.22
			.045
			174.4
			.04

Bank Sta: Left Right Coeff Contr. Expan.

153.22	174.4	.3	.5
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Ineffecti ve Flow num= 2

Sta L	Sta R	El ev	Permanent
0	147.28	67.55	F
182.11	331.29	67.98	F

Downstream Deck/Roadway Coordi nates num= 25

Sta	Hi	Cord	Lo Cord	Sta	Hi	Cord	Lo Cord	Sta	Hi	Cord	Lo Cord
8	74			25	73			71	72		
82	71			95	70			111	69		
140	68			185.8	67.55			200.6	67.55		
200.6	69.39	0		207	69.39	57.72		208.4	69.4	62.91	
212.6	69.405	64.49		216.8	69.41	63.14		219.43	69.42	56.81	
226.7	69.42	0		226.7	67.98			231.4	67.98		
264	69			293	70			327	71		
351	72			373	73			389	74		
414	75										

Downstream Bridge Cross Secti on Data Stati on El evati on Data num= 213

Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
0	76	7.16	75.03	7.21	75	7.47	74.85	8.93	74
9.1	73.92	10.91	73	15.63	72.22	20.42	72	41.54	71.48
41.73	71.46	43.29	71.33	43.51	71.32	44.13	71.28	44.75	71.24
46.01	71.22	46.46	71.17	46.83	71.14	48.55	71	49.73	70.72
50.1	70.63	50.8	70.47	51.42	70.34	51.64	70.28	52.85	70
54.53	69.74	56.36	69.42	57.88	69.14	58.36	69.05	58.62	69
59.63	68.87	60.47	68.76	62.76	68.44	63.37	68.36	66.19	68
68.27	67.99	68.55	67.97	75.04	67.41	78.76	67	82.88	66.09
83.05	66.05	83.33	66	83.69	65.9	84	65.81	84.17	65.77
87.18	65	89.32	64.52	89.93	64.39	91.7	64	95.55	63.47
97.66	63.18	98.83	63	99.42	62.94	108.96	62.34	110.44	62.3
112.65	62.26	114.55	62.32	123.01	62.09	123.16	62.1	123.38	62.11
123.51	62.12	125.61	62	127.51	61.96	127.79	61.95	133.92	61.85
135.23	61.9	136.07	61.94	137.23	62	137.69	62.09	138.17	62.19
139	62.08	140.46	62.14	141.4	62.21	141.99	62.26	148.87	62.41
152.7	62.45	153.02	62.44	153.99	62.4	154.88	62.37	157.76	62
164.76	61.57	166.37	61.54	167.08	61.53	167.55	61.52	170.64	61.48
171.34	61.49	172.72	61.47	173.62	61.49	174.09	61.5	176.94	61.49
180.43	61.47	181.02	61.46	184.01	61	194.19	60.61	199.6	60
199.88	59.95	199.93	59.94	204.16	59	207	58.4	208.5	56.9

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214	55.9	216	56.9	217	58.4	219.5	58.6	222	58.9
222.07	59.62	224.12	60	225.7	60.34	226.43	60.46	228.07	60.73
229.35	61	231.42	61.41	234.33	62	235.1	62.15	237.36	62.24
238.3	62.29	241.2	62	241.27	61.99	244.5	61.71	244.85	61.73
245.55	61.71	246.39	61.7	248.58	61.74	250.09	62	251.1	62.2
254.98	63	256.96	63.44	259.52	64	261.8	64.55	263.91	65
268.19	65.99	268.24	66	268.29	66.01	268.38	66.03	273.09	67
276.66	67.58	277.36	67.62	277.87	67.66	278.78	67.82	281.61	68
281.89	68.02	281.98	68.03	282.58	68.08	283.43	68.14	283.87	68.17
287.5	68.33	288.51	68.39	292.24	68.8	302.39	69	303.39	69.01
315.26	69.18	318.11	69.37	318.67	69.44	318.74	69.45	319.23	69.49
321.14	69.62	324.09	70	326.9	70.19	331.36	70.42	338.38	70.57
338.78	70.58	340.81	70.59	340.89	70.61	350.43	70.67	352.78	70.8
357.28	70.79	358.26	70.6	361.35	70.84	363.21	71	364.1	71.07
364.43	71.1	366.81	71.27	367.78	71.32	369.52	71.45	369.92	71.47
371.35	71.53	372.57	71.58	373.26	71.61	373.58	71.62	373.83	71.63
381.13	71.92	381.69	71.94	381.79	71.95	382.52	72	386.5	72.26
388.38	72.4	390.06	72.55	395.42	72.92	395.81	72.96	396.24	73
400.3	73.34	401.4	73.43	402.17	73.51	402.59	73.56	403.1	73.61
403.64	73.67	405.61	73.95	405.77	73.97	405.94	74	406.04	74.02
411.39	75	423.71	75.58	424.97	75.59	434.28	76	435.16	76.06
436.05	76.1	437.55	76.17	438.86	76.23	442.07	76.45	445.31	76.75
447.88	77	453.58	77.34	456.89	77.5				

Manning's n Values num= 3  
 Sta n Val Sta n Val Sta n Val  
 0 .04 199.93 .045 226.43 .06

Bank Sta: Left Right Coeff Contr. Expan.  
 199.93 226.43 .3 .5

Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 196.56 66.02 F  
 228.44 456.89 66.2 F

Upstream Embankment side slope = 1.45 horiz. to 1.0 vertical  
 Downstream Embankment side slope = 1.9 horiz. to 1.0 vertical  
 Maximum allowable submergence for weir flow = .98  
 Elevation at which weir flow begins = 66.55  
 Energy head used in spillway design =  
 Spillway height used in design =  
 Weir crest shape = Broad Crested

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy  
 Momentum Cd = 1.6  
 Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Pressure and Weir flow  
 Submerged Inlet Cd = 1.6  
 Submerged Inlet + Outlet Cd = .8  
 Max Low Cord = 63.9

Additional Bridge Parameters

Add Friction component to Momentum  
 Do not add Weight component to Momentum  
 Class B flow critical depth computations use critical depth  
 inside the bridge at the upstream end  
 Criteria to check for pressure flow = Upstream energy grade line

Goodwiv esDari enEX. rep

CROSS SECTION

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem

RS: 11869

INPUT

Description: UPDATED - 41.1 D/S face of Prospect Avenue

EXISTING - Updated

Overbank Elevations. Updated Ineffective Flow Areas. Decreased LOB n-value from .045 to .04 for lawn

REVDUP- corrected Ineffective

Flow Areas to use 1:1 contraction and expansion and average of min top of road elevation and max low chord

-corrected bank

stations to reflect actual top of bank (set in HEC-2 to specify ineffective flow area location)

Station	Elevation	Data	num=	213	Station	Elevation	Station	Elevation	Station	Elevation
0	76	7.16	75.03	7.21	75	7.47	74.85	8.93	74	
9.1	73.92	10.91	73	15.63	72.22	20.42	72	41.54	71.48	
41.73	71.46	43.29	71.33	43.51	71.32	44.13	71.28	44.75	71.24	
46.01	71.22	46.46	71.17	46.83	71.14	48.55	71	49.73	70.72	
50.1	70.63	50.8	70.47	51.42	70.34	51.64	70.28	52.85	70	
54.53	69.74	56.36	69.42	57.88	69.14	58.36	69.05	58.62	69	
59.63	68.87	60.47	68.76	62.76	68.44	63.37	68.36	66.19	68	
68.27	67.99	68.55	67.97	75.04	67.41	78.76	67	82.88	66.09	
83.05	66.05	83.33	66	83.69	65.9	84	65.81	84.17	65.77	
87.18	65	89.32	64.52	89.93	64.39	91.7	64	95.55	63.47	
97.66	63.18	98.83	63	99.42	62.94	108.96	62.34	110.44	62.3	
112.65	62.26	114.55	62.32	123.01	62.09	123.16	62.1	123.38	62.11	
123.51	62.12	125.61	62	127.51	61.96	127.79	61.95	133.92	61.85	
135.23	61.9	136.07	61.94	137.23	62	137.69	62.09	138.17	62.19	
139	62.08	140.46	62.14	141.4	62.21	141.99	62.26	148.87	62.41	
152.7	62.45	153.02	62.44	153.99	62.4	154.88	62.37	157.76	62	
164.76	61.57	166.37	61.54	167.08	61.53	167.55	61.52	170.64	61.48	
171.34	61.49	172.72	61.47	173.62	61.49	174.09	61.5	176.94	61.49	
180.43	61.47	181.02	61.46	184.01	61	194.19	60.61	199.6	60	
199.88	59.95	199.93	59.94	204.16	59	207	58.4	208.5	56.9	
214	55.9	216	56.9	217	58.4	219.5	58.6	222	58.9	
222.07	59.62	224.12	60	225.7	60.34	226.43	60.46	228.07	60.73	
229.35	61	231.42	61.41	234.33	62	235.1	62.15	237.36	62.24	
238.3	62.29	241.2	62	241.27	61.99	244.5	61.71	244.85	61.73	
245.55	61.71	246.39	61.7	248.58	61.74	250.09	62	251.1	62.2	
254.98	63	256.96	63.44	259.52	64	261.8	64.55	263.91	65	
268.19	65.99	268.24	66	268.29	66.01	268.38	66.03	273.09	67	
276.66	67.58	277.36	67.62	277.87	67.66	278.78	67.82	281.61	68	
281.89	68.02	281.98	68.03	282.58	68.08	283.43	68.14	283.87	68.17	
287.5	68.33	288.51	68.39	292.24	68.8	302.39	69	303.39	69.01	
315.26	69.18	318.11	69.37	318.67	69.44	318.74	69.45	319.23	69.49	
321.14	69.62	324.09	70	326.9	70.19	331.36	70.42	338.38	70.57	
338.78	70.58	340.81	70.59	340.89	70.61	350.43	70.67	352.78	70.8	
357.28	70.79	358.26	70.6	361.35	70.84	363.21	71	364.1	71.07	
364.43	71.1	366.81	71.27	367.78	71.32	369.52	71.45	369.92	71.47	
371.35	71.53	372.57	71.58	373.26	71.61	373.58	71.62	373.83	71.63	
381.13	71.92	381.69	71.94	381.79	71.95	382.52	72	386.5	72.26	
388.38	72.4	390.06	72.55	395.42	72.92	395.81	72.96	396.24	73	
400.3	73.34	401.4	73.43	402.17	73.51	402.59	73.56	403.1	73.61	
403.64	73.67	405.61	73.95	405.77	73.97	405.94	74	406.04	74.02	
411.39	75	423.71	75.58	424.97	75.59	434.28	76	435.16	76.06	
436.05	76.1	437.55	76.17	438.86	76.23	442.07	76.45	445.31	76.75	

447.88 77 453.58 77.34 456.89 77.5  
 Goodwi vesDari enEX. rep

Manni ng' s n Val ues num= 3  
 Sta n Val Sta n Val Sta n Val  
 0 .04 199.93 .045 226.43 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 199.93 226.43 18.53 18.7 17.74 .3 .5  
 Ineffe ctive Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 196.56 66.02 F  
 228.44 456.89 66.2 F

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 11850

INPUT  
 Descrip ti on: UPDATED - 41.0 FEMA Y - DS secti on of Prospect Avenue

EXI STING  
 - Updated Overbank Elevati ons. Changed LOB nvalue from .05 to .1 at home, decreased at lawn to .04. Changed ROB nvalue from .06 to .04 and .1 for lawn and home (ds).

REVDUP -corrected bank  
 stations to reflect actual top of bank (set in HEC-2 to specify  
 i neffecti ve flow area locati on)

Station	Elevation	Data	num=	114	Station	Elevation	Station	Elevation	Station	Elevation
0	75	4.61	74.81	5.43	74	6.8	73.45	7.88	73	
8.36	72.7	9.43	72	10.52	71.73	28.29	71	42.81	70.96	
43.73	70.83	49.69	70	50.79	69.89	51.03	69.86	56.45	69	
58.9	68.71	65.51	68	65.64	67.99	74.11	67	75.27	66.76	
79.81	66	83.49	65.13	84.08	65	84.66	64.86	87.94	64	
91.46	63.09	91.88	63	100.25	62.19	102.54	62	105.79	61.91	
107.22	61.86	127.34	61	143.01	60.45	144.75	60.52	145.61	60.57	
146.2	60.55	146.99	60.59	149.69	60.63	150.52	60.66	151.22	60.69	
155.01	60.83	156.45	60.84	158.78	60.83	163.02	60.73	164.57	60.57	
165.33	60.49	169.94	60.26	186.31	60.24	186.8	60.23	187.14	60.22	
189.86	60.26	192.06	60.18	193.27	60	201.48	59.84	204.47	59.79	
206.42	59.23	207.13	59	212	58.4	213.5	56.9	219	55.9	
221	56.9	222	58.4	224.5	58.6	227	58.9	227.31	59.4	
232.8	60	238.57	60.89	239.34	61	239.66	61.05	245.18	62	
247.05	62.32	251.56	63	254.55	63.55	256.65	64	261.26	64.88	
261.88	65	262.17	65.1	264.84	66	266.59	66.6	267.76	67	
275.97	67.04	276.76	67.07	277.41	67.11	282.47	67.31	293.79	68	
306.81	68.22	307.84	68.27	313.48	68.6	318.88	69	320.46	69.52	
326.82	69.55	332.54	69.75	333.33	69.72	339.46	69.64	353.71	69.69	
358.59	70	376.66	70.21	383	71	389.64	71.2	390.13	71.27	
390.82	71.38	391.67	71.53	395.02	72	396.21	72.15	396.44	72.19	
400.88	73	405.44	73.91	405.95	74	410.72	74.98	410.82	75	
413.77	74.99	413.99	75	416.82	75.03	417.4	75.06			

Manni ng' s n Val ues num= 5  
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val  
 0 .1 107.22 .04 201.48 .045 227.31 .04 266.59 .1

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 201.48 227.31 329.62 333.16 332.01 .3 .5  
 Bl ocked Obstructi ons num= 1

Goodwiv esDari enEX. rep

Sta L Sta R Elev  
65.99 99.6 80.3

CROSS SECTION

RIVER: Goodwiv es Ri ver  
REACH: mai nstem RS: 11517

INPUT  
Description: NEW SURVEY - Between Boston Post and Prospect

62.59' = FFE of Home on Left  
55.32' = Garage of Home on Left

EXISTING - Added section near low home with survey, overbank from town topo.

Station	Elevation	Data	num=	78	Sta	Elev	Sta	Elev	Sta	Elev
0	63.41	13.24	63	16.06	62.46	18.29	62	21.89	61.33	61.33
23.79	61	27.1	60.41	28.66	60	32.13	59.31	33.66	59	59
34.5	58.84	36.89	58.67	39.21	58	43.67	57.82	44.26	57.8	57.8
46.5	57.15	46.96	57.1	47.65	57	48.96	56.93	51.32	56.78	56.78
52.18	56.72	57.64	56.05	57.85	56.03	57.93	56.02	58.04	56	56
58.32	55.98	74.92	55	81.01	54.57	87.29	54	108.07	53.98	53.98
112.28	53.84	113.52	53.79	120.01	53.4	121.33	53.34	124.7	53.87	53.87
129.4	51.18	133.3	50.11	136.7	49.81	142	51.58	148	53.54	53.54
148.64	53.62	150.98	53.72	154.1	53.86	155.09	53.92	156.6	54	54
171.69	54.43	175.42	54.38	178.3	54.35	199.22	54.24	205.77	54.34	54.34
208.3	54.44	213.69	54.56	221.37	54.76	223.45	54.87	225.48	55	55
233.08	55.43	235.49	55.56	237.1	55.65	237.7	55.68	239.16	55.76	55.76
239.49	55.78	240.32	55.8	243.72	55.95	245.15	56	252.53	56.18	56.18
261.04	56.5	262.54	56.53	263.47	56.55	270.91	57	272.33	57.16	57.16
276.77	57.43	279.34	57.59	279.61	57.6	280.49	57.66	282.17	57.76	57.76
286.25	58	293.1	58.41	299.08	58.77					

Manning's n	Values	num=	4
Sta	n Val	Sta	n Val
0	.1	87.29	.04
		124.7	.045
		148	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
124.7 148 133.61 135.88 138.26 .1 .3

Blocked Obstructions num= 1  
Sta L Sta R Elev  
47.6 76.61 81.05

CROSS SECTION

RIVER: Goodwiv es Ri ver  
REACH: mai nstem RS: 11381

INPUT  
Description: UPDATED - 40.1 FEMA X - US section of Boston Post Road

EXISTING - Updated with town topo. Changed LOB nvalue from .07 to .05 for lawn with some trees.

Station	Elevation	Data	num=	283	Sta	Elev	Sta	Elev	Sta	Elev
0	77.14	3.87	77	14.15	76.41	22.26	76	27.81	75.85	75.85
39.52	75	63.36	74.4	79.4	74	102.97	73.06	103.67	73	73

Goodwi vesDari enEX. rep

105.43	72.86	116.97	72	133.86	71.25	140.23	71	145.97	70.82
156.8	70.62	178.21	70.14	186.73	70	196.11	70.11	197.78	70.15
201.77	70.28	204.01	70.36	213.6	70.73	216.68	70.82	220.76	71
225.04	70.08	225.09	70	225.3	69.64	225.63	69	226.11	68.08
226.14	68.03	226.16	68	226.55	67.26	226.69	67	226.96	66.5
227.22	66	227.74	65.05	227.76	65.02	227.77	65	227.79	64.97
228.13	64.32	228.75	64	235.6	63.69	239.15	63.52	244.15	63.46
246.9	63.77	248.56	63.75	250.53	64	251	64.1	251.26	64.11
254.11	64.52	254.87	65	256.45	65.39	258.79	66	261.98	66.3
268.55	66	282.81	65.39	286.63	65	287.68	64.68	290.92	64
291.28	63.82	292.85	63	294.55	62.21	295.33	62.15	296.68	62
324.42	61.64	332.25	61.24	336.81	61	337.76	60.6	342.03	60
355.63	59.86	356.1	59.81	356.47	59.76	360.14	59.28	361.76	59.05
362.33	59	362.93	58.92	363.22	58.89	364.08	58.76	364.88	58.66
366.16	58.48	367.88	58.2	368.03	58.18	369.71	58	370.22	57.94
370.48	57.91	371.72	57.75	371.95	57.71	375.82	57.08	376.11	57.03
376.27	57	376.64	56.91	377.26	56.75	380.29	56	380.51	55.95
382.59	55.42	383.96	55.08	384.27	55	388.45	54.05	388.64	54.01
388.67	54	392.62	53.22	393.18	53.12	393.47	53.08	394.1	53
406.01	52.78	426.2	52.04	426.49	52.03	426.7	52.02	427.6	52.03
434.24	52.27	436.32	52.3	448.97	52.17	449.89	52.06	450.47	52
453.35	51.22	453.77	51	454.76	50.84	457.76	49.43	464.93	49.43
472.9	50.86	474.46	51	476.06	51.48	478.24	52	479.13	52.25
479.3	52.3	479.46	52.32	482.48	53	486.03	53.53	487.22	54
487.8	54.13	490.94	55	502.24	55.59	510.3	56	551.3	55.54
557.16	55.44	565.75	55.27	574.89	55.13	584.48	55	624.85	55.02
624.99	55.03	625.29	55.04	626.08	55.08	639.78	55.71	644.52	56
659.91	55.71	666.65	55	667.49	54.95	683.89	54.66	688.12	54.61
689.3	54.6	690.74	54.59	692.62	54.58	694.45	54.6	695.59	54.57
706.2	54.55	706.65	54.56	711.64	54.66	713.39	54.68	715.89	54.72
718.2	54.75	719.3	54.76	720.22	54.77	725.21	54.79	740.92	54.85
742.31	54.78	743.67	54.81	748.87	54.93	749.95	54.94	752.98	54.91
758.55	55	762.64	55.02	766.24	55.22	773.35	55.4	773.64	55.39
775.68	55.43	778.7	55.41	780.01	55.43	781.83	55.45	783.8	55.42
784.07	55.43	784.36	55.42	787.53	55.48	809.34	55.9	811.28	56
821.51	56.39	825.3	56.58	830.35	57	841.06	57.18	841.63	57.2
844.59	57.31	854.9	57.66	863.16	58	868.57	58.23	868.83	58.24
884.24	59	894.5	59.57	899.76	60	903.93	60.58	906.83	61
907.28	61.08	911.31	62	911.35	62.01	911.44	62.03	911.5	62.05
915.02	63	917.03	63.56	918.27	63.91	918.59	64	921.27	64.35
924.77	64.8	926.97	65	930.4	65.29	932.5	65.5	943.09	66
943.52	66.03	943.57	66.04	943.75	66.05	944.8	66.13	945.1	66.17
946.78	66.33	947	66.35	947.58	66.42	948.15	66.52	949.94	66.51
950.64	66.59	952.05	66.64	953.35	66.63	954.1	66.62	954.59	66.61
959.7	66.85	972.1	67	1020.1	67.43	1020.99	67.44	1021.88	67.45
1028.56	67.54	1032.26	67.62	1041.42	68	1054.32	68.02	1060.95	68.11
1062.98	68.14	1065.25	68.19	1070.5	68.31	1075.98	68.48	1092.95	69
1093.07	69.03	1093.25	69.09	1093.39	69.12	1093.91	69.25	1094.21	69.31
1094.54	69.38	1098.21	70	1100.81	70.2	1101.34	70.24	1101.71	70.28
1102.82	70.38	1104.45	70.7	1105.2	70.85	1105.91	71	1107.68	71.38
1108.56	71.59	1110.3	72	1110.93	72.16	1112.28	72.49	1114.17	72.98
1114.21	72.99	1114.27	73	1116.1	73.42	1118.43	74	1118.86	74.1
1119.15	74.18	1122.2	75	1123.79	75.46	1125.36	76	1125.39	76.01
1127.25	76.81	1127.7	77	1127.73	77.01	1129.92	78	1130.96	78.09
1131.02	78.1	1131.86	78.19	1133.52	78.35				

Manni ng' s n Val ues	num=	5							
Sta n Val	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.1	220.76	.05	449.89	.045	472.9	.1	510.3	.02
Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.		
449.89	472.9	46.08	49.26	45.16	.3	.5			
Blocked	Obstructi ons	num=	1						

Goodwi vesDari enEX. rep

Sta L Sta R Elev  
29.92 208.29 104.53

CROSS SECTION

RIVER: Goodwi ves Ri ver  
REACH: mai nstem RS: 11332

INPUT  
Description: SURVEYED - 40.0 U/S face of Boston Post Road -

EXISTING - Updated channel with survey, overbank with town topo. Updated Ineffective Flow Areas.

REVDUP - corrected Ineffective Flow Areas to use 1:1 contraction and expansion and min top of road elevation

DUP - deleted ds section 39.2, identical to this section, this section now becomes internal cross sections US and DS

Station	Elevation	Data	num=	268							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	76.23	1.85	76.43	2.09	76.49	2.58	76.59	4.56	76.99		
4.59	77	4.62	77.03	5.69	78	6.32	77.99	6.59	77.92		
9.61	77.12	10.1	77	10.41	76.88	12.62	76	15.11	75.33		
16.23	75.03	16.29	75.02	16.36	75	25.26	75.21	28.94	75		
33.6	75.07	37.76	75	43.02	75.08	44.63	75.2	51.84	76		
54.65	75.89	55.15	75.88	60.88	75.6	61.82	75.59	74.37	75.44		
85.7	75	100.27	74.68	102.23	74.66	117	74.91	117.91	74.89		
120.5	74.96	120.71	74.95	123.2	75	173.49	74.87	173.6	74.83		
177.74	74	179.14	73.72	181.83	73	183.83	72.43	185.35	72.06		
185.59	72	190.38	71.48	194.3	71.19	197.15	71.23	198.62	71.14		
198.92	71.16	200.78	71	237.32	70.66	252.01	70	263.69	70.3		
263.79	70.43	264.16	70.73	264.29	70.85	264.49	71	305.9	70.93		
306	70.92	306.15	70.91	308.41	70.74	308.78	70.71	310.05	70.59		
311.53	70.47	311.78	70.45	312.41	70.38	312.89	70.33	313.8	70.22		
314.11	70.18	315.19	70.04	315.24	70.03	315.47	70	319.17	69.53		
322.24	69.16	322.5	69.12	322.7	69.09	323.43	69	323.65	68.97		
324.89	68.78	325.01	68.76	325.2	68.74	326.13	68.58	326.44	68.52		
326.82	68.45	327.36	68.35	327.74	68.29	328.02	68.24	329.16	68.1		
329.25	68.09	329.8	68	333.1	67.49	334.2	67.28	335.63	67		
337.57	66.81	337.89	66.79	338.07	66.77	340.1	66.63	343.97	66.28		
346.27	66.13	347.9	66	352.18	65.85	352.22	65.84	353.41	65.81		
353.85	65.79	358.38	65.62	359.24	65.58	361.49	65.5	363.48	65.43		
367.67	65.27	369.86	65.19	371.68	65.13	374.36	65.03	375.01	65		
375.65	64.63	377.49	64	378.26	63.93	380.28	63.62	383.67	63.66		
387.71	63.5	388.32	63.48	388.61	63.46	393.98	63.24	398.96	63		
401.76	62.88	402.48	62.85	407.02	62.58	410.62	62.44	412.31	62.37		
419.69	62	428.19	61.59	437.85	61	439.63	60.43	440.46	60		
440.72	59.87	441.09	59.69	441.45	59.52	442.31	59.1	442.5	59		
446.34	59.35	447.54	59.54	449.02	59.76	449.55	59.8	449.97	59.84		
450.24	59.86	453.48	59.78	454.44	59.75	455.08	59.72	456.5	59.46		
457.8	59.28	458.87	59	459.79	58.61	462.18	58	463.31	57.75		
465.45	57	469.73	56.11	470.09	56	471.91	55.76	477.41	55		
477.59	54.97	478.72	54.85	485.83	54	486.67	53.91	491.69	53.38		
494.19	53.18	498.36	53	510.43	52.54	514.6	52.45	522.62	52		
534.78	51.74	537.15	51.68	542.06	51.61	543.47	51.6	548.32	51.61		
552.07	51.56	557.07	51.58	557.78	51.55	559.59	50.93	560	50.99		
560.2	50.64	564.6	48.6	569.2	48.37	575	48.65	582.7	48.77		
598.2	54.88	622.57	55.3	632.02	55.23	644.8	55.14	654.25	55		
708.85	55.26	742.85	55.42	785.46	55.97	785.98	55.95	790.82	56		

Goodwi vesDari enEX. rep

796.97	55.99	799.41	55.91	824.3	55	825.43	54.73	829.27	54
846.88	54.18	865.25	54.71	872.22	54.97	873.17	55	926.22	55.58
928.16	56	931.19	56.66	932.74	57	935.05	57.5	937.47	58
937.67	58.03	944.06	59	945.41	59.08	946.89	59.17	949.15	59.31
958.55	59.87	960.7	60	993.09	60.36	996.3	61	1001.57	61.36
1005.07	61.58	1008.23	61.69	1011.13	61.72	1019.86	61.71	1034.85	62
1046.64	61.16	1048.91	61.1	1050.64	61.05	1052.15	61	1079.28	61.47
1079.93	61.56	1084.15	62	1103.35	62.95	1103.64	63	1111.92	63.13
1115.54	63.19	1116.88	63.23	1122.15	63.35	1137.92	64	1188.78	64.45
1194.66	65	1200.63	65.52	1207.93	66	1277.83	66.55	1280.22	67
1281.09	67.37	1282.57	68	1286.9	67.92	1292.35	67.65	1297.79	67.78
1301.68	67.86	1306.82	68	1318.24	68.32	1321.88	68.44	1324.43	68.87
1325.3	69	1327.21	69.9	1327.28	70	1327.51	70.28	1328.12	71
1328.68	71.7	1328.93	72	1329.08	72.18	1329.76	73	1330.19	73.46
1330.73	74	1331.88	74.95	1331.96	75				

Manning's n Values

num=	4
Sta n Val	Sta n Val
0 .04	557.78 .035
	598.2 .04
	708.85 .1

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 557.78 598.2 101.21 100.79 105.18 .3 .5

Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 533.6 55.94 F  
 611.6 1331.96 55.07 F

Blocked Obstructions num= 5  
 Sta L Sta R Elev Sta L Sta R Elev Sta L Sta R Elev  
 718.68 803.76 64.8 837.23 868.2 74 886.13 918.58 75.95  
 991.78 1037.37 70.85 945.57 971.01 69.75

BRIDGE

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 11303

INPUT

Description: SURVEYED - 39.15 Boston Post Road -

EXISTING - Updated deck,  
 opening with survey. 12" pipe runs along ds high chord.  
 Unidentified pipe runs along bed at low point in low chord  
 constricting flow under bridge, used internal section to define  
 pipe/sediment build up. Extended road deck with town topo.

DUP -

used internal cross sections to define DS identical to US, deleted  
 sections 39.2 and 39.1 (bridge edge sections)

Distance from Upstream XS = 31  
 Deck/Roadway Width = 47  
 Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates

num=	18	
Sta Hi Cord Lo Cord	Sta Hi Cord Lo Cord	Sta Hi Cord Lo Cord
400.6 62	424.6 61	444.6 60
470.6 59	493.6 58	519.6 57
564.6 55.94	564.6 55.94	54.03 580.6 55.07
580.6 55.07	621.6 54	824.6 54
882.6 55	916.6 56	942.6 57
975.6 58	1006.6 59	1072.6 60

Upstream Bridge Cross Section Data



Goodwi vesDari enEX. rep

Stati on El evati on Data

num= 266

Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
0	76.23	1.85	76.43	2.09	76.49	2.58	76.59	4.56	76.99
4.59	77	4.62	77.03	5.69	78	6.32	77.99	6.59	77.92
9.61	77.12	10.1	77	10.41	76.88	12.62	76	15.11	75.33
16.23	75.03	16.29	75.02	16.36	75	25.26	75.21	28.94	75
33.6	75.07	37.76	75	43.02	75.08	44.63	75.2	51.84	76
54.65	75.89	55.15	75.88	60.88	75.6	61.82	75.59	74.37	75.44
85.7	75	100.27	74.68	102.23	74.66	117	74.91	117.91	74.89
120.5	74.96	120.71	74.95	123.2	75	173.49	74.87	173.6	74.83
177.74	74	179.14	73.72	181.83	73	183.83	72.43	185.35	72.06
185.59	72	190.38	71.48	194.3	71.19	197.15	71.23	198.62	71.14
198.92	71.16	200.78	71	237.32	70.66	252.01	70	263.69	70.3
263.79	70.43	264.16	70.73	264.29	70.85	264.49	71	305.9	70.93
306	70.92	306.15	70.91	308.41	70.74	308.78	70.71	310.05	70.59
311.53	70.47	311.78	70.45	312.41	70.38	312.89	70.33	313.8	70.22
314.11	70.18	315.19	70.04	315.24	70.03	315.47	70	319.17	69.53
322.24	69.16	322.5	69.12	322.7	69.09	323.43	69	323.65	68.97
324.89	68.78	325.01	68.76	325.2	68.74	326.13	68.58	326.44	68.52
326.82	68.45	327.36	68.35	327.74	68.29	328.02	68.24	329.16	68.1
329.25	68.09	329.8	68	333.1	67.49	334.2	67.28	335.63	67
337.57	66.81	337.89	66.79	338.07	66.77	340.1	66.63	343.97	66.28
346.27	66.13	347.9	66	352.18	65.85	352.22	65.84	353.41	65.81
353.85	65.79	358.38	65.62	359.24	65.58	361.49	65.5	363.48	65.43
367.67	65.27	369.86	65.19	371.68	65.13	374.36	65.03	375.01	65
375.65	64.63	377.49	64	378.26	63.93	380.28	63.62	383.67	63.66
387.71	63.5	388.32	63.48	388.61	63.46	393.98	63.24	398.96	63
401.76	62.88	402.48	62.85	407.02	62.58	410.62	62.44	412.31	62.37
419.69	62	428.19	61.59	437.85	61	439.63	60.43	440.46	60
440.72	59.87	441.09	59.69	441.45	59.52	442.31	59.1	442.5	59
446.34	59.35	447.54	59.54	449.02	59.76	449.55	59.8	449.97	59.84
450.24	59.86	453.48	59.78	454.44	59.75	455.08	59.72	456.5	59.46
457.8	59.28	458.87	59	459.79	58.61	462.18	58	463.31	57.75
465.45	57	469.73	56.11	470.09	56	471.91	55.76	477.41	55
477.59	54.97	478.72	54.85	485.83	54	486.67	53.91	491.69	53.38
494.19	53.18	498.36	53	510.43	52.54	514.6	52.45	522.62	52
534.78	51.74	537.15	51.68	542.06	51.61	543.47	51.6	548.32	51.61
552.07	51.56	557.07	51.58	557.78	51.55	559.59	50.93	560	50.99
560.2	50.64	564.6	48.71	580.6	48.19	582.7	48.77	598.2	54.88
622.57	55.3	632.02	55.23	644.8	55.14	654.25	55	742.85	55.42
785.46	55.97	785.98	55.95	790.82	56	796.97	55.99	799.41	55.91
824.3	55	825.43	54.73	829.27	54	846.88	54.18	865.25	54.71
872.22	54.97	873.17	55	926.22	55.58	928.16	56	931.19	56.66
932.74	57	935.05	57.5	937.47	58	937.67	58.03	944.06	59
945.41	59.08	946.89	59.17	949.15	59.31	958.55	59.87	960.7	60
993.09	60.36	996.3	61	1001.57	61.36	1005.07	61.58	1008.23	61.69
1011.13	61.72	1019.86	61.71	1034.85	62	1046.64	61.16	1048.91	61.1
1050.64	61.05	1052.15	61	1079.28	61.47	1079.93	61.56	1084.15	62
1103.35	62.95	1103.64	63	1111.92	63.13	1115.54	63.19	1116.88	63.23
1122.15	63.35	1137.92	64	1188.78	64.45	1194.66	65	1200.63	65.52
1207.93	66	1277.83	66.55	1280.22	67	1281.09	67.37	1282.57	68
1286.9	67.92	1292.35	67.65	1297.79	67.78	1301.68	67.86	1306.82	68
1318.24	68.32	1321.88	68.44	1324.43	68.87	1325.3	69	1327.21	69.9
1327.28	70	1327.51	70.28	1328.12	71	1328.68	71.7	1328.93	72
1329.08	72.18	1329.76	73	1330.19	73.46	1330.73	74	1331.88	74.95
1331.96	75								

Manni ng' s n Val ues

num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.015	557.78	.035	598.2	.015

Bank Sta: Left 557.78 Right 598.2 Coeff Contr. .3 Expan. .5

Goodwi vesDari enEX. rep

Ineffecti ve Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 533.6 55.94 F  
 611.6 1331.96 55.07 F

Blocked Obstructi ons num= 5  
 Sta L Sta R Elev Sta L Sta R Elev Sta L Sta R Elev  
 718.68 803.76 64.8 837.23 868.2 74 886.13 918.58 75.95  
 991.78 1037.37 70.85 945.57 971.01 69.75

Downstream Deck/Roadway Coordi nates num= 18  
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord  
 341 62 365 61 385 60  
 411 59 434 58 460 57  
 505 56.61 505 56.61 52.64 521 56.41 52.45  
 521 56.41 562 54 765 54  
 823 55 857 56 883 57  
 916 58 947 59 1013 60

Downstream Bridge Cross Secti on Data Stati on Elevati on Data num= 215  
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev  
 0 74.16 .82 74.14 6.97 74 10.56 73.94 19.39 73.78  
 20.58 73.71 24.14 73.63 28.28 73.4 33.17 73.26 35.43 73  
 43.52 72.62 46.48 72 52.44 71.63 52.55 71.62 60.58 71.47  
 64.5 71.43 65.05 71.42 66.87 71.38 71.67 71.29 85.14 71.27  
 88.33 71.24 89.54 71.23 95.48 71.29 101.72 71 158.22 70.31  
 163.98 70 182 69.32 188.84 69 193.75 68.75 201.69 68.38  
 209.58 68 211.39 67.88 224.78 67 236.08 66.44 243.96 66  
 266.33 65.02 266.72 65.01 266.9 65 293.4 64.17 294.4 64.14  
 298.77 64 321.24 63.27 323.08 63.29 330.03 63 349.53 62.1  
 350.29 62 350.67 61.87 353.1 61 359.02 60.15 360.03 60  
 389.57 59.22 393.5 59.1 396.74 59 398.01 58.51 399.23 58  
 400.82 57.38 401.77 57 402.57 56.63 404.07 56 405.47 55.44  
 406.58 55 408.07 54.45 409.27 54 409.76 53.8 411.93 53  
 416.16 52.44 419.38 52 437.35 51.37 443.61 51.17 444.34 51.16  
 446.96 51.02 447.31 51 483.79 50.26 487.85 50.18 495.36 50.06  
 497.6 50.2 505 48.82 521 48.47 523.36 51 525.02 51.28  
 525.22 51 528.17 51.79 528.71 51.88 529.41 52 531.51 52.23  
 531.81 52.25 532.35 52.32 532.47 52.33 532.65 52.34 532.86 52.37  
 533.06 52.39 534.06 52.51 534.65 52.58 534.8 52.6 535.04 52.63  
 537 52.92 537.22 52.94 537.66 53 538.14 53.02 538.37 53.03  
 540.76 53.19 540.96 53.2 541.04 53.21 571.18 53.67 577.26 53.8  
 585.69 54 601.7 54.61 602 54.67 602.1 54.68 602.24 54.69  
 602.36 54.7 602.45 54.71 602.51 54.7 602.58 54.72 603.02 54.78  
 608.67 54 625.81 54.64 632.91 54.58 633.87 54.55 635.22 54.42  
 636.17 54.32 640.6 54 698.89 53.87 712.43 53.91 714.24 53.85  
 720.7 53.87 727.6 53.9 729.27 53.88 734.25 53.85 736.68 53.86  
 738.29 53.78 756.48 53.58 759.94 53.78 760.03 53.79 765.04 53.89  
 766.66 53.94 769.65 54 795.12 54.19 806.73 55 820.56 55.22  
 836.83 56 855.38 56.58 856.92 56.69 863.82 56.6 877.82 57  
 903.05 57.8 905.76 58 913.91 58.43 915.43 58.47 918.51 58.55  
 932.16 59 935.05 59.4 935.51 59.43 943.26 59.94 943.6 59.98  
 944.25 60 949.29 60.74 951.5 60.82 952.72 60.84 953.57 60.86  
 953.82 60.87 955.17 60.88 955.91 60.87 956.99 60.85 957.47 60.87  
 957.53 60.88 960.78 60.81 960.95 60.82 963.35 60.74 964.27 60.69  
 965.7 60.56 970.92 60.78 971.84 60.76 978.14 61 1003.72 61.67  
 1008.43 62 1022.42 62.43 1028.6 63 1037.96 63.05 1039.16 63.09  
 1044.84 63.29 1061.81 64 1114.99 64.58 1118.97 65 1122.22 65.39  
 1129.14 66 1166.01 65.73 1175.23 66 1193.86 65.21 1198.09 65.57  
 1199.45 65.77 1200.1 65.87 1201.48 66 1203.85 66.3 1205.14 66.36  
 1205.95 66.31 1206.82 66.45 1208.32 66.37 1212.82 66.54 1217.64 66.59  
 1234.39 66.87 1236.58 66.89 1237.04 67 1242.48 67.12 1242.62 67.14

Goodwi vesDari enEX. rep  
 1243. 12 67. 23 1244. 75 67. 34 1250. 64 68 1256. 94 68. 88 1257. 82 69  
 1259. 39 69. 09 1262 69. 47 1264. 13 69. 82 1265. 45 70 1269. 99 70. 34

Manni ng' s n Val ues num= 3  
 Sta n Val Sta n Val Sta n Val  
 0 .045 497. 6 .045 521 .045

Bank Sta: Left Right Coeff Contr. Expan.  
 497. 6 521 .3 .5

I neffecti ve Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 482. 21 54. 6 F  
 543. 79 1269. 99 54. 43 F

Bl ocked Obstructi ons num= 1  
 Sta L Sta R Elev  
 1059. 56 1083. 67 81. 6

Upstream Embankment side slope = 1. 2 hori z. to 1. 0 verti cal  
 Downstream Embankment side slope = . 73 hori z. to 1. 0 verti cal  
 Maximum allowable submergence for weir flow = . 98  
 Elevati on at whi ch weir flow begi ns = 55. 07  
 Energy head used i n spi llway desi gn =  
 Spi llway hei ght used i n desi gn =  
 Weir crest shape = Broad Crested

Number of Bridge Coeffici ent Sets = 1

Low Flow Methods and Data  
 Energy

Selected Low Flow Methods = Hi ghest Energy Answer

Hi gh Flow Method

Pressure and Weir flow  
 Submerged Inlet Cd =  
 Submerged Inlet + Outlet Cd = . 8  
 Max Low Cord = 54. 03

Addi ti onal Bridge Parameters

Add Fricti on component to Momentum  
 Do not add Weight component to Momentum  
 Class B flow critical depth computations use critical depth  
 i nside the bridge at the upstream end  
 Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 11231

INPUT

Descripti on: SURVEYED - 38. 1 D/S Face of Boston Post Road

EXI STING -

Updated channel with survey, overbank with town topo. Updated  
 I neffecti ve Flow Areas.

REVDUP - corrected I neffecti ve Flow

Areas to use 1: 1 contracti on and expansi on and average of mi n top  
 of road elevati on and max low chord

Stati on Elevati on Data num= 224  
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev  
 0 74. 16 . 82 74. 14 6. 97 74 10. 56 73. 94 19. 39 73. 78

Goodwi vesDari enEX. rep

20.58	73.71	24.14	73.63	28.28	73.4	33.17	73.26	35.43	73
43.52	72.62	46.48	72	52.44	71.63	52.55	71.62	60.58	71.47
64.5	71.43	65.05	71.42	66.87	71.38	71.67	71.29	85.14	71.27
88.33	71.24	89.54	71.23	95.48	71.29	101.72	71	158.22	70.31
163.98	70	182	69.32	188.84	69	193.75	68.75	201.69	68.38
209.58	68	211.39	67.88	224.78	67	236.08	66.44	243.96	66
266.33	65.02	266.72	65.01	266.9	65	293.4	64.17	294.4	64.14
298.77	64	321.24	63.27	323.08	63.29	330.03	63	349.53	62.1
350.29	62	350.67	61.87	353.1	61	359.02	60.15	360.03	60
389.57	59.22	393.5	59.1	396.74	59	398.01	58.51	399.23	58
400.82	57.38	401.77	57	402.57	56.63	404.07	56	405.47	55.44
406.58	55	408.07	54.45	409.27	54	409.76	53.8	411.93	53
416.16	52.44	419.38	52	437.35	51.37	443.61	51.17	444.34	51.16
446.96	51.02	447.31	51	483.79	50.26	487.85	50.18	495.36	50.06
497.6	50.2	508.5	46.88	510.8	46.23	514.5	45.9	517.8	46.62
518.45	49.54	518.86	49.82	519.13	50	519.17	50.01	519.29	50.06
520.18	50.38	520.54	50.45	523.36	51	525.02	51.28	525.22	51
528.17	51.79	528.71	51.88	529.41	52	531.51	52.23	531.81	52.25
532.35	52.32	532.47	52.33	532.65	52.34	532.86	52.37	533.06	52.39
534.06	52.51	534.65	52.58	534.8	52.6	535.04	52.63	537	52.92
537.22	52.94	537.66	53	538.14	53.02	538.37	53.03	540.76	53.19
540.96	53.2	541.04	53.21	571.18	53.67	577.26	53.8	585.69	54
601.7	54.61	602	54.67	602.1	54.68	602.24	54.69	602.36	54.7
602.45	54.71	602.51	54.7	602.58	54.72	603.02	54.78	608.67	54
625.81	54.64	632.91	54.58	633.87	54.55	635.22	54.42	636.17	54.32
640.6	54	698.89	53.87	712.43	53.91	714.24	53.85	720.7	53.87
727.6	53.9	729.27	53.88	734.25	53.85	736.68	53.86	738.29	53.78
756.48	53.58	759.94	53.78	760.03	53.79	765.04	53.89	766.66	53.94
769.65	54	795.12	54.19	806.73	55	820.56	55.22	836.83	56
855.38	56.58	856.92	56.69	863.82	56.6	877.82	57	903.05	57.8
905.76	58	913.91	58.43	915.43	58.47	918.51	58.55	932.16	59
935.05	59.4	935.51	59.43	943.26	59.94	943.6	59.98	944.25	60
949.29	60.74	951.5	60.82	952.72	60.84	953.57	60.86	953.82	60.87
955.17	60.88	955.91	60.87	956.99	60.85	957.47	60.87	957.53	60.88
960.78	60.81	960.95	60.82	963.35	60.74	964.27	60.69	965.7	60.56
970.92	60.78	971.84	60.76	978.14	61	1003.72	61.67	1008.43	62
1022.42	62.43	1028.6	63	1037.96	63.05	1039.16	63.09	1044.84	63.29
1061.81	64	1114.99	64.58	1118.97	65	1122.22	65.39	1129.14	66
1166.01	65.73	1175.23	66	1193.86	65.21	1198.09	65.57	1199.45	65.77
1200.1	65.87	1201.48	66	1203.85	66.3	1205.14	66.36	1205.95	66.31
1206.82	66.45	1208.32	66.37	1212.82	66.54	1217.64	66.59	1234.39	66.87
1236.58	66.89	1237.04	67	1242.48	67.12	1242.62	67.14	1243.12	67.23
1244.75	67.34	1250.64	68	1256.94	68.88	1257.82	69	1259.39	69.09
1262	69.47	1264.13	69.82	1265.45	70	1269.99	70.34		

Manning's n Values num= 3  
 Sta n Val Sta n Val Sta n Val  
 0 .045 497.6 .045 519.17 .045

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 497.6 519.17 16.59 25.73 25.47 .3 .5

Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 482.21 54.6 F  
 543.79 1269.99 54.43 F

Blocked Obstructions num= 1  
 Sta L Sta R Elev  
 1059.56 1083.67 81.6

CROSS SECTION

RIVER: Goodwi ves Ri ver

REACH: mainstem

RS: 11206

INPUT

Description: UPDATED - 38.0 FEMA W - DS section of Boston Post Road

EXISTING - Updated with survey using channel shape from us cross section. Overbank from town topo.

Station Elevation Data		num= 263							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	72	9.78	72.54	12.14	72.76	15.2	73	37.5	72.48
47.91	72	59.12	71.76	60.95	71.67	62.48	71.6	75.55	71
81.89	70.48	87.89	70	95.02	69.1	95.35	69.08	95.6	69.06
96.02	69	103.8	68.86	112.64	68.77	119.73	68.69	124.91	68.67
127.56	68.41	129.02	68.27	138.55	68.29	142.92	68.14	152.37	68.16
160.93	68	167.64	67.71	169.29	67.68	172.97	67.69	173.85	67.68
199.52	67	203.92	66.76	204.69	66.64	207.51	66	216.72	65.5
224.3	65	228.73	64.89	253.55	64	283.83	63.71	299.08	63
299.8	62.96	325.97	62	333.82	61.17	334.48	61	335.38	60.89
342.19	60	357.57	59.47	363.72	59.25	365.72	59.18	370.71	59
371.09	58.9	374.28	58	376.34	57.27	377.1	57	377.99	56.67
379.44	56.14	379.81	56	380.21	55.86	382.57	55	384.57	54.28
385.34	54	385.85	53.93	391.82	53.31	392.05	53.29	394.26	53.05
394.45	53.03	394.78	53	399.51	52.14	400.26	52	419.15	51.31
425.96	51	438.46	50.84	440.62	50.79	441.14	50.78	464.61	50
475.49	49.639	485.946	49.639	488.245	49.639	491.945	49.639	495.246	49.639
513.53	48.6639	531.2	48.6639	533.47	48.6639	536.25	48.6639	539.06	48.6639
541.65	47.53	543.95	47.53	546.21	47.53	546.48	47.53	547.82	47.53
548.31	46.53	550.81	46.53	550.99	46.53	552.64	46.53	552.78	46.53
554	45.52	556.48	45.52	557.2	45.52	557.23	45.52	558.01	45.52
559.3	44.52	571.1	44.52	576.28	44.52	579.14	44.52	586.53	44.52
589.1	43.52	589.36	43.52	589.55	43.52	589.82	43.52	589.91	43.52
590.01	42.54	590.45	42.54	592.32	42.54	592.47	42.54	606.72	42.54
609.32	41.53	609.63	41.53	611.31	41.53	613.95	41.53	620.14	41.53
620.81	40.52	621.14	40.52	623.3	40.52	625.35	40.52	626.53	40.52
632.37	39.52	633.56	39.52	633.78	39.52	637.33	39.52	638.18	39.52
638.76	38.52	640.72	38.52	642.28	38.52	644.85	38.52	646.45	38.52
647.01	37.52	647.31	37.52	649.62	37.52	649.94	37.52	650.77	37.52
651.35	36.52	660.71	36.52	672.41	36.52	674.39	36.52	678.56	36.52
688.74	35.51	692.06	35.51	694.87	35.51	698.14	35.51	703.02	35.51
704.2	34.51	713.3	34.51	713.87	34.51	716.36	34.51	730.72	34.51
734.55	33.52	735.92	33.52	744.91	33.52	751.2	33.52	752.36	33.52
759.49	32.53	762.15	32.53	764.65	32.53	764.86	32.53	766.48	32.53
768.47	31.53	769.84	31.53	780.93	31.53	786.2	31.53	786.36	31.53
790.78	30.53	792.06	30.53	794.28	30.53	794.65	30.53	805.94	30.53
810.45	29.54	820.53	29.54	821.51	29.54	825.63	29.54	831.53	29.54
842.91	28.57	857	28.57	864.14	28.57	872.01	28.57	876.45	28.57
877.34	27.59	878.41	27.59	916.67	27.59	917.13	27.59	917.88	27.59
921.43	26.59	933.97	26.59	934.71	26.59	936.13	26.59	937.85	26.59
952.01	25.60	1001.12	25.60	1002.31	25.60	1014.1	25.60	1024.02	25.60
1027.2	24.62	1028.01	24.62	1028.82	24.62	1035.41	24.62	1036.75	24.62
1058.04	23.62	1061.68	23.62	1064.11	23.62	1105.41	23.62	1107.36	23.62
1113.31	22.64	1113.84	22.64	1126.63	22.64	1129.06	22.64	1130.33	22.64
1131.19	21.64	1134.69	21.64	1138.3	21.64	1139.95	21.64	1142.15	21.64
1143.65	20.64	1147.34	20.64	1150.34	20.64	1151.9	20.64	1153.23	20.64
1154.43	19.64	1154.89	19.64	1156	19.64	1156.58	19.64	1157.83	19.64
1158.14	18.64	1158.46	18.64	1158.76	18.64	1166.34	18.64	1166.63	18.64
1171.04	17.65	1191.15	17.65	1194.33	17.65	1196.76	17.65	1198.01	17.65
1198.85	16.65	1208.6	16.65	1210.27	16.65	1229.53	16.65	1233.47	16.65
1237.47	15.65	1238.78	15.65	1239.47	15.65	1241.16	15.65	1242.93	15.65
1248.27	14.66	1249.22	14.66	1255.72	14.66	1255.9	14.66	1256.54	14.66
1259.26	13.67	1259.97	13.67	1261.25	13.67	1264.14	13.67	1266.53	13.67
1269.69	12.69	1272.5	12.69	1273.58	12.69	70.06			

GoodwiesDari enEX. rep

Manning's n Values		num= 4		Sta n Val		Sta n Val		Sta n Val	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.1	325.97	.03	475	.035	513	.1		
Bank Sta:	Left	Right	Lengths: Left Channel		Right	Coeff	Contr.	Expan.	
	475	513	142.81	127.42	126.63		.3	.5	
Blocked Obstructions		num= 8		Sta L Sta R Elev		Sta L Sta R Elev		Sta L Sta R Elev	
	1058.29	1095.43	81.6	806.76	859.43	77.6	762.93	789.12	70.4
	713.2	741.7	69.65	659.73	689.94	60.95	596.15	633.71	61.75
	532.07	561.46	70.1	266.39	294.22	84.4			

CROSS SECTION

RIVER: Goodwies River  
 REACH: mainstem RS: 11078

INPUT  
 Description: NEW SURVEY - across narrow retaining walls

- 51.37' - FFE of Building on Left
- 49.20' - FFE of Building on Right

EXISTING - added section from new survey and overbank from town topo.

Station Elevation Data		num= 155		Sta Elev		Sta Elev		Sta Elev		Sta Elev	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	73.53	12.76	74	36.42	73.13	37.37	73	38.13	72.91		
45.89	72	50.79	71.73	57.04	71.55	72.09	71	121.88	70.39		
166.79	70	175.33	69.74	192.18	69	192.28	68.97	192.39	68.93		
195.28	68	196.52	67.6	198.4	67	202.13	66.54	206.73	66		
207.55	65.93	222.28	65	230.09	64.75	256.25	64.37	265.87	64.21		
266.37	64.2	269.58	64.15	281.43	64	308.05	63.47	325.81	63		
331.16	62.88	334.63	62.85	337.02	62.8	340.53	62.73	347.46	62.61		
352.16	62.5	358.27	62.37	363.45	62.25	373.12	62.09	376.74	62.08		
378.15	62.07	378.18	62.08	380.03	62.23	385.77	62.39	387.07	62.37		
388.46	62	390.19	61.66	393.91	61.19	395.85	61	406.2	60.74		
422.39	60	428.31	59.7	428.63	59.68	429.6	59.67	432.3	59.63		
443.31	59	445.44	58.68	449.74	58.66	457.54	58.33	463.64	58		
464.17	57.64	464.91	57	465.68	56.48	466.3	56	467.5	55.19		
467.76	55	468.35	54.61	469.29	54	469.49	53.88	470.85	53		
476.5	52.14	477.4	52	477.68	51.98	490	51	491.6	50.87		
492.2	50.86	495.99	50.62	496.39	50.6	499.16	50.44	504.98	50		
513.55	49.22	514.33	49.16	516.24	49	580.85	48.25	581.42	48.08		
581.67	48	585.7	48.48	585.7	44.63	588.6	44.29	593	44.09		
595.5	44.52	595.5	48.91	596.83	49	597.948	98938	640.15	48.57		
642.29	48.56	650.43	48.64	663.83	48.54	666.68	48.44	671.48	48.46		
673.13	48.44	679.39	48.38	689.58	48.48	689.91	48.49	690.15	48.5		
693.68	48.6	694.07	48.61	696.45	48.66	700.06	48.71	700.19	48.72		
713.08	49	716.36	49.05	716.72	49.06	730.4	49.33	732.4	49.34		
757.18	50	762.04	50.98	762.09	51	776.47	51.58	784.58	52		
787.61	52.16	789.61	52.21	795.92	52.42	798.6	52.52	812.07	52.95		
813.09	52.98	813.42	53	816.88	53.41	818.2	53.57	820.72	53.86		
821.91	54	822.01	54.01	822.4	54.04	825.52	54.28	831.99	54.76		
834.26	55	838.43	55.26	846.39	55.68	847.98	55.72	849.32	55.74		
851.95	56	858.73	56.75	861.46	57	862.85	57.11	864.69	57.23		
867.21	57.37	875.49	57.79	875.68	57.8	878.41	58	881.52	58.42		
887.62	59	890.49	59.64	891.03	59.87	891.33	60	892	60.02		

Manning's n Values num= 5

Goodwi vesDari enEX. rep

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.1	513.55	.03	585.7	.035	595.5	.03	650.43	.1		
Bank Sta:	Left	Right	Lengths:		Left Channel	Right	Coeff	Contr.	Expan.		
	585.7	595.5			506.8	529.84	518.41	.1	.3		
Blocked Obstructions			num= 3								
Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L	Sta R	Elev			
660.57	684.39	65.2	456.36	503.62	78.2	83.05	362.22	73.85			

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 10548

INPUT

Descripti on: SURVEYED - 37.0 FEMA V - US secti on of Ol d Ki ngs Hi ghway North

LEFT bui ldi ng ff el evati on 48.41'  
 di tch/channel to left  
 of channel on fl oodpl ai n

EXISTING - surveyed channel , updated  
 overbank with town topo. Updated n-values. Chnl n decreased from  
 .043 to .3. LOB n decreased from .1 to .08 for forest. ROB lower  
 secti on sparser trees.

Station	Elevation	Data	num=	253	Station	Elevation	Data	num=	253	Station	Elevation	Data	num=	253
0	73.13	1.51	73	4.62	72.9	21.39	72.27	26.23	72.09					
27.19	72.06	27.98	72.03	28.33	72	34.12	71.83	63.23	71					
83.2	70.93	84.31	70.91	90.27	70.77	93.07	70.7	105.47	70.31					
120.32	70	157.48	69.63	163.5	69.4	169.01	69	172.48	68.9					
183.43	68	188.92	67.47	191.84	67	196.71	66.26	198.37	66					
200.15	65.72	200.42	65.69	202.85	65.41	203.89	65.38	206.5	65.2					
211.01	65.3	215.97	65.06	216.1	65.05	216.84	65	223.63	64.18					
225.17	64	245.99	63.79	265.45	63.36	275.23	63	316.35	62.9					
317.28	62.88	353.07	62	357.03	61.92	360.2	61.9	385.77	61.55					
386.4	61.54	401.01	61.4	416.26	61	451.28	60.07	451.84	60					
452.22	59.96	452.94	59.88	460.39	59	463.03	58.55	466.34	58					
469.03	57.22	469.84	57	472.16	56.37	473.41	56	474.12	55.78					
476.66	55	477.28	54.8	477.39	54.77	477.61	54.73	478.1	54.62					
478.88	54.4	480.3	54	483.82	53.17	484.75	53.08	484.87	53.05					
485.68	53	499.46	52.12	500.16	52	505.86	51.66	506.54	51.63					
514.75	51.25	517.05	51	532.75	50.89	543.98	50	554.29	49.81					
565.53	49	577.26	48.8	582.95	48.91	583.36	48.9	587.35	49					
588.95	48.99	598.88	48.8	605.12	48.68	609.73	48.59	611.31	48.56					
628.95	48.63	634.86	48.65	639.18	48.77	645.02	48.72	656.87	48					
658.3	47.91	665.64	47	676.92	46.05	678.45	46.09	679.43	46					
743.62	45.17	744.97	45	750.77	44.45	756.92	44.22	761.16	44					
762.42	43.96	763.4	44	845.03	43.41	848.85	43.4	866.52	43					
889.36	43.11	890.39	43.1	891.34	43.16	895.74	43	904.21	42.84					
904.7	42.79	906.38	42.72	909.09	42.44	910.13	42.37	910.7	42.33					
911.49	42.26	913.01	42	927.84	42.22	928.28	42.27	929	42.31					
934.26	43	938.97	43.55	943.58	44	948	43.28	951.5	40.74					
955.5	39.13	965.2	39.69	969.4	40.57	971.6	41.72	972.52	42.2528					
974.74	42.28	976.09	42.5	976.81	42.6	978.45	42.87	978.65	42.9					
979.33	43	980.51	43.28	980.9	43.37	981.92	43.6	982.29	43.68					
984.11	44	984.9	44.15	986.32	44.37	987.79	44.62	987.89	44.64					
988.02	44.66	988.79	44.77	989.96	44.88	992.37	45	995.68	45.12					
1000.83	45.23	1002.16	45.32	1003.99	45.4	1006.81	45.6	1007.24	45.63					
1008.66	46	1008.83	46.27	1009.3	47	1009.73	47.34	1010.68	48					
1013.7	48.32	1017.41	48.7	1018.48	48.75	1021.88	48.57	1025.54	48.42					

Goodwi vesDari enEX. rep

1029.92	48	1037.06	48.77	1037.51	48.74	1038.28	49	1042	49.71
1042.46	49.77	1043.91	49.93	1044.54	49.99	1044.65	50	1047.68	50.19
1047.87	50.2	1051.12	50.35	1052.44	50.36	1053.12	50.41	1055.08	50.43
1057.12	50.6	1057.72	50.65	1058.76	50.63	1059.92	50.68	1060.97	50.67
1065.51	50.69	1068.08	50.77	1068.99	50.78	1072.16	50.77	1075.34	50.84
1078.6	50.88	1082.43	50.99	1084.94	51	1093.09	50.98	1093.42	50.99
1095.21	51	1098.27	51.02	1099.67	51.04	1100.26	51.06	1101.6	51.09
1103.08	51.13	1103.44	51.14	1108.33	51.22	1113.92	51.39	1114.98	51.43
1115.37	51.44	1116.45	51.49	1117.38	51.53	1118.52	51.56	1119.49	51.58
1119.61	51.59	1125.49	51.9	1125.95	51.91	1127.63	52	1137.8	52.97
1137.95	53	1138.1	53.03	1143.48	54	1178.27	53.98	1179.29	53.97
1188.84	53.83	1210.24	53.79	1212.3	53.83	1215.09	53.87	1220.51	53.97
1220.93	53.98	1221.58	54	1222.03	54.18	1224.16	55	1225.73	55.62
1226.68	56	1226.8	56.05	1226.89	56.08	1229.17	57	1229.84	57.27
1231.62	58	1232.2	58.23	1233.37	58.72	1233.55	58.8	1233.59	58.81
1233.62	58.83	1234.03	59	1234.73	59.3	1236.37	60	1236.75	60.16
1238.72	61	1238.94	61.1	1241.51	62				

Manning's n Values

num=	5
Sta n Val	Sta n Val
0 .1	743.62 .08
	948 .03
	972.52 .08
	1125.95 .1

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 948 972.52 19.11 26 26.2 .3 .5

Blocked Obstructions

num=	2
Sta L Sta R Elev	Sta L Sta R Elev
1139.75 1200.28 62.85	616.39 719.33 69.79

CROSS SECTION

RIVER: Goodwi ves Ri ver

REACH: mai nstem RS: 10522

INPUT

Description: SURVEYED - 36.4 US face of Ol d Ki ngs Hi ghway North -

Left

bui l di ng ffel ev = 48.41'

EXISTING - surveyed bed elevati on,  
 updated overbank with town topo. Updated IFA. Updated  
 n-values

REVDUP - Corrected DS channel length from 0.5 to 5

- corrected Ineffective Flow Areas to use 1:1 cont and exp and min  
 top of road elev

-corrected bank stations to reflect actual top  
 of bank (set in HEC-2 to specify IFA)

DUP - deleted DS sect

36.3, identical to this cross section

num=	241
Sta Elev	Sta Elev
0 72.75	17.9 72
35.71 71.45	54.19 71
124.57 69.21	127.09 69.15
138.32 68.93	155.35 68
199.85 66.7	200.34 66.68
230.62 65.61	230.9 65.58
242.42 64.43	245.83 64
339.07 62	347.87 61.68
416.3 61	417.39 60.96
	418.13 60.95
	28 71.6
	29.56 71.56
	30.08 71.55
	70 70.15
	70.23 70.14
	69 69.05
	132.4 69
	67 198.17
	66.75 66.75
	66 228.02
	65.8 230.38
	65.63 65.63
	65.5 232.5
	65.46 236.86
	65 65
	63 320.29
	62.8 62.8
	61.48 383.91
	61.34 393.56
	61.21 61.21
	60.85 444.45
	60.75 60.75



Goodwi vesDari enEX. rep

446.6	60.3	448.09	60	454.24	59.05	454.55	59	454.71	58.97
459.21	58	460.48	57.29	460.97	57	461.49	56.75	463.35	56
464.12	55.74	466.36	55	467.18	54.73	469.43	54	471.46	53.31
472.4	53	472.73	52.91	475.46	52	478.97	51.78	482.98	51.67
492.51	51.47	502.13	51.72	504.46	51.67	505.95	51.68	509.56	51.37
513.1	51	516.05	50.85	537.78	50	541.56	49.79	544.63	49.38
547.83	49	571.91	48.78	574.44	48.58	578.79	48	586.54	47.7
588.95	48	592.15	48.16	592.65	48.19	593.3	48.22	593.97	48.26
599.74	48.55	604	48.68	604.27	48.67	607.03	48.62	624.63	48.55
630.83	49	643.09	48.83	650.67	48	656.67	47.47	661.46	47
672.44	46.08	673.29	46	725.52	45.8	726.83	45.76	730.31	45.57
731.86	45.5	732.52	45.47	734.04	45.45	734.53	45.43	735.4	45.41
737.68	45.34	741.82	45.09	742.99	45	743.72	44.93	744.63	44.85
745.35	44.79	757.68	44.21	759.65	44.1	761.2	44	838.86	43.62
842.01	43.61	870.41	43	890.33	43.7	896.06	44	903.36	43.8
904.41	43.66	905.86	43.49	908.53	43	912.02	42.51	915.82	42.12
919.62	42.04	920.57	42.05	924.81	42.17	925.33	42.18	926.18	42.21
929.07	42.23	932.32	42.13	934.26	42.22	938.79	42.53	941.15	42.59
949.03	42.9	949.17	42.91	949.66	42.92	951.28	43	954.54	42.84
954.72	42.83	958.71	42.59	964.54	42.23	966.08	42	967.5	41
988.3	39.6	989.08	42.16	990.18	42.44	990.87	42.56	995.96	43
1041.86	43.85	1042.02	43.9	1042.22	44	1044.33	44.99	1044.36	45
1045.66	45.2	1045.91	45.27	1046.09	45.31	1046.59	45.41	1047.54	45.68
1048.24	45.84	1048.91	46	1051.46	46.29	1052.69	46.45	1056.61	47
1057.95	47.19	1058.73	47.29	1061.3	47.63	1062.91	47.84	1064.15	48
1065.04	48.11	1065.48	48.17	1069.87	48.58	1074.13	49	1075.13	49.04
1075.36	49.05	1078.73	49.19	1081.56	49.3	1085.35	49.55	1086.24	49.6
1088.28	49.66	1088.72	49.7	1088.89	49.71	1089.31	49.72	1090.16	49.8
1090.43	49.81	1091.29	49.83	1091.9	49.82	1092.02	49.81	1093.5	49.77
1094.21	49.74	1095.31	49.68	1098.73	49.51	1102.18	49.39	1103.42	49.34
1111.64	49.32	1115.64	49.53	1118.53	49.55	1131.19	49	1143.44	49.01
1148.05	50	1150.46	50.38	1154.7	51	1157.28	51.3	1162.51	52
1168.96	52.9	1169.67	53	1191.83	53.56	1210.83	53.47	1222.26	53.3
1243.48	53.08	1244.3	53.07	1246.61	53.08	1247.1	53.09	1248.14	53.12
1253.53	53	1260.21	52.94	1260.45	52.93	1265.53	53	1274.01	53.76
1274.41	54	1274.62	54.18	1275.4	54.82	1275.56	54.95	1275.64	55
1276.99	55.79	1277.51	56	1278.52	56.42	1279.1	56.66	1279.92	57
1281.32	57.58	1281.83	57.79	1282.32	58	1283.83	58.63	1284.27	58.81
1284.71	59	1285.85	59.44	1287.14	60	1288.1	60.4	1289.21	60.9
1289.4	61								

Manning's n Values	num=	5							
Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val
0	.1	725.52	.08	966.08	.03	989.08	.015	1162.51	.1

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
966.08	989.08	73.43	68.18	76.5		.3	.5
Ineffective Flow	num=	2					
Sta L Sta R Elev	Permanent						
0 945.5 45.92	F						
1010.3 1289.4 45.92	F						
Blocked Obstructions	num=	2					
Sta L Sta R Elev	Sta L Sta R Elev						
1173.36 1250.1 62.85	617.83 719.66 69.79						

BRI DGE

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 10503

INPUT  
 Descri pti on: SURVEYED - 36.25 Ol d Ki ngs Hi ghway North  
 Page 72

Goodwiv esDari enEX. rep

EXISTING - Surveyed

road deck, opening. Measured length in field. Extended road deck with town topo.

DUP - deleted edge cross sections, identical to current face cross sections

Distance from Upstream XS = 22

Deck/Roadway Width = 38

Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates

num=	12												
Sta	Hi	Cord	Lo Cord	Sta	Hi	Cord	Lo Cord	Sta	Hi	Cord	Lo Cord		
307.5		60		481.5		50		552.5		47			
617.5		46		717.5		45		820.5		45			
860.5		46		967.5		46		967.5		46	44.22		
988.3	45.92		44.26	988.3	45.92			1053.3		46			

Upstream Bridge Cross Section Data

Station Elevation Data num= 241

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	72.75	17.9	72	28	71.6	29.56	71.56	30.08	71.55
35.71	71.45	54.19	71	89.93	70.23	94.14	70.15	101.95	70
124.57	69.21	127.09	69.15	128.63	69.14	131.38	69.05	132.4	69
138.32	68.93	155.35	68	175.8	67.47	188.97	67	198.17	66.75
199.85	66.7	200.34	66.68	216.34	66	228.02	65.8	230.38	65.63
230.62	65.61	230.9	65.58	232.04	65.5	232.5	65.46	236.86	65
242.42	64.43	245.83	64	247.33	63.97	273.42	63	320.29	62.8
339.07	62	347.87	61.68	363.88	61.48	383.91	61.34	393.56	61.21
416.3	61	417.39	60.96	418.13	60.95	442.08	60.85	444.45	60.75
446.6	60.3	448.09	60	454.24	59.05	454.55	59	454.71	58.97
459.21	58	460.48	57.29	460.97	57	461.49	56.75	463.35	56
464.12	55.74	466.36	55	467.18	54.73	469.43	54	471.46	53.31
472.4	53	472.73	52.91	475.46	52	478.97	51.78	482.98	51.67
492.51	51.47	502.13	51.72	504.46	51.67	505.95	51.68	509.56	51.37
513.1	51	516.05	50.85	537.78	50	541.56	49.79	544.63	49.38
547.83	49	571.91	48.78	574.44	48.58	578.79	48	586.54	47.7
588.95	48	592.15	48.16	592.65	48.19	593.3	48.22	593.97	48.26
599.74	48.55	604	48.68	604.27	48.67	607.03	48.62	624.63	48.55
630.83	49	643.09	48.83	650.67	48	656.67	47.47	661.46	47
672.44	46.08	673.29	46	725.52	45.8	726.83	45.76	730.31	45.57
731.86	45.5	732.52	45.47	734.04	45.45	734.53	45.43	735.4	45.41
737.68	45.34	741.82	45.09	742.99	45	743.72	44.93	744.63	44.85
745.35	44.79	757.68	44.21	759.65	44.1	761.2	44	838.86	43.62
842.01	43.61	870.41	43	890.33	43.7	896.06	44	903.36	43.8
904.41	43.66	905.86	43.49	908.53	43	912.02	42.51	915.82	42.12
919.62	42.04	920.57	42.05	924.81	42.17	925.33	42.18	926.18	42.21
929.07	42.23	932.32	42.13	934.26	42.22	938.79	42.53	941.15	42.59
949.03	42.9	949.17	42.91	949.66	42.92	951.28	43	954.54	42.84
954.72	42.83	958.71	42.59	964.54	42.23	966.08	42	967.5	41
988.3	39.6	989.08	42.16	990.18	42.44	990.87	42.56	995.96	43
1041.86	43.85	1042.02	43.9	1042.22	44	1044.33	44.99	1044.36	45
1045.66	45.2	1045.91	45.27	1046.09	45.31	1046.59	45.41	1047.54	45.68
1048.24	45.84	1048.91	46	1051.46	46.29	1052.69	46.45	1056.61	47
1057.95	47.19	1058.73	47.29	1061.3	47.63	1062.91	47.84	1064.15	48
1065.04	48.11	1065.48	48.17	1069.87	48.58	1074.13	49	1075.13	49.04
1075.36	49.05	1078.73	49.19	1081.56	49.3	1085.35	49.55	1086.24	49.6
1088.28	49.66	1088.72	49.7	1088.89	49.71	1089.31	49.72	1090.16	49.8
1090.43	49.81	1091.29	49.83	1091.9	49.82	1092.02	49.81	1093.5	49.77
1094.21	49.74	1095.31	49.68	1098.73	49.51	1102.18	49.39	1103.42	49.34
1111.64	49.32	1115.64	49.53	1118.53	49.55	1131.19	49	1143.44	49.01
1148.05	50	1150.46	50.38	1154.7	51	1157.28	51.3	1162.51	52
1168.96	52.9	1169.67	53	1191.83	53.56	1210.83	53.47	1222.26	53.3

GoodwiesDari enEX. rep

1243.48	53.08	1244.3	53.07	1246.61	53.08	1247.1	53.09	1248.14	53.12
1253.53	53	1260.21	52.94	1260.45	52.93	1265.53	53	1274.01	53.76
1274.41	54	1274.62	54.18	1275.4	54.82	1275.56	54.95	1275.64	55
1276.99	55.79	1277.51	56	1278.52	56.42	1279.1	56.66	1279.92	57
1281.32	57.58	1281.83	57.79	1282.32	58	1283.83	58.63	1284.27	58.81
1284.71	59	1285.85	59.44	1287.14	60	1288.1	60.4	1289.21	60.9
1289.4	61								

Manning's n Values num= 5

Station	Value	Station	Value	Station	Value	Station	Value	Station	Value
0	.1	725.52	.08	966.08	.03	989.08	.015	1162.51	.1

Bank Sta: Left Right Coeff Contr. Expan.

966.08	989.08		.3	.5
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Ineffective Flow num= 2

Sta L	Sta R	Elev	Permanent
0	945.5	45.92	F
1010.3	1289.4	45.92	F

Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
1173.36	1250.1	62.85	617.83	719.66	69.79

Downstream Deck/Roadway Coordinates num= 12

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
706.09	60			880.09	50	951.09	47		
1016.09	46			1116.09	45	1219.09	45		
1259.09	46			1366.09	46	1366.09	46	44.63	
1386.89	45.92	44.67		1386.89	45.92	1459.86	46		

Downstream Bridge Cross Section Data Station Elevation Data num= 307

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	53.94	2.05	54	83.8	54.65	90.48	54.82	98.47	55
172.38	56	217.85	56.42	226.08	56.48	234.44	56.59	247.12	57
247.81	57.02	279.9	57.9	283.37	58	315.57	58.34	319.42	58.35
325.6	58.36	329.84	58.37	337.93	59	370.59	59.51	385.86	60
408.09	60.16	414.83	60.22	420.92	60.31	432.11	60.34	440.15	61
466.01	61.84	471.33	62	482.47	62.11	487.99	62.12	492.02	62.13
495.73	62.14	502.1	62.46	509.81	62.51	510.92	62.71	512.46	63
525.93	63.16	528.9	63.17	538.58	63.22	540.6	63.75	541.97	63.78
544.45	63.81	545.49	63.82	553.2	63.92	559.63	63.99	561.09	64
568.12	64.01	577.75	64.03	594.49	64	598.51	63.99	606.11	64
607.74	64.01	612.96	64.06	618.08	64.11	620.19	64.07	621.51	64
623.33	63.87	623.94	63.83	625.34	63.78	625.57	63.77	626.73	63.79
626.92	63.78	627.96	63.8	628.89	63.82	629.48	63.83	634.38	63.85
634.86	63.86	638.21	63.92	642.29	64	646.45	64.06	650.45	64.11
653.03	64.12	657.27	64.14	661.85	64.16	662.88	64.17	666.39	64.19
667.08	64.2	667.86	64.21	671.14	64.22	674.47	64.24	676.32	64.27
678.99	64.28	680.79	64.31	684.1	64.33	687.36	64.35	689.43	64.39
691.38	64.4	692.62	64.43	694.03	64.46	696.3	64.47	697.19	64.48
698.68	64.51	700.41	64.52	702.01	64.56	703.81	64.57	706.51	64.59
708.11	64.6	710.96	64.62	712.39	64.63	713.87	64.64	715.4	64.65
716.6	64.66	718.16	64.67	718.83	64.66	720.4	64.67	720.62	64.68
721	64.67	721.73	64.68	723	64.65	724.69	64.61	724.94	64.48
725.82	64	727	63.41	727.85	63	728.81	62.54	729.93	62
731.3	61.36	732.07	61	733.22	60.47	734.31	60	735.65	59.42
736.62	59	737.26	58.73	738.13	58.39	739.13	58	739.53	57.85
740.09	57.63	740.99	57.24	741.54	57	742.55	56.56	743.86	56
744.24	55.84	745.48	55.3	745.91	55.12	746.18	55	747.4	54.48
748.52	54	749	53.79	750.24	53.26	750.62	53.1	750.84	53
752.45	52.39	752.68	52.31	752.98	52.2	753.52	52	753.88	51.35
755.42	51.48	756.62	51.16	756.93	51.08	757.21	51	760.82	50.03

Goodwi vesDari enEX. rep

760.92	50	762.3	49.63	764.61	49	764.75	48.96	764.91	48.92
766.07	48.6	768.33	48	768.95	47.83	772.08	47	776.01	46.26
777.03	46.06	777.29	46	778.26	45.91	780.36	45.7	785.45	45
790.9	44.6	794.2	44.42	801.36	44.18	802.32	44.13	803.19	44.1
803.63	44.09	804.15	44.08	812.97	44.24	822.52	45	837.86	45.8
838.09	45.73	839.47	46	854.59	46.12	858.23	46	859.94	45.81
861.36	45.22	862	45.06	864.3	45.33	867.05	45	1001.85	45.85
1007.33	45.9	1009.9	45.93	1011.48	45.94	1012.41	45.95	1015.12	46
1192.58	45.09	1201.43	45.04	1207.28	45	1366.09	44.88	1366.09	44.16
1367.19	39.47	1367.69	39.51	1370.39	39.83	1372.39	40.3	1373.29	40.9
1376.49	40.71	1379.59	39.68	1380.39	39.43	1380.89	39.53	1382.49	39.56
1384.39	39.73	1384.79	41.54	1389.79	42.17	1397.44	43	1399.79	43.23
1400.45	43.24	1401.59	43	1407.4	43.19	1408.8	43.2	1411.67	43.26
1414.22	43.27	1417.9	43.56	1419.6	43.59	1424.04	43.56	1425.4	43.72
1427.35	44	1431.26	44.58	1434.04	44.96	1434.13	44.98	1434.3	45
1436.68	45.15	1440.04	45.23	1443.64	45.34	1446.15	45.54	1449.01	45.66
1450.78	45.74	1459.86	46	1497.21	46.15	1497.51	46.18	1497.95	46.22
1498.09	46.24	1499.36	46.36	1505.28	47	1505.62	47.04	1505.73	47.06
1505.92	47.08	1506.37	47.13	1512.36	47.82	1513.32	47.9	1514.22	48
1519.84	48.08	1529.27	48.05	1530.13	48.06	1531.35	48.12	1536.06	48.28
1537.88	48.36	1538.23	48.38	1538.93	48.4	1551.41	49	1556.76	49.15
1557.76	49.19	1560.96	49.33	1564.8	49.5	1576.26	50	1582.92	50.04
1583.06	50.07	1583.17	50.08	1583.25	50.09	1583.67	50.13	1584.06	50.2
1587.38	51	1593.59	51.7	1595.35	52	1597.19	52.22	1602.58	52.78
1605.74	53	1703.46	52.06	1704.33	52.05	1706.21	52	1708.3	52.21
1709.46	52.57	1709.67	52.72	1710.68	52.95	1710.95	54	1711.83	54.57
1712.59	55	1713.73	55.6	1714.46	56	1714.59	56.07	1714.75	56.15
1715.95	56.75	1716.76	57	1718.58	57.46	1722	58	1732.35	58.14
1733.12	58.19	1736.05	58.49	1739.1	58.8	1739.4	58.83	1741.17	58.82
1742.98	58.8	1744.23	58.88	1747.11	58.85	1749.68	58.83	1750.29	58.8
1750.53	58.79	1753.62	58.7	1757.26	58.53	1761.79	58.35	1761.96	58.34
1762.16	58.33	1764.24	58.24						

Manning's n Values	num=	5							
Sta 0	n Val .015	Sta 1001.85	n Val .1	Sta 1192.58	n Val .015	Sta 1366.09	n Val .03	Sta 1384.79	n Val .015

Bank Sta: Left Right Coeff Contr. Expan.  
1366.09 1384.79 .3 .5

Ineffective Flow num= 2  
Sta L Sta R Elev Permanent  
0 1357.89 45.3 F  
1395.07 1764.24 45.3 F

Blocked Obstructions num= 2  
Sta L Sta R Elev Sta L Sta R Elev  
1608.39 1694.32 62.85 1048.74 1124.24 64.75

Upstream Embankment side slope = 4 horiz. to 1.0 vertical  
Downstream Embankment side slope = 2.3 horiz. to 1.0 vertical  
Maximum allowable submergence for weir flow = .98  
Elevation at which weir flow begins = 45  
Energy head used in spillway design =  
Spillway height used in design =  
Weir crest shape = Broad Crested

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data  
Energy

Selected Low Flow Methods = Highest Energy Answer

High Flow Method  
Pressure and Weir flow

Goodwi vesDari enEX. rep

Submerged Inlet Cd =  
 Submerged Inlet + Outlet Cd = .8  
 Max Low Cord = 44.26

Additional Bridge Parameters

Add Friction component to Momentum  
 Do not add Weight component to Momentum  
 Class B flow critical depth computations use critical depth  
 inside the bridge at the upstream end  
 Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 10454

INPUT

Descripti on: SURVEYED- 36.1 DS face of Ol d Ki ngs Hi ghway  
 North

Parki ng@44.88'

EXI STI NG - surveyed channel , updated  
 overbank with town topo. Grassy sand bar in center of channel ,  
 retaining wall on left. Updated IFA. updated n-values as ds  
 sect.

REVDUP - corrected IFA to use 1:1 cont and exp and average  
 of min top of road elev and max low chord

-corrected bank  
 stations to reflect actual top of bank (set in HEC-2 to specifi y  
 IFA locati on)

DUP - deleted US sect 36.1, identical to this cross  
 sect

Station		Elevation Data		num= 307		Station		Elevation	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	53.94	2.05	54	83.8	54.65	90.48	54.82	98.47	55
172.38	56	217.85	56.42	226.08	56.48	234.44	56.59	247.12	57
247.81	57.02	279.9	57.9	283.37	58	315.57	58.34	319.42	58.35
325.6	58.36	329.84	58.37	337.93	59	370.59	59.51	385.86	60
408.09	60.16	414.83	60.22	420.92	60.31	432.11	60.34	440.15	61
466.01	61.84	471.33	62	482.47	62.11	487.99	62.12	492.02	62.13
495.73	62.14	502.1	62.46	509.81	62.51	510.92	62.71	512.46	63
525.93	63.16	528.9	63.17	538.58	63.22	540.6	63.75	541.97	63.78
544.45	63.81	545.49	63.82	553.2	63.92	559.63	63.99	561.09	64
568.12	64.01	577.75	64.03	594.49	64	598.51	63.99	606.11	64
607.74	64.01	612.96	64.06	618.08	64.11	620.19	64.07	621.51	64
623.33	63.87	623.94	63.83	625.34	63.78	625.57	63.77	626.73	63.79
626.92	63.78	627.96	63.8	628.89	63.82	629.48	63.83	634.38	63.85
634.86	63.86	638.21	63.92	642.29	64	646.45	64.06	650.45	64.11
653.03	64.12	657.27	64.14	661.85	64.16	662.88	64.17	666.39	64.19
667.08	64.2	667.86	64.21	671.14	64.22	674.47	64.24	676.32	64.27
678.99	64.28	680.79	64.31	684.1	64.33	687.36	64.35	689.43	64.39
691.38	64.4	692.62	64.43	694.03	64.46	696.3	64.47	697.19	64.48
698.68	64.51	700.41	64.52	702.01	64.56	703.81	64.57	706.51	64.59
708.11	64.6	710.96	64.62	712.39	64.63	713.87	64.64	715.4	64.65
716.6	64.66	718.16	64.67	718.83	64.66	720.4	64.67	720.62	64.68
721	64.67	721.73	64.68	723	64.65	724.69	64.61	724.94	64.48
725.82	64	727	63.41	727.85	63	728.81	62.54	729.93	62
731.3	61.36	732.07	61	733.22	60.47	734.31	60	735.65	59.42
736.62	59	737.26	58.73	738.13	58.39	739.13	58	739.53	57.85
740.09	57.63	740.99	57.24	741.54	57	742.55	56.56	743.86	56
744.24	55.84	745.48	55.3	745.91	55.12	746.18	55	747.4	54.48
748.52	54	749	53.79	750.24	53.26	750.62	53.1	750.84	53

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752.45	52.39	752.68	52.31	752.98	52.2	753.52	52	753.88	51.35
755.42	51.48	756.62	51.16	756.93	51.08	757.21	51	760.82	50.03
760.92	50	762.3	49.63	764.61	49	764.75	48.96	764.91	48.92
766.07	48.6	768.33	48	768.95	47.83	772.08	47	776.01	46.26
777.03	46.06	777.29	46	778.26	45.91	780.36	45.7	785.45	45
790.9	44.6	794.2	44.42	801.36	44.18	802.32	44.13	803.19	44.1
803.63	44.09	804.15	44.08	812.97	44.24	822.52	45	837.86	45.8
838.09	45.73	839.47	46	854.59	46.12	858.23	46	859.94	45.81
861.36	45.22	862	45.06	864.3	45.33	867.05	45	1001.85	45.85
1007.33	45.9	1009.9	45.93	1011.48	45.94	1012.41	45.95	1015.12	46
1192.58	45.09	1201.43	45.04	1207.28	45	1366.09	44.88	1366.09	44.16
1367.19	39.47	1367.69	39.51	1370.39	39.83	1372.39	40.3	1373.29	40.9
1376.49	40.71	1379.59	39.68	1380.39	39.43	1380.89	39.53	1382.49	39.56
1384.39	39.73	1384.79	41.54	1389.79	42.17	1397.44	43	1399.79	43.23
1400.45	43.24	1401.59	43	1407.4	43.19	1408.8	43.2	1411.67	43.26
1414.22	43.27	1417.9	43.56	1419.6	43.59	1424.04	43.56	1425.4	43.72
1427.35	44	1431.26	44.58	1434.04	44.96	1434.13	44.98	1434.3	45
1436.68	45.15	1440.04	45.23	1443.64	45.34	1446.15	45.54	1449.01	45.66
1450.78	45.74	1459.86	46	1497.21	46.15	1497.51	46.18	1497.95	46.22
1498.09	46.24	1499.36	46.36	1505.28	47	1505.62	47.04	1505.73	47.06
1505.92	47.08	1506.37	47.13	1512.36	47.82	1513.32	47.9	1514.22	48
1519.84	48.08	1529.27	48.05	1530.13	48.06	1531.35	48.12	1536.06	48.28
1537.88	48.36	1538.23	48.38	1538.93	48.4	1551.41	49	1556.76	49.15
1557.76	49.19	1560.96	49.33	1564.8	49.5	1576.26	50	1582.92	50.04
1583.06	50.07	1583.17	50.08	1583.25	50.09	1583.67	50.13	1584.06	50.2
1587.38	51	1593.59	51.7	1595.35	52	1597.19	52.22	1602.58	52.78
1605.74	53	1703.46	52.06	1704.33	52.05	1706.21	52	1708.3	52.21
1709.46	52.57	1709.67	52.72	1710.68	52.95	1710.95	54	1711.83	54.57
1712.59	55	1713.73	55.6	1714.46	56	1714.59	56.07	1714.75	56.15
1715.95	56.75	1716.76	57	1718.58	57.46	1722	58	1732.35	58.14
1733.12	58.19	1736.05	58.49	1739.1	58.8	1739.4	58.83	1741.17	58.82
1742.98	58.8	1744.23	58.88	1747.11	58.85	1749.68	58.83	1750.29	58.8
1750.53	58.79	1753.62	58.7	1757.26	58.53	1761.79	58.35	1761.96	58.34
1762.16	58.33	1764.24	58.24						

Manning's n Values	num=	5							
Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val
0 .015	1001.85	.1	1192.58	.015	1366.09	.03	1384.79	.015	

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
1366.09	1384.79	94.96	55.22	28.02	.3	.5	

Ineffective Flow	num=	2					
Sta L	Sta R	Elev	Permanent				
0	1357.89	45.3	F				
1395.07	1764.24	45.3	F				

Blocked Obstructions	num=	2					
Sta L	Sta R	Elev	Sta L	Sta R	Elev		
1608.39	1694.32	62.85	1048.74	1124.24	64.75		

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 10399

INPUT  
 Descri pti on: SURVEYED - 35.0 FEMA U - DS secti on of Ol d Ki ngs Hi ghway North

Parking lot on left at station 478.8 at 43.67'  
 LEFT - shopping mal l

Goodwiv esDari enEX. rep

EXISTING - Surveyed channel, updated overbank  
 with town topo. Updated ineffective flow areas. LOB- increased n to  
 .1 for building. Varied ROB n-value from .02 to .015 for road and  
 .1 for building.

Station Elevation Data num= 223									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	62.29	.58	62	2.25	61.16	2.57	61	3.23	60.67
4.57	60	5.76	59.44	6.69	59	8.04	58.38	8.87	58
9.74	57.6	11.07	57	12.23	56.48	13.31	56	14.9	55.29
15.57	55	17.59	54.11	17.85	54	18.56	53.69	20.16	53
21.71	52.34	22.49	52	22.82	51.86	24.78	51	26.58	50.27
27.25	50	28.08	49.7	29.14	49.3	29.66	49.11	29.94	49
30.13	48.93	31.04	48.58	32.03	48.21	32.59	48	32.95	47.86
35.24	47	35.83	46.78	37.95	46	38.97	45.59	40.46	45
41.87	44.39	42.98	44	44.36	43.54	47.49	43	55.51	43.01
55.99	43.09	61.66	44	67.94	44.15	85.35	44.56	91.54	44.68
115.49	45	208.42	45.52	220.19	45.58	328.41	45.06	331.97	45
444.95	44.22	454.77	44.15	459.95	44.11	473.98	44	478.9	43.67
482.9	43.2	485.4	39.11	488.7	38.97	490.8	39.01	491	39.26
492.9	39.82	493.6	41	498.8	41.91	506.46	42	521.32	42.25
522.92	42.41	524.12	42.47	524.69	42.53	525.45	42.6	528.21	42.9
529.04	43	533.65	43.63	535.55	43.86	536.71	44	537.69	44.14
538.86	44.26	543.58	44.73	545.67	44.94	546.32	45	555.92	45.32
558.4	45.35	562.91	45.48	566.87	45.59	568.07	45.63	571.97	45.8
573.03	45.83	573.45	45.84	574.48	45.86	574.8	45.87	576.36	45.89
577.46	45.9	577.63	45.91	581.65	45.94	585.89	46	606.75	46.72
607.13	46.73	607.41	46.75	607.98	46.77	613.05	47	617.45	47.12
620.33	47.28	621.7	47.39	629.64	48	634.44	48.39	638.14	48.66
638.59	48.69	639.04	48.71	639.55	48.74	639.77	48.76	639.86	48.77
640.14	48.79	642.52	49	656.56	49.67	663.55	50	668.58	50.39
670.36	50.53	676.09	51	679.26	51.3	682.91	51.56	686.68	52
698.21	52.74	701.36	53	782.44	52.85	784.25	53	795.18	53.7
795.52	54	796.6	54.96	796.65	55	796.69	55.04	797.79	56
798.46	56.6	798.91	57	812.93	57.41	813.93	57.37	814.86	57.34
817.59	57.31	826.29	57.15	828.03	57.2	830.19	57.02	830.46	57.04
831.19	57.08	835.81	57.52	837.36	57.66	837.88	57.67	838.3	57.68
838.74	57.69	838.84	57.7	839.37	57.71	839.66	57.7	840.39	57.69
841.47	57.67	841.73	57.66	841.83	57.65	846.38	57.37	847.33	57.32
854.44	57	859.37	56.79	859.76	56.78	861.73	56.69	863.4	56.64
869.43	56.42	871.12	56.3	873.23	56.21	874.31	56.1	875.49	56
880.74	56.07	881.46	56.06	887.1	56.24	890.89	56.32	895.85	56.26
896.19	56.27	905.69	56.41	905.95	56.42	906.4	56.41	909.07	56.46
922.26	56.74	923.48	56.76	924.18	56.78	925.17	56.8	926.57	56.87
951.95	56.96	953.15	57	962.25	57.11	963.22	57.13	984.1	58
1073.33	58.01	1073.6	58.02	1073.87	58.03	1098.31	59	1108.84	59.45
1120.14	60	1122.75	60.31	1126.17	60.61	1130.31	61	1137.16	61.64
1141.59	62	1147.32	62.49	1160.13	63	1189.12	63.9	1191.32	64
1206.13	64.02	1208.23	64.33	1209.11	64.4	1211.13	64.65	1213.61	65
1214.53	65.41	1215.51	65.86	1215.82	66	1217.56	66.8	1218.01	67
1220.13	67.74	1221.41	68	1222.83	68.79	1223.25	69	1225.29	69.93
1225.44	70	1226.94	70.74	1227.42	71				

Manning's n Values num= 5									
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.1	328.41	.015	478.9	.03	546.32	.015	701.36	.1

Bank Sta:	Left	Right	Lengths:			Left Channel	Right	Coeff	Contr.	Expan.
	482.9	498.8	294.27	323.99	319.72			.3	.5	

Blocked Obstructions num= 2					
Sta L	Sta R	Elev	Sta L	Sta R	Elev
708.02	791.04	62.85	106.96	229.57	64.75

CROSS SECTION

Goodwiv esDari enEX. rep

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem RS: 10075

INPUT  
 Descri pti on: SURVEYED - 34.0 FEMA T - US secti on of Parki ng Lot  
 Bri dge

RIGHT bui l di ng fi ni shed fl oor el evati on = 48.69'  
 ST  
 600.6 at 43.04' = edge of large parki ng lot  
 LEFT bui l di ng =  
 shoppi ng mall

EXI STING - Surveyed channel , updated overbank  
 with town topo. Updated ineffecti ve fl ow areas. LOB- i ncreased n  
 to .1 for bui l di ng. Vari ed ROB n-value from .025 to .035 for lawn  
 and .015 for road.

Station		Elevation		Data		num=		143	
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	58.94	.9	58.53	2.08	58	3.28	57.47	4.34	57
5.59	56.44	6.52	56	7.57	55.52	8.71	55	9.63	54.58
10.93	54	12.3	53.49	13.6	53	15.41	52.31	16.2	52
17.18	51.63	18.82	51	19.97	50.56	21.44	50	23.15	49.3
23.91	49	24.01	48.96	26.36	48	27.85	47.59	29.95	47
32.77	46.37	34.32	46	36.9	45.42	38.88	45	39.74	44.79
43.1	44	43.86	43.71	45.85	43	56.05	43.14	70.04	43.47
82.18	43.81	92.42	44	118.41	44.28	133.44	44.5	139.37	44.57
147.43	44.7	166.72	45	210.01	45.7	227.46	46	244.25	45.95
309.31	45.55	317.1	45.54	337.08	45.47	354.16	45.33	371.53	45
461.82	44.99	462.17	44.98	468.99	44.91	470.99	44.89	545.54	44
595.9	43.1	600.6	43.04	604.9	42.14	607.4	38.41	609.6	37.81
611.5	37.67	614.5	37.89	617.3	38.37	619.3	38.77	620.7	40.52
624	41.73	628.81	42	633.74	42.63	635.39	43	649.36	43.26
677.17	43.74	679.16	43.76	680.24	43.78	690.04	44	701.96	44.41
704.57	44.49	706.9	44.56	710.23	44.68	714.5	44.83	719.3	45
722.73	45.25	728.96	46	734.13	46.49	738.85	47	756.04	47.58
762.79	48	769.32	48.24	771.77	48.34	775.84	48.45	786.38	49
845.26	49.7	849.52	50	855.96	50.53	859.89	50.89	860.85	50.94
861.95	51	867.02	51.32	874.27	52	883.13	52.35	890	52.52
893.45	52.59	900.93	52.71	904.06	52.62	904.78	52.6	906.67	52.53
924.37	53	925.36	53.02	925.55	53.05	928.22	53.23	932.5	54
943.21	53.99	945.13	53.96	949.47	53.94	955.62	53.88	958.99	53.93
961.25	53.92	962.22	53.9	962.65	53.88	963.41	53.85	965.22	53.77
968.92	53.58	981.54	53.24	984.57	53.14	986.73	53.07	990.99	53
995.83	52.92	1021.65	53	1039.23	53.37	1055.81	53.57	1068.74	53.58
1081.76	53.53	1082.03	53.52	1107.14	53	1142.58	53.85	1146.56	54
1156.75	54.71	1159.55	55	1165.22	55.17	1195.97	56	1203.38	56.22
1228.18	57	1241.06	57.75	1244.76	57.84				

Manni ng' s n		Values		num=		6	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.1	244.25	.015	604.9	.03	624	.035
738.85	.1					635.39	.015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 604.9 624 68.4 90.55 94.02 .3 .5

Blocked Obstructi ons		num=		2	
Sta L	Sta R	Elev	Sta L	Sta R	Elev
98.91	223.89	64.75	741.42	844.64	56.49

CROSS SECTION



Goodwiv esDari enEX. rep

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem RS: 9984

INPUT  
 Descri pti on: SURVEYED - 33.4 U/S Face of Parki ng Lot Bri dge

grassy bar on  
 left in channel  
 LEFT bui lding = shopping mall

EXISTING - surveyed channel, updated overbank with town topo. Updated ineffective flow areas. LOB- increased n to .1 for building. Varied ROB n-value from .025 to .035 for lawn and .015 for road.

REVDUP - corrected Ineffective Flow Areas for culverts to use 1:1 contraction and 1.5:1 expansion and min top of road elevation

DUP - deleted DS section 33.3, identical to this cross section

Station		Elevation Data		num=	167					
Sta	Elev	Sta	Elev		Sta	Elev	Sta	Elev	Sta	Elev
0	58.9	.94	58.49		2.06	58	2.83	57.67	3.76	57.27
4.35	57	6.2	56.15		6.54	56	7.12	55.74	8.79	55
11.09	54.02	11.13	54		11.19	53.98	13.89	53	16.06	52.2
16.59	52	17.09	51.82		19.31	51	20.26	50.65	22.04	50
23.4	49.51	24.8	49		25.15	48.87	27.4	48	28.8	47.62
31.13	47	34.74	46.15		35.27	46	37.72	45.38	39.18	45
40.82	44.56	43.02	44		43.19	43.79	43.53	43.82	47.19	43
69.43	43.44	103.36	44		105.24	44.02	106.06	44.03	115.83	44.14
117.43	44.16	131.87	44.38		171.61	45	206.71	45.52	239.65	46
309.14	45.94	313.94	45.93		315.94	45.92	363.06	45	498.45	44.69
553.34	44	615.4	43.2		624.08	43	627	42.87	633.2	40.41
638.9	39.8	644.8	39.84		646.9	38.71	648.1	38.27	650.2	38.09
653.8	37.51	654.6	38.95		661.9	42.91	665.32	43	705.99	43.3
715.44	43.43	728.82	44		742.32	44.05	754.19	44.37	786.71	45
821.07	45.03	845.35	46		903.16	46.19	904.07	46.2	906.25	46.23
907.91	46.25	914.52	46.32		964.82	47	1024.01	47.64	1030.44	47.75
1043.94	48	1044.1	48.02		1044.47	49	1044.79	49.83	1044.86	50
1047.01	49.98	1047.49	50		1051.83	49.19	1056.71	48.76	1063.79	50
1115.3	50.43	1118.7	50.4		1127.45	50	1165.73	50.64	1167.16	50.66
1173.59	50.78	1184.82	51		1185.25	51.58	1185.59	52	1189.11	51.96
1189.19	51.95	1189.24	51.96		1190.2	51.92	1190.27	51.91	1191.1	51.86
1191.34	51.88	1192.11	51.84		1192.18	51.83	1192.81	51.79	1193.07	51.82
1193.74	51.78	1193.81	51.77		1194.29	51.73	1194.74	51.69	1198.11	51.86
1199	51.84	1199.92	51.82		1200.11	51.81	1200.78	51.79	1225.24	51.82
1225.89	51.84	1234.07	52		1241.22	52.22	1241.61	52.23	1245.25	52.26
1247.16	52.27	1247.57	52.28		1250.01	52.29	1251.33	52.28	1253.97	52.27
1281.93	52.68	1298.76	52.69		1304.48	52.73	1317.77	53	1330.39	53.93
1330.8	54	1330.91	54.29		1331.06	54.7	1331.16	55	1331.37	55.68
1331.46	56	1331.69	56.64		1331.81	57	1331.99	57.5	1332.17	58
1332.29	58.32	1332.55	59		1332.8	59.7	1332.91	60	1334.22	60.08
1340.05	60.45	1350.39	61		1359.78	61.95	1360.51	62	1364.04	62.25
1367.25	62.48	1375.42	63		1377.6	63.19	1386.64	64	1388.41	64.17
1389.49	64.31	1390.77	64.46		1392.81	64.66	1394.06	64.78	1396.27	65
1400.62	65.39	1405.91	66							

Manni ng' s n Val ues Sta n Val num= 5 Sta n Val Sta n Val Sta n Val

Goodwi vesDari enEX. rep

0 .1 239.65 .015 627 .03 661.9 .035 705.99 .015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 627 661.9 64.86 80.89 85.51 .3 .5

Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 601.6 43.79 F  
 689.1 1405.91 43.79 F

Blocked Obstructions num= 1  
 Sta L Sta R Elev  
 101.7 230.29 64.75

CULVERT

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 9945

INPUT

Descripti on: SURVEYED - 33.25 Parki ng Lot -

EXI STING - Surveyed culverts,  
 parapet, road deck. Measured culvert l enght, dimensi ons i n fi el d.  
 Deck extended with town topo. Sediment buildt up i n bottom of  
 culverts and a large sand bar upstream.

DUP - deleted cross

sections 33.3 and 33.2, i denti cal to 33.1 and 33.4

Distance from Upstream XS = 35  
 Deck/Roadway Wi dth = 35  
 Wei r Coeffi ci ent = 2.6

Upstream Deck/Roadway Coordi nates  
 num= 8

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
500		44			615.05		44			634.3		43.81		0
634.3		47.56		0	654		47.6		0	654		43.79		0
665		44			800		44							

Upstream Bridge Cross Secti on Data

Stati on Elevati on Data num= 167

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	58.9	.94	58.49	2.06	58	2.83	57.67	3.76	57.27
4.35	57	6.2	56.15	6.54	56	7.12	55.74	8.79	55
11.09	54.02	11.13	54	11.19	53.98	13.89	53	16.06	52.2
16.59	52	17.09	51.82	19.31	51	20.26	50.65	22.04	50
23.4	49.51	24.8	49	25.15	48.87	27.4	48	28.8	47.62
31.13	47	34.74	46.15	35.27	46	37.72	45.38	39.18	45
40.82	44.56	43.02	44	43.19	43.79	43.53	43.82	47.19	43
69.43	43.44	103.36	44	105.24	44.02	106.06	44.03	115.83	44.14
117.43	44.16	131.87	44.38	171.61	45	206.71	45.52	239.65	46
309.14	45.94	313.94	45.93	315.94	45.92	363.06	45	498.45	44.69
553.34	44	615.4	43.2	624.08	43	627	42.87	633.2	40.41
638.9	39.8	644.8	39.84	646.9	38.71	648.1	38.27	650.2	38.09
653.8	37.51	654.6	38.95	661.9	42.91	665.32	43	705.99	43.3
715.44	43.43	728.82	44	742.32	44.05	754.19	44.37	786.71	45
821.07	45.03	845.35	46	903.16	46.19	904.07	46.2	906.25	46.23
907.91	46.25	914.52	46.32	964.82	47	1024.01	47.64	1030.44	47.75
1043.94	48	1044.1	48.02	1044.47	49	1044.79	49.83	1044.86	50
1047.01	49.98	1047.49	50	1051.83	49.19	1056.71	48.76	1063.79	50
1115.3	50.43	1118.7	50.4	1127.45	50	1165.73	50.64	1167.16	50.66
1173.59	50.78	1184.82	51	1185.25	51.58	1185.59	52	1189.11	51.96
1189.19	51.95	1189.24	51.96	1190.2	51.92	1190.27	51.91	1191.1	51.86
1191.34	51.88	1192.11	51.84	1192.18	51.83	1192.81	51.79	1193.07	51.82

Goodwiv esDari enEX. rep

1193.74	51.78	1193.81	51.77	1194.29	51.73	1194.74	51.69	1198.11	51.86
1199	51.84	1199.92	51.82	1200.11	51.81	1200.78	51.79	1225.24	51.82
1225.89	51.84	1234.07	52	1241.22	52.22	1241.61	52.23	1245.25	52.26
1247.16	52.27	1247.57	52.28	1250.01	52.29	1251.33	52.28	1253.97	52.27
1281.93	52.68	1298.76	52.69	1304.48	52.73	1317.77	53	1330.39	53.93
1330.8	54	1330.91	54.29	1331.06	54.7	1331.16	55	1331.37	55.68
1331.46	56	1331.69	56.64	1331.81	57	1331.99	57.5	1332.17	58
1332.29	58.32	1332.55	59	1332.8	59.7	1332.91	60	1334.22	60.08
1340.05	60.45	1350.39	61	1359.78	61.95	1360.51	62	1364.04	62.25
1367.25	62.48	1375.42	63	1377.6	63.19	1386.64	64	1388.41	64.17
1389.49	64.31	1390.77	64.46	1392.81	64.66	1394.06	64.78	1396.27	65
1400.62	65.39	1405.91	66						

Manning's n Values	num=	5
Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val		
0 .1 239.65 .015 627 .03 661.9 .035 705.99 .015		

Bank Sta: Left Right	Coeff	Contr.	Expan.
627 661.9		.3	.5

Ineffective Flow	num=	2
Sta L Sta R Elev Permanent		
0 601.6 43.79 F		
689.1 1405.91 43.79 F		

Blocked Obstructions	num=	1
Sta L Sta R Elev		
101.7 230.29 64.75		

Downstream Deck/Roadway Coordinates	num=	8
-------------------------------------	------	---

Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord		
500 44 615.35 44 634.6 43.81 0		
634.6 47.58 0 655.4 47.62 0 655.4 43.79 0		
666.4 44 800 44		

Downstream Bridge Cross Section Data	num=	163
Station Elevati on Data		

Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
0 59.03 .07 59 .11 58.98 .23 58.94 2.45 58		
4.34 57.17 4.7 57 6.91 56.02 6.97 56 7.17 55.91		
9.32 55 11.74 54.04 11.84 54 12.21 53.87 14.72 53		
15.04 52.89 17.55 52 18.15 51.79 20.4 51 21.02 50.78		
23.28 50 23.71 49.85 26.21 49 26.62 48.85 28.48 48.25		
28.93 48 29.87 47.83 31.37 47 33.31 46.89 36.43 46		
36.78 45.91 38.2 45 40.1 44.91 40.2 44.93 42.63 44.25		
43.41 44 46.22 43.57 49.46 43 59.19 43.12 66.66 43.23		
78.48 43.45 85.66 43.56 92.41 43.68 108.56 44 109.6 44.02		
111.95 44.05 161.86 44.79 180.83 45 189.13 45.07 193.18 45.12		
222.62 45.45 234.17 45.56 264.9 45.7 265.55 45.71 266.3 45.72		
269.25 45.76 279.36 45.85 284.14 45.84 288.25 45.86 292.6 45.87		
342.02 45 509.39 44.88 542.19 44.53 547.53 44.5 578.28 44		
609.4 43.9 611.26 43.81 618.6 43.91 619.17 43.86 620.06 43.73		
621.46 43.64 627.6 43 635.8 42.5 635.9 38.37 644.5 37.33		
644.6 37.57 645 37.57 645.5 37.57 654.1 37.6 654.2 42.5		
659.8 43 666.56 43.21 673.16 43 783.13 43.47 795.05 44		
795.85 44.04 807.15 44.14 807.98 44.16 817.04 44 825.81 44.07		
826.92 44.05 829.31 44.09 848.36 44.99 848.57 45 864.5 45.03		
867.32 45.05 876.83 45.1 878.13 45.12 898.58 45.26 907.37 45.28		
912.08 45.3 919.76 45.34 950.64 45.69 953.88 45.73 956.09 45.75		
967.18 45.91 973.82 46 992.89 46.08 1000.54 46.14 1001.58 46.15		
1018.21 46.28 1027.15 46.33 1028.67 46.34 1074.54 46.17 1079.3 46.31		
1082.14 47 1084.05 47.34 1087.1 47.88 1087.69 47.97 1087.92 48		
1088.6 48.14 1089.03 48.23 1089.32 48.28 1090.86 48.6 1091.31 48.68		
1093.09 49 1093.69 49.53 1094.06 50 1094.65 49.92 1094.76 50		

Goodwi vesDari enEX. rep

1123.45	50.76	1126.21	50.84	1131.58	50.87	1132.83	50.9	1133.76	50.84
1134.08	50.92	1139.22	50.96	1151.95	51	1194.11	50.55	1194.27	50.52
1197.46	50	1213.78	50.1	1214.07	50.11	1252.94	51	1386.82	51.89
1394.13	52	1403.22	52.27	1405.29	52.39	1406.94	52.47	1415.62	53
1428.82	53.56	1440.34	54	1444.08	54.5	1445.42	54.68	1447.67	55
1451.56	55.84	1452.19	56	1452.43	56.14	1452.79	56.35	1453.36	56.59
1454.16	57	1455.07	57.33	1455.08	57.34				

Manni ng' s n Val ues	num=	5
Sta n Val	Sta n Val	Sta n Val
0 .1	509.39	.015
		635.8
		.03
		654.2
		.035
		783.13
		.015

Bank Sta: Left Right Coeff Contr. Expan.  
 635.8 654.2 .3 .5

Ineffe ctive Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 629.24 43.18 F  
 660.76 1455.08 43.18 F

Blocke d Obstructi ons num= 1  
 Sta L Sta R Elev  
 106.5 423.34 64.75

Upstream Embankment side slope = 0 hori z. to 1.0 verti cal  
 Downstream Embankment side slope = 0 hori z. to 1.0 verti cal  
 Maximum allowable submergence for wei r flow = .98  
 Elevati on at whi ch wei r flow begi ns = 43.79  
 Energy head used in spi llway desi gn =  
 Spi llway hei ght used in desi gn =  
 Wei r crest shape = Broad Crested

Number of Culverts = 1

Culvert Name Shape Ri se Span  
 Culvert #1 Box 5 8.25

FHWA Chart # 58- Rectangul ar concrete  
 FHWA Scale # 1 - Si de tapered; Less favorabl e edges  
 Soluti on Cri teria = Hi ghest U. S. EG

Culvert Upstrm Dist	Length	Top n	Bottom n	Depth Blocked	Entrance Loss Coef
1	35	35	.013	.013	0
					.5

Number of Barrel s = 2  
 Upstream Elevati on = 37.53

Centerl i ne Stati ons  
 Sta. Sta.  
 640.725 649.975

Downstream Elevati on = 37.57  
 Centerl i ne Stati ons  
 Sta. Sta.  
 640.025 649.975

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 9904

INPUT  
 Descri pti on: UPDATED - 33.1 D/S Face of Parki ng Lot Bri dge

EXI STI NG -  
 Overbank Updated - updated bed elevati ons wi th survey. Updated  
 i neffeci ve flow areas. LOB n-value i ncreased from .015 to .1 at

Goodwiv esDari enEX. rep  
 buil di ng. ROB nval ue changed from .025 to .035 for lawn and .015  
 for roads.

REVDUP - corrected Ineffective Flow Areas for  
 culverts to use 1:1 contraction and 1.5:1 expansion and average of  
 min top of road elevation and max low chord

DUP - US section

33.2 deleted, identical to this cross section

Station Elevation Data num= 163									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	59.03	.07	59	.11	58.98	.23	58.94	2.45	58
4.34	57.17	4.7	57	6.91	56.02	6.97	56	7.17	55.91
9.32	55	11.74	54.04	11.84	54	12.21	53.87	14.72	53
15.04	52.89	17.55	52	18.15	51.79	20.4	51	21.02	50.78
23.28	50	23.71	49.85	26.21	49	26.62	48.85	28.48	48.25
28.93	48	29.87	47.83	31.37	47	33.31	46.89	36.43	46
36.78	45.91	38.2	45	40.1	44.91	40.2	44.93	42.63	44.25
43.41	44	46.22	43.57	49.46	43	59.19	43.12	66.66	43.23
78.48	43.45	85.66	43.56	92.41	43.68	108.56	44	109.6	44.02
111.95	44.05	161.86	44.79	180.83	45	189.13	45.07	193.18	45.12
222.62	45.45	234.17	45.56	264.9	45.7	265.55	45.71	266.3	45.72
269.25	45.76	279.36	45.85	284.14	45.84	288.25	45.86	292.6	45.87
342.02	45	509.39	44.88	542.19	44.53	547.53	44.5	578.28	44
609.4	43.9	611.26	43.81	618.6	43.91	619.17	43.86	620.06	43.73
621.46	43.64	627.6	43	635.8	42.5	635.9	38.37	644.5	37.33
644.6	37.57	645	37.57	645.5	37.57	654.1	37.6	654.2	42.5
659.8	43	666.56	43.21	673.16	43	783.13	43.47	795.05	44
795.85	44.04	807.15	44.14	807.98	44.16	817.04	44	825.81	44.07
826.92	44.05	829.31	44.09	848.36	44.99	848.57	45	864.5	45.03
867.32	45.05	876.83	45.1	878.13	45.12	898.58	45.26	907.37	45.28
912.08	45.3	919.76	45.34	950.64	45.69	953.88	45.73	956.09	45.75
967.18	45.91	973.82	46	992.89	46.08	1000.54	46.14	1001.58	46.15
1018.21	46.28	1027.15	46.33	1028.67	46.34	1074.54	46.17	1079.3	46.31
1082.14	47	1084.05	47.34	1087.1	47.88	1087.69	47.97	1087.92	48
1088.6	48.14	1089.03	48.23	1089.32	48.28	1090.86	48.6	1091.31	48.68
1093.09	49	1093.69	49.53	1094.06	50	1094.65	49.92	1094.76	50
1123.45	50.76	1126.21	50.84	1131.58	50.87	1132.83	50.9	1133.76	50.84
1134.08	50.92	1139.22	50.96	1151.95	51	1194.11	50.55	1194.27	50.52
1197.46	50	1213.78	50.1	1214.07	50.11	1252.94	51	1386.82	51.89
1394.13	52	1403.22	52.27	1405.29	52.39	1406.94	52.47	1415.62	53
1428.82	53.56	1440.34	54	1444.08	54.5	1445.42	54.68	1447.67	55
1451.56	55.84	1452.19	56	1452.43	56.14	1452.79	56.35	1453.36	56.59
1454.16	57	1455.07	57.33	1455.08	57.34				

Manning's n Values num= 5									
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.1	509.39	.015	635.8	.03	654.2	.035	783.13	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	635.8	654.2		32.42	39.07	37.29		.3	.5

Ineffective Flow num= 2			
Sta L	Sta R	Elev	Permanent
0	629.24	43.18	F
660.76	1455.08	43.18	F

Blocked Obstructions num= 1			
Sta L	Sta R	Elev	
106.5	423.34	64.75	

CROSS SECTION

RIVER: Goodwiv es Ri ver

REACH: mainstem

RS: 9865

INPUT

Description: UPDATED - 32.0 FEMA S - DS section of Parking Lot Bridge  
 mall on

left

EXISTING - Overbank Updated. LOB n-value increased from  
 .015 to .1 at building. ROB nvalue changed from .025 to .035 for  
 lawn and .015 for roads.

Station Elevation Data num= 156									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	58.77	.45	58.59	1.83	58	3.12	57.42	4.07	57
4.62	56.76	5.17	56.52	6.37	56	7.14	55.68	8.78	55
9.55	54.7	11.43	54	12.56	53.62	14.4	53	14.61	52.92
14.86	52.84	17.31	52	18.25	51.68	20.25	51	21.85	50.46
23.22	50	24.17	49.69	25.66	49.19	26.25	49	28.97	48.11
29.31	48	30.52	47.67	32.94	47	33.25	46.77	34.74	46.46
35.76	46.16	36.3	46	38.14	45.41	39.52	45	39.82	44.92
42.76	44	45.41	43.6	46.51	43.45	50.03	43	65.2	43.19
75.08	43.34	78.83	43.4	87.75	43.58	107.48	44	138.66	44.45
159.37	44.67	174.07	44.86	190.39	45	212.68	45.17	230.12	45.31
246.47	45.38	253.34	45.46	274.86	45.66	278.52	45.65	287.68	45.69
288.05	45.68	296.93	45.69	336.18	45	537.78	44.88	549.99	44.66
574.33	44.24	586.69	44	610.2	43.1	613.1	43	614.74	42.42
615.1	42.5	615.45	41.96	615.73	42.14	616.62	41.38	617.41	40.37
617.88	40.28	620	39.9	622	37.9	625	37.2	631	37.9
634	39.9	635.93	40	636.71	40.21	637.82	40.52	639.07	40.83
639.74	41	641.18	41.36	641.94	41.56	643.16	41.81	644.09	42
644.95	42.17	645.01	42.19	645.45	42.26	645.62	42.29	646.67	42.7
646.97	42.8	647.42	43	647.5643.00977	650	647.5643.00977	43.18	652.77	44
681.32	43.93	711.59	43	787.93	43.99	788.15	44	798.06	44.32
813.74	45	852.7	45.15	854.78	45.17	863.83	45	909.32	45.11
914.85	45.12	924.57	45.17	940.34	45.35	942.02	45.37	947.29	45.42
953.6	45.51	958.38	45.57	978.55	45.85	986.89	46	1025.64	46.05
1032.91	46.12	1069.16	46	1094.71	46.68	1095.3	46.66	1096.03	47
1098.94	47.39	1100.5	48	1103.11	48.76	1104.07	48.85	1105.86	49
1106.3	49.85	1106.43	50	1109.97	50.56	1112.14	50.76	1112.9	50.97
1113.03	50.98	1113.16	50.99	1146.45	50.93	1148.22	50.96	1149.19	50.97
1152.46	50.94	1203.31	50.85	1207.52	50.56	1211.86	50	1249.24	50.58
1267.48	51	1382.92	51.63	1408.12	52	1424.89	52.69	1429.95	53
1432.16	53.09	1439.48	53.37	1453.8	54	1458.94	54.54	1462.41	55
1464.97	55.32	1469.54	55.72	1473.33	55.69	1479.55	55.86	1480.19	55.88
1480.81	55.91								

Manning's n Values num= 5									
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.1	537.78	.015	613.1	.03	650	.035	787.93	.015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	613.1	650		76.15	82.88	81.29		.3	.5

Blocked Obstructions num= 1		
Sta L	Sta R	Elev
108.53	495.99	64.75

CROSS SECTION

RIVER: Goodwiv es Ri ver

REACH: mainstem

RS: 9782

INPUT

Description: NEW SURVEY - constriction between building and parking

Goodwi vesDari enEX. rep

lot

RIGHT bui lding ff elevati on = 44. 17'

LEFT bui lding =  
shopping mall

EXISTING - Added new secti on, surveyed channel,  
overbank elevati ons from town topo.

Station		Elevati on		Data		num=		154	
Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
0	58. 21	. 44	58	1. 51	57. 47	2. 48	57	3. 48	56. 54
4. 68	56	5. 77	55. 65	7. 75	55	8. 94	54. 61	10. 87	54
12. 43	53. 5	14. 05	53	16. 56	52. 23	17. 31	52	18. 32	51. 69
20. 55	51	21. 32	50. 76	23. 8	50	24. 08	49. 91	27. 05	49
27. 2	48. 96	28. 49	48. 58	30. 06	48	30. 7	47. 79	33. 12	47
34. 22	46. 64	35. 29	46	37. 94	45. 39	39. 12	45	42. 57	44. 34
42. 99	44. 21	43. 83	44. 41	45. 01	44. 2	45. 99	44	48. 6	43. 56
71. 96	44	118. 88	44. 3	121. 83	44. 31	184. 59	44. 78	191. 05	44. 83
201. 86	44. 92	206. 93	44. 95	211. 43	44. 96	227. 55	44. 97	237. 12	45
268. 32	45. 06	295. 27	45. 08	299. 71	45	360. 78	44. 78	368. 61	44. 75
374. 55	44. 71	376. 99	44. 68	382. 21	44. 62	389. 84	44. 52	391. 73	44. 49
396. 79	44. 41	400. 31	44. 39	411. 45	44. 25	416. 15	44. 26	427. 06	44. 28
441. 28	44. 27	468. 53	44. 29	469. 36	44. 3	476. 78	44. 33	494. 23	44. 27
496. 33	44. 28	516. 38	44. 13	524. 3	44	537. 45	43. 69	542. 21	43. 56
554. 88	43. 14	555. 21	43. 13	557. 02	43. 07	559. 04	43	565. 3	42. 4
566. 7	38. 91	568. 7	37. 21	574. 2	36. 93	576	38. 2	578	38. 63
578. 5	38. 98	578. 5	43. 56	589. 2	43. 85	695. 17	43. 21	744. 98	43. 61
761. 69	43. 79	762. 49	43. 8	771. 25	43. 76	778. 04	44	780. 43	44. 04
781. 55	44. 1	786. 87	44. 37	793. 82	44. 69	800. 08	45	803. 27	45. 22
809. 63	46	832. 05	45. 68	841. 29	45. 76	850. 74	45. 83	862. 29	45. 96
863. 87	45. 93	866. 67	45. 91	874. 37	46	889. 22	46. 01	890. 71	46
904. 05	45. 72	906. 78	45. 6	912. 24	45. 33	916. 24	45. 36	920. 56	45. 3
922. 92	45. 22	923. 58	45. 24	924. 88	45. 21	925. 63	45. 2	926. 08	45. 19
928. 12	45. 18	931. 12	45. 19	933. 45	45. 26	974. 36	46	1098. 04	46. 32
1100. 5	47	1102. 11	47. 46	1104. 22	48	1105. 95	48. 57	1107. 37	49
1108. 69	49. 95	1108. 74	50	1112. 68	50. 17	1118. 48	50. 16	1140. 89	50. 54
1153. 02	50. 65	1192. 71	50. 32	1210. 05	50. 3	1214. 4	50	1259. 12	50. 68
1272. 94	51	1349. 58	51. 06	1413. 73	52	1422. 72	52. 11	1424. 28	52. 24
1426. 67	52. 43	1431. 24	52. 81	1433. 49	53	1437. 22	53. 31	1445. 32	54
1462. 29	54. 55	1467. 19	54. 67	1469. 15	54. 78	1473. 86	55	1479. 71	55. 2
1493. 09	56	1495. 8	56. 24	1498. 03	56. 51	1499. 55	56. 69		

Manni ng' s n		Val ues		num=		5	
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	. 1	516. 38	. 015	565. 3	. 03	578. 5	. 1

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	565. 3	578. 5		127. 35	115. 34		. 1	. 3
Blocked Obstructi ons	num=		2					
	Sta L	Sta R	El ev	Sta L	Sta R	El ev		
	110. 46	491. 8	64. 75	589. 2	674. 28	56. 69		

CROSS SECTI ON

RIVER: Goodwi ves Ri ver  
REACH: mai nstem RS: 9666

INPUT  
Descripti on: UPDATED - 31. 0 FEMA R - Upstream of Rai lroad Bri dge

EXISTING - Overbank Updated. i ncreased LOB fom . 055 to . 09 - thi ck brush near

Goodwi vesDari enEX. rep

RR. ROB .05 varied by .08 forest buffer and .015/parki ng.

Station Elevation Data num= 191

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	60.79	.88	60.4	1.8	60	3.39	59.3	4.08	59
4.94	58.66	6.21	58	8.18	57.27	8.89	57	10.26	56.48
11.48	56	12.13	55.75	14.04	55	15.73	54.36	16.64	54
19.1	53.07	19.28	53	19.84	52.78	21.92	52	23.92	51.31
24.77	51	25.27	50.83	27.68	50	28.01	49.4	29.64	49.26
30.34	49	30.99	48.13	32.87	48	33.07	48.04	33.18	48
33.66	47.85	36.39	47	37.19	46.93	46.69	46	55.01	45.55
57.26	45.39	58.17	45.34	58.4	45.33	68.05	45	69.4	44.89
70.47	44.91	76.08	44.74	91.63	44.54	102.83	44.69	106.43	44.73
107.31	44.74	112.25	44.78	118.45	44.82	125.94	44.87	129.23	44.89
143.99	44.94	149.04	44.95	162.79	44.94	183.17	44.93	185.63	44.79
196.34	44.73	204.78	44.61	212.51	44.44	213.46	44.42	215.23	44.51
217.51	44.5	223.46	44.4	225.9	44.34	241.32	44.15	242.95	44
257.98	43.81	272.46	43.51	276.78	43.52	283.2	43.44	286.65	43.45
298.98	43.05	299.57	43	336.76	42.51	341.63	42.52	343.2	42
362.42	41.19	364.89	41.08	370.06	41	428.04	41.33	431.09	41.5
432.09	41.56	433	41.59	433.67	41.65	434.31	41.67	434.9	41.71
435.71	41.74	438.74	42	441.61	42.32	446.06	42.98	446.15	42.99
446.18	43	449.79	43.33	461.02	43.58	463.3	43.65	475.33	43.97
476.07	44	491.87	44.16	493.3	44.13	495.22	44	497.71	43.69
498.46	43	499.41	42.49	500.34	42	501.01	41.65	501.15	41.58
502.25	41	503.86	40.19	504.24	40	504.84	39.71	505.12	39.58
506.31	39	507	38	508	37.1	510	36.5	515.5	37.3
518.5	38	521.43	39.17	522.13	39.4	524.12	40	524.77	40.09
525.89	40.24	527.54	40.48	529.97	41	536.97	41.37	547.97	42
577.49	42.42	587.69	42.57	615.57	43	743.93	43.89	753.97	44
768.09	44.88	770.31	45	788.05	45.18	791.2	46	848.43	46.4
869.95	46.77	879.74	46.99	892.69	46.83	894.54	46.8	896.48	46.77
916.66	46.49	918.53	46.47	919.81	46.45	923.72	46.35	926.56	46.31
930.16	46.37	932.95	46.34	935.05	46.29	935.92	46.28	940.41	46.21
943.28	46	1032.45	45.81	1036.96	45.84	1048.49	45.96	1051.12	46
1082.62	46.8	1083.1	47	1085.74	47.41	1088.53	47.84	1089.5	48
1093.77	48.99	1093.79	49	1093.84	49.01	1093.93	49.02	1094.17	49.05
1098.8	49.59	1103.74	50	1111.17	50.04	1136.19	50.27	1170.2	50
1242.64	50.57	1244.62	50.6	1279.82	51	1352.4	51.31	1400.64	52
1415.76	52.28	1417.88	53	1424.8	53.36	1448.07	53.94	1449.59	54
1452.72	54.23	1462.68	55	1470.01	55.45	1479.02	56	1482.23	56.41
1486.78	57	1489.08	57.88	1489.38	58	1489.64	58.11	1491.69	59
1504.49	59.34								

Manning's n Values num= 4

Station	Value	Station	Value	Station	Value	Station	Value
0	.09	501.15	.04	524.77	.07	577.49	.015

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

501.15	524.77	18.25	43.07	39.64	.3	.5
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CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem

RS: 9623

INPUT

Description: SURVEYED - Upstream face of Rai lroad Bridge

EXISTING - this

section was 30.0 in the effective model and located Under  
 Railroad Bridge. Included railroad bridge as a structure, so moved  
 section upstream. Surveyed wet section and updated overbank with



Goodwies Dari enEX. rep

town topo. Added ineffective flow areas. Increased channel n from .025 to .035.

Station	Elevation	Data	num=	376	Station	Elevation	Station	Elevation	Station	Elevation
0	56.72	.85	56.45	2.32	56	3.44	55.65	5.58	55	55
5.64	54.98	5.71	54.96	8.69	54	9.17	53.85	12.02	53	53
12.37	52.94	12.56	52.9	17.19	52	17.81	51.92	22.52	51	51
25.79	50.41	26.1	50.34	27.82	50	28.2	49.88	31.2	49	49
31.46	48.92	34.55	48	35.49	47.83	37.3	47.54	37.79	47.47	47.47
38.37	47.38	39.47	47.24	40.77	47.08	40.82	47.07	41.24	47.04	47.04
42.77	47.01	42.86	47	43.53	46.98	45.84	46.88	46.36	46.85	46.85
46.63	46.83	47.41	46.79	48.21	46.74	48.71	46.72	53.25	46.23	46.23
53.34	46.22	53.46	46.21	54.63	46.12	55.38	46	64.39	45.43	45.43
67.21	45.2	69.96	45	94.7	45.28	102.31	45.75	105.94	46	46
108.56	46.2	109.06	46.24	109.43	46.25	111.62	46.36	115.34	46.22	46.22
116.93	46.24	118.58	46.47	123.35	46.52	129.38	46.56	133.45	46.6	46.6
140.44	46.64	143.59	46.55	147.44	46.58	148.66	46.59	151.78	46.69	46.69
155.47	46.68	163.17	46.66	164.65	46.64	169.05	46.62	172.72	46.56	46.56
174.26	46.4	175.18	46.38	178.19	46.37	184.03	46.44	187.54	46.43	46.43
193.29	46.33	195.17	46.35	198.27	46.25	199.07	46.26	204.22	46	46
205.65	45.96	209.79	45.84	217.02	45.83	222.13	45.84	225.22	45.79	45.79
231.71	45.78	234.95	45.37	236.84	45.19	242.85	45.17	243.73	45.16	45.16
249.25	45.14	250.63	45.15	252.14	45.2	252.69	45.22	253.36	45.24	45.24
259.27	45.37	260.95	45.4	261.92	45.42	266.68	45.53	268.32	45.56	45.56
269.4	45.58	270.57	45.61	271.93	45.64	273.25	45.67	274.69	45.7	45.7
275.74	45.72	277.25	45.76	278.91	45.79	279.64	45.81	281.94	45.85	45.85
282.42	45.86	284.84	45.9	285.15	45.91	287.68	45.95	287.8	45.96	45.96
290.2	46	295.32	46.07	297.04	46.1	298.91	46.13	300.48	46.15	46.15
302.52	46.18	304.67	46.21	306.85	46.24	307.48	46.25	309.05	46.27	46.27
311.08	46.3	311.84	46.31	312.83	46.32	314.8	46.35	316.61	46.37	46.37
317.76	46.39	320	46.42	322.56	46.43	323.76	46.44	327.91	46.47	46.47
329.82	46.48	330.81	46.49	333.19	46.5	334.98	46.51	336.49	46.52	46.52
337.12	46.53	338.66	46.54	340.3	46.55	341.77	46.56	343.46	46.57	46.57
344.86	46.58	346.37	46.59	347.7	46.6	349.24	46.61	349.93	46.6	46.6
351.53	46.61	358.18	46.58	359.49	46.57	360.92	46.56	362.31	46.55	46.55
363.69	46.54	365.49	46.52	367.11	46.51	368.82	46.49	370.52	46.48	46.48
372.32	46.46	373.78	46.45	375.16	46.44	377.05	46.42	378.15	46.39	46.39
379.62	46.35	380.32	46.33	382.3	46.27	388.07	46.1	388.34	46.09	46.09
390.68	46.01	390.85	46	392.9	45.93	393.12	45.92	395.15	45.84	45.84
395.62	45.82	433.43	45.4	435.41	45.43	436.4	45.42	439.18	45.39	45.39
441	45.38	443.97	45.35	447.01	45.31	451.96	45.12	455.36	45	45
458.56	44.93	462.24	44.82	463.67	44.85	467.45	44.77	472.22	44.84	44.84
480.87	44.83	483.32	44.88	484.36	44.82	489.71	44.8	491.72	44.5	44.5
492.63	44.51	493.42	44.35	494.45	44.38	494.85	44.21	495.53	44	44
496.38	43.65	496.81	43	497.55	43.45	499	43.19	499.32	43.14	43.14
500.29	43.1	500.43	43.09	500.54	43.1	502.87	43.15	508.31	43.17	43.17
511.38	43.18	515.14	43.2	518.92	43.22	523.09	43.23	525.37	43	43
527.01	43.16	528.72	43.03	528.9	43.02	529.41	43	530.81	42.94	42.94
531.5	42.9	531.8	42.85	532.95	42.63	533.73	42.38	534.12	42	42
534.25	42.22	534.94	42	536.14	41.71	536.86	41.51	537.71	41.34	41.34
537.8	41.29	538.24	41	538.56	40.77	539.92	40	540.12	39.87	39.87
540.29	39.77	541	39.02	541.4	37.96	542.8	37.16	545.1	36.47	36.47
550.9	36.35	555.6	37.93	559.8	39.72	560.13	41	564.99	41.41	41.41
571.94	42	579.6	42.16	618.57	42.89	619.92	42.9	621.41	42.93	42.93
622.57	42.89	624.04	43	648.96	43.24	656.9	43.47	659.8	43.51	43.51
663.01	43.55	667.21	43.57	689.03	44	767.76	44.64	771.09	45	45
784.75	45.53	794.3	46	802.96	46.57	803.47	46.6	809.23	46.77	46.77
811.67	46.88	812.48	46.9	813.16	46.92	814.88	47	832.4	47.47	47.47
833.44	47.41	841.14	47.56	845.63	47.81	850.18	48	855.19	48.4	48.4
859.58	48.41	862.26	48.53	864.75	48.58	865.14	48.6	873.58	49	49
877.99	49.23	895.17	49.52	903.22	50	918.59	50.32	924	50.34	50.34
945.48	51	1083.83	50.6	1089.82	50.58	1116.22	50.34	1120.79	50.22	50.22
1125.2	50.21	1134.23	50	1215.78	49.49	1221.96	49.45	1231.3	49.43	49.43

Goodwi vesDari enEX. rep

1239.03	49.37	1240.27	49.36	1243.74	49.4	1251.84	49.39	1257.35	49.37
1268.79	49.2	1270.67	49.18	1272.03	49.16	1291.45	49.07	1294.13	49
1415.73	48.34	1417.85	48.35	1427.39	48	1442.72	47.67	1444.93	47.63
1462.72	47.38	1480.01	47.27	1487.92	47.26	1491.44	47.17	1501.64	47.18
1504.94	47.24	1513.09	47.17	1514.96	47.16	1518.35	47.15	1521.62	47.09
1523.06	47.15	1530.2	47.4	1541.71	47.83	1542.78	47.87	1545.46	47.97
1547.09	48	1548.48	48.01	1552.33	48	1576.73	48.02	1590.57	48.16
1591.29	48.17	1603.19	48.25	1610.13	48.26	1625.99	48.72	1628.43	48.78
1633.23	48.88	1634.03	48.91	1636.67	48.98	1637.43	49	1646.99	49.14
1649.13	49.24	1650.52	49.29	1659.68	49.61	1663.24	49.65	1674.44	50
1676.71	50.1	1677.24	50.11	1677.51	50.14	1679.14	50.31	1680.45	50.33
1692.67	50.87	1694.69	50.97	1694.96	50.98	1695.5	51	1705.09	51.59
1708.11	51.61	1708.73	51.62	1713.58	51.65	1716.24	51.75	1724.26	52
1755.28	52.8	1758.83	53	1765.35	53.25	1768.25	53.31	1784.58	54
1807.16	54.13	1807.46	54.12	1808.35	54.14	1808.93	54.15	1809.17	54.16
1824.46	55	1828.11	55.29	1836.24	55.9	1836.65	55.93	1837.07	55.95
1837.12	55.96								

Manning's n Values num= 3  
 Sta n Val Sta n Val  
 0 .09 541 .035 559.8 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 541 559.8 114.83 121.46 137.73 .3 .5  
 Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 507.4 55 F  
 590.2 1837.12 55 F

BRIDGE

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 9560

INPUT  
 Description: NEW SURVEY - Rai l road Bridge added as structure

EXISTING -  
 Surveyed bridge opening. Deck elevation from town topo. Length measured in field.

Distance from Upstream XS = 34  
 Deck/Roadway Width = 53  
 Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates num= 8

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
0		53		0	541.4		55		0	541.4		55		50.05
556.2		55		50.03	556.2		55		0	941.4		57		
1486.4		59			1836.24		55.9							

Upstream Bridge Cross Section Data

Station Elevation Data num= 376

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	56.72	.85	56.45	2.32	56	3.44	55.65	5.58	55
5.64	54.98	5.71	54.96	8.69	54	9.17	53.85	12.02	53
12.37	52.94	12.56	52.9	17.19	52	17.81	51.92	22.52	51
25.79	50.41	26.1	50.34	27.82	50	28.2	49.88	31.2	49
31.46	48.92	34.55	48	35.49	47.83	37.3	47.54	37.79	47.47
38.37	47.38	39.47	47.24	40.77	47.08	40.82	47.07	41.24	47.04
42.77	47.01	42.86	47	43.53	46.98	45.84	46.88	46.36	46.85
46.63	46.83	47.41	46.79	48.21	46.74	48.71	46.72	53.25	46.23
53.34	46.22	53.46	46.21	54.63	46.12	55.38	46	64.39	45.43

Goodwi vesDari enEX. rep

67. 21	45. 2	69. 96	45	94. 7	45. 28	102. 31	45. 75	105. 94	46
108. 56	46. 2	109. 06	46. 24	109. 43	46. 25	111. 62	46. 36	115. 34	46. 22
116. 93	46. 24	118. 58	46. 47	123. 35	46. 52	129. 38	46. 56	133. 45	46. 6
140. 44	46. 64	143. 59	46. 55	147. 44	46. 58	148. 66	46. 59	151. 78	46. 69
155. 47	46. 68	163. 17	46. 66	164. 65	46. 64	169. 05	46. 62	172. 72	46. 56
174. 26	46. 4	175. 18	46. 38	178. 19	46. 37	184. 03	46. 44	187. 54	46. 43
193. 29	46. 33	195. 17	46. 35	198. 27	46. 25	199. 07	46. 26	204. 22	46
205. 65	45. 96	209. 79	45. 84	217. 02	45. 83	222. 13	45. 84	225. 22	45. 79
231. 71	45. 78	234. 95	45. 37	236. 84	45. 19	242. 85	45. 17	243. 73	45. 16
249. 25	45. 14	250. 63	45. 15	252. 14	45. 2	252. 69	45. 22	253. 36	45. 24
259. 27	45. 37	260. 95	45. 4	261. 92	45. 42	266. 68	45. 53	268. 32	45. 56
269. 4	45. 58	270. 57	45. 61	271. 93	45. 64	273. 25	45. 67	274. 69	45. 7
275. 74	45. 72	277. 25	45. 76	278. 91	45. 79	279. 64	45. 81	281. 94	45. 85
282. 42	45. 86	284. 84	45. 9	285. 15	45. 91	287. 68	45. 95	287. 8	45. 96
290. 2	46	295. 32	46. 07	297. 04	46. 1	298. 91	46. 13	300. 48	46. 15
302. 52	46. 18	304. 67	46. 21	306. 85	46. 24	307. 48	46. 25	309. 05	46. 27
311. 08	46. 3	311. 84	46. 31	312. 83	46. 32	314. 8	46. 35	316. 61	46. 37
317. 76	46. 39	320	46. 42	322. 56	46. 43	323. 76	46. 44	327. 91	46. 47
329. 82	46. 48	330. 81	46. 49	333. 19	46. 5	334. 98	46. 51	336. 49	46. 52
337. 12	46. 53	338. 66	46. 54	340. 3	46. 55	341. 77	46. 56	343. 46	46. 57
344. 86	46. 58	346. 37	46. 59	347. 7	46. 6	349. 24	46. 61	349. 93	46. 6
351. 53	46. 61	358. 18	46. 58	359. 49	46. 57	360. 92	46. 56	362. 31	46. 55
363. 69	46. 54	365. 49	46. 52	367. 11	46. 51	368. 82	46. 49	370. 52	46. 48
372. 32	46. 46	373. 78	46. 45	375. 16	46. 44	377. 05	46. 42	378. 15	46. 39
379. 62	46. 35	380. 32	46. 33	382. 3	46. 27	388. 07	46. 1	388. 34	46. 09
390. 68	46. 01	390. 85	46	392. 9	45. 93	393. 12	45. 92	395. 15	45. 84
395. 62	45. 82	433. 43	45. 4	435. 41	45. 43	436. 4	45. 42	439. 18	45. 39
441	45. 38	443. 97	45. 35	447. 01	45. 31	451. 96	45. 12	455. 36	45
458. 56	44. 93	462. 24	44. 82	463. 67	44. 85	467. 45	44. 77	472. 22	44. 84
480. 87	44. 83	483. 32	44. 88	484. 36	44. 82	489. 71	44. 8	491. 72	44. 5
492. 63	44. 51	493. 42	44. 35	494. 45	44. 38	494. 85	44. 21	495. 53	44
496. 38	43. 65	496. 81	43	497. 55	43. 45	499	43. 19	499. 32	43. 14
500. 29	43. 1	500. 43	43. 09	500. 54	43. 1	502. 87	43. 15	508. 31	43. 17
511. 38	43. 18	515. 14	43. 2	518. 92	43. 22	523. 09	43. 23	525. 37	43
527. 01	43. 16	528. 72	43. 03	528. 9	43. 02	529. 41	43	530. 81	42. 94
531. 5	42. 9	531. 8	42. 85	532. 95	42. 63	533. 73	42. 38	534. 12	42
534. 25	42. 22	534. 94	42	536. 14	41. 71	536. 86	41. 51	537. 71	41. 34
537. 8	41. 29	538. 24	41	538. 56	40. 77	539. 92	40	540. 12	39. 87
540. 29	39. 77	541	39. 02	541. 4	37. 96	542. 8	37. 16	545. 1	36. 47
550. 9	36. 35	555. 6	37. 93	559. 8	39. 72	560. 13	41	564. 99	41. 41
571. 94	42	579. 6	42. 16	618. 57	42. 89	619. 92	42. 9	621. 41	42. 93
622. 57	42. 89	624. 04	43	648. 96	43. 24	656. 9	43. 47	659. 8	43. 51
663. 01	43. 55	667. 21	43. 57	689. 03	44	767. 76	44. 64	771. 09	45
784. 75	45. 53	794. 3	46	802. 96	46. 57	803. 47	46. 6	809. 23	46. 77
811. 67	46. 88	812. 48	46. 9	813. 16	46. 92	814. 88	47	832. 4	47. 47
833. 44	47. 41	841. 14	47. 56	845. 63	47. 81	850. 18	48	855. 19	48. 4
859. 58	48. 41	862. 26	48. 53	864. 75	48. 58	865. 14	48. 6	873. 58	49
877. 99	49. 23	895. 17	49. 52	903. 22	50	918. 59	50. 32	924	50. 34
945. 48	51	1083. 83	50. 6	1089. 82	50. 58	1116. 22	50. 34	1120. 79	50. 22
1125. 2	50. 21	1134. 23	50	1215. 78	49. 49	1221. 96	49. 45	1231. 3	49. 43
1239. 03	49. 37	1240. 27	49. 36	1243. 74	49. 4	1251. 84	49. 39	1257. 35	49. 37
1268. 79	49. 2	1270. 67	49. 18	1272. 03	49. 16	1291. 45	49. 07	1294. 13	49
1415. 73	48. 34	1417. 85	48. 35	1427. 39	48	1442. 72	47. 67	1444. 93	47. 63
1462. 72	47. 38	1480. 01	47. 27	1487. 92	47. 26	1491. 44	47. 17	1501. 64	47. 18
1504. 94	47. 24	1513. 09	47. 17	1514. 96	47. 16	1518. 35	47. 15	1521. 62	47. 09
1523. 06	47. 15	1530. 2	47. 4	1541. 71	47. 83	1542. 78	47. 87	1545. 46	47. 97
1547. 09	48	1548. 48	48. 01	1552. 33	48	1576. 73	48. 02	1590. 57	48. 16
1591. 29	48. 17	1603. 19	48. 25	1610. 13	48. 26	1625. 99	48. 72	1628. 43	48. 78
1633. 23	48. 88	1634. 03	48. 91	1636. 67	48. 98	1637. 43	49	1646. 99	49. 14
1649. 13	49. 24	1650. 52	49. 29	1659. 68	49. 61	1663. 24	49. 65	1674. 44	50
1676. 71	50. 1	1677. 24	50. 11	1677. 51	50. 14	1679. 14	50. 31	1680. 45	50. 33
1692. 67	50. 87	1694. 69	50. 97	1694. 96	50. 98	1695. 5	51	1705. 09	51. 59
1708. 11	51. 61	1708. 73	51. 62	1713. 58	51. 65	1716. 24	51. 75	1724. 26	52

Goodwi vesDari enEX. rep

1755.28	52.8	1758.83	53	1765.35	53.25	1768.25	53.31	1784.58	54
1807.16	54.13	1807.46	54.12	1808.35	54.14	1808.93	54.15	1809.17	54.16
1824.46	55	1828.11	55.29	1836.24	55.9	1836.65	55.93	1837.07	55.95
1837.12	55.96								

Manning's n Values

num=	3
Sta n Val	Sta n Val
0 .09	541 .035
	559.8 .07

Bank Sta: Left Right Coeff Contr. Expan.

541	559.8	.3	.5
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Ineffective Flow

num=	2
Sta L Sta R Elev	Permanent
0 507.4 55	F
590.2 1837.12 55	F

Downstream Deck/Roadway Coordinates

num=	7	
Sta Hi Cord Lo Cord	Sta Hi Cord Lo Cord	Sta Hi Cord Lo Cord
0 52.75 0	500 55 0	500 55 50.27
514.8 55 50.29	514.8 55 0	900 57
993.65 57		

Downstream Bridge Cross Section Data

Station	Elevation	Data	num=	220					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	66.98	3.44	66.73	4.4	66.64	6	66.5	7.36	66.41
8.63	66.31	9.64	66.24	11.54	66	13.29	65.55	15.26	65
17.99	64.18	18.35	64	19.68	63.35	20.02	63.19	20.37	63
21.73	62.29	22.27	62	22.83	61.7	24.07	61	24.09	60.99
24.15	60.96	25.28	60.3	25.78	60	26.2	59.75	26.46	59.6
27.44	59	27.55	58.93	28.96	58	30.46	57.41	31.55	57
33.29	56.57	35.36	56	36.4	55.72	39.32	55	39.63	54.93
43.26	54	44.34	53.86	44.54	53.82	49.47	53	51.81	53.4
52.72	54	53.04	54.24	54.25	54.93	54.32	54.97	54.33	54.98
54.37	55	58.75	54.9	59.7	54.5	60.75	54.06	60.9	54
62.85	53.21	63.21	53.1	63.58	53	64.74	52.97	68.76	52.87
69.15	52.85	72.8	52.74	91.1	52	137.94	51.35	140.48	51.31
157.91	51.06	160.12	51	190.25	50.67	193.85	50.6	208.54	50
240.21	49.35	241.53	49	249.98	48.71	250.07	48.7	266.14	48
308.79	48.13	321.73	48	324.02	47.99	324.19	47.98	333.67	47.93
342.4	47.89	343.55	47.85	369.44	47.69	370.32	47.68	376.79	47.77
377.47	47.78	381.96	47.72	382.62	47.69	383.41	47.7	387.13	47.53
389.38	47.51	395.18	47	399.67	46.38	400.36	46.24	400.87	46
403.69	45.75	411.18	45	421.57	44.47	424.08	44.36	433.53	44
438.25	43.88	438.55	43.9	438.98	43.88	440.57	43.82	447.84	43.29
449	43.22	452.16	43.17	457.89	43	458.14	42.97	458.52	42.94
463.04	42.44	467.58	42	486	41.41	487.61	41.44	493.7	41.07
494.56	41	496.53	40.45	497.42	40.01	497.46	40	498.94	39.51
499.14	39.47	499.98	39	500	37.89	514.8	37.54	515.09	39.84
516.29	40.36	516.67	41	518.41	41.32	518.62	41.33	522.55	42.64
524.55	43	525.68	43.58	526.3	44	528	44.54	528.93	44.77
529.32	44.78	530.14	44.91	530.42	44.95	530.77	44.97	531.98	44.89
532.1	45	580.39	45.28	583.48	45.29	585.9	45.49	589.52	45.5
599.46	45.83	606.77	45.84	615.52	46	634.27	46.4	637.37	46.44
644.01	46.81	651.44	46.84	658.18	47	675.48	47.27	676.86	47.29
680.97	47.85	685.01	47.86	690.82	48	717.21	48.46	718.43	48.48
719.3	48.5	720.63	48.57	721.59	48.62	724	48.73	727.23	49
729.92	49.11	730.3	49.16	733.78	49.67	735.35	49.87	736.07	49.31
736.61	49.85	736.76	50	737.88	50.09	738.34	50.13	740.71	50.31
742.48	50.45	744.29	50.59	745.35	50.67	748.43	50.9	748.82	50.93
749.72	51	752.31	51.14	752.61	51.15	753.03	51.18	754.29	51.17
755.98	51.18	756.63	51.15	762.58	51.3	763.65	51.29	765.93	51.33

Goodwi vesDari enEX. rep

770.96	51.44	774.32	51.49	777.11	51.55	778.04	51.57	779.01	51.58
784.04	51.66	786.47	51.72	790.62	51.92	791.87	51.94	792.43	51.52
793.73	52.07	794.38	52	800.61	51.73	802.84	51	822.21	51.11
844.56	52	921.04	51.26	932.09	51	954.51	50.75	963.58	50.66
966.04	50.77	966.61	50.79	971.24	51	973.57	51.81	974.1	52
975.21	52.41	976.86	53	978.17	53.48	979.57	54	980.57	54.37
982.21	55	983.87	55.24	989.91	56	992.49	56.75	993.65	57

Manni ng' s n Val ues num= 5

Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val
0 .035	249.98	.1	321.73	.035	496.53	.035	518.62	.035	

Bank Sta: Left Right Coeff Contr. Expan.  
 496.53 518.62 .3 .5

Ineffe ctive Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 465.54 52.6 F  
 549.26 993.65 52.6 F

Blocke d Obstructi ons num= 1  
 Sta L Sta R Elev  
 261.07 314.36 63.54

Upstream Embankment side slope = 1.65 hori z. to 1.0 verti cal  
 Downstream Embankment side slope = 2.22 hori z. to 1.0 verti cal  
 Maximum allowable submergence for wei r flow = .98  
 Elevati on at whi ch wei r flow begi ns = 55  
 Energy head used i n spi llway desi gn =  
 Spi llway hei ght used i n desi gn =  
 Wei r crest shape = Broad Crested

Number of Bri dge Coeffi ci ent Sets = 1

Low Flow Methods and Data  
 Energy  
 Selected Low Flow Methods = Highest Energy Answer

Hi gh Flow Method  
 Energy Only

Addi ti onal Bri dge Parameters  
 Add Fricti on component to Momentum  
 Do not add Wei ght component to Momentum  
 Class B flow critical depth computations use critical depth  
 i nside the bri dge at the upstream end  
 Criteria to check for pressure flow = Upstream energy grade li ne

CROSS SECTI ON

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 9502

I NPUT  
 Descri pti on: SURVEYED - 29.0 FEMA Q - U/S Secti on of Tokeneke Road

EXI STI NG  
 - Surveyed bed at downstream end of bridge, overbank updated wi th town topo. Added i neffec ti ve flow areas. Decreased overbank n-val ues - parking areas wi th cars/concrete structures from .07 and .09 to .035, i ncreased to .1 at bui ldi ng.

REVDUP

Goodwiv esDari enEX. rep

-corrected bank stations to reflect actual top of bank (set in HEC-2 to specify ineffective flow area location)

Station Elevation Data num= 220									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	66.98	3.44	66.73	4.4	66.64	6	66.5	7.36	66.41
8.63	66.31	9.64	66.24	11.54	66	13.29	65.55	15.26	65
17.99	64.18	18.35	64	19.68	63.35	20.02	63.19	20.37	63
21.73	62.29	22.27	62	22.83	61.7	24.07	61	24.09	60.99
24.15	60.96	25.28	60.3	25.78	60	26.2	59.75	26.46	59.6
27.44	59	27.55	58.93	28.96	58	30.46	57.41	31.55	57
33.29	56.57	35.36	56	36.4	55.72	39.32	55	39.63	54.93
43.26	54	44.34	53.86	44.54	53.82	49.47	53	51.81	53.4
52.72	54	53.04	54.24	54.25	54.93	54.32	54.97	54.33	54.98
54.37	55	58.75	54.9	59.7	54.5	60.75	54.06	60.9	54
62.85	53.21	63.21	53.1	63.58	53	64.74	52.97	68.76	52.87
69.15	52.85	72.8	52.74	91.1	52	137.94	51.35	140.48	51.31
157.91	51.06	160.12	51	190.25	50.67	193.85	50.6	208.54	50
240.21	49.35	241.53	49	249.98	48.71	250.07	48.7	266.14	48
308.79	48.13	321.73	48	324.02	47.99	324.19	47.98	333.67	47.93
342.4	47.89	343.55	47.85	369.44	47.69	370.32	47.68	376.79	47.77
377.47	47.78	381.96	47.72	382.62	47.69	383.41	47.7	387.13	47.53
389.38	47.51	395.18	47	399.67	46.38	400.36	46.24	400.87	46
403.69	45.75	411.18	45	421.57	44.47	424.08	44.36	433.53	44
438.25	43.88	438.55	43.9	438.98	43.88	440.57	43.82	447.84	43.29
449	43.22	452.16	43.17	457.89	43	458.14	42.97	458.52	42.94
463.04	42.44	467.58	42	486	41.41	487.61	41.44	493.7	41.07
494.56	41	496.53	40.45	497.42	40.01	497.46	40	498.94	39.51
499.14	39.47	499.98	39	500	37.89	514.8	37.54	515.09	39.84
516.29	40.36	516.67	41	518.41	41.32	518.62	41.33	522.55	42.64
524.55	43	525.68	43.58	526.3	44	528	44.54	528.93	44.77
529.32	44.78	530.14	44.91	530.42	44.95	530.77	44.97	531.98	44.89
532.1	45	580.39	45.28	583.48	45.29	585.9	45.49	589.52	45.5
599.46	45.83	606.77	45.84	615.52	46	634.27	46.4	637.37	46.44
644.01	46.81	651.44	46.84	658.18	47	675.48	47.27	676.86	47.29
680.97	47.85	685.01	47.86	690.82	48	717.21	48.46	718.43	48.48
719.3	48.5	720.63	48.57	721.59	48.62	724	48.73	727.23	49
729.92	49.11	730.3	49.16	733.78	49.67	735.35	49.87	736.07	49.31
736.61	49.85	736.76	50	737.88	50.09	738.34	50.13	740.71	50.31
742.48	50.45	744.29	50.59	745.35	50.67	748.43	50.9	748.82	50.93
749.72	51	752.31	51.14	752.61	51.15	753.03	51.18	754.29	51.17
755.98	51.18	756.63	51.15	762.58	51.3	763.65	51.29	765.93	51.33
770.96	51.44	774.32	51.49	777.11	51.55	778.04	51.57	779.01	51.58
784.04	51.66	786.47	51.72	790.62	51.92	791.87	51.94	792.43	52
793.73	52.07	794.38	52	800.61	51.73	802.84	51	822.21	51.11
844.56	52	921.04	51.26	932.09	51	954.51	50.75	963.58	50.66
966.04	50.77	966.61	50.79	971.24	51	973.57	51.81	974.1	52
975.21	52.41	976.86	53	978.17	53.48	979.57	54	980.57	54.37
982.21	55	983.87	55.24	989.91	56	992.49	56.75	993.65	57

Manning's n Values num= 5									
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.035	249.98	.1	321.73	.035	496.53	.035	518.62	.035

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	496.53	518.62		9.96	9.08		.3	.5

Ineffective Flow num= 2		
Sta L	Sta R	Elev
0	465.54	52.6
549.26	993.65	52.6

Blocked Obstructions num= 1		
Sta L	Sta R	Elev
261.07	314.36	63.54

CROSS SECTI ON

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem

RS: 9493

INPUT

Descripti on: SURVEYED - 28.0 U/S Face of Tokeneke Road

EXI STING - Channel

surveyed, overbank updated from town topo. Updated Ineffective Flow Areas. Increased overbank n-values - parking areas with cars/concrete structures from .015 to .035, increased to .1 at bui lding.

REVDUP - corrected Ineffective Flow Areas for

culverts to use 1:1 contraction and 1.5:1 expansion and min top of road elevati on

-corrected bank stations to reflect actual top of

bank (set in HEC-2 to specifi y ineffective flow area locati on)

Station Elevati on Data		num= 193									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	73.18	.3	73	2.31	72.47	3.21	72.39	4.12	72.31		
4.22	72.3	4.48	72.28	4.71	72.25	6.05	72.13	6.24	72.11		
6.92	72	10.6	71.41	12.07	71	15.63	70	18.27	69		
18.35	68.97	20.88	68	21.83	67.64	23.51	67	26.85	66		
28.58	65	28.65	64.96	30.31	64	30.72	63.76	32.03	63		
32.78	62.56	33.74	62	34.73	61.42	35.45	61	36.77	60.23		
37.15	60	37.23	59.95	37.69	59.68	38.62	59.13	38.84	59		
39.19	58.8	40.46	58	42.13	57.49	42.47	57.34	43.15	57		
44.55	56.24	44.71	56.14	44.98	56	45.39	55.78	46.83	55		
47.25	54.78	48.2	54.29	48.77	54	53.75	53.61	56.39	53.59		
56.99	53.61	58.96	53.63	61.51	53.62	62.57	53.58	64.31	53.5		
64.65	53.48	67.62	53.42	68.61	53.37	72.55	53.42	73.36	53.39		
77.36	53	88.17	52.36	93.05	52	102.51	51.86	152.92	51		
165.78	50.72	185.42	50.36	197	50.22	205.35	50.06	206.83	50		
241.21	49.21	242.14	49	250.51	48.58	263.7	48	309.25	47.9		
311.35	47.88	316.83	47.81	318.2	47.79	333.65	47.67	337.62	47.59		
343.18	47.56	348.36	47.54	352.94	47.41	365.33	47.34	367.21	47.33		
367.72	47.32	370.7	47.37	383.75	47.22	385.58	47.14	388.8	47		
393.28	46.82	398.25	46	402.07	45.64	407.67	45.33	412.15	45		
428.63	44.38	438.42	44	439.35	43.94	452.92	43.74	454.86	43.67		
456.73	43.61	460.1	43.42	464.15	43.43	467.2	43.34	468.54	43.26		
470.11	43.19	470.49	43.16	472.15	43	476.77	42.35	478.72	42.39		
481.48	42	482.49	41.76	484.93	41.41	486.49	41.13	487.29	41		
489.03	40.85	490.78	40.73	491.37	40.7	494.36	40.02	494.46	40		
495.09	39.6	496.03	39	496.7	38.46	498.2	37.03	501.4	36.55		
507.8	35.92	511.6	37.19	517.5	41.09	520.82	43	522.45	43.89		
522.58	43.96	522.65	44	524.98	44.53	526.92	44.97	526.98	44.98		
527.05	45	575.69	45.03	595.2	45.67	602.13	45.68	618.75	46		
638.62	46.56	643.76	46.58	661.5	47	674.97	47.49	677.34	47.5		
698.11	48	722.4	48.52	728.14	49	742.61	49.81	747.1	49.86		
751.5	50	766.55	50.02	769.45	50.1	770.14	50.14	770.5	50.15		
771.03	50.17	777.2	50.93	781.42	51	794.25	51.07	794.36	51.08		
794.54	51.13	794.68	51.14	794.83	51.15	795.2	51.17	795.85	51.12		
796.08	51.1	796.89	51.12	797.84	51	829.8	51.45	843.58	52		
921.12	51.05	923.27	51	968.34	50.02	968.8	50.01	969.09	50		
1011.3	50.93	1011.45	51	1011.69	51.11	1012.21	51.35	1013.42	51.91		
1013.62	52	1014.01	52.18	1015.82	53	1017.36	53.68	1018.06	54		
1018.82	54.34	1019.73	54.73	1020.33	55	1026.09	55.67	1027.46	55.82		
1028.98	56	1032.05	56.91	1032.35	57						

Manni ng' s n Val ues

num= 5

Goodwiv es Dari en EX. rep

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.035	241.21	.1	333.65	.035	496.7	.035	517.5	.035

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 496.7 517.5 95.23 91.77 91.57 .3 .5

Ineffective Flow num= 1  
 Sta L Sta R Elev Permanent  
 0 487.7 44 F

Blocked Obstructions num= 1  
 Sta L Sta R Elev  
 261.47 316.11 63.54

CULVERT

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem RS: 9446

INPUT  
 Descripti on: SURVEYED - 27.5 Tokeneke Road -

EXI STING CONDI TIONS- Surveyed  
 top of wall, culvert inverts. Road deck extended with town topo.  
 culvert sizes and length measured in fi eld.

DUP - shortened  
 bridge deck and culvert by 2 feet to offset from bridge sections  
 by 1 foot US and DS

pei r i ndi cates possi ble pressure flow and low  
 flow use of momentum or yarnell.

Channel i nvert i nside bridge  
 given, input as culvert to specify invert.

Di stance from Upstream XS = 10  
 Deck/Roadway Wi dth = 70  
 Wei r Coeffi ci ent = 2.6

Upstream Deck/Roadway Coordi nates  
 num= 5

Sta Hi	Cord	Lo Cord	Sta Hi	Cord	Lo Cord	Sta Hi	Cord	Lo Cord
370.7	46		444.7	45		497.7	44	
516.6	44		575.7	45				

Upstream Bridge Cross Secti on Data  
 Stati on El evati on Data num= 193

Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
0	73.18	.3	73	2.31	72.47	3.21	72.39	4.12	72.31
4.22	72.3	4.48	72.28	4.71	72.25	6.05	72.13	6.24	72.11
6.92	72	10.6	71.41	12.07	71	15.63	70	18.27	69
18.35	68.97	20.88	68	21.83	67.64	23.51	67	26.85	66
28.58	65	28.65	64.96	30.31	64	30.72	63.76	32.03	63
32.78	62.56	33.74	62	34.73	61.42	35.45	61	36.77	60.23
37.15	60	37.23	59.95	37.69	59.68	38.62	59.13	38.84	59
39.19	58.8	40.46	58	42.13	57.49	42.47	57.34	43.15	57
44.55	56.24	44.71	56.14	44.98	56	45.39	55.78	46.83	55
47.25	54.78	48.2	54.29	48.77	54	53.75	53.61	56.39	53.59
56.99	53.61	58.96	53.63	61.51	53.62	62.57	53.58	64.31	53.5
64.65	53.48	67.62	53.42	68.61	53.37	72.55	53.42	73.36	53.39
77.36	53	88.17	52.36	93.05	52	102.51	51.86	152.92	51
165.78	50.72	185.42	50.36	197	50.22	205.35	50.06	206.83	50
241.21	49.21	242.14	49	250.51	48.58	263.7	48	309.25	47.9
311.35	47.88	316.83	47.81	318.2	47.79	333.65	47.67	337.62	47.59
343.18	47.56	348.36	47.54	352.94	47.41	365.33	47.34	367.21	47.33
367.72	47.32	370.7	47.37	383.75	47.22	385.58	47.14	388.8	47
393.28	46.82	398.25	46	402.07	45.64	407.67	45.33	412.15	45



Goodwi vesDari enEX. rep

428.63	44.38	438.42	44	439.35	43.94	452.92	43.74	454.86	43.67
456.73	43.61	460.1	43.42	464.15	43.43	467.2	43.34	468.54	43.26
470.11	43.19	470.49	43.16	472.15	43	476.77	42.35	478.72	42.39
481.48	42	482.49	41.76	484.93	41.41	486.49	41.13	487.29	41
489.03	40.85	490.78	40.73	491.37	40.7	494.36	40.02	494.46	40
495.09	39.6	496.03	39	496.7	38.46	498.2	37.03	501.4	36.55
507.8	35.92	511.6	37.19	517.5	41.09	520.82	43	522.45	43.89
522.58	43.96	522.65	44	524.98	44.53	526.92	44.97	526.98	44.98
527.05	45	575.69	45.03	595.2	45.67	602.13	45.68	618.75	46
638.62	46.56	643.76	46.58	661.5	47	674.97	47.49	677.34	47.5
698.11	48	722.4	48.52	728.14	49	742.61	49.81	747.1	49.86
751.5	50	766.55	50.02	769.45	50.1	770.14	50.14	770.5	50.15
771.03	50.17	777.2	50.93	781.42	51	794.25	51.07	794.36	51.08
794.54	51.13	794.68	51.14	794.83	51.15	795.2	51.17	795.85	51.12
796.08	51.1	796.89	51.12	797.84	51	829.8	51.45	843.58	52
921.12	51.05	923.27	51	968.34	50.02	968.8	50.01	969.09	50
1011.3	50.93	1011.45	51	1011.69	51.11	1012.21	51.35	1013.42	51.91
1013.62	52	1014.01	52.18	1015.82	53	1017.36	53.68	1018.06	54
1018.82	54.34	1019.73	54.73	1020.33	55	1026.09	55.67	1027.46	55.82
1028.98	56	1032.05	56.91	1032.35	57				

Manni ng' s n Val ues

num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.035	241.21	.1	333.65	.035	496.7	.035	517.5	.035

Bank Sta: Left Right Coeff Contr. Expan.  
 496.7 517.5 .3 .5

Ineffecti ve Flow num= 1  
 Sta L Sta R Elev Permanent  
 0 487.7 44 F

Blocked Obstructi ons num= 1  
 Sta L Sta R Elev  
 261.47 316.11 63.54

Downstream Deck/Roadway Coordi nates

num= 5		Sta Hi Cord Lo Cord		Sta Hi Cord Lo Cord		Sta Hi Cord Lo Cord	
391	45.31	419	45.35	419	44		
437.9	44	497	45				

Downstream Bridge Cross Secti on Data

Stati on Elevati on Data		num= 218		Sta	Elev	Sta	Elev	Sta	Elev
0	56.13	3.71	56	4.73	55.97	4.86	55.96	6.75	55.79
7.41	55.72	7.54	55.7	8.08	55.62	9.43	55.41	12.03	55.02
12.16	55	12.6	54.93	13.45	54.76	16.06	54.27	16.49	54.18
17.44	54	18.61	53.91	25.12	53	25.55	52.96	25.79	52.93
32.56	52	37.61	51.52	43.16	51.13	44.85	51	53.87	50.42
54.1	50.41	60.4	50.18	62.02	50.1	63.01	50.08	65.05	50
70.76	50.02	71.91	50	95.4	50.51	96.31	50.49	104.82	50.32
112.31	50.23	118.19	50.04	119.53	50	122.14	49.61	127.87	49
130.24	48.87	132.31	48.21	132.96	48	134.19	47.61	134.79	47.41
136.08	47	137.09	46.68	137.72	46.47	138.93	46.11	139.12	46.05
139.25	46	141.28	45.42	143.06	45	144.38	44.65	147.22	44
147.87	43.85	151.54	43	206.13	43.98	206.25	44	209.65	44.62
211.74	45	211.96	45.03	212.3	45	218.88	45.92	219.63	46
236.43	45.33	241.48	45.28	244.1	45.21	245.66	45.09	249.32	45.05
249.75	45.04	262.21	45	283.63	44.4	286.3	44.43	290.8	44.37
293.99	44.34	294.84	44.31	295.08	44.3	295.63	44.28	296.89	44.29
297.72	44.3	304.31	44.33	310.14	44.18	312.37	44.16	314.52	44.15
323.9	44	389.99	43.51	391	43.51	391	45.29	392.25	45.29
392.25	35.05	394.43	35.61	398.4	35.87	401.1	36.94	401.7	37.66
413.1	38	414.34	38.61	415.13	39	415.44	39.16	417.1	40

Goodwi vesDari enEX. rep

417.8	40.35	418.77	40.83	419.1	41	420.55	41.73	421.09	42
423.02	42.12	424.48	42.27	429.72	43.56	433.1	44	445.61	44.96
445.7	44.97	445.8	44.98	446.08	45	527.98	45.08	528.78	45.11
534.76	45.15	535.46	45.18	535.61	45.19	536.56	45.22	540.1	45.38
541.88	45.44	548.51	45.73	563.43	45.93	564.39	45.95	566.64	46
588.03	46.2	592.27	46.33	595.11	46.48	596.67	46.56	605.52	47
606.14	47.03	607.04	47.06	616.03	47.34	618.55	47.42	622.19	47.6
625.04	47.65	628.94	47.77	629.54	47.78	631.12	47.81	634.63	47.85
635.62	47.88	637.03	47.89	639.7	48	648.56	48.1	648.78	48.11
651.34	48.29	655.71	48.51	665.37	49	667.01	49.17	667.97	49.29
671.42	49.7	673.58	50	680.38	50.78	682.43	51	688.27	51.72
688.7	51.77	689.66	51.88	691.3	52	695.31	52.25	700.45	52.64
701.64	52.7	702.84	52.73	705.01	52.79	712.67	52.74	714.99	52.77
721.34	52.71	722.42	52.72	724.82	52.71	728.59	52.72	737.41	52.75
738.11	52.77	743.12	52.87	756.71	52.99	763.13	53	767.5	53.03
771.69	53.02	772.91	53	776	52.97	785.54	52.86	796.4	52.04
796.61	52.03	796.8	52.02	797.16	52	801.46	51.96	803.45	51.94
807.16	51.82	807.89	51.81	812.24	51.71	816.21	51.64	819.18	51.46
823.68	51	842.82	50.6	848.69	50.46	851.53	50.4	865.89	50
877.91	49.63	878.56	49.62	887.27	49.69	917.2	49.8	930.94	50
932.29	50.65	933.01	51	933.96	51.46	935.06	52	935.18	52.06
935.27	52.1	937.1	53	938.36	53.62	939.12	54	940.35	54.62
941.12	55	941.78	55.08	944.08	55.36	947.8	55.82	948.43	55.89
949.13	56	949.59	56.08	952.98	57				

Manning's n	Values		num=	7					
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.015	218.88	.08	392.25	.035	401.7	.08	445.61	.015
540.1	.035	712.67	.045						

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	392.25	401.7		.3	.5
Ineffective Flow			num=	1	
Sta L	Sta R	Elev	Permanent		
417.1	952.98	41.8	F		

Upstream Embankment side slope = 0 hori z. to 1.0 vertical  
 Downstream Embankment side slope = 0 hori z. to 1.0 vertical  
 Maximum allowable submergence for weir flow = .98  
 Elevation at which weir flow begins = 44  
 Energy head used in spillway design =  
 Spillway height used in design =  
 Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name	Shape	Rise	Span					
Culvert #1	Box	4	8					
FHWA Chart # 10- 90 degree headwall; Chamfered or beveled inlet								
FHWA Scale # 1 - Inlet edges chamfered 3/4 inch								
Solution Criteria = Highest U. S. EG								
Culvert Upstrm Dist	Length	Top n	Bottom n	Depth Blocked	Entrance Loss Coef			
Exit Loss Coef								
	10	70	.013	.013	0		.035	

Number of Barrels = 2  
 Upstream Elevation = 36.59  
 Centerline Stations  
 Sta. Sta.  
 501.7 510.7  
 Downstream Elevation = 35.6  
 Centerline Stations  
 Sta. Sta.

396. 25 405. 25

CROSS SECTI ON

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 9401

INPUT  
 Descri pti on: SURVEYED - 27. 1 D/S Face of Tokeneke Road

EXI STING - Channel  
 surveyed, overbank updated from town topo. Updated Ineffective  
 Flow Areas. Updated LOB n from .045 to .015 and .08 for road and  
 forest. Updated ROB n from .045 and .015 to .08, .015, .035, and  
 .045 for forest buffer, road, lawn and treed lawn.

REVDUP -  
 corrected Ineffective Flow Areas for culverts to use 1:1  
 contraction and 1.5:1 expansion and average of min top of road  
 elevation and max low chord

Station Elevation Data		num= 218							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	56.13	3.71	56	4.73	55.97	4.86	55.96	6.75	55.79
7.41	55.72	7.54	55.7	8.08	55.62	9.43	55.41	12.03	55.02
12.16	55	12.6	54.93	13.45	54.76	16.06	54.27	16.49	54.18
17.44	54	18.61	53.91	25.12	53	25.55	52.96	25.79	52.93
32.56	52	37.61	51.52	43.16	51.13	44.85	51	53.87	50.42
54.1	50.41	60.4	50.18	62.02	50.1	63.01	50.08	65.05	50
70.76	50.02	71.91	50	95.4	50.51	96.31	50.49	104.82	50.32
112.31	50.23	118.19	50.04	119.53	50	122.14	49.61	127.87	49
130.24	48.87	132.31	48.21	132.96	48	134.19	47.61	134.79	47.41
136.08	47	137.09	46.68	137.72	46.47	138.93	46.11	139.12	46.05
139.25	46	141.28	45.42	143.06	45	144.38	44.65	147.22	44
147.87	43.85	151.54	43	206.13	43.98	206.25	44	209.65	44.62
211.74	45	211.96	45.03	212.3	45	218.88	45.92	219.63	46
236.43	45.33	241.48	45.28	244.1	45.21	245.66	45.09	249.32	45.05
249.75	45.04	262.21	45	283.63	44.4	286.3	44.43	290.8	44.37
293.99	44.34	294.84	44.31	295.08	44.3	295.63	44.28	296.89	44.29
297.72	44.3	304.31	44.33	310.14	44.18	312.37	44.16	314.52	44.15
323.9	44	389.99	43.51	391	43.51	391	45.29	392.25	45.29
392.25	35.05	394.43	35.61	398.4	35.87	401.1	36.94	401.7	37.66
413.1	38	414.34	38.61	415.13	39	415.44	39.16	417.1	40
417.8	40.35	418.77	40.83	419.1	41	420.55	41.73	421.09	42
423.02	42.12	424.48	42.27	429.72	43.56	433.1	44	445.61	44.96
445.7	44.97	445.8	44.98	446.08	45	527.98	45.08	528.78	45.11
534.76	45.15	535.46	45.18	535.61	45.19	536.56	45.22	540.1	45.38
541.88	45.44	548.51	45.73	563.43	45.93	564.39	45.95	566.64	46
588.03	46.2	592.27	46.33	595.11	46.48	596.67	46.56	605.52	47
606.14	47.03	607.04	47.06	616.03	47.34	618.55	47.42	622.19	47.6
625.04	47.65	628.94	47.77	629.54	47.78	631.12	47.81	634.63	47.85
635.62	47.88	637.03	47.89	639.7	48	648.56	48.1	648.78	48.11
651.34	48.29	655.71	48.51	665.37	49	667.01	49.17	667.97	49.29
671.42	49.7	673.58	50	680.38	50.78	682.43	51	688.27	51.72
688.7	51.77	689.66	51.88	691.3	52	695.31	52.25	700.45	52.64
701.64	52.7	702.84	52.73	705.01	52.79	712.67	52.74	714.99	52.77
721.34	52.71	722.42	52.72	724.82	52.71	728.59	52.72	737.41	52.75
738.11	52.77	743.12	52.87	756.71	52.99	763.13	53	767.5	53.03
771.69	53.02	772.91	53	776	52.97	785.54	52.86	796.4	52.04
796.61	52.03	796.8	52.02	797.16	52	801.46	51.96	803.45	51.94
807.16	51.82	807.89	51.81	812.24	51.71	816.21	51.64	819.18	51.46
823.68	51	842.82	50.6	848.69	50.46	851.53	50.4	865.89	50
877.91	49.63	878.56	49.62	887.27	49.69	917.2	49.8	930.94	50

Goodwies Dari enEX. rep									
932.29	50.65	933.01	51	933.96	51.46	935.06	52	935.18	52.06
935.27	52.1	937.1	53	938.36	53.62	939.12	54	940.35	54.62
941.12	55	941.78	55.08	944.08	55.36	947.8	55.82	948.43	55.89
949.13	56	949.59	56.08	952.98	57				

Manning's n Values									
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.015	218.88	.08	392.25	.035	401.7	.08	445.61	.015
540.1	.035	712.67	.045						

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	392.25	401.7		64.74	55.74		.3	.5
Ineffective Flow	Sta L	Sta R	Elev	Permanent	F			
	417.1	952.98	41.8	F				

CROSS SECTION

RIVER: Goodwies River  
 REACH: mainstem RS: 9345

INPUT  
 Description: SURVEYED - 27.0 FEMA P - D/S Section of Tokeneke Road

EXISTING

- Channel surveyed, overbank updated from town topo. Updated LOB n from .045 to .015 and .08 for road and forest. Updated ROB n from .045 and .015 to .08, .015, .035, and .045 for forest buffer, road, lawn and treed lawn. Added levee on left to keep main flow in channel and out of low area until would flow overland.

Station Elevation Data num= 277									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	69.6	2.78	69.46	4.98	69	6.68	68.29	7.7	68
9.05	67.37	9.84	67	11.22	66.36	12	66	14.13	65.01
14.16	65	14.18	64.99	16.32	64	17.11	63.63	18.47	63
19.93	62.32	20.62	62	22.04	61.34	22.78	61	23.84	60.53
25.05	60	25.71	59.7	27.3	59	29.22	58.13	29.5	58
29.82	57.85	31.59	57	33.2	56.21	33.64	56	34.51	55.57
35.67	55	36.39	54.64	37.69	54	38.69	53.59	40.1	53
42.06	52.32	43.09	52	45.34	51.3	46.31	51	46.55	50.93
48.26	50.4	49.21	50.11	49.57	50	51.97	49.26	52.84	49
56.07	48.28	57.39	48	73.73	48.57	76.85	49	78.98	49.32
83.28	50	88.37	50.95	88.67	51	96.72	51.16	113.23	51
127.14	50.83	128.31	50.33	129.11	50	129.74	49.73	131.46	49
133.35	48.18	133.77	48	134.43	47.71	136.02	47	136.36	46.33
138.04	46.2	138.38	46.06	138.54	46	138.73	45.93	141.22	45
142.12	44.68	143.99	44	147.5	43.76	148.79	43.72	166.38	43
180.21	42.76	200.92	43	258.63	42.9	262.82	42	265.81	41.34
267.37	41	270.01	40.86	272.14	40.77	276.46	40.56	277.88	40.51
282.9	40.43	284.79	40.44	288.26	40.51	290.06	40.56	297.04	40.76
302.03	40.91	303.89	40.96	304.32	41	320.03	41.66	321.77	41.88
322.49	42	326.49	42.57	326.69	42.62	327.73	42.55	327.88	42.48
328.03	42.45	328.3	42.41	328.66	42.37	329.3	42.27	330.81	42
331.77	41.8	331.95	41.77	333.09	41.56	334.66	41.26	335.22	41.28
335.69	41.35	335.85	41.39	336.03	41.41	336.37	41.47	337.92	41.66
339.59	41.93	339.92	42	339.99	42.02	340.75	42.21	340.96	42.26
341.36	42.35	341.75	42.44	342.66	42.64	344.48	43	344.57	43.01
345.89	43.13	346.44	43.17	347.39	43.23	347.96	43.26	348.22	43.28
348.35	43.29	348.71	43.31	350.1	43.43	352.09	43.2	353.39	44
359.79	43.54	361.46	43.37	361.84	43.32	362.4	42.71	371.6	37.85
373.9	36.72	377.1	36.11	382.4	35.61	386.5	36.76	397.9	42.95
399.03	43	399.17	43.00	404.88	43.38	411.05	44	433.15	44.22

Goodwi vesDari enEX. rep

434.03	44.21	436	44.18	437.68	44.15	446.71	44.26	464.23	44.23
468.96	44.28	470.69	44.29	479.98	44.38	508.4	44.69	535.06	44.91
540.82	45	552.02	45.06	561.64	45.2	566.6	45.25	576.72	45.37
583.16	45.52	587.04	45.64	599.14	46	609.29	46.39	614.19	46.58
614.9	46.61	615.99	46.67	625.39	47	629.2	47.1	630.08	47.13
631.12	47.17	636.12	47.37	651.36	48	656.15	48.52	656.46	48.56
659.71	49	675.44	49.63	676.04	49.62	677.57	49.61	678.31	49.65
679.94	49.6	681.51	49.66	682.44	49.69	684.94	49.79	685.73	49.82
686.46	49.88	688.15	49.92	689.76	50	691.2	50.05	691.6	50.08
696.02	50.85	696.64	50.95	696.8	50.97	696.88	51	696.94	51.03
697.28	51.14	700	52	701.59	52.91	701.74	53	702.8	53.56
704.01	54	711.12	54.42	720.65	55	722.29	55.27	722.95	55.32
723.96	55.41	728.12	55.53	730.53	55.74	731.43	55.77	737.47	55.99
737.63	56	738.18	56.03	738.68	56.07	738.7	56.08	739.06	56.1
739.62	56.13	746.81	56.72	747.48	56.76	750.22	56.91	751.21	57
752.09	57.14	757.62	57.83	758.88	58	762.57	58.59	764.7	59
788.95	58.25	790.65	58	794.36	57.2	795.26	57	795.62	56.93
799.94	56	804.02	55.3	805.69	55	806.48	54.85	811.48	54
814.35	53.38	816.06	53	817.98	52.53	820.16	52	823.91	51.34
826.33	51	828.26	50.86	828.72	50.82	834.47	50	848	49.4
861.81	49	977.92	49.49	980.81	49.5	991.66	49.61	993.19	49.62
1004.59	49.74	1009.34	49.79	1028.68	49.99	1029.17	50	1030.08	50.18
1033.92	51	1034.75	51.32	1036.49	52	1036.66	52.06	1037.49	52.37
1038.92	52.91	1039.17	53	1042.77	54	1045.16	54.62	1046.65	55
1048.29	55.43	1050.59	56	1051.51	56.16	1053.4	56.49	1056.4	57
1056.49	57.01	1062.88	58						

Manning's n Values	num=	7							
Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val
0 .015	127.14	.08	362.4	.035	399.17	.08	436	.015	
508.4	.035	696.88	.045						

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff	Contr.	Expan.
362.4	399.17	435.7	407.77		.3	.5
Left Levee	Station=	353.39	Elevation=	44		

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 8937

INPUT

Description: NEW SURVEY - new section at MMI stream gage location

EXISTING -

surveyed channel section, overbank from town topo.

Station	Elevation	Data	num=	150					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	56.07	.15	56	1	55.34	1.52	55	3.23	54.03
3.27	54.01	3.28	54	3.3	53.99	5.35	53	6.67	52.35
7.39	52	7.73	51.84	9.44	51	10.01	50.72	11.48	50
12.29	49.6	13.51	49	14.73	48.4	15.56	48	17.55	47.02
17.59	47	17.67	46.96	19.64	46	20.55	45.55	21.67	45
23.41	44.14	23.69	44	23.97	43.86	25.69	43	27.24	41.35
27.6	41.2	27.66	41.19	28.07	40.79	28.09	41	29.95	40.82
31.5	40	32.17	39.64	33.38	39	34.25	38.77	37.23	38
43.2	37.53	47	36.13	50	35.69	51.6	34.76	52.7	33.84
58	34.03	60	34.3	61.6	34.43	64.1	34.64	64.9	35.52
72.5	35.81	77.8	38.19	78.97	38.91	79.2	39	79.25	39.02
81.78	40	83.35	40.38	85.68	41	97.53	41.32	98.73	41.35
101.14	41.42	107.07	41.59	114.14	41.81	122.07	41.98	122.67	42
132.62	42.15	137.19	42.27	166.95	43	189.83	43.1	190.94	43.14

Goodwi vesDari enEX. rep

196.95	43.33	201.23	43.5	215.06	44	229.93	44.37	233.6	44.49
237.55	44.66	250.28	45	259.91	45.13	260.97	45.15	262.76	45.19
270.41	45.4	282.53	45.65	284.97	45.68	291.3	46	299.87	46.78
301.93	47	308.02	47.43	314.43	47.84	317.7	48	332.18	48.53
339.35	49	340.89	49.07	349.74	49.31	361.28	49.8	364.75	50
374.18	50.41	386.87	51	390.38	51.04	390.59	51.05	401.92	51.58
410.68	52	410.91	52.02	412.62	52.13	413.32	52.18	440.91	52.29
441.4	52.27	450.08	52	451.51	51.73	453.43	51	455.79	50.08
456.01	50	456.43	49.98	485.12	49	509.12	48.51	522.17	48
572.01	48.25	574.65	48.3	574.95	48.31	584.31	48.68	584.87	48.69
597.8	49	672.35	49.78	705.3	50	750.36	50.27	756.21	50.35
766.72	50.48	780.72	50.65	788.36	50.73	790.34	50.76	812.2	51
812.8	51.08	813.48	51.19	818.77	52	819.73	52.25	822.39	52.98
822.45	53	822.56	53.03	825.3	54	825.96	54.23	828.11	55
828.2	55.03	828.52	55.15	830.35	55.83	830.83	56	832.26	56.52
833.59	57	835.56	57.5	836.7	57.78	837.01	57.86	837.57	58

Manning's n Values

num=	6				
Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val	Sta n Val
0 .08	50 .035	64.9 .08	85.68 .015	440.91 .035	
572.01 .1					

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

50	64.9	121.14	132.93	142.3	.1	.3
Blocked Obstructions num= 1						
Sta L	Sta R	Elev				
581.29	701.84	75.71				

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 8804

INPUT  
 Descri pti on: UPDATED - 26.0 FEMA 0 - Dari en Land Trust Land on Left

Bui lding just downstream FFE @ 41.55

EXI STING - Used  
 channel cross section from gage location, adjusted to channel slope. Overbank updated with town topo. N-values in ROB updated to reflect narrow tree buffer, parking lots, and buildings.

Station Elevati on Data num= 230

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	54.81	6.15	54.67	36.9	54.38	54.69	54	56.63	53.26
57.35	53	63.46	53.61	64.36	54	65.68	54.57	66.67	55
67.25	55.25	69	56	70.3	56.56	71.44	57	73.64	57.85
74.04	58	74.45	58.16	76.65	59	77.81	59.5	79	60
79.82	60.29	81.94	61	83.17	61.37	85.33	62	87.83	62.77
88.55	63	89.46	63.23	89.83	63.31	91.69	63.77	93.09	64
100.29	64.61	102.8	65	107.73	65.96	107.92	66	117.89	65.04
118.11	65	124.74	65.94	125.08	66	125.51	66.08	125.76	66.13
127.07	66.35	130.14	66.88	130.93	67	135.56	67.76	137.03	67.98
137.06	67.99	137.14	68	140.13	68.41	141.09	68.51	141.81	68.59
144.42	68.81	144.61	68.83	145.37	68.88	146.93	69	150.89	68.95
153.39	68.56	154.24	68.42	155.65	68.22	157.15	68	160.81	67.14
161.47	67	161.63	66.96	161.81	66.9	161.95	66.85	162.45	66.67
164.09	66	165.39	65.46	166.15	65.17	166.57	65	167.9	64.45
169.35	64	170.72	63.71	171.9	63.41	173.71	63	174.78	62.76
175.71	62.5	177.51	62	178.59	61.7	181.13	61.01	181.15	61
183.37	60.38	184.3	60.12	184.72	60	185.92	59.66	186.23	59.6

Goodwi vesDari enEX. rep

186.42	59.57	188.28	59	188.62	58.9	189.65	58.56	190.82	58.18
191.3	58	191.98	57.76	192.49	57.56	193.94	57	196.46	56.02
196.5	56	196.53	55.99	196.58	55.97	199.12	55	200.7	54.42
201.77	54	203.4	53.32	204.15	53	204.83	52.71	206.59	52
208.58	51.17	209.04	51	210.03	50.61	211.47	50	211.9	49.8
213.76	49	215.66	48.01	215.67	48	215.7	47.98	217.61	47
218.56	46.51	219.55	46	220.29	45.61	221.48	45	222.77	44.34
223.39	43.67	224.98	43.2	225.37	43	226.36	42.06	227.49	41.19
229.22	41.14	229.49	41	229.59	40.95	231.43	40	231.79	39.84
233.44	39	233.99	38.74	234.45	37.36	237.5	35.96	237.5	35.52
242.85	34.59	243.95	33.67	249.25	33.86	253.4	31.33	252.85	34.26
255.35	34.47	256.15	35.35	263.75	35.64	269.05	38.02	277.75	38.28
278.67	39	285.6	39.71	285.76	39.73	285.91	39.74	285.98	39.75
286.15	39.76	288.49	40	288.97	40.12	305.53	41	341	41.8
346.84	42	361.88	42.27	390.52	43	397.35	43.1	405.05	43.28
433.84	44	444.4	44.49	454.25	45	457.43	45.69	458.06	45.7
458.89	46	465.82	46.42	467.2	46.37	467.56	46.36	470.55	46.37
470.68	46.36	470.91	46.35	474.54	46.22	477.03	46.25	487.78	46.4
496.82	46.5	503.18	46.63	516.85	46.75	523.95	47	580.67	48
619.37	48.05	619.46	48.08	619.5	48.09	620.13	48.12	620.2	48.13
620.91	48	640.11	47.63	645.37	47.53	650.29	47.21	651.95	47.17
653.03	47.14	656.85	47.02	657.15	47	728.37	47.31	767.86	48
815.36	48.3	819.34	48.28	824.88	48.29	848.74	48.07	851.81	48.01
860.94	48	889.92	48.01	906.79	48.32	920.38	48.53	925.13	48.62
931.01	48.72	945.45	49	1014.62	49.19	1016.52	49.2	1040.16	49.06
1054.33	49	1187.91	49.9	1190.91	50	1193.96	50.69	1195.18	51
1197.26	51.47	1199.39	52	1200.53	52.26	1202.29	52.7	1203.51	53
1206.77	53.82	1207.52	54	1207.63	54.03	1211.42	55	1211.69	55.06
1213.18	55.47	1214.93	55.93	1215.16	56	1217.87	56.76	1218.56	56.95

Manning's n Values			num=	5						
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	
0	.08	241.25	.035	256.15	.08	288.97	.015	454.25	.1	
Bank Sta: Left Right			Lengths: Left Channel Right			Coeff Contr.			Expan.	
241.25 256.15			848.42 845.54 781.68			.1			.3	
Blocked Obstructions			num=	2						
Sta L	Sta R	Elev	Sta L	Sta R	Elev					
460.02	611.78	86.8	959.68	1127.12	75.71					

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 7959

INPUT

Descripti on: SURVEYED - 24.0 FEMA N - Upstream of I-95

EXI STING - Surveyed

channel, updated overbank with town topo. channel n decreased from .05 to .035 - smoother. LOB changed from .1 to .05 - mowed. ROB changed from .15(probaly a typo) to .015 and .1 for the building.

Station Elevati on Data			num=	163						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
0	57.56	1.15	57	57.99	56.59	60.54	56.29	61.66	56.33	
62.48	56	65.9	55.18	66.65	55	67.54	54.6	68.33	54.24	
68.83	54	69.49	53.69	70.95	53	71.63	52.71	73.32	52	
75.39	51.17	75.81	51	77.93	50.16	78.34	50	79.01	49.74	
80.94	49	82.36	48.48	83.66	48	84.91	47.52	86.15	47	
88.1	46.12	88.36	46	88.99	45.71	90.5	45	91.47	44.54	
92.61	44	93.96	43.36	94.72	43	96.39	42.21	96.84	42	
98.84	41.06	98.96	41	99.84	40.58	101.04	40	101.1	39.97	

Goodwi vesDari enEX. rep

103.1	39	104.07	38.64	105.35	37.68	111.95	33.32	115.15	32.75
123.95	32.62	125.45	33.34	131.75	36.45	134.97	37	143.9	37.54
145.69	37.67	147.06	37.7	149.2	38	158.39	38.6	159.66	38.54
160.54	38.6	164.57	38.88	165.21	38.91	167.37	39	170.82	39.14
171.74	39.21	175.65	39.41	177.9	39.59	178.57	39.65	178.97	39.68
180.86	39.81	182.19	40	188.53	40.62	191.11	40.9	192.15	41
195.03	41.22	204.93	41.8	207.19	41.94	208.23	42	208.65	42.03
208.8	42.04	209.74	42.12	217.01	42.66	220.07	42.92	220.28	42.94
220.53	42.97	221.44	43	235.58	42.93	247.94	42.91	248.43	42.92
261.69	42.87	264.45	42.9	274.3	43	290.15	43.19	291.51	43.33
292.8	43.41	292.94	43.42	297.37	43.77	298.96	43.91	300.22	43.87
304.97	43.96	305.93	43.94	309.23	43.72	313.58	43.33	314.26	43.27
315.13	43.17	316.63	43	320.24	42.5	327.28	42	348.68	42.13
349.53	42.1	363.46	42.53	374.35	43	375.56	43.33	380.92	44
382.22	44.22	386.76	45	387.62	45.08	389.53	45.25	394.42	45.7
397.81	46	408.96	45.61	410.81	45	428.23	44.55	440.36	44.23
446.58	44	537.04	45	554.97	45.1	562.89	45.18	564.14	45.19
592.66	46	655.78	46.03	726.09	47	748.4	47.37	781.75	48
802.49	48.48	802.96	48.49	831.57	48.93	835.58	49	896.46	49.5
909.86	49.61	929.06	49.87	929.53	49.88	932.43	49.91	939.01	50
1006.87	50.37	1017.29	50	1070.05	50.08	1075.64	50.45	1081.71	51
1085.28	51.34	1089.24	51.71	1092.41	52	1100.16	52.75	1102.8	53
1108.69	53.52	1113.94	54	1116.94	54.26	1117.39	54.3	1120.73	54.52
1123.95	54.74	1128.28	55	1131.75	55.2	1134.41	55.37	1136.86	55.52
1137.9	55.59	1141.04	56	1142.27	56.16				

Manning's n	Value	num=	6
Sta	n Val	Sta	n Val
0	.05	105.35	.035
655.78	.15	160.54	.05
		297.37	.015
		428.23	.1

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	105.35	131.75		124.42	137.98	148.73		.1	.3
Blocked Obstructions	num= 1								
Sta L	Sta R	Elev							
443.67	571.12	77.33							

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 7821

INPUT  
 Description: NEW SURVEY - upstream section of I-95 bridge

EXISTING - added  
 new section to define I-95 bridge, not included in effective model.

Station	Elevation	Data	num=	189					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	57	16.5	56.6	19.35	56.46	25.33	56.17	27.76	56
29.19	55.67	29.68	55.44	30.62	55	31.27	54.69	32.73	54
33.52	53.63	34.85	53	35.37	52.76	36.98	52	37.31	51.84
39.09	51	39.3	50.9	41.21	50	45.4	49.31	67.9	39.19
80.7	32.82	83.4	32.32	90.3	32.1	93.5	33.13	100.4	39.32
101.35	40	107.37	40.66	107.86	40.72	110.45	41	131.76	40.72
133.16	40.65	151.98	40.27	154.77	40.26	156.34	40.27	195.59	41
216.52	41.09	217.84	41.14	224.26	41.67	225.7	41.68	227.22	41.7
227.3	41.71	227.59	41.72	237.23	42	239.14	42.03	241.42	42.07
244.09	42.17	245.26	42.21	258.87	42.66	260.49	42.73	265.34	43
271.43	43.39	272.45	43.44	281.77	44	287.56	44.22	298.72	45
303.34	45.29	304.78	45.36	308.54	45.56	318.14	46	326.92	46.47
331.21	46.68	335.22	47	342.47	47.37	352.44	47.94	353.58	48



Goodwi vesDari enEX. rep

382.31	48.16	383.43	48.17	405.57	48.22	409.88	48.19	410.54	48.18
412.28	48.25	432.82	48.42	435.87	48.48	463.91	49	472.57	49.62
490.03	50	490.06	50.01	491.38	50	515.45	49.97	517.36	49.98
518	49.97	518.28	49.96	521.2	49.88	526.01	49.77	538.15	49.46
555.47	49	558.46	48.93	568.83	48.78	617.82	48	774.23	48.49
788.56	48.48	803.74	48.46	810.55	48.41	812.52	48.4	835.45	49
855.82	49.68	870.65	49	908.59	48.38	912.53	48.36	917.6	48.28
927.57	48.3	930.57	49	937.09	49.41	940.75	50	988.47	49.87
989.39	49.89	989.82	49.9	990.56	49.91	990.73	49.92	994.16	50
1083.01	50.02	1084.57	50.06	1112.39	51	1198.06	51.65	1201.63	52
1208.23	52.62	1212.1	53	1218.05	53.58	1222.52	54	1230.62	54.79
1232.86	55	1238.56	55.55	1242.41	56	1244.71	56.28	1250.98	57
1252.71	57.21	1259.41	58	1266.45	58.95	1266.85	59	1303.7	59.65
1308.16	60	1339.21	50.08	1339.73	49.91	1339.88	49.86	1340.17	49.77
1343.98	54.35	1345.08	60.12	1345.73	60.13	1345.81	60.14	1353.72	60.18
1355.9	60.15	1358.06	60.18	1362.36	60.22	1369.96	60.44	1373.06	60.53
1377.99	60.7	1386.16	61	1397.52	61.49	1399.3	61.56	1401.05	61.65
1402.16	61.71	1409.3	62	1409.92	62.03	1430.03	63	1433.83	63.19
1435.62	63.28	1436	63.3	1449.27	64	1451.19	64.1	1459.57	64.52
1464.42	64.76	1466.46	64.82	1469.49	65	1470.69	65.05	1476.14	65.2
1478.08	65.25	1479.39	65.37	1482.23	65.79	1482.3	65.8	1483.89	66
1493.74	66.79	1496.43	67	1496.82	67.07	1502.25	68	1507.32	68.94
1507.65	69	1507.85	69.04	1508.03	69.07	1511.71	69.75	1513.22	70
1518.65	70.72	1520.42	71	1521.75	71.2	1527.13	72	1534.49	72.94
1534.93	73	1535.84	73.1	1542.61	73.88	1543.68	74		

Manning's n Values  
 Station 0 .05 67.9  
 num= 3  
 n Val Sta n Val  
 .035 100.4 .015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 67.9 100.4 22.25 42.41 72.4 .3 .5

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 7779

INPUT  
 Description: NEW SURVEY - upstream face of I-95 bridge

Station 131.7 =  
 centerline of Old Kings Highway South

EXISTING - added new  
 section to define I-95 bridge, not included in effective model.

Station	Elevation	Data	num=	131					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	57	14.41	56.81	15.75	56.74	18.74	56.59	25.76	56.1
27.12	56	42.3	52.96	66	39.51	67.5	39.35	72.4	35.42
76.9	32.99	79.9	32.49	91.4	31.88	92.5	33.18	96.7	36.83
111.6	38.33	111.7	39.06	131.7	39.46	149.25	39.13	163.7	38.3
195.1	50.6	198.6	50.7	200.97	52	201.08	52.02	201.23	52.04
205.43	52.55	208.4	52.86	208.91	52.9	210.37	53	213.34	53.2
214.25	53.25	217.33	53.46	221.64	53.57	222.81	53.61	225.09	53.66
228.73	53.74	230.23	53.77	234.39	53.86	237.56	53.91	241.82	53.93
242.43	53.92	249.49	53.95	252.82	53.98	253.64	54	259.3	54.09
260.04	54.1	265.85	54.2	267.42	54.22	270.67	54.19	271.09	54.18
271.38	54.19	277.08	54.04	278.53	54	280.24	53.89	280.51	53.88
282.96	53.72	283.84	53.68	285.26	53.6	286.59	53.54	289.27	53.41
291.8	53.31	292.61	53.27	294.15	53.21	295.97	53.14	296.35	53.12
299.22	53	299.76	52.98	303.19	52.85	303.55	52.84	305.63	52.76

Goodwi vesDari enEX. rep

306.83	52.73	308.76	52.66	310.77	52.6	312.66	52.56	314.41	52.51
315.02	52.5	316	52.51	317.48	52.54	319.1	52.6	320.79	52.62
322.61	52.65	323.93	52.69	325.93	52.72	326.95	52.75	329.61	52.84
330.19	52.86	333.17	52.95	338.08	52.89	338.5	52.88	341.34	52.82
342.01	52.81	344.62	52.75	345.4	52.73	347.75	52.68	348.74	52.65
350.82	52.6	353.1	52.47	354.71	52.45	356.15	52.52	357.88	52.82
358.92	53	360.48	53.27	361.4	53.43	362.88	53.68	363.62	53.76
364.76	53.81	365.25	53.86	366.48	54	372.38	54.06	372.67	54.07
373.11	54.29	373.33	54.46	374	55	374.37	55.21	374.92	55.53
375.23	55.7	375.53	55.89	375.69	56	375.95	56.16	377.28	57
378.51	57.78	378.86	58	379.56	58.46	380.4	59	381.11	59.46
381.65	59.8	381.95	60	382.53	60.37	383.7	61	384.74	61.58
385.22	61.92								

Manni ng' s n Val ues	num=	4
Sta n Val	Sta n Val	Sta n Val
0 .035	111.7	.015 163.7 .035 195.1 .05

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	67.5	96.7		129.29	129.05	130.12	.3 .5

BRI DGE

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 7715

INPUT  
 Descri pti on: NEW SURVEY - I -95 Underpass

EXI STING - added structure as  
 bridge. Surveyed low chord. Top of road elevations from town topo.  
 Piers from bridge plan.

Di stance from Upstream XS = 11  
 Deck/Roadway Wi dth = 110  
 Wei r Coeffi ci ent = 2.6

Upstream Deck/Roadway Coordi nates	num=	7
Sta Hi Cord Lo Cord	Sta Hi Cord Lo Cord	Sta Hi Cord Lo Cord
0 57 52.96	42.3 57 52.96	98.3 58 53.59
181.9 59 54.56	198.6 59.5 54.56	198.6 59.5 0
392.3 61 0		

Upstream Bridge Cross Secti on Data

Stati on Elevati on Data	num=	131		
Sta Elev	Sta Elev	Sta Elev	Sta Elev	Sta Elev
0 57 14.41 56.81	15.75 56.74	18.74 56.59	25.76 56.1	
27.12 56 42.3 52.96	66 39.51	67.5 39.35	72.4 35.42	
76.9 32.99 79.9 32.49	91.4 31.88	92.5 33.18	96.7 36.83	
111.6 38.33 111.7 39.06	131.7 39.46	149.25 39.13	163.7 38.3	
195.1 50.6 198.6 50.7	200.97 52	201.08 52.02	201.23 52.04	
205.43 52.55 208.4 52.86	208.91 52.9	210.37 53	213.34 53.2	
214.25 53.25 217.33 53.46	221.64 53.57	222.81 53.61	225.09 53.66	
228.73 53.74 230.23 53.77	234.39 53.86	237.56 53.91	241.82 53.93	
242.43 53.92 249.49 53.95	252.82 53.98	253.64 54	259.3 54.09	
260.04 54.1 265.85 54.2	267.42 54.22	270.67 54.19	271.09 54.18	
271.38 54.19 277.08 54.04	278.53 54	280.24 53.89	280.51 53.88	
282.96 53.72 283.84 53.68	285.26 53.6	286.59 53.54	289.27 53.41	
291.8 53.31 292.61 53.27	294.15 53.21	295.97 53.14	296.35 53.12	
299.22 53 299.76 52.98	303.19 52.85	303.55 52.84	305.63 52.76	
306.83 52.73 308.76 52.66	310.77 52.6	312.66 52.56	314.41 52.51	
315.02 52.5 316 52.51	317.48 52.54	319.1 52.6	320.79 52.62	
322.61 52.65 323.93 52.69	325.93 52.72	326.95 52.75	329.61 52.84	

Goodwi vesDari enEX. rep

330.19	52.86	333.17	52.95	338.08	52.89	338.5	52.88	341.34	52.82
342.01	52.81	344.62	52.75	345.4	52.73	347.75	52.68	348.74	52.65
350.82	52.6	353.1	52.47	354.71	52.45	356.15	52.52	357.88	52.82
358.92	53	360.48	53.27	361.4	53.43	362.88	53.68	363.62	53.76
364.76	53.81	365.25	53.86	366.48	54	372.38	54.06	372.67	54.07
373.11	54.29	373.33	54.46	374	55	374.37	55.21	374.92	55.53
375.23	55.7	375.53	55.89	375.69	56	375.95	56.16	377.28	57
378.51	57.78	378.86	58	379.56	58.46	380.4	59	381.11	59.46
381.65	59.8	381.95	60	382.53	60.37	383.7	61	384.74	61.58
385.22	61.92								

Manning's n Values	num=	4
Sta n Val	Sta n Val	Sta n Val
0 .035	111.7 .015	163.7 .035
		195.1 .05

Bank Sta: Left	Right	Coeff Contr.	Expan.
67.5	96.7	.3	.5

Downstream Deck/Roadway Coordi nates

num=	5				
Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
150 57	53.11	273.9 57	53.11	329.9 58	53.5
413.5 59	54.56	500 59	54.56		

Downstream Bridge Cross Section Data

Station Elevati on Data	num=	126		
Sta Elev	Sta Elev	Sta Elev	Sta Elev	Sta Elev
0 54.38	.38 54.39	1.38 54.42	3.2 54.47	4.37 54.52
5.83 54.56	7.13 54.59	8.6 54.63	9.76 54.66	11.85 54.72
12.79 54.74	15.11 54.8	15.75 54.82	17.68 54.87	19.87 54.93
20.14 54.94	22.49 55	24.94 55.06	25.15 55.07	27.67 55.14
28.12 55.15	30.45 55.21	31.03 55.22	32.71 55.27	33.4 55.3
35.1 55.4	36.12 55.46	37.43 55.53	39.6 55.64	40.48 55.69
41.03 55.72	41.66 55.76	44.38 55.89	44.68 55.91	46.6 56
48.9 56.1	50.24 56.16	50.76 56.18	53.76 56.41	55.01 56.45
57.35 56.57	59.39 56.7	59.84 56.73	63.04 56.87	63.63 56.9
65.96 57	67.21 57.05	67.32 57.06	70.9 57.21	71.58 57.25
72.54 57.3	75.83 57.52	77.59 57.61	79.25 57.71	81.43 57.81
82.19 57.85	85.98 58	182.15 57.7	189.97 57	192.34 56.79
196.09 56.68	203.48 56.47	209.63 56.25	216.64 56	219.55 55.91
220.19 55.89	226.3 55.91	233.58 55.93	233.94 55.92	241.11 55.94
246.44 55.96	251.89 55.97	257.29 55.99	259.99 56	262.67 56.01
262.76 56	265.04 55.79	265.94 55.57	267.22 55.26	268.29 55
269.29 54.76	270.02 54.58	271.16 54	273 53.06	273.13 53
273.25 52.94	273.9 53.11	274.3 49.54	296.1 38.19	299.1 38.09
305.3 32.14	307.8 31.73	314.1 31.84	321.3 31.67	323.4 32.14
329 37.4	343.9 38.33	344 39.06	364 39.46	381.55 39.13
396 38.3	427.4 50.6	430.9 50.7	431.08 57.67	431.78 57.69
432.87 57.72	433.55 57.74	434.68 57.77	437.22 57.83	437.65 57.91
438.19 58	438.96 58.18	439.29 58.19	439.36 58.2	440.09 58.52
440.19 58.54	440.76 58.67	440.87 58.68	441.07 58.7	441.46 58.74
442.04 58.77	443.35 58.78	454.55 58.87	457.17 58.89	471.9 59
511.04 59.4				

Manning's n Values	num=	2
Sta n Val	Sta n Val	
0 .035	344 .015	

Bank Sta: Left	Right	Coeff Contr.	Expan.
299.1	329	.3	.5

Upstream Embankment side slope = 0 hori z. to 1.0 verti cal  
 Downstream Embankment side slope = 0 hori z. to 1.0 verti cal

Maximum allowable submergence for weir flow = .98  
 Elevation at which weir flow begins = 57  
 Energy head used in spillway design =  
 Spillway height used in design =  
 Weir crest shape = Broad Crested

Number of Piers = 2

Pier Data

Pier Station Upstream= 103 Downstream= 336  
 Upstream num= 2  
 Width Elev Width Elev  
 3 0 3 55  
 Downstream num= 2  
 Width Elev Width Elev  
 3 0 3 55

Pier Data

Pier Station Upstream= 154.5 Downstream= 387.5  
 Upstream num= 2  
 Width Elev Width Elev  
 3 0 3 55  
 Downstream num= 2  
 Width Elev Width Elev  
 3 0 3 55

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy  
 Momentum Cd = 2  
 Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Energy Only

Additional Bridge Parameters

Add Friction component to Momentum  
 Do not add Weight component to Momentum  
 Class B flow critical depth computations use critical depth  
 inside the bridge at the upstream end  
 Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: Goodwies River  
 REACH: mainstem RS: 7650

INPUT

Description: SURVEYED - 23.1 FEMA M - Under I-95 / US section of Old Kings  
 Highway South

EXISTING - moved section to downstream side of  
 I-95 (under bridge in effective model) in order to include bridge  
 structure. In channel section surveyed, overbank from town topo.

Station Elevation Data		num= 126							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	54.38	.38	54.39	1.38	54.42	3.2	54.47	4.37	54.52
5.83	54.56	7.13	54.59	8.6	54.63	9.76	54.66	11.85	54.72
12.79	54.74	15.11	54.8	15.75	54.82	17.68	54.87	19.87	54.93
20.14	54.94	22.49	55	24.94	55.06	25.15	55.07	27.67	55.14
28.12	55.15	30.45	55.21	31.03	55.22	32.71	55.27	33.4	55.3

Goodwi vesDari enEX. rep

35.1	55.4	36.12	55.46	37.43	55.53	39.6	55.64	40.48	55.69
41.03	55.72	41.66	55.76	44.38	55.89	44.68	55.91	46.6	56
48.9	56.1	50.24	56.16	50.76	56.18	53.76	56.41	55.01	56.45
57.35	56.57	59.39	56.7	59.84	56.73	63.04	56.87	63.63	56.9
65.96	57	67.21	57.05	67.32	57.06	70.9	57.21	71.58	57.25
72.54	57.3	75.83	57.52	77.59	57.61	79.25	57.71	81.43	57.81
82.19	57.85	85.98	58	182.15	57.7	189.97	57	192.34	56.79
196.09	56.68	203.48	56.47	209.63	56.25	216.64	56	219.55	55.91
220.19	55.89	226.3	55.91	233.58	55.93	233.94	55.92	241.11	55.94
246.44	55.96	251.89	55.97	257.29	55.99	259.99	56	262.67	56.01
262.76	56	265.04	55.79	265.94	55.57	267.22	55.26	268.29	55
269.29	54.76	270.02	54.58	271.16	54	273	53.06	273.13	53
273.25	52.94	273.9	53.11	274.3	49.54	296.1	38.19	299.1	38.09
305.3	32.14	307.8	31.73	314.1	31.84	321.3	31.67	323.4	32.14
329	37.4	343.9	38.33	344	39.06	364	39.46	381.55	39.13
396	38.3	427.4	50.6	430.9	50.7	431.08	57.67	431.78	57.69
432.87	57.72	433.55	57.74	434.68	57.77	437.22	57.83	437.65	57.91
438.19	58	438.96	58.18	439.29	58.19	439.36	58.2	440.09	58.52
440.19	58.54	440.76	58.67	440.87	58.68	441.07	58.7	441.46	58.74
442.04	58.77	443.35	58.78	454.55	58.87	457.17	58.89	471.9	59
511.04	59.4								

Manning's n Values num= 2  
 Station Value Station Value  
 0 .035 344 .015

Bank Station: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 299.1 329 13.58 12.32 11.29 .3 .5

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 7637

INPUT

Description: SURVEYED - 23.0 US face of Old Kings Highway South

EXISTING -

Updated in channel with survey, overbank with town topo. Updated Ineffective Flow Areas. Channel n-value increased from .025 to .035.

REVDUP - corrected Ineffective Flow Areas for culverts to use 1:1 contraction and 1.5:1 expansion and average of min top of road elevation and max low chord

DUP - DS section 22.2 deleted and added to internal cross section of bridge

Station	Elevation	Data	num=	220	Station	Elevation	Station	Elevation	Station	Elevation
0	48.28	.79	48.32	1.51	48.34	3.97	48.45	6.03	48.53	
6.82	48.59	8.02	48.65	10.33	48.82	10.99	48.88	11.87	48.94	
12.5	49	15.37	49.51	16.56	50	17.36	50.23	20.89	51	
23.92	51.39	25.58	51.64	28.08	52	31.35	52.34	32.17	52.44	
35.27	52.55	38.08	53	42.57	53.43	44.64	53.58	48.66	53.79	
49.17	53.81	50.67	53.86	52.57	54	72.69	54.63	74.34	54.66	
77.67	54.85	79.44	54.89	80.23	55	91.37	55.87	92.97	56	
99.08	56.57	101.95	56.84	103.34	57	113.81	57.97	114.08	58	
140.14	57.36	142.25	57	143.71	56.59	145.55	56	164.88	55.58	
165.43	55.55	168.33	55.42	169.94	55.44	174.25	55.2	175.55	55.15	
176.46	55.12	179.67	55	183.92	54.8	186.78	54.73	191.56	54.61	
195.69	54.52	199.35	54.33	204.28	54	205.19	53.93	205.41	53.89	

Goodwi vesDari enEX. rep

206.05	53.79	209.16	53.32	210.96	53	211.36	52.91	211.8	52.81
213.72	52.39	217.45	52	218.44	51.89	219.75	51.78	224.15	51.37
225.46	51.33	228.76	51.19	229.46	51.17	233.65	51	237.6	50.81
238.13	50.79	238.8	50.76	241.94	50.61	244.48	50.51	246.66	50.44
247.65	50.38	249.1	50.32	252.51	50	254.48	49.83	255.31	49.76
258.64	49.48	260.86	49.3	261.58	49.24	263.81	49.13	264.12	49.1
265.36	49.07	265.49	49.06	266.75	49	272.01	48.65	273.57	48.51
275.91	48.35	276.2	49.05	278.4	48.73	297.9	38.06	300.1	37.94
307.6	31.77	312.5	31.54	317.6	31.76	323.9	31.28	325.8	31.88
329.2	35.25	329.76	37	331.5	37.34	331.9	37.39	333.27	38
362.33	38.4	363.75	38.82	364.36	39	365.15	39.23	365.63	39.38
367.72	40	369.82	40.62	370.12	40.71	371.09	41	371.67	41.17
372.29	41.36	372.9	41.54	373.29	41.65	373.56	41.73	373.76	41.79
374.47	42	374.88	42.12	375.06	42.18	375.24	42.23	376.11	42.49
376.72	42.67	377.81	43	377.97	43.05	378.02	43.06	378.91	43.33
379.27	43.43	379.79	43.58	380.12	43	380.41	42.47	380.67	42
381.14	41.15	381.23	41	381.31	40.85	381.79	40	382.14	39.36
382.34	39	382.53	38.64	382.89	38	392.19	39	395.4	39.66
398.34	39.77	404.27	39.98	404.58	40	405.49	40.34	407.07	41
409.37	41.57	410.63	42	412.47	42.56	413.21	42.59	414.5	43
415.97	43.66	416.6	44	417.25	44.4	418.27	45	418.97	45.44
419.92	46	420.7	46.49	421.53	47	422.43	47.58	423.12	48
424.2	48.71	424.66	49	426.1	49.96	426.17	50	426.33	50.11
427.56	50.86	427.82	51	429.02	51.73	429.5	52	431.18	52.54
432.72	53	434.17	53.63	435.7	54	438.53	54.69	439.8	55
440.3	55.12	441.31	55.25	444.77	55.69	447.76	55.87	448.33	55.9
449.97	56	451.47	56.09	451.98	56.1	455.88	56.19	457	56.22
460.46	56.3	466.85	56.45	473.68	56.58	475.25	56.62	479.71	56.71
481.43	56.76	485.15	56.87	485.59	56.91	486.87	57	488.27	57.1
488.47	57.12	488.81	57.16	491.4	57.44	491.92	57.5	492.26	57.53
493.04	57.62	493.36	57.64	494.79	57.65	495.98	57.66	499.29	57.65
502.11	57.64	505.62	57.7	509.9	57.78	511.73	57.8	515.47	57.87

Manning's n Values num= 3  
 Station Val Sta n Val Sta n Val  
 0 .035 300.1 .035 333.27 .015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 300.1 333.27 123.69 117.75 102.37 .3 .5

CULVERT

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 7582

INPUT

Description: SURVEYED - 22.15 Ol d Ki ngs Hi ghway South Cul verts-

EXISTING -

Modeled as culverts instead of bridge. Surveyed culvert inverts.  
 Culvert lengths and dimensions measured in field. Bottom of  
 culverts filled with sediments.

DUP - added sections 22.1 and  
 22.2 as internal bridge cross sections

Distance from Upstream XS = 10.5  
 Deck/Roadway Width = 100  
 Weir Coefficient = 2.6  
 Upstream Deck/Roadway Coordinates

num= 6  
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord

Goodwi vesDari enEX. rep

299.5	37.1	0	299.5	37.8	0	317	37.8	0
324.5	37.7	0	325	37.7	0	333	37.7	0

Upstream Bridge Cross Section Data

Station Elevation Data

num= 220

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	48.28	.79	48.32	1.51	48.34	3.97	48.45	6.03	48.53
6.82	48.59	8.02	48.65	10.33	48.82	10.99	48.88	11.87	48.94
12.5	49	15.37	49.51	16.56	50	17.36	50.23	20.89	51
23.92	51.39	25.58	51.64	28.08	52	31.35	52.34	32.17	52.44
35.27	52.55	38.08	53	42.57	53.43	44.64	53.58	48.66	53.79
49.17	53.81	50.67	53.86	52.57	54	72.69	54.63	74.34	54.66
77.67	54.85	79.44	54.89	80.23	55	91.37	55.87	92.97	56
99.08	56.57	101.95	56.84	103.34	57	113.81	57.97	114.08	58
140.14	57.36	142.25	57	143.71	56.59	145.55	56	164.88	55.58
165.43	55.55	168.33	55.42	169.94	55.44	174.25	55.2	175.55	55.15
176.46	55.12	179.67	55	183.92	54.8	186.78	54.73	191.56	54.61
195.69	54.52	199.35	54.33	204.28	54	205.19	53.93	205.41	53.89
206.05	53.79	209.16	53.32	210.96	53	211.36	52.91	211.8	52.81
213.72	52.39	217.45	52	218.44	51.89	219.75	51.78	224.15	51.37
225.46	51.33	228.76	51.19	229.46	51.17	233.65	51	237.6	50.81
238.13	50.79	238.8	50.76	241.94	50.61	244.48	50.51	246.66	50.44
247.65	50.38	249.1	50.32	252.51	50	254.48	49.83	255.31	49.76
258.64	49.48	260.86	49.3	261.58	49.24	263.81	49.13	264.12	49.1
265.36	49.07	265.49	49.06	266.75	49	272.01	48.65	273.57	48.51
275.91	48.35	276.2	49.05	278.4	48.73	297.9	38.06	300.1	37.94
307.6	31.77	312.5	31.54	317.6	31.76	323.9	31.28	325.8	31.88
329.2	35.25	329.76	37	331.5	37.34	331.9	37.39	333.27	38
362.33	38.4	363.75	38.82	364.36	39	365.15	39.23	365.63	39.38
367.72	40	369.82	40.62	370.12	40.71	371.09	41	371.67	41.17
372.29	41.36	372.9	41.54	373.29	41.65	373.56	41.73	373.76	41.79
374.47	42	374.88	42.12	375.06	42.18	375.24	42.23	376.11	42.49
376.72	42.67	377.81	43	377.97	43.05	378.02	43.06	378.91	43.33
379.27	43.43	379.79	43.58	380.12	43	380.41	42.47	380.67	42
381.14	41.15	381.23	41	381.31	40.85	381.79	40	382.14	39.36
382.34	39	382.53	38.64	382.89	38	392.19	39	395.4	39.66
398.34	39.77	404.27	39.98	404.58	40	405.49	40.34	407.07	41
409.37	41.57	410.63	42	412.47	42.56	413.21	42.59	414.5	43
415.97	43.66	416.6	44	417.25	44.4	418.27	45	418.97	45.44
419.92	46	420.7	46.49	421.53	47	422.43	47.58	423.12	48
424.2	48.71	424.66	49	426.1	49.96	426.17	50	426.33	50.11
427.56	50.86	427.82	51	429.02	51.73	429.5	52	431.18	52.54
432.72	53	434.17	53.63	435.7	54	438.53	54.69	439.8	55
440.3	55.12	441.31	55.25	444.77	55.69	447.76	55.87	448.33	55.9
449.97	56	451.47	56.09	451.98	56.1	455.88	56.19	457	56.22
460.46	56.3	466.85	56.45	473.68	56.58	475.25	56.62	479.71	56.71
481.43	56.76	485.15	56.87	485.59	56.91	486.87	57	488.27	57.1
488.47	57.12	488.81	57.16	491.4	57.44	491.92	57.5	492.26	57.53
493.04	57.62	493.36	57.64	494.79	57.65	495.98	57.66	499.29	57.65
502.11	57.64	505.62	57.7	509.9	57.78	511.73	57.8	515.47	57.87

Manning's n Values

num= 3

Station	Value	Station	Value	Station	Value
0	.035	300.1	.035	333.27	.015

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	300.1	333.27	.3		.5

Downstream Deck/Roadway Coordinates

num= 9

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
250	37.1	0	273.5	37.1	0	273.5	37.8	0	0
291	37.8	0	298.5	37.7	0	299	37.7	0	0

Goodwi vesDari enEX. rep

307 37.7 0 307 37 0 400 37 0

Downstream Bridge Cross Section Data  
Station Elevati on Data num= 279

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	54.64	.47	54.67	1.76	54.8	2.71	54.79	3.74	54.78
5.43	55	7.73	55.17	8.09	55.2	10.06	55.3	11.51	55.45
11.84	55.46	13.17	55.51	13.36	55.52	16.54	55.72	17.35	55.73
18.13	55.77	21.43	55.94	21.45	55.95	22.41	56	23.76	56.06
23.93	56.07	26.36	56.16	28.85	56.23	29.34	56.24	31.65	56.2
32.19	56.19	34.47	56.12	34.78	56.11	36.68	56	36.86	55.97
37.61	55.83	37.65	55.82	39.27	55.45	40.57	55.14	41.22	55
43.2	54.57	44.52	54.29	45.16	54.15	45.89	54	47.82	53.59
49.95	53.15	50.33	53.07	50.78	53	52.58	52.7	53.72	52.59
55.07	52.44	55.44	52.41	56.77	52.33	57.72	52.28	59.24	52.19
59.31	52.18	59.5	52.17	62.4	52	63.29	51.91	63.93	51.9
66.73	51.94	69.88	51.98	71.81	52	72.9	52.01	75.96	52.04
78.78	52.07	81.77	52.1	84.8	52.12	85.23	52.13	87.84	52.15
90.01	52.16	90.99	52.17	91.31	52.2	91.56	52.23	91.86	52.24
92.27	52.3	93.1	52.42	93.69	52.46	94.33	52.53	95.24	52.58
96.6	52.8	96.98	52.83	97.27	52.85	97.94	53	100.64	53.33
101.65	53.47	105.63	53.97	105.74	53.98	105.85	54	108.63	54.35
111.56	54.72	112.2	54.77	112.65	54.8	113.74	55	115.09	55.17
116.25	55.32	118.41	55.59	119.46	55.67	121.64	56	122.29	56.08
122.86	56.16	125.67	56.51	129.53	57	129.76	57.03	129.95	57.05
133.65	57.54	134.47	57.61	134.78	57.66	136.11	57.7	137.59	57.73
138.86	57.84	140.11	57.81	140.73	57.73	143.16	57.59	145.48	57
145.73	56.92	145.79	56.9	147.51	56.35	148.94	56	150.36	55.66
150.67	55.59	150.76	55.57	151.24	55.48	152.35	55.47	154.49	55.34
155.39	55.47	155.92	55.53	157.58	55.74	157.91	55.78	158.7	55.8
161.15	55.87	163.54	55.81	164.23	55.8	164.71	55.76	167	55.61
167.49	55.58	169.31	56	171.26	56.88	171.51	57	171.99	57.25
173.24	57.63	173.3	57.59	173.34	57.57	174.23	57.31	174.76	57.16
175.31	57	175.85	56.85	176.04	56.79	176.35	56.69	176.59	56.61
177.29	56.41	178.04	56.17	178.6	56	179.25	55.8	179.71	55.82
179.83	55.83	180.42	56	181.05	56.2	181.78	56.43	182.52	56.69
182.87	56.8	183.52	57	183.7	57.06	183.74	57.07	184.53	57.03
184.6	57	186.34	56.42	187.57	56.16	187.76	56.11	188.25	56
189.25	55.79	189.54	55.75	190.48	55.53	191.74	55.21	192.75	55
193.32	54.88	193.69	54.81	194.75	54.48	195.31	54.32	195.99	54
197.41	53.36	198.23	53	199.27	52.68	201.01	52	201.28	51.92
203.12	51	207.48	51.09	207.83	51.08	209.73	51.21	210.13	51.17
213.19	51	215.71	50.83	218.13	50	220.62	49	220.79	48.91
221.01	48.84	223.16	48	223.81	47.26	224.39	47	224.56	46.67
224.73	46.36	224.77	46.28	224.93	46	225.28	45.39	225.53	45
225.71	44.7	226.19	44	226.26	43.91	226.47	43.74	226.89	43.31
227.2	43	227.65	42.79	227.82	42.72	228.62	42.28	229.17	42
230.77	41.14	230.87	41.1	231.04	41	232.59	40.08	232.7	40
232.8	39.9	233.73	39	234.29	38.6	234.91	38.16	235.28	38
259.79	37.54	263.82	37	264.83	36.89	267.01	36.7	271.81	36
272.01	35.95	272.43	35.85	276.18	35	277.32	34.74	279.25	34.3
280.52	34	281	32.9	284	30.9	290	30.2	296	30.9
299	32.9	300.33	35	300.36	35.01	302.16	35.57	302.78	35.75
306.22	35.9	306.59	35.95	307.19	36	323.67	36.02	325.18	36.05
348.11	36.44	350.89	36.49	353.05	36.53	359.36	36.58	385.32	37
391.77	37.13	395.91	37.59	407.11	38	411.15	38.53	411.55	38.63
413.11	39	414.77	39.39	417.29	40	418.59	40.31	421.43	41
422.54	41.27	425.52	42	427.63	42.76	428.26	43	430.04	43.89
430.27	44	431.83	44.78	432.3	45	432.58	45.13	434.4	46
435.46	46.5	436.5	47	437.98	47.7	438.61	48	440.36	48.82
440.73	49	442.67	49.91	442.87	50	444.78	50.89		

Manning's n Values

num= 4



Goodwies Dari en EX. rep

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.08	277.32	.04	300.36	.08	323.67	.015

Bank Sta: Left Right Coeff Contr. Expan.  
 277.32 300.36 .3 .5

Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 276.57 36 F  
 305.63 444.78 36 F

Upstream Embankment side slope = 0 hori z. to 1.0 vertical  
 Downstream Embankment side slope = 0 hori z. to 1.0 vertical  
 Maximum allowable submergence for weir flow = .98  
 Elevation at which weir flow begins = 37.7  
 Energy head used in spillway design =  
 Spillway height used in design =  
 Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name Shape Rise Span  
 Culvert #1 Box 5 9.2

FHWA Chart # 58- Rectangular concrete  
 FHWA Scale # 1 - Side tapered; Less favorable edges  
 Solution Criteria = Highest U. S. EG

Culvert	Upstrm Dist	Length	Top n	Bottom n	Depth Blocked	Entrance Loss Coef
1	10.5	100	.013	.013	0	.5

Number of Barrels = 2  
 Upstream Elevation = 30.28  
 Centerline Stations  
 Sta. Sta.  
 312 322.2  
 Downstream Elevation = 30.05  
 Centerline Stations  
 Sta. Sta.  
 286 296.2

CROSS SECTION

RIVER: Goodwies River  
 REACH: mainstem RS: 7519

INPUT

Description: UPDATED - 21.1 DS face of Old Kings Highway South,

RIGHT - Old Kings Highway South Road Surface at 36.0'

EXISTING - Updated Overbank. Updated Ineffective Flow Areas. ROB trees sparse - changed .12 to .08. Channel bed relatively smooth changed n from .05 to .04.

REVDUP - corrected Ineffective Flow Areas for culverts to use 1:1 contraction and 1.5:1 expansion and average of min top of road elevation and max low chord

DUP - US section

22.1 deleted and added to internal cross section of bridge  
 Station Elevation Data num= 279

Goodwi vesDari enEX. rep

Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev	Sta	El ev
0	54.64	.47	54.67	1.76	54.8	2.71	54.79	3.74	54.78
5.43	55	7.73	55.17	8.09	55.2	10.06	55.3	11.51	55.45
11.84	55.46	13.17	55.51	13.36	55.52	16.54	55.72	17.35	55.73
18.13	55.77	21.43	55.94	21.45	55.95	22.41	56	23.76	56.06
23.93	56.07	26.36	56.16	28.85	56.23	29.34	56.24	31.65	56.2
32.19	56.19	34.47	56.12	34.78	56.11	36.68	56	36.86	55.97
37.61	55.83	37.65	55.82	39.27	55.45	40.57	55.14	41.22	55
43.2	54.57	44.52	54.29	45.16	54.15	45.89	54	47.82	53.59
49.95	53.15	50.33	53.07	50.78	53	52.58	52.7	53.72	52.59
55.07	52.44	55.44	52.41	56.77	52.33	57.72	52.28	59.24	52.19
59.31	52.18	59.5	52.17	62.4	52	63.29	51.91	63.93	51.9
66.73	51.94	69.88	51.98	71.81	52	72.9	52.01	75.96	52.04
78.78	52.07	81.77	52.1	84.8	52.12	85.23	52.13	87.84	52.15
90.01	52.16	90.99	52.17	91.31	52.2	91.56	52.23	91.86	52.24
92.27	52.3	93.1	52.42	93.69	52.46	94.33	52.53	95.24	52.58
96.6	52.8	96.98	52.83	97.27	52.85	97.94	53	100.64	53.33
101.65	53.47	105.63	53.97	105.74	53.98	105.85	54	108.63	54.35
111.56	54.72	112.2	54.77	112.65	54.8	113.74	55	115.09	55.17
116.25	55.32	118.41	55.59	119.46	55.67	121.64	56	122.29	56.08
122.86	56.16	125.67	56.51	129.53	57	129.76	57.03	129.95	57.05
133.65	57.54	134.47	57.61	134.78	57.66	136.11	57.7	137.59	57.73
138.86	57.84	140.11	57.81	140.73	57.73	143.16	57.59	145.48	57
145.73	56.92	145.79	56.9	147.51	56.35	148.94	56	150.36	55.66
150.67	55.59	150.76	55.57	151.24	55.48	152.35	55.47	154.49	55.34
155.39	55.47	155.92	55.53	157.58	55.74	157.91	55.78	158.7	55.8
161.15	55.87	163.54	55.81	164.23	55.8	164.71	55.76	167	55.61
167.49	55.58	169.31	56	171.26	56.88	171.51	57	171.99	57.25
173.24	57.63	173.3	57.59	173.34	57.57	174.23	57.31	174.76	57.16
175.31	57	175.85	56.85	176.04	56.79	176.35	56.69	176.59	56.61
177.29	56.41	178.04	56.17	178.6	56	179.25	55.8	179.71	55.82
179.83	55.83	180.42	56	181.05	56.2	181.78	56.43	182.52	56.69
182.87	56.8	183.52	57	183.7	57.06	183.74	57.07	184.53	57.03
184.6	57	186.34	56.42	187.57	56.16	187.76	56.11	188.25	56
189.25	55.79	189.54	55.75	190.48	55.53	191.74	55.21	192.75	55
193.32	54.88	193.69	54.81	194.75	54.48	195.31	54.32	195.99	54
197.41	53.36	198.23	53	199.27	52.68	201.01	52	201.28	51.92
203.12	51	207.48	51.09	207.83	51.08	209.73	51.21	210.13	51.17
213.19	51	215.71	50.83	218.13	50	220.62	49	220.79	48.91
221.01	48.84	223.16	48	223.81	47.26	224.39	47	224.56	46.67
224.73	46.36	224.77	46.28	224.93	46	225.28	45.39	225.53	45
225.71	44.7	226.19	44	226.26	43.91	226.47	43.74	226.89	43.31
227.2	43	227.65	42.79	227.82	42.72	228.62	42.28	229.17	42
230.77	41.14	230.87	41.1	231.04	41	232.59	40.08	232.7	40
232.8	39.9	233.73	39	234.29	38.6	234.91	38.16	235.28	38
259.79	37.54	263.82	37	264.83	36.89	267.01	36.7	271.81	36
272.01	35.95	272.43	35.85	276.18	35	277.32	34.74	279.25	34.3
280.52	34	281	32.9	284	30.9	290	30.2	296	30.9
299	32.9	300.33	35	300.36	35.01	302.16	35.57	302.78	35.75
306.22	35.9	306.59	35.95	307.19	36	323.67	36.02	325.18	36.05
348.11	36.44	350.89	36.49	353.05	36.53	359.36	36.58	385.32	37
391.77	37.13	395.91	37.59	407.11	38	411.15	38.53	411.55	38.63
413.11	39	414.77	39.39	417.29	40	418.59	40.31	421.43	41
422.54	41.27	425.52	42	427.63	42.76	428.26	43	430.04	43.89
430.27	44	431.83	44.78	432.3	45	432.58	45.13	434.4	46
435.46	46.5	436.5	47	437.98	47.7	438.61	48	440.36	48.82
440.73	49	442.67	49.91	442.87	50	444.78	50.89		

Manning's n Values

num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.08	277.32	.04	300.36	.08	323.67	.015

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

Goodwi vesDari enEX. rep

277.32	300.36		85.67	65.22	32.3	.3	.5
Ineffective Flow		num=	2				
Sta L	Sta R	Elev	Permanent				
0	276.57	36	F				
305.63	444.78	36	F				

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 7454

INPUT  
 Descri ption: UPDATED - 21.0 FEMA L - DS secti on of Ol d Ki ngs Hi ghway  
 South

RIGHT - Ol d Ki ngs Hi ghway South Road Surface approx  
 36.5'

EXISTING - Updated Overbank. ROB trees sparse - changed  
 .12 to .08. Channel bed relatively smooth changed n from .05 to  
 .04.

Station Elevation Data		num=	114						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	60.17	.35	60	1.02	59.69	1.68	59.37	2.47	59
3.74	58.39	4.51	58	5.01	57.66	5.99	57	6.76	56.48
7.44	56	8.14	55.51	8.87	55	9.55	54.52	10.29	54
12.08	53.19	12.39	53	13.49	52.67	15.42	52	15.7	51.56
16.05	51	16.48	50.3	16.66	50	17.18	49.15	17.27	49
17.74	48.11	18.07	48	25.86	47.13	26.95	47	27.6	46.93
30.28	46.65	31.34	46.55	33.74	46.33	35.57	46.15	36.6	46.05
37.27	46	39.27	45.88	41.82	45.73	43.23	45.65	44.13	45.59
51.61	45	53.8	44.67	56.73	44	59.78	43.3	61.11	43
63.15	42.53	65.51	42	66.55	41.77	69.98	41	71.21	40.81
76.16	40	80.66	39.57	86.4	39.09	86.87	39.05	87.54	39
92.04	38.33	94.43	38	95.99	37.32	96.66	37	97.94	36.44
98.97	36	101.17	35.09	101.38	35	101.45	34.97	101.86	34.83
102.05	34.77	103	32.9	106	30.9	112	30.2	118	30.9
121	32.9	121.71	33.74	122.09	33.85	122.15	34	127.99	34.7
129.35	35	130.05	35.03	133.61	35.17	151.7	36	153.16	36.02
153.31	36.03	160.21	36.15	167.12	36.29	174.48	36.43	180.14	36.55
190.82	36.76	200.92	37	213.5	37.28	225.03	38	227.91	38.69
229.15	39	231.57	39.58	233.24	40	237.06	40.94	237.3	41
237.41	41.03	241.35	42	244.02	42.77	244.79	43	245.17	43.17
245.49	43.31	247.06	44	248.53	44.65	249.33	45	249.8	45.21
251.59	46	251.89	46.13	253.68	46.93	253.82	46.99	253.84	47
253.89	47.02	256.08	48	256.9	48.36	256.93	48.38		

Manning's n Values		num=	4		
Sta	n Val	Sta	n Val	Sta	n Val
0	.08	102.05	.04	121.71	.08
				151.7	.015

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
102.05	121.71	170.89	175.41	168.07	.3	.5	

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 7279

INPUT  
 Descri ption: UPDATED - 20.0 FEMA K - US secti on of Dri veway Bri dge  
 Page 114

Goodwi vesDari enEX. rep

RIGHT -

Old Kings Highway South Road Surface at 38.5'

EXISTING -

Updated Overbank. ROB trees normal - changed .12 to .08. LOB trees normal - changed .11 to .08

Station	Elevation	Data	num=	141	Station	Elevation	Station	Elevation	Station	Elevation
0	64.67	5.71	64.28	10.31	64	11.73	63.87	14.49	63.62	
15.96	63.51	19.75	63.21	22.81	63	26.47	62.4	28.4	62	
29.76	61.76	30.47	61.61	32.05	61.28	33.16	61	35.73	60.47	
37.56	60	41.12	59.33	42.76	59	47.81	58.04	48.04	58	
48.67	57.88	53.31	57	55.16	56.65	58.6	56	61.54	55.45	
63.9	55	67.48	54.33	69.21	54	78.01	53.35	84.68	53	
87.44	52.18	88.05	52	88.49	51.87	91.4	51	92.55	50.66	
94.77	50	95.58	49.76	97.88	49.07	98.06	49.02	98.12	49	
99.64	48.55	101.47	48	101.6	47.96	103.54	47.38	104.75	47.02	
104.81	47	107.53	46.19	108.15	46	109.92	45.47	111.47	45	
112.63	44.65	113.32	44.44	114.77	44	116.96	43.33	117.9	43	
120.06	42.24	120.72	42	121.65	41.67	123.12	41	124.34	40.45	
125.33	40	126.61	39.84	132.74	39	135.27	38.78	138.06	38.57	
139.25	38.49	140.2	38.4	146.69	38	147.1	37.97	147.92	37.92	
156.25	37.36	160.31	37.14	161.3	37.11	161.78	37.08	165.43	37	
171.49	36.85	171.78	36.84	174.13	36.77	177.4	36.68	179.51	36.6	
182.68	36.5	187.61	36.32	199	36	199.78	35.99	200.52	35.98	
209.69	35.86	216.66	35.69	217.1	35.67	221.27	35.57	233.15	35.06	
234.5	35	236	34.5	244	30.2	246	29.8	248	29.6	
250	29.7	251	30.2	262	35	263.31	36	270.33	36.91	
271.08	37	271.92	37.07	280.71	38	319.53	38.74	331.95	39	
377.38	39.57	377.58	39.59	377.66	39.61	377.88	39.58	379.91	40	
383.15	40.75	384.18	41	386.9	41.62	388.31	41.98	388.39	42	
388.41	42.01	388.46	42.02	389.49	42.37	391.75	43	393.79	43.42	
396.24	44	397.9	44.34	401.37	45	401.43	45.02	401.79	45.07	
401.85	45.09	402.18	45.16	402.43	45.22	404.73	46	404.77	46.02	
407.15	47	409.19	47.84	409.58	48	412	48.99	412.03	49	
412.37	49.14	414.49	50	414.66	50.07	416.99	51	417.3	51.12	
418.44	51.58									

Manning's n Values	num=	4
Station Val	Station Val	Station Val
0 .08	236 .04	262 .08
		319.53 .015

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	236	262		10.81	25.38	30.06		.3	.5

Blocked Obstructions	num=	1
Sta L	Sta R	Elev
69.95	98.76	70.22

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 7253

INPUT

Description: SURVEYED - 19.4 U/S Face of Dri veway -

RIGHT - Old Kings Highway South Road Surface at 38.5'

EXISTING - Updated in channel with survey, overbank with town topo. Updated Ineffective

Goodwiv esDari enEX. rep  
 Flow Areas. N-value decreased in channel from .045 to .04. LOB  
 increased from .05 to .08 for trees. ROB both trees and  
 road.

REVDUP - corrected Ineffective Flow Areas to use 1:1  
 expansion and contraction and min top of road elevation

DUP - deleted ds bridge edge section 19.3, identical to this cross  
 section

Station Elevation Data num= 131									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	55.89	.53	55.79	4.18	55.12	4.85	55	7.14	54.57
10.24	54	11.36	53.74	15.7	53	18.69	52.2	19.42	52
21.69	51.39	23.12	51	24.5	50.63	25.59	50.34	26.84	50
27.78	49.75	30.55	49	30.77	48.94	32.24	48.54	33.99	48.07
34.26	48	36.79	47.31	37.95	47	39.71	46.52	40.8	46.23
41.64	46	44.09	45.34	45.33	45	47.81	44.33	48.99	44
49.61	43.83	50.48	43.59	51.61	43.28	52.63	43	53.91	42.65
56.23	42	56.89	41.81	59.15	41.07	59.34	41.01	59.37	41
62.09	40.09	62.3	40	67.09	39.43	70.36	39	75.66	38.56
80.55	38.21	80.95	38.19	81.29	38.16	84.09	38	87.13	37.81
91.27	37.58	96.12	37.28	101.58	37.02	101.66	37.01	101.92	37
111.38	36.59	112.25	36.55	113.82	36.47	124.12	36	130.48	35.77
138.42	35.52	141.49	35.53	141.89	35.52	146.14	35.5	150.93	35.4
163.27	35	169.3	34.01	175.9	30.73	180.1	30.08	185.8	29.8
187.9	30.2	189.8	30.83	194.1	33.91	194.27	34	196.08	34.65
197.08	35	197.83	35.1	206.47	36	208.72	36.18	215.97	36.64
222.68	37	228.4	37.34	228.83	37.36	237.15	37.71	238.02	37.76
242.5	38	247.74	38.14	248.71	38.17	269.92	39	278.83	39.38
293.53	40	296.28	40.16	312.87	41	314.27	41.16	320.26	42
320.68	42.17	321.5	42.47	322.39	42.79	322.96	43	330.41	43.9
331.64	44	334.93	44.35	341.28	45	343.28	45.26	344.4	45.38
345.44	45.5	350.27	46	353.16	46.3	358.07	46.74	360.01	46.91
361.02	47	366.82	47.69	368.24	48	369.93	48.44	372.01	49
374.28	49.68	375.36	50	375.89	50.16	378.66	51	379.4	51.21
382.12	52	383.02	52.24	385.81	53	389.13	53.75	389.99	54
392.19	54.29	395.2	54.61	398.13	55	400.78	55.35	405.62	56
405.93	56.03								

Manning's n Values num= 4							
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.08	169.3	.04	194.1	.08	248.71	.015

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 169.3 194.1 34.44 37.06 38.05 .3 .5

Blocked Obstructions num= 1		
Sta L	Sta R	Elev
17.81	32.07	70.22

BRI DGE

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem RS: 7243

INPUT  
 Description: SURVEYED - 19.25 Dri veway -

EXI STING - Surveyed deck,  
 opening, and culverts, extended road deck with town topo, measured  
 road deck width in field.

Goodwiv esDari enEX. rep

DUP - deleted sections at face (19.2 and 19.3) used internal cross section to insert downstream section geometry

Distance from Upstream XS = 18.3  
 Deck/Roadway Width = 10.5  
 Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates  
 num= 6

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
125.44		35			179.44		34.6		0	179.44		34.6		32.48
186.04		34.56		32.35	186.04		34.56		0	202.04		35		

Upstream Bridge Cross Section Data

Station Elevation Data num= 131

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	55.89	.53	55.79	4.18	55.12	4.85	55	7.14	54.57
10.24	54	11.36	53.74	15.7	53	18.69	52.2	19.42	52
21.69	51.39	23.12	51	24.5	50.63	25.59	50.34	26.84	50
27.78	49.75	30.55	49	30.77	48.94	32.24	48.54	33.99	48.07
34.26	48	36.79	47.31	37.95	47	39.71	46.52	40.8	46.23
41.64	46	44.09	45.34	45.33	45	47.81	44.33	48.99	44
49.61	43.83	50.48	43.59	51.61	43.28	52.63	43	53.91	42.65
56.23	42	56.89	41.81	59.15	41.07	59.34	41.01	59.37	41
62.09	40.09	62.3	40	67.09	39.43	70.36	39	75.66	38.56
80.55	38.21	80.95	38.19	81.29	38.16	84.09	38	87.13	37.81
91.27	37.58	96.12	37.28	101.58	37.02	101.66	37.01	101.92	37
111.38	36.59	112.25	36.55	113.82	36.47	124.12	36	130.48	35.77
138.42	35.52	141.49	35.53	141.89	35.52	146.14	35.5	150.93	35.4
163.27	35	169.3	34.01	175.9	30.73	180.1	30.08	185.8	29.8
187.9	30.2	189.8	30.83	194.1	33.91	194.27	34	196.08	34.65
197.08	35	197.83	35.1	206.47	36	208.72	36.18	215.97	36.64
222.68	37	228.4	37.34	228.83	37.36	237.15	37.71	238.02	37.76
242.5	38	247.74	38.14	248.71	38.17	269.92	39	278.83	39.38
293.53	40	296.28	40.16	312.87	41	314.27	41.16	320.26	42
320.68	42.17	321.5	42.47	322.39	42.79	322.96	43	330.41	43.9
331.64	44	334.93	44.35	341.28	45	343.28	45.26	344.4	45.38
345.44	45.5	350.27	46	353.16	46.3	358.07	46.74	360.01	46.91
361.02	47	366.82	47.69	368.24	48	369.93	48.44	372.01	49
374.28	49.68	375.36	50	375.89	50.16	378.66	51	379.4	51.21
382.12	52	383.02	52.24	385.81	53	389.13	53.75	389.99	54
392.19	54.29	395.2	54.61	398.13	55	400.78	55.35	405.62	56
405.93	56.03								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.08	169.3	.04	194.1	.08	248.71	.015

Bank Sta: Left Right Coeff Contr. Expan.  
 169.3 194.1 .3 .5

Blocked Obstructions num= 1

Sta L	Sta R	Elev
17.81	32.07	70.22

Downstream Deck/Roadway Coordinates

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
244.4		35			298.4		34.88		0	298.4		34.88		32.68
305		34.55		32.59	305		34.55		0	321		35		
360		36												

Downstream Bridge Cross Section Data

Station Elevation Data num= 249

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

Goodwi vesDari enEX. rep

0	69.65	1.49	70	2.5	70.23	4.4	70.66	5.86	71
7.9	71.46	10.18	72	11.72	72.35	14.4	73	16.23	73.43
20.62	73	20.94	72.97	21.21	72.91	22.64	72.59	25.57	72
27.96	71.55	29.39	71.3	30.06	71.17	30.94	71	33.27	70.55
36.21	70	38.91	69.58	40.52	69.36	40.87	69.31	43.26	69
48.85	68.34	49.47	68.29	49.93	68.24	53.4	68	53.99	67.9
54.14	67.88	55.79	67.61	56.59	67.51	57.03	67.43	58.09	67.31
58.68	67.24	60.1	67.11	60.52	67.07	61.45	67	63.6	66.74
64.07	66.68	64.63	66.65	65.33	66.59	66.15	66.56	69.31	66.54
70.02	66.56	70.65	66.59	72.38	66.76	72.92	66.81	74.01	66.95
74.08	66.96	74.38	67	76.44	67.27	78.03	67.48	78.66	67.59
78.77	67.61	79.29	67.72	80.65	68	84.7	67.51	86.35	67.62
89.05	67.63	89.36	67.65	92.67	67.74	94.01	67.75	97.44	67.41
98.23	67.46	98.91	67	99.79	66.36	100.3	66	101.45	65.16
101.68	65	102.46	64.42	102.85	64.14	103.06	64	103.92	63.38
104.47	63	105.11	62.55	105.91	62	106.38	61.66	107.35	61
107.69	60.75	108.8	60	109.1	59.81	110.17	59	110.48	58.82
111.68	58	111.84	57.9	112.71	57.3	113.14	57	113.3	56.89
114.61	56	115.7	55.25	116.04	55	117.73	54.27	118.16	54
121.23	53.23	122.21	53	123.43	52.7	126.24	52	128.49	51.44
130.28	51	133.17	50.29	134.43	50	135.21	49.82	136.67	49.54
139.18	49	142.59	48.33	145	48	147.48	47.69	153.32	47
154.79	46.82	162.03	46	163.12	45.73	165.39	45	165.82	44.83
167.85	44	167.92	43.97	168.19	43.86	169.85	43.18	170.3	43
170.99	42.72	172.76	42	174.79	41.17	175.13	41.03	175.19	41
177.19	40.16	177.56	40	182.98	39.22	184.11	39	187.81	38.63
194.29	38	202.58	37.18	204.38	37	206.19	36.82	213.82	36
225.15	35.47	228.72	35.3	232.91	35.15	234.77	35.12	238.04	35
253.61	34.59	283.78	34.17	284.69	34.15	286.89	34.13	288.07	34.12
290.44	34.1	293.54	34	298.4	34	298.9	34	298.9	29.14
304.4	29.08	304.4	33.87	304.9	33.87	317.47	34	329.45	34.61
342.37	35	353.37	35.48	357.68	36	359.27	36.19	366.86	37
373.66	37.72	376.19	38	379.25	38.33	380.04	38.41	384.53	38.86
385.48	38.96	385.83	39	386.72	39.04	391.84	39.29	416.28	40
429.41	40.48	432.78	40.81	434.78	41	436.43	41.18	440.13	41.62
443.37	42	444.58	42.45	445.97	43	446.84	43.46	447.86	44
448.77	44.5	449.67	45	450.35	45.4	450.94	45.74	451.67	46
453.13	46.14	464.64	47	468.46	47.75	468.8	48	469.52	48.53
470.15	49	471.07	49.69	471.48	50	471.98	50.38	472.81	51
474.13	51.99	474.14	52	475.51	53	476.89	54	478.33	55
479.72	55.95	479.79	56	481.21	56.98	481.25	57	481.58	57.23
482.73	58	482.82	58.06	483.47	58.42	484.36	58.91	484.52	59
486.21	59.9	486.4	60	486.59	60.08	488.75	61	490.94	61.98
490.99	62	491.57	62.35	492.23	62.79	492.54	63	493.16	63.4
494.07	64	495.15	64.67	495.69	65	497.23	65.92	497.4	66
498.03	66.3	499.46	67	499.74	67.13	500.07	67.29	501.72	68
502.85	68.47	504.12	69	504.65	69.21	506.87	70	507.89	70.35
510.18	71	510.6	71.12	515.04	72	515.97	72.18	517.4	72.39
517.93	72.47	518.76	72.55	519.73	72.64	521.75	72.77	522.29	72.8
524.88	72.96	524.97	72.97	526.23	72.96	526.73	72.94		

Manning's n Values num= 5  
 Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val  
 0 .05 232.91 .1 283.78 .02 298.9 .04 304.4 .05

Bank Sta: Left Right Coeff Contr. Expan.  
 298.9 304.4 .3 .5  
 Blocked Obstructions num= 1  
 Sta L Sta R Elev  
 237.64 259.88 46.28

Upstream Embankment side slope = 0 hori z. to 1.0 verti cal  
 Downstream Embankment side slope = 0 hori z. to 1.0 verti cal

Maximum allowable submergence for weir flow = .98  
 Elevation at which weir flow begins = 34.56  
 Energy head used in spillway design =  
 Spillway height used in design =  
 Weir crest shape = Broad Crested

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy  
 Momentum Cd = 2  
 Selected Low Flow Methods = Highest Energy Answer

High Flow Method

Pressure and Weir flow  
 Submerged Inlet Cd =  
 Submerged Inlet + Outlet Cd = .8  
 Max Low Cord = 32.49

Additional Bridge Parameters

Add Friction component to Momentum  
 Do not add Weight component to Momentum  
 Class B flow critical depth computations use critical depth  
 inside the bridge at the upstream end  
 Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: Goodwies River  
 REACH: mainstem RS: 7216

INPUT

Description: SURVEYED - 18.1 D/S Face of Driveway -

LEFT=

garage

EXISTING - Updated channel with survey, overbank with town topo. Updated IFA. chnl n- decreased from .045 to .04. increased n at garag

REVDUP - corrected IFA to use 1:1 exp and cont and average of min top of road elev and max low chord

-corrected bank stations to reflect actual top of bank (set in HEC-2 to specify ineffective flow area location)

DUP -

deleted us bridge edge section 19.2, different from this section, identical to section 19.4

Station Elevation Data num= 249

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	69.65	1.49	70	2.5	70.23	4.4	70.66	5.86	71
7.9	71.46	10.18	72	11.72	72.35	14.4	73	16.23	73.43
20.62	73	20.94	72.97	21.21	72.91	22.64	72.59	25.57	72
27.96	71.55	29.39	71.3	30.06	71.17	30.94	71	33.27	70.55
36.21	70	38.91	69.58	40.52	69.36	40.87	69.31	43.26	69
48.85	68.34	49.47	68.29	49.93	68.24	53.4	68	53.99	67.9
54.14	67.88	55.79	67.61	56.59	67.51	57.03	67.43	58.09	67.31
58.68	67.24	60.1	67.11	60.52	67.07	61.45	67	63.6	66.74
64.07	66.68	64.63	66.65	65.33	66.59	66.15	66.56	69.31	66.54
70.02	66.56	70.65	66.59	72.38	66.76	72.92	66.81	74.01	66.95



Goodwi vesDari enEX. rep

74.08	66.96	74.38	67	76.44	67.27	78.03	67.48	78.66	67.59
78.77	67.61	79.29	67.72	80.65	68	84.7	67.51	86.35	67.62
89.05	67.63	89.36	67.65	92.67	67.74	94.01	67.75	97.44	67.41
98.23	67.46	98.91	67	99.79	66.36	100.3	66	101.45	65.16
101.68	65	102.46	64.42	102.85	64.14	103.06	64	103.92	63.38
104.47	63	105.11	62.55	105.91	62	106.38	61.66	107.35	61
107.69	60.75	108.8	60	109.1	59.81	110.17	59	110.48	58.82
111.68	58	111.84	57.9	112.71	57.3	113.14	57	113.3	56.89
114.61	56	115.7	55.25	116.04	55	117.73	54.27	118.16	54
121.23	53.23	122.21	53	123.43	52.7	126.24	52	128.49	51.44
130.28	51	133.17	50.29	134.43	50	135.21	49.82	136.67	49.54
139.18	49	142.59	48.33	145	48	147.48	47.69	153.32	47
154.79	46.82	162.03	46	163.12	45.73	165.39	45	165.82	44.83
167.85	44	167.92	43.97	168.19	43.86	169.85	43.18	170.3	43
170.99	42.72	172.76	42	174.79	41.17	175.13	41.03	175.19	41
177.19	40.16	177.56	40	182.98	39.22	184.11	39	187.81	38.63
194.29	38	202.58	37.18	204.38	37	206.19	36.82	213.82	36
225.15	35.47	228.72	35.3	232.91	35.15	234.77	35.12	238.04	35
253.61	34.59	283.78	34.17	284.69	34.15	286.89	34.13	288.07	34.12
290.44	34.1	293.54	34	298.4	34	298.9	34	298.9	29.14
304.4	29.08	304.4	33.87	304.9	33.87	317.47	34	329.45	34.61
342.37	35	353.37	35.48	357.68	36	359.27	36.19	366.86	37
373.66	37.72	376.19	38	379.25	38.33	380.04	38.41	384.53	38.86
385.48	38.96	385.83	39	386.72	39.04	391.84	39.29	416.28	40
429.41	40.48	432.78	40.81	434.78	41	436.43	41.18	440.13	41.62
443.37	42	444.58	42.45	445.97	43	446.84	43.46	447.86	44
448.77	44.5	449.67	45	450.35	45.4	450.94	45.74	451.67	46
453.13	46.14	464.64	47	468.46	47.75	468.8	48	469.52	48.53
470.15	49	471.07	49.69	471.48	50	471.98	50.38	472.81	51
474.13	51.99	474.14	52	475.51	53	476.89	54	478.33	55
479.72	55.95	479.79	56	481.21	56.98	481.25	57	481.58	57.23
482.73	58	482.82	58.06	483.47	58.42	484.36	58.91	484.52	59
486.21	59.9	486.4	60	486.59	60.08	488.75	61	490.94	61.98
490.99	62	491.57	62.35	492.23	62.79	492.54	63	493.16	63.4
494.07	64	495.15	64.67	495.69	65	497.23	65.92	497.4	66
498.03	66.3	499.46	67	499.74	67.13	500.07	67.29	501.72	68
502.85	68.47	504.12	69	504.65	69.21	506.87	70	507.89	70.35
510.18	71	510.6	71.12	515.04	72	515.97	72.18	517.4	72.39
517.93	72.47	518.76	72.55	519.73	72.64	521.75	72.77	522.29	72.8
524.88	72.96	524.97	72.97	526.23	72.96	526.73	72.94		

Manning's n Values	num=	5
Sta n Val	Sta n Val	Sta n Val
0 .05 232.91	.1 283.78	.02 298.9
.04 304.4	.05	

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
298.9	304.4	11.52	12.8	13.3		.3	.5
Blocked Obstructions	num=	1					
Sta L	Sta R	Elev					
237.64	259.88	46.28					

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 7204

INPUT  
 Description: SURVEYED - 18.0 FEMA J - DS secti on of Dri veway Bri dge

LEFT=  
 garage  
 RIGHT HOUSE FFE = 35.81'

Goodwi vesDari enEX. rep

EXISTING - Updated in channel

with survey, overbank with town topo. channel n- decreased from .045 to .04- few boulders - some rip-rap in channel. Increased n from .05 to .1 at homes.

Station	Elevation	Data	num=	146	Station	Elevation	Station	Elevation	Station	Elevation
0	57.79	.57	57.51	1.59	57	2.32	56.62	3.44	56.09	
3.63	56	5.89	55.08	6.14	55	9.4	54.02	9.48	54	
10.5	53.69	12.78	53	13.43	52.81	16.09	52	17.24	51.67	
19.42	51	20.87	50.59	22.8	50	24.47	49.54	26.22	49	
32.14	48.23	34.1	48	36.49	47.76	45.93	47	51.37	46.45	
52.48	46.32	53.72	46.19	55.22	46	57.38	45.07	57.54	45	
59.82	44.03	59.88	44	61.05	43.51	62.24	43	62.29	42.98	
64.58	42	64.7	41.95	66.95	41	67.12	40.93	69.32	40	
69.94	39.91	74.07	39.1	74.58	39	79.5	38.46	81.43	38.25	
83.65	38	89.55	37.35	92.62	37	94.47	36.79	101.5	36	
108.74	35.62	120.74	35	123.81	34.87	130.93	34.6	142.3	34.3	
162.62	34	178.55	33.72	180.7	33.02	184.3	30.67	186.3	29.68	
188.7	29.7	194.2	30.96	197.4	33.06	197.98	33.23	207.04	34	
229.16	34.69	233.42	34.81	236.03	34.89	239.91	35	246.25	35.66	
249.6	36	257.99	36.87	259.32	37	262.02	37.28	269.01	38	
275.05	38.62	278.79	39	283.67	39.53	292.72	40	316.77	40.64	
326.53	41	328.76	41.28	334.17	42	335.06	42.25	336.8	42.68	
338.13	43	339.67	43.78	340.11	44	340.35	44.12	341.78	44.85	
342.03	44.97	342.09	45	343.39	45.88	343.65	46	345.25	46.35	
348.55	47	350.14	47.79	350.56	48	350.67	48.06	352.8	49	
354.39	49.75	354.9	50	355.14	50.13	356.8	51	358.55	51.99	
358.56	52	358.58	52.01	359.98	53	360.1	53.09	361.36	54	
361.96	54.49	362.61	55	363.06	55.4	363.6	55.88	363.73	56	
363.98	56.24	364.81	57	365.25	57.41	365.85	58	366.35	58.5	
366.87	59	367.3	59.4	368.03	60	368.87	60.86	369.01	61	
369.44	61.44	369.94	61.78	370.27	62	371.46	62.8	371.75	63	
371.85	63.07	373.07	63.91	373.19	63.99	373.2	64	373.27	64.05	
374.64	65	374.88	65.14	374.96	65.22	375.17	65.38	375.74	65.78	
376.05	66	377.14	66.72	377.47	67	377.66	67.11	378.13	67.45	
378.16	67.46									

Manning's n	Values	num=	6	Station	n	Values	num=	6	Station	n	Values
0	.05	120.74	.1	162.62	.02	178.55	.04	197.98	.05		
239.91	.1										

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	178.55	197.98		47.59	43.36	41.55		.3	.5
Blocked Obstructions	num=	2	Station L	Station R	Elev	Station L	Station R	Elev	
			242.9	284.84	49.59	126.4	149.26	46.28	

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 7160

INPUT

Descripti on: SURVEYED - 17.0 - Across abandoned dri veway constri cti on

LEFT

HOUSE FFE = 36.82'

RIGHT HOUSE FFE = 40.54'

EXISTING - Updated

Goodwiv es Dari en EX. rep

in channel with survey, overbank with town topo. channel n-decreased from .045 to .04- few boulders - some rip-rap in channel. Increased n from .05 to .1 at homes.

Station Elevation Data num= 149									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	56.74	.81	56.55	5.36	56	5.49	55.99	5.58	55.98
6.56	55.9	10.33	55.64	11.97	55.67	12.4	55.68	12.83	55.69
15.27	55.86	16.58	56	19.8	55.34	20.19	55	21.05	54.27
21.35	54	22.3	53.18	22.51	53	23.56	52.08	23.65	52
24.57	51.21	24.81	51	24.84	50.97	25.96	50	26.17	49.82
27.12	49	27.54	48.64	28.27	48	29.21	47.18	29.42	47
30.52	46.06	30.59	46	31.12	45.55	31.76	45	31.85	44.93
32.96	44	33.29	43.72	34.15	43	34.53	42.68	35.35	42
35.91	41.55	36.57	41	37.55	40.21	37.8	40	37.99	39.84
39.06	39	39.83	38.4	40.66	38	42.77	37.07	42.93	37
43.01	36.99	44.11	36.89	52.06	36.16	52.99	36.07	53.25	36.04
53.86	36	56.79	35.87	62.67	35.63	63.96	35.55	65.98	35.45
67.38	35.35	68.63	35.29	69.48	35.24	72.99	35	82.49	34.47
85.56	34.28	85.65	34.27	85.89	34.26	86	34.25	88.69	34.09
90.1	34	90.8	33.99	92.66	33.95	101.87	33.76	104.63	33.71
107.49	33.66	113.37	33.52	131.3	33.79	137.94	33.86	144.4	34.66
144.95	29.85	147.5	28.79	151	29.16	153.1	29.82	154.8	34.85
166.56	34	181.99	34.39	197.26	35	214.24	35.46	225.7	36
226.63	36.06	238.78	37	245.71	37.58	251.18	38	252.84	38.22
253.42	38.3	255.58	38.6	258.32	39	265.85	39.91	266.65	40
277.39	40.69	279.72	40.82	285.79	41	295.89	41.34	300.41	41.5
309.48	42	312.1	42.46	316.35	43	316.56	43.11	318.06	44
318.08	44.01	318.19	44.08	319.67	45	320.3	45.4	321.29	46
322.2	46.57	322.94	47	324.36	47.8	324.72	48	326.1	48.62
327.5	49	331.74	49.6	333.5	50	334.1	50.16	335.78	50.43
336.44	50.55	337.08	50.65	339.37	51	341.6	51.71	342.3	52
343.01	52.31	345.78	53	346.95	53.35	348.91	54	350.3	54.51
350.4	54.52	350.62	54.55	351.79	54.59	353.37	54.67	354.24	54.7
356.08	54.78	356.28	54.82	356.61	54.85	358.15	54.82	358.71	54.81
360.2	54.78	362.9	54.73	364.53	55	367.68	55.52		

Manning's n Values num= 5									
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.1	92.66	.05	144.4	.04	154.8	.05	214.24	.1

  

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	144.4	154.8		49.69	48.17		.1	.3

  

Blocked Obstructions num= 2					
Sta L	Sta R	Elev	Sta L	Sta R	Elev
213	253.99	50.35	46.2	87.17	55.59

CROSS SECTION

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem RS: 7112

INPUT  
 Descri pti on: SURVEYED - 16.0 FEMA I -

Home on left FFE at 36.82'  
 Home on right FFE at 40.54

EXISTING - Updated in channel with survey, overbank with town topo. Changed n-values channel from .045 to .04 - smooth. Both overbanks lawn, with some trees and home - from .05 to .1 where trees.

Goodwi vesDari enEX. rep

Station Elevation Data			num=	139						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
0	62.14	.25	62.1	.75	62	.9	61.96	1.13	61.92	
3.21	61.4	5.8	61	6.33	60.85	10.2	60	11.16	59.84	
14.59	59.13	15.06	59.02	15.16	59	19.95	58.16	20.66	58	
21.3	57.64	23.31	57	24.05	56.45	24.66	56	25.6	55.31	
26.02	55	27.18	54.15	27.38	54	28.45	53.21	28.74	53	
29.67	52.31	30.09	52	30.5	51.7	31.45	51	32.26	50.4	
32.8	50	34.11	49.04	34.16	49	34.22	48.96	34.29	48.91	
35.5	48	36.42	47.32	36.85	47	37.99	46.14	38.18	46	
38.22	45.97	39.52	45	40.53	44.24	40.85	44	41.23	43.72	
42.18	43	43.15	42.27	43.51	42	43.78	41.8	44.07	41.57	
44.67	41.13	44.83	41	45.64	40.39	45.92	40.18	46.16	40	
46.35	39.86	47.49	39	48.06	38.57	48.81	38	49.56	37.43	
50.13	37	53.35	36.55	57.19	36	59.71	35.75	69.2	35	
76.06	34.51	77.17	34.45	83.81	34	109.46	33.13	113.81	33	
118.17	32.9	121.28	32.77	136.1	32.26	148.1	29.64	151.1	28.95	
153.3	28.57	157.9	29.3	164.7	32.03	175.83	33	179.87	33.16	
180.51	33.19	189.74	33.43	197.8	34	208.26	34.84	210.2	35	
214.22	35.15	231.94	36	243.11	36.96	243.51	37	243.72	37.02	
254.79	38	257.95	38.31	260.94	38.46	262.26	38.54	264.32	38.64	
269.84	39	284.48	39.64	289.01	39.87	290.97	40	292.91	40.29	
294.02	40.5	296.24	41	301.26	41.96	301.75	42	320.91	42.69	
327.88	43	334.87	43.47	336.23	44	338.6	44.91	338.84	45	
338.98	45.05	339.77	45.34	341.16	45.85	341.43	45.95	341.58	46	
342	46.14	344.47	47	347.27	47.89	347.61	48	347.82	48.08	
350.33	49	351.34	49.45	352.67	50	354.9	50.94	355.05	51	
355.23	51.03	357.93	51.5	360.98	52	365.1	52.31	370.07	52.56	
370.95	52.6	376.33	53	381.71	53.63	385.28	54	388.3	54.47	
393.49	55	397.95	55.47	399.48	55.58	400.41	55.57			

Manning's n Values			num=	5						
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	
0	.1	109.46	.05	136.1	.04	164.7	.05	214.22	.1	

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.	
	136.1	164.7		172.77	185.52		.1	.3	
Blocked Obstructions			num=	2					
Sta L	Sta R	Elev	Sta L	Sta R	Elev				
216.77	249.6	50.35	55.01	91.72	55.59				

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 6927

INPUT

Descripti on: UPDATED - 15.0 FEMA H - US secti on of Andrews Drive

EXI STING -

Overbank updated. LOB n-value decreased from .085 to .045 for lawn with some trees. channel n decreased from .04 to .035 - smooth bottom.

Station Elevation Data			num=	172						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	
0	56.74	1.05	56	1.37	55.76	2.44	55	2.98	54.59	
3.81	54	4.51	53.47	5.16	53	5.98	52.37	6.49	52	
7.4	51.29	7.8	51	8.77	50.23	9.15	50	10.31	49.16	
10.53	49	11.75	48.11	11.9	48	13.22	47.05	13.29	47	
14.36	46.22	14.67	46	14.7	45.98	16.04	45	16.19	44.89	
17.42	44	17.65	43.83	18.79	43	19.08	42.79	20.16	42	
20.5	41.75	21.54	41	21.91	40.73	22.91	40	23.32	39.71	

Goodwi vesDari enEX. rep

24. 29	39	24. 71	38. 69	25. 66	38	26. 11	37. 67	27. 04	37
27. 5	36. 66	28. 41	36	28. 89	35. 65	29. 79	35	30. 28	34. 64
31. 16	34	31. 66	33. 63	32. 53	33	33. 05	32. 62	33. 91	32
37. 8	31. 23	40. 26	31	65. 52	30. 75	861	69. 56	30. 72	72
77	28. 5	79	28	83	28. 1	89	28	93	28. 5
101	31. 5	103. 81	32. 46	110. 54	33	114. 77	33. 28	121. 87	33. 65
124. 87	33. 78	126. 57	33. 86	127. 67	33. 89	130. 8	34	140. 95	34. 33
156. 65	35	157. 45	35. 02	158. 42	35. 05	171. 76	35. 44	182. 23	36
189. 86	36. 29	190. 98	36. 32	191. 42	36. 33	196. 06	36. 49	215. 65	37
217. 8	37. 38	220. 42	37. 86	221. 09	38	222. 14	38. 39	223. 79	39
225. 13	39. 5	226. 46	40	226. 8	40. 13	228. 59	40. 83	229	41
230. 05	41. 47	231. 29	42	231. 75	42. 21	232. 65	42. 64	233. 18	42. 87
233. 4	43	234. 91	43. 77	235. 37	44	236. 67	44. 57	237. 61	45
238. 1	45. 2	240. 31	46	240. 95	46. 23	243. 03	47	243. 58	47. 19
245. 91	48	247. 27	48. 43	248. 64	48. 86	249. 08	49	252. 24	49. 99
252. 28	50	254. 85	50. 76	255. 68	51	256. 77	51. 32	259. 08	52
262. 3	52. 62	263. 6	52. 87	263. 65	52. 88	264. 32	53	267. 79	53. 48
279. 02	53. 52	281. 68	53. 61	287. 44	53. 57	292. 08	53. 46	296. 99	53. 48
302. 69	53. 29	305. 87	53. 31	306. 58	53. 33	306. 89	53. 34	307. 44	53. 37
311. 83	53. 44	316. 9	53. 91	317. 15	53. 93	317. 93	54	318. 13	54. 03
318. 22	54. 04	322. 85	54. 62	325. 86	55	327. 06	55. 15	328. 13	55. 29
333. 92	56	335. 57	56. 2	339. 16	56. 57	341. 61	56. 82	342. 45	56. 89
343. 73	57	346. 35	57. 23	347. 27	57. 3	348. 35	57. 38	349. 16	57. 43
356. 01	57. 09	356. 42	57. 06	356. 64	57. 05	357. 31	57	361. 11	56. 74
363. 43	56. 58	363. 61	56. 56	364. 19	56. 46	364. 71	56. 36	365. 83	56
367. 22	55. 53	368. 82	55	370. 56	54. 4	371. 71	54	381. 94	53. 78
390. 01	54	399. 57	54. 21	401. 91	54. 27	404. 58	54. 32	410. 39	54. 66
413. 26	55	414. 68	55. 43						

Manning's n Values num= 3  
 Sta n Val Sta n Val Sta n Val  
 0 .045 69.56 .035 101 .1

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 69.56 101 60.53 44.07 27.46 .3 .5  
 Blocked Obstructions num= 1  
 Sta L Sta R Elev  
 283.81 305.26 71.22

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 6882

INPUT  
 Description: SURVEYED - 14.4 U/S Face of Andrews Drive -

EXISTING - Updated in channel with survey, overbank with town topo. Updated Ineffective Flow Areas.

REVDUP - corrected Ineffective Flow Areas to use 1:1 expansion and contraction and min top of road elevation

DUP - removed upstream section 14.2 duplicate of this section previously located at exact edge of bridge

Station	Elevation	Data	num=	229					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	68.06	.74	68	1.2	67.96	1.6	67.92	4	67.68
4.09	67.67	6.33	67.48	9.509	67	9.67	66.91	10.2	66.6
10.35	66.51	11.21	66	11.6	65.77	12.85	65	13.25	64.76

Goodwi vesDari enEX. rep

14.44	64	14.67	63.86	15.98	63	16.11	62.92	17.49	62
17.55	61.96	18.99	61	19.01	60.99	19.79	60.46	20.41	60.03
20.46	60	21.47	59.26	21.739	59.06	21.83	59	22.01	58.88
23.32	58	24.71	57.12	24.89	57	24.97	56.95	26.5	56
27.521	55.36	28.12	55	28.67	54.66	29.75	54	30.66	53.44
31.45	53	32.189	52.59	33.24	52	34.91	51.1	35.04	51.03
35.09	51	36.48	50.26	36.98	50	38.02	49.45	38.92	49
39.65	48.62	40.91	48	41.37	47.77	43.02	47	43.861	46.82
44.199	46.75	47.02	46.2	48.05	46	50.56	45.51	53.26	45
53.761	44.9	54.39	44.79	58.62	44	60.49	43.66	62.05	43.43
63.05	43.29	65.439	43	70.07	42.44	73.85	42	78.27	41.45
78.97	41.35	79.61	41.27	81.29	41	84.07	40.53	85.83	40.23
87.05	40	90.24	39.86	90.75	39.85	91.95	39.83	97.64	39.64
99.25	39.61	105.18	39.59	107.03	39.51	112.581	39.23	114.67	39.52
117.251	39	120.89	38.22	121.251	38.15	122.08	38	123.79	37.67
126.88	37.13	127.31	37.05	127.63	37	130.33	36.53	132.23	36.21
132.81	36.11	133.55	36	135.18	35.74	135.79	35.65	138.08	35.39
141.36	35	142.08	34.92	143.12	34.78	145.45	34.5	146.53	34.36
149.3	34	152.1	33.62	152.92	33	153.88	33.45	155.25	33.32
155.81	33.27	156.03	33.28	156.31	33.29	156.75	33.28	157.09	33.27
157.98	33.2	160.56	33	165.731	32.94	167.35	32.81	174.37	32.62
180.69	32.11	181.29	32.08	182.16	32	184.03	31.96	193.44	31.81
194.54	31.75	201.311	31.63	202.99	31.57	204.21	31.53	205.92	31.5
206.79	31.48	208.41	31.45	212.26	31.38	221.86	31.22	223.889	31.19
227.79	31.3	230.66	31.31	236.58	31.3	248	31.2	249.69	31.18
252.52	31	292.51	30.82	294.2	30.92	294.33	30.93	297.26	30.95
297.56	30.97	298.9	30.95	300.56	30.83	301.6	30.23	305.8	28.73
310	27.87	315.7	28.28	323.7	28.13	328.5	28.84	336.299	32.28
358.5	33	362.27	33.22	363.63	33.27	365.41	33.35	367.23	33.45
370.659	33.6	374.48	33.76	379.999	34	381.29	34.05	381.99	34.07
387.74	34.28	388.221	34.29	393.6	34.45	396.88	34.52	405.25	34.92
406.33	34.96	407.02	35	430.53	35.6	431.2	35.62	431.62	35.63
433.1	35.67	436.29	35.76	442.18	36	451.049	36.77	455.76	37
456.64	37.08	458.57	37.2	460.77	37.38	463.6	37.5	466.33	37.83
467.69	38	469.23	38.38	471.8	39	473.05	39.29	475.94	40
476.22	40.05	481.06	41	482.87	41.42	484.409	41.85	484.95	42
486.44	42.81	486.78	43	487.35	43.32	488.61	44	489.26	44.35
490.43	45	490.87	45.23	492.26	46	493.95	46.92	494.079	47
495.77	48	497.18	48.88	497.4	49	498.5	49.65	499.07	50
499.23	50.1	500.81	51	502.12	51.65	502.36	51.78	502.81	52
504.02	52.59	504.861	53	506.04	53.59	506.861	54	507.51	54.19
508.03	54.33	508.26	54.38	511.13	55	513.429	55.54	515.89	55.86
516.23	55.93	516.8	56	517.16	56.04	518.02	56.18		

Manning's n Values  
 Sta 0 .055 298.9  
 num= 3  
 Sta n Val Sta n Val  
 .035 336.299 .08

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 298.9 336.299 90.14 82.15 91.98 .3 .5  
 Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 282.45 34 F  
 348.95 518.02 35.19 F

CULVERT

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 6866

INPUT  
 Descri pti on: SURVEYED - 14.25 Andrews Dri ve Culverts -  
 Page 125

Goodwiv esDari enEX. rep

EXISTING - Updated

deck, parapet, and culverts, extended road deck with town topo, estimated embankment side slope from topo, measured road deck width in field. Skew angle of 27degrees measured from survey/topo.

DUP - deleted adjacent cross sections, identical to current face sections

Distance from Upstream XS = 22.5

Deck/Roadway Width = 30

Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates

num= 12

Sta	Hi	Cord	Lo Cord	Sta	Hi	Cord	Lo Cord	Sta	Hi	Cord	Lo Cord
98.6		35		183.6		34		258.6		34	
294.8	35.1			301.6	35.11			301.6	38.64		
316.2	38.64			329.9	38.48			329.9	35.19		
339	35.45			457.6	36			528.6	37		

Upstream Bridge Cross Section Data

Station Elevation Data num= 229

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	68.06	.74	68	1.2	67.96	1.6	67.92	4	67.68
4.09	67.67	6.33	67.48	9.509	67	9.67	66.91	10.2	66.6
10.35	66.51	11.21	66	11.6	65.77	12.85	65	13.25	64.76
14.44	64	14.67	63.86	15.98	63	16.11	62.92	17.49	62
17.55	61.96	18.99	61	19.01	60.99	19.79	60.46	20.41	60.03
20.46	60	21.47	59.26	21.739	59.06	21.83	59	22.01	58.88
23.32	58	24.71	57.12	24.89	57	24.97	56.95	26.5	56
27.521	55.36	28.12	55	28.67	54.66	29.75	54	30.66	53.44
31.45	53	32.189	52.59	33.24	52	34.91	51.1	35.04	51.03
35.09	51	36.48	50.26	36.98	50	38.02	49.45	38.92	49
39.65	48.62	40.91	48	41.37	47.77	43.02	47	43.861	46.82
44.199	46.75	47.02	46.2	48.05	46	50.56	45.51	53.26	45
53.761	44.9	54.39	44.79	58.62	44	60.49	43.66	62.05	43.43
63.05	43.29	65.439	43	70.07	42.44	73.85	42	78.27	41.45
78.97	41.35	79.61	41.27	81.29	41	84.07	40.53	85.83	40.23
87.05	40	90.24	39.86	90.75	39.85	91.95	39.83	97.64	39.64
99.25	39.61	105.18	39.59	107.03	39.51	112.581	39.23	114.67	39.52
117.251	39	120.89	38.22	121.251	38.15	122.08	38	123.79	37.67
126.88	37.13	127.31	37.05	127.63	37	130.33	36.53	132.23	36.21
132.81	36.11	133.55	36	135.18	35.74	135.79	35.65	138.08	35.39
141.36	35	142.08	34.92	143.12	34.78	145.45	34.5	146.53	34.36
149.3	34	152.1	33.62	152.92	33	153.88	33.45	155.25	33.32
155.81	33.27	156.03	33.28	156.31	33.29	156.75	33.28	157.09	33.27
157.98	33.2	160.56	33	165.731	32.94	167.35	32.81	174.37	32.62
180.69	32.11	181.29	32.08	182.16	32	184.03	31.96	193.44	31.81
194.54	31.75	201.311	31.63	202.99	31.57	204.21	31.53	205.92	31.5
206.79	31.48	208.41	31.45	212.26	31.38	221.86	31.22	223.889	31.19
227.79	31.3	230.66	31.31	236.58	31.3	248	31.2	249.69	31.18
252.52	31	292.51	30.82	294.2	30.92	294.33	30.93	297.26	30.95
297.56	30.97	298.9	30.95	300.56	30.83	301.6	30.23	305.8	28.73
310	27.87	315.7	28.28	323.7	28.13	328.5	28.84	336.299	32.28
358.5	33	362.27	33.22	363.63	33.27	365.41	33.35	367.23	33.45
370.659	33.6	374.48	33.76	379.999	34	381.29	34.05	381.99	34.07
387.74	34.28	388.221	34.29	393.6	34.45	396.88	34.52	405.25	34.92
406.33	34.96	407.02	35	430.53	35.6	431.2	35.62	431.62	35.63
433.1	35.67	436.29	35.76	442.18	36	451.049	36.77	455.76	37
456.64	37.08	458.57	37.2	460.77	37.38	463.6	37.5	466.33	37.83
467.69	38	469.23	38.38	471.8	39	473.05	39.29	475.94	40
476.22	40.05	481.06	41	482.87	41.42	484.409	41.85	484.95	42
486.44	42.81	486.78	43	487.35	43.32	488.61	44	489.26	44.35

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490.43	45	490.87	45.23	492.26	46	493.95	46.92	494.079	47
495.77	48	497.18	48.88	497.4	49	498.5	49.65	499.07	50
499.23	50.1	500.81	51	502.12	51.65	502.36	51.78	502.81	52
504.02	52.59	504.861	53	506.04	53.59	506.861	54	507.51	54.19
508.03	54.33	508.26	54.38	511.13	55	513.429	55.54	515.89	55.86
516.23	55.93	516.8	56	517.16	56.04	518.02	56.18		

Manni ng' s n Values num= 3

Sta n Val	Sta n Val	Sta n Val
0 .055	298.9	.035 336.299

Bank Sta: Left Right Coeff Contr. Expan.

298.9	336.299	.3	.5
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Ineffecti ve Flow num= 2

Sta L	Sta R	Elev	Permanent
0	282.45	34	F
348.95	518.02	35.19	F

Downstream Deck/Roadway Coordi nates

num= 11

Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord
149.499		34			224.5		34			260.7		35.1		
267.5		34.7			267.5		37.89			282.1		38.12		
295.8		38.23			295.8		34.95			304.9		35.45		
423.5		36			494.5		37							

Downstream Bridge Cross Secti on Data

Stati on Elevati on Data num= 214

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	67.34	2.721	67	3.37	66.64	4.45	66	4.74	65.83
5.68	65.27	6.16	65	6.79	64.65	7.171	64.43	7.92	64
8.01	63.95	8.12	63.89	9.12	63.26	9.53	63	10.41	62.45
11.12	62	12.39	61.19	12.69	61	13.68	60.38	14.27	60
15.32	59.39	15.92	59	16.86	58.34	17.35	58	17.57	57.85
18.32	57.32	18.6	57.12	18.76	57	19.7	56.32	20.16	56
21.08	55.34	21.55	55	21.79	54.83	22.961	54	23.08	53.91
24.37	53	24.409	52.97	25.21	52.4	25.75	52.02	25.78	52
25.84	51.96	27.2	51	28.34	50.2	28.62	50	29.69	49.25
30.05	49	31.06	48.29	31.48	48	32.48	47.34	32.99	47
35.639	46.3	36.8	46	39.21	45.37	40.6	45	41.1	44.87
43.17	44.33	43.8	44.16	44.45	44	46.29	43.53	48.4	43
49.27	42.78	52.41	42	52.58	41.96	53.55	41.72	56.03	41.11
56.51	41	59.099	40.37	60.7	40	60.98	39.93	63.9	39.25
65.04	39	70.04	38.77	71.17	38.72	73.9	38.78	74.3	38.76
75.5	38.69	79.01	38.51	80.62	38.42	81.06	38.41	82.39	38.3
83.19	38.25	85.48	38	87.89	37.7	92.17	37.18	92.92	37.09
93.63	37	96.41	36.66	97.56	36.52	101.07	36	101.7	35.91
105.95	35	111.31	34.14	112.07	34	124.32	33.69	130.42	33.82
137.67	33.92	138.269	33.91	143.42	33.98	143.491	33.99	144.31	34
169.061	33.78	169.7	33.81	171.52	33.83	193.43	33	224.24	32.88
225.94	32.67	231.96	32	235.26	31.9	239.229	31.82	240.17	31.81
240.42	31.8	243.52	31.74	246.04	31.59	247.83	31.55	249.28	31.53
251.93	31.55	252.29	31.56	256.51	31.71	258.08	31.77	260.16	31.72
262.75	31.7	262.8231.69909	26.07	293.5	31.54	268.1	28.05	274.3	26.71
281	26.33	289.599	26.07	293.5	26.83	293.8	28.14	300.9	31.49
303.11	32	326.82	32.11	327.68	32.34	330.31	33	332.24	33.49
333.45	33.75	334.42	34	336.5	34.48	338.26	35	344.47	35.38
345.59	35.45	345.971	35.47	346.421	35.5	347.12	35.54	354.201	36
355.69	36.45	357.429	37	358.22	37.24	359.34	37.59	360.61	38
361.97	38.44	363.75	39	364.541	39.3	366.38	40	366.53	40.07
368.71	41	369.16	41.19	370.81	42	372.219	42.69	372.65	42.9
372.85	43	373.69	43.42	374.87	44	376	44.56	376.65	44.88
376.881	45	377.23	45.2	378.58	46	379.95	46.81	380.26	47



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380.42	47.09	382.03	48	382.93	48.51	383.8	49	384.21	49.24
385.551	50	385.73	50.11	386.559	50.58	387.12	50.9	387.3	51
388.43	51.65	389.04	52	390.28	52.43	392.08	53	394.48	53.75
394.84	53.85	395.44	54	399.16	54.99	399.21	55	405	56
407.25	56.21	410.469	56.5	416.31	57	420.11	57.2	423.44	57.25
423.921	57.29	424.64	57.32	425.06	57.35	425.73	57.4	429.29	57.51
429.73	57.55	430.17	57.58	430.69	57.61	434.41	57.85	435.17	57.89
435.261	57.9	436.039	57.95	436.51	57.97	436.73	58	437.77	58.04
438.53	58.08	439.261	58.12	439.56	58.15	439.78	58.18		

Manni ng' s n Val ues num= 3  
 Sta n Val Sta n Val Sta n Val  
 0 .07 262.82 .035 303.11 .07

Bank Sta: Left Right Coeff Contr. Expan.  
 262.82 303.11 .3 .5  
 Ineffecti ve Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 251.1 33.48 F  
 312.1 439.78 33.48 F

Upstream Embankment side slope = 3.55 hori z. to 1.0 verti cal  
 Downstream Embankment side slope = 3.59 hori z. to 1.0 verti cal  
 Maxi mum allowabl e submergence for wei r flow = .98  
 Elevati on at whi ch wei r flow begi ns = 34  
 Energy head used i n spi llway desi gn =  
 Spi llway hei ght used i n desi gn =  
 Wei r crest shape = Broad Crested

Number of Culverts = 2

Culvert Name Shape Rise Span  
 Culvert #1 Ellipse 5.5 9  
 FHWA Chart # 29- Horizontal Ellipse; Concrete  
 FHWA Scale # 1 - Square edge with headwall  
 Soluti on Cri teria = Hi ghest U. S. EG  
 Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef  
 Exit Loss Coef  
 1 22.5 30 .012 .012 0 .5  
 Upstream Elevati on = 28.69  
 Centerl i ne Stati on = 309.45  
 Downstream Elevati on = 27.55  
 Centerl i ne Stati on = 275.35

Culvert Name Shape Rise Span  
 Culvert #2 Ellipse 5.5 9  
 FHWA Chart # 29- Horizontal Ellipse; Concrete  
 FHWA Scale # 1 - Square edge with headwall  
 Soluti on Cri teria = Hi ghest U. S. EG  
 Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef  
 Exit Loss Coef  
 1 22.5 30 .012 .012 0 .5  
 Upstream Elevati on = 28.47  
 Centerl i ne Stati on = 321.95  
 Downstream Elevati on = 27.3  
 Centerl i ne Stati on = 287.85

CROSS SECTION

RIVER: Goodwi ves Ri ver

REACH: mai nstem

RS: 6800

INPUT

Descr iption: SURVEYED - 14.1 D/S Face of Andrews Drive -

EXI STING -

Updated in channel with survey, overbank with town topo. Updated Ineffective Flow Areas. LOB .055 to .07 for sparse trees, ROB from .08 to .07 for sparse trees.

REVDUP - corrected Ineffective

Flow Areas for culverts to use 1:1 contraction and 1.5:1 expansion and average of min top of road elevation and max low chord

DUP

- removed upstream section 14.2 duplicate of this section previously located at exact edge of bridge

Station	Elevation	Data	num=	214	Sta	Elev	Sta	Elev	Sta	Elev
0	67.34	2.721	67	3.37	66.64	4.45	66	4.74	65.83	
5.68	65.27	6.16	65	6.79	64.65	7.171	64.43	7.92	64	
8.01	63.95	8.12	63.89	9.12	63.26	9.53	63	10.41	62.45	
11.12	62	12.39	61.19	12.69	61	13.68	60.38	14.27	60	
15.32	59.39	15.92	59	16.86	58.34	17.35	58	17.57	57.85	
18.32	57.32	18.6	57.12	18.76	57	19.7	56.32	20.16	56	
21.08	55.34	21.55	55	21.79	54.83	22.961	54	23.08	53.91	
24.37	53	24.409	52.97	25.21	52.4	25.75	52.02	25.78	52	
25.84	51.96	27.2	51	28.34	50.2	28.62	50	29.69	49.25	
30.05	49	31.06	48.29	31.48	48	32.48	47.34	32.99	47	
35.639	46.3	36.8	46	39.21	45.37	40.6	45	41.1	44.87	
43.17	44.33	43.8	44.16	44.45	44	46.29	43.53	48.4	43	
49.27	42.78	52.41	42	52.58	41.96	53.55	41.72	56.03	41.11	
56.51	41	59.099	40.37	60.7	40	60.98	39.93	63.9	39.25	
65.04	39	70.04	38.77	71.17	38.72	73.9	38.78	74.3	38.76	
75.5	38.69	79.01	38.51	80.62	38.42	81.06	38.41	82.39	38.3	
83.19	38.25	85.48	38	87.89	37.7	92.17	37.18	92.92	37.09	
93.63	37	96.41	36.66	97.56	36.52	101.07	36	101.7	35.91	
105.95	35	111.31	34.14	112.07	34	124.32	33.69	130.42	33.82	
137.67	33.92	138.269	33.91	143.42	33.98	143.491	33.99	144.31	34	
169.061	33.78	169.7	33.81	171.52	33.83	193.43	33	224.24	32.88	
225.94	32.67	231.96	32	235.26	31.9	239.229	31.82	240.17	31.81	
240.42	31.8	243.52	31.74	246.04	31.59	247.83	31.55	249.28	31.53	
251.93	31.55	252.29	31.56	256.51	31.71	258.08	31.77	260.16	31.72	
262.75	31.7	262.82	31.69	263.5	31.54	268.1	28.05	274.3	26.71	
281	26.33	289.599	26.07	293.5	26.83	293.8	28.14	300.9	31.49	
303.11	32	326.82	32.11	327.68	32.34	330.31	33	332.24	33.49	
333.45	33.75	334.42	34	336.5	34.48	338.26	35	344.47	35.38	
345.59	35.45	345.971	35.47	346.421	35.5	347.12	35.54	354.201	36	
355.69	36.45	357.429	37	358.22	37.24	359.34	37.59	360.61	38	
361.97	38.44	363.75	39	364.541	39.3	366.38	40	366.53	40.07	
368.71	41	369.16	41.19	370.81	42	372.219	42.69	372.65	42.9	
372.85	43	373.69	43.42	374.87	44	376	44.56	376.65	44.88	
376.881	45	377.23	45.2	378.58	46	379.95	46.81	380.26	47	
380.42	47.09	382.03	48	382.93	48.51	383.8	49	384.21	49.24	
385.551	50	385.73	50.11	386.559	50.58	387.12	50.9	387.3	51	
388.43	51.65	389.04	52	390.28	52.43	392.08	53	394.48	53.75	
394.84	53.85	395.44	54	399.16	54.99	399.21	55	405	56	
407.25	56.21	410.469	56.5	416.31	57	420.11	57.2	423.44	57.25	
423.921	57.29	424.64	57.32	425.06	57.35	425.73	57.4	429.29	57.51	
429.73	57.55	430.17	57.58	430.69	57.61	434.41	57.85	435.17	57.89	
435.261	57.9	436.039	57.95	436.51	57.97	436.73	58	437.77	58.04	
438.53	58.08	439.261	58.12	439.56	58.15	439.78	58.18			

Goodwiv esDari enEX. rep

Manning's n Values  
 Sta n Val Sta  
 0 .07 262.82

num= 3  
 n Val Sta n Val  
 .035 303.11 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 262.82 303.11 72.05 76.57 79.05 .3 .5

Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 251.1 33.48 F  
 312.1 439.78 33.48 F

CROSS SECTION

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem RS: 6724

INPUT  
 Description: UPDATED - 13.0 FEMA G - DS section of Andrews Drive

EXISTING - Overbank elevations updated. N-values updated. LOB .055 to .07 for sparse trees, ROB from .08 to .07 for sparse trees and .1 for home.

Station	Elevation	Data	num=	247	Sta	Elev	Sta	Elev	Sta	Elev
0	66.11	1.4	66.31	2.37	66.45	2.5	66.47	3.3	66.57	
5.37	66.84	5.72	66.88	5.91	66.89	6.04	66.9	8.17	66.97	
13.17	66.81	14.1	66.74	14.24	66.73	14.59	66.68	16.56	66.35	
18.37	66	19.03	65.88	19.49	65.79	23.35	65	23.38	64.99	
23.45	64.97	25.56	64.3	25.96	64.15	26.34	64	27.55	63.53	
28.86	63	29.41	62.78	31.33	62	31.41	61.97	31.84	61.79	
33.12	61.23	33.61	61	34.4	60.65	34.86	60.42	35.62	60	
35.92	59.82	37.38	59	38.23	58.48	39.12	58	40.7	57.19	
41.06	57	42.19	56.42	42.94	56.03	43	56	44.23	55.32	
44.81	55	45.19	54.79	46.6	54	47.72	53.37	48.39	53	
49.9	52.15	50.17	52	51.92	51	51.99	50.97	53.66	50	
54.14	49.72	55.38	49	56.68	48.24	57.08	48	57.13	47.97	
58.77	47	59.24	46.84	61.46	46	62.08	45.79	64.23	45	
65.08	44.71	67.07	44	68.26	43.6	70	43	71.62	42.45	
72.98	42	74.12	41.62	76.01	41	76.3	40.91	76.7	40.78	
79.14	40	80.16	39.67	82.05	39.15	82.62	39	85.84	38.36	
88.61	38	91.1	37.71	93.03	37.49	94.38	37.31	97.19	37	
106.21	36.02	106.42	36	106.7	35.98	112.68	35.61	115.57	35.44	
117.04	35.32	121.72	35.1	123.15	35	185.08	34.9	185.33	34.86	
188.07	34.55	191.34	34.15	191.9	34.13	192.05	34.12	192.43	34.08	
196.56	34	202.19	33.87	202.8	33.86	208.92	34	209.64	34.02	
210.92	34.03	212.71	34	214.86	33.97	219.02	33.98	219.64	34	
220.47	34.04	224.55	34.33	225.62	34.43	227.51	34.57	230.73	34.91	
230.84	34.92	231.56	35	232.49	35.09	232.68	35.11	234.11	35.25	
234.66	35.29	236.1	35.43	236.17	35.44	236.84	35.46	238.38	35.59	
238.95	35.62	242.13	35.6	242.96	35.59	244.62	35.53	246.52	35.45	
248.24	35.38	251.03	35.2	252.13	35.13	253.45	35	254.2	34.94	
257.14	34.71	258.8	34.61	262.45	34	262.51	33.98	265	27.9	
268	26.9	272	26.4	282	26.4	286	26.9	290	27.9	
293.67	30.91	294.21	31	295.37	31.06	295.67	31.07	297	31.12	
297.07	31.13	319.66	32	320.01	32.14	320.65	32.33	322.68	33	
324.08	33.43	325.56	34	330.39	34.28	333.25	34.5	334.13	34.56	
336.08	34.7	339.86	35	340.38	35.2	341.57	35.6	342.85	36	
344.13	36.4	345.89	37	346.99	37.38	348.99	38	351.24	38.72	
352.37	39	352.98	39.24	354.97	40	356.03	40.54	356.99	41	
358.57	41.81	358.95	42	359.8	42.44	360.92	43	361.52	43.31	
362.89	44	364.1	44.64	364.82	45	366.42	45.89	366.66	46	
367.56	46.51	367.93	46.71	368.43	47	368.99	47.33	370.18	48	

Goodwi vesDari enEX. rep

371.19	48.63	371.84	49	372.48	49.38	373.41	50	374.35	50.66
374.88	51	375.86	51.76	376.22	52	376.77	52.27	378.14	53
379.52	53.7	380.18	54	381.51	54.59	382.36	55	383.63	55.48
385.18	56	391.4	56.61	397.91	57	404.03	57.62	407.46	58
413	58.58	416.48	59	420.39	59.43	424.82	60	429.58	60.57
432.02	61	433.4	61.19	437.37	62	439.58	62.61	441.06	63
443.69	63.71	444.78	64	448.45	64.98	448.53	65	448.55	65.01
451.92	66	452.75	66.33	454.45	67	455.68	67.49	456.98	68
458.06	68.43	459.51	69	460.38	69.35	462.04	70	462.79	70.3
464.58	71	465.24	71.26	467.11	72	467.71	72.24	469.66	73
470.21	73.22	472.19	74	475.01	74.77	475.84	75	477.35	75.35
480.2	76	480.76	76.13						

Manning's n	Values	num=	4				
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.07	262.45	.035	293.67	.07	375.86	.1

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	262.45	293.67		153.4	144.26		.3	.5
Blocked Obstructions			num=	1				
Sta L	Sta R	Elev						
378.66	424.6	72.75						

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 6579

INPUT  
 Description: NEW SURVEY - new section added downstream of Andrews

HOME on  
 right just downstream FFE @ 52.49'

EXISTING - new section in  
 narrow area between andrews drive and dam #6. Overbank from topo,  
 channel from survey.

Station	Elevation	Data	num=	215					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	62.75	1.08	63	1.36	63.06	1.6	63.12	3.17	63.42
3.57	63.49	6	63.78	6.64	63.86	6.78	63.87	7.17	63.86
7.57	63.82	9.57	63.54	9.8	63.53	10.25	63.52	10.56	63.51
10.8	63.46	11.52	63.32	12.65	63	13.92	62.66	14.46	62.51
14.88	62.4	15.12	62.33	16.02	62.06	16.06	62.04	16.2	62
17.19	61.68	18.12	61.38	18.62	61.21	19.26	61	20.27	60.67
22.15	60.06	22.26	60.02	22.33	60	23.98	59.45	25.29	59.02
25.33	59.01	25.36	59	27.25	58.33	28.18	58	29.37	57.58
31.03	57	32.55	56.51	33.05	56.37	33.93	56.12	34.34	56
36.25	55.64	36.54	55.61	37.21	55.62	42.36	55.49	44.47	55.5
46.3	55.56	48.23	55.58	48.98	55.6	49.48	55.62	50.43	55.66
51.76	55.74	52.27	55.78	52.41	55.79	54.2	55.83	55.58	55.74
57.16	55.66	58.08	55.61	59.17	55.54	64.31	55.06	64.52	55.04
64.65	55.03	64.82	55.02	64.88	55.01	65.13	55	65.77	54.93
65.89	54.9	70.43	54	72.65	53.55	74.57	53	75.43	52.76
77.69	52	78	51.89	80.42	51	81.44	50.61	82.77	50
82.95	49.91	83.3	49.71	83.58	49.55	84.53	49	84.9	48.79
86.19	48	86.39	47.89	87.8	47	87.99	46.89	89.38	46
89.45	45.95	90.91	45	90.92	44.99	91.18	44.82	92.38	44.03
92.42	44	93.79	43.09	93.91	43	95.16	42.16	95.39	42
96.45	41.28	96.85	41	97.56	40.51	98.17	40.09	98.3	40
98.73	39.69	99.62	39	100.02	38.76	101.3	38	102.45	37.38
103.16	37	104.93	36.05	105.7	34.95	116.3	27.31	120.9	26.45

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126.1	26.86	129.7	27.2	133.4	27.61	141	32.28	144.16	32.45
148.07	33	160.17	33.97	160.61	34	161.22	34.16	164.68	35
166.41	35.69	167.19	36	169.63	36.96	169.74	37	169.91	37.02
169.97	37.03	176.32	37.74	180.98	38	195.53	38.72	196.33	38.76
197.24	38.81	197.4	38.82	198.24	38.87	199.4	38.93	199.65	38.95
200.87	39	210.31	39.34	211.4	39.4	214.01	40	214.57	40.13
218.1	41	221.44	41.81	222.24	42	222.8	42.13	226.46	43
229.45	43.71	230.72	44	232.35	44.38	235.01	45	238.12	45.75
238.94	46	239.95	46.61	240.59	47	242.19	47.97	242.24	48
242.27	48.02	243.83	49	244.67	49.52	245.45	50	246.71	50.76
247.09	51	248.62	51.91	248.77	52	250.43	53	250.44	53.01
252.01	53.95	252.11	54	253.57	54.91	253.72	55	253.91	55.12
255.25	56	255.59	56.21	256.8	57	257.39	57.37	258.35	58
259.51	58.73	259.93	59	260.19	59.17	260.5	59.36	261.49	60
262.82	60.81	263.18	61	263.61	61.26	264.94	62	265.48	62.33
266.63	63	267.41	63.49	268.26	64	269.73	64.94	269.83	65
269.92	65.06	271.48	66	273.1	66.64	273.93	67	275.02	67.51
276.04	68	277.21	68.55	278.14	69	279.32	69.56	280.24	70
282.02	70.86	282.33	71	283.01	71.33	284.41	72	285	72.29
286.48	73	287.68	73.59	288.52	74	289.5	74.36	290.04	74.56

Manning's n Values num= 3  
 Station Val Sta n Val Sta n Val  
 0 .08 105.7 .035 141 .04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 105.7 141 506.88 512.44 513.22 .1 .3

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 6067

INPUT  
 Description: SURVEYED- FEMA F - Pond upstream of Dam #6

EXISTING - Updated  
 in channel with survey, overbank with town topo.

(HEC-2 SECTION

12.0) This section represented Crest of Dam#6, here modeled dam #6 as an inline structure and surveyed the pond upstream of the dam. Updated overbank with town topo.

Station Elevation Data num= 365									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	67.44	13.16	67	24.5	66.1	24.84	66.07	25.35	66
25.98	65.9	26.53	65.75	29.25	65	31.28	64.36	32.43	64
33.32	63.69	35.31	63	36.8	62.51	38.79	62	41.55	61.29
42.64	61	45.53	60.13	46	60	46.22	59.93	49.34	59
52.59	58.02	52.67	58	52.72	57.98	55.97	57	56.14	56.95
58.63	56.17	59.14	56.01	59.17	56	66.27	55	75.83	54.44
87.45	54	90.76	53.81	91.46	53.76	106.8	53	111.07	52.75
111.27	52.73	123.23	52	123.91	51.94	127.6	51	128.39	50.76
130.82	50	131.69	49.74	134.08	49	136.61	48.23	137.41	48
139.51	47.03	139.58	47	139.66	46.94	140.91	46	141.41	45.62
142.2	45	142.64	44.65	143.48	44	144.21	43.44	144.76	43
145.84	42.17	146.05	42	146.3	41.83	147.54	41	149.1	40.12
149.33	40	150.65	39.29	151.2	39	151.4	38.89	153.05	38
153.51	37.75	154.88	37	156.24	36.25	156.7	36	156.91	35.88
158.51	35	159.02	34.71	160.32	34	161.1	33.57	162.12	33
163.55	32.2	163.92	32	164.38	31.9	168.32	31	171.34	30.48
174.03	30	177.4	29.4	179.74	29	183.71	28.17	184.87	28

Goodwi vesDari enEX. rep

188.07	27.32	189.61	27	192.94	26.3	194.45	26	196.96	25.45
199.06	25	200.47	24.7	202.77	24.22	203.83	24	203.91	23.97
205.23	23	206.11	22.35	206.58	22	212	20.21	220.3	20.11
223.2	20.78	231.5	20.75	233.5	21.08	235.9	22.46	237.97	23
239.06	23.28	241.53	23.87	242.07	24	242.53	24.1	246.26	25
249.72	25.71	251.07	26	253.22	26.42	256.1	27	259.42	27.66
260.67	27.91	261.1	28	264.91	28.76	266.05	29	269.38	29.71
270.68	30	271.9	30.37	273.84	31	275.53	31.5	277.08	32
278.75	32.52	280.42	33	281	33.18	281.2	33.23	283.03	33.78
283.86	34	288.78	34.57	292.93	35	293.06	35.01	304.98	36
306.69	36.12	315.43	36.73	320.06	37	330.31	37.58	336.16	38
336.91	38.14	339.64	38.76	340.05	38.85	340.68	39	343.23	39.57
345.09	40	347.13	40.45	349.45	41	351.23	41.39	353.78	42
356.79	42.72	357.92	43	359.22	43.96	359.27	44	359.56	44.22
360.6	45	361.02	45.31	361.93	46	362.76	46.62	363.27	47
363.52	47.18	364.65	48	366.01	48.96	366.07	49	367.47	49.97
367.52	50	367.58	50.04	369.01	51	370.28	51.81	370.57	52
370.99	52.23	372.36	53	374.04	53.94	374.15	54	374.38	54.08
377.04	55	378.38	55.42	380.2	56	382.11	56.63	383.25	57
393.32	56.89	397.65	56	399.58	55.62	402.68	55	405.11	54.56
405.99	54.41	407.68	54.28	410.83	54	418.14	53.33	419.68	53.45
423.09	53.75	424.57	53.87	426.42	54	426.67	54.02	435.6	54.22
441.36	54.35	445.78	54.4	453.15	54.54	459.79	54.6	468.06	54.68
472.02	54.81	478.45	54.94	485.18	54.96	487.04	54.91	487.39	54.89
488.91	54.8	490.06	54.74	491.79	54.69	492.23	54.68	494.08	54.64
496.6	54.57	502.17	54.36	503.32	54.33	504.26	54.32	505.18	54.3
506.1	54.28	507.6	54.26	517.16	54.07	517.85	54	518.85	53.69
520.63	53	521.72	52.64	523.3	52	524.51	51.55	525.94	51
527.22	50.54	528.71	50	530.42	49.38	531.47	49	531.6	48.97
532.36	48.83	533.19	48.67	533.7	48.58	536.59	48.14	537.25	48.04
537.53	48	544.38	47.08	544.94	47	549.5	46.69	552.39	46.49
555.72	46.26	559.73	46	560.39	45.97	561.16	45.93	570.89	45.5
582.53	45	583.08	44.96	583.34	44.94	583.62	44.92	583.88	44.91
589.01	44.58	592.43	44.4	594.81	44.26	596.43	44.16	599.16	44
641.35	44.16	642.12	44.17	646.9	44.42	662.39	44.54	664.69	44.43
668.76	44.5	669.51	44.54	670.25	44.59	672.68	44.67	674.82	44.7
676.92	44.72	678.44	44.73	679.32	44.74	685.78	44.75	690.5	45
702.6	45.67	704.11	46	706.37	46.49	707.7	46.81	708.58	47
712.68	47.94	712.94	48	716.5	48.85	717.23	49	718.5	49.3
721.38	50	723.14	50.17	723.99	50.2	724.27	50.22	735.38	51
735.88	51.03	737.52	51.07	741.45	51.23	741.72	51.22	742.11	51.21
754.27	51.5	767.1	52	772.05	52.5	773	52.56	774.33	52.64
775.54	52.72	775.88	52.74	776.27	52.75	776.86	52.77	777.62	52.78
778.74	52.86	779.29	52.91	780.49	53	781.11	53.12	781.2	53.13
782.15	53.32	784.25	53.8	784.56	53.87	784.68	53.89	784.75	53.9
785.23	53.99	785.24	54	785.58	54.02	785.85	54.04	786.49	54.16
786.51	54.17	786.6	54.18	787.12	54.33	789.13	55	791.87	55.4
793.08	55.58	793.2	55.59	795.57	56	796.99	56.25	802.65	57
803.07	57.11	804.34	57.45	805.4	57.79	806.27	58	808.44	58.58
810.09	59	812.91	59.73	813.51	59.88	813.98	60	817.23	60.82
817.97	61	820.93	61.71	821.23	61.78	822.2	62	823.91	62.39
824.69	62.5	824.96	62.55	828.62	63	829.35	63.1	829.76	63.12
832.02	63.3	834.79	63.31	836.69	63.21	837.34	63.1	838.95	63.16
839	63.15	840.15	63	840.82	63.1	845.26	63.19	851.71	63.11
852.28	63.13	853.15	63.18	857.44	63.24	858.18	63.27	858.59	63.29
862.24	63.49	867.36	64	879.24	63.84	882.73	63.59	884.7	63.42

Manning's Values num= 3  
 Station Value Station Value  
 0 .08 206.58 .035 235.9 .08

Bank Station: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 206.58 235.9 52.42 81.33 85.46 .3 .5

Blocked Obstructions num= 1  
 Sta L Sta R Elev  
 70.17 101.26 64.64

INLINE STRUCTURE

RIVER: Goodwies River  
 REACH: mainstem RS: 6029

INPUT  
 Description: NEW SURVEY - DAM #6

EXISTING - Dam added as inline structure with new survey data. Previously represented as two cross sections.

Distance from Upstream XS = 38  
 Deck/Roadway Width = 2.5  
 Weir Coefficient = 2.6  
 Weir Embankment Coordinates num = 8  

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
203.83	24	206	23.59	211.8	22.12	212.3	21.03	227	20.81
227.1	22.54	233.7	23.6	242.07	24				

Upstream Embankment side slope = 0 horiz. to 1.0 vertical  
 Downstream Embankment side slope = 0 horiz. to 1.0 vertical  
 Maximum allowable submergence for weir flow = .98  
 Elevation at which weir flow begins =  
 Weir crest shape = Broad Crested

CROSS SECTION

RIVER: Goodwies River  
 REACH: mainstem RS: 5986

INPUT  
 Description: SURVEYED - 11.9 Toe of Dam #6

EXISTING - Updated in channel with survey, overbank with town topo.

Station	Elevation	Data	num=	322	Sta	Elev	Sta	Elev	Sta	Elev
0	69.15	.64	69.06	1.48	69	2.92	68.93	8.9	68	
24.76	67.19	25.61	67.15	29.11	67	29.94	66.89	41.23	66	
42.37	65.74	45.41	65	47.81	64.38	49.26	64	50.43	63.56	
51.88	63	52.89	62.56	54.15	62	54.92	61.66	56.38	61	
57.74	60.42	58.69	60	59.68	59.7	61.8	59	64.58	58.11	
64.93	58	65.35	57.86	68.28	57	69.92	56.53	71.69	56	
74.2	55.27	75.13	55	78.47	54.02	78.54	54	79.31	53.96	
90.71	53.48	99.93	53	111.64	52.54	122.32	52.21	122.91	52.2	
123.81	52.17	129.2	52	130.75	51.75	136.75	51.39	143.33	51	
145.56	50.15	145.96	50	146.7	49.73	148.68	49	149.74	48.6	
151.42	48	152.59	47.54	153.98	47	155.09	46.46	156.03	46	
157.53	45.32	158.25	45	158.87	44.74	160.44	44	161.42	43.54	
162.62	43	163.24	42.72	164.84	42	166.63	41.13	166.9	41	
167.05	40.9	168.03	40.27	168.45	40	168.56	39.93	170.01	39	
170.96	38.39	171.56	38	172.67	37.29	173.14	37	173.56	36.74	
174.75	36	175.92	35.27	176.35	35	176.93	34.63	177.95	34	
178.74	33.51	179.55	33	181.13	32.01	181.15	32	181.18	31.98	
182.94	31	183.28	30.77	184.39	30	184.65	29.83	185.83	29	
185.93	28.93	187.27	28	188.41	27.19	188.68	27	189.18	26.64	
190.08	26	190.35	25.8	191.47	25	192.73	24.11	192.87	24	

Goodwi vesDari enEX. rep

193.4	22.89	204.9	19.97	214.6	18.62	223.3	18.04	230.2	18.09
234	18.95	236.3	19.92	238.46	20.34	242.53	21	244.97	21.43
247.16	21.81	247.9	21.95	248.22	22	265.49	22.39	268.14	22.43
268.53	22.46	269.7	22.55	273.78	22.83	276.01	23	276.78	23.04
289.75	24	291.79	24.14	293.78	24.28	301.03	24.76	302.77	24.88
304.77	25	309.22	25.38	313.47	25.79	314.5	25.88	315.59	26
320.8	26.76	322.41	27	323.73	27.19	328.2	27.85	329.17	28
332.69	28.52	334.06	28.73	335.73	29	336.98	29.25	340.69	30
344	30.98	344.05	31	344.09	31.01	346.15	31.59	347.57	31.99
347.62	32	347.7	32.01	353.49	33	356.49	33.28	359.9	33.61
362.37	33.87	362.9	33.92	363.69	34	366.48	34.23	366.57	34.24
366.69	34.25	369.06	34.46	373.12	35	379.54	35.9	380.18	36
382.03	36.35	385.84	37	387.95	37.58	389.71	38	389.86	38.04
392.03	38.56	393.87	39	395.28	39.34	398.04	40	398.92	40.21
402.21	41	402.74	41.13	406.37	42	406.66	42.07	410.54	43
411.9	43.12	420.41	43.89	422.94	43.85	423.63	43.87	424.11	43.82
425.52	43.78	428.67	43.58	433.45	43	437.68	42.43	440.09	42.17
440.68	42.1	441.02	42.06	441.68	42	443.21	41.84	444.68	41.7
448.79	41.27	451.94	41	452.77	40.94	452.97	40.92	456.53	40.67
457.69	40.63	458.95	40.56	460.12	40.5	460.96	40.53	461.45	40.56
466.18	40.46	472.42	40.3	473.05	40.29	473.99	40.28	480.68	40.11
481.88	40.12	483.17	40.14	489.01	40.35	492.84	40.44	494.49	40.51
501.56	40.9	502.67	41	504.3	41.14	515.59	42	523.34	42.46
531.39	43	546.22	43.99	546.3	44	547.69	44.08	561.1	44.7
572.32	45	577.17	45.2	580.62	45.34	585.25	45.57	593.69	45.87
594.99	45.9	596.89	46	605.71	46.36	606.22	46.37	608.81	46.38
611.02	46.34	614.3	46.41	617.77	46.22	619.82	46	621.01	45.86
621.88	45.77	622.01	45.76	623.62	45.57	625.18	45.41	627.8	45.13
628.18	45.1	629.23	45	629.56	44.98	629.85	44.97	630.03	44.95
630.22	44.94	630.55	44.91	638.28	44.33	639.18	44.22	641.15	44
653.27	43.43	662.01	43	665.45	42.62	670.92	42.31	674.82	42
677.58	41.14	678.03	41	680.49	40.23	681.24	40	683.37	39.34
686.19	39	693.78	38.97	694.66	38.93	695.65	38.87	722.15	38.18
723.81	37.71	725.58	37.62	728.07	37.4	729.35	37.21	731.04	37
744.04	38.41	747.82	39	751.71	39.79	752.69	40	753	40.05
758.12	41	758.66	41.09	763.04	42	765.37	42.83	765.84	43
766.23	43.14	768.61	44	771.24	44.95	771.37	45	771.55	45.06
774.13	46	776.38	46.82	776.88	47	777.27	47.14	779.71	48
782.13	48.83	782.64	49	783.63	49.3	785.84	50	786.53	50.28
788.25	51	789.79	51.68	790.56	52	791.69	52.57	792.54	53
794.47	53.96	794.54	54	794.59	54.03	794.74	54.1	796.59	55
797.68	55.54	798.6	56	799.98	56.59	800.96	57	801.46	57.19
803.49	58	809.99	58.67	811.7	59	817.92	59.53	820.77	59.8
822.98	60	826.22	60.29	828.41	60.49	833.24	61	835.78	61.23
843.34	62	846.48	62.32						

Manning's n Values num= 3  
 Station Val Sta n Val Sta n Val  
 0 .08 193.4 .035 247.9 .08

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 193.4 247.9 282.34 260.01 200.66 .3 .5

Blocked Obstructions num= 1  
 Station L Station R Elev  
 100.16 123.19 64.64

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 5726

INPUT



Goodwiv esDari enEX. rep

Description: UPDATED - 11.0 Crest of Dam #5 - now almost gone

EXISTING -

Updated with town topo. Dam no longer in place, broken off at bed elevation.

Station Elevation Data num= 189									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	52.18	1.05	52.14	1.49	52	3.3	51.3	4.14	51
6.5	50.16	6.96	50	8.32	49.49	9.63	49	10.11	48.74
12.03	48	15.58	47.32	17.22	47	18.1	46.83	23.48	46
23.85	45.94	30.99	45	32.93	44.72	36.73	44.38	41.01	44
47.11	43.44	51.7	43	55.2	42.72	58.15	42.52	61.53	42.27
72.55	42	85.08	42.74	88.23	42.04	88.35	42.01	88.41	42
88.85	41.91	93.76	41	94.73	40.64	96.43	40	98.67	39.39
99.92	39	102.73	38.47	104.75	38	108.93	37.07	109.24	37
110.1	36.76	112.81	36	115.66	35.22	116.28	35.05	116.44	35
116.75	34.92	118.33	34.64	121.51	34.1	122.27	34	123.73	33.82
127.02	33	128.15	32.76	131.5	32	133.45	31.61	136.41	31
140.06	30.25	141.29	30	143.07	29.63	146.13	29	150.12	28.17
150.96	28	151.18	27.95	155.78	27	157.02	26.75	160.61	26
164.14	25.28	165.58	25	165.82	24.96	169.82	24.37	172.03	24
176.56	23.34	178.64	23	181.82	22.49	185.33	22	188.65	21.57
192.23	21	198.04	20.25	199.69	20	199.82	19.94	200.37	19.72
202.03	19	203.31	18.31	203.74	18.07	203.87	18	205.37	17.16
205.67	17	207.13	16.2	207.31	16.11	207.53	16	211.11	15.82
227.53	15.12	230.44	15	249.52	15.6	250.05	15.74	250.99	16
254.68	17	256.99	17.63	258.37	18	269.82	17.9	275.02	17.66
279.08	18	294.53	18.19	312.68	19	321.78	19.67	326.69	20
331.78	20.34	336.67	20.66	341.85	21	347.6	21.87	348.5	22
350.01	22.33	350.69	22.49	352.75	23	354.33	23.39	356.93	24
358.63	24.45	361	25	362.39	25.68	363.07	26	364.44	26.62
365.24	27	366.53	27.58	367.49	28	367.94	28.18	369.57	29
370.64	29.44	371.94	30	373.55	30.57	374.79	31	376.2	31.51
377.42	32	379.06	32.67	379.82	33	380.45	33.27	382.15	34
384.72	34.86	384.8	34.89	385.18	35	386.66	35.39	389.16	36
392.44	36.83	393.15	37	396.19	37.76	397.16	38	399.57	38.61
401.16	39	408.02	39.69	408.95	39.75	409.18	39.77	409.44	39.8
412.16	40	414.01	40.14	415.03	40.22	419.27	40.56	421.03	40.76
422.94	41	428.12	41.66	430.76	42	431.51	42.09	431.87	42.14
434.36	42.49	437.69	43	443.48	43.95	443.78	44	443.88	44.01
444.1	44.04	451.15	45	457.15	45.93	457.57	46	457.97	46.06
463.88	47	465.77	47.34	469.98	48	478.51	48.38	484.38	48.69
487.1	48.77	491.23	49	494.35	49.15	496.28	49.2	501.52	49.3
502.61	49.33	507.91	49.48	508.74	49.5	511.89	50	516.62	50.62
518.63	50.88	519.86	51	521.33	51.16	523.78	51.42		

Manning's n Values num= 3					
Sta	n Val	Sta	n Val	Sta	n Val
0	.075	207.31	.04	250.05	.11

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	207.31	250.05		147.85	181.67	212.52		.1	.3

Blocked Obstructions num= 1		
Sta L	Sta R	Elev
111.99	150.18	47.13

CROSS SECTION

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem RS: 5544

INPUT

Descripti on: SURVEYED - Pond upstream of Dam #4

EXI STING - (HEC-2 SECTI ON

10.0) This section represented Crest of Dam#4, here modeled dam #4 as an inline structure and surveyed the pond upstream of the dam. Updated overbank with town topo. Decreased channel n-value from .04 to .03 - sandy ponded.

Station	Elevation	Data	num=	297	Station	Elevation	Station	Elevation	Station	Elevation
0	46.52	2.57	46.43	5.6	46.33	10.31	46.17	15.29	46	
16.5	45.72	16.62	45.71	17.28	45.64	21.27	45.21	23.29	45	
26.54	44.54	28.16	44.33	31.91	44	34.52	43.79	36.17	43.62	
42.63	43	42.88	42.97	46	42.66	51.93	42	54.53	41.72	
61.51	41	62.79	40.87	63.16	40.83	65.89	40.61	67.19	40.6	
70.3	40	71.85	39.77	76.3	39	79.38	38.48	82.13	38	
86.13	37.73	90.31	37	92.38	36.33	93.33	36	100.47	35.59	
109.49	35.08	110.28	35	113.61	34.66	118.8	34.16	119.1	34.14	
120.65	34	128.68	33.63	143.51	33	155.86	32.33	163.92	32	
164.35	31.98	177.43	31	178.2	30.89	184.37	30	184.94	29.91	
190.93	29	192.15	28.81	197.46	28	199.92	27.62	203.94	27	
209.7	26.09	210.3	26	210.84	25.91	216.09	25	222.42	24.12	
223.34	24	227.47	23.58	229.77	23.4	232.16	23.22	233.15	23.15	
234.99	23	236.72	22.87	237.15	22.83	244.36	22	251.13	21.2	
252.84	21	254.84	20.76	261.25	20	264.27	19.19	264.94	19	
266.28	18.55	267.95	18	268.98	17.65	270.94	17	271.7	16.89	
275.4	15.76	286.3	14.22	291.2	14.16	294.3	13.21	296.7	13.37	
314	11.75	317.8	14.85	319.6	15.57	324.4	15.82	328.95	16	
328.98	16.01	330.96	16.32	335.14	17	337.35	17.17	347.72	18	
350.71	18.65	352.31	19	356.58	19.92	356.94	20	357.16	20.05	
361.17	20.94	361.47	21	363.65	21.53	365.51	22	367.85	22.77	
368.43	23	369.15	23.28	371	24	372.51	24.56	373.72	25	
375.16	25.79	375.51	26	375.8	26.18	377.18	27	378.21	27.61	
378.87	28	379.52	28.39	380.56	29	381.36	29.52	382.11	30	
382.99	30.65	383.46	31	384.63	31.87	384.8	32	385.31	32.38	
386.15	33	386.32	33.13	387.53	34	388.02	34.35	388.94	35	
390.03	35.85	390.22	36	390.77	36.42	391.51	37	392.07	37.43	
392.8	38	393.52	38.56	394.09	39	394.6	39.39	395.38	40	
396.59	40.94	396.67	41	396.76	41.07	397.96	42	398.38	42.33	
399.24	43	401.91	43.64	404.23	44	408.11	44.66	409.08	44.78	
409.78	44.8	416.02	44.75	418.68	44.7	426.25	44.54	428.61	44.53	
429.54	44.57	434.63	44.39	440.87	44.62	449.98	44.56	459.74	44.91	
461.15	45	463.68	45.08	471.35	45.18	472.72	45.24	473.35	45.28	
475.5	45.45	477.05	45.49	477.4	45.52	479.28	45.64	482.65	46	
490.31	46.82	490.8	46.85	492.7	46.9	493.72	47	501.62	47.55	
503.01	47.52	513.13	47.6	518.21	47.16	518.73	47.11	518.83	47.1	
519.62	47	519.79	46.97	520.99	46.73	524.26	46	527.65	45.21	
528.42	45.03	528.54	45	531.51	44.28	531.65	44.25	532.76	44	
534.22	43.7	535.37	43.46	537.32	43	538.09	42.83	538.81	42.65	
540.71	42.22	541.63	42	542.95	41.69	543.57	41.54	545.62	41	
546.65	40.72	546.72	40.69	547.76	40.38	548.87	40	553.27	39.24	
554.77	39	558.64	38.3	560.73	38	562	37.8	566.27	37	
569.97	36.27	571.64	36	576.43	35.36	579.28	35	585.49	34.17	
586.74	34	602.31	33.54	607.82	33.47	611.14	33.48	617.62	33	
621.88	32.69	622.78	32.57	624.32	32.51	625.94	32.31	627.5	32.27	
628.9	32.29	634.14	32.4	634.51	32.38	635.34	32.36	637.58	32	
640.91	31.57	642.3	31.39	643.14	31.24	644.36	31	645.82	30.76	
650.53	30	654.02	29.12	654.09	29.1	654.41	29	684.02	29.83	
685.52	30	692.63	30.76	693.42	30.83	695.96	31	702.17	31.6	
705.99	32	711.24	32.59	714.78	33	721.84	33.84	723.18	34	
728.4	34.68	731.02	35	731.35	35.04	732.11	35.1	734.46	35.24	
741.34	35.52	747.93	35.79	753.04	36	758.14	36.31	766.66	36.82	
768.46	36.93	774.77	36.89	774.86	36.88	776.31	37	793.29	38.51	
797.88	39	804.6	39.96	804.88	40	806.1	40.22	810.43	41	

Goodwi vesDari enEX. rep									
811.31	41.36	812.9	42	813.89	42.42	815	42.88	815.29	43
815.57	43.12	817.56	44	819.1	44.72	819.83	45	821.28	45.51
822.7	46	823.44	46.23	824.96	46.71	825.61	46.92	825.87	47
827.15	47.41	829	48	829.33	48.1	829.94	48.3	832.13	49
834.49	49.77	835.31	50	838.12	50.8	838.52	50.89	839.01	51
840.74	51.39	842.25	51.73						

Manning's n Values num= 3  
 Sta n Val Sta n Val Sta n Val  
 0 .04 275.4 .03 319.6 .12

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 275.4 319.6 72.56 72.49 71.04 .3 .5

INLINE STRUCTURE

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 5511

INPUT  
 Description: NEW SURVEY - (10.0 in HEC-2) Dam #4 added as inline structure.

EXISTING - added as inline structure, previously just two cross sections. Surveyed dam top and sections upstream and downstream.

Distance from Upstream XS =	32.6								
Deck/Roadway Width =	2.5								
Weir Coefficient =	2.6								
Weir Embankment Coordinates num =	9								
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev									
273 16.21 286.9 15.71 298.1 15.7 309.7 15.51 313.1 15.71									
313.8 16.2 320.1 16.62 320.3 15.89 328 15.92									

Upstream Embankment side slope = 0 horiz. to 1.0 vertical  
 Downstream Embankment side slope = 0 horiz. to 1.0 vertical  
 Maximum allowable submergence for weir flow = .98  
 Elevation at which weir flow begins =  
 Weir crest shape = Broad Crested

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 5472

INPUT  
 Description: SURVEYED - 9.9 Toe of Dam #4

EXISTING - Updated in channel with survey, overbank with town topo.

Station	Elevation	Data	num=	308	Sta	Elev	Sta	Elev	Sta	Elev
0	47.09	2.07	47	24.85	46.89	34.11	47	42.12	47.25	
43.65	47.41	46.15	47.67	49.07	48	63.64	48.99	63.77	49	
79.65	48	80.17	47.75	81.74	47	83.18	46.29	83.79	46	
84.34	45.73	85.81	45	86.77	44.53	87.81	44	89.29	43.26	
89.79	43	90.96	42.52	92.23	42	94.69	41.03	94.77	41	
96.71	40.24	97.3	40	98.47	39.53	99.85	39	100.53	38.76	
102.54	38	103.38	37.71	105.45	37	106.74	36.57	108.47	36	
111.18	35.1	111.44	35	112.46	34.71	114.44	34.13	114.85	34	

Goodwi vesDari enEX. rep

117.76	33.88	136.35	33	142.87	32.78	157.4	32	177.58	31.63
178.73	31.61	184.91	31.44	197.52	31	199.24	30.94	200.01	30.91
202.64	30.81	212.37	30.42	215.24	30.3	217.22	30.22	222.8	30
224.58	29.78	232.87	29	234.44	28.82	241.85	28	243.65	27.74
247.86	27	249.07	26.79	251.8	26.3	252.64	26.11	253.15	26
254.39	25.73	257.76	25	261.38	24.24	262.53	24	267.04	23.07
267.35	23.01	267.39	23	276.4	22.74	295	13.334	299.2	11.21
311.2	10.77	316	10.31	318.4	9.92	327.2	10.53	331.2	10.67
338.4	13.55	346.97	14	347.39	14.1	350.33	14.66	351.65	14.91
352.11	15	356.02	15.73	357.34	16	362.29	16.76	364.01	17
364.48	17.11	368.04	18	369.55	18.4	371.75	19	374.94	19.86
375.46	20	375.78	20.09	376.04	20.16	376.86	20.37	379.24	21
380.22	21.27	382.89	22	385.33	22.7	386.4	23	387.7	23.38
389.87	24	392.77	24.85	393.29	25	394.67	25.44	396.44	26
397.76	26.41	399.92	27	400.28	27.1	401.86	27.51	403.75	28
404.34	28.15	405.95	28.57	407.01	28.85	407.57	29	410.78	29.7
412.08	30	416.54	30.75	418.04	31	423.15	31.85	424.05	32
428.1	32.67	430.05	33	430.16	33.02	430.36	33.06	431.16	33.21
435.06	34	437.19	34.58	438.75	35	440.67	35.29	442.26	35.48
444.45	35.79	447.2	36	450.22	36.23	450.33	36.24	454.24	36.32
457.77	36.54	464.36	36.78	468.85	36.87	469.34	36.88	469.87	36.87
471.32	36.89	475.53	36.85	479.72	37	485.65	37.3	488.57	37.47
489.14	37.49	490.09	37.5	491.2	37.58	491.92	37.61	493.29	37.63
494.75	37.65	495.52	37.68	498.42	37.78	499.64	37.82	502.55	37.92
505.63	38	506.05	38.01	506.16	38	507.64	37.86	508.97	37.58
510.85	37.18	512.04	37.02	513.67	37	515.92	36.97	516.91	36.96
517.91	36.92	518.19	36.91	518.54	36.9	523.79	36.67	524.81	36.62
528.38	36.41	530.99	36.26	534.36	36	535.5	35.9	536.2	35.84
536.62	35.8	541.25	35.47	543.05	35.29	544.48	35.18	544.66	35.17
544.91	35.15	546.77	35	547.56	34.94	547.88	34.91	550.77	34.78
551.91	34.83	558.65	34.96	558.85	34.97	559.29	35	561.23	35.12
561.74	35.11	564.93	35.37	565.95	35.39	566.33	35.4	568.42	35.41
569.54	35.46	570.38	35.48	573.23	35.52	574.54	35.55	577.12	35.77
582.11	36	585.52	36.08	586.63	36.19	588.56	37	590.35	37.75
590.95	38	591.94	38.36	593.51	39	595.39	39.73	596.22	40
598.62	40.79	599.53	41	601.12	41.39	603.57	42	605.06	42.38
607.95	43	608.03	43.02	608.19	43.04	612.32	43.75	613.91	44
622.33	43.6	626.85	43	631.5	42.44	634.59	42	639.66	41.18
640.83	41	641.56	40.61	642.9	40	645.02	39.01	645.04	39
645.12	38.97	646.95	38.14	647.26	38	648.62	37.39	649.47	37
649.76	36.87	649.84	36.83	650.04	36.73	651.06	36.26	651.54	36
651.91	35.81	653.47	35	654.79	34.35	655.53	34	656.81	33.38
657.64	33	659.3	32.21	659.78	32	661.34	31.27	661.94	31
662.67	30.71	664.49	30	664.67	29.95	665.77	29.64	667.83	29.07
668.06	29	669.01	28.34	669.99	28.47	671.76	28	674.49	27.62
677.58	27	707.53	27.23	720.7	27.53	736.34	28	741.38	28.18
749.81	29	752.89	29.36	760.48	30	772.2	30.76	775.4	31
779.58	31.29	779.83	31.3	779.87	31.31	791.1	31.98	791.5	32
791.81	32.03	801.28	33	807.8	33.67	811.04	34	813.94	34.2
819.97	34.6	825.9	35	831.71	35.37	842.05	36	848.62	36.7
851.41	37	855.33	37.43	863.5	38.43	867.83	38.97	868.05	39
869.59	39.2	875.35	40	880.38	40.69	882.6	41	885.54	41.41
887.27	41.66	889.66	42	891.5	42.26	895.63	42.85	896.45	42.97
896.66	43	896.74	43.01	902.02	43.81				

Manning's n Values  
 Sta n Val Sta n Val  
 0 .1 295 .04 338.4 .1

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 295 338.4 280.64 230.97 190.81 .3 .5  
 Blocked Obstructions num= 1  
 Sta L Sta R Elev

173.42 205.11 44.01

CROSS SECTI ON

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem

RS: 5241

INPUT

Descr iption: SURVEYED - 9.0 FEMA E - Constricti on at Dam #3

EXI STING -

Updated in channel with survey, overbank with town topo.

Station	Elevation	Data	num=	316	Station	Elevation	Station	Elevation	Station	Elevation
0	52.49	.66	52.1	.78	52.03	.83	52	1.06	51.86	
2.45	51	2.68	50.91	3.28	50.66	4.48	50.16	4.84	50	
6.23	49.44	7.27	49	8.79	48.35	9.64	48	10.67	47.57	
11.92	47	13.95	46.08	14.13	46	14.44	45.85	16.32	45	
17.48	44.44	18.38	44	19.11	43.64	20.41	43	21.59	42.53	
23.08	42	24.66	41.33	25.48	41	27.73	40.1	27.98	40	
28.13	39.94	28.32	39.87	30.06	39.25	30.89	39	32.85	38.39	
34.07	38	35.91	37.28	36.62	37	37.09	36.82	39.27	36	
39.72	35.83	41.8	35.1	42	35.03	42.08	35	42.22	34.95	
45.18	34	48.55	33.01	48.58	33	48.65	32.98	48.81	32.94	
51.82	32.15	52.51	32	55.79	31.3	57.29	31	60.83	30.66	
61.38	30.62	61.54	30.61	66.48	30.31	69.11	30.13	69.16	30.12	
71.47	30	97.61	29.3	100.47	29.41	104.73	29.29	104.75	29.3	
107.47	29.44	109.07	29.42	111.85	29.36	112	29.35	113.45	29.36	
115.68	29	119.69	28.49	121.05	28.11	121.45	28	122.7	27.68	
125.37	27	130.34	26.04	131.05	26	136.36	25.77	140.85	25.75	
141.62	25.57	141.85	25.53	144.12	25.51	145.48	25.53	146.74	25.54	
149.25	25.55	152.55	25.63	154.35	25.55	157.02	25.45	159.21	25.44	
163.57	25.33	166.23	25.23	171.74	25	172.03	24.98	177.22	24.82	
178.1	24.8	184.12	24.77	185.01	24.76	188.37	24.74	197.09	24.67	
198.78	24.66	200.02	24.68	201.49	24.69	205.01	24.64	206.11	24.62	
206.48	24.61	212.31	24.24	212.89	24.2	214.9	24	216.36	23.87	
224.15	23	224.27	22.99	224.98	22.94	234.81	22.21	237.26	22	
248.77	21.18	251.57	21	258.32	20.6	264.08	20.33	271.37	20	
276.63	19.65	285.2	19	286.72	18.89	286.91	18.88	291.17	18.57	
293.91	18.48	298.91	18.5	304.86	18.41	307.73	18.47	311.3	18.49	
317.22	18.34	318.96	18.39	320.51	18.42	323.95	18.55	325.71	18.62	
326.97	18.64	331.23	18.73	333.48	18.77	340.05	18.88	341.05	18.89	
345.95	18.91	349.21	18.85	354.13	18.69	359.94	18.54	362.15	18.43	
363.04	18.37	364.53	18.26	366.85	18	368.72	17.79	378.16	17	
385.96	16.41	390.45	16	402.04	15.29	409.37	15	409.91	14.97	
410.6	14.94	416.04	14.7	422.92	14.29	424.48	14.2	427.28	14	
431.63	13.42	434.76	13	447.9	12.37	449.1	13.48	450.3	13.48	
451.5	9.14	455.3	6.15	458.3	5.2	460.9	5.61	464.6	8.85	
469.3	11.11	472.3	14.78	473.3	14.58	475.16	15	476.35	15.71	
476.44	15.77	476.83	16	481.04	16.69	482.62	16.95	482.95	17	
489.24	17.87	490.18	18	491.12	18.12	498.09	19	505.73	19.91	
506.08	19.95	506.48	20	507.98	20.15	515.88	21	519.9	21.79	
520.5	21.91	520.91	22	522.32	22.28	526.73	23	529.13	23.38	
532.84	24	534.64	24.31	538.96	25	540.43	25.26	545.12	26	
546.37	26.22	551.29	27	554.44	27.48	554.9	27.59	557.42	28	
571.75	27.58	573.03	27.5	574.56	27.41	575.47	27.36	576.38	27.37	
586.65	27.12	588.17	27.06	588.49	27.05	590.34	27	600.94	26.62	
604.42	26.7	607.19	26.65	608.52	26.61	614.59	26.91	615	26.88	
615.27	26.91	615.86	26.87	620.85	26.67	622.16	26.56	622.89	26.52	
625.61	26.3	627.52	26.16	629.32	26	631.46	25.82	631.76	25.79	
634.54	25.53	639.84	25.04	640.24	25	641.75	24.94	647.91	24.67	
652.64	24.59	653.01	24.58	658.92	24.39	659.8	24.38	668.99	24.41	

Goodwi vesDari enEX. rep

675.22	24.54	682.64	24.75	684.8	24.81	703.73	25	704.58	25.03
704.72	25.06	704.86	25.08	705.43	25.18	706.24	25.28	707.06	25.39
707.56	25.46	708.08	25.54	710.04	25.81	711.39	26	713.88	26.35
718.68	27	719.64	27.07	719.78	27.08	720.4	27.1	724.9	27.37
724.97	27.38	726.58	27.41	742.88	27.98	743.35	27.99	743.48	28
751.12	28.54	753.19	28.47	764.08	28.98	764.5	29	768.07	29.12
775.9	29.28	779.37	29.26	781.12	29.22	785.15	29	801.93	28.98
803.87	28.94	805.14	28.92	807.42	28.87	845.04	28	879.35	28.29
904.63	29	916.79	29.91	917.99	30	919.2	30.13	929.04	31
932.39	31.36	937.32	32	941.34	32.45	945.21	33	952.41	33.86
953.74	34	959.37	34.31	973.95	35	980.13	35.48	985.01	36
990.67	36.71	993.04	37	995.51	37.32	999.95	37.79	1000.61	37.86
1001.88	38	1007.88	38.36	1018.66	39	1021.7	39.26	1029.58	40
1030.65	40.28	1033.54	41	1035.91	41.51	1038.05	42	1042.73	42.93
1043.03	43	1043.49	43.09	1044.58	43.3	1048.09	44	1049.5	44.39
1049.64	44.43								

Manning's n Values

num=	3
Sta n Val	Sta n Val
0 .1	450.3 .04
	472.3 .1

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

450.3	472.3	51.39	49.08	51.12	.1	.3
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Blocked Obstructions num= 2

Sta L	Sta R	Elev	Sta L	Sta R	Elev
514.64	580.05	46.4	756.68	828.35	48.13

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 5191

INPUT

Description: NEW SURVEY - Downstream of Constriction at Dam #3

EXISTING -

Added section to describe channel downstream of constriction.  
 Overbank from town topo, in channel from survey. Decreased channel  
 n-value from .04 to .03 - backwatered with sand bottom.

Station Elevation Data num= 353

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	50.9	2.23	50	2.97	49.7	4.72	49	5.69	48.61
7.21	48	7.9	47.72	9.05	47.27	9.72	47	10.76	46.58
12.2	46	14.37	45.12	14.66	45	14.8	44.93	16.09	44.25
16.57	44	16.73	43.92	18.58	43	19.56	42.5	20.54	42
21.71	41.41	22.55	41	24.34	40.15	24.65	40	24.77	39.94
25.25	39.75	26.63	39.16	27.01	39	28.29	38.33	29	38
29.98	37.51	30.99	37	32.27	36.34	32.95	36	34.65	35.12
34.88	35	34.98	34.95	36.8	34	36.83	33.99	39	33
40.18	32.42	41.3	32	52.51	31.09	53.07	31.07	53.28	31.09
54	31.15	54.99	31.22	61.79	31.67	65.09	31.75	68.73	31.82
69.52	31.85	70.28	31.82	76.86	31.68	77.99	31.62	79.08	31.57
80.79	31.48	87.51	31	88.95	30.92	89.37	30.91	96	30.68
96.93	30.66	97.35	30.65	99.27	30.6	102.72	30.51	104.16	30.46
106.05	30.39	109.81	30.27	116.27	30	117.82	29.87	118.61	29.88
121.91	29.72	127.14	29.46	130.45	29.29	136.05	29	140.37	28.69
148.96	28.5	150.04	28.45	156.16	28.16	158.92	28	168.73	27.42
171.57	27.34	179.74	27	180.38	26.99	182.56	26.95	192.28	26.83
194.8	26.75	196.52	26.7	196.87	26.69	197.96	26.64	202.81	26.41
204.54	26.33	208.21	26.16	209.67	26.07	210.99	26	214.54	25.62
220.51	25	222.69	24.79	223.55	24.71	225.31	24.58	229.14	24.35
232.43	24	234.07	23.86	243.71	23	245.76	22.86	246.58	22.81

Goodwi vesDari enEX. rep

251.47	22.53	253.61	22.43	256.89	22.25	257.12	22.24	258.16	22.2
258.54	22.18	258.85	22.17	261.79	22	268.41	21.75	272.79	21.68
275.78	21.63	277.44	21.62	278.23	21.6	286.53	21.51	287.44	21.53
293.78	21.8	296.42	21.66	298.91	22	299.15	22.04	299.34	22.08
302.18	22.55	303.68	23	306	23.77	306.63	24	308.25	24.61
309.26	25	311.32	25.84	311.7	26	313.53	26.81	313.96	27
315.47	27.66	316.24	28	318	28.81	318.09	28.84	318.27	28.9
318.51	29	319.39	29.35	321.02	30	321.75	30.3	323.43	31
323.99	31.17	325.72	32	326.1	32.12	328.4	32.79	328.99	32.96
329.1	33	330.1	33.95	330.15	34	330.34	34.21	331.07	35
331.48	35.53	331.84	36	332.16	36.54	332.43	37	334.86	37.31
338.07	37.21	339.63	37.05	340.01	37	341.49	36.13	341.64	36
342.17	35.65	343.2	35	344.14	34.39	344.65	34	345.93	33.03
345.98	33	346	32.99	347.28	32	347.72	31.68	348.65	31
349.26	30.57	350.07	30	351.03	29.45	351.81	29	353.55	28.07
353.68	28	353.93	27.87	355.51	27	356.36	26.57	357.41	26
358.28	25.54	359.39	25	361.58	24.08	361.78	24	361.89	23.96
364.2	23	366.35	22.11	366.62	22	367.2	21.76	368.24	21.3
368.9	21	369.36	20.79	371.15	20	373.83	19.33	375.03	19
379.26	18.11	379.74	18	380.03	17.93	381.34	17.67	384.43	17
385.04	16.88	389.12	16	392.13	15.57	394.82	15	398.09	14.17
401.29	14	407.18	13.69	408.61	13.81	412.43	14	418.72	14.24
420.65	14	429.95	13.2	432.57	13	442.69	12.22	444.08	12
445.37	11.79	447.02	11.56	450	10.56	453.6	8.8	459.4	7.77
467.9	6.69	474.2	8.84	475.8	12.04	479.84	12.73	480.67	13
481.12	13.15	484.32	14	485.85	14.47	488.07	15	490.67	15.71
491.39	15.87	491.97	16	493.17	16.14	500.33	17	502.78	17.3
505.47	17.59	509.5	18	513.94	18.42	514.37	18.46	516.19	18.57
522.12	19	528.23	19.53	528.8	19.57	532.9	20	540.53	20.46
549.21	21	554.49	21.17	556.37	21.2	556.84	21.21	564.06	21.4
565.44	21.43	569.23	21.45	573.85	21.52	574.93	21.54	584.84	22
610.86	22.25	612.37	22.33	617.77	22.63	623.55	23	641.61	23.65
644.08	23.84	646.28	24	669.5	24.08	670.91	24.12	674.04	24.18
679.58	24.28	687.85	24.44	691.11	24.51	700.23	25	721.96	25.87
722.64	25.89	724.21	25.95	724.89	25.97	725.42	26	748.24	26.08
764.3	26.21	767.7	26.23	771.13	26.25	782.03	27	809.13	27.27
851.37	28	868.7	28.76	869.11	28.82	871.11	29	872.52	29.14
873.17	29.18	876.76	29.39	887.79	29.88	889.13	29.96	892.46	30
900.91	30.39	903.08	30.69	904.01	30.81	905.26	31	909.11	31.58
911.51	32	914.93	32.57	917.47	33	918.62	33.18	920.51	33.47
922.97	33.85	925.01	34	926.18	34.08	934.58	34.63	939.4	34.94
939.82	34.97	940.31	35	947.72	35.47	955.75	36	958.14	36.02
958.24	36.03	958.98	36.04	959.5	36.06	964.43	36.21	983.67	36.78
989.16	37	996.49	37.44	1004.93	38	1005.57	38.32	1006.8	39
1007.34	39.27	1008.67	40	1009.01	40.17	1010.08	40.75	1010.51	41
1012.17	41.93	1012.3	42	1012.9	42.24	1014.66	43	1015.78	43.4
1017.47	44	1020.03	44.91	1020.27	45	1021.35	45.38	1023.09	46
1023.27	46.06	1025.77	47	1026.49	47.27	1028.45	48	1032.01	48.97
1032.1	49	1032.23	49.04	1035.33	50	1036.88	50.49	1038.54	51
1039.78	51.33	1042.15	52	1043.71	52.35				

Manning's n Values num= 3  
 Station Val Sta n Val  
 0 .1 447.02 .03 475.8 .1

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 447.02 475.8 546.68 558.91 564.9 .1 .3

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem

RS: 4633

Goodwiv esDari enEX. rep

INPUT

Description: SURVEYED - 8.1 FEMA D - U/S Section of Dam US of Goodwiv es Ri ver Road

EXISTING - Updated in channel with survey, overbank with town topo. Changed in channel n-values to reflect sand and vegetated island, from one value of .035.

DUP - Decreased

downstream distances by 10 feet to move downstream face cross section away from bridge

Station	Elevation	Data	num=	334	Station	Elevation	Station	Elevation	Station	Elevation
0	57.08	.24	57	1.1	56.71	3.24	56	4.74	55.48	
6.12	55	6.97	54.71	8.96	54	11.11	53.16	11.55	53	
12.01	52.82	14.18	52	15.21	51.61	16.82	51	18.13	50.49	
19.41	50	21.32	49.2	21.81	49	22.62	48.76	25.38	48	
27.97	47.29	29	47	29.5	46.89	31.99	46	32.02	45.99	
35.25	45	36.49	44.65	38.78	44	41.06	43.36	42.33	43	
44.37	42.42	45.88	42	47.98	41.42	49.53	41	52.23	40.23	
53.09	40	53.93	39.76	56.48	39	58.57	38.34	59.66	38	
60.38	37.66	62.25	37	63.81	36.39	64.69	36	66.06	35.59	
68.37	35	70.25	34.59	73.34	34	76.67	33.24	77.67	33	
78.46	32.81	81.87	32	84.63	31.35	86.15	31	88.42	30.48	
90.51	30	93.9	29.24	94.95	29	96.09	28.77	100.97	28	
103.97	27.57	108.51	27	110.03	26.81	115.81	26	119.07	25.97	
119.99	25.93	123.27	26	185.84	26.64	186.69	27	195.66	27.88	
196.04	27.92	196.51	27.96	196.83	28	196.94	28.01	207.34	29	
210.82	29.51	212.38	29.72	216.33	29.94	216.61	29.96	217.28	29.91	
222.71	29.98	223.91	30	228.55	30.07	228.87	30.09	232.44	30.15	
233.21	30.2	236.33	30.27	237.05	30.37	238.34	30.52	239.74	30.71	
240.32	30.79	241.79	31	242.37	31.08	242.6	31.12	244.21	31.34	
245.67	31.57	246.55	31.7	248.52	32	249.47	32.12	249.76	32.15	
251.06	32.3	251.82	32.36	253.3	32.4	253.66	32.39	254.56	32.25	
257.39	32.16	257.82	32.12	259.52	32.03	259.64	32	260.49	31.31	
260.85	31	261.71	30.25	262.01	30	262.42	29.65	263.06	29	
263.84	28.21	263.97	28.07	264.03	28	264.64	27.31	264.92	27	
265.37	26.49	265.81	26	266.14	25.64	266.72	25	266.94	24.75	
267.62	24	267.77	23.83	268.54	23	268.63	22.91	269.46	22	
269.77	21.66	270.27	21.12	270.38	21	271.18	20.14	271.31	20	
272.03	19.23	272.25	19	272.91	18.3	273.2	18	285.3	16.17	
293.5	10.06	297.7	8.5	299.8	6.92	305.1	7.06	308.4	6.78	
314.1	6.52	317.1	8.1	318.3	9.24	325.1	9.44	329.4	9.7	
330	8	333.3	7.83	339.8	7.45	346.3	6.89	350.7	6.75	
352.7	8.69	365.6	9.19	375.2	12.69	376.79	14	377.1	14.16	
378.77	15	380.56	15.91	380.77	16	382.53	16.85	382.85	17	
383.22	17.17	385	18	386.88	18.9	387.08	19	387.95	19.43	
389.17	20	389.7	20.25	391.28	21	392.66	21.65	393.38	22	
394.98	22.77	395.47	23	397.38	23.92	397.55	24	397.79	24.09	
400.25	25	403.53	25.98	403.63	26	404.28	26.17	407.47	27	
408.25	27.22	411.07	28	414.91	28.84	415.79	29	420.78	29.76	
422.12	29.99	422.17	30	451.54	30.57	451.96	30.59	457.03	30.44	
459.1	30.93	459.36	31	460.18	31.27	462.34	32	463.23	32.39	
464.09	32.67	465.01	33	465.45	33.17	466.98	34	468.72	34.92	
468.88	35	469.99	35.6	470.83	36	472.26	36.71	472.89	37	
475.38	37.88	475.58	37.9	475.75	37.95	475.91	37.94	476	37.93	
476.84	37.76	482.43	37	484.33	36.6	486.56	36	486.97	35.88	
487.71	35.62	488.29	35.6	488.55	35.59	489.59	35.44	490.71	35.3	
492.76	35.06	492.86	35.05	493.1	35	493.7	34.87	493.89	34.76	
495.14	34	495.29	33.9	496.5	33	496.87	32.71	497.47	32.25	
497.74	32	498.54	31.24	498.88	31	499.11	30.93	499.17	30.91	
500.72	30.54	502.69	30	504.06	29.62	505.99	29	508.55	28.37	



Goodwi vesDari enEX. rep

509.75	28	510.34	27.93	516.78	27	522.13	26.26	524.03	26
525.1	25.83	530.79	25	552.89	25.62	554.5	25.68	560.77	25.9
561.56	25.92	561.72	25.93	563.25	26	564.63	26.14	565.59	26.2
569.82	26.46	570.77	26.52	578.72	27	580.33	27.1	580.73	27.13
592.32	28	592.82	28.1	597.15	29	600.11	29.69	601.48	30
603.58	30.78	604.11	31	605	31.37	606.51	32	607.81	32.54
608.91	33	610.93	33.84	611.31	34	611.66	34.12	614.36	35
616.32	35.34	620.2	36	624.75	36.82	625.75	37	626.96	37.23
631.11	37.97	631.25	38	631.44	38.04	635.73	39	637.06	39.4
638.31	39.78	639.07	40	642.03	40.63	643.78	41	644.56	41.13
649.76	42	652.58	42.49	655.64	43	658.38	43.43	661.31	44
663.79	44.63	665.46	45	668.49	45.79	669.27	46	672.88	46.95
673.08	47	674.03	47.25	675.33	47.58	676.18	47.79	677	48
679.96	48.75	681.01	49	682.9	49.46	684.49	49.81	685.02	49.92
685.41	50	685.97	50.11	686.47	50.2	686.88	50.26	686.97	50.27
690.53	50.68	693.13	50.58	694.3	50.53	697.66	50.42	705.64	50
707.97	49.83	708.19	49.81	708.49	49.77	709.33	49.68	709.68	49.64
710.74	49.53	711.11	49.49	711.58	49.44	712.77	49.33		

Manni ng' s n Values		num= 5							
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	285.3	.03	318.3	.05	330	.03	375.2	.06

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.	
	285.3	375.2		40.55	39.14		.3	.5	
Blocked Obstructions	num= 2								
Sta L	Sta R	Elev	Sta L	Sta R	Elev				
107.26	121.55	34.69	436.51	465.61	48.24				

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 4593

INPUT

Descripti on: UPDATED - 8.0 U/S Face of Dam US of Goodwi ves Ri ver Road

EXISTING - Updated overbank with town topo, in channel with survey from upstream cross section. Changed in channel n-values to reflect sand and vegetated isl and, from one value of .035.

DUP - Increased downstream distances in order to move face cross sections farther from dam structure

Station Elevati on Data		num= 295							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	52.93	2.22	52.3	3.07	52	4.28	51.34	4.97	51
6.51	50.16	6.8	50	8.39	49.14	8.65	49	10	48.3
10.58	48	10.72	47.93	12.55	47	13.86	46.34	14.56	46
15.28	45.64	16.57	45	16.8	44.88	17.85	44.91	26.05	44.62
30.14	44.68	32.86	44.25	34.18	44	39.32	43.1	39.88	43
40.02	42.98	44.42	42	44.59	41.94	46.91	41	47.24	40.81
48.63	40	50.35	39	52.05	38	52.58	37.68	53.73	37
54.24	36.7	55.43	36	55.61	35.9	57.16	35	58.69	34.14
58.93	34	59.24	33.93	63.04	33	65.5	32.53	67.98	32
71.08	31.33	72.17	31.11	72.65	31	73.74	30.76	77.22	30
81.08	29.06	81.34	29	81.67	28.91	84.94	28	87.05	27.4
88.51	27	90.55	26.42	91.52	26	94.13	25.63	102.99	25.26
103.26	25.27	103.83	25.28	109.89	25.42	110.5	25.43	113.93	25.49
116.3	25.48	122.98	25.6	123.37	25.59	124.76	25.57	134.95	25
147.37	25.67	164.82	26	168.39	26.18	168.8	26.21	169.61	26.26

Goodwi vesDari enEX. rep

171.81	26.42	174.74	26.57	178.54	26.82	179.36	26.86	183.06	27
187.75	27.31	192.67	27.61	193.76	27.68	199.07	28	202.06	28.12
204.75	28.24	212.93	28.62	215.12	28.73	225.26	28.59	239.47	28
248.12	27.19	250.15	27	250.68	26.54	251.29	26	251.93	25.44
252.44	25	253.49	24.08	253.58	24	253.75	23.86	254.63	23.1
254.74	23	255.7	22.17	255.9	22	256.8	21.22	257.05	21
257.93	20.25	258.22	20	259.06	19.28	259.39	19	260.21	18.3
260.56	18	261.37	17.32	261.74	17	262.54	16.34	262.93	16
263.26	15.69	264.1	15	279.38	14.28	287.49	14	290.22	13.19
290.81	13	291.47	12.79	303.2	10.06	307.4	8.5	309.5	6.92
314.8	7.06	318.1	6.78	323.8	6.52	326.8	8.1	328	9.24
334.8	9.44	339.1	9.7	339.7	8	343	7.83	349.5	7.45
356	6.89	360.4	6.75	362.4	8.69	375.3	9.19	379.68	11
380.67	11.25	384.52	11.94	384.65	11.95	385.01	12	386.68	12.29
387.18	12.37	390.98	13	392.42	13.43	393.94	13.85	394.31	13.95
394.47	14	394.72	14.11	396.69	15	397.82	15.51	398.91	16
400.37	16.66	401.14	17	402.17	17.46	403.38	18	404.56	18.53
405.63	19	407.28	19.74	407.87	20	409.68	20.81	410.11	21
410.56	21.13	412.24	21.59	414.21	22	416.04	22.58	417.39	23
418.56	23.44	420.23	24	420.77	24.3	421.79	24.89	421.82	24.91
421.87	24.93	422.01	25	423.49	25.86	424.47	26	426.02	26.1
426.32	26.16	430.16	27	432.08	27.34	433.82	27.64	438.96	28
441.41	28.12	446.31	28	454.32	27.71	455.14	27.68	455.39	27.67
462.06	27.35	465.76	27.2	466.83	27.13	468	27.06	468.51	27.04
469.26	27	480.32	26.65	480.4	26.64	480.91	26.61	481.01	26.6
481.81	26.57	482.48	26.55	483.63	26.49	484.03	26.48	484.22	26.47
484.41	26.46	485.18	26.41	485.53	26.4	485.78	26.38	486.67	26.31
487.06	26.28	487.32	26.27	487.75	26.23	490.17	26	492.65	25.69
495.05	25.38	496.55	25.18	497.85	25	499.75	24.65	503.3	24
503.79	23.92	505.67	23.63	515.01	23	517.38	22.72	518.79	22.58
519.32	22.54	521.36	22.35	523.2	22.19	525.47	22	525.99	21.97
527.47	21.91	528.27	21.87	529.58	21.82	529.93	21.8	531.01	21.76
534.68	21.74	537.57	21.73	541.75	21.76	549.28	22	565.35	22.14
565.55	22.25	566.94	23	566.99	23.03	567.2	23.14	568.29	23.72
568.8	24	569.93	24.59	570.65	25	571.78	25.48	573.12	26
573.63	26.2	574.62	26.58	575.64	27	576.62	27.39	578.11	28
578.98	28.34	580.61	29	582.53	29.75	583.19	30	584.83	30.62
585.82	31	586.9	31.41	588.46	32	589.11	32.25	591.11	33
592.17	33.4	593.7	34	595.12	34.72	595.89	35	597.57	35.69
598.3	35.95	598.45	36	601.02	36.99	601.04	37	603.21	37.99
603.24	38	604.35	38.53	605.57	39	606.14	39.2	608.19	40
615.98	40.37	617.88	40.4	618.68	40.44	625.36	40.78	625.74	40.8
626.35	40.82	627.65	41	646.35	41.77	651.22	42	651.75	42.07
651.88	42.09	652.81	42.25	653.81	42.43	654.33	42.52	657.15	43

Manning's n Values num= 5  
 Station Val Sta n Val Sta n Val Sta n Val Sta n Val  
 0 .06 303.2 .03 328 .05 339.7 .03 379.68 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 303.2 379.68 27.89 26.55 24.75 .3 .5

INLINE STRUCTURE

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 4582

INPUT  
 Description: SURVEYED - 7.5 Dam #2 Upstream of Goodwi ves Ri ver  
 Road

EXISTING - Dam top updated with new survey.

Goodwiv esDari enEX. rep

REVDUP -

inserted as an inline structure - modeled as a Bridge Structure in HEC-2

Distance from Upstream XS = 11.7

Deck/Roadway Width = 2

Weir Coefficient = 2.6

Weir Embankment Coordinates num = 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
296	11.11	304.4	10.83	306.1	8.74	319.7	8.67	327.9	8.55
329	10.07	337.4	10.12	339.4	8.76	348.2	8.67	354	8.71
355.2	10.77	369	10.56	379.7	10.62	380.8	10.64	394.5	10.28

Upstream Embankment side slope = 0 horiz. to 1.0 vertical

Downstream Embankment side slope = 0 horiz. to 1.0 vertical

Maximum allowable submergence for weir flow = .98

Elevation at which weir flow begins =

Weir crest shape = Broad Crested

CROSS SECTION

RIVER: Goodwiv es Ri ver

REACH: mainstem RS: 4567

INPUT

Description: UPDATED - 7.1 D/S Face of Dam US of Goodwiv es Ri ver Road

EXISTING - Updated with town topo and feild measurements.

Increased n-values from .06 to .08 on both overbanks due to dense trees, in channel from .035 to .05 due to large angular boulders.

DUP - decreased downstream distances by 10 feet, to

move upstream face cross sections away from dam structure

Station	Elevation	Data	num=	325	Sta	Elev	Sta	Elev	Sta	Elev
0	53.02	.08	53	.46	52.83	2.42	52	2.74	51.79	
3.92	51	4.72	50.44	5.43	50	6.11	49.66	7.45	49	
9.12	48.05	9.21	48	9.59	47.74	10.7	47	10.86	46.93	
13.19	46	14.14	45.61	15.62	45	17.14	44.35	17.95	44	
19.22	43.44	20.2	43	21.57	42.38	22.39	42	23.27	41.59	
24.52	41	27.42	40.16	27.56	40.12	27.6	40.11	28.04	40	
28.57	39.85	31.33	39	33.33	38.18	33.76	38	33.96	37.91	
37.96	37.19	38.84	37.02	39.03	37	42.24	36.3	43.66	36	
45.96	35.58	47.73	35.28	48.24	35.26	49.31	35	52.84	34.62	
56.84	34	58.87	33.78	64.87	33	65.28	32.95	72.56	32	
77.03	31.45	80.23	31	83.87	30.54	86.81	30.15	87.55	30.05	
87.84	30	93.67	29.01	93.73	29	93.81	28.98	97.98	28	
100.92	27.32	102.22	27	105.41	26.71	108.79	26.45	111.82	26.2	
114.54	26	131.02	26.27	131.35	26.3	133.93	26.52	134.96	26.61	
140.01	27	151.05	26.33	152.79	26.09	153.57	26	163.3	25.85	
166.9	26	169.96	26.35	174.01	26.88	174.1	26.89	174.87	27	
175.24	27.05	175.57	27.1	175.85	27.14	181.29	28	185.01	28.57	
185.35	28.62	185.95	28.69	188.28	28.84	192.19	29	199.33	29.16	
200.77	29.14	205.86	29.1	209.6	29	240.6	28.56	246.83	28	
255.34	27.32	258.39	27	264.83	26.24	266.85	26	269.52	25.26	
270.81	25	271.17	24.68	271.91	24	273.01	23.02	273.03	23	
273.11	22.93	274.13	22	274.46	21.71	275.26	21	276.31	20.08	
276.4	20	276.8	19.65	277.55	19	278.59	18.1	278.71	18	
278.81	17.92	279.89	17	280.12	16.81	281.08	16	281.45	15.69	

Goodwi vesDari enEX. rep

282.29	15	285.54	14.55	290.66	14	293.19	13.15	293.7	13
294.1	12.87	296.66	12	299.41	11.04	299.54	11	299.64	10.97
302.36	10	304.4	9.28	305.18	9	307.38	8.22	307.99	8
308.41	7.92	311.54	7.29	313.06	7	319.39	4	327.7	4
336.83	5.96	337.22	5.97	338.13	6	341.96	6.17	345.24	6.31
347.83	6.42	348.75	6.45	352.57	6.64	353.55	6.42	355.05	6.51
357.31	6.64	358.3	6.83	363.57	7	365.55	7.08	366.42	7.12
370.52	7.29	371.19	7.24	372.61	7.17	374.64	7.28	375.59	7.29
375.79	7.3	378.16	7.51	382.53	8	384.52	8.21	386.27	8.26
386.87	8.32	397.08	8.33	398.73	8.22	399.52	8.17	401.1	8.14
402.04	8	404.29	7.35	405.57	7	406.82	6.65	407.52	6.46
408.75	6.28	409.31	6.5	409.81	6.33	410.58	7	410.98	7.35
411.09	7.44	411.72	8	412.56	8.57	413.06	9	414.01	9.63
414.49	10	414.64	10.1	415.99	11	416.78	11.43	417.83	12
418.49	12.36	420.23	13	421.6	13.51	423.1	14	424.52	14.51
426	15	426.93	15.32	429.02	16	430.93	16.61	432.24	17
432.3	17.02	432.42	17.05	434.75	17.64	437.67	18	439.16	18.3
440.25	18.51	442.67	19	443.39	19.18	444.11	19.44	444.98	19.75
445.7	20	447.37	20.57	448.58	21	450.61	21.74	451.31	22
452.24	22.33	454.11	23	454.82	23.44	455.74	24	456.26	24.45
456.47	25	456.71	25.17	457.35	26	459.14	26.19	464.12	26.34
467.18	26.37	470.34	26.45	472.79	26.51	476.97	26.4	478.69	26.42
487.39	26.07	489	26	491.15	25.61	491.79	25.55	492.1	25.52
492.23	25.5	495.45	25.01	495.46	25	496.56	24.81	496.64	24.8
496.72	24.78	497.56	24.63	497.7	24.61	497.87	24.58	498.48	24.47
498.92	24.4	502.25	24	502.49	23.99	502.82	23.98	503.16	23.96
503.87	23.93	504.24	23.91	507.39	23.65	511.61	23.37	511.88	23.35
513.26	23.17	513.4	23.16	513.53	23.15	513.65	23.14	514.54	23
516.86	22.73	520.05	22.51	523.82	22	525.55	21.75	527.77	21.58
528.02	21.56	531.11	21.33	536.49	21.1	536.59	21.09	537.81	21
541.29	20.65	541.78	20.56	542.22	20.38	543.49	20.2	550.17	20.4
550.98	20.39	552.63	20.41	562.36	20.49	566.83	20.52	571.05	21
573.64	21.31	575.07	22	576.02	22.47	577.11	23	578.46	23.67
579.15	24	580.99	24.91	581.18	25	581.81	25.31	583.2	26
584.32	26.55	584.82	26.79	585.25	27	586.06	27.39	587.32	28
587.44	28.06	587.73	28.2	589.41	29	589.99	29.27	591.51	30
593.35	30.88	593.6	31	593.86	31.13	595.71	32	596.93	32.57
597.97	33	599.57	33.65	600.52	34	601.71	34.57	602.62	35
603.23	35.33	604.4	36	604.44	36.02	604.5	36.06	606.23	37
607.01	37.43	607.26	37.56	607.79	37.85	607.94	37.92	608.06	38
609.86	38.98	609.89	39	619.29	39.65	623.04	40	628.61	40.31

Manning's n Values num= 3  
 Sta n Val Sta n Val  
 0 .08 307.99 .05 414.01 .08

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 307.99 414.01 54.47 51.57 49.22 .3 .5

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 4515

INPUT

Description: UPDATED - 7.0 U/S Section of Goodwi ves Ri ver Road & D/S Section for Dam

EXISTING - Updated overbank elevations.

Station Elevati on Data num= 258  
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev  
 0 50.68 .41 50.38 .91 50 2.12 49.19 2.39 49

Goodwi vesDari enEX. rep

3.66	48.15	3.89	48	3.91	47.97	4.91	47	6.05	46.45
6.93	46	7.23	45.78	8.35	45	8.55	44.86	9.81	44
9.84	43.98	10.01	43.87	11.29	43	11.75	42.7	12.8	42
13.89	41.3	14.38	41	14.95	40.69	16.14	40	18.48	39.07
18.67	39	18.76	38.96	20.88	38	21.6	37.66	23.03	37
24.37	36.37	25.17	36	25.76	35.67	27.08	35	27.84	34.59
28.99	34	29.64	33.68	31.16	33	32.14	32.56	33.27	32
33.69	31.82	35.4	31	36.34	30.62	37.67	30	41.67	29.26
42.98	29	45.29	28.71	51.09	28	52.42	27.84	55.42	27.6
58.93	27.3	61.17	27.13	61.77	27.08	63.06	27	65.87	26.92
66.3	26.91	75.53	26.72	78.88	26.58	79.96	26.56	81.36	26.52
84.37	26.47	88.61	26.35	90.88	26.28	97.54	26	170.35	26.46
174.05	27	176.3	27.41	179.54	28	187.48	28.91	188.17	29
188.86	29.08	190.29	29.29	195.44	30	201.71	30.34	203.16	30.21
204.8	30	205.04	29.97	208.57	29.49	211.74	29.14	211.98	29.11
212.75	29	216.23	28.58	220.16	28	221.73	27.77	222.88	27.6
227.03	27	230.12	26.55	234.06	26	245.14	25.18	245.79	25.15
246.12	25.13	249.01	25	253.82	24.75	256.97	24.58	258.8	24.47
261.16	24.34	264.03	24.16	265.37	24	269.48	23.52	273.73	23
276.82	22.54	277.29	22.41	278.69	22	279.92	21.03	279.97	21
280	20.97	280.27	20.75	281.17	20	281.29	19.9	282.38	19
282.98	18.52	283.62	18	284.27	17.49	284.87	17	285.93	16.17
286.15	16	286.35	15.84	287.43	15	287.99	14.57	288.72	14
290.24	13.36	291.09	13	291.47	12.9	294.8	12	296.54	11.53
298.51	11	299.77	10.66	302.22	10	302.83	9.84	305.93	9
308.47	8.32	309.66	8	310.62	7.75	313.51	7	315.43	6.7
318.74	6	321.9	5.38	323.68	5	324	4.5	328	3.4
337	2	343	1.5	350	1.9	351	1.9	364	1.5
382	3.5	389	4.1	399.9	5.89	400.49	5.97	400.88	6
410.78	6.59	412.78	6.62	412.8	6.63	415.96	7	419.23	7.69
421.68	8	424.12	8.4	424.69	8.5	427.69	9	429.59	9.19
430.44	9.26	431.23	9.33	439.44	10	447.59	10.9	448.45	11
456.71	11.77	459	12	461.88	12.47	465.28	13	467.18	13.32
471.67	14	474.23	14.41	478.49	15	480.82	15.61	480.86	15.62
482.19	16	484.18	16.6	485.59	17	487.63	17.75	488.34	18
488.63	18.12	489.3	18.37	490.72	18.89	491.03	19	492.7	19.61
493.74	19.98	493.8	20	494.65	20.31	495.67	20.64	496.14	20.8
496.23	20.83	496.82	21	503.67	21.02	504.3	21	507.23	20.89
507.99	20.8	509.25	20.68	509.47	20.65	514.07	20	514.23	19.98
514.34	19.96	516.51	19.56	517.4	19.39	519.19	19	520.31	18.65
522.74	18	523.43	17.82	526.9	17	528.22	16.66	533.21	17
541.65	17.25	554.32	18	561.62	18.83	563.89	19	565.08	19.47
566.46	20	568.9	20.94	569.01	20.98	569.06	21	571.69	21.78
572.41	22	574.34	22.58	575.7	23	576.31	23.19	578.92	24
580.25	24.42	581.95	25	584.7	25.95	584.85	26	585.06	26.07
587.73	27	589.11	27.48	590.59	28	590.93	28.12	593.44	29
595.08	29.58	596.27	30	596.97	30.24	599.1	31	601.8	31.96
601.9	32	602.52	32.22	604.28	32.84	604.71	33	605.36	33.23
607.52	34	609.72	34.79	610.31	35	610.82	35.24	612.51	36
613.3	36.43	614.88	37	616.05	37.41	617.9	38	619.79	38.61
621.24	39	622.94	39.51	623.19	39.57				

Manning's n Values  
 Sta 0 n Val .08 Sta 324 n Val .03 num= 3 Sta 412.8 n Val .08

Bank Sta: Left 324 Right 412.8 Lengths: Left 40.45 Channel 38.18 Right 27.63 Coeff Contr. .3 Expan. .5

CROSS SECTION

RIVER: Goodwi ves Ri ver

REACH: mainstem

RS: 4477

INPUT

Description: SURVEYED - 6.0 U/S Face of Goodwiv es Ri ver Road

EXISTING -

Updated in channel with survey, overbank with town topo. Corrected ineffective flow area. Decreased channel n from .035 to .03 - sand btm. Increased right n from .06 to .08 for dense trees.

REVDUP

- corrected Ineffective Flow Areas to use 1:1 expansion and contraction and min top of road elevation

- corrected bank

stations to reflect actual top of bank (set in HEC-2 to specify ineffective flow area location)

Station Elevation Data		num= 214									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	51.97	1.54	51.17	1.874	51	2.247	50.82	3.892	50		
5.7	49.16	6.034	49	6.359	48.85	7.861	48.25	8.454	48		
8.559	47.83	8.961	47	9.362	46.25	9.496	46	9.716	45.64		
10.089	45	10.567	44.24	10.72	44	11.284	43.16	11.399	43		
11.523	42.82	12.107	42	12.681	41.23	12.853	41	13.111	40.6		
13.503	40	14.268	39.01	14.287	38.99	15.062	38	15.607	37.28		
15.836	37	16.286	36.34	16.525	36	17.003	35.33	17.242	35		
18.132	34.25	18.428	34	18.744	33.73	19.604	33	20.073	32.59		
20.895	32	21.957	31.25	22.301	31	23.229	30.16	23.382	30		
23.716	29.83	25.552	29	26.576	28.78	30.066	28	32.189	27.5		
34.427	27	45.635	26.04	46.333	26	66.769	26.34	67.687	26.45		
70.948	26.88	72.698	26.93	73.014	26.95	77.968	26.93	79.048	26.94		
84.155	26.81	85.063	26.79	95.564	26.75	96.003	26.76	96.596	26.75		
109.497	26.44	115.694	26	135.269	25.82	137.947	25.7	141.753	25.53		
143.312	25.46	148.447	25	153.965	24.62	158.374	24.33	171.638	24		
185.131	24.18	186.919	24.2	188.143	24.26	196.788	24	198.443	23.96		
215.389	23	215.455	22.99	215.685	22.96	219.778	22.43	223.689	22		
226.176	21.66	228.949	21.33	230.737	21.11	236.379	21	238.55	20.96		
243.389	20.94	243.934	20.85	245.33	20.8	245.923	20.66	248.964	20		
251.489	19.42	253.392	19	254.272	18.79	255.936	18.4	257.15	18.11		
257.753	18	261.482	17.44	264.839	17	266.245	16.84	268.215	16.61		
271.218	16	272.757	15.32	273.484	15	273.924	14.8	275.703	14		
277.137	13.35	277.921	13	280.159	12.05	280.283	12	280.532	11.91		
282.789	11	284.721	10.16	285.151	10	286.05	9.66	288.144	9		
289.33	8.63	290.143	5.57	309.938	4.9	320.553	3.42	327.439	2.05		
338.628	2.24	344.078	2.54	349.147	1.98	361.292	2.14	367.89	3.33		
371.333	3.76	378.41	6.1	398.014	6.91	400.347	7.59	403.398	7.83		
404.087	7.86	405.674	8	408.629	8.25	412.129	8.44	415.208	8.71		
417.609	8.85	418.89	9	423.7	9.61	426.56	10	427.306	10.09		
428.731	10.22	429.782	10.26	432.211	10.45	437.93	11	438.59	11.07		
447.101	12	447.837	12.07	449.712	12.26	456.836	13	457.735	13.11		
459.256	13.19	468.943	14	474.442	14.98	474.595	15	479.482	15.78		
482.647	16	482.838	16.03	482.905	16.04	483.814	16.16	484.215	16.21		
485.927	16.48	487.83	16.62	488.758	16.67	489.456	16.72	490.011	16.71		
491.474	16.61	493.635	16.49	494.486	16.38	495.299	16.25	496.542	16		
520.88	16.84	522.984	17	533.216	17.71	533.714	17.73	537.95	18		
540.982	18.82	542.416	19	544.558	19.75	545.266	20	547.8	20.9		
548.058	21	548.096	21.01	548.403	21.09	548.651	21.16	550.401	21.63		
551.73	22	553.777	22.56	554.666	22.8	555.345	23	556.961	23.47		
558.855	24	560.815	24.57	562.259	25	564.631	25.72	565.568	26		
566.018	26.14	568.609	27	570.082	27.49	571.574	28	572.893	28.44		
574.519	29	575.868	29.46	577.445	30	579.31	30.64	580.353	31		
581.864	31.53	583.231	32	585.584	32.82	585.765	32.88				

Manning's n Values

num= 3

Goodwi vesDari enEX. rep

Sta n Val Sta n Val Sta n Val  
 0 .08 289.33 .03 378.41 .08

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 289.33 378.41 86.77 85.52 81.7 .3 .5  
 Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 294.255 11.63 F  
 365.978 585.765 11.63 F  
 Skew Angle = 17

BRI DGE

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 4461

I NPUT

Descri pti on: SURVEYED - 5.5 Goodwi ves Ri ver Road Bri dge -

EXI STING -

Updated deck, parapet, and opening with survey, extended road deck with town topo, estimated embankment side slope from topo, measured road deck width in field. Skew angle of 17degrees measured from survey/topo.

DUP - shortened bridge by 2 feet to allow for 1 foot offset from cross sections US and DS

pei r wi dth

of 0.1 indicated possible pressure flow and low flow use of momentum or yarnell.

Distance from Upstream XS = 29.5  
 Deck/Roadway Width = 34.5  
 Wei r Coeffi ci ent = 2.6  
 Bri dge Deck/Roadway Skew = 17

Upstream Deck/Roadway Coordi nates

num= 14											
Sta	Hi	Cord	Lo Cord	Sta	Hi	Cord	Lo Cord	Sta	Hi	Cord	Lo Cord
245.388		14		267.957		13		310.417		11.64	
319.98	11.85			319.98	15.4			322.466	15.4	10.57	
337.767	15.17	10.45		340.253	15.17			340.253	11.63		
434.641		13		466.103		14		497.47		15	
519.465		16		533.427		17					

Upstream Bri dge Cross Secti on Data

Stati on Elevati on Data num= 214									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	51.97	1.54	51.17	1.874	51	2.247	50.82	3.892	50
5.7	49.16	6.034	49	6.359	48.85	7.861	48.25	8.454	48
8.559	47.83	8.961	47	9.362	46.25	9.496	46	9.716	45.64
10.089	45	10.567	44.24	10.72	44	11.284	43.16	11.399	43
11.523	42.82	12.107	42	12.681	41.23	12.853	41	13.111	40.6
13.503	40	14.268	39.01	14.287	38.99	15.062	38	15.607	37.28
15.836	37	16.286	36.34	16.525	36	17.003	35.33	17.242	35
18.132	34.25	18.428	34	18.744	33.73	19.604	33	20.073	32.59
20.895	32	21.957	31.25	22.301	31	23.229	30.16	23.382	30
23.716	29.83	25.552	29	26.576	28.78	30.066	28	32.189	27.5
34.427	27	45.635	26.04	46.333	26	66.769	26.34	67.687	26.45
70.948	26.88	72.698	26.93	73.014	26.95	77.968	26.93	79.048	26.94
84.155	26.81	85.063	26.79	95.564	26.75	96.003	26.76	96.596	26.75
109.497	26.44	115.694	26	135.269	25.82	137.947	25.7	141.753	25.53
143.312	25.46	148.447	25	153.965	24.62	158.374	24.33	171.638	24
185.131	24.18	186.919	24.2	188.143	24.26	196.788	24	198.443	23.96

Goodwi vesDari enEX. rep

215.389	23	215.455	22.99	215.685	22.96	219.778	22.43	223.689	22
226.176	21.66	228.949	21.33	230.737	21.11	236.379	21	238.55	20.96
243.389	20.94	243.934	20.85	245.33	20.8	245.923	20.66	248.964	20
251.489	19.42	253.392	19	254.272	18.79	255.936	18.4	257.15	18.11
257.753	18	261.482	17.44	264.839	17	266.245	16.84	268.215	16.61
271.218	16	272.757	15.32	273.484	15	273.924	14.8	275.703	14
277.137	13.35	277.921	13	280.159	12.05	280.283	12	280.532	11.91
282.789	11	284.721	10.16	285.151	10	286.05	9.66	288.144	9
289.33	8.63	290.143	5.57	309.938	4.9	320.553	3.42	327.439	2.05
338.628	2.24	344.078	2.54	349.147	1.98	361.292	2.14	367.89	3.33
371.333	3.76	378.41	6.1	398.014	6.91	400.347	7.59	403.398	7.83
404.087	7.86	405.674	8	408.629	8.25	412.129	8.44	415.208	8.71
417.609	8.85	418.89	9	423.7	9.61	426.56	10	427.306	10.09
428.731	10.22	429.782	10.26	432.211	10.45	437.93	11	438.59	11.07
447.101	12	447.837	12.07	449.712	12.26	456.836	13	457.735	13.11
459.256	13.19	468.943	14	474.442	14.98	474.595	15	479.482	15.78
482.647	16	482.838	16.03	482.905	16.04	483.814	16.16	484.215	16.21
485.927	16.48	487.83	16.62	488.758	16.67	489.456	16.72	490.011	16.71
491.474	16.61	493.635	16.49	494.486	16.38	495.299	16.25	496.542	16
520.88	16.84	522.984	17	533.216	17.71	533.714	17.73	537.95	18
540.982	18.82	542.416	19	544.558	19.75	545.266	20	547.8	20.9
548.058	21	548.096	21.01	548.403	21.09	548.651	21.16	550.401	21.63
551.73	22	553.777	22.56	554.666	22.8	555.345	23	556.961	23.47
558.855	24	560.815	24.57	562.259	25	564.631	25.72	565.568	26
566.018	26.14	568.609	27	570.082	27.49	571.574	28	572.893	28.44
574.519	29	575.868	29.46	577.445	30	579.31	30.64	580.353	31
581.864	31.53	583.231	32	585.584	32.82	585.765	32.88		

Manning's n Values num= 3  
 Sta n Val Sta n Val Sta n Val  
 0 .08 289.33 .03 378.41 .08

Bank Sta: Left Right Coeff Contr. Expan.  
 289.33 378.41 .3 .5

Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 294.255 11.63 F  
 365.978 585.765 11.63 F

Skew Angle = 17

Downstream Deck/Roadway Coordinates

num= 14	
Sta Hi Cord Lo Cord	Sta Hi Cord Lo Cord
338.914 14	361.483 13
413.506 10.99	413.506 15.4
431.293 15.17 9.21	433.78 15.17
528.167 13	559.63 14
612.991 16	626.953 17
403.943 11.64	590.996 15
415.993 15.4	
433.78 10.89	
	9.43

Downstream Bridge Cross Section Data

Station Elevation Data num= 308				
Sta Elev	Sta Elev	Sta Elev	Sta Elev	Sta Elev
0 47.84	1.549 47.04	1.616 47	1.865 46.88	3.624 46
5.059 45.17	5.355 45	6.608 44.03	6.646 44	6.675 43.98
7.096 43.65	7.937 43	9.142 42.06	9.219 42	9.334 41.92
10.682 41	11.963 40.17	12.212 40	12.489 39.83	13.838 39
15.129 38.26	15.578 38	18.466 37.12	19.107 37	22.167 36.3
23.516 36	23.649 35.97	27.427 35	28.88 34.7	30.707 34.36
33.232 34	35.488 33.46	36.999 33.07	37.133 33.04	37.372 33
41.991 32.51	42.661 32.49	44.841 32.26	51.086 32.35	52.08 32.33
55.906 32.43	56.814 32.49	62.418 32.86	63.546 32.9	64.206 32.79
64.732 32.95	64.828 32.94	65.44 32.84	68.223 32.62	69.59 32.33
71.178 32	72.65 31.48	74.056 31	74.381 30.94	74.601 30.9



Goodwi vesDari enEX. rep

77.375	30.46	79.823	30.1	80.129	30.06	80.54	30	83.763	29.61
84.585	29.44	86.44	29	88.372	28.53	89.003	28.35	89.434	28.22
90.151	28	92.637	27.5	94.072	27.18	95.305	27	105.318	26.68
115.196	27	130.631	27.83	131.176	28	134.447	28.99	134.476	29
136.704	29.74	137.44	30	139.334	30.76	139.927	31	141.562	31.67
142.308	32	144.316	32.87	144.603	33	144.871	33.12	147.873	34
151.813	34.66	153.889	35	158.45	35.43	160.191	35	162.103	34.53
164.198	34	165.049	33.78	165.785	33.62	168.032	33.25	168.673	33.14
168.816	33.11	169.543	33	170.165	32.89	170.461	32.8	172.785	32
172.823	31.95	173.015	31.72	173.56	31	173.703	30.82	174.325	30
174.937	29.22	175.109	29	175.252	28.82	175.922	28	176.19	27.7
176.907	27	178.552	26.68	182.09	26	182.932	25.86	187.703	25
192.169	24.21	193.46	24	197.257	23.23	198.405	23	199.15	22.93
199.705	22.91	210.789	22	215.522	21.74	215.886	21.67	216.23	21.6
222.915	21	235.28	20.56	238.751	20.51	242.356	20.43	247.014	20.34
252.675	20.28	256.548	20.14	259.254	20.05	260.335	20	264.648	19.74
265.04	19.71	266.465	19.6	267	19.56	272.069	19.28	273.532	19.13
274.794	19	279.738	18.9	280.408	18.87	282.091	18.76	290.315	18.45
291.539	18.43	300.127	18	304.755	17.71	304.975	17.68	305.597	17.6
307.653	17.62	310.015	17.47	312.788	17.36	315.714	17.1	316.078	17.07
316.852	17	318.21	16.88	319.463	16.74	321.806	16.5	322.724	16.38
323.298	16.29	325.698	16.13	327.142	16	327.334	15.98	328.672	15.87
335.845	15.28	337.011	15.17	338.321	15	339.679	14.9	340.081	14.86
347.579	14	350.084	13.87	353.909	13.65	355.793	13.55	365.5	13
368.216	12.74	373.533	12.34	376.096	12.13	376.736	12.08	378.008	12
380.504	11.48	381.499	11.26	382.751	11	383.316	10.89	384.062	10.72
385.515	10.42	385.773	10.36	386.357	10.25	386.691	10.18	387.514	10
390.115	9.28	391.004	9	393.558	8.16	394.064	8	394.342	7.9
395.241	7.56	396.417	7.12	396.79	7	397.765	6.66	399.114	6.21
399.726	6	400.73	5.7	402.929	5	405.292	4.2	405.473	3.5
413.124	2	420.774	.5	429.19	1.6	432.25	2.2	451.376	3.6
456.119	5	458.357	5.2	459.686	5.27	462.402	5.58	465.969	5.77
468.408	6	469.995	6.29	472.711	6.43	474.155	6.54	475.762	6.73
478.43	7	486.291	7.48	488.595	7.65	489.542	7.71	490.106	7.75
492.296	7.91	492.612	7.93	493.597	8	494.783	8.07	496.992	8.17
513.698	9	516.806	9.21	526.465	10	529.162	10.38	531.533	10.74
533.197	11	536.783	11.71	538.256	12	539.059	12.11	542.1	12.49
546.49	13	556.895	13.92	557.583	14	558.434	14.16	560.366	14.52
563.053	15	566.85	15.99	566.869	16	567.012	16.04	570.828	17
575.265	17.81	576.059	17.95	576.269	18	576.786	18.04	577.264	18.08
584.092	18.56	586.253	18.71	587.582	18.79	589.275	18.91	589.514	18.93
590.27	19	601.162	19.96	601.257	19.97	601.611	20	610.161	20.87
610.763	20.92	611.471	21	614.244	21.84	614.684	22	617.343	22.86
617.744	23	620.106	23.79	620.68	24	621.531	24.31	623.52	25
624.888	25.51	626.284	26	628.263	26.75	628.962	27	631.199	27.85
631.658	28	633.514	28.63	634.623	29	637.54	29.98	637.607	30
637.626	30.01	640.571	31	641.594	31.34	643.88	32	646.07	32.63
647.504	33	650.459	33.76	651.416	34	651.798	34.09	655.681	35
655.949	35.06	657.373	35.36	661.399	35.82	662.318	35.95	662.977	36
678.01	36.73	678.45	36.8	678.546	36.82	679.607	36.95	679.971	37
683.232	37.49	686.617	38	689.199	38.39				

Manning's n Values num= 3  
 Sta n Val Sta n Val Sta n Val  
 0 .08 402.929 .03 451.376 .06

Bank Sta: Left Right Coeff Contr. Expan.  
 402.929 451.376 .3 .5

Ineffective Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 395.432 10.16 F  
 451.854 689.199 10.16 F

Blocked Obstructions num= 1

Goodwiv esDari enEX. rep

Sta L Sta R Elev  
 220.476 257.131 30.32  
 Skew Angle = 17

Upstream Embankment side slope = 2.19 horiz. to 1.0 vertical  
 Downstream Embankment side slope = 2.02 horiz. to 1.0 vertical  
 Maximum allowable submergence for weir flow = .98  
 Elevation at which weir flow begins = 11.63  
 Energy head used in spillway design =  
 Spillway height used in design =  
 Weir crest shape = Broad Crested

Number of Abutments = 1

Abutment Data

Upstream num= 4  
 Sta Elev Sta Elev Sta Elev Sta Elev  
 948.234 9.5 949.611 .5 962.999 .5 964.338 9.5  
 Downstream num= 4  
 Sta Elev Sta Elev Sta Elev Sta Elev  
 948.234 9.5 949.611 .5 962.999 .5 964.338 9.5

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy  
 Momentum Cd = 1.6  
 Selected Low Flow Methods = Highest Energy Answer

High Flow Method  
 Energy Only

Additional Bridge Parameters

Add Friction component to Momentum  
 Do not add Weight component to Momentum  
 Class B flow critical depth computations use critical depth  
 inside the bridge at the upstream end  
 Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: Goodwiv es Ri ver  
 REACH: mai nstem RS: 4392

INPUT

Description: UPDATED - 5.1 D/S Face of Goodwiv es Ri ver Road

EXISTING -

Overbank updated. Corrected Ineffective Flow Areas. Decreased  
 channel n from .035 to .03 - sand btm.

REVDUP - corrected

Ineffective Flow Areas to use 1:1 expansion and contraction and  
 average of min top of road elevation and max low chord

-corrected

bank stations to reflect actual top of bank (set in HEC-2 to  
 specify ineffective flow area location)

Station Elevation Data num= 308  
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev  
 0 47.84 1.549 47.04 1.616 47 1.865 46.88 3.624 46  
 5.059 45.17 5.355 45 6.608 44.03 6.646 44 6.675 43.98  
 7.096 43.65 7.937 43 9.142 42.06 9.219 42 9.334 41.92

Goodwi vesDari enEX. rep

10. 682	41	11. 963	40. 17	12. 212	40	12. 489	39. 83	13. 838	39
15. 129	38. 26	15. 578	38	18. 466	37. 12	19. 107	37	22. 167	36. 3
23. 516	36	23. 649	35. 97	27. 427	35	28. 88	34. 7	30. 707	34. 36
33. 232	34	35. 488	33. 46	36. 999	33. 07	37. 133	33. 04	37. 372	33
41. 991	32. 51	42. 661	32. 49	44. 841	32. 26	51. 086	32. 35	52. 08	32. 33
55. 906	32. 43	56. 814	32. 49	62. 418	32. 86	63. 546	32. 9	64. 206	32. 79
64. 732	32. 95	64. 828	32. 94	65. 44	32. 84	68. 223	32. 62	69. 59	32. 33
71. 178	32	72. 65	31. 48	74. 056	31	74. 381	30. 94	74. 601	30. 9
77. 375	30. 46	79. 823	30. 1	80. 129	30. 06	80. 54	30	83. 763	29. 61
84. 585	29. 44	86. 44	29	88. 372	28. 53	89. 003	28. 35	89. 434	28. 22
90. 151	28	92. 637	27. 5	94. 072	27. 18	95. 305	27	105. 318	26. 68
115. 196	27	130. 631	27. 83	131. 176	28	134. 447	28. 99	134. 476	29
136. 704	29. 74	137. 44	30	139. 334	30. 76	139. 927	31	141. 562	31. 67
142. 308	32	144. 316	32. 87	144. 603	33	144. 871	33. 12	147. 873	34
151. 813	34. 66	153. 889	35	158. 45	35. 43	160. 191	35	162. 103	34. 53
164. 198	34	165. 049	33. 78	165. 785	33. 62	168. 032	33. 25	168. 673	33. 14
168. 816	33. 11	169. 543	33	170. 165	32. 89	170. 461	32. 8	172. 785	32
172. 823	31. 95	173. 015	31. 72	173. 56	31	173. 703	30. 82	174. 325	30
174. 937	29. 22	175. 109	29	175. 252	28. 82	175. 922	28	176. 19	27. 7
176. 907	27	178. 552	26. 68	182. 09	26	182. 932	25. 86	187. 703	25
192. 169	24. 21	193. 46	24	197. 257	23. 23	198. 405	23	199. 15	22. 93
199. 705	22. 91	210. 789	22	215. 522	21. 74	215. 886	21. 67	216. 23	21. 6
222. 915	21	235. 28	20. 56	238. 751	20. 51	242. 356	20. 43	247. 014	20. 34
252. 675	20. 28	256. 548	20. 14	259. 254	20. 05	260. 335	20	264. 648	19. 74
265. 04	19. 71	266. 465	19. 6	267	19. 56	272. 069	19. 28	273. 532	19. 13
274. 794	19	279. 738	18. 9	280. 408	18. 87	282. 091	18. 76	290. 315	18. 45
291. 539	18. 43	300. 127	18	304. 755	17. 71	304. 975	17. 68	305. 597	17. 6
307. 653	17. 62	310. 015	17. 47	312. 788	17. 36	315. 714	17. 1	316. 078	17. 07
316. 852	17	318. 21	16. 88	319. 463	16. 74	321. 806	16. 5	322. 724	16. 38
323. 298	16. 29	325. 698	16. 13	327. 142	16	327. 334	15. 98	328. 672	15. 87
335. 845	15. 28	337. 011	15. 17	338. 321	15	339. 679	14. 9	340. 081	14. 86
347. 579	14	350. 084	13. 87	353. 909	13. 65	355. 793	13. 55	365. 5	13
368. 216	12. 74	373. 533	12. 34	376. 096	12. 13	376. 736	12. 08	378. 008	12
380. 504	11. 48	381. 499	11. 26	382. 751	11	383. 316	10. 89	384. 062	10. 72
385. 515	10. 42	385. 773	10. 36	386. 357	10. 25	386. 691	10. 18	387. 514	10
390. 115	9. 28	391. 004	9	393. 558	8. 16	394. 064	8	394. 342	7. 9
395. 241	7. 56	396. 417	7. 12	396. 79	7	397. 765	6. 66	399. 114	6. 21
399. 726	6	400. 73	5. 7	402. 929	5	405. 292	4. 2	405. 473	3. 5
413. 124	2	420. 774	. 5	429. 19	1. 6	432. 25	2. 2	451. 376	3. 6
456. 119	5	458. 357	5. 2	459. 686	5. 27	462. 402	5. 58	465. 969	5. 77
468. 408	6	469. 995	6. 29	472. 711	6. 43	474. 155	6. 54	475. 762	6. 73
478. 43	7	486. 291	7. 48	488. 595	7. 65	489. 542	7. 71	490. 106	7. 75
492. 296	7. 91	492. 612	7. 93	493. 597	8	494. 783	8. 07	496. 992	8. 17
513. 698	9	516. 806	9. 21	526. 465	10	529. 162	10. 38	531. 533	10. 74
533. 197	11	536. 783	11. 71	538. 256	12	539. 059	12. 11	542. 1	12. 49
546. 49	13	556. 895	13. 92	557. 583	14	558. 434	14. 16	560. 366	14. 52
563. 053	15	566. 85	15. 99	566. 869	16	567. 012	16. 04	570. 828	17
575. 265	17. 81	576. 059	17. 95	576. 269	18	576. 786	18. 04	577. 264	18. 08
584. 092	18. 56	586. 253	18. 71	587. 582	18. 79	589. 275	18. 91	589. 514	18. 93
590. 27	19	601. 162	19. 96	601. 257	19. 97	601. 611	20	610. 161	20. 87
610. 763	20. 92	611. 471	21	614. 244	21. 84	614. 684	22	617. 343	22. 86
617. 744	23	620. 106	23. 79	620. 68	24	621. 531	24. 31	623. 52	25
624. 888	25. 51	626. 284	26	628. 263	26. 75	628. 962	27	631. 199	27. 85
631. 658	28	633. 514	28. 63	634. 623	29	637. 54	29. 98	637. 607	30
637. 626	30. 01	640. 571	31	641. 594	31. 34	643. 88	32	646. 07	32. 63
647. 504	33	650. 459	33. 76	651. 416	34	651. 798	34. 09	655. 681	35
655. 949	35. 06	657. 373	35. 36	661. 399	35. 82	662. 318	35. 95	662. 977	36
678. 01	36. 73	678. 45	36. 8	678. 546	36. 82	679. 607	36. 95	679. 971	37
683. 232	37. 49	686. 617	38	689. 199	38. 39				

Mann ng' s n Val ues

Sta n Val Sta  
0 .08 402. 929

num= 3

n Val Sta n Val  
.03 451. 376 .06

Goodwi vesDari enEX. rep

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 402.929 451.376 87.07 89.01 96.32 .3 .5  
 Ineffecti ve Flow num= 2  
 Sta L Sta R Elev Permanent  
 0 395.432 10.16 F  
 451.854 689.199 10.16 F  
 Blocked Obstructi ons num= 1  
 Sta L Sta R Elev  
 220.476 257.131 30.32  
 Skew Angle = 17

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 4303

INPUT

Descripti on: UPDATED - 5.0 FEMA C - D/S Secti on of Goodwi ves Ri ver  
 Road

Home on right FFE @ 22.12'

EXISTING - Overbank updated.

Increased n at home on right from 0.04 to 0.1. Decreased channel n  
 from .035 to .03 - sand btm.

REVDUP - corrected bank stations

to reflect actual top of bank (set in HEC-2 to specifi y ineffecti ve  
 flow area locati on)

Station	Elevation	Data	num=	319	Station	Elevation	Station	Elevation	Station	Elevation
0	50.25	.85	50	.9	49.99	3.18	49.15	3.59	49	
4.14	48.82	6.58	48	8.03	47.6	10.25	47	13.04	46.02	
13.08	46	13.09	45.99	15.49	45	15.69	44.92	17.88	44	
19.78	43.38	20.75	43	21.19	42.79	23.45	42	23.94	41.67	
24.89	41	25.74	40.39	26.24	40	26.84	39.56	27.52	39	
28.02	38.63	28.77	38	29.35	37.53	29.96	37	30.89	36.19	
31.11	36	31.89	35.65	33.5	35	34.43	34.61	36.04	34	
36.65	33.79	38.68	33	39.85	32.52	41.35	32	42.47	31.54	
44.07	31	50.03	30.16	50.33	30.12	51.01	30	52.56	29.81	
54.2	29.64	57.13	29.34	59.27	29.11	60.51	29	66.16	28.51	
66.97	28.45	70.11	28.25	72.97	28	82.23	27.2	82.3	27.19	
83.97	27	89.05	26.64	89.75	26.61	90.7	26.57	92.13	26.51	
101.94	26	121.57	25.78	123.43	25.81	125.41	26	128.44	25.9	
128.52	25.89	128.68	25.87	128.76	25.85	129.06	25.8	129.18	25.77	
132.42	25.07	132.48	25.06	132.51	25.05	132.75	25	138.86	25.04	
141.1	25	143.36	24.97	144.47	24.91	146.92	24.93	147.21	24.9	
151.18	24.88	151.3	24.89	152.17	24.87	152.4	24.89	155.9	24.76	
156.45	24.78	161.05	24.63	162.18	24.62	162.31	24.61	164.5	24.49	
165.64	24.52	168.32	24.51	169.24	24.48	169.52	24.47	171.26	24.42	
172.37	24.38	175.74	24.22	176.69	24.17	179.84	24	180.68	23.92	
181.13	23.88	185.74	23.49	192.46	23	194.52	22.59	196.06	22.25	
197.1	22	198.39	22.42	199.85	22.9	200.16	23	200.63	23.04	
201.51	23.12	209.45	23.6	214.36	23.9	214.42	23.91	214.75	23.92	
216.23	24	218.37	23.91	225.77	23.37	228.44	23.21	237.07	23.01	
243.41	23.04	247.76	23.14	248.24	23.13	248.87	23.15	254.42	23.11	
255.26	23.1	256.63	23.05	257.75	23	259	22.92	260.89	22.82	
261.16	22.81	262.83	22.75	263.16	22.74	263.45	22.73	264.98	22.69	
270.66	22.44	274.36	22.3	275.4	22.26	275.8	22.24	277.18	22.19	
277.95	22.16	281.46	22	288.66	21.74	293.42	21.5	295.65	21.42	
298.33	21.32	305.09	21	307.36	20.89	307.47	20.88	309.22	20.79	

Goodwi vesDari enEX. rep

315.48	20.51	324.03	20.06	324.58	20.03	324.92	20	327.25	19.83
329.07	19.63	330.84	19.48	338.5	19.03	338.73	19.02	339.01	19
340.89	18.88	341.29	18.85	343.6	18.71	343.96	18.68	344.63	18.64
345.19	18.61	347.15	18.51	348.76	18.4	351.32	18.16	351.71	18.12
352.98	18	354.1	17.92	354.82	17.9	357.66	17.79	359.43	17.69
364.01	17	374.08	16.51	377.62	16.4	387.24	16.14	391.31	16
398.42	15.93	399.93	15	400.88	14.49	401.74	14	403.11	13.26
403.61	13	405.34	12.08	405.51	12	405.77	11.86	407.47	11
408.39	10.61	409.78	10	411.81	9.15	412.16	9	414.73	8.03
414.82	8	414.83	7.99	414.88	7.98	417.46	7	418.85	6.5
419.85	6.15	420.26	6	422.51	5.38	423.88	5	427	3.5
435	2	443	.5	451.8	1.6	455	2.2	475	3.6
481.47	4.15	484.01	4.5	487.56	5	492.44	5.56	493.2	5.65
496.15	6	503.3	6.55	507.46	7	511.04	7.3	519.05	8
528.53	8.79	531.55	9	541.76	9.35	542.07	9.36	555.8	9.84
556.16	9.85	561.62	10	571.82	10.25	574.48	11	576.27	11.44
578.52	12	582.22	12.92	582.56	13	582.99	13.11	584.36	13.45
586.62	14	587.73	14.27	590.71	15	594.63	15.96	594.81	16
598.02	16.71	599.33	17	601.82	17.55	603.85	18	607.56	18.82
608.37	19	609.07	19.15	609.37	19.17	611.09	19.35	615.31	19.71
616.89	19.83	619	19.91	619.77	19.97	621.86	19.93	627.31	19.94
633.79	19.95	634.08	19.96	634.97	20	646.66	20.6	649.32	21
650.96	21.44	653.11	22	653.42	22.39	653.89	23	654.49	23.68
654.78	24	655.1	24.35	655.68	25	656.28	25.67	656.57	26
657.33	26.85	657.46	27	658.14	27.77	658.35	28	658.37	28.02
659.21	29	659.78	29.64	660.09	30	660.78	30.6	661.23	31
662.61	31.77	663.03	32	664.52	32.81	664.89	33	665.76	33.45
666.8	34	667.61	34.42	668.76	35	670.64	35.94	670.75	36
670.84	36.04	672.99	37	674.69	37.69	675.44	38	676.14	38.28
677.9	39	679.56	39.66	680.39	40	682.69	40.91	682.86	40.98
682.92	41	683.19	41.09	685.83	42	686.47	42.22	686.66	42.28
688.99	43	691.74	43.7	692.84	44	695.55	44.7	696.65	45
699.28	45.68	700.39	46	702.8	46.65	703.75	46.92	704.03	47
713.64	47.89	714.88	48	720.14	48.54	723.79	49		

Manning's n Values	num=	5
Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val		
0 .05 398.42 .085 423.88 .03 503.3 .04 561.62 .1		

Bank Sta: Left Right	Lengths: Left Channel Right	Coeff Contr. Expan.
423.88 475	816.38 829.34 861.82	.3 .5
Blocked Obstructions	num=	1
Sta L Sta R Elev		
565.22 633.6 30.84		

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 3473

INPUT  
 Description: UPDATED - 4.0 FEMA B - Constriction in Gorham's Pond

EXISTING  
 - Overbank updated. Allow horizontal variation of n to account for  
 higher n at home, 0.05 to 0.06 for trees on right,  
 0.04 to 0.05  
 for trees/rock on left.

Station Elevation Data	num=	256
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev		
0 50.98 .15 50.94 3.2 50 3.61 49.85 5.97 49		
6.43 48.74 7.73 48 8.43 47.6 9.49 47 10.54 46.4		

Goodwi vesDari enEX. rep

11.24	46	12.94	45.04	13.01	45	13.14	44.92	14.88	44
15.86	43.48	16.98	43	19.09	42.09	19.29	42	19.7	41.74
20.88	41	21.5	40.62	22.49	40	23.63	39.28	24.09	39
24.27	38.89	24.67	38.65	25.72	38	27.33	37	28.93	36
29.39	35.71	30.5	35	31.41	34.42	32.06	34	32.93	33.45
33.65	33	35.08	32.1	35.23	32	35.81	31.63	36.81	31
37.2	30.76	38.4	30	39.59	29.24	39.98	29	40.48	28.68
41.59	28	42.51	27.43	43.2	27	44.43	26.24	44.82	26
44.94	25.93	46.43	25	46.96	24.63	47.87	24	48.82	23.32
49.27	23	50.33	22.24	50.54	22.1	50.68	22	51.6	21.36
52.12	21	53.56	20.02	53.58	20	54.74	19.2	55.04	19
56.01	18.33	56.5	18	57.6	17.37	58.13	17	59.34	16.59
61.11	16	62.92	15.36	63.92	15	66.25	14.16	66.73	14
69.16	13.18	69.7	13	75.79	12.05	76.27	12	86.25	11.21
89.89	11	94.43	11.17	98.27	12	99.58	12.22	101.82	12.68
103.4	13	107.54	12.48	108.36	12	108.58	11.87	110.06	11
151.04	11.85	152.45	12	153.08	12.1	157.45	13	158.67	13.26
162.21	14	162.42	14.06	163.04	14.21	166.28	15	170.25	15.98
170.32	16	170.34	16.01	172.18	17	172.74	17.32	173.92	18
174.7	18.46	175.8	19	176.51	19.34	177.84	20	179.21	20.66
179.87	21	181.02	21.27	183.55	22	186.54	22.88	186.98	23
190.19	23.98	190.25	24	190.43	24.05	193.59	25	194.83	25.4
195.85	25.5	197.48	25.71	198.16	25.72	199.6	25.7	200.38	25.68
203.05	25.72	203.58	25.74	206.25	26	209	26.26	213.14	26.61
216.12	27	219.57	27.87	220.09	28	222.64	28.65	224.01	29
228.76	29.78	230.13	30	231.42	30.09	239.01	30.62	243.09	31
262.94	30.27	264.62	30	265.71	29.66	268	29	269.64	28.34
270.46	28	271.68	27.5	272.89	27	273.52	26.74	274.76	26.22
275.31	26	277.05	25.29	277.72	25	278.5	24.66	280	24
281.83	23.18	281.93	23.14	282.02	23.09	282.25	23	282.28	22.98
282.29	22.97	283.47	22	284.36	21.11	284.46	21	285.35	20.1
285.45	20	286.33	19.1	286.43	19	287.32	18.1	287.42	18
288.31	17.1	288.41	17	289.29	16.1	289.39	16	289.52	15.86
290.36	15	291.16	14.11	291.25	14	291.33	13.87	291.85	13
292.16	12.53	292.52	12	293.09	11.14	293.18	11	293.34	10.77
293.84	10	294.07	7.82	294.18	7.8	294.46	6.66	294.7	6.8
295	4.9	298	3.5	302	1.4	345	.3	374	1.4
380	3.5	385	4.9	386.35	13	389.2	13.95	389.34	14
389.41	14.03	392.04	15	393.16	15.68	393.63	16	394.33	16.46
395.2	17	396.08	17.59	396.73	18	398	18.86	398.22	19
398.65	19.29	399.64	20	400.26	20.36	401.38	21	403.83	21.85
404.29	22	405.56	22.42	407.43	23	408.12	23.22	410.72	24
411.01	24.11	412.08	24.5	412.41	24.63	413.42	25	414.38	25.47
415.32	25.93	415.47	26	417	26.75	417.52	27	418.5	27.48
419.57	28	419.67	28.05	419.74	28.08	421.26	28.81	421.66	29
423.07	29.67	423.76	30	425.65	30.51	427.65	31	431.26	31.81
432.1	32	432.92	32.19	436.03	33	439.18	33.83	439.83	34
440.34	34.13	443.61	35	448.15	34.94	448.4	34.9	449.01	34.82
450.35	34.64	454.78	34	457.6	33.67	463.34	33	463.52	32.98
464.57	32.88								

Manning's n Values	num=	5
Sta n Val	Sta n Val	Sta n Val
0 .04	197.48	.1 262.94 .05 295 .03 385 .06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff	Contr.	Expan.
295	385	1153.81	1250.29	1090.34	.1	.3
Blocked Obstructions	num=	1				
Sta L	Sta R	Elev				
200.57	247.61	32.35				

CROSS SECTION

Goodwi vesDari enEX. rep

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem

RS: 2223

INPUT

Description: UPDATED- 3.0 FEMA A - Downstream model cross section in Gorham's Pond

EXISTING - Overbank updated. Allow horizontal variation of  
 n to account for higher n at home in floodplain.

Station	Elevation	Data	num=	312	Station	Elevation	Station	Elevation	Station	Elevation
0	53.35	.38	53.26	1.31	53.06	1.57	53	6.12	52.19	
7.18	52	12.51	51.05	12.8	51	18.22	50.04	18.43	50	
18.73	49.95	24.44	49	28.38	48.37	30.67	48	32.02	47.78	
37.1	47	40.59	46.46	43.6	46	49.68	45.05	49.98	45	
50.21	44.96	56.21	44	60.14	43.2	61.28	43	63.13	42.68	
66.96	42	72.52	41.04	72.76	41	72.9	40.98	73.59	40.86	
73.81	40.82	76.03	40.42	78.19	40	79.73	39.69	82.43	39	
84.54	38.37	85.77	38	88	37.33	89.11	37	90.68	36.52	
91.71	36.21	92.43	36	92.94	35.83	93.47	35.65	94.68	35.24	
95.44	35	96.6	34.6	98.06	34.08	98.25	34.01	98.29	34	
100.53	33.23	101.2	33	102.53	32.54	104	32.04	104.03	32.02	
104.11	32	104.81	31.77	104.93	31.73	105.21	31.63	105.89	31.4	
106.95	31	106.97	30.99	108.54	30.49	108.66	30.45	109.07	30.29	
109.83	30	111.48	29.38	112.52	29	113.55	28.61	115.18	28	
117.46	27.3	118.44	27	121.54	26.47	124.99	26	125.59	25.91	
126.66	25.75	129.66	25.33	131.84	25	133.03	24.81	136.51	24.28	
138.48	24	140.8	23.67	144.08	23.21	145.04	23.06	145.45	23	
150.25	22.3	152.31	22	161.17	21.01	161.23	21	161.29	20.99	
169.01	20.28	171.63	20	171.9	19.98	174.81	19.75	179.36	19.34	
182.87	19	186.51	18.64	192.36	18	196.79	17.13	197.32	17	
198.41	16.77	203.02	16	205.94	15.45	209.24	15	221.18	14.46	
225.23	14.19	228.15	14	230.76	13.43	232.75	13	233.81	12.76	
235.57	12.36	237.21	12	238.88	11.62	241.65	11	243.07	10.66	
245.62	10	246.09	9.88	249.51	9	252.41	8.22	253.24	8	
253.88	7.92	254.2	7.88	258.93	7.37	260.81	7.32	263.25	7.23	
266.2	7	270.63	6.42	273.56	6.25	274.22	6.22	275.29	6.2	
276.39	6.19	277.36	6.16	277.77	6.15	279.18	6.1	280.2	6.09	
280.41	6.08	282.02	6.26	284.88	6.47	295.61	6.13	300.1	6.23	
304.35	6.16	305.3	6.12	309.14	6	318.5	5.86	319.32	5.85	
321.39	5.83	324.42	5.84	325.14	5.88	341.26	5.92	344.99	6	
370.52	6.43	373.94	6.66	375.03	6.71	375.84	6.75	378.97	7	
397.07	7.4	398.8	7.44	404.77	7.74	406.02	7.78	410.1	8	
410.33	8.57	410.63	9	410.9	9.95	410.93	10	411.41	10.84	
411.48	11	415.43	10.59	418.4	10.62	419.91	10.44	421.21	10.28	
454.59	10	466.72	9.47	471	8.9	480.5	8	480.6	9.1	
482	9	482.1	3	507	.4	565	.3	580	.1	
632	-.2	703	2.7	703.5	7	703.81	8.29	706.5	9	
708.73	9.59	710.26	10	712.32	10.55	713.97	11	715.98	11.73	
716.73	12	718.04	12.5	719.34	13	722.06	13.24	725.27	13.48	
725.99	13.53	731.93	13.96	732.04	13.97	732.15	13.98	732.79	14	
737.94	13.98	740.16	14	744.21	13.95	744.28	13.94	751.25	13.87	
752.58	13.83	755.54	13.77	757.81	13.69	758.5	13.67	762.48	13.51	
770.32	13.36	770.71	13.33	772.34	13.24	773.48	13.18	775.09	13.1	
776.67	13.01	776.79	13	778.53	12.91	779.4	12.86	780.93	12.77	
783.24	12.67	784.81	12.61	786.16	12.59	788.1	12.52	789.51	12.47	
792.96	12.53	793.29	12.54	795.13	12.58	796.14	12.59	799.19	12.6	
802.41	12.76	811.79	12.83	816.74	13	822.43	13.45	823.28	13.51	
824.62	13.59	826.7	13.76	828.24	13.83	829.99	13.92	831.14	14	
834.35	14.15	835.58	14.16	836.62	14.21	838.76	14.37	839.51	14.42	
841.01	14.52	847.56	15	849.67	15.21	852.58	15.58	854.38	15.79	
855.95	16	856.87	16.25	858.7	16.74	859.66	17	863.1	17.93	

Goodwi vesDari enEX. rep

863.36	18	865.49	18.58	866.06	18.73	867.28	19	870.21	19.82
870.81	20	873.43	20.81	874.01	21	875.47	21.48	877.1	22
879.11	22.67	880.13	23	882.42	23.92	882.62	24	884.97	24.97
885.06	25	886.42	25.56	887.5	26	887.63	26.05	889.93	27
890.27	27.13	892.35	28	892.95	28.2	895.29	29	896.76	29.45
898.54	30	899.91	30.44	901.72	31	903.96	31.72	904.85	32
907.41	32.84	907.91	33	911.07	33.99	911.11	34	911.25	34.04
914.63	35	916.2	35.44	918.16	36	920.14	36.56	921.68	37
923.84	37.61	925.19	38	927.46	38.64	928.71	39	929.74	39.36
931.83	40	933.02	40.42	934.62	41	936.02	41.5	937.4	42
939.2	42.64	940.18	43	942.84	43.95	942.93	43.98	942.98	44
943.15	44.06	945.87	45						

Manning's n	Values	num=	5						
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.045	404.77	.1	466.72	.045	482	.03	703.81	.04

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	482	703.81		2192.58	2222.97	2474.51	.1	.3
Blocked Obstructions			num=	1				
Sta L	Sta R	Elev						
408.43	454.09	15.35						

CROSS SECTION

RIVER: Goodwi ves Ri ver  
 REACH: mai nstem RS: 0

INPUT

Descripti on: copi ed 3.0 FEMA A - to Rings End Road to correct channel distance

EXI SING - updated overbank with town topo.

Station	Elevati on	Data	num=	131					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	29.04	.77	29	7.55	28.3	10.87	28	13.25	27.84
13.92	27.83	19.42	27.6	33.91	27.04	34.75	27	35.99	26.92
36.11	26.91	48.96	26	49.57	25.93	58.12	25	61.86	24.58
66.38	24	73.17	23.23	75.79	23	86.99	22.01	87.13	22
93.3	21.34	96.82	21	97.74	20.89	105.55	20	106.63	19.86
109.24	19.57	112.08	19.26	113.23	19.11	114.34	19	116.18	18.79
122.96	18	127.02	17.72	131.79	17	136.27	16.36	145.39	16
146.95	15.94	154.53	15.46	161.43	15.17	164.23	15	177.25	14.29
182.28	14	188.25	13.76	189.25	13.71	190.82	13.65	204.28	13
207.94	12.27	208.73	12	218.77	11.18	219.61	11.12	219.67	11.11
220.8	11	226.89	10.29	227.7	10.2	231.24	10	237.47	9.8
246	9.34	247.62	9.33	251.23	9.34	269.48	9.57	285.12	10
314.06	9.66	314.14	9.64	316.28	9	317.04	8.77	318.49	8.24
319.02	7.89	319.13	7.86	319.55	7.41	320.87	6.25	321.58	7
321.67	6.88	321.71	5.9	321.79	6	322.16	6.75	323.71	6
325.39	5.04	325.47	5	325.56	4.95	327.04	4	327.4	3.75
328.06	3.34	382	.4	440	.3	455	.1	507	-.2
578	2.7	578.84	3.81	583.59	3.91	583.98	3.93	585.05	4
585.85	4.44	586.3	5	586.62	5.46	586.78	5.66	586.98	6
587.19	6.45	587.54	7	587.99	7.07	588.68	7.09	591.66	7.15
592.22	7.13	592.94	6.45	593.44	5.87	597.21	8	619.32	7.63
623	7.67	623.25	7.35	628.66	7.71	630.55	7.73	633.79	7.74
643.99	8	686.99	7.75	700.62	7.71	716.86	7.73	724.72	7.7
730.91	7.69	746.43	7.77	760.3	7.79	764	7.81	769.88	8
896.72	8.1	900.56	8.37	901.93	8.39	903.83	8.5	910.99	8.6
920.2	9	951.16	9.05	957.07	9.18	958.79	9.23	962.84	9.38
970.6	9.89								



Goodwies Dari enEX. rep

Manning's n Values num= 3  
 Sta n Val Sta n Val Sta n Val  
 0 .045 314.14 .03 588.68 .04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 314.14 588.68 0 0 0 .1 .3

SUMMARY OF MANNING'S N VALUES

River: Goodwies River

Reach n6	n7	River Sta.	n1	n2	n3	n4	n5
mainstem		17555	.1	.035	.045		
mainstem		17496	.1	.035	.045	.1	
mainstem		17460	.1	.035	.045		
mainstem		17440	Culvert				
mainstem		17398	.1	.035	.045		
mainstem		17382	.12	.035	.045		
mainstem		17219	.12	.035	.045		
mainstem		16661	.035	.085	.045	.085	.035
mainstem	.1	16114	.085	.1	.085	.035	.085
mainstem	.085	15841	.085	.1	.085	.035	.09
mainstem		15695	.1	.035	.1		
mainstem		15579	.1	.035	.1		
mainstem		15417	.1	.045	.075		
mainstem		14879	.1	.035	.08	.045	.1
mainstem		14633	.04	.035	.04		
mainstem		14611	.04	.035	.04		
mainstem		14609	Inl Struct				
mainstem		14601	.055	.035	.04		
mainstem		14595	.055	.035	.04		
mainstem		14580	Culvert				
mainstem		14556	.055	.035	.055		
mainstem		14524	.055	.035	.055		

		Goodwi vesDari enEX. rep					
mai nstem	14493	.055	.035	.055			
mai nstem	14473	Inl Struct					
mai nstem .055	14452	.055	.1	.055	.035	.1	
mai nstem .055	14386	.055	.1	.055	.035	.1	
mai nstem	14182	.04	.045	.04	.1	.04	
mai nstem .035	14147	.05	.1	.035	.1	.045	
mai nstem .1	14047	.05	.1	.015	.1	.035	
mai nstem	13728	.04	.03	.05	.1	.05	
mai nstem	13706	.04	.03	.05	.1	.05	
mai nstem	13695	Inl Struct					
mai nstem	13683	.04	.04	.05	.1	.05	
mai nstem	13653	.1	.04	.1			
mai nstem	13351	.08	.04	.05			
mai nstem	13328	.08	.035	.035	.015	.035	
mai nstem	13322	Bri dge					
mai nstem	13295	.08	.035	.035	.1	.035	
mai nstem	13260	.08	.035	.035	.1	.035	
mai nstem .1	13199	.1	.04	.07	.035	.035	
mai nstem	13182	Inl Struct					
mai nstem .07	13132	.1	.04	.07	.035	.04	
mai nstem	13017	.04	.04	.07			
mai nstem	12975	.04	.04	.07			
mai nstem	12958	Cul vert					
mai nstem	12913	.07	.045	.07	.04		
mai nstem	12836	.07	.045	.04			
mai nstem	12289	.12	.035	.04	.1		
mai nstem	12226	.1	.035	.04	.1		
mai nstem	12167	.1	.035	.04			
mai nstem	12144	.1	.045	.05			
mai nstem	11951	.04	.07	.045	.04		
mai nstem	11930	.04	.07	.045	.04		
mai nstem	11911	Bri dge					

Goodwi vesDari enEX. rep

mai nstem	11869	. 04	. 045	. 06		
mai nstem	11850	. 1	. 04	. 045	. 04	. 1
mai nstem	11517	. 1	. 04	. 045	. 06	
mai nstem	11381	. 1	. 05	. 045	. 1	. 02
mai nstem	11332	. 04	. 035	. 04	. 1	
mai nstem	11303		Bri dge			
mai nstem	11231	. 045	. 045	. 045		
mai nstem	11206	. 1	. 03	. 035	. 1	
mai nstem	11078	. 1	. 03	. 035	. 03	. 1
mai nstem	10548	. 1	. 08	. 03	. 08	. 1
mai nstem	10522	. 1	. 08	. 03	. 015	. 1
mai nstem	10503		Bri dge			
mai nstem	10454	. 015	. 1	. 015	. 03	. 015
mai nstem	10399	. 1	. 015	. 03	. 015	. 1
mai nstem	10075	. 1	. 015	. 03	. 035	. 015
. 1 mai nstem	9984	. 1	. 015	. 03	. 035	. 015
mai nstem	9945		Cul vert			
mai nstem	9904	. 1	. 015	. 03	. 035	. 015
mai nstem	9865	. 1	. 015	. 03	. 035	. 015
mai nstem	9782	. 1	. 015	. 03	. 1	. 015
mai nstem	9666	. 09	. 04	. 07	. 015	
mai nstem	9623	. 09	. 035	. 07		
mai nstem	9560		Bri dge			
mai nstem	9502	. 035	. 1	. 035	. 035	. 035
mai nstem	9493	. 035	. 1	. 035	. 035	. 035
mai nstem	9446		Cul vert			
mai nstem	9401	. 015	. 08	. 035	. 08	. 015
. 035 mai nstem	9345	. 015	. 08	. 035	. 08	. 015
. 035 mai nstem	8937	. 08	. 035	. 08	. 015	. 035
. 1 mai nstem	8804	. 08	. 035	. 08	. 015	. 1
mai nstem	7959	. 05	. 035	. 05	. 015	. 1
. 15						

		Goodwi vesDari enEX. rep				
mai nstem	7821	.05	.035	.015		
mai nstem	7779	.035	.015	.035	.05	
mai nstem	7715	Bri dge				
mai nstem	7650	.035	.015			
mai nstem	7637	.035	.035	.015		
mai nstem	7582	Cul vert				
mai nstem	7519	.08	.04	.08	.015	
mai nstem	7454	.08	.04	.08	.015	
mai nstem	7279	.08	.04	.08	.015	
mai nstem	7253	.08	.04	.08	.015	
mai nstem	7243	Bri dge				
mai nstem	7216	.05	.1	.02	.04	.05
mai nstem	7204	.05	.1	.02	.04	.05
mai nstem	7160	.1	.05	.04	.05	.1
mai nstem	7112	.1	.05	.04	.05	.1
mai nstem	6927	.045	.035	.1		
mai nstem	6882	.055	.035	.08		
mai nstem	6866	Cul vert				
mai nstem	6800	.07	.035	.07		
mai nstem	6724	.07	.035	.07	.1	
mai nstem	6579	.08	.035	.04		
mai nstem	6067	.08	.035	.08		
mai nstem	6029	Inl Struct				
mai nstem	5986	.08	.035	.08		
mai nstem	5726	.075	.04	.11		
mai nstem	5544	.04	.03	.12		
mai nstem	5511	Inl Struct				
mai nstem	5472	.1	.04	.1		
mai nstem	5241	.1	.04	.1		
mai nstem	5191	.1	.03	.1		
mai nstem	4633	.06	.03	.05	.03	.06
mai nstem	4593	.06	.03	.05	.03	.06

Goodwi vesDari enEX. rep

mai nstem	4582	Inl Struct					
mai nstem	4567		. 08	. 05	. 08		
mai nstem	4515		. 08	. 03	. 08		
mai nstem	4477		. 08	. 03	. 08		
mai nstem	4461	Bri dge					
mai nstem	4392		. 08	. 03	. 06		
mai nstem	4303		. 05	. 085	. 03	. 04	. 1
mai nstem	3473		. 04	. 1	. 05	. 03	. 06
mai nstem	2223		. 045	. 1	. 045	. 03	. 04
mai nstem	0		. 045	. 03	. 04		

SUMMARY OF REACH LENGTHS

Ri ver: Goodwi ves Ri ver

Reach	Ri ver Sta.	Left	Channel	Ri ght
mai nstem	17555	53. 91	58. 87	62. 42
mai nstem	17496	41. 8	35. 44	36. 14
mai nstem	17460	65. 75	62. 14	62. 72
mai nstem	17440	Cul vert		
mai nstem	17398	17. 94	15. 98	14. 57
mai nstem	17382	157. 12	163. 13	169. 14
mai nstem	17219	469. 76	558. 15	575. 75
mai nstem	16661	555. 23	546. 9	450. 93
mai nstem	16114	263. 73	273. 45	263. 27
mai nstem	15841	113. 29	145. 17	113. 19
mai nstem	15695	109. 3	116. 27	108. 5
mai nstem	15579	161. 72	161. 74	160. 9
mai nstem	15417	358. 57	538. 7	428. 42
mai nstem	14879	349. 74	245. 64	156. 54
mai nstem	14633	20. 11	22. 14	18. 55
mai nstem	14611	9. 62	10. 05	10. 85
mai nstem	14609	Inl Struct		
mai nstem	14601	5. 44	5. 45	6. 93
mai nstem	14595	45. 42	39. 78	54. 24
mai nstem	14580	Cul vert		
mai nstem	14556	9. 79	31. 9	80. 19
mai nstem	14524	31	31	31
mai nstem	14493	22. 28	40. 74	63. 42
mai nstem	14473	Inl Struct		
mai nstem	14452	63	66. 43	14. 02
mai nstem	14386	214. 8	203. 82	191. 38
mai nstem	14182	31. 84	34. 76	37. 08
mai nstem	14147	49. 23	100. 19	133. 1
mai nstem	14047	381. 8	319. 57	244. 26
mai nstem	13728	22. 1	21. 32	21. 37
mai nstem	13706	24. 19	23. 57	24

GoodwiesDari enEX. rep

mainstem	13695			
mainstem	13683	Inl Struct		
mainstem	13653	30.46	29.59	30.13
mainstem	13351	285.33	302.38	283.89
mainstem	13328	22.63	22.79	24.51
mainstem	13322	40.34	33.12	33.03
mainstem	13295	Bri dge		
mainstem	13260	36.38	34.82	28.6
mainstem	13199	56.11	60.5	60.42
mainstem	13182	49.92	67.17	72.13
mainstem	13132	Inl Struct		
mainstem	13017	117.85	115.47	114.54
mainstem	12975	34.99	41.82	42.25
mainstem	12958	58.91	62.38	61.46
mainstem	12913	Cul vert		
mainstem	12836	76.07	76.56	75.2
mainstem	12289	556.33	546.79	510.17
mainstem	12226	65.15	63.24	33.04
mainstem	12167	27.9	58.81	72.27
mainstem	12144	18.53	23.02	25.24
mainstem	11951	194.66	193.21	183.32
mainstem	11930	22.68	21.19	24.09
mainstem	11911	59.92	60.56	60.06
mainstem	11869	Bri dge		
mainstem	11850	18.53	18.7	17.74
mainstem	11517	329.62	333.16	332.01
mainstem	11381	133.61	135.88	138.26
mainstem	11332	46.08	49.26	45.16
mainstem	11303	101.21	100.79	105.18
mainstem	11231	Bri dge		
mainstem	11206	16.59	25.73	25.47
mainstem	11078	142.81	127.42	126.63
mainstem	10548	506.8	529.84	518.41
mainstem	10522	19.11	26	26.2
mainstem	10503	73.43	68.18	76.5
mainstem	10454	Bri dge		
mainstem	10399	94.96	55.22	28.02
mainstem	10075	294.27	323.99	319.72
mainstem	9984	68.4	90.55	94.02
mainstem	9945	64.86	80.89	85.51
mainstem	9904	Cul vert		
mainstem	9865	32.42	39.07	37.29
mainstem	9782	76.15	82.88	81.29
mainstem	9666	127.35	115.34	63.59
mainstem	9623	18.25	43.07	39.64
mainstem	9560	114.83	121.46	137.73
mainstem	9502	Bri dge		
mainstem	9493	9.96	9.08	8.65
mainstem	9446	95.23	91.77	91.57
mainstem	9401	Cul vert		
mainstem	9345	64.74	55.74	56.12
mainstem	8937	435.7	407.77	372.14
mainstem	8804	121.14	132.93	142.3
mainstem	7959	848.42	845.54	781.68
mainstem	7821	124.42	137.98	148.73
mainstem	7779	22.25	42.41	72.4
mainstem	7715	129.29	129.05	130.12
mainstem	7650	Bri dge		
mainstem	7637	13.58	12.32	11.29
mainstem	7582	123.69	117.75	102.37
mainstem	7519	Cul vert		
mainstem	7454	85.67	65.22	32.3
mainstem	7279	170.89	175.41	168.07
mainstem		10.81	25.38	30.06

		Goodwi vesDari enEX. rep		
mai nstem	7253	34. 44	37. 06	38. 05
mai nstem	7243			
mai nstem	7216	Bri dge	11. 52	12. 8
mai nstem	7204		47. 59	43. 36
mai nstem	7160		49. 69	48. 17
mai nstem	7112		172. 77	185. 52
mai nstem	6927		60. 53	44. 07
mai nstem	6882		90. 14	82. 15
mai nstem	6866	Cul vert		
mai nstem	6800		72. 05	76. 57
mai nstem	6724		153. 4	144. 26
mai nstem	6579		506. 88	512. 44
mai nstem	6067		52. 42	81. 33
mai nstem	6029	Inl Struct		
mai nstem	5986		282. 34	260. 01
mai nstem	5726		147. 85	181. 67
mai nstem	5544		72. 56	72. 49
mai nstem	5511	Inl Struct		
mai nstem	5472		280. 64	230. 97
mai nstem	5241		51. 39	49. 08
mai nstem	5191		546. 68	558. 91
mai nstem	4633		40. 55	39. 14
mai nstem	4593		27. 89	26. 55
mai nstem	4582	Inl Struct		
mai nstem	4567		54. 47	51. 57
mai nstem	4515		40. 45	38. 18
mai nstem	4477		86. 77	85. 52
mai nstem	4461	Bri dge		
mai nstem	4392		87. 07	89. 01
mai nstem	4303		816. 38	829. 34
mai nstem	3473		1153. 81	1250. 29
mai nstem	2223		2192. 58	2222. 97
mai nstem	0		0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS  
 Ri ver: Goodwi ves Ri ver

Reach	Ri ver Sta.	Contr.	Expan.
mai nstem	17555	. 1	. 3
mai nstem	17496	. 3	. 5
mai nstem	17460	. 3	. 5
mai nstem	17440	Cul vert	
mai nstem	17398	. 3	. 5
mai nstem	17382	. 3	. 5
mai nstem	17219	. 1	. 3
mai nstem	16661	. 1	. 3
mai nstem	16114	. 1	. 3
mai nstem	15841	. 1	. 3
mai nstem	15695	. 1	. 3
mai nstem	15579	. 1	. 3
mai nstem	15417	. 1	. 3
mai nstem	14879	. 1	. 3
mai nstem	14633	. 3	. 5
mai nstem	14611	. 3	. 5
mai nstem	14609	Inl Struct	
mai nstem	14601	. 3	. 5
mai nstem	14595	. 3	. 5
mai nstem	14580	Cul vert	

Goodwi vesDari enEX. rep

mai nstem	14556	.3	.5
mai nstem	14524	.3	.5
mai nstem	14493	.3	.5
mai nstem	14473	Inl Struct	
mai nstem	14452	.3	.5
mai nstem	14386	.3	.5
mai nstem	14182	.1	.3
mai nstem	14147	.1	.3
mai nstem	14047	.1	.3
mai nstem	13728	.3	.5
mai nstem	13706	.3	.5
mai nstem	13695	Inl Struct	
mai nstem	13683	.3	.5
mai nstem	13653	.3	.5
mai nstem	13351	.3	.5
mai nstem	13328	.3	.5
mai nstem	13322	Bri dge	
mai nstem	13295	.3	.5
mai nstem	13260	.3	.5
mai nstem	13199	.3	.5
mai nstem	13182	Inl Struct	
mai nstem	13132	.3	.5
mai nstem	13017	.3	.5
mai nstem	12975	.3	.5
mai nstem	12958	Cul vert	
mai nstem	12913	.3	.5
mai nstem	12836	.3	.5
mai nstem	12289	.1	.3
mai nstem	12226	.1	.3
mai nstem	12167	.1	.3
mai nstem	12144	.1	.3
mai nstem	11951	.3	.5
mai nstem	11930	.3	.5
mai nstem	11911	Bri dge	
mai nstem	11869	.3	.5
mai nstem	11850	.3	.5
mai nstem	11517	.1	.3
mai nstem	11381	.3	.5
mai nstem	11332	.3	.5
mai nstem	11303	Bri dge	
mai nstem	11231	.3	.5
mai nstem	11206	.3	.5
mai nstem	11078	.1	.3
mai nstem	10548	.3	.5
mai nstem	10522	.3	.5
mai nstem	10503	Bri dge	
mai nstem	10454	.3	.5
mai nstem	10399	.3	.5
mai nstem	10075	.3	.5
mai nstem	9984	.3	.5
mai nstem	9945	Cul vert	
mai nstem	9904	.3	.5
mai nstem	9865	.3	.5
mai nstem	9782	.1	.3
mai nstem	9666	.3	.5
mai nstem	9623	.3	.5
mai nstem	9560	Bri dge	
mai nstem	9502	.3	.5
mai nstem	9493	.3	.5
mai nstem	9446	Cul vert	
mai nstem	9401	.3	.5
mai nstem	9345	.3	.5
mai nstem	8937	.1	.3



		Goodwi ves	Dari enEX. rep
mai nstem	8804	.1	.3
mai nstem	7959	.1	.3
mai nstem	7821	.3	.5
mai nstem	7779	.3	.5
mai nstem	7715	Bri dge	
mai nstem	7650	.3	.5
mai nstem	7637	.3	.5
mai nstem	7582	Cul vert	
mai nstem	7519	.3	.5
mai nstem	7454	.3	.5
mai nstem	7279	.3	.5
mai nstem	7253	.3	.5
mai nstem	7243	Bri dge	
mai nstem	7216	.3	.5
mai nstem	7204	.3	.5
mai nstem	7160	.1	.3
mai nstem	7112	.1	.3
mai nstem	6927	.3	.5
mai nstem	6882	.3	.5
mai nstem	6866	Cul vert	
mai nstem	6800	.3	.5
mai nstem	6724	.3	.5
mai nstem	6579	.1	.3
mai nstem	6067	.3	.5
mai nstem	6029	Inl Struct	
mai nstem	5986	.3	.5
mai nstem	5726	.1	.3
mai nstem	5544	.3	.5
mai nstem	5511	Inl Struct	
mai nstem	5472	.3	.5
mai nstem	5241	.1	.3
mai nstem	5191	.1	.3
mai nstem	4633	.3	.5
mai nstem	4593	.3	.5
mai nstem	4582	Inl Struct	
mai nstem	4567	.3	.5
mai nstem	4515	.3	.5
mai nstem	4477	.3	.5
mai nstem	4461	Bri dge	
mai nstem	4392	.3	.5
mai nstem	4303	.3	.5
mai nstem	3473	.1	.3
mai nstem	2223	.1	.3
mai nstem	0	.1	.3

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## **Existing Conditions Model Output**

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Goodwiv esDari en. rep

HEC-RAS Version 4.1.0 Jan 2010  
 U. S. Army Corps of Engineers  
 Hydrologic Engineering Center  
 609 Second Street  
 Davis, California

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X      X  XXXXXX   XXXX       XXXX       XX       XXXX
X      X  X        X      X       X      X       X
X      X  X        X        X       X      X       X
XXXXXXXX XXXX     X      XXX     XXXXXX   XXXX
X      X  X        X        X       X      X       X
X      X  X        X      X       X      X       X
X      X  XXXXXX   XXXX       X      X       XXXXX
    
```

PROJECT DATA

Project Title: Goodwiv esDari en  
 Project File : Goodwiv esDari en. prj  
 Run Date and Time: 5/12/2011 10:37:22 AM

Project in English units

Profile Output Table - Standard Table 1

Reach E. G. Slope (ft/ft)	River Vel Chnl (ft/s)	Sta Flow Area (sq ft)	Profile Top Width (ft)	Q Total Froude # (cfs)	Min Ch El (ft)	W. S. El ev (ft)	Cri t W. S. (ft)	E. G. El ev (ft)
mainstem 0.006691	17555 7.21	100yr- 411.63	207.84	970.80	130.83	136.31		136.57
mainstem 0.008360	17555 8.10	100yr(encr) 252.67	69.39	970.80	130.83	137.12		137.58
mainstem 0.004451	17555 5.42	10yr 305.16	184.34	542.90	130.83	135.76		135.93
mainstem 0.006049	17555 6.66	50yr 371.23	198.08	811.90	130.83	136.11		136.34
mainstem 0.007302	17555 7.90	500-yr 488.89	227.67	1252.20	130.83	136.66		136.95
mainstem	17496	100yr-		970.80	130.18	136.14		136.27

				Goodwi vesDari en. rep			
0.003347	5.44	543.65	235.79	0.42			
mainstem	17496		100yr(encr)	970.80	130.18	136.98	137.19
0.004036	5.83	344.98	80.39	0.42			
mainstem	17496		10yr	542.90	130.18	135.68	135.75
0.001791	3.74	440.33	213.63	0.30			
mainstem	17496		50yr	811.90	130.18	135.97	136.08
0.002831	4.89	504.04	226.94	0.38			
mainstem	17496		500-yr	1252.20	130.18	136.46	136.62
0.003936	6.14	621.89	250.23	0.46			

mainstem	17460		100yr-	970.80	129.70	135.82	134.74	136.11
0.002764	5.67	465.46	229.06	0.44				
mainstem	17460		100yr(encr)	970.80	129.70	136.75	134.94	137.05
0.002255	5.40	344.64	86.86	0.38				
mainstem	17460		10yr	542.90	129.70	135.56	133.64	135.68
0.001142	3.53	408.42	216.46	0.28				
mainstem	17460		50yr	811.90	129.70	135.73	134.54	135.95
0.002120	4.91	445.90	224.82	0.38				
mainstem	17460		500-yr	1252.20	129.70	135.97	135.24	136.39
0.003976	6.93	500.40	240.48	0.53				

				Cul vert				
mainstem	17440							
mainstem	17398		100yr-	970.80	129.31	134.25	134.25	134.44
0.003587	5.64	492.03	218.37	0.48				
mainstem	17398		100yr(encr)	970.80	129.31	135.10	134.25	135.46
0.004245	6.58	310.14	84.51	0.52				
mainstem	17398		10yr	542.90	129.31	133.59	133.59	135.29
0.015862	10.62	55.06	206.29	0.99				
mainstem	17398		50yr	811.90	129.31	134.25	134.25	134.38
0.002509	4.71	492.03	218.37	0.40				
mainstem	17398		500-yr	1252.20	129.31	134.25	134.25	134.57
0.005968	7.27	492.03	218.37	0.62				

mainstem	17382		100yr-	970.80	129.06	132.97		133.46
0.012780	8.80	358.24	216.44	0.93				
mainstem	17382		100yr(encr)	970.80	129.06	133.65	133.65	135.03
0.017767	11.57	167.19	57.59	1.13				
mainstem	17382		10yr	542.90	129.06	132.23	132.23	132.72
0.014278	8.07	214.97	181.39	0.96				
mainstem	17382		50yr	811.90	129.06	132.69	132.54	133.18
0.013475	8.60	300.53	195.56	0.95				
mainstem	17382		500-yr	1252.20	129.06	133.38		133.86

				Goodwi vesDari en. rep			
				0. 90			
0. 011608	8. 96	451. 49	231. 90				
mai nstem	17219	100yr-		970. 80	126. 47	130. 74	130. 74
0. 010324	8. 54	255. 64	159. 10	0. 88			131. 53
mai nstem	17219	100yr(encr)		970. 80	126. 47	131. 21	131. 21
0. 011617	9. 67	143. 97	61. 50	0. 93			132. 53
mai nstem	17219	10yr		542. 90	126. 47	130. 12	130. 12
0. 009460	6. 99	161. 18	149. 63	0. 81			130. 73
mai nstem	17219	50yr		811. 90	126. 47	130. 54	130. 54
0. 009947	8. 00	224. 29	155. 99	0. 86			131. 26
mai nstem	17219	500-yr		1252. 20	126. 47	131. 08	131. 05
0. 010496	9. 27	310. 50	164. 65	0. 91			131. 97
mai nstem	16661	100yr-		970. 80	119. 81	123. 07	122. 85
0. 015329	5. 60	189. 66	168. 98	0. 77			123. 55
mai nstem	16661	100yr(encr)		970. 80	119. 81	123. 66	123. 93
0. 005901	4. 20	231. 02	104. 50	0. 50			123. 93
mai nstem	16661	10yr		542. 90	119. 81	122. 84	123. 05
0. 007930	3. 68	153. 60	147. 80	0. 54			123. 05
mai nstem	16661	50yr		811. 90	119. 81	122. 89	122. 64
0. 016069	5. 33	160. 28	154. 69	0. 78			123. 33
mai nstem	16661	500-yr		1252. 20	119. 81	123. 13	123. 13
0. 022267	6. 92	200. 63	174. 60	0. 94			123. 86
mai nstem	16114	100yr-		970. 80	113. 40	117. 00	116. 87
0. 008299	7. 45	389. 82	464. 01	0. 78			117. 52
mai nstem	16114	100yr(encr)		970. 80	113. 40	117. 63	117. 63
0. 012828	10. 17	101. 98	35. 41	0. 97			119. 21
mai nstem	16114	10yr		542. 90	113. 40	116. 59	116. 59
0. 012456	8. 20	72. 70	51. 53	0. 94			117. 62
mai nstem	16114	50yr		811. 90	113. 40	116. 77	116. 76
0. 008144	6. 97	297. 56	361. 01	0. 77			117. 24
mai nstem	16114	500-yr		1252. 20	113. 40	117. 46	117. 00
0. 005049	6. 42	612. 52	515. 20	0. 63			117. 77
mai nstem	15841	100yr-		970. 80	111. 09	116. 52	115. 17
0. 001501	3. 72	719. 45	423. 64	0. 32			116. 59
mai nstem	15841	100yr(encr)		970. 80	111. 09	117. 41	115. 91
0. 002117	4. 69	434. 40	131. 20	0. 36			117. 58
mai nstem	15841	10yr		542. 90	111. 09	115. 47	115. 02
0. 002373	3. 88	361. 57	260. 59	0. 38			115. 57
mai nstem	15841	50yr		811. 90	111. 09	116. 21	115. 03
0. 001627	3. 68	594. 84	390. 09	0. 33			116. 29
mai nstem	15841	500-yr		1252. 20	111. 09	117. 00	115. 38
							117. 06

				Goodwi vesDari en. rep			
				0. 31			
0. 001366	3. 81	954. 05	572. 13				
mai nstem	15695	100yr-		970. 80	109. 20	116. 32	114. 24
0. 001530	3. 32	673. 46	440. 29	0. 31			116. 40
mai nstem	15695	100yr(encr)		970. 80	109. 20	117. 15	114. 91
0. 001835	4. 01	385. 77	94. 38	0. 33			117. 32
mai nstem	15695	10yr		542. 90	109. 20	115. 21	113. 80
0. 002053	3. 02	391. 18	264. 20	0. 33			115. 29
mai nstem	15695	50yr		811. 90	109. 20	116. 01	114. 09
0. 001550	3. 15	590. 67	340. 12	0. 30			116. 09
mai nstem	15695	500-yr		1252. 20	109. 20	116. 79	114. 48
0. 001532	3. 60	805. 28	524. 62	0. 31			116. 88
mai nstem	15579	100yr-		1111. 50	108. 50	115. 68	113. 99
0. 002565	6. 62	521. 80	855. 73	0. 47			116. 14
mai nstem	15579	100yr(encr)		1111. 50	108. 50	116. 60	113. 90
0. 001950	6. 34	303. 34	54. 17	0. 42			117. 07
mai nstem	15579	10yr		620. 10	108. 50	114. 78	112. 74
0. 001698	4. 85	279. 33	387. 38	0. 37			115. 06
mai nstem	15579	50yr		930. 30	108. 50	115. 35	113. 56
0. 002586	6. 41	416. 32	757. 76	0. 47			115. 82
mai nstem	15579	500-yr		1434. 00	108. 50	116. 19	114. 81
0. 002514	6. 91	703. 71	923. 89	0. 47			116. 63
mai nstem	15417	100yr-		1111. 50	107. 80	114. 82	114. 34
0. 014110	8. 64	279. 67	692. 31	0. 59			115. 32
mai nstem	15417	100yr(encr)		1111. 50	107. 80	115. 26	114. 60
0. 020283	10. 80	171. 87	41. 05	0. 71			116. 28
mai nstem	15417	10yr		620. 10	107. 80	114. 21	113. 51
0. 008881	6. 43	205. 99	655. 23	0. 46			114. 52
mai nstem	15417	50yr		930. 30	107. 80	114. 52	114. 11
0. 013917	8. 31	241. 16	678. 42	0. 58			115. 01
mai nstem	15417	500-yr		1434. 00	107. 80	115. 32	114. 73
0. 013945	9. 01	350. 43	718. 62	0. 59			115. 82
mai nstem	14879	100yr-		1250. 20	103. 61	108. 94	108. 94
0. 009861	8. 69	264. 47	170. 22	0. 71			109. 84
mai nstem	14879	100yr(encr)		1250. 20	103. 61	108. 94	108. 94
0. 009861	8. 69	264. 47	155. 56	0. 71			109. 84
mai nstem	14879	10yr		693. 50	103. 61	107. 50	107. 50
0. 016300	8. 71	98. 36	63. 52	0. 86			108. 60
mai nstem	14879	50yr		1046. 20	103. 61	108. 66	108. 66
0. 009749	8. 28	221. 45	157. 40	0. 70			109. 53
mai nstem	14879	500-yr		1613. 50	103. 61	109. 35	109. 35

				GoodwiesDari en. rep			
0.010265	9.37	329.34	193.08	0.73			
mainstem	14633	100yr-		1250.20	100.10	109.18	109.20
0.000085	1.22	1344.48	480.02	0.09			
mainstem	14633	100yr(encr)		1250.20	100.10	109.19	109.23
0.000129	1.52	914.91	200.00	0.11			
mainstem	14633	10yr		693.50	100.10	107.74	107.76
0.000099	1.08	752.41	342.21	0.09			
mainstem	14633	50yr		1046.20	100.10	108.03	108.06
0.000170	1.47	855.57	370.61	0.12			
mainstem	14633	500-yr		1613.50	100.10	108.41	108.46
0.000284	2.01	1002.30	410.35	0.16			
mainstem	14611	100yr-		1250.20	100.10	109.18	104.54
0.000086	1.22	1327.91	454.17	0.09			109.20
mainstem	14611	100yr(encr)		1250.20	100.10	109.20	104.54
0.000102	1.33	1093.49	275.00	0.10			109.22
mainstem	14611	10yr		693.50	100.10	107.74	103.93
0.000100	1.08	745.46	330.58	0.09			107.75
mainstem	14611	50yr		1046.20	100.10	108.03	104.33
0.000171	1.47	845.84	366.50	0.12			108.06
mainstem	14611	500-yr		1613.50	100.10	108.40	104.87
0.000287	2.01	990.86	412.46	0.16			108.45
mainstem	14609						
				Inl Struct			
mainstem	14601	100yr-		1250.20	98.65	109.15	105.24
0.000325	2.22	1061.89	449.04	0.12			109.18
mainstem	14601	100yr(encr)		1250.20	98.65	109.15	105.24
0.000334	2.25	986.84	365.00	0.13			109.18
mainstem	14601	10yr		693.50	98.65	107.27	107.43
0.001311	3.88	339.34	288.36	0.24			107.43
mainstem	14601	50yr		1046.20	98.65	107.67	107.86
0.001655	4.50	468.30	339.20	0.27			107.86
mainstem	14601	500-yr		1613.50	98.65	108.13	108.34
0.002074	5.21	632.28	387.02	0.31			108.34
mainstem	14595	100yr-		1250.20	98.65	105.26	105.26
0.020537	13.94	89.67	14.90	1.00			108.28
mainstem	14595	100yr(encr)		1250.20	98.65	105.26	105.26
0.020537	13.94	89.67	14.90	1.00			108.28
mainstem	14595	10yr		693.50	98.65	107.20	103.30

				Goodwi ves	Dari en. rep				
0.001570	4.23	300.00	260.61		0.26				
mainstem	14595		50yr	1046.20	98.65	107.53	104.59	107.81	
0.002321	5.27	397.04	324.75		0.32				
mainstem	14595		500-yr	1613.50	98.65	107.58	107.58	108.20	
0.005217	7.92	411.66	336.50		0.48				

	mainstem	14580							
				Cul vert					
	mainstem	14556	100yr-	1250.20	99.61	105.82	105.82	107.95	
0.012332	12.37	112.91	151.84		0.90				
mainstem	14556		100yr(encr)	1250.20	99.61	106.11	105.82	106.47	
0.003156	6.47	348.64	166.95		0.46				
mainstem	14556		10yr	693.50	99.61	104.30	104.30	105.83	
0.012452	10.20	75.14	87.43		0.86				
mainstem	14556		50yr	1046.20	99.61	105.32	105.32	107.23	
0.012272	11.64	100.55	131.68		0.88				
mainstem	14556		500-yr	1613.50	99.61	106.46	106.00	106.89	
0.003657	7.22	409.79	187.06		0.50				

	mainstem	14524	100yr-	1250.20	99.58	105.74		105.90	
0.001206	4.23	503.40	215.74		0.32				
mainstem	14524		100yr(encr)	1250.20	99.58	105.97		106.37	
0.002134	5.78	278.99	76.09		0.42				
mainstem	14524		10yr	693.50	99.58	104.76		104.90	
0.001219	3.74	310.90	176.63		0.31				
mainstem	14524		50yr	1046.20	99.58	105.45		105.59	
0.001181	4.03	440.90	204.10		0.31				
mainstem	14524		500-yr	1613.50	99.58	106.55		106.67	
0.000875	3.94	686.63	238.75		0.28				

	mainstem	14493	100yr-	1250.20	99.56	105.70	104.39	105.86	
0.001225	4.26	500.24	215.18		0.32				
mainstem	14493		100yr(encr)	1250.20	99.56	106.01	104.44	106.22	
0.001333	4.60	401.80	115.00		0.33				
mainstem	14493		10yr	693.50	99.56	104.72	103.78	104.86	
0.001247	3.77	308.01	176.12		0.31				
mainstem	14493		50yr	1046.20	99.56	105.41	104.23	105.55	
0.001198	4.06	438.19	203.41		0.31				
mainstem	14493		500-yr	1613.50	99.56	106.52	104.71	106.65	
0.000876	3.94	686.35	238.69		0.28				

	mainstem	14473							
				Inl Struct					



Goodwi vesDari en. rep

mai nstem	14452	100yr-		1250. 20	98. 04	104. 92	104. 92	105. 83
0. 009022	9. 94	224. 58	131. 25	0. 69				
mai nstem	14452	100yr(encr)		1250. 20	98. 04	104. 97	104. 97	106. 19
0. 010271	10. 66	175. 12	61. 96	0. 74				
mai nstem	14452	10yr		693. 50	98. 04	103. 96	103. 96	104. 85
0. 008611	8. 72	126. 04	76. 73	0. 66				
mai nstem	14452	50yr		1046. 20	98. 04	104. 68	104. 68	105. 53
0. 008296	9. 30	195. 08	119. 24	0. 66				
mai nstem	14452	500-yr		1613. 50	98. 04	106. 20		106. 61
0. 004032	7. 50	416. 36	166. 29	0. 47				
mai nstem	14386	100yr-		1250. 20	97. 62	104. 52		105. 40
0. 004489	7. 85	169. 10	37. 31	0. 58				
mai nstem	14386	100yr(encr)		1250. 20	97. 62	104. 52		105. 40
0. 004489	7. 85	169. 10	37. 31	0. 58				
mai nstem	14386	10yr		693. 50	97. 62	103. 56		103. 99
0. 002704	5. 50	135. 11	35. 31	0. 45				
mai nstem	14386	50yr		1046. 20	97. 62	104. 24		104. 94
0. 003778	7. 00	159. 09	35. 36	0. 53				
mai nstem	14386	500-yr		1613. 50	97. 62	104. 96	103. 87	106. 13
0. 005601	9. 19	196. 40	76. 40	0. 66				
mai nstem	14182	100yr-		1250. 20	98. 50	102. 81	102. 81	103. 81
0. 015883	9. 27	165. 66	81. 56	0. 84				
mai nstem	14182	100yr(encr)		1250. 20	98. 50	102. 81	102. 81	103. 81
0. 015883	9. 27	165. 66	81. 56	0. 84				
mai nstem	14182	10yr		693. 50	98. 50	101. 91	101. 91	102. 74
0. 017540	8. 15	101. 53	61. 83	0. 84				
mai nstem	14182	50yr		1046. 20	98. 50	102. 52	102. 52	103. 47
0. 016328	8. 91	142. 99	75. 26	0. 84				
mai nstem	14182	500-yr		1613. 50	98. 50	103. 29	103. 29	104. 35
0. 014486	9. 58	207. 61	91. 10	0. 81				
mai nstem	14147	100yr-		1250. 20	95. 10	101. 72	100. 89	102. 68
0. 009338	8. 19	192. 33	71. 92	0. 63				
mai nstem	14147	100yr(encr)		1250. 20	95. 10	101. 72	100. 89	102. 68
0. 009341	8. 19	192. 30	71. 92	0. 63				
mai nstem	14147	10yr		693. 50	95. 10	100. 58		101. 18
0. 007671	6. 28	121. 83	52. 46	0. 55				
mai nstem	14147	50yr		1046. 20	95. 10	101. 38	100. 38	102. 21
0. 008709	7. 55	168. 49	66. 50	0. 61				
mai nstem	14147	500-yr		1613. 50	95. 10	102. 30	101. 71	103. 43



				GoodwiesDari en. rep				
0.003721	5.10	145.39	52.18	0.47				
mainstem	13683		50yr	1046.20	92.00	97.32		97.76
0.003323	5.57	216.42	85.61	0.46				
mainstem	13683		500-yr	1613.50	92.00	98.81	96.76	99.16
0.002150	5.37	413.83	162.99	0.38				
mainstem	13653		100yr-	1250.20	91.63	96.28	96.28	97.81
0.012804	10.32	165.28	74.99	0.90				
mainstem	13653		100yr(encr)	1250.20	91.63	96.29	96.29	97.81
0.012666	10.28	166.15	75.25	0.90				
mainstem	13653		10yr	693.50	91.63	94.99	94.99	96.21
0.015897	8.93	86.21	48.37	0.94				
mainstem	13653		50yr	1046.20	91.63	95.86	95.86	97.29
0.013504	9.86	135.79	65.94	0.91				
mainstem	13653		500-yr	1613.50	91.63	96.87	96.87	98.62
0.012642	11.22	213.83	89.82	0.92				
mainstem	13351		100yr-	1250.20	84.60	93.97		94.18
0.001046	4.55	446.17	103.12	0.27				
mainstem	13351		100yr(encr)	1250.20	84.60	94.95		95.39
0.001484	5.81	276.50	32.00	0.32				
mainstem	13351		10yr	693.50	84.60	92.41		92.55
0.000810	3.54	298.66	79.72	0.23				
mainstem	13351		50yr	1046.20	84.60	93.64		93.81
0.000888	4.10	412.84	100.24	0.24				
mainstem	13351		500-yr	1613.50	84.60	94.36		94.65
0.001405	5.43	498.13	171.34	0.31				
mainstem	13328		100yr-	1250.20	83.50	93.83	90.46	94.13
0.001083	5.37	387.57	135.50	0.32				
mainstem	13328		100yr(encr)	1250.20	83.50	94.84	90.49	95.34
0.001284	6.29	264.13	31.34	0.35				
mainstem	13328		10yr	693.50	83.50	92.31	89.05	92.52
0.000855	4.21	250.50	66.61	0.27				
mainstem	13328		50yr	1046.20	83.50	93.52	90.00	93.77
0.000923	4.84	349.18	112.94	0.29				
mainstem	13328		500-yr	1613.50	83.50	94.21	91.42	94.59
0.001385	6.25	448.47	179.06	0.36				
mainstem	13322							
				Bri dge				
mainstem	13295		100yr-	1250.20	83.50	91.74	89.62	92.25

				GoodwiesDari en. rep				
0.001990	6.49	294.84	83.19	0.44				
mainstem	13295		100yr(encr)	1250.20	83.50	92.68	89.61	93.34
0.001873	6.86	216.30	31.35	0.43				
mainstem	13295		10yr	693.50	83.50	90.08	88.34	90.47
0.002006	5.40	174.52	66.79	0.42				
mainstem	13295		50yr	1046.20	83.50	91.42	89.20	91.83
0.001707	5.82	268.73	77.47	0.40				
mainstem	13295		500-yr	1613.50	83.50	92.18	90.49	92.87
0.002534	7.64	333.24	91.00	0.50				

mainstem	13260		100yr-	1250.20	83.00	91.84		92.08
0.000712	4.35	403.99	98.19	0.27				
mainstem	13260		100yr(encr)	1250.20	83.00	92.81		93.12
0.000951	4.63	286.43	33.33	0.27				
mainstem	13260		10yr	693.50	83.00	90.17		90.31
0.000554	3.30	265.63	64.66	0.23				
mainstem	13260		50yr	1046.20	83.00	91.50		91.69
0.000601	3.88	371.03	93.65	0.24				
mainstem	13260		500-yr	1613.50	83.00	92.31		92.64
0.000927	5.15	454.32	118.49	0.31				

mainstem	13199		100yr-	1250.20	84.21	91.81	89.64	92.00
0.001107	4.39	424.02	105.87	0.28				
mainstem	13199		100yr(encr)	1250.20	84.21	92.68	89.67	93.04
0.001410	5.34	285.09	56.66	0.33				
mainstem	13199		10yr	693.50	84.21	90.02	87.75	90.24
0.001559	4.34	239.70	100.25	0.32				
mainstem	13199		50yr	1046.20	84.21	91.46	89.29	91.63
0.000999	4.04	387.61	104.69	0.27				
mainstem	13199		500-yr	1613.50	84.21	92.29	90.08	92.54
0.001343	5.04	475.06	108.58	0.32				

				Inl Struct				
mainstem	13182							
mainstem	13132		100yr-	1250.20	81.97	91.80		91.82
0.000117	1.41	1184.79	231.76	0.08				
mainstem	13132		100yr(encr)	1250.20	81.97	92.65		92.86
0.001070	4.53	373.22	50.00	0.25				
mainstem	13132		10yr	693.50	81.97	90.01		90.03
0.000138	1.34	776.22	224.17	0.08				
mainstem	13132		50yr	1046.20	81.97	91.46		91.47
0.000102	1.29	1104.81	230.57	0.08				
mainstem	13132		500-yr	1613.50	81.97	92.28		92.31

				GoodwiesDari en. rep			
0.000146	1.63	1295.69	233.38	0.09			
mainstem	13017	100yr-		1250.20	81.00	91.79	91.81
0.000080	1.53	1141.97	206.53	0.08			
mainstem	13017	100yr(encr)		1250.20	81.00	92.65	92.74
0.000307	2.43	502.41	46.60	0.13			
mainstem	13017	10yr		693.50	81.00	90.00	90.02
0.000058	1.15	819.43	162.10	0.07			
mainstem	13017	50yr		1046.20	81.00	91.44	91.46
0.000065	1.35	1072.83	196.38	0.08			
mainstem	13017	500-yr		1613.50	81.00	92.26	92.29
0.000108	1.84	1241.48	215.61	0.10			
mainstem	12975	100yr-		1250.20	81.51	91.76	86.15
0.000165	1.95	919.83	206.85	0.12			91.80
mainstem	12975	100yr(encr)		1250.20	81.51	92.55	86.37
0.000494	3.58	430.00	53.20	0.20			92.71
mainstem	12975	10yr		693.50	81.51	89.91	85.17
0.000319	2.32	318.85	133.76	0.16			89.99
mainstem	12975	50yr		1046.20	81.51	91.43	85.82
0.000140	1.76	850.63	200.99	0.11			91.46
mainstem	12975	500-yr		1613.50	81.51	92.23	86.70
0.000212	2.30	1017.88	215.76	0.13			92.28
mainstem	12958						
				Culvert			
mainstem	12913	100yr-		1250.20	76.90	84.91	83.92
0.011904	10.30	123.75	31.22	0.74			86.55
mainstem	12913	100yr(encr)		1250.20	76.90	84.92	83.92
0.011893	10.30	123.78	31.22	0.74			86.55
mainstem	12913	10yr		693.50	76.90	83.68	82.18
0.008051	7.26	96.80	25.16	0.59			84.49
mainstem	12913	50yr		1046.20	76.90	84.56	83.36
0.010280	9.19	115.96	29.47	0.68			85.86
mainstem	12913	500-yr		1613.50	76.90	85.30	84.82
0.016004	12.46	132.22	33.09	0.87			87.69
mainstem	12836	100yr-		1250.20	77.20	83.37	83.37
0.019348	11.35	118.46	34.85	0.96			85.31
mainstem	12836	100yr(encr)		1250.20	77.20	83.36	83.36
0.019399	11.36	118.35	34.76	0.96			85.31
mainstem	12836	10yr		693.50	77.20	81.87	81.87
							83.34

				GoodwiesDari en. rep				
0.022173	9.75	72.31	28.06	0.98				
mainstem	12836	50yr		1046.20	77.20	82.88	82.88	84.65
0.019889	10.80	102.51	31.55	0.96				
mainstem	12836	500-yr		1613.50	77.20	84.44	84.44	86.25
0.014030	11.20	169.26	56.35	0.85				
mainstem	12289	100yr-		1250.20	64.70	70.93		71.20
0.001580	5.07	353.94	116.88	0.39				
mainstem	12289	100yr(encr)		1250.20	64.70	71.67		72.40
0.002594	7.08	198.44	35.00	0.51				
mainstem	12289	10yr		693.50	64.70	68.12	68.12	68.98
0.010803	8.07	104.73	63.36	0.89				
mainstem	12289	50yr		1046.20	64.70	73.02		73.07
0.000229	2.41	619.55	132.88	0.16				
mainstem	12289	500-yr		1613.50	64.70	70.78		71.29
0.002956	6.81	337.29	113.50	0.53				
mainstem	12226	100yr-		1250.20	63.92	70.93	68.10	71.11
0.000833	3.67	407.80	113.79	0.27				
mainstem	12226	100yr(encr)		1250.20	63.92	71.90	68.07	72.16
0.001061	4.13	302.58	45.20	0.28				
mainstem	12226	10yr		693.50	63.92	68.12	67.20	68.46
0.003514	4.84	153.56	65.50	0.50				
mainstem	12226	50yr		1046.20	63.92	73.01	67.83	73.06
0.000156	1.96	655.09	119.67	0.12				
mainstem	12226	500-yr		1613.50	63.92	70.79	68.53	71.11
0.001536	4.91	392.07	111.59	0.37				
mainstem	12167	100yr-		1250.20	63.30	70.96	68.16	71.05
0.000490	2.84	542.35	131.30	0.21				
mainstem	12167	100yr(encr)		1250.20	63.30	71.46	68.74	72.04
0.002242	6.42	216.90	35.00	0.44				
mainstem	12167	10yr		693.50	63.30	67.51	67.51	68.13
0.009957	7.20	126.33	98.59	0.80				
mainstem	12167	50yr		1046.20	63.30	73.02	67.94	73.05
0.000097	1.54	820.00	139.09	0.10				
mainstem	12167	500-yr		1613.50	63.30	70.84	68.46	71.00
0.000890	3.78	527.06	130.85	0.28				
mainstem	12144	100yr-		1250.20	61.09	70.96	67.47	71.03
0.000470	2.73	645.19	136.88	0.16				
mainstem	12144	100yr(encr)		1250.20	61.09	71.61	67.44	71.92
0.001429	4.99	300.84	40.00	0.29				
mainstem	12144	10yr		693.50	61.09	67.34	66.52	67.65

				GoodwiesDari en. rep				
0.003576	5.19	193.37	104.84	0.41				
mainstem	12144	50yr		1046.20	61.09	73.02	67.23	73.04
0.000112	1.54	937.01	146.81	0.08				
mainstem	12144	500-yr		1613.50	61.09	70.85	67.83	70.97
0.000839	3.61	629.73	136.34	0.22				
mainstem	11951	100yr-		1250.20	57.85	70.98		70.99
0.000070	1.30	1458.45	231.26	0.07				
mainstem	11951	100yr(encr)		1250.20	57.85	71.64		71.74
0.000356	3.04	563.23	55.00	0.15				
mainstem	11951	10yr		693.50	57.85	67.44		67.46
0.000192	1.68	701.18	198.77	0.11				
mainstem	11951	50yr		1046.20	57.85	73.03		73.03
0.000020	0.78	1957.26	252.38	0.04				
mainstem	11951	500-yr		1613.50	57.85	70.87		70.90
0.000122	1.71	1434.27	230.00	0.09				
mainstem	11930	100yr-		1250.20	57.35	70.97	63.78	70.99
0.000081	1.39	1391.40	232.68	0.07				
mainstem	11930	100yr(encr)		1250.20	57.35	71.64	63.75	71.72
0.000272	2.63	579.37	70.00	0.13				
mainstem	11930	10yr		693.50	57.35	67.25	62.16	67.42
0.000807	3.41	227.24	210.45	0.21				
mainstem	11930	50yr		1046.20	57.35	73.03	63.28	73.03
0.000024	0.83	1902.54	272.30	0.04				
mainstem	11930	500-yr		1613.50	57.35	70.86	64.62	70.89
0.000143	1.83	1366.29	232.17	0.09				
mainstem	11911							
				Bri dge				
mainstem	11869	100yr-		1250.20	55.90	62.30	62.30	64.12
0.019687	10.99	117.19	128.57	0.97				
mainstem	11869	100yr(encr)		1250.20	55.90	63.16	62.30	64.35
0.009971	8.89	144.44	117.51	0.71				
mainstem	11869	10yr		693.50	55.90	61.10	61.10	62.34
0.021455	9.04	78.74	46.45	0.95				
mainstem	11869	50yr		1046.20	55.90	61.89	61.89	63.51
0.020167	10.35	104.14	85.15	0.96				
mainstem	11869	500-yr		1613.50	55.90	62.98	62.98	65.13
0.018949	11.96	138.73	155.83	0.97				
mainstem	11850	100yr-		1250.20	55.90	61.67	61.67	62.40

				GoodwiesDari en. rep				
0.012559	8.14	206.31	131.45	0.76				
mainstem	11850		100yr(encr)	1250.20	55.90	62.11	62.11	63.90
0.022170	11.01	117.96	32.64	0.97				
mainstem	11850		10yr	693.50	55.90	61.08	61.08	61.66
0.011256	6.83	133.93	114.25	0.70				
mainstem	11850		50yr	1046.20	55.90	61.46	61.46	62.16
0.012509	7.80	179.75	125.41	0.75				
mainstem	11850		500-yr	1613.50	55.90	62.01	62.01	62.78
0.012037	8.48	253.33	142.80	0.76				
mainstem	11517		100yr-	1250.20	49.81	56.19		56.46
0.003462	5.28	376.01	176.21	0.43				
mainstem	11517		100yr(encr)	1250.20	49.81	57.18		57.69
0.004157	6.56	248.10	60.00	0.48				
mainstem	11517		10yr	693.50	49.81	55.45		55.64
0.002839	4.27	254.17	156.88	0.38				
mainstem	11517		50yr	1046.20	49.81	55.99		56.22
0.003061	4.83	342.03	168.36	0.40				
mainstem	11517		500-yr	1613.50	49.81	56.55		56.87
0.003821	5.82	441.77	186.93	0.45				
mainstem	11381		100yr-	1371.80	49.43	56.15		56.22
0.000723	2.86	720.79	435.58	0.21				
mainstem	11381		100yr(encr)	1371.80	49.43	56.78		57.16
0.003230	5.73	323.98	125.11	0.39				
mainstem	11381		10yr	756.30	49.43	55.35		55.42
0.000849	2.82	419.11	292.55	0.22				
mainstem	11381		50yr	1144.40	49.43	55.93		56.00
0.000748	2.84	625.13	416.71	0.21				
mainstem	11381		500-yr	1768.30	49.43	56.57		56.64
0.000583	2.69	906.68	447.17	0.19				
mainstem	11332		100yr-	1371.80	48.37	56.09	53.11	56.18
0.000494	3.02	709.51	310.25	0.22				
mainstem	11332		100yr(encr)	1371.80	48.37	56.86	53.11	56.98
0.000463	3.17	538.90	120.00	0.21				
mainstem	11332		10yr	756.30	48.37	55.28	52.10	55.38
0.000495	2.74	333.45	271.72	0.21				
mainstem	11332		50yr	1144.40	48.37	55.77	52.79	55.93
0.000739	3.56	447.73	306.73	0.26				
mainstem	11332		500-yr	1768.30	48.37	56.48	53.61	56.60
0.000579	3.41	830.92	313.87	0.24				

mainstem 11303



Goodwi vesDari en. rep

mai nstem	11231	100yr-		1371. 80	45. 90	52. 36	52. 36	53. 85
0. 015125	10. 52	150. 72	116. 07	0. 85				
mai nstem	11231	100yr(encr)		1371. 80	45. 90	52. 36	52. 36	53. 85
0. 015125	10. 52	150. 72	104. 41	0. 85				
mai nstem	11231	10yr		756. 30	45. 90	51. 16	51. 16	52. 30
0. 015929	8. 90	95. 03	80. 64	0. 83				
mai nstem	11231	50yr		1144. 40	45. 90	51. 95	51. 95	53. 33
0. 015516	10. 03	130. 63	108. 27	0. 85				
mai nstem	11231	500-yr		1768. 30	45. 90	52. 99	52. 99	54. 65
0. 014667	11. 24	183. 83	125. 52	0. 85				
mai nstem	11206	100yr-		1371. 80	45. 60	51. 73	51. 73	52. 66
0. 007153	8. 48	199. 63	133. 74	0. 76				
mai nstem	11206	100yr(encr)		1371. 80	45. 60	52. 06		53. 12
0. 006677	8. 53	169. 74	49. 12	0. 75				
mai nstem	11206	10yr		756. 30	45. 60	50. 53	50. 53	51. 54
0. 009452	8. 19	99. 48	56. 82	0. 84				
mai nstem	11206	50yr		1144. 40	45. 60	51. 40	51. 40	52. 33
0. 007402	8. 27	164. 75	91. 82	0. 77				
mai nstem	11206	500-yr		1768. 30	45. 60	52. 19	52. 19	53. 12
0. 006704	8. 67	270. 44	161. 42	0. 75				
mai nstem	11078	100yr-		1371. 80	44. 09	49. 92	49. 92	50. 47
0. 008432	8. 19	285. 21	224. 53	0. 61				
mai nstem	11078	100yr(encr)		1371. 80	44. 09	50. 67	50. 67	51. 95
0. 010949	10. 14	155. 17	54. 97	0. 71				
mai nstem	11078	10yr		756. 30	44. 09	49. 49	49. 49	49. 92
0. 006830	6. 98	192. 28	203. 45	0. 54				
mai nstem	11078	50yr		1144. 40	44. 09	49. 74	49. 74	50. 29
0. 008572	8. 08	245. 81	215. 84	0. 61				
mai nstem	11078	500-yr		1768. 30	44. 09	50. 47		50. 86
0. 005162	6. 82	412. 25	232. 08	0. 48				
mai nstem	10548	100yr-		1371. 80	39. 13	48. 55		48. 59
0. 000165	2. 49	1493. 62	309. 08	0. 15				
mai nstem	10548	100yr(encr)		1371. 80	39. 13	49. 33		49. 74
0. 000949	5. 42	330. 47	42. 52	0. 32				
mai nstem	10548	10yr		756. 30	39. 13	46. 11		46. 17
0. 000293	2. 64	781. 27	289. 40	0. 19				
mai nstem	10548	50yr		1144. 40	39. 13	47. 50		47. 54
0. 000220	2. 64	1183. 34	290. 62	0. 17				
mai nstem	10548	500-yr		1768. 30	39. 13	50. 56		50. 59

				GoodwiesDari en. rep				
0.000099	2.23	2256.67	416.90	0.12				
mainstem	10522	100yr-		1371.80	39.60	48.55	44.58	48.58
0.000057	1.42	1742.49	374.89	0.09				
mainstem	10522	100yr(encr)		1371.80	39.60	49.37	44.70	49.68
0.000400	4.02	370.42	47.51	0.24				
mainstem	10522	10yr		756.30	39.60	46.11	43.77	46.15
0.000119	1.62	904.75	330.25	0.12				
mainstem	10522	50yr		1144.40	39.60	47.50	44.30	47.53
0.000080	1.54	1369.34	340.65	0.10				
mainstem	10522	500-yr		1768.30	39.60	50.57	45.06	50.59
0.000033	1.26	2694.91	526.69	0.07				
mainstem 10503				Bridge				
mainstem	10454	100yr-		1371.80	39.43	48.51	45.31	48.51
0.000010	0.54	2309.64	699.25	0.03				
mainstem	10454	100yr(encr)		1371.80	39.43	48.81	44.92	49.36
0.000680	4.06	260.97	34.28	0.24				
mainstem	10454	10yr		756.30	39.43	45.61	43.53	45.68
0.000265	2.06	444.08	480.72	0.16				
mainstem	10454	50yr		1144.40	39.43	47.41	44.40	47.42
0.000024	0.74	1565.33	662.75	0.05				
mainstem	10454	500-yr		1768.30	39.43	50.56	45.51	50.56
0.000004	0.37	3803.32	751.21	0.02				
mainstem	10399	100yr-		1371.80	38.97	48.50		48.51
0.000026	0.90	1833.08	482.11	0.06				
mainstem	10399	100yr(encr)		1371.80	38.97	48.90		49.20
0.000497	4.10	329.36	50.00	0.25				
mainstem	10399	10yr		756.30	38.97	45.61		45.65
0.000289	2.27	523.57	405.84	0.17				
mainstem	10399	50yr		1144.40	38.97	47.40		47.41
0.000050	1.15	1312.02	465.07	0.08				
mainstem	10399	500-yr		1768.30	38.97	50.56		50.56
0.000011	0.67	2865.57	522.21	0.04				
mainstem	10075	100yr-		1371.80	37.67	48.50		48.50
0.000008	0.56	2393.21	591.30	0.03				
mainstem	10075	100yr(encr)		1371.80	37.67	48.85		49.06
0.000229	3.11	400.11	55.00	0.17				
mainstem	10075	10yr		756.30	37.67	45.56		45.59

				GoodwiesDari en. rep			
0.000110	1.64	705.96	480.85	0.11			
mainstem	10075	50yr		1144.40	37.67	47.40	47.40
0.000016	0.74	1742.52	587.90	0.04			
mainstem	10075	500-yr		1768.30	37.67	50.56	50.56
0.000003	0.42	3620.02	608.07	0.02			
mainstem	9984	100yr-		1371.80	37.51	48.50	44.20
0.000005	0.45	3197.59	889.59	0.03			
mainstem	9984	100yr(encr)		1371.80	38.11	48.71	44.60
0.000361	3.01	346.47	50.00	0.18			
mainstem	9984	10yr		756.30	37.51	45.56	42.37
0.000075	1.28	881.92	564.73	0.10			
mainstem	9984	50yr		1144.40	37.51	47.40	43.95
0.000012	0.61	2228.96	843.29	0.04			
mainstem	9984	500-yr		1768.30	37.51	50.56	44.45
0.000002	0.32	5085.96	1011.67	0.02			
mainstem	9945						
				Culvert			
mainstem	9904	100yr-		1371.80	37.33	48.50	44.34
0.000008	0.52	3029.00	745.83	0.03			
mainstem	9904	100yr(encr)		1371.80	37.33	48.54	44.28
0.000239	2.86	474.94	70.00	0.15			
mainstem	9904	10yr		756.30	37.33	45.56	41.48
0.000087	1.39	944.26	584.63	0.09			
mainstem	9904	50yr		1144.40	37.33	47.38	43.90
0.000016	0.69	2200.70	736.77	0.04			
mainstem	9904	500-yr		1768.30	37.33	50.55	44.51
0.000003	0.38	4589.22	816.08	0.02			
mainstem	9865	100yr-		1371.80	37.20	48.50	48.50
0.000010	0.60	2762.41	686.97	0.04			
mainstem	9865	100yr(encr)		1371.80	37.20	48.54	48.68
0.000240	2.99	493.66	75.00	0.18			
mainstem	9865	10yr		756.30	37.20	45.54	45.56
0.000121	1.58	829.67	531.05	0.12			
mainstem	9865	50yr		1144.40	37.20	47.38	47.39
0.000020	0.79	1998.20	679.84	0.05			
mainstem	9865	500-yr		1768.30	37.20	50.55	50.55
0.000004	0.44	4195.71	740.42	0.02			
mainstem	9782	100yr-		1371.80	36.93	48.49	48.50

				Goodwi vesDari en. rep			
0.000013	0.61	2267.76	610.58	0.03			
mainstem	9782		100yr(encr)	1371.80	36.93	48.49	48.66
0.000205	2.47	438.99	75.00	0.13			
mainstem	9782		10yr	756.30	36.93	45.52	45.55
0.000158	1.74	599.34	341.48	0.11			
mainstem	9782		50yr	1144.40	36.93	47.37	47.38
0.000030	0.87	1587.53	603.42	0.05			
mainstem	9782		500-yr	1768.30	36.93	50.55	50.55
0.000005	0.43	3558.76	737.90	0.02			

mainstem	9666		100yr-	1371.80	36.50	48.50	48.50
0.000006	0.41	4583.14	1060.92	0.02			
mainstem	9666		100yr(encr)	1371.80	36.50	48.51	48.60
0.000370	3.16	790.51	120.00	0.18			
mainstem	9666		10yr	756.30	36.50	45.53	45.54
0.000039	0.82	1688.15	734.10	0.05			
mainstem	9666		50yr	1144.40	36.50	47.38	47.38
0.000013	0.55	3400.23	1050.34	0.03			
mainstem	9666		500-yr	1768.30	36.50	50.55	50.55
0.000003	0.32	6824.28	1213.66	0.02			

mainstem	9623		100yr-	1371.80	36.35	48.25	43.21	48.44
0.000460	4.24	586.29	1005.41	0.23				
mainstem	9623		100yr(encr)	1371.80	36.35	48.28	42.94	48.54
0.000580	4.77	513.56	70.00	0.25				
mainstem	9623		10yr	756.30	36.35	45.31	41.02	45.48
0.000570	3.83	342.16	381.81	0.24				
mainstem	9623		50yr	1144.40	36.35	47.13	42.64	47.32
0.000515	4.17	493.35	782.74	0.23				
mainstem	9623		500-yr	1768.30	36.35	50.32	44.17	50.50
0.000367	4.25	757.08	1454.74	0.21				

				Bri dge				
mainstem	9560							
mainstem	9502		100yr-	1371.80	37.54	45.82	43.30	46.12
0.001163	4.88	338.38	196.20	0.32				
mainstem	9502		100yr(encr)	1371.80	37.54	46.42	43.27	46.83
0.001649	5.44	270.98	41.08	0.34				
mainstem	9502		10yr	756.30	37.54	44.45	42.28	44.63
0.000926	3.79	235.45	105.58	0.27				
mainstem	9502		50yr	1144.40	37.54	45.45	42.96	45.70
0.001050	4.48	307.46	178.71	0.30				
mainstem	9502		500-yr	1768.30	37.54	46.13	43.78	46.55

				GoodwiesDari en. rep				
0.001570	5.83	364.34	220.95	0.37				
mainstem	9493	100yr-		1371.80	35.92	45.84	42.42	46.07
0.000785	4.67	477.08	210.75	0.28				
mainstem	9493	100yr(encr)		1371.80	35.92	46.53	42.40	46.71
0.000667	3.93	436.05	87.50	0.23				
mainstem	9493	10yr		756.30	35.92	44.41	40.70	44.61
0.000731	3.99	260.91	96.73	0.26				
mainstem	9493	50yr		1144.40	35.92	45.46	41.93	45.68
0.000758	4.45	401.25	183.34	0.27				
mainstem	9493	500-yr		1768.30	35.92	46.19	44.00	46.47
0.000965	5.32	552.94	228.32	0.31				
mainstem	9446							
				Culvert				
mainstem	9401	100yr-		1371.80	35.05	44.20	44.20	44.87
0.006397	8.65	273.08	186.04	0.53				
mainstem	9401	100yr(encr)		1371.80	35.05	44.74	44.74	46.33
0.011236	11.73	202.25	78.75	0.70				
mainstem	9401	10yr		756.30	35.05	42.20	40.93	43.09
0.008276	8.80	127.05	31.58	0.62				
mainstem	9401	50yr		1144.40	35.05	43.28	41.80	44.50
0.010474	10.57	166.27	53.27	0.69				
mainstem	9401	500-yr		1768.30	35.05	44.54	44.54	45.21
0.006705	8.99	344.10	224.76	0.54				
mainstem	9345	100yr-		1371.80	35.61	43.59	41.89	44.46
0.004126	7.50	185.85	47.93	0.59				
mainstem	9345	100yr(encr)		1371.80	35.61	44.47	41.89	45.03
0.002226	6.14	269.35	80.00	0.45				
mainstem	9345	10yr		756.30	35.61	42.10	40.32	42.63
0.003346	5.81	130.08	32.80	0.51				
mainstem	9345	50yr		1144.40	35.61	43.20	41.37	43.92
0.003786	6.80	168.64	40.15	0.56				
mainstem	9345	500-yr		1768.30	35.61	44.26	42.71	44.65
0.002177	5.93	629.68	323.41	0.44				
mainstem	8937	100yr-		1559.50	33.84	42.82		43.28
0.001668	6.90	406.32	133.77	0.42				
mainstem	8937	100yr(encr)		1559.50	33.84	43.66		44.25
0.001670	7.35	328.49	51.02	0.42				
mainstem	8937	10yr		852.50	33.84	41.27		41.67

				GoodwiesDari en. rep			
0.001609	5.93	251.28	68.30	0.40			
mainstem	8937	50yr		1297.70	33.84	42.35	42.82
0.001722	6.75	348.38	114.29	0.42			
mainstem	8937	500-yr		2012.60	33.84	43.42	43.87
0.001626	7.13	500.49	174.36	0.42			
mainstem	8804	100yr-		1559.50	33.67	42.71	43.04
0.001296	6.11	451.47	153.33	0.37			
mainstem	8804	100yr(encr)		1559.50	33.67	43.57	43.94
0.001892	5.99	360.20	57.07	0.34			
mainstem	8804	10yr		852.50	33.67	41.07	41.46
0.001571	5.84	259.37	79.39	0.39			
mainstem	8804	50yr		1297.70	33.67	42.21	42.58
0.001440	6.19	380.06	132.23	0.38			
mainstem	8804	500-yr		2012.60	33.67	43.32	43.65
0.001210	6.18	553.69	182.00	0.36			
mainstem	7959	100yr-		1559.50	32.62	41.80	42.10
0.001005	5.02	413.61	107.70	0.32			
mainstem	7959	100yr(encr)		1559.50	32.62	41.96	42.46
0.001681	6.00	281.92	41.42	0.37			
mainstem	7959	10yr		852.50	32.62	40.27	40.47
0.000843	3.98	268.08	84.42	0.28			
mainstem	7959	50yr		1297.70	32.62	41.35	41.61
0.000920	4.62	367.05	99.05	0.30			
mainstem	7959	500-yr		2012.60	32.62	42.21	42.61
0.001307	5.93	462.70	143.32	0.36			
mainstem	7821	100yr-		1642.00	32.10	41.09	38.87
0.002772	7.17	260.40	152.67	0.50			
mainstem	7821	100yr(encr)		1642.00	32.10	41.16	42.09
0.003636	7.74	212.20	32.50	0.53			
mainstem	7821	10yr		895.90	32.10	39.84	40.27
0.002010	5.29	169.99	34.66	0.41			
mainstem	7821	50yr		1365.30	32.10	40.63	41.35
0.002805	6.87	208.58	84.15	0.49			
mainstem	7821	500-yr		2119.60	32.10	41.84	42.38
0.001884	6.36	380.99	169.87	0.42			
mainstem	7779	100yr-		1642.00	31.88	41.26	39.41
0.000845	4.30	399.01	108.32	0.28			
mainstem	7779	100yr(encr)		1642.00	31.88	41.30	38.66
0.001424	5.61	311.65	62.85	0.36			
mainstem	7779	10yr		895.90	31.88	39.88	36.62

				Goodwi vesDari en. rep				
0.000978	4.04	254.38	102.40	0.29				
mai nstem	7779	50yr		1365.30	31.88	40.80	37.98	41.04
0.000886	4.23	350.07	106.35	0.28				
mai nstem	7779	500-yr		2119.60	31.88	41.88	39.99	42.21
0.000841	4.53	467.61	111.02	0.28				
mai nstem	7715							
				Bri dge				
mai nstem	7650	100yr-		1642.00	31.67	40.43		40.81
0.001365	5.41	344.20	109.62	0.35				
mai nstem	7650	100yr(encr)		1642.00	31.67	41.06		41.49
0.001431	5.53	316.76	60.90	0.34				
mai nstem	7650	10yr		895.90	31.67	38.89		39.26
0.001547	4.93	196.30	61.05	0.36				
mai nstem	7650	50yr		1365.30	31.67	39.89		40.30
0.001570	5.51	286.26	107.23	0.37				
mai nstem	7650	500-yr		2119.60	31.67	41.09		41.51
0.001259	5.50	418.38	112.61	0.34				
				Cul vert				
mai nstem	7637	100yr-		1642.00	31.28	40.43	37.33	40.78
0.001113	4.80	349.99	99.76	0.31				
mai nstem	7637	100yr(encr)		1642.00	31.28	41.07	37.33	41.45
0.000993	4.55	337.31	59.90	0.29				
mai nstem	7637	10yr		895.90	31.28	38.92	35.53	39.20
0.001269	4.38	216.80	76.77	0.32				
mai nstem	7637	50yr		1365.30	31.28	39.92	36.66	40.25
0.001207	4.75	299.91	93.54	0.32				
mai nstem	7637	500-yr		2119.60	31.28	41.08	39.09	41.50
0.001094	5.04	416.33	105.16	0.32				
				Cul vert				
mai nstem	7582							
mai nstem	7519	100yr-		1642.00	30.20	39.34	37.53	39.50
0.000576	3.17	567.53	181.16	0.20				
mai nstem	7519	100yr(encr)		1642.00	30.20	40.22	37.47	40.44
0.000687	3.28	440.79	83.45	0.20				
mai nstem	7519	10yr		895.90	30.20	37.84	35.32	38.01
0.001060	3.72	304.49	159.03	0.26				
mai nstem	7519	50yr		1365.30	30.20	38.73	37.34	38.90
0.000775	3.48	458.40	177.86	0.23				
mai nstem	7519	500-yr		2119.60	30.20	39.93	37.85	40.13

				Goodwies Dari en. rep			
0.000549	3.25	676.12	184.24	0.20			
mainstem	7454	100yr-		1642.00	30.20	39.28	39.47
0.000723	3.67	495.87	146.18	0.23			
mainstem	7454	100yr(encr)		1642.00	30.20	39.91	40.33
0.002234	5.92	343.74	57.95	0.35			
mainstem	7454	10yr		895.90	30.20	37.74	37.94
0.001258	4.20	286.08	125.84	0.29			
mainstem	7454	50yr		1365.30	30.20	38.66	38.85
0.000948	3.98	407.98	137.95	0.26			
mainstem	7454	500-yr		2119.60	30.20	39.87	40.09
0.000711	3.82	584.38	155.15	0.23			
mainstem	7279	100yr-		1642.00	29.60	38.38	39.07
0.003670	7.50	387.88	160.07	0.51			
mainstem	7279	100yr(encr)		1642.00	29.60	38.80	39.66
0.004447	7.90	259.70	48.58	0.53			
mainstem	7279	10yr		895.90	29.60	36.98	37.51
0.003286	6.06	209.00	104.88	0.47			
mainstem	7279	50yr		1365.30	29.60	37.20	36.62
0.006384	8.67	232.84	113.97	0.66			
mainstem	7279	500-yr		2119.60	29.60	38.57	37.93
0.005323	9.20	419.12	172.37	0.62			
mainstem	7253	100yr-		1742.60	29.80	38.34	36.96
0.003062	7.29	455.48	174.22	0.48			
mainstem	7253	100yr(encr)		1742.60	29.80	38.76	36.83
0.003103	7.62	330.37	67.00	0.49			
mainstem	7253	10yr		943.80	29.80	36.95	34.74
0.002546	5.76	253.30	118.62	0.42			
mainstem	7253	50yr		1444.30	29.80	37.11	36.35
0.005266	8.44	272.65	124.75	0.61			
mainstem	7253	500-yr		2249.30	29.80	38.51	37.73
0.004496	8.97	485.38	180.87	0.58			
mainstem	7243						
				Bridge			
mainstem	7216	100yr-		1742.60	29.08	36.81	37.40
0.010376	7.51	296.47	136.57	0.48			
mainstem	7216	100yr(encr)		1742.60	29.08	37.63	38.61
0.007587	6.87	235.48	59.52	0.41			
mainstem	7216	10yr		943.80	29.08	36.05	36.46



				GoodwiesDari en. rep			
0.008970	6.51	197.69	122.47	0.44			
mainstem	7216	50yr		1444.30	29.08	36.54	37.07
0.010082	7.23	260.80	131.60	0.47			
mainstem	7216	500-yr		2249.30	29.08	37.61	38.10
0.007020	6.60	412.52	152.24	0.40			
mainstem	7204	100yr-		1742.60	29.68	36.75	37.29
0.004427	7.29	333.22	125.23	0.55			
mainstem	7204	100yr(encr)		1742.60	29.68	37.68	38.46
0.003011	6.66	277.71	60.00	0.46			
mainstem	7204	10yr		943.80	29.68	36.04	36.35
0.002838	5.33	246.85	118.93	0.43			
mainstem	7204	50yr		1444.30	29.68	36.51	36.96
0.003922	6.65	302.82	123.05	0.51			
mainstem	7204	500-yr		2249.30	29.68	37.54	38.04
0.003584	7.16	434.47	132.20	0.50			
mainstem	7160	100yr-		1742.60	28.79	36.41	37.00
0.009107	8.39	318.68	125.83	0.58			
mainstem	7160	100yr(encr)		1742.60	28.79	37.17	38.16
0.010900	9.87	235.97	60.77	0.65			
mainstem	7160	10yr		943.80	28.79	35.35	36.01
0.011554	8.40	185.84	123.00	0.63		35.35	
mainstem	7160	50yr		1444.30	28.79	35.93	36.61
0.011414	8.93	258.69	125.83	0.64			
mainstem	7160	500-yr		2249.30	28.79	37.36	37.82
0.005738	7.29	440.51	129.92	0.47			
mainstem	7112	100yr-		1742.60	28.57	36.41	36.73
0.002057	5.56	470.40	125.76	0.39			
mainstem	7112	100yr(encr)		1742.60	28.57	37.32	37.80
0.002161	6.24	347.96	59.43	0.41			
mainstem	7112	10yr		943.80	28.57	35.13	35.36
0.001890	4.56	309.39	121.84	0.36			
mainstem	7112	50yr		1444.30	28.57	36.02	36.30
0.001929	5.15	421.62	125.05	0.38			
mainstem	7112	500-yr		2249.30	28.57	37.31	37.63
0.001830	5.74	585.58	130.34	0.38			
mainstem	6927	100yr-		1742.60	28.00	36.22	36.47
0.000923	4.74	583.03	159.79	0.31			
mainstem	6927	100yr(encr)		1742.60	28.00	37.14	37.48
0.001120	5.08	393.60	52.99	0.31			
mainstem	6927	10yr		943.80	28.00	35.03	35.16

				GoodwiesDari en. rep			
0.000571	3.31	410.15	127.86	0.24			
mainstem	6927	50yr		1444.30	28.00	35.86	36.07
0.000781	4.22	528.31	151.06	0.28			
mainstem	6927	500-yr		2249.30	28.00	37.10	37.39
0.000951	5.19	737.10	189.28	0.32			
mainstem	6882	100yr-		1742.60	27.87	36.29	33.03
0.000302	2.70	1212.60	313.74	0.18			36.35
mainstem	6882	100yr(encr)		1742.60	27.87	37.23	32.98
0.000342	3.12	803.88	118.19	0.19			37.33
mainstem	6882	10yr		943.80	27.87	35.05	31.79
0.000224	2.05	778.37	268.24	0.15			35.09
mainstem	6882	50yr		1444.30	27.87	35.92	32.59
0.000267	2.45	1097.72	306.13	0.16			35.97
mainstem	6882	500-yr		2249.30	27.87	37.19	33.65
0.000289	2.86	1502.32	331.83	0.18			37.25
mainstem	6866						
				Culvert			
mainstem	6800	100yr-		1742.60	26.07	36.03	31.81
0.000506	3.66	911.20	253.40	0.23			36.17
mainstem	6800	100yr(encr)		1742.60	26.07	36.02	31.81
0.000516	3.70	881.42	234.27	0.23			36.17
mainstem	6800	10yr		943.80	26.07	33.58	30.11
0.000853	3.74	359.07	154.53	0.28			33.78
mainstem	6800	50yr		1444.30	26.07	35.26	31.17
0.000576	3.66	721.79	237.69	0.24			35.41
mainstem	6800	500-yr		2249.30	26.07	37.05	32.67
0.000459	3.77	1174.80	264.31	0.22			37.19
mainstem	6724	100yr-		1742.60	26.40	35.63	31.81
0.001304	5.60	524.91	229.34	0.34			36.04
mainstem	6724	100yr(encr)		1742.60	26.40	35.63	31.81
0.001304	5.60	524.91	229.34	0.34			36.04
mainstem	6724	10yr		943.80	26.40	33.31	30.11
0.001461	4.82	233.80	60.91	0.35			33.65
mainstem	6724	50yr		1444.30	26.40	34.85	31.17
0.001437	5.50	370.17	127.45	0.36			35.27
mainstem	6724	500-yr		2249.30	26.40	36.73	33.06
0.001076	5.53	786.32	245.41	0.32			37.08
mainstem	6579	100yr-		1742.60	26.45	32.96	32.96

				Goodwi vesDari en. rep				
0.011559	11.74	150.68	39.36	0.97				
mainstem	6579		100yr(encr)	1742.60	26.45	32.96	32.96	35.10
0.011559	11.74	150.68	39.36	0.97				
mainstem	6579		10yr	943.80	26.45	31.13	31.13	32.78
0.013636	10.32	91.49	28.12	1.01				
mainstem	6579		50yr	1444.30	26.45	32.30	32.30	34.32
0.012899	11.42	126.45	31.94	1.01				
mainstem	6579		500-yr	2249.30	26.45	34.08	34.08	36.20
0.009311	11.83	203.11	54.02	0.89				

	mainstem	6067		100yr-	1742.60	20.11	27.11	25.54	28.16
0.003527	8.54	267.50	67.61	0.60					
mainstem	6067		100yr(encr)	1742.60	20.11	27.43	25.57	28.36	
0.002959	8.08	275.19	54.50	0.55					
mainstem	6067		10yr	943.80	20.11	25.99	23.91	26.49	
0.002095	5.79	197.83	56.54	0.44					
mainstem	6067		50yr	1444.30	20.11	26.78	24.98	27.60	
0.002952	7.54	245.57	64.36	0.54					
mainstem	6067		500-yr	2249.30	20.11	27.49	26.43	28.99	
0.004748	10.29	293.63	71.29	0.70					

				Inl Struct					
	mainstem	6029							
	mainstem	5986		100yr-	1742.60	18.04	22.96	22.96	24.43
0.011388	9.78	192.76	82.16	0.96					
mainstem	5986		100yr(encr)	1742.60	18.04	22.98	22.98	24.43	
0.011243	9.74	191.65	74.63	0.95					
mainstem	5986		10yr	943.80	18.04	21.70	21.70	22.85	
0.014093	8.60	109.69	48.40	1.01					
mainstem	5986		50yr	1444.30	18.04	22.56	22.56	23.91	
0.012041	9.35	160.68	75.06	0.97					
mainstem	5986		500-yr	2249.30	18.04	23.57	23.57	25.21	
0.010312	10.44	245.39	90.87	0.94					

	mainstem	5726		100yr-	1742.60	15.00	20.11		20.88
0.005241	7.53	355.48	129.28	0.61					
mainstem	5726		100yr(encr)	1742.60	15.00	20.71			21.63
0.006071	7.69	226.72	42.74	0.59					
mainstem	5726		10yr	943.80	15.00	18.78			19.34
0.005490	6.18	199.27	105.25	0.59					
mainstem	5726		50yr	1444.30	15.00	19.57			20.31
0.005733	7.27	289.14	119.73	0.63					
mainstem	5726		500-yr	2249.30	15.00	20.58			21.56

				GoodwiesDari en. rep				
0.006005	8.60	419.93	140.07	0.67				
mainstem	5544	100yr-		1742.60	11.75	19.89	17.30	20.38
0.001241	5.79	402.77	94.81	0.41				
mainstem	5544	100yr(encr)		1742.60	11.75	20.71	17.29	21.14
0.000902	5.36	362.43	55.00	0.35				
mainstem	5544	10yr		943.80	11.75	18.70	16.07	18.94
0.000780	3.99	295.95	85.14	0.31				
mainstem	5544	50yr		1444.30	11.75	19.41	16.88	19.81
0.001145	5.27	357.57	90.73	0.39				
mainstem	5544	500-yr		2249.30	11.75	20.24	18.02	20.95
0.001699	7.03	436.62	98.83	0.48				

				Inl Struct				
mainstem	5511							
mainstem	5472	100yr-		1742.60	9.92	17.89		18.33
0.001720	5.48	394.99	81.60	0.37				
mainstem	5472	100yr(encr)		1742.60	9.92	18.00		18.52
0.002370	5.74	303.54	43.40	0.38				
mainstem	5472	10yr		943.80	9.92	15.38		15.75
0.002493	4.88	212.69	63.23	0.41				
mainstem	5472	50yr		1444.30	9.92	17.09		17.50
0.001835	5.21	332.05	76.85	0.37				
mainstem	5472	500-yr		2249.30	9.92	18.87		19.40
0.001767	6.07	478.05	87.23	0.38				
mainstem	5241	100yr-		1742.60	5.20	14.48	14.48	16.85
0.015649	12.61	168.06	52.31	0.90				
mainstem	5241	100yr(encr)		1742.60	5.20	14.49	14.49	16.83
0.015476	12.55	164.93	42.06	0.90				
mainstem	5241	10yr		943.80	5.20	12.32	11.99	14.13
0.016374	10.78	87.52	19.67	0.90				
mainstem	5241	50yr		1444.30	5.20	13.74	13.74	15.99
0.016498	12.16	133.65	42.21	0.91				
mainstem	5241	500-yr		2249.30	5.20	15.79	15.79	18.03
0.012220	12.60	258.03	82.62	0.82				
mainstem	5191	100yr-		1742.60	6.69	14.20	13.42	15.76
0.004672	10.17	216.63	85.81	0.75				
mainstem	5191	100yr(encr)		1742.60	6.69	14.21		15.92
0.005995	10.50	166.01	28.78	0.77				
mainstem	5191	10yr		943.80	6.69	12.47		13.49

				GoodwiesDari en. rep				
0.004805	8.13	119.43	38.86	0.71				
mainstem	5191	50yr		1444.30	6.69	13.21	12.79	14.88
0.006290	10.41	153.24	51.57	0.84				
mainstem	5191	500-yr		2249.30	6.69	15.72	14.56	17.07
0.003167	9.78	357.31	99.60	0.64				
mainstem	4633	100yr-		1742.60	6.52	14.43		14.61
0.000608	3.43	510.29	90.00	0.25				
mainstem	4633	100yr(encr)		1742.60	6.52	14.51		14.69
0.000595	3.38	515.65	87.68	0.25				
mainstem	4633	10yr		943.80	6.52	12.15		12.29
0.000845	3.02	312.42	83.02	0.27				
mainstem	4633	50yr		1444.30	6.52	13.15		13.36
0.000924	3.63	397.79	86.42	0.30				
mainstem	4633	500-yr		2249.30	6.52	15.99		16.17
0.000468	3.47	654.36	95.19	0.23				
mainstem	4593	100yr-		1742.60	6.52	14.40	10.64	14.59
0.000503	3.52	550.10	118.62	0.25				
mainstem	4593	100yr(encr)		1742.60	6.52	14.46	10.64	14.66
0.000599	3.61	483.15	76.48	0.25				
mainstem	4593	10yr		943.80	6.52	12.11	9.76	12.26
0.000682	3.08	315.95	91.29	0.27				
mainstem	4593	50yr		1444.30	6.52	13.11	10.35	13.32
0.000756	3.73	412.09	100.89	0.29				
mainstem	4593	500-yr		2249.30	6.52	15.97	11.15	16.15
0.000377	3.52	755.71	135.89	0.22				
mainstem	4582							
				Inl Struct				
mainstem	4567	100yr-		1742.60	4.00	14.39		14.46
0.000335	2.08	892.43	137.21	0.13				
mainstem	4567	100yr(encr)		1742.60	4.00	14.39		14.46
0.000405	2.14	812.66	106.02	0.14				
mainstem	4567	10yr		943.80	4.00	10.31		10.40
0.001303	2.47	387.48	113.45	0.23				
mainstem	4567	50yr		1444.30	4.00	12.96		13.03
0.000467	2.14	704.89	126.31	0.15				
mainstem	4567	500-yr		2249.30	4.00	15.96		16.04
0.000292	2.20	1118.13	147.79	0.13				
mainstem	4515	100yr-		1742.60	1.50	14.40		14.44

				GoodwiesDari en. rep			
0.000044	1.63	1414.58	185.99	0.09			
mainstem	4515		100yr(encr)	1742.60	1.50	14.40	14.44
0.000048	1.70	1180.51	115.00	0.09			
mainstem	4515		10yr	943.80	1.50	10.33	10.36
0.000066	1.47	737.48	141.41	0.10			
mainstem	4515		50yr	1444.30	1.50	12.97	13.01
0.000050	1.58	1156.83	173.91	0.09			
mainstem	4515		500-yr	2249.30	1.50	15.97	16.02
0.000045	1.80	1715.40	195.91	0.09			

	mainstem	4477		100yr-	1742.60	1.98	14.40	5.83	14.44
0.000047	1.63	1440.10	196.39	0.09					
mainstem	4477		100yr(encr)	1742.60	1.98	14.40	5.84	14.44	
0.000054	1.68	1205.01	120.67	0.09					
mainstem	4477		10yr	943.80	1.98	10.30	4.69	10.35	
0.000103	1.85	509.09	145.86	0.12					
mainstem	4477		50yr	1444.30	1.98	12.97	5.53	13.01	
0.000054	1.59	1170.41	178.56	0.09					
mainstem	4477		500-yr	2249.30	1.98	15.97	6.33	16.02	
0.000048	1.80	1758.60	210.96	0.09					

				Bri dge					
	mainstem	4461							
	mainstem	4392		100yr-	1742.60	0.50	6.94	5.75	7.86
0.003271	7.74	231.28	80.85	0.63					
mainstem	4392		100yr(encr)	1742.60	0.50	7.21	5.74	8.05	
0.002895	7.35	237.18	48.45	0.59					
mainstem	4392		10yr	943.80	0.50	5.74	4.57	6.24	
0.002635	5.68	167.53	64.76	0.54					
mainstem	4392		50yr	1444.30	0.50	6.56	5.34	7.31	
0.003002	7.00	210.59	76.23	0.60					
mainstem	4392		500-yr	2249.30	0.50	7.48	6.39	8.71	
0.003742	8.91	261.61	90.88	0.69					

	mainstem	4303		100yr-	1742.60	0.50	6.80	5.62	7.48
0.002636	6.84	282.52	87.62	0.57					
mainstem	4303		100yr(encr)	1742.60	0.50	6.92	5.62	7.77	
0.003402	7.42	235.00	51.12	0.61					
mainstem	4303		10yr	943.80	0.50	5.53	4.53	5.98	
0.002631	5.47	182.33	70.20	0.54					
mainstem	4303		50yr	1444.30	0.50	6.39	5.23	6.98	
0.002623	6.40	247.21	82.00	0.56					
mainstem	4303		500-yr	2249.30	0.50	7.42	6.15	8.21	

				Goodwi vesDari en. rep				
0.002641	7.47	339.46	96.10	0.58				
mainstem	3473	100yr-		1742.60	0.30	5.23		5.61
0.001670	4.96	351.11	90.11	0.44				
mainstem	3473	100yr(encr)		1742.60	0.30	5.23		5.61
0.001684	4.96	351.17	90.00	0.44				
mainstem	3473	10yr		943.80	0.30	4.09		4.31
0.001403	3.77	250.41	85.35	0.39				
mainstem	3473	50yr		1444.30	0.30	4.84		5.17
0.001612	4.56	316.52	89.67	0.43				
mainstem	3473	500-yr		2249.30	0.30	5.79		6.28
0.001770	5.59	402.18	90.29	0.47				
mainstem	2223	100yr-		1742.60	-0.20	4.86		4.91
0.000222	1.89	921.76	221.18	0.16				
mainstem	2223	100yr(encr)		1742.60	-0.20	4.86		4.91
0.000223	1.89	921.55	221.18	0.16				
mainstem	2223	10yr		943.80	-0.20	3.72		3.75
0.000187	1.41	669.72	221.03	0.14				
mainstem	2223	50yr		1444.30	-0.20	4.47		4.51
0.000211	1.73	835.03	221.13	0.16				
mainstem	2223	500-yr		2249.30	-0.20	5.44		5.51
0.000242	2.14	1050.14	221.26	0.17				
mainstem	0	100yr-		1742.60	-0.20	4.23	1.77	4.30
0.000350	2.05	851.85	258.80	0.20				
mainstem	0	100yr(encr)		1742.60	-0.20	4.23	1.77	4.30
0.000350	2.05	851.66	258.80	0.20				
mainstem	0	10yr		943.80	-0.20	3.15	1.25	3.19
0.000350	1.63	578.02	246.84	0.19				
mainstem	0	50yr		1444.30	-0.20	3.86	1.59	3.92
0.000350	1.91	754.98	253.93	0.20				
mainstem	0	500-yr		2249.30	-0.20	4.79	2.03	4.87
0.000350	2.26	995.77	260.32	0.20				