

LONGBOAT KEY VILLAGE STORMWATER EVALUATION AND ANALYSIS
EXISTING CONDITIONS REPORT



November 2015

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Background

As a result of a study conducted in 2002, the Town performed drainage improvements to alleviate flooding in the Longboat Key Village. Improvements included the construction of stormwater pipes, drainage inlets, manholes and Tideflex® valves designed to assist in keeping tidal waters from entering the stormwater system. Although the project helped to improve the historical flooding problems, there are portions of the Village that continue to hold water during high tides and rain events. DMK Associates has been asked to evaluate the performance of the existing stormwater system and make recommendations to the Town of Longboat Key to determine potential solutions for this nuisance flooding.

Existing Conditions Assessment

The design documents and construction plans from the previous project in 2002 were obtained from the Town. In those documents were copies of the original ICPR (Interconnected Pond Routing) model for the stormwater system. This model was re-created in ICPR using the same modeling parameters and the model was executed. The reported design high water elevations from the previous engineering design were slightly different than the reported design high water elevations in the newly executed model run. It is believed that this is due to updates to the ICPR modeling software.

Refinements to the new model were required to reflect the actual conditions in the Village. As built information was obtained from the town. Using as-built information obtained from the Town, the model was revised to show the correct lengths of pipe, pipe inverts, etc. Tideflex® was contacted and a representative from the company met with DMK and the Town onsite. Headloss vs. Flow data was then received from Tideflex® that would assist in evaluating the effects of the valves on the ICPR model design high water elevations. These charts are located in the appendix. The data from the charts was used to revise the model to add in the headloss effects of the Tideflex® valves. On the outfall pipes where no Tideflex® valves were installed, a “clip” was modeled on the downstream side of the pipe to reflect the affects of encumbrances of the pipe outfalls including but not limited to existing invert elevations, changes in adjacent grade or mangroves that grow in front of the pipe outfalls. The model was then executed to determine the design high water elevations with the effects of the encumbrances or “clips”, including as built and Tideflex® information. Results are shown in the appendix.

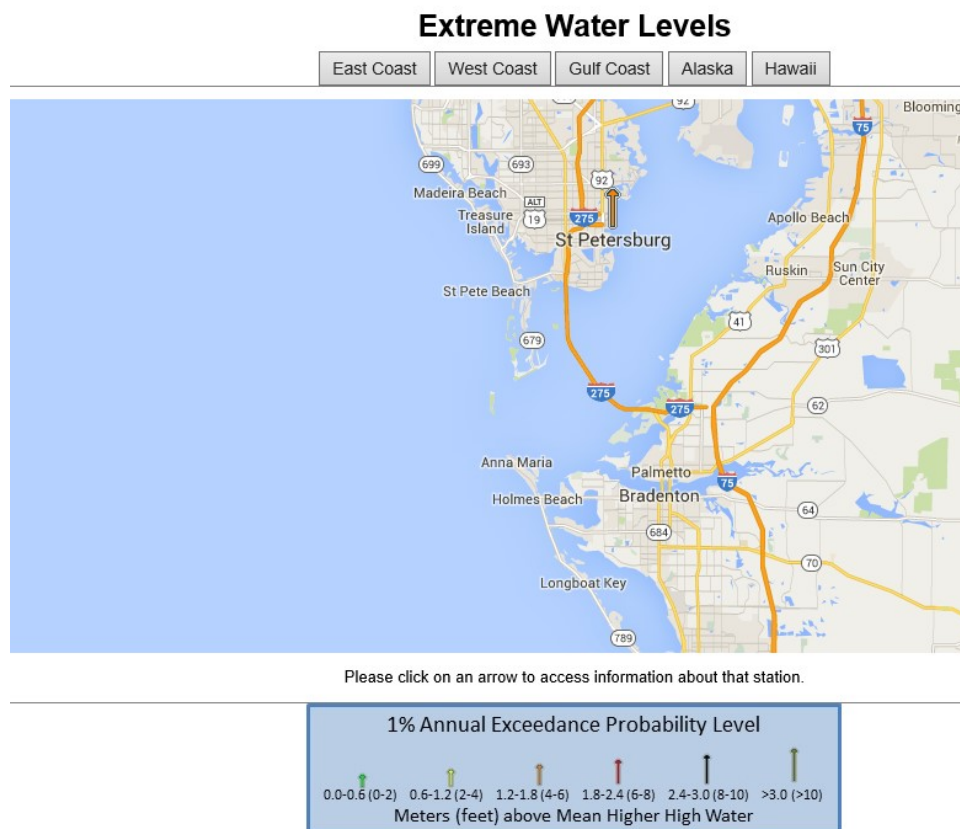
Sea Level Rise (SLR), Extreme Water Levels and Tipping Points

According to the National Oceanic and Atmospheric Administration (NOAA), there is strong evidence that sea levels are rising at an increased rate and will continue to rise during this century. Studies have shown that sea levels changed very little prior to 1990, but began to climb in the 20th century. The two (2) major factors for SLR are thermal expansion caused by the warming of the oceans (since water expands as it warms) and the loss of land-based ice (such as glaciers and polar ice caps) due to increased melting. NOAA claims that global SLR is rising at a rate of 0.12 inches per year. Although different than

the SLR, analysis of the Mean Water level for the NOAA Port Manatee Tide Station shows that over an 11-year period, the yearly average of the Mean Water Level has risen almost 3". See the supporting document in the Appendix.

This following excerpt and graphic was taken verbatim from the NOAA website:

"The extreme levels measured by the CO-OPS tide gauges during storms are called storm tides, which are a combination of the astronomical tide, the storm surge, and limited wave setup caused by breaking waves. They do not include wave runup, the movement of water up a slope. Therefore, the 1% annual exceedance probability levels shown on this website do not necessarily correspond to the Base Flood Elevations (BFE) defined by the Federal Emergency Management Administration (FEMA), which are the basis for the National Flood Insurance Program. The 1% annual exceedance probability levels on this website more closely correspond to FEMA's Still Water Flood Elevations (SWEL). The peak levels from tsunamis, which can cause high-frequency fluctuations at some locations, have not been included in this statistical analysis due to their infrequency during the periods of historic record. "



As shown in the graphic, the Longboat Key Villages has a 1% Annual Exceedance Probability Level of 4-6 feet above Mean Higher High Water. Data from the NOAA St. Petersburg Tide Station shows that the Extreme Water Levels have risen 6" over a 50 year period. See the appendix for more information on the 1 year (SWEL).

Tipping points are frequency based benchmarks when nuisance flooding occurs and tides occur one to two feet above local high tide 30 or more times a year. By 2050, a majority of U.S. coastal areas are likely to be threatened by 30 or more days of flooding each year due to accelerating impacts from sea level rise according to NOAA. Regional tipping points will be surpassed in the coming decades in areas with more frequent storms. NOAA tide gauges show the annual rate daily floods reaching these levels are now 5 to 10 times more likely than they were 50 years ago. Coastal communities are experiencing sunny-day nuisance flooding much more than in the past.

Summary

In general, the revised model reflects that the Tideflex® valves and clips increased the design high water at different node points ranging from 1" to 12" as compared to the original model. A comparison table of the nodal increases and an Existing Drainage Node Map is shown in the Appendix. Another comparison table has been included that shows the depth of flooding above the crown of the roadway for both of the models (DMK and DMK-Boyle). The warning stage from the Boyle model was the assumed elevation of the crown of the roadway. As with the previous comparison, the headloss caused by the Tideflex® valves increased the flooding above the crown of the road in some nodes up to 9". The ICPR modeling input and output for the original model as well as the revised model that reflects the actual conditions is also shown in the supporting documents. Roadway flooding could be increased even more due to other factors including but not limited to higher than mean high tides and sea level rise. The occurrence of roadway flooding could also increase due to more frequent storm events as well as sea level rise.

Appendix

Comparison of ICPR Models

Boyle-DMK Modeling Input and Results

ICPR Modeling Input and Results with Tideflex Valves

Tideflex® Valve Research

Sea Level Rise Graphics

1-Year Tidal Still Water Elevation Information

COMPARISON OF MODELS

LONGBOAT KEY VILLAGE STORMWATER EVALUATION AND ANALYSIS

5 YEAR COMPARISON TABLE OF MODELS INCLUDING TIDEFLEX VALVES AND CLIPS

Simulation	Node	DMK	DMK-Boyle	Difference (ft)	Warning Stage (ft)
		Existing Max Stage (ft)	Existing Max Stage (ft)		
5yr24hr	100	3.74	2.37	1.37	3
5yr24hr	1000	2.45	1.85	0.6	2.35
5yr24hr	1100	3.4	3.39	0.01	2.6
5yr24hr	1200	2.86	2.37	0.49	2.2
5yr24hr	1300	3.02	2.31	0.71	2.2
5yr24hr	1400	3.18	2.15	1.03	3
5yr24hr	1500	2.66	2.37	0.29	2.1
5yr24hr	158	2.57	2.04	0.53	2
5yr24hr	1600	2.58	2.14	0.44	1.9
5yr24hr	1700	2.48	1.82	0.66	2
5yr24hr	179	2.49	1.84	0.65	2.5
5yr24hr	1800	2.97	2.98	-0.01	2.7
5yr24hr	1900	3.29	3.26	0.03	2.4
5yr24hr	200	2.17	1.92	0.25	2.2
5yr24hr	300	3.23	3.19	0.04	3.22
5yr24hr	400	2.99	2.95	0.04	2.82
5yr24hr	500	2.69	2.48	0.21	2.05
5yr24hr	600	3.2	3.05	0.15	2.4
5yr24hr	700	3.14	3.01	0.13	2.8
5yr24hr	800	2.67	2.29	0.38	2.15
5yr24hr	900	2.48	1.86	0.62	2

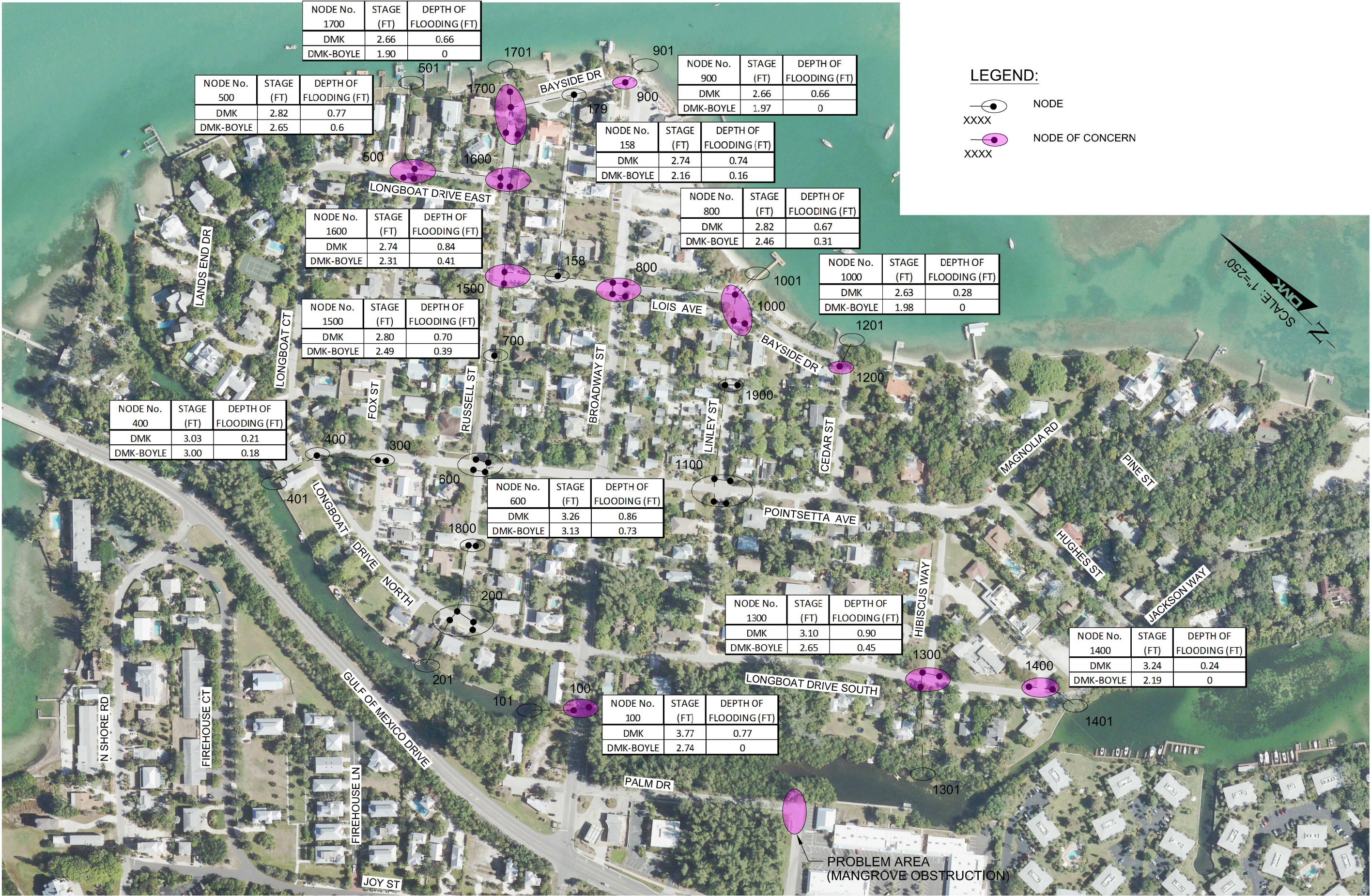
5 YEAR ROADWAY DEPTH OF FLOODING TABLE

Simulation	Node	DMK		DMK-Boyle	
		Existing Max Stage (ft)	Depth of Flooding above roadway (ft)	Existing Max Stage (ft)	Depth of Flooding above roadway (ft)
5yr24hr	100	3.74	0.74	2.37	0
5yr24hr	1000	2.45	0.1	1.85	0
5yr24hr	1100	3.4	0.8	3.39	0.79
5yr24hr	1200	2.86	0.66	2.37	0.17
5yr24hr	1300	3.02	0.82	2.31	0.11
5yr24hr	1400	3.18	0.18	2.15	0
5yr24hr	1500	2.66	0.56	2.37	0.27
5yr24hr	158	2.57	0.57	2.04	0.04
5yr24hr	1600	2.58	0.68	2.14	0.24
5yr24hr	1700	2.48	0.48	1.82	0
5yr24hr	179	2.49	-0.01	1.84	0
5yr24hr	1800	2.97	0.27	2.98	0.28
5yr24hr	1900	3.29	0.89	3.26	0.86
5yr24hr	200	2.17	-0.03	1.92	0
5yr24hr	300	3.23	0.01	3.19	-0.03
5yr24hr	400	2.99	0.17	2.95	0.13
5yr24hr	500	2.69	0.64	2.48	0.43
5yr24hr	600	3.2	0.8	3.05	0.65
5yr24hr	700	3.14	0.34	3.01	0.21
5yr24hr	800	2.67	0.52	2.29	0.14
5yr24hr	900	2.48	0.48	1.86	0

LONGBOAT KEY VILLAGE STORMWATER EVALUATION AND ANALYSIS

10 YEAR COMPARISON TABLE OF MODELS INCLUDING TIDEFLEX VALVES AND CLIPS					
Simulation	Node	DMK	DMK-Boyle	Difference	Warning
		Existing Max Stage (ft)	Existing Max Stage (ft)		
10yr24hr	100	3.77	2.74	1.03	3
10yr24hr	1000	2.63	1.98	0.65	2.35
10yr24hr	1100	3.46	3.47	-0.01	2.6
10yr24hr	1200	2.89	2.75	0.14	2.2
10yr24hr	1300	3.1	2.65	0.45	2.2
10yr24hr	1400	3.24	2.19	1.05	3
10yr24hr	1500	2.8	2.49	0.31	2.1
10yr24hr	158	2.74	2.16	0.58	2
10yr24hr	1600	2.74	2.31	0.43	1.9
10yr24hr	1700	2.66	1.9	0.76	2
10yr24hr	179	2.67	1.93	0.74	2.5
10yr24hr	1800	3.06	3.08	-0.02	2.7
10yr24hr	1900	3.32	3.36	-0.04	2.4
10yr24hr	200	2.32	2.07	0.25	2.2
10yr24hr	300	3.33	3.31	0.02	3.22
10yr24hr	400	3.03	3	0.03	2.82
10yr24hr	500	2.82	2.65	0.17	2.05
10yr24hr	600	3.26	3.13	0.13	2.4
10yr24hr	700	3.21	3.09	0.12	2.8
10yr24hr	800	2.82	2.46	0.36	2.15
10yr24hr	900	2.66	1.97	0.69	2

10 YEAR ROADWAY DEPTH OF FLOODING TABLE					
Simulation	Node	DMK		DMK-Boyle	
		Existing Max Stage (ft)	Depth of Flooding above roadway (ft)	Existing Max Stage (ft)	Depth of Flooding above roadway (ft)
10yr24hr	100	3.77	0.77	2.74	0
10yr24hr	1000	2.63	0.28	1.98	0
10yr24hr	1100	3.46	0.86	3.47	0.87
10yr24hr	1200	2.89	0.69	2.75	0.55
10yr24hr	1300	3.1	0.9	2.65	0.45
10yr24hr	1400	3.24	0.24	2.19	0
10yr24hr	1500	2.8	0.7	2.49	0.39
10yr24hr	158	2.74	0.74	2.16	0.16
10yr24hr	1600	2.74	0.84	2.31	0.41
10yr24hr	1700	2.66	0.66	1.9	0
10yr24hr	179	2.67	0.17	1.93	0
10yr24hr	1800	3.06	0.36	3.08	0.38
10yr24hr	1900	3.32	0.92	3.36	0.96
10yr24hr	200	2.32	0.12	2.07	0
10yr24hr	300	3.33	0.11	3.31	0.09
10yr24hr	400	3.03	0.21	3	0.18
10yr24hr	500	2.82	0.77	2.65	0.6
10yr24hr	600	3.26	0.86	3.13	0.73
10yr24hr	700	3.21	0.41	3.09	0.29
10yr24hr	800	2.82	0.67	2.46	0.31
10yr24hr	900	2.66	0.66	1.97	0



NODE No.	STAGE (FT)	DEPTH OF FLOODING (FT)
400	3.03	0.21
DMK-BOYLE	3.00	0.18

NODE No.	STAGE (FT)	DEPTH OF FLOODING (FT)
1500	2.80	0.70
DMK-BOYLE	2.49	0.39

NODE No.	STAGE (FT)	DEPTH OF FLOODING (FT)
1600	2.74	0.84
DMK-BOYLE	2.31	0.41

NODE No.	STAGE (FT)	DEPTH OF FLOODING (FT)
500	2.82	0.77
DMK-BOYLE	2.65	0.6

NODE No.	STAGE (FT)	DEPTH OF FLOODING (FT)
1700	2.66	0.66
DMK-BOYLE	1.90	0

NODE No.	STAGE (FT)	DEPTH OF FLOODING (FT)
600	3.26	0.86
DMK-BOYLE	3.13	0.73

NODE No.	STAGE (FT)	DEPTH OF FLOODING (FT)
100	3.77	0.77
DMK-BOYLE	2.74	0

NODE No.	STAGE (FT)	DEPTH OF FLOODING (FT)
1300	3.10	0.90
DMK-BOYLE	2.65	0.45

NODE No.	STAGE (FT)	DEPTH OF FLOODING (FT)
158	2.74	0.74
DMK-BOYLE	2.16	0.16

NODE No.	STAGE (FT)	DEPTH OF FLOODING (FT)
800	2.82	0.67
DMK-BOYLE	2.46	0.31

NODE No.	STAGE (FT)	DEPTH OF FLOODING (FT)
900	2.66	0.66
DMK-BOYLE	1.97	0

NODE No.	STAGE (FT)	DEPTH OF FLOODING (FT)
1000	2.63	0.28
DMK-BOYLE	1.98	0

NODE No.	STAGE (FT)	DEPTH OF FLOODING (FT)
1400	3.24	0.24
DMK-BOYLE	2.19	0

LEGEND:

● NODE

XXXX NODE OF CONCERN

PRELIMINARY PLANS

THESE PLANS MAY HAVE BEEN REDUCED IN SIZE BY REPRODUCTIONS.
THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.

**BOYLE-DMK
ICPR MODELING
INPUT AND RESULTS**

15-0101 LBK VILLAGE STORM SYSTEM Boyle Max Conditions

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
100	BASE	10yr24hr	12.17	2.74	3.00	0.0031	117	12.17	5.65	12.17	5.64
1000	BASE	10yr24hr	12.40	1.98	2.35	0.0012	4968	12.33	19.74	12.40	19.53
1001	BASE	10yr24hr	0.00	1.50	0.00	0.0000	43	12.40	19.53	0.00	0.00
101	BASE	10yr24hr	0.00	1.50	0.00	0.0000	4	12.17	5.64	0.00	0.00
1100	BASE	10yr24hr	12.35	3.47	2.60	-0.0046	6456	12.17	12.81	12.26	12.16
1200	BASE	10yr24hr	12.19	2.75	2.20	0.0032	114	12.17	7.94	12.19	7.92
1201	BASE	10yr24hr	0.00	1.50	0.00	0.0000	1	12.19	7.92	0.00	0.00
1300	BASE	10yr24hr	12.26	2.65	2.20	0.0030	115	12.25	11.56	12.26	11.55
1301	BASE	10yr24hr	0.00	1.50	0.00	0.0000	2	12.26	11.55	0.00	0.00
1400	BASE	10yr24hr	12.25	2.19	2.00	0.0018	264	12.25	17.37	12.25	17.36
1401	BASE	10yr24hr	0.00	1.50	0.00	0.0000	2	12.25	17.36	0.00	0.00
1500	BASE	10yr24hr	12.73	2.49	2.10	0.0016	22152	12.26	6.48	12.73	3.58
158	BASE	10yr24hr	12.83	2.16	2.00	0.0020	147	14.44	3.03	14.49	3.07
1600	BASE	10yr24hr	12.66	2.31	1.90	0.0014	24126	12.41	22.11	12.68	20.26
1700	BASE	10yr24hr	12.63	1.90	2.00	0.0006	22673	12.60	21.38	12.83	21.95
1701	BASE	10yr24hr	0.00	1.50	0.00	0.0000	110	12.63	22.75	0.00	0.00
179	BASE	10yr24hr	12.30	1.93	2.50	0.0044	153	12.83	4.54	12.98	4.06
1800	BASE	10yr24hr	12.34	3.08	2.70	0.0039	4393	12.25	6.58	12.32	6.37
1900	BASE	10yr24hr	12.38	3.36	2.40	-0.0046	11455	12.20	14.82	12.38	13.84
200	BASE	10yr24hr	12.54	2.07	2.20	0.0012	15455	12.25	12.59	12.54	10.63
201	BASE	10yr24hr	0.00	1.50	0.00	0.0000	11	12.54	10.63	0.00	0.00
300	BASE	10yr24hr	12.18	3.31	3.22	0.0046	534	12.25	3.55	12.29	3.57
400	BASE	10yr24hr	12.07	3.00	2.82	-0.0049	3178	12.03	10.95	12.07	10.90
401	BASE	10yr24hr	0.00	1.50	0.00	0.0000	4	12.07	10.90	0.00	0.00
500	BASE	10yr24hr	12.46	2.65	2.05	0.0019	6157	12.25	16.57	12.36	15.81
501	BASE	10yr24hr	0.00	1.50	0.00	0.0000	0	0.00	0.00	0.00	0.00
600	BASE	10yr24hr	12.38	3.13	2.40	-0.0046	6188	12.42	5.52	12.49	5.72
700	BASE	10yr24hr	12.37	3.09	2.80	0.0024	4440	12.33	5.62	12.45	5.69
800	BASE	10yr24hr	13.29	2.46	2.15	0.0014	61585	12.25	14.10	13.69	6.78
900	BASE	10yr24hr	12.08	1.97	2.00	0.0048	136	12.00	7.16	12.08	7.11
901	BASE	10yr24hr	0.00	1.50	0.00	0.0000	41	12.08	7.11	0.00	0.00
100	BASE	5yr24hr	12.17	2.37	3.00	0.0028	117	12.17	4.74	12.17	4.73
1000	BASE	5yr24hr	12.40	1.85	2.35	0.0009	4674	12.34	16.76	12.40	16.63
1001	BASE	5yr24hr	0.00	1.50	0.00	0.0000	43	12.40	16.63	0.00	0.00
101	BASE	5yr24hr	0.00	1.50	0.00	0.0000	4	12.17	4.73	0.00	0.00
1100	BASE	5yr24hr	12.34	3.39	2.60	-0.0048	6117	12.17	10.70	12.25	10.25
1200	BASE	5yr24hr	12.18	2.37	2.20	0.0028	114	12.17	6.63	12.18	6.62
1201	BASE	5yr24hr	0.00	1.50	0.00	0.0000	1	12.18	6.62	0.00	0.00
1300	BASE	5yr24hr	12.26	2.31	2.20	0.0026	115	12.25	9.69	12.26	9.68
1301	BASE	5yr24hr	0.00	1.50	0.00	0.0000	2	12.26	9.68	0.00	0.00
1400	BASE	5yr24hr	12.25	2.15	2.00	0.0018	264	12.25	14.51	12.25	14.51
1401	BASE	5yr24hr	0.00	1.50	0.00	0.0000	2	12.25	14.51	0.00	0.00
1500	BASE	5yr24hr	12.74	2.37	2.10	0.0016	18768	12.25	5.18	12.85	2.84
158	BASE	5yr24hr	12.81	2.04	2.00	0.0028	147	14.50	2.80	14.46	2.87
1600	BASE	5yr24hr	12.60	2.14	1.90	0.0013	18991	12.38	18.43	12.62	17.32
1700	BASE	5yr24hr	12.56	1.82	2.00	0.0006	21277	12.55	18.41	12.76	18.64
1701	BASE	5yr24hr	0.00	1.50	0.00	0.0000	110	12.56	20.07	0.00	0.00
179	BASE	5yr24hr	12.26	1.84	2.50	0.0049	153	12.90	3.85	12.92	3.54
1800	BASE	5yr24hr	12.36	2.98	2.70	0.0042	3428	12.26	5.33	12.34	5.19
1900	BASE	5yr24hr	12.39	3.26	2.40	-0.0038	10791	12.20	12.52	12.39	11.54
200	BASE	5yr24hr	12.51	1.92	2.20	0.0010	14161	12.25	10.38	12.51	9.17
201	BASE	5yr24hr	0.00	1.50	0.00	0.0000	11	12.51	9.17	0.00	0.00
300	BASE	5yr24hr	12.17	3.19	3.22	0.0047	229	12.25	2.97	12.25	2.99
400	BASE	5yr24hr	12.08	2.95	2.82	-0.0046	3507	12.00	9.18	12.08	9.13
401	BASE	5yr24hr	0.00	1.50	0.00	0.0000	4	12.08	9.13	0.00	0.00
500	BASE	5yr24hr	12.44	2.48	2.05	0.0021	4115	12.25	13.83	12.35	13.34
501	BASE	5yr24hr	0.00	1.50	0.00	0.0000	0	0.00	0.00	0.00	0.00

15-0101 LBK VILLAGE STORM SYSTEM Boyle Max Conditions

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
600	BASE	5yr24hr	12.43	3.05	2.40	-0.0048	5502	12.42	4.61	12.51	4.70
700	BASE	5yr24hr	12.42	3.01	2.80	0.0031	3464	12.17	4.74	12.47	4.57
800	BASE	5yr24hr	13.29	2.29	2.15	0.0012	55813	12.25	11.78	14.03	5.75
900	BASE	5yr24hr	12.08	1.86	2.00	-0.0044	136	12.26	7.62	12.08	6.18
901	BASE	5yr24hr	0.00	1.50	0.00	0.0000	41	12.08	6.18	0.00	0.00

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 21.00
Area(ac): 2.000	Time Shift(hrs): 0.00
Curve Number: 90.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: F1mod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 14.00
Area(ac): 1.800	Time Shift(hrs): 0.00
Curve Number: 90.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: F1mod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 25.00
Area(ac): 5.000	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: F1mod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 25.00
Area(ac): 3.100	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 30.00
Area(ac): 4.900	Time Shift(hrs): 0.00
Curve Number: 90.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: FImod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 28.00
Area(ac): 7.200	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

```

Unit Hydrograph: Uh256                      Peaking Factor: 256.0
Rainfall File: Flmod                        Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000                  Time of Conc(min): 25.00

```

Area(ac): 1.500	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 160	Node: 1600	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 30.00
Area(ac): 1.700	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 170	Node: 1700	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 10.00
Area(ac): 0.900	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 180	Node: 1800	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 10.00
Area(ac): 1.600	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 190	Node: 1900	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 10.00
Area(ac): 0.900	Time Shift(hrs): 0.00
Curve Number: 90.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 20	Node: 200	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 25.00
Area(ac): 2.500	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 30	Node: 300	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 26.00
Area(ac): 1.400	Time Shift(hrs): 0.00
Curve Number: 90.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 40	Node: 400	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
------------------------	-----------------------

Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 8.00
Area(ac): 1.980	Time Shift(hrs): 0.00
Curve Number: 90.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 50	Node: 500	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 32.00
Area(ac): 7.400	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 60	Node: 600	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 40.00
Area(ac): 2.800	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 70	Node: 700	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 22.00
Area(ac): 1.100	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 80	Node: 800	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 32.00
Area(ac): 6.300	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 90	Node: 900	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 8.00
Area(ac): 2.900	Time Shift(hrs): 0.00
Curve Number: 91.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

==== Nodes =====

Name: 100	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 3.000
Type: Stage/Area		

Stage(ft)	Area(ac)
0.300	0.0010
8.000	0.0010

Name: 1000 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 2.350
Type: Stage/Area

Stage(ft)	Area(ac)
-0.650	0.0010
8.000	0.0010

Name: 1001 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 0.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	1.500
60.00	1.500

Name: 101 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 0.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	1.500
60.00	1.500

Name: 1100 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 2.600
Type: Stage/Area

Stage(ft)	Area(ac)
0.490	0.0010
8.000	0.0010

Name: 1200 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 2.200
Type: Stage/Area

Stage(ft)	Area(ac)
-0.200	0.0010
8.000	0.0010

Name: 1201 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 0.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	1.500
60.00	1.500

Name: 1300 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 2.200
Type: Stage/Area

Stage(ft)	Area(ac)
-0.400	0.0010
8.000	0.0010

Name: 1301 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 0.000
Type: Time/Stage

Time(hrs)		Stage(ft)	
0.00		1.500	
60.00		1.500	

Name: 1400		Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE			Warn Stage(ft): 2.000
Type: Stage/Area			
Stage(ft)		Area(ac)	
-----		-----	
-0.500		0.0010	
8.000		0.0010	

Name: 1401		Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE			Warn Stage(ft): 0.000
Type: Time/Stage			
Time(hrs)		Stage(ft)	
-----		-----	
0.00		1.500	
60.00		1.500	

Name: 1500		Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE			Warn Stage(ft): 2.100
Type: Stage/Area			
Stage(ft)		Area(ac)	
-----		-----	
0.000		0.0010	
3.200		0.4000	
3.300		0.4200	
5.000		0.4200	

Name: 158		Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE			Warn Stage(ft): 2.000
Type: Stage/Area			
Stage(ft)		Area(ac)	
-----		-----	
0.000		0.0010	
8.000		0.0010	

Name: 1600		Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE			Warn Stage(ft): 1.900
Type: Stage/Area			
Stage(ft)		Area(ac)	
-----		-----	
0.000		0.0010	
2.950		0.4000	
3.100		0.4200	
5.000		0.4200	

Name: 1700		Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE			Warn Stage(ft): 2.000
Type: Stage/Area			
Stage(ft)		Area(ac)	
-----		-----	
-0.500		0.0010	
2.950		0.7000	
3.100		0.8000	
5.000		0.8000	

Name: 1701		Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE			Warn Stage(ft): 0.000
Type: Time/Stage			

Time(hrs)	Stage(ft)
0.00	1.500
60.00	1.500

Name: 179	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.500
Type: Stage/Area		

Stage(ft)	Area(ac)
0.000	0.0010
8.000	0.0010

Name: 1800	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.700
Type: Stage/Area		

Stage(ft)	Area(ac)
0.300	0.0010
8.000	0.0010

Name: 1900	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.400
Type: Stage/Area		

Stage(ft)	Area(ac)
0.000	0.0010
8.000	0.0010

Name: 200	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.200
Type: Stage/Area		

Stage(ft)	Area(ac)
0.000	0.0010
2.700	0.4200
3.000	0.4600
8.000	0.4600

Name: 201	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 0.000
Type: Time/Stage		

Time(hrs)	Stage(ft)
0.00	1.500
60.00	1.500

Name: 300	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 3.220
Type: Stage/Area		

Stage(ft)	Area(ac)
0.750	0.0010
8.000	0.0010

Name: 400	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.820
Type: Stage/Area		

Stage(ft)	Area(ac)
-----------	----------

0.240	0.0010
8.000	0.0010

Name: 401	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 0.000
Type: Time/Stage		

Time(hrs)	Stage(ft)
0.00	1.500
60.00	1.500

Name: 500	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.050
Type: Stage/Area		

Stage(ft)	Area(ac)
0.220	0.0010
8.000	0.0010

Name: 501	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 0.000
Type: Time/Stage		

Time(hrs)	Stage(ft)
0.00	1.500
60.00	1.500

Name: 600	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.400
Type: Stage/Area		

Stage(ft)	Area(ac)
0.500	0.0010
8.000	0.0010

Name: 700	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.800
Type: Stage/Area		

Stage(ft)	Area(ac)
0.400	0.0010
8.000	0.0010

Name: 800	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.150
Type: Stage/Area		

This node goes 1000 and 1500

Stage(ft)	Area(ac)
0.150	0.0010
3.000	1.6700
3.100	1.7700
5.000	1.7700

Name: 900	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.000
Type: Stage/Area		

8" pipe in curb that outfalls to bay

Stage(ft)	Area(ac)
2.000	0.0010
3.000	0.8800

3.200 0.9000
5.000 0.9000

Name: 901 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 0.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	1.500
60.00	1.500

==== Cross Sections =====

Name: 100 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	5.000	0.060000
0.100	0.000	0.060000
5.000	0.000	0.060000
15.000	0.000	0.060000
15.100	5.000	0.060000

Name: 1200 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	10.000	0.060000
0.100	0.000	0.060000
30.000	0.000	0.060000
30.100	10.000	0.060000

Name: 1400 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	10.000	0.060000
0.100	0.000	0.060000
30.000	0.000	0.060000
30.100	10.000	0.060000

Name: 1617 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	10.000	0.060000
0.100	0.700	0.060000
20.000	0.000	0.060000
25.000	0.700	0.060000
35.000	0.800	0.030000
45.000	0.700	0.030000
50.000	0.000	0.060000
70.000	0.700	0.060000
70.100	10.000	0.060000

Name: 1700 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	10.000	0.060000
0.100	0.000	0.060000
10.000	0.000	0.060000
10.100	10.000	0.060000

Name: 200
Encroachment: No

Group: BASE

Station(ft)	Elevation(ft)	Manning's N
0.000	10.000	0.060000
0.100	0.000	0.060000
200.000	0.000	0.060000
200.100	10.000	0.060000

Name: 400
Encroachment: No

Group: BASE

Station(ft)	Elevation(ft)	Manning's N
0.000	10.000	0.060000
0.100	0.000	0.060000
20.000	0.000	0.060000
40.000	0.000	0.060000
40.100	10.000	0.060000

Name: 500
Encroachment: No

Group: BASE

Station(ft)	Elevation(ft)	Manning's N
0.000	5.000	0.060000
0.100	1.000	0.060000
7.000	0.000	0.060000
14.900	1.000	0.060000
15.000	5.000	0.060000

Name: Road
Encroachment: No

Group: BASE

Station(ft)	Elevation(ft)	Manning's N
0.000	5.000	0.060000
0.100	1.000	0.060000
15.000	0.000	0.060000
25.000	0.700	0.030000
35.000	0.000	0.030000
44.900	1.000	0.060000
45.000	5.000	0.060000

==== Operating Tables =====

Name: Group: BASE
Type: Bottom Clip
Function: Time vs. Depth of Clip

Time(hrs) Clip Depth(in)

==== Pipes =====

Name: 1581500	From Node: 158	Length(ft): 150.00
Group: BASE	To Node: 1500	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 15.00	15.00	Flow: Both
Rise(in): 15.00	15.00	Entrance Loss Coef: 0.00
Invert(ft): 0.000	0.000	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.00
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:

Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:

Circular Concrete: Square edge w/ headwall

```

-----
Name: 158179          From Node: 158          Length(ft): 488.00
Group: BASE           To Node: 179          Count: 1
                        Friction Equation: Automatic
                        Solution Algorithm: Most Restrictive
                        Flow: Both
                        Entrance Loss Coef: 0.00
                        Exit Loss Coef: 1.00
                        Bend Loss Coef: 0.50
                        Outlet Ctrl Spec: Use dc or tw
                        Inlet Ctrl Spec: Use dc
                        Stabilizer Option: None

      UPSTREAM          DOWNSTREAM
Geometry: Circular      Circular
Span(in): 24.00         24.00
Rise(in): 24.00         24.00
Invert(ft): -0.950      -1.430
Manning's N: 0.013000   0.013000
Top Clip(in): 0.000     0.000
Bot Clip(in): 0.000     0.000

```

Upstream FHWA Inlet Edge Description:

Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:

Circular Concrete: Square edge w/ headwall

```

-----
Name: 17917           From Node: 1700         Length(ft): 171.00
Group: BASE           To Node: 179         Count: 1
                        Friction Equation: Automatic
                        Solution Algorithm: Most Restrictive
                        Flow: Both
                        Entrance Loss Coef: 0.00
                        Exit Loss Coef: 1.00
                        Bend Loss Coef: 0.70
                        Outlet Ctrl Spec: Use dc or tw
                        Inlet Ctrl Spec: Use dc
                        Stabilizer Option: None

      UPSTREAM          DOWNSTREAM
Geometry: Circular      Circular
Span(in): 24.00         24.00
Rise(in): 24.00         24.00
Invert(ft): -3.030      -2.300
Manning's N: 0.013000   0.013000
Top Clip(in): 0.000     0.000
Bot Clip(in): 0.000     0.000

```

Upstream FHWA Inlet Edge Description:

Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:

Circular Concrete: Square edge w/ headwall

```

-----
Name: 8001000         From Node: 800          Length(ft): 300.00
Group: BASE           To Node: 1000        Count: 1
                        Friction Equation: Automatic
                        Solution Algorithm: Most Restrictive
                        Flow: Both
                        Entrance Loss Coef: 0.00
                        Exit Loss Coef: 1.00
                        Bend Loss Coef: 0.00
                        Outlet Ctrl Spec: Use dc or tw
                        Inlet Ctrl Spec: Use dc
                        Stabilizer Option: None

      UPSTREAM          DOWNSTREAM
Geometry: Circular      Circular
Span(in): 15.00         15.00
Rise(in): 15.00         15.00
Invert(ft): 0.150       0.310
Manning's N: 0.013000   0.013000
Top Clip(in): 0.000     0.000
Bot Clip(in): 0.000     0.000

```

Upstream FHWA Inlet Edge Description:

Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:

Circular Concrete: Square edge w/ headwall

```

-----
Name: 800158          From Node: 800          Length(ft): 150.00
Group: BASE           To Node: 158         Count: 1
                        Friction Equation: Automatic
                        Solution Algorithm: Most Restrictive
                        Flow: Both
                        Entrance Loss Coef: 0.00
                        Exit Loss Coef: 1.00
                        Bend Loss Coef: 0.00
                        Outlet Ctrl Spec: Use dc or tw
                        Inlet Ctrl Spec: Use dc
                        Stabilizer Option: None

      UPSTREAM          DOWNSTREAM
Geometry: Circular      Circular
Span(in): 15.00         15.00
Rise(in): 15.00         15.00
Invert(ft): 0.240       0.080
Manning's N: 0.013000   0.013000
Top Clip(in): 0.000     0.000
Bot Clip(in): 0.000     0.000

```

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

```
-----
Name: 9100          From Node: 100          Length(ft): 120.00
Group: BASE         To Node: 101            Count: 1
                                     Friction Equation: Average Conveyance
                                     Solution Algorithm: Most Restrictive
                                     Flow: Both
      UPSTREAM        DOWNSTREAM
Geometry: Circular   Circular
Span(in): 15.00      15.00
Rise(in): 15.00      15.00
Invert(ft): 0.000    -0.660
Manning's N: 0.013000 0.013000
Top Clip(in): 0.000   0.000
Bot Clip(in): 0.000   0.000
                                     Entrance Loss Coef: 0.00
                                     Exit Loss Coef: 1.00
                                     Bend Loss Coef: 0.70
                                     Outlet Ctrl Spec: Use dc or tw
                                     Inlet Ctrl Spec: Use dn
                                     Stabilizer Option: None
-----
```

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

```
-----
Name: 91000         From Node: 1000         Length(ft): 64.00
Group: BASE         To Node: 1001          Count: 1
                                     Friction Equation: Average Conveyance
                                     Solution Algorithm: Automatic
                                     Flow: Both
      UPSTREAM        DOWNSTREAM
Geometry: Circular   Circular
Span(in): 30.00      30.00
Rise(in): 30.00      30.00
Invert(ft): -1.380   -0.650
Manning's N: 0.013000 0.013000
Top Clip(in): 0.000   0.000
Bot Clip(in): 0.000   0.000
                                     Entrance Loss Coef: 0.00
                                     Exit Loss Coef: 1.00
                                     Bend Loss Coef: 0.80
                                     Outlet Ctrl Spec: Use dc or tw
                                     Inlet Ctrl Spec: Use dn
                                     Stabilizer Option: None
-----
```

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

```
-----
Name: 91100         From Node: 1100         Length(ft): 280.00
Group: BASE         To Node: 1900          Count: 1
                                     Friction Equation: Average Conveyance
                                     Solution Algorithm: Most Restrictive
                                     Flow: Both
      UPSTREAM        DOWNSTREAM
Geometry: Circular   Circular
Span(in): 15.00      15.00
Rise(in): 15.00      15.00
Invert(ft): 0.490    0.000
Manning's N: 0.013000 0.013000
Top Clip(in): 0.000   0.000
Bot Clip(in): 0.000   0.000
                                     Entrance Loss Coef: 0.00
                                     Exit Loss Coef: 1.00
                                     Bend Loss Coef: 0.00
                                     Outlet Ctrl Spec: Use dc or tw
                                     Inlet Ctrl Spec: Use dn
                                     Stabilizer Option: None
-----
```

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

```
-----
Name: 91200         From Node: 1200         Length(ft): 40.00
Group: BASE         To Node: 1201          Count: 1
                                     Friction Equation: Average Conveyance
                                     Solution Algorithm: Most Restrictive
                                     Flow: Both
      UPSTREAM        DOWNSTREAM
Geometry: Circular   Circular
Span(in): 15.00      15.00
Rise(in): 15.00      15.00
Invert(ft): -0.100   -0.200
Manning's N: 0.013000 0.013000
                                     Entrance Loss Coef: 0.00
                                     Exit Loss Coef: 1.00
                                     Bend Loss Coef: 0.70
                                     Outlet Ctrl Spec: Use dc or tw
-----
```

Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
Bot Clip(in): 0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 91300	From Node: 1300	Length(ft): 40.00
Group: BASE	To Node: 1301	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 18.00	18.00	Flow: Both
Rise(in): 18.00	18.00	Entrance Loss Coef: 0.00
Invert(ft): -0.200	-0.400	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.50
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 91400	From Node: 1400	Length(ft): 40.00
Group: BASE	To Node: 1401	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 18.00	18.00	Flow: Both
Rise(in): 18.00	18.00	Entrance Loss Coef: 0.00
Invert(ft): -0.500	-0.600	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: -0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 91500	From Node: 1500	Length(ft): 240.00
Group: BASE	To Node: 1600	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 15.00	15.00	Flow: Both
Rise(in): 15.00	15.00	Entrance Loss Coef: 0.00
Invert(ft): 0.000	0.000	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 91600	From Node: 1600	Length(ft): 210.00
Group: BASE	To Node: 1700	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 33.50	33.50	Flow: Both
		Entrance Loss Coef: 0.00

Rise(in): 33.50	33.50	Exit Loss Coef: 1.00
Invert(ft): -2.250	-3.030	Bend Loss Coef: 0.70
Manning's N: 0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
Bot Clip(in): 0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 91700	From Node: 1700	Length(ft): 118.00
Group: BASE	To Node: 1701	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 36.00	36.00	Flow: Both
Rise(in): 36.00	36.00	Entrance Loss Coef: 0.00
Invert(ft): -3.030	-0.880	Exit Loss Coef: 1.00
Manning's N: 0.012000	0.012000	Bend Loss Coef: 0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 9179	From Node: 179	Length(ft): 145.00
Group: BASE	To Node: 900	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 24.00	24.00	Flow: Both
Rise(in): 24.00	24.00	Entrance Loss Coef: 0.00
Invert(ft): -2.400	-2.550	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 91800	From Node: 1800	Length(ft): 280.00
Group: BASE	To Node: 200	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 15.00	15.00	Flow: Both
Rise(in): 15.00	15.00	Entrance Loss Coef: 0.00
Invert(ft): 0.300	0.000	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 91900	From Node: 1900	Length(ft): 240.00
Group: BASE	To Node: 1000	Count: 1
		Friction Equation: Automatic

UPSTREAM	DOWNSTREAM	Solution Algorithm: Automatic
Geometry: Circular	Circular	Flow: Both
Span(in): 15.00	15.00	Entrance Loss Coef: 0.00
Rise(in): 15.00	15.00	Exit Loss Coef: 0.00
Invert(ft): 0.000	-0.650	Bend Loss Coef: 0.70
Manning's N: 0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
Bot Clip(in): 0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 9200	From Node: 200	Length(ft): 180.00
Group: BASE	To Node: 201	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Horz Ellipse	Horz Ellipse	Solution Algorithm: Automatic
Span(in): 30.00	30.00	Flow: Both
Rise(in): 19.00	19.00	Entrance Loss Coef: 0.00
Invert(ft): -0.470	-0.610	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Horizontal Ellipse Concrete: Square edge with headwall

Downstream FHWA Inlet Edge Description:
Horizontal Ellipse Concrete: Square edge with headwall

Name: 9300	From Node: 300	Length(ft): 80.00
Group: BASE	To Node: 400	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 15.00	15.00	Flow: Both
Rise(in): 15.00	15.00	Entrance Loss Coef: 0.00
Invert(ft): 0.750	0.240	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.50
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 9400	From Node: 400	Length(ft): 140.00
Group: BASE	To Node: 401	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 15.00	15.00	Flow: Both
Rise(in): 15.00	15.00	Entrance Loss Coef: 0.00
Invert(ft): 0.240	-0.500	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 9500	From Node: 500	Length(ft): 240.00
Group: BASE	To Node: 1600	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 28.30	28.30	Flow: Both
Rise(in): 28.30	28.30	Entrance Loss Coef: 0.00
Invert(ft): -1.340	-1.580	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.50
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 9600	From Node: 600	Length(ft): 320.00
Group: BASE	To Node: 700	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 15.00	15.00	Flow: Both
Rise(in): 15.00	15.00	Entrance Loss Coef: 0.00
Invert(ft): 0.500	0.400	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 9700	From Node: 700	Length(ft): 200.00
Group: BASE	To Node: 1500	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 15.00	15.00	Flow: Both
Rise(in): 15.00	15.00	Entrance Loss Coef: 0.00
Invert(ft): 0.400	0.000	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 9800	From Node: 800	Length(ft): 300.00
Group: BASE	To Node: 1500	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 15.00	15.00	Flow: None
Rise(in): 15.00	15.00	Entrance Loss Coef: 0.00
Invert(ft): 0.150	0.000	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall


```
-----
Name: 9900                      From Node: 900      Length(ft): 55.00
Group: BASE                      To Node: 901      Count: 1
                                Friction Equation: Average Conveyance
                                Solution Algorithm: Most Restrictive
                                Flow: Both
                                Entrance Loss Coef: 0.50
                                Exit Loss Coef: 1.00
                                Bend Loss Coef: 0.50
                                Outlet Ctrl Spec: Use dc or tw
                                Inlet Ctrl Spec: Use dn
                                Stabilizer Option: None

UPSTREAM      DOWNSTREAM
Geometry: Circular      Circular
Span(in): 24.00      24.00
Rise(in): 24.00      24.00
Invert(ft): -2.650      0.330
Manning's N: 0.013000      0.013000
Top Clip(in): 0.000      0.000
Bot Clip(in): 0.000      0.000
```

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

==== Channels =====

```
-----
Name: 101                      From Node: 1000    Length(ft): 50.00
Group: BASE                      To Node: 1001    Count: 1
                                Friction Equation: Average Conveyance
                                Solution Algorithm: Automatic
                                Flow: Both
                                Contraction Coef: 0.000
                                Expansion Coef: 0.000
                                Entrance Loss Coef: 0.000
                                Exit Loss Coef: 0.000
                                Outlet Ctrl Spec: Use dc or tw
                                Inlet Ctrl Spec: Use dn
                                Stabilizer Option: None

UPSTREAM      DOWNSTREAM
Geometry: Irregular      Irregular
Invert(ft): 2.350      2.800
TClpInitZ(ft): 7.350      8.000
Manning's N:
Top Clip(ft):
Bot Clip(ft):
Main XSec: 100      100
AuxElev1(ft): 0.000      0.000
Aux XSec1:
AuxElev2(ft): 0.000      0.000
Aux XSec2:
Top Width(ft):
Depth(ft):
Bot Width(ft):
LtSdSlp(h/v):
RtSdSlp(h/v):
```

```
-----
Name: 1119                      From Node: 1100    Length(ft): 300.00
Group: BASE                      To Node: 1900    Count: 1
                                Friction Equation: Average Conveyance
                                Solution Algorithm: Automatic
                                Flow: Both
                                Contraction Coef: 0.000
                                Expansion Coef: 0.000
                                Entrance Loss Coef: 0.000
                                Exit Loss Coef: 0.000
                                Outlet Ctrl Spec: Use dc or tw
                                Inlet Ctrl Spec: Use dn
                                Stabilizer Option: None

UPSTREAM      DOWNSTREAM
Geometry: Irregular      Irregular
Invert(ft): 2.600      2.400
TClpInitZ(ft): 7.600      7.400
Manning's N:
Top Clip(ft):
Bot Clip(ft):
Main XSec: Road      Road
AuxElev1(ft): 0.000      0.000
Aux XSec1:
AuxElev2(ft): 0.000      0.000
Aux XSec2:
Top Width(ft):
Depth(ft):
Bot Width(ft):
LtSdSlp(h/v):
RtSdSlp(h/v):
```

```
-----
Name: 1200                      From Node: 1200    Length(ft): 20.00
Group: BASE                      To Node: 1201    Count: 1
                                Friction Equation: Average Conveyance
                                Solution Algorithm: Automatic
                                Flow: Both
                                Contraction Coef: 0.000
                                Expansion Coef: 0.000
                                Entrance Loss Coef: 0.000
                                Exit Loss Coef: 0.000
                                Outlet Ctrl Spec: Use dc or tw
                                Inlet Ctrl Spec: Use dn

UPSTREAM      DOWNSTREAM
Geometry: Irregular      Irregular
Invert(ft): 2.800      2.800
TClpInitZ(ft): 8.000      8.000
Manning's N:
Top Clip(ft):
Bot Clip(ft):
Main XSec: 1200      1200
AuxElev1(ft): 0.000      0.000
```

Aux XSec1:
 AuxElev2(ft): 0.000 0.000 Stabilizer Option: None
 Aux XSec2:
 Top Width(ft):
 Depth(ft):
 Bot Width(ft):
 LtSdSlp(h/v):
 RtSdSlp(h/v):

Name: 1400	From Node: 1400	Length(ft): 10.00
Group: BASE	To Node: 1401	Count: 1

UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 2.000	2.000	Flow: Both
TClpInitZ(ft): 7.000	7.000	Contraction Coef: 0.000
Manning's N:		Expansion Coef: 0.000
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: 1400	1400	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Name: 1516	From Node: 1500	Length(ft): 240.00
Group: BASE	To Node: 1600	Count: 1

UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 2.100	1.900	Flow: Both
TClpInitZ(ft): 7.100	6.900	Contraction Coef: 0.000
Manning's N:		Expansion Coef: 0.000
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: 1617	1617	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Name: 1617	From Node: 1600	Length(ft): 180.00
Group: BASE	To Node: 1700	Count: 1

UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 1.900	2.000	Flow: Both
TClpInitZ(ft): 6.900	7.000	Contraction Coef: 0.000
Manning's N:		Expansion Coef: 0.000
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: 1617	1617	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Name: 1700	From Node: 1700	Length(ft): 30.00
Group: BASE	To Node: 1701	Count: 1

UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic

Invert(ft):	3.200	3.200	Flow:	Both
TClpInitZ(ft):	7.800	7.800	Contraction Coef:	0.000
Manning's N:			Expansion Coef:	0.000
Top Clip(ft):			Entrance Loss Coef:	0.000
Bot Clip(ft):			Exit Loss Coef:	0.000
Main XSec:	1700	1700	Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft):	0.000	0.000	Inlet Ctrl Spec:	Use dn
Aux XSec1:			Stabilizer Option:	None
AuxElev2(ft):	0.000	0.000		
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):				
LtSdSlp(h/v):				
RtSdSlp(h/v):				

Name:	182	From Node:	1800	Length(ft):	220.00
Group:	BASE	To Node:	200	Count:	1

	UPSTREAM	DOWNSTREAM	Friction Equation:	Average Conveyance
Geometry:	Irregular	Irregular	Solution Algorithm:	Automatic
Invert(ft):	2.700	2.200	Flow:	Both
TClpInitZ(ft):	7.700	7.200	Contraction Coef:	0.000
Manning's N:			Expansion Coef:	0.000
Top Clip(ft):			Entrance Loss Coef:	0.000
Bot Clip(ft):			Exit Loss Coef:	0.000
Main XSec:	Road	Road	Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft):	0.000	0.000	Inlet Ctrl Spec:	Use dn
Aux XSec1:			Stabilizer Option:	None
AuxElev2(ft):	0.000	0.000		
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):				
LtSdSlp(h/v):				
RtSdSlp(h/v):				

Name:	1910	From Node:	1900	Length(ft):	220.00
Group:	BASE	To Node:	1000	Count:	1

	UPSTREAM	DOWNSTREAM	Friction Equation:	Average Conveyance
Geometry:	Irregular	Irregular	Solution Algorithm:	Automatic
Invert(ft):	2.400	2.350	Flow:	Both
TClpInitZ(ft):	7.400	7.350	Contraction Coef:	0.000
Manning's N:			Expansion Coef:	0.000
Top Clip(ft):			Entrance Loss Coef:	0.000
Bot Clip(ft):			Exit Loss Coef:	0.000
Main XSec:	Road	Road	Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft):	0.000	0.000	Inlet Ctrl Spec:	Use dn
Aux XSec1:			Stabilizer Option:	None
AuxElev2(ft):	0.000	0.000		
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):				
LtSdSlp(h/v):				
RtSdSlp(h/v):				

Name:	201	From Node:	200	Length(ft):	150.00
Group:	BASE	To Node:	201	Count:	1

	UPSTREAM	DOWNSTREAM	Friction Equation:	Average Conveyance
Geometry:	Irregular	Irregular	Solution Algorithm:	Automatic
Invert(ft):	2.800	2.800	Flow:	Both
TClpInitZ(ft):	8.000	8.000	Contraction Coef:	0.000
Manning's N:			Expansion Coef:	0.000
Top Clip(ft):			Entrance Loss Coef:	0.000
Bot Clip(ft):			Exit Loss Coef:	0.000
Main XSec:	200	200	Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft):	0.000	0.000	Inlet Ctrl Spec:	Use dn
Aux XSec1:			Stabilizer Option:	None
AuxElev2(ft):	0.000	0.000		
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):				
LtSdSlp(h/v):				
RtSdSlp(h/v):				

Name: 34	From Node: 300	Length(ft): 150.00
Group: BASE	To Node: 400	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 3.220	2.820	Flow: Both
TClpInitZ(ft): 8.220	7.820	Contraction Coef: 0.000
Manning's N:		Expansion Coef: 0.000
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: Road	Road	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dc
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Name: 4401	From Node: 400	Length(ft): 150.00
Group: BASE	To Node: 401	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 2.820	2.800	Flow: Both
TClpInitZ(ft): 7.820	8.000	Contraction Coef: 0.000
Manning's N:		Expansion Coef: 0.000
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: 400	400	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Name: 501	From Node: 500	Length(ft): 300.00
Group: BASE	To Node: 501	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 2.500	2.800	Flow: Both
TClpInitZ(ft): 7.500	7.800	Contraction Coef: 0.000
Manning's N:		Expansion Coef: 0.000
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: 500	500	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Name: 516	From Node: 500	Length(ft): 300.00
Group: BASE	To Node: 1600	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 2.050	1.900	Flow: Both
TClpInitZ(ft): 7.050	6.900	Contraction Coef: 0.000
Manning's N:		Expansion Coef: 0.000
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: 1617	1617	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		

Top Width(ft):
Depth(ft):
Bot Width(ft):
LtSdSlp(h/v):
RtSdSlp(h/v):

```

-----
      Name: 618           From Node: 600           Length(ft): 180.00
      Group: BASE        To Node: 1800           Count: 1

      UPSTREAM          DOWNSTREAM
      Geometry: Irregular Irregular
      Invert(ft): 2.400   2.700
      TClpInitZ(ft): 7.400 7.700
      Manning's N:
      Top Clip(ft):
      Bot Clip(ft):
      Main XSec: Road      Road
      AuxElev1(ft): 0.000   0.000
      Aux XSec1:
      AuxElev2(ft): 0.000   0.000
      Aux XSec2:
      Top Width(ft):
      Depth(ft):
      Bot Width(ft):
      LtSdSlp(h/v):
      RtSdSlp(h/v):

      Friction Equation: Average Conveyance
      Solution Algorithm: Automatic
      Flow: Both
      Contraction Coef: 0.000
      Expansion Coef: 0.000
      Entrance Loss Coef: 0.000
      Exit Loss Coef: 0.000
      Outlet Ctrl Spec: Use dc or tw
      Inlet Ctrl Spec: Use dn
      Stabilizer Option: None

```

```

-----
      Name: 67           From Node: 600           Length(ft): 180.00
      Group: BASE        To Node: 700           Count: 1

      UPSTREAM          DOWNSTREAM
      Geometry: Irregular Irregular
      Invert(ft): 2.400   2.700
      TClpInitZ(ft): 7.400 7.700
      Manning's N:
      Top Clip(ft):
      Bot Clip(ft):
      Main XSec: Road      Road
      AuxElev1(ft): 0.000   0.000
      Aux XSec1:
      AuxElev2(ft): 0.000   0.000
      Aux XSec2:
      Top Width(ft):
      Depth(ft):
      Bot Width(ft):
      LtSdSlp(h/v):
      RtSdSlp(h/v):

      Friction Equation: Average Conveyance
      Solution Algorithm: Automatic
      Flow: Both
      Contraction Coef: 0.000
      Expansion Coef: 0.000
      Entrance Loss Coef: 0.000
      Exit Loss Coef: 0.000
      Outlet Ctrl Spec: Use dc or tw
      Inlet Ctrl Spec: Use dn
      Stabilizer Option: None

```

Thr same invert and length like the 618

```

-----
      Name: 715           From Node: 700           Length(ft): 200.00
      Group: BASE        To Node: 1500          Count: 1

      UPSTREAM          DOWNSTREAM
      Geometry: Irregular Irregular
      Invert(ft): 2.800   2.100
      TClpInitZ(ft): 7.800 7.100
      Manning's N:
      Top Clip(ft):
      Bot Clip(ft):
      Main XSec: 1617      1617
      AuxElev1(ft): 0.000   0.000
      Aux XSec1:
      AuxElev2(ft): 0.000   0.000
      Aux XSec2:
      Top Width(ft):
      Depth(ft):
      Bot Width(ft):
      LtSdSlp(h/v):
      RtSdSlp(h/v):

      Friction Equation: Average Conveyance
      Solution Algorithm: Automatic
      Flow: Both
      Contraction Coef: 0.000
      Expansion Coef: 0.000
      Entrance Loss Coef: 0.000
      Exit Loss Coef: 0.000
      Outlet Ctrl Spec: Use dc or tw
      Inlet Ctrl Spec: Use dn
      Stabilizer Option: None

```

The same invert and length like the 618

```

-----
      Name: 815           From Node: 800           Length(ft): 300.00
      Group: BASE        To Node: 1500          Count: 1

      UPSTREAM          DOWNSTREAM
      Geometry: Irregular Irregular
      Invert(ft): 2.150   2.100
      TClpInitZ(ft): 7.150 7.150
      Manning's N:

      Friction Equation: Average Conveyance
      Solution Algorithm: Automatic
      Flow: Both
      Contraction Coef: 0.000
      Expansion Coef: 0.000

```

Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: Road	Road	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Name: 900	From Node: 900	Length(ft): 300.00
Group: BASE	To Node: 1700	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 2.000	2.000	Flow: Both
TClpInitZ(ft): 7.000	7.000	Contraction Coef: 0.000
Manning's N:		Expansion Coef: 0.000
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: Road	Road	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

=====

==== Weirs =====

=====

Name: 1000	From Node: 1000
Group: BASE	To Node: 1001
Flow: Both	Count: 1
Type: Horizontal	Geometry: Rectangular
Span(in): 120.00	
Rise(in): 20.00	
Invert(ft): 3.000	
Control Elevation(ft): 3.000	
	TABLE
Bottom Clip(in): 0.000	
Top Clip(in): 0.000	
Weir Discharge Coef: 3.000	
Orifice Discharge Coef: 0.600	

Name: 141	From Node: 1400
Group: BASE	To Node: 1401
Flow: Both	Count: 1
Type: Horizontal	Geometry: Rectangular
Span(in): 120.00	
Rise(in): 12.00	
Invert(ft): 3.000	
Control Elevation(ft): 3.000	
	TABLE
Bottom Clip(in): 0.000	
Top Clip(in): 0.000	
Weir Discharge Coef: 2.800	
Orifice Discharge Coef: 0.600	

Name: 901	From Node: 900
Group: BASE	To Node: 901
Flow: Both	Count: 1
Type: Horizontal	Geometry: Rectangular
Span(in): 200.00	
Rise(in): 50.00	
Invert(ft): 3.500	
Control Elevation(ft): 3.500	
	TABLE

Bottom Clip(in): 0.000
Top Clip(in): 0.000
Weir Discharge Coef: 3.000
Orifice Discharge Coef: 0.600

==== Rating Curves =====

Name:	From Node:	Count: 1
Group: BASE	To Node:	Flow: Both
TABLE	ELEV ON(ft)	ELEV OFF(ft)
#1:	0.000	0.000
#2:	0.000	0.000
#3:	0.000	0.000
#4:	0.000	0.000

==== Hydrology Simulations =====

Name: 10yr24hr
Filename: F:\Projects\2015\15-0101 LBK Village Stormwater System\Modeling\Boyle Proposed Conditions\10yr24hr.R32
Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 7.00

Time(hrs)	Print Inc(min)
30.000	5.00

==== Routing Simulations =====

Name: 10yr24hr	Hydrology Sim: 10yr24hr
Filename: F:\Projects\2015\15-0101 LBK Village Stormwater System\Modeling\Boyle Proposed Conditions\10yr24hr.I32	
Execute: Yes	Restart: No
Alternative: No	Patch: No
Max Delta Z(ft): 0.50	Delta Z Factor: 0.01000
Time Step Optimizer: 30.000	
Start Time(hrs): 0.000	End Time(hrs): 15.00
Min Calc Time(sec): 0.2500	Max Calc Time(sec): 60.0000
Boundary Stages:	Boundary Flows:

Time(hrs)	Print Inc(min)
30.000	10.000

Group	Run
BASE	Yes

**ICPR MODELING
INPUT AND RESULTS
WITH TIDEFLEX VALVES**

15-0101 LBK VILLAGE STORM SYSTEM TF OUTPUT

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
100	BASE	10yr24hr	12.17	3.77	3.00	0.0049	117	12.17	5.65	12.17	5.65
1000	BASE	10yr24hr	12.32	2.63	2.35	-0.0039	3468	12.19	22.43	12.32	18.52
1001	BASE	10yr24hr	0.00	1.50	0.00	0.0000	0	12.32	18.52	0.00	0.00
1001A	BASE	10yr24hr	12.32	2.28	2.35	0.0044	117	12.32	18.52	12.32	18.52
101	BASE	10yr24hr	0.00	1.50	0.00	0.0000	4	12.17	5.65	0.00	0.00
1100	BASE	10yr24hr	12.22	3.46	2.60	-0.0048	6350	12.17	12.81	12.25	12.83
1200	BASE	10yr24hr	12.17	2.89	2.20	0.0034	413	12.17	7.94	12.17	7.94
1201	BASE	10yr24hr	0.00	1.50	0.00	0.0000	1	12.17	7.94	0.00	0.00
1300	BASE	10yr24hr	12.25	3.10	2.20	0.0034	115	12.25	11.56	12.25	11.56
1301	BASE	10yr24hr	0.00	1.50	0.00	0.0000	2	12.25	11.56	0.00	0.00
1400	BASE	10yr24hr	12.25	3.24	3.00	0.0041	115	12.25	17.37	12.25	17.37
1401	BASE	10yr24hr	0.00	1.50	0.00	0.0000	2	12.25	17.37	0.00	0.00
1500	BASE	10yr24hr	13.23	2.80	2.10	0.0009	31663	12.97	8.85	13.23	6.79
158	BASE	10yr24hr	13.36	2.74	2.00	0.0032	147	15.00	1.39	13.13	1.42
1600	BASE	10yr24hr	13.24	2.74	1.90	0.0009	39767	12.41	21.14	12.86	17.82
1700	BASE	10yr24hr	13.41	2.66	2.00	0.0007	37946	12.54	18.25	13.44	16.24
1700A	BASE	10yr24hr	13.41	2.50	2.00	0.0050	130	13.40	17.09	13.41	17.09
1701	BASE	10yr24hr	0.00	1.50	0.00	0.0000	0	13.41	17.09	0.00	0.00
1701A	BASE	10yr24hr	13.41	2.40	2.00	0.0007	115	13.40	2.11	13.41	2.11
1701A1	BASE	10yr24hr	13.41	2.36	2.00	0.0050	119	13.41	14.98	13.41	14.98
179	BASE	10yr24hr	13.54	2.67	2.50	0.0048	153	12.94	1.98	12.89	1.61
1800	BASE	10yr24hr	12.10	3.06	2.70	0.0029	2013	12.00	6.00	12.09	5.85
1900	BASE	10yr24hr	12.19	3.32	2.40	-0.0037	11198	12.23	15.48	12.19	18.00
200	BASE	10yr24hr	12.49	2.32	2.20	0.0009	16441	12.11	11.88	12.49	8.35
201	BASE	10yr24hr	0.00	1.50	0.00	0.0000	0	12.49	8.35	0.00	0.00
201A	BASE	10yr24hr	12.49	1.96	2.20	0.0004	124	12.49	8.35	12.49	8.35
300	BASE	10yr24hr	12.18	3.33	3.22	0.0037	628	12.25	3.55	12.25	3.56
400	BASE	10yr24hr	12.06	3.03	2.82	-0.0046	3206	12.00	10.97	12.06	10.91
401	BASE	10yr24hr	0.00	1.50	0.00	0.0000	4	12.06	10.91	0.00	0.00
500	BASE	10yr24hr	12.62	2.82	2.05	0.0012	10210	12.25	16.57	12.36	15.38
501	BASE	10yr24hr	0.00	1.50	0.00	0.0000	0	12.62	0.00	0.00	0.00
600	BASE	10yr24hr	12.40	3.26	2.40	0.0020	3521	12.42	5.52	12.47	5.59
700	BASE	10yr24hr	12.38	3.21	2.80	0.0019	5903	12.38	8.10	12.48	8.31
800	BASE	10yr24hr	13.30	2.82	2.15	0.0010	73505	12.25	14.11	13.61	6.69
900	BASE	10yr24hr	13.43	2.66	2.00	0.0029	30484	12.00	6.59	12.27	3.54
901	BASE	10yr24hr	0.00	1.50	0.00	0.0000	0	13.43	2.66	0.00	0.00
901A	BASE	10yr24hr	13.43	2.63	2.00	0.0009	116	13.44	2.66	13.43	2.66
100	BASE	5yr24hr	12.17	3.74	3.00	0.0040	117	12.17	4.74	12.17	4.74
1000	BASE	5yr24hr	12.49	2.45	2.35	0.0033	3295	12.44	20.41	12.49	16.17
1001	BASE	5yr24hr	0.00	1.50	0.00	0.0000	0	12.49	16.17	0.00	0.00
1001A	BASE	5yr24hr	12.49	2.18	2.35	0.0018	117	12.49	16.17	12.49	16.17
101	BASE	5yr24hr	0.00	1.50	0.00	0.0000	4	12.17	4.74	0.00	0.00
1100	BASE	5yr24hr	12.36	3.40	2.60	-0.0048	6185	12.17	10.70	12.26	10.17
1200	BASE	5yr24hr	12.17	2.86	2.20	0.0035	413	12.17	6.63	12.17	6.63
1201	BASE	5yr24hr	0.00	1.50	0.00	0.0000	1	12.17	6.63	0.00	0.00
1300	BASE	5yr24hr	12.25	3.02	2.20	0.0031	115	12.25	9.69	12.25	9.69
1301	BASE	5yr24hr	0.00	1.50	0.00	0.0000	2	12.25	9.69	0.00	0.00
1400	BASE	5yr24hr	12.25	3.18	3.00	0.0040	115	12.25	14.51	12.25	14.51
1401	BASE	5yr24hr	0.00	1.50	0.00	0.0000	2	12.25	14.51	0.00	0.00
1500	BASE	5yr24hr	13.28	2.66	2.10	0.0008	27337	12.33	6.10	13.44	4.42
158	BASE	5yr24hr	13.29	2.57	2.00	0.0024	147	15.00	1.50	15.00	1.51
1600	BASE	5yr24hr	13.06	2.58	1.90	0.0008	31975	12.42	17.65	12.74	14.37
1700	BASE	5yr24hr	13.24	2.48	2.00	0.0007	33576	12.58	15.51	13.06	13.86
1700A	BASE	5yr24hr	13.23	2.36	2.00	0.0050	130	13.06	15.19	13.23	14.92
1701	BASE	5yr24hr	0.00	1.50	0.00	0.0000	0	13.32	14.96	0.00	0.00
1701A	BASE	5yr24hr	13.24	2.28	2.00	0.0006	115	13.22	1.84	13.24	1.84
1701A1	BASE	5yr24hr	13.32	2.25	2.00	0.0048	119	13.23	13.09	13.32	13.13

15-0101 LBK VILLAGE STORM SYSTEM TF OUTPUT

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
179	BASE	5yr24hr	13.25	2.49	2.50	0.0046	153	2.60	1.66	13.18	1.41
1800	BASE	5yr24hr	12.10	2.97	2.70	0.0032	1571	12.00	5.02	12.09	4.90
1900	BASE	5yr24hr	12.40	3.29	2.40	-0.0038	10980	12.20	12.43	12.44	16.52
200	BASE	5yr24hr	12.46	2.17	2.20	0.0008	14772	12.12	9.93	12.45	7.27
201	BASE	5yr24hr	0.00	1.50	0.00	0.0000	0	12.46	7.27	0.00	0.00
201A	BASE	5yr24hr	12.46	1.90	2.20	0.0004	124	12.45	7.27	12.46	7.27
300	BASE	5yr24hr	12.17	3.23	3.22	-0.0029	152	12.25	2.97	12.25	2.98
400	BASE	5yr24hr	12.08	2.99	2.82	-0.0046	3628	12.00	9.17	12.08	9.13
401	BASE	5yr24hr	0.00	1.50	0.00	0.0000	4	12.08	9.13	0.00	0.00
500	BASE	5yr24hr	12.65	2.69	2.05	0.0012	7275	12.25	13.83	12.35	12.89
501	BASE	5yr24hr	0.00	1.50	0.00	0.0000	0	0.00	0.00	0.00	0.00
600	BASE	5yr24hr	12.43	3.20	2.40	0.0022	3341	12.42	4.61	12.50	4.63
700	BASE	5yr24hr	12.42	3.14	2.80	0.0022	5138	12.41	6.69	12.51	6.82
800	BASE	5yr24hr	13.34	2.67	2.15	0.0008	68534	12.25	11.78	14.22	5.93
900	BASE	5yr24hr	13.26	2.48	2.00	-0.0024	22214	12.00	4.74	12.31	2.68
901	BASE	5yr24hr	0.00	1.50	0.00	0.0000	0	13.26	2.26	0.00	0.00
901A	BASE	5yr24hr	13.26	2.46	2.00	0.0009	116	13.24	2.26	13.26	2.26

=====

Basins

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Name: 100 Node: 100 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000 Time of Conc(min): 21.00
Area(ac): 2.000 Time Shift(hrs): 0.00
Curve Number: 90.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: 100 Node: 1000 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000 Time of Conc(min): 14.00
Area(ac): 1.800 Time Shift(hrs): 0.00
Curve Number: 90.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: 110 Node: 1100 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000 Time of Conc(min): 25.00
Area(ac): 5.000 Time Shift(hrs): 0.00
Curve Number: 89.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: 120 Node: 1200 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000 Time of Conc(min): 25.00
Area(ac): 3.100 Time Shift(hrs): 0.00
Curve Number: 89.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: 130 Node: 1300 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000 Time of Conc(min): 30.00
Area(ac): 4.900 Time Shift(hrs): 0.00
Curve Number: 90.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: 140 Node: 1400 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000 Time of Conc(min): 28.00
Area(ac): 7.200 Time Shift(hrs): 0.00
Curve Number: 89.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: 150 Node: 1500 Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh256 Peaking Factor: 256.0
Rainfall File: Flmod Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000 Time of Conc(min): 25.00

Area(ac): 1.500	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 160	Node: 1600	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 30.00
Area(ac): 1.700	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 170	Node: 1700	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 10.00
Area(ac): 0.900	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 180	Node: 1800	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 10.00
Area(ac): 1.600	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 190	Node: 1900	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 10.00
Area(ac): 0.900	Time Shift(hrs): 0.00
Curve Number: 90.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 20	Node: 200	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 25.00
Area(ac): 2.500	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 30	Node: 300	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 26.00
Area(ac): 1.400	Time Shift(hrs): 0.00
Curve Number: 90.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 40	Node: 400	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
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Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 8.00
Area(ac): 1.980	Time Shift(hrs): 0.00
Curve Number: 90.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 50	Node: 500	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 32.00
Area(ac): 7.400	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 60	Node: 600	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 40.00
Area(ac): 2.800	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 70	Node: 700	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 22.00
Area(ac): 1.100	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 80	Node: 800	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 32.00
Area(ac): 6.300	Time Shift(hrs): 0.00
Curve Number: 89.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: 90	Node: 900	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: Uh256	Peaking Factor: 256.0
Rainfall File: Flmod	Storm Duration(hrs): 24.00
Rainfall Amount(in): 8.000	Time of Conc(min): 8.00
Area(ac): 2.900	Time Shift(hrs): 0.00
Curve Number: 91.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Nodes

Name: 100	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 3.000
Type: Stage/Area		

Stage(ft)	Area(ac)
0.300	0.0010
8.000	0.0010

Name: 1000 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 2.350
Type: Stage/Area

Stage(ft)	Area(ac)
-0.650	0.0010
8.000	0.0010

Name: 1001 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 0.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	1.500
60.00	1.500

Name: 1001A Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 2.350
Type: Stage/Area

Stage(ft)	Area(ac)
-0.650	0.0010
8.000	0.0010

Name: 101 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 0.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	1.500
60.00	1.500

Name: 1100 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 2.600
Type: Stage/Area

Stage(ft)	Area(ac)
0.490	0.0010
8.000	0.0010

Name: 1200 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 2.200
Type: Stage/Area

Stage(ft)	Area(ac)
-0.200	0.0010
8.000	0.0010

Name: 1201 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 0.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	1.500
60.00	1.500

Name: 1300 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 2.200
Type: Stage/Area

Stage(ft)	Area(ac)
-0.400	0.0010
8.000	0.0010

Name: 1301	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 0.000
Type: Time/Stage		

Time(hrs)	Stage(ft)
0.00	1.500
60.00	1.500

Name: 1400	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.000
Type: Stage/Area		

Stage(ft)	Area(ac)
-0.500	0.0010
8.000	0.0010

Name: 1401	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 0.000
Type: Time/Stage		

Time(hrs)	Stage(ft)
0.00	1.500
60.00	1.500

Name: 1500	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.100
Type: Stage/Area		

Stage(ft)	Area(ac)
0.000	0.0010
3.200	0.4000
3.300	0.4200
5.000	0.4200

Name: 158	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.000
Type: Stage/Area		

Stage(ft)	Area(ac)
0.000	0.0010
8.000	0.0010

Name: 1600	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 1.900
Type: Stage/Area		

Stage(ft)	Area(ac)
0.000	0.0010
2.950	0.4000
3.100	0.4200
5.000	0.4200

Name: 1700	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.000
Type: Stage/Area		

Stage(ft)	Area(ac)
-0.500	0.0010
2.950	0.7000
3.100	0.8000
5.000	0.8000

Name: 1700A	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.000
Type: Stage/Area		

Stage(ft)	Area(ac)
-0.500	0.0010
1.000	0.0010

Name: 1701	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 0.000
Type: Time/Stage		

Time(hrs)	Stage(ft)
0.00	1.500
60.00	1.500

Name: 1701A	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.000
Type: Stage/Area		

Stage(ft)	Area(ac)
-0.500	0.0010
1.000	0.0010

Name: 1701A1	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.000
Type: Stage/Area		

Stage(ft)	Area(ac)
-0.500	0.0010
1.000	0.0010

Name: 179	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.500
Type: Stage/Area		

Stage(ft)	Area(ac)
0.000	0.0010
8.000	0.0010

Name: 1800	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.700
Type: Stage/Area		

Stage(ft)	Area(ac)
0.300	0.0010
8.000	0.0010

Name: 1900	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.400
Type: Stage/Area		

Stage(ft)	Area(ac)
0.000	0.0010

8.000 0.0010

Name: 200 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 2.200
Type: Stage/Area

Stage(ft)	Area(ac)
0.000	0.0010
2.700	0.4200
3.000	0.4600
8.000	0.4600

Name: 201 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 0.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	1.500
60.00	1.500

Name: 201A Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 2.200
Type: Stage/Area

Stage(ft)	Area(ac)
0.000	0.0010
2.700	0.4200
3.000	0.4600
8.000	0.4600

Name: 300 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 3.220
Type: Stage/Area

Stage(ft)	Area(ac)
0.750	0.0010
8.000	0.0010

Name: 400 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 2.820
Type: Stage/Area

Stage(ft)	Area(ac)
0.240	0.0010
8.000	0.0010

Name: 401 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 0.000
Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	1.500
60.00	1.500

Name: 500 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 2.050
Type: Stage/Area

Stage(ft)	Area(ac)
0.220	0.0010
8.000	0.0010

Name: 501 Base Flow(cfs): 0.000 Init Stage(ft): 1.500
Group: BASE Warn Stage(ft): 0.000

Type: Time/Stage

Time(hrs)	Stage(ft)
0.00	1.500
60.00	1.500

Name: 600	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.400
Type: Stage/Area		

Stage(ft)	Area(ac)
0.500	0.0010
8.000	0.0010

Name: 700	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.800
Type: Stage/Area		

Stage(ft)	Area(ac)
0.400	0.0010
8.000	0.0010

Name: 800	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.150
Type: Stage/Area		

This node goes 1000 and 1500

Stage(ft)	Area(ac)
0.150	0.0010
3.000	1.6700
3.100	1.7700
5.000	1.7700

Name: 900	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.000
Type: Stage/Area		

8" pipe in curb that outfalls to bay

Stage(ft)	Area(ac)
2.000	0.0010
3.000	0.8800
3.200	0.9000
5.000	0.9000

Name: 901	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 0.000
Type: Time/Stage		

Time(hrs)	Stage(ft)
0.00	1.500
60.00	1.500

Name: 901A	Base Flow(cfs): 0.000	Init Stage(ft): 1.500
Group: BASE		Warn Stage(ft): 2.000
Type: Stage/Area		

Stage(ft)	Area(ac)
2.000	0.0010
5.000	0.0010

=====
 === Cross Sections =====
 =====

Name: 100
Encroachment: No

Group: BASE

Station(ft)	Elevation(ft)	Manning's N
0.000	5.000	0.060000
0.100	0.000	0.060000
5.000	0.000	0.060000
15.000	0.000	0.060000
15.100	5.000	0.060000

Name: 1200
Encroachment: No

Group: BASE

Station(ft)	Elevation(ft)	Manning's N
0.000	10.000	0.060000
0.100	0.000	0.060000
30.000	0.000	0.060000
30.100	10.000	0.060000

Name: 1400
Encroachment: No

Group: BASE

Station(ft)	Elevation(ft)	Manning's N
0.000	10.000	0.060000
0.100	0.000	0.060000
30.000	0.000	0.060000
30.100	10.000	0.060000

Name: 1617
Encroachment: No

Group: BASE

Station(ft)	Elevation(ft)	Manning's N
0.000	10.000	0.060000
0.100	0.700	0.060000
20.000	0.000	0.060000
25.000	0.700	0.060000
35.000	0.800	0.030000
45.000	0.700	0.030000
50.000	0.000	0.060000
70.000	0.700	0.060000
70.100	10.000	0.060000

Name: 1700
Encroachment: No

Group: BASE

Station(ft)	Elevation(ft)	Manning's N
0.000	10.000	0.060000
0.100	0.000	0.060000
10.000	0.000	0.060000
10.100	10.000	0.060000

Name: 200
Encroachment: No

Group: BASE

Station(ft)	Elevation(ft)	Manning's N
0.000	10.000	0.060000
0.100	0.000	0.060000
200.000	0.000	0.060000
200.100	10.000	0.060000

Name: 400
Encroachment: No

Group: BASE

Station(ft)	Elevation(ft)	Manning's N
0.000	10.000	0.060000
0.100	0.000	0.060000
20.000	0.000	0.060000
40.000	0.000	0.060000
40.100	10.000	0.060000

Name: 500
Encroachment: No

Group: BASE

Station(ft)	Elevation(ft)	Manning's N
0.000	5.000	0.060000
0.100	1.000	0.060000
7.000	0.000	0.060000
14.900	1.000	0.060000
15.000	5.000	0.060000

Name: Road
Encroachment: No

Group: BASE

Station(ft)	Elevation(ft)	Manning's N
0.000	5.000	0.060000
0.100	1.000	0.060000
15.000	0.000	0.060000
25.000	0.700	0.030000
35.000	0.000	0.030000
44.900	1.000	0.060000
45.000	5.000	0.060000

==== Operating Tables =====

Name: 15TF Group: BASE
Type: Rating Curve
Function: US Stage vs. Discharge

US Stage(ft)	Discharge(cfs)
1.500	0.00
2.450	2.23
3.400	4.46
4.350	6.69

Name: 18TF Group: BASE
Type: Rating Curve
Function: US Stage vs. Discharge

US Stage(ft)	Discharge(cfs)
1.500	0.00
3.300	11.15
4.750	22.30
6.200	33.45

Name: 24TF Group: BASE
Type: Rating Curve
Function: US Stage vs. Discharge

US Stage(ft)	Discharge(cfs)
1.500	0.00
2.520	17.84
4.560	26.76

Name: 30TF Group: BASE
Type: Rating Curve
Function: US Stage vs. Discharge

US Stage(ft)	Discharge(cfs)
1.500	0.00
2.120	11.15
2.750	22.30
3.400	33.45

=====

=== Pipes ===

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Name: 1581500	From Node: 158	Length(ft): 150.00
Group: BASE	To Node: 1500	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 15.00	15.00	Flow: Both
Rise(in): 15.00	15.00	Entrance Loss Coef: 0.00
Invert(ft): 0.080	0.000	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.00
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 158179	From Node: 158	Length(ft): 488.00
Group: BASE	To Node: 179	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 24.00	24.00	Flow: Both
Rise(in): 24.00	24.00	Entrance Loss Coef: 0.00
Invert(ft): -0.950	-1.430	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.50
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 17917	From Node: 1700	Length(ft): 171.00
Group: BASE	To Node: 179	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 24.00	24.00	Flow: Both
Rise(in): 24.00	24.00	Entrance Loss Coef: 0.00
Invert(ft): -3.030	-2.300	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 8001000	From Node: 800	Length(ft): 300.00
Group: BASE	To Node: 1000	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 15.00	15.00	Flow: Both
Rise(in): 15.00	15.00	Entrance Loss Coef: 0.00
Invert(ft): 0.150	0.310	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.00
		Outlet Ctrl Spec: Use dc or tw

Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in): 0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 800158		From Node: 800	Length(ft): 150.00
Group: BASE		To Node: 158	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic	
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive	
Span(in): 15.00	15.00	Flow: Both	
Rise(in): 15.00	15.00	Entrance Loss Coef: 0.00	
Invert(ft): 0.240	0.080	Exit Loss Coef: 1.00	
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.00	
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw	
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc	
		Stabilizer Option: None	

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 9100		From Node: 100	Length(ft): 120.00
Group: BASE		To Node: 101	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance	
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive	
Span(in): 15.00	15.00	Flow: Both	
Rise(in): 15.00	15.00	Entrance Loss Coef: 0.00	
Invert(ft): 0.000	-0.660	Exit Loss Coef: 1.00	
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.70	
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw	
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn	
		Stabilizer Option: None	

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 91000		From Node: 1000	Length(ft): 64.00
Group: BASE		To Node: 1001A	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance	
Geometry: Circular	Circular	Solution Algorithm: Automatic	
Span(in): 30.00	30.00	Flow: Both	
Rise(in): 30.00	30.00	Entrance Loss Coef: 0.00	
Invert(ft): -1.380	-0.650	Exit Loss Coef: 1.00	
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.80	
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw	
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn	
		Stabilizer Option: None	

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 91100		From Node: 1100	Length(ft): 280.00
Group: BASE		To Node: 1900	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance	
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive	
Span(in): 15.00	15.00	Flow: Both	
		Entrance Loss Coef: 0.00	

Rise(in): 15.00	15.00	Exit Loss Coef: 1.00
Invert(ft): 0.490	0.000	Bend Loss Coef: 0.00
Manning's N: 0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
Bot Clip(in): 0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 91200	From Node: 1200	Length(ft): 40.00
Group: BASE	To Node: 1201	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 15.00	15.00	Flow: Both
Rise(in): 15.00	15.00	Entrance Loss Coef: 0.00
Invert(ft): -0.100	-0.200	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 91300	From Node: 1300	Length(ft): 40.00
Group: BASE	To Node: 1301	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 18.00	18.00	Flow: Both
Rise(in): 18.00	18.00	Entrance Loss Coef: 0.00
Invert(ft): -0.200	-0.400	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.50
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 91400	From Node: 1400	Length(ft): 40.00
Group: BASE	To Node: 1401	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 18.00	18.00	Flow: Both
Rise(in): 18.00	18.00	Entrance Loss Coef: 0.00
Invert(ft): -0.500	-0.600	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: -0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 91500	From Node: 1500	Length(ft): 240.00
Group: BASE	To Node: 1600	Count: 1
		Friction Equation: Average Conveyance

UPSTREAM	DOWNSTREAM	Solution Algorithm: Most Restrictive
Geometry: Circular	Circular	Flow: Both
Span(in): 15.00	15.00	Entrance Loss Coef: 0.00
Rise(in): 15.00	15.00	Exit Loss Coef: 1.00
Invert(ft): 0.000	0.000	Bend Loss Coef: 0.70
Manning's N: 0.013000	0.013000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
Bot Clip(in): 0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 91600	From Node: 1600	Length(ft): 210.00
Group: BASE	To Node: 1700	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 33.50	33.50	Flow: Both
Rise(in): 33.50	33.50	Entrance Loss Coef: 0.00
Invert(ft): -2.250	-3.030	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 91700	From Node: 1700	Length(ft): 118.00
Group: BASE	To Node: 1700A	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 36.00	36.00	Flow: Both
Rise(in): 36.00	36.00	Entrance Loss Coef: 0.00
Invert(ft): -3.030	-0.880	Exit Loss Coef: 1.00
Manning's N: 0.012000	0.012000	Bend Loss Coef: 0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 91700A	From Node: 1700A	Length(ft): 60.00
Group: BASE	To Node: 1701A1	Count: 2
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 24.00	24.00	Flow: Both
Rise(in): 24.00	24.00	Entrance Loss Coef: 0.00
Invert(ft): -0.810	-1.200	Exit Loss Coef: 1.00
Manning's N: 0.012000	0.012000	Bend Loss Coef: 0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 91700A1	From Node: 1700A	Length(ft): 60.00
Group: BASE	To Node: 1701A	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 15.00	15.00	Flow: Both
Rise(in): 15.00	15.00	Entrance Loss Coef: 0.00
Invert(ft): -0.810	-1.200	Exit Loss Coef: 1.00
Manning's N: 0.012000	0.012000	Bend Loss Coef: 0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 9179	From Node: 179	Length(ft): 145.00
Group: BASE	To Node: 900	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 24.00	24.00	Flow: Both
Rise(in): 24.00	24.00	Entrance Loss Coef: 0.00
Invert(ft): -2.400	-2.550	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 91800	From Node: 1800	Length(ft): 280.00
Group: BASE	To Node: 200	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 15.00	15.00	Flow: Both
Rise(in): 15.00	15.00	Entrance Loss Coef: 0.00
Invert(ft): 0.300	0.000	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 91900	From Node: 1900	Length(ft): 240.00
Group: BASE	To Node: 1000	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Automatic
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 15.00	15.00	Flow: Both
Rise(in): 15.00	15.00	Entrance Loss Coef: 0.00
Invert(ft): 0.000	-0.650	Exit Loss Coef: 0.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 9200	From Node: 200	Length(ft): 180.00
Group: BASE	To Node: 201A	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Horz Ellipse	Horz Ellipse	Solution Algorithm: Automatic
Span(in): 30.00	30.00	Flow: Both
Rise(in): 19.00	19.00	Entrance Loss Coef: 0.00
Invert(ft): -0.470	-0.610	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Horizontal Ellipse Concrete: Square edge with headwall

Downstream FHWA Inlet Edge Description:
Horizontal Ellipse Concrete: Square edge with headwall

Name: 9300	From Node: 300	Length(ft): 80.00
Group: BASE	To Node: 400	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 15.00	15.00	Flow: Both
Rise(in): 15.00	15.00	Entrance Loss Coef: 0.00
Invert(ft): 0.750	0.240	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.50
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 9400	From Node: 400	Length(ft): 140.00
Group: BASE	To Node: 401	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 15.00	15.00	Flow: Both
Rise(in): 15.00	15.00	Entrance Loss Coef: 0.00
Invert(ft): 0.240	-0.500	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.70
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Name: 9500	From Node: 500	Length(ft): 240.00
Group: BASE	To Node: 1600	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Most Restrictive
Span(in): 28.30	28.30	Flow: Both
Rise(in): 28.30	28.30	Entrance Loss Coef: 0.00
Invert(ft): -1.340	-1.580	Exit Loss Coef: 1.00
Manning's N: 0.013000	0.013000	Bend Loss Coef: 0.50
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

```

-----
Name: 9600          From Node: 600          Length(ft): 320.00
Group: BASE         To Node: 700          Count: 1
                                Friction Equation: Average Conveyance
                                Solution Algorithm: Most Restrictive
                                Flow: Both
Entrance Loss Coef: 0.00
Exit Loss Coef: 1.00
Bend Loss Coef: 0.70
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn
Stabilizer Option: None

UPSTREAM      DOWNSTREAM
Geometry: Circular      Circular
Span(in): 15.00         15.00
Rise(in): 15.00         15.00
Invert(ft): 0.500       0.400
Manning's N: 0.013000   0.013000
Top Clip(in): 0.000     0.000
Bot Clip(in): 0.000     0.000

```

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

```

-----
Name: 9700          From Node: 700          Length(ft): 200.00
Group: BASE         To Node: 1500         Count: 1
                                Friction Equation: Automatic
                                Solution Algorithm: Most Restrictive
                                Flow: Both
Entrance Loss Coef: 0.00
Exit Loss Coef: 1.00
Bend Loss Coef: 0.70
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn
Stabilizer Option: None

UPSTREAM      DOWNSTREAM
Geometry: Circular      Circular
Span(in): 15.00         15.00
Rise(in): 15.00         15.00
Invert(ft): 0.400       0.000
Manning's N: 0.013000   0.013000
Top Clip(in): 0.000     0.000
Bot Clip(in): 0.000     0.000

```

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

```

-----
Name: 9800          From Node: 800          Length(ft): 300.00
Group: BASE         To Node: 1500         Count: 1
                                Friction Equation: Automatic
                                Solution Algorithm: Most Restrictive
                                Flow: Both
Entrance Loss Coef: 0.00
Exit Loss Coef: 1.00
Bend Loss Coef: 0.70
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn
Stabilizer Option: None

UPSTREAM      DOWNSTREAM
Geometry: Circular      Circular
Span(in): 15.00         15.00
Rise(in): 15.00         15.00
Invert(ft): 0.150       0.000
Manning's N: 0.013000   0.013000
Top Clip(in): 0.000     0.000
Bot Clip(in): 0.000     0.000

```

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

```

-----
Name: 9900          From Node: 900          Length(ft): 55.00
Group: BASE         To Node: 901A         Count: 1
                                Friction Equation: Average Conveyance
                                Solution Algorithm: Most Restrictive
                                Flow: Both
Entrance Loss Coef: 0.50
Exit Loss Coef: 1.00
Bend Loss Coef: 0.50
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn
Stabilizer Option: None

UPSTREAM      DOWNSTREAM
Geometry: Circular      Circular
Span(in): 24.00         24.00
Rise(in): 24.00         24.00
Invert(ft): -2.650      0.330
Manning's N: 0.013000   0.013000
Top Clip(in): 0.000     0.000
Bot Clip(in): 0.000     0.000

```

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

==== Channels =====

Name: 101	From Node: 1000	Length(ft): 50.00
Group: BASE	To Node: 1001	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 2.350	2.800	Flow: Both
TClpInitZ(ft): 7.350	8.000	Contraction Coef: 0.000
Manning's N:		Expansion Coef: 0.000
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: 100	100	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Name: 1119	From Node: 1100	Length(ft): 300.00
Group: BASE	To Node: 1900	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 2.600	2.400	Flow: Both
TClpInitZ(ft): 7.600	7.400	Contraction Coef: 0.000
Manning's N:		Expansion Coef: 0.000
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: Road	Road	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Name: 1200	From Node: 1200	Length(ft): 20.00
Group: BASE	To Node: 1201	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 2.800	2.800	Flow: Both
TClpInitZ(ft): 8.000	8.000	Contraction Coef: 0.000
Manning's N:		Expansion Coef: 0.000
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: 1200	1200	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Name: 1400	From Node: 1400	Length(ft): 10.00
Group: BASE	To Node: 1401	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic

Invert(ft):	2.000	2.000	Flow:	Both
TClpInitZ(ft):	7.000	7.000	Contraction Coef:	0.000
Manning's N:			Expansion Coef:	0.000
Top Clip(ft):			Entrance Loss Coef:	0.000
Bot Clip(ft):			Exit Loss Coef:	0.000
Main XSec:	1400	1400	Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft):	0.000	0.000	Inlet Ctrl Spec:	Use dn
Aux XSec1:			Stabilizer Option:	None
AuxElev2(ft):	0.000	0.000		
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):				
LtSdSlp(h/v):				
RtSdSlp(h/v):				

Name:	1516	From Node:	1500	Length(ft):	240.00
Group:	BASE	To Node:	1600	Count:	1

	UPSTREAM	DOWNSTREAM	Friction Equation:	Average Conveyance
Geometry:	Irregular	Irregular	Solution Algorithm:	Automatic
Invert(ft):	2.100	1.900	Flow:	Both
TClpInitZ(ft):	7.100	6.900	Contraction Coef:	0.000
Manning's N:			Expansion Coef:	0.000
Top Clip(ft):			Entrance Loss Coef:	0.000
Bot Clip(ft):			Exit Loss Coef:	0.000
Main XSec:	1617	1617	Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft):	0.000	0.000	Inlet Ctrl Spec:	Use dn
Aux XSec1:			Stabilizer Option:	None
AuxElev2(ft):	0.000	0.000		
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):				
LtSdSlp(h/v):				
RtSdSlp(h/v):				

Name:	1617	From Node:	1600	Length(ft):	180.00
Group:	BASE	To Node:	1700	Count:	1

	UPSTREAM	DOWNSTREAM	Friction Equation:	Average Conveyance
Geometry:	Irregular	Irregular	Solution Algorithm:	Automatic
Invert(ft):	1.900	2.000	Flow:	Both
TClpInitZ(ft):	6.900	7.000	Contraction Coef:	0.000
Manning's N:			Expansion Coef:	0.000
Top Clip(ft):			Entrance Loss Coef:	0.000
Bot Clip(ft):			Exit Loss Coef:	0.000
Main XSec:	1617	1617	Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft):	0.000	0.000	Inlet Ctrl Spec:	Use dn
Aux XSec1:			Stabilizer Option:	None
AuxElev2(ft):	0.000	0.000		
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):				
LtSdSlp(h/v):				
RtSdSlp(h/v):				

Name:	1700	From Node:	1700	Length(ft):	30.00
Group:	BASE	To Node:	1701	Count:	1

	UPSTREAM	DOWNSTREAM	Friction Equation:	Average Conveyance
Geometry:	Irregular	Irregular	Solution Algorithm:	Automatic
Invert(ft):	3.200	3.200	Flow:	Both
TClpInitZ(ft):	7.800	7.800	Contraction Coef:	0.000
Manning's N:			Expansion Coef:	0.000
Top Clip(ft):			Entrance Loss Coef:	0.000
Bot Clip(ft):			Exit Loss Coef:	0.000
Main XSec:	1700	1700	Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft):	0.000	0.000	Inlet Ctrl Spec:	Use dn
Aux XSec1:			Stabilizer Option:	None
AuxElev2(ft):	0.000	0.000		
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):				
LtSdSlp(h/v):				
RtSdSlp(h/v):				

Name: 182	From Node: 1800	Length(ft): 220.00
Group: BASE	To Node: 200	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 2.700	2.200	Flow: Both
TClpInitZ(ft): 7.700	7.200	Contraction Coef: 0.000
Manning's N:		Expansion Coef: 0.000
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: Road	Road	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Name: 1910	From Node: 1900	Length(ft): 220.00
Group: BASE	To Node: 1000	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 2.400	2.350	Flow: Both
TClpInitZ(ft): 7.400	7.350	Contraction Coef: 0.000
Manning's N:		Expansion Coef: 0.000
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: Road	Road	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Name: 201	From Node: 200	Length(ft): 150.00
Group: BASE	To Node: 201	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 2.800	2.800	Flow: Both
TClpInitZ(ft): 8.000	8.000	Contraction Coef: 0.000
Manning's N:		Expansion Coef: 0.000
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: 200	200	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Name: 34	From Node: 300	Length(ft): 150.00
Group: BASE	To Node: 400	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 3.220	2.820	Flow: Both
TClpInitZ(ft): 8.220	7.820	Contraction Coef: 0.000
Manning's N:		Expansion Coef: 0.000
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: Road	Road	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dc
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		

Top Width(ft):
Depth(ft):
Bot Width(ft):
LtSdSlp(h/v):
RtSdSlp(h/v):

Name: 4401	From Node: 400	Length(ft): 150.00
Group: BASE	To Node: 401	Count: 1

	UPSTREAM	DOWNSTREAM	
Geometry:	Irregular	Irregular	Friction Equation: Average Conveyance
Invert(ft):	2.820	2.800	Solution Algorithm: Automatic
TClpInitZ(ft):	7.820	8.000	Flow: Both
Manning's N:			Contraction Coef: 0.000
Top Clip(ft):			Expansion Coef: 0.000
Bot Clip(ft):			Entrance Loss Coef: 0.000
Main XSec:	400	400	Exit Loss Coef: 0.000
AuxElev1(ft):	0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Aux XSec1:			Inlet Ctrl Spec: Use dn
AuxElev2(ft):	0.000	0.000	Stabilizer Option: None
Aux XSec2:			
Top Width(ft):			
Depth(ft):			
Bot Width(ft):			
LtSdSlp(h/v):			
RtSdSlp(h/v):			

Name: 501	From Node: 500	Length(ft): 300.00
Group: BASE	To Node: 501	Count: 1

	UPSTREAM	DOWNSTREAM	
Geometry:	Irregular	Irregular	Friction Equation: Average Conveyance
Invert(ft):	2.500	2.800	Solution Algorithm: Automatic
TClpInitZ(ft):	7.500	7.800	Flow: Both
Manning's N:			Contraction Coef: 0.000
Top Clip(ft):			Expansion Coef: 0.000
Bot Clip(ft):			Entrance Loss Coef: 0.000
Main XSec:	500	500	Exit Loss Coef: 0.000
AuxElev1(ft):	0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Aux XSec1:			Inlet Ctrl Spec: Use dn
AuxElev2(ft):	0.000	0.000	Stabilizer Option: None
Aux XSec2:			
Top Width(ft):			
Depth(ft):			
Bot Width(ft):			
LtSdSlp(h/v):			
RtSdSlp(h/v):			

Name: 516	From Node: 500	Length(ft): 300.00
Group: BASE	To Node: 1600	Count: 1

	UPSTREAM	DOWNSTREAM	
Geometry:	Irregular	Irregular	Friction Equation: Average Conveyance
Invert(ft):	2.050	1.900	Solution Algorithm: Automatic
TClpInitZ(ft):	7.050	6.900	Flow: Both
Manning's N:			Contraction Coef: 0.000
Top Clip(ft):			Expansion Coef: 0.000
Bot Clip(ft):			Entrance Loss Coef: 0.000
Main XSec:	1617	1617	Exit Loss Coef: 0.000
AuxElev1(ft):	0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Aux XSec1:			Inlet Ctrl Spec: Use dn
AuxElev2(ft):	0.000	0.000	Stabilizer Option: None
Aux XSec2:			
Top Width(ft):			
Depth(ft):			
Bot Width(ft):			
LtSdSlp(h/v):			
RtSdSlp(h/v):			

Name: 618	From Node: 600	Length(ft): 180.00
Group: BASE	To Node: 1800	Count: 1

	UPSTREAM	DOWNSTREAM	
Geometry:	Irregular	Irregular	Friction Equation: Average Conveyance
Invert(ft):	2.400	2.700	Solution Algorithm: Automatic
TClpInitZ(ft):	7.400	7.700	Flow: None
Manning's N:			Contraction Coef: 0.000
			Expansion Coef: 0.000

Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: Road	Road	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Name: 67	From Node: 600	Length(ft): 180.00
Group: BASE	To Node: 700	Count: 1

UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 2.400	2.700	Flow: Both
TClpInitZ(ft): 7.400	7.700	Contraction Coef: 0.000
Manning's N:		Expansion Coef: 0.000
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: Road	Road	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Thr same invert and length like the 618

Name: 715	From Node: 700	Length(ft): 200.00
Group: BASE	To Node: 1500	Count: 1

UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 2.800	2.100	Flow: Both
TClpInitZ(ft): 7.800	7.100	Contraction Coef: 0.000
Manning's N:		Expansion Coef: 0.000
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: 1617	1617	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

The same invert and length like the 618

Name: 815	From Node: 800	Length(ft): 300.00
Group: BASE	To Node: 1500	Count: 1

UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 2.150	2.100	Flow: Both
TClpInitZ(ft): 7.150	7.150	Contraction Coef: 0.000
Manning's N:		Expansion Coef: 0.000
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: Road	Road	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Name: 900	From Node: 900	Length(ft): 300.00
-----------	----------------	--------------------

Group: BASE	To Node: 1700	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 2.000	2.000	Flow: Both
TClpInitZ(ft): 7.000	7.000	Contraction Coef: 0.000
Manning's N:		Expansion Coef: 0.000
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.000
Main XSec: Road	Road	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

=====

==== Weirs =====

=====

Name: 141	From Node: 1400
Group: BASE	To Node: 1401
Flow: Both	Count: 1
Type: Horizontal	Geometry: Rectangular
Span(in): 120.00	
Rise(in): 12.00	
Invert(ft): 3.000	
Control Elevation(ft): 3.000	
	TABLE
Bottom Clip(in): 0.000	
Top Clip(in): 0.000	
Weir Discharge Coef: 2.800	
Orifice Discharge Coef: 0.600	

Name: W1000	From Node: 1000
Group: BASE	To Node: 1001
Flow: Both	Count: 1
Type: Horizontal	Geometry: Rectangular
Span(in): 120.00	
Rise(in): 20.00	
Invert(ft): 3.000	
Control Elevation(ft): 3.000	
	TABLE
Bottom Clip(in): 0.000	
Top Clip(in): 0.000	
Weir Discharge Coef: 3.000	
Orifice Discharge Coef: 0.600	

Name: W901	From Node: 900
Group: BASE	To Node: 901
Flow: Both	Count: 1
Type: Horizontal	Geometry: Rectangular
Span(in): 200.00	
Rise(in): 50.00	
Invert(ft): 3.500	
Control Elevation(ft): 3.500	
	TABLE
Bottom Clip(in): 0.000	
Top Clip(in): 0.000	
Weir Discharge Coef: 3.000	
Orifice Discharge Coef: 0.600	

=====

==== Rating Curves =====

=====

Name: 1000	From Node: 1001A	Count: 1
Group: BASE	To Node: 1001	Flow: Both
TABLE	ELEV ON(ft)	ELEV OFF(ft)
#1: 24TF	0.000	0.000
#2:	0.000	0.000

#3:	0.000	0.000
#4:	0.000	0.000

Name: 1000A	From Node: 1001A	Count: 1
Group: BASE	To Node: 1001	Flow: Both

TABLE	ELEV ON(ft)	ELEV OFF(ft)
#1: 18TF	0.000	0.000
#2:	0.000	0.000
#3:	0.000	0.000
#4:	0.000	0.000

Name: 1701A	From Node: 1701A	Count: 1
Group: BASE	To Node: 1701	Flow: Both

TABLE	ELEV ON(ft)	ELEV OFF(ft)
#1: 15TF	0.000	0.000
#2:	0.000	0.000
#3:	0.000	0.000
#4:	0.000	0.000

Name: 1701A1	From Node: 1701A1	Count: 1
Group: BASE	To Node: 1701	Flow: Both

TABLE	ELEV ON(ft)	ELEV OFF(ft)
#1: 24TF	0.000	0.000
#2:	0.000	0.000
#3:	0.000	0.000
#4:	0.000	0.000

Name: 201A	From Node: 201A	Count: 1
Group: BASE	To Node: 201	Flow: Both

TABLE	ELEV ON(ft)	ELEV OFF(ft)
#1: 30TF	0.000	0.000
#2:	0.000	0.000
#3:	0.000	0.000
#4:	0.000	0.000

Name: 901	From Node: 901A	Count: 1
Group: BASE	To Node: 901	Flow: Both

TABLE	ELEV ON(ft)	ELEV OFF(ft)
#1: 15TF	0.000	0.000
#2:	0.000	0.000
#3:	0.000	0.000
#4:	0.000	0.000

==== Hydrology Simulations =====

Name: 10yr24hr
Filename: F:\Projects\2015\15-0101 LBK Village Stormwater System\Modeling\Boyle Proposed Conditions\Boyle Proposed Conditions
Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 7.00

Time(hrs)	Print Inc(min)
30.000	5.00

==== Routing Simulations =====

Name: 10yr24hr Hydrology Sim: 10yr24hr
Filename: F:\Projects\2015\15-0101 LBK Village Stormwater System\Modeling\Boyle Proposed Conditions\Boyle Proposed Conditions
Execute: Yes Restart: No Patch: No

Alternative: No

Max Delta Z(ft): 0.50
 Time Step Optimizer: 30.000
 Start Time(hrs): 0.000
 Min Calc Time(sec): 0.2500
 Boundary Stages:

Delta Z Factor: 0.01000
 End Time(hrs): 15.00
 Max Calc Time(sec): 60.0000
 Boundary Flows:

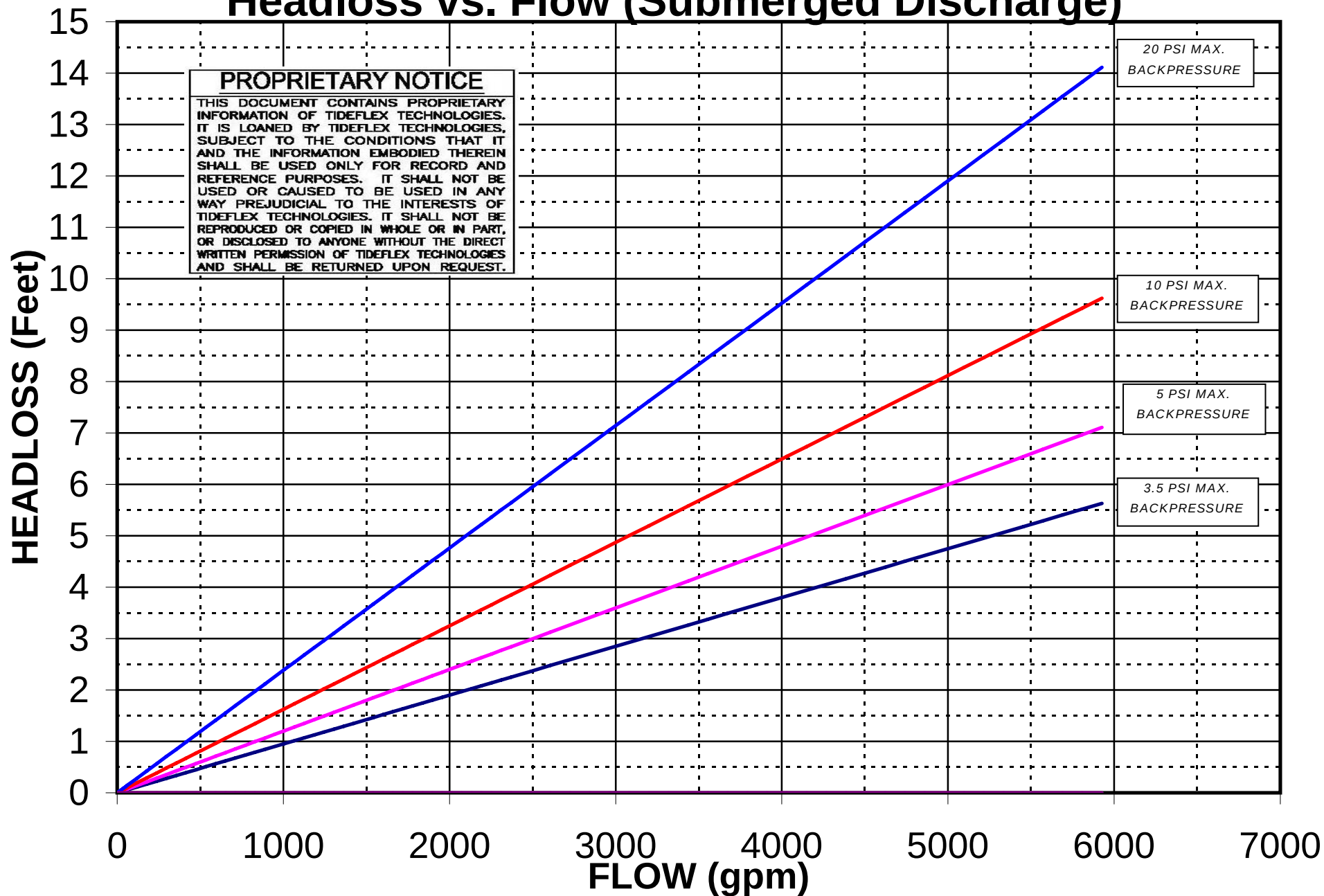
Time(hrs)	Print Inc(min)
30.000	10.000

Group	Run
BASE	Yes

TIDEFLEX VALVE RESEARCH

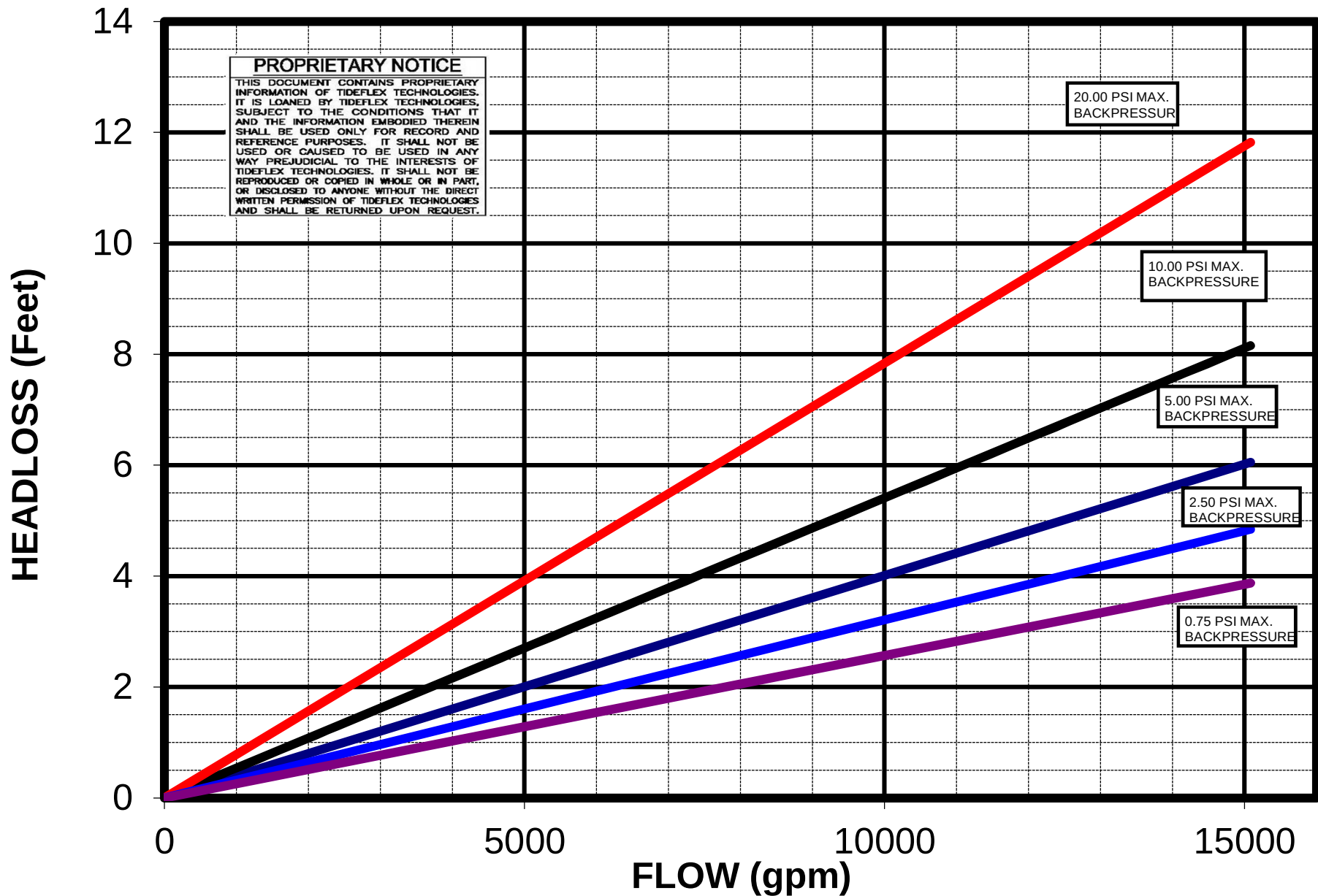
14" TIDEFLEX SERIES TF-2, TF-1, 35, 35-1, 39

Headloss vs. Flow (Submerged Discharge)



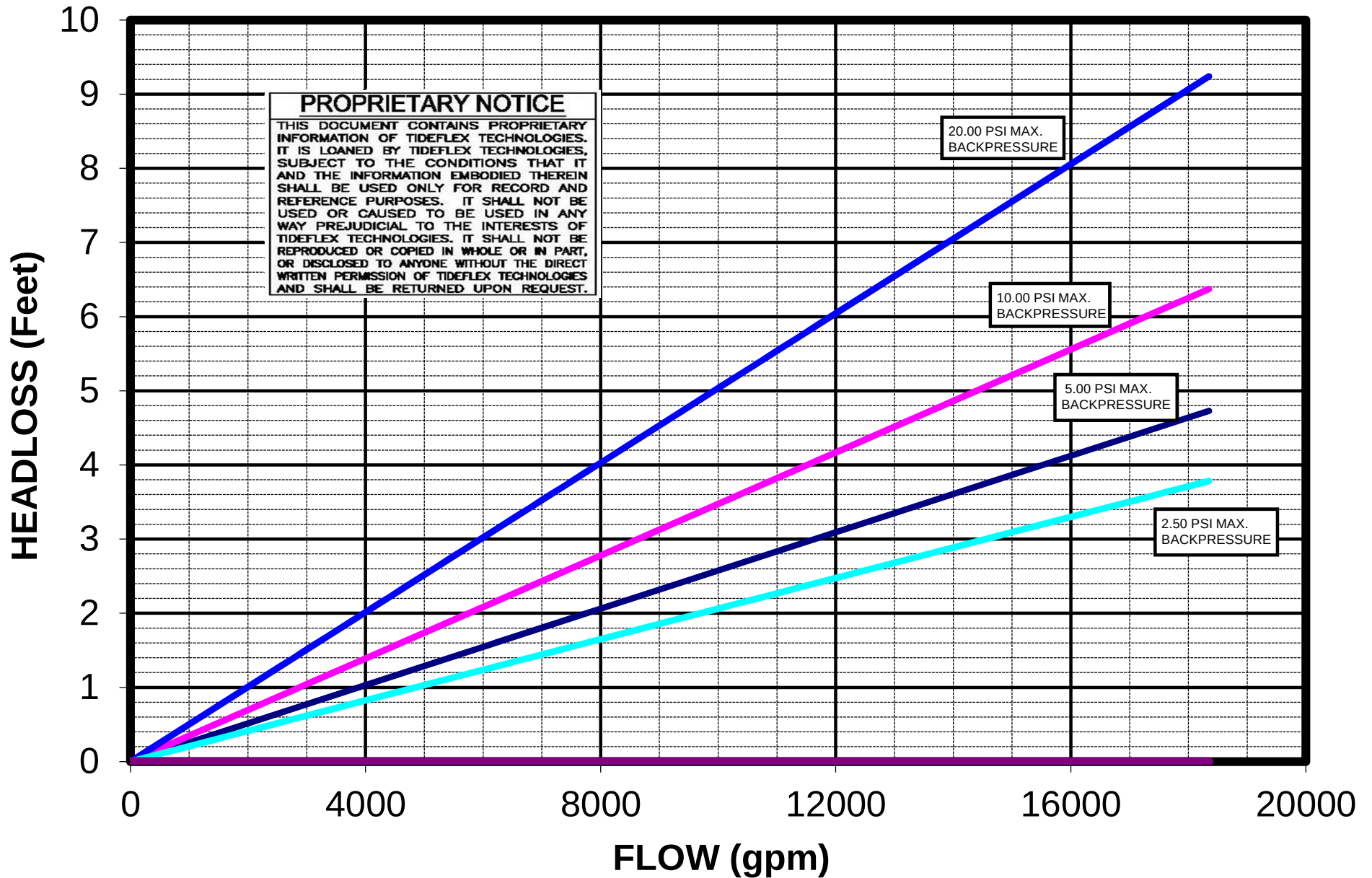
18" TIDEFLEX SERIES TF-2, TF-1, 35, 35-1, 39

Headloss vs. Flow (Submerged Discharge)



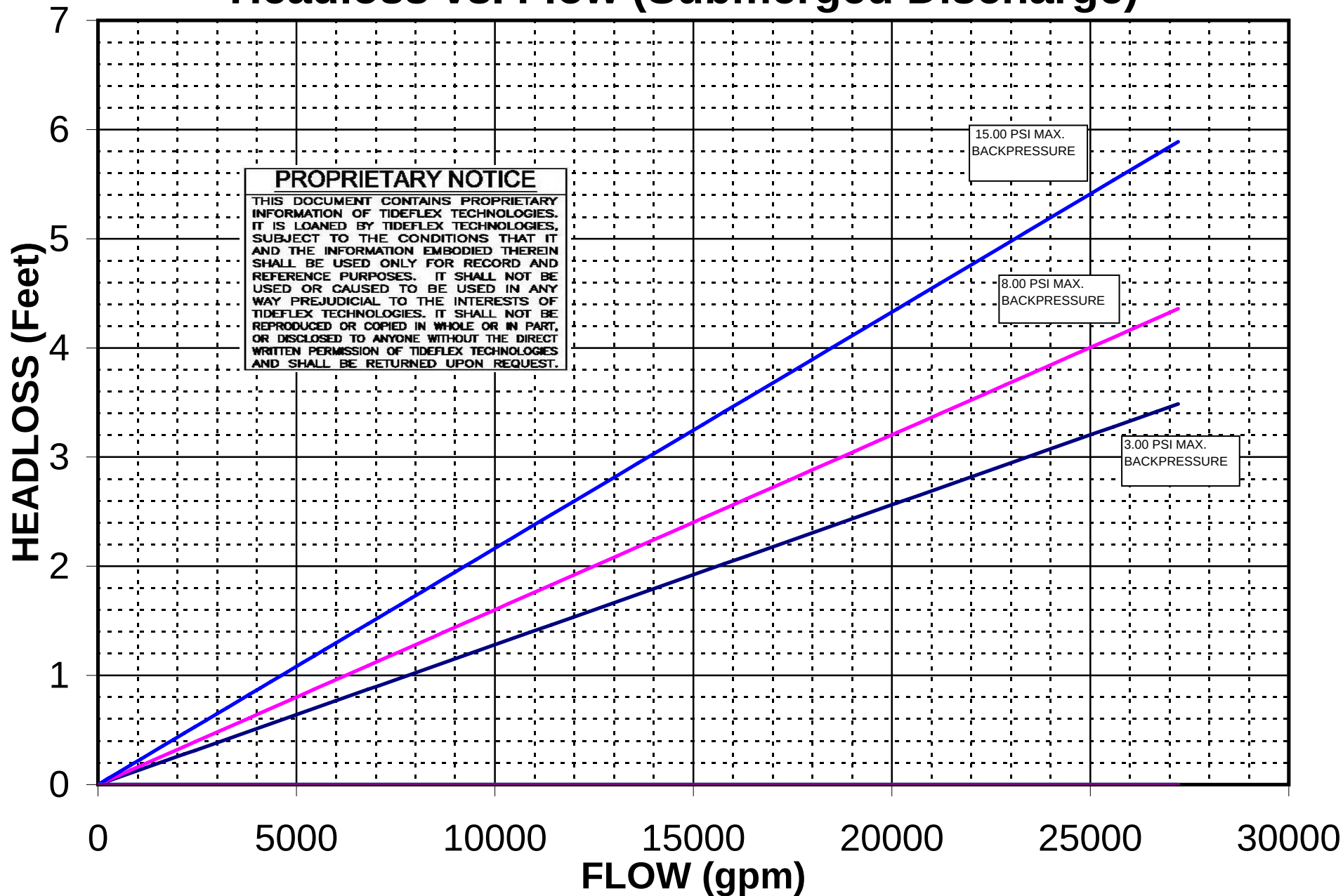
24" TIDEFLEX SERIES TF-2, TF-1, 35, 35-1, 39

Headloss vs. Flow (Submerged Discharge)



30" TIDEFLEX SERIES TF-2, TF-1, 35, 35-1, 39

Headloss vs. Flow (Submerged Discharge)



SEA LEVEL RISE GRAPHICS





Sea Level Rise	Confidence	Marsh
Vulnerability		Flood Frequency

Flood Frequency ?

Legend

- Shallow Coastal Flooding Areas
- Area Not Mapped
- Tide Gauges

[Overview](#)

[Understanding The Map](#)

Shallow Coastal Flooding. Many coastal areas experience periodic minor-to-moderate shallow coastal flooding events—typically as a result of meteorological factors that include high tides, winds, and rain. These events often affect roadways, buildings, and other infrastructure.

Tidal Heights. This map illustrates the extent of flood-prone coastal areas based on predicted water levels exceeding specific tidal heights as issued by local National Weather Service offices.

Frequency. The coastal flood event frequencies and durations for tide gauges were calculated using observed tidal data over a three year period (2007-2009). The future frequency and duration predictions are based on the addition of half-meter and one-meter sea level rise scenarios to the observed water levels over the three-year period

FOR: TOWN OF LONGBOAT
LONGBOAT KEY, FLORIDA

TITLE: LONGBOAT KEY VILLAGE
STORMWATER EVALUATION AND ANALYSIS

DESC: FLOOD FREQUENCY FIGURE



DMK ASSOCIATES
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C.A. No. 3943

Design By: MAL	Drawn By: RMS	Checked By: MAL	Proj. No.: 15-0101
CADD File: REPORT-FIGURES.dwg		Date: 10-22-15	SCALE: NONE



Sea Level Rise
Confidence
Marsh

Vulnerability
Flood Frequency

Sea Level Rise ?

1 ft SLR

Legend

Water Depth

Low-lying Areas

Area Not Mapped

Visualization Location

[View Levees](#)

i Overview

Use the slider bar above to see how various levels of sea level rise will impact this area.

Levels represent inundation at high tide. Areas that are hydrologically connected are shown in shades of blue (darker blue = greater depth).

Low-lying areas, displayed in green, are hydrologically "unconnected" areas that may flood. They are determined solely by how well the elevation data captures the area's hydraulics. A more detailed analysis of these areas is required to determine the susceptibility to flooding.

FOR: TOWN OF LONGBOAT
LONGBOAT KEY, FLORIDA

TITLE: LONGBOAT KEY VILLAGE
STORMWATER EVALUATION AND ANALYSIS

DESC: SEA LEVEL RISE FIGURE - 1 FOOT

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CADD File: REPORT-FIGURES.dwg	Date: 10-22-15	SCALE: NONE	



Sea Level Rise
Confidence
Marsh

Vulnerability
Flood Frequency

Sea Level Rise ?

2 ft SLR

Legend

- Water Depth
- Low-lying Areas
- Area Not Mapped
- Visualization Location

[View Levees](#)

i Overview

Use the slider bar above to see how various levels of sea level rise will impact this area.

Levels represent inundation at high tide. Areas that are hydrologically connected are shown in shades of blue (darker blue = greater depth).

Low-lying areas, displayed in green, are hydrologically "unconnected" areas that may flood. They are determined solely by how well the elevation data captures the area's hydraulics. A more detailed analysis of these areas is required to determine the susceptibility to flooding.

FOR: TOWN OF LONGBOAT
LONGBOAT KEY, FLORIDA

TITLE: LONGBOAT KEY VILLAGE
STORMWATER EVALUATION AND ANALYSIS

DESC: SEA LEVEL RISE FIGURE - 2 FOOT



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Sea Level Rise
Confidence
Marsh

Vulnerability
Flood Frequency

Sea Level Rise ?

3 ft SLR

Legend

Water Depth

Low-lying Areas

Area Not Mapped

Visualization Location

[View Levees](#)

Overview

Use the slider bar above to see how various levels of sea level rise will impact this area.

Levels represent inundation at high tide. Areas that are hydrologically connected are shown in shades of blue (darker blue = greater depth).

Low-lying areas, displayed in green, are hydrologically "unconnected" areas that may flood. They are determined solely by how well the elevation data captures the area's hydraulics. A more detailed analysis of these areas is required to determine the susceptibility to flooding.

FOR: TOWN OF LONGBOAT
LONGBOAT KEY, FLORIDA

TITLE: LONGBOAT KEY VILLAGE
STORMWATER EVALUATION AND ANALYSIS

DESC: SEA LEVEL RISE FIGURE - 3 FOOT

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Design By: MAL	Drawn By: RMS	Checked By: MAL	Proj. No.: 15-0101
CADD File: REPORT-FIGURES.dwg	Date: 10-22-15	SCALE: NONE	

**1-YEAR TIDAL STILL WATER
ELEVATION INFORMATION**



Englewood Office
4315 S. Access Rd.
Englewood, FL 34224

Phone [941] 475-6596
Fax [941] 474-5060

Venice Office
421 Commercial Ct.
Suite C-D
Venice, FL 34292

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Fax [941] 412-1043

Client Longboat Key Date 10.29.2015 Sheet 1 Of 1
Project: Villages Project No. 15-0101 Designed by MAL Ckd by KEM

1 yr Still Water Elevation (SWEL)

St. Pete Tide Station 872-6520

MHHW = 0.804' NAVD 88

MHHW = 0.804' + 0.89' = 1.694' NGVD

1% Annual Exceedance probability = SWEL

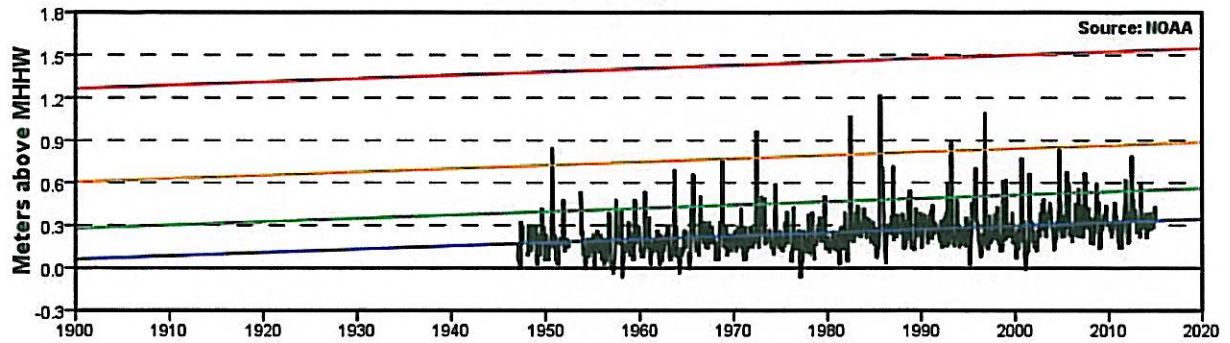
According to Graph, SWEL $\approx$ 1.6 meters
above MHHW

1.6 m = 5.25'

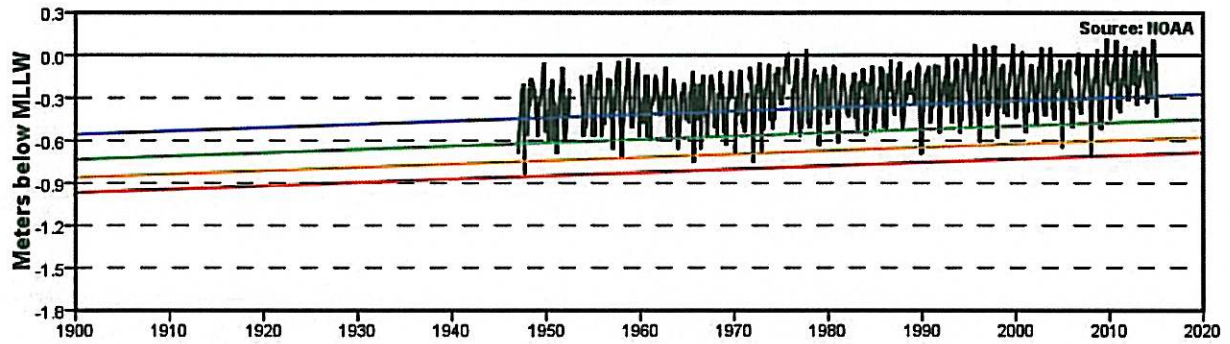
SWEL = 1.694' + 5.25' = 6.944'

Extreme Water Levels
8726520 St. Petersburg, FL
Tide Station (NOAA)

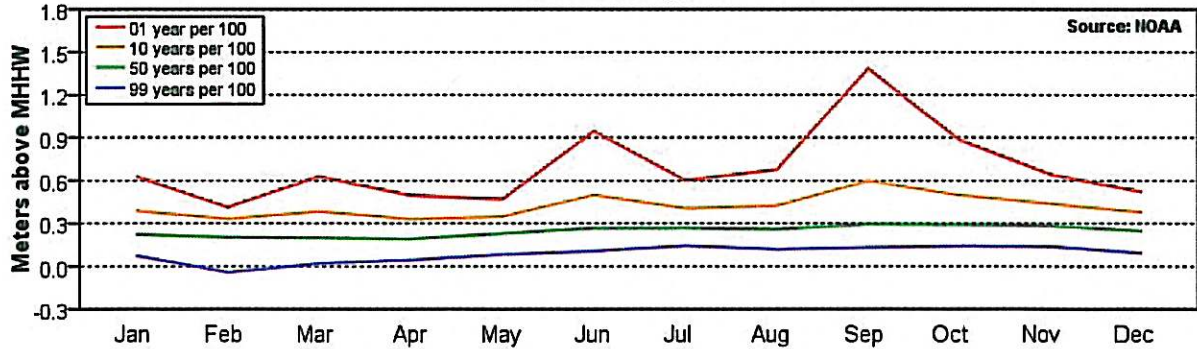
St Petersburg, FL

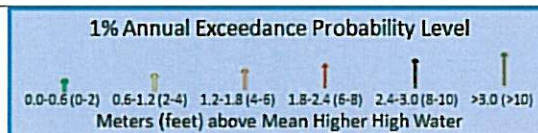
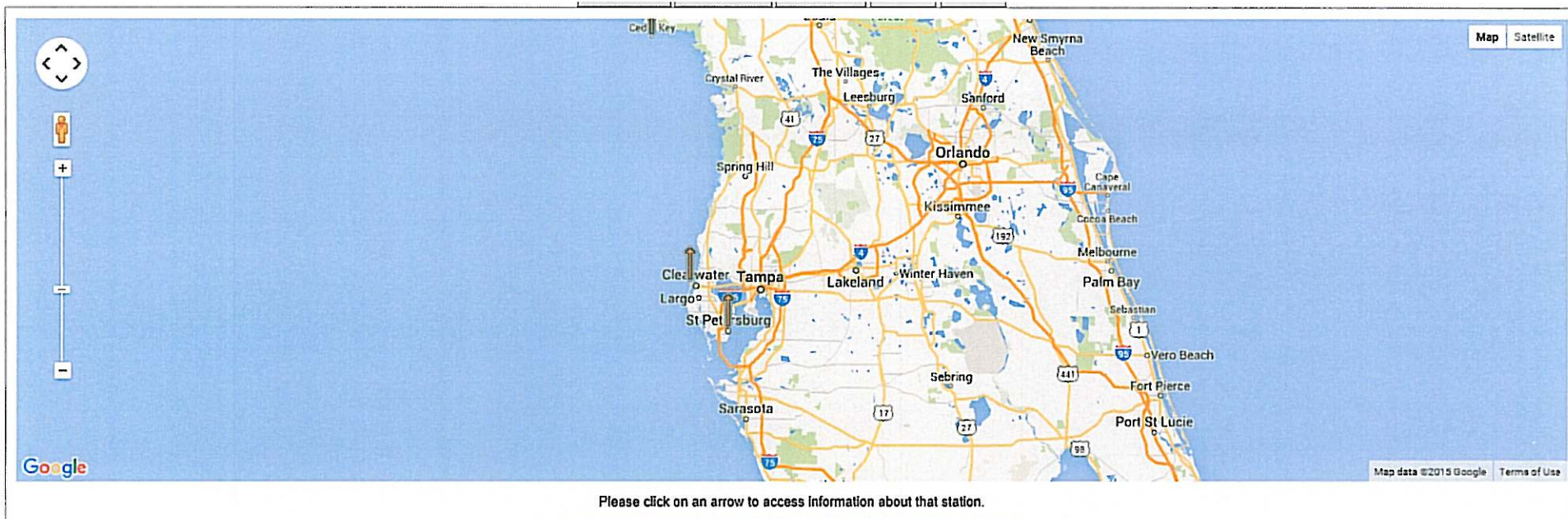


St Petersburg, FL



St Petersburg, FL





Extremely high or low water levels at coastal locations are an important public concern and a factor in coastal hazard assessment, navigational safety, and ecosystem management. Exceedance probability, the likelihood that water levels will exceed a given elevation, is based on a statistical analysis of historic values. This product provides annual and monthly exceedance probability levels for select CO-OPS water level stations with at least 30 years of data. When used in conjunction with real time station data, exceedance probability levels can be used to evaluate current conditions and determine whether a rare event is occurring. This information may also be instrumental in planning for the possibility of dangerously high or low water events at a local level. Because these levels are station specific, their use for evaluating surrounding areas may be limited. A NOAA Technical Report, "[Extreme Water Levels of the United States 1893-2010](#)" describes the methods and data used in the calculation of the exceedance probability levels.

The extreme levels measured by the CO-OPS tide gauges during storms are called storm tides, which are a combination of the astronomical tide, the storm surge, and limited wave setup caused by breaking waves. They do not include wave runup, the movement of water up a slope. Therefore, the 1% annual exceedance probability levels shown on this website do not necessarily correspond to the [Base Flood Elevations \(BFE\)](#) defined by the [Federal Emergency Management Administration \(FEMA\)](#), which are the basis for the [National Flood Insurance Program](#). The 1% annual exceedance probability levels on this website more closely correspond to FEMA's Still Water Flood Elevations (SWEL). The peak levels from tsunamis, which can cause high-frequency fluctuations at some locations, have not been included in this statistical analysis due to their infrequency during the periods of historic record.

COMPARISON TABLE OF 1-YR STILL WATER ELEVATION (6.94') AS COMPARED TO VARIOUS INDICATOR ELEVATIONS

Node	Pipe Invert (ft)	Depth below the	Roadway Crown (ft)	Depth below
	Boyle	1 YR Still Water El. (ft)	Boyle	1 YR Still Water El. (ft)
101	-0.66	7.60	3	3.94
201	-0.61	7.55	2.2	4.74
401	-0.5	7.44	2.82	4.12
501	-1.58	8.52	2.05	4.89
901	0.01	6.93	2	4.94
1001	-0.65	7.59	2.35	4.59
1201	-0.2	7.14	2.2	4.74
1301	-0.4	7.34	2.2	4.74
1401	-0.6	7.54	2	4.94
1701	-0.81	7.75	2	4.94