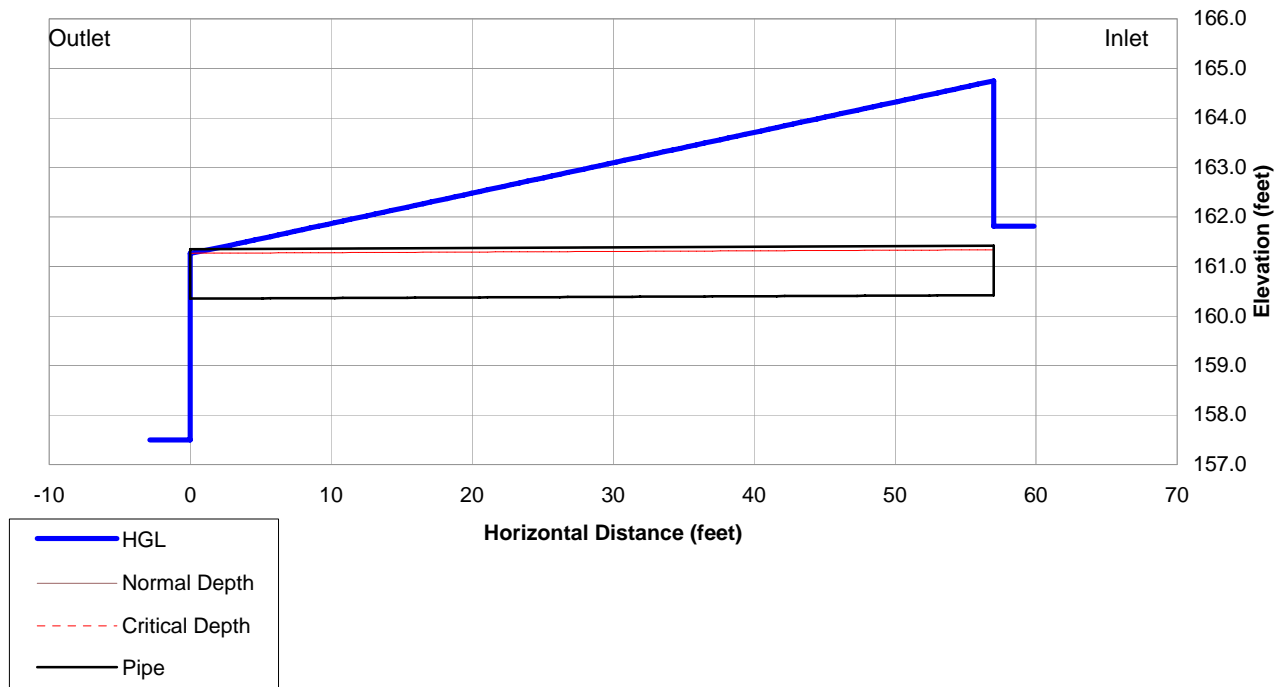


Standard Step Backwater Analysis

System: **Big Lake 5407**
 Design Event: **25-yr Ex**

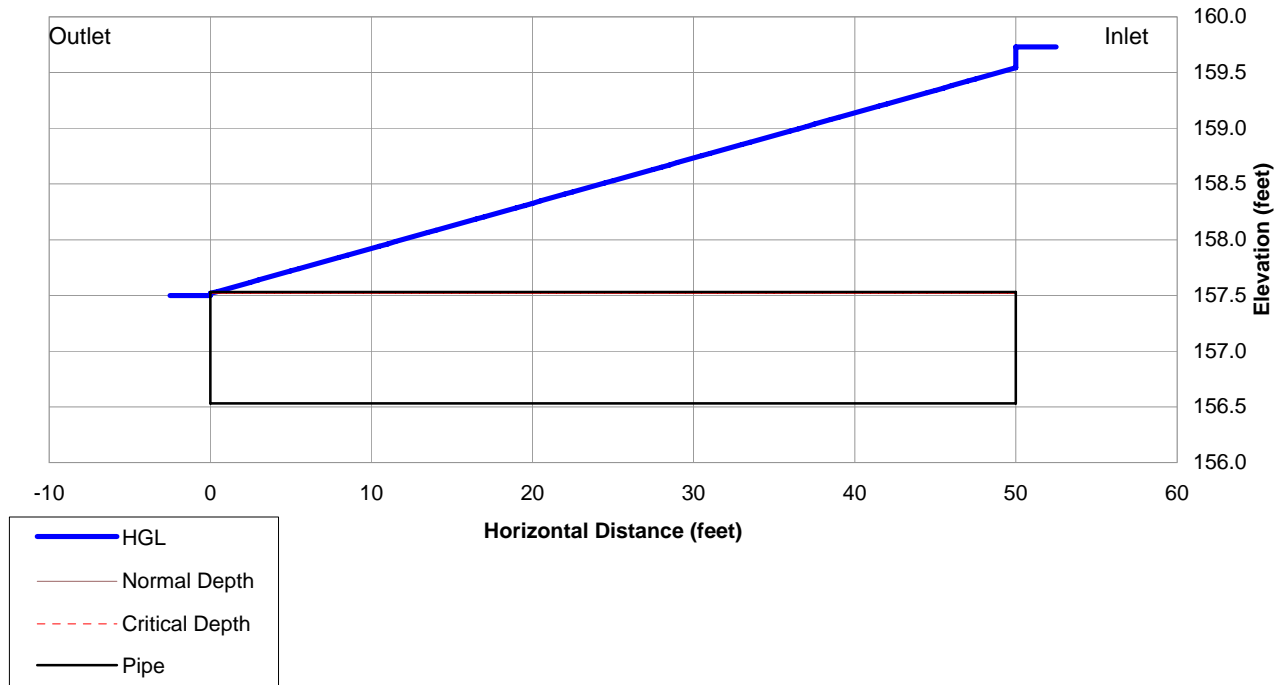
	<u>Outlet</u>	<u>Inlet</u>		
Identification	1448	5407	Normal Depth (ft)	1.00
Rim/Overflow Elev. (ft)	-	161.82	Critical Depth (ft)	0.92
Invert Elevation (ft)	160.35	160.42	Froude No.	1.00
Water Surf. Elev. (ft)	157.50	161.81	Avg. Velocity (fps)	6.37
			Min. Velocity (fps)	6.37
Discharge (cfs)	5.00		Max. Velocity (fps)	6.63
Diameter (inches)	12		Normal Velocity (fps)	6.37
Ineffective Depth (ft)	0.00		Crit. Velocity (fps)	6.63
Length (feet)	57			
Manning n	0.023			
Entrance Vel. (fps)	7.00			
Entrance Loss (Ke)	0.70			
Slope	0.0012281			



Standard Step Backwater Analysis

System: **Big Lake 1444**
 Design Event: **25-yr Ex**

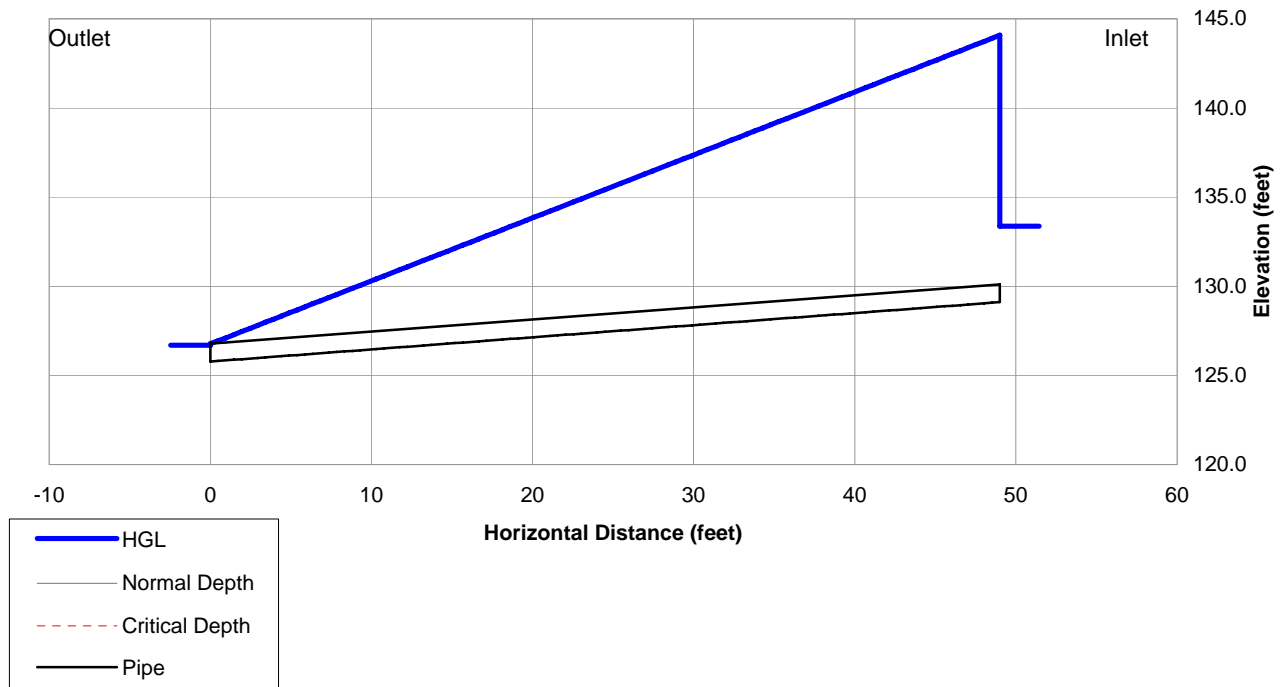
	<u>Outlet</u>	<u>Inlet</u>		
Identification	1444	1443	Normal Depth (ft)	1.00
Rim/Overflow Elev. (ft)	-	159.53	Critical Depth (ft)	0.99
Invert Elevation (ft)	156.53	156.53	Froude No.	1.00
Water Surf. Elev. (ft)	157.50	159.73	Avg. Velocity (fps)	10.82
			Min. Velocity (fps)	10.82
Discharge (cfs)	8.50		Max. Velocity (fps)	10.85
Diameter (inches)	12		Normal Velocity (fps)	10.82
Ineffective Depth (ft)	0.00		Crit. Velocity (fps)	10.85
Length (feet)	50			
Manning n	0.011			
Entrance Vel. (fps)	9.00			
Entrance Loss (Ke)	0.90			
Slope	0			



Standard Step Backwater Analysis

System: **Big Lake bl27**
 Design Event: **25-yr Ex**

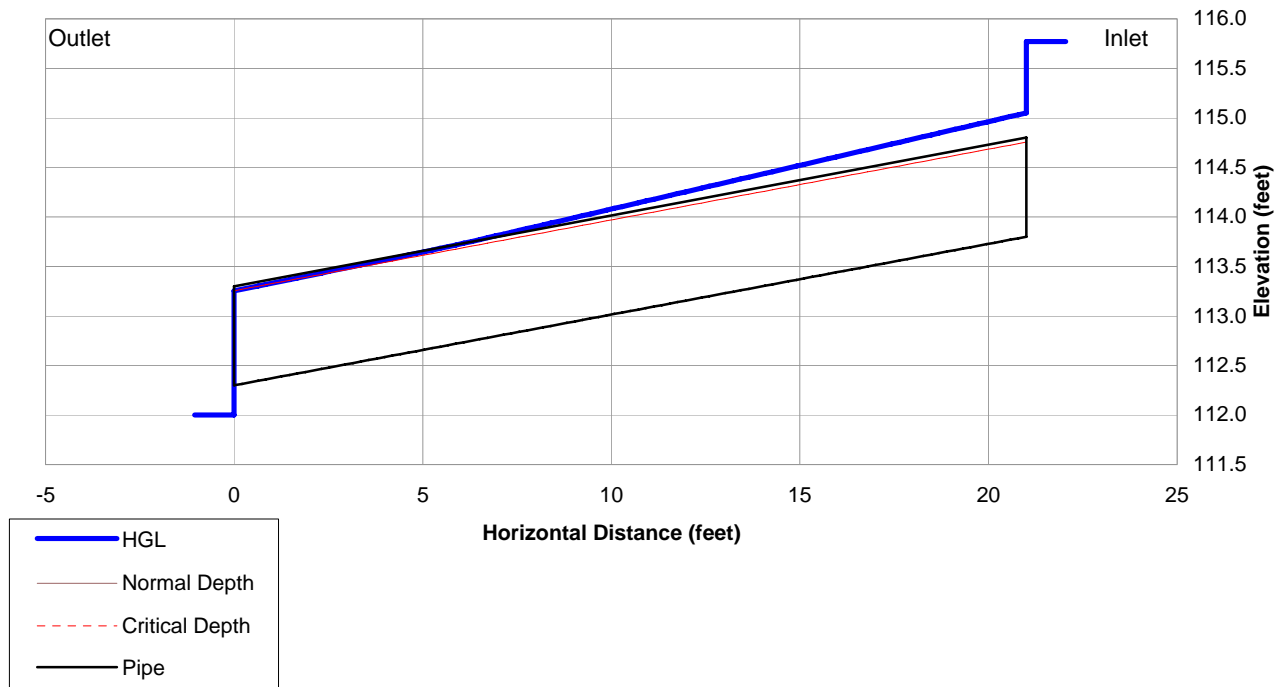
	<u>Outlet</u>	<u>Inlet</u>		
Identification	1648	1655	Normal Depth (ft)	1.00
Rim/Overflow Elev. (ft)	-	134.11	Critical Depth (ft)	1.00
Invert Elevation (ft)	125.78	129.11	Froude No.	1.00
Water Surf. Elev. (ft)	126.70	133.37	Avg. Velocity (fps)	15.28
			Min. Velocity (fps)	15.28
Discharge (cfs)	12.00		Max. Velocity (fps)	15.28
Diameter (inches)	12		Normal Velocity (fps)	15.28
Ineffective Depth (ft)	0.00		Crit. Velocity (fps)	15.28
Length (feet)	49			
Manning n	0.023			
Entrance Vel. (fps)	16.00			
Entrance Loss (Ke)	0.90			
Slope	0.0679592			



Standard Step Backwater Analysis

System: **Big Lake bl26a**
 Design Event: **25-yr Ex**

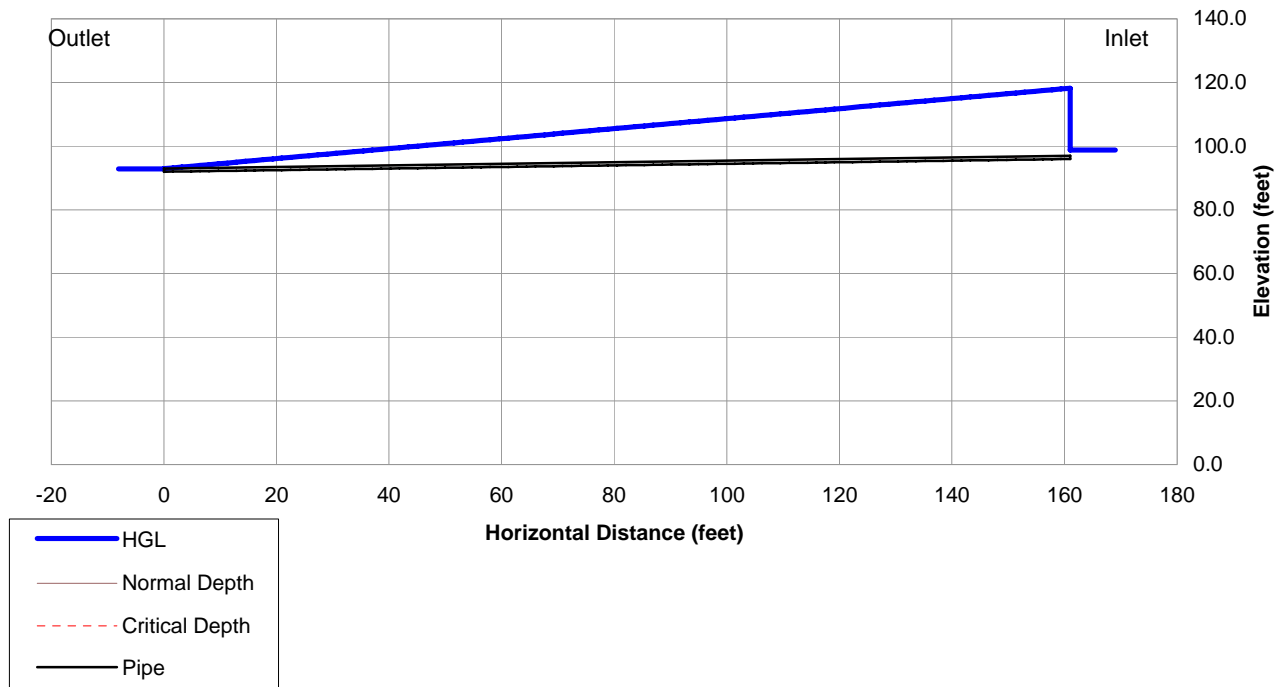
	<u>Outlet</u>	<u>Inlet</u>		
Identification	1715	1717	Normal Depth (ft)	1.00
Rim/Overflow Elev. (ft)	-	115.80	Critical Depth (ft)	0.96
Invert Elevation (ft)	112.30	113.80	Froude No.	1.00
Water Surf. Elev. (ft)	112.00	115.77	Avg. Velocity (fps)	7.66
			Min. Velocity (fps)	7.64
Discharge (cfs)	6.00		Max. Velocity (fps)	7.76
Diameter (inches)	12		Normal Velocity (fps)	7.64
Ineffective Depth (ft)	0.00		Crit. Velocity (fps)	7.76
Length (feet)	21			
Manning n	0.023			
Entrance Vel. (fps)	7.00			
Entrance Loss (Ke)	0.90			
Slope	0.0714286			



Standard Step Backwater Analysis

System: **Big Lake NC5**
 Design Event: **25-yr Ex**

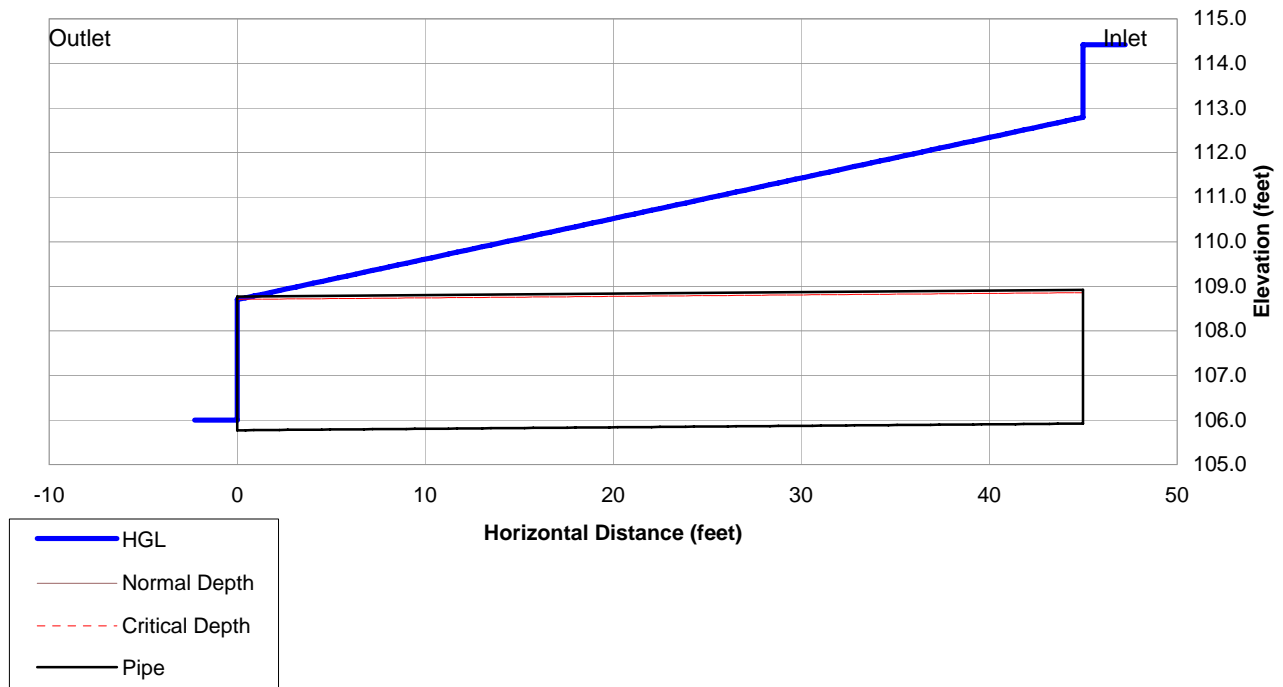
	<u>Outlet</u>	<u>Inlet</u>		
Identification	5425	1686W	Normal Depth (ft)	1.00
Rim/Overflow Elev. (ft)	-	98.83	Critical Depth (ft)	0.99
Invert Elevation (ft)	91.99	95.98	Froude No.	1.00
Water Surf. Elev. (ft)	92.90	98.84	Avg. Velocity (fps)	10.19
			Min. Velocity (fps)	10.19
Discharge (cfs)	8.00		Max. Velocity (fps)	10.22
Diameter (inches)	12		Normal Velocity (fps)	10.19
Ineffective Depth (ft)	0.00		Crit. Velocity (fps)	10.22
Length (feet)	161			
Manning n	0.023			
Entrance Vel. (fps)	6.00			
Entrance Loss (Ke)	0.50			
Slope	0.0247826			



Standard Step Backwater Analysis

System: **Big Lake J20**
 Design Event: **25-yr Ex**

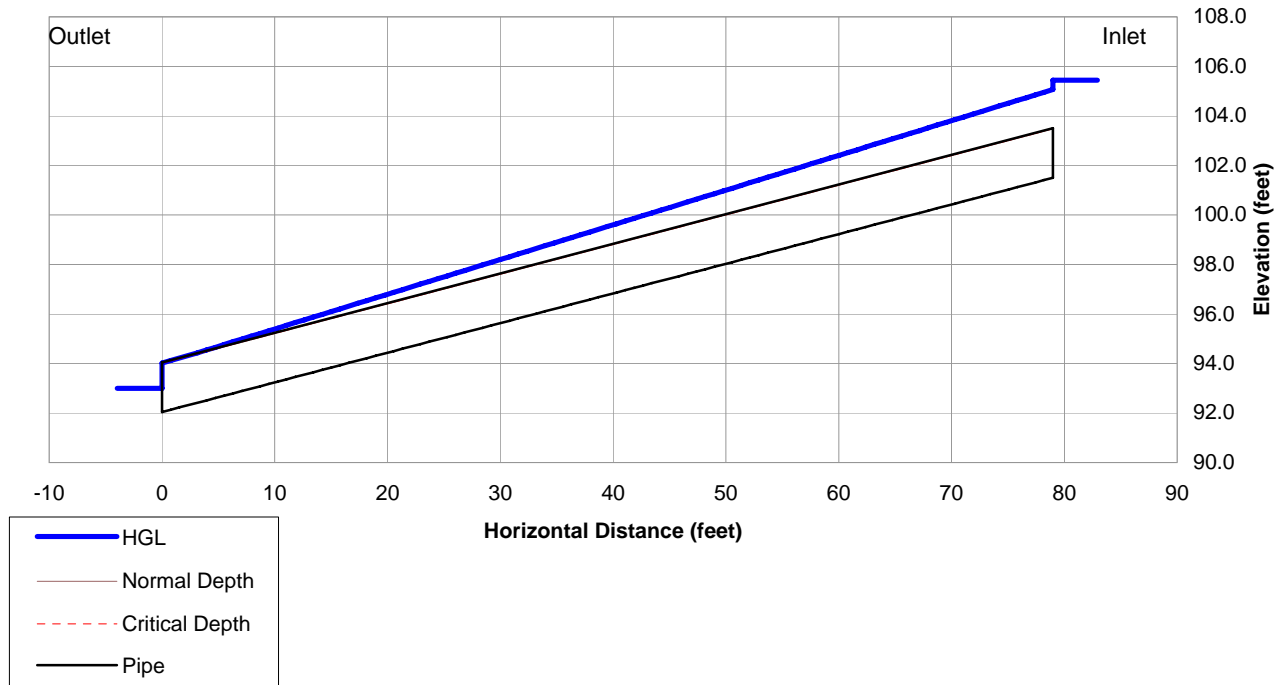
	<u>Outlet</u>	<u>Inlet</u>		
Identification	5425	1686W	Normal Depth (ft)	3.00
Rim/Overflow Elev. (ft)	-	114.42	Critical Depth (ft)	2.94
Invert Elevation (ft)	105.77	105.92	Froude No.	1.00
Water Surf. Elev. (ft)	106.00	114.42	Avg. Velocity (fps)	16.13
			Min. Velocity (fps)	16.13
Discharge (cfs)	114.00		Max. Velocity (fps)	16.21
Diameter (inches)	36		Normal Velocity (fps)	16.13
Ineffective Depth (ft)	0.00		Crit. Velocity (fps)	16.21
Length (feet)	45			
Manning n	0.023			
Entrance Vel. (fps)	6.00			
Entrance Loss (Ke)	0.50			
Slope	0.0033333			



Standard Step Backwater Analysis

System: **Big Lake J19**
 Design Event: **25-yr Ex**

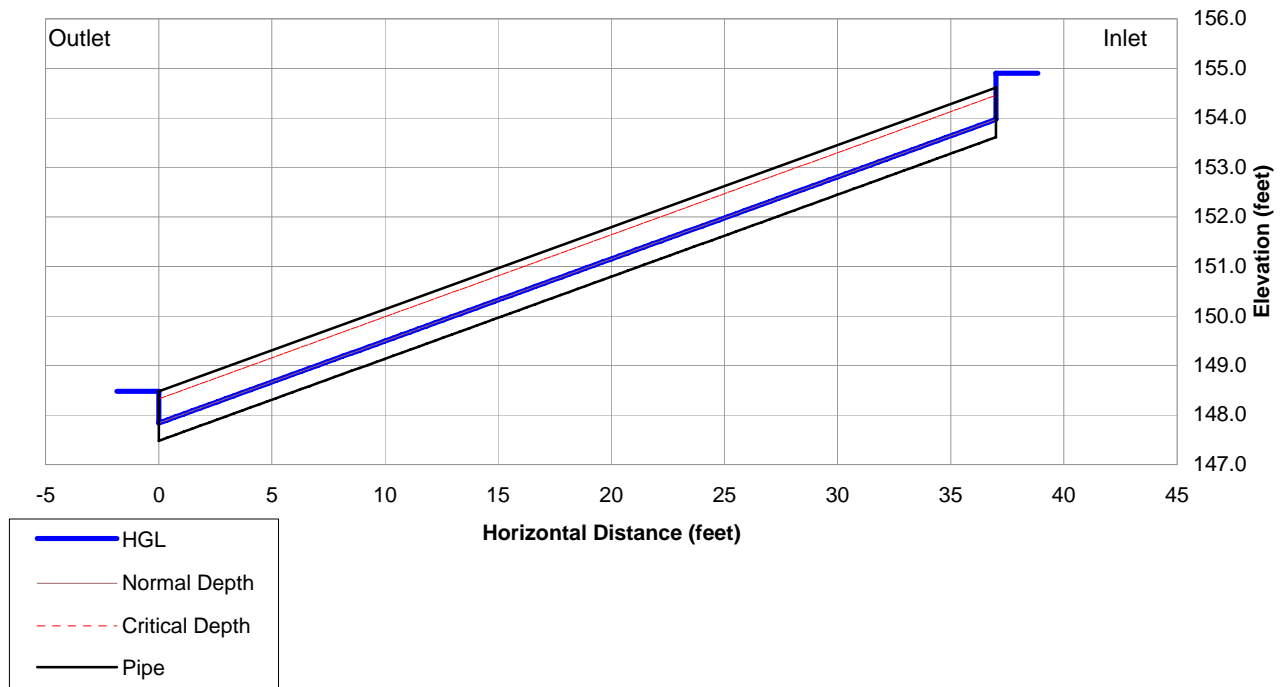
	<u>Outlet</u>	<u>Inlet</u>		
Identification	5272	1805	Normal Depth (ft)	2.00
Rim/Overflow Elev. (ft)	-	105.50	Critical Depth (ft)	1.98
Invert Elevation (ft)	92.04	101.50	Froude No.	1.00
Water Surf. Elev. (ft)	93.00	105.44	Avg. Velocity (fps)	15.28
			Min. Velocity (fps)	15.28
Discharge (cfs)	48.00		Max. Velocity (fps)	15.31
Diameter (inches)	24		Normal Velocity (fps)	15.28
Ineffective Depth (ft)	0.00		Crit. Velocity (fps)	15.31
Length (feet)	79			
Manning n	0.023			
Entrance Vel. (fps)	15.00			
Entrance Loss (Ke)	0.50			
Slope	0.1197468			



Standard Step Backwater Analysis

System: **Big Lake B24d**
 Design Event: **25-yr Ex**

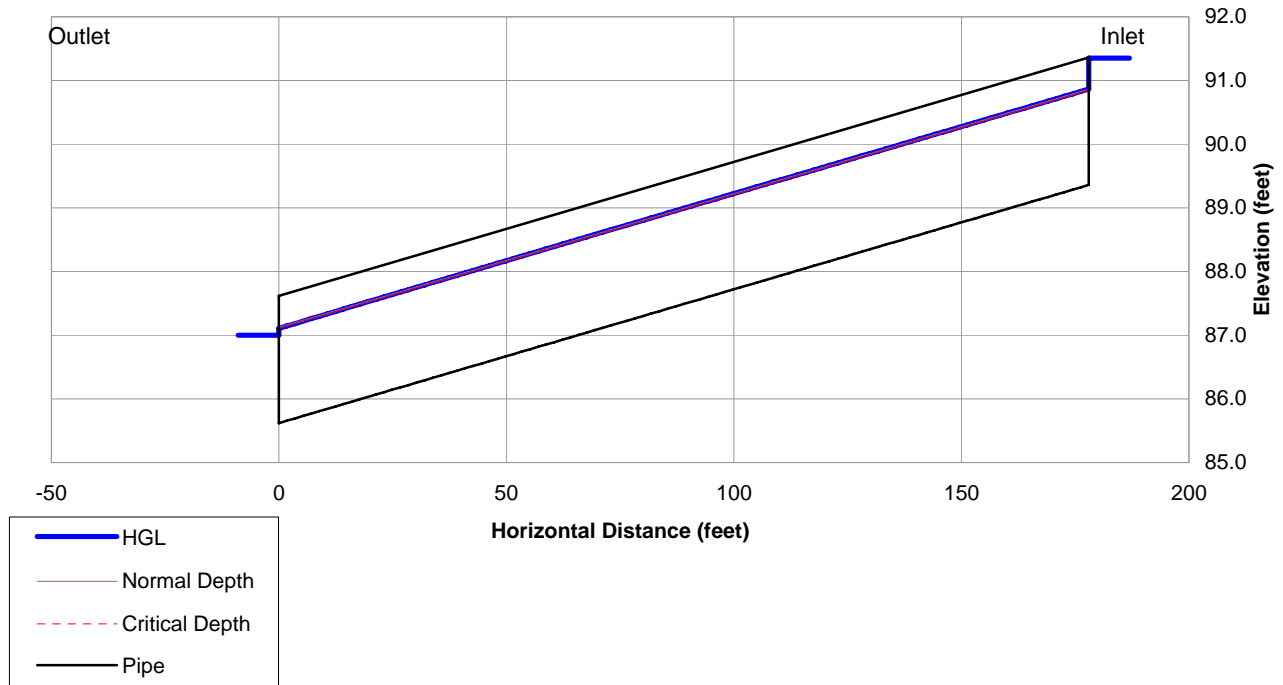
	<u>Outlet</u>	<u>Inlet</u>		
Identification	1558	1486	Normal Depth (ft)	0.36
Rim/Overflow Elev. (ft)	-	154.91	Critical Depth (ft)	0.85
Invert Elevation (ft)	147.48	153.61	Froude No.	5.42
Water Surf. Elev. (ft)	148.48	154.90	Avg. Velocity (fps)	15.81
			Min. Velocity (fps)	15.81
Discharge (cfs)	4.00		Max. Velocity (fps)	15.81
Diameter (inches)	12		Normal Velocity (fps)	15.81
Ineffective Depth (ft)	0.00		Crit. Velocity (fps)	5.64
Length (feet)	37			
Manning n	0.013			
Entrance Vel. (fps)	13.00			
Entrance Loss (Ke)	0.90			
Slope	0.1656757			



Standard Step Backwater Analysis

System: **Big Lake BL2**
 Design Event: **25-yr Ex**

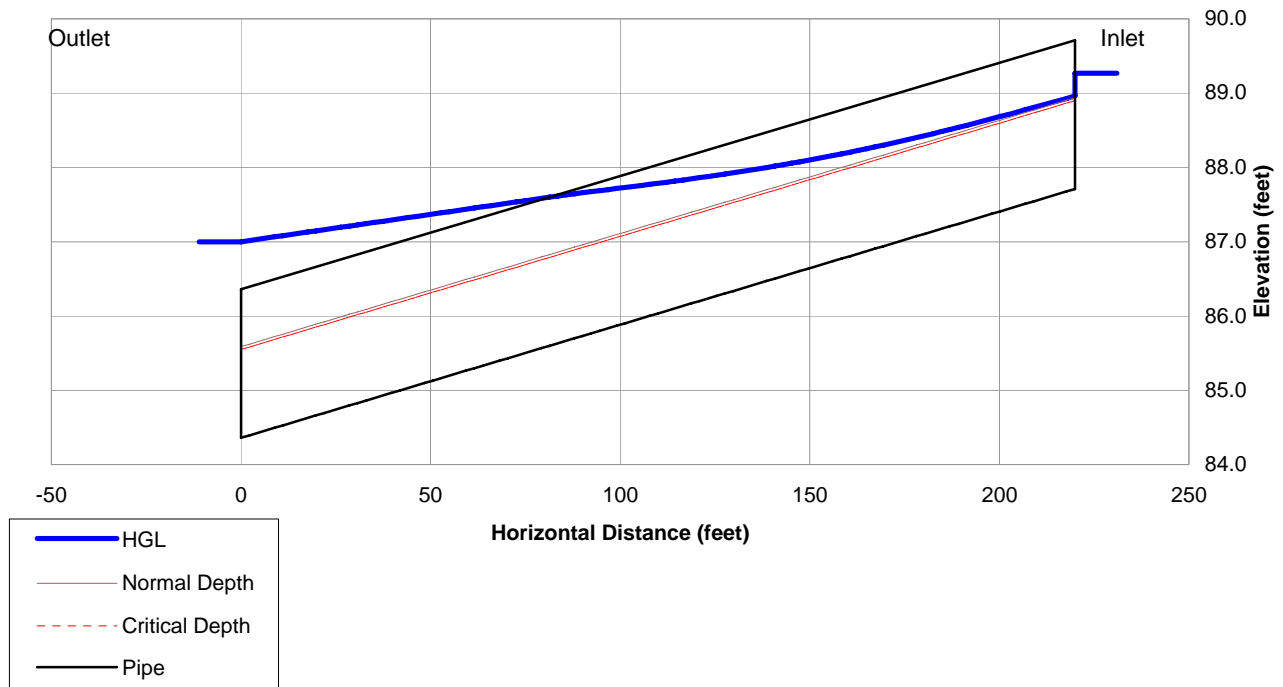
	<u>Outlet</u>	<u>Inlet</u>		
Identification	5272	5271	Normal Depth (ft)	1.50
Rim/Overflow Elev. (ft)	-	106.70	Critical Depth (ft)	1.49
Invert Elevation (ft)	85.62	89.36	Froude No.	0.98
Water Surf. Elev. (ft)	87.00	91.35	Avg. Velocity (fps)	6.72
			Min. Velocity (fps)	6.71
Discharge (cfs)	17.00		Max. Velocity (fps)	6.79
Diameter (inches)	24		Normal Velocity (fps)	6.71
Ineffective Depth (ft)	0.00		Crit. Velocity (fps)	6.79
Length (feet)	178			
Manning n	0.023			
Entrance Vel. (fps)	12.34			
Entrance Loss (Ke)	0.70			
Slope	0.0210112			



Standard Step Backwater Analysis

System: **Big Lake BL4**
 Design Event: **25-yr Ex**

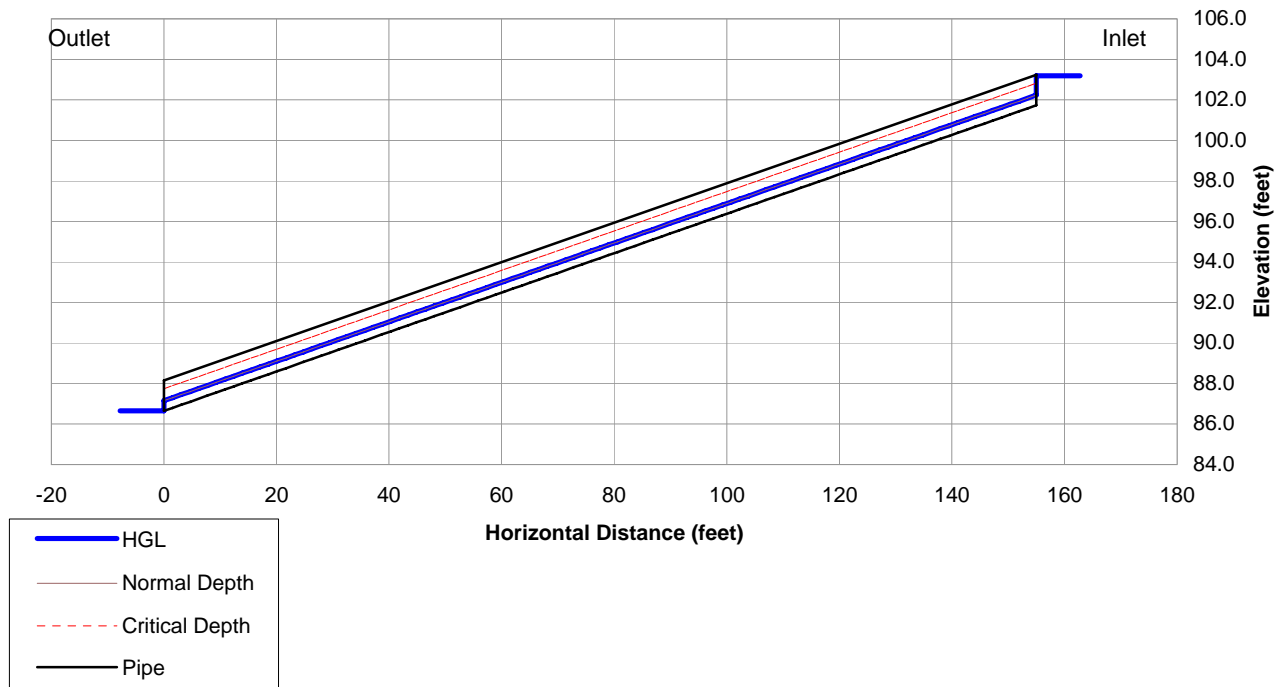
	<u>Outlet</u>	<u>Inlet</u>		
Identification	5272	5271	Normal Depth (ft)	1.23
Rim/Overflow Elev. (ft)	-	106.70	Critical Depth (ft)	1.19
Invert Elevation (ft)	84.36	87.71	Froude No.	0.94
Water Surf. Elev. (ft)	87.00	89.27	Avg. Velocity (fps)	4.11
			Min. Velocity (fps)	3.50
Discharge (cfs)	11.00		Max. Velocity (fps)	5.32
Diameter (inches)	24		Normal Velocity (fps)	5.44
Ineffective Depth (ft)	0.00		Crit. Velocity (fps)	5.65
Length (feet)	220			
Manning n	0.023			
Entrance Vel. (fps)	12.34			
Entrance Loss (Ke)	0.70			
Slope	0.0152273			



Standard Step Backwater Analysis

System: **Big Lake BL29**
 Design Event: **25-yr Ex**

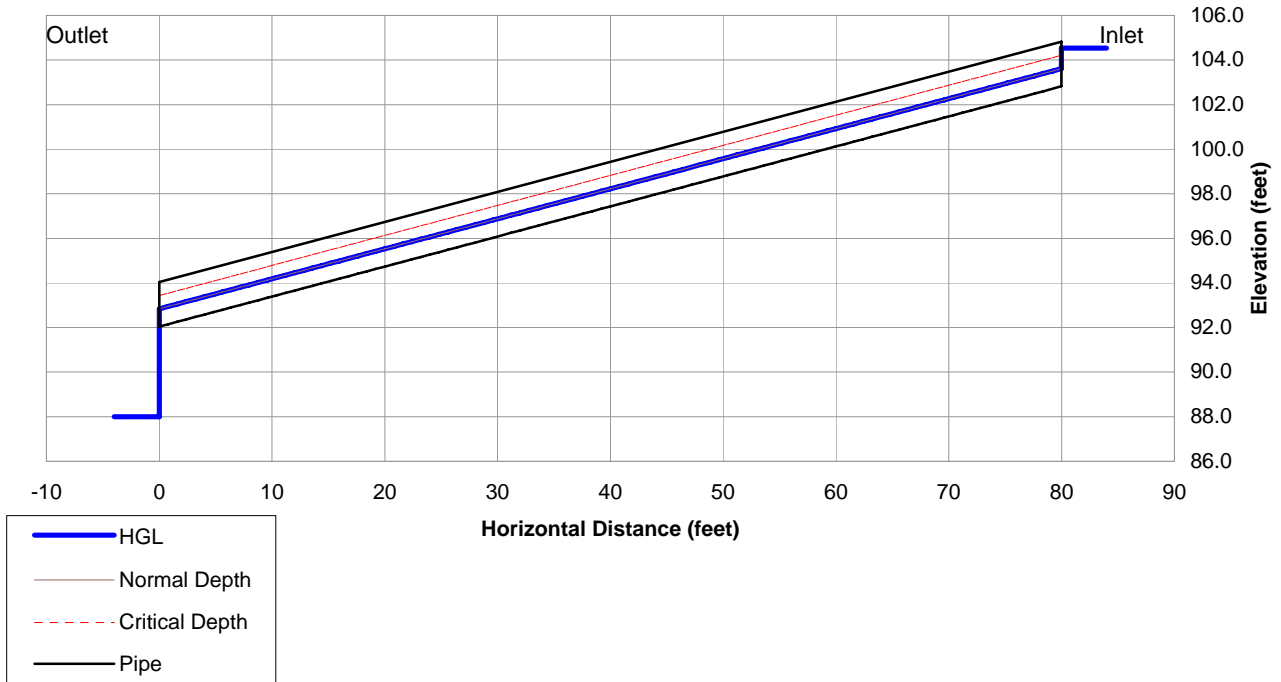
	<u>Outlet</u>	<u>Inlet</u>		
Identification	5272	5271	Normal Depth (ft)	0.50
Rim/Overflow Elev. (ft)	-	106.70	Critical Depth (ft)	1.10
Invert Elevation (ft)	86.65	101.73	Froude No.	4.46
Water Surf. Elev. (ft)	86.65	103.19	Avg. Velocity (fps)	15.34
Discharge (cfs)	8.00		Min. Velocity (fps)	15.34
Diameter (inches)	18		Max. Velocity (fps)	15.34
Ineffective Depth (ft)	0.00		Normal Velocity (fps)	15.34
Length (feet)	155		Crit. Velocity (fps)	5.78
Manning n	0.013			
Entrance Vel. (fps)	12.34			
Entrance Loss (Ke)	0.70			
Slope	0.0972903			



Standard Step Backwater Analysis

System: **Big Lake 5272**
 Design Event: **25-yr Ex**

	<u>Outlet</u>	<u>Inlet</u>		
Identification	5272	5271	Normal Depth (ft)	0.79
Rim/Overflow Elev. (ft)	-	-	Critical Depth (ft)	1.40
Invert Elevation (ft)	92.04	102.82	Froude No.	2.95
Water Surf. Elev. (ft)	88.00	104.53	Avg. Velocity (fps)	12.91
Discharge (cfs)	15.00		Min. Velocity (fps)	12.91
Diameter (inches)	24		Max. Velocity (fps)	12.91
Ineffective Depth (ft)	0.00		Normal Velocity (fps)	12.91
Length (feet)	80		Crit. Velocity (fps)	6.41
Manning n	0.024			
Entrance Vel. (fps)	12.34			
Entrance Loss (Ke)	0.50			
Slope	0.13475			



Standard Step Backwater Analysis

System: **Big Lake BL19**
 Design Event: **25-yr Ex**

	<u>Outlet</u>	<u>Inlet</u>		
Identification	1494	1495	Normal Depth (ft)	1.50
Rim/Overflow Elev. (ft)	-	145.46	Critical Depth (ft)	1.29
Invert Elevation (ft)	143.36	143.46	Froude No.	1.00
Water Surf. Elev. (ft)	144.70	145.46	Avg. Velocity (fps)	6.53
Discharge (cfs)	11.50		Min. Velocity (fps)	6.51
Diameter (inches)	18		Max. Velocity (fps)	6.90
Ineffective Depth (ft)	0.00		Normal Velocity (fps)	6.51
Length (feet)	38		Crit. Velocity (fps)	7.10
Manning n	0.023			
Entrance Vel. (fps)	8.00			
Entrance Loss (Ke)	0.90			
Slope	0.0026316			

