

Date: January 4, 2022 Job No.: 2651
To: Keith Rondeau, Chairperson
Cc:
From: Nicole B. Iannuzzi, PE – Associate
Subject: Comment Responses for Greenbrier II (Hancock Associates Comments December 20, 2021)

REVISED PLAN COMMENTS:

1. No responses were provided for comments 1-3, 5, 8, 11, 14, 16, & 17 within H.A. review letter dated 11/23/21. These comments pertain to substandard roadway slopes, walkways potentially impeded by the front end of vehicles, snow storage, and sewer/fire service connections.

Response: Beta Group was only responsible for the drainage aspects of this project and addressed all pertinent drainage questions from the review letter dated 11/23/2021. Caputo and Wick will be addressing the remainder of the comments. The drainage responses were submitted ahead of time to ensure proper review time before the zoning board meeting.

2. There is insufficient slope for the drainpipe leaving CB-4 (0.1' drop over 57' ~ 0.2%).

Response: The pipe slope has been revised to provide 0.2' drop over 57.'

3. Per MassDEP Stormwater Handbook Volume 3, Chapter 1. "the 80% TSS removal rate must be at each outlet discharging to a receiving wetland". The Stormwater calcs depict deficits for Watersheds 3 and B.

Response: Watershed B consists of the existing parking lot and access road of the former Cinema showcase property and has been revised to "Watershed 7" as it is shown on the Proposed Watershed plans. The overflow from Basin 2 (Watershed 3) and Watershed 7 both contribute flow to the existing Showcase Cinema drainage system. As previously shown, the proposed project will contribute much less flow to existing system under proposed conditions. In addition to the decrease in flow, the majority of the stormwater that is discharging to this system is now being treated. There is no treatment under existing conditions. Appendix D of the Stormwater Report includes the TSS Removal Worksheets, which indicate that Basin 1 and Basin 3 result in 97% and Basin 2 results in 89% TSS removal. Overall the project well exceeds the required 80% removal requirement. The entire project watershed contributes flow to the Runnins River and is a part of the overall Narragansett Bay Watershed. The BMPs have been designed to improve the water quality within the project area and overall watershed under proposed conditions and therefore meets the intent of the DEP Stormwater Management Policy.

4. Watershed 6R "Showcase" is the largest watershed for the site and last design node within the HydroCAD model. The existing pipe that is receiving this watershed should be modeled to ascertain the pipe size and slope are sufficient to handle the final design storm

Response: As requested at the last meeting, calculations utilizing the rational method have been attached. The capacity from two downstream pipes within the existing system is as follows:

- 30" pipe downstream of Basin 2B
 - o Existing capacity is 27 cfs
 - o 100 Year Design flow from proposed project is 20 cfs

- 36" pipe at analysis point
 - o Existing capacity is 32 cfs, existing 25-year flow is 47 cfs
 - o 25-Year Design flow from proposed project is 31.3 cfs

Project Description

File Name 2651 Proposed SSA Revised Design.SPF

Analysis Options

Flow Units cfs
Subbasin Hydrograph Method. Rational
Time of Concentration..... User-Defined
Return Period..... 25 years
Link Routing Method Kinematic Wave
Storage Node Exfiltration.. None
Starting Date OCT-19-2021 00:00:00
Ending Date OCT-20-2021 00:00:00
Report Time Step 00:00:10

Element Count

Number of subbasins 44
Number of nodes 82
Number of links 95

Subbasin Summary

Subbasin Total
 Area
ID acres

CATCHMENT-24N 0.14
Sub-B3 0.20
Sub-B6 0.16
Sub-CB-10E 0.12
Sub-CB-11W 0.37
Sub-CB-12W 0.16
Sub-CB-13S 0.28
Sub-CB-14W 0.29
Sub-CB-16E 0.19
Sub-CB-16S 0.20
Sub-CB-17E 0.11
Sub-CB-17W 0.19
Sub-CB-19N 0.19
Sub-CB-19S 0.10
Sub-CB-19W 0.29
Sub-CB-1S 0.47
Sub-CB-23N 0.19
Sub-CB-24S 0.28
Sub-CB-25E 0.13

Sub-CB-25W	0.18
Sub-CB-26E	0.32
Sub-CB-27E	0.36
Sub-CB-28E	0.13
Sub-CB-2W	0.19
Sub-CB-3W	0.14
Sub-CB-4	0.25
Sub-DGCB-15E	0.21
Sub-DGCB-15W	0.29
Sub-RL-B1	0.12
Sub-RL-B1A	0.12
Sub-RL-B1B	0.12
Sub-RL-B2A	0.13
Sub-RL-B2B	0.13
Sub-RL-B3N	0.10
Sub-RL-B4	0.12
Sub-RLB4A	0.12
Sub-RL-B4B	0.12
Sub-RL-B5	0.16
Sub-RL-B5A	0.16
Sub-RL-B6A	0.16
Sub-RL-B7	0.13
Sub-RL-B7C	0.13
Sub-YD-B4	0.07
Sub-YD-B4E	0.07

Node Summary

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft ²	External Inflow
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DIVERSION □ DMH-2	JUNCTION	45.00	49.30	0.00	
DMH-1	JUNCTION	41.90	46.20	0.00	
DMH-10	JUNCTION	41.60	45.50	0.00	
DMH-11	JUNCTION	41.80	45.70	0.00	
DMH-12	JUNCTION	42.30	45.75	0.00	
DMH-13	JUNCTION	42.70	46.40	0.00	
DMH-14	JUNCTION	43.10	46.70	0.00	
DMH-15	JUNCTION	43.80	48.20	0.00	
DMH-16	JUNCTION	44.90	49.50	0.00	
DMH-17	JUNCTION	45.90	50.40	0.00	
DMH-19	JUNCTION	43.50	47.00	0.00	
DMH-2	JUNCTION	42.50	47.90	0.00	
DMH-20	JUNCTION	46.60	50.20	0.00	
DMH-20A	JUNCTION	45.60	49.20	0.00	
DMH-21	JUNCTION	47.00	51.40	0.00	
DMH-22	JUNCTION	48.40	53.30	0.00	
DMH-23	JUNCTION	49.40	53.80	0.00	
DMH-24	JUNCTION	50.80	55.20	0.00	
DMH-25	JUNCTION	51.30	55.60	0.00	
DMH-26	JUNCTION	51.50	55.80	0.00	
DMH-27	JUNCTION	52.70	57.10	0.00	
DMH-28	JUNCTION	54.90	59.00	0.00	
DMH-3	JUNCTION	43.40	48.60	0.00	

DMH-B3	JUNCTION	50.50	54.10	0.00
DMH-B3N	JUNCTION	50.80	54.10	0.00
RL-B1A	JUNCTION	47.20	49.30	10.00
RL-B1B	JUNCTION	47.20	49.30	10.00
RL-B2	JUNCTION	42.75	46.20	10.00
RL-B2A	JUNCTION	43.40	46.20	10.00
RL-B2B	JUNCTION	43.90	46.20	10.00
RL-B3N	JUNCTION	51.20	54.20	0.00
RL-B4A	JUNCTION	43.50	46.50	10.00
RL-B4B	JUNCTION	43.50	46.50	10.00
RL-B5	JUNCTION	41.50	44.50	10.00
RL-B5A	JUNCTION	41.90	44.50	0.00
RL-B6	JUNCTION	42.10	45.25	10.00
RL-B6A	JUNCTION	42.10	45.20	10.00
RL-B6B	JUNCTION	42.45	45.20	10.00
RL-B7	JUNCTION	50.40	53.00	10.00
RL-B7A	JUNCTION	50.60	53.00	10.00
RL-B7B	JUNCTION	50.70	53.00	10.00
RL-B7C	JUNCTION	51.50	53.00	10.00
STORMCEPTOR □ 2	JUNCTION	39.50	44.10	0.00
YD-B5C	JUNCTION	42.00	44.60	0.00
BYPASS-RLB1	OUTFALL	47.70	47.95	0.00
Out-01	OUTFALL	42.70	42.94	0.00
Out-1Pipe □-□ (87)	OUTFALL	46.00	46.67	0.00
Out-1Pipe □-□ (94)	OUTFALL	41.75	43.00	0.00
Out-1Pipe □-□ B5	OUTFALL	41.50	42.75	0.00
Out-1Pipe □-□ DMH-10	OUTFALL	41.50	43.25	0.00
Out-1Pipe □-□ S2	OUTFALL	45.70	47.20	0.00
Out-1Pipe □-□ Storm2	OUTFALL	41.50	42.50	0.00

Inlet Summary

Inlet ID	Inlet Manufacturer	Manufacturer Part Number	Inlet Location	Number of Inlets	Catchbasin Invert Elevation ft	Inlet Rim Elevation ft	Ponded Area ft ²	Initial Water Elevation ft	Grate Clogging Factor %
CB-10E	FHWA HEC-22 GENERIC	N/A	On Grade	1	38.00	45.50	-	42.00	0.00
CB-11W	FHWA HEC-22 GENERIC	N/A	On Sag	1	38.35	45.40	100.00	42.35	0.00
CB-12W	FHWA HEC-22 GENERIC	N/A	On Grade	1	38.60	45.60	-	42.60	0.00
CB-13S	MAXIMUM CAPTURE CUTOFF	N/A	On Grade	2	39.10	46.10	-	43.10	0.00
CB-14W	FHWA HEC-22 GENERIC	N/A	On Grade	1	39.30	46.70	-	43.30	0.00
CB-15W	MAXIMUM CAPTURE CUTOFF	N/A	On Grade	1	40.00	48.10	-	44.00	0.00
CB-16E	MAXIMUM CAPTURE CUTOFF	N/A	On Grade	1	41.30	52.20	-	45.30	0.00
CB-16S	FHWA HEC-22 GENERIC	N/A	On Grade	1	41.20	49.30	-	45.20	0.00
CB-17S	FHWA HEC-22 GENERIC	N/A	On Grade	1	42.20	50.30	-	46.20	0.00
CB-17W	NEENAH FOUNDRY	R 3589 LR4 Type L	On Grade	1	42.60	50.80	-	46.60	-
CB-19N	FHWA HEC-22 GENERIC	N/A	On Grade	1	40.00	47.70	-	44.00	0.00
CB-19W	FHWA HEC-22 GENERIC	N/A	On Sag	1	39.90	47.20	100.00	43.90	0.00
CB-1S	FHWA HEC-22 GENERIC	N/A	On Sag	1	38.00	46.10	10.00	42.00	0.00
CB-20S	FHWA HEC-22 GENERIC	N/A	On Sag	1	42.30	48.70	20.00	46.30	0.00
CB-23N	FHWA HEC-22 GENERIC	N/A	On Sag	1	45.80	53.70	30.00	49.80	0.00
CB-24N	FHWA HEC-22 GENERIC	N/A	On Grade	1	47.00	55.10	-	51.00	0.00
CB-24S	MAXIMUM CAPTURE CUTOFF	N/A	On Grade	1	47.30	55.50	-	51.30	0.00
CB-25E	FHWA HEC-22 GENERIC	N/A	On Grade	1	47.70	55.80	-	51.70	0.00

CB-25W	FHWA HEC-22 GENERIC	N/A	On Grade	1	47.50	55.60	-	51.50	0.00
CB-26E	MAXIMUM CAPTURE CUTOFF	N/A	On Grade	1	47.70	55.70	-	51.70	0.00
CB-27E	MAXIMUM CAPTURE CUTOFF	N/A	On Grade	1	48.90	57.00	-	52.90	0.00
CB-28E	FHWA HEC-22 GENERIC	N/A	On Sag	1	51.20	59.30	100.00	55.20	0.00
CB-2W	FHWA HEC-22 GENERIC	N/A	On Sag	1	38.70	47.80	10.00	42.70	0.00
CB-3W	FHWA HEC-22 GENERIC	N/A	On Grade	1	39.70	48.50	-	43.70	0.00
CB-4	FHWA HEC-22 GENERIC	N/A	On Grade	1	36.10	43.70	-	40.10	0.00
DGCB-15E	NEENAH FOUNDRY	R 3588 LR Type L	On Grade	2	40.10	49.05	-	44.10	-
RL-B1	MAXIMUM CAPTURE CUTOFF	N/A	On Grade	1	46.50	49.00	-	47.00	0.00
RL-B4	MAXIMUM CAPTURE CUTOFF	N/A	On Grade	1	39.00	46.30	-	43.00	0.00
YD-B4	FHWA HEC-22 GENERIC	N/A	On Sag	1	39.00	46.50	10.00	43.00	0.00
YD-B4E	FHWA HEC-22 GENERIC	N/A	On Sag	1	39.60	46.50	10.00	43.60	0.00

Link Summary

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Link-26	RL-B3N	DMH-B3N	CONDUIT	128.7	0.3886	0.0130
Link-27	DMH-B3N	DMH-B3	CONDUIT	38.4	0.5208	0.0130
Pipe □-□(100)	CB-2W	DMH-2	CONDUIT	35.8	0.5579	0.0130
Pipe □-□(101)	DMH-3	DMH-2	CONDUIT	121.6	0.5758	0.0130
Pipe □-□(102)	RL-B4	DMH-12	CONDUIT	58.5	0.8549	0.0120
Pipe □-□(103)	RL-B5	Out-1Pipe □-□ B5	CONDUIT	29.9	0.3346	0.0120
Pipe □-□(104)	YD-B5C	RL-B5	CONDUIT	148.0	0.3378	0.0120
Pipe □-□(105)	RL-B5A	RL-B5	CONDUIT	31.7	0.6302	0.0120
Pipe □-□(106)	STORMCEPTOR □ 2	Out-1Pipe □-□ Storm2	CONDUIT	7.0	0.4286	0.0130
Pipe □-□(107)	CB-4	STORMCEPTOR □ 2	CONDUIT	55.7	0.3592	0.0130
Pipe □-□(108)	CB-12W	DMH-12	CONDUIT	32.0	0.3127	0.0130
Pipe □-□(109)	CB-17S	DMH-17	CONDUIT	30.9	0.6471	0.0130
Pipe □-□(110)	CB-13S	DMH-13	CONDUIT	31.9	0.6277	0.0130
Pipe □-□(112)	CB-28E	DMH-28	CONDUIT	39.9	0.5009	0.0130
Pipe □-□(113)	CB-27E	DMH-27	CONDUIT	12.0	0.8334	0.0130
Pipe □-□(123)	RL-B6A	RL-B6	CONDUIT	122.5	0.2857	0.0120
Pipe □-□(124)	RL-B2	RL-B6B	CONDUIT	25.9	0.7712	0.0120
Pipe □-□(125)	RL-B2A	RL-B2	CONDUIT	89.4	0.6149	0.0120
Pipe □-□(126)	RL-B2B	RL-B2A	CONDUIT	103.1	0.4851	0.0120
Pipe □-□(127)	RL-B6	YD-B5C	CONDUIT	25.1	0.3987	0.0120
Pipe □-□(63)	DMH-16	DMH-15	CONDUIT	144.0	0.4861	0.0130
Pipe □-□(67)	RL-B6B	RL-B6A	CONDUIT	122.5	0.2000	0.0120
Pipe □-□(87)	RL-B1	Out-1Pipe □-□(87)	CONDUIT	29.9	3.3414	0.0120
Pipe □-□(88)	RL-B1B	RL-B1	CONDUIT	76.6	0.3919	0.0120
Pipe □-□(89)	RL-B1A	RL-B1	CONDUIT	126.1	0.3965	0.0120
Pipe □-□(94)	DMH-1	Out-1Pipe □-□(94)	CONDUIT	20.3	0.7376	0.0130
Pipe □-□(95)	DMH-2	DMH-1	CONDUIT	134.7	0.4455	0.0130
Pipe □-□(97)	CB-1S	DMH-1	CONDUIT	8.8	1.1370	0.0120
Pipe □-□(98)	CB-10E	DMH-10	CONDUIT	14.0	0.7144	0.0130
Pipe □-□ 12	DMH-15	DMH-14	CONDUIT	173.3	0.5769	0.0130
Pipe □-□ 12W	CB-15W	DMH-15	CONDUIT	32.3	0.6198	0.0130
Pipe □-□ 13	DMH-13	DMH-12	CONDUIT	99.3	0.4029	0.0130

Pipe □-□ 13 □(1)	DMH-14	DMH-13	CONDUIT	42.7	0.3978	0.0120
Pipe □-□ 13S	CB-14W	DMH-14	CONDUIT	37.6	0.5324	0.0130
Pipe □-□ 14S	CB-11W	DMH-11	CONDUIT	30.9	0.4856	0.0130
Pipe □-□ 15E	DGCB-15E	DMH-15	CONDUIT	53.1	0.4712	0.0130
Pipe □-□ 16E	CB-19N	DMH-19	CONDUIT	60.5	0.3308	0.0130
Pipe □-□ 17	DMH-19	DMH-14	CONDUIT	51.2	0.3908	0.0130
Pipe □-□ 17W	CB-19W	DMH-19	CONDUIT	25.5	0.7830	0.0130
Pipe □-□ 18AN	CB-16E	DMH-16	CONDUIT	53.0	0.7552	0.0130
Pipe □-□ 18AS	CB-16S	DMH-16	CONDUIT	31.0	0.9691	0.0130
Pipe □-□ 19	DMH-17	DMH-16	CONDUIT	98.9	0.8090	0.0130
Pipe □-□ 19W	CB-17W	DMH-17	CONDUIT	62.5	0.9608	0.0120
Pipe □-□ 20S	CB-20S	DMH-20	CONDUIT	95.0	0.2630	0.0120
Pipe □-□ 21	DMH-21	DMH-20	CONDUIT	98.7	0.6588	0.0130
Pipe □-□ 22	DMH-22	DMH-21	CONDUIT	114.3	1.0495	0.0130
Pipe □-□ 23	DMH-23	DMH-22	CONDUIT	88.2	0.9072	0.0130
Pipe □-□ 23N	CB-23N	DMH-23	CONDUIT	31.9	0.4698	0.0130
Pipe □-□ 24	DMH-24	DMH-23	CONDUIT	87.4	1.2015	0.0150
Pipe □-□ 24S	CB-24S	DMH-24	CONDUIT	28.2	1.0644	0.0130
Pipe □-□ 25	DMH-25	DMH-24	CONDUIT	74.9	0.6006	0.0130
Pipe □-□ 25W	CB-25W	DMH-25	CONDUIT	10.8	0.9245	0.0130
Pipe □-□ 26	DMH-26	DMH-25	CONDUIT	25.5	0.3929	0.0130
Pipe □-□ 26E	CB-26E	DMH-26	CONDUIT	15.2	0.6562	0.0130
Pipe □-□ 26E1	CB-25E	DMH-25	CONDUIT	49.5	0.6059	0.0130
Pipe □-□ 27	DMH-27	DMH-26	CONDUIT	102.2	1.0761	0.0130
Pipe □-□ 28	DMH-28	DMH-27	CONDUIT	143.3	1.3261	0.0130
Pipe □-□ 3W	CB-3W	DMH-3	CONDUIT	32.8	0.6091	0.0130
Pipe □-□ DDMH-2	DIVERSION □ DMH-2	DMH-20A	CONDUIT	7.4	1.3570	0.0130
Pipe □-□ DMH-12	DMH-12	DMH-11	CONDUIT	120.7	0.4144	0.0130
Pipe □-□ DMH-14A	DMH-10	Out-1Pipe □-□ DMH-10	CONDUIT	18.1	0.5533	0.0130
Pipe □-□ DMH-14A □(1)DMH-11	DMH-10	DMH-10	CONDUIT	50.9	0.3931	0.0130
Pipe □-□ DMH-20	DMH-20	DIVERSION □ DMH-2	CONDUIT	117.9	0.5513	0.0130
Pipe □-□ DMH-20A	DMH-20A	Out-1Pipe □-□ S2	CONDUIT	18.6	0.8071	0.0130
Pipe □-□ RL-B4A	RL-B4A	RL-B4	CONDUIT	110.8	0.5415	0.0120
Pipe □-□ RL-B4B	RL-B4B	RL-B4	CONDUIT	77.9	0.6422	0.0120
Pipe □-□ RL-B7	RL-B7	DMH-23	CONDUIT	41.1	0.9742	0.0120
Pipe □-□ RL-B7A	RL-B7A	RL-B7	CONDUIT	35.5	0.5629	0.0120
Pipe □-□ RL-B7B	RL-B7B	RL-B7A	CONDUIT	26.1	0.7667	0.0120
Pipe □-□ RL-B7C	RL-B7C	RL-B7B	CONDUIT	116.3	0.6018	0.0120
PIPE-24N	CB-24N	DMH-24	CONDUIT	11.4	0.8757	0.0150
PIPE-B3	DMH-B3	CB-23N	CONDUIT	79.6	0.8797	0.0130
PIPE-YDB4	YD-B4	CB-2W	CONDUIT	68.2	0.4399	0.0150
PIPE-YDB4E	YD-B4E	YD-B4	CONDUIT	139.0	0.4317	0.0150

Cross Section Summary

Link ID	Shape	Depth/ Diameter	Width	No. of Barrels	Cross Sectional Area	Full Flow Hydraulic Radius	Design Flow Capacity
		ft	ft		ft ²	ft	cfs

Link-26	CIRCULAR	0.67	0.67	1	0.35	0.17	0.75
Link-27	CIRCULAR	1.00	1.00	1	0.79	0.25	2.57
Pipe □-□(100)	CIRCULAR	1.00	1.00	1	0.79	0.25	2.66
Pipe □-□(101)	CIRCULAR	1.00	1.00	1	0.79	0.25	2.70
Pipe □-□(102)	CIRCULAR	1.00	1.00	1	0.79	0.25	3.57
Pipe □-□(103)	CIRCULAR	1.25	1.25	2	1.23	0.31	4.05
Pipe □-□(104)	CIRCULAR	1.00	1.00	2	0.79	0.25	2.24
Pipe □-□(105)	CIRCULAR	1.00	1.00	1	0.79	0.25	3.06
Pipe □-□(106)	CIRCULAR	1.00	1.00	1	0.79	0.25	2.33
Pipe □-□(107)	CIRCULAR	1.00	1.00	1	0.79	0.25	2.14
Pipe □-□(108)	CIRCULAR	1.00	1.00	1	0.79	0.25	1.99
Pipe □-□(109)	CIRCULAR	1.00	1.00	1	0.79	0.25	2.87
Pipe □-□(110)	CIRCULAR	1.00	1.00	1	0.79	0.25	2.82
Pipe □-□(112)	CIRCULAR	1.00	1.00	1	0.79	0.25	2.52
Pipe □-□(113)	CIRCULAR	1.00	1.00	1	0.79	0.25	3.25
Pipe □-□(123)	CIRCULAR	1.25	1.25	1	1.23	0.31	3.74
Pipe □-□(124)	CIRCULAR	1.00	1.00	1	0.79	0.25	3.39
Pipe □-□(125)	CIRCULAR	1.00	1.00	1	0.79	0.25	3.03
Pipe □-□(126)	CIRCULAR	1.00	1.00	1	0.79	0.25	2.69
Pipe □-□(127)	CIRCULAR	1.25	1.25	1	1.23	0.31	4.42
Pipe □-□(63)	CIRCULAR	1.25	1.25	1	1.23	0.31	4.50
Pipe □-□(67)	CIRCULAR	1.25	1.25	1	1.23	0.31	3.13
Pipe □-□(87)	CIRCULAR	0.67	0.67	1	0.35	0.17	2.39
Pipe □-□(88)	CIRCULAR	0.67	0.67	1	0.35	0.17	0.82
Pipe □-□(89)	CIRCULAR	0.67	0.67	1	0.35	0.17	0.82
Pipe □-□(94)	CIRCULAR	1.25	1.25	1	1.23	0.31	5.55
Pipe □-□(95)	CIRCULAR	1.25	1.25	1	1.23	0.31	4.31
Pipe □-□(97)	CIRCULAR	1.00	1.00	1	0.79	0.25	4.12
Pipe □-□(98)	CIRCULAR	1.00	1.00	1	0.79	0.25	3.01
Pipe □-□ 12	CIRCULAR	1.50	1.50	1	1.77	0.38	7.98
Pipe □-□ 12W	CIRCULAR	1.00	1.00	1	0.79	0.25	2.80
Pipe □-□ 13	CIRCULAR	1.67	1.67	2	2.18	0.42	8.83
Pipe □-□ 13 □(1)	CIRCULAR	1.50	1.50	2	1.77	0.38	7.18
Pipe □-□ 13S	CIRCULAR	1.00	1.00	1	0.79	0.25	2.60
Pipe □-□ 14S	CIRCULAR	1.00	1.00	1	0.79	0.25	2.48
Pipe □-□ 15E	CIRCULAR	1.00	1.00	1	0.79	0.25	2.45
Pipe □-□ 16E	CIRCULAR	1.00	1.00	1	0.79	0.25	2.05
Pipe □-□ 17	CIRCULAR	1.25	1.25	1	1.23	0.31	4.04
Pipe □-□ 17W	CIRCULAR	1.00	1.00	1	0.79	0.25	3.15
Pipe □-□ 18AN	CIRCULAR	1.00	1.00	1	0.79	0.25	3.10
Pipe □-□ 18AS	CIRCULAR	1.00	1.00	1	0.79	0.25	3.51
Pipe □-□ 19	CIRCULAR	1.00	1.00	1	0.79	0.25	3.20
Pipe □-□ 19W	CIRCULAR	1.00	1.00	1	0.79	0.25	3.78
Pipe □-□ 20S	CIRCULAR	1.00	1.00	1	0.79	0.25	1.98
Pipe □-□ 21	CIRCULAR	1.50	1.50	2	1.77	0.38	8.53
Pipe □-□ 22	CIRCULAR	2.00	2.00	1	3.14	0.50	23.18
Pipe □-□ 23	CIRCULAR	2.00	2.00	1	3.14	0.50	21.55
Pipe □-□ 23N	CIRCULAR	1.00	1.00	1	0.79	0.25	2.44
Pipe □-□ 24	CIRCULAR	1.50	1.50	1	1.77	0.38	9.98
Pipe □-□ 24S	CIRCULAR	1.00	1.00	1	0.79	0.25	3.68

Pipe □-□ 25	CIRCULAR	1.50	1.50	1	1.77	0.38	8.14
Pipe □-□ 25W	CIRCULAR	1.00	1.00	1	0.79	0.25	3.43
Pipe □-□ 26	CIRCULAR	1.50	1.50	1	1.77	0.38	6.58
Pipe □-□ 26E	CIRCULAR	1.00	1.00	1	0.79	0.25	2.89
Pipe □-□ 26E1	CIRCULAR	1.00	1.00	1	0.79	0.25	2.77
Pipe □-□ 27	CIRCULAR	1.25	1.25	1	1.23	0.31	6.70
Pipe □-□ 28	CIRCULAR	1.00	1.00	1	0.79	0.25	4.10
Pipe □-□ 3W	CIRCULAR	1.00	1.00	1	0.79	0.25	2.78
Pipe □-□ DMH-2	CIRCULAR	1.50	1.50	2	1.77	0.38	12.24
Pipe □-□ DMH-12	CIRCULAR	1.67	1.67	2	2.18	0.42	8.96
Pipe □-□ DMH-14A	CIRCULAR	1.75	1.75	2	2.41	0.44	11.79
Pipe □-□ DMH-14A □(1)	CIRCULAR	1.75	1.75	2	2.41	0.44	9.93
Pipe □-□ DMH-20	CIRCULAR	1.50	1.50	2	1.77	0.38	7.80
Pipe □-□ DMH-20A	CIRCULAR	1.50	1.50	2	1.77	0.38	9.44
Pipe □-□ RL-B4A	CIRCULAR	0.67	0.67	1	0.35	0.17	0.96
Pipe □-□ RL-B4B	CIRCULAR	0.67	0.67	1	0.35	0.17	1.05
Pipe □-□ RL-B7	CIRCULAR	1.00	1.00	1	0.79	0.25	3.81
Pipe □-□ RL-B7A	CIRCULAR	1.00	1.00	1	0.79	0.25	2.90
Pipe □-□ RL-B7B	CIRCULAR	1.00	1.00	1	0.79	0.25	3.38
Pipe □-□ RL-B7C	CIRCULAR	1.00	1.00	1	0.79	0.25	2.99
PIPE-24N	CIRCULAR	1.00	1.00	1	0.79	0.25	2.89
PIPE-B3	CIRCULAR	1.00	1.00	1	0.79	0.25	3.34
PIPE-YDB4	CIRCULAR	0.67	0.67	1	0.35	0.17	0.69
PIPE-YDB4E	CIRCULAR	0.67	0.67	1	0.35	0.17	0.69

Runoff Coefficient Computations Report

Subbasin CATCHMENT-24N

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.13	A (0-2%)	0.95
Pasture, 25 years or greater	0.01	A (0-2%)	0.15
Composite Area & Weighted Runoff Coeff.	0.14		0.90

Subbasin Sub-B3

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.20	A (0-2%)	0.95
Composite Area & Weighted Runoff Coeff.	0.20		0.95

Subbasin Sub-B6

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
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Parking, 25 years or greater	0.16	A (2-6%)	0.96
Composite Area & Weighted Runoff Coeff.	0.16		0.96

Subbasin Sub-CB-10E

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.09	A (2-6%)	0.96
Pasture, 25 years or greater	0.04	A (2-6%)	0.25
Composite Area & Weighted Runoff Coeff.	0.12		0.75

Subbasin Sub-CB-11W

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.27	A (2-6%)	0.96
Pasture, 25 years or greater	0.10	A (2-6%)	0.25
Composite Area & Weighted Runoff Coeff.	0.37		0.76

Subbasin Sub-CB-12W

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.14	A (0-2%)	0.95
Pasture, 25 years or greater	0.02	A (2-6%)	0.25
Composite Area & Weighted Runoff Coeff.	0.16		0.87

Subbasin Sub-CB-13S

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.23	A (0-2%)	0.95
Pasture, 25 years or greater	0.05	A (0-2%)	0.15
Composite Area & Weighted Runoff Coeff.	0.28		0.80

Subbasin Sub-CB-14W

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.26	A (0-2%)	0.95
Pasture, 25 years or greater	0.03	A (0-2%)	0.15
Composite Area & Weighted Runoff Coeff.	0.29		0.86

Subbasin Sub-CB-16E

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
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Parking, 25 years or greater      0.18    A (2-6%)    0.96
Pasture, 25 years or greater      0.01    A (2-6%)    0.25
Composite Area & Weighted Runoff Coeff.    0.19                                0.93

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Subbasin Sub-CB-16S
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Soil/Surface Description      Area      Soil      Runoff
                             (acres)   Group    Coeff.
-----
Parking, 25 years or greater    0.17    A (2-6%)    0.96
Meadow, less than 25 years      0.04    A (2-6%)    0.16
Composite Area & Weighted Runoff Coeff.    0.20                                0.81

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Subbasin Sub-CB-17E
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Soil/Surface Description      Area      Soil      Runoff
                             (acres)   Group    Coeff.
-----
Parking, 25 years or greater    0.09    A (0-2%)    0.95
Pasture, 25 years or greater     0.01    A (0-2%)    0.15
Composite Area & Weighted Runoff Coeff.    0.11                                0.85

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Subbasin Sub-CB-17W
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Soil/Surface Description      Area      Soil      Runoff
                             (acres)   Group    Coeff.
-----
Parking, 25 years or greater    0.17    A (2-6%)    0.96
Pasture, 25 years or greater     0.03    A (2-6%)    0.25
Composite Area & Weighted Runoff Coeff.    0.19                                0.87

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Subbasin Sub-CB-19N
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Soil/Surface Description      Area      Soil      Runoff
                             (acres)   Group    Coeff.
-----
Parking, 25 years or greater    0.10    A (0-2%)    0.95
Pasture, 25 years or greater     0.09    A (2-6%)    0.25
Composite Area & Weighted Runoff Coeff.    0.19                                0.63

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Subbasin Sub-CB-19S
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Soil/Surface Description      Area      Soil      Runoff
                             (acres)   Group    Coeff.
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Parking, 25 years or greater    0.08    A (2-6%)    0.96
Pasture, 25 years or greater     0.02    A (2-6%)    0.25
Composite Area & Weighted Runoff Coeff.    0.10                                0.83

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Subbasin Sub-CB-19W
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Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.29	A (2-6%)	0.96
Composite Area & Weighted Runoff Coeff.	0.29		0.96

Subbasin Sub-CB-1S

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.24	A (2-6%)	0.96
Pasture, 25 years or greater	0.23	A (2-6%)	0.25
Composite Area & Weighted Runoff Coeff.	0.47		0.61

Subbasin Sub-CB-23N

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.19	-	0.95
Composite Area & Weighted Runoff Coeff.	0.19		0.95

Subbasin Sub-CB-24S

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.28	-	0.50
Composite Area & Weighted Runoff Coeff.	0.28		0.50

Subbasin Sub-CB-25E

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.13	A (0-2%)	0.95
Composite Area & Weighted Runoff Coeff.	0.13		0.95

Subbasin Sub-CB-25W

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.14	A (0-2%)	0.95
Pasture, 25 years or greater	0.04	A (0-2%)	0.15
Composite Area & Weighted Runoff Coeff.	0.18		0.78

Subbasin Sub-CB-26E

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
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Parking, 25 years or greater	0.32	A (0-2%)	0.95
Composite Area & Weighted Runoff Coeff.	0.32		0.95

Subbasin Sub-CB-27E

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.36	A (0-2%)	0.95
Composite Area & Weighted Runoff Coeff.	0.36		0.95

Subbasin Sub-CB-28E

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.13	A (0-2%)	0.95
Composite Area & Weighted Runoff Coeff.	0.13		0.95

Subbasin Sub-CB-2W

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.18	A (0-2%)	0.95
Pasture, 25 years or greater	0.01	A (0-2%)	0.15
Composite Area & Weighted Runoff Coeff.	0.19		0.91

Subbasin Sub-CB-3W

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.13	A (0-2%)	0.95
Pasture, 25 years or greater	0.01	A (2-6%)	0.25
Composite Area & Weighted Runoff Coeff.	0.14		0.92

Subbasin Sub-CB-4

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Streets, 25 years or greater	0.22	A (0-2%)	0.76
Pasture, 25 years or greater	0.03	A (2-6%)	0.25
Composite Area & Weighted Runoff Coeff.	0.25		0.70

Subbasin Sub-DGCB-15E

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
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Parking, 25 years or greater	0.20	A (2-6%)	0.96
Pasture, less than 25 years	0.01	A (2-6%)	0.20
Composite Area & Weighted Runoff Coeff.	0.21		0.92

Subbasin Sub-DGCB-15W

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.23	A (0-2%)	0.95
Pasture, 25 years or greater	0.06	A (0-2%)	0.15
Composite Area & Weighted Runoff Coeff.	0.29		0.79

Subbasin Sub-RL-B1

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	0.12	-	0.96
Composite Area & Weighted Runoff Coeff.	0.12		0.96

Subbasin Sub-RL-B1A

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.12	A (2-6%)	0.96
Composite Area & Weighted Runoff Coeff.	0.12		0.96

Subbasin Sub-RL-B1B

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.12	A (2-6%)	0.96
Composite Area & Weighted Runoff Coeff.	0.12		0.96

Subbasin Sub-RL-B2A

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.13	A (2-6%)	0.96
Composite Area & Weighted Runoff Coeff.	0.13		0.96

Subbasin Sub-RL-B2B

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.13	A (2-6%)	0.96
Composite Area & Weighted Runoff Coeff.	0.13		0.96

Subbasin Sub-RL-B3N

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.10	A (2-6%)	0.96
Composite Area & Weighted Runoff Coeff.	0.10		0.96

Subbasin Sub-RL-B4

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.12	A (2-6%)	0.96
Composite Area & Weighted Runoff Coeff.	0.12		0.96

Subbasin Sub-RLB4A

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.12	A (2-6%)	0.96
Composite Area & Weighted Runoff Coeff.	0.12		0.96

Subbasin Sub-RL-B4B

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.12	A (2-6%)	0.96
Composite Area & Weighted Runoff Coeff.	0.12		0.96

Subbasin Sub-RL-B5

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.16	A (2-6%)	0.96
Composite Area & Weighted Runoff Coeff.	0.16		0.96

Subbasin Sub-RL-B5A

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.16	A (2-6%)	0.96
Composite Area & Weighted Runoff Coeff.	0.16		0.96

Subbasin Sub-RL-B6A

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.16	A (2-6%)	0.96
Composite Area & Weighted Runoff Coeff.	0.16		0.96

Subbasin Sub-RL-B7

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.13	A (2-6%)	0.96
Composite Area & Weighted Runoff Coeff.	0.13		0.96

Subbasin Sub-RL-B7C

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Parking, 25 years or greater	0.13	A (2-6%)	0.96
Composite Area & Weighted Runoff Coeff.	0.13		0.96

Subbasin Sub-YD-B4

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Pasture, 25 years or greater	0.07	A (2-6%)	0.25
Composite Area & Weighted Runoff Coeff.	0.07		0.25

Subbasin Sub-YD-B4E

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
Pasture, 25 years or greater	0.07	A (2-6%)	0.25
Composite Area & Weighted Runoff Coeff.	0.07		0.25

Subbasin Runoff Summary

Subbasin ID	Accumulated Precip in	Rainfall Intensity in/hr	Total Runoff in	Peak Runoff cfs	Weighted Runoff Coeff	Time of Concentration days	hh:mm:ss
CATCHMENT-24N	0.74	8.84	0.66	1.11	0.900	0	00:05:00
Sub-B3	0.74	8.84	0.70	1.68	0.950	0	00:05:00
Sub-B6	0.74	8.84	0.71	1.37	0.960	0	00:05:00
Sub-CB-10E	0.80	8.02	0.60	0.74	0.750	0	00:06:00
Sub-CB-11W	0.77	8.40	0.59	2.39	0.760	0	00:05:30
Sub-CB-12W	0.80	8.02	0.70	1.15	0.870	0	00:06:00
Sub-CB-13S	0.80	8.02	0.64	1.77	0.800	0	00:06:00

Sub-CB-14W	0.74	8.84	0.63	2.20	0.860	0	00:05:00
Sub-CB-16E	0.74	8.84	0.69	1.53	0.930	0	00:05:00
Sub-CB-16S	0.74	8.84	0.60	1.45	0.810	0	00:05:00
Sub-CB-17E	0.74	8.84	0.63	0.81	0.850	0	00:05:00
Sub-CB-17W	0.74	8.84	0.64	1.49	0.870	0	00:05:00
Sub-CB-19N	0.80	8.02	0.51	0.96	0.630	0	00:06:00
Sub-CB-19S	0.74	8.84	0.61	0.72	0.830	0	00:05:00
Sub-CB-19W	0.74	8.84	0.71	2.45	0.960	0	00:05:00
Sub-CB-1S	1.01	6.24	0.61	1.78	0.610	0	00:09:36
Sub-CB-23N	0.74	8.84	0.70	1.56	0.950	0	00:05:00
Sub-CB-24S	0.74	8.84	0.37	1.25	0.500	0	00:05:00
Sub-CB-25E	0.74	8.84	0.70	1.10	0.950	0	00:05:00
Sub-CB-25W	0.80	8.02	0.63	1.12	0.780	0	00:06:00
Sub-CB-26E	0.74	8.84	0.70	2.72	0.950	0	00:05:00
Sub-CB-27E	0.74	8.84	0.70	3.03	0.950	0	00:05:00
Sub-CB-28E	0.74	8.84	0.70	1.07	0.950	0	00:05:00
Sub-CB-2W	0.74	8.84	0.67	1.51	0.910	0	00:05:00
Sub-CB-3W	0.74	8.84	0.68	1.14	0.920	0	00:05:00
Sub-CB-4	0.77	8.40	0.54	1.46	0.700	0	00:05:30
Sub-DGCB-15E	0.74	8.84	0.68	1.74	0.920	0	00:05:00
Sub-DGCB-15W	0.74	8.84	0.58	1.99	0.790	0	00:05:00
Sub-RL-B1	0.74	8.84	0.71	0.99	0.960	0	00:05:00
Sub-RL-B1A	0.74	8.84	0.71	0.99	0.960	0	00:05:00
Sub-RL-B1B	0.74	8.84	0.71	0.99	0.960	0	00:05:00
Sub-RL-B2A	0.74	8.84	0.71	1.09	0.960	0	00:05:00
Sub-RL-B2B	0.74	8.84	0.71	1.09	0.960	0	00:05:00
Sub-RL-B3N	0.74	8.84	0.71	0.85	0.960	0	00:05:00
Sub-RL-B4	0.74	8.84	0.71	0.99	0.960	0	00:05:00
Sub-RLB4A	0.74	8.84	0.71	0.99	0.960	0	00:05:00
Sub-RL-B4B	0.74	8.84	0.71	0.99	0.960	0	00:05:00
Sub-RL-B5	0.74	8.84	0.71	1.37	0.960	0	00:05:00
Sub-RL-B5A	0.74	8.84	0.71	1.37	0.960	0	00:05:00
Sub-RL-B6A	0.74	8.84	0.71	1.37	0.960	0	00:05:00
Sub-RL-B7	0.74	8.84	0.71	1.10	0.960	0	00:05:00
Sub-RL-B7C	0.74	8.84	0.71	1.10	0.960	0	00:05:00
Sub-YD-B4	0.74	8.84	0.18	0.15	0.250	0	00:05:00
Sub-YD-B4E	0.74	8.84	0.18	0.15	0.250	0	00:05:00

Node Depth Summary

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days hh:mm	Total Flooded Volume acre-in	Total Time Flooded minutes	Retention Time hh:mm:ss
DIVERSION □ DMH-2	1.01	2.18	47.18	0 00:06	0	0	0:00:00
DMH-1	0.01	0.76	42.66	0 00:06	0	0	0:00:00
DMH-10	0.30	1.59	43.19	0 00:06	0	0	0:00:00
DMH-11	0.41	3.90	45.70	0 00:06	0.00	1	0:00:00
DMH-12	3.20	3.20	45.50	0 00:00	0	0	0:00:00
DMH-13	0.24	1.26	43.96	0 00:06	0	0	0:00:00
DMH-14	0.25	1.21	44.31	0 00:06	0	0	0:00:00
DMH-15	0.41	1.52	45.32	0 00:05	0	0	0:00:00

DMH-16	0.20	0.91	45.81	0	00:05	0	0	0:00:00
DMH-17	0.10	0.50	46.40	0	00:05	0	0	0:00:00
DMH-19	0.30	0.86	44.36	0	00:05	0	0	0:00:00
DMH-2	0.20	0.72	43.22	0	00:05	0	0	0:00:00
DMH-20	0.06	1.23	47.83	0	00:06	0	0	0:00:00
DMH-20A	0.31	1.26	46.86	0	00:06	0	0	0:00:00
DMH-21	0.31	1.44	48.44	0	00:06	0	0	0:00:00
DMH-22	0.21	1.40	49.80	0	00:05	0	0	0:00:00
DMH-23	0.60	1.62	51.02	0	00:05	0	0	0:00:00
DMH-24	0.20	1.28	52.08	0	00:05	0	0	0:00:00
DMH-25	0.11	1.29	52.59	0	00:05	0	0	0:00:00
DMH-26	0.10	1.20	52.70	0	00:05	0	0	0:00:00
DMH-27	0.30	0.86	53.56	0	00:05	0	0	0:00:00
DMH-28	0.10	0.53	55.43	0	00:05	0	0	0:00:00
DMH-3	0.10	0.43	43.83	0	00:05	0	0	0:00:00
DMH-B3	0.20	0.96	51.46	0	00:05	0	0	0:00:00
DMH-B3N	0.10	0.86	51.66	0	00:05	0	0	0:00:00
RL-B1A	0.31	2.89	50.09	0	00:05	0.00	3	0:00:00
RL-B1B	0.11	2.94	50.14	0	00:06	0.00	3	0:00:00
RL-B2	0.20	0.81	43.56	0	00:05	0	0	0:00:00
RL-B2A	0.10	0.71	44.11	0	00:05	0	0	0:00:00
RL-B2B	0.10	0.54	44.44	0	00:05	0	0	0:00:00
RL-B3N	0.20	3.00	54.20	0	00:04	0.00	1	0:00:00
RL-B4A	0.10	3.01	46.51	0	00:05	0.00	0	0:00:00
RL-B4B	0.00	0.51	44.01	0	00:05	0	0	0:00:00
RL-B5	0.20	0.93	42.43	0	00:05	0	0	0:00:00
RL-B5A	0.00	0.47	42.37	0	00:05	0	0	0:00:00
RL-B6	0.11	1.07	43.17	0	00:06	0	0	0:00:00
RL-B6A	0.45	1.33	43.43	0	00:05	0	0	0:00:00
RL-B6B	0.20	0.95	43.40	0	00:05	0	0	0:00:00
RL-B7	0.00	0.63	51.03	0	00:05	0	0	0:00:00
RL-B7A	0.00	0.63	51.23	0	00:05	0	0	0:00:00
RL-B7B	0.10	0.51	51.21	0	00:05	0	0	0:00:00
RL-B7C	0.00	0.42	51.92	0	00:05	0	0	0:00:00
STORMCEPTOR □ 2	2.03	2.45	41.95	0	00:05	0	0	0:00:00
YD-B5C	0.11	1.07	43.07	0	00:06	0	0	0:00:00
BYPASS-RLB1	0.00	0.00	47.70	0	00:00	0	0	0:00:00
Out-01	0.00	0.08	42.78	0	00:05	0	0	0:00:00
Out-1Pipe □-□(87)	0.00	0.60	46.60	0	00:06	0	0	0:00:00
Out-1Pipe □-□(94)	0.01	0.76	42.51	0	00:06	0	0	0:00:00
Out-1Pipe □-□ B5	0.01	0.83	42.33	0	00:06	0	0	0:00:00
Out-1Pipe □-□ DMH-10	0.01	1.31	42.81	0	00:06	0	0	0:00:00
Out-1Pipe □-□ S2	0.01	1.01	46.71	0	00:06	0	0	0:00:00
Out-1Pipe □-□ Storm2	0.00	0.40	41.90	0	00:05	0	0	0:00:00

Node Flow Summary

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days hh:mm
DIVERSION □ DMH-2	JUNCTION	0.00	14.96	0 00:06	0.00	

DMH-1	JUNCTION	0.00	3.76	0	00:06	0.00	
DMH-10	JUNCTION	0.00	21.80	0	00:06	0.00	
DMH-11	JUNCTION	0.00	19.97	0	00:06	0.10	0 00:06
DMH-12	JUNCTION	0.00	17.60	0	00:06	0.00	
DMH-13	JUNCTION	0.00	14.50	0	00:06	0.00	
DMH-14	JUNCTION	0.00	11.78	0	00:05	0.00	
DMH-15	JUNCTION	0.00	7.94	0	00:05	0.00	
DMH-16	JUNCTION	0.00	3.95	0	00:05	0.00	
DMH-17	JUNCTION	0.00	1.61	0	00:05	0.00	
DMH-19	JUNCTION	0.00	2.92	0	00:05	0.00	
DMH-2	JUNCTION	0.00	2.70	0	00:05	0.00	
DMH-20	JUNCTION	0.00	15.03	0	00:06	0.00	
DMH-20A	JUNCTION	0.00	14.95	0	00:06	0.00	
DMH-21	JUNCTION	0.00	14.38	0	00:06	0.00	
DMH-22	JUNCTION	0.00	14.41	0	00:05	0.00	
DMH-23	JUNCTION	0.00	14.43	0	00:05	0.00	
DMH-24	JUNCTION	0.00	9.96	0	00:05	0.00	
DMH-25	JUNCTION	0.00	7.79	0	00:05	0.00	
DMH-26	JUNCTION	0.00	6.41	0	00:05	0.00	
DMH-27	JUNCTION	0.00	3.82	0	00:05	0.00	
DMH-28	JUNCTION	0.00	0.98	0	00:05	0.00	
DMH-3	JUNCTION	0.00	0.66	0	00:05	0.00	
DMH-B3	JUNCTION	0.00	2.37	0	00:05	0.00	
DMH-B3N	JUNCTION	1.68	2.40	0	00:05	0.00	
RL-B1A	JUNCTION	0.99	0.99	0	00:05	0.16	0 00:05
RL-B1B	JUNCTION	0.99	0.99	0	00:05	0.16	0 00:05
RL-B2	JUNCTION	0.00	2.08	0	00:05	0.00	
RL-B2A	JUNCTION	1.09	2.10	0	00:05	0.00	
RL-B2B	JUNCTION	1.09	1.09	0	00:05	0.00	
RL-B3N	JUNCTION	0.85	0.85	0	00:05	0.09	0 00:05
RL-B4A	JUNCTION	0.99	0.99	0	00:05	0.02	0 00:05
RL-B4B	JUNCTION	0.99	0.99	0	00:05	0.00	
RL-B5	JUNCTION	1.37	6.26	0	00:05	0.00	
RL-B5A	JUNCTION	1.37	1.37	0	00:05	0.00	
RL-B6	JUNCTION	1.37	4.19	0	00:06	0.00	
RL-B6A	JUNCTION	1.37	3.14	0	00:05	0.00	
RL-B6B	JUNCTION	0.00	2.08	0	00:05	0.00	
RL-B7	JUNCTION	0.00	2.10	0	00:05	0.00	
RL-B7A	JUNCTION	1.10	2.10	0	00:05	0.00	
RL-B7B	JUNCTION	0.00	1.07	0	00:05	0.00	
RL-B7C	JUNCTION	1.10	1.10	0	00:05	0.00	
STORMCEPTOR □ 2	JUNCTION	0.00	0.79	0	00:05	0.00	
YD-B5C	JUNCTION	0.00	4.19	0	00:06	0.00	
BYPASS-RLB1	OUTFALL	0.00	0.00	0	00:00	0.00	
Out-01	OUTFALL	0.00	0.71	0	00:05	0.00	
Out-1Pipe □-□(87)	OUTFALL	0.00	2.55	0	00:06	0.00	
Out-1Pipe □-□(94)	OUTFALL	0.00	3.76	0	00:06	0.00	
Out-1Pipe □-□ B5	OUTFALL	0.00	6.26	0	00:06	0.00	
Out-1Pipe □-□ DMH-10	OUTFALL	0.00	21.35	0	00:06	0.00	
Out-1Pipe □-□ S2	OUTFALL	0.00	14.95	0	00:06	0.00	
Out-1Pipe □-□ Storm2	OUTFALL	0.00	0.79	0	00:05	0.00	

Outfall Loading Summary

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
BYPASS-RLB1	0.00	0.00	0.00
Out-01	1.80	0.15	0.71
Out-1Pipe □-□(87)	1.14	0.89	2.55
Out-1Pipe □-□(94)	1.92	1.14	3.76
Out-1Pipe □-□ B5	2.53	1.02	6.26
Out-1Pipe □-□ DMH-10	3.35	2.47	21.35
Out-1Pipe □-□ S2	2.88	2.08	14.95
Out-1Pipe □-□ Storm2	2.21	0.18	0.79
System	1.98	7.94	49.64

Link Flow Summary

Link ID	Element Type	Time of Peak Flow Occurrence days hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow Depth	Total Time Surcharged minutes	Reported Condition
Link-26	CONDUIT	0 00:05	4.66	1.00	0.82	0.75	1.08	0.91	0	> CAPACITY
Link-27	CONDUIT	0 00:05	3.74	1.00	2.37	2.57	0.92	0.76	0	Calculated
Pipe □-□(100)	CONDUIT	0 00:05	3.75	1.00	2.06	2.66	0.77	0.66	0	Calculated
Pipe □-□(101)	CONDUIT	0 00:05	3.04	1.00	0.65	2.70	0.24	0.33	0	Calculated
Pipe □-□(102)	CONDUIT	0 00:05	5.10	1.00	2.88	3.57	0.81	0.68	0	Calculated
Pipe □-□(103)	CONDUIT	0 00:06	3.64	1.00	6.26	8.10	0.77	0.66	0	Calculated
Pipe □-□(104)	CONDUIT	0 00:06	3.39	1.00	4.17	4.49	0.93	0.76	0	Calculated
Pipe □-□(105)	CONDUIT	0 00:05	4.47	1.00	1.35	3.06	0.44	0.47	0	Calculated
Pipe □-□(106)	CONDUIT	0 00:05	2.68	1.00	0.79	2.33	0.34	0.40	0	Calculated
Pipe □-□(107)	CONDUIT	0 00:05	2.53	1.00	0.79	2.14	0.37	0.42	0	Calculated
Pipe □-□(108)	CONDUIT	0 00:06	3.00	1.00	0.63	1.99	0.31	0.38	0	Calculated
Pipe □-□(109)	CONDUIT	0 00:05	3.17	1.00	0.83	2.87	0.29	0.37	0	Calculated
Pipe □-□(110)	CONDUIT	0 00:06	4.12	1.00	2.75	2.82	0.97	0.80	0	Calculated
Pipe □-□(112)	CONDUIT	0 00:05	3.02	1.00	0.98	2.52	0.39	0.43	0	Calculated
Pipe □-□(113)	CONDUIT	0 00:05	4.71	1.00	3.00	3.25	0.92	0.76	0	Calculated
Pipe □-□(123)	CONDUIT	0 00:06	3.52	1.00	3.13	3.74	0.84	0.70	0	Calculated
Pipe □-□(124)	CONDUIT	0 00:05	4.54	1.00	2.08	3.39	0.61	0.57	0	Calculated
Pipe □-□(125)	CONDUIT	0 00:05	4.21	1.00	2.08	3.03	0.69	0.61	0	Calculated
Pipe □-□(126)	CONDUIT	0 00:05	5.22	1.00	1.06	2.69	0.39	0.43	0	Calculated
Pipe □-□(127)	CONDUIT	0 00:06	4.11	1.00	4.19	4.42	0.95	0.78	0	Calculated
Pipe □-□(63)	CONDUIT	0 00:05	4.23	1.00	3.89	4.50	0.86	0.72	0	Calculated
Pipe □-□(67)	CONDUIT	0 00:06	2.80	1.00	2.03	3.13	0.65	0.58	0	Calculated
Pipe □-□(87)	CONDUIT	0 00:06	8.01	1.00	2.55	2.39	1.07	0.94	0	> CAPACITY
Pipe □-□(88)	CONDUIT	0 00:07	4.55	1.00	0.89	0.82	1.08	1.00	3	SURCHARGED

Pipe □-□(89)	CONDUIT	0	00:04	5.06	1.00	0.89	0.82	1.08	1.00	2	SURCHARGED
Pipe □-□(94)	CONDUIT	0	00:06	4.86	1.00	3.76	5.55	0.68	0.60	0	Calculated
Pipe □-□(95)	CONDUIT	0	00:06	3.77	1.00	2.66	4.31	0.62	0.57	0	Calculated
Pipe □-□(97)	CONDUIT	0	00:09	5.05	1.00	1.78	4.12	0.43	0.46	0	Calculated
Pipe □-□(98)	CONDUIT	0	00:06	2.87	1.00	0.47	3.01	0.15	0.27	0	Calculated
Pipe □-□ 12	CONDUIT	0	00:06	5.32	1.00	7.86	7.98	0.99	0.80	0	Calculated
Pipe □-□ 12W	CONDUIT	0	00:05	4.05	1.00	2.56	2.80	0.91	0.75	0	Calculated
Pipe □-□ 13	CONDUIT	0	00:06	4.56	1.00	14.47	17.66	0.82	0.69	0	Calculated
Pipe □-□ 13 □(1)	CONDUIT	0	00:06	4.54	1.00	11.77	14.36	0.82	0.69	0	Calculated
Pipe □-□ 13S	CONDUIT	0	00:05	4.53	1.00	1.31	2.60	0.50	0.50	0	Calculated
Pipe □-□ 14S	CONDUIT	0	00:06	3.71	1.00	2.68	2.48	1.08	0.93	0	> CAPACITY
Pipe □-□ 15E	CONDUIT	0	00:05	4.71	1.00	1.62	2.45	0.66	0.59	0	Calculated
Pipe □-□ 16E	CONDUIT	0	00:06	3.43	1.00	0.56	2.05	0.27	0.36	0	Calculated
Pipe □-□ 17	CONDUIT	0	00:05	3.60	1.00	2.91	4.04	0.72	0.63	0	Calculated
Pipe □-□ 17W	CONDUIT	0	00:05	4.45	1.00	2.44	3.15	0.78	0.66	0	Calculated
Pipe □-□ 18AN	CONDUIT	0	00:05	5.18	1.00	1.51	3.10	0.49	0.49	0	Calculated
Pipe □-□ 18AS	CONDUIT	0	00:05	3.74	1.00	0.90	3.51	0.26	0.35	0	Calculated
Pipe □-□ 19	CONDUIT	0	00:05	4.11	1.00	1.59	3.20	0.50	0.50	0	Calculated
Pipe □-□ 19W	CONDUIT	0	00:05	5.45	1.00	0.78	3.78	0.21	0.31	0	Calculated
Pipe □-□ 20S	CONDUIT	0	00:05	3.52	1.00	0.77	1.98	0.39	0.43	0	Calculated
Pipe □-□ 21	CONDUIT	0	00:06	5.45	1.00	14.33	17.05	0.84	0.70	0	Calculated
Pipe □-□ 22	CONDUIT	0	00:06	7.80	1.00	14.38	23.18	0.62	0.57	0	Calculated
Pipe □-□ 23	CONDUIT	0	00:05	7.37	1.00	14.41	21.55	0.67	0.60	0	Calculated
Pipe □-□ 23N	CONDUIT	0	00:03	3.72	1.00	2.64	2.44	1.08	1.00	4	SURCHARGED
Pipe □-□ 24	CONDUIT	0	00:05	6.51	1.00	9.92	9.98	0.99	0.81	0	Calculated
Pipe □-□ 24S	CONDUIT	0	00:05	4.71	1.00	1.24	3.68	0.34	0.40	0	Calculated
Pipe □-□ 25	CONDUIT	0	00:05	5.29	1.00	7.75	8.14	0.95	0.78	0	Calculated
Pipe □-□ 25W	CONDUIT	0	00:06	3.51	1.00	0.76	3.43	0.22	0.32	0	Calculated
Pipe □-□ 26	CONDUIT	0	00:05	4.26	1.00	6.40	6.58	0.97	0.80	0	Calculated
Pipe □-□ 26E	CONDUIT	0	00:05	4.19	1.00	2.71	2.89	0.94	0.77	0	Calculated
Pipe □-□ 26E1	CONDUIT	0	00:05	4.19	1.00	0.69	2.77	0.25	0.34	0	Calculated
Pipe □-□ 27	CONDUIT	0	00:05	5.65	1.00	3.77	6.70	0.56	0.54	0	Calculated
Pipe □-□ 28	CONDUIT	0	00:06	4.34	1.00	0.98	4.10	0.24	0.33	0	Calculated
Pipe □-□ 3W	CONDUIT	0	00:05	3.84	1.00	0.66	2.78	0.24	0.33	0	Calculated
Pipe □-□ DDMH-2	CONDUIT	0	00:06	7.26	1.00	14.95	24.47	0.61	0.56	0	Calculated
Pipe □-□ DMH-12	CONDUIT	0	00:06	4.79	1.00	17.53	17.91	0.98	0.80	0	Calculated
Pipe □-□ DMH-14A	CONDUIT	0	00:06	5.77	1.00	21.35	23.57	0.91	0.75	0	Calculated
Pipe □-□ DMH-14A □(1)	CONDUIT	0	00:06	4.84	1.00	21.37	19.87	1.08	0.91	0	> CAPACITY
Pipe □-□ DMH-20	CONDUIT	0	00:06	5.12	1.00	14.96	15.60	0.96	0.78	0	Calculated
Pipe □-□ DMH-20A	CONDUIT	0	00:06	5.93	1.00	14.95	18.87	0.79	0.67	0	Calculated
Pipe □-□ RL-B4A	CONDUIT	0	00:05	5.39	1.00	1.03	0.96	1.07	0.90	0	> CAPACITY
Pipe □-□ RL-B4B	CONDUIT	0	00:05	5.25	1.00	0.96	1.05	0.92	0.75	0	Calculated
Pipe □-□ RL-B7	CONDUIT	0	00:05	4.98	1.00	2.10	3.81	0.55	0.53	0	Calculated
Pipe □-□ RL-B7A	CONDUIT	0	00:05	4.03	1.00	2.10	2.90	0.72	0.63	0	Calculated
Pipe □-□ RL-B7B	CONDUIT	0	00:05	3.82	1.00	1.07	3.38	0.32	0.39	0	Calculated
Pipe □-□ RL-B7C	CONDUIT	0	00:05	5.70	1.00	1.07	2.99	0.36	0.41	0	Calculated
PIPE-24N	CONDUIT	0	00:05	3.40	1.00	1.07	2.89	0.37	0.42	0	Calculated
PIPE-B3	CONDUIT	0	00:05	4.68	1.00	2.36	3.34	0.70	0.62	0	Calculated
PIPE-YDB4	CONDUIT	0	00:06	1.88	1.00	0.27	0.69	0.38	0.43	0	Calculated
PIPE-YDB4E	CONDUIT	0	00:06	3.16	1.00	0.14	0.69	0.20	0.30	0	Calculated

Highest Flow Instability Indexes

All links are stable.

WARNING 108 : Surge elevation defined for Junction RL-B6 is below junction maximum elevation. Assumed surge elevation equal to maximum elevation.

WARNING 005 : Minimum slope used for Conduit BYPASS-12W.

WARNING 005 : Minimum slope used for Conduit Pipe □-□(67).

WARNING 002 : Max/rim elevation (depth) increased to account for connecting conduit height dimensions for Node DMH-12.

Analysis began on: Mon Jan 03 14:53:59 2022

Analysis ended on: Mon Jan 03 14:54:05 2022

Total elapsed time: 00:00:06