NORTHEAST ENGINEERS & CONSULTANTS, INC.

Stormwater Runoff Analysis

"Coddington Cove Commons"
Assessor's Map 103 Lot 103
300 Coddington Highway
Middletown, RI

Prepared For
Mello Realty Inc.
PO Box 4129
Middletown, RI 02842

April 17, 2024

6 Valley Road ● Middletown, RI 02842 ● p. 401.849.0810 ● f. 401.846.4169 ● northeastengineers.com
Civil ● Site ● Land Development ● Waterfront ● Coastal Engineering ● Environmental ● Geotechnical ● Structural ● Renewable ● Surveying

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1.0 PROJECT NARRATIVE

1.1 SITE INFORMATION

City / Town:	Middletown, Rhode Island
Adjacent Roadways:	Coddington Highway (State Highway)
Lot(s) identification:	A.P. 103 Lot 103
Zoning District:	LI^2
Current Use:	Construction yard
Site Area:	3.84 Acres
FEMA Zone and Map:	Zone "X"

1.2 EXISTING IMPROVEMENTS AND SITE CONDITIONS

The Site is, and has historically been, a vacant property, having been used as a construction materials storage yard since the late 1970s (based on available aerial photography). The site is accessed from the abutting roadway via a formal curb cut recently constructed by RIDOT. The Site abuts a RIPTA facility to the west, "Bay View Park" mobile home development to the east and the "Mariner Village" multifamily development to the south. Aside from sparse vegetation around the perimeter, ground cover consists of compacted gravel aisles, towering piles of earth and debris, and other construction related materials and vehicles. The only site improvements consist of small pens constructed of low block walls used to delineate material storage. The terrain on the property slopes upwards from the roadway towards Mariner Village at the rear. The approximate grade change across the site is fifteen (15) feet. The site is bisected longitudinally by a drainage easement to the town, in which a 36" diameter drain runs from the back of the property to the front, at which point it enters a small drainage pond. A second town drain line then exits this pond and runs parallel to the roadway and into the RIPTA property. A municipal sewer line crosses the rear of the property in another easement. This line terminates at a pump station located in the RIPTA property. Lastly, an abandoned sewer line runs along the west property line towards Coddington Highway in an easement granted to the City of Newport. Municipal sewer is available in the abutting roadway while an existing municipal water service stub is present at the rear of the site originating from Rosa Terrace to the southwest. No water main is present in Coddington Highway. Overhead electrical and communication services are available on the along the roadway. There are no stormwater quality or control devices of any note located on the property. The frontage along Coddington Highway includes a concrete sidewalk with precast concrete curbing.

1.3 PROTECTED FEATURES

There are no wetlands or other features protected by the state located on the property. The site is not located within a Town of Middletown Watershed Protection District. The site is not located within an impaired watershed. The property is not located with a flood zone having any development restrictions.

1.4 SITE TERRAIN AND SOILS

In general, the site slopes from the south towards Coddington Highway and the RIPTA facility to the west. Large piles of concrete, brick, soil, and other materials are present. The soil type on site is UD (Udorthents) as designated by the USDA Natural Resource Conservation Service. Soil evaluations performed in January of 2024 revealed roughly 7 feet of highly compacted gravel rendering the site nearly completely impervious. The water table was determined to be effectively at the surface. Only one soil evaluation performed at the rear of the site revealed any original material which consisted of silts.

1.5 PROPOSED IMPROVEMENTS

The applicant intends to redevelop the property for use as a tradesman center. The development is to include 4 structures housing 12 units per structure. The buildings are to be arranged in a grid running north/south. The structures will be facing both to the west and east and also inwards towards a central aisle. Paved parking is to be arranged along the property lines and along the faces of the structures. The buildings are to be stepped in order to accommodate the grade change across the site. The proposed development will occupy the majority of the site. The existing entry from Coddington Highway will be retained. Proper circulation for standard and emergency vehicle access will be provided. Enclosed trash areas are to be located adjacent to each structure in the parking areas. A retaining wall along the east property line will be required for the intended grades. The proposed lot coverage shall be within the maximum 35% lot coverage allowable by the zoning ordinance.

The existing municipal drain line which bisects the property shall remain. The stormwater system shall consist of two subsurface sand filters and one subsurface detention system. The contributing stormwater system has been designed to be outside of the town easement to the extent feasible. The small drain pond will be removed and the town 36" will be piped to the town 48" line. The proposed sand filters and detention system will connect to the town system. Pretreatment for the sand filters will be provided by three Cascade hydrodynamic separators.

2.0 PROPOSED ALTERATIONS AND STORMWATER CONSIDERATIONS

2.1 STORMWATER SYSTEM OBJECTIVES

The objectives of the project stormwater system are to accomplish the following:

- **Provide water quality for stormwater runoff in accordance with the Rhode Island Stormwater Design and Installation Rules (250-RICR-150-10-8), hereafter abbreviated as the "Rules".**
- **Convey stormwater from upland properties through the Site consistent with the existing conditions.**
- **Maintain the overall drainage patterns from the site to the extent practicable.**
- **Reduce the peak rate of runoff to the downstream design points.**
- **Maintain the total volume runoff to the downstream state right of way.**

2.2 REDEVELOPMENT SITE

As the existing site lot coverage consists of more than 40% impervious and more than 10,000 square feet of this impervious surface is to be developed, this project qualifies as a "redevelopment site" per section 8.12 of the Rules. Per this section of the Rules, only Standards, 2, 3, and 7-11 must be addressed. Specifically, recharge and stormwater quality shall be managed in accordance with one of the following techniques:

- Reduce existing impervious area by at least 50% of the redevelopment area;
- Implement other LID techniques to the maximum extent practicable to provide recharge and water quality management for at least 50% of the redevelopment area;
- Use on-site structural BMPs to provide recharge and water quality management for at least 50% of the redevelopment area; or
- Any combination of these techniques.
- Areas of new impervious must be treated as 100% of the development area.

2.3 MINIMUM STORMWATER MANAGEMENT STANDARDS

2.3.1 MINIMUM STANDARD 1: LID SITE PLANNING AND DESIGN STRATEGIES

The proposed development utilizes LID designs conforming to the Rules. These elements are located immediately downstream of the renovated building and will directly treat the generated runoff with zero interception of on-site clean runoff.

2.3.2 MINIMUM STANDARD 2: GROUNDWATER RECHARGE

Due to the extremely thick layer of compacted gravel resulting from the Site's use as a construction yard, no significant infiltration from devices is realistically possible. The proposed stormwater system has not been designed to include groundwater recharge. As the percentage of impervious surfaces is proposed to be decreased as a result of the redevelopment, we can reasonably expect to see an increase in groundwater recharge; however, it is requested that this standard be waived.

2.3.3 MINIMUM STANDARD 3: WATER QUALITY

This standard shall be met by a two underground sand filters located under the parking lot at the front of the property. Between the redevelopment areas and new pervious areas, a total of **3.29 acres** of the property requires water quality treatment. This equates to a total of **5,973** cubic feet of water quality volume under the redevelopment standard. Per the HydroCAD analysis of the 1.2-inch WQ storm (split pervious method) this treatment is provided. Refer to Appendix E for complete calculations. As shown in the WQ storm analysis, the entire complement of the WQ storm volume passes through the sand filter. Refer to Appendix F for the water quality storm calculations and sand filter design.

2.3.4 MINIMUM STANDARD 4: CONVEYANCE AND NATURAL CHANNEL PROTECTION

This standard is not required for qualifying redevelopment sites per section 8.12 of the Rules.

2.3.5 MINIMUM STANDARD 5: OVERBANK FLOOD PROTECTION

The TR-20 HydroCAD model demonstrates that the proposed system will successfully mitigate the 100-year storm event. In these calculations, all pre-development land was characterized as "good condition" as required by this standard. An off-site component of runoff from the upstream trailer park passes through the development area, which was also modeled as "good condition". The modeling also demonstrates that the structures and stormwater devices will safely pass the 100-year storm event without flooding or breaching.

2.3.6 MINIMUM STANDARD 6: REDEVELOPMENT AND INFILL PROJECTS

As stated in section 2.2 above, this project qualifies as a development project. The area of work is comprised of **3.8** acres of which **100%** is existing impervious surfaces. Only 40% is required to qualify as a redevelopment site.

2.3.7 MINIMUM STANDARD 7: POLLUTION PREVENTION

Source controls and pollution prevention measures will be present during all phases of construction. A separate stormwater pollution prevention plan (Soil Erosion and Sediment Control Narrative) has been prepared.

2.3.8 MINIMUM STANDARD 8: LAND USES WITH HIGHER POTENTIAL POLLUTANT LOADS

The use of this property does not quality as a LUHPPL and does not require any specific source controls, limited BMPs, or and additional state permitting.

2.3.9 MINIMUM STANDARD 9: ILLICIT DISCHARGES

Neither the using use nor any proposed uses will include any discharges considered to be "illicit" per the Rules.

2.3.10 MINIMUM STANDARD 10: SOILS EROSION AND SEDIMENT CONTROL

Soil erosion and sediment control measures will be implemented during all phases of construction. A SESC plan has been provided in the permitting plan set.

2.3.11 MINIMUM STANDARD 11: STORMWATER MANAGEMENT OPERATIONS AND MAINTENANCE

An Operations and Maintenance (O&M) Document has been prepared. This document satisfies the minimum requirements of the Rules.

3.0 DESIGN MODELING METHODOLOGY

Runoff and routing calculations have been performed for the watershed areas affected by the proposed development under existing and proposed development conditions scenarios. Time of concentration and runoff curve number calculations have been performed using the method described in NRCS Technical Release 55 – Urban Hydrology for Small Watersheds. The TR-20 based HydroCAD modeling software has been utilized to perform the more complex runoff and routing calculations, most of which are beyond the scope of the TR-55 method.

Design rainfall events have been modeled using the Soil Conservation Service (SCS) Type III hydrograph for 24-hour duration storms. The rainfall depth for each return period is taken from Section 8.6 of the Rules. This Section split the state into five regions for rainfall frequency based on county. The project site is located in the **Newport** County region. The rainfall frequency values required by the Rules and used in this drainage analysis are listed in the table below.

Rainfall Frequency Values for **Newport County** Rhode Island with 24-Hour Storm Duration					
RIDEM *Stormwater Design and Installation Rules (250-RICR-150-10-8)*					
Frequency	1-Yr	2-Yr	10-Yr	25-Yr	100-Yr
Inches of Rainfall	2.8	3.3	4.9	6.1	8.6

The existing and proposed conditions runoff calculations were analyzed and the proposed stormwater system was designed to mitigate the peak runoff for the 1, 2, 10, 25 and 100-year 24-hour design storms (1,10 & 100 being required by the state and the other storms required by the municipality). The resulting design effectively mitigates and treats runoff from newly developed areas of the site before allowing it to discharge in a non-erosive manner to downstream areas in accordance with the Rules.

3.1 ANALYSIS DESIGN POINTS AND OFF-SITE CONTRIBUTIONS

The proposed development contributes stormwater runoff to the following design points. These design points provide a direct comparison for pre-construction and post-construction runoff flows and runoff volumes.

1. On-site drainage depression (part of the municipal drainage line)
2. Westerly abutter (RIPTA facility)
3. Coddington Highway (RIDOT right-of-way)

The following off-site areas contribute surface stormwater runoff to these design points. This runoff either drains through the project area or contributes in some manner which directly affects the design of the stormwater system and has been included in the design calculations. These areas are:

1. Portions of the "Bay View" transient home facility.

Watershed maps for both the existing and proposed conditions can be found in Appendix B. These maps demonstrate the areas of the site which contribute to each of the design points and indicate the general pattern of surface or piped runoff flow.

4.0 STORMWATER RUNOFF COMPARISONS

Analysis of the existing and proposed runoff during design storms demonstrates that there will no increase in the peak runoff to the downstream design points as a result of the development. Additionally, there will be no increase in total volume runoff to the state right of way (design point 3). Comparisons of the runoff at the design points are given below in Section 4.1. The runoff volumes given have been evaluated over a 24-hour period. All of the HydroCAD modeling worksheets are attached in Appendices C and D.

4.1 SUMMARY OF STORMWATER CALCULATIONS

Table 4.1.1 Comparison of Runoff Values at Municipal drainage System (101 vs. 201)

Storm Return Period	Existing Conditions Peak Runoff (cfs)	Proposed Conditions Peak Runoff (cfs)	Existing Conditions 24-hr Volume Runoff (af)	Proposed Conditions Volume 24-hr Runoff (af)
1-year	8.09	7.73	0.727	0.766
2-year	10.09	9.74	0.913	0.965
10-year	16.53	16.37	1.526	1.617
25-year	21.33	21.24	1.996	2.114
100-year	31.99	30.99	2.987	3.157

Table 4.1.2 Comparison of Runoff Values at Westerly Abutter (102 vs. 202)

Storm Return Period	Existing Conditions Peak Runoff (cfs)	Proposed Conditions Peak Runoff (cfs)	Existing Conditions 24-hr Volume Runoff (af)	Proposed Conditions Volume 24-hr Runoff (af)
1-year	0.97	0.21	0.070	0.016
2-year	1.19	0.30	0.087	0.023
10-year	1.89	0.66	0.142	0.047
25-year	2.42	0.95	0.183	0.067
100-year	3.49	1.58	0.271	0.112

Table 4.1.3 Comparison of Runoff Values at Coddington Highway (103 vs. 203)

Storm Return Period	Existing Conditions Peak Runoff (cfs)	Proposed Conditions Peak Runoff (cfs)	Existing Conditions 24-hr Volume Runoff (af)	Proposed Conditions Volume 24-hr Runoff (af)
1-year	0.69	0.41	0.057	0.029
2-year	0.86	0.54	0.072	0.039
10-year	1.40	1.00	0.120	0.071
25-year	1.81	1.36	0.157	0.097
100-year	2.64	2.10	0.235	0.153

5.0 LIMITATIONS AND SPECIAL TERMS AND CONDITIONS

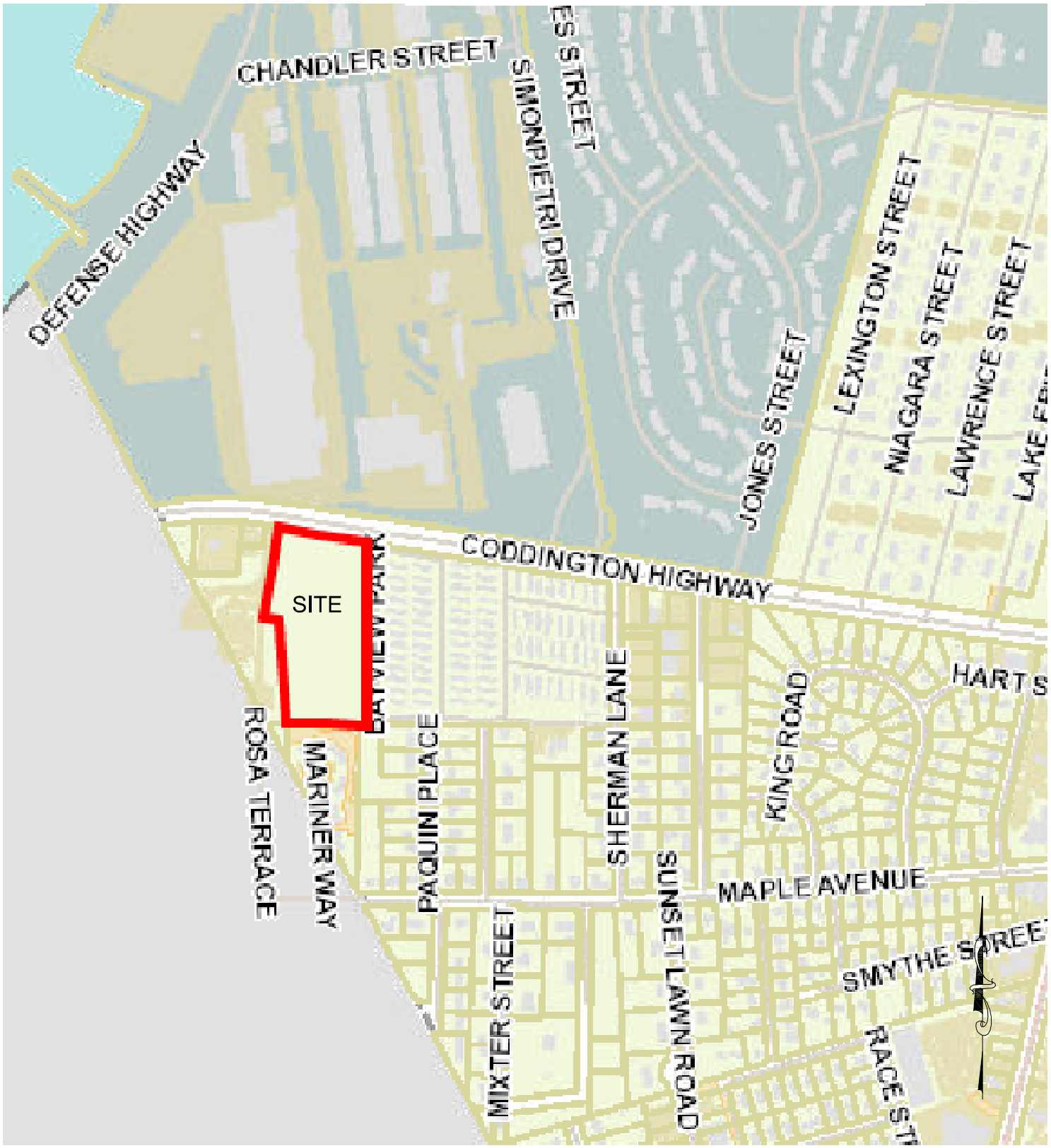
1. NE&C's evaluation was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same geographical area, and NE&C observed the degree of care and skill generally exercised by other consultants under similar circumstances and conditions. No warrantee expressed or implied is made.

2. Any additional research conducted should be reviewed by Northeast Engineers & Consultants, Inc., such that the conclusions presented herein may be modified.

3. All observations documented in this report were performed under the existing conditions at the time of the assessment.

4. This report has been prepared on the behalf of and is for the exclusive use of the Client. This report and findings contained herein shall not, in whole or in part be disseminated or conveyed to any party, nor used by any other party in whole or in part, without the written consent of NE&C.

APPENDIX A FIGURES



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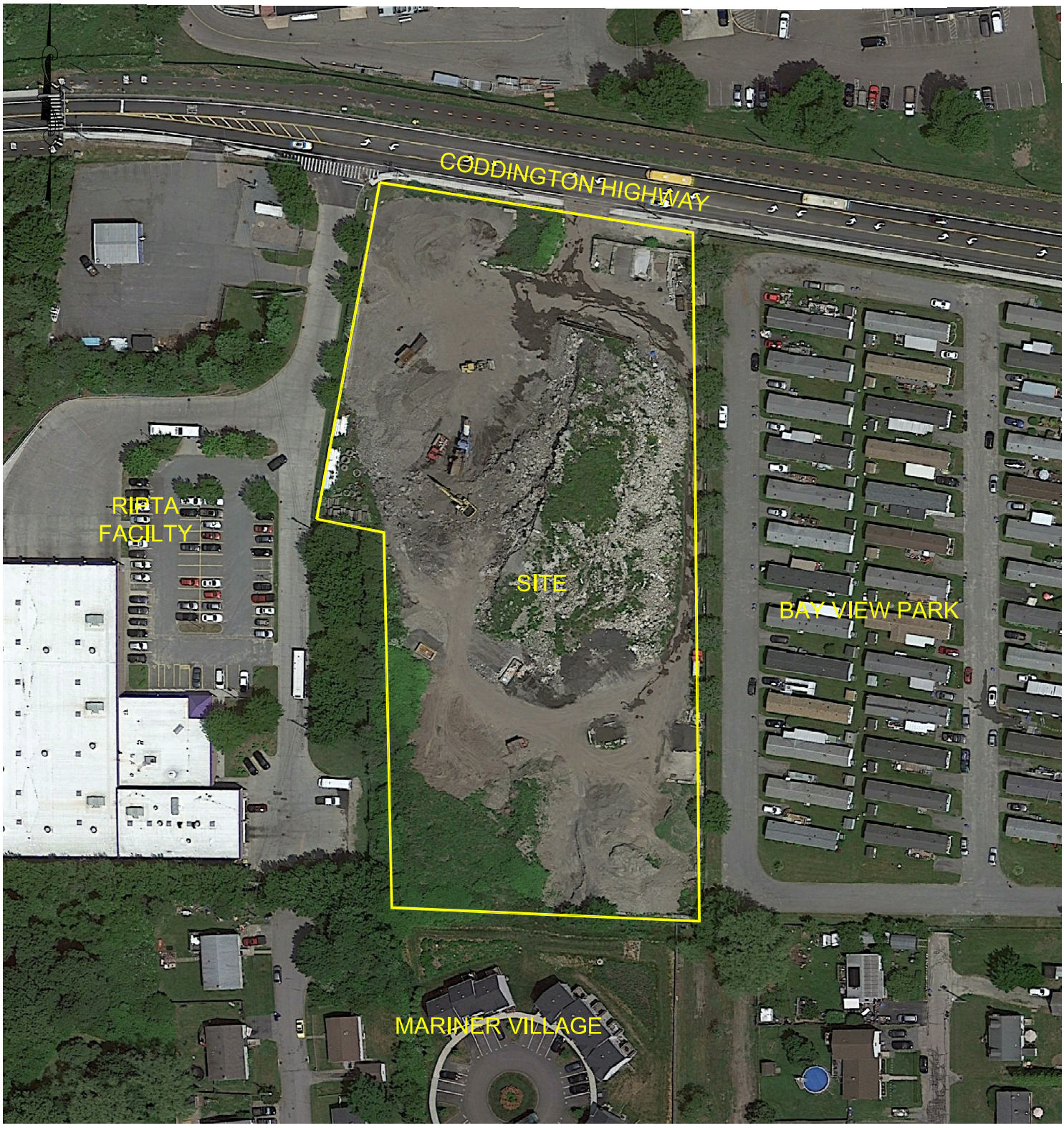
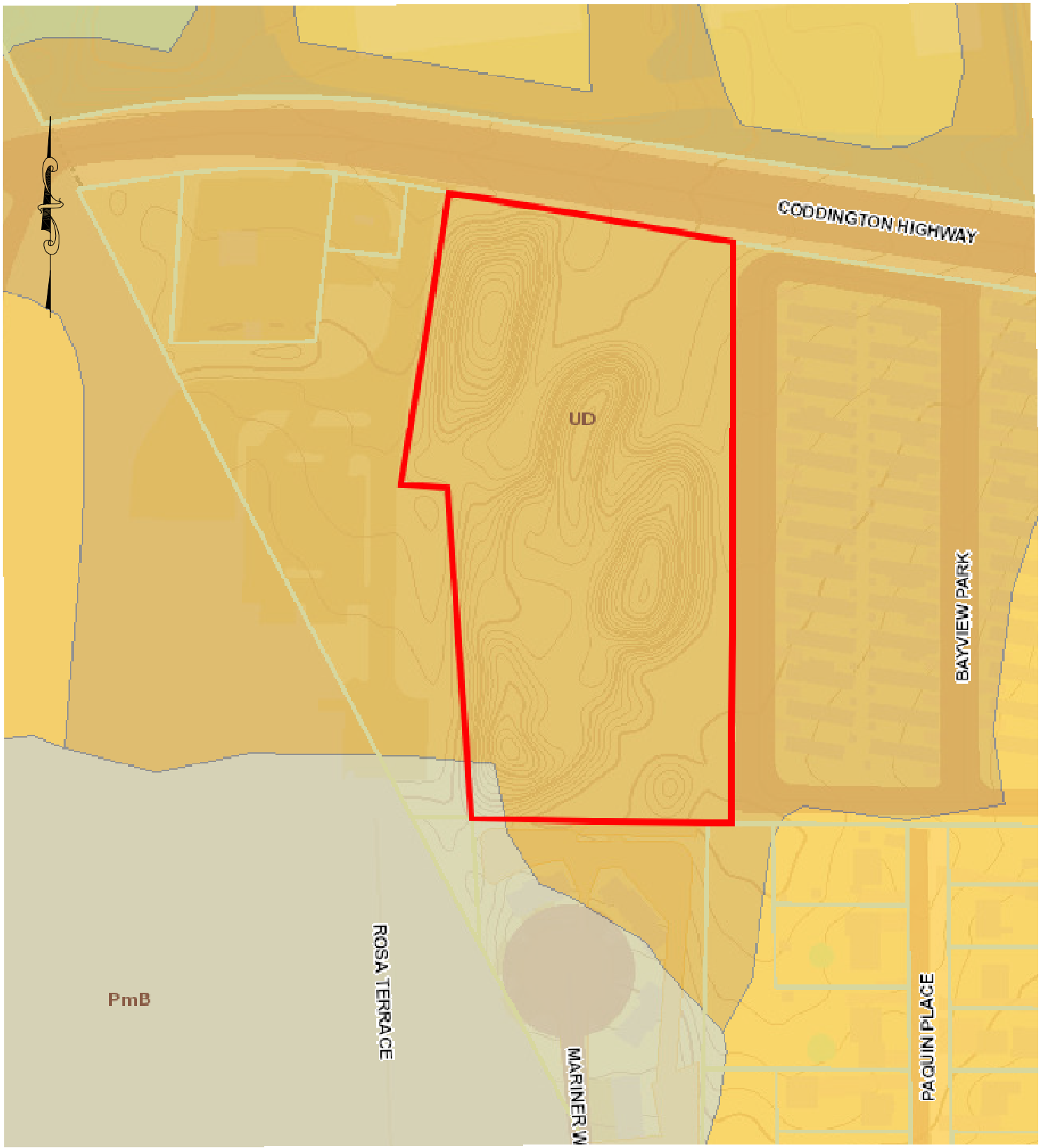
Project Title:	Drawing Title:	
CODDINGTON COVE COMMONS MIDDLETOWN, RHODE ISLAND	LOCUS MAP	
Issued for: PERMITTING	Drawing Number: FIG 1	Project Number: 23099.2



Scale: NTS	Date: 17APR24	Designed By: JJR	Drawn By: JJR	Checked By: GES

Project Title:	Drawing Title:	
CODDINGTON COVE COMMONS MIDDLETOWN, RHODE ISLAND	AERIAL PHOTOGRAPH	
Issued for: PERMITTING	Drawing Number: FIG 2	Project Number: 23099.2



Scale: NTS	Date: 17APR24	Designed By: JJR	Drawn By: JJR	Checked By: GES

Project Title:	Drawing Title:	
CODDINGTON COVE COMMONS MIDDLETOWN, RHODE ISLAND	SOILS MAP	
Issued for: PERMITTING	Drawing Number: FIG 3	Project Number: 23099.2

APPENDIX B WATERSHED MAPS

NORTHEAST ENGINEERS
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DESIGN POINT 3
CODDINGTON HIGHWAY

STORM	PEAK (CFS)	VOL (AF)
1-YEAR	0.69	0.057
2-YEAR	0.86	0.072
10-YEAR	1.40	0.120
25-YEAR	1.81	0.157
100-YEAR	2.64	0.235

DESIGN POINT 1
MUNICIPAL DRAINS

STORM	PEAK (CFS)	VOL (AF)
1-YEAR	8.09	0.727
2-YEAR	10.09	0.913
10-YEAR	16.53	1.526
25-YEAR	21.33	1.996
100-YEAR	31.99	2.987

DESIGN POINT 2
WESTERN ABUTTER

STORM	PEAK (CFS)	VOL (AF)
1-YEAR	0.97	0.070
2-YEAR	1.19	0.087
10-YEAR	1.89	0.142
25-YEAR	2.42	0.183
100-YEAR	3.49	0.271

GRAPHIC SCALE
30 0 15 30 60 120
(in feet)
1 inch = 30 feet

No.	Revision	Date	App.

Designed By:	JJR	Drawn by:	JJR	Checked by:	GES
Scale:	1"=30'	Date:	17APR24		

Project Title:

CODDINGTON COVE COMMONS
A.P. 103 LOT 103
300 CODDINGTON HIGHWAY
MIDDLETOWN
RHODE ISLAND

Client/Applicant:	Owner:
MELLO REALTY INC PO BOX 4129 MIDDLETOWN, RI 02842	MELLO REALTY INC PO BOX 4129 MIDDLETOWN, RI 02842

Issued for:

PERMITTING

Drawing Title:

EXISTING WATERSHED

Drawing Number:
W-1

Sheet 1 of 1

Project Number:
23099.2

Survey Index:
13 - 103 - 103

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DESIGN POINT 3
CODDINGTON HIGHWAY

STORM	PEAK (CFS)	VOL (AF)
1-YEAR	0.41	0.029
2-YEAR	0.54	0.038
10-YEAR	1.00	0.071
25-YEAR	1.36	0.097
100-YEAR	2.10	0.153

DESIGN POINT 1
MUNICIPAL DRAINS

STORM	PEAK (CFS)	VOL (AF)
1-YEAR	7.73	0.766
2-YEAR	9.74	0.965
10-YEAR	16.37	1.617
25-YEAR	21.24	2.114
100-YEAR	30.99	3.157

DESIGN POINT 2
WESTERLY ABUTTER

STORM	PEAK (CFS)	VOL (AF)
1-YEAR	0.21	0.016
2-YEAR	0.20	0.023
10-YEAR	0.55	0.047
25-YEAR	0.95	0.067
100-YEAR	1.58	0.112

GRAPHIC SCALE
30 0 15 30 60 120
(in feet)
1 inch = 30 feet

No.	Revision	Date	App.

Designed By: JJR | Drawn by: JJR | Checked by: GES
Scale: 1"=30' | Date: 17APR24

Project Title:
CODDINGTON COVE COMMONS
A.P. 103 LOT 103
300 CODDINGTON HIGHWAY
MIDDLETOWN
RHODE ISLAND

Client/Applicant:
MELLO REALTY INC
PO BOX 4129
MIDDLETOWN, RI 02842

Owner:
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MIDDLETOWN, RI 02842

Issued for:
PERMITTING

Drawing Title:
PROPOSED WATERSHED

Drawing Number: W-2
Sheet 1 of 1
Project Number: 23099.2
Survey Index: 13 - 103 - 103

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APPENDIX C EXISTING CONDITIONS HYDROCAD

Subcat Reach Pond Link

Routing Diagram for 23099_2024-04-17
Prepared by Northeast Engineers & Consultants, Inc., Printed 4/18/2024

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.332	95	Compacted Gravel Piles (101A, 102, 103)
0.440	85	Compacted Gravel Piles /vegetation (101A, 102)
1.097	74	Offsite >75% Grass cover, Good, HSG C (101A, 102, 103)
0.482	98	Offsite buildings (101A, 103)
0.312	98	Offsite pavement (101A, 103)
5.663	**91**	**TOTAL AREA**

Summary for Subcatchment 101A: Municipal drains

Runoff = 8.09 cfs @ 12.18 hrs, Volume= 0.727 af, Depth> 1.80"
Routed to Pond P1 : Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YEAR Rainfall=2.80"

	Area (sf)	CN	Description
*	18,900	98	Offsite buildings
*	11,340	98	Offsite pavement
*	43,134	74	Offsite >75% Grass cover, Good, HSG C
*	123,538	95	Compacted Gravel Piles
*	14,600	85	Compacted Gravel Piles /vegetation
	211,512	90	Weighted Average
	181,272	89	85.70% Pervious Area
	30,240	98	14.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.0200	0.17		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.6	87	0.0200	2.28		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
2.2	307	0.0134	2.35		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.2	30	0.0250	2.55		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
0.7	183	0.0409	4.11		**Shallow Concentrated Flow, Compacted Gravel** Paved Kv= 20.3 fps
13.3	707	Total			

Summary for Subcatchment 102: To abutter

Runoff = 0.97 cfs @ 12.09 hrs, Volume= 0.070 af, Depth> 1.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YEAR Rainfall=2.80"

	Area (sf)	CN	Description
*	350	74	Offsite >75% Grass cover, Good, HSG C
*	13,649	95	Compacted Gravel Piles
*	4,553	85	Compacted Gravel Piles /vegetation
	18,552	92	Weighted Average
	18,552	92	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment 103: To Coddington HWY

Runoff = 0.69 cfs @ 12.15 hrs, Volume= 0.057 af, Depth> 1.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YEAR Rainfall=2.80"

	Area (sf)	CN	Description
*	2,100	98	Offsite buildings
*	2,260	98	Offsite pavement
*	4,316	74	Offsite >75% Grass cover, Good, HSG C
*	7,937	95	Compacted Gravel Piles
	16,613	90	Weighted Average
	12,253	88	73.76% Pervious Area
	4,360	98	26.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.0220	0.18		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.4	55	0.0220	2.39		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
0.2	39	0.0220	3.01		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.2	28	0.0256	2.58		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
0.6	147	0.0421	4.17		**Shallow Concentrated Flow, Compacted Gravel** Paved Kv= 20.3 fps
10.7	369	Total			

Summary for Pond P1: Depression

Inflow Area = 4.856 ac, 14.30% Impervious, Inflow Depth > 1.80" for 1-YEAR event
Inflow = 8.09 cfs @ 12.18 hrs, Volume= 0.727 af
Outflow = 8.09 cfs @ 12.18 hrs, Volume= 0.727 af, Atten= 0%, Lag= 0.0 min
Primary = 8.09 cfs @ 12.18 hrs, Volume= 0.727 af
Routed to Link 101 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 10.86' @ 12.18 hrs Surf.Area= 17 sf Storage= 11 cf
Flood Elev= 17.00' Surf.Area= 1,707 sf Storage= 3,206 cf

Plug-Flow detention time= 0.0 min calculated for 0.727 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (817.4 - 817.4)

Volume	Invert	Avail.Storage	Storage Description
#1	9.88'	3,206 cf	**Drainage Depression (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.88	5	0	0
13.00	42	73	73
14.00	217	130	203
15.00	801	509	712
16.00	1,240	1,021	1,732
17.00	1,707	1,474	3,206

Device	Routing	Invert	Outlet Devices
#1	Primary	9.88'	**48.0" Round 48" RCP** L= 174.0' Ke= 0.500 Inlet / Outlet Invert= 9.88' / 7.27' S= 0.0150 '/' Cc= 0.900 n= 0.013, Flow Area= 12.57 sf

Primary OutFlow Max=8.08 cfs @ 12.18 hrs HW=10.86' TW=0.00' (Dynamic Tailwater)
↑—**1=48" RCP** (Inlet Controls 8.08 cfs @ 3.37 fps)

Summary for Link 101:

Inflow Area = 4.856 ac, 14.30% Impervious, Inflow Depth > 1.80" for 1-YEAR event
Inflow = 8.09 cfs @ 12.18 hrs, Volume= 0.727 af
Primary = 8.09 cfs @ 12.18 hrs, Volume= 0.727 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 101A: Municipal drains

Runoff = 10.09 cfs @ 12.18 hrs, Volume= 0.913 af, Depth> 2.26"
Routed to Pond P1 : Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR Rainfall=3.30"

	Area (sf)	CN	Description
*	18,900	98	Offsite buildings
*	11,340	98	Offsite pavement
*	43,134	74	Offsite >75% Grass cover, Good, HSG C
*	123,538	95	Compacted Gravel Piles
*	14,600	85	Compacted Gravel Piles /vegetation
	211,512	90	Weighted Average
	181,272	89	85.70% Pervious Area
	30,240	98	14.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.0200	0.17		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.6	87	0.0200	2.28		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
2.2	307	0.0134	2.35		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.2	30	0.0250	2.55		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
0.7	183	0.0409	4.11		**Shallow Concentrated Flow, Compacted Gravel** Paved Kv= 20.3 fps
13.3	707	Total			

Summary for Subcatchment 102: To abutter

Runoff = 1.19 cfs @ 12.09 hrs, Volume= 0.087 af, Depth> 2.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR Rainfall=3.30"

	Area (sf)	CN	Description
*	350	74	Offsite >75% Grass cover, Good, HSG C
*	13,649	95	Compacted Gravel Piles
*	4,553	85	Compacted Gravel Piles /vegetation
	18,552	92	Weighted Average
	18,552	92	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment 103: To Coddington HWY

Runoff = 0.86 cfs @ 12.14 hrs, Volume= 0.072 af, Depth> 2.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR Rainfall=3.30"

	Area (sf)	CN	Description
*	2,100	98	Offsite buildings
*	2,260	98	Offsite pavement
*	4,316	74	Offsite >75% Grass cover, Good, HSG C
*	7,937	95	Compacted Gravel Piles
	16,613	90	Weighted Average
	12,253	88	73.76% Pervious Area
	4,360	98	26.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.0220	0.18		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.4	55	0.0220	2.39		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
0.2	39	0.0220	3.01		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.2	28	0.0256	2.58		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
0.6	147	0.0421	4.17		**Shallow Concentrated Flow, Compacted Gravel** Paved Kv= 20.3 fps
10.7	369	Total			

Summary for Pond P1: Depression

Inflow Area = 4.856 ac, 14.30% Impervious, Inflow Depth > 2.26" for 2-YEAR event
Inflow = 10.09 cfs @ 12.18 hrs, Volume= 0.913 af
Outflow = 10.09 cfs @ 12.18 hrs, Volume= 0.913 af, Atten= 0%, Lag= 0.0 min
Primary = 10.09 cfs @ 12.18 hrs, Volume= 0.913 af
Routed to Link 101 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 10.98' @ 12.18 hrs Surf.Area= 18 sf Storage= 13 cf
Flood Elev= 17.00' Surf.Area= 1,707 sf Storage= 3,206 cf

Plug-Flow detention time= 0.0 min calculated for 0.913 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (811.0 - 811.0)

Volume	Invert	Avail.Storage	Storage Description
#1	9.88'	3,206 cf	**Drainage Depression (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.88	5	0	0
13.00	42	73	73
14.00	217	130	203
15.00	801	509	712
16.00	1,240	1,021	1,732
17.00	1,707	1,474	3,206

Device	Routing	Invert	Outlet Devices
#1	Primary	9.88'	**48.0" Round 48" RCP** L= 174.0' Ke= 0.500 Inlet / Outlet Invert= 9.88' / 7.27' S= 0.0150 '/' Cc= 0.900 n= 0.013, Flow Area= 12.57 sf

Primary OutFlow Max=10.09 cfs @ 12.18 hrs HW=10.98' TW=0.00' (Dynamic Tailwater)
↑—**1=48" RCP** (Inlet Controls 10.09 cfs @ 3.58 fps)

Summary for Link 101:

Inflow Area = 4.856 ac, 14.30% Impervious, Inflow Depth > 2.26" for 2-YEAR event
Inflow = 10.09 cfs @ 12.18 hrs, Volume= 0.913 af
Primary = 10.09 cfs @ 12.18 hrs, Volume= 0.913 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 101A: Municipal drains

Runoff = 16.53 cfs @ 12.18 hrs, Volume= 1.526 af, Depth> 3.77"
Routed to Pond P1 : Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR Rainfall=4.90"

	Area (sf)	CN	Description
*	18,900	98	Offsite buildings
*	11,340	98	Offsite pavement
*	43,134	74	Offsite >75% Grass cover, Good, HSG C
*	123,538	95	Compacted Gravel Piles
*	14,600	85	Compacted Gravel Piles /vegetation
	211,512	90	Weighted Average
	181,272	89	85.70% Pervious Area
	30,240	98	14.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.0200	0.17		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.6	87	0.0200	2.28		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
2.2	307	0.0134	2.35		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.2	30	0.0250	2.55		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
0.7	183	0.0409	4.11		**Shallow Concentrated Flow, Compacted Gravel** Paved Kv= 20.3 fps
13.3	707	Total			

Summary for Subcatchment 102: To abutter

Runoff = 1.89 cfs @ 12.08 hrs, Volume= 0.142 af, Depth> 3.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR Rainfall=4.90"

	Area (sf)	CN	Description
*	350	74	Offsite >75% Grass cover, Good, HSG C
*	13,649	95	Compacted Gravel Piles
*	4,553	85	Compacted Gravel Piles /vegetation
	18,552	92	Weighted Average
	18,552	92	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment 103: To Coddington HWY

Runoff = 1.40 cfs @ 12.14 hrs, Volume= 0.120 af, Depth> 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR Rainfall=4.90"

	Area (sf)	CN	Description
*	2,100	98	Offsite buildings
*	2,260	98	Offsite pavement
*	4,316	74	Offsite >75% Grass cover, Good, HSG C
*	7,937	95	Compacted Gravel Piles
	16,613	90	Weighted Average
	12,253	88	73.76% Pervious Area
	4,360	98	26.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.0220	0.18		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.4	55	0.0220	2.39		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
0.2	39	0.0220	3.01		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.2	28	0.0256	2.58		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
0.6	147	0.0421	4.17		**Shallow Concentrated Flow, Compacted Gravel** Paved Kv= 20.3 fps
10.7	369	Total			

Summary for Pond P1: Depression

Inflow Area = 4.856 ac, 14.30% Impervious, Inflow Depth > 3.77" for 10-YEAR event
Inflow = 16.53 cfs @ 12.18 hrs, Volume= 1.526 af
Outflow = 16.53 cfs @ 12.18 hrs, Volume= 1.526 af, Atten= 0%, Lag= 0.0 min
Primary = 16.53 cfs @ 12.18 hrs, Volume= 1.526 af
Routed to Link 101 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 11.31' @ 12.18 hrs Surf.Area= 22 sf Storage= 19 cf
Flood Elev= 17.00' Surf.Area= 1,707 sf Storage= 3,206 cf

Plug-Flow detention time= 0.0 min calculated for 1.526 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (796.8 - 796.8)

Volume	Invert	Avail.Storage	Storage Description
#1	9.88'	3,206 cf	**Drainage Depression (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.88	5	0	0
13.00	42	73	73
14.00	217	130	203
15.00	801	509	712
16.00	1,240	1,021	1,732
17.00	1,707	1,474	3,206

Device	Routing	Invert	Outlet Devices
#1	Primary	9.88'	**48.0" Round 48" RCP** L= 174.0' Ke= 0.500 Inlet / Outlet Invert= 9.88' / 7.27' S= 0.0150 '/' Cc= 0.900 n= 0.013, Flow Area= 12.57 sf

Primary OutFlow Max=16.52 cfs @ 12.18 hrs HW=11.31' TW=0.00' (Dynamic Tailwater)
↑—**1=48" RCP** (Inlet Controls 16.52 cfs @ 4.08 fps)

Summary for Link 101:

Inflow Area = 4.856 ac, 14.30% Impervious, Inflow Depth > 3.77" for 10-YEAR event
Inflow = 16.53 cfs @ 12.18 hrs, Volume= 1.526 af
Primary = 16.53 cfs @ 12.18 hrs, Volume= 1.526 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 101A: Municipal drains

Runoff = 21.33 cfs @ 12.18 hrs, Volume= 1.996 af, Depth> 4.93"
Routed to Pond P1 : Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=6.10"

	Area (sf)	CN	Description
*	18,900	98	Offsite buildings
*	11,340	98	Offsite pavement
*	43,134	74	Offsite >75% Grass cover, Good, HSG C
*	123,538	95	Compacted Gravel Piles
*	14,600	85	Compacted Gravel Piles /vegetation
	211,512	90	Weighted Average
	181,272	89	85.70% Pervious Area
	30,240	98	14.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.0200	0.17		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.6	87	0.0200	2.28		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
2.2	307	0.0134	2.35		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.2	30	0.0250	2.55		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
0.7	183	0.0409	4.11		**Shallow Concentrated Flow, Compacted Gravel** Paved Kv= 20.3 fps
13.3	707	Total			

Summary for Subcatchment 102: To abutter

Runoff = 2.42 cfs @ 12.08 hrs, Volume= 0.183 af, Depth> 5.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=6.10"

	Area (sf)	CN	Description
*	350	74	Offsite >75% Grass cover, Good, HSG C
*	13,649	95	Compacted Gravel Piles
*	4,553	85	Compacted Gravel Piles /vegetation
	18,552	92	Weighted Average
	18,552	92	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment 103: To Coddington HWY

Runoff = 1.81 cfs @ 12.14 hrs, Volume= 0.157 af, Depth> 4.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=6.10"

	Area (sf)	CN	Description
*	2,100	98	Offsite buildings
*	2,260	98	Offsite pavement
*	4,316	74	Offsite >75% Grass cover, Good, HSG C
*	7,937	95	Compacted Gravel Piles
	16,613	90	Weighted Average
	12,253	88	73.76% Pervious Area
	4,360	98	26.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.0220	0.18		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.4	55	0.0220	2.39		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
0.2	39	0.0220	3.01		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.2	28	0.0256	2.58		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
0.6	147	0.0421	4.17		**Shallow Concentrated Flow, Compacted Gravel** Paved Kv= 20.3 fps
10.7	369	Total			

Summary for Pond P1: Depression

Inflow Area = 4.856 ac, 14.30% Impervious, Inflow Depth > 4.93" for 25-YEAR event
Inflow = 21.33 cfs @ 12.18 hrs, Volume= 1.996 af
Outflow = 21.33 cfs @ 12.18 hrs, Volume= 1.996 af, Atten= 0%, Lag= 0.0 min
Primary = 21.33 cfs @ 12.18 hrs, Volume= 1.996 af
Routed to Link 101 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 11.53' @ 12.18 hrs Surf.Area= 25 sf Storage= 24 cf
Flood Elev= 17.00' Surf.Area= 1,707 sf Storage= 3,206 cf

Plug-Flow detention time= 0.0 min calculated for 1.995 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (789.6 - 789.6)

Volume	Invert	Avail.Storage	Storage Description
#1	9.88'	3,206 cf	**Drainage Depression (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.88	5	0	0
13.00	42	73	73
14.00	217	130	203
15.00	801	509	712
16.00	1,240	1,021	1,732
17.00	1,707	1,474	3,206

Device	Routing	Invert	Outlet Devices
#1	Primary	9.88'	**48.0" Round 48" RCP** L= 174.0' Ke= 0.500 Inlet / Outlet Invert= 9.88' / 7.27' S= 0.0150 '/' Cc= 0.900 n= 0.013, Flow Area= 12.57 sf

Primary OutFlow Max=21.32 cfs @ 12.18 hrs HW=11.53' TW=0.00' (Dynamic Tailwater)
↑—**1=48" RCP** (Inlet Controls 21.32 cfs @ 4.37 fps)

Summary for Link 101:

Inflow Area = 4.856 ac, 14.30% Impervious, Inflow Depth > 4.93" for 25-YEAR event
Inflow = 21.33 cfs @ 12.18 hrs, Volume= 1.996 af
Primary = 21.33 cfs @ 12.18 hrs, Volume= 1.996 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 101A: Municipal drains

Runoff = 31.22 cfs @ 12.17 hrs, Volume= 2.987 af, Depth> 7.38"
Routed to Pond P1 : Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YEAR Rainfall=8.60"

	Area (sf)	CN	Description
*	18,900	98	Offsite buildings
*	11,340	98	Offsite pavement
*	43,134	74	Offsite >75% Grass cover, Good, HSG C
*	123,538	95	Compacted Gravel Piles
*	14,600	85	Compacted Gravel Piles /vegetation
	211,512	90	Weighted Average
	181,272	89	85.70% Pervious Area
	30,240	98	14.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.0200	0.17		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.6	87	0.0200	2.28		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
2.2	307	0.0134	2.35		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.2	30	0.0250	2.55		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
0.7	183	0.0409	4.11		**Shallow Concentrated Flow, Compacted Gravel** Paved Kv= 20.3 fps
13.3	707	Total			

Summary for Subcatchment 102: To abutter

Runoff = 3.49 cfs @ 12.08 hrs, Volume= 0.271 af, Depth> 7.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YEAR Rainfall=8.60"

	Area (sf)	CN	Description
*	350	74	Offsite >75% Grass cover, Good, HSG C
*	13,649	95	Compacted Gravel Piles
*	4,553	85	Compacted Gravel Piles /vegetation
	18,552	92	Weighted Average
	18,552	92	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment 103: To Coddington HWY

Runoff = 2.64 cfs @ 12.14 hrs, Volume= 0.235 af, Depth> 7.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YEAR Rainfall=8.60"

	Area (sf)	CN	Description
*	2,100	98	Offsite buildings
*	2,260	98	Offsite pavement
*	4,316	74	Offsite >75% Grass cover, Good, HSG C
*	7,937	95	Compacted Gravel Piles
	16,613	90	Weighted Average
	12,253	88	73.76% Pervious Area
	4,360	98	26.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.0220	0.18		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.4	55	0.0220	2.39		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
0.2	39	0.0220	3.01		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.2	28	0.0256	2.58		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
0.6	147	0.0421	4.17		**Shallow Concentrated Flow, Compacted Gravel** Paved Kv= 20.3 fps
10.7	369	Total			

Summary for Pond P1: Depression

Inflow Area = 4.856 ac, 14.30% Impervious, Inflow Depth > 7.38" for 100-YEAR event
Inflow = 31.22 cfs @ 12.17 hrs, Volume= 2.987 af
Outflow = 31.22 cfs @ 12.18 hrs, Volume= 2.987 af, Atten= 0%, Lag= 0.0 min
Primary = 31.22 cfs @ 12.18 hrs, Volume= 2.987 af
Routed to Link 101 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 11.92' @ 12.18 hrs Surf.Area= 29 sf Storage= 35 cf
Flood Elev= 17.00' Surf.Area= 1,707 sf Storage= 3,206 cf

Plug-Flow detention time= 0.0 min calculated for 2.986 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (779.3 - 779.3)

Volume	Invert	Avail.Storage	Storage Description
#1	9.88'	3,206 cf	**Drainage Depression (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.88	5	0	0
13.00	42	73	73
14.00	217	130	203
15.00	801	509	712
16.00	1,240	1,021	1,732
17.00	1,707	1,474	3,206

Device	Routing	Invert	Outlet Devices
#1	Primary	9.88'	**48.0" Round 48" RCP** L= 174.0' Ke= 0.500 Inlet / Outlet Invert= 9.88' / 7.27' S= 0.0150 '/' Cc= 0.900 n= 0.013, Flow Area= 12.57 sf

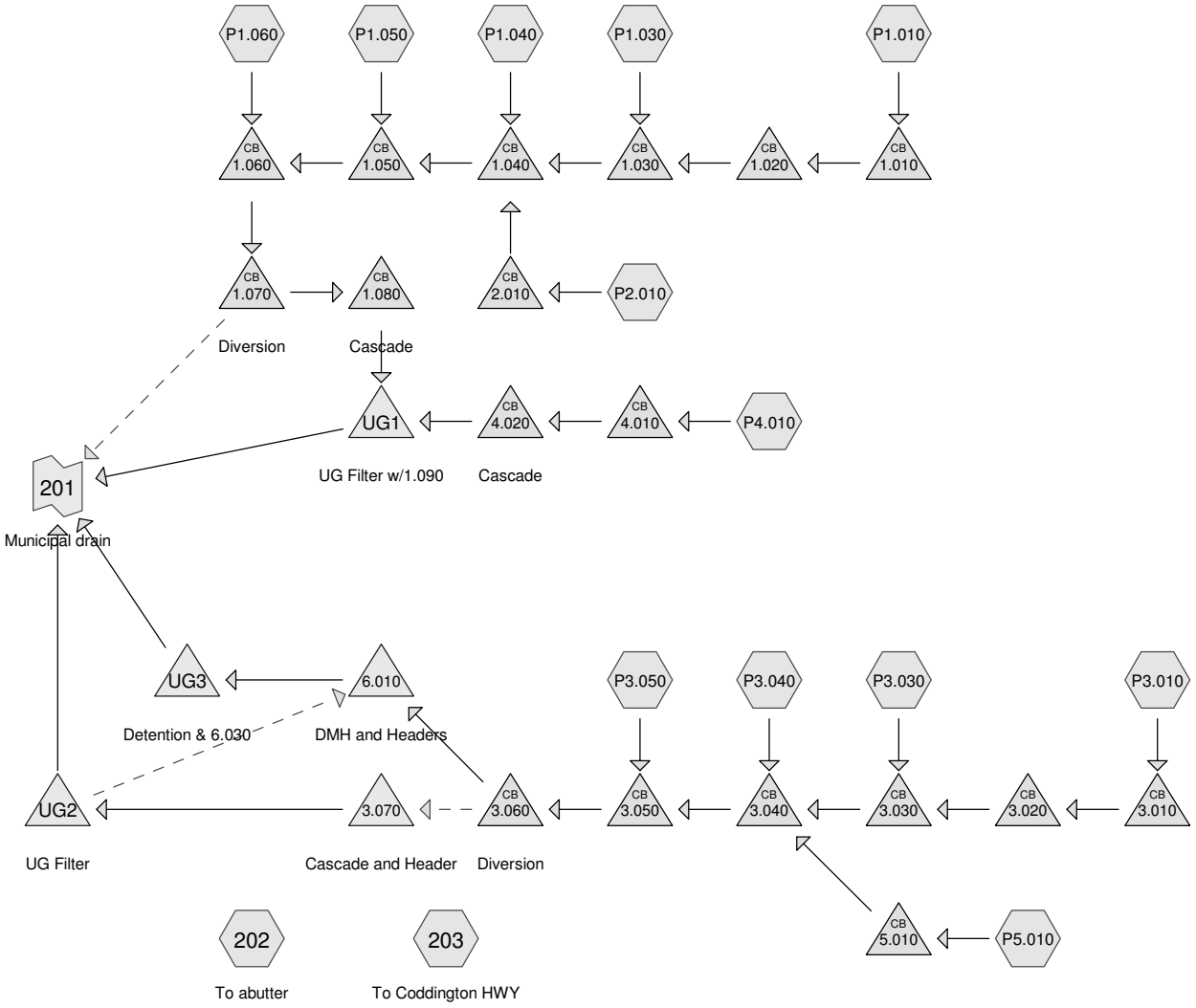
Primary OutFlow Max=31.20 cfs @ 12.18 hrs HW=11.92' TW=0.00' (Dynamic Tailwater)
↑—**1=48" RCP** (Inlet Controls 31.20 cfs @ 4.86 fps)

Summary for Link 101:

Inflow Area = 4.856 ac, 14.30% Impervious, Inflow Depth > 7.38" for 100-YEAR event
Inflow = 31.22 cfs @ 12.18 hrs, Volume= 2.987 af
Primary = 31.22 cfs @ 12.18 hrs, Volume= 2.987 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

APPENDIX D PROPOSED CONDITIONS HYDROCAD



Routing Diagram for 23099_2024-04-17

Prepared by Northeast Engineers & Consultants, Inc., Printed 4/18/2024

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.637	74	>75% Grass cover, Good, HSG C (202, 203, P1.010, P1.030, P1.040, P1.050, P2.010, P3.010, P3.030, P4.010, P5.010)
1.332	98	Building (P1.010, P1.030, P1.050, P1.060, P2.010, P3.010, P3.040, P3.050, P4.010, P5.010)
0.011	98	Concrete (203, P2.010, P4.010, P5.010)
1.116	74	Offsite >75% Grass cover, Good, HSG C (203, P1.010, P1.030, P1.040, P1.050, P1.060, P3.010, P3.030)
0.459	98	Offsite buildings (P1.030, P1.040, P1.050, P1.060)
0.310	98	Offsite pavement (203, P1.030, P1.040, P1.050, P1.060)
1.827	98	Pavement (203, P1.010, P1.030, P1.040, P1.050, P1.060, P2.010, P3.010, P3.030, P3.040, P3.050, P4.010, P5.010)
5.692	**91**	**TOTAL AREA**

Summary for Subcatchment 202: To abutter

Runoff = 0.21 cfs @ 12.10 hrs, Volume= 0.016 af, Depth> 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YEAR Rainfall=2.80"

Area (sf)	CN	Description
10,755	74	>75% Grass cover, Good, HSG C
10,755	74	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment 203: To Coddington HWY

Runoff = 0.41 cfs @ 12.09 hrs, Volume= 0.029 af, Depth> 1.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YEAR Rainfall=2.80"

	Area (sf)	CN	Description
*	350	98	Offsite pavement
*	460	74	Offsite >75% Grass cover, Good, HSG C
*	3,600	98	Pavement
	7,867	74	>75% Grass cover, Good, HSG C
*	200	98	Concrete
	12,477	82	Weighted Average
	8,327	74	66.74% Pervious Area
	4,150	98	33.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P1.010:

Runoff = 0.69 cfs @ 12.09 hrs, Volume= 0.049 af, Depth> 1.80"
Routed to Pond 1.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YEAR Rainfall=2.80"

	Area (sf)	CN	Description
*	951	74	Offsite >75% Grass cover, Good, HSG C
*	4,800	98	Building
	3,595	74	>75% Grass cover, Good, HSG C
*	5,002	98	Pavement
	14,348	90	Weighted Average
	4,546	74	31.68% Pervious Area
	9,802	98	68.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P1.030:

Runoff = 0.84 cfs @ 12.14 hrs, Volume= 0.069 af, Depth> 1.80"
Routed to Pond 1.030 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YEAR Rainfall=2.80"

	Area (sf)	CN	Description
*	2,652	98	Offsite buildings
*	2,782	98	Offsite pavement
*	6,500	74	Offsite >75% Grass cover, Good, HSG C
*	5,519	98	Pavement
*	2,400	98	Building
	232	74	>75% Grass cover, Good, HSG C
	20,085	90	Weighted Average
	6,732	74	33.52% Pervious Area
	13,353	98	66.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.0200	0.17		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.2	21	0.0200	2.28		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
0.6	105	0.0182	2.74		**Shallow Concentrated Flow, Grass and pavement** Paved Kv= 20.3 fps
10.4	226	Total			

Summary for Subcatchment P1.040:

Runoff = 1.29 cfs @ 12.15 hrs, Volume= 0.107 af, Depth> 1.49"
Routed to Pond 1.040 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YEAR Rainfall=2.80"

	Area (sf)	CN	Description
*	8,400	98	Offsite buildings
*	4,300	98	Offsite pavement
*	18,448	74	Offsite >75% Grass cover, Good, HSG C
*	6,080	98	Pavement
	155	74	>75% Grass cover, Good, HSG C
	37,383	86	Weighted Average
	18,603	74	49.76% Pervious Area
	18,780	98	50.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0250	0.19		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.7	104	0.0250	2.55		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
1.0	200	0.0250	3.21		**Shallow Concentrated Flow, Grass and pavement** Paved Kv= 20.3 fps
10.5	404	Total			

Summary for Subcatchment P1.050:

Runoff = 0.86 cfs @ 12.14 hrs, Volume= 0.070 af, Depth> 1.64"
Routed to Pond 1.050 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YEAR Rainfall=2.80"

	Area (sf)	CN	Description
*	4,200	98	Offsite buildings
*	2,182	98	Offsite pavement
*	8,829	74	Offsite >75% Grass cover, Good, HSG C
*	2,400	98	Building
*	4,519	98	Pavement
	155	74	>75% Grass cover, Good, HSG C
	22,285	88	Weighted Average
	8,984	74	40.31% Pervious Area
	13,301	98	59.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0250	0.19		**Sheet Flow, Lawns** Grass: Short n= 0.150 P2= 3.30"
0.6	83	0.0220	2.39		**Shallow Concentrated Flow, Lawns** Unpaved Kv= 16.1 fps
0.6	155	0.0500	4.54		**Shallow Concentrated Flow, Pavement and Grass** Paved Kv= 20.3 fps
10.0	338	Total			

Summary for Subcatchment P1.060:

Runoff = 1.06 cfs @ 12.15 hrs, Volume= 0.088 af, Depth> 1.64"
Routed to Pond 1.060 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YEAR Rainfall=2.80"

	Area (sf)	CN	Description
*	4,725	98	Offsite buildings
*	3,905	98	Offsite pavement
*	11,862	74	Offsite >75% Grass cover, Good, HSG C
*	2,505	98	Building
*	5,125	98	Pavement
	28,122	88	Weighted Average
	11,862	74	42.18% Pervious Area
	16,260	98	57.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.0200	0.17		**Sheet Flow, Lawn** Grass: Short n= 0.150 P2= 3.30"
0.6	88	0.0250	2.55		**Shallow Concentrated Flow, Lawn** Unpaved Kv= 16.1 fps
0.5	162	0.0700	5.37		**Shallow Concentrated Flow, Pavement and lawn** Paved Kv= 20.3 fps
10.7	350	Total			

Summary for Subcatchment P2.010:

Runoff = 1.31 cfs @ 12.08 hrs, Volume= 0.103 af, Depth> 2.57"
Routed to Pond 2.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YEAR Rainfall=2.80"

	Area (sf)	CN	Description
	436	74	>75% Grass cover, Good, HSG C
*	8,484	98	Pavement
*	12,000	98	Building
*	90	98	Concrete
	21,010	98	Weighted Average
	436	74	2.08% Pervious Area
	20,574	98	97.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.010:

Runoff = 0.68 cfs @ 12.09 hrs, Volume= 0.049 af, Depth> 1.80"
Routed to Pond 3.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YEAR Rainfall=2.80"

	Area (sf)	CN	Description
*	1,547	74	Offsite >75% Grass cover, Good, HSG C
	3,273	74	>75% Grass cover, Good, HSG C
*	4,521	98	Pavement
*	4,800	98	Building
	14,141	90	Weighted Average
	4,820	74	34.09% Pervious Area
	9,321	98	65.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.030:

Runoff = 0.21 cfs @ 12.08 hrs, Volume= 0.016 af, Depth> 2.35"
Routed to Pond 3.030 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YEAR Rainfall=2.80"

	Area (sf)	CN	Description
*	3,214	98	Pavement
*	3	74	Offsite >75% Grass cover, Good, HSG C
	257	74	>75% Grass cover, Good, HSG C
	3,474	96	Weighted Average
	260	74	7.48% Pervious Area
	3,214	98	92.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.040:

Runoff = 0.39 cfs @ 12.08 hrs, Volume= 0.031 af, Depth> 2.57"
Routed to Pond 3.040 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YEAR Rainfall=2.80"

	Area (sf)	CN	Description
*	3,914	98	Pavement
*	2,400	98	Building
	6,314	98	Weighted Average
	6,314	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.050:

Runoff = 0.56 cfs @ 12.08 hrs, Volume= 0.044 af, Depth> 2.57"
Routed to Pond 3.050 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YEAR Rainfall=2.80"

	Area (sf)	CN	Description
*	6,619	98	Pavement
*	2,400	98	Building
	9,019	98	Weighted Average
	9,019	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P4.010:

Runoff = 1.66 cfs @ 12.08 hrs, Volume= 0.128 af, Depth> 2.46"
Routed to Pond 4.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YEAR Rainfall=2.80"

	Area (sf)	CN	Description
*	12,315	98	Building
*	14,211	98	Pavement
*	100	98	Concrete
	657	74	>75% Grass cover, Good, HSG C
	27,283	97	Weighted Average
	657	74	2.41% Pervious Area
	26,626	98	97.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P5.010:

Runoff = 1.32 cfs @ 12.08 hrs, Volume= 0.104 af, Depth> 2.57"
Routed to Pond 5.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YEAR Rainfall=2.80"

	Area (sf)	CN	Description
*	12,000	98	Building
*	90	98	Concrete
*	8,787	98	Pavement
	376	74	>75% Grass cover, Good, HSG C
	21,253	98	Weighted Average
	376	74	1.77% Pervious Area
	20,877	98	98.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Pond 1.010:

Inflow Area = 0.329 ac, 68.32% Impervious, Inflow Depth > 1.80" for 1-YEAR event
Inflow = 0.69 cfs @ 12.09 hrs, Volume= 0.049 af
Outflow = 0.69 cfs @ 12.09 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min
Primary = 0.69 cfs @ 12.09 hrs, Volume= 0.049 af
Routed to Pond 1.020 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 25.19' @ 12.09 hrs
Flood Elev= 28.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.75'	**12.0" Round 12" ADS** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 24.75' / 24.25' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.69 cfs @ 12.09 hrs HW=25.19' TW=24.57' (Dynamic Tailwater)
↑—**1=12" ADS** (Barrel Controls 0.69 cfs @ 3.06 fps)

Summary for Pond 1.020:

Inflow Area = 0.329 ac, 68.32% Impervious, Inflow Depth > 1.80" for 1-YEAR event
Inflow = 0.69 cfs @ 12.09 hrs, Volume= 0.049 af
Outflow = 0.69 cfs @ 12.09 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min
Primary = 0.69 cfs @ 12.09 hrs, Volume= 0.049 af
Routed to Pond 1.030 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 24.57' @ 12.09 hrs
Flood Elev= 28.33'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.15'	**12.0" Round 12" ADS** L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 24.15' / 23.15' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.69 cfs @ 12.09 hrs HW=24.57' TW=23.19' (Dynamic Tailwater)
1=12" ADS (Inlet Controls 0.69 cfs @ 2.21 fps)

Summary for Pond 1.030:

Inflow Area = 0.790 ac, 67.25% Impervious, Inflow Depth > 1.80" for 1-YEAR event
Inflow = 1.46 cfs @ 12.11 hrs, Volume= 0.118 af
Outflow = 1.46 cfs @ 12.11 hrs, Volume= 0.118 af, Atten= 0%, Lag= 0.0 min
Primary = 1.46 cfs @ 12.11 hrs, Volume= 0.118 af
Routed to Pond 1.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 23.20' @ 12.11 hrs
Flood Elev= 26.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	22.65'	**18.0" Round 18" ADS** L= 134.0' Ke= 0.500 Inlet / Outlet Invert= 22.65' / 20.50' S= 0.0160 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=1.46 cfs @ 12.11 hrs HW=23.20' TW=20.85' (Dynamic Tailwater)
1=18" ADS (Inlet Controls 1.46 cfs @ 2.51 fps)

Summary for Pond 1.040:

Inflow Area = 2.131 ac, 67.34% Impervious, Inflow Depth > 1.85" for 1-YEAR event
Inflow = 3.91 cfs @ 12.11 hrs, Volume= 0.328 af
Outflow = 3.91 cfs @ 12.11 hrs, Volume= 0.328 af, Atten= 0%, Lag= 0.0 min
Primary = 3.91 cfs @ 12.11 hrs, Volume= 0.328 af
Routed to Pond 1.050 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 20.85' @ 12.12 hrs
Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	20.00'	**24.0" Round 24" ADS** L= 104.0' Ke= 0.500 Inlet / Outlet Invert= 20.00' / 18.95' S= 0.0101 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=3.89 cfs @ 12.11 hrs HW=20.85' TW=19.84' (Dynamic Tailwater)
1=24" ADS (Outlet Controls 3.89 cfs @ 4.51 fps)

Summary for Pond 1.050:

Inflow Area = 2.643 ac, 65.86% Impervious, Inflow Depth > 1.81" for 1-YEAR event
Inflow = 4.74 cfs @ 12.12 hrs, Volume= 0.398 af
Outflow = 4.74 cfs @ 12.12 hrs, Volume= 0.398 af, Atten= 0%, Lag= 0.0 min
Primary = 4.74 cfs @ 12.12 hrs, Volume= 0.398 af
Routed to Pond 1.060 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.84' @ 12.12 hrs
Flood Elev= 23.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.85'	**24.0" Round 24" ADS** L= 104.0' Ke= 0.500 Inlet / Outlet Invert= 18.85' / 17.75' S= 0.0106 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=4.72 cfs @ 12.12 hrs HW=19.84' TW=18.92' (Dynamic Tailwater)
1=24" ADS (Outlet Controls 4.72 cfs @ 4.46 fps)

Summary for Pond 1.060:

Inflow Area = 3.288 ac, 64.28% Impervious, Inflow Depth > 1.77" for 1-YEAR event
Inflow = 5.76 cfs @ 12.12 hrs, Volume= 0.486 af
Outflow = 5.76 cfs @ 12.12 hrs, Volume= 0.486 af, Atten= 0%, Lag= 0.0 min
Primary = 5.76 cfs @ 12.12 hrs, Volume= 0.486 af
Routed to Pond 1.070 : Diversion

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 18.92' @ 12.12 hrs
Flood Elev= 22.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	17.65'	**24.0" Round 24" ADS** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 17.65' / 17.60' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=5.76 cfs @ 12.12 hrs HW=18.92' TW=18.50' (Dynamic Tailwater)
1=24" ADS (Barrel Controls 5.76 cfs @ 3.90 fps)

Summary for Pond 1.070: Diversion

Inflow Area = 3.288 ac, 64.28% Impervious, Inflow Depth > 1.77" for 1-YEAR event
Inflow = 5.76 cfs @ 12.12 hrs, Volume= 0.486 af
Outflow = 5.76 cfs @ 12.12 hrs, Volume= 0.486 af, Atten= 0%, Lag= 0.0 min
Primary = 1.35 cfs @ 12.12 hrs, Volume= 0.358 af
Routed to Pond 1.080 : Cascade
Secondary = 4.42 cfs @ 12.12 hrs, Volume= 0.128 af
Routed to Link 201 : Municipal drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 18.50' @ 12.12 hrs
Flood Elev= 22.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.60'	**8.0" Round 8" ADS** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 16.60' / 16.55' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#2	Secondary	17.60'	**24.0" Round 24" ADS** L= 105.0' Ke= 0.500 Inlet / Outlet Invert= 17.60' / 16.50' S= 0.0105 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=1.34 cfs @ 12.12 hrs HW=18.50' TW=17.86' (Dynamic Tailwater)
1=8" ADS (Inlet Controls 1.34 cfs @ 3.85 fps)

Secondary OutFlow Max=4.41 cfs @ 12.12 hrs HW=18.50' TW=0.00' (Dynamic Tailwater)
2=24" ADS (Inlet Controls 4.41 cfs @ 3.23 fps)

Summary for Pond 1.080: Cascade

Inflow Area = 3.288 ac, 64.28% Impervious, Inflow Depth > 1.31" for 1-YEAR event
Inflow = 1.35 cfs @ 12.12 hrs, Volume= 0.358 af
Outflow = 1.35 cfs @ 12.12 hrs, Volume= 0.358 af, Atten= 0%, Lag= 0.0 min
Primary = 1.35 cfs @ 12.12 hrs, Volume= 0.358 af
Routed to Pond UG1 : UG Filter w/1.090

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 17.86' @ 12.12 hrs
Flood Elev= 22.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.55'	**8.0" Vert. 8" Header** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.35 cfs @ 12.12 hrs HW=17.86' TW=17.21' (Dynamic Tailwater)
↑—**1=8" Header** (Orifice Controls 1.35 cfs @ 3.86 fps)

Summary for Pond 2.010:

Inflow Area = 0.482 ac, 97.92% Impervious, Inflow Depth > 2.57" for 1-YEAR event
Inflow = 1.31 cfs @ 12.08 hrs, Volume= 0.103 af
Outflow = 1.31 cfs @ 12.08 hrs, Volume= 0.103 af, Atten= 0%, Lag= 0.0 min
Primary = 1.31 cfs @ 12.08 hrs, Volume= 0.103 af
Routed to Pond 1.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 21.54' @ 12.08 hrs
Flood Elev= 24.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	**18.0" Round 18" ADS** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 21.00' / 20.50' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=1.30 cfs @ 12.08 hrs HW=21.54' TW=20.83' (Dynamic Tailwater)
↑—**1=18" ADS** (Barrel Controls 1.30 cfs @ 3.43 fps)

Summary for Pond 3.010:

Inflow Area = 0.325 ac, 65.91% Impervious, Inflow Depth > 1.80" for 1-YEAR event
Inflow = 0.68 cfs @ 12.09 hrs, Volume= 0.049 af
Outflow = 0.68 cfs @ 12.09 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min
Primary = 0.68 cfs @ 12.09 hrs, Volume= 0.049 af
Routed to Pond 3.020 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 25.19' @ 12.09 hrs
Flood Elev= 28.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.75'	**12.0" Round 12" ADS** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 24.75' / 24.29' S= 0.0074 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.68 cfs @ 12.09 hrs HW=25.19' TW=24.63' (Dynamic Tailwater)
↑—**1=12" ADS** (Outlet Controls 0.68 cfs @ 3.02 fps)

Summary for Pond 3.020:

Inflow Area = 0.325 ac, 65.91% Impervious, Inflow Depth > 1.80" for 1-YEAR event
Inflow = 0.68 cfs @ 12.09 hrs, Volume= 0.049 af
Outflow = 0.68 cfs @ 12.09 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min
Primary = 0.68 cfs @ 12.09 hrs, Volume= 0.049 af
Routed to Pond 3.030 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 24.63' @ 12.09 hrs
Flood Elev= 28.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.19'	**12.0" Round 12" ADS** L= 97.0' Ke= 0.500 Inlet / Outlet Invert= 24.19' / 23.46' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.68 cfs @ 12.09 hrs HW=24.63' TW=23.84' (Dynamic Tailwater)
1=12" ADS (Outlet Controls 0.68 cfs @ 3.05 fps)

Summary for Pond 3.030:

Inflow Area = 0.404 ac, 71.16% Impervious, Inflow Depth > 1.91" for 1-YEAR event
Inflow = 0.89 cfs @ 12.09 hrs, Volume= 0.064 af
Outflow = 0.89 cfs @ 12.09 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min
Primary = 0.89 cfs @ 12.09 hrs, Volume= 0.064 af
Routed to Pond 3.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 23.84' @ 12.09 hrs
Flood Elev= 26.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	23.36'	**12.0" Round 12" ADS** L= 142.0' Ke= 0.500 Inlet / Outlet Invert= 23.36' / 21.04' S= 0.0163 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.89 cfs @ 12.09 hrs HW=23.84' TW=21.19' (Dynamic Tailwater)
1=12" ADS (Inlet Controls 0.89 cfs @ 2.36 fps)

Summary for Pond 3.040:

Inflow Area = 1.037 ac, 87.92% Impervious, Inflow Depth > 2.31" for 1-YEAR event
Inflow = 2.60 cfs @ 12.08 hrs, Volume= 0.200 af
Outflow = 2.60 cfs @ 12.08 hrs, Volume= 0.200 af, Atten= 0%, Lag= 0.0 min
Primary = 2.60 cfs @ 12.08 hrs, Volume= 0.200 af
Routed to Pond 3.050 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 21.19' @ 12.08 hrs
Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	20.44'	**18.0" Round 18" ADS** L= 140.0' Ke= 0.500 Inlet / Outlet Invert= 20.44' / 18.85' S= 0.0114 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=2.60 cfs @ 12.08 hrs HW=21.19' TW=19.59' (Dynamic Tailwater)
1=18" ADS (Inlet Controls 2.60 cfs @ 2.95 fps)

Summary for Pond 3.050:

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth > 2.35" for 1-YEAR event
Inflow = 3.16 cfs @ 12.08 hrs, Volume= 0.244 af
Outflow = 3.16 cfs @ 12.08 hrs, Volume= 0.244 af, Atten= 0%, Lag= 0.0 min
Primary = 3.16 cfs @ 12.08 hrs, Volume= 0.244 af
Routed to Pond 3.060 : Diversion

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.60' @ 12.11 hrs
Flood Elev= 22.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.75'	**18.0" Round 18" ADS** L= 45.0' Ke= 0.500 Inlet / Outlet Invert= 18.75' / 18.00' S= 0.0167 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.16 cfs @ 12.08 hrs HW=19.59' TW=18.66' (Dynamic Tailwater)
↑—**1=18" ADS** (Inlet Controls 3.16 cfs @ 3.11 fps)

Summary for Pond 3.060: Diversion

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth > 2.35" for 1-YEAR event
Inflow = 3.16 cfs @ 12.08 hrs, Volume= 0.244 af
Outflow = 3.16 cfs @ 12.08 hrs, Volume= 0.244 af, Atten= 0%, Lag= 0.0 min
Primary = 3.25 cfs @ 12.10 hrs, Volume= 0.052 af
Routed to Pond 6.010 : DMH and Headers
Secondary = 1.83 cfs @ 12.12 hrs, Volume= 0.192 af
Routed to Pond 3.070 : Cascade and Header

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 18.99' @ 12.10 hrs
Flood Elev= 22.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	**18.0" Round 18" ADS** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 18.00' / 17.90' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	17.00'	**8.0" Round 8" ADS** L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 17.00' / 16.75' S= 0.0125 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=3.06 cfs @ 12.10 hrs HW=18.95' TW=17.13' (Dynamic Tailwater)
↑—**1=18" ADS** (Barrel Controls 3.06 cfs @ 3.71 fps)

Secondary OutFlow Max=0.00 cfs @ 12.12 hrs HW=18.52' TW=18.82' (Dynamic Tailwater)
↑—**2=8" ADS** (Controls 0.00 cfs)

Summary for Pond 3.070: Cascade and Header

Inflow = 1.83 cfs @ 12.12 hrs, Volume= 0.192 af
Outflow = 1.74 cfs @ 12.04 hrs, Volume= 0.192 af, Atten= 5%, Lag= 0.0 min
Primary = 1.74 cfs @ 12.04 hrs, Volume= 0.192 af
Routed to Pond UG2 : UG Filter

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.54' @ 12.09 hrs Surf.Area= 13 sf Storage= 39 cf
Flood Elev= 20.00' Surf.Area= 13 sf Storage= 45 cf

Plug-Flow detention time= 0.6 min calculated for 0.192 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (780.3 - 779.8)

Volume	Invert	Avail.Storage	Storage Description
#1	16.75'	4 cf	**8.0" Round Header** L= 12.0'
#2	16.75'	41 cf	**4.00'D x 3.25'H Cascade Riser**
		45 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	16.75'	**8.0" Vert. 8" Laterals to Filter X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 12.04 hrs HW=17.45' TW=17.45' (Dynamic Tailwater)
↑—**1=8" Laterals to Filter** (Controls 0.00 cfs)

Summary for Pond 4.010:

Inflow Area = 0.626 ac, 97.59% Impervious, Inflow Depth > 2.46" for 1-YEAR event
Inflow = 1.66 cfs @ 12.08 hrs, Volume= 0.128 af
Outflow = 1.66 cfs @ 12.08 hrs, Volume= 0.128 af, Atten= 0%, Lag= 0.0 min
Primary = 1.66 cfs @ 12.08 hrs, Volume= 0.128 af
Routed to Pond 4.020 : Cascade

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.65' @ 12.09 hrs
Flood Elev= 21.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.75'	**12.0" Round 12" ADS** L= 17.0' Ke= 0.500 Inlet / Outlet Invert= 16.75' / 16.22' S= 0.0312 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.63 cfs @ 12.08 hrs HW=17.64' TW=17.40' (Dynamic Tailwater)
1=12" ADS (Outlet Controls 1.63 cfs @ 2.91 fps)

Summary for Pond 4.020: Cascade

Inflow Area = 0.626 ac, 97.59% Impervious, Inflow Depth > 2.46" for 1-YEAR event
Inflow = 1.66 cfs @ 12.08 hrs, Volume= 0.128 af
Outflow = 1.66 cfs @ 12.08 hrs, Volume= 0.128 af, Atten= 0%, Lag= 0.0 min
Primary = 1.66 cfs @ 12.08 hrs, Volume= 0.128 af
Routed to Pond UG1 : UG Filter w/1.090

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.40' @ 12.09 hrs
Flood Elev= 21.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.22'	**12.0" Vert. 12" Header** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.64 cfs @ 12.08 hrs HW=17.40' TW=17.21' (Dynamic Tailwater)
1=12" Header (Orifice Controls 1.64 cfs @ 2.09 fps)

Summary for Pond 5.010:

Inflow Area = 0.488 ac, 98.23% Impervious, Inflow Depth > 2.57" for 1-YEAR event
Inflow = 1.32 cfs @ 12.08 hrs, Volume= 0.104 af
Outflow = 1.32 cfs @ 12.08 hrs, Volume= 0.104 af, Atten= 0%, Lag= 0.0 min
Primary = 1.32 cfs @ 12.08 hrs, Volume= 0.104 af
Routed to Pond 3.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 21.61' @ 12.09 hrs
Flood Elev= 24.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	**18.0" Round 18" ADS** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 21.00' / 20.54' S= 0.0069 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=1.31 cfs @ 12.08 hrs HW=21.61' TW=21.19' (Dynamic Tailwater)
1=18" ADS (Outlet Controls 1.31 cfs @ 2.90 fps)

Summary for Pond 6.010: DMH and Headers

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth = 0.58" for 1-YEAR event
Inflow = 3.92 cfs @ 12.10 hrs, Volume= 0.060 af
Outflow = 3.93 cfs @ 12.11 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.2 min
Primary = 3.93 cfs @ 12.11 hrs, Volume= 0.060 af
Routed to Pond UG3 : Detention & 6.030

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.16' @ 12.11 hrs Surf.Area= 79 sf Storage= 25 cf
Flood Elev= 22.00' Surf.Area= 20 sf Storage= 181 cf

Plug-Flow detention time= 0.2 min calculated for 0.060 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (735.7 - 735.5)

Volume	Invert	Avail.Storage	Storage Description
#1	16.75'	78 cf	**18.0" Round 18" Headers** x 2 L= 22.0'
#2	16.75'	104 cf	**5.00'D x 5.30'H DMH Riser**
		182 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	16.75'	**8.0" Vert. 18" Laterals to Storage X 8.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.60 cfs @ 12.11 hrs HW=17.14' TW=15.89' (Dynamic Tailwater)
↑—**1=18" Laterals to Storage** (Orifice Controls 3.60 cfs @ 2.12 fps)

Summary for Pond UG1: UG Filter w/1.090

Inflow Area = 3.915 ac, 69.61% Impervious, Inflow Depth > 1.49" for 1-YEAR event
Inflow = 3.00 cfs @ 12.09 hrs, Volume= 0.487 af
Outflow = 2.96 cfs @ 12.10 hrs, Volume= 0.396 af, Atten= 1%, Lag= 1.1 min
Primary = 2.96 cfs @ 12.10 hrs, Volume= 0.396 af
Routed to Link 201 : Municipal drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.21' @ 12.10 hrs Surf.Area= 2,524 sf Storage= 4,293 cf
Flood Elev= 22.25' Surf.Area= 2,524 sf Storage= 4,839 cf

Plug-Flow detention time= 126.5 min calculated for 0.396 af (81% of inflow)
Center-of-Mass det. time= 46.8 min (865.9 - 819.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	13.25'	2,131 cf	**14.83'W x 110.00'L x 4.50'H UG1A** 7,342 cf Overall - 885 cf Embedded = 6,458 cf x 33.0% Voids
#2A	15.92'	885 cf	**ADS_StormTech SC-310 +Cap** x 60 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 60 Chambers in 4 Rows
#3	13.00'	182 cf	**5.00'D x 9.25'H 1.090 Riser** -Impervious
#4B	13.25'	1,169 cf	**14.83'W x 60.16'L x 4.50'H UG1B** 4,016 cf Overall - 472 cf Embedded = 3,544 cf x 33.0% Voids
#5B	15.92'	472 cf	**ADS_StormTech SC-310 +Cap** x 32 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 32 Chambers in 4 Rows
		4,839 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 4	13.22'	**1.0" Vert. (2) 1" Underdrain Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#2	Device 1	13.25'	**8.210 in/hr Exfiltration through Media over Surface area** Phase-In= 0.01'
#3	Device 4	16.90'	**5.0' long x 2.00' rise Baffle** 2 End Contraction(s)
#4	Primary	13.00'	**12.0" Round 12" ADS** L= 86.0' Ke= 0.500 Inlet / Outlet Invert= 13.00' / 12.14' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.95 cfs @ 12.10 hrs HW=17.21' TW=0.00' (Dynamic Tailwater)
└─**4=12" ADS** (Passes 2.95 cfs of 6.53 cfs potential flow)
  ├─**1=(2) 1" Underdrain Orifice** (Orifice Controls 0.10 cfs @ 9.57 fps)
  │ └─**2=Exfiltration through Media** (Passes 0.10 cfs of 0.48 cfs potential flow)
  └─**3=Baffle** (Weir Controls 2.85 cfs @ 1.83 fps)

Summary for Pond UG2: UG Filter

Inflow = 1.74 cfs @ 12.04 hrs, Volume= 0.192 af
Outflow = 1.59 cfs @ 12.08 hrs, Volume= 0.190 af, Atten= 9%, Lag= 2.5 min
Primary = 0.24 cfs @ 12.08 hrs, Volume= 0.182 af
Routed to Link 201 : Municipal drain
Secondary = 1.35 cfs @ 12.08 hrs, Volume= 0.008 af
Routed to Pond 6.010 : DMH and Headers

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.53' @ 12.08 hrs Surf.Area= 1,265 sf Storage= 2,358 cf
Flood Elev= 22.05' Surf.Area= 1,265 sf Storage= 2,389 cf

Plug-Flow detention time= 113.4 min calculated for 0.190 af (99% of inflow)
Center-of-Mass det. time= 107.2 min (887.5 - 780.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	13.33'	1,660 cf	**11.50'W x 110.00'L x 4.50'H UG2** 5,692 cf Overall - 663 cf Embedded = 5,029 cf x 33.0% Voids
#2A	16.00'	663 cf	**ADS_StormTech SC-310 +Cap** x 45 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 45 Chambers in 3 Rows
#3	16.75'	66 cf	**4.00'D x 5.25'H Riser** -Impervious
		2,389 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	13.33'	**2.0" Vert. 2" Underdrain orifice** C= 0.600 Limited to weir flow at low heads
#2	Device 1	13.33'	**8.210 in/hr Exfiltration through Media over Surface area**
#3	Secondary	18.50'	**8.0" Round 8" Overflow** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 18.50' / 18.25' S= 0.0500 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=0.24 cfs @ 12.08 hrs HW=19.47' TW=0.00' (Dynamic Tailwater)
└─**1=2" Underdrain orifice** (Passes 0.24 cfs of 0.26 cfs potential flow)
  └─**2=Exfiltration through Media** (Exfiltration Controls 0.24 cfs)

Secondary OutFlow Max=1.27 cfs @ 12.08 hrs HW=19.40' TW=17.07' (Dynamic Tailwater)
└─**3=8" Overflow** (Inlet Controls 1.27 cfs @ 3.64 fps)

Summary for Pond UG3: Detention & 6.030

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth = 0.58" for 1-YEAR event
Inflow = 3.93 cfs @ 12.11 hrs, Volume= 0.060 af
Outflow = 0.54 cfs @ 12.46 hrs, Volume= 0.059 af, Atten= 86%, Lag= 21.4 min
Primary = 0.54 cfs @ 12.46 hrs, Volume= 0.059 af
Routed to Link 201 : Municipal drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 16.17' @ 12.46 hrs Surf.Area= 5,123 sf Storage= 1,702 cf
Flood Elev= 22.05' Surf.Area= 5,123 sf Storage= 9,324 cf

Plug-Flow detention time= 69.6 min calculated for 0.059 af (99% of inflow)
Center-of-Mass det. time= 69.1 min (804.8 - 735.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.75'	1,499 cf	**20.50'W x 124.66'L x 3.00'H UG3A** 7,666 cf Overall - 3,124 cf Embedded = 4,542 cf x 33.0% Voids
#2A	15.75'	3,124 cf	**ADS_StormTech SC-740 +Cap** x 68 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 68 Chambers in 4 Rows
#3B	15.75'	1,499 cf	**20.50'W x 124.66'L x 3.00'H UG3B** 7,666 cf Overall - 3,124 cf Embedded = 4,542 cf x 33.0% Voids
#4B	15.75'	3,124 cf	**ADS_StormTech SC-740 +Cap** x 68 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 68 Chambers in 4 Rows
#5	15.75'	79 cf	**4.00'D x 6.25'H DMH Riser**
		9,324 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	15.75'	**0.7' long x 4.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.54 cfs @ 12.46 hrs HW=16.17' TW=0.00' (Dynamic Tailwater)
↑—**1=Sharp-Crested Rectangular Weir** (Weir Controls 0.54 cfs @ 2.11 fps)

Summary for Link 201: Municipal drain

Inflow Area = 5.159 ac, 74.51% Impervious, Inflow Depth > 1.78" for 1-YEAR event
Inflow = 7.73 cfs @ 12.12 hrs, Volume= 0.766 af
Primary = 7.73 cfs @ 12.12 hrs, Volume= 0.766 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 202: To abutter

Runoff = 0.30 cfs @ 12.10 hrs, Volume= 0.023 af, Depth> 1.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR Rainfall=3.30"

Area (sf)	CN	Description
10,755	74	>75% Grass cover, Good, HSG C
10,755	74	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment 203: To Coddington HWY

Runoff = 0.54 cfs @ 12.09 hrs, Volume= 0.039 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR Rainfall=3.30"

	Area (sf)	CN	Description
*	350	98	Offsite pavement
*	460	74	Offsite >75% Grass cover, Good, HSG C
*	3,600	98	Pavement
	7,867	74	>75% Grass cover, Good, HSG C
*	200	98	Concrete
	12,477	82	Weighted Average
	8,327	74	66.74% Pervious Area
	4,150	98	33.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P1.010:

Runoff = 0.86 cfs @ 12.09 hrs, Volume= 0.062 af, Depth> 2.26"
Routed to Pond 1.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR Rainfall=3.30"

	Area (sf)	CN	Description
*	951	74	Offsite >75% Grass cover, Good, HSG C
*	4,800	98	Building
	3,595	74	>75% Grass cover, Good, HSG C
*	5,002	98	Pavement
	14,348	90	Weighted Average
	4,546	74	31.68% Pervious Area
	9,802	98	68.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P1.030:

Runoff = 1.04 cfs @ 12.14 hrs, Volume= 0.087 af, Depth> 2.26"
Routed to Pond 1.030 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR Rainfall=3.30"

	Area (sf)	CN	Description
*	2,652	98	Offsite buildings
*	2,782	98	Offsite pavement
*	6,500	74	Offsite >75% Grass cover, Good, HSG C
*	5,519	98	Pavement
*	2,400	98	Building
	232	74	>75% Grass cover, Good, HSG C
	20,085	90	Weighted Average
	6,732	74	33.52% Pervious Area
	13,353	98	66.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.0200	0.17		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.2	21	0.0200	2.28		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
0.6	105	0.0182	2.74		**Shallow Concentrated Flow, Grass and pavement** Paved Kv= 20.3 fps
10.4	226	Total			

Summary for Subcatchment P1.040:

Runoff = 1.66 cfs @ 12.15 hrs, Volume= 0.137 af, Depth> 1.92"
Routed to Pond 1.040 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR Rainfall=3.30"

	Area (sf)	CN	Description
*	8,400	98	Offsite buildings
*	4,300	98	Offsite pavement
*	18,448	74	Offsite >75% Grass cover, Good, HSG C
*	6,080	98	Pavement
	155	74	>75% Grass cover, Good, HSG C
	37,383	86	Weighted Average
	18,603	74	49.76% Pervious Area
	18,780	98	50.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0250	0.19		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.7	104	0.0250	2.55		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
1.0	200	0.0250	3.21		**Shallow Concentrated Flow, Grass and pavement** Paved Kv= 20.3 fps
10.5	404	Total			

Summary for Subcatchment P1.050:

Runoff = 1.09 cfs @ 12.14 hrs, Volume= 0.089 af, Depth> 2.08"
Routed to Pond 1.050 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR Rainfall=3.30"

	Area (sf)	CN	Description
*	4,200	98	Offsite buildings
*	2,182	98	Offsite pavement
*	8,829	74	Offsite >75% Grass cover, Good, HSG C
*	2,400	98	Building
*	4,519	98	Pavement
	155	74	>75% Grass cover, Good, HSG C
	22,285	88	Weighted Average
	8,984	74	40.31% Pervious Area
	13,301	98	59.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0250	0.19		**Sheet Flow, Lawns** Grass: Short n= 0.150 P2= 3.30"
0.6	83	0.0220	2.39		**Shallow Concentrated Flow, Lawns** Unpaved Kv= 16.1 fps
0.6	155	0.0500	4.54		**Shallow Concentrated Flow, Pavement and Grass** Paved Kv= 20.3 fps
10.0	338	Total			

Summary for Subcatchment P1.060:

Runoff = 1.35 cfs @ 12.15 hrs, Volume= 0.112 af, Depth> 2.08"
Routed to Pond 1.060 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR Rainfall=3.30"

	Area (sf)	CN	Description
*	4,725	98	Offsite buildings
*	3,905	98	Offsite pavement
*	11,862	74	Offsite >75% Grass cover, Good, HSG C
*	2,505	98	Building
*	5,125	98	Pavement
	28,122	88	Weighted Average
	11,862	74	42.18% Pervious Area
	16,260	98	57.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.0200	0.17		**Sheet Flow, Lawn** Grass: Short n= 0.150 P2= 3.30"
0.6	88	0.0250	2.55		**Shallow Concentrated Flow, Lawn** Unpaved Kv= 16.1 fps
0.5	162	0.0700	5.37		**Shallow Concentrated Flow, Pavement and lawn** Paved Kv= 20.3 fps
10.7	350	Total			

Summary for Subcatchment P2.010:

Runoff = 1.55 cfs @ 12.08 hrs, Volume= 0.123 af, Depth> 3.06"
Routed to Pond 2.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR Rainfall=3.30"

	Area (sf)	CN	Description
	436	74	>75% Grass cover, Good, HSG C
*	8,484	98	Pavement
*	12,000	98	Building
*	90	98	Concrete
	21,010	98	Weighted Average
	436	74	2.08% Pervious Area
	20,574	98	97.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.010:

Runoff = 0.85 cfs @ 12.09 hrs, Volume= 0.061 af, Depth> 2.26"
Routed to Pond 3.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR Rainfall=3.30"

	Area (sf)	CN	Description
*	1,547	74	Offsite >75% Grass cover, Good, HSG C
	3,273	74	>75% Grass cover, Good, HSG C
*	4,521	98	Pavement
*	4,800	98	Building
	14,141	90	Weighted Average
	4,820	74	34.09% Pervious Area
	9,321	98	65.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.030:

Runoff = 0.25 cfs @ 12.08 hrs, Volume= 0.019 af, Depth> 2.85"
Routed to Pond 3.030 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR Rainfall=3.30"

	Area (sf)	CN	Description
*	3,214	98	Pavement
*	3	74	Offsite >75% Grass cover, Good, HSG C
	257	74	>75% Grass cover, Good, HSG C
	3,474	96	Weighted Average
	260	74	7.48% Pervious Area
	3,214	98	92.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.040:

Runoff = 0.46 cfs @ 12.08 hrs, Volume= 0.037 af, Depth> 3.06"
Routed to Pond 3.040 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR Rainfall=3.30"

	Area (sf)	CN	Description
*	3,914	98	Pavement
*	2,400	98	Building
	6,314	98	Weighted Average
	6,314	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.050:

Runoff = 0.66 cfs @ 12.08 hrs, Volume= 0.053 af, Depth> 3.06"
Routed to Pond 3.050 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR Rainfall=3.30"

	Area (sf)	CN	Description
*	6,619	98	Pavement
*	2,400	98	Building
	9,019	98	Weighted Average
	9,019	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P4.010:

Runoff = 1.98 cfs @ 12.08 hrs, Volume= 0.154 af, Depth> 2.95"
Routed to Pond 4.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR Rainfall=3.30"

	Area (sf)	CN	Description
*	12,315	98	Building
*	14,211	98	Pavement
*	100	98	Concrete
	657	74	>75% Grass cover, Good, HSG C
	27,283	97	Weighted Average
	657	74	2.41% Pervious Area
	26,626	98	97.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P5.010:

Runoff = 1.56 cfs @ 12.08 hrs, Volume= 0.125 af, Depth> 3.06"
Routed to Pond 5.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YEAR Rainfall=3.30"

	Area (sf)	CN	Description
*	12,000	98	Building
*	90	98	Concrete
*	8,787	98	Pavement
	376	74	>75% Grass cover, Good, HSG C
	21,253	98	Weighted Average
	376	74	1.77% Pervious Area
	20,877	98	98.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Pond 1.010:

Inflow Area = 0.329 ac, 68.32% Impervious, Inflow Depth > 2.26" for 2-YEAR event
Inflow = 0.86 cfs @ 12.09 hrs, Volume= 0.062 af
Outflow = 0.86 cfs @ 12.09 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min
Primary = 0.86 cfs @ 12.09 hrs, Volume= 0.062 af
Routed to Pond 1.020 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 25.25' @ 12.09 hrs
Flood Elev= 28.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.75'	**12.0" Round 12" ADS** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 24.75' / 24.25' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.86 cfs @ 12.09 hrs HW=25.25' TW=24.62' (Dynamic Tailwater)
↑—**1=12" ADS** (Outlet Controls 0.86 cfs @ 3.22 fps)

Summary for Pond 1.020:

Inflow Area = 0.329 ac, 68.32% Impervious, Inflow Depth > 2.26" for 2-YEAR event
Inflow = 0.86 cfs @ 12.09 hrs, Volume= 0.062 af
Outflow = 0.86 cfs @ 12.09 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min
Primary = 0.86 cfs @ 12.09 hrs, Volume= 0.062 af
Routed to Pond 1.030 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 24.62' @ 12.09 hrs
Flood Elev= 28.33'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.15'	**12.0" Round 12" ADS** L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 24.15' / 23.15' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.86 cfs @ 12.09 hrs HW=24.62' TW=23.25' (Dynamic Tailwater)
1=12" ADS (Inlet Controls 0.86 cfs @ 2.35 fps)

Summary for Pond 1.030:

Inflow Area = 0.790 ac, 67.25% Impervious, Inflow Depth > 2.26" for 2-YEAR event
Inflow = 1.82 cfs @ 12.11 hrs, Volume= 0.149 af
Outflow = 1.82 cfs @ 12.11 hrs, Volume= 0.149 af, Atten= 0%, Lag= 0.0 min
Primary = 1.82 cfs @ 12.11 hrs, Volume= 0.149 af
Routed to Pond 1.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 23.27' @ 12.11 hrs
Flood Elev= 26.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	22.65'	**18.0" Round 18" ADS** L= 134.0' Ke= 0.500 Inlet / Outlet Invert= 22.65' / 20.50' S= 0.0160 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=1.82 cfs @ 12.11 hrs HW=23.26' TW=20.98' (Dynamic Tailwater)
1=18" ADS (Inlet Controls 1.82 cfs @ 2.67 fps)

Summary for Pond 1.040:

Inflow Area = 2.131 ac, 67.34% Impervious, Inflow Depth > 2.30" for 2-YEAR event
Inflow = 4.86 cfs @ 12.11 hrs, Volume= 0.409 af
Outflow = 4.86 cfs @ 12.11 hrs, Volume= 0.409 af, Atten= 0%, Lag= 0.0 min
Primary = 4.86 cfs @ 12.11 hrs, Volume= 0.409 af
Routed to Pond 1.050 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 20.98' @ 12.12 hrs
Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	20.00'	**24.0" Round 24" ADS** L= 104.0' Ke= 0.500 Inlet / Outlet Invert= 20.00' / 18.95' S= 0.0101 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=4.83 cfs @ 12.11 hrs HW=20.98' TW=19.99' (Dynamic Tailwater)
1=24" ADS (Outlet Controls 4.83 cfs @ 4.62 fps)

Summary for Pond 1.050:

Inflow Area = 2.643 ac, 65.86% Impervious, Inflow Depth > 2.26" for 2-YEAR event
Inflow = 5.91 cfs @ 12.12 hrs, Volume= 0.498 af
Outflow = 5.91 cfs @ 12.12 hrs, Volume= 0.498 af, Atten= 0%, Lag= 0.0 min
Primary = 5.91 cfs @ 12.12 hrs, Volume= 0.498 af
Routed to Pond 1.060 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 20.00' @ 12.12 hrs
Flood Elev= 23.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.85'	**24.0" Round 24" ADS** L= 104.0' Ke= 0.500 Inlet / Outlet Invert= 18.85' / 17.75' S= 0.0106 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=5.88 cfs @ 12.12 hrs HW=19.99' TW=19.10' (Dynamic Tailwater)
1=24" ADS (Outlet Controls 5.88 cfs @ 4.57 fps)

Summary for Pond 1.060:

Inflow Area = 3.288 ac, 64.28% Impervious, Inflow Depth > 2.23" for 2-YEAR event
Inflow = 7.21 cfs @ 12.12 hrs, Volume= 0.610 af
Outflow = 7.21 cfs @ 12.12 hrs, Volume= 0.610 af, Atten= 0%, Lag= 0.0 min
Primary = 7.21 cfs @ 12.12 hrs, Volume= 0.610 af
Routed to Pond 1.070 : Diversion

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.10' @ 12.12 hrs
Flood Elev= 22.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	17.65'	**24.0" Round 24" ADS** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 17.65' / 17.60' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=7.21 cfs @ 12.12 hrs HW=19.10' TW=18.65' (Dynamic Tailwater)
1=24" ADS (Barrel Controls 7.21 cfs @ 4.14 fps)

Summary for Pond 1.070: Diversion

Inflow Area = 3.288 ac, 64.28% Impervious, Inflow Depth > 2.23" for 2-YEAR event
Inflow = 7.21 cfs @ 12.12 hrs, Volume= 0.610 af
Outflow = 7.21 cfs @ 12.12 hrs, Volume= 0.610 af, Atten= 0%, Lag= 0.0 min
Primary = 1.41 cfs @ 12.12 hrs, Volume= 0.427 af
Routed to Pond 1.080 : Cascade
Secondary = 5.80 cfs @ 12.12 hrs, Volume= 0.183 af
Routed to Link 201 : Municipal drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 18.65' @ 12.12 hrs
Flood Elev= 22.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.60'	**8.0" Round 8" ADS** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 16.60' / 16.55' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#2	Secondary	17.60'	**24.0" Round 24" ADS** L= 105.0' Ke= 0.500 Inlet / Outlet Invert= 17.60' / 16.50' S= 0.0105 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=1.41 cfs @ 12.12 hrs HW=18.65' TW=17.94' (Dynamic Tailwater)
1=8" ADS (Inlet Controls 1.41 cfs @ 4.03 fps)

Secondary OutFlow Max=5.80 cfs @ 12.12 hrs HW=18.65' TW=0.00' (Dynamic Tailwater)
2=24" ADS (Inlet Controls 5.80 cfs @ 3.48 fps)

Summary for Pond 1.080: Cascade

Inflow Area = 3.288 ac, 64.28% Impervious, Inflow Depth > 1.56" for 2-YEAR event
Inflow = 1.41 cfs @ 12.12 hrs, Volume= 0.427 af
Outflow = 1.41 cfs @ 12.12 hrs, Volume= 0.427 af, Atten= 0%, Lag= 0.0 min
Primary = 1.41 cfs @ 12.12 hrs, Volume= 0.427 af
Routed to Pond UG1 : UG Filter w/1.090

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 17.95' @ 12.12 hrs
Flood Elev= 22.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.55'	**8.0" Vert. 8" Header** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.41 cfs @ 12.12 hrs HW=17.94' TW=17.24' (Dynamic Tailwater)
↑—**1=8" Header** (Orifice Controls 1.41 cfs @ 4.04 fps)

Summary for Pond 2.010:

Inflow Area = 0.482 ac, 97.92% Impervious, Inflow Depth > 3.06" for 2-YEAR event
Inflow = 1.55 cfs @ 12.08 hrs, Volume= 0.123 af
Outflow = 1.55 cfs @ 12.08 hrs, Volume= 0.123 af, Atten= 0%, Lag= 0.0 min
Primary = 1.55 cfs @ 12.08 hrs, Volume= 0.123 af
Routed to Pond 1.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 21.59' @ 12.08 hrs
Flood Elev= 24.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	**18.0" Round 18" ADS** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 21.00' / 20.50' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=1.54 cfs @ 12.08 hrs HW=21.59' TW=20.95' (Dynamic Tailwater)
↑—**1=18" ADS** (Outlet Controls 1.54 cfs @ 3.55 fps)

Summary for Pond 3.010:

Inflow Area = 0.325 ac, 65.91% Impervious, Inflow Depth > 2.26" for 2-YEAR event
Inflow = 0.85 cfs @ 12.09 hrs, Volume= 0.061 af
Outflow = 0.85 cfs @ 12.09 hrs, Volume= 0.061 af, Atten= 0%, Lag= 0.0 min
Primary = 0.85 cfs @ 12.09 hrs, Volume= 0.061 af
Routed to Pond 3.020 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 25.25' @ 12.09 hrs
Flood Elev= 28.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.75'	**12.0" Round 12" ADS** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 24.75' / 24.29' S= 0.0074 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.85 cfs @ 12.09 hrs HW=25.25' TW=24.69' (Dynamic Tailwater)
↑—**1=12" ADS** (Outlet Controls 0.85 cfs @ 3.15 fps)

Summary for Pond 3.020:

Inflow Area = 0.325 ac, 65.91% Impervious, Inflow Depth > 2.26" for 2-YEAR event
Inflow = 0.85 cfs @ 12.09 hrs, Volume= 0.061 af
Outflow = 0.85 cfs @ 12.09 hrs, Volume= 0.061 af, Atten= 0%, Lag= 0.0 min
Primary = 0.85 cfs @ 12.09 hrs, Volume= 0.061 af
Routed to Pond 3.030 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 24.69' @ 12.09 hrs
Flood Elev= 28.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.19'	**12.0" Round 12" ADS** L= 97.0' Ke= 0.500 Inlet / Outlet Invert= 24.19' / 23.46' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.85 cfs @ 12.09 hrs HW=24.69' TW=23.90' (Dynamic Tailwater)
↑—**1=12" ADS** (Outlet Controls 0.85 cfs @ 3.19 fps)

Summary for Pond 3.030:

Inflow Area = 0.404 ac, 71.16% Impervious, Inflow Depth > 2.37" for 2-YEAR event
Inflow = 1.10 cfs @ 12.09 hrs, Volume= 0.080 af
Outflow = 1.10 cfs @ 12.09 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min
Primary = 1.10 cfs @ 12.09 hrs, Volume= 0.080 af
Routed to Pond 3.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 23.90' @ 12.09 hrs
Flood Elev= 26.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	23.36'	**12.0" Round 12" ADS** L= 142.0' Ke= 0.500 Inlet / Outlet Invert= 23.36' / 21.04' S= 0.0163 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.10 cfs @ 12.09 hrs HW=23.90' TW=21.27' (Dynamic Tailwater)
↑—**1=12" ADS** (Inlet Controls 1.10 cfs @ 2.51 fps)

Summary for Pond 3.040:

Inflow Area = 1.037 ac, 87.92% Impervious, Inflow Depth > 2.80" for 2-YEAR event
Inflow = 3.13 cfs @ 12.08 hrs, Volume= 0.242 af
Outflow = 3.13 cfs @ 12.08 hrs, Volume= 0.242 af, Atten= 0%, Lag= 0.0 min
Primary = 3.13 cfs @ 12.08 hrs, Volume= 0.242 af
Routed to Pond 3.050 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 21.27' @ 12.08 hrs
Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	20.44'	**18.0" Round 18" ADS** L= 140.0' Ke= 0.500 Inlet / Outlet Invert= 20.44' / 18.85' S= 0.0114 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.12 cfs @ 12.08 hrs HW=21.27' TW=19.70' (Dynamic Tailwater)
↑—**1=18" ADS** (Inlet Controls 3.12 cfs @ 3.10 fps)

Summary for Pond 3.050:

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth > 2.84" for 2-YEAR event
Inflow = 3.79 cfs @ 12.08 hrs, Volume= 0.295 af
Outflow = 3.79 cfs @ 12.08 hrs, Volume= 0.295 af, Atten= 0%, Lag= 0.0 min
Primary = 3.79 cfs @ 12.08 hrs, Volume= 0.295 af
Routed to Pond 3.060 : Diversion

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.71' @ 12.07 hrs
Flood Elev= 22.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.75'	**18.0" Round 18" ADS** L= 45.0' Ke= 0.500 Inlet / Outlet Invert= 18.75' / 18.00' S= 0.0167 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.81 cfs @ 12.08 hrs HW=19.70' TW=18.95' (Dynamic Tailwater)
↑—**1=18" ADS** (Outlet Controls 3.81 cfs @ 4.62 fps)

Summary for Pond 3.060: Diversion

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth > 2.84" for 2-YEAR event
Inflow = 3.79 cfs @ 12.08 hrs, Volume= 0.295 af
Outflow = 3.79 cfs @ 12.08 hrs, Volume= 0.295 af, Atten= 0%, Lag= 0.0 min
Primary = 3.37 cfs @ 12.06 hrs, Volume= 0.082 af
Routed to Pond 6.010 : DMH and Headers
Secondary = 1.53 cfs @ 11.95 hrs, Volume= 0.213 af
Routed to Pond 3.070 : Cascade and Header

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.01' @ 12.06 hrs
Flood Elev= 22.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	**18.0" Round 18" ADS** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 18.00' / 17.90' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	17.00'	**8.0" Round 8" ADS** L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 17.00' / 16.75' S= 0.0125 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=3.29 cfs @ 12.06 hrs HW=18.99' TW=17.13' (Dynamic Tailwater)
↑—**1=18" ADS** (Barrel Controls 3.29 cfs @ 3.77 fps)

Secondary OutFlow Max=1.45 cfs @ 11.95 hrs HW=18.17' TW=17.42' (Dynamic Tailwater)
↑—**2=8" ADS** (Inlet Controls 1.45 cfs @ 4.15 fps)

Summary for Pond 3.070: Cascade and Header

Inflow = 1.53 cfs @ 11.95 hrs, Volume= 0.213 af
Outflow = 1.48 cfs @ 11.95 hrs, Volume= 0.213 af, Atten= 3%, Lag= 0.0 min
Primary = 1.48 cfs @ 11.95 hrs, Volume= 0.213 af
Routed to Pond UG2 : UG Filter

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.22' @ 12.01 hrs Surf.Area= 13 sf Storage= 35 cf
Flood Elev= 20.00' Surf.Area= 13 sf Storage= 45 cf

Plug-Flow detention time= 0.6 min calculated for 0.213 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (779.3 - 778.7)

Volume	Invert	Avail.Storage	Storage Description
#1	16.75'	4 cf	**8.0" Round Header** L= 12.0'
#2	16.75'	41 cf	**4.00'D x 3.25'H Cascade Riser**
		45 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	16.75'	**8.0" Vert. 8" Laterals to Filter X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 11.95 hrs HW=17.42' TW=17.44' (Dynamic Tailwater)
↑—**1=8" Laterals to Filter** (Controls 0.00 cfs)

Summary for Pond 4.010:

Inflow Area = 0.626 ac, 97.59% Impervious, Inflow Depth > 2.95" for 2-YEAR event
Inflow = 1.98 cfs @ 12.08 hrs, Volume= 0.154 af
Outflow = 1.98 cfs @ 12.08 hrs, Volume= 0.154 af, Atten= 0%, Lag= 0.0 min
Primary = 1.98 cfs @ 12.08 hrs, Volume= 0.154 af
Routed to Pond 4.020 : Cascade

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.78' @ 12.09 hrs
Flood Elev= 21.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.75'	**12.0" Round 12" ADS** L= 17.0' Ke= 0.500 Inlet / Outlet Invert= 16.75' / 16.22' S= 0.0312 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.94 cfs @ 12.08 hrs HW=17.77' TW=17.51' (Dynamic Tailwater)
1=12" ADS (Inlet Controls 1.94 cfs @ 2.47 fps)

Summary for Pond 4.020: Cascade

Inflow Area = 0.626 ac, 97.59% Impervious, Inflow Depth > 2.95" for 2-YEAR event
Inflow = 1.98 cfs @ 12.08 hrs, Volume= 0.154 af
Outflow = 1.98 cfs @ 12.08 hrs, Volume= 0.154 af, Atten= 0%, Lag= 0.0 min
Primary = 1.98 cfs @ 12.08 hrs, Volume= 0.154 af
Routed to Pond UG1 : UG Filter w/1.090

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.51' @ 12.09 hrs
Flood Elev= 21.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.22'	**12.0" Vert. 12" Header** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.96 cfs @ 12.08 hrs HW=17.51' TW=17.24' (Dynamic Tailwater)
1=12" Header (Orifice Controls 1.96 cfs @ 2.49 fps)

Summary for Pond 5.010:

Inflow Area = 0.488 ac, 98.23% Impervious, Inflow Depth > 3.06" for 2-YEAR event
Inflow = 1.56 cfs @ 12.08 hrs, Volume= 0.125 af
Outflow = 1.56 cfs @ 12.08 hrs, Volume= 0.125 af, Atten= 0%, Lag= 0.0 min
Primary = 1.56 cfs @ 12.08 hrs, Volume= 0.125 af
Routed to Pond 3.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 21.68' @ 12.09 hrs
Flood Elev= 24.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	**18.0" Round 18" ADS** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 21.00' / 20.54' S= 0.0069 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=1.55 cfs @ 12.08 hrs HW=21.68' TW=21.27' (Dynamic Tailwater)
1=18" ADS (Outlet Controls 1.55 cfs @ 2.94 fps)

Summary for Pond 6.010: DMH and Headers

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth = 0.87" for 2-YEAR event
Inflow = 3.65 cfs @ 12.10 hrs, Volume= 0.091 af
Outflow = 3.54 cfs @ 12.09 hrs, Volume= 0.091 af, Atten= 3%, Lag= 0.0 min
Primary = 3.54 cfs @ 12.09 hrs, Volume= 0.091 af
Routed to Pond UG3 : Detention & 6.030

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.14' @ 12.09 hrs Surf.Area= 77 sf Storage= 23 cf
Flood Elev= 22.00' Surf.Area= 20 sf Storage= 181 cf

Plug-Flow detention time= 0.2 min calculated for 0.091 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (735.5 - 735.3)

Volume	Invert	Avail.Storage	Storage Description
#1	16.75'	78 cf	**18.0" Round 18" Headers** x 2 L= 22.0'
#2	16.75'	104 cf	**5.00'D x 5.30'H DMH Riser**
		182 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	16.75'	**8.0" Vert. 18" Laterals to Storage X 8.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.53 cfs @ 12.09 hrs HW=17.14' TW=16.02' (Dynamic Tailwater)
↑—**1=18" Laterals to Storage** (Orifice Controls 3.53 cfs @ 2.11 fps)

Summary for Pond UG1: UG Filter w/1.090

Inflow Area = 3.915 ac, 69.61% Impervious, Inflow Depth > 1.78" for 2-YEAR event
Inflow = 3.38 cfs @ 12.09 hrs, Volume= 0.581 af
Outflow = 3.33 cfs @ 12.10 hrs, Volume= 0.490 af, Atten= 1%, Lag= 1.0 min
Primary = 3.33 cfs @ 12.10 hrs, Volume= 0.490 af
Routed to Link 201 : Municipal drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.24' @ 12.10 hrs Surf.Area= 2,524 sf Storage= 4,317 cf
Flood Elev= 22.25' Surf.Area= 2,524 sf Storage= 4,839 cf

Plug-Flow detention time= 114.6 min calculated for 0.490 af (84% of inflow)
Center-of-Mass det. time= 42.9 min (859.3 - 816.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	13.25'	2,131 cf	**14.83'W x 110.00'L x 4.50'H UG1A** 7,342 cf Overall - 885 cf Embedded = 6,458 cf x 33.0% Voids
#2A	15.92'	885 cf	**ADS_StormTech SC-310 +Cap** x 60 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 60 Chambers in 4 Rows
#3	13.00'	182 cf	**5.00'D x 9.25'H 1.090 Riser** -Impervious
#4B	13.25'	1,169 cf	**14.83'W x 60.16'L x 4.50'H UG1B** 4,016 cf Overall - 472 cf Embedded = 3,544 cf x 33.0% Voids
#5B	15.92'	472 cf	**ADS_StormTech SC-310 +Cap** x 32 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 32 Chambers in 4 Rows
		4,839 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 4	13.22'	**1.0" Vert. (2) 1" Underdrain Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#2	Device 1	13.25'	**8.210 in/hr Exfiltration through Media over Surface area** Phase-In= 0.01'
#3	Device 4	16.90'	**5.0' long x 2.00' rise Baffle** 2 End Contraction(s)
#4	Primary	13.00'	**12.0" Round 12" ADS** L= 86.0' Ke= 0.500 Inlet / Outlet Invert= 13.00' / 12.14' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.33 cfs @ 12.10 hrs HW=17.24' TW=0.00' (Dynamic Tailwater)
└─**4=12" ADS** (Passes 3.33 cfs of 6.55 cfs potential flow)
  ├─**1=(2) 1" Underdrain Orifice** (Orifice Controls 0.10 cfs @ 9.61 fps)
  │ └─**2=Exfiltration through Media** (Passes 0.10 cfs of 0.48 cfs potential flow)
  └─**3=Baffle** (Weir Controls 3.22 cfs @ 1.91 fps)

Summary for Pond UG2: UG Filter

Inflow = 1.48 cfs @ 11.95 hrs, Volume= 0.213 af
Outflow = 1.27 cfs @ 12.00 hrs, Volume= 0.210 af, Atten= 15%, Lag= 3.1 min
Primary = 0.24 cfs @ 11.99 hrs, Volume= 0.201 af
Routed to Link 201 : Municipal drain
Secondary = 1.03 cfs @ 12.00 hrs, Volume= 0.009 af
Routed to Pond 6.010 : DMH and Headers

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.21' @ 12.00 hrs Surf.Area= 1,265 sf Storage= 2,354 cf
Flood Elev= 22.05' Surf.Area= 1,265 sf Storage= 2,389 cf

Plug-Flow detention time= 116.0 min calculated for 0.210 af (99% of inflow)
Center-of-Mass det. time= 108.3 min (887.6 - 779.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	13.33'	1,660 cf	**11.50'W x 110.00'L x 4.50'H UG2** 5,692 cf Overall - 663 cf Embedded = 5,029 cf x 33.0% Voids
#2A	16.00'	663 cf	**ADS_StormTech SC-310 +Cap** x 45 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 45 Chambers in 3 Rows
#3	16.75'	66 cf	**4.00'D x 5.25'H Riser** -Impervious
		2,389 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	13.33'	**2.0" Vert. 2" Underdrain orifice** C= 0.600 Limited to weir flow at low heads
#2	Device 1	13.33'	**8.210 in/hr Exfiltration through Media over Surface area**
#3	Secondary	18.50'	**8.0" Round 8" Overflow** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 18.50' / 18.25' S= 0.0500 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=0.24 cfs @ 11.99 hrs HW=18.79' TW=0.00' (Dynamic Tailwater)
└─**1=2" Underdrain orifice** (Passes 0.24 cfs of 0.24 cfs potential flow)
  └─**2=Exfiltration through Media** (Exfiltration Controls 0.24 cfs)

Secondary OutFlow Max=1.00 cfs @ 12.00 hrs HW=19.18' TW=17.01' (Dynamic Tailwater)
└─**3=8" Overflow** (Inlet Controls 1.00 cfs @ 2.85 fps)

Summary for Pond UG3: Detention & 6.030

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth = 0.87" for 2-YEAR event
Inflow = 3.54 cfs @ 12.09 hrs, Volume= 0.091 af
Outflow = 0.85 cfs @ 12.43 hrs, Volume= 0.090 af, Atten= 76%, Lag= 20.4 min
Primary = 0.85 cfs @ 12.43 hrs, Volume= 0.090 af
Routed to Link 201 : Municipal drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 16.33' @ 12.43 hrs Surf.Area= 5,123 sf Storage= 2,365 cf
Flood Elev= 22.05' Surf.Area= 5,123 sf Storage= 9,324 cf

Plug-Flow detention time= 61.1 min calculated for 0.090 af (99% of inflow)
Center-of-Mass det. time= 60.6 min (796.1 - 735.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.75'	1,499 cf	**20.50'W x 124.66'L x 3.00'H UG3A** 7,666 cf Overall - 3,124 cf Embedded = 4,542 cf x 33.0% Voids
#2A	15.75'	3,124 cf	**ADS_StormTech SC-740 +Cap** x 68 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 68 Chambers in 4 Rows
#3B	15.75'	1,499 cf	**20.50'W x 124.66'L x 3.00'H UG3B** 7,666 cf Overall - 3,124 cf Embedded = 4,542 cf x 33.0% Voids
#4B	15.75'	3,124 cf	**ADS_StormTech SC-740 +Cap** x 68 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 68 Chambers in 4 Rows
#5	15.75'	79 cf	**4.00'D x 6.25'H DMH Riser**
		9,324 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	15.75'	**0.7' long x 4.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.85 cfs @ 12.43 hrs HW=16.33' TW=0.00' (Dynamic Tailwater)
↑—**1=Sharp-Crested Rectangular Weir** (Weir Controls 0.85 cfs @ 2.50 fps)

Summary for Link 201: Municipal drain

Inflow Area = 5.159 ac, 74.51% Impervious, Inflow Depth > 2.24" for 2-YEAR event
Inflow = 9.74 cfs @ 12.12 hrs, Volume= 0.965 af
Primary = 9.74 cfs @ 12.12 hrs, Volume= 0.965 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 202: To abutter

Runoff = 0.66 cfs @ 12.09 hrs, Volume= 0.047 af, Depth> 2.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR Rainfall=4.90"

Area (sf)	CN	Description
10,755	74	>75% Grass cover, Good, HSG C
10,755	74	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment 203: To Coddington HWY

Runoff = 1.00 cfs @ 12.09 hrs, Volume= 0.071 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR Rainfall=4.90"

	Area (sf)	CN	Description
*	350	98	Offsite pavement
*	460	74	Offsite >75% Grass cover, Good, HSG C
*	3,600	98	Pavement
	7,867	74	>75% Grass cover, Good, HSG C
*	200	98	Concrete
	12,477	82	Weighted Average
	8,327	74	66.74% Pervious Area
	4,150	98	33.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P1.010:

Runoff = 1.41 cfs @ 12.09 hrs, Volume= 0.104 af, Depth> 3.78"
Routed to Pond 1.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR Rainfall=4.90"

	Area (sf)	CN	Description
*	951	74	Offsite >75% Grass cover, Good, HSG C
*	4,800	98	Building
	3,595	74	>75% Grass cover, Good, HSG C
*	5,002	98	Pavement
	14,348	90	Weighted Average
	4,546	74	31.68% Pervious Area
	9,802	98	68.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P1.030:

Runoff = 1.71 cfs @ 12.14 hrs, Volume= 0.145 af, Depth> 3.77"
Routed to Pond 1.030 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR Rainfall=4.90"

	Area (sf)	CN	Description
*	2,652	98	Offsite buildings
*	2,782	98	Offsite pavement
*	6,500	74	Offsite >75% Grass cover, Good, HSG C
*	5,519	98	Pavement
*	2,400	98	Building
	232	74	>75% Grass cover, Good, HSG C
	20,085	90	Weighted Average
	6,732	74	33.52% Pervious Area
	13,353	98	66.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.0200	0.17		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.2	21	0.0200	2.28		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
0.6	105	0.0182	2.74		**Shallow Concentrated Flow, Grass and pavement** Paved Kv= 20.3 fps
10.4	226	Total			

Summary for Subcatchment P1.040:

Runoff = 2.89 cfs @ 12.14 hrs, Volume= 0.241 af, Depth> 3.37"
Routed to Pond 1.040 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR Rainfall=4.90"

	Area (sf)	CN	Description
*	8,400	98	Offsite buildings
*	4,300	98	Offsite pavement
*	18,448	74	Offsite >75% Grass cover, Good, HSG C
*	6,080	98	Pavement
	155	74	>75% Grass cover, Good, HSG C
	37,383	86	Weighted Average
	18,603	74	49.76% Pervious Area
	18,780	98	50.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0250	0.19		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.7	104	0.0250	2.55		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
1.0	200	0.0250	3.21		**Shallow Concentrated Flow, Grass and pavement** Paved Kv= 20.3 fps
10.5	404	Total			

Summary for Subcatchment P1.050:

Runoff = 1.84 cfs @ 12.14 hrs, Volume= 0.152 af, Depth> 3.57"
Routed to Pond 1.050 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR Rainfall=4.90"

	Area (sf)	CN	Description
*	4,200	98	Offsite buildings
*	2,182	98	Offsite pavement
*	8,829	74	Offsite >75% Grass cover, Good, HSG C
*	2,400	98	Building
*	4,519	98	Pavement
	155	74	>75% Grass cover, Good, HSG C
	22,285	88	Weighted Average
	8,984	74	40.31% Pervious Area
	13,301	98	59.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0250	0.19		**Sheet Flow, Lawns** Grass: Short n= 0.150 P2= 3.30"
0.6	83	0.0220	2.39		**Shallow Concentrated Flow, Lawns** Unpaved Kv= 16.1 fps
0.6	155	0.0500	4.54		**Shallow Concentrated Flow, Pavement and Grass** Paved Kv= 20.3 fps
10.0	338	Total			

Summary for Subcatchment P1.060:

Runoff = 2.27 cfs @ 12.14 hrs, Volume= 0.192 af, Depth> 3.57"
Routed to Pond 1.060 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR Rainfall=4.90"

	Area (sf)	CN	Description
*	4,725	98	Offsite buildings
*	3,905	98	Offsite pavement
*	11,862	74	Offsite >75% Grass cover, Good, HSG C
*	2,505	98	Building
*	5,125	98	Pavement
	28,122	88	Weighted Average
	11,862	74	42.18% Pervious Area
	16,260	98	57.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.0200	0.17		**Sheet Flow, Lawn** Grass: Short n= 0.150 P2= 3.30"
0.6	88	0.0250	2.55		**Shallow Concentrated Flow, Lawn** Unpaved Kv= 16.1 fps
0.5	162	0.0700	5.37		**Shallow Concentrated Flow, Pavement and lawn** Paved Kv= 20.3 fps
10.7	350	Total			

Summary for Subcatchment P2.010:

Runoff = 2.31 cfs @ 12.08 hrs, Volume= 0.187 af, Depth> 4.66"
Routed to Pond 2.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR Rainfall=4.90"

	Area (sf)	CN	Description
	436	74	>75% Grass cover, Good, HSG C
*	8,484	98	Pavement
*	12,000	98	Building
*	90	98	Concrete
	21,010	98	Weighted Average
	436	74	2.08% Pervious Area
	20,574	98	97.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.010:

Runoff = 1.39 cfs @ 12.09 hrs, Volume= 0.102 af, Depth> 3.78"
Routed to Pond 3.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR Rainfall=4.90"

	Area (sf)	CN	Description
*	1,547	74	Offsite >75% Grass cover, Good, HSG C
	3,273	74	>75% Grass cover, Good, HSG C
*	4,521	98	Pavement
*	4,800	98	Building
	14,141	90	Weighted Average
	4,820	74	34.09% Pervious Area
	9,321	98	65.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.030:

Runoff = 0.38 cfs @ 12.08 hrs, Volume= 0.029 af, Depth> 4.43"
Routed to Pond 3.030 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR Rainfall=4.90"

	Area (sf)	CN	Description
*	3,214	98	Pavement
*	3	74	Offsite >75% Grass cover, Good, HSG C
	257	74	>75% Grass cover, Good, HSG C
	3,474	96	Weighted Average
	260	74	7.48% Pervious Area
	3,214	98	92.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.040:

Runoff = 0.69 cfs @ 12.08 hrs, Volume= 0.056 af, Depth> 4.66"
Routed to Pond 3.040 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR Rainfall=4.90"

	Area (sf)	CN	Description
*	3,914	98	Pavement
*	2,400	98	Building
	6,314	98	Weighted Average
	6,314	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.050:

Runoff = 0.99 cfs @ 12.08 hrs, Volume= 0.080 af, Depth> 4.66"
Routed to Pond 3.050 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR Rainfall=4.90"

	Area (sf)	CN	Description
*	6,619	98	Pavement
*	2,400	98	Building
	9,019	98	Weighted Average
	9,019	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P4.010:

Runoff = 2.98 cfs @ 12.08 hrs, Volume= 0.237 af, Depth> 4.54"
Routed to Pond 4.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR Rainfall=4.90"

	Area (sf)	CN	Description
*	12,315	98	Building
*	14,211	98	Pavement
*	100	98	Concrete
	657	74	>75% Grass cover, Good, HSG C
	27,283	97	Weighted Average
	657	74	2.41% Pervious Area
	26,626	98	97.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P5.010:

Runoff = 2.34 cfs @ 12.08 hrs, Volume= 0.189 af, Depth> 4.66"
Routed to Pond 5.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YEAR Rainfall=4.90"

	Area (sf)	CN	Description
*	12,000	98	Building
*	90	98	Concrete
*	8,787	98	Pavement
	376	74	>75% Grass cover, Good, HSG C
	21,253	98	Weighted Average
	376	74	1.77% Pervious Area
	20,877	98	98.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Pond 1.010:

Inflow Area = 0.329 ac, 68.32% Impervious, Inflow Depth > 3.78" for 10-YEAR event
Inflow = 1.41 cfs @ 12.09 hrs, Volume= 0.104 af
Outflow = 1.41 cfs @ 12.09 hrs, Volume= 0.104 af, Atten= 0%, Lag= 0.0 min
Primary = 1.41 cfs @ 12.09 hrs, Volume= 0.104 af
Routed to Pond 1.020 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 25.42' @ 12.09 hrs
Flood Elev= 28.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.75'	**12.0" Round 12" ADS** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 24.75' / 24.25' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.40 cfs @ 12.09 hrs HW=25.42' TW=24.78' (Dynamic Tailwater)
↑—**1=12" ADS** (Outlet Controls 1.40 cfs @ 3.55 fps)

Summary for Pond 1.020:

Inflow Area = 0.329 ac, 68.32% Impervious, Inflow Depth > 3.78" for 10-YEAR event
Inflow = 1.41 cfs @ 12.09 hrs, Volume= 0.104 af
Outflow = 1.41 cfs @ 12.09 hrs, Volume= 0.104 af, Atten= 0%, Lag= 0.0 min
Primary = 1.41 cfs @ 12.09 hrs, Volume= 0.104 af
Routed to Pond 1.030 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 24.78' @ 12.09 hrs
Flood Elev= 28.33'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.15'	**12.0" Round 12" ADS** L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 24.15' / 23.15' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.41 cfs @ 12.09 hrs HW=24.78' TW=23.44' (Dynamic Tailwater)
1=12" ADS (Inlet Controls 1.41 cfs @ 2.70 fps)

Summary for Pond 1.030:

Inflow Area = 0.790 ac, 67.25% Impervious, Inflow Depth > 3.77" for 10-YEAR event
Inflow = 2.98 cfs @ 12.11 hrs, Volume= 0.249 af
Outflow = 2.98 cfs @ 12.11 hrs, Volume= 0.249 af, Atten= 0%, Lag= 0.0 min
Primary = 2.98 cfs @ 12.11 hrs, Volume= 0.249 af
Routed to Pond 1.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 23.46' @ 12.11 hrs
Flood Elev= 26.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	22.65'	**18.0" Round 18" ADS** L= 134.0' Ke= 0.500 Inlet / Outlet Invert= 22.65' / 20.50' S= 0.0160 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=2.98 cfs @ 12.11 hrs HW=23.46' TW=21.39' (Dynamic Tailwater)
1=18" ADS (Inlet Controls 2.98 cfs @ 3.06 fps)

Summary for Pond 1.040:

Inflow Area = 2.131 ac, 67.34% Impervious, Inflow Depth > 3.81" for 10-YEAR event
Inflow = 7.92 cfs @ 12.11 hrs, Volume= 0.677 af
Outflow = 7.92 cfs @ 12.11 hrs, Volume= 0.677 af, Atten= 0%, Lag= 0.0 min
Primary = 7.92 cfs @ 12.11 hrs, Volume= 0.677 af
Routed to Pond 1.050 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 21.39' @ 12.12 hrs
Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	20.00'	**24.0" Round 24" ADS** L= 104.0' Ke= 0.500 Inlet / Outlet Invert= 20.00' / 18.95' S= 0.0101 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=7.80 cfs @ 12.11 hrs HW=21.39' TW=20.49' (Dynamic Tailwater)
1=24" ADS (Outlet Controls 7.80 cfs @ 4.73 fps)

Summary for Pond 1.050:

Inflow Area = 2.643 ac, 65.86% Impervious, Inflow Depth > 3.76" for 10-YEAR event
Inflow = 9.71 cfs @ 12.12 hrs, Volume= 0.829 af
Outflow = 9.71 cfs @ 12.12 hrs, Volume= 0.829 af, Atten= 0%, Lag= 0.0 min
Primary = 9.71 cfs @ 12.12 hrs, Volume= 0.829 af
Routed to Pond 1.060 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 20.52' @ 12.13 hrs
Flood Elev= 23.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.85'	**24.0" Round 24" ADS** L= 104.0' Ke= 0.500 Inlet / Outlet Invert= 18.85' / 17.75' S= 0.0106 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=9.53 cfs @ 12.12 hrs HW=20.50' TW=19.68' (Dynamic Tailwater)
1=24" ADS (Outlet Controls 9.53 cfs @ 4.65 fps)

Summary for Pond 1.060:

Inflow Area = 3.288 ac, 64.28% Impervious, Inflow Depth > 3.73" for 10-YEAR event
Inflow = 11.91 cfs @ 12.12 hrs, Volume= 1.021 af
Outflow = 11.91 cfs @ 12.12 hrs, Volume= 1.021 af, Atten= 0%, Lag= 0.0 min
Primary = 11.91 cfs @ 12.12 hrs, Volume= 1.021 af
Routed to Pond 1.070 : Diversion

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.70' @ 12.13 hrs
Flood Elev= 22.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	17.65'	**24.0" Round 24" ADS** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 17.65' / 17.60' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=11.85 cfs @ 12.12 hrs HW=19.69' TW=19.08' (Dynamic Tailwater)
1=24" ADS (Inlet Controls 11.85 cfs @ 3.77 fps)

Summary for Pond 1.070: Diversion

Inflow Area = 3.288 ac, 64.28% Impervious, Inflow Depth > 3.73" for 10-YEAR event
Inflow = 11.91 cfs @ 12.12 hrs, Volume= 1.021 af
Outflow = 11.91 cfs @ 12.12 hrs, Volume= 1.021 af, Atten= 0%, Lag= 0.0 min
Primary = 1.58 cfs @ 12.12 hrs, Volume= 0.639 af
Routed to Pond 1.080 : Cascade
Secondary = 10.33 cfs @ 12.12 hrs, Volume= 0.382 af
Routed to Link 201 : Municipal drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.08' @ 12.12 hrs
Flood Elev= 22.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.60'	**8.0" Round 8" ADS** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 16.60' / 16.55' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#2	Secondary	17.60'	**24.0" Round 24" ADS** L= 105.0' Ke= 0.500 Inlet / Outlet Invert= 17.60' / 16.50' S= 0.0105 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=1.58 cfs @ 12.12 hrs HW=19.08' TW=18.20' (Dynamic Tailwater)
1=8" ADS (Inlet Controls 1.58 cfs @ 4.51 fps)

Secondary OutFlow Max=10.33 cfs @ 12.12 hrs HW=19.08' TW=0.00' (Dynamic Tailwater)
2=24" ADS (Inlet Controls 10.33 cfs @ 4.14 fps)

Summary for Pond 1.080: Cascade

Inflow Area = 3.288 ac, 64.28% Impervious, Inflow Depth > 2.33" for 10-YEAR event
Inflow = 1.58 cfs @ 12.12 hrs, Volume= 0.639 af
Outflow = 1.58 cfs @ 12.12 hrs, Volume= 0.639 af, Atten= 0%, Lag= 0.0 min
Primary = 1.58 cfs @ 12.12 hrs, Volume= 0.639 af
Routed to Pond UG1 : UG Filter w/1.090

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 18.20' @ 12.11 hrs
Flood Elev= 22.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.55'	**8.0" Vert. 8" Header** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.58 cfs @ 12.12 hrs HW=18.20' TW=17.32' (Dynamic Tailwater)
↑—**1=8" Header** (Orifice Controls 1.58 cfs @ 4.53 fps)

Summary for Pond 2.010:

Inflow Area = 0.482 ac, 97.92% Impervious, Inflow Depth > 4.66" for 10-YEAR event
Inflow = 2.31 cfs @ 12.08 hrs, Volume= 0.187 af
Outflow = 2.31 cfs @ 12.08 hrs, Volume= 0.187 af, Atten= 0%, Lag= 0.0 min
Primary = 2.31 cfs @ 12.08 hrs, Volume= 0.187 af
Routed to Pond 1.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 21.82' @ 12.10 hrs
Flood Elev= 24.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	**18.0" Round 18" ADS** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 21.00' / 20.50' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=2.22 cfs @ 12.08 hrs HW=21.81' TW=21.32' (Dynamic Tailwater)
↑—**1=18" ADS** (Outlet Controls 2.22 cfs @ 3.34 fps)

Summary for Pond 3.010:

Inflow Area = 0.325 ac, 65.91% Impervious, Inflow Depth > 3.78" for 10-YEAR event
Inflow = 1.39 cfs @ 12.09 hrs, Volume= 0.102 af
Outflow = 1.39 cfs @ 12.09 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.0 min
Primary = 1.39 cfs @ 12.09 hrs, Volume= 0.102 af
Routed to Pond 3.020 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 25.43' @ 12.09 hrs
Flood Elev= 28.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.75'	**12.0" Round 12" ADS** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 24.75' / 24.29' S= 0.0074 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.38 cfs @ 12.09 hrs HW=25.43' TW=24.86' (Dynamic Tailwater)
↑—**1=12" ADS** (Outlet Controls 1.38 cfs @ 3.43 fps)

Summary for Pond 3.020:

Inflow Area = 0.325 ac, 65.91% Impervious, Inflow Depth > 3.78" for 10-YEAR event
Inflow = 1.39 cfs @ 12.09 hrs, Volume= 0.102 af
Outflow = 1.39 cfs @ 12.09 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.0 min
Primary = 1.39 cfs @ 12.09 hrs, Volume= 0.102 af
Routed to Pond 3.030 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 24.86' @ 12.09 hrs
Flood Elev= 28.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.19'	**12.0" Round 12" ADS** L= 97.0' Ke= 0.500 Inlet / Outlet Invert= 24.19' / 23.46' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.38 cfs @ 12.09 hrs HW=24.86' TW=24.08' (Dynamic Tailwater)
1=12" ADS (Outlet Controls 1.38 cfs @ 3.50 fps)

Summary for Pond 3.030:

Inflow Area = 0.404 ac, 71.16% Impervious, Inflow Depth > 3.91" for 10-YEAR event
Inflow = 1.77 cfs @ 12.08 hrs, Volume= 0.132 af
Outflow = 1.77 cfs @ 12.08 hrs, Volume= 0.132 af, Atten= 0%, Lag= 0.0 min
Primary = 1.77 cfs @ 12.08 hrs, Volume= 0.132 af
Routed to Pond 3.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 24.08' @ 12.08 hrs
Flood Elev= 26.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	23.36'	**12.0" Round 12" ADS** L= 142.0' Ke= 0.500 Inlet / Outlet Invert= 23.36' / 21.04' S= 0.0163 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.76 cfs @ 12.08 hrs HW=24.08' TW=21.52' (Dynamic Tailwater)
1=12" ADS (Inlet Controls 1.76 cfs @ 2.90 fps)

Summary for Pond 3.040:

Inflow Area = 1.037 ac, 87.92% Impervious, Inflow Depth > 4.37" for 10-YEAR event
Inflow = 4.80 cfs @ 12.08 hrs, Volume= 0.377 af
Outflow = 4.80 cfs @ 12.08 hrs, Volume= 0.377 af, Atten= 0%, Lag= 0.0 min
Primary = 4.80 cfs @ 12.08 hrs, Volume= 0.377 af
Routed to Pond 3.050 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 21.52' @ 12.08 hrs
Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	20.44'	**18.0" Round 18" ADS** L= 140.0' Ke= 0.500 Inlet / Outlet Invert= 20.44' / 18.85' S= 0.0114 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=4.79 cfs @ 12.08 hrs HW=21.52' TW=20.03' (Dynamic Tailwater)
1=18" ADS (Inlet Controls 4.79 cfs @ 3.53 fps)

Summary for Pond 3.050:

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth > 4.41" for 10-YEAR event
Inflow = 5.79 cfs @ 12.08 hrs, Volume= 0.458 af
Outflow = 5.79 cfs @ 12.08 hrs, Volume= 0.458 af, Atten= 0%, Lag= 0.0 min
Primary = 5.79 cfs @ 12.08 hrs, Volume= 0.458 af
Routed to Pond 3.060 : Diversion

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 20.04' @ 12.08 hrs
Flood Elev= 22.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.75'	**18.0" Round 18" ADS** L= 45.0' Ke= 0.500 Inlet / Outlet Invert= 18.75' / 18.00' S= 0.0167 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.75 cfs @ 12.08 hrs HW=20.03' TW=19.28' (Dynamic Tailwater)
↑—**1=18" ADS** (Outlet Controls 5.75 cfs @ 4.81 fps)

Summary for Pond 3.060: Diversion

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth > 4.41" for 10-YEAR event
Inflow = 5.79 cfs @ 12.08 hrs, Volume= 0.458 af
Outflow = 5.79 cfs @ 12.08 hrs, Volume= 0.458 af, Atten= 0%, Lag= 0.0 min
Primary = 5.06 cfs @ 12.09 hrs, Volume= 0.180 af
Routed to Pond 6.010 : DMH and Headers
Secondary = 1.29 cfs @ 11.99 hrs, Volume= 0.277 af
Routed to Pond 3.070 : Cascade and Header

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.30' @ 12.09 hrs
Flood Elev= 22.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	**18.0" Round 18" ADS** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 18.00' / 17.90' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	17.00'	**8.0" Round 8" ADS** L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 17.00' / 16.75' S= 0.0125 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=5.01 cfs @ 12.09 hrs HW=19.29' TW=17.26' (Dynamic Tailwater)
↑—**1=18" ADS** (Barrel Controls 5.01 cfs @ 4.17 fps)

Secondary OutFlow Max=0.00 cfs @ 11.99 hrs HW=18.76' TW=18.85' (Dynamic Tailwater)
↑—**2=8" ADS** (Controls 0.00 cfs)

Summary for Pond 3.070: Cascade and Header

Inflow = 1.29 cfs @ 11.99 hrs, Volume= 0.277 af
Outflow = 1.80 cfs @ 12.06 hrs, Volume= 0.277 af, Atten= 0%, Lag= 4.2 min
Primary = 1.80 cfs @ 12.06 hrs, Volume= 0.277 af
Routed to Pond UG2 : UG Filter

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.11' @ 12.08 hrs Surf.Area= 13 sf Storage= 34 cf
Flood Elev= 20.00' Surf.Area= 13 sf Storage= 45 cf

Plug-Flow detention time= 0.7 min calculated for 0.277 af (100% of inflow)
Center-of-Mass det. time= 0.6 min (772.7 - 772.1)

Volume	Invert	Avail.Storage	Storage Description
#1	16.75'	4 cf	**8.0" Round Header** L= 12.0'
#2	16.75'	41 cf	**4.00'D x 3.25'H Cascade Riser**
		45 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	16.75'	**8.0" Vert. 8" Laterals to Filter X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.90 cfs @ 12.06 hrs HW=19.06' TW=19.02' (Dynamic Tailwater)
↑—**1=8" Laterals to Filter** (Orifice Controls 0.90 cfs @ 0.86 fps)

Summary for Pond 4.010:

Inflow Area = 0.626 ac, 97.59% Impervious, Inflow Depth > 4.54" for 10-YEAR event
Inflow = 2.98 cfs @ 12.08 hrs, Volume= 0.237 af
Outflow = 2.98 cfs @ 12.08 hrs, Volume= 0.237 af, Atten= 0%, Lag= 0.0 min
Primary = 2.98 cfs @ 12.08 hrs, Volume= 0.237 af
Routed to Pond 4.020 : Cascade

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 18.54' @ 12.09 hrs
Flood Elev= 21.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.75'	**12.0" Round 12" ADS** L= 17.0' Ke= 0.500 Inlet / Outlet Invert= 16.75' / 16.22' S= 0.0312 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.93 cfs @ 12.08 hrs HW=18.53' TW=17.93' (Dynamic Tailwater)
1=12" ADS (Inlet Controls 2.93 cfs @ 3.73 fps)

Summary for Pond 4.020: Cascade

Inflow Area = 0.626 ac, 97.59% Impervious, Inflow Depth > 4.54" for 10-YEAR event
Inflow = 2.98 cfs @ 12.08 hrs, Volume= 0.237 af
Outflow = 2.98 cfs @ 12.08 hrs, Volume= 0.237 af, Atten= 0%, Lag= 0.0 min
Primary = 2.98 cfs @ 12.08 hrs, Volume= 0.237 af
Routed to Pond UG1 : UG Filter w/1.090

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.93' @ 12.09 hrs
Flood Elev= 21.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.22'	**12.0" Vert. 12" Header** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.96 cfs @ 12.08 hrs HW=17.93' TW=17.32' (Dynamic Tailwater)
1=12" Header (Orifice Controls 2.96 cfs @ 3.77 fps)

Summary for Pond 5.010:

Inflow Area = 0.488 ac, 98.23% Impervious, Inflow Depth > 4.66" for 10-YEAR event
Inflow = 2.34 cfs @ 12.08 hrs, Volume= 0.189 af
Outflow = 2.34 cfs @ 12.08 hrs, Volume= 0.189 af, Atten= 0%, Lag= 0.0 min
Primary = 2.34 cfs @ 12.08 hrs, Volume= 0.189 af
Routed to Pond 3.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 21.90' @ 12.09 hrs
Flood Elev= 24.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	**18.0" Round 18" ADS** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 21.00' / 20.54' S= 0.0069 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=2.32 cfs @ 12.08 hrs HW=21.89' TW=21.52' (Dynamic Tailwater)
1=18" ADS (Outlet Controls 2.32 cfs @ 3.03 fps)

Summary for Pond 6.010: DMH and Headers

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth = 1.94" for 10-YEAR event
Inflow = 5.74 cfs @ 12.09 hrs, Volume= 0.201 af
Outflow = 5.71 cfs @ 12.07 hrs, Volume= 0.201 af, Atten= 1%, Lag= 0.0 min
Primary = 5.71 cfs @ 12.07 hrs, Volume= 0.201 af
Routed to Pond UG3 : Detention & 6.030

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.27' @ 12.07 hrs Surf.Area= 82 sf Storage= 34 cf
Flood Elev= 22.00' Surf.Area= 20 sf Storage= 181 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.1 min (736.8 - 736.6)

Volume	Invert	Avail.Storage	Storage Description
#1	16.75'	78 cf	**18.0" Round 18" Headers** x 2 L= 22.0'
#2	16.75'	104 cf	**5.00'D x 5.30'H DMH Riser**
		182 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	16.75'	**8.0" Vert. 18" Laterals to Storage X 8.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.61 cfs @ 12.07 hrs HW=17.26' TW=16.43' (Dynamic Tailwater)
1=18" Laterals to Storage (Orifice Controls 5.61 cfs @ 2.44 fps)

Summary for Pond UG1: UG Filter w/1.090

Inflow Area = 3.915 ac, 69.61% Impervious, Inflow Depth > 2.69" for 10-YEAR event
Inflow = 4.54 cfs @ 12.09 hrs, Volume= 0.876 af
Outflow = 4.49 cfs @ 12.10 hrs, Volume= 0.785 af, Atten= 1%, Lag= 0.9 min
Primary = 4.49 cfs @ 12.10 hrs, Volume= 0.785 af
Routed to Link 201 : Municipal drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.32' @ 12.10 hrs Surf.Area= 2,524 sf Storage= 4,384 cf
Flood Elev= 22.25' Surf.Area= 2,524 sf Storage= 4,839 cf

Plug-Flow detention time= 91.1 min calculated for 0.785 af (90% of inflow)
Center-of-Mass det. time= 36.9 min (844.7 - 807.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	13.25'	2,131 cf	**14.83'W x 110.00'L x 4.50'H UG1A** 7,342 cf Overall - 885 cf Embedded = 6,458 cf x 33.0% Voids
#2A	15.92'	885 cf	**ADS_StormTech SC-310 +Cap** x 60 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 60 Chambers in 4 Rows
#3	13.00'	182 cf	**5.00'D x 9.25'H 1.090 Riser** -Impervious
#4B	13.25'	1,169 cf	**14.83'W x 60.16'L x 4.50'H UG1B** 4,016 cf Overall - 472 cf Embedded = 3,544 cf x 33.0% Voids
#5B	15.92'	472 cf	**ADS_StormTech SC-310 +Cap** x 32 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 32 Chambers in 4 Rows
		4,839 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 4	13.22'	**1.0" Vert. (2) 1" Underdrain Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#2	Device 1	13.25'	**8.210 in/hr Exfiltration through Media over Surface area** Phase-In= 0.01'
#3	Device 4	16.90'	**5.0' long x 2.00' rise Baffle** 2 End Contraction(s)
#4	Primary	13.00'	**12.0" Round 12" ADS** L= 86.0' Ke= 0.500 Inlet / Outlet Invert= 13.00' / 12.14' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=4.49 cfs @ 12.10 hrs HW=17.32' TW=0.00' (Dynamic Tailwater)
└─**4=12" ADS** (Passes 4.49 cfs of 6.61 cfs potential flow)
  ├─**1=(2) 1" Underdrain Orifice** (Orifice Controls 0.11 cfs @ 9.70 fps)
  │ └─**2=Exfiltration through Media** (Passes 0.11 cfs of 0.48 cfs potential flow)
  └─**3=Baffle** (Weir Controls 4.38 cfs @ 2.12 fps)

Summary for Pond UG2: UG Filter

Inflow = 1.80 cfs @ 12.06 hrs, Volume= 0.277 af
Outflow = 1.18 cfs @ 12.04 hrs, Volume= 0.271 af, Atten= 35%, Lag= 0.0 min
Primary = 0.24 cfs @ 11.69 hrs, Volume= 0.250 af
Routed to Link 201 : Municipal drain
Secondary = 0.94 cfs @ 12.04 hrs, Volume= 0.020 af
Routed to Pond 6.010 : DMH and Headers

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.14' @ 12.04 hrs Surf.Area= 1,265 sf Storage= 2,353 cf
Flood Elev= 22.05' Surf.Area= 1,265 sf Storage= 2,389 cf

Plug-Flow detention time= 118.9 min calculated for 0.271 af (98% of inflow)
Center-of-Mass det. time= 103.6 min (876.3 - 772.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	13.33'	1,660 cf	**11.50'W x 110.00'L x 4.50'H UG2** 5,692 cf Overall - 663 cf Embedded = 5,029 cf x 33.0% Voids
#2A	16.00'	663 cf	**ADS_StormTech SC-310 +Cap** x 45 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 45 Chambers in 3 Rows
#3	16.75'	66 cf	**4.00'D x 5.25'H Riser** -Impervious
		2,389 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	13.33'	**2.0" Vert. 2" Underdrain orifice** C= 0.600 Limited to weir flow at low heads
#2	Device 1	13.33'	**8.210 in/hr Exfiltration through Media over Surface area**
#3	Secondary	18.50'	**8.0" Round 8" Overflow** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 18.50' / 18.25' S= 0.0500 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=0.24 cfs @ 11.69 hrs HW=18.75' TW=0.00' (Dynamic Tailwater)
└─**1=2" Underdrain orifice** (Passes 0.24 cfs of 0.24 cfs potential flow)
  └─**2=Exfiltration through Media** (Exfiltration Controls 0.24 cfs)

Secondary OutFlow Max=0.88 cfs @ 12.04 hrs HW=19.10' TW=17.21' (Dynamic Tailwater)
└─**3=8" Overflow** (Inlet Controls 0.88 cfs @ 2.65 fps)

Summary for Pond UG3: Detention & 6.030

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth = 1.94" for 10-YEAR event
Inflow = 5.71 cfs @ 12.07 hrs, Volume= 0.201 af
Outflow = 1.84 cfs @ 12.37 hrs, Volume= 0.200 af, Atten= 68%, Lag= 17.5 min
Primary = 1.84 cfs @ 12.37 hrs, Volume= 0.200 af
Routed to Link 201 : Municipal drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 16.87' @ 12.37 hrs Surf.Area= 5,123 sf Storage= 4,413 cf
Flood Elev= 22.05' Surf.Area= 5,123 sf Storage= 9,324 cf

Plug-Flow detention time= 50.3 min calculated for 0.200 af (100% of inflow)
Center-of-Mass det. time= 49.8 min (786.6 - 736.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.75'	1,499 cf	**20.50'W x 124.66'L x 3.00'H UG3A** 7,666 cf Overall - 3,124 cf Embedded = 4,542 cf x 33.0% Voids
#2A	15.75'	3,124 cf	**ADS_StormTech SC-740 +Cap** x 68 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 68 Chambers in 4 Rows
#3B	15.75'	1,499 cf	**20.50'W x 124.66'L x 3.00'H UG3B** 7,666 cf Overall - 3,124 cf Embedded = 4,542 cf x 33.0% Voids
#4B	15.75'	3,124 cf	**ADS_StormTech SC-740 +Cap** x 68 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 68 Chambers in 4 Rows
#5	15.75'	79 cf	**4.00'D x 6.25'H DMH Riser**
		9,324 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	15.75'	**0.7' long x 4.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.84 cfs @ 12.37 hrs HW=16.87' TW=0.00' (Dynamic Tailwater)
↑—**1=Sharp-Crested Rectangular Weir** (Weir Controls 1.84 cfs @ 3.46 fps)

Summary for Link 201: Municipal drain

Inflow Area = 5.159 ac, 74.51% Impervious, Inflow Depth > 3.76" for 10-YEAR event
Inflow = 16.37 cfs @ 12.12 hrs, Volume= 1.617 af
Primary = 16.37 cfs @ 12.12 hrs, Volume= 1.617 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 202: To abutter

Runoff = 0.95 cfs @ 12.09 hrs, Volume= 0.067 af, Depth> 3.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=6.10"

Area (sf)	CN	Description
10,755	74	>75% Grass cover, Good, HSG C
10,755	74	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment 203: To Coddington HWY

Runoff = 1.36 cfs @ 12.09 hrs, Volume= 0.097 af, Depth> 4.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=6.10"

	Area (sf)	CN	Description
*	350	98	Offsite pavement
*	460	74	Offsite >75% Grass cover, Good, HSG C
*	3,600	98	Pavement
	7,867	74	>75% Grass cover, Good, HSG C
*	200	98	Concrete
	12,477	82	Weighted Average
	8,327	74	66.74% Pervious Area
	4,150	98	33.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P1.010:

Runoff = 1.82 cfs @ 12.08 hrs, Volume= 0.136 af, Depth> 4.94"
Routed to Pond 1.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=6.10"

	Area (sf)	CN	Description
*	951	74	Offsite >75% Grass cover, Good, HSG C
*	4,800	98	Building
	3,595	74	>75% Grass cover, Good, HSG C
*	5,002	98	Pavement
	14,348	90	Weighted Average
	4,546	74	31.68% Pervious Area
	9,802	98	68.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P1.030:

Runoff = 2.20 cfs @ 12.14 hrs, Volume= 0.190 af, Depth> 4.94"
Routed to Pond 1.030 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=6.10"

	Area (sf)	CN	Description
*	2,652	98	Offsite buildings
*	2,782	98	Offsite pavement
*	6,500	74	Offsite >75% Grass cover, Good, HSG C
*	5,519	98	Pavement
*	2,400	98	Building
	232	74	>75% Grass cover, Good, HSG C
	20,085	90	Weighted Average
	6,732	74	33.52% Pervious Area
	13,353	98	66.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.0200	0.17		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.2	21	0.0200	2.28		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
0.6	105	0.0182	2.74		**Shallow Concentrated Flow, Grass and pavement** Paved Kv= 20.3 fps
10.4	226	Total			

Summary for Subcatchment P1.040:

Runoff = 3.81 cfs @ 12.14 hrs, Volume= 0.322 af, Depth> 4.50"
Routed to Pond 1.040 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=6.10"

	Area (sf)	CN	Description
*	8,400	98	Offsite buildings
*	4,300	98	Offsite pavement
*	18,448	74	Offsite >75% Grass cover, Good, HSG C
*	6,080	98	Pavement
	155	74	>75% Grass cover, Good, HSG C
	37,383	86	Weighted Average
	18,603	74	49.76% Pervious Area
	18,780	98	50.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0250	0.19		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.7	104	0.0250	2.55		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
1.0	200	0.0250	3.21		**Shallow Concentrated Flow, Grass and pavement** Paved Kv= 20.3 fps
10.5	404	Total			

Summary for Subcatchment P1.050:

Runoff = 2.39 cfs @ 12.14 hrs, Volume= 0.201 af, Depth> 4.71"
Routed to Pond 1.050 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=6.10"

	Area (sf)	CN	Description
*	4,200	98	Offsite buildings
*	2,182	98	Offsite pavement
*	8,829	74	Offsite >75% Grass cover, Good, HSG C
*	2,400	98	Building
*	4,519	98	Pavement
	155	74	>75% Grass cover, Good, HSG C
	22,285	88	Weighted Average
	8,984	74	40.31% Pervious Area
	13,301	98	59.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0250	0.19		**Sheet Flow, Lawns** Grass: Short n= 0.150 P2= 3.30"
0.6	83	0.0220	2.39		**Shallow Concentrated Flow, Lawns** Unpaved Kv= 16.1 fps
0.6	155	0.0500	4.54		**Shallow Concentrated Flow, Pavement and Grass** Paved Kv= 20.3 fps
10.0	338	Total			

Summary for Subcatchment P1.060:

Runoff = 2.96 cfs @ 12.14 hrs, Volume= 0.254 af, Depth> 4.71"
Routed to Pond 1.060 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=6.10"

	Area (sf)	CN	Description
*	4,725	98	Offsite buildings
*	3,905	98	Offsite pavement
*	11,862	74	Offsite >75% Grass cover, Good, HSG C
*	2,505	98	Building
*	5,125	98	Pavement
	28,122	88	Weighted Average
	11,862	74	42.18% Pervious Area
	16,260	98	57.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.0200	0.17		**Sheet Flow, Lawn** Grass: Short n= 0.150 P2= 3.30"
0.6	88	0.0250	2.55		**Shallow Concentrated Flow, Lawn** Unpaved Kv= 16.1 fps
0.5	162	0.0700	5.37		**Shallow Concentrated Flow, Pavement and lawn** Paved Kv= 20.3 fps
10.7	350	Total			

Summary for Subcatchment P2.010:

Runoff = 2.88 cfs @ 12.08 hrs, Volume= 0.235 af, Depth> 5.86"
Routed to Pond 2.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=6.10"

	Area (sf)	CN	Description
	436	74	>75% Grass cover, Good, HSG C
*	8,484	98	Pavement
*	12,000	98	Building
*	90	98	Concrete
	21,010	98	Weighted Average
	436	74	2.08% Pervious Area
	20,574	98	97.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.010:

Runoff = 1.79 cfs @ 12.08 hrs, Volume= 0.134 af, Depth> 4.94"
Routed to Pond 3.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=6.10"

	Area (sf)	CN	Description
*	1,547	74	Offsite >75% Grass cover, Good, HSG C
	3,273	74	>75% Grass cover, Good, HSG C
*	4,521	98	Pavement
*	4,800	98	Building
	14,141	90	Weighted Average
	4,820	74	34.09% Pervious Area
	9,321	98	65.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.030:

Runoff = 0.47 cfs @ 12.08 hrs, Volume= 0.037 af, Depth> 5.62"
Routed to Pond 3.030 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=6.10"

	Area (sf)	CN	Description
*	3,214	98	Pavement
*	3	74	Offsite >75% Grass cover, Good, HSG C
	257	74	>75% Grass cover, Good, HSG C
	3,474	96	Weighted Average
	260	74	7.48% Pervious Area
	3,214	98	92.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.040:

Runoff = 0.87 cfs @ 12.08 hrs, Volume= 0.071 af, Depth> 5.86"
Routed to Pond 3.040 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=6.10"

	Area (sf)	CN	Description
*	3,914	98	Pavement
*	2,400	98	Building
	6,314	98	Weighted Average
	6,314	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.050:

Runoff = 1.24 cfs @ 12.08 hrs, Volume= 0.101 af, Depth> 5.86"
Routed to Pond 3.050 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=6.10"

	Area (sf)	CN	Description
*	6,619	98	Pavement
*	2,400	98	Building
	9,019	98	Weighted Average
	9,019	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P4.010:

Runoff = 3.73 cfs @ 12.08 hrs, Volume= 0.300 af, Depth> 5.74"
Routed to Pond 4.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=6.10"

	Area (sf)	CN	Description
*	12,315	98	Building
*	14,211	98	Pavement
*	100	98	Concrete
	657	74	>75% Grass cover, Good, HSG C
	27,283	97	Weighted Average
	657	74	2.41% Pervious Area
	26,626	98	97.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P5.010:

Runoff = 2.92 cfs @ 12.08 hrs, Volume= 0.238 af, Depth> 5.86"
Routed to Pond 5.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YEAR Rainfall=6.10"

	Area (sf)	CN	Description
*	12,000	98	Building
*	90	98	Concrete
*	8,787	98	Pavement
	376	74	>75% Grass cover, Good, HSG C
	21,253	98	Weighted Average
	376	74	1.77% Pervious Area
	20,877	98	98.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Pond 1.010:

Inflow Area = 0.329 ac, 68.32% Impervious, Inflow Depth > 4.94" for 25-YEAR event
Inflow = 1.82 cfs @ 12.08 hrs, Volume= 0.136 af
Outflow = 1.82 cfs @ 12.08 hrs, Volume= 0.136 af, Atten= 0%, Lag= 0.0 min
Primary = 1.82 cfs @ 12.08 hrs, Volume= 0.136 af
Routed to Pond 1.020 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 25.54' @ 12.09 hrs
Flood Elev= 28.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.75'	**12.0" Round 12" ADS** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 24.75' / 24.25' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.81 cfs @ 12.08 hrs HW=25.54' TW=24.89' (Dynamic Tailwater)
↑—**1=12" ADS** (Outlet Controls 1.81 cfs @ 3.71 fps)

Summary for Pond 1.020:

Inflow Area = 0.329 ac, 68.32% Impervious, Inflow Depth > 4.94" for 25-YEAR event
Inflow = 1.82 cfs @ 12.08 hrs, Volume= 0.136 af
Outflow = 1.82 cfs @ 12.08 hrs, Volume= 0.136 af, Atten= 0%, Lag= 0.0 min
Primary = 1.82 cfs @ 12.08 hrs, Volume= 0.136 af
Routed to Pond 1.030 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 24.89' @ 12.08 hrs
Flood Elev= 28.33'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.15'	**12.0" Round 12" ADS** L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 24.15' / 23.15' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.81 cfs @ 12.08 hrs HW=24.89' TW=23.57' (Dynamic Tailwater)
1=12" ADS (Inlet Controls 1.81 cfs @ 2.92 fps)

Summary for Pond 1.030:

Inflow Area = 0.790 ac, 67.25% Impervious, Inflow Depth > 4.94" for 25-YEAR event
Inflow = 3.85 cfs @ 12.11 hrs, Volume= 0.325 af
Outflow = 3.85 cfs @ 12.11 hrs, Volume= 0.325 af, Atten= 0%, Lag= 0.0 min
Primary = 3.85 cfs @ 12.11 hrs, Volume= 0.325 af
Routed to Pond 1.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 23.59' @ 12.11 hrs
Flood Elev= 26.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	22.65'	**18.0" Round 18" ADS** L= 134.0' Ke= 0.500 Inlet / Outlet Invert= 22.65' / 20.50' S= 0.0160 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.85 cfs @ 12.11 hrs HW=23.59' TW=21.78' (Dynamic Tailwater)
1=18" ADS (Inlet Controls 3.85 cfs @ 3.30 fps)

Summary for Pond 1.040:

Inflow Area = 2.131 ac, 67.34% Impervious, Inflow Depth > 4.97" for 25-YEAR event
Inflow = 10.22 cfs @ 12.11 hrs, Volume= 0.882 af
Outflow = 10.22 cfs @ 12.11 hrs, Volume= 0.882 af, Atten= 0%, Lag= 0.0 min
Primary = 10.22 cfs @ 12.11 hrs, Volume= 0.882 af
Routed to Pond 1.050 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 21.83' @ 12.13 hrs
Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	20.00'	**24.0" Round 24" ADS** L= 104.0' Ke= 0.500 Inlet / Outlet Invert= 20.00' / 18.95' S= 0.0101 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=9.77 cfs @ 12.11 hrs HW=21.79' TW=21.08' (Dynamic Tailwater)
1=24" ADS (Outlet Controls 9.77 cfs @ 4.36 fps)

Summary for Pond 1.050:

Inflow Area = 2.643 ac, 65.86% Impervious, Inflow Depth > 4.92" for 25-YEAR event
Inflow = 12.56 cfs @ 12.12 hrs, Volume= 1.083 af
Outflow = 12.56 cfs @ 12.12 hrs, Volume= 1.083 af, Atten= 0%, Lag= 0.0 min
Primary = 12.56 cfs @ 12.12 hrs, Volume= 1.083 af
Routed to Pond 1.060 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 21.13' @ 12.13 hrs
Flood Elev= 23.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.85'	**24.0" Round 24" ADS** L= 104.0' Ke= 0.500 Inlet / Outlet Invert= 18.85' / 17.75' S= 0.0106 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=12.13 cfs @ 12.12 hrs HW=21.10' TW=20.43' (Dynamic Tailwater)
└**1=24" ADS** (Outlet Controls 12.13 cfs @ 4.29 fps)

Summary for Pond 1.060:

Inflow Area = 3.288 ac, 64.28% Impervious, Inflow Depth > 4.88" for 25-YEAR event
Inflow = 15.43 cfs @ 12.12 hrs, Volume= 1.337 af
Outflow = 15.43 cfs @ 12.12 hrs, Volume= 1.337 af, Atten= 0%, Lag= 0.0 min
Primary = 15.43 cfs @ 12.12 hrs, Volume= 1.337 af
Routed to Pond 1.070 : Diversion

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 20.45' @ 12.13 hrs
Flood Elev= 22.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	17.65'	**24.0" Round 24" ADS** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 17.65' / 17.60' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=15.37 cfs @ 12.12 hrs HW=20.45' TW=19.41' (Dynamic Tailwater)
└**1=24" ADS** (Inlet Controls 15.37 cfs @ 4.89 fps)

Summary for Pond 1.070: Diversion

Inflow Area = 3.288 ac, 64.28% Impervious, Inflow Depth > 4.88" for 25-YEAR event
Inflow = 15.43 cfs @ 12.12 hrs, Volume= 1.337 af
Outflow = 15.43 cfs @ 12.12 hrs, Volume= 1.337 af, Atten= 0%, Lag= 0.0 min
Primary = 1.70 cfs @ 12.12 hrs, Volume= 0.780 af
Routed to Pond 1.080 : Cascade
Secondary = 13.73 cfs @ 12.12 hrs, Volume= 0.557 af
Routed to Link 201 : Municipal drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.41' @ 12.12 hrs
Flood Elev= 22.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.60'	**8.0" Round 8" ADS** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 16.60' / 16.55' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#2	Secondary	17.60'	**24.0" Round 24" ADS** L= 105.0' Ke= 0.500 Inlet / Outlet Invert= 17.60' / 16.50' S= 0.0105 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=1.70 cfs @ 12.12 hrs HW=19.41' TW=18.39' (Dynamic Tailwater)
└**1=8" ADS** (Inlet Controls 1.70 cfs @ 4.86 fps)

Secondary OutFlow Max=13.73 cfs @ 12.12 hrs HW=19.41' TW=0.00' (Dynamic Tailwater)
└**2=24" ADS** (Inlet Controls 13.73 cfs @ 4.58 fps)

Summary for Pond 1.080: Cascade

Inflow Area = 3.288 ac, 64.28% Impervious, Inflow Depth > 2.85" for 25-YEAR event
Inflow = 1.70 cfs @ 12.12 hrs, Volume= 0.780 af
Outflow = 1.70 cfs @ 12.12 hrs, Volume= 0.780 af, Atten= 0%, Lag= 0.0 min
Primary = 1.70 cfs @ 12.12 hrs, Volume= 0.780 af
Routed to Pond UG1 : UG Filter w/1.090

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 18.39' @ 12.11 hrs
Flood Elev= 22.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.55'	**8.0" Vert. 8" Header** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.70 cfs @ 12.12 hrs HW=18.39' TW=17.37' (Dynamic Tailwater)
↑—**1=8" Header** (Orifice Controls 1.70 cfs @ 4.87 fps)

Summary for Pond 2.010:

Inflow Area = 0.482 ac, 97.92% Impervious, Inflow Depth > 5.86" for 25-YEAR event
Inflow = 2.88 cfs @ 12.08 hrs, Volume= 0.235 af
Outflow = 2.88 cfs @ 12.08 hrs, Volume= 0.235 af, Atten= 0%, Lag= 0.0 min
Primary = 2.88 cfs @ 12.08 hrs, Volume= 0.235 af
Routed to Pond 1.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 22.07' @ 12.13 hrs
Flood Elev= 24.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	**18.0" Round 18" ADS** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 21.00' / 20.50' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=2.64 cfs @ 12.08 hrs HW=22.00' TW=21.64' (Dynamic Tailwater)
↑—**1=18" ADS** (Outlet Controls 2.64 cfs @ 3.00 fps)

Summary for Pond 3.010:

Inflow Area = 0.325 ac, 65.91% Impervious, Inflow Depth > 4.94" for 25-YEAR event
Inflow = 1.79 cfs @ 12.08 hrs, Volume= 0.134 af
Outflow = 1.79 cfs @ 12.08 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min
Primary = 1.79 cfs @ 12.08 hrs, Volume= 0.134 af
Routed to Pond 3.020 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 25.56' @ 12.09 hrs
Flood Elev= 28.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.75'	**12.0" Round 12" ADS** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 24.75' / 24.29' S= 0.0074 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.78 cfs @ 12.08 hrs HW=25.56' TW=24.99' (Dynamic Tailwater)
↑—**1=12" ADS** (Outlet Controls 1.78 cfs @ 3.55 fps)

Summary for Pond 3.020:

Inflow Area = 0.325 ac, 65.91% Impervious, Inflow Depth > 4.94" for 25-YEAR event
Inflow = 1.79 cfs @ 12.08 hrs, Volume= 0.134 af
Outflow = 1.79 cfs @ 12.08 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min
Primary = 1.79 cfs @ 12.08 hrs, Volume= 0.134 af
Routed to Pond 3.030 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 24.99' @ 12.09 hrs
Flood Elev= 28.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.19'	**12.0" Round 12" ADS** L= 97.0' Ke= 0.500 Inlet / Outlet Invert= 24.19' / 23.46' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.78 cfs @ 12.08 hrs HW=24.99' TW=24.22' (Dynamic Tailwater)
1=12" ADS (Outlet Controls 1.78 cfs @ 3.63 fps)

Summary for Pond 3.030:

Inflow Area = 0.404 ac, 71.16% Impervious, Inflow Depth > 5.07" for 25-YEAR event
Inflow = 2.26 cfs @ 12.08 hrs, Volume= 0.171 af
Outflow = 2.26 cfs @ 12.08 hrs, Volume= 0.171 af, Atten= 0%, Lag= 0.0 min
Primary = 2.26 cfs @ 12.08 hrs, Volume= 0.171 af
Routed to Pond 3.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 24.22' @ 12.08 hrs
Flood Elev= 26.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	23.36'	**12.0" Round 12" ADS** L= 142.0' Ke= 0.500 Inlet / Outlet Invert= 23.36' / 21.04' S= 0.0163 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.26 cfs @ 12.08 hrs HW=24.22' TW=21.70' (Dynamic Tailwater)
1=12" ADS (Inlet Controls 2.26 cfs @ 3.15 fps)

Summary for Pond 3.040:

Inflow Area = 1.037 ac, 87.92% Impervious, Inflow Depth > 5.55" for 25-YEAR event
Inflow = 6.05 cfs @ 12.08 hrs, Volume= 0.480 af
Outflow = 6.05 cfs @ 12.08 hrs, Volume= 0.480 af, Atten= 0%, Lag= 0.0 min
Primary = 6.05 cfs @ 12.08 hrs, Volume= 0.480 af
Routed to Pond 3.050 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 21.70' @ 12.08 hrs
Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	20.44'	**18.0" Round 18" ADS** L= 140.0' Ke= 0.500 Inlet / Outlet Invert= 20.44' / 18.85' S= 0.0114 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=6.04 cfs @ 12.08 hrs HW=21.70' TW=20.28' (Dynamic Tailwater)
1=18" ADS (Inlet Controls 6.04 cfs @ 3.82 fps)

Summary for Pond 3.050:

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth > 5.60" for 25-YEAR event
Inflow = 7.28 cfs @ 12.08 hrs, Volume= 0.581 af
Outflow = 7.28 cfs @ 12.08 hrs, Volume= 0.581 af, Atten= 0%, Lag= 0.0 min
Primary = 7.28 cfs @ 12.08 hrs, Volume= 0.581 af
Routed to Pond 3.060 : Diversion

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 20.30' @ 12.09 hrs
Flood Elev= 22.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.75'	**18.0" Round 18" ADS** L= 45.0' Ke= 0.500 Inlet / Outlet Invert= 18.75' / 18.00' S= 0.0167 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=7.15 cfs @ 12.08 hrs HW=20.28' TW=19.51' (Dynamic Tailwater)
1=18" ADS (Outlet Controls 7.15 cfs @ 4.93 fps)

Summary for Pond 3.060: Diversion

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth > 5.60" for 25-YEAR event
Inflow = 7.28 cfs @ 12.08 hrs, Volume= 0.581 af
Outflow = 7.28 cfs @ 12.08 hrs, Volume= 0.581 af, Atten= 0%, Lag= 0.0 min
Primary = 6.41 cfs @ 12.08 hrs, Volume= 0.256 af
Routed to Pond 6.010 : DMH and Headers
Secondary = 1.44 cfs @ 11.94 hrs, Volume= 0.325 af
Routed to Pond 3.070 : Cascade and Header

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.52' @ 12.08 hrs
Flood Elev= 22.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	**18.0" Round 18" ADS** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 18.00' / 17.90' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	17.00'	**8.0" Round 8" ADS** L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 17.00' / 16.75' S= 0.0125 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=6.38 cfs @ 12.08 hrs HW=19.51' TW=17.35' (Dynamic Tailwater)
1=18" ADS (Barrel Controls 6.38 cfs @ 4.44 fps)

Secondary OutFlow Max=0.00 cfs @ 11.94 hrs HW=18.68' TW=18.90' (Dynamic Tailwater)
2=8" ADS (Controls 0.00 cfs)

Summary for Pond 3.070: Cascade and Header

Inflow = 1.44 cfs @ 11.94 hrs, Volume= 0.325 af
Outflow = 2.07 cfs @ 12.10 hrs, Volume= 0.325 af, Atten= 0%, Lag= 9.6 min
Primary = 2.07 cfs @ 12.10 hrs, Volume= 0.325 af
Routed to Pond UG2 : UG Filter

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.25' @ 12.07 hrs Surf.Area= 13 sf Storage= 36 cf
Flood Elev= 20.00' Surf.Area= 13 sf Storage= 45 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.6 min (768.2 - 767.5)

Volume	Invert	Avail.Storage	Storage Description
#1	16.75'	4 cf	**8.0" Round Header** L= 12.0'
#2	16.75'	41 cf	**4.00'D x 3.25'H Cascade Riser**
		45 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	16.75'	**8.0" Vert. 8" Laterals to Filter X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.44 cfs @ 12.10 hrs HW=19.17' TW=19.09' (Dynamic Tailwater)
1=8" Laterals to Filter (Orifice Controls 1.44 cfs @ 1.37 fps)

Summary for Pond 4.010:

Inflow Area = 0.626 ac, 97.59% Impervious, Inflow Depth > 5.74" for 25-YEAR event
Inflow = 3.73 cfs @ 12.08 hrs, Volume= 0.300 af
Outflow = 3.73 cfs @ 12.08 hrs, Volume= 0.300 af, Atten= 0%, Lag= 0.0 min
Primary = 3.73 cfs @ 12.08 hrs, Volume= 0.300 af
Routed to Pond 4.020 : Cascade

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.29' @ 12.09 hrs
Flood Elev= 21.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.75'	**12.0" Round 12" ADS** L= 17.0' Ke= 0.500 Inlet / Outlet Invert= 16.75' / 16.22' S= 0.0312 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.67 cfs @ 12.08 hrs HW=19.27' TW=18.33' (Dynamic Tailwater)
1=12" ADS (Inlet Controls 3.67 cfs @ 4.67 fps)

Summary for Pond 4.020: Cascade

Inflow Area = 0.626 ac, 97.59% Impervious, Inflow Depth > 5.74" for 25-YEAR event
Inflow = 3.73 cfs @ 12.08 hrs, Volume= 0.300 af
Outflow = 3.73 cfs @ 12.08 hrs, Volume= 0.300 af, Atten= 0%, Lag= 0.0 min
Primary = 3.73 cfs @ 12.08 hrs, Volume= 0.300 af
Routed to Pond UG1 : UG Filter w/1.090

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 18.33' @ 12.09 hrs
Flood Elev= 21.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.22'	**12.0" Vert. 12" Header** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.71 cfs @ 12.08 hrs HW=18.33' TW=17.37' (Dynamic Tailwater)
1=12" Header (Orifice Controls 3.71 cfs @ 4.72 fps)

Summary for Pond 5.010:

Inflow Area = 0.488 ac, 98.23% Impervious, Inflow Depth > 5.86" for 25-YEAR event
Inflow = 2.92 cfs @ 12.08 hrs, Volume= 0.238 af
Outflow = 2.92 cfs @ 12.08 hrs, Volume= 0.238 af, Atten= 0%, Lag= 0.0 min
Primary = 2.92 cfs @ 12.08 hrs, Volume= 0.238 af
Routed to Pond 3.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 22.06' @ 12.09 hrs
Flood Elev= 24.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	**18.0" Round 18" ADS** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 21.00' / 20.54' S= 0.0069 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=2.88 cfs @ 12.08 hrs HW=22.06' TW=21.70' (Dynamic Tailwater)
1=18" ADS (Outlet Controls 2.88 cfs @ 3.04 fps)

Summary for Pond 6.010: DMH and Headers

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth = 2.81" for 25-YEAR event
Inflow = 7.37 cfs @ 12.08 hrs, Volume= 0.292 af
Outflow = 7.22 cfs @ 12.09 hrs, Volume= 0.292 af, Atten= 2%, Lag= 0.4 min
Primary = 7.22 cfs @ 12.09 hrs, Volume= 0.292 af
Routed to Pond UG3 : Detention & 6.030

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.37' @ 12.09 hrs Surf.Area= 85 sf Storage= 42 cf
Flood Elev= 22.00' Surf.Area= 20 sf Storage= 181 cf

Plug-Flow detention time= 0.2 min calculated for 0.291 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (737.9 - 737.7)

Volume	Invert	Avail.Storage	Storage Description
#1	16.75'	78 cf	**18.0" Round 18" Headers** x 2 L= 22.0'
#2	16.75'	104 cf	**5.00'D x 5.30'H DMH Riser**
		182 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	16.75'	**8.0" Vert. 18" Laterals to Storage X 8.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=7.16 cfs @ 12.09 hrs HW=17.36' TW=16.83' (Dynamic Tailwater)
↑—**1=18" Laterals to Storage** (Orifice Controls 7.16 cfs @ 2.67 fps)

Summary for Pond UG1: UG Filter w/1.090

Inflow Area = 3.915 ac, 69.61% Impervious, Inflow Depth > 3.31" for 25-YEAR event
Inflow = 5.40 cfs @ 12.09 hrs, Volume= 1.079 af
Outflow = 5.34 cfs @ 12.10 hrs, Volume= 0.988 af, Atten= 1%, Lag= 0.9 min
Primary = 5.34 cfs @ 12.10 hrs, Volume= 0.988 af
Routed to Link 201 : Municipal drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.37' @ 12.10 hrs Surf.Area= 2,524 sf Storage= 4,430 cf
Flood Elev= 22.25' Surf.Area= 2,524 sf Storage= 4,839 cf

Plug-Flow detention time= 80.5 min calculated for 0.987 af (91% of inflow)
Center-of-Mass det. time= 34.2 min (836.8 - 802.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	13.25'	2,131 cf	**14.83'W x 110.00'L x 4.50'H UG1A** 7,342 cf Overall - 885 cf Embedded = 6,458 cf x 33.0% Voids
#2A	15.92'	885 cf	**ADS_StormTech SC-310 +Cap** x 60 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 60 Chambers in 4 Rows
#3	13.00'	182 cf	**5.00'D x 9.25'H 1.090 Riser** -Impervious
#4B	13.25'	1,169 cf	**14.83'W x 60.16'L x 4.50'H UG1B** 4,016 cf Overall - 472 cf Embedded = 3,544 cf x 33.0% Voids
#5B	15.92'	472 cf	**ADS_StormTech SC-310 +Cap** x 32 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 32 Chambers in 4 Rows
		4,839 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 4	13.22'	**1.0" Vert. (2) 1" Underdrain Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#2	Device 1	13.25'	**8.210 in/hr Exfiltration through Media over Surface area** Phase-In= 0.01'
#3	Device 4	16.90'	**5.0' long x 2.00' rise Baffle** 2 End Contraction(s)
#4	Primary	13.00'	**12.0" Round 12" ADS** L= 86.0' Ke= 0.500 Inlet / Outlet Invert= 13.00' / 12.14' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=5.34 cfs @ 12.10 hrs HW=17.37' TW=0.00' (Dynamic Tailwater)
└─**4=12" ADS** (Passes 5.34 cfs of 6.65 cfs potential flow)
  ├─**1=(2) 1" Underdrain Orifice** (Orifice Controls 0.11 cfs @ 9.76 fps)
  │ └─**2=Exfiltration through Media** (Passes 0.11 cfs of 0.48 cfs potential flow)
  └─**3=Baffle** (Weir Controls 5.23 cfs @ 2.25 fps)

Summary for Pond UG2: UG Filter

Inflow = 2.07 cfs @ 12.10 hrs, Volume= 0.325 af
Outflow = 1.33 cfs @ 12.06 hrs, Volume= 0.313 af, Atten= 36%, Lag= 0.0 min
Primary = 0.24 cfs @ 11.27 hrs, Volume= 0.278 af
Routed to Link 201 : Municipal drain
Secondary = 1.09 cfs @ 12.06 hrs, Volume= 0.035 af
Routed to Pond 6.010 : DMH and Headers

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.25' @ 12.06 hrs Surf.Area= 1,265 sf Storage= 2,354 cf
Flood Elev= 22.05' Surf.Area= 1,265 sf Storage= 2,389 cf

Plug-Flow detention time= 118.2 min calculated for 0.313 af (97% of inflow)
Center-of-Mass det. time= 96.5 min (864.6 - 768.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	13.33'	1,660 cf	**11.50'W x 110.00'L x 4.50'H UG2** 5,692 cf Overall - 663 cf Embedded = 5,029 cf x 33.0% Voids
#2A	16.00'	663 cf	**ADS_StormTech SC-310 +Cap** x 45 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 45 Chambers in 3 Rows
#3	16.75'	66 cf	**4.00'D x 5.25'H Riser** -Impervious
		2,389 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	13.33'	**2.0" Vert. 2" Underdrain orifice** C= 0.600 Limited to weir flow at low heads
#2	Device 1	13.33'	**8.210 in/hr Exfiltration through Media over Surface area**
#3	Secondary	18.50'	**8.0" Round 8" Overflow** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 18.50' / 18.25' S= 0.0500 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=0.24 cfs @ 11.27 hrs HW=18.68' TW=0.00' (Dynamic Tailwater)
└─**1=2" Underdrain orifice** (Passes 0.24 cfs of 0.24 cfs potential flow)
  └─**2=Exfiltration through Media** (Exfiltration Controls 0.24 cfs)

Secondary OutFlow Max=1.06 cfs @ 12.06 hrs HW=19.23' TW=17.33' (Dynamic Tailwater)
└─**3=8" Overflow** (Inlet Controls 1.06 cfs @ 3.05 fps)

Summary for Pond UG3: Detention & 6.030

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth = 2.81" for 25-YEAR event
Inflow = 7.22 cfs @ 12.09 hrs, Volume= 0.292 af
Outflow = 2.45 cfs @ 12.33 hrs, Volume= 0.291 af, Atten= 66%, Lag= 14.5 min
Primary = 2.45 cfs @ 12.33 hrs, Volume= 0.291 af
Routed to Link 201 : Municipal drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.29' @ 12.33 hrs Surf.Area= 5,123 sf Storage= 5,897 cf
Flood Elev= 22.05' Surf.Area= 5,123 sf Storage= 9,324 cf

Plug-Flow detention time= 47.7 min calculated for 0.291 af (100% of inflow)
Center-of-Mass det. time= 47.3 min (785.2 - 737.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.75'	1,499 cf	**20.50'W x 124.66'L x 3.00'H UG3A** 7,666 cf Overall - 3,124 cf Embedded = 4,542 cf x 33.0% Voids
#2A	15.75'	3,124 cf	**ADS_StormTech SC-740 +Cap** x 68 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 68 Chambers in 4 Rows
#3B	15.75'	1,499 cf	**20.50'W x 124.66'L x 3.00'H UG3B** 7,666 cf Overall - 3,124 cf Embedded = 4,542 cf x 33.0% Voids
#4B	15.75'	3,124 cf	**ADS_StormTech SC-740 +Cap** x 68 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 68 Chambers in 4 Rows
#5	15.75'	79 cf	**4.00'D x 6.25'H DMH Riser**
		9,324 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	15.75'	**0.7' long x 4.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.45 cfs @ 12.33 hrs HW=17.29' TW=0.00' (Dynamic Tailwater)
↑—**1=Sharp-Crested Rectangular Weir** (Weir Controls 2.45 cfs @ 4.06 fps)

Summary for Link 201: Municipal drain

Inflow Area = 5.159 ac, 74.51% Impervious, Inflow Depth > 4.92" for 25-YEAR event
Inflow = 21.24 cfs @ 12.12 hrs, Volume= 2.114 af
Primary = 21.24 cfs @ 12.12 hrs, Volume= 2.114 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 202: To abutter

Runoff = 1.58 cfs @ 12.09 hrs, Volume= 0.112 af, Depth> 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YEAR Rainfall=8.60"

Area (sf)	CN	Description
10,755	74	>75% Grass cover, Good, HSG C
10,755	74	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment 203: To Coddington HWY

Runoff = 2.10 cfs @ 12.09 hrs, Volume= 0.153 af, Depth> 6.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YEAR Rainfall=8.60"

	Area (sf)	CN	Description
*	350	98	Offsite pavement
*	460	74	Offsite >75% Grass cover, Good, HSG C
*	3,600	98	Pavement
	7,867	74	>75% Grass cover, Good, HSG C
*	200	98	Concrete
	12,477	82	Weighted Average
	8,327	74	66.74% Pervious Area
	4,150	98	33.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P1.010:

Runoff = 2.66 cfs @ 12.08 hrs, Volume= 0.203 af, Depth> 7.39"
Routed to Pond 1.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YEAR Rainfall=8.60"

	Area (sf)	CN	Description
*	951	74	Offsite >75% Grass cover, Good, HSG C
*	4,800	98	Building
	3,595	74	>75% Grass cover, Good, HSG C
*	5,002	98	Pavement
	14,348	90	Weighted Average
	4,546	74	31.68% Pervious Area
	9,802	98	68.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P1.030:

Runoff = 3.22 cfs @ 12.14 hrs, Volume= 0.284 af, Depth> 7.39"
Routed to Pond 1.030 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YEAR Rainfall=8.60"

	Area (sf)	CN	Description
*	2,652	98	Offsite buildings
*	2,782	98	Offsite pavement
*	6,500	74	Offsite >75% Grass cover, Good, HSG C
*	5,519	98	Pavement
*	2,400	98	Building
	232	74	>75% Grass cover, Good, HSG C
	20,085	90	Weighted Average
	6,732	74	33.52% Pervious Area
	13,353	98	66.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.0200	0.17		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.2	21	0.0200	2.28		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
0.6	105	0.0182	2.74		**Shallow Concentrated Flow, Grass and pavement** Paved Kv= 20.3 fps
10.4	226	Total			

Summary for Subcatchment P1.040:

Runoff = 5.73 cfs @ 12.14 hrs, Volume= 0.494 af, Depth> 6.90"
Routed to Pond 1.040 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YEAR Rainfall=8.60"

	Area (sf)	CN	Description
*	8,400	98	Offsite buildings
*	4,300	98	Offsite pavement
*	18,448	74	Offsite >75% Grass cover, Good, HSG C
*	6,080	98	Pavement
	155	74	>75% Grass cover, Good, HSG C
	37,383	86	Weighted Average
	18,603	74	49.76% Pervious Area
	18,780	98	50.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0250	0.19		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.7	104	0.0250	2.55		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
1.0	200	0.0250	3.21		**Shallow Concentrated Flow, Grass and pavement** Paved Kv= 20.3 fps
10.5	404	Total			

Summary for Subcatchment P1.050:

Runoff = 3.55 cfs @ 12.13 hrs, Volume= 0.305 af, Depth> 7.14"
Routed to Pond 1.050 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YEAR Rainfall=8.60"

	Area (sf)	CN	Description
*	4,200	98	Offsite buildings
*	2,182	98	Offsite pavement
*	8,829	74	Offsite >75% Grass cover, Good, HSG C
*	2,400	98	Building
*	4,519	98	Pavement
	155	74	>75% Grass cover, Good, HSG C
	22,285	88	Weighted Average
	8,984	74	40.31% Pervious Area
	13,301	98	59.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0250	0.19		**Sheet Flow, Lawns** Grass: Short n= 0.150 P2= 3.30"
0.6	83	0.0220	2.39		**Shallow Concentrated Flow, Lawns** Unpaved Kv= 16.1 fps
0.6	155	0.0500	4.54		**Shallow Concentrated Flow, Pavement and Grass** Paved Kv= 20.3 fps
10.0	338	Total			

Summary for Subcatchment P1.060:

Runoff = 4.39 cfs @ 12.14 hrs, Volume= 0.384 af, Depth> 7.14"
Routed to Pond 1.060 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YEAR Rainfall=8.60"

	Area (sf)	CN	Description
*	4,725	98	Offsite buildings
*	3,905	98	Offsite pavement
*	11,862	74	Offsite >75% Grass cover, Good, HSG C
*	2,505	98	Building
*	5,125	98	Pavement
	28,122	88	Weighted Average
	11,862	74	42.18% Pervious Area
	16,260	98	57.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.0200	0.17		**Sheet Flow, Lawn** Grass: Short n= 0.150 P2= 3.30"
0.6	88	0.0250	2.55		**Shallow Concentrated Flow, Lawn** Unpaved Kv= 16.1 fps
0.5	162	0.0700	5.37		**Shallow Concentrated Flow, Pavement and lawn** Paved Kv= 20.3 fps
10.7	350	Total			

Summary for Subcatchment P2.010:

Runoff = 4.07 cfs @ 12.08 hrs, Volume= 0.336 af, Depth> 8.35"
Routed to Pond 2.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YEAR Rainfall=8.60"

	Area (sf)	CN	Description
	436	74	>75% Grass cover, Good, HSG C
*	8,484	98	Pavement
*	12,000	98	Building
*	90	98	Concrete
	21,010	98	Weighted Average
	436	74	2.08% Pervious Area
	20,574	98	97.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.010:

Runoff = 2.62 cfs @ 12.08 hrs, Volume= 0.200 af, Depth> 7.39"
Routed to Pond 3.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YEAR Rainfall=8.60"

	Area (sf)	CN	Description
*	1,547	74	Offsite >75% Grass cover, Good, HSG C
	3,273	74	>75% Grass cover, Good, HSG C
*	4,521	98	Pavement
*	4,800	98	Building
	14,141	90	Weighted Average
	4,820	74	34.09% Pervious Area
	9,321	98	65.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.030:

Runoff = 0.67 cfs @ 12.08 hrs, Volume= 0.054 af, Depth> 8.11"
Routed to Pond 3.030 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YEAR Rainfall=8.60"

	Area (sf)	CN	Description
*	3,214	98	Pavement
*	3	74	Offsite >75% Grass cover, Good, HSG C
	257	74	>75% Grass cover, Good, HSG C
	3,474	96	Weighted Average
	260	74	7.48% Pervious Area
	3,214	98	92.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.040:

Runoff = 1.22 cfs @ 12.08 hrs, Volume= 0.101 af, Depth> 8.35"
Routed to Pond 3.040 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YEAR Rainfall=8.60"

	Area (sf)	CN	Description
*	3,914	98	Pavement
*	2,400	98	Building
	6,314	98	Weighted Average
	6,314	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.050:

Runoff = 1.75 cfs @ 12.08 hrs, Volume= 0.144 af, Depth> 8.35"
Routed to Pond 3.050 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YEAR Rainfall=8.60"

	Area (sf)	CN	Description
*	6,619	98	Pavement
*	2,400	98	Building
	9,019	98	Weighted Average
	9,019	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P4.010:

Runoff = 5.28 cfs @ 12.08 hrs, Volume= 0.430 af, Depth> 8.23"
Routed to Pond 4.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YEAR Rainfall=8.60"

	Area (sf)	CN	Description
*	12,315	98	Building
*	14,211	98	Pavement
*	100	98	Concrete
	657	74	>75% Grass cover, Good, HSG C
	27,283	97	Weighted Average
	657	74	2.41% Pervious Area
	26,626	98	97.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P5.010:

Runoff = 4.12 cfs @ 12.08 hrs, Volume= 0.340 af, Depth> 8.35"
Routed to Pond 5.010 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YEAR Rainfall=8.60"

	Area (sf)	CN	Description
*	12,000	98	Building
*	90	98	Concrete
*	8,787	98	Pavement
	376	74	>75% Grass cover, Good, HSG C
	21,253	98	Weighted Average
	376	74	1.77% Pervious Area
	20,877	98	98.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Pond 1.010:

Inflow Area = 0.329 ac, 68.32% Impervious, Inflow Depth > 7.39" for 100-YEAR event
Inflow = 2.66 cfs @ 12.08 hrs, Volume= 0.203 af
Outflow = 2.66 cfs @ 12.08 hrs, Volume= 0.203 af, Atten= 0%, Lag= 0.0 min
Primary = 2.66 cfs @ 12.08 hrs, Volume= 0.203 af
Routed to Pond 1.020 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 26.32' @ 12.15 hrs
Flood Elev= 28.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.75'	**12.0" Round 12" ADS** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 24.75' / 24.25' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.64 cfs @ 12.08 hrs HW=25.82' TW=25.14' (Dynamic Tailwater)
↑—**1=12" ADS** (Outlet Controls 2.64 cfs @ 3.90 fps)

Summary for Pond 1.020:

Inflow Area = 0.329 ac, 68.32% Impervious, Inflow Depth > 7.39" for 100-YEAR event
Inflow = 2.66 cfs @ 12.08 hrs, Volume= 0.203 af
Outflow = 2.66 cfs @ 12.08 hrs, Volume= 0.203 af, Atten= 0%, Lag= 0.0 min
Primary = 2.66 cfs @ 12.08 hrs, Volume= 0.203 af
Routed to Pond 1.030 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 26.01' @ 12.15 hrs
Flood Elev= 28.33'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.15'	**12.0" Round 12" ADS** L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 24.15' / 23.15' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.65 cfs @ 12.08 hrs HW=25.14' TW=24.04' (Dynamic Tailwater)
1=12" ADS (Inlet Controls 2.65 cfs @ 3.38 fps)

Summary for Pond 1.030:

Inflow Area = 0.790 ac, 67.25% Impervious, Inflow Depth > 7.39" for 100-YEAR event
Inflow = 5.63 cfs @ 12.11 hrs, Volume= 0.487 af
Outflow = 5.63 cfs @ 12.11 hrs, Volume= 0.487 af, Atten= 0%, Lag= 0.0 min
Primary = 5.63 cfs @ 12.11 hrs, Volume= 0.487 af
Routed to Pond 1.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 25.58' @ 12.14 hrs
Flood Elev= 26.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	22.65'	**18.0" Round 18" ADS** L= 134.0' Ke= 0.500 Inlet / Outlet Invert= 22.65' / 20.50' S= 0.0160 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.46 cfs @ 12.11 hrs HW=24.85' TW=24.64' (Dynamic Tailwater)
1=18" ADS (Outlet Controls 3.46 cfs @ 1.96 fps)

Summary for Pond 1.040:

Inflow Area = 2.131 ac, 67.34% Impervious, Inflow Depth > 7.41" for 100-YEAR event
Inflow = 14.98 cfs @ 12.11 hrs, Volume= 1.316 af
Outflow = 14.98 cfs @ 12.11 hrs, Volume= 1.316 af, Atten= 0%, Lag= 0.0 min
Primary = 14.98 cfs @ 12.11 hrs, Volume= 1.316 af
Routed to Pond 1.050 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 25.08' @ 12.14 hrs
Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	20.00'	**24.0" Round 24" ADS** L= 104.0' Ke= 0.500 Inlet / Outlet Invert= 20.00' / 18.95' S= 0.0101 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=13.01 cfs @ 12.11 hrs HW=24.71' TW=23.97' (Dynamic Tailwater)
1=24" ADS (Inlet Controls 13.01 cfs @ 4.14 fps)

Summary for Pond 1.050:

Inflow Area = 2.643 ac, 65.86% Impervious, Inflow Depth > 7.36" for 100-YEAR event
Inflow = 18.45 cfs @ 12.12 hrs, Volume= 1.621 af
Outflow = 18.45 cfs @ 12.12 hrs, Volume= 1.621 af, Atten= 0%, Lag= 0.0 min
Primary = 18.45 cfs @ 12.12 hrs, Volume= 1.621 af
Routed to Pond 1.060 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 24.16' @ 12.13 hrs
Flood Elev= 23.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.85'	**24.0" Round 24" ADS** L= 104.0' Ke= 0.500 Inlet / Outlet Invert= 18.85' / 17.75' S= 0.0106 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=17.74 cfs @ 12.12 hrs HW=24.05' TW=22.67' (Dynamic Tailwater)
1=24" ADS (Inlet Controls 17.74 cfs @ 5.65 fps)

Summary for Pond 1.060:

Inflow Area = 3.288 ac, 64.28% Impervious, Inflow Depth > 7.32" for 100-YEAR event
Inflow = 22.72 cfs @ 12.12 hrs, Volume= 2.005 af
Outflow = 22.72 cfs @ 12.12 hrs, Volume= 2.005 af, Atten= 0%, Lag= 0.0 min
Primary = 22.72 cfs @ 12.12 hrs, Volume= 2.005 af
Routed to Pond 1.070 : Diversion

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 22.71' @ 12.13 hrs
Flood Elev= 22.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	17.65'	**24.0" Round 24" ADS** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 17.65' / 17.60' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=22.61 cfs @ 12.12 hrs HW=22.70' TW=20.47' (Dynamic Tailwater)
1=24" ADS (Inlet Controls 22.61 cfs @ 7.20 fps)

Summary for Pond 1.070: Diversion

Inflow Area = 3.288 ac, 64.28% Impervious, Inflow Depth > 7.32" for 100-YEAR event
Inflow = 22.72 cfs @ 12.12 hrs, Volume= 2.005 af
Outflow = 22.72 cfs @ 12.12 hrs, Volume= 2.005 af, Atten= 0%, Lag= 0.0 min
Primary = 2.04 cfs @ 12.12 hrs, Volume= 1.027 af
Routed to Pond 1.080 : Cascade
Secondary = 20.68 cfs @ 12.12 hrs, Volume= 0.978 af
Routed to Link 201 : Municipal drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 20.47' @ 12.12 hrs
Flood Elev= 22.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.60'	**8.0" Round 8" ADS** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 16.60' / 16.55' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#2	Secondary	17.60'	**24.0" Round 24" ADS** L= 105.0' Ke= 0.500 Inlet / Outlet Invert= 17.60' / 16.50' S= 0.0105 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=2.03 cfs @ 12.12 hrs HW=20.47' TW=19.01' (Dynamic Tailwater)
1=8" ADS (Inlet Controls 2.03 cfs @ 5.81 fps)

Secondary OutFlow Max=20.67 cfs @ 12.12 hrs HW=20.47' TW=0.00' (Dynamic Tailwater)
2=24" ADS (Inlet Controls 20.67 cfs @ 6.58 fps)

Summary for Pond 1.080: Cascade

Inflow Area = 3.288 ac, 64.28% Impervious, Inflow Depth > 3.75" for 100-YEAR event
Inflow = 2.04 cfs @ 12.12 hrs, Volume= 1.027 af
Outflow = 2.04 cfs @ 12.12 hrs, Volume= 1.027 af, Atten= 0%, Lag= 0.0 min
Primary = 2.04 cfs @ 12.12 hrs, Volume= 1.027 af
Routed to Pond UG1 : UG Filter w/1.090

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 19.01' @ 12.12 hrs
Flood Elev= 22.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.55'	**8.0" Vert. 8" Header** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.04 cfs @ 12.12 hrs HW=19.01' TW=17.55' (Dynamic Tailwater)
↑—**1=8" Header** (Orifice Controls 2.04 cfs @ 5.83 fps)

Summary for Pond 2.010:

Inflow Area = 0.482 ac, 97.92% Impervious, Inflow Depth > 8.35" for 100-YEAR event
Inflow = 4.07 cfs @ 12.08 hrs, Volume= 0.336 af
Outflow = 4.07 cfs @ 12.08 hrs, Volume= 0.336 af, Atten= 0%, Lag= 0.0 min
Primary = 4.07 cfs @ 12.08 hrs, Volume= 0.336 af
Routed to Pond 1.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 25.22' @ 12.14 hrs
Flood Elev= 24.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	**18.0" Round 18" ADS** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 21.00' / 20.50' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=0.00 cfs @ 12.08 hrs HW=23.35' TW=23.62' (Dynamic Tailwater)
↑—**1=18" ADS** (Controls 0.00 cfs)

Summary for Pond 3.010:

Inflow Area = 0.325 ac, 65.91% Impervious, Inflow Depth > 7.39" for 100-YEAR event
Inflow = 2.62 cfs @ 12.08 hrs, Volume= 0.200 af
Outflow = 2.62 cfs @ 12.08 hrs, Volume= 0.200 af, Atten= 0%, Lag= 0.0 min
Primary = 2.62 cfs @ 12.08 hrs, Volume= 0.200 af
Routed to Pond 3.020 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 25.90' @ 12.09 hrs
Flood Elev= 28.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.75'	**12.0" Round 12" ADS** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 24.75' / 24.29' S= 0.0074 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.57 cfs @ 12.08 hrs HW=25.89' TW=25.33' (Dynamic Tailwater)
↑—**1=12" ADS** (Outlet Controls 2.57 cfs @ 3.59 fps)

Summary for Pond 3.020:

Inflow Area = 0.325 ac, 65.91% Impervious, Inflow Depth > 7.39" for 100-YEAR event
Inflow = 2.62 cfs @ 12.08 hrs, Volume= 0.200 af
Outflow = 2.62 cfs @ 12.08 hrs, Volume= 0.200 af, Atten= 0%, Lag= 0.0 min
Primary = 2.62 cfs @ 12.08 hrs, Volume= 0.200 af
Routed to Pond 3.030 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 25.34' @ 12.09 hrs
Flood Elev= 28.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.19'	**12.0" Round 12" ADS** L= 97.0' Ke= 0.500 Inlet / Outlet Invert= 24.19' / 23.46' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.60 cfs @ 12.08 hrs HW=25.33' TW=24.61' (Dynamic Tailwater)
↑—**1=12" ADS** (Outlet Controls 2.60 cfs @ 3.63 fps)

Summary for Pond 3.030:

Inflow Area = 0.404 ac, 71.16% Impervious, Inflow Depth > 7.53" for 100-YEAR event
Inflow = 3.29 cfs @ 12.08 hrs, Volume= 0.254 af
Outflow = 3.29 cfs @ 12.08 hrs, Volume= 0.254 af, Atten= 0%, Lag= 0.0 min
Primary = 3.29 cfs @ 12.08 hrs, Volume= 0.254 af
Routed to Pond 3.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 24.62' @ 12.08 hrs
Flood Elev= 26.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	23.36'	**12.0" Round 12" ADS** L= 142.0' Ke= 0.500 Inlet / Outlet Invert= 23.36' / 21.04' S= 0.0163 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.28 cfs @ 12.08 hrs HW=24.61' TW=22.80' (Dynamic Tailwater)
↑—**1=12" ADS** (Inlet Controls 3.28 cfs @ 4.18 fps)

Summary for Pond 3.040:

Inflow Area = 1.037 ac, 87.92% Impervious, Inflow Depth > 8.03" for 100-YEAR event
Inflow = 8.63 cfs @ 12.08 hrs, Volume= 0.694 af
Outflow = 8.63 cfs @ 12.08 hrs, Volume= 0.694 af, Atten= 0%, Lag= 0.0 min
Primary = 8.63 cfs @ 12.08 hrs, Volume= 0.694 af
Routed to Pond 3.050 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 22.85' @ 12.09 hrs
Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	20.44'	**18.0" Round 18" ADS** L= 140.0' Ke= 0.500 Inlet / Outlet Invert= 20.44' / 18.85' S= 0.0114 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=8.41 cfs @ 12.08 hrs HW=22.80' TW=21.50' (Dynamic Tailwater)
↑—**1=18" ADS** (Outlet Controls 8.41 cfs @ 4.76 fps)

Summary for Pond 3.050:

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth > 8.09" for 100-YEAR event
Inflow = 10.38 cfs @ 12.08 hrs, Volume= 0.839 af
Outflow = 10.38 cfs @ 12.08 hrs, Volume= 0.839 af, Atten= 0%, Lag= 0.0 min
Primary = 10.38 cfs @ 12.08 hrs, Volume= 0.839 af
Routed to Pond 3.060 : Diversion

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 21.53' @ 12.09 hrs
Flood Elev= 22.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.75'	**18.0" Round 18" ADS** L= 45.0' Ke= 0.500 Inlet / Outlet Invert= 18.75' / 18.00' S= 0.0167 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=10.29 cfs @ 12.08 hrs HW=21.50' TW=20.04' (Dynamic Tailwater)
1=18" ADS (Inlet Controls 10.29 cfs @ 5.82 fps)

Summary for Pond 3.060: Diversion

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth > 8.09" for 100-YEAR event
Inflow = 10.38 cfs @ 12.08 hrs, Volume= 0.839 af
Outflow = 10.38 cfs @ 12.08 hrs, Volume= 0.839 af, Atten= 0%, Lag= 0.0 min
Primary = 9.08 cfs @ 12.08 hrs, Volume= 0.420 af
Routed to Pond 6.010 : DMH and Headers
Secondary = 1.50 cfs @ 12.07 hrs, Volume= 0.418 af
Routed to Pond 3.070 : Cascade and Header

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 20.05' @ 12.08 hrs
Flood Elev= 22.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	**18.0" Round 18" ADS** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 18.00' / 17.90' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	17.00'	**8.0" Round 8" ADS** L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 17.00' / 16.75' S= 0.0125 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=9.05 cfs @ 12.08 hrs HW=20.04' TW=17.88' (Dynamic Tailwater)
1=18" ADS (Barrel Controls 9.05 cfs @ 5.12 fps)

Secondary OutFlow Max=1.25 cfs @ 12.07 hrs HW=20.00' TW=19.45' (Dynamic Tailwater)
2=8" ADS (Inlet Controls 1.25 cfs @ 3.58 fps)

Summary for Pond 3.070: Cascade and Header

Inflow = 1.50 cfs @ 12.07 hrs, Volume= 0.418 af
Outflow = 1.71 cfs @ 12.10 hrs, Volume= 0.418 af, Atten= 0%, Lag= 1.7 min
Primary = 1.71 cfs @ 12.10 hrs, Volume= 0.418 af
Routed to Pond UG2 : UG Filter

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.45' @ 12.07 hrs Surf.Area= 13 sf Storage= 38 cf
Flood Elev= 20.00' Surf.Area= 13 sf Storage= 45 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.7 min (759.5 - 758.8)

Volume	Invert	Avail.Storage	Storage Description
#1	16.75'	4 cf	**8.0" Round Header** L= 12.0'
#2	16.75'	41 cf	**4.00'D x 3.25'H Cascade Riser**
		45 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	16.75'	**8.0" Vert. 8" Laterals to Filter X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 12.10 hrs HW=19.33' TW=19.33' (Dynamic Tailwater)
1=8" Laterals to Filter (Controls 0.00 cfs)

Summary for Pond 4.010:

Inflow Area = 0.626 ac, 97.59% Impervious, Inflow Depth > 8.23" for 100-YEAR event
Inflow = 5.28 cfs @ 12.08 hrs, Volume= 0.430 af
Outflow = 5.28 cfs @ 12.08 hrs, Volume= 0.430 af, Atten= 0%, Lag= 0.0 min
Primary = 5.28 cfs @ 12.08 hrs, Volume= 0.430 af
Routed to Pond 4.020 : Cascade

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 21.34' @ 12.09 hrs
Flood Elev= 21.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.75'	**12.0" Round 12" ADS** L= 17.0' Ke= 0.500 Inlet / Outlet Invert= 16.75' / 16.22' S= 0.0312 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=5.20 cfs @ 12.08 hrs HW=21.30' TW=19.41' (Dynamic Tailwater)
1=12" ADS (Inlet Controls 5.20 cfs @ 6.62 fps)

Summary for Pond 4.020: Cascade

Inflow Area = 0.626 ac, 97.59% Impervious, Inflow Depth > 8.23" for 100-YEAR event
Inflow = 5.28 cfs @ 12.08 hrs, Volume= 0.430 af
Outflow = 5.28 cfs @ 12.08 hrs, Volume= 0.430 af, Atten= 0%, Lag= 0.0 min
Primary = 5.28 cfs @ 12.08 hrs, Volume= 0.430 af
Routed to Pond UG1 : UG Filter w/1.090

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.42' @ 12.09 hrs
Flood Elev= 21.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.22'	**12.0" Vert. 12" Header** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.24 cfs @ 12.08 hrs HW=19.41' TW=17.49' (Dynamic Tailwater)
1=12" Header (Orifice Controls 5.24 cfs @ 6.67 fps)

Summary for Pond 5.010:

Inflow Area = 0.488 ac, 98.23% Impervious, Inflow Depth > 8.35" for 100-YEAR event
Inflow = 4.12 cfs @ 12.08 hrs, Volume= 0.340 af
Outflow = 4.12 cfs @ 12.08 hrs, Volume= 0.340 af, Atten= 0%, Lag= 0.0 min
Primary = 4.12 cfs @ 12.08 hrs, Volume= 0.340 af
Routed to Pond 3.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 23.07' @ 12.10 hrs
Flood Elev= 24.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	**18.0" Round 18" ADS** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 21.00' / 20.54' S= 0.0069 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=1.69 cfs @ 12.08 hrs HW=22.83' TW=22.79' (Dynamic Tailwater)
1=18" ADS (Inlet Controls 1.69 cfs @ 0.96 fps)

Summary for Pond 6.010: DMH and Headers

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth = 4.77" for 100-YEAR event
Inflow = 10.34 cfs @ 12.08 hrs, Volume= 0.495 af
Outflow = 10.00 cfs @ 12.09 hrs, Volume= 0.495 af, Atten= 3%, Lag= 0.4 min
Primary = 10.00 cfs @ 12.09 hrs, Volume= 0.495 af
Routed to Pond UG3 : Detention & 6.030

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 18.32' @ 12.23 hrs Surf.Area= 20 sf Storage= 109 cf
Flood Elev= 22.00' Surf.Area= 20 sf Storage= 181 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.3 min (737.7 - 737.4)

Volume	Invert	Avail.Storage	Storage Description
#1	16.75'	78 cf	**18.0" Round 18" Headers** x 2 L= 22.0'
#2	16.75'	104 cf	**5.00'D x 5.30'H DMH Riser**
		182 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	16.75'	**8.0" Vert. 18" Laterals to Storage X 8.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=9.20 cfs @ 12.09 hrs HW=17.93' TW=17.46' (Dynamic Tailwater)
↑—**1=18" Laterals to Storage** (Orifice Controls 9.20 cfs @ 3.29 fps)

Summary for Pond UG1: UG Filter w/1.090

Inflow Area = 3.915 ac, 69.61% Impervious, Inflow Depth > 4.47" for 100-YEAR event
Inflow = 7.28 cfs @ 12.09 hrs, Volume= 1.457 af
Outflow = 6.79 cfs @ 12.12 hrs, Volume= 1.364 af, Atten= 7%, Lag= 2.1 min
Primary = 6.79 cfs @ 12.12 hrs, Volume= 1.364 af
Routed to Link 201 : Municipal drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.55' @ 12.12 hrs Surf.Area= 2,524 sf Storage= 4,577 cf
Flood Elev= 22.25' Surf.Area= 2,524 sf Storage= 4,839 cf

Plug-Flow detention time= 67.2 min calculated for 1.364 af (94% of inflow)
Center-of-Mass det. time= 30.5 min (824.9 - 794.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	13.25'	2,131 cf	**14.83'W x 110.00'L x 4.50'H UG1A** 7,342 cf Overall - 885 cf Embedded = 6,458 cf x 33.0% Voids
#2A	15.92'	885 cf	**ADS_StormTech SC-310 +Cap** x 60 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 60 Chambers in 4 Rows
#3	13.00'	182 cf	**5.00'D x 9.25'H 1.090 Riser** -Impervious
#4B	13.25'	1,169 cf	**14.83'W x 60.16'L x 4.50'H UG1B** 4,016 cf Overall - 472 cf Embedded = 3,544 cf x 33.0% Voids
#5B	15.92'	472 cf	**ADS_StormTech SC-310 +Cap** x 32 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 32 Chambers in 4 Rows
		4,839 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 4	13.22'	**1.0" Vert. (2) 1" Underdrain Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#2	Device 1	13.25'	**8.210 in/hr Exfiltration through Media over Surface area** Phase-In= 0.01'
#3	Device 4	16.90'	**5.0' long x 2.00' rise Baffle** 2 End Contraction(s)
#4	Primary	13.00'	**12.0" Round 12" ADS** L= 86.0' Ke= 0.500 Inlet / Outlet Invert= 13.00' / 12.14' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=6.79 cfs @ 12.12 hrs HW=17.55' TW=0.00' (Dynamic Tailwater)
└─**4=12" ADS** (Barrel Controls 6.79 cfs @ 8.64 fps)
  ├─**1=(2) 1" Underdrain Orifice** (Passes < 0.11 cfs potential flow)
  │ └─**2=Exfiltration through Media** (Passes < 0.48 cfs potential flow)
  └─**3=Baffle** (Passes < 8.27 cfs potential flow)

Summary for Pond UG2: UG Filter

Inflow = 1.71 cfs @ 12.10 hrs, Volume= 0.418 af
Outflow = 1.50 cfs @ 12.08 hrs, Volume= 0.395 af, Atten= 12%, Lag= 0.0 min
Primary = 0.24 cfs @ 10.24 hrs, Volume= 0.321 af
Routed to Link 201 : Municipal drain
Secondary = 1.26 cfs @ 12.08 hrs, Volume= 0.074 af
Routed to Pond 6.010 : DMH and Headers

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.40' @ 12.08 hrs Surf.Area= 1,265 sf Storage= 2,356 cf
Flood Elev= 22.05' Surf.Area= 1,265 sf Storage= 2,389 cf

Plug-Flow detention time= 113.3 min calculated for 0.395 af (95% of inflow)
Center-of-Mass det. time= 78.5 min (838.0 - 759.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	13.33'	1,660 cf	**11.50'W x 110.00'L x 4.50'H UG2** 5,692 cf Overall - 663 cf Embedded = 5,029 cf x 33.0% Voids
#2A	16.00'	663 cf	**ADS_StormTech SC-310 +Cap** x 45 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 45 Chambers in 3 Rows
#3	16.75'	66 cf	**4.00'D x 5.25'H Riser** -Impervious
		2,389 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	13.33'	**2.0" Vert. 2" Underdrain orifice** C= 0.600 Limited to weir flow at low heads
#2	Device 1	13.33'	**8.210 in/hr Exfiltration through Media over Surface area**
#3	Secondary	18.50'	**8.0" Round 8" Overflow** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 18.50' / 18.25' S= 0.0500 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=0.24 cfs @ 10.24 hrs HW=18.69' TW=0.00' (Dynamic Tailwater)
└─**1=2" Underdrain orifice** (Passes 0.24 cfs of 0.24 cfs potential flow)
  └─**2=Exfiltration through Media** (Exfiltration Controls 0.24 cfs)

Secondary OutFlow Max=1.26 cfs @ 12.08 hrs HW=19.40' TW=17.87' (Dynamic Tailwater)
└─**3=8" Overflow** (Inlet Controls 1.26 cfs @ 3.61 fps)

Summary for Pond UG3: Detention & 6.030

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth = 4.77" for 100-YEAR event
Inflow = 10.00 cfs @ 12.09 hrs, Volume= 0.495 af
Outflow = 4.41 cfs @ 12.26 hrs, Volume= 0.494 af, Atten= 56%, Lag= 10.2 min
Primary = 4.41 cfs @ 12.26 hrs, Volume= 0.494 af
Routed to Link 201 : Municipal drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 18.21' @ 12.26 hrs Surf.Area= 5,123 sf Storage= 8,360 cf
Flood Elev= 22.05' Surf.Area= 5,123 sf Storage= 9,324 cf

Plug-Flow detention time= 44.1 min calculated for 0.493 af (100% of inflow)
Center-of-Mass det. time= 43.8 min (781.5 - 737.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.75'	1,499 cf	**20.50'W x 124.66'L x 3.00'H UG3A** 7,666 cf Overall - 3,124 cf Embedded = 4,542 cf x 33.0% Voids
#2A	15.75'	3,124 cf	**ADS_StormTech SC-740 +Cap** x 68 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 68 Chambers in 4 Rows
#3B	15.75'	1,499 cf	**20.50'W x 124.66'L x 3.00'H UG3B** 7,666 cf Overall - 3,124 cf Embedded = 4,542 cf x 33.0% Voids
#4B	15.75'	3,124 cf	**ADS_StormTech SC-740 +Cap** x 68 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 68 Chambers in 4 Rows
#5	15.75'	79 cf	**4.00'D x 6.25'H DMH Riser**
		9,324 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	15.75'	**0.7' long x 4.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=4.41 cfs @ 12.26 hrs HW=18.21' TW=0.00' (Dynamic Tailwater)
↑—**1=Sharp-Crested Rectangular Weir** (Weir Controls 4.41 cfs @ 5.13 fps)

Summary for Link 201: Municipal drain

Inflow Area = 5.159 ac, 74.51% Impervious, Inflow Depth > 7.34" for 100-YEAR event
Inflow = 30.99 cfs @ 12.13 hrs, Volume= 3.157 af
Primary = 30.99 cfs @ 12.13 hrs, Volume= 3.157 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

APPENDIX E SUPPLEMENTARY CALCULATIONS

Northeast Engineers & Consultants, Inc.
A Knowledge Corporation®

6 Valley Road, Middletown, RI 02842
www.northeastengineers.com

Subsurface Sand Filter (UG1A)

Project: 23099.0 Coddington Cove Commons

Water Quality Volume Calculation (RIDEM Minimum Standard 3):

Buildings:	0.553	ac	**Min. WQ_R:**	1,058 cf
Pavement & Conc.:	0.799	ac	**WQ_R:**	4,908 cf
Total Imp. Area:	1.352	ac	**Redevelop. WQ_R:**	2,644 cf
Total Disturbed Area:	1.457	ac	**$WQ_{R75\%}$:**	**1,983** cf

A =	Surface area of filter bed (ft^2)	1,631 ft^2
d_f =	Filter bed depth (ft)	2 ft
V_R=	media void ratio	33%

Storage Volume in Media:

1,631 X 2 X 33% = **1,076 cf**

Total System Volume Calculation:

Per 250-RICR-150-10-8.23, the storage volume of the system must accommodate 75% of the WQ volume (including pretreatment). The total provided area is this area, plus the storage in the system under the outlet.

V_M =	storage volume in media	1,076 cf
A =	Surface area of filter bed (ft^2)	1,631 ft^2
d_M =	depth of loam	0.00 ft
h_o =	storage height below outlet	0.83 ft
V_{FB} =	Volume of pretreatment	38 cf

Total Storage provided by this BMP:

WQ_V = $V_M + (A \times d_M \times V_R) + (A \times h_o) + V_{FB}$ = **2,468** cf

Minimum Area Calculation:

t_f = 1.00 days

The minimum area of the filter, according to 250-RICR-150-10-8.23, is calculated using the following equation:

$$A_R = (WQ_V) \times (d_f) / [(k) \times (h_f + d_f) \times (t_f)]$$

Where,

WQ_V =	Total Required Water Quality Volume	4,908 cf
d_f =	Filter bed depth (ft)	2 ft
k =	Coefficient of permeability of filter media (ft/day)	3.5 ft/day
h_f =	Average height of water above surface of media	0.415 ft
t_f =	Design filter bed drain time (days)	1.00

Therefore, the minimum surface areas is:

A_R = 1,161 sf

A = 1,631 sf Area is greater and therefore satisfactory.

Northeast Engineers & Consultants, Inc.
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6 Valley Road, Middletown, RI 02842
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Subsurface Sand Filter (UG2)

Project: 23099.0 Coddington Cove Commons

Water Quality Volume Calculation (RIDEM Minimum Standard 3):

Buildings:	0.283	ac	**Min. WQ_R:**	455 cf
Pavement & Conc.:	0.328	ac	**WQ_R:**	2,218 cf
Total Imp. Area:	0.611	ac	**Redevelop. WQ_R:**	1,136 cf
Total Disturbed Area:	0.626	ac	**$WQ_{R75\%}$:**	**852** cf

A =	Surface area of filter bed (ft^2)	892 ft^2
d_f =	Filter bed depth (ft)	2 ft
V_R=	media void ratio	33%

Storage Volume in Media:

892 X 2 X 33% = **589 cf**

Total System Volume Calculation:

Per 250-RICR-150-10-8.23, the storage volume of the system must accommodate 75% of the WQ volume (including pretreatment). The total provided area is this area, plus the storage in the system under the outlet.

V_M =	storage volume in media	589 cf
A =	Surface area of filter bed (ft^2)	892 ft^2
d_M =	depth of loam	0.00 ft
h_o =	storage height below outlet	0.83 ft
V_{FB} =	Volume of pretreatment	38 cf

Total Storage provided by this BMP:

WQ_V = $V_M + (A \times d_M \times V_R) + (A \times h_o) + V_{FB}$ = **1,367** cf

Minimum Area Calculation:

t_f = 1.00 days

The minimum area of the filter, according to 250-RICR-150-10-8.23, is calculated using the following equation:

$$A_R = (WQ_V) \times (d_f) / [(k) \times (h_f + d_f) \times (t_f)]$$

Where,

WQ_V =	Total Required Water Quality Volume	2,218 cf
d_f =	Filter bed depth (ft)	2 ft
k =	Coefficient of permeability of filter media (ft/day)	3.5 ft/day
h_f =	Average height of water above surface of media	0.415 ft
t_f =	Design filter bed drain time (days)	1.00

Therefore, the minimum surface areas is:

A_R = 525 sf

A = 892 sf Area is greater and therefore satisfactory.

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Subsurface Sand Filter (UG3)

Project: 23099.0 Coddington Cove Commons

Water Quality Volume Calculation (RIDEM Minimum Standard 3):

Buildings:	0.496	ac	**Min. WQ_R:**	877 cf
Pavement & Conc.:	0.621	ac	**WQ_R:**	4,055 cf
Total Imp. Area:	1.117	ac	**Redevelop. WQ_R:**	2,193 cf
Total Disturbed Area:	1.208	ac	**$WQ_{R75\%}$:**	**1,644** cf

A = Surface area of filter bed (ft^2) 1,265 ft^2
d_f = Filter bed depth (ft) 2 ft
V_R= media void ratio 33%

Storage Volume in Media:

1,265 X 2 X 33% = **835 cf**

Total System Volume Calculation:

Per 250-RICR-150-10-8.23, the storage volume of the system must accommodate 75% of the WQ volume (including pretreatment). The total provided area is this area, plus the storage in the system under the outlet.

V_M = storage volume in media 835 cf
A = Surface area of filter bed (ft^2) 1,265 ft^2
d_M = depth of loam 0.00 ft
h_o = storage height below outlet 0.83 ft
V_{FB} = Volume of pretreatment 19 cf

Total Storage provided by this BMP:

WQ_V = $V_M + (A \times d_M \times V_R) + (A \times h_o) + V_{FB}$ = **1,904** cf

Minimum Area Calculation:

t_f = 1.00 days

The minimum area of the filter, according to 250-RICR-150-10-8.23, is calculated using the following equation:

$$A_R = (WQ_V) \times (d_f) / [(k) \times (h_f + d_f) \times (t_f)]$$

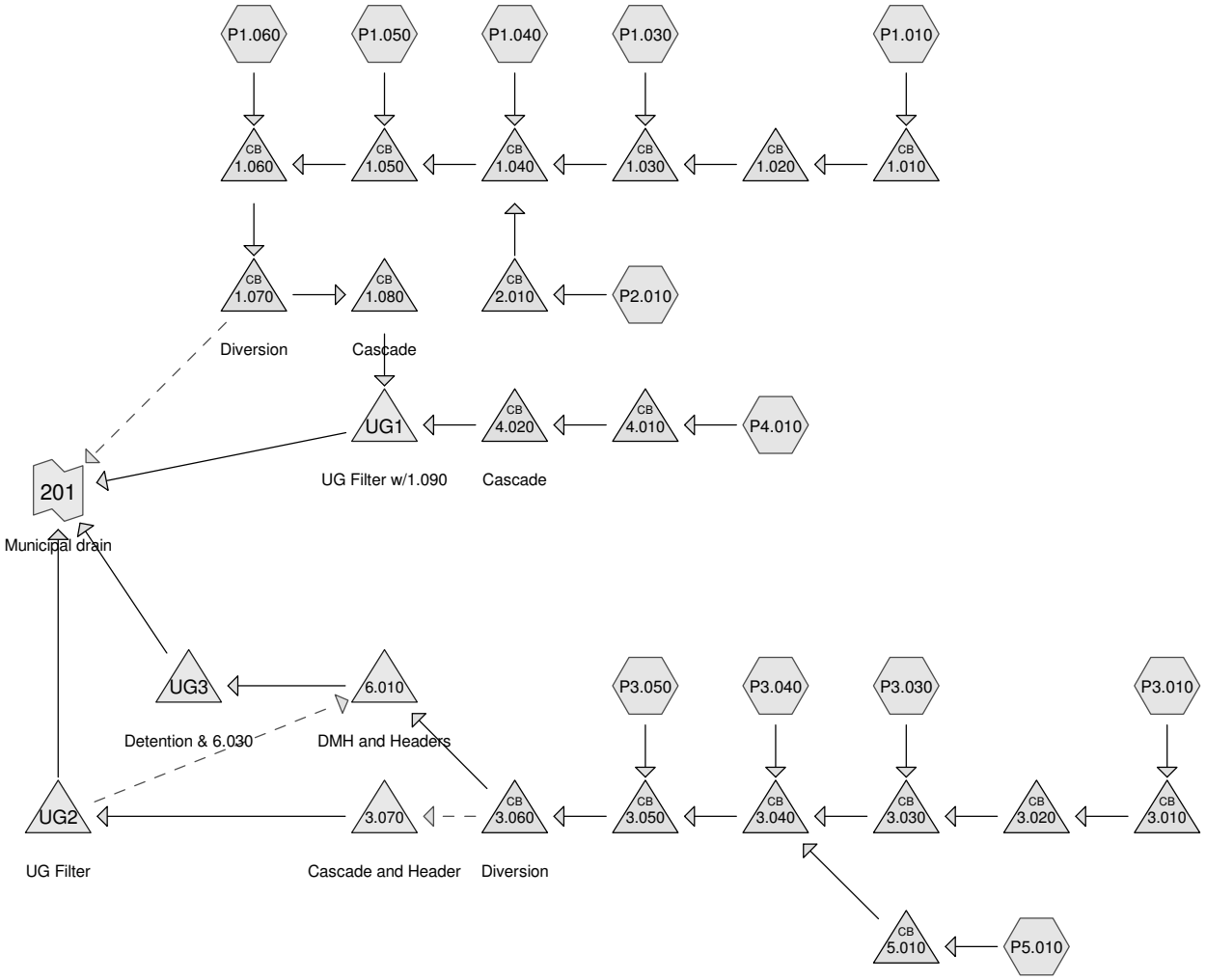
Where,

WQ_V = Total Required Water Quality Volume 4,055 cf
d_f = Filter bed depth (ft) 2 ft
k = Coefficient of permeability of filter media (ft/day) 3.5 ft/day
h_f = Average height of water above surface of media 0.415 ft
t_f = Design filter bed drain time (days) 1.00

Therefore, the minimum surface areas is:

A_R = **959 sf**
A = **1,265 sf** Area is greater and therefore satisfactory.

APPENDIX F WQ STORM ANALYSIS (SPLIT PERVIOUS METHOD)



Routing Diagram for 23099_2024-04-17

Prepared by Northeast Engineers & Consultants, Inc., Printed 4/18/2024

Summary for Subcatchment P1.010:

Runoff = 0.25 cfs @ 12.08 hrs, Volume= 0.019 af, Depth> 0.69"
Routed to Pond 1.010 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Rainfall=1.20"

	Area (sf)	CN	Description
*	951	74	Offsite >75% Grass cover, Good, HSG C
*	4,800	98	Building
	3,595	74	>75% Grass cover, Good, HSG C
*	5,002	98	Pavement
	14,348	90	Weighted Average
	4,546	74	31.68% Pervious Area
	9,802	98	68.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P1.030:

Runoff = 0.29 cfs @ 12.14 hrs, Volume= 0.026 af, Depth> 0.67"
Routed to Pond 1.030 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Rainfall=1.20"

	Area (sf)	CN	Description
*	2,652	98	Offsite buildings
*	2,782	98	Offsite pavement
*	6,500	74	Offsite >75% Grass cover, Good, HSG C
*	5,519	98	Pavement
*	2,400	98	Building
	232	74	>75% Grass cover, Good, HSG C
	20,085	90	Weighted Average
	6,732	74	33.52% Pervious Area
	13,353	98	66.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.0200	0.17		**Sheet Flow, Grass**
					Grass: Short n= 0.150 P2= 3.30"
0.2	21	0.0200	2.28		**Shallow Concentrated Flow, Grass**
					Unpaved Kv= 16.1 fps
0.6	105	0.0182	2.74		**Shallow Concentrated Flow, Grass and pavement**
					Paved Kv= 20.3 fps
10.4	226	Total			

Summary for Subcatchment P1.040:

Runoff = 0.41 cfs @ 12.14 hrs, Volume= 0.038 af, Depth> 0.52"
Routed to Pond 1.040 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Rainfall=1.20"

	Area (sf)	CN	Description
*	8,400	98	Offsite buildings
*	4,300	98	Offsite pavement
*	18,448	74	Offsite >75% Grass cover, Good, HSG C
*	6,080	98	Pavement
	155	74	>75% Grass cover, Good, HSG C
	37,383	86	Weighted Average
	18,603	74	49.76% Pervious Area
	18,780	98	50.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0250	0.19		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.30"
0.7	104	0.0250	2.55		**Shallow Concentrated Flow, Grass** Unpaved Kv= 16.1 fps
1.0	200	0.0250	3.21		**Shallow Concentrated Flow, Grass and pavement** Paved Kv= 20.3 fps
10.5	404	Total			

Summary for Subcatchment P1.050:

Runoff = 0.29 cfs @ 12.14 hrs, Volume= 0.026 af, Depth> 0.61"
Routed to Pond 1.050 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Rainfall=1.20"

	Area (sf)	CN	Description
*	4,200	98	Offsite buildings
*	2,182	98	Offsite pavement
*	8,829	74	Offsite >75% Grass cover, Good, HSG C
*	2,400	98	Building
*	4,519	98	Pavement
	155	74	>75% Grass cover, Good, HSG C
	22,285	88	Weighted Average
	8,984	74	40.31% Pervious Area
	13,301	98	59.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0250	0.19		**Sheet Flow, Lawns** Grass: Short n= 0.150 P2= 3.30"
0.6	83	0.0220	2.39		**Shallow Concentrated Flow, Lawns** Unpaved Kv= 16.1 fps
0.6	155	0.0500	4.54		**Shallow Concentrated Flow, Pavement and Grass** Paved Kv= 20.3 fps
10.0	338	Total			

Summary for Subcatchment P1.060:

Runoff = 0.35 cfs @ 12.14 hrs, Volume= 0.032 af, Depth> 0.59"
Routed to Pond 1.060 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Rainfall=1.20"

	Area (sf)	CN	Description
*	4,725	98	Offsite buildings
*	3,905	98	Offsite pavement
*	11,862	74	Offsite >75% Grass cover, Good, HSG C
*	2,505	98	Building
*	5,125	98	Pavement
	28,122	88	Weighted Average
	11,862	74	42.18% Pervious Area
	16,260	98	57.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.0200	0.17		**Sheet Flow, Lawn** Grass: Short n= 0.150 P2= 3.30"
0.6	88	0.0250	2.55		**Shallow Concentrated Flow, Lawn** Unpaved Kv= 16.1 fps
0.5	162	0.0700	5.37		**Shallow Concentrated Flow, Pavement and lawn** Paved Kv= 20.3 fps
10.7	350	Total			

Summary for Subcatchment P2.010:

Runoff = 0.52 cfs @ 12.08 hrs, Volume= 0.039 af, Depth> 0.97"
Routed to Pond 2.010 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Rainfall=1.20"

	Area (sf)	CN	Description
	436	74	>75% Grass cover, Good, HSG C
*	8,484	98	Pavement
*	12,000	98	Building
*	90	98	Concrete
	21,010	98	Weighted Average
	436	74	2.08% Pervious Area
	20,574	98	97.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.010:

Runoff = 0.23 cfs @ 12.08 hrs, Volume= 0.018 af, Depth> 0.67"
Routed to Pond 3.010 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Rainfall=1.20"

	Area (sf)	CN	Description
*	1,547	74	Offsite >75% Grass cover, Good, HSG C
	3,273	74	>75% Grass cover, Good, HSG C
*	4,521	98	Pavement
*	4,800	98	Building
	14,141	90	Weighted Average
	4,820	74	34.09% Pervious Area
	9,321	98	65.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.030:

Runoff = 0.08 cfs @ 12.08 hrs, Volume= 0.006 af, Depth> 0.92"
Routed to Pond 3.030 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Rainfall=1.20"

	Area (sf)	CN	Description
*	3,214	98	Pavement
*	3	74	Offsite >75% Grass cover, Good, HSG C
	257	74	>75% Grass cover, Good, HSG C
	3,474	96	Weighted Average
	260	74	7.48% Pervious Area
	3,214	98	92.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.040:

Runoff = 0.16 cfs @ 12.08 hrs, Volume= 0.012 af, Depth> 0.98"
Routed to Pond 3.040 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Rainfall=1.20"

	Area (sf)	CN	Description
*	3,914	98	Pavement
*	2,400	98	Building
	6,314	98	Weighted Average
	6,314	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P3.050:

Runoff = 0.23 cfs @ 12.08 hrs, Volume= 0.017 af, Depth> 0.98"
Routed to Pond 3.050 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Rainfall=1.20"

	Area (sf)	CN	Description
*	6,619	98	Pavement
*	2,400	98	Building
	9,019	98	Weighted Average
	9,019	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P4.010:

Runoff = 0.67 cfs @ 12.08 hrs, Volume= 0.050 af, Depth> 0.96"
Routed to Pond 4.010 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Rainfall=1.20"

	Area (sf)	CN	Description
*	12,315	98	Building
*	14,211	98	Pavement
*	100	98	Concrete
	657	74	>75% Grass cover, Good, HSG C
	27,283	97	Weighted Average
	657	74	2.41% Pervious Area
	26,626	98	97.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Subcatchment P5.010:

Runoff = 0.52 cfs @ 12.08 hrs, Volume= 0.039 af, Depth> 0.97"
Routed to Pond 5.010 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Rainfall=1.20"

	Area (sf)	CN	Description
*	12,000	98	Building
*	90	98	Concrete
*	8,787	98	Pavement
	376	74	>75% Grass cover, Good, HSG C
	21,253	98	Weighted Average
	376	74	1.77% Pervious Area
	20,877	98	98.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Minimum**

Summary for Pond 1.010:

Inflow Area = 0.329 ac, 68.32% Impervious, Inflow Depth > 0.69" for WQ event
Inflow = 0.25 cfs @ 12.08 hrs, Volume= 0.019 af
Outflow = 0.25 cfs @ 12.08 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min
Primary = 0.25 cfs @ 12.08 hrs, Volume= 0.019 af
Routed to Pond 1.020 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 25.00' @ 12.08 hrs
Flood Elev= 28.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.75'	**12.0" Round 12" ADS** L= 67.0' Ke= 0.500

Inlet / Outlet Invert= 24.75' / 24.25' S= 0.0075 '/' Cc= 0.900
n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.25 cfs @ 12.08 hrs HW=25.00' TW=24.39' (Dynamic Tailwater)
↑—**1=12" ADS** (Barrel Controls 0.25 cfs @ 2.36 fps)

Summary for Pond 1.020:

Inflow Area = 0.329 ac, 68.32% Impervious, Inflow Depth > 0.69" for WQ event
Inflow = 0.25 cfs @ 12.08 hrs, Volume= 0.019 af
Outflow = 0.25 cfs @ 12.08 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min
Primary = 0.25 cfs @ 12.08 hrs, Volume= 0.019 af
Routed to Pond 1.030 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 24.39' @ 12.08 hrs
Flood Elev= 28.33'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.15'	**12.0" Round 12" ADS** L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 24.15' / 23.15' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.25 cfs @ 12.08 hrs HW=24.39' TW=22.96' (Dynamic Tailwater)
↑—**1=12" ADS** (Inlet Controls 0.25 cfs @ 1.68 fps)

Summary for Pond 1.030:

Inflow Area = 0.790 ac, 67.25% Impervious, Inflow Depth > 0.68" for WQ event
Inflow = 0.51 cfs @ 12.11 hrs, Volume= 0.045 af
Outflow = 0.51 cfs @ 12.11 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min
Primary = 0.51 cfs @ 12.11 hrs, Volume= 0.045 af
Routed to Pond 1.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 22.96' @ 12.11 hrs
Flood Elev= 26.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	22.65'	**18.0" Round 18" ADS** L= 134.0' Ke= 0.500 Inlet / Outlet Invert= 22.65' / 20.50' S= 0.0160 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=0.51 cfs @ 12.11 hrs HW=22.96' TW=20.49' (Dynamic Tailwater)
↑—**1=18" ADS** (Inlet Controls 0.51 cfs @ 1.91 fps)

Summary for Pond 1.040:

Inflow Area = 2.131 ac, 67.34% Impervious, Inflow Depth > 0.68" for WQ event
Inflow = 1.40 cfs @ 12.10 hrs, Volume= 0.121 af
Outflow = 1.40 cfs @ 12.10 hrs, Volume= 0.121 af, Atten= 0%, Lag= 0.0 min
Primary = 1.40 cfs @ 12.10 hrs, Volume= 0.121 af
Routed to Pond 1.050 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 20.49' @ 12.10 hrs
Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	20.00'	**24.0" Round 24" ADS** L= 104.0' Ke= 0.500 Inlet / Outlet Invert= 20.00' / 18.95' S= 0.0101 '/' Cc= 0.900

n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=1.40 cfs @ 12.10 hrs HW=20.49' TW=19.38' (Dynamic Tailwater)
1=24" ADS (Inlet Controls 1.40 cfs @ 2.37 fps)

Summary for Pond 1.050:

Inflow Area = 2.643 ac, 65.86% Impervious, Inflow Depth > 0.67" for WQ event
Inflow = 1.68 cfs @ 12.11 hrs, Volume= 0.147 af
Outflow = 1.68 cfs @ 12.11 hrs, Volume= 0.147 af, Atten= 0%, Lag= 0.0 min
Primary = 1.68 cfs @ 12.11 hrs, Volume= 0.147 af
Routed to Pond 1.060 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.38' @ 12.11 hrs
Flood Elev= 23.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.85'	**24.0" Round 24" ADS** L= 104.0' Ke= 0.500 Inlet / Outlet Invert= 18.85' / 17.75' S= 0.0106 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=1.68 cfs @ 12.11 hrs HW=19.38' TW=18.36' (Dynamic Tailwater)
1=24" ADS (Inlet Controls 1.68 cfs @ 2.49 fps)

Summary for Pond 1.060:

Inflow Area = 3.288 ac, 64.28% Impervious, Inflow Depth > 0.65" for WQ event
Inflow = 2.02 cfs @ 12.12 hrs, Volume= 0.179 af
Outflow = 2.02 cfs @ 12.12 hrs, Volume= 0.179 af, Atten= 0%, Lag= 0.0 min
Primary = 2.02 cfs @ 12.12 hrs, Volume= 0.179 af
Routed to Pond 1.070 : Diversion

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 18.36' @ 12.12 hrs
Flood Elev= 22.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	17.65'	**24.0" Round 24" ADS** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 17.65' / 17.60' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=2.02 cfs @ 12.12 hrs HW=18.36' TW=17.96' (Dynamic Tailwater)
1=24" ADS (Barrel Controls 2.02 cfs @ 3.02 fps)

Summary for Pond 1.070: Diversion

Inflow Area = 3.288 ac, 64.28% Impervious, Inflow Depth > 0.65" for WQ event
Inflow = 2.02 cfs @ 12.12 hrs, Volume= 0.179 af
Outflow = 2.02 cfs @ 12.12 hrs, Volume= 0.179 af, Atten= 0%, Lag= 0.0 min
Primary = 1.23 cfs @ 12.11 hrs, Volume= 0.168 af
Routed to Pond 1.080 : Cascade
Secondary = 0.79 cfs @ 12.12 hrs, Volume= 0.011 af
Routed to Link 201 : Municipal drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.96' @ 12.12 hrs
Flood Elev= 22.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.60'	**8.0" Round 8" ADS** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 16.60' / 16.55' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#2	Secondary	17.60'	**24.0" Round 24" ADS** L= 105.0' Ke= 0.500 Inlet / Outlet Invert= 17.60' / 16.50' S= 0.0105 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=1.23 cfs @ 12.11 hrs HW=17.96' TW=17.42' (Dynamic Tailwater)
↑**1=8" ADS** (Inlet Controls 1.23 cfs @ 3.53 fps)

Secondary OutFlow Max=0.78 cfs @ 12.12 hrs HW=17.96' TW=0.00' (Dynamic Tailwater)
↑**2=24" ADS** (Inlet Controls 0.78 cfs @ 2.04 fps)

Summary for Pond 1.080: Cascade

Inflow Area = 3.288 ac, 64.28% Impervious, Inflow Depth > 0.61" for WQ event
Inflow = 1.23 cfs @ 12.11 hrs, Volume= 0.168 af
Outflow = 1.23 cfs @ 12.11 hrs, Volume= 0.168 af, Atten= 0%, Lag= 0.0 min
Primary = 1.23 cfs @ 12.11 hrs, Volume= 0.168 af
Routed to Pond UG1 : UG Filter w/1.090

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.42' @ 12.11 hrs
Flood Elev= 22.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.55'	**8.0" Vert. 8" Header** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.23 cfs @ 12.11 hrs HW=17.42' TW=16.29' (Dynamic Tailwater)
↑**1=8" Header** (Orifice Controls 1.23 cfs @ 3.53 fps)

Summary for Pond 2.010:

Inflow Area = 0.482 ac, 97.92% Impervious, Inflow Depth > 0.97" for WQ event
Inflow = 0.52 cfs @ 12.08 hrs, Volume= 0.039 af
Outflow = 0.52 cfs @ 12.08 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min
Primary = 0.52 cfs @ 12.08 hrs, Volume= 0.039 af
Routed to Pond 1.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 21.33' @ 12.08 hrs
Flood Elev= 24.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	**18.0" Round 18" ADS** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 21.00' / 20.50' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=0.52 cfs @ 12.08 hrs HW=21.33' TW=20.48' (Dynamic Tailwater)
↑**1=18" ADS** (Barrel Controls 0.52 cfs @ 2.74 fps)

Summary for Pond 3.010:

Inflow Area = 0.325 ac, 65.91% Impervious, Inflow Depth > 0.67" for WQ event
Inflow = 0.23 cfs @ 12.08 hrs, Volume= 0.018 af
Outflow = 0.23 cfs @ 12.08 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min
Primary = 0.23 cfs @ 12.08 hrs, Volume= 0.018 af
Routed to Pond 3.020 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 25.00' @ 12.08 hrs
Flood Elev= 28.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.75'	**12.0" Round 12" ADS** L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 24.75' / 24.29' S= 0.0074 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.23 cfs @ 12.08 hrs HW=25.00' TW=24.43' (Dynamic Tailwater)
↑**1=12" ADS** (Barrel Controls 0.23 cfs @ 2.32 fps)

Summary for Pond 3.020:

Inflow Area = 0.325 ac, 65.91% Impervious, Inflow Depth > 0.67" for WQ event
Inflow = 0.23 cfs @ 12.08 hrs, Volume= 0.018 af
Outflow = 0.23 cfs @ 12.08 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min
Primary = 0.23 cfs @ 12.08 hrs, Volume= 0.018 af
Routed to Pond 3.030 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 24.43' @ 12.08 hrs
Flood Elev= 28.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.19'	**12.0" Round 12" ADS** L= 97.0' Ke= 0.500 Inlet / Outlet Invert= 24.19' / 23.46' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.23 cfs @ 12.08 hrs HW=24.43' TW=23.64' (Dynamic Tailwater)
↑**1=12" ADS** (Barrel Controls 0.23 cfs @ 2.37 fps)

Summary for Pond 3.030:

Inflow Area = 0.404 ac, 71.16% Impervious, Inflow Depth > 0.72" for WQ event
Inflow = 0.32 cfs @ 12.08 hrs, Volume= 0.024 af
Outflow = 0.32 cfs @ 12.08 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min
Primary = 0.32 cfs @ 12.08 hrs, Volume= 0.024 af
Routed to Pond 3.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 23.64' @ 12.08 hrs
Flood Elev= 26.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	23.36'	**12.0" Round 12" ADS** L= 142.0' Ke= 0.500 Inlet / Outlet Invert= 23.36' / 21.04' S= 0.0163 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.31 cfs @ 12.08 hrs HW=23.64' TW=20.88' (Dynamic Tailwater)
↑**1=12" ADS** (Inlet Controls 0.31 cfs @ 1.79 fps)

Summary for Pond 3.040:

Inflow Area = 1.037 ac, 87.92% Impervious, Inflow Depth > 0.87" for WQ event
Inflow = 1.00 cfs @ 12.08 hrs, Volume= 0.075 af
Outflow = 1.00 cfs @ 12.08 hrs, Volume= 0.075 af, Atten= 0%, Lag= 0.0 min
Primary = 1.00 cfs @ 12.08 hrs, Volume= 0.075 af
Routed to Pond 3.050 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 20.89' @ 12.08 hrs
Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	20.44'	**18.0" Round 18" ADS** L= 140.0' Ke= 0.500 Inlet / Outlet Invert= 20.44' / 18.85' S= 0.0114 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=1.00 cfs @ 12.08 hrs HW=20.88' TW=19.25' (Dynamic Tailwater)
↑—**1=18" ADS** (Inlet Controls 1.00 cfs @ 2.27 fps)

Summary for Pond 3.050:

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth > 0.89" for WQ event
Inflow = 1.23 cfs @ 12.08 hrs, Volume= 0.092 af
Outflow = 1.23 cfs @ 12.08 hrs, Volume= 0.092 af, Atten= 0%, Lag= 0.0 min
Primary = 1.23 cfs @ 12.08 hrs, Volume= 0.092 af
Routed to Pond 3.060 : Diversion

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 19.25' @ 12.08 hrs
Flood Elev= 22.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.75'	**18.0" Round 18" ADS** L= 45.0' Ke= 0.500 Inlet / Outlet Invert= 18.75' / 18.00' S= 0.0167 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=1.22 cfs @ 12.08 hrs HW=19.25' TW=17.86' (Dynamic Tailwater)
↑—**1=18" ADS** (Inlet Controls 1.22 cfs @ 2.40 fps)

Summary for Pond 3.060: Diversion

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth > 0.89" for WQ event
Inflow = 1.23 cfs @ 12.08 hrs, Volume= 0.092 af
Outflow = 1.23 cfs @ 12.08 hrs, Volume= 0.092 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 6.010 : DMH and Headers
Secondary = 1.23 cfs @ 12.08 hrs, Volume= 0.092 af
Routed to Pond 3.070 : Cascade and Header

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.86' @ 12.08 hrs
Flood Elev= 22.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	**18.0" Round 18" ADS** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 18.00' / 17.90' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	17.00'	**8.0" Round 8" ADS** L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 17.00' / 16.75' S= 0.0125 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=17.00' TW=16.75' (Dynamic Tailwater)
↑—**1=18" ADS** (Controls 0.00 cfs)

Secondary OutFlow Max=1.22 cfs @ 12.08 hrs HW=17.86' TW=17.12' (Dynamic Tailwater)
↑—**2=8" ADS** (Inlet Controls 1.22 cfs @ 3.50 fps)

Summary for Pond 3.070: Cascade and Header

Inflow = 1.23 cfs @ 12.08 hrs, Volume= 0.092 af
Outflow = 1.23 cfs @ 12.09 hrs, Volume= 0.092 af, Atten= 0%, Lag= 0.1 min
Primary = 1.23 cfs @ 12.09 hrs, Volume= 0.092 af
Routed to Pond UG2 : UG Filter

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.12' @ 12.09 hrs Surf.Area= 21 sf Storage= 7 cf
Flood Elev= 20.00' Surf.Area= 13 sf Storage= 45 cf

Plug-Flow detention time= 0.3 min calculated for 0.092 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (783.1 - 782.8)

Volume	Invert	Avail.Storage	Storage Description
#1	16.75'	4 cf	**8.0" Round Header** L= 12.0'
#2	16.75'	41 cf	**4.00'D x 3.25'H Cascade Riser**
		45 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	16.75'	**8.0" Vert. 8" Laterals to Filter X 3.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.22 cfs @ 12.09 hrs HW=17.12' TW=15.50' (Dynamic Tailwater)
1=8" Laterals to Filter (Orifice Controls 1.22 cfs @ 2.06 fps)

Summary for Pond 4.010:

Inflow Area = 0.626 ac, 97.59% Impervious, Inflow Depth > 0.96" for WQ event
Inflow = 0.67 cfs @ 12.08 hrs, Volume= 0.050 af
Outflow = 0.67 cfs @ 12.08 hrs, Volume= 0.050 af, Atten= 0%, Lag= 0.0 min
Primary = 0.67 cfs @ 12.08 hrs, Volume= 0.050 af
Routed to Pond 4.020 : Cascade

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.16' @ 12.08 hrs
Flood Elev= 21.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.75'	**12.0" Round 12" ADS** L= 17.0' Ke= 0.500 Inlet / Outlet Invert= 16.75' / 16.22' S= 0.0312 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.67 cfs @ 12.08 hrs HW=17.16' TW=16.63' (Dynamic Tailwater)
1=12" ADS (Inlet Controls 0.67 cfs @ 2.19 fps)

Summary for Pond 4.020: Cascade

Inflow Area = 0.626 ac, 97.59% Impervious, Inflow Depth > 0.96" for WQ event
Inflow = 0.67 cfs @ 12.08 hrs, Volume= 0.050 af
Outflow = 0.67 cfs @ 12.08 hrs, Volume= 0.050 af, Atten= 0%, Lag= 0.0 min
Primary = 0.67 cfs @ 12.08 hrs, Volume= 0.050 af
Routed to Pond UG1 : UG Filter w/1.090

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 17.05' @ 12.41 hrs
Flood Elev= 21.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	16.22'	**12.0" Vert. 12" Header** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.67 cfs @ 12.08 hrs HW=16.63' TW=16.20' (Dynamic Tailwater)
1=12" Header (Orifice Controls 0.67 cfs @ 2.19 fps)

Summary for Pond 5.010:

Inflow Area = 0.488 ac, 98.23% Impervious, Inflow Depth > 0.97" for WQ event
Inflow = 0.52 cfs @ 12.08 hrs, Volume= 0.039 af
Outflow = 0.52 cfs @ 12.08 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min
Primary = 0.52 cfs @ 12.08 hrs, Volume= 0.039 af
Routed to Pond 3.040 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 21.35' @ 12.09 hrs
Flood Elev= 24.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.00'	**18.0" Round 18" ADS** L= 67.0' Ke= 0.500 Inlet / Outlet Invert= 21.00' / 20.54' S= 0.0069 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=0.52 cfs @ 12.08 hrs HW=21.35' TW=20.88' (Dynamic Tailwater)
1=18" ADS (Outlet Controls 0.52 cfs @ 2.52 fps)

Summary for Pond 6.010: DMH and Headers

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth = 0.00" for WQ event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond UG3 : Detention & 6.030

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 16.75' @ 0.00 hrs Surf.Area= 20 sf Storage= 0 cf
Flood Elev= 22.00' Surf.Area= 20 sf Storage= 181 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	16.75'	78 cf	**18.0" Round 18" Headers** x 2 L= 22.0'
#2	16.75'	104 cf	**5.00'D x 5.30'H DMH Riser**
		182 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	16.75'	**8.0" Vert. 18" Laterals to Storage X 8.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=16.75' TW=15.75' (Dynamic Tailwater)
1=18" Laterals to Storage (Controls 0.00 cfs)

Summary for Pond UG1: UG Filter w/1.090

Inflow Area = 3.915 ac, 69.61% Impervious, Inflow Depth > 0.67" for WQ event
Inflow = 1.90 cfs @ 12.09 hrs, Volume= 0.218 af
Outflow = 1.05 cfs @ 12.40 hrs, Volume= 0.157 af, Atten= 45%, Lag= 18.6 min
Primary = 1.05 cfs @ 12.40 hrs, Volume= 0.157 af
Routed to Link 201 : Municipal drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 17.05' @ 12.40 hrs Surf.Area= 2,524 sf Storage= 4,134 cf
Flood Elev= 22.25' Surf.Area= 2,524 sf Storage= 4,839 cf

Plug-Flow detention time= 242.3 min calculated for 0.157 af (72% of inflow)
Center-of-Mass det. time= 147.6 min (939.5 - 791.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	13.25'	2,131 cf	**14.83'W x 110.00'L x 4.50'H UG1A** 7,342 cf Overall - 885 cf Embedded = 6,458 cf x 33.0% Voids
#2A	15.92'	885 cf	**ADS_StormTech SC-310 +Cap** x 60 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 60 Chambers in 4 Rows
#3	13.00'	182 cf	**5.00'D x 9.25'H 1.090 Riser** -Impervious
#4B	13.25'	1,169 cf	**14.83'W x 60.16'L x 4.50'H UG1B** 4,016 cf Overall - 472 cf Embedded = 3,544 cf x 33.0% Voids
#5B	15.92'	472 cf	**ADS_StormTech SC-310 +Cap** x 32 Inside #4 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 32 Chambers in 4 Rows
		4,839 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 4	13.22'	**1.0" Vert. (2) 1" Underdrain Orifice X 2.00** C= 0.600 Limited to weir flow at low heads
#2	Device 1	13.25'	**8.210 in/hr Exfiltration through Media over Surface area** Phase-In= 0.01'
#3	Device 4	16.90'	**5.0' long x 2.00' rise Baffle** 2 End Contraction(s)
#4	Primary	13.00'	**12.0" Round 12" ADS** L= 86.0' Ke= 0.500 Inlet / Outlet Invert= 13.00' / 12.14' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.05 cfs @ 12.40 hrs HW=17.05' TW=0.00' (Dynamic Tailwater)
└─**4=12" ADS** (Passes 1.05 cfs of 6.39 cfs potential flow)
  ├─**1=(2) 1" Underdrain Orifice** (Orifice Controls 0.10 cfs @ 9.37 fps)
  │ └─**2=Exfiltration through Media** (Passes 0.10 cfs of 0.48 cfs potential flow)
  └─**3=Baffle** (Weir Controls 0.95 cfs @ 1.27 fps)

Summary for Pond UG2: UG Filter

Inflow = 1.23 cfs @ 12.09 hrs, Volume= 0.092 af
Outflow = 0.18 cfs @ 12.58 hrs, Volume= 0.092 af, Atten= 85%, Lag= 29.6 min
Primary = 0.18 cfs @ 12.58 hrs, Volume= 0.092 af
Routed to Link 201 : Municipal drain
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 6.010 : DMH and Headers

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 16.47' @ 12.58 hrs Surf.Area= 1,265 sf Storage= 1,540 cf
Flood Elev= 22.05' Surf.Area= 1,265 sf Storage= 2,389 cf

Plug-Flow detention time= 86.3 min calculated for 0.092 af (99% of inflow)
Center-of-Mass det. time= 80.3 min (863.3 - 783.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	13.33'	1,660 cf	**11.50'W x 110.00'L x 4.50'H UG2** 5,692 cf Overall - 663 cf Embedded = 5,029 cf x 33.0% Voids
#2A	16.00'	663 cf	**ADS_StormTech SC-310 +Cap** x 45 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 45 Chambers in 3 Rows
#3	16.75'	66 cf	**4.00'D x 5.25'H Riser** -Impervious
		2,389 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	13.33'	**2.0" Vert. 2" Underdrain orifice** C= 0.600 Limited to weir flow at low heads
#2	Device 1	13.33'	**8.210 in/hr Exfiltration through Media over Surface area**
#3	Secondary	18.50'	**8.0" Round 8" Overflow** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 18.50' / 18.25' S= 0.0500 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=0.18 cfs @ 12.58 hrs HW=16.47' TW=0.00' (Dynamic Tailwater)
1=2" Underdrain orifice (Orifice Controls 0.18 cfs @ 8.42 fps)
2=Exfiltration through Media (Passes 0.18 cfs of 0.24 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=13.33' TW=16.75' (Dynamic Tailwater)
3=8" Overflow (Controls 0.00 cfs)

Summary for Pond UG3: Detention & 6.030

Inflow Area = 1.244 ac, 89.93% Impervious, Inflow Depth = 0.00" for WQ event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 201 : Municipal drain

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 15.75' @ 0.00 hrs Surf.Area= 5,123 sf Storage= 0 cf
Flood Elev= 22.05' Surf.Area= 5,123 sf Storage= 9,324 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.75'	1,499 cf	**20.50'W x 124.66'L x 3.00'H UG3A** 7,666 cf Overall - 3,124 cf Embedded = 4,542 cf x 33.0% Voids
#2A	15.75'	3,124 cf	**ADS_StormTech SC-740 +Cap** x 68 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 68 Chambers in 4 Rows
#3B	15.75'	1,499 cf	**20.50'W x 124.66'L x 3.00'H UG3B** 7,666 cf Overall - 3,124 cf Embedded = 4,542 cf x 33.0% Voids
#4B	15.75'	3,124 cf	**ADS_StormTech SC-740 +Cap** x 68 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 68 Chambers in 4 Rows
#5	15.75'	79 cf	**4.00'D x 6.25'H DMH Riser**
		9,324 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	15.75'	**0.7' long x 4.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=15.75' TW=0.00' (Dynamic Tailwater)
↑—**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link 201: Municipal drain

Inflow Area = 5.159 ac, 74.51% Impervious, Inflow Depth > 0.60" for WQ event
Inflow = 1.23 cfs @ 12.40 hrs, Volume= 0.260 af
Primary = 1.23 cfs @ 12.40 hrs, Volume= 0.260 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

APPENDIX G SOIL EVALUATIONS

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
Department of Environmental Management
Office of Water Resources
Onsite Wastewater Treatment Systems Program

Site Evaluation Form
Part A – Soil Profile Description Application Number Not Witnessed

Property Owner: Mello Realty Inc.
Property Location: Coddington Highway (A.P. 103, Lot 103), Middletown, Rhode Island
Date of Test Hole: January 4, 2024
Soil Evaluator: Amber K. Hardy, M.S. License Number: D4098
Weather: Sunny, 35° Shaded: Yes ☐ No ☒ Time: 9:00 am

TH 1 Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox	Texture	Structure	Consistence	Soil Category
		Dist	Topo	Matrix	Re-Dox Features	Ab. S. Contr.				
^C1	0 – 32	A	S	10YR 3/2 Others	-	-	GRSL	-	FI	HTM
^C2	32 – 82+	-	-	10YR 3/2	7.5YR 5/6	F, 2, P	COBSL	-	FI	HTM

TH 2 Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox	Texture	Structure	Consistence	Soil Category
		Dist	Topo	Matrix	Re-Dox Features	Ab. S. Contr.				
^C1	0 – 16	A	S	10YR 3/2	-	-	GRSL	-	FI	HTM
^C2	16 - 32	A	S	-	-	-	XGRS	-	FI	HTM
^C3	32 – 82+	-	-	2.5Y 3/2	7.5YR 5/6	F, 2, P	COBSL	-	FI	HTM

TH 1 Soil Class HTM Total Depth 82 Impervious/Limiting Layer Depth none (og) GW Seepage Depth none SHWT INC (og)

TH 2 Soil Class HTM Total Depth 82 Impervious/Limiting Layer Depth none (og) GW Seepage Depth 16 (note) SHWT INC (og)

Comments: TH1: top 32" were striated. Recorded characteristics are of the dominant material. Moisture in TH1 was due to surface water falling in. TH2: The ^C2 was a layer of fine gravels, which was seeping. The other layers were not seeping due to compaction.

Part B

Site Evaluation – to be completed by Soil Evaluator or Class II or III Designer

Please use the area below to locate:

1. Test holes and bedrock test holes,
2. Approximate direction of due north,
3. Offsets from all test holes to fixed points such as street, utility pole, or other permanent, marked object.*
   *OFFSETS MUST BE SHOWN

Key:
- Approximate location of test holes
- Approximate location of bedrock test holes
- x% Estimated gradient and direction of slope
- N Approximate direction of due north

Bedrock THs	
TH	Depth

1. Relief and Slope: 3 – 8%

2. Presence of any watercourse, wetlands or surface water bodies, within 200 feet of test holes? If yes, locate on above sketch.	NO ☒	YES ☐
3. Restrictive Layer or Bedrock within 4' below original ground within 25 feet of test hole? Provide all test hole locations & depths above.	NO ☒	YES ☐
4. Presence of existing or proposed private drinking water wells within 200 feet of test holes? If yes, locate on above sketch.	NO ☐	YES ☐
5. Public drinking water wells within 500 feet of test holes? If yes, locate on above sketch.	NO ☐	YES ☐
6. Is site within the watershed of a public drinking water reservoir or other critical area defined in Rule 6.42?	NO ☒	YES ☐
7. Has soil been excavated from or fill deposited on site? If yes, locate on above sketch.	NO ☐	YES ☒

8. Site's potential for flooding or ponding: NONE ☐ SLIGHT ☒ MODERATE ☐ SEVERE ☐
9. Landscape position: Backslope
10. Vegetation: Unvegetated
11. Indicate approximate location of property lines and roadways.
12. Additional comments, site constraints or additional information regarding site: This lot is being used as storage for large piles of concrete, brick, soil, and other material. No original grade was found in any test hole EXCEPT TH5 at the back of the property. The HTM was highly compacted. Lateral movement of water was only seen in layers of gravels or other coarse fragments.

Certification

The undersigned hereby certifies that all information on this application and accompanying forms, submittals and sketches are true and accurate and that I have been authorized by the owner(s) to conduct these necessary field investigations and submit this request.

Part A prepared by: _____ Signature License #D4098

Part B prepared by: _____ Signature License # D4098

DO NOT WRITE IN THIS SPACE

Witnessed Soil Evaluation Decision: Concur ☐ Inconclusive ☐ Disclaim ☐

Unwitnessed Soil Evaluations Decision: Accept ☐ Inconclusive ☐ Disclaim ☐

Wet Season Determination required ☐ Additional Field Review Required ☐

Explanation: _____

Revised 11/25/18

Signature Authorized Agent _____ Date _____

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
Department of Environmental Management
Office of Water Resources
Onsite Wastewater Treatment Systems Program

Site Evaluation Form
Part A – Soil Profile Description Application Number Not Witnessed

Property Owner: Mello Realty Inc.
Property Location: Coddington Highway (A.P. 103, Lot 103), Middletown, Rhode Island
Date of Test Hole: January 4, 2024
Soil Evaluator: Amber K. Hardy, M.S. License Number: D4098
Weather: Sunny, 35° Shaded: Yes ☐ No ☐ Time: 9:00 am

TH 3 Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox	Texture	Structure	Consistence	Soil Category
		Dist	Topo	Matrix	Re-Dox Features	Ab. S. Contr.				
^C1	0 – 32	A	S	10YR 3/2	-	-	GRSL	-	FR	HTM
^C2	32 – 45	A	S	10Y 4/0	7.5YR 5/6	C, 2, P	LFS	-	FR	HTM
^C3	45 - 60	A	S	N 3/0	7.5YR 5/6	F, 2, P	FSL	-	FR	HTM
^C4	60 – 88+	-	-	5Y 3/2	10YR 4/4	C, 4, P around seep	SIL	-	FR	HTM

TH 4 Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox	Texture	Structure	Consistence	Soil Category
		Dist	Topo	Matrix	Re-Dox Features	Ab. S. Contr.				
^C1	0 – 24	A	S	10YR 3/2	-	-	GRSL	-	-	HTM
^C2	24 - 36	A	S	-	-	-	GR, COB	-	-	HTM
^C3	36 – 52	A	S	10YR 3/2	-	-	-	-	-	HTM
R	52+	-	-	-	-	-	-	-	-	HTM

TH 3 Soil Class HTM Total Depth 88 Impervious/Limiting Layer Depth none (og) GW Seepage Depth 60 SHWT 32 o.g. (og)
TH 4 Soil Class HTM Total Depth 52 Impervious/Limiting Layer Depth 52 (og) GW Seepage Depth 24 (note) SHWT 0 e.g. (og)

Comments: TH4 contained a geotextile layer at 24" The ^C2 below this geotextile was a layer of medium and coarse gravels and fine cobbles. The water seeping from this layer was copious and flowing in the opposite direction to the flow on the surface. The underlying layer could not be evaluated due to the water. The excavator stopped at a highly compacted layer at 52"

Part B

Site Evaluation – to be completed by Soil Evaluator or Class II or III Designer

Please use the area below to locate:

1. Test holes and bedrock test holes,
2. Approximate direction of due north,
3. Offsets from all test holes to fixed points such as street, utility pole, or other permanent, marked object.*
   *OFFSETS MUST BE SHOWN

Key:
- Approximate location of test holes
- Approximate location of bedrock test holes
- x% Estimated gradient and direction of slope
- N Approximate direction of due north

Bedrock THs	
TH	Depth

1. Relief and Slope: 3 – 8%

2. Presence of any watercourse, wetlands or surface water bodies, within 200 feet of test holes? If yes, locate on above sketch.	NO ☐	YES ☐
3. Restrictive Layer or Bedrock within 4' below original ground within 25 feet of test hole? Provide all test hole locations & depths above.	NO ☐	YES ☐
4. Presence of existing or proposed private drinking water wells within 200 feet of test holes? If yes, locate on above sketch.	NO ☐	YES ☐
5. Public drinking water wells within 500 feet of test holes? If yes, locate on above sketch.	NO ☐	YES ☐
6. Is site within the watershed of a public drinking water reservoir or other critical area defined in Rule 6.42?	NO ☐	YES ☐
7. Has soil been excavated from or fill deposited on site? If yes, locate on above sketch.	NO ☐	YES ☐

8. Site's potential for flooding or ponding: NONE ☐ SLIGHT ☐ MODERATE ☐ SEVERE ☐
9. Landscape position: Backslope
10. Vegetation: Unvegetated
11. Indicate approximate location of property lines and roadways.
12. Additional comments, site constraints or additional information regarding site: This lot is being used as storage for large piles of concrete, brick, soil, and other material. No original grade was found in any test hole EXCEPT TH5 at the back of the property. The HTM was highly compacted. Lateral movement of water was only seen in layers of gravels or other coarse fragments.

Certification

The undersigned hereby certifies that all information on this application and accompanying forms, submittals and sketches are true and accurate and that I have been authorized by the owner(s) to conduct these necessary field investigations and submit this request.

Part A prepared by: _____ Signature License #D4098

Part B prepared by: _____ Signature License # D4098

DO NOT WRITE IN THIS SPACE

Witnessed Soil Evaluation Decision: Concur ☐ Inconclusive ☐ Disclaim ☐

Unwitnessed Soil Evaluations Decision: Accept ☐ Inconclusive ☐ Disclaim ☐

Wet Season Determination required ☐ Additional Field Review Required ☐

Explanation: _____

_____

_____ _____

Signature Authorized Agent Date

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
Department of Environmental Management
Office of Water Resources
Onsite Wastewater Treatment Systems Program

Site Evaluation Form
Part A – Soil Profile Description Application Number Not Witnessed

Property Owner: Mello Realty Inc.
Property Location: Coddington Highway (A.P. 103, Lot 103), Middletown, Rhode Island
Date of Test Hole: January 4, 2024
Soil Evaluator: Amber K. Hardy, M.S. License Number: D4098
Weather: Sunny, 35° Shaded: Yes ☐ No ☒ Time: 9:00 am

TH 5 Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox	Texture	Structure	Consistence	Soil Category
		Dist	Topo	Matrix	Re-Dox Features	Ab. S. Contr.				
^C1	0 – 12	A	S	10YR 3/2	-	-	GRSL	2 TK PL	FI	HTM
^C2	12 – 45	A	S	10YR 3/2	-	-	GRSL	0 MA	FI	HTM
^C3	45 – 77	A	S	10YR 4/3	-	-	GRSL	-	FR	HTM
Ab	77 – 84+	-	-	N 3/0	-	-	SIL	-	FR	5

TH Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox	Texture	Structure	Consistence	Soil Category
		Dist	Topo	Matrix	Re-Dox Features	Ab. S. Contr.				

TH 5 Soil Class HTM Total Depth 84 Impervious/Limiting Layer Depth none (og) GW Seepage Depth 77 SHWT 0 o.g. (og)
TH ____ Soil Class ____ Total Depth ____ Impervious/Limiting Layer Depth ____ (og) GW Seepage Depth ____ SHWT ____ (og)
Comments: ____

Part B

Site Evaluation – to be completed by Soil Evaluator or Class II or III Designer

Please use the area below to locate:

1. Test holes and bedrock test holes,
2. Approximate direction of due north,
3. Offsets from all test holes to fixed points such as street, utility pole, or other permanent, marked object.*
   *OFFSETS MUST BE SHOWN

Key:
- Approximate location of test holes
- Approximate location of bedrock test holes
- x% Estimated gradient and direction of slope
- N Approximate direction of due north

Bedrock THs	
TH	Depth

1. Relief and Slope: 3 – 8%

2. Presence of any watercourse, wetlands or surface water bodies, within 200 feet of test holes? If yes, locate on above sketch.	NO ☒	YES ☐
3. Restrictive Layer or Bedrock within 4' below original ground within 25 feet of test hole? Provide all test hole locations & depths above.	NO ☒	YES ☐
4. Presence of existing or proposed private drinking water wells within 200 feet of test holes? If yes, locate on above sketch.	NO ☐	YES ☐
5. Public drinking water wells within 500 feet of test holes? If yes, locate on above sketch.	NO ☐	YES ☐
6. Is site within the watershed of a public drinking water reservoir or other critical area defined in Rule 6.42?	NO ☒	YES ☐
7. Has soil been excavated from or fill deposited on site? If yes, locate on above sketch.	NO ☐	YES ☒

8. Site's potential for flooding or ponding: NONE ☐ SLIGHT ☒ MODERATE ☐ SEVERE ☐
9. Landscape position: Backslope
10. Vegetation: Unvegetated
11. Indicate approximate location of property lines and roadways.
12. Additional comments, site constraints or additional information regarding site: This lot is being used as storage for large piles of concrete, brick, soil, and other material. No original grade was found in any test hole EXCEPT TH5 at the back of the property. The HTM was highly compacted. Lateral movement of water was only seen in layers of gravels or other coarse fragments.

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Part A prepared by: _____ Signature License #D4098

Part B prepared by: _____ Signature License # D4098

DO NOT WRITE IN THIS SPACE

Witnessed Soil Evaluation Decision: Concur ☐ Inconclusive ☐ Disclaim ☐

Unwitnessed Soil Evaluations Decision: Accept ☐ Inconclusive ☐ Disclaim ☐

Wet Season Determination required ☐ Additional Field Review Required ☐

Explanation: _____

Revised 11/25/18

Signature Authorized Agent _____ Date _____

APPENDIX H RI STORMWATER CHECKLIST

APPENDIX A: STORMWATER MANAGEMENT PLAN CHECKLIST AND LID PLANNING REPORT – STORMWATER DESIGN SUMMARY

PROJECT NAME: Coddington Cove Commons	**(RIDEM USE ONLY)**
TOWN: Middletown RI	**STW/WQC File #:**
BRIEF PROJECT DESCRIPTION: Construction a tradesman center consisting of four 14,400 sf buildings housing 48 units on an existing lot formerly used as a construction yard.	**Date Received:**

Stormwater Management Plan (SMP) Elements – Minimum Standards

When submitting a SMP,[1] submit four separately bound documents: Appendix A Checklist; Stormwater Site Planning, Analysis and Design Report with Plan Set/Drawings; Soil Erosion and Sediment Control (SESC) Plan, and Post Construction Operations and Maintenance (O&M) Plan. Please refer to Suggestions to Promote Brevity.

Note: **All stormwater construction projects must create a Stormwater Management Plan (SMP). However, not every element listed below is required per the RIDEM Stormwater Rules and the RIPDES Construction General Permit (CGP). This checklist will help identify the required elements to be submitted with an Application for Stormwater Construction Permit & Water Quality Certification.**

PART 1. PROJECT AND SITE INFORMATION

PROJECT TYPE (Check all that apply)

☐ Residential	☒ Commercial	☐ Federal	☐ Retrofit	☐ Restoration
☐ Road	☐ Utility	☐ Fill	☐ Dredge	☐ Mine
☐ Other (specify):				

SITE INFORMATION

☒ Vicinity Map

INITIAL DISCHARGE LOCATION(S): The WQv discharges to: (You may choose more than one answer if several discharge points are associated with the project.)

☐ **Groundwater**	☐ **Surface Water**	☒ **MS4**
☐ GAA	☐ Isolated Wetland	☐ RIDOT
☐ GA	☐ Named Waterbody	☐ RIDOT Alteration Permit is Approved
☒ GB	☐ Unnamed Waterbody Connected to Named Waterbody	☒ Town
		☐ Other (specify):

ULTIMATE RECEIVING WATERBODY LOCATION(S): Include pertinent information that applies to both WQ_v and flow from larger storm events including overflows. Choose all that apply, and repeat table for each waterbody.

☐ Groundwater or Disconnected Wetland	☐ SRWP		
☒ Waterbody Name: Newport Harbor / Coddington Cove	☐ Coldwater	☐ Warmwater	☐ Unassessed
☐ Waterbody ID: RI0007030E-01A	☐ 4th order stream of pond 50 acres or more		
☐ TMDL for:	☐ Watershed of flood prone river (e.g., Pocasset River)		
☐ Contributes to a priority outfall listed in the TMDL	☐ Contributes stormwater to a public beach		
☒ 303(d) list – Impairment(s) for: Sediment Bioassay	☐ Contributes to shellfishing grounds		

[1] Applications for a Construction General Permit that do not require any other permits from RIDEM and will disturb less than 5 acres over the entire course of the project do not need to submit a SMP. The Appendix A checklist must still be submitted.

PROJECT HISTORY		
☐ RIDEM Pre- Application Meeting	Meeting Date:	☐ Minutes Attached
☐ Municipal Master Plan Approval	Approval Date:	☐ Minutes Attached
☐ Subdivision Suitability Required	Approval #:	
☐ Previous Enforcement Action has been taken on the property	Enforcement #:	

FLOODPLAIN & FLOODWAY See Guidance Pertaining to Floodplain and Floodways	
☒ Riverine 100-year floodplain: **FEMA FLOODPLAIN FIRMETTE** has been reviewed and the 100-year floodplain is on site	
☒ Delineated from FEMA Maps	
NOTE: Per Rule 250-RICR-150-10-8-1.1(B)(5)(d)(3), provide volumetric floodplain compensation calculations for cut and fill/displacement calculated by qualified professional	
☐ Calculated by Professional Engineer	
☐ Calculations are provided for cut vs. fill/displacement volumes proposed within the 100-year floodplain	Amount of Fill (CY):
	Amount of Cut (CY):
☐ Restrictions or modifications are proposed to the flow path or velocities in a floodway	
☐ Floodplain storage capacity is impacted	
☒ Project area is not within 100-year floodplain as defined by RIDEM	

CRMC JURISDICTION
☐ CRMC Assent required
☐ Property subject to a Special Area Management Plan (SAMP). If so, specify which SAMP:
☐ Sea level rise mitigation has been designed into this project

LUHPPL IDENTIFICATION - MINIMUM STANDARD 8:		
1. OFFICE OF Land Revitalization and Sustainable Materials Management (OLRSMM)		
	☐ Known or suspected releases of HAZARDOUS MATERIAL are present at the site (Hazardous Material is defined in Rule 1.4(A)(33) of 250-140-30-1 of the RIDEM Rules and Regulations for Investigation and Remediation of Hazardous Materials (the Remediation Regulations))	**RIDEM CONTACT:**
	☐ Known or suspected releases of PETROLEUM PRODUCT are present at the site (Petroleum Product as defined in Rule 1.5(A)(84) of 250-140-25-1 of the RIDEM Rules and Regulations for Underground Storage Facilities Used for Regulated Substances and Hazardous Materials)	
	☐ This site is identified on the RIDEM Environmental Resources Map as one of the following regulated facilities	**SITE ID#**:
	☐ CERCLIS/Superfund (NPL)	
	☐ State Hazardous Waste Site (SHWS)	
	☐ Environmental Land Usage Restriction (ELUR)	
	☐ Leaking Underground Storage Tank (LUST)	
	☐ Closed Landfill	
Note:	If any boxes in 1 above are checked, the applicant must contact the RIDEM OLRSMM Project Manager associated with the Site to determine if subsurface infiltration of stormwater is allowable for the project. Indicate if the infiltration corresponds to "Red," "Yellow" or "Green" as described in Section 3.2.8 of the RISDISM Guidance (Subsurface Contamination Guidance). Also, note and reference approval in PART 3, Minimum Standard 2: Groundwater Recharge/Infiltration**.**	
2. PER MINIMUM STANDARD 8 of RICR 8.14.C.1-6 "LUHPPLS," THE SITE IS/HAS:		
	☐ Industrial Site with RIPDES MSGP, except where No Exposure Certification exists. http://www.dem.ri.gov/programs/water/permits/ripdes/stormwater/status.php	
	☐ Auto Fueling Facility (e.g., gas station)	
	☐ Exterior Vehicles Service, Maintenance, or Equipment Cleaning Area	

	☐ Road Salt Storage and Loading Areas (exposed to rainwater)	
	☐ Outdoor Storage and Loading/Unloading of Hazardous Substances	
3.	**STORMWATER INDUSTRIAL PERMITTING**	
	☐ The site is associated with existing or proposed activities that are considered Land Uses with Higher Potential Pollutant Loads (LUHPPLS) (see RICR 8.14.C)	Activities: Sector:
	☐ Construction is proposed on a site that is subject to THE MULTI-SECTOR GENERAL PERMIT (MSGP) UNDER RULE 31(B)15 OF THE RIPDES REGULATIONS.	MSGP permit #
	☐ Additional stormwater treatment is required by the MSGP Explain:	

REDEVELOPMENT STANDARD – MINIMUM STANDARD 6		
☒ Pre-Construction Impervious Area		
	☒ Total Pre-Construction Impervious Area (**TIA**): 3.84 acres	
	☒ Total Site Area (**TSA**) 3.84 acres	
	☒ Jurisdictional Wetlands (**JW**) 0.00 acres	
	☒ Conservation Land (**CL**) 0.00 acres	
☒ Calculate the Site Size (defined as contiguous properties under same ownership)		
	☒ Site Size (**SS**) = (**TSA**) – (**JW**) – (**CL**) = 3.84 acres	
	☒ (**TIA**) / (**SS**) = 1.0	☒ (**TIA**) / (**SS**) >**0.4**?
☒ YES, Redevelopment		

PART 2. LOW IMPACT DEVELOPMENT ASSESSMENT – MINIMUM STANDARD 1

.

Note: A written description must be provided specifying why each method is not being used or is not applicable at the Site. Appropriate answers may include:

- Town requires … (state the specific local requirement)
- Meets Town's dimensional requirement of …
- Not practical for site because …
- Applying for waiver/variance to achieve this (pending/approved/denied)
- Applying for wavier/variance to seek relief from this (pending/approved/denied)

A) PRESERVATION OF UNDISTURBED AREAS, BUFFERS, AND FLOODPLAINS ☒ Sensitive resource areas and site constraints are identified (required) ☒ Local development regulations have been reviewed (required) ☒ All vegetated buffers and coastal and freshwater wetlands will be protected during and after construction ☐ Conservation Development or another site design technique has been incorporated to protect open space and pre-development hydrology. **Note:** If Conservation Development has been used, check box and skip to Subpart C ☒ As much natural vegetation and pre-development hydrology as possible has been maintained	There are no sensitive resource areas or vegetated areas of significance on site. Property is an active construction yard.

B) LOCATE DEVELOPMENT IN LESS SENSITIVE AREAS AND WORK WITH THE NATURAL LANDSCAPE CONDITIONS, HYDROLOGY, AND SOILS ☒ Development sites and building envelopes have been appropriately distanced from wetlands and waterbodies ☐ Development and stormwater systems have been located in areas with greatest infiltration capacity (e.g., soil groups A and B) ☐ Plans show measures to prevent soil compaction in areas designated as Qualified Pervious Areas (QPA's) ☐ Development sites and building envelopes have been positioned outside of floodplains ☒ Site design positions buildings, roadways and parking areas in a manner that avoids impacts to surface water features ☒ Development sites and building envelopes have been located to minimize impacts to steep slopes (≥15%) ☐ Other (describe):	No type A or B soils located on site. No steep slopes are present on site outside of construction stockpiles. No QPAs are possible.
C) MINIMIZE CLEARING AND GRADING ☐ Site clearing has been restricted to <u>minimum area needed</u> for building footprints, development activities, construction access, and safety. ☐ Site has been designed to position buildings, roadways, and parking areas in a manner that minimizes grading (cut and fill quantities) ☐ Protection for stands of trees and individual trees and their root zones to be preserved has been specified, and such protection extends at least to the tree canopy drip line(s) ☐ Plan notes specify that public trees removed or damaged during construction shall be replaced with equivalent	There is no significant vegetation to be cleared. Entire site is an active construction yard which will be removed.
D) REDUCE IMPERVIOUS COVER ☐ Reduced roadway widths (≤22 feet for ADT ≤ 400; ≤ 26 feet for ADT 400 - 2,000) ☐ Reduced driveway areas (length minimized via reduced ROW width (≤ 45 ft.) and/or reduced (or absolute minimum) front yard setback; width minimized to ≤ 9 ft. wide one lane; ≤ 18 ft. wide two lanes; shared driveways; pervious surface) ☐ Reduced building footprint: Explain approach: ☐ Reduced sidewalk area (≤ 4 ft. wide; one side of the street; unpaved path; pervious surface) ☐ Reduced cul-de-sacs (radius < 45 ft; vegetated island; alternative turn-around) ☐ Reduced parking lot area: Explain approach ☐ Use of pervious surfaces for driveways, sidewalks, parking areas/overflow parking areas, etc. ☐ Minimized impervious surfaces (project meets or is less than maximum specified by Zoning Ordinance) ☒ Other (describe):	Project site currently has no green space. Approximately 17% site area green space is proposed.
E) DISCONNECT IMPERVIOUS AREA ☐ Impervious surfaces have been disconnected, and runoff has been diverted to QPAs to the maximum extent possible ☐ Residential street edges allow side-of-the-road drainage into vegetated open swales ☐ Parking lot landscaping breaks up impervious expanse AND accepts runoff ☒ Other (describe):	No QPAs are possible on site.
F) MITIGATE RUNOFF AT THE POINT OF GENERATION ☐ Small-scale BMPs have been designated to treat runoff as close as possible to the source	Redevelopment context makes this impossible.

G) PROVIDE LOW-MAINTENANCE NATIVE VEGETATION ☒ Low-maintenance landscaping has been proposed using native species and cultivars ☐ Plantings of native trees and shrubs in areas previously cleared of native vegetation are shown on site plan ☒ Lawn areas have been limited/minimized, and yards have been kept undisturbed to the maximum extent practicable on residential lots	
H) RESTORE STREAMS/WETLANDS ☐ Historic drainage patterns have been restored by removing closed drainage systems, daylighting buried streams, and/or restoring degraded stream channels and/or wetlands ☐ Removal of invasive species ☐ Other	N/A

PART 3. SUMMARY OF REMAINING STANDARDS

GROUNDWATER RECHARGE – MINIMUM STANDARD 2		
YES	**NO**	
☐	☒	The project has been designed to meet the groundwater recharge standard.
☒	☐	If "No," the justification for groundwater recharge criterion waiver has been explained in the Narrative (e.g., threat of groundwater contamination or physical limitation), if applicable (see RICR 8.8.D);
☒	☐	Your waiver request has been explained in the Narrative, if applicable.
☐	☒	Is this site identified as a Regulated Facility in Part 1, Minimum Standard 8: LUHPPL Identification?
☐	☐	If "Yes," has approval for infiltration by the OLRSMM Site Project Manager, per Part 1, Minimum Standard 8, been requested?

TABLE 2-1: Summary of Recharge (see RISDISM Section 3.3.2)

Design Point	**Impervious Area Treated (sq ft)**	**Total Re_v Required (cu ft)**	**LID Stormwater Credits (see RISDISM Section 4.6.1)** **Portion of Re_v directed to a QPA (cu ft)**	**Recharge Required by Remaining BMPs (cu ft)**	**Recharge Provided by BMPs (cu ft)**
DP-1:					
DP-2:					
DP-3:					
DP-4:					
TOTALS:					

Notes:
1. Only BMPs listed in RISDISM Table 3-5 "List of BMPs Acceptable for Recharge" may be used to meet the recharge requirement.
2. Recharge requirement must be satisfied for each waterbody ID.

☐ Indicate where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.):

WATER QUALITY – MINIMUM STANDARD 3		
YES	**NO**	
☒	☐	Does this project meet or exceed the required water quality volume WQv (see RICR 8.9.E-I)?
☒	☐	Is the proposed final impervious cover greater than 20% of the disturbed area (see RICR 8.9.E-I)?
☒	☐	If "Yes," either the Modified Curve Number Method or the Split Pervious/Impervious method in Hydro-CAD was used to calculate WQv; or,
☒	☐	If "Yes," either TR-55 or TR-20 was used to calculate WQv; and,
☒	☐	If "No," the project meets the minimum WQv of 0.2 watershed inches over the entire disturbed area.
☐	☐	Not Applicable
☒	☐	Does this project meet or exceed the ability to treat required water quality flow WQf (see RICR 8.9.I.1-3)?
☒	☐	Does this project propose an increase of impervious cover to a receiving water body with impairments? If "Yes," please indicate below the method that was used to address the water quality requirements of no further degradation to a low-quality water. **BMPs have been designed in accordance with the manual. Impervious surfaces have been reduced by 17%. Site introduces WQ devices to a site which currently has none.**
☐	☒	RICR 8.36. A Pollutant Loading Analysis is needed and has been completed.
☒	☐	The Water Quality Guidance Document (Water Quality Goals and Pollutant Loading Analysis Guidance for Discharges to Impaired Waters) has been followed as applicable.
☒	☐	BMPs are proposed that are on the approved technology list . If "Yes," please provide all required worksheets from the manufacturer.
☐	☒	Additional pollutant-specific requirements and/or pollutant removal efficiencies are applicable to the site as the result of a TMDL, SAMP, or other watershed-specific requirements. If "Yes," please describe:

TABLE 3-1: Summary of Water Quality (see RICR 8.9)

Design Point	Impervious area treated (ac.)	Total WQ_v Required (cu ft)	LID Stormwater Credits (see RICR 8.18) WQv directed to a QPA (cu ft)	Water Quality Treatment Remaining (cu ft)	Water Quality Provided by BMPs (cu ft)
Municipal Drain (D-1)	3.29	5,973	0	5,973	10,846
West. Abutter (D-2)	0	0	0	0	0
Hwy (D-3)	0.08	150	0	150	0
TOTALS:				6,123	10,846

Notes:
1. Only BMPs listed in RICR 8.20 and 8.25 or the Approved Technologies List of BMPs is Acceptable for Water Quality treatment.
2. For each Design Point, the Water Quality Volume Standard must be met for each Waterbody ID.

☒ YES ☐ NO	This project has met the setback requirements for each BMP. If "No," please explain:

☒ Indicate where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.): **Stormwater Report: Appendix E "Supplementary Calculations" & Appendix F "WQ Storm Analysis (Split Pervious Method)**

CONVEYANCE AND NATURAL CHANNEL PROTECTION (RICR 8.10) – MINIMUM STANDARD 4		
YES	**NO**	
☒	☐	Is this standard waived? If "Yes," please indicate one or more of the reasons below:
		☐ The project directs discharge to a large river (i.e., 4th-order stream or larger. See RISDISM Appendix I for State-wide list and map of stream orders), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters. ☐ The project is a small facility with impervious cover of less than or equal to 1 acre**.** ☐ The project has a post-development peak discharge rate from the facility that is less than 2 cfs for the 1-year, 24-hour Type III design storm event (prior to any attenuation). (Note: LID design strategies can greatly reduce the peak discharge rate).
☐	☒	Conveyance and natural channel protection for the site have been met. If "No,' explain why: **Redevelopment project does not require this Minimum Standard.**

OVERBANK FLOOD PROTECTION (RICR 8.11) AND OTHER POTENTIAL HIGH FLOWS – MINIMUM STANDARD 5			
YES	**NO**		
☐	☒	Is this standard waived? If yes, please indicate one or more of the reasons below:	
		☐	The project directs discharge to a large river (i.e., 4th-order stream or larger. See Appendix I for state-wide list and map of stream orders), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters.
		☐	A Downstream Analysis (see RICR 8.11.D and E) indicates that peak discharge control would not be beneficial or would exacerbate peak flows in a downstream tributary of a particular site (e.g., through coincident peaks).
☒	☐	Does the project flow to an MS4 system or subject to other stormwater requirements? If "Yes," indicate as follows:	
		☒	RIDOT
		☐	Other (specify):
Note: The project could be approved by RIDEM but not meet RIDOT or Town standards. RIDOT's regulations indicate that post-volumes must be **less** than pre-volumes for the 10-yr storm at the design point entering the RIDOT system. If you have not already received approval for the discharge to an MS4, please explain below your strategy to comply with RIDEM and the MS4.			
		Indicate below which model was used for your analysis. ☐ TR-55 ☐ TR-20 ☒ HydroCAD ☐ Bentley/Haestad ☐ Intellisolve ☐ Other (Specify):	
YES	**NO**		
☒	☐	Does the drainage design demonstrate that flows from the 100-year storm event through a BMP will safely manage and convey the 100-year storm? If "No," please explain briefly below and reference where in the application further documentation can be found (i.e., name of report/document, page numbers, appendices, etc.):	
☒	☐	Do off-site areas contribute to the sub-watersheds and design points? If "Yes,"	
☒	☐	Are the areas modeled as "present condition" for both pre- and post-development analysis?	
☒	☐	Are the off-site areas shown on the subwatershed maps?	
☒	☐	Does the drainage design confirm safe passage of the 100-year flow through the site for off-site runoff?	
☐	☒	Is a Downstream Analysis required (see RICR 8.11.E.1)?	
☒	☐	Calculate the following:	
		☒	Area of disturbance within the sub-watershed (areas) 3.84 acres
		☒	Impervious cover (%) 83%
☐	☒	Is a dam breach analysis required (earthen embankments over six (6) feet in height, or a capacity of 15 acre-feet or more, and contributes to a significant or high hazard dam)?	
☒	☐	Does this project meet the overbank flood protection standard?	

Table 5-1 Hydraulic Analysis Summary								
Subwatershed (Design Point)	**1.2" Peak Flow** (cfs) **		**1-yr Peak Flow** (cfs)		**10-yr Peak Flow** (cfs)		**100-yr Peak Flow** (cfs)	
	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)
DP-1: Town Drain	2.13	1.23	8.09	7.73	16.53	16.37	31.99	30.99
DP-2: Abutter	0.28	0.00	0.97	0.21	1.89	0.66	3.49	1.58
DP-3: Hwy	0.19	0.10	0.69	0.41	1.40	1.00	2.64	2.10
DP-4:								
TOTALS:								

** Utilize modified curve number method or split pervious /impervious method in HydroCAD.

Note: The hydraulic analysis must demonstrate no impact to each individual subwatershed DP unless each DP discharges to the same wetland or water resource.

Indicate as follows where the pertinent calculations and/or information for the items above are provided	**Name of report/document, page numbers, appendices, etc.**
Existing conditions analysis for each subwatershed, including curve numbers, times of concentration, runoff rates, volumes, and water surface elevations showing methodologies used and supporting calculations.	**Stormwater Report Appendix C**
Proposed conditions analysis for each subwatershed, including curve numbers, times of concentration, runoff rates, volumes, water surface elevations, and routing showing the methodologies used and supporting calculations.	**Stormwater Report Appendix D**
Final sizing calculations for structural stormwater BMPs, including contributing drainage area, storage, and outlet configuration.	**Stormwater Report Appendix E**
Stage-storage, inflow and outflow hydrographs for storage facilities (e.g., detention, retention, or infiltration facilities).	n/a

Table 5-2 Summary of Best Management Practices											
BMP ID	**DP #**	**BMP Type** (e.g., bioretention, tree filter)	**BMP Functions**					**Bypass Type**	**Horizontal Setback Criteria are met per RICR 8.21.B.10, 8.22.D.11, and 8.35.B.4**		
			Pre-Treatment (Y/N/NA)	Re_v (af)	WQ_v (af)	CP_v (Y/N/NA)	Overbank Flood Reduction (Y/N/NA)	External (E) Internal (I) or NA	Yes/No	Technical Justification (Design Report page number)	Distance Provided
UG1	1	Sand filter	Y	0	0.157	N	N	E	Y		
UG2	1	Sand filter	Y	0	0.92	N	N	E	Y		
UG3	1	Detention	n/a	0	0	N	N	n/a	Y		
		TOTALS:		0	1.08						

Table 5.3 Summary of Soils to Evaluate Each BMP									
DP #	**BMP ID**	**BMP Type** (e.g., bioretention, tree filter)	**Soils Analysis for Each BMP**						
			Test Pit ID# and Ground Elevation		SHWT Elevation (ft)	Bottom of Practice Elevation* (ft)	Separation Distance Provided (ft)	Hydrologic Soil Group (A, B, C, D)	Exfiltration Rate Applied (in/hr)
			Primary	Secondary					
1	UG1	Sand Filter						C	n/a
1	UG2	Sand Filter						C	n/a
1	UG3	Detention						C	n/a
		TOTALS:							

* For underground infiltration systems (UICs) bottom equals bottom of stone, for surface infiltration basins bottom equals bottom of basin, for filters bottom equals interface of storage and top of filter layer

LAND USES WITH HIGHER POTENTIAL POLLUTANTS LOADS (LUHPPLs) – MINIMUM STANDARD 8			
YES	**NO**	**N/A**	
☐	☐	☒	Describe any LUHPPLs identified in Part 1, Minimum Standard 8, Section 2. If not applicable, continue to Minimum Standard 9.
☐	☐	☒	Are these activities already covered under an MSGP? If "No," please explain if you have applied for an MSGP or intend to do so?
☐	☐	☒	List the specific BMPs that are proposed for this project that receive stormwater from LUHPPL drainage areas. These BMP types must be listed in RISDISM Table 3-3, "Acceptable BMPs for Use at LUHPPLs." Please list BMPs:
☐	☐	☒	Additional BMPs, or additional pretreatment BMP's if any, that meet RIPDES MSGP requirements; Please list BMPs:
			Indicate below where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.).

ILLICIT DISCHARGES – MINIMUM STANDARD 9			
Illicit discharges are defined as unpermitted discharges to Waters of the State that do not consist entirely of stormwater or uncontaminated groundwater, except for certain discharges identified in the RIPDES Phase II Stormwater General Permit.			
YES	**NO**	**N/A**	
☒	☐	☐	Have you checked for illicit discharges?
☐	☒	☐	Have any been found and/or corrected? If "Yes," please identify.
☒	☐	☐	Does your report explain preventative measures that keep non-stormwater discharges out of the Waters of the State (during and after construction)?

SOIL EROSION AND SEDIMENT CONTROL (SESC) – MINIMUM STANDARD 10				
YES	**NO**	**N/A**		
☒	☐	☐	Have you included a Soil Erosion and Sediment Control Plan Set and/or Complete Construction Plan Set?	
☒	☐	☐	Have you provided a **separately-bound** document based upon the SESC Template? If yes, proceed to Minimum Standard 11 (the following items can be assumed to be addressed).	
			If "No," include a document with your submittal that addresses the following elements of an SESC Plan:	
			☐	Soil Erosion and Sediment Control Plan Project Narrative, including a description of how the fifteen (15) Performance Criteria have been met:
			☐	Provide Natural Buffers and Maintain Existing Vegetation
			☐	Minimize Area of Disturbance
			☐	Minimize the Disturbance of Steep Slopes
			☐	Preserve Topsoil
			☐	Stabilize Soils
			☐	Protect Storm Drain Inlets
			☐	Protect Storm Drain Outlets
			☐	Establish Temporary Controls for the Protection of Post-Construction Stormwater Control Measures
			☐	Establish Perimeter Controls and Sediment Barriers
			☐	Divert or Manage Run-On from Up-Gradient Areas
			☐	Properly Design Constructed Stormwater Conveyance Channels
			☐	Retain Sediment On-Site
			☐	Control Temporary Increases in Stormwater Velocity, Volume, and Peak Flows
			☐	Apply Construction Activity Pollution Prevention Control Measures
			☐	Install, Inspect, and Maintain Control Measures and Take Corrective Actions
			☐	Qualified SESC Plan Preparer's Information and Certification
			☐	Operator's Information and Certification; if not known at the time of application, the Operator must certify the SESC Plan upon selection and prior to initiating site activities
			☐	Description of Control Measures, such as Temporary Sediment Trapping and Conveyance Practices, including design calculations and supporting documentation, as required

STORMWATER MANAGEMENT SYSTEM OPERATION, MAINTENANCE, AND POLLUTION PREVENTION PLAN – MINIMUM STANDARDS 7 AND 9		
Operation and Maintenance Section		
YES	**NO**	
☒	☐	Have you minimized all sources of pollutant contact with stormwater runoff, to the maximum extent practicable?
☒	☐	Have you provided a **separately-bound** Operation and Maintenance Plan for the site and for all of the BMPs, and does it address each element of RICR 8.17 and RISDISM Appendix C and E?
☒	☐	Lawn, Garden, and Landscape Management meet the requirements of RISDISM Section G.7? If "No," why not?
☒	☐	Is the property owner or homeowner's association responsible for the stormwater maintenance of all BMP's? If "No," you must provide a legally binding and enforceable maintenance agreement (see RISDISM Appendix E, page 26) that identifies the entity that will be responsible for maintenance of the stormwater. Indicate where this agreement can be found in your report (i.e., name of report/document, page numbers, appendices, etc.).
☐	☒	Do you anticipate that you will need legal agreements related to the stormwater structures? (e.g. off-site easements, deed restrictions, covenants, or ELUR per the Remediation Regulations). If "Yes," have you obtained them? Or please explain your plan to obtain them:

☐	☒	Is stormwater being directed from public areas to private property? If "Yes," note the following: Note: This is not allowed unless a funding mechanism is in place to provide the finances for the long-term maintenance of the BMP and drainage, or a funding mechanism is demonstrated that can guarantee the long-term maintenance of a stormwater BMP by an individual homeowner.
Pollution Prevention Section		
☐	☒	Designated snow stockpile locations?
☐	☒	Trash racks to prevent floatables, trash, and debris from discharging to Waters of the State?
☐	☒	Asphalt-only based sealants?
☐	☒	Pet waste stations? (Note: If a receiving water has a bacterial impairment, and the project involves housing units, then this could be an important part of your pollution prevention plan).
☒	☐	Regular sweeping? Please describe:
☐	☒	De-icing specifications, in accordance with RISDISM Appendix G. (NOTE: If the groundwater is GAA, or this area contributes to a drinking water supply, then this could be an important part of your pollution prevention plan).
☐	☒	A prohibition of phosphate-based fertilizers? (Note: If the site discharges to a phosphorus impaired waterbody, then this could be an important part of your pollution prevention plan).

PART 4. SUBWATERSHED MAPPING AND SITE-PLAN DETAILS

Existing and Proposed Subwatershed Mapping (REQUIRED)			
YES	**NO**		
☒	☐		Existing and proposed drainage area delineations
☒	☐		Locations of all streams and drainage swales
☒	☐		Drainage flow paths, mapped according to the DEM *Guidance for Preparation of Drainage Area Maps* (included in RISDISM Appendix K)
☒	☐		Complete drainage area boundaries; include off-site areas in both mapping and analyses, as applicable
☒	☐		Logs of borings and/or test pit investigations along with supporting soils/geotechnical report
☒	☐		Mapped seasonal high-water-table test pit locations
☒	☐		Mapped locations of the site-specific borings and/or test pits and soils information from the test pits at the locations of the BMPs
☒	☐		Mapped locations of the BMPs, with the BMPs consistently identified on the Site Construction Plans
☐	☒		Mapped bedrock outcrops adjacent to any infiltration BMP
☒	☐		Soils were logged by a:
		☒	DEM-licensed Class IV soil evaluator Name: Amber K. Hardy
		☐	RI-registered P.E. Name:

Subwatershed and Impervious Area Summary				
Subwatershed (area to each design point)	**First Receiving Water ID or MS4**	**Area Disturbed (ac)**	**Existing Impervious (ac)**	**Proposed Impervious (ac)**
DP-1: Municipal Drains	RI0007030E-01A	3.30	3.30	2.99
DP-2: Abutter	RIDOT	0.25	0.25	0.00
DP-3: Coddington Hwy	RIDOT	0.29	0.29	0.20
TOTALS:		3.84	3.84	3.19

Site Construction Plans (Indicate that the following applicable specifications are provided)		
YES	**NO**	
☒	☐	Existing and proposed plans (scale not greater than 1" = 40') with North arrow
☒	☐	Existing and proposed site topography (with 1 or 2-foot contours); 10-foot contours accepted for off-site areas
☒	☐	Boundaries of existing predominant vegetation and proposed limits of clearing
☒	☐	Site Location clarification
☒	☐	Location and field-verified boundaries of resource protection areas such as: ▸ freshwater and coastal wetlands, including lakes and ponds ▸ coastal shoreline features Perennial and intermittent streams, in addition to Areas Subject to Storm Flowage (ASSFs)
☒	☐	All required setbacks (e.g., buffers, water-supply wells, septic systems)
☒	☐	Representative cross-section and profile drawings, and notes and details of structural stormwater management practices and conveyances (i.e., storm drains, open channels, swales, etc.), which include: ▸ Location and size of the stormwater treatment practices (type of practice, depth, area). Stormwater treatment practices (BMPs) must have labels that correspond to RISDISM Table 5-2; ▸ Design water surface elevations (applicable storms); ▸ Structural details of outlet structures, embankments, spillways, stilling basins, grade-control structures, conveyance channels, etc.; ▸ Existing and proposed structural elevations (e.g., inverts of pipes, manholes, etc.); ▸ Location of floodplain and, if applicable, floodway limits and relationship of site to upstream and downstream properties or drainage that could be affected by work in the floodplain; ▸ Planting plans for structural stormwater BMPs, including species, size, planting methods, and maintenance requirements of proposed planting
☐	☒	Logs of borings and/or test pit investigations along with supporting soils/geotechnical report and corresponding water tables
☐	☒	Mapping of any OLRSMM-approved remedial actions/systems (including ELURs)
☒	☐	Location of existing and proposed roads, buildings, and other structures including limits of disturbance; ▸ Existing and proposed utilities (e.g., water, sewer, gas, electric) and easements; ▸ Location of existing and proposed conveyance systems, such as grass channels, swales, and storm drains, and location(s) of final discharge point(s) (wetland, waterbody, etc.); ▸ Cross sections of roadways, with edge details such as curbs and sidewalks; ▸ Location and dimensions of channel modifications, such as bridge or culvert crossings
☐	☒	Locations, cross sections, and profiles of all stream or wetland crossings and their method of stabilization