Storm Water Management Report

PIE HILL WAREHOUSING

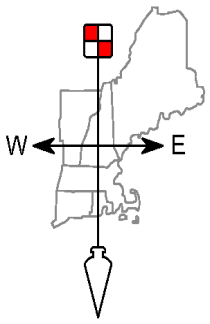
(NON-RESIDENTIAL SITE PLAN)

Project Location:
Tax Map 1010 Lot 79-17
46 Old Ferry Road
Methuen, Ma

Prepared for:
Triple G, LLC
46 Alsun Drive
Hollis, NH 03049

Date: April 4, 2022

Surveying ⌖ Engineering ⌖ Land Planning ⌖ Permitting ⌖ Septic Designs



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STORM WATER MANAGEMENT REPORT

PIE HILL WAREHOUSING

METHUEN, MA

Prepared for:
Triple G, LLC

Date: April 4, 2022

I) INTRODUCTION

The following are storm water drainage calculations for a warehousing redevelopment at 46 Old Ferry Road. The project area is bordered by an automotive shop to the north, industrial property to the east, and MA electric company power lines to the west. The site is located on the west side of Old Ferry Road. Access to the project will be provided by a 30 foot wide, 1,100± foot drive. The project is situated on a 19.138 acre parcel known as Lot 79-17 on the City of Methuen's Assessor's Map 1010.

The purpose of this report is to analyze the qualitative and quantitative impacts of the proposed redevelopment project. The objective of the proposed storm water management system for this project is to mitigate any increases resulting from the proposed redevelopment and to meet the drainage guidelines set forth in the City of Methuen's storm water regulations.

II) SITE DESCRIPTION

The site is currently developed with equipment storage and recently graded areas. This area is accessed by a gravel drive off Old Ferry Road. The site is located on top of Pie Hill. The site slopes steeply to the east, west, and south. The south slope leads to wetlands. The flatter portion of the site at the top of the hill slopes southwest. There is a 50' gas easement running through the northwest portion of the site and under a Methuen Meter station. The easement then splits and heads east off the property. A 200' power line easement runs across the property as well from east to west. The perimeter of the lot is wooded with the exception being the driveway, recently graded area at the top of the hill, and power line easement. Runoff from the gravel drive flows through a 30" cast iron culvert and is collected in a 1'-3' wide rip-rap swale along Old Ferry Road.

NRCS soil survey maps indicated that the site consists of a variety of soils. Based on the NRCS maps the majority of the site consists of Hydraulic Soil Group "C" soils (Paxton Fine Sandy Loam, very stony) and a small area of Hydraulic Soil Group "A" soils (Udorthents, smoothed). The ksat value for the Paxton Fine Sandy Loam is 10 µm/sec which equates to 2 in/hr. Applying a factor of safety of two results in a design ksat of 1 in/hr.

III) METHODOLOGY

The quantity of runoff and the conveyance of that flow through the site are determined using the software package HydroCAD r 10.0 by HydroCAD Software Solutions, LLC. HydroCAD is a computer aided design program for modeling storm water hydrology based on the Soil Conservation Service (SCS) TR-20 method combined with standard hydraulics calculations. The peak flow rate and the associated times of concentration were determined using the United States Department of Agriculture's *Urban Hydrology for Small Watersheds* (TR55) per the Massachusetts Stormwater Handbook, Chapter 1. TR55 stipulates that the minimum time of concentration is 0.1 hour or 6 minutes.

Storm water management systems and erosion control outlet protection aprons (riprap aprons) are designed in accordance with the methodology for the "Best Management Practices" (BMP's), as outlined in the Massachusetts Stormwater Handbook, volume 2, chapter 2.

IV) DRAINAGE DESIGN

In accordance with the Massachusetts Stormwater Handbook, Standard 2 the two (2), and the ten (10) year frequency storm events have been evaluated, and the City of Methuen Storm Water Regulations require that the one-hundred (100) year frequency storm event be evaluated. These design storms have therefore been included to compare the pre and post-development peak flow rates for the site (see attached comparison tables).

As a redevelopment project it falls under stormwater standard 7 of the Massachusetts Stormwater Handbook. Standard 7 states " A redevelopment project is required to meet the following stormwater standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of standards 4, 5, and 6. Existing stormwater discharges shall comply with standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the stormwater management standards and improve existing conditions." To show compliance with these standards a groundwater recharge calculation, TSS calculation, and HydroCAD analysis have been included in this report.

<u>Pre-Development Drainage Conditions:</u>
As can be seen on the Pre-Development Drainage Plans, the project area drains away from the high point in the center of the lot. Observation Points 1 & 3 are identified as adjacent lots 1008-79-11F and 1010-79-17A respectively. Observation point 2 is the roadside swale along Old Ferry Road and observation point 4 is the wetlands to the south. The existing parcel is accessed by a gravel drive and has recently been graded. However, the regraded area was previously a mixture of wooded and grassed areas and has been modeled as such. The gravel drive however has been modeled as such.

<u>Post-Development Drainage Conditions:</u>

As can be seen on the Post-Development Drainage Plans, the proposed drive is treated by two wet basins (P19 & 21) and is treated before being released north to observation point 1 (OP1). The runoff from the parking and trailer staging areas to the north of the proposed building are captured in catch basins and treated by an underground infiltration chamber system (P16) before being released into the proposed open drainage along the access drive. Sub catchment 303 will be nearly unchanged except that any disturbed areas shall be loamed and seeded before flowing downhill to OP3. In order to reduce flow from the paved areas and warehouse building at the top of the hill, a closed drainage system consisting of catch basins, manholes, and appropriate curbing are proposed to capture the runoff of the paved portion of the project and route it to a large underground infiltration chamber system (P14). The chamber system captures all of the sites impervious surface runoff and treats it before being outlet to the wetlands (OP4).

The net result is that paved areas will receive qualitative treatment and, due to the retention and infiltration capabilities of the wet ponds and storm chamber systems there will be a reduction of peak rates of runoff leaving this site for all storm events.

VI) SUMMARY

The intent of the storm water management system for this project is to address the qualitative and quantitative aspects of the storm water runoff so that there are no downstream adverse impacts created by the project. There are no increases in storm water runoff flow rates resulting from the proposed development.

The storm water management design for this project therefore complies with the storm water standards set forth in the City of Methuen and State of Massachusetts's Stormwater Regulations.

The following tables are a summary of the attached calculations and show a comparison of the peak flow rates at the outlet point for the site. The values presented are based on pre- and post-development conditions.

Table 1: Peak Flow Rates to Lot 1008-79-11F - OP1 - with Post-Development Infiltration

STORM FREQUENCY	PRE-DEV. RUNOFF (CFS)	POST-DEV. RUNOFF (CFS)	CHANGE (CFS)
2-YEAR	3.77	1.48	-2.29
10-YEAR	8.18	5.59	-2.59
100-YEAR	20.02	13.78	-6.24

Table 2: Peak Flow Rates to the Roadside Swale – OP2 - with Post-Development Retention

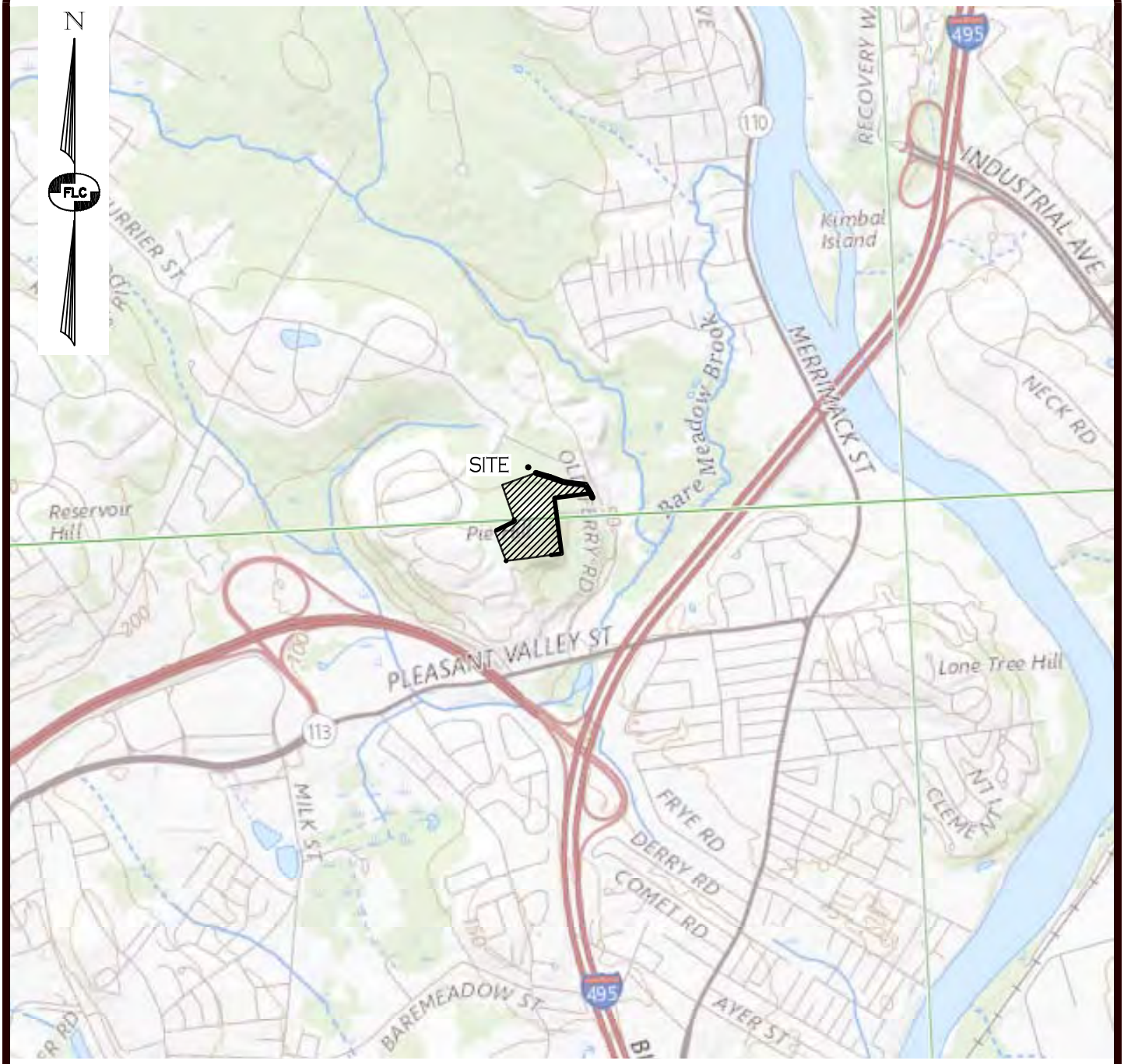
STORM FREQUENCY	PRE-DEV. RUNOFF (CFS)	POST-DEV. RUNOFF (CFS)	CHANGE (CFS)
2-YEAR	9.11	2.96	-6.15
10-YEAR	19.70	7.12	-12.58
100-YEAR	48.06	19.01	-29.05

Table 3: Peak Flow Rates to Lot 1010-79-17A– OP3

STORM FREQUENCY	PRE-DEV. RUNOFF (CFS)	POST-DEV. RUNOFF (CFS)	CHANGE (CFS)
2-YEAR	0.04	0.02	-0.02
10-YEAR	0.90	0.51	-0.39
100-YEAR	6.69	5.16	-1.53

Table 4: Peak Flow Rates to Wetlands – OP4 - with Post-Development Retention

STORM FREQUENCY	PRE-DEV. RUNOFF (CFS)	POST-DEV. RUNOFF (CFS)	CHANGE (CFS)
2-YEAR	6.45	2.63	-3.82
10-YEAR	15.97	7.47	-8.50
100-YEAR	43.20	39.53	-3.67



GRAPHIC SCALE

2,000' 1,000' 0 2,000'

IMPERIAL: 1" = 2,000'

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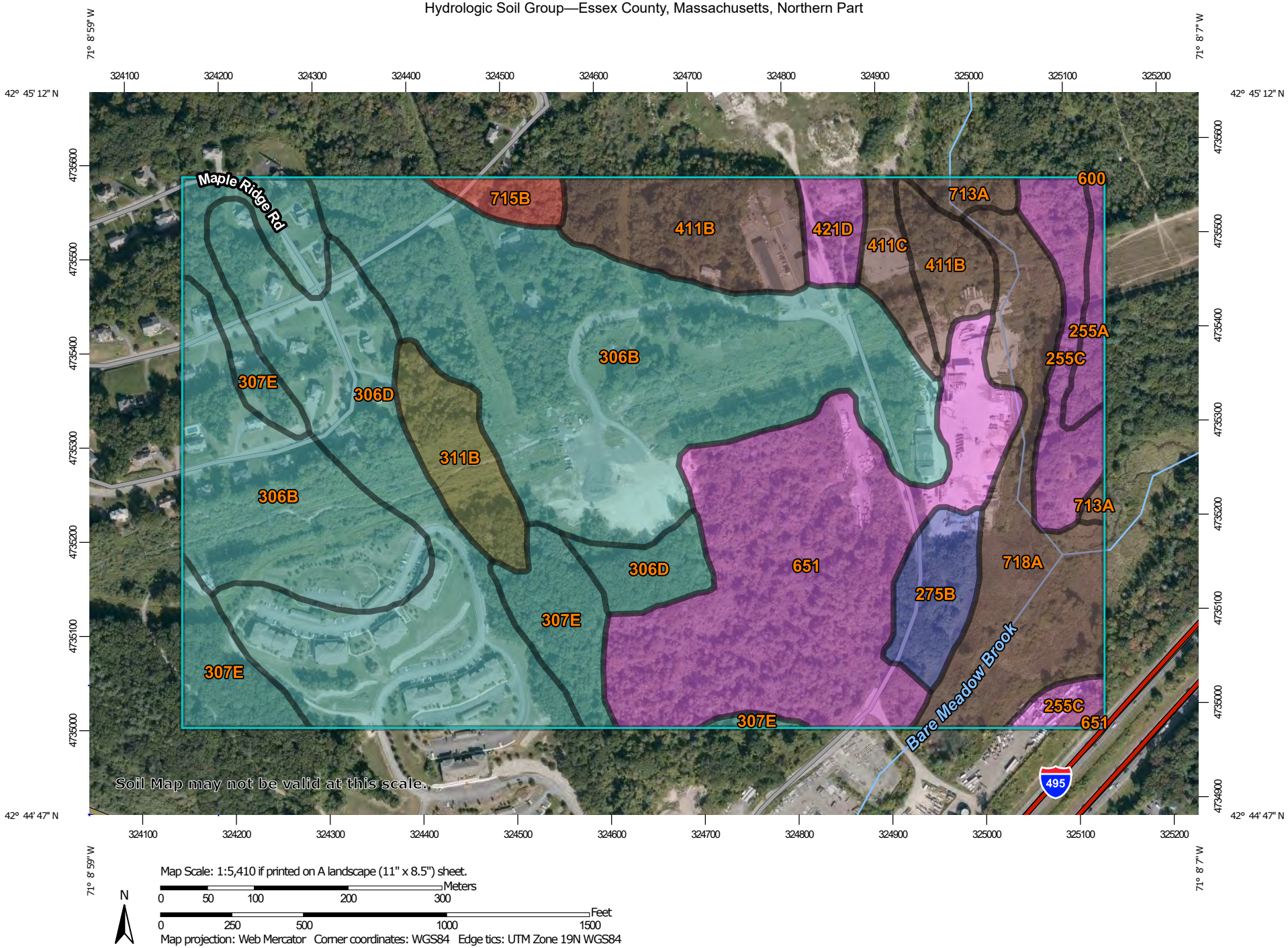
USGS MAP

TAX MAP PARCEL 1010-79-17
46 OLD FERRY ROAD
METHUEN, MA

SCALE: 1" = 2,000' OCTOBER 7, 2020

FILE: 2295MP00_USGS.dwg	PROJ. NO. 2295.00	SHEET NO. 1 OF 1


71° 8' 59" W
71° 8' 7" W
42° 45' 12" N
42° 44' 47" N
324100
324200
324300
324400
324500
324600
324700
324800
324900
325000
325100
325200
4735600
4735500
4735400
4735300
4735200
4735100
4735000
4734900
Maple Ridge Rd
Bare Meadow Brook
715B
411B
421D
411C
411B
713A
600
255A
255C
306B
307E
306D
311B
306B
713A
651
718A
306D
275B
307E
307E
255C
651
307E
495
Soil Map may not be valid at this scale.
Map Scale: 1:5,410 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 50 100 200 300
Feet
0 250 500 1000 1500
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Essex County, Massachusetts, Northern Part
Survey Area Data: Version 16, Jun 9, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 28, 2019—Sep 20, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
255A	Windsor loamy sand, 0 to 3 percent slopes	A	1.5	1.1%
255C	Windsor loamy sand, 8 to 15 percent slopes	A	5.2	3.7%
275B	Agawam fine sandy loam, 3 to 8 percent slopes	B	3.3	2.3%
306B	Paxton fine sandy loam, 0 to 8 percent slopes, very stony	C	43.3	30.4%
306D	Paxton fine sandy loam, 15 to 25 percent slopes, very stony	C	22.7	15.9%
307E	Paxton fine sandy loam, 25 to 35 percent slopes, extremely stony	C	11.4	8.0%
311B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	C/D	4.1	2.9%
411B	Sutton fine sandy loam, 0 to 8 percent slopes, very stony	B/D	9.3	6.5%
411C	Sutton fine sandy loam, 8 to 15 percent slopes, very stony	B/D	2.1	1.4%
421D	Canton fine sandy loam, 15 to 25 percent slopes, very stony	A	1.8	1.3%
600	Pits, gravel		0.0	0.0%
651	Udorthents, smoothed	A	23.7	16.6%
713A	Limerick and Rumney soils, 0 to 3 percent slopes	B/D	1.1	0.8%
715B	Ridgebury and Leicester fine sandy loams, 3 to 8 percent slopes, extremely stony	D	1.4	1.0%
718A	Saco variant silt loam, 0 to 3 percent slopes	B/D	11.8	8.3%
Totals for Area of Interest			**142.7**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

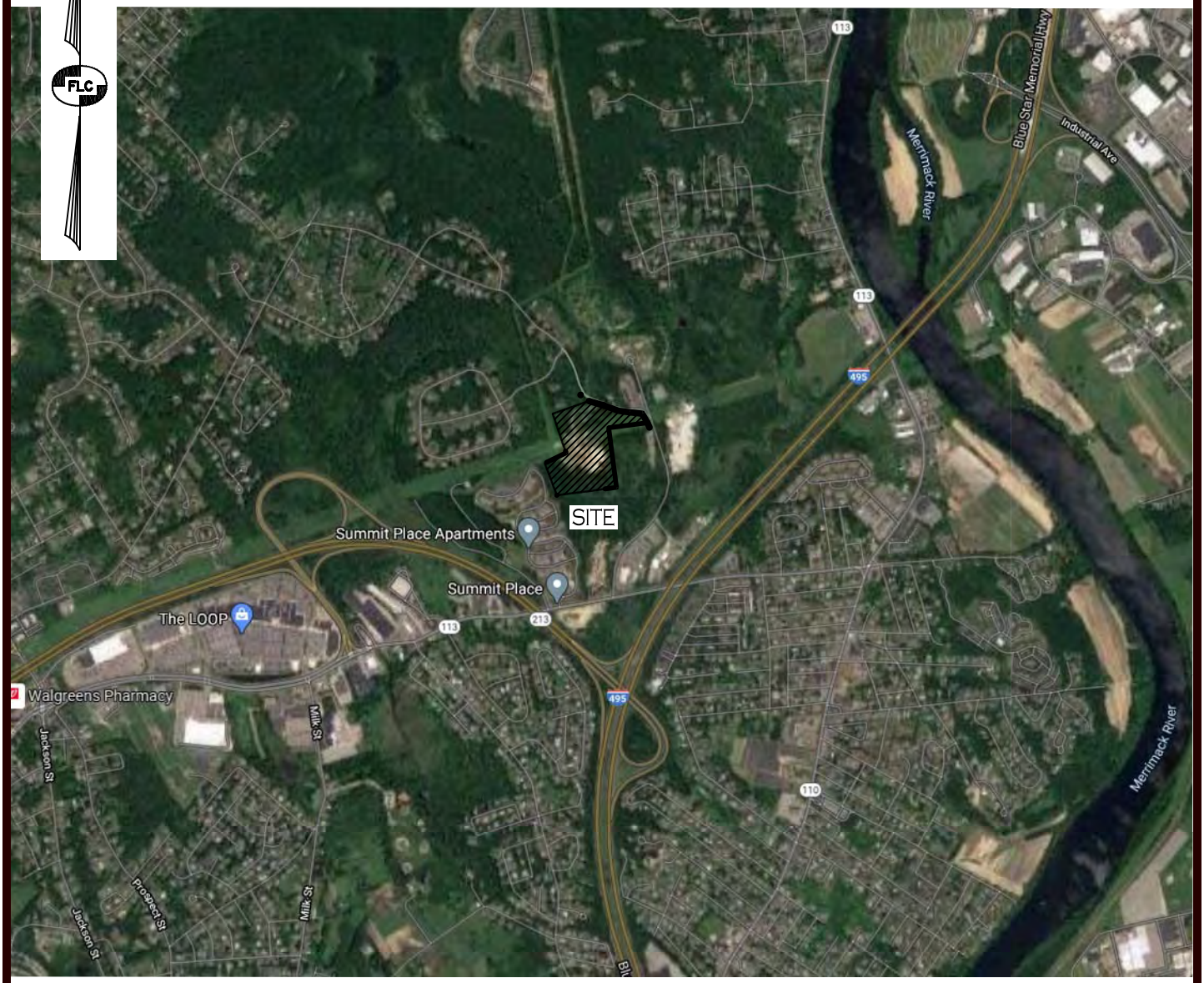
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



GRAPHIC SCALE

2,000' 1,000' 0 2,000'

IMPERIAL: 1" = 2,000'

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AERIAL MAP

TAX MAP PARCEL 1010-79-17
46 OLD FERRY ROAD
METHUEN, MA

SCALE: 1" = 2,000' OCTOBER 7, 2020

FILE: 2295MP00_USGS.dwg	PROJ. NO. 2295.00	SHEET NO. 1 OF 1

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	Massachusetts
Location	
Longitude	71.143 degrees West
Latitude	42.750 degrees North
Elevation	0 feet
Date/Time	Mon, 28 Sep 2020 14:08:15 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.27	0.41	0.51	0.68	0.84	1.07	**1yr**	0.73	1.01	1.24	1.58	2.02	2.59	2.80	**1yr**	2.29	2.70	3.14	3.81	4.45	**1yr**
2yr	0.33	0.51	0.64	0.84	1.05	1.33	**2yr**	0.91	1.22	1.54	1.95	2.46	3.11	3.44	**2yr**	2.75	3.31	3.83	4.54	5.18	**2yr**
5yr	0.39	0.61	0.76	1.02	1.31	1.67	**5yr**	1.13	1.52	1.95	2.47	3.13	3.96	4.41	**5yr**	3.50	4.24	4.87	5.77	6.53	**5yr**
10yr	0.44	0.69	0.87	1.19	1.55	2.00	**10yr**	1.33	1.81	2.34	2.97	3.76	4.75	5.32	**10yr**	4.21	5.12	5.85	6.93	7.79	**10yr**
25yr	0.52	0.83	1.05	1.45	1.93	2.51	**25yr**	1.66	2.26	2.95	3.77	4.79	6.06	6.82	**25yr**	5.36	6.56	7.44	8.83	9.84	**25yr**
50yr	0.58	0.94	1.20	1.69	2.28	3.00	**50yr**	1.97	2.69	3.55	4.55	5.77	7.28	8.24	**50yr**	6.44	7.93	8.93	10.60	11.75	**50yr**
100yr	0.67	1.08	1.40	1.98	2.70	3.58	**100yr**	2.33	3.19	4.24	5.45	6.93	8.75	9.96	**100yr**	7.75	9.58	10.73	12.75	14.04	**100yr**
200yr	0.76	1.24	1.61	2.31	3.19	4.27	**200yr**	2.75	3.79	5.08	6.55	8.34	10.53	12.04	**200yr**	9.32	11.57	12.89	15.33	16.78	**200yr**
500yr	0.91	1.50	1.96	2.85	4.00	5.39	**500yr**	3.45	4.77	6.44	8.34	10.64	13.45	15.47	**500yr**	11.90	14.88	16.44	19.58	21.24	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.24	0.37	0.45	0.61	0.74	0.88	**1yr**	0.64	0.86	1.09	1.34	1.63	2.40	2.58	**1yr**	2.12	2.48	2.90	3.47	4.07	**1yr**
2yr	0.32	0.49	0.61	0.82	1.01	1.21	**2yr**	0.87	1.18	1.38	1.82	2.33	3.01	3.34	**2yr**	2.67	3.21	3.73	4.42	5.05	**2yr**
5yr	0.37	0.57	0.71	0.97	1.23	1.45	**5yr**	1.06	1.41	1.64	2.12	2.71	3.70	4.09	**5yr**	3.27	3.93	4.55	5.38	6.11	**5yr**
10yr	0.41	0.63	0.78	1.09	1.41	1.66	**10yr**	1.22	1.62	1.86	2.39	3.04	4.29	4.74	**10yr**	3.79	4.56	5.29	6.25	7.03	**10yr**
25yr	0.47	0.72	0.89	1.28	1.68	1.96	**25yr**	1.45	1.92	2.19	2.78	3.53	5.20	5.76	**25yr**	4.61	5.54	6.47	7.61	8.43	**25yr**
50yr	0.52	0.80	0.99	1.43	1.92	2.25	**50yr**	1.66	2.20	2.47	3.13	3.97	6.02	6.69	**50yr**	5.33	6.43	7.54	8.86	9.66	**50yr**
100yr	0.59	0.89	1.12	1.61	2.21	2.56	**100yr**	1.91	2.50	2.80	3.52	4.45	6.75	7.74	**100yr**	5.97	7.45	8.79	10.32	11.07	**100yr**
200yr	0.66	0.99	1.26	1.82	2.54	2.92	**200yr**	2.19	2.85	3.16	3.95	5.01	7.76	9.00	**200yr**	6.87	8.65	10.25	12.02	12.66	**200yr**
500yr	0.77	1.15	1.48	2.15	3.06	3.48	**500yr**	2.64	3.40	3.71	4.61	5.86	9.30	10.99	**500yr**	8.23	10.57	12.58	14.72	15.13	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.30	0.46	0.56	0.76	0.93	1.09	**1yr**	0.80	1.07	1.26	1.67	2.13	2.79	3.02	**1yr**	2.47	2.90	3.37	4.06	4.78	**1yr**
2yr	0.34	0.53	0.65	0.88	1.09	1.29	**2yr**	0.94	1.27	1.49	1.95	2.49	3.23	3.57	**2yr**	2.86	3.43	3.96	4.69	5.38	**2yr**
5yr	0.42	0.65	0.81	1.11	1.42	1.67	**5yr**	1.22	1.64	1.93	2.49	3.16	4.23	4.74	**5yr**	3.74	4.56	5.22	6.19	6.97	**5yr**
10yr	0.51	0.79	0.98	1.36	1.76	2.05	**10yr**	1.52	2.00	2.35	3.01	3.80	5.22	5.89	**10yr**	4.62	5.66	6.44	7.64	8.55	**10yr**
25yr	0.66	1.00	1.24	1.77	2.33	2.68	**25yr**	2.01	2.62	3.07	3.88	4.84	6.92	7.86	**25yr**	6.12	7.56	8.50	10.11	11.22	**25yr**
50yr	0.79	1.20	1.49	2.14	2.88	3.28	**50yr**	2.49	3.21	3.75	4.70	5.82	8.56	9.80	**50yr**	7.58	9.42	10.49	12.50	13.79	**50yr**
100yr	0.95	1.44	1.81	2.61	3.58	4.02	**100yr**	3.09	3.93	4.61	5.70	7.01	10.97	12.20	**100yr**	9.71	11.73	12.94	15.47	16.97	**100yr**
200yr	1.15	1.73	2.19	3.17	4.43	4.94	**200yr**	3.82	4.83	5.66	6.91	8.43	13.66	15.19	**200yr**	12.09	14.61	15.96	19.13	20.90	**200yr**
500yr	1.48	2.21	2.84	4.12	5.86	6.48	**500yr**	5.06	6.33	7.43	8.92	10.78	18.28	20.33	**500yr**	16.18	19.55	21.06	25.34	27.57	**500yr**

Groundwater Recharge Volume (GRV) Calculation

0.23	ac	Area of HSG A soil that was replaced by impervious cover	0.40"
-	ac	Area of HSG B soil that was replaced by impervious cover	0.25"
5.38	ac	Area of HSG C soil that was replaced by impervious cover	0.10"
	ac	Area of HSG D soil or impervious cover that was replaced by impervious cover	0.0"
0.11	inches	Rd = weighted groundwater recharge depth	
0.632	ac-in	GRV = AI * Rd	
2,294	cf	GRV conversion (ac-in x 43,560 sf/ac x 1ft/12")	

Provide calculations below showing that the project meets the groundwater recharge requirements (Env-Wq 1507.04):

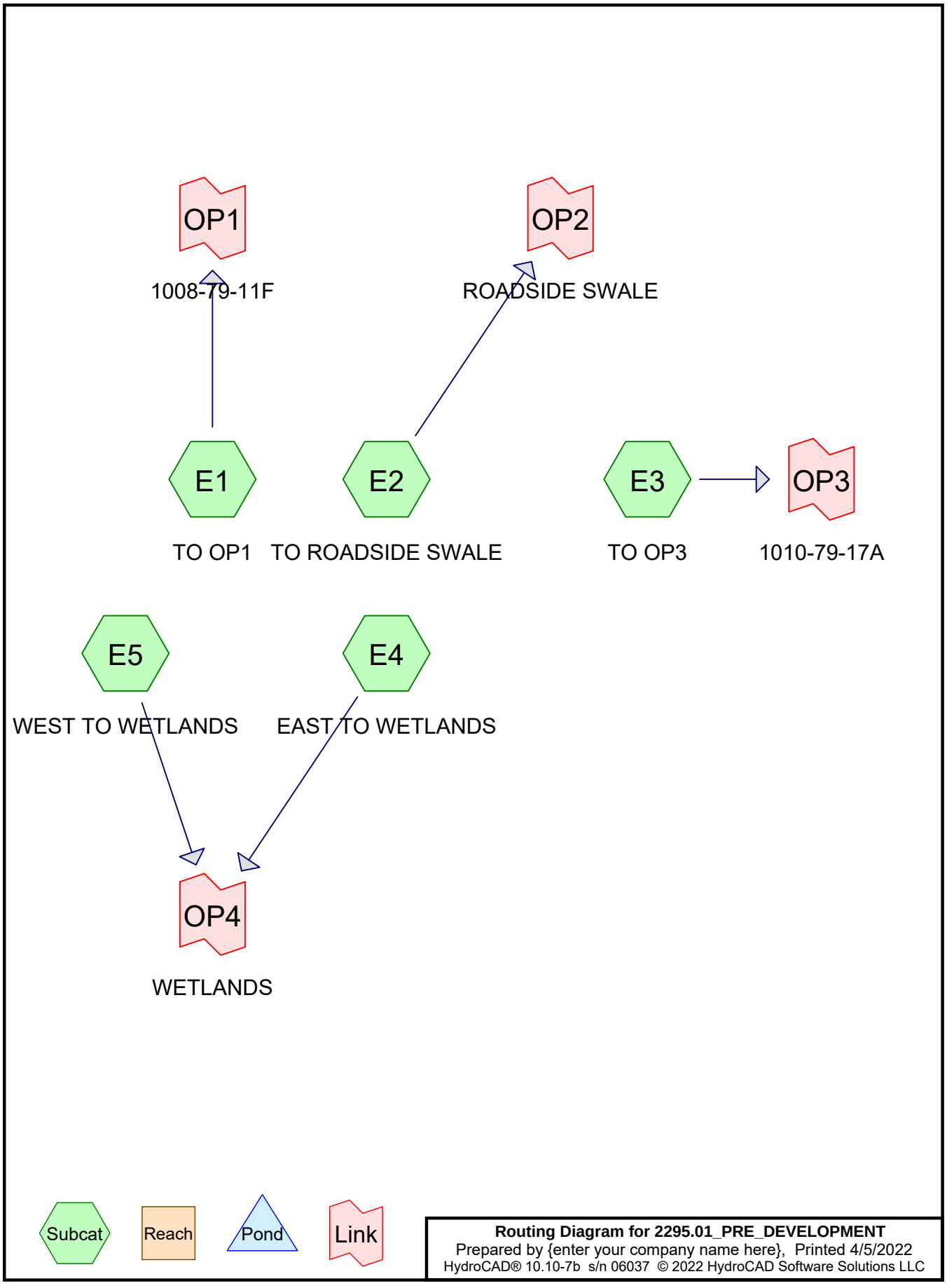
Stormtech Chamber System 1 (P14) has 39,431 cf of storage of storage below the lowest outlet.

Stormtech Chamber System 2 (P16) has 6,600± cf of storage of storage below the lowest outlet.

These underground infiltrations chamber systems provide the required volume for recharge.

Section 1.1

Existing Conditions
2, 10, & 100 Year Storm Full Summary



Routing Diagram for 2295.01_PRE_DEVELOPMENT
Prepared by {enter your company name here}, Printed 4/5/2022
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.129	39	>75% Grass cover, Good, HSG A (E3)
9.187	74	>75% Grass cover, Good, HSG C (E1, E2, E3, E4, E5)
2.056	96	Gravel surface, HSG C (E1, E2, E3, E4, E5)
0.010	98	Paved parking, HSG C (E2)
1.392	30	Woods, Good, HSG A (E3)
7.569	70	Woods, Good, HSG C (E1, E2, E3, E4, E5)
20.343	**72**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
1.521	HSG A	E3
0.000	HSG B	
18.822	HSG C	E1, E2, E3, E4, E5
0.000	HSG D	
0.000	Other	
20.343		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.129	0.000	9.187	0.000	0.000	9.316	>75% Grass cover, Good	E1, E2, E3, E4, E5
0.000	0.000	2.056	0.000	0.000	2.056	Gravel surface	E1, E2, E3, E4, E5
0.000	0.000	0.010	0.000	0.000	0.010	Paved parking	E2
1.392	0.000	7.569	0.000	0.000	8.962	Woods, Good	E1, E2, E3, E4, E5
1.521	**0.000**	**18.822**	**0.000**	**0.000**	**20.343**	**TOTAL AREA**	

Summary for Subcatchment E1: TO OP1

Runoff = 3.77 cfs @ 12.12 hrs, Volume= 0.272 af, Depth> 1.05"
Routed to Link OP1 : 1008-79-11F

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
33,163	96	Gravel surface, HSG C
35,268	74	>75% Grass cover, Good, HSG C
66,934	70	Woods, Good, HSG C
135,365	77	Weighted Average
135,365		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	100	0.0320	0.42		**Sheet Flow, A-B** Cultivated: Residue<=20% n= 0.060 P2= 3.11"
2.9	375	0.0960	2.17		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.8	235	0.1500	5.16	17.19	**Parabolic Channel,** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.080 Earth, long dense weeds
7.7	710	Total			

Summary for Subcatchment E2: TO ROADSIDE SWALE

Runoff = 9.11 cfs @ 12.10 hrs, Volume= 0.625 af, Depth> 1.05"
Routed to Link OP2 : ROADSIDE SWALE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
424	98	Paved parking, HSG C
45,461	96	Gravel surface, HSG C
229,356	74	>75% Grass cover, Good, HSG C
34,883	70	Woods, Good, HSG C
310,124	77	Weighted Average
309,700		99.86% Pervious Area
424		0.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.0270	0.39		**Sheet Flow, A-B** Cultivated: Residue<=20% n= 0.060 P2= 3.11"
0.9	265	0.0850	4.69		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.5	380	0.1250	12.56	41.85	**Parabolic Channel, C-D** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.030 Earth, grassed & winding
0.0	32	0.1200	28.95	142.09	**Pipe Channel,** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013 Cast iron, coated
0.5	330	0.1050	11.51	38.36	**Parabolic Channel,** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.030 Earth, grassed & winding
6.1	1,107	Total			

Summary for Subcatchment E3: TO OP3

Runoff = 0.04 cfs @ 13.71 hrs, Volume= 0.020 af, Depth> 0.09"
Routed to Link OP3 : 1010-79-17A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
5,121	96	Gravel surface, HSG C
5,616	39	>75% Grass cover, Good, HSG A
21,424	74	>75% Grass cover, Good, HSG C
60,647	30	Woods, Good, HSG A
27,820	70	Woods, Good, HSG C
120,628	50	Weighted Average
120,628		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	100	0.0200	0.15		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 3.11"
0.7	192	0.1000	4.74		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
0.2	240	0.3900	18.46	49.22	**Parabolic Channel, C-D** W=4.00' D=1.00' Area=2.7 sf Perim=4.6' n= 0.035 Earth, dense weeds
11.9	532	Total			

Summary for Subcatchment E4: EAST TO WETLANDS

Runoff = 4.06 cfs @ 12.12 hrs, Volume= 0.306 af, Depth> 0.79"
Routed to Link OP4 : WETLANDS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
2,500	96	Gravel surface, HSG C
81,551	74	>75% Grass cover, Good, HSG C
118,105	70	Woods, Good, HSG C
202,156	72	Weighted Average
202,156		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	100	0.0100	0.26		**Sheet Flow, A-B** Cultivated: Residue<=20% n= 0.060 P2= 3.11"
0.8	200	0.0750	4.41		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.5	425	0.1900	13.27	44.23	**Parabolic Channel, C-D** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.035 Earth, dense weeds
7.6	725	Total			

Summary for Subcatchment E5: WEST TO WETLANDS

Runoff = 2.39 cfs @ 12.12 hrs, Volume= 0.179 af, Depth> 0.79"
Routed to Link OP4 : WETLANDS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
3,306	96	Gravel surface, HSG C
32,579	74	>75% Grass cover, Good, HSG C
81,979	70	Woods, Good, HSG C
117,864	72	Weighted Average
117,864		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	100	0.0100	0.26		**Sheet Flow, A-B** Cultivated: Residue<=20% n= 0.060 P2= 3.11"
0.9	255	0.0850	4.69		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.1	60	0.2500	14.78	39.41	**Parabolic Channel, C-D** W=4.00' D=1.00' Area=2.7 sf Perim=4.6' n= 0.035 Earth, dense weeds
7.3	415	Total			

Summary for Link OP1: 1008-79-11F

Inflow Area = 3.108 ac, 0.00% Impervious, Inflow Depth > 1.05" for 2 Year Storm event
Inflow = 3.77 cfs @ 12.12 hrs, Volume= 0.272 af
Primary = 3.77 cfs @ 12.12 hrs, Volume= 0.272 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Link OP2: ROADSIDE SWALE

Inflow Area = 7.119 ac, 0.14% Impervious, Inflow Depth > 1.05" for 2 Year Storm event
Inflow = 9.11 cfs @ 12.10 hrs, Volume= 0.625 af
Primary = 9.11 cfs @ 12.10 hrs, Volume= 0.625 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Link OP3: 1010-79-17A

Inflow Area = 2.769 ac, 0.00% Impervious, Inflow Depth > 0.09" for 2 Year Storm event
Inflow = 0.04 cfs @ 13.71 hrs, Volume= 0.020 af
Primary = 0.04 cfs @ 13.71 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Link OP4: WETLANDS

Inflow Area = 7.347 ac, 0.00% Impervious, Inflow Depth > 0.79" for 2 Year Storm event
Inflow = 6.45 cfs @ 12.12 hrs, Volume= 0.485 af
Primary = 6.45 cfs @ 12.12 hrs, Volume= 0.485 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment E1: TO OP1

Runoff = 8.18 cfs @ 12.11 hrs, Volume= 0.581 af, Depth> 2.24"
Routed to Link OP1 : 1008-79-11F

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
33,163	96	Gravel surface, HSG C
35,268	74	>75% Grass cover, Good, HSG C
66,934	70	Woods, Good, HSG C
135,365	77	Weighted Average
135,365		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	100	0.0320	0.42		**Sheet Flow, A-B** Cultivated: Residue<=20% n= 0.060 P2= 3.11"
2.9	375	0.0960	2.17		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.8	235	0.1500	5.16	17.19	**Parabolic Channel,** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.080 Earth, long dense weeds
7.7	710	Total			

Summary for Subcatchment E2: TO ROADSIDE SWALE

Runoff = 19.70 cfs @ 12.10 hrs, Volume= 1.332 af, Depth> 2.24"
Routed to Link OP2 : ROADSIDE SWALE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
424	98	Paved parking, HSG C
45,461	96	Gravel surface, HSG C
229,356	74	>75% Grass cover, Good, HSG C
34,883	70	Woods, Good, HSG C
310,124	77	Weighted Average
309,700		99.86% Pervious Area
424		0.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.0270	0.39		**Sheet Flow, A-B** Cultivated: Residue<=20% n= 0.060 P2= 3.11"
0.9	265	0.0850	4.69		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.5	380	0.1250	12.56	41.85	**Parabolic Channel, C-D** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.030 Earth, grassed & winding
0.0	32	0.1200	28.95	142.09	**Pipe Channel,** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013 Cast iron, coated
0.5	330	0.1050	11.51	38.36	**Parabolic Channel,** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.030 Earth, grassed & winding
6.1	1,107	Total			

Summary for Subcatchment E3: TO OP3

Runoff = 0.90 cfs @ 12.27 hrs, Volume= 0.118 af, Depth> 0.51"
Routed to Link OP3 : 1010-79-17A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
5,121	96	Gravel surface, HSG C
5,616	39	>75% Grass cover, Good, HSG A
21,424	74	>75% Grass cover, Good, HSG C
60,647	30	Woods, Good, HSG A
27,820	70	Woods, Good, HSG C
120,628	50	Weighted Average
120,628		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	100	0.0200	0.15		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 3.11"
0.7	192	0.1000	4.74		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
0.2	240	0.3900	18.46	49.22	**Parabolic Channel, C-D** W=4.00' D=1.00' Area=2.7 sf Perim=4.6' n= 0.035 Earth, dense weeds
11.9	532	Total			

Summary for Subcatchment E4: EAST TO WETLANDS

Runoff = 10.05 cfs @ 12.11 hrs, Volume= 0.715 af, Depth> 1.85"
Routed to Link OP4 : WETLANDS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
2,500	96	Gravel surface, HSG C
81,551	74	>75% Grass cover, Good, HSG C
118,105	70	Woods, Good, HSG C
202,156	72	Weighted Average
202,156		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	100	0.0100	0.26		**Sheet Flow, A-B** Cultivated: Residue<=20% n= 0.060 P2= 3.11"
0.8	200	0.0750	4.41		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.5	425	0.1900	13.27	44.23	**Parabolic Channel, C-D** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.035 Earth, dense weeds
7.6	725	Total			

Summary for Subcatchment E5: WEST TO WETLANDS

Runoff = 5.92 cfs @ 12.11 hrs, Volume= 0.417 af, Depth> 1.85"
Routed to Link OP4 : WETLANDS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
3,306	96	Gravel surface, HSG C
32,579	74	>75% Grass cover, Good, HSG C
81,979	70	Woods, Good, HSG C
117,864	72	Weighted Average
117,864		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	100	0.0100	0.26		**Sheet Flow, A-B** Cultivated: Residue<=20% n= 0.060 P2= 3.11"
0.9	255	0.0850	4.69		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.1	60	0.2500	14.78	39.41	**Parabolic Channel, C-D** W=4.00' D=1.00' Area=2.7 sf Perim=4.6' n= 0.035 Earth, dense weeds
7.3	415	Total			

Summary for Link OP1: 1008-79-11F

Inflow Area = 3.108 ac, 0.00% Impervious, Inflow Depth > 2.24" for 10 Year Storm event
Inflow = 8.18 cfs @ 12.11 hrs, Volume= 0.581 af
Primary = 8.18 cfs @ 12.11 hrs, Volume= 0.581 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Link OP2: ROADSIDE SWALE

Inflow Area = 7.119 ac, 0.14% Impervious, Inflow Depth > 2.24" for 10 Year Storm event
Inflow = 19.70 cfs @ 12.10 hrs, Volume= 1.332 af
Primary = 19.70 cfs @ 12.10 hrs, Volume= 1.332 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Link OP3: 1010-79-17A

Inflow Area = 2.769 ac, 0.00% Impervious, Inflow Depth > 0.51" for 10 Year Storm event
Inflow = 0.90 cfs @ 12.27 hrs, Volume= 0.118 af
Primary = 0.90 cfs @ 12.27 hrs, Volume= 0.118 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Link OP4: WETLANDS

Inflow Area = 7.347 ac, 0.00% Impervious, Inflow Depth > 1.85" for 10 Year Storm event
Inflow = 15.97 cfs @ 12.11 hrs, Volume= 1.133 af
Primary = 15.97 cfs @ 12.11 hrs, Volume= 1.133 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment E1: TO OP1

Runoff = 20.02 cfs @ 12.11 hrs, Volume= 1.452 af, Depth> 5.61"
Routed to Link OP1 : 1008-79-11F

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
33,163	96	Gravel surface, HSG C
35,268	74	>75% Grass cover, Good, HSG C
66,934	70	Woods, Good, HSG C
135,365	77	Weighted Average
135,365		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	100	0.0320	0.42		**Sheet Flow, A-B** Cultivated: Residue<=20% n= 0.060 P2= 3.11"
2.9	375	0.0960	2.17		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.8	235	0.1500	5.16	17.19	**Parabolic Channel,** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.080 Earth, long dense weeds
7.7	710	Total			

Summary for Subcatchment E2: TO ROADSIDE SWALE

Runoff = 48.06 cfs @ 12.09 hrs, Volume= 3.329 af, Depth> 5.61"
Routed to Link OP2 : ROADSIDE SWALE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
424	98	Paved parking, HSG C
45,461	96	Gravel surface, HSG C
229,356	74	>75% Grass cover, Good, HSG C
34,883	70	Woods, Good, HSG C
310,124	77	Weighted Average
309,700		99.86% Pervious Area
424		0.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.0270	0.39		**Sheet Flow, A-B** Cultivated: Residue<=20% n= 0.060 P2= 3.11"
0.9	265	0.0850	4.69		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.5	380	0.1250	12.56	41.85	**Parabolic Channel, C-D** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.030 Earth, grassed & winding
0.0	32	0.1200	28.95	142.09	**Pipe Channel,** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013 Cast iron, coated
0.5	330	0.1050	11.51	38.36	**Parabolic Channel,** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.030 Earth, grassed & winding
6.1	1,107	Total			

Summary for Subcatchment E3: TO OP3

Runoff = 6.69 cfs @ 12.18 hrs, Volume= 0.570 af, Depth> 2.47"
Routed to Link OP3 : 1010-79-17A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
5,121	96	Gravel surface, HSG C
5,616	39	>75% Grass cover, Good, HSG A
21,424	74	>75% Grass cover, Good, HSG C
60,647	30	Woods, Good, HSG A
27,820	70	Woods, Good, HSG C
120,628	50	Weighted Average
120,628		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	100	0.0200	0.15		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 3.11"
0.7	192	0.1000	4.74		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
0.2	240	0.3900	18.46	49.22	**Parabolic Channel, C-D** W=4.00' D=1.00' Area=2.7 sf Perim=4.6' n= 0.035 Earth, dense weeds
11.9	532	Total			

Summary for Subcatchment E4: EAST TO WETLANDS

Runoff = 27.19 cfs @ 12.11 hrs, Volume= 1.939 af, Depth> 5.01"
Routed to Link OP4 : WETLANDS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
2,500	96	Gravel surface, HSG C
81,551	74	>75% Grass cover, Good, HSG C
118,105	70	Woods, Good, HSG C
202,156	72	Weighted Average
202,156		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	100	0.0100	0.26		**Sheet Flow, A-B** Cultivated: Residue<=20% n= 0.060 P2= 3.11"
0.8	200	0.0750	4.41		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.5	425	0.1900	13.27	44.23	**Parabolic Channel, C-D** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.035 Earth, dense weeds
7.6	725	Total			

Summary for Subcatchment E5: WEST TO WETLANDS

Runoff = 16.02 cfs @ 12.11 hrs, Volume= 1.131 af, Depth> 5.01"
Routed to Link OP4 : WETLANDS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
3,306	96	Gravel surface, HSG C
32,579	74	>75% Grass cover, Good, HSG C
81,979	70	Woods, Good, HSG C
117,864	72	Weighted Average
117,864		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	100	0.0100	0.26		**Sheet Flow, A-B** Cultivated: Residue<=20% n= 0.060 P2= 3.11"
0.9	255	0.0850	4.69		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.1	60	0.2500	14.78	39.41	**Parabolic Channel, C-D** W=4.00' D=1.00' Area=2.7 sf Perim=4.6' n= 0.035 Earth, dense weeds
7.3	415	Total			

Summary for Link OP1: 1008-79-11F

Inflow Area = 3.108 ac, 0.00% Impervious, Inflow Depth > 5.61" for 100 Year Storm event
Inflow = 20.02 cfs @ 12.11 hrs, Volume= 1.452 af
Primary = 20.02 cfs @ 12.11 hrs, Volume= 1.452 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Link OP2: ROADSIDE SWALE

Inflow Area = 7.119 ac, 0.14% Impervious, Inflow Depth > 5.61" for 100 Year Storm event
Inflow = 48.06 cfs @ 12.09 hrs, Volume= 3.329 af
Primary = 48.06 cfs @ 12.09 hrs, Volume= 3.329 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Link OP3: 1010-79-17A

Inflow Area = 2.769 ac, 0.00% Impervious, Inflow Depth > 2.47" for 100 Year Storm event
Inflow = 6.69 cfs @ 12.18 hrs, Volume= 0.570 af
Primary = 6.69 cfs @ 12.18 hrs, Volume= 0.570 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

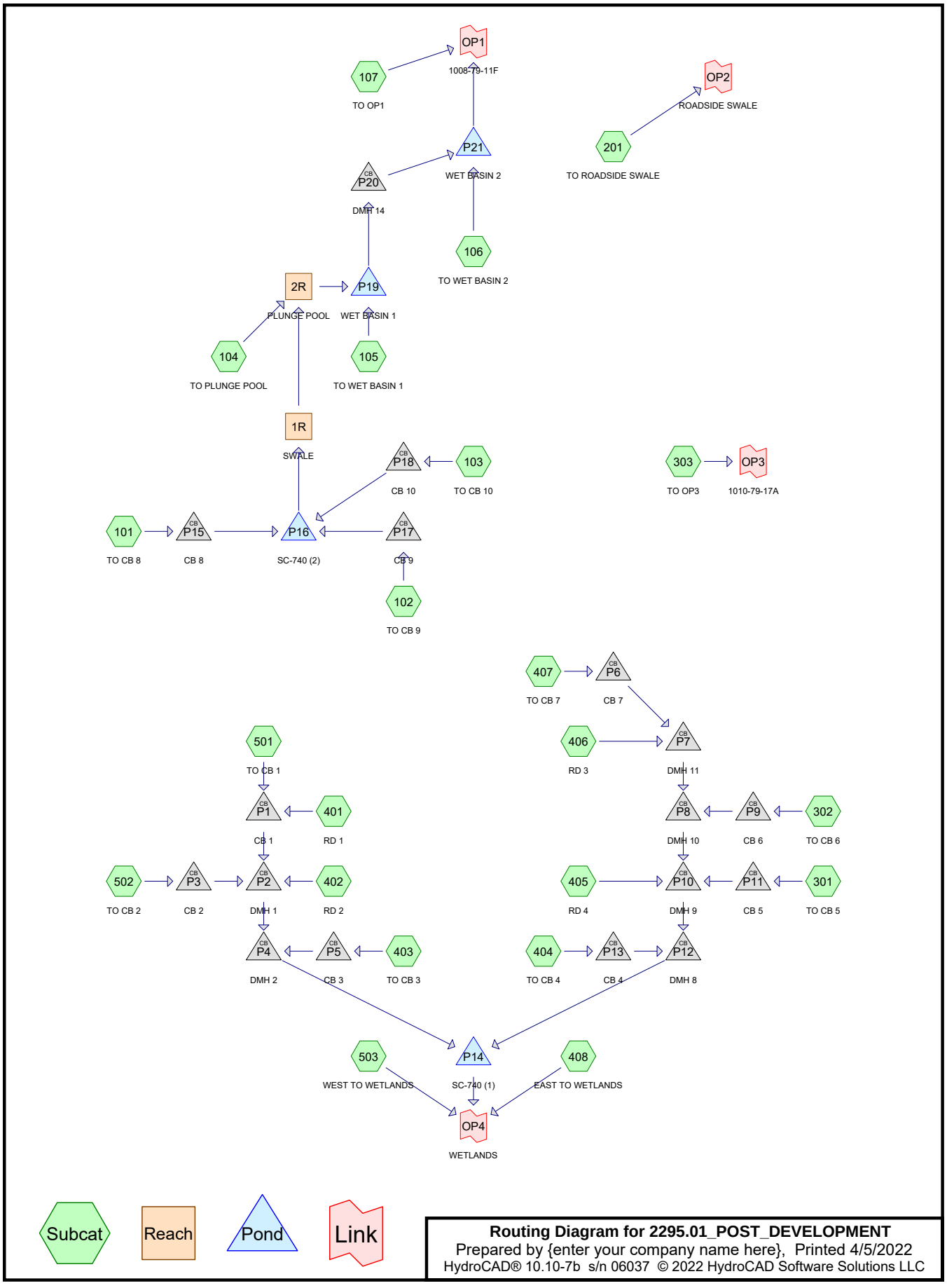
Summary for Link OP4: WETLANDS

Inflow Area = 7.347 ac, 0.00% Impervious, Inflow Depth > 5.01" for 100 Year Storm event
Inflow = 43.20 cfs @ 12.11 hrs, Volume= 3.070 af
Primary = 43.20 cfs @ 12.11 hrs, Volume= 3.070 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Section 2.1

Proposed Conditions
2, 10, & 100 Year Storm Full Summary



Routing Diagram for 2295.01_POST_DEVELOPMENT
Prepared by {enter your company name here}, Printed 4/5/2022
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.742	39	>75% Grass cover, Good, HSG A (303)
6.980	74	>75% Grass cover, Good, HSG C (103, 104, 105, 106, 107, 201, 303, 407, 408, 503)
0.234	98	Paved parking, HSG A (301, 302)
3.974	98	Paved parking, HSG C (101, 102, 103, 105, 106, 107, 201, 302, 403, 404, 407, 501, 502)
3.466	98	Roofs, HSG C (401, 402, 405, 406)
0.545	30	Woods, Good, HSG A (303)
4.402	70	Woods, Good, HSG C (106, 107, 201, 303, 408, 503)
20.343	**80**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
1.521	HSG A	301, 302, 303
0.000	HSG B	
18.822	HSG C	101, 102, 103, 104, 105, 106, 107, 201, 302, 303, 401, 402, 403, 404, 405, 406, 407, 408, 501, 502, 503
0.000	HSG D	
0.000	Other	
20.343		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.742	0.000	6.980	0.000	0.000	7.722	>75% Grass cover, Good	103, 104, 105, 106, 107, 201, 303, 407, 408, 503
0.234	0.000	3.974	0.000	0.000	4.208	Paved parking	101, 102, 103, 105, 106, 107, 201, 301, 302, 403, 404, 407, 501, 502
0.000	0.000	3.466	0.000	0.000	3.466	Roofs	401, 402, 405, 406
0.545	0.000	4.402	0.000	0.000	4.947	Woods, Good	106, 107, 201, 303, 408, 503
1.521	**0.000**	**18.822**	**0.000**	**0.000**	**20.343**	**TOTAL AREA**	

Summary for Subcatchment 101: TO CB 8

Runoff = 0.99 cfs @ 12.09 hrs, Volume= 0.077 af, Depth> 2.74"
Routed to Pond P15 : CB 8

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
14,656	98	Paved parking, HSG C
14,656		100.00% Impervious Area

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

Summary for Subcatchment 102: TO CB 9

Runoff = 1.04 cfs @ 12.09 hrs, Volume= 0.081 af, Depth> 2.74"
Routed to Pond P17 : CB 9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
15,445	98	Paved parking, HSG C
15,445		100.00% Impervious Area

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

Summary for Subcatchment 103: TO CB 10

Runoff = 0.98 cfs @ 12.09 hrs, Volume= 0.068 af, Depth> 1.96"
Routed to Pond P18 : CB 10

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
12,010	98	Paved parking, HSG C
6,006	74	>75% Grass cover, Good, HSG C
18,016	90	Weighted Average
6,006		33.34% Pervious Area
12,010		66.66% Impervious Area

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

Summary for Subcatchment 104: TO PLUNGE POOL

Runoff = 0.78 cfs @ 12.10 hrs, Volume= 0.055 af, Depth> 0.89"
Routed to Reach 2R : PLUNGE POOL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
32,083	74	>75% Grass cover, Good, HSG C
32,083		100.00% Pervious Area

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

Summary for Subcatchment 105: TO WET BASIN 1

Runoff = 1.39 cfs @ 12.09 hrs, Volume= 0.094 af, Depth> 1.49"
Routed to Pond P19 : WET BASIN 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
13,175	98	Paved parking, HSG C
19,605	74	>75% Grass cover, Good, HSG C
32,780	84	Weighted Average
19,605		59.81% Pervious Area
13,175		40.19% Impervious Area

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

Summary for Subcatchment 106: TO WET BASIN 2

Runoff = 2.02 cfs @ 12.10 hrs, Volume= 0.139 af, Depth> 1.11"
Routed to Pond P21 : WET BASIN 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
15,660	98	Paved parking, HSG C
14,068	74	>75% Grass cover, Good, HSG C
35,523	70	Woods, Good, HSG C
65,251	78	Weighted Average
49,591		76.00% Pervious Area
15,660		24.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	75	0.1500	0.24		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.11"
1.1	160	0.1200	2.42		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.0	32	0.1100	27.71	136.04	**Pipe Channel, C-D** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013 Corrugated PE, smooth interior
0.1	85	0.2500	24.21	80.71	**Parabolic Channel, D-E** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.022 Earth, clean & straight
6.3	352	Total			

Summary for Subcatchment 107: TO OP1

Runoff = 0.96 cfs @ 12.17 hrs, Volume= 0.080 af, Depth> 0.79"
Routed to Link OP1 : 1008-79-11F

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
600	98	Paved parking, HSG C
25,268	74	>75% Grass cover, Good, HSG C
26,940	70	Woods, Good, HSG C
52,808	72	Weighted Average
52,208		98.86% Pervious Area
600		1.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	70	0.0320	0.13		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.11"
0.8	100	0.0960	2.17		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.0	300	0.1500	5.16	17.19	**Parabolic Channel, C-D** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.080 Earth, long dense weeds
10.8	470	Total			

Summary for Subcatchment 201: TO ROADSIDE SWALE

Runoff = 2.96 cfs @ 12.20 hrs, Volume= 0.259 af, Depth> 0.84"
Routed to Link OP2 : ROADSIDE SWALE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
424	98	Paved parking, HSG C
134,797	74	>75% Grass cover, Good, HSG C
26,290	70	Woods, Good, HSG C
161,511	73	Weighted Average
161,087		99.74% Pervious Area
424		0.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	90	0.0270	0.13		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.11"
0.4	100	0.3000	3.83		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	380	0.1250	12.56	41.85	**Parabolic Channel, C-D** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.030 Earth, grassed & winding
12.7	570	Total			

Summary for Subcatchment 301: TO CB 5

Runoff = 0.61 cfs @ 12.09 hrs, Volume= 0.047 af, Depth> 2.74"
Routed to Pond P11 : CB 5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
8,952	98	Paved parking, HSG A
8,952		100.00% Impervious Area

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

Summary for Subcatchment 302: TO CB 6

Runoff = 0.20 cfs @ 12.09 hrs, Volume= 0.015 af, Depth> 2.74"
Routed to Pond P9 : CB 6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
1,250	98	Paved parking, HSG A
1,655	98	Paved parking, HSG C
2,905	98	Weighted Average
2,905		100.00% Impervious Area

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

Summary for Subcatchment 303: TO OP3

Runoff = 0.02 cfs @ 14.72 hrs, Volume= 0.009 af, Depth> 0.06"
Routed to Link OP3 : 1010-79-17A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
32,328	39	>75% Grass cover, Good, HSG A
18,412	74	>75% Grass cover, Good, HSG C
23,735	30	Woods, Good, HSG A
10,524	70	Woods, Good, HSG C
84,999	48	Weighted Average
84,999		100.00% Pervious Area

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

Summary for Subcatchment 401: RD 1

Runoff = 1.84 cfs @ 12.09 hrs, Volume= 0.142 af, Depth> 2.74"
Routed to Pond P1 : CB 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
27,136	98	Roofs, HSG C
27,136		100.00% Impervious Area

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

Summary for Subcatchment 402: RD 2

Runoff = 2.79 cfs @ 12.09 hrs, Volume= 0.217 af, Depth> 2.74"
Routed to Pond P2 : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
41,280	98	Roofs, HSG C
41,280		100.00% Impervious Area

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

Summary for Subcatchment 403: TO CB 3

Runoff = 2.33 cfs @ 12.09 hrs, Volume= 0.180 af, Depth> 2.74"
Routed to Pond P5 : CB 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
34,409	98	Paved parking, HSG C
34,409		100.00% Impervious Area

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

Summary for Subcatchment 404: TO CB 4

Runoff = 2.41 cfs @ 12.09 hrs, Volume= 0.187 af, Depth> 2.74"
Routed to Pond P13 : CB 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
35,576	98	Paved parking, HSG C
35,576		100.00% Impervious Area

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

Summary for Subcatchment 405: RD 4

Runoff = 2.79 cfs @ 12.09 hrs, Volume= 0.217 af, Depth> 2.74"
Routed to Pond P10 : DMH 9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
41,280	98	Roofs, HSG C
41,280		100.00% Impervious Area

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

Summary for Subcatchment 406: RD 3

Runoff = 2.79 cfs @ 12.09 hrs, Volume= 0.217 af, Depth> 2.74"
Routed to Pond P7 : DMH 11

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
41,280	98	Roofs, HSG C
41,280		100.00% Impervious Area

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

Summary for Subcatchment 407: TO CB 7

Runoff = 1.24 cfs @ 12.09 hrs, Volume= 0.087 af, Depth> 2.14"
Routed to Pond P6 : CB 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
15,597	98	Paved parking, HSG C
5,745	74	>75% Grass cover, Good, HSG C
21,342	92	Weighted Average
5,745		26.92% Pervious Area
15,597		73.08% Impervious Area

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

Summary for Subcatchment 408: EAST TO WETLANDS

Runoff = 1.33 cfs @ 12.13 hrs, Volume= 0.103 af, Depth> 0.79"
Routed to Link OP4 : WETLANDS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
27,878	74	>75% Grass cover, Good, HSG C
40,375	70	Woods, Good, HSG C
68,253	72	Weighted Average
68,253		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0200	0.10		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.11"
0.9	100	0.0750	1.92		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.1	95	0.1900	13.27	44.23	**Parabolic Channel, C-D** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.035 Earth, dense weeds
8.0	235	Total			

Summary for Subcatchment 501: TO CB 1

Runoff = 0.42 cfs @ 12.09 hrs, Volume= 0.033 af, Depth> 2.74"
Routed to Pond P1 : CB 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
6,277	98	Paved parking, HSG C
6,277		100.00% Impervious Area

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

Summary for Subcatchment 502: TO CB 2

Runoff = 0.51 cfs @ 12.09 hrs, Volume= 0.040 af, Depth> 2.74"
Routed to Pond P3 : CB 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
7,604	98	Paved parking, HSG C
7,604		100.00% Impervious Area

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

Summary for Subcatchment 503: WEST TO WETLANDS

Runoff = 1.30 cfs @ 12.14 hrs, Volume= 0.103 af, Depth> 0.74"
Routed to Link OP4 : WETLANDS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Storm Rainfall=3.11"

Area (sf)	CN	Description
20,196	74	>75% Grass cover, Good, HSG C
52,094	70	Woods, Good, HSG C
72,290	71	Weighted Average
72,290		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0200	0.10		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.11"
1.3	160	0.0850	2.04		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
8.3	200	Total			

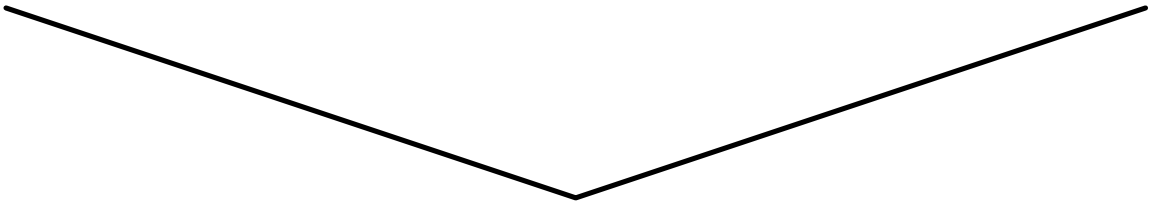
Summary for Reach 1R: SWALE

Inflow Area = 1.105 ac, 87.52% Impervious, Inflow Depth = 0.00" for 2 Year Storm event
Inflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 2R : PLUNGE POOL

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 1.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.50' Flow Area= 6.8 sf, Capacity= 79.45 cfs

0.00' x 1.50' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 9.00'
Length= 180.0' Slope= 0.0889 '/'
Inlet Invert= 230.00', Outlet Invert= 214.00'



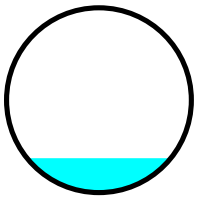
Summary for Reach 2R: PLUNGE POOL

Inflow Area = 1.841 ac, 52.51% Impervious, Inflow Depth > 0.36" for 2 Year Storm event
Inflow = 0.78 cfs @ 12.10 hrs, Volume= 0.055 af
Outflow = 0.79 cfs @ 12.10 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.2 min
Routed to Pond P19 : WET BASIN 1

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.49 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.50 fps, Avg. Travel Time= 0.7 min

Peak Storage= 13 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.28' , Surface Width= 1.16'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 10.50 cfs

18.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 60.0' Slope= 0.0100 '/'
Inlet Invert= 210.00', Outlet Invert= 209.40'



Summary for Pond P1: CB 1

Inflow Area = 0.767 ac,100.00% Impervious, Inflow Depth > 2.74" for 2 Year Storm event
Inflow = 2.26 cfs @ 12.09 hrs, Volume= 0.175 af
Outflow = 2.26 cfs @ 12.09 hrs, Volume= 0.175 af, Atten= 0%, Lag= 0.0 min
Primary = 2.26 cfs @ 12.09 hrs, Volume= 0.175 af
Routed to Pond P2 : DMH 1

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 243.55' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	240.20'	**12.0" Round Culvert** L= 210.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 240.20' / 238.30' S= 0.0090 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=242.35' TW=242.55' (Dynamic Tailwater)
↑—**1=Culvert** (Controls 0.00 cfs)

Summary for Pond P10: DMH 9

Inflow Area = 2.657 ac, 95.04% Impervious, Inflow Depth > 2.63" for 2 Year Storm event
Inflow = 7.63 cfs @ 12.09 hrs, Volume= 0.582 af
Outflow = 7.63 cfs @ 12.09 hrs, Volume= 0.582 af, Atten= 0%, Lag= 0.0 min
Primary = 7.63 cfs @ 12.09 hrs, Volume= 0.582 af
Routed to Pond P12 : DMH 8

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 247.90' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	237.55'	**12.0" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 237.55' / 236.15' S= 0.0140 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=6.91 cfs @ 12.09 hrs HW=247.12' TW=241.07' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 6.91 cfs @ 8.79 fps)

Summary for Pond P11: CB 5

Inflow Area = 0.206 ac,100.00% Impervious, Inflow Depth > 2.74" for 2 Year Storm event
Inflow = 0.61 cfs @ 12.09 hrs, Volume= 0.047 af
Outflow = 0.61 cfs @ 12.09 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min
Primary = 0.61 cfs @ 12.09 hrs, Volume= 0.047 af
Routed to Pond P10 : DMH 9

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 247.93' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	237.55'	**12.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 237.55' / 237.45' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=243.86' TW=247.09' (Dynamic Tailwater)
↑—**1=Culvert** (Controls 0.00 cfs)

Summary for Pond P12: DMH 8

Inflow Area = 3.474 ac, 96.20% Impervious, Inflow Depth > 2.66" for 2 Year Storm event
Inflow = 10.04 cfs @ 12.09 hrs, Volume= 0.769 af
Outflow = 10.04 cfs @ 12.09 hrs, Volume= 0.769 af, Atten= 0%, Lag= 0.0 min
Primary = 10.04 cfs @ 12.09 hrs, Volume= 0.769 af
Routed to Pond P14 : SC-740 (1)

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 241.29' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	236.05'	**15.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 236.05' / 236.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=9.77 cfs @ 12.09 hrs HW=241.07' TW=236.36' (Dynamic Tailwater)
1=Culvert (Inlet Controls 9.77 cfs @ 7.96 fps)

Summary for Pond P13: CB 4

Inflow Area = 0.817 ac,100.00% Impervious, Inflow Depth > 2.74" for 2 Year Storm event
Inflow = 2.41 cfs @ 12.09 hrs, Volume= 0.187 af
Outflow = 2.41 cfs @ 12.09 hrs, Volume= 0.187 af, Atten= 0%, Lag= 0.0 min
Primary = 2.41 cfs @ 12.09 hrs, Volume= 0.187 af
Routed to Pond P12 : DMH 8

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 241.84' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	236.70'	**12.0" Round Culvert** L= 110.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 236.70' / 236.15' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=240.83' TW=241.06' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Summary for Pond P14: SC-740 (1)

Inflow Area = 6.153 ac, 97.86% Impervious, Inflow Depth > 2.69" for 2 Year Storm event
Inflow = 17.93 cfs @ 12.09 hrs, Volume= 1.381 af
Outflow = 0.53 cfs @ 15.94 hrs, Volume= 0.590 af, Atten= 97%, Lag= 230.9 min
Discarded = 0.53 cfs @ 15.94 hrs, Volume= 0.590 af
Primary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af
Routed to Link OP4 : WETLANDS

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 237.74' @ 15.94 hrs Surf.Area= 19,930 sf Storage= 37,142 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 46.4 min (778.1 - 731.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	235.00'	17,471 cf	**39.50'W x 502.02'L x 3.50'H Field A** 69,404 cf Overall - 25,726 cf Embedded = 43,677 cf x 40.0% Voids
#2A	235.50'	25,726 cf	**ADS_StormTech SC-740 +Cap** x 560 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 560 Chambers in 8 Rows
#3	236.00'	39,162 cf	**Custom Stage Data (Conic)**Listed below (Recalc)
		82,360 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
236.00	100	0	0	100
238.70	100	270	270	196
240.00	12,000	5,718	5,988	12,099
240.80	22,000	13,399	19,388	22,106
241.50	35,000	19,775	39,162	35,112

Device	Routing	Invert	Outlet Devices
#1	Discarded	235.00'	**1.000 in/hr Exfiltration over Wetted area**
#2	Primary	240.60'	**6.0' long x 1.0' breadth Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#3	Primary	238.00'	**12.0" Round Culvert** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.00' / 237.60' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.53 cfs @ 15.94 hrs HW=237.74' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.53 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=235.00' TW=0.00' (Dynamic Tailwater)
├**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**3=Culvert** (Controls 0.00 cfs)

Summary for Pond P15: CB 8

Inflow Area = 0.336 ac,100.00% Impervious, Inflow Depth > 2.74" for 2 Year Storm event
Inflow = 0.99 cfs @ 12.09 hrs, Volume= 0.077 af
Outflow = 0.99 cfs @ 12.09 hrs, Volume= 0.077 af, Atten= 0%, Lag= 0.0 min
Primary = 0.99 cfs @ 12.09 hrs, Volume= 0.077 af
Routed to Pond P16 : SC-740 (2)

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 240.59' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	240.00'	**12.0" Round Culvert** L= 120.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 240.00' / 232.80' S= 0.0600 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.96 cfs @ 12.09 hrs HW=240.58' TW=233.90' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 0.96 cfs @ 2.05 fps)

Summary for Pond P16: SC-740 (2)

Inflow Area = 1.105 ac, 87.52% Impervious, Inflow Depth > 2.45" for 2 Year Storm event
Inflow = 3.02 cfs @ 12.09 hrs, Volume= 0.225 af
Outflow = 0.09 cfs @ 15.96 hrs, Volume= 0.094 af, Atten= 97%, Lag= 232.1 min
Discarded = 0.09 cfs @ 15.96 hrs, Volume= 0.094 af
Primary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af
Routed to Reach 1R : SWALE

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 235.61' @ 15.96 hrs Surf.Area= 3,195 sf Storage= 6,171 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 57.9 min (801.0 - 743.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	232.50'	2,789 cf	**34.75'W x 89.06'L x 3.50'H Field A** 10,832 cf Overall - 3,859 cf Embedded = 6,973 cf x 40.0% Voids
#2A	233.00'	3,859 cf	**ADS_StormTech SC-740 +Cap** x 84 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 84 Chambers in 7 Rows
#3	235.50'	2,844 cf	**Custom Stage Data (Conic)**Listed below (Recalc)
		9,492 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
235.50	100	0	0	100
237.00	100	150	150	153
238.70	100	170	320	213
240.00	1,000	614	934	1,119
241.00	3,000	1,911	2,844	3,124

Device	Routing	Invert	Outlet Devices
#1	Discarded	232.50'	**1.000 in/hr Exfiltration over Wetted area**
#2	Primary	240.50'	**6.0' long x 1.0' breadth Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00

Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

#3	Primary	236.00'	**12.0" Round Culvert** L= 65.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 236.00' / 234.20' S= 0.0277 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.09 cfs @ 15.96 hrs HW=235.61' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.09 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=232.50' TW=230.00' (Dynamic Tailwater)
├**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**3=Culvert** (Controls 0.00 cfs)

Summary for Pond P17: CB 9

Inflow Area = 0.355 ac,100.00% Impervious, Inflow Depth > 2.74" for 2 Year Storm event
Inflow = 1.04 cfs @ 12.09 hrs, Volume= 0.081 af
Outflow = 1.04 cfs @ 12.09 hrs, Volume= 0.081 af, Atten= 0%, Lag= 0.0 min
Primary = 1.04 cfs @ 12.09 hrs, Volume= 0.081 af
Routed to Pond P16 : SC-740 (2)

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 235.61' @ 16.01 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	234.10'	**12.0" Round Culvert** L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 234.10' / 232.70' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.02 cfs @ 12.09 hrs HW=234.70' TW=233.90' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 1.02 cfs @ 2.08 fps)

Summary for Pond P18: CB 10

Inflow Area = 0.414 ac, 66.66% Impervious, Inflow Depth > 1.96" for 2 Year Storm event
Inflow = 0.98 cfs @ 12.09 hrs, Volume= 0.068 af
Outflow = 0.98 cfs @ 12.09 hrs, Volume= 0.068 af, Atten= 0%, Lag= 0.0 min
Primary = 0.98 cfs @ 12.09 hrs, Volume= 0.068 af
Routed to Pond P16 : SC-740 (2)

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 235.61' @ 16.01 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	233.00'	**12.0" Round Culvert** L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 233.00' / 232.70' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=233.88' TW=233.91' (Dynamic Tailwater)
└─**1=Culvert** (Controls 0.00 cfs)

Summary for Pond P19: WET BASIN 1

Inflow Area = 2.594 ac, 48.93% Impervious, Inflow Depth > 0.69" for 2 Year Storm event
Inflow = 2.17 cfs @ 12.10 hrs, Volume= 0.148 af
Outflow = 0.13 cfs @ 14.95 hrs, Volume= 0.041 af, Atten= 94%, Lag= 171.1 min
Primary = 0.13 cfs @ 14.95 hrs, Volume= 0.041 af
Routed to Pond P20 : DMH 14

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 194.19' @ 14.95 hrs Surf.Area= 1,788 sf Storage= 4,804 cf

Plug-Flow detention time= 285.4 min calculated for 0.041 af (28% of inflow)
Center-of-Mass det. time= 185.7 min (989.5 - 803.8)

Volume	Invert	Avail.Storage	Storage Description
#1	190.00'	24,210 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
190.00	580	0	0
192.00	1,085	1,665	1,665
194.00	1,715	2,800	4,465
196.00	2,470	4,185	8,650
198.00	3,825	6,295	14,945
200.00	5,440	9,265	24,210

Device	Routing	Invert	Outlet Devices
#1	Primary	186.00'	**15.0" Round Culvert** L= 200.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 186.00' / 174.00' S= 0.0600 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	199.00'	**29.0" x 20.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	197.00'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	194.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Primary	199.00'	**4.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.13 cfs @ 14.95 hrs HW=194.19' TW=174.18' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.13 cfs of 16.26 cfs potential flow)
  └─**2=Orifice/Grate** (Controls 0.00 cfs)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)
  └─**4=Orifice/Grate** (Orifice Controls 0.13 cfs @ 1.50 fps)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond P2: DMH 1

Inflow Area = 1.889 ac,100.00% Impervious, Inflow Depth > 2.74" for 2 Year Storm event
Inflow = 5.57 cfs @ 12.09 hrs, Volume= 0.432 af
Outflow = 5.57 cfs @ 12.09 hrs, Volume= 0.432 af, Atten= 0%, Lag= 0.0 min
Primary = 5.57 cfs @ 12.09 hrs, Volume= 0.432 af
Routed to Pond P4 : DMH 2

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 242.87' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	238.20'	**12.0" Round Culvert** L= 95.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 238.20' / 236.15' S= 0.0216 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=5.07 cfs @ 12.09 hrs HW=242.55' TW=239.39' (Dynamic Tailwater)
1=Culvert (Outlet Controls 5.07 cfs @ 6.46 fps)

Summary for Pond P20: DMH 14

Inflow Area = 2.594 ac, 48.93% Impervious, Inflow Depth > 0.19" for 2 Year Storm event
Inflow = 0.13 cfs @ 14.95 hrs, Volume= 0.041 af
Outflow = 0.13 cfs @ 14.95 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min
Primary = 0.13 cfs @ 14.95 hrs, Volume= 0.041 af
Routed to Pond P21 : WET BASIN 2

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 174.18' @ 14.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	174.00'	**15.0" Round Culvert** L= 170.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 174.00' / 163.80' S= 0.0600 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.13 cfs @ 14.95 hrs HW=174.18' TW=153.24' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.13 cfs @ 1.15 fps)

Summary for Pond P21: WET BASIN 2

Inflow Area = 4.092 ac, 39.81% Impervious, Inflow Depth > 0.53" for 2 Year Storm event
Inflow = 2.02 cfs @ 12.10 hrs, Volume= 0.180 af
Outflow = 0.85 cfs @ 12.37 hrs, Volume= 0.135 af, Atten= 58%, Lag= 16.4 min
Primary = 0.85 cfs @ 12.37 hrs, Volume= 0.135 af
Routed to Link OP1 : 1008-79-11F

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 153.47' @ 12.37 hrs Surf.Area= 1,068 sf Storage= 2,300 cf

Plug-Flow detention time= 120.4 min calculated for 0.135 af (75% of inflow)
Center-of-Mass det. time= 51.3 min (902.5 - 851.2)

Volume	Invert	Avail.Storage	Storage Description
#1	150.00'	17,020 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
150.00	300	0	0
152.00	700	1,000	1,000
154.00	1,200	1,900	2,900
156.00	1,900	3,100	6,000
158.00	2,720	4,620	10,620
160.00	3,680	6,400	17,020

Device	Routing	Invert	Outlet Devices
#1	Primary	151.80'	**12.0" Round Culvert** L= 90.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 151.80' / 150.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	158.60'	**29.0" x 20.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	153.00'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	158.80'	**4.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.84 cfs @ 12.37 hrs HW=153.47' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.84 cfs of 4.09 cfs potential flow)
  - **2=Orifice/Grate** (Controls 0.00 cfs)
  - **3=Orifice/Grate** (Orifice Controls 0.84 cfs @ 2.33 fps)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond P3: CB 2

Inflow Area = 0.175 ac,100.00% Impervious, Inflow Depth > 2.74" for 2 Year Storm event
Inflow = 0.51 cfs @ 12.09 hrs, Volume= 0.040 af
Outflow = 0.51 cfs @ 12.09 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.0 min
Primary = 0.51 cfs @ 12.09 hrs, Volume= 0.040 af
Routed to Pond P2 : DMH 1

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 242.89' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	238.40'	**12.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 238.40' / 238.20' S= 0.0200 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=241.31' TW=242.55' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Summary for Pond P4: DMH 2

Inflow Area = 2.679 ac,100.00% Impervious, Inflow Depth > 2.74" for 2 Year Storm event
Inflow = 7.89 cfs @ 12.09 hrs, Volume= 0.612 af
Outflow = 7.89 cfs @ 12.09 hrs, Volume= 0.612 af, Atten= 0%, Lag= 0.0 min
Primary = 7.89 cfs @ 12.09 hrs, Volume= 0.612 af
Routed to Pond P14 : SC-740 (1)

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 239.53' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	236.05'	**15.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 236.05' / 236.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=7.68 cfs @ 12.09 hrs HW=239.39' TW=236.36' (Dynamic Tailwater)
1=Culvert (Inlet Controls 7.68 cfs @ 6.26 fps)

Summary for Pond P5: CB 3

Inflow Area = 0.790 ac,100.00% Impervious, Inflow Depth > 2.74" for 2 Year Storm event
Inflow = 2.33 cfs @ 12.09 hrs, Volume= 0.180 af
Outflow = 2.33 cfs @ 12.09 hrs, Volume= 0.180 af, Atten= 0%, Lag= 0.0 min
Primary = 2.33 cfs @ 12.09 hrs, Volume= 0.180 af
Routed to Pond P4 : DMH 2

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 240.06' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	236.70'	**12.0" Round Culvert** L= 110.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 236.70' / 236.15' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.87 cfs @ 12.09 hrs HW=239.49' TW=239.39' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.87 cfs @ 1.10 fps)

Summary for Pond P6: CB 7

Inflow Area = 0.490 ac, 73.08% Impervious, Inflow Depth > 2.14" for 2 Year Storm event
Inflow = 1.24 cfs @ 12.09 hrs, Volume= 0.087 af
Outflow = 1.24 cfs @ 12.09 hrs, Volume= 0.087 af, Atten= 0%, Lag= 0.0 min
Primary = 1.24 cfs @ 12.09 hrs, Volume= 0.087 af
Routed to Pond P7 : DMH 11

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 251.84' @ 12.23 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	240.40'	**12.0" Round Culvert** L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 240.40' / 239.70' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=242.83' TW=245.97' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Summary for Pond P7: DMH 11

Inflow Area = 1.438 ac, 90.83% Impervious, Inflow Depth > 2.54" for 2 Year Storm event
Inflow = 4.04 cfs @ 12.09 hrs, Volume= 0.304 af
Outflow = 4.04 cfs @ 12.09 hrs, Volume= 0.304 af, Atten= 0%, Lag= 0.0 min
Primary = 4.04 cfs @ 12.09 hrs, Volume= 0.304 af
Routed to Pond P8 : DMH 10

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 251.77' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	239.60'	**12.0" Round Culvert** L= 70.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 239.60' / 239.20' S= 0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=245.83' TW=248.53' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Summary for Pond P8: DMH 10

Inflow Area = 1.504 ac, 91.23% Impervious, Inflow Depth > 2.54" for 2 Year Storm event
Inflow = 4.23 cfs @ 12.09 hrs, Volume= 0.319 af
Outflow = 4.23 cfs @ 12.09 hrs, Volume= 0.319 af, Atten= 0%, Lag= 0.0 min
Primary = 4.23 cfs @ 12.09 hrs, Volume= 0.319 af
Routed to Pond P10 : DMH 9

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 251.04' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	239.10'	**12.0" Round Culvert** L= 285.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 239.10' / 237.65' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.26 cfs @ 12.09 hrs HW=248.53' TW=247.14' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 2.26 cfs @ 2.87 fps)

Summary for Pond P9: CB 6

Inflow Area = 0.067 ac,100.00% Impervious, Inflow Depth > 2.74" for 2 Year Storm event
Inflow = 0.20 cfs @ 12.09 hrs, Volume= 0.015 af
Outflow = 0.20 cfs @ 12.09 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.0 min
Primary = 0.20 cfs @ 12.09 hrs, Volume= 0.015 af
Routed to Pond P8 : DMH 10

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 251.04' @ 12.19 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	239.30'	**12.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 239.30' / 239.20' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=244.04' TW=248.45' (Dynamic Tailwater)
↑**1=Culvert** (Controls 0.00 cfs)

Summary for Link OP1: 1008-79-11F

Inflow Area = 5.304 ac, 30.97% Impervious, Inflow Depth > 0.49" for 2 Year Storm event
Inflow = 1.48 cfs @ 12.33 hrs, Volume= 0.215 af
Primary = 1.48 cfs @ 12.33 hrs, Volume= 0.215 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Link OP2: ROADSIDE SWALE

Inflow Area = 3.708 ac, 0.26% Impervious, Inflow Depth > 0.84" for 2 Year Storm event
Inflow = 2.96 cfs @ 12.20 hrs, Volume= 0.259 af
Primary = 2.96 cfs @ 12.20 hrs, Volume= 0.259 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Link OP3: 1010-79-17A

Inflow Area = 1.951 ac, 0.00% Impervious, Inflow Depth > 0.06" for 2 Year Storm event
Inflow = 0.02 cfs @ 14.72 hrs, Volume= 0.009 af
Primary = 0.02 cfs @ 14.72 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Link OP4: WETLANDS

Inflow Area = 9.380 ac, 64.20% Impervious, Inflow Depth > 0.26" for 2 Year Storm event
Inflow = 2.63 cfs @ 12.13 hrs, Volume= 0.206 af
Primary = 2.63 cfs @ 12.13 hrs, Volume= 0.206 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 101: TO CB 8

Runoff = 1.53 cfs @ 12.09 hrs, Volume= 0.121 af, Depth> 4.31"
Routed to Pond P15 : CB 8

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
14,656	98	Paved parking, HSG C
14,656		100.00% Impervious Area

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

Summary for Subcatchment 102: TO CB 9

Runoff = 1.61 cfs @ 12.09 hrs, Volume= 0.127 af, Depth> 4.31"
Routed to Pond P17 : CB 9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
15,445	98	Paved parking, HSG C
15,445		100.00% Impervious Area

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

Summary for Subcatchment 103: TO CB 10

Runoff = 1.67 cfs @ 12.09 hrs, Volume= 0.118 af, Depth> 3.44"
Routed to Pond P18 : CB 10

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
12,010	98	Paved parking, HSG C
6,006	74	>75% Grass cover, Good, HSG C
18,016	90	Weighted Average
6,006		33.34% Pervious Area
12,010		66.66% Impervious Area

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

Summary for Subcatchment 104: TO PLUNGE POOL

Runoff = 1.82 cfs @ 12.10 hrs, Volume= 0.123 af, Depth> 2.00"
Routed to Reach 2R : PLUNGE POOL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
32,083	74	>75% Grass cover, Good, HSG C
32,083		100.00% Pervious Area

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

Summary for Subcatchment 105: TO WET BASIN 1

Runoff = 2.61 cfs @ 12.09 hrs, Volume= 0.179 af, Depth> 2.85"
Routed to Pond P19 : WET BASIN 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
13,175	98	Paved parking, HSG C
19,605	74	>75% Grass cover, Good, HSG C
32,780	84	Weighted Average
19,605		59.81% Pervious Area
13,175		40.19% Impervious Area

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

Summary for Subcatchment 106: TO WET BASIN 2

Runoff = 4.27 cfs @ 12.10 hrs, Volume= 0.290 af, Depth> 2.33"
Routed to Pond P21 : WET BASIN 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
15,660	98	Paved parking, HSG C
14,068	74	>75% Grass cover, Good, HSG C
35,523	70	Woods, Good, HSG C
65,251	78	Weighted Average
49,591		76.00% Pervious Area
15,660		24.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	75	0.1500	0.24		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.11"
1.1	160	0.1200	2.42		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.0	32	0.1100	27.71	136.04	**Pipe Channel, C-D** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013 Corrugated PE, smooth interior
0.1	85	0.2500	24.21	80.71	**Parabolic Channel, D-E** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.022 Earth, clean & straight
6.3	352	Total			

Summary for Subcatchment 107: TO OP1

Runoff = 2.37 cfs @ 12.16 hrs, Volume= 0.187 af, Depth> 1.85"
Routed to Link OP1 : 1008-79-11F

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
600	98	Paved parking, HSG C
25,268	74	>75% Grass cover, Good, HSG C
26,940	70	Woods, Good, HSG C
52,808	72	Weighted Average
52,208		98.86% Pervious Area
600		1.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	70	0.0320	0.13		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.11"
0.8	100	0.0960	2.17		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.0	300	0.1500	5.16	17.19	**Parabolic Channel, C-D** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.080 Earth, long dense weeds
10.8	470	Total			

Summary for Subcatchment 201: TO ROADSIDE SWALE

Runoff = 7.12 cfs @ 12.18 hrs, Volume= 0.594 af, Depth> 1.92"
Routed to Link OP2 : ROADSIDE SWALE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
424	98	Paved parking, HSG C
134,797	74	>75% Grass cover, Good, HSG C
26,290	70	Woods, Good, HSG C
161,511	73	Weighted Average
161,087		99.74% Pervious Area
424		0.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	90	0.0270	0.13		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.11"
0.4	100	0.3000	3.83		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	380	0.1250	12.56	41.85	**Parabolic Channel, C-D** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.030 Earth, grassed & winding
12.7	570	Total			

Summary for Subcatchment 301: TO CB 5

Runoff = 0.93 cfs @ 12.09 hrs, Volume= 0.074 af, Depth> 4.31"
Routed to Pond P11 : CB 5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
8,952	98	Paved parking, HSG A
8,952		100.00% Impervious Area

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

Summary for Subcatchment 302: TO CB 6

Runoff = 0.30 cfs @ 12.09 hrs, Volume= 0.024 af, Depth> 4.31"
Routed to Pond P9 : CB 6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
1,250	98	Paved parking, HSG A
1,655	98	Paved parking, HSG C
2,905	98	Weighted Average
2,905		100.00% Impervious Area

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

Summary for Subcatchment 303: TO OP3

Runoff = 0.51 cfs @ 12.17 hrs, Volume= 0.069 af, Depth> 0.43"
Routed to Link OP3 : 1010-79-17A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
32,328	39	>75% Grass cover, Good, HSG A
18,412	74	>75% Grass cover, Good, HSG C
23,735	30	Woods, Good, HSG A
10,524	70	Woods, Good, HSG C
84,999	48	Weighted Average
84,999		100.00% Pervious Area

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

Summary for Subcatchment 401: RD 1

Runoff = 2.83 cfs @ 12.09 hrs, Volume= 0.224 af, Depth> 4.31"
Routed to Pond P1 : CB 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
27,136	98	Roofs, HSG C
27,136		100.00% Impervious Area

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

Summary for Subcatchment 402: RD 2

Runoff = 4.30 cfs @ 12.09 hrs, Volume= 0.340 af, Depth> 4.31"
Routed to Pond P2 : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
41,280	98	Roofs, HSG C
41,280		100.00% Impervious Area

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

Summary for Subcatchment 403: TO CB 3

Runoff = 3.58 cfs @ 12.09 hrs, Volume= 0.283 af, Depth> 4.31"
Routed to Pond P5 : CB 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
34,409	98	Paved parking, HSG C
34,409		100.00% Impervious Area

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

Summary for Subcatchment 404: TO CB 4

Runoff = 3.70 cfs @ 12.09 hrs, Volume= 0.293 af, Depth> 4.31"
Routed to Pond P13 : CB 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
35,576	98	Paved parking, HSG C
35,576		100.00% Impervious Area

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

Summary for Subcatchment 405: RD 4

Runoff = 4.30 cfs @ 12.09 hrs, Volume= 0.340 af, Depth> 4.31"
Routed to Pond P10 : DMH 9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
41,280	98	Roofs, HSG C
41,280		100.00% Impervious Area

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

Summary for Subcatchment 406: RD 3

Runoff = 4.30 cfs @ 12.09 hrs, Volume= 0.340 af, Depth> 4.31"
Routed to Pond P7 : DMH 11

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
41,280	98	Roofs, HSG C
41,280		100.00% Impervious Area

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

Summary for Subcatchment 407: TO CB 7

Runoff = 2.06 cfs @ 12.09 hrs, Volume= 0.149 af, Depth> 3.64"
Routed to Pond P6 : CB 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
15,597	98	Paved parking, HSG C
5,745	74	>75% Grass cover, Good, HSG C
21,342	92	Weighted Average
5,745		26.92% Pervious Area
15,597		73.08% Impervious Area

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

Summary for Subcatchment 408: EAST TO WETLANDS

Runoff = 3.34 cfs @ 12.12 hrs, Volume= 0.242 af, Depth> 1.85"
Routed to Link OP4 : WETLANDS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
27,878	74	>75% Grass cover, Good, HSG C
40,375	70	Woods, Good, HSG C
68,253	72	Weighted Average
68,253		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0200	0.10		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.11"
0.9	100	0.0750	1.92		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.1	95	0.1900	13.27	44.23	**Parabolic Channel, C-D** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.035 Earth, dense weeds
8.0	235	Total			

Summary for Subcatchment 501: TO CB 1

Runoff = 0.65 cfs @ 12.09 hrs, Volume= 0.052 af, Depth> 4.31"
Routed to Pond P1 : CB 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
6,277	98	Paved parking, HSG C
6,277		100.00% Impervious Area

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

Summary for Subcatchment 502: TO CB 2

Runoff = 0.79 cfs @ 12.09 hrs, Volume= 0.063 af, Depth> 4.31"
Routed to Pond P3 : CB 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
7,604	98	Paved parking, HSG C
7,604		100.00% Impervious Area

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

Summary for Subcatchment 503: WEST TO WETLANDS

Runoff = 3.35 cfs @ 12.12 hrs, Volume= 0.245 af, Depth> 1.77"
Routed to Link OP4 : WETLANDS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Storm Rainfall=4.75"

Area (sf)	CN	Description
20,196	74	>75% Grass cover, Good, HSG C
52,094	70	Woods, Good, HSG C
72,290	71	Weighted Average
72,290		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0200	0.10		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.11"
1.3	160	0.0850	2.04		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
8.3	200	Total			

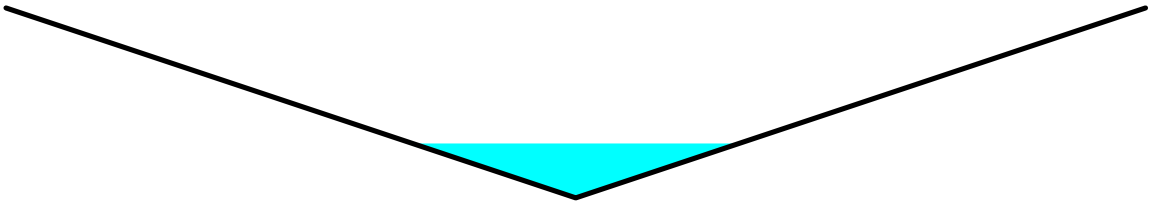
Summary for Reach 1R: SWALE

Inflow Area = 1.105 ac, 87.52% Impervious, Inflow Depth = 1.17" for 10 Year Storm event
Inflow = 2.62 cfs @ 12.24 hrs, Volume= 0.107 af
Outflow = 2.82 cfs @ 12.25 hrs, Volume= 0.107 af, Atten= 0%, Lag= 0.6 min
Routed to Reach 2R : PLUNGE POOL

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.11 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.24 fps, Avg. Travel Time= 1.3 min

Peak Storage= 99 cf @ 12.25 hrs
Average Depth at Peak Storage= 0.43' , Surface Width= 2.58'
Bank-Full Depth= 1.50' Flow Area= 6.8 sf, Capacity= 79.45 cfs

0.00' x 1.50' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 9.00'
Length= 180.0' Slope= 0.0889 '/'
Inlet Invert= 230.00', Outlet Invert= 214.00'



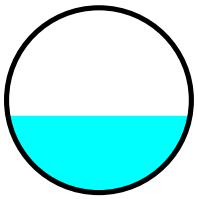
Summary for Reach 2R: PLUNGE POOL

Inflow Area = 1.841 ac, 52.51% Impervious, Inflow Depth > 1.50" for 10 Year Storm event
Inflow = 3.78 cfs @ 12.25 hrs, Volume= 0.230 af
Outflow = 3.78 cfs @ 12.25 hrs, Volume= 0.230 af, Atten= 0%, Lag= 0.1 min
Routed to Pond P19 : WET BASIN 1

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.45 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.03 fps, Avg. Travel Time= 0.5 min

Peak Storage= 42 cf @ 12.25 hrs
Average Depth at Peak Storage= 0.62' , Surface Width= 1.48'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 10.50 cfs

18.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 60.0' Slope= 0.0100 '/'
Inlet Invert= 210.00', Outlet Invert= 209.40'



Summary for Pond P1: CB 1

Inflow Area = 0.767 ac,100.00% Impervious, Inflow Depth > 4.31" for 10 Year Storm event
Inflow = 3.48 cfs @ 12.09 hrs, Volume= 0.275 af
Outflow = 3.48 cfs @ 12.09 hrs, Volume= 0.275 af, Atten= 0%, Lag= 0.0 min
Primary = 3.48 cfs @ 12.09 hrs, Volume= 0.275 af
Routed to Pond P2 : DMH 1

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 253.09' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	240.20'	**12.0" Round Culvert** L= 210.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 240.20' / 238.30' S= 0.0090 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=248.37' TW=250.37' (Dynamic Tailwater)
↑**1=Culvert** (Controls 0.00 cfs)

Summary for Pond P10: DMH 9

Inflow Area = 2.657 ac, 95.04% Impervious, Inflow Depth > 4.18" for 10 Year Storm event
Inflow = 11.89 cfs @ 12.09 hrs, Volume= 0.926 af
Outflow = 11.89 cfs @ 12.09 hrs, Volume= 0.926 af, Atten= 0%, Lag= 0.0 min
Primary = 11.89 cfs @ 12.09 hrs, Volume= 0.926 af
Routed to Pond P12 : DMH 8

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 264.05' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	237.55'	**12.0" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 237.55' / 236.15' S= 0.0140 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=10.67 cfs @ 12.09 hrs HW=262.07' TW=247.62' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 10.67 cfs @ 13.59 fps)

Summary for Pond P11: CB 5

Inflow Area = 0.206 ac,100.00% Impervious, Inflow Depth > 4.31" for 10 Year Storm event
Inflow = 0.93 cfs @ 12.09 hrs, Volume= 0.074 af
Outflow = 0.93 cfs @ 12.09 hrs, Volume= 0.074 af, Atten= 0%, Lag= 0.0 min
Primary = 0.93 cfs @ 12.09 hrs, Volume= 0.074 af
Routed to Pond P10 : DMH 9

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 264.11' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	237.55'	**12.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 237.55' / 237.45' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=254.10' TW=262.03' (Dynamic Tailwater)
↑**1=Culvert** (Controls 0.00 cfs)

Summary for Pond P12: DMH 8

Inflow Area = 3.474 ac, 96.20% Impervious, Inflow Depth > 4.21" for 10 Year Storm event
Inflow = 15.59 cfs @ 12.09 hrs, Volume= 1.219 af
Outflow = 15.59 cfs @ 12.09 hrs, Volume= 1.219 af, Atten= 0%, Lag= 0.0 min
Primary = 15.59 cfs @ 12.09 hrs, Volume= 1.219 af
Routed to Pond P14 : SC-740 (1)

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 248.17' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	236.05'	**15.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 236.05' / 236.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=14.94 cfs @ 12.09 hrs HW=247.62' TW=237.37' (Dynamic Tailwater)
1=Culvert (Inlet Controls 14.94 cfs @ 12.17 fps)

Summary for Pond P13: CB 4

Inflow Area = 0.817 ac,100.00% Impervious, Inflow Depth > 4.31" for 10 Year Storm event
Inflow = 3.70 cfs @ 12.09 hrs, Volume= 0.293 af
Outflow = 3.70 cfs @ 12.09 hrs, Volume= 0.293 af, Atten= 0%, Lag= 0.0 min
Primary = 3.70 cfs @ 12.09 hrs, Volume= 0.293 af
Routed to Pond P12 : DMH 8

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 249.45' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	236.70'	**12.0" Round Culvert** L= 110.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 236.70' / 236.15' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=246.81' TW=247.61' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Summary for Pond P14: SC-740 (1)

Inflow Area = 6.153 ac, 97.86% Impervious, Inflow Depth > 4.25" for 10 Year Storm event
Inflow = 27.74 cfs @ 12.09 hrs, Volume= 2.181 af
Outflow = 5.09 cfs @ 12.53 hrs, Volume= 1.269 af, Atten= 82%, Lag= 26.8 min
Discarded = 0.78 cfs @ 12.53 hrs, Volume= 0.688 af
Primary = 4.30 cfs @ 12.53 hrs, Volume= 0.581 af
Routed to Link OP4 : WETLANDS

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 239.89' @ 12.53 hrs Surf.Area= 29,981 sf Storage= 47,915 cf

Plug-Flow detention time= 139.1 min calculated for 1.266 af (58% of inflow)
Center-of-Mass det. time= 49.9 min (773.7 - 723.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	235.00'	17,471 cf	**39.50'W x 502.02'L x 3.50'H Field A** 69,404 cf Overall - 25,726 cf Embedded = 43,677 cf x 40.0% Voids
#2A	235.50'	25,726 cf	**ADS_StormTech SC-740 +Cap** x 560 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 560 Chambers in 8 Rows
#3	236.00'	39,162 cf	**Custom Stage Data (Conic)**Listed below (Recalc)
		82,360 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
236.00	100	0	0	100
238.70	100	270	270	196
240.00	12,000	5,718	5,988	12,099
240.80	22,000	13,399	19,388	22,106
241.50	35,000	19,775	39,162	35,112

Device	Routing	Invert	Outlet Devices
#1	Discarded	235.00'	**1.000 in/hr Exfiltration over Wetted area**
#2	Primary	240.60'	**6.0' long x 1.0' breadth Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#3	Primary	238.00'	**12.0" Round Culvert** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.00' / 237.60' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.78 cfs @ 12.53 hrs HW=239.88' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.78 cfs)

Primary OutFlow Max=4.30 cfs @ 12.53 hrs HW=239.88' TW=0.00' (Dynamic Tailwater)
├**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**3=Culvert** (Barrel Controls 4.30 cfs @ 5.48 fps)

Summary for Pond P15: CB 8

Inflow Area = 0.336 ac,100.00% Impervious, Inflow Depth > 4.31" for 10 Year Storm event
Inflow = 1.53 cfs @ 12.09 hrs, Volume= 0.121 af
Outflow = 1.53 cfs @ 12.09 hrs, Volume= 0.121 af, Atten= 0%, Lag= 0.0 min
Primary = 1.53 cfs @ 12.09 hrs, Volume= 0.121 af
Routed to Pond P16 : SC-740 (2)

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 240.77' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	240.00'	**12.0" Round Culvert** L= 120.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 240.00' / 232.80' S= 0.0600 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.48 cfs @ 12.09 hrs HW=240.75' TW=235.10' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 1.48 cfs @ 2.33 fps)

Summary for Pond P16: SC-740 (2)

Inflow Area = 1.105 ac, 87.52% Impervious, Inflow Depth > 3.98" for 10 Year Storm event
Inflow = 4.80 cfs @ 12.09 hrs, Volume= 0.366 af
Outflow = 2.71 cfs @ 12.24 hrs, Volume= 0.216 af, Atten= 43%, Lag= 9.4 min
Discarded = 0.10 cfs @ 12.24 hrs, Volume= 0.108 af
Primary = 2.62 cfs @ 12.24 hrs, Volume= 0.107 af
Routed to Reach 1R : SWALE

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 236.97' @ 12.24 hrs Surf.Area= 3,195 sf Storage= 6,795 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 38.4 min (773.0 - 734.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	232.50'	2,789 cf	**34.75'W x 89.06'L x 3.50'H Field A** 10,832 cf Overall - 3,859 cf Embedded = 6,973 cf x 40.0% Voids
#2A	233.00'	3,859 cf	**ADS_StormTech SC-740 +Cap** x 84 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 84 Chambers in 7 Rows
#3	235.50'	2,844 cf	**Custom Stage Data (Conic)**Listed below (Recalc)
		9,492 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
235.50	100	0	0	100
237.00	100	150	150	153
238.70	100	170	320	213
240.00	1,000	614	934	1,119
241.00	3,000	1,911	2,844	3,124

Device	Routing	Invert	Outlet Devices
#1	Discarded	232.50'	**1.000 in/hr Exfiltration over Wetted area**
#2	Primary	240.50'	**6.0' long x 1.0' breadth Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00

Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

#3	Primary	236.00'	**12.0" Round Culvert** L= 65.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 236.00' / 234.20' S= 0.0277 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.10 cfs @ 12.24 hrs HW=236.95' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.10 cfs)

Primary OutFlow Max=2.56 cfs @ 12.24 hrs HW=236.95' TW=230.42' (Dynamic Tailwater)
├**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**3=Culvert** (Inlet Controls 2.56 cfs @ 3.32 fps)

Summary for Pond P17: CB 9

Inflow Area = 0.355 ac,100.00% Impervious, Inflow Depth > 4.31" for 10 Year Storm event
Inflow = 1.61 cfs @ 12.09 hrs, Volume= 0.127 af
Outflow = 1.61 cfs @ 12.09 hrs, Volume= 0.127 af, Atten= 0%, Lag= 0.0 min
Primary = 1.61 cfs @ 12.09 hrs, Volume= 0.127 af
Routed to Pond P16 : SC-740 (2)

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 237.02' @ 12.29 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	234.10'	**12.0" Round Culvert** L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 234.10' / 232.70' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=235.02' TW=235.10' (Dynamic Tailwater)
└**1=Culvert** (Controls 0.00 cfs)

Summary for Pond P18: CB 10

Inflow Area = 0.414 ac, 66.66% Impervious, Inflow Depth > 3.44" for 10 Year Storm event
Inflow = 1.67 cfs @ 12.09 hrs, Volume= 0.118 af
Outflow = 1.67 cfs @ 12.09 hrs, Volume= 0.118 af, Atten= 0%, Lag= 0.0 min
Primary = 1.67 cfs @ 12.09 hrs, Volume= 0.118 af
Routed to Pond P16 : SC-740 (2)

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 237.03' @ 12.29 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	233.00'	**12.0" Round Culvert** L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 233.00' / 232.70' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=235.00' TW=235.12' (Dynamic Tailwater)
└**1=Culvert** (Controls 0.00 cfs)

Summary for Pond P19: WET BASIN 1

Inflow Area = 2.594 ac, 48.93% Impervious, Inflow Depth > 1.89" for 10 Year Storm event
Inflow = 5.07 cfs @ 12.25 hrs, Volume= 0.409 af
Outflow = 1.89 cfs @ 12.53 hrs, Volume= 0.301 af, Atten= 63%, Lag= 16.7 min
Primary = 1.89 cfs @ 12.53 hrs, Volume= 0.301 af
Routed to Pond P20 : DMH 14

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 195.60' @ 12.53 hrs Surf.Area= 2,318 sf Storage= 7,684 cf

Plug-Flow detention time= 107.9 min calculated for 0.301 af (73% of inflow)
Center-of-Mass det. time= 52.3 min (841.0 - 788.7)

Volume	Invert	Avail.Storage	Storage Description
#1	190.00'	24,210 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
190.00	580	0	0
192.00	1,085	1,665	1,665
194.00	1,715	2,800	4,465
196.00	2,470	4,185	8,650
198.00	3,825	6,295	14,945
200.00	5,440	9,265	24,210

Device	Routing	Invert	Outlet Devices
#1	Primary	186.00'	**15.0" Round Culvert** L= 200.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 186.00' / 174.00' S= 0.0600 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	199.00'	**29.0" x 20.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	197.00'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	194.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Primary	199.00'	**4.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=1.89 cfs @ 12.53 hrs HW=195.59' TW=174.77' (Dynamic Tailwater)
└**1=Culvert** (Passes 1.89 cfs of 17.69 cfs potential flow)
└**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Controls 0.00 cfs)
└**4=Orifice/Grate** (Orifice Controls 1.89 cfs @ 5.40 fps)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond P2: DMH 1

Inflow Area = 1.889 ac,100.00% Impervious, Inflow Depth > 4.31" for 10 Year Storm event
Inflow = 8.57 cfs @ 12.09 hrs, Volume= 0.678 af
Outflow = 8.57 cfs @ 12.09 hrs, Volume= 0.678 af, Atten= 0%, Lag= 0.0 min
Primary = 8.57 cfs @ 12.09 hrs, Volume= 0.678 af
Routed to Pond P4 : DMH 2

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 251.59' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	238.20'	**12.0" Round Culvert** L= 95.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 238.20' / 236.15' S= 0.0216 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=7.50 cfs @ 12.09 hrs HW=250.37' TW=243.46' (Dynamic Tailwater)
1=Culvert (Outlet Controls 7.50 cfs @ 9.55 fps)

Summary for Pond P20: DMH 14

Inflow Area = 2.594 ac, 48.93% Impervious, Inflow Depth > 1.39" for 10 Year Storm event
Inflow = 1.89 cfs @ 12.53 hrs, Volume= 0.301 af
Outflow = 1.89 cfs @ 12.53 hrs, Volume= 0.301 af, Atten= 0%, Lag= 0.0 min
Primary = 1.89 cfs @ 12.53 hrs, Volume= 0.301 af
Routed to Pond P21 : WET BASIN 2

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 174.77' @ 12.53 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	174.00'	**15.0" Round Culvert** L= 170.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 174.00' / 163.80' S= 0.0600 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.89 cfs @ 12.53 hrs HW=174.77' TW=154.24' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.89 cfs @ 2.36 fps)

Summary for Pond P21: WET BASIN 2

Inflow Area = 4.092 ac, 39.81% Impervious, Inflow Depth > 1.73" for 10 Year Storm event
Inflow = 4.28 cfs @ 12.11 hrs, Volume= 0.591 af
Outflow = 3.46 cfs @ 12.35 hrs, Volume= 0.545 af, Atten= 19%, Lag= 14.4 min
Primary = 3.46 cfs @ 12.35 hrs, Volume= 0.545 af
Routed to Link OP1 : 1008-79-11F

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 154.34' @ 12.35 hrs Surf.Area= 1,317 sf Storage= 3,322 cf

Plug-Flow detention time= 41.6 min calculated for 0.543 af (92% of inflow)
Center-of-Mass det. time= 17.4 min (835.0 - 817.6)

Volume	Invert	Avail.Storage	Storage Description
#1	150.00'	17,020 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
150.00	300	0	0
152.00	700	1,000	1,000
154.00	1,200	1,900	2,900
156.00	1,900	3,100	6,000
158.00	2,720	4,620	10,620
160.00	3,680	6,400	17,020

Device	Routing	Invert	Outlet Devices
#1	Primary	151.80'	**12.0" Round Culvert** L= 90.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 151.80' / 150.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	158.60'	**29.0" x 20.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	153.00'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	158.80'	**4.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=3.46 cfs @ 12.35 hrs HW=154.33' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 3.46 cfs of 5.39 cfs potential flow)
  - **2=Orifice/Grate** (Controls 0.00 cfs)
  - **3=Orifice/Grate** (Orifice Controls 3.46 cfs @ 4.40 fps)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond P3: CB 2

Inflow Area = 0.175 ac,100.00% Impervious, Inflow Depth > 4.31" for 10 Year Storm event
Inflow = 0.79 cfs @ 12.09 hrs, Volume= 0.063 af
Outflow = 0.79 cfs @ 12.09 hrs, Volume= 0.063 af, Atten= 0%, Lag= 0.0 min
Primary = 0.79 cfs @ 12.09 hrs, Volume= 0.063 af
Routed to Pond P2 : DMH 1

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 251.63' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	238.40'	**12.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 238.40' / 238.20' S= 0.0200 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=245.98' TW=250.37' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Summary for Pond P4: DMH 2

Inflow Area = 2.679 ac,100.00% Impervious, Inflow Depth > 4.31" for 10 Year Storm event
Inflow = 12.15 cfs @ 12.09 hrs, Volume= 0.961 af
Outflow = 12.15 cfs @ 12.09 hrs, Volume= 0.961 af, Atten= 0%, Lag= 0.0 min
Primary = 12.15 cfs @ 12.09 hrs, Volume= 0.961 af
Routed to Pond P14 : SC-740 (1)

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 243.80' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	236.05'	**15.0" Round Culvert**
			L= 10.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 236.05' / 236.00' S= 0.0050 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=11.52 cfs @ 12.09 hrs HW=243.46' TW=237.37' (Dynamic Tailwater)
1=Culvert (Inlet Controls 11.52 cfs @ 9.38 fps)

Summary for Pond P5: CB 3

Inflow Area = 0.790 ac,100.00% Impervious, Inflow Depth > 4.31" for 10 Year Storm event
Inflow = 3.58 cfs @ 12.09 hrs, Volume= 0.283 af
Outflow = 3.58 cfs @ 12.09 hrs, Volume= 0.283 af, Atten= 0%, Lag= 0.0 min
Primary = 3.58 cfs @ 12.09 hrs, Volume= 0.283 af
Routed to Pond P4 : DMH 2

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 245.00' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	236.70'	**12.0" Round Culvert**
			L= 110.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 236.70' / 236.15' S= 0.0050 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.12 cfs @ 12.09 hrs HW=243.46' TW=243.46' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.12 cfs @ 0.15 fps)

Summary for Pond P6: CB 7

Inflow Area = 0.490 ac, 73.08% Impervious, Inflow Depth > 3.64" for 10 Year Storm event
Inflow = 2.06 cfs @ 12.09 hrs, Volume= 0.149 af
Outflow = 2.06 cfs @ 12.09 hrs, Volume= 0.149 af, Atten= 0%, Lag= 0.0 min
Primary = 2.06 cfs @ 12.09 hrs, Volume= 0.149 af
Routed to Pond P7 : DMH 11

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 273.71' @ 12.23 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	240.40'	**12.0" Round Culvert** L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 240.40' / 239.70' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=250.54' TW=259.02' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Summary for Pond P7: DMH 11

Inflow Area = 1.438 ac, 90.83% Impervious, Inflow Depth > 4.08" for 10 Year Storm event
Inflow = 6.35 cfs @ 12.09 hrs, Volume= 0.489 af
Outflow = 6.35 cfs @ 12.09 hrs, Volume= 0.489 af, Atten= 0%, Lag= 0.0 min
Primary = 6.35 cfs @ 12.09 hrs, Volume= 0.489 af
Routed to Pond P8 : DMH 10

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 273.55' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	239.60'	**12.0" Round Culvert** L= 70.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 239.60' / 239.20' S= 0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=258.81' TW=265.58' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Summary for Pond P8: DMH 10

Inflow Area = 1.504 ac, 91.23% Impervious, Inflow Depth > 4.09" for 10 Year Storm event
Inflow = 6.66 cfs @ 12.09 hrs, Volume= 0.513 af
Outflow = 6.66 cfs @ 12.09 hrs, Volume= 0.513 af, Atten= 0%, Lag= 0.0 min
Primary = 6.66 cfs @ 12.09 hrs, Volume= 0.513 af
Routed to Pond P10 : DMH 9

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 271.74' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	239.10'	**12.0" Round Culvert** L= 285.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 239.10' / 237.65' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.57 cfs @ 12.09 hrs HW=265.58' TW=262.10' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 3.57 cfs @ 4.54 fps)

Summary for Pond P9: CB 6

Inflow Area = 0.067 ac,100.00% Impervious, Inflow Depth > 4.31" for 10 Year Storm event
Inflow = 0.30 cfs @ 12.09 hrs, Volume= 0.024 af
Outflow = 0.30 cfs @ 12.09 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min
Primary = 0.30 cfs @ 12.09 hrs, Volume= 0.024 af
Routed to Pond P8 : DMH 10

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 271.75' @ 12.19 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	239.30'	**12.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 239.30' / 239.20' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=254.43' TW=265.46' (Dynamic Tailwater)
↑**1=Culvert** (Controls 0.00 cfs)

Summary for Link OP1: 1008-79-11F

Inflow Area = 5.304 ac, 30.97% Impervious, Inflow Depth > 1.65" for 10 Year Storm event
Inflow = 5.59 cfs @ 12.18 hrs, Volume= 0.731 af
Primary = 5.59 cfs @ 12.18 hrs, Volume= 0.731 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Link OP2: ROADSIDE SWALE

Inflow Area = 3.708 ac, 0.26% Impervious, Inflow Depth > 1.92" for 10 Year Storm event
Inflow = 7.12 cfs @ 12.18 hrs, Volume= 0.594 af
Primary = 7.12 cfs @ 12.18 hrs, Volume= 0.594 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Link OP3: 1010-79-17A

Inflow Area = 1.951 ac, 0.00% Impervious, Inflow Depth > 0.43" for 10 Year Storm event
Inflow = 0.51 cfs @ 12.17 hrs, Volume= 0.069 af
Primary = 0.51 cfs @ 12.17 hrs, Volume= 0.069 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Link OP4: WETLANDS

Inflow Area = 9.380 ac, 64.20% Impervious, Inflow Depth > 1.37" for 10 Year Storm event
Inflow = 7.47 cfs @ 12.30 hrs, Volume= 1.068 af
Primary = 7.47 cfs @ 12.30 hrs, Volume= 1.068 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 101: TO CB 8

Runoff = 2.82 cfs @ 12.09 hrs, Volume= 0.228 af, Depth> 8.12"
Routed to Pond P15 : CB 8

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
14,656	98	Paved parking, HSG C
14,656		100.00% Impervious Area

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

Summary for Subcatchment 102: TO CB 9

Runoff = 2.98 cfs @ 12.09 hrs, Volume= 0.240 af, Depth> 8.12"
Routed to Pond P17 : CB 9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
15,445	98	Paved parking, HSG C
15,445		100.00% Impervious Area

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

Summary for Subcatchment 103: TO CB 10

Runoff = 3.32 cfs @ 12.09 hrs, Volume= 0.247 af, Depth> 7.17"
Routed to Pond P18 : CB 10

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
12,010	98	Paved parking, HSG C
6,006	74	>75% Grass cover, Good, HSG C
18,016	90	Weighted Average
6,006		33.34% Pervious Area
12,010		66.66% Impervious Area

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

Summary for Subcatchment 104: TO PLUNGE POOL

Runoff = 4.71 cfs @ 12.09 hrs, Volume= 0.322 af, Depth> 5.25"
Routed to Reach 2R : PLUNGE POOL

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
32,083	74	>75% Grass cover, Good, HSG C
32,083		100.00% Pervious Area

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

Summary for Subcatchment 105: TO WET BASIN 1

Runoff = 5.66 cfs @ 12.09 hrs, Volume= 0.404 af, Depth> 6.45"
Routed to Pond P19 : WET BASIN 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
13,175	98	Paved parking, HSG C
19,605	74	>75% Grass cover, Good, HSG C
32,780	84	Weighted Average
19,605		59.81% Pervious Area
13,175		40.19% Impervious Area

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

Summary for Subcatchment 106: TO WET BASIN 2

Runoff = 10.24 cfs @ 12.09 hrs, Volume= 0.715 af, Depth> 5.73"
Routed to Pond P21 : WET BASIN 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
15,660	98	Paved parking, HSG C
14,068	74	>75% Grass cover, Good, HSG C
35,523	70	Woods, Good, HSG C
65,251	78	Weighted Average
49,591		76.00% Pervious Area
15,660		24.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	75	0.1500	0.24		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.11"
1.1	160	0.1200	2.42		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.0	32	0.1100	27.71	136.04	**Pipe Channel, C-D** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013 Corrugated PE, smooth interior
0.1	85	0.2500	24.21	80.71	**Parabolic Channel, D-E** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.022 Earth, clean & straight
6.3	352	Total			

Summary for Subcatchment 107: TO OP1

Runoff = 6.43 cfs @ 12.15 hrs, Volume= 0.506 af, Depth> 5.01"
Routed to Link OP1 : 1008-79-11F

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
600	98	Paved parking, HSG C
25,268	74	>75% Grass cover, Good, HSG C
26,940	70	Woods, Good, HSG C
52,808	72	Weighted Average
52,208		98.86% Pervious Area
600		1.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	70	0.0320	0.13		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.11"
0.8	100	0.0960	2.17		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.0	300	0.1500	5.16	17.19	**Parabolic Channel, C-D** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.080 Earth, long dense weeds
10.8	470	Total			

Summary for Subcatchment 201: TO ROADSIDE SWALE

Runoff = 19.01 cfs @ 12.17 hrs, Volume= 1.583 af, Depth> 5.12"
Routed to Link OP2 : ROADSIDE SWALE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
424	98	Paved parking, HSG C
134,797	74	>75% Grass cover, Good, HSG C
26,290	70	Woods, Good, HSG C
161,511	73	Weighted Average
161,087		99.74% Pervious Area
424		0.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	90	0.0270	0.13		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.11"
0.4	100	0.3000	3.83		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	380	0.1250	12.56	41.85	**Parabolic Channel, C-D** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.030 Earth, grassed & winding
12.7	570	Total			

Summary for Subcatchment 301: TO CB 5

Runoff = 1.72 cfs @ 12.09 hrs, Volume= 0.139 af, Depth> 8.12"
Routed to Pond P11 : CB 5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
8,952	98	Paved parking, HSG A
8,952		100.00% Impervious Area

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

Summary for Subcatchment 302: TO CB 6

Runoff = 0.56 cfs @ 12.09 hrs, Volume= 0.045 af, Depth> 8.12"
Routed to Pond P9 : CB 6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
1,250	98	Paved parking, HSG A
1,655	98	Paved parking, HSG C
2,905	98	Weighted Average
2,905		100.00% Impervious Area

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

Summary for Subcatchment 303: TO OP3

Runoff = 5.16 cfs @ 12.10 hrs, Volume= 0.367 af, Depth> 2.26"
Routed to Link OP3 : 1010-79-17A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
32,328	39	>75% Grass cover, Good, HSG A
18,412	74	>75% Grass cover, Good, HSG C
23,735	30	Woods, Good, HSG A
10,524	70	Woods, Good, HSG C
84,999	48	Weighted Average
84,999		100.00% Pervious Area

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

Summary for Subcatchment 401: RD 1

Runoff = 5.23 cfs @ 12.09 hrs, Volume= 0.422 af, Depth> 8.12"
Routed to Pond P1 : CB 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
27,136	98	Roofs, HSG C
27,136		100.00% Impervious Area

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

Summary for Subcatchment 402: RD 2

Runoff = 7.95 cfs @ 12.09 hrs, Volume= 0.641 af, Depth> 8.12"
Routed to Pond P2 : DMH 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
41,280	98	Roofs, HSG C
41,280		100.00% Impervious Area

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

Summary for Subcatchment 403: TO CB 3

Runoff = 6.63 cfs @ 12.09 hrs, Volume= 0.535 af, Depth> 8.12"
Routed to Pond P5 : CB 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
34,409	98	Paved parking, HSG C
34,409		100.00% Impervious Area

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

Summary for Subcatchment 404: TO CB 4

Runoff = 6.85 cfs @ 12.09 hrs, Volume= 0.553 af, Depth> 8.12"
Routed to Pond P13 : CB 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
35,576	98	Paved parking, HSG C
35,576		100.00% Impervious Area

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

Summary for Subcatchment 405: RD 4

Runoff = 7.95 cfs @ 12.09 hrs, Volume= 0.641 af, Depth> 8.12"
Routed to Pond P10 : DMH 9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
41,280	98	Roofs, HSG C
41,280		100.00% Impervious Area

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

Summary for Subcatchment 406: RD 3

Runoff = 7.95 cfs @ 12.09 hrs, Volume= 0.641 af, Depth> 8.12"
Routed to Pond P7 : DMH 11

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
41,280	98	Roofs, HSG C
41,280		100.00% Impervious Area

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

Summary for Subcatchment 407: TO CB 7

Runoff = 4.00 cfs @ 12.09 hrs, Volume= 0.302 af, Depth> 7.41"
Routed to Pond P6 : CB 7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
15,597	98	Paved parking, HSG C
5,745	74	>75% Grass cover, Good, HSG C
21,342	92	Weighted Average
5,745		26.92% Pervious Area
15,597		73.08% Impervious Area

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

Summary for Subcatchment 408: EAST TO WETLANDS

Runoff = 9.05 cfs @ 12.11 hrs, Volume= 0.655 af, Depth> 5.01"
Routed to Link OP4 : WETLANDS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
27,878	74	>75% Grass cover, Good, HSG C
40,375	70	Woods, Good, HSG C
68,253	72	Weighted Average
68,253		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0200	0.10		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.11"
0.9	100	0.0750	1.92		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.1	95	0.1900	13.27	44.23	**Parabolic Channel, C-D** W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.035 Earth, dense weeds
8.0	235	Total			

Summary for Subcatchment 501: TO CB 1

Runoff = 1.21 cfs @ 12.09 hrs, Volume= 0.098 af, Depth> 8.12"
Routed to Pond P1 : CB 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
6,277	98	Paved parking, HSG C
6,277		100.00% Impervious Area

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

Summary for Subcatchment 502: TO CB 2

Runoff = 1.46 cfs @ 12.09 hrs, Volume= 0.118 af, Depth> 8.12"
Routed to Pond P3 : CB 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
7,604	98	Paved parking, HSG C
7,604		100.00% Impervious Area

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

Summary for Subcatchment 503: WEST TO WETLANDS

Runoff = 9.28 cfs @ 12.12 hrs, Volume= 0.677 af, Depth> 4.90"
Routed to Link OP4 : WETLANDS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=8.75"

Area (sf)	CN	Description
20,196	74	>75% Grass cover, Good, HSG C
52,094	70	Woods, Good, HSG C
72,290	71	Weighted Average
72,290		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	40	0.0200	0.10		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.11"
1.3	160	0.0850	2.04		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
8.3	200	Total			

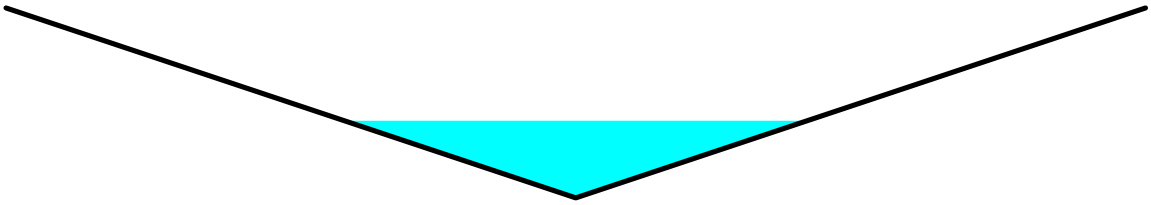
Summary for Reach 1R: SWALE

Inflow Area = 1.105 ac, 87.52% Impervious, Inflow Depth > 4.73" for 100 Year Storm event
Inflow = 7.15 cfs @ 12.15 hrs, Volume= 0.435 af
Outflow = 7.17 cfs @ 12.15 hrs, Volume= 0.435 af, Atten= 0%, Lag= 0.4 min
Routed to Reach 2R : PLUNGE POOL

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.45 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.85 fps, Avg. Travel Time= 1.1 min

Peak Storage= 200 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.61' , Surface Width= 3.65'
Bank-Full Depth= 1.50' Flow Area= 6.8 sf, Capacity= 79.45 cfs

0.00' x 1.50' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 9.00'
Length= 180.0' Slope= 0.0889 '/'
Inlet Invert= 230.00', Outlet Invert= 214.00'



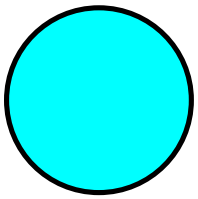
Summary for Reach 2R: PLUNGE POOL

Inflow Area = 1.841 ac, 52.51% Impervious, Inflow Depth > 4.94" for 100 Year Storm event
Inflow = 11.62 cfs @ 12.10 hrs, Volume= 0.758 af
Outflow = 10.53 cfs @ 12.05 hrs, Volume= 0.757 af, Atten= 9%, Lag= 0.0 min
Routed to Pond P19 : WET BASIN 1

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.78 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.54 fps, Avg. Travel Time= 0.4 min

Peak Storage= 106 cf @ 12.10 hrs
Average Depth at Peak Storage= 1.50'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 10.50 cfs

18.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 60.0' Slope= 0.0100 '/'
Inlet Invert= 210.00', Outlet Invert= 209.40'



Summary for Pond P1: CB 1

Inflow Area = 0.767 ac,100.00% Impervious, Inflow Depth > 8.12" for 100 Year Storm event
Inflow = 6.44 cfs @ 12.09 hrs, Volume= 0.519 af
Outflow = 6.44 cfs @ 12.09 hrs, Volume= 0.519 af, Atten= 0%, Lag= 0.0 min
Primary = 6.44 cfs @ 12.09 hrs, Volume= 0.519 af
Routed to Pond P2 : DMH 1

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 296.09' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	240.20'	**12.0" Round Culvert** L= 210.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 240.20' / 238.30' S= 0.0090 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=279.98' TW=286.87' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Summary for Pond P10: DMH 9

Inflow Area = 2.657 ac, 95.04% Impervious, Inflow Depth > 7.99" for 100 Year Storm event
Inflow = 22.19 cfs @ 12.09 hrs, Volume= 1.769 af
Outflow = 22.19 cfs @ 12.09 hrs, Volume= 1.769 af, Atten= 0%, Lag= 0.0 min
Primary = 22.19 cfs @ 12.09 hrs, Volume= 1.769 af
Routed to Pond P12 : DMH 8

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 335.11' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	237.55'	**12.0" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 237.55' / 236.15' S= 0.0140 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=20.03 cfs @ 12.09 hrs HW=328.29' TW=277.39' (Dynamic Tailwater)
1=Culvert (Outlet Controls 20.03 cfs @ 25.50 fps)

Summary for Pond P11: CB 5

Inflow Area = 0.206 ac,100.00% Impervious, Inflow Depth > 8.12" for 100 Year Storm event
Inflow = 1.72 cfs @ 12.09 hrs, Volume= 0.139 af
Outflow = 1.72 cfs @ 12.09 hrs, Volume= 0.139 af, Atten= 0%, Lag= 0.0 min
Primary = 1.72 cfs @ 12.09 hrs, Volume= 0.139 af
Routed to Pond P10 : DMH 9

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 335.30' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	237.55'	**12.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 237.55' / 237.45' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=300.93' TW=328.23' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Summary for Pond P12: DMH 8

Inflow Area = 3.474 ac, 96.20% Impervious, Inflow Depth > 8.02" for 100 Year Storm event
Inflow = 29.04 cfs @ 12.09 hrs, Volume= 2.322 af
Outflow = 29.04 cfs @ 12.09 hrs, Volume= 2.322 af, Atten= 0%, Lag= 0.0 min
Primary = 29.04 cfs @ 12.09 hrs, Volume= 2.322 af
Routed to Pond P14 : SC-740 (1)

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 279.29' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	236.05'	**15.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 236.05' / 236.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=28.15 cfs @ 12.09 hrs HW=277.39' TW=240.96' (Dynamic Tailwater)
1=Culvert (Inlet Controls 28.15 cfs @ 22.94 fps)

Summary for Pond P13: CB 4

Inflow Area = 0.817 ac,100.00% Impervious, Inflow Depth > 8.12" for 100 Year Storm event
Inflow = 6.85 cfs @ 12.09 hrs, Volume= 0.553 af
Outflow = 6.85 cfs @ 12.09 hrs, Volume= 0.553 af, Atten= 0%, Lag= 0.0 min
Primary = 6.85 cfs @ 12.09 hrs, Volume= 0.553 af
Routed to Pond P12 : DMH 8

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 283.78' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	236.70'	**12.0" Round Culvert** L= 110.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 236.70' / 236.15' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=275.08' TW=277.38' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Summary for Pond P14: SC-740 (1)

Inflow Area = 6.153 ac, 97.86% Impervious, Inflow Depth > 8.06" for 100 Year Storm event
Inflow = 51.52 cfs @ 12.09 hrs, Volume= 4.135 af
Outflow = 26.06 cfs @ 12.24 hrs, Volume= 3.182 af, Atten= 49%, Lag= 9.0 min
Discarded = 1.26 cfs @ 12.24 hrs, Volume= 0.869 af
Primary = 24.80 cfs @ 12.24 hrs, Volume= 2.312 af
Routed to Link OP4 : WETLANDS

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 241.28' @ 12.24 hrs Surf.Area= 50,342 sf Storage= 75,026 cf

Plug-Flow detention time= 120.6 min calculated for 3.182 af (77% of inflow)
Center-of-Mass det. time= 57.2 min (772.4 - 715.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	235.00'	17,471 cf	**39.50'W x 502.02'L x 3.50'H Field A** 69,404 cf Overall - 25,726 cf Embedded = 43,677 cf x 40.0% Voids
#2A	235.50'	25,726 cf	**ADS_StormTech SC-740 +Cap** x 560 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 560 Chambers in 8 Rows
#3	236.00'	39,162 cf	**Custom Stage Data (Conic)**Listed below (Recalc)
		82,360 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
236.00	100	0	0	100
238.70	100	270	270	196
240.00	12,000	5,718	5,988	12,099
240.80	22,000	13,399	19,388	22,106
241.50	35,000	19,775	39,162	35,112

Device	Routing	Invert	Outlet Devices
#1	Discarded	235.00'	**1.000 in/hr Exfiltration over Wetted area**
#2	Primary	240.60'	**6.0' long x 1.0' breadth Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#3	Primary	238.00'	**12.0" Round Culvert** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 238.00' / 237.60' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=1.25 cfs @ 12.24 hrs HW=241.27' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 1.25 cfs)

Primary OutFlow Max=24.69 cfs @ 12.24 hrs HW=241.27' TW=0.00' (Dynamic Tailwater)
├**2=Broad-Crested Rectangular Weir** (Weir Controls 18.48 cfs @ 2.29 fps)
└**3=Culvert** (Barrel Controls 6.21 cfs @ 7.90 fps)

Summary for Pond P15: CB 8

Inflow Area = 0.336 ac,100.00% Impervious, Inflow Depth > 8.12" for 100 Year Storm event
Inflow = 2.82 cfs @ 12.09 hrs, Volume= 0.228 af
Outflow = 2.82 cfs @ 12.09 hrs, Volume= 0.228 af, Atten= 0%, Lag= 0.0 min
Primary = 2.82 cfs @ 12.09 hrs, Volume= 0.228 af
Routed to Pond P16 : SC-740 (2)

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 241.39' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	240.00'	**12.0" Round Culvert** L= 120.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 240.00' / 232.80' S= 0.0600 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.75 cfs @ 12.09 hrs HW=241.35' TW=239.78' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 2.75 cfs @ 3.50 fps)

Summary for Pond P16: SC-740 (2)

Inflow Area = 1.105 ac, 87.52% Impervious, Inflow Depth > 7.76" for 100 Year Storm event
Inflow = 9.12 cfs @ 12.09 hrs, Volume= 0.715 af
Outflow = 7.27 cfs @ 12.15 hrs, Volume= 0.561 af, Atten= 20%, Lag= 3.7 min
Discarded = 0.12 cfs @ 12.15 hrs, Volume= 0.126 af
Primary = 7.15 cfs @ 12.15 hrs, Volume= 0.435 af
Routed to Reach 1R : SWALE

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 240.08' @ 12.15 hrs Surf.Area= 4,211 sf Storage= 7,663 cf

Plug-Flow detention time= 93.6 min calculated for 0.561 af (78% of inflow)
Center-of-Mass det. time= 33.8 min (758.1 - 724.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	232.50'	2,789 cf	**34.75'W x 89.06'L x 3.50'H Field A** 10,832 cf Overall - 3,859 cf Embedded = 6,973 cf x 40.0% Voids
#2A	233.00'	3,859 cf	**ADS_StormTech SC-740 +Cap** x 84 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 84 Chambers in 7 Rows
#3	235.50'	2,844 cf	**Custom Stage Data (Conic)**Listed below (Recalc)
		9,492 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
235.50	100	0	0	100
237.00	100	150	150	153
238.70	100	170	320	213
240.00	1,000	614	934	1,119
241.00	3,000	1,911	2,844	3,124

Device	Routing	Invert	Outlet Devices
#1	Discarded	232.50'	**1.000 in/hr Exfiltration over Wetted area**
#2	Primary	240.50'	**6.0' long x 1.0' breadth Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00

Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

#3	Primary	236.00'	**12.0" Round Culvert** L= 65.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 236.00' / 234.20' S= 0.0277 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.12 cfs @ 12.15 hrs HW=240.07' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.12 cfs)

Primary OutFlow Max=7.15 cfs @ 12.15 hrs HW=240.07' TW=230.61' (Dynamic Tailwater)
├**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**3=Culvert** (Inlet Controls 7.15 cfs @ 9.10 fps)

Summary for Pond P17: CB 9

Inflow Area = 0.355 ac,100.00% Impervious, Inflow Depth > 8.12" for 100 Year Storm event
Inflow = 2.98 cfs @ 12.09 hrs, Volume= 0.240 af
Outflow = 2.98 cfs @ 12.09 hrs, Volume= 0.240 af, Atten= 0%, Lag= 0.0 min
Primary = 2.98 cfs @ 12.09 hrs, Volume= 0.240 af
Routed to Pond P16 : SC-740 (2)

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 240.52' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	234.10'	**12.0" Round Culvert** L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 234.10' / 232.70' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.61 cfs @ 12.09 hrs HW=240.08' TW=239.78' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 1.61 cfs @ 2.05 fps)

Summary for Pond P18: CB 10

Inflow Area = 0.414 ac, 66.66% Impervious, Inflow Depth > 7.17" for 100 Year Storm event
Inflow = 3.32 cfs @ 12.09 hrs, Volume= 0.247 af
Outflow = 3.32 cfs @ 12.09 hrs, Volume= 0.247 af, Atten= 0%, Lag= 0.0 min
Primary = 3.32 cfs @ 12.09 hrs, Volume= 0.247 af
Routed to Pond P16 : SC-740 (2)

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 240.69' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	233.00'	**12.0" Round Culvert** L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 233.00' / 232.70' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.19 cfs @ 12.09 hrs HW=240.33' TW=239.79' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 2.19 cfs @ 2.78 fps)

Summary for Pond P19: WET BASIN 1

Inflow Area = 2.594 ac, 48.93% Impervious, Inflow Depth > 5.38" for 100 Year Storm event
Inflow = 16.17 cfs @ 12.09 hrs, Volume= 1.162 af
Outflow = 8.17 cfs @ 12.32 hrs, Volume= 1.049 af, Atten= 50%, Lag= 14.1 min
Primary = 8.17 cfs @ 12.32 hrs, Volume= 1.049 af
Routed to Pond P20 : DMH 14

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 198.95' @ 12.32 hrs Surf.Area= 4,592 sf Storage= 18,944 cf

Plug-Flow detention time= 72.4 min calculated for 1.046 af (90% of inflow)
Center-of-Mass det. time= 43.6 min (815.4 - 771.8)

Volume	Invert	Avail.Storage	Storage Description
#1	190.00'	24,210 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
190.00	580	0	0
192.00	1,085	1,665	1,665
194.00	1,715	2,800	4,465
196.00	2,470	4,185	8,650
198.00	3,825	6,295	14,945
200.00	5,440	9,265	24,210

Device	Routing	Invert	Outlet Devices
#1	Primary	186.00'	**15.0" Round Culvert** L= 200.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 186.00' / 174.00' S= 0.0600 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	199.00'	**29.0" x 20.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	197.00'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	194.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Primary	199.00'	**4.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=8.14 cfs @ 12.32 hrs HW=198.94' TW=177.67' (Dynamic Tailwater)
└**1=Culvert** (Passes 8.14 cfs of 18.29 cfs potential flow)
  └**2=Orifice/Grate** (Controls 0.00 cfs)
  └**3=Orifice/Grate** (Orifice Controls 4.53 cfs @ 5.77 fps)
  └**4=Orifice/Grate** (Orifice Controls 3.61 cfs @ 10.33 fps)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond P2: DMH 1

Inflow Area = 1.889 ac,100.00% Impervious, Inflow Depth > 8.12" for 100 Year Storm event
Inflow = 15.85 cfs @ 12.09 hrs, Volume= 1.278 af
Outflow = 15.85 cfs @ 12.09 hrs, Volume= 1.278 af, Atten= 0%, Lag= 0.0 min
Primary = 15.85 cfs @ 12.09 hrs, Volume= 1.278 af
Routed to Pond P4 : DMH 2

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 290.89' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	238.20'	**12.0" Round Culvert** L= 95.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 238.20' / 236.15' S= 0.0216 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=14.03 cfs @ 12.09 hrs HW=286.87' TW=262.68' (Dynamic Tailwater)
1=Culvert (Outlet Controls 14.03 cfs @ 17.86 fps)

Summary for Pond P20: DMH 14

Inflow Area = 2.594 ac, 48.93% Impervious, Inflow Depth > 4.85" for 100 Year Storm event
Inflow = 8.17 cfs @ 12.32 hrs, Volume= 1.049 af
Outflow = 8.17 cfs @ 12.32 hrs, Volume= 1.049 af, Atten= 0%, Lag= 0.0 min
Primary = 8.17 cfs @ 12.32 hrs, Volume= 1.049 af
Routed to Pond P21 : WET BASIN 2

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 177.69' @ 12.32 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	174.00'	**15.0" Round Culvert** L= 170.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 174.00' / 163.80' S= 0.0600 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=8.14 cfs @ 12.32 hrs HW=177.67' TW=158.43' (Dynamic Tailwater)
1=Culvert (Inlet Controls 8.14 cfs @ 6.63 fps)

Summary for Pond P21: WET BASIN 2

Inflow Area = 4.092 ac, 39.81% Impervious, Inflow Depth > 5.17" for 100 Year Storm event
Inflow = 15.85 cfs @ 12.12 hrs, Volume= 1.764 af
Outflow = 9.37 cfs @ 12.54 hrs, Volume= 1.716 af, Atten= 41%, Lag= 25.4 min
Primary = 9.37 cfs @ 12.54 hrs, Volume= 1.716 af
Routed to Link OP1 : 1008-79-11F

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 158.99' @ 12.54 hrs Surf.Area= 3,196 sf Storage= 13,556 cf

Plug-Flow detention time= 28.1 min calculated for 1.716 af (97% of inflow)
Center-of-Mass det. time= 18.2 min (816.2 - 798.0)

Volume	Invert	Avail.Storage	Storage Description
#1	150.00'	17,020 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
150.00	300	0	0
152.00	700	1,000	1,000
154.00	1,200	1,900	2,900
156.00	1,900	3,100	6,000
158.00	2,720	4,620	10,620
160.00	3,680	6,400	17,020

Device	Routing	Invert	Outlet Devices
#1	Primary	151.80'	**12.0" Round Culvert** L= 90.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 151.80' / 150.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	158.60'	**29.0" x 20.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	153.00'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	158.80'	**4.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=9.35 cfs @ 12.54 hrs HW=158.99' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 8.57 cfs @ 10.91 fps)
  - **2=Orifice/Grate** (Passes < 6.57 cfs potential flow)
  - **3=Orifice/Grate** (Passes < 8.86 cfs potential flow)
- **4=Broad-Crested Rectangular Weir** (Weir Controls 0.79 cfs @ 1.04 fps)

Summary for Pond P3: CB 2

Inflow Area = 0.175 ac,100.00% Impervious, Inflow Depth > 8.12" for 100 Year Storm event
Inflow = 1.46 cfs @ 12.09 hrs, Volume= 0.118 af
Outflow = 1.46 cfs @ 12.09 hrs, Volume= 0.118 af, Atten= 0%, Lag= 0.0 min
Primary = 1.46 cfs @ 12.09 hrs, Volume= 0.118 af
Routed to Pond P2 : DMH 1

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 291.03' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	238.40'	**12.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 238.40' / 238.20' S= 0.0200 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=271.82' TW=286.87' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Summary for Pond P4: DMH 2

Inflow Area = 2.679 ac,100.00% Impervious, Inflow Depth > 8.12" for 100 Year Storm event
Inflow = 22.48 cfs @ 12.09 hrs, Volume= 1.813 af
Outflow = 22.48 cfs @ 12.09 hrs, Volume= 1.813 af, Atten= 0%, Lag= 0.0 min
Primary = 22.48 cfs @ 12.09 hrs, Volume= 1.813 af
Routed to Pond P14 : SC-740 (1)

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 263.82' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	236.05'	**15.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 236.05' / 236.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=21.74 cfs @ 12.09 hrs HW=262.68' TW=240.96' (Dynamic Tailwater)
1=Culvert (Inlet Controls 21.74 cfs @ 17.71 fps)

Summary for Pond P5: CB 3

Inflow Area = 0.790 ac,100.00% Impervious, Inflow Depth > 8.12" for 100 Year Storm event
Inflow = 6.63 cfs @ 12.09 hrs, Volume= 0.535 af
Outflow = 6.63 cfs @ 12.09 hrs, Volume= 0.535 af, Atten= 0%, Lag= 0.0 min
Primary = 6.63 cfs @ 12.09 hrs, Volume= 0.535 af
Routed to Pond P4 : DMH 2

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 268.07' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	236.70'	**12.0" Round Culvert** L= 110.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 236.70' / 236.15' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.99 cfs @ 12.09 hrs HW=263.21' TW=262.68' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.99 cfs @ 2.54 fps)

Summary for Pond P6: CB 7

Inflow Area = 0.490 ac, 73.08% Impervious, Inflow Depth > 7.41" for 100 Year Storm event
Inflow = 4.00 cfs @ 12.09 hrs, Volume= 0.302 af
Outflow = 4.00 cfs @ 12.09 hrs, Volume= 0.302 af, Atten= 0%, Lag= 0.0 min
Primary = 4.00 cfs @ 12.09 hrs, Volume= 0.302 af
Routed to Pond P7 : DMH 11

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 369.48' @ 12.23 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	240.40'	**12.0" Round Culvert** L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 240.40' / 239.70' S= 0.0056 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=288.21' TW=318.01' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Summary for Pond P7: DMH 11

Inflow Area = 1.438 ac, 90.83% Impervious, Inflow Depth > 7.88" for 100 Year Storm event
Inflow = 11.95 cfs @ 12.09 hrs, Volume= 0.944 af
Outflow = 11.95 cfs @ 12.09 hrs, Volume= 0.944 af, Atten= 0%, Lag= 0.0 min
Primary = 11.95 cfs @ 12.09 hrs, Volume= 0.944 af
Routed to Pond P8 : DMH 10

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 368.87' @ 12.18 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	239.60'	**12.0" Round Culvert** L= 70.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 239.60' / 239.20' S= 0.0057 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=317.72' TW=341.26' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Summary for Pond P8: DMH 10

Inflow Area = 1.504 ac, 91.23% Impervious, Inflow Depth > 7.89" for 100 Year Storm event
Inflow = 12.51 cfs @ 12.09 hrs, Volume= 0.989 af
Outflow = 12.51 cfs @ 12.09 hrs, Volume= 0.989 af, Atten= 0%, Lag= 0.0 min
Primary = 12.51 cfs @ 12.09 hrs, Volume= 0.989 af
Routed to Pond P10 : DMH 9

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 362.44' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	239.10'	**12.0" Round Culvert** L= 285.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 239.10' / 237.65' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=6.88 cfs @ 12.09 hrs HW=341.25' TW=328.33' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 6.88 cfs @ 8.76 fps)

Summary for Pond P9: CB 6

Inflow Area = 0.067 ac,100.00% Impervious, Inflow Depth > 8.12" for 100 Year Storm event
Inflow = 0.56 cfs @ 12.09 hrs, Volume= 0.045 af
Outflow = 0.56 cfs @ 12.09 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min
Primary = 0.56 cfs @ 12.09 hrs, Volume= 0.045 af
Routed to Pond P8 : DMH 10

Routing by Dyn-Stor-Ind method, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 362.46' @ 12.19 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	239.30'	**12.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 239.30' / 239.20' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=302.43' TW=341.09' (Dynamic Tailwater)
↑**1=Culvert** (Controls 0.00 cfs)

Summary for Link OP1: 1008-79-11F

Inflow Area = 5.304 ac, 30.97% Impervious, Inflow Depth > 5.03" for 100 Year Storm event
Inflow = 13.78 cfs @ 12.17 hrs, Volume= 2.222 af
Primary = 13.78 cfs @ 12.17 hrs, Volume= 2.222 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Link OP2: ROADSIDE SWALE

Inflow Area = 3.708 ac, 0.26% Impervious, Inflow Depth > 5.12" for 100 Year Storm event
Inflow = 19.01 cfs @ 12.17 hrs, Volume= 1.583 af
Primary = 19.01 cfs @ 12.17 hrs, Volume= 1.583 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Link OP3: 1010-79-17A

Inflow Area = 1.951 ac, 0.00% Impervious, Inflow Depth > 2.26" for 100 Year Storm event
Inflow = 5.16 cfs @ 12.10 hrs, Volume= 0.367 af
Primary = 5.16 cfs @ 12.10 hrs, Volume= 0.367 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Summary for Link OP4: WETLANDS

Inflow Area = 9.380 ac, 64.20% Impervious, Inflow Depth > 4.66" for 100 Year Storm event
Inflow = 39.53 cfs @ 12.17 hrs, Volume= 3.644 af
Primary = 39.53 cfs @ 12.17 hrs, Volume= 3.644 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-20.00 hrs, dt= 0.05 hrs

Section 3.1

Treatment Train TSS
Calculations

INSTRUCTIONS:
1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Version 1, Automated: Mar. 4, 2008

Location: Wet Basin 1 (Node P19)

TSS Removal Calculation Worksheet

B BMP[1]	C TSS Removal Rate[1]	D Starting TSS Load*	E Amount Removed (C*D)	F Remaining Load (D-E)
Sediment Forebay	0.25	1.00	0.25	0.75
Wet Basin	0.80	0.75	0.60	0.15
	0.00	0.15	0.00	0.15
	0.00	0.15	0.00	0.15
	0.00	0.15	0.00	0.15

Total TSS Removal = 85%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: Pie Hill Warehousing
Prepared By: CLR
Date: 4/4/2022

*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed

1. From MassDEP Stormwater Handbook Vol. 1

INSTRUCTIONS:
1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Version 1, Automated: Mar. 4, 2008

Location: Wet Basin 2 (Node P21)

TSS Removal Calculation Worksheet

B BMP[1]	C TSS Removal Rate[1]	D Starting TSS Load*	E Amount Removed (C*D)	F Remaining Load (D-E)
Sediment Forebay	0.25	1.00	0.25	0.75
Wet Basin	0.80	0.75	0.60	0.15
	0.00	0.15	0.00	0.15
	0.00	0.15	0.00	0.15
	0.00	0.15	0.00	0.15

Total TSS Removal = 85%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: Pie Hill Warehousing
Prepared By: CLR
Date: 4/4/2022

*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed

1. From MassDEP Stormwater Handbook Vol. 1

INSTRUCTIONS:

Version 1, Automated: Mar. 4, 2008

1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Location: SC-740 1 (Node P14)

TSS Removal Calculation Worksheet

B BMP[1]	C TSS Removal Rate[1]	D Starting TSS Load*	E Amount Removed (C*D)	F Remaining Load (D-E)
Subsurface Infiltration Structure	**0.80**	**1.00**	**0.80**	**0.20**
	0.00	**0.20**	**0.00**	**0.20**
	0.00	**0.20**	**0.00**	**0.20**
	0.00	**0.20**	**0.00**	**0.20**
	0.00	**0.20**	**0.00**	**0.20**

Total TSS Removal = **80%**

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: **Pie Hill Warehousing**

Prepared By: **CLR**

Date: **4/4/2022**

*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed

1. From MassDEP Stormwater Handbook Vol. 1

INSTRUCTIONS:

Version 1, Automated: Mar. 4, 2008

1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Location: SC-740 2 (Node P16)

TSS Removal Calculation Worksheet

B BMP[1]	C TSS Removal Rate[1]	D Starting TSS Load*	E Amount Removed (C*D)	F Remaining Load (D-E)
Subsurface Infiltration Structure	**0.80**	**1.00**	**0.80**	**0.20**
	0.00	**0.20**	**0.00**	**0.20**
	0.00	**0.20**	**0.00**	**0.20**
	0.00	**0.20**	**0.00**	**0.20**
	0.00	**0.20**	**0.00**	**0.20**

Total TSS Removal = **80%**

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: **Pie Hill Warehousing**

Prepared By: **CLR**

Date: **4/4/2022**

*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed

1. From MassDEP Stormwater Handbook Vol. 1

Section 3.2

Test Pit Data

FIELDSTONE
LAND CONSULTANTS, PLLC
Surveying ⌖ Engineering
Land Planning ⌖ Septic Designs
206 Elm Street, Milford, NH 03055 - Phone: 603-672-5456 - Fax: 603-413-5456
www.FieldstoneLandConsultants.com

TEST PIT DATA
JOSEPH GULLA
TAX MAP 1010 LOT 79-17
46 OLD FERRY ROAD
METHUEN, MA

12/3/9
Test Pit #1
0-10”- ASPHALT/MIX
10-20”- 10YR 4/6 DARK YELLOWISH BROWN FINE SANDY LOAM, GRANULAR FRIABLE
20-96”- 2.5Y 5/6 LIGHT OLIVE BROWN FINE SANDY LOAM, WEAK BLOCKY
ESHWT = 96” OBSERVED WATER = NONE LEDGE/BOULDERS = >96” ROOTS = NONE

Test Pit #2
0-6”- ASPHALT/LOAM/DISTURBED
6-96”- 2.5 Y 5/6 LIGHT OLIVE BROWN FINE SANDY LOAM, MASSIVE FIRM
ESHWT = 60” OBSERVED WATER = NONE LEDGE/BOULDERS = >96” ROOTS = 48”

Test Pit #3
0-12” – 10YR 3/3 DARK BROWN LOAM, GRANULAR FRIABLE
12-30” – 10 YR 4/6 DARK YELLOWISH BROWN FINE SANDY LOAM
30-60” – 2.5 Y 5/6 LIGHT OLIVE BROWN FINE SANDY LOAM, MASSIVE FIRM
60-96” – 2.5 Y 4/3 OLIVE BROWN FINE SANDY LOAM, MASSIVE FIRM
ESHWT = 60” ± OBSERVED WATER = NONE LEDGE/BOULDERS = >96” ROOTS = 48”

Test Pit #4
0-12” – 10YR 3/3 DARK BROWN LOAM, GRANULAR FRIABLE
12-20” – 10 YR 4/6 DARK YELLOWISH BROWN FINE SANDY LOAM
20-60” – 2.5 Y 5/6 LIGHT OLIVE BROWN FINE SANDY LOAM, MASSIVE FIRM
60-96” – 2.5 Y 4/3 OLIVE BROWN FINE SANDY LOAM, MASSIVE FIRM
ESHWT = 60” ± OBSERVED WATER =NONE LEDGE/BOULDERS = NONE ROOTS =50”

Test Pit #5
0-6” – 10YR 3/3 DARK BROWN LOAM GRANULAR FRIABLE
6-20” – 10 YR 4/6 DARK YELLOWISH BROWN FINE SANDY LOAM
20-60” – 2.5 Y 5/6 LIGHT OLIVE BROWN FINE SANDY LOAM, MASSIVE FIRM
60-96” – 2.5 Y 4/3 OLIVE BROWN FINE SANDY LOAM, MASSIVE FIRM
ESHWT = 60” ± OBSERVED WATER =NONE LEDGE/BOULDERS = NONE ROOTS = >96”

2295.00

2295.00 – 46 Old Ferry Road Methuen, MA

Test Pit #6
0-6" – 10YR 3/3 DARK BROWN LOAM GRANULAR FRIABLE
6-20" – 10 YR 4/6 DARK YELLOWISH BROWN FINE SANDY LOAM
20-60" – 2.5 Y 5/6 LIGHT OLIVE BROWN FINE SANDY LOAM, MASSIVE FIRM
60-96" – 2.5 Y 4/3 OLIVE BROWN FINE SANDY LOAM, MASSIVE FIRM
ESHWT = 60" ± OBSERVED WATER =NONE LEDGE/BOULDERS = >96" ROOTS =50"

Test Pit #7
0-6" – 10YR 3/3 DARK BROWN LOAM, GRANULAR FRIABLE
6-20" – 10 YR 4/6 DARK YELLOWISH BROWN, FINE SANDY LOAM
20-60" – 2.5 Y 5/6 LIGHT OLIVE BROWN FINE SANDY LOAM, MASSIVE FIRM
60-96" – 2.5 Y 4/3 OLIVE BROWN FINE SANDY LOAM, MASSIVE FIRM
ESHWT = 60" ± OBSERVED WATER =NONE LEDGE/BOULDERS = >96" ROOTS =55"

5/17/21
Test Pit #20A
0-14"- 10 YR 3/3 Dark brown loam, granular, friable
14-42"- 2.5 Y 6/4 Light yellowish brown gravelly silt loam, massive, friable
42-110"- 2.5Y 6/4 Light yellowish brown gravelly silt loam, massive, moderately firm
ESHWT = 38" OBSERVED WATER = 56" LEDGE/BOULDERS = >110" ROOTS =70"

5/17/21
Test Pit #20B
0-12"- 10 YR 3/3 Dark brown loam, granular, friable
12-40"- 2.5 Y 6/4 Light yellowish brown gravelly silt loam, massive, friable
40-120"- 2.5Y 6/4 Light yellowish brown gravelly silt loam, massive, moderately firm
ESHWT = 38" OBSERVED WATER = 60" LEDGE/BOULDERS = >120" ROOTS =64"

5/17/21
Test Pit #21A
0-10"- 10 YR 3/3 Dark brown loam, granular, friable
10-38"- 10 YR 5/6 Yellowish brown fine sandy loam, granular, friable
38-96"- 2.5Y 6/3 Light yellowish brown fine sandy loam, weak blocky, friable
ESHWT = 56" OBSERVED WATER = NONE LEDGE/BOULDERS = >96" ROOTS =60"

5/17/21
Test Pit #21B
0-4"- 10 YR 3/3 Dark brown loam, granular, friable
4-23"- 10 YR 5/6 Yellowish brown fine sandy loam, granular, friable
23-96"- 2.5Y 6/3 Light yellowish brown gravelly fine sandy loam, weak blocky, friable
ESHWT = 76" OBSERVED WATER = NONE LEDGE/BOULDERS = >96" ROOTS =84"

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5/17/21

Test Pit #22A

0-12”- 10 YR 3/3 Dark brown loam, granular, friable
12-48”- 10 YR 5/6 Yellowish brown fine sandy loam, granular, friable
48-96”- 2.5Y 6/3 Light yellowish brown fine sandy loam, weak blocky, friable
ESHWT = 48” OBSERVED WATER = 48” LEDGE/BOULDERS = >96” ROOTS =54”

5/17/21

Test Pit #22B

0-4”- 10 YR 3/3 Dark brown loam, granular, friable
4-26”- 10 YR 5/6 Yellowish brown fine sandy loam, granular, friable
26-96”- 2.5Y 6/3 Light yellowish brown fine sandy loam, weak blocky, friable
ESHWT = 50” OBSERVED WATER = NONE LEDGE/BOULDERS = >96” ROOTS =52”

3/24/22

Test Pit #1A

0-6”- 10 YR 3/3 Dark brown loam, granular, friable
6-13”- 2.5 Y 5/6 Light olive brown fine sandy loam, granular, friable
13-78”- 2.5Y 6/3 Light yellowish brown gravelly fine sandy loam, massive, friable
ESHWT = None OBSERVED WATER = None LEDGE/BOULDERS = None ROOTS = 18”

3/24/22

Test Pit #2A

0-14”- 2.5 Y 5/3 Light olive brown very fine sandy loam, massive, friable. Fill
14-42”- 2.5 Y 5/2 Grayish brown very fine sandy loam, massive, friable. Fill
42-48”- 10 YR 5/1 Gray fine sandy loam, massive, friable. Fill
48-82”- 10 YR 3/3 Dark brown gravelly loam, massive, friable. Fill
ESHWT = None OBSERVED WATER = None LEDGE/BOULDERS = None ROOTS = 4”

3/24/22

Test Pit #3A

0-9”- 10 YR 3/3 Dark brown stony loam, granular, friable
9-45”- 2.5 Y 5/6 Light olive brown loamy fine-to-medium sand, granular, friable
45-72”- 2.5Y 5/6 Light olive brown gravelly loamy fine sand, massive, friable
ESHWT = None OBSERVED WATER = None LEDGE/BOULDERS = None ROOTS = 18”

3/24/22

Test Pit #4A

0-14”- 2.5 Y 5/3 Light olive brown very fine sandy loam, massive, friable. Fill
14-36”- 2.5 Y 5/2 Grayish brown very fine sandy loam, massive, friable. Fill
36-48”- 10 YR 5/1 Gray fine sandy loam, massive, friable. Fill
48-74”- 10 YR 3/3 Dark brown gravelly loam, massive, friable. Fill
ESHWT = None OBSERVED WATER = None LEDGE/BOULDERS = None ROOTS = 54”

2295.00 – 46 Old Ferry Road Methuen, MA

3/24/22

Test Pit #5A

0-2”- 2.5 Y 5/3 Light olive brown very fine sandy loam, massive, friable. Fill
2-30”- 2.5 Y 5/2 Grayish brown very fine sandy loam, massive, friable. Fill
30-48”- 10 YR 5/1 Gray fine sandy loam, massive, friable. Fill with construction debris
48-72”- 10 YR 3/3 Dark brown gravelly loam, massive, friable. Fill with construction debris
ESHWT = None OBSERVED WATER = None LEDGE/BOULDERS = None ROOTS = 58”

3/24/22

Test Pit #6A

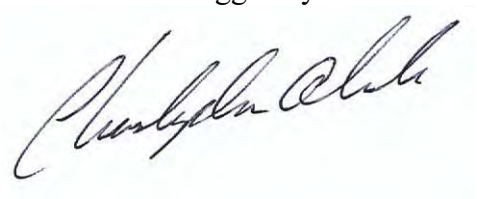
0-12”- 10 YR 3/3 Dark brown loam, granular, friable
12-60”- 2.5 Y 6/3 Light yellowish brown fine sandy loam, granular, friable. Extremely stony fill.
ESHWT = None OBSERVED WATER = None LEDGE/BOULDERS = None ROOTS = 48”

3/24/22

Test Pit #7A

0-2”- 10 YR 3/3 Dark brown loam, granular, friable
2-36”- 2.5 Y 5/2 Grayish brown stony fine sandy loam, granular, friable
36-50”- 2.5 Y 5/2 Grayish brown gravelly fine sandy loam, massive, firm. Till
ESHWT = 36” OBSERVED WATER = 36” LEDGE/BOULDERS = None ROOTS = 38”

Test Pits were logged by:



Christopher A. Guida, CSS, CWS & Kenneth Robinson, CWS
Certified Soil & Wetland Scientist Certified Wetland Scientist
MA Soil Evaluator #SE13488

Section 3.3

Stormwater Inspection & Maintenance Manual

Pie Hill Warehousing
46 Old Ferry Road, Methuen, Massachusetts
Storm Water Management System
Inspection and Maintenance Manual

Introduction

The operation and maintenance of a storm water management system and its individual components is as critical to system performance as the design. Without proper maintenance, best management practices (BMPs) are likely to become functionally impaired or to fail, providing reduced or no treatment of storm water. Proper operation and maintenance will ensure that the storm water system and individual BMPs will remain effective at removing pollutants as designed and meeting Methuen's water quality objectives. Proper maintenance will:

- Maintain the volume of storm water treated over the long term;
- Sustain the pollutant removal efficiency of the BMP;
- Reduce the risk of re-suspending sediment and other pollutants captured by the BMP;
- Prevent structural deterioration of the BMP and minimize the need for expensive repairs;
- Decrease the potential for failure of the BMP.

The Massachusetts Department of Environmental Protection (MassDEP) Stormwater Handbook requires that the long term maintenance of storm water practices, and stipulates the establishment of a mechanism to provide for ongoing inspections and maintenance.

In accordance with Massachusetts Department of Environmental Protection Stormwater Handbook the mechanism for providing long-term maintenance practices for this development are as follows:

Responsible Maintenance Party:

Owner: Triple G, LLC
46 Alsun Drive
Hollis, NH 03049

Report Information:

- Triple G, LLC or their assigns will be the individual responsible for implementing the required reporting, inspection, and maintenance activities identified in the I & M manual.
- Triple G, LLC or their assigns will maintain all record keeping required by the I & M manual. Any transfer of responsibility for I & M activities or transfer in ownership shall be documented to the City of Methuen DPW in writing.

- Inspection and maintenance reports shall be completed after each inspection. Copies of the report forms to be completed by the inspector are attached at the end of this manual, including:
    - Inspection checklist to be used during each inspection;
    - Inspection and maintenance logs to document each inspection and maintenance activity;

Maintenance Recommendations for Best Management Practices:

The following recommendations are to be used as a guide for the inspection and maintenance of the permanent erosion and sediment control measures.

Stormwater Management Basin

- Basins should be inspected at least twice annually, and following any rainfall event exceeding 2.5 inches in a 24 hour period, with maintenance or rehabilitation conducted as warranted by such inspection.
- Inspect, repair and remove debris from headwalls, end sections and riprap aprons.
- Remove woody vegetation from the Stormwater Management Basin with periodic mowing of embankments.
- Inspection and repair of embankments and spillways as required.
- Remove accumulated sediment from basin bottom and crushed stone as necessary.
- Dispose of sediments and other wastes in conformance with applicable local, state and federal regulations.
- If an infiltration system does not drain within 72-hours following a rainfall event, then a qualified professional should assess the condition of the facility to determine measures required to restore infiltration function, including but not limited to removal of accumulated sediments or reconstruction of the infiltration basin.

Conveyance Swales

- Inspect swales at least semi-annually.
- Remove accumulated sediment from swales when the sediment exceeds the height of the grass in the swale.
- Repair any damage in the swales as a result of erosion immediately after the inspection to restore the treatment function and prevent further damage to the swales.
- Dispose of sediments and other wastes in conformance with applicable local, state and federal regulations.

Sediment Forebays

- Inspect Forebays monthly for first year to determine sediment load. If sediment load is heavy then maintain monthly inspections. If sediment load is light then reduce inspection accordingly but inspect at least semi-annually.
- Remove trash upon inspection and accumulated sedimentation when sediments have accumulated to within 6 inches of the outlet and/or when there is evidence of excessive sediment being conveyed to downstream BMP.
- Repair any damage in the forebay as a result of erosion immediately after the inspection to minimize sediment transport.
- Dispose of sediments and other wastes in conformance with applicable local, state and federal regulations.

Stormtech Chambers

- See Attached.

Outlet Protection - Riprap Aprons

- Inspect the outlet protection annually for damage and deterioration. Repair damages immediately.
- Remove debris from apron area.

Inspection Checklist /Maintenance Logs

The inspection checklist and maintenance logs following this report shall be used as a guide for the inspection reporting for this project.

Inspection Checklist

- ☐ Riprap Aprons at Headwall Outlets
- ☐ Conveyance Swales
- ☐ Stormtech Chambers
- ☐ Sediment Forebays and Stormwater Basins
- ☐ Spillways
- ☐ Headwall Inlets and Outlets

Inspection and Maintenance Log					
	BMP	**Inspection Date**	**Inspected By**	**Maintenance Required?**	**Maintenance Performed**
1				❑Yes ❑No	
2				❑Yes ❑No	
3				❑Yes ❑No	
4				❑Yes ❑No	
5				❑Yes ❑No	
6				❑Yes ❑No	
7				❑Yes ❑No	
8				❑Yes ❑No	
9				❑Yes ❑No	

Deicing Log					
Air Temp.	**Weather Conditions**	**Date of Application**	**Type of Deicer Used**	**Amount of Deicer Used**	**Deicer Applied By**

StormTech
Detention • Retention • Water Quality
An ADS company

Isolator® Row O&M Manual

THE MOST **ADVANCED** NAME IN WATER MANAGEMENT SOLUTIONS™

ADS®

THE ISOLATOR® ROW

INTRODUCTION

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row is a technique to inexpensively enhance Total Suspended Solids (TSS) removal and provide easy access for inspection and maintenance.

THE ISOLATOR ROW

The Isolator Row is a row of StormTech chambers, either SC-160LP, SC-310, SC-310-3, SC-740, DC-780, MC-3500 or MC-4500 models, that is surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for settling and filtration of sediment as storm water rises in the Isolator Row and ultimately passes through the filter fabric. The open bottom chambers and perforated sidewalls (SC-310, SC- 310-3 and SC-740 models) allow storm water to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row protecting the storage areas of the adjacent stone and chambers from sediment accumulation.

Two different fabrics are used for the Isolator Row. A woven geotextile fabric is placed between the stone and the Isolator Row chambers. The tough geotextile provides a media for storm water filtration and provides a durable surface for maintenance operations. It is also designed to prevent scour of the underlying stone and remain intact during high pressure jetting. A non-woven fabric is placed over the chambers to provide a filter media for flows passing through the perforations in the sidewall of the chamber. The non-woven fabric is not required over the SC-160LP, DC-780, MC-3500 or MC-4500 models as these chambers do not have perforated side walls.

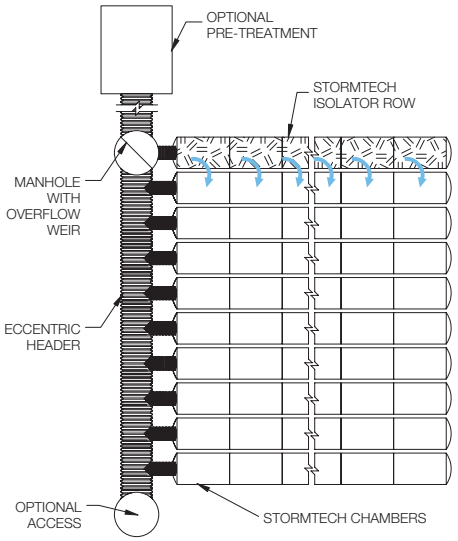
The Isolator Row is typically designed to capture the “first flush” and offers the versatility to be sized on a volume basis or flow rate basis. An upstream manhole not only provides access to the Isolator Row but typically includes a high flow weir such that storm water flowrates or volumes that exceed the capacity of the Isolator Row overtop the over flow weir and discharge through a manifold to the other chambers.

The Isolator Row may also be part of a treatment train. By treating storm water prior to entry into the chamber system, the service life can be extended and pollutants such as hydrocarbons can be captured. Pre-treatment best management practices can be as simple as deep sump catch basins, oil-water separators or can be innovative storm water treatment devices. The design of the treatment train and selection of pretreatment devices by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, the Isolator Row is recommended by StormTech as an effective means to minimize maintenance requirements and maintenance costs.

Note: See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row.

Looking down the Isolator Row from the manhole opening, woven geotextile is shown between the chamber and stone base.

StormTech Isolator Row with Overflow Spillway (not to scale)



ISOLATOR ROW INSPECTION/MAINTENANCE

INSPECTION

The frequency of inspection and maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

The Isolator Row incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row, clean-out should be performed.

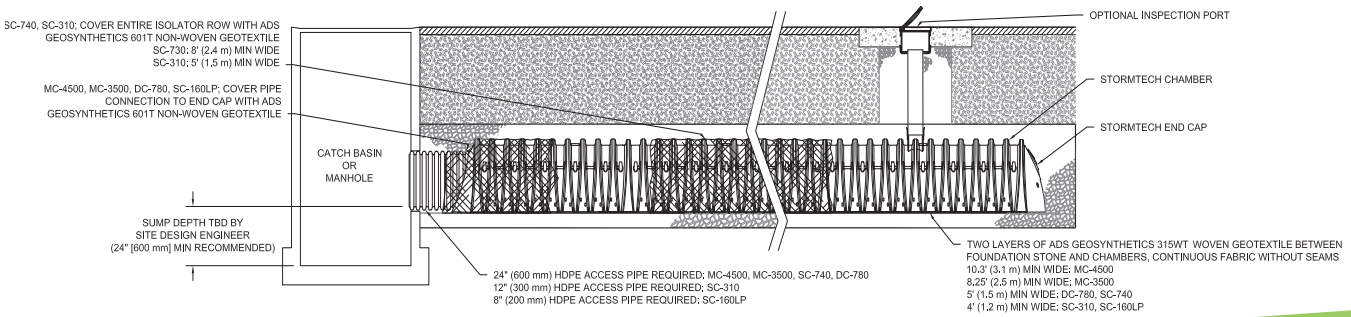
MAINTENANCE

The Isolator Row was designed to reduce the cost of periodic maintenance. By "isolating" sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entries.

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" are best. Most JetVac reels have 400 feet of hose allowing maintenance of an Isolator Row up to 50 chambers long. **The JetVac process shall only be performed on StormTech Isolator Rows that have AASHTO class 1 woven geotextile (as specified by StormTech) over their angular base stone.**

StormTech Isolator Row (not to scale)

Note: Non-woven fabric is only required over the inlet pipe connection into the end cap for SC-160LP, DC-780, MC-3500 and MC-4500 chamber models and is not required over the entire Isolator Row.



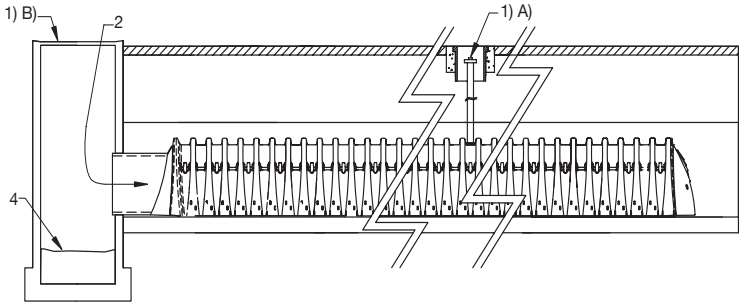
ISOLATOR ROW STEP BY STEP MAINTENANCE PROCEDURES

STEP 1
Inspect Isolator Row for sediment.
- A) Inspection ports (if present)
  - i. Remove lid from floor box frame
  - ii. Remove cap from inspection riser
  - iii. Using a flashlight and stadia rod,measure depth of sediment and record results on maintenance log.
  - iv. If sediment is at or above 3 inch depth, proceed to Step 2. If not, proceed to Step 3.
- B) All Isolator Rows
  - i. Remove cover from manhole at upstream end of Isolator Row
  - ii. Using a flashlight, inspect down Isolator Row through outlet pipe
    1. Mirrors on poles or cameras may be used to avoid a confined space entry
    2. Follow OSHA regulations for confined space entry if entering manhole
  - iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches), proceed to Step 2. If not, proceed to Step 3.

STEP 2
Clean out Isolator Row using the JetVac process.
- A) A fixed floor cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
- B) Apply multiple passes of JetVac until backflush water is clean
- C) Vacuum manhole sump as required

STEP 3
Replace all caps, lids and covers, record observations and actions.

STEP 4
Inspect & clean catch basins and manholes upstream of the StormTech system.



SAMPLE MAINTENANCE LOG

Date	Stadia Rod Readings		Sediment Depth (1)–(2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)			
3/15/11	6.3 ft	none		New installation. Fixed point is CI frame at grade	DJM
9/24/11		6.2	0.1 ft	Some grit felt	SM
6/20/13		5.8	0.5 ft	Mucky feel, debris visible in manhole and in Isolator Row, maintenance due	NV
7/7/13	6.3 ft		0	System jetted and vacuumed	DJM

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Advanced Drainage Systems, Inc.
4640 Trueman Blvd., Hilliard, OH 43026
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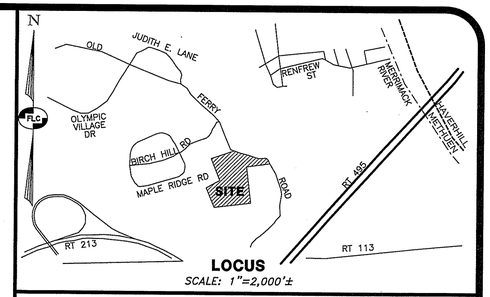
Drainage Plans



DRAINAGE ANALYSIS

- E2 — SUBCATCHMENT
- R2 — REACH
- P2 — POND OR PIPE
- OP1 — OBSERVATION POINTS
- HYDROLOGIC PATH
- SUBCATCHMENT BOUNDARY
- SURFACE RUNOFF DIRECTION

GRAPHIC SCALES

60' 30' 0 60' 120' 180'

IMPERIAL: 1"=60'

SUBCATCHMENT BY GROUND COVER

	>75% GRASS	GRAVEL SURFACE	PAVED PARKING	WOODS
E1S	0.810 AC	0.761 AC	–	1.537 AC
E2S	5.265 AC	1.044 AC	0.010 AC	0.801 AC
E3S	0.621 AC	0.118 AC	–	2.031 AC
E4S	1.872 AC	0.057 AC	–	2.711 AC
E5S	0.748 AC	0.076 AC	–	1.882 AC

REV.	DATE	DESCRIPTION	C/O	DR	CK
–	–	–		–	–

PRE-DEVELOPMENT DRAINAGE PLAN

PIE HILL WAREHOUSING

TAX MAP 1010 LOT 79-17

(46 OLD FERRY ROAD)

METHUEN, MASSACHUSETTS

PREPARED FOR AND LAND OF:

TRIPLE G, LLC

59 BONANNO COURT, METHUEN, MA 01844

SCALE: 1" = 60'

APRIL 4, 2022

Surveying ⌖ **E**ngineering ⌖ **L**and **P**lanning ⌖ **P**ermitting ⌖ **S**eptic **D**esigns

W E

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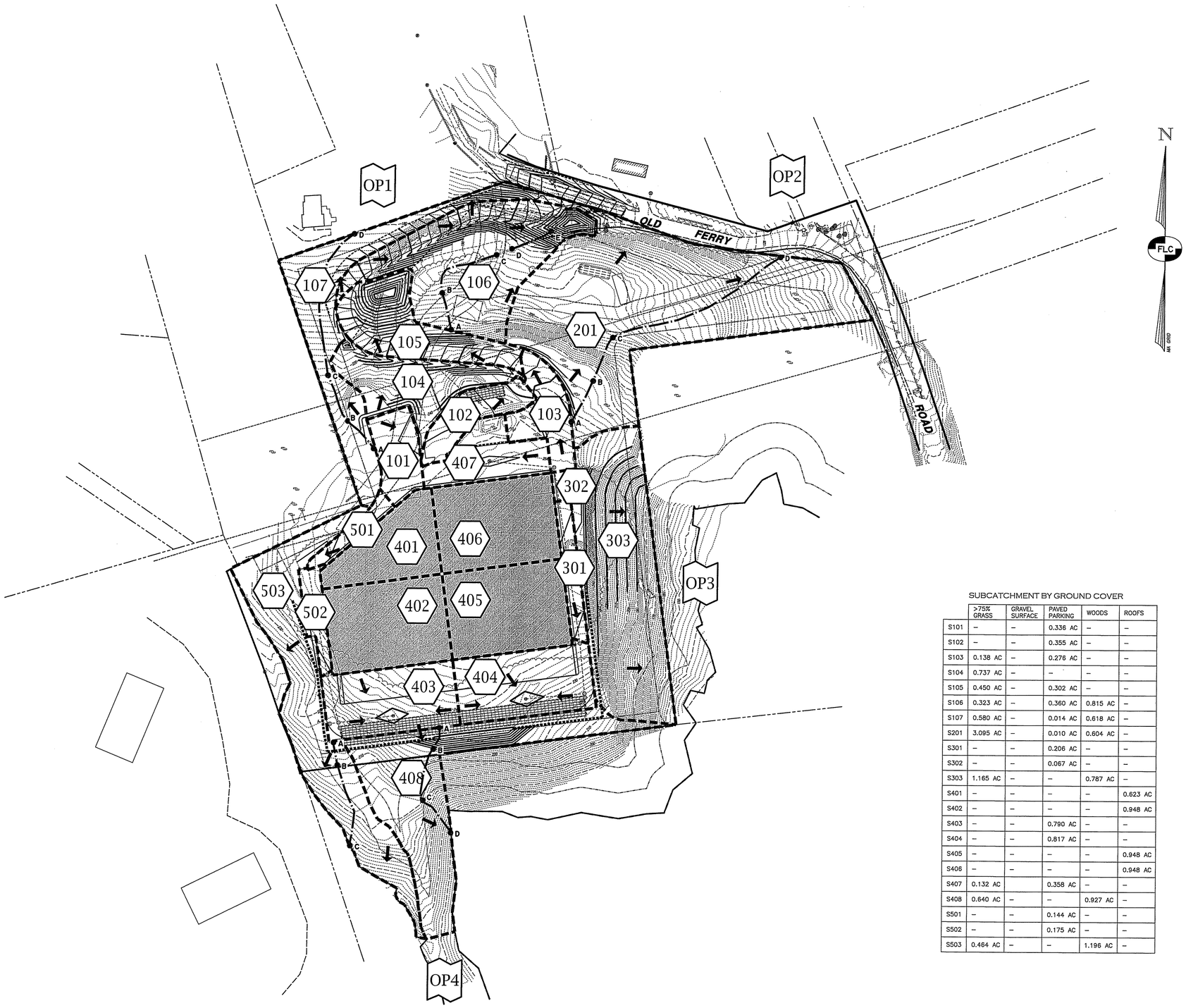

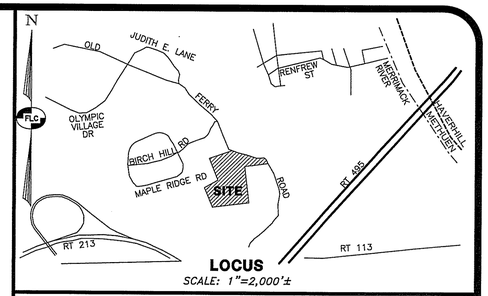

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GRAPHIC SCALES

100' 50' 0 100' 200' 300'

IMPERIAL: 1"=100'

SUBCATCHMENT BY GROUND COVER

	>75% GRASS	GRAVEL SURFACE	PAVED PARKING	WOODS	ROOFS
S101	–	–	0.336 AC	–	–
S102	–	–	0.355 AC	–	–
S103	0.138 AC	–	0.276 AC	–	–
S104	0.737 AC	–	–	–	–
S105	0.450 AC	–	0.302 AC	–	–
S106	0.323 AC	–	0.360 AC	0.815 AC	–
S107	0.580 AC	–	0.014 AC	0.618 AC	–
S201	3.095 AC	–	0.010 AC	0.604 AC	–
S301	–	–	0.206 AC	–	–
S302	–	–	0.067 AC	–	–
S303	1.165 AC	–	–	0.787 AC	–
S401	–	–	–	–	0.623 AC
S402	–	–	–	–	0.948 AC
S403	–	–	0.790 AC	–	–
S404	–	–	0.817 AC	–	–
S405	–	–	–	–	0.948 AC
S406	–	–	–	–	0.948 AC
S407	0.132 AC		0.358 AC	–	–
S408	0.640 AC	–	–	0.927 AC	–
S501	–	–	0.144 AC	–	–
S502	–	–	0.175 AC	–	–
S503	0.464 AC	–	–	1.196 AC	–

REV.	DATE	DESCRIPTION	C/O	DR	CK
–	–	–	–	–	–

POST-DEVELOPMENT DRAINAGE PLAN

PIE HILL WAREHOUSING

TAX MAP 1010 LOT 79-17
(46 OLD FERRY ROAD)
METHUEN, MASSACHUSETTS

PREPARED FOR AND LAND OF:
TRIPLE G, LLC
59 BONANNO COURT, METHUEN, MA 01844

SCALE: 1" = 100' APRIL 4, 2022

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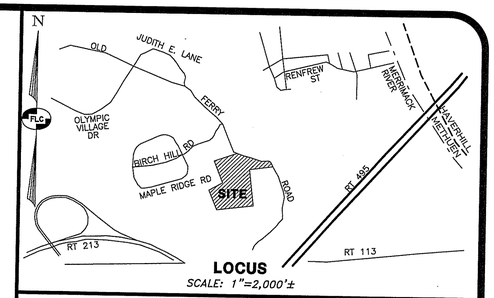

LOCUS
SCALE: 1"=2,000'±

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GRAPHIC SCALES
50' 25' 0 50' 100' 150'
IMPERIAL: 1"=50'

REV.	DATE	DESCRIPTION	C/O	DR	CK
–	–	–	–	–	–

POST-DEVELOPMENT DRAINAGE PLAN

PIE HILL WAREHOUSING

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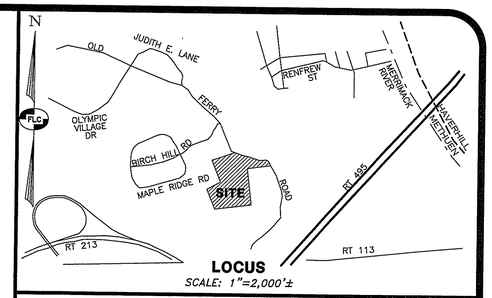

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GRAPHIC SCALES

50' 25' 0 50' 100' 150'

IMPERIAL: 1"=50'

REV.	DATE	DESCRIPTION	C/O	DR	CK
–	–	–		–	–

POST-DEVELOPMENT DRAINAGE PLAN

PIE HILL WAREHOUSING

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(46 OLD FERRY ROAD)
METHUEN, MASSACHUSETTS

PREPARED FOR AND LAND OF:
TRIPLE G, LLC
46 ALSUN DRIVE, HOLLIS, NH 03049

SCALE: 1" = 50' APRIL 4, 2022

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