Stormwater Management Report

Frenette Gardens

Map 182; Lot 3
65 Central Street
Hudson, New Hampshire

April 20, 2022

KNA Project No. 21-0928-1

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KNA KEACH-NORDSTROM ASSOCIATES, INC.

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I. INTRODUCTION

A. Project Description

The project proposes to subdivide the existing parcel, located at 65 Central Street, into ten (10) new residential lots and construct approximately 700 feet of new roadway, culminating in a cul-de-sac. Roadway construction also entails the installation of public utilities, including water, sewer, drainage, gas, underground electric, and telecommunications services. The proposed stormwater management system includes a subsurface infiltration system, consisting of Stormtech SC-740 chambers, and two stone bottomed infiltration trenches as well as a closed drainage system which directs runoff into said subsurface infiltration system.

B. Existing Site Conditions

The subject property, prior to the subdivision, is approximately 9.88 acres in total area, and is located at 65 Central Street in Hudson's Town Residential (TR) Zoning District. The lot is currently developed with a single-family house in the northeast corner. It is bisected by First Brook to the south of the existing house. The parcel is bordered by Central Street to the north and several single-family houses to the east, south, and west. The lot currently has access from Central Street.

According to the Natural Resources Conservation Service (NRCS) web soil survey, the predominant soil types onsite are Windsor-Urban Land Complex with slopes ranging from 3-15% and Windsor Loamy Sand, with slopes ranging from 15-35%. Both soils are classified as Hydrologic Soil Group (HSG) 'A'.

II. STORM DRAINAGE ANALYSIS & DESIGN

A. Methodology

In accordance with the provisions of the Town of Hudson, and generally accepted engineering practice, the 2-year, 10-year, 25-year, and 50-year frequency storms have each been used in the various aspects of analysis and design of stormwater management considerations for the subject site. All proposed stormwater measures have been designed to not overtop in the 50-year frequency storm.

KNA utilizes HydroCAD version 10.0 to analyze both pre and post-development watershed characteristics. This computer software system is based largely on hydrology techniques (TR-20) developed by the Soil Conservation Service (now the Natural Resources Conservation Service). In addition, the software derives Time of Concentration values using the methodology contained within USDA-S.C.S. publication Urban Hydrology for Small Watersheds Technical Release No. 55 (TR 55).

All design and analysis calculations performed using the referenced methodologies are attached to this report. The minimum time of concentrations used for the analysis is 6 minutes. These calculations document each catchment area, a breakdown of surface type, time of concentration, rainfall intensity, peak discharge volume, Manning's "n" value, peak velocity, and other descriptive design data for each watershed and pipe segment evaluated. In addition, the "Pre/Post Development Drainage Area Plans" graphically define and illustrate the extent of each watershed or catchment area investigated.

B. Pre-Development Drainage Conditions

In the pre-development scenario, three (3) point of analysis (POA) have been identified as the appropriate points to compare pre vs. post development rates of stormwater discharge. These points of analysis reflect the main discharge point of the site and were analyzed to show the impact from the proposed improvements.

The pre-development drainage model's POA's are further described as follows:

- Link A — Central Street
- Link B — First Brook Tributary
- Link C — First Brook

In general, the site slopes from a central high point in the existing field downward to the three points of analysis. Runoff from a small portion of the front of the lot along Central Street and half the roof of the existing house flows to the roadway and is collected in the existing drainage network (Link A). Runoff from the western portion of the lot flows over the property line and into a small brook on the abutting lots (Link B), which eventually feeds into First Brook. Finally, runoff from most of the site is conveyed to First Brook (Link C) by overland flow. There are two existing depressions on site, which are currently used as gardens by the property owner. These depressions are included in the drainage analysis. For a more visual description of the information presented in this section, please refer to the attached "Pre-Development Drainage Areas Plan" attached in the appendix of this report.

C. Post-Development Drainage Conditions:

The same POA's that were identified in the pre-development scenario have been analyzed in the post-development scenario.

The proposed stormwater management system utilizes both open and closed practices for the collection, detention, treatment, and recharge of runoff. Stormwater runoff generated from the proposed roadway and most of the developed lots, will be collected by two catch basins and piped to a subsurface infiltration system located under the grass panel at the center of the cul-de-sac. This system is designed to mitigate peak rates and provide the required treatment and recharge volumes per town regulations. Outfall from the system will be piped to the toe of slope along the embankment leading down to the brook, where it will be diffused by a stone bermed level lip spreader before discharging to the wetland. The bottom of this system will lie below the frost line and ensure that this BMP will continue to operate as intended during frozen ground conditions.

It is important to note that a typical 2,000 square foot lot development envelope of impervious area was assumed for the drainage calculations, to properly size the stormwater BMP's. This approximate area was determined by assuming each lot will be developed with a 1,500-sf house and a 500-sf driveway. This means that the nine proposed lots contribute an additional 18,000-sf of impervious area. The subsurface infiltration system was designed with the intent of having 14,000-sf of impervious lot area (and the roadway) drain to the BMP based on assumed lot grading. The 4,000-sf of remaining impervious lot area (back half of roofs) is accounted for by the construction of two proposed infiltration trenches to be located along the rear property lines of Lots 3-4, 3-5, 3-6, 3-7, and 3-8. These trenches include two feet of washed, crushed stone wrapped in fabric and one foot ponding area with a ten-foot overflow spillway in the berm. Outfall from these trenches will flow overland to First Brook and its tributary.

The peak stormwater runoff rate and the channel protection requirements for the specific storm frequencies are presented and analyzed in the subsequent summary section of this

section, please refer to the attached "Post-Development Drainage Areas Plan" attached in the appendix of this report.

D. Summary:

The subject site complies with the Town of Hudson regulations regarding stormwater treatment and groundwater recharge volume. Proposed stormwater best management practices (BMP) are designed in accordance with the New Hampshire Stormwater Manual Volume 2: Post-Construction Best Management Practices Selection and Design and BMP worksheets provided by the New Hampshire Department of Environmental Services. In addition, stormwater discharges, in terms of peak rate of runoff and total volume, are consistent with the Town of Hudson Stormwater Regulations. The results are reported below in Table 1 and 2.

Table 1: Peak Flow Discharge Rate

Site Pre-Development vs. Post-Development (cfs)								
Description	**2-Year**		**10-Year**		**25-Year**		**50-Year**	
24-hr Rainfall	2.95 in/hr		4.45 in/hr		5.62 in/hr		6.72 in/hr	
	Pre	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**
A	0.20	0.20	0.30	0.30	0.38	0.38	0.52	0.50
B	0.22	0.21	0.33	0.33	0.43	0.42	0.71	0.55
C	0.89	0.88	1.36	1.35	1.77	1.74	2.49	2.48

Table 2: Stormwater Runoff Volume

Site Pre-Development vs. Post Development (Storm Volume in Acre-Feet)		
Description	**2-Year**	
24-hr Rainfall	2.95 in/hr	
	Pre	Post
A	**0.02**	0.02
B	**0.02**	0.02
C	**0.11**	0.11

III. EROSION & SEDIMENTATION CONTROL PROVISIONS

A. Temporary Erosion Control Measures

As an integral part of the engineering design of this site, an erosion and sedimentation control plan has been developed with the intent of limiting the potential for soil loss and associated receiving water quality degradation, both during and after the construction period. As the project plans indicate, traditional temporary erosion and sedimentation control devices and practices, such as siltation fencing and temporary block and sediment barriers at. In preparation of these provisions, reference was made to the New Hampshire Stormwater Manual: Volume 3: Erosion and Sediment Temporary Controls During Construction. Construction details for each temporary erosion control measure and practice specified have been added to the project plans. These plans also contain a number of erosion control notes, which are offered to the selected contractor in order to supplement the specified measures and practices to the extent practical.

B. Construction Sequence

A site-specific construction sequence sensitive to limiting soil loss due to erosion and associated water quality degradation was prepared specifically for this project and is shown on the project plans. As pointed out in the erosion control notes, it is important for the contractor to recognize that proper judgment in the implementation of work will be essential if erosion is to be limited and protection of completed work is to be realized. Moreover, any specific changes in sequence and/or field conditions affecting the ability of specific erosion control measures to adequately serve their intended purpose should be reported to this office by the contractor. Further, the contractor is encouraged to supplement specified erosion control measures during the construction period where and when in his/ her best judgment additional protection is warranted.

C. Permanent Erosion Control Measures

In the design of this site, consideration was given to limiting the potential for long-term erosion of completed improvements. As a result, several permanent erosion control measures were incorporated into the site design. These provisions include:

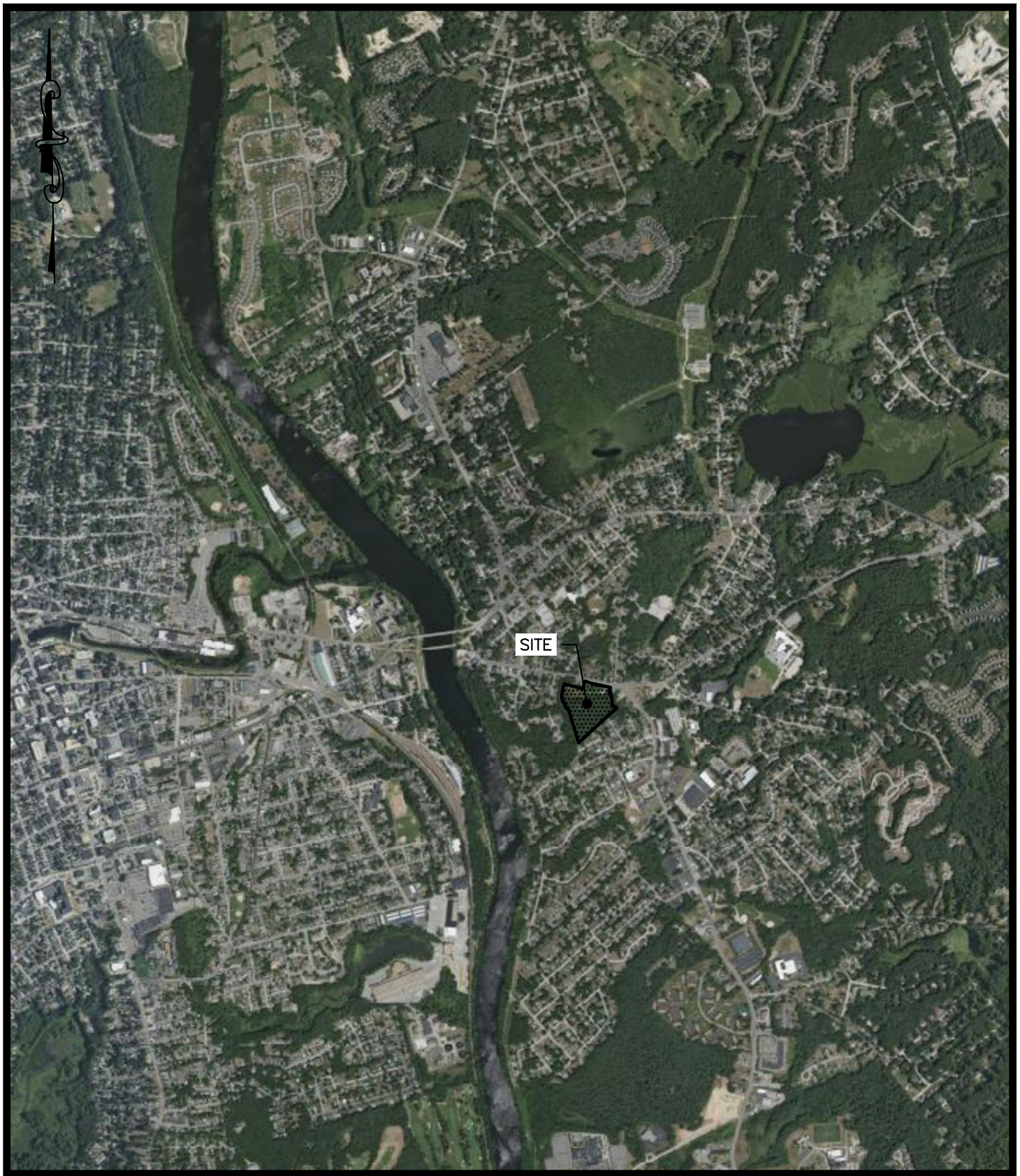
1) Specification of a turf establishment schedule and seed mixture, utilizing materials and workmanship recognized as appropriate for the site conditions at hand; and

2) The design has provided catch basins with sumps to capture runoff and reduce the overland flow, thereby reducing erosion.

3) Multiple infiltration practices were designed to reduce runoff and volume.

FIGURES AND SPREADSHEETS

FIGURE NO. 1 – AERIAL IMAGE
FIGURE NO. 2 – USGS IMAGE
FIGURE NO. 3 – SCS SOILS MAP
FIGURE NO. 4 – EXTREME PRECIPITATION TABLES
FIGURE NO. 5 – GROUNDWATER RECHARGE VOLUME CALCULATION
FIGURE NO. 6 – BMP WORKSHEETS



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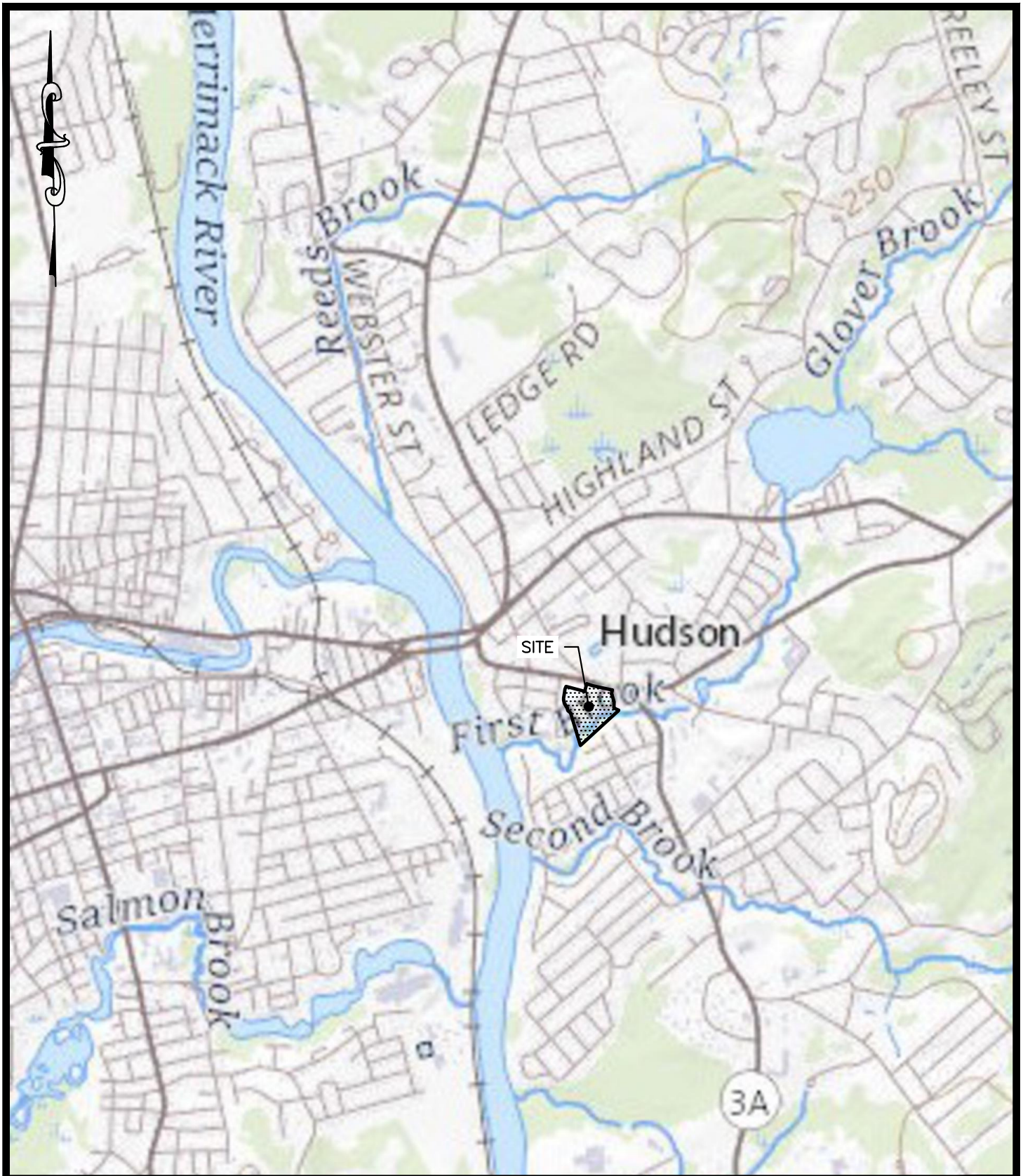
TITLE:

AERIAL EXHIBIT PREPARED FOR:

FRENETTE GARDENS

MAP 182; LOT 3 - 65 CENTRAL STREET, HUDSON, NEW HAMPSHIRE

DATE: 4/20/2022	JOB. NO. 21-0928-1
SCALE: 1" = 2000'	SHEET 1 OF 1



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TITLE:

USGS EXHIBIT PREPARED FOR:

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DATE: 4/20/2022	JOB. NO. 21-0928-1
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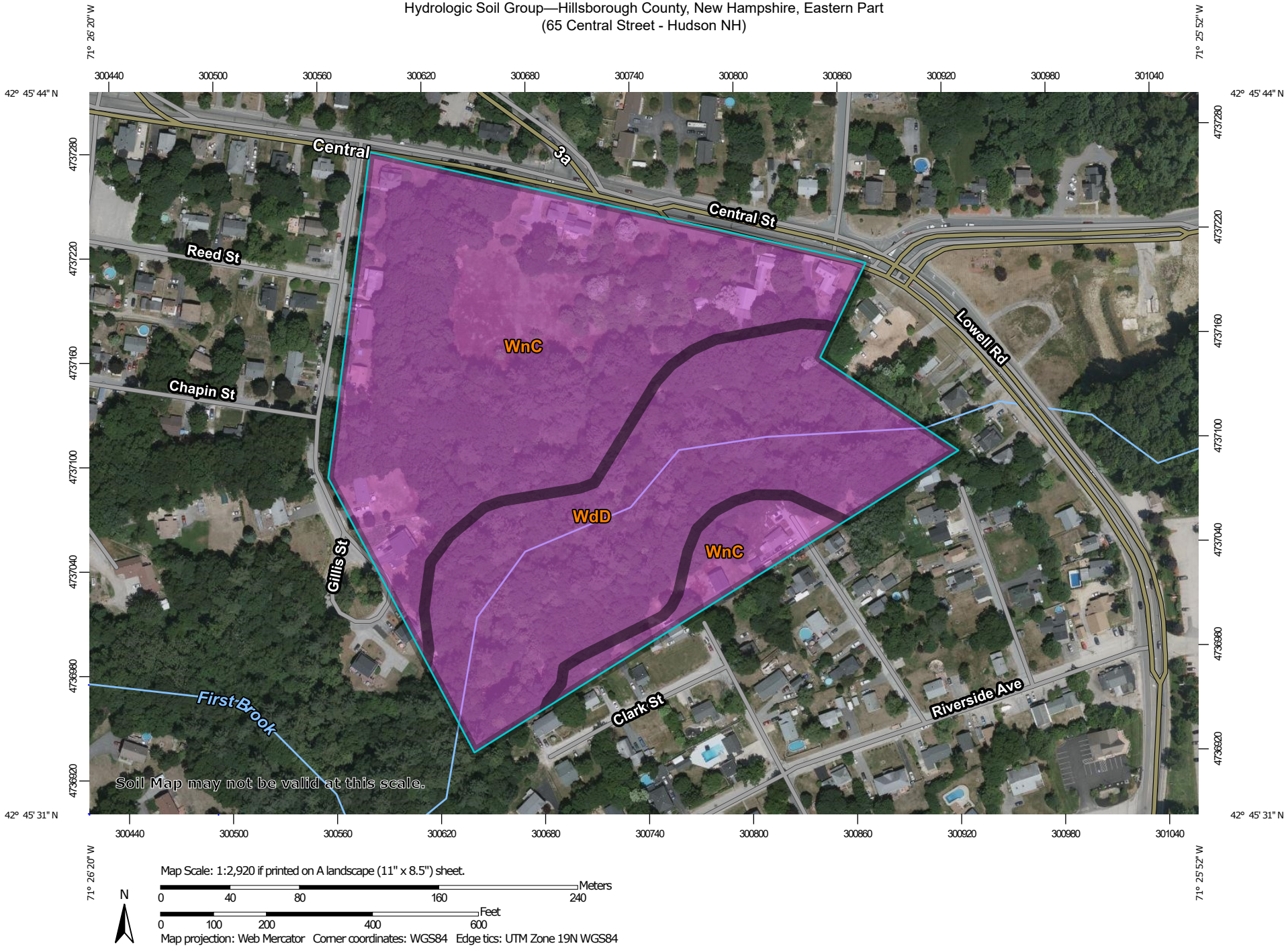
Hydrologic Soil Group—Hillsborough County, New Hampshire, Eastern Part
(65 Central Street - Hudson NH)



Map Scale: 1:2,920 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

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 1:20,000.

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: Hillsborough County, New Hampshire, Eastern Part
Survey Area Data: Version 24, Aug 31, 2021

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

Date(s) aerial images were photographed: Jun 19, 2020—Aug 6, 2020

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
WdD	Windsor loamy sand, 15 to 35 percent slopes	A	7.2	39.4%
WnC	Windsor-Urban land complex, 3 to 15 percent slopes	A	11.1	60.6%
Totals for Area of Interest			**18.4**	**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

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	New Hampshire
Location	
Longitude	71.434 degrees West
Latitude	42.761 degrees North
Elevation	0 feet
Date/Time	Mon, 14 Feb 2022 16:02:56 -0500

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.27	0.42	0.52	0.68	0.85	1.07	**1yr**	0.74	1.01	1.24	1.56	1.96	2.48	2.72	**1yr**	2.19	2.61	3.04	3.73	4.34	**1yr**
2yr	0.33	0.51	0.64	0.84	1.05	1.32	**2yr**	0.91	1.21	1.53	1.91	2.37	2.95	3.28	**2yr**	2.61	3.15	3.66	4.38	4.98	**2yr**
5yr	0.39	0.61	0.77	1.03	1.32	1.67	**5yr**	1.14	1.52	1.93	2.42	3.00	3.73	4.17	**5yr**	3.30	4.01	4.64	5.51	6.22	**5yr**
10yr	0.44	0.70	0.88	1.20	1.56	1.99	**10yr**	1.34	1.80	2.32	2.90	3.60	4.45	5.00	**10yr**	3.94	4.81	5.55	6.54	7.37	**10yr**
25yr	0.53	0.83	1.06	1.46	1.94	2.51	**25yr**	1.68	2.25	2.93	3.67	4.56	5.62	6.37	**25yr**	4.97	6.13	7.05	8.22	9.21	**25yr**
50yr	0.59	0.95	1.21	1.70	2.30	3.00	**50yr**	1.99	2.66	3.51	4.42	5.48	6.72	7.66	**50yr**	5.94	7.36	8.45	9.78	10.92	**50yr**
100yr	0.68	1.10	1.42	2.01	2.73	3.58	**100yr**	2.36	3.16	4.20	5.28	6.55	8.03	9.20	**100yr**	7.10	8.85	10.13	11.63	12.94	**100yr**
200yr	0.77	1.26	1.63	2.35	3.24	4.28	**200yr**	2.80	3.75	5.03	6.34	7.85	9.60	11.06	**200yr**	8.49	10.64	12.14	13.84	15.34	**200yr**
500yr	0.93	1.53	2.00	2.90	4.07	5.41	**500yr**	3.51	4.70	6.38	8.05	9.96	12.17	14.13	**500yr**	10.77	13.58	15.44	17.43	19.22	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.22	0.35	0.42	0.57	0.70	0.80	**1yr**	0.60	0.78	1.06	1.32	1.67	2.28	2.56	**1yr**	2.01	2.46	2.71	3.01	3.71	**1yr**
2yr	0.32	0.49	0.60	0.81	1.00	1.20	**2yr**	0.86	1.17	1.37	1.79	2.30	2.89	3.20	**2yr**	2.56	3.08	3.57	4.27	4.87	**2yr**
5yr	0.36	0.55	0.69	0.94	1.20	1.42	**5yr**	1.04	1.39	1.63	2.11	2.69	3.50	3.88	**5yr**	3.10	3.73	4.27	5.14	5.81	**5yr**
10yr	0.39	0.61	0.75	1.05	1.36	1.60	**10yr**	1.17	1.57	1.82	2.39	3.04	4.04	4.49	**10yr**	3.58	4.32	4.91	5.88	6.64	**10yr**
25yr	0.45	0.68	0.85	1.21	1.59	1.88	**25yr**	1.38	1.83	2.13	2.81	3.54	4.88	5.48	**25yr**	4.32	5.27	5.89	7.04	7.89	**25yr**
50yr	0.49	0.74	0.92	1.33	1.79	2.13	**50yr**	1.54	2.08	2.41	3.20	3.99	5.66	6.38	**50yr**	5.01	6.13	6.78	8.07	9.00	**50yr**
100yr	0.53	0.81	1.01	1.46	2.00	2.40	**100yr**	1.73	2.35	2.73	3.50	4.49	6.47	7.45	**100yr**	5.72	7.17	7.81	9.27	10.22	**100yr**
200yr	0.59	0.88	1.12	1.62	2.26	2.73	**200yr**	1.95	2.66	3.07	3.95	5.09	7.48	8.73	**200yr**	6.62	8.39	9.00	10.64	11.65	**200yr**
500yr	0.67	0.99	1.27	1.85	2.63	3.23	**500yr**	2.27	3.16	3.61	4.66	6.02	9.10	10.81	**500yr**	8.05	10.39	10.85	12.78	13.84	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.31	0.48	0.58	0.78	0.96	1.12	**1yr**	0.83	1.10	1.27	1.66	2.10	2.63	2.87	**1yr**	2.33	2.76	3.44	4.23	4.78	**1yr**
2yr	0.35	0.54	0.67	0.91	1.12	1.31	**2yr**	0.97	1.28	1.49	1.93	2.47	3.05	3.39	**2yr**	2.70	3.26	3.78	4.50	5.14	**2yr**
5yr	0.44	0.67	0.83	1.14	1.46	1.67	**5yr**	1.26	1.63	1.90	2.43	3.05	4.02	4.53	**5yr**	3.55	4.36	5.00	5.92	6.64	**5yr**
10yr	0.52	0.81	1.00	1.40	1.80	2.04	**10yr**	1.56	1.99	2.31	2.91	3.62	4.97	5.64	**10yr**	4.40	5.42	6.21	7.27	8.11	**10yr**
25yr	0.68	1.03	1.28	1.83	2.41	2.65	**25yr**	2.08	2.59	2.98	3.68	4.51	6.59	7.54	**25yr**	5.83	7.25	8.27	9.56	10.59	**25yr**
50yr	0.82	1.25	1.55	2.23	3.00	3.23	**50yr**	2.59	3.16	3.63	4.41	5.34	8.17	9.39	**50yr**	7.23	9.03	10.26	11.76	12.96	**50yr**
100yr	1.00	1.51	1.89	2.73	3.75	3.94	**100yr**	3.23	3.85	4.42	5.45	6.32	10.24	11.67	**100yr**	9.06	11.22	12.75	14.49	15.88	**100yr**
200yr	1.21	1.83	2.32	3.35	4.68	4.81	**200yr**	4.04	4.70	5.36	6.55	7.49	12.71	14.51	**200yr**	11.25	13.95	15.83	17.86	19.47	**200yr**
500yr	1.58	2.36	3.03	4.41	6.27	6.24	**500yr**	5.41	6.10	6.96	8.37	9.37	16.91	19.30	**500yr**	14.96	18.56	21.09	23.54	25.50	**500yr**

Powered by ACIS Northeast Regional Climate Center

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

GROUNDWATER RECHARGE VOLULME (GRV) CALCULATION (Env-Wq 1507.04)

0.87	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"
	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"
0.40	inches	Rd = Weighted groundwater recharge depth	
0.3472	ac-in	GRV = AI * Rd	
1,260	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):

Subsurface Infiltration System provides 5,676 cf of recharge volume where 1,260 cf is required

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

INFILTRATION PRACTICE CRITERIA (Env-Wq 1508.06)

Type/Node Name: **Stormtech SC-740 System (1P)**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

Yes		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	← yes
2.74	ac	A = Area draining to the practice	
0.79	ac	A_I = Impervious area draining to the practice	
0.29	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.31	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.85	ac-in	WQV= 1" x Rv x A	
3,079	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
770	cf	25% x WQV (check calc for sediment forebay volume)	
Isolator Row		Method of pretreatment? (not required for clean or roof runoff)	
N/A	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
5,676	cf	V = Volume[1] (attach a stage-storage table)	≥ WQV
3,777	sf	A_{SA} = Surface area of the bottom of the pond	
3.00	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
3.3	hours	I_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	≤ 72-hrs
135.00	feet	E_{BTM} = Elevation of the bottom of the basin	
-	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
-	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
135.00	feet	D_{SHWT} = Separation from SHWT	≥ *[3]
135.0	feet	D_{ROCK} = Separation from bedrock	≥ *[3]
N/A	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	≥ 24"
N/A	ft	D_T = Depth of trench, if trench proposed	4 - 10 ft
Yes	Yes/No	If a trench or underground system is proposed, has observation well been provided?	←yes
N/A		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	← yes
N/A	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	← yes
N/A	:1	If a basin is proposed, pond side slopes.	≥3:1
136.78	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
138.77	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
139.00	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?[5]	← yes
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	← yes

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. $Ksat_{DESIGN}$ includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes:

Stage-Area-Storage for Pond 1P: Undergound Infiltration System

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
135.00	**3,776**	0	135.52	3,776	816
135.01	3,776	15	135.53	3,776	846
135.02	3,776	30	135.54	3,776	877
135.03	3,776	45	135.55	3,776	907
135.04	3,776	60	135.56	3,776	937
135.05	3,776	76	135.57	3,776	968
135.06	3,776	91	135.58	3,776	998
135.07	3,776	106	135.59	3,776	1,028
135.08	3,776	121	135.60	3,776	1,059
135.09	3,776	136	135.61	3,776	1,089
135.10	3,776	151	135.62	3,776	1,119
135.11	3,776	166	135.63	3,776	1,150
135.12	3,776	181	135.64	3,776	1,180
135.13	3,776	196	135.65	3,776	1,210
135.14	3,776	211	135.66	3,776	1,240
135.15	3,776	227	135.67	3,776	1,271
135.16	3,776	242	135.68	3,776	1,301
135.17	3,776	257	135.69	3,776	1,331
135.18	3,776	272	135.70	3,776	1,361
135.19	3,776	287	135.71	3,776	1,391
135.20	3,776	302	135.72	3,776	1,421
135.21	3,776	317	135.73	3,776	1,452
135.22	3,776	332	135.74	3,776	1,482
135.23	3,776	347	135.75	3,776	1,512
135.24	3,776	362	135.76	3,776	1,542
135.25	3,776	378	135.77	3,776	1,572
135.26	3,776	393	135.78	3,776	1,602
135.27	3,776	408	135.79	3,776	1,632
135.28	3,776	423	135.80	3,776	1,662
135.29	3,776	438	135.81	3,776	1,692
135.30	3,776	453	135.82	3,776	1,722
135.31	3,776	468	135.83	3,776	1,752
135.32	3,776	483	135.84	3,776	1,782
135.33	3,776	498	135.85	3,776	1,812
135.34	3,776	514	135.86	3,776	1,842
135.35	3,776	529	135.87	3,776	1,871
135.36	3,776	544	135.88	3,776	1,901
135.37	3,776	559	135.89	3,776	1,931
135.38	3,776	574	135.90	3,776	1,961
135.39	3,776	589	135.91	3,776	1,991
135.40	3,776	604	135.92	3,776	2,020
135.41	3,776	619	135.93	3,776	2,050
135.42	3,776	634	135.94	3,776	2,080
135.43	3,776	649	135.95	3,776	2,109
135.44	3,776	665	135.96	3,776	2,139
135.45	3,776	680	135.97	3,776	2,169
135.46	3,776	695	135.98	3,776	2,198
135.47	3,776	710	135.99	3,776	2,228
135.48	3,776	725	136.00	3,776	2,257
135.49	3,776	740	136.01	3,776	2,287
135.50	3,776	755	136.02	3,776	2,317
135.51	3,776	786	136.03	3,776	2,346

Stage-Area-Storage for Pond 1P: Undergound Infiltration System (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
136.04	3,776	2,375	136.56	3,776	3,867
136.05	3,776	2,405	136.57	3,776	3,895
136.06	3,776	2,434	136.58	3,776	3,923
136.07	3,776	2,464	136.59	3,776	3,951
136.08	3,776	2,493	136.60	3,776	3,978
136.09	3,776	2,522	136.61	3,776	4,006
136.10	3,776	2,552	136.62	3,776	4,034
136.11	3,776	2,581	136.63	3,776	4,061
136.12	3,776	2,610	136.64	3,776	4,089
136.13	3,776	2,639	136.65	3,776	4,116
136.14	3,776	2,669	136.66	3,776	4,144
136.15	3,776	2,698	136.67	3,776	4,171
136.16	3,776	2,727	136.68	3,776	4,198
136.17	3,776	2,756	136.69	3,776	4,226
136.18	3,776	2,785	136.70	3,776	4,253
136.19	3,776	2,814	136.71	3,776	4,280
136.20	3,776	2,843	136.72	3,776	4,307
136.21	3,776	2,872	136.73	3,776	4,334
136.22	3,776	2,901	136.74	3,776	4,362
136.23	3,776	2,930	136.75	3,776	4,389
136.24	3,776	2,959	136.76	3,776	4,416
136.25	3,776	2,988	136.77	3,776	4,443
136.26	3,776	3,017	136.78	3,776	4,470
136.27	3,776	3,045	136.79	3,776	4,496
136.28	3,776	3,074	136.80	3,776	4,523
136.29	3,776	3,103	136.81	3,776	4,550
136.30	3,776	3,132	136.82	3,776	4,577
136.31	3,776	3,160	136.83	3,776	4,604
136.32	3,776	3,189	136.84	3,776	4,630
136.33	3,776	3,218	136.85	3,776	4,657
136.34	3,776	3,246	136.86	3,776	4,683
136.35	3,776	3,275	136.87	3,776	4,710
136.36	3,776	3,303	136.88	3,776	4,736
136.37	3,776	3,332	136.89	3,776	4,763
136.38	3,776	3,360	136.90	3,776	4,789
136.39	3,776	3,389	136.91	3,776	4,815
136.40	3,776	3,417	136.92	3,776	4,842
136.41	3,776	3,446	136.93	3,776	4,868
136.42	3,776	3,474	136.94	3,776	4,894
136.43	3,776	3,502	136.95	3,776	4,920
136.44	3,776	3,531	136.96	3,776	4,946
136.45	3,776	3,559	136.97	3,776	4,972
136.46	3,776	3,587	136.98	3,776	4,998
136.47	3,776	3,615	136.99	3,776	5,024
136.48	3,776	3,643	137.00	3,776	5,050
136.49	3,776	3,671	137.01	3,776	5,076
136.50	3,776	3,700	137.02	3,776	5,101
136.51	3,776	3,728	137.03	3,776	5,127
136.52	3,776	3,756	137.04	3,776	5,153
136.53	3,776	3,784	137.05	3,776	5,178
136.54	3,776	3,812	137.06	3,776	5,204
136.55	3,776	3,839	137.07	3,776	5,229

Stage-Area-Storage for Pond 1P: Undergound Infiltration System (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
137.08	3,776	5,255
137.09	3,776	5,280
137.10	3,776	5,306
137.11	3,776	5,331
137.12	3,776	5,356
137.13	3,776	5,381
137.14	3,776	5,406
137.15	3,776	5,431
137.16	3,776	5,456
137.17	3,776	5,481
137.18	3,776	5,505
137.19	3,776	5,530
137.20	3,776	5,555
137.21	3,776	5,579
137.22	3,776	5,604
137.23	3,776	5,628
137.24	3,776	5,652
137.25	3,776	5,676
137.26	3,776	5,701
137.27	3,776	5,725
137.28	3,776	5,749
137.29	3,776	5,773
137.30	3,776	5,796
137.31	3,776	5,820
137.32	3,776	5,844
137.33	3,776	5,867
137.34	3,776	5,891
137.35	3,776	5,914
137.36	3,776	5,938
137.37	3,776	5,961
137.38	3,776	5,984
137.39	3,776	6,008
137.40	3,776	6,031
137.41	3,776	6,054
137.42	3,776	6,077
137.43	3,776	6,099
137.44	3,776	6,122
137.45	3,776	6,145
137.46	3,776	6,167
137.47	3,776	6,190
137.48	3,776	6,212
137.49	3,776	6,234
137.50	3,776	6,257
137.51	3,776	6,279
137.52	3,776	6,301
137.53	3,776	6,322
137.54	3,776	6,344
137.55	3,776	6,366
137.56	3,776	6,387
137.57	3,776	6,409
137.58	3,776	6,430
137.59	3,776	6,451
137.60	3,776	6,472
137.61	3,776	6,493
137.62	3,776	6,514
137.63	3,776	6,534
137.64	3,776	6,555
137.65	3,776	6,575
137.66	3,776	6,595
137.67	3,776	6,615
137.68	3,776	6,635
137.69	3,776	6,654
137.70	3,776	6,674
137.71	3,776	6,693
137.72	3,776	6,712
137.73	3,776	6,731
137.74	3,776	6,749
137.75	3,776	6,767
137.76	3,776	6,785
137.77	3,776	6,803
137.78	3,776	6,821
137.79	3,776	6,839
137.80	3,776	6,856
137.81	3,776	6,873
137.82	3,776	6,890
137.83	3,776	6,907
137.84	3,776	6,924
137.85	3,776	6,940
137.86	3,776	6,957
137.87	3,776	6,973
137.88	3,776	6,989
137.89	3,776	7,005
137.90	3,776	7,021
137.91	3,776	7,037
137.92	3,776	7,053
137.93	3,776	7,069
137.94	3,776	7,085
137.95	3,776	7,100
137.96	3,776	7,116
137.97	3,776	7,131
137.98	3,776	7,147
137.99	3,776	7,162
138.00	3,776	7,177
138.01	3,776	7,192
138.02	3,776	7,207
138.03	3,776	7,222
138.04	3,776	7,238
138.05	3,776	7,253
138.06	3,776	7,268
138.07	3,776	7,283
138.08	3,776	7,298
138.09	3,776	7,313
138.10	3,776	7,328
138.11	3,776	7,343

Stage-Area-Storage for Pond 1P: Undergound Infiltration System (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
138.12	3,776	7,358
138.13	3,776	7,374
138.14	3,776	7,389
138.15	3,776	7,404
138.16	3,776	7,419
138.17	3,776	7,434
138.18	3,776	7,449
138.19	3,776	7,464
138.20	3,776	7,479
138.21	3,776	7,494
138.22	3,776	7,509
138.23	3,776	7,525
138.24	3,776	7,540
138.25	3,776	7,555
138.26	3,776	7,570
138.27	3,776	7,585
138.28	3,776	7,600
138.29	3,776	7,615
138.30	3,776	7,630
138.31	3,776	7,645
138.32	3,776	7,660
138.33	3,776	7,676
138.34	3,776	7,691
138.35	3,776	7,706
138.36	3,776	7,721
138.37	3,776	7,736
138.38	3,776	7,751
138.39	3,776	7,766
138.40	3,776	7,781
138.41	3,776	7,796
138.42	3,776	7,812
138.43	3,776	7,827
138.44	3,776	7,842
138.45	3,776	7,857
138.46	3,776	7,872
138.47	3,776	7,887
138.48	3,776	7,902
138.49	3,776	7,917
138.50	3,776	7,932
138.51	3,776	7,947
138.52	3,776	7,963
138.53	3,776	7,978
138.54	3,776	7,993
138.55	3,776	8,008
138.56	3,776	8,023
138.57	3,776	8,038
138.58	3,776	8,053
138.59	3,776	8,068
138.60	3,776	8,083
138.61	3,776	8,098
138.62	3,776	8,114
138.63	3,776	8,129
138.64	3,776	8,144
138.65	3,776	8,159
138.66	3,776	8,174
138.67	3,776	8,189
138.68	3,776	8,204
138.69	3,776	8,219
138.70	3,776	8,234
138.71	3,776	8,250
138.72	3,776	8,265
138.73	3,776	8,280
138.74	3,776	8,295
138.75	3,776	8,310
138.76	3,776	8,325
138.77	3,776	8,340
138.78	3,776	8,355
138.79	3,776	8,370
138.80	3,776	8,385
138.81	3,776	8,401
138.82	3,776	8,416
138.83	3,776	8,431
138.84	3,776	8,446
138.85	3,776	8,461
138.86	3,776	8,476
138.87	3,776	8,491
138.88	3,776	8,506
138.89	3,776	8,521
138.90	3,776	8,536
138.91	3,776	8,552
138.92	3,776	8,567
138.93	3,776	8,582
138.94	3,776	8,597
138.95	3,776	8,612
138.96	3,776	8,627
138.97	3,776	8,642
138.98	3,776	8,657
138.99	3,776	8,672
139.00	3,776	**8,688**

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

INFILTRATION PRACTICE CRITERIA (Env-Wq 1508.06)

Type/Node Name: **Infiltration Trench #1**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

Yes		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	← yes
0.54	ac	A = Area draining to the practice	
0.07	ac	A_I = Impervious area draining to the practice	
0.13	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.16	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.09	ac-in	WQV= 1" x Rv x A	
323	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
81	cf	25% x WQV (check calc for sediment forebay volume)	
N/A		Method of pretreatment? (not required for clean or roof runoff)	
N/A	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
929	cf	V = Volume[1] (attach a stage-storage table)	≥ WQV
384	sf	A_{SA} = Surface area of the bottom of the pond	
3.00	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
3.4	hours	I_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	≤ 72-hrs
138.00	feet	E_{BTM} = Elevation of the bottom of the basin	
-	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
138.00	feet	D_{SHWT} = Separation from SHWT	≥ *[3]
#VALUE!	feet	D_{ROCK} = Separation from bedrock	≥ *[3]
N/A	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	≥ 24"
2.00	ft	D_T = Depth of trench, if trench proposed	4 - 10 ft
No	Yes/No	If a trench or underground system is proposed, has observation well been provided?	←yes
Yes		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	← yes
N/A	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	← yes
N/A	:1	If a basin is proposed, pond side slopes.	≥3:1
140.10	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
140.60	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
141.00	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?[5]	← yes
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	← yes

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. $Ksat_{DESIGN}$ includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes:

Stage-Area-Storage for Pond 5P: Infiltration Trench #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
138.00	384	0	138.52	384	80
138.01	384	2	138.53	384	81
138.02	384	3	138.54	384	83
138.03	384	5	138.55	384	84
138.04	384	6	138.56	384	86
138.05	384	8	138.57	384	88
138.06	384	9	138.58	384	89
138.07	384	11	138.59	384	91
138.08	384	12	138.60	384	92
138.09	384	14	138.61	384	94
138.10	384	15	138.62	384	95
138.11	384	17	138.63	384	97
138.12	384	18	138.64	384	98
138.13	384	20	138.65	384	100
138.14	384	22	138.66	384	101
138.15	384	23	138.67	384	103
138.16	384	25	138.68	384	104
138.17	384	26	138.69	384	106
138.18	384	28	138.70	384	108
138.19	384	29	138.71	384	109
138.20	384	31	138.72	384	111
138.21	384	32	138.73	384	112
138.22	384	34	138.74	384	114
138.23	384	35	138.75	384	115
138.24	384	37	138.76	384	117
138.25	384	38	138.77	384	118
138.26	384	40	138.78	384	120
138.27	384	41	138.79	384	121
138.28	384	43	138.80	384	123
138.29	384	45	138.81	384	124
138.30	384	46	138.82	384	126
138.31	384	48	138.83	384	127
138.32	384	49	138.84	384	129
138.33	384	51	138.85	384	131
138.34	384	52	138.86	384	132
138.35	384	54	138.87	384	134
138.36	384	55	138.88	384	135
138.37	384	57	138.89	384	137
138.38	384	58	138.90	384	138
138.39	384	60	138.91	384	140
138.40	384	61	138.92	384	141
138.41	384	63	138.93	384	143
138.42	384	65	138.94	384	144
138.43	384	66	138.95	384	146
138.44	384	68	138.96	384	147
138.45	384	69	138.97	384	149
138.46	384	71	138.98	384	151
138.47	384	72	138.99	384	152
138.48	384	74	139.00	384	154
138.49	384	75	139.01	384	155
138.50	384	77	139.02	384	157
138.51	384	78	139.03	384	158

Stage-Area-Storage for Pond 5P: Infiltration Trench #1 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
139.04	384	160	139.56	384	240
139.05	384	161	139.57	384	241
139.06	384	163	139.58	384	243
139.07	384	164	139.59	384	244
139.08	384	166	139.60	384	246
139.09	384	167	139.61	384	247
139.10	384	169	139.62	384	249
139.11	384	170	139.63	384	250
139.12	384	172	139.64	384	252
139.13	384	174	139.65	384	253
139.14	384	175	139.66	384	255
139.15	384	177	139.67	384	257
139.16	384	178	139.68	384	258
139.17	384	180	139.69	384	260
139.18	384	181	139.70	384	261
139.19	384	183	139.71	384	263
139.20	384	184	139.72	384	264
139.21	384	186	139.73	384	266
139.22	384	187	139.74	384	267
139.23	384	189	139.75	384	269
139.24	384	190	139.76	384	270
139.25	384	192	139.77	384	272
139.26	384	194	139.78	384	273
139.27	384	195	139.79	384	275
139.28	384	197	139.80	384	276
139.29	384	198	139.81	384	278
139.30	384	200	139.82	384	280
139.31	384	201	139.83	384	281
139.32	384	203	139.84	384	283
139.33	384	204	139.85	384	284
139.34	384	206	139.86	384	286
139.35	384	207	139.87	384	287
139.36	384	209	139.88	384	289
139.37	384	210	139.89	384	290
139.38	384	212	139.90	384	292
139.39	384	214	139.91	384	293
139.40	384	215	139.92	384	295
139.41	384	217	139.93	384	296
139.42	384	218	139.94	384	298
139.43	384	220	139.95	384	300
139.44	384	221	139.96	384	301
139.45	384	223	139.97	384	303
139.46	384	224	139.98	384	304
139.47	384	226	139.99	384	306
139.48	384	227	140.00	384	307
139.49	384	229	140.01	396	311
139.50	384	230	140.02	408	315
139.51	384	232	140.03	420	319
139.52	384	233	140.04	432	324
139.53	384	235	140.05	443	328
139.54	384	237	140.06	455	332
139.55	384	238	140.07	467	337

Stage-Area-Storage for Pond 5P: Infiltration Trench #1 (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
140.08	479	342
140.09	491	347
140.10	503	352
140.11	515	357
140.12	527	362
140.13	538	367
140.14	550	373
140.15	562	378
140.16	574	384
140.17	586	390
140.18	598	396
140.19	610	402
140.20	622	408
140.21	633	414
140.22	645	420
140.23	657	427
140.24	669	434
140.25	681	440
140.26	693	447
140.27	705	454
140.28	717	461
140.29	729	469
140.30	740	476
140.31	752	483
140.32	764	491
140.33	776	499
140.34	788	506
140.35	800	514
140.36	812	522
140.37	824	531
140.38	835	539
140.39	847	547
140.40	859	556
140.41	871	564
140.42	883	573
140.43	895	582
140.44	907	591
140.45	919	600
140.46	930	610
140.47	942	619
140.48	954	628
140.49	966	638
140.50	978	648
140.51	990	658
140.52	1,002	667
140.53	1,014	678
140.54	1,026	688
140.55	1,037	698
140.56	1,049	709
140.57	1,061	719
140.58	1,073	730
140.59	1,085	741
140.60	1,097	751
140.61	1,109	762
140.62	1,121	774
140.63	1,132	785
140.64	1,144	796
140.65	1,156	808
140.66	1,168	819
140.67	1,180	831
140.68	1,192	843
140.69	1,204	855
140.70	1,216	867
140.71	1,227	879
140.72	1,239	892
140.73	1,251	904
140.74	1,263	917
140.75	1,275	929
140.76	1,287	942
140.77	1,299	955
140.78	1,311	968
140.79	1,323	981
140.80	1,334	995
140.81	1,346	1,008
140.82	1,358	1,021
140.83	1,370	1,035
140.84	1,382	1,049
140.85	1,394	1,063
140.86	1,406	1,077
140.87	1,418	1,091
140.88	1,429	1,105
140.89	1,441	1,119
140.90	1,453	1,134
140.91	1,465	1,149
140.92	1,477	1,163
140.93	1,489	1,178
140.94	1,501	1,193
140.95	1,513	1,208
140.96	1,524	1,223
140.97	1,536	1,239
140.98	1,548	1,254
140.99	1,560	1,270
141.00	**1,572**	**1,285**

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

INFILTRATION PRACTICE CRITERIA (Env-Wq 1508.06)

Type/Node Name: **Infiltration Trench #2**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

Yes		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	← yes
0.39	ac	A = Area draining to the practice	
0.02	ac	A_I = Impervious area draining to the practice	
0.06	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.10	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.04	ac-in	WQV= 1" x Rv x A	
145	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
36	cf	25% x WQV (check calc for sediment forebay volume)	
N/A		Method of pretreatment? (not required for clean or roof runoff)	
N/A	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
986	cf	V = Volume[1] (attach a stage-storage table)	≥ WQV
333	sf	A_{SA} = Surface area of the bottom of the pond	
3.00	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
1.7	hours	I_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	≤ 72-hrs
137.00	feet	E_{BTM} = Elevation of the bottom of the basin	
-	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
-	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
137.00	feet	D_{SHWT} = Separation from SHWT	≥ *[3]
137.0	feet	D_{ROCK} = Separation from bedrock	≥ *[3]
N/A	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	≥ 24"
2.00	ft	D_T = Depth of trench, if trench proposed	4 - 10 ft
No	Yes/No	If a trench or underground system is proposed, has observation well been provided?	←yes
Yes		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	← yes
N/A	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	← yes
N/A	:1	If a basin is proposed, pond side slopes.	≥3:1
137.52	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
138.91	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
140.00	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?[5]	← yes
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	← yes

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. $Ksat_{DESIGN}$ includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes:

Hydrograph for Pond 6P: Infiltration Trench #2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	137.00	0.00	0.00	0.00
0.06	0.00	0	137.00	0.00	0.00	0.00
0.12	0.00	0	137.00	0.00	0.00	0.00
0.18	0.00	0	137.00	0.00	0.00	0.00
0.24	0.00	0	137.00	0.00	0.00	0.00
0.30	0.00	0	137.00	0.00	0.00	0.00
0.36	0.00	0	137.00	0.00	0.00	0.00
0.42	0.00	0	137.00	0.00	0.00	0.00
0.48	0.00	0	137.00	0.00	0.00	0.00
0.54	0.00	0	137.00	0.00	0.00	0.00
0.60	0.00	0	137.00	0.00	0.00	0.00
0.66	0.00	0	137.00	0.00	0.00	0.00
0.72	0.00	0	137.00	0.00	0.00	0.00
0.78	0.00	0	137.00	0.00	0.00	0.00
0.84	0.00	0	137.00	0.00	0.00	0.00
0.90	0.00	0	137.00	0.00	0.00	0.00
0.96	0.00	0	137.00	0.00	0.00	0.00
1.02	0.00	0	137.00	0.00	0.00	0.00
1.08	0.00	0	137.00	0.00	0.00	0.00
1.14	0.00	0	137.00	0.00	0.00	0.00
1.20	0.00	0	137.00	0.00	0.00	0.00
1.26	0.00	0	137.00	0.00	0.00	0.00
1.32	0.00	0	137.00	0.00	0.00	0.00
1.38	0.00	0	137.00	0.00	0.00	0.00
1.44	0.00	0	137.00	0.00	0.00	0.00
1.50	0.00	0	137.00	0.00	0.00	0.00
1.56	0.00	0	137.00	0.00	0.00	0.00
1.62	0.00	0	137.00	0.00	0.00	0.00
1.68	0.00	0	137.00	0.00	0.00	0.00
1.74	0.00	0	137.00	0.00	0.00	0.00
1.80	0.00	0	137.00	0.00	0.00	0.00
1.86	0.00	0	137.00	0.00	0.00	0.00
1.92	0.00	0	137.00	0.00	0.00	0.00
1.98	0.00	0	137.00	0.00	0.00	0.00
2.04	0.00	0	137.00	0.00	0.00	0.00
2.10	0.00	0	137.00	0.00	0.00	0.00
2.16	0.00	0	137.00	0.00	0.00	0.00
2.22	0.00	0	137.00	0.00	0.00	0.00
2.28	0.00	0	137.00	0.00	0.00	0.00
2.34	0.00	0	137.00	0.00	0.00	0.00
2.40	0.00	0	137.00	0.00	0.00	0.00
2.46	0.00	0	137.00	0.00	0.00	0.00
2.52	0.00	0	137.00	0.00	0.00	0.00
2.58	0.00	0	137.00	0.00	0.00	0.00
2.64	0.00	0	137.00	0.00	0.00	0.00
2.70	0.00	0	137.00	0.00	0.00	0.00
2.76	0.00	0	137.00	0.00	0.00	0.00
2.82	0.00	0	137.00	0.00	0.00	0.00
2.88	0.00	0	137.00	0.00	0.00	0.00
2.94	0.00	0	137.00	0.00	0.00	0.00
3.00	0.00	0	137.00	0.00	0.00	0.00
3.06	0.00	0	137.00	0.00	0.00	0.00

Hydrograph for Pond 6P: Infiltration Trench #2 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
3.12	0.00	0	137.00	0.00	0.00	0.00
3.18	0.00	0	137.00	0.00	0.00	0.00
3.24	0.00	0	137.00	0.00	0.00	0.00
3.30	0.00	0	137.00	0.00	0.00	0.00
3.36	0.00	0	137.00	0.00	0.00	0.00
3.42	0.00	0	137.00	0.00	0.00	0.00
3.48	0.00	0	137.00	0.00	0.00	0.00
3.54	0.00	0	137.00	0.00	0.00	0.00
3.60	0.00	0	137.00	0.00	0.00	0.00
3.66	0.00	0	137.00	0.00	0.00	0.00
3.72	0.00	0	137.00	0.00	0.00	0.00
3.78	0.00	0	137.00	0.00	0.00	0.00
3.84	0.00	0	137.00	0.00	0.00	0.00
3.90	0.00	0	137.00	0.00	0.00	0.00
3.96	0.00	0	137.00	0.00	0.00	0.00
4.02	0.00	0	137.00	0.00	0.00	0.00
4.08	0.00	0	137.00	0.00	0.00	0.00
4.14	0.00	0	137.00	0.00	0.00	0.00
4.20	0.00	0	137.00	0.00	0.00	0.00
4.26	0.00	0	137.00	0.00	0.00	0.00
4.32	0.00	0	137.00	0.00	0.00	0.00
4.38	0.00	0	137.00	0.00	0.00	0.00
4.44	0.00	0	137.00	0.00	0.00	0.00
4.50	0.00	0	137.00	0.00	0.00	0.00
4.56	0.00	0	137.00	0.00	0.00	0.00
4.62	0.00	0	137.00	0.00	0.00	0.00
4.68	0.00	0	137.00	0.00	0.00	0.00
4.74	0.00	0	137.00	0.00	0.00	0.00
4.80	0.00	0	137.00	0.00	0.00	0.00
4.86	0.00	0	137.00	0.00	0.00	0.00
4.92	0.00	0	137.00	0.00	0.00	0.00
4.98	0.00	0	137.00	0.00	0.00	0.00
5.04	0.00	0	137.00	0.00	0.00	0.00
5.10	0.00	0	137.00	0.00	0.00	0.00
5.16	0.00	0	137.00	0.00	0.00	0.00
5.22	0.00	0	137.00	0.00	0.00	0.00
5.28	0.00	0	137.00	0.00	0.00	0.00
5.34	0.00	0	137.00	0.00	0.00	0.00
5.40	0.00	0	137.00	0.00	0.00	0.00
5.46	0.00	0	137.00	0.00	0.00	0.00
5.52	0.00	0	137.00	0.00	0.00	0.00
5.58	0.00	0	137.00	0.00	0.00	0.00
5.64	0.00	0	137.00	0.00	0.00	0.00
5.70	0.00	0	137.00	0.00	0.00	0.00
5.76	0.00	0	137.00	0.00	0.00	0.00
5.82	0.00	0	137.00	0.00	0.00	0.00
5.88	0.00	0	137.00	0.00	0.00	0.00
5.94	0.00	0	137.00	0.00	0.00	0.00
6.00	0.00	0	137.00	0.00	0.00	0.00
6.06	0.00	0	137.00	0.00	0.00	0.00
6.12	0.00	0	137.00	0.00	0.00	0.00
6.18	0.00	0	137.00	0.00	0.00	0.00

Hydrograph for Pond 6P: Infiltration Trench #2 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
6.24	0.00	0	137.00	0.00	0.00	0.00
6.30	0.00	0	137.00	0.00	0.00	0.00
6.36	0.00	0	137.00	0.00	0.00	0.00
6.42	0.00	0	137.00	0.00	0.00	0.00
6.48	0.00	0	137.00	0.00	0.00	0.00
6.54	0.00	0	137.00	0.00	0.00	0.00
6.60	0.00	0	137.00	0.00	0.00	0.00
6.66	0.00	0	137.00	0.00	0.00	0.00
6.72	0.00	0	137.00	0.00	0.00	0.00
6.78	0.00	0	137.00	0.00	0.00	0.00
6.84	0.00	0	137.00	0.00	0.00	0.00
6.90	0.00	0	137.00	0.00	0.00	0.00
6.96	0.00	0	137.00	0.00	0.00	0.00
7.02	0.00	0	137.00	0.00	0.00	0.00
7.08	0.00	0	137.00	0.00	0.00	0.00
7.14	0.00	0	137.00	0.00	0.00	0.00
7.20	0.00	0	137.00	0.00	0.00	0.00
7.26	0.00	0	137.00	0.00	0.00	0.00
7.32	0.00	0	137.00	0.00	0.00	0.00
7.38	0.00	0	137.00	0.00	0.00	0.00
7.44	0.00	0	137.00	0.00	0.00	0.00
7.50	0.00	0	137.00	0.00	0.00	0.00
7.56	0.00	0	137.00	0.00	0.00	0.00
7.62	0.00	0	137.00	0.00	0.00	0.00
7.68	0.00	0	137.00	0.00	0.00	0.00
7.74	0.00	0	137.00	0.00	0.00	0.00
7.80	0.00	0	137.00	0.00	0.00	0.00
7.86	0.00	0	137.00	0.00	0.00	0.00
7.92	0.00	0	137.00	0.00	0.00	0.00
7.98	0.00	0	137.00	0.00	0.00	0.00
8.04	0.00	0	137.00	0.00	0.00	0.00
8.10	0.00	0	137.00	0.00	0.00	0.00
8.16	0.00	0	137.00	0.00	0.00	0.00
8.22	0.00	0	137.00	0.00	0.00	0.00
8.28	0.00	0	137.00	0.00	0.00	0.00
8.34	0.00	0	137.00	0.00	0.00	0.00
8.40	0.00	0	137.00	0.00	0.00	0.00
8.46	0.00	0	137.00	0.00	0.00	0.00
8.52	0.00	0	137.00	0.00	0.00	0.00
8.58	0.00	0	137.00	0.00	0.00	0.00
8.64	0.00	0	137.00	0.00	0.00	0.00
8.70	0.00	0	137.00	0.00	0.00	0.00
8.76	0.01	0	137.00	0.01	0.01	0.00
8.82	0.01	0	137.00	0.01	0.01	0.00
8.88	0.01	0	137.00	0.01	0.01	0.00
8.94	0.01	0	137.00	0.01	0.01	0.00
9.00	0.01	0	137.00	0.01	0.01	0.00
9.06	0.01	0	137.00	0.01	0.01	0.00
9.12	0.01	0	137.00	0.01	0.01	0.00
9.18	0.01	0	137.00	0.01	0.01	0.00
9.24	0.01	0	137.00	0.01	0.01	0.00
9.30	0.01	0	137.00	0.01	0.01	0.00

Hydrograph for Pond 6P: Infiltration Trench #2 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
9.36	0.01	0	137.00	0.01	0.01	0.00
9.42	0.01	0	137.00	0.01	0.01	0.00
9.48	0.01	0	137.00	0.01	0.01	0.00
9.54	0.01	0	137.00	0.01	0.01	0.00
9.60	0.01	0	137.00	0.01	0.01	0.00
9.66	0.01	0	137.00	0.01	0.01	0.00
9.72	0.01	0	137.00	0.01	0.01	0.00
9.78	0.01	0	137.00	0.01	0.01	0.00
9.84	0.01	0	137.00	0.01	0.01	0.00
9.90	0.01	0	137.00	0.01	0.01	0.00
9.96	0.01	0	137.00	0.01	0.01	0.00
10.02	0.01	0	137.00	0.01	0.01	0.00
10.08	0.01	0	137.00	0.01	0.01	0.00
10.14	0.01	0	137.00	0.01	0.01	0.00
10.20	0.01	0	137.00	0.01	0.01	0.00
10.26	0.01	0	137.00	0.01	0.01	0.00
10.32	0.01	0	137.00	0.01	0.01	0.00
10.38	0.01	0	137.00	0.01	0.01	0.00
10.44	0.01	0	137.00	0.01	0.01	0.00
10.50	0.01	0	137.00	0.01	0.01	0.00
10.56	0.01	0	137.00	0.01	0.01	0.00
10.62	0.01	0	137.00	0.01	0.01	0.00
10.68	0.01	0	137.00	0.01	0.01	0.00
10.74	0.01	0	137.00	0.01	0.01	0.00
10.80	0.01	0	137.00	0.01	0.01	0.00
10.86	0.01	0	137.00	0.01	0.01	0.00
10.92	0.01	0	137.00	0.01	0.01	0.00
10.98	0.01	0	137.00	0.01	0.01	0.00
11.04	0.01	0	137.00	0.01	0.01	0.00
11.10	0.01	0	137.00	0.01	0.01	0.00
11.16	0.01	0	137.00	0.01	0.01	0.00
11.22	0.01	0	137.00	0.01	0.01	0.00
11.28	0.01	0	137.00	0.01	0.01	0.00
11.34	0.01	0	137.00	0.01	0.01	0.00
11.40	0.02	0	137.00	0.02	0.02	0.00
11.46	0.02	0	137.00	0.02	0.02	0.00
11.52	0.02	0	137.00	0.02	0.02	0.00
11.58	0.02	0	137.00	0.02	0.02	0.00
11.64	0.03	0	137.00	0.02	0.02	0.00
11.70	0.03	1	137.01	0.02	0.02	0.00
11.76	0.04	4	137.03	0.02	**0.02**	0.00
11.82	0.05	9	137.07	0.02	0.02	0.00
11.88	0.06	16	137.12	0.02	0.02	0.00
11.94	0.07	24	137.18	0.02	0.02	0.00
12.00	0.10	36	137.27	0.02	0.02	0.00
12.06	0.17	59	137.44	0.02	0.02	0.00
12.12	**0.20**	95	137.72	0.02	0.02	0.00
12.18	0.16	130	137.98	0.02	0.02	0.00
12.24	0.14	157	138.18	0.02	0.02	0.00
12.30	0.13	181	138.36	0.02	0.02	0.00
12.36	0.12	203	138.52	0.02	0.02	0.00
12.42	0.10	221	138.66	0.02	0.02	0.00

Hydrograph for Pond 6P: Infiltration Trench #2 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
12.48	0.08	236	138.77	0.02	0.02	0.00
12.54	0.07	247	138.86	0.02	0.02	0.00
12.60	0.05	**254**	**138.91**	**0.04**	0.02	**0.02**
12.66	0.05	**254**	**138.91**	**0.05**	0.02	**0.03**
12.72	0.05	254	138.91	0.05	0.02	0.02
12.78	0.05	254	138.91	0.05	0.02	0.02
12.84	0.04	254	138.91	0.04	0.02	0.02
12.90	0.04	254	138.91	0.04	0.02	0.02
12.96	0.04	254	138.91	0.04	0.02	0.02
13.02	0.04	254	138.91	0.04	0.02	0.02
13.08	0.04	254	138.91	0.04	0.02	0.01
13.14	0.04	254	138.91	0.04	0.02	0.01
13.20	0.03	254	138.91	0.03	0.02	0.01
13.26	0.03	254	138.91	0.03	0.02	0.01
13.32	0.03	254	138.91	0.03	0.02	0.01
13.38	0.03	254	138.91	0.03	0.02	0.01
13.44	0.03	254	138.91	0.03	0.02	0.01
13.50	0.03	254	138.91	0.03	0.02	0.01
13.56	0.03	254	138.91	0.03	0.02	0.01
13.62	0.03	254	138.91	0.03	0.02	0.01
13.68	0.03	254	138.90	0.03	0.02	0.01
13.74	0.03	254	138.90	0.03	0.02	0.01
13.80	0.03	254	138.90	0.03	0.02	0.01
13.86	0.03	254	138.90	0.03	0.02	0.01
13.92	0.03	254	138.90	0.03	0.02	0.01
13.98	0.03	254	138.90	0.03	0.02	0.01
14.04	0.03	254	138.90	0.03	0.02	0.01
14.10	0.03	254	138.90	0.03	0.02	0.00
14.16	0.03	254	138.90	0.03	0.02	0.00
14.22	0.03	253	138.90	0.03	0.02	0.00
14.28	0.03	253	138.90	0.03	0.02	0.00
14.34	0.03	253	138.90	0.03	0.02	0.00
14.40	0.03	253	138.90	0.03	0.02	0.00
14.46	0.03	253	138.90	0.03	0.02	0.00
14.52	0.03	253	138.90	0.03	0.02	0.00
14.58	0.03	253	138.90	0.03	0.02	0.00
14.64	0.03	253	138.90	0.03	0.02	0.00
14.70	0.03	253	138.90	0.03	0.02	0.00
14.76	0.03	253	138.90	0.03	0.02	0.00
14.82	0.02	253	138.90	0.02	0.02	0.00
14.88	0.02	253	138.90	0.02	0.02	0.00
14.94	0.02	253	138.90	0.02	0.02	0.00
15.00	0.02	253	138.90	0.02	0.02	0.00
15.06	0.02	253	138.90	0.02	0.02	0.00
15.12	0.02	253	138.90	0.02	0.02	0.00
15.18	0.02	253	138.90	0.02	0.02	0.00
15.24	0.02	253	138.90	0.02	0.02	0.00
15.30	0.02	253	138.90	0.02	0.02	0.00
15.36	0.02	253	138.90	0.02	0.02	0.00
15.42	0.02	252	138.90	0.02	0.02	0.00
15.48	0.02	252	138.89	0.02	0.02	0.00
15.54	0.02	252	138.89	0.02	0.02	0.00

Hydrograph for Pond 6P: Infiltration Trench #2 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
15.60	0.02	251	138.89	0.02	0.02	0.00
15.66	0.02	250	138.88	0.02	0.02	0.00
15.72	0.02	250	138.88	0.02	0.02	0.00
15.78	0.02	249	138.87	0.02	0.02	0.00
15.84	0.02	248	138.86	0.02	0.02	0.00
15.90	0.02	247	138.86	0.02	0.02	0.00
15.96	0.02	246	138.85	0.02	0.02	0.00
16.02	0.02	245	138.84	0.02	0.02	0.00
16.08	0.02	244	138.83	0.02	0.02	0.00
16.14	0.02	243	138.82	0.02	0.02	0.00
16.20	0.02	241	138.81	0.02	0.02	0.00
16.26	0.02	240	138.80	0.02	0.02	0.00
16.32	0.02	239	138.79	0.02	0.02	0.00
16.38	0.02	237	138.78	0.02	0.02	0.00
16.44	0.02	236	138.77	0.02	0.02	0.00
16.50	0.02	234	138.76	0.02	0.02	0.00
16.56	0.02	233	138.75	0.02	0.02	0.00
16.62	0.02	231	138.74	0.02	0.02	0.00
16.68	0.02	230	138.73	0.02	0.02	0.00
16.74	0.02	228	138.71	0.02	0.02	0.00
16.80	0.02	227	138.70	0.02	0.02	0.00
16.86	0.02	225	138.69	0.02	0.02	0.00
16.92	0.02	223	138.68	0.02	0.02	0.00
16.98	0.01	221	138.66	0.02	0.02	0.00
17.04	0.01	220	138.65	0.02	0.02	0.00
17.10	0.01	218	138.64	0.02	0.02	0.00
17.16	0.01	216	138.62	0.02	0.02	0.00
17.22	0.01	214	138.61	0.02	0.02	0.00
17.28	0.01	212	138.59	0.02	0.02	0.00
17.34	0.01	210	138.58	0.02	0.02	0.00
17.40	0.01	208	138.56	0.02	0.02	0.00
17.46	0.01	206	138.55	0.02	0.02	0.00
17.52	0.01	204	138.53	0.02	0.02	0.00
17.58	0.01	202	138.52	0.02	0.02	0.00
17.64	0.01	200	138.50	0.02	0.02	0.00
17.70	0.01	197	138.48	0.02	0.02	0.00
17.76	0.01	195	138.47	0.02	0.02	0.00
17.82	0.01	193	138.45	0.02	0.02	0.00
17.88	0.01	191	138.43	0.02	0.02	0.00
17.94	0.01	188	138.41	0.02	0.02	0.00
18.00	0.01	186	138.39	0.02	0.02	0.00
18.06	0.01	183	138.38	0.02	0.02	0.00
18.12	0.01	181	138.36	0.02	0.02	0.00
18.18	0.01	178	138.34	0.02	0.02	0.00
18.24	0.01	176	138.32	0.02	0.02	0.00
18.30	0.01	173	138.30	0.02	0.02	0.00
18.36	0.01	171	138.28	0.02	0.02	0.00
18.42	0.01	168	138.26	0.02	0.02	0.00
18.48	0.01	166	138.24	0.02	0.02	0.00
18.54	0.01	163	138.22	0.02	0.02	0.00
18.60	0.01	160	138.20	0.02	0.02	0.00
18.66	0.01	158	138.18	0.02	0.02	0.00

Hydrograph for Pond 6P: Infiltration Trench #2 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
18.72	0.01	155	138.16	0.02	0.02	0.00
18.78	0.01	152	138.14	0.02	0.02	0.00
18.84	0.01	150	138.12	0.02	0.02	0.00
18.90	0.01	147	138.11	0.02	0.02	0.00
18.96	0.01	145	138.09	0.02	0.02	0.00
19.02	0.01	142	138.07	0.02	0.02	0.00
19.08	0.01	139	138.04	0.02	0.02	0.00
19.14	0.01	136	138.02	0.02	0.02	0.00
19.20	0.01	134	138.00	0.02	0.02	0.00
19.26	0.01	131	137.98	0.02	0.02	0.00
19.32	0.01	128	137.96	0.02	0.02	0.00
19.38	0.01	126	137.94	0.02	0.02	0.00
19.44	0.01	123	137.92	0.02	0.02	0.00
19.50	0.01	120	137.90	0.02	0.02	0.00
19.56	0.01	117	137.88	0.02	0.02	0.00
19.62	0.01	115	137.86	0.02	0.02	0.00
19.68	0.01	112	137.84	0.02	0.02	0.00
19.74	0.01	109	137.82	0.02	0.02	0.00
19.80	0.01	106	137.80	0.02	0.02	0.00
19.86	0.01	103	137.78	0.02	0.02	0.00
19.92	0.01	100	137.75	0.02	0.02	0.00
19.98	0.01	98	137.73	0.02	0.02	0.00
20.04	0.01	95	137.71	0.02	0.02	0.00
20.10	0.01	92	137.69	0.02	0.02	0.00
20.16	0.01	89	137.67	0.02	0.02	0.00
20.22	0.01	86	137.65	0.02	0.02	0.00
20.28	0.01	83	137.62	0.02	0.02	0.00
20.34	0.01	80	137.60	0.02	0.02	0.00
20.40	0.01	77	137.58	0.02	0.02	0.00
20.46	0.01	74	137.56	0.02	0.02	0.00
20.52	0.01	71	137.54	0.02	0.02	0.00
20.58	0.01	69	137.51	0.02	0.02	0.00
20.64	0.01	66	137.49	0.02	0.02	0.00
20.70	0.01	63	137.47	0.02	0.02	0.00
20.76	0.01	60	137.45	0.02	0.02	0.00
20.82	0.01	57	137.43	0.02	0.02	0.00
20.88	0.01	54	137.40	0.02	0.02	0.00
20.94	0.01	51	137.38	0.02	0.02	0.00
21.00	0.01	48	137.36	0.02	0.02	0.00
21.06	0.01	45	137.34	0.02	0.02	0.00
21.12	0.01	42	137.31	0.02	0.02	0.00
21.18	0.01	39	137.29	0.02	0.02	0.00
21.24	0.01	36	137.27	0.02	0.02	0.00
21.30	0.01	32	137.24	0.02	0.02	0.00
21.36	0.01	29	137.22	0.02	0.02	0.00
21.42	0.01	26	137.20	0.02	0.02	0.00
21.48	0.01	23	137.17	0.02	0.02	0.00
21.54	0.01	20	137.15	0.02	0.02	0.00
21.60	0.01	17	137.13	0.02	0.02	0.00
21.66	0.01	14	137.10	0.02	0.02	0.00
21.72	0.01	11	137.08	0.02	0.02	0.00
21.78	0.01	8	137.06	0.02	0.02	0.00

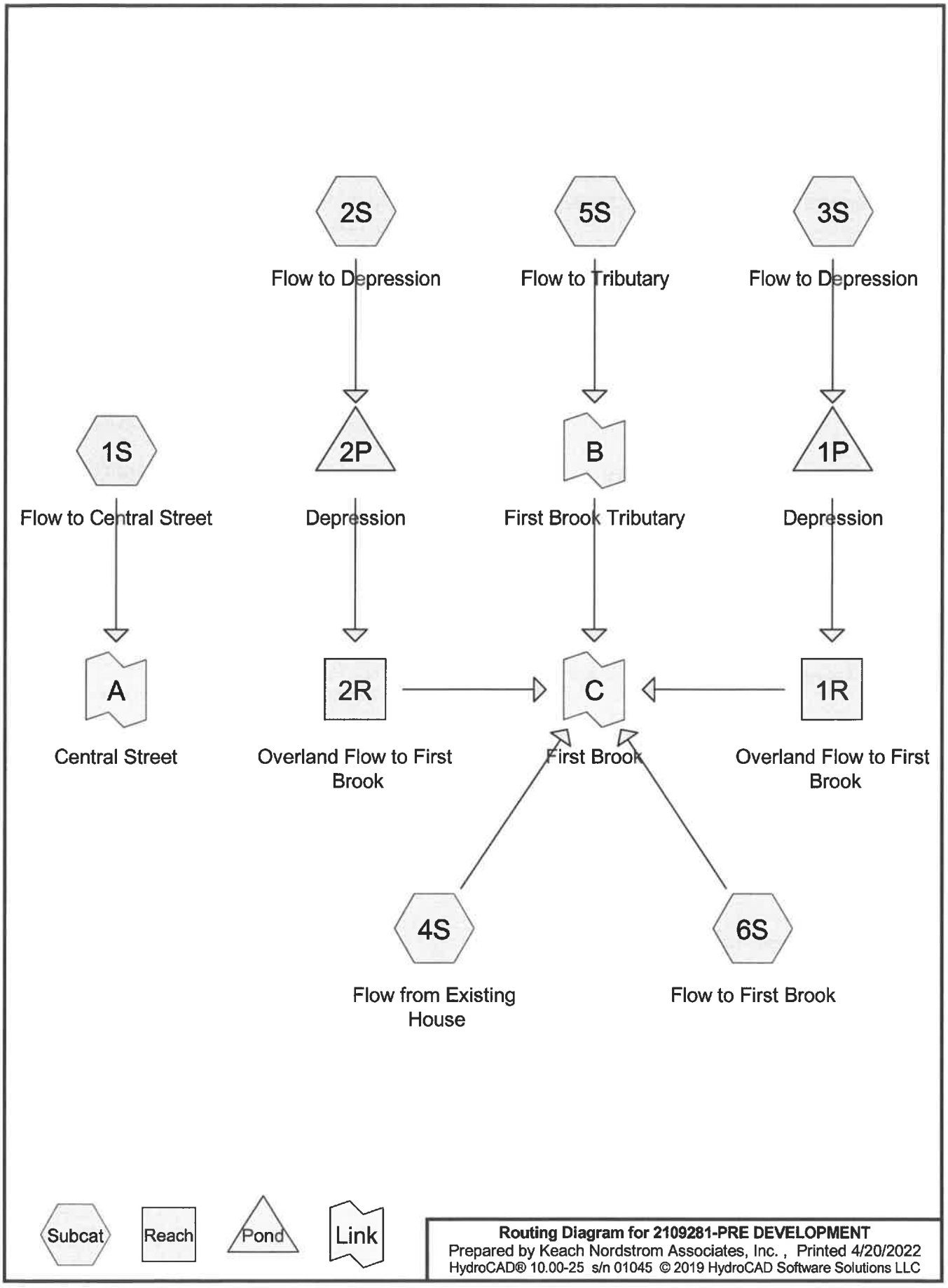
Hydrograph for Pond 6P: Infiltration Trench #2 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
21.84	0.01	5	137.03	0.02	0.02	0.00
21.90	0.01	1	137.01	0.02	0.02	0.00
21.96	0.01	0	137.00	0.00	0.00	0.00
22.02	0.01	0	137.00	0.00	0.00	0.00
22.08	0.01	0	137.00	0.00	0.00	0.00
22.14	0.01	0	137.00	0.00	0.00	0.00
22.20	0.01	0	137.00	0.00	0.00	0.00
22.26	0.01	0	137.00	0.00	0.00	0.00
22.32	0.01	0	137.00	0.00	0.00	0.00
22.38	0.01	0	137.00	0.00	0.00	0.00
22.44	0.01	0	137.00	0.00	0.00	0.00
22.50	0.01	0	137.00	0.00	0.00	0.00
22.56	0.01	0	137.00	0.00	0.00	0.00
22.62	0.01	0	137.00	0.00	0.00	0.00
22.68	0.01	0	137.00	0.00	0.00	0.00
22.74	0.01	0	137.00	0.00	0.00	0.00
22.80	0.01	0	137.00	0.00	0.00	0.00
22.86	0.01	0	137.00	0.00	0.00	0.00
22.92	0.01	0	137.00	0.00	0.00	0.00
22.98	0.01	0	137.00	0.00	0.00	0.00
23.04	0.01	0	137.00	0.00	0.00	0.00
23.10	0.01	0	137.00	0.00	0.00	0.00
23.16	0.01	0	137.00	0.00	0.00	0.00
23.22	0.01	0	137.00	0.00	0.00	0.00
23.28	0.01	0	137.00	0.00	0.00	0.00
23.34	0.01	0	137.00	0.00	0.00	0.00
23.40	0.01	0	137.00	0.00	0.00	0.00
23.46	0.01	0	137.00	0.00	0.00	0.00
23.52	0.01	0	137.00	0.00	0.00	0.00
23.58	0.01	0	137.00	0.00	0.00	0.00
23.64	0.01	0	137.00	0.00	0.00	0.00
23.70	0.01	0	137.00	0.00	0.00	0.00
23.76	0.01	0	137.00	0.00	0.00	0.00
23.82	0.01	0	137.00	0.00	0.00	0.00
23.88	0.01	0	137.00	0.00	0.00	0.00
23.94	0.01	0	137.00	0.00	0.00	0.00
24.00	0.01	0	137.00	0.00	0.00	0.00

HYDROCAD DRAINAGE ANALYSIS

I. 2-YR, PRE-DEVELOPMENT
II. 10-YR, PRE-DEVELOPMENT
III. 25-YR, PRE-DEVELOPMENT
IV. 50-YR, PRE-DEVELOPMENT

V. 2-YR, POST-DEVELOPMENT
VI. 10-YR, POST-DEVELOPMENT
VII. 25-YR, POST-DEVELOPMENT
VIII. 50-YR, POST-DEVELOPMENT



Routing Diagram for 2109281-PRE DEVELOPMENT
Prepared by Keach Nordstrom Associates, Inc. , Printed 4/20/2022
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Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Flow to Central Street Runoff Area=21,075 sf 15.46% Impervious Runoff Depth>0.49"
Flow Length=125' Tc=13.9 min CN=WQ Runoff=0.20 cfs 0.02 af

Subcatchment 2S: Flow to Depression Runoff Area=43,218 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=144' Tc=13.9 min CN=WQ Runoff=0.00 cfs 0.00 af

Subcatchment 3S: Flow to Depression Runoff Area=37,017 sf 1.72% Impervious Runoff Depth>0.05"
Flow Length=163' Tc=19.0 min CN=WQ Runoff=0.03 cfs 0.00 af

Subcatchment 4S: Flow from Existing Runoff Area=84,645 sf 16.53% Impervious Runoff Depth>0.52"
Flow Length=162' Tc=23.8 min CN=WQ Runoff=0.68 cfs 0.08 af

Subcatchment 5S: Flow to Tributary Runoff Area=98,684 sf 4.88% Impervious Runoff Depth>0.13"
Flow Length=747' Tc=19.9 min CN=WQ Runoff=0.22 cfs 0.02 af

Subcatchment 6S: Flow to First Brook Runoff Area=73,668 sf 0.00% Impervious Runoff Depth>0.00"
Flow Length=247' Tc=15.1 min CN=WQ Runoff=0.00 cfs 0.00 af

Reach 1R: Overland Flow to First Brook Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.00 af
n=0.013 L=150.0' S=0.1520 '/' Capacity=282.79 cfs Outflow=0.00 cfs 0.00 af

Reach 2R: Overland Flow to First Brook Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.00 af
n=0.013 L=170.0' S=0.1194 '/' Capacity=250.65 cfs Outflow=0.00 cfs 0.00 af

Pond 1P: Depression Peak Elev=140.07' Storage=144 cf Inflow=0.03 cfs 0.00 af
Outflow=0.00 cfs 0.00 af

Pond 2P: Depression Peak Elev=135.00' Storage=0 cf Inflow=0.00 cfs 0.00 af
Outflow=0.00 cfs 0.00 af

Link A: Central Street Inflow=0.20 cfs 0.02 af
Primary=0.20 cfs 0.02 af

Link B: First Brook Tributary Inflow=0.22 cfs 0.02 af
Primary=0.22 cfs 0.02 af

Link C: First Brook Inflow=0.89 cfs 0.11 af
Primary=0.89 cfs 0.11 af

Total Runoff Area = 8.226 ac Runoff Volume = 0.13 af Average Runoff Depth = 0.19"
93.66% Pervious = 7.704 ac 6.34% Impervious = 0.521 ac

Summary for Subcatchment 1S: Flow to Central Street

Runoff = 0.20 cfs @ 12.18 hrs, Volume= 0.02 af, Depth> 0.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-YEAR Rainfall=2.95"

Area (sf)	CN	Description
1,998	98.0	Paved parking, HSG A
1,260	98.0	Roofs, HSG A
1,466	30.0	Woods, Good, HSG A
15,781	39.0	>75% Grass cover, Good, HSG A
570	96.0	Gravel surface, HSG A
21,075		Weighted Average
17,817	40.1	84.54% Pervious Area
3,258	98.0	15.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	50	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
1.1	75	0.0285	1.18		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.9	125	Total			

Summary for Subcatchment 2S: Flow to Depression

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-YEAR Rainfall=2.95"

Area (sf)	CN	Description
22,970	30.0	Woods, Good, HSG A
20,248	39.0	>75% Grass cover, Good, HSG A
43,218		Weighted Average
43,218	34.2	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	50	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
1.0	94	0.0957	1.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.9	144	Total			

Summary for Subcatchment 3S: Flow to Depression

Runoff = 0.03 cfs @ 12.25 hrs, Volume= 0.00 af, Depth> 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-YEAR Rainfall=2.95"

Area (sf)	CN	Description
18,978	30.0	Woods, Good, HSG A
17,402	39.0	>75% Grass cover, Good, HSG A
637	98.0	Roofs, HSG A
37,017		Weighted Average
36,380	34.3	98.28% Pervious Area
637	98.0	1.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	50	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
2.0	113	0.0354	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.0	163	Total			

Summary for Subcatchment 4S: Flow from Existing House

Runoff = 0.68 cfs @ 12.31 hrs, Volume= 0.08 af, Depth> 0.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-YEAR Rainfall=2.95"

Area (sf)	CN	Description
8,242	98.0	Paved parking, HSG A
5,752	98.0	Roofs, HSG A
28,838	30.0	Woods, Good, HSG A
39,430	39.0	>75% Grass cover, Good, HSG A
2,383	96.0	Gravel surface, HSG A
84,645		Weighted Average
70,651	37.2	83.47% Pervious Area
13,994	98.0	16.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.4	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
1.4	112	0.0714	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
23.8	162	Total			

Summary for Subcatchment 5S: Flow to Tributary

Runoff = 0.22 cfs @ 12.26 hrs, Volume= 0.02 af, Depth> 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-YEAR Rainfall=2.95"

Area (sf)	CN	Description
1,636	98.0	Roofs, HSG A
46,962	30.0	Woods, Good, HSG A
46,908	39.0	>75% Grass cover, Good, HSG A
3,178	98.0	Paved parking, HSG A
98,684		Weighted Average
93,870	34.5	95.12% Pervious Area
4,814	98.0	4.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	50	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
0.9	72	0.0694	1.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	625	0.0100	5.11	66.39	**Trap/Vee/Rect Channel Flow,** Bot.W=10.00' D=1.00' Z= 3.0 '/' Top.W=16.00' n= 0.025 Earth, clean & winding
19.9	747	Total			

Summary for Subcatchment 6S: Flow to First Brook

Runoff = 0.00 cfs @ 12.20 hrs, Volume= 0.00 af, Depth> 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-YEAR Rainfall=2.95"

Area (sf)	CN	Description
65,603	30.0	Woods, Good, HSG A
7,986	39.0	>75% Grass cover, Good, HSG A
79	96.0	Gravel surface, HSG A
73,668		Weighted Average
73,668	31.0	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	50	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
1.4	90	0.0444	1.05		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	57	0.0614	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	50	0.3200	2.83		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.1	247	Total			

Summary for Reach 1R: Overland Flow to First Brook

Inflow Area = 0.850 ac, 1.72% Impervious, Inflow Depth = 0.00" for 2-YEAR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 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 @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 8.0 sf, Capacity= 282.79 cfs

5.00' x 1.00' deep channel, n= 0.013 Corrugated PE, smooth interior
Side Slope Z-value= 3.0 '/' Top Width= 11.00'
Length= 150.0' Slope= 0.1520 '/'
Inlet Invert= 141.80', Outlet Invert= 119.00'

‡

Summary for Reach 2R: Overland Flow to First Brook

Inflow Area = 0.992 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-YEAR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 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 @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 8.0 sf, Capacity= 250.65 cfs

5.00' x 1.00' deep channel, n= 0.013 Corrugated PE, smooth interior
Side Slope Z-value= 3.0 '/' Top Width= 11.00'
Length= 170.0' Slope= 0.1194 '/'
Inlet Invert= 137.80', Outlet Invert= 117.50'

‡

Summary for Pond 1P: Depression

Inflow Area = 0.850 ac, 1.72% Impervious, Inflow Depth > 0.05" for 2-YEAR event
Inflow = 0.03 cfs @ 12.25 hrs, Volume= 0.00 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 140.07' @ 24.00 hrs Surf.Area= 2,060 sf Storage= 144 cf
Flood Elev= 142.00' Surf.Area= 3,991 sf Storage= 5,980 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	5,980 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
140.00	1,989	0	0
142.00	3,991	5,980	5,980

Device	Routing	Invert	Outlet Devices
#1	Primary	141.80'	**10.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=140.00' TW=141.80' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 2P: Depression

Inflow Area = 0.992 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-YEAR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 135.00' @ 0.00 hrs Surf.Area= 250 sf Storage= 0 cf
Flood Elev= 139.00' Surf.Area= 6,715 sf Storage= 15,895 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	135.00'	15,895 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
135.00	250	0	0
136.00	2,787	1,519	1,519
138.00	5,488	8,275	9,794
139.00	6,715	6,102	15,895

Device	Routing	Invert	Outlet Devices
#1	Primary	137.90'	**5.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.00' TW=137.80' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link A: Central Street

Inflow Area = 0.484 ac, 15.46% Impervious, Inflow Depth > 0.49" for 2-YEAR event
Inflow = 0.20 cfs @ 12.18 hrs, Volume= 0.02 af
Primary = 0.20 cfs @ 12.18 hrs, Volume= 0.02 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Link B: First Brook Tributary

Inflow Area = 2.265 ac, 4.88% Impervious, Inflow Depth > 0.13" for 2-YEAR event
Inflow = 0.22 cfs @ 12.26 hrs, Volume= 0.02 af
Primary = 0.22 cfs @ 12.26 hrs, Volume= 0.02 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Link C: First Brook

Inflow Area = 7.742 ac, 5.77% Impervious, Inflow Depth > 0.17" for 2-YEAR event
Inflow = 0.89 cfs @ 12.30 hrs, Volume= 0.11 af
Primary = 0.89 cfs @ 12.30 hrs, Volume= 0.11 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Flow to Central Street Runoff Area=21,075 sf 15.46% Impervious Runoff Depth>0.83"
Flow Length=125' Tc=13.9 min CN=WQ Runoff=0.30 cfs 0.03 af

Subcatchment 2S: Flow to Depression Runoff Area=43,218 sf 0.00% Impervious Runoff Depth>0.05"
Flow Length=144' Tc=13.9 min CN=WQ Runoff=0.01 cfs 0.00 af

Subcatchment 3S: Flow to Depression Runoff Area=37,017 sf 1.72% Impervious Runoff Depth>0.12"
Flow Length=163' Tc=19.0 min CN=WQ Runoff=0.04 cfs 0.01 af

Subcatchment 4S: Flow from Existing Runoff Area=84,645 sf 16.53% Impervious Runoff Depth>0.85"
Flow Length=162' Tc=23.8 min CN=WQ Runoff=1.03 cfs 0.14 af

Subcatchment 5S: Flow to Tributary Runoff Area=98,684 sf 4.88% Impervious Runoff Depth>0.25"
Flow Length=747' Tc=19.9 min CN=WQ Runoff=0.33 cfs 0.05 af

Subcatchment 6S: Flow to First Brook Runoff Area=73,668 sf 0.00% Impervious Runoff Depth>0.02"
Flow Length=247' Tc=15.1 min CN=WQ Runoff=0.01 cfs 0.00 af

Reach 1R: Overland Flow to First Brook Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.00 af
n=0.013 L=150.0' S=0.1520 '/' Capacity=282.79 cfs Outflow=0.00 cfs 0.00 af

Reach 2R: Overland Flow to First Brook Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.00 af
n=0.013 L=170.0' S=0.1194 '/' Capacity=250.65 cfs Outflow=0.00 cfs 0.00 af

Pond 1P: Depression Peak Elev=140.18' Storage=370 cf Inflow=0.04 cfs 0.01 af
Outflow=0.00 cfs 0.00 af

Pond 2P: Depression Peak Elev=135.28' Storage=172 cf Inflow=0.01 cfs 0.00 af
Outflow=0.00 cfs 0.00 af

Link A: Central Street Inflow=0.30 cfs 0.03 af
Primary=0.30 cfs 0.03 af

Link B: First Brook Tributary Inflow=0.33 cfs 0.05 af
Primary=0.33 cfs 0.05 af

Link C: First Brook Inflow=1.36 cfs 0.19 af
Primary=1.36 cfs 0.19 af

Total Runoff Area = 8.226 ac Runoff Volume = 0.23 af Average Runoff Depth = 0.34"
93.66% Pervious = 7.704 ac 6.34% Impervious = 0.521 ac

Summary for Subcatchment 1S: Flow to Central Street

Runoff = 0.30 cfs @ 12.18 hrs, Volume= 0.03 af, Depth> 0.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-YEAR Rainfall=4.45"

Area (sf)	CN	Description
1,998	98.0	Paved parking, HSG A
1,260	98.0	Roofs, HSG A
1,466	30.0	Woods, Good, HSG A
15,781	39.0	>75% Grass cover, Good, HSG A
570	96.0	Gravel surface, HSG A
21,075		Weighted Average
17,817	40.1	84.54% Pervious Area
3,258	98.0	15.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	50	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
1.1	75	0.0285	1.18		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.9	125	Total			

Summary for Subcatchment 2S: Flow to Depression

Runoff = 0.01 cfs @ 14.90 hrs, Volume= 0.00 af, Depth> 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-YEAR Rainfall=4.45"

Area (sf)	CN	Description
22,970	30.0	Woods, Good, HSG A
20,248	39.0	>75% Grass cover, Good, HSG A
43,218		Weighted Average
43,218	34.2	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	50	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
1.0	94	0.0957	1.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.9	144	Total			

Summary for Subcatchment 3S: Flow to Depression

Runoff = 0.04 cfs @ 12.25 hrs, Volume= 0.01 af, Depth> 0.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-YEAR Rainfall=4.45"

Area (sf)	CN	Description
18,978	30.0	Woods, Good, HSG A
17,402	39.0	>75% Grass cover, Good, HSG A
637	98.0	Roofs, HSG A
37,017		Weighted Average
36,380	34.3	98.28% Pervious Area
637	98.0	1.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	50	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
2.0	113	0.0354	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.0	163	Total			

Summary for Subcatchment 4S: Flow from Existing House

Runoff = 1.03 cfs @ 12.31 hrs, Volume= 0.14 af, Depth> 0.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-YEAR Rainfall=4.45"

Area (sf)	CN	Description
8,242	98.0	Paved parking, HSG A
5,752	98.0	Roofs, HSG A
28,838	30.0	Woods, Good, HSG A
39,430	39.0	>75% Grass cover, Good, HSG A
2,383	96.0	Gravel surface, HSG A
84,645		Weighted Average
70,651	37.2	83.47% Pervious Area
13,994	98.0	16.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.4	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
1.4	112	0.0714	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
23.8	162	Total			

Summary for Subcatchment 5S: Flow to Tributary

Runoff = 0.33 cfs @ 12.26 hrs, Volume= 0.05 af, Depth> 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-YEAR Rainfall=4.45"

Area (sf)	CN	Description
1,636	98.0	Roofs, HSG A
46,962	30.0	Woods, Good, HSG A
46,908	39.0	>75% Grass cover, Good, HSG A
3,178	98.0	Paved parking, HSG A
98,684		Weighted Average
93,870	34.5	95.12% Pervious Area
4,814	98.0	4.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	50	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
0.9	72	0.0694	1.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	625	0.0100	5.11	66.39	**Trap/Vee/Rect Channel Flow,** Bot.W=10.00' D=1.00' Z= 3.0 '/' Top.W=16.00' n= 0.025 Earth, clean & winding
19.9	747	Total			

Summary for Subcatchment 6S: Flow to First Brook

Runoff = 0.01 cfs @ 12.20 hrs, Volume= 0.00 af, Depth> 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-YEAR Rainfall=4.45"

Area (sf)	CN	Description
65,603	30.0	Woods, Good, HSG A
7,986	39.0	>75% Grass cover, Good, HSG A
79	96.0	Gravel surface, HSG A
73,668		Weighted Average
73,668	31.0	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	50	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
1.4	90	0.0444	1.05		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	57	0.0614	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	50	0.3200	2.83		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.1	247	Total			

Summary for Reach 1R: Overland Flow to First Brook

Inflow Area = 0.850 ac, 1.72% Impervious, Inflow Depth = 0.00" for 10-YEAR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 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 @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 8.0 sf, Capacity= 282.79 cfs

5.00' x 1.00' deep channel, n= 0.013 Corrugated PE, smooth interior
Side Slope Z-value= 3.0 '/' Top Width= 11.00'
Length= 150.0' Slope= 0.1520 '/'
Inlet Invert= 141.80', Outlet Invert= 119.00'

‡

Summary for Reach 2R: Overland Flow to First Brook

Inflow Area = 0.992 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10-YEAR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 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 @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 8.0 sf, Capacity= 250.65 cfs

5.00' x 1.00' deep channel, n= 0.013 Corrugated PE, smooth interior
Side Slope Z-value= 3.0 '/' Top Width= 11.00'
Length= 170.0' Slope= 0.1194 '/'
Inlet Invert= 137.80', Outlet Invert= 117.50'

‡

Summary for Pond 1P: Depression

Inflow Area = 0.850 ac, 1.72% Impervious, Inflow Depth > 0.12" for 10-YEAR event
Inflow = 0.04 cfs @ 12.25 hrs, Volume= 0.01 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 140.18' @ 24.00 hrs Surf.Area= 2,167 sf Storage= 370 cf
Flood Elev= 142.00' Surf.Area= 3,991 sf Storage= 5,980 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	5,980 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
140.00	1,989	0	0
142.00	3,991	5,980	5,980

Device	Routing	Invert	Outlet Devices
#1	Primary	141.80'	**10.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=140.00' TW=141.80' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Depression

Inflow Area = 0.992 ac, 0.00% Impervious, Inflow Depth > 0.05" for 10-YEAR event
Inflow = 0.01 cfs @ 14.90 hrs, Volume= 0.00 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 135.28' @ 24.00 hrs Surf.Area= 966 sf Storage= 172 cf
Flood Elev= 139.00' Surf.Area= 6,715 sf Storage= 15,895 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	135.00'	15,895 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
135.00	250	0	0
136.00	2,787	1,519	1,519
138.00	5,488	8,275	9,794
139.00	6,715	6,102	15,895

Device	Routing	Invert	Outlet Devices
#1	Primary	137.90'	**5.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.00' TW=137.80' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link A: Central Street

Inflow Area = 0.484 ac, 15.46% Impervious, Inflow Depth > 0.83" for 10-YEAR event
Inflow = 0.30 cfs @ 12.18 hrs, Volume= 0.03 af
Primary = 0.30 cfs @ 12.18 hrs, Volume= 0.03 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Link B: First Brook Tributary

Inflow Area = 2.265 ac, 4.88% Impervious, Inflow Depth > 0.25" for 10-YEAR event
Inflow = 0.33 cfs @ 12.26 hrs, Volume= 0.05 af
Primary = 0.33 cfs @ 12.26 hrs, Volume= 0.05 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Link C: First Brook

Inflow Area = 7.742 ac, 5.77% Impervious, Inflow Depth > 0.29" for 10-YEAR event
Inflow = 1.36 cfs @ 12.29 hrs, Volume= 0.19 af
Primary = 1.36 cfs @ 12.29 hrs, Volume= 0.19 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Flow to Central Street Runoff Area=21,075 sf 15.46% Impervious Runoff Depth>1.23"
Flow Length=125' Tc=13.9 min CN=WQ Runoff=0.38 cfs 0.05 af

Subcatchment 2S: Flow to Depression Runoff Area=43,218 sf 0.00% Impervious Runoff Depth>0.18"
Flow Length=144' Tc=13.9 min CN=WQ Runoff=0.05 cfs 0.01 af

Subcatchment 3S: Flow to Depression Runoff Area=37,017 sf 1.72% Impervious Runoff Depth>0.27"
Flow Length=163' Tc=19.0 min CN=WQ Runoff=0.07 cfs 0.02 af

Subcatchment 4S: Flow from Existing Runoff Area=84,645 sf 16.53% Impervious Runoff Depth>1.20"
Flow Length=162' Tc=23.8 min CN=WQ Runoff=1.33 cfs 0.19 af

Subcatchment 5S: Flow to Tributary Runoff Area=98,684 sf 4.88% Impervious Runoff Depth>0.44"
Flow Length=747' Tc=19.9 min CN=WQ Runoff=0.43 cfs 0.08 af

Subcatchment 6S: Flow to First Brook Runoff Area=73,668 sf 0.00% Impervious Runoff Depth>0.07"
Flow Length=247' Tc=15.1 min CN=WQ Runoff=0.02 cfs 0.01 af

Reach 1R: Overland Flow to First Brook Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.00 af
n=0.013 L=150.0' S=0.1520 '/' Capacity=282.79 cfs Outflow=0.00 cfs 0.00 af

Reach 2R: Overland Flow to First Brook Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.00 af
n=0.013 L=170.0' S=0.1194 '/' Capacity=250.65 cfs Outflow=0.00 cfs 0.00 af

Pond 1P: Depression Peak Elev=140.38' Storage=834 cf Inflow=0.07 cfs 0.02 af
Outflow=0.00 cfs 0.00 af

Pond 2P: Depression Peak Elev=135.62' Storage=643 cf Inflow=0.05 cfs 0.01 af
Outflow=0.00 cfs 0.00 af

Link A: Central Street Inflow=0.38 cfs 0.05 af
Primary=0.38 cfs 0.05 af

Link B: First Brook Tributary Inflow=0.43 cfs 0.08 af
Primary=0.43 cfs 0.08 af

Link C: First Brook Inflow=1.77 cfs 0.29 af
Primary=1.77 cfs 0.29 af

Total Runoff Area = 8.226 ac Runoff Volume = 0.37 af Average Runoff Depth = 0.54"
93.66% Pervious = 7.704 ac 6.34% Impervious = 0.521 ac

Summary for Subcatchment 1S: Flow to Central Street

Runoff = 0.38 cfs @ 12.19 hrs, Volume= 0.05 af, Depth> 1.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-YEAR Rainfall=5.62"

Area (sf)	CN	Description
1,998	98.0	Paved parking, HSG A
1,260	98.0	Roofs, HSG A
1,466	30.0	Woods, Good, HSG A
15,781	39.0	>75% Grass cover, Good, HSG A
570	96.0	Gravel surface, HSG A
21,075		Weighted Average
17,817	40.1	84.54% Pervious Area
3,258	98.0	15.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	50	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
1.1	75	0.0285	1.18		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.9	125	Total			

Summary for Subcatchment 2S: Flow to Depression

Runoff = 0.05 cfs @ 12.51 hrs, Volume= 0.01 af, Depth> 0.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-YEAR Rainfall=5.62"

Area (sf)	CN	Description
22,970	30.0	Woods, Good, HSG A
20,248	39.0	>75% Grass cover, Good, HSG A
43,218		Weighted Average
43,218	34.2	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	50	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
1.0	94	0.0957	1.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.9	144	Total			

Summary for Subcatchment 3S: Flow to Depression

Runoff = 0.07 cfs @ 12.47 hrs, Volume= 0.02 af, Depth> 0.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-YEAR Rainfall=5.62"

Area (sf)	CN	Description
18,978	30.0	Woods, Good, HSG A
17,402	39.0	>75% Grass cover, Good, HSG A
637	98.0	Roofs, HSG A
37,017		Weighted Average
36,380	34.3	98.28% Pervious Area
637	98.0	1.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	50	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
2.0	113	0.0354	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.0	163	Total			

Summary for Subcatchment 4S: Flow from Existing House

Runoff = 1.33 cfs @ 12.32 hrs, Volume= 0.19 af, Depth> 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-YEAR Rainfall=5.62"

Area (sf)	CN	Description
8,242	98.0	Paved parking, HSG A
5,752	98.0	Roofs, HSG A
28,838	30.0	Woods, Good, HSG A
39,430	39.0	>75% Grass cover, Good, HSG A
2,383	96.0	Gravel surface, HSG A
84,645		Weighted Average
70,651	37.2	83.47% Pervious Area
13,994	98.0	16.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.4	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
1.4	112	0.0714	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
23.8	162	Total			

Summary for Subcatchment 5S: Flow to Tributary

Runoff = 0.43 cfs @ 12.28 hrs, Volume= 0.08 af, Depth> 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-YEAR Rainfall=5.62"

Area (sf)	CN	Description
1,636	98.0	Roofs, HSG A
46,962	30.0	Woods, Good, HSG A
46,908	39.0	>75% Grass cover, Good, HSG A
3,178	98.0	Paved parking, HSG A
98,684		Weighted Average
93,870	34.5	95.12% Pervious Area
4,814	98.0	4.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	50	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
0.9	72	0.0694	1.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	625	0.0100	5.11	66.39	**Trap/Vee/Rect Channel Flow,** Bot.W=10.00' D=1.00' Z= 3.0 '/' Top.W=16.00' n= 0.025 Earth, clean & winding
19.9	747	Total			

Summary for Subcatchment 6S: Flow to First Brook

Runoff = 0.02 cfs @ 12.50 hrs, Volume= 0.01 af, Depth> 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-YEAR Rainfall=5.62"

Area (sf)	CN	Description
65,603	30.0	Woods, Good, HSG A
7,986	39.0	>75% Grass cover, Good, HSG A
79	96.0	Gravel surface, HSG A
73,668		Weighted Average
73,668	31.0	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	50	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
1.4	90	0.0444	1.05		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	57	0.0614	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	50	0.3200	2.83		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.1	247	Total			

Summary for Reach 1R: Overland Flow to First Brook

Inflow Area = 0.850 ac, 1.72% Impervious, Inflow Depth = 0.00" for 25-YEAR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 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 @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 8.0 sf, Capacity= 282.79 cfs

5.00' x 1.00' deep channel, n= 0.013 Corrugated PE, smooth interior
Side Slope Z-value= 3.0 '/' Top Width= 11.00'
Length= 150.0' Slope= 0.1520 '/'
Inlet Invert= 141.80', Outlet Invert= 119.00'

‡

Summary for Reach 2R: Overland Flow to First Brook

Inflow Area = 0.992 ac, 0.00% Impervious, Inflow Depth = 0.00" for 25-YEAR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 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 @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 8.0 sf, Capacity= 250.65 cfs

5.00' x 1.00' deep channel, n= 0.013 Corrugated PE, smooth interior
Side Slope Z-value= 3.0 '/' Top Width= 11.00'
Length= 170.0' Slope= 0.1194 '/'
Inlet Invert= 137.80', Outlet Invert= 117.50'

‡

Summary for Pond 1P: Depression

Inflow Area = 0.850 ac, 1.72% Impervious, Inflow Depth > 0.27" for 25-YEAR event
Inflow = 0.07 cfs @ 12.47 hrs, Volume= 0.02 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 140.38' @ 24.00 hrs Surf.Area= 2,372 sf Storage= 834 cf
Flood Elev= 142.00' Surf.Area= 3,991 sf Storage= 5,980 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	5,980 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
140.00	1,989	0	0
142.00	3,991	5,980	5,980

Device	Routing	Invert	Outlet Devices
#1	Primary	141.80'	**10.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=140.00' TW=141.80' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Depression

Inflow Area = 0.992 ac, 0.00% Impervious, Inflow Depth > 0.18" for 25-YEAR event
Inflow = 0.05 cfs @ 12.51 hrs, Volume= 0.01 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 135.62' @ 24.00 hrs Surf.Area= 1,824 sf Storage= 643 cf
Flood Elev= 139.00' Surf.Area= 6,715 sf Storage= 15,895 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	135.00'	15,895 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
135.00	250	0	0
136.00	2,787	1,519	1,519
138.00	5,488	8,275	9,794
139.00	6,715	6,102	15,895

Device	Routing	Invert	Outlet Devices
#1	Primary	137.90'	**5.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.00' TW=137.80' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link A: Central Street

Inflow Area = 0.484 ac, 15.46% Impervious, Inflow Depth > 1.23" for 25-YEAR event
Inflow = 0.38 cfs @ 12.19 hrs, Volume= 0.05 af
Primary = 0.38 cfs @ 12.19 hrs, Volume= 0.05 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Link B: First Brook Tributary

Inflow Area = 2.265 ac, 4.88% Impervious, Inflow Depth > 0.44" for 25-YEAR event
Inflow = 0.43 cfs @ 12.28 hrs, Volume= 0.08 af
Primary = 0.43 cfs @ 12.28 hrs, Volume= 0.08 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Link C: First Brook

Inflow Area = 7.742 ac, 5.77% Impervious, Inflow Depth > 0.45" for 25-YEAR event
Inflow = 1.77 cfs @ 12.31 hrs, Volume= 0.29 af
Primary = 1.77 cfs @ 12.31 hrs, Volume= 0.29 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Flow to Central Street Runoff Area=21,075 sf 15.46% Impervious Runoff Depth>1.68"
Flow Length=125' Tc=13.9 min CN=WQ Runoff=0.52 cfs 0.07 af

Subcatchment 2S: Flow to Depression Runoff Area=43,218 sf 0.00% Impervious Runoff Depth>0.40"
Flow Length=144' Tc=13.9 min CN=WQ Runoff=0.14 cfs 0.03 af

Subcatchment 3S: Flow to Depression Runoff Area=37,017 sf 1.72% Impervious Runoff Depth>0.51"
Flow Length=163' Tc=19.0 min CN=WQ Runoff=0.16 cfs 0.04 af

Subcatchment 4S: Flow from Existing Runoff Area=84,645 sf 16.53% Impervious Runoff Depth>1.61"
Flow Length=162' Tc=23.8 min CN=WQ Runoff=1.72 cfs 0.26 af

Subcatchment 5S: Flow to Tributary Runoff Area=98,684 sf 4.88% Impervious Runoff Depth>0.71"
Flow Length=747' Tc=19.9 min CN=WQ Runoff=0.71 cfs 0.13 af

Subcatchment 6S: Flow to First Brook Runoff Area=73,668 sf 0.00% Impervious Runoff Depth>0.23"
Flow Length=247' Tc=15.1 min CN=WQ Runoff=0.06 cfs 0.03 af

Reach 1R: Overland Flow to First Brook Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.00 af
n=0.013 L=150.0' S=0.1520 '/' Capacity=282.79 cfs Outflow=0.00 cfs 0.00 af

Reach 2R: Overland Flow to First Brook Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.00 af
n=0.013 L=170.0' S=0.1194 '/' Capacity=250.65 cfs Outflow=0.00 cfs 0.00 af

Pond 1P: Depression Peak Elev=140.67' Storage=1,566 cf Inflow=0.16 cfs 0.04 af
Outflow=0.00 cfs 0.00 af

Pond 2P: Depression Peak Elev=135.97' Storage=1,439 cf Inflow=0.14 cfs 0.03 af
Outflow=0.00 cfs 0.00 af

Link A: Central Street Inflow=0.52 cfs 0.07 af
Primary=0.52 cfs 0.07 af

Link B: First Brook Tributary Inflow=0.71 cfs 0.13 af
Primary=0.71 cfs 0.13 af

Link C: First Brook Inflow=2.49 cfs 0.43 af
Primary=2.49 cfs 0.43 af

Total Runoff Area = 8.226 ac Runoff Volume = 0.56 af Average Runoff Depth = 0.82"
93.66% Pervious = 7.704 ac 6.34% Impervious = 0.521 ac

Summary for Subcatchment 1S: Flow to Central Street

Runoff = 0.52 cfs @ 12.20 hrs, Volume= 0.07 af, Depth> 1.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-YEAR Rainfall=6.72"

Area (sf)	CN	Description
1,998	98.0	Paved parking, HSG A
1,260	98.0	Roofs, HSG A
1,466	30.0	Woods, Good, HSG A
15,781	39.0	>75% Grass cover, Good, HSG A
570	96.0	Gravel surface, HSG A
21,075		Weighted Average
17,817	40.1	84.54% Pervious Area
3,258	98.0	15.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	50	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
1.1	75	0.0285	1.18		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.9	125	Total			

Summary for Subcatchment 2S: Flow to Depression

Runoff = 0.14 cfs @ 12.40 hrs, Volume= 0.03 af, Depth> 0.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-YEAR Rainfall=6.72"

Area (sf)	CN	Description
22,970	30.0	Woods, Good, HSG A
20,248	39.0	>75% Grass cover, Good, HSG A
43,218		Weighted Average
43,218	34.2	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	50	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
1.0	94	0.0957	1.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.9	144	Total			

Summary for Subcatchment 3S: Flow to Depression

Runoff = 0.16 cfs @ 12.39 hrs, Volume= 0.04 af, Depth> 0.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-YEAR Rainfall=6.72"

Area (sf)	CN	Description
18,978	30.0	Woods, Good, HSG A
17,402	39.0	>75% Grass cover, Good, HSG A
637	98.0	Roofs, HSG A
37,017		Weighted Average
36,380	34.3	98.28% Pervious Area
637	98.0	1.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	50	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
2.0	113	0.0354	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.0	163	Total			

Summary for Subcatchment 4S: Flow from Existing House

Runoff = 1.72 cfs @ 12.33 hrs, Volume= 0.26 af, Depth> 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-YEAR Rainfall=6.72"

Area (sf)	CN	Description
8,242	98.0	Paved parking, HSG A
5,752	98.0	Roofs, HSG A
28,838	30.0	Woods, Good, HSG A
39,430	39.0	>75% Grass cover, Good, HSG A
2,383	96.0	Gravel surface, HSG A
84,645		Weighted Average
70,651	37.2	83.47% Pervious Area
13,994	98.0	16.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.4	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
1.4	112	0.0714	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
23.8	162	Total			

Summary for Subcatchment 5S: Flow to Tributary

Runoff = 0.71 cfs @ 12.33 hrs, Volume= 0.13 af, Depth> 0.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-YEAR Rainfall=6.72"

Area (sf)	CN	Description
1,636	98.0	Roofs, HSG A
46,962	30.0	Woods, Good, HSG A
46,908	39.0	>75% Grass cover, Good, HSG A
3,178	98.0	Paved parking, HSG A
98,684		Weighted Average
93,870	34.5	95.12% Pervious Area
4,814	98.0	4.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	50	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
0.9	72	0.0694	1.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	625	0.0100	5.11	66.39	**Trap/Vee/Rect Channel Flow,** Bot.W=10.00' D=1.00' Z= 3.0 '/' Top.W=16.00' n= 0.025 Earth, clean & winding
19.9	747	Total			

Summary for Subcatchment 6S: Flow to First Brook

Runoff = 0.06 cfs @ 12.40 hrs, Volume= 0.03 af, Depth> 0.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-YEAR Rainfall=6.72"

Area (sf)	CN	Description
65,603	30.0	Woods, Good, HSG A
7,986	39.0	>75% Grass cover, Good, HSG A
79	96.0	Gravel surface, HSG A
73,668		Weighted Average
73,668	31.0	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	50	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.95"
1.4	90	0.0444	1.05		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.5	57	0.0614	1.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	50	0.3200	2.83		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.1	247	Total			

Summary for Reach 1R: Overland Flow to First Brook

Inflow Area = 0.850 ac, 1.72% Impervious, Inflow Depth = 0.00" for 50-YEAR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 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 @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 8.0 sf, Capacity= 282.79 cfs

5.00' x 1.00' deep channel, n= 0.013 Corrugated PE, smooth interior
Side Slope Z-value= 3.0 '/' Top Width= 11.00'
Length= 150.0' Slope= 0.1520 '/'
Inlet Invert= 141.80', Outlet Invert= 119.00'

‡

Summary for Reach 2R: Overland Flow to First Brook

Inflow Area = 0.992 ac, 0.00% Impervious, Inflow Depth = 0.00" for 50-YEAR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 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 @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 8.0 sf, Capacity= 250.65 cfs

5.00' x 1.00' deep channel, n= 0.013 Corrugated PE, smooth interior
Side Slope Z-value= 3.0 '/' Top Width= 11.00'
Length= 170.0' Slope= 0.1194 '/'
Inlet Invert= 137.80', Outlet Invert= 117.50'

‡

Summary for Pond 1P: Depression

Inflow Area = 0.850 ac, 1.72% Impervious, Inflow Depth > 0.51" for 50-YEAR event
Inflow = 0.16 cfs @ 12.39 hrs, Volume= 0.04 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 140.67' @ 24.00 hrs Surf.Area= 2,663 sf Storage= 1,566 cf
Flood Elev= 142.00' Surf.Area= 3,991 sf Storage= 5,980 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	140.00'	5,980 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
140.00	1,989	0	0
142.00	3,991	5,980	5,980

Device	Routing	Invert	Outlet Devices
#1	Primary	141.80'	**10.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=140.00' TW=141.80' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Depression

Inflow Area = 0.992 ac, 0.00% Impervious, Inflow Depth > 0.40" for 50-YEAR event
Inflow = 0.14 cfs @ 12.40 hrs, Volume= 0.03 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 135.97' @ 24.00 hrs Surf.Area= 2,714 sf Storage= 1,439 cf
Flood Elev= 139.00' Surf.Area= 6,715 sf Storage= 15,895 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	135.00'	15,895 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
135.00	250	0	0
136.00	2,787	1,519	1,519
138.00	5,488	8,275	9,794
139.00	6,715	6,102	15,895

Device	Routing	Invert	Outlet Devices
#1	Primary	137.90'	**5.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.00' TW=137.80' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link A: Central Street

Inflow Area = 0.484 ac, 15.46% Impervious, Inflow Depth > 1.68" for 50-YEAR event
Inflow = 0.52 cfs @ 12.20 hrs, Volume= 0.07 af
Primary = 0.52 cfs @ 12.20 hrs, Volume= 0.07 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Link B: First Brook Tributary

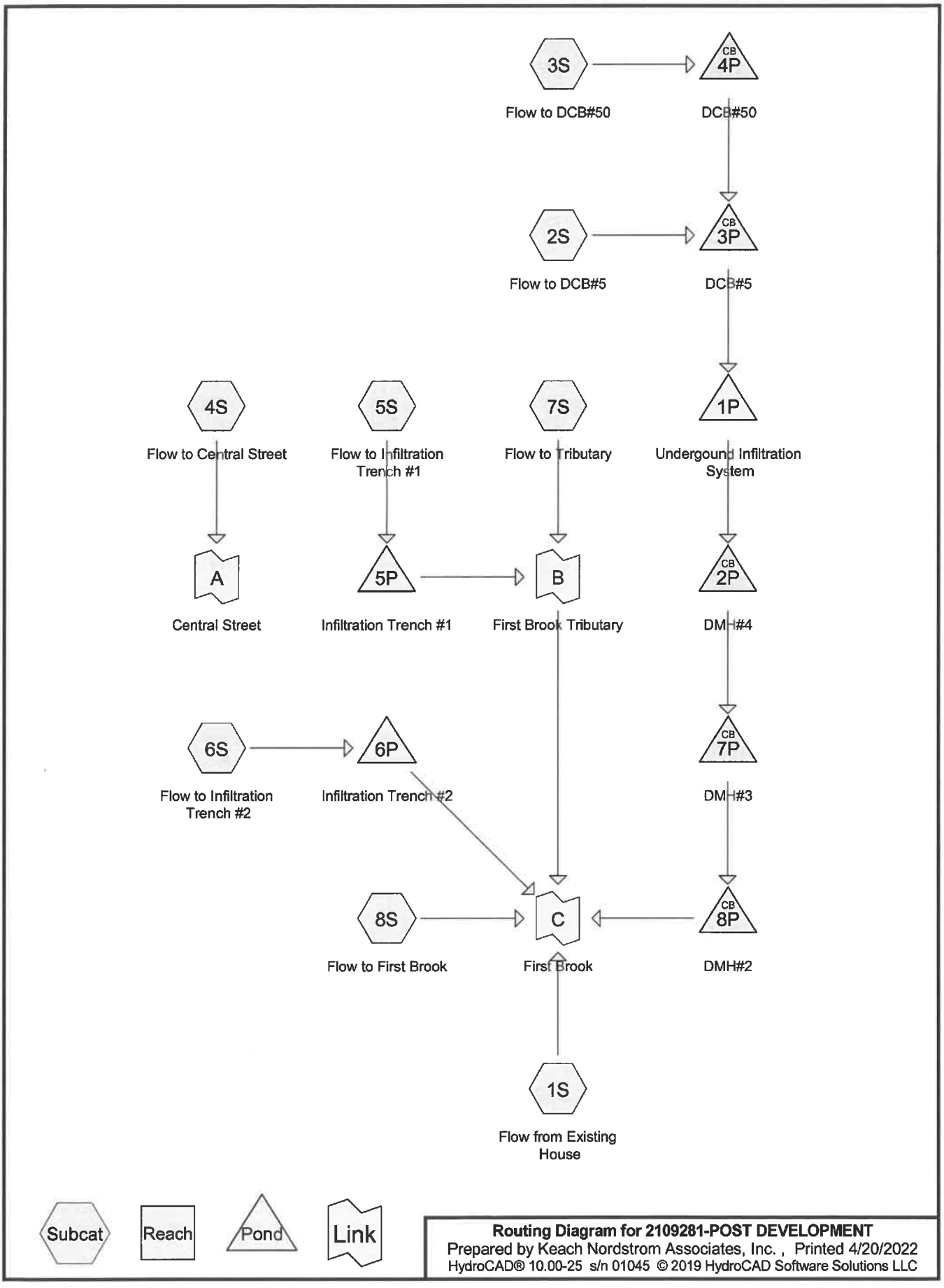
Inflow Area = 2.265 ac, 4.88% Impervious, Inflow Depth > 0.71" for 50-YEAR event
Inflow = 0.71 cfs @ 12.33 hrs, Volume= 0.13 af
Primary = 0.71 cfs @ 12.33 hrs, Volume= 0.13 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Link C: First Brook

Inflow Area = 7.742 ac, 5.77% Impervious, Inflow Depth > 0.66" for 50-YEAR event
Inflow = 2.49 cfs @ 12.33 hrs, Volume= 0.43 af
Primary = 2.49 cfs @ 12.33 hrs, Volume= 0.43 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs


3S
Flow to DCB#50
CB
4P
DCB#50
2S
Flow to DCB#5
CB
3P
DCB#5
4S
Flow to Central Street
5S
Flow to Infiltration Trench #1
7S
Flow to Tributary
1P
Undergound Infiltration System
A
Central Street
5P
Infiltration Trench #1
B
First Brook Tributary
CB
2P
DMH#4
6S
Flow to Infiltration Trench #2
6P
Infiltration Trench #2
CB
7P
DMH#3
8S
Flow to First Brook
C
First Brook
CB
8P
DMH#2
1S
Flow from Existing House
Subcat
Reach
Pond
Link
Routing Diagram for 2109281-POST DEVELOPMENT
Prepared by Keach Nordstrom Associates, Inc. , Printed 4/20/2022
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Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Flow from Existing Runoff Area=86,036 sf 16.27% Impervious Runoff Depth>0.51"
Flow Length=162' Tc=24.2 min CN=WQ Runoff=0.67 cfs 0.08 af

Subcatchment 2S: Flow to DCB#5 Runoff Area=75,925 sf 24.53% Impervious Runoff Depth>0.67"
Tc=6.0 min CN=WQ Runoff=1.21 cfs 0.10 af

Subcatchment 3S: Flow to DCB#50 Runoff Area=43,243 sf 36.54% Impervious Runoff Depth>0.99"
Tc=6.0 min CN=WQ Runoff=1.03 cfs 0.08 af

Subcatchment 4S: Flow to Central Street Runoff Area=15,941 sf 20.44% Impervious Runoff Depth>0.64"
Flow Length=125' Tc=13.7 min CN=WQ Runoff=0.20 cfs 0.02 af

Subcatchment 5S: Flow to Infiltration Runoff Area=23,530 sf 12.75% Impervious Runoff Depth>0.35"
Flow Length=269' Tc=16.8 min CN=WQ Runoff=0.14 cfs 0.02 af

Subcatchment 6S: Flow to Infiltration Runoff Area=16,816 sf 5.95% Impervious Runoff Depth>0.16"
Tc=6.0 min CN=WQ Runoff=0.07 cfs 0.01 af

Subcatchment 7S: Flow to Tributary Runoff Area=58,458 sf 8.23% Impervious Runoff Depth>0.22"
Flow Length=747' Tc=20.2 min CN=WQ Runoff=0.21 cfs 0.02 af

Subcatchment 8S: Flow to First Brook Runoff Area=38,360 sf 0.00% Impervious Runoff Depth>0.01"
Flow Length=200' Tc=14.3 min CN=WQ Runoff=0.00 cfs 0.00 af

Pond 1P: Undergound Infiltration System Peak Elev=136.05' Storage=2,415 cf Inflow=2.24 cfs 0.18 af
Discarded=0.26 cfs 0.18 af Primary=0.00 cfs 0.00 af Outflow=0.26 cfs 0.18 af

Pond 2P: DMH#4 Peak Elev=133.82' Inflow=0.00 cfs 0.00 af
12.0" Round Culvert n=0.013 L=198.7' S=0.0100 '/' Outflow=0.00 cfs 0.00 af

Pond 3P: DCB#5 Peak Elev=137.06' Inflow=2.24 cfs 0.18 af
15.0" Round Culvert n=0.013 L=119.6' S=0.0050 '/' Outflow=2.24 cfs 0.18 af

Pond 4P: DCB#50 Peak Elev=137.20' Inflow=1.03 cfs 0.08 af
12.0" Round Culvert n=0.013 L=22.0' S=0.0050 '/' Outflow=1.03 cfs 0.08 af

Pond 5P: Infiltration Trench #1 Peak Elev=139.25' Storage=192 cf Inflow=0.14 cfs 0.02 af
Discarded=0.03 cfs 0.02 af Primary=0.00 cfs 0.00 af Outflow=0.03 cfs 0.02 af

Pond 6P: Infiltration Trench #2 Peak Elev=137.21' Storage=28 cf Inflow=0.07 cfs 0.01 af
Discarded=0.02 cfs 0.01 af Primary=0.00 cfs 0.00 af Outflow=0.02 cfs 0.01 af

Pond 7P: DMH#3 Peak Elev=127.70' Inflow=0.00 cfs 0.00 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0800 '/' Outflow=0.00 cfs 0.00 af

Pond 8P: DMH#2 Peak Elev=122.80' Inflow=0.00 cfs 0.00 af
12.0" Round Culvert n=0.013 L=10.0' S=0.0800 '/' Outflow=0.00 cfs 0.00 af

Link A: Central Street Inflow=0.20 cfs 0.02 af
Primary=0.20 cfs 0.02 af

Link B: First Brook Tributary Inflow=0.21 cfs 0.02 af
Primary=0.21 cfs 0.02 af

Link C: First Brook Inflow=0.88 cfs 0.11 af
Primary=0.88 cfs 0.11 af

Total Runoff Area = 8.226 ac Runoff Volume = 0.33 af Average Runoff Depth = 0.48"
83.12% Pervious = 6.837 ac 16.88% Impervious = 1.389 ac

Summary for Subcatchment 1S: Flow from Existing House

Runoff = 0.67 cfs @ 12.32 hrs, Volume= 0.08 af, Depth> 0.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-YEAR Rainfall=2.95"

Area (sf)	CN	Description
8,242	98.0	Paved parking, HSG A
5,752	98.0	Roofs, HSG A
28,793	30.0	Woods, Good, HSG A
40,866	39.0	>75% Grass cover, Good, HSG A
2,383	96.0	Gravel surface, HSG A
86,036		Weighted Average
72,042	37.3	83.73% Pervious Area
13,994	98.0	16.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.84"
1.4	112	0.0714	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.2	162	Total			

Summary for Subcatchment 2S: Flow to DCB#5

Runoff = 1.21 cfs @ 12.08 hrs, Volume= 0.10 af, Depth> 0.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-YEAR Rainfall=2.95"

	Area (sf)	CN	Description
	8,986	98.0	Paved parking, HSG A
	56,071	39.0	>75% Grass cover, Good, HSG A
	637	98.0	Roofs, HSG A
	1,231	30.0	Woods, Good, HSG A
*	9,000	98.0	Lots, HSG A
	75,925		Weighted Average
	57,302	38.8	75.47% Pervious Area
	18,623	98.0	24.53% Impervious Area

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

Summary for Subcatchment 3S: Flow to DCB#50

Runoff = 1.03 cfs @ 12.08 hrs, Volume= 0.08 af, Depth> 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-YEAR Rainfall=2.95"

	Area (sf)	CN	Description
	27,440	39.0	>75% Grass cover, Good, HSG A
	10,803	98.0	Paved parking, HSG A
*	5,000	98.0	Lots, HSG A
	43,243		Weighted Average
	27,440	39.0	63.46% Pervious Area
	15,803	98.0	36.54% Impervious Area

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

Summary for Subcatchment 4S: Flow to Central Street

Runoff = 0.20 cfs @ 12.18 hrs, Volume= 0.02 af, Depth> 0.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-YEAR Rainfall=2.95"

Area (sf)	CN	Description
11,163	39.0	>75% Grass cover, Good, HSG A
1,260	98.0	Roofs, HSG A
1,998	98.0	Paved parking, HSG A
570	96.0	Gravel surface, HSG A
950	30.0	Woods, Good, HSG A
15,941		Weighted Average
12,683	40.9	79.56% Pervious Area
3,258	98.0	20.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	40	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.84"
1.6	10	0.0200	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
1.1	75	0.0285	1.18		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.7	125	Total			

Summary for Subcatchment 5S: Flow to Infiltration Trench #1

Runoff = 0.14 cfs @ 12.22 hrs, Volume= 0.02 af, Depth> 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-YEAR Rainfall=2.95"

	Area (sf)	CN	Description
*	3,000	98.0	Lots, HSG A
	14,196	39.0	>75% Grass cover, Good, HSG A
	6,334	30.0	Woods, Good, HSG A
	23,530		Weighted Average
	20,530	36.2	87.25% Pervious Area
	3,000	98.0	12.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1	50	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.84"
3.1	185	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	22	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.0	12	0.3300	4.02		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.8	269	Total			

Summary for Subcatchment 6S: Flow to Infiltration Trench #2

Runoff = 0.07 cfs @ 12.08 hrs, Volume= 0.01 af, Depth> 0.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-YEAR Rainfall=2.95"

	Area (sf)	CN	Description
	6,548	30.0	Woods, Good, HSG A
	9,268	39.0	>75% Grass cover, Good, HSG A
*	1,000	98.0	Lots, HSG A
	16,816		Weighted Average
	15,816	35.3	94.05% Pervious Area
	1,000	98.0	5.95% Impervious Area

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

Summary for Subcatchment 7S: Flow to Tributary

Runoff = 0.21 cfs @ 12.26 hrs, Volume= 0.02 af, Depth> 0.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-YEAR Rainfall=2.95"

Area (sf)	CN	Description
1,636	98.0	Roofs, HSG A
38,714	30.0	Woods, Good, HSG A
14,930	39.0	>75% Grass cover, Good, HSG A
3,178	98.0	Paved parking, HSG A
58,458		Weighted Average
53,644	32.5	91.77% Pervious Area
4,814	98.0	8.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3	50	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.84"
0.9	72	0.0694	1.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	625	0.0100	5.11	66.39	**Trap/Vee/Rect Channel Flow,** Bot.W=10.00' D=1.00' Z= 3.0 '/' Top.W=16.00' n= 0.025 Earth, clean & winding
20.2	747	Total			

Summary for Subcatchment 8S: Flow to First Brook

Runoff = 0.00 cfs @ 12.19 hrs, Volume= 0.00 af, Depth> 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-YEAR Rainfall=2.95"

Area (sf)	CN	Description
32,083	30.0	Woods, Good, HSG A
6,198	39.0	>75% Grass cover, Good, HSG A
79	96.0	Gravel surface, HSG A
38,360		Weighted Average
38,360	31.6	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1	50	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.84"
1.2	150	0.1700	2.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.3	200	Total			

Summary for Pond 1P: Undergound Infiltration System

Inflow Area = 2.736 ac, 28.89% Impervious, Inflow Depth > 0.78" for 2-YEAR event
Inflow = 2.24 cfs @ 12.08 hrs, Volume= 0.18 af
Outflow = 0.26 cfs @ 11.73 hrs, Volume= 0.18 af, Atten= 88%, Lag= 0.0 min
Discarded = 0.26 cfs @ 11.73 hrs, Volume= 0.18 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 136.05' @ 12.68 hrs Surf.Area= 3,776 sf Storage= 2,415 cf
Flood Elev= 139.00' Surf.Area= 3,776 sf Storage= 8,688 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 57.9 min (815.5 - 757.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	135.00'	4,277 cf	**32.13'W x 117.54'L x 4.00'H Field A** 15,103 cf Overall - 4,410 cf Embedded = 10,693 cf x 40.0% Voids
#2A	135.50'	4,410 cf	**ADS_StormTech SC-740 +Cap** x 96 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 96 Chambers in 6 Rows
		8,688 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	134.30'	**12.0" Round Culvert** L= 38.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 134.30' / 133.92' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	137.25'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	138.70'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Discarded	135.00'	**3.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.26 cfs @ 11.73 hrs HW=135.05' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.26 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.00' TW=133.82' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.00 cfs of 1.54 cfs potential flow)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  └**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: DMH#4

Inflow Area = 2.736 ac, 28.89% Impervious, Inflow Depth = 0.00" for 2-YEAR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Peak Elev= 133.82' @ 0.00 hrs
Flood Elev= 143.59'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.82'	**12.0" Round Culvert** L= 198.7' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.82' / 131.83' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.82' TW=127.70' (Dynamic Tailwater)
↑—**1=Culvert** (Controls 0.00 cfs)

Summary for Pond 3P: DCB#5

Inflow Area = 2.736 ac, 28.89% Impervious, Inflow Depth > 0.78" for 2-YEAR event
Inflow = 2.24 cfs @ 12.08 hrs, Volume= 0.18 af
Outflow = 2.24 cfs @ 12.08 hrs, Volume= 0.18 af, Atten= 0%, Lag= 0.0 min
Primary = 2.24 cfs @ 12.08 hrs, Volume= 0.18 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 137.06' @ 12.08 hrs
Flood Elev= 140.38'

Device	Routing	Invert	Outlet Devices
#1	Primary	136.20'	**15.0" Round Culvert** L= 119.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 136.20' / 135.60' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=2.22 cfs @ 12.08 hrs HW=137.05' TW=135.63' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 2.22 cfs @ 3.52 fps)

Summary for Pond 4P: DCB#50

Inflow Area = 0.993 ac, 36.54% Impervious, Inflow Depth > 0.99" for 2-YEAR event
Inflow = 1.03 cfs @ 12.08 hrs, Volume= 0.08 af
Outflow = 1.03 cfs @ 12.08 hrs, Volume= 0.08 af, Atten= 0%, Lag= 0.0 min
Primary = 1.03 cfs @ 12.08 hrs, Volume= 0.08 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 137.20' @ 12.10 hrs
Flood Elev= 140.38'

Device	Routing	Invert	Outlet Devices
#1	Primary	136.41'	**12.0" Round Culvert** L= 22.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 136.41' / 136.30' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.91 cfs @ 12.08 hrs HW=137.18' TW=137.05' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.91 cfs @ 1.95 fps)

Summary for Pond 5P: Infiltration Trench #1

Inflow Area = 0.540 ac, 12.75% Impervious, Inflow Depth > 0.35" for 2-YEAR event
Inflow = 0.14 cfs @ 12.22 hrs, Volume= 0.02 af
Outflow = 0.03 cfs @ 11.88 hrs, Volume= 0.02 af, Atten= 81%, Lag= 0.0 min
Discarded = 0.03 cfs @ 11.88 hrs, Volume= 0.02 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 139.25' @ 12.84 hrs Surf.Area= 384 sf Storage= 192 cf
Flood Elev= 141.00' Surf.Area= 1,572 sf Storage= 1,285 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 42.5 min (809.0 - 766.6)

Volume	Invert	Avail.Storage	Storage Description
#1	138.00'	1,285 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
138.00	384	0.0	0	0
140.00	384	40.0	307	307
141.00	1,572	100.0	978	1,285

Device	Routing	Invert	Outlet Devices
#1	Primary	140.75'	**10.0' 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
#2	Discarded	138.00'	**3.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.03 cfs @ 11.88 hrs HW=138.04' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=138.00' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: Infiltration Trench #2

Inflow Area = 0.386 ac, 5.95% Impervious, Inflow Depth > 0.16" for 2-YEAR event
Inflow = 0.07 cfs @ 12.08 hrs, Volume= 0.01 af
Outflow = 0.02 cfs @ 12.03 hrs, Volume= 0.01 af, Atten= 65%, Lag= 0.0 min
Discarded = 0.02 cfs @ 12.03 hrs, Volume= 0.01 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 137.21' @ 12.34 hrs Surf.Area= 333 sf Storage= 28 cf
Flood Elev= 140.00' Surf.Area= 1,369 sf Storage= 1,117 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 4.9 min (762.6 - 757.6)

Volume	Invert	Avail.Storage	Storage Description
#1	137.00'	1,117 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
137.00	333	0.0	0	0
139.00	333	40.0	266	266
140.00	1,369	100.0	851	1,117

Device	Routing	Invert	Outlet Devices
#1	Primary	138.90'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Discarded	137.00'	**3.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.02 cfs @ 12.03 hrs HW=137.04' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=137.00' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 7P: DMH#3

Inflow Area = 2.736 ac, 28.89% Impervious, Inflow Depth = 0.00" for 2-YEAR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 127.70' @ 0.00 hrs
Flood Elev= 137.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	127.70'	**12.0" Round Culvert** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 127.70' / 126.50' S= 0.0800 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=127.70' TW=122.80' (Dynamic Tailwater)
↑—**1=Culvert** (Controls 0.00 cfs)

Summary for Pond 8P: DMH#2

Inflow Area = 2.736 ac, 28.89% Impervious, Inflow Depth = 0.00" for 2-YEAR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Peak Elev= 122.80' @ 0.00 hrs
Flood Elev= 130.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	122.80'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 122.80' / 122.00' S= 0.0800 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.80' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Controls 0.00 cfs)

Summary for Link A: Central Street

Inflow Area = 0.366 ac, 20.44% Impervious, Inflow Depth > 0.64" for 2-YEAR event
Inflow = 0.20 cfs @ 12.18 hrs, Volume= 0.02 af
Primary = 0.20 cfs @ 12.18 hrs, Volume= 0.02 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Link B: First Brook Tributary

Inflow Area = 1.882 ac, 9.53% Impervious, Inflow Depth > 0.16" for 2-YEAR event
Inflow = 0.21 cfs @ 12.26 hrs, Volume= 0.02 af
Primary = 0.21 cfs @ 12.26 hrs, Volume= 0.02 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Link C: First Brook

Inflow Area = 7.860 ac, 16.72% Impervious, Inflow Depth > 0.17" for 2-YEAR event
Inflow = 0.88 cfs @ 12.30 hrs, Volume= 0.11 af
Primary = 0.88 cfs @ 12.30 hrs, Volume= 0.11 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Flow from Existing Runoff Area=86,036 sf 16.27% Impervious Runoff Depth>0.84"
Flow Length=162' Tc=24.2 min CN=WQ Runoff=1.03 cfs 0.14 af

Subcatchment 2S: Flow to DCB#5 Runoff Area=75,925 sf 24.53% Impervious Runoff Depth>1.11"
Tc=6.0 min CN=WQ Runoff=1.85 cfs 0.16 af

Subcatchment 3S: Flow to DCB#50 Runoff Area=43,243 sf 36.54% Impervious Runoff Depth>1.60"
Tc=6.0 min CN=WQ Runoff=1.57 cfs 0.13 af

Subcatchment 4S: Flow to Central Street Runoff Area=15,941 sf 20.44% Impervious Runoff Depth>1.07"
Flow Length=125' Tc=13.7 min CN=WQ Runoff=0.30 cfs 0.03 af

Subcatchment 5S: Flow to Infiltration Runoff Area=23,530 sf 12.75% Impervious Runoff Depth>0.60"
Flow Length=269' Tc=16.8 min CN=WQ Runoff=0.22 cfs 0.03 af

Subcatchment 6S: Flow to Infiltration Runoff Area=16,816 sf 5.95% Impervious Runoff Depth>0.31"
Tc=6.0 min CN=WQ Runoff=0.10 cfs 0.01 af

Subcatchment 7S: Flow to Tributary Runoff Area=58,458 sf 8.23% Impervious Runoff Depth>0.37"
Flow Length=747' Tc=20.2 min CN=WQ Runoff=0.33 cfs 0.04 af

Subcatchment 8S: Flow to First Brook Runoff Area=38,360 sf 0.00% Impervious Runoff Depth>0.02"
Flow Length=200' Tc=14.3 min CN=WQ Runoff=0.01 cfs 0.00 af

Pond 1P: Undergound Infiltration System Peak Elev=136.78' Storage=4,459 cf Inflow=3.41 cfs 0.29 af
Discarded=0.26 cfs 0.29 af Primary=0.00 cfs 0.00 af Outflow=0.26 cfs 0.29 af

Pond 2P: DMH#4 Peak Elev=133.82' Inflow=0.00 cfs 0.00 af
12.0" Round Culvert n=0.013 L=198.7' S=0.0100 '/' Outflow=0.00 cfs 0.00 af

Pond 3P: DCB#5 Peak Elev=137.32' Inflow=3.41 cfs 0.29 af
15.0" Round Culvert n=0.013 L=119.6' S=0.0050 '/' Outflow=3.41 cfs 0.29 af

Pond 4P: DCB#50 Peak Elev=137.48' Inflow=1.57 cfs 0.13 af
12.0" Round Culvert n=0.013 L=22.0' S=0.0050 '/' Outflow=1.57 cfs 0.13 af

Pond 5P: Infiltration Trench #1 Peak Elev=140.10' Storage=350 cf Inflow=0.22 cfs 0.03 af
Discarded=0.03 cfs 0.03 af Primary=0.00 cfs 0.00 af Outflow=0.03 cfs 0.03 af

Pond 6P: Infiltration Trench #2 Peak Elev=137.52' Storage=70 cf Inflow=0.10 cfs 0.01 af
Discarded=0.02 cfs 0.01 af Primary=0.00 cfs 0.00 af Outflow=0.02 cfs 0.01 af

Pond 7P: DMH#3 Peak Elev=127.70' Inflow=0.00 cfs 0.00 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0800 '/' Outflow=0.00 cfs 0.00 af

Pond 8P: DMH#2 Peak Elev=122.80' Inflow=0.00 cfs 0.00 af
12.0" Round Culvert n=0.013 L=10.0' S=0.0800 '/' Outflow=0.00 cfs 0.00 af

Link A: Central Street Inflow=0.30 cfs 0.03 af
Primary=0.30 cfs 0.03 af

Link B: First Brook Tributary Inflow=0.33 cfs 0.04 af
Primary=0.33 cfs 0.04 af

Link C: First Brook Inflow=1.35 cfs 0.18 af
Primary=1.35 cfs 0.18 af

Total Runoff Area = 8.226 ac Runoff Volume = 0.55 af Average Runoff Depth = 0.80"
83.12% Pervious = 6.837 ac 16.88% Impervious = 1.389 ac

Summary for Subcatchment 1S: Flow from Existing House

Runoff = 1.03 cfs @ 12.32 hrs, Volume= 0.14 af, Depth> 0.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-YEAR Rainfall=4.45"

Area (sf)	CN	Description
8,242	98.0	Paved parking, HSG A
5,752	98.0	Roofs, HSG A
28,793	30.0	Woods, Good, HSG A
40,866	39.0	>75% Grass cover, Good, HSG A
2,383	96.0	Gravel surface, HSG A
86,036		Weighted Average
72,042	37.3	83.73% Pervious Area
13,994	98.0	16.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.84"
1.4	112	0.0714	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.2	162	Total			

Summary for Subcatchment 2S: Flow to DCB#5

Runoff = 1.85 cfs @ 12.08 hrs, Volume= 0.16 af, Depth> 1.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-YEAR Rainfall=4.45"

	Area (sf)	CN	Description
	8,986	98.0	Paved parking, HSG A
	56,071	39.0	>75% Grass cover, Good, HSG A
	637	98.0	Roofs, HSG A
	1,231	30.0	Woods, Good, HSG A
*	9,000	98.0	Lots, HSG A
	75,925		Weighted Average
	57,302	38.8	75.47% Pervious Area
	18,623	98.0	24.53% Impervious Area

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

Summary for Subcatchment 3S: Flow to DCB#50

Runoff = 1.57 cfs @ 12.08 hrs, Volume= 0.13 af, Depth> 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-YEAR Rainfall=4.45"

	Area (sf)	CN	Description
	27,440	39.0	>75% Grass cover, Good, HSG A
	10,803	98.0	Paved parking, HSG A
*	5,000	98.0	Lots, HSG A
	43,243		Weighted Average
	27,440	39.0	63.46% Pervious Area
	15,803	98.0	36.54% Impervious Area

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

Summary for Subcatchment 4S: Flow to Central Street

Runoff = 0.30 cfs @ 12.18 hrs, Volume= 0.03 af, Depth> 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-YEAR Rainfall=4.45"

Area (sf)	CN	Description
11,163	39.0	>75% Grass cover, Good, HSG A
1,260	98.0	Roofs, HSG A
1,998	98.0	Paved parking, HSG A
570	96.0	Gravel surface, HSG A
950	30.0	Woods, Good, HSG A
15,941		Weighted Average
12,683	40.9	79.56% Pervious Area
3,258	98.0	20.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	40	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.84"
1.6	10	0.0200	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
1.1	75	0.0285	1.18		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.7	125	Total			

Summary for Subcatchment 5S: Flow to Infiltration Trench #1

Runoff = 0.22 cfs @ 12.22 hrs, Volume= 0.03 af, Depth> 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-YEAR Rainfall=4.45"

	Area (sf)	CN	Description
*	3,000	98.0	Lots, HSG A
	14,196	39.0	>75% Grass cover, Good, HSG A
	6,334	30.0	Woods, Good, HSG A
	23,530		Weighted Average
	20,530	36.2	87.25% Pervious Area
	3,000	98.0	12.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1	50	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.84"
3.1	185	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	22	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.0	12	0.3300	4.02		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.8	269	Total			

Summary for Subcatchment 6S: Flow to Infiltration Trench #2

Runoff = 0.10 cfs @ 12.08 hrs, Volume= 0.01 af, Depth> 0.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-YEAR Rainfall=4.45"

	Area (sf)	CN	Description
	6,548	30.0	Woods, Good, HSG A
	9,268	39.0	>75% Grass cover, Good, HSG A
*	1,000	98.0	Lots, HSG A
	16,816		Weighted Average
	15,816	35.3	94.05% Pervious Area
	1,000	98.0	5.95% Impervious Area

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

Summary for Subcatchment 7S: Flow to Tributary

Runoff = 0.33 cfs @ 12.26 hrs, Volume= 0.04 af, Depth> 0.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-YEAR Rainfall=4.45"

Area (sf)	CN	Description
1,636	98.0	Roofs, HSG A
38,714	30.0	Woods, Good, HSG A
14,930	39.0	>75% Grass cover, Good, HSG A
3,178	98.0	Paved parking, HSG A
58,458		Weighted Average
53,644	32.5	91.77% Pervious Area
4,814	98.0	8.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3	50	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.84"
0.9	72	0.0694	1.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	625	0.0100	5.11	66.39	**Trap/Vee/Rect Channel Flow,** Bot.W=10.00' D=1.00' Z= 3.0 '/' Top.W=16.00' n= 0.025 Earth, clean & winding
20.2	747	Total			

Summary for Subcatchment 8S: Flow to First Brook

Runoff = 0.01 cfs @ 12.19 hrs, Volume= 0.00 af, Depth> 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-YEAR Rainfall=4.45"

Area (sf)	CN	Description
32,083	30.0	Woods, Good, HSG A
6,198	39.0	>75% Grass cover, Good, HSG A
79	96.0	Gravel surface, HSG A
38,360		Weighted Average
38,360	31.6	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1	50	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.84"
1.2	150	0.1700	2.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.3	200	Total			

Summary for Pond 1P: Undergound Infiltration System

Inflow Area = 2.736 ac, 28.89% Impervious, Inflow Depth > 1.29" for 10-YEAR event
Inflow = 3.41 cfs @ 12.08 hrs, Volume= 0.29 af
Outflow = 0.26 cfs @ 11.46 hrs, Volume= 0.29 af, Atten= 92%, Lag= 0.0 min
Discarded = 0.26 cfs @ 11.46 hrs, Volume= 0.29 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 136.78' @ 13.27 hrs Surf.Area= 3,776 sf Storage= 4,459 cf
Flood Elev= 139.00' Surf.Area= 3,776 sf Storage= 8,688 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 127.1 min (893.8 - 766.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	135.00'	4,277 cf	**32.13'W x 117.54'L x 4.00'H Field A** 15,103 cf Overall - 4,410 cf Embedded = 10,693 cf x 40.0% Voids
#2A	135.50'	4,410 cf	**ADS_StormTech SC-740 +Cap** x 96 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 96 Chambers in 6 Rows
		8,688 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	134.30'	**12.0" Round Culvert** L= 38.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 134.30' / 133.92' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	137.25'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	138.70'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Discarded	135.00'	**3.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.26 cfs @ 11.46 hrs HW=135.04' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.26 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.00' TW=133.82' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.00 cfs of 1.54 cfs potential flow)
  └**2=Orifice/Grate** (Controls 0.00 cfs)
  └**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: DMH#4

Inflow Area = 2.736 ac, 28.89% Impervious, Inflow Depth = 0.00" for 10-YEAR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Peak Elev= 133.82' @ 0.00 hrs
Flood Elev= 143.59'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.82'	**12.0" Round Culvert** L= 198.7' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.82' / 131.83' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.82' TW=127.70' (Dynamic Tailwater)
↑**1=Culvert** (Controls 0.00 cfs)

Summary for Pond 3P: DCB#5

Inflow Area = 2.736 ac, 28.89% Impervious, Inflow Depth > 1.29" for 10-YEAR event
Inflow = 3.41 cfs @ 12.08 hrs, Volume= 0.29 af
Outflow = 3.41 cfs @ 12.08 hrs, Volume= 0.29 af, Atten= 0%, Lag= 0.0 min
Primary = 3.41 cfs @ 12.08 hrs, Volume= 0.29 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 137.32' @ 12.08 hrs
Flood Elev= 140.38'

Device	Routing	Invert	Outlet Devices
#1	Primary	136.20'	**15.0" Round Culvert** L= 119.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 136.20' / 135.60' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=3.38 cfs @ 12.08 hrs HW=137.32' TW=135.96' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 3.38 cfs @ 3.87 fps)

Summary for Pond 4P: DCB#50

Inflow Area = 0.993 ac, 36.54% Impervious, Inflow Depth > 1.60" for 10-YEAR event
Inflow = 1.57 cfs @ 12.08 hrs, Volume= 0.13 af
Outflow = 1.57 cfs @ 12.08 hrs, Volume= 0.13 af, Atten= 0%, Lag= 0.0 min
Primary = 1.57 cfs @ 12.08 hrs, Volume= 0.13 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 137.48' @ 12.11 hrs
Flood Elev= 140.38'

Device	Routing	Invert	Outlet Devices
#1	Primary	136.41'	**12.0" Round Culvert** L= 22.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 136.41' / 136.30' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.34 cfs @ 12.08 hrs HW=137.45' TW=137.32' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 1.34 cfs @ 2.04 fps)

Summary for Pond 5P: Infiltration Trench #1

Inflow Area = 0.540 ac, 12.75% Impervious, Inflow Depth > 0.60" for 10-YEAR event
Inflow = 0.22 cfs @ 12.22 hrs, Volume= 0.03 af
Outflow = 0.03 cfs @ 12.96 hrs, Volume= 0.03 af, Atten= 84%, Lag= 44.4 min
Discarded = 0.03 cfs @ 12.96 hrs, Volume= 0.03 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 140.10' @ 12.96 hrs Surf.Area= 498 sf Storage= 350 cf
Flood Elev= 141.00' Surf.Area= 1,572 sf Storage= 1,285 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 86.7 min (876.5 - 789.8)

Volume	Invert	Avail.Storage	Storage Description
#1	138.00'	1,285 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
138.00	384	0.0	0	0
140.00	384	40.0	307	307
141.00	1,572	100.0	978	1,285

Device	Routing	Invert	Outlet Devices
#1	Primary	140.75'	**10.0' 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
#2	Discarded	138.00'	**3.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.03 cfs @ 12.96 hrs HW=140.10' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=138.00' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: Infiltration Trench #2

Inflow Area = 0.386 ac, 5.95% Impervious, Inflow Depth > 0.31" for 10-YEAR event
Inflow = 0.10 cfs @ 12.08 hrs, Volume= 0.01 af
Outflow = 0.02 cfs @ 11.88 hrs, Volume= 0.01 af, Atten= 77%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.88 hrs, Volume= 0.01 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 137.52' @ 12.47 hrs Surf.Area= 333 sf Storage= 70 cf
Flood Elev= 140.00' Surf.Area= 1,369 sf Storage= 1,117 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 12.0 min (818.3 - 806.3)

Volume	Invert	Avail.Storage	Storage Description
#1	137.00'	1,117 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
137.00	333	0.0	0	0
139.00	333	40.0	266	266
140.00	1,369	100.0	851	1,117

Device	Routing	Invert	Outlet Devices
#1	Primary	138.90'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Discarded	137.00'	**3.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.02 cfs @ 11.88 hrs HW=137.03' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=137.00' TW=0.00' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 7P: DMH#3

Inflow Area = 2.736 ac, 28.89% Impervious, Inflow Depth = 0.00" for 10-YEAR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 127.70' @ 0.00 hrs
Flood Elev= 137.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	127.70'	**12.0" Round Culvert** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 127.70' / 126.50' S= 0.0800 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=127.70' TW=122.80' (Dynamic Tailwater)
↑**1=Culvert** (Controls 0.00 cfs)

Summary for Pond 8P: DMH#2

Inflow Area = 2.736 ac, 28.89% Impervious, Inflow Depth = 0.00" for 10-YEAR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Peak Elev= 122.80' @ 0.00 hrs
Flood Elev= 130.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	122.80'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 122.80' / 122.00' S= 0.0800 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.80' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Controls 0.00 cfs)

Summary for Link A: Central Street

Inflow Area = 0.366 ac, 20.44% Impervious, Inflow Depth > 1.07" for 10-YEAR event
Inflow = 0.30 cfs @ 12.18 hrs, Volume= 0.03 af
Primary = 0.30 cfs @ 12.18 hrs, Volume= 0.03 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Link B: First Brook Tributary

Inflow Area = 1.882 ac, 9.53% Impervious, Inflow Depth > 0.27" for 10-YEAR event
Inflow = 0.33 cfs @ 12.26 hrs, Volume= 0.04 af
Primary = 0.33 cfs @ 12.26 hrs, Volume= 0.04 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Link C: First Brook

Inflow Area = 7.860 ac, 16.72% Impervious, Inflow Depth > 0.28" for 10-YEAR event
Inflow = 1.35 cfs @ 12.30 hrs, Volume= 0.18 af
Primary = 1.35 cfs @ 12.30 hrs, Volume= 0.18 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Flow from Existing Runoff Area=86,036 sf 16.27% Impervious Runoff Depth>1.19"
Flow Length=162' Tc=24.2 min CN=WQ Runoff=1.32 cfs 0.20 af

Subcatchment 2S: Flow to DCB#5 Runoff Area=75,925 sf 24.53% Impervious Runoff Depth>1.57"
Tc=6.0 min CN=WQ Runoff=2.34 cfs 0.23 af

Subcatchment 3S: Flow to DCB#50 Runoff Area=43,243 sf 36.54% Impervious Runoff Depth>2.18"
Tc=6.0 min CN=WQ Runoff=1.99 cfs 0.18 af

Subcatchment 4S: Flow to Central Street Runoff Area=15,941 sf 20.44% Impervious Runoff Depth>1.52"
Flow Length=125' Tc=13.7 min CN=WQ Runoff=0.38 cfs 0.05 af

Subcatchment 5S: Flow to Infiltration Runoff Area=23,530 sf 12.75% Impervious Runoff Depth>0.90"
Flow Length=269' Tc=16.8 min CN=WQ Runoff=0.28 cfs 0.04 af

Subcatchment 6S: Flow to Infiltration Runoff Area=16,816 sf 5.95% Impervious Runoff Depth>0.52"
Tc=6.0 min CN=WQ Runoff=0.13 cfs 0.02 af

Subcatchment 7S: Flow to Tributary Runoff Area=58,458 sf 8.23% Impervious Runoff Depth>0.55"
Flow Length=747' Tc=20.2 min CN=WQ Runoff=0.42 cfs 0.06 af

Subcatchment 8S: Flow to First Brook Runoff Area=38,360 sf 0.00% Impervious Runoff Depth>0.10"
Flow Length=200' Tc=14.3 min CN=WQ Runoff=0.02 cfs 0.01 af

Pond 1P: Undergound Infiltration System Peak Elev=137.62' Storage=6,520 cf Inflow=4.32 cfs 0.41 af
Discarded=0.26 cfs 0.36 af Primary=0.12 cfs 0.02 af Outflow=0.38 cfs 0.38 af

Pond 2P: DMH#4 Peak Elev=133.99' Inflow=0.12 cfs 0.02 af
12.0" Round Culvert n=0.013 L=198.7' S=0.0100 '/' Outflow=0.12 cfs 0.02 af

Pond 3P: DCB#5 Peak Elev=137.63' Inflow=4.32 cfs 0.41 af
15.0" Round Culvert n=0.013 L=119.6' S=0.0050 '/' Outflow=4.32 cfs 0.41 af

Pond 4P: DCB#50 Peak Elev=137.80' Inflow=1.99 cfs 0.18 af
12.0" Round Culvert n=0.013 L=22.0' S=0.0050 '/' Outflow=1.99 cfs 0.18 af

Pond 5P: Infiltration Trench #1 Peak Elev=140.35' Storage=511 cf Inflow=0.28 cfs 0.04 af
Discarded=0.06 cfs 0.04 af Primary=0.00 cfs 0.00 af Outflow=0.06 cfs 0.04 af

Pond 6P: Infiltration Trench #2 Peak Elev=138.06' Storage=141 cf Inflow=0.13 cfs 0.02 af
Discarded=0.02 cfs 0.02 af Primary=0.00 cfs 0.00 af Outflow=0.02 cfs 0.02 af

Pond 7P: DMH#3 Peak Elev=127.87' Inflow=0.12 cfs 0.02 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0800 '/' Outflow=0.12 cfs 0.02 af

Pond 8P: DMH#2 Peak Elev=122.97' Inflow=0.12 cfs 0.02 af
12.0" Round Culvert n=0.013 L=10.0' S=0.0800 '/' Outflow=0.12 cfs 0.02 af

Link A: Central Street Inflow=0.38 cfs 0.05 af
Primary=0.38 cfs 0.05 af

Link B: First Brook Tributary Inflow=0.42 cfs 0.06 af
Primary=0.42 cfs 0.06 af

Link C: First Brook Inflow=1.74 cfs 0.29 af
Primary=1.74 cfs 0.29 af

Total Runoff Area = 8.226 ac Runoff Volume = 0.78 af Average Runoff Depth = 1.13"
83.12% Pervious = 6.837 ac 16.88% Impervious = 1.389 ac

Summary for Subcatchment 1S: Flow from Existing House

Runoff = 1.32 cfs @ 12.32 hrs, Volume= 0.20 af, Depth> 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-YEAR Rainfall=5.62"

Area (sf)	CN	Description
8,242	98.0	Paved parking, HSG A
5,752	98.0	Roofs, HSG A
28,793	30.0	Woods, Good, HSG A
40,866	39.0	>75% Grass cover, Good, HSG A
2,383	96.0	Gravel surface, HSG A
86,036		Weighted Average
72,042	37.3	83.73% Pervious Area
13,994	98.0	16.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.84"
1.4	112	0.0714	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.2	162	Total			

Summary for Subcatchment 2S: Flow to DCB#5

Runoff = 2.34 cfs @ 12.08 hrs, Volume= 0.23 af, Depth> 1.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-YEAR Rainfall=5.62"

	Area (sf)	CN	Description
	8,986	98.0	Paved parking, HSG A
	56,071	39.0	>75% Grass cover, Good, HSG A
	637	98.0	Roofs, HSG A
	1,231	30.0	Woods, Good, HSG A
*	9,000	98.0	Lots, HSG A
	75,925		Weighted Average
	57,302	38.8	75.47% Pervious Area
	18,623	98.0	24.53% Impervious Area

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

Summary for Subcatchment 3S: Flow to DCB#50

Runoff = 1.99 cfs @ 12.08 hrs, Volume= 0.18 af, Depth> 2.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-YEAR Rainfall=5.62"

	Area (sf)	CN	Description
	27,440	39.0	>75% Grass cover, Good, HSG A
	10,803	98.0	Paved parking, HSG A
*	5,000	98.0	Lots, HSG A
	43,243		Weighted Average
	27,440	39.0	63.46% Pervious Area
	15,803	98.0	36.54% Impervious Area

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

Summary for Subcatchment 4S: Flow to Central Street

Runoff = 0.38 cfs @ 12.18 hrs, Volume= 0.05 af, Depth> 1.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-YEAR Rainfall=5.62"

Area (sf)	CN	Description
11,163	39.0	>75% Grass cover, Good, HSG A
1,260	98.0	Roofs, HSG A
1,998	98.0	Paved parking, HSG A
570	96.0	Gravel surface, HSG A
950	30.0	Woods, Good, HSG A
15,941		Weighted Average
12,683	40.9	79.56% Pervious Area
3,258	98.0	20.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	40	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.84"
1.6	10	0.0200	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
1.1	75	0.0285	1.18		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.7	125	Total			

Summary for Subcatchment 5S: Flow to Infiltration Trench #1

Runoff = 0.28 cfs @ 12.22 hrs, Volume= 0.04 af, Depth> 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-YEAR Rainfall=5.62"

	Area (sf)	CN	Description
*	3,000	98.0	Lots, HSG A
	14,196	39.0	>75% Grass cover, Good, HSG A
	6,334	30.0	Woods, Good, HSG A
	23,530		Weighted Average
	20,530	36.2	87.25% Pervious Area
	3,000	98.0	12.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1	50	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.84"
3.1	185	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	22	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.0	12	0.3300	4.02		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.8	269	Total			

Summary for Subcatchment 6S: Flow to Infiltration Trench #2

Runoff = 0.13 cfs @ 12.09 hrs, Volume= 0.02 af, Depth> 0.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-YEAR Rainfall=5.62"

	Area (sf)	CN	Description
	6,548	30.0	Woods, Good, HSG A
	9,268	39.0	>75% Grass cover, Good, HSG A
*	1,000	98.0	Lots, HSG A
	16,816		Weighted Average
	15,816	35.3	94.05% Pervious Area
	1,000	98.0	5.95% Impervious Area

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

Summary for Subcatchment 7S: Flow to Tributary

Runoff = 0.42 cfs @ 12.27 hrs, Volume= 0.06 af, Depth> 0.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-YEAR Rainfall=5.62"

Area (sf)	CN	Description
1,636	98.0	Roofs, HSG A
38,714	30.0	Woods, Good, HSG A
14,930	39.0	>75% Grass cover, Good, HSG A
3,178	98.0	Paved parking, HSG A
58,458		Weighted Average
53,644	32.5	91.77% Pervious Area
4,814	98.0	8.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3	50	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.84"
0.9	72	0.0694	1.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	625	0.0100	5.11	66.39	**Trap/Vee/Rect Channel Flow,** Bot.W=10.00' D=1.00' Z= 3.0 '/' Top.W=16.00' n= 0.025 Earth, clean & winding
20.2	747	Total			

Summary for Subcatchment 8S: Flow to First Brook

Runoff = 0.02 cfs @ 12.48 hrs, Volume= 0.01 af, Depth> 0.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-YEAR Rainfall=5.62"

Area (sf)	CN	Description
32,083	30.0	Woods, Good, HSG A
6,198	39.0	>75% Grass cover, Good, HSG A
79	96.0	Gravel surface, HSG A
38,360		Weighted Average
38,360	31.6	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1	50	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.84"
1.2	150	0.1700	2.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.3	200	Total			

Summary for Pond 1P: Undergound Infiltration System

Inflow Area = 2.736 ac, 28.89% Impervious, Inflow Depth > 1.79" for 25-YEAR event
Inflow = 4.32 cfs @ 12.08 hrs, Volume= 0.41 af
Outflow = 0.38 cfs @ 13.50 hrs, Volume= 0.38 af, Atten= 91%, Lag= 85.0 min
Discarded = 0.26 cfs @ 11.10 hrs, Volume= 0.36 af
Primary = 0.12 cfs @ 13.50 hrs, Volume= 0.02 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 137.62' @ 13.50 hrs Surf.Area= 3,776 sf Storage= 6,520 cf
Flood Elev= 139.00' Surf.Area= 3,776 sf Storage= 8,688 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 150.4 min (926.6 - 776.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	135.00'	4,277 cf	**32.13'W x 117.54'L x 4.00'H Field A** 15,103 cf Overall - 4,410 cf Embedded = 10,693 cf x 40.0% Voids
#2A	135.50'	4,410 cf	**ADS_StormTech SC-740 +Cap** x 96 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 96 Chambers in 6 Rows
		8,688 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	134.30'	**12.0" Round Culvert** L= 38.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 134.30' / 133.92' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	137.25'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	138.70'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Discarded	135.00'	**3.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.26 cfs @ 11.10 hrs HW=135.04' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.26 cfs)

Primary OutFlow Max=0.12 cfs @ 13.50 hrs HW=137.62' TW=133.99' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.12 cfs of 6.31 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.12 cfs @ 2.40 fps)
  └**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: DMH#4

Inflow Area = 2.736 ac, 28.89% Impervious, Inflow Depth = 0.11" for 25-YEAR event
Inflow = 0.12 cfs @ 13.50 hrs, Volume= 0.02 af
Outflow = 0.12 cfs @ 13.50 hrs, Volume= 0.02 af, Atten= 0%, Lag= 0.0 min
Primary = 0.12 cfs @ 13.50 hrs, Volume= 0.02 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Peak Elev= 133.99' @ 13.50 hrs
Flood Elev= 143.59'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.82'	**12.0" Round Culvert** L= 198.7' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.82' / 131.83' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.12 cfs @ 13.50 hrs HW=133.99' TW=127.87' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 0.12 cfs @ 2.07 fps)

Summary for Pond 3P: DCB#5

Inflow Area = 2.736 ac, 28.89% Impervious, Inflow Depth > 1.79" for 25-YEAR event
Inflow = 4.32 cfs @ 12.08 hrs, Volume= 0.41 af
Outflow = 4.32 cfs @ 12.08 hrs, Volume= 0.41 af, Atten= 0%, Lag= 0.0 min
Primary = 4.32 cfs @ 12.08 hrs, Volume= 0.41 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 137.63' @ 13.51 hrs
Flood Elev= 140.38'

Device	Routing	Invert	Outlet Devices
#1	Primary	136.20'	**15.0" Round Culvert** L= 119.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 136.20' / 135.60' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=4.29 cfs @ 12.08 hrs HW=137.54' TW=136.26' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 4.29 cfs @ 4.06 fps)

Summary for Pond 4P: DCB#50

Inflow Area = 0.993 ac, 36.54% Impervious, Inflow Depth > 2.18" for 25-YEAR event
Inflow = 1.99 cfs @ 12.08 hrs, Volume= 0.18 af
Outflow = 1.99 cfs @ 12.08 hrs, Volume= 0.18 af, Atten= 0%, Lag= 0.0 min
Primary = 1.99 cfs @ 12.08 hrs, Volume= 0.18 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 137.80' @ 12.11 hrs
Flood Elev= 140.38'

Device	Routing	Invert	Outlet Devices
#1	Primary	136.41'	**12.0" Round Culvert** L= 22.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 136.41' / 136.30' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.71 cfs @ 12.08 hrs HW=137.74' TW=137.54' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 1.71 cfs @ 2.18 fps)

Summary for Pond 5P: Infiltration Trench #1

Inflow Area = 0.540 ac, 12.75% Impervious, Inflow Depth > 0.90" for 25-YEAR event
Inflow = 0.28 cfs @ 12.22 hrs, Volume= 0.04 af
Outflow = 0.06 cfs @ 13.08 hrs, Volume= 0.04 af, Atten= 80%, Lag= 51.0 min
Discarded = 0.06 cfs @ 13.08 hrs, Volume= 0.04 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 140.35' @ 13.08 hrs Surf.Area= 795 sf Storage= 511 cf
Flood Elev= 141.00' Surf.Area= 1,572 sf Storage= 1,285 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 105.9 min (916.6 - 810.7)

Volume	Invert	Avail.Storage	Storage Description
#1	138.00'	1,285 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
138.00	384	0.0	0	0
140.00	384	40.0	307	307
141.00	1,572	100.0	978	1,285

Device	Routing	Invert	Outlet Devices
#1	Primary	140.75'	**10.0' 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
#2	Discarded	138.00'	**3.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.06 cfs @ 13.08 hrs HW=140.35' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=138.00' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: Infiltration Trench #2

Inflow Area = 0.386 ac, 5.95% Impervious, Inflow Depth > 0.52" for 25-YEAR event
Inflow = 0.13 cfs @ 12.09 hrs, Volume= 0.02 af
Outflow = 0.02 cfs @ 11.82 hrs, Volume= 0.02 af, Atten= 82%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.82 hrs, Volume= 0.02 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 138.06' @ 12.97 hrs Surf.Area= 333 sf Storage= 141 cf
Flood Elev= 140.00' Surf.Area= 1,369 sf Storage= 1,117 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 39.1 min (878.7 - 839.6)

Volume	Invert	Avail.Storage	Storage Description
#1	137.00'	1,117 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
137.00	333	0.0	0	0
139.00	333	40.0	266	266
140.00	1,369	100.0	851	1,117

Device	Routing	Invert	Outlet Devices
#1	Primary	138.90'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Discarded	137.00'	**3.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.02 cfs @ 11.82 hrs HW=137.04' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=137.00' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 7P: DMH#3

Inflow Area = 2.736 ac, 28.89% Impervious, Inflow Depth = 0.11" for 25-YEAR event
Inflow = 0.12 cfs @ 13.50 hrs, Volume= 0.02 af
Outflow = 0.12 cfs @ 13.50 hrs, Volume= 0.02 af, Atten= 0%, Lag= 0.0 min
Primary = 0.12 cfs @ 13.50 hrs, Volume= 0.02 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 127.87' @ 13.50 hrs
Flood Elev= 137.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	127.70'	**12.0" Round Culvert** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 127.70' / 126.50' S= 0.0800 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.12 cfs @ 13.50 hrs HW=127.87' TW=122.97' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.12 cfs @ 1.38 fps)

Summary for Pond 8P: DMH#2

Inflow Area = 2.736 ac, 28.89% Impervious, Inflow Depth = 0.11" for 25-YEAR event
Inflow = 0.12 cfs @ 13.50 hrs, Volume= 0.02 af
Outflow = 0.12 cfs @ 13.50 hrs, Volume= 0.02 af, Atten= 0%, Lag= 0.0 min
Primary = 0.12 cfs @ 13.50 hrs, Volume= 0.02 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Peak Elev= 122.97' @ 13.50 hrs
Flood Elev= 130.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	122.80'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 122.80' / 122.00' S= 0.0800 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.12 cfs @ 13.50 hrs HW=122.97' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.12 cfs @ 1.38 fps)

Summary for Link A: Central Street

Inflow Area = 0.366 ac, 20.44% Impervious, Inflow Depth > 1.52" for 25-YEAR event
Inflow = 0.38 cfs @ 12.18 hrs, Volume= 0.05 af
Primary = 0.38 cfs @ 12.18 hrs, Volume= 0.05 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Link B: First Brook Tributary

Inflow Area = 1.882 ac, 9.53% Impervious, Inflow Depth > 0.39" for 25-YEAR event
Inflow = 0.42 cfs @ 12.27 hrs, Volume= 0.06 af
Primary = 0.42 cfs @ 12.27 hrs, Volume= 0.06 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Link C: First Brook

Inflow Area = 7.860 ac, 16.72% Impervious, Inflow Depth > 0.44" for 25-YEAR event
Inflow = 1.74 cfs @ 12.31 hrs, Volume= 0.29 af
Primary = 1.74 cfs @ 12.31 hrs, Volume= 0.29 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Time span=0.00-24.00 hrs, dt=0.03 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Flow from Existing Runoff Area=86,036 sf 16.27% Impervious Runoff Depth>1.59"
Flow Length=162' Tc=24.2 min CN=WQ Runoff=1.72 cfs 0.26 af

Subcatchment 2S: Flow to DCB#5 Runoff Area=75,925 sf 24.53% Impervious Runoff Depth>2.09"
Tc=6.0 min CN=WQ Runoff=3.08 cfs 0.30 af

Subcatchment 3S: Flow to DCB#50 Runoff Area=43,243 sf 36.54% Impervious Runoff Depth>2.79"
Tc=6.0 min CN=WQ Runoff=2.51 cfs 0.23 af

Subcatchment 4S: Flow to Central Street Runoff Area=15,941 sf 20.44% Impervious Runoff Depth>2.02"
Flow Length=125' Tc=13.7 min CN=WQ Runoff=0.50 cfs 0.06 af

Subcatchment 5S: Flow to Infiltration Runoff Area=23,530 sf 12.75% Impervious Runoff Depth>1.27"
Flow Length=269' Tc=16.8 min CN=WQ Runoff=0.39 cfs 0.06 af

Subcatchment 6S: Flow to Infiltration Runoff Area=16,816 sf 5.95% Impervious Runoff Depth>0.82"
Tc=6.0 min CN=WQ Runoff=0.20 cfs 0.03 af

Subcatchment 7S: Flow to Tributary Runoff Area=58,458 sf 8.23% Impervious Runoff Depth>0.81"
Flow Length=747' Tc=20.2 min CN=WQ Runoff=0.55 cfs 0.09 af

Subcatchment 8S: Flow to First Brook Runoff Area=38,360 sf 0.00% Impervious Runoff Depth>0.26"
Flow Length=200' Tc=14.3 min CN=WQ Runoff=0.05 cfs 0.02 af

Pond 1P: Undergound Infiltration System Peak Elev=138.77' Storage=8,340 cf Inflow=5.59 cfs 0.53 af
Discarded=0.26 cfs 0.37 af Primary=0.52 cfs 0.10 af Outflow=0.78 cfs 0.47 af

Pond 2P: DMH#4 Peak Elev=134.18' Inflow=0.52 cfs 0.10 af
12.0" Round Culvert n=0.013 L=198.7' S=0.0100 '/' Outflow=0.52 cfs 0.10 af

Pond 3P: DCB#5 Peak Elev=138.80' Inflow=5.59 cfs 0.53 af
15.0" Round Culvert n=0.013 L=119.6' S=0.0050 '/' Outflow=5.59 cfs 0.53 af

Pond 4P: DCB#50 Peak Elev=138.80' Inflow=2.51 cfs 0.23 af
12.0" Round Culvert n=0.013 L=22.0' S=0.0050 '/' Outflow=2.51 cfs 0.23 af

Pond 5P: Infiltration Trench #1 Peak Elev=140.60' Storage=749 cf Inflow=0.39 cfs 0.06 af
Discarded=0.08 cfs 0.05 af Primary=0.00 cfs 0.00 af Outflow=0.08 cfs 0.05 af

Pond 6P: Infiltration Trench #2 Peak Elev=138.91' Storage=255 cf Inflow=0.20 cfs 0.03 af
Discarded=0.02 cfs 0.02 af Primary=0.03 cfs 0.00 af Outflow=0.05 cfs 0.03 af

Pond 7P: DMH#3 Peak Elev=128.06' Inflow=0.52 cfs 0.10 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0800 '/' Outflow=0.52 cfs 0.10 af

Pond 8P: DMH#2 Peak Elev=123.16' Inflow=0.52 cfs 0.10 af
12.0" Round Culvert n=0.013 L=10.0' S=0.0800 '/' Outflow=0.52 cfs 0.10 af

Link A: Central Street Inflow=0.50 cfs 0.06 af
Primary=0.50 cfs 0.06 af

Link B: First Brook Tributary Inflow=0.55 cfs 0.09 af
Primary=0.55 cfs 0.09 af

Link C: First Brook Inflow=2.48 cfs 0.47 af
Primary=2.48 cfs 0.47 af

Total Runoff Area = 8.226 ac Runoff Volume = 1.05 af Average Runoff Depth = 1.53"
83.12% Pervious = 6.837 ac 16.88% Impervious = 1.389 ac

Summary for Subcatchment 1S: Flow from Existing House

Runoff = 1.72 cfs @ 12.34 hrs, Volume= 0.26 af, Depth> 1.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-YEAR Rainfall=6.72"

Area (sf)	CN	Description
8,242	98.0	Paved parking, HSG A
5,752	98.0	Roofs, HSG A
28,793	30.0	Woods, Good, HSG A
40,866	39.0	>75% Grass cover, Good, HSG A
2,383	96.0	Gravel surface, HSG A
86,036		Weighted Average
72,042	37.3	83.73% Pervious Area
13,994	98.0	16.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.8	50	0.0050	0.04		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.84"
1.4	112	0.0714	1.34		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
24.2	162	Total			

Summary for Subcatchment 2S: Flow to DCB#5

Runoff = 3.08 cfs @ 12.09 hrs, Volume= 0.30 af, Depth> 2.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-YEAR Rainfall=6.72"

	Area (sf)	CN	Description
	8,986	98.0	Paved parking, HSG A
	56,071	39.0	>75% Grass cover, Good, HSG A
	637	98.0	Roofs, HSG A
	1,231	30.0	Woods, Good, HSG A
*	9,000	98.0	Lots, HSG A
	75,925		Weighted Average
	57,302	38.8	75.47% Pervious Area
	18,623	98.0	24.53% Impervious Area

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

Summary for Subcatchment 3S: Flow to DCB#50

Runoff = 2.51 cfs @ 12.09 hrs, Volume= 0.23 af, Depth> 2.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-YEAR Rainfall=6.72"

	Area (sf)	CN	Description
	27,440	39.0	>75% Grass cover, Good, HSG A
	10,803	98.0	Paved parking, HSG A
*	5,000	98.0	Lots, HSG A
	43,243		Weighted Average
	27,440	39.0	63.46% Pervious Area
	15,803	98.0	36.54% Impervious Area

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

Summary for Subcatchment 4S: Flow to Central Street

Runoff = 0.50 cfs @ 12.19 hrs, Volume= 0.06 af, Depth> 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-YEAR Rainfall=6.72"

Area (sf)	CN	Description
11,163	39.0	>75% Grass cover, Good, HSG A
1,260	98.0	Roofs, HSG A
1,998	98.0	Paved parking, HSG A
570	96.0	Gravel surface, HSG A
950	30.0	Woods, Good, HSG A
15,941		Weighted Average
12,683	40.9	79.56% Pervious Area
3,258	98.0	20.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	40	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.84"
1.6	10	0.0200	0.10		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
1.1	75	0.0285	1.18		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.7	125	Total			

Summary for Subcatchment 5S: Flow to Infiltration Trench #1

Runoff = 0.39 cfs @ 12.25 hrs, Volume= 0.06 af, Depth> 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-YEAR Rainfall=6.72"

	Area (sf)	CN	Description
*	3,000	98.0	Lots, HSG A
	14,196	39.0	>75% Grass cover, Good, HSG A
	6,334	30.0	Woods, Good, HSG A
	23,530		Weighted Average
	20,530	36.2	87.25% Pervious Area
	3,000	98.0	12.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1	50	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.84"
3.1	185	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	22	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.0	12	0.3300	4.02		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.8	269	Total			

Summary for Subcatchment 6S: Flow to Infiltration Trench #2

Runoff = 0.20 cfs @ 12.11 hrs, Volume= 0.03 af, Depth> 0.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-YEAR Rainfall=6.72"

	Area (sf)	CN	Description
	6,548	30.0	Woods, Good, HSG A
	9,268	39.0	>75% Grass cover, Good, HSG A
*	1,000	98.0	Lots, HSG A
	16,816		Weighted Average
	15,816	35.3	94.05% Pervious Area
	1,000	98.0	5.95% Impervious Area

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

Summary for Subcatchment 7S: Flow to Tributary

Runoff = 0.55 cfs @ 12.29 hrs, Volume= 0.09 af, Depth> 0.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-YEAR Rainfall=6.72"

Area (sf)	CN	Description
1,636	98.0	Roofs, HSG A
38,714	30.0	Woods, Good, HSG A
14,930	39.0	>75% Grass cover, Good, HSG A
3,178	98.0	Paved parking, HSG A
58,458		Weighted Average
53,644	32.5	91.77% Pervious Area
4,814	98.0	8.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.3	50	0.0100	0.05		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.84"
0.9	72	0.0694	1.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.0	625	0.0100	5.11	66.39	**Trap/Vee/Rect Channel Flow,** Bot.W=10.00' D=1.00' Z= 3.0 '/' Top.W=16.00' n= 0.025 Earth, clean & winding
20.2	747	Total			

Summary for Subcatchment 8S: Flow to First Brook

Runoff = 0.05 cfs @ 12.38 hrs, Volume= 0.02 af, Depth> 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 50-YEAR Rainfall=6.72"

Area (sf)	CN	Description
32,083	30.0	Woods, Good, HSG A
6,198	39.0	>75% Grass cover, Good, HSG A
79	96.0	Gravel surface, HSG A
38,360		Weighted Average
38,360	31.6	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1	50	0.0200	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.84"
1.2	150	0.1700	2.06		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.3	200	Total			

Summary for Pond 1P: Undergound Infiltration System

Inflow Area = 2.736 ac, 28.89% Impervious, Inflow Depth > 2.34" for 50-YEAR event
Inflow = 5.59 cfs @ 12.09 hrs, Volume= 0.53 af
Outflow = 0.78 cfs @ 12.80 hrs, Volume= 0.47 af, Atten= 86%, Lag= 42.7 min
Discarded = 0.26 cfs @ 10.65 hrs, Volume= 0.37 af
Primary = 0.52 cfs @ 12.80 hrs, Volume= 0.10 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 138.77' @ 12.80 hrs Surf.Area= 3,776 sf Storage= 8,340 cf
Flood Elev= 139.00' Surf.Area= 3,776 sf Storage= 8,688 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 120.3 min (902.3 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	135.00'	4,277 cf	**32.13'W x 117.54'L x 4.00'H Field A** 15,103 cf Overall - 4,410 cf Embedded = 10,693 cf x 40.0% Voids
#2A	135.50'	4,410 cf	**ADS_StormTech SC-740 +Cap** x 96 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 96 Chambers in 6 Rows
		8,688 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	134.30'	**12.0" Round Culvert** L= 38.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 134.30' / 133.92' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	137.25'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	138.70'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Discarded	135.00'	**3.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.26 cfs @ 10.65 hrs HW=135.04' (Free Discharge)
└**4=Exfiltration** (Exfiltration Controls 0.26 cfs)

Primary OutFlow Max=0.52 cfs @ 12.80 hrs HW=138.77' TW=134.18' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.52 cfs of 7.53 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.28 cfs @ 5.69 fps)
  └**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.24 cfs @ 0.86 fps)

Summary for Pond 2P: DMH#4

Inflow Area = 2.736 ac, 28.89% Impervious, Inflow Depth = 0.44" for 50-YEAR event
Inflow = 0.52 cfs @ 12.80 hrs, Volume= 0.10 af
Outflow = 0.52 cfs @ 12.80 hrs, Volume= 0.10 af, Atten= 0%, Lag= 0.0 min
Primary = 0.52 cfs @ 12.80 hrs, Volume= 0.10 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Peak Elev= 134.18' @ 12.80 hrs
Flood Elev= 143.59'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.82'	**12.0" Round Culvert** L= 198.7' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.82' / 131.83' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.52 cfs @ 12.80 hrs HW=134.18' TW=128.06' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.52 cfs @ 2.04 fps)

Summary for Pond 3P: DCB#5

Inflow Area = 2.736 ac, 28.89% Impervious, Inflow Depth > 2.34" for 50-YEAR event
Inflow = 5.59 cfs @ 12.09 hrs, Volume= 0.53 af
Outflow = 5.59 cfs @ 12.09 hrs, Volume= 0.53 af, Atten= 0%, Lag= 0.0 min
Primary = 5.59 cfs @ 12.09 hrs, Volume= 0.53 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 138.80' @ 12.81 hrs
Flood Elev= 140.38'

Device	Routing	Invert	Outlet Devices
#1	Primary	136.20'	**15.0" Round Culvert** L= 119.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 136.20' / 135.60' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=5.56 cfs @ 12.09 hrs HW=138.22' TW=136.66' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 5.56 cfs @ 4.53 fps)

Summary for Pond 4P: DCB#50

Inflow Area = 0.993 ac, 36.54% Impervious, Inflow Depth > 2.79" for 50-YEAR event
Inflow = 2.51 cfs @ 12.09 hrs, Volume= 0.23 af
Outflow = 2.51 cfs @ 12.09 hrs, Volume= 0.23 af, Atten= 0%, Lag= 0.0 min
Primary = 2.51 cfs @ 12.09 hrs, Volume= 0.23 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 138.80' @ 12.83 hrs
Flood Elev= 140.38'

Device	Routing	Invert	Outlet Devices
#1	Primary	136.41'	**12.0" Round Culvert** L= 22.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 136.41' / 136.30' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.89 cfs @ 12.09 hrs HW=138.48' TW=138.23' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 1.89 cfs @ 2.40 fps)

Summary for Pond 5P: Infiltration Trench #1

Inflow Area = 0.540 ac, 12.75% Impervious, Inflow Depth > 1.27" for 50-YEAR event
Inflow = 0.39 cfs @ 12.25 hrs, Volume= 0.06 af
Outflow = 0.08 cfs @ 13.19 hrs, Volume= 0.05 af, Atten= 81%, Lag= 56.4 min
Discarded = 0.08 cfs @ 13.19 hrs, Volume= 0.05 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 140.60' @ 13.19 hrs Surf.Area= 1,094 sf Storage= 749 cf
Flood Elev= 141.00' Surf.Area= 1,572 sf Storage= 1,285 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 96.2 min (919.5 - 823.3)

Volume	Invert	Avail.Storage	Storage Description
#1	138.00'	1,285 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
138.00	384	0.0	0	0
140.00	384	40.0	307	307
141.00	1,572	100.0	978	1,285

Device	Routing	Invert	Outlet Devices
#1	Primary	140.75'	**10.0' 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
#2	Discarded	138.00'	**3.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.08 cfs @ 13.19 hrs HW=140.60' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=138.00' TW=0.00' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: Infiltration Trench #2

Inflow Area = 0.386 ac, 5.95% Impervious, Inflow Depth > 0.82" for 50-YEAR event
Inflow = 0.20 cfs @ 12.11 hrs, Volume= 0.03 af
Outflow = 0.05 cfs @ 12.64 hrs, Volume= 0.03 af, Atten= 73%, Lag= 31.5 min
Discarded = 0.02 cfs @ 11.76 hrs, Volume= 0.02 af
Primary = 0.03 cfs @ 12.64 hrs, Volume= 0.00 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 138.91' @ 12.64 hrs Surf.Area= 333 sf Storage= 255 cf
Flood Elev= 140.00' Surf.Area= 1,369 sf Storage= 1,117 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 93.2 min (947.6 - 854.5)

Volume	Invert	Avail.Storage	Storage Description
#1	137.00'	1,117 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
137.00	333	0.0	0	0
139.00	333	40.0	266	266
140.00	1,369	100.0	851	1,117

Device	Routing	Invert	Outlet Devices
#1	Primary	138.90'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Discarded	137.00'	**3.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.02 cfs @ 11.76 hrs HW=137.03' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.03 cfs @ 12.64 hrs HW=138.91' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.03 cfs @ 0.26 fps)

Summary for Pond 7P: DMH#3

Inflow Area = 2.736 ac, 28.89% Impervious, Inflow Depth = 0.44" for 50-YEAR event
Inflow = 0.52 cfs @ 12.80 hrs, Volume= 0.10 af
Outflow = 0.52 cfs @ 12.80 hrs, Volume= 0.10 af, Atten= 0%, Lag= 0.0 min
Primary = 0.52 cfs @ 12.80 hrs, Volume= 0.10 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Peak Elev= 128.06' @ 12.80 hrs
Flood Elev= 137.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	127.70'	**12.0" Round Culvert** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 127.70' / 126.50' S= 0.0800 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.52 cfs @ 12.80 hrs HW=128.06' TW=123.16' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.52 cfs @ 2.04 fps)

Summary for Pond 8P: DMH#2

Inflow Area = 2.736 ac, 28.89% Impervious, Inflow Depth = 0.44" for 50-YEAR event
Inflow = 0.52 cfs @ 12.80 hrs, Volume= 0.10 af
Outflow = 0.52 cfs @ 12.80 hrs, Volume= 0.10 af, Atten= 0%, Lag= 0.0 min
Primary = 0.52 cfs @ 12.80 hrs, Volume= 0.10 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Peak Elev= 123.16' @ 12.80 hrs
Flood Elev= 130.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	122.80'	**12.0" Round Culvert** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 122.80' / 122.00' S= 0.0800 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.52 cfs @ 12.80 hrs HW=123.16' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 0.52 cfs @ 2.04 fps)

Summary for Link A: Central Street

Inflow Area = 0.366 ac, 20.44% Impervious, Inflow Depth > 2.02" for 50-YEAR event
Inflow = 0.50 cfs @ 12.19 hrs, Volume= 0.06 af
Primary = 0.50 cfs @ 12.19 hrs, Volume= 0.06 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Link B: First Brook Tributary

Inflow Area = 1.882 ac, 9.53% Impervious, Inflow Depth > 0.58" for 50-YEAR event
Inflow = 0.55 cfs @ 12.29 hrs, Volume= 0.09 af
Primary = 0.55 cfs @ 12.29 hrs, Volume= 0.09 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Summary for Link C: First Brook

Inflow Area = 7.860 ac, 16.72% Impervious, Inflow Depth > 0.72" for 50-YEAR event
Inflow = 2.48 cfs @ 12.34 hrs, Volume= 0.47 af
Primary = 2.48 cfs @ 12.34 hrs, Volume= 0.47 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

APPENDIX

*OPERATION AND MAINTENANCE MANUAL
*PRE-DEVELOPMENT DRAINAGE AREA PLAN
*POST DEVELOPMENT DRAINAGE AREA PLAN

STORMWATER

OPERATION & MAINTENANCE PLAN

Frenette Gardens

Map 182; Lot 3
65 Central Street
Hudson, New Hampshire

April 22, 2022

KEACH-NORDSTROM ASSOCIATES, INC.

TABLE OF CONTENTS:

I. General

Introduction

The project owners or their assigned heirs will maintain the stormwater treatment facilities after construction is completed. The owners of the project are Laura Ripaldi of 46 Bush Hill Road, Hudson, NH 03051, Kimberley Frenette of 8B Dumont Road, Hudson, NH 03051, and Ricky Frenette of 14 Tate Street, Hudson, NH 03051. Peter Ripaldi will be responsible for the reporting, inspection, and maintenance activities identified in this report. He can be reached at (603) 557-6510.

The subject property is referenced on Hudson's Tax Map 182 as Lot 3. Any transfer of responsibility for inspection and maintenance activities or transfer of ownership shall be documented to the Town of Hudson in writing. The contract documents will require the contractor to designate a person responsible for maintenance of the sedimentation control features during construction. Long-term operation and maintenance for the stormwater management facilities are presented below.

Maintenance will be performed as described and required in this document unless and until the system is formally accepted by a municipality or quasi-municipal district or is placed under the jurisdiction of a legally created association that will be responsible for the maintenance of the system.

Post Construction:

The following standards will be met after construction is complete:

Documentation:

A maintenance log will be kept summarizing inspections, maintenance, and any corrective actions taken. The log will include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If a maintenance task requires the clean out of any sediments or debris, the location where the sediment and debris was disposed after removal will be indicated. The log will be made accessible to department and/or Town staff and a copy provided upon request.

Maintenance Requirements

Subsurface Systems:

- Removal of accumulated sediment.
- Systems should be inspected at least twice annually with maintenance or rehabilitation conducted as warranted by such inspection.
- Trash and debris should be removed at each inspection.
- At least once annually, the system should be inspected for drawdown time. If the pond does not drain within 72-hours following a rainfall event, a qualified professional should assess the condition of the facility to determine measures required to restore filtration function or infiltration function (as applicable), including but not limited to the removal of accumulated sediments or reconstruction of the filter media.
- **For more specific maintenance requirement for the Stormtech system follow all the manufactures requirements.**

Isolator Rows:

- 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 the depth of sediment and record results on maintenance log.
    - iv. If sediment is at, or above, 3 inch depth, clean out Isolator Row using the JetVac Process.
  - 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. (Mirrors on poles or cameras may be used to avoid confined space entry). 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) clean out Isolator Row using the JetVac Process.
- Clean out Isolator Row using the JetVac Process
  - A) A fixed culvert 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
- Replace all caps, lids and covers, record observations and actions
- Inspect & clean catch basins and manholes upstream of the StormTech system

Infiltration Trenches:

- Systems 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.
- Trash and debris should be removed at each inspection.

- Inspection of pre-treatment measures at least twice annually and removal of accumulated sediment as warranted by inspection, but no less than once annually.
- At least once annually, the system should be inspected for drawdown time. If the pond does not drain within 72-hours following a rainfall event, a qualified professional should assess the condition of the facility to determine measures required to restore filtration function or infiltration function (as applicable), including but not limited to the removal of accumulated sediments or reconstruction of the basin bottom.

Catch Basins and Closed Drainage Network:

- Catch basins may require frequent maintenance. This may require several cleanings of the sumps each year. At a minimum, it is recommended that catch basins be inspected at least twice annually.
- Sediment should be removed when it approaches half of the sump depth.
- If floating hydrocarbons are observed during an inspection, the material should be removed immediately by skimming, absorbent materials, or other methods and disposed in conformance with the applicable state and federal regulations.

Level Spreaders:

- Systems should be inspected at least annually with maintenance or rehabilitation conducted as warranted by such inspection.
- Remove debris and accumulated sediment when exceeds 25% of spreader depth. Disposal of sediment to be done properly.
- Repair eroded areas; remove invasive species and dead vegetation.
- Perform periodic mowing.
- Snow should not be stored within or down-slope of the level spreader.
- Repair any erosion and re-grade was warranted by inspection.
- Reconstruct the spreader if down-slope channelization indicates that the spreader is not level or that discharge has become concentrated, and corrections cannot be made through minor re-grading.

General:

- If any invasive species begin to grow in the stormwater management practices the species shall be disposed of in an appropriate manner that will not allow the pest to survive or spread. The disposal of such species shall be witnessed or approved by a state inspector. Methods for disposal may include, but not be limited to:
    - Encapsulating the plant(s) in plastic bags and disposing of the plant material in one of the following ways:
        - Trash pickup;
        - Discarding;
        - Open burning;
        - Incineration; or
        - Burial of infested nursery.

II. Supporting Documents

Annual Inspection and Maintenance Reporting Form
for
Frenette Gardens
Hudson, New Hampshire

Date: _____

To: Project Owner

Re: Certification of Inspection and Maintenance; Submittal of Forms

Property Name: _____

Property Address: _____

Contact Name: _____

Contact Phone #: _____

Contact Email Address: _____

I verify that the required stormwater facility inspections and required maintenance have been completed in accordance with the Operation & Maintenance Plan associated with the above referenced property.

The required Long-Term Inspection & Maintenance Plan Checklist is attached to this form.

_____ _____
Name of Party Responsible for Inspection & Maintenance — Property Owner

_____ _____
Authorized Signature — Signature

Long-Term Inspection & Maintenance Plan Checklist
Frenette Gardens – Hudson, NH

Current Owner Name:	Date:
Business Address:	Inspector:
Weather:	
Date of Last Rainfall:	Amount: Inches:
Best Management Practice	

Subsurface Infiltration System	Reason for Inspection		
	Spring ☐	Fall/Yearly ☐	After Major Storm ☐

Maintenance Required? Yes ☐ No ☐
Corrective Action Needed & Notes:

Visual inspection of drawdown time? Yes ☐ No ☐
Drawdown time less than 72 hours? Yes ☐ No ☐
(if no, call a qualified professional for inspection)

Isolator Rows	Reason for Inspection		
	Spring ☐	Fall/Yearly ☐	After Major Storm ☐

Stadia Rod Readings:
Fixed Point to Chamber Bottom _____
Fixed Point to Top of Sediment - _____
Sediment Depth = _____

Observations/Actions:

Infiltration Trench #1	Reason for Inspection		
	Spring ☐	Fall/Yearly ☐	After Major Storm ☐

Maintenance Required? Yes ☐ No ☐
Corrective Action Needed & Notes:

Visual Inspection of vegetation? Yes ☐ No ☐
Maintenance Required? Yes ☐ No ☐
Corrective Action Needed & Notes:

Visual inspection of drawdown time? Yes ☐ No ☐
Drawdown time less than 72 hours? Yes ☐ No ☐
(if no, call a qualified professional for inspection)

Infiltration Trench #2	Reason for Inspection		
	Spring ☐	Fall/Yearly ☐	After Major Storm ☐
Maintenance Required? Yes ☐ No ☐ Corrective Action Needed & Notes:			
Visual Inspection of vegetation? Yes ☐ No ☐ Maintenance Required? Yes ☐ No ☐ Corrective Action Needed & Notes:			
Visual inspection of drawdown time? Yes ☐ No ☐ Drawdown time less than 72 hours? Yes ☐ No ☐ (if no, call a qualified professional for inspection)			

Catch Basins & Closed Drainage Network			
	Spring ☐	Fall/Yearly ☐	After Major Storm ☐
Maintenance Required? Yes ☐ No ☐ Corrective Action Needed & Notes:			

Level Spreaders	Reason for Inspection		
	Spring ☐	Fall/Yearly ☐	After Major Storm ☐
Maintenance Required? Yes ☐ No ☐ Corrective Action Needed & Notes:			
Need Repairs? Yes ☐ No ☐			

General	Reason for Inspection		
	Spring ☐	Fall/Yearly ☐	After Major Storm ☐
Maintenance Required? Yes ☐ No ☐ Corrective Action Needed & Notes:			

Long-Term Inspection & Maintenance Log
Frenette Gardens – Hudson, NH

Date	Inspection (Yes or No)	Maintenance (Yes or No)	List BMPs Inspected and/or Provide Comments	Inspected By:

Anti-icing Route Data Form
Frenette Gardens – Hudson, NH

Truck Station:				
Date:				
Temperature:	Pavement Temperature:	Relative Humidity:	Dew Point:	Sky:
Reason For Applying:				
Route:				
Chemical:				
Application Time:				
Application Amount:				
Observation (first day):				
Observation (after event):				
Observation (before next application):				
Name:				

III. Control of Invasive Plants

Invasive plants are introduced, alien, or non-native plants, which have been moved by people from their native habitat to a new area. Some Exotic plants are imported for human use such as landscaping, erosion control, or food crops. They also can arrive as "hitchhikers" among shipments of other plants, seeds, packing materials, or fresh produce. Some exotic plants become invasive and cause harm by:

- becoming weedy and overgrown;
- killing established shade trees;
- obstructing pipes and drainage systems;
- forming dense beds in water;
- lowering water levels in lakes, streams, and wetlands;
- destroying natural communities;
- promoting erosion on stream banks and hillsides; and
- resisting control except by hazardous chemical.

During maintenance activities, check for the presence of invasive plants and suitably remove according to the methods provided in the table below. The following table, based on the "Control of Invasive Plants" published by the New Hampshire Department of Agriculture, describes the most common invasive plants in this region and proper methods of disposal.

Name	Description	Invasive Qualities	Control Methods
Invasive Trees			
Norway Maple	- Large leaves - Will exude milky white sap when leaves are broken - Leaves turn color in Late October (fall foliage is yellow)	- Suppresses growth of grass, garden plants, and forest understory -Wind-borne seeds can germinate and grow in deep shade	- Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out plants, including the root systems. Use a forked spade or weed wrench. - Cut down the tree. Grind out the stump, or clip off re-growth. - Girdle[1] - Frill[2] - Cut stem/ cut stump with glyphosate. Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.* - Foliar spray with glyphosate [3]* (mid-October to early November).
Tree of Heaven	- Long compound leaves with 11-25 lance shaped leaflets - Smell like peanut butter or burnt coffee when crushed	- Tough, can grow in poor conditions - Produces large quantities of wind-borne seeds - Grows rapidly - Secretes a toxin that kills other plants - Cannot be removed by mechanical means alone	- Pull seedlings when soil is moist. - Frill[2] (no more than 1" gap between cuts). Use Garlon 3a herbicide. - Cut stem/ cut stump with Garlon 3a. Follow label directions for cut stump application. Clip off sucker sprouts or paint with Garlon 3a.* - Foliar spray[3]* (on regrowth) - Paint bottom 12" of bark with Garlon 4 Ultra (February/March). Use maximum strength specified on label for all herbicide applications.
Invasive Shrubs			
Autumn Olive	- Formerly recommended for erosion control and wildlife value	- Highly invasive, diminishes the overall quality of wildlife habitat	- Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems. Use a forked spade or weed wrench for trees or shrubs (up to 4" diameter trunks). - Cut down the tree. Grind out the stump, or clip off re-growth. - Cut stem/ cut stump with glyphosate. Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.* - Bury stump - Do not mow

Invasive Shrubs (continued)			
Multiflora Rose	- Formerly recommended for erosion control, hedges, and wildlife habitat - Covered in white flowers in June - Very hard, curved thorns - Fringed edge to leaf stalk	- Huge shrub that chokes out all other vegetation - Too dense for most birds to nest in - Grows up trees like a vine in Shade	- Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems (at least 6" from the crown and 6" down). Use a forked spade or weed wrench for trees or shrubs. - Controlled burning[4] (on extensive infestations) - Cut stem/ cut stump with glyphosate. Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.* - Foliar spray[3]* (mix Rodeo with extra sticker-spreader, or use Roundup Sure Shot Foam on small plants) - Herbicide may be applied in winter when other plants are dormant.
Bush Honeysuckles	- Includes Belle, Amur, Morrow's, and Tatarian Honeysuckle	- Creates dense shade reducing plant diversity and eliminating nest sites in forest interior spaces	- Deadhead to prevent spread of seeds (on ornamentals). Cut off seeds or fruits before they ripen. Bag and burn, or send to a landfill. - Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems. Use a forked spade or weed wrench for trees or shrubs. - Mow or cutting at least 4 times a season to deplete plants' store of nutrients and carbohydrates, reduce seed formation, and kill or minimize spread of plants. If necessary, repeat each year (on shady sites only, brush cut in early spring and fall). - Controlled burning[4] (during growing season) - Cut down the tree. Grind out the stump, or clip off re-growth. - Cut stem/ cut stump with Glyphosate (late in the growing season). Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.*

Invasive Shrubs (continued)			
Blunt-Leaved Privet	- Medium sized shrub - Simple, oblong, dark green leaves 1-2" in length - Fragrant white flowers (spring) - Blackish-purple fruit (late summer)	- Toxic to mammals - Loss of valuable habitat	- Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems. Use a forked spade or weed wrench for trees or shrubs. - Cut down the tree. Grind out the stump, or clip off re-growth. - Cut stem/ cut stump with Glyphosate. Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.* - Trim off all flowers - Do not cut back or mow
Burning Bush, Winged Euonymus	- Wide, corky wings on the Branches - Brilliant red autumn leaves - Fruit	- High seed production	- Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems. Use a forked spade or weed wrench for trees or shrubs. - Cut down the tree. Grind out the stump, or clip off re-growth. - Cut stem/ cut stump with Glyphosate. Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.* - Trim off all flowers
Japanese Barberry	- Spiny deciduous shrub - Small leaves	- Very dense, displaces native plants - Can change chemistry of soil	- Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems. Use a forked spade or weed wrench for trees or shrubs. - Cut down the tree. Grind out the stump, or clip off re-growth. - Cut stem/ cut stump with Glyphosate. Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.* - Trim off all flowers

Invasive Woody Vines			
Japanese Honeysuckle	- Gold and White flowers - Heavy scent and sweet nectar in June	- Shade shrubs and young trees of the forest understory, eventually killing them, and changing the open structure of the forest into a dense tangle - Rampant grower - Spirals around trees, often strangling them	- Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems. Use a forked spade or weed wrench for trees or shrubs. - Mow or cutting at least 4 times a season to deplete plants' store of nutrients and carbohydrates, reduce seed formation, and kill or minimize spread of plants. If necessary, repeat each year. - Cut stem/ cut stump with Glyphosate. Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.* - Foliar spray[3]* (fall or early spring when native vegetation is dormant) Plan to re-treat repeatedly
Oriental Bittersweet	- Bright orange seed capsules in clusters all along the stem - Flowers	- Shade shrubs and young trees of the forest understory, eventually killing them, and changing the open structure of the forest into a dense tangle	- Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems. Use a forked spade or weed wrench for trees or shrubs. - Keep ornamental plants cut back, remove all fruits as soon as they open, and bag or burn fruits. - Cut stem/ cut stump with Garlon 3a. Follow label directions for cut stump application. Clip off sucker sprouts or paint with Garlon 3a.*
Japanese Knotweed, Mexican Bamboo	- The stems have knotty joints, similar to bamboo - Grows 6-10' tall - Large, pointed oval or triangular leaves	- Shade shrubs and young trees of the forest understory, eventually killing them, and changing the open structure of the forest into a dense tangle - Can grow in shade	- Cut stem/ cut stump with Glyphosate (at least 3 times each during growing season). Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.* - Foliar spray[3]* - Treat with Rodeo - In gardens, heavy mulch or dense shade may kill it.

Invasive Herbaceous Plants			
Garlic Mustard	- White-flowered biennial - Rough scalloped leaves (kidney, heart, or arrow shaped) - Garlic smell, mustard taste when its leaves are crushed	- Shade shrubs and young trees of the forest understory, eventually killing them, and changing the open structure of the forest into a dense tangle - Rampant grower - Spirals around trees, often strangling them	- Pull seedlings and small or shallow-rooted plants when soil is moist (before it flowers in spring). Dig out larger plants, including the crown and root systems. Use a forked spade or weed wrench for trees or shrubs. Tamp down soil afterwards. - Deadhead to prevent spread of seeds. Cut off seeds or fruits before they ripen. Bag and burn or send to a landfill. - Foliar spray[3]* (may be appropriate in some settings)
Japanese Stilt Grass	- Lime green color - Line of silvery hairs down the middle of the 2-3" long blade	- Tolerates sun or dense shade -Quickly invades areas left bare or disturbed by tilling or flooding - Builds a large seed bank in the soil	- Pull seedlings and small or shallow-rooted plants when soil is moist (pulled easily in early to mid-summer).Dig out larger plants, including root systems. Use a forked spade or weed wrench for trees or shrubs. Be sure to pull before it goes to seed. If seeds have formed, bag and burn or send to a landfill. - Mow or cutting at least 4 times a season to deplete plants' store of nutrients and carbohydrates, reduce seed formation, and kill or minimize spread of plants. If necessary, repeat each year. Mowing weekly or when it has just begun to flower may prevent it from setting seed. - Foliar spray[3]* (use glyphosate or herbicidal soap on large infestations. - Use a corn-based pre-emergence herbicide on annual weeds (spring). This product is also an organic fertilizer, i.e., it can stimulate growth of existing plants, including weeds, so it is appropriate for lawns and gardens but may not be appropriate in woodlands.

Invasive Herbaceous Plants (continued)			
Mile-A-Minute Vine, Devil's Tail Tearthumb	- Triangular leaves - Barbed stems - Turquoise berries	- Rapid growth - Quickly covers and shades out herbaceous plants	- Pull seedlings and small or shallow-rooted plants when soil is moist (pulled easily in early to mid-summer).Dig out larger plants, including root systems. Use a forked spade or weed wrench for trees or shrubs. Be sure to pull before it goes to seed. If seeds have formed, bag and burn or send to a landfill. - Mow or cutting at least 4 times a season to deplete plants' store of nutrients and carbohydrates, reduce seed formation, and kill or minimize spread of plants. If necessary, repeat each year. Mowing weekly or when it has just begun to flower may prevent it from setting seed. - Foliar spray[3]* (use glyphosate or herbicidal soap on large infestations. - Use a corn-based pre-emergence herbicide on annual weeds (spring). This product is also an organic fertilizer, i.e., it can stimulate growth of existing plants, including weeds, so it is appropriate for lawns and gardens but may not be appropriate in woodlands.
Spotted Knapweed	- Thistle-like flowers	- Dense, crowds out native species	- Do not pull unless the plant is young and the ground is very soft. The root will break and produce several new plants. - Wear sturdy gloves - Deadhead to prevent spread of seeds. Cut off seeds or fruits before they ripen. Bag and burn, or send to a landfill. - In lawns, spot treat with broad-leaf weed killer. Good lawn care practices (test soil; use lime and fertilizer only when soil test shows a need; mow high and frequently; leave clippings on lawn) reduce weed infestations. - Cut stem/ cut stump with Glyphosate. Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.* - Foliar spray[3]*

[1]Girdle: Cut through the bark and growing layer all around the trunk, about 6" above the ground. Girdling is most effective in spring (when the sap is rising) & middle-late summer (when the tree is sending food to the roots). Clip off sucker sprouts.

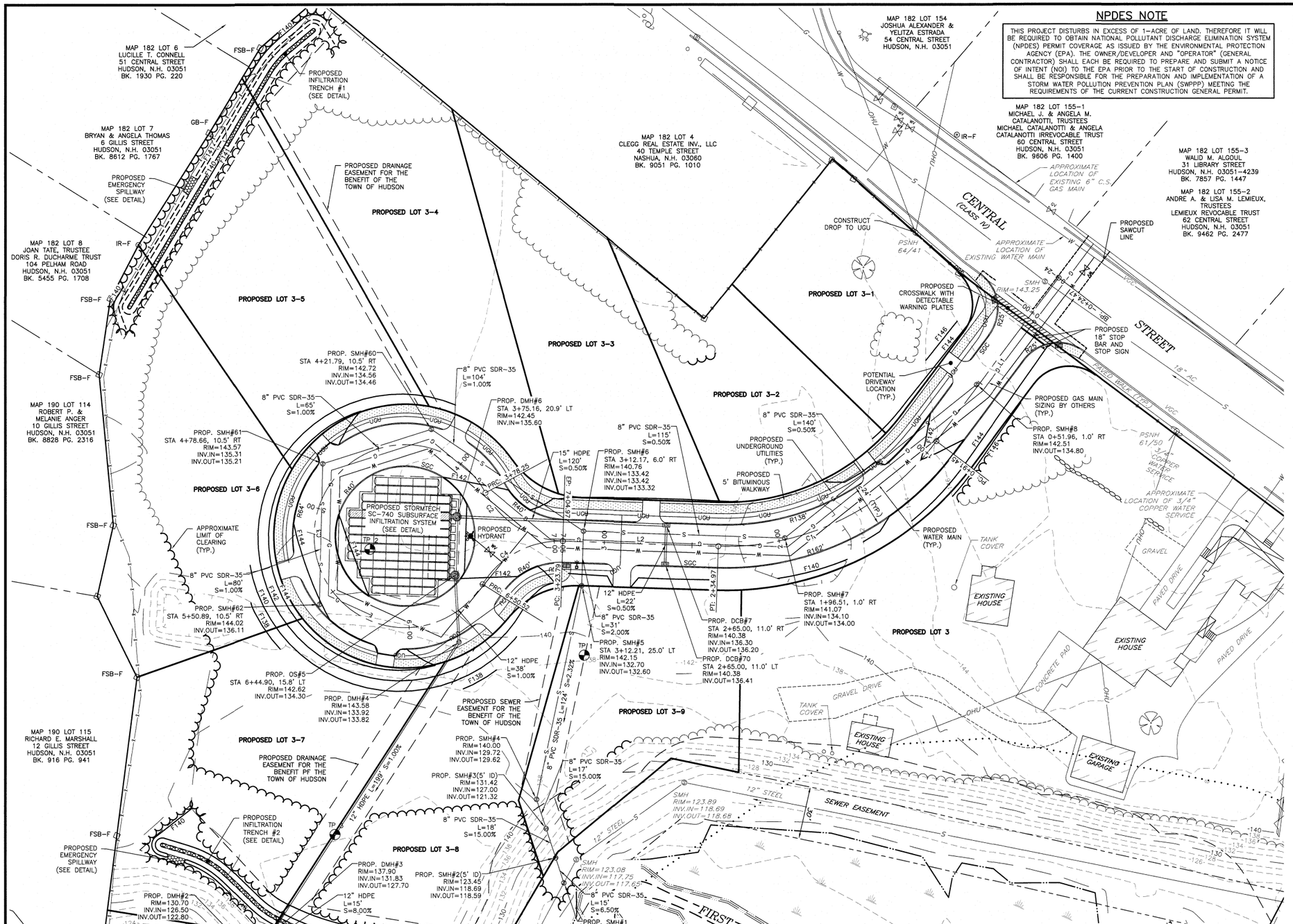
[2]Frill: Using a machete, hatchet, or similar device, hack scars (several holes in larger trees) downward into the growing layer, and squirt in glyphosate (or triclopyr if specified in table). Follow label directions for injection and frill applications. This is most effective from middle to late summer. Clip off any sucker sprouts or treat with glyphosate.

[3]Foliar Spray: Use a backpack or garden sprayer or mist blower, following label directions. Avoid overspray and/or dripping onto non-target plants, because glyphosate kills most plants except moss. If it rolls off waxy or grass-like foliage, use additional sticker-spreader. Deciduous trees, shrubs, and perennials move nutrients down to the roots in late summer. Glyphosate is particularly effective at this time and when plants have just gone out of flowering. Several invasive species retain their foliage after native plants have lost theirs, and resume growth earlier in spring than most natives. This allows you to treat them without harming the natives. However, the plant must be actively growing for the herbicide to work. Retreatments may be necessary the following year if suckering occurs or the plant hasn't been entirely killed.

[4]Controlled Burning: Burning during the spring (repeated over several years) will allow native vegetation to compete more effectively with the invasive species. This requires a permit. Spot treatment with glyphosate in late fall can be used to make this method more effective

*Herbicides: It is highly recommended that small populations try to be controlled using non-chemical methods where feasible. However, for large infestations, and for a few plants herbicide use is essential. Apply herbicides carefully to avoid non-target plants, glyphosate is the least environmentally damaging herbicide in most cases. Add food coloring for visibility, and a soap-based sticker such as Cide-Kick. Glyphosate is ineffective on some plants; for these, triclopyr or Garlon 3a may be indicated. When using herbicides read the entire label and observe all precautions listed, including proper disposal. If in doubt, call your local Cooperative Extension Service.

IV. Stormwater Practice Location Plan



NPDES NOTE

THIS PROJECT DISTURBS IN EXCESS OF 1-ACRE OF LAND. THEREFORE IT WILL BE REQUIRED TO OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE AS ISSUED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THE OWNER/DEVELOPER AND "OPERATOR" (GENERAL CONTRACTOR) SHALL EACH BE REQUIRED TO PREPARE AND SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA PRIOR TO THE START OF CONSTRUCTION AND SHALL BE RESPONSIBLE FOR THE PREPARATION AND IMPLEMENTATION OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) MEETING THE REQUIREMENTS OF THE CURRENT CONSTRUCTION GENERAL PERMIT.

CONSTRUCTION NOTES:

1. THE PURPOSE OF THIS PLAN IS TO SHOW THE PROPOSED ROADWAY DESIGN, GRADING, AND UTILITIES FOR THIS SITE.
2. ALL WORK SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS OF THE TOWN OF HUDSON, AND SHALL BE BUILT IN A WORKMANLIKE MANNER IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. ALL WORK PERFORMED IN THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION RIGHT-OF-WAY SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION, APPROVED AND ADOPTED 2016 ARE HEREBY INCORPORATED BY REFERENCE.
3. CONSTRUCTION SHALL CONFORM TO THE TYPICAL SECTIONS AND DETAILS SHOWN ON THE PLANS, AND SHALL MEET THE REQUIREMENTS AND SPECIFICATIONS FOR ROAD CONSTRUCTION, PUBLIC WORKS DEPARTMENT, HUDSON, NEW HAMPSHIRE. ALL DRAINAGE PIPES SHOWN SHALL BE HDPE. CATCH BASINS SHALL BE TYPE B, AND HAVE 3' SUMPS UNLESS OTHERWISE NOTED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND DETERMINING THE LOCATION, SIZE AND ELEVATION OF ALL EXISTING UTILITIES, SHOWN OR NOT SHOWN ON THESE PLANS, PRIOR TO THE START OF ANY CONSTRUCTION THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION, AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING "DIG SAFE" AT 811 AT LEAST 72 HOURS BEFORE DIGGING.
5. ALL DRAINAGE PIPE SHALL BE INSTALLED FOLLOWING MANUFACTURER'S INSTALLATION INSTRUCTIONS.
6. ALL DRIVEWAY, WATER, AND GAS STUB LOCATIONS SHOWN ARE APPROXIMATE AND SHALL BE COORDINATED WITH OWNER & ENGINEER OF RECORD FOR FINAL APPROVAL PRIOR TO CONSTRUCTION.

LEGEND

GB-F	GRANITE BOUND FOUND
FSB-F	FIELDSTONE BOUND FOUND
IP-F	IRON PIPE FOUND
AI-F	ANGLE IRON FOUND
IR-F	IRON ROD FOUND
	UTILITY POLE
	SIGN
S	SEWER MANHOLE
D	DRAINAGE MANHOLE
	CATCH BASIN
	ABUTTER LINE
	PROPERTY LINE
	WETLAND
	BROOK
	CHAIN LINK FENCE
	STOCKADE FENCE
OHU	OVERHEAD UTILITIES
G	GAS LINE
W	WATER LINE
S	SEWER LINE
	DRAINAGE LINE
	TREELINE
	EDGE OF PAVEMENT
	VERTICAL GRANITE CURB
	EDGE OF GRAVEL
	10' CONTOUR
	2' CONTOUR
	STONEWALL
	SCS SOIL LINE
	BUILDING SETBACK
	EASEMENT
UGU	PROPOSED UNDERGROUND UTILITIES
G	PROPOSED GAS LINE
W	PROPOSED WATER LINE
S	PROPOSED SEWER LINE
	PROPOSED DRAINAGE LINE
	PROPOSED TREELINE
	PROPOSED EDGE OF PAVEMENT
	PROPOSED SLOPED GRANITE CURB
	PROPOSED 2' CONTOUR

LOAM & SEED ALL DISTURBED AREAS (TYP.)

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

LINE TABLE: GARDEN CIRCLE		
NUMBER	LENGTH	BEARING
L1	115.93	S12° 34' 47.00"W
L2	88.82	S67° 23' 58.93"W

CURVE TABLE: GARDEN CIRCLE			
NUMBER	RADIUS	LENGTH	CHORD BEARING
C1	150.00	143.52	S39° 59' 22.96"W
C2	52.00	54.45	N82° 36' 01.07"W
C3	52.00	272.27	S22° 36' 01.07"E
C4	52.00	54.45	N37° 23' 58.93"E

SCS SOILS LEGEND

WnC	WINDSOR-URBAN LAND COMPLEX, 3 TO 15 PERCENT SLOPES
WdD	WINDSOR LOAMY SAND, 15 TO 35 PERCENT SLOPES

SOURCE: USDA-SCS WEB SOIL SURVEY HILLSBOROUGH COUNTY

DIG SAFE
811
UTILITY UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM
IT'S FREE - IT'S SAFE - IT'S THE LAW - CALL TOLL FREE

APPROVED BY THE HUDSON, NH PLANNING BOARD
DATE OF MEETING: _____

_____ SIGNATURE DATE: _____

_____ SIGNATURE DATE: _____

SUBDIVISIONS ARE VALID FOR TWO YEARS FROM THE DATE OF PLANNING BOARD MEETING FINAL APPROVAL. FOR AN APPLICANT TO GAIN AN EXEMPTION FROM ALL SUBSEQUENT CHANGES IN SUBDIVISION REGULATIONS, SITE PLAN REGULATIONS AND CHANGES TO THE ZONING ORDINANCE, SEE NH RSA 674:39.

ROADWAY PLAN
FRENETTE GARDENS
MAP 182 LOT 3
65 CENTRAL STREET
HUDSON, NEW HAMPSHIRE
HILLSBOROUGH COUNTY

OWNERS/APPLICANTS OF MAP 182 LOT 3:

LAURA RIPALDI
46 BUSH HILL ROAD
HUDSON, NH 03051
9531/2754

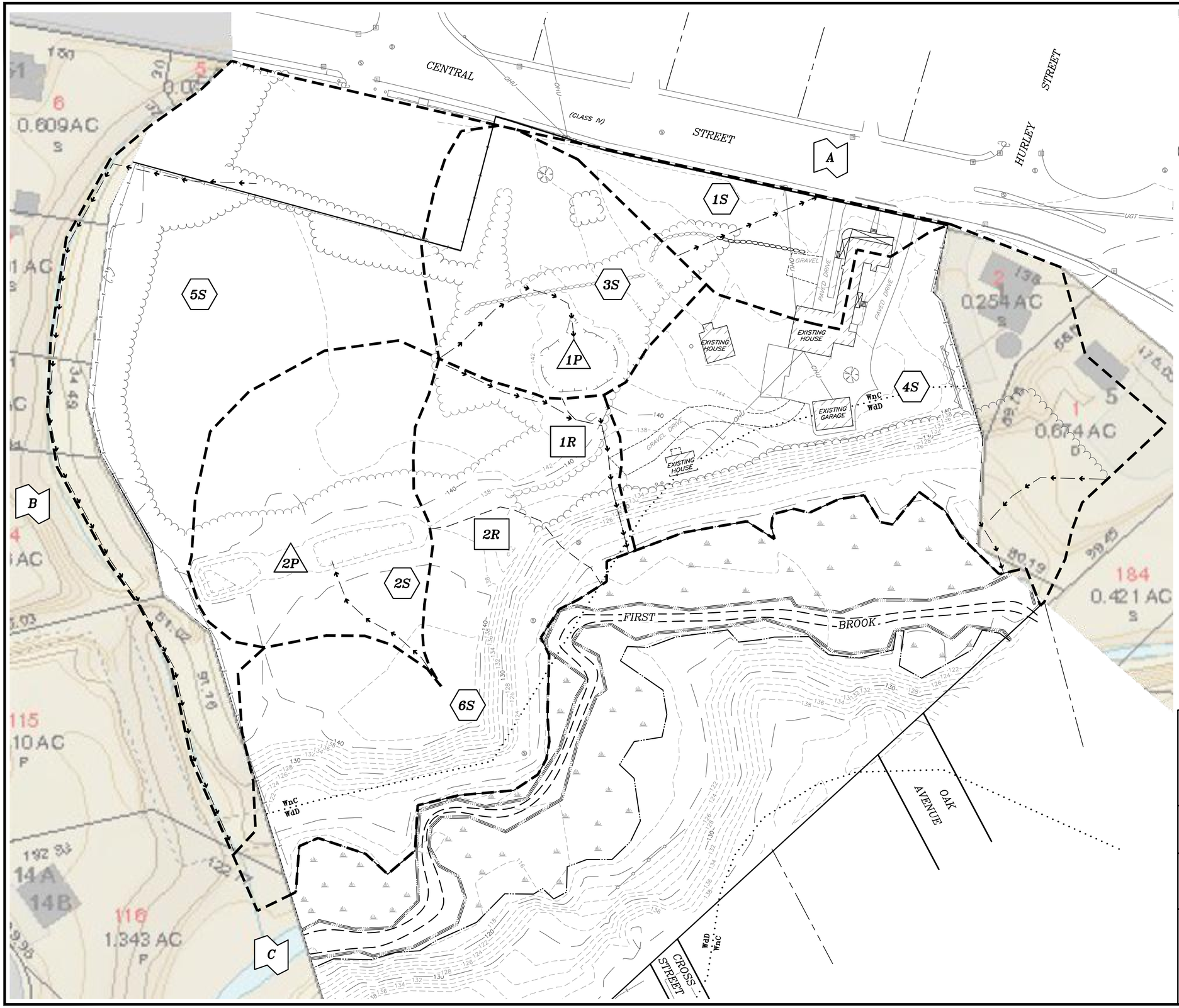
KIMBERLY FRENETTE
8B DUMONT ROAD
HUDSON, NH 03051
9531/2754

RICKY FRENETTE
14 TATE STREET
HUDSON, NH 03051
9531/2754

KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

REVISIONS			
No.	DATE	DESCRIPTION	BY

DATE: APRIL 20, 2022 | SCALE: 1" = 30'
PROJECT NO: 21-0928-1 | SHEET 5 OF 16



NOTES:

1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE VARIOUS STORMWATER SUBCATCHMENT AREAS, CORRESPONDING TIMES OF CONCENTRATION, PONDS, AND REACHES ASSOCIATED WITH THE SUBJECT PARCEL PRIOR TO DEVELOPMENT.
2. EXISTING FEATURES DEPICTED ON THIS PLAN WERE TAKEN FROM "TOPOGRAPHIC SUBDIVISION PLAN, FRENETTE GARDENS, PREPARED BY KEACH-NORDSTROM ASSOCIATES, INC. DATED APRIL 20, 2022" AND TOWN GIS DATA.

DRAINAGE LEGEND:

THE LEGEND BELOW REFLECTS THE HYDROCAD MODEL USED FOR DRAINAGE CALCULATIONS.

- SCS SOIL LINES
- WnC — DENOTES SOIL TYPE
- P — DENOTES POND
- S — DENOTES SUBCATCHMENT AREA
- L — DENOTES POINT OF INTEREST
- R — DENOTES REACH
- LIMIT OF SUBCATCHMENT AREA
- TIME OF CONCENTRATION
- REACH

SCS SOILS LEGEND

WnC	WINDSOR–URBAN LAND COMPLEX, 3 TO 15 PERCENT SLOPES
WdD	WINDSOR LOAMY SAND, 15 TO 35 PERCENT SLOPES

SOURCE: USDA–SCS WEB SOIL SURVEY HILLSBOROUGH COUNTY

DIG SAFE — UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM — 811 — CALL 1DIG-SAFE

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PRE DEVELOPMENT DRAINAGE AREA PLAN
FRENETTE GARDENS
MAP 182 LOT 3
65 CENTRAL STREET
HUDSON, NEW HAMPSHIRE
HILLSBOROUGH COUNTY

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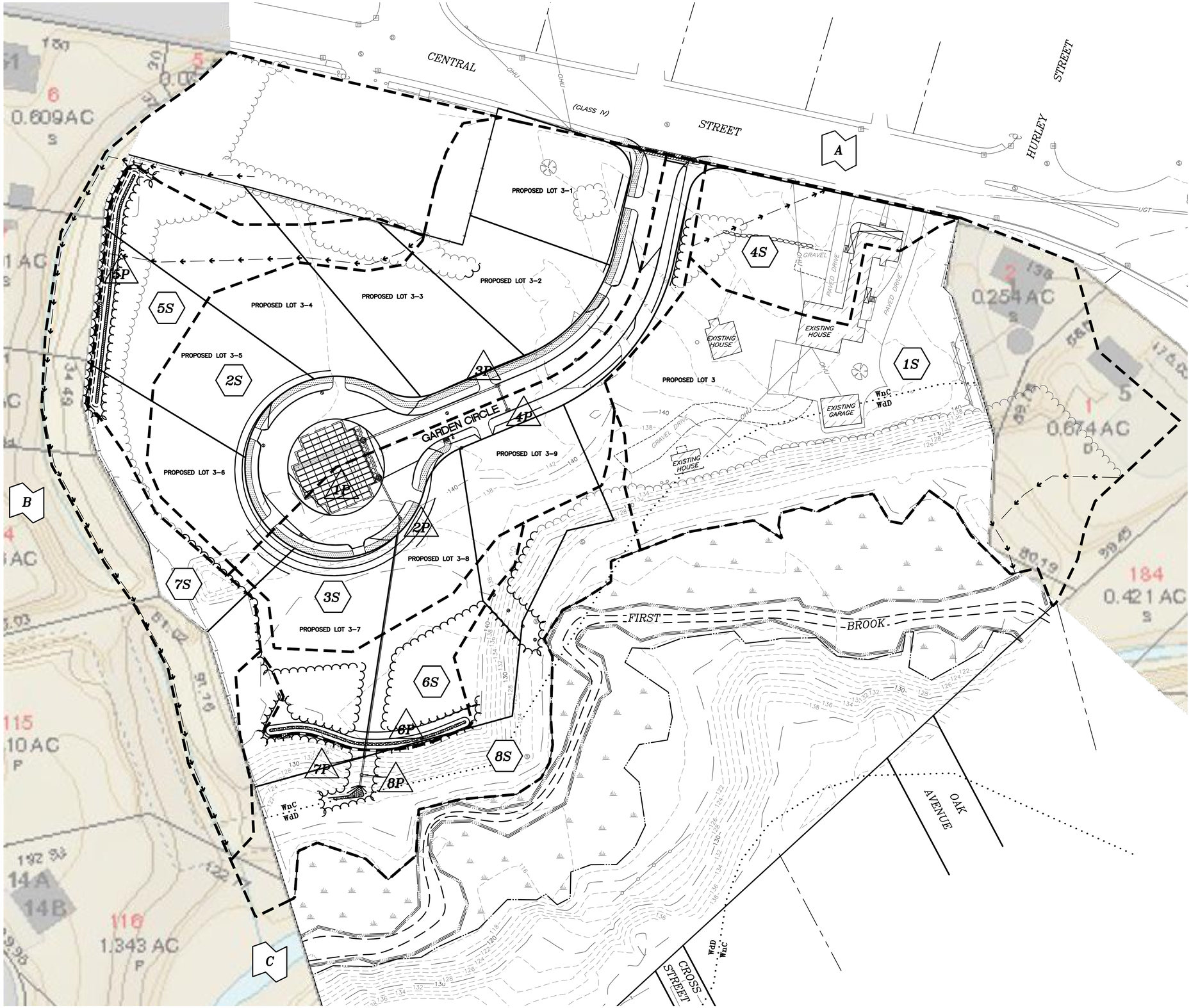
KNA KEACH–NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627–2881

REVISIONS

No.	DATE	DESCRIPTION	BY

DATE: APRIL 20, 2022 | SCALE: 1" = 40'
PROJECT NO: 21-0928-1 | SHEET 1 OF 2



NOTES:

1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE VARIOUS STORMWATER SUBCATCHMENT AREAS, CORRESPONDING TIMES OF CONCENTRATION, PONDS, AND REACHES ASSOCIATED WITH THE SUBJECT PARCEL AFTER DEVELOPMENT.
2. EXISTING FEATURES DEPICTED ON THIS PLAN WERE TAKEN FROM "TOPOGRAPHIC SUBDIVISION PLAN, FRENETTE GARDENS, PREPARED BY KEACH-NORDSTROM ASSOCIATES, INC. DATED APRIL 20, 2022" AND TOWN GIS DATA.
3. PROPOSED FEATURES DEPICTED ON THIS PLAN WERE TAKEN FROM "ROADWAY PLAN, FRENETTE GARDENS, PREPARED BY KEACH-NORDSTROM ASSOCIATES, INC. DATED APRIL 20, 2022".

DRAINAGE LEGEND:

THE LEGEND BELOW REFLECTS THE HYDROCAD MODEL USED FOR DRAINAGE CALCULATIONS.

- SCS SOIL LINES
- WnC — DENOTES SOIL TYPE
- P — DENOTES POND
- S — DENOTES SUBCATCHMENT AREA
- L — DENOTES POINT OF INTEREST
- R — DENOTES REACH
- LIMIT OF SUBCATCHMENT AREA
- TIME OF CONCENTRATION
- REACH

SCS SOILS LEGEND

WnC	WINDSOR-URBAN LAND COMPLEX, 3 TO 15 PERCENT SLOPES
WdD	WINDSOR LOAMY SAND, 15 TO 35 PERCENT SLOPES

SOURCE: USDA-SCS WEB SOIL SURVEY HILLSBOROUGH COUNTY

DIG SAFE — UTILITIES UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM — CALL TOLL FREE 811

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

POST DEVELOPMENT DRAINAGE AREA PLAN

FRENETTE GARDENS

MAP 182 LOT 3
65 CENTRAL STREET
HUDSON, NEW HAMPSHIRE
HILLSBOROUGH COUNTY

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REVISIONS			
No.	DATE	DESCRIPTION	BY

DATE: APRIL 20, 2022	SCALE: 1" = 40'
PROJECT NO: 21-0928-1	SHEET 2 OF 2