



## **STORMWATER MANAGEMENT REPORT**

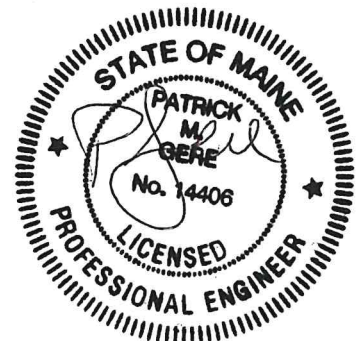
**839 Roosevelt Redevelopment  
839 Roosevelt Trail  
Windham, Maine 04062**

**Prepared for:  
Hanna Realty Associates, LLC  
2 Eisenhower Drive  
Westbrook, Maine 04092**

**Prepared by:  
St. Germain Collins  
846 Main Street  
Westbrook, Maine 04092**

**June 2019  
Revised September 2019**

**St. Germain Collins File No.: 2572-0011**



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## **1.0 INTRODUCTION**

Hanna Realty Associates, LLC is proposing to construct a new facility for Good Jane, a medical marijuana dispensary, on the property located at 839 Roosevelt Trail in Windham, Maine (site). The site is identified by the Town of Windham Tax Assessor as Lot 7 of Map 71, owned by Hanna Realty Associates, LLC. The site is located within the C1 Commercial District and is bounded by commercial parcels to the north, south, and east, and Roosevelt Trail and commercial parcels to the west. A site location map is included as Figure 1.

The project will include the construction of a new 1,600 square foot (SF) commercial building, an asphalt parking lot and driveway, and associated infrastructure improvements. Access to the building will be achieved through a proposed 26-foot wide asphalt driveway from Roosevelt Trail.

The existing 0.46-acre parcel includes a 2,500 SF laundromat, paved parking, and an engineered septic system to serve the laundry facility. There are no existing stormwater Best Management Practices (BMPs) located on the property. Runoff from the front portion of the site generally flows to the storm drain system in Roosevelt Trail. Runoff from the rear portion of the site flows east toward a drainage swale, which discharges offsite to the east.

The entire site is within the Tarkill Pond watershed and ultimately discharges into the Presumpscot River. Tarkill Pond is not on the State List of Lakes Most at Risk from New Development. The site is not subject to Maine Stormwater Law (Chapter 500) standards, as the site is not in the direct watershed of a lake most at risk from new development and the proposed disturbance is less than one acre.

## **2.0 METHOD OF ANALYSIS**

The hydrologic analyses for existing and proposed conditions were completed using the computer software package, HydroCAD® version 10.00-24, to determine the peak runoff flowrates for the watershed models. HydroCAD® is based on NRCS Technical Release 20 and Technical Release 55 (TR-55), and is subject to cumulative rainfall/volume dependent routing calculations. Hydrographs are prepared for each element of the watershed and routed through the dynamic-storage-indication method to produce various time-based results. The model utilized a Type III 24-hour design storm distribution and antecedent moisture condition two.

Runoff rates were evaluated at four Analysis Points in both the existing and proposed conditions for the 2-year, 10-year, and 25-year storms to comply with local and state requirements. Rainfall events were obtained from Cornell University's Northeast Regional Climate Center (NRCC) Extreme Precipitation Tables for the site. The NRCC Extreme Precipitation Tables list the 2-year event as 3.12 inches, the 10-year event as 4.61 inches, and the 25-year event as 5.76 inches. Refer to Appendix A for the NRCC Extreme Precipitation Table. The following is a description of each Analysis Point:

- Analysis Point 1, denoted as Link AP1 in the hydrologic analyses, is drainage swale which discharges offsite to the east.
- Analysis Point 2, denoted as Link AP2, is the catch basin located west of the proposed building, adjacent to Roosevelt Trail.
- Analysis Point 3, denoted as Link AP3, is the catch basin located within Roosevelt Trail, south of the proposed building.
- Analysis Point 4, denoted as Link AP4, is the dry well located within the stormwater basin on the adjacent parcel – Tax Map 71 Lot 6.

### 3.0 EXISTING CONDITIONS

In the existing condition, the watershed is comprised of the former 2,500 SF Pratt Abbott laundromat building; parking and circulation areas; areas of lawn and landscaping; and an infiltration stormwater treatment system on the adjacent parcel – Tax Map 71 Lot 6.

The site is comprised of six subcatchments, three of which discharge to the west and two discharge to the east. Runoff from the site was evaluated at four Analysis Points, discussed in Section 2.0. Runoff from Analysis Point 1 discharges offsite to the east within a drainage swale. Runoff from Analysis Points 2 and 3 discharges to the existing storm drain system in Roosevelt Trail. Runoff from Analysis Point 4 infiltrates into the subsurface via a dry well.

Table 1 is a summary of the runoff rates for the existing condition based on modeling with HydroCAD® 10.00-24.

**Table 1**  
**Existing Conditions Summary**

Analysis Point	Peak Flow - Cubic Feet per Second (CFS)		
	2-Year	10-Year	25-Year
1	0.96	1.69	2.49
2	0.29	0.42	0.53
3	0.14	0.20	0.25
4	0.00	0.00	0.00

See Appendix A for the HydroCAD® analysis of the existing condition.

### 4.0 PROPOSED POST DEVELOPMENT CONDITIONS

The proposed development includes construction of a new 1,600 SF commercial building, new parking and circulation areas, and associated infrastructure improvements. In the post

development condition, the watershed is comprised of the new 1,600 SF building; expanded parking and circulation areas; areas of lawn and landscaping; and the existing infiltration BMP located on the adjacent parcel.

The post development watershed is divided into eight subcatchments, which drain to the same four Analysis Points as in the existing condition. The stormwater management system has been designed to utilize the existing discharge points to minimize any impact to the existing natural drainage patterns beyond the property line.

Table 2 is a summary of the runoff rates for the post developed conditions based on modeling with HydroCAD® 10.00-24.

**Table 2**  
**Post Development Summary**

Analysis Point	Peak Flow (CFS)		
	2-Year	10-Year	25-Year
1	0.96	1.69	2.44
2	0.04	0.12	0.20
3	0.07	0.11	0.13
4	0.00	0.00	0.00

See Appendix B for the HydroCAD® analysis for the proposed post development conditions.

## 5.0 ANALYSIS

The following table presents a comparison of the existing and post development runoff rates at the Analysis Points. The runoff rates in the post development conditions are less than in the existing conditions at all Analysis Points.

**Table 3**  
**Runoff Comparison at Analysis Points**

Analysis Point	Design Storm	Peak Flow (CFS)		
		Existing	Post	Difference Existing to Post
1	2-Year	0.96	0.96	0
	10-Year	1.69	1.69	0
	25-Year	2.49	2.44	-0.05
2	2-Year	0.29	0.04	-0.25
	10-Year	0.42	0.12	-0.30
	25-Year	0.53	0.20	-0.33

Analysis Point	Design Storm	Peak Flow (CFS)		
		Existing	Post	Difference Existing to Post
3	2-Year	0.14	0.07	-0.07
	10-Year	0.20	0.11	-0.09
	25-Year	0.25	0.13	-0.12
4	2-Year	0.00	0.00	0
	10-Year	0.00	0.00	0
	25-Year	0.00	0.00	0

## 6.0 STORMWATER QUALITY

The proposed post development improvements include the construction of a dripline filter around the proposed building that will capture and treat all of the roof runoff. The improvement has been designed to conform to MEDEP Maine Stormwater Best Practices Chapter 7.5 – Roof Dripline Filters.

## 7.0 MAINTENANCE

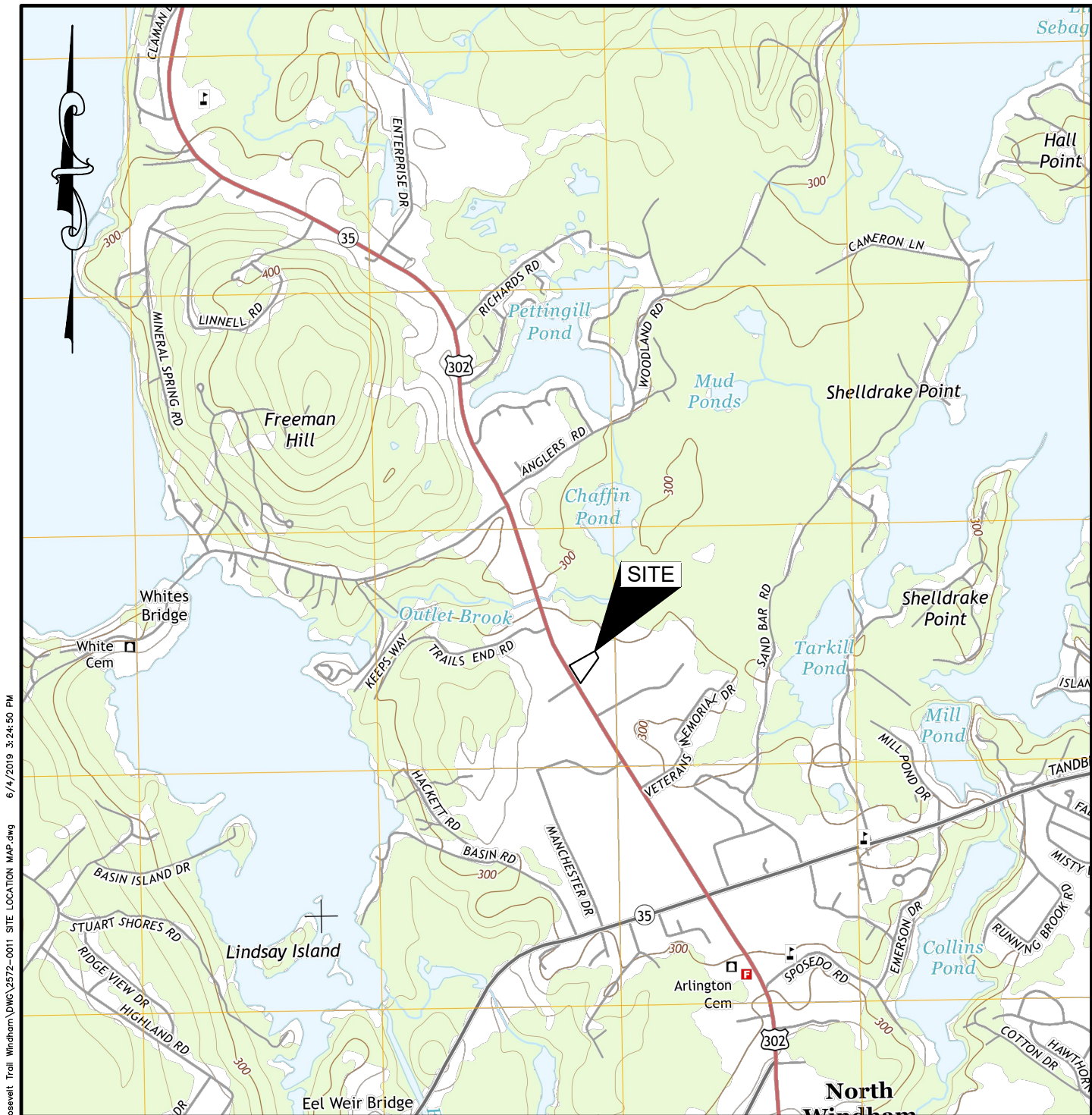
Maintenance of existing and proposed stormwater facilities will be in conformance with the Maintenance Plan for Stormwater Facilities included in Appendix D. Additionally, as required by the Post-Construction Stormwater Ordinance in Chapter 144 from the Code of the Town of Windham, a qualified third-party inspector shall, on or by May 1 of each year, provide a completed and signed certification to the enforcement authority certifying that the person has inspected the stormwater management facilities. Using the form in Appendix 1 of the Ordinance, the inspector shall certify that the stormwater management facilities are adequately maintained and functioning as intended by approved post-construction stormwater management plan, or that they require maintenance or repair, describing any required maintenance and any deficiencies found during inspection of the stormwater management facilities. If the stormwater management facilities require maintenance or repair of deficiencies in order to function as intended by approved post- construction stormwater management plan, the person shall provide a record of the required maintenance or deficiency and corrective action(s) taken.

## 8.0 SUMMARY

The development as proposed will meet the Town of Windham requirements for stormwater management. Stormwater runoff quantity requirements are met by maintaining or reducing the rate of stormwater runoff from the site. In addition, stormwater runoff quality will be improved by construction of roof dripline filters.

## FIGURES





REFERENCE:  
USGS SERIES 7.5 TOPOGRAPHIC MAP, NORTH WINDHAM, ME 2014  
QUADRANGLE.

## SITE LOCATION MAP

839 ROOSEVELT REDEVELOPMENT  
839 ROOSEVELT TRAIL  
WINDHAM, MAINE 04062

HANNA REALTY ASSOCIATES, LLC  
2 EISENHOWER DRIVE  
WESTBROOK, ME 04092

**St. Germain Collins**

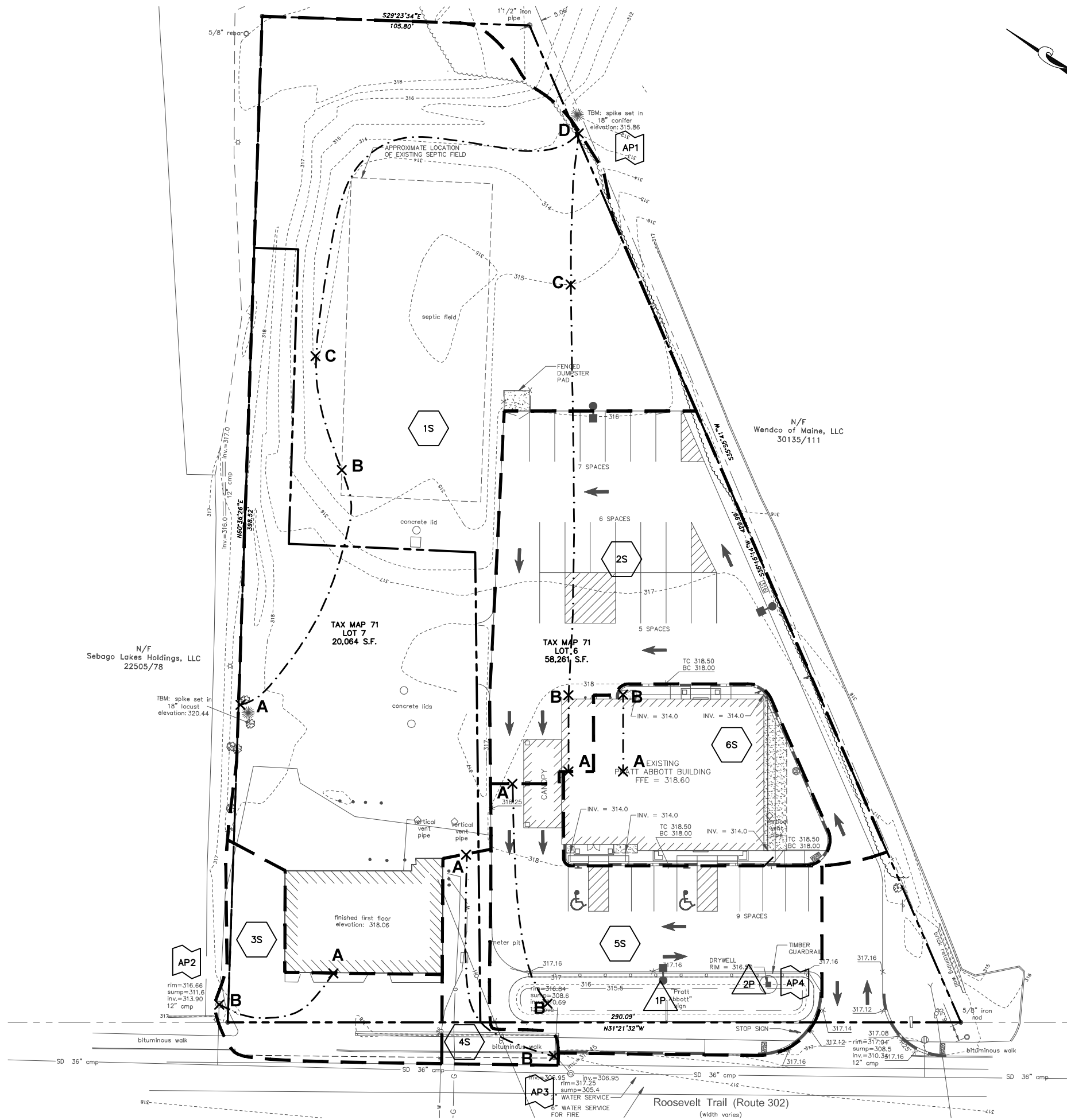
846 Main St., Westbrook, ME 04092 • 207-591-7000 • StGermainCollins.com

FIGURE 1

2000 0 1000 2000 4000  
SCALE IN FEET  
1"=2,000'



M:\\_Code Drawings - Dwg\Active Dwg\2572 Pratt Abbott\2572-0011 839 Roosevelt Trail Windham\DWG\2572-0011 STP01.dwg 9/27/2019 3:10:47 PM



- NOTES:
1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE EXISTING CONDITIONS FOR TAX MAP 71 LOT 7 IN WINDHAM, MAINE (SUBJECT PARCEL).
  2. THE TOTAL AREA OF THE SUBJECT PARCEL IS 20,064 SF (0.46 ACRES).
  3. THE OWNER OF RECORD FOR THE SUBJECT PARCEL IS HANNA REALTY ASSOCIATES, LLC, 2 EISENHOWER DRIVE, WESTBROOK, MAINE 04092, RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS BOOK 34365 PAGE 90.
  4. PROPERTY BOUNDARY AND TOPOGRAPHICAL INFORMATION IS BASED ON A PLAN ENTITLED "EXISTING CONDITIONS SURVEY, 839 ROOSEVELT TRAIL, WINDHAM, ME" BY TITCOMB ASSOCIATES, DATED MAY 26, 2015.
  5. TOPOGRAPHIC ELEVATIONS ARE BASED ON NAVD83 DATUM DERIVED FROM GPS OBSERVATIONS. HORIZONTAL DATA IS REFERENCED TO GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, NAD83, WEST ZONE, DERIVED FROM GPS OBSERVATIONS.
  6. SOIL TYPES FOR THE SITE WERE OBTAINED FROM THE USDA NATURAL RESOURCES CONSERVATION SERVICE WEB SOIL SURVEY MEDIUM INTENSITY SOILS MAPPING. THE WATERSHED CONSISTS ENTIRELY OF HINCKLEY LOAMY SAND (HIS) - HYDROLOGIC SOIL GROUP A. THE SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND SPECIAL PUBLICATION NO. 5, SEPTEMBER 2009, LISTS THE SATURATED CONDUCTIVITY FOR HIS AS 6.0 IN/HR IN THE MOST LIMITING LAYER.

LEGEND:

EXISTING	PROPOSED
PROPERTY LINE	ADJACENT PROPERTY LINE
MONUMENTS	CONTOURS (1')
CONTOURS (5')	EDGE OF GRAVEL
EDGE OF PAVEMENT	CURB
PAVEMENT STRIPING	BUILDINGS
TREES	SIGNS
BOLLARDS	UTILITY POLE & OVERHEAD LINE
LIGHTS	GAS LINE
WATER SHUTOFF, VALVE, & WATER LINE	CATCH BASIN & STORM DRAIN
1S	SUBCATCHMENT
AP1	ANALYSIS POINT
1P	INFILTRATION FEATURE
A-B	TIME OF CONCENTRATION FLOW PATH
---	WATERSHED BOUNDARY

1S AREA: 42,099 SF  
Tc:  
A-B SF L=100' S=0.0150  
B-C SHC L=50' S=0.0150  
C-D C L=185' S=0.0130

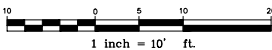
2S AREA: 14,042 SF  
Tc:  
A-B SF L=30' S=0.3300  
B-C SCF L=110 S=0.0200  
C-D SCF L=110 S=0.0200

3S AREA: 4,105 SF  
Tc:  
A-B SF L=60' S=0.0150

4S AREA: 1,961 SF  
Tc:  
A-B SF L=100' S=0.0150

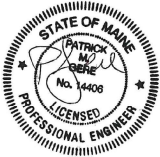
5S AREA: 10,370 SF  
Tc:  
A-B SF L=89' S=0.0150

6S AREA: 6,331 SF  
Tc:  
A-B SF L=31' S=0.3300



**St. Germain Collins**

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REV.	DATE	REVISION DESCRIPTION
2.	9/27/19	REVISED PER TOWN COMMENTS
1.	9/10/19	REVISED PER TOWN COMMENTS
0.	6/5/19	ISSUED FOR PERMITTING

DESIGNED BY: PMG  
DRAWN BY: PMG  
CHECKED BY: PJC  
DATE: 9/27/2019  
FILE NAME: 2572-0011 STP01.dwg  
PROJECT NAME:

839 ROOSEVELT REDEVELOPMENT  
839 ROOSEVELT TRAIL  
WINDHAM, MAINE

CLIENT:

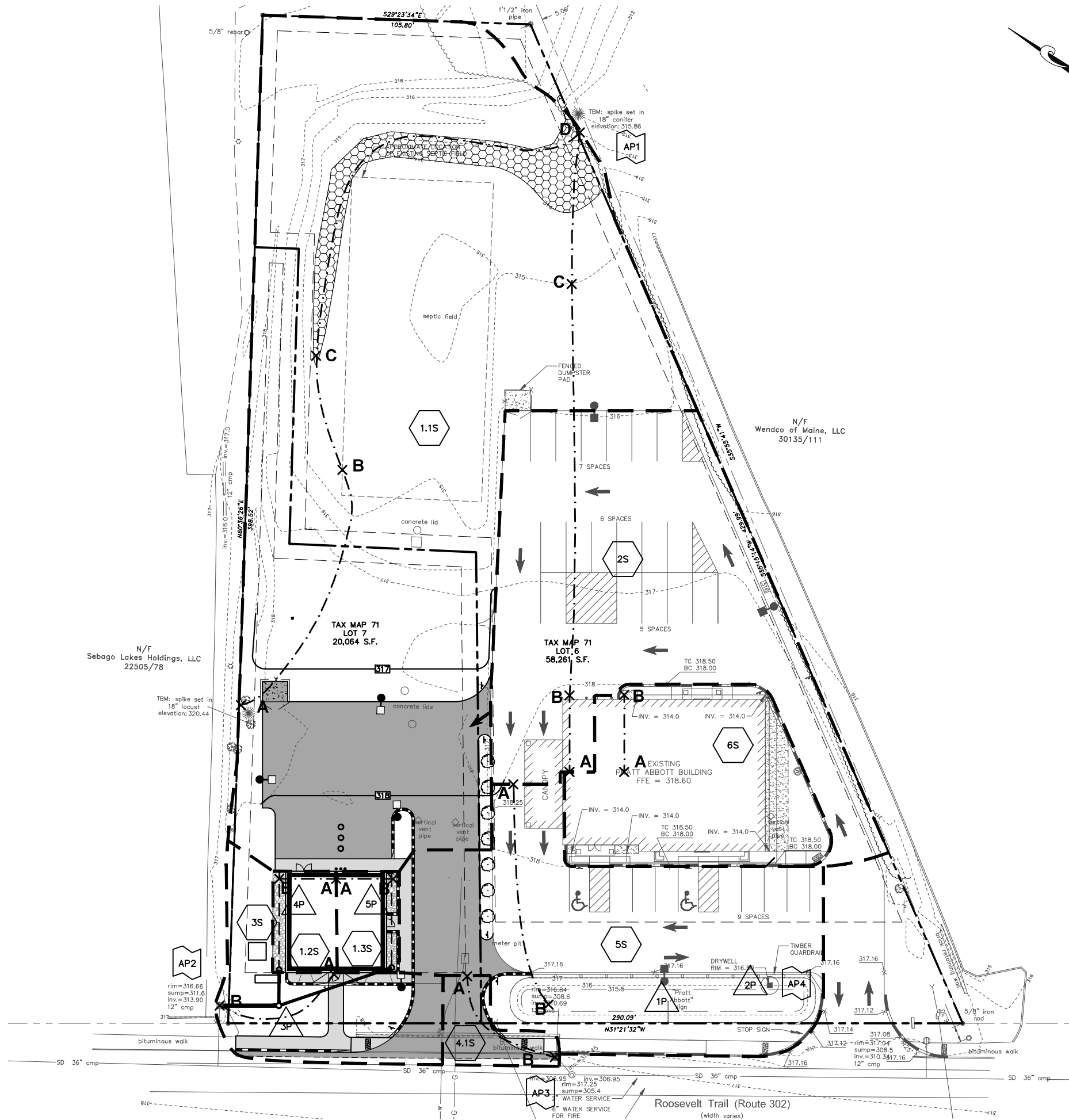
HANNA REALTY ASSOCIATES, LLC  
2 EISENHOWER DRIVE  
WESTBROOK, MAINE

SHEET TITLE:

## EXISTING CONDITIONS WATERSHED PLAN

SHEET NO:

D-101

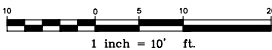


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LEGEND:

EXISTING	PROPOSED

1.1S AREA: 39,433 SF
Tc:
A-B SF L=100' S=0.0150
B-C SHC L=50' S=0.0150
C-D C L=185' S=0.0130
1.2S AREA: 1,000 SF
Tc:
A-B SF L=22' S=0.0833
1.3S AREA: 1,000 SF
Tc:
A-B SF L=22' S=0.0833
2S AREA: 14,042 SF
Tc:
A-B SF L=30' S=0.3300
B-C SCF L=110 S=0.0200
C-D SCF L=110 S=0.0200
3S AREA: 3,905 SF
Tc:
A-B SF L=60' S=0.0150
4.1S AREA: 1,039 SF
Tc:
A-B SF L=53' S=0.0150
5S AREA: 12,139 SF
Tc:
A-B SF L=89' S=0.0150
6S AREA: 6,331 SF
Tc:
A-B SF L=31' S=0.3300

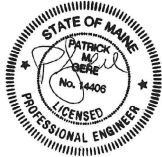


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WINDHAM, MAINE

CLIENT:

HANNA REALTY ASSOCIATES, LLC  
2 EISENHOWER DRIVE  
WESTBROOK, MAINE

SHEET TITLE:

PROPOSED  
CONDITIONS  
WATERSHED  
PLAN

SHEET NO:

D-102

**APPENDIX A**  
**Existing Conditions**

# 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	Maine
Location	
Longitude	70.445 degrees West
Latitude	43.843 degrees North
Elevation	0 feet
Date/Time	Wed, 08 May 2019 16:13:08 -0400

## Extreme Precipitation Estimates

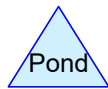
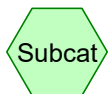
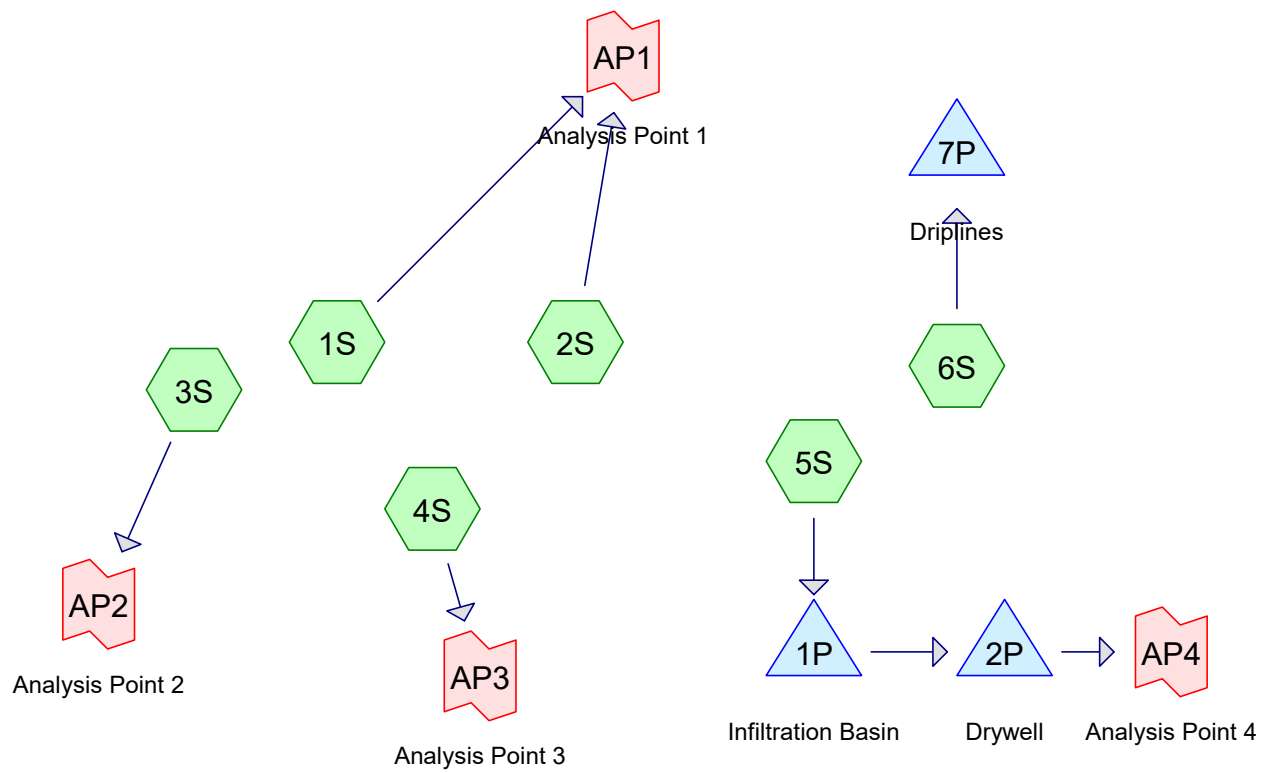
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.25	0.38	0.48	0.63	0.78	0.99	1yr	0.67	0.97	1.16	1.50	1.96	2.58	2.92	1yr	2.28	2.81	3.26	3.95	4.51	1yr
2yr	0.32	0.49	0.61	0.80	1.00	1.27	2yr	0.87	1.19	1.48	1.89	2.43	3.12	3.49	2yr	2.76	3.36	3.87	4.62	5.27	2yr
5yr	0.38	0.59	0.73	0.98	1.26	1.61	5yr	1.09	1.49	1.88	2.40	3.06	3.90	4.40	5yr	3.45	4.23	4.86	5.73	6.47	5yr
10yr	0.43	0.67	0.85	1.15	1.50	1.93	10yr	1.29	1.75	2.26	2.88	3.65	4.61	5.23	10yr	4.08	5.03	5.78	6.74	7.56	10yr
25yr	0.51	0.81	1.03	1.42	1.88	2.44	25yr	1.62	2.19	2.87	3.65	4.60	5.76	6.60	25yr	5.10	6.34	7.26	8.37	9.29	25yr
50yr	0.58	0.93	1.19	1.67	2.24	2.93	50yr	1.93	2.59	3.44	4.37	5.48	6.82	7.86	50yr	6.04	7.56	8.64	9.87	10.87	50yr
100yr	0.66	1.07	1.38	1.96	2.67	3.51	100yr	2.30	3.06	4.13	5.24	6.54	8.08	9.38	100yr	7.15	9.02	10.28	11.63	12.72	100yr
200yr	0.76	1.24	1.61	2.30	3.18	4.21	200yr	2.75	3.62	4.96	6.27	7.80	9.58	11.18	200yr	8.48	10.75	12.24	13.71	14.89	200yr
500yr	0.92	1.51	1.97	2.87	4.03	5.35	500yr	3.47	4.53	6.31	7.96	9.84	12.00	14.13	500yr	10.62	13.58	15.42	17.05	18.34	500yr

## Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.72	0.85	1yr	0.62	0.84	1.03	1.35	1.76	2.22	2.57	1yr	1.97	2.47	3.05	3.58	4.19	1yr
2yr	0.30	0.47	0.58	0.78	0.97	1.18	2yr	0.84	1.15	1.37	1.86	2.40	3.01	3.37	2yr	2.67	3.24	3.74	4.48	5.11	2yr
5yr	0.34	0.53	0.65	0.90	1.14	1.39	5yr	0.99	1.36	1.61	2.15	2.83	3.57	4.02	5yr	3.16	3.87	4.46	5.25	5.98	5yr
10yr	0.37	0.57	0.71	0.99	1.28	1.58	10yr	1.11	1.55	1.82	2.42	3.19	4.03	4.59	10yr	3.57	4.42	5.06	5.90	6.70	10yr
25yr	0.42	0.64	0.80	1.14	1.51	1.88	25yr	1.30	1.83	2.14	2.83	3.69	4.71	5.46	25yr	4.17	5.25	5.99	6.86	7.76	25yr
50yr	0.46	0.70	0.87	1.25	1.69	2.12	50yr	1.46	2.07	2.41	3.20	4.14	5.30	6.21	50yr	4.69	5.97	6.80	7.63	8.62	50yr
100yr	0.50	0.76	0.95	1.38	1.89	2.40	100yr	1.63	2.35	2.72	3.48	4.66	5.92	7.06	100yr	5.24	6.79	7.69	8.49	9.54	100yr
200yr	0.55	0.82	1.04	1.51	2.10	2.70	200yr	1.82	2.64	3.09	3.88	5.23	6.59	8.00	200yr	5.83	7.70	8.69	9.42	10.50	200yr
500yr	0.62	0.92	1.18	1.72	2.44	3.18	500yr	2.11	3.11	3.63	4.46	6.07	7.60	9.44	500yr	6.73	9.08	10.17	10.75	11.81	500yr

## Upper Confidence Limits

	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	0.69	0.85	1.09	1yr	0.74	1.06	1.25	1.72	2.22	2.80	3.18	1yr	2.48	3.06	3.55	4.25	4.77	1yr
2yr	0.33	0.51	0.63	0.86	1.05	1.27	2yr	0.91	1.25	1.48	2.01	2.60	3.26	3.63	2yr	2.89	3.49	4.03	4.80	5.46	2yr
5yr	0.41	0.63	0.78	1.08	1.37	1.65	5yr	1.18	1.61	1.93	2.61	3.40	4.22	4.79	5yr	3.73	4.61	5.29	6.19	6.96	5yr
10yr	0.49	0.75	0.93	1.30	1.68	2.02	10yr	1.45	1.97	2.35	3.20	4.21	5.16	5.93	10yr	4.57	5.70	6.53	7.51	8.41	10yr
25yr	0.63	0.95	1.18	1.69	2.23	2.65	25yr	1.92	2.59	3.08	4.16	5.50	6.75	7.84	25yr	5.97	7.54	8.61	9.77	10.81	25yr
50yr	0.75	1.14	1.43	2.05	2.76	3.25	50yr	2.38	3.18	3.77	5.12	6.83	8.29	9.70	50yr	7.33	9.33	10.62	11.91	13.09	50yr
100yr	0.91	1.38	1.72	2.49	3.41	3.98	100yr	2.95	3.90	4.62	6.29	8.51	10.18	12.01	100yr	9.01	11.55	13.14	14.57	15.90	100yr
200yr	1.09	1.65	2.09	3.02	4.21	4.83	200yr	3.64	4.72	5.67	7.72	10.61	12.52	14.89	200yr	11.08	14.32	16.24	17.84	19.35	200yr
500yr	1.42	2.11	2.71	3.94	5.60	6.35	500yr	4.83	6.21	7.41	10.14	14.23	16.49	19.81	500yr	14.59	19.05	21.54	23.38	25.19	500yr



#### Routing Diagram for 2572-0011 EXISTING

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### Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.856	49	50-75% Grass cover, Fair, HSG A (1S)
0.009	68	<50% Grass cover, Poor, HSG A (2S)
0.094	39	>75% Grass cover, Good, HSG A (5S, 6S)
0.722	98	Paved parking, HSG A (1S, 2S, 3S, 4S, 5S)
0.130	98	Roofs, HSG A (6S)
<b>1.811</b>	<b>72</b>	<b>TOTAL AREA</b>



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**Soil Listing (all nodes)**

Area (acres)	Soil Group	Subcatchment Numbers
1.811	HSG A	1S, 2S, 3S, 4S, 5S, 6S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
<b>1.811</b>		<b>TOTAL AREA</b>

**2572-0011 EXISTING***Type III 24-hr 2-Year Rainfall=3.12"*

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment 1S:</b>	Runoff Area=42,099 sf 11.39% Impervious Runoff Depth=0.23" Flow Length=335' Tc=13.2 min CN=55 Runoff=0.08 cfs 0.018 af
<b>Subcatchment 2S:</b>	Runoff Area=14,042 sf 97.20% Impervious Runoff Depth=2.78" Flow Length=250' Tc=6.0 min CN=97 Runoff=0.96 cfs 0.075 af
<b>Subcatchment 3S:</b>	Runoff Area=4,105 sf 100.00% Impervious Runoff Depth=2.89" Flow Length=60' Slope=0.0150 '/' Tc=6.0 min CN=98 Runoff=0.29 cfs 0.023 af
<b>Subcatchment 4S:</b>	Runoff Area=1,961 sf 100.00% Impervious Runoff Depth=2.89" Flow Length=100' Slope=0.0150 '/' Tc=6.0 min CN=98 Runoff=0.14 cfs 0.011 af
<b>Subcatchment 5S:</b>	Runoff Area=10,370 sf 67.10% Impervious Runoff Depth=1.28" Flow Length=89' Slope=0.0150 '/' Tc=6.0 min CN=79 Runoff=0.35 cfs 0.025 af
<b>Subcatchment 6S:</b>	Runoff Area=6,331 sf 89.37% Impervious Runoff Depth=2.27" Tc=6.0 min CN=92 Runoff=0.38 cfs 0.028 af
<b>Pond 1P: Infiltration Basin</b>	Peak Elev=315.78' Storage=306 cf Inflow=0.35 cfs 0.025 af Discarded=0.07 cfs 0.025 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.025 af
<b>Pond 2P: Drywell</b>	Peak Elev=310.50' Storage=0.000 af Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
<b>Pond 7P: Driplines</b>	Peak Elev=314.88' Storage=0.010 af Inflow=0.38 cfs 0.028 af Outflow=0.05 cfs 0.028 af
<b>Link AP1: Analysis Point 1</b>	Inflow=0.96 cfs 0.093 af Primary=0.96 cfs 0.093 af
<b>Link AP2: Analysis Point 2</b>	Inflow=0.29 cfs 0.023 af Primary=0.29 cfs 0.023 af
<b>Link AP3: Analysis Point 3</b>	Inflow=0.14 cfs 0.011 af Primary=0.14 cfs 0.011 af
<b>Link AP4: Analysis Point 4</b>	Inflow=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af

**Total Runoff Area = 1.811 ac Runoff Volume = 0.179 af Average Runoff Depth = 1.19"**  
**52.95% Pervious = 0.959 ac 47.05% Impervious = 0.852 ac**

**2572-0011 EXISTING***Type III 24-hr 10-Year Rainfall=4.61"*

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment 1S:</b>	Runoff Area=42,099 sf 11.39% Impervious Runoff Depth=0.79" Flow Length=335' Tc=13.2 min CN=55 Runoff=0.52 cfs 0.064 af
<b>Subcatchment 2S:</b>	Runoff Area=14,042 sf 97.20% Impervious Runoff Depth=4.26" Flow Length=250' Tc=6.0 min CN=97 Runoff=1.44 cfs 0.114 af
<b>Subcatchment 3S:</b>	Runoff Area=4,105 sf 100.00% Impervious Runoff Depth=4.37" Flow Length=60' Slope=0.0150 '/' Tc=6.0 min CN=98 Runoff=0.42 cfs 0.034 af
<b>Subcatchment 4S:</b>	Runoff Area=1,961 sf 100.00% Impervious Runoff Depth=4.37" Flow Length=100' Slope=0.0150 '/' Tc=6.0 min CN=98 Runoff=0.20 cfs 0.016 af
<b>Subcatchment 5S:</b>	Runoff Area=10,370 sf 67.10% Impervious Runoff Depth=2.47" Flow Length=89' Slope=0.0150 '/' Tc=6.0 min CN=79 Runoff=0.69 cfs 0.049 af
<b>Subcatchment 6S:</b>	Runoff Area=6,331 sf 89.37% Impervious Runoff Depth=3.71" Tc=6.0 min CN=92 Runoff=0.60 cfs 0.045 af
<b>Pond 1P: Infiltration Basin</b>	Peak Elev=316.14' Storage=774 cf Inflow=0.69 cfs 0.049 af Discarded=0.08 cfs 0.049 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.049 af
<b>Pond 2P: Drywell</b>	Peak Elev=310.50' Storage=0.000 af Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
<b>Pond 7P: Driplines</b>	Peak Elev=316.43' Storage=0.017 af Inflow=0.60 cfs 0.045 af Outflow=0.07 cfs 0.045 af
<b>Link AP1: Analysis Point 1</b>	Inflow=1.69 cfs 0.178 af Primary=1.69 cfs 0.178 af
<b>Link AP2: Analysis Point 2</b>	Inflow=0.42 cfs 0.034 af Primary=0.42 cfs 0.034 af
<b>Link AP3: Analysis Point 3</b>	Inflow=0.20 cfs 0.016 af Primary=0.20 cfs 0.016 af
<b>Link AP4: Analysis Point 4</b>	Inflow=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af

**Total Runoff Area = 1.811 ac Runoff Volume = 0.323 af Average Runoff Depth = 2.14"**  
**52.95% Pervious = 0.959 ac 47.05% Impervious = 0.852 ac**

**2572-0011 EXISTING***Type III 24-hr 25-Year Rainfall=5.76"*

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment 1S:</b>	Runoff Area=42,099 sf 11.39% Impervious Runoff Depth=1.38" Flow Length=335' Tc=13.2 min CN=55 Runoff=1.07 cfs 0.111 af
<b>Subcatchment 2S:</b>	Runoff Area=14,042 sf 97.20% Impervious Runoff Depth=5.40" Flow Length=250' Tc=6.0 min CN=97 Runoff=1.81 cfs 0.145 af
<b>Subcatchment 3S:</b>	Runoff Area=4,105 sf 100.00% Impervious Runoff Depth=5.52" Flow Length=60' Slope=0.0150 '/' Tc=6.0 min CN=98 Runoff=0.53 cfs 0.043 af
<b>Subcatchment 4S:</b>	Runoff Area=1,961 sf 100.00% Impervious Runoff Depth=5.52" Flow Length=100' Slope=0.0150 '/' Tc=6.0 min CN=98 Runoff=0.25 cfs 0.021 af
<b>Subcatchment 5S:</b>	Runoff Area=10,370 sf 67.10% Impervious Runoff Depth=3.47" Flow Length=89' Slope=0.0150 '/' Tc=6.0 min CN=79 Runoff=0.97 cfs 0.069 af
<b>Subcatchment 6S:</b>	Runoff Area=6,331 sf 89.37% Impervious Runoff Depth=4.83" Tc=6.0 min CN=92 Runoff=0.77 cfs 0.059 af
<b>Pond 1P: Infiltration Basin</b>	Peak Elev=316.41' Storage=1,198 cf Inflow=0.97 cfs 0.069 af Discarded=0.09 cfs 0.069 af Primary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.069 af
<b>Pond 2P: Drywell</b>	Peak Elev=310.50' Storage=0.000 af Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
<b>Pond 7P: Driplines</b>	Peak Elev=317.73' Storage=0.024 af Inflow=0.77 cfs 0.059 af Outflow=0.08 cfs 0.059 af
<b>Link AP1: Analysis Point 1</b>	Inflow=2.49 cfs 0.256 af Primary=2.49 cfs 0.256 af
<b>Link AP2: Analysis Point 2</b>	Inflow=0.53 cfs 0.043 af Primary=0.53 cfs 0.043 af
<b>Link AP3: Analysis Point 3</b>	Inflow=0.25 cfs 0.021 af Primary=0.25 cfs 0.021 af
<b>Link AP4: Analysis Point 4</b>	Inflow=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af

**Total Runoff Area = 1.811 ac Runoff Volume = 0.448 af Average Runoff Depth = 2.97"**  
**52.95% Pervious = 0.959 ac 47.05% Impervious = 0.852 ac**

**2572-0011 EXISTING**

Type III 24-hr 10-Year Rainfall=4.61"

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**Summary for Subcatchment 1S:**

Runoff = 0.52 cfs @ 12.22 hrs, Volume= 0.064 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.61"

Area (sf)	CN	Description
4,796	98	Paved parking, HSG A
37,303	49	50-75% Grass cover, Fair, HSG A
42,099	55	Weighted Average
37,303		88.61% Pervious Area
4,796		11.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	100	0.0150	0.15		<b>Sheet Flow, Segment A-B</b> Grass: Short n= 0.150 P2= 3.00"
1.0	50	0.0150	0.86		<b>Shallow Concentrated Flow, Segment B-C</b> Short Grass Pasture Kv= 7.0 fps
0.8	185	0.0130	4.05	13.50	<b>Parabolic Channel, Segment C-D</b> W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.030 Earth, grassed & winding
13.2	335	Total			

**Summary for Subcatchment 2S:**

Runoff = 1.44 cfs @ 12.08 hrs, Volume= 0.114 af, Depth= 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.61"

Area (sf)	CN	Description
13,649	98	Paved parking, HSG A
393	68	<50% Grass cover, Poor, HSG A
14,042	97	Weighted Average
393		2.80% Pervious Area
13,649		97.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	30	0.3300	3.21		<b>Sheet Flow, Segment A-B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.6	110	0.0200	2.87		<b>Shallow Concentrated Flow, Segment B-C</b> Paved Kv= 20.3 fps
1.9	110	0.0200	0.99		<b>Shallow Concentrated Flow, Segment C-D</b> Short Grass Pasture Kv= 7.0 fps
2.7	250	Total, Increased to minimum Tc = 6.0 min			

**2572-0011 EXISTING**

Type III 24-hr 10-Year Rainfall=4.61"

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**Summary for Subcatchment 3S:**

Runoff = 0.42 cfs @ 12.08 hrs, Volume= 0.034 af, Depth= 4.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.61"

Area (sf)	CN	Description
4,105	98	Paved parking, HSG A
4,105		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	60	0.0150	1.07		<b>Sheet Flow, Segment A-B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
0.9	60	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment 4S:**

Runoff = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af, Depth= 4.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.61"

Area (sf)	CN	Description
1,961	98	Paved parking, HSG A
1,961		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0150	1.19		<b>Sheet Flow, Segment A-B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
1.4	100	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment 5S:**

Runoff = 0.69 cfs @ 12.09 hrs, Volume= 0.049 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.61"

Area (sf)	CN	Description
6,958	98	Paved parking, HSG A
3,412	39	>75% Grass cover, Good, HSG A
10,370	79	Weighted Average
3,412		32.90% Pervious Area
6,958		67.10% Impervious Area



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Type III 24-hr 10-Year Rainfall=4.61"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	89	0.0150	1.16		<b>Sheet Flow, Segmnet A-b</b>
					Smooth surfaces n= 0.011 P2= 3.00"
1.3	89	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment 6S:**

Runoff = 0.60 cfs @ 12.08 hrs, Volume= 0.045 af, Depth= 3.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.61"

Area (sf)	CN	Description
5,658	98	Roofs, HSG A
673	39	>75% Grass cover, Good, HSG A
6,331	92	Weighted Average
673		10.63% Pervious Area
5,658		89.37% Impervious Area

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

**Summary for Pond 1P: Infiltration Basin**

Inflow Area = 0.238 ac, 67.10% Impervious, Inflow Depth = 2.47" for 10-Year event  
 Inflow = 0.69 cfs @ 12.09 hrs, Volume= 0.049 af  
 Outflow = 0.08 cfs @ 12.83 hrs, Volume= 0.049 af, Atten= 88%, Lag= 44.3 min  
 Discarded = 0.08 cfs @ 12.83 hrs, Volume= 0.049 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Peak Elev= 316.14' @ 12.83 hrs Surf.Area= 1,451 sf Storage= 774 cf

Plug-Flow detention time= 83.6 min calculated for 0.049 af (100% of inflow)  
 Center-of-Mass det. time= 83.6 min ( 911.7 - 828.1 )

Volume	Invert	Avail.Storage	Storage Description
#1	315.50'	2,314 cf	<b>8.80'W x 111.00'L x 1.50'H Prismatic Z=3.0</b>

Device	Routing	Invert	Outlet Devices
#1	Discarded	315.50'	<b>2.410 in/hr Exfiltration over Wetted area</b> Phase-In= 0.01'
#2	Primary	316.50'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**2572-0011 EXISTING**

Type III 24-hr 10-Year Rainfall=4.61"

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**Discarded OutFlow** Max=0.08 cfs @ 12.83 hrs HW=316.14' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.08 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=315.50' TW=310.50' (Dynamic Tailwater)↑**2=Orifice/Grate** ( Controls 0.00 cfs)**Summary for Pond 2P: Drywell**

Inflow Area = 0.238 ac, 67.10% Impervious, Inflow Depth = 0.00" for 10-Year event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min  
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 310.50' @ 0.00 hrs Surf.Area= 0.001 ac Storage= 0.000 af

Flood Elev= 316.50' Surf.Area= 0.001 ac Storage= 0.005 af

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	310.50'	0.005 af	<b>6.67'D x 6.00'H Vertical Cone/Cylinder</b>

Device	Routing	Invert	Outlet Devices
#1	Discarded	310.50'	<b>2.410 in/hr Exfiltration over Wetted area</b>

**Discarded OutFlow** Max=0.00 cfs @ 0.00 hrs HW=310.50' (Free Discharge)↑**1=Exfiltration** (Passes 0.00 cfs of 0.00 cfs potential flow)**Summary for Pond 7P: Driplines**

Inflow Area = 0.145 ac, 89.37% Impervious, Inflow Depth = 3.71" for 10-Year event  
 Inflow = 0.60 cfs @ 12.08 hrs, Volume= 0.045 af  
 Outflow = 0.07 cfs @ 12.77 hrs, Volume= 0.045 af, Atten= 89%, Lag= 40.9 min  
 Discarded = 0.07 cfs @ 12.77 hrs, Volume= 0.045 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 316.43' @ 12.77 hrs Surf.Area= 0.013 ac Storage= 0.017 af

Plug-Flow detention time= 105.4 min calculated for 0.045 af (100% of inflow)

Center-of-Mass det. time= 105.4 min ( 890.7 - 785.3 )

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Type III 24-hr 10-Year Rainfall=4.61"

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Volume	Invert	Avail.Storage	Storage Description
#1	313.00'	0.022 af	<b>9.00'W x 54.00'L x 5.00'H Prismaoid 54'x9'</b> 0.056 af Overall x 40.0% Voids
#2	313.00'	0.000 af	<b>3.44'W x 3.14'L x 5.00'H Prismaoid 3.14'x3.44'</b> 0.001 af Overall x 40.0% Voids
#3	313.00'	0.001 af	<b>3.44'W x 9.40'L x 5.00'H Prismaoid 3.44'x9.4'</b> 0.004 af Overall x 40.0% Voids
#4	313.00'	0.001 af	<b>3.44'W x 6.90'L x 5.00'H Prismaoid 3.44'x6.9'</b> 0.003 af Overall x 40.0% Voids
		0.025 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	313.00'	<b>2.410 in/hr Exfiltration over Wetted area</b> Phase-In= 0.01'

**Discarded OutFlow** Max=0.07 cfs @ 12.77 hrs HW=316.43' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.07 cfs)**Summary for Link AP1: Analysis Point 1**

Inflow Area = 1.289 ac, 32.85% Impervious, Inflow Depth = 1.66" for 10-Year event  
 Inflow = 1.69 cfs @ 12.10 hrs, Volume= 0.178 af  
 Primary = 1.69 cfs @ 12.10 hrs, Volume= 0.178 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

**Summary for Link AP2: Analysis Point 2**

Inflow Area = 0.094 ac, 100.00% Impervious, Inflow Depth = 4.37" for 10-Year event  
 Inflow = 0.42 cfs @ 12.08 hrs, Volume= 0.034 af  
 Primary = 0.42 cfs @ 12.08 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

**Summary for Link AP3: Analysis Point 3**

Inflow Area = 0.045 ac, 100.00% Impervious, Inflow Depth = 4.37" for 10-Year event  
 Inflow = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af  
 Primary = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

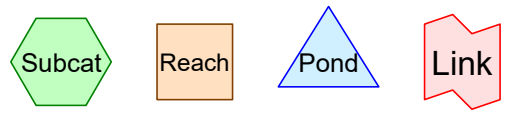
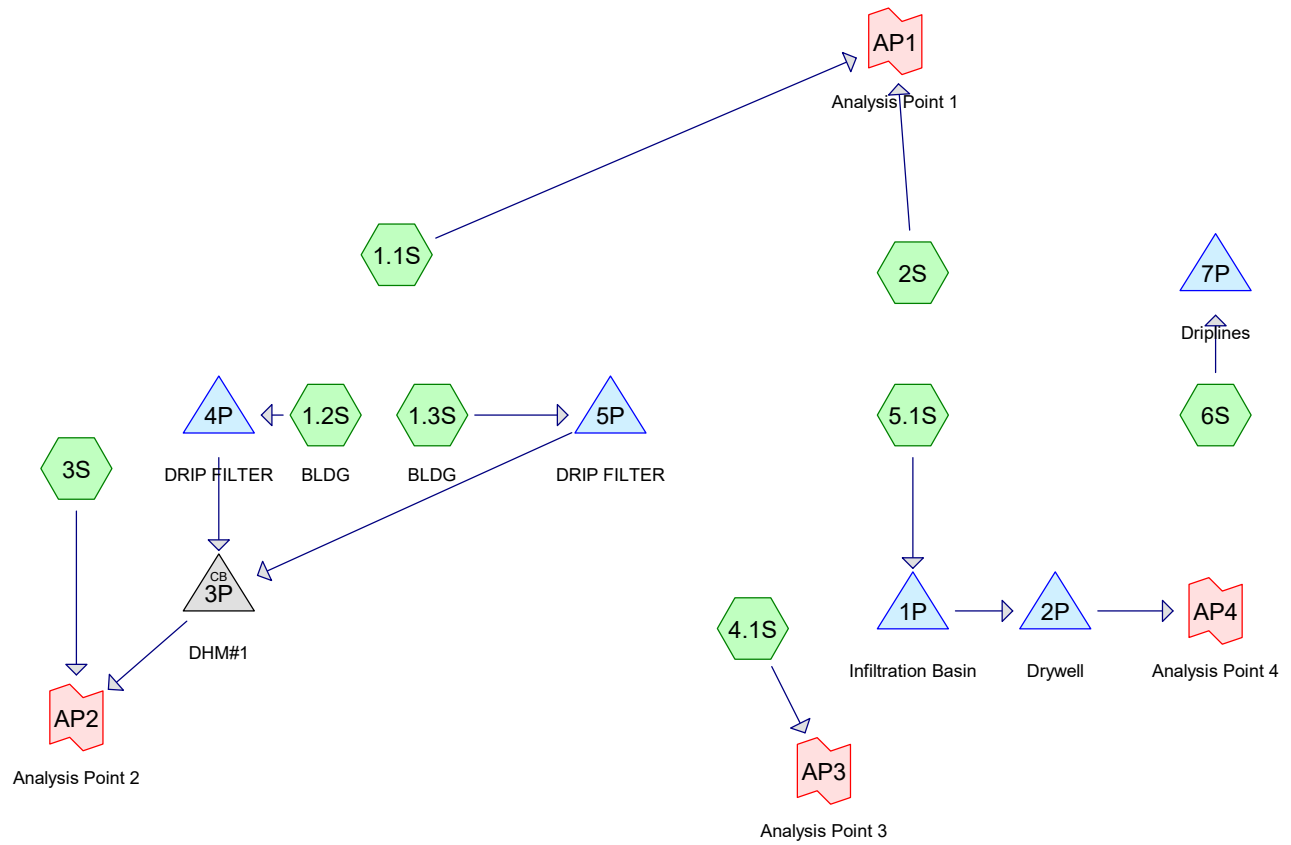
**Summary for Link AP4: Analysis Point 4**

Inflow Area = 0.238 ac, 67.10% Impervious, Inflow Depth = 0.00" for 10-Year event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

## **APPENDIX B**

### **Proposed Post Development Conditions**



## 2572-0011 PROPOSED

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### Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.781	49	50-75% Grass cover, Fair, HSG A (1.1S)
0.009	68	<50% Grass cover, Poor, HSG A (2S)
0.147	39	>75% Grass cover, Good, HSG A (3S, 5.1S, 6S)
0.698	98	Paved parking, HSG A (1.1S, 2S, 3S, 4.1S, 5.1S)
0.176	98	Roofs, HSG A (1.2S, 1.3S, 6S)
<b>1.811</b>	<b>72</b>	<b>TOTAL AREA</b>



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### Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
1.811	HSG A	1.1S, 1.2S, 1.3S, 2S, 3S, 4.1S, 5.1S, 6S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
<b>1.811</b>		<b>TOTAL AREA</b>

**2572-0011 PROPOSED***Type III 24-hr 2-Year Rainfall=3.12"*

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment 1.1S:</b>	Runoff Area=39,433 sf 13.75% Impervious Runoff Depth=0.25" Flow Length=335' Tc=14.2 min CN=56 Runoff=0.09 cfs 0.019 af
<b>Subcatchment 1.2S: BLDG</b>	Runoff Area=1,000 sf 100.00% Impervious Runoff Depth=2.89" Tc=6.0 min CN=98 Runoff=0.07 cfs 0.006 af
<b>Subcatchment 1.3S: BLDG</b>	Runoff Area=1,000 sf 100.00% Impervious Runoff Depth=2.89" Tc=6.0 min CN=98 Runoff=0.07 cfs 0.006 af
<b>Subcatchment 2S:</b>	Runoff Area=14,042 sf 97.20% Impervious Runoff Depth=2.78" Flow Length=250' Tc=6.0 min CN=97 Runoff=0.96 cfs 0.075 af
<b>Subcatchment 3S:</b>	Runoff Area=3,905 sf 40.18% Impervious Runoff Depth=0.48" Flow Length=60' Slope=0.0150 '/' Tc=6.0 min CN=63 Runoff=0.04 cfs 0.004 af
<b>Subcatchment 4.1S:</b>	Runoff Area=1,039 sf 100.00% Impervious Runoff Depth=2.89" Flow Length=100' Slope=0.0150 '/' Tc=6.0 min CN=98 Runoff=0.07 cfs 0.006 af
<b>Subcatchment 5.1S:</b>	Runoff Area=12,139 sf 71.89% Impervious Runoff Depth=1.41" Flow Length=89' Slope=0.0150 '/' Tc=6.0 min CN=81 Runoff=0.46 cfs 0.033 af
<b>Subcatchment 6S:</b>	Runoff Area=6,331 sf 89.37% Impervious Runoff Depth=2.27" Tc=6.0 min CN=92 Runoff=0.38 cfs 0.028 af
<b>Pond 1P: Infiltration Basin</b>	Peak Elev=315.90' Storage=445 cf Inflow=0.46 cfs 0.033 af Discarded=0.07 cfs 0.033 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.033 af
<b>Pond 2P: Drywell</b>	Peak Elev=310.50' Storage=0.000 af Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
<b>Pond 3P: DHM#1</b>	Peak Elev=314.30' Inflow=0.00 cfs 0.000 af 18.0" Round Culvert n=0.013 L=23.5' S=0.0128 '/' Outflow=0.00 cfs 0.000 af
<b>Pond 4P: DRIP FILTER</b>	Peak Elev=315.32' Storage=25 cf Inflow=0.07 cfs 0.006 af Discarded=0.03 cfs 0.006 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.006 af
<b>Pond 5P: DRIP FILTER</b>	Peak Elev=315.32' Storage=25 cf Inflow=0.07 cfs 0.006 af Discarded=0.03 cfs 0.006 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.006 af
<b>Pond 7P: Driplines</b>	Peak Elev=314.88' Storage=0.010 af Inflow=0.38 cfs 0.028 af Outflow=0.05 cfs 0.028 af
<b>Link AP1: Analysis Point 1</b>	Inflow=0.96 cfs 0.094 af Primary=0.96 cfs 0.094 af
<b>Link AP2: Analysis Point 2</b>	Inflow=0.04 cfs 0.004 af Primary=0.04 cfs 0.004 af

**2572-0011 PROPOSED***Type III 24-hr 2-Year Rainfall=3.12"*

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**Link AP3: Analysis Point 3**

Inflow=0.07 cfs 0.006 af

Primary=0.07 cfs 0.006 af

**Link AP4: Analysis Point 4**

Inflow=0.00 cfs 0.000 af

Primary=0.00 cfs 0.000 af

**Total Runoff Area = 1.811 ac   Runoff Volume = 0.174 af   Average Runoff Depth = 1.16"**  
**51.75% Pervious = 0.937 ac   48.25% Impervious = 0.874 ac**

**2572-0011 PROPOSED***Type III 24-hr 10-Year Rainfall=4.61"*

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment 1.1S:</b>	Runoff Area=39,433 sf 13.75% Impervious Runoff Depth=0.85" Flow Length=335' Tc=14.2 min CN=56 Runoff=0.53 cfs 0.064 af
<b>Subcatchment 1.2S: BLDG</b>	Runoff Area=1,000 sf 100.00% Impervious Runoff Depth=4.37" Tc=6.0 min CN=98 Runoff=0.10 cfs 0.008 af
<b>Subcatchment 1.3S: BLDG</b>	Runoff Area=1,000 sf 100.00% Impervious Runoff Depth=4.37" Tc=6.0 min CN=98 Runoff=0.10 cfs 0.008 af
<b>Subcatchment 2S:</b>	Runoff Area=14,042 sf 97.20% Impervious Runoff Depth=4.26" Flow Length=250' Tc=6.0 min CN=97 Runoff=1.44 cfs 0.114 af
<b>Subcatchment 3S:</b>	Runoff Area=3,905 sf 40.18% Impervious Runoff Depth=1.27" Flow Length=60' Slope=0.0150 '/' Tc=6.0 min CN=63 Runoff=0.12 cfs 0.009 af
<b>Subcatchment 4.1S:</b>	Runoff Area=1,039 sf 100.00% Impervious Runoff Depth=4.37" Flow Length=100' Slope=0.0150 '/' Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af
<b>Subcatchment 5.1S:</b>	Runoff Area=12,139 sf 71.89% Impervious Runoff Depth=2.64" Flow Length=89' Slope=0.0150 '/' Tc=6.0 min CN=81 Runoff=0.86 cfs 0.061 af
<b>Subcatchment 6S:</b>	Runoff Area=6,331 sf 89.37% Impervious Runoff Depth=3.71" Tc=6.0 min CN=92 Runoff=0.60 cfs 0.045 af
<b>Pond 1P: Infiltration Basin</b>	Peak Elev=316.31' Storage=1,037 cf Inflow=0.86 cfs 0.061 af Discarded=0.09 cfs 0.061 af Primary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.061 af
<b>Pond 2P: Drywell</b>	Peak Elev=310.50' Storage=0.000 af Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
<b>Pond 3P: DHM#1</b>	Peak Elev=314.30' Inflow=0.00 cfs 0.000 af 18.0" Round Culvert n=0.013 L=23.5' S=0.0128 '/' Outflow=0.00 cfs 0.000 af
<b>Pond 4P: DRIP FILTER</b>	Peak Elev=315.79' Storage=63 cf Inflow=0.10 cfs 0.008 af Discarded=0.03 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.008 af
<b>Pond 5P: DRIP FILTER</b>	Peak Elev=315.79' Storage=63 cf Inflow=0.10 cfs 0.008 af Discarded=0.03 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.008 af
<b>Pond 7P: Driplines</b>	Peak Elev=316.43' Storage=0.017 af Inflow=0.60 cfs 0.045 af Outflow=0.07 cfs 0.045 af
<b>Link AP1: Analysis Point 1</b>	Inflow=1.69 cfs 0.178 af Primary=1.69 cfs 0.178 af
<b>Link AP2: Analysis Point 2</b>	Inflow=0.12 cfs 0.009 af Primary=0.12 cfs 0.009 af

**2572-0011 PROPOSED***Type III 24-hr 10-Year Rainfall=4.61"*

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**Link AP3: Analysis Point 3**

Inflow=0.11 cfs 0.009 af

Primary=0.11 cfs 0.009 af

**Link AP4: Analysis Point 4**

Inflow=0.00 cfs 0.000 af

Primary=0.00 cfs 0.000 af

**Total Runoff Area = 1.811 ac   Runoff Volume = 0.320 af   Average Runoff Depth = 2.12"**  
**51.75% Pervious = 0.937 ac   48.25% Impervious = 0.874 ac**

**2572-0011 PROPOSED***Type III 24-hr 25-Year Rainfall=5.76"*

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment 1.1S:</b>	Runoff Area=39,433 sf 13.75% Impervious Runoff Depth=1.46" Flow Length=335' Tc=14.2 min CN=56 Runoff=1.05 cfs 0.110 af
<b>Subcatchment 1.2S: BLDG</b>	Runoff Area=1,000 sf 100.00% Impervious Runoff Depth=5.52" Tc=6.0 min CN=98 Runoff=0.13 cfs 0.011 af
<b>Subcatchment 1.3S: BLDG</b>	Runoff Area=1,000 sf 100.00% Impervious Runoff Depth=5.52" Tc=6.0 min CN=98 Runoff=0.13 cfs 0.011 af
<b>Subcatchment 2S:</b>	Runoff Area=14,042 sf 97.20% Impervious Runoff Depth=5.40" Flow Length=250' Tc=6.0 min CN=97 Runoff=1.81 cfs 0.145 af
<b>Subcatchment 3S:</b>	Runoff Area=3,905 sf 40.18% Impervious Runoff Depth=2.01" Flow Length=60' Slope=0.0150 '/' Tc=6.0 min CN=63 Runoff=0.20 cfs 0.015 af
<b>Subcatchment 4.1S:</b>	Runoff Area=1,039 sf 100.00% Impervious Runoff Depth=5.52" Flow Length=100' Slope=0.0150 '/' Tc=6.0 min CN=98 Runoff=0.13 cfs 0.011 af
<b>Subcatchment 5.1S:</b>	Runoff Area=12,139 sf 71.89% Impervious Runoff Depth=3.67" Flow Length=89' Slope=0.0150 '/' Tc=6.0 min CN=81 Runoff=1.19 cfs 0.085 af
<b>Subcatchment 6S:</b>	Runoff Area=6,331 sf 89.37% Impervious Runoff Depth=4.83" Tc=6.0 min CN=92 Runoff=0.77 cfs 0.059 af
<b>Pond 1P: Infiltration Basin</b>	Peak Elev=316.54' Storage=1,420 cf Inflow=1.19 cfs 0.085 af Discarded=0.10 cfs 0.080 af Primary=0.17 cfs 0.005 af Outflow=0.27 cfs 0.085 af
<b>Pond 2P: Drywell</b>	Peak Elev=316.09' Storage=0.004 af Inflow=0.17 cfs 0.005 af Outflow=0.01 cfs 0.005 af
<b>Pond 3P: DHM#1</b>	Peak Elev=314.30' Inflow=0.00 cfs 0.000 af 18.0" Round Culvert n=0.013 L=23.5' S=0.0128 '/' Outflow=0.00 cfs 0.000 af
<b>Pond 4P: DRIP FILTER</b>	Peak Elev=316.22' Storage=97 cf Inflow=0.13 cfs 0.011 af Discarded=0.03 cfs 0.011 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.011 af
<b>Pond 5P: DRIP FILTER</b>	Peak Elev=316.22' Storage=97 cf Inflow=0.13 cfs 0.011 af Discarded=0.03 cfs 0.011 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.011 af
<b>Pond 7P: Driplines</b>	Peak Elev=317.73' Storage=0.024 af Inflow=0.77 cfs 0.059 af Outflow=0.08 cfs 0.059 af
<b>Link AP1: Analysis Point 1</b>	Inflow=2.44 cfs 0.255 af Primary=2.44 cfs 0.255 af
<b>Link AP2: Analysis Point 2</b>	Inflow=0.20 cfs 0.015 af Primary=0.20 cfs 0.015 af



**2572-0011 PROPOSED***Type III 24-hr 25-Year Rainfall=5.76"*

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**Link AP3: Analysis Point 3**

Inflow=0.13 cfs 0.011 af

Primary=0.13 cfs 0.011 af

**Link AP4: Analysis Point 4**

Inflow=0.00 cfs 0.000 af

Primary=0.00 cfs 0.000 af

**Total Runoff Area = 1.811 ac   Runoff Volume = 0.446 af   Average Runoff Depth = 2.95"**  
**51.75% Pervious = 0.937 ac   48.25% Impervious = 0.874 ac**

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Type III 24-hr 10-Year Rainfall=4.61"

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**Summary for Subcatchment 1.1S:**

Runoff = 0.53 cfs @ 12.24 hrs, Volume= 0.064 af, Depth= 0.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.61"

Area (sf)	CN	Description
5,421	98	Paved parking, HSG A
34,012	49	50-75% Grass cover, Fair, HSG A
39,433	56	Weighted Average
34,012		86.25% Pervious Area
5,421		13.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	100	0.0150	0.15		<b>Sheet Flow, Segment A-B</b> Grass: Short n= 0.150 P2= 3.00"
1.0	50	0.0150	0.86		<b>Shallow Concentrated Flow, Segment B-C</b> Short Grass Pasture Kv= 7.0 fps
1.8	185	0.0130	1.76	5.87	<b>Parabolic Channel, Segment C-D</b> W=5.00' D=1.00' Area=3.3 sf Perim=5.5' n= 0.069 Riprap, 6-inch
14.2	335	Total			

**Summary for Subcatchment 1.2S: BLDG**

Runoff = 0.10 cfs @ 12.08 hrs, Volume= 0.008 af, Depth= 4.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.61"

Area (sf)	CN	Description
1,000	98	Roofs, HSG A
1,000		100.00% Impervious Area

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

**Summary for Subcatchment 1.3S: BLDG**

Runoff = 0.10 cfs @ 12.08 hrs, Volume= 0.008 af, Depth= 4.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.61"

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Type III 24-hr 10-Year Rainfall=4.61"

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Area (sf)	CN	Description
1,000	98	Roofs, HSG A
1,000		100.00% Impervious Area

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

**Summary for Subcatchment 2S:**

Runoff = 1.44 cfs @ 12.08 hrs, Volume= 0.114 af, Depth= 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.61"

Area (sf)	CN	Description
13,649	98	Paved parking, HSG A
393	68	<50% Grass cover, Poor, HSG A
14,042	97	Weighted Average
393		2.80% Pervious Area
13,649		97.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	30	0.3300	3.21		<b>Sheet Flow, Segment A-B</b> Smooth surfaces n= 0.011 P2= 3.00"
0.6	110	0.0200	2.87		<b>Shallow Concentrated Flow, Segment B-C</b> Paved Kv= 20.3 fps
1.9	110	0.0200	0.99		<b>Shallow Concentrated Flow, Segment C-D</b> Short Grass Pasture Kv= 7.0 fps
2.7	250	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment 3S:**

Runoff = 0.12 cfs @ 12.10 hrs, Volume= 0.009 af, Depth= 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.61"

Area (sf)	CN	Description
1,569	98	Paved parking, HSG A
2,336	39	>75% Grass cover, Good, HSG A
3,905	63	Weighted Average
2,336		59.82% Pervious Area
1,569		40.18% Impervious Area

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Type III 24-hr 10-Year Rainfall=4.61"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	60	0.0150	1.07		<b>Sheet Flow, Segment A-B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
0.9	60	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment 4.1S:**

Runoff = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af, Depth= 4.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.61"

Area (sf)	CN	Description
1,039	98	Paved parking, HSG A
1,039		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0150	1.19		<b>Sheet Flow, Segment A-B</b>
					Smooth surfaces n= 0.011 P2= 3.00"
1.4	100	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment 5.1S:**

Runoff = 0.86 cfs @ 12.09 hrs, Volume= 0.061 af, Depth= 2.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.61"

Area (sf)	CN	Description
8,727	98	Paved parking, HSG A
3,412	39	>75% Grass cover, Good, HSG A
12,139	81	Weighted Average
3,412		28.11% Pervious Area
8,727		71.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	89	0.0150	1.16		<b>Sheet Flow, Segment A-b</b>
					Smooth surfaces n= 0.011 P2= 3.00"
1.3	89	Total, Increased to minimum Tc = 6.0 min			

**Summary for Subcatchment 6S:**

Runoff = 0.60 cfs @ 12.08 hrs, Volume= 0.045 af, Depth= 3.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
Type III 24-hr 10-Year Rainfall=4.61"

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Type III 24-hr 10-Year Rainfall=4.61"

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Area (sf)	CN	Description
5,658	98	Roofs, HSG A
673	39	>75% Grass cover, Good, HSG A
6,331	92	Weighted Average
673		10.63% Pervious Area
5,658		89.37% Impervious Area

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

**Summary for Pond 1P: Infiltration Basin**

Inflow Area = 0.279 ac, 71.89% Impervious, Inflow Depth = 2.64" for 10-Year event  
 Inflow = 0.86 cfs @ 12.09 hrs, Volume= 0.061 af  
 Outflow = 0.09 cfs @ 12.94 hrs, Volume= 0.061 af, Atten= 90%, Lag= 51.3 min  
 Discarded = 0.09 cfs @ 12.94 hrs, Volume= 0.061 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Peak Elev= 316.31' @ 12.94 hrs Surf.Area= 1,584 sf Storage= 1,037 cf

Plug-Flow detention time= 107.8 min calculated for 0.061 af (100% of inflow)  
 Center-of-Mass det. time= 107.8 min ( 930.3 - 822.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	315.50'	2,314 cf	<b>8.80'W x 111.00'L x 1.50'H Prismatic Z=3.0</b>

Device	Routing	Invert	Outlet Devices
#1	Discarded	315.50'	<b>2.410 in/hr Exfiltration over Wetted area</b> Phase-In= 0.01'
#2	Primary	316.50'	<b>24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Discarded OutFlow** Max=0.09 cfs @ 12.94 hrs HW=316.31' (Free Discharge)  
 ↑**1=Exfiltration** (Exfiltration Controls 0.09 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=315.50' TW=310.50' (Dynamic Tailwater)  
 ↑**2=Orifice/Grate** ( Controls 0.00 cfs)

**Summary for Pond 2P: Drywell**

Inflow Area = 0.279 ac, 71.89% Impervious, Inflow Depth = 0.00" for 10-Year event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min  
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs  
 Peak Elev= 310.50' @ 0.00 hrs Surf.Area= 0.001 ac Storage= 0.000 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

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Type III 24-hr 10-Year Rainfall=4.61"

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Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	310.50'	0.005 af	<b>6.67'D x 6.00'H Vertical Cone/Cylinder</b>

Device	Routing	Invert	Outlet Devices
#1	Discarded	310.50'	<b>2.410 in/hr Exfiltration over Wetted area</b>

**Discarded OutFlow** Max=0.00 cfs @ 0.00 hrs HW=310.50' (Free Discharge)↑**1=Exfiltration** (Passes 0.00 cfs of 0.00 cfs potential flow)**Summary for Pond 3P: DHM#1**

Inflow Area = 0.046 ac, 100.00% Impervious, Inflow Depth = 0.00" for 10-Year event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 314.30' @ 0.00 hrs

Flood Elev= 318.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	314.30'	<b>18.0" Round Culvert</b> L= 23.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 314.30' / 314.00' S= 0.0128 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=314.30' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** ( Controls 0.00 cfs)**Summary for Pond 4P: DRIP FILTER**

Inflow Area = 0.023 ac, 100.00% Impervious, Inflow Depth = 4.37" for 10-Year event  
 Inflow = 0.10 cfs @ 12.08 hrs, Volume= 0.008 af  
 Outflow = 0.03 cfs @ 11.86 hrs, Volume= 0.008 af, Atten= 73%, Lag= 0.0 min  
 Discarded = 0.03 cfs @ 11.86 hrs, Volume= 0.008 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 315.79' @ 12.43 hrs Surf.Area= 200 sf Storage= 63 cf

Plug-Flow detention time= 9.9 min calculated for 0.008 af (100% of inflow)

Center-of-Mass det. time= 9.9 min ( 759.3 - 749.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	315.00'	241 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) 602 cf Overall x 40.0% Voids

**2572-0011 PROPOSED**

Type III 24-hr 10-Year Rainfall=4.61"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
315.00	200	0	0
318.01	200	602	602

Device	Routing	Invert	Outlet Devices
#1	Discarded	315.00'	<b>6.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.01'
#2	Primary	315.35'	<b>12.0" Round Culvert</b> L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 315.35' / 314.65' S= 0.0500 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	318.00'	<b>15.0" Horiz. Overflow</b> C= 0.600 Limited to weir flow at low heads
#4	Device 2	316.67'	<b>2.410 in/hr Soil Filter over Surface area from 316.67' - 317.67'</b> Excluded Surface area = 200 sf Phase-In= 0.01'

**Discarded OutFlow** Max=0.03 cfs @ 11.86 hrs HW=315.03' (Free Discharge)↑ **1=Exfiltration** (Exfiltration Controls 0.03 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=315.00' TW=314.30' (Dynamic Tailwater)↑ **2=Culvert** ( Controls 0.00 cfs)↑ **3=Overflow** ( Controls 0.00 cfs)↑ **4=Soil Filter** ( Controls 0.00 cfs)**Summary for Pond 5P: DRIP FILTER**

Inflow Area = 0.023 ac, 100.00% Impervious, Inflow Depth = 4.37" for 10-Year event  
 Inflow = 0.10 cfs @ 12.08 hrs, Volume= 0.008 af  
 Outflow = 0.03 cfs @ 11.86 hrs, Volume= 0.008 af, Atten= 73%, Lag= 0.0 min  
 Discarded = 0.03 cfs @ 11.86 hrs, Volume= 0.008 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 315.79' @ 12.43 hrs Surf.Area= 200 sf Storage= 63 cf

Plug-Flow detention time= 9.9 min calculated for 0.008 af (100% of inflow)

Center-of-Mass det. time= 9.9 min ( 759.3 - 749.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	315.00'	241 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) 602 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
315.00	200	0	0
318.01	200	602	602

Device	Routing	Invert	Outlet Devices
#1	Discarded	315.00'	<b>6.000 in/hr Exfiltration over Surface area</b> Phase-In= 0.01'
#2	Primary	315.35'	<b>12.0" Round Culvert</b> L= 47.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 315.35' / 314.40' S= 0.0202 '/' Cc= 0.900

**2572-0011 PROPOSED**

Type III 24-hr 10-Year Rainfall=4.61"

Prepared by St.Germain

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n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf  
 #3 Device 2 318.00' **15.0" Horiz. Overflow** C= 0.600 Limited to weir flow at low heads  
 #4 Device 2 316.67' **2.410 in/hr Soil Filter over Surface area from 316.67' - 317.67'**  
 Excluded Surface area = 200 sf Phase-In= 0.01'

**Discarded OutFlow** Max=0.03 cfs @ 11.86 hrs HW=315.03' (Free Discharge)↑ **1=Exfiltration** (Exfiltration Controls 0.03 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=315.00' TW=314.30' (Dynamic Tailwater)↑ **2=Culvert** (Controls 0.00 cfs)↑ **3=Overflow** (Controls 0.00 cfs)↑ **4=Soil Filter** (Controls 0.00 cfs)**Summary for Pond 7P: Driplines**

Inflow Area = 0.145 ac, 89.37% Impervious, Inflow Depth = 3.71" for 10-Year event  
 Inflow = 0.60 cfs @ 12.08 hrs, Volume= 0.045 af  
 Outflow = 0.07 cfs @ 12.77 hrs, Volume= 0.045 af, Atten= 89%, Lag= 40.9 min  
 Discarded = 0.07 cfs @ 12.77 hrs, Volume= 0.045 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 316.43' @ 12.77 hrs Surf.Area= 0.013 ac Storage= 0.017 af

Plug-Flow detention time= 105.4 min calculated for 0.045 af (100% of inflow)

Center-of-Mass det. time= 105.4 min ( 890.7 - 785.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	313.00'	0.022 af	<b>9.00'W x 54.00'L x 5.00'H Prismatic 54'x9'</b> 0.056 af Overall x 40.0% Voids
#2	313.00'	0.000 af	<b>3.44'W x 3.14'L x 5.00'H Prismatic 3.14'x3.44'</b> 0.001 af Overall x 40.0% Voids
#3	313.00'	0.001 af	<b>3.44'W x 9.40'L x 5.00'H Prismatic 3.44'x9.4'</b> 0.004 af Overall x 40.0% Voids
#4	313.00'	0.001 af	<b>3.44'W x 6.90'L x 5.00'H Prismatic 3.44'x6.9'</b> 0.003 af Overall x 40.0% Voids
		0.025 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	313.00'	<b>2.410 in/hr Exfiltration over Wetted area</b> Phase-In= 0.01'

**Discarded OutFlow** Max=0.07 cfs @ 12.77 hrs HW=316.43' (Free Discharge)↑ **1=Exfiltration** (Exfiltration Controls 0.07 cfs)**Summary for Link AP1: Analysis Point 1**

Inflow Area = 1.228 ac, 35.66% Impervious, Inflow Depth = 1.74" for 10-Year event  
 Inflow = 1.69 cfs @ 12.10 hrs, Volume= 0.178 af  
 Primary = 1.69 cfs @ 12.10 hrs, Volume= 0.178 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs



**Summary for Link AP2: Analysis Point 2**

Inflow Area = 0.136 ac, 60.44% Impervious, Inflow Depth = 0.84" for 10-Year event  
Inflow = 0.12 cfs @ 12.10 hrs, Volume= 0.009 af  
Primary = 0.12 cfs @ 12.10 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

**Summary for Link AP3: Analysis Point 3**

Inflow Area = 0.024 ac, 100.00% Impervious, Inflow Depth = 4.37" for 10-Year event  
Inflow = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af  
Primary = 0.11 cfs @ 12.08 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

**Summary for Link AP4: Analysis Point 4**

Inflow Area = 0.279 ac, 71.89% Impervious, Inflow Depth = 0.00" for 10-Year event  
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

## **APPENDIX C**

### **Stormwater Treatment Calculations**

**Appendix C**  
**Stormwater Treatment Calculations**  
**Hanna Realty Associates, LLC**  
**839 Roosevelt Trail**  
**Windham, ME 04062**

Subcatchment	Impervious Area (SF)	Treated Impervious Area (SF)	% Treated	Treatment				
1.1S	5,421	0	0%					
1.2S	1,000	1,000	100%	Dripline filter				
1.3S	1,000	1,000	100%	Dripline filter				
2S	13,649	0	0%					
3S	1,569	0	0%					
4.1S	1,039	0	0%					
5S	8,727	8,727	100%	Infiltration Basin				
Total Impervious	32,405	10,727	33%					

Subcatchment	Landscape Area (Sqft)	Treated Landscape Area (Sqft)	% Treated	Treatment				
1.1S	34,012	0	0%					
1.2S	0	0	0%					
1.3S	0	0	0%					
2S	393	0	0%					
3S	2,336	0	0%					
4.1S	0	0	0%					
5S	3,412	3,412	100%	Infiltration Basin				
Total Landscape	40,153	3,412	8%					

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<b>Total Developed Treatment</b>	<b>72,558</b>	<b>14,139</b>	<b>19%</b>
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Proposed Treatment	Impervious Area (Sqft)	Volume Required (Cuft)	Landscaped Area (Sqft)	Volume Required (Cuft)	Water Quality Storage Depth (ft)	Total Area Required (Sqft)	Proposed Area (Sqft)	% Over Design
Infiltration Basin	8,727	1" x Area 727.25	3,412	0.4" x Area 113.73	1.5	560.66	968	73%

## **APPENDIX D**

### **Maintenance Plan for Stormwater Facilities**

**Hanna Realty Associates, LLC  
839 Roosevelt Trail  
Windham, Maine  
Maintenance Plan for Stormwater Facilities  
June 2019**

**Site Inspection and Maintenance During Construction**

Weekly inspections, as well as routine inspections following rainfalls, shall be conducted by the Owner on all temporary and permanent erosion control devices until final acceptance of the project (90% grass catch). Necessary repairs shall be made to correct undermining or deterioration. Final acceptance shall include a site inspection to verify the stability of all disturbed areas and slopes. Until final inspection, all erosion and sedimentation control measures shall immediately be cleaned and repaired, as required. Disposal of all temporary erosion control devices shall be the responsibility of the Owner.

**Post Construction Site Inspection and Maintenance**

The Owner shall be responsible for inspecting, maintaining and ensuring proper function of all stormwater treatment and conveyance facilities after the facility is constructed.

**Sweeping:** Paved areas shall be mechanically swept annually or more often, as necessary. The first sweeping shall take place after winter sanding operations terminate (prior to May 1). A second sweeping may occur prior to winter sanding operations in order to ensure adequate capacity of collection systems.

**Catch Basins/Drywells:** Catch basins and drywells shall be inspected each spring and fall to determine if cleaning is required. The spring inspection (and cleaning) shall occur after spring sweeping and the fall cleaning shall occur after all leaves have fallen. The cleaning shall include removal and proper disposal of accumulated sediments and floatable debris. Contracting with a cleaning contractor with a vacuum truck is the preferred method of catch basin cleaning. Absorbent logs in drywells shall be replaced every six months at a minimum.

**Ditches/Swales:** Open swales and ditches shall be inspected on a quarterly basis or after a major rainfall event to assure that debris or sediments do not reduce the effectiveness of the system. Any sign of erosion or blockage shall be immediately repaired to assure a vigorous growth to vegetation for the stability of the structure and proper functioning.

**Vegetated Ditches:** Vegetative grasses shall be mowed at least monthly during the growing season to a height of not less than 8 inches. Larger brush or trees must not be allowed to become established in the channel. Unless finely mulched, clippings shall be removed to minimize the amount of organic material accumulating in the swales. Any areas where the vegetation fails will be subject to erosion and shall be repaired and revegetated as necessary.

**Rip Rap Swales:** Where stone is displaced from constructed riprap areas, it shall be replaced and chinked to assure stability. With time, additional riprap may need to be added. Vegetation growing through riprap shall be removed on a yearly schedule.

**Culverts:** If sediment in culverts or piped drainage systems exceeds 20% of the diameter of the pipe, it shall be removed. This may be accomplished by mechanical means or hydraulic flushing. Care shall be taken to prevent the release of the sediments into the downstream receiving areas. All pipes shall be inspected on an annual basis.

**Rip Rap Inlets/Outlets:** The culvert inlets/outlets shall be inspected (flow bypass or undermining) and debris removed, as necessary. Repair any channelization if occurring and remove sediment build-up to assure potential storage volume and sheet flow characteristics of the discharge lip. The inspections shall be performed on a semi-annual basis at a minimum.

**Infiltration Basin:** The infiltration basin shall be inspected as follows:

1. At regular intervals, embankment areas shall be examined for cracks that are produced either by settlement or the beginning of shear slides.
2. The discharge from the internal drains shall be inspected for solid matter. Any noticeable increase of drain flow with a constant reservoir level or abnormal movement of solids is apt to be an indication of erosion.
3. Grass on the slopes and the interior shall be kept cut short, less than 6".
4. Trees and shrubs must be kept from growing in the basin.
5. Inspect monthly to insure that the basin drains within 24 hours following a rain event.

All defects found in inspections must be repaired immediately to prevent progressive deterioration.

**Maintenance Documentation:** The Stormwater Facilities Inspection Checklist (attached) shall be completed after each inspection.

## Stormwater Facilities Inspection Checklist

Facility: **Hanna Realty Associates, LLC**  
Location: **839 Roosevelt Trail**  
Town: **Windham, Maine**

Date: \_\_\_\_\_

Time: \_\_\_\_\_

Inspector: \_\_\_\_\_

Inspection/Maintenance Item	Frequency	Satisfactory/ Unsatisfactory	Maintenance Performed
<b>1. Parking Lots &amp; Drives</b>			
Sweep main drive and parking areas	Annual (Spring)		

Inspection/Maintenance Item	Frequency	Satisfactory/ Unsatisfactory	Maintenance Performed
<b>2. Catch Basins, Drywells, Drain Pipes</b>			
Clear debris	Semi-annual		
Check depth of sediment in sumps	Semi-annual		
Remove accumulated sediment	Annual		
Replace absorbent logs	Semi-annual		

Inspection/Maintenance Item	Frequency	Satisfactory/ Unsatisfactory	Maintenance Performed
<b>3. Rip Rap Inlets/Outlets</b>			
Inspect for bypassing	Semi-annual		
Remove accumulated sediment and debris	Semi-annual		

Inspection/Maintenance Item	Frequency	Satisfactory/ Unsatisfactory	Maintenance Performed
<b>4. Culverts and Ditches</b>			
Clear water course of debris	Semi-annual		
Check & repair visible erosion control stone	Semi-annual		
Check outlet stream for erosion or flooding	Semi-annual		
Repair / replace erosion control measures, as needed.	Semi-annual		

## Stormwater Facilities Inspection Checklist

Inspection/Maintenance Item	Frequency	Satisfactory/ Unsatisfactory	Maintenance Performed
<b>5. Infiltration basin</b>			
Check pond embankments for erosion	Semi-annual		
Remove accumulated sediment and debris	Annual		
Check to insure draining in 24 hours	Semi-annual		
Mow weekly or as needed	As needed		

Additional Comments: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

AUTHORIZED FACILITY PERSONNEL SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_