

Storm Water Management Report

COMMERCIAL & INDUSTRIAL FLEX SPACE

(SITE PLAN APPLICATION)

Project Location:

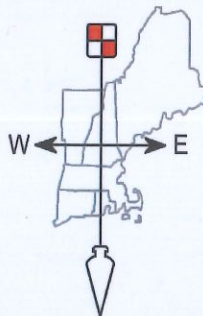
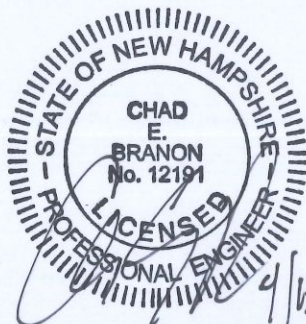
Tax Map 1, Lot 44
Blanch Farm Road
Greenville, NH

Prepared for:

Davis Village Properties, LLC
P.O. Box 508
New Ipswich, NH 03071

Date: April 13, 2023

Surveying ♦ Engineering ♦ Land Planning ♦ Permitting ♦ Septic Designs



FIELDSTONE
LAND CONSULTANTS, PLLC

206 Elm Street, Milford NH 03055
Phone: (603)-672-5456 Fax: (603)-413-5456
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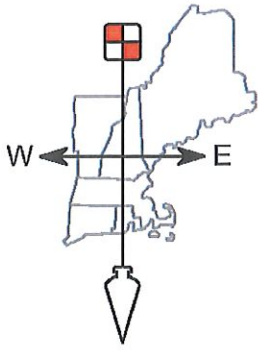
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STORM WATER MANAGEMENT REPORT BLANCH FARM ROAD GREENVILLE, NH

Prepared for:
Davis Village Properties, LLC

Date: April 13, 2023

I) INTRODUCTION

The following are storm water drainage calculations for the Commercial and Industrial Flex Space site plan development on Blanch Farm Road. The project area proposes to construct two (2) commercial/industrial flex spaces buildings of 4,000 and 16,800 square feet. The site is located on the west side of Blanch Farm Road, on lot 1-44. The site was previously a multi-family development. The site abuts commercial/industrial use to the south and Greenville Recycling to the north. Access to the project will be provided off Blanch Far Road. The project is situated on a single lot consisting of 12.172 acres. The parcel is known as Lot 44 on the Town of Greenville's Assessor's Map 1.

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

II) SITE DESCRIPTION

The site is currently vacant except for a garage and paved/gravel driveway leading to the structure. The site was previously developed as a multi-family residential. That development fell into disrepair and has since been demolished. The cleared area and grading for that development still remain, with a large relatively flat area adjacent to the right of way. There are large sections of wetlands to the west and it is otherwise entirely wooded. The sites slopes to the east and west at towards the wetlands and areas of standing water. NRCS soil survey maps indicated that the site consists of Monadnock fine sandy loam, Lyme fine sandy loam, and Skerry fine sandy loam. The first two listed soils are a Hydraulic Soil Group "B" and the third is a "C" soil.

III) METHODOLOGY

The quantity of runoff and the conveyance of that flow through the site are determined using the software package HydroCAD R 10.0-14 by HydroCAD Software Solutions, LLC. HydroCAD is a

computer aided design program for modeling storm water hydrology based on the Soil Conservation Service (SCS) TR-20 method combined with standard hydraulics calculations used to model detention basins and culverts.

Stormwater management systems and erosion control are designed in accordance with the methodology for the "Best Management Practices" (BMP's), as outlined in the New Hampshire Storm Water Manual, Volume 2.

IV) DRAINAGE DESIGN

In accordance with the Town of Greenville site plan regulations, drainage systems have been designed using the ten year, twenty-four hour storm event. The two year storm as well as the ten and fifty year storm events have therefore been included to compare the pre and post-development peak flow rates for the site (see attached comparison tables).

Pre-Development Drainage Conditions:

As can be seen on the Pre-Development Drainage Plans, the project area is broken up into two subcatchments that both drain west. There is a large area of standing water (OP1) to the west and a smaller area to the southwest (OP2).

Post-Development Drainage Conditions:

As can be seen on the Post-Development Drainage Plans, the drainage patterns of the site will remain similar to the exiting drainage patterns. The proposed buildings and parking areas will drain towards one of two detention basins (1P or 2P). Runoff from the large parking area at the northern half of the site (104S) drains into a catch basin (3P) and out the Detention Basin 1. This basin outlets to the larger wetlands (OP1). The smaller building and parking area to the south (202S) drain to detention basin 2 which outlets to OP2. Subcatchments 101S and 201S will remain largely unchanged.

The net result is that paved areas will receive qualitative treatment and, due to the retention capabilities of the BMP's on site there will be a reduction of peak rates of runoff leaving this site for all storm events.

VI) SUMMARY

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

The storm water management design for this project therefore complies with the storm water standards set forth in the Town of Greenville's Stormwater Regulations.

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

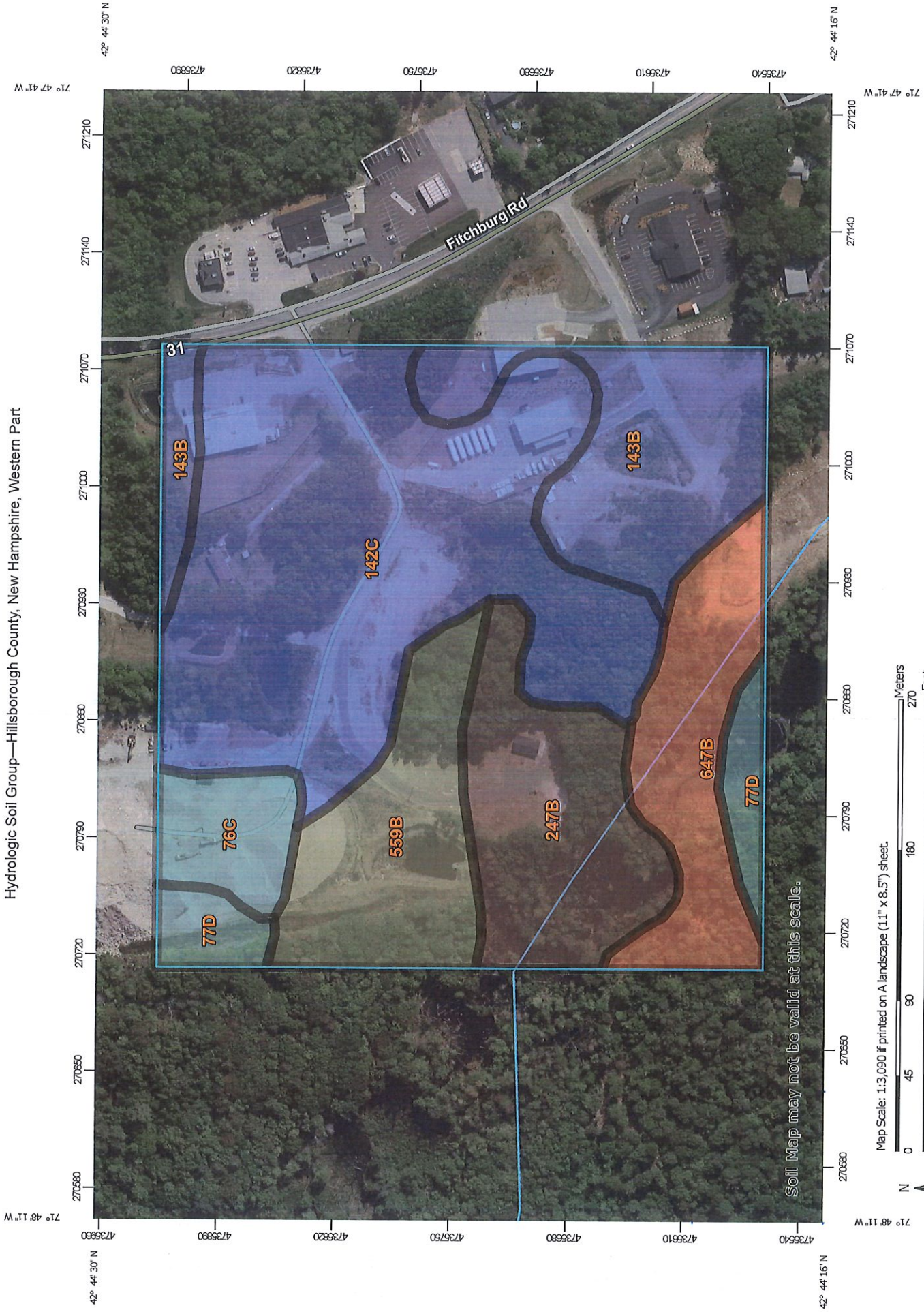
Table 1: Peak Flow Rates to Large Wetlands - OP1

STORM FREQUENCY	PRE-DEV. RUNOFF (CFS)	POST-DEV. RUNOFF (CFS)	CHANGE (CFS)
2-YEAR	1.58	1.21	-0.37
10-YEAR	6.39	5.76	-0.63
50-YEAR	15.94	15.93	-0.01

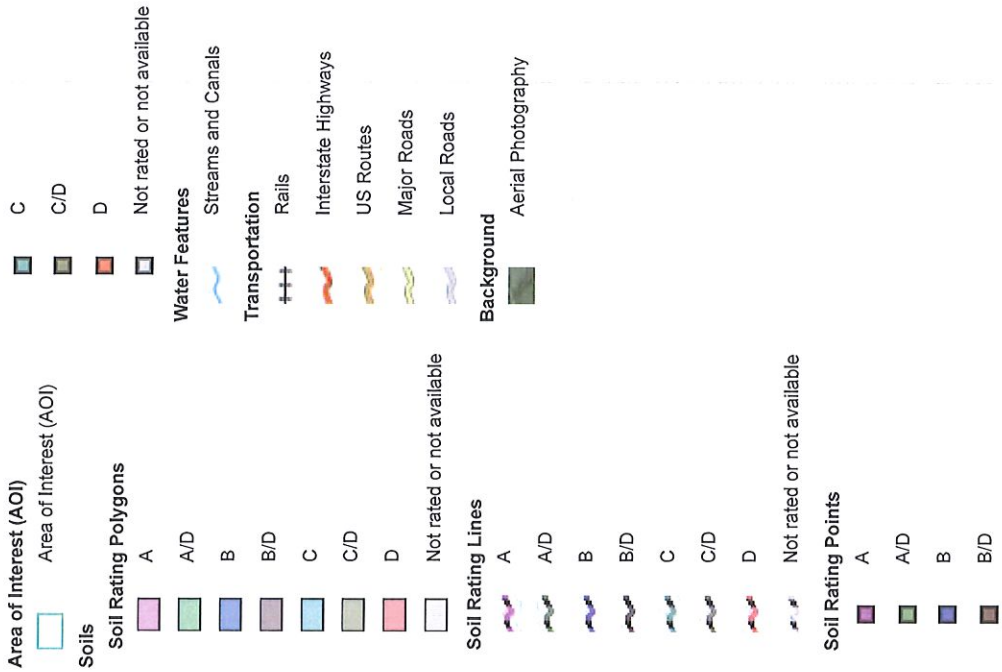
Table 2: Peak Flow Rates to Small Wetlands – OP2

STORM FREQUENCY	PRE-DEV. RUNOFF (CFS)	POST-DEV. RUNOFF (CFS)	CHANGE (CFS)
2-YEAR	0.72	0.61	-0.11
10-YEAR	1.58	1.10	-0.48
50-YEAR	3.00	1.84	-1.16

Hydrologic Soil Group—Hillsborough County, New Hampshire, Western Part



MAP LEGEND



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, Western Part
 Survey Area Data: Version 24, Sep 12, 2022

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

Date(s) aerial images were photographed: May 22, 2022—Jun 5, 2022

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
76C	Marlow fine sandy loam, 8 to 15 percent slopes	C	1.5	4.6%
77D	Marlow fine sandy loam, 15 to 35 percent slopes, very stony	C	1.5	4.4%
142C	Monadnock fine sandy loam, 8 to 15 percent slopes	B	13.4	39.6%
143B	Monadnock fine sandy loam, 0 to 8 percent slopes, very stony	B	5.2	15.5%
247B	Lyme fine sandy loam, 0 to 8 percent slopes, very stony	B/D	4.5	13.2%
559B	Skerry fine sandy loam, 0 to 8 percent slopes, very stony	C/D	4.0	12.0%
647B	Pillsbury fine sandy loam, 0 to 8 percent slopes, very stony	D	3.6	10.8%
Totals for Area of Interest			33.8	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.

Metadata for Point	
Smoothing State	Yes
Location	
Latitude	42.741 degrees North
Longitude	71.797 degrees West
Elevation	260 feet
Date/Time	Thu Apr 13 2023 14:45:13 GMT-0400 (Eastern Daylight Time)

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr	
1yr	0.28	0.43	0.54	0.70	0.88	1.10	1yr	0.76	1.02	1.27	1.60	2.00	2.52	2.79	1yr
2yr	0.34	0.52	0.65	0.86	1.07	1.35	2yr	0.93	1.23	1.56	1.94	2.42	3.00	3.36	2yr
5yr	0.40	0.62	0.78	1.05	1.34	1.70	5yr	1.15	1.53	1.96	2.45	3.03	3.75	4.25	5yr
10yr	0.45	0.71	0.89	1.21	1.58	2.02	10yr	1.36	1.82	2.34	2.92	3.61	4.44	5.08	10yr
25yr	0.53	0.85	1.08	1.48	1.97	2.53	25yr	1.70	2.27	2.95	3.68	4.54	5.55	6.43	25yr
50yr	0.59	0.96	1.23	1.72	2.32	3.02	50yr	2.01	2.69	3.53	4.40	5.41	6.58	7.69	50yr
100yr	0.68	1.11	1.43	2.02	2.75	3.59	100yr	2.38	3.19	4.20	5.24	6.43	7.80	9.21	100yr
200yr	0.78	1.27	1.65	2.36	3.26	4.28	200yr	2.81	3.78	5.01	6.25	7.66	9.25	11.04	200yr
500yr	0.93	1.53	2.00	2.91	4.08	5.39	500yr	3.52	4.74	6.32	7.89	9.64	11.61	14.03	500yr

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr	
1yr	0.20	0.31	0.38	0.50	0.62	0.80	1yr	0.54	0.78	1.00	1.40	1.69	2.14	2.54	1yr
2yr	0.32	0.50	0.62	0.83	1.03	1.21	2yr	0.89	1.18	1.36	1.76	2.25	2.92	3.28	2yr
5yr	0.36	0.56	0.69	0.95	1.21	1.41	5yr	1.05	1.38	1.64	2.12	2.70	3.47	3.97	5yr
10yr	0.40	0.61	0.76	1.06	1.38	1.58	10yr	1.19	1.54	1.76	2.41	3.06	4.07	4.59	10yr
25yr	0.45	0.69	0.86	1.23	1.61	1.83	25yr	1.39	1.79	2.03	2.86	3.59	4.61	5.58	25yr
50yr	0.49	0.75	0.93	1.33	1.80	2.06	50yr	1.55	2.01	2.26	3.27	4.05	5.20	6.47	50yr
100yr	0.53	0.80	1.00	1.44	1.98	2.31	100yr	1.71	2.26	2.53	3.11	4.59	5.87	7.52	100yr
200yr	0.57	0.86	1.09	1.57	2.20	2.59	200yr	1.90	2.53	2.81	3.43	5.22	6.61	8.75	200yr
500yr	0.64	0.95	1.22	1.78	2.52	3.02	500yr	2.18	2.95	3.25	3.90	6.21	7.74	10.74	500yr

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr	
1yr	0.32	0.49	0.60	0.81	0.99	1.19	1yr	0.86	1.17	1.32	1.72	2.12	2.71	3.01	1yr
2yr	0.36	0.56	0.69	0.94	1.15	1.33	2yr	1.00	1.30	1.50	1.94	2.48	3.14	3.47	2yr
5yr	0.44	0.67	0.84	1.15	1.46	1.73	5yr	1.26	1.69	1.90	2.42	3.02	4.05	4.56	5yr
10yr	0.51	0.79	0.98	1.37	1.77	2.12	10yr	1.52	2.08	2.40	2.90	3.59	4.86	5.61	10yr
25yr	0.65	0.99	1.23	1.75	2.30	2.80	25yr	1.99	2.74	3.15	3.68	4.49	6.43	7.37	25yr

Section 1.1

Existing Conditions
2, 10 & 50 Year Storm Summary



LARGE WET AREA

WEST TO ADJACENT
PROPERTIES



SMALL WET AREA

EAST TO WETLANDS



1003.02_PRE_DEVELOPMENT

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.371	61	>75% Grass cover, Good, HSG B (1S, 2S)
0.195	74	>75% Grass cover, Good, HSG C (1S)
0.081	96	Gravel surface, HSG B (1S)
0.031	96	Gravel surface, HSG C (1S)
0.356	86	Newly graded area, HSG B (1S, 2S)
0.339	98	Paved parking, HSG B (1S, 2S)
0.031	98	Paved parking, HSG C (1S)
0.040	98	Roofs, HSG B (1S)
4.203	55	Woods, Good, HSG B (1S, 2S)
0.985	70	Woods, Good, HSG C (1S)
7.630	63	TOTAL AREA

1003.02_PRE_DEVELOPMENT

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
6.389	HSG B	1S, 2S
1.241	HSG C	1S
0.000	HSG D	
0.000	Other	
7.630		TOTAL AREA

1003.02 PRE DEVELOPMENT

Type III 24-hr 2-Year Rainfall=3.00"

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Summary for Subcatchment 1S: WEST TO ADJACENT PROPERTIES

Runoff = 1.58 cfs @ 12.25 hrs, Volume= 0.229 af, Depth> 0.40"
 Routed to Link OP1 : LARGE WET AREA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
1,330	98	Paved parking, HSG C
1,330	96	Gravel surface, HSG C
8,500	74	>75% Grass cover, Good, HSG C
42,910	70	Woods, Good, HSG C
7,570	98	Paved parking, HSG B
1,735	98	Roofs, HSG B
3,520	96	Gravel surface, HSG B
7,500	86	Newly graded area, HSG B
52,355	61	>75% Grass cover, Good, HSG B
175,563	55	Woods, Good, HSG B
302,313	62	Weighted Average
291,678		96.48% Pervious Area
10,635		3.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	75	0.0200	0.16		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.00"
0.8	75	0.0500	1.57		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
0.4	50	0.1500	1.94		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
2.8	500	0.0300	2.96	2.37	Parabolic Channel, D-E W=3.00' D=0.40' Area=0.8 sf Perim=3.1' n= 0.035 Earth, dense weeds
12.0	700	Total			

Summary for Subcatchment 2S: EAST TO WETLANDS

Runoff = 0.72 cfs @ 12.10 hrs, Volume= 0.055 af, Depth> 0.96"
 Routed to Link OP2 : SMALL WET AREA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.00"

1003.02_PRE_DEVELOPMENT

Type III 24-hr 2-Year Rainfall=3.00"

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Area (sf)	CN	Description
7,202	98	Paved parking, HSG B
0	98	Roofs, HSG B
8,000	86	Newly graded area, HSG B
7,369	61	>75% Grass cover, Good, HSG B
7,500	55	Woods, Good, HSG B
30,071	75	Weighted Average
22,869		76.05% Pervious Area
7,202		23.95% Impervious Area

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

Summary for Link OP1: LARGE WET AREA

Inflow Area = 6.940 ac, 3.52% Impervious, Inflow Depth > 0.40" for 2-Year event
 Inflow = 1.58 cfs @ 12.25 hrs, Volume= 0.229 af
 Primary = 1.58 cfs @ 12.25 hrs, Volume= 0.229 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Summary for Link OP2: SMALL WET AREA

Inflow Area = 0.690 ac, 23.95% Impervious, Inflow Depth > 0.96" for 2-Year event
 Inflow = 0.72 cfs @ 12.10 hrs, Volume= 0.055 af
 Primary = 0.72 cfs @ 12.10 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

1003.02 PRE DEVELOPMENT

Type III 24-hr 10-Year Rainfall=4.44"

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Summary for Subcatchment 1S: WEST TO ADJACENT PROPERTIES

Runoff = 6.39 cfs @ 12.19 hrs, Volume= 0.637 af, Depth> 1.10"
 Routed to Link OP1 : LARGE WET AREA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.44"

Area (sf)	CN	Description
1,330	98	Paved parking, HSG C
1,330	96	Gravel surface, HSG C
8,500	74	>75% Grass cover, Good, HSG C
42,910	70	Woods, Good, HSG C
7,570	98	Paved parking, HSG B
1,735	98	Roofs, HSG B
3,520	96	Gravel surface, HSG B
7,500	86	Newly graded area, HSG B
52,355	61	>75% Grass cover, Good, HSG B
175,563	55	Woods, Good, HSG B
302,313	62	Weighted Average
291,678		96.48% Pervious Area
10,635		3.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	75	0.0200	0.16		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.00"
0.8	75	0.0500	1.57		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
0.4	50	0.1500	1.94		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
2.8	500	0.0300	2.96	2.37	Parabolic Channel, D-E W=3.00' D=0.40' Area=0.8 sf Perim=3.1' n= 0.035 Earth, dense weeds
12.0	700	Total			

Summary for Subcatchment 2S: EAST TO WETLANDS

Runoff = 1.58 cfs @ 12.10 hrs, Volume= 0.115 af, Depth> 2.00"
 Routed to Link OP2 : SMALL WET AREA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.44"

1003.02_PRE_DEVELOPMENT

Type III 24-hr 10-Year Rainfall=4.44"

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Area (sf)	CN	Description
7,202	98	Paved parking, HSG B
0	98	Roofs, HSG B
8,000	86	Newly graded area, HSG B
7,369	61	>75% Grass cover, Good, HSG B
7,500	55	Woods, Good, HSG B
30,071	75	Weighted Average
22,869		76.05% Pervious Area
7,202		23.95% Impervious Area

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

Summary for Link OP1: LARGE WET AREA

Inflow Area = 6.940 ac, 3.52% Impervious, Inflow Depth > 1.10" for 10-Year event
 Inflow = 6.39 cfs @ 12.19 hrs, Volume= 0.637 af
 Primary = 6.39 cfs @ 12.19 hrs, Volume= 0.637 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Summary for Link OP2: SMALL WET AREA

Inflow Area = 0.690 ac, 23.95% Impervious, Inflow Depth > 2.00" for 10-Year event
 Inflow = 1.58 cfs @ 12.10 hrs, Volume= 0.115 af
 Primary = 1.58 cfs @ 12.10 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

1003.02_PRE_DEVELOPMENT

Type III 24-hr 50-Year Rainfall=6.58"

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Summary for Subcatchment 1S: WEST TO ADJACENT PROPERTIES

Runoff = 15.94 cfs @ 12.18 hrs, Volume= 1.440 af, Depth> 2.49"
 Routed to Link OP1 : LARGE WET AREA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-Year Rainfall=6.58"

Area (sf)	CN	Description
1,330	98	Paved parking, HSG C
1,330	96	Gravel surface, HSG C
8,500	74	>75% Grass cover, Good, HSG C
42,910	70	Woods, Good, HSG C
7,570	98	Paved parking, HSG B
1,735	98	Roofs, HSG B
3,520	96	Gravel surface, HSG B
7,500	86	Newly graded area, HSG B
52,355	61	>75% Grass cover, Good, HSG B
175,563	55	Woods, Good, HSG B
302,313	62	Weighted Average
291,678		96.48% Pervious Area
10,635		3.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	75	0.0200	0.16		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.00"
0.8	75	0.0500	1.57		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
0.4	50	0.1500	1.94		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
2.8	500	0.0300	2.96	2.37	Parabolic Channel, D-E W=3.00' D=0.40' Area=0.8 sf Perim=3.1' n= 0.035 Earth, dense weeds
12.0	700	Total			

Summary for Subcatchment 2S: EAST TO WETLANDS

Runoff = 3.00 cfs @ 12.09 hrs, Volume= 0.217 af, Depth> 3.78"
 Routed to Link OP2 : SMALL WET AREA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-Year Rainfall=6.58"

1003.02_PRE_DEVELOPMENT

Type III 24-hr 50-Year Rainfall=6.58"

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Area (sf)	CN	Description
7,202	98	Paved parking, HSG B
0	98	Roofs, HSG B
8,000	86	Newly graded area, HSG B
7,369	61	>75% Grass cover, Good, HSG B
7,500	55	Woods, Good, HSG B
30,071	75	Weighted Average
22,869		76.05% Pervious Area
7,202		23.95% Impervious Area

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

Summary for Link OP1: LARGE WET AREA

Inflow Area = 6.940 ac, 3.52% Impervious, Inflow Depth > 2.49" for 50-Year event
 Inflow = 15.94 cfs @ 12.18 hrs, Volume= 1.440 af
 Primary = 15.94 cfs @ 12.18 hrs, Volume= 1.440 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

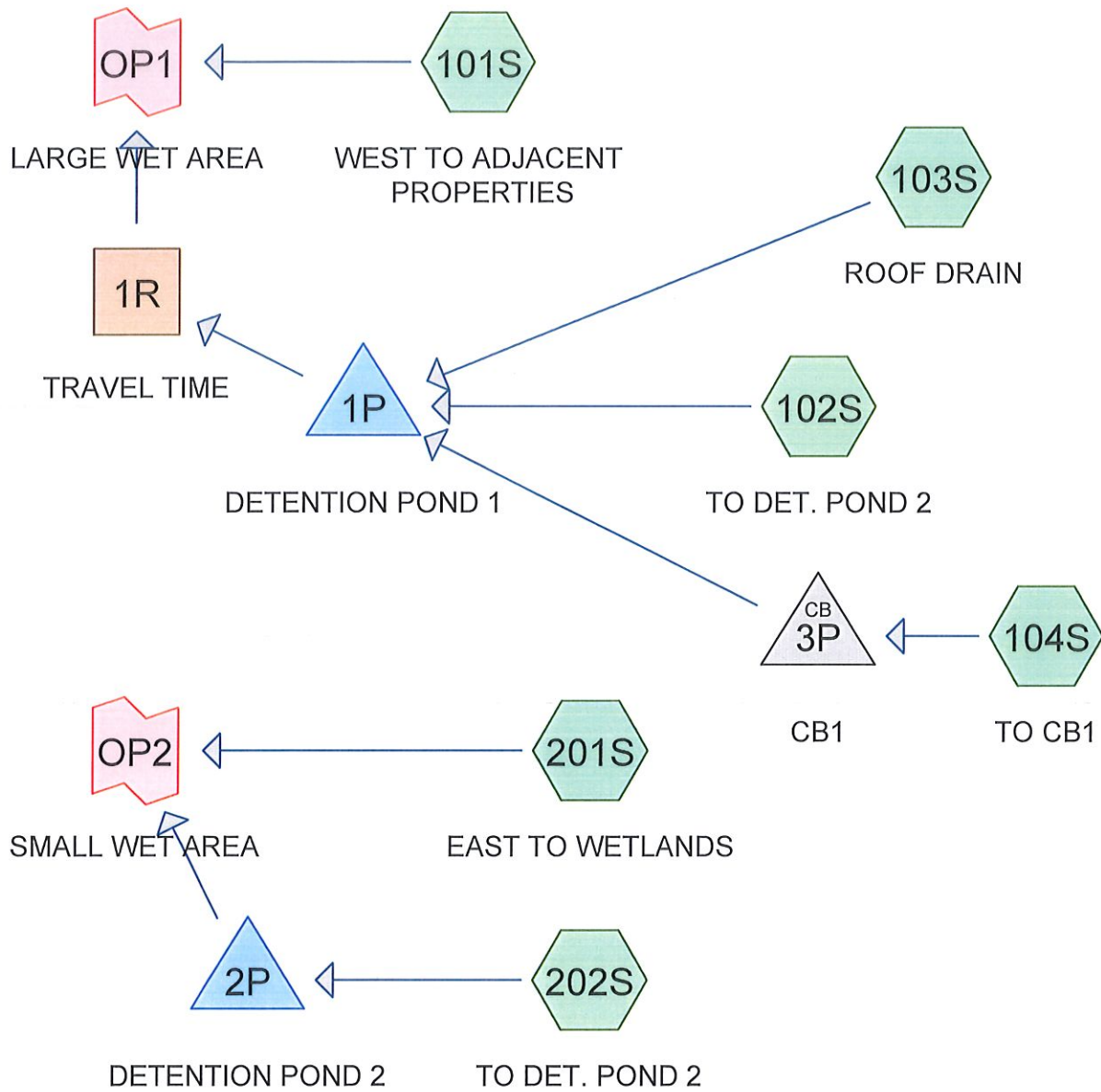
Summary for Link OP2: SMALL WET AREA

Inflow Area = 0.690 ac, 23.95% Impervious, Inflow Depth > 3.78" for 50-Year event
 Inflow = 3.00 cfs @ 12.09 hrs, Volume= 0.217 af
 Primary = 3.00 cfs @ 12.09 hrs, Volume= 0.217 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Section 2.1

Proposed Conditions
2, 10 & 50 Year Storm Summary



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.682	61	>75% Grass cover, Good, HSG B (101S, 104S, 201S, 202S)
0.278	74	>75% Grass cover, Good, HSG C (101S, 102S)
0.058	96	Gravel surface, HSG B (101S)
0.031	96	Gravel surface, HSG C (101S)
0.799	98	Paved parking, HSG B (101S, 104S, 202S)
0.021	98	Paved parking, HSG C (102S)
0.324	98	Roofs, HSG B (101S, 103S, 201S, 202S)
0.193	98	Roofs, HSG C (103S)
3.525	55	Woods, Good, HSG B (101S, 201S)
0.719	70	Woods, Good, HSG C (101S)
7.630	66	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
6.389	HSG B	101S, 103S, 104S, 201S, 202S
1.241	HSG C	101S, 102S, 103S
0.000	HSG D	
0.000	Other	
7.630		TOTAL AREA

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Type III 24-hr 2-Year Rainfall=3.00"

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Summary for Subcatchment 101S: WEST TO ADJACENT PROPERTIES

Runoff = 0.89 cfs @ 12.33 hrs, Volume= 0.149 af, Depth> 0.33"
 Routed to Link OP1 : LARGE WET AREA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
1,330	96	Gravel surface, HSG C
4,500	74	>75% Grass cover, Good, HSG C
31,332	70	Woods, Good, HSG C
1,220	98	Paved parking, HSG B
1,735	98	Roofs, HSG B
2,520	96	Gravel surface, HSG B
45,101	61	>75% Grass cover, Good, HSG B
146,315	55	Woods, Good, HSG B
234,053	60	Weighted Average
231,098		98.74% Pervious Area
2,955		1.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	75	0.0200	0.16		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.00"
0.8	75	0.0500	1.57		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
0.4	50	0.1500	1.94		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
2.8	500	0.0300	2.96	2.37	Parabolic Channel, D-E W=3.00' D=0.40' Area=0.8 sf Perim=3.1' n= 0.035 Earth, dense weeds
12.0	700	Total			

Summary for Subcatchment 102S: TO DET. POND 2

Runoff = 0.23 cfs @ 12.10 hrs, Volume= 0.017 af, Depth> 1.07"
 Routed to Pond 1P : DETENTION POND 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
900	98	Paved parking, HSG C
0	98	Roofs, HSG B
0	96	Gravel surface, HSG B
7,615	74	>75% Grass cover, Good, HSG C
0	55	Woods, Good, HSG B
8,515	77	Weighted Average
7,615		89.43% Pervious Area
900		10.57% Impervious Area

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Type III 24-hr 2-Year Rainfall=3.00"

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

Summary for Subcatchment 103S: ROOF DRAIN

Runoff = 1.09 cfs @ 12.09 hrs, Volume= 0.087 af, Depth> 2.72"
 Routed to Pond 1P : DETENTION POND 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
0	98	Paved parking, HSG B
8,400	98	Roofs, HSG B
8,400	98	Roofs, HSG C
0	61	>75% Grass cover, Good, HSG B
0	55	Woods, Good, HSG B
16,800	98	Weighted Average
16,800		100.00% Impervious Area

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

Summary for Subcatchment 104S: TO CB1

Runoff = 1.62 cfs @ 12.09 hrs, Volume= 0.118 af, Depth> 1.45"
 Routed to Pond 3P : CB1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
24,900	98	Paved parking, HSG B
0	98	Roofs, HSG B
0	96	Gravel surface, HSG B
17,686	61	>75% Grass cover, Good, HSG B
0	55	Woods, Good, HSG B
42,586	83	Weighted Average
17,686		41.53% Pervious Area
24,900		58.47% Impervious Area

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

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Type III 24-hr 2-Year Rainfall=3.00"

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Summary for Subcatchment 201S: EAST TO WETLANDS

Runoff = 0.10 cfs @ 12.12 hrs, Volume= 0.010 af, Depth> 0.47"
 Routed to Link OP2 : SMALL WET AREA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
0	98	Paved parking, HSG B
2,000	98	Roofs, HSG B
0	96	Gravel surface, HSG B
2,000	61	>75% Grass cover, Good, HSG B
7,242	55	Woods, Good, HSG B
11,242	64	Weighted Average
9,242		82.21% Pervious Area
2,000		17.79% Impervious Area

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

Summary for Subcatchment 202S: TO DET. POND 2

Runoff = 0.69 cfs @ 12.10 hrs, Volume= 0.051 af, Depth> 1.38"
 Routed to Pond 2P : DETENTION POND 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
8,690	98	Paved parking, HSG B
2,000	98	Roofs, HSG B
0	96	Gravel surface, HSG B
8,498	61	>75% Grass cover, Good, HSG B
0	55	Woods, Good, HSG B
19,188	82	Weighted Average
8,498		44.29% Pervious Area
10,690		55.71% Impervious Area

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

Summary for Reach 1R: TRAVEL TIME

Inflow Area = 1.559 ac, 62.74% Impervious, Inflow Depth > 1.69" for 2-Year event
 Inflow = 0.47 cfs @ 12.61 hrs, Volume= 0.220 af
 Outflow = 0.46 cfs @ 12.68 hrs, Volume= 0.219 af, Atten= 1%, Lag= 4.4 min
 Routed to Link OP1 : LARGE WET AREA

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Type III 24-hr 2-Year Rainfall=3.00"

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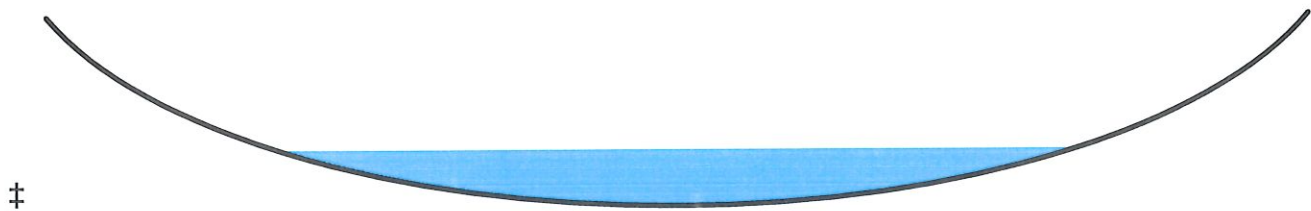
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Routing by Dyn-Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 1.71 fps, Min. Travel Time= 4.9 min
 Avg. Velocity = 1.06 fps, Avg. Travel Time= 7.9 min

Peak Storage= 135 cf @ 12.68 hrs
 Average Depth at Peak Storage= 0.15' , Surface Width= 2.72'
 Bank-Full Depth= 0.50' Flow Area= 1.7 sf, Capacity= 6.34 cfs

5.00' x 0.50' deep Parabolic Channel, n= 0.035 Earth, dense weeds
 Length= 500.0' Slope= 0.0360 '/'
 Inlet Invert= 864.00', Outlet Invert= 846.00'



Summary for Pond 1P: DETENTION POND 1

Inflow Area = 1.559 ac, 62.74% Impervious, Inflow Depth > 1.71" for 2-Year event
 Inflow = 2.95 cfs @ 12.09 hrs, Volume= 0.223 af
 Outflow = 0.47 cfs @ 12.61 hrs, Volume= 0.220 af, Atten= 84%, Lag= 30.9 min
 Primary = 0.47 cfs @ 12.61 hrs, Volume= 0.220 af
 Routed to Reach 1R : TRAVEL TIME

Routing by Dyn-Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 868.27' @ 12.61 hrs Surf.Area= 2,668 sf Storage= 3,807 cf

Plug-Flow detention time= 112.2 min calculated for 0.220 af (99% of inflow)
 Center-of-Mass det. time= 104.9 min (914.9 - 809.9)

Volume	Invert	Avail.Storage	Storage Description
#1	866.00'	10,035 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
866.00	750	0	0
868.00	2,380	3,130	3,130
870.00	4,525	6,905	10,035

Device	Routing	Invert	Outlet Devices
#1	Primary	865.00'	12.0" Round Culvert L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 865.00' / 864.70' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	866.00'	3.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	868.10'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Device 1	869.20'	22.5" x 29.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

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Type III 24-hr 2-Year Rainfall=3.00"

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#5 Primary 869.50' **4.0' long x 6.0' 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) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65
 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.47 cfs @ 12.61 hrs HW=868.27' TW=864.15' (Dynamic Tailwater)

- 1=Culvert (Passes 0.47 cfs of 4.97 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 0.35 cfs @ 7.05 fps)
- 3=Orifice/Grate (Orifice Controls 0.12 cfs @ 1.40 fps)
- 4=Orifice/Grate (Controls 0.00 cfs)
- 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 2P: DETENTION POND 2

Inflow Area = 0.440 ac, 55.71% Impervious, Inflow Depth > 1.38" for 2-Year event
 Inflow = 0.69 cfs @ 12.10 hrs, Volume= 0.051 af
 Outflow = 0.52 cfs @ 12.17 hrs, Volume= 0.050 af, Atten= 24%, Lag= 4.5 min
 Primary = 0.52 cfs @ 12.17 hrs, Volume= 0.050 af
 Routed to Link OP2 : SMALL WET AREA

Routing by Dyn-Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 868.56' @ 12.17 hrs Surf.Area= 471 sf Storage= 217 cf

Plug-Flow detention time= 13.1 min calculated for 0.050 af (99% of inflow)
 Center-of-Mass det. time= 8.5 min (847.3 - 838.8)

Volume	Invert	Avail.Storage	Storage Description
#1	868.00'	6,388 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
868.00	305	0	0
870.00	900	1,205	1,205
872.00	1,985	2,885	4,090
873.00	2,610	2,298	6,388

Device	Routing	Invert	Outlet Devices
#1	Primary	865.00'	12.0" Round Culvert L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 865.00' / 862.00' S= 0.1000 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	868.00'	6.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	870.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Device 1	873.00'	22.5" x 29.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

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Type III 24-hr 2-Year Rainfall=3.00"

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Primary OutFlow Max=0.52 cfs @ 12.17 hrs HW=868.55' TW=0.00' (Dynamic Tailwater)

- 1=Culvert (Passes 0.52 cfs of 5.21 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 0.52 cfs @ 2.64 fps)
- 3=Orifice/Grate (Controls 0.00 cfs)
- 4=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond 3P: CB1

Inflow Area = 0.978 ac, 58.47% Impervious, Inflow Depth > 1.45" for 2-Year event
Inflow = 1.62 cfs @ 12.09 hrs, Volume= 0.118 af
Outflow = 1.62 cfs @ 12.09 hrs, Volume= 0.118 af, Atten= 0%, Lag= 0.0 min
Primary = 1.62 cfs @ 12.09 hrs, Volume= 0.118 af
Routed to Pond 1P : DETENTION POND 1

Routing by Dyn-Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 869.21' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	868.50'	15.0" Round Culvert L= 70.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 868.50' / 867.80' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.60 cfs @ 12.09 hrs HW=869.20' TW=867.52' (Dynamic Tailwater)

- 1=Culvert (Inlet Controls 1.60 cfs @ 2.25 fps)

Summary for Link OP1: LARGE WET AREA

Inflow Area = 6.932 ac, 15.09% Impervious, Inflow Depth > 0.64" for 2-Year event
Inflow = 1.21 cfs @ 12.37 hrs, Volume= 0.368 af
Primary = 1.21 cfs @ 12.37 hrs, Volume= 0.368 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Summary for Link OP2: SMALL WET AREA

Inflow Area = 0.699 ac, 41.70% Impervious, Inflow Depth > 1.03" for 2-Year event
Inflow = 0.61 cfs @ 12.16 hrs, Volume= 0.060 af
Primary = 0.61 cfs @ 12.16 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

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Type III 24-hr 10-Year Rainfall=4.44"

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Summary for Subcatchment 101S: WEST TO ADJACENT PROPERTIES

Runoff = 4.24 cfs @ 12.20 hrs, Volume= 0.441 af, Depth> 0.98"
 Routed to Link OP1 : LARGE WET AREA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.44"

Area (sf)	CN	Description
1,330	96	Gravel surface, HSG C
4,500	74	>75% Grass cover, Good, HSG C
31,332	70	Woods, Good, HSG C
1,220	98	Paved parking, HSG B
1,735	98	Roofs, HSG B
2,520	96	Gravel surface, HSG B
45,101	61	>75% Grass cover, Good, HSG B
146,315	55	Woods, Good, HSG B
234,053	60	Weighted Average
231,098		98.74% Pervious Area
2,955		1.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	75	0.0200	0.16		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.00"
0.8	75	0.0500	1.57		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
0.4	50	0.1500	1.94		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
2.8	500	0.0300	2.96	2.37	Parabolic Channel, D-E W=3.00' D=0.40' Area=0.8 sf Perim=3.1' n= 0.035 Earth, dense weeds
12.0	700	Total			

Summary for Subcatchment 102S: TO DET. POND 2

Runoff = 0.48 cfs @ 12.09 hrs, Volume= 0.035 af, Depth> 2.16"
 Routed to Pond 1P : DETENTION POND 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.44"

Area (sf)	CN	Description
900	98	Paved parking, HSG C
0	98	Roofs, HSG B
0	96	Gravel surface, HSG B
7,615	74	>75% Grass cover, Good, HSG C
0	55	Woods, Good, HSG B
8,515	77	Weighted Average
7,615		89.43% Pervious Area
900		10.57% Impervious Area

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Type III 24-hr 10-Year Rainfall=4.44"

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

Summary for Subcatchment 103S: ROOF DRAIN

Runoff = 1.63 cfs @ 12.09 hrs, Volume= 0.132 af, Depth> 4.10"
 Routed to Pond 1P : DETENTION POND 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.44"

Area (sf)	CN	Description
0	98	Paved parking, HSG B
8,400	98	Roofs, HSG B
8,400	98	Roofs, HSG C
0	61	>75% Grass cover, Good, HSG B
0	55	Woods, Good, HSG B
16,800	98	Weighted Average
16,800		100.00% Impervious Area

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

Summary for Subcatchment 104S: TO CB1

Runoff = 3.00 cfs @ 12.09 hrs, Volume= 0.218 af, Depth> 2.67"
 Routed to Pond 3P : CB1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.44"

Area (sf)	CN	Description
24,900	98	Paved parking, HSG B
0	98	Roofs, HSG B
0	96	Gravel surface, HSG B
17,686	61	>75% Grass cover, Good, HSG B
0	55	Woods, Good, HSG B
42,586	83	Weighted Average
17,686		41.53% Pervious Area
24,900		58.47% Impervious Area

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

1003.02_POST_DEVELOPMENT

Type III 24-hr 10-Year Rainfall=4.44"

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Summary for Subcatchment 201S: EAST TO WETLANDS

Runoff = 0.33 cfs @ 12.10 hrs, Volume= 0.026 af, Depth> 1.23"
 Routed to Link OP2 : SMALL WET AREA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.44"

Area (sf)	CN	Description
0	98	Paved parking, HSG B
2,000	98	Roofs, HSG B
0	96	Gravel surface, HSG B
2,000	61	>75% Grass cover, Good, HSG B
7,242	55	Woods, Good, HSG B
11,242	64	Weighted Average
9,242		82.21% Pervious Area
2,000		17.79% Impervious Area

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

Summary for Subcatchment 202S: TO DET. POND 2

Runoff = 1.31 cfs @ 12.09 hrs, Volume= 0.095 af, Depth> 2.58"
 Routed to Pond 2P : DETENTION POND 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.44"

Area (sf)	CN	Description
8,690	98	Paved parking, HSG B
2,000	98	Roofs, HSG B
0	96	Gravel surface, HSG B
8,498	61	>75% Grass cover, Good, HSG B
0	55	Woods, Good, HSG B
19,188	82	Weighted Average
8,498		44.29% Pervious Area
10,690		55.71% Impervious Area

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

Summary for Reach 1R: TRAVEL TIME

Inflow Area = 1.559 ac, 62.74% Impervious, Inflow Depth > 2.93" for 10-Year event
 Inflow = 2.08 cfs @ 12.32 hrs, Volume= 0.381 af
 Outflow = 2.06 cfs @ 12.37 hrs, Volume= 0.380 af, Atten= 1%, Lag= 2.7 min
 Routed to Link OP1 : LARGE WET AREA

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Type III 24-hr 10-Year Rainfall=4.44"

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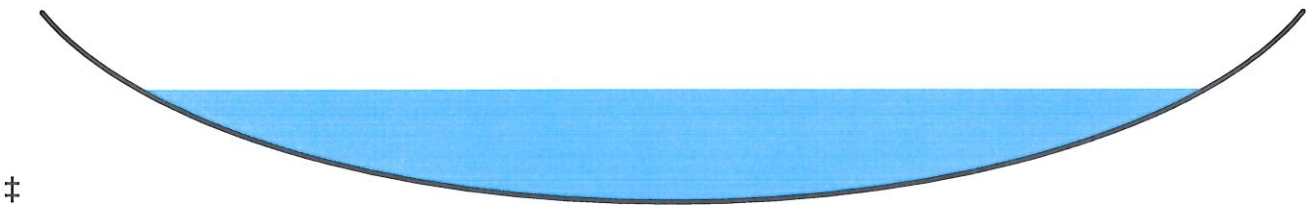
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Routing by Dyn-Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 2.70 fps, Min. Travel Time= 3.1 min
 Avg. Velocity = 1.24 fps, Avg. Travel Time= 6.7 min

Peak Storage= 381 cf @ 12.37 hrs
 Average Depth at Peak Storage= 0.30' , Surface Width= 3.85'
 Bank-Full Depth= 0.50' Flow Area= 1.7 sf, Capacity= 6.34 cfs

5.00' x 0.50' deep Parabolic Channel, n= 0.035 Earth, dense weeds
 Length= 500.0' Slope= 0.0360 '/'
 Inlet Invert= 864.00', Outlet Invert= 846.00'



Summary for Pond 1P: DETENTION POND 1

Inflow Area = 1.559 ac, 62.74% Impervious, Inflow Depth > 2.96" for 10-Year event
 Inflow = 5.11 cfs @ 12.09 hrs, Volume= 0.384 af
 Outflow = 2.08 cfs @ 12.32 hrs, Volume= 0.381 af, Atten= 59%, Lag= 14.0 min
 Primary = 2.08 cfs @ 12.32 hrs, Volume= 0.381 af
 Routed to Reach 1R : TRAVEL TIME

Routing by Dyn-Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 868.81' @ 12.32 hrs Surf.Area= 3,244 sf Storage= 5,394 cf

Plug-Flow detention time= 94.2 min calculated for 0.381 af (99% of inflow)
 Center-of-Mass det. time= 88.2 min (888.8 - 800.5)

Volume	Invert	Avail.Storage	Storage Description
#1	866.00'	10,035 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
866.00	750	0	0
868.00	2,380	3,130	3,130
870.00	4,525	6,905	10,035

Device	Routing	Invert	Outlet Devices
#1	Primary	865.00'	12.0" Round Culvert L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 865.00' / 864.70' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	866.00'	3.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	868.10'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Device 1	869.20'	22.5" x 29.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

1003.02_POST_DEVELOPMENT

Type III 24-hr 10-Year Rainfall=4.44"

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#5	Primary	869.50'	4.0' long x 6.0' 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) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65
			2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=2.07 cfs @ 12.32 hrs HW=868.80' TW=864.29' (Dynamic Tailwater)

- 1=Culvert (Passes 2.07 cfs of 5.43 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 0.39 cfs @ 7.88 fps)
- 3=Orifice/Grate (Orifice Controls 1.68 cfs @ 2.85 fps)
- 4=Orifice/Grate (Controls 0.00 cfs)
- 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 2P: DETENTION POND 2

Inflow Area = 0.440 ac, 55.71% Impervious, Inflow Depth > 2.58" for 10-Year event
 Inflow = 1.31 cfs @ 12.09 hrs, Volume= 0.095 af
 Outflow = 0.83 cfs @ 12.20 hrs, Volume= 0.094 af, Atten= 36%, Lag= 6.5 min
 Primary = 0.83 cfs @ 12.20 hrs, Volume= 0.094 af
 Routed to Link OP2 : SMALL WET AREA

Routing by Dyn-Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 869.02' @ 12.20 hrs Surf.Area= 609 sf Storage= 467 cf

Plug-Flow detention time= 11.3 min calculated for 0.094 af (99% of inflow)
 Center-of-Mass det. time= 8.1 min (828.8 - 820.8)

Volume	Invert	Avail.Storage	Storage Description
#1	868.00'	6,388 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
868.00	305	0	0
870.00	900	1,205	1,205
872.00	1,985	2,885	4,090
873.00	2,610	2,298	6,388

Device	Routing	Invert	Outlet Devices
#1	Primary	865.00'	12.0" Round Culvert L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 865.00' / 862.00' S= 0.1000 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	868.00'	6.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	870.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Device 1	873.00'	22.5" x 29.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

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Type III 24-hr 10-Year Rainfall=4.44"

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Primary OutFlow Max=0.83 cfs @ 12.20 hrs HW=869.02' TW=0.00' (Dynamic Tailwater)

- ↑1=Culvert (Passes 0.83 cfs of 5.60 cfs potential flow)
- | 2=Orifice/Grate (Orifice Controls 0.83 cfs @ 4.23 fps)
- | 3=Orifice/Grate (Controls 0.00 cfs)
- | 4=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond 3P: CB1

Inflow Area = 0.978 ac, 58.47% Impervious, Inflow Depth > 2.67" for 10-Year event
Inflow = 3.00 cfs @ 12.09 hrs, Volume= 0.218 af
Outflow = 3.00 cfs @ 12.09 hrs, Volume= 0.218 af, Atten= 0%, Lag= 0.0 min
Primary = 3.00 cfs @ 12.09 hrs, Volume= 0.218 af
Routed to Pond 1P : DETENTION POND 1

Routing by Dyn-Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 869.54' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	868.50'	15.0" Round Culvert L= 70.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 868.50' / 867.80' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.94 cfs @ 12.09 hrs HW=869.53' TW=868.36' (Dynamic Tailwater)

- ↑1=Culvert (Inlet Controls 2.94 cfs @ 2.72 fps)

Summary for Link OP1: LARGE WET AREA

Inflow Area = 6.932 ac, 15.09% Impervious, Inflow Depth > 1.42" for 10-Year event
Inflow = 5.76 cfs @ 12.24 hrs, Volume= 0.821 af
Primary = 5.76 cfs @ 12.24 hrs, Volume= 0.821 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Summary for Link OP2: SMALL WET AREA

Inflow Area = 0.699 ac, 41.70% Impervious, Inflow Depth > 2.07" for 10-Year event
Inflow = 1.10 cfs @ 12.14 hrs, Volume= 0.121 af
Primary = 1.10 cfs @ 12.14 hrs, Volume= 0.121 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

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Type III 24-hr 50-Year Rainfall=6.58"

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Summary for Subcatchment 101S: WEST TO ADJACENT PROPERTIES

Runoff = 11.28 cfs @ 12.18 hrs, Volume= 1.032 af, Depth> 2.30"
 Routed to Link OP1 : LARGE WET AREA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-Year Rainfall=6.58"

Area (sf)	CN	Description
1,330	96	Gravel surface, HSG C
4,500	74	>75% Grass cover, Good, HSG C
31,332	70	Woods, Good, HSG C
1,220	98	Paved parking, HSG B
1,735	98	Roofs, HSG B
2,520	96	Gravel surface, HSG B
45,101	61	>75% Grass cover, Good, HSG B
146,315	55	Woods, Good, HSG B
234,053	60	Weighted Average
231,098		98.74% Pervious Area
2,955		1.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	75	0.0200	0.16		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.00"
0.8	75	0.0500	1.57		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
0.4	50	0.1500	1.94		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
2.8	500	0.0300	2.96	2.37	Parabolic Channel, D-E W=3.00' D=0.40' Area=0.8 sf Perim=3.1' n= 0.035 Earth, dense weeds
12.0	700	Total			

Summary for Subcatchment 102S: TO DET. POND 2

Runoff = 0.89 cfs @ 12.09 hrs, Volume= 0.065 af, Depth> 3.99"
 Routed to Pond 1P : DETENTION POND 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-Year Rainfall=6.58"

Area (sf)	CN	Description
900	98	Paved parking, HSG C
0	98	Roofs, HSG B
0	96	Gravel surface, HSG B
7,615	74	>75% Grass cover, Good, HSG C
0	55	Woods, Good, HSG B
8,515	77	Weighted Average
7,615		89.43% Pervious Area
900		10.57% Impervious Area

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Type III 24-hr 50-Year Rainfall=6.58"

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

Summary for Subcatchment 103S: ROOF DRAIN

Runoff = 2.43 cfs @ 12.09 hrs, Volume= 0.197 af, Depth> 6.14"
 Routed to Pond 1P : DETENTION POND 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-Year Rainfall=6.58"

Area (sf)	CN	Description
0	98	Paved parking, HSG B
8,400	98	Roofs, HSG B
8,400	98	Roofs, HSG C
0	61	>75% Grass cover, Good, HSG B
0	55	Woods, Good, HSG B
16,800	98	Weighted Average
16,800		100.00% Impervious Area

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

Summary for Subcatchment 104S: TO CB1

Runoff = 5.11 cfs @ 12.09 hrs, Volume= 0.377 af, Depth> 4.63"
 Routed to Pond 3P : CB1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-Year Rainfall=6.58"

Area (sf)	CN	Description
24,900	98	Paved parking, HSG B
0	98	Roofs, HSG B
0	96	Gravel surface, HSG B
17,686	61	>75% Grass cover, Good, HSG B
0	55	Woods, Good, HSG B
42,586	83	Weighted Average
17,686		41.53% Pervious Area
24,900		58.47% Impervious Area

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

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Type III 24-hr 50-Year Rainfall=6.58"

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Summary for Subcatchment 201S: EAST TO WETLANDS

Runoff = 0.78 cfs @ 12.10 hrs, Volume= 0.058 af, Depth> 2.68"
 Routed to Link OP2 : SMALL WET AREA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-Year Rainfall=6.58"

Area (sf)	CN	Description
0	98	Paved parking, HSG B
2,000	98	Roofs, HSG B
0	96	Gravel surface, HSG B
2,000	61	>75% Grass cover, Good, HSG B
7,242	55	Woods, Good, HSG B
11,242	64	Weighted Average
9,242		82.21% Pervious Area
2,000		17.79% Impervious Area

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

Summary for Subcatchment 202S: TO DET. POND 2

Runoff = 2.26 cfs @ 12.09 hrs, Volume= 0.166 af, Depth> 4.52"
 Routed to Pond 2P : DETENTION POND 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 50-Year Rainfall=6.58"

Area (sf)	CN	Description
8,690	98	Paved parking, HSG B
2,000	98	Roofs, HSG B
0	96	Gravel surface, HSG B
8,498	61	>75% Grass cover, Good, HSG B
0	55	Woods, Good, HSG B
19,188	82	Weighted Average
8,498		44.29% Pervious Area
10,690		55.71% Impervious Area

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

Summary for Reach 1R: TRAVEL TIME

Inflow Area = 1.559 ac, 62.74% Impervious, Inflow Depth > 4.85" for 50-Year event
 Inflow = 5.74 cfs @ 12.19 hrs, Volume= 0.631 af
 Outflow = 5.64 cfs @ 12.22 hrs, Volume= 0.629 af, Atten= 2%, Lag= 2.0 min
 Routed to Link OP1 : LARGE WET AREA

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Type III 24-hr 50-Year Rainfall=6.58"

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Routing by Dyn-Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Max. Velocity= 3.65 fps, Min. Travel Time= 2.3 min
 Avg. Velocity = 1.42 fps, Avg. Travel Time= 5.9 min

Peak Storage= 768 cf @ 12.22 hrs
 Average Depth at Peak Storage= 0.47' , Surface Width= 4.87'
 Bank-Full Depth= 0.50' Flow Area= 1.7 sf, Capacity= 6.34 cfs

5.00' x 0.50' deep Parabolic Channel, n= 0.035 Earth, dense weeds
 Length= 500.0' Slope= 0.0360 '/'
 Inlet Invert= 864.00', Outlet Invert= 846.00'



Summary for Pond 1P: DETENTION POND 1

Inflow Area = 1.559 ac, 62.74% Impervious, Inflow Depth > 4.92" for 50-Year event
 Inflow = 8.43 cfs @ 12.09 hrs, Volume= 0.639 af
 Outflow = 5.74 cfs @ 12.19 hrs, Volume= 0.631 af, Atten= 32%, Lag= 5.8 min
 Primary = 5.74 cfs @ 12.19 hrs, Volume= 0.631 af
 Routed to Reach 1R : TRAVEL TIME

Routing by Dyn-Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 869.37' @ 12.19 hrs Surf.Area= 3,851 sf Storage= 7,403 cf

Plug-Flow detention time= 79.4 min calculated for 0.629 af (98% of inflow)
 Center-of-Mass det. time= 70.7 min (861.6 - 790.9)

Volume	Invert	Avail.Storage	Storage Description
#1	866.00'	10,035 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
866.00	750	0	0
868.00	2,380	3,130	3,130
870.00	4,525	6,905	10,035

Device	Routing	Invert	Outlet Devices
#1	Primary	865.00'	12.0" Round Culvert L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 865.00' / 864.70' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	866.00'	3.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	868.10'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Device 1	869.20'	22.5" x 29.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

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Type III 24-hr 50-Year Rainfall=6.58"

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#5 Primary 869.50' **4.0' long x 6.0' 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) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65
 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=5.64 cfs @ 12.19 hrs HW=869.37' TW=864.45' (Dynamic Tailwater)

- 1=Culvert (Passes 5.64 cfs of 5.87 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 0.43 cfs @ 8.67 fps)
- 3=Orifice/Grate (Orifice Controls 3.31 cfs @ 4.22 fps)
- 4=Orifice/Grate (Weir Controls 1.91 cfs @ 1.33 fps)
- 5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 2P: DETENTION POND 2

Inflow Area = 0.440 ac, 55.71% Impervious, Inflow Depth > 4.52" for 50-Year event
 Inflow = 2.26 cfs @ 12.09 hrs, Volume= 0.166 af
 Outflow = 1.17 cfs @ 12.24 hrs, Volume= 0.165 af, Atten= 48%, Lag= 9.0 min
 Primary = 1.17 cfs @ 12.24 hrs, Volume= 0.165 af
 Routed to Link OP2 : SMALL WET AREA

Routing by Dyn-Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 869.79' @ 12.24 hrs Surf.Area= 836 sf Storage= 1,020 cf

Plug-Flow detention time= 11.4 min calculated for 0.165 af (100% of inflow)
 Center-of-Mass det. time= 9.0 min (813.9 - 804.9)

Volume	Invert	Avail.Storage	Storage Description
#1	868.00'	6,388 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
868.00	305	0	0
870.00	900	1,205	1,205
872.00	1,985	2,885	4,090
873.00	2,610	2,298	6,388

Device	Routing	Invert	Outlet Devices
#1	Primary	865.00'	12.0" Round Culvert L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 865.00' / 862.00' S= 0.1000 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	868.00'	6.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	870.00'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Device 1	873.00'	22.5" x 29.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

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Type III 24-hr 50-Year Rainfall=6.58"

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Primary OutFlow Max=1.17 cfs @ 12.24 hrs HW=869.78' TW=0.00' (Dynamic Tailwater)

- 1=Culvert (Passes 1.17 cfs of 6.18 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 1.17 cfs @ 5.96 fps)
- 3=Orifice/Grate (Controls 0.00 cfs)
- 4=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond 3P: CB1

Inflow Area = 0.978 ac, 58.47% Impervious, Inflow Depth > 4.63" for 50-Year event
Inflow = 5.11 cfs @ 12.09 hrs, Volume= 0.377 af
Outflow = 5.11 cfs @ 12.09 hrs, Volume= 0.377 af, Atten= 0%, Lag= 0.0 min
Primary = 5.11 cfs @ 12.09 hrs, Volume= 0.377 af
Routed to Pond 1P : DETENTION POND 1

Routing by Dyn-Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 870.32' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	868.50'	15.0" Round Culvert L= 70.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 868.50' / 867.80' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.92 cfs @ 12.09 hrs HW=870.27' TW=869.16' (Dynamic Tailwater)

- 1=Culvert (Inlet Controls 4.92 cfs @ 4.01 fps)

Summary for Link OP1: LARGE WET AREA

Inflow Area = 6.932 ac, 15.09% Impervious, Inflow Depth > 2.88" for 50-Year event
Inflow = 16.70 cfs @ 12.20 hrs, Volume= 1.661 af
Primary = 16.70 cfs @ 12.20 hrs, Volume= 1.661 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Summary for Link OP2: SMALL WET AREA

Inflow Area = 0.699 ac, 41.70% Impervious, Inflow Depth > 3.83" for 50-Year event
Inflow = 1.84 cfs @ 12.12 hrs, Volume= 0.223 af
Primary = 1.84 cfs @ 12.12 hrs, Volume= 0.223 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Section 3.1

Stormwater Inspection &
Maintenance Manual

Commercial & Industrial Flex Space Map 1, Lot 44, Greenville, New Hampshire Storm Water Management System Inspection and Maintenance Manual

Introduction

The operation and maintenance of a storm water management system and its individual components is as critical to system performance as the design. Without proper maintenance, best management practices (BMPs) are likely to become functionally impaired. Proper operation and maintenance will ensure that the storm water system and individual BMPs will remain effective at removing pollutants as designed and meeting New Hampshire's water quality objectives. Proper maintenance will:

- Maintain the peak rate of storm water treated over the long term;
- Sustain the pollutant removal efficiency of the BMP;
- Reduce the risk of re-suspending sediment and other pollutants captured by the BMP;
- Prevent structural deterioration of the BMP and minimize the need for expensive repairs;
- Decrease the potential for failure of the BMP.

Responsible Maintenance Party:

Owner: Davis Village Properties, LLC
 P.O. Box 508
 New Ipswich, NH 03071

Report Information:

- Davis Village Properties, LLC or their assigns will be responsible for implementing the required reporting, inspection, and maintenance activities identified in the I & M manual.
- Davis Village Properties, LLC or their assigns will maintain all record keeping required by the I & M manual until such time as. Any transfer of responsibility for I & M activities or transfer in ownership shall be documented to the City of Laconia writing.
- Inspection and maintenance reports shall be completed after each inspection. Copies of the report forms to be completed by the inspector are attached at the end of this manual, including:
 - Inspection checklist to be used during each inspection;
 - Inspection and maintenance logs to document each inspection and maintenance activity;
- This document is to be used in conjunction with the Map D, Lot 99 Subdivision Plans.

Maintenance Recommendations for Best Management Practices:

The following recommendations are to be used as a guide for the inspection and maintenance of the permanent erosion and sediment control measures.

Stormwater Management Basin

- Basins should be inspected at least twice annually, and following any rainfall event exceeding 2.5 inches in a 24 hour period, with maintenance or rehabilitation conducted as warranted by such inspection.
- Pretreatment measures should be inspected twice annually, and cleaned of accumulated as warranted by inspection, but no less than once annually.
- Inspect, repair and remove debris from headwalls, end sections and riprap aprons.
- Remove woody vegetation from the Stormwater Management Basin.
- Remove accumulated sediment from basin bottom and crushed stone as necessary.
- Dispose of sediments and other wastes in conformance with applicable local, state and federal regulations.
- The stormwater basin is lined with an impermeable liner. Care shall be taken during maintenance activities to preserve the integrity of the liner. In the event that the liner is damaged during maintenance then the damaged area shall be excavated using hand tools and the liner repaired in accordance with the manufacturer's specifications. The disturbed area shall be covered and reseeded.

Outlets - Headwalls

- Inspect the outlet annually for damage and deterioration. Repair damages immediately.
- Remove debris from headwall area.

Drainage Ditches

- Inspect annually for sediment accumulation, debris, and signs of erosion within the channel.
- Remove debris upon inspection and mow annually to control woody vegetation within the ditch.
- Remove sediment when accumulation exceeds 33% of channel depth.
- Repair any erosion and re-grade or replace stone material as warranted by inspection
- Repair any erosion and re-grade or replace stone berm material, as 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.

Outlet Protection - Riprap Aprons

- Inspect the outlet protection annually for damage and deterioration. Repair damages immediately.

- Remove debris from apron area.

Inspection Checklist /Maintenance Logs

The inspection checklist and maintenance logs following this report shall be used as a guide for the inspection reporting for this project.

Inspection Checklist

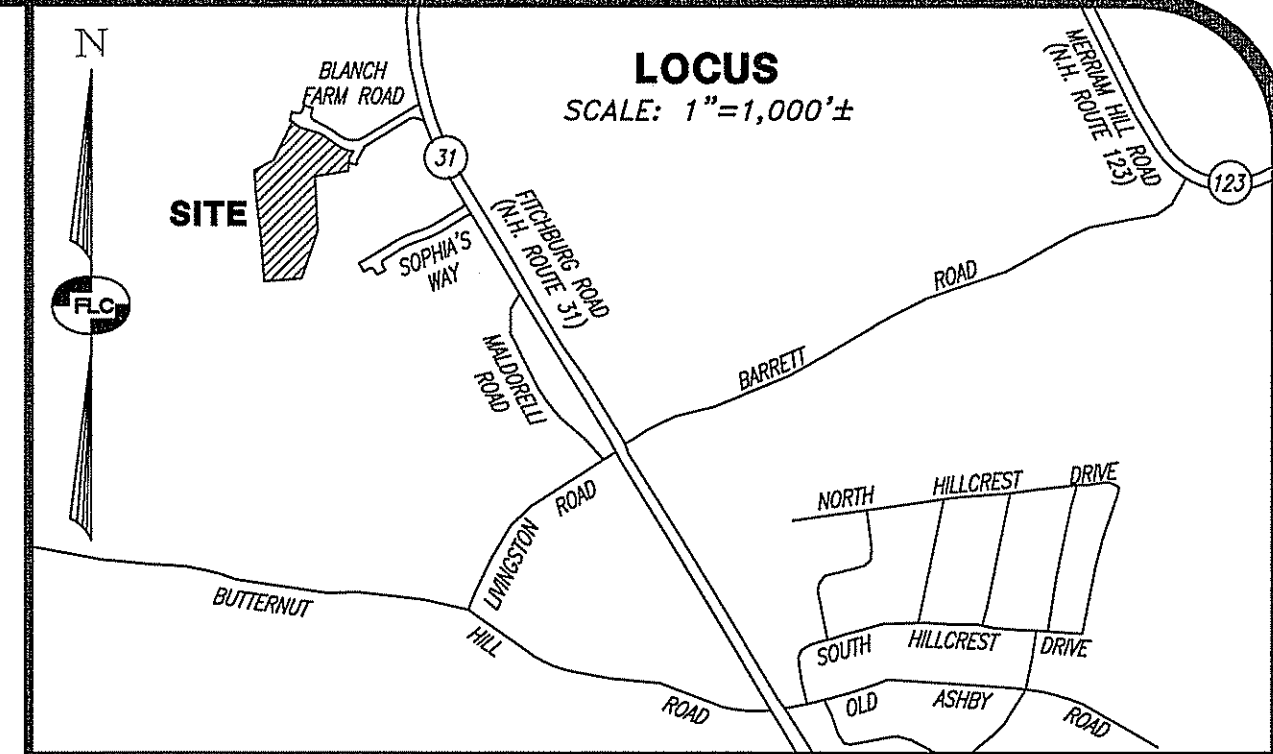
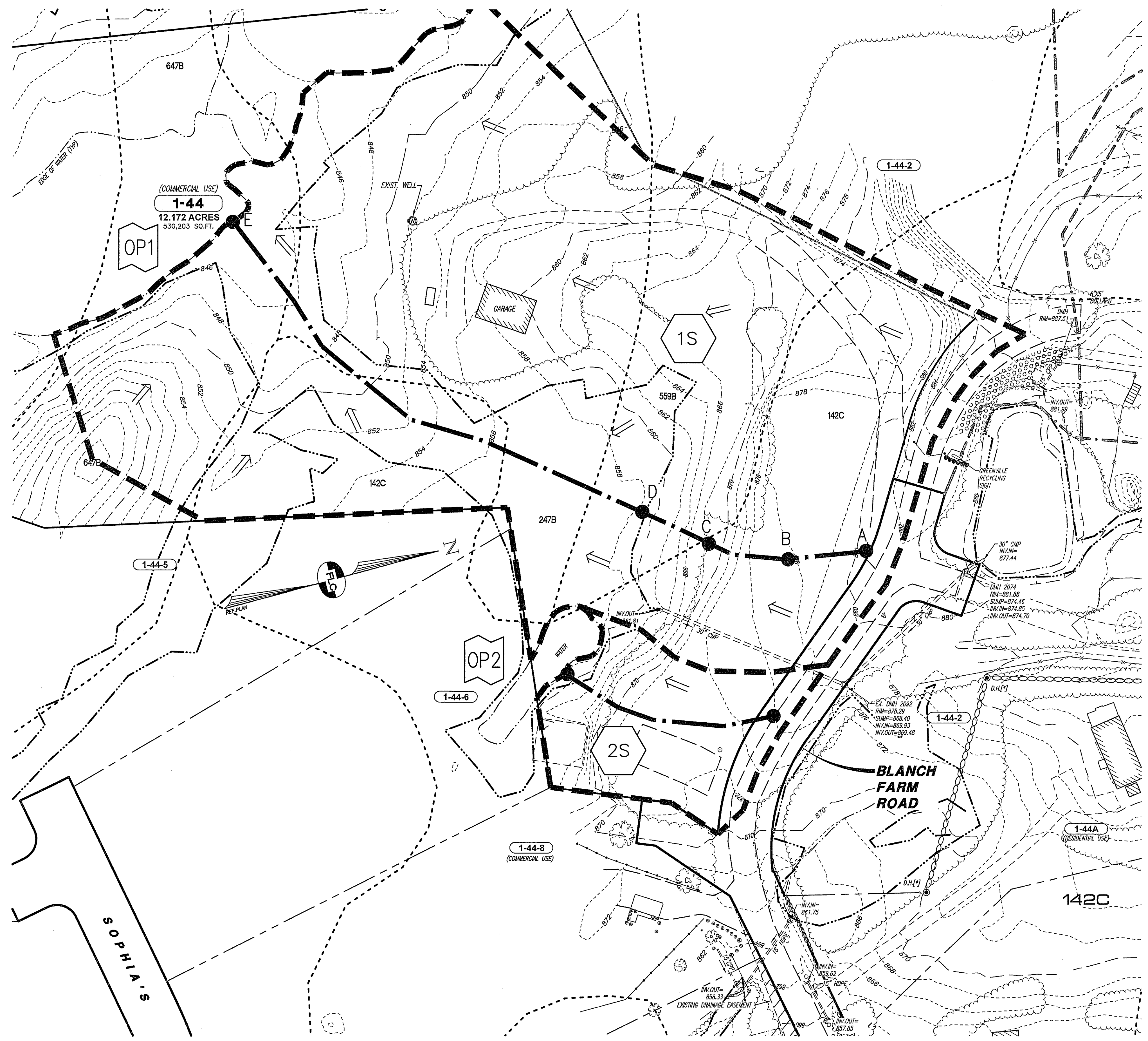
- Stormwater Basin
- Conveyance Swale
- Riprap Aprons at Headwall Outlets
- Headwall Inlets

Commercial & Industrial Flex Space
 Storm Water Management System: Inspection and Maintenance Manual

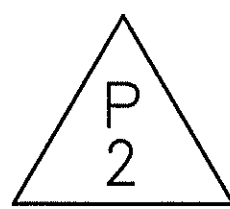
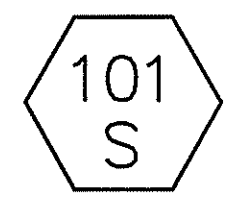
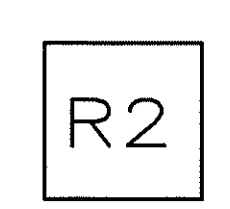
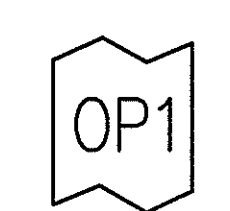
Inspection and Maintenance Log					
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3				<input type="checkbox"/> Yes <input type="checkbox"/> No	
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5				<input type="checkbox"/> Yes <input type="checkbox"/> No	
6				<input type="checkbox"/> Yes <input type="checkbox"/> No	
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Section 3.2

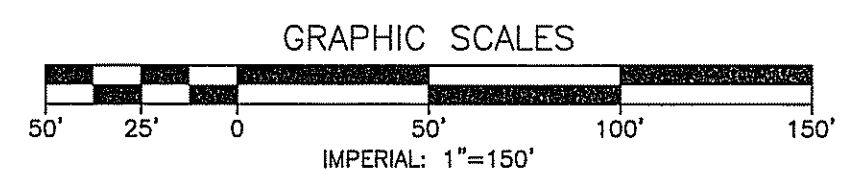
Drainage Area Plans



DRAINAGE SYMBOLS:

-  PIPE OR BASIN
-  SUBCATCHMENT
-  REACH
-  OBSERVATION POINT

-  WATERSHED BOUNDARY
-  TIME OF CONCENTRATION
-  SURFACE WATER FLOW



REV.	DATE	DESCRIPTION	C/O	DR	CK

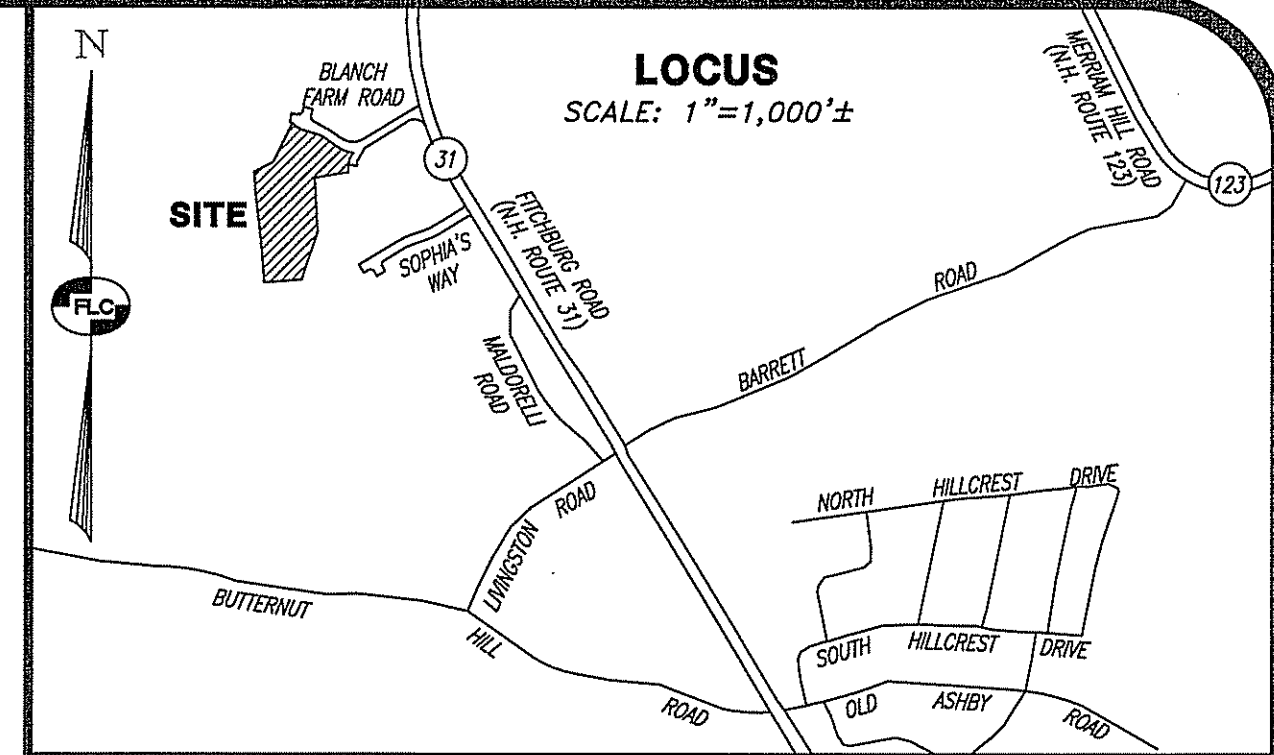
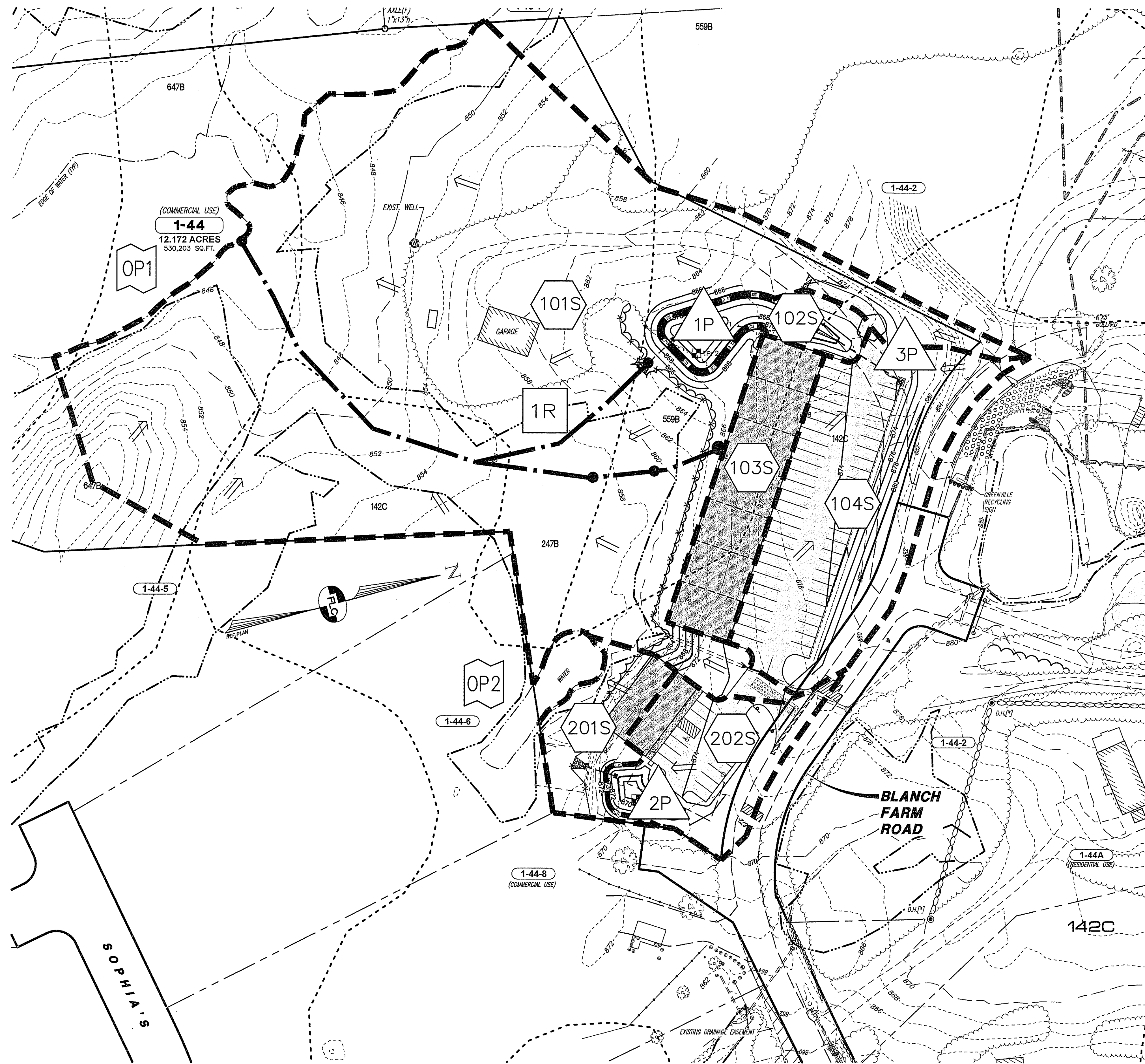
PRE DEVELOPMENT DRAINAGE PLAN
COMMERCIAL AND INDUSTRIAL FLEX SPACE
 TAX MAP 1 PARCEL 44
 BLANCH FARM ROAD
 GREENVILLE, NEW HAMPSHIRE
 PREPARED FOR AND LAND OF:
DAVIS VILLAGE PROPERTIES, LLC
 P.O. Box 508, New Ipswich, NH, 03071

SCALE: 1"=50' APRIL 13, 2023

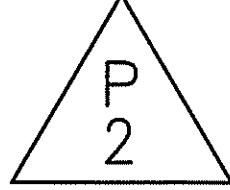

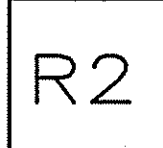

Surveying + Engineering + Land Planning + Permitting + Septic Designs



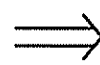


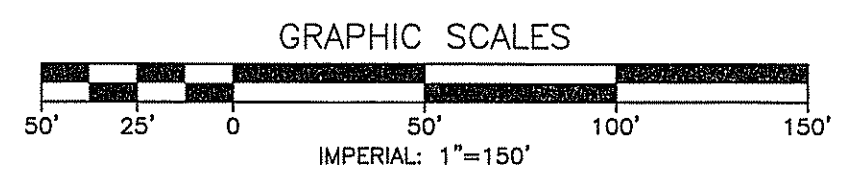
206 Elm Street, Milford, NH 03055
 Phone: (603) 672-5456 Fax: (603) 413-5456
 www.FieldstoneLandConsultants.com



DRAINAGE SYMBOLS:

-  PIPE OR BASIN
-  SUBCATCHMENT
-  REACH
-  OBSERVATION POINT

-  WATERSHED BOUNDARY
-  TIME OF CONCENTRATION
-  SURFACE WATER FLOW



REV.	DATE	DESCRIPTION	C/O	DR	CK

POST DEVELOPMENT DRAINAGE PLAN
COMMERCIAL AND INDUSTRIAL FLEX SPACE
 TAX MAP 1 PARCEL 44
 BLANCH FARM ROAD
 GREENVILLE, NEW HAMPSHIRE
 PREPARED FOR AND LAND OF:
DAVIS VILLAGE PROPERTIES, LLC
 P.O. Box 508, New Ipswich, NH, 03071

SCALE: 1"=50' APRIL 13, 2023

Surveying ♦ Engineering ♦ Land Planning ♦ Permitting ♦ Septic Designs

FIELDSTONE
LAND CONSULTANTS, PLLC
 206 Elm Street, Milford, NH 03055
 Phone: (603) 672-5456 Fax: (603) 413-5456
 www.FieldstoneLandConsultants.com