SEBAGO TECHNICS

CIVIL ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE

Stormwater Management Report

For

WDCJCS Subdivision
Former Andrews School Site
Redevelopment

Prepared for:

Great Falls Construction
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Gorham, ME 04038
and
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October, 2024

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STORMWATER MANAGEMENT REPORT
WDCJCS SUBDIVISION

1. Introduction

This Stormwater Management Plan Report has been prepared to present analyses performed to address the potential impacts associated with the project due to proposed modifications in stormwater runoff characteristics and land cover changes. The stormwater management controls that are outlined in this report have been designed to suit the proposed development and to comply with applicable regulatory requirements.

2. Existing Conditions

The subject parcel is approximately 2.39 acres in size and is shown as Lot 24 on the Town of Windham Assessor's Tax Map 37. The parcel is presently developed and previously operated as the John A Andrew School. One of the two structures remains on-site, with portions of the parcel still occupied by bituminous parking and access ways, as well as gravel backfill within the previously razed building footprint. The parcel is bounded by residential developments, with High Street located at the southwest of the parcel. Topography onsite ranges from relatively flat around the existing buildings to moderately steep (10-15%) at the perimeter of the site. There is a ridge line within the central portion of the site, which runs north-south, thereby sending half the parcel drainage towards High Street to the southwest and the other half of the parcel to the abutting land to the northeast.

The parcel is located within the watershed of the Presumpscot River, with the northerly half discharging to Colley Wright Brook before feeding into the Presumpscot River. Neither Colley Wright Brook or the Presumpscot River are listed as Urban Impaired Streams or otherwise threatened watershed by MaineDEP, Chapter 502. The subject parcel is not located within an identified flood zone per the FEMA Flood Insurance Rate Map Number 23005C0656F, effective date June 20, 2024.

3. Soils

Soil information for the site was obtained via the USDS United States Department of Agriculture and Natural Resource Conservation Services (NRCS) Web Soil Survey. The Hydrologic Soil Groups (HSG) of the soils on site as classified by the Soil Conservation Service are delineated on the stormwater management plans and are as follows:

Soil Map Symbol	Soil Name	Slope (%)	HSG
BgB	Nicholville, very fine sandy loam	0-8	C
EmB	Elmwood, fine sandy loam	0-8	B
PbB	Paxton, fine sandy loam	3-8	C

A copy of the Class D (Medium Intensity) NRCS Web Soil Survey is included in Appendix 4.

4. Proposed Site Improvements

The project proposes razing the existing structure and pavement and redeveloping the site as affordable housing with a total of eighteen (18) apartment units contained withing four (4) buildings. Three of the buildings will contain 4 apartment units each and the fourth building will contain 6 apartment units. The apartment units are supported by a 24-foot wide access way from High Street, pedestrian sidewalks throughout the site connecting to High Street and resident open space.

As the site is presently developed, the storwmater management has been designed utilizing the Redevelopment Standard contained within MaineDEP Chapter 500, Section 4.C.(2)(d) where the required level of stormwater treatment is scaled backed based on the net change in pollutant discharge associated with the parcel. The net change in pollutant ranking associated with redeveloping the site requires a 60% treatment level associated with the site's propsoed developed footprint. Calculations for the Redevelopment Standard are contained in Appendix 1.

5. Methodology

Stormwater runoff analyses were developed using "HydroCAD" computer modeling software, which incorporates the TR-55 and TR-20 methodologies as provided by the Soil Conservation Service of the U.S. Department of Agriculture.

The estimated peak runoff rates were calculated using a 24-hour duration storm event with a Type III rainfall distribution. The rainfall amounts for Cumberland (SE) County for the 2-year, 10-year and 25-year storm events are as follows:

Storm Frequency	24-hr Duration Rainfall (in.)
2-yr	3.1
10-yr	4.6
25-yr	5.8

6. Existing Conditions Model

The existing conditions storwmater model consists of three subcatchments, labeled 1S thru 3S and three Points of Analysis (POA) labeled POA-1 thru POA-3.

POA-1 is represents the site's discharge of runoff into High Street and the associated storm drain collection system within High Street. Sub-catchment 1S is the only sub-catchment that is tributary to POA-1 and consists of the southwesterly half of the site from the center ridge line to High Street. Stormwater runoff from drainage area drains to High Street overland flow as there are presently no storm drain collection within the site. Sub-catchment consists of approximately 1.3 acres.

POA-2, located along the northwesterly property line where a small section of the stie drains via overland flow across the property line and onto the abutting parcel. Sub-catchment 2S is tributary to POA-2 and consists of approximately 0.35 acres of land area.

POA-3 is located along the rear (northeast portion of the site) property line where the back half of the site, from the central ridge line, drainage via overland flow onto the abutting parcel. Sub-catchment 3S is tributary to POA-3 and is approximately 1.05 acres in size.

HydroCAD modeling outputs are contained in Appendix 2A and the Existing Conditions Stormwater Plan is contained in Appendix 5.

7. Proposed Conditions Model

The proposed condition sub-catchment areas consist of the same overall area as the existing conditions plan; however, the existing conditions sub-catchments have had their areas altered because of the proposed development. POA-1, POA-2, and POA-3 remain as the three analysis points for comparing peak runoff rates.

POA-1 represents the site's discharge of runoff into High Street and the associated storm drain collection system within High Street. Sub-catchment 1S - 3S, 5S, 7S – 12S, 14S, and 16S are tributary to POA-1. These subcatchments are the southwesterly half of the site and any area collected by the proposed drainage network. Sub-catchments 7S – 12S, 14S, and 16S are treated through a subsurface chamber sand filter BMP, while subcatchments 1S-3S are treated by roof drip edges. The collected and treated stormwater is discharged to a storm drain line which ties into the existing storm drain system within High Street. The Point of Analysis consists of approximately 2.04 acres.

POA-2, located along the northwesterly property line where a small section of the site drains via overland flow across the property line and onto the abutting parcel. Sub-catchments 6S and 15S are tributary to POA-2 and consist of approximately 0.19 acres of land area.

POA-3 is located along the rear (northeast portion of the site) property line, where the back half of the site drains via overland flow onto the abutting parcel. Sub-catchments 4S, 12S, and 13S are tributaries to POA-3 and are approximately 0.57 acres in size.

The proposed subsurface chamber sand filter and roof drip edge filters have been designed to meet the standards set forth in the Maine DEP's Best Management Practices (BMP) Manual. Sizing Calculations can be found in Appendix 1.

8. Stormwater Management

Basic Standard - Chapter 500, Section 4(B)

Since the project will disturb more than one (1) acre of land area, MDEP Basic Standards apply, requiring that grading or other construction activities on the site do not impede or otherwise alter drainage ways to have an unreasonable adverse impact. We have avoided adverse impacts by providing an Erosion & Sedimentation Control Plan, and an Inspection, Maintenance and Housekeeping Plan (Appendix 3) to be implemented during construction and post-construction stabilization of the site. These construction requirements have been developed following Best Management Practice guidelines.

General Standard- Chapter 500, Section 4(C)

The project does not result in the creation of one (1) acre or more of impervious surface and therefore does not trigger a Storwmater Management Permit through the MaineDEP which would require the site to meet the General Standards. However, the site is required to provide stormwater mitigation, peak runoff control and water quality, through the Town of Windham per Chapter 201 – Stormwater Management Ordinance. As mentioned previously, the site is considered a redevelopment project and will utilize the redevelopment standard as contained within MaineDEP Chapter 500 which scales base the level of stormwater treatment based on the net change in pollutant discharge associated with the parcel. The pollutant ranking analysis, contained in Appendix 1, results in a required treatment level of 60% of the sites proposed developed area.

To mitigate the changes in hydrologic patterns due to the redevelopment of this project, a subsurface chamber sand filter is proposed which will provide both water quality and quantity treatment. The subsurface chamber sand filter has been sized according to MaineDEP standards with calculations provided in Appendix 1.

The proposed subsurface chamber sand filter provides treatment of 91% of the site's redeveloped impervious area and 63% of the site's redeveloped area, which exceeds the redevelopment requirement of 60% of the site's redeveloped area.

Flooding Standard – Chapter 500, Section 4(F)

Since the planned project will not create more than three (3) acres of impervious surface or five (5) acres of disturbed area, MDEP Flooding Standards do not apply. However, the site is required to provide stormwater mitigation, peak runoff control and water quality, through the Town of Windham per Chapter 201 – Stormwater Management Ordinance. As such, a runoff evaluation was performed using the methodology outlined in the USDA Soil Conservation Service's "Urban Hydrology for Small Watersheds - Technical Release #55 (TR-55)". HydroCAD computer software was utilized to perform the calculations.

The following table presents the results of the peak runoff calculations at the analysis point for the existing and proposed conditions.

Peak Runoff Rate Summary Table			
Analysis Point	**Storm Event**	**Existing Conditions (cfs)**	**Proposed Conditions (cfs)**
POA-1	2-Year	1.4	0.8
	10-Year	3.1	1.6
	25-Year	4.6	2.6
POA-2	2-Year	0.1	0.1
	10-Year	0.4	0.2
	25-Year	0.7	0.3
POA-3	2-Year	0.6	0.3
	10-Year	1.8	0.9
	25-Year	2.9	1.4

The model predicts that the peak runoff rates in the proposed condition at all Point of Analysis are at or below the existing condition runoff rates for the 2, 10, and 25-year storm events with the implementation of the proposed BMP. Please refer to Appendix 2A and Appendix 2B for existing and proposed conditions stormwater modeling as well as Appendix 5 for the Stormwater Management Plans.

9. Summary

The proposed development has been designed to manage stormwater runoff through Best Management Practices approved by MDEP. The Stormwater BMPs provide treatment to 91% of the site's impervious area and 63% of the site's developed area. Peak rates of stormwater runoff discharging from the site will be at or below pre-development peak runoff rates for the 2, 10, and 25-year storm events at the identified points of analysis. Additionally, erosion and sedimentation controls, along with associated maintenance and housekeeping procedures, have been outlined to prevent unreasonable impacts on the site and to the surrounding environment.

Prepared by:
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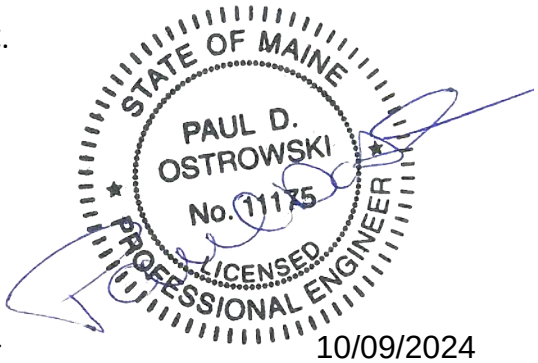

Paul D. Ostrowski, PE
Senior Project Engineer

10/09/2024

Appendix 1

Stormwater Quality Calculations

Table 1: MDEP GENERAL STANDARD CALCULATIONS

Job # 240577

AREA ID	WATERSHED SIZE (S.F.)	ONSITE IMPERVIOUS AREA (S.F.)	ONSITE LANDSCAPED AREA (S.F.)	NET EXISTING DEVELOPED AREAS (S.F.)	TREATMENT PROVIDED?	IMPERVIOUS AREA TREATED (S.F.)	LANDSCAPED AREA TREATED (S.F.)	DEVELOPED AREA TREATED (S.F.)	TREATMENT BMP
1	2,400	2,400	0	2,400	YES	2,400	0	2,400	DE
2	2,400	2,400	0	2,400	YES	2,400	0	2,400	DE
3	2,400	2,400	0	2,400	YES	2,400	0	2,400	DE
4	3,475	3,475	0	3,475	YES	3,475	0	3,475	DE
5	22,525	3,239	14,895	18,134	NO	0	0	0	
6	4,100	81	4,019	4,100	NO	0	0	0	
7	8,350	3,655	4,645	8,300	YES	3,655	4,645	8,300	Chambers
8	9,550	4,093	5,457	9,550	YES	4,093	5,457	9,550	Chambers
9	7,975	3,531	4,444	7,975	YES	3,531	4,444	7,975	Chambers
10	11,250	3,517	1,593	5,110	YES	3,517	1,593	5,110	Chambers
11	1,800	0	1,153	1,153	YES	0	1,153	1,153	Chambers
12	4,375	2,243	1,079	3,322	YES	2,243	1,079	3,322	Chambers
13	21,375	0	9,137	9,137	NO	0	0	0	
14	8,800	4,475	4,325	8,800	YES	4,475	4,325	8,800	Chambers
15	4,500	0	1,670	1,670	NO	0	0	0	
16	2,049	1,479	570	2,049	YES	1,479	570	2,049	Chambers
TOTAL (S.F.)	**117,324**	**36,988**	**52,987**	**89,975**		**33,668**	**23,266**	**56,934**	

TOTAL IMPERVIOUS AREA (S.F.)	**36,988**	**TOTAL DEVELOPED AREA (S.F.)**	**89,975**
TOTAL IMPERVIOUS AREA RECEIVING TREATMENT (S.F.)	**33,668**	**TOTAL AREA RECEIVING TREATMENT (S.F.)**	**56,934**
% OF IMPERVIOUS AREA RECEIVING TREATMENT	**91.02%**	**% OF AREA RECEIVING TREATMENT**	**63.28%**

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JOB	WDCJCS Subdivision		
SHEET NO.	1	OF	1
CALCULATED BY	KEW	DATE	9/1/2024
FILE NAME	240577 WQC.xlsx	PRNT DATE	10/3/2024

UNDERDRAINED SUBSURFACE SAND FILTER

Task: Calculate water quality volume per MDEP chapter 500 regulations

References

1. Maine DEP Chapter 500, Section 4.C.(3)(b)
   "must detain a runoff volume equal to 1.0 inch times the subcatchment's impervious area plus 0.4 inch times the subcatchment's landscaped area"
2. Maine DEP Best Management Practices Stormwater Manual, Section 7.3.2
   a. "detain runoff volume equal to 1.0 inch times the subcatchment's impervious area plus 0.4 inch times the subcatchment's landscaped area"
   b. "surface area of the sand filter bed and chamber system must be at least equal to 5% of the impervious area draining to it and 2% of the landscaped area."
   c. "treatment flow rate for the Stormtech Isolator Row is the projected one year peak flow rate for the drainage area feeding the Isolator Row"

Flow rates:		
SC-310	0.10	cfs/chamber
SC-740	0.20	cfs/chamber
DC-780	0.20	cfs/chamber
MC-3500	0.30	cfs/chamber

   d. Inspection ports to the underdrain gravel layer should be provided with at least one port per 500 square-feet of subsurface filter area.

Tributary to Subsurface Sand Filter: Chambers

Landscaped Area	23,266.00	SF
Impervious Area	22,993.00	SF

Minimum Surface Area for sand filter and chamber system

Required (2% X Landscaped + 5%" X Impervious)

Total Landscaped Area	23,266.00	SF	Area	465.3	SF	
Total Impervious Area	22,993.00	SF	Area	1,149.7	SF	
Required Minimum Surface Area				1,615.0	SF	
Provided Surface Area				4,367.0	SF	Required No. of Inspection Ports: 9

Treatment Volume

Required (0.4" X Landscaped + 1.0" X Impervious)

Landscaped Area	23,266.00	SF	Volume	775.5				
Impervious Area	22,993.00	SF	Volume	1,916.1				
Treatment Volume Required				2,691.6	CF	0.062	AF	
Provided Treatment Volume				5,531.0	CF			

Sediment Pre-Treatment

Per Reference 2.c above

One year flow rate out put from Hydrocad:	0.80	cfs
ISO Row sizing for: SC-310	**0.1**	cfs
Total number of Isolator Row Chambers required:	8	

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JOB	240557		
SHEET NO.	1	OF	1
CALCULATED BY	KEW	DATE	9/1/2024
CHECKED BY	PDO		
FILE NAME	240577 WQC	PRINT DATE	10/3/2024

ORIFICE SIZING CALCULATION

Stormwater BMP: Chamber System

Orifice Equation $Q = CA\sqrt{(2gh)}$

Q = Rate of Discharge (cfs)
A = Orifice Area (sf)
G = Gravitational Constant (32.2 ft/s^2)
h = Depth of water above the flow line (center) of the orifice (ft)
C = 0.6 Orifice coefficient (usually assumed = 0.6)

Average discharge rate required to drawdown the treatment volume in a desired amount of time is:

$$Q = \frac{WQv}{Tcf}$$

TV = Treatment Volume (cf)
T = Target Drain Time (Hours)
cf = Conversion Factor = 3600 sec/hr

TV = 5,531 cf
t = 36 hr

$$Q = \frac{TV}{tCF}$$ 0.04 cfs Target Rate for 36 hour discharge

surface area of filter = 4,367 SF

hmax = 1.27 ft h/2= 0.63 ft

$$A = \frac{Q}{C\sqrt{(2gh)}}$$ A = 0.011 sf = 1.60 sq. in.

Diam =	1.43	in

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JOB	WDCJCS Subdivision		
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CALCULATED BY	KEW	DATE	
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FILE NAME		PRINT DATE	10/3/2024

Treatment Calculations for Proposed Roof Drip Edge Unit 1-3						
WQV Calculation						
(WQV = Water Quality Volume)						
Total Impervious Area =	2,400	sf				
WQV (MDEP)= 1" x Impervious Area =		200.0	cf =	0.005	acre-ft	
Length of Trench=		65.0	ft.			
Width of Trench=		4.0	ft.			
Depth of Stone		16.0	in.	40% porosity		
Depth of Sand Media=		15.0	in.	20% porosity		
WQV Provided = Area of Trench * (Depth of stone*stone porosity + Depth of sand*sand porosity)						
WQV for first 1" =	138.7					
Additional WQV Provided =	65.0	cf				
Total WQV Provided =	**203.7**	**cf**				

The stone reservoir volume for the drip edge filter was designed to provide the storage required to convey the water quality storm (storm that generates 1" of runoff over the roof) through the filter media under the stone. Additonal water quality is provided in the porosity of the underdrain sand.

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JOB	WDCJCS Subdivision		
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CALCULATED BY	KEW	DATE	
CHECKED BY	PDO		
FILE NAME		PRINT DATE	10/3/2024

Treatment Calculations for Proposed Roof Drip Edge Unit 4						
WQV Calculation						
(WQV = Water Quality Volume)						
Total Impervious Area =	3,475	sf				
WQV (MDEP)= 1" x Impervious Area =		289.6	cf =	0.007	acre-ft	
Length of Trench=		155.0	ft.			
Width of Trench=		4.0	ft.			
Depth of Stone		12.0	in.	40% porosity		
Depth of Sand Media=		12.0	in.	20% porosity		
WQV Provided = Area of Trench * (Depth of stone*stone porosity + Depth of sand*sand porosity)						
WQV for first 1" =	248.0					
Additional WQV Provided =	124.0	cf				
Total WQV Provided =	**372.0**	**cf**				

The stone reservoir volume for the drip edge filter was designed to provide the storage required to convey the water quality storm (storm that generates 1" of runoff over the roof) through the filter media under the stone. Additonal water quality is provided in the porosity of the underdrain sand.

Table 2: MDEP REDEVELOPMENT STANDARD CALCULATIONS: Former Andrews School, 55 High Street Windham

Existing Areas by Pollutant Ranking (S.F.)							Proposed Areas by Pollutant Ranking (S.F.)						
0	1	2	3	4	5	SUM	0	1	2	3	4	5	SUM
40,016	0	46,274	0	20,515	0	106,805	17,230	0	66,575	0	23,000	0	106,805

Existing Areas by Pollutant Ranking (acres)							Proposed Areas by Pollutant Ranking (acres)						
0	1	2	3	4	5	SUM	0	1	2	3	4	5	SUM
0.919	0.000	1.062	0.000	0.471	0.000	2.452	0.396	0.000	1.528	0.000	0.528	0.000	2.452

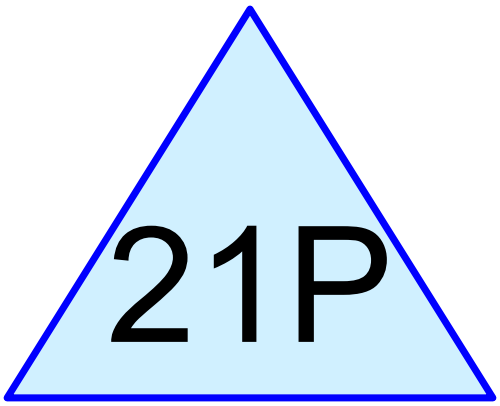
Existing Weighted Average (Item A)	Proposed Weighted Average (Item B)
4.008	**5.169**

Existing Ranked Impact (Item C)	Proposed Ranked Impact (Item D)
1.635	**2.108**

Ranked Impact Change Due to Redevelopment (Item E)
0.473

Treatment Levels for Redevelopment Projects

Ranked Impact Change Due to Redevelopment (Item E)	Percentage of Developed Area that Must be Treated
0.0 or less	**0% (Stormwater projects)** **50% (Site projects)**
≤ 0.0 to ≥ 1.0	60%
> 1.0 to ≥ 2.0	**70%**
> 2.0 to ≥ 3.0	**80%**
> 3.0	**Same treatment level as for new development**



ADS SC-310

Subcat Reach Pond Link

Routing Diagram for 240577 Post Dev
Prepared by Sebago Technics, Printed 10/9/2024

Summary for Pond 21P: ADS SC-310

Inflow Area = 54,149 sf, 42.46% Impervious, Inflow Depth = 0.60" for wqv event
Inflow = 0.6 cfs @ 12.15 hrs, Volume= 2,710 cf
Outflow = 0.0 cfs @ 17.66 hrs, Volume= 2,710 cf, Atten= 95%, Lag= 330.5 min
Primary = 0.0 cfs @ 17.66 hrs, Volume= 2,710 cf
Routed to Link POA-1 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 174.44' @ 17.66 hrs Surf.Area= 11,864 sf Storage= 1,594 cf
Flood Elev= 179.18' Surf.Area= 11,864 sf Storage= 7,606 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 598.8 min (1,475.0 - 876.2)

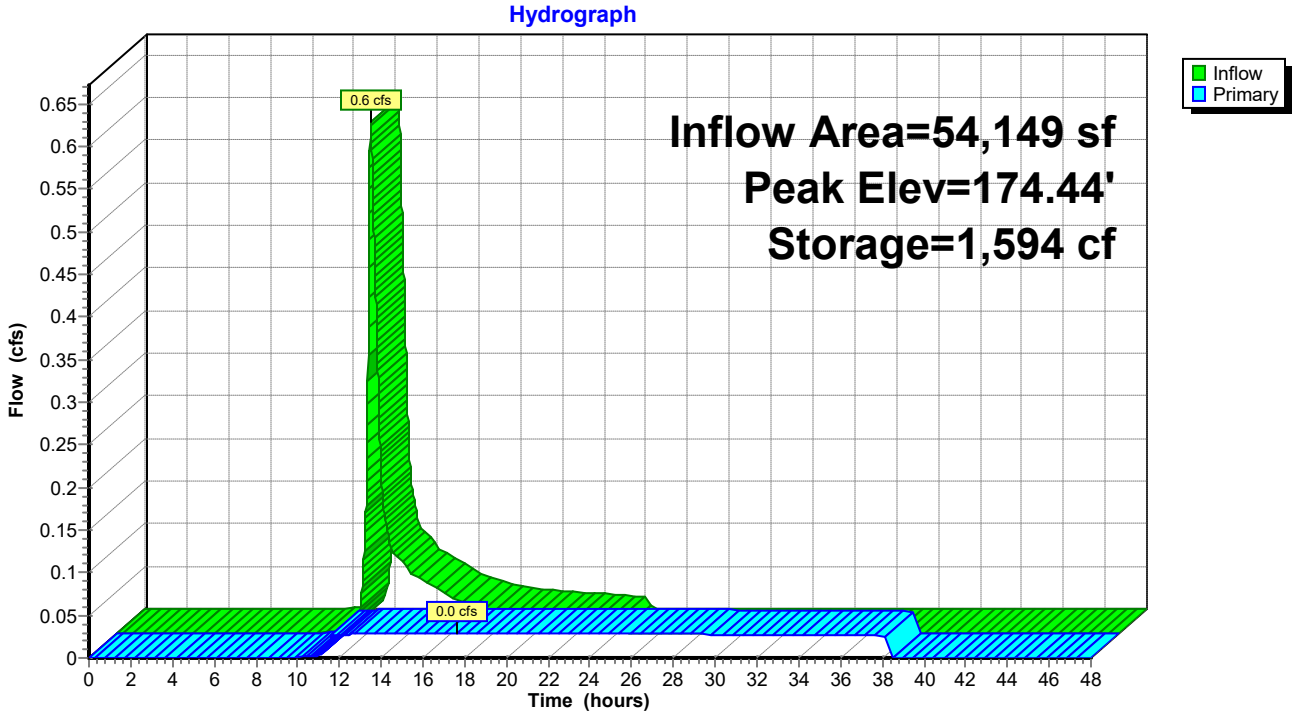
Volume	Invert	Avail.Storage	Storage Description
#1	171.35'	0 cf	**88.17'W x 67.28'L x 2.50'H Prismatoid** 14,830 cf Overall x 0.0% Voids
#2A	173.85'	4,157 cf	**88.17'W x 67.28'L x 2.33'H Field A** 13,841 cf Overall - 3,450 cf Embedded = 10,391 cf x 40.0% Voids
#3A	174.35'	3,450 cf	**ADS_StormTech SC-310 +Cap** x 234 Inside #2 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 234 Chambers in 26 Rows
		7,606 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	171.35'	**15.0" Round Culvert** L= 62.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 171.35' / 170.73' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	171.45'	**0.8" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	175.00'	**32.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	175.80'	**5.0' long x 2.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

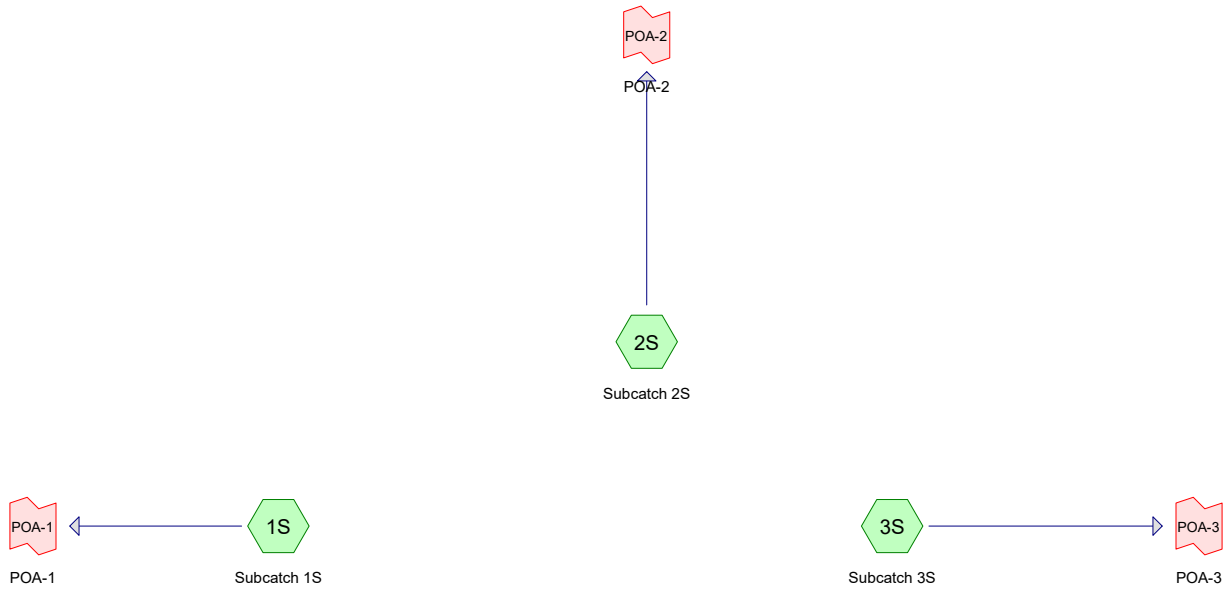
Primary OutFlow Max=0.0 cfs @ 17.66 hrs HW=174.44' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.0 cfs of 7.3 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 0.0 cfs @ 8.27 fps)
  - **3=Orifice/Grate** (Controls 0.0 cfs)
  - **4=Sharp-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond 21P: ADS SC-310



Appendix 2A

Existing Conditions HydroCAD Summary



Subcat Reach Pond Link

Routing Diagram for 240577 Pre Dev
Prepared by Sebago Technics, Printed 10/9/2024

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
33,600	61	>75% Grass cover, Good, HSG B (1S, 2S, 3S)
3,605	74	>75% Grass cover, Good, HSG C (1S)
4,555	96	Gravel surface (1S, 2S, 3S)
20,785	98	Paved parking (1S, 2S, 3S)
4,390	98	Roof (3S)
38,354	55	Woods, Good, HSG B (1S, 2S, 3S)
12,035	70	Woods, Good, HSG C (1S, 2S, 3S)
117,324	**70**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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

Subcatchment 1S: Subcatch 1S Runoff Area=56,129 sf 26.28% Impervious Runoff Depth=0.97"
Flow Length=195' Tc=6.0 min CN=74 Runoff=1.4 cfs 4,548 cf

Subcatchment 2S: Subcatch 2S Runoff Area=15,475 sf 7.21% Impervious Runoff Depth=0.40"
Flow Length=100' Tc=6.0 min CN=61 Runoff=0.1 cfs 521 cf

Subcatchment 3S: Subcatch 3S Runoff Area=45,720 sf 20.36% Impervious Runoff Depth=0.64"
Flow Length=250' Tc=6.0 min CN=67 Runoff=0.6 cfs 2,421 cf

Link POA-1: POA-1 Inflow=1.4 cfs 4,548 cf
Primary=1.4 cfs 4,548 cf

Link POA-2: POA-2 Inflow=0.1 cfs 521 cf
Primary=0.1 cfs 521 cf

Link POA-3: POA-3 Inflow=0.6 cfs 2,421 cf
Primary=0.6 cfs 2,421 cf

Total Runoff Area = 117,324 sf Runoff Volume = 7,489 cf Average Runoff Depth = 0.77"
78.54% Pervious = 92,149 sf 21.46% Impervious = 25,175 sf

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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

Subcatchment 1S: Subcatch 1S Runoff Area=56,129 sf 26.28% Impervious Runoff Depth=2.05"
Flow Length=195' Tc=6.0 min CN=74 Runoff=3.1 cfs 9,587 cf

Subcatchment 2S: Subcatch 2S Runoff Area=15,475 sf 7.21% Impervious Runoff Depth=1.14"
Flow Length=100' Tc=6.0 min CN=61 Runoff=0.4 cfs 1,464 cf

Subcatchment 3S: Subcatch 3S Runoff Area=45,720 sf 20.36% Impervious Runoff Depth=1.53"
Flow Length=250' Tc=6.0 min CN=67 Runoff=1.8 cfs 5,830 cf

Link POA-1: POA-1 Inflow=3.1 cfs 9,587 cf
Primary=3.1 cfs 9,587 cf

Link POA-2: POA-2 Inflow=0.4 cfs 1,464 cf
Primary=0.4 cfs 1,464 cf

Link POA-3: POA-3 Inflow=1.8 cfs 5,830 cf
Primary=1.8 cfs 5,830 cf

Total Runoff Area = 117,324 sf Runoff Volume = 16,881 cf Average Runoff Depth = 1.73"
78.54% Pervious = 92,149 sf 21.46% Impervious = 25,175 sf

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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

Subcatchment 1S: Subcatch 1S Runoff Area=56,129 sf 26.28% Impervious Runoff Depth=3.02"
Flow Length=195' Tc=6.0 min CN=74 Runoff=4.6 cfs 14,114 cf

Subcatchment 2S: Subcatch 2S Runoff Area=15,475 sf 7.21% Impervious Runoff Depth=1.87"
Flow Length=100' Tc=6.0 min CN=61 Runoff=0.7 cfs 2,415 cf

Subcatchment 3S: Subcatch 3S Runoff Area=45,720 sf 20.36% Impervious Runoff Depth=2.38"
Flow Length=250' Tc=6.0 min CN=67 Runoff=2.9 cfs 9,068 cf

Link POA-1: POA-1 Inflow=4.6 cfs 14,114 cf
Primary=4.6 cfs 14,114 cf

Link POA-2: POA-2 Inflow=0.7 cfs 2,415 cf
Primary=0.7 cfs 2,415 cf

Link POA-3: POA-3 Inflow=2.9 cfs 9,068 cf
Primary=2.9 cfs 9,068 cf

Total Runoff Area = 117,324 sf Runoff Volume = 25,597 cf Average Runoff Depth = 2.62"
78.54% Pervious = 92,149 sf 21.46% Impervious = 25,175 sf

Summary for Subcatchment 1S: Subcatch 1S

Runoff = 4.6 cfs @ 12.09 hrs, Volume= 14,114 cf, Depth= 3.02"
Routed to Link POA-1 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	14,750	98	Paved parking
*	4,000	96	Gravel surface
	17,015	61	>75% Grass cover, Good, HSG B
	3,605	74	>75% Grass cover, Good, HSG C
	9,039	55	Woods, Good, HSG B
	7,720	70	Woods, Good, HSG C
	56,129	74	Weighted Average
	41,379		73.72% Pervious Area
	14,750		26.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.89		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.10"
0.3	40	0.0750	1.91		**Sheet Flow, B-C** Smooth surfaces n= 0.011 P2= 3.10"
0.5	70	0.1200	2.42		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
0.1	35	0.1000	6.42		**Shallow Concentrated Flow, D-E** Paved Kv= 20.3 fps
4.2					**Direct Entry, MIN TIME**
6.0	195	Total			

Summary for Subcatchment 2S: Subcatch 2S

Runoff = 0.7 cfs @ 12.10 hrs, Volume= 2,415 cf, Depth= 1.87"
Routed to Link POA-2 : POA-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	1,115	98	Paved parking
*	40	96	Gravel surface
	2,055	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	9,870	55	Woods, Good, HSG B
	2,395	70	Woods, Good, HSG C
	15,475	61	Weighted Average
	14,360		92.79% Pervious Area
	1,115		7.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.0220	1.02		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.10"
0.1	10	0.1000	2.21		**Shallow Concentrated Flow, B-C**
					Short Grass Pasture Kv= 7.0 fps
0.7	70	0.1200	1.73		**Shallow Concentrated Flow, C-D**
					Woodland Kv= 5.0 fps
4.9					**Direct Entry, MIN TIME**
6.0	100	Total			

Summary for Subcatchment 3S: Subcatch 3S

Runoff = 2.9 cfs @ 12.09 hrs, Volume= 9,068 cf, Depth= 2.38"
Routed to Link POA-3 : POA-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	4,920	98	Paved parking
*	515	96	Gravel surface
	14,530	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	19,445	55	Woods, Good, HSG B
	1,920	70	Woods, Good, HSG C
*	4,390	98	Roof
	45,720	67	Weighted Average
	36,410		79.64% Pervious Area
	9,310		20.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	95	0.0110	1.06		**Sheet Flow, A-B**
					Smooth surfaces n= 0.011 P2= 3.10"
0.4	50	0.0900	2.10		**Shallow Concentrated Flow, B-C**
					Short Grass Pasture Kv= 7.0 fps
0.7	65	0.0530	1.61		**Shallow Concentrated Flow, B-C**
					Short Grass Pasture Kv= 7.0 fps
0.5	40	0.0700	1.32		**Shallow Concentrated Flow, D-E**
					Woodland Kv= 5.0 fps
2.9					**Direct Entry, MIN TIME**
6.0	250	Total			

Summary for Link POA-1: POA-1

Inflow Area = 56,129 sf, 26.28% Impervious, Inflow Depth = 3.02" for 25 event
Inflow = 4.6 cfs @ 12.09 hrs, Volume= 14,114 cf
Primary = 4.6 cfs @ 12.09 hrs, Volume= 14,114 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link POA-2: POA-2

Inflow Area = 15,475 sf, 7.21% Impervious, Inflow Depth = 1.87" for 25 event
Inflow = 0.7 cfs @ 12.10 hrs, Volume= 2,415 cf
Primary = 0.7 cfs @ 12.10 hrs, Volume= 2,415 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

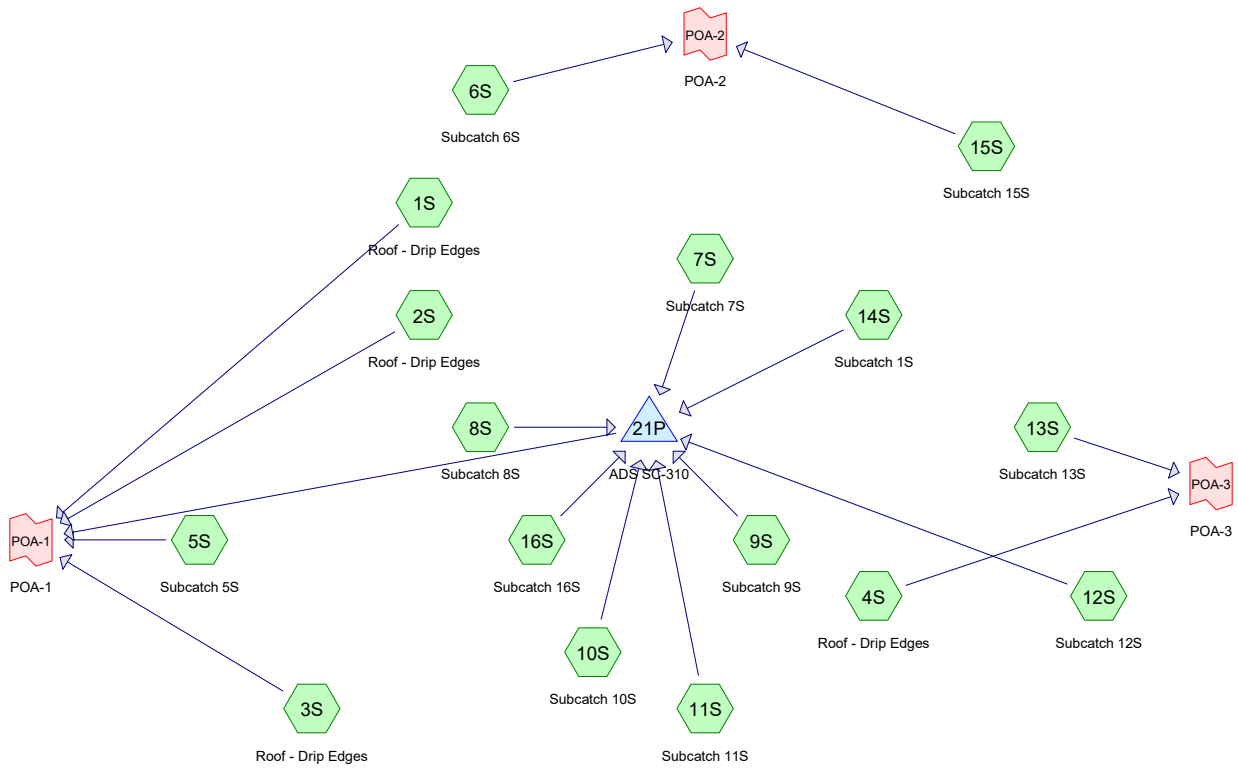
Summary for Link POA-3: POA-3

Inflow Area = 45,720 sf, 20.36% Impervious, Inflow Depth = 2.38" for 25 event
Inflow = 2.9 cfs @ 12.09 hrs, Volume= 9,068 cf
Primary = 2.9 cfs @ 12.09 hrs, Volume= 9,068 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Appendix 2B

Proposed Conditions
HydroCAD Summary



Subcat Reach Pond Link

Routing Diagram for 240577 Post Dev
Prepared by Sebago Technics, Printed 10/9/2024

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
48,361	61	>75% Grass cover, Good, HSG B (5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S, 16S)
4,626	74	>75% Grass cover, Good, HSG C (5S, 13S, 15S)
26,313	98	Paved parking (5S, 6S, 7S, 8S, 9S, 10S, 12S, 14S, 16S)
10,675	98	Roofs (1S, 2S, 3S, 4S)
15,899	55	Woods, Good, HSG B (5S, 7S, 10S, 11S, 12S, 13S, 15S)
11,450	70	Woods, Good, HSG C (5S, 10S, 13S, 15S)
117,324	**73**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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

Subcatchment 1S: Roof - Drip Edges Runoff Area=2,400 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.2 cfs 574 cf

Subcatchment 2S: Roof - Drip Edges Runoff Area=2,400 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.2 cfs 574 cf

Subcatchment 3S: Roof - Drip Edges Runoff Area=2,400 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.2 cfs 574 cf

Subcatchment 4S: Roof - Drip Edges Runoff Area=3,475 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.2 cfs 830 cf

Subcatchment 5S: Subcatch 5S Runoff Area=22,525 sf 14.38% Impervious Runoff Depth=0.77"
Flow Length=110' Tc=9.8 min CN=70 Runoff=0.4 cfs 1,446 cf

Subcatchment 6S: Subcatch 6S Runoff Area=4,100 sf 1.98% Impervious Runoff Depth=0.44"
Flow Length=85' Slope=0.0100 '/' Tc=16.8 min CN=62 Runoff=0.0 cfs 150 cf

Subcatchment 7S: Subcatch 7S Runoff Area=8,350 sf 43.77% Impervious Runoff Depth=1.14"
Flow Length=99' Tc=6.0 min CN=77 Runoff=0.2 cfs 794 cf

Subcatchment 8S: Subcatch 8S Runoff Area=9,550 sf 42.86% Impervious Runoff Depth=1.14"
Flow Length=180' Tc=15.4 min CN=77 Runoff=0.2 cfs 908 cf

Subcatchment 9S: Subcatch 9S Runoff Area=7,975 sf 44.28% Impervious Runoff Depth=1.14"
Flow Length=186' Tc=15.4 min CN=77 Runoff=0.2 cfs 758 cf

Subcatchment 10S: Subcatch 10S Runoff Area=11,250 sf 31.26% Impervious Runoff Depth=0.82"
Flow Length=152' Tc=11.3 min CN=71 Runoff=0.2 cfs 767 cf

Subcatchment 11S: Subcatch 11S Runoff Area=1,800 sf 0.00% Impervious Runoff Depth=0.34"
Flow Length=30' Slope=0.1000 '/' Tc=6.0 min CN=59 Runoff=0.0 cfs 51 cf

Subcatchment 12S: Subcatch 12S Runoff Area=4,375 sf 51.27% Impervious Runoff Depth=1.26"
Flow Length=78' Tc=8.9 min CN=79 Runoff=0.1 cfs 460 cf

Subcatchment 13S: Subcatch 13S Runoff Area=21,375 sf 0.00% Impervious Runoff Depth=0.37"
Flow Length=100' Tc=6.0 min CN=60 Runoff=0.1 cfs 659 cf

Subcatchment 14S: Subcatch 1S Runoff Area=8,800 sf 50.85% Impervious Runoff Depth=1.33"
Flow Length=100' Slope=0.0500 '/' Tc=10.0 min CN=80 Runoff=0.3 cfs 972 cf

Subcatchment 15S: Subcatch 15S Runoff Area=4,500 sf 0.00% Impervious Runoff Depth=0.55"
Flow Length=68' Tc=6.0 min CN=65 Runoff=0.1 cfs 207 cf

Subcatchment 16S: Subcatch 16S Runoff Area=2,049 sf 72.18% Impervious Runoff Depth=1.91"
Tc=6.0 min CN=88 Runoff=0.1 cfs 326 cf

Pond 21P: ADS SC-310 Peak Elev=174.87' Storage=3,589 cf Inflow=1.2 cfs 5,036 cf
Outflow=0.0 cfs 4,025 cf

Link POA-1: POA-1 Inflow=0.8 cfs 7,193 cf
Primary=0.8 cfs 7,193 cf

Link POA-2: POA-2 Inflow=0.1 cfs 357 cf
Primary=0.1 cfs 357 cf

Link POA-3: POA-3 Inflow=0.3 cfs 1,490 cf
Primary=0.3 cfs 1,490 cf

Total Runoff Area = 117,324 sf Runoff Volume = 10,050 cf Average Runoff Depth = 1.03"
68.47% Pervious = 80,336 sf 31.53% Impervious = 36,988 sf

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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

Subcatchment 1S: Roof - Drip Edges Runoff Area=2,400 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.2 cfs 873 cf

Subcatchment 2S: Roof - Drip Edges Runoff Area=2,400 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.2 cfs 873 cf

Subcatchment 3S: Roof - Drip Edges Runoff Area=2,400 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.2 cfs 873 cf

Subcatchment 4S: Roof - Drip Edges Runoff Area=3,475 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.4 cfs 1,264 cf

Subcatchment 5S: Subcatch 5S Runoff Area=22,525 sf 14.38% Impervious Runoff Depth=1.74"
Flow Length=110' Tc=9.8 min CN=70 Runoff=0.9 cfs 3,275 cf

Subcatchment 6S: Subcatch 6S Runoff Area=4,100 sf 1.98% Impervious Runoff Depth=1.20"
Flow Length=85' Slope=0.0100 '/' Tc=16.8 min CN=62 Runoff=0.1 cfs 409 cf

Subcatchment 7S: Subcatch 7S Runoff Area=8,350 sf 43.77% Impervious Runoff Depth=2.29"
Flow Length=99' Tc=6.0 min CN=77 Runoff=0.5 cfs 1,595 cf

Subcatchment 8S: Subcatch 8S Runoff Area=9,550 sf 42.86% Impervious Runoff Depth=2.29"
Flow Length=180' Tc=15.4 min CN=77 Runoff=0.4 cfs 1,824 cf

Subcatchment 9S: Subcatch 9S Runoff Area=7,975 sf 44.28% Impervious Runoff Depth=2.29"
Flow Length=186' Tc=15.4 min CN=77 Runoff=0.4 cfs 1,523 cf

Subcatchment 10S: Subcatch 10S Runoff Area=11,250 sf 31.26% Impervious Runoff Depth=1.82"
Flow Length=152' Tc=11.3 min CN=71 Runoff=0.5 cfs 1,705 cf

Subcatchment 11S: Subcatch 11S Runoff Area=1,800 sf 0.00% Impervious Runoff Depth=1.01"
Flow Length=30' Slope=0.1000 '/' Tc=6.0 min CN=59 Runoff=0.0 cfs 152 cf

Subcatchment 12S: Subcatch 12S Runoff Area=4,375 sf 51.27% Impervious Runoff Depth=2.46"
Flow Length=78' Tc=8.9 min CN=79 Runoff=0.3 cfs 897 cf

Subcatchment 13S: Subcatch 13S Runoff Area=21,375 sf 0.00% Impervious Runoff Depth=1.07"
Flow Length=100' Tc=6.0 min CN=60 Runoff=0.5 cfs 1,914 cf

Subcatchment 14S: Subcatch 1S Runoff Area=8,800 sf 50.85% Impervious Runoff Depth=2.55"
Flow Length=100' Slope=0.0500 '/' Tc=10.0 min CN=80 Runoff=0.5 cfs 1,868 cf

Subcatchment 15S: Subcatch 15S Runoff Area=4,500 sf 0.00% Impervious Runoff Depth=1.39"
Flow Length=68' Tc=6.0 min CN=65 Runoff=0.2 cfs 523 cf

Subcatchment 16S: Subcatch 16S Runoff Area=2,049 sf 72.18% Impervious Runoff Depth=3.29"
Tc=6.0 min CN=88 Runoff=0.2 cfs 562 cf

Pond 21P: ADS SC-310 Peak Elev=175.15' Storage=4,750 cf Inflow=2.5 cfs 10,127 cf
Outflow=0.5 cfs 8,534 cf

Link POA-1: POA-1 Inflow=1.6 cfs 14,428 cf
Primary=1.6 cfs 14,428 cf

Link POA-2: POA-2 Inflow=0.2 cfs 932 cf
Primary=0.2 cfs 932 cf

Link POA-3: POA-3 Inflow=0.9 cfs 3,177 cf
Primary=0.9 cfs 3,177 cf

Total Runoff Area = 117,324 sf Runoff Volume = 20,129 cf Average Runoff Depth = 2.06"
68.47% Pervious = 80,336 sf 31.53% Impervious = 36,988 sf

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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

Subcatchment 1S: Roof - Drip Edges Runoff Area=2,400 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.3 cfs 1,112 cf

Subcatchment 2S: Roof - Drip Edges Runoff Area=2,400 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.3 cfs 1,112 cf

Subcatchment 3S: Roof - Drip Edges Runoff Area=2,400 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.3 cfs 1,112 cf

Subcatchment 4S: Roof - Drip Edges Runoff Area=3,475 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.5 cfs 1,611 cf

Subcatchment 5S: Subcatch 5S Runoff Area=22,525 sf 14.38% Impervious Runoff Depth=2.65"
Flow Length=110' Tc=9.8 min CN=70 Runoff=1.4 cfs 4,969 cf

Subcatchment 6S: Subcatch 6S Runoff Area=4,100 sf 1.98% Impervious Runoff Depth=1.95"
Flow Length=85' Slope=0.0100 '/' Tc=16.8 min CN=62 Runoff=0.1 cfs 668 cf

Subcatchment 7S: Subcatch 7S Runoff Area=8,350 sf 43.77% Impervious Runoff Depth=3.31"
Flow Length=99' Tc=6.0 min CN=77 Runoff=0.7 cfs 2,300 cf

Subcatchment 8S: Subcatch 8S Runoff Area=9,550 sf 42.86% Impervious Runoff Depth=3.31"
Flow Length=180' Tc=15.4 min CN=77 Runoff=0.6 cfs 2,630 cf

Subcatchment 9S: Subcatch 9S Runoff Area=7,975 sf 44.28% Impervious Runoff Depth=3.31"
Flow Length=186' Tc=15.4 min CN=77 Runoff=0.5 cfs 2,196 cf

Subcatchment 10S: Subcatch 10S Runoff Area=11,250 sf 31.26% Impervious Runoff Depth=2.74"
Flow Length=152' Tc=11.3 min CN=71 Runoff=0.7 cfs 2,567 cf

Subcatchment 11S: Subcatch 11S Runoff Area=1,800 sf 0.00% Impervious Runoff Depth=1.71"
Flow Length=30' Slope=0.1000 '/' Tc=6.0 min CN=59 Runoff=0.1 cfs 257 cf

Subcatchment 12S: Subcatch 12S Runoff Area=4,375 sf 51.27% Impervious Runoff Depth=3.50"
Flow Length=78' Tc=8.9 min CN=79 Runoff=0.4 cfs 1,277 cf

Subcatchment 13S: Subcatch 13S Runoff Area=21,375 sf 0.00% Impervious Runoff Depth=1.79"
Flow Length=100' Tc=6.0 min CN=60 Runoff=1.0 cfs 3,192 cf

Subcatchment 14S: Subcatch 1S Runoff Area=8,800 sf 50.85% Impervious Runoff Depth=3.60"
Flow Length=100' Slope=0.0500 '/' Tc=10.0 min CN=80 Runoff=0.7 cfs 2,641 cf

Subcatchment 15S: Subcatch 15S Runoff Area=4,500 sf 0.00% Impervious Runoff Depth=2.21"
Flow Length=68' Tc=6.0 min CN=65 Runoff=0.3 cfs 828 cf

Subcatchment 16S: Subcatch 16S Runoff Area=2,049 sf 72.18% Impervious Runoff Depth=4.43"
Tc=6.0 min CN=88 Runoff=0.2 cfs 757 cf

Pond 21P: ADS SC-310 Peak Elev=175.39' Storage=5,624 cf Inflow=3.7 cfs 14,625 cf
Outflow=1.7 cfs 13,013 cf

Link POA-1: POA-1 Inflow=2.6 cfs 21,319 cf
Primary=2.6 cfs 21,319 cf

Link POA-2: POA-2 Inflow=0.3 cfs 1,496 cf
Primary=0.3 cfs 1,496 cf

Link POA-3: POA-3 Inflow=1.4 cfs 4,803 cf
Primary=1.4 cfs 4,803 cf

Total Runoff Area = 117,324 sf Runoff Volume = 29,230 cf Average Runoff Depth = 2.99"
68.47% Pervious = 80,336 sf 31.53% Impervious = 36,988 sf

Summary for Subcatchment 1S: Roof - Drip Edges

Runoff = 0.3 cfs @ 12.08 hrs, Volume= 1,112 cf, Depth= 5.56"
Routed to Link POA-1 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	2,400	98	Roofs
*	0	98	Paved parking
	0	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	2,400	98	Weighted Average
	2,400		100.00% Impervious Area

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

Summary for Subcatchment 2S: Roof - Drip Edges

Runoff = 0.3 cfs @ 12.08 hrs, Volume= 1,112 cf, Depth= 5.56"
Routed to Link POA-1 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	2,400	98	Roofs
*	0	98	Paved parking
	0	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	2,400	98	Weighted Average
	2,400		100.00% Impervious Area

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

Summary for Subcatchment 3S: Roof - Drip Edges

Runoff = 0.3 cfs @ 12.08 hrs, Volume= 1,112 cf, Depth= 5.56"
Routed to Link POA-1 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	2,400	98	Roofs
*	0	98	Paved parking
	0	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	2,400	98	Weighted Average
	2,400		100.00% Impervious Area

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

Summary for Subcatchment 4S: Roof - Drip Edges

Runoff = 0.5 cfs @ 12.08 hrs, Volume= 1,611 cf, Depth= 5.56"
Routed to Link POA-3 : POA-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	3,475	98	Roofs
*	0	98	Paved parking
	0	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	3,475	98	Weighted Average
	3,475		100.00% Impervious Area

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

Summary for Subcatchment 5S: Subcatch 5S

Runoff = 1.4 cfs @ 12.14 hrs, Volume= 4,969 cf, Depth= 2.65"
Routed to Link POA-1 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	3,239	98	Paved parking
	10,664	61	>75% Grass cover, Good, HSG B
	4,231	74	>75% Grass cover, Good, HSG C
	303	55	Woods, Good, HSG B
	4,088	70	Woods, Good, HSG C
	22,525	70	Weighted Average
	19,286		85.62% Pervious Area
	3,239		14.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	70	0.0280	0.12		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
0.3	40	0.1300	2.52		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
9.8	110	Total			

Summary for Subcatchment 6S: Subcatch 6S

Runoff = 0.1 cfs @ 12.25 hrs, Volume= 668 cf, Depth= 1.95"
Routed to Link POA-2 : POA-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	81	98	Paved parking
	4,019	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	4,100	62	Weighted Average
	4,019		98.02% Pervious Area
	81		1.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.8	85	0.0100	0.08		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"

Summary for Subcatchment 7S: Subcatch 7S

Runoff = 0.7 cfs @ 12.09 hrs, Volume= 2,300 cf, Depth= 3.31"
Routed to Pond 21P : ADS SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	3,655	98	Paved parking
	4,645	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	50	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	8,350	77	Weighted Average
	4,695		56.23% Pervious Area
	3,655		43.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	37	0.3300	0.29		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
0.4	62	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
3.5					**Direct Entry, MIN TIME**
6.0	99	Total			

Summary for Subcatchment 8S: Subcatch 8S

Runoff = 0.6 cfs @ 12.21 hrs, Volume= 2,630 cf, Depth= 3.31"
Routed to Pond 21P : ADS SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	4,093	98	Paved parking
	5,457	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	9,550	77	Weighted Average
	5,457		57.14% Pervious Area
	4,093		42.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	150	0.0400	0.16		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
0.2	30	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
15.4	180	Total			

Summary for Subcatchment 9S: Subcatch 9S

Runoff = 0.5 cfs @ 12.21 hrs, Volume= 2,196 cf, Depth= 3.31"
Routed to Pond 21P : ADS SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	3,531	98	Paved parking
	4,444	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	7,975	77	Weighted Average
	4,444		55.72% Pervious Area
	3,531		44.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.2	150	0.0400	0.16		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
0.2	36	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
15.4	186	Total			

Summary for Subcatchment 10S: Subcatch 10S

Runoff = 0.7 cfs @ 12.16 hrs, Volume= 2,567 cf, Depth= 2.74"
Routed to Pond 21P : ADS SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	3,517	98	Paved parking
	1,593	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	4,862	55	Woods, Good, HSG B
	1,278	70	Woods, Good, HSG C
	11,250	71	Weighted Average
	7,733		68.74% Pervious Area
	3,517		31.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	107	0.0460	0.16		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
0.3	45	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
11.3	152	Total			

Summary for Subcatchment 11S: Subcatch 11S

Runoff = 0.1 cfs @ 12.10 hrs, Volume= 257 cf, Depth= 1.71"
Routed to Pond 21P : ADS SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	0	98	Paved parking
	1,153	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	647	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	1,800	59	Weighted Average
	1,800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	15	0.1000	0.10		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
0.1	15	0.1000	2.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
3.4					**Direct Entry, MIN TIME**
6.0	30	Total			

Summary for Subcatchment 12S: Subcatch 12S

Runoff = 0.4 cfs @ 12.13 hrs, Volume= 1,277 cf, Depth= 3.50"
Routed to Pond 21P : ADS SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	2,243	98	Paved parking
	1,079	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	1,053	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	4,375	79	Weighted Average
	2,132		48.73% Pervious Area
	2,243		51.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	45	0.0400	0.09		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
0.0	7	0.3000	3.83		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.2	26	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
8.9	78	Total			

Summary for Subcatchment 13S: Subcatch 13S

Runoff = 1.0 cfs @ 12.10 hrs, Volume= 3,192 cf, Depth= 1.79"
Routed to Link POA-3 : POA-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	0	98	Paved parking
	9,053	61	>75% Grass cover, Good, HSG B
	84	74	>75% Grass cover, Good, HSG C
	8,257	55	Woods, Good, HSG B
	3,981	70	Woods, Good, HSG C
	21,375	60	Weighted Average
	21,375		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	30	0.1000	0.17		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
0.6	70	0.1400	1.87		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
2.5					**Direct Entry, MIN TIME**
6.0	100	Total			

Summary for Subcatchment 14S: Subcatch 1S

Runoff = 0.7 cfs @ 12.14 hrs, Volume= 2,641 cf, Depth= 3.60"
Routed to Pond 21P : ADS SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	4,475	98	Paved parking
	4,325	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	8,800	80	Weighted Average
	4,325		49.15% Pervious Area
	4,475		50.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0500	0.17		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"

Summary for Subcatchment 15S: Subcatch 15S

Runoff = 0.3 cfs @ 12.09 hrs, Volume= 828 cf, Depth= 2.21"
Routed to Link POA-2 : POA-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	0	98	Paved parking
	1,359	61	>75% Grass cover, Good, HSG B
	311	74	>75% Grass cover, Good, HSG C
	727	55	Woods, Good, HSG B
	2,103	70	Woods, Good, HSG C
	4,500	65	Weighted Average
	4,500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	38	0.1000	0.18		**Sheet Flow, A-B**
					Grass: Dense n= 0.240 P2= 3.10"
0.2	30	0.3000	2.74		**Shallow Concentrated Flow, B-C**
					Woodland Kv= 5.0 fps
2.3					**Direct Entry, MIN TIME**
6.0	68	Total			

Summary for Subcatchment 16S: Subcatch 16S

Runoff = 0.2 cfs @ 12.09 hrs, Volume= 757 cf, Depth= 4.43"
Routed to Pond 21P : ADS SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	1,479	98	Paved parking
	570	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	2,049	88	Weighted Average
	570		27.82% Pervious Area
	1,479		72.18% Impervious Area

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

Summary for Pond 21P: ADS SC-310

Inflow Area = 54,149 sf, 42.46% Impervious, Inflow Depth = 3.24" for 25 event
Inflow = 3.7 cfs @ 12.14 hrs, Volume= 14,625 cf
Outflow = 1.7 cfs @ 12.46 hrs, Volume= 13,013 cf, Atten= 55%, Lag= 19.7 min
Primary = 1.7 cfs @ 12.46 hrs, Volume= 13,013 cf
Routed to Link POA-1 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 175.39' @ 12.46 hrs Surf.Area= 11,864 sf Storage= 5,624 cf
Flood Elev= 179.18' Surf.Area= 11,864 sf Storage= 7,606 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 316.5 min (1,144.2 - 827.7)

Volume	Invert	Avail.Storage	Storage Description
#1	171.35'	0 cf	**88.17'W x 67.28'L x 2.50'H Prismatoid** 14,830 cf Overall x 0.0% Voids
#2A	173.85'	4,157 cf	**88.17'W x 67.28'L x 2.33'H Field A** 13,841 cf Overall - 3,450 cf Embedded = 10,391 cf x 40.0% Voids
#3A	174.35'	3,450 cf	**ADS_StormTech SC-310 +Cap** x 234 Inside #2 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 234 Chambers in 26 Rows
		7,606 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	171.35'	**15.0" Round Culvert** L= 62.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 171.35' / 170.73' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	171.45'	**0.8" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	175.00'	**32.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	175.80'	**5.0' long x 2.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.7 cfs @ 12.46 hrs HW=175.39' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.7 cfs of 8.6 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.0 cfs @ 9.52 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 1.6 cfs @ 2.46 fps)
  └─**4=Sharp-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Link POA-1: POA-1

Inflow Area = 83,874 sf, 39.86% Impervious, Inflow Depth > 3.05" for 25 event
Inflow = 2.6 cfs @ 12.35 hrs, Volume= 21,319 cf
Primary = 2.6 cfs @ 12.35 hrs, Volume= 21,319 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link POA-2: POA-2

Inflow Area = 8,600 sf, 0.94% Impervious, Inflow Depth = 2.09" for 25 event
Inflow = 0.3 cfs @ 12.11 hrs, Volume= 1,496 cf
Primary = 0.3 cfs @ 12.11 hrs, Volume= 1,496 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link POA-3: POA-3

Inflow Area = 24,850 sf, 13.98% Impervious, Inflow Depth = 2.32" for 25 event
Inflow = 1.4 cfs @ 12.09 hrs, Volume= 4,803 cf
Primary = 1.4 cfs @ 12.09 hrs, Volume= 4,803 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Appendix 3

Inspection, Maintenance and Housekeeping Plan

INSPECTION, MAINTENANCE, AND HOUSEKEEPING PLAN
WDCJCS Subdivision

By:
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Introduction

The following plan outlines the anticipated inspection and maintenance procedures for the erosion and sedimentation control measures as well as stormwater management facilities for the project. This plan also outlines several housekeeping requirements that shall be followed during and after construction. These procedures shall be followed in order to ensure the intended function of the designed measures and to prevent unreasonably adverse impacts to the surrounding environment.

The procedures outlined in this Inspection, Maintenance and Housekeeping Plan are provided as an overview of the anticipated practices to be used on this site. In some instances, additional measures may be required due to unexpected conditions. For additional detail on any of the erosion and sedimentation control measures or stormwater management devices to be utilized on this project, refer to the most recently revised edition of the "Maine Erosion and Sedimentation Control BMP" manual and/or the "Stormwater Management for Maine: Best Management Practices" manual as published by the Maine Department of Environmental Protection (MDEP).

During Construction

1. **Inspection:** During the construction process, it is the Contractor's responsibility to comply with the inspection and maintenance procedures outlined in this section. These responsibilities include inspecting disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. These areas shall be inspected at least once a week as well as before and after a storm event of 0.5" of rainfall in a 24-hour period, and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in any applicable permits, shall conduct the inspections.

2. **Maintenance:** All measures shall be maintained in an effective operating condition until areas are permanently stabilized. If Best Management Practices (BMPs) need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation must be completed within 7 calendar days and prior to any storm event (0.5" of rainfall).

3. **Documentation:** A log summarizing the inspections and any corrective action taken must

be maintained on-site. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, material storage areas, and vehicle access points to the site. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken. The log must be made accessible to the appropriate regulatory agency upon request. The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

4. **Specific Inspection and Maintenance Tasks:** The following is a list of erosion control and stormwater management measures and the specific inspection and maintenance tasks to be performed during construction.

A. Sediment Barriers:

- Hay bale barriers, silt fences, and filter berms shall be inspected immediately after each rainfall and at least daily during prolonged rainfall.
- If the fabric on a silt fence or filter barrier should decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, it shall be replaced.
- Sediment deposits should be removed after each storm event (0.5" of rainfall). They must be removed before deposits reach approximately one-half the height of the barrier.
- Filter berms shall be reshaped as needed.
- Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared, and seeded.

B. Riprap Materials:

- Once a riprap installation has been completed, it should require very little maintenance. It shall, however, be inspected periodically to determine if high flows have caused scour beneath the riprap or dislodged any of the stone.

C. Erosion Control Blankets:

- Inspect these reinforced areas semi-annually and after significant rainfall events for slumping, sliding, seepage, and scour. Pay close attention to unreinforced areas adjacent to the erosion control blankets, which may experience accelerated erosion.
- Review all applicable inspection and maintenance procedures recommended by the specific blanket manufacturer. These tasks shall be included in

addition to the requirements of this plan.

D. Stabilized Construction Entrances/Exits:

- The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way.
- When the control pad becomes ineffective, the stone shall be removed along with the collected soil material. The entrance should then be reconstructed.
- Areas that have received mud-tracking or sediment deposits shall be swept or washed. Washing shall be done on an area stabilized with aggregate, which drains into an approved sediment-trapping device (not into storm drains, ditches, or waterways).

E. Temporary Seed and Mulch:

- Mulched areas should be inspected after rain events to check for rill erosion.
- If less than 90% of the soil surface is covered by mulch, additional mulch shall be applied in bare areas.
- In applications where seeding and mulch have been applied in conjunction with erosion control blankets, the blankets must be inspected after rain events for dislocation or undercutting.
- Mulch shall continue to be reapplied until 95% of the soil surface has established temporary vegetative cover.

F. Stabilized Temporary Drainage Swales:

- Sediment accumulation in the swale shall be removed once the cross section of the swale is reduced by 25%.
- The swales shall be inspected after rainfall events. Any evidence of sloughing of the side slopes or channel erosion shall be repaired and corrective action should be taken to prevent reoccurrence of the problem.
- In addition to the stabilized lining of the channel (i.e. erosion control blankets), stone check dams may be needed to further reduce channel velocity.

5. **Housekeeping:** The following general performance standards apply to the proposed project.

A. Spill prevention: Controls must be used to prevent pollutants from being discharged from materials on-site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.

B. Groundwater protection: During construction, liquid petroleum products and

other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors, accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.

C. Fugitive sediment and dust: Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control.

D. Debris and other materials: Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.

E. Trench or foundation dewatering: Trench dewatering is the removal of water from trenches, foundations, cofferdams, ponds, and other areas within the construction area that retain water after excavation. In most cases, the collected water is heavily silted and hinders correct and safe construction practices. The collected water must be removed from the ponded area, either through gravity or pumping, and must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved.

Post-Construction

1. **Inspection:** After construction, it is the responsibility of the owner or assigned heirs to comply with the inspection and maintenance procedures outlined in this section. All measures must be maintained in effective operating condition. The owner shall inspect and maintain the BMPs, including but not limited to any parking areas, catch basins, drainage swales, detention basins and ponds, pipes and related structures, in accordance with all municipal and state inspection, cleaning and maintenance requirements of the approved post-construction stormwater management plan.

2. **Specific Inspection and Maintenance Tasks:** The following is a list of permanent erosion control and stormwater management measures and the inspection and maintenance tasks to be performed after construction. If the BMP requires maintenance, repair or replacement to function as intended by the approved post-construction stormwater management plan, the owner or operator of the BMP shall take corrective action(s) to address the deficiency or deficiencies as soon as possible after the deficiency is discovered and shall provide a record of the deficiency and corrective action(s) to the local municipality in the annual report.

   A. Vegetated Areas:

- Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after heavy rains (>0.5") to identify active or potential erosion problems.
- Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.

B. Ditches, Swales and Other Open Channels:

- Inspect ditches, swales, level spreaders and other open stormwater channels in the spring, in the late fall, and after heavy rains to remove any obstructions to flow. Remove accumulated sediments and debris, remove woody vegetative growth that could obstruct flow, and repair any erosion of the ditch lining.
- Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity.
- Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable.
- If the ditch has a riprap lining, replace riprap in areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged.

C. Culverts:

- Inspect culverts in the spring, in the late fall, and after heavy rains (>0.5") to remove any obstructions to flow.
- Remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit.
- Inspect and repair any erosion damage at the culvert's inlet and outlet.

D. Removal of Winter Sand:

- Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring.
- Accumulations on pavement may be removed by pavement sweeping.
- Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader or other acceptable method.

E. Catch Basins:

- Inspect and, if required, clean out basins bi-annually starting in early spring in preferred.

- Cleaning of catch basins will be required when sediment of at least 6-inches has accumulated within the sump.
- Cleanout must include the removal and legal disposal of accumulated sediments and debris at the bottom of the basin, at any inlets grates, and any inflow channels to the basin, and at any pipes between basins.

F. Roof Drip Edges:

- These structures may not be paved over or altered in anyway. No gutter may be installed on the roof line.
- Debris and sediment buildup shall be removed as needed. Any bare area or erosion rills shall be repaired with new stone.
- See inspection log within Attachment 1 of this document for the inspection requirements of this BMP.

G. Subsurface Sand Filter:

- Follow Operation & Maintenance procedures per manufacturer.
- Inspect the site monthly for the first few months after construction. Then inspections can occur on an annual basis, preferably after rain events when clogging will be obvious.
- Make any repairs necessary to ensure the measure is operating properly.
- Regular maintenance is necessary to remove surface sediment, trash, debris,
  and leaf litter.
- Outlets and chambers need to be cleaned/repaired when drawdown times in
  the filter exceeds 36 hours.

G. Outlet Control Structures:

- Inspect outlet structures two times per year (preferably in spring and fall) to ensure that the outlet structures are working in their intended fashion and that they are free of debris.
- Clean structures when sediment depths reach 6 inches from invert of outlet.
- At a minimum, remove floating debris at the time of the inspection.

3. Documentation:

A. The owner or operator of a BMP or a qualified post-construction stormwater inspector hired by that person, shall, as required by the local municipality, provide a completed and signed certification on a form provided by the local municipality, certifying that the person has inspected the BMP(s) and that they are adequately maintained and functioning as intended by the approved post-

construction stormwater management plan, or that they required maintenance or repair, including the record of the deficiency and corrective action(s) taken.

B. A log summarizing the inspections and any corrective action taken must be maintained. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of controls. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken. The log must be made accessible to the appropriate regulatory agency upon request. A sample "Stormwater Inspection and Maintenance Form" has been included as Attachment 1 of this Inspection, Maintenance, and Housekeeping Plan.

4. Duration of Maintenance: Perform maintenance as described and required for any associated permits unless and until the system is formally accepted by a municipality or quasi-municipal district, or is placed under the jurisdiction of a legally created association that will be responsible for the maintenance of the system. If a municipality or quasi-municipal district chooses to accept a stormwater management system, or a component of a stormwater system, it must provide a letter to the MDEP stating that it assumes responsibility for the system. The letter must specify the components of the system for which the municipality or district will assume responsibility, and that the municipality or district agrees to maintain those components of the system in compliance with MDEP standards. Upon such assumption of responsibility, and approval by the MDEP, the municipality, quasi-municipal district, or association becomes a co-permittee for this purpose only and must comply with all terms and conditions of the permit.

Prepared by:
SEBAGO TECHNICS, INC.

Paul D. Ostrowski, PE
Senior Project Engineer

Attachment 1

Sample Post-Construction Inspection Form

ATTACHMENT 1 – STORMWATER INSPECTION AND MAINTENANCE LOG

WDCJCS Subdivision
Windham, Maine

This log is intended to accompany the Inspection, Maintenance, and Housekeeping Plan for WDCJCS Subdivision located at 55 High Street in Windham, Maine. The following items shall be checked, cleaned, and maintained on a regular basis as specified in the Maintenance Plan and as described in the sections below. This log shall be kept on file for a minimum of five (5) years and shall be available for review by the Town of Windham. Qualified personnel familiar with drainage systems and soils shall perform all inspections.

This form shall be submitted to the Town of Windham along with the Annual Stormwater Management Facilities Certification form, contained in Attachment 2, on or before June 1 of each year.

Attachment 1

Sample Post-Construction Inspection Form

ATTACHMENT 1 – STORMWATER INSPECTION AND MAINTENANCE LOG

WDCJCS Subdivision
Windham, Maine

This log is intended to accompany the Inspection, Maintenance, and Housekeeping Plan for WDCJCS Subdivision located at 55 High Street in Windham, Maine. The following items shall be checked, cleaned, and maintained on a regular basis as specified in the Maintenance Plan and as described in the sections below. This log shall be kept on file for a minimum of five (5) years and shall be available for review by the Town of Windham. Qualified personnel familiar with drainage systems and soils shall perform all inspections.

This form shall be submitted to the Town of Windham along with the Annual Stormwater Management Facilities Certification form, contained in Attachment 2, on or before June 1 of each year.

INSPECTION MAINTENANCE AND HOUSEKEEPING FORM			
General Information			
Project Name:		**Inspection Date:**	
Project Location:		**Current Weather:**	
		Date / Amount Last Precip:	
BMP Owner:		**Company conducting inspection:**	
Owner Mailing Address:		**Company Mailing Address**	
Owner Phone #:		**Company Phone #:**	
Owner Email:		**Inspector Name:**	
		Inspector Email:	
Site Element	**Suggested Maintenance (recm'd frequency)**	**Observations**	**Inspection Notes/Recommended Action**
Vegetated Areas	Inspect Slopes/Embankments for erosion (annually)		
	Replant bare areas or areas of sparse growth (annually)		
Ditches/Swales	Remove obstructions/debris/sediment (monthly)		
	Inspect for erosion/repair as needed (annually)		
	Remove woody vegetation (annually)		
	Mow vegetated ditches (annually)		
Catch Basins	Remove sediment/debris from sump (annually)		
	Remove accumulated debris from inlet grate		
Culverts	Remove sediment/debris from inlet/outlet aprons (annually)		
	Inspect inlet/outlet aprons for erosion, repair as needed (annually)		
	Inspect, repair as needed, riprap aprons for dislodged/sparse coverage (annually)		
Pipe Outlets	Remove sediment/debris from outlet aprons (annually)		
	Inspect outlet aprons for erosion, repair as needed (annually)		
	Inspect, repair as needed, riprap aprons for dislodged/sparse coverage (annually)		
Additional Notes/Observations:			

Subsurface Sand Filter

INSPECTION MAINTENANCE AND HOUSEKEEPING FORM			
General Information			
Project Name:		**Inspection Date:**	
Project Location:		**Current Weather:**	
		Date / Amount Last Precip:	
BMP Owner:		**Company conducting inspection:**	
Owner Mailing Address:		**Company Mailing Address**	
Owner Phone #:		**Company Phone #:**	
Owner Email:		**Inspector Name:**	
		Inspector Email:	

BMP Element	Suggested Maintenance	Observations	Inspection Notes/Recommended Action
Pretreatment			
	Sediment Depth/Removal (Annually)		
Outlet Control Structure			
	Sediment Depth (Annually)		
	Floatables/Debris (Annually)		
Discharge Pipe			
	Ground Stabilized (>1" rain, Annually)		
Subsurface Chambers			
	Sediment Depth/Removal (Annually)		

Additional Notes/Observations:

Roof Drip Edge Filter

INSPECTION MAINTENANCE AND HOUSEKEEPING FORM			
General Information			
Project Name:		**Inspection Date:**	
Project Location:		**Current Weather:**	
		Date / Amount Last Precip:	
BMP Owner:		**Company conducting inspection:**	
Owner Mailing Address:		**Company Mailing Address**	
Owner Phone #:		**Company Phone #:**	
Owner Email:		**Inspector Name:**	
		Inspector Email:	

BMP Element	Suggested Maintenance (recm'd frequency)	Observations	Inspection Notes/Recommended Action
Pretreatment	Sediment/Debris Removal (Annually)		
	Inspect for bare areas or rill erosion (Annually)		
Downstream Structure	Sediment Depth (Annually)		
	Floatables/Debris (Annually)		
Discharge Pipe	Ground Stabilized (>1" rain, Annually)		
Embankments	Review for signs of erosion (Twice Annually)		
Stone	Trim overgrown vegetation with string trimmer (annually)		
	Review trench for evidence of vehicular traffic or storage of snow within footprint (annually)		
	Confirm no excessive ponding of water (annually)		

Additional Notes/Observations:

Attachment 2

Town of Windham Annual Stormwater Management Facilities Certification

Town of Windham

Appendix 1

Annual Stormwater Management Facilities Certification
(to be sent to Municipal Enforcement Authority)

I,_____ (print or type name), certify the following:

1. I am making this annual stormwater management facilities certification for the following property:_____ (print or type name of subdivision, condominium or other development) located at _____ (print or type address), (the "property");

2. The owner, operator, tenant, lessee or homeowners' association of the property is: _____ [name(s) of owner, operator, tenant, lessee, homeowners' association or other party having control over the property];

3. I am the owner, operator, tenant, lessee or president of the homeowners' association, or am a qualified third-party inspector hired by the same (circle one);

4. I have knowledge of erosion and stormwater control and have reviewed the approved post-construction stormwater management plan for the property;

5. On_____, 20_____, I inspected or had inspected by _____, a qualified third-party inspector, the stormwater management facilities, including but not limited to parking areas, catch basins, drainage swales, detention basins and ponds, pipes and related structures required by the approved post-construction stormwater management plan for the property;

6. At the time of my inspection of the stormwater management facilities on the property, I or the qualified third-party inspector identified the following need(s) for routine maintenance or deficiencies in the stormwater management facilities:
   _____
   _____
   _____
   _____
   _____

7. On_____, 20__, I took or had taken the following routine maintenance or the following corrective action(s) to address the deficiencies in the stormwater management facilities stated in 6 above:
   _____
   _____
   _____
   _____

8. As of the date of this certification, the stormwater management facilities are functioning as intended by the approved post-construction stormwater management plan for the property

Date:_____, 20_____ By:_____
Signature

_____
Print Name

STATE OF MAINE
_____, ss _____, 20_____

Personally appeared the above-named _____, the _____ of _____, and acknowledged the foregoing annual certification to be said person's free act and deed in said capacity.

Before me,

_____
Notary Public/Attorney at Law

Print Name: _____

Mail this certification to the Town of Windham at the following address:

Office of Code Enforcement
Town of Windham
8 School Road
Windham, ME 04062

Appendix 4

Subsurface Soil Investigations

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Cumberland County and Part of Oxford County, Maine

August 29, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


70° 25' 17" W
70° 25' 6" W
43° 44' 7" N
43° 44' 2" N
385530
385550
385570
385590
385610
385630
385650
385670
385690
385710
385730
385750
385770
4843460
4843440
4843420
4843400
4843380
4843360
4843340
4843320
BgB
EmB
PbB
High St
Soil Map may not be valid at this scale.
Map Scale: 1:1,120 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 15 30 60 90
Feet
0 50 100 200 300
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 20, Sep 5, 2023

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

Date(s) aerial images were photographed: Jul 22, 2021—Oct 7, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BgB	Nicholville very fine sandy loam, 0 to 8 percent slopes	0.2	6.8%
EmB	Elmwood fine sandy loam, 0 to 8 percent slopes	2.2	88.7%
PbB	Paxton fine sandy loam, 3 to 8 percent slopes	0.1	4.5%
Totals for Area of Interest		**2.4**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Cumberland County and Part of Oxford County, Maine

BgB—Nicholville very fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2yjg5
Elevation: 20 to 2,300 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Nicholville and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nicholville

Setting

Landform: Lakebeds (relict)
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-silty glaciomarine deposits

Typical profile

Ap - 0 to 7 inches: very fine sandy loam
Bs - 7 to 19 inches: very fine sandy loam
BC - 19 to 30 inches: very fine sandy loam
C - 30 to 65 inches: loamy very fine sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

EmB—Elmwood fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: blh8
Elevation: 10 to 900 feet
Mean annual precipitation: 38 to 55 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 130 to 195 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Elmwood and similar soils: 88 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elmwood

Setting

Landform: Stream terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy glaciolacustrine deposits

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 25 inches: sandy loam
H3 - 25 to 65 inches: silty clay loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Ecological site: F144BY402ME - Clay Hills
Hydric soil rating: No

PbB—Paxton fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: bljf
Elevation: 0 to 930 feet
Mean annual precipitation: 48 to 50 inches
Mean annual air temperature: 45 to 46 degrees F
Frost-free period: 145 to 155 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Paxton and similar soils: 87 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton

Setting

Landform: Drumlinoid ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy lodgment till derived from mica schist

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 20 inches: fine sandy loam
H3 - 20 to 65 inches: fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 18 to 40 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 30 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

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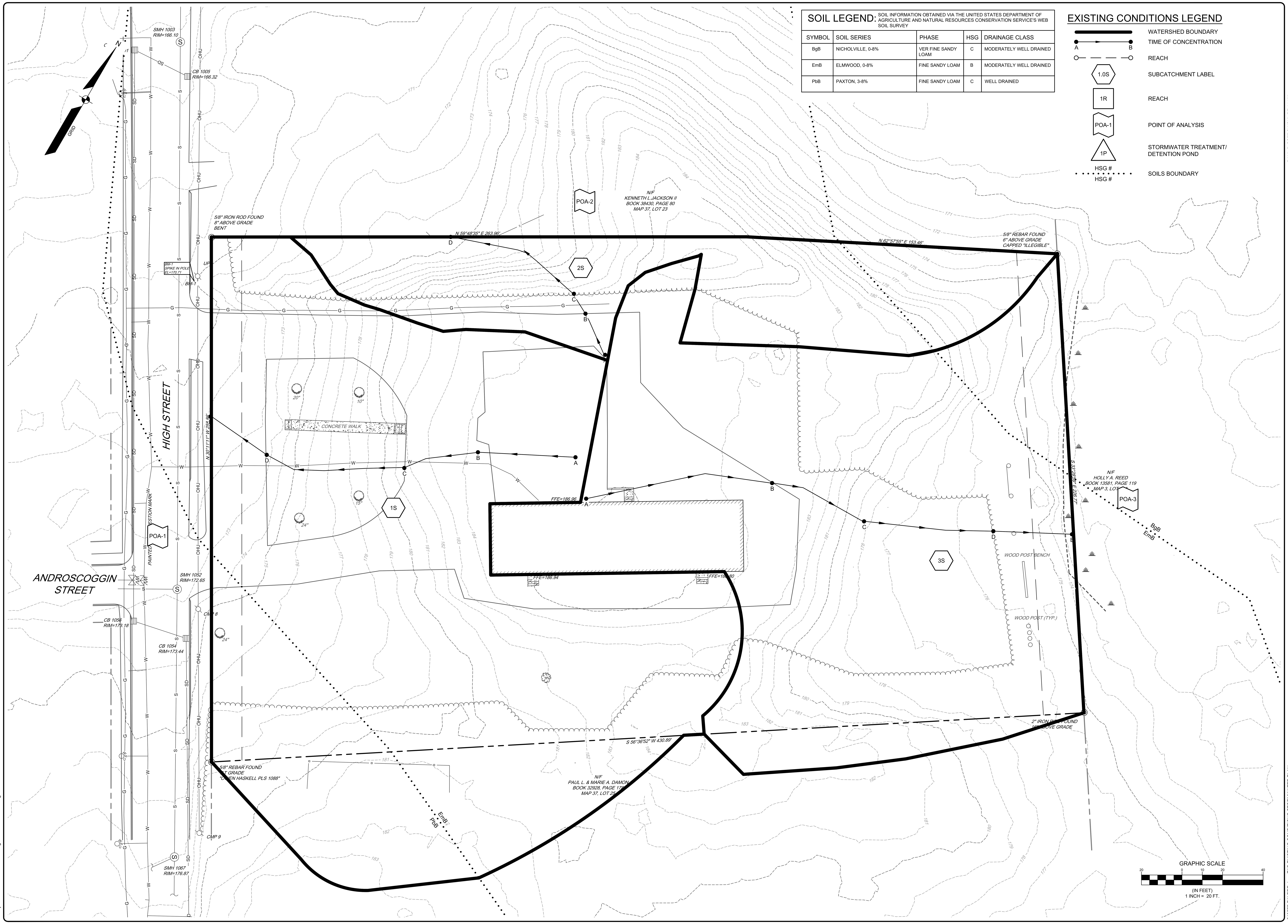
Appendix 5

Stormwater Management Plans



SOIL LEGEND: SOIL INFORMATION OBTAINED VIA THE UNITED STATES DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES CONSERVATION SERVICE'S WEB SOIL SURVEY
SYMBOL | SOIL SERIES | PHASE | HSG | DRAINAGE CLASS
BgB | NICHOLVILLE, 0-8% | VER FINE SANDY LOAM | C | MODERATELY WELL DRAINED
EmB | ELMWOOD, 0-8% | FINE SANDY LOAM | B | MODERATELY WELL DRAINED
PbB | PAXTON, 3-8% | FINE SANDY LOAM | C | WELL DRAINED
EXISTING CONDITIONS LEGEND
WATERSHED BOUNDARY
TIME OF CONCENTRATION
REACH
SUBCATCHMENT LABEL
REACH
POINT OF ANALYSIS
STORMWATER TREATMENT/ DETENTION POND
SOILS BOUNDARY
HIGH STREET
ANDROSCOGGIN STREET
POA-1
POA-2
POA-3
1S
2S
3S
N/F KENNETH L. JACKSON II BOOK 38430, PAGE 80 MAP 37, LOT 23
N/F HOLLY A. REED BOOK 13581, PAGE 119 MAP 3, LOT
N/F PAUL L. & MARIE A. DAMON BOOK 32928, PAGE 17 MAP 37, LOT 2
5/8" IRON ROD FOUND 8" ABOVE GRADE BENT
5/8" REBAR FOUND 6" ABOVE GRADE CAPPED "ILLEGIBLE"
N 59°48'35" E 263.96'
N 62°57'55" E 153.46'
S 56°36'52" W 430.89'
SMH 1003 RIM=166.10
CB 1005 RIM=166.32
SMH 1052 RIM=172.65
CB 1054 RIM=173.44
SMH 1067 RIM=176.87
CONCRETE WALK
FFE=186.96
FFE=186.94
WOOD POST BENCH
WOOD POST (TYP.)
GRAPHIC SCALE
(IN FEET) 1 INCH = 20 FT.

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South Portland, ME 04106
207-200-2100
South Portland, Bridgton, Sanford and Bath

REV	BY	DATE	STATUS
B	KEW	10-10-24	SUBMISSION TO TOWN FOR FINAL SITE/SUBDIVISION
A	KEW	9-18-24	SUBMISSION TO TOWN FOR PRELIMINARY SITE/SUBDIVISION

STATE OF MAINE PAUL D. OSTROWSKI No. 11175 LICENSED PROFESSIONAL ENGINEER 10/10/2024
PAUL D OSTROWSKI, PE 11175

EXISTING CONDITIONS STORMWATER PLAN

OF:

WDCJCS SUBDIVISION

55 HIGH STREET
WINDHAM, ME 04062

FOR:

GREAT FALLS CONSTRUCTION & WESTBROOK DEVELOPMENT CORPORATION
20 MECHANIC STREET GORHAM, ME 04038

DESIGNED	MRB/KEW
DRAWN	MRS
CHECKED	ABS
DATE	08-26-2024
SCALE	1" = 20'
PROJECT	240577

SHEET 1 OF 2

240577 SW PRE.dwg, TAB:EXISTING CONDITIONS STORMWATER PLAN

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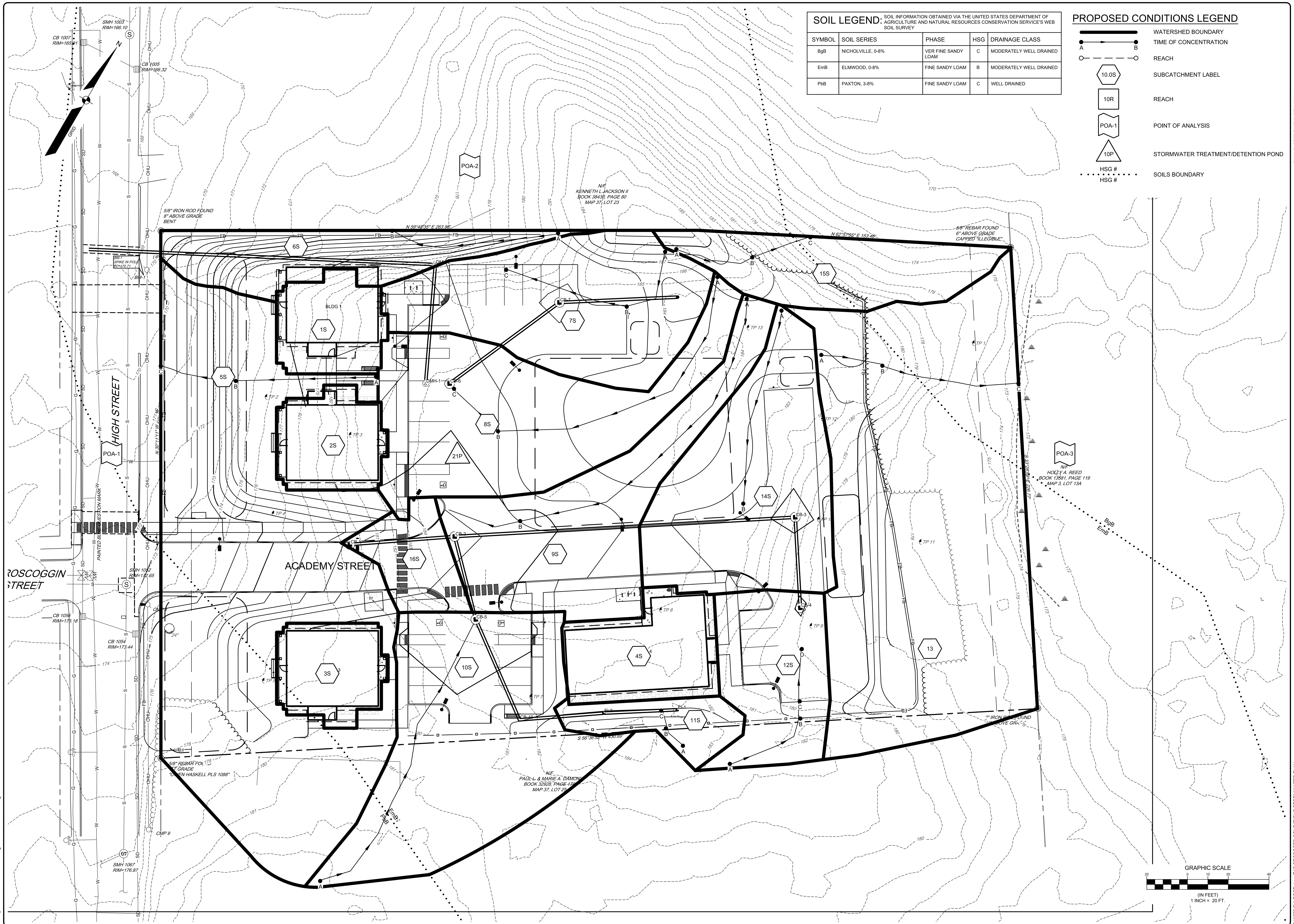

SOIL LEGEND:
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SYMBOL	SOIL SERIES	PHASE	HSG	DRAINAGE CLASS
BgB	NICHOLVILLE, 0-8%	VER FINE SANDY LOAM	C	MODERATELY WELL DRAINED
EmB	ELMWOOD, 0-8%	FINE SANDY LOAM	B	MODERATELY WELL DRAINED
PbB	PAXTON, 3-8%	FINE SANDY LOAM	C	WELL DRAINED

PROPOSED CONDITIONS LEGEND

- WATERSHED BOUNDARY
- A — B TIME OF CONCENTRATION
- REACH
- 10.0S SUBCATCHMENT LABEL
- 10R REACH
- POA-1 POINT OF ANALYSIS
- 10P STORMWATER TREATMENT/DETENTION POND
- HSG # / HSG # SOILS BOUNDARY

GRAPHIC SCALE
(IN FEET)
1 INCH = 20 FT.

PAUL D OSTROWSKI, PE 11175

STATE OF MAINE
PAUL D. OSTROWSKI
No. 11175
LICENSED PROFESSIONAL ENGINEER
10/10/2024

REV:	BY:	DATE:	STATUS:
B	KEW	10-10-24	SUBMISSION TO TOWN FOR FINAL SITE/SUBDIVISION
A	KEW	9-18-24	SUBMISSION TO TOWN FOR PRELIMINARY SITE/SUBDIVISION

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PROPOSED CONDITIONS STORMWATER PLAN

OF:
WDCJCS SUBDIVISION
55 HIGH STREET
WINDHAM, ME 04062

FOR:
GREAT FALLS CONSTRUCTION & WESTBROOK DEVELOPMENT CORPORATION
20 MECHANIC STREET GORHAM, ME 04038

DESIGNED	MRB/KEW
DRAWN	MRS
CHECKED	ABS
DATE	08-26-2024
SCALE	1" = 20'
PROJECT	240577

SHEET 2 OF 2

240577 SW POST.dwg, TAB:PROPOSED CONDITIONS STORMWATER PLAN

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Land Use	Pollutant Ranking
Roads where idling may occur periodically High use parking lots	5
Other roads; Medium use parking lots	4
Other parking lots and driveways; Flat asphalt rooftops; Roofs on an industrial facility	3
Other rooftops; Bikeways; Grassed areas mowed more than twice per year; Walkways/foot traffic-only pavement	2
Non-grass landscaped areas; Stormwater treatment/storage systems (except buffers)	1
Forest; Meadow mowed no more than twice per year;	0

Table 2: MDEP REDEVELOPMENT STANDARD CALCULATIONS: Former Andrews School, 55 High Street Windham

Existing Areas by Pollutant Ranking (S.F.)							Proposed Areas by Pollutant Ranking (S.F.)						
0	1	2	3	4	5	SUM	0	1	2	3	4	5	SUM
40,016	0	46,274	0	20,515	0	106,805	17,230	0	66,575	0	23,000	0	106,805

Existing Areas by Pollutant Ranking (acres)							Proposed Areas by Pollutant Ranking (acres)						
0	1	2	3	4	5	SUM	0	1	2	3	4	5	SUM
0.919	0.000	1.062	0.000	0.471	0.000	2.452	0.396	0.000	1.528	0.000	0.528	0.000	2.452

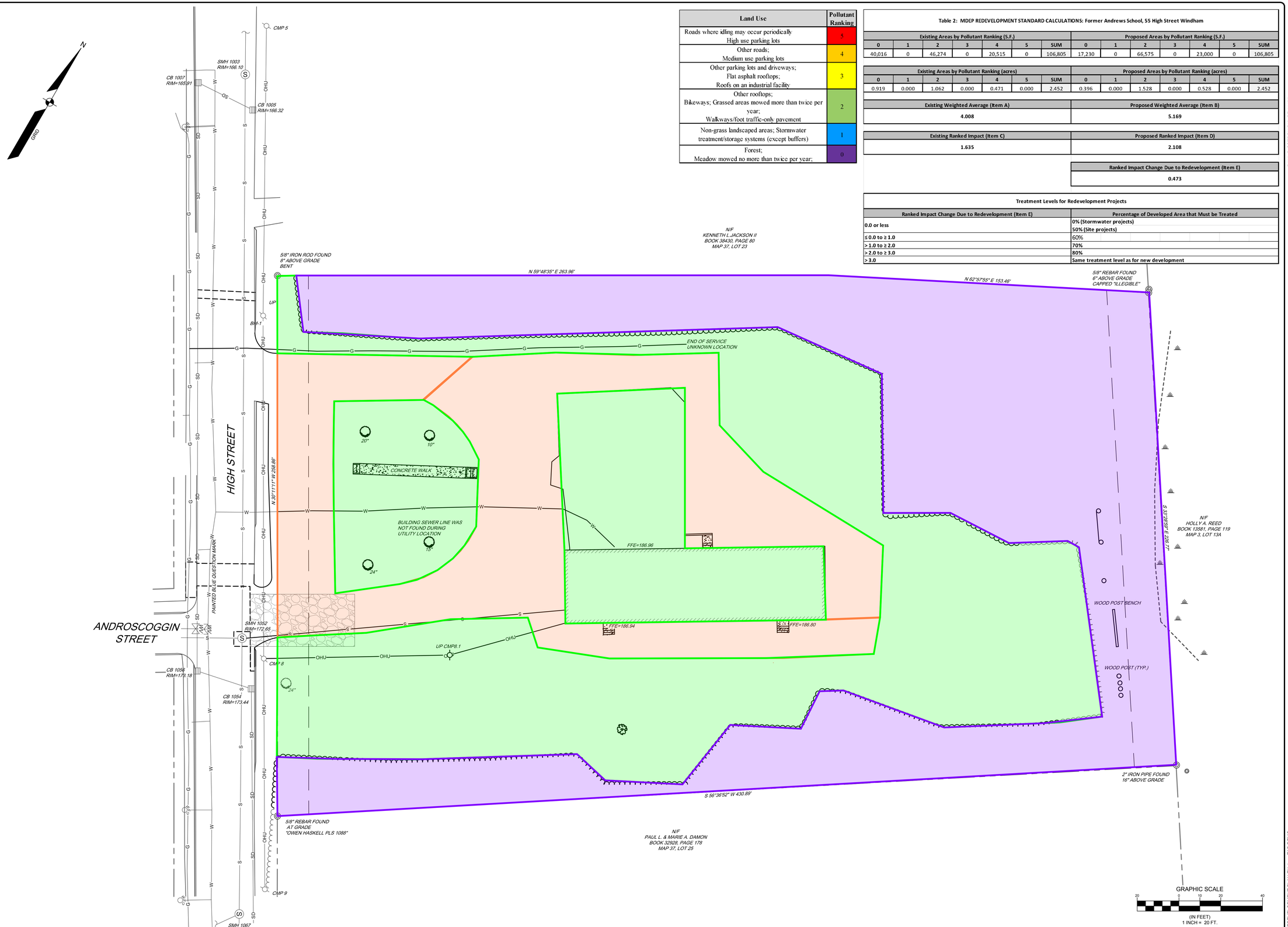
Existing Weighted Average (Item A)	Proposed Weighted Average (Item B)
4.008	5.169

Existing Ranked Impact (Item C)	Proposed Ranked Impact (Item D)
1.635	2.108

Ranked Impact Change Due to Redevelopment (Item E)
0.473

Treatment Levels for Redevelopment Projects

Ranked Impact Change Due to Redevelopment (Item E)	Percentage of Developed Area that Must be Treated
0.0 or less	0% (Stormwater projects) 50% (Site projects)
≤ 0.0 to ≥ 1.0	60%
> 1.0 to ≥ 2.0	70%
> 2.0 to ≥ 3.0	80%
> 3.0	Same treatment level as for new development



PAUL D OSTROWSKI, PE 11175

STATE OF MAINE
PAUL D. OSTROWSKI
No. 11175
REGISTERED PROFESSIONAL ENGINEER
10/09/2024

REV	BY	DATE	STATUS
A	KEW	9-18-24	SUBMISSION TO TOWN FOR PRELIMINARY SITE/SUBDIVISION
B	KEW	10-10-24	SUBMISSION TO TOWN FOR FINAL SITE/SUBDIVISION

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DEMO PLAN
OF:
WDCJCS SUBDIVISION
55 HIGH STREET,
WINDHAM, ME 04062
FOR:
GREAT FALLS CONSTRUCTION &
WESTBROOK DEVELOPMENT CORPORATION
20 MECHANIC STREET GORHAM, ME 04038

DESIGNED	MRB/KEW
DRAWN	MRS
CHECKED	ABS
DATE	08-26-2024
SCALE	1" = 20'
PROJECT	240577

SHEET C-001

240577 REDEVELOPMENT PLAN EX.dwg, TAB:DEMO

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Land Use	Pollutant Ranking
Roads where idling may occur periodically High use parking lots	5
Other roads; Medium use parking lots	4
Other parking lots and driveways; Flat asphalt rooftops; Roofs on an industrial facility	3
Other rooftops; Bikeways; Grassed areas mowed more than twice per year; Walkways/foot traffic-only pavement	2
Non-grass landscaped areas; Stormwater treatment/storage systems (except buffers)	1
Forest; Meadow mowed no more than twice per year;	0

Table 2: MDEP REDEVELOPMENT STANDARD CALCULATIONS: Former Andrews School, 55 High Street Windham

Existing Areas by Pollutant Ranking (S.F.)							Proposed Areas by Pollutant Ranking (S.F.)						
0	1	2	3	4	5	SUM	0	1	2	3	4	5	SUM
40,016	0	46,274	0	20,515	0	106,805	17,230	0	66,575	0	23,000	0	106,805

Existing Areas by Pollutant Ranking (acres)							Proposed Areas by Pollutant Ranking (acres)						
0	1	2	3	4	5	SUM	0	1	2	3	4	5	SUM
0.919	0.000	1.062	0.000	0.471	0.000	2.452	0.396	0.000	1.528	0.000	0.528	0.000	2.452

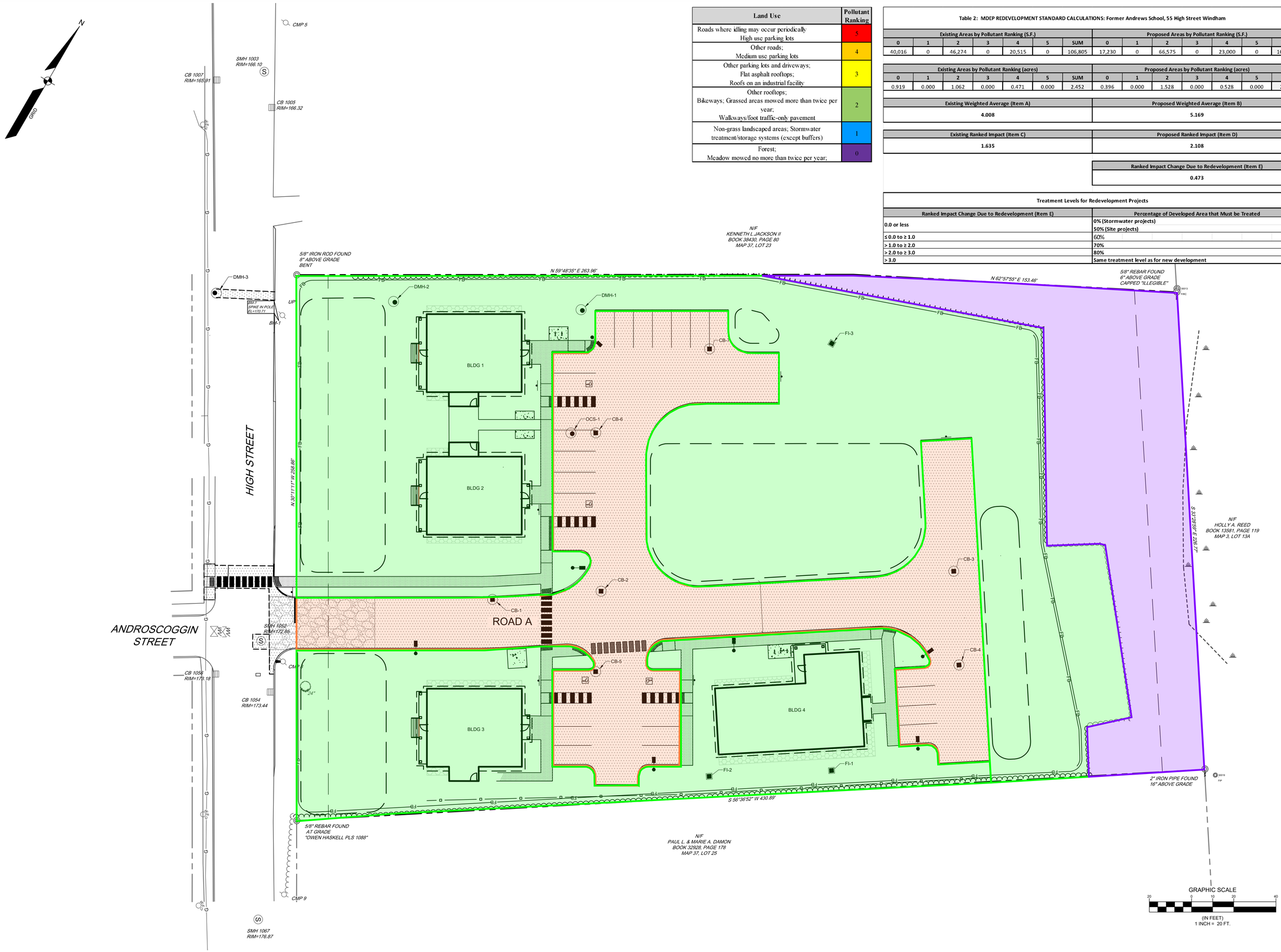
Existing Weighted Average (Item A)	Proposed Weighted Average (Item B)
4.008	5.169

Existing Ranked Impact (Item C)	Proposed Ranked Impact (Item D)
1.635	2.108

Ranked Impact Change Due to Redevelopment (Item E)
0.473

Treatment Levels for Redevelopment Projects

Ranked Impact Change Due to Redevelopment (Item E)	Percentage of Developed Area that Must be Treated
0.0 or less	0% (Stormwater projects) 50% (Site projects)
≤ 0.0 to ≥ 1.0	60%
> 1.0 to ≥ 2.0	70%
> 2.0 to ≥ 3.0	80%
> 3.0	Same treatment level as for new development



PAUL D OSTROWSKI, PE 11175

STATE OF MAINE
PAUL D. OSTROWSKI
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10/09/2024

REV	BY	DATE	STATUS
B	KEW	10-10-24	SUBMISSION TO TOWN FOR FINAL SITE/SUBDIVISION
A	KEW	9-18-24	SUBMISSION TO TOWN FOR PRELIMINARY SITE/SUBDIVISION

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SITE PLAN & SUBDIVISION PLAN
OF:
WDCJCS SUBDIVISION
55 HIGH STREET
WINDHAM, ME 04062
FOR:
GREAT FALLS CONSTRUCTION &
WESTBROOK DEVELOPMENT CORPORATION
20 MECHANIC STREET GORHAM, ME 04038

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CHECKED	ABS
DATE	08-26-2024
SCALE	1" = 20'
PROJECT	240577

SHEET C-101

240577 REDEVELOPMENT PLAN PR.dwg, TAB:Proposed Conditions Redevelopment Plan

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