U.S. Department of Homeland Security

United States Coast Guard

Commanding Officer
United States Coast Guard
Facilities Design and Construction Center

5505 Robin Hood Road, Suite K
Norfolk, VA 23513-2431
Phone: 757-852-3404
Fax: 757-852-3495

11000
19 May 2021

Maine Department of Environmental Protection
Eastern Maine Regional Office
Ms. Maria Eggett
106 Hogan Rd.
Bangor, ME 04401

Greetings Ms. Eggett,

The United States Coast Guard (USCG) is pleased to submit a Stormwater Management Permit application for the proposed 8-unit subdivision proposed in Perry, Maine in support of the USCG Eastport base. Phase I of the project contemplated less than one acre of impervious area and as such, a Permit-By-Rule was applied for and approved on 4/16/2021 under PBR #72097. At this time, the full site buildout is being pursued and as such, 1.33 acres of impervious area is involved, necessitating a stormwater permit application.

The project will demolish the existing structures and gravel driveway that traverses its site. In its place, up to eight single family homes will be constructed with a common roadway, a maintenance facility, a small bus shelter, and a playground area. The development has been tactfully designed such that the roadway and homes lay centrally within the site such that it respects the buffers with the neighbors and also avoids any wetland fill.

Because the majority of the existing project contains lawn/pasture that historically serviced light agriculture, after completing the calculations under the Redevelopment Standards, the Ranked Impact Change is less than zero. Although the proposal will add impervious area, it's offset by the significant reduction in overall developed area given a notable portion of the site will be restored with non-lawn vegetation. However, as a best practice, a vegetated underdrained soil filter (VUSF) has been proposed to provide attenuation and treatment for the majority of the roadway as well as some of the lawns, driveways, and rooftops, resulting in a project that exceeds its requirements.

If further information is required, please contact Mr. Richard Hylton, at (757) 852 – 3404 or by e-mail at rick.d.hylton@uscg.mil.

Sincerely,

Digitally signed by
BARRESI.JOHN.FJRII.1187016629
Date: 2021.05.19 11:20:39 -04'00'

J. F. BARRESI
Captain, U. S. Coast Guard

Enclosure: (1) USCG Eastport Housing – Stormwater Management Permit Application Package

DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF LAND RESOURCES

FOR DEP USE
L-_____
ATS# _____
FEES PAID _____
DATE RECEIVED _____

Stormwater Application Form

PLEASE TYPE OR PRINT IN INK

This application is for (Check the one that applies):	☒ **New application** ☐ **Amendment**		
1. Name of Applicant:	United States Coast Guard	**5. Name of Agent:**	
2. Applicant's Mailing Address:	5505 Robin Hood Road, Norfolk, VA 23435	**6. Agent's Mailing Address:**	
3. Applicant's Phone #:	(757) 852-3448	**7. Agent's Phone #:**	
4. Email address (REQUIRED-license will be sent via email:	john.f.barresi@uscg.mil rick.d.hylton@uscg.mil	**8.E-mail address (REQUIRED-license will be sent via email**	
9. Location of Project: (Road, Street, Rt.#)	576 Shore Rd	**10. Town:**	Perry
		11. County:	Washington
12. Type of Direct Watershed: (Check all that apply)	☐ Lake not most at risk ☐ Lake most at risk ☐ Lake most at risk, severely blooming ☒ River, stream or brook ☐ Urban impaired stream ☒ Freshwater wetland ☐ Coastal wetland ☐ Wellhead of public water supply	**13. Amount of Disturbed Area:**	Total Amt.= 7.57 acres
		14. Amount of Developed Area:	☐ 1 or more acres, but less than 5 acres ☒ 5 acres or more Total Amt.= 5.87 acres
		15. Amount of Impervious Area:	☐ less than 20,000 sq. ft. ☐ 20,000 sq. ft. to 1 acre ☒ 1 to 3 acres ☐ 3 or more acres Total Amount of Impervious Acres = 1.33 Ac
16. Applicable Standards: (Check all that apply)	☐ Stormwater PBR ☒ Basic standards ☒ General standards: BMP ☐ General standards: phosphorus ☐ Flooding standard ☐ Urban impaired stream standards ☐ Other:_____	**17. Type of Stormwater Control:**	☐ Vegetative (e.g. buffers) ☒ Structural (e.g. underdrained filters, ponds, infiltration structures)

18. Exceptions &/or Waivers Requested:	**BMP Standards▼**	**Urban impaired stream standard▼**	**Flooding Standard▼**
	☐ Pretreatment measures ☐ Discharge to ocean/major river segment ☒ Linear portion of project ☐ Utility corridor ☒ Redevelopment	☐ Developed area not landscaped or impervious ☐ Redevelopment	☐ Discharge to ocean/major river segment ☐ Insignificant increase in peak flow

19. Proposed Start Date and Brief Project Description:	The project is anticipated to start Phase I in the coming months to build a traditional single family subdivision to support the US Coast Guard Eastport base				
20. Size of Lot or Parcel:	☐ ____ sq. ft., or	☒ 72.62 acres	**UTM Easting:** 1352147.9	**UTM Northing:** 492478.4	
21. Title, Right or Interest:	☒ own	☐ lease	☐ purchase option	☐ written agreement	
22. Deed Reference Numbers:	Book#: 4495	Page: 295	**24. Map and Lot Numbers:**	Map #: 13	Lot #: 4
23. DEP Staff Previously Contacted:	Maria Eggett Ken Libbey	**25. Project started prior to application?**	☐ Yes ☒ No	**Completed?**	☐ Yes ☐ No

SIGNATURES / CERTIFICATIONS ON PAGE 2

26. Resubmission of Application?	☐ Yes➔ ☒ No	**If yes, previous application #**		**Previous project manager:**	
27. Written Notice of Violation?	☐ Yes➔ ☐ No	**If yes, name of DEP enforcement staff involved:**			
28. Detailed Directions to the Project Site:		Heading North on US Route 1, take the turn east onto Shore Rd in the town of Perry. The Site is 2.7 miles north on Shore Road.			

29. Stormwater Permit by Rule Submissions▼	**30. Stormwater Application Submissions▼**	
☐ *This form (including signature page)*	☒ This form (including signature page)	☒ Professional & Notice Certification
☐ *Fee*	☒ Fee	☒ Basic standards submissions
☐ *Topographic Map*	☒ Proof of title, right or interest	☒ General standards submissions
☐ *Plan or Drawing*	☐ Certificate of good standing (if applicable)	☒ Flooding standard submissions
☐ *Photos of Area*	☒ Photos of Area	☐ Other standard submissions
	☒ Copy of Public Notice	☐ Compensation Fee (if required)

31. FEES, Amount Enclosed:	$2,032.00
Does the agent have an interest in the project? If yes, what is the interest?: ☐ *Yes* ➔ ☒ *No*	

IMPORTANT: IF THE SIGNATURE BELOW IS NOT THE APPLICANT'S SIGNATURE, ATTACH LETTER OF AGENT AUTHORIZATION SIGNED BY THE APPLICANT.

By signing below the applicant (or authorized agent), certifies that he or she has read and understood the following:

CERTIFICATIONS/ SIGNATURES

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein.

Further, I hereby authorize the DEP to send me an electronically signed decision on the license I am applying for with this application by

E-mailing the decision to the electronic address located on the front page of this application (see #4 for the applicant and #9 for the agent."

Signed: Digitally signed by BARRESI.JOHN.F.JRII.1187016629 Date: 2021.05.19 11:33:04 -04'00' **Title** Commanding Officer, U.S. Coast Guard Facilities Design & Construction Center **Date:** 19 May 2021

Notice of Intent to Comply with Maine Construction General Permit	**With this Stormwater Law application form and my signature below, I am filing notice of my intent to carry out work which meets the requirements of the Maine Construction General Permit (MCGP). I have read and will comply with all of the MCGP standards.** **Signed** Digitally signed by BARRESI.JOHN.F.JRII.1187016629 Date: 2021.05.19 11:33:38 -04'00' **Date:** 19 May 2021

NOTE: If a Notice of Intent is required, you must file a Notice of Termination (attached as Form G) within 20 days of completing permanent stabilization of the project site.

ADDITIONAL SIGNATURES/CERTIFICATIONS

The person responsible for preparing this application and/or attaching pertinent site and design information hereto, by signing below, certifies that the application for stormwater approval is complete and accurate to the best of his/her knowledge.

Signature: Sam Lebel

Name (print): Sam Lebel, P.E.

Date: 4/30/2021

Re/Cert/Lic No: 16505

Engineer X

Geologist _____

Soil Scientist _____

Land Surveyor _____

Site Evaluator _____

Active Member of the Maine Bar _____

Professional Landscape Architect _____

FORM D 5/2017

Fee Worksheet

Use this form to help determine the permit fee. The fee is based upon the amount of disturbed area associated with the project. THE EXAMPLE BELOW IS NOT BASED ON CURRENT FEES. To determine current stormwater licensing fees, please visit the Department's website at: http://www.maine.gov/dep/permits/

NOTE: Ditches, swales, ditch turn-outs, level spreaders, and similar Best Management Practices (BMPs) used solely to convey or discharge water to a vegetated buffer are not considered, by themselves, to constitute structural BMPs, provided that the applicant assumes that all water quality treatment takes place in the buffer. If any treatment is assumed within the BMPs used to convey water to the buffer, they are treated as structural BMPs for the purposes of determining the applicable fee (and review period). "Disturbed area" and "impervious area" are defined in Chapter 500, Section 2(F) and (L).

Example (a): If solely vegetative control measures are used (e.g. buffers), using an example fee of $250.00* for up to one acre of disturbed area, plus $125.00† for each additional whole acre of disturbed area, the total fee is calculated as shown below.

Project will create 2.34 acres of disturbed area.

Fee = $250.00+ [$125.00 x (1)] = $375.00

Your fee:

Current fee from fee schedule	plus	[1/2 current fee	times	# additional whole acres]	equals	application fee
$_____	+	[$_____	X	(____)]	=	$_____

Example (b): If any structural control measures are used (e.g. underdrained filters, ponds, infiltration systems), using an example fee of $500.00 for up to one acre of disturbed area, plus $250.00 for each additional whole acre of disturbed area, the total fee is calculated as shown below.

Project will create 2.34 acres of disturbed area.

Fee = $500.00 + [$250.00 x (1)]. Fee = $750.00.

Your fee:

Current fee from fee schedule	plus	[1/2 current fee	times	# additional whole acres]	equals	application fee
$ 508	+	[$ 254	X	(6)	] =	$ 2,032

* The total fee for the first acre of disturbed area is obtained by combining the processing and licensing fees contained in the current fee schedule.

† The fee for each additional whole acre of disturbed area is one-half the combined processing and licensing fee.

PUBLIC NOTICE: NOTICE OF INTENT TO FILE

Please take notice that the United States Coast Guard of 5505 Robin Hood Road, Norfolk, VA 23435 intends to file a Stormwater Law permit application with the Maine Department of Environmental Protection pursuant to the provisions of 38 M.R.S.A. § 420-D on or about May 14, 2021. If there are any questions, please contact Mr. Richard Hylton, at (757) 852 – 3404 or by e-mail at rick.d.hylton@uscg.mil.

This application is for the United States Coast Guard housing project which proposed to build up to 8 single family homes and a maintenance building with associated roadway, driveways, and sidewalks at the following location: 576 Shore Road, Perry, ME.

A request for a public hearing or a request that the Board of Environmental Protection assume jurisdiction over this application must be received by the Department in writing, no later than 20 days after the application is found by the Department to be complete and is accepted for processing. A public hearing may or may not be held at the discretion of the Commissioner or Board of Environmental Protection. Public comment on the application will be accepted throughout the processing of the application.

For Federally licensed, permitted, or funded activities in the Coastal zone, review of this application shall also constitute the State's consistency review in accordance with the Maine Coastal Program pursuant to Section 307 of the federal Coastal Zone Management Act, 16 U.S.C. § 1456.

The application will be filed for public inspection at the Department of Environmental Protection's office in Bangor during normal working hours. A copy of the application may also be seen at the municipal offices in Perry, Maine.

Written public comments may be sent to the regional office in Portland, Augusta, or Bangor where the application is filed for public inspection.

MDEP, Central Maine Regional Office, 17 State House Station, Augusta, ME 04333
MDEP, Southern Maine Regional Office, 312 Canco Road, Portland, ME 04103
MDEP, Eastern Maine Regional Office, 106 Hogan Road, Bangor, ME 04401

FORM C 05/06

Public Notice Filing and Certification

The DEP Rules, Chapter 2, require an applicant to provide public notice for all Stormwater Law projects with the exception of minor revisions and condition compliance applications. In the notice, the applicant must describe the proposed activity and where it is located. **"Abutter"** for the purposes of the notice provision means any person who owns property that is BOTH (1) adjoining and (2) within one mile of the delineated project boundary, including owners of property directly across a public or private right of way.

1. **Newspaper:** You must publish the Notice of Intent to File in a newspaper circulated in the area where the activity is located. The notice must appear in the newspaper within 30 days prior to the filing of the application with the Department. You may use the attached Notice of Intent to File form, or one containing identical information, for newspaper publication and certified mailing.

2. **Abutting Property Owners:** You must send a copy of the Notice of Intent to File by certified mail to the owners of the property abutting the activity. Their names and addresses can be obtained from the town tax maps or local officials. They must receive notice within 30 days prior to the filing of the application with the Department.

3. **Municipal Office:** You must send a copy of the Notice of Intent to File and a **duplicate of the entire application** to the Municipal Office.

   ATTACH a list of then names and addresses of the owners of abutting property.

CERTIFICATION

By signing below, the applicant or authorized agent certifies that:

1. A notice of Intent to File was published in a newspaper circulated in the area where the project site is located within 30 days prior to filing the application;
2. A certified mailing of the Notice of Intent to File was sent to all abutters within 30 days of the filing of the application.
3. A certified mailing of the Notice of Intent to File, and a duplicate copy of the application was sent to the town office of the municipality in which the project is located; and
4. Provided notice of, if required, and held a public informational meeting in accordance with Chapter 2. Rules Concerning the Processing of Applications, Section 14, prior to filing the application. Notice of the meeting was sent by certified mail to abutters and to the town office of the municipality in which the project is located at least ten days prior to the meeting. Notice of the meeting was also published once in a newspaper circulated in the area where the project site is located at least seven days prior to the meeting.

The Public Informational Meeting was held on NA (Date).

Approximately NA members of the public attended the Public Informational Meeting.

Digitally signed by BARRESI.JOHN.F.JRII.1187016629 Date: 2021.05.19 11:34:56 -04'00'

Signature of Applicant or authorized agent

19 May 2021

Date

Abutter	Mailing	City	State	Zip
David Wilbur	1495 US Rt 1	Perry	ME	04667
Sylvia J.D. Hargadon	122 US Rt 1	Robbinston	ME	04671
Ruth Averill Dougherty	40 Brackett St	Portland	ME	04102
Susan Carroll & Brian Duffy	PO Box 177	Perry	ME	04667
Loringwood Acres, Inc.	702 Lincoln Ave	Falls Church	VA	22046
Fred Bucklin	1559 Sennebec Rd	Appleton	ME	04682
Ronald & Elaine Spinney	76 Washington St	Eastport	ME	04631

Abutter	Mailing	City	State	Zip	Map/Lot	
David Wilbur	1495 US Rt 1	Perry	ME	04667	013-003	
Sylvia J.D. Hargadon	122 US Rt 1	Robbinstor	ME	04671	013-002	
Ruth Averill Dougherty	40 Brackett St	Portland	ME	04102	013-008	
Ruth Averill Dougherty	535 Shore Rd	Perry	ME	04667	013-008	
~~Susan Carroll & Brian Duffy~~	~~PO Box 177~~	~~Perry~~	~~ME~~	~~04667~~	~~013-008~~	Notified address out of date - 5/16/21
Loringwood Acres, Inc.	702 Lincoln Ave	Falls Churc	VA	22046	013-005 &006	
Fred Bucklin	1559 Sennebec Rd	Appleton	ME	04682	010-059	
Ronald & Elaine Spinney	76 Washington St	Eastport	ME	04631	010-001-001	
William and Rhoda Dougherty	535 Shore Rd	Perry	ME	04667	010-060	
Sue and Brian Duffy	549 Shore Road	Perry	ME	04667	013-008	**Resent to new address 5/17/21**

7018 1130 0000 7165 1557

DRAWING NO.

FIGURE 1

FILE:	1146_CIVIL
JN:	1146
SCALE:	1:5000
DESIGN BY:	SJL
DRAWN BY:	NPH
CHECKED BY:	SJL

ACORN ENGINEERING, INC
ACORN ENGINEERING, INC. P.O. BOX 3372
PORTLAND, MAINE 04101 (207) 775-2655

DRAWING NAME: SITE LOCATION MAP

PROJECT NAME: 576 SHORE ROAD – PERRY, ME

CLIENT: UNITED STATES COAST GUARD

ISSUED FOR	BY DATE
DEP PBR	WHS 11/4/2020

Photographs

1. Standing on Shore Road looking west at Site during soil test pits

2. Standing on Shore Road looking north along roadside ditch

3. 24” CMP culvert crossing Shore Road north of existing driveway

4. 36” HDPE culvert crossing Shore Road south of existing driveway

5. Overview of former pasture/lawn

6. Overview of former pasture/historical lawn area

ACORN
ENGINEERING, INC.

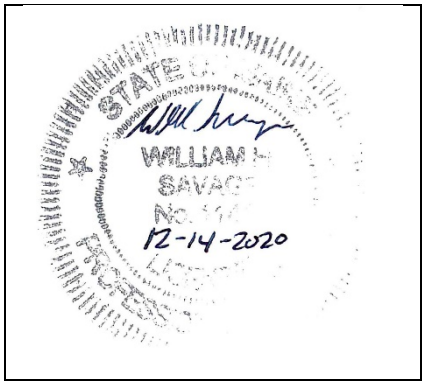
EROSION & SEDIMENTATION CONTROL REPORT

Prepared For:

Ducas Construction
3 Southgate Road #8
Scarborough, Maine 04074
&
United States Coast Guard
5505 Robin Hood Road Suite K
Norfolk, Virginia 23513-2431

Prepared By:

Acorn Engineering, Inc.
65 Hanover Street
Portland, Maine 04101



December 2020

INTRODUCTION

Acorn Engineering, Inc. has been retained by Ducas Construction to provide civil engineering services for the proposed United States Coast Guard (USCG) housing development at 576 Shore Road in Perry, Maine. The project proposes to develop four single family homes, a maintenance facility, a recreation area, and a bus shelter as the first phase with additional potential phases that would bring the total residential lot count to eight with an associated road extension.

The following Erosion and Sedimentation Control Report was developed in accordance with Maine DEP's Erosion & Sediment Control BMP's Manual and is intended to satisf Chapter 5 asic Standards.

1.0 EXISTING CONDITIONS

The project site is located on Shore Road in Perry Maine (Map-Lot 013-004) The site comprises approximately 72.6 acres of area with a mix of wetlands and open fields/farmland. A boundary plan has been prepared by Wood (formerly Amec Foster Wheeler) of Portland, Maine dated August 9th, 2019 and is included within this submission package. The site most recently served as a horse rescue.

Within the 72.6- acre site, wetlands and vernal pools are natural resources that have been identified as existing on site by Wood who performed environmental due diligence for the project. The majority of these resources are not within the proposed project area. Notably, the vernal pool complex and significant vernal pool are deep into the westerly wooded section of the site. These findings are in the report titled "Draft Environmental Assessment for Site Development for USCG Station Eastport Housing Project", dated August 13, 2019 which is publicly available. Overall, the project does not intend to disturb any resources, including wetlands.

1.1 Existing Soils

Onsite soil information includes the following:

- United States Department of Agriculture Web Soil Survey
- Various Test Pits conducted by Wood and the design team

The parcel consists of three different types of soils; Creasy gravelly silt loam, Lamoine-Rawsonville-Scantic complex, and Naskeag-Rawsonville-Hogback complex. Onsite septic systems for each dwelling unit is proposed, and will conform with the State of Maine Subsurface Wastewater Disposal Rules and the standards set forth in the Town of Perry Shoreland Zoning Ordinance.

The area within and surrounding the project includes soils types listed in the table below. The susceptibility of soils to erosion is indicated on a relative "K" scale of values over a range of 0.02 to 0.69. Higher "K" values indicate more erodible soils.

Table 1		
Soils Type	**K Value**	**Hydrologic Soil Group**
Creasy gravelly silt loam	0.20	D
Lamoine-Rawsonville-Scantic complex	-	D
Naskeag-Rawsonville-Hogback complex	-	A/D

The soil "K" values for the soils, listed above, show a low susceptibility to erosion. The site's susceptibility to erosion is from the USDA Web Soil Survey Soil Conservation. Although soil "K" values for the soils show a low susceptibility to erosion, implementation of the proposed Erosion & Sedimentation Measures by the contractor will be of the utmost importance given the sustained slope throughout the site.

1.2 Existing Erosion Problems

There appear to be no existing erosion problems on site.

1.3 Critical Areas

Critical areas that would require special attention during construction consist of the are the areas adjacent to Shore Road and the slopes adjacent to the wetlands to the north, west, and southern perimeters of the development.

1.4 Protected Natural Resource

Wetlands and vernal pools have been identified on site by Amec Foster Wheeler in a report titled "Draft Environmental Assessment for Site Development for USCG Station Eastport Housing Project" dated August 13, 2019. The proposed development will not alter the state of the existing wetlands. The project is not located within a watershed classified as an Urban Impaired Stream by the Maine DEP.

1.5 Previous Construction Activity (5 years)

Acorn Engineering, Inc. is not aware of any construction related activities within the project limits within the past 5 years.

1.6 Timber Harvesting

Acorn Engineering, Inc. is not aware of any timber harvesting within the past five years.

2.0 EROSION CONTROL MEASURES AND SITE STABILIZATION

As part of the site development, the following temporary and permanent erosion and

sedimentation control devices shall be implemented. Devices shall be installed as described in this report or within the plan set. See the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices for further reference.

2.1 Temporary Erosion Control Measures

The following temporary erosion and sedimentation control measures are planned for the project's construction period:

2.1.1 Crushed stone stabilized construction entrances shall be placed at all access points to the project site where there are disturbed areas. The following specifications shall be followed at a minimum:

- Stone size shall be 2-3 inches or reclaimed or recycled concrete equivalent.
- The thickness of the entrance stone layer shall be no less than 6 inches.
- The entrance shall not be less than 20 feet wide, however not less than the full width of points where ingress or egress occurs. The length shall not be less than 50 feet in length.
- Geotextile fabric (woven or non-woven) shall be placed over the entire entrance area.
- The entrance/exit shall be maintained to the extent that it will prevent the tracking of sediment onto public roadways.

2.1.2 Siltation fence or erosion control berm shall be installed down gradient of any disturbed areas to trap runoff borne sediments until permanent stabilization is achieved. The silt fence or erosion control berm shall be installed per the details provided in the plan set and inspected before and immediately after each rainfall and at least daily during prolonged rainfall. Repairs shall be made if there are any signs of erosion or sedimentation below the fence line or berm. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind the fence or berm, the barrier shall be replaced with a stone check dam.

2.1.3 Hay mulch including hydro seeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulch placed between April 15th and November 1st on slopes of less than 15 percent shall be covered by fabric netting and anchored with staples in accordance with the manufacturer's recommendation. Mulch placed between November 1st and April 15th on slopes equal to or steeper than 8 percent and equal to or flatter than 2:1 shall use mats or fabric netting and anchored with staples in accordance with the manufacturer's recommendation.

2.1.4 At any time of the year, all slopes greater than 3:1 shall be stabilized with Double Net Erosion Control Blanket Bionet SC150BN by North American Green or Approved Equal, or Erosion Control Mix Slope Protection as detailed within the plans.

2.1.5 Shore Road shall be swept to control mud and dust from the construction site as necessary. Add additional stone to the stabilized construction entrance to minimize the tracking of material off the site and onto the surrounding roadways.

2.1.6 During demolition, clearing and grubbing operations, stone check dams shall be installed at any areas of concentrated flow. The maximum height of the check dam shall not exceed 2 feet. The center of the check dam shall be 6 inches below the outer edges of the dam. The contractor shall mulch the side slopes and install stone check dams for all newly excavated ditch lines within 24 hours of their creation.

2.1.7 Silt fence stake spacing shall not exceed 6 feet unless the fence is supported with 14-gauge wire in which case the maximum spacing shall not exceed 10 feet. The silt fence shall be "toed" into the ground.

2.1.8 Storm drain inlet protection shall be provided to storm drains using any of the following: hay bale drop inlet structures, silt fence drop inlet sediment filter, gravel and wire mesh drop inlet sediment filter, or curb inlet sediment filter. Barriers shall be inspected after every rainfall event and repaired as necessary. Sediments shall be removed when accumulation has reached ½ the design height.

2.1.9 Dust control shall be accomplished using any of the following: water, calcium chloride, stone, or an approved MDEP product. Measures shall be applied as needed to accomplish dust control.

2.1.10 Temporary loam, seed, and mulching shall be used in areas where no other erosion control measure is used. Application rates for seeding are provided at the end of this report.

2.1.11 Stockpiles shall be stabilized within 7 days of formation unless a scheduled rain event occurs prior to the 7-day window, in which case the stockpile shall be stabilized prior to the rain event. Methods of stabilization shall be mulch, erosion control mix, or erosion control blankets/mats. Silt fence or a wood waste compost filter berm shall be placed downhill of any soil stockpile location.

2.1.12 For disturbance between November 1 and April 15, please refer to winter stabilization plan in this report and the Maine Erosion and Sediment Control BMP manual for further information.

2.1.13 It is of the utmost importance that stormwater runoff and potential sediment from the construction site be diverted around the proposed underdrains until the trench is backfilled.

2.2 Permanent Erosion Control Measures

The following permanent erosion control measures are intended for post disturbance areas of the project.

2.2.1 All disturbed areas during construction, not subject to other proposed conditions, shall receive a minimum 4" of loam, limed, and mulched. Erosion control blankets or mats shall be placed over the mulch in areas noted in paragraph 4.1 of this report.

2.2.2 All stormwater devices shall be installed, and tributary areas stabilized prior receiving stormwater.

2.2.3 Refer to the Maine Erosion and Sediment Control BMP manual for additional information.

3.0 EROSION AND SEDIMENTATION CONTROL PLAN

3.1 The Erosion and Sedimentation Control Plan is included within the plan set.

4.0 DETAILS AND SPECIFICATIONS

4.1 Erosion Control Details and Specifications are included in the plan set.

5.0 STABILIZATION PLAN FOR WINTER CONSTRUCTION

Winter Construction consists of earthwork disturbance between the dates of November 1 and April 15. If a construction site is not stabilized with pavement, a road gravel base, 75% mature vegetation cover or riprap by November 15, then the site shall be protected with over-winter stabilization. Any area not stabilized with pavement, vegetation, mulching, erosion control mix, erosion control mats, riprap, or gravel base on a road shall be considered open.

The contractor shall limit the work area to areas that work will occur in during the subsequent 15 days and so that it can be mulched one day prior to a snow event. The contractor shall stabilize work areas prior to opening additional work areas to minimize areas without erosion control measures.

The following measures shall be implemented during winter construction periods:

5.1 Sediment Barriers

During frozen conditions, sediment barriers may consist of erosion control mix berms or any other recognized sediment barriers as frozen soil prevents the proper installation of hay bales or silt fences.

5.2 Mulching

All areas shall be considered to be denuded until seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly anchored. Erosion control mix must be applied with a minimum 4-inch thickness. Mulch shall not be spread on top of snow. The snow shall be removed down to a one-inch depth or less prior to application. After each day of final grading, the area shall

be properly stabilized with anchored hay or straw or erosion control matting. An area shall be considered to have been stabilized when exposed surfaces have been either mulched or adequately anchored so that ground surface is not visible through the mulch. Between the dates of November 1 and April 15, all mulch shall be anchored by either mulch netting, tracking or wood cellulose fiber. The cover will be considered sufficient when the ground surface is not visible through the mulch. After November 1st, mulch and anchoring of all exposed soil shall occur at the end of each final grading workday.

5.3 Soil Stockpiling

Stockpiles of soil or subsoil shall be mulched for over winter protection with hay or straw at twice the normal rate or with a four-inch layer of erosion control mix. This shall be done within 24 hours of stocking and re-established prior to any rainfall or snowfall.

5.4 Seeding

Between the dates of October 15th and April 1st, loam or seed shall not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until the final treatment can be applied. If the date is after November 1st and if the exposed area has not been loamed, final grading with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

Dormant seeding may be placed prior to the placement of mulch or erosion control blankets. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5 lbs./1,000 s.f. All areas seeded during the winter shall be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75% catch) shall be revegetated by replacing loam, seed and mulch. If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

5.5 Over winter stabilization of disturbed soils

By September 15th, all disturbed soils on areas having a slope less than 15% shall be seeded and mulched. If the disturbed areas are not stabilized by this date, then one of the following actions shall be taken to stabilize the soil for late fall and winter:

- Stabilize the soil with temporary vegetation – By October 1st, seed the disturbed soil with winter rye at a seeding rate of 3lbs per 1,000 s.f., lightly mulch the seeded soil with hay or straw at 75 lbs per 1,000 s.f., and anchor the mulch with plastic netting. Monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed soil before November 1st, then mulch the area for over-winter protection.

- Stabilize the soil with sod – Stabilize the disturbed soil with properly installed sod by October 1st. Proper installation includes pinning the sod onto the soil with wire

pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

- Stabilize the soil with mulch – By November 15th, mulch the disturbed soil by spreading hay or straw at a rate of at least 150 lbs per 1,000 s.f. on the area so that no soil is visible through the mulch. Immediately after applying the mulch, anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

5.6 Over winter stabilization of disturbed slopes

All stone-covered slopes shall be constructed and stabilized by November 15th. All slopes to be vegetated shall be seeded and mulched by September 1st. A slope is considered a grade greater than 15%. If a slope to be vegetated is not stabilized by September 1st, then one of the following action shall be taken to stabilize the slope for late fall and winter:

- Stabilize the soil with temporary vegetation and erosion control mats – By October 1st the disturbed slope shall be seeded with winter rye at a seeding rate of 3 lbs per 1,000 s.f. and then install erosion control mats or anchored mulch over the seeding. If the rye fails to grow at least three inches or fails to cover at least 75% of the slope by November 1st, then the contractor shall cover the slope with a layer of erosion control mix or with stone riprap.

- Stabilize the soil with sod – The disturbed slope shall be stabilized with properly installed sod by October 1st. Proper installation includes the contractor pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The contractor shall not use late-season sod installation to stabilize slopes having a grade greater than 3H:1V or having groundwater seeps on the slope face.

- Stabilize the soil with erosion control mix – Erosion control mix shall be properly installed by November 15th. The contractor shall not use erosion control mix to stabilize slopes having grades greater than 2H:1V or having groundwater seeps on the slope face.

- Stabilize the soil with stone riprap – Place a layer of stone riprap on the slope by November 15th. A registered professional engineer shall be hired to determine the stone size needed for stability on the slope and to design a filter layer for underneath the riprap.

6.0 INSPECTION AND MAINTENANCE

A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct periodic visual inspections of installed erosion control measures. The frequency of inspection shall occur at least once every two weeks, as well as after a "storm event". A "storm event" shall consist 0.5 inches of rain within a 24-hour period.

The following Erosion and Sediment Control - Best Management Practices (BMP's) shall inspected in the manner as described.

6.1 Sediment Barriers

Hay bale barriers, silt fences and filter berms shall be inspected and repaired for the following if there are any signs of erosion or sedimentation below them. If there are signs of undercutting at the center or the edges of the barrier, or impounding of large volumes of water behind them, sediment barriers shall be replaced with a temporary check dam. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits should be removed when deposits reach approximately one-half the height of the barrier. Filter berms should 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.

6.2 Stabilized Stone Construction Entrances

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 and redistributed on site in a stable manner. The entrance should then be reconstructed. The contractor shall sweep or wash pavement at exits, which have experienced mud-tracking on to the pavement or traveled way. When washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment trapping device. All sediment shall be prevented from entering storm drains, ditches, or waterways.

6.3 Mulched Areas

All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied. Nets must be inspected after rain events for dislocation or failure. If washouts or breakage occur, re-install the nets as necessary after repairing damage to the slope. Where mulch is used in conjunction with ornamental plantings, inspect periodically throughout the year to determine if mulch is maintaining coverage of the soil surface. Repair as needed.

6.4 Dust Control

When temporary dust control measures are used, repetitive treatment shall be applied as needed to accomplish control.

6.5 Stormwater Appurtenances

All underdrains, storm drains, and catch basins need to be operating effectively and free of debris.

6.6 Erosion and Sedimentation Control Inspections:

Acorn Engineering has personnel qualified to conduct Erosion and Sedimentation Control Inspections. For further information, contact:

Contact: Will Savage, PE
Telephone: (207) 775-2655

Qualifications:

- Maine Professional Engineering License #11419
- Maine DEP - Certified in Maintenance & Inspection of Stormwater BMP's Cert #14
- Certified Erosion, Sediment and Storm Water Inspector (CESSWI) Cert #0293
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #4620

The Contractor has sole responsibility for complying with the Erosion and Sedimentation Report/Plan, including control of fugitive dust. The Contractor shall be responsible for any monetary penalties resulting from failure to comply with these standards.

7.0 IMPLEMENTATION SCHEDULE

The following implementation sequence is intended to maximize the effectiveness of the above described erosion control measures. Contractors should avoid overexposing disturbed areas and limit the amount of stabilization area.

1. Install a stabilized construction entrance in all locations where construction traffic will enter and exit the site.
2. Install perimeter silt fence or erosion control berm.
3. Commence installation of drainage infrastructure.
4. Install all other erosion control devices as necessary throughout the remainder of this schedule.
5. Commence earthwork operations, associated with the roadway construction.
6. Commence installation of utilities.
7. Continue earthwork and grading to subgrade as necessary for construction.
8. Complete installation of drainage infrastructure, as well as other utility work.
9. Complete remaining earthwork operations.
10. Install sub-base and base gravels in paved areas.
11. Install paving, curbing and brickwork.
12. Loam, lime, fertilize, seed and mulch disturbed areas and complete all landscaping.
13. Once the site is stabilized, 90% catch of grass has been obtained, or mulching of landscape areas is complete, remove all temporary erosion control measures.
14. Touch up areas without a vigorous catch of grass with loam and seed.
15. Complete site signage and striping.
16. Execute proper maintenance of all temporary and permanent erosion control measures throughout the project.

The above implementation sequence should be generally followed by the site contractor. However, the contractor may construct several items simultaneously. The contractor shall submit to the owner a schedule of the completion of the work. If the contractor is to commence

the construction of more than one item above, they shall limit the amount of exposed areas to those areas in which work is expected to be undertaken during the following 30 days.

The contractor shall re-vegetate disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading or before a storm event. The contractor shall incorporate planned inlets and drainage systems as early as possible into the construction phase.

8.0 CONCLUSION

The above erosion control narrative is intended to minimize the development impact by implementing temporary and permanent erosion control measures. The contractor shall also refer to the Maine Erosion and Sediment Control BMP manual for additional information.

9.0 ATTACHMENTS

- Temporary Seeding Plan
- Permanent Seeding Plan

TEMPORARY SEEDING PLAN

Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

Seedbed Preparation

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P2O5-K2O) or equivalent.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

Seeding

The composition and amount of temporary seed applied to a site shall be determined by the following table:

Seed	Pounds / 1,000 S.F.	Recommended Seeding Dates
Winter Rye	2.57	Aug-15 to Oct-1
Oats	1.84	Apr-1 to Jul-1 Aug-15 to Sep-15
Annual Ryegrass	0.92	Apr-1 to Jul-1
Sudangrass	0.92	May-15 to Aug-15
Perennial	0.92	Aug-15 to Sep-15

Mulching

Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a minimum depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual for additional information pertaining to temporary seeding and mulching.

PERMANENT SEEDING PLAN

Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

Seedbed Preparation

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P2O5-K2O) or equivalent.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

Seeding

The composition and amount of permanent seed applied to a site shall be determined by the following table:

Seed	Pounds / 1,000 S.F.
Kentucky Bluegrass	0.46
Creeping Red Fescue	0.46
Perennial Ryegrass	0.11
Total	1.03

Mulching

Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a minimum depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

Recommendations

Permanent seeding is recommended to be completed in the spring. Later summer seeding is allowed if completed prior to September 1st. If seeding cannot be accomplished during the periods recommended for permanent seeding, then the contractor shall perform temporary seeding per the temporary seeding plan.

Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual for additional information pertaining to permanent seeding and mulching.

ACORN
ENGINEERING, INC.

STORMWATER MANAGEMENT REPORT

Prepared For:

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Scarborough, Maine 04074
&
United States Coast Guard
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Norfolk, Virginia 23513-2431

Prepared By:

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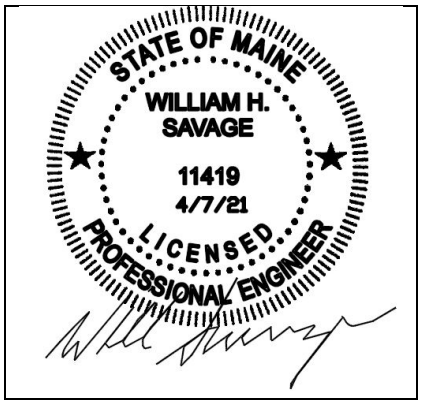


April 2021

INTRODUCTION

Acorn Engineering, Inc. has been retained by Ducas Construction to provide civil engineering services for the proposed United States Coast Guard (USCG) housing development at 576 Shore Road in Perry, Maine. The project proposes to develop four single family homes and a playground at the end of a previously permitted subdivision. The first phase of the project received a Maine DEP Stormwater Permit-By-Rule (#72097).

Including the entire development, the project will require a Stormwater Management Permit from the Maine Department of Environmental Protection (MDEP). The full buildout will be subject to MDEP Chapter 500 Basic and General Standards under a Stormwater Management permit given the project will exceed one acre of impervious area. The full buildout proposes a total of 1.33 acres of impervious area including the roadway, sidewalks, driveways and single-family houses. A stormwater analysis has been prepared to show that the full buildout will also meet MDEP Flooding Standards as a best practice and in compliance with the various federal regulations involved with this project.

EXISTING CONDITIONS

The project site is located on Shore Road in Perry Maine (Map-Lot 013-004) The site comprises approximately 72.6 acres of area with a mix of wetlands and open fields/farmland. A boundary plan has been prepared by Wood (formerly Amec Foster Wheeler) of Portland, Maine dated August 9th, 2019 and is included within this submission package. The site most recently served as a horse rescue.

Within the 72.6- acre site, wetlands and vernal pools are natural resources that have been identified as existing on site by Wood who performed environmental due diligence for the project. The majority of these resources are not within the proposed project area. Notably, the vernal pool complex and significant vernal pool are deep into the westerly wooded section of the site. These findings are in the report titled "Draft Environmental Assessment for Site Development for USCG Station Eastport Housing Project", dated August 13, 2019 which is publicly available. Overall, the project does not propose to fill any wetlands.

PROPOSED DEVELOPMENT

All development on site is generally proposed within the existing developed area (houses, outbuildings, driveway, pasture). From the easterly edge of the wetlands on site, nearly 50 feet of grade change exists from the wetlands to the southeastern corner of the property line. The site has been graded to maintain slopes with the existing topography while providing for appropriate slopes for the single-family homes which are slab-on-grade construction.

A vegetated underdrained soil filter (VUSF) which is a MDEP Best Management Practice (BMP) will provide the majority of stormwater management. The overall scheme includes collecting the road and driveway runoff in a closed storm drain system with a crowned roadway and catch basins. The storm drain system will also collect a portion of the roof runoff after each structure's drip edge collects and attenuates the runoff. The storm drain system will convey runoff to the VUSF where the runoff will be cooled, treated, and slowly released back to the natural drainage channels.

WATER QUANTITY

Although this project is not subject to the State's Flooding Standard, the proposed project was modeled using HydroCAD to verify that the post-development conditions do not exceed the pre-development conditions with respect to peak flowrate leaving the site. A 24-hour SCS Type III storm distribution for the 2, 10, and 25-year storm events were used. The corresponding rainfall amounts for these storms are 2.80", 3.90", and 4.80" respectively. Rainfall amounts are from the Maine DEP Chapter 500 Appendix H which references the Northeast Regional Climate Center, Extreme Precipitation Tables from June 2014.

Due to the numerous variables, and inherent inaccuracies with the modeling program used to calculate stormwater runoff it is custom at Acorn Engineering, Inc. to round to the nearest whole number.

Time of Concentration (T_c)

Time of concentration values were derived by calculating a combined Tc from the flow segments within each subcatchment in the pre condition. Associated with these flow segments is the classification of stormwater flow and the corresponding surface. Refer to the attached HydroCAD calculations for a break-down of the Tc calculations. For shorter flow paths where the summation of flow segments was less than 6 minutes (0.1 hours), a direct entry of 6 minutes was entered, consistent with the model parameters.

Pre-development Calculations

Given the site is over 70 acres and a large portion of the site drains to the west, the analysis focused only the tributary areas that include the proposed land cover changes. Accordingly, the model was broken into two subcatchments, as seen attached to this report. These subcatchments each drain to a cross culvert that crosses below Shore Rd and eventually drains to Passamaquoddy Bay.

- Subcatchment 1 – Southerly tributary draining to existing 36" HDPE cross culvert
- Subcatchment 2 –Northerly tributary draining to existing 24" CMP cross culvert.

A Pre-Development Watershed Map developed for this project can be viewed in Attachment A. The HydroCAD calculations were not included with this submission per discussions at the pre-application meeting, but can be provided upon request.

Peak flow rates for the storm events are as follows:

Table 1 – Pre-Development Peak Stormwater Flows

Drainage Area	2 – Year Storm Event (cfs)	10 – Year Storm Event (cfs)	25 – Year Storm Event (cfs)
POI 1	18	32	45
POI 2	10	18	26
Total Runoff	24	45	64

Post-development Calculations:

The one predevelopment subcatchment was divided into three separate subcatchments for the post-development condition.

- Subcatchment 1 – Southerly tributary draining to 36" HDPE cross culvert
  - In the post development model, this subcatchment was further broken up to represent the various house lots and their crushed stone drip edges, the roadway, and the remaining land draining to the culvert. The majority of the impervious and developed area within this subcatchment will drain to the VUSF.
- Subcatchment 2 –Northerly tributary draining to 24" CMP cross culvert. Largely unchanged from the pre-development model other than removal of two small structures.

The post development calculations include changes to the land use and compensation provided by the BMP system. The following table represents comparison of predevelopment and post-development condition peak runoff rates for the proposed development and tributary area.

Table 2 – Post-Development Peak Stormwater Flows – Full Buildout			
Drainage Area	**2 – Year Storm Event (cfs)**	**10 – Year Storm Event (cfs)**	**25 – Year Storm Event (cfs)**
POI 1	15	28	40
POI 2	10	18	26
Total Runoff	21	41	59

As shown in Table 1 and 2, the net impact of the post development peak flows shall remain at or below the predevelopment levels for the two, ten, and twenty-five-year storms when compared to Table 1. These results are further summarized in Table 3.

Table 3 – Pre- & Post-Development Comparison						
Drainage Area	**2–yr Storm Event (CFS)**		**10–yr Storm Event (CFS)**		**25–yr Storm Event (CFS)**	
	Pre	**Post** *Full Buildout*	**Pre**	**Post** *Full Buildout*	**Pre**	**Post** *Full Buildout*
POI 1	18	15	32	28	45	40
POI 2	10	10	18	18	26	26
Total Runoff	***24***	***21***	***45***	***41***	***64***	***59***

A Post-Development Watershed Map created for this project can be viewed in Attachment B.

It should be noted that a vertical orifice is modeled in HydroCAD at the outlet structures of the VUSF. This approach is customary in simulating the attenuation provided by the soil filter media.

This orifice is not an actual physical device, but rather a way to model the slowing effects the media has on the drawdown of water. The diameter was sized based upon previous projects subject to Maine DEP Stormwater Law which were subject to the General Standards for water quality. In this case, a water quality volume was established based on treatment requirements. This volume is then released over a minimum of 24 hours which corresponds to a certain sized orifice. Using a mathematical relationship between soil filter area and orifice diameter on previous MDEP-approved projects, the corresponding orifice diameter for this project and model was determined and inputted to the model.

GENERAL STANDARDS - WATER QUALITY

Given the site's large existing developed area, historical use as working land with farming and equestrian activities, the redevelopment standards were applied to this project. The existing land uses and pollutant rankings are as follows:

Table 1 – Land Use and Pollutant Summary Table: Existing Conditions

Land use	Pollutant Ranking	Existing Area	Weighted Ave. Ranking
Roads where idling may occur; high use parking lots	5	0	0
Other roads; medium use parking lots	4	0	0
Other parking lots and driveways; flat roof asphalt rooftops	3	0.16 ac.	0.48
Other rooftops; grassed areas mowed > twice per year; walkways / foot-traffic-only pavement	2	6.81 ac.	13.62
Non-grass landscaped areas; Stormwater treatment / storage systems	1	0.837 ac.	0.14
Forest; meadow mowed not more than twice a year	0	0.44 ac.	0
TOTAL		7.57 ac.	***1.88***

Furthermore, analyzing the proposed development which will notable decreased the overall developed area and restore some of the lawn/pasture areas, the resulting land use rankings are as follows:

Table 2 – Land Use and Pollutant Summary Table: Proposed Conditions

Land use	Pollutant Ranking	Proposed Area	Weighted Ave. Ranking
Roads where idling may occur; high use parking lots	5	0	0
Other roads; medium use parking lots	4	0.49 ac.	1.96

Other parking lots and driveways; flat roof asphalt rooftops	3	0.26 ac.	0.78
Other rooftops; grassed areas mowed > twice per year; walkways / foot-traffic-only pavement	2	5.16 ac.	10.32
Non-grass landscaped areas; Stormwater treatment / storage systems	1	0.15 ac.	0.15
Forest; Meadow mowed not more than twice a year	0	1.51 ac.	0
TOTAL		7.57 ac.	***1.75***

Corresponding maps depicting the pollutant rankings can be viewed in attachments 3 and 4 of this report.

From tables 1 & 2 above, the resulting pollutant ranking for the proposed redevelopment is -0.13 (Chapter 500, Table 2). The corresponding treatment level for this ranking is 0% (Chapter 500, Table 3). It should also be noted that a large section of existing lawn/pasture that will be returned to a brush/wooded condition over time was not counted towards the negative resultant. Instead, the area analyzed only includes the proposed disturbed area by the project. Thus, a conservative approach was taken when analyzing the redevelopment standards. Please see the maps for more information and reference to this area within the middle of the southerly part of the plans viewports.

Despite the 0% treatment requirement, a Vegetated Underdrained Soil Filter (VUSF) is provided for the site to provide a significant level of treatment and prevent flooding. The VUSF is sized to treat 40,764 SF of impervious area and 45,976 SF of landscaped developed area per Chapter 7.1 of the MDEP Maine Stormwater Management Design Manual.

The VUSF soil filter area is sized upon the following equation:

$$[(\text{Imp. SF} \times 0.05) + (\text{Veg. SF} \times 0.02)] = \text{Filter Area (SF)}$$

$$= \textit{2,958 SF}$$

The filter area provided is **2,987 SF**, exceeding the requirement.

The water quality volume is then analyzed to ensure the first 18" of ponding is capturing the required runoff. The required treatment volume is characterized by the following equation:

$$\left(\frac{\text{Imp. SF} \times 1.0"}{12"/1'}\right) + \left(\frac{\text{Veg. SF} \times 0.4"}{12"/1'}\right) = \text{Treatment Volume (CF)}$$

$$= \textit{4,930 CF}$$

The provided treatment volume at 18" above the grassed filter is **5,250 CF**, which does not include

the additional storage provided in the voids of the underlying filter, gravel, and crushed stone layers.

Pretreatment

Sediment pretreatment is provided by a sediment forebay at the inlet of the VUSF. The forebay is sized to accommodate a minimum of 10 storms per year based upon 500 pounds of sand per storm and a density of 90 pounds per cubic foot, in accordance with chapter 7.2 of the design manual. In actuality, the storage capability of the forebay will exceed the 40 cf required by this standard.

Channel Protection

In order to provide the required release time of the water quality volume over 24-48 hours, a 2" ball valve will be installed on the 6" outlet pipe such that it can be dialed in perfectly post-construction after flooding the system. Although the soil filter media will provide for an attenuated drawdown, the ball valve will provide for additional accuracy and metering of stormwater discharge. This mechanism will be accessible through a valve box installed within the berm.

Overall, the project will significantly exceed the required General Standards by implementing the following water quality treatment strategies:

- High level of treatment for impervious area although there are no treatment standards due to the Redevelopment Standards calculations.
- Direction of over an acre of lawn area to the VUSF although the project proposes to significantly reduce the developed area.
- Associated sizing of the VUSF to accommodate the lawn runoff with an additional available 300 CF of volume in the first 18" of ponding. Furthermore, the basin design allows for 25" total inches of ponding which will route up to a 3.4-inch storm through the soil filter media.
- Treatment of nearly 100% of the roadway which represents the impervious area with the highest pollutant loading. This is compounded in the fact that the majority of the roof runoff will be routed through a crushed stone and gravel drip edge providing attenuation, cooling, and some level of pollutant removal.
- Nearly 100% of the project's impervious area that's not draining to the VUSF will either be roof runoff filtering vertically through the drip edge systems or driveway runoff sheeting across lawn. It's important to note that this approach means that little to no concentrated flow will be created that isn't being directed to the sediment forebay and VUSF. As such, this runoff will have an opportunity to be attenuated and pass through vegetated buffers before entering the streams at the northerly and southerly ends of the site. This design intent is based upon Chapter 5 of the Maine DEP Stormwater BMP Manual that allows for runoff to enter vegetated buffers.

SOILS

Onsite soil information includes the following:

- Geotechnical Test Pits as part of the Site Visit on 11/16/2020
- Test Pits as part of the Wood environmental site evaluation
- Septic System design and HHE-200 forms
- Medium Intensity United States Department of Agriculture Web Soil Survey

The soils map included within this report are found within Attachment D. The site consists of three different types of soils; Creasy gravelly silt loam, Lamoine-Rawsonville-Scantic complex, and Naskeag-Rawsonville-Hogback complex. The drainage qualities of each soil varies but overall is rated relatively poor due to the presence of bedrock fairly close to the surface. On-site septic systems for each dwelling unit are proposed, and will conform with the State of Maine Subsurface Wastewater Disposal Rules and the standards set forth by the Town of Perry. Overall, certain areas of the site are more favorable for infiltration than others and the septic and stormwater systems have been sited and designed accordingly.

CONCLUSION

The proposed development was designed to meet and exceed the requirements implemented by the Town of Perry Subdivision Ordinance and applicable MDEP regulations. As a result, the design of the proposed development and stormwater system does not anticipate to create erosion, drainage or runoff problems either in the development or with respect to adjoining properties. The VUSF has been designed to provide cooling and pollutant removal for storm events before slowly releasing the stormwater back to the natural environment, while significantly exceeding the requirements for treatment.

ATTACHMENTS

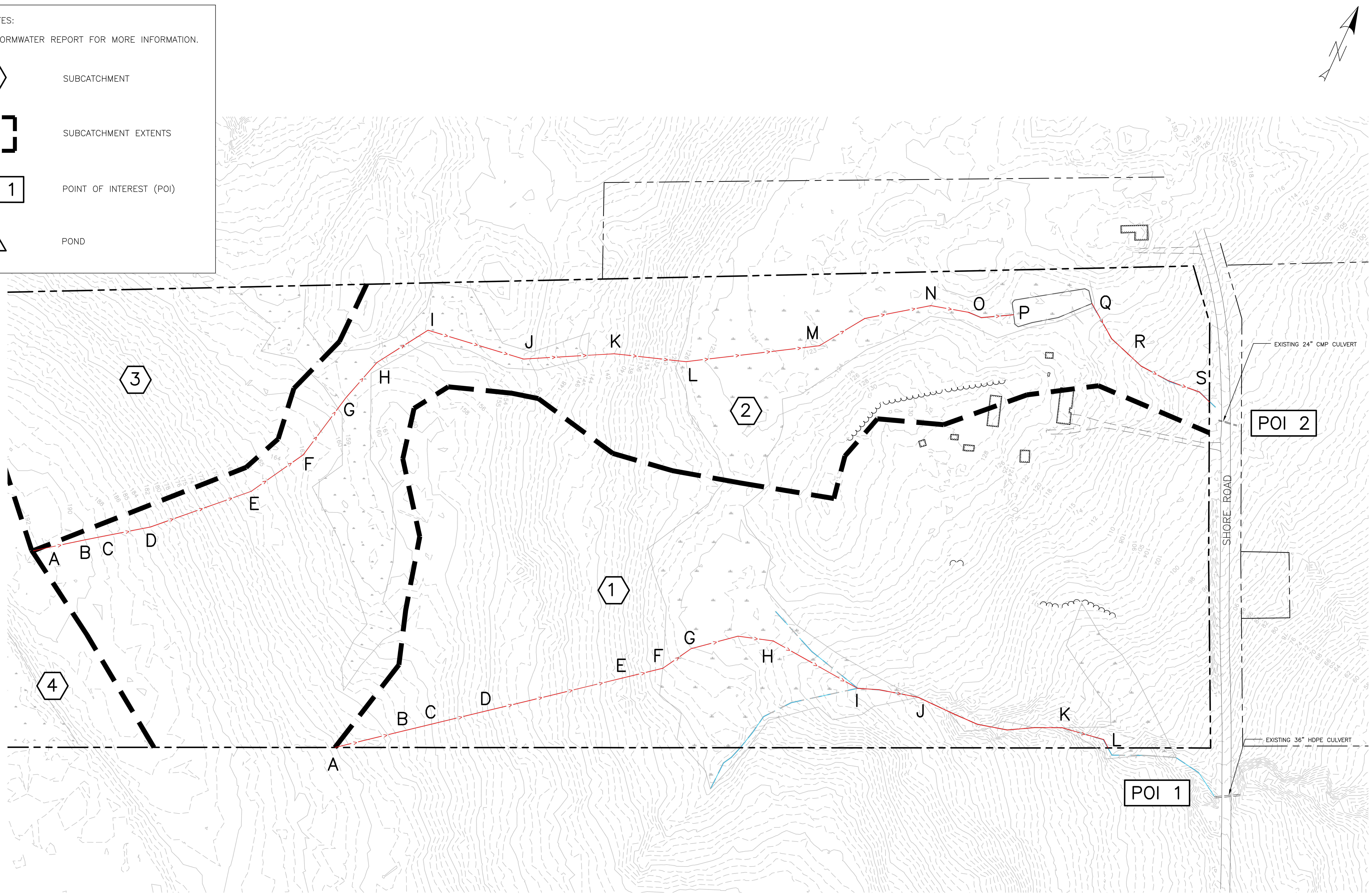
Attachment 1: Pre-Development Watershed Map
Attachment 2: Post-Development Watershed Map
Attachment 3: Existing Pollutant Ranking Exhibit
Attachment 4: Proposed Pollutant Ranking Exhibit
Attachment 5: Medium Intensity Soils Map & Geotechnical Test Pits

Attachment 1: Pre-Development Watershed Map

GENERAL NOTES:

REFER TO STORMWATER REPORT FOR MORE INFORMATION.

⟨1⟩	SUBCATCHMENT
[dashed box]	SUBCATCHMENT EXTENTS
POI 1	POINT OF INTEREST (POI)
△1	POND



100 0 100 200

SCALE: 1"=100'

NOT FOR CONSTRUCTION

ISSUED FOR	BY / DATE
SITE PLAN	WHS 8/3/2020
100% DRAWINGS STORMWATER REPORT	SJL 4/7/2021
STORMWATER SUBMISSION	SJL 4/30/2021

DRAWING NAME:
PRE-DEVELOPMENT WATERSHED MAP

PROJECT NAME/ADDRESS:
STATION EASTPORT RECAPITALIZED FAMILY HOUSING
576 SHORE ROAD, PERRY, MAINE, 04667

CLIENT/OWNER OF RECORD:
U.S. COAST GUARD
5505 ROBIN HOOD ROAD, NORFOLK, VIRGINIA, 23515

A C O R N ENGINEERING, INC.

ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04101
(207) 775-2655

FILE:	1146_CIVIL
JN:	1146
SCALE:	AS NOTED
DESIGNED BY:	SJL
DRAWN BY:	KRB
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM H. SAVAGE
11419
4/30/21
LICENSED PROFESSIONAL ENGINEER

DRAWING NO.

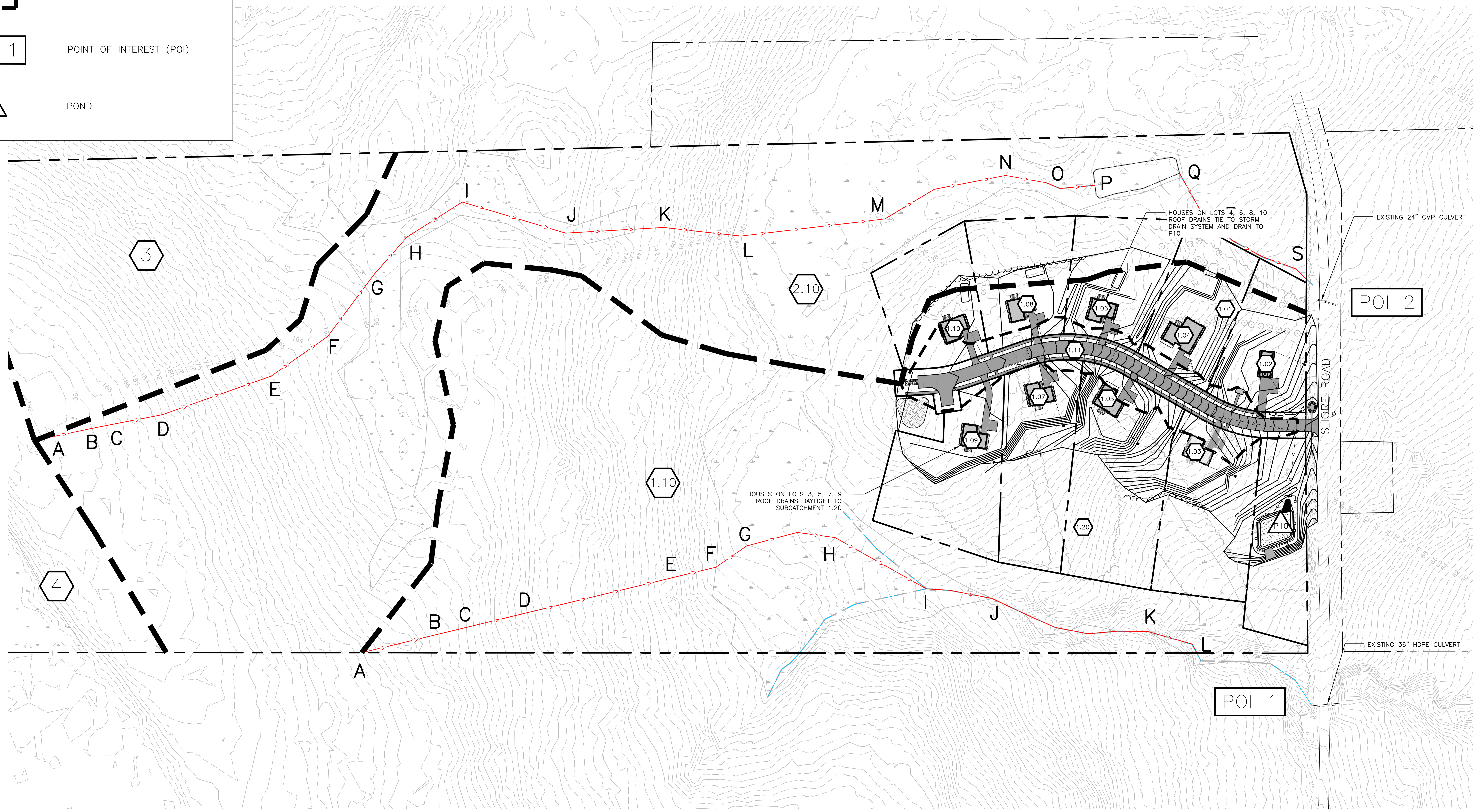
SW-1

Attachment 2: Post-Development Watershed Map

GENERAL NOTES:

REFER TO STORMWATER REPORT FOR MORE INFORMATION.

Symbol	Description
1 (hexagon)	SUBCATCHMENT
(heavy dashed box)	SUBCATCHMENT EXTENTS
POI 1	POINT OF INTEREST (POI)
1 (triangle)	POND



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SCALE: 1"=100'

NOT FOR CONSTRUCTION

ISSUED FOR	BY / DATE
SITE PLAN	WHS 8/3/2020
DEP PRE-APP	SJL 4/2/2021
100% DRAWINGS STORMWATER REPORT	SJL 4/7/2021
STORMWATER SUBMISSION	SJL 4/30/2021

DRAWING NAME: **POST-DEVELOPMENT WATERSHED MAP**

PROJECT NAME/ADDRESS: **STATION EASTPORT RECAPITALIZED FAMILY HOUSING**
576 SHORE ROAD, PERRY, MAINE, 04667

CLIENT/OWNER OF RECORD: U.S. COAST GUARD
5505 ROBIN HOOD ROAD, NORFOLK, VIRGINIA, 23515

ACORN ENGINEERING, INC.

ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04101
(207) 775-2655

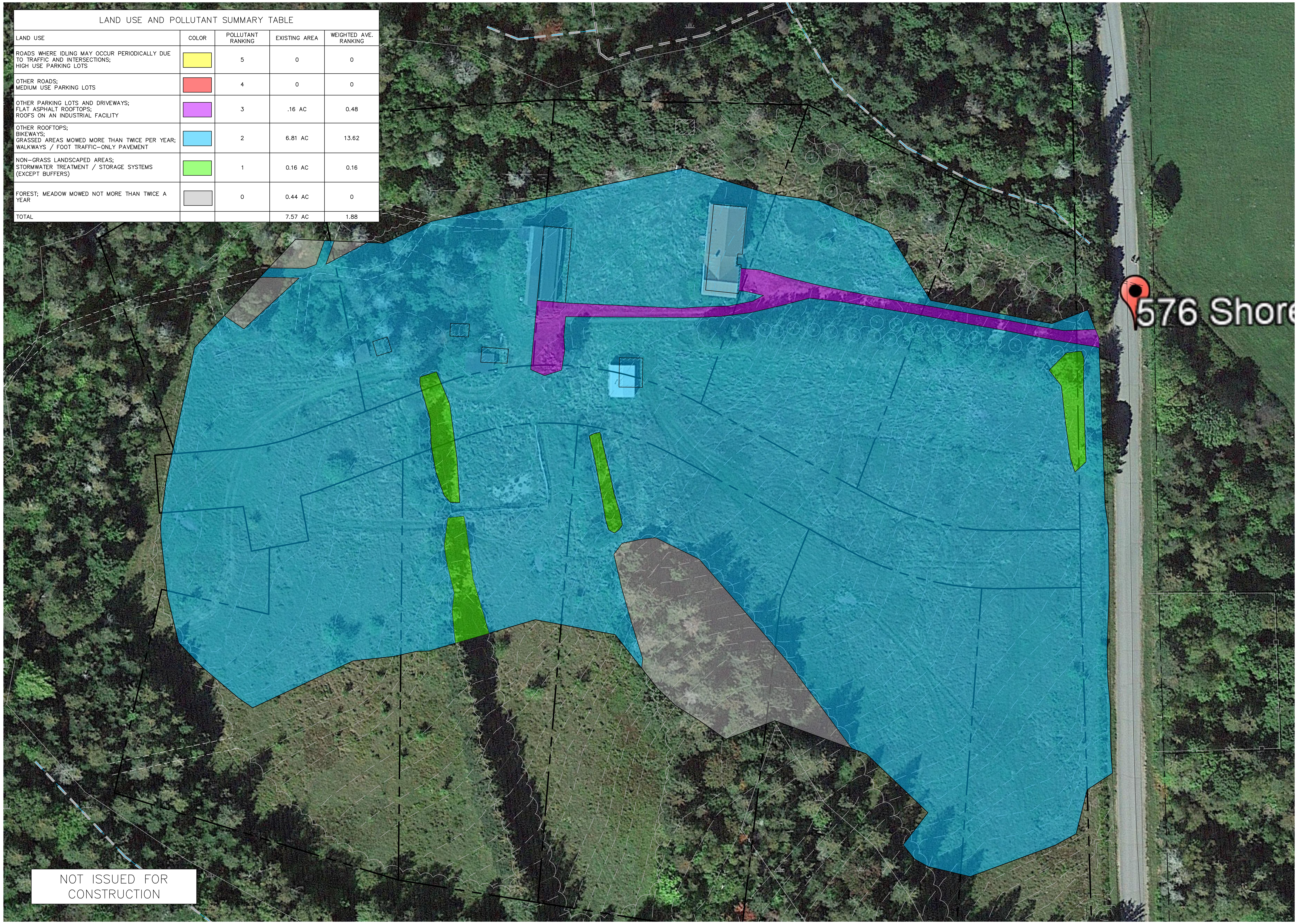
FILE:	1146_CIVIL
JN:	1146
SCALE:	AS NOTED
DESIGNED BY:	SJL
DRAWN BY:	MKT
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM H. SAVAGE
11419
4/30/21
LICENSED PROFESSIONAL ENGINEER

DRAWING NO.

SW-2

Attachment 3: Existing Pollutant Ranking Exhibit



LAND USE AND POLLUTANT SUMMARY TABLE

LAND USE	COLOR	POLLUTANT RANKING	EXISTING AREA	WEIGHTED AVE. RANKING
ROADS WHERE IDLING MAY OCCUR PERIODICALLY DUE TO TRAFFIC AND INTERSECTIONS; HIGH USE PARKING LOTS		5	0	0
OTHER ROADS; MEDIUM USE PARKING LOTS		4	0	0
OTHER PARKING LOTS AND DRIVEWAYS; FLAT ASPHALT ROOFTOPS; ROOFS ON AN INDUSTRIAL FACILITY		3	.16 AC	0.48
OTHER ROOFTOPS; BIKEWAYS; GRASSED AREAS MOWED MORE THAN TWICE PER YEAR; WALKWAYS / FOOT TRAFFIC–ONLY PAVEMENT		2	6.81 AC	13.62
NON–GRASS LANDSCAPED AREAS; STORMWATER TREATMENT / STORAGE SYSTEMS (EXCEPT BUFFERS)		1	0.16 AC	0.16
FOREST; MEADOW MOWED NOT MORE THAN TWICE A YEAR		0	0.44 AC	0
TOTAL			7.57 AC	1.88

40 0 40 80
SCALE: 1"=40'

ISSUED FOR	BY / DATE
SITE PLAN	WHS 8/3/2020
STORMWATER SUBMISSION	SJL 4/30/2021

DRAWING NAME:
PRE–DEVELOPMENT POLLUTANT IMPACT MAP

PROJECT NAME/ADDRESS:
STATION EASTPORT RECAPITALIZED FAMILY HOUSING
576 SHORE ROAD, PERRY, MAINE, 04667

CLIENT/OWNER OF RECORD:
U.S. COAST GUARD
5505 ROBIN HOOD ROAD, NORFOLK, VIRGINIA, 23515

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(207) 775–2655

FILE:	1146_CIVIL
JN:	1146
SCALE:	AS NOTED
DESIGNED BY:	SJL
DRAWN BY:	KRB
CHECKED BY:	WHS

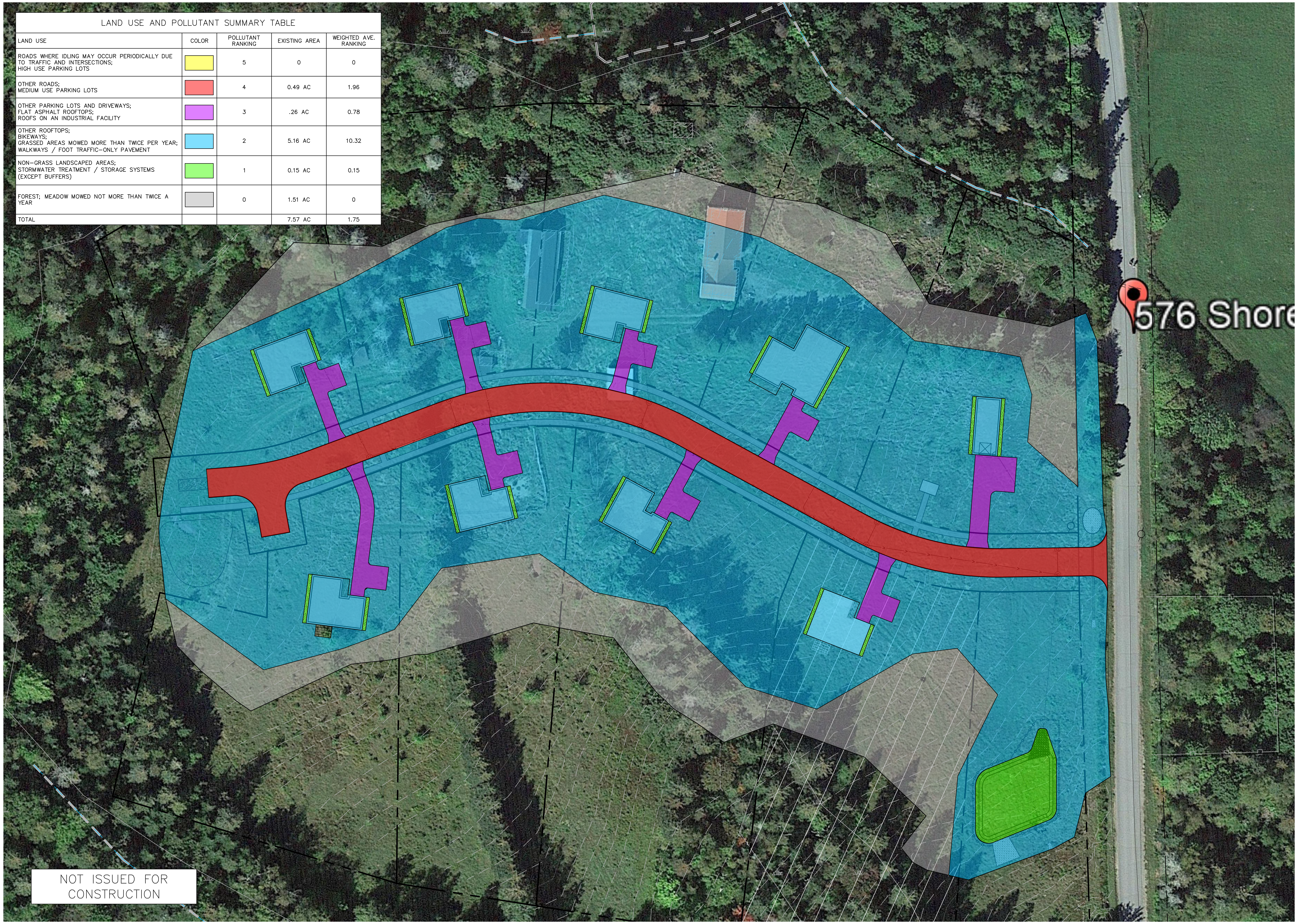
STATE OF MAINE
WILLIAM H. SAVAGE
11419
4/30/21
LICENSED PROFESSIONAL ENGINEER

DRAWING NO.
SW-3

Attachment 4: Proposed Pollutant Ranking Exhibit

LAND USE AND POLLUTANT SUMMARY TABLE

LAND USE	COLOR	POLLUTANT RANKING	EXISTING AREA	WEIGHTED AVE. RANKING
ROADS WHERE IDLING MAY OCCUR PERIODICALLY DUE TO TRAFFIC AND INTERSECTIONS; HIGH USE PARKING LOTS	(yellow)	5	0	0
OTHER ROADS; MEDIUM USE PARKING LOTS	(red)	4	0.49 AC	1.96
OTHER PARKING LOTS AND DRIVEWAYS; FLAT ASPHALT ROOFTOPS; ROOFS ON AN INDUSTRIAL FACILITY	(purple)	3	.26 AC	0.78
OTHER ROOFTOPS; BIKEWAYS; GRASSED AREAS MOWED MORE THAN TWICE PER YEAR; WALKWAYS / FOOT TRAFFIC–ONLY PAVEMENT	(blue)	2	5.16 AC	10.32
NON–GRASS LANDSCAPED AREAS; STORMWATER TREATMENT / STORAGE SYSTEMS (EXCEPT BUFFERS)	(green)	1	0.15 AC	0.15
FOREST; MEADOW MOWED NOT MORE THAN TWICE A YEAR	(gray)	0	1.51 AC	0
TOTAL			7.57 AC	1.75



NOT ISSUED FOR CONSTRUCTION

40 0 40 80

SCALE: 1"=40'

ISSUED FOR	BY DATE
SITE PLAN	WHS 8/3/2020
STORMWATER SUBMISSION	SJL 4/30/202

DRAWING NAME:
POST–DEVELOPMENT POLLUTANT IMPACT MAP

PROJECT NAME/ADDRESS:
STATION EASTPORT RECAPITALIZED FAMILY HOUSING
576 SHORE ROAD, PERRY, MAINE, 04667

CLIENT/OWNER OF RECORD:
U.S. COAST GUARD
5505 ROBIN HOOD ROAD, NORFOLK, VIRGINIA, 23515

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(207) 775–2655

FILE:	1146_CIVIL
JN:	1146
SCALE:	AS NOTED
DESIGNED BY:	SJL
DRAWN BY:	KRB
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM H. SAVAGE
11419
4/30/21
LICENSED PROFESSIONAL ENGINEER

DRAWING NO.

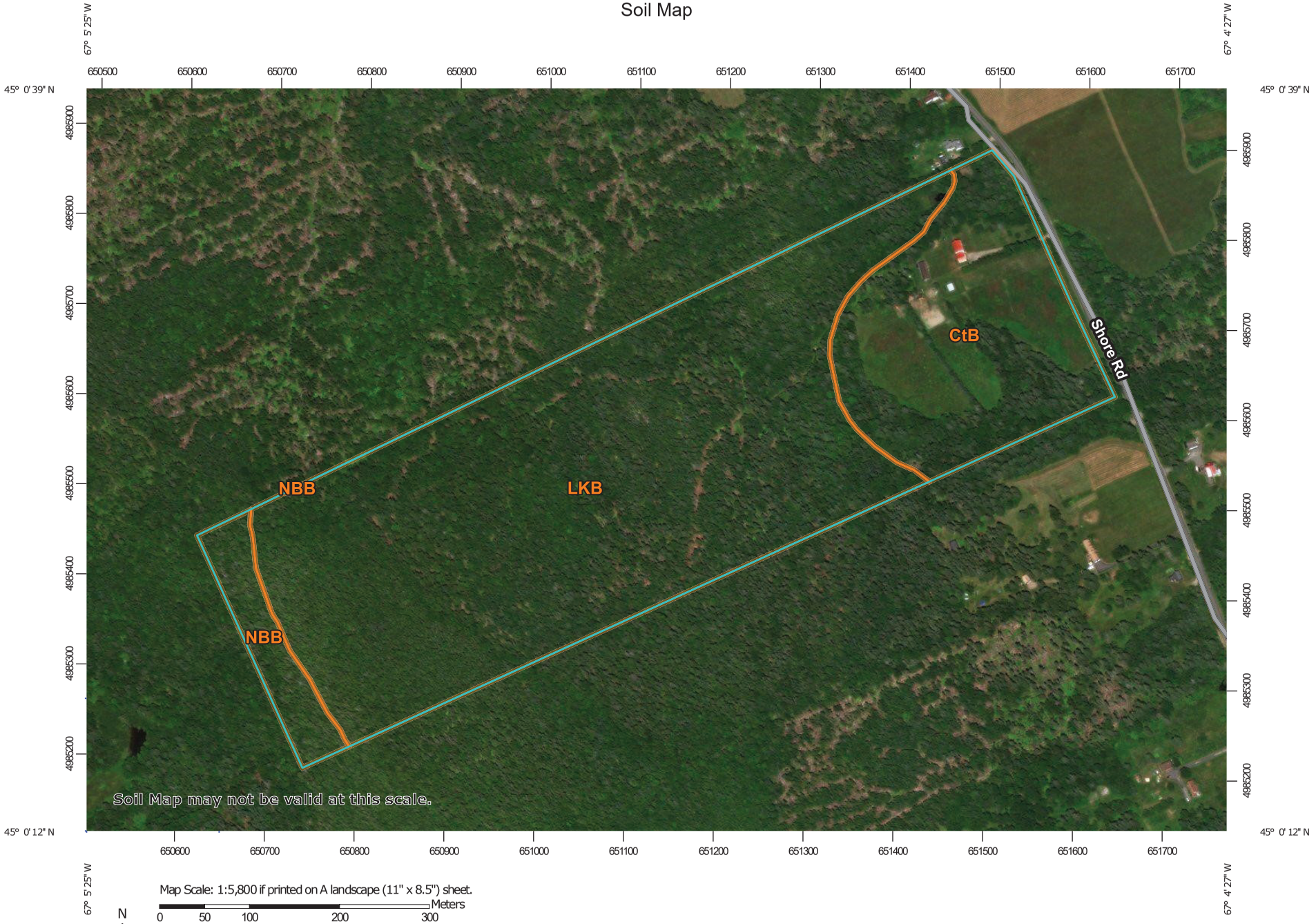
SW-4

Attachment 5: Medium Intensity Soil Map & Geotechnical Test Pits

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.

Custom Soil Resource Report
Soil Map



Map Scale: 1:5,800 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

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

Soils
- Soil 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: Washington County Area, Maine
Survey Area Data: Version 22, May 29, 2020

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

Date(s) aerial images were photographed: Dec 31, 2009—Oct 13, 2016

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CtB	Creasey gravelly silt loam, 3 to 8 percent slopes	16.9	23.3%
LKB	Lamoine-Rawsonville-Scantic complex, 0 to 8 percent slopes, very stony	52.3	72.1%
NBB	Naskeag-Rawsonville-Hogback complex, 0 to 8 percent slopes, very stony	3.4	4.7%
Totals for Area of Interest		**72.6**	**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.

TAX MAP 13, LOT 5
BOOK 4282, PAGE 19

Shore Road

S26° 05' 38.43"E 393.161'

S25° 14' 31.58"E 493.260'

S41° 27' 31.09"E 124.031'

EXISTING WELL #1

EXISTING WELL #2

TP-1
TP-2
TP-3
TP-4
TP-5
TP-6
TP-7
TP-8
TP-9
TP-10
TP-11
TP-12
TP-13
TP-14
TP-15

SAN. D. CARROLL
M. DUFFY
13, LOT 7
487, PAGE 167

SCALE: 1" = 80'

0 40 80 160 240

NORTH

PLAN REFERENCE

EXISTING CONDITIONS AUTOCAD FILE WAS OBTAINED FROM THE CLIENT.

LEGEND

TP-1 SUMMIT TEST PIT (NOVEMBER 13, 2020)

PROJECT:
USCG EASTPORT HOUSING PROJECT
SHORE ROAD - PERRY, MAINE

CLIENT:
DUCAS CONSTRUCTION

TITLE:
TEST PITS LOCATION PLAN

SCALE: 1" = 80'

DRAWN BY: KRF

APPR. BY: WMP

DATE: NOV. 20, 2020

PROJ.#: 20375

FIGURE: 1

SUMMIT
GEOENGINEERING SERVICES
113 PLEASANT STREET
ROCKLAND, ME 04841
Tel: (207) 318-7161
145 LISBON ST. - SUITE 101
LEWISTON, ME 04240
Tel: (207) 576-3313

SUMMIT GEOENGINEERING SERVICES	**TEST PIT LOG**	Test Pit # **TP-1**
	Project: USCS Housing Project Shore Road Perry, Maine	Project #: 20375 Groundwater: None Observed
Contractor: Sargent Corporation	Ground Surface Elevation: 101.4 ft	
Equipment: Large Tracked Excavator	Reference: Survey Located by Robert Costa	
Summit Staff: B. Peterlein, P.E.	Date: 11/13/2020	Weather: Sunny

Depth (ft)	**DESCRIPTION**	
	ENGINEERING	**GEOLOGIC/GENERAL**
1	Brown Silty SAND, trace rootlets, moist, SM	TOPSOIL
2	Brown Gravelly SAND, trace to little Silt, very dense, moist, SM	GLACIAL TILL
3		
4		
5		
6	End of Test Pit at 5 ft (EL 96.4 ft)	BEDROCK
7		
8		
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10		
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12		
13		
14		
15		
16		
17		

SUMMIT GEOENGINEERING SERVICES	TEST PIT LOG	Test Pit # TP-2
	Project: USCS Housing Project Shore Road Perry, Maine	Project #: 20375 Groundwater: None Observed
Contractor: Sargent Corporation	Ground Surface Elevation: 104.9 ft	
Equipment: Large Tracked Excavator	Reference: Survey Located by Robert Costa	
Summit Staff: B. Peterlein, P.E.	Date: 11/13/2020	Weather: Sunny

Depth (ft)	DESCRIPTION	
	ENGINEERING	GEOLOGIC/GENERAL
1	8" Brown Silty SAND, trace rootlets, moist, SM	TOPSOIL
2	Brown Gravelly SAND, trace to little Silt, very dense, moist, SM	GLACIAL TILL
3		
4	End of Test Pit at 3.7 ft (EL 101.2 ft)	BEDROCK
5		
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12		
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16		
17		

SUMMIT GEOENGINEERING SERVICES	TEST PIT LOG	Test Pit # TP-3
	Project: USCS Housing Project Shore Road Perry, Maine	Project #: 20375 Groundwater: None Observed
Contractor: Sargent Corporation	Ground Surface Elevation: 93.3 ft	
Equipment: Large Tracked Excavator	Reference: Survey Located by Robert Costa	
Summit Staff: B. Peterlein, P.E.	Date: 11/13/2020	Weather: Sunny

Depth (ft)	DESCRIPTION	
	ENGINEERING	GEOLOGIC/GENERAL
1	8" Brown Silty SAND, trace rootlets, moist, SM	TOPSOIL
2	Brown Gravelly SAND, trace to little Silt, very dense, moist, SM	GLACIAL TILL
3		
4		
	Weathered BEDROCK, loose, dry, (4.3 to 4.5 ft)	WEATHERED BEDROCK
5	End of Test Pit at 4.5 ft (EL 88.8 ft)	BEDROCK
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16		
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SUMMIT GEOENGINEERING SERVICES	TEST PIT LOG	Test Pit # TP-4
	Project: USCS Housing Project Shore Road Perry, Maine	Project #: 20375 Groundwater: None Observed
Contractor: Sargent Corporation	Ground Surface Elevation: 114.1 ft	
Equipment: Large Tracked Excavator	Reference: Survey Located by Robert Costa	
Summit Staff: B. Peterlein, P.E.	Date: 11/13/2020	Weather: Sunny

Depth (ft)	DESCRIPTION	
	ENGINEERING	GEOLOGIC/GENERAL
1	Brown Silty SAND, trace rootlets, moist, SM	TOPSOIL
2	Brown SAND, some Gravel, little Silt, dry, compact, SM	GLACIAL TILL
3	Brown Gravelly SAND, trace to little Silt, very dense, moist, SM	
4		
5	Weathered BEDROCK, loose, dry, (4.5 to 4.7 ft)	WEATHERED BEDROCK
6	End of Test Pit at 4.7 ft (EL 109.4 ft)	BEDROCK
7		
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14		
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16		
17		

SUMMIT GEOENGINEERING SERVICES	TEST PIT LOG	Test Pit # TP-5
	Project: USCS Housing Project Shore Road Perry, Maine	Project #: 20375 Groundwater: None Observed
Contractor: Sargent Corporation	Ground Surface Elevation: 121.9 ft	
Equipment: Large Tracked Excavator	Reference: Survey Located by Robert Costa	
Summit Staff: B. Peterlein, P.E.	Date: 11/13/2020	Weather: Sunny

Depth (ft)	DESCRIPTION	
	ENGINEERING	GEOLOGIC/GENERAL
1	Brown Silty SAND, trace rootlets, moist, SM	TOPSOIL
2	Brown Gravelly SAND, trace to little Silt, very dense, moist, SM	GLACIAL TILL
3	End of Test Pit at 2.5 ft (EL 119.4 ft)	BEDROCK
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SUMMIT GEOENGINEERING SERVICES	TEST PIT LOG	Test Pit # TP-6
	Project: USCS Housing Project Shore Road Perry, Maine	Project #: 20375 Groundwater: None Observed
Contractor: Sargent Corporation	Ground Surface Elevation: 124.4 ft	
Equipment: Large Tracked Excavator	Reference: Survey Located by Robert Costa	
Summit Staff: B. Peterlein, P.E.	Date: 11/13/2020	Weather: Sunny

Depth (ft)	DESCRIPTION	
	ENGINEERING	**GEOLOGIC/GENERAL**
1	8" Brown Silty SAND, trace rootlets, moist, SM	TOPSOIL
2	Brown SAND, little Gravel and Silt, compact, SP	GLACIAL TILL
3	Brown Gravelly SAND, trace to little Silt, very dense, moist, SM	
4		
5	End of Test Pit at 4 ft (EL 120.4 ft)	BEDROCK
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15		
16		
17		

SUMMIT GEOENGINEERING SERVICES	TEST PIT LOG	Test Pit # TP-7
	Project: USCS Housing Project Shore Road Perry, Maine	Project #: 20375 Groundwater: None Observed
Contractor: Sargent Corporation	Ground Surface Elevation: 124.9 ft	
Equipment: Large Tracked Excavator	Reference: Survey Located by Robert Costa	
Summit Staff: B. Peterlein, P.E.	Date: 11/13/2020	Weather: Sunny

Depth (ft)	DESCRIPTION	
	ENGINEERING	GEOLOGIC/GENERAL
1	8" Brown Silty SAND, trace rootlets, moist, SM	TOPSOIL
2	Brown Gravelly SAND, trace to little Silt, very dense, moist, SM	GLACIAL TILL
3		
	Weathered BEDROCK, loose, dry, (3.0 to 3.5 ft)	WEATHERED BEDROCK
4	End of Test Pit at 3.5 ft (EL 121.4ft)	BEDROCK
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SUMMIT GEOENGINEERING SERVICES	TEST PIT LOG	Test Pit # TP-8
	Project: USCS Housing Project Shore Road Perry, Maine	Project #: 20375 Groundwater: None Observed
Contractor: Sargent Corporation	Ground Surface Elevation: 115.4 ft	
Equipment: Large Tracked Excavator	Reference: Survey Located by Robert Costa	
Summit Staff: B. Peterlein, P.E.	Date: 11/13/2020	Weather: Sunny

Depth (ft)	DESCRIPTION	
	ENGINEERING	**GEOLOGIC/GENERAL**
1	8" Brown Silty SAND, trace rootlets, moist, SM	TOPSOIL
2	Brown Silty SAND, little Gravel, trace rootlets, SM	GLACIAL TILL
3	Brown Gravelly SAND, trace to little Silt, compact, dry, SM	
4		
5	End of Test Pit at 4.5 ft (EL 110.9 ft)	BEDROCK
6		
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17		

SUMMIT GEOENGINEERING SERVICES	TEST PIT LOG	Test Pit # TP-9
	Project: USCS Housing Project Shore Road Perry, Maine	Project #: 20375 Groundwater: None Observed
Contractor: Sargent Corporation	Ground Surface Elevation: 113.3 ft	
Equipment: Large Tracked Excavator	Reference: Survey Located by Robert Costa	
Summit Staff: B. Peterlein, P.E.	Date: 11/13/2020	Weather: Sunny

Depth (ft)	DESCRIPTION	
	ENGINEERING	**GEOLOGIC/GENERAL**
	Brown Silty SAND, trace rootlets, moist, SM	TOPSOIL
1	Brown Silty SAND, little Gravel, trace rootlets, SM	GLACIAL TILL
2	Brown Gravelly SAND, trace to little Silt, very dense, moist, SM	
3	End of Test Pit at 2.5 ft (EL 110.8 ft)	BEDROCK
4		
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SUMMIT GEOENGINEERING SERVICES	TEST PIT LOG	Test Pit # TP-10
	Project: USCS Housing Project Shore Road Perry, Maine	Project #: 20375 Groundwater: None Observed
Contractor: Sargent Corporation	Ground Surface Elevation: 116.2 ft	
Equipment: Large Tracked Excavator	Reference: Survey Located by Robert Costa	
Summit Staff: B. Peterlein, P.E.	Date: 11/13/2020	Weather: Sunny

Depth (ft)	DESCRIPTION	
	ENGINEERING	**GEOLOGIC/GENERAL**
1	6" Brown Silty SAND, trace rootlets, moist, SM	TOPSOIL
2	Brown Silty SAND, little Gravel, trace rootlets, SM	GLACIAL TILL
	Brown Gravelly SAND, tr to li Silt, dense, moist, SM	
3	End of Test Pit at 2.5 ft (EL 113.7 ft)	BEDROCK
4		
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12		
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14		
15		
16		
17		

SUMMIT GEOENGINEERING SERVICES	TEST PIT LOG	Test Pit # TP-11
	Project: USCS Housing Project Shore Road Perry, Maine	Project #: 20375 Groundwater: None Observed
Contractor: Sargent Corporation	Ground Surface Elevation: 115.4 ft	
Equipment: Large Tracked Excavator	Reference: Survey Located by Robert Costa	
Summit Staff: B. Peterlein, P.E.	Date: 11/13/2020	Weather: Sunny

Depth (ft)	DESCRIPTION	
	ENGINEERING	GEOLOGIC/GENERAL
1	Brown Silty SAND, trace rootlets, moist, SM	TOPSOIL
2	Brown Gravelly SAND, trace to little Silt, very dense, moist, SM	GLACIAL TILL
3	End of Test Pit at 2 ft (EL 113.4 ft)	BEDROCK
4		
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14		
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16		
17		

SUMMIT GEOENGINEERING SERVICES	TEST PIT LOG	Test Pit # TP-12
	Project: USCS Housing Project Shore Road Perry, Maine	Project #: 20375 Groundwater: None Observed
Contractor: Sargent Corporation	Ground Surface Elevation: 107.1 ft	
Equipment: Large Tracked Excavator	Reference: Survey Located by Robert Costa	
Summit Staff: B. Peterlein, P.E.	Date: 11/13/2020	Weather: Sunny

Depth (ft)	DESCRIPTION	
	ENGINEERING	GEOLOGIC/GENERAL
1	Brown Silty SAND, trace rootlets, moist, SM	TOPSOIL
2	Brown Gravelly SAND, trace to little Silt, very dense, moist, SM	GLACIAL TILL
3		
4	End of Test Pit at 3 ft (EL 104.1 ft)	BEDROCK
5		
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12		
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16		
17		

SUMMIT GEOENGINEERING SERVICES	TEST PIT LOG	Test Pit # TP-13
	Project: USCS Housing Project Shore Road Perry, Maine	Project #: 20375 Groundwater: None Observed
Contractor: Sargent Corporation	Ground Surface Elevation: 105.7 ft	
Equipment: Large Tracked Excavator	Reference: Survey Located by Robert Costa	
Summit Staff: B. Peterlein, P.E.	Date: 11/13/2020	Weather: Sunny

Depth (ft)	DESCRIPTION	
	ENGINEERING	GEOLOGIC/GENERAL
1	Brown Silty SAND, trace rootlets, moist, SM	TOPSOIL
2	Brown Gravelly SAND, trace to little Silt, very dense, moist, SM	GLACIAL TILL
3		
4		
5	End of Test Pit at 4 ft (EL 101.7 ft)	BEDROCK
6		
7		
8		
9		
10		
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12		
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14		
15		
16		
17		

SUMMIT GEOENGINEERING SERVICES	TEST PIT LOG	Test Pit # TP-14
	Project: USCS Housing Project Shore Road Perry, Maine	Project #: 20375 Groundwater: None Observed
Contractor: Sargent Corporation	Ground Surface Elevation: 105.0 ft	
Equipment: Large Tracked Excavator	Reference: Survey Located by Robert Costa	
Summit Staff: B. Peterlein, P.E.	Date: 11/13/2020	Weather: Sunny

Depth (ft)	DESCRIPTION	
	ENGINEERING	GEOLOGIC/GENERAL
1	8" Brown Silty SAND, trace rootlets, moist, SM	TOPSOIL
2	Brown Gravelly SAND, trace to little Silt, very dense, moist, SM	GLACIAL TILL
3	Weathered BEDROCK, loose, dry, (2.8 to 3.0 ft)	WEATHERED BEDROCK
4	End of Test Pit at 3 ft (EL 102 ft)	BEDROCK
5		
6		
7		
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14		
15		
16		
17		

SUMMIT GEOENGINEERING SERVICES	TEST PIT LOG	Test Pit # TP-15
	Project: USCS Housing Project Shore Road Perry, Maine	Project #: 20375 Groundwater: None Observed
Contractor: Sargent Corporation	Ground Surface Elevation: 102.2 ft	
Equipment: Large Tracked Excavator	Reference: Survey Located by Robert Costa	
Summit Staff: B. Peterlein, P.E.	Date: 11/13/2020	Weather: Sunny

Depth (ft)	DESCRIPTION	
	ENGINEERING	GEOLOGIC/GENERAL
1	Brown Silty SAND, trace rootlets, moist, SM	TOPSOIL
2	Brown Silty SAND, little Gravel, trace rootlets, SM	GLACIAL TILL
3	Brown Gravelly SAND, trace to little Silt, very dense, moist, SM	
4		
	Weathered BEDROCK, loose, dry, (4.0 to 4.5 ft)	WEATHERED BEDROCK
5	End of Test Pit at 4.5 ft (EL 97.7 ft)	BEDROCK
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ACORN
ENGINEERING, INC.

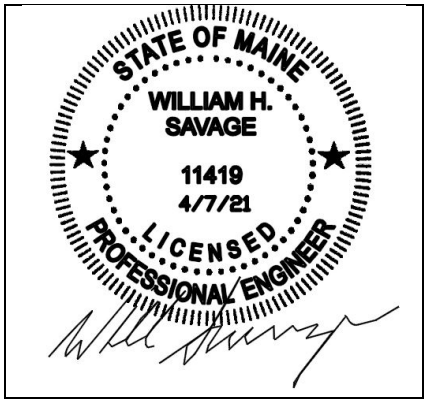
POST CONSTRUCTION - STORMWATER INSPECTION & MAINTENANCE PLAN

Prepared For:

Ducas Construction
3 Southgate Road #8
Scarborough, Maine 04074
&
United States Coast Guard
5505 Robin Hood Road Suite K
Norfolk, Virginia 23513-2431

Prepared By:

Acorn Engineering, Inc.
PO Box 3372
Portland, Maine 04102



ACORN ENGINEERING, INC.

RESPONSIBLE PARTY

The owner, the United States Coast Guard, and/or their successor shall be responsible for contracting with a qualified stormwater professional to implement the Inspection and Maintenance Plan. The qualified stormwater professional shall maintain a stormwater log (report) summarizing inspections, maintenance, and corrective action taken. The Qualified Stormwater Professional shall annually submit the Stormwater Log to the Department of Public Services prior to June 30th.

The following is an example of a qualified stormwater professional that the owner may contract through.

Organization: Will Savage, PE
Acorn Engineering, Inc
Portland, Maine

Phone: (207) 775-2655

Qualifications:

- Maine Professional Engineering License #11419
- Maine DEP - Certified in Maintenance & Inspection of Stormwater BMP's Cert #14
- Certified Erosion, Sediment and Storm Water Inspector (CESSWI) Cert #0293
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #4620

The inspection and maintenance criteria is based upon the Maine DEP - Stormwater Management for Maine, Volume III: BMPs Technical Design Manual. Refer to the Grading and Drainage Plan for the location of the BMPs

PURPOSE

This Inspection and Maintenance Plan has been individually tailored to this parcel's stormwater infrastructure, site characteristics, and their respective opportunities and limitations related to reducing the pollutant load on the receiving watershed. The maintenance of a parcel's impervious surfaces and stormwater infrastructure is critical to extending the long-term performance and effectiveness of Best Management Practices (BMPs). The Inspection and Maintenance Plan represents the parcel's minimum activities to meet the permit requirements. The parcel shall still be subject to any applicable Civil Site Plans, Permit Applications, Erosion and Sedimentation Control Plans Reports, Stormwater Management Plans, Inspection and Maintenance Manuals, and all Municipal, State, and Federal rules.

The applicant shall be responsible for retaining post construction and maintenance documents for at least 5 years. The Department of Environmental Protection's 5-year recertification will apply to this permit.

OPERATION AND MAINTENANCE ACTIVITY

Sweeping:

Annual sweeping of the roadway, sidewalks, driveways, and parking areas following the snow melt for accumulated winter sand, if necessary. Appropriately dispose of all collected material.

Catch Basins:

Catch basins shall be inspected to confirm that the structure is operating properly.

- Inspect the presence of accumulated sediment or debris any sediment shall be removed. The equipment shall meet the following minimum specifications; power jet and water source for washing down the storm drain, vacuum attachment for catch basin cleaning, and a liquid handling method to dewater the material.
- Sediment shall be removed when accumulation is within 6 inches of the outfall pipe invert. Legally dispose of accumulated sediment and debris from the bottom of the basin, inlet grates, and inflow channels to the basin.
- If the basin outlet is designed with a hood to trap floatable materials (e.g. Snout), check to ensure watertight seal is working.
- Appropriately dispose of all collected material.

Vegetated Underdrained Soil Filter (VUSF):

The maintenance of the VUSF shall be in accordance with the following activities identified below and the most recent version of the Maine DEP Volume III BMPs Technical Design Manual Chapter 7.1 – Grassed Underdrained Soil Filters.

- The soil filter shall be inspected after every major storm within the first year to ensure the filter area is draining within a 48-hour period and no less than a 24-hour period, and that the grass is establishing. Thereafter, the filter should be inspected at least once every six months to ensure that is draining within a 48-hour period following a one-inch storm or greater.
- Soil filter modification shall occur if the filter bed is draining in less than 24 hours. The top six inches of the filter shall be replaced with six inches of loam, per the most recent Maine DEP specification. Soil filter replacement shall be replaced with fresh material on a yearly basis.
- The filter area shall not be fertilized unless it is absolutely necessary to facilitate vegetative growth.
- Weeding to limit growth of plants besides the grass will likely be necessary.
- If desired, mowing shall only occur by a handheld weed-wacker or push mower and should be mowed no more than two times per growing season to maintain grass heights of no less than six inches. Riding lawnmowers will not be permitted or accessible.
- Maintaining a healthy cover of grass will minimize clogging with fine sediments. If ponding exceeds 48 hours, the top of the filter bed should be rototilled to reestablish the soil's filtration capacity.
- The top several inches of the filter can be replaced with fresh material if water is ponding for more than 72 hours, or the basin can be rototilled, seeded and mulched. Once the filter is

mature, adding new material (a 1-inch to 2-inch cover of mature compost) can compensate for subsidence.

- Ensure that all inlets and outlets within the flow splitter drain manhole are clear and functioning
- The sediment forebays should be inspected to ensure that the entire surface area is covered by riprap. Sediment may need be removed annually depending on sand application and the upstream catch basin's effectiveness at trapping sediment in the deep sumps.

Vegetated Areas and Embankments:

Inspect all landscaped and or vegetated slopes and embankments on an annual basis. Vegetated areas with bare areas or sparse growth (<90% coverage) shall be revegetated. Mulch shall be applied to landscaped areas, as necessary. Dead or decaying landscaping (ground cover, shrubs, trees etc.) shall be replanted in accordance with the approved Landscape Plan by Aceto Landscape Architects.

INSPECTION AND MAINTENANCE TABLE

Inspection and Maintenance Frequency	Spring or Yearly	Summer	Fall
Sweeping/Sand Removal	X		
Catch Basins	X		X
Vegetated Areas & Slopes	X	X	
Sediment Forebays	X		
Vegetated Underdrained Soil Filters	X	X	

In the above chart, it is assumed the certified stormwater professional will inspect each item in the spring. Inspections outside of the spring visits can likely be conducted by the property manager.

ATTACHED

BMP Inspection Logs

STORMWATER MAINTENANCE AND INSPECTION LOG

"VUSF" BMP:			
Location: 576 Shore Road, Perry, ME		**Latitude:**	45.00889
		Longitude:	-67.07639
Description of Located Point: southeast corner of property		**Inspector:**	
		Date of Inspection:	
		Weather Conditions:	
Days since last precipitation		**MEDEP Permit #**	YES
Quantity of last precipitation (in)		**Design Drawings:**	

Maintenance Items	Inspect In Spring	Inspect In Fall	Inspect As Necessary		Maintenance Requested (Date)	Maintenance Completed (Date)	Summary of Maintenance Required
Underdrained Ditch, Vegetated Underdrain Soil Filter, Bio-retention Cell, etc.							
Soil filter retains the design volume for a drain down time greater than 24-hours and less than 48-hours	☑	☑	☐	☐ Yes ☐ No ☐ N/A			
Permeability is between 2.4 and 4 in/hr	☐	☑	☐	☐ Yes ☐ No ☐ N/A			
Filter bed consists of at least 6 in of loam	☐	☐	☑	☐ Yes ☐ No ☐ N/A			
Filter bed planting height is no less than 6"	☐	☐	☑	☐ Yes ☐ No ☐ N/A			
Filter area is properly planted, showing no bare spots and free of unwanted vegetative growth	☐	☑	☐	☐ Yes ☐ No ☐ N/A			
The outlet control structure is in good working condition and free of debris	☐	☑	☐	☐ Yes ☐ No ☐ N/A			
Plantings are in good condition and do not show signs of rot or decay	☐	☑	☐	☐ Yes ☐ No ☐ N/A			

STORMWATER MAINTENANCE AND INSPECTION LOG

Maintenance Items	Inspect In Spring	Inspect In Fall	Inspect As Necessary		Maintenance Requested (Date)	Maintenance Completed (Date)	Summary of Maintenance Required
General							
Access to facility is adequate	☐	☑	☐	☐ Yes ☐ No ☐ N/A			
Photographs of most recent site inspection are included	☐	☑	☐				Photographs are attached.
Additional Comments:							