

M E M O R A N D U M

ADMINISTRATION DEPARTMENT
TOWN OF CUMBERLAND, MAINE

Date: June 15, 2022

To: Cumberland Planning Board

From: Carla Nixon, Town Planner

Subject: Preliminary Plan Review: Proposed Major Subdivision – Evergreen Estates

This project was before you back in January for Sketch Plan Review. It consists of 10 apartments units split among 5 duplex buildings.

As you may recall, there was concern about the existing connection of Old Gray Road with Gray Road. The applicant is working on a design for a new intersection that will improve safety. This will be presented for final plan review.

Otherwise, the application is in good shape for preliminary plan approval, with outstanding items to be submitted for final plan review and approval.

The applicant is requesting a partial waiver to the 75' perimeter buffer. I have included the memo that the Town Attorney wrote last month for the Wyatt (Tuttle Rd.) subdivision sketch plan re: the ability of the PB to waive the perimeter buffer. Please read the letter from Sebago Technics outlining the reasons for the request.

Date June 13, 2022
To Town of Cumberland Planning Board
From Carla Nixon, Town Planner
Subject Preliminary Major Subdivision Plan Review: Evergreen Estates

I. REQUEST/OVERVIEW:

The Applicant is SVR, LLC, c/o Nick Voltolina and Keven Salvo of Falmouth, Maine.
The Applicants are requesting preliminary subdivision review for a proposed 10-unit condominium development to be located at 246 Gray Road in the Village Medium Density Residential (VMDR) zoning district as shown on Map U21, Lot 5A.
Craig Burgess, P.E. of Sebago Technics is the Applicant’s representative. Dan Diffin, P.E., of SYTDesign Engineers reviewed the plans for the Town of Cumberland.

II. PROJECT HISTORY:

Sketch Plan Review: January 18, 2022

III. DESCRIPTION:

Parcel size: 5.69

Net Residential Density: 200,083 sf/20,000 sf. min lot sz = 10 lots/units

Proposed number of lots: 1 lot with five (3 bdrm) duplex units.

Zoning: Village Medium Density Residential (VMDR)

Development Type: Clustered Subdivision

Buffer: 75’ perimeter buffer: *Partial waver requested.*

Water: 2 on-site drinking water wells.

Sewer: 2 on-site subsurface waste disposal systems.

Open Space: 25% required.

Wetlands: 33,240 sf

Trails: None proposed

Fire Protection: Sprinklers

Road: Proposed to be a public road that will be 20’ wide and extends 250’ from Old Gray Road.

By-ways
(sidewalks or paved shoulders): Sidewalks proposed

Homeowners Association: None required; proposed to be rental units.

Right, Title and Interest: Statutory Warranty Deed

IV. OUTSIDE AGENCY APPROVALS STATUS:

Agency	Type of Permit	Status
MDEP	Stormwater Permit/General Construction Permit	
MDEP	NRPA Permit-by-Rule	
Maine Historic Preservation Commission		On file
Maine Department of Agriculture, Conservation and Forestry	Rare & Exemplary Botanical Features. None documented.	On file.
Maine Dept. of Inland Fisheries & Wildlife		On file.

V. TOWN PLANNER'S COMMENTS:

1. The deed states that a tree line buffer is to be planted along the remaining land of the grantor. The names of abutting property owners should be shown on the plan. If this is proposed in lieu of part of a buffering plan, this should be noted.
2. Open space needs to be calculated and shown on the plan.
3. Private solid waste disposal? Provide detail for dumpster enclosure
4. Submission of plan for upgrading Old Gray Road to Town Subdivision Standards.

VI. WAIVER REQUEST: Section 250-10.E Subdivision Regulations: 75' perimeter buffer. Partial waiver requested.

VII. DEPARTMENT HEAD REVIEWS:

William Longley, CEO: No comments.

Police Chief Charles Rumsey: No concerns.

Fire Chief Dan Small:

- 1) Automatic fire protection sprinkler systems shall be installed in each building per Town of Cumberland Ordinance and shall also meet the requirements of the National Fire Protection Association. The individual sprinkler systems shall send a water flow signal to the attached fire alarm panel whenever water is moving throughout the system. The fire department shall receive a copy of the sprinkler system drawings that have been approved and permitted by the State of Maine Fire Marshal's Office. The sprinkler system controls shall be in a location that does not require entry into the opposing occupancy within the same building. IE: when the sprinkler system is activated in one unit it must not be required to access controls in the other attached unit.
- 2) Due to the fire protection sprinkler system requirement the buildings shall be equipped with a fire alarm system that is monitored by an approved fire alarm company. Visual alarm signaling devices shall remain active when the system is silenced. The alarm system shall identify the exact location of each individual initiation device with plain text at the fire alarm panel. The fire alarm panel shall be in a location that does not require entry into the opposing occupancy within the same building. IE: when the fire alarm is activated in one unit it must not be required to access controls in the other attached unit.

- 3) Each building shall be equipped with a hinged key box approved by the fire department. The box location(s) shall be approved by the fire department. The box shall have keys accessible to both occupancies within the same building.

VIII. CUMBERLAND LANDS & CONSERVATION COMMITTEE: No comments received.

IX. PROPOSED FINDINGS OF FACT - Chapter 250 - Subdivision of Land

The purpose of these standards shall be to assure the comfort, convenience, safety, health and welfare of the people, to protect the environment and to promote the development of an economically sound and stable community. To this end, in approving subdivisions within the Town of Cumberland, Maine, the Board shall consider the following criteria and before granting approval shall determine that the proposed subdivision:

1. Pollution. The proposed subdivision will not result in undue water or air pollution. In making this determination, it shall at least consider:
 - A. The elevation of the land above sea level and its relation to the flood plains;
 - B. The nature of soils and subsoil and their ability to adequately support waste disposal;
 - C. The slope of the land and its effect on effluents;
 - D. The availability of streams for disposal of effluents; and
 - E. The applicable state and local health and water resource rules and regulations;

There are no flood plains on site. A subsurface investigation confirmed that the soils and subsoils are adequate to support waste disposal and passing test pits were confirmed. A nitrate evaluation was conducted that meets the requirements of the State of Maine and the Cumberland Subdivision Ordinance.

Based on the information provided, the Board finds that the standards of this section have been met.

2. Sufficient Water. The proposed subdivision has sufficient water available for the reasonable foreseeable needs of the subdivision;

The lots will be served by two drilled wells. A hydrogeologic Assessment dated April 13, 2022, was provided which states that the proposed subdivision will have adequate water available and will not adversely affect the supply of water to adjacent properties. The Town Engineer has reviewed and approved the findings of the hydrogeologic report.

Based on the information provided, The Board finds that the standards of this section have been met.

3. Municipal Water Supply. The proposed subdivision will not cause an unreasonable burden on an existing water supply, if one is to be used;

The subdivision will not utilize public water.

Based on the information provided, the Board finds the standards of this section have been met.

4. Erosion. The proposed subdivision will not cause unreasonable soil erosion or a reduction in the land's capacity to hold water so that a dangerous or unhealthy condition results;

An erosion and sedimentation control plan that includes housekeeping procedures for maintenance has been submitted and the plan has been reviewed and approved by the Town Engineer.

Based on the information provided, the Board finds that the standards of this section have been met.

5. Traffic. The proposed subdivision will not cause unreasonable highway or public road congestion or unsafe conditions with respect to the use of the highways or public roads existing or proposed;

A traffic impact assessment dated March 29, 2022, was submitted that shows that the project is estimated to generate six trips during both the AM and PM peak hour periods. A Traffic Movement Permit from MDOT is not required. There are no high crash locations in the area and there is adequate site distance at the exit from the subdivision.

The application states that the development is estimated to generate six (6) vehicle trips in the peak AM and PM hours.

Based on the information provided, the Board finds that the standards of this section have been met.

6. Sewage disposal. The proposed subdivision will provide for adequate sewage waste disposal and will not cause an unreasonable burden on municipal services, if they are utilized;

There will be two septic systems for the 10 units. The location of the systems and depiction of the location of passing soils tests have been provided and a hydrogeologic Assessment was provided that shows the proposed septic systems will provide for adequate sewage disposal without impacting well water quality.

Based on the information provided, the Board finds that the standards of this section have been met.

7. Municipal solid waste disposal. The proposed subdivision will not cause an unreasonable burden on the municipality's ability to dispose of solid waste, if municipal services are to be utilized;

The site plan shows the location of a 12' x 12' dumpster enclosure. A private waste hauler will be used.

Based on the information provided, the Board finds that the standards of this section have been met.

8. Aesthetic, cultural and natural values. The proposed subdivision will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites, significant wildlife habitat identified by the Department of Inland Fisheries and Wildlife or the municipality, or rare and irreplaceable natural areas or any public rights for physical or visual access to the shoreline;

Letters are on file from State agencies indicating that the proposed subdivision will have no adverse impact on any of the above features.

The Board finds that the standards of this section have been met.

9. Conformity with local ordinances and plans. The proposed subdivision conforms to a duly adopted subdivision regulation or ordinance, comprehensive plan, development plan or land use plan, if any. In making this determination, the municipal reviewing authority may interpret these ordinances and plans;

The plans have been reviewed and approved by the Town Planner, the Town Engineer and Town department heads. Additional information is required for final plan submission.

The Board finds that the standards of this section have been met.

10. Financial and technical capacity. The subdivider has adequate financial and technical capacity to meet the standards of this section;

Financial Capacity: The Applicant has submitted a letter dated March 29, 2022 from Gorham Savings Bank stating that bank has reviewed Mr. Salvo's financials and the details of the proposed project and finds that Mr. Salvo has the financial capacity to fund and/or obtain financing for such project. An estimate of values shall be submitted with the final plan.

Technical capacity is evidenced by the use of the professional technical consultants including a professional engineer, a licensed land surveyor, a landscape Designer, hydrogeologist, and a wetland scientist. In addition, a statement from the developer was provided that gave an overview of past projects completed in the Greater Portland Area.

The Board finds that the standards of this section have been met.

11. Surface waters; outstanding river segments. Whenever situated entirely or partially within the watershed of any pond or lake or within 250 feet of any wetland, great pond or river as defined in Title 38 chapter 3, subchapter I, article 2-B, the proposed subdivision will not adversely affect the quality of that body of water or unreasonably affect the shoreline of the body of water;

Wetlands were delineated by Gary Fullerton, LSS of Sebago Technics in November, 2020. There is one mapped wetland located in the south-east portion of the site.

Based on the information provided, the Board finds that the standards of this section have been met.

12. Ground water. The proposed subdivision will not alone, or in conjunction with, existing activities, adversely affect the quality or quantity of ground water;

The 10 unit residential subdivision, which will utilize private well water, will not adversely affect the quantity or quality of groundwater. A hydrogeologic Assessment was provided that shows the proposed septic systems will provide for adequate sewage disposal without impacting well water quality.

Based on the information provided, the Board finds that the standards of this section have been met.

13. Flood areas. Based on the Federal Emergency Management Agency's Flood Boundary and Floodway Maps and Flood Insurance Rate Maps, and information presented by the applicant whether the subdivision is in a flood-prone area. If the subdivision, or any part of it, is in such an area, the subdivider shall determine the 100-year flood elevation and flood hazard boundaries within the subdivision. The proposed subdivision plan must include a condition of plan approval requiring that principal structures in the subdivision will be constructed with their lowest floor, including the basement, at least one foot above the 100-year flood elevation;

The development is not located within a 100 year flood plain as shown on FEMA Flood Insurance Rate Map 230162 0010B-0015B.

Based on the information provided, the Board finds that the standards of this section have been met.

14. Storm water. The proposed subdivision will provide for adequate storm water management;
A stormwater Management Report dated May, 2022 was included in the application. The proposed development has been designed to manage stormwater runoff through Best Management Practices approved by MDEP. Run-off discharging from the site will be at or below pre-development conditions for the 2, 10 and 25 year storm events.

Based on the information provided, the Board finds that the standards of this section have been met.

15. Freshwater wetlands. All potential freshwater wetlands, as defined in 30-A M.R.S.A. §4401 (2-A), within the proposed subdivision have been identified on any maps submitted as part of the application, regardless of the size of these wetlands. Any mapping of freshwater wetlands may be done with the help of the local soil and water conservation district.

One wetland area was mapped and is shown on the plan. The development of the 10 condominium units has been designed to avoid wetland impacts to the maximum extent possible and will involve the filling of 2,558 s.f. of wetland which is below MDEP permitting thresholds.

Based on the information provided, the Board finds that the standards of this section have been met.

16. River, stream or brook... Any river, stream, or brook within or abutting the proposed subdivision has been identified on any map submitted as a part of the application. For purposes of this section, "river, stream or brook" has the same meaning as in Title 38, Section 480-B, Subsection 9. [Amended; Effective. 11/27/89]

There were no streams identified on the site.

Based on the information provided, the Board finds that the standards of this section have been met.

IX. STANDARD CONDITION OF APPROVAL

This approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted by the applicant. Any variation from the plans, proposals and supporting documents, except de minimus changes as so determined by the Town Planner which do not affect approval standards, is subject to review and approval of the Planning Board prior to implementation.

X. RECOMMENDED CONDITIONS OF APPROVAL:

1. A preconstruction conference shall be held prior to the start of construction.
2. A performance guarantee in an amount and form acceptable to the Town Manager will be required prior to the preconstruction conference.
3. All clearing limits shall be flagged and approved by the Peer Review Engineer prior to the preconstruction conference.
4. A blasting permit, if required, shall be obtained from the Code Enforcement Officer.
5. All legal and technical review fees shall be paid to the Town prior to the preconstruction conference.
6. An electronic copy of the as-built plans shall be submitted to the Town Planner prior to the release of any remaining inspection fees.

From: Natalie L. Burns <nburns@jensenbaird.com>
Sent: Wednesday, June 15, 2022 3:35:29 PM
To: Carla Nixon <cnixon@cumberlandmaine.com>
Cc: William Shane <wshane@cumberlandmaine.com>; William Longley <wlongley@cumberlandmaine.com>
Subject: RE: Subdivision Ordinance Question

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Carla,

The units aren't going to be on individual lots since this is a condo and so the land will be under common ownership. The density provisions of Sec. 250-10 apply to individual lots and not to units. The applicable density provision here is that the minimum lot area per dwelling unit is 20,000 square feet (as set forth in Sec. 315-9(C)(2)).

With that said, it certainly appears that the density requirements in Section 250-10 do not comply with the introductory language, which states that individual building lots may be smaller than the required minimum lot size for the zoning district in which they are located, particularly where, as here, the minimum lot size in the zoning is less than what is required in Sec. 250-10. It also conflicts with the definition of net residential density in Sec. 250-3, which states that the net residential acreage is divided by the zoning district minimum lot size for the zone in which the project is located. It sounds like this needs an amendment so that the various provisions are consistent.

But the good news for this project is that it appears that it can go forward as a condo development.

Thanks,

Natalie

Natalie L. Burns, Esq.
Attorney



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Bio: [Natalie L. Burns | Jensen Baird](#)

From: Carla Nixon <cnixon@cumberlandmaine.com>
Sent: Wednesday, June 15, 2022 1:28 PM
To: Natalie L. Burns <nburns@jensenbaird.com>
Cc: William Shane <wshane@cumberlandmaine.com>; William Longley

<wlongley@cumberlandmaine.com>

Subject: Subdivision Ordinance Question

Hi Natalie,

I am reviewing a preliminary subdivision plan for a 10-unit condo project (5 duplexes) in West Cumberland in the VMDR zone.

The VMDR states that min. lot size is 20,000 sf., but I noticed that Section 250-10 B of the Subdivision Ordinance states that minimum lot size in a clustered subdivision for a project without public water or sewer is 80,000 square feet for a duplex.

A traditional style subdivision has no such provision re: min. lot size.....just defaults to the underlying zone (which is 20,000 sf).

We think that the snafu happened when we added the Conservation Subdivision language to the subdivision ordinance and left this language in which DID apply to clustered subdivision in the RR 1 and RR2 which had much larger min. lot sizes (2 and 4 acres). This language was a benefit to those projects but clearly is unworkable with a project in a zone like the VMDR.

So, how do we proceed?

Carla



Carla Nixon

Director of Planning, Town of Cumberland

207-829-2206

www.cumberlandmaine.com

290 Tuttle Road, Cumberland, Maine 04021



From: [Natalie L. Burns](#)
To: [Carla Nixon](#)
Cc: [Christina Silberman](#); [William Longley](#); [William Shane](#); [Dan Diffin](#)
Subject: RE: Proposed Wyatt Subdivision Question
Date: Friday, April 29, 2022 12:34:19 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)

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Carla,

Section 250-44 states that the Planning Board may waive a standard if it finds either that an unnecessary hardship will result from strict compliance with the subdivision standards or if there are special circumstances of a particular plan that makes the standard inapplicable. The waiver can't have the effect of nullifying the intent and purpose of the Comprehensive Plan, the Subdivision Ordinance or the Zoning Ordinance. It also can't endanger public safety. The Ordinance defines "unnecessary hardship" as "a substantial burden on the applicant which affects the applicant's ability to achieve a reasonable economic return" on the project.

This would appear to fall within either of the criteria for a waiver. Because these buffer requirements only exist in the Subdivision Ordinance and not in the Zoning Ordinance, the Board has the authority to waive them. Any waiver will need to be noted on the subdivision plan and recorded within 2 years of the final subdivision approval.

Thanks,

Natalie

Natalie L. Burns, Esq.

Attorney

JENSEN BAIRD

Ten Free Street
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Portland, ME 04112
T: (207) 775-7271

From: Carla Nixon <cnixon@cumberlandmaine.com>
Sent: Thursday, April 28, 2022 2:23 PM
To: Natalie L. Burns <nburns@jensenbaird.com>
Cc: Christina Silberman <csilberman@cumberlandmaine.com>; William Longley <wlongley@cumberlandmaine.com>; William Shane <wshane@cumberlandmaine.com>; Dan Diffin

<dpd@smemaine.com>

Subject: Proposed Wyatt Subdivision Question

Hi Natalie,

There is a vacant parcel located across from the Fire Station on Tuttle Road. A developer is proposing a 7 lot, single family subdivision to be served by public water and sewer. It is in an identified "Growth Area" in our Comprehensive Plan. When Bill Longley and I first looked at it, it appeared feasible as it is in the Town Center District (TCD) which allows for small lots with small setbacks. However, when the Subdivision Ordinance is considered, the development is not feasible due to the significant perimeter buffers (75') required of all major subdivisions (and in this case, because the development is off Tuttle Road, the buffer is increased to 150' (Section 250-10 (Clustered) and 250-12 (Traditional) along Tuttle Road).

So, the question for you is whether the Planning Board has the authority to reduce the buffer requirements of the subdivision ordinance given the location of the development.

I have this on the May 17th Planning Board agenda for Sketch Plan Review. If your answer is positive, then the applicant will prepare a Traditional and Clustered subdivision plan for the Board to consider.

I believe that these large buffers were in place when the town was envisioning subdivisions in rural areas. This parcel is quite different and would likely be able to be developed more intensely if the recently-adopted law regarding affordable housing/increased density is in place next July.

I also want to add that the Town has approved three other major subdivisions (two condo projects and one apartment building) in the TCD, but they were done with a contract zoning.

Let me know if you need any other information.

Thank you for your help.

Carla



Carla Nixon

Director of Planning, Town of Cumberland

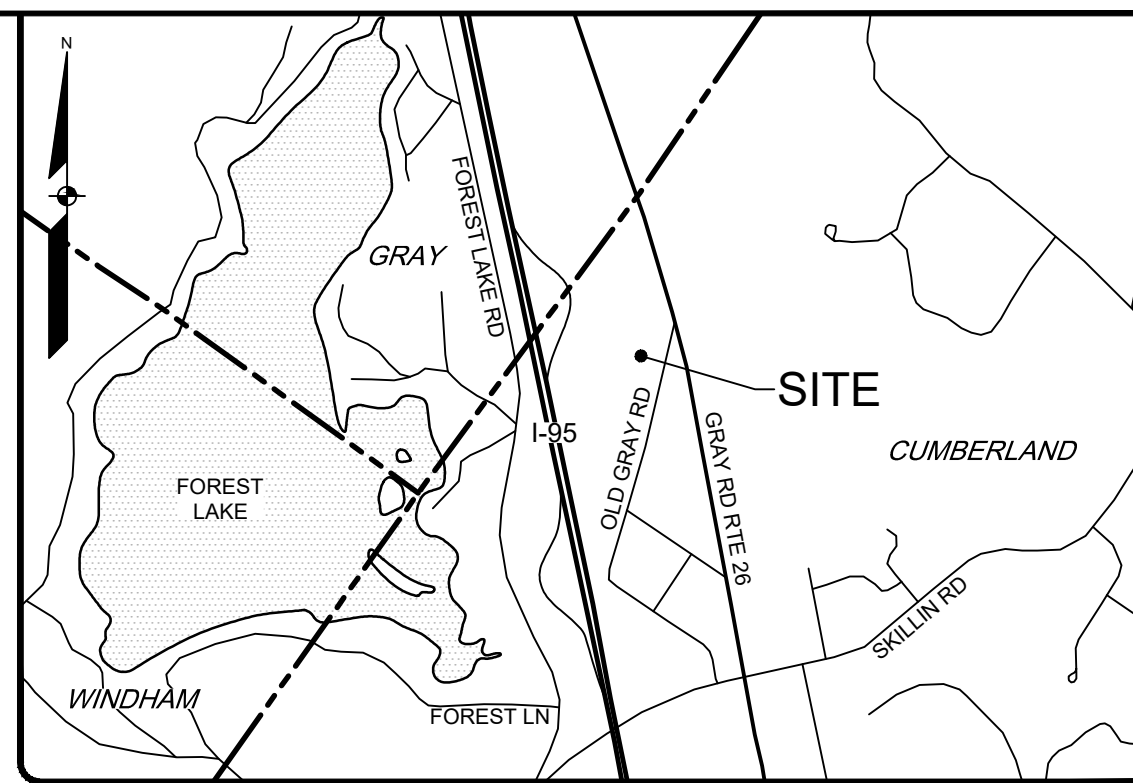
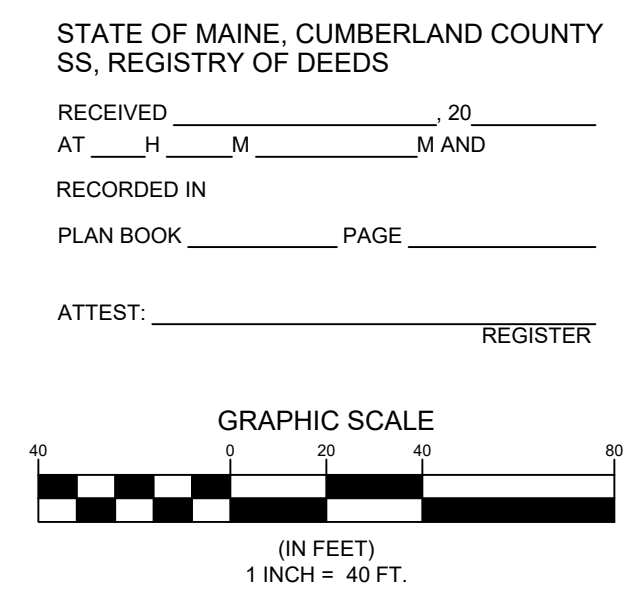
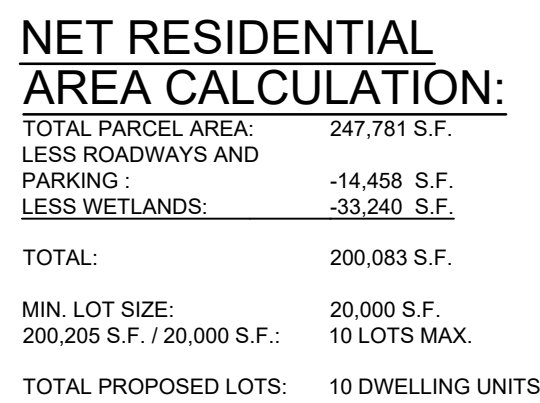
207-829-2206

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290 Tuttle Road, Cumberland, Maine 04021



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LOCATION MAP

GENERAL NOTES:

1. THE RECORD OWNER OF THE PARCEL IS KARL C. & ELEANOR A. NIELSEN BY DEED DATED 03/26/84, 1975 AND RECORDED AT THE CUMBERLAND COUNTY REGISTRY OF DEEDS (CCRD) IN BOOK 3721 PAGE 309.
2. THE PROPERTY IS SHOWN AS LOT 5A ON THE TOWN OF CUMBERLAND TAX MAP U21 AND IS LOCATED IN THE VILLAGE MEDIUM DENSITY RESIDENTIAL (VMDR) DISTRICT.
3. SPACE AND BULK CRITERIA FOR THE VMDR DISTRICT ARE AS FOLLOWS:

NET RESIDENTIAL DENSITY:	20,000 SF/UNIT
MINIMUM LOT SIZE:	20,000 SF
MINIMUM STREET FRONTAGE:	100 FT
MINIMUM FRONT YARD:	25 FT
MINIMUM SIDE YARD:	15 FT, COMBINED WIDTH AT LEAST 35 FEET
MINIMUM REAR YARD:	25 FT

* SEE ORDINANCE FOR MORE PARTICULAR INFORMATION.
4. TOTAL AREA OF PARCEL IS APPROXIMATELY 8.51 ACRES.
5. BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED UPON FIELD WORK PERFORMED BY SEABO TECHNICS, INC. IN FEBRUARY OF 2021.
6. PLAN REFERENCES:
 - A. SKETCH PREPARED BY BRUCE BOWMAN
 - B. "PROPERTY PLAN, MAINE TURNPIKE AUTHORITY, MAINE TURNPIKE, SECTION 2-PORTLAND TO AUGUSTA" DATED MARCH 1955 AND RECORDED AT THE CCRD IN PLAN BOOK 56, PAGE 34.
7. PLAN ORIENTATION IS GRID NORTH. MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE 1802-NAD83, BASED ON DUAL FREQUENCY GPS OBSERVATIONS.
8. BENCHMARK:

BM-1	HORIZONTAL SPIKE IN UTILITY POLE	ELEVATION: 318.19 (NAVD88)
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9. UTILITY INFORMATION DEPICTED HEREON, UNLESS OTHERWISE NOTED, IS OF QUALITY LEVEL D PER AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) STANDARD CI/ASCE 38-02. UTILITIES DEPICTED HEREON MAY NOT NECESSARILY REPRESENT ALL EXISTING UTILITIES. CONTRACTORS ARE ADVISED TO CONTACT UTILITIES AND/OR FIELD ENGINEERS (1-888-DIG-SAFE) AND FIELD VERIFY EXISTING UTILITIES WITHIN THE PROJECT AREA PRIOR TO CONSTRUCTION AND/OR EXCAVATION.
10. THE LOCUS PROPERTY AS DEPICTED HEREON DOES NOT FALL WITHIN A SPECIAL FLOOD HAZARD AREA AS DELINEATED ON THE FLOOD INSURANCE RATE MAP FOR CUMBERLAND, MAINE, CUMBERLAND COUNTY, COMMUNITY PARTICIPATION BOARD 230162D-0010-0, HAVING AN EFFECTIVE DATE OF MAY19, 1981. THE LOCUS FALLS WITHIN AN AREA IDENTIFIED AS ZONE C, AREAS OF MINIMAL FLOODING.
11. A WETLAND DELINEATION WAS PERFORMED ON THIS PROJECT SITE ON NOVEMBER 16, 2021 BY GARY FULLERTON, LICENSED SOIL SCIENTIST OF SEABO TECHNICS, INC. THIS DELINEATION CONFORMS TO THE STANDARDS AND METHODS OUTLINED IN THE 1987 WETLANDS DELINEATION MANUAL AND NORTHEAST REGIONAL SUPPLEMENT AUTHORED AND PUBLISHED BY THE U.S. ARMY CORPS OF ENGINEERS. ALL WETLAND FIELDS WERE LOCATED USING GLOBAL POSITIONING SYSTEMS (GPS) TECHNOLOGY CAPABLE OF SUBMETER ACCURACY.
12. A ROAD WIDTH OF 80.00 FEET WAS HELD FOR OLD GRAY ROAD AS SHOWN ON THE MAINE DOT RIGHT OF WAY VIEWER, SITING A 1923 COUNTY LAYOUT IN VOLUME 19, PAGE 191.
13. A ROAD WIDTH OF 80.00 FEET WAS HELD FOR GRAY ROAD AS SHOWN ON THE MAINE DOT RIGHT OF WAY VIEWER, SITING A 1909 COUNTY LAYOUT IN VOLUME 17, PAGE 504.

APPROVAL-
TOWN OF CUMBERLAND
PLANNING BOARD

[illegible]

STATE OF MAINE
PROFESSIONAL LAND SURVEYOR
JACOB A. BARLOW
No. 10113
06-14-2013

STATE OF MAINE
PROFESSIONAL LAND SURVEYOR
CRAIG A. BURGESS
No. 10112
06-14-2012

[illegible]

SEBAGO
TECHNICS
WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd.,
Suite 4A
South Portland, ME 04106
Tel: 207-260-2100

OVERALL SITE AND SUBDIVISION PLAN

OF:
EVERGREEN ESTATES
246 OLD GRAY ROAD
CUMBERLAND, ME

FOR:
ENVY CONSTRUCTION
28 STONE RIDGE ROAD
FALMOUTH ME 04105

DESIGNED	AJR
DRAWN	ER
CHECKED	CAB
DATE	01/11/2022
SCALE	1"=40'
PROJECT	20551



Waiver Request – Evergreen Estates, Old Gray Road, Cumberland

In accordance with the Town of Cumberland Planning Board Standards for reviewing Clustered Subdivisions, the following waiver requests are being submitted for Planning Board Approval.

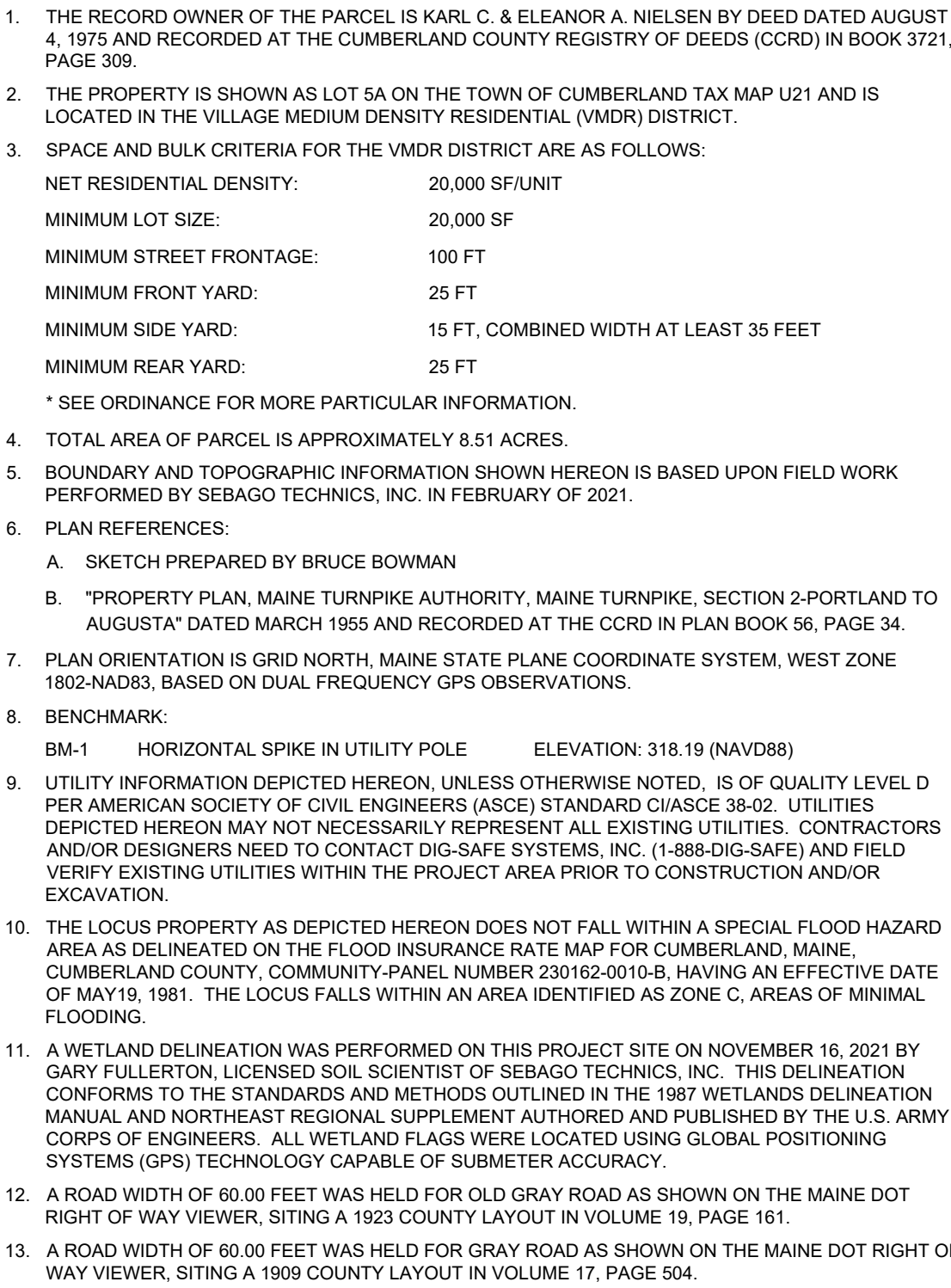
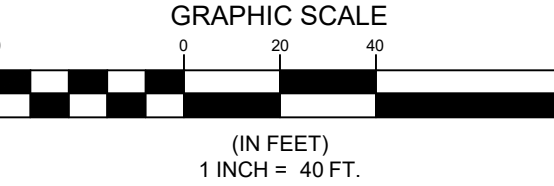
1. **Section 250-10.E – Subdivision Regulations:** There requirement for a vegetative buffer of at least 75-feet in width around the entire perimeter of the lot. We respectfully request a waiver from this standard along a portion of the north and east property lines. The north property line was recently created for a lot division of the subject parcel, and as stipulated in the deed, landscaping will be planted along the property line. The east property line is along the Old Gray Road frontage. Robust landscaping will be designed to substitute for the reduced buffer width.

The project was designed around existing site constraints including:

- Wetlands and steep topography in south portions of the parcel.
- Visible and shallow bedrock in west portions of the parcel.

Shifting the development further to the south would require additional wetland disturbance and a substantially more excavation. The site is designed in a manner to effectively balance cut and fills. Subsurface wastewater disposal systems have defined setbacks from structures, steep slopes, ditches, and wells (as defined in the Maine Subsurface Wastewater Rules). Shifting the disposal system locations east or west would be a hardship given the various setback requirements and underlying soil conditions (visible and shallow bedrock).

Duplexes closer to Old Gray Road maintain a similar distance to the roadway as nearby residential dwellings. Furthermore, the minimum front and side yard setback requirements for the VMDR District are being met.

[illegible]

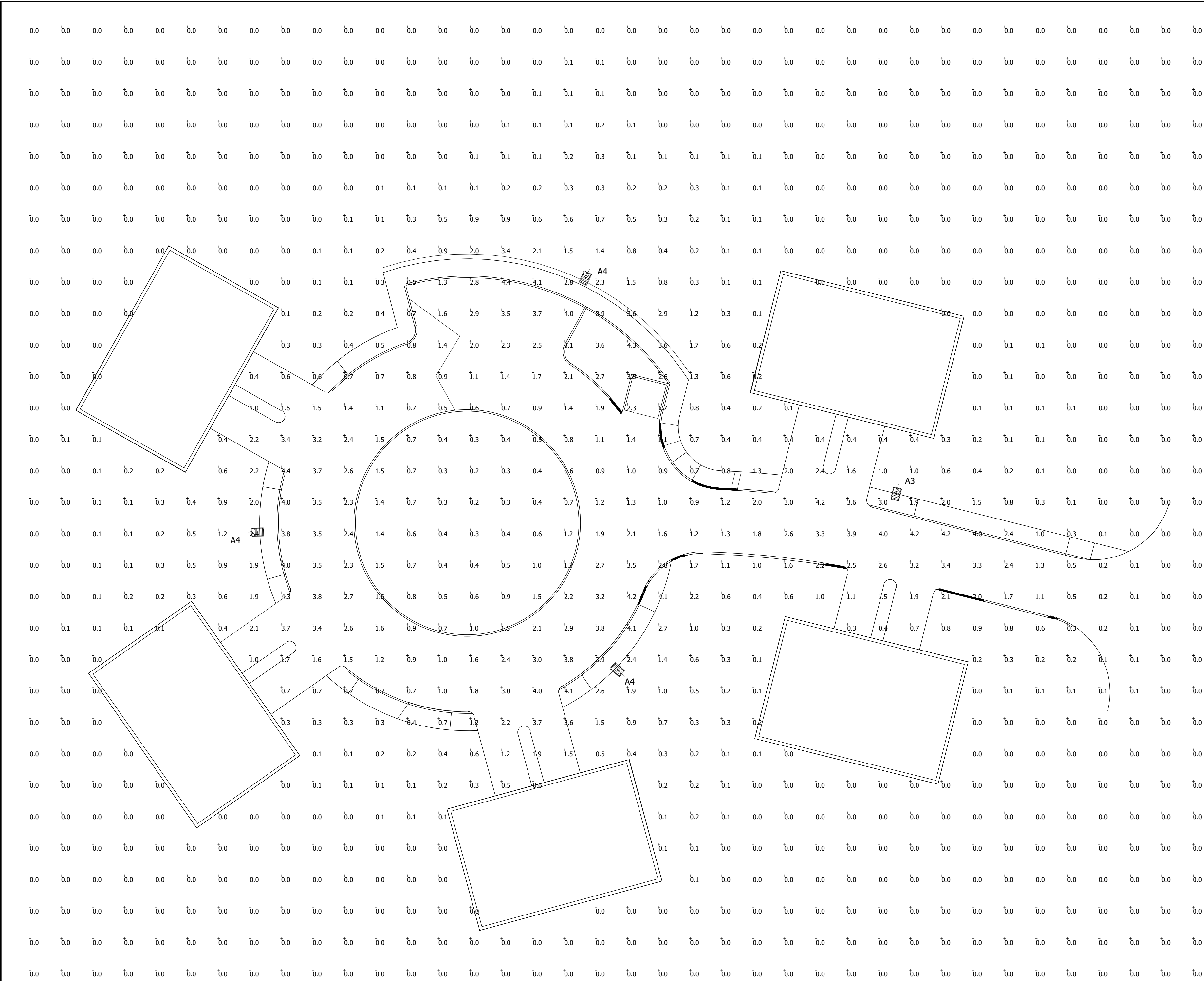
EVERGREEN ESIAIES
246 OLD GRAY ROAD
CUMBERLAND, ME

FOR:
ENVY CONSTRUCTION
28 STONE RIDGE ROAD
FALMOUTH, ME 04105

SHEET 3 OF 11

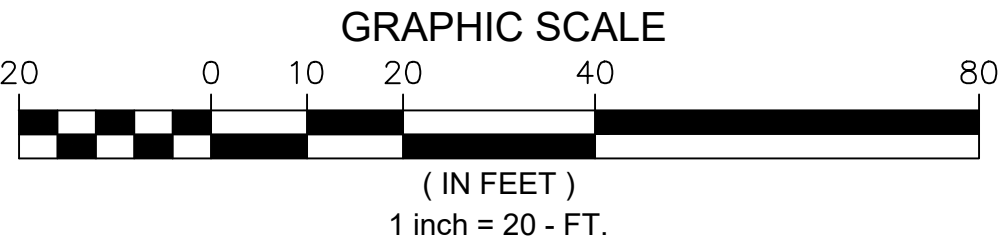
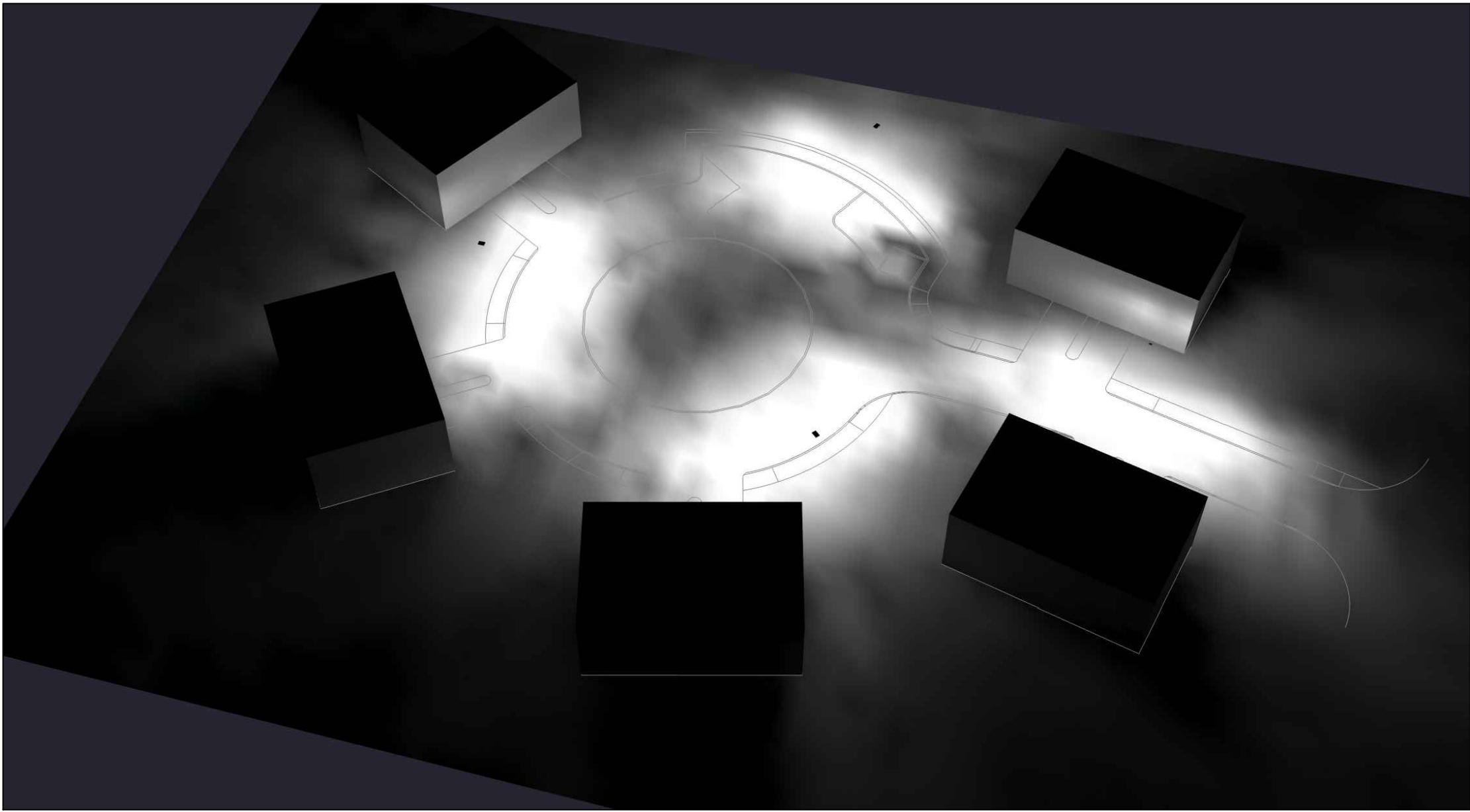
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PRELIMINARY
NOT FOR
INSTRUCTION



Luminaire Schedule							
Symbol	Qty	Label	Mounting Height	LLF	Lum. Lumens	Lum. Watts	Description
	1	A3	20' - 0" AFG	0.900	14109	100	VP-1-160L-100-3K7-3
	3	A4	20' - 0" AFG	0.900	15931	115	VP-1-160L-115-3K7-4W

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Overall Area	Illuminance	Fc	0.51	4.4	0.0	N.A.	N.A.
Paved Area	Illuminance	Fc	2.23	4.4	0.5	4.46	8.80



1. THIS LIGHTING DESIGN IS BASED ON LIMITED INFORMATION SUPPLIED BY OTHERS TO HUBBELL LIGHTING. SITE DETAILS PROVIDED HEREON ARE REPRODUCED ONLY AS A VISUALIZATION AID. FIELD DEVIATIONS MAY SIGNIFICANTLY AFFECT PREDICTED PERFORMANCE. PRIOR TO INSTALLATION, CRITICAL SITE INFORMATION (POLE LOCATIONS, ORIENTATION, MOUNTING HEIGHT, ETC.) SHOULD BE COORDINATED WITH THE CONTRACTOR AND/OR SPECIFIER RESPONSIBLE FOR THE PROJECT.

2. LUMINAIRE DATA IS TESTED TO INDUSTRY STANDARDS UNDER LABORATORY CONDITIONS. OPERATING VOLTAGE AND NORMAL MANUFACTURING TOLERANCES OF LAMP, BALLAST, AND LUMINAIRE MAY AFFECT FIELD RESULTS.

3. CONFORMANCE TO FACILITY CODE AND OTHER LOCAL REQUIREMENTS IS THE RESPONSIBILITY OF THE OWNER AND/OR THE OWNER'S REPRESENTATIVE.

TITLE:

CUMBERLAND CONDOS
CUMBERLAND, ME
SITE PHOTOMETRIC PLAN

REVISED FROM DRAWING NUMBER(S):

Hubbell Lighting, Inc.
701 MILLENNIUM BLVD.
GREENVILLE, SC 29607

ON BY: DHK	DATE: 03/02/22	CHK BY: N/A
REV. BY:	DATE:	SCALE: AS NOTED
QUOTE: N/A	DRAWING / DESIGN NO: 2229272	



Town of Cumberland Preliminary Major Subdivision & Site Plan Application

For

Evergreen Estates

Gray Road
Cumberland, Maine

Prepared for
Envy Construction
28 Stone Ridge Road,
Falmouth, ME 04105

Prepared by
Sebago Technics, Inc.
75 John Roberts Road
South Portland, Maine 04106

May 2022

20551

May 25, 2022
20551

Carla Nixon, Planner
Town of Cumberland
290 Tuttle Road
Cumberland, ME 04021

RE: Preliminary Subdivision Application
Proposed Apartment Unit Development – Envy Construction,
Old Gray Road, Tax Map U21/Lot 5A

Dear Ms. Nixon:

On behalf of Envy Construction, we are pleased to submit the following preliminary subdivision application and associated documentation for Planning Board and Town Staff consideration to support construction of a new 10-unit development on the west side of Old Gray Road. The subject parcel is depicted as Lot 5A on the Town of Cumberland Tax Map U21 and is located in the Village Medium Density Residential (VMDR) District.

In accordance with Cumberland Subdivision Review Ordinance, regarding required submittals for a preliminary plan, we provide the following information:

1. General - Enclosed is the signed application and agent authorization forms for Subdivision Planning Board review. Checks totaling **\$1,700** for the Application Fee (\$100.00), Planning Board Review Fee (\$1,500.00) and per lot fee (\$100.00).
2. Preliminary Subdivision Plan Review: Enclosed are **(2) copies of the application/attachments and (2) folded sets of full-size civil plans**, as well as a digital copy of materials.
3. Location Map: A location map depicting the proposed site is included in **Exhibit 1**.
4. Deeds: The deed for the purchase of the property is enclosed in **Exhibit 2**.
5. FEMA Flood Map: The FEMA flood map for the property can be found in **Exhibit 3**.
6. Technical and Financial Capacity: Financial and technical capacity materials can be found in **Exhibit 4**.

9. Soil Survey – A copy of the Medium Intensity Soil Survey report performed by Sebago Technics and dated February 25, 2022 is enclosed in **Exhibit 5**.
8. Hydrogeologic Assessment: A copy of the Hydrogeologic Assessment completed by Drumlin Environmental, LLC dated April 13, 2022 is enclosed in **Exhibit 6**.
10. Stormwater Management: A copy of the stormwater management report is included within these materials, two copies of the full stormwater package are also included within these materials under a separate cover, see **Exhibit 7**.
11. Traffic Memo: A traffic memo prepared by a licensed traffic engineer in the State of Maine is enclosed in **Exhibit 8**. The stretch of Old Gray Road between the project entry and Gray Road does not currently meet town standards and will be improved to meet local standards as part of the project. Additionally, the intersection at Gray Road will be reconfigured for improved site distance. Roadway design plans will be included as part of the Final Subdivision Application.
12. Subsurface Wastewater Disposal and Water Supply: Details about water supply and subsurface wastewater disposal design can be found in **Exhibits 9 and 10**.
13. Solid Waste: Waste from units will be collected in an on-site dumpster and hauled by a private hauler. The dumpster will be located in a fenced enclosure.
13. Lighting: A photometric plan is included within the plan set attached to these materials. Lighting cut sheets from Swaney Electric are also included with the application materials. See **Exhibit 11**.
14. Other Agency Letters: All agency review letters are included in **Exhibit 12**. These include review letters from Maine Natural Areas Program, Maine Department of Inland Fisheries and Wildlife, and Maine Historic Commission.

Upon review of the application material and civil plans, please let me know if you have any questions or require any additional data for completeness. We look forward to meeting with the Planning Board at their next regularly scheduled meeting. Thank you for your consideration.

Sincerely,
SEBAGO TECHNICS, INC.



Craig A. Burgess, P.E.
Senior Project Manager

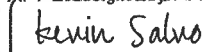
CAB/AJR

AGENT AUTHORIZATION

APPLICANT/ OWNER	Name	SVR LLC. c/o Kevin Salvo and Nick Voltolina		
PROPERTY DESCRIPTION	Physical Address	246 Gray Road	Map	U21
			Lot	5A
APPLICANT'S AGENT INFORMATION	Name	Sebago Technics c/o Craig Burgess		
	Phone	207-200-2081	Business Name & Mailing Address	Sebago Technics, Inc. 75 John Roberts Road, Suite 4A South Portland, Maine 04106

APPLICANT SIGNATURE

DATE



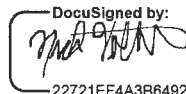
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7A2C2EB216CA42F

PLEASE TYPE OR PRINT NAME HERE

Kevin salvo

DocuSigned by:



12/15/2021 | 9:35 AM PST

22721EF4A3B6492...

Nick Voltolina



11/15/2021

APPLICANT'S AGENT SIGNATURE

DATE

Craig Burgess, P.E.

PLEASE TYPE OR PRINT NAME HERE

APPENDIX B

APPLICATION FOR MAJOR OR MINOR SUBDIVISIONS

Applicant's Contact Information

Name: Envy Construction c/o Nick Voltolina and Kevin Salvo
Mailing Address: 28 Stone Ridge Road, Falmouth, ME 04105
Email Address: Voltolinan@yahoo.com
Phone#: Office: _____ Cell: 207-232-0351 Fax: _____
Interest in property: _____
Interest in abutting properties, if any: _____

Property Owner's Contact Information

Name: Karl C. and Eleanor A. Nielson
Mailing Address: 246 Gray Road
Email Address: _____
Phone#: Office: _____ Cell: _____ Fax: _____

Applicant's Architect, Landscape Architect, Engineer, Planner or Surveyor Contact Information (If more than one, please attach contact info for each one.)

Name: Sebago Technics c/o Craig Burgess
Mailing Address: 75 John Roberts Road, Suite 4A, South Portland, Maine, 04106
Email Address: cburgess@sebagotechnics.com
Phone#: Office: 207-200-2081 Cell: n/a Fax: n/a

Project Information

Name of Project: 10-Unit Condominium, Name to be Determined
Address of site: 246 Gray Road
CCRD Book/Page #: 3721/309 Tax Map/Lot #: U21 / 5A
Zoning District: Village Medium Residential Overlay District (If any): _____
Site size (acres): 8.52 # of Lots: 1 # Buildings: 5 # Dwellings: 10
____ Minor Subdivision ☒ Major Subdivision _____ Conservation Subdivision

OTHER INFORMATION

1. Is Board of Adjustment and Appeals approval required? No
2. Are any ordinance waivers requested? ☐ Yes ☐ No (If yes, attach a list of waivers requested and reason for the request.)
3. Application fee per Town ordinance: \$ _____
4. This application form and all accompanying materials must be submitted to the Town Planner at least 21 days prior to the meeting at which it is to be considered by the Planning Board.

The undersigned, being the applicant, owner or legally authorized representative, states that all information contained in this application is true and correct to the best of his/her knowledge and hereby does submit the information for review by the Town and in accordance with applicable ordinances, statutes and regulations of the Town, state and federal governments.

Craig Burgess 05-04-2022
Signature of Applicant/Owner/Representative Date

APPENDIX D

MAJOR TRADITIONAL OR CLUSTERED SUBDIVISION SUBMISSION REQUIREMENTS AND CHECKLIST

The subdivision plan for a major traditional or clustered subdivision shall consist of an electronic submission and two (2) paper copies of all required application materials. Major subdivision review is a two-step process: 1) preliminary plan review and approval; 2) final plan review and approval. Occasionally, both preliminary and final approval may be granted by the Planning Board at the same meeting if all required information for both preliminary and final approval have been submitted, reviewed and approved by staff.

PRELIMINARY PLAN

- A.** Preliminary plan location map. The preliminary plan shall be accompanied by a location map drawn at a scale of not over 1,000 feet to the inch to show the relation of the proposed subdivision to the adjacent properties and to the general surrounding area. The preliminary plan shall show all the area within 1,000 feet of any property line of the proposed subdivision. Within such area the location map shall show:
 - 1.** All existing subdivisions and approximate tract lines of adjacent parcels together with the names of the record owners of all adjacent parcels of land, those directly abutting or directly across any street adjoining the proposed subdivision.
 - 2.** Locations, widths and names of existing, filed or proposed streets, easements, and building lines pertaining to the proposed subdivision and to the adjacent properties.
 - 3.** The boundaries and designations of zoning districts, parks and other public spaces.
 - 4.** An outline of the proposed subdivision together with its street system and an indication of the future probable street system of the remaining portion of the tract, if the preliminary plan submitted covers only part of the subdivider's entire holding.
- B.** Preliminary plan maps and information. The preliminary plan shall be submitted in 2 copies of one or more maps or drawings which may be printed or reproduced on paper with all dimensions shown in feet or decimals of a foot, drawn to a scale of one inch equals not more than 100 feet or, for plans describing construction of required improvements, a scale of one inch equals 40 feet; drawings are not to exceed 24 inches by 36 inches. All materials must also be provided in an electronic format. All plans shall be accompanied by the following information:
 - 1.** Proposed subdivision name or identifying title and the name of the municipality.
 - 2.** Name and address of record owner, subdivider and designer of preliminary plan.
 - 3.** Date of plan submission, true North point and graphic scale.
 - 4.** Number of acres within the proposed subdivision, location of property lines, existing easements, buildings, watercourses and other essential existing physical features.
 - 5.** The names of all subdivisions immediately adjacent and the names of owners of record of adjacent acreage.

6. The space standard and setback provisions of the Chapter 315, Zoning, applicable to the area to be subdivided and any zoning district boundaries affecting the subdivision.
7. The location and size of any existing or proposed sewers and water mains, culverts, hydrants, and drains on the property to be subdivided. This shall show the connections with existing sewer or water systems. Where public water and/or sewerage is not to be provided, alternative means of water supply and sewage treatment and disposal shall be shown, both horizontally and vertically. If on-site groundwater wells are proposed, the effect of withdrawal of groundwater may be required by the Board as set forth in this chapter.
8. If individual or collective private sewage disposal system(s) is (are) proposed, the location and results of tests to ascertain subsurface soils and groundwater conditions shall be signed and numbered by a licensed site evaluator. If a cluster system or collective private sewage disposal system(s) is (are) proposed, a hydrogeologic investigation shall be submitted meeting the sewage disposal standards as set forth in this chapter. A hydrogeologic investigation may be required by the Board for individual systems as set forth in this chapter.
9. Location, names and present and proposed widths of existing and proposed streets, highways, easements, building lines, alleys, parks and other public open spaces both within and abutting the subdivision. Grades and street profiles of all streets, sidewalks or other public ways proposed by the subdivider shall be shown.
10. Contour lines at intervals of two feet or at such intervals as the Planning Board may require, based on United States Geological Survey datum and referred to mean sea level.
11. A high-intensity soil survey shall be conducted by a certified soil scientist to identify soils within the proposed development in accordance with United States Department of Agriculture Natural Resources Conservation Service National Cooperative Soil Classification. The soil boundaries and names shall be superimposed on a plot plan of the proposed development.
12. Deed reference and map of survey of tract boundary made and certified by a registered land surveyor, tied into established reference points. Deed restrictions, if any, shall be described.
13. A surface drainage plan or stormwater management plan, with profiles and cross sections drawn by a professional engineer registered in the State of Maine, showing preliminary design of all facilities and conveyances necessary to meet the stormwater management standards as set forth in this chapter.
14. The proposed lot lines with dimensions and suggested locations of buildings.
15. The location of temporary markers adequate to enable the Board to locate readily and appraise the basic layout in the field.
16. All parcels of land proposed to be dedicated to public use and the conditions of such dedication.
17. The location of all natural features or site elements to be preserved.
18. A grading and landscaping plan, including natural features to be preserved.

19. Plans shall bear the seals or numbers of the registered professionals responsible for preparing appropriate sections of the plan. Surveys shall be stamped by registered professional engineers, soil surveys shall bear the numbers of a soil scientist, subsurface sewage disposal plans shall bear the number of the professional site evaluator responsible for those evaluations, geological evaluations shall bear a registered geologist's number and architectural work shall bear the architect's seal.

FINAL PLAN

- C. The final subdivision plan for a major traditional or clustered subdivision shall consist of an electronic submission and two (2) paper copies of all required application materials. All materials must also be provided in an electronic format.

The final plan shall show:

1. All of the information presented on the preliminary plan and location map and any amendments thereto required by the Board or otherwise added to the plan. Engineering plans submitted shall be final plans on which construction may be based.
2. The name, registration number and seal of the engineer, land surveyor, geologist, soil scientist, architect or planning consultant who prepared the plan.
3. Street names and lines, pedestrian ways, lanes, easements, rights-of-way and areas to be reserved for or dedicated to public use.
4. The length of all straight lines, the deflection angles, radii, length of curves and central angles of all curves, tangent distance and tangent bearings for each street.
5. An actual field survey of the boundary lines of the tract, giving complete descriptive data by bearings and distances, made and certified by a licensed land surveyor. The corners of the tract shall be located on the ground and marked by monuments as herein required and shall be referenced as shown on the plan.
6. Sufficient data acceptable to the municipal officials to determine readily the location, bearing and length of every lot line and boundary line and to reproduce such lines upon the ground. Where practical these should be tied to reference points previously established.
7. The survey of the outside boundaries of the tract and the computation of the lot lines shall be performed to an accuracy of one foot in 5,000 feet. If requested by the Planning Board, the surveyor shall furnish copies of computation sheets for outside boundaries showing.
 - a. Sketch of traverse lines.
 - b. Closures;
 - c. Adjustments;
 - d. Coordinates; and
 - e. Computation of outside boundaries.

8. By proper designation, all public open space for which offers of cession are made by the subdivider and those spaces to which the title is reserved by him.
9. Lots and blocks within the subdivision numbered in accordance with local practice.
10. Proposed homeowners' covenants and restrictions.
11. Required MDEP stormwater maintenance documents.

D. There shall be submitted to the Board with final plan:

1. Copies of declarations, agreements or other documents showing the manner in which open space or easements are to be held and maintained.
2. Where conveyance of public open space or easements to the Town is contemplated, a written offer to make such conveyance to the Town and written evidence that the municipal officers are willing to accept such conveyances and are satisfied with the terms and conditions of the proposed conveyance and with the legal sufficiency of the proposed transfer documents. Such written evidence shall not constitute an acceptance by the municipality of any such public open space.

**COMPLETION CHECKLIST FOR MAJOR TRADITIONAL OR CLUSTERED
SUBDIVISION SUBMISSION REQUIREMENTS**

Waivers: Please make a check in the *Waiver Request* column for any requested waivers. Attach a separate sheet citing the Subdivision Ordinance section number, description, and reason for the waiver request.

	Check if provided	Location of information in packet, e.g. plan #, page #	Waiver Request?
General Submissions:			
15 copies of plans and materials. All sheet sized to be 24" x 36"	x		
1"=100' scale for general plan	x		
1"=40' scale for construction of required improvements	x		
Traffic Info?	x		
Capacity to Serve letters?	N/A		
Financial and Technical Capacity (Sec.14)	x		
Sewer user permits required? Status?	N/A		
Deed restrictions, if any, describe on separate sheet	N/A		
Cover Sheet:			
Proposed subdivision name	x		

	Check if provided	Location of information in packet, e.g. plan #, page #	Waiver Request
Name & address of record owner, subdivider, and designer of preliminary plan	x		
Location Map:			
Scale 1"=1000'	x		
Shows area 1000' from property lines	x		
All existing subdivisions	x		
Approximate tract lines of adjacent parcels	x		
Approximate tract lines of parcels directly across street	x		
Location of existing & proposed streets, easements, lot lines & bldg. lines of proposed subdivision & adjacent properties.	x		
Existing Conditions Plan:			
Existing buildings	x		
Watercourses	x		
Legend	x		
Wetlands	x		
Existing physical features (trees 10" diameter or more. Stone walls	x		
Trail System?	x		
Subdivision Plan:			
Date of plan submission, true north & graphic scale	x		
Net residential acreage calculations	x		
Legend	x		
Trail (connecting?)	N/A		
Widths of existing/proposed streets, easements & bldg. lines	x		
Names of existing/ proposed streets, easements & bldg. lines	x		
Boundaries & designations of zoning districts, parks, public spaces	x		
Outline of proposed subdivision w/ street system	x		
Future probable street system of remaining portion of tract.	x		

	Check if provided	Location of information in packet, e.g. plan #, page #	Waiver Request
Opportunities for Connecting Road(s) (13.2D)	x		
Space and Setback of district	x		
Classification of road	x		
Width of road(s)	x		
Drainage type (open, closed, mix)	x		
Type of byway provided (8.4D)	x		
Names of adjacent subdivisions	x		
Names of owners of record of adjacent acreage	x		
Any zoning district boundaries affecting subdivision	x		
Location & size of existing or proposed sewers, water mains, culverts, hydrants and drains on property	x		
Connections w/existing sewer or water systems	N/A		
Private water supply shown	x		
Private septic shown	x		
Hydro-geologic study	x		
(option for Board)			
Test pit locations	x		
Well locations	x		
Signature & lic. # of site evaluator	x		
Existing streets: location, name(s), widths w/in and abutting	x		
Proposed streets: location, name(s), widths w/in and abutting	x		
The above for any highways, easements, bldg. lines, alleys, parks, other open spaces w/in and abutting	x		
Grades & street profiles of all streets, sidewalks or other public ways proposed	x		
2' contour lines	x		
High intensity soil survey by cert. soil scientist	x		
Soil boundaries & names superimposed on plot plan	x		
Deed reference & map of survey of tract boundary by reg. land surveyor tied to established reference points	x		

	Check if provided	Location of information in packet, e.g. plan #, page #	Waiver Request
Surface drainage or stormwater mgmt plan w/profiles & cross sections by a P.E. showing prelim. design and conveyances	X		
Proposed lot lines w/ dimensions and suggested bldg. locations.	X		
Location of temp. markers in field	X		
All parcels proposed to be dedicated to public use and conditions of such.	X		
Location of all natural features or site elements to be preserved	X		
Street lighting details	N/A		
Landscaping and grading plan including natural features to be preserved	X		
Survey stamped by P.E.	X		
Soil surveys w/# of soil scientist	X		
Septic plan w/ # of prof. site evaluator	X		
Geological evals w/ reg. geologists number	N/A		
Architect's seal	N/A		
For Rt. One: 75' undisturbed buffer applicable to all buildings, structures, parking areas, drainage facilities and uses.	N/A		
Open Space?	X		
Any part of parcel in a shoreland zone?	N/A		
Flood Map Number and rating?	X		
Stormwater Report?	X		
Rivers, ponds, wetlands?	X		
Historic, archeological features?	X		
Solid waste disposal?	X		
Required Notes on Plan:			
Fire Department notes			
Clearing limits note			
Re: approval limit of 90 days before recording or null p. 10	X		
Actual field survey of boundary lines w/ monumentation shown	X		
Assessor's approval of street names and assignment of lot numbers.			

	Check if provided	Location of information in packet, e.g. plan #, page #	Waiver Request
Designation of all open spaces w/ notes on ownership	x		
Copies of declarations, agreements or other documents showing the manner in which open space or easements are to	x		
Written offer for any conveyance to the Town of open space or easements along with written evidence that the Council is willing to accept such offer	x		
Evidence of Outside Agency Approvals	x		

As per Section 7.2 - REVIEW AND APPROVAL BY OTHER AGENCIES:

E. Where review and approval of any subdivisions or site plan by any other governmental agency is required, such approval shall be submitted to the Planning Board in writing prior to the submission of the Final Plan.

Please list below all outside agency approvals that are required for this subdivision.

- **Maine Department of Environmental Protection:** *List type of permit(s) required (e.g., SLODA, NRPA (tier type?), Maine Construction General Permit, etc.)* NRPA PBR, MCGP
- **US Army Corps of Engineers**
- **Maine Department of Transportation:** *List type of permit(s) required.*
- **Maine Department of Inland Fisheries and Wildlife**
- **Cumberland County Soils and Water Conservation Service:** Required by Town.

Other: (Please List): _____

Exhibit 1

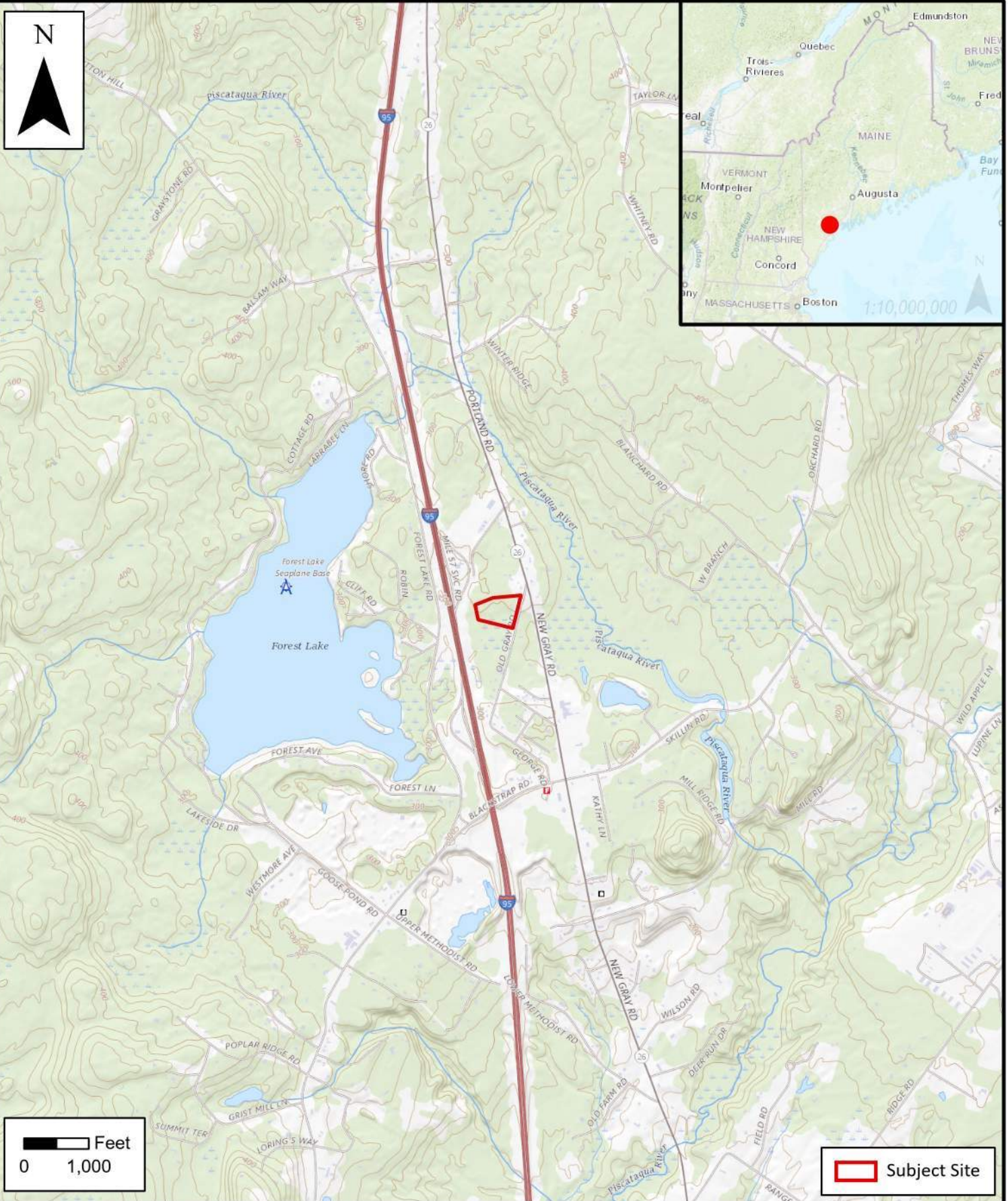
Vicinity Map

Exhibit 1

Vicinity Maps

Enclosed please find the following vicinity maps associated with the site:

- Figure 1 –Location Map
- Figure 2 – Tax Map U21



SEBAGO
TECHNICS

WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd. - Suite 4A
South Portland, ME 04106
Tel: 207-200-2100

LOCATION MAP FOR ENVY CONSTRUCTION

LOCATION:

GRAY ROAD
CUMBERLAND, ME

INFORMATION:

MAINE GEOLIBRARY
USGS QUADRANGLE

SCALE: 1:24,000

DATE: 1/19/2022

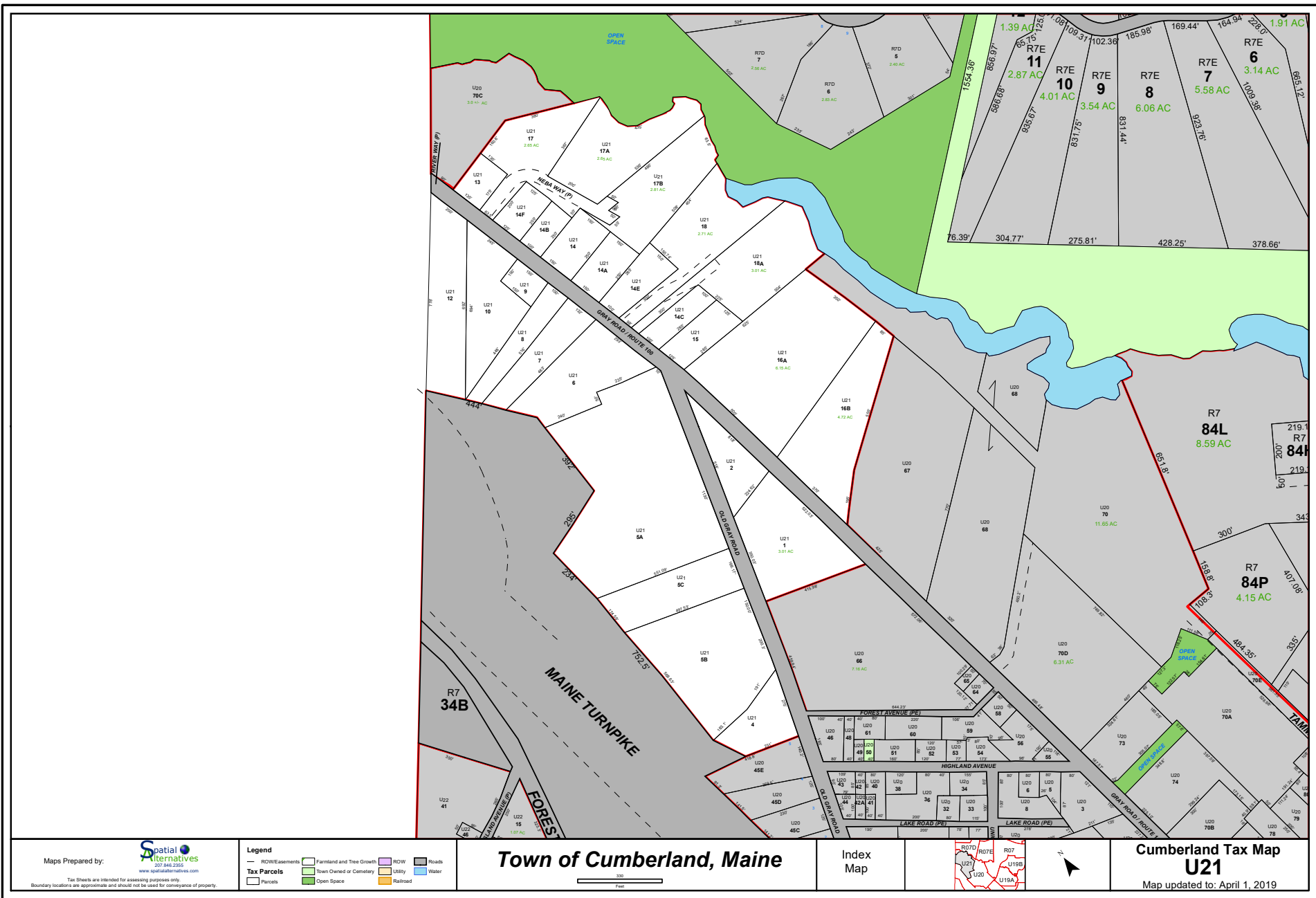


Exhibit 2

Right, Title or Interest

Exhibit 2

Right, Title or Interest

The subject property is depicted on the Town of Cumberland Map U21, Lot 5A. The current owner of the subject site is the applicant, as noted in Deed Book 38700 Page 333 from the Cumberland County Registry. See this Exhibit for a copy of the deed.

PURCHASE AND SALE AGREEMENT

AGREEMENT made this 1st day of August, 2021, by and between **Karl C. Nielsen and Eleanor A. Nielsen**, of 246 Gray Road, Cumberland, Maine 04021 (hereinafter collectively referred to as "Seller" or "Sellers") and **SVR LLC**, a Maine limited liability company, with a principal place of business and mailing address of 91J Auburn Street #1015, Portland, Maine 04103 (hereinafter referred to as "Buyer").

In consideration of the covenants made each to the other as herein set forth, the parties agree as follows:

1. Purchase and Sale. The Sellers shall sell and convey and Buyer shall purchase on the terms and conditions hereinafter set forth the following described real estate:

A certain lot or parcel of land situated on the westerly side of Old Gray Road, so-called, in the Town of Cumberland, County of Cumberland and State of Maine, being a 5.69 acre lot, and being a portion of the premises owned by Sellers, said lot being described on Exhibit A annexed hereto and made a part hereof.

2. Purchase Price. The TOTAL PURCHASE PRICE of this conveyance is THREE HUNDRED THOUSAND DOLLARS (\$300,000.00), payable as follows:

(a) The sum of \$3,000.00 paid as earnest money deposit, the receipt of which is hereby acknowledged by Sellers, which deposit shall be held in the non-interest bearing IOLTA Trust Account of Two Lights Settlement; and

(b) The balance of \$297,000.00, with any adjustments as provided for herein to be paid in cash, certified funds or check drawn on the account of the Buyer's title company at the closing.

3. Financing. This Agreement is NOT subject to the Buyer obtaining a financing for the purchase of same.

4. Points. The Sellers shall pay no points or closing costs of the Buyer.

5. Inspection. Buyer at Buyer's expense shall have the right to enter and inspect the property during the term of this Agreement and to conduct such tests that are customary and usual in the purchase of property of this nature in the State of Maine; provided, however, that any such entry or tests shall not interfere with the use of the premises by Sellers and provided further that Buyer shall indemnify and hold Sellers harmless for any damage, injury, payment for services or liens occasioned by such entry and/or tests. In the event of damage to the property occasioned by such activities,

K.C.N.
N.V.
E.A.N.
HS

Buyer at Buyer's expense shall return the same to substantially the same condition as it was in prior to such activities.

6. Closing. The transfer of title and the closing shall take place at Buyer's attorney/financial institution or at such other place as the Buyer and Seller may agree to in writing, which closing shall take place on or before September 24, 2021. It is a condition precedent to the Buyer's obligation to purchase the property that record title to the property be marketable. Buyer shall satisfy itself as to marketability of title to the property by a title examination or title insurance at Buyer's expense.

7. Deed of Conveyance. Sellers shall deliver to Buyer, at the closing, a Warranty Deed conveying good and marketable title, free and clear of all liens and encumbrances, except any easements or zoning restrictions of record which do not materially impair the marketability of title.

8. Acceptance of Deed. The acceptance of the deed by Buyer at the closing shall be deemed to be the full performance and discharge of every agreement, obligation and representation made on the part of Sellers, except as expressly set forth herein or in such deed. No provisions, agreements or representations herein shall survive the closing except as specifically stated herein. Neither party is relying upon any statements or representations not embodied in this Agreement.

9. Municipal Taxes. The real estate taxes assessed by the Town of Cumberland shall be prorated as of the date of the transfer of the property, pursuant to said municipality's fiscal year. Sellers further represent that the property is not classified under "Tree Growth", "Farm Land", "Open Space" or any other special classification by the Town of Cumberland or State of Maine.

10. Prorated Expenses. The following shall be prorated at closing: Real estate taxes.

11. Transfer Tax and Recording Fees. Buyer and Sellers shall each pay an equal amount of the transfer tax due on the sale herein contemplated, in accordance with Maine law. The recording fees for the deed, mortgage and any other financing documents shall be paid by the Buyer and the recording fees for any instruments required to perfect the title shall be paid by the Sellers.

12. Title Defects. In the event that the Buyer's search of the title to the property reveals any encumbrances or defects in the Sellers' title that are reasonably thought by the Buyer's attorney to make the property unmarketable, then the Sellers shall have a reasonable time, after due notice of such defect, not to exceed sixty (60) days, to remedy the title, after which time if such defect or defects are not corrected so that there is marketable title, then Buyer may at Buyer's option withdraw said deposits and be relieved from all obligations hereunder, or may purchase the property with the defect or defects at no reduction in the purchase price.

At closing, Sellers shall execute and deliver such certificates and indemnities as are customarily given to title insurers in order to enable Buyer to obtain title insurance coverage without standard exceptions for mechanics' liens and the rights of any persons in possession.

13. Miscellaneous.

a) There shall be no further divisions of the property for a period of five (5) years without prior approval by the Town of Cumberland.

b) On or before the substantial completion of construction of a dwelling on the premises by the Buyer, the Buyer, at Buyer's expense, shall plant trees of consistent variety along the division line between the premises and the remaining land of Sellers as needed to provide a dense tree buffer, the distance and spacing to be determined by the type of trees planted. This restriction shall be incorporated into the deed of conveyance and shall survive the closing.

c) On or before November 1, 2021, the Buyer, at Buyer's expense, agrees to safely transport/move the shed currently located along the boundary line of the premises to the "Proposed Relocation of Building" area as shown on the plan titled "Lot Division Plan of Nielsen Property, 246 Gray Road, Cumberland ME, For Envy Construction, 28 Stone Ridge Road, Falmouth, ME 04105" dated April 7, 2021 and revised through May 18, 2021 by Sebago Technics, Inc., Project Number 20551.

d) This Agreement may be modified or amended only by an instrument in writing executed by both the Sellers and Buyer. This contract may be assigned; provided, however, that this Agreement shall be binding on the parties hereto and their respective heirs, legal representatives, successors, distributees or assigns, as the case may be. All notices required or permitted to be given hereunder shall be in writing and delivered in hand or mailed postage prepaid by United States Mail, addressed to Sellers or Buyer at their addresses as shown in the first paragraph of this Agreement. The use in this Agreement of the singular shall include plural and the use of the masculine shall include feminine in gender.

14. Default. If Buyer fails to meet its obligations under this Agreement, then Sellers may elect to retain the deposit as full liquidated damages in place of all other remedies and without further recourse to Buyer or to retain the deposit and seek all available further legal and equitable remedies. Sellers and Buyer agrees that the damages that would be caused to Sellers by Buyer's breach of this Agreement would be difficult to estimate accurately and that the deposit amount is a reasonable forecast of the minimum amount necessary to justly compensate Sellers for Buyer's breach. If Sellers fail to meet its obligations under this Agreement, then Buyer shall have all available legal and equitable remedies.

15. Time. It is agreed that time is of the essence in this Agreement.

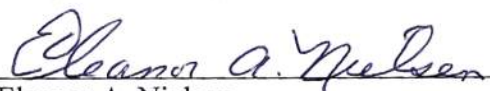
16. Broker's Commission. The parties represent that they have not utilized the services of any real estate broker in this transaction.

17. Possession. Sellers shall deliver to Buyer possession of said premises immediately upon transfer of title at closing.


18. Withholding Tax. Sellers acknowledge that the laws of the State of Maine provide that every buyer of real property located in Maine must withhold a withholding tax equal to 2-1/2% of the consideration unless Sellers furnish to Purchaser a certificate by the Seller stating, under penalty of perjury, that Sellers are residents of Maine or that the transfer is otherwise exempt from withholding.

The undersigned hereby agrees to sell the herein described property at the price and upon the terms and conditions herein set forth.

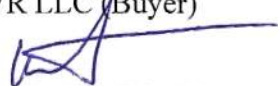

Karl C. Nielsen


Eleanor A. Nielsen

The undersigned hereby agrees to purchase the herein described property at the price and upon the terms and conditions herein set forth.



SVR LLC (Buyer)


By: Kevin Salas + Nick Voltolina
Its: SVR LLC Owners
EIN# 85-4105788

EFFECTIVE DATE: The above parties agree that the effective date of this Purchase and Sale Agreement is August _____, 2021.

September 2, 2021



Exhibit A

A certain lot or parcel of land on the westerly side of Old Gray Road in the Town of Cumberland, County of Cumberland, State of Maine bounded and described as follows:

Beginning at a point on the westerly sideline of Old Gray Road at the northeasterly corner of land now or formerly of Amanda J. Snow & Shane S. Williams as described in a deed recorded at the Cumberland County Registry of Deeds (CCRD) in Book 35394, Page 262, bearing S 76°07'52" E, a distance of 0.68 feet from a 5/8-inch iron rod found 4 inches above grade with a cap marked "BRB INC PLS 1313";

Thence N 76°07'52" W, along land now or formerly of Amanda J. Snow & Shane S. Williams, a distance of 551.58 feet to land now or formerly of the Maine Turnpike Authority as described in a deed recorded at the CCRD in Book 3311, Page 24;

Thence N 11°47'06" W, along land now or formerly of the Maine Turnpike Authority, a distance of 234.00 feet;

Thence N 68°24'54" E, along land now or formerly of the Maine Turnpike Authority, a distance of 294.80 feet to an iron rod to be set at remaining land of Karl C. & Eleanor A. Nielsen as described in a deed recorded at the CCRD in Book 3721, Page 309;

Thence N 84°47'28" E, along land now or formerly of Karl C. & Eleanor A. Nielsen, a distance of 437.45 feet to an iron rod to be set at the westerly sideline of Old Gray Road;

Thence S 13°56'35" W, along Old Gray Road, a distance of 524.91 feet to the Point of Beginning.

Containing approximately 5.69 Acres.

Basis of bearing is Grid North, Maine State Plane Coordinate System West Zone 1802, NAD83.

Iron rods to be set are 5/8-inch rebar with identification caps marked "STI PLS 2513 LLS 1003"

Reference is made to a plan titled "Lot Division Plan of Nielsen Property, 246 Gray Road, Cumberland ME, For Envy Construction, 28 Stone Ridge Road, Falmouth, ME 04105" dated April 7, 2021 and revised through May 18, 2021 by Sebago Technics, Inc., Project Number 20551.

EDN
K.C.N.
N.V.
K.S.

STATUTORY WARRANTY DEED
(DLN: 1002140164083)

WE, **Karl C. Nielsen** and **Eleanor A. Nielsen**, of Cumberland, County of Cumberland and State of Maine, with a mailing address of 246 Gray Road, Cumberland, Maine 04021,

For Consideration Paid, GRANTS with WARRANTY COVENANTS TO:

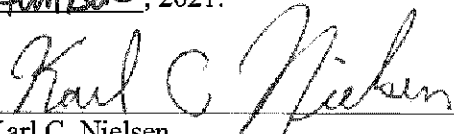
SVR LLC, a Maine limited liability company, with a principal place of business and mailing address of 91J Auburn Street #1015, Portland, Maine 04103,

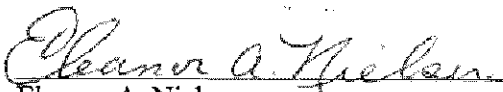
A certain lot or parcel of land, with the buildings and improvements thereon, situated in the Town of Cumberland, County of Cumberland and State of Maine, bounded and described in Exhibit A annexed hereto and made a part hereof.

This conveyance is made SUBJECT TO the restriction that there shall be no further divisions of the property for a period of five (5) years from the recording date of this deed without prior approval by the Town of Cumberland.

Further, this conveyance is made SUBJECT TO a tree line buffer to be planted by the Grantee for the benefit of Grantors' remaining land, as follows: On or before the substantial completion of construction of a dwelling on the premises by the Grantee, the Grantee, at Grantee's expense, shall plant trees of consistent variety along the division line between the premises and the remaining land of Grantors as needed to provide a dense tree buffer, the distance and spacing to be determined by the type of trees planted.

WITNESS our hands this 24th day of September, 2021.


Karl C. Nielsen

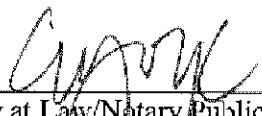

Eleanor A. Nielsen

STATE OF MAINE
CUMBERLAND, ss:

Date: September 24, 2021

Then personally appeared the above-named KARL C. NIELSEN and ELEANOR A. NIELSEN, and acknowledged the foregoing instrument to be their free act and deed.

Before me,



Attorney at Law/Notary Public
Print Name: _____
My Commission Expires: _____

Carly S. Joyce
State of Maine
Attorney At Law
Bar #9659

EXHIBIT A

A certain lot or parcel of land on the westerly side of Old Gray Road in the Town of Cumberland, County of Cumberland, State of Maine bounded and described as follows:

Beginning at a point on the westerly sideline of Old Gray Road at the northeasterly corner of land now or formerly of Amanda J. Snow & Shane S. Williams as described in a deed recorded at the Cumberland County Registry of Deeds (CCRD) in Book 35394, Page 262, bearing S 76°07'52" E, a distance of 0.68 feet from a 5/8-inch iron rod found 4 inches above grade with a cap marked "BRB INC PLS 1313";

Thence N 76°07'52" W, along land now or formerly of Amanda J. Snow & Shane S. Williams, a distance of 551.58 feet to land now or formerly of the Maine Turnpike Authority as described in a deed recorded at the CCRD in Book 3311, Page 24;

Thence N 11°47'06" W, along land now or formerly of the Maine Turnpike Authority, a distance of 234.00 feet;

Thence N 68°24'54" E, along land now or formerly of the Maine Turnpike Authority, a distance of 294.80 feet to an iron rod to be set at remaining land of Karl C. & Eleanor A. Nielsen as described in a deed recorded at the CCRD in Book 3721, Page 309;

Thence N 84°47'28" E, along land now or formerly of Karl C. & Eleanor A. Nielsen, a distance of 437.45 feet to an iron rod to be set at the westerly sideline of Old Gray Road;

Thence S 13°56'35" W, along Old Gray Road, a distance of 524.91 feet to the Point of Beginning. Containing approximately 5.69 Acres.

Basis of bearing is Grid North, Maine State Plane Coordinate System West Zone 1802, NAD83. Iron rods to be set are 5/8-inch rebar with identification caps marked "STI PLS 2513 LLS 1003".

Reference is made to a plan titled "Lot Division Plan of Nielsen Property, 246 Gray Road, Cumberland ME, For Envy Construction, 28 Stone Ridge Road, Falmouth, ME 04105" dated April 7, 2021 and revised through May 18, 2021 by Sebago Technics, Inc., Project Number 20551.

Being a portion of the premises conveyed to Grantors herein by deed of Josephine L. Sabasteanski dated August 4, 1975, and recorded at the Cumberland County Registry of Deeds in Book 3721, Page 309.

Exhibit 3

FEMA Flood Map

Exhibit 3

FEMA Flood Map

See this section for a copy of the FEMA Firmette panel that contains the subject site.

KEY TO MAP

500-Year Flood Boundary	→
100-Year Flood Boundary	→
Zone Designations* With Date of Identification e.g., 12/2/74	→
100-Year Flood Boundary	→
500-Year Flood Boundary	→
Base Flood Elevation Line With Elevation In Feet**	→
Base Flood Elevation in Feet Where Uniform Within Zone**	→
Elevation Reference Mark	→
River Mile	→

ZONE B
ZONE A1 DATE
ZONE A5 DATE
ZONE B

513

(EL 987)

RM7x

• M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.



SEBAGO
TECHNICS

WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd. - Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

FEMA FLOODPLAIN MAP FOR ENVY CONSTRUCTION

LOCATION:

GRAY ROAD
CUMBERLAND, ME

INFORMATION:

MAINE GEOLIBRARY, ESRI
2021 ORTHOREGIONAL IMAGERY
FEMA FIRM PANELS 230162 0010B-0015B

SCALE: 1:12,000

DATE: 1/19/2022

Exhibit 4

Financial and Technical Capacity

Exhibit 4

Financial and Technical Capacity

Financial Capacity

Attached is a letter from Gorham Savings Bank in regards for the applicant's ability to fund the project.

Technical Capacity

Sebago Technics, Inc. (STI) is a multi-disciplinary engineering firm with over 40 years of experience, which offers a wide range of services specializing in land development, planning, permitting and engineering design services. We maintain a staff of multi-disciplinary professionals to provide services in the areas of general civil engineering, road and utility infrastructure design, construction management, permitting, landscape architecture, soil science, wetlands science, geotechnical services, land surveying, and environmental engineering. STI has performed the civil engineering and permitting services for the project. The resumes Sebago Technics' staff professionals involved with this project can be found in this section.

SVR LLC and Envy Construction: Technical Capacity statement for the applicant can be found in this section.



March 29, 2022

Town Of Cumberland
Planning Board

RE: Kevin Salvo and/or SVR, LLC

To Whom It May Concern,

Kevin Salvo and/or SVR, LLC has provided financial disclosure for the purpose of future financing of a multifamily construction, for a total of around 10 Units, in Cumberland.

Based on my review of his financials and the proposed project, Mr. Salvo has the financial capacity to fund and/or obtain financing for such project.

If you have any further questions, I can be reached at (207) 749-1903

Sincerely,

Jason Straetz
Vice President

SVR LLC

The Company

SVR LLC is a real estate holding, investment and development company, focused on residential development in the Greater Portland Area. The company is owned by Kevin Salvo and Nick Voltolina; both of whom reside in Falmouth, Maine. SVR LLC was founded in 2020, after recognizing the need for quality homes, both in the real estate and rental markets in our community. In its first full year, SVR LLC built and sold \$4 million dollars' worth of new homes on the open real estate market. They are now expanding their real estate holdings in the rental market to help serve the need for more rental housing in our area. The owner's personal investment portfolios include nearly \$4.5 million dollars of real estate, and over 15 years of experience as landlords in the rental market.



All development for SVR LLC is constructed by Envy Construction, based out of Falmouth, Maine. Nick Voltolina is the sole owner and president of Envy Construction. Envy Construction has an outstanding reputation, known for delivering only the highest quality craftsmanship and expertise. Founded in 2009, Envy Construction has built and sold over 75 homes.



April 2022

CRAIG A. BURGESS, PE

Senior Project Manager



Mr. Burgess joined Sebago Technics, Inc., (STI) in June of 2012. Having over 15 years of civil engineering experience throughout Maine, Craig is involved in all aspects of project management, roadway and site design, permitting, plan preparation and stormwater analyses. He has been involved with a variety of institutional, municipal and private sector projects. Craig routinely coordinates directly with clients, regulatory agencies and internal project managers on projects of diverse caliber. He excels at his communication skills and creative engineered solutions that work to create efficient, aesthetic and cost-effective projects for his clients. His engineered solutions were recognized in late 2013 for the Baxter Boulevard North CSO Storage conduit and Morse Street Sewer Separation Project with the City of Portland. The project won the 2013 Build Maine Award from AGC Maine, and also won the 2014 Maine ACEC Special Recognition Award for Engineering Excellence.

EXPERIENCE



Multiple projects for **Bowdoin College – Brunswick, ME** including: **Roux Center for the Environment, Whittier Athletic Complex, Pine Street Extension.**

Hancock Lumber Home Office, Lumber Yard and Kitchen Design Showroom: Project Manager for a new home office design bringing together Hancock Lumber's one campus vision in Casco, ME. Site design harmonizes with surrounding the woodlands and other natural features. Additionally, Craig was the Project Manager for a new modern lumber yard and kitchen design showroom facility along the Route One corridor in Saco, ME. The site design accommodates future expansion across the parcel.

Margaret Chase Elementary School – Sanford, ME: Comprehensive building expansion involving design for complete overhaul of site amenities, including a new multi-purpose field. Served as the Lead Site Engineer to bring the project into compliance with State stormwater phosphorus standards.

Project Manager of multiple solar energy projects throughout Maine, including sites in Sanford, Denmark, Wiscasset and Chester. Design and permitting efforts minimized environmental and stormwater impacts across sites with varied terrain.

Sanford High School & Regional Technical Center – Sanford, ME: Site selection, engineering and permitting for a new 350k s.f. high school & regional technical campus. Served as lead site engineer for the most expensive school construction project in State history.

Morse High School (RSU 1) – Bath, ME: Led site engineering team for new high school and surrounding site amenities. Developed creative solutions to manage stormwater across a site with a significant elevation differential and earthwork demands.

Colby College Athletic Fieldhouse Complex – Waterville, ME: Lead site engineer of stormwater management design for new athletic facility and site amenities.

Martin's Point Healthcare – Lead site engineer for innovative new medical office facilities in Biddeford and Scarborough, Maine.

Baxter Boulevard North Storage Conduit Storage Project – Portland, ME: Lead site engineer for a 2 Million Gallon CSO Storage Project.

Central Maine Veterans Memorial Cemetery – Augusta, ME: Engineering, permitting and construction administration for the new crypt construction. The first of its kind for the State of Maine at the time of construction. This new site will inturn over 950 Veterans serving our State and Country.

EDUCATION



Villanova University - Villanova, PA
B.S., Mechanical Engineering, 2003

REGISTRATIONS

Professional Engineer: Maine #12638

CERTIFICATIONS

LEED Green Associate

State of Maine Certification for
Inspection and Maintenance of
Stormwater BMP

Maine DOT LPA Certified,
Recertification May 2022

MEMBERSHIPS

American Society of Civil Engineers

RECOGNITION

Baxter Boulevard won Maine ACEC
Special Recognition Award for
Engineering Excellence

Baxter Boulevard won 2013 Build
Maine award for AGC Maine



JACOB I. BARTLETT, PLS

Survey Operations Manager



Mr. Bartlett joined Sebago Technics, Inc. (STI) in August of 2016 as a Project Surveyor and was promoted to Survey Operations Manager in 2021. Mr. Bartlett graduated with a Bachelor of Science in Surveying Engineering Technology from the University of Maine, and now holds registrations in multiple states with over a decade of experience. He has worked for New England-based surveying firms on a wide variety of survey assignments involving private, municipal, state and federal clients. The bulk of his experience is with boundary retracement and resolution, from small residential lots to large scale commercial developments.

One of his particular interests lies with “paper streets”, or dedicated, unaccepted public ways. He has performed multiple surveys that delve into the rights of the individual land owners and the municipalities those roadways reside in. These rights can vary greatly based upon certain critical dates and how exactly the roadways were originally created.

Although most of Mr. Bartlett’s experience is geared around boundary and roadway retracement, he has been involved in a wide variety of surveying projects, ranging from high precision layout for construction to aiding the geomatics team high definition scanning team with their work. As needed, he will add input regarding the development of survey procedures and adjustment protocols to help refine Sebago’s already robust standard operating procedure.

EXPERIENCE



Intersection Improvements at 6th and Venture – Dover, NH: Responsible for field topographic data collection and ROW boundary definition, preparation of easement descriptions and exhibits for acquisition of rights to construct some of the improvements on private land, and providing layout and control for the contractor at the commencement of construction.

109 Capitol Street DHHS & MePERS Office Buildings Complex – Augusta, ME: Performed topographic and existing conditions survey to prepare pre-construction and post-construction ALTA level surveys of a 10-acre property which required the compilation of 27 separate parcel deeds from various ownerships and the inclusion of the discontinuance of a public street.

Cash Corner Fire Station – South Portland, ME: Sebago was hired for survey and engineering services for the redesign and construction of the Cash Corner Fire Station located at the intersection of Route 1 and Rumery Street. Jacob’s role in this project was to perform a boundary retracement and topographic survey of the property owned by the City of South Portland. This involved research of not just the lot owned by the City, but also the original layout and definition of the surrounding right-of-ways. As the project progressed, the survey team was called back to layout the new fire station to assure that the new building would be constructed where it was designed.

Surfside Avenue – Cape Elizabeth, ME: The purpose of this survey was to determine the limits of two “paper” streets in Cape Elizabeth. The roads were created in the early 1900’s with minimal information on the original plan. Through diligent field reconnaissance, original monumentation was recovered and utilized in reproducing the limits of the paper streets in question.

State of Maine Department of Fisheries and Wildlife – Vernon Walker Wildlife Management Area: The Vernon Walker Wildlife Management consists of approximately 5,600 acres of land situated in Newfield, Waterboro, and Shapleigh. Over the course of 4 years, the Department of Fisheries and Wildlife hired a surveyor to determine the boundary in specific portions of the management area, culminating in a completed survey consisting of 1,758 Acres. Mr. Bartlett was involved throughout the course of the entire project, with efforts ranging from field reconnaissance to boundary determination.

EDUCATION



Bachelor of Science,
Surveying Engineering Technology
Minors: Construction Management
Technology, Engineering
Entrepreneurship
University of Maine, Orono, ME
2009

REGISTRATIONS

Professional Land Surveyor
Maine #2513
New Hampshire #1003
Vermont #109448

CERTIFICATIONS

OSHA 10-hour Construction Safety



AARON J. RADZIUCZ, EI

Civil Engineer



Mr. Radziucz joined Sebago Technics, Inc., (STI) as a Civil Engineer in May of 2020. He graduated from the University of Maine in Orono, ME in 2020 with a B.S. in Civil Engineering with a minor in Economics. In his current role, he is a key member of a multi-disciplinary site development team. His knowledge gained from construction and utility inspections allow him to design creative and constructable solutions. He is proficient in AutoCAD and HydroCAD coding software. He is also familiar with using GPS models and has experience using GPS rover units.

EXPERIENCE



Paul's Boutique - Windham, Maine

Mr. Radziucz was a part of the design team, which included land development, and site grading and drainage plans. He also assisted with the coordination of utilities, and led the effort to compile Town and State permit applications.

Bonnybank Terrace - South Portland, Maine

Mr. Radziucz was the lead design engineer included in the development of a non conforming house of record. As part of this project, Mr. Radziucz designed site grading and drainage plans and coordinate utilities to the site. He also compiled town applications for this property.

Portland Water District - Construction Inspector

Mr. Radziucz works as a construction inspector on behalf of the Portland Water District. As a part of his responsibilities, he assists and directs contractors on site to enforce standard Portland Water District practices and specifications.

EDUCATION



University of Maine - Orono, ME
B.S., Civil Engineering
Minor: Economics

MEMBERSHIPS

American Society of Civil Engineers
Club, 2019

CERTIFICATIONS

OSHA 10 Certification



BRIAN A. MCMAHON

Landscape Designer



Mr. McMahon joined Sebago Technics, Inc., (STI) in July of 2021. Brian is a recent graduate from the University of Rhode Island with a degree in Landscape Architecture and a minor in Community Planning. While in college, he was part of the Sigma Lambda Alpha Honor Society and the recipient of the University of Rhode Island Centennial Scholarship and Red Sox Scholar. He is a Maine resident and interned with Sebago Technics during the winter of 2021.

EXPERIENCE



Sebago Technics Inc. - South Portland, ME

Landscape Architecture Intern

Dec. 2020 – Jan. 2021

- Range of work included rendering a variety of conceptual site plans and developing preliminary sketches for new projects.
- Familiarized with professional environment, in which multiple teams collaborated amongst one another.
- Acquired valuable skills with Adobe PhotoShop.

Gogan Landscaping & Masonry - Wells, ME

Mason & Landscape Installer

May 2018 – Aug. 2020

- Assisted in redesigns and installs of custom landscapes mostly on a residential scale.
- Facilitated landscape installs ranging from planting designs and small hardscapes.
- Led a small crew in numerous projects ranging from large patios, dry stack rock wall installations, and stone veneer applications.

Winn Contracting - Ogunquit, ME

Home Construction

Apr. 2015 – Sep. 2017

- Assisted in construction of two different houses.
- Acquired valuable skills and an understanding of contracting.

EDUCATION



University of Rhode Island,
Kingston, Rhode Island
Bachelor of Landscape Architecture
Minor: Community Planning

SKILLS

Experienced landscape installer
and mason

Proficient in AutoCAD, SketchUp &
Lumion

Proficient in Adobe PhotoShop,
InDesign, & Illustrator

Deciduous & coniferous plant
identification



Exhibit 5

High Intensity Soil Survey

Exhibit 5

High Intensity Soil Survey

Included in this section is the full High Intensity Soil Survey completed by Sebago Technics Inc.



CLASS 'B' HIGH INTENSITY SOIL SURVEY REPORT

Prepared for:

EVERGREEN ESTATES

SVR LLC

28 Stone Ridge Road

Falmouth ME 04105

Prepared by:

Sebago Technics, Inc.

75 John Roberts Road Suite 4A

South Portland, Maine 04106

February 25, 2022

CLASS 'B' HIGH INTENSITY SOIL SURVEY

Residential Development

TABLE OF CONTENTS

<u>Section</u>	<u>Page No.</u>
1. Introduction.....	1
2. Purpose of Soil Survey	1
3. Site Location and Description	1
4. Site Investigation	2
5. Soil Characteristics.....	2
6. Soil Map and Map Unit Descriptions.....	3
7. Conclusions.....	3
8. Limitations	4

APPENDICES

APPENDIX A - Soil Narrative Report

APPENDIX B - Soil Legend/MDEP Form E

APPENDIX C - Soil Survey Interpretations

APPENDIX D - Soil Test Pits/MDEP Form F

APPENDIX E - Class 'B' High Intensity Soil Map

Section 1

Introduction

Sebago Technics has completed a Class 'B' High Intensity Soil Survey for the proposed residential development, located off Old Gray Road in Cumberland, Maine. The soils found on the above-referenced site have been observed in the field using test pits dug by an excavator, and one dug by hand in the wetland (see Soil Map for Survey Limits in Appendix E). The test pits were located by Global Positioning Systems (GPS) technology and incorporated into the soil map. The soil map has been merged into the existing base plan prepared by Sebago Technics. Topography is based on 2-foot contour intervals prepared using Lidar DEM from USGS (2013).

The soil map units and soil boundaries have been drawn, reviewed, and forwarded to the Project Manager, Craig Burgess, PE, Sr. Project Manager, for consideration during engineering design and layout of the proposed residential development. Soils found at the site are described below and were examined and classified to identify potential soil limitations relating to the development of the property. This report has been prepared as part of the project requirements for the Town of Cumberland, and may be used to support permitting procedures as required under the Natural Resources Protection Act (NRPA), Stormwater Management Law, or other pertinent regulation.

Section 2

Purpose of Soil Survey

The purpose of this Class 'B' High Intensity Soil Survey was to investigate, identify, describe, and map the soils on the above referenced site for the proposed residential development. The accompanying soil survey map depicts the location and types of soil found on the project site. The soil information may be used to obtain hydrologic soil group ratings to assist in the calculations for stormwater runoff curve values required by the Maine Department of Environmental Protection (MDEP). This soil information may also be used to evaluate soil suitability relating to development for the proposed Residential subdivision. A separate geotechnical report will be required to address engineering requirements for the construction of the site and structures.

Section 3

Site Location and Description

The site is located off Old Gray Road in Cumberland, Maine. The abutting properties are generally residential or wooded. The parcel abuts the Maine Turnpike to the west. There are small businesses in the area, with a lumber yard located approximately 0.3 miles to the north. The proposed development parcel includes approximately 5.7 acres of land. There is one wetland mapped on the site, in the south-east portion of the parcel. The wetlands on the property were delineated by Gary Fullerton, LSS of Sebago Technics in November, 2020.

Section 4

Site Investigation

We collected site-specific soil information at various locations across the site in February, 2022. The areas examined were designated with letters from TP 1 to TP 10. Test pits were dug by excavator or hand tools. Test pit locations were selected based on disturbance areas, topographic relief, and vegetation stands, which typically are indicative of soil type variations. Excavated test pits were examined for soil colors, rock content, texture, consistence, root depths, redoximorphic features, and depth to restrictive horizons. From this information, soil logs were completed and are included in Appendix E. In addition to these test pits, areas with suspected bedrock outcrops were probed to show these small inclusions on the soil map.

The test pits observed in the field were located by a GPS unit capable of submeter accuracy on the same day that they were excavated. These points were then incorporated into the topographic survey to aid in the preparation of a soil map of the project area. The provided base map has a scale of 1 inch = 30 feet, with two-foot contour intervals on the site.

Drainage classifications of the soils on the site were determined by parameters found in the Guidelines for Maine Certified Soil Scientists for Soil Identification and Mapping, published by the Maine Association of Professional Soil Scientists in April 1989 and revised in March 2009.

Section 5

Soil Characteristics

The soils found on the site are predominantly developed from glacial till. The landforms typically associated with these soils are drumlins, hills, ridges, and uplands. They are generally made up of fine sandy loam to loamy fine sand, with gravel or larger rock fragments.

There are wetlands on site that include poorly drained soils, with glaciofluvial (sandy) parent material. The soils in the wetlands are mapped as poorly drained Naumburg sand.

The glacial till soils include the well drained Becket fine sandy loam and Becket variant, the well drained and moderately deep Tunbridge fine sandy loam, and the excessively drained and very shallow Abram sandy loam. Becket is formed in lodgment till, with a densic horizon (hardpan). Tunbridge and Abram are formed from ablation till, with no densic horizons. These soils were found throughout the property on slopes of 3 to 25 percent.

The Becket Variant was found in five out of the ten test pits, with bedrock found within 60 inches of the ground surface. Bedrock depths in the variant ranged from 28 to 56 inches. One test pit classified as Becket due to the very deep ledge depth (60 inches or greater). See the soil logs in Appendix E for all of the test pit characteristics.

The glacial outwash soils on site are the poorly drained Naumburg sand. The Naumburg soils were found in the mapped wetland. These soils were found on land with slopes of 0 to 3 percent.

These soils should respond to use and management as determined and described in the Soil Series of Maine Soil Interpretations published by the Maine Association of Professional Soil Scientists in cooperation with the USDA Natural Resources Conservation Service, dated January 1987 and revised January 1988 and 1989. Soil survey interpretations are enclosed in Appendix C of this report.

This site may contain inclusions of soil types that differ from the soil map units. The areas where these soils were found are too small to be mapped and, for the purpose of this soil survey, there appears to be less than 1 contiguous acre of this soil in any part of the site. It also appears that the total area of this soil type in any given map unit is less than 25 percent, therefore classifying these soil types as inclusions.

Section 6

Soil Map and Map Unit Descriptions

The attached soil survey map depicts the size and location of the soil map units relative to each other and existing site features. Each soil map unit typically consists of three letters (e.g., AdB), with the first two letters representing a phase of the established soil series found within soil map unit areas as shown on the soil map. This soil map unit phase name is a representation of the soil characteristics, such as texture, stoniness, drainage, and depth to bedrock, all of which may affect the use and management of the soil. The third capitalized letter represents the surface slope gradient of the area within the soil map unit (e.g., B represents 3 to 8 percent slopes). Therefore, in this example “AdB” is interpreted as Adams loamy fine sand on a 3 to 8 percent slope. There may be small areas of different soils within a soil map unit, known as inclusions. Inclusions may exist within a delineated soil map unit, although the size of the inclusion may be too small to stand as a soil map unit alone (<1 acre). The soil map units found at the site are listed with soil potential rating classes in Appendix C of this report. Some wetland map units may be smaller than the minimum map unit size of 1 acre.

Section 7

Conclusions

The soils found on site consist of mostly lodgment glacial till materials, with lesser amounts of ablation glacial till and glacial outwash deposits. The landforms typically associated with the glacial till are drumlins, uplands, hills, and ridges. They are generally made up of coarse-loamy materials with gravel or larger rock fragments.

The glacial outwash soils were found in a low plain(wetland), and contain fine sand. The wetland area is not suitable for the proposed development in its current state. Given the size of the soil survey and extent of the development, soil and topographical conditions will vary across the development area, which is not uncommon for a development of this type and size.

Site investigations suggest some limitations typical of glacial till soils, site topography/setting and drainage features will be encountered. These limitations are expected to include high water tables associated with wetlands and shallow ledge depths, which may be overcome by appropriate planning, engineering and site preparation in these areas. Such site features as the depth to restrictive layers, runoff volumes, seasonal soil saturation depths, potential for frost and erosion activity, and jurisdictional wetland areas were examined. The following is a summary of areas and on-site features identified in the field with potential effects relating to the development of this parcel:

1. Jurisdictional wetland areas were identified on the property. Alteration to wetland areas will require regulatory permitting together with appropriate engineering to support buildings, septic systems, and roads. These soils contain fine sand deposits in the subsoil, with ponded water or saturated conditions at or near the surface throughout much of the year.
2. Very shallow to moderately deep bedrock classification areas exist in areas throughout the property. These soils include Tunbridge and Abram, some of the Becket Variant soils, as well as the areas shown as ledge outcrop on the soil map. Bedrock excavation will typically require blasting to achieve design and subgrade elevations, when encountered.

Section 8

Limitations

The scope of this investigation has been limited to this Class 'B' High Intensity Soil Survey in general accordance with standards and guidelines established by the Maine Association of Professional Soil Scientists. The soil survey report and soil map have been prepared for the exclusive use of SVR LLC and Sebago Technics, Inc. for specific application for the proposed residential development on this site located off Old Gray Road in Cumberland, Maine.

No other warranty, expressed or implied, is made. The conclusions and recommendations presented in this soil report are based on data obtained at the referenced site and our interpretations of this information. This report and soil map may not reflect soil variations that may occur between our observation test pits. Data from this soil report and soil map should not be used for any other purpose. Soils which are considered non-limiting for one use may be considered limiting for another use. The soil map units used in the soil report and on the soil map are at least in part influenced by the intended use of the soil survey, and information provided may not always be adequate for uses other than that which the soil survey was originally developed.

APPENDICES

APPENDIX A

SOIL NARRATIVE REPORT

SOIL NARRATIVE REPORT

Evergreen Estates

February 25, 2022

Date: Soil profiles observed February 2022

Base Map: Lidar topography

2 (two) foot contour intervals on-site

Map Scale 1 inch = 30 feet

Ground Control: Test pits and borings located by GPS with sub-meter accuracy


The Maine Association of Professional Soil Scientists has adopted standards for soil surveys. Soil surveys are divided into four classes of survey, which are dependent upon the amount of information required for the project. The following is a summary of requirements for this High Intensity Soil Survey.

Class 'B' High Intensity Soil Survey Standards

1. Map units will not contain dissimilar limiting inclusions larger than one acre.
2. Scale of 1 inch = 200 feet or larger.
3. Dissimilar limiting inclusions may total more than one acre per map unit delineation, in the aggregate, if not continuous.
4. Ground control - test pits for which detailed data is recorded are located by means of a compass by chaining, pacing, or taping from known survey points; or other methods of equal or greater accuracy.
5. Base map with 5-foot contour lines with ground survey.

The accompanying soil profile descriptions, soil survey map and this soil narrative report were done in accordance with the standards adopted by the Maine Association of Professional Soil Scientists, March 2009.

This Soil Survey was prepared in relation to a proposed residential development.


Gary M. Fullerton, L.S.S. #462



February 25, 2022
Date

APPENDIX B

SOIL LEGEND/MDEP FORM E

CLASS 'B' HIGH INTENSITY SOIL SURVEY

SOIL LEGEND

Evergreen Estates

Cumberland, Maine

February 25, 2022

SOIL LEGEND

SYMBOL	SOIL SERIES	PHASE	SLOPE	HSG	DRAINAGE CLASS
AtB	ABRAM-TUNBRIDGE COMPLEX	FINE SANDY LOAM	3-8%	D	ED/ WD (EXCESSIVELY DRAINED/ WELL DRAINED)
AtD	ABRAM-TUNBRIDGE COMPLEX	FINE SANDY LOAM	15-25%	D	ED/ WD (EXCESSIVELY DRAINED/ WELL DRAINED)
BvB	BECKET VARIANT	FINE SANDY LOAM	3-8%	C	WD (WELL DRAINED)
BvD	BECKET VARIANT	FINE SANDY LOAM	15-25%	C	WD (WELL DRAINED)
NaA	NAUMBURG	SAND	0-3%	D	PD (POORLY DRAINED)

APPENDIX C

SOIL SURVEY INTERPRETATIONS

SOIL SURVEY INTERPRETATIONS

Soil survey interpretations are derived from the inherent soil characteristics found within the soil profile. The interpretations are predictions (numeric and descriptive) of soil suitability for a specific use, based on the soil's characteristics. These interpretations have many practical applications, such as estimating costs for land development, calculating storm water runoff, determining structural bearing strengths, estimating erodibility, etc. Soil potential ratings have been developed using soil survey interpretations to compare soil series, based on limitations or potentials, for a given use.

Limitations of Soil Interpretations

Soil interpretations are very useful for many purposes and projects, although they do have limitations, including:

1. An interpretation for a specific purpose is rarely adaptable for another use without management considerations.
2. Use of interpretations for specific areas has an inherent limitation relating to variability of the soil map unit. As the size of the soil survey area and the soil map units increase, soil interpretations provide a less reliable prediction of actual soil conditions.
3. Interpretations are also limited by the natural variability within a soil profile, which directly affects the precision of the soil interpretation.
4. Soil interpretations are predictions of potentials or limitations based on soil properties. A soil may possess several limiting factors and therefore all site-specific soil properties must be known for accurate interpretations.
5. Soil interpretations are used to predict the costs of development and to ultimately determine feasibility of a project. It should be noted that most soil limitations can be overcome with engineering solutions to make a soil suitable for a proposed use.

Soil Potential Rating Factors

Soil potential ratings have been developed as a useful form of soil interpretations. These ratings are based on local conditions, local experience and expertise, and laws, codes and rules governing the use of soils for various purposes. Potential ratings include the feasibility of a soil for a particular use relative to other soils within a given area. Factors considered in preparing soil potential ratings are the feasibility of using certain technology and practices to overcome limiting factors and the relative cost of implementing these practices. Some examples of unfavorable soil qualities inherent in Maine soils are listed below:

1. **Depth to Water Table** – The depth to water table affects the natural drainage of the soil in which in turn affects the soils potential for development. A soil with a shallow depth to seasonal high water table requires construction methods such as added fill and artificial drainage to overcome this limitation. A soil with a seasonal high water table deeper than 6 feet below the soil surface would have higher potential than a soil with a seasonal high water table at 18 inches.
2. **Flooding** – Soils are rated on the basis of whether they are subject to flooding or not. Flooding is separated into three categories: none, occasional (floods at least once in ten years), and frequent (floods at least once every two years). Soils subject to flooding have less potential for development than those that do not flood.

3. **Slope** – Soils are rated on the basis of slope. The less sloping areas require fewer corrective measures than the steeper areas and thus have a greater potential for development.
4. **Depth to Bedrock** – The presence of bedrock affects the use of soils for development. Soils with shallow depth over bedrock have less potential for development than deep soils.
5. **Surface Stones** – The presence of stones and boulders on the soil surface affect the use of the soil for development. In preparing a site for a dwelling or septic sewage disposal area, surface stones have to be removed.
6. **Depth to Restrictive Layer** – Some soils have a restrictive layer that begins at a shallow depth. This layer can impede natural drainage and permeability. This soil factor is important when designing a septic sewage disposal system.
7. **Soil Profile and Condition** – The Maine Subsurface Wastewater Disposal Rules provides a table by which each soil can be categorized by profile group and soil condition. The profile group is based on parent material or origin of the soil, texture of the soil, and the presence of any restricting layer within the soil profile. The soil condition refers to the depth to bedrock or drainage class.

Low density development includes single family unit residences with basements and comparable buildings and septic tank absorption fields, with or without on-site sources of water. Development may be as a single unit or as a cluster of units in a development. Paved roads in a development are also included in the rating. Soil potentials have been developed by selecting the best soil in a county for low density development. This “reference soil” is the best because it has all the best characteristics for all rated uses with regards to development. For low density urban development, a reference soil has the following properties:

- A water table level greater than 6 feet
- The soil does not flood
- Slope is 0-3 percent
- The soil lacks a restrictive layer
- The depth to bedrock is more than 5 feet
- Surface stone cover is 0.1 to 15 percent
- The soil requires a medium sized rating for a septic sewage disposal field
- There is low potential for groundwater contamination from septic field effluent

This reference soil is assigned a value of 100 index points. Costs are also developed for all other soils in the county for overcoming the various soil limitations. These costs are converted to index points and subtracted from the reference soil. The result is a method of comparing development costs for the soils in a county. Environmental constraints as well as long term maintenance costs are also a factor in developing soil potentials.

The Soil Potential index is a mathematical expression of a soil’s position in the overall range of potentials which is 100 to 0. Since the entire range is large, these numerical ratings are separated into Soil Potential Rating Classes of very low to very high.

The composite rating for development was determined by a weighted average of individual soil potential indices as follows: septic tank absorption fields, 45 percent; dwellings with basements, 20 percent; and local roads and streets, 35 percent.

Soil Potential Rating Classes

Soil Potential Rating Classes are based on the expected performance of a soil if feasible measures are taken to overcome its limitations, the cost of such measures, and the magnitude of the limitations that remain after measures have been applied. The development rating (fourth column in the rating tables) is a weighted sum of the septic, dwelling, and road indices. The septic system has the most restrictive site requirements and the dwelling has the least restrictive site requirements.

Very High Potential – Site conditions and soil properties are favorable. Installation costs are lowest for that use and there are no soil limitations. Soils in the group have soil properties similar to the reference soil. The Soil Potential Index for this rating class is 100 for each soil use.

High Potential – Site conditions and soil properties are not as favorable as the reference soil condition. The cost of measures for overcoming soil limitations is slight. The index for this rating class ranges from 83 to 99 for each soil use.

Medium Potential – Site conditions and soil properties are below soils with high potential. Costs of the measures for overcoming soil limitations are significant. The index for this rating class ranges from 60 to 82.

Low Potential – Site conditions and soil properties are significantly below soils with medium potential. Costs of measures required to overcome soil limitations are very high. The index for this rating class ranges from 40 to 59 for each soil use.

Very Low Potential – There are severe soil limitations for which economical corrective measures are prohibitive or unavailable and costs of these measures are extremely high. Also, soil limitations which detract from environmental quality may continue even after installation of corrective measures. The index for this rating class is less than 40. They may also be prohibited for use by local or state laws.

Drainage Classes

Drainage classes are the relative wetness that a soil under normal conditions has relating to the soil water table. The following seven drainage classes are used for the soils found in Maine:

1. **Excessively Drained (ED)** soils with water that is removed very rapidly. The occurrence of internal free water is very rare or very deep.
2. **Somewhat Excessively Drained (SED)** soils with water that is removed rapidly through the soil. Internal free water occurrence is very rare or very deep.
3. **Well Drained (WD)** soils with water that is removed from the soil readily but not rapidly. Internal free water occurrence commonly is deep or very deep.
4. **Moderately Well Drained (MWD)** soils with water that is moved somewhat slowly during some periods of the year. Internal free water is moderately deep and transitory to permanent throughout the soil profile.
5. **Somewhat Poorly Drained (SPD)** soils with water that is removed from the soil slowly and remains wet from significant periods of time during the growing season. The depth to internal free water is shallow to moderately deep, transitory to permanent.
6. **Poorly Drained (PD)** soils with water that is removed so slowly that the soil is wet at shallow depths during the growing season or remains in a wet state for long periods.

7. **Very Poorly Drained (VPD)** soils with water that is removed from the soil so slowly that the free water remains at or near the ground surface during the growing season. Internal free water is very shallow and persistent or permanent.

Slope Class

A	Level and nearly level	0-3 percent
B	Gently sloping (undulating)	3-8 percent
C	Strongly sloping (rolling)	8-15 percent
D	Moderately steep (hilly)	15-25 percent
E	Steep	25-45 percent
F	Very Steep	45+ percent

Depth to Bedrock

1.	Very Shallow	Less than 10-inches to bedrock
2.	Shallow	10-inches to less than 20-inches to bedrock
3.	Moderately Deep	20-inches to less than 40-inches to bedrock
4.	Deep	40-inches to less than 60-inches to bedrock
5.	Very Deep	Greater than 60-inches to bedrock

Classes of Surface Stones

1.	Stony or bouldery	0.01 to 0.1 percent surface coverage
2.	Very stony/ boulder	0.1 to 3.0 percent surface coverage
3.	Extremely stony/ bouldery	3.0 to 15 percent surface coverage
4.	Rubbly	15 to 50 percent surface coverage
5.	Very Rubbly	More than 50 percent surface coverage

CLASS 'B' HIGH INTENSITY SOIL SURVEY

SOIL POTENTIAL RATINGS

Evergreen Estates

Cumberland, Maine

February 25, 2022

SOIL POTENTIAL RATING CLASSES

MAP UNIT	SEPTICS	BUILDINGS	ROADS	DEVELOPMENT
AtB ABRAM-TUNBRIDGE COMPLEX, 3-8%	VERY LOW	VERY LOW	VERY LOW	VERY LOW
AtD ABRAM-TUNBRIDGE COMPLEX, 15-25%	VERY LOW	VERY LOW	VERY LOW	VERY LOW
BvB BECKET VARIANT, 3-8%	MEDIUM	MEDIUM	MEDIUM	MEDIUM
BvD BECKET VARIANT, 15-25%	VERY LOW	LOW	VERY LOW	VERY LOW
NaA NAUMBURG, 0-3%	VERY LOW	MEDIUM	MEDIUM	VERY LOW

Abram-Tunbridge Complex (AtB, AtD)

(Frigid Loamy or Coarse-loamy Lithic or Typic Haplorthods)

SETTING

Parent Material:	Thin mantle of loamy glacial till
Landform:	Uplands, ridges, hills and mountains less than 2,500' in Maine
Position in Landscape:	Uppermost locations, ridge crests, side slopes
Slope Gradient Ranges:	(B) 3-8% (D) 15-25%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class:	Excessively drained
Typical Profile:	Surface layer: Thin black organic mat Subsurface layer: Pinkish gray very stony sandy loam, 1" Subsoil layer: Very dusky red and brown very stony sandy loam, 4" Bedrock: Bedrock is at approximately 8" or more
Hydrologic Group:	D
Surface Run Off:	Rapid, depending upon slope and bedrock exposure
Permeability:	Moderately rapid
Depth to Bedrock:	Very Shallow, 0" to 10"
Hazard to Flooding:	None

INCLUSIONS WITHIN MAPPING UNIT

Similar:	Lyman, Bedrock outcrops
Contrasting:	Naumburg

USE AND MANAGEMENT

The limiting factor for building site development is the depth to bedrock (<40") within this complex. Blasting or ripping of the bedrock is necessary for deep excavation for nearly all uses. Rippable bedrock was found in at least one test pit in this map unit.

BECKET VARIANT (BvB, BvD)

(Frigid Oxyaquic Haplorthods)

SETTING

Parent Material:	Glacial till
Landform:	Drumlins and glaciated uplands
Position in Landscape:	High and intermediate positions
Slope Gradient Ranges:	(B) 3-8% (D) 15-25%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class:	Well drained
Typical Profile:	Surface layer: Dark brown fine sandy loam, 8" Subsurface layer: Reddish brown, friable, loamy sand, 24" Subsoil layer: Light olive brown, friable, gravelly sandy loam, 33" Substratum: Olive gravelly sandy loam and sand, 67"
Hydrologic Group:	C
Surface Runoff:	Slow
Permeability:	Moderate in the solum, moderately slow to slow in the substratum
Depth to Bedrock:	Moderately deep (28") to Very deep (greater than 60")
Hazard to Flooding:	None

INCLUSIONS WITHIN MAPPING UNIT

Similar:	Skerry, Westbury
Contrasting:	Croghan, Naumburg

USE AND MANAGEMENT

Development with subsurface wastewater disposal is rated "fair" due to the restrictive layer or bedrock in the substratum. A "fair" rating may be used for building site development. Use of this soil for roadways is "fair" on slopes under 15%. Compaction in this soil is rated "good".

NAUMBURG (NaA)

(Frigid Sandy Typic Endoaquods)

SETTING

Parent Material:	Glaciofluvial or sandy deltaic outwash deposits
Landform:	Nearly level to strongly sloping areas on low plains and terraces
Position in Landscape:	Lower to intermediate positions with flat gentle slopes
Slope Gradient Ranges:	(A) 0-3%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class:	Poorly drained
Typical Profile	Surface layer: Black organic, 4"
Description:	Subsurface layer: Pale brown fine sandy loam, 7", mottled
	Subsoil layer: Gray, friable, fine sandy loam, 26"
	Substratum: Gray sand, 60"
Hydrologic Group:	D
Surface Runoff:	Slow
Permeability:	Rapid
Depth to Bedrock:	Very deep, >60"
Hazard to Flooding:	None

INCLUSIONS WITHIN MAPPING UNIT

Similar:	Searsport, Croghan
Contrasting:	Westbury

USE AND MANAGEMENT

Development with subsurface wastewater disposal is "fair" to "poor" due to wetness and poor filtering capability. A limiting factor for building site development is that the soil is prone to cutbanks caving in. Naumburg soils are rated "poor" for road fill materials. Proper foundation drainage or site modification is recommended for construction. Use of this soil for roadways is "poor" due to wetness. Underground piping has "severe" limitations due to wetness.



APPENDIX D

SOIL TEST PITS

Detailed Description of Subsurface Conditions at Project Sites

SOIL DESCRIPTION AND CLASSIFICATION					
Exploration Symbol:		TP-2	<input checked="" type="checkbox"/> Test Pit	<input type="checkbox"/> Boring	
<u> 1-2 " Depth of Organic Horizon Above Mineral Soil </u>					
DEPTH BELOW MINERAL SOIL SURFACE (inches)	0	Texture	Consistence	Color	Redox
	1				
	2	FINE		10YR 3/3	NONE
	3	SANDY LOAM	FRIABLE	DARK BROWN	OBSERVED
	4				
	5				
	6				
	7				
	8			10YR 4/6	
	9			DARK YELLOWISH BROWN	
	10				
	12				
	14				
	16				
	18				
	20			2.5Y 5/6 LIGHT OLIVE BROWN	
	24				
		GRAVELLY SANDY LOAM	FIRM	2.5Y 6/3 LIGHT YELLOWISH BROWN	
	30				
	32	LEDGE AT 32"			
40					
50					
60					
<input type="checkbox"/>	hydic non-hydric	Slope % <u>3-8</u>	Limiting factor <u>32"</u>	<input type="checkbox"/> ground water restrictive layer <input checked="" type="checkbox"/> bedrock	
L.S.E.	Soil Series / phase name:	BECKET VARIANT	<u>WD</u> Drainage Class	<u>C</u> Hydrologic Group	
L.S.E.	Soil Classification:	<u>3</u>	<u>Alli</u> Drainage Condition		

	Prome	Drainage Condition		
	SOIL DESCRIPTION AND CLASSIFICATION			
	Exploration Symbol: TP-4 Test Pit Boring			
	2-3." Depth of Organic Horizon Above Mineral Soil			
	Texture	Consistence	Color	Redox
0				
1	FINE		10YR 3/3	NONE
2	SANDY LOAM		DARK	OBSERVED
3		FRIABLE	BROWN	
4				
5				
6				
7				
8				
9			2.5Y 5/6	
10			LIGHT	
12			OLIVE	
14			BROWN	
16				
19				
20	SANDY LOAM		5Y 5/2	
		FIRM	OLIVE	
			GRAY	
28				
30	LEDGE / SAPROLITE (ROTTEN ROCK) AT 28"			
40				
50				
60				
□	hydic non-hydic	Slope % 3-8	Limiting factor 28"	□ ground water □ restrictive layer ■ bedrock
L.S.E.	Soil Series / phase name:	BECKET VARIANT	WD Drainage Class	C Hydrologic Group
L.S.E.	Soil Classification:	3 Profile	AIII Drainage Condition	

L.S.S.	signature: 	Date: 2/9/22
	name printed/typed: Gary M. Fullerton	Lic.#: 462
L.S.E.	signature: 	Date: 2/9/22
	name printed/typed: Gary M. Fullerton	Lic.#: 355



SOIL PROFILE/CLASSIFICATION INFORMATION


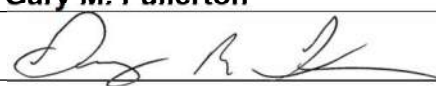
Detailed Description of Subsurface Conditions at Project Sites

Project Name: EVERGREEN ESTATES	Applicant Name: SVR LLC	Project Location (municipality): CUMBERLAND
---	-----------------------------------	---

SOIL DESCRIPTION AND CLASSIFICATION				
Exploration Symbol: <u>TP-5</u> <input checked="" type="checkbox"/> Test Pit <input type="checkbox"/> Boring				
1-2" Depth of Organic Horizon Above Mineral Soil				
Texture	Consistence	Color	Redox	
0				
1	FINE	10YR 3/3	NONE	
2	SANDY LOAM	DARK BROWN	OBSERVED	
3				
4		10YR 5/6		
5		YELLOWISH BROWN		
6				
7				
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21				
22	SAPROLITE (ROTTEN ROCK) AT 22"			
23				
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60				
<input type="checkbox"/> hydric <input type="checkbox"/> Slope % <u>3-8</u> <input type="checkbox"/> Limiting factor <u>22"</u> <input type="checkbox"/> ground water <input checked="" type="checkbox"/> non-hydric <input type="checkbox"/> restrictive layer <input checked="" type="checkbox"/> bedrock				
L.S.S. Soil Series / phase name: <u>TUNBRIDGE</u> <u>WD</u> <u>C</u> Drainage Class Hydrologic Group				
L.S.E. Soil Classification: <u>3</u> <u>AIII</u> Profile Drainage Class				

SOIL DESCRIPTION AND CLASSIFICATION				
Exploration Symbol: <u>TP-7</u> <input checked="" type="checkbox"/> Test Pit <input type="checkbox"/> Boring				
1-2" Depth of Organic Horizon Above Mineral Soil				
Texture	Consistence	Color	Redox	
0				
1	FINE	10YR 3/2	NONE	
2	SANDY LOAM	VERY DARK GRAYISH BROWN	OBSERVED	
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
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58				
59				
60				
<input type="checkbox"/> hydric <input type="checkbox"/> Slope % <u>3-8</u> <input type="checkbox"/> Limiting factor <u>28"</u> <input type="checkbox"/> ground water <input checked="" type="checkbox"/> non-hydric <input type="checkbox"/> restrictive layer <input checked="" type="checkbox"/> bedrock				
L.S.S. Soil Series / phase name: <u>BECKET</u> <u>WD</u> <u>C</u> Drainage Class Hydrologic Group				
L.S.E. Soil Classification: <u>3</u> <u>C</u> Profile Drainage Class				

Professional Endorsements (as applicable)

L.S.S.	signature: 	Date: <u>2/9/22</u>
	name printed/typed: <u>Gary M. Fullerton</u>	Lic.#: <u>462</u>
L.S.E.	signature: 	Date: <u>2/9/22</u>
	name printed/typed: <u>Gary M. Fullerton</u>	Lic.#: <u>355</u>

Sebag Technics, Inc.

SOIL DESCRIPTION AND CLASSIFICATION				
Exploration Symbol: <u>TP-6</u> <input checked="" type="checkbox"/> Test Pit <input type="checkbox"/> Boring				
1-2" Depth of Organic Horizon Above Mineral Soil				
Texture	Consistence	Color	Redox	
0				
1	GRAVELLY	FRIABLE	NONE	
2	SANDY LOAM	10YR 3/2	OBSERVED	
3		VERY DARK GRAYISH BROWN		
4				
5				
6		10YR 6/1		
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<input type="checkbox"/> hydric <input type="checkbox"/> Slope % <u>3-8</u> <input type="checkbox"/> Limiting factor <u>8"</u> <input type="checkbox"/> ground water <input checked="" type="checkbox"/> non-hydric <input type="checkbox"/> restrictive layer <input checked="" type="checkbox"/> bedrock				
L.S.S. Soil Series / phase name: <u>ABRAM</u> <u>ED</u> <u>D</u> Drainage Class Hydrologic Group				
L.S.E. Soil Classification: <u>2</u> <u>AI</u> Profile Drainage Class				

SOIL DESCRIPTION AND CLASSIFICATION				
Exploration Symbol: <u>TP-8</u> <input checked="" type="checkbox"/> Test Pit <input type="checkbox"/> Boring				
2-3" Depth of Organic Horizon Above Mineral Soil				
Texture	Consistence	Color	Redox	
0				
1				
2	SANDY LOAM	10YR 3/2	NONE	
3		VERY DARK GRAYISH BROWN	OBSERVED	
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10		2.5Y 5/6		
11		LIGHT OLIVE BROWN		
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<input type="checkbox"/> hydric <input type="checkbox"/> Slope % <u>3-8</u> <input type="checkbox"/> Limiting factor <u>28"</u> <input type="checkbox"/> ground water <input checked="" type="checkbox"/> non-hydric <input type="checkbox"/> restrictive layer <input checked="" type="checkbox"/> bedrock				
L.S.S. Soil Series / phase name: <u>BECKET</u> <u>WD</u> <u>C</u> Drainage Class Hydrologic Group				
L.S.E. Soil Classification: <u>3</u> <u>C</u> Profile Drainage Class				



affix professional seal

SOIL PROFILE/CLASSIFICATION INFORMATION

Detailed Description of Subsurface Conditions at Project Sites

Project Name: EVERGREEN ESTATES	Applicant Name: SVR LLC	Project Location (municipality): CUMBERLAND
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SOIL DESCRIPTION AND CLASSIFICATION				
Exploration Symbol: <u>TP-9</u> <input checked="" type="checkbox"/> Test Pit <input type="checkbox"/> Boring				
1-2" Depth of Organic Horizon Above Mineral Soil				
Texture	Consistence	Color	Redox	
1				
2	FINE		10YR 4/6	NONE
3	SANDY LOAM	FRIABLE	DARK	OBSERVED
4			YELLOWISH	
5			BROWN	
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Exhibit 6

Hydrogeologic Assessment

Exhibit 6

Hydrogeologic Assessment

Included in this section is the full hydrogeologic assessment done by Drumlin. LLC.



Drumlin Environmental, LLC

Hydrogeologic and Engineering Consultants

April 13, 2022

Craig Burgess
Sebago Technics, Inc.
75 John Roberts Road, Suite 4A
South Portland, Maine 04106

Subject: Hydrogeologic Assessment
Evergreen Estates, Old Gray Road, Cumberland, Maine

Dear Craig,

Overview. Drumlin Environmental, LLC (Drumlin) was retained by Sebago Technics, Inc. (STI) to provide hydrogeologic services in connection with the Evergreen Estate Subdivision, which is proposed on approximately 5.69+/- acres with access off Old Gray Road in Cumberland, Maine. This area is being subdivided from an existing lot identified as Lot 5A on the Town of Cumberland Tax Map U21. An area of approximately 2.83+/- acres of Lot 5A will remain with the current owners.

The subdivision consists of ten units arranged as five three-bedroom duplex buildings around an approximately 250-foot long cul-de-sac road. The duplex buildings are located in the northeastern portion of the property and the western and southern portions of the property will remain undeveloped and used for stormwater management and wastewater disposal. The project will be served by two on-site drinking water wells and wastewater will be disposed on-site in two subsurface disposal (septic) systems. The purpose of this letter report is to address sections in the Town of Cumberland Land Use Ordinance Chapter 229 (Site Plan Review) and Chapter 250 (Subdivision of Land) pertaining to water supply and potential influence of wastewater disposal on groundwater quality.

Drumlin Environmental, LLC (Drumlin) has conducted an assessment with respect to the proposed subsurface wastewater disposal systems based on the proposed site plan layout, property boundaries, topography, wetlands, drainage conditions, projected wastewater flows, soils and groundwater information provided by Sebago Technics, Inc. (STI). The STI site plan is used as the base map for presenting the assessment findings in Figure 5. Drumlin communicated with Carla Nixon, Town of Cumberland Planner, to discuss the requirements of the hydrogeologic assessment. Based on this communication, Drumlin's assessment of the potential influence of wastewater disposal on groundwater quality is based on nitrate in leachfield effluent, which has a "standard for safe drinking water as established by the State of

Maine” of 10 mg/L. This letter report summarizes the results and includes a description of the hydrogeologic parameters and assumptions used in this assessment.

Information provided by STI and relied upon by Drumlin in conducting this hydrogeologic assessment include:

- Map of site topography;
- Soil logs from 10 test pit excavations;
- Map of subsurface wastewater disposal systems and water supply wells;
- Size (number of bedrooms) for each dwelling (which has been used to calculate the potable water demand and the volume of wastewater flow).

Site Conditions. The subdivision property is located on the west side of Old Gray Road in West Cumberland. The site location is shown in Figure 1. The 5.69-acre site includes a small portion of the lawn area on Lot 5A, but is mostly undeveloped woodland. Figure 2 shows an aerial photo of the subdivided area and surrounding residential and forested land use. The land surface elevation is highest in the north and northeast portion of the site and slopes to the south and west towards a 0.75+/- acre wetland located in the southeast part of the property. This wetland is the headwater of an unnamed tributary that flows south and west into a larger unnamed stream that flows south and crosses the Maine Turnpike flowing toward Forest Lake. Figure 2 has been annotated to show the tributary from the wetland and stream flowing south along the Maine Turnpike. Site specific topography is discussed later in this letter report.

Several domestic water supply wells are located near the site as shown in Figure 3. The Maine Geological Survey (MGS) database for domestic wells shows a well to the north located at 242 Gray Road has 2 feet of soil over bedrock. In contrast, the wells to the south have 35 to 80 feet of soil over bedrock.

Site Geologic and Hydrogeology Setting. According to the Surficial Geology Map of the Cumberland Center Quadrangle (MGS, Open-file Report No. 99-81, 1999), the northern portion of the site is mapped to be underlain by till, consisting of a mixture of gravel, sand, silt and clay. The southern portion of the site is mapped as underlain by sand and gravel identified as an ice-contact deltaic deposit. Test pit logs from the site (see Attachment A) recorded predominantly sandy loam beneath most of the site. The surficial geology map also shows the wetland deposits in the southeastern part of the site, as described above.

According to the Significant Sand and Gravel Aquifer Map of the Cumberland Center Quadrangle (MGS, Open-file Report No. 99-27, 1999) the site lies in close proximity to the north of the estimated edge of a mapped sand and gravel aquifer (see Figure 4). The test pit completed in the wetland encountered stratified fine and coarse sand to 35 inches and no bedrock was encountered. The coarser sand material encountered in this test pit is consistent with a transition toward an aquifer deposit. However the thin soil over bedrock that underlies most of the property would not be classified as part of the mapped aquifer.

The Bedrock Geology of the Portland 1:100,000 Quadrangle Maine (MGS Geologic Map 98-1, 1998) maps bedrock beneath the site is a granofels, a medium to coarse-grained metamorphic rock. According to the MGS Well Database, domestic bedrock wells within 1,500 of the site vary in depth from 130 to 580 feet. The yields range from 1 to 20 gallons per minute (gpm), with an average yield of 9.4 gpm.

Based on the site topography, shallow groundwater flow in the glacial deposits is generally inferred to follow the surface topography. For purposes of the nitrate analysis, groundwater is interpreted to flow downslope in the shallow soils above bedrock.

Groundwater Quantity. Two on-site water supply wells are proposed for this subdivision. The Maine Subsurface Wastewater Disposal Rules estimate that the water demand and wastewater disposal for domestic use is 90 gpm per bedroom. According to STI, each of the 10 units will have three bedrooms, so the water demand has been calculated to be 2,700 gallons per day(gpd) (equivalent to approximately 1.88 gpm of continuous withdrawal). Note that the Maine Subsurface Wastewater Disposal Rules are based on standard, rather than low-flow, plumbing fixtures. Low-flow plumbing fixtures are now in common use, so the actual water demand for the project is likely to be lower than 2,700 gallons per day.

The bedrock formation supplies water from fractures that are recharged by precipitation which infiltrates through the overburden deposits. Groundwater recharge rates in Maine vary depending on the soil type, slope and thickness. According to *Groundwater Recharge Estimates for Maine Using a Soil-Water-Balance Model – 25-Year Average, Range, Uncertainty, 1991 to 2015* (USGS Scientific Investigations Report 2019-5125), the median potential annual recharge for mixed forest land with soils having a C/D hydrologic group (as indicated on the STI test pit logs) is approximately 13.2 inches per year. Using this value of 13.2 inches per year of recharge into the 5.69-acre site, the annual groundwater recharge on the site is estimated to be equivalent to approximately 5590 gpd (3.9 gpm), which is more than twice the anticipated water use for the project. Under drought conditions, which are typically estimated to be 60% of average conditions, the annual groundwater recharge of 3350 gpd (2.3 gpm) exceeds the anticipated water use for the project.

As noted above, the average yield for bedrock wells in the area is 9.4 gpm, so it is reasonable to anticipate that two wells can be drilled at the site to meet the project water needs. If two wells are drilled and do not provide sufficient yield for the project, an additional well could be drilled, if needed.

Nitrate Evaluation. Drumlin completed a nitrate evaluation for the subdivision development based on the requirements of the Town of Cumberland Site Plan Review (Chapter 229-10E), which requires demonstration that groundwater at the property line comply with the drinking water standard for the State of Maine, which for nitrate is 10 mg/L. The evaluation also describes groundwater quality within the boundary of subdivision, as identified in Subdivision of Land (Chapter 250-35E).

The nitrate analysis has been conducted based on the site topography, the inferred direction of groundwater flow and soil data collected in test pit explorations conducted by STI. Where site specific data is not available, data that are believed to be representative of the site have been derived from published geologic literature.

The wastewater disposal design provided by STI indicates the two of the duplex units will be connected to Leachfield #1. Based on the Subsurface Wastewater Disposal Rules 90 gpd per bedroom design criteria, the flow to this leachfield was estimated to be 1,080 gpd. Three of the duplex units will use Leachfield #2 for wastewater disposal, with an estimated flow of 1,620 gpd.

The analytical steady state advection-dispersion model published by Domenico and Palciauskus (Groundwater, Volume 20, No. 3, 1982) has been used to estimate the migration of nitrate in groundwater from the leachfields. The concentration of nitrate downgradient of the leachfield is calculated using the following equation:

$$C = C_o * (z/H) * \text{erf} [X/4 * (\alpha_T * Y)^2]$$

Where:

- C = the calculated nitrate concentration at distance Y downgradient from the leachfield
- C_o = the concentration of nitrate in the effluent from a conventional standard septic system without advanced treatment (40 mg/L, cite in the Site Location of Development guidance)
- z = vertical mixing zone thickness under the leachfield
- H = thickness of the groundwater flow zone downgradient of the leachfield
- X = width of the leachfield perpendicular to the groundwater flow direction
- Y = distance downgradient of the leachfield
- α_T = transverse dispersivity

Groundwater flow was inferred to follow the topography at each leachfield as shown by the orange arrows in Figure 5. Based on this flow path, the distance (Y) was measured from the leachfield to the wetland, which is a groundwater discharge boundary. The thickness of the groundwater flow zone (H) was derived from the test pit logs for each leachfield and generally corresponded to the depth to bedrock, if encountered, or a restrictive layer. Because the depth to the bedrock at the two leachfields is small (2 to 6 feet), waste water from the leachfields will mix throughout the full thickness at the downgradient edge of the field and the mixing zone (z) has been set equal to the thickness of the flow zone (H). This is a conservative assumption and if the groundwater flow zone is thicker and includes the top of the bedrock, there will be more opportunity for mixing and dispersion, and the actual nitrate concentration (C) will be lower than calculated.

The method of Xu and Eckstein (Groundwater, Volume 33, No 6, 1995) was used to calculate longitudinal dispersivity (α_L) based on the downgradient distance (Y) for each leachfield. The

transverse dispersivity (α_T) was calculated as $\frac{1}{4}$ of the longitudinal dispersivity, which is in the range cited by Zech et al (Groundwater, Volume 57, No. 4, 2019).

This methodology provides a conservative estimate of the migration of nitrate from the leachfields. While advection and dispersion modeled in the analysis are the primary factors influencing nitrate concentration in groundwater downgradient of the leachfields, other factors such as mixing with additional precipitation over the plume pathway under normal or drought conditions would further dilute nitrate concentrations below those calculated using this methodology.

Table 1 below summarizes the results of the nitrate evaluation along the flow paths extending downgradient from each leachfield to the wetland, as shown in Figure 5.

Table 1
Nitrate Evaluation Summary

Field	Distance to Wetland (Y)	Flow Zone Thickness (H = z)	Field Width (X)	Transverse Dispersivity	Nitrate Concentration at Wetland Boundary (C)
Field #1	185 ft	6.5 ft	52 ft	2.63	23.8 mg/L
Field #2	90 ft	6 ft	64 ft	1.64	37.5 mg/L

As described above, the wetland on the property extends off-site to the south and west and is the headwater of a small tributary. At the time of Drumlin's site visit in March 2022, there was visible flow across the wetland to the south and downstream in this small tributary, which is indicative of shallow groundwater discharging into the wetland. Water from the leachfields is expected to follow the flow path of the shallow groundwater and also discharge to the wetland.

There may be times of the year when there is no groundwater discharge to the wetland. However, the seepage velocity of groundwater beneath the wetlands is calculated to be low (< 0.2 ft/day) and the groundwater travel time beneath the wetlands would be longer than the likely period when there was no discharge to the wetland. Based on this consideration, the nitrate plumes are expected to discharge to the wetland before reaching the property boundary. Upon discharge to the onsite wetland and tributary, the nitrate concentration would be further reduced through mixing and dilution with surface water.

Summary. Drumlin evaluated the potential impact of nitrate in shallow groundwater using the on the advection-dispersion analysis described above. Based on our interpretation of the site hydrogeologic conditions and proposed wastewater disposal systems, Drumlin has inferred that the water from the leachfields will mix with groundwater and the concentration of nitrates will decline between the leachfields and the wetland. The nitrate plumes along these flow pathways

are expected to contain concentrations higher than the 10 mg/L State of Maine standard for safe drinking water, these plumes are not expected to extend downgradient in groundwater to the subdivision property boundaries. Rather, dissolved nitrates are interpreted to discharge to the onsite wetland and tributary stream where further reduction in concentration can occur through mixing and dilution with surface water

Drumlin has completed this nitrate evaluation based on site plan, hydrogeologic data and wastewater disposal system information provided by STI for the proposed Evergreen Estates subdivision. Drumlin's scope of work did not include an evaluation of the design or performance of the wastewater disposal systems. We cannot be responsible for the actions of others taken in reliance on this report. Assumptions and data used in this report are provided. Drumlin makes no representations or warranty regarding the environmental conditions of the property. Application of the Maine Subsurface Wastewater Disposal Rules to the site conditions and development is the responsibility of others. Changes to the development plans may alter the findings of this evaluation. Should conditions differing from those described herein become evident, Drumlin requests the opportunity to review the new data and modify, as appropriate, the assessments, findings and conclusions given in this report. Supporting material for this report is being maintained in the files at Drumlin's office located at 97 India Street, P.O. Box 392, Portland, Maine 04112-0392.

If Drumlin's assistance is needed for further evaluation or discussion, please give us a call.

Very truly yours,

DRUMLIN ENVIRONMENTAL, LLC

A handwritten signature in black ink, appearing to read 'M. D. Reynolds'.

Matthew D. Reynolds, L.G.
Senior Hydrogeologist

Report Figures

Figure 1 – Location of Evergreen Estates Subdivision

Figure 2 – Aerial of Subdivision & Surface Water Drainages

Figure 3 - Nearby Domestic Wells from MGS Database

Figure 4 – Subdivision Location and Sand & Gravel Aquifer

Figure 5 - Interpreted Groundwater Flow and Nitrate Pathways

Attachment A – Soil Test Pit Logs

REFERENCES

Berry, H.N et al., 1998, Preliminary Report: Bedrock Geology of the Portland 1:100,000 Quadrangle, Maine and New Hampshire. Maine Geological Survey Open-File No. 98-1.

Domenico, P.A. and V.V. Palciauskus, 1982. "Alternative Boundaries in Solid Waste Management" Ground Water, Vol. 20, No. 3.

Retelle, Michael., et.al, 1999. Surficial Geology of the Cumberland Center Quadrangle, Maine, Maine Geological Survey Open-File No. 99-81.

Neil, Craig D. et.al, 1999, Significant Sand and Gravel Aquifer Map of the Cumberland Center Quadrangle, Maine Geological Survey Open-File No. 99-27.

Town of Cumberland Land Use Ordinance, Chapters 229 & 250, as amended through March 8, 2021.

Xu, M. and Y. Eckstein, 1995. "Use of Weighted Least-Squares Method in Evaluation of the Relationship Between Dispersivity and Field Scale". Ground Water, Vol. 33, No. 6, pp. 905-908.

Zech, A., et al, 2019. "A Critical Analysis of Transverse Dispersivity Field Data". Ground Water, Vol. 57, No. 4.



Figure 1
Location of Evergreen Estates Subdivision
Drumlin Environmental, LLC



Figure 2
Aerial of Subdivision & Surface Water Drainages
Drumlin Environmental, LLC

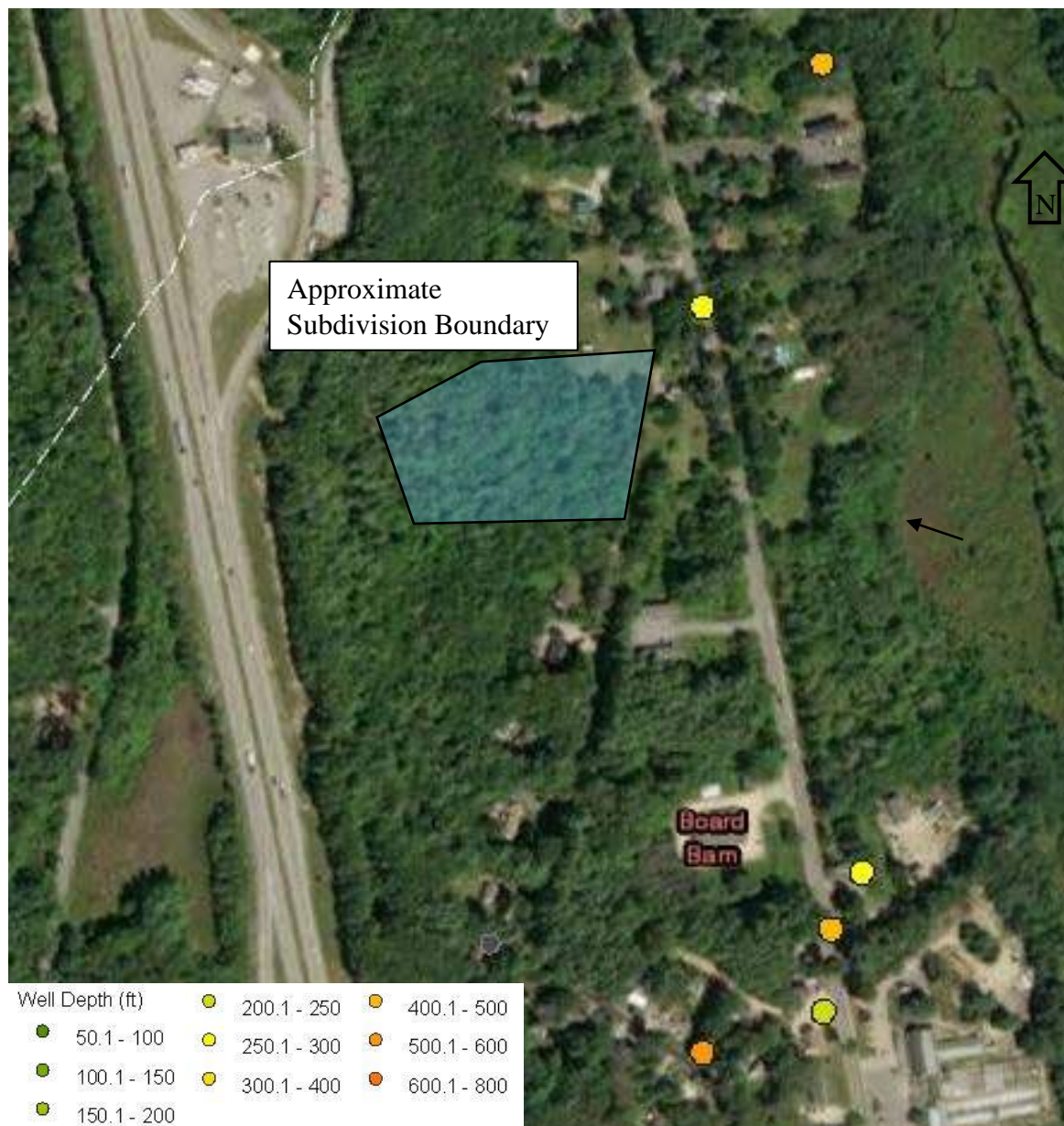
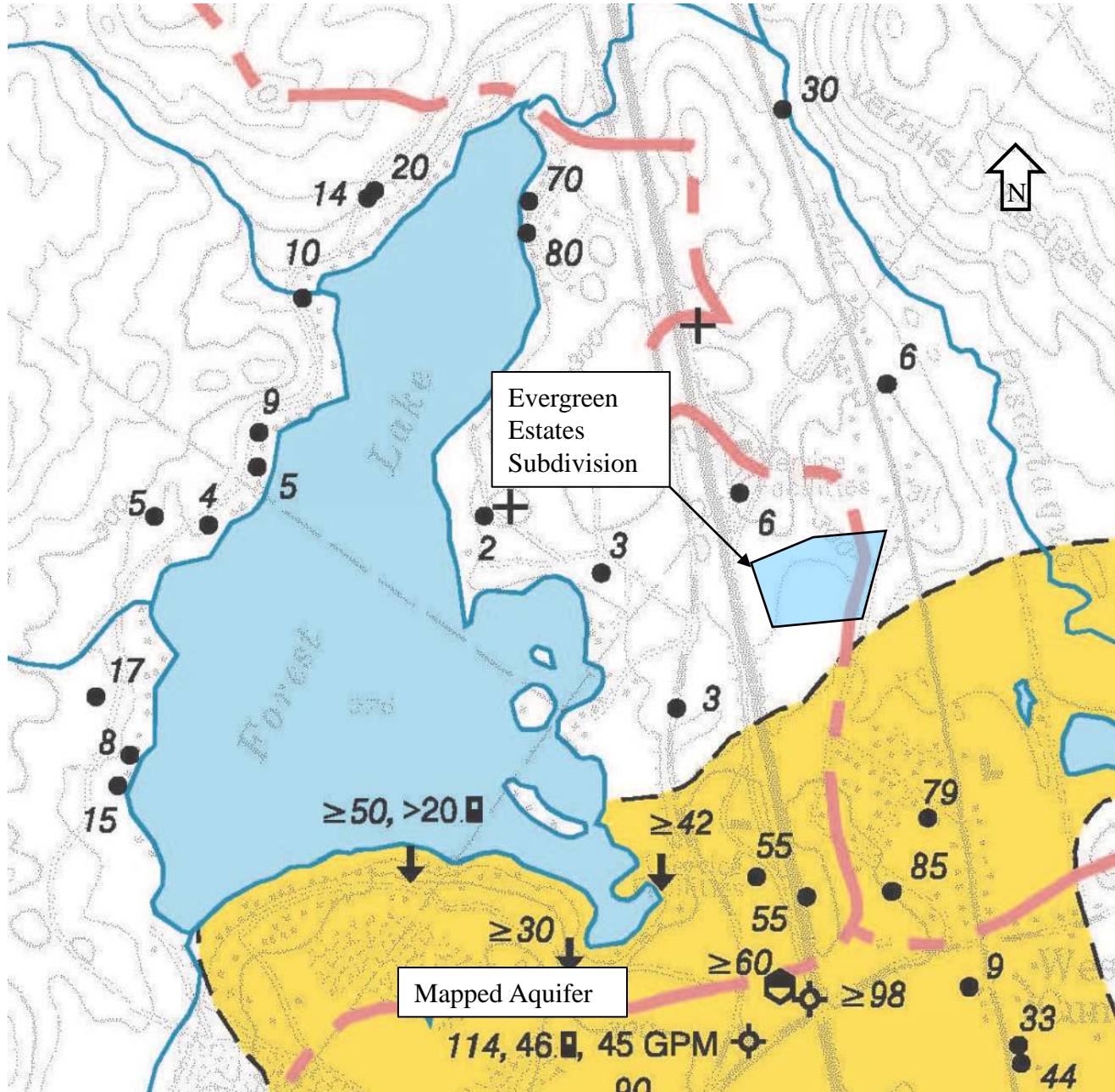
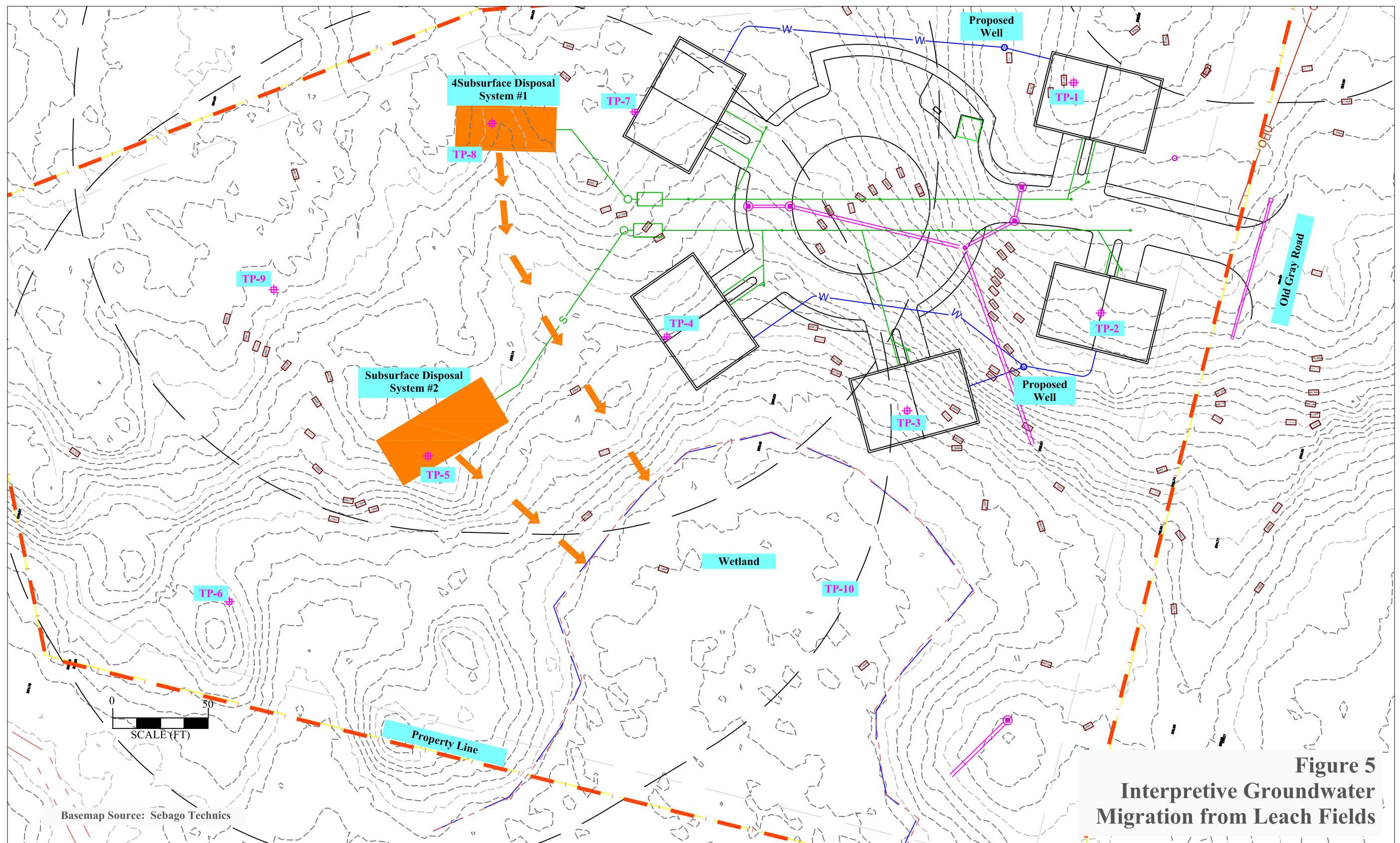


Figure 3
Nearby Domestic Wells from MGS Well Database
Drumlin Environmental, LLC



Basemap Source: MGS Open-File 99-27

Figure 4
Subdivision Location and Sand & Gravel Aquifer
Drumlin Environmental, LLC





ATTACHMENT A
SOIL TEST PIT LOGS

Detailed Description of Subsurface Conditions at Project Sites

SOIL DESCRIPTION AND CLASSIFICATION			
Exploration Symbol: <u>TP-2</u> <input checked="" type="checkbox"/> Test Pit <input type="checkbox"/> Boring			
1-2 " Depth of Organic Horizon Above Mineral Soil			
Texture	Consistence	Color	Redox
1			
2		10YR 3/3	NONE
3	FRIABLE	DARK	OBSERVED
4		BROWN	
5			
6			
7			
8		10YR 4/6	
9		DARK	
10		YELLOWISH	
12		BROWN	
14			
16			
18			
20		2.5Y 5/6	
		LIGHT OLIVE	
24		BROWN	
	FIRM	2.5Y 6/3	
30	GRAVELLY SANDY LOAM	LIGHT YELLOWISH	
32		BROWN	
LEDGE AT 32"			
40			
50			
60			
<input type="checkbox"/> hydric	Slope %	Limiting factor	<input type="checkbox"/> ground water
<input checked="" type="checkbox"/> non-hydric	<u>3-8</u>	<u>32"</u>	<input type="checkbox"/> restrictive layer
			<input checked="" type="checkbox"/> bedrock
L.S.S.	Soil Series / phase name: <u>BECKET VARIANT</u>	<u>WD</u>	<u>C</u>
		Drainage Class	Hydrologic Group
L.S.E.	Soil Classification: <u>3</u>	<u>Alli</u>	
	ReFile	Drainage Condition	

		Promote	Drainage Condition	
SOIL DESCRIPTION AND CLASSIFICATION				
Exploration Symbol:		TP-4	<input checked="" type="checkbox"/> Test Pit	<input type="checkbox"/> Boring
_____ 2-3." Depth of Organic Horizon Above Mineral Soil				
	Texture	Consistence	Color	Redox
0				
1				
2	FINE		10YR 3/3	NONE
3	SANDY LOAM		DARK	OBSERVED
4		FRIABLE	BROWN	
5				
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7				
8				
9			2.5Y 5/6	
10			LIGHT	
12			OLIVE	
14			BROWN	
16				
19				
20	SANDY LOAM		5Y 5/2	
		FIRM	OLIVE	
			GRAY	
28				
30	LEDGE / SAPROLITE (ROTTEN ROCK) AT 28"			
40				
50				
60				
<input type="checkbox"/>	hydric non-hydric	Slope % <u>3-8</u>	Limiting factor <u>28"</u>	<input type="checkbox"/> ground water <input type="checkbox"/> restrictive layer <input checked="" type="checkbox"/> bedrock
L.S.E.	Soil Series / phase name:	BECKET VARIANT		<u>WD</u> Drainage Class
				<u>C</u> Hydrologic Group
L.S.E.	Soil Classification:	<u>3</u> Profile	<u>AIII</u> Drainage Condition	

L.S.S.	signature: 	Date: 2/9/22
	name printed/typed: Gary M. Fullerton	Lic.#: 462
L.S.E.	signature: 	Date: 2/9/22
	name printed/typed: Gary M. Fullerton	Lic.#: 355



SOIL PROFILE/CLASSIFICATION INFORMATION


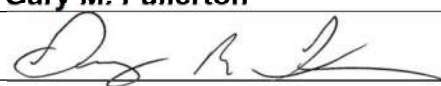
Detailed Description of Subsurface Conditions at Project Sites

Project Name: NIELSEN PROPERTY	Applicant Name: SVR LLC	Project Location (municipality): CUMBERLAND
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SOIL DESCRIPTION AND CLASSIFICATION			
Exploration Symbol: TP-5		Test Pit <input checked="" type="checkbox"/> Boring <input type="checkbox"/>	
1-2" Depth of Organic Horizon Above Mineral Soil			
Texture	Consistence	Color	Redox
0		10YR 3/3	
1	FINE	DARK	NONE
2	SANDY LOAM	BROWN	OBSERVED
3			
4		10YR 5/6	
5		YELLOWISH	
6		BROWN	
7			
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19			
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21			
22	SAPROLITE (ROTTEN ROCK) AT 22"		
23			
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33	FIRM LEDGE AT 32"		
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56			
57			
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60			
<input type="checkbox"/> hydric <input checked="" type="checkbox"/> non-hydric		Slope % 3-8	Limiting factor 22"
<input type="checkbox"/> ground water <input checked="" type="checkbox"/> restrictive layer <input type="checkbox"/> bedrock			
L.S.S. Soil Series / phase name: TUNBRIDGE <u>WD</u> <u>C</u>			
		Drainage Class	Hydrologic Group
L.S.E. Soil Classification: <u>3</u> <u>AIII</u>			
Profile		Drainage Class	

SOIL DESCRIPTION AND CLASSIFICATION			
Exploration Symbol: TP-7		Test Pit <input checked="" type="checkbox"/> Boring <input type="checkbox"/>	
1-2" Depth of Organic Horizon Above Mineral Soil			
Texture	Consistence	Color	Redox
0		10YR 3/2	
1	FINE	VERY DARK	NONE
2	SANDY LOAM	GRAYISH BROWN	OBSERVED
3			
4			
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6			
7			
8			
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60			
<input type="checkbox"/> hydric <input checked="" type="checkbox"/> non-hydric		Slope % 3-8	Limiting factor 28"
<input type="checkbox"/> ground water <input checked="" type="checkbox"/> restrictive layer <input type="checkbox"/> bedrock			
L.S.S. Soil Series / phase name: BECKET <u>WD</u> <u>C</u>			
		Drainage Class	Hydrologic Group
L.S.E. Soil Classification: <u>3</u> <u>C</u>			
Profile		Drainage Class	

Professional Endorsements (as applicable)

L.S.S. signature: 	Date: 2/9/22
name printed/typed: Gary M. Fullerton	Lic.#: 462
L.S.E. signature: 	Date: 2/9/22
name printed/typed: Gary M. Fullerton	Lic.#: 355

affix professional seal



SOIL PROFILE/CLASSIFICATION INFORMATION


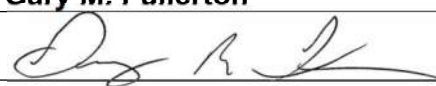
Detailed Description of Subsurface Conditions at Project Sites

Project Name: NIELSEN PROPERTY	Applicant Name: SVR LLC	Project Location (municipality): CUMBERLAND
--	-----------------------------------	---

SOIL DESCRIPTION AND CLASSIFICATION					
DEPTH BELOW MINERAL SOIL SURFACE (inches)	Exploration Symbol: <u>TP-9</u> <input checked="" type="checkbox"/> Test Pit <input type="checkbox"/> Boring				
	1-2" Depth of Organic Horizon Above Mineral Soil				
	Texture	Consistence	Color	Redox	
	1	FINE		10YR 4/6	NONE
	2	SANDY LOAM	FRIABLE	DARK	OBSERVED
	3			YELLOWISH	
	4			BROWN	
	5				
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	8	LEDGE AT 8"			
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<input type="checkbox"/> hydric <input type="checkbox"/> Slope % <u>3-8</u> Limiting factor <u>8"</u> <input type="checkbox"/> ground water <input checked="" type="checkbox"/> non-hydric <input type="checkbox"/> restrictive layer bedrock					
L.S.S. Soil Series / phase name: <u>ABRAM</u> <u>ED</u> <u>D</u> Drainage Class Hydrologic Group					
L.S.E. Soil Classification: <u>2</u> <u>A1</u> Profile Drainage Condition					

SOIL DESCRIPTION AND CLASSIFICATION				
DEPTH BELOW MINERAL SOIL SURFACE (inches)	Exploration Symbol: <input type="checkbox"/> Test Pit <input type="checkbox"/> Boring			
	1" Depth of Organic Horizon Above Mineral Soil			
	Texture	Consistence	Color	Redox
	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
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<input type="checkbox"/> hydric <input type="checkbox"/> Slope % <u> </u> Limiting factor <u> </u> <input type="checkbox"/> ground water <input type="checkbox"/> non-hydric <input type="checkbox"/> restrictive layer bedrock				
L.S.S. Soil Series / phase name: <u> </u> <u> </u> <u> </u> Drainage Class Hydrologic Group				
L.S.E. Soil Classification: <u> </u> <u> </u> Profile Drainage Condition				

Professional Endorsements (as applicable)

L.S.S.	signature: 	Date: 2/9/22
	name printed/typed: Gary M. Fullerton	Lic.#: 462
L.S.E.	signature: 	Date: 2/9/22
	name printed/typed: Gary M. Fullerton	Lic.#: 355

affix professional seal



Exhibit 7

Stormwater Management

Exhibit 7

Stormwater Management

Included within this section is the stormwater narrative for this development. The full stormwater report materials are included within these submission materials but they are included under a separate cover.



STORMWATER MANAGEMENT REPORT

For

Evergreen Estates Cumberland, Maine

Prepared for:

Envy Construction
28 Stone Ridge Road
Falmouth, Maine 04105

Prepared by:

Sebago Technics, Inc.
75 John Roberts Rd, Suite 4A
South Portland, ME 04106

May 2022

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Appendices

Appendix 1A: Hydrologic Modeling– Existing Conditions (HydroCAD)Summary	
Appendix 1B: Hydrologic Modeling – Proposed Conditions (HydroCAD) Summary	
Appendix 2: Inspection, Maintenance and Housekeeping Plan	
Appendix 3: Subsurface Investigations	

STORMWATER MANAGEMENT REPORT
Evergreen Estates
Cumberland, Maine

1. Introduction

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

2. Existing Conditions

The project site consists of undeveloped land located in Cumberland, Maine off of Old Gray Road. The site is approximately 5.68 acres. The site is bounded by residential house lots to the north and south with the Gray Toll Plaza and I-95 to the west.

Slopes on the site range from about 5%-20% with the steeper portions on the south and west sides of the site adjacent to the wetland.

The site is tributary to the on-site wetlands which eventually drain to the Piscataqua River.

The proposed development area of the site is not located in an identified flood zone per the FEMA Flood Insurance Rate Map for the Cumberland, Community Panel 2301620010 effective May 19, 1981

3. Soils

Soil characteristics were obtained from the Class C Medium Intensity Soil Survey. The Hydrologic Groups (HSG) of the soils are classified by Technical Release TR-55 of the Soil Conservation Service as follows:

Soil Map Symbol	Soil Name	Slope (%)	HSG
AtB	Abram-Turnbridge Complex	3-8	D
AtD	Abram-Turnbridge Complex	15-25	D
BvB	Becket Variant	3-8	C
BvD	Becket Variant	15-25	C
NaA	Naumberg	0-3	D

Hydrologic Soil Group boundaries are delineated on the Watershed Map. A copy of the Class C Medium Intensity Soil Survey is included in Appendix 4.

4. Proposed Site Improvements

The proposed development will consist of 5 duplex buildings with a total of 10 units. Each unit will have a footprint of 2,400 square feet. The condos will be access by a cul de sac with individual driveways to each unit. A majority of the buildings and all of the paved driveway areas will drain via both drainage structures (i.e., catch basins) and surface runoff towards a proposed detention basin. This basin will allow for stormwater to infiltrate through the sand media and get into the underdrain pipes, slowing down runoff before it gets to the on-site wetland. Areas near the subsurface disposal systems and stockpile area, will be left to revegetate and revert to the meadow condition. In total, the project will result in the creation of 0.69 acres of non-vegetated area and 2.41 acres of developed area.

5. Existing Conditions Model

The pre-development watershed plan consists of two sub-catchments labeled 1S and 2S in the HydroCAD model. Two locations were identified as Points of Analyses (POA) for comparing peak runoff rates, both POAs are headed towards the wetland complex at the Southern edge of the property with POAs on either side of a local high point.

POA-1 is located in the southwesterly corner of the site where runoff from the site leaves towards the wetland. Watershed 1S contributes to this study point with an overall area of 0.81 acres.

POA-2 is located slightly east of POA-1 on the other side of the local high point. Watershed 2S contributes runoff to this study point and has an overall area of 6.26 acres.

6. Proposed Conditions Model

The post-development watershed area consists of the same overall area as the pre-development plan, however, the pre-development subcatchments have been broken into smaller watersheds as a result of the proposed development.

POA1: Post-development subcatchment 10S represents the undeveloped land from pre-development 1S. This post-development subcatchment remains unchanged from the pre-development. The overall tributary area associated with POA-1 is 0.81 acres.

POA-2: Post-development subcatchments 20S through 20.6S are tributary to this Point of Analysis. All developed areas from this project flow toward this Point of Analysis. Subcatchments 20.1S to 20.4S are tributary to Detention Basin 1 (DB-1). This basin slows down runoff from the site and discharges towards the on-site wetlands.

7. Stormwater Management

Basic Standard - Chapter 500, Section 4(B)

The proposed stormwater measures satisfy sections 242-23 to 242-25 of the Town of Cumberland Stormwater Standards. A Maine DEP stormwater law application is not required as the impervious area in the proposed subdivision does not exceed 1 acre nor does the total developed area exceed 5 acres. We have avoided adverse impacts by providing an Erosion and Sedimentation Control Plan, and an Inspection, Maintenance, and Housekeeping Plan to be implemented during construction and post-construction stabilization of the site. These construction requirements have been developed following Best Management Practice guidelines.

Flooding Standard- Town of Cumberland Site Plan Review Ordinance, Section 229-10

Runoff curve numbers were determined for each of the watersheds by measuring the area of each hydrologic soil group within each type of land cover. The type of land cover was determined based on survey data, field reconnaissance, and aerial photography. Times of concentration were determined from site topographic maps in accordance with SCS procedures.

The 24-hour rainfall values utilized in the hydrologic model were obtained from Appendix H of MDEP's Chapter 500: Stormwater Management (effective date August 2015). Rainfall values for York County are listed in the table below.

Storm Frequency Precipitation (in./24 hr) Cumberland County	
2-year	3.1
10-year	4.6
25-year	6.2

The following table presents the results of the peak runoff calculations at the analysis points for the existing and proposed conditions. A detention basin was designed to limit the peak rates of runoff at the study points.

Peak Runoff Rate Summary Table			
Analysis Point	Storm Event	Existing Conditions (cfs)	Proposed Conditions (cfs)
POA-1	2-year	0.68	0.68
	10-year	1.42	1.42
	25-year	2.05	2.05

POA-2	2-year	4.26	4.26
	10-year	9.47	9.07
	25-year	14.07	13.96

The HydroCAD Data output sheets from this analysis are appended to this report (Appendix 2) along with the Stormwater Management Plans which can be found in the plan set accompanying these materials. The model predicts that the peak runoff rates in the post-development condition at Points of Analysis 1, and 2 are at or below pre-development runoff rates for the 2, 10, and 25-year storm events with the implementation of the proposed stormwater management practices.

8. Summary

The proposed development has been designed to manage stormwater runoff through Best Management Practices approved by MDEP. Runoff discharging from the site will be at or below pre-development conditions for the 2, 10, and 25-year storm events at all three study points. Additionally, erosion and sedimentation controls along with associated maintenance and housekeeping procedures have been outlined to prevent unreasonable impacts on the site and the surrounding environment.

Prepared by:

SEBAGO TECHNICS, INC.

Craig A. Burgess, P.E.
Senior Project Manager

CAB

Exhibit 8

Traffic

Exhibit 8

Traffic Memo

Included within this section is a Traffic Memo conducted by Sebago Technics Inc. dated 3/29/2022.

Memorandum

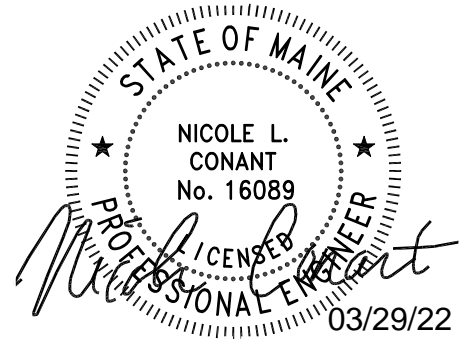
20551

To: Craig Burgess, P.E., Sebago Technics

From: Nikki Conant, P.E., Sebago Technics

Date: March 29, 2022

Subject: Traffic Impact Assessment, Evergreen Estates, Cumberland, Maine



Introduction

The purpose of this memorandum is to provide a trip generation assessment, crash data review and driveway sight distance analysis for a proposed residential development at 246 Old Gray Road, Cumberland, Maine. The development is proposed to be made up of five (5) duplexes, totaling 10 dwelling units. Access to the site is proposed via a full movement access to Old Gray Road.

Trip Generation

The 11th Edition of the Institute of Transportation Engineer's (ITE) *Trip Generation Manual* was utilized to estimate the trip generation for the duplexes. Land use code (LUC) 215 – Single-Family Attached Housing was utilized as ITE describes this LUC as “any single-family housing unit that shares a wall with an adjoining unit” and notes the data includes duplexes. The trip generation results on the basis of 10 dwelling units, are summarized in Table 1:

Table 1 – ITE Trip Generation
Land Use Code 215 – Single-Family Attached Housing
10 Dwelling Units

<i>Time Period</i>	<i>Average Rate</i>	<i>Trips</i>	<i>Entering</i>	<i>Exiting</i>
Weekday	7.20	72	36 (50%)	36 (50%)
AM Peak Hour – Adjacent Street (7 – 9 AM)	0.48	5	1 (31%)	4 (69%)
AM Peak Hour – Generator	0.55	6	1 (25%)	5 (75%)
PM Peak Hour – Adjacent Street (4 – 6 PM)	0.57	6	3 (57%)	3 (43%)
PM Peak Hour – Generator	0.61	6	4 (62%)	2 (38%)

As shown in Table 1, the duplexes are estimated to generate six (6) trips during both the AM and PM peak hour periods of the generator. Given this level of trip generation, a Traffic Movement Permit (TMP) will not be required from the Maine Department of Transportation (MaineDOT) as project trip generation does not exceed the 100-trip threshold to require a permit. Additionally, this level of trip generation would not be expected to have impacts off-site on the adjacent roadway system as the project is estimated to generate a maximum of four (4) new trips in a lane in an hour during the typical peak hour of the adjacent street. As such, no additional analysis is recommended.

Crash Data

The MaineDOT Public Crash Query was utilized to determine if there are any high crash locations within the immediate vicinity of the site. An intersection or section of roadway is deemed an HCL if two criteria are met: a Critical Rate Factor (CRF) greater than 1.0 and a minimum of eight (8) crashes in a three-year period. Crash data for Old Gray Road was reviewed from Gray Road south to Highland Avenue for the most recent three-year study period from 2018 – 2020. Based on the crash information, Old Gray Road in the immediate vicinity of the site, is not designated as a high crash location. As such, there are no recommendations for improvements in conjunction with this project.

Sight Distance Analysis

Sight distance from the proposed driveway location on Old Gray Road was measured on March 29, 2022. The sight distance measurements were conducted from a point 10 feet behind the apparent edge of the travel way considering a height of eye of 3.5 feet and a height of object of 4.25 feet.

The Town of Cumberland Ordinances were reviewed to determine sight distance standards. Chapter 299 – Site Plan Review notes “any driveway or proposed street must be designed so as to provide minimum sight distance according to the Maine Department of Transportation’s standards.” However, Chapter 250 – Subdivision of Land notes that “minimum sight distance for all street and roadways... shall be calculated using the standard of 10 feet of sight distance per every one mile of posted speed limit.” As such, both methodologies are shown in Table 2.

Table 2
Required Sight Distances

<i>Posted Speed (MPH)</i>	<i>Cumberland Sight Distance (feet)</i>	<i>MaineDOT Sight Distance (feet)</i>
25	250'	200'
30	300'	250'
35	350'	305'
40	400'	360'
45	450'	425'
50	500'	495'
55	550'	570'

Old Gray Road is posted at 25 MPH. Sight distance to the left, as shown in Figure 1 was measured to be 200 feet, restricted by brush along the frontage of the property. Sight distance to the right, as shown in Figure 2, was measured to exceed 400 feet. As such, sight distance from the driveway access location meets the required minimums for the posted speed limit by MaineDOT's standards. It is important to note that the development is proposing to remove the brush along the property frontage and replace with new landscaping outside of the sight triangle. This would increase sight distance by a minimum of 50 feet, therefore also meeting the Town of Cumberland Subdivision standards.



Figure 1: Sight Distance Looking Left



Figure 2: Sight Distance Looking Right

Conclusion

- The residential development on Old Gray Road is estimated to generate six (6) trips during both the AM and PM peak hour periods of the generator, respectively. As such, a TMP would not be required by the MaineDOT, as estimated trip generation for the development does not exceed the 100-trip threshold.
- There were no high crash locations along Old Gray Road within the immediate vicinity of the site. As such, there are no recommendations for improvements.
- Sight distance from the proposed driveway location on Old Gray Road currently meets required sight distances per MaineDOT's standards. With proposed brush clearing along the property frontage, the driveway will also meet additional Town of Cumberland sight distance standards for Subdivisions.

Exhibit 9

Subsurface Wastewater Disposal

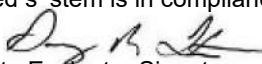
Exhibit 9

Subsurface Wastewater Disposal

This development will be served by 2 septic fields. The 2 northern most buildings will be served by a 3,000-gallon septic tank. The 3 southernmost buildings will be served by a 4,000-gallon septic tank. Each respective tank feeds a lift station which carries effluent to its respective septic field for treatment.

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Dept. of Health & Human Services
Division of Environmental Health, 11 SHS
(207) 287-5672 Fax: (207) 287-4172

PROPERTY LOCATION		>> CAUTION: LPI APPROVAL REQUIRED <<	
City, Town, or Plantation	CUMBERLAND	Town/City _____ Permit # _____	Date Permit Issued ____/____/____ Fee: _____ Double Fee Charged
Street or Road	OLD GRAY ROAD		
Subdivision, Lot #		Local Plumbing Inspector Signature _____ L.P.I. # _____	
OWNER/APPLICANT INFORMATION		<input type="checkbox"/> Owner <input type="checkbox"/> Town <input type="checkbox"/> State	
Name (last, first, MI)	ENVY CONSTRUCTION	<p>The Subsurface Wastewater Disposal System shall not be installed until a Permit is issued by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.</p>	
Mailing Address of Owner/Applicant	28 STONE RIDGE ROAD FALMOUTH, MAINE 04105		
Da time Tel. #	(207) 232-0351		
OWNER OR APPLICANT STATEMENT		CAUTION: INSPECTION REQUIRED	
<p>I state and acknowledge that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a Permit.</p> <p>Signature of Owner or Applicant _____ Date _____</p>		<p>I have inspected the installation authorized above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application.</p> <p>Local Plumbing Inspector Signature _____ (1st) Date Approved _____</p> <p>_____ (2nd) Date Approved _____</p>	
PERMIT INFORMATION			
TYPE OF APPLICATION	THIS APPLICATION REQUIRES	DISPOSAL SYSTEM COMPONENTS	
<input checked="" type="checkbox"/> 1. First Time System <input type="checkbox"/> 2. Replacement System Type replaced: _____ Year installed: _____ <input type="checkbox"/> 3. Expanded System <input type="checkbox"/> a. <25% Expansion <input type="checkbox"/> b. >25% Expansion <input type="checkbox"/> 4. Experimental System <input type="checkbox"/> 5. Seasonal Conversion	<input checked="" type="checkbox"/> 1. No Rule Variance <input type="checkbox"/> 2. First Time System Variance <input type="checkbox"/> a. Local Plumbing Inspector Approval <input type="checkbox"/> b. State & Local Plumbing Inspector Approval <input type="checkbox"/> 3. Replacement System Variance <input type="checkbox"/> a. Local Plumbing Inspector Approval <input type="checkbox"/> b. State & Local Plumbing Inspector Approval <input checked="" type="checkbox"/> 4. Minimum Lot Size Variance <input type="checkbox"/> 5. Seasonal Conversion Permit	<input checked="" type="checkbox"/> 1. Complete Non-engineered System <input type="checkbox"/> 2. Primitive System (gravity water & alt. toilet) <input type="checkbox"/> 3. Alternative Toilet, specify: _____ <input type="checkbox"/> 4. Non-engineered Treatment Tank (on lot) <input type="checkbox"/> 5. Holding Tank, _____ gallons <input type="checkbox"/> 6. Non-engineered Disposal Field (on lot) <input type="checkbox"/> 7. Separated Laundry System <input type="checkbox"/> 8. Complete Engineered System (2000 gpd or more) <input type="checkbox"/> 9. Engineered Treatment Tank (on lot) <input type="checkbox"/> 10. Engineered Disposal Field (on lot) <input type="checkbox"/> 11. Pre-treatment, specify: _____ <input type="checkbox"/> 12. Miscellaneous Components	
SIZE OF PROPERTY	DISPOSAL SYSTEM TO SERVE	TYPE OF WATER SUPPLY	
5.69± <input type="checkbox"/> SQ. FT. <input checked="" type="checkbox"/> ACRES SHORELAND ZONING <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> 1. Single Family Dwelling Unit, No. of Bedrooms: _____ <input checked="" type="checkbox"/> 2. Multiple Family Dwelling, No. of Units: 4 <input type="checkbox"/> 3. Other: _____ (specify) _____ Current Use <input type="checkbox"/> Seasonal <input type="checkbox"/> Year Round <input checked="" type="checkbox"/> Undeveloped	<input checked="" type="checkbox"/> 1. Drilled Well <input type="checkbox"/> 2. Dug Well <input type="checkbox"/> 3. Private <input type="checkbox"/> 4. Public <input type="checkbox"/> 5. Other	
DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)			
TREATMENT TANK	DISPOSAL FIELD TYPE & SIZE	GARBAGE DISPOSAL UNIT	DESIGN FLOW
<input checked="" type="checkbox"/> 1. Concrete <input checked="" type="checkbox"/> a. Regular <input type="checkbox"/> b. Low profile <input type="checkbox"/> 2. Plastic <input type="checkbox"/> 3. Other: _____ CAPACITY: 4,000 GAL.	<input type="checkbox"/> 1. Stone Bed <input type="checkbox"/> 2. Stone Trench <input checked="" type="checkbox"/> 3. Proprietary Device <input type="checkbox"/> a. Cluster arrangement <input type="checkbox"/> c. Linear <input checked="" type="checkbox"/> b. Regular load <input type="checkbox"/> d. H-20 load <input type="checkbox"/> 4. Other: _____ SIZE: 3,744 <input checked="" type="checkbox"/> sq. ft. <input type="checkbox"/> lin. ft.	<input checked="" type="checkbox"/> 1. No <input type="checkbox"/> 2. Yes <input type="checkbox"/> 3. May be If Yes or May be, specify one below: <input type="checkbox"/> a. Multi-compartment tank <input type="checkbox"/> b. tanks in series <input type="checkbox"/> c. Increase in tank capacity <input type="checkbox"/> d. Filter on tank outlet	1,080 gallons per day BASED ON: <input checked="" type="checkbox"/> 1. Table 4A (dwelling unit(s)) <input type="checkbox"/> 2. Table 4C (other facilities) SHOW CALCULATIONS for other facilities FOUR 3-BDR DWELLINGS @ 270 GPD
SOIL DATA & DESIGN CLASS	DISPOSAL FIELD SIZING	EFFLUENT/EJECTOR PUMP	LATITUDE AND LONGITUDE
PROFILE 3 CONDITION C at Observation Hole # TP-8 Depth 28" of Most Limiting Soil Factor	<input type="checkbox"/> 1. Medium--- 2.6 sq. ft. / gpd <input checked="" type="checkbox"/> 2. Medium Large--- 3.3 sq. ft. / gpd <input type="checkbox"/> 3. Large--- 4.1 sq. ft. / gpd <input type="checkbox"/> 4. Extra Large--- 5.0 sq. ft. / gpd	<input type="checkbox"/> 1. Not Required <input type="checkbox"/> 2. May be Required <input checked="" type="checkbox"/> 3. Required Specify only for engineered systems: DOSE: _____ GAL.	at center of disposal area Lat. 43° d 49' m 22.9 s Lon. -70° d 19' m 04.4 s
SITE EVALUATOR STATEMENT			
I certify that on 2-09-22 (date) I completed a site evaluation on this property and state that the data reported are accurate and that the proposed system is in compliance with the State of Maine Subsurface Wastewater Disposal Rules (10-144A CMR 241).			
 Site Evaluator Signature		355 SE #	5-04-22 Date
Gar M. Fullerton Site Evaluator Name Printed		(207) 200-2063 Telephone Number	gfullerton@sebagotechtechnics.com E-mail Address
Note: Changes to or deviations from the design should be confirmed with the Site Evaluator.			

SEBAGO
TECHNICS
WWW.SEBAGOTECHNICS.COM

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Dept. of Health & Human Services
Division of Environmental Health, 11 SHS
(207) 287-5672 Fax: (207) 287-4172

Town, Cit , Plantation
CUMBERLAND

Street, Road, Subdivision
OLD GRAY ROAD

Owner or Applicant Name
ENVY CONSTRUCTION

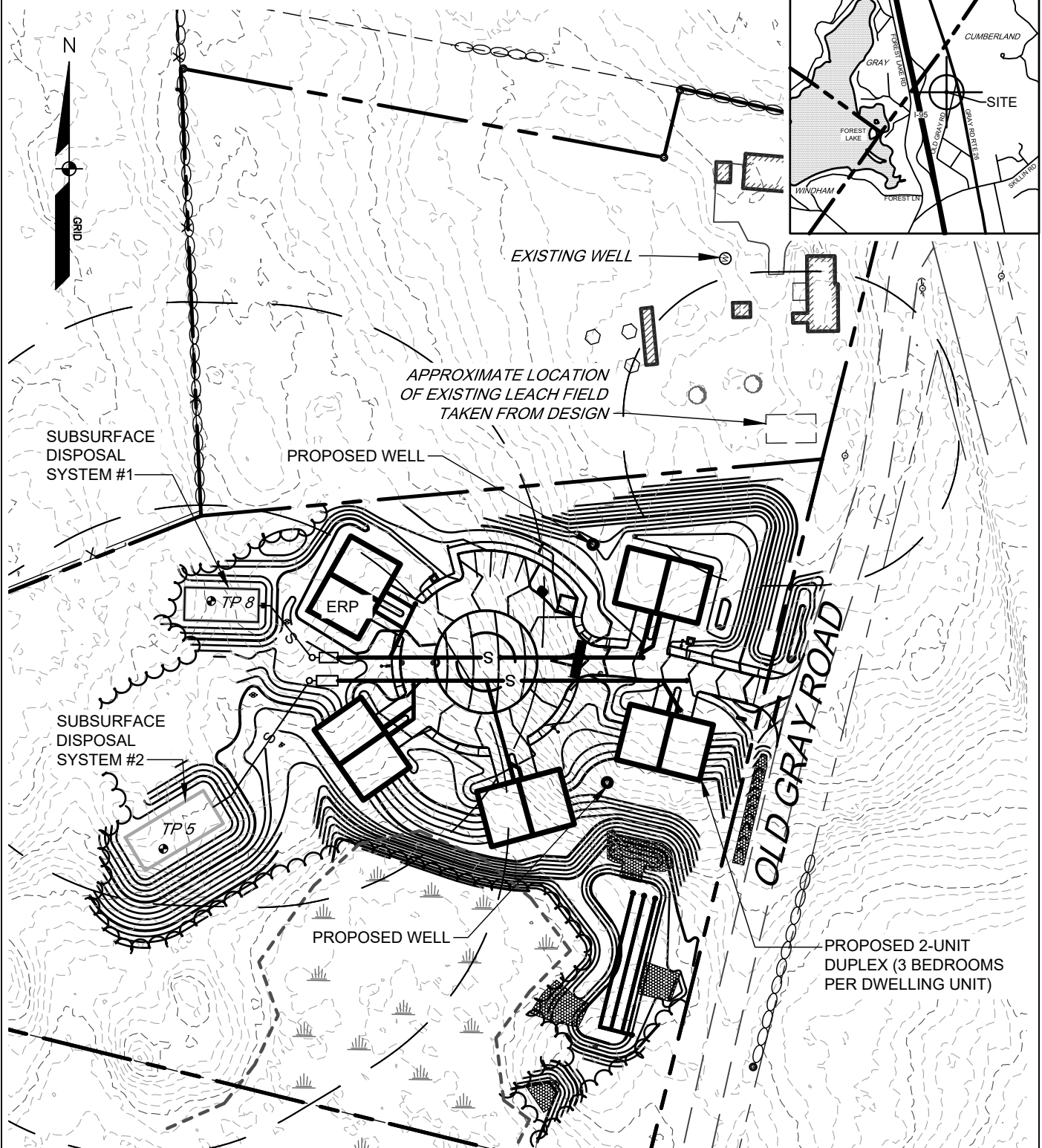
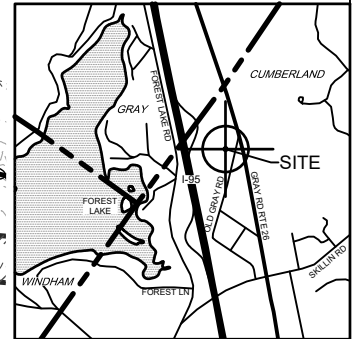
IPF = IRON PIN FOUND
TP = TEST PIT

B = BORING

SITE PLAN

Scale 1" = FT. 100

SITE LOCATION PLAN



Site Evaluator Signature

355
SE #

5-04-22
Date

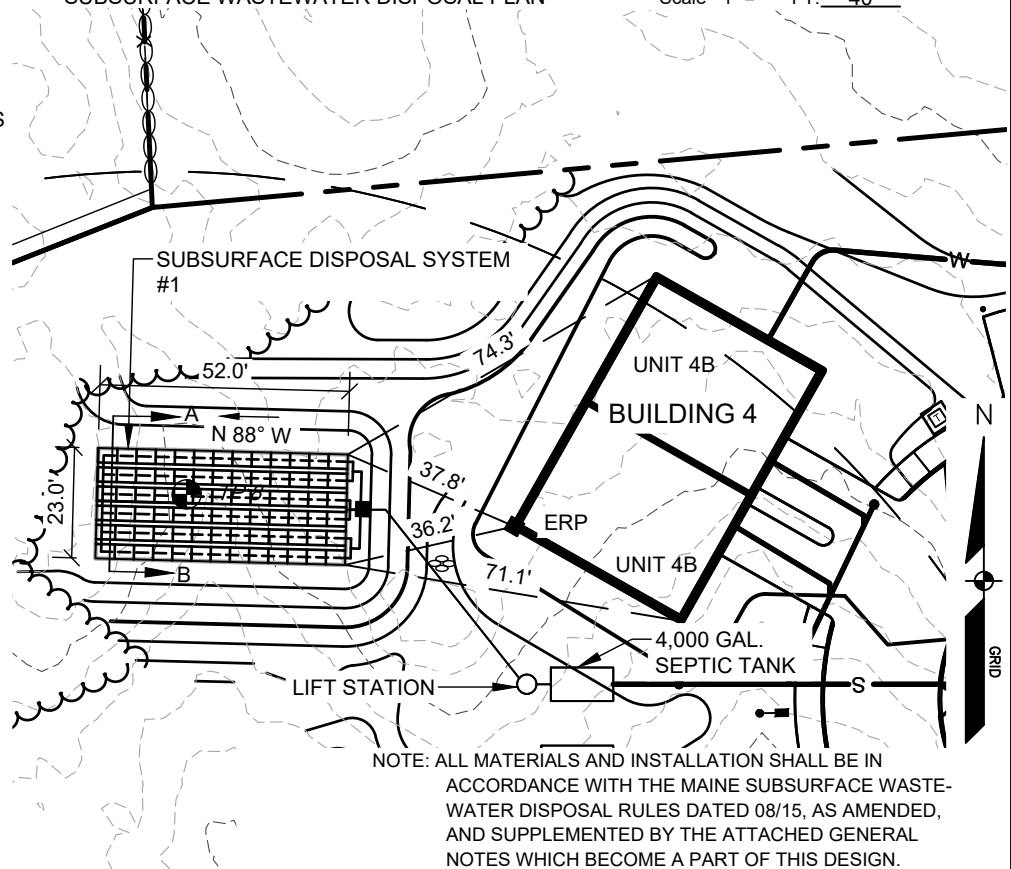
Page 2b of 3
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SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATIONTown, Cit , Plantation
CUMBERLANDStreet, Road, Subdivision
OLD GRAY ROADOwner or Applicant Name
ENVY CONSTRUCTIONERP= ELEVATION REFERENCE POINT
IPF = IRON PIN FOUND**SUBSURFACE WASTEWATER DISPOSAL PLAN**Scale 1" = FT. **40****PROPOSED DISPOSAL FIELD****6 ROWS OF 13 ELJEN GSF UNITS
IN CLUSTER ARRAY****NOTES**

1. ALLOW FOR POSITIVE DRAINAGE AROUND THE DISPOSAL FIELD.
2. REMOVE ALL VEGETATION AND SCARIFY THE AREA UNDER THE DISPOSAL FIELD, SHOULDER, AND FILL EXTENSION.
3. IF A GARBAGE DISPOSAL IS USED, THEN CHANGES TO THIS DESIGN ARE NECESSARY.
4. BURY AND/OR INSULATE PUMPED EFFLUENT LINES AS NEEDED TO PREVENT FREEZING.

EXISTING GRADES

302.0	301.6
N88°W	
301.5	301.0



NOTE: ALL MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE MAINE SUBSURFACE WASTEWATER DISPOSAL RULES DATED 08/15, AS AMENDED, AND SUPPLEMENTED BY THE ATTACHED GENERAL NOTES WHICH BECOME A PART OF THIS DESIGN.

BACKFILL REQUIREMENTS

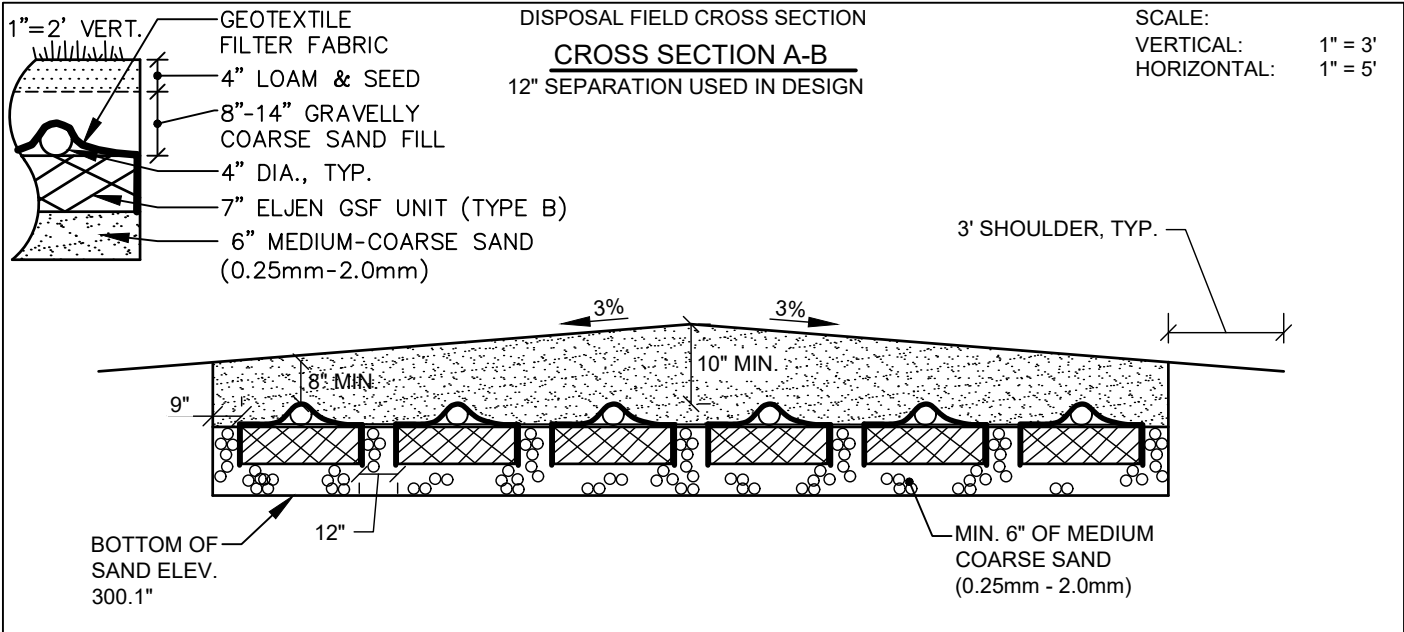
Depth of Fill (Upslope)	5 to 13"±
Depth of Fill (Downslope)	11 to 17"±

CONSTRUCTION ELEVATIONS

Finished Grade Elevation	302.6
Top of Distribution Pipe or Proprietary Device	301.6
Bottom of Disposal Area (Bottom of El en)	300.7

ELEVATION REFERENCE POINT

Location & Description	FINISH FLOOR
ELEVATION, SW CNR	
Reference Elevation	FFE=302.4



[Signature]
Site Evaluator Signature

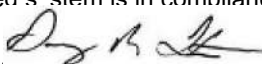
355
SE #

5-04-22
Date

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SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Dept. of Health & Human Services
Division of Environmental Health, 11 SHS
(207) 287-5672 Fax: (207) 287-4172

PROPERTY LOCATION		>> CAUTION: LPI APPROVAL REQUIRED <<	
City, Town, or Plantation	CUMBERLAND	Town/City _____ Permit # _____	Date Permit Issued ____/____/____ Fee: _____ Double Fee Charged
Street or Road	OLD GRAY ROAD		
Subdivision, Lot #		Local Plumbing Inspector Signature _____ L.P.I. # _____	
OWNER/APPLICANT INFORMATION		CAUTION: INSPECTION REQUIRED	
Name (last, first, MI)	ENVY CONSTRUCTION	<p>The Subsurface Wastewater Disposal System shall not be installed until a Permit is issued by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.</p> <p style="text-align: right;">(1st) Date Approved _____</p>	
Mailing Address of Owner/Applicant	28 STONE RIDGE ROAD FALMOUTH, MAINE 04105		
Da time Tel. #	(207) 232-0351		
<p>OWNER OR APPLICANT STATEMENT</p> <p>I state and acknowledge that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a Permit.</p> <p style="text-align: right;">Signature of Owner or Applicant _____ Date _____</p>		<p>I have inspected the installation authorized above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application.</p> <p style="text-align: right;">Local Plumbing Inspector Signature _____ (2nd) Date Approved _____</p>	
PERMIT INFORMATION			
TYPE OF APPLICATION <input checked="" type="checkbox"/> 1. First Time System <input type="checkbox"/> 2. Replacement System Type replaced: _____ Year installed: _____ <input type="checkbox"/> 3. Expanded System <input type="checkbox"/> a. <25% Expansion <input type="checkbox"/> b. ≥25% Expansion <input type="checkbox"/> 4. Experimental System <input type="checkbox"/> 5. Seasonal Conversion	THIS APPLICATION REQUIRES <input checked="" type="checkbox"/> 1. No Rule Variance <input type="checkbox"/> 2. First Time System Variance <input type="checkbox"/> a. Local Plumbing Inspector Approval <input type="checkbox"/> b. State & Local Plumbing Inspector Approval <input type="checkbox"/> 3. Replacement System Variance <input type="checkbox"/> a. Local Plumbing Inspector Approval <input type="checkbox"/> b. State & Local Plumbing Inspector Approval <input checked="" type="checkbox"/> 4. Minimum Lot Size Variance <input type="checkbox"/> 5. Seasonal Conversion Permit	DISPOSAL SYSTEM COMPONENTS <input checked="" type="checkbox"/> 1. Complete Non-engineered System <input type="checkbox"/> 2. Primitive System (gravity water & alt. toilet) <input type="checkbox"/> 3. Alternative Toilet, specify: _____ <input type="checkbox"/> 4. Non-engineered Treatment Tank (only) _____ <input type="checkbox"/> 5. Holding Tank, _____ gallons <input type="checkbox"/> 6. Non-engineered Disposal Field (only) _____ <input type="checkbox"/> 7. Separated Laundry System <input type="checkbox"/> 8. Complete Engineered System (2000 gpd or more) <input type="checkbox"/> 9. Engineered Treatment Tank (only) _____ <input type="checkbox"/> 10. Engineered Disposal Field (only) _____ <input type="checkbox"/> 11. Pre-treatment, specify: _____ <input type="checkbox"/> 12. Miscellaneous Components	
SIZE OF PROPERTY 5.69± <input type="checkbox"/> SQ. FT. <input checked="" type="checkbox"/> ACRES	DISPOSAL SYSTEM TO SERVE <input type="checkbox"/> 1. Single Family Dwelling Unit, No. of Bedrooms: _____ <input checked="" type="checkbox"/> 2. Multiple Family Dwelling, No. of Units: 6 <input type="checkbox"/> 3. Other: _____ (specify) _____ Current Use <input type="checkbox"/> Seasonal <input checked="" type="checkbox"/> Year Round <input type="checkbox"/> Undeveloped	TYPE OF WATER SUPPLY <input checked="" type="checkbox"/> 1. Drilled Well <input type="checkbox"/> 2. Dug Well <input type="checkbox"/> 3. Private <input type="checkbox"/> 4. Public <input type="checkbox"/> 5. Other	
SHORELAND ZONING <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)			
TREATMENT TANK <input checked="" type="checkbox"/> 1. Concrete <input checked="" type="checkbox"/> a. Regular <input type="checkbox"/> b. Low profile <input type="checkbox"/> 2. Plastic <input type="checkbox"/> 3. Other: _____ CAPACITY: 6,000 GAL.	DISPOSAL FIELD TYPE & SIZE <input type="checkbox"/> 1. Stone Bed <input type="checkbox"/> 2. Stone Trench <input checked="" type="checkbox"/> 3. Proprietary Device <input type="checkbox"/> a. Cluster arrangement <input type="checkbox"/> c. Linear <input checked="" type="checkbox"/> b. Regular load <input type="checkbox"/> d. H-20 load <input type="checkbox"/> 4. Other: _____ SIZE: 5,376 <input checked="" type="checkbox"/> sq. ft. <input type="checkbox"/> lin. ft.	GARBAGE DISPOSAL UNIT <input checked="" type="checkbox"/> 1. No <input type="checkbox"/> 2. Yes <input type="checkbox"/> 3. Maybe If Yes or Maybe, specify one below: <input type="checkbox"/> a. Multi-compartment tank <input type="checkbox"/> b. tanks in series <input type="checkbox"/> c. Increase in tank capacity <input type="checkbox"/> d. Filter on tank outlet	DESIGN FLOW 1,620 gallons per day BASED ON: <input checked="" type="checkbox"/> 1. Table 4A (dwelling unit(s)) <input type="checkbox"/> 2. Table 4C (other facilities) SHOW CALCULATIONS for other facilities SIX 3-BDR DWELLINGS @ 270 GPD <input type="checkbox"/> 3. Section 4G (meter readings) ATTACH WATER METER DATA
SOIL DATA & DESIGN CLASS PROFILE 3 CONDITION AIII at Observation Hole # TP-5 Depth 22" of Most Limiting Soil Factor	DISPOSAL FIELD SIZING <input type="checkbox"/> 1. Medium--- 2.6 sq. ft. / gpd <input checked="" type="checkbox"/> 2. Medium Large--- 3.3 sq. ft. / gpd <input type="checkbox"/> 3. Large--- 4.1 sq. ft. / gpd <input type="checkbox"/> 4. Extra Large--- 5.0 sq. ft. / gpd	EFFLUENT/EJECTOR PUMP <input type="checkbox"/> 1. Not Required <input type="checkbox"/> 2. Maybe Required <input checked="" type="checkbox"/> 3. Required Specify only for engineered systems: DOSE: _____ GAL.	LATITUDE AND LONGITUDE at center of disposal area Lat. 43° d 49' m 21.4 s Lon. 70° d 19' m 04.8 s
SITE EVALUATOR STATEMENT			
I certify that on 2-09-22 (date) I completed a site evaluation on this property and state that the data reported are accurate and that the proposed system is in compliance with the State of Maine Subsurface Wastewater Disposal Rules (10-144A CMR 241).			
 Site Evaluator Signature		355 SE #	5-04-22 Date
Gar M. Fullerton Site Evaluator Name Printed		(207) 200-2063 Telephone Number	gfullerton@sebagotechtechnics.com E-mail Address
Note: Changes to or deviations from the design should be confirmed with the Site Evaluator.			

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Dept. of Health & Human Services
Division of Environmental Health, 11 SHS
(207) 287-5672 Fax: (207) 287-4172

Town, Cit , Plantation
CUMBERLAND

Street, Road, Subdivision
OLD GRAY ROAD

Owner or Applicant Name
ENVY CONSTRUCTION

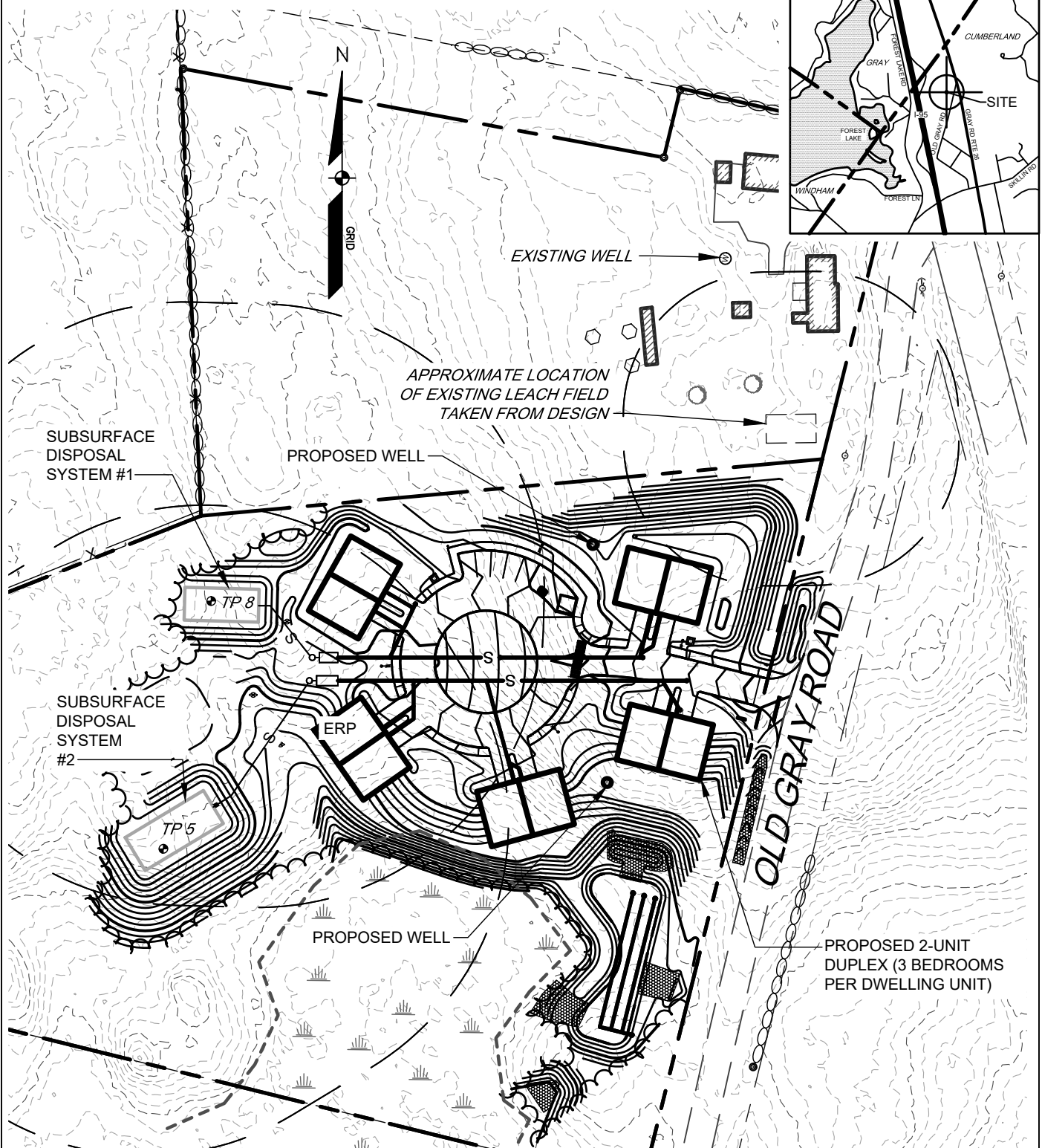
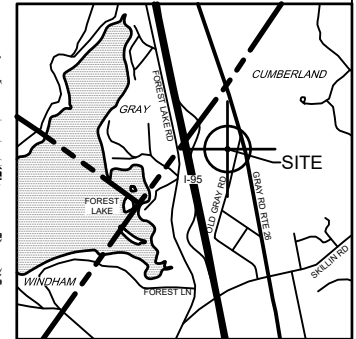
IPF = IRON PIN FOUND
TP = TEST PIT

B = BORING

SITE PLAN

Scale 1" = FT. 100

SITE LOCATION PLAN



Site Evaluator Signature

355
SE #

5-04-22
Date

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SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Dept. of Health & Human Services
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(207) 287-5672 Fax: (207) 287-4172

Town, Cit , Plantation
CUMBERLAND

Street, Road, Subdivision
OLD GRAY ROAD

Owner or Applicant Name
ENVY CONSTRUCTION

ERP= ELEVATION REFERENCE POINT
IPF = IRON PIN FOUND

PROPOSED DISPOSAL FIELD

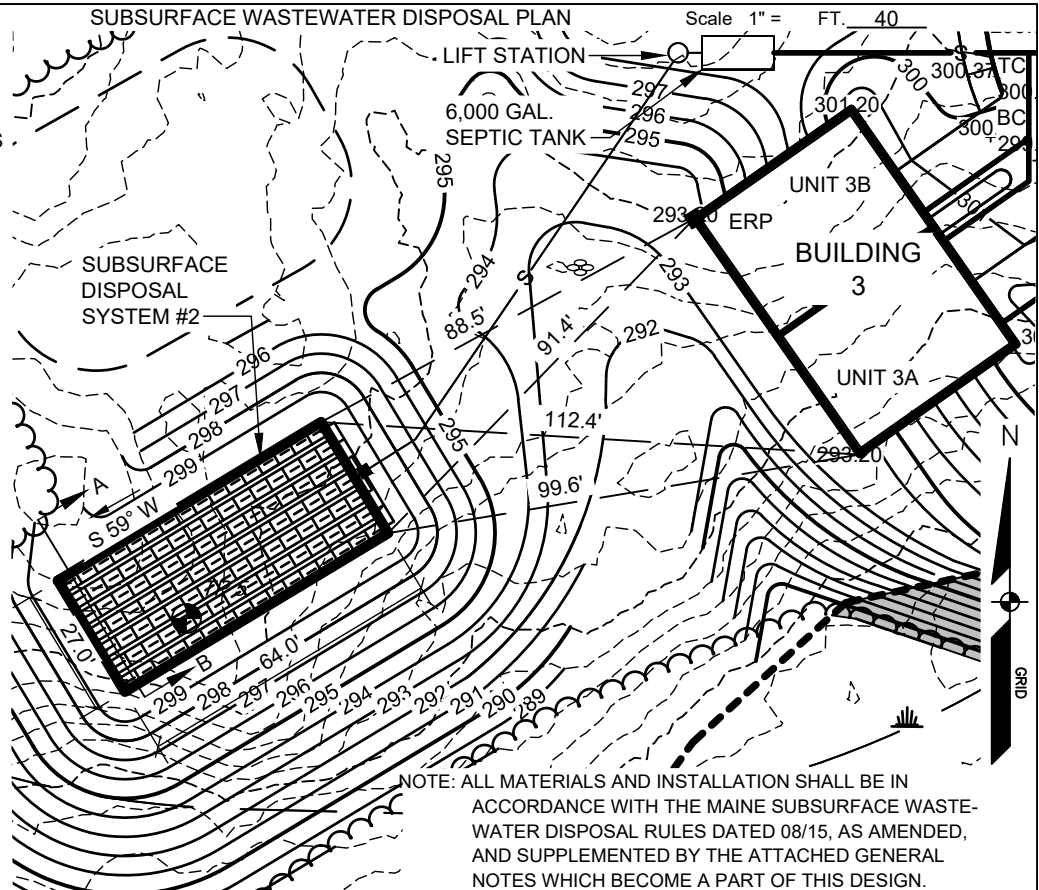
7 ROWS OF 16 ELJEN GSF UNITS
IN CLUSTER ARRAY

NOTES

1. ALLOW FOR POSITIVE DRAINAGE AROUND THE DISPOSAL FIELD.
2. REMOVE ALL VEGETATION AND SCARIFY THE AREA UNDER THE DISPOSAL FIELD, SHOULDER, AND FILL EXTENSION.
3. IF A GARBAGE DISPOSAL IS USED, THEN CHANGES TO THIS DESIGN ARE NECESSARY.
4. BURY AND/OR INSULATE PUMPED EFFLUENT LINES AS NEEDED TO PREVENT FREEZING.

EXISTING GRADES

298.0	295.3
S59°W	
294.2	293.5

BACKFILL REQUIREMENTS

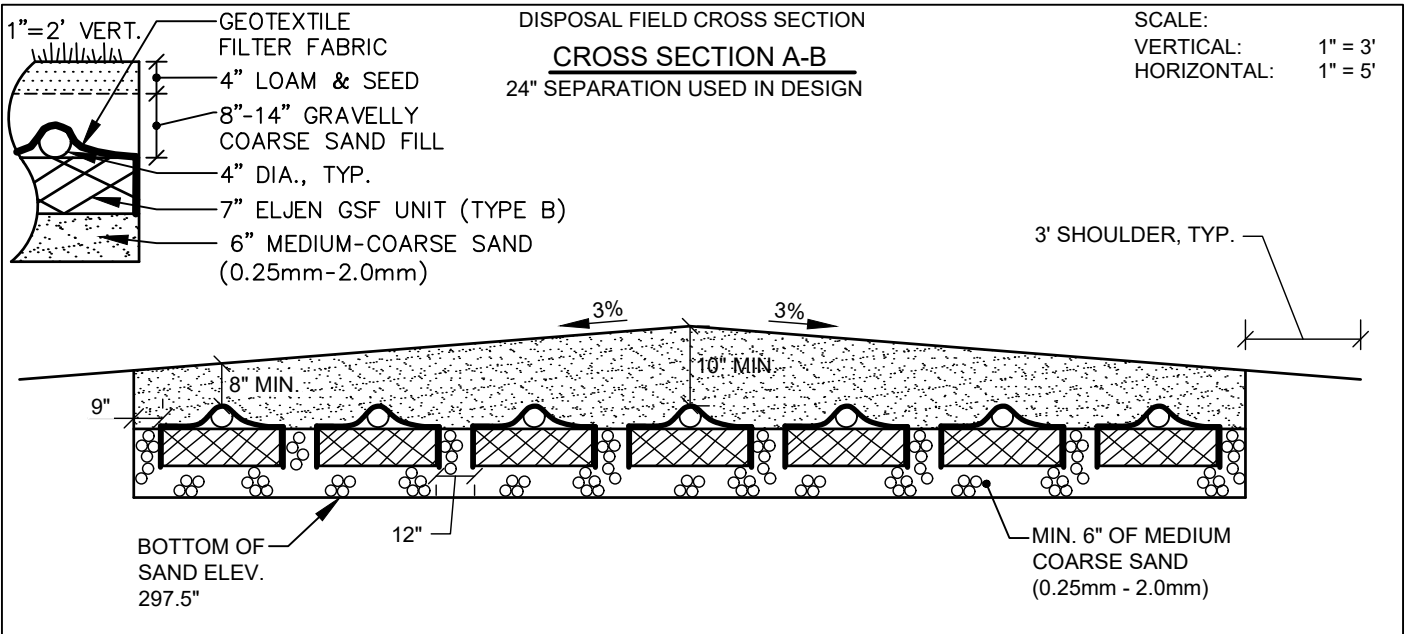
Depth of Fill (Upslope)	23-56"±
Depth of Fill (Downslope)	69-77"±

CONSTRUCTION ELEVATIONS

Finished Grade Elevation	299.9
Top of Distribution Pipe or Proprietary Device	298.9
Bottom of Disposal Area (Bottom of El en)	298.0

ELEVATION REFERENCE POINT

Location & Description	FINISH FLOOR
ELEVATION, SW CNR	298.9
Reference Elevation	GFE=302.7



Site Evaluator Signature

355
SE #

5/04/22
Date

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Exhibit 10

Water Supply

Exhibit 10

Water Supply

The proposed condominium units will be served by 2 drilled wells. Drinking water analysis information can be found within the Hydrogeologic Assessment done by Drumlin LLC which is included within the materials submitted with Exhibit 6.

Exhibit 11

Lighting

Exhibit 11

Lighting

Attached is the fixture cut sheets for the proposed lights on the development submitted by Swaney Electric.

Exhibit 12



Date: Mar 3, 2022

Swaney Lighting
PO Box 1597
Scarborough ME 04070
Phone: (207) 883-7100
Fax: (207) 885-9606

Job Name
CUMBERLAND CONDOS
SLA22-51387
CUMBERLAND ME

Bid Date
Mar 2, 2022

Submittal Date
Mar 3, 2022



Transmittal

Swaney Lighting

PO Box 1597

Scarborough ME 04070

Phone: (207) 883-7100

From: Therese "TC" Freeman X-103

Project CUMBERLAND CONDOS

Quote# SLA22-51387

Location CUMBERLAND ME

Contact:


ATTACHED WE ARE SENDING YOU 1 COPY OF THE FOLLOWING ITEM:

- | | | |
|-----------------------------------|--|--------|
| <input type="checkbox"/> Drawings | <input type="checkbox"/> Specifications | Other: |
| <input type="checkbox"/> Prints | <input type="checkbox"/> Information | |
| <input type="checkbox"/> Plans | <input checked="" type="checkbox"/> Submittals | |

THESE ARE TRANSMITTED FOR:

- | | | |
|--|---|---------------------------------|
| <input type="checkbox"/> Prior Approval | <input type="checkbox"/> Resubmittal for Approval | <input type="checkbox"/> Record |
| <input checked="" type="checkbox"/> Approval | <input type="checkbox"/> Corrections | Bids due on: |
| <input type="checkbox"/> Approval as Submitted | <input type="checkbox"/> Your Use | Other: |
| <input type="checkbox"/> Approval as Noted | <input type="checkbox"/> Review and Comment | |

Type	MFG	Part
A3	BEACON PRODUCTS	VP-1-160L-100-3K7-3-UNV-A-***
A3	BEACON PRODUCTS	SSSB20-40A-1-B3-***
	Item Note: QUOTING 20FT POLE ON FLUSH BASE	
A4	BEACON PRODUCTS	VP-1-160L-115-3K7-4W-UNV-A-***
A4	BEACON PRODUCTS	SSSB20-40A-1-B3-***
	Item Note: QUOTING 20FT POLE ON FLUSH BASE	

Submitted by Swaney Lighting	Job Name: CUMBERLAND CONDOS	Catalog Number: VP-1-160L-100-3K7-3-UNV-A-***	Type: A3
		Notes:	SLA22-51387



VIPER Area/Site

VIPER LUMINAIRE

DATE: _____ LOCATION: _____
TYPE: _____ PROJECT: _____
CATALOG #: _____

MICROSTRIKE | OPTICS STRIKE



FEATURES

- Low profile LED area/site luminaire with a variety of IES distributions for lighting applications such as auto dealership, retail, commercial, and campus parking lots
- Featuring two different optical technologies, Strike and Micro Strike Optics, which provide the best distribution patterns for retrofit or new construction
- Rated for high vibration applications including bridges and overpasses. All sizes are rated for 1.5G
- Control options including photo control, occupancy sensing, NX Distributed Intelligence™, wiSCAPE and 7-Pin with networked controls
- New customizable lumen output feature allows for the wattage and lumen output to be customized in the factory to meet whatever specification requirements may entail
- Field interchangeable mounting provides additional flexibility after the fixture has shipped



CONTROL TECHNOLOGY



SPECIFICATIONS

CONSTRUCTION

- Die-cast housing with hidden vertical heat fins are optimal for heat dissipation while keeping a clean smooth outer surface
- Corrosion resistant, die-cast aluminum housing with 1000 hour powder coat paint finish
- External hardware is corrosion resistant

OPTICS

- Micro Strike Optics (160, 320, 480, or 720 LED counts) maximize uniformity in applications and come standard with mid-power LEDs which evenly illuminate the entire luminous surface area to provide a low glare appearance. Catalog logic found on page 2
- Strike Optics (36, 72, 108, or 162 LED counts) provide best in class distributions and maximum pole spacing in new applications with high powered LEDs. Strike optics are held in place with a polycarbonate bezel to mimic the appearance of the Micro Strike Optics so both solutions can be combined on the same application. Catalog logic found on page 3
- Both optics maximize target zone illumination with minimal losses at the house-side, reducing light trespass issues. Additional backlight control shields and house side shields can be added for further reduction of illumination behind the pole
- One-piece silicone gasket ensures a weatherproof seal
- Zero up-light at 0 degrees of tilt
- Field rotatable optics

INSTALLATION

- Mounting patterns for each arm can be found on page 11
- Optional universal mounting block for ease of installation during retrofit applications. Available as an option (ASQU) or accessory for square and round poles.
- All mounting hardware included

INSTALLATION (CONTINUED)

- Knuckle arm fitter option available for 2-3/8" OD tenon
- For products with EPA less than 1 mounted to a pole greater than 20ft, a vibration damper is recommended

ELECTRICAL

- Universal 120-277 VAC or 347-480 VAC input voltage, 50/60 Hz
- Ambient operating temperature -40°C to 40°C
- Drivers have greater than 90% power factor and less than 20% THD
- LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- Field replaceable surge protection device provides 20kA protection meeting ANSI/IEEE C62.41.2 Category C High and Surge Location Category C3; Automatically takes fixture off-line for protection when device is compromised

CONTROLS

- Photo control, occupancy sensor programmable controls, and Zigbee wireless controls available for complete on/off and dimming control
- Please consult brand or sales representative when combining control and electrical options as some combinations may not operate as anticipated depending on your application
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)
- 0-10V Dimming Drivers are standard and dimming leads are extended out of the luminaire unless control options require connection to the dimming leads. Must specify if wiring leads are to be greater than the 6" standard

CONTROLS (CONTINUED)

- NX Distributed Intelligence™ available with in fixture wireless control module, features dimming and occupancy sensor
- wiSCAPE® available with in fixture wireless control module, features dimming and occupancy sensor. Also available in 7-pin configuration


CERTIFICATIONS

- Meets the qualifications for DLC Premium
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40°C ambient temperatures
- 1.5 G rated for ANSI C136.31 high vibration applications
- Fixture is IP65 rated
- Meets IDA recommendations using 3K CCT configuration at 0 degrees of tilt
- This product qualifies as a "designated country construction material" per FAR 52.225-11 Buy American-Construction Materials under Trade Agreements effective 04/23/2020. See [Buy American Solutions](#).

WARRANTY

- 5 year warranty
- See [HLI Commercial and Industrial Outdoor Lighting Warranty](#) for additional information

KEY DATA	
Lumen Range	5,000–80,000
Wattage Range	36–600
Efficacy Range (LPW)	92–155
Weight lbs. (kg)	13.7-30.9 (6.2-13.9)

Submitted by Swaney Lighting	Job Name: CUMBERLAND CONDOS	Catalog Number: VP-1-160L-100-3K7-3-UNV-A-***	Type: A3
		Notes:	SLA22-51387



DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

VIPER Area/Site

VIPER LUMINAIRE

MICROSTRIKE OPTICS – ORDERING GUIDE

Example: VP-2-320L-145-3K7-2-R-UNV-A3-BLT


CATALOG #

VP							
Series	Optic Platform	Size	Light Engine	CCT/CRI	Distribution	Optic Rotation	Voltage
VP Viper	Micro Strike	1 Size 1	160L-35 ⁶ 5500 lumens 160L-50 ⁶ 7500 lumens 160L-75 10000 lumens 160L-100 12500 lumens 160L-115 15000 lumens 160L-135 18000 lumens 160L-160 21000 lumens 320L-145 21000 lumens 320L-170 24000 lumens 320L-185 27000 lumens 320L-210 30000 lumens 320L-235 33000 lumens 320L-255 36000 lumens 320L-315 ⁶ 40000 lumens 480L-285 40000 lumens 480L-320 44000 lumens 480L-340 48000 lumens 480L-390 52000 lumens 480L-425 55000 lumens 480L-470 60000 lumens 720L-435 60000 lumens 720L-475 65000 lumens 720L-515 70000 lumens 720L-565 ⁶ 75000 lumens 720L-600 ⁶ 80000 lumens CLO Custom Lumen Output ¹	AP AP-Amber Phosphor Converted 27K8 2700K, 80 CRI 3K7 3000K, 70 CRI 3K8 3000K, 80 CRI 35K8 3500K, 80 CRI 3K9 3000K, 90 CRI 4K7 4000K, 70 CRI 4K8 4000K, 80 CRI 4K9 4000K, 90 CRI 5K7 5000K, 70 CRI 5K8 5000K, 80 CRI	2 Type 2 3 Type 3 4F Type 4 Forward 4W Type 4 Wide 5QM Type 5 Square Medium 5QW Type 5 Square Wide	L Optic rotation left R Optic rotation right	UNV 120-277V 120 120V 208 208V 240 240V 277 277V 347 347V 480 480V
		2 Size 2					
		3 Size 3					
		4 Size 4					

Mounting	Specify Stnd. finish	Options	Network Control Options
A Arm mount for square pole/flat surface A_ Arm mount for round pole ² ASQU Universal arm mount for square pole A_U Universal arm mount for round pole ² AAU Adjustable arm for pole mounting (universal drill pattern) AA_U Adjustable arm mount for round pole ² ADU Decorative upswept Arm (universal drill pattern) AD_U Decorative upswept arm mount for round pole ² MAF Mast arm fitter for 2-3/8" OD horizontal arm K Knuckle T Trunnion WB Wall Bracket, horizontal tenon with MAF WM Wall mount bracket with decorative upswept arm WA Wall mount bracket with adjustable arm	BLT Black Matte Textured BLS Black Gloss Smooth DBT Dark Bronze Matte Textured DBS Dark Bronze Gloss Smooth GTT Graphite Matte Textured LGS Light Grey Gloss Smooth LGT Light Grey Gloss Textured PSS Platinum Silver Smooth WHT White Matte Textured WHS White Gloss Smooth VG Verde Green Textured Color Option CC Custom Color	F Fusing 2PF Dual Power Feed 2DR Dual Driver TE Toolless Entry BC Backlight Control TB Terminal Block	NXSPW-14F NX Wireless, PIR Occupancy Sensor, Dimming Daylight Harvesting, 14' ^{1,3,4} NXSPW-40F NX Wireless, PIR Occupancy Sensor, Dimming Daylight Harvesting, 40' ^{1,3,4} NXSP-14F NX, PIR Occupancy Sensor, Dimming Daylight Harvesting, 14' ^{3,4} NXSP-40F NX, PIR Occupancy Sensor, Dimming Daylight Harvesting, 40' ^{3,4} NXWE NX Wireless Enabled (module + radio) ^{3,4} WIR wiSCAPE® In-Fixture Module ^{3,4} WIRSC wiSCAPE® Module and Occupancy Sensor ^{3,4} Stand Alone Sensors BTS-14F Bluetooth® Programmable, PIR Occupancy/Daylight Sensor ⁴ BTS-40F Bluetooth® Programmable, PIR Occupancy/Daylight Sensor ⁴ BTSO-12F Bluetooth® Programmable, PIR Occupancy/Daylight Sensor, up to 12' mounting height ⁴ 7PR 7-Pin Receptacle ⁴ 7PR-SC 7-Pin Receptacle with shorting cap ⁴ 3PR 3-Pin twist lock ⁴ 3PR-SC 3-Pin receptacle with shorting cap ⁴ 3PR-TL 3-Pin PCR with photocontrol ⁴ Programmed Controls ADD AutoDim Timer Based Dimming ⁴ ADT AutoDim Time of Day Dimming ⁴ Photocontrols PC Button Photocontrol ^{4,7}

1 – Items with a grey background can be done as a custom order. Contact brand representative for more information
 2 – Replace “_” with “2” for 2.5”-3.4” OD pole, “3” for 3.5”-4.13” OD pole, “4” for 4.18”-5.25” OD pole, “5” for 5.5”-6.5” OD pole
 3 – Networked Controls cannot be combined with other control options
 4 – Not available with 2PF option

5 – Not available with Dual Driver option
 6 – Some voltage restrictions may apply when combined with controls
 7 – Not available with 480V

Submitted by Swaney Lighting	Job Name: CUMBERLAND CONDOS	Catalog Number: VP-1-160L-100-3K7-3-UNV-A-***	Type: A3
		Notes:	SLA22-51387



VIPER Area/Site

VIPER LUMINAIRE

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

STRIKE OPTIC – ORDERING GUIDE

Example: VP-ST-1-36L-39-3K7-2-UNV-A-BLT


CATALOG #

VP	Series	Optic Platform	Size	Light Engine	CCT/CRI	Distribution	Optic Rotation	Voltage
VP	Viper	ST Strike	1 Size 1	36L-39 ⁸ 5500 lumens 36L-55 ⁸ 7500 lumens 36L-85 10000 lumens 36L-105 12500 lumens 36L-120 14000 lumens 72L-115 15000 lumens 72L-145 18000 lumens 72L-180 21000 lumens 72L-210 24000 lumens 72L-240 27000 lumens 108L-215 ⁸ 27000 lumens 108L-250 30000 lumens 108L-280 33000 lumens 108L-325 36000 lumens 108L-365 40000 lumens 162L-320 40000 lumens 162L-365 ¹⁰ 44000 lumens 162L-405 48000 lumens 162L-445 52000 lumens 162L-485 55000 lumens 162L-545 ⁸ 60000 lumens CLO Custom Lumen Output ¹	AM monochromatic amber, 595nm 27K8 2700K, 80 CRI 3K7 3000K, 70 CRI 3K8 3000K, 80 CRI 3K9 3000K, 90 CRI 35K8 3500K, 80 CRI 4K7 4000K, 70 CRI 4K8 4000K, 80 CRI 4K9 4000K, 90 CRI 5K7 5000K, 70 CRI 5K8 5000K, 80 CRI	FR Auto Front Row 2 Type 2 3 Type 3 4F Type 4 Forward 4W Type 4 Wide 5QN Type 5 Square Narrow 5QM Type 5 Square Medium 5QW Type 5 Square Wide 5W Type 5 Wide (Round) 5RW Type 5 Rectangular C Corner Optic TC Tennis Court Optic	L Optic rotation left R Optic rotation right	UNV 120-277V 120 120V 208 208V 240 240V 277 277V 347 347V 480 480V
			2 Size 2					
			3 Size 3					
			4 Size 4					

Mounting	Color	Options	Network Control Options
A Arm mount for square pole/flat surface A_ Arm mount for round pole ³ ASQU Universal arm mount for square pole A_U Universal arm mount for round pole ³ AAU Adjustable arm for pole mounting (universal drill pattern) AA_U Adjustable arm mount for round pole ³ ADU Decorative upswept Arm (universal drill pattern) AD_U Decorative upswept arm mount for round pole ³ MAF Mast arm fitter for 2-3/8" OD horizontal arm K Knuckle T Trunnion WB Wall Bracket, horizontal tenon with MAF WM Wall mount bracket with decorative upswept arm WA Wall mount bracket with adjustable arm	BLT Black Matte Textured BLS Black Gloss Smooth DBT Dark Bronze Matte Textured DBS Dark Bronze Gloss Smooth GTT Graphite Matte Textured LGS Light Grey Gloss Smooth LGT Light Grey Gloss Textured PSS Platinum Silver Smooth WHT White Matte Textured WHS White Gloss Smooth VG Verde Green Textured Color Option CC Custom Color	F Fusing E Battery Backup ^{12,7,8,9} 2PF Dual Power Feed 2DR Dual Driver TE Toolless Entry BC Backlight Control TB Terminal Block	NXSPW-14F NX Wireless, PIR Occupancy Sensor, Dimming Daylight Harvesting, 14' ^{1,4,5} NXSPW-40F NX Wireless, PIR Occupancy Sensor, Dimming Daylight Harvesting, 40' ^{1,4,5} NXSP-14F NX, PIR Occupancy Sensor, Dimming Daylight Harvesting, 14' ^{4,5} NXSP-40F NX, PIR Occupancy Sensor, Dimming Daylight Harvesting, 40' ^{4,5} NXWE NX Wireless Enabled ^{4,5} WIR wISCAPE® In-Fixture Module ^{4,5} WIRSC wISCAPE® Module and Occupancy Sensor ^{4,5} Stand Alone Sensors BTS-14F Bluetooth® Programmable, PIR Occupancy/Daylight Sensor ⁵ BTS-40F Bluetooth® Programmable, PIR Occupancy/Daylight Sensor ⁵ BTSO-12F Bluetooth® Programmable, PIR Occupancy/Daylight Sensor, up to 12' mounting height ⁵ 7PR 7-Pin Receptacle ⁵ 7PR-SC 7-Pin Receptacle with shorting cap ⁵ 3PR 3-Pin twist lock ⁵ 3PR-SC 3-Pin receptacle with shorting cap ⁵ 3PR-TL 3-Pin PCR with photocontrol ⁵ Programmed Controls ADD AutoDim Timer Based Dimming ⁵ ADT AutoDim Time of Day Dimming ⁵ Photocontrols PC Button Photocontrol ^{5,6}

1 – Items with a grey background can be done as a custom order. Contact brand representative for more information
 2 – Battery temperature rating -20C to 55C
 3 – Replace “_” with “2” for 2.5”-3.4” OD pole, “3” for 3.5”-4.13” OD pole, “4” for 4.18”-5.25” OD pole, “5” for 5.5”-6.5” OD pole
 4 – Networked Controls cannot be combined with other control options
 5 – Not available with 2PF option
 6 – Not available with 480V
 7 – Not available with 347 or 480V
 8 – Not available with Dual Driver option

9 – Only available in Size 1 housing
 10 – Some voltage restrictions may apply when combined with controls

Submitted by Swaney Lighting	Job Name: CUMBERLAND CONDOS	Catalog Number: VP-1-160L-100-3K7-3-UNV-A-***	Type: A3
		Notes:	SLA22-51387



VIPER Area/Site

VIPER LUMINAIRE

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

ORDERING GUIDE (CONTINUED)

CATALOG #

Accessory Type	Size	Option	Color	Hubbell Control Solutions — Accessories (Sold Separately)
SHD Shield	1 Size 1 2 Size 2 3 Size 3 4 Size 4	HSS-90-B House Side Shield 90° Back HSS-90-F House Side Shield 90° Front HSS-90-S House Side Shield 90° Side HSS-270-BSS House Side Shield 270° Back/Side/Side HSS-270-FSS House Side Shield 270° Front/Side/Side HSS-270-FSB House Side Shield 270° Front/Side/Back HSS-360 House Side Shield 360° BC Back Light Control A Arm Mount for square pole/flat surface ASQU Universal Arm Mount for square pole AAU Adjustable Arm for pole mounting ADU Decorative upswep Arm RPA Round Pole Adapter MAF Mast Arm Fitter for 2-3/8" OD horizontal arm K Knuckle T Trunnion WB Wall Bracket (compatible with universal arm mounts)	BLS Black Gloss Smooth BLT Black Matte Textured DBS Dark Bronze Gloss Smooth DBT Dark Bronze Matte Textured GTT Graphite Matte Textured LGS Light Gray Gloss Smooth PSS Platinum Silver Smooth WHS White Gloss Smooth WHT White Matte Textured VGT Green Landscape Decorative LEG Legacy Colors Color Option CC Custom Color	NX Distributed Intelligence™ <input type="checkbox"/> NXOFM-1R1D-UNV On-fixture Module (7-pin), On / Off / Dim, Daylight Sensor with HubbNET Radio and Bluetooth® Radio, 120–480VAC wiSCAPE® Lighting Control <input type="checkbox"/> WIR-RME-L On-fixture Module (7-pin or 5-pin), On / Off / Dim, Daylight Sensor with wiSCAPE Radio, 110–480VAC <input type="checkbox"/> SCP-REMOTE Remote Control for SCP/_F option. Order at least one per project to program and control the occupancy sensor <p>For additional information related to these accessories please visit www.hubbellcontrolsolutions.com. Options provided for use with integrated sensor, please view specification sheet ordering information table for details.</p>
MTG Mounting				
MSC Miscellaneous		BIRD SPK Bird Spike		

CONTROLS



Control Option	Sensor	Networkable	Scheduling	Occupancy	Daylight Harvesting	On/Off Control	Programming	Pair with Sensor	Sensor Mounting Height
NXWE	–	✓	✓	–	–	✓	✓	–	–
NXSPW_F	NXSM-P	✓	✓	✓	✓	✓	✓	–	14ft, 40ft
NXSP_F	NXSM-P	–	–	✓	✓	✓	–	–	14ft, 40ft
BTSO12F	BTSMP-OMNI	–	–	✓	✓	✓	Bluetooth	–	12ft
BTS_F	BTSMP	–	–	✓	✓	–	–	–	14ft, 40ft
ADD	–	–	✓	–	–	✓	–	✓	–
ADT	–	–	✓	–	–	✓	–	✓	–
7PR	–	Paired with external control	Paired with external control	–	Paired with external control	Paired with external control	–	✓	–
7PR-SC	–	–	–	–	–	–	–	✓	–
3PR	–	–	–	–	–	Paired with external control	–	✓	–
3PR-SC	–	–	–	–	–	–	–	✓	–
3PR-TL	–	–	–	–	✓	✓	–	✓	–
WIR	–	✓	✓	–	✓	✓	Gateway	–	–
WIRSC	BTSMP	✓	✓	✓	✓	✓	Gateway	–	14ft, 40ft



Job Name:
CUMBERLAND CONDOS

Catalog Number:

VP-1-160L-100-3K7-3-UNV-A-***

Notes:

Type:**A3**

SLA22-51387



VIPER Area/Site

VIPER LUMINAIRE

DATE: _____ LOCATION: _____

TYPE: _____ PROJECT: _____

CATALOG #: _____

DELIVERED LUMENS

For delivered lumens, please see Lumens Data PDF on www.hubbellighting.com

PROJECTED LUMEN MAINTENANCE


Ambient Temp.	0	25,000	*TM-21-11 36,000	50,000	100,000	Calculated L ₇₀ (Hours)
25°C / 77°F	1.00	0.97	0.96	0.95	0.91	408,000
40°C / 104°F	0.99	0.96	0.95	0.94	0.89	356,000

LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

Ambient Temperature		Lumen Multiplier
0°C	32°F	1.03
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.98
50°C	122°F	0.97

Micro Strike Lumen Multiplier			
CCT	70 CRI	80 CRI	90 CRI
2700K	—	0.841	—
3000K	0.977	0.861	0.647
3500K	—	0.900	—
4000K	1	0.926	0.699
5000K	1	0.937	0.791
Monochromatic Amber Multiplier			
Amber	0.250		

Strike Lumen Multiplier			
CCT	70 CRI	80 CRI	90 CRI
2700K	—	0.859	—
3000K	0.941	0.912	0.703
3500K	—	0.906	—
4000K	1	0.894	0.734
5000K	1	0.879	0.711
Monochromatic Amber Multiplier			
Amber	0.255		

Submitted by Swaney Lighting	Job Name: CUMBERLAND CONDOS	Catalog Number: VP-1-160L-100-3K7-3-UNV-A-***	Type: A3
		Notes:	SLA22-51387



VIPER Area/Site

VIPER LUMINAIRE

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	


ELECTRICAL DATA: MICRO STRIKE

# OF LEDS	160						
NOMINAL WATTAGE	35	50	75	100	115	135	160
SYSTEM POWER (W)	34.9	50.5	72.1	97.2	111.9	132.2	157.8
INPUT VOLTAGE (V)	CURRENT (Amps)						
120	0.29	0.42	0.63	0.83	0.96	1.13	1.33
208	0.17	0.24	0.36	0.48	0.55	0.65	0.77
240	0.15	0.21	0.31	0.42	0.48	0.56	0.67
277	0.13	0.18	0.27	0.36	0.42	0.49	0.58
347	0.10	0.14	0.22	0.29	0.33	0.39	0.46
480	0.07	0.10	0.16	0.21	0.24	0.28	0.33

# OF LEDS	320						
NOMINAL WATTAGE	145	170	185	210	235	255	315
SYSTEM POWER (W)	150	166.8	185.7	216.2	240.9	261.5	312
INPUT VOLTAGE (V)	CURRENT (Amps)						
120	1.21	1.42	1.54	1.75	1.96	2.13	2.63
208	0.70	0.82	0.89	1.01	1.13	1.23	1.51
240	0.60	0.71	0.77	0.88	0.98	1.06	1.31
277	0.52	0.61	0.67	0.76	0.85	0.92	1.14
347	0.42	0.49	0.53	0.61	0.68	0.73	0.91
480	0.30	0.35	0.39	0.44	0.49	0.53	0.66

# OF LEDS	480					
NOMINAL WATTAGE	285	320	340	390	425	470
SYSTEM POWER (W)	286.2	316.7	338.4	392.2	423.2	468
INPUT VOLTAGE (V)	CURRENT (Amps)					
120	2.38	2.67	2.83	3.25	3.54	3.92
208	1.37	1.54	1.63	1.88	2.04	2.26
240	1.19	1.33	1.42	1.63	1.77	1.96
277	1.03	1.16	1.23	1.41	1.53	1.70
347	0.82	0.92	0.98	1.12	1.22	1.35
480	0.59	0.67	0.71	0.81	0.89	0.98

# OF LEDS	720				
NOMINAL WATTAGE	435	475	515	565	600
SYSTEM POWER (W)	429.3	475	519.1	565.2	599.9
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	3.63	3.96	4.29	4.71	5.00
208	2.09	2.28	2.48	2.72	2.88
240	1.81	1.98	2.15	2.35	2.50
277	1.57	1.71	1.86	2.04	2.17
347	1.25	1.37	1.48	1.63	1.73
480	0.91	0.99	1.07	1.18	1.25

Submitted by Swaney Lighting		Catalog Number: VP-1-160L-100-3K7-3-UNV-A-***	Type: A3
	Job Name: CUMBERLAND CONDOS	Notes:	SLA22-51387



VIPER Area/Site

VIPER LUMINAIRE

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

ELECTRICAL DATA: STRIKE

# OF LEDS	36				
NOMINAL WATTAGE	39	55	85	105	115
SYSTEM POWER (W)	39.6	56.8	83.6	108.2	113.7
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	0.33	0.46	0.71	0.88	1.00
208	0.19	0.26	0.41	0.50	0.58
240	0.16	0.23	0.35	0.44	0.50
277	0.14	0.20	0.31	0.38	0.43
347	0.11	0.16	0.24	0.30	0.35
480	0.08	0.11	0.18	0.22	0.25

# OF LEDS	72				
NOMINAL WATTAGE	120	145	180	210	215
SYSTEM POWER (W)	120.9	143.2	179.4	210.2	214.8
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	0.96	1.21	1.50	1.75	2.00
208	0.55	0.70	0.87	1.01	1.15
240	0.48	0.60	0.75	0.88	1.00
277	0.42	0.52	0.65	0.76	0.87
347	0.33	0.42	0.52	0.61	0.69
480	0.24	0.30	0.38	0.44	0.50

# OF LEDS	108				
NOMINAL WATTAGE	240	250	280	320	325
SYSTEM POWER (W)	241.7	250.8	278.3	322.1	324.7
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	1.79	2.08	2.33	2.71	3.04
208	1.03	1.20	1.35	1.56	1.75
240	0.90	1.04	1.17	1.35	1.52
277	0.78	0.90	1.01	1.17	1.32
347	0.62	0.72	0.81	0.94	1.05
480	0.45	0.52	0.58	0.68	0.76

# OF LEDS	162				
NOMINAL WATTAGE	365	405	445	485	545
SYSTEM POWER (W)	362.6	403.6	445.1	487.1	543.9
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	2.67	3.38	3.71	4.04	4.54
208	1.54	1.95	2.14	2.33	2.62
240	1.33	1.69	1.85	2.02	2.27
277	1.16	1.46	1.61	1.75	1.97
347	0.92	1.17	1.28	1.40	1.57
480	0.67	0.84	0.93	1.01	1.14



Job Name:
CUMBERLAND CONDOS

Catalog Number:
VP-1-160L-100-3K7-3-UNV-A-***

Notes:

Type:

A3

SLA22-51387



VIPER Area/Site

VIPER LUMINAIRE

DATE: _____ LOCATION: _____

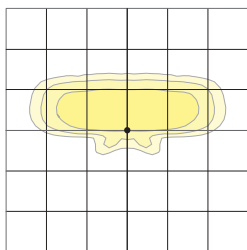
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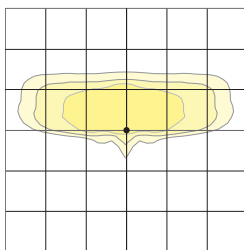
MICRO STRIKE PHOTOMETRY

The following diagrams represent the general distribution options offered for this product. For detailed information on specific product configurations, see [website photometric test reports](#).

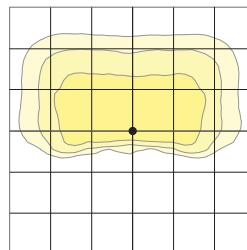
Type 2



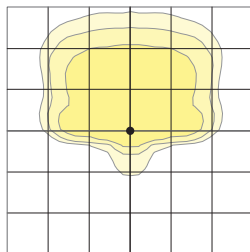
Type 3



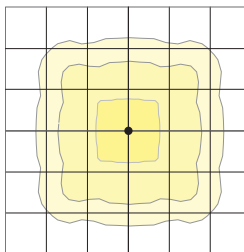
Type 4 Wide



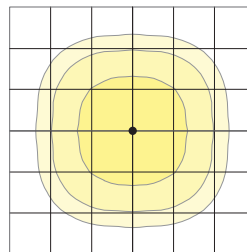
Type 4F



Type 5QM



Type 5QW



HUBBELL
Lighting



VIPER Area/Site

VIPER LUMINAIRE

DATE: _____ LOCATION: _____

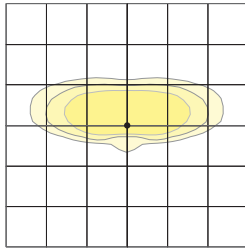
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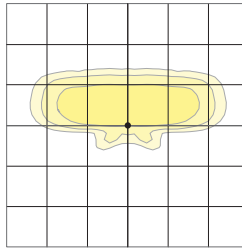
OPTIC STRIKE PHOTOMETRY

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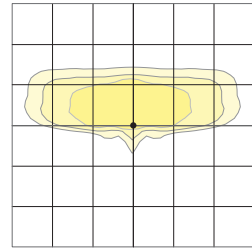
Type FR – Front Row/Auto Optic



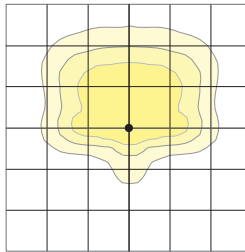
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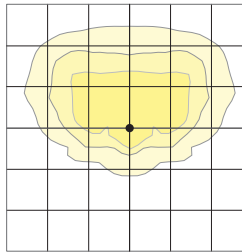
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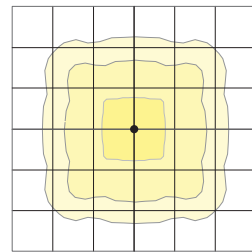
Type 4 Forward



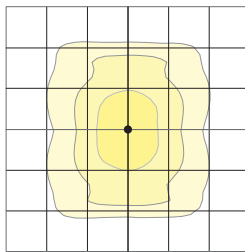
Type 4 Wide



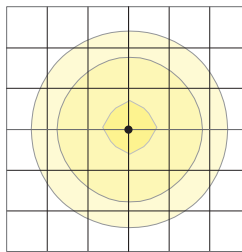
Type 5QM



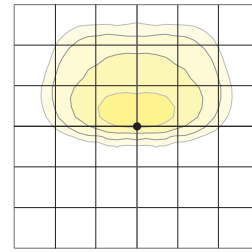
Type 5R (rectangular)



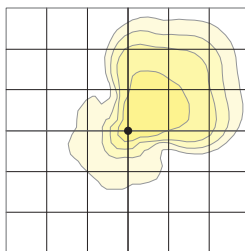
Type 5W (round wide)



Type TC



Type Corner





Job Name:
CUMBERLAND CONDOS

Catalog Number:
VP-1-160L-100-3K7-3-UNV-A-***

Notes:

Type:

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VIPER Area/Site

VIPER LUMINAIRE

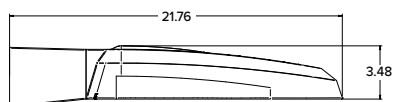
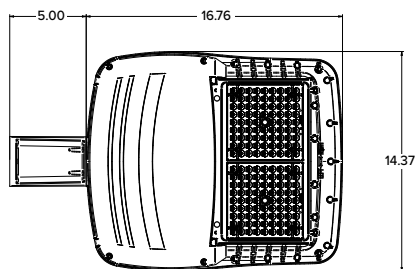
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TYPE: _____ PROJECT: _____

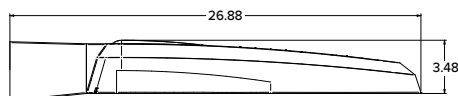
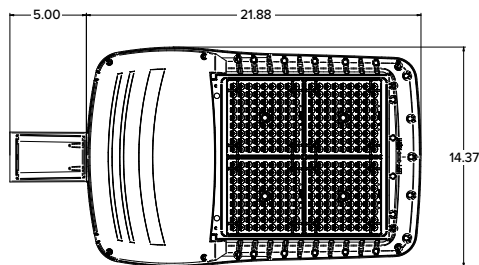
CATALOG #: _____

DIMENSIONS

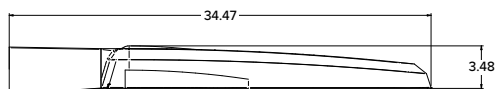
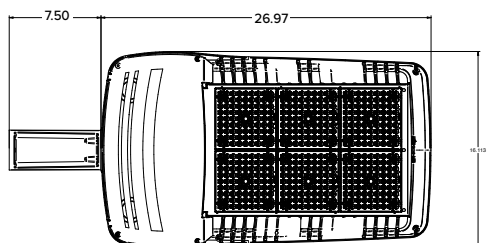
SIZE 1



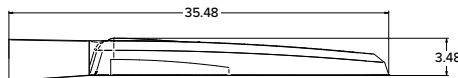
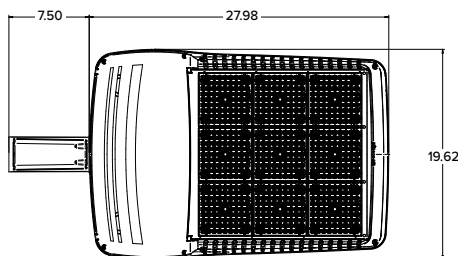
SIZE 2



SIZE 3



SIZE 4



	EPA				Config.
	VP1 (Size 1)	VP2 (Size 2)	VP3 (Size 3)	VP4 (Size 4)	
Single Fixture	0.454	0.555	0.655	0.698	
Two at 180	0.908	1.110	1.310	1.396	
Two at 90	0.583	0.711	0.857	0.948	
Three at 90	1.037	1.266	1.512	1.646	
Three at 120	0.943	1.155	1.392	1.680	
Four at 90	1.166	1.422	1.714	1.896	

	Weight	
	lbs	kgs
VP1 (Size 1)	13.7	6.2
VP2 (Size 2)	16.0	7.26
VP3 (Size 3)	25.9	11.7
VP4 (Size 4)	30.8	13.9



VIPER Area/Site

VIPER LUMINAIRE

DATE: _____ LOCATION: _____

TYPE: _____ PROJECT: _____

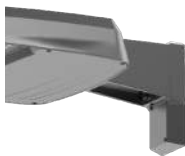
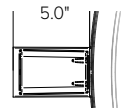
CATALOG #: _____

MOUNTING



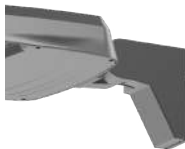
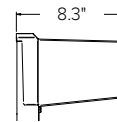
ASQ-STRAIGHT ARM MOUNT

Fixture ships with integral arm for ease of installation. Compatible with Hubbell Outdoor B3 drill pattern. For round poles add applicable suffix (2/3/4/5)



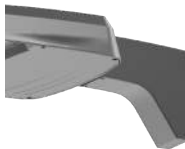
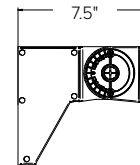
ASQU-UNIVERSAL ARM MOUNT

Universal mounting block for ease of installation. Compatible with drill patterns from 2.5" to 4.5" and Hubbell drill pattern S2. For round poles add applicable suffix (2/3/4/5)



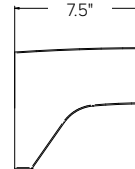
AAU-ADJUSTABLE ARM FOR POLE MOUNTING

Rotatable arm mounts directly to pole. Compatible with drill patterns from 2.5" to 4.5" and Hubbell drill pattern S2. For round poles add applicable suffix (2/3/4/5). Rotatable in 15° aiming angle increments. Micro Strike configurations have a 45° aiming limitation. Strike configurations have a 30° aiming limitation.



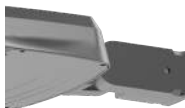
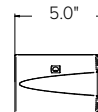
ADU-DECORATIVE UPSWEPT ARM

Upswept Arm compatible with drill patterns from 2.5" to 4.5". For round poles add applicable suffix (2/3/4/5).



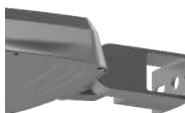
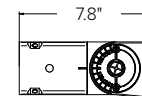
MAF-MAST ARM FITTER

Fits 2-3/8" OD horizontal tenons.



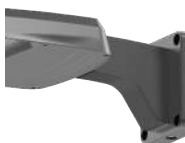
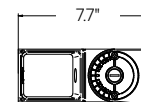
K-KNUCKLE

Knuckle mount 15° aiming angle increments for precise aiming and control, fits 2-3/8" tenons or pipes. Micro Strike configurations have a 45° aiming limitation. Strike configurations have a 30° aiming limitation.



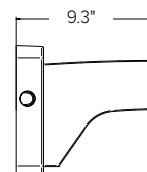
T-TRUNNION

Trunnion for surface and crossarm mounting using (1) 3/4" or (2) 1/2" size through bolts. Micro Strike configurations have a 45° aiming limitation. Strike configurations have a 30° aiming limitation.



WM-WALL MOUNT

Compatible with universal arm mount, adjustable arm mount, and decorative arm mount. The WA option uses the same wall bracket but replaces the decorative arm with an adjustable arm.





Job Name:
CUMBERLAND CONDOS

Catalog Number:
VP-1-160L-100-3K7-3-UNV-A-***

Notes:

Type:

A3

SLA22-51387



VIPER Area/Site

VIPER LUMINAIRE

DATE: _____ LOCATION: _____

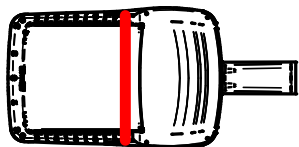
TYPE: _____ PROJECT: _____

CATALOG #: _____

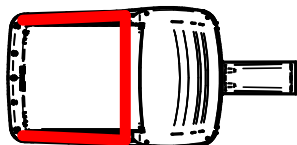
ADDITIONAL INFORMATION (CONTINUED)

HOUSE SIDE SHIELD FIELD INSTALL ACCESSORIES

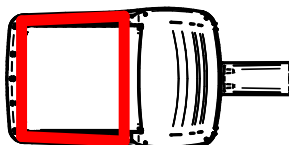
VPR2x HSS-90-B-xx



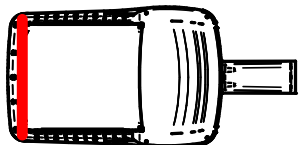
VPR2x HSS-270-BSS-xx



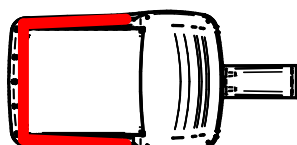
VPR2x HSS-360-xx



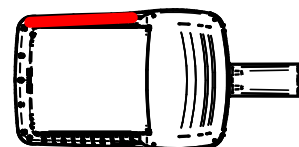
VPR2x HSS-90-F-xx



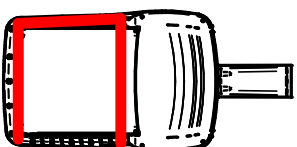
VPR2x HSS-270-FSS-xx



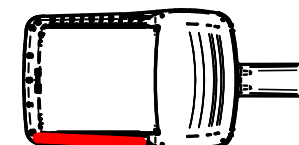
VPR2x HSS-90-S-xx



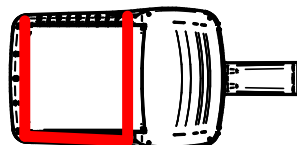
VPR2x HSS-270-FSB-xx




VPR2x HSS-90-S-xx



VPR2x HSS-270-FSB-xx



Submitted by Swaney Lighting	Job Name: CUMBERLAND CONDOS	Catalog Number: VP-1-160L-100-3K7-3-UNV-A-***	Type: A3
		Notes:	SLA22-51387



VIPER Area/Site

VIPER LUMINAIRE

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

ADDITIONAL INFORMATION (CONTINUED)

PROGRAMMED CONTROLS

ADD-AutoDim Timer Based Options

- Light delay options from 1-9 hours after the light is turned on to dim the light by 10-100%. To return the luminaire to its original light level there are dim return options from 1-9 hours after the light has been dimmed previously.

EX: ADD-6-5-R6

ADD Control Options	Configurations Choices	Example Choice Picked
Auto-Dim Options	1-9 Hours	6 - Delay 6 hours
Auto-Dim Brightness	10-100% Brightness	5 - Dim to 50% brightness
Auto-Dim Return	Delay 0-9 Hours	R6 - Return to full output after 6 hours

ADT-AutoDim Time of Day Based Option


- Light delay options from 1AM-9PM after the light is turned on to dim the light by 10-100%. To return the luminaire to its original light level there are dim return options from 1AM-9PM after the light has been dimmed previously.

EX: ADT-6-5-R6

ADD Control Options	Configurations Choices	Example Choice Picked
Auto-Dim Options	12-3 AM and 6-11 PM	6 - Dim at 6PM
Auto-Dim Brightness	10-100% Brightness	5 - Dim to 50%
Auto-Dim Return	12-6 AM and 9-11P	R6 - Return to full output at 6AM

USE OF TRADEMARKS AND TRADE NAMES

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Submitted by Swaney Lighting		Catalog Number: VP-1-160L-100-3K7-3-UNV-A-***	Type: A3
	Job Name: CUMBERLAND CONDOS	Notes:	SLA22-51387

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SSS-B SERIES POLES

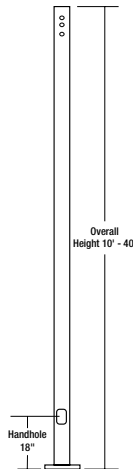
SQUARE STRAIGHT STEEL

Cat.#

Job

Type

Approvals


BEACON
design · performance · technology
**APPLICATIONS**

- Lighting installations for side and top mounting of luminaires with effective projected area (EPA) not exceeding maximum allowable loading of the specified pole in its installed geographic location

CONSTRUCTION

- SHAFT:** One-piece straight steel with square cross section, flat sides and minimum 0.23" radius on all corners; Minimum yield of 46,000 psi (ASTM-A500, Grade B); Longitudinal weld seam to appear flush with shaft side wall; Steel base plate with axial bolt circle slots welded flush to pole shaft having minimum yield of 36,000 psi (ASTM A36)
- BASE COVER:** Two-piece square aluminum base cover included standard
- POLE CAP:** Pole shaft supplied with removable cover when applicable; Tenon and post-top configurations also available
- HAND HOLE:** Rectangular 3x5 steel hand hole frame (2.38" x 4.38" opening); Mounting provisions for grounding lug located behind gasketed cover
- ANCHOR BOLTS:** Four galvanized anchor bolts provided per pole with minimum yield of 55,000 psi (ASTM F1554). Galvanized hardware with two washers and two nuts per bolt for leveling

Anchor bolt part numbers: 3/4 x 30 x 3 — TAB-30-M38

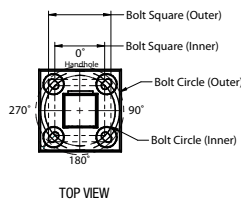
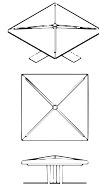
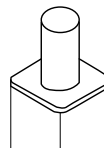
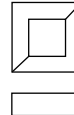
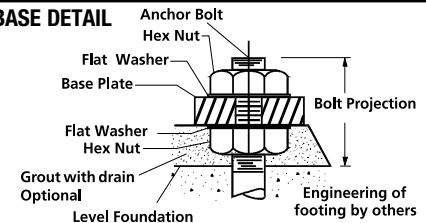
1 x 36 x 4 — TAB-36-M38

FINISH

- Durable thermoset polyester powder coat paint finish with nominal 3.0 mil thickness
- Powder paint prime applied over "white metal" steel substrate cleaned via mechanical shot blast method
- Decorative finish coat available in multiple standard colors; Custom colors available; RAL number preferable

WAREHOUSE 'STOCKED' POLES:

- SSSH20-40A-4-HV-DB-RDC, SSSH25-40A-4-HV-DB-RDC and SSSH30-50B-4-HV-DB-RDC
- The HV designation in the above catalog numbers is a combination drill pattern of the Hubbell Outdoor S2 pattern and the Beacon B3/B4 Viper pattern (rectangular arm mounting)

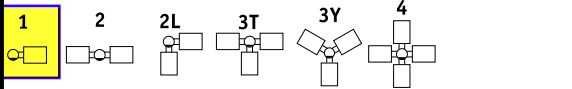
**POLE CAP****TENON****BASE COVER****BASE DETAIL****ORDERING INFORMATION**

ORDERING EXAMPLE:

Reference page 2 for available configurations

SSS - B - 25 - 40 - A/B/C - 2L - B3 - Specify Std. finish - UL

SERIES	HEIGHT	SHAFT	THICKNESS	MOUNTING	FINISH	OPTIONS
SSS-B Square Straight Steel Pole Beacon	Reference page 2 Ordering matrix 20	Reference page 2 Ordering matrix 40	Reference page 2 Ordering matrix A	1 Single arm mount 2 Two fixtures at 180° 2L Two fixtures at 90° 3T Three fixtures at 90° 4 Four fixtures at 90° TA Tenon (2.38" OD x 4" Tall) TB Tenon (2.88" OD x 4" Tall) TC Tenon (3.5" OD x 6" Tall) TR¹ Removable Tenon (2.375 x 4.25) OT Open Top (includes pole cap)	BLT Black Matte Textured BLS Black Gloss Smooth DBT Dark Bronze Matte Textured DBS Dark Bronze Gloss Smooth GTT Graphite Matte Textured LGS Light Grey Gloss Smooth PSS Platinum Silver Smooth WHT White Matte Textured WHS White Gloss Smooth VG Verde Green Textured Color Option CC Custom Color	GFF² 20 Amp GFCI Receptacle and Cover EHH² Extra Handhole C05² .5" Coupling C07² .75" Coupling C20² 2" Coupling MPB² Mid-pole Luminaire Bracket VM2 2nd mode vibration damper LAB Less Anchor Bolts UL UL Certified

MOUNTING ORIENTATION

- Removable tenon used in conjunction with side arm mounting. First specify desired arm configuration followed by the "TR" notation. Example: SSS-B-25-40-A-1-B1-TR-BBT
- Specify option location using logic found on page 2 (Option Orientation)
- VM1 recommended on poles 20' and taller with EPA of less than 1.

ACCESSORIES - Order Separately

Catalog Number	Description
VM1 ³	1st mode vibration damper
VM2SXX	2nd mode vibration damper

DRILL PATTERN

- B1** Cruiser, "AM" arm
- B3** 2 bolt (2-1/2" spacing), Viper "A" arm
- S2** 2 bolt (3-1/2" spacing), Viper "AD" arm



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SSS-B POLES-SPEC

JULY 28, 2020 8:45 AM


HUBBELL
Lighting

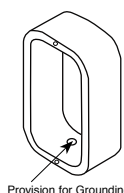

Job Name:
CUMBERLAND CONDOS
Catalog Number:
SSSB20-40A-1-B3-***
Notes: QUOTING 20FT POLE ON FLUSH
BASE
Type:**A3**

SLA22-51387

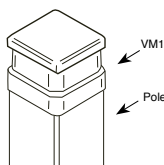
ORDERING INFORMATION Cont.

Catalog Number	Height		Nominal Shaft Dimensions	Wall Thickness	Bolt Circle (suggested)	Bolt Circle (range)	Bolt Square (range)	Base Plate Square	Anchor bolt size	Bolt Projection	Pole weight
	Feet	Meters									
SSS-B-10-40-A-XX-XX	10	3.0	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	77
SSS-B-12-40-A-XX-XX	12	3.7	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	90
SSS-B-14-40-A-XX-XX	14	4.3	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	103
SSS-B-16-40-A-XX-XX	16	4.9	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	116
SSS-B-18-40-A-XX-XX	18	5.5	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	129
SSS-B-20-40-A-XX-XX	20	6.1	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	142
SSS-B-25-40-A-XX-XX	25	7.6	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	175
SSS-B-14-40-B-XX-XX	14	4.3	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	152
SSS-B-16-40-B-XX-XX	16	4.9	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	171
SSS-B-18-40-B-XX-XX	18	5.5	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	190
SSS-B-20-40-B-XX-XX	20	6.1	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	209
SSS-B-25-40-B-XX-XX	25	7.6	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	257
SSS-B-30-40-B-XX-XX	30	9.1	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	304
SSS-B-16-50-B-XX-XX	16	4.9	5" square	.188"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	219
SSS-B-18-50-B-XX-XX	18	5.5	5" square	.188"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	243
SSS-B-20-50-B-XX-XX	20	6.1	5" square	.188"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	267
SSS-B-25-50-B-XX-XX	25	7.6	5" square	.188"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	327
SSS-B-30-50-B-XX-XX	30	9.1	5" square	.188"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	387
SSS-B-25-50-C-XX-XX	25	7.6	5" square	.25"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	427
SSS-B-30-50-C-XX-XX	30	9.1	5" square	.25"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	507
SSS-B-20-60-B-XX-XX	20	6.1	6" square	.188"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1" x 36" x 6"	4.5	329
SSS-B-25-60-B-XX-XX	25	7.6	6" square	.188"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1" x 36" x 6"	4.5	404
SSS-B-30-60-B-XX-XX	30	9.1	6" square	.188"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1" x 36" x 6"	4.5	479
SSS-B-35-60-B-XX-XX	35	10.7	6" square	.188"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1" x 36" x 6"	4.5	554
SSS-B-40-60-B-XX-XX	40	12.2	6" square	.188"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1" x 36" x 6"	4.5	629

NOTE: Factory supplied template must be used when setting anchor bolts. Beacon Products will deny any claim for incorrect anchorage placement resulting from failure to use factory supplied template and anchor bolts.

EHH - EXTRA HANDHOLE

Provision for Grounding

C05 - C07 - C20 - COUPLING**VM1 - VIBRATION DAMPER 1ST MODE**

Field Installed Pole Top damper designed to reduce pole top deflection or sway. VM1 is recommended for pole systems 25' and taller with a total EPA of 1.0 or less.

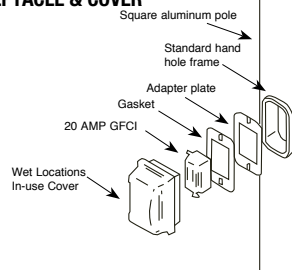
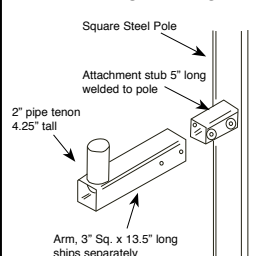
VM2 - VIBRATION DAMPER 2ND MODE

Factory installed, internal damper designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

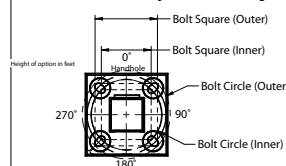
VM2SXX - VIBRATION DAMPER 2ND MODE

VM2S08 - 8'
 VM2S12 - 12'
 VM2S16 - 16'
 VM2S20 - 20'
 VM2S24 - 24'

Field installed, internal damper designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

GFI - 20 AMP GFCI RECEPTACLE & COVER**MPB - MID POLE BRACKET****OPTION ORIENTATION**

Follow the logic below when ordering location specific options. For each option, include its orientation (in degrees) and its height (in feet). Example: Option C07 should be ordered as: SSS-B-20-40-A-TA-DB-C05-0-15 (.5" coupling on the handhole/arm side of pole, 15 feet up from the pole base) 1' spacing required between option. Consult factory for other configurations.



For more information about pole vibration and vibration dampers, please consult https://hubbellcdn.com/ohwassets/HLL/outdoor/resources/literature/files/Pole_Wind_Induced_Flyer_HL010022.pdf
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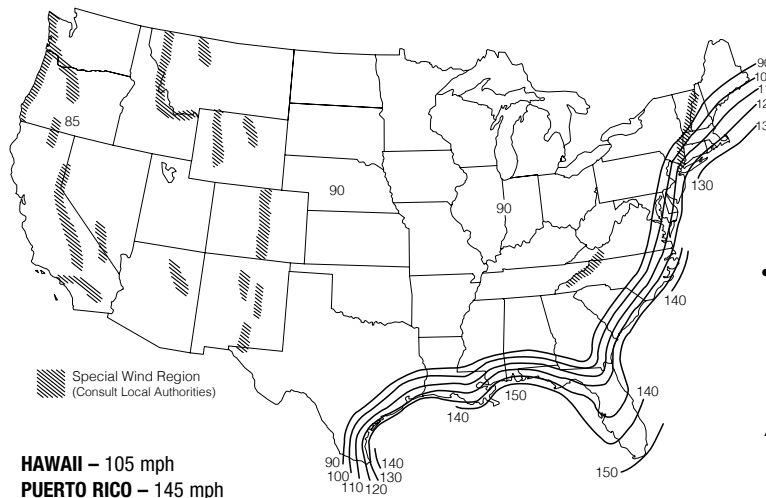
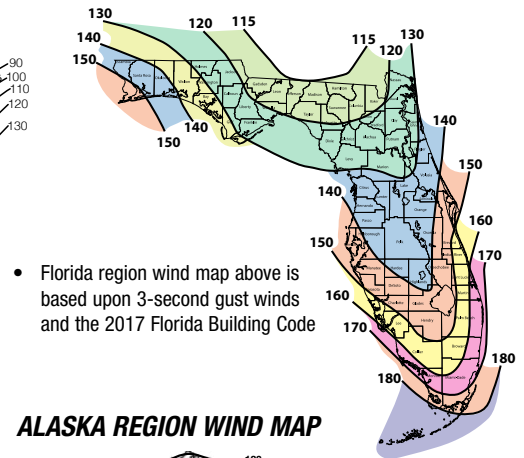
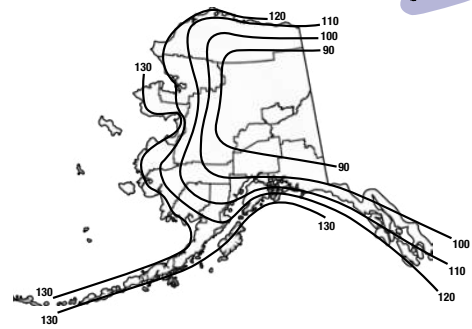
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HUBBELL
 Lighting

SSS-B POLES-SPEC

JULY 28, 2020 8:45 AM

**ASCE7-05 WIND MAP****FLORIDA REGION WIND MAP****ALASKA REGION WIND MAP**
ASCE 7-05 wind map EPA Load Rating - 3 second gust wind speeds
 (Use for all locations except Florida)

Catalog Number	85	90	100	105	110	120	130	140	145	150
SSS-B-10-40-A	25.0	25.0	25.0	22.8	20.6	17.0	14.2	11.9	11.0	10.1
SSS-B-12-40-A	25.0	25.0	20.0	18.0	16.1	13.2	10.8	8.9	8.1	7.4
SSS-B-14-40-A	23.1	20.4	16.1	14.3	12.8	10.2	8.2	6.6	5.9	5.3
SSS-B-16-40-A	19.0	16.7	13.0	11.5	10.1	7.9	6.2	4.7	4.1	3.6
SSS-B-18-40-A	15.6	13.6	10.0	9.0	7.8	5.9	4.4	3.1	2.6	2.1
SSS-B-20-40-A	12.7	10.9	7.9	6.9	5.9	4.2	2.8	1.7	1.3	0.9
SSS-B-25-40-A	7.3	5.9	3.8	2.9	2.1	0.8	NR	NR	NR	NR
SSS-B-14-40-B	25.0	25.0	23.3	20.8	18.6	15.1	12.3	10.2	9.2	8.4
SSS-B-16-40-B	25.0	24.9	19.4	17.3	15.4	12.3	9.9	8.0	7.2	6.4
SSS-B-18-40-B	24.0	20.8	16.1	14.2	12.5	9.8	7.7	6.1	5.3	4.7
SSS-B-20-40-B	20.2	17.5	13.2	11.6	10.1	7.7	5.9	4.4	3.8	3.2
SSS-B-25-40-B	12.8	11.0	7.9	6.7	5.5	3.7	2.3	1.2	0.7	NR
SSS-B-30-40-B	8.0	6.6	4.1	3.1	2.2	0.8	NR	NR	NR	NR
SSS-B-16-50-B	25.0	25.0	25.0	25.0	24.8	20.1	16.5	13.6	12.3	11.2
SSS-B-18-50-B	25.0	25.0	25.0	22.9	20.4	16.4	13.2	10.7	9.6	8.6
SSS-B-20-50-B	25.0	25.0	21.3	18.9	16.7	13.2	10.4	8.1	7.2	6.3
SSS-B-25-50-B	20.7	17.8	13.3	11.5	9.8	7.2	5.0	3.3	2.6	1.9
SSS-B-30-50-B	13.5	11.3	7.7	6.2	4.9	2.8	1.1	NR	NR	NR
SSS-B-25-50-C	25.0	25.0	19.4	17.1	15.1	11.7	9.0	6.9	6.0	5.1
SSS-B-30-50-C	20.1	17.3	12.7	10.9	9.3	6.6	4.5	2.8	2.1	1.4
SSS-B-20-60-B	25.0	25.0	25.0	25.0	25.0	20.2	16.1	12.9	11.5	10.3
SSS-B-25-60-B	25.0	25.0	20.6	18.0	15.6	11.8	8.7	6.2	5.2	4.2
SSS-B-30-60-B	21.4	18.1	12.9	10.7	8.8	5.7	3.3	1.3	NR	NR
SSS-B-35-60-B	14.0	11.3	6.9	5.2	3.6	1.0	NR	NR	NR	NR
SSS-B-40-60-B	8.1	5.8	2.2	nr	NR	NR	NR	NR	NR	NR

Florida Building Code 2017 EPA Load Rating - 3 second gust wind speeds
 (Use for Florida only)

Catalog Number	115	120	130	140	150	160	170	180
SSS-B-10-40-A	25.0	25.0	25.0	25.0	21.4	18.4	15.9	13.9
SSS-B-12-40-A	25.0	25.0	23.6	19.8	16.7	14.2	12.1	10.4
SSS-B-14-40-A	25.0	23.1	19.0	15.7	13.1	10.9	9.1	7.6
SSS-B-16-40-A	20.8	18.7	15.2	12.3	10.1	8.2	6.7	5.4
SSS-B-18-40-A	16.8	15.0	11.9	9.4	7.5	5.9	4.5	3.4
SSS-B-20-40-A	13.6	11.9	9.2	7.1	5.3	3.9	2.7	1.7
SSS-B-25-40-A	7.4	6.2	4.1	2.5	1.1	NR	NR	NR
SSS-B-14-40-B	25.0	23.6	19.4	16.1	13.4	11.2	9.4	7.8
SSS-B-16-40-B	21.4	19.2	15.6	12.7	10.4	8.5	6.9	5.6
SSS-B-18-40-B	17.2	15.4	12.2	9.7	7.7	6.1	4.7	3.6
SSS-B-20-40-B	13.9	12.3	9.5	7.3	5.5	4.1	2.9	1.9
SSS-B-25-40-B	7.7	6.4	4.3	2.6	1.3	NR	NR	NR
SSS-B-30-40-B	3.2	2.1	NR	NR	NR	NR	NR	NR
SSS-B-16-50-B	25.0	25.0	25.0	25.0	25.0	21.4	18.2	15.5
SSS-B-18-50-B	25.0	25.0	25.0	24.4	20.4	17.0	14.2	11.9
SSS-B-20-50-B	25.0	25.0	24.4	19.9	16.3	13.4	11.0	8.9
SSS-B-25-50-B	21.8	19.3	15.0	11.5	8.8	6.5	4.7	3.1
SSS-B-30-50-B	13.7	11.7	8.2	5.5	3.3	1.5	NR	NR
SSS-B-25-50-C	21.8	19.3	15.0	11.5	8.8	6.5	4.7	3.1
SSS-B-30-50-C	13.7	11.7	8.2	5.5	3.3	1.5	NR	NR
SSS-B-20-60-B	25.0	25.0	25.0	21.9	17.8	14.5	11.7	9.4
SSS-B-25-60-B	23.8	20.9	16.1	12.3	9.2	6.6	4.5	2.8
SSS-B-30-60-B	14.6	12.3	8.4	5.3	2.8	0.8	NR	NR
SSS-B-35-60-B	7.5	5.6	2.4	NR	NR	NR	NR	NR
SSS-B-40-60-B	1.8	NR	NR	NR	NR	NR	NR	NR

Submitted by Swaney Lighting	Job Name: CUMBERLAND CONDOS	Catalog Number: SSSB20-40A-1-B3-*** Notes: QUOTING 20FT POLE ON FLUSH BASE	Type: A3 SLA22-51387
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NOTES

Wind-speed Website disclaimer:

Hubbell Lighting has no connection to the linked website and makes no representations as to its accuracy. While the information presented on this third-party website provides a useful starting point for analyzing wind conditions, Hubbell Lighting has not verified any of the information on this third party website and assumes no responsibility or liability for its accuracy. The material presented in the windspeed website should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. Hubbell Lighting Inc. does not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the windspeed report provided by this website. Users of the information from this third party website assume all liability arising from such use. Use of the output of these referenced websites do not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the windspeed report. <http://windspeed.atcouncil.org>

NOTES

- Allowable EPA, to determine max pole loading weight, multiply allowable EPA by 30 lbs.
- The tables for allowable pole EPA are based on the ASCE 7-05 Wind Map or the Florida Region Wind Map for the 2010 Florida Building Code. The Wind Maps are intended only as a general guide and cannot be used in conjunction with other maps. Always consult local authorities to determine maximum wind velocities, gusting and unique wind conditions for each specific application
- Allowable pole EPA for jobsite wind conditions must be equal to or greater than the total EPA for fixtures, arms, and accessories to be assembled to the pole. Responsibility lies with the specifier for correct pole selection. Installation of poles without luminaires or attachment of any unauthorized accessories to poles is discouraged and shall void the manufacturer's warranty
- Wind speeds and listed EPAs are for ground mounted installations. Poles mounted on structures (such as bridges and buildings) must consider vibration and coefficient of height factors beyond this general guide; Consult local and federal standards
- Wind Induced Vibration brought on by steady, unidirectional winds and other unpredictable aerodynamic forces are not included in wind velocity ratings. Consult Hubbell Lighting's Pole Vibration Application Guide for environmental risk factors and design considerations. https://hubbellcdn.com/ohwassets/HLJ/outdoor/resources/literature/files/Pole_Wind_Induced_Flyer_HLQ10022.pdf
- Extreme Wind Events like, Hurricanes, Typhoons, Cyclones, or Tornadoes may expose poles to flying debris, wind shear or other detrimental effects not included in wind velocity ratings

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HUBBELL
Lighting

SSS-B POLES-SPEC

JULY 28, 2020 8:45 AM

Submitted by Swaney Lighting	Job Name: CUMBERLAND CONDOS	Catalog Number: VP-1-160L-115-3K7-4W-UNV-A-***	Type: A4
		Notes:	SLA22-51387



VIPER Area/Site

VIPER LUMINAIRE

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

MICROSTRIKE | OPTICS STRIKE



FEATURES

- Low profile LED area/site luminaire with a variety of IES distributions for lighting applications such as auto dealership, retail, commercial, and campus parking lots
- Featuring two different optical technologies, Strike and Micro Strike Optics, which provide the best distribution patterns for retrofit or new construction
- Rated for high vibration applications including bridges and overpasses. All sizes are rated for 1.5G
- Control options including photo control, occupancy sensing, NX Distributed Intelligence™, wiSCAPE and 7-Pin with networked controls
- New customizable lumen output feature allows for the wattage and lumen output to be customized in the factory to meet whatever specification requirements may entail
- Field interchangeable mounting provides additional flexibility after the fixture has shipped



CONTROL TECHNOLOGY



SPECIFICATIONS

CONSTRUCTION

- Die-cast housing with hidden vertical heat fins are optimal for heat dissipation while keeping a clean smooth outer surface
- Corrosion resistant, die-cast aluminum housing with 1000 hour powder coat paint finish
- External hardware is corrosion resistant

OPTICS

- Micro Strike Optics (160, 320, 480, or 720 LED counts) maximize uniformity in applications and come standard with mid-power LEDs which evenly illuminate the entire luminous surface area to provide a low glare appearance. Catalog logic found on page 2
- Strike Optics (36, 72, 108, or 162 LED counts) provide best in class distributions and maximum pole spacing in new applications with high powered LEDs. Strike optics are held in place with a polycarbonate bezel to mimic the appearance of the Micro Strike Optics so both solutions can be combined on the same application. Catalog logic found on page 3
- Both optics maximize target zone illumination with minimal losses at the house-side, reducing light trespass issues. Additional backlight control shields and house side shields can be added for further reduction of illumination behind the pole
- One-piece silicone gasket ensures a weatherproof seal
- Zero up-light at 0 degrees of tilt
- Field rotatable optics

INSTALLATION

- Mounting patterns for each arm can be found on page 11
- Optional universal mounting block for ease of installation during retrofit applications. Available as an option (ASQU) or accessory for square and round poles.
- All mounting hardware included

INSTALLATION (CONTINUED)

- Knuckle arm fitter option available for 2-3/8" OD tenon
- For products with EPA less than 1 mounted to a pole greater than 20ft, a vibration damper is recommended

ELECTRICAL

- Universal 120-277 VAC or 347-480 VAC input voltage, 50/60 Hz
- Ambient operating temperature -40°C to 40°C
- Drivers have greater than 90% power factor and less than 20% THD
- LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- Field replaceable surge protection device provides 20kA protection meeting ANSI/IEEE C62.41.2 Category C High and Surge Location Category C3; Automatically takes fixture off-line for protection when device is compromised

CONTROLS

- Photo control, occupancy sensor programmable controls, and Zigbee wireless controls available for complete on/off and dimming control
- Please consult brand or sales representative when combining control and electrical options as some combinations may not operate as anticipated depending on your application
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)
- 0-10V Dimming Drivers are standard and dimming leads are extended out of the luminaire unless control options require connection to the dimming leads. Must specify if wiring leads are to be greater than the 6" standard

CONTROLS (CONTINUED)

- NX Distributed Intelligence™ available with in fixture wireless control module, features dimming and occupancy sensor
- wiSCAPE® available with in fixture wireless control module, features dimming and occupancy sensor. Also available in 7-pin configuration


CERTIFICATIONS

- Meets the qualifications for DLC Premium
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40°C ambient temperatures
- 1.5 G rated for ANSI C136.31 high vibration applications
- Fixture is IP65 rated
- Meets IDA recommendations using 3K CCT configuration at 0 degrees of tilt
- This product qualifies as a "designated country construction material" per FAR 52.225-11 Buy American-Construction Materials under Trade Agreements effective 04/23/2020. See [Buy American Solutions](#).

WARRANTY

- 5 year warranty
- See [HLI Commercial and Industrial Outdoor Lighting Warranty](#) for additional information

KEY DATA	
Lumen Range	5,000–80,000
Wattage Range	36–600
Efficacy Range (LPW)	92–155
Weight lbs. (kg)	13.7-30.9 (6.2-13.9)

Submitted by Swaney Lighting	Job Name: CUMBERLAND CONDOS	Catalog Number: VP-1-160L-115-3K7-4W-UNV-A-***	Type: A4
		Notes:	SLA22-51387



DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

VIPER Area/Site

VIPER LUMINAIRE

MICROSTRIKE OPTICS – ORDERING GUIDE

Example: VP-2-320L-145-3K7-2-R-UNV-A3-BLT


CATALOG #

VP							
Series	Optic Platform	Size	Light Engine	CCT/CRI	Distribution	Optic Rotation	Voltage
VP Viper	Micro Strike	1 Size 1	160L-35 ⁶ 5500 lumens 160L-50 ⁶ 7500 lumens 160L-75 10000 lumens 160L-100 12500 lumens 160L-115 15000 lumens 160L-135 18000 lumens 160L-160 21000 lumens 320L-145 21000 lumens 320L-170 24000 lumens 320L-185 27000 lumens 320L-210 30000 lumens 320L-235 33000 lumens 320L-255 36000 lumens 320L-315 ⁶ 40000 lumens 480L-285 40000 lumens 480L-320 44000 lumens 480L-340 48000 lumens 480L-390 52000 lumens 480L-425 55000 lumens 480L-470 60000 lumens 720L-435 60000 lumens 720L-475 65000 lumens 720L-515 70000 lumens 720L-565 ⁶ 75000 lumens 720L-600 ⁶ 80000 lumens CLO Custom Lumen Output ¹	AP AP-Amber Phosphor Converted 27K8 2700K, 80 CRI 3K7 3000K, 70 CRI 3K8 3000K, 80 CRI 35K8 3500K, 80 CRI 3K9 3000K, 90 CRI 4K7 4000K, 70 CRI 4K8 4000K, 80 CRI 4K9 4000K, 90 CRI 5K7 5000K, 70 CRI 5K8 5000K, 80 CRI	2 Type 2 3 Type 3 4F Type 4 Forward 4W Type 4 Wide 5QM Type 5 Square Medium 5QW Type 5 Square Wide	L Optic rotation left R Optic rotation right	UNV 120-277V 120 120V 208 208V 240 240V 277 277V 347 347V 480 480V
		2 Size 2					
		3 Size 3					
		4 Size 4					

Mounting	Specify Stnd. finish	Options	Network Control Options
A Arm mount for square pole/flat surface A_ Arm mount for round pole ² ASQU Universal arm mount for square pole A_U Universal arm mount for round pole ² AAU Adjustable arm for pole mounting (universal drill pattern) AA_U Adjustable arm mount for round pole ² ADU Decorative upswept Arm (universal drill pattern) AD_U Decorative upswept arm mount for round pole ² MAF Mast arm fitter for 2-3/8" OD horizontal arm K Knuckle T Trunnion WB Wall Bracket, horizontal tenon with MAF WM Wall mount bracket with decorative upswept arm WA Wall mount bracket with adjustable arm	Color BLT Black Matte Textured BLS Black Gloss Smooth DBT Dark Bronze Matte Textured DBS Dark Bronze Gloss Smooth GTT Graphite Matte Textured LGS Light Grey Gloss Smooth LGT Light Grey Gloss Textured PSS Platinum Silver Smooth WHT White Matte Textured WHS White Gloss Smooth VGT Verde Green Textured Color Option CC Custom Color	Options F Fusing 2PF Dual Power Feed 2DR Dual Driver TE Toolless Entry BC Backlight Control TB Terminal Block	Network Control Options NXSPW-14F NX Wireless, PIR Occupancy Sensor, Dimming Daylight Harvesting, 14' ^{1,3,4} NXSPW-40F NX Wireless, PIR Occupancy Sensor, Dimming Daylight Harvesting, 40' ^{1,3,4} NXSP-14F NX, PIR Occupancy Sensor, Dimming Daylight Harvesting, 14' ^{3,4} NXSP-40F NX, PIR Occupancy Sensor, Dimming Daylight Harvesting, 40' ^{3,4} NXWE NX Wireless Enabled (module + radio) ^{3,4} WIR wiSCAPE® In-Fixture Module ^{3,4} WIRSC wiSCAPE® Module and Occupancy Sensor ^{3,4} Stand Alone Sensors BTS-14F Bluetooth® Programmable, PIR Occupancy/Daylight Sensor ⁴ BTS-40F Bluetooth® Programmable, PIR Occupancy/Daylight Sensor ⁴ BTSO-12F Bluetooth® Programmable, PIR Occupancy/Daylight Sensor, up to 12' mounting height ⁴ 7PR 7-Pin Receptacle ⁴ 7PR-SC 7-Pin Receptacle with shorting cap ⁴ 3PR 3-Pin twist lock ⁴ 3PR-SC 3-Pin receptacle with shorting cap ⁴ 3PR-TL 3-Pin PCR with photocontrol ⁴ Programmed Controls ADD AutoDim Timer Based Dimming ⁴ ADT AutoDim Time of Day Dimming ⁴ Photocontrols PC Button Photocontrol ^{4,7}

1 – Items with a grey background can be done as a custom order. Contact brand representative for more information
 2 – Replace “_” with “2” for 2.5”-3.4” OD pole, “3” for 3.5”-4.13” OD pole, “4” for 4.18”-5.25” OD pole, “5” for 5.5”-6.5” OD pole
 3 – Networked Controls cannot be combined with other control options
 4 – Not available with 2PF option

5 – Not available with Dual Driver option
 6 – Some voltage restrictions may apply when combined with controls
 7 – Not available with 480V

Submitted by Swaney Lighting	Job Name: CUMBERLAND CONDOS	Catalog Number: VP-1-160L-115-3K7-4W-UNV-A-***	Type: A4
		Notes:	SLA22-51387



VIPER Area/Site

VIPER LUMINAIRE

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

STRIKE OPTIC – ORDERING GUIDE

Example: VP-ST-1-36L-39-3K7-2-UNV-A-BLT


CATALOG #

VP	Optic Platform	Size	Light Engine	CCT/CRI	Distribution	Optic Rotation	Voltage
Series							
VP Viper	ST Strike	1 Size 1	36L-39 ⁸ 5500 lumens 36L-55 ⁸ 7500 lumens 36L-85 10000 lumens 36L-105 12500 lumens 36L-120 14000 lumens 72L-115 15000 lumens 72L-145 18000 lumens 72L-180 21000 lumens 72L-210 24000 lumens 72L-240 27000 lumens 108L-215 ⁸ 27000 lumens 108L-250 30000 lumens 108L-280 33000 lumens 108L-325 36000 lumens 108L-365 40000 lumens 162L-320 40000 lumens 162L-365 ¹⁰ 44000 lumens 162L-405 48000 lumens 162L-445 52000 lumens 162L-485 55000 lumens 162L-545 ⁸ 60000 lumens CLO Custom Lumen Output ¹	AM monochromatic amber, 595nm 27K8 2700K, 80 CRI 3K7 3000K, 70 CRI 3K8 3000K, 80 CRI 3K9 3000K, 90 CRI 35K8 3500K, 80 CRI 4K7 4000K, 70 CRI 4K8 4000K, 80 CRI 4K9 4000K, 90 CRI 5K7 5000K, 70 CRI 5K8 5000K, 80 CRI	FR Auto Front Row 2 Type 2 3 Type 3 4F Type 4 Forward 4W Type 4 Wide 5QN Type 5 Square Narrow 5QM Type 5 Square Medium 5QW Type 5 Square Wide 5W Type 5 Wide (Round) 5RW Type 5 Rectangular C Corner Optic TC Tennis Court Optic	L Optic rotation left R Optic rotation right	UNV 120-277V 120 120V 208 208V 240 240V 277 277V 347 347V 480 480V
		2 Size 2					
		3 Size 3					
		4 Size 4					

Mounting	Color	Options	Network Control Options
A Arm mount for square pole/flat surface A_ Arm mount for round pole ³ ASQU Universal arm mount for square pole A_U Universal arm mount for round pole ³ AAU Adjustable arm for pole mounting (universal drill pattern) AA_U Adjustable arm mount for round pole ³ ADU Decorative upswept Arm (universal drill pattern) AD_U Decorative upswept arm mount for round pole ³ MAF Mast arm fitter for 2-3/8" OD horizontal arm K Knuckle T Trunnion WB Wall Bracket, horizontal tenon with MAF WM Wall mount bracket with decorative upswept arm WA Wall mount bracket with adjustable arm	BLT Black Matte Textured BLS Black Gloss Smooth DBT Dark Bronze Matte Textured DBS Dark Bronze Gloss Smooth GTT Graphite Matte Textured LGS Light Grey Gloss Smooth LGT Light Grey Gloss Textured PSS Platinum Silver Smooth WHT White Matte Textured WHS White Gloss Smooth VG Verde Green Textured Color Option CC Custom Color	F Fusing E Battery Backup ^{12,7,9} 2PF Dual Power Feed 2DR Dual Driver TE Toolless Entry BC Backlight Control TB Terminal Block	NXSPW-14F NX Wireless, PIR Occupancy Sensor, Dimming Daylight Harvesting, 14' ^{1,4,5} NXSPW-40F NX Wireless, PIR Occupancy Sensor, Dimming Daylight Harvesting, 40' ^{1,4,5} NXSP-14F NX, PIR Occupancy Sensor, Dimming Daylight Harvesting, 14' ^{4,5} NXSP-40F NX, PIR Occupancy Sensor, Dimming Daylight Harvesting, 40' ^{4,5} NXWE NX Wireless Enabled ^{4,5} WIR wiSCAPE® In-Fixture Module ^{4,5} WIRSC wiSCAPE® Module and Occupancy Sensor ^{4,5} Stand Alone Sensors BTS-14F Bluetooth® Programmable, PIR Occupancy/Daylight Sensor ⁵ BTS-40F Bluetooth® Programmable, PIR Occupancy/Daylight Sensor ⁵ BTSO-12F Bluetooth® Programmable, PIR Occupancy/Daylight Sensor, up to 12' mounting height ⁵ 7PR 7-Pin Receptacle ⁵ 7PR-SC 7-Pin Receptacle with shorting cap ⁵ 3PR 3-Pin twist lock ⁵ 3PR-SC 3-Pin receptacle with shorting cap ⁵ 3PR-TL 3-Pin PCR with photocontrol ⁵ Programmed Controls ADD AutoDim Timer Based Dimming ⁵ ADT AutoDim Time of Day Dimming ⁵ Photocontrols PC Button Photocontrol ^{5,6}

1 – Items with a grey background can be done as a custom order. Contact brand representative for more information
 2 – Battery temperature rating -20C to 55C
 3 – Replace “_” with “2” for 2.5”-3.4” OD pole, “3” for 3.5”-4.13” OD pole, “4” for 4.18”-5.25” OD pole, “5” for 5.5”-6.5” OD pole
 4 – Networked Controls cannot be combined with other control options
 5 – Not available with 2PF option
 6 – Not available with 480V
 7 – Not available with 347 or 480V
 8 – Not available with Dual Driver option

9 – Only available in Size 1 housing
 10 – Some voltage restrictions may apply when combined with controls

Submitted by Swaney Lighting	Job Name: CUMBERLAND CONDOS	Catalog Number: VP-1-160L-115-3K7-4W-UNV-A-***	Type: A4
		Notes:	SLA22-51387



VIPER Area/Site

VIPER LUMINAIRE

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

ORDERING GUIDE (CONTINUED)

CATALOG #

Accessory Type	Size	Option	Color	Hubbell Control Solutions — Accessories (Sold Separately)
SHD Shield	1 Size 1 2 Size 2 3 Size 3 4 Size 4	HSS-90-B House Side Shield 90° Back HSS-90-F House Side Shield 90° Front HSS-90-S House Side Shield 90° Side HSS-270-BSS House Side Shield 270° Back/Side/Side HSS-270-FSS House Side Shield 270° Front/Side/Side HSS-270-FSB House Side Shield 270° Front/Side/Back HSS-360 House Side Shield 360° BC Back Light Control A Arm Mount for square pole/flat surface ASQU Universal Arm Mount for square pole AAU Adjustable Arm for pole mounting ADU Decorative upswept Arm RPA Round Pole Adapter MAF Mast Arm Fitter for 2-3/8" OD horizontal arm K Knuckle T Trunnion WB Wall Bracket (compatible with universal arm mounts)	BLS Black Gloss Smooth BLT Black Matte Textured DBS Dark Bronze Gloss Smooth DBT Dark Bronze Matte Textured GTT Graphite Matte Textured LGS Light Gray Gloss Smooth PSS Platinum Silver Smooth WHS White Gloss Smooth WHT White Matte Textured VGT Green Landscape Decorative LEG Legacy Colors Color Option CC Custom Color	NX Distributed Intelligence™ <input type="checkbox"/> NXOFM-1R1D-UNV On-fixture Module (7-pin), On / Off / Dim, Daylight Sensor with HubbNET Radio and Bluetooth® Radio, 120–480VAC wiSCAPE® Lighting Control <input type="checkbox"/> WIR-RME-L On-fixture Module (7-pin or 5-pin), On / Off / Dim, Daylight Sensor with wiSCAPE Radio, 110–480VAC <input type="checkbox"/> SCP-REMOTE Remote Control for SCP/_F option. Order at least one per project to program and control the occupancy sensor <small>For additional information related to these accessories please visit www.hubbellcontrolsolutions.com. Options provided for use with integrated sensor, please view specification sheet ordering information table for details.</small>
MTG Mounting				
MSC Miscellaneous		BIRD SPK Bird Spike		

CONTROLS



Control Option	Sensor	Networkable	Scheduling	Occupancy	Daylight Harvesting	On/Off Control	Programming	Pair with Sensor	Sensor Mounting Height
NXWE	–	✓	✓	–	–	✓	✓	–	–
NXSPW_F	NXSM-P	✓	✓	✓	✓	✓	✓	–	14ft, 40ft
NXSP_F	NXSM-P	–	–	✓	✓	✓	–	–	14ft, 40ft
BTSO12F	BTSMP-OMNI	–	–	✓	✓	✓	Bluetooth	–	12ft
BTS_F	BTSMP	–	–	✓	✓	–	–	–	14ft, 40ft
ADD	–	–	✓	–	–	✓	–	✓	–
ADT	–	–	✓	–	–	✓	–	✓	–
7PR	–	Paired with external control	Paired with external control	–	Paired with external control	Paired with external control	–	✓	–
7PR-SC	–	–	–	–	–	–	–	✓	–
3PR	–	–	–	–	–	Paired with external control	–	✓	–
3PR-SC	–	–	–	–	–	–	–	✓	–
3PR-TL	–	–	–	–	✓	✓	–	✓	–
WIR	–	✓	✓	–	✓	✓	Gateway	–	–
WIRSC	BTSMP	✓	✓	✓	✓	✓	Gateway	–	14ft, 40ft



VIPER Area/Site

VIPER LUMINAIRE

DATE: _____ LOCATION: _____

TYPE: _____ PROJECT: _____

CATALOG #: _____

DELIVERED LUMENS

For delivered lumens, please see Lumens Data PDF on www.hubbellighting.com

PROJECTED LUMEN MAINTENANCE


Ambient Temp.	0	25,000	*TM-21-11 36,000	50,000	100,000	Calculated L ₇₀ (Hours)
25°C / 77°F	1.00	0.97	0.96	0.95	0.91	408,000
40°C / 104°F	0.99	0.96	0.95	0.94	0.89	356,000

LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

Ambient Temperature		Lumen Multiplier
0°C	32°F	1.03
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.98
50°C	122°F	0.97

Micro Strike Lumen Multiplier			
CCT	70 CRI	80 CRI	90 CRI
2700K	—	0.841	—
3000K	0.977	0.861	0.647
3500K	—	0.900	—
4000K	1	0.926	0.699
5000K	1	0.937	0.791
Monochromatic Amber Multiplier			
Amber	0.250		

Strike Lumen Multiplier			
CCT	70 CRI	80 CRI	90 CRI
2700K	—	0.859	—
3000K	0.941	0.912	0.703
3500K	—	0.906	—
4000K	1	0.894	0.734
5000K	1	0.879	0.711
Monochromatic Amber Multiplier			
Amber	0.255		

Submitted by Swaney Lighting	Job Name: CUMBERLAND CONDOS	Catalog Number: VP-1-160L-115-3K7-4W-UNV-A-***	Type: A4
		Notes:	SLA22-51387



VIPER Area/Site

VIPER LUMINAIRE

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	


ELECTRICAL DATA: MICRO STRIKE

# OF LEDS	160						
NOMINAL WATTAGE	35	50	75	100	115	135	160
SYSTEM POWER (W)	34.9	50.5	72.1	97.2	111.9	132.2	157.8
INPUT VOLTAGE (V)	CURRENT (Amps)						
120	0.29	0.42	0.63	0.83	0.96	1.13	1.33
208	0.17	0.24	0.36	0.48	0.55	0.65	0.77
240	0.15	0.21	0.31	0.42	0.48	0.56	0.67
277	0.13	0.18	0.27	0.36	0.42	0.49	0.58
347	0.10	0.14	0.22	0.29	0.33	0.39	0.46
480	0.07	0.10	0.16	0.21	0.24	0.28	0.33

# OF LEDS	320						
NOMINAL WATTAGE	145	170	185	210	235	255	315
SYSTEM POWER (W)	150	166.8	185.7	216.2	240.9	261.5	312
INPUT VOLTAGE (V)	CURRENT (Amps)						
120	1.21	1.42	1.54	1.75	1.96	2.13	2.63
208	0.70	0.82	0.89	1.01	1.13	1.23	1.51
240	0.60	0.71	0.77	0.88	0.98	1.06	1.31
277	0.52	0.61	0.67	0.76	0.85	0.92	1.14
347	0.42	0.49	0.53	0.61	0.68	0.73	0.91
480	0.30	0.35	0.39	0.44	0.49	0.53	0.66

# OF LEDS	480					
NOMINAL WATTAGE	285	320	340	390	425	470
SYSTEM POWER (W)	286.2	316.7	338.4	392.2	423.2	468
INPUT VOLTAGE (V)	CURRENT (Amps)					
120	2.38	2.67	2.83	3.25	3.54	3.92
208	1.37	1.54	1.63	1.88	2.04	2.26
240	1.19	1.33	1.42	1.63	1.77	1.96
277	1.03	1.16	1.23	1.41	1.53	1.70
347	0.82	0.92	0.98	1.12	1.22	1.35
480	0.59	0.67	0.71	0.81	0.89	0.98

# OF LEDS	720				
NOMINAL WATTAGE	435	475	515	565	600
SYSTEM POWER (W)	429.3	475	519.1	565.2	599.9
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	3.63	3.96	4.29	4.71	5.00
208	2.09	2.28	2.48	2.72	2.88
240	1.81	1.98	2.15	2.35	2.50
277	1.57	1.71	1.86	2.04	2.17
347	1.25	1.37	1.48	1.63	1.73
480	0.91	0.99	1.07	1.18	1.25

Submitted by Swaney Lighting		Catalog Number: VP-1-160L-115-3K7-4W-UNV-A-***	Type: A4
	Job Name: CUMBERLAND CONDOS	Notes:	SLA22-51387



VIPER Area/Site

VIPER LUMINAIRE

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

ELECTRICAL DATA: STRIKE

# OF LEDS	36				
NOMINAL WATTAGE	39	55	85	105	115
SYSTEM POWER (W)	39.6	56.8	83.6	108.2	113.7
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	0.33	0.46	0.71	0.88	1.00
208	0.19	0.26	0.41	0.50	0.58
240	0.16	0.23	0.35	0.44	0.50
277	0.14	0.20	0.31	0.38	0.43
347	0.11	0.16	0.24	0.30	0.35
480	0.08	0.11	0.18	0.22	0.25

# OF LEDS	72				
NOMINAL WATTAGE	120	145	180	210	215
SYSTEM POWER (W)	120.9	143.2	179.4	210.2	214.8
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	0.96	1.21	1.50	1.75	2.00
208	0.55	0.70	0.87	1.01	1.15
240	0.48	0.60	0.75	0.88	1.00
277	0.42	0.52	0.65	0.76	0.87
347	0.33	0.42	0.52	0.61	0.69
480	0.24	0.30	0.38	0.44	0.50

# OF LEDS	108				
NOMINAL WATTAGE	240	250	280	320	325
SYSTEM POWER (W)	241.7	250.8	278.3	322.1	324.7
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	1.79	2.08	2.33	2.71	3.04
208	1.03	1.20	1.35	1.56	1.75
240	0.90	1.04	1.17	1.35	1.52
277	0.78	0.90	1.01	1.17	1.32
347	0.62	0.72	0.81	0.94	1.05
480	0.45	0.52	0.58	0.68	0.76

# OF LEDS	162				
NOMINAL WATTAGE	365	405	445	485	545
SYSTEM POWER (W)	362.6	403.6	445.1	487.1	543.9
INPUT VOLTAGE (V)	CURRENT (Amps)				
120	2.67	3.38	3.71	4.04	4.54
208	1.54	1.95	2.14	2.33	2.62
240	1.33	1.69	1.85	2.02	2.27
277	1.16	1.46	1.61	1.75	1.97
347	0.92	1.17	1.28	1.40	1.57
480	0.67	0.84	0.93	1.01	1.14



Job Name:
CUMBERLAND CONDOS

Catalog Number:
VP-1-160L-115-3K7-4W-UNV-A-***

Notes:

Type:

A4

SLA22-51387



VIPER Area/Site

VIPER LUMINAIRE

DATE: _____ LOCATION: _____

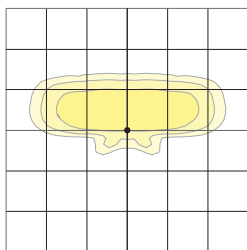
TYPE: _____ PROJECT: _____

CATALOG #: _____

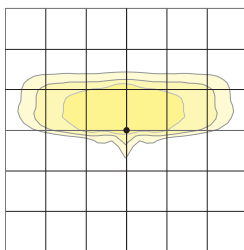
MICRO STRIKE PHOTOMETRY

The following diagrams represent the general distribution options offered for this product. For detailed information on specific product configurations, see [website photometric test reports](#).

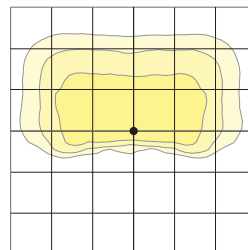
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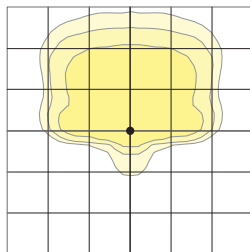
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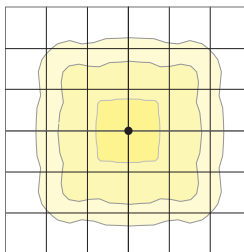
Type 4 Wide



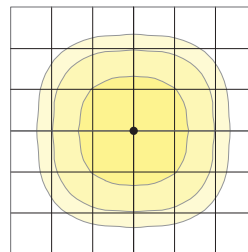
Type 4F



Type 5QM



Type 5QW



HUBBELL
Lighting



VIPER Area/Site

VIPER LUMINAIRE

DATE: _____ LOCATION: _____

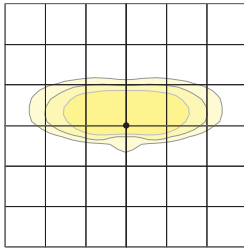
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CATALOG #: _____

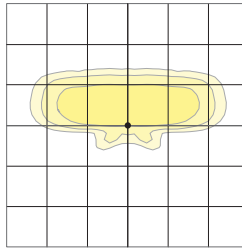
OPTIC STRIKE PHOTOMETRY

The following diagrams represent the general distribution options offered for this product. For detailed information on specific product configurations, see [website photometric test reports](#).

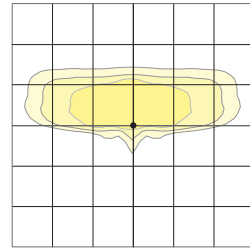
Type FR – Front Row/Auto Optic



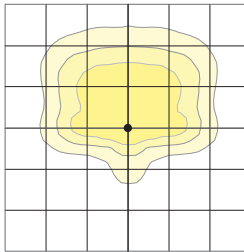
Type 2



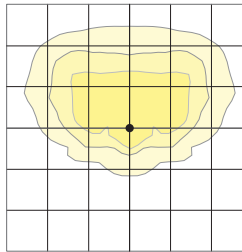
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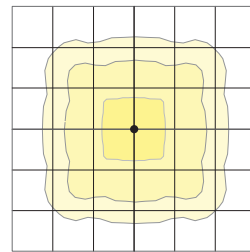
Type 4 Forward



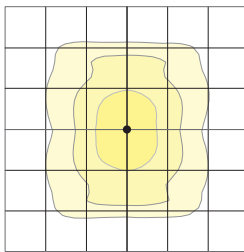
Type 4 Wide



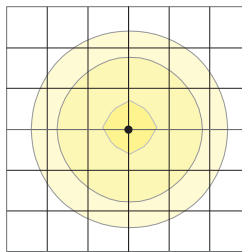
Type 5QM



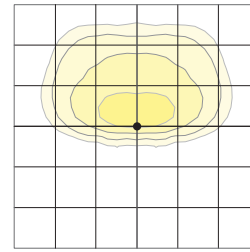
Type 5R (rectangular)



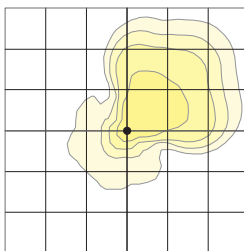
Type 5W (round wide)



Type TC



Type Corner





Job Name:
CUMBERLAND CONDOS

Catalog Number:
VP-1-160L-115-3K7-4W-UNV-A-***

Notes:

Type:

A4

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VIPER Area/Site

VIPER LUMINAIRE

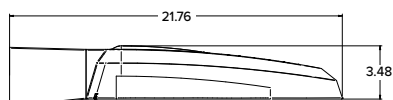
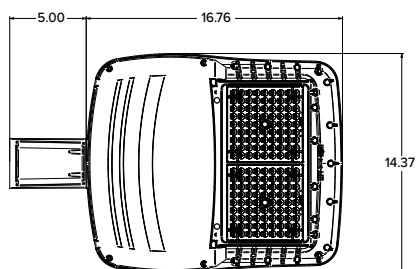
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TYPE: _____ PROJECT: _____

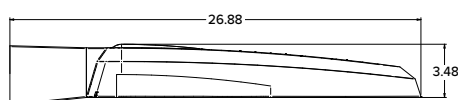
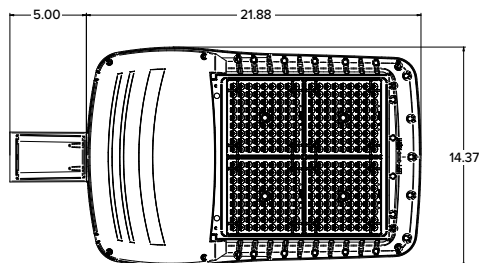
CATALOG #: _____

DIMENSIONS

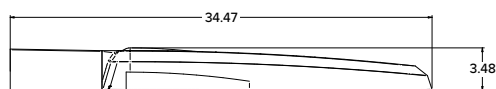
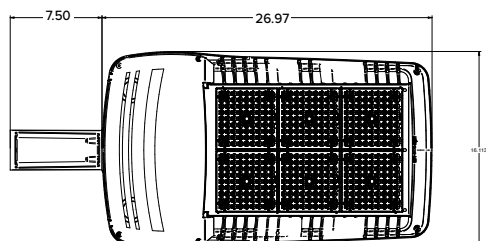
SIZE 1



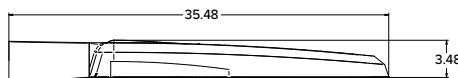
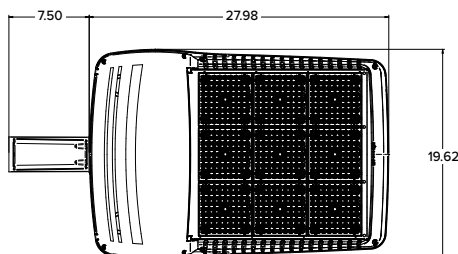
SIZE 2



SIZE 3



SIZE 4



	EPA				Config.
	VP1 (Size 1)	VP2 (Size 2)	VP3 (Size 3)	VP4 (Size 4)	
Single Fixture	0.454	0.555	0.655	0.698	
Two at 180	0.908	1.110	1.310	1.396	
Two at 90	0.583	0.711	0.857	0.948	
Three at 90	1.037	1.266	1.512	1.646	
Three at 120	0.943	1.155	1.392	1.680	
Four at 90	1.166	1.422	1.714	1.896	

	Weight	
	lbs	kgs
VP1 (Size 1)	13.7	6.2
VP2 (Size 2)	16.0	7.26
VP3 (Size 3)	25.9	11.7
VP4 (Size 4)	30.8	13.9



VIPER Area/Site

VIPER LUMINAIRE

DATE: _____ LOCATION: _____

TYPE: _____ PROJECT: _____

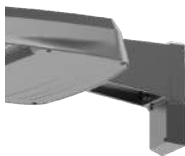
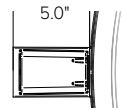
CATALOG #: _____

MOUNTING



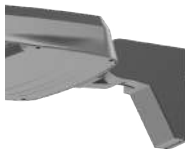
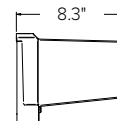
ASQ-STRAIGHT ARM MOUNT

Fixture ships with integral arm for ease of installation. Compatible with Hubbell Outdoor B3 drill pattern. For round poles add applicable suffix (2/3/4/5)



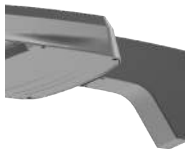
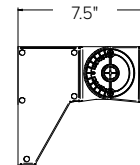
ASQU-UNIVERSAL ARM MOUNT

Universal mounting block for ease of installation. Compatible with drill patterns from 2.5" to 4.5" and Hubbell drill pattern S2. For round poles add applicable suffix (2/3/4/5)



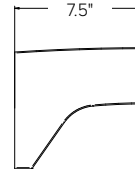
AAU-ADJUSTABLE ARM FOR POLE MOUNTING

Rotatable arm mounts directly to pole. Compatible with drill patterns from 2.5" to 4.5" and Hubbell drill pattern S2. For round poles add applicable suffix (2/3/4/5). Rotatable in 15° aiming angle increments. Micro Strike configurations have a 45° aiming limitation. Strike configurations have a 30° aiming limitation.



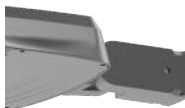
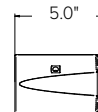
ADU-DECORATIVE UPSWEPT ARM

Upswept Arm compatible with drill patterns from 2.5" to 4.5". For round poles add applicable suffix (2/3/4/5).



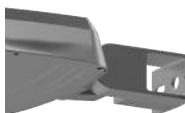
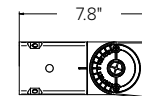
MAF-MAST ARM FITTER

Fits 2-3/8" OD horizontal tenons.



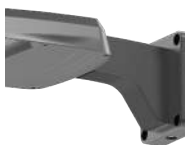
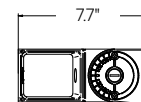
K-KNUCKLE

Knuckle mount 15° aiming angle increments for precise aiming and control, fits 2-3/8" tenons or pipes. Micro Strike configurations have a 45° aiming limitation. Strike configurations have a 30° aiming limitation.



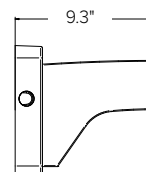
T-TRUNNION

Trunnion for surface and crossarm mounting using (1) 3/4" or (2) 1/2" size through bolts. Micro Strike configurations have a 45° aiming limitation. Strike configurations have a 30° aiming limitation.



WM-WALL MOUNT

Compatible with universal arm mount, adjustable arm mount, and decorative arm mount. The WA option uses the same wall bracket but replaces the decorative arm with an adjustable arm.





Job Name:
CUMBERLAND CONDOS

Catalog Number:
VP-1-160L-115-3K7-4W-UNV-A-***

Notes:

Type:

A4

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VIPER Area/Site

VIPER LUMINAIRE

DATE: _____ LOCATION: _____

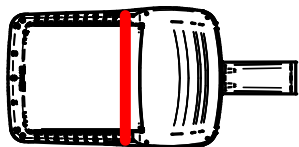
TYPE: _____ PROJECT: _____

CATALOG #: _____

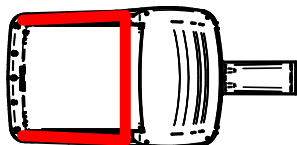
ADDITIONAL INFORMATION (CONTINUED)

HOUSE SIDE SHIELD FIELD INSTALL ACCESSORIES

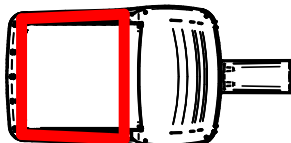
VPR2x HSS-90-B-xx



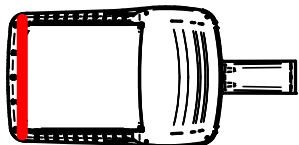
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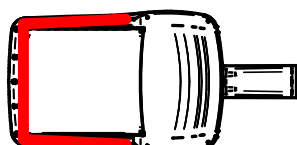
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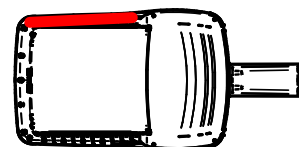
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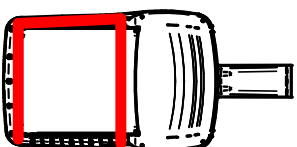
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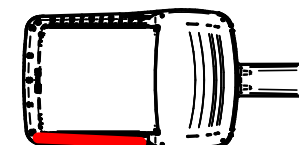
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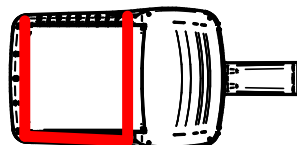
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VPR2x HSS-90-S-xx



VPR2x HSS-270-FSB-xx



Submitted by Swaney Lighting		Catalog Number: VP-1-160L-115-3K7-4W-UNV-A-***	Type: A4
	Job Name: CUMBERLAND CONDOS	Notes:	SLA22-51387



VIPER Area/Site

VIPER LUMINAIRE

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

ADDITIONAL INFORMATION (CONTINUED)

PROGRAMMED CONTROLS

ADD-AutoDim Timer Based Options

- Light delay options from 1-9 hours after the light is turned on to dim the light by 10-100%. To return the luminaire to its original light level there are dim return options from 1-9 hours after the light has been dimmed previously.

EX: ADD-6-5-R6

ADD Control Options	Configurations Choices	Example Choice Picked
Auto-Dim Options	1-9 Hours	6 - Delay 6 hours
Auto-Dim Brightness	10-100% Brightness	5 - Dim to 50% brightness
Auto-Dim Return	Delay 0-9 Hours	R6 - Return to full output after 6 hours

ADT-AutoDim Time of Day Based Option


- Light delay options from 1AM-9PM after the light is turned on to dim the light by 10-100%. To return the luminaire to its original light level there are dim return options from 1AM-9PM after the light has been dimmed previously.

EX: ADT-6-5-R6

ADD Control Options	Configurations Choices	Example Choice Picked
Auto-Dim Options	12-3 AM and 6-11 PM	6 - Dim at 6PM
Auto-Dim Brightness	10-100% Brightness	5 - Dim to 50%
Auto-Dim Return	12-6 AM and 9-11P	R6 - Return to full output at 6AM

USE OF TRADEMARKS AND TRADE NAMES

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Submitted by Swaney Lighting		Catalog Number: VP-1-160L-115-3K7-4W-UNV-A-***	Type: A4
	Job Name: CUMBERLAND CONDOS	Notes:	SLA22-51387

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SSS-B SERIES POLES

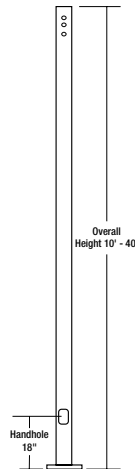
SQUARE STRAIGHT STEEL

Cat.#

Job

Type

Approvals


BEACON
design · performance · technology
**APPLICATIONS**

- Lighting installations for side and top mounting of luminaires with effective projected area (EPA) not exceeding maximum allowable loading of the specified pole in its installed geographic location

CONSTRUCTION

- SHAFT:** One-piece straight steel with square cross section, flat sides and minimum 0.23" radius on all corners; Minimum yield of 46,000 psi (ASTM-A500, Grade B); Longitudinal weld seam to appear flush with shaft side wall; Steel base plate with axial bolt circle slots welded flush to pole shaft having minimum yield of 36,000 psi (ASTM A36)
- BASE COVER:** Two-piece square aluminum base cover included standard
- POLE CAP:** Pole shaft supplied with removable cover when applicable; Tenon and post-top configurations also available
- HAND HOLE:** Rectangular 3x5 steel hand hole frame (2.38" x 4.38" opening); Mounting provisions for grounding lug located behind gasketed cover
- ANCHOR BOLTS:** Four galvanized anchor bolts provided per pole with minimum yield of 55,000 psi (ASTM F1554). Galvanized hardware with two washers and two nuts per bolt for leveling

Anchor bolt part numbers: 3/4 x 30 x 3 — TAB-30-M38

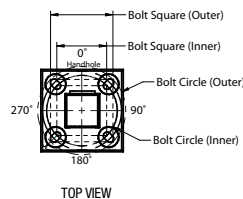
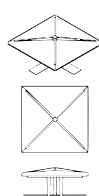
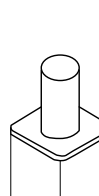
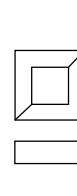
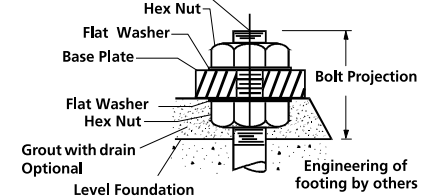
1 x 36 x 4 — TAB-36-M38

FINISH

- Durable thermoset polyester powder coat paint finish with nominal 3.0 mil thickness
- Powder paint prime applied over "white metal" steel substrate cleaned via mechanical shot blast method
- Decorative finish coat available in multiple standard colors; Custom colors available; RAL number preferable

WAREHOUSE 'STOCKED' POLES:

- SSSH20-40A-4-HV-DB-RDC, SSSH25-40A-4-HV-DB-RDC and SSSH30-50B-4-HV-DB-RDC
- The HV designation in the above catalog numbers is a combination drill pattern of the Hubbell Outdoor S2 pattern and the Beacon B3/B4 Viper pattern (rectangular arm mounting)

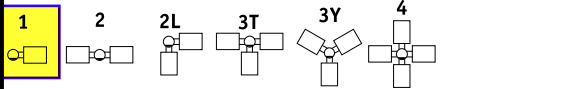
**POLE CAP****TENON****BASE COVER****BASE DETAIL****ORDERING INFORMATION**

ORDERING EXAMPLE:

Reference page 2 for available configurations

SSS - B - 25 - 40 - A/B/C - 2L - B3 - Specify Std. finish - UL

SERIES	HEIGHT	SHAFT	THICKNESS	MOUNTING	FINISH	OPTIONS
SSS-B Square Straight Steel Pole Beacon	Reference page 2 Ordering matrix 20	Reference page 2 Ordering matrix 40	Reference page 2 Ordering matrix A	1 Single arm mount 2 Two fixtures at 180° 2L Two fixtures at 90° 3T Three fixtures at 90° 4 Four fixtures at 90° TA Tenon (2.38" OD x 4" Tall) TB Tenon (2.88" OD x 4" Tall) TC Tenon (3.5" OD x 6" Tall) TR¹ Removable Tenon (2.375 x 4.25) OT Open Top (includes pole cap)	BLT Black Matte Textured BLS Black Gloss Smooth DBT Dark Bronze Matte Textured DBS Dark Bronze Gloss Smooth GTT Graphite Matte Textured LGS Light Grey Gloss Smooth PSS Platinum Silver Smooth WHT White Matte Textured WHS White Gloss Smooth VG Verde Green Textured Color Option CC Custom Color	GFF² 20 Amp GFCI Receptacle and Cover EH³ Extra Handhole C05² .5" Coupling C07² .75" Coupling C20² 2" Coupling MPB² Mid-pole Luminaire Bracket VM2 2nd mode vibration damper LAB Less Anchor Bolts UL UL Certified

MOUNTING ORIENTATION

- Removable tenon used in conjunction with side arm mounting. First specify desired arm configuration followed by the "TR" notation. Example: SSS-B-25-40-A-1-B1-TR-BBT
- Specify option location using logic found on page 2 (Option Orientation)
- VM1 recommended on poles 20' and taller with EPA of less than 1.

ACCESSORIES - Order Separately

Catalog Number	Description
VM1 ³	1st mode vibration damper
VM2SXX	2nd mode vibration damper

DRILL PATTERN

- B1** Cruiser, "AM" arm
- B3** 2 bolt (2-1/2" spacing), Viper "A" arm
- S2** 2 bolt (3-1/2" spacing), Viper "AD" arm



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SSS-B POLES-SPEC

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Lighting

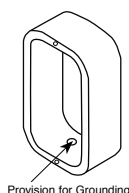

Job Name:
CUMBERLAND CONDOS
Catalog Number:
SSSB20-40A-1-B3-***
Notes: QUOTING 20FT POLE ON FLUSH
BASE
Type:
A4

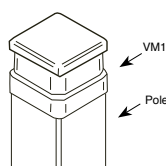
SLA22-51387

ORDERING INFORMATION Cont.

Catalog Number	Height		Nominal Shaft Dimensions	Wall Thickness	Bolt Circle (suggested)	Bolt Circle (range)	Bolt Square (range)	Base Plate Square	Anchor bolt size	Bolt Projection	Pole weight
	Feet	Meters									
SSS-B-10-40-A-XX-XX	10	3.0	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	77
SSS-B-12-40-A-XX-XX	12	3.7	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	90
SSS-B-14-40-A-XX-XX	14	4.3	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	103
SSS-B-16-40-A-XX-XX	16	4.9	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	116
SSS-B-18-40-A-XX-XX	18	5.5	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	129
SSS-B-20-40-A-XX-XX	20	6.1	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	142
SSS-B-25-40-A-XX-XX	25	7.6	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	175
SSS-B-14-40-B-XX-XX	14	4.3	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	152
SSS-B-16-40-B-XX-XX	16	4.9	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	171
SSS-B-18-40-B-XX-XX	18	5.5	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	190
SSS-B-20-40-B-XX-XX	20	6.1	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	209
SSS-B-25-40-B-XX-XX	25	7.6	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	257
SSS-B-30-40-B-XX-XX	30	9.1	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	304
SSS-B-16-50-B-XX-XX	16	4.9	5" square	.188"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	219
SSS-B-18-50-B-XX-XX	18	5.5	5" square	.188"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	243
SSS-B-20-50-B-XX-XX	20	6.1	5" square	.188"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	267
SSS-B-25-50-B-XX-XX	25	7.6	5" square	.188"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	327
SSS-B-30-50-B-XX-XX	30	9.1	5" square	.188"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	387
SSS-B-25-50-C-XX-XX	25	7.6	5" square	.25"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	427
SSS-B-30-50-C-XX-XX	30	9.1	5" square	.25"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	507
SSS-B-20-60-B-XX-XX	20	6.1	6" square	.188"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1" x 36" x 6"	4.5	329
SSS-B-25-60-B-XX-XX	25	7.6	6" square	.188"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1" x 36" x 6"	4.5	404
SSS-B-30-60-B-XX-XX	30	9.1	6" square	.188"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1" x 36" x 6"	4.5	479
SSS-B-35-60-B-XX-XX	35	10.7	6" square	.188"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1" x 36" x 6"	4.5	554
SSS-B-40-60-B-XX-XX	40	12.2	6" square	.188"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1" x 36" x 6"	4.5	629

NOTE: Factory supplied template must be used when setting anchor bolts. Beacon Products will deny any claim for incorrect anchorage placement resulting from failure to use factory supplied template and anchor bolts.

**EHH - EXTRA
HANDHOLE**

**C05 - C07 - C20 -
COUPLING**

**VM1 - VIBRATION DAMPER
1ST MODE**


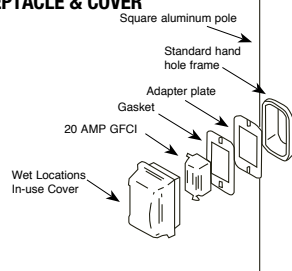
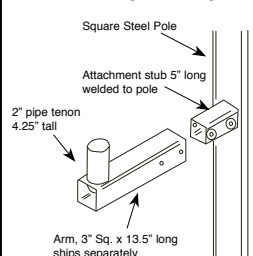
Field Installed Pole Top damper designed to reduce pole top deflection or sway. VM1 is recommended for pole systems 25' and taller with a total EPA of 1.0 or less.

**VM2 - VIBRATION DAMPER
2ND MODE**

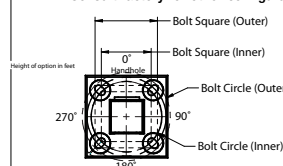

Factory installed, internal damper designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

**VM2SXX - VIBRATION DAMPER
2ND MODE**


VM2S08 - 8'
VM2S12 - 12'
VM2S16 - 16'
VM2S20 - 20'
VM2S24 - 24'

**GFI - 20 AMP GFCI
RECEPTACLE & COVER**

MPB - MID POLE BRACKET

OPTION ORIENTATION

Follow the logic below when ordering location specific options. For each option, include its orientation (in degrees) and its height (in feet). Example: Option C07 should be ordered as: SSS-B-20-40-A-TA-DB-C05-0-15 (.5" coupling on the handhole/arm side of pole, 15 feet up from the pole base) 1' spacing required between option. Consult factory for other configurations.



For more information about pole vibration and vibration dampers, please consult https://hubbellcdn.com/ohwassets/HLL/outdoor/resources/literature/files/Pole_Wind_Induced_Flyer_HL010022.pdf
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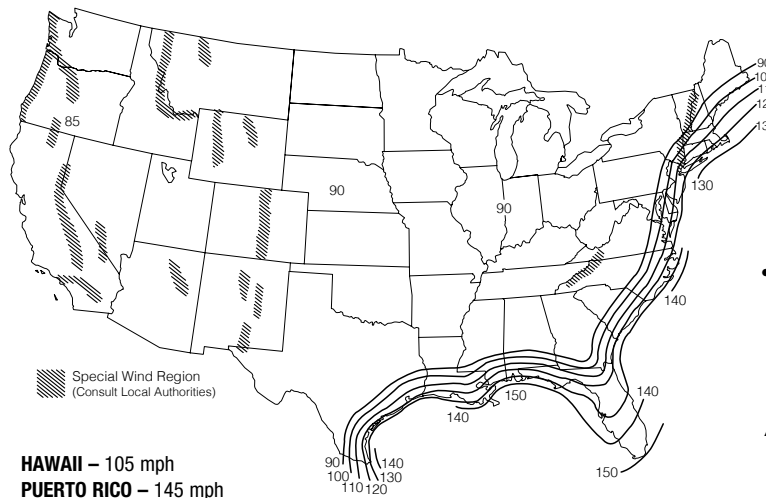
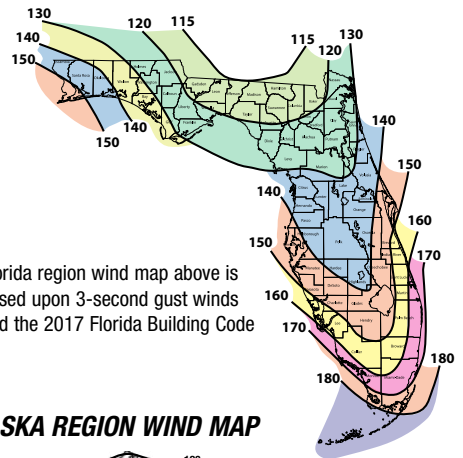
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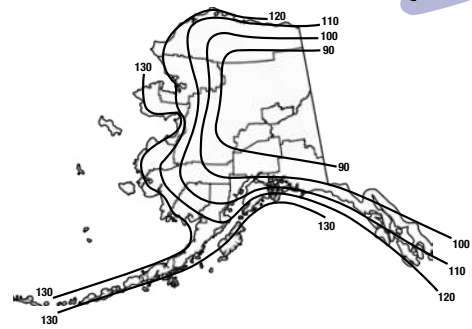
HUBBELL
Lighting

SSS-B POLES-SPEC

JULY 28, 2020 8:45 AM

**ASCE7-05 WIND MAP****FLORIDA REGION WIND MAP**


- Florida region wind map above is based upon 3-second gust winds and the 2017 Florida Building Code

ALASKA REGION WIND MAP
ASCE 7-05 wind map EPA Load Rating - 3 second gust wind speeds
 (Use for all locations except Florida)

Catalog Number	85	90	100	105	110	120	130	140	145	150
SSS-B-10-40-A	25.0	25.0	25.0	22.8	20.6	17.0	14.2	11.9	11.0	10.1
SSS-B-12-40-A	25.0	25.0	20.0	18.0	16.1	13.2	10.8	8.9	8.1	7.4
SSS-B-14-40-A	23.1	20.4	16.1	14.3	12.8	10.2	8.2	6.6	5.9	5.3
SSS-B-16-40-A	19.0	16.7	13.0	11.5	10.1	7.9	6.2	4.7	4.1	3.6
SSS-B-18-40-A	15.6	13.6	10.0	9.0	7.8	5.9	4.4	3.1	2.6	2.1
SSS-B-20-40-A	12.7	10.9	7.9	6.9	5.9	4.2	2.8	1.7	1.3	0.9
SSS-B-25-40-A	7.3	5.9	3.8	2.9	2.1	0.8	NR	NR	NR	NR
SSS-B-14-40-B	25.0	25.0	23.3	20.8	18.6	15.1	12.3	10.2	9.2	8.4
SSS-B-16-40-B	25.0	24.9	19.4	17.3	15.4	12.3	9.9	8.0	7.2	6.4
SSS-B-18-40-B	24.0	20.8	16.1	14.2	12.5	9.8	7.7	6.1	5.3	4.7
SSS-B-20-40-B	20.2	17.5	13.2	11.6	10.1	7.7	5.9	4.4	3.8	3.2
SSS-B-25-40-B	12.8	11.0	7.9	6.7	5.5	3.7	2.3	1.2	0.7	NR
SSS-B-30-40-B	8.0	6.6	4.1	3.1	2.2	0.8	NR	NR	NR	NR
SSS-B-16-50-B	25.0	25.0	25.0	25.0	24.8	20.1	16.5	13.6	12.3	11.2
SSS-B-18-50-B	25.0	25.0	25.0	22.9	20.4	16.4	13.2	10.7	9.6	8.6
SSS-B-20-50-B	25.0	25.0	21.3	18.9	16.7	13.2	10.4	8.1	7.2	6.3
SSS-B-25-50-B	20.7	17.8	13.3	11.5	9.8	7.2	5.0	3.3	2.6	1.9
SSS-B-30-50-B	13.5	11.3	7.7	6.2	4.9	2.8	1.1	NR	NR	NR
SSS-B-25-50-C	25.0	25.0	19.4	17.1	15.1	11.7	9.0	6.9	6.0	5.1
SSS-B-30-50-C	20.1	17.3	12.7	10.9	9.3	6.6	4.5	2.8	2.1	1.4
SSS-B-20-60-B	25.0	25.0	25.0	25.0	25.0	20.2	16.1	12.9	11.5	10.3
SSS-B-25-60-B	25.0	25.0	20.6	18.0	15.6	11.8	8.7	6.2	5.2	4.2
SSS-B-30-60-B	21.4	18.1	12.9	10.7	8.8	5.7	3.3	1.3	NR	NR
SSS-B-35-60-B	14.0	11.3	6.9	5.2	3.6	1.0	NR	NR	NR	NR
SSS-B-40-60-B	8.1	5.8	2.2	nr	NR	NR	NR	NR	NR	NR

Florida Building Code 2017 EPA Load Rating - 3 second gust wind speeds
 (Use for Florida only)

Catalog Number	115	120	130	140	150	160	170	180
SSS-B-10-40-A	25.0	25.0	25.0	25.0	21.4	18.4	15.9	13.9
SSS-B-12-40-A	25.0	25.0	23.6	19.8	16.7	14.2	12.1	10.4
SSS-B-14-40-A	25.0	23.1	19.0	15.7	13.1	10.9	9.1	7.6
SSS-B-16-40-A	20.8	18.7	15.2	12.3	10.1	8.2	6.7	5.4
SSS-B-18-40-A	16.8	15.0	11.9	9.4	7.5	5.9	4.5	3.4
SSS-B-20-40-A	13.6	11.9	9.2	7.1	5.3	3.9	2.7	1.7
SSS-B-25-40-A	7.4	6.2	4.1	2.5	1.1	NR	NR	NR
SSS-B-14-40-B	25.0	23.6	19.4	16.1	13.4	11.2	9.4	7.8
SSS-B-16-40-B	21.4	19.2	15.6	12.7	10.4	8.5	6.9	5.6
SSS-B-18-40-B	17.2	15.4	12.2	9.7	7.7	6.1	4.7	3.6
SSS-B-20-40-B	13.9	12.3	9.5	7.3	5.5	4.1	2.9	1.9
SSS-B-25-40-B	7.7	6.4	4.3	2.6	1.3	NR	NR	NR
SSS-B-30-40-B	3.2	2.1	NR	NR	NR	NR	NR	NR
SSS-B-16-50-B	25.0	25.0	25.0	25.0	25.0	21.4	18.2	15.5
SSS-B-18-50-B	25.0	25.0	25.0	24.4	20.4	17.0	14.2	11.9
SSS-B-20-50-B	25.0	25.0	24.4	19.9	16.3	13.4	11.0	8.9
SSS-B-25-50-B	21.8	19.3	15.0	11.5	8.8	6.5	4.7	3.1
SSS-B-30-50-B	13.7	11.7	8.2	5.5	3.3	1.5	NR	NR
SSS-B-25-50-C	21.8	19.3	15.0	11.5	8.8	6.5	4.7	3.1
SSS-B-30-50-C	13.7	11.7	8.2	5.5	3.3	1.5	NR	NR
SSS-B-20-60-B	25.0	25.0	25.0	21.9	17.8	14.5	11.7	9.4
SSS-B-25-60-B	23.8	20.9	16.1	12.3	9.2	6.6	4.5	2.8
SSS-B-30-60-B	14.6	12.3	8.4	5.3	2.8	0.8	NR	NR
SSS-B-35-60-B	7.5	5.6	2.4	NR	NR	NR	NR	NR
SSS-B-40-60-B	1.8	NR	NR	NR	NR	NR	NR	NR

Submitted by Swaney Lighting	Job Name: CUMBERLAND CONDOS	Catalog Number: SSSB20-40A-1-B3-***	Type: A4
		Notes: QUOTING 20FT POLE ON FLUSH BASE	SLA22-51387

NOTES

Wind-speed Website disclaimer:

Hubbell Lighting has no connection to the linked website and makes no representations as to its accuracy. While the information presented on this third-party website provides a useful starting point for analyzing wind conditions, Hubbell Lighting has not verified any of the information on this third party website and assumes no responsibility or liability for its accuracy. The material presented in the windspeed website should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. Hubbell Lighting Inc. does not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the windspeed report provided by this website. Users of the information from this third party website assume all liability arising from such use. Use of the output of these referenced websites do not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the windspeed report. <http://windspeed.atcouncil.org>

NOTES

- Allowable EPA, to determine max pole loading weight, multiply allowable EPA by 30 lbs.
- The tables for allowable pole EPA are based on the ASCE 7-05 Wind Map or the Florida Region Wind Map for the 2010 Florida Building Code. The Wind Maps are intended only as a general guide and cannot be used in conjunction with other maps. Always consult local authorities to determine maximum wind velocities, gusting and unique wind conditions for each specific application
- Allowable pole EPA for jobsite wind conditions must be equal to or greater than the total EPA for fixtures, arms, and accessories to be assembled to the pole. Responsibility lies with the specifier for correct pole selection. Installation of poles without luminaires or attachment of any unauthorized accessories to poles is discouraged and shall void the manufacturer's warranty
- Wind speeds and listed EPAs are for ground mounted installations. Poles mounted on structures (such as bridges and buildings) must consider vibration and coefficient of height factors beyond this general guide; Consult local and federal standards
- Wind Induced Vibration brought on by steady, unidirectional winds and other unpredictable aerodynamic forces are not included in wind velocity ratings. Consult Hubbell Lighting's Pole Vibration Application Guide for environmental risk factors and design considerations. https://hubbellcdn.com/ohwassets/HLJ/outdoor/resources/literature/files/Pole_Wind_Induced_Flyer_HLQ10022.pdf
- Extreme Wind Events like, Hurricanes, Typhoons, Cyclones, or Tornadoes may expose poles to flying debris, wind shear or other detrimental effects not included in wind velocity ratings

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HUBBELL
Lighting

SSS-B POLES-SPEC

JULY 28, 2020 8:45 AM

Exhibit 12

Other Agency Approvals

Exhibit 12

Other Agency Approvals

See this exhibit for review letters from MDIFW, MNAP and MHPC



STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
353 WATER STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041



March 17, 2022

Aaron Radziucz
Sebago Technics
75 John Roberts Road, Suite 4A
South Portland, ME 04106

RE: Information Request – Condo Development Project, Cumberland

Dear Aaron:

Per your request received on February 24, 2022, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within the vicinity of the *Condo Development* project in Cumberland.

Our Department has not mapped any Essential Habitats or inland fisheries habitats that would be directly affected by your project.

Endangered, Threatened, and Special Concern Species

Bat Species – Of the eight species of bats that occur in Maine, the three *Myotis* species are protected under Maine's Endangered Species Act (MESA) and are afforded special protection under 12 M.R.S. §12801 - §12810. The three *Myotis* species include little brown bat (State Endangered), northern long-eared bat (State Endangered), and eastern small-footed bat (State Threatened). The five remaining bat species are listed as Special Concern: big brown bat, red bat, hoary bat, silver-haired bat, and tri-colored bat. While a comprehensive statewide inventory for bats has not been completed, based on historical evidence it is likely that several of these species occur within the project area during migration and/or the breeding season. However, our Agency does not anticipate significant impacts to any of the bat species as a result of this project.

Wood Turtle - Occurrences of wood turtle, a State Species of Special Concern, have been documented within the vicinity of the search area of the proposed project. Wood turtles use a mix of aquatic and terrestrial habitats throughout the year including riparian meadows, shrub thickets, farmland, and deciduous forests as well as bogs, forested wetlands, vernal pools, and streams. If these habitats are present in the project area, we recommend that they be avoided and adequately buffered with a 300-foot undisturbed, intact vegetative cover.

Significant Wildlife Habitat

Significant Vernal Pools - At this time MDIFW Significant Wildlife Habitat (SWH) maps indicate no known presence of SWHs subject to protection under the Natural Resources Protection Act (NRPA) within the project area, which include Waterfowl and Wading Bird Habitats, Seabird Nesting Islands, Shorebird Areas, and Significant Vernal Pools. However, a comprehensive statewide inventory for Significant Vernal Pools has not been completed. Therefore, we recommend that surveys for vernal pools

be conducted within the project boundary by qualified wetland scientists prior to final project design to determine whether there are Significant Vernal Pools present in the area. These surveys should extend up to 250 feet beyond the anticipated project footprint because of potential performance standard requirements for off-site Significant Vernal Pools, assuming such pools are located on land owned or controlled by the applicant. Once surveys are completed, survey forms should be submitted to our Agency for review well before the submission of any necessary permits. Our Department will need to review and verify any vernal pool data prior to final determination of significance.

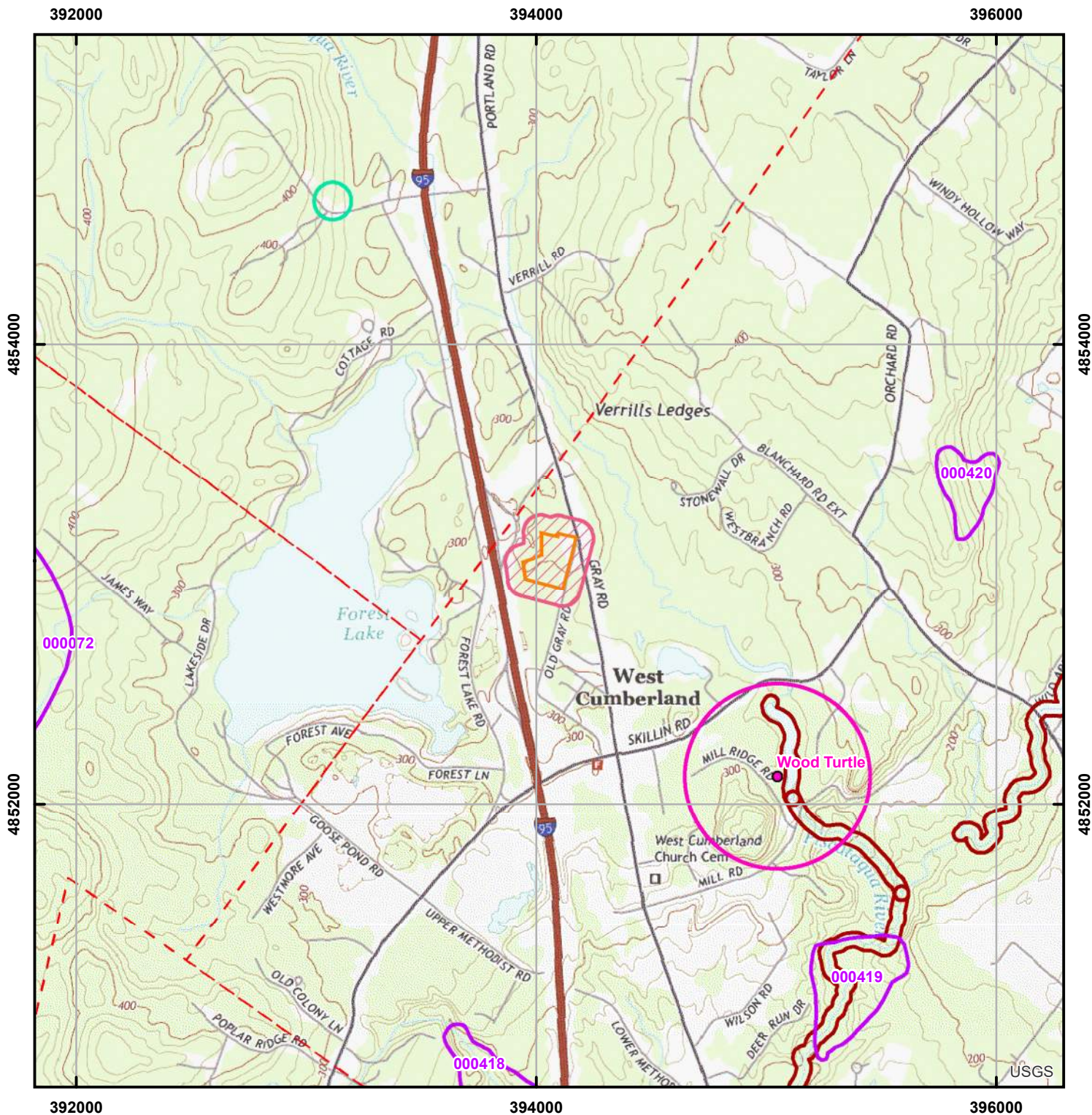
This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program, Maine Department of Marine Resources, and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

A handwritten signature in black ink, appearing to read 'Becca Settele', with a stylized, flowing script.

Becca Settele
Wildlife Biologist



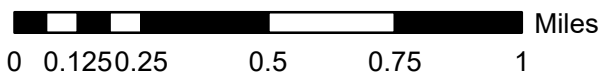
Environmental Review of Fish and Wildlife Observations and Priority Habitats

Project Name:

Condo Development, Cumberland
(Version 1)



Maine Department of
Inland Fisheries and Wildlife



Projection: UTM, NAD83, Zone 19N

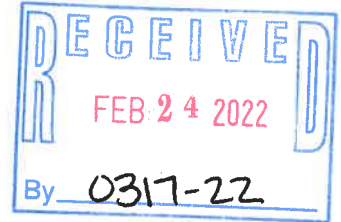
Date: 2/26/2022

- ProjectSearchAreas - All Versions
- Maine Cliff and Talus Areas

- Deer Winter Area
- LUPC p-fw
- Cooperative DWAs
- Seabird Nesting Islands
- Shorebird Areas
- Inland Waterfowl and Wading Bird
- 2008 lwwh - Shoreland Zoning
- Tidal Waterfowl and Wading Bird
- Significant Vernal Pools
- Environmental Review Polygons

- Roseate Tern
- Piping Plover and Least Tern
- Aquatic ETSc - 2.5 mi review
- Rare Mussels - 5 mi review
- Maine Heritage Fish Waters
- Arctic Charr Habitat
- Redfin Pickerel and Swamp Darter Habitats - buffer100ft
- Special Concern occupied habitats - 100ft buffer
- Wild Lake Trout Habitats





February 24, 2022
20551

Mr. Kirk Mohny
Maine Historic Preservation Commission
65 State House Station
Augusta, Maine 04333

Email submittal: claudette.coyne@maine.gov

Evergreen Estates
246 Gray Road, Cumberland, ME
Tax Map U21 Lot 5A

Dear Mr. Mohny:

On behalf of Envy Construction, Sebago Technics respectfully requests a site review for a proposed condominium development on a 5.69-acre site at 246 Gray Road. As part of the site reconnaissance, we request review by the Maine Historic Preservation Commission for any properties, structures or archaeological areas of historic significance in the vicinity of the proposed site.

Existing land cover on the property is undeveloped and consists of primarily of woods. Review of available local historic information did not identify known historic sites in close proximity to the proposed development. We note that the *Section 12 Historic and Archeological* section of the 2014 Town of Cumberland Comprehensive Plan states that the Maine Historic Preservation Commission has identified no historic archaeological sites. Review of the assessor appraisal information identified a few structures on abutting properties that are older than 50 years of age. We have included their locations on a key map and the associated cards for your reference. This submittal includes a USGS Site location map, and key map and assessor cards with images of abutting structures > 50 years in age.

At your earliest convenience, could you please review the material and let me know of your findings. If you have any questions on this project or if you required additional information, please do not hesitate to contact me at aradziucz@sebagotechnics.com or on my direct line at (207) 200-2096. I look forward to hearing from you.

Sincerely,
SEBAGO TECHNICS, INC.

Aaron Radziucz, E.I.
Civil Engineer

AR/sn

Based on the information submitted, I have concluded that there will be no historic properties affected by the proposed undertaking, as defined by Section 106 of the National Historic Preservation Act. Consequently, pursuant to 36 CFR 800.4(d)(1), no further Section 106 consultation is required unless additional resources are discovered during project implementation pursuant to 36 CFR 800.13.

Kirk F. Mohny,
State Historic Preservation Officer
Maine Historic Preservation Commission

3/7/22
Date



STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

February 28, 2022

Aaron Radziucz
Sebago Technics
75 John Roberts Road, Suite 4A
South Portland, ME 04106

Via email: aradziucz@sebagotechnics.com

Re: Rare and exemplary botanical features in proximity to: Project #20551, Evergreen Estates Condominiums,
246 Old Gray Road, Cumberland, Maine

Dear Mr. Radziucz:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received February 24, 2022 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Cumberland, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
BLOSSOM LANE, DEERING BUILDING



PHONE: (207) 287-804490
WWW.MAINE.GOV/DACF/MNAP

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

The Maine Natural Areas Program has instituted a fee structure of \$75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for \$150.00 for two hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Lisa St. Hilaire

Lisa St. Hilaire | Information Manager | Maine Natural Areas Program
207-287-8044 | lisa.st.hilaire@maine.gov

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Broad Beech Fern	SC	S2	G5	2016-09-04	28	Hardwood to mixed forest (forest, upland)
Engelmann's Spikerush	PE	SH	G4G5	1916-08-31	2	Open wetland, not coastal nor rivershore (non-forested,
Enriched Northern Hardwoods		S3	GNR	2001-08-28	34	Hardwood to mixed forest (forest, upland)
Fern-leaved False Foxglove	SC	S3	G5	1902-09-02	13	Dry barrens (partly forested, upland),Hardwood to mixed
Great Blue Lobelia	PE	SX	G5	1905-09	3	Forested wetland,Non-tidal rivershore (non-forested,
Horned Pondweed	SC	S2	G5	1913-09-13	9	Tidal wetland (non-forested, wetland)
Marsh Milkwort	PE	SH	G5T4	1903-08-18	1	Dry barrens (partly forested, upland),Open wetland, not
Oak - Hickory Forest		S1	G4G5	2014-08-21	5	Hardwood to mixed forest (forest, upland)
Pocket Swamp		S2	G5	2017-07-27	24	Forested wetland,Hardwood to mixed forest (forest,
Rattlesnake Hawkweed	E	S1	G5T4Q	1909-07	1	Dry barrens (partly forested, upland)
Smooth Winterberry Holly	SC	S3	G5	2017-08-23	45	Forested wetland
Spotted Pondweed						
Maine Natural Areas Program				Page 1 of 2		www.maine.gov/dacf/mnap

Spotted Pondweed	T	S1	G5	2016-06-22	3	Open water (non-forested, wetland)
Spotted Wintergreen	T	S2	G5	2009-07-26	30	Conifer forest (forest, upland),Hardwood to mixed forest
Water-plantain Spearwort	PE	SH	G4	1903-07-29	2	Open water (non-forested, wetland) ' D W H ([S R U W H G

Conservation Status Ranks

State and Global Ranks: This ranking system facilitates a quick assessment of a species' or habitat type's rarity and is the primary tool used to develop conservation, protection, and restoration priorities for individual species and natural habitat types. Each species or habitat is assigned both a state (S) and global (G) rank on a scale of critically imperiled (1) to secure (5). Factors such as range extent, the number of occurrences, intensity of threats, etc., contribute to the assignment of state and global ranks. The definitions for state and global ranks are comparable but applied at different geographic scales; something that is state imperiled may be globally secure.

The information supporting these ranks is developed and maintained by the Maine Natural Areas Program (state ranks) and NatureServe (global ranks).

Rank	Definition
S1 G1	Critically Imperiled – At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.
S2 G2	Imperiled – At high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
S3 G3	Vulnerable – At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
S4 G4	Apparently Secure – At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
S5 G5	Secure – At very low risk of extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.
SX GX	Presumed Extinct – Not located despite intensive searches and virtually no likelihood of rediscovery.
SH GH	Possibly Extinct – Known from only historical occurrences but still some hope of rediscovery.
S#S# G#G#	Range Rank – A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem.
SU GU	Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
GNR SNR	Unranked – Global or subnational conservation status not yet assessed.
SNA GNA	Not Applicable – A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., non-native species or ecosystems).
Qualifier	Definition
S#? G#?	Inexact Numeric Rank – Denotes inexact numeric rank.
Q	Questionable taxonomy that may reduce conservation priority – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable. The “Q” modifier is only used at a global level.
T#	Intraspecific Taxon (trinomial) – The status of intraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank.

State Status: Endangered and Threatened are legal status designations authorized by statute. Please refer to MRSA Title 12, §544 and §544-B.

Status	Definition
E	Endangered – Any native plant species in danger of extinction throughout all or a significant portion of its range within the State or Federally listed as Endangered.
T	Threatened – Any native plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range in the State or Federally listed as Threatened.
SC	Special Concern – A native plant species that is rare in the State, but not rare enough to be considered Threatened or Endangered.
PE	Potentially Extirpated – A native plant species that has not been documented in the State in over 20 years, or loss of the last known occurrence.

Element Occurrence (EO) Ranks: Quality assessments that designate viability of a population or integrity of habitat. These ranks are based on size, condition, and landscape context. Range ranks (e.g., AB, BC) and uncertainty ranks (e.g., B?) are allowed. The Maine Natural Areas Program tracks all occurrences of rare plants and natural communities/ecosystems (S1-S3) as well as exemplary common natural community types (S4-S5 with EO ranks A/B).

Rank	Definition
A	Excellent – Excellent estimated viability/ecological integrity.
B	Good – Good estimated viability/ecological integrity.
C	Fair – Fair estimated viability/ecological integrity.
D	Poor – Poor estimated viability/ecological integrity.
E	Extant – Verified extant, but viability/ecological integrity not assessed.
H	Historical – Lack of field information within past 20 years verifying continued existence of the occurrence, but not enough to document extirpation.
X	Extirpated – Documented loss of population/destruction of habitat.
U	Unrankable – Occurrence unable to be ranked due to lack of sufficient information (e.g., possible mistaken identification).
NR	Not Ranked – An occurrence rank has not been assigned.

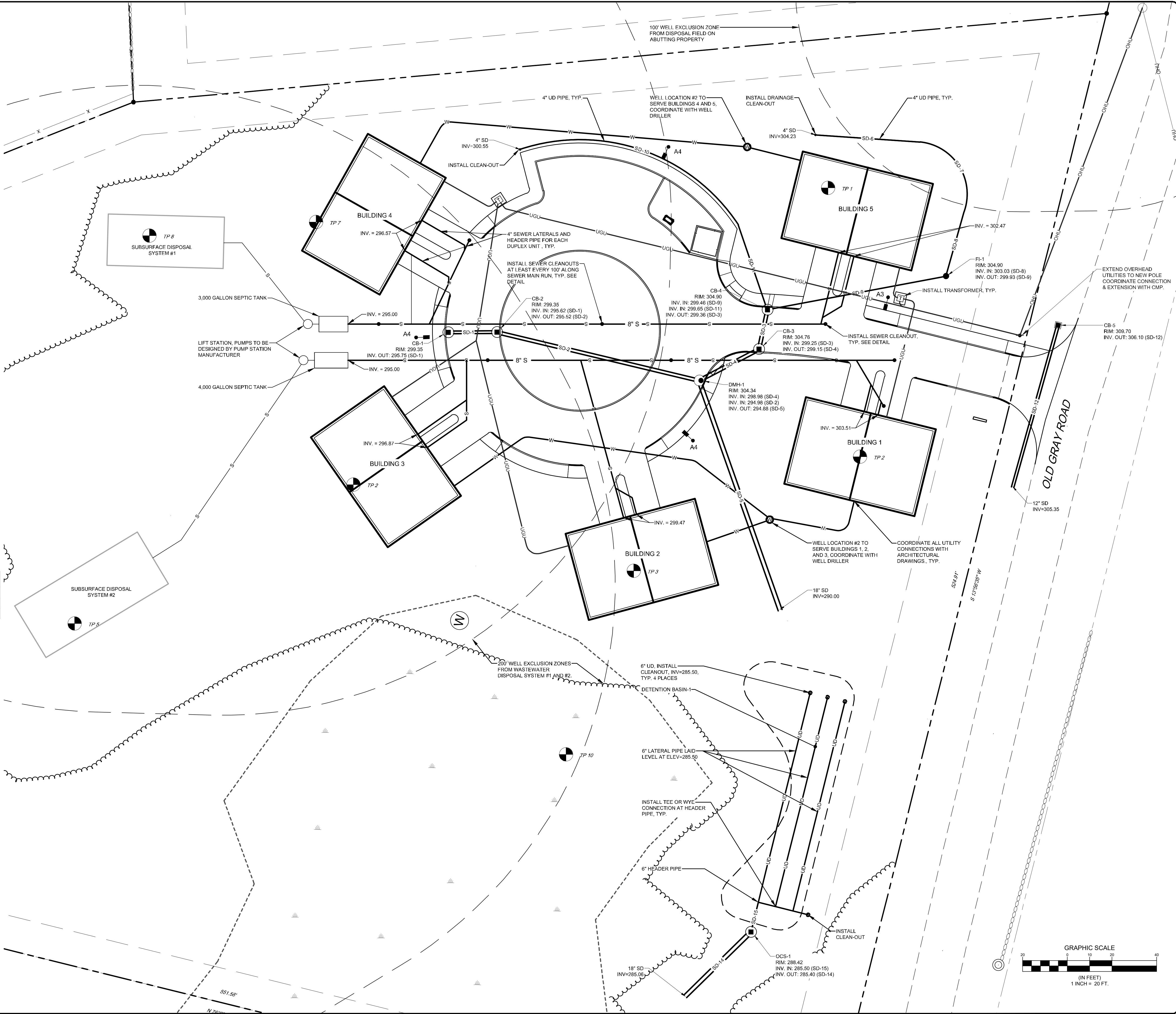
Visit the Maine Natural Areas Program website for more information
<http://www.maine.gov/dacf/mnap>



LUMINAIRE SCHEDULE	
TAG	DESCRIPTION
A3	VP-1-160L-100-3K7-3
A4	VP-1-160L-115-3K7-4W

STORM DRAIN PIPE DATA			
NAME	SIZE	LENGTH	SLOPE
SD-1	12"	18'	0.74%
SD-2	15"	89'	0.61%
SD-3	15"	14'	0.77%
SD-4	15"	26'	0.65%
SD-5	18"	107'	4.56%
SD-6	4"	47'	1.00%
SD-7	4"	43'	1.00%
SD-8	4"	29'	1.03%
SD-9	8"	78'	0.60%
SD-10	4"	111'	0.60%
SD-11	4"	38'	0.60%
SD-12	12"	74'	1.01%
SD-14	18"	39'	0.86%
SD-15	6"	12'	0.00%

STORM DRAIN STRUCTURE DATA				
STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
CB-1	299.35		295.75 (SD-1)	48"
CB-2	299.35	295.62 (SD-1)	295.52 (SD-2)	48"
CB-3	304.76	299.25 (SD-3)	299.15 (SD-4)	48"
CB-4	304.90	299.46 (SD-9) 299.65 (SD-11)	299.36 (SD-3)	48"
CB-5	309.70		306.10 (SD-12)	???"
DMH-1	304.34	298.98 (SD-4) 294.98 (SD-2)	294.88 (SD-5)	48"
FI-1	304.90	303.03 (SD-8)	299.93 (SD-9)	24"
OCS-1	288.42	285.50 (SD-15)	285.40 (SD-14)	48"



NOT FOR
CONSTRUCTION



REV.	BY	DATE	STATUS	DESCRIPTION
B	CAB	05/31/2022	ISSUED TO TOWN FOR PRELIMINARY REVIEW	
A	CAB	05/05/2022	ISSUED TO TOWN FOR STAFF REVIEW	

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SEBAGO TECHINCS, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SEBAGO TECHINCS, INC.

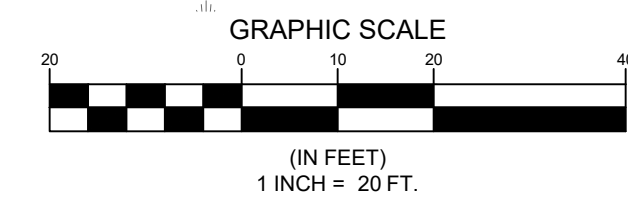
SEBAGO
TECHNICS
www.sebagotechinics.com
75 John Roberts Rd.
South Portland, ME 04106
Tel. 207-260-2100

UTILITY PLAN
OF:
EVERGREEN ESTATES
246 OLD GRAY ROAD
CUMBERLAND, ME
FOR:
ENVY CONSTRUCTION
28 STONE RIDGE ROAD
FALMOUTH, ME 04105

DESIGNED	AJR
DRAWN	ER
CHECKED	CAB
DATE	01/11/2022
SCALE	1" = 20'
PROJECT	20551

SHEET 6 OF 11

20551-U06w_TAB 2x4x36



NOT FOR
CONSTRUCTION



B	CAB	05/31/2022	ISSUED TO TOWIN FOR PRELIMINARY REVIEW
A	CAB	06/05/2022	ISSUED TO TOWIN FOR STAFF REVIEW
REV:	BW	DATE:	STATUS:

SEBAGO
TECHNICS
WWW.SEBOGOTECHNICS.COM
75 John Roberts Rd.
Suite 414
South Portland, ME 04106
Tel. 207-260-2100

LANDSCAPE PLAN
OF:
EVERGREEN ESTATE
246 OLD GRAY ROAD
CUMBERLAND, ME
FOR:
ENVY CONSTRUCTION
28 STONE RIDGE ROAD
FALMOUTH, ME 04105

DESIGNED	AJR
DRAWN	ER
CHECKED	CAB
DATE	01/11/2022
SCALE	1" = 20'
PROJECT	20551

SHEET 7 OF 11

EROSION CONTROL MEASURES

PRE-CONSTRUCTION PHASE

PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, SEDIMENT BARRIERS (SILT FENCE) WILL BE STAKED/INSTALLED ACROSS THE SLOPE(S), ON THE CONTOUR AT OR JUST BELOW THE LIMITS OF CLEARING OR GRUBBING, AND/OR JUST ABOVE ANY ADJACENT PROPERTY LINE OR WATERCOURSE TO PROTECT AGAINST CONSTRUCTION RELATED EROSION. THE PLACEMENT OF SEDIMENT BARRIERS SHALL BE COMPLETED IN ACCORDANCE WITH GUIDELINES ESTABLISHED IN BEST MANAGEMENT PRACTICES AND IN ACCORDANCE WITH THIS EROSION CONTROL PLAN AND DETAILS IN THIS PLAN SET. THIS NETWORK IS TO BE MAINTAINED BY THE CONTRACTOR UNTIL ALL EXPOSED SLOPES HAVE AT LEAST 90% VIGOROUS PERENNIAL VEGETATIVE COVER TO PREVENT EROSION. TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER PERMANENT STABILIZATION IS ATTAINED.

PRIOR TO ANY CLEARING OR GRUBBING, A CONSTRUCTION ENTRANCE/EXIT SHALL BE CONSTRUCTED AT THE INTERSECTION OF THE PROPOSED ENTRANCES AND EXISTING ROADWAY TO AVOID TRACKING OF MUD, DUST AND DEBRIS FROM THE SITE.

PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL PREPARE A DETAILED SCHEDULE AND MARKED UP PLAN INDICATING AREAS AND COMPONENTS OF THE WORK AND KEY DATES SHOWING DATE OF DISTURBANCE AND COMPLETION OF THE WORK. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE MUNICIPAL STAFF. THREE COPIES OF THE SCHEDULE AND MARKED UP PLAN SHALL BE PROVIDED TO THE MUNICIPALITY THREE DAYS PRIOR TO THE SCHEDULED PRE-CONSTRUCTION MEETING. SPECIAL ATTENTION SHALL BE GIVEN TO THE 14 DAY LIMIT OF DISTURBANCE IN THE SCHEDULE ADDRESSING TEMPORARY AND PERMANENT VEGETATION MEASURES.

CONSTRUCTION AND POST-CONSTRUCTION PHASE

AREAS UNDERGOING ACTUAL CONSTRUCTION SHALL ONLY EXPOSE THAT AMOUNT OF MINERAL SOIL NECESSARY FOR PROGRESSIVE AND EFFICIENT CONSTRUCTION. AN AREA CONSIDERED OPEN IS ANY AREA NOT STABILIZED WITH PAVEMENT, VEGETATION, MULCHING, EROSION CONTROL MATS, RIPRAP OR GRAVEL BASE ON A ROAD, SUCH AS ACTIVE EXCAVATION AND ACTIVE GRADING. LIMIT THE EXPOSED AREA TO THOSE AREAS IN WHICH WORK IS ACTIVELY OCCURRING OR CAN BE MULCHED IN THE SAME DAY. OPEN AREAS SHALL BE ANCHORED WITH TEMPORARY EROSION CONTROL AS SHOWN ON THE DESIGN PLANS AND AS DESCRIBED WITHIN THIS EROSION CONTROL PLAN WITHIN SEVEN (7) DAYS OF DISTURBANCE. AREAS LOCATED WITHIN 100 FEET OF STREAMS SHALL BE ANCHORED WITH TEMPORARY EROSION CONTROL WITHIN SEVEN (7) DAYS. REFER TO WINTER EROSION CONTROL NOTES FOR THE TREATMENT OF OPEN AREAS AFTER OCTOBER 1ST OF THE CONSTRUCTION YEAR.

THE CONTRACTOR MUST INSTALL ANY ADDED MEASURES WHICH MAY BE NECESSARY TO CONTROL EROSION/SEDIMENTATION FROM THE SITE DEPENDENT UPON THE ACTUAL SITE AND WEATHER CONDITIONS. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED, IN ORDER TO MINIMIZE AREAS WITHOUT EROSION CONTROL PROTECTION.

EROSION CONTROL APPLICATIONS & MEASURES

THE PLACEMENT OF EROSION CONTROL MEASURES SHALL BE COMPLETED IN ACCORDANCE WITH GUIDELINES ESTABLISHED IN BEST MANAGEMENT PRACTICES AND IN ACCORDANCE WITH THE EROSION CONTROL PLAN AND DETAILS IN THE PLAN SET.

1. TEMPORARY MULCHING:

ALL DISTURBED AREAS SHALL BE MULCHED WITH MATERIALS SPECIFIED BELOW PRIOR TO ANY STORM EVENT. ALL DISTURBED AREAS NOT FINAL GRADED WITHIN 14 DAYS SHALL BE MULCHED. DISTURBED AREAS ADJACENT TO NATURAL RESOURCES THAT ARE NOT GRADED WITHIN SEVEN (7) DAYS SHALL BE MULCHED. ALSO, AREAS WHICH HAVE BEEN TEMPORARILY OR PERMANENTLY SEEDED, SHALL BE MULCHED IMMEDIATELY FOLLOWING SEEDING. EROSION CONTROL BLANKETS ARE RECOMMENDED TO BE USED AT THE BASE OF GRASSED WATERWAYS AND ON SLOPES GREATER THAN 33%. MULCH ANCHORING SHOULD BE USED ON SLOPES GREATER THAN 5% AFTER SEPTEMBER 15TH OF THE CONSTRUCTION YEAR (SEE WINTER EROSION CONTROL NOTES). TYPES OF MULCH:

HAY OR STRAW: SHALL BE APPLIED AT A RATE OF 75 LBS/1,000 S.F. (1.5 TONS PER ACRE).

EROSION CONTROL MIX: SHALL BE PLACED EVENLY AND MUST PROVIDE 100% SOIL COVERAGE. EROSION CONTROL MIX SHALL BE APPLIED SUCH THAT THE THICKNESS ON SLOPES 3:1 OR LESS IS 2 INCHES PLUS 1/2 INCH PER 20 FEET OF SLOPE UP TO 100 FEET. THE THICKNESS ON SLOPES BETWEEN 3:1 AND 2:1 SHALL BE 4 INCHES PLUS 1/2 INCH PER 20 FEET OF SLOPE UP TO 100 FEET. THIS SHALL NOT BE USED ON SLOPES GREATER THAN 2:1.

EROSION CONTROL BLANKET: SHALL BE INSTALLED SUCH THAT CONTINUOUS CONTACT BETWEEN THE MAT AND THE SOIL IS OBTAINED. INSTALL BLANKETS AND STAPLE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

2. SOIL STOCKPILES:

STOCKPILES OF SOIL OR SUBSOIL SHALL BE MULCHED WITH HAY OR STRAW AT A RATE OF 75 LBS/1,000 S.F. (1.5 TONS PER ACRE) OR WITH A FOUR-INCH LAYER OF WOOD WASTE EROSION CONTROL MIX. THIS WILL BE DONE WITHIN 24 HOURS OF STOCKING AND RE-ESTABLISHED PRIOR TO ANY RAINFALL. ANY SOIL STOCKPILE WILL NOT BE PLACED (EVEN COVERED WITH HAY OR STRAW) WITHIN 100 FEET FROM ANY NATURAL RESOURCES. SEDIMENT BARRIERS SHALL BE INSTALLED DOWNGRADIENT OF STOCKPILES, AND STORMWATER SHALL BE PREVENTED FROM RUNNING ONTO THE STOCKPILE.

3. NATURAL RESOURCES PROTECTION:

ANY AREAS WITHIN 100 FEET FROM ANY NATURAL RESOURCES SHALL BE MULCHED USING TEMPORARY MULCHING (AS DESCRIBED IN PART 1 OF THIS SECTION) WITHIN 7 DAYS OF EXPOSURE OR PRIOR TO ANY STORM EVENT. SEDIMENT BARRIERS (AS DESCRIBED IN PART 4 OF THIS SECTION) SHALL BE PLACED BETWEEN ANY NATURAL RESOURCE AND THE DISTURBED AREA. PROJECTS CROSSING THE NATURAL RESOURCE SHALL BE PROTECTED A MINIMUM DISTANCE OF 100 FEET ON EITHER SIDE FROM THE RESOURCE.

4. SEDIMENT BARRIERS:

PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, SEDIMENT BARRIERS SHALL BE STAKED ACROSS THE SLOPE(S), ON THE CONTOUR AT OR JUST BELOW THE LIMITS OF CLEARING OR GRUBBING, AND/OR JUST ABOVE ANY ADJACENT PROPERTY LINE OR WATERCOURSE TO PROTECT AGAINST CONSTRUCTION RELATED EROSION. SEDIMENT BARRIERS SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL ALL EXPOSED SLOPES HAVE AT LEAST 90% VIGOROUS PERENNIAL VEGETATIVE COVER TO PREVENT EROSION.

SILT FENCE: SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. THE EFFECTIVE HEIGHT OF THE FENCE SHALL NOT EXCEED 36 INCHES. IT IS RECOMMENDED THAT SILT FENCE BE REMOVED BY CUTTING THE FENCE MATERIALS AT GROUND LEVEL, SO AS TO AVOID ADDITIONAL SOIL DISTURBANCE.

HAY BALES: SHALL NOT BE INSTALLED ADJACENT TO WETLAND. INSTALL PER THE DETAIL ON THE PLANS. BALES SHALL BE WIRE-BOUND OR STRING-TIED AND THESE BINDINGS MUST REMAIN PARALLEL WITH THE GROUND SURFACE DURING INSTALLATION TO PREVENT DEFORMATION OF THE BINDINGS. BALES SHALL BE INSTALLED WITHIN A MINIMUM 4 INCH DEEP TRENCH LINE WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER.

EROSION CONTROL MIX: SHALL NOT BE USED ADJACENT TO WETLANDS. INSTALL PER THE DETAIL ON THE PLANS. THE MIX SHALL CONSIST PRIMARILY OF ORGANIC MATERIAL AND CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4 INCHES IN DIAMETER. THE MIX COMPOSITION SHALL MEET THE STANDARDS DESCRIBED WITHIN THE MDEP BEST MANAGEMENT PRACTICES. NO TRENCHING IS REQUIRED FOR INSTALLATION OF THIS BARRIER. EROSION CONTROL MIX BERMS SHALL NOT BE USED AT THE BOTTOM OF STEEP SLOPES (>8%) OR SLOPES WITH FLOWING WATER.

CONTINUOUS CONTAINED BERM: SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. THIS SEDIMENT BARRIER IS EROSION CONTROL MIX PLACED WITH A SYNTHETIC TUBULAR NETTING AND PERFORMS AS A STURDY SEDIMENT BARRIER THAT WORKS WELL ON HARD GROUND SUCH AS FROZEN CONDITIONS, TRAVELED AREAS OR PAVEMENT. NO TRENCHING IS REQUIRED FOR INSTALLATION OF THIS BARRIER.

5. TEMPORARY CHECK DAMS:

SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. CHECK DAMS ARE TO BE PLACED WITHIN DITCHES/ SWALES AS SPECIFIED ON THE DESIGN PLANS IMMEDIATELY AFTER FINAL GRADE. DAMS MAY BE REMOVED AFTER SEVEN (7) DAYS. TEMPORARY CHECK DAMS MAY BE REMOVED ONLY AFTER THE ROADWAYS ARE PAVED AND THE VEGETATED SWALE ARE ESTABLISHED WITH AT LEAST 90% OF VIGOROUS PERENNIAL GROWTH. THE AREA BENEATH THE CHECK DAM MUST BE SEEDED AND MULCHED IMMEDIATELY AFTER REMOVAL OF THE CHECK DAM.

STONE CHECK DAMS: STONE DAMS SHOULD BE CONSTRUCTED OF 2 TO 3 INCH STONE AND PLACED SUCH THAT COMPLETE COVERAGE OF THE SWALE IS OBTAINED AND THAT THE CENTER OF THE DAM IS 6 INCHES LOWER THAN THE OUTER EDGES.

HAY BALE CHECK DAMS: BALES SHALL BE WIRE-BOUND OR STRING-TIED. BALES SHALL BE INSTALLED WITHIN A MINIMUM 4 INCH DEEP TRENCH LINE WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER. HAY BALES SHALL BE PLACED SUCH THAT COMPLETE COVERAGE OF THE SWALE IS OBTAINED AND THAT THE CENTER OF THE DAM IS 6 INCHES LOWER THAN THE OUTER EDGES.

MANUFACTURED CHECK DAMS: MANUFACTURED CHECK DAMS, AS SPECIFIED IN THE DETAIL ON THE PLANS, MAY BE USED IF AUTHORIZED BY THE PROPER LOCAL, STATE OR FEDERAL REGULATING AGENCIES. THESE UNITS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURE'S RECOMMENDATIONS.

6. STORMDRAIN INLET PROTECTION:

INLET PROTECTION SHALL BE PLACED AROUND A STORMDRAIN DROP INLET OR CURB INLET PRIOR TO PERMANENT STABILIZATION OF THE IMMEDIATE AND UPSTREAM DISTURBED AREAS. THEY SHALL BE CONSTRUCTED IN A MANNER THAT WILL FACILITATE CLEAN-OUT AND DISPOSAL OF TRAPPED SEDIMENTS AND MINIMIZE INTERFERENCE WITH CONSTRUCTION ACTIVITIES. ANY RESULTANT PONDING OF WATER FROM THE PROTECTION METHOD MUST NOT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT AREAS OR STRUCTURES.

HAY BALE DROP INLET PROTECTION: WE DO NOT RECOMMEND THE USE OF HAY BALES AS INLET PROTECTION.

CONCRETE BLOCK AND STONE INLET SEDIMENT FILTER (DROP OR CURB INLET): SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. THE HEIGHT OF THE CONCRETE BLOCK BARRIER CAN VARY BUT MUST BE BETWEEN 12 AND 24 INCHES TALL. A MINIMUM OF 1 INCH CRUSHED STONE SHALL BE USED.

MANUFACTURED SEDIMENT BARRIERS AND FILTER (DROP OR CURB INLET): MANUFACTURED FILTERS, AS SPECIFIED IN THE DETAIL ON THE PLANS, MAY BE USED IF INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

7. STABILIZED CONSTRUCTION ENTRANCE/EXIT:

PRIOR TO CLEARING AND/OR GRUBBING THE SITE A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE CONSTRUCTED WHEREVER TRAFFIC WILL EXIT THE CONSTRUCTION SITE ONTO A PAVED ROADWAY IN ORDER TO MINIMIZE THE TRACKING OF SEDIMENT AND DEBRIS FROM THE CONSTRUCTION SITE ONTO PUBLIC ROADWAYS. THE ENTRANCES AND ADJACENT ROADWAY AREAS SHALL BE PERIODICALLY SWEEP TO FURTHER MINIMIZE THE TRACKING OF MUD, DUST OR DEBRIS FROM THE CONSTRUCTION AREA. THE TERM "SWEEP" IS UNDERSTOOD TO MEAN REMOVAL AND RECOVERY OF TRACKED SEDIMENT WITH A STREET SWEEPER, NOT BRUSHING THE MATERIAL INTO SWALES OR STRUCTURES WITH A MECHANICAL BROOM. STABILIZED CONSTRUCTION EXITS SHALL BE CONSTRUCTED IN AREAS SPECIFIED ON THE PLANS AND AS DETAILED ON THE PLANS. THE CONTRACTOR SHALL MAINTAIN THE STABILIZED CONSTRUCTION ENTRANCE UNTIL ALL DISTURBED AREAS ARE STABILIZED.

DUST CONTROL:

DUST CONTROL DURING CONSTRUCTION SHALL BE ACHIEVED BY THE USE OF A WATERING TRUCK TO PERIODICALLY SPRINKLE THE EXPOSED ROADWAY AREAS AS NECESSARY TO REDUCE DUST DURING THE DRY MONTHS. APPLYING OTHER DUST CONTROL PRODUCTS SUCH AS CALCIUM CHLORIDE OR OTHER MANUFACTURED PRODUCTS ARE ALLOWED IF AUTHORIZED BY THE PROPER LOCAL, STATE AND FEDERAL REGULATING AGENCIES. HOWEVER, IT IS THE CONTRACTOR'S ULTIMATE RESPONSIBILITY TO MITIGATE DUST AND SOIL LOSS FROM THE SITE. IF OFF-SITE TRACKING OCCURS, PUBLIC ROADS SHOULD BE SWEEP IMMEDIATELY AND NOT LESS THAN ONCE A WEEK AND PRIOR TO SIGNIFICANT STORM EVENTS.

TEMPORARY VEGETATION:

TEMPORARY VEGETATION SHALL BE APPLIED TO DISTURBED AREAS THAT WILL NOT RECEIVE FINAL GRADING FOR PERIODS UP TO 12 MONTHS. THIS PROCEDURE SHOULD BE USED EXTENSIVELY IN AREAS ADJACENT TO NATURAL RESOURCES. SEEDBED PREPARATION AND SEEDING OF SEED SHALL BE CONDUCTED AS INDICATED IN THE PERMANENT VEGETATION SECTION OF THIS NARRATIVE. SPECIFIC SEEDS (FAST GROWING AND SHORT LIVING) SHALL BE SELECTED FROM THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUALS FOR CONTRACTORS AND ENGINEERS, 2016 OR LATEST REVISION. ALTERNATIVE EROSION CONTROL MEASURES SHOULD BE USED IF SEEDING CAN NOT BE DONE BEFORE SEPTEMBER 15TH OF THE CONSTRUCTION YEAR.

PERMANENT VEGETATION:

REVEGETATION MEASURES SHALL COMMENCE IMMEDIATELY UPON COMPLETION OF FINAL GRADING OF AREAS TO BE LOAMED AND SEEDED. THE APPLICATION OF SEED SHALL BE CONDUCTED BETWEEN APRIL 1ST AND OCTOBER 1ST OF THE CONSTRUCTION YEAR. PLEASE REFER TO THE WINTER EROSION CONTROL NOTES FOR MORE DETAIL. REVEGETATION MEASURES SHALL CONSIST OF THE FOLLOWING:

SEEDBED PREPARATION:

A. FOUR (4) INCHES OF LOAM SHALL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE. LOAM SHALL BE FREE OF SUBSOIL, CLAY LUMPS, STONES AND OTHER OBJECTS OVER 2 INCHES OR LARGER IN ANY DIMENSION, AND WITHOUT WEEDS, ROOTS OR OTHER OBJECTIONABLE MATERIAL.

B. SOILS TESTS SHALL BE TAKEN AT THE TIME OF SOIL STRIPPING TO DETERMINE FERTILIZATION REQUIREMENTS. SOILS TESTS SHALL BE TAKEN PROMPTLY AS TO NOT INTERFERE WITH THE 14-DAY LIMIT ON SOIL EXPOSURE. BASED UPON TEST RESULTS, SOIL AMENDMENTS SHALL BE INCORPORATED INTO THE SOIL PRIOR TO FINAL SEEDING. IN LIEU OF SOIL TESTS, SOIL AMENDMENTS MAY BE APPLIED AS FOLLOWS:

ITEM	APPLICATION RATE
10-20-20 FERTILIZER (N-P205-K20 OR EQUAL)	18.4 LBS./1,000 S.F.
GROUND LIMESTONE (50% CALCIUM & MAGNESIUM OXIDE)	138 LBS./1,000 S.F.
C. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH PROPER EQUIPMENT. ROLL THE AREA TO FIRM THE SEEDBED EXCEPT ON CLAY OR SILTY SOILS OR COARSE SAND.	

APPLICATION OF SEED:

A. SEEDING: SHALL BE CONDUCTED BETWEEN APRIL 1ST AND OCTOBER 1ST OF THE CONSTRUCTION YEAR. GENERALLY A SEED MIXTURE MAY BE APPLIED AS FOLLOWS: (MDEP SEED MIX 2 IS DISPLAYED)

SEED TYPE	APPLICATION RATE
CREeping RED FESCUE	0.46 LBS./1,000 S.F. (20 LBS/ACRE)
RETDOP	0.05 LBS./1,000 S.F. (2 LBS/ACRE)
TALL FESCUE	0.46 LBS./1,000 S.F. (20 LBS/ACRE)
TOTAL:	0.97 LBS./1,000 S.F. (42 LBS/ACRE)

NOTE: A SPECIFIC SEED MIXTURE SHOULD BE CHOSEN TO MATCH THE SOILS CONDITION OF THE SITE. VARIOUS AGENCIES CAN RECOMMEND SEED MIXTURES. MDEP RECOMMENDED SEED MIXTURES ARE IN THE EROSION AND SEDIMENT CONTROL BMP MANUAL DATED 2016 OR LATEST REVISION.

B. HYDROSEEDING: SHALL BE CONDUCTED ON PREPARED AREAS WITH SLOPES LESS THAN 2:1. LIME AND FERTILIZER MAY BE APPLIED SIMULTANEOUSLY WITH THE SEED. RECOMMENDED SEEDING RATES MUST BE INCREASED BY 10% WHEN HYDROSEEDING.

C. MULCHING: SHALL COMMENCE IMMEDIATELY AFTER SEED IS APPLIED. REFER TO THE TEMPORARY MULCHING SECTION OF THIS NARRATIVE FOR DETAILS.

SODDING: FOLLOWING SEEDBED PREPARATION, SOD CAN BE APPLIED IN LIEU OF SEEDING IN AREAS WHERE IMMEDIATE VEGETATION IS MOST BENEFICIAL, SUCH AS DITCHES. AROUND STORMWATER DROP INLETS AND AREAS OF AESTHETIC VALUE. SOD SHOULD BE LAID AT RIGHT ANGLES TO THE DIRECTION OF FLOW, STARTING AT THE LOWEST ELEVATION. SOD SHOULD BE ROLLED OR TAMPED DOWN TO EVEN OUT THE JOINTS ONCE LAID DOWN. WHERE FLOW IS PREVALENT THE SOD MUST BE PROPERLY ANCHORED DOWN. IRRIGATE THE SOD IMMEDIATELY AFTER INSTALLATION. IN MOST CASES, SOD CAN BE ESTABLISHED BETWEEN APRIL 1ST AND NOVEMBER 15TH OF THE CONSTRUCTION YEAR, HOWEVER, REFER TO THE WINTER EROSION CONTROL NOTES FOR ANY ACTIVITIES AFTER OCTOBER 1ST.

STANDARDS FOR TIMELY STABILIZATION:

STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SLOPES -- THE CONTRACTOR WILL CONSTRUCT AND STABILIZE STONE-COVERED SLOPES BY NOVEMBER 15. THE CONTRACTOR WILL SEED AND MULCH ALL SLOPES TO BE VEGETATED BY SEPTEMBER 15. THE MDEP WILL CONSIDER ANY AREA HAVING A GRADE GREATER THAN 15% (10H:1V) TO BE A SLOPE. IF THE CONTRACTOR FAILS TO STABILIZE ANY SLOPE TO BE VEGETATED BY SEPTEMBER 15, THEN THE CONTRACTOR WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER.

- STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS -- BY OCTOBER 1 THE CONTRACTOR WILL SEED THE DISTURBED SLOPE WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET AND APPLY EROSION CONTROL MATS OVER THE MULCHED SLOPE. THE CONTRACTOR WILL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SLOPE BY NOVEMBER 1, THEN THE APPLICANT WILL COVER THE SLOPE WITH A LAYER OF WOOD WASTE COMPOST AS DESCRIBED IN ITEM 2(C.) OF THIS STANDARD OR WITH STONE RIPRAP AS DESCRIBED IN ITEM 2(D.) OF THIS STANDARD.
- STABILIZE THE SLOPE WITH SOD -- THE CONTRACTOR WILL STABILIZE THE DISTURBED SLOPE WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE APPLICANT 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 APPLICANT WILL NOT USE LATE-SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 33% (3H:1V).
- STABILIZE THE SLOPE WITH WOOD WASTE COMPOST -- THE CONTRACTOR WILL PLACE A SIX-INCH LAYER OF WOOD WASTE COMPOST ON THE SLOPE BY NOVEMBER 15. PRIOR TO PLACING THE WOOD WASTE COMPOST, THE APPLICANT WILL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED SLOPE. THE APPLICANT WILL NOT USE WOOD WASTE COMPOST TO STABILIZE SLOPES HAVING GRADES GREATER THAN 50% (2H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.
- STABILIZE THE SLOPE WITH STONE RIPRAP -- THE CONTRACTOR WILL PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15. THE APPLICANT WILL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.

STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SOILS -- BY SEPTEMBER 15 THE CONTRACTOR WILL SEED AND MULCH ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15%. IF THE CONTRACTOR FAILS TO STABILIZE THESE SOILS BY THIS DATE, THEN THE CONTRACTOR WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SOIL FOR LATE FALL AND WINTER.

- STABILIZE THE SOIL WITH TEMPORARY VEGETATION -- BY OCTOBER 1 THE CONTRACTOR WILL SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET, LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 POUNDS PER 1000 SQUARE FEET, AND ANCHOR THE MULCH WITH PLASTIC NETTING. THE APPLICANT WILL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER 15, THEN THE APPLICANT WILL MULCH THE AREA FOR OVER-WINTER PROTECTION AS DESCRIBED IN ITEM 3(C.) OF THIS STANDARD.
- STABILIZE THE SOIL WITH SOD -- THE APPLICANT WILL STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE APPLICANT 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 15 THE APPLICANT WILL MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 POUNDS PER 1000 SQUARE FEET ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. PRIOR TO APPLYING THE MULCH, THE APPLICANT WILL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED AREA. IMMEDIATELY AFTER APPLYING THE MULCH, THE APPLICANT WILL ANCHOR THE MULCH WITH PLASTIC NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL.

- MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION CYCLE. AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, AND AT LEAST EVERY SEVEN (7) DAYS, THE CONTRACTOR SHALL VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES. THE CONTRACTOR SHALL PERFORM REPAIRS NO LATER THAN THE END OF THE NEXT WORKDAY, TO ALLOW CONTINUED PROPER FUNCTIONING OF THE EROSION CONTROL MEASURE. THE CONTRACTOR SHALL PROVIDE THE NECESSARY REGULATING AGENCIES WITH WRITTEN DOCUMENTATION DESCRIBING DATES OF INSPECTIONS AND NECESSARY FOLLOW-UP WORK TO MAINTAIN EROSION CONTROL MEASURES MEETING THE REQUIREMENTS OF THIS PLAN WITHIN SEVEN (7) DAYS.
- FOLLOWING THE TEMPORARY AND/OR FINAL SEEDINGS, THE CONTRACTOR SHALL INSPECT THE WORK AREA SEMIMONTHLY UNTIL THE SEEDINGS HAVE BEEN ESTABLISHED. ESTABLISHED MEANS A MINIMUM OF 90% OF AREAS VEGETATED WITH VIGOROUS GROWTH. RESEEDING SHALL BE CARRIED OUT BY THE CONTRACTOR WITH FOLLOW-UP INSPECTIONS IN THE EVENT OF ANY FAILURES UNTIL VEGETATION IS ADEQUATELY ESTABLISHED.

HOUSEKEEPING:

- SPILL PREVENTION: CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM CONSTRUCTION AND WASTE MATERIALS STORED ON SITE TO ENTER STORMWATER, WHICH INCLUDES STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER. THE SITE CONTRACTOR OR OPERATOR MUST DEVELOP, AND IMPLEMENT AS NECESSARY, APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING MEASURES.
- GROUNDWATER PROTECTION: DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER OR INFILTRATE INTO AN INFILTRATION AREA, AN INFILTRATION AREA, OR AN INFILTRATION AREA, AN INFILTRATION AREA, AN INFILTRATION AREA, THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY AND OTHER RELEVANT FACTORS ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL, DITCHES, BERMS, SUMPS, AND OTHER FORMS OF SECONDARY CONTAMINANT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS. ANY PROJECT PROPOSING INFILTRATION OF STORMWATER MUST PROVIDE ADEQUATE PRE-TREATMENT OF STORMWATER PRIOR TO DISCHARGE TO THE INFILTRATION AREA, OR PROVIDE FOR TREATMENT WITHIN THE INFILTRATION AREA, IN ORDER TO PREVENT THE ACCUMULATION OF FINES, REDUCTION IN INFILTRATION RATE, AND CONSEQUENT FLOODING AND DESTABILIZATION.
- FUGITIVE SEDIMENT AND DUST: ACTIONS MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. OIL MAY NOT BE USED FOR DUST CONTROL, BUT OTHER WATER ADDITIVES MAY BE CONSIDERED AS NEEDED. A STABILIZED CONSTRUCTION ENTRANCE (SCE) SHOULD BE INCLUDED TO MINIMIZE TRACKING OF MUD AND SEDIMENT. IF OFF-SITE TRACKING OCCURS, PUBLIC ROADS SHOULD BE SWEEP IMMEDIATELY AND NO LESS THAN ONCE A WEEK AND PRIOR TO SIGNIFICANT STORM EVENTS. OPERATIONS DURING DRY MONTHS, THAT EXPERIENCE FUGITIVE DUST PROBLEMS, SHOULD WET DOWN UNPAVED ACCESS ROADS ONCE A WEEK OR MORE FREQUENTLY AS NEEDED WITH A WATER ADDITIVE TO SUPPRESS FUGITIVE SEDIMENT AND DUST.
- DEBRIS AND OTHER MATERIALS: MINIMIZE THE EXPOSURE OF CONSTRUCTION DEBRIS, BUILDING AND LANDSCAPING MATERIALS, TRASH, FERTILIZERS, PESTICIDES, HERBICIDES, PESTICIDES, SANITARY WASTE AND OTHER MATERIALS TO PRECIPITATION AND STORMWATER RUNOFF. THESE MATERIALS MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.
- EXCAVATION DE-WATERING: EXCAVATION DE-WATERING IS THE REMOVAL OF WATER FROM TRENCHES, FOUNDATIONS, COFFER DAMS, PONDS, AND OTHER AREAS WITHIN THE CONSTRUCTION AREA THAT RETAIN WATER AFTER EXCAVATION. IN MOST CASES THE COLLECTED WATER IS HEAVILY SILTED AND HINDERS CORRECT AND SAFE CONSTRUCTION PRACTICES. THE COLLECTED WATER REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, MUST BE SPREAD THROUGH NATURAL WOODED BUFFERS OR REMOVED TO AREAS THAT ARE SPECIFICALLY DESIGNED TO COLLECT THE MAXIMUM AMOUNT OF SEDIMENT POSSIBLE, LIKE A COFFERDAM SEDIMENTATION BASIN, AVOID ALLOWING THE WATER TO FLOW OVER DISTURBED AREAS OF THE SITE. EQUIVALENT MEASURES MAY BE TAKEN IF APPROVED BY THE DEPARTMENT.
- AUTHORIZED NON-STORMWATER DISCHARGES: IDENTIFY AND PREVENT CONTAMINATION BY NON-STORMWATER DISCHARGES, WHERE ALLOWED NON-STORMWATER DISCHARGES EXIST, THEY MUST BE IDENTIFIED AND STEPS SHOULD BE TAKEN TO ENSURE THE IMPLEMENTATION OF APPROPRIATE POLLUTION PREVENTION MEASURES FOR THE NON-STORMWATER COMPONENT(S) OF THE DISCHARGE. AUTHORIZED NON-STORMWATER DISCHARGES ARE:
 - DISCHARGES FROM FIRE-FIGHTING ACTIVITY;
 - FIRE HYDRANT FLUSHINGS;
 - VEHICLE WASHWATER IF DETERGENTS ARE NOT USED AND WASHING IS LIMITED TO THE EXTERIOR OF VEHICLES (ENGINE, UNDERCARRIAGE AND TRANSMISSION WASHING IS PROHIBITED);
 - DUST CONTROL RUNOFF IN ACCORDANCE WITH PERMIT CONDITIONS;
 - ROUTINE EXTERNAL BUILDING WASHDOWN, NOT INCLUDING SURFACE PAINT REMOVAL, THAT DOES NOT INVOLVE DETERGENTS;
 - PAVEMENT WASHWATER (WHERE SPILLS/LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED, UNLESS ALL SPILLED MATERIAL HAD BEEN REMOVED) IF DETERGENTS ARE NOT USED;
 - UNCONTAMINATED AIR CONDITIONING OR COMPRESSOR CONDENSATE;
 - UNCONTAMINATED GROUNDWATER OR SPRING WATER;
 - FOUNDATION OR FOOTER DRAIN-WATER WHERE FLOWS ARE NOT CONTAMINATED;
 - UNCONTAMINATED EXCAVATION DRAINAGE;
 - POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS; AND
 - LANDSCAPE IRRIGATION.
- UNAUTHORIZED NON-STORMWATER DISCHARGES: THE DEPARTMENT'S APPROVAL DOES NOT AUTHORIZE A DISCHARGE THAT IS MIXED WITH A SOURCE OF NON-STORMWATER, OTHER THAN THOSE DISCHARGES. SPECIFICALLY, THE DEPARTMENT'S APPROVAL DOES NOT AUTHORIZE DISCHARGES OF THE FOLLOWING:
 - WASTEWATER FROM THE WASHOUT OR CLEAN OUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS OR OTHER CONSTRUCTION MATERIALS;
 - FUELS, OILS OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE;
 - SOAPS, SOLVENTS, OR DETERGENTS USED IN VEHICLE AND EQUIPMENT WASHING; AND
 - TOXIC OR HAZARDOUS SUBSTANCES FROM A SPILL OR OTHER RELEASE.

WINTER EROSION CONTROL MEASURES

THE WINTER CONSTRUCTION PERIOD IS FROM NOVEMBER 1 THROUGH APRIL 15. IF THE CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE, 75% MATURE VEGETATION COVER OR RIPRAP BY NOVEMBER 1 THEN THE SITE NEEDS TO BE PROTECTED WITH OVER-WINTER STABILIZATION. AN AREA CONSIDERED OPEN IS ANY AREA NOT STABILIZED WITH PAVEMENT, VEGETATION, MULCHING, EROSION CONTROL MATS, RIPRAP OR GRAVEL BASE ON A ROAD. LIMIT THE EXPOSED AREA TO THOSE AREAS IN WHICH WORK IS EXPECTED TO BE UNDER TAKEN DURING THE PROCEEDING 15 DAYS AND THAT CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT. ALL AREAS SHALL BE CONSIDERED TO BE DENUDE UNTIL THE SUBBASE GRAVEL IS INSTALLED IN ROADWAY AREAS OR THE AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOAMED. SEEDED AND MULCHED HAY AND STRAW MULCH RATE SHALL BE A MINIMUM OF 150 LBS./1,000 S.F. (3 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED. THE CONTRACTOR MUST INSTALL ANY ADDED MEASURES WHICH MAY BE NECESSARY TO CONTROL EROSION/SEDIMENTATION FROM THE SITE DEPENDENT UPON THE ACTUAL SITE AND WEATHER CONDITIONS. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED, IN ORDER TO MINIMIZE AREAS WITHOUT EROSION CONTROL PROTECTION.

1. SOIL STOCKPILES

STOCKPILES OF SOIL OR SUBSOIL WILL BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR AT 150 LBS/1,000 S.F. (3 TONS PER ACRE) OR WITH A FOUR-INCH LAYER OF WOOD WASTE EROSION CONTROL MIX. THIS WILL BE DONE WITHIN 24 HOURS OF STOCKING AND RE-ESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL. ANY SOIL STOCKPILE WILL NOT BE PLACED (EVEN COVERED WITH HAY OR STRAW) WITHIN 100 FEET FROM ANY NATURAL RESOURCES.

2. NATURAL RESOURCES PROTECTION

ANY AREAS WITHIN 100 FEET FROM ANY NATURAL RESOURCES, IF NOT STABILIZED WITH A MINIMUM OF 75% MATURE VEGETATION CATCH, SHALL BE MULCHED BY DECEMBER 1 AND ANCHORED WITH PLASTIC NETTING OR PROTECTED WITH EROSION CONTROL MATS. DURING WINTER CONSTRUCTION, A DOUBLE LINE OF SEDIMENT BARRIERS (I.E. SILT FENCE BACKED WITH HAY BALES OR EROSION CONTROL MIX) WILL BE PLACED BETWEEN ANY NATURAL RESOURCE AND THE DISTURBED AREA.

PROJECTS CROSSING THE NATURAL RESOURCE SHALL BE PROTECTED A MINIMUM DISTANCE OF 100 FEET ON EITHER SIDE FROM THE RESOURCE. EXISTING PROJECTS NOT STABILIZED BY DECEMBER 1 SHALL BE PROTECTED WITH THE SECOND LINE OF SEDIMENT BARRIER TO ENSURE FUNCTIONALITY DURING THE SPRING THAW AND RAINS.

3. SEDIMENT BARRIERS

DURING FROZEN CONDITIONS, SEDIMENT BARRIERS SHALL CONSIST OF WOOD WASTE FILTER BERMS AS FROZEN SOIL PREVENTS THE PROPER INSTALLATION OF HAY BALES AND SEDIMENT SILT FENCES.

4. MULCHING

ALL AREA SHALL BE CONSIDERED TO BE DENUDE UNTIL AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOAMED, 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. MULCH SHALL NOT BE SPREAD ON TOP OF SNOW. THE SNOW WILL BE REMOVED DOWN TO A ONE-INCH DEPTH OR LESS PRIOR TO APPLICATION. AFTER EACH DAY OF FINAL GRADING, THE AREA WILL 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 WITH STRAW OR HAY AT A RATE OF 150 LB. PER 1,000 SQUARE FEET (3TONS/ACRE) AND ADEQUATELY ANCHORED THAT GROUND SURFACE IS NOT VISIBLE THOUGH THE MULCH.

BETWEEN THE DATES OF SEPTEMBER 1 AND APRIL 15, ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING, ASPHALT EMULSION CHEMICAL, TRACK OR WOOD CELLULOSE FIBER. WHEN GROUND SURFACE IS NOT VISIBLE THOUGH THE MULCH THEN COVER IS SUFFICIENT. AFTER NOVEMBER 1ST, MULCH AND ANCHORING OF ALL BARE SOIL SHALL OCCUR AT THE END OF EACH FINAL GRADING WORK DAY.

5. MULCHING ON SLOPES AND DITCHES

SLOPES SHALL NOT BE LEFT EXPOSED FOR ANY EXTENDED TIME OF WORK SUSPENSION UNLESS FULLY MULCHED AND ANCHORED WITH PEG AND NETTING OR WITH EROSION CONTROL BLANKETS. MULCHING SHALL BE APPLIED AT A RATE OF 230 LBS/1,000 S.F. ON ALL SLOPES GREATER THAN 8%. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 5%. EROSION CONTROL BLANKETS SHALL BE USED IN LIEU OF MULCH IN ALL DRAINAGE WAYS WITH SLOPES 8%. EROSION CONTROL MIX CAN BE USED TO SUBSTITUTE EROSION CONTROL BLANKETS ON ALL SLOPES EXCEPT DITCHES.

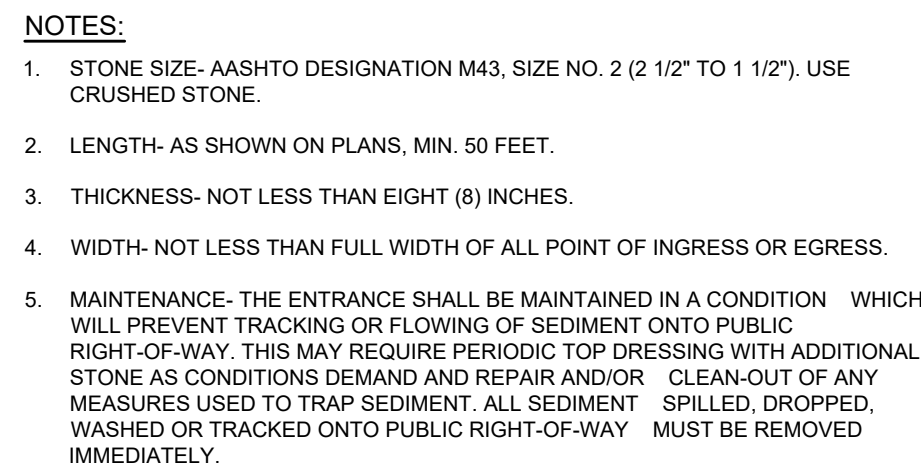
6. SEEDING

BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1ST, LOAM OR SEED WILL 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 SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS BEEN LOOED, FINALLY GRADED WITH A UNIFORM SURFACE, THEN THE AREA MAY BE DORMANT SEEDING AT A RATE OF 3 TIMES HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. DORMANT SEEDING MAY BE SELECTED TO BE PLACED PRIOR TO THE PLACEMENT OF MULCH AND FABRIC NETTING ANCHORED WITH STAPLES. IF DORMANT SEEDING IS USED FOR THE SITE, ALL DISTURBED AREAS SHALL RECEIVE 4" OF LOAM AND SEED AT AN APPLICATION RATE OF 5LBS/1000 S.F. ALL AREAS SEEDED DURING THE WINTER WILL BE INSPECTED IN THE SPRING FOR ADEQUATE CATCH. ALL AREAS SUFFICIENTLY 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. SEED TYPE SHALL BE WINTER RYE.

MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION CYCLE. AT A MINIMUM, AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, THE SITE CONTRACTOR SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES AND PERFORM REPAIRS AS NEEDED TO INSURE THEIR CONTINUOUS FUNCTION.

FOLLOWING THE TEMPORARY AND OR FINAL SEEDING AND MULCHING, THE CONTRACTOR SHALL IN THE SPRING INSPECT AND REPAIR ANY DAMAGES AND/OR UNESTABLISHED SPOTS. ESTABLISHED VEGETATIVE COVER MEANS A MINIMUM OF 90% OF AREAS VEGETATED WITH VIGOROUS GROWTH.

STANDARDS FOR TIMELY STABILIZATION OF CONSTRUCTION SITES DURING WINTER

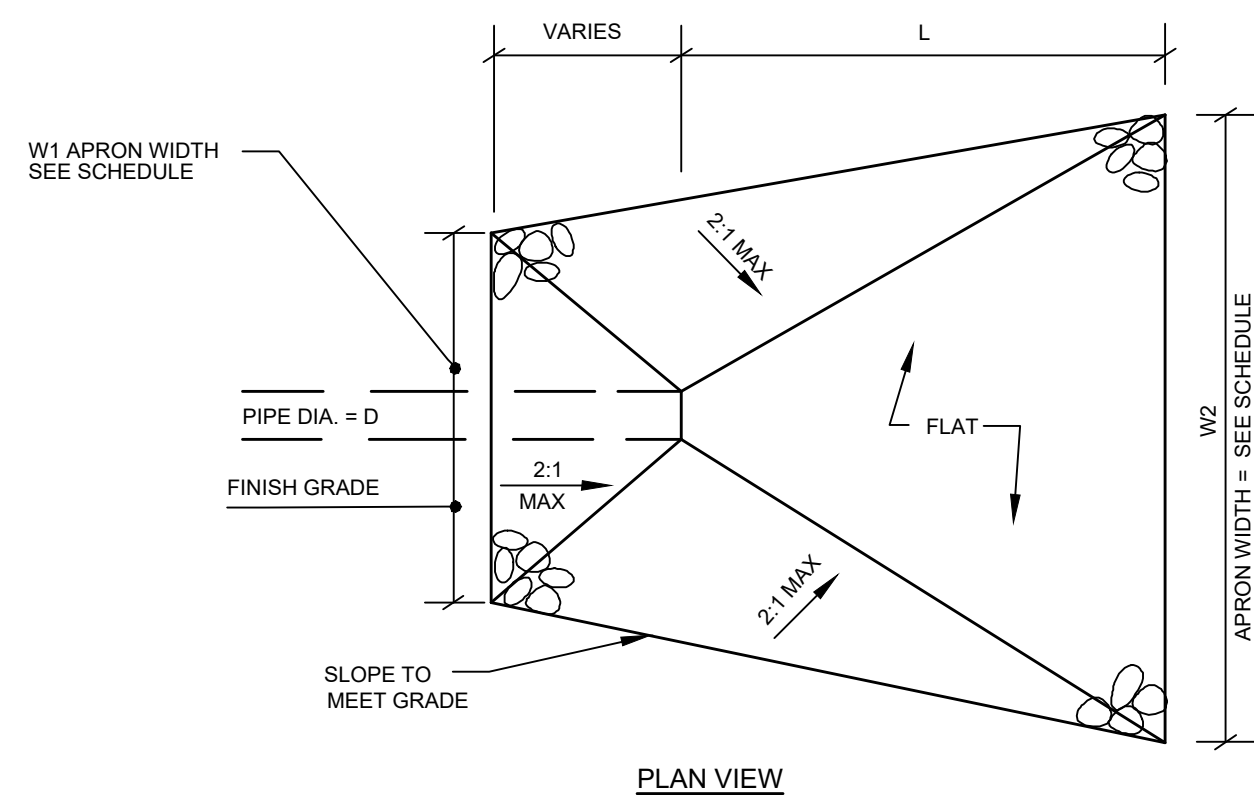


The diagrams illustrate the flow of water in different channel types. The left diagram, labeled 'SLOPES', shows a cross-section of a slope with three distinct flow paths labeled 'FLOW' moving downwards. A 'LATERAL JOINT' is indicated where the flow paths meet. The right diagram, labeled 'DITCHES', shows a cross-section of a ditch with two distinct flow paths labeled 'A' and 'B' moving downwards. A 'FLOW' arrow is shown at the bottom of the ditch.

- NOTES:**
1. BURY THE TOP END OF THE MESH MATERIAL IN A 6" TRENCH AND BACKFILL AND TAMP TRENCHING SECURE END WITH STAPLES AT 6" SPACING, 4" DOWN FROM EXPOSED END.
 2. FLOW DIRECTION JOINTS TO HAVE UPPER END OF LOWER STRIP BURIED WITH UPPER LAYERS OVERLAPPED 4" AND STAPLED. OVERLAP B OVER A.
 3. LATERAL JOINTS TO HAVE 4" OVERLAP OF STRIPS. STAPLE 18" ON CENTER.
 4. STAPLE OUTSIDE LATERAL EDGE 2" ON CENTER.
 5. WIRE STAPLES TO BE MIN. OF # 11 WIRE 6" LONG AND 1-1/2" WIDE.
 6. USE NORTH AMERICAN GREEN D 150 OR APPROVED EQUAL.

TYPICAL RIPRAP APRON SCHEDULE

CULVERT DIAMETER - D (IN.)	APRON LENGTH - L (FT.)	WIDTH -W1 (FT)	WIDTH -W2 (FT)	RIPRAP D50 (IN.)	RIPRAP THICKNESS (IN.)
12	8	3	9	6	14
15	10	4	12	6	14
18	13	5	15	7	16
24	18	6	20	8	18



- ### INSTALLATION NOTES:
1. EXCAVATE A 6'x6' TRENCH ALONG THE LINE OF PLACEMENT FOR THE FILTER BARRIER.
 2. UNROLL A SECTION AT A TIME AND POSITION THE POSTS AGAINST THE BACK (DOWNSTREAM) WALL OF THE TRENCH.
 3. DRIVE POSTS INTO THE GROUND UNTIL APPROXIMATELY 2" OF FABRIC IS LYING ON THE TRENCH BOTTOM.
 4. LAY THE TOE-IN FLAP OF FABRIC ONTO THE UNDISTURBED BOTTOM OF THE TRENCH, BACKFILL THE TRENCH AND TAMP THE SOIL. TOE-IN CAN ALSO BE ACCOMPLISHED BY LAYING THE FABRIC FLAP ON UNDISTURBED GROUND AND PILING AND TAMPING FILL AT THE BASE, BUT MUST BE ACCOMPANIED BY AN INTERCEPTION DITCH.
 5. JOIN SECTION AS SHOWN ABOVE.
 6. BARRIER SHALL BE MIRAFI SILT FENCE OR EQUAL.

COARSE AGGREGATE
(2-3" STONE) OR
MATCH FUTURE
DITCH LINING SIZE

6"

D_c CHANNEL
DEPTH

FLOW

VARIES

D_c

A

B

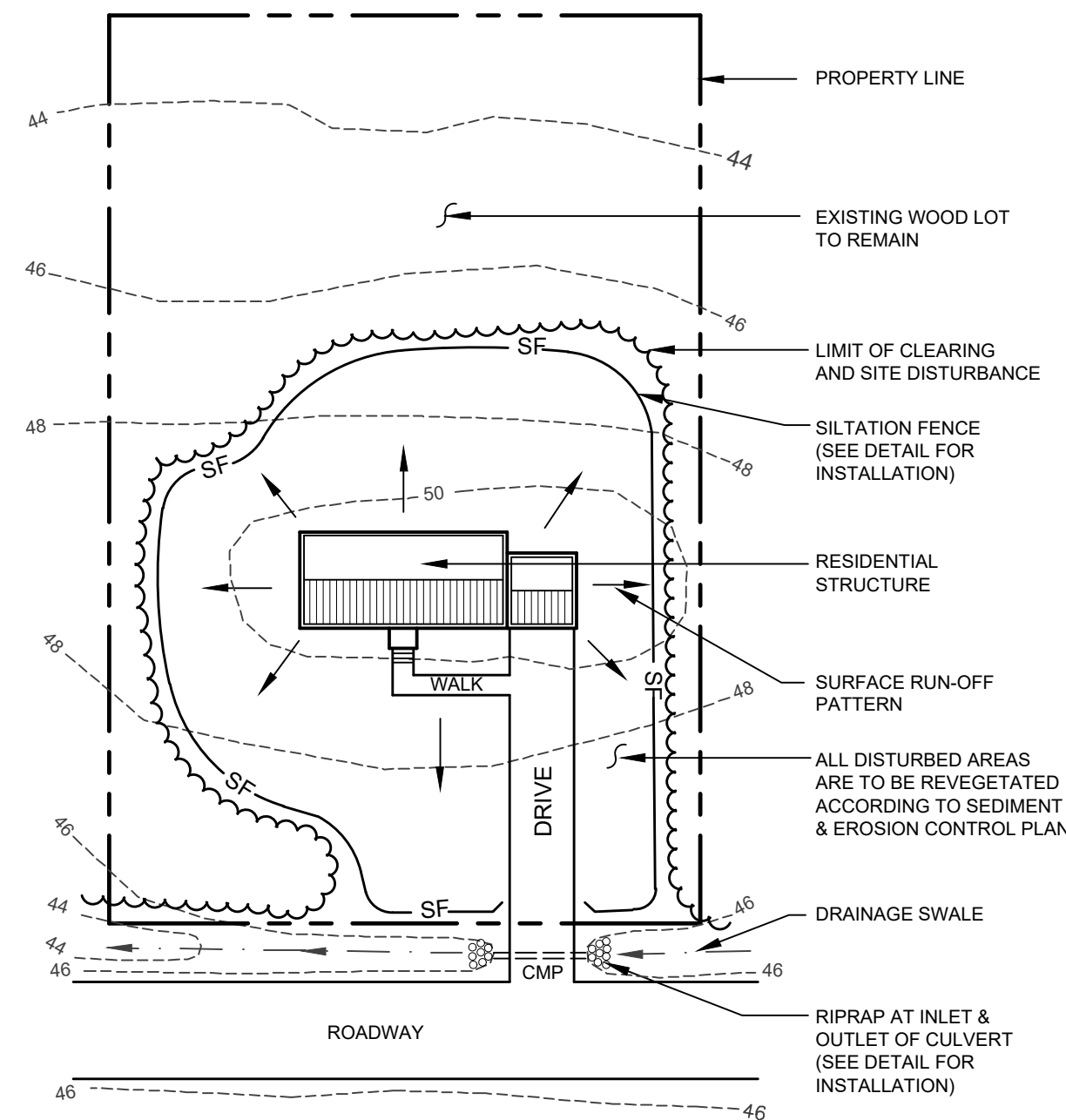
L

L = THE DISTANCE SUCH THAT
POINTS A AND B ARE OF EQUAL
ELEVATION

NOTES

1. RIPRAP TO BE PROCESSED ANGULAR ROCK
2. RIPRAP GRADATION SHALL BE A WELL GRADED MIX FROM ABOUT 1.5 TIMES D_{50} SIZE TO 25 PERCENT OF THE D_{10} SIZE
3. THE RIPRAP STONES SHALL BE CAREFULLY PLACED FROM THE TOE OF THE SLOPE UPWARD
4. STONES SHALL BE LOWERED TO THE SLOPE AND NOT BE ALLOWED TO DROP MORE THAN 12" ONTO THE GEOTEXTILE
5. THE FINISHED SURFACE SHALL BE A RELATIVELY SMOOTH, UNIFORMLY SLOPED SURFACE

The diagram illustrates a cross-section of a riprap apron installed on a slope. The slope is labeled with a "SLOPE = 2:1" and a "FINISH GRADE" line. A horizontal line represents the "RECEIVING ELEVATION". The riprap apron is shown as a layer of stones with a "RIPRAP THICKNESS = SEE SCHEDULE" and "D50 = SEE SCHEDULE". A "GEOTEXTILE FABRIC (MIRAFI 600X OR EQUAL)" is shown beneath the riprap. A "PIPE DIA. = D" is shown passing through the riprap. The "TOP OF RIP RAP FLUSH WITH PIPE INVERT" is indicated. The "APRON LENGTH L = SEE SCHEDULE" is shown. A "1 PIPE DIAMETER OR 1'-6" MIN" dimension is shown for the riprap layer above the pipe. The "SLOPE = 2:1" is also indicated for the riprap layer.



PLAN

CULVERT FLOW

STILLING BASIN

2:1 SLOPE OR FLATTER

22' MIN

LEVEL LIP EDGE

SECTION

SLOPE VARIES. SEE PLAN

CULVERT

CULVERT OUTLET

6' MIN

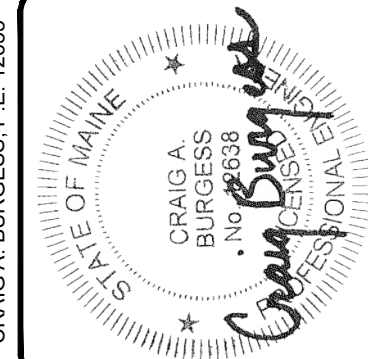
2' MIN

GATE BASE GRAVEL (MIRAF EQUIVALENT)

RIPRAP THICKNESS = 23"

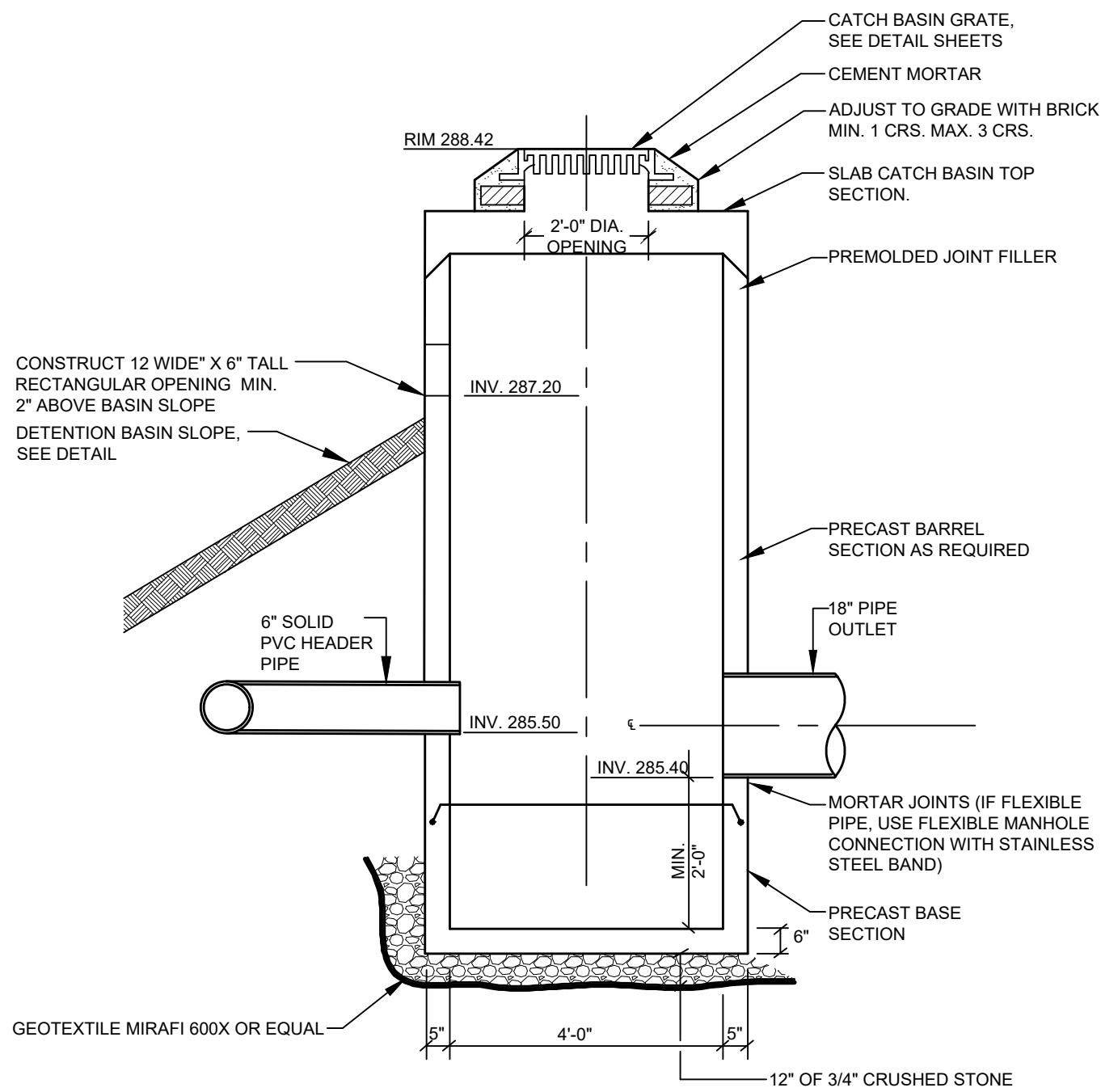
$D_{50} = 10"$

NOT FOR
CONSTRUCTION

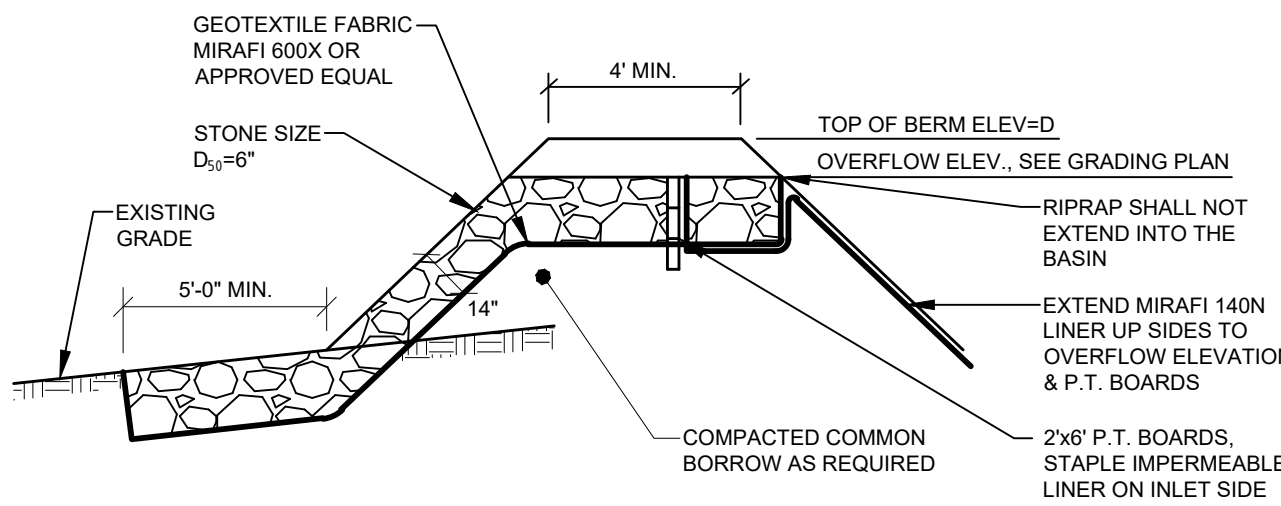
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DETAILS
OF:
EVERGREEN ESTATES
2446 OLD GRAY ROAD
CUMBERLAND, ME
FOR:
ENVY CONSTRUCTION
28 STONE RIDGE ROAD

DESIGNED	AJR
DRAWN	ER
CHECKED	CAB
DATE	01/11/2022
SCALE	NONE
PROJECT	20551

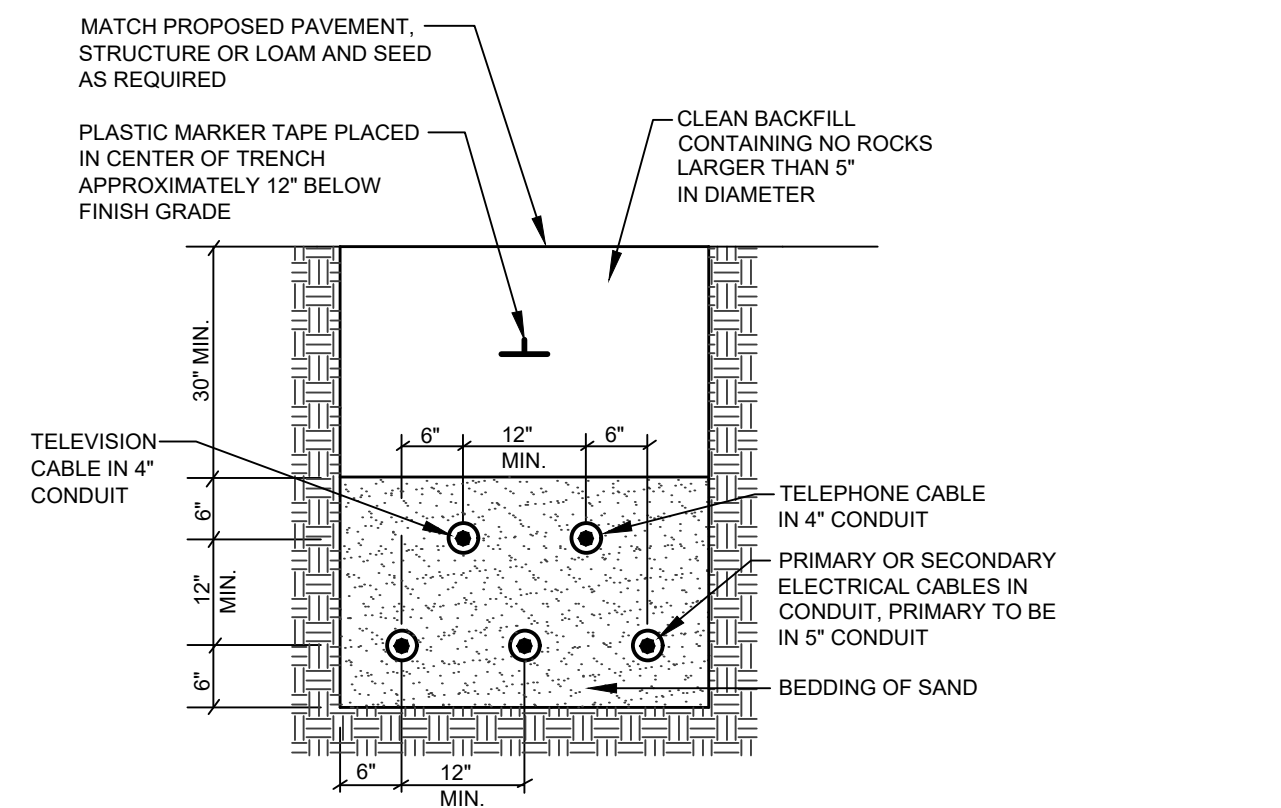


OUTLET CONTROL STRUCTURE (OCS-1) DETAIL
NOT TO SCALE



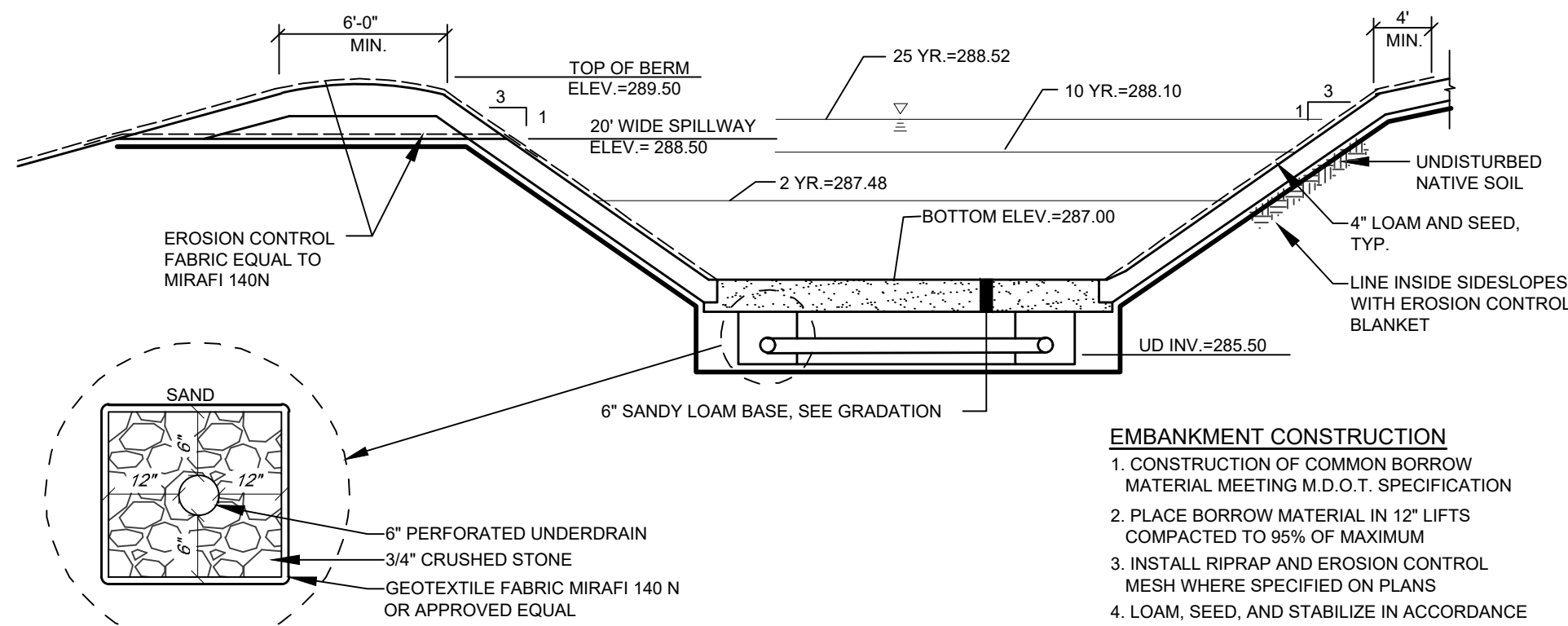
- EMBANKMENT CONSTRUCTION**
1. CONSTRUCTION OF COMMON BORROW MATERIAL MEETING M.D.O.T. SPECIFICATION.
 2. PLACE BORROW MATERIAL IN 12" LIFTS COMPACTED TO 95% OF MAXIMUM DRY DENSITY.
 3. INSTALL RIPRAP AND EROSION CONTROL MESH WHERE SPECIFIED ON PLANS
 4. LOAM, SEED, AND STABILIZE IN ACCORDANCE WITH SEDIMENTATION AND EROSION CONTROL PLAN.

EMERGENCY OVERFLOW SPILLWAY LONGITUDINAL SECTION
NOT TO SCALE

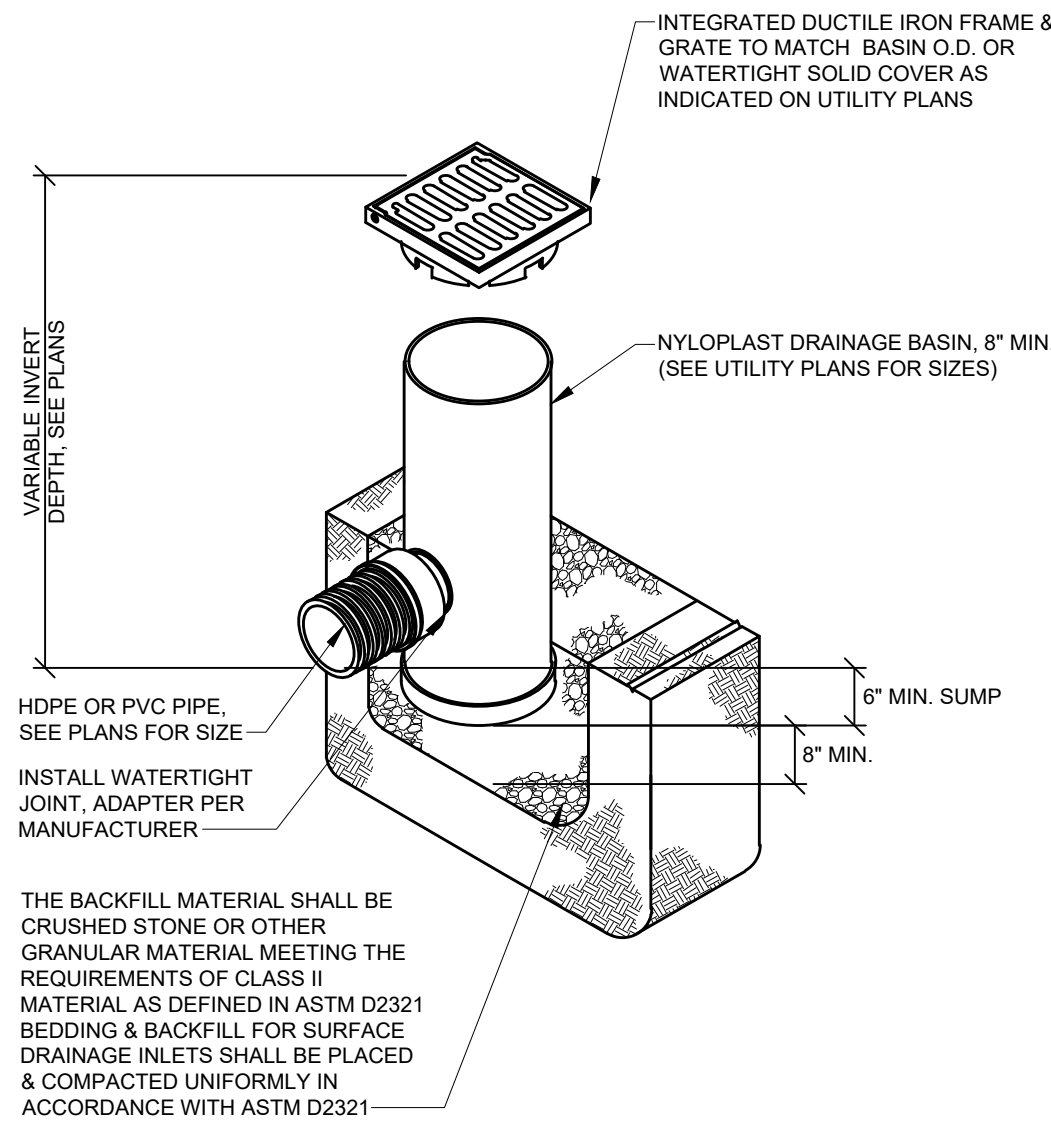


- NOTES:**
1. CABLES TO BE ENCASED IN SCHEDULE 40 PVC CONDUIT WHEN RUN BENEATH PAVED AREAS.
 2. DUCT BANK FOR 3-PHASE POWER TO BE COORDINATED WITH CMP.

TYPICAL UNDERGROUND CABLE INSTALLATION
NOT TO SCALE

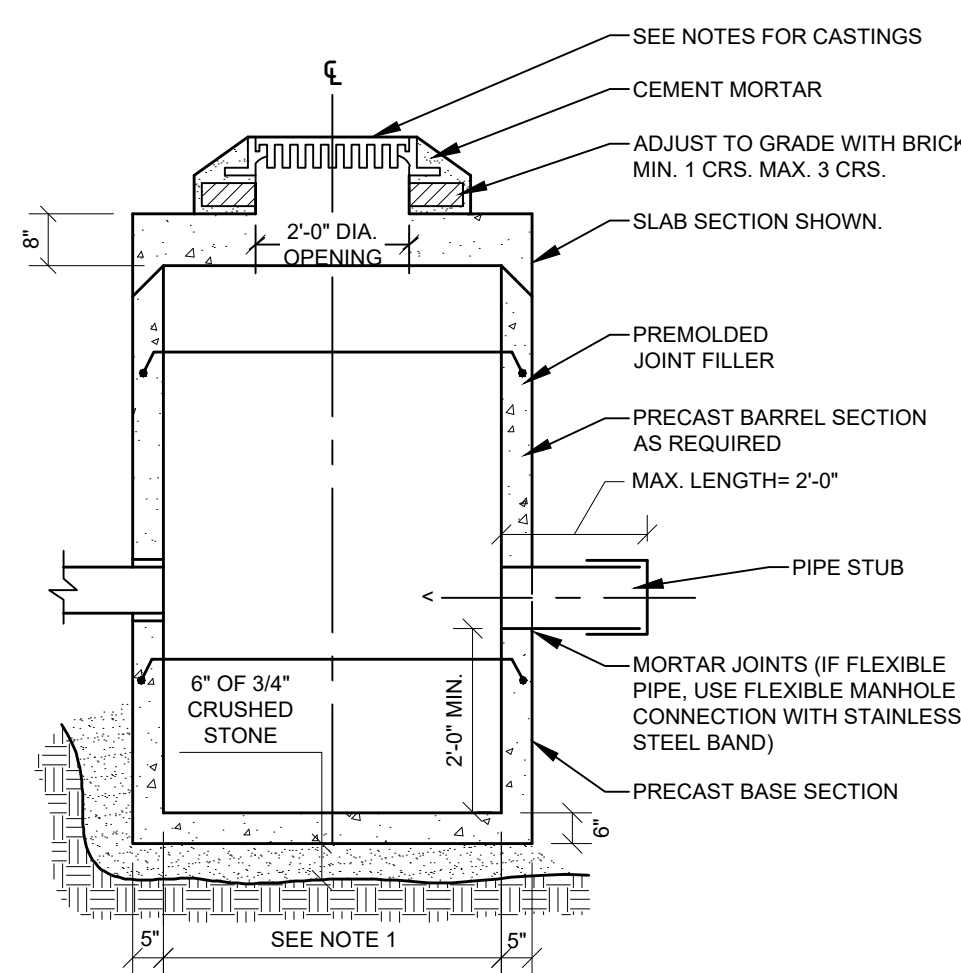


DETENTION BASIN-1 SECTION
NOT TO SCALE



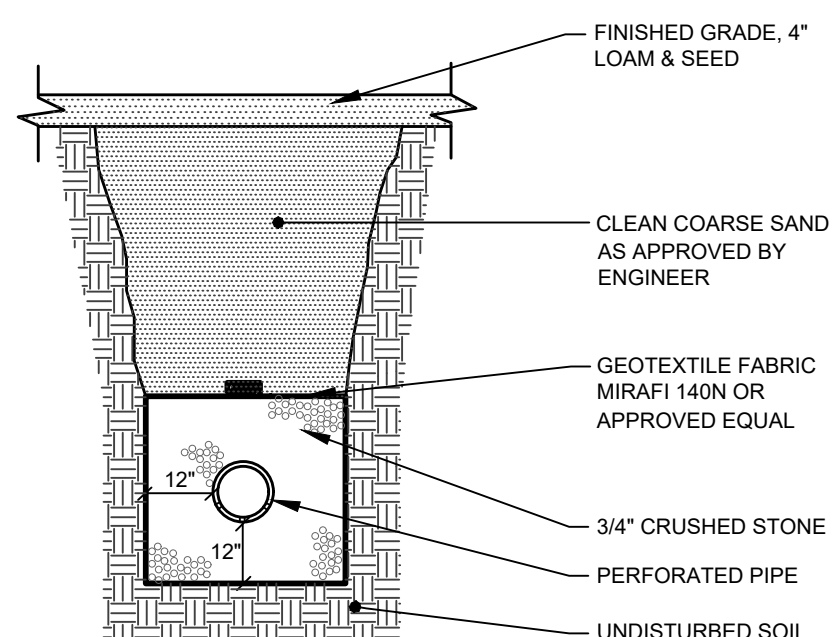
- NOTES:**
1. INSTALL BASIN IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 2. INSTALL DOME GRATE IN PLANT BED AREAS.

TYP. NYLOPLAST FIELD INLET
NOT TO SCALE

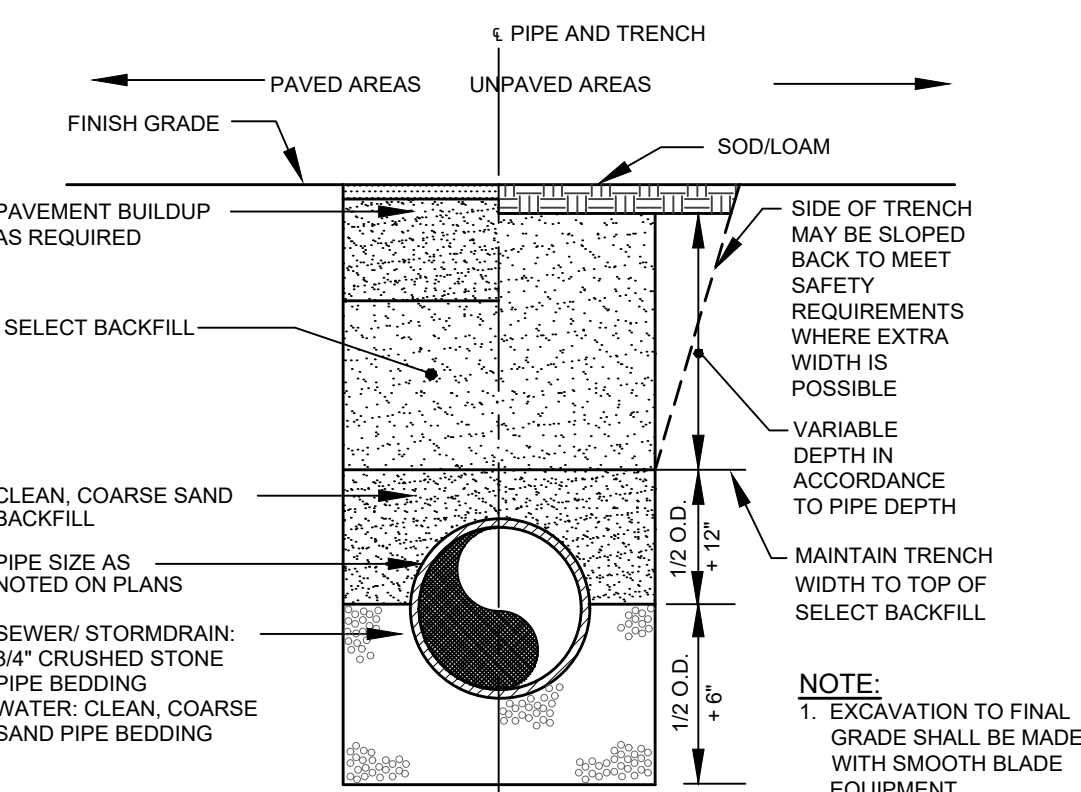


- NOTES:**
1. 4'-0" I.D. TYPICAL. SOME STRUCTURES MAY REQUIRE LARGER I.D. PROVIDE SHOP DRAWINGS.
 2. DRAINAGE STRUCTURES TO BE DESIGNED FOR H-20 LOADING.
 3. PIPE SIZES AND INVERTS AS NOTED ON PLANS.
 4. CATCH BASIN FRAME AND GRATE TO BE GENERAL FOUNDRIES 12461, OR APPROVED EQUAL.

CATCH BASIN
NOT TO SCALE



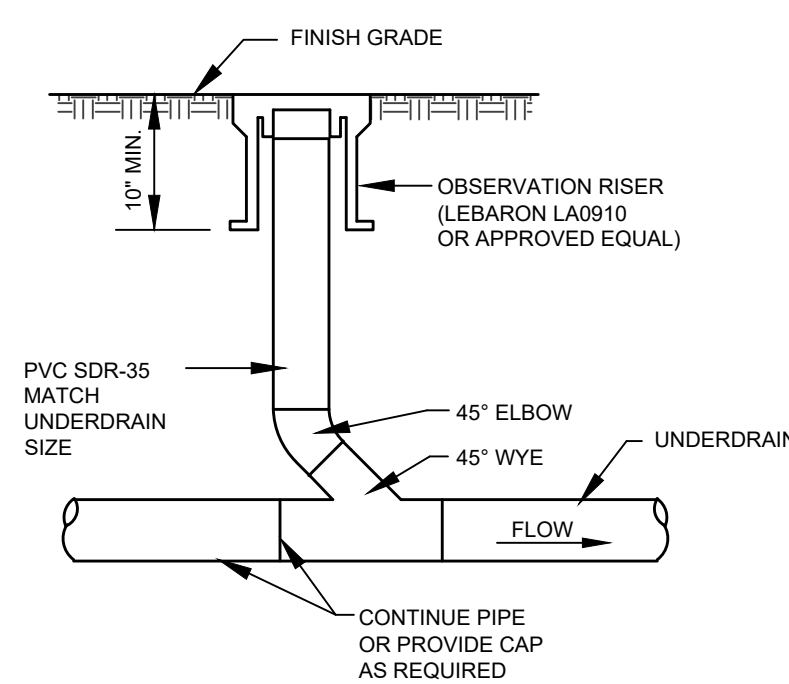
TYP. PERFORATED UNDERDRAIN TRENCH SECTION
NOT TO SCALE



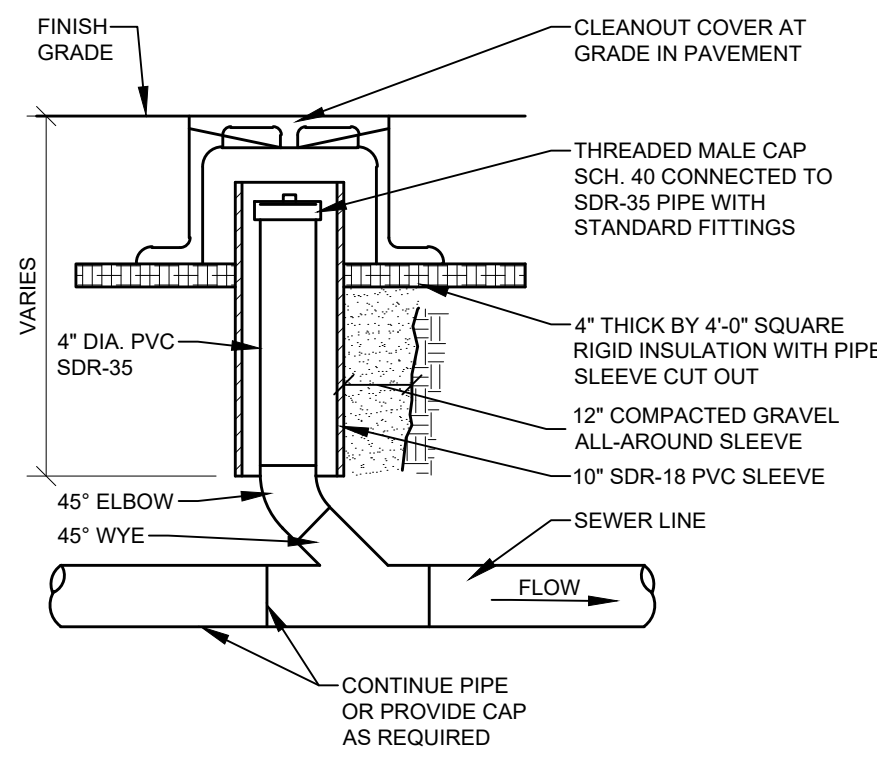
- NOTE:**
1. EXCAVATION TO FINAL GRADE SHALL BE MADE WITH SMOOTH BLADE EQUIPMENT.

TYPICAL TRENCH SECTION
NOT TO SCALE

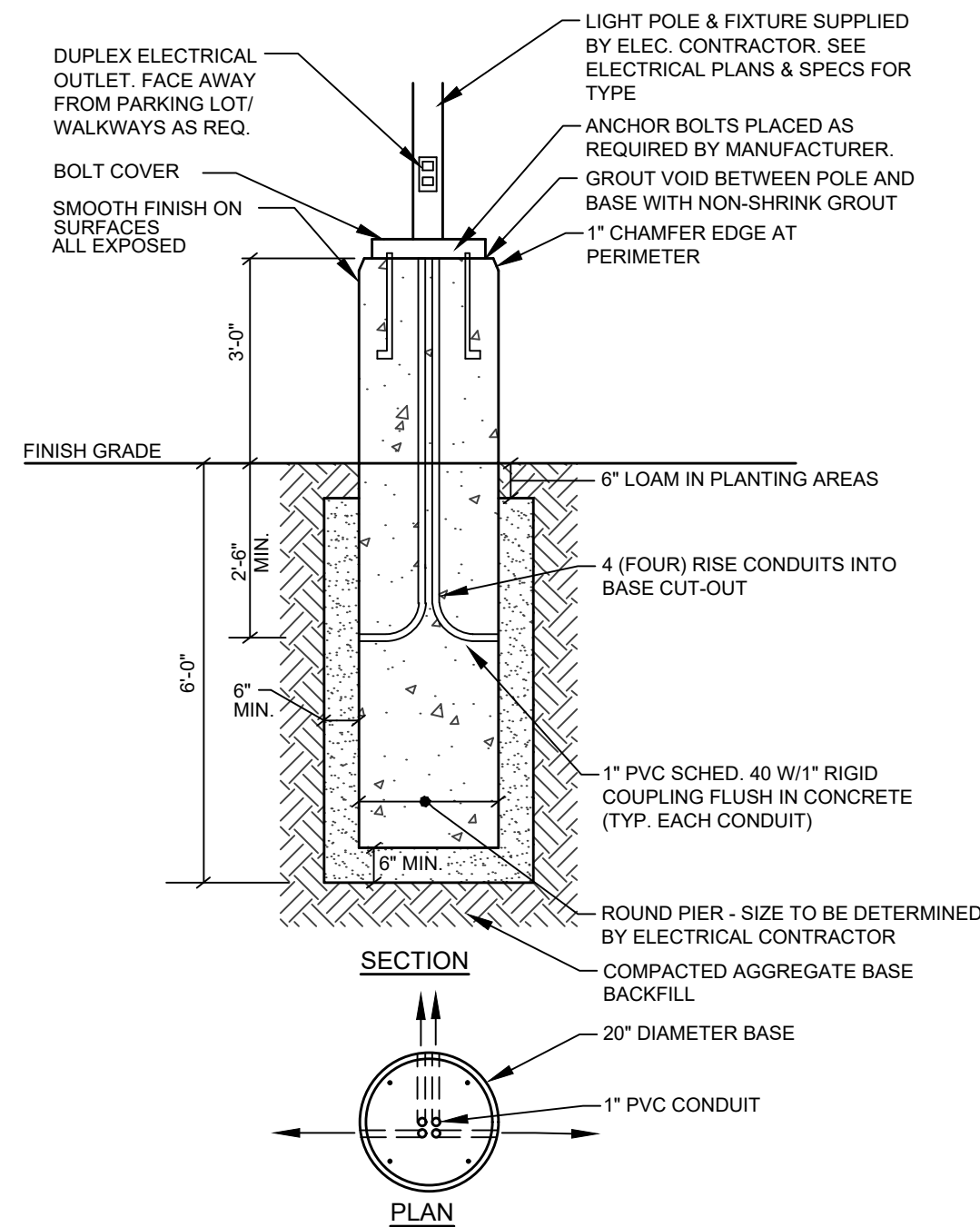
TABLE 1 SANDY LOAM BASE LAYER	
SIEVE SIZE	% PASSING BY WEIGHT
#10	85-100
#20	70-100
#60	15-50
#200	8-15
CLAY FRACTION	0-2



CLEAN-OUT IN GRASSED AREAS
NOT TO SCALE



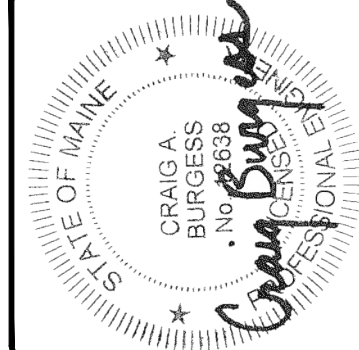
SEWER CLEANOUT IN PAVEMENT AREAS
NOT TO SCALE



- NOTES:**
1. CONCRETE f_c =5000 psi. @ 28 DAYS WITH STEEL REINFORCEMENT
 2. CONDUIT AND ANCHOR BOLTS PLACED AS REQUIRED PROVIDED BY ELECTRICAL CONTRACTOR
 3. PROVIDE 2 COATS BITUMINOUS DAMPROOFING FOR ALL CONCRETE BELOW GRADE.
 4. INSTALL BASE WITH 36 INCHES OF REVEAL ABOVE FINISH GRADE IN LOCATIONS WHERE POLES ARE WITHIN 3 FEET OF VEHICULAR PAVEMENT. PROVIDE 6 INCHES OF REVEAL ABOVE FINISHED GRADE IN LANDSCAPE AREAS WHEN LIGHT POLE BASE IS 3 FEET OR MORE FROM PAVED AREAS
 5. LIGHT POLE BASE AS MANUFACTURED BY SUPERIOR CONCRETE OR APPROVED EQUAL.

LIGHT POLE BASE
NOT TO SCALE

NOT FOR
CONSTRUCTION

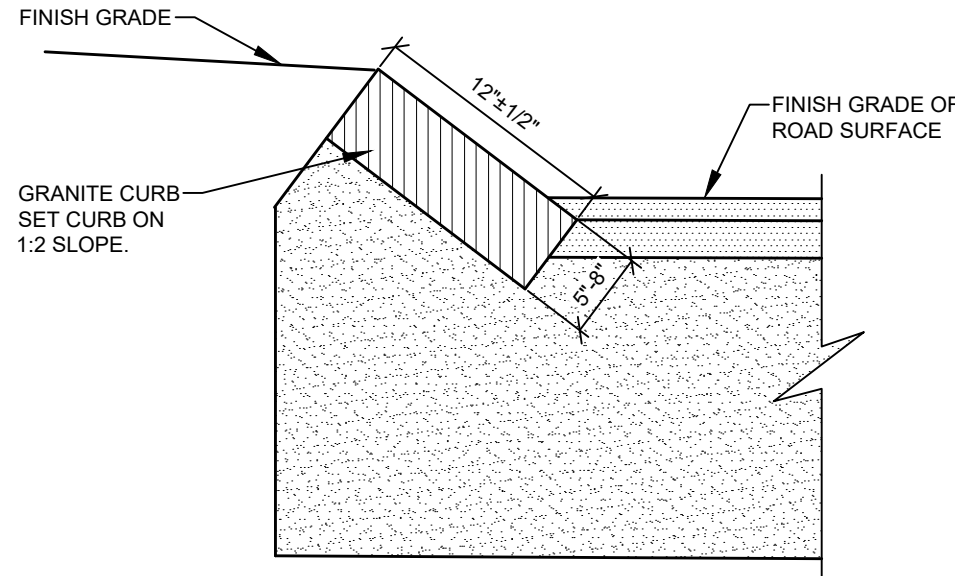


REV.	BY	DATE	STATUS
B	CAB	05/31/2022	ISSUED TO TOWN FOR PRELIMINARY REVIEW
A	CAB	05/05/2022	ISSUED TO TOWN FOR STAFF REVIEW

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75 John Roberts Rd.
Suite 4A
South Portland, ME 04106
Tel. 207-260-2100

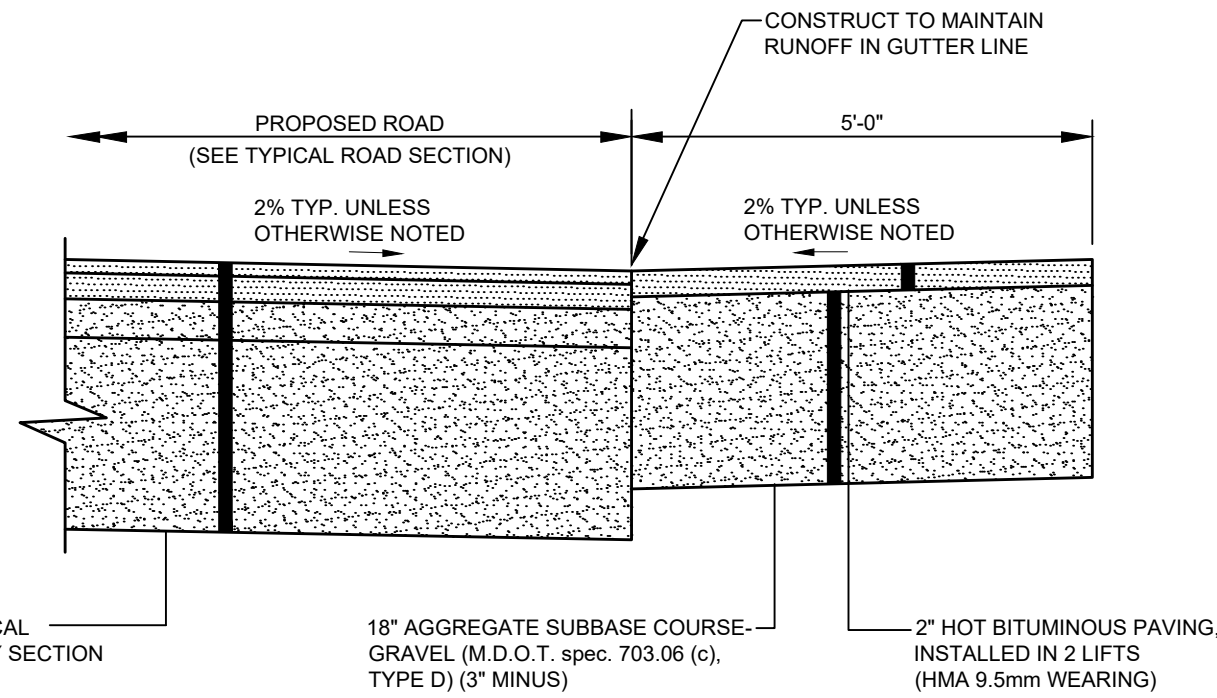
DETAILS
OF:
EVERGREEN ESTATES
246 OLD GRAY ROAD
CUMBERLAND, ME
FOR:
ENVY CONSTRUCTION
28 STONE RIDGE ROAD
FALMOUTH, ME 04105

DESIGNED	AJR
DRAWN	ER
CHECKED	CAB
DATE	01/11/2022
SCALE	NONE
PROJECT	20551



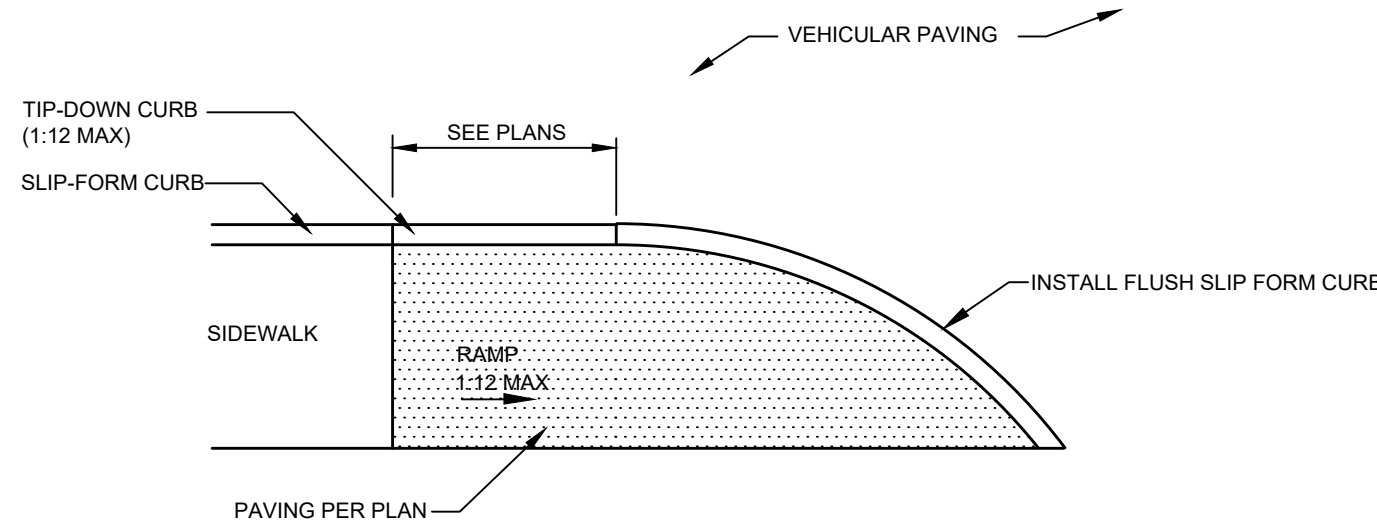
NOTE: REUSE EXISTING GRANITE CURB WHEN POSSIBLE

SLOPED GRANITE CURB (6x12)
NOT TO SCALE

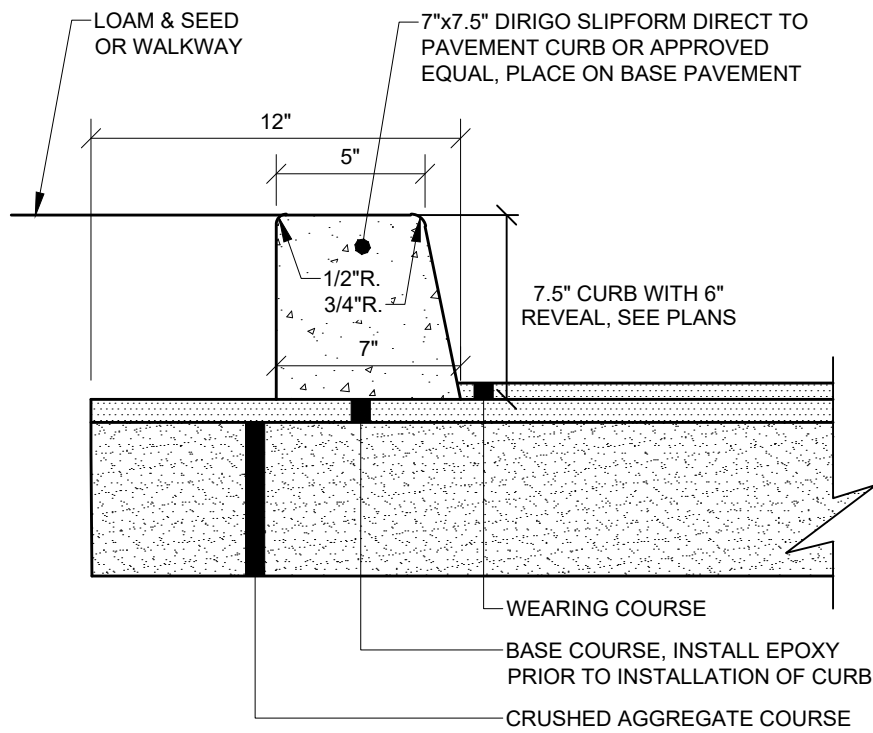


NOTE:
1. DRIVEWAY LOCATIONS BE COORDINATED WITH LOT DEVELOPMENT.

TYPICAL DRIVEWAY SECTION
NOT TO SCALE

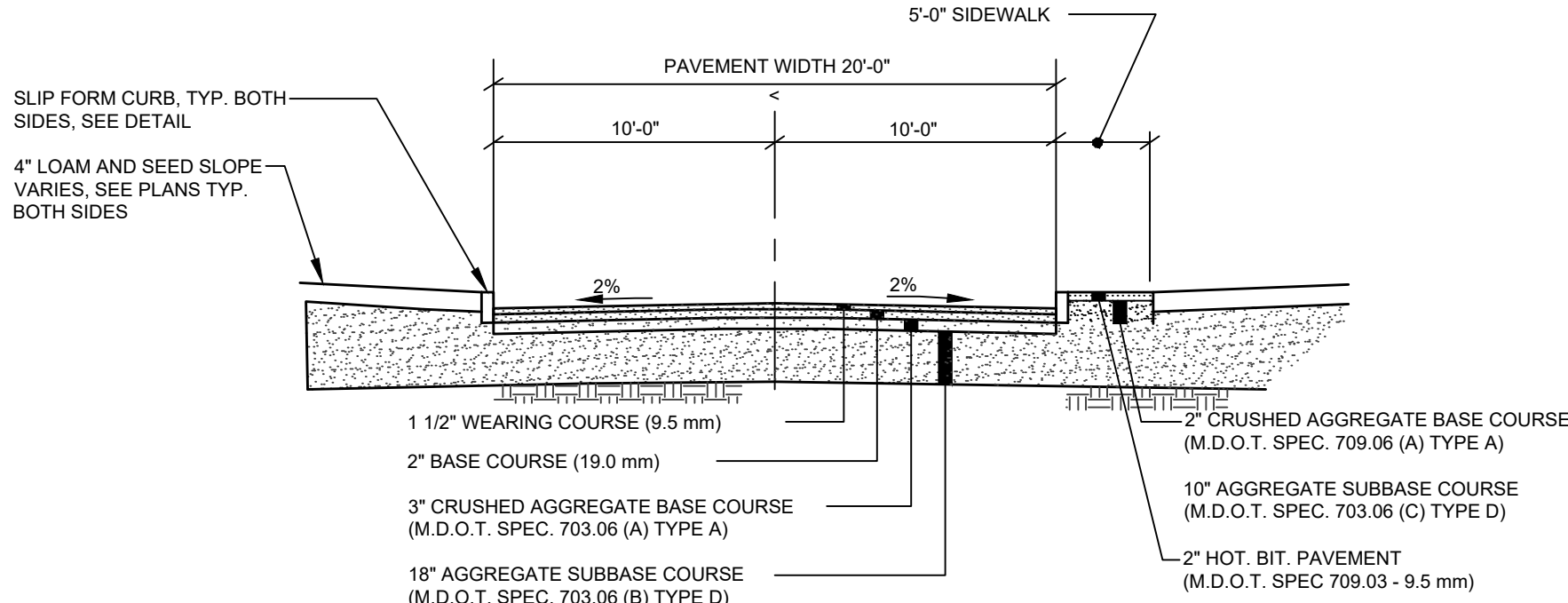


RAMP AND TERMINAL CURB
NOT TO SCALE



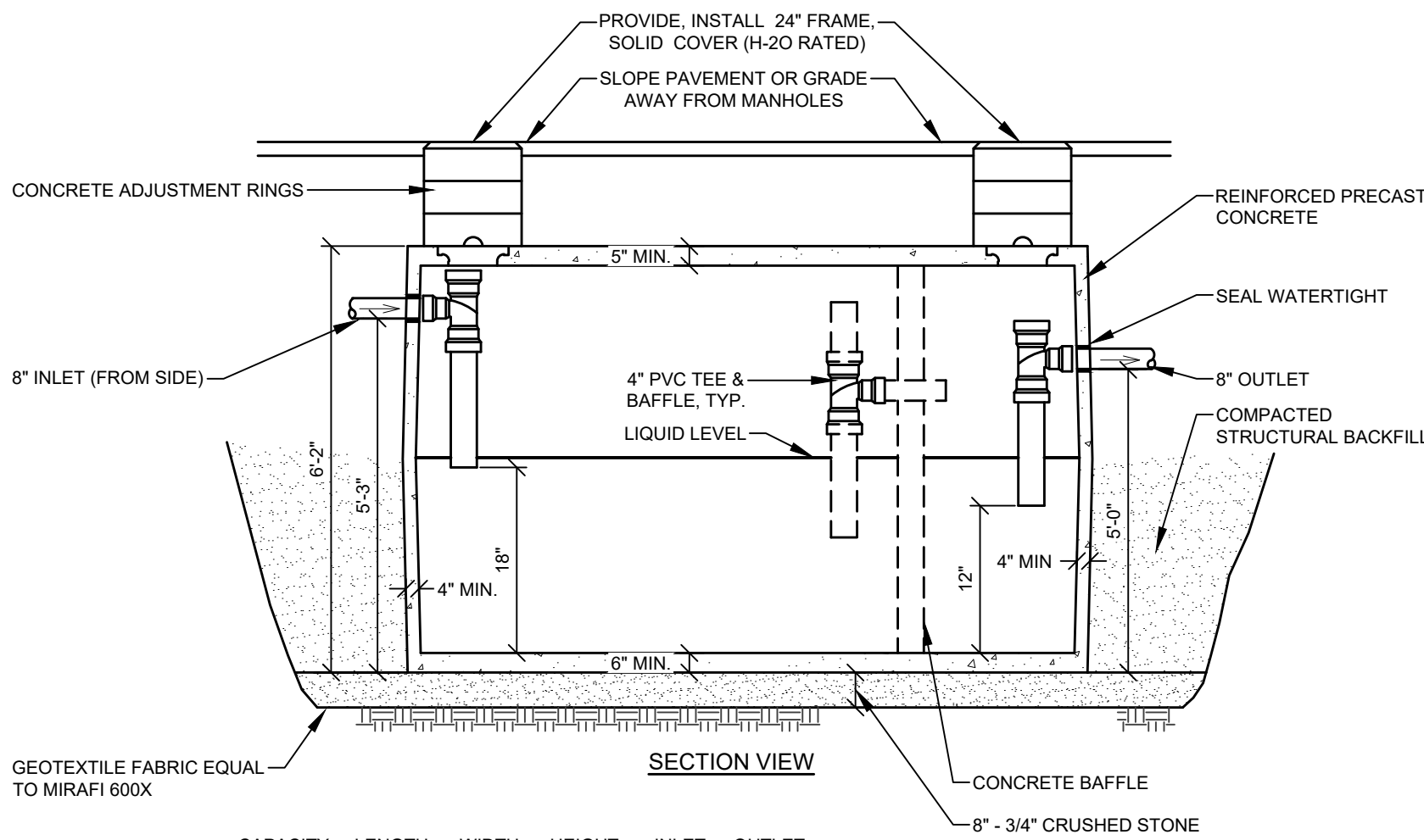
NOTES:
1. SEE TYPICAL ACCESS DRIVE SECTION FOR ROADWAY MATERIAL SPECIFICATIONS AND DEPTHS.
2. 6" TIPDOWNS SHALL BE PROVIDED AS SHOWN ON PLANS.

SLIPFORM CURB SECTION
NOT TO SCALE



NOTES:
1. COMPACT GRAVEL SUBBASE AND BASE COURSES TO 95% OF MAXIMUM DENSITY USING HEAVY ROLLER COMPACTION.
2. HOT MIX ASPHALT SURFACE COURSE SHALL BE COMPACTED TO 95% OF ITS THEORETICAL MAXIMUM DENSITY (ASTM D-2041). BASE COURSE SHALL BE COMPACTED TO 95% ±2.5% OF ITS THEORETICAL MAXIMUM DENSITY (ASTM D-2041).
3. APPLY TACK COAT BETWEEN SUCCESSIVE LIFTS OF BITUMINOUS PAVEMENT.
4. CONTRACTOR SHALL SET GRADE STAKES MARKING SUBBASE AND FINISH GRADE ELEVATIONS FOR CONSTRUCTION REFERENCE.

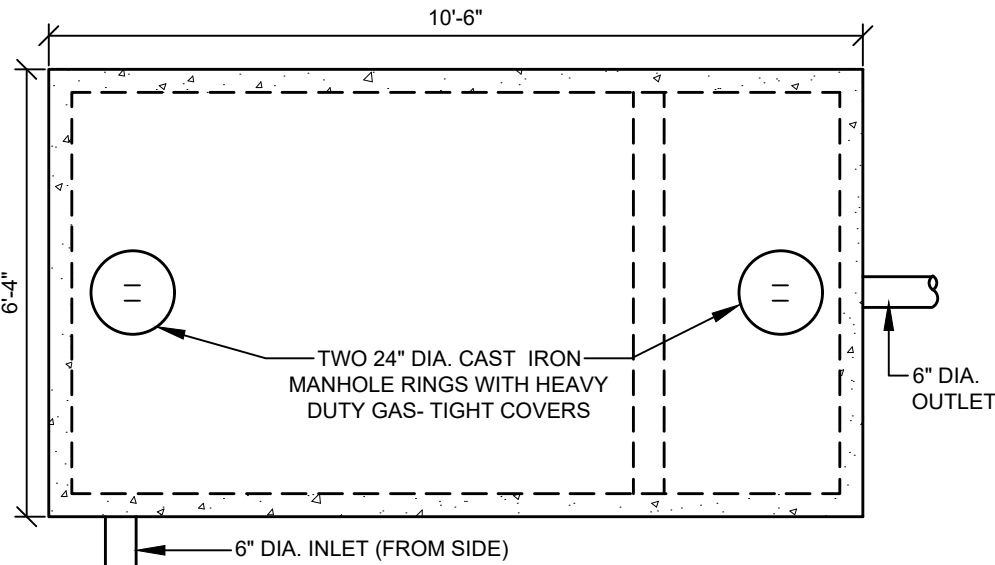
ACCESS DRIVEWAY SECTION
NOT TO SCALE



CAPACITY	LENGTH	WIDTH	HEIGHT	INLET	OUTLET
3,000 GAL.	13'	7'	8'-4"	5'-3"	5'-0"
4,000 GAL.	17'	8'	7'-6"	295.00	294.75

NOTES:
1. COAT INTERIOR OF TANK WITH EPOXY SEALER
2. ALL CONCRETE HAS A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI @ 28 DAYS.
3. SHALL BE DESIGNED FOR H-20 LOADINGS.
4. THE TONGUE AND GROOVE CENTER SEAM IS SEALED WITH A BUTYL SEALANT.
5. THE PVC TEE BAFFLES FOR THIS TANK CAN BE MOVED TO ANY OF THE (3) INLETS OR OUTLETS.
6. POLYLOK PIPE SEALS STANDARD AT ALL PIPE PENETRATIONS.
7. DETAIL SHOWS GENERAL SCHEMATIC REQUIREMENTS. CONTRACTOR SHALL SUBMIT PROPOSED GREASE INTERCEPTOR INSTALLATION PLANS AND SPECIFICATIONS TO LOCAL AUTHORITIES FOR THEIR APPROVAL BEFORE ACQUISITION OF INTERCEPTOR. PROVIDE INTERCEPTOR WITH ADEQUATE STRUCTURAL STRENGTH TO ACCOMMODATE VEHICULAR TRAFFIC AT INSTALLATION LOCATION.
8. COAT EXTERIOR OF CONCRETE WITH BITUMASTIC SEALANT.
9. COORDINATE LOCATION WITH ARCHITECTURAL DRAWINGS.
10. SEE UTILITY PLANS FOR INLET AND OUTLET PIPE SIZES AND INVERTS.
11. GREASE TRAP TO BE 2,000 GAL. DOUBLE COMPARTMENT AS MANUFACTURED BY AMERICAN CONCRETE INDUSTRIES OR APPROVED EQUAL.

TYPICAL SEPTIC TANK
NOT TO SCALE



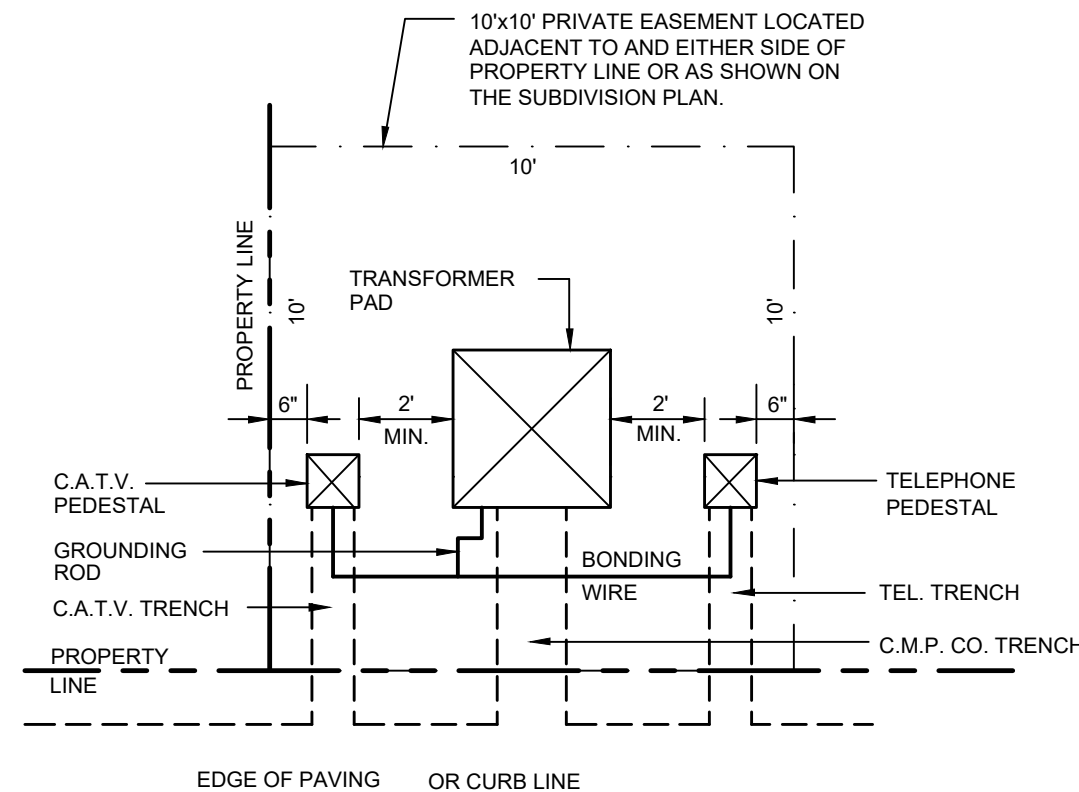
STRUCTURAL NOTES:

1. CONCRETE:
a) 28 DAY COMPRESSIVE STRENGTH FC= 4,000 PSI.
b) CEMENT TO BE TYPE III PER ASTM C-150
c) 4%-6% ENTRAINED AIR
2. STRUCTURAL REINFORCEMENT:
a) REINFORCED FOR H-20 LOADING
3. BAR CLEARANCE/PROTECTION:
a) 1 1/2" CLR. (UNLESS OTHERWISE NOTED)

INSTALLATION REQUIREMENTS:

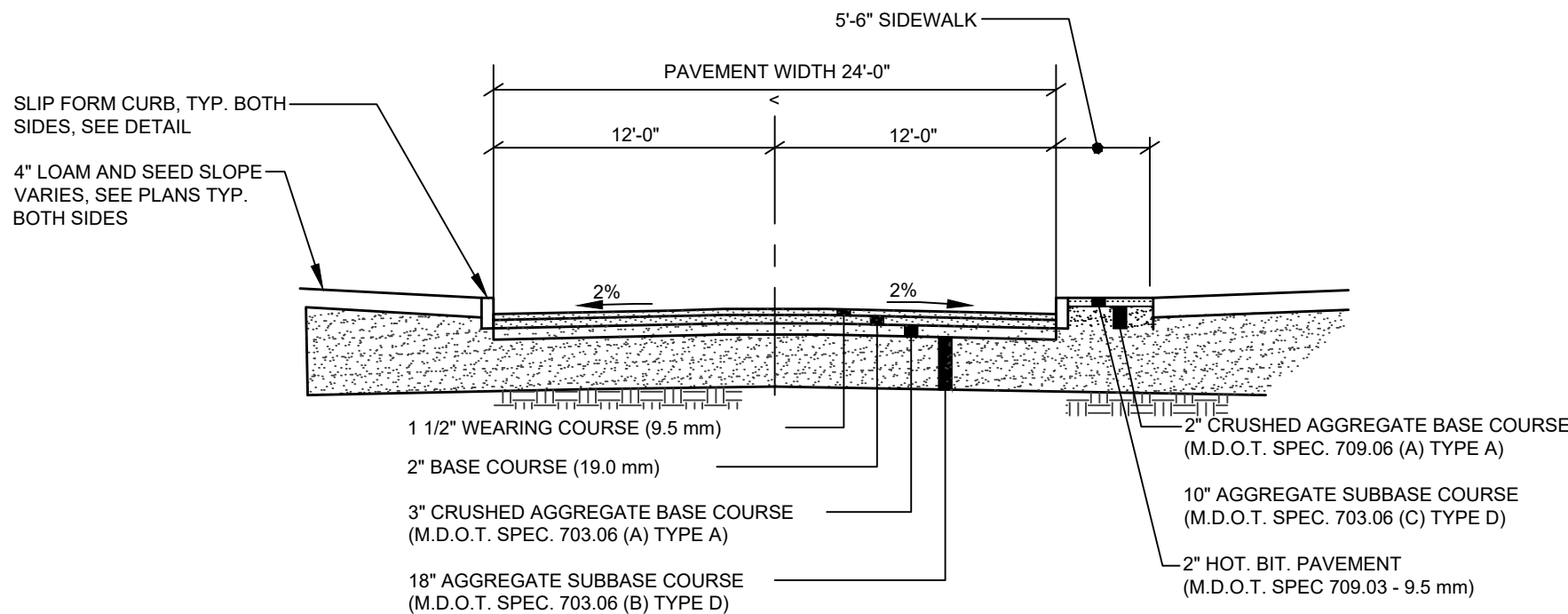
1. TO BE INSTALLED ON MIN. 8" THICK BED OF CRUSHED 3/4" STONE.
2. USE 1" CON-SEAL 102 AT JOINTS.
3. JOINT GAPS LESS THAN 0.5", GROUT TO FILL VOIDS.

GENERAL NOTES:
1. ALL BAFFLES AND WEIRS TO BE PRECAST CONCRETE.
2. CONTRACTOR TO: SUPPLY AND INSTALL ALL PIPING & SAMPLING TEES GROUT IN ALL PIPES FILL WITH CLEAN WATER PRIOR TO "START-UP" OF SYSTEM VERIFY ALL BLOCKOUT SIZES AND LOCATIONS. PUMP BY OTHERS.
3. GREASE INTERCEPTOR BY AMERICAN CONCRETE OR APPROVED EQUAL.



NOTE:
TRANSFORMER PAD AND COVER TO BE FIBERGLASS MEETING CENTRAL MAINE POWER SPECIFICATIONS.

TRANSFORMER DETAIL
NOT TO SCALE



NOTES:
1. COMPACT GRAVEL SUBBASE AND BASE COURSES TO 95% OF MAXIMUM DENSITY USING HEAVY ROLLER COMPACTION.
2. HOT MIX ASPHALT SURFACE COURSE SHALL BE COMPACTED TO 95% OF ITS THEORETICAL MAXIMUM DENSITY (ASTM D-2041). BASE COURSE SHALL BE COMPACTED TO 95% ±2.5% OF ITS THEORETICAL MAXIMUM DENSITY (ASTM D-2041).
3. APPLY TACK COAT BETWEEN SUCCESSIVE LIFTS OF BITUMINOUS PAVEMENT.
4. CONTRACTOR SHALL SET GRADE STAKES MARKING SUBBASE AND FINISH GRADE ELEVATIONS FOR CONSTRUCTION REFERENCE.

CUL DE SAC TURNAROUND SECTION
NOT TO SCALE

CRAIG A. BURGESS P.E. 12635



REV.	BY	DATE	STATUS
B	CAB	05/31/2022	ISSUED TO TOWN FOR PRELIMINARY REVIEW
A	CAB	05/05/2022	ISSUED TO TOWN FOR STAFF REVIEW

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SEBAGO TECHINCS, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SEBAGO TECHINCS, INC.



DETAILS
OF:
EVERGREEN ESTATES
246 OLD GRAY ROAD
CUMBERLAND, ME
FOR:
ENVY CONSTRUCTION
28 STONE RIDGE ROAD
FALMOUTH, ME 04105

DESIGNED	AJR
DRAWN	ER
CHECKED	CAB
DATE	01/11/2022
SCALE	NONE
PROJECT	20551

[illegible]

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South Portland, ME 04106
Tel. 207-200-2100

NOT FOR
CONSTRUCTION

STATE OF MAINE
CRAIG A. BURGESS
No. 20338
PROFESSIONAL
05-25-2022

[illegible]



STORMWATER MANAGEMENT REPORT

For

Evergreen Estates Cumberland, Maine

Prepared for:

Envy Construction
28 Stone Ridge Road
Falmouth, Maine 04105

Prepared by:

Sebago Technics, Inc.
75 John Roberts Rd, Suite 4A
South Portland, ME 04106

May 2022

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Basic Standard - Chapter 500, Section 4(B)	3
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Appendices

Appendix 1A: Hydrologic Modeling– Existing Conditions (HydroCAD)Summary	
Appendix 1B: Hydrologic Modeling – Proposed Conditions (HydroCAD) Summary	
Appendix 2: Inspection, Maintenance and Housekeeping Plan	
Appendix 3: Subsurface Investigations	

STORMWATER MANAGEMENT REPORT
Evergreen Estates
Cumberland, Maine

1. Introduction

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

2. Existing Conditions

The project site consists of undeveloped land located in Cumberland, Maine off of Old Gray Road. The site is approximately 5.68 acres. The site is bounded by residential house lots to the north and south with the Gray Toll Plaza and I-95 to the west.

Slopes on the site range from about 5%-20% with the steeper portions on the south and west sides of the site adjacent to the wetland.

The site is tributary to the on-site wetlands which eventually drain to the Piscataqua River.

The proposed development area of the site is not located in an identified flood zone per the FEMA Flood Insurance Rate Map for the Cumberland, Community Panel 2301620010 effective May 19, 1981

3. Soils

Soil characteristics were obtained from the Class C Medium Intensity Soil Survey. The Hydrologic Groups (HSG) of the soils are classified by Technical Release TR-55 of the Soil Conservation Service as follows:

Soil Map Symbol	Soil Name	Slope (%)	HSG
AtB	Abram-Turnbridge Complex	3-8	D
AtD	Abram-Turnbridge Complex	15-25	D
BvB	Becket Variant	3-8	C
BvD	Becket Variant	15-25	C
NaA	Naumberg	0-3	D

Hydrologic Soil Group boundaries are delineated on the Watershed Map. A copy of the Class C Medium Intensity Soil Survey is included in Appendix 4.

4. Proposed Site Improvements

The proposed development will consist of 5 duplex buildings with a total of 10 units. Each unit will have a footprint of 2,400 square feet. The condos will be access by a cul de sac with individual driveways to each unit. A majority of the buildings and all of the paved driveway areas will drain via both drainage structures (i.e., catch basins) and surface runoff towards a proposed detention basin. This basin will allow for stormwater to infiltrate through the sand media and get into the underdrain pipes, slowing down runoff before it gets to the on-site wetland. Areas near the subsurface disposal systems and stockpile area, will be left to revegetate and revert to the meadow condition. In total, the project will result in the creation of 0.69 acres of non-vegetated area and 2.41 acres of developed area.

5. Existing Conditions Model

The pre-development watershed plan consists of two sub-catchments labeled 1S and 2S in the HydroCAD model. Two locations were identified as Points of Analyses (POA) for comparing peak runoff rates, both POAs are headed towards the wetland complex at the Southern edge of the property with POAs on either side of a local high point.

POA-1 is located in the southwesterly corner of the site where runoff from the site leaves towards the wetland. Watershed 1S contributes to this study point with an overall area of 0.81 acres.

POA-2 is located slightly east of POA-1 on the other side of the local high point. Watershed 2S contributes runoff to this study point and has an overall area of 6.26 acres.

6. Proposed Conditions Model

The post-development watershed area consists of the same overall area as the pre-development plan, however, the pre-development subcatchments have been broken into smaller watersheds as a result of the proposed development.

POA1: Post-development subcatchment 10S represents the undeveloped land from pre-development 1S. This post-development subcatchment remains unchanged from the pre-development. The overall tributary area associated with POA-1 is 0.81 acres.

POA-2: Post-development subcatchments 20S through 20.6S are tributary to this Point of Analysis. All developed areas from this project flow toward this Point of Analysis. Subcatchments 20.1S to 20.4S are tributary to Detention Basin 1 (DB-1). This basin slows down runoff from the site and discharges towards the on-site wetlands.

7. Stormwater Management

Basic Standard - Chapter 500, Section 4(B)

The proposed stormwater measures satisfy sections 242-23 to 242-25 of the Town of Cumberland Stormwater Standards. A Maine DEP stormwater law application is not required as the impervious area in the proposed subdivision does not exceed 1 acre nor does the total developed area exceed 5 acres. We have avoided adverse impacts by providing an Erosion and Sedimentation Control Plan, and an Inspection, Maintenance, and Housekeeping Plan to be implemented during construction and post-construction stabilization of the site. These construction requirements have been developed following Best Management Practice guidelines.

Flooding Standard- Town of Cumberland Site Plan Review Ordinance, Section 229-10

Runoff curve numbers were determined for each of the watersheds by measuring the area of each hydrologic soil group within each type of land cover. The type of land cover was determined based on survey data, field reconnaissance, and aerial photography. Times of concentration were determined from site topographic maps in accordance with SCS procedures.

The 24-hour rainfall values utilized in the hydrologic model were obtained from Appendix H of MDEP's Chapter 500: Stormwater Management (effective date August 2015). Rainfall values for York County are listed in the table below.

Storm Frequency Precipitation (in./24 hr) Cumberland County	
2-year	3.1
10-year	4.6
25-year	6.2

The following table presents the results of the peak runoff calculations at the analysis points for the existing and proposed conditions. A detention basin was designed to limit the peak rates of runoff at the study points.

Peak Runoff Rate Summary Table			
Analysis Point	Storm Event	Existing Conditions (cfs)	Proposed Conditions (cfs)
POA-1	2-year	0.68	0.68
	10-year	1.42	1.42
	25-year	2.05	2.05

POA-2	2-year	4.26	4.26
	10-year	9.47	9.07
	25-year	14.07	13.96

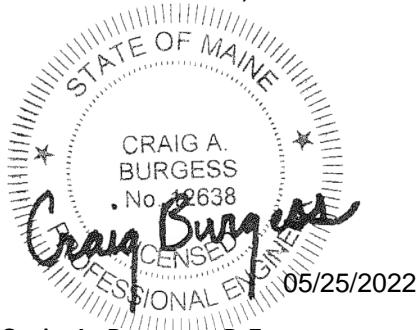
The HydroCAD Data output sheets from this analysis are appended to this report (Appendix 2) along with the Stormwater Management Plans which can be found in the plan set accompanying these materials. The model predicts that the peak runoff rates in the post-development condition at Points of Analysis 1, and 2 are at or below pre-development runoff rates for the 2, 10, and 25-year storm events with the implementation of the proposed stormwater management practices.

8. Summary

The proposed development has been designed to manage stormwater runoff through Best Management Practices approved by MDEP. Runoff discharging from the site will be at or below pre-development conditions for the 2, 10, and 25-year storm events at all three study points. Additionally, erosion and sedimentation controls along with associated maintenance and housekeeping procedures have been outlined to prevent unreasonable impacts on the site and the surrounding environment.

Prepared by:

SEBAGO TECHNICS, INC.

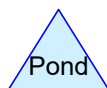
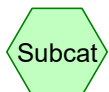
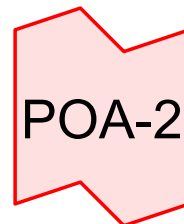
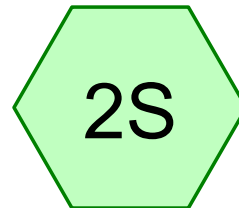
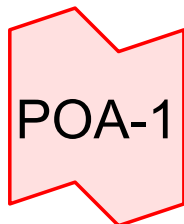
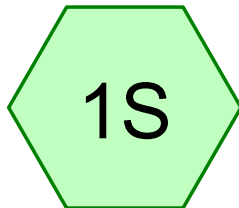


Craig A. Burgess, P.E.
Senior Project Manager

CAB

Appendix 1A

Existing Conditions HydroCAD Summary



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.664	79	1 acre lots, 20% imp, HSG C (2S)
0.321	89	Gravel roads w/ ROW HSG C (2S)
3.670	70	Woods, Good, HSG C (2S)
2.425	77	Woods, Good, HSG D (1S, 2S)
7.080	74	TOTAL AREA

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Evergreen Estates
Type III 24-hr 25-YR Rainfall=5.80"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S:

Runoff Area=35,542 sf 0.00% Impervious Runoff Depth=3.31"
Flow Length=384' Tc=21.9 min CN=77 Runoff=2.05 cfs 0.225 af

Subcatchment 2S:

Runoff Area=272,843 sf 2.12% Impervious Runoff Depth=3.02"
Flow Length=823' Tc=22.9 min CN=74 Runoff=14.07 cfs 1.575 af

Link POA-1:

Inflow=2.05 cfs 0.225 af
Primary=2.05 cfs 0.225 af

Link POA-2:

Inflow=14.07 cfs 1.575 af
Primary=14.07 cfs 1.575 af

Total Runoff Area = 7.080 ac Runoff Volume = 1.800 af Average Runoff Depth = 3.05"
98.12% Pervious = 6.947 ac 1.88% Impervious = 0.133 ac

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Type III 24-hr 25-YR Rainfall=5.80"

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Summary for Subcatchment 1S:

Runoff = 2.05 cfs @ 12.29 hrs, Volume= 0.225 af, Depth= 3.31"

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

Area (sf)	CN	Description
35,542	77	Woods, Good, HSG D
35,542		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.7	130	0.0500	0.12		Sheet Flow, A-B
					Woods: Light underbrush n= 0.400 P2= 3.10"
3.2	254	0.0700	1.32		Shallow Concentrated Flow, B-C
					Woodland Kv= 5.0 fps
21.9	384	Total			

Summary for Subcatchment 2S:

Runoff = 14.07 cfs @ 12.32 hrs, Volume= 1.575 af, Depth= 3.02"

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

Area (sf)	CN	Description
70,098	77	Woods, Good, HSG D
159,847	70	Woods, Good, HSG C
28,923	79	1 acre lots, 20% imp, HSG C
* 13,975	89	Gravel roads w/ ROW HSG C
272,843	74	Weighted Average
267,058		97.88% Pervious Area
5,785		2.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	70	0.0330	0.19		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.10"
0.7	69	0.0600	1.71		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
6.5	481	0.0600	1.22		Shallow Concentrated Flow, C-D
					Woodland Kv= 5.0 fps
9.6	203	0.0200	0.35		Shallow Concentrated Flow, D-E
					Forest w/Heavy Litter Kv= 2.5 fps
22.9	823	Total			

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Type III 24-hr 25-YR Rainfall=5.80"

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Summary for Link POA-1:

Inflow Area = 0.816 ac, 0.00% Impervious, Inflow Depth = 3.31" for 25-YR event
Inflow = 2.05 cfs @ 12.29 hrs, Volume= 0.225 af
Primary = 2.05 cfs @ 12.29 hrs, Volume= 0.225 af, Atten= 0%, Lag= 0.0 min

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

Summary for Link POA-2:

Inflow Area = 6.264 ac, 2.12% Impervious, Inflow Depth = 3.02" for 25-YR event
Inflow = 14.07 cfs @ 12.32 hrs, Volume= 1.575 af
Primary = 14.07 cfs @ 12.32 hrs, Volume= 1.575 af, Atten= 0%, Lag= 0.0 min

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

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Type III 24-hr 2-YR Rainfall=3.10"

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

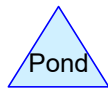
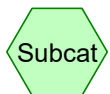
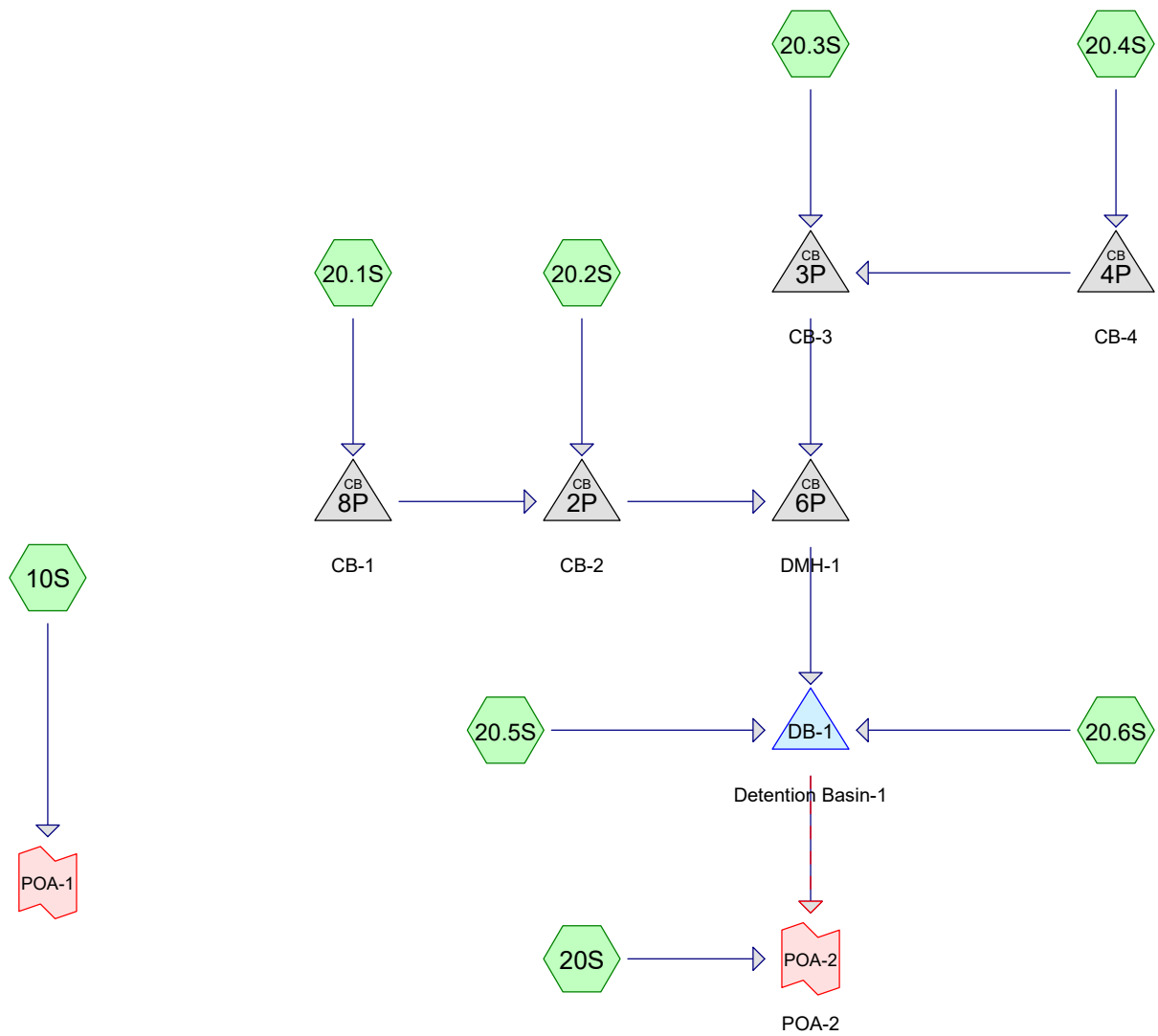
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S:Runoff Area=35,542 sf 0.00% Impervious Runoff Depth=1.14"
Flow Length=384' Tc=21.9 min CN=77 Runoff=0.68 cfs 0.078 af**Subcatchment 2S:**Runoff Area=272,843 sf 2.12% Impervious Runoff Depth=0.97"
Flow Length=823' Tc=22.9 min CN=74 Runoff=4.26 cfs 0.508 af**Link POA-1:**Inflow=0.68 cfs 0.078 af
Primary=0.68 cfs 0.078 af**Link POA-2:**Inflow=4.26 cfs 0.508 af
Primary=4.26 cfs 0.508 af**Total Runoff Area = 7.080 ac Runoff Volume = 0.585 af Average Runoff Depth = 0.99"**
98.12% Pervious = 6.947 ac 1.88% Impervious = 0.133 ac

Appendix 1B

Proposed Conditions HydroCAD Summary



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.664	79	1 acre lots, 20% imp, HSG C (20.4S, 20S)
1.750	74	>75% Grass cover, Good, HSG C (20.1S, 20.2S, 20.3S, 20.4S, 20.5S, 20.6S, 20S)
0.045	80	>75% Grass cover, Good, HSG D (20S)
0.324	98	Driveways and Travelways (20.1S, 20.2S, 20.3S, 20.4S, 20.5S)
0.006	98	Dumpster Pad (20.1S)
0.307	89	Gravel roads w/ ROW, HSG C (20.5S)
0.060	98	New Sidewalk (20.1S, 20.4S, 20.5S, 20.6S)
0.021	98	Parking Stalls (20.1S)
0.276	98	Roofs (20.1S, 20.3S, 20.4S, 20.6S, 20S)
1.209	70	Woods, Good, HSG C (20.4S, 20S)
2.416	77	Woods, Good, HSG D (10S, 20S)
7.080	78	TOTAL AREA

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Evergreen Estates
Type III 24-hr 25-YR Rainfall=5.80"

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Summary for Subcatchment 10S:

Runoff = 2.05 cfs @ 12.29 hrs, Volume= 0.225 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
35,542	77	Woods, Good, HSG D
35,542		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.7	130	0.0500	0.12		Sheet Flow, A-B
					Woods: Light underbrush n= 0.400 P2= 3.10"
3.2	254	0.0700	1.32		Shallow Concentrated Flow, B-C
					Woodland Kv= 5.0 fps
21.9	384	Total			

Summary for Subcatchment 20.1S:

Runoff = 1.61 cfs @ 12.08 hrs, Volume= 0.126 af, Depth= 5.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
* 6,503	98	Driveways and Travelways
* 1,670	98	New Sidewalk
1,581	74	>75% Grass cover, Good, HSG C
* 925	98	Parking Stalls
* 1,680	98	Roofs
* 275	98	Dumpster Pad
12,634	95	Weighted Average
1,581		12.51% Pervious Area
11,053		87.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	184	0.0500	2.21		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.10"
4.6					Direct Entry, Direct
6.0	184	Total			

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Type III 24-hr 25-YR Rainfall=5.80"

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Summary for Subcatchment 20.2S:

Runoff = 0.79 cfs @ 12.09 hrs, Volume= 0.057 af, Depth= 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

	Area (sf)	CN	Description
*	3,281	98	Driveways and Travelways
	3,959	74	>75% Grass cover, Good, HSG C
	7,240	85	Weighted Average
	3,959		54.68% Pervious Area
	3,281		45.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	72	0.0660	0.25		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.10"
1.3					Direct Entry, Direct
6.0	72	Total			

Summary for Subcatchment 20.3S:

Runoff = 0.46 cfs @ 12.08 hrs, Volume= 0.035 af, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

	Area (sf)	CN	Description
*	1,200	98	Roofs
*	1,722	98	Driveways and Travelways
	742	74	>75% Grass cover, Good, HSG C
	3,664	93	Weighted Average
	742		20.25% Pervious Area
	2,922		79.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	117	0.0500	2.02		Sheet Flow, A-B
					Smooth surfaces n= 0.011 P2= 3.10"
5.0					Direct Entry, Direct
6.0	117	Total			

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Type III 24-hr 25-YR Rainfall=5.80"

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Summary for Subcatchment 20.4S:

Runoff = 3.25 cfs @ 12.12 hrs, Volume= 0.249 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
4,360	70	Woods, Good, HSG C
9,840	79	1 acre lots, 20% imp, HSG C
19,249	74	>75% Grass cover, Good, HSG C
* 2,400	98	Roofs
* 563	98	New Sidewalk
* 1,893	98	Driveways and Travelways
38,305	78	Weighted Average
31,481		82.19% Pervious Area
6,824		17.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	78	0.0320	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
0.4	55	0.1000	2.21		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
1.0	84	0.0800	1.41		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
8.2	217	Total			

Summary for Subcatchment 20.5S:

Runoff = 2.11 cfs @ 12.09 hrs, Volume= 0.153 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
* 13,367	89	Gravel roads w/ ROW, HSG C
* 725	98	Driveways and Travelways
* 68	98	New Sidewalk
4,833	74	>75% Grass cover, Good, HSG C
18,993	86	Weighted Average
18,200		95.82% Pervious Area
793		4.18% Impervious Area

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Evergreen Estates
Type III 24-hr 25-YR Rainfall=5.80"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	150	0.0500	2.12		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.10"
0.6	175	0.0850	4.69		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
0.5	70	0.1000	2.21		Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps
3.7					Direct Entry, Direct
6.0	395	Total			

Summary for Subcatchment 20.6S:

Runoff = 2.14 cfs @ 12.09 hrs, Volume= 0.152 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

	Area (sf)	CN	Description
*	320	98	New Sidewalk
	22,283	74	>75% Grass cover, Good, HSG C
*	2,120	98	Roofs
	24,723	76	Weighted Average
	22,283		90.13% Pervious Area
	2,440		9.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	100	0.1250	2.47		Shallow Concentrated Flow, A-B Short Grass Pasture Kv= 7.0 fps
5.3					Direct Entry, Direct
6.0	100	Total			

Summary for Subcatchment 20S:

Runoff = 8.92 cfs @ 12.32 hrs, Volume= 0.996 af, Depth= 3.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

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Evergreen Estates
Type III 24-hr 25-YR Rainfall=5.80"

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Area (sf)	CN	Description
69,715	77	Woods, Good, HSG D
* 4,620	98	Roofs
23,599	74	>75% Grass cover, Good, HSG C
48,320	70	Woods, Good, HSG C
1,945	80	>75% Grass cover, Good, HSG D
19,092	79	1 acre lots, 20% imp, HSG C
167,291	75	Weighted Average
158,853		94.96% Pervious Area
8,438		5.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	70	0.0300	0.18		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.10"
0.6	65	0.0600	1.71		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
7.2	526	0.0600	1.22		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
8.6	182	0.0200	0.35		Shallow Concentrated Flow, D-E Forest w/Heavy Litter Kv= 2.5 fps
22.8	843	Total			

Summary for Pond 2P: CB-2

Inflow Area = 0.456 ac, 72.12% Impervious, Inflow Depth = 4.81" for 25-YR event
 Inflow = 2.40 cfs @ 12.08 hrs, Volume= 0.183 af
 Outflow = 2.40 cfs @ 12.08 hrs, Volume= 0.183 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.40 cfs @ 12.08 hrs, Volume= 0.183 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 296.64' @ 12.10 hrs

Flood Elev= 299.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	295.52'	15.0" Round Stormdrain L= 91.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 295.52' / 294.98' S= 0.0059' /' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.23 sf

Primary OutFlow Max=2.31 cfs @ 12.08 hrs HW=296.62' TW=296.26' (Dynamic Tailwater)
 ↑1=Stormdrain (Outlet Controls 2.31 cfs @ 2.68 fps)

Summary for Pond 3P: CB-3

Inflow Area = 0.963 ac, 23.22% Impervious, Inflow Depth = 3.54" for 25-YR event
 Inflow = 3.68 cfs @ 12.11 hrs, Volume= 0.284 af
 Outflow = 3.68 cfs @ 12.11 hrs, Volume= 0.284 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.68 cfs @ 12.11 hrs, Volume= 0.284 af

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 300.35' @ 12.11 hrs

Flood Elev= 304.76'

Device	Routing	Invert	Outlet Devices
#1	Primary	299.15'	15.0" Round Culvert L= 28.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 299.15' / 298.98' S= 0.0061 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.68 cfs @ 12.11 hrs HW=300.35' TW=296.27' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 3.68 cfs @ 3.88 fps)**Summary for Pond 4P: CB-4**

Inflow Area = 0.879 ac, 17.81% Impervious, Inflow Depth = 3.40" for 25-YR event
Inflow = 3.25 cfs @ 12.12 hrs, Volume= 0.249 af
Outflow = 3.25 cfs @ 12.12 hrs, Volume= 0.249 af, Atten= 0%, Lag= 0.0 min
Primary = 3.25 cfs @ 12.12 hrs, Volume= 0.249 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 301.09' @ 12.12 hrs

Flood Elev= 304.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	299.36'	12.0" Round Stormdrain L= 18.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 299.36' / 299.25' S= 0.0061 '/ Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf

Primary OutFlow Max=3.24 cfs @ 12.12 hrs HW=301.09' TW=300.35' (Dynamic Tailwater)↑**1=Stormdrain** (Inlet Controls 3.24 cfs @ 4.13 fps)**Summary for Pond 6P: DMH-1**

Inflow Area = 1.420 ac, 38.94% Impervious, Inflow Depth = 3.95" for 25-YR event
Inflow = 6.00 cfs @ 12.10 hrs, Volume= 0.467 af
Outflow = 6.00 cfs @ 12.10 hrs, Volume= 0.467 af, Atten= 0%, Lag= 0.0 min
Primary = 6.00 cfs @ 12.10 hrs, Volume= 0.467 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 296.28' @ 12.10 hrs

Flood Elev= 304.34'

Device	Routing	Invert	Outlet Devices
#1	Primary	294.88'	18.0" Round Culvert L= 104.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 294.88' / 294.26' S= 0.0060 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

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Primary OutFlow Max=6.00 cfs @ 12.10 hrs HW=296.28' TW=288.10' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 6.00 cfs @ 4.55 fps)**Summary for Pond 8P: CB-1**

Inflow Area = 0.290 ac, 87.49% Impervious, Inflow Depth = 5.21" for 25-YR event
 Inflow = 1.61 cfs @ 12.08 hrs, Volume= 0.126 af
 Outflow = 1.61 cfs @ 12.08 hrs, Volume= 0.126 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.61 cfs @ 12.08 hrs, Volume= 0.126 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 296.81' @ 12.10 hrs

Flood Elev= 299.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	295.75'	12.0" Round Culvert L= 22.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 295.75' / 295.62' S= 0.0059 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.51 cfs @ 12.08 hrs HW=296.79' TW=296.62' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 1.51 cfs @ 2.30 fps)**Summary for Pond DB-1: Detention Basin-1**

Inflow Area = 2.423 ac, 25.87% Impervious, Inflow Depth = 3.82" for 25-YR event
 Inflow = 10.22 cfs @ 12.09 hrs, Volume= 0.772 af
 Outflow = 5.13 cfs @ 12.26 hrs, Volume= 0.772 af, Atten= 50%, Lag= 10.2 min
 Primary = 5.09 cfs @ 12.26 hrs, Volume= 0.772 af
 Secondary = 0.04 cfs @ 12.26 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 288.51' @ 12.26 hrs Surf.Area= 8,532 sf Storage= 8,012 cf

Flood Elev= 289.50' Surf.Area= 10,500 sf Storage= 14,295 cf

Plug-Flow detention time= 35.1 min calculated for 0.772 af (100% of inflow)

Center-of-Mass det. time= 34.8 min (840.1 - 805.3)

Volume	Invert	Avail.Storage	Storage Description
#1	287.00'	12,696 cf	Detention Pond (Prismatic) Listed below (Recalc)
#2	285.50'	1,599 cf	Media Storage (Prismatic) Listed below (Recalc)
		14,295 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
287.00	3,500	0	0
288.00	4,490	3,995	3,995
288.50	5,002	2,373	6,368
289.00	6,655	2,914	9,282
289.50	7,000	3,414	12,696

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
285.50	3,500	0.0	0	0
285.51	3,500	30.0	10	10
286.99	3,500	30.0	1,554	1,565
287.00	3,500	100.0	35	1,599

Device	Routing	Invert	Outlet Devices
#1	Primary	285.40'	18.0" Round 18" Underdrain Outlet L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 285.40' / 285.20' S= 0.0200 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	285.50'	6.0" Round 6" Underdrain X 3.00 L= 96.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 285.50' / 285.50' S= 0.0000 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 1	287.20'	12.0" W x 6.0" H Vert. OCS Orifice C= 0.600
#4	Device 1	288.42'	2.0" x 2.0" Horiz. Grate X 6.00 columns X 6 rows C= 0.600 Limited to weir flow at low heads
#5	Device 2	285.50'	6.000 in/hr Filtration over Surface area
#6	Secondary	288.50'	20.0' long x 6.0' breadth Overflow Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=5.09 cfs @ 12.26 hrs HW=288.51' TW=0.00' (Dynamic Tailwater)

1=18" Underdrain Outlet (Passes 5.09 cfs of 10.32 cfs potential flow)

2=6" Underdrain (Passes 1.18 cfs of 2.43 cfs potential flow)

5=Filtration (Exfiltration Controls 1.18 cfs)

—3=OCS Orifice (Orifice Controls 2.47 cfs @ 4.94 fps)

4=Grate (Orifice Controls 1.43 cfs @ 1.43 fps)

Secondary OutFlow Max=0.04 cfs @ 12.26 hrs HW=288.51' TW=0.00' (Dynamic Tailwater)

6=Overflow (Weir Controls 0.04 cfs @ 0.22 fps)

Summary for Link POA-1:

Inflow Area = 0.816 ac, 0.00% Impervious, Inflow Depth = 3.31" for 25-YR event
Inflow = 2.05 cfs @ 12.29 hrs, Volume= 0.225 af
Primary = 2.05 cfs @ 12.29 hrs, Volume= 0.225 af, Atten= 0%, Lag= 0.0 min

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Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Link POA-2: POA-2

Inflow Area = 6.264 ac, 13.10% Impervious, Inflow Depth = 3.39" for 25-YR event

Inflow = 13.96 cfs @ 12.29 hrs, Volume= 1.768 af

Primary = 13.96 cfs @ 12.29 hrs, Volume= 1.768 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S:	Runoff Area=35,542 sf 0.00% Impervious Runoff Depth=1.14" Flow Length=384' Tc=21.9 min CN=77 Runoff=0.68 cfs 0.078 af
Subcatchment 20.1S:	Runoff Area=12,634 sf 87.49% Impervious Runoff Depth=2.55" Flow Length=184' Slope=0.0500 '/' Tc=6.0 min CN=95 Runoff=0.82 cfs 0.062 af
Subcatchment 20.2S:	Runoff Area=7,240 sf 45.32% Impervious Runoff Depth=1.67" Flow Length=72' Slope=0.0660 '/' Tc=6.0 min CN=85 Runoff=0.33 cfs 0.023 af
Subcatchment 20.3S:	Runoff Area=3,664 sf 79.75% Impervious Runoff Depth=2.35" Flow Length=117' Slope=0.0500 '/' Tc=6.0 min CN=93 Runoff=0.22 cfs 0.016 af
Subcatchment 20.4S:	Runoff Area=38,305 sf 17.81% Impervious Runoff Depth=1.20" Flow Length=217' Tc=8.2 min CN=78 Runoff=1.12 cfs 0.088 af
Subcatchment 20.5S:	Runoff Area=18,993 sf 4.18% Impervious Runoff Depth=1.75" Flow Length=395' Tc=6.0 min CN=86 Runoff=0.89 cfs 0.064 af
Subcatchment 20.6S:	Runoff Area=24,723 sf 9.87% Impervious Runoff Depth=1.08" Flow Length=100' Slope=0.1250 '/' Tc=6.0 min CN=76 Runoff=0.69 cfs 0.051 af
Subcatchment 20S:	Runoff Area=167,291 sf 5.04% Impervious Runoff Depth=1.03" Flow Length=843' Tc=22.8 min CN=75 Runoff=2.79 cfs 0.329 af
Pond 2P: CB-2	Peak Elev=296.15' Inflow=1.15 cfs 0.085 af 15.0" Round Culvert n=0.013 L=91.0' S=0.0059 '/' Outflow=1.15 cfs 0.085 af
Pond 3P: CB-3	Peak Elev=299.79' Inflow=1.32 cfs 0.104 af 15.0" Round Culvert n=0.013 L=28.0' S=0.0061 '/' Outflow=1.32 cfs 0.104 af
Pond 4P: CB-4	Peak Elev=300.04' Inflow=1.12 cfs 0.088 af 12.0" Round Culvert n=0.013 L=18.0' S=0.0061 '/' Outflow=1.12 cfs 0.088 af
Pond 6P: DMH-1	Peak Elev=295.68' Inflow=2.43 cfs 0.189 af 18.0" Round Culvert n=0.013 L=104.0' S=0.0060 '/' Outflow=2.43 cfs 0.189 af
Pond 8P: CB-1	Peak Elev=296.35' Inflow=0.82 cfs 0.062 af 12.0" Round Culvert n=0.013 L=22.0' S=0.0059 '/' Outflow=0.82 cfs 0.062 af
Pond DB-1: Detention Basin-1	Peak Elev=287.47' Storage=3,347 cf Inflow=4.01 cfs 0.304 af Primary=1.48 cfs 0.304 af Secondary=0.00 cfs 0.000 af Outflow=1.48 cfs 0.304 af
Link POA-1:	Inflow=0.68 cfs 0.078 af Primary=0.68 cfs 0.078 af
Link POA-2: POA-2	Inflow=4.26 cfs 0.632 af Primary=4.26 cfs 0.632 af

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Type III 24-hr 2-YR Rainfall=3.10"

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Total Runoff Area = 7.080 ac Runoff Volume = 0.710 af Average Runoff Depth = 1.20"
88.41% Pervious = 6.259 ac 11.59% Impervious = 0.821 ac

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Type III 24-hr 10-YR Rainfall=4.60"

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Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S:	Runoff Area=35,542 sf 0.00% Impervious Runoff Depth=2.29" Flow Length=384' Tc=21.9 min CN=77 Runoff=1.42 cfs 0.156 af
Subcatchment 20.1S:	Runoff Area=12,634 sf 87.49% Impervious Runoff Depth=4.02" Flow Length=184' Slope=0.0500 '/' Tc=6.0 min CN=95 Runoff=1.26 cfs 0.097 af
Subcatchment 20.2S:	Runoff Area=7,240 sf 45.32% Impervious Runoff Depth=3.00" Flow Length=72' Slope=0.0660 '/' Tc=6.0 min CN=85 Runoff=0.58 cfs 0.042 af
Subcatchment 20.3S:	Runoff Area=3,664 sf 79.75% Impervious Runoff Depth=3.81" Flow Length=117' Slope=0.0500 '/' Tc=6.0 min CN=93 Runoff=0.35 cfs 0.027 af
Subcatchment 20.4S:	Runoff Area=38,305 sf 17.81% Impervious Runoff Depth=2.38" Flow Length=217' Tc=8.2 min CN=78 Runoff=2.27 cfs 0.174 af
Subcatchment 20.5S:	Runoff Area=18,993 sf 4.18% Impervious Runoff Depth=3.10" Flow Length=395' Tc=6.0 min CN=86 Runoff=1.57 cfs 0.112 af
Subcatchment 20.6S:	Runoff Area=24,723 sf 9.87% Impervious Runoff Depth=2.21" Flow Length=100' Slope=0.1250 '/' Tc=6.0 min CN=76 Runoff=1.47 cfs 0.105 af
Subcatchment 20S:	Runoff Area=167,291 sf 5.04% Impervious Runoff Depth=2.13" Flow Length=843' Tc=22.8 min CN=75 Runoff=6.06 cfs 0.681 af
Pond 2P: CB-2	Peak Elev=296.41' Inflow=1.84 cfs 0.139 af 15.0" Round Culvert n=0.013 L=91.0' S=0.0059 '/' Outflow=1.84 cfs 0.139 af
Pond 3P: CB-3	Peak Elev=300.11' Inflow=2.60 cfs 0.201 af 15.0" Round Culvert n=0.013 L=28.0' S=0.0061 '/' Outflow=2.60 cfs 0.201 af
Pond 4P: CB-4	Peak Elev=300.47' Inflow=2.27 cfs 0.174 af 12.0" Round Culvert n=0.013 L=18.0' S=0.0061 '/' Outflow=2.27 cfs 0.174 af
Pond 6P: DMH-1	Peak Elev=296.01' Inflow=4.38 cfs 0.340 af 18.0" Round Culvert n=0.013 L=104.0' S=0.0060 '/' Outflow=4.38 cfs 0.340 af
Pond 8P: CB-1	Peak Elev=296.59' Inflow=1.26 cfs 0.097 af 12.0" Round Culvert n=0.013 L=22.0' S=0.0059 '/' Outflow=1.26 cfs 0.097 af
Pond DB-1: Detention Basin-1	Peak Elev=288.08' Storage=5,936 cf Inflow=7.40 cfs 0.557 af Primary=3.01 cfs 0.556 af Secondary=0.00 cfs 0.000 af Outflow=3.01 cfs 0.556 af
Link POA-1:	Inflow=1.42 cfs 0.156 af Primary=1.42 cfs 0.156 af
Link POA-2: POA-2	Inflow=9.07 cfs 1.238 af Primary=9.07 cfs 1.238 af

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Type III 24-hr 10-YR Rainfall=4.60"

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Total Runoff Area = 7.080 ac Runoff Volume = 1.394 af Average Runoff Depth = 2.36"
88.41% Pervious = 6.259 ac 11.59% Impervious = 0.821 ac

Appendix 2

Inspection, Maintenance and Housekeeping Plan

INSPECTION AND MAINTENANCE PLAN

Evergreen Estates Cumberland, Maine

Introduction

The responsible party for maintenance of the stormwater management facility during and following construction will be the applicant, Envy Construction. A Homeowners Association will take over maintenance of the detention pond.

The contract documents will require the contractor to designate a person responsible for maintenance of the sedimentation control features during construction as required by the Erosion & Sedimentation Control Report. Long-term operation and maintenance for the stormwater management facilities is presented below.

The following plan outlines the anticipated inspection, maintenance, and housekeeping procedures for the erosion and sedimentation controls as well as stormwater management devices for the project site. Also, this plan outlines several housekeeping requirements that shall be followed during and after construction. These procedures should be followed in order to ensure the intended function of the designed measures and to prevent unreasonable adverse impacts to the surrounding environment.

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

During Construction

1. **Inspection:** During the construction process, it is the contractor's responsibility to comply with the inspection and maintenance procedures outlined in this section. These responsibilities include inspecting disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. These areas shall be inspected at least once a week as well as before and after a storm event, and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in any applicable permits, shall conduct the inspections.
2. **Maintenance:** All measures shall be maintained in an effective operating condition until areas are permanently stabilized. If Best Management Practices (BMPs) need to be

maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation must be completed within seven (7) calendar days and prior to any storm event (rainfall).

3. **Documentation:** A log summarizing the inspections and any corrective action taken must be maintained on-site. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, material storage areas, and vehicle access points to the site. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken.

The log must be made accessible to the appropriate regulatory agency upon request. The permittee shall retain a copy of the log for a period of at least five (5) years from the completion of permanent stabilization.

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

A. Sediment Barriers:

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

B. Riprap Materials:

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

C. Erosion Control Blankets:

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

D. Stabilized Construction Entrances/Exits:

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

E. Temporary Seed and Mulch:

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

F. Stabilized Drainage Swales:

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

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

A. Spill Prevention: Controls must be used to prevent pollutants from being

discharged from materials on-site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.

- B. Groundwater Protection: During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors, accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.
- C. Fugitive Sediment and Dust: Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control.
- D. Debris and Other Materials: Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.
- E. Trench or Foundation Dewatering: Trench dewatering is the removal of water from trenches, foundations, cofferdams, ponds, and other areas within the construction area that retain water after excavation. In most cases, the collected water is heavily silted and hinders correct and safe construction practices. The collected water must be removed from the ponded area, either through gravity or pumping, and must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved.

Post-Construction

The following standards will be met after construction is complete.

- 1. **Requirement of Compliance**: The owner/operator shall demonstrate compliance with this plan as follows:
 - A. That the person (having control over the stormwater management facilities) shall, at least annually, inspect, clean, and maintain the stormwater management facilities, including, but not limited to, any parking areas, catch basins, drainage swales, detention basins, pipes, and related structures, in accordance with all Local Municipal and State inspections, cleaning, and Maintenance requirements of the approved Post-Construction Stormwater Management Plan Narrative.

- B. That the person shall repair any deficiencies found during inspections of the stormwater management facilities.
2. **Documentation:** A maintenance log will be kept (i.e. report) summarizing inspections, maintenance, and any corrective actions taken. The log will include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If a maintenance task requires the clean-out of any sediments or debris, the location where the sediment and debris was disposed after removal will be indicated.
3. **Inspection and Maintenance Frequency and Corrective Measures:** The following areas, facilities, and measures will be inspected and the identified deficiencies will be corrected. Clean-out must include the removal and legal disposal of any accumulated sediments and debris.
- A. Culverts:
- Inspect culverts two times per year (preferably in spring and fall) to ensure that the culverts are working in their intended fashion and that they are free of debris. Remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit and to repair any erosion damage at the culvert's inlet and outlet.
- B. Winter Sanding:
- Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring.
 - Accumulations on pavement may be removed by pavement sweeping.
 - Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader or other acceptable method.
5. Inlet/Outlet Control Structures
- Inspect structures two times per year (preferably in spring and fall) to ensure that the structures are working in their intended fashion and that they are free of debris. Clean structures when sediment depths reach 12 inches from invert of outlet. At a minimum, remove floating debris and hydrocarbons at the time of the inspection.
6. Vegetated Areas
- Inspect slopes and embankments early in the growing season to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows. The facilities will be inspected after major storms and any identified deficiencies will be corrected.

7. Ditches, Swales and other Open Stormwater Channels

- Inspect two times per year (preferably in spring and fall) to ensure they are working in their intended fashion and that they are free of sediment and debris. Remove any obstructions to flow, including accumulated sediments and debris and vegetated growth. Repair any erosion of the ditch lining. Vegetated ditches will be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. Correct any erosion of the channel's bottom or sideslopes. The facilities will be inspected after major storms and any identified deficiencies will be corrected.

8. Detention Basin Maintenance Measures

- The inlet and outlet of the pond shall be checked periodically to ensure that flow structures are not blocked by debris. Inspections should be conducted monthly during wet weather conditions from March to November.
- The rip rap outlets shall be inspected after every major storm in the first few months to ensure proper function. Thereafter, the outlet should be inspected at least once every six months.
- Detention Basins shall be inspected annually for erosion, destabilization of sideslopes, embankment settling and other signs of structural failure. Corrective action should be taken immediately upon identification of problems.

Attachment: Attachment 1 – Sample Post-Construction Inspection Report

Attachment 1

Sample Stormwater Inspection and Maintenance Form

Sample Stormwater Inspection and Maintenance Form
The Homes at West Meadow
Attachment 1

This log is intended to accompany the stormwater Inspection, Maintenance and Housekeeping Plan for The Homes at West Meadow. The following items shall be checked, cleaned and maintained on a regular basis as specified in the Maintenance Plan and as described in the table below. This log shall be kept on file for a minimum of five (5) years and shall be available for review. Qualified personnel familiar with drainage systems and soils shall perform all inspections. Attached is a copy of the construction and post-construction maintenance logs.

Item	Maintenance Required & Frequency	Date Completed	Maintenance Personnel	Comments
Ditches and Swales	Inspect after major rainfall event producing greater than 3" of rain in 2 hours.			
	Repair erosion or damage immediately.			
Catch Basins and Culverts	Remove accumulated sediment and debris			
	Sump depth			
Vegetated Areas	Inspect Slopes			
	Replant Bare Areas			
	Check after Major Storms			
Winter Sanding	Clean annually (Spring)			
	Remove sand and sediment from roadway shoulders			
Detention Basin	Inspect inlets/outlets to ensure no blockage from debris			
	Inspect side slopes annually for erosion, destabilization, and embankment settling.			

Appendix 3

Subsurface Investigations



CLASS 'B' HIGH INTENSITY SOIL SURVEY REPORT

Prepared for:

EVERGREEN ESTATES

SVR LLC

28 Stone Ridge Road

Falmouth ME 04105

Prepared by:

Sebago Technics, Inc.

75 John Roberts Road Suite 4A

South Portland, Maine 04106

February 25, 2022

CLASS 'B' HIGH INTENSITY SOIL SURVEY

Residential Development

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APPENDIX B - Soil Legend/MDEP Form E

APPENDIX C - Soil Survey Interpretations

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APPENDIX E - Class 'B' High Intensity Soil Map

Section 1

Introduction

Sebago Technics has completed a Class 'B' High Intensity Soil Survey for the proposed residential development, located off Old Gray Road in Cumberland, Maine. The soils found on the above-referenced site have been observed in the field using test pits dug by an excavator, and one dug by hand in the wetland (see Soil Map for Survey Limits in Appendix E). The test pits were located by Global Positioning Systems (GPS) technology and incorporated into the soil map. The soil map has been merged into the existing base plan prepared by Sebago Technics. Topography is based on 2-foot contour intervals prepared using Lidar DEM from USGS (2013).

The soil map units and soil boundaries have been drawn, reviewed, and forwarded to the Project Manager, Craig Burgess, PE, Sr. Project Manager, for consideration during engineering design and layout of the proposed residential development. Soils found at the site are described below and were examined and classified to identify potential soil limitations relating to the development of the property. This report has been prepared as part of the project requirements for the Town of Cumberland, and may be used to support permitting procedures as required under the Natural Resources Protection Act (NRPA), Stormwater Management Law, or other pertinent regulation.

Section 2

Purpose of Soil Survey

The purpose of this Class 'B' High Intensity Soil Survey was to investigate, identify, describe, and map the soils on the above referenced site for the proposed residential development. The accompanying soil survey map depicts the location and types of soil found on the project site. The soil information may be used to obtain hydrologic soil group ratings to assist in the calculations for stormwater runoff curve values required by the Maine Department of Environmental Protection (MDEP). This soil information may also be used to evaluate soil suitability relating to development for the proposed Residential subdivision. A separate geotechnical report will be required to address engineering requirements for the construction of the site and structures.

Section 3

Site Location and Description

The site is located off Old Gray Road in Cumberland, Maine. The abutting properties are generally residential or wooded. The parcel abuts the Maine Turnpike to the west. There are small businesses in the area, with a lumber yard located approximately 0.3 miles to the north. The proposed development parcel includes approximately 5.7 acres of land. There is one wetland mapped on the site, in the south-east portion of the parcel. The wetlands on the property were delineated by Gary Fullerton, LSS of Sebago Technics in November, 2020.

Section 4

Site Investigation

We collected site-specific soil information at various locations across the site in February, 2022. The areas examined were designated with letters from TP 1 to TP 10. Test pits were dug by excavator or hand tools. Test pit locations were selected based on disturbance areas, topographic relief, and vegetation stands, which typically are indicative of soil type variations. Excavated test pits were examined for soil colors, rock content, texture, consistence, root depths, redoximorphic features, and depth to restrictive horizons. From this information, soil logs were completed and are included in Appendix E. In addition to these test pits, areas with suspected bedrock outcrops were probed to show these small inclusions on the soil map.

The test pits observed in the field were located by a GPS unit capable of submeter accuracy on the same day that they were excavated. These points were then incorporated into the topographic survey to aid in the preparation of a soil map of the project area. The provided base map has a scale of 1 inch = 30 feet, with two-foot contour intervals on the site.

Drainage classifications of the soils on the site were determined by parameters found in the Guidelines for Maine Certified Soil Scientists for Soil Identification and Mapping, published by the Maine Association of Professional Soil Scientists in April 1989 and revised in March 2009.

Section 5

Soil Characteristics

The soils found on the site are predominantly developed from glacial till. The landforms typically associated with these soils are drumlins, hills, ridges, and uplands. They are generally made up of fine sandy loam to loamy fine sand, with gravel or larger rock fragments.

There are wetlands on site that include poorly drained soils, with glaciofluvial (sandy) parent material. The soils in the wetlands are mapped as poorly drained Naumburg sand.

The glacial till soils include the well drained Becket fine sandy loam and Becket variant, the well drained and moderately deep Tunbridge fine sandy loam, and the excessively drained and very shallow Abram sandy loam. Becket is formed in lodgment till, with a densic horizon (hardpan). Tunbridge and Abram are formed from ablation till, with no densic horizons. These soils were found throughout the property on slopes of 3 to 25 percent.

The Becket Variant was found in five out of the ten test pits, with bedrock found within 60 inches of the ground surface. Bedrock depths in the variant ranged from 28 to 56 inches. One test pit classified as Becket due to the very deep ledge depth (60 inches or greater). See the soil logs in Appendix E for all of the test pit characteristics.

The glacial outwash soils on site are the poorly drained Naumburg sand. The Naumburg soils were found in the mapped wetland. These soils were found on land with slopes of 0 to 3 percent.

These soils should respond to use and management as determined and described in the Soil Series of Maine Soil Interpretations published by the Maine Association of Professional Soil Scientists in cooperation with the USDA Natural Resources Conservation Service, dated January 1987 and revised January 1988 and 1989. Soil survey interpretations are enclosed in Appendix C of this report.

This site may contain inclusions of soil types that differ from the soil map units. The areas where these soils were found are too small to be mapped and, for the purpose of this soil survey, there appears to be less than 1 contiguous acre of this soil in any part of the site. It also appears that the total area of this soil type in any given map unit is less than 25 percent, therefore classifying these soil types as inclusions.

Section 6

Soil Map and Map Unit Descriptions

The attached soil survey map depicts the size and location of the soil map units relative to each other and existing site features. Each soil map unit typically consists of three letters (e.g., AdB), with the first two letters representing a phase of the established soil series found within soil map unit areas as shown on the soil map. This soil map unit phase name is a representation of the soil characteristics, such as texture, stoniness, drainage, and depth to bedrock, all of which may affect the use and management of the soil. The third capitalized letter represents the surface slope gradient of the area within the soil map unit (e.g., B represents 3 to 8 percent slopes). Therefore, in this example “AdB” is interpreted as Adams loamy fine sand on a 3 to 8 percent slope. There may be small areas of different soils within a soil map unit, known as inclusions. Inclusions may exist within a delineated soil map unit, although the size of the inclusion may be too small to stand as a soil map unit alone (<1 acre). The soil map units found at the site are listed with soil potential rating classes in Appendix C of this report. Some wetland map units may be smaller than the minimum map unit size of 1 acre.

Section 7

Conclusions

The soils found on site consist of mostly lodgment glacial till materials, with lesser amounts of ablation glacial till and glacial outwash deposits. The landforms typically associated with the glacial till are drumlins, uplands, hills, and ridges. They are generally made up of coarse-loamy materials with gravel or larger rock fragments.

The glacial outwash soils were found in a low plain(wetland), and contain fine sand. The wetland area is not suitable for the proposed development in its current state. Given the size of the soil survey and extent of the development, soil and topographical conditions will vary across the development area, which is not uncommon for a development of this type and size.

Site investigations suggest some limitations typical of glacial till soils, site topography/setting and drainage features will be encountered. These limitations are expected to include high water tables associated with wetlands and shallow ledge depths, which may be overcome by appropriate planning, engineering and site preparation in these areas. Such site features as the depth to restrictive layers, runoff volumes, seasonal soil saturation depths, potential for frost and erosion activity, and jurisdictional wetland areas were examined. The following is a summary of areas and on-site features identified in the field with potential effects relating to the development of this parcel:

1. Jurisdictional wetland areas were identified on the property. Alteration to wetland areas will require regulatory permitting together with appropriate engineering to support buildings, septic systems, and roads. These soils contain fine sand deposits in the subsoil, with ponded water or saturated conditions at or near the surface throughout much of the year.
2. Very shallow to moderately deep bedrock classification areas exist in areas throughout the property. These soils include Tunbridge and Abram, some of the Becket Variant soils, as well as the areas shown as ledge outcrop on the soil map. Bedrock excavation will typically require blasting to achieve design and subgrade elevations, when encountered.

Section 8

Limitations

The scope of this investigation has been limited to this Class 'B' High Intensity Soil Survey in general accordance with standards and guidelines established by the Maine Association of Professional Soil Scientists. The soil survey report and soil map have been prepared for the exclusive use of SVR LLC and Sebago Technics, Inc. for specific application for the proposed residential development on this site located off Old Gray Road in Cumberland, Maine.

No other warranty, expressed or implied, is made. The conclusions and recommendations presented in this soil report are based on data obtained at the referenced site and our interpretations of this information. This report and soil map may not reflect soil variations that may occur between our observation test pits. Data from this soil report and soil map should not be used for any other purpose. Soils which are considered non-limiting for one use may be considered limiting for another use. The soil map units used in the soil report and on the soil map are at least in part influenced by the intended use of the soil survey, and information provided may not always be adequate for uses other than that which the soil survey was originally developed.

APPENDICES

APPENDIX A

SOIL NARRATIVE REPORT

SOIL NARRATIVE REPORT

Evergreen Estates

February 25, 2022

Date: Soil profiles observed February 2022

Base Map: Lidar topography

2 (two) foot contour intervals on-site

Map Scale 1 inch = 30 feet

Ground Control: Test pits and borings located by GPS with sub-meter accuracy


The Maine Association of Professional Soil Scientists has adopted standards for soil surveys. Soil surveys are divided into four classes of survey, which are dependent upon the amount of information required for the project. The following is a summary of requirements for this High Intensity Soil Survey.

Class 'B' High Intensity Soil Survey Standards

1. Map units will not contain dissimilar limiting inclusions larger than one acre.
2. Scale of 1 inch = 200 feet or larger.
3. Dissimilar limiting inclusions may total more than one acre per map unit delineation, in the aggregate, if not continuous.
4. Ground control - test pits for which detailed data is recorded are located by means of a compass by chaining, pacing, or taping from known survey points; or other methods of equal or greater accuracy.
5. Base map with 5-foot contour lines with ground survey.

The accompanying soil profile descriptions, soil survey map and this soil narrative report were done in accordance with the standards adopted by the Maine Association of Professional Soil Scientists, March 2009.

This Soil Survey was prepared in relation to a proposed residential development.


Gary M. Fullerton, L.S.S. #462



February 25, 2022
Date


APPENDIX B

SOIL LEGEND/MDEP FORM E

SUMMARY LOG OF SUBSURFACE EXPLORATIONS AT PROJECT SITES

Project Location (municipality):	CUMBERLAND
----------------------------------	------------

[illegible]

INVESTIGATOR INFORMATION AND SIGNATURE			
Signature		Date	
		2/9/22	
Name Printed		Cert/Lic/Reg. #	
GARY M. FULLERTON		LSS 462	
Qualification	<input checked="" type="checkbox"/> Licensed Site Evaluator <input type="checkbox"/> Certified Geologist	<input checked="" type="checkbox"/> Certified Soil Scientist <input type="checkbox"/> Other:	



CLASS 'B' HIGH INTENSITY SOIL SURVEY

SOIL LEGEND

Evergreen Estates

Cumberland, Maine

February 25, 2022

SOIL LEGEND

SYMBOL	SOIL SERIES	PHASE	SLOPE	HSG	DRAINAGE CLASS
AtB	ABRAM-TUNBRIDGE COMPLEX	FINE SANDY LOAM	3-8%	D	ED/ WD (EXCESSIVELY DRAINED/ WELL DRAINED)
AtD	ABRAM-TUNBRIDGE COMPLEX	FINE SANDY LOAM	15-25%	D	ED/ WD (EXCESSIVELY DRAINED/ WELL DRAINED)
BvB	BECKET VARIANT	FINE SANDY LOAM	3-8%	C	WD (WELL DRAINED)
BvD	BECKET VARIANT	FINE SANDY LOAM	15-25%	C	WD (WELL DRAINED)
NaA	NAUMBURG	SAND	0-3%	D	PD (POORLY DRAINED)

APPENDIX C

SOIL SURVEY INTERPRETATIONS

SOIL SURVEY INTERPRETATIONS

Soil survey interpretations are derived from the inherent soil characteristics found within the soil profile. The interpretations are predictions (numeric and descriptive) of soil suitability for a specific use, based on the soil's characteristics. These interpretations have many practical applications, such as estimating costs for land development, calculating storm water runoff, determining structural bearing strengths, estimating erodibility, etc. Soil potential ratings have been developed using soil survey interpretations to compare soil series, based on limitations or potentials, for a given use.

Limitations of Soil Interpretations

Soil interpretations are very useful for many purposes and projects, although they do have limitations, including:

1. An interpretation for a specific purpose is rarely adaptable for another use without management considerations.
2. Use of interpretations for specific areas has an inherent limitation relating to variability of the soil map unit. As the size of the soil survey area and the soil map units increase, soil interpretations provide a less reliable prediction of actual soil conditions.
3. Interpretations are also limited by the natural variability within a soil profile, which directly affects the precision of the soil interpretation.
4. Soil interpretations are predictions of potentials or limitations based on soil properties. A soil may possess several limiting factors and therefore all site-specific soil properties must be known for accurate interpretations.
5. Soil interpretations are used to predict the costs of development and to ultimately determine feasibility of a project. It should be noted that most soil limitations can be overcome with engineering solutions to make a soil suitable for a proposed use.

Soil Potential Rating Factors

Soil potential ratings have been developed as a useful form of soil interpretations. These ratings are based on local conditions, local experience and expertise, and laws, codes and rules governing the use of soils for various purposes. Potential ratings include the feasibility of a soil for a particular use relative to other soils within a given area. Factors considered in preparing soil potential ratings are the feasibility of using certain technology and practices to overcome limiting factors and the relative cost of implementing these practices. Some examples of unfavorable soil qualities inherent in Maine soils are listed below:

1. **Depth to Water Table** – The depth to water table affects the natural drainage of the soil in which in turn affects the soils potential for development. A soil with a shallow depth to seasonal high water table requires construction methods such as added fill and artificial drainage to overcome this limitation. A soil with a seasonal high water table deeper than 6 feet below the soil surface would have higher potential than a soil with a seasonal high water table at 18 inches.
2. **Flooding** – Soils are rated on the basis of whether they are subject to flooding or not. Flooding is separated into three categories: none, occasional (floods at least once in ten years), and frequent (floods at least once every two years). Soils subject to flooding have less potential for development than those that do not flood.

3. **Slope** – Soils are rated on the basis of slope. The less sloping areas require fewer corrective measures than the steeper areas and thus have a greater potential for development.
4. **Depth to Bedrock** – The presence of bedrock affects the use of soils for development. Soils with shallow depth over bedrock have less potential for development than deep soils.
5. **Surface Stones** – The presence of stones and boulders on the soil surface affect the use of the soil for development. In preparing a site for a dwelling or septic sewage disposal area, surface stones have to be removed.
6. **Depth to Restrictive Layer** – Some soils have a restrictive layer that begins at a shallow depth. This layer can impede natural drainage and permeability. This soil factor is important when designing a septic sewage disposal system.
7. **Soil Profile and Condition** – The Maine Subsurface Wastewater Disposal Rules provides a table by which each soil can be categorized by profile group and soil condition. The profile group is based on parent material or origin of the soil, texture of the soil, and the presence of any restricting layer within the soil profile. The soil condition refers to the depth to bedrock or drainage class.

Low density development includes single family unit residences with basements and comparable buildings and septic tank absorption fields, with or without on-site sources of water. Development may be as a single unit or as a cluster of units in a development. Paved roads in a development are also included in the rating. Soil potentials have been developed by selecting the best soil in a county for low density development. This “reference soil” is the best because it has all the best characteristics for all rated uses with regards to development. For low density urban development, a reference soil has the following properties:

- A water table level greater than 6 feet
- The soil does not flood
- Slope is 0-3 percent
- The soil lacks a restrictive layer
- The depth to bedrock is more than 5 feet
- Surface stone cover is 0.1 to 15 percent
- The soil requires a medium sized rating for a septic sewage disposal field
- There is low potential for groundwater contamination from septic field effluent

This reference soil is assigned a value of 100 index points. Costs are also developed for all other soils in the county for overcoming the various soil limitations. These costs are converted to index points and subtracted from the reference soil. The result is a method of comparing development costs for the soils in a county. Environmental constraints as well as long term maintenance costs are also a factor in developing soil potentials.

The Soil Potential index is a mathematical expression of a soil’s position in the overall range of potentials which is 100 to 0. Since the entire range is large, these numerical ratings are separated into Soil Potential Rating Classes of very low to very high.

The composite rating for development was determined by a weighted average of individual soil potential indices as follows: septic tank absorption fields, 45 percent; dwellings with basements, 20 percent; and local roads and streets, 35 percent.

Soil Potential Rating Classes

Soil Potential Rating Classes are based on the expected performance of a soil if feasible measures are taken to overcome its limitations, the cost of such measures, and the magnitude of the limitations that remain after measures have been applied. The development rating (fourth column in the rating tables) is a weighted sum of the septic, dwelling, and road indices. The septic system has the most restrictive site requirements and the dwelling has the least restrictive site requirements.

Very High Potential – Site conditions and soil properties are favorable. Installation costs are lowest for that use and there are no soil limitations. Soils in the group have soil properties similar to the reference soil. The Soil Potential Index for this rating class is 100 for each soil use.

High Potential – Site conditions and soil properties are not as favorable as the reference soil condition. The cost of measures for overcoming soil limitations is slight. The index for this rating class ranges from 83 to 99 for each soil use.

Medium Potential – Site conditions and soil properties are below soils with high potential. Costs of the measures for overcoming soil limitations are significant. The index for this rating class ranges from 60 to 82.

Low Potential – Site conditions and soil properties are significantly below soils with medium potential. Costs of measures required to overcome soil limitations are very high. The index for this rating class ranges from 40 to 59 for each soil use.

Very Low Potential – There are severe soil limitations for which economical corrective measures are prohibitive or unavailable and costs of these measures are extremely high. Also, soil limitations which detract from environmental quality may continue even after installation of corrective measures. The index for this rating class is less than 40. They may also be prohibited for use by local or state laws.

Drainage Classes

Drainage classes are the relative wetness that a soil under normal conditions has relating to the soil water table. The following seven drainage classes are used for the soils found in Maine:

1. **Excessively Drained (ED)** soils with water that is removed very rapidly. The occurrence of internal free water is very rare or very deep.
2. **Somewhat Excessively Drained (SED)** soils with water that is removed rapidly through the soil. Internal free water occurrence is very rare or very deep.
3. **Well Drained (WD)** soils with water that is removed from the soil readily but not rapidly. Internal free water occurrence commonly is deep or very deep.
4. **Moderately Well Drained (MWD)** soils with water that is moved somewhat slowly during some periods of the year. Internal free water is moderately deep and transitory to permanent throughout the soil profile.
5. **Somewhat Poorly Drained (SPD)** soils with water that is removed from the soil slowly and remains wet from significant periods of time during the growing season. The depth to internal free water is shallow to moderately deep, transitory to permanent.
6. **Poorly Drained (PD)** soils with water that is removed so slowly that the soil is wet at shallow depths during the growing season or remains in a wet state for long periods.

7. **Very Poorly Drained (VPD)** soils with water that is removed from the soil so slowly that the free water remains at or near the ground surface during the growing season. Internal free water is very shallow and persistent or permanent.

Slope Class

A	Level and nearly level	0-3 percent
B	Gently sloping (undulating)	3-8 percent
C	Strongly sloping (rolling)	8-15 percent
D	Moderately steep (hilly)	15-25 percent
E	Steep	25-45 percent
F	Very Steep	45+ percent

Depth to Bedrock

1.	Very Shallow	Less than 10-inches to bedrock
2.	Shallow	10-inches to less than 20-inches to bedrock
3.	Moderately Deep	20-inches to less than 40-inches to bedrock
4.	Deep	40-inches to less than 60-inches to bedrock
5.	Very Deep	Greater than 60-inches to bedrock

Classes of Surface Stones

1.	Stony or bouldery	0.01 to 0.1 percent surface coverage
2.	Very stony/ boulder	0.1 to 3.0 percent surface coverage
3.	Extremely stony/ bouldery	3.0 to 15 percent surface coverage
4.	Rubbly	15 to 50 percent surface coverage
5.	Very Rubbly	More than 50 percent surface coverage

CLASS 'B' HIGH INTENSITY SOIL SURVEY

SOIL POTENTIAL RATINGS

Evergreen Estates

Cumberland, Maine

February 25, 2022

SOIL POTENTIAL RATING CLASSES

MAP UNIT	SEPTICS	BUILDINGS	ROADS	DEVELOPMENT
AtB ABRAM-TUNBRIDGE COMPLEX, 3-8%	VERY LOW	VERY LOW	VERY LOW	VERY LOW
AtD ABRAM-TUNBRIDGE COMPLEX, 15-25%	VERY LOW	VERY LOW	VERY LOW	VERY LOW
BvB BECKET VARIANT, 3-8%	MEDIUM	MEDIUM	MEDIUM	MEDIUM
BvD BECKET VARIANT, 15-25%	VERY LOW	LOW	VERY LOW	VERY LOW
NaA NAUMBURG, 0-3%	VERY LOW	MEDIUM	MEDIUM	VERY LOW

Abram-Tunbridge Complex (AtB, AtD)

(Frigid Loamy or Coarse-loamy Lithic or Typic Haplorthods)

SETTING

Parent Material:	Thin mantle of loamy glacial till
Landform:	Uplands, ridges, hills and mountains less than 2,500' in Maine
Position in Landscape:	Uppermost locations, ridge crests, side slopes
Slope Gradient Ranges:	(B) 3-8% (D) 15-25%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class:	Excessively drained
Typical Profile:	Surface layer: Thin black organic mat Subsurface layer: Pinkish gray very stony sandy loam, 1" Subsoil layer: Very dusky red and brown very stony sandy loam, 4" Bedrock: Bedrock is at approximately 8" or more
Hydrologic Group:	D
Surface Run Off:	Rapid, depending upon slope and bedrock exposure
Permeability:	Moderately rapid
Depth to Bedrock:	Very Shallow, 0" to 10"
Hazard to Flooding:	None

INCLUSIONS WITHIN MAPPING UNIT

Similar:	Lyman, Bedrock outcrops
Contrasting:	Naumburg

USE AND MANAGEMENT

The limiting factor for building site development is the depth to bedrock (<40") within this complex. Blasting or ripping of the bedrock is necessary for deep excavation for nearly all uses. Rippable bedrock was found in at least one test pit in this map unit.

BECKET VARIANT (BvB, BvD)

(Frigid Oxyaquic Haplorthods)

SETTING

Parent Material:	Glacial till
Landform:	Drumlins and glaciated uplands
Position in Landscape:	High and intermediate positions
Slope Gradient Ranges:	(B) 3-8% (D) 15-25%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class:	Well drained
Typical Profile:	Surface layer: Dark brown fine sandy loam, 8" Subsurface layer: Reddish brown, friable, loamy sand, 24" Subsoil layer: Light olive brown, friable, gravelly sandy loam, 33" Substratum: Olive gravelly sandy loam and sand, 67"
Hydrologic Group:	C
Surface Runoff:	Slow
Permeability:	Moderate in the solum, moderately slow to slow in the substratum
Depth to Bedrock:	Moderately deep (28") to Very deep (greater than 60")
Hazard to Flooding:	None

INCLUSIONS WITHIN MAPPING UNIT

Similar:	Skerry, Westbury
Contrasting:	Croghan, Naumburg

USE AND MANAGEMENT

Development with subsurface wastewater disposal is rated "fair" due to the restrictive layer or bedrock in the substratum. A "fair" rating may be used for building site development. Use of this soil for roadways is "fair" on slopes under 15%. Compaction in this soil is rated "good".

NAUMBURG (NaA)

(Frigid Sandy Typic Endoaquods)

SETTING

Parent Material:	Glaciofluvial or sandy deltaic outwash deposits
Landform:	Nearly level to strongly sloping areas on low plains and terraces
Position in Landscape:	Lower to intermediate positions with flat gentle slopes
Slope Gradient Ranges:	(A) 0-3%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class:	Poorly drained
Typical Profile	Surface layer: Black organic, 4"
Description:	Subsurface layer: Pale brown fine sandy loam, 7", mottled
	Subsoil layer: Gray, friable, fine sandy loam, 26"
	Substratum: Gray sand, 60"
Hydrologic Group:	D
Surface Runoff:	Slow
Permeability:	Rapid
Depth to Bedrock:	Very deep, >60"
Hazard to Flooding:	None

INCLUSIONS WITHIN MAPPING UNIT

Similar:	Searsport, Croghan
Contrasting:	Westbury

USE AND MANAGEMENT

Development with subsurface wastewater disposal is "fair" to "poor" due to wetness and poor filtering capability. A limiting factor for building site development is that the soil is prone to cutbanks caving in. Naumburg soils are rated "poor" for road fill materials. Proper foundation drainage or site modification is recommended for construction. Use of this soil for roadways is "poor" due to wetness. Underground piping has "severe" limitations due to wetness.



APPENDIX D

SOIL TEST PITS

Detailed Description of Subsurface Conditions at Project Sites

SOIL DESCRIPTION AND CLASSIFICATION					
Exploration Symbol:		TP-2	<input checked="" type="checkbox"/> Test Pit	<input type="checkbox"/> Boring	
<u> </u> 1-2 " Depth of Organic Horizon Above Mineral Soil					
DEPTH BELOW MINERAL SOIL SURFACE (inches)	0	Texture	Consistence	Color	Redox
	1				
	2	FINE		10YR 3/3	NONE
	3	SANDY LOAM	FRIABLE	DARK	OBSERVED
	4			BROWN	
	5				
	6				
	7				
	8			10YR 4/6	
	9			DARK	
	10			YELLOWISH	
	12			BROWN	
	14				
	16				
	18				
	20			2.5Y 5/6	
	22			LIGHT OLIVE	
	24			BROWN	
	26	GRAVELLY	FIRM	2.5Y 6/3	
	28	SANDY LOAM		LIGHT YELLOWISH	
30			BROWN		
32	LEDGE AT 32"				
34					
36					
38					
40					
42					
44					
46					
48					
50					
52					
54					
56					
58					
60					
<input type="checkbox"/>	hydic	Slope %	Limiting factor	<input type="checkbox"/>	ground water
<input checked="" type="checkbox"/>	non-hydric	3-8	32"	<input type="checkbox"/>	restrictive layer
				<input checked="" type="checkbox"/>	bedrock
L.S.E.	Soil Series / phase name:	BECKET VARIANT	WD Drainage Class	C Hydrologic Group	
L.S.E.	Soil Classification:	3	Alli Drainage Condition		

		Promote Drainage Condition	
SOIL DESCRIPTION AND CLASSIFICATION			
Exploration Symbol:		TP-4	Test Pit
			Boring
2-3." Depth of Organic Horizon Above Mineral Soil			
	Texture	Consistence	Color
0			
1	FINE		10YR 3/3
2	SANDY LOAM		DARK
3		FRIABLE	BROWN
4			
5			
6			
7			
8			2.5Y 5/6
9			LIGHT
10			OLIVE
12			BROWN
14			
16			
19			
20	SANDY LOAM		5Y 5/2
		FIRM	OLIVE
			GRAY
28			
30	LEDGE / SAPROLITE (ROTTEN ROCK) AT 28"		
40			
50			
60			
	hydic	Slope %	Limiting factor
	non-hydic	3-8	28"
			ground water
			restrictive layer
			bedrock
L.S.E.	Soil Series / phase name:	BECKET VARIANT	WD Drainage Class
			C Hydrologic Group
L.S.E.	Soil Classification:	3 Profile	AIII Drainage Condition

L.S.S.	signature: 	Date: 2/9/22
	name printed/typed: Gary M. Fullerton	Lic.#: 462
L.S.E.	signature: 	Date: 2/9/22
	name printed/typed: Gary M. Fullerton	Lic.#: 355



SOIL PROFILE/CLASSIFICATION INFORMATION


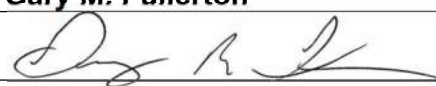
Detailed Description of Subsurface Conditions at Project Sites

Project Name: EVERGREEN ESTATES	Applicant Name: SVR LLC	Project Location (municipality): CUMBERLAND
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SOIL DESCRIPTION AND CLASSIFICATION				
Exploration Symbol: <u>TP-5</u> <input checked="" type="checkbox"/> Test Pit <input type="checkbox"/> Boring				
1-2" Depth of Organic Horizon Above Mineral Soil				
Texture	Consistence	Color	Redox	
0				
1	FINE	10YR 3/3	NONE	
2	SANDY LOAM	DARK BROWN	OBSERVED	
3				
4		10YR 5/6		
5		YELLOWISH BROWN		
6				
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22	SAPROLITE (ROTTEN ROCK) AT 22"			
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60				
<input type="checkbox"/> hydric <input type="checkbox"/> Slope % <u>3-8</u> Limiting factor <u>22"</u> <input type="checkbox"/> ground water <input checked="" type="checkbox"/> non-hydric <input type="checkbox"/> restrictive layer bedrock				
L.S.S. Soil Series / phase name: <u>TUNBRIDGE</u> <u>WD</u> <u>C</u> Drainage Class Hydrologic Group				
L.S.E. Soil Classification: <u>3</u> <u>AIII</u> Profile Drainage Class				

SOIL DESCRIPTION AND CLASSIFICATION				
Exploration Symbol: <u>TP-7</u> <input checked="" type="checkbox"/> Test Pit <input type="checkbox"/> Boring				
1-2" Depth of Organic Horizon Above Mineral Soil				
Texture	Consistence	Color	Redox	
0				
1	FINE	10YR 3/2	NONE	
2	SANDY LOAM	VERY DARK GRAYISH BROWN	OBSERVED	
3				
4				
5				
6				
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9				
10				
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60				
<input type="checkbox"/> hydric <input type="checkbox"/> Slope % <u>3-8</u> Limiting factor <u>28"</u> <input type="checkbox"/> ground water <input checked="" type="checkbox"/> non-hydric <input type="checkbox"/> restrictive layer bedrock				
L.S.S. Soil Series / phase name: <u>BECKET</u> <u>WD</u> <u>C</u> Drainage Class Hydrologic Group				
L.S.E. Soil Classification: <u>3</u> <u>C</u> Profile Drainage Class				

Professional Endorsements (as applicable)

L.S.S.	signature: 	Date: <u>2/9/22</u>
	name printed/typed: <u>Gary M. Fullerton</u>	Lic.#: <u>462</u>
L.S.E.	signature: 	Date: <u>2/9/22</u>
	name printed/typed: <u>Gary M. Fullerton</u>	Lic.#: <u>355</u>

Sebag Technics, Inc.

SOIL DESCRIPTION AND CLASSIFICATION				
Exploration Symbol: <u>TP-6</u> <input checked="" type="checkbox"/> Test Pit <input type="checkbox"/> Boring				
1-2" Depth of Organic Horizon Above Mineral Soil				
Texture	Consistence	Color	Redox	
0				
1	GRAVELLY	FRIABLE	NONE	
2	SANDY LOAM	10YR 3/2	OBSERVED	
3		VERY DARK GRAYISH BROWN		
4				
5				
6		10YR 6/1		
7		GRAY		
8				
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<input type="checkbox"/> hydric <input type="checkbox"/> Slope % <u>3-8</u> Limiting factor <u>8"</u> <input type="checkbox"/> ground water <input checked="" type="checkbox"/> non-hydric <input type="checkbox"/> restrictive layer bedrock				
L.S.S. Soil Series / phase name: <u>ABRAM</u> <u>ED</u> <u>D</u> Drainage Class Hydrologic Group				
L.S.E. Soil Classification: <u>2</u> <u>AI</u> Profile Drainage Class				

SOIL DESCRIPTION AND CLASSIFICATION				
Exploration Symbol: <u>TP-8</u> <input checked="" type="checkbox"/> Test Pit <input type="checkbox"/> Boring				
2-3" Depth of Organic Horizon Above Mineral Soil				
Texture	Consistence	Color	Redox	
0				
1				
2	SANDY LOAM	10YR 3/2	NONE	
3		VERY DARK GRAYISH BROWN	OBSERVED	
4				
5				
6				
7				
8				
9				
10		2.5Y 5/6		
11		LIGHT OLIVE BROWN		
12				
13				
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<input type="checkbox"/> hydric <input type="checkbox"/> Slope % <u>3-8</u> Limiting factor <u>28"</u> <input type="checkbox"/> ground water <input checked="" type="checkbox"/> non-hydric <input type="checkbox"/> restrictive layer bedrock				
L.S.S. Soil Series / phase name: <u>BECKET</u> <u>WD</u> <u>C</u> Drainage Class Hydrologic Group				
L.S.E. Soil Classification: <u>3</u> <u>C</u> Profile Drainage Class				



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SOIL PROFILE/CLASSIFICATION INFORMATION


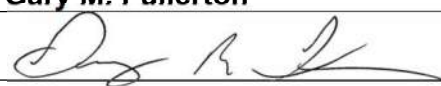
Detailed Description of Subsurface Conditions at Project Sites

Project Name: EVERGREEN ESTATES	Applicant Name: SVR LLC	Project Location (municipality): CUMBERLAND
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SOIL DESCRIPTION AND CLASSIFICATION				
Exploration Symbol: <u>TP-9</u> <input checked="" type="checkbox"/> Test Pit <input type="checkbox"/> Boring				
1-2" Depth of Organic Horizon Above Mineral Soil				
Texture	Consistence	Color	Redox	
1 FINE		10YR 4/6	NONE	
2 SANDY LOAM	FRIABLE	DARK	OBSERVED	
3		YELLOWISH		
4		BROWN		
5				
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8	LEDGE AT 8"			
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<input type="checkbox"/> hydric <input type="checkbox"/> Slope % <u>3-8</u> Limiting factor <u>8"</u> <input type="checkbox"/> ground water <input type="checkbox"/> non-hydric <input type="checkbox"/> restrictive layer <input type="checkbox"/> bedrock				
L.S.S. Soil Series / phase name: <u>ABRAM</u> <u>ED</u> <u>D</u>				
Drainage Class Hydrologic Group				
L.S.E. Soil Classification: <u>2</u> <u>A1</u>				
Profile Drainage Condition				

SOIL DESCRIPTION AND CLASSIFICATION				
Exploration Symbol: <input type="checkbox"/> Test Pit <input type="checkbox"/> Boring				
1" Depth of Organic Horizon Above Mineral Soil				
Texture	Consistence	Color	Redox	
1				
2				
3				
4				
5				
6				
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<input type="checkbox"/> hydric <input type="checkbox"/> Slope % <u> </u> Limiting factor <u> </u> <input type="checkbox"/> ground water <input type="checkbox"/> non-hydric <input type="checkbox"/> restrictive layer <input type="checkbox"/> bedrock				
L.S.S. Soil Series / phase name: <u> </u> <u> </u> <u> </u>				
Drainage Class Hydrologic Group				
L.S.E. Soil Classification: <u> </u> <u> </u>				
Profile Drainage Condition				

Professional Endorsements (as applicable)

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	name printed/typed: Gary M. Fullerton	Lic.#: 462
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