Town of Falmouth

Request for Proposal

Workforce Housing Development Partner

Issue Date: Tuesday, February 13, 2024, 3:00pm

Pre-Submittal Meeting: Tuesday, February 20, 2024, 10:00am

Question Deadline: Thursday, February 22, 2024, 12:00pm

Submittal Deadline: Thursday, March 14, 2024, 3:00pm

1. Introduction

The Town of Falmouth, Maine, through a competitive bidding process, offers to sell Town-owned property located at 2 Marshall Drive, Falmouth, Maine. The available land is part of a 25-acre tract that currently includes the Falmouth Police Department, which is not part of the land to be sold. The Town is issuing this Request for Proposal (RFP) for the development of a workforce housing project that will be beneficial to the community.

The Town previously released a Request for Qualifications (RFQ) in March 2023 to determine the level of housing developer interest or feasibility in developing the site for workforce housing. The Town Council will use this subsequent RFP process to consider the opportunity to enter into a Development Agreement and negotiate a sale of the property with one selected entity. All responses to this RFP must be submitted directly to the Town of Falmouth and must be responsive to the requirements outlined in this document.

2. Preferred Site Development

The Town of Falmouth prefers a housing development at this site which could include a combination of homeownership and rental housing. The desired development would include either (1) ownership units that target households earning up to 120% of the area median income, (2) rental units targeting those earning up to 80% of the area median income, or a combination of both.

3. Housing Need

The need for housing in Maine, in Greater Portland, and in Falmouth has been well documented in recent years. The median home price of homes sold in Falmouth in 2022 was $804,500 (Maine Real Estate Information System, 2022). Falmouth's median household income in 2022 was $133,033 (Claritas Current Year Household Income, 2022) which is adequate to afford a home priced at $419,773. There is an inadequate housing inventory of all types and price points, and new housing units tend to be larger and at the higher end of the price scale. The Town desires a diverse housing stock suitable for all phases of life. Labor challenges have further hampered the pace of housing construction. Increasingly, in Falmouth, many of the community's largest employers have struggled to attract and retain employees partly due to the high cost of housing or lack of housing options. Public employers, like the Town of Falmouth, worry about not having an adequate workforce readily available during emergencies or severe weather events.

4. Site Considerations

The site contains wetlands and Scitterygusset Creek crosses the property. This same site was the subject of previous efforts to develop workforce housing in 2008, and several site studies and reports are available (see Appendix C). In 2023, the site was analyzed by a wetland scientist to determine the significance of any vernal pools located on the property. The site was submitted to the Maine Department of Environmental Protection, which found that no significant vernal pools were located on the site. Water and sewer service is available at the site. The Police Department building and its necessary property will be subdivided from the subject site. The current zoning of the site is Mixed-Use Cluster, which seeks "well-planned mixed-use developments with access to the region's major highway system." Permitted residential uses include:

- Single family detached dwellings.
- Accessory dwelling units (ADUs)
- Residential Planned Development: A planned, integrated residential development involving detached single-family dwellings, two-family dwellings, or a combination thereof in an architecturally harmonious environment with common access and utility system.

Currently, a subcommittee of Town Council is reviewing amendments to the MUC zoning district to reintroduce "multifamily dwellings" as a permitted use. Multifamily uses were removed from certain zoning districts in 2023 in response to ambiguity in recent state housing legislation (LD2003). The Town's zoning ordinance complies with state housing law and Town Council is reviewing additional zoning adjustments.

There are many dimensional standards, density calculations, height limits, and other zoning restrictions that could affect any proposed development. The Town seeks an experienced housing developer that can navigate complicated zoning ordinances and development processes to deliver a timely project responsive to the Town's desires.

5. Financial Approaches

Developing affordable workforce housing requires creative and complex approaches to financing the development. Funding resources for affordable homeownership developments are emerging both at Maine Housing and in discussions at the Maine Legislature. Funding for affordable rental housing often requires multiple layers of financing and Maine Housing and the Legislature are both examining new potential approaches. Increasingly, affordable housing developers turn to municipalities for density enhancements, discounted land sales, and Tax Increment Financing (TIF) assistance. Applicants' experience working with complex financial structures and the probability of securing the necessary finances will be important considerations. Submitted proposals

must present their overall financial approach to include any requests for local, state, or federal funding.

6. Pre-Submittal Meeting

There will be a meeting for interested respondents on **Tuesday, February 20, 2024, 10:00am** in the Conference Room (second floor) at Falmouth Town Hall, 271 Falmouth Road, Falmouth, Maine 04105.

Interested parties may submit questions about this RFP to the Town. Any questions must be submitted to the Town by **12:00pm on Thursday, February 22, 2024.** Questions may only be submitted via email to acausey@falmouthme.org. Answers to submitted questions will be posted as an addendum to this RFP by **5:00pm on Tuesday, February 27, 2023.**

7. Submittal Requirements

Responses are due **Thursday, March 14, 2024, 3:00pm.**

Interested applicants should submit RFP responses to:

Adam Causey, Long-Range Planning Director
271 Falmouth Road
Falmouth, Maine 04105
acausey@falmouthme.org

Responses may be submitted by email, by electronic storage device, or one (1) printed copy to the above addresses.

Each response must contain the following:

A. A brief background and history of your organization and the responsible individual(s).

B. Describe your experience developing mixed-income affordable or workforce housing and provide examples of the types housing units developed.

C. Describe your experience working with municipalities to create affordable or workforce housing.

D. Describe your experience securing housing development approvals from municipalities.

E. Describe the proposed concept for housing at this site including numbers of units, income targets, types of housing, affordability controls, sustainability measures, energy efficiency technologies, protections of sensitive environmental areas, and any other pertinent information related to the development. Include a concept site plan (no smaller than 11" x 17") showing: the layout and size of proposed roads, driveways, building footprints, and any areas set aside for green space and/or recreation amenities. Include a separate illustration to include the proposed housing unit floorplans and/or building renderings.

F. Describe your proposed funding sources and conceptual budget.

G. Identify your anticipated development team including representatives who will work on this initiative as well as architects, engineers, general contractors, attorneys, and property managers, if known.

H. Provide a proposed schedule of major milestones and activities.

I. IN A SEPARATE, SEALED ENVELOPE: Provide an initial purchase price.

J. Bidders are asked to view the Town of Falmouth's environmentally preferable procurement policy and demonstrate how their proposal will support the policy by describing environmentally-preferrable attributes of the products and services to be purchased. Bidders are also encouraged to highlight company-wide environmental sustainability policies and practices (examples of environmental sustainability are outlined in the Town of Falmouth's Sustainable Business Recognition Program).

Any changes to this RFP will be issued as an Addendum and published on the Town's website at www.falmouthme.org .

8. Selection Criteria

The Town seeks an experienced housing developer that can deliver a workforce housing development within a reasonable timeframe. The below criteria will be used to judge RFP responses. Price will not be the sole determining factor.

A. **Housing development experience, capability, capacity:** Experience planning, financing, and building homes in Maine (identify project team members, past and current projects).

B. **Sustainability measures**: Designing and providing energy efficient utility systems, insulation, or other means to reduce operating costs; incorporating best practices in

site planning, architecture, stormwater design, and climate adaptation to mitigate effects of development and impervious surfaces.

C. **Environmental preservation of natural features and open space:** Efforts to protect sensitive environmental areas, preserving access to nature, and providing green space.

D. Suitability to address identified housing need: The types of units – ownership and/or rental – proposed to address the community's desire for housing.

E. **Proposed level of affordability:** Minimum affordability levels are rental units affordable to those earning up to 80% of area median income; and ownership units affordable to those earning up to 120% of area median income. SEE HUD FY 2023 INCOME LIMITS DOCUMENTATION HERE

F. **Mechanism to ensure affordability over time:** A deed restriction, covenant, or other controls that will enforce affordability for at least 10 years.

G. Proposed development timeline: The timeframe for project development, construction, and sale/lease of units.

H. Proposed purchase price: Price offered for purchase of the land.

Town staff will review responses and offer a recommendation to the Town Council, who may decide to begin negotiations for a Development Agreement and ultimate sale and conveyance of the property.

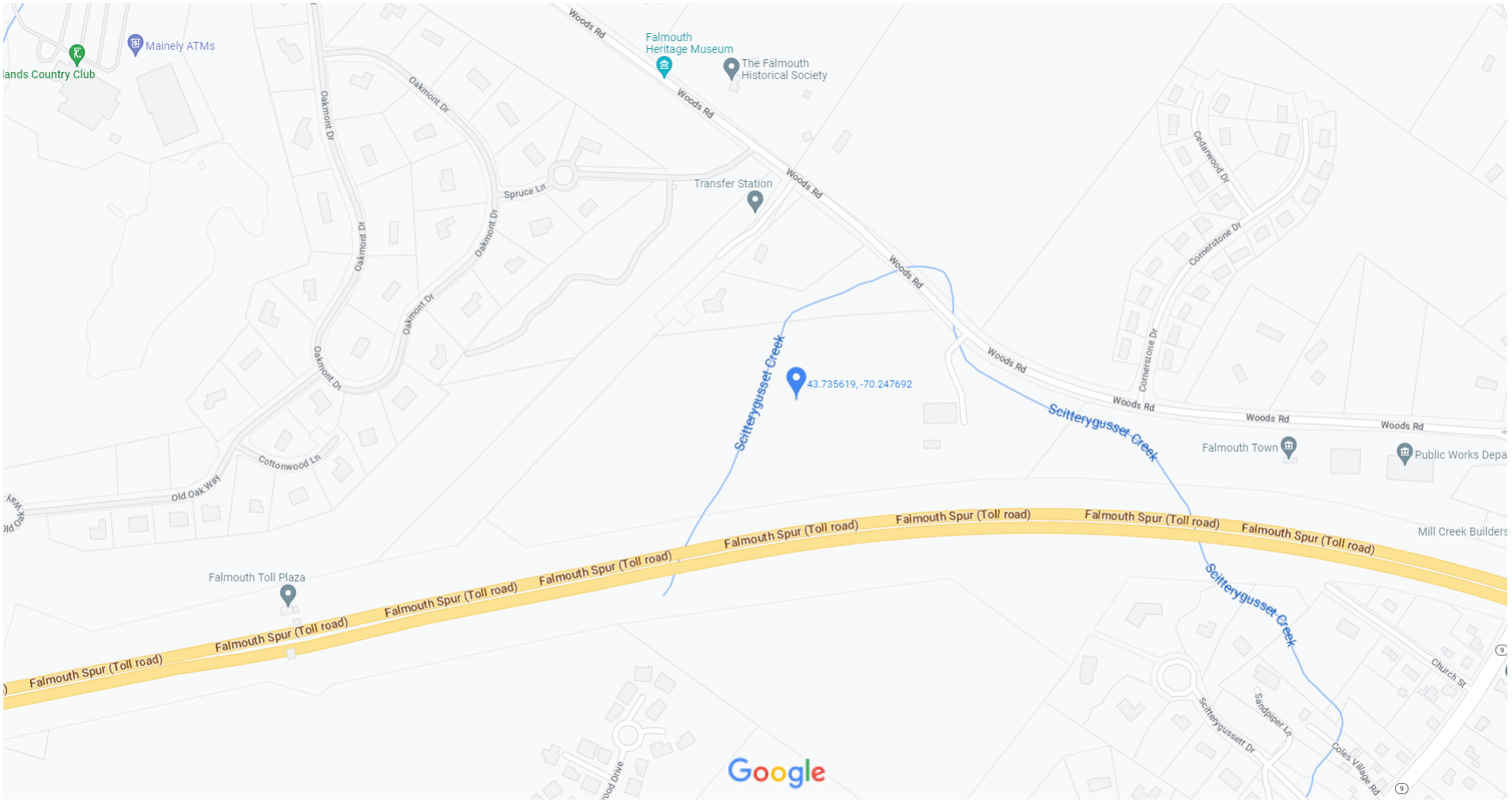
THE TOWN OF FALMOUTH RESERVES THE RIGHT TO ACCEPT OR REJECT ANY BIDS OR PROPOSALS FOR ANY REASON.

Appendix A – Site Location

1. Location: Google Maps link

2. Aerial: Vision GIS tax map link

Google Maps Town of Falmouth



Map data ©2023 Google 200 ft

Town of Falmouth

March 20, 2023

Municipal Boundary

1:4,514

0 150 300 600 ft

0 45 90 180 m

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Data and scale shown on this map are provided for planning and informational

Powered by Esri Technology

Appendix B – Zoning Information

1. Mixed Use Center District (MUC): online code link

2. Net Residential Area: online code link

PART II CODE OF ORDINANCES

CH. II-19 ZONING AND FLOODPLAIN MANAGEMENT

FOOTNOTE(S):

--- (**1**) ---

Editor's note— The zoning, flood prevention and protection and site plan regulations of the town are not printed in this Code, but are on file in the town clerk's office.

Editor's note— At the city's instruction, Ord. of Sept. 24, 2007, Arts. I—XV, set out provisions intended for inclusion with Ch. II-19. For purposes of clarity, and at the editor's discretion, these provisions have been included as Art. II-19-2.

Cross reference— Boundaries of the town, § 2-2; provisions for notices for nuisances, signs, dangerous, unsafe, dilapidated buildings, and any other action the expense of which may be collected from the property owner, § 2-3; board of appeals, § 2-60 et seq.; parks and community programs advisory committee, § 2-85 et seq.; planning board, § 2-95 et seq.; waterfront and harbor committee, § 2-115 et seq.; division of planning, § 2-246; division of code administration functions, § 2-248; animals, Ch. II-3; buildings and building regulations, Ch. II-4; condominium conversion regulations, § 4-100 et seq.; land subdivision, Ch. II-7; licenses, permits and business regulations, Ch. II-8; marine activities, structures and ways, Ch. II-9; junked and abandoned motor vehicles prohibited on public and private property, § 12-3; solid waste regulations, Ch. II-13; swimming pools, Ch. II-15; traffic and motor vehicles, Ch. II-17; utilities, Ch. II-18; certain discharges into the public sewer system prohibited, § 18-190 et seq.

ART. II-19-1. IN GENERAL

Div. II-19-1-3. ESTABLISHMENT OF DISTRICTS

Sec. 19-13 Mixed Use Cluster District (MUC) [Amended 4/25/22]

To establish within the Town of Falmouth areas for well-planned mixed use developments with access to the region's major highway system.

Permitted Structures and Uses	Conditional Uses
A. Accessory structures & uses [Amended 7/25/22] B. Accessory Dwelling Unit C. Business and professional offices D. Wholly enclosed places of assembly, amusement, recreation, culture, and government E. Wholesale establishments F. Warehouses G. Light manufacturing H. Retail and service establishments[1] I. Two family or multi family dwellings J. Research facilities K. Restaurants (including carry-out or drive through restaurants)[Amended 11/14/12] L. Residential planned developments M. Municipal buildings and uses N. Tradesman's offices O. Single Family Detached Dwellings (only in established residential areas and except on lots fronting on Gray Road) [Adopted 5/28/96] P. Tier I Personal Wireless Service Facilities [Adopted, 4/25/05] Q. Tier II Personal Wireless Service Facilities [Adopted, 4/25/05] R. Commercial Schools [Adopted 5/27/08] S. Grocery retail [2] [Adopted 11/26/12] T. Essential Services [Adopted, 7/28/2014] U. Hotels[3] V. Art and Craft Studios W. Day Care Centers X. Veterinary Clinics	A. Outdoor recreation facilities B. *[Repealed 4/25/22]* C. Place of Worship D. Excavating Business E. Land reclamation F. Processing of Mineral materials for resale [Amended, 4/25/88] G. *[Repealed 4/25/22]* H. *[Repealed 1/10/22]* I. Day Care Homes [Adopted, 7/23/01] J. Kennels [Amended 4/13/20]
[1]Maximum ground floor tenant area 50,000 square feet [2]Maximum ground floor tenant area 60,000 square feet [3]Maximum building footprint 20,000 square feet	

"MUC"- Mixed Use Cluster

	Min. Lot Area (Sq ft)	Min. Lot Width	Max. Lot Coverage	Min. Setbacks			Max. Residential Density (sq ft) See Section 19-64.1
				Front	Side	Rear	
Single family detached & Accessory dwelling units	20,000	125 ft.	20%	25	20	40	10,000 with public sewerage or 20,000 w/o public sewerage
All other uses	--	200 ft.	30%	50	25	25	10,000 with public sewerage or 20,000 w/o public sewerage

Effective on: 4/25/2022

PART II CODE OF ORDINANCES

CH. II-19 ZONING AND FLOODPLAIN MANAGEMENT

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ART. II-19-1. IN GENERAL

Div. II-19-1-5. SPECIFIC REQUIREMENTS

The following specific requirements shall apply to uses in all districts except as noted:

Sec. 19-64 Net Residential Area

Sec. 19-64.1 Net Residential Area and Maximum Residential Density. [Amended 7/11/16, 11/14/16]

The maximum number of dwelling units for projects requiring Planning Board review shall be the quotient of the net residential area for the development site divided by the maximum residential density allowance as stated in the zoning district dimensional table. Net residential area shall be determined by subtracting from the gross acreage the following:

a. 10% for roads and parking.

b. Land which is cut off from the main parcel by a road, existing land uses, or where no means of access has been provided, so that it is isolated and unavailable for building purposes or for common use.

c. Land shown to be in the flood way or coastal high hazard area on the Flood Boundary of Flood Insurance Rate Maps of the Town of Falmouth.

d. Other land which is unsuitable for development in its natural state because of topography, drainage, or subsoil conditions. Specific conditions include but are not limited to:

   1. Areas having sustained slopes in excess of twenty-five (25%) percent or unstable soils subject to slumping, mass movement, or accelerated erosion.

   2. Areas classified as wetlands by state or federal law. [Amended 8/26/96]

   3. Areas characterized predominately by "coastal wetlands" as that term is defined in 38 M.R.S.A. subsection 472(2). [Amended 12/22/86]

e. Land in rights-of-way or easements.

f. Land in Resource Protection Districts.

Effective on: 11/14/2016

Sec. 19-64.2 Minimum Net Residential Area Per Lot [Adopted 8/26/96] [Amended 7/24/2000; 12/22/05; 1/24/11; 3/14/11; 7/11/2011; 3/27/16; 7/11/2016; 11/14/16, 5/29/19]

Any residential lot created after August 26, 1996 must meet the following lot area requirements:

A. After deducting land that falls within the categories in Section 19-64.1.b through f, the lot area equals at least the following square footage per dwelling unit:

   1. RA – 15,000[1]
   2. RB - 10,000
   3. RC - 30,000
   4. RD - 15,000
   5. HL - 20,000
   6. FF – 40,000
   7. VMU – with sewer 5,000, without sewer 10,000
   8. MUC – with sewer 7,500, without sewer 15,000

[1] Notwithstanding the provisions of 1 M.R.S. §302, the amendments passed in Ordinance No. 127-2019 (effective 5/29/2019) shall apply retroactively and shall govern any and all actions, proceedings, and applications pending on or at any time after May 3, 2019 to the extent permitted by law. Notwithstanding any other provision of this Ordinance, any lot created on or after May 3, 2019 must conform with the requirements of these ordinance amendments and any such lot that does not conform thereto shall not be deemed a legally nonconforming lot with respect to such requirements.

B. Lots created in the RCZO under Section 19-18.5 D. shall have at least 50% of the total lot area consist of land that does not fall within the categories in Sections 19-64.1 b through f or else meet the requirements of Section 19-64.2 A.

C. For residential planned developments, at least seventy-five (75%) percent of any lot shall consist of land that does not fall within the categories of Section 19-64.1. b through f.

D. Notwithstanding subsections A, B, and C above, lots created prior to August 26, 1996 and altered in either of the following ways shall not be considered new lots for purposes of this section:

1. subsequently divided if the division is for purposes of conveyance to a governmental or non-profit agency for the sole purpose of protecting natural resources in perpetuity or providing public access to protected natural resource areas; or

2. encumbered with an easement or other legal instrument held by a governmental or non–profit agency for the purposes of protecting natural resources in perpetuity or providing public access to protected natural resource areas.

Effective on: 3/27/2017

Appendix C – Current & Past Site Reports

1. Department of Environmental Protection – Significant Vernal Pools Determination (2023)

2. Wetland and Vernal Pool Map (2023)

3. Email correspondence, FB Environmental (2023)

4. Wetlands Map (2008)

5. Vernal Pools Report (2008)

6. Photographic Record (2008)

7. Soils Report (2006)

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JANET T. MILLS
GOVERNOR

MELANIE LOYZIM
COMMISSIONER

July 5, 2023

Town of Falmouth
271 Falmouth Road
Falmouth, ME 04105

Re: Vernal Pool Significance Determination, Pool ID #s 5128, 5129, 5130, 5132, 5133, 5134, 5135, 5131–Falmouth

To Whom It May Concern:

Vernal pools are temporary to semi-permanent wetlands occurring in shallow depressions that typically fill during the spring and dry during the summer or in drought years. They provide important breeding and foraging habitat for a wide variety of specialized wildlife species including several rare, threatened, and endangered species.

After conducting a field survey at your request, it has been determined that the vernal pools identified above on your property are NOT SIGNIFICANT because either: 1. the features do not meet the definition of a vernal pool under the Significant Wildlife Habitat rules, 06-096 CMR 335(9) or 2. the vernal pools do not meet the biological standards for exceptional wildlife use of the Significant Wildlife Habitat rules, 06-096 CMR 335(9)(B). Therefore, activities within 250 feet of the pools are not regulated under the Natural Resources Protection Act (NRPA) unless there are other protected natural resources nearby such as streams or freshwater wetlands. I have attached a copy of the database printout that verifies the State's findings with respect to your survey.

I want to also advise you that the pool areas on your property can be considered freshwater wetlands and therefore direct pool alterations may require permitting under the NRPA.

If you have any questions or need further clarification, please contact Mark Stebbins at 207-592-4810 or email at: Mark.N.Stebbins@maine.gov

Sincerely,

Robert Wood
Director, Bureau of Land Resources

cc. town file

IFW Recommendations for Significant Vernal Pool Determinations

The following is a list of pools and IFW's recommendations for whether or not they qualify as Significant Vernal Pools, one of Maine's Significant Wildlife Habitats.

Data current as of: Wednesday, July 05, 2023

IFW's Pool ID: 5128 Twp: Falmouth
UTM Coordinates of Pool Center: 4843190 E, 4843190 N
Observer's ID: Falmouth Pool 1
ProjectType: Marshall Road, Falmouth

Landowner:	Town of Falmouth 271 Falmouth Road Falmouth, ME 04105 (207) 699-5340 acausey@falmouthme.org	Contact:	Kevin Ryan - FB Environmental Associates 255 Elmwood Road Pownal, ME 04069 (914) 907-7896 kevinr@fbenvironmental.com

Survey Date: 4/25/2023 Additional Survey Dates: 05/05/2023
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria
IFW Comments:

IFW's Pool ID: 5129 Twp: Falmouth
UTM Coordinates of Pool Center: 4843260 E, 4843260 N
Observer's ID: Falmouth Pool 2
ProjectType: Marshall Road, Falmouth

Landowner:	Town of Falmouth 271 Falmouth Road Falmouth, ME 04105 (207) 699-5340 acausey@falmouthme.org	Contact:	Kevin Ryan - FB Environmental Associates 255 Elmwood Road Pownal, ME 04069 (914) 907-7896 kevinr@fbenvironmental.com

Survey Date: 4/25/2023 Additional Survey Dates: 05/05/2023
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria
IFW Comments:

IFW's Pool ID: 5130 Twp: Falmouth
UTM Coordinates of Pool Center: 4843163 E, 4843163 N
Observer's ID: Falmouth Pool 3
ProjectType: Marshall Road, Falmouth

Landowner:	Town of Falmouth 271 Falmouth Road Falmouth, ME 04105 (207) 699-5340 acausey@falmouthme.org	Contact:	Kevin Ryan - FB Environmental Associates 255 Elmwood Road Pownal, ME 04069 (914) 907-7896 kevinr@fbenvironmental.com

Survey Date: 4/25/2023 Additional Survey Dates: 05/05/2023
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria
IFW Comments:

IFW's Pool ID: 5131 Twp: Falmouth
UTM Coordinates of Pool Center: 4843336 E, 4843336 N
Observer's ID: Falmouth Pool 4
ProjectType: Marshall Road, Falmouth

Landowner:	Town of Falmouth 271 Falmouth Road Falmouth, ME 04105 (207) 699-5340 acausey@falmouthme.org	Contact:	Kevin Ryan - FB Environmental Associates 255 Elmwood Road Pownal, ME 04069 (914) 907-7896 kevinr@fbenvironmental.com

Survey Date: 4/25/2023 Additional Survey Dates: 05/05/2023
IFW's Recommendation: PURPLE: NOT SIGNIFICANT, Only portion of pool surveyed
IFW Comments: Straddler pool with only portion surveyed. Pool provides some habitat for spotted salamanders but does not meet biological criteria for significance for portion surveyed.

IFW's Pool ID: 5132 Twp: Falmouth
UTM Coordinates of Pool Center: 4843174 E, 4843174 N
Observer's ID: Falmouth Pool 5
ProjectType: Marshall Road, Falmouth

Landowner:	Town of Falmouth 271 Falmouth Road Falmouth, ME 04105 (207) 699-5340 acausey@falmouthme.org	Contact:	Kevin Ryan - FB Environmental Associates 255 Elmwood Road Pownal, ME 04069 (914) 907-7896 kevinr@fbenvironmental.com

Survey Date: 4/25/2023 Additional Survey Dates: 05/05/2023
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria
IFW Comments:

IFW Recommendations for Significant Vernal Pool Determinations

The following is a list of pools and IFW's recommendations for whether or not they qualify as Significant Vernal Pools, one of Maine's Significant Wildlife Habitats.

Data current as of: Wednesday, July 05, 2023

IFW's Pool ID: 5133 Twp: Falmouth
Observer's ID: Falmouth Pool 6
UTM Coordinates of Pool Center: 4843135 E, 4843135 N
ProjectType: Marshall Road, Falmouth

Landowner:	Contact:
Town of Falmouth	Kevin Ryan - FB Environmental Associates
271 Falmouth Road	255 Elmwood Road
Falmouth, ME 04105	Pownal, ME 04069
(207) 699-5340 acausey@falmouthme.org	(914) 907-7896 kevinr@fbenvironmental.com

Survey Date: 4/25/2023 Additional Survey Dates: 05/05/2023
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria
IFW Comments:

IFW's Pool ID: 5134 Twp: Falmouth
Observer's ID: Falmouth Pool 7
UTM Coordinates of Pool Center: 4843246 E, 4843246 N
ProjectType: Marshall Road, Falmouth

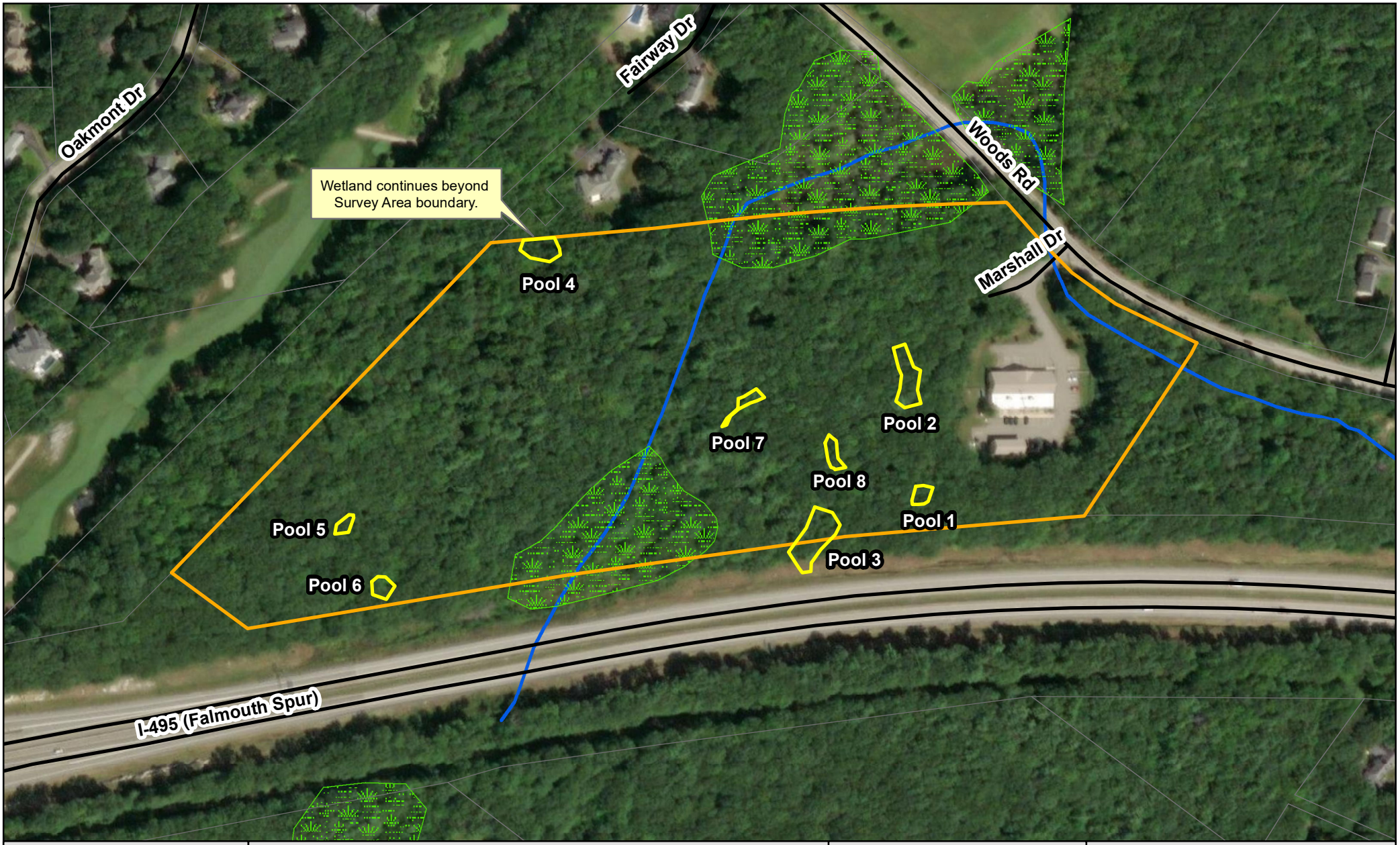
Landowner:	Contact:
Town of Falmouth	Kevin Ryan - FB Environmental Associates
271 Falmouth Road	255 Elmwood Road
Falmouth, ME 04105	Pownal, ME 04069
(207) 699-5340 acausey@falmouthme.org	(914) 907-7896 kevinr@fbenvironmental.com

Survey Date: 4/25/2023 Additional Survey Dates: 05/05/2023
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria
IFW Comments:

IFW's Pool ID: 5135 Twp: Falmouth
Observer's ID: Falmouth Pool 8
UTM Coordinates of Pool Center: 4843214 E, 4843214 N
ProjectType: Marshall Road, Falmouth

Landowner:	Contact:
Town of Falmouth	Kevin Ryan - FB Environmental Associates
271 Falmouth Road	255 Elmwood Road
Falmouth, ME 04105	Pownal, ME 04069
(207) 699-5340 acausey@falmouthme.org	(914) 907-7896 kevinr@fbenvironmental.com

Survey Date: 4/25/2023 Additional Survey Dates: 05/05/2023
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria
IFW Comments:



LOCUS MAP

Survey Area

Pool Boundary (Approximate)

Wetland (National Wetland Inventory)

Watercourse (National Hydrography Dataset)

Road

Tax Parcel

N
W E
S

FB environmental

0 150 300 Feet

Town of Falmouth
Proposed Workforce Housing Project
Falmouth, Maine
Vernal Pool Map

Data Sources: Maine Geolibrary, ESRI
Coordinate System: NAD 1983 UTM Zone 19
Map created by K. Ryan on May 19, 2023

Adam Causey

From: Kevin Ryan <kevinr@fbenvironmental.com>
Sent: Friday, May 19, 2023 9:26 AM
To: Adam Causey
Cc: 'Forrest Bell'
Subject: Marshall Rd. Site Vernal Pool Forms - MDIFW Submission
Attachments: Falmoutn_VP_Survey-Vernal_Pool_Map.pdf

Good morning and happy Friday,

A total of eight pools were observed at the Marshall Road property, and I have attached a map showing their locations.

I visited the pools twice as required, but none of them contained a sufficient number of pool-breeding amphibian egg masses to meet criteria to be considered Significant. In fact, most of the pools didn't have any eggs at all. This lack of eggs might be attributed, at least in part, to the pools having very short hydroperiods, meaning they dry up quickly.

I have completed the electronic State Vernal Pool Assessment Forms and will be reviewing them this morning. May I have your permission to submit them to the Department of Inland Fisheries and Wildlife for review?

Thank you, and please just let me know if you have any questions.

Best regards,

- Kevin

Kevin J. Ryan, Ph.D., CWS
Ecological Services Division Lead
FB Environmental Associates
97A Exchange St., Suite 305
Portland, ME 04101
(207) 221-6699 (office)
(914) 907-7896 (cell)
www.fbenvironmental.com

From: Adam Causey <acausey@falmouthme.org>
Sent: Monday, May 15, 2023 3:22 PM
To: Kevin Ryan <kevinr@fbenvironmental.com>
Subject: RE: Marshall Rd. Site Vernal Pool Forms - Landowner Contact Information

Name: Town of Falmouth

LOCATION MAP n.t.s.

LEGEND

- TEST PIT
- BORING
- SOIL BOUNDARY
- BOULDERY/STONY AREA
- ROCK OUTCROP
- STEEP SLOPES
- STREAM
- BORROW AREA

GRAPHIC SCALE

0 50' 100' 200' 400'

SOILS LEGEND

SYMBOLS	SERIES/COMPLEX	TEXTURE	SLOPE	DRAINAGE	HSG
LtB	LYMAN/TUNBRIDGE	LOAM/FINE SANDY LOAM	3-8%	SWED/WD	C/D
LtC	LYMAN/TUNBRIDGE	LOAM/FINE SANDY LOAM	8-15%	SWED/WD	C/D
LtD	LYMAN/TUNBRIDGE	LOAM/FINE SANDY LOAM	15%+	SWED/WD	C/D
NkB	NASKEAG	FINE SANDY LOAM	3-8%	SWPD/PD	C
PeA	PEACHAM	MUCK	0-3%	VPD	D
TIB	TUNBRIDGE/LYMAN	FINE SANDY LOAM/LOAM	3-8%	WD/SWED	C/D
ScA	SCANTIC	SILT LOAM	0-3%	PD	D
ScB	SCANTIC	SILT LOAM	3-8%	PD	D
SwA	SWANTON	FINE SANDY LOAM	0-3%	SWPD/PD	C/D
SwB	SWANTON	FINE SANDY LOAM	3-8%	SWPD/PD	C/D
SwC	SWANTON	FINE SANDY LOAM	8-15%	SWPD/PD	C/D

SLOPE DESIGNATION

A	0-3%
B	3-8%
C	8-15%
D	>15%

CLASS B SOIL SURVEY/WETLAND NOTES

1. THIS CLASS B HIGH-INTENSITY SOIL SURVEY CONFORMS TO THE GUIDELINES FOR CERTIFIED SOIL SCIENTISTS FOR SOIL IDENTIFICATION AND MAPPING, DATED SEPTEMBER 2000 FOR CLASS B HIGH-INTENSITY SOIL SURVEY. THE SOIL MAP UNITS AS SHOWN ON THIS SOIL SURVEY WERE IN PART INFLUENCED FOR A PROPOSED POLICE STATION AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE.

2. THE BASE MAP IS BASED ON BOUNDARY AND TOPOGRAPHIC SURVEY WITH TWO FOOT CONTOUR INTERVALS, PROVIDED BY BACK BAY BOUNDARY, INC.

3. TEST PITS #1 THROUGH #14 WERE DUG WITH AN EXCAVATOR. OTHER HAND DUG OBSERVATIONS NOT SHOWN.

4. SEE CLASS B HIGH-INTENSITY SOIL SURVEY REPORT FOR MORE DETAILED INFORMATION RELATED TO THIS SOIL MAP.

5. THE SHOWN WETLAND AREAS WERE DELINEATED BY STATEWIDE SURVEYS, INC. IN AUGUST 2006.

6. THE WETLAND MAPPING METHODOLOGY GENERALLY FOLLOWED THE 1987 ARMY CORPS OF ENGINEERS WETLAND DELINEATION MANUAL.

7. THE WETLANDS WERE LOCATED BY DALE BREWER OF SWS, INC. WITH A TRIMBLE PRO-XRS GPS UNIT.

8. THE WETLANDS AS SHOWN WERE LOCATED BY GPS COULD VARY FROM SURVEYED LOCATIONS.

REV. 1	6/11/07	ADD AREA 1,2 &3

WETLANDS & CLASS B HIGH-INTENSITY SOIL SURVEY

OF

WOODS ROAD, FALMOUTH, MAINE

MADE FOR

PORT CITY ARCHITECTURE

65 NEWBURY STREET, PORTLAND, MAINE

STATEWIDE SURVEYS, INC.

LAND SURVEYORS & SOIL SCIENTISTS

35 EASTMAN RD, CAPE ELIZABETH, ME 04107

(207) 767-4800

Drawn By	ECB	Date	Job No.
Trace By	ECB	SEPTEMBER 2006	060245SW
Check By	DAB	Scale	Drawing No.
Book No.	11	1" = 100'	1

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October 22, 2008

Mr. Theo Holtwijk
Town of Falmouth
Planning Office
271 Falmouth Road
Falmouth, ME 04105

Re: Vernal Pool Survey, Workforce Housing Home Ownership Development
Normandeau Project #21388.000

Dear Theo:

As requested, Normandeau Associates, Inc. (Normandeau) conducted a vernal pool survey of the proposed Workforce Housing Development site located off Woods Road in Falmouth, Maine. A systematic search was conducted throughout the subject parcel with a focus on potential vernal pools identified in the June 2007 report produced by Statewide Surveys, Inc[1]. We evaluated a total of 11 potential vernal pools. Each pool was evaluated for evidence of amphibian breeding activity, and its physical and biological characteristics. Consideration was also given as to whether or not each pool qualified as a "significant vernal pool" as determined by the abundance and rarity criteria established under Chapter 335 (Significant Wildlife Habitat Rules). A summary of the results of the vernal pool investigation and pertinent regulatory considerations are described in detail below. For consistency, we have retained the wetland identification/numbering system used in the Statewide Surveys report.

Site Description

The proposed Workforce Housing site is located south of Woods Road and north of the Maine Interstate-95 Spur (I-95 Spur) in Falmouth, Maine. The approximate 20-acre parcel is largely undeveloped, although there is a newly constructed police station located on site, a residential development near the northwestern property boundary and a municipal transfer station located across Woods Road to the north. Several wetlands and a perennial stream (Scitterygusset Brook) occur on the site.

The parcel is primarily composed of a mixed hardwood-softwood forest, interspersed with several wetland systems. Typical species observed in upland areas include: white pine (*Pinus strobus*), red maple (*Acer rubrum*), red oak (*Quercus rubra*), balsam fir (*Abies balsamea*), American beech (*Fagus grandifolia*), and hemlock (*Tsuga canadensis*) trees, with many of the same species present as saplings, shrubs, and seedlings. Other herbs commonly observed in upland areas include bracken fern (*Pteridium aquilinum*), wintergreen (*Gaultheria procumbens*), wood ferns (*Dryopterus* spp.), starflower (*Trientalis borealis*), false lily of the valley (*Maianthemum canadense*), poison ivy (*Toxicodendron radicans*), and a variety of graminoids (i.e., primarily grasses and sedges). Wetlands on site consist of a variety of emergent, scrub-shrub, and forested communities, with the latter being most prevalent. Commonly observed woody plant species growing within wetland areas include red maple, balsam fir, white pine, yellow birch (*Betula alleghaniensis*), hemlock, highbush blueberry (*Vaccinium corymbosum*) speckled alder (*Alnus incana*), and poison ivy. Among the herbaceous species noted growing in wetland areas were cattails (*Typha latifolia*), cinnamon fern (*Osmunda cinnamomea*), sensitive fern (*Onoclea*

[1] Statewide Surveys, Inc. 2007. Letter report for the proposed Police Station addressed to Andrew Hyland, AIA of Port City Architecture. Dated June 13, 2007.

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sensibilis), poison ivy, royal fern (*Osmunda regalis*), and a variety of hydrophytic grasses and sedges. Mapped soils on the site consist of Lyman/Tunbridge loam/fine sandy loam, Tunbridge/Lyman loam/fine sandy loam, Naskeag fine sandy loam, Peacham muck, Scantic silt loam, and Swanton fine sandy loam. [2] Many of these soils are poorly drained, and listed as hydric soils by the Natural Resource Conservation Service (NRCS). County soil survey data also indicates the presence of borrow areas, shallow to bedrock areas, and rock outcroppings on the property.

Vernal Pool Survey

The vernal pool survey was completed by walking transects on the subject property, and documenting the presence of larval and adult amphibians, egg masses, or relevant rare species, and other data. In addition, the physical characteristics of each pool, including wetland type and water depth, were recorded.

Vernal pools are dynamic habitats that vary in water level, vegetative cover, and other physical characteristics during the course of a year, as well as from year to year. In addition, the breeding activity of amphibians, particularly the initiation of breeding, is dependent upon seasonal environmental parameters such as temperature and precipitation. Due to this variability, the presence and number of egg masses may differ between breeding seasons and during the course of a given breeding season. Moreover, many of the amphibian species that utilize these pools, breed at different times during the spring, and differ in their life history cycles. Because of these differences in life cycles, the Maine Department of Inland Fisheries and Wildlife (MDIFW) is generally recommending that two surveys be conducted to collect data during, or immediately after, peak breeding activity for the vernal pool amphibian species common to Maine. For this project, the presence, absence, and number of egg masses presented in this report reflect the results of site visits conducted on May 2, 2008, and May 28, 2008.

Eleven (11) potential vernal pools were initially identified on the property, and subsequently were surveyed for egg masses or larvae of amphibian vernal pool indicator species (wood Frog [*Rana sylvatica*], spotted salamander [*Ambystoma maculatum*], blue-spotted salamander [*Ambystoma laterale*]), and for fairy shrimp (*Eubranchipus* sp.). Only one of the pools had amphibian breeding activity documented during the two site visits. Based on observations made of the amphibian breeding activity on this site and in the region, the survey efforts were conducted at the appropriate times for characterizing the vernal pool species of interest. Note that at locations where one or more of the indicator species were observed in the pool, further information concerning the physical and biological aspects of the resource (e.g., size, hydrology, vegetation, etc.) was collected. Photographs were also taken of the pools and of the indicator species observed. The photographs are provided as Attachment 1 of this document.

One vernal pool location was noted in the northern portion of Wetland D adjacent to Woods Road which had evidence of amphibian breeding activity. This area consists of a series of interconnected areas of standing water, within a greater scrub-shrub wetland complex associated with the upper reaches of Scitterygusset Brook (Photos 1 and 2). The main pool is roughly 100 feet wide and 50 feet long. During the May 5th site visit, a maximum depth of approximately 12 inches was noted in this area. A total of 15 wood frog and 7 spotted salamander egg masses were observed and photographed (Photos 3 and 4) within the pool. An additional three wood frog tadpoles were also observed in the pool. By the second site visit on May 28, 2008, the maximum depth in the pool was generally less than 4 inches, and no egg masses or

[2] Hedstrom, Gary. 1974. *Soil Survey of Cumberland County, Maine*. Published by USDA Soil Conservation Service (now NRCS) in cooperation with Maine Agricultural Experiment Station and Maine State Soil and Water Conservation Commission.

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Table 1. Summary of vernal pool survey data collected at the Falmouth Workforce Housing Development Site, Woods Road, Falmouth, ME.

Vernal Pool #	Wood Frog Egg Masses		Spotted Salamander Egg Masses		Water Depth (inches)		Meet Definition of VP or Significant VP?	Comments
	May 5	May 28	May 5	May 28	May 5	May 28		
A	0	0	0	0	10	2	NVP	Standing water with no egg masses observed in 2007 or in either visit in 2008
B	0	0	0	0	6	0	NVP	No breeding activity observed in 2007 or 2008.
C	0	0	0	0	8	0	State/Falmouth VP, but not Significant VP; Feds=VP	1 adult wood frog observed in 2008, but no breeding activity. In 2007 this pool contained 6 wood frog egg masses.
D (north) VP1	15	0	7	0	12	4	State/Falmouth VP, but not Significant VP; Feds=VP	Located embedded within larger emergent wetland system (northern end of Wetland D). Site connected to stream. During 2007 site visit, documented 11 wood frog and 9 spotted salamander egg masses. Noted 1 adult green frog during late May 2008 site visit. No fish observed.
D (south)	0	0	0	0	6	4	NVP	Wetland associated with stream near I-95 Spur. No breeding activity present in 2008. Hummock and hollow topography.
E	0	0	0	0	8	0	NVP	Situated in non-natural depression with areas of pit and mound microtopography. No egg masses observed in 2007 or 2008.
F	0	0	0	0	14	0	NVP	Pool adjacent to gravel road, situated in depression caused by skidder and clearing activities. No egg masses observed in 2007 or 2008.
G	0	0	0	0	6	0	NVP	Wetland area with elongated pool. No breeding activity. No egg masses observed in 2007 or 2008.
Area 1	0	0	0	0	8	0	NVP	Isolated upland depression with small pooled area. No egg masses observed in 2007 or 2008.
Area 2	0	0	0	0	6	0	NVP	Isolated upland depression with small pooled area. No egg masses observed in 2007 or 2008.
Area 3	0	0	0	0	4	0	NVP	Isolated upland depression with small pooled area. No egg masses observed in 2007 or 2008.

NVP=Not a Vernal Pool; VP=Vernal Pool

larvae were observed in the pool. One green frog (*Rana clamitans*) was observed in the pool on this date. The area constituting this pool appears to be natural in origin, although it was noted that it is associated with a watercourse that drains under Woods Road via twin culverts. This watercourse is depicted on the

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pertinent USGS topographic map.[3] Data collection to determine the presence or absence of fish was not undertaken, although none were observed in the area during either of the site visits in 2008.

The remaining ten ephemeral pools illustrated suitable habitat characteristics for breeding amphibians, but did not contain any evidence of breeding vernal pool species during either of the site visits completed in 2008 (Photos 5-9). They possessed adequate attachment sites for egg masses (i.e. branches and/or shrubs) and had high canopy coverage (>50%). During the first site visit, all pools contained water that ranged in depth from 6 to 14 inches. During the second site visit, it was noted that many of the pools lacked standing water (i.e., Wetlands C, E, Areas 1, 2, and 3, and the southern end of Wetland D near the I-95 Spur), or generally held less than four inches of water (i.e., Wetland D near Woods Road). Table 1 summarizes the vernal pool data collected in 2008, and contrasts the results with the data from the 2007 survey effort completed by Statewide Surveys. It was noted that the Statewide Surveys vernal pool investigation suggests that Wetland C may also qualify as a vernal pool, although during their review it did not meet the abundance criteria to be considered a significant vernal pool.

Applicable State and Federal Regulations

Wetlands – State Regulation

The Maine Department of Environmental Protection (MDEP) and the US Army Corps of Engineers (Corps) regulate the wetlands identified within the project area. Generally, projects that are not located within a wetland, or projects that alter less than 4,300 square feet of wetland and are not within a Shoreland Zone or impact a *Wetland of Special Significance*, are exempt from the Natural Resources Protection Act (NRPA) permitting requirements. Typically, projects with cumulative impacts to wetlands between 4,300 and 15,000 square feet are eligible for review under the Tier 1 process. The Tier 2 review process applies to alterations that affect between 15,000 and 43,560 square feet (i.e., 1-acre). Cumulative project impacts that exceed 1-acre, and impacts to *Wetlands of Special Significanc*e, typically require a Tier 3 review by MDEP. Under NRPA, *Wetlands of Special Significance* are wetlands that:

- are within 250 feet of a coastal wetland;
- contain one of the critically imperiled (S1) or imperiled (S2) wetland communities as identified by the Maine Department of Conservation Natural Areas Program;
- are within 250 feet of a great pond;
- are within 25 feet of a river, stream, or brook;
- contain at least 20,000 square feet of aquatic or emergent vegetation or open water;
- contain significant wildlife habitat;
- contain peatland; and/or;
- are within a floodplain.

Neither of the wetlands on this site are located within 250 feet of coastal wetlands or a great pond, contain a peatland, or are located within a Federal Emergency Management Agency-mapped floodplain. In addition, our estimate of the area of emergent wetland/open water associated with Wetland D indicates that it covers far less than 20,000 square feet. Normandeau did not conduct agency consultations, and therefore has not assessed the potential for rare species or documented significant wildlife habitat on site. We recommend that consultation with the Maine Department of Inland Fisheries and Wildlife (MDIFW)

[3] See USGS Portland East, ME 7.5 Minute Quadrangle. Published 1956, Photorevised 1970, and Photoinspected 1975.

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and Maine Natural Areas Program (MNAP) be initiated to confirm that the project site does not contain mapped significant wildlife habitat or documented occurrences of listed rare species or features. Once these tasks have been completed, a final determination of the permitting requirements can be made.

Both Wetlands A and D would qualify as streams under the NRPA, and therefore the wetland areas located within 25 feet of the edge of stream would be considered a *Wetland of Special Significance.* In addition, those adjacent areas within 75 feet of the resource would also be regulated. However, NRPA does provide for a permit by rule (PBR) program for stream crossings, and also for activities conducted in adjacent areas. These PBRs require that the applicant demonstrate that they can meet the specific performance standards outlined in the Chapter 305 Rules for the proposed activity. An assessment of the applicability of the PBR program, and whether or not the individual standards can be met will be more definitive when the development plans for the site have been clarified.

Vernal Pools – State Regulation

On September 1, 2007, revisions to Chapter 335, which regulates Significant Vernal Pools as Significant Wildlife Habitat, became effective. Chapter 335 provides specific definitions and standards regarding the characterization and protection of Significant Vernal Pools in Maine. In summary, unavoidable impacts to a Significant Vernal Pool, which includes the critical terrestrial habitat within 250 feet of the high water line of the actual vernal pool, may require an Individual Permit under the Natural Resource Protection Act (NRPA). MDEP rules do provide for a Permit by Rule (PBR) for significant vernal pools (PBR 19), which allows for some activities within the critical terrestrial habitat if the standards of the PBR can be met. If impacts to the Significant Vernal Pool cannot be avoided and the standards for the PBR cannot be met, an Individual Permit, and potentially compensation, may be required. As highlighted above, our review of the project site indicates that none of the vernal pools on site qualify as "significant" under the MDEP's definition. Our efforts identified only one vernal pool with amphibian breeding activity (Wetland D, north end). One pool (Wetland C) had evidence of breeding activity (6 wood frog egg masses) in 2007, but did not display evidence of breeding in 2008. In Wetland D it was also noted that this area is hydrologically connected to a stream, and therefore would not meet the current definition of a vernal pool under the NRPA.[4] It was also noted that many of the pools were dry during the late May 2008 site visit, suggesting that even if breeding were to occurr, the hydroperiod may be inadequate for the larvae to complete their development and emerge from the pools. It should also be noted that the recent changes to the vernal pool rules include a provision that allows for MDEP discretion to exclude pools that fill during the spring but dry before July 15. In summary, our 2008 survey of the project site during the appropriate time of year indicates that none of the vernal pools on site qualify as "significant" under the MDEP's definition, and only one contained evidence of any amphibian breeding.

In addition to NRPA, certain development projects in Maine may also be regulated under Chapter 375, Site Location of Development (i.e., Site Law). Vernal pools that are ecologically significant on a landscape level may be regulated by the MDEP under Site Law. Under some circumstances, setbacks beyond 250 feet may be required by MDEP from high functioning vernal pools. In our opinion, none of the pools located on this site were high functioning.

Federal Regulation

At the Federal level, the Maine Programmatic General Permit (PGP), which is issued by the U.S. Army Corps of Engineers (Corps) for projects involving "minimal" wetland impacts, also addresses protection

[4] Note that recent legislative changes to Chapter 335 (Significant Wildlife Habitat Rules) excludes vernal pools with a permanently flowing inlet and outlet from regulation as a Significant Vernal Pool.

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of vernal pools. Under the Maine PGP (General Condition 27), projects are required to avoid and minimize impacts to uplands within 500 feet of any vernal pool.[5] If a Corps application is required for the project due to impacts on wetlands, the U.S. Fish and Wildlife Service and/or the US Environmental Protection Agency can recommend that uplands within 750 feet of the high water mark of the pool be protected by maintaining 75% of the total area as unfragmented habitat, consistent with guidance provided by Calhoun and Klemmens (2002).[6] It should be noted that Federal regulations are more inclusive of what constitutes a regulated vernal pool resource, because they do not require that vernal pools be "natural", nor do they require that the pool lack a permanently flowing inlet or outlet. Although the pool in question did not have evidence of significant breeding activity, we recommend a follow-up discussion on-site with the appropriate Federal agencies to discuss the project, anticipated impacts as they relate to vernal pools and other resources on-site, and potential permitting issues. We will be happy to coordinate this meeting at your earliest convenience.

Local Regulation

Currently, the Town of Falmouth is developing new ordinances based on policies approved by the Town Council in May of 2008. These proposed ordinances are being adopted to bring better consistency with State and Federal regulations, and to provide more science-based resource protection practices. Because the ordinances are being drafted at this time, and are not final, the highlighted regulatory summary provided below is limited to presenting a framework as outlined in the Town Council-approved policy guidance.

- Wetlands - the Town's new ordinances will adopt a definition of *Wetland of Special Significance* (WSS) similar to the State's definition. Assuming that the site does not contain any documented rare species, critically imperiled or imperiled habitat, or significant wildlife habitat, the wetlands on the subject project site would largely not qualify as WSS. The exception to this would be those wetland areas within 25 feet of the streams identified on site. Under the approved policy guidance for wetlands, activities would be regulated within 250 feet of WSS, with a goal of no alterations allowed within 100 feet of the edge of the WSS. An exception would apply for stream crossings required to access the development area. For all other wetland areas (i.e., non-WSS, a 50 foot setback would be required for structures, and efforts to minimize impacts within seventy-five (75) feet from the edge of the wetland must be followed. However, the approved policy also includes an exemption for certain zoned areas of town, including the mixed use cluster (MUC) zone, which this site is located within. Within the MUC, alterations may be allowed if impact avoidance and minimization has been demonstrated through the planning board review process.
- Vernal pools – As noted above, the site does not include significant vernal pools, but data collected in 2007 and 2008 indicates that Wetlands C and D (northern part) qualify as vernal pools under the town's proposed definition. Alterations within 100 feet of a vernal pool are

[5] Appendix A of the ME PGP defines vernal pools as "Temporary to permanent bodies of water occurring in shallow depressions that fill during the spring and fall and may dry during the summer. Vernal pools do not have permanent or viable populations of predatory fish. Vernal pools provide the primary breeding habitat for wood frogs, spotted salamanders, blue-spotted salamanders, and fairy shrimp, and provide habitat for other wildlife including several endangered and threatened species." In contrast to the NRPA, it is important to note that the ME PGP does not exclude man-made pools or pools with permanent inlets from its definition of vernal pool.

[6] Calhoun, A. J. K. and M. W. Klemens. 2002. *Best development practices: Conserving pool-breeding amphibians in residential and commercial developments in the northeastern United States.* MCA Technical Paper No. 5, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, New York.

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generally not permitted. However, because the property is located in the MUC zone, alterations could be allowed if impacts are avoided and minimized as demonstrated by the planning board review process.

- Compensation could be required if wetland impacts on site exceed 4,300 square feet, or for impacts to critical terrestrial habitat surrounding the vernal pool.

Please feel free to contact me at (207) 797-7717 with any questions regarding this report.

Sincerely,

NORMANDEAU ASSOCIATES INC.

Jeffrey Simmons, PWS/NHCWS
Principal Scientist

Attachment 1 – Photographic Record

Attachment 1
Photographic Record

PHOTOGRAPHIC RECORD

VP1

Photo: 1

Photographer: S. Casto

Date: 5/5/08

Direction: North

Comments: Photo shows a VP 1 found in the northern portion of Wetland D. Dominated by *Typha latifolia*, 15 wood frog and 7 spotted salamander egg masses were located in the foreground of the photo. Note the transfer station and Woods Road in the background.

Wetland D

Photo: 2

Photographer: J. Simmons

Date:5/28/08

Direction: North

Comments: Looking north into VP 1 in Wetland D. No egg masses were observed during the second field visit.

PHOTOGRAPHIC RECORD

Spotted Salamander Egg Masses

Photo: 3

Photographer: S. Casto

Date: 4/21/078

Direction: Down

Comments: Photo shows spotted salamander egg masses located within VP1

Wood Frog Egg Masses

Photo: 4

Photographer: S. Casto

Date: 4/21/08

Direction: Down

Comments: Photo shows the wood frog egg masses within VP 1 located in Wetland D.

PHOTOGRAPHIC RECORD

Wetland A

Photo: 5

Photographer: S. Casto

Date: 5/5/08

Direction: South

Comments: Photo shows Wetland A during the first site visit. No amphibian breeding activity was observed.

Wetland D near I-95 Spur

Photo: 6

Photographer: S. Casto

Date: 5/5/08

Direction: South

Comments: Photo shows Wetland D, southern portion. Notice the I-95 Spur in the background. No amphibians were observed in this pool.

PHOTOGRAPHIC RECORD

Bottom substrate

Photo: 7

Photographer: J. Simmons

Date: 5/28/08

Direction: North

Comments: Photo shows the Wetland B dried up during the second site visit. No amphibian breeding activity was observed.

Segment 3

Photo: 8

Photographer: S. Casto

Date: 5/5/08

Direction: South

Comments: Photo shows Area 2 looking south. No amphibian breeding activity was observed at this pool. This pool was completely dry during the second site visit.

PHOTOGRAPHIC RECORD

Extra

Photo: 9

Photographer: S. Casto

Date: 5/5/08

Direction: East

Comments: Photo shows Wetland C looking north. No amphibian breeding evidence were observed here. In 2007, wood frog eggs were observed at this pool.

CLASS B HIGH-INTENSITY SOIL SURVEY

PROPOSED POLICE STATION
WOODS ROAD, FALMOUTH, MAINE

Prepared For:

PORT-CITY ARCHITECTURE
TOWN OF FALMOUTH

Prepared By:

STATEWIDE SURVEYS, INC.
LAND SURVEYORS & SOIL SCIENTISTS
35 Eastman Road, Cape Elizabeth, Maine
Phone/Fax: 207 767 4200

September, 2006

06024 SS

CLASS B - HIGH INTENSITY SOIL SURVEY
PROPOSED FALMOUTH POLICE STATION

TABLE OF CONTENTS

APPENDICES

Section 1
Introduction

As requested, Statewide Surveys Inc. (*SWS*) has completed a Class B High-Intensity Soil Survey on ± 25 acres for a proposed police station with a potential for an affordable housing complex in the future. The soil mapping effort was completed on the undeveloped property using a four-wheel drive backhoe. The soils were observed in the field, using test pits examined intermittently across the site by Certified Soil Scientist Dale Brewer of Statewide Surveys, Inc. (Please see the Soil Map for Survey Limits located in Appendix F).

The Town of Falmouth provided a four-wheel drive backhoe and personnel to excavate the test pits to a depth of ± 60 inches or refusal. The test pits were located with a Trimble Pro-XRS Global Positioning System (GPS) with sub-meter accuracy and incorporated into the Class B High-Intensity Soil Map. The soil map has been merged into the topographic and existing conditions plan, prepared by Back Bay Boundary, Inc. The soil map units and soil boundaries have been drawn, reviewed, and presented for your consideration during the design of the project.

Soils found underlying 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 Site Location of Development Laws and may be used to support permitting procedures as required under the Natural Resources Protection Act (NRPA) or other pertinent regulations.

Section 2

Purpose of Soil Survey

The purpose of this Class B – High Intensity Soil Survey was to identify, classify, describe, and map the soils on the area specified by the Project Manager, Mr. Andrew Hyland of Port-City Architecture. The soil data is to be used to evaluate soil suitability relating to the development of a proposed police station and access road. The soils data provides the necessary information to aid in the planning, design and construction of the project.

The accompanying soil survey map depicts the location, size and types of soil we found underlying the site. We understand that Port-City Architecture will use this soil information to obtain hydrologic soil group (HSG) ratings to assist in the calculations for storm-water runoff curve values. Additionally, the soil mapping is required by the Maine Department of Environmental Protection (MDEP) under Site Location of Development, 38 M.R.S.A.; § 481-490; Section 12 for projects such as the proposed affordable housing complex.

Section 3
Site Location and Description

The site is located in Falmouth, Maine. Specifically, the property has frontage from Woods Road lying between the Falmouth Public Works lot and the Woodlands Golf Course. Generally, the ± 25 acre subject parcel lies across Woods Road from the Transfer Station lot.

The site has a micro-watershed division occurring near the middle of the property. Generally, the westerly region of the site drains northeasterly toward Woods Road via the perennial stream bisecting the site. Areas easterly from the middle of the site generally drain southeasterly via another perennial stream and onto the Public Works lot.

The land is generally strongly sloping with a number of steep, very steep slopes with rock outcrop faces scattered intermittently across the site. A few short and very steep slopes also occur in the areas surrounding the large wetland bog and the two stream corridors. Some grading and excavated areas are also evident on the property from past land use. We understand a road used to traverse through the site prior to the Turnpike Spur and some evidence of the road can still be seen. Stonewalls are also present, likely from past agricultural use. Topographic survey by Back Bay Boundary, Inc. depicts a high elevation on the site of ± 164' feet near Maine Turnpike R.O.W. along the Woodlands Golf Course and a low elevation of ± 98' in the low-lying stream area near Woods Road and the Public works property.

Generally, The site is inhabited with mature trees consisting of: northern white pine (*Pinus strobus*), white oak (*Quercus alba*), northern red oak (*Quercus rubrum*), american beech (*Fagus grandifolia*) and eastern hemlock (*Tsuga canadensis*).

Section 4
Site Investigation

We collected site-specific soil information at various locations across the site on August 3, 8, and10 2006. Test pits and borings were marked in the field with orange flagging and designated with letters from TP-1 to TP-14 and Bor-1. Test pit locations were selected based on topographic relief and vegetative cover types, 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 bedrock. Test pit logs were completed from this information and are included in Appendix "E".

The test pits observed in the field were then located by GPS and merged into the provided base map to aid in the preparation of a soil map of the project area. The base map with property lines and topographic information and shown on the Class B High-Intensity Soil Map was compiled from field surveys by Back Bay Boundary, Inc with a scale of 1 inch = 100 feet and two-foot contour intervals on the site. (Please see the Class B High-Intensity Soil Map).

The soils drainage classifications were determined by parameters found in the *Guidelines for Maine Certified Soil Scientists for Soil Identification and Mapping*, published by the Maine Association of Soil Scientists in 1990 and revised in 2000.

Section 5
Soil Characteristics

The soils underlying the site developed in a combination of parent materials including: glacial till, organic deposits over compact loamy glacial till and glacio-lacustrine or glacio-marine sediments.

The soils series identified underlying the site included the: somewhat excessively drained Lyman, well drained Marlow and Tunbridge, the somewhat poorly drained Naskeag soils and the poorly and very poorly drained Scantic, Swanton and Peacham soils, respectively. Many areas have underlying soils, which are significantly intermixed and cannot be differentiated by individual soil series and have been "grouped" together in soil complexes, such as the Lyman-Tunbridge soil map unit.

The soils identified which have similar properties as the established soil series and 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 Soil Conservation Service, dated January 1987 and revised January 1988 and 1989. Site-specific soil interpretations are enclosed in Appendix D of this report.

Section 6
Soil Map and Map Unit Descriptions

We identified the following soils with soil map unit symbols in parenthesis underlying the site: Lyman-Tunbridge (LtB, LtC, LtD), Naskeag (NkB), Peacham (PeA), Tunbridge-Lyman (TlB), Scantic (ScA, ScB) and Swanton (SwA, SwB, SwC). The attached soil survey map depicts the size and location of these soil map units relative to each other and existing site features.

Each soil map unit consists of three letters (e.g. ScA), 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 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., A represents 0 to 3 percent slopes). Therefore, in this example, "ScA" is interpreted as Scantic silt loam on a 0 to 3 % 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 up to an acre in size. Alike soils greater than an acre in size would generally be considered as a soil map unit. The soil map units found at the site are listed and described in Appendix C of this report.

Section 7
Conclusions

Based on observations, it appears that the soils are suitable for the proposed development in specific areas. There are limitations inherent to some of the soils identified at the site including seasonally high water tables, shallow soils to bedrock and steep slopes. These soil limitations may be overcome by avoidance or planning and site preparation in these areas. We recommend a Geo-Technical Survey of the site in areas identified for foundation placement. These studies will ensure proper foundation footings to support the weight load on the underlying materials found at the site.

Site features such as: the depth to bedrock, runoff volumes, seasonal soil saturation depths, rock outcrops and man-made features were examined. The following is a summary of areas and on-site features identified in the field with potential limitations relating to the development of this land parcel:

1. Steep slopes, occur on the side-slopes of rock outcrop ridges across the site. Steep slopes also occur along the streams and wetland areas. Some of these steep areas drop ± 20 feet with slopes greater than 15 percent. These areas may require cuts, fills and grading efforts to accommodate the proposed project. Additionally, many of these areas lie within the stream protection setback distances and permitting may be required to impact these areas from the MDEP and the Army Corps of Engineers (ACOE).

2. Jurisdictional Wetlands occur intermittently at the site and were mapped by *SWS* in August 2006. We understand these areas are under the ACOE and the MDEP regulations and permitting may be required to impact these areas. Please review the local Falmouth ordinances pertaining to wetlands at the site for local wetland and stream protection regulations.

3. Hydric Soils formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile. Hydric soils underlying the site include the poorly drained Naskeag, Swanton and Scantic soils and the very poorly drained Peacham soils. These occur primarily within the jurisdictional wetlands mapped at the site.

Prior to any construction activities, we recommend implementing erosion and sediment control measures to reduce the potential for site erosion and sedimentation. A Geo-Technical study may be necessary to analyze soils for strength and suitability for erosion control measures, building foundations and/or subsurface utilities. A Licensed Site Evaluator (LSE) will need to conduct further soil investigations for suitable locations with the on-site subsurface waste disposal requirement.

We were limited to observing test pits at the site by the steep slopes and wetland areas. We achieved the required soil observations by maneuvering through the site with as little impact as possible with the equipment. Our goal was to limit damage to live trees, avoid and/or minimize wetland disturbances and avoid damage to existing trail network while obtaining the necessary soil data. Additional borings and soil explorations were accomplished by hand excavating areas with an auger or sharpshooter spade.

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 map and soil survey report were prepared for the exclusive use of the Town of Falmouth and Port-City Architecture, LLC for specific application with this proposed project.

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. It should be noted, with the great variation in bedrock depth fluctuations there is a potential for shallow soils where the soils were not examined.

Data from this soil report and soil map should not be used for any other purpose other than for the proposed police station complex as some soils may be limiting for a particular use, but considered non-limiting for another use. The soil mapping units used in the soil report and on the soil map are at least in part influenced by the intended proposed use and may not always be adequate for other intended uses than that of which the soil survey was completed.

APPENDICES

APPENDIX A

SOIL NARRATIVE REPORT

CLASS B – HIGH INTENSITY
SOIL NARRATIVE REPORT

Proposed Falmouth Police Station
Falmouth, Maine
September, 2006

Date: Soil profiles observed on August 3, 8 & 10, 2006.

Base Map: Topographic Survey Map by Back Bay Boundary, Inc.
Two-foot contour intervals on site.
Map Scale 1 inch = 100 feet.

Ground Control: Test pits located by GPS with sub-meter capability.

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 a Class B - 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. (1"=100') on this project).
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 located by means of compass, chaining, pacing or taping from known survey points, or other methods of equal accuracy.
5. Base map with 5-foot contour intervals (2-foot contours for this project).

The accompanying soil profile descriptions, soil map and this soil narrative report were completed in general accordance with the standards adopted by the Maine Association of Soil Scientists and the Board of Certification of Geologists and Soil Scientists.

This Soil Survey was prepared in relation to a proposed residential subdivision and associated access routes. Some mapping units may be smaller than one acre in size and therefore more intensive than Standards for Class B High-Intensity Soil Survey. However, the smaller units are wetland areas and useful for planning purposes and not indicative for the entire soil map.

Dale Brewer, C.S.S. #304 **Date**

LYMAN
(Frigid Loamy Mixed Lithic Haplorthods)

SETTING

Parent Material: Glacial till.
Landform: Rocky hills and high plateaus.
Position in Landscape: Uppermost locations, side-slopes, shoulders, and crests of ridges.
Slope Gradient Ranges: (A) 0-3% (B) 3-8%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Somewhat excessively drained.

Typical Profile Description:

Surface layer:	Black loam, 0-2"
Subsurface layer:	Reddish gray fine sandy loam, 2 to 4"
Subsoil layer:	Very dusky red 4 to 6", from 6" to 10" is dark red loam, and from 10" to 17" is dark brown loam.
Substratum:	Bedrock is at 17"

Hydrologic Group: Group C/D.
Surface Run Off: Slow to rapid, depending upon slope and bedrock exposure.
Permeability: Moderately rapid.
Depth to Bedrock: Shallow 8 to 20".
Hazard to Flooding: None.

INCLUSIONS
(Within Mapping Unit)

Similar: Tunbridge, Naskeag
Contrasting: Marlow, Swanton

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. Subsurface waste disposal is not always possible with shallow depths to bedrock with little mineral soil cap. Lyman is represented by: test pits #1, #10 and #12.

MARLOW
(Frigid Typic Haplorthods)

SETTING

Parent Material: Glacial till.
Landform: Glaciated uplands.
Position in Landscape: Ridge tops and side slopes.
Slope Gradient Ranges: (A) 0-3% (B) 3-8% (C) 8-15%

COMPOSTION AND SOIL CHARACTERISTICS

Drainage Class: Well drained soils.

Typical Profile Description:

Surface layer: Light gray fine loamy sand, 0-6"

Subsoil layer: The subsoil 15" thick is strong brown and dark yellowish brown fine sandy in the upper part and mottled light olive brown gravelly fine sandy loam in the lower part.

Substratum: The substratum to 65' is very firm and mottled light olive brown gravelly fine sandy loam.

Hydrologic Group: Group C
Surface Run Off: Medium
Permeability: Moderate in the solum and moderately slow or slow in substratum.
Depth to Bedrock: Deep, greater than 60".
Hazard to Flooding: None

INCLUSIONS

(Within Mapping Unit)

Similar: None

Contrasting: Lyman, Tunbridge, Swanton.

USE AND MANAGEMENT

Few limitations for most uses. Marlow is represented by: test pit #3.

NASKEAG
(Frigid Sandy Mixed Aeric Haplaquods)

SETTING

Parent Material: Glacial bedrock ridges.
Landform: Coastal areas.
Position in Landscape: Depressions in glaciated ridges.
Slope Gradient Ranges: (A) 0-3% (B) 3-8%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Somewhat poorly and poorly drained.

Typical Profile Description:

Surface layer:	Organic mat, 0-5"
Subsurface layer:	Light brownish gray fine sandy loam and brown loamy sand, 5 to 16"
Subsoil layer:	Mottled very dusky red, dusky red and light yellowish brown gravelly loamy sand 15 to 30"
Substratum:	Bedrock is at 40"

Hydrologic Group: Group C.
Surface Run Off: Slow to rapid and bedrock exposure.
Permeability: Rapid.
Depth to Bedrock: <40".
Hazard to Flooding: None.

INCLUSIONS
(Within Mapping Unit)

Similar: Lyman, Tunbridge.
Contrasting: Marlow, Swanton

USE AND MANAGEMENT

The limiting factor for building site development is high water table and the depth to bedrock (<40") within this complex. Blasting or ripping of the bedrock is necessary for deep excavation. Subsurface waste disposal is not always possible with shallow depths to bedrock with little mineral soil cap. Naskeag is represented by: test pit #2 (Variant does not meet range of characteristics for typical pedon, however is somewhat poorly drained and shallow to bedrock and #14.

PEACHAM
(Histic Humaquepts)

SETTING

Parent Material: Organic deposits over dense compact glacial till.
Landform: Formed in depressions and drainage ways of glaciated uplands.
Position in Landscape: Lower to intermediate positions.
Slope Gradient Ranges: (A) 0-8%

COMPOSTION AND SOIL CHARACTERISTICS

Drainage Class: Very poorly drained

Typical Profile Description:
Surface layer: Organic layer , 0-8"
Subsoil layer: Olive gray, loam, 3"
Substratum: Dark greenish gray loam

Hydrologic Group: Group D
Surface Run Off: Slow
Permeability: Moderate or moderately slow in upper profile, slow to very slow in dense substratum.
Depth to Bedrock: Very deep, 60"
Hazard to Flooding: May flood occasionally on lowest fringes during spring and periods of excessive precipitation.

INCLUSIONS

(Within Mapping Unit)

Similar: Swanton, Scantic

Contrasting: Naskeag

USE AND MANAGEMENT

Development with subsurface wastewater disposal: The limiting factor for building site development is wetness due to the presence of shallow water table throughout most of the year. Proper foundation drainage or site modification is recommended for construction. Represented by Boring 1.

SCANTIC
(Frigid Typic Haplaquepts)

SETTING

Parent Material: Marine or lacustrine sediments.
Landform: Level or gently sloping marine or lake plains.
Position in Landscape: Lower to intermediate positions.
Slope Gradient Ranges: (A) 0-3% (B) 3-8%

COMPOSTION AND SOIL CHARACTERISTICS

Drainage Class: Poorly drained.

Typical Profile Description:

Surface layer:	Dark grayish brown silt loam, 0-9"
Subsurface layer:	Olive gray silt loam, 9-11"
Subsoil layer:	Olive gray, silty clay loam, 11-16"
Substratum:	Olive gray clay, 16-65"

Hydrologic Group: Group D
Surface Run Off: Slow
Permeability: Moderate or moderately slow in upper profile, slow to ver slow in dense substratum.
Depth to Bedrock: Very deep, greater than 60"
Hazard to Flooding: May flood occasionally on lowest fringes during spring and periods of excessive precipitation.

INCLUSIONS

(Within Mapping Unit)

Similar: Swanton

Contrasting: Lyman, Tunbridge, Naskeag

USE AND MANAGEMENT

Development with subsurface wastewater disposal: The limiting factor for building site development is wetness due to the presence of shallow water table throughout most of the year. Proper foundation drainage or site modification is recommended for construction. Scantic is represented by: test pits 8 and 9.

TUNBRIDGE
(Frigid Typic Haplorthods)

SETTING

Parent Material: Loamy glacial till.
Landform: Glaciated uplands.
Position in Landscape: Uppermost locations on landform, sideslopes, shoulders, and crests of ridges.
Slope Gradient Ranges: (C) 8-15%

COMPOSTION AND SOIL CHARACTERISTICS

Drainage Class: Well drained soils.

Typical Profile Description:
Surface layer: Dark brown fine sandy loam, 0-2"
Subsurface layer: Grayish brown fine sandy loam, 1" thick
Subsoil layer: Dark reddish brown in the upper part and yellowish brown silt loam in the lower part 11" thick.
Substratum: Dark grayish brown gravelly fine sandy loam, 14"thick.

Hydrologic Group: Group C
Surface Run Off: Slow to rapid, depending upon slope gradient.
Permeability: Moderate to moderately rapid.
Depth to Bedrock: Moderately deep, 20 to 40" to bedrock surface.
Hazard to Flooding: None

INCLUSIONS

(Within Mapping Unit)

Similar: Lyman

Contrasting: Naskeag

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. Tunbridge is represented by test pit 4, 5, 6, 7and 13.

SWANTON

(Frigid Aquic Dystric Eutrochrepts)

SETTING

Parent Material: Loamy mantle over clayey sediments.

Landform: Glacio-fluvial plains and deltas.

Position in Landscape: Nearly level to moderately steep.

Slope Gradient Ranges: (A) 0-3%, (B) 3-8%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage: Somewhat poorly and poorly drained

Typical Profile Description:

Surface layer: Very dark gray, fine sandy loam, 0 to 7 inches.

Subsoil layer: 7 to 22" mottled grayish brown fine sandy loam to light brownish gray sandy loam. From 22" 40" mottled olive silty clay loam and silty clay.

Substratum: Olive silty clay loam from 40 to 60 inches.

Hydrologic Group: Group **C/D**

Surface Runoff: Slow to medium depending on slope.

Permeability: Moderately rapid in the loamy material and slow to very slow in the clayey material.

Depth to Bedrock: Very deep, greater than 60-inches.

Hazard to Flooding: None.

INCLUSIONS

(Within Mapping Unit)

Similar: Scantic

Contrasting: Naskeag

USE AND MANAGEMENT

Development with subsurface wastewater disposal is rated severe due to a seasonal high water table, which is apparent November through May in Swanton soils. Proper foundation drainage or site modification is recommended for construction. Use of this soil for roadways is poor due to wetness and low strength. Underground piping has severe limitations due to wetness. Swanton is one of the smallest units found at the site and represented by test pits: 8 and 9.

APPENDIX B

SOIL LEGEND/MDEP FORM E

CLASS B - HIGH INTENSITY SOIL SURVEY

PROPOSED FALMOUTH POLICE STATION
FALMOUTH, MAINE

SOIL LEGEND

SYMBOL	SERIES	TEXTURE		SLOPE GRADIENT	HSG
LtB	**LYMAN/TUNBRIDGE**		F S Loam	3 TO 8 % Slopes	C/D
LtC	**LYMAN/TUNBRIDGE**		F S Loam	8 TO 15 % Slopes	C/D
LtD	**LYMAN/TUNBRIDGE**		F S Loam	+15 % Slopes	C/D
NkB	**NASKEAG**		F S Loam	3 TO 8 % Slopes	C
PeB	**PEACHAM**		Muck	3 TO 8 % Slopes	D
TlB	**TUNBRIDGE/LYMAN**		F S Loam	3 TO 8 % Slopes	C/D
ScA	**SCANTIC**		Silt Loam	0 TO 3 % Slopes	D
ScB	**SCANTIC**		Silt Loam	3 TO 8 % Slopes	D
SwA	**SWANTON**		F S Loam	0 TO 3 % Slopes	C/D
SwB	**SWANTON**		F S Loam	3 TO 8 % Slopes	C/D
SwC	**SWANTON**		F S Loam	8 TO 15 % Slopes	C/D

SOIL CONDITIONS SUMMARY TABLE

For SUBSURFACE INVESTIGATIONS at DEP SITE LOCATION PROJECTS

Project Name: **PROPOSED FALMOUTH POLICE STATION**	DEP Project #:
Applicant Name: **TOWN OF FALMOUTH** **PORT CITY ARCHITECTURE**	Consultant Name: **STATEWIDE SURVEYS, INC.** **DALE BREWER**
Project Location *(municipality)*: **FALMOUTH, MAINE**	Type of Investigation: **CLASS B – HIGH INTENSITY SOIL SURVEY**

Lot	Exploration (alph/num)	✔ or ✖ if at Field	● soil profile/condition (S.E.) ● soil series name (C.S.S.) (as appropriate to the investigation)	Depths to (check one): ✔ inches ☐ cm Mottling	Bedrock	Restrictive Layer	Ground Surface (%)
	TP 1		LYMAN		7"		8-15
	TP 2		NASKEAG VARIANT		24"		15
	TP 3		MARLOW INCLUSION		66"		3-8
	TP 4		TUNBRIDGE		32"		3-8
	TP 5		TUNBRIDGE		28"		8-15
	TP 6		TUNBRIDGE		34"		0-3
	TP 7		TUNBRIDGE		28"		3-8
	TP 8		SWANTON	<6"	>40"	14"	0-3
	TP 9		SWANTON	3"	>40"	28"	0-3
	TP 10		LYMAN		20"		3-8
	TP 11		SCANTIC	<6"	>40"	8"	3-8
	TP 12		LYMAN		16"		3-8
	TP 13		TUNBRIDGE		24"		8-15
	TP 14		NASKEAG	10"	40"		3-8
	BOR-1		PEACHAM	0"		18"	0-3

APPENDIX C

SOIL SURVEY MAP UNITS

SOIL SURVEY MAP UNITS

LtB **LYMAN/TUNBRIDGE Complex, 3 to 8 percent slopes**
Somewhat excessively and well drained, loam and fine sandy loam
This large map unit was identified across the site on slightly higher elevations around bedrock outcrops. The Lyman soils are shallow (<20") above bedrock and the Tunbridge soils are moderately deep (<40") to bedrock. There are areas of exposed bedrock within the mapping unit or nearby. There also may be small inclusions of Abram, Marlow and Naskeag soils within this mapping unit. These soils are so intricately intermixed that separating the two is not possible. Interpretations for these soils are given below.

LtC **LYMAN/TUNBRIDGE Complex, 8 to 15 percent slopes**
Somewhat excessively and well drained, loam and fine sandy loam
This large map unit was identified across the site on slightly higher elevations around bedrock outcrops. The Lyman soils are shallow (<20") above bedrock and the Tunbridge soils are moderately deep (<40") to bedrock. There are areas of exposed bedrock within the mapping unit or nearby. There also may be small inclusions of Abram, Marlow and Naskeag soils within this mapping unit. These soils are so intricately intermixed that separating the two is not possible. Interpretations for these soils are given below.

LtD **LYMAN/TUNBRIDGE Complex, greater than 15 percent slopes**
Somewhat excessively and well drained, loam and fine sandy loam
This large map unit was identified across the site on slightly higher elevations around bedrock outcrops. The Lyman soils are shallow (<20") above bedrock and the Tunbridge soils are moderately deep (<40") to bedrock. There are areas of exposed bedrock within the mapping unit or nearby. There also may be small inclusions of Abram, Marlow and Naskeag soils within this mapping unit. These soils are so intricately intermixed that separating the two is not possible. Interpretations for these soils are given below.

NkB NASKEAG 3 TO 8 percent slopes
Somewhat poorly and poorly drained, loam and fine sandy loam
This large map unit was identified in the middle of the site in slight depressional areas amongst bedrock outcrops. The Naskeag soils are moderately deep (<40") to bedrock. There are areas of exposed bedrock within the mapping unit or nearby. There also may be small inclusions of Abram, Marlow, Lyman or Tunbridge soils within this mapping unit. Interpretations for these soils are given below.

PeB PEACHAM, 3 to 8 percent slopes
Very poorly drained, muck
This small map unit occurs along the northerly property line in a large flat wetland area near Woods Road and a small stream corridor. These soils are found on flatter slopes near the stream and scrub-shrub/emergent wetlands. There are inclusions of Scantic soils within this map unit. Other inclusions may include the somewhat poorly drained Naskeag soils Interpretations for these soils are given below.

ScA SCANTIC, 0 to 3 percent slopes
Poorly drained, silt loam
This smaller map unit occurs intermittently in the southerly portion of the site along the Turnpike in and adjacent to the stream and wetland areas. Scantic soils are very deep with a high water table during much of the year making them poorly drained. There may be small inclusions of Swanton, Peacham and Naskeag soils within this mapping unit. Interpretations for these soils are given below.

ScB SCANTIC, 3 to 8 percent slopes
Poorly drained, silt loam
This smaller map unit occurs intermittently in the southerly portion of the site along the Turnpike in and adjacent to the stream and wetland areas. Scantic soils are very deep with a high water table during much of the year making them poorly drained. There may be small inclusions of Swanton, Peacham and Naskeag soils within this mapping unit. Interpretations for these soils are given below.

SwA SWANTON, 0 to 3 percent slopes
Somewhat poorly and poorly drained, fine sandy Loam

The poorly drained map unit occurs in wetlands and along the streams in the southeasterly portion on the sited areas. The somewhat poorly drained Swanton soils occur on the slopes leading down to the streams. Swanton soils are very deep with a high water table during much of the year making them poorly drained. There may be small inclusions of Scantic, Peacham and Naskeag soils within this mapping unit. Interpretations for these soils are given below.

SwB SWANTON, 3 to 8 percent slopes
Somewhat poorly and poorly drained, fine sandy Loam

The poorly drained map unit occurs in wetlands and along the streams in the southeasterly portion on the sited areas. The somewhat poorly drained Swanton soils occur on the slopes leading down to the streams. Swanton soils are very deep with a high water table during much of the year making them poorly drained. There may be small inclusions of Scantic, Peacham and Naskeag soils within this mapping unit. Interpretations for these soils are given below.

SwC SWANTON, 8 to 15 percent slopes
Somewhat poorly and poorly drained, fine sandy Loam

The poorly drained map unit occurs in wetlands and along the streams in the southeasterly portion on the sited areas. The somewhat poorly drained Swanton soils occur on the slopes leading down to the streams. Swanton soils are very deep with a high water table during much of the year making them poorly drained. There may be small inclusions of Scantic, Peacham and Naskeag soils within this mapping unit. Interpretations for these soils are given below.

APPENDIX D

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 (numerical and descriptive) of soil reaction to a specific use, based on the soil's characteristics. These interpretations have many uses, such as: estimating costs for land development, storm water runoff calculations, structural bearing strengths, estimating erodability, etc. Soil interpretations are also useful for using and managing existing soils for alternative uses, of which soil properties can be estimated to react to a change in use.

Soil Interpretations

Soil interpretations are very useful for many purposes and projects, although they do have limitations with their use. The following is a listing of limitations for the usage of soil interpretations:

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. This limitation is related to the size of the area of the soil survey and the size of the soil map units.

3. Interpretations are also limited by the variability within a soil in nature, which directly affects the precision of the soil interpretation.

4. Soil interpretations are predictions of suitability or limitations by soil properties. A soil may possess several limiting factors and must be site specific 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 the soil suitable for a proposed use.

Soil Limitations

Soils are assigned a limitation range according to their genetic makeup in their natural state when characterized for a specific use. Limitation ratings can be based on hazards, risks and obstructions. These ratings range from slight, moderate, severe and very severe.

1. **Slight** is a rating given to soils that have, at most, minor problems associated with a specific use.

2. **Moderate** is the rating given to a soil that possesses certain undesirable characteristics that can be overcome. These soils may be modified, special designs, and/or maintenance may be required to achieve satisfactory soil performance. The cost to modify these soils for a particular use may increase costs to use, although the costs usually are not prohibitive.
3. **Severe** is the rating given to soils that require modification to become satisfactory for use at reduced risks. These soils can be modified to meet standards for a proposed use, although the costs may be high to overcome the undesirable characteristics.

4. **Very Severe** are soils that have such severe limitations for a particular use and should be avoided, unless no other options exist and the negative characteristics may be overcome with substantial costs.

Soil Suitability

Soils suitability is based on the characteristics of soils that influence the usability of the soil for a particular use. These ratings range from good, fair, poor and unsuitable.

1. **Good** is the rating assigned to soils that possess properties favorable for the proposed use.

2. **Fair** includes soils that may possess one or more unfavorable properties that impact the use and less suitable than the good rating.

3. **Poor** rating is applied to soils with one or more unfavorable properties that require special practices to overcome the negative qualities within the soil. These soils will require special designs, extra maintenance, extra costs or field alterations.

4. **Unsuitable** are soils that are unacceptable for the proposed use.

Many soils possess unfavorable properties in relation to their development, which can be overcome with simple cost-effective modifications. Some examples of unfavorable soil qualities inherent in Maine soils are listed below:

1. **Depth to Bedrock** is a significant soil property in relation to the development of lands. The solid rock usually requires "blasting" or specialized equipment to amend this negative quality. This factor impacts storm-water runoff, rooting depths, soil permeability, impedes downward movement of water in the soil, subsurface waste disposal, and subsurface piping, etc.

2. **Seasonally High Water Table** is an unfavorable aspect relating to most development. The amount of ground water within a soil profile can effect vegetative growth, subsurface wastewater disposal and saturation, which may require drainage for construction.

3. **Depth to Restrictive Layers** is the depth within the soil horizon in which a firm or cemented layer exists. Restrictive layers impede rooting depths and downward movement of water in the soil horizon and may cause a seasonable high water table.

4. **Soil Slopes** impact surface water runoff, influences water retention, govern the potential for erosion or sloughing, limit accessibility by machinery, etc.

5. **Flooding** is a major factor governing land development. Many regulations do not allow for development within a flood zone due to the high costs involved with reconstruction after flooding occurs.

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** soils with water that is removed very rapidly. The occurrence of internal free water is very rare or very deep.

2. **Somewhat Excessively Drained** soils with water that is removed rapidly through the soil. Internal free water occurrence is very rare or very deep.

3. **Well Drained** 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** 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** 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** 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** 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.

Depth to Bedrock

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

Stoniness Class

1.	**Non-stony**	Less than 0.01 percent surface coverage
2.	**Stony or bouldery**	0.01 to 0.1 percent surface coverage
3.	**Very stony**	0.1 to 3.0 percent surface coverage
4.	**Very bouldery**	0.1 to 3.0 percent surface coverage
5.	**Extremely stony**	3.0 to 15 percent surface coverage
6.	**Extremely bouldery**	3.0 to 15 percent surface coverage
7.	**Rubbly**	15 to 75 percent surface coverage
8.	**Rubble Land**	More than 75 percent surface coverage

APPENDIX E

SOIL TEST PITS

FORM F

06024SS

SOIL PROFILE/CLASSIFICATION INFORMATION
for subsurface investigations at DEP Site Location Projects

Project Name: 06024SS	Applicant Name:	Project Location (municipality)
FALMOUTH POLICE STATION	PORT CITY ARCHITECTURE	FALMOUTH, MAINE

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: TP 1 [X] Test Pit [ ] Boring

3 * Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
VERY FINE		10YR 2/1	
SANDY			
LOAM	VERY	10YR 4/3	NONE
	FRIABLE	7.5YR 3/1	OBSERVED
LOAM			
CHANNERY		7.5YR 4/6	
BEDROCK	AT	7"	

[ ] hydric [■] non-hydric | Slope %: 8-15 | Limiting factor: 7" | [ ] ground water [ ] restrictive layer [■] bedrock

C.S.S. Soil Series / phase name: LYMAN | Drainage: SWED | HSG: C/D

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: TP 2 [X] Test Pit [ ] Boring

3 * Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
VERY		10YR 2/1	
FINE			
SANDY		2.5Y 3/1	
LOAM			
	VERY	10YR 2/2	
	FRIABLE		
LOAM			
		2.5Y 5/4	
			2.5Y 5/3
		2.5Y 5/6	10YR 3/4
LOAMY	FIRM		
SAND		5Y 5/2	
BEDROCK	AT	24"	

[ ] hydric [■] non-hydric | Slope %: >15 | Limiting factor: 12" | [■] ground water [ ] restrictive layer [■] bedrock

C.S.S. Soil Series / phase name: VARIANT | NASKEAG | FSL | Drainage: SWPD | HSG: C

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: TP 3 [X] Test Pit [ ] Boring

2 * Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
VFSL		10YR 2/1	
FINE		10YR 5/1	
SANDY			
LOAM		7.5YR 2.5/2	
VERY FINE			
SANDY		7.5YR 3/4	
LOAM			
	VERY		
FINE	FRIABLE		
SANDY		10YR 3/6	
LOAM			
		10YR 4/6	
SANDY			
LOAM			
		2.5Y 4/3	
	FIRM		2.5Y 5/4
SILT			2.5Y 5/6
LOAM		5Y 4/4	
LOAM			
BEDROCK	AT	66"	

[ ] hydric [■] non-hydric | Slope %: 3-8 | Limiting factor: 28" | [ ] ground water [■] restrictive layer [■] bedrock

C.S.S. Soil Series / phase name: INCLUSION | MARLOW | FSL | Drainage: WD | HSG: C

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: TP 4 [X] Test Pit [ ] Boring

2 * Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
VFSL		10YR 2/1	
FINE			
SANDY		10YR 4/4	
LOAM			
VERY			
FINE	FRIABLE	10YR 3/6	
SANDY			
LOAM			
FINE			
SANDY		2.5Y 5/4	
LOAM			
SANDY			
LOAM	FIRM	2.5Y 5/4	
			7.5YR 5/8
BEDROCK	AT	32"	

[ ] hydric [■] non-hydric | Slope %: 3-8 | Limiting factor: 32" | [ ] ground water [ ] restrictive layer [■] bedrock

C.S.S. Soil Series / phase name: TUNBRIDGE | FSL | Drainage: WD | HSG: C

Professional Endorsements *(as applicable)*

C.S.S. signature: | Date: 9/1/2006

name: DALE A. BREWER | LIC #304

STATE OF MAINE
DALE
A.
BREWER
No. 304
CERTIFIED
SOIL SCIENTIST

FORM F

06024SS

SOIL PROFILE/CLASSIFICATION INFORMATION
for subsurface investigations at DEP Site Location Projects

Project Name: 06024SS	Applicant Name:	Project Location (municipality)
FALMOUTH POLICE STATION	PORT CITY ARCHITECTURE	FALMOUTH, MAINE

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: TP 5 [X] Test Pit [ ] Boring

2 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
	VERY FRIABLE	10YR 2/1	
VERY			
FINE	FRIABLE	7.5YR 3/3	
SANDY			
LOAM			
CHANNERY			
SANDY		10YR 3/3	
LOAM			5Y 4/2
			10YR 4/6
			NON
SANDY		2.5Y 4/4	DRAINAGE
LOAM			
BEDROCK	AT	28"	

[ ] hydric [■] non-hydric | Slope %: 8-15 | Limiting factor: 28" | [ ] ground water [ ] restrictive layer [■] bedrock

C.S.S. Soil Series / phase name: TUNBRIDGE FSL | Drainage: WD | HSG: C

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: TP 6 [X] Test Pit [ ] Boring

2 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
LOAM		10YR 2/1	
		10YR 5/2	
VFSL		7.5YR 3/3	
		7.5YR 4/4	
LOAM			
	FRIABLE		
		10YR 4/6	
			10YR 4/6
SANDY LOAM	FIRM	2.5Y 5/4	2.5Y 6/4
BEDROCK	AT	34"	

[ ] hydric [■] non-hydric | Slope %: 0-3 | Limiting factor: 34" | [ ] ground water [ ] restrictive layer [■] bedrock

C.S.S. Soil Series / phase name: TUNBRIDGE FSL | Drainage: WD | HSG: C

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: TP 7 [X] Test Pit [ ] Boring

2 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
VFSL	VFRI	10YR 2/1	
SANDY LOAM		10YR 5/1	
FINE		7.5YR 3/3	
SANDY			
LOAM		7.5YR 3/4	
	FRIABLE		
GRAVELLY			
FINE		10YR 4/6	
SANDY			
LOAM			
BEDROCK	AT	28"	

[ ] hydric [■] non-hydric | Slope %: 3-8 | Limiting factor: 28" | [ ] ground water [ ] restrictive layer [■] bedrock

C.S.S. Soil Series / phase name: TUNBRIDGE | Drainage: WD | HSG: C

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: TP 8 [X] Test Pit [ ] Boring

6 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
FINE			
SANDY			5Y 6/1
LOAM	FRIABLE	2.5Y 4/1	
			2.5Y 5/4
SILTY			2.5Y 5/6
CLAY		5Y 5/1	
LOAM			
			10Y 5/1
			2.5Y 4/4
	FIRM		
SILTY		5Y 4/2	
CLAY			
LIMIT	OF	TEST	PIT

[■] hydric [ ] non-hydric | Slope %: 0-3 | Limiting factor: <6" | [■] ground water [ ] restrictive layer [ ] bedrock

C.S.S. Soil Series / phase name: SWANTON | Drainage: PD | HSG: C/D

Professional Endorsements *(as applicable)*

C.S.S. signature: | Da: 9/2/2006

name: DALE A. BREWER | Lic: #304

STATE OF MAINE
DALE
A.
BREWER
No. 304
CERTIFIED
SOIL SCIENTIST

FORM F

06024SS

SOIL PROFILE/CLASSIFICATION INFORMATION
for subsurface investigations at DEP Site Location Projects

Project Name: 06024SS	Applicant Name:	Project Location (municipality)
FALMOUTH POLICE STATION	PORT CITY ARCHITECTURE	FALMOUTH, MAINE

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: TP 9 [X] Test Pit [ ] Boring

3 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
FINE			
SANDY LOAM		10YR 2/1	
SANDY		2.5 Y 4/1	
LOAM			10YR 5/1
FINE			
SANDY		7.5YR 3/1	
LOAM			
	FRIABLE		
GRAVELLY			
SANDY		10YR 3/2	
LOAM			
SAND	LOOSE	2.5Y 5/6	
GRAVELLY	FRIABLE	2.5Y 4/2	
LOAMY SAND			2.5Y 4/3
			7.5YR 4/4
SILTY	FIRM	5Y 5/2	
CLAY			
LOAM			
LIMIT	OF	TEST	PIT

hydric	Slope %	Limiting factor	ground water
[ ] non-hydric	0-3	3"	[ ] restrictive layer
			[ ] bedrock

C.S.S. Soil Series / phase name: SWANTON FSL — Drainage: PD — HSG: C/D

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: TP 10 [X] Test Pit [ ] Boring

3 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
FINE		10YR 2/1	
SANDY LOAM			
VERY FINE		7.5YR 4/2	
SANDY LOAM			
		5YR 3/3	
	VERY		
	FRIABLE		
LOAM			
		7.5YR 4/6	
BEDROCK	AT	20"	

hydric	Slope %	Limiting factor	ground water
[ ] non-hydric	3-8	20"	[ ] restrictive layer
			[ ] bedrock

C.S.S. Soil Series / phase name: LYMAN LOAM — Drainage: SWED — HSG: C/D

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: TP 11 [X] Test Pit [ ] Boring

5 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
SILT		5Y 3/2	5Y 5/1
LOAM	FRIABLE		
			10Y 5/1
			2.5Y 5/3
SILTY			
CLAY		5Y 4/1	
LOAM			
	FIRM		
			2.5Y 5/6
			10Y 5/1
SILTY			
CLAY		5Y 4/2	
LIMIT	OF	TEST	PIT

hydric	Slope %	Limiting factor	ground water
[ ] non-hydric	3-8	<6"	[ ] restrictive layer
			[ ] bedrock

C.S.S. Soil Series / phase name: SCANTIC SILT LOAM — Drainage: PD — HSG: D

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: TP 12 [X] Test Pit [ ] Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
FINE		10YR 2/1	
SANDY LOAM			
VERY FINE		7.5YR 4/2	
SANDY LOAM			
		5YR 3/3	
	VERY		
	FRIABLE		
		7.5YR 4/6	
LOAM			
BEDROCK	AT	16"	

hydric	Slope %	Limiting factor	ground water
[ ] non-hydric	3-8	16"	[ ] restrictive layer
			[ ] bedrock

C.S.S. Soil Series / phase name: LYMAN LOAM — Drainage: SWED — HSG: C/D

Professional Endorsements *(as applicable)*

C.S.S. signature: [signature] Date: 9/2/2006

name: DALE A. BREWER Lic. #304

STATE OF MAINE
DALE
A.
BREWER
No. 304
CERTIFIED
SOIL SCIENTIST

FORM F

06024SS

SOIL PROFILE/CLASSIFICATION INFORMATION
for subsurface investigations at DEP Site Location Projects

Project Name: 06024SS	Applicant Name:	Project Location (municipality)
FALMOUTH POLICE STATION	PORT CITY ARCHITECTURE	FALMOUTH, MAINE

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: TP 13 — [X] Test Pit [ ] Boring

4 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
FINE SANDY LOAM		10YR 2/1	
SANDY LOAM		7.5YR 5/1	
LOAM		5YR 2.5/2	
		5YR 3/4	
	VERY FRIABLE		
GRAVELLY FINE SANDY LOAM			
		10YR 4/6	
BEDROCK	AT	24"	

[ ] hydric [■] non-hydric | Slope %: 8-15 | Limiting factor: 24" | [ ] ground water [ ] restrictive layer [ ] bedrock

C.S.S. Soil Series / phase name: TUNBRIDGE FSL | Drainage: WD | HSG: C

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: TP 14 — [X] Test Pit [ ] Boring

3 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
VERY FINE SANDY LOAM		10YR 5/1	
		7.5YR 3/3	
FINE SANDY LOAM	VERY FRIABLE		
		2.5Y 5/4	2.5Y 4/3
			10YR 4/4
			2.5Y 5/1
		5Y 5/2	
BEDROCK	AT	40"	

[ ] hydric [■] non-hydric | Slope %: 3-8 | Limiting factor: 10" | [■] ground water [ ] restrictive layer [■] bedrock

C.S.S. Soil Series / phase name: NASKEAG FSL | Drainage: SWPD | HSG: C

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: B-1 — [ ] Test Pit [X] Boring

4 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
ORGANIC		BLACK	
			2.5Y 5/2
		2.5Y 3/1	
	FRIABLE		
SANDY LOAM			2.5Y 4/3
		10Y 5/1	
	FIRM		
LIMIT	OF	BORING	

[■] hydric [ ] non-hydric | Slope %: 0-3 | Limiting factor: 0" | [■] ground water [ ] restrictive layer [ ] bedrock

C.S.S. Soil Series / phase name: PEACHAM MUCK | Drainage: VPD | HSG: D

SOIL DESCRIPTION AND CLASSIFICATION

Exploration Symbol: _____ — [ ] Test Pit [ ] Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling

[ ] hydric [ ] non-hydric | Slope %: _____ | Limiting factor: _____ | [ ] ground water [ ] restrictive layer [ ] bedrock

C.S.S. Soil Series / phase name: _____ | Drainage: _____ | HSG: _____

Professional Endorsements (as applicable)

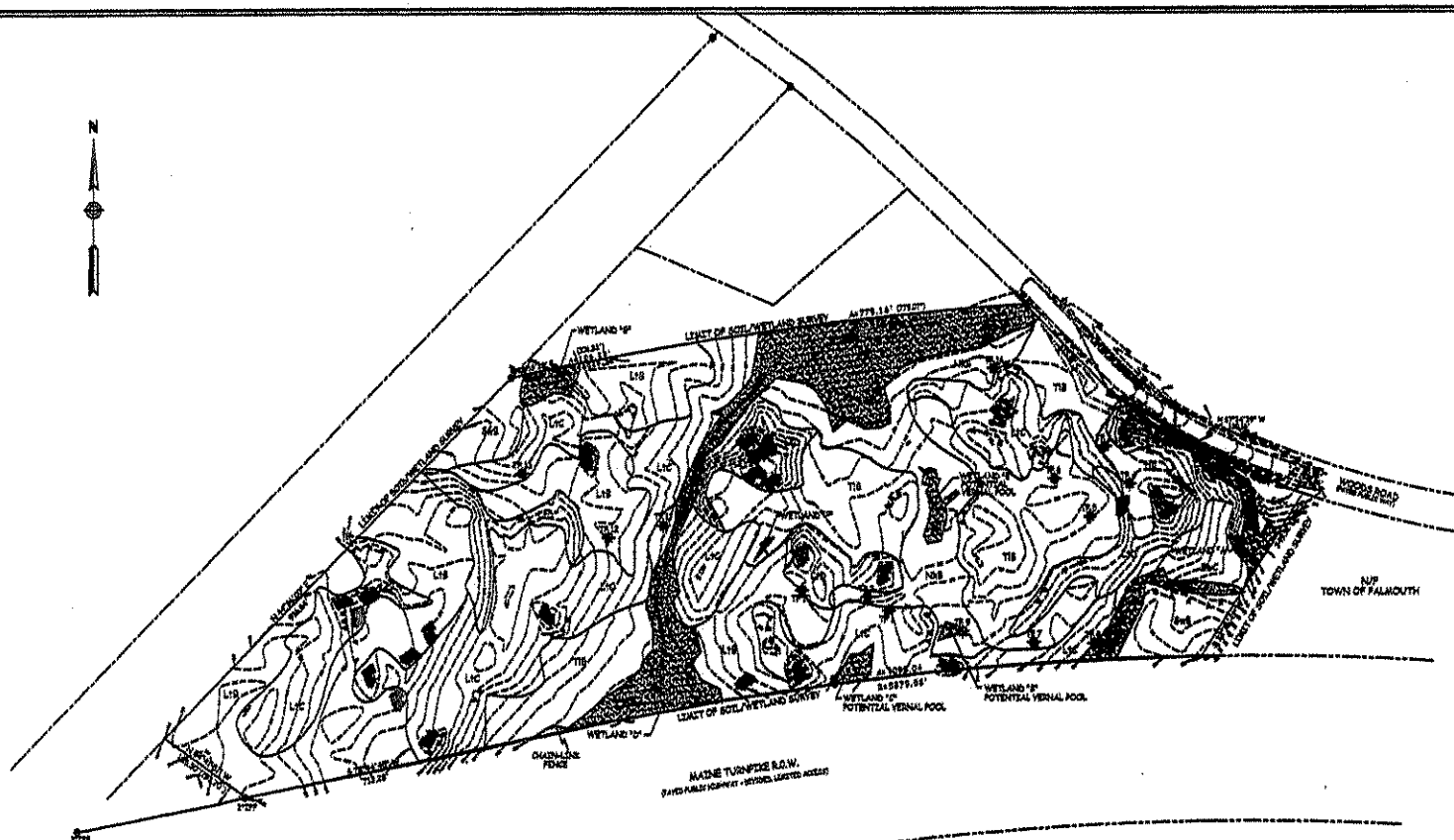
C.S.S. signature: _____ Date: 9/2/2006

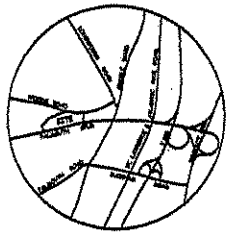
name: DALE A. BREWER Lic #304

STATE OF MAINE
DALE
A.
BREWER
No. 304
CERTIFIED
SOIL SCIENTIST

APPENDIX F

CLASS B HIGH-INTENSITY SOIL MAP





LEGEND

- TEST PIT
- BORING
- SOIL BOUNDARY
- BOULDER/STONY AREA
- ROCK OUTCROP
- STEEP SLOPES
- STREAM
- BORROW AREA

SOILS LEGEND

SYMBOLS	SERIES/COMPLEX	TEXTURE	SLOPE	DRAINAGE	HSG
LYB	LYMAN/TUNBRIDGE	LOAM/STONE SANDY LOAM	3-8%	SWED/WD	C/D
LYC	LYMAN/TUNBRIDGE	LOAM/STONE SANDY LOAM	8-15%	SWED/WD	C/D
LYD	LYMAN/TUNBRIDGE	LOAM/STONE SANDY LOAM	15%+	SWED/WD	C/D
NBB	NASSAU	FINE SANDY LOAM	3-8%	SWPD/PD	C
Pet	PEACHAM	MUCK	0-3%	VPD	D
TTB	TUNBRIDGE/LYMAN	FINE SANDY LOAM/LOAM	3-8%	WD/SWED	C/D
SCA	SCANTIC	SILT LOAM	0-3%	PD	D
SCB	SCANTIC	SILT LOAM	3-8%	PD	D
SWA	SWANTON	FINE SANDY LOAM	0-3%	SWPD/PD	C/D
SWB	SWANTON	FINE SANDY LOAM	3-8%	SWPD/PD	C/D
SWC	SWANTON	FINE SANDY LOAM	8-15%	SWPD/PD	C/D

SLOPE DESIGNATION

A	0-3%
B	3-8%
C	8-15%
D	15%+

GRAPHIC SCALE

0 50' 100' 200' 400'

CLASS B SOIL SURVEY/WETLAND NOTES

1. THIS CLASS B HIGH-INTENSITY SOIL SURVEY CONFORMS TO THE GUIDELINES FOR CERTIFIED SOIL SCIENTISTS FOR SOIL IDENTIFICATION AND MAPPING, DATED SEPTEMBER 2000 FOR CLASS B HIGH-INTENSITY SOIL SURVEY. THE SOIL MAP UNITS AS SHOWN ON THIS SOIL SURVEY WERE ON NOT DELINEATED FOR A PROPOSED POLICE STATION AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE.

2. THE BASE MAP IS BASED ON BOUNDARY AND TOPOGRAPHIC SURVEY WITH TWO FOOT CONTOUR INTERVALS, PROVIDED BY SACK BAY SOUNDINGS, INC.

3. TEST PITS #1 THROUGH #24 WERE DUG WITH AN EXCAVATOR. OTHER HAND DUG OBSERVATIONS NOT SHOWN.

4. SEE CLASS B HIGH-INTENSITY SOIL SURVEY REPORT FOR MORE DETAILED INFORMATION RELATED TO THIS SOIL MAP.

5. THE SHOWN WETLAND AREAS WERE DELINEATED BY STATEWIDE SURVEYS, INC. IN AUGUST 2006.

6. THE WETLAND MAPPING METHODOLOGY GENERALLY FOLLOWED THE 1987 ARMY CORPS OF ENGINEERS WETLAND DELINEATION MANUAL.

7. THE WETLANDS WERE LOCATED BY DALE BREWER OF SWSI, INC. WITH A TRIMBLE PRO-XRS GPS UNIT.

8. THE WETLANDS AS SHOWN WERE LOCATED BY GPS COULD VARY FROM SURVEYED LOCATIONS.

WETLANDS & CLASS B HIGH-INTENSITY SOIL SURVEY

ON

WOODS ROAD, FALMOUTH, MAINE

MADE FOR

PORT CITY ARCHITECTURE

65 NEWBURY STREET, PORTLAND, MAINE

STATEWIDE SURVEYS, INC.

LAND SURVEYORS & SOIL SCIENTISTS

98 Gannett Dr., South Portland, ME 04106

(207) 797-4005

Drawn By:	SCB	Date:	Job No.
Chkd By:	SCB	SEPTEMBER 2006	0608.14SW
Chkd By:	DAB	Scale:	Drawing No.
Sheet No.	1	1" = 100'	1