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February 20, 2026

Peter Britz, Director of Planning & Sustainability
Samantha Collins, Chair, Conservation Commission
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH 03801

Re: Creek Farm – Little Harbor Loop Trail Turnpike
City of Portsmouth Wetland Conditional Use Permit Application

Dear Director Britz and Chair Collins,

On behalf of the Society for the Protection of New Hampshire Forests, I hereby authorize the project described in the following application for a Wetland Conditional Use Permit, as well as the submission of said application.

Thank you and please feel free to contact us with any additional questions.

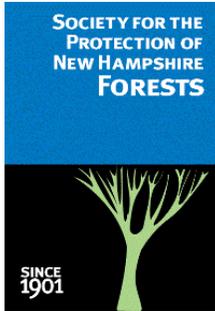
Sincerely,

Anne Truslow

Vice President for Development

February 22th, 2026

Samantha Collins, Chair, Conservation Commission
Rick Chellman, Chair, Planning Board
City of Portsmouth
1 Junkins Avenue
Portsmouth, NH, 03801



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Project Narrative

Wetland Conditional Use Permit
Creek Farm – Little Harbor Loop Trail Turnpike
Tax Map 203, Lot 8
400 Little Harbor Rd, Portsmouth, NH

Chair Collins and Chair Chellman,

The Society for the Protection of New Hampshire Forests (Forest Society) acquired Creek Farm in 2000. In 2011, the existing hiking trail along the shoreline at Creek Farm was formally connected with additional trails on neighboring city and state properties to establish the locally popular Little Harbor Loop Trail. The shoreline trail at Creek Farm was created prior to the Forest Society's ownership and not originally intended for significant public use. As the trail has grown in popularity over the recent decades, this relatively unimproved trail has seen extensive wear, and requires significant maintenance within certain sections, including the need to construct new trail features to address decades of erosion and compaction.

Within an approximately 300-foot section of the trail (see attached map for location reference), significant compaction and erosion of the trail surface has created a low-lying depression within the trail corridor. Since the trail is situated within relatively even terrain, the depression tends to collect water making the trail muddy and wet, especially in springtime, winter thaws, or after large rain events. During these seasonally wet trail conditions, many hikers walk around the edges of the mud to keep their feet dry, which has widened the trail over time, and has caused damage to the trail and the wetland buffer zone.

The Forest Society is proposing to construct two sections totaling 270 linear feet of turnpike through this section to address this problem. A "turnpike", as outlined in the New Hampshire Best Management Practices for Trail Construction and Maintenance manual, is a constructed trail feature built by importing fill material to establish a raised, durable, and well-drained tread surface above the existing trail tread. A layer of coarse crushed drainage

stone will be added first, with a layer of compacted aggregate on top, with geotextile fabric separating the layers from each other and the existing ground. The raised trail surface will be crowned and accompanied by a shallow ditch to either side of the turnpike, which drains water away from the structure. The sides of the raised structure may be retained with a low wall of rocks or landscape timbers, though this will be determined after consulting with a professional trail contractor. The completed turnpike will be about 5 feet wide, with an approximately 3-foot wide finished walking tread surface. Assorted light machinery for this project will likely include a small tracked carrier to transport material to the project site, a compact excavator or small skid steer for preparing the ground/setting rocks, and a plate compactor to stabilize the new surface material. Construction will follow all applicable BMPS outlined in the *Best Management Practices For Erosion Control During Trail Maintenance and Construction Manual* (NH DNCR, 2017). Silt socks will be installed along the project perimeter.

This section of the trail is within the 100ft buffer of the tidal wetland of Sagamore Creek, and the very westerly end of the turnpike (~40sq ft) is within the 100ft buffer of inland wetlands on the property. The tidal wetland buffer on the property is a mix of upland forest, shrubs, and lawn with much of the upland shrub areas being mostly invasive species, about 8% of the buffer area. Please see attached Wetland Delineation & Functional Assessment Report prepared in 2020 for the Creek Farm waterline replacement project for more information on the wetland and buffer areas.

Wetland Conditional Use Permit Criteria for Approval

1. The land is reasonably suited to the use, activity, or alteration.

The existing trail pre-dates the Forest Society's ownership of the property, with year-round non-motorized recreational uses including walking, snowshoeing, and skiing being popular and appropriate uses of this area. The wear currently seen on the trail is typical for a natural surface trail in this type of location and needs to be addressed to stop further resource damage.

2. There is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use, activity, or alteration.

To continue providing access to the scenic views and points of interest that the current trail accesses and connects, the trail must remain inside the wetland buffer. If the section of trail with the planned turnpike were relocated outside the wetland buffer, it would require impacts to the wetland

buffer in currently un-impacted areas so the relocated trail could reconnect with the existing trail. Given the nature of the surrounding terrain, any trail reroute would require being surfaced with a hardened fill material in a similar manner as the turnpike to avoid similar erosion and drainage problems in the long term. Relocating the trail would cause more significant ecological impacts within the wetland buffer than simply improving the trail in its existing location.

3. There will be no adverse impact on the wetland functional values of the site or surrounding properties.

This project will not have any substantive adverse impacts on any wetland resources or their functional values on the property, or any other surrounding property. By creating a more erosion resistant and dry trail surface that hikers will stay on, the project will protect and enhance wetland functional values by stopping the widening of the trail, as well as slowing erosion that could cause siltation into nearby wetlands.

4. Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals.

This project will create very little disturbance to any existing vegetation since the existing trail corridor is wide enough for the planned structure. In some narrower areas, the trail corridor would not need to be expanded by more than 1-2 feet temporarily to accommodate construction activities and is only needed in areas outside the vegetated buffer strip zone. The vegetation that would be removed along these narrower sections of trail is primarily state-recognized invasive species such as Glossy Buckthorn, European Honeysuckle, and Oriental Bittersweet.

There are several larger trees with large roots exposed by erosion of the trail. Wherever possible, these roots would be built over or around rather than removed, to reduce the likelihood of any impact to healthy trees.

5. The proposal is the alternative with the least adverse impact to areas and environments under the jurisdiction of this section.

A trail re-route is more impactful to the wetland buffer for reasons described in criteria 2. Other alternatives would be a wooden puncheon boardwalk, which would involve the construction of a substantial structure with increased use of pressure-treated wood and still require construction activity within the same existing footprint. A puncheon boardwalk would be less accessible to different users and would do less to address existing drainage issues than a turnpike.

6. Any area within the vegetated buffer strip will be returned to a natural state to the extent feasible.

This project will not create any permanent impact outside the existing trail corridor. With hikers staying on the new trail surface, areas impacted by hikers going around wet ground should revegetate naturally.

Impervious Surfaces and Wetland Buffer Enhancement Plan / Living Shoreline Strategy

Most municipalities consider trails to be impervious surfaces, as they already lack vegetation, and soils compacted by heavy use function as impervious surfaces in many ways. Since our project stays entirely within the existing trail, it would not increase impervious surfaces within the buffer.

Moreover, through the incorporation of well-draining layers of crushed stone in the turnpike, as well as ditches that will direct runoff, overall drainage the turnpike should overall improve drainage in the buffer. When combined with the project protecting vegetation and allowing natural re-vegetation of areas impacted by hikers widening the trail, we believe the project's overall benefits to the wetland buffer offset any "new" impervious surfaces from the creation of the turnpike.

For the same reason that we are not creating new impacts on the tidal wetland buffer, we determined we should not need a living shoreline strategy, in consultation with Kate Homet from the planning department, during a visit to the site.



City of Portsmouth, New Hampshire

Wetland Conditional Use Permit Application Checklist

This wetland conditional use permit application checklist is a tool designed to assist the applicant in the planning process and for preparing the application for Conservation Commission and Planning Board review. The checklist is required to be uploaded as part of your wetland conditional use permit application to ensure a full and complete application is submitted to the Planning and Sustainability Department and to the online portal. A pre-application conference with a member of the Planning and Sustainability Department is encouraged as additional project information may be required depending on the size and scope of the project. The applicant is cautioned that this checklist is only a guide and is not intended to be a complete list of all wetland conditional use permit requirements. Please refer to Article 10 of the City of Portsmouth Zoning Ordinance for full details.

Applicant Responsibilities: Applicable fees are due upon application submittal to the Planning Board (no fees are required for Conservation Commission submission). The application will be reviewed by Planning and Sustainability Department staff to determine completeness. Incomplete applications which do not provide required information for the evaluation of the proposed site development shall not be provided review by the Conservation Commission or Planning Board.

Name of Applicant: _____ Date Submitted: _____

Application # (in City's online permitting): _____

Site Address: _____ Map: _____ Lot: _____

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page or Plan Sheet/Note #)
<input type="checkbox"/>	Complete application form submitted via the City's web-based permitting program	
<input type="checkbox"/>	All application documents, plans, supporting documentation, this checklist and other materials uploaded to the application form in OpenGov in digital Portable Document Format (PDF) . One hard copy of all plans and materials shall be submitted to the Planning and Sustainability Department by the published deadline.	

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)
<input type="checkbox"/>	Basic property and wetland resource information. (10.1017.21)	
<input type="checkbox"/>	Additional information required for projects proposing greater than 250 square feet of permanent or temporary impacts. (10.1017.22)	
<input type="checkbox"/>	Demonstrate impacts as they relate to the criteria for approval set forth in Section 10.1017.50 (or Section 10.1017.60 in the case of utility installation in a right-of-way). (10.1017.23)	
<input type="checkbox"/>	Balance impervious surface impacts with removal and/or wetland buffer enhancement plan. (10.1017.24)	

<input checked="" type="checkbox"/>	Required Items for Submittal	Item Location (e.g. Page/line or Plan Sheet/Note #)
<input type="checkbox"/>	Wetland buffer enhancement plan. (10.1017.25)	
<input type="checkbox"/>	Living shoreline strategy provided for tidal wetland and/or tidal buffer impacts. (10.1017.26)	
<input type="checkbox"/>	Stormwater management must be in accordance with Best Management Practices including but not limited to: <i>1. New Hampshire Stormwater Manual, NHDES, current version.</i> <i>2. Best Management Practices to Control Non-point Source Pollution: A Guide for Citizens and City Officials, NHDES, January 2004.</i> (10.1018.10)	
<input type="checkbox"/>	Vegetated Buffer Strip slope of greater than or equal to 10%. (10.1018.22)	
<input type="checkbox"/>	Removal or cutting of vegetation, use of fertilizers, pesticides and herbicides. (10.1018.23/10.1018.24/10.1018.25)	
<input type="checkbox"/>	All new pavement within a wetland buffer shall be porous pavement. (10.1018.31)	
<input type="checkbox"/>	An application that proposes porous pavement in a wetland buffer shall include a pavement maintenance plan. (10.1018.32)	
<input type="checkbox"/>	Permanent wetland boundary markers shall be shown on the plan submitted with an application for a conditional use permit and shall be installed during project construction. (10.1018.40)	
<input checked="" type="checkbox"/>	Requested Items for Submittal	Item Location (e.g. Page or Plan Sheet/Note #)
<input type="checkbox"/>	A narrative/letter addressed to the Conservation Commission Chair (if recommended to Planning Board then an additional narrative addressed to the Planning Board Chair at that time) describing the project and any proposed wetland and/or wetland buffer impacts. Please visit the WCUP instruction page for further application instructions.	
<input type="checkbox"/>	If New Hampshire Department of Environmental Services (NHDES) Standard Dredge and Fill Permit is required for this work, please provide this permit application at the same time as your submission for a Wetland Conditional Use Permit.	

Applicant's Signature:  Date: _____

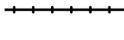
Proposed Trail Turnpike Little Harbor Loop Trail Creek Farm

400 Little Harbor Road
Portsmouth, NH
Tax Map 203, Lot 08

City of Portsmouth Wetlands Conditional Use Permit Site Plan

Date Submitted: 2/20/2026

Legend

-  Highest Observable Tide
-  Wetlands
-  100 ft Tidal Wetland Buffer
-  40 ft Vegetated Buffer Strip
-  100 ft Freshwater Wetland Buffer
-  Little Harbor Loop Trail
-  Turnpike to be constructed
-  Erosion Control
-  Access Road
-  2 foot Contour Interval
-  10 foot Index Contour Interval

Scale:
(22" x 34") - 1" = 15'
(11" x 17") - 1" = 30'

Prepared By:
Dylan Summers
Stewardship Project Manager
Society for the Protection of New Hampshire
Forests
dsommers@forestsociety.org
(603) 224-9945

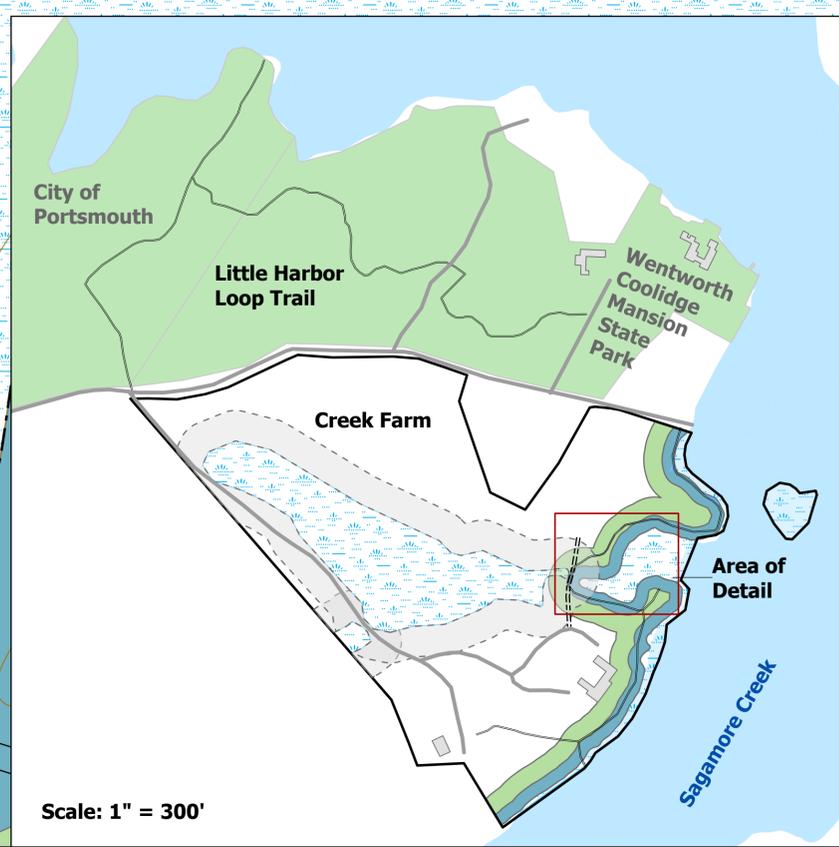
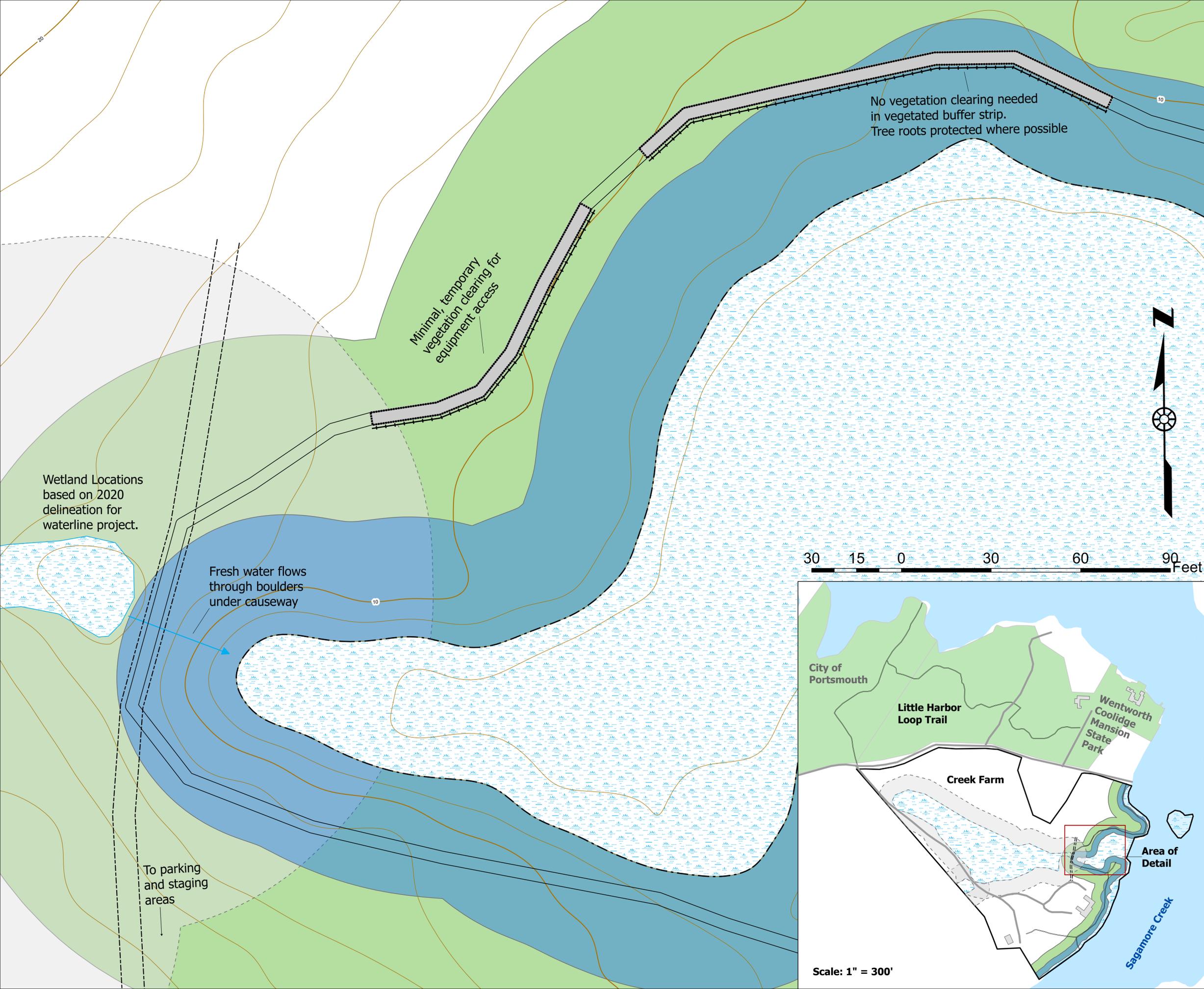
Owner/Applicant:
Society for the
Protection of New
Hampshire Forests

54 Portsmouth St.
Concord, NH, 03301

(603) 224-9945

www.forestsociety.org

**SOCIETY FOR THE
PROTECTION OF
NEW HAMPSHIRE
FORESTS**



TYPE 2 - STANDARD TURNPIKE WITH FOUNDATION

TYPICAL ID	GEOTEXTILE			RETAINER*		DITCH					FOUNDATION**	COMMENTS	
	TYPE	TOP	BTM	TYPE	TYPE	LOCATION				TYPE			
						LT	RT	(D)	(E)		(F)		(G)
TPF-1	G			R								FD	

N/A WHEN NOT APPLICABLE
 *FOR TYPICAL RETAINERS SEE SHEET STD_911-03
 **FOR FOUNDATIONS SEE SECTION STD_918

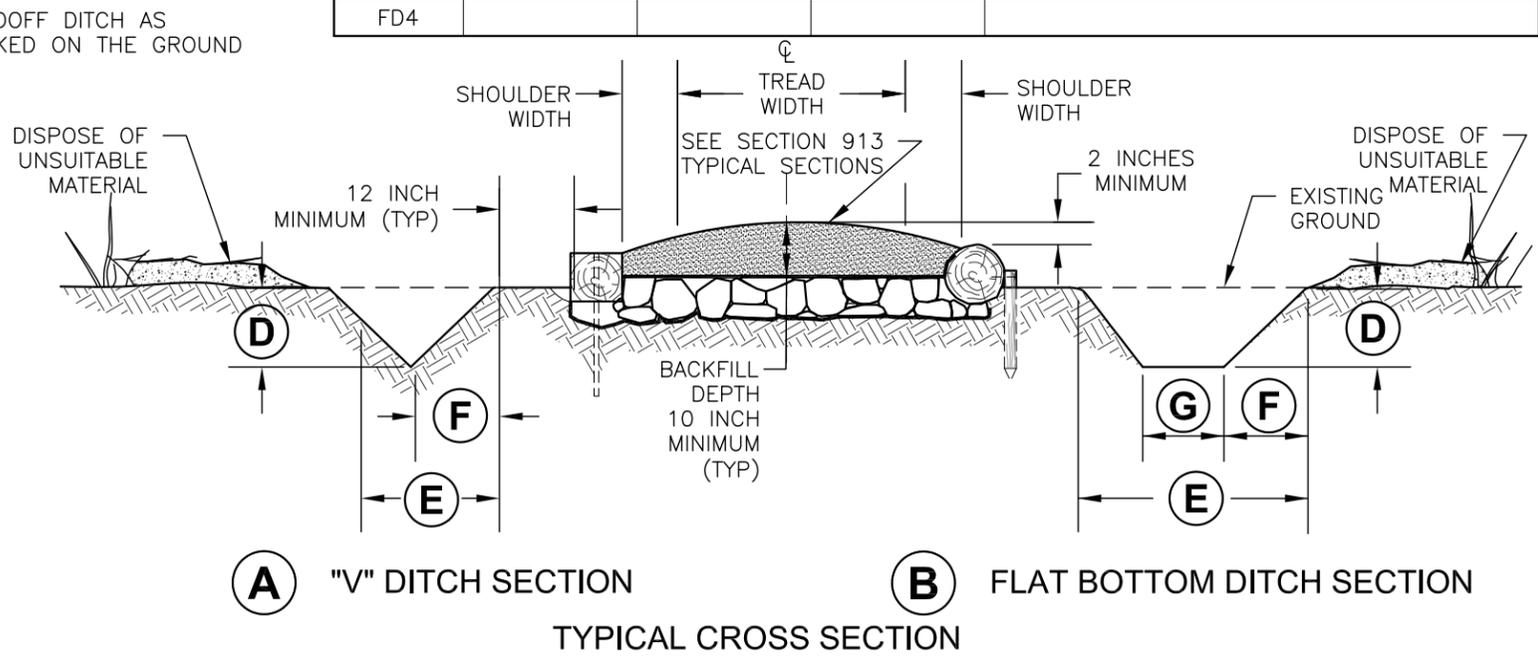
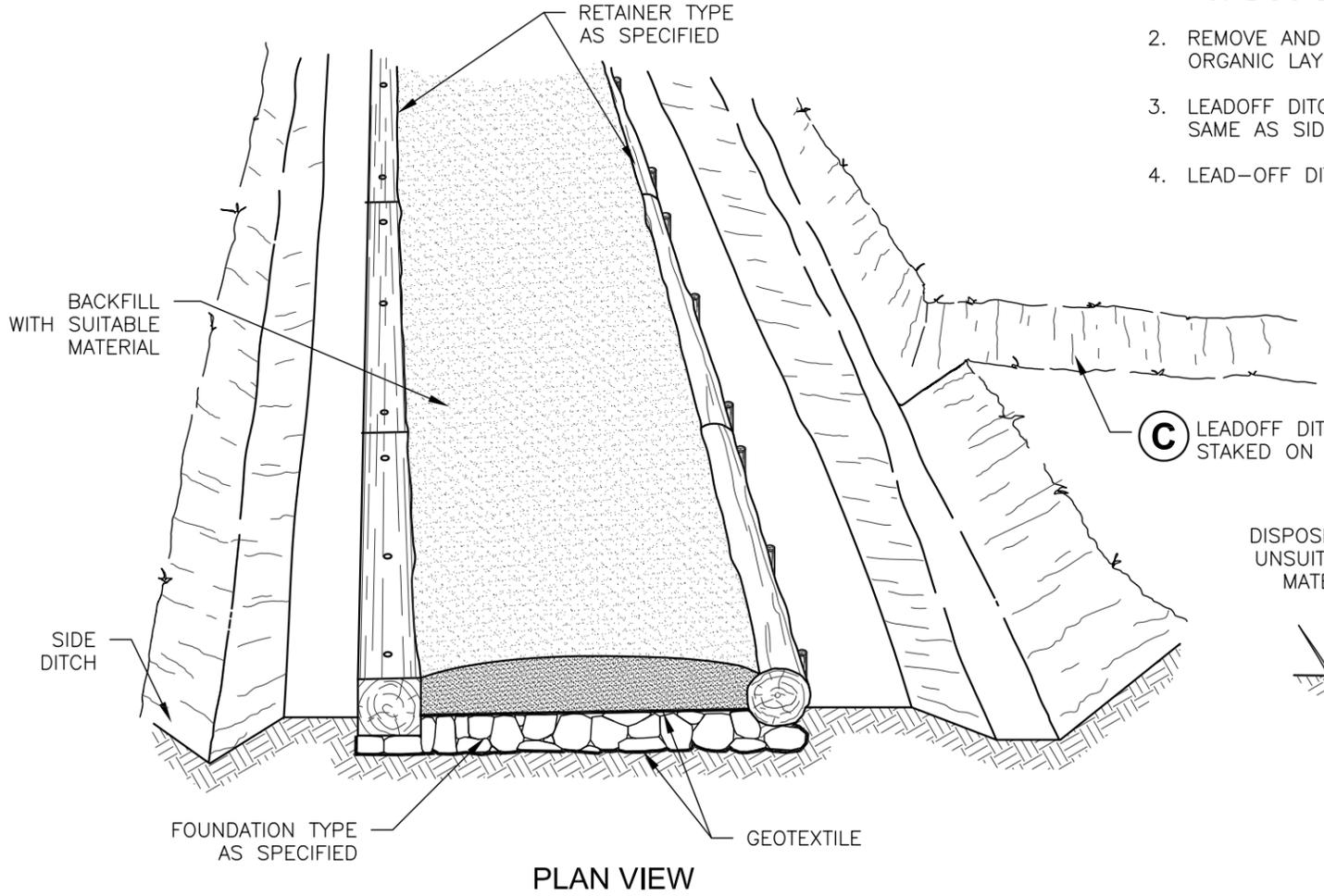
- NOTES:
1. COMPACT BACKFILL IN 6 INCH LIFTS UNTIL NO VISUAL DISPLACEMENT.
 2. REMOVE AND DISPOSE OF DUFF AND TOP ORGANIC LAYERS DOWN TO MINERAL SOIL.
 3. LEADOFF DITCH TO BE CONSTRUCTED THE SAME AS SIDE DITCHES.
 4. LEAD-OFF DITCH TO DRAIN TO DAYLIGHT.

GEOTEXTILE TYPE

TYPE	MATERIAL	COMMENTS
G1	NON-WOVEN	
G2	WOVEN	
G3		

IN-FILL MATERIAL TYPE

TYPE	MATERIAL	ROCK SIZE	GRADATION %	COMMENTS
FD1	AGGREGATE	1 INCH MINUS		
FD2	COARSE ROCK	4 TO 6 INCH		
FD3	HEAVY ROCK	8 INCH +		
FD4				



Project Area Photo Exhibit 1



Taken from eastern end
of west section of
proposed turnpike,
looking west.
Visible impact on the
right side of the photo
from hikers
circumventing wet trail



**Project Area
Photo Exhibit 2**

**Taken from the
middle of the
eastern section
of proposed
turnpike,
looking west
Visible impact
on right side of
photo of hikers
avoiding wet
trail**

**WETLAND DELINEATION
&
FUNCTIONAL ASSESSMENT REPORT**

FOR

**CREEK FARM
400 LITTLE HARBOR ROAD
PORTSMOUTH, NEW HAMPSHIRE**

PREPARED FOR:

**ALTUS ENGINEERING, INC.
133 COURT STREET
PORTSMOUTH, NEW HAMPSHIRE 03801**

PREPARED BY:

**JOSEPH W. NOEL
P.O. BOX 174
SOUTH BERWICK, MAINE 03908**

**JWN# 95-445
MARCH 23, 2020**

JOSEPH W. NOEL
P.O. BOX 174
SOUTH BERWICK, MAINE 03908
(207) 384-5587

CERTIFIED SOIL SCIENTIST

*

WETLAND SCIENTIST

*

LICENSED SITE EVALUATOR

INTRODUCTION

This report replaces the Partial Wetland Delineation Report/Letter dated January 22, 2020. This report was prepared to aid in the review of the proposed municipal waterline replacement (930'+/- linear feet) for Creek Farm. The property is 30.20+/- acres and is located at 400 Little Harbor Road in Portsmouth, New Hampshire. No direct wetland impacts are planned but the proposed project will require encroaching into the 100-foot wetland buffer to relocate and replace a portion of the waterline serving the property. This Functional Assessment is for the freshwater wetland not the adjacent downstream tidal wetland associated with Sagamore Creek.

WETLAND DELINEATION

To determine the wetland boundary, the methodologies in the U.S. Army Corps of Engineers document *Corps of Engineers Wetlands Delineation Manual* (1987) along with the required *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, (Version 2.0) were used. Wetlands were identified based on soils, vegetation, and wetland hydrology. Except in special cases, all three factors (hydric soils, hydrophytic vegetation, and wetland hydrology) must be present for an area to classify as wetland. A predominance of wetland and upland vegetation was determined from visual estimates in the vegetative layers (herbaceous, shrub, sapling, and tree layers). Plant species indicator status was based on the U.S. Army Corps of Engineers publication *National Wetland Plant List* (2016).

Shallow soil observations were made using a hand auger to assess the soil morphological features and to examine for wetland hydrology. Hydric soil determinations were conducted in accordance with the United States Department of Agriculture, Natural Resources Conservation Service document *Field Indicators of Hydric Soils in the United States, Version 8.1* (2017) along with the manual *Field Indicators for Identifying Hydric Soils in New England* (Version 4, April 2019).

The freshwater wetland boundary in the vicinity of the proposed waterline replacement/relocation was field delineated with sequentially numbered pink and black striped flagging on December 13, 2019. Flagged sequence A1 thru A8 delineates a portion of the freshwater wetland southwest of the former "Carriage House" now unoccupied and used for storage (not part of the wetland assessment area). Flagged sequences B1 thru B20 delineate a portion of the freshwater wetland north of Creek Farm and west of a Sagamore Creek tidal inlet (wetland assessment wetland). The freshwater and tidal wetlands are separated by a culverted trail (culvert type unknown - may be an old stone culvert or simply stone/boulder pile serving as a drainageway). The tidal boundary or HOTL was flagged with blue flagging on April 24, 2019 and extended on December 13, 2019. These flags were located by Knight Hill Land Surveying Services, Inc. and placed on the project plans.

FUNCTIONAL ASSESSMENT

The majority of the freshwater wetland being assessed is nearly level to gently sloping and dominated by a scrub-shrub plant community with forested edges and pockets of emergent vegetation. The National Wetland Inventory (NWI) database classifies the wetland as PFO1C (palustrine, forested, broad-leaved deciduous, seasonally flooded), PSS1C (palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded), and PEM1C (palustrine, emergent, persistent, seasonally flooded). The soils are poorly drained and fine textured. Project plans show no direct wetland impacts will occur. No formal vernal pool survey was conducted by the undersigned; however, the delineated wetlands near the proposed project did not appear to have the physical characteristics of a vernal pool. Refer to attached photos of the wetland systems and the trail where the waterline will be crossing.

The parcel contains an old farm/estate that contains the main house and the Creek Farm Cottage that was originally built in the 1800s. In ~1997 a conservation easement was established and in 2000 the Society For the Protection Of Forests acquired the property as a conservation area. Currently the land is being used for hiking trails, outdoor education, tree farm, bird sanctuary and wildlife refuge. The freshwater wetland drains down to Sagamore Creek through a constricted outlet (intermittent stream section and wetland swale with a portion that was dug out a long time ago to improve drainage out of the freshwater wetland system.

METHODOLOGY

Provided by Altus Engineering, Inc. for the wetland assessment was a plan with the existing condition and where the proposed waterline is being replaced/rerouted. Also reviewed by the undersigned were the following resource maps: NH Wetland Mapper map, NRCS soil survey, FEMA map, and the NWI map. The fieldwork portion of the wetland assessment was conducted on March 1, 2020 using *The Highway Methodology Workbook Supplement: Wetland Functions and Values, A Descriptive Approach* (US Army Corps of Engineers, New England Division, 1999). One completed Wetland Function-Value Evaluation Form has been included (refer to Attachments for details). There is one identified rare species or exemplary community documented on the site by the New Hampshire Natural Heritage Bureau (NHB). Marsh elder/jesuit's-bark (*Iva frutescens*) is documented but is not in the wetland being assessed. A survey was conducted by the undersigned in close proximity to the project and two additional small communities were noted on the upper banks of the downstream tidal system (located ~70' or more from the waterline project). Attached are plant and wildlife lists of the subject development area (not detailed lists of the entire property). Observations were also limited due to winter conditions. The FEMA map verified that the wetland is not within the 100 year floodplain. There are no downstream public or private wells (municipal water on-site). The USGS shows a blue line associated with the subject wetland, however, this stream appears to be dug out in some areas and more intermittent in nature in the freshwater wetland from the limited site observations (refer to stream photo in Attachment section).

The Highway Methodology utilizes list of considerations/qualifiers to assist in determining the presence and evaluating the importance of the following functions and values. The description

of each function and value comes directly from *The Highway Methodology Workbook Supplement* (1999).

- 1) Groundwater Recharge/Discharge – This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area.
- 2) Floodflow Alteration – This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters.
- 3) Fish and Shellfish Habitat (Freshwater) – This function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat
- 4) Sediment/Toxicant/Pathogen Retention – This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.
- 5) Nutrient Removal/Retention/Transformation – This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels.
- 6) Production Export – This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.
- 7) Sediment/Shoreline Stabilization – This function considers the effectiveness of a wetland to stabilize streambanks and shorelines against erosion.
- 8) Wildlife Habitat – This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge.
- 9) Recreation – This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting, and other passive recreational activities.
- 10) Education/Scientific Value – This value considers the suitability of the wetland as a site for an "outdoor classroom" or a location for scientific study or research.
- 11) Uniqueness/Heritage – This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values.
- 12) Visual Quality/Aesthetics – This value considers the visual and aesthetic quality or usefulness of the wetland.
- 13) Endangered Species Habitat – This value considers the suitability of the wetland to support threatened or endangered species.

FUNCTION AND VALUES DISCUSSION

The wetlands will not be directly impacted by the proposed waterline. There is one principle function in the wetland system (i.e., Wildlife Habitat). This wetland is favorable for birds (migrating, nesting, etc.) along with a number of smaller mammals. Deer use was also noted in the wetland. Two other principle values were noted but had more to do with the area adjacent to or surrounding the freshwater wetland (i.e., Recreation and Education/Scientific Value). In addition, the wetland system does provide the following functions and values: Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Nutrient Removal, Production Export, Uniqueness/Heritage, and Visual Quality/Aesthetics. The wetland does not

provide the following functions and values: Fish and Shellfish Habitat, Sediment/Shoreline Stabilization, or Endangered Species Habitat. The adjacent tidal wetland does provide these values and should be considered a highly valuable wetland system. No Historic Preservation database review was provided. This should be conducted due to the historic nature of the site (first settled in 1640).

The wetland buffer to be impacted is almost all along the existing trail system and through an overgrown old field that is dominated by invasive species. The water line is planned in uplands represented by invasive plant species such as: asian bittersweet (*Celastrus orbiculatus*), japanese-knotweed (*Reynoutria japonica*), european buckthorn (*Rhamnus cathartica*), european barberry (*Berberis vulgaris*), japanese barberry (*Berberis thunbergii*), glossy false buckthorn (*Frangula alnus*), rambler rose (*Rosa multiflora*), honeysuckles (*Lonicera spp.*), norway maple (*Acer platanoides*), and black locust (*Robinia pseudoacacia*). These invasive plants are listed in the *New Hampshire Guide to Upland Invasive Species* (2011) or the NH Invasive Plant Species Watch List (April 24, 2019). In addition to the aforementioned invasive plants: eastern white pine (*Pinus strobus*), northern red oak (*Quercus rubra*), quaking aspen (*Populus tremuloides*), apple (*Malus sp.*), stag-horn sumac (*Rhus typhina*), sensitive fern (*Onoclea sensibilis*), and grape (*Vitis sp.*) were also noted. The water line will pass through an existing narrow stone culverted trail where the freshwater "B" flagged series drains to the tidal creek (i.e., wetlands separated by trail). The downslope side of the trail where the waterline is crossing is essentially boulders. The upslope side of the trail is the freshwater wetland. Plant species noted on the upslope side of the trail and in close proximity to the trail in the freshwater wetland included: rambler rose, sedges, smooth arrow-wood, sedges, Japanese barberry, asian bittersweet, and buckthorn. Observations were limited due the winter conditions and area just upslope was still iced over. The trail where the waterline will be crossing between the two wetland systems is the natural constricted point of the freshwater wetland system and being adjacent to the tidal system, this crossing was most likely established here back in the late 1800's.

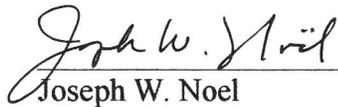
The upland soils are shallow to moderately deep to bedrock (i.e., ranging from 10 to 40 inches deep) with textures ranging from fine sandy loam to loamy sand. The hydric soils within the freshwater wetlands are primarily fine textured (i.e., very fine sandy loam or finer).

By using the existing gravel path to cross between the wetland system (where existing line is) and rerouting the balance of the waterline through upland that are further away from the tidal system than the existing waterline, there will be no permanent impacts to the wetland buffer or the wetland systems from the new waterline. This will also be further away from the marsh elder communities.

Selective thinning of the vegetation will also occur within the 100-foot buffer. By removing the invasive species, etc. a more natural plant community/buffer could regenerate here. Proper removal of the invasive species should be conducted to prevent further spread. Contractors should be familiar with proper removal of these plants (e.g., *New Hampshire Guide to Upland Invasive Species* publication is one guide that provides proper removal of invasive species). Soil disturbance will be limited to the waterline corridor, this will not impact the wetlands function and values. This should enhance the wetland buffer.

Wildlife Habitat is the function that will be temporarily impacted by the proposed development. White-tailed deer rubs were noted but wildlife observations were very limited due to the time of

year and several groups of people walking their leashed dogs on the trail system. The impacts to the wildlife will be temporary during the construction of the waterline. The wildlife will return after the construction is completed. Kim Tuttle of the NHB also noted concerns about a nearby bat hibernacula and voluntary recommendations provided Ms. Tuttle in her email dated March 6, 2020 should be followed. If Best Management Practices are strictly adhered to along with the other design features to limit impacts (e.g., SiltSoxx will be installed around the project limits), there should be no secondary impacts to the wetlands or direct impacts to the wetland buffers. This will also be the case with the highly valuable tidal wetland that is downstream. Refer to Altus Engineering, Inc. plans for details on erosion control, etc. Please note, the NH Wetland Functional Assessment worksheet was referred to but is not part of this report. All pertinent information discussed in the worksheet is included in the narrative report or the attached Corps Wetland Function-Value Form.



Joseph W. Noel
New Hampshire Certified Soil Scientist #017
New Hampshire Certified Wetland Scientist #086



ATTACHMENTS

PHOTOS

Creek Farm - 400 Little Harbor Road - Portsmouth, New Hampshire

(Photos taken by Joseph W. Noel on March 1, 2020)



Walkway Where Waterline Crosses Between Wetlands



From The Walkway Looking At The Freshwater Wetland

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From Walkway Looking At the Tidal Wetland



Overview Of Wetland Assessment Wetland (Forested Example)

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Overview Of Wetland Assessment Wetland (Scrub-Shrub Example)



Overview Of Wetland Assessment Wetland (Emergent Example)

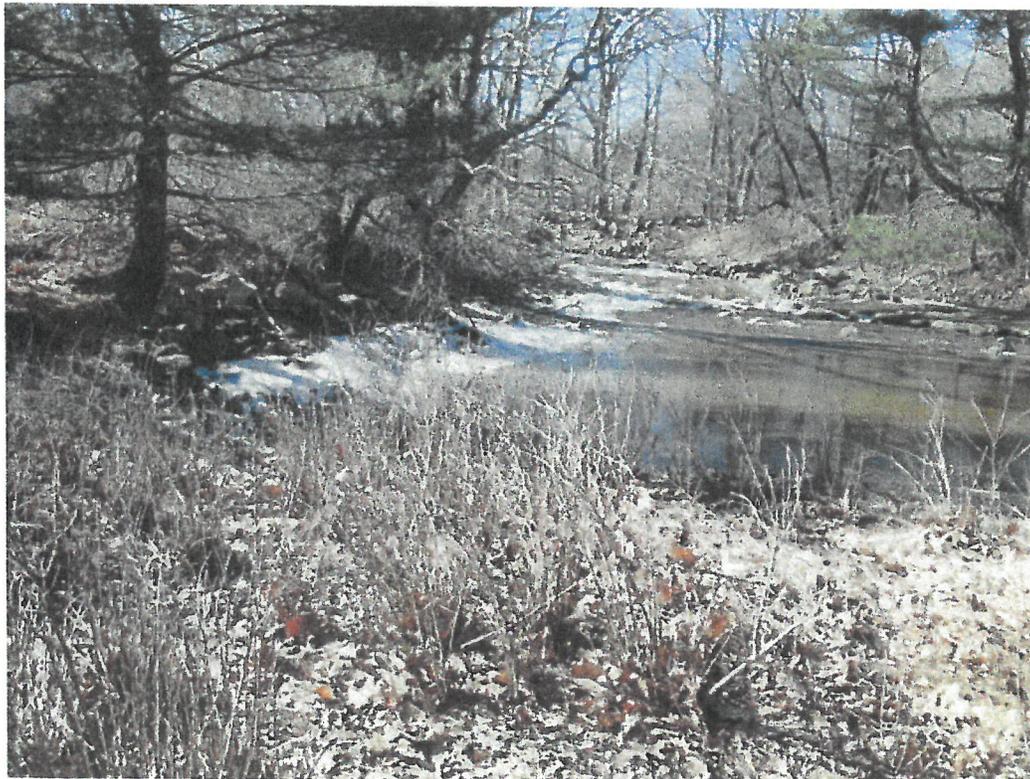
PHOTOS

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Intermittent Stream Segment Leaving Wetland System Upslope From Walkway



Jesuit's-bark (*Iva frutescens*) – Also Known As Marsh Elder Or High-tide Bush Community

Wetland Function-Value Evaluation Form (freshwater wetland only – not downstream tidal wetland)

Total area of wetland 5.2 +/- Human made? No Is wetland part of a wildlife corridor? No or a "habitat island"? No
 Adjacent land use Residential/Homes Distance to nearest roadway or other development <100 feet No
 Dominant wetland system present PSS1 Contiguous undeveloped buffer zone present No
 Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? _____
 How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list) yes attached _____
 PFO Swale

Wetland I.D. Unnamed freshwater wetland
 Latitude 43.059 Longitude 70.741
 Prepared by: JWN NHCWS #086 Date 3/23/2020
 Wetland Impacts: amount subject to change (no direct impacts)
 Type N/A Amount N/A
 Evaluation based on: Office – Yes Field – Yes
 Corps manual wetland delineation
 Completed? Yes

Function/Value	Suitability		Rationale (Reference #)	Principal Function(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	X		6, (7), 9, 10	No	Fine-textured soils limit this function, discharge via intermittent stream/wetland swale only near outlet may contribute to limited groundwater recharge. Wetlands near project (waterline crossing) drain to Sagamore Creek Tidal wetland.
Floodflow Alteration	X		3, (6), (7), 9, 15 (18)	No	Subject wetland provides limited flood storage from surrounding uplands, Intermittent stream/wetland swale drains to Sagamore Creek via a bedrock natural constricted outlet. Limited floodplain storage near waterline
Fish and Shellfish Habitat (Freshwater)		X	1	No	This function does not appear to apply to the freshwater wetland system. Just downstream of the evaluation area is a special aquatic site.
Sediment/Toxicant Retention	X		4, 7, 8, 9, (10), 13, 14, 16	No	Freshwater wetland has negligible surface water. Wetland structure (basin) can trap sediment. Contains constricted outlet. Some dense vegetation. Limited opportunity exists to trap sediments from overland flow from adjacent parking areas.
Nutrient Removal	X		3, 7, 8, 9, 11, 12, 13, 14	No	Minor potential for nutrient uptake exist, lack of persistent deep open water, little dense vegetation except in limited areas
Production Export	X		1, 2, 4, 5, (7), 12	No	Seeds, fruits, berries, etc., are present intermittent stream provides mode of transportation
Sediment/Shoreline Stabilization		X	2, 7, (9), 12, 15	No	Intermittent stream/wetland swale outlets to Sagamore Creek. No erosive forces in freshwater wetland.
Wildlife Habitat	X		3, (4), 5, 7, 8, 11, (13), (15), 16, 17, 18, 19, (21)	Yes	Favorable for birds (migrating, nesting, insect source, etc.), small mammals, etc. Limited wildlife observations due to winter conditions. Adjacent forested uplands and tidal system increase this function.
Recreation	X		1, (4), 5, 7, 8, 10, 11, 12	Yes*	* = not in freshwater wetland itself but existing trail system provides opportunity for hiking, birdwatching, etc.. Access to available parking.
Educational/Scientific Value	X		(1), 3, (4), 5, 6, 8, 9, 10, 13, 15, 16	Yes*	* = not in freshwater wetland. Lacks unusual wetland plant community in freshwater wetland, parking is available, handicap accessible.
Uniqueness/Heritage	X		4, 5, 7, 8, 9, 10, 12, (13), (15), 19, (20)	No	Downstream tidal wetland has threatend plant. Trail system with some limited views of freshwater wetland.
Visual Quality/Aesthetics	X		1, 3, 4, 5, 7, 8, (9), 10	No	Freshwater wetland is not unique. Database search should be conducted for historic features – part of old farm estate dating back to 1887 & first settled in 1640. Downstream is man-made tidal pool.
Endangered Species Habitat		X	(1)	No	Freshwater wetland is not visually distinct – parking available – trail access provided - Sagamore Creek (adjacent is high quality)
Ecological Integrity (Required For NH Permits)		X	N/A	No	No trees will be cut for the proposed waterline. NHB and NHFG reviewed proposed project – no expected impacts to sensitive wildlife or the Marsh Elder plant communities (noted during wetland assessment) A review should be conducted with the Federal Wildlife Service (IPAC) (not provided for the wetland assessment). Old farmland (not natural area), invasive plant species noted in the area, trail system/road in wetland buffer, parking areas, man-made tidal pool, ditch out just upstream from the walkway – alter the natural communities

Sagamore Creek tidal/marine system (very valuable wetland system) is downstream of the walkway (i.e., where waterline will cross). The tidal system is not part of this wetland assessment but pertinent comments will be included. The watershed is ~3.5 acres and the freshwater wetland being assessed is ~5.2 acres per NH Wetland Mapper.

Plant List

Alder-leaf buckthorn
Allegheny blackberry
American bittersweet
Apple
Asian bittersweet
Barberry
Black cherry
Black locust
Bluejoint
Bristly dewberry
Broad-leaf cat-tail
Burning bush
Common winterberry
Cottongrass bulrush
Eastern marsh fern
Eastern poison ivy
Eastern white pine
European barberry
European buckthorn
Fringed sedge
Glossy False Buckthorn
Grape
Honeysuckle
Horsetail
Japanese barberry
Japanese-knotweed
Jesuit's-bark
Lamp rush
Maleberry
New England American-aster
New York fern
Northern bayberry
Northern bracken fern
Northern red oak
Norway maple
Pointed broom sedge
Possumhaw
Purple loosestrife
Quaking aspen
Rambler rose
Red maple
Royal fern
Sedges
Sensitive fern

Rhamnus alnifolia
Rubus allegheniensis
Celastrus scandens
Malus sp.
Celastrus orbiculatus
Berberis sp.
Prunus serotina
Robinia pseudoacacia
Calamagrostis canadensis
Rubus hispidus
Typha latifolia
Euonymus alatus
Ilex verticillata
Scirpus cyperinus
Thelypteris palustris
Toxicodendron radicans
Pinus strobus
Berberis vulgaris
Rhamnus cathartica
Carex crinita
Frangula alnus
Vitis sp.
Lonicera spp.
Equisetum sp.
Berberis thunbergii
Reynoutria japonica
Iva frutescens
Juncus effusus
Lyonia ligustrina
Symphotrichum novae-angliae
Parathelypteris noveboracensis
Morella pensylvanica
Pteridium aquilinum
Quercus rubra
Acer platanoides
Carex scoparia
Viburnum nudum
Lythrum salicaria
Populus tremuloides
Rosa multiflora
Acer rubrum
Osmunda spectabilis
Carex spp.
Onoclea sensibilis

Shag-bark hickory
Silky dogwood
Smooth arrow-wood
Speckled alder
Stag-horn sumac
Steeplebush
White meadowsweet
Willowherb

Carya ovata
Cornus amomum
Viburnum recognitum
Alnus incana
Rhus typhina
Spiraea tomentosa
Spiraea alba
Epilobium sp.

Wildlife List

American crow	<i>Corvus brachyrhynchos</i>
Black-capped chickadee	<i>Poecile atricapillus</i>
Blue jay	<i>Cyanocitta cristata</i>
Cardinal	<i>Cardinalis cardinalis</i>
Carolina wren	<i>Thryothorus ludovicianus</i>
Downy woodpecker	<i>Picoides pubescens</i>
Eastern chipmunk	<i>Tamias striatus</i>
Eastern gray squirrel	<i>Sciurus carolinensis</i>
Nuthatch	<i>Sitta sp.</i>
White-tailed deer	<i>Odocoileus virginianus</i>

** A complete wildlife survey was not conducted. Observations from visual sightings, scat, and tracks.