STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

DATE: March 20, 2023

FROM: Andrew O'Sullivan
Wetlands Program Manager

AT (OFFICE): Department of Transportation
Bureau of Environment

SUBJECT Dredge & Fill Application
Seabrook-Hampton 15904

TO: Karl Benedict, Public Works Permitting Officer
New Hampshire Wetlands Bureau
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

Forwarded herewith is the application package prepared by NH DOT Bureau of Bridge Design for the subject major impact project. The project involves the replacement of the Neil R. Underwood Bridge (Bridge No. 235/025) that carries NH Route 1A over the Hampton River at the inlet to Hampton Harbor. The proposed bridge consists of a 1,300 foot long, seven span, structural steel, fixed bridge located approximately 75 feet west of the existing bascule bridge.

This project was reviewed at the Natural Resource Agency Coordination Meeting on August 15, 2018, January 16, 2019, December 16, 2020, and July 20, 2022. A copy of the minutes has been included with this application package. A copy of this application and plans can be accessed on the Departments website via the following link: http://www.nh.gov/dot/org/projectdevelopment/environment/units/program-management/wetland-applications.htm.

NHDOT anticipates and request that this project be reviewed and permitted by the Army Corp of Engineers through the State Programmatic General Permit process. A copy of the application has been sent to the Army Corp of Engineers.

Mitigation was determined to be required for the project.

The lead people to contact for this project are David Scott, Bureau of Bridge Design (271-1613 or Jennifer.E.Reczek@dot.nh.gov) or Andrew O'Sullivan, Wetlands Program Manager, Bureau of Environment (271-3226 or Andrew.O'Sullivan@dot.nh.gov).

A payment voucher has been processed for this application **(Voucher # 713212**) in the amount of $30,000.

If and when this application meets with the approval of the Bureau, please send the permit directly to Andrew O'Sullivan, Wetlands Program Manager, Bureau of Environment.

AMO:
cc:
BOE Original
Town of Seabrook (4 copies via certified mail)
Town of Hampton (4 copies via certified mail)
David Trubey, NH Division of Historic Resources (Cultural Review Within)
John Magee, NH Fish & Game (via electronic notification)
Maria Tur, US Fish & Wildlife (via electronic notification)
Jeanie Brochi, US Environmental Protection Agency (via electronic notification)
Michael Hicks & Rick Kristoff, US Army Corp of Engineers (via electronic notification)
Kevin Nyhan, BOE (via electronic notification)

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NH Dredge and Fill Permit Application

New Hampshire Department of Transportation
Seabrook-Hampton 15904
Seabrook and Hampton, New Hampshire
X-A001(026)
March 2023

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STANDARD DREDGE AND FILL WETLANDS PERMIT APPLICATION

Water Division/Land Resources Management
Wetlands Bureau

Check the Status of your Application

RSA/Rule: RSA 482-A/Env-Wt 100-900

APPLICANT'S NAME: **New Hampshire Dept. of Transportation** **TOWN NAME:** Seabrook/Hampton

Administrative Use Only	Administrative Use Only	Administrative Use Only	File No.:
			Check No.:
			Amount:
			Initials:

A person may request a waiver of the requirements in Rules Env-Wt 100-900 to accommodate situations where strict adherence to the requirements would not be in the best interest of the public or the environment but is still in compliance with RSA 482-A. A person may also request a waiver of the standards for existing dwellings over water pursuant to RSA 482-A:26, III(b). For more information, please consult the Waiver Request Form.

SECTION 1 - REQUIRED PLANNING FOR ALL PROJECTS (Env-Wt 306.05; RSA 482-A:3, I(d)(2))

Please use the Wetland Permit Planning Tool (WPPT), the Natural Heritage Bureau (NHB) DataCheck Tool, the Aquatic Restoration Mapper, or other sources to assist in identifying key features such as: priority resource areas (PRAs), protected species or habitats, coastal areas, designated rivers, or designated prime wetlands.

Has the required planning been completed?	☒ Yes ☐ No
Does the property contain a PRA? If yes, provide the following information:	☒ Yes ☐ No
• Does the project qualify for an Impact Classification Adjustment (e.g. NH Fish and Game Department (NHF&G) and NHB agreement for a classification downgrade) or a Project-Type Exception (e.g. Maintenance or Statutory Permit-by-Notification (SPN) project)? See Env-Wt 407.02 and Env-Wt 407.04.	☐ Yes ☒ No
• Protected species or habitat? o If yes, species or habitat name(s): Beach grass grassland, intertidal flat, subtidal system, piping plover, least tern, purple martin, seaside threeawn, hairy hudsonia, Gray's umbrella sedge, seaside sandmat, field wormwood, and sand dropseed o NHB Project ID #: 22-2450	☒ Yes ☐ No
• Bog?	☐ Yes ☒ No
• Floodplain wetland contiguous to a tier 3 or higher watercourse?	☒ Yes ☐ No
• Designated prime wetland or duly-established 100-foot buffer?	☐ Yes ☒ No
• Sand dune, tidal wetland, tidal water, or undeveloped tidal buffer zone?	☒ Yes ☐ No

Is the property within a Designated River corridor? If yes, provide the following information: • Name of Local River Management Advisory Committee (LAC): • A copy of the application was sent to the LAC on Month: Day: Year:	☐ Yes ☒ No
For dredging projects, is the subject property contaminated? • If yes, list contaminant:	☐ Yes ☒ No
Is there potential to impact impaired waters, class A waters, or outstanding resource waters?	☒ Yes ☐ No
For stream crossing projects, provide watershed size (see WPPT or Stream Stats): 45.35 square miles	

SECTION 2 - PROJECT DESCRIPTION (Env-Wt 311.04(i))

Provide a **brief** description of the project and the purpose of the project, outlining the scope of work to be performed and whether impacts are temporary or permanent. DO NOT reply "See attached"; please use the space provided below.

The purpose of the project is to provide a safe, reliable, and structurally sound crossing over the Hampton Harbor Inlet, while also improving mobility for the traveling public. The project is necessary because the existing bridge is structurally deficient and functionally obsolete, and is on NHDOT's "Red-List", which identifies deficient bridge structures that are a priority for the state to address.

The project involves the replacement of the Neil R. Underwood Bridge (Bridge No. 235/025) that carries NH Route 1A over the Hampton River at the inlet to Hampton Harbor. The proposed bridge consists of a 1,300 foot long, seven span, structural steel, fixed bridge located located approximately 75 feet west of the existing bascule bridge. The proposed bridge consists of six piers and two abutments with the end spans measuring approximately 162 feet in length and the five central spans measuring approximately 195 feet in length. The proposed roadway typical section consists of two 11-foot travel lanes with eight-foot shoulders flanked by six-foot sidewalks on each side with four pedestrian bump-outs on the bridge located at Piers 2 and 5. The proposed fixed bridge will provide a 150-foot navigational channel opening (inclusive of bridge fenders) and a vertical waterway clearance of 48 feet. The two abutments will consist of concrete cantilever types and the six piers will consist of reinforced concrete hammerhead pier caps over a concrete column on pier footings supported on deep foundations consisting of drilled shafts. The approach roadway reconstruction will begin approximately 900 feet south of the new bridge and end approximately 800 feet north of the new bridge at a point approximately 200 feet northerly of the State Park Road. Both temporary and permanent impacts are anticipated within the tidal wetlands and buffer zone, to dune habitat (a Priority Resource Area), and to Federal- and state-listed species. Compensatory mitigation will be undertaken by the NHDOT.

SECTION 3 - PROJECT LOCATION

Separate wetland permit applications must be submitted for each municipality within which wetland impacts occur.

ADDRESS: NH Route 1A over Hampton Harbor Inlet

TOWN/CITY: Seabrook and Hampton

TAX MAP/BLOCK/LOT/UNIT: (Map-Block-Lot) State Pier: 299-022-000 and NHDOT right-of-way

US GEOLOGICAL SURVEY (USGS) TOPO MAP WATERBODY NAME: Hampton Harbor

☐ N/A		
(Optional) LATITUDE/LONGITUDE in decimal degrees (to five decimal places):	42.89611° North -70.81654° West	
SECTION 4 - APPLICANT (DESIRED PERMIT HOLDER) INFORMATION (Env-Wt 311.04(a)) If the applicant is a trust or a company, then complete with the trust or company information.		
NAME: New Hampshire Department of Transportation, c/o Jennifer Reczek, P.E.		
MAILING ADDRESS: 7 Hazen Drive		
TOWN/CITY: Concord	STATE: NH	ZIP CODE: 03301
EMAIL ADDRESS: jennifer.e.reczek@dot.nh.gov		
FAX:	PHONE: (603) 271-3401	
ELECTRONIC COMMUNICATION: By initialing here: JER, I hereby authorize NHDES to communicate all matters relative to this application electronically.		
SECTION 5 - AUTHORIZED AGENT INFORMATION (Env-Wt 311.04(c)) ☐ N/A		
LAST NAME, FIRST NAME, M.I.: Hageman, Daniel A.		
COMPANY NAME: FHI Studio		
MAILING ADDRESS: 416 Asylum Steet		
TOWN/CITY: Hartford	STATE: CT	ZIP CODE: 06103
EMAIL ADDRESS: dhageman@fhistudio.com		
FAX: n/a	PHONE: 860-256-4917	
ELECTRONIC COMMUNICATION: By initialing here DAH, I hereby authorize NHDES to communicate all matters relative to this application electronically.		
SECTION 6 - PROPERTY OWNER INFORMATION (IF DIFFERENT THAN APPLICANT) (Env-Wt 311.04(b)) If the owner is a trust or a company, then complete with the trust or company information. ☒ Same as applicant		
NAME:		
MAILING ADDRESS:		
TOWN/CITY:	STATE:	ZIP CODE:
EMAIL ADDRESS:		
FAX:	PHONE:	
ELECTRONIC COMMUNICATION: By initialing here , I hereby authorize NHDES to communicate all matters relative to this application electronically.		

Section 6 – Property Owner

Hampton State Pier (1 Ocean Boulevard, Hampton, NH)

Name: Pease Development Authority; Contact: Geno Marconi, Director of Ports and Harbors

Mailing Address: 555 Market Street

Town/City/State: Portsmouth, NH

ZIP Code: 03801

Phone: (603) 436-8500

Email: G.Marconi@peasedev.org

SECTION 7 - RESOURCE-SPECIFIC CRITERIA ESTABLISHED IN Env-Wt 400, Env-Wt 500, Env-Wt 600, Env-Wt 700, OR Env-Wt 900 HAVE BEEN MET (Env-Wt 313.01(a)(3))

Describe how the resource-specific criteria have been met for each chapter listed above (please attach information about stream crossings, coastal resources, prime wetlands, or non-tidal wetlands and surface waters):

Env-Wt 400: The delineation classification of jurisdiction areas was completed by New Hampshire Certified Wetland Scientist #275 in accordance with Env-Wt 400 and USACE wetland delineation guidlines.

Env-Wt 500: The project has been developed in accordance with Env-Wt 500 (including Env-Wt 527 - Public Highways), including specific design requirements related to stream flow and flood storage. Application requirements have also been met.

Env-Wt 600: The project has been developed in accordance with Env-Wt 600 - Coastal Lands and Tidal Waters/Wetlands, including the preparation of a Coastal Functional Assessment and Vulnerability Assessment. Measures to avoid and minimize impacts to coastal resources have been incorporated into the design.

Env-Wt 700: The project has been developed accounting for Env-Wt 700 - Prime Wetlands; there are Prime Wetland resources approximately 2,000 feet to the west of the project site within Hampton Harbor; minimization and mitigation have been incorporated into the design.

Env-Wt 900: The project has been designed in accordance with Env-Wt 900 - Stream Crossings; the bridge crosses a Tier 4 tidal resource. A Hydraulic Report has been prepared in support of the design.

Supporting documentation is provided in the Wetland Functional Assessment Worksheet, Coastal Resources Worksheet, Coastal Functional Assessment, Vulnerability Assessment, Sand Dune Project Specific Worksheet, Avoidance and Minimization Checklist, Attachment A - Minor and Major Projects, and Stream Crossing Worksheet.

SECTION 8 - AVOIDANCE AND MINIMIZATION

Impacts within wetland jurisdiction must be avoided to the maximum extent practicable (Env-Wt 313.03(a)).* Any project with unavoidable jurisdictional impacts must then be minimized as described in the Wetlands Best Management Practice Techniques For Avoidance and Minimization and the Wetlands Permitting: Avoidance, Minimization and Mitigation Fact Sheet. For minor or major projects, a functional assessment of all wetlands on the project site is required (Env-Wt 311.03(b)(10)).*

Please refer to the application checklist to ensure you have attached all documents related to avoidance and minimization, as well as functional assessment (where applicable). Use the Avoidance and Minimization Checklist, the Avoidance and Minimization Narrative, or your own avoidance and minimization narrative.

**See Env-Wt 311.03(b)(6) and Env-Wt 311.03(b)(10) for shoreline structure exemptions.*

SECTION 9 - MITIGATION REQUIREMENT (Env-Wt 311.02)

If unavoidable jurisdictional impacts require mitigation, a mitigation pre-application meeting must occur at least 30 days but not more than 90 days prior to submitting this Standard Dredge and Fill Permit Application.

Mitigation Pre-Application Meeting Date: Month: 12 Day: 02 Year: 2022

(☐ N/A - Mitigation is not required)

SECTION 10 - THE PROJECT MEETS COMPENSATORY MITIGATION REQUIREMENTS (Env-Wt 313.01(a)(1)c)

Confirm that you have submitted a compensatory mitigation proposal that meets the requirements of Env-Wt 800 for all permanent unavoidable impacts that will remain after avoidance and minimization techniques have been exercised to the maximum extent practicable: ☒ I confirm submittal.

(☐ N/A – Compensatory mitigation is not required)

SECTION 11 - IMPACT AREA (Env-Wt 311.04(g))

For each jurisdictional area that will be/has been impacted, provide square feet (SF) and, if applicable, linear feet (LF) of impact, and note whether the impact is after-the-fact (ATF; i.e., work was started or completed without a permit).

For intermittent and ephemeral streams, the linear footage of impact is measured along the thread of the channel. *Please note, installation of a stream crossing in an ephemeral stream may be undertaken without a permit per Rule Env-Wt 309.02(d), however other dredge or fill impacts should be included below.*

For perennial streams/rivers, the linear footage of impact is calculated by summing the lengths of disturbances to the channel and banks.

Permanent impacts are impacts that will remain after the project is complete (e.g., changes in grade or surface materials).

Temporary impacts are impacts not intended to remain (and will be restored to pre-construction conditions) after the project is completed.

JURISDICTIONAL AREA		PERMANENT			TEMPORARY		
		SF	LF	ATF	SF	LF	ATF
Wetlands	Forested Wetland			☐			☐
	Scrub-shrub Wetland			☐			☐
	Emergent Wetland			☐			☐
	Wet Meadow			☐			☐
	Vernal Pool			☐			☐
	Designated Prime Wetland			☐			☐
	Duly-established 100-foot Prime Wetland Buffer			☐			☐
Surface Water	Intermittent / Ephemeral Stream			☐			☐
	Perennial Stream or River			☐			☐
	Lake / Pond			☐			☐
	Docking - Lake / Pond			☐			☐
	Docking - River			☐			☐
Banks	Bank - Intermittent Stream			☐			☐
	Bank - Perennial Stream / River			☐			☐
	Bank / Shoreline - Lake / Pond	7,542	432	☐			☐
Tidal	Tidal Waters	21,131	197	☐	318,183		☐
	Tidal Marsh			☐			☐
	Sand Dune	50,947 *		☐			☐
	Undeveloped Tidal Buffer Zone (TBZ)	2,295		☐			☐
	Previously-developed TBZ	16,122		☐	4,651		☐
	Docking - Tidal Water			☐			☐
TOTAL		98,037	629		**322,834**		

SECTION 12 - APPLICATION FEE (RSA 482-A:3, I)

*Note that 10,663 sf of Sand Dune is within TBZ

☐ **MINIMUM IMPACT FEE**: Flat fee of $400.

☐ **NON-ENFORCEMENT RELATED, PUBLICLY-FUNDED AND SUPERVISED RESTORATION PROJECTS, REGARDLESS OF IMPACT CLASSIFICATION:** Flat fee of $400 (refer to RSA 482-A:3, 1(c) for restrictions).

☒ **MINOR OR MAJOR IMPACT FEE:** Calculate using the table below:

Permanent and temporary (non-docking):	420,871 SF	× $0.40 =	$	30,000
Seasonal docking structure:	SF	× $2.00 =	$	
Permanent docking structure:	SF	× $4.00 =	$	
Projects proposing shoreline structures (including docks) add $400 =			$	
Total =			$	30,000

The application fee for minor or major impact is the above calculated total or $400, whichever is greater = $ 30,000

SECTION 13 - PROJECT CLASSIFICATION (Env-Wt 306.05) Indicate the project classification.		
☐ Minimum Impact Project	☐ Minor Project	☒ Major Project

SECTION 14 - REQUIRED CERTIFICATIONS (Env-Wt 311.11)	
Initial each box below to certify:	
Initials: JCR	To the best of the signer's knowledge and belief, all required notifications have been provided.
Initials: JCR	The information submitted on or with the application is true, complete, and not misleading to the best of the signer's knowledge and belief.
Initials: JCR	The signer understands that: • The submission of false, incomplete, or misleading information constitutes grounds for NHDES to: 1. Deny the application. 2. Revoke any approval that is granted based on the information. 3. If the signer is a certified wetland scientist, licensed surveyor, or professional engineer licensed to practice in New Hampshire, refer the matter to the joint board of licensure and certification established by RSA 310-A:1. • The signer is subject to the penalties specified in New Hampshire law for falsification in official matters, currently RSA 641. • The signature shall constitute authorization for the municipal conservation commission and the Department to inspect the site of the proposed project, except for minimum impact forestry SPN projects and minimum impact trail projects, where the signature shall authorize only the Department to inspect the site pursuant to RSA 482-A:6, II.
Initials: JCR	If the applicant is not the owner of the property, each property owner signature shall constitute certification by the signer that he or she is aware of the application being filed and does not object to the filing.

SECTION 15 - REQUIRED SIGNATURES (Env-Wt 311.04(d); Env-Wt 311.11)		
SIGNATURE (OWNER): Jennifer E. Reczek	PRINT NAME LEGIBLY: Jennifer E. Reczek, P.E.	DATE: 3/15/2023
SIGNATURE (APPLICANT, IF DIFFERENT FROM OWNER):	PRINT NAME LEGIBLY:	DATE:
SIGNATURE (AGENT, IF APPLICABLE): Daniel Hageman	PRINT NAME LEGIBLY: Daniel A. Hageman, NHCWS	DATE: 3/15/23

SECTION 16 - TOWN / CITY CLERK SIGNATURE (Env-Wt 311.04(f))	
As required by RSA 482-A:3, I(a)(1), I hereby certify that the applicant has filed four application forms, four detailed plans, and four USGS location maps with the town/city indicated below.	
TOWN/CITY CLERK SIGNATURE:	PRINT NAME LEGIBLY:
TOWN/CITY:	DATE:

DIRECTIONS FOR TOWN/CITY CLERK:
Per RSA 482-A:3, I(a)(1)

1. IMMEDIATELY sign the original application form and four copies in the signature space provided above.
2. Return the signed original application form and attachments to the applicant so that the applicant may submit the application form and attachments to NHDES by mail or hand delivery.
3. IMMEDIATELY distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board.
4. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

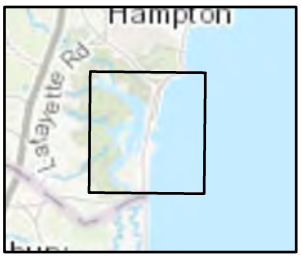
DIRECTIONS FOR APPLICANT:
Submit the original permit application form bearing the signature of the Town/City Clerk, additional materials, and the application fee to NHDES by mail or hand delivery at the address at the bottom of this page. Make check or money order payable to “Treasurer – State of NH”.

Attachment 1

Location Map

NHDES Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)



Legend

Project Limits of Disturbance

Seabrook-Hampton 15904
Seabrook and Hampton, New Hampshire

Attachment 1
Project Location

Map Produced: 10/19/2022

Data Source: FHI, USGS, ESRI

FHI studio

Attachment 2

Attachment A:
Minor & Major Projects

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

STANDARD DREDGE AND FILL WETLANDS PERMIT APPLICATION ATTACHMENT A: MINOR AND MAJOR PROJECTS

Water Division/Land Resources Management

Wetlands Bureau

Check the Status of your Application

RSA/ Rule: RSA 482-A/ Env-Wt 311.10; Env-Wt 313.01(a)(1); Env-Wt 313.03

APPLICANT'S NAME: **NH Dept. of Transportation** **TOWN NAME:** Seabrook/Hampton

Attachment A is required for *all minor and major projects*, and must be completed *in addition* to the Avoidance and Minimization Narrative or Checklist that is required by Env-Wt 307.11.

For projects involving construction or modification of non-tidal shoreline structures over areas of surface waters having an absence of wetland vegetation, only Sections I.X through I.XV are required to be completed.

PART I: AVOIDANCE AND MINIMIZATION

In accordance with Env-Wt 313.03(a), the Department shall not approve any alteration of any jurisdictional area unless the applicant demonstrates that the potential impacts to jurisdictional areas have been avoided to the maximum extent practicable and that any unavoidable impacts have been minimized, as described in the Wetlands Best Management Practice Techniques For Avoidance and Minimization.

SECTION I.I - ALTERNATIVES (Env-Wt 313.03(b)(1))

Describe how there is no practicable alternative that would have a less adverse impact on the area and environments under the Department's jurisdiction.

A RANGE OF ALTERNATIVES WAS EVALUATED AS PART OF THE PRELIMINARY PLANNING, HOWEVER NO ALTERNATIVE WAS IDENTIFIED THAT MET THE PURPOSE AND NEED WHILE ALSO HAVING LESS ENVIRONMENTAL IMPACT THAN THE SELECTED ALTERNATIVE. NHDOT INITIALLY EVALUATED AN EASTERN ALIGNMENT, HOWEVER THERE WAS SUBSTANTIAL PUBLIC OPPOSITION TO THIS ALTERNATIVE DUE TO PROPERTY ACQUISITIONS THAT WOULD BE NECESSARY TO IMPLEMENT IT. THEREFORE, A WESTERN ALIGNMENT WAS CARRIED FORWARD. NHDOT EVALUATED REPLACING THE BRIDGE WITH ANOTHER BASCULE BRIDGE LOCATED TO THE WEST, HOWEVER, DUE TO THE PRESENCE OF A BEDROCK LEDGE WEST OF THE BRIDGE, BLASTING WOULD HAVE BEEN REQUIRED TO WIDEN THE CHANNEL WHICH COULD HAVE ADVERSELY IMPACTED AQUATIC SPECIES AND THEIR HABITAT. REHABILITATING THE BRIDGE WHILE WIDENING IT WAS ALSO CONSIDERED, BUT IT WOULD HAVE REQUIRED THE CONSTRUCTION OF A TEMPORARY BRIDGE TO THE WEST WHICH WOULD HAVE RESULTED IN EXTENSIVE IMPACTS TO THE DUNE HABITAT TO THE WEST AND TO THE CHANNEL BOTTOM. SIMILARLY, THE CONSTRUCTION OF A TWIN BRIDGE TO THE WEST OF THE EXISTING BRIDGE WOULD HAVE HAD THE GREATEST PHYSICAL FOOTPRINT, AND THEREFORE THE GREATEST IMPACT ON THE SENSITIVE HABITAT IN THE DUNES TO THE WEST OF THE BRIDGE.

SECTION I.II - MARSHES (Env-Wt 313.03(b)(2))

Describe how the project avoids and minimizes impacts to tidal marshes and non-tidal marshes where documented to provide sources of nutrients for finfish, crustacean, shellfish, and wildlife of significant value.

The project will have no direct or indirect impacts to tidal marshes. There are no tidal marshes within the project limits of disturbance, therefore, impacts to these resources are avoided. There are also no non-tidal marshes within the Project Area. Although large areas of vegetated tidal wetlands do exist in the Hampton River system, they are more than 2,000 feet to the west of the Project Site. Small pockets of tidal vegetated wetlands may occur along the developed shorefront of the inner harbor to the north and south of the bridge, but these are also outside the Project Area. Through the use of containment during in-water work, and the implementation of time-of-year (TOY) restrictions for in-water work, no indirect impacts are anticipated to the vegetated tidal wetlands west of the Project Site.

SECTION I.III - HYDROLOGIC CONNECTION (Env-Wt 313.03(b)(3))

Describe how the project maintains hydrologic connections between adjacent wetland or stream systems.

The hydraulic opening under the proposed condition will be slightly greater than the hydraulic opening under the existing bridge, since the new abutments will be constructed approximately 100 feet further inland than the existing bridge abutments. Therefore, the bridge replacement will not further impede the hydraulic connection, but will actually improve it. Although there are fewer piers under the proposed condition, they are larger than the existing piers. The hydraulic analysis determined that this difference had no noticeable effects on hydraulics. This is supported by the Hydraulic Report prepared for the project (HDR 2022).

During construction, the existing bridge will remain in use while the proposed bridge is under construction. As a result, there will be periods of time when there will be multiple structures within the water column, including: the existing bridge piers, the proposed bridge piers with cofferdam containment, the temporary piles supporting the temporary work trestles, and potentially several barges with spud stabilization. Although additional structures will be within the water column during construction, it is not anticipated this will negatively impact hydraulics or cause scour of the channel bottom. Also, construction phasing will help to minimize any influence on hydraulics within the harbor. Four trestles will be erected to provide access during construction. The western temporary trestles will be removed prior to the installation of the eastern trestles and installation of cofferdams around the existing piers.

SECTION I.IV - JURISDICTIONAL IMPACTS (Env-Wt 313.03(b)(4))

Describe how the project avoids and minimizes impacts to wetlands and other areas of jurisdiction under RSA 482-A, especially those in which there are exemplary natural communities, vernal pools, protected species and habitat, documented fisheries, and habitat and reproduction areas for species of concern, or any combination thereof.

The proposed project avoids impacts to jurisdictional resources to the extent practicable. Through the use of cofferdams and drilled shaft casing containment during in-water work, and the implementation of TOY restrictions for in-water work, temporary impacts to tidal wetlands have been avoided and minimized; there are no vegetated tidal wetlands in the Project Area. Permanent impacts to tidal wetlands have been minimized by constructing the proposed abutments further inland, primarily out of the HOTL area. Impacts to the tidal buffer zone and Priority Resource Area (PRA) Dune Habitat and state-listed plant species have been minimized by tapering the southern approach back to the existing roadway as quickly as current roadway standards allow, as well as by constructing the new bridge as close to the existing bridge alignment as possible while still maintaining adequate space for construction activities to be safely undertaken. Side slopes have been minimized to the extent practicable, but retaining walls were not proposed at the southern approach so that the slopes could be vegetated and to not create a potential barrier for Piping Plovers escaping from predators. Coordination with the NH Natural Heritage Bureau (NHNHB) is on-going to develop a mitigation plan for impacts to listed plant species resulting from the project. The National Oceanic and Atmospheric Administration (NOAA) has been consulted regarding Essential Fish Habitat (EFH) and Federal ESA Section 7 species, and approvals were obtained with conservation measures to be incorporated into the project. Similarly, the US Fish and Wildlfie Service (USFWS) has been consulted for Federal ESA Section 7 species, and a Biological Opinion was prepared with corresponding conservation measures for the project. See correspondance with NOAA and USFWS in Attachments 15 and 16 to the application.

Please refer to the Avoidance and Minimization Worksheet (Attachment 3) and the Coastal Functional Assessment (Attachment 8) for additional information.

SECTION I.V - PUBLIC COMMERCE, NAVIGATION, OR RECREATION (Env-Wt 313.03(b)(5))

Describe how the project avoids and minimizes impacts that eliminate, depreciate or obstruct public commerce, navigation, or recreation.

The new vertical clearance (48 feet) will accommodate all regular vessel users of the Entrance Channel, as well as the USACE dredge vessel Currituck. The new bridge will widen the horizontal navigational clearance from 40 feet under current conditions to 150 feet, improving conditions in the navigational channel for vessels. The current structure only allows for vessel traffic to transit the channel under the bridge in one direction at a time. The widened horizontal width will allow for simultaneous two-way vessel navigation under the bridge. The navigational channels will be maintained throughout construction, with only brief outages. Both during and following construction, access will be maintained to adjacent recreational resources, including the Hampton-Seabrook Dunes Wildlife Management Area (Dunes WMA) to the southwest, Sun Valley Beach to the southeast, the Hampton State Pier to the northwest, and Hampton Beach State Park to the northeast. Moreover, the project includes the provision of a pedestrian walkway under the bridge on its north end which would provide a pedestrian connection between the Hampton State Pier and Hampton Beach State Park, improving conditions for recreational users of the facilities. Therefore, the project avoids and minimizes impacts that eliminate, depreciate or obstruct public commerce, navigation and recreation.

SECTION I.VI - FLOODPLAIN WETLANDS (Env-Wt 313.03(b)(6))

Describe how the project avoids and minimizes impacts to floodplain wetlands that provide flood storage.

Hydraulic analyses for the conceptual bridge were conducted by HDR, Inc. and took into consideration 100-year and 500-year base flood elevations at the bridge as determined by FEMA, as well as projected sea level rise (SLR) among other variables. The SLR height is based on the "Intermediate-High" range of estimated 2100 rise by the New Hampshire Coastal Risk and Hazards Commission. The predicted 2100 Intermediate-High SLR is reported as 3.9 feet above 1992 sea level. Design engineers used a more conservative SLR of four feet during bridge concept development. This figure is consistent with the analysis presented in the Vulnerability Assessment within the Coastal Functional Assessment (Attachment 8 of this application).

There will be no substantial increase in fill materials placed into the Hampton Harbor Inlet with construction of the new bridge. Materials placed for new bridge piers will be offset by removal of the existing bridge piers from within the waterway. The new bridge abutments will be located further landward, providing a larger hydraulic opening under the bridge structure than the existing bridge. The net change in fill will be negligible and insignificant relative to the coastal setting. Therefore, the bridge replacement will not exacerbate local flooding as it will not result in an increase in flood elevations or flood flow velocities.

SECTION I.VII - RIVERINE FORESTED WETLAND SYSTEMS AND SCRUB-SHRUB – MARSH COMPLEXES (Env-Wt 313.03(b)(7))

Describe how the project avoids and minimizes impacts to natural riverine forested wetland systems and scrub-shrub – marsh complexes of high ecological integrity.

There are no riverine forested systems or scrub-shrub systems located within the Project Area. Therefore, there would be no impacts to these wetland types.

SECTION I.VIII - DRINKING WATER SUPPLY AND GROUNDWATER AQUIFER LEVELS (Env-Wt 313.03(b)(8))

Describe how the project avoids and minimizes impacts to wetlands that would be detrimental to adjacent drinking water supply and groundwater aquifer levels.

There are no public or community drinking water supply wells, reservoirs, or drinking water aquifers in or near the Project Area. Therefore, the project will have no impact on drinking water supply or groundwater aquifer levels due to wetland impacts.

Both north and south of the bridge in Seabrook and Hampton, drinking water is supplied via municipal water service, not individual drinking water wells. A benefit of the project is that the existing water main will be hung from the new bridge structure, rather than resting on the channel bottom as it does under current conditions. The potential relocation of the water lines will provide easier and less intrusive access for future maintenance.

SECTION I.IX - STREAM CHANNELS (Env-Wt 313.03(b)(9))

Describe how the project avoids and minimizes adverse impacts to stream channels and the ability of such channels to handle runoff of waters.

The proposed replacement of the bridge will be undertaken primarily in existing NHDOT ROW to the west of the existing bridge structure. The existing structure does not have a history of causing or contributing to flooding that damages the crossing or other human infrastructure or protected species habitat. The proposed project meets the design criteria under Env-Wt 904.01, including the criteria for tidal crossings. The project will also enhance the hydraulic capacity of the crossing by moving the proposed abutments further inland than the existing condition. Although there are fewer piers under the proposed condition, they are larger than the existing piers. The hydraulic analysis determined that this difference had no noticeable effects on hydraulics. This is supported by the Hydraulic Report prepared for the project (HDR 2023). The proposed structure will maintain the capacity of the crossing to accommodate aquatic organism passage, maintain the connectivity of the stream reaches upstream and downstream of the crossing, and will not cause or contribute to the increase in the frequency of flooding.

Major alterations to currents are not expected, however, localized changes could result from the project. The proposed bridge abutments are landward of the existing abutments and are not expected to increase water current velocities. The change in obstructed flow area due to the proposed bridge is not expected to have a significant impact on overall water velocities in the inlet based on preliminary guidance found in HEC-18. Local velocities may increase or decrease near the proposed piers, but changes in the prevailing currents are not expected. Additional details can be found in the Coastal Functional Assessment (Attachment 8 in this application).

The proposed bridge design will comply with Env-Wt 904.07(d) by accounting for daily fluctuating tides, bi-directional flows, tidal inundation, and coastal storm surge. It will also account for tidal channel morphology and potential impacts due to SLR and will not restrict tidal flows.

SECTION I.X - SHORELINE STRUCTURES - CONSTRUCTION SURFACE AREA (Env-Wt 313.03(c)(1))

Describe how the project has been designed to use the minimum construction surface area over surface waters necessary to meet the stated purpose of the structures.

The purpose of the project is to provide a safe, reliable, and structurally sound crossing over the Hampton Harbor Inlet, while also improving mobility for the traveling public. This includes motorized vehicles, bicyclists and pedestrians, as well as maritime users.

Based on the project purpose, the cross section of the bridge encompasses two 11-ft travel ways, two 8-ft shoulders and a 6-ft sidewalk on each side of the road, in accordance with AASHTO design standards and requirements. Bump-outs will also be provided at Piers 2 and 5 to safely accommodate fishing and ensure separation from pedestrians. The proposed section is approximately 50 feet in width rail-to-rail, while the existing bridge is just over 30 feet wide from the inside parapet to inside parapet. Ultimately, the proposed bridge is just under 20 feet wider than the existing bridge, and it will meet modern design standards. Also, since the proposed bridge is fixed, and not a movable bridge, the center of the bridge will be a minimum of 30 feet higher than the existing bascule bridge over the navigational channel, and is higher for its entire length, minimizing any potential shading of resources.

SECTION I.XI - SHORELINE STRUCTURES - LEAST INTRUSIVE UPON PUBLIC TRUST (Env-Wt 313.03(c)(2))

Describe how the type of construction proposed is the least intrusive upon the public trust that will ensure safe docking on the frontage.

The project does not involve the construction of any dock structures or displacement of any public access facilities such as docks, moorings or launch areas. The proposed bridge footprint has been minimized to the extent practicable to reduce impacts to natural resources and the public trust, while still meeting the project purpose and need and public safety requirements. The existing bridge will be removed as part of the project and coastal frontage and access will be similar to existing conditions. During some phases of construction, there will be encroachment into the channel. Early in the project, the installation of the temporary trestle along the northwest side of the proposed bridge will encroach within the existing navigation channel, as shown on the plans. Mitigation for this encroachment will be finalized with the U.S. Coast Guard, however, it is expected that a temporary fender will be installed from the existing northern bascule pier to the western limit of the temporary trestle to guide boats safely through the construction zone. During the later stages of construction, the existing channel may need to be temporarily closed for several days to facilitate a barge during the removal of the existing bascule span and cofferdams will be installed around the existing northern bascule pier into the north side of the channel. When the cofferdam is in place around the northern bascule pier, it will extend into the channel approximately 6 feet. This means 34 feet of the channel will be available for navigation, of the total channel width of 40 feet, during this period of construction.

SECTION I.XII - SHORELINE STRUCTURES – ABUTTING PROPERTIES (Env-Wt 313.03(c)(3))

Describe how the structures have been designed to avoid and minimize impacts on ability of abutting owners to use and enjoy their properties.

The proposed bridge has been designed to avoid and minimize, to the extent practicable, impacts that would limit the ability of property owners to use and enjoy their properties. On the south end of the bridge, all work will be conducted within the existing NHDOT right-of-way (ROW). Sidewalks from the proposed bridge will be connected to the existing residential area to the southeast of the bridge. Properties to the east and west of the southern bridge approach will not be negatively impacted. On the north end of the bridge, the work will be within the existing ROW on the eastern side of the northern approach, and property access will not be impacted. To the west of the northern approach, the proposed bridge will primarily be located within the existing ROW, however, there will be limited temporary and permanent impacts to the Hampton State Pier property (12,792 and 2,707 sf, respectively). The majority of the new approach roadway will be within existing lawn areas between the existing road and parking lot. A retaining wall is being employed to minimize impacts to the State Pier property. The project will be designed to improve public access and safety through several components, including:

1. construction of a pedestrian walkway under the northern bridge span to facilitate safe pedestrian access between the Hampton State Pier and Hampton Beach State Park.

2. Improvements to sidewalks on both sides of the bridge and approach ways.

3. Widened shoulders on both sides of the roadway to provide a safe travel lane for bikes and to separate bike and pedestrian traffic.

4. Construction of two bump-outs at Piers 2 and 5 on each side of the new bridge over the water for separation of pedestrians and anglers.

SECTION I.XIII - SHORELINE STRUCTURES – COMMERCE AND RECREATION (Env-Wt 313.03(c)(4))

Describe how the structures have been designed to avoid and minimize impacts to the public's right to navigation, passage, and use of the resource for commerce and recreation.

See Section I.V above.

SECTION I.XIV - SHORELINE STRUCTURES – WATER QUALITY, AQUATIC VEGETATION, WILDLIFE AND FINFISH HABITAT (Env-Wt 313.03(c)(5))

Describe how the structures have been designed, located, and configured to avoid impacts to water quality, aquatic vegetation, and wildlife and finfish habitat.

The project has been desiged to avoid and minimize potential impacts to water quality, wildlife and finfish habitat. There is no emergent or submerged aquatic vegetation and only small amounts of macroalgae located within the Project Area, therefore, no impacts are anticipated. The project will incorporate and implement various strategies to protect water quality during construction, including: restricting in-water work to the approved in-water work window of November 15th to March 15th; confining in-water work when outside the in-water work window (cofferdams and outer shaft containment); erosion and sedimentation controls during construction; and post-construction stormwater collection and treatment. PRA Dune Habitat is also located within the Project Area. The project has avoided and minimized impacts to PRA Dune Habitat to the extent practicable through roadway alignment and minimization of side slopes.

Extensive coordination has been undertaken with the USFWS, NOAA, NHNHB, and New Hampshire Fish and Game (NHFG) relative to ESA Section 7 listed species, state listed species, and fish and game species. Through this coordination, approvals have been obtained from USFWS and NOAA for Federal Section 7 species and EFH relative to the proposed project activities. Coordination with NHNHB and NHFG is ongoing for state listed species impact assessment and potential mitigation requirements. Coordination with these agencies has resulted in project design components and conservation measures which will help avoid and minimize impacts to water quality, wlidlife, and finfish habitat. See the Coastal Functional Assessment (Attachment 8 to this application) for additional information.

SECTION I.XV - SHORELINE STRUCTURES – VEGETATION REMOVAL, ACCESS POINTS, AND SHORELINE STABILITY (Env-Wt 313.03(c)(6))

Describe how the structures have been designed to avoid and minimize the removal of vegetation, the number of access points through wetlands or over the bank, and activities that may have an adverse effect on shoreline stability.

The proposed bridge and its approaches, both north and south, have been designed to minimize impacts to vegetation and ensure shoreline stability (see discussion in Section I.IV above). Construction access points and storage areas have been designed to minimize impacts to natural areas and vegetated areas. Storage areas will be located outside jurisdictional areas. Temporary work trestles will be utilized for most access within the harbor; these trestles will be installed to the west of the existing bridge and east of the proposed bridge structure, but will not extend across the existing navigation channel. Trestles will keep construction access out of tidal waters and bank by providing a single point of access throughout the construction period. Trestle access points have been designed to avoid impacts to vegetation and bank by utilizing the minimum access width required for access points and by using the minimum design radius, while still providing safe construction vehicle access. Barges may also be utilized as needed to access construction areas in the harbor, but trestles will minimize the need for barge use and access. The use of temporary trestles, barges, work windows and confinement will minimize impacts to tidal waters. Landside access to the temporary trestles will be from either the existing roadway, proposed approach way, and the Hampton State Pier property; access will be minimized to the extent practical to allow safe movement of construction vehicles and equipment. All disturbed shoreline and bank within the Project Area will be stabilized as needed. The proposed abutments will be stabilized with stone rip-rap material, as required and modeled by the hydraulic and scour reports prepared by the NHDOT. Existing vegetation will be left in place and avoided in areas where no activity is proposed.

Public access will be improved by the project (see Section I-XII above for more detail).

PART II: FUNCTIONAL ASSESSMENT
REQUIREMENTS Ensure that project meets the requirements of Env-Wt 311.10 regarding functional assessment (Env-Wt 311.04(j); Env-Wt 311.10).
FUNCTIONAL ASSESSMENT METHOD USED: The US Army Corps of Engineers Highway Methodology Workbook Supplement (USACE, 1999), and Env-Wt 311.10, were followed for the functional assessment of wetlands within the Project Area.
NAME OF CERTIFIED WETLAND SCIENTIST (FOR NON-TIDAL PROJECTS) OR QUALIFIED COASTAL PROFESSIONAL (FOR TIDAL PROJECTS) WHO COMPLETED THE ASSESSMENT: DANIEL A. HAGEMAN, NHCWS #275
DATE OF ASSESSMENT: JUNE 2018; AUG. 2022
Check this box to confirm that the application includes a NARRATIVE ON FUNCTIONAL ASSESSMENT: ☒
For minor or major projects requiring a standard permit without mitigation, the applicant shall submit a wetland evaluation report that includes completed checklists and information demonstrating the RELATIVE FUNCTIONS AND VALUES OF EACH WETLAND EVALUATED. Check this box to confirm that the application includes this information, if applicable: ☒ Note: The Wetlands Functional Assessment worksheet can be used to compile the information needed to meet functional assessment requirements.

Attachment 3

Avoidance & Minimization Checklist

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

AVOIDANCE AND MINIMIZATION CHECKLIST

Water Division/Land Resources Management
Wetlands Bureau

Check the Status of your Application

RSA/Rule: RSA 482-A/ Env-Wt 311.07(c)

This checklist can be used in lieu of the written narrative required by Env-Wt 311.07(a) to demonstrate compliance with requirements for Avoidance and Minimization (A/M), pursuant to RSA 482-A:1 and Env-Wt 311.07(c).

For the construction or modification of non-tidal shoreline structures over areas of surface waters without wetland vegetation, complete only Sections 1, 2, and 4 (or the applicable sections in Attachment A: Minor and Major Projects (NHDES-W-06-013).

The following definitions and abbreviations apply to this worksheet:

- "A/M BMPs" stands for Wetlands Best Management Practice Techniques for Avoidance and Minimization dated 2019, published by the New England Interstate Water Pollution Control Commission (Env-Wt 102.18).
- "Practicable" means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes (Env-Wt 103.62).

SECTION 1 - CONTACT/LOCATION INFORMATION	
APPLICANT LAST NAME, FIRST NAME, M.I.: New Hampshire Department of Transportation	
PROJECT STREET ADDRESS: NH Route 1A over Hampton Harbor Inlet	PROJECT TOWN: Seabrook/Hampton
TAX MAP/LOT NUMBER: (Map-Block-Lot) State Pier: 299-022-000 and NHDOT right-of-way	

SECTION 2 - PRIMARY PURPOSE OF THE PROJECT		
Env-Wt 311.07(b)(1)	Indicate whether the primary purpose of the project is to construct a water-access structure or requires access through wetlands to reach a buildable lot or the buildable portion thereof.	☐ Yes ☒ No

If you answered "no" to this question, describe the purpose of the "non-access" project type you have proposed:

The purpose of the project is to provide a safe, reliable, and structurally sound crossing over the Hampton Harbor Inlet, while also improving mobility for the traveling public. This includes motorized vehicles, bicyclists and pedestrians, as well as maritime users.

SECTION 3 - A/M PROJECT DESIGN TECHNIQUES Check the appropriate boxes below in order to demonstrate that these items have been considered in the planning of the project. Use N/A (not applicable) for each technique that is not applicable to your project.		
Env-Wt 311.07(b)(2)	For any project that proposes new permanent impacts of more than one acre or that proposes new permanent impacts to a Priority Resource Area (PRA), or both, whether any other properties reasonably available to the applicant, whether already owned or controlled by the applicant or not, could be used to achieve the project's purpose without altering the functions and values of any jurisdictional area, in particular wetlands, streams, and PRAs.	☒ Check ☐ N/A
Env-Wt 311.07(b)(3)	Whether alternative designs or techniques, such as different layouts, construction sequencing, or alternative technologies could be used to avoid impacts to jurisdictional areas or their functions and values.	☒ Check ☐ N/A
Env-Wt 311.07(b)(4) Env-Wt 311.10(c)(1) Env-Wt 311.10(c)(2)	The results of the functional assessment required by Env-Wt 311.03(b)(10) were used to select the location and design for the proposed project that has the least impact to wetland functions.	☒ Check ☐ N/A
Env-Wt 311.07(b)(4) Env-Wt 311.10(c)(3)	Where impacts to wetland functions are unavoidable, the proposed impacts are limited to the wetlands with the least valuable functions on the site while avoiding and minimizing impacts to the wetlands with the highest and most valuable functions.	☒ Check ☐ N/A
Env-Wt 313.01(c)(1) Env-Wt 313.01(c)(2) Env-Wt 313.03(b)(1)	No practicable alternative would reduce adverse impact on the area and environments under the department's jurisdiction and the project will not cause random or unnecessary destruction of wetlands.	☒ Check ☐ N/A
Env-Wt 313.01(c)(3)	The project would not cause or contribute to the significant degradation of waters of the state or the loss of any PRAs.	☒ Check ☐ N/A
Env-Wt 313.03(b)(3) Env-Wt 904.07(c)(8)	The project maintains hydrologic connectivity between adjacent wetlands or stream systems.	☒ Check ☐ N/A
Env-Wt 311.10 A/M BMPs	Buildings and/or access are positioned away from high function wetlands or surface waters to avoid impact.	☒ Check ☐ N/A
Env-Wt 311.10 A/M BMPs	The project clusters structures to avoid wetland impacts.	☐ Check ☒ N/A
Env-Wt 311.10 A/M BMPs	The placement of roads and utility corridors avoids wetlands and their associated streams.	☒ Check ☐ N/A
A/M BMPs	The width of access roads or driveways is reduced to avoid and minimize impacts. Pullouts are incorporated in the design as needed.	☒ Check ☐ N/A
A/M BMPs	The project proposes bridges or spans instead of roads/driveways/trails with culverts.	☒ Check ☐ N/A

A/M BMPs	The project is designed to minimize the number and size of crossings, and crossings cross wetlands and/or streams at the narrowest point.	☒ Check ☐ N/A
Env-Wt 500 Env-Wt 600 Env-Wt 900	Wetland and stream crossings include features that accommodate aquatic organism and wildlife passage.	☒ Check ☐ N/A
Env-Wt 900	Stream crossings are sized to address hydraulic capacity and geomorphic compatibility.	☒ Check ☐ N/A
A/M BMPs	Disturbed areas are used for crossings wherever practicable, including existing roadways, paths, or trails upgraded with new culverts or bridges.	☒ Check ☐ N/A
SECTION 4 - NON-TIDAL SHORELINE STRUCTURES		
Env-Wt 313.03(c)(1)	The non-tidal shoreline structure has been designed to use the minimum construction surface area over surfaces waters necessary to meet the stated purpose of the structure.	☐ Check ☒ N/A
Env-Wt 313.03(c)(2)	The type of construction proposed for the non-tidal shoreline structure is the least intrusive upon the public trust that will ensure safe navigation and docking on the frontage.	☐ Check ☒ N/A
Env-Wt 313.03(c)(3)	The non-tidal shoreline structure has been designed to avoid and minimize impacts on the ability of abutting owners to use and enjoy their properties.	☐ Check ☒ N/A
Env-Wt 313.03(c)(4)	The non-tidal shoreline structure has been designed to avoid and minimize impacts to the public's right to navigation, passage, and use of the resource for commerce and recreation.	☐ Check ☒ N/A
Env-Wt 313.03(c)(5)	The non-tidal shoreline structure has been designed, located, and configured to avoid impacts to water quality, aquatic vegetation, and wildlife and finfish habitat.	☐ Check ☒ N/A
Env-Wt 313.03(c)(6)	The non-tidal shoreline structure has been designed to avoid and minimize the removal of vegetation, the number of access points through wetlands or over the bank, and activities that may have an adverse effect on shoreline stability.	☐ Check ☒ N/A

Attachment 4

Natural Resources Agency Meeting Minutes

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: August 15, 2018
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT
Sarah Large
Ron Crickard
Mark Hemmerlein
Brian Lombard
Meli Dube
Nancy Spaulding
Kirk Mudgett
Ron Kleiner
Chris Carucci
Bob Landry
Jennifer Reczek
Marc Laurin
Samantha Fifield
Kevin Nyhan
Bob Hudson
Maggie Baldwin

ACOE
Mike Hicks

NHDES
Gino Infascelli
Lori Sommer

NHF&G
Carol Henderson

NHB
Amy Lamb

Consultants/Public Participants
Mike Croteau
Sean Sweeney
Jennifer Riordan
Brent Williams
Christine Perron
Brian Colburn
Darren Benoit
Jim Murphy
Stephanie Dyer-Carroll
Dan Hageman
Johanna Lyons
Eric Feldbaum

(When viewing these minutes online, click on an attendee to send an e-mail)

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH: *(minutes on subsequent pages)*

Finalize July 18, 2018 Minutes 2
Windham, #41632 2
Walpole, #41624A 4
Wakefield, M312-13 5
Gilford, #41655 (X-A004(710)) 7
Lebanon-Hartford, #16148 (A001(154)) 9
Lebanon TAP, #41366 (X-A004(617)) 11
Seabrook-Hampton, #15904 (X-A001(026)) 12

(When viewing these minutes online, click on a project to zoom to the minutes for that project)

alternative would require additional crossings of both NH Route 120 and Lahaye Drive. Due to the anticipated impacts to traffic patterns along NH Route 120 and the flow pattern into DHMC, the northern alternative is more desirable. The preferred alternative is the north side of Lahaye Road without the retaining wall.

Comments received:
There was a recommendation to consult with the Lebanon Conservation Commission and the Upper Valley Land Trust. There may be mitigation projects planning that this project could participate. The plan is to come back with more refined project impacts and impact areas.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Seabrook-Hampton, #15904 (X-A001(026))
The first Natural Resources Agency Coordination Meeting for the Hampton Harbor Bridge Project was held on August 15, 2018 at the offices of the New Hampshire Department of Transportation (NHDOT) in Concord, NH. Jennifer Reczek, NHDOT's Project Manager, opened the meeting by welcoming attendees, facilitating introductions, and outlining the agenda for the meeting. She explained that the project is just beginning and that NHDOT anticipates preparing an environmental assessment (EA) for the project.

Jim Murphy with HDR then provided some background on the project. He explained that the bridge is a vital transportation link which accommodates up to 18,000 vehicles per day during peak periods. The bridge was constructed in 1949 and is one of two remaining bascule bridges in the state, the other being the NH 1B Bridge in New Castle and Rye, NH. Mr. Murphy said that the harsh saltwater environment increases the need for maintenance on the bridge. The Hampton Harbor Bridge has been rehabilitated numerous times over the last 50 years, including most recently emergency repairs to the bascule span mechanical system in March 2018. He said the project is necessary because the bridge is now structurally deficient and functionally obsolete; it is on NHDOT's "red list" of bridges requiring rehabilitation or replacement; and the bridge has long-term operational issues. The project is also necessary in order to improve pedestrian and bicycle mobility.

Mr. Murphy then explained the project process. He said the Project Team has begun evaluating the existing conditions of the bridge. Once this is complete, they will develop a range of alternatives, and then prepare a Type, Size and Location Study (TS&L) which will evaluate each of the alternatives from an engineering perspective. The TS&L will select two action alternatives to be further evaluated to determine their impact on natural and man-made resources. Mr. Murphy shared that the alternatives under consideration include Major Rehabilitation, Replacement with a Fixed Bridge, and Replacement with a Bascule Bridge.

Dan Hageman, a member of the HDR consultant team, explained the necessary environmental compliance for the project. He said agency coordination has already begun, and that this information will be used in the preparation of the EA for the project. He said consultation and coordination for the project will also be undertaken in accordance with Section 7 of the Endangered Species Act (ESA), Section 4(f), Section 6(f), and Section 106 of the National Historic Preservation Act.

Mr. Hageman then described key resources that have been identified within the project area. He explained that a wetland delineation was undertaken in June 2018 which identified estuarine and marine wetlands within the project area, but no tidal wetlands. Additional resources have been identified through agency coordination and field survey, including Threatened and Endangered Species, essential fish habitat species, beach and dune habitat, shellfish, conservation lands and floodplains. Mr. Hageman showed mapping

depicting the locations of the state listed hairy hudsonia, as well as a Piping Plover enclosure, both identified through field survey. He further explained that NH GRANIT data shows a blue mussel bed on the north side of the channel under the bridge. He also said that the project area includes lands identified by the NH Fish and Game (NHFG) as being the highest ranked habitat in the state.

Mr. Hageman then described the agency coordination that's occurred to date. He said coordination letters had been sent to the New Hampshire Natural Heritage Bureau (NHNHB); NHFG, the National Oceanic and Atmospheric Administration (NOAA), the US Army Corps of Engineers (USACE), the US Fish and Wildlife Service (USFWS), the New Hampshire Division of Historical Resources (NHDHR), the Seabrook and Hampton Harbormasters, and the US Coast Guard. He said NHNHB responded to the initial coordination, identifying three community types, nine plant species, and two avian species (the least tern and the piping plover). NOAA's response confirmed that four ESA listed threatened or endangered sea turtles, five threatened or endangered Distinct Population Segments of the Atlantic sturgeon, and the endangered shortnose sturgeon may occur within the project area. NOAA also identified 26 Essential Fish Habitat (EFH) species, trust resources, and diadromous fish species which may occur in the project area. Mr. Hageman explained that an IPac was generated for the project through consultation with the USFWS which identified the potential for the presence of the Northern long-eared bat (NLEB) and the red knot. Mr. Hageman indicated that consultation has been initiated with NHDHR to identify historic properties within and in the vicinity of the project site.

Mr. Hageman concluded the presentation by listing next steps. He indicated that a site walk has been scheduled with regulatory agencies on August 24th. At that time, the consultant team will complete the inspection of the bridge and adjacent structure for the NLEB. The consultant team is also finalizing the wetland report. A Public Information Meeting for the project is scheduled for September 26th in evening. The design team anticipates completing the evaluation of the bridge rehabilitation alternative this fall, at which point they will begin investigation of replacement options.

Carol Henderson with NHFG said the project team should be sure to coordinate with the NHFG Marine Division. Mr. Hageman said representatives will be attending the site walk on August 24th. She also suggested the team coordinate with Chris Williams at NH Department of Environmental Services (NHDES).

Mike Hicks with USACE asked if the jetty north of the bridge is owned by the Parks Department or by USACE. Ms. Reczek said they weren't sure about the structure's ownership but that a hydraulic analysis will be a component of the Preliminary Design Phase. Mr. Murphy said he suspects the jetty would not be a factor in the project because of its distance from the bridge.

Carol Henderson asked about the scope of the in-water work. Ms. Reczek said in-water work will be required as part of the project, whichever alternative is selected. Ms. Henderson suggested the project team consider eelgrass in the vicinity of the bridge. She said Fred Short at the University of New Hampshire would have the most accurate data.

Eric Feldbaum with NH State Parks indicated the small building immediately northwest of the bridge is owned by the Town of Hampton. He said there are parks which have received 6(f) funding located both north and south of the bridge, including Hampton Beach State Park in Hampton and Harborside Park in Seabrook. This will need to be considered as the project progresses and alternatives are identified.

Mike Hicks asked if both rehabilitation and replacement would require a temporary off-alignment bridge. Mr. Murphy said rehabilitation would require a temporary off-alignment bridge, while replacement would

entail a permanent off-alignment structure. Mr. Hicks said the project will necessitate an individual 404 permit through USACE.

Mr. Hageman asked Amy Lamb with NHNHB about their coordination response, specifically whether NHNHB is concerned with plant species that lie outside the identified project area. Ms. Lamb said they provided that information for reference, to show what additional species could potentially occur within the project area. She asked if the project team will be looking at the areas north and south of the bridge. Mr. Hageman said yes, but that they will be focusing on the areas that are not currently maintained. Mr. Hageman said formal surveys for listed species will not be undertaken during preliminary design, that the information they are currently collecting is for broad planning purposes.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: January 16, 2019
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT
Matt Urban
Sarah Large
Ron Crickard
Tim Boodey
Doug Locker
Marc Laurin
Jennifer Reczek
Bob Juliano
Tobey Reynolds

ACOE
Mike Hicks

Federal Highway
Jamie Sikora

NHDES
Lori Sommer
Eben Lewis
Chris Williams

NHF&G
Carol Henderson

NHB
Amy Lamb

Consultants/Public Participants
James Hall
Stephen Hoffman
Josh Lund
Christine Perron
Stephanie Dyer-Carroll
Dan Hageman
James Murphy

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requested that tree clearing be quantified to facilitate the Corps' coordination with the USFWS on northern long-eared bat.

Carol Henderson had a question about the location of the project in relation to Bow Lake in regard to the stocking of river herring. The project is an inlet to Bow lake located upstream, and therefore, not an issue regarding river herring.

Ms. Henderson also asked about the time of year for construction and noted that Fish & Game's preference would be to keep some portion of the stream channel open for fish passage during construction. Josh Lund explained that construction was planned for the fall of 2019 (possibly Columbus Day Weekend). Mr. Lund also discussed that water diversion would be up to the selected Contractor but was anticipated to involve the use of a pipe running through the existing channel. Accelerated Bridge Construction techniques are planned to minimize the duration of impacts, with water diversion necessary for approximately 3-4 weeks.

Ron Crickard asked whether an environmental document was being compiled for this project, noting that a State-level environmental document was now required for State Aid projects. The current scope of the project does not include an environmental document. Follow up with NHDOT would take place to determine if a document would be required at this phase of the project.

Lori Sommer asked if there had been any coordination with the upstream dam owner. Mr. Hoffmann explained that none had occurred at this time, and that this was not an active dam. Ms. Sommer requested that further analysis be completed to determine if the larger bridge structure could affect hydraulics upstream and impact the wetland function and values upstream from the bridge. Ms. Sommer also requested a planting plan be developed for the area of bank impacts, and to be sure to address all of Chapter 700 in the permit application. Ms. Sommer also requested to review the mitigation summary prior to submittal of the wetland permit applications.

This project has not been previously discussed at the Monthly Natural Resource Agency Coordination Meeting.

Seabrook-Hampton, #15904 (X-A001(026))

The second Natural Resources Agency Coordination Meeting for the Hampton Harbor Bridge Project was held on January 16, 2019 at the offices of the New Hampshire Department of Transportation (NHDOT) in Concord, NH. Jennifer Reczek, NHDOT's Project Manager, opened the meeting by welcoming attendees, facilitating introductions, and outlining the agenda for the meeting. Jim Murphy, with HDR, then explained that the project team first looked at the Rehabilitation Alternative and that they're now examining replacement options, including different potential alignments. He said they've received good input through the outreach process.

Dan Hageman, a member of the HDR consultant team, explained that the initial agency coordination has identified 26 Essential Fish Habitat (EFH) species, NOAA Trust Resources, the red knot, the piping plover, the shortnose and Atlantic sturgeon, four species of sea turtles, and various state-listed plant species. He said field investigations were undertaken for wetlands, habitat types, listed species, invasive species, and evidence of the Northern long-eared bat. He said through the agency coordination and field inspection, the project team identified six State-listed Threatened or Endangered plant species in the project area. No vegetated tidal wetlands were observed on the project site. Mr. Hageman showed maps which identified the listed species populations. He said discrete populations were located with a GPS, while more dispersed populations were characterized as either sparse or dense. This approach was developed together with New Hampshire Natural Heritage Bureau (NHNHB) on an August 2018 site walk. Mr. Hageman then explained that the project site has been subject to erosion, comparing 2016 and 2018 aerials of the project site. The

images show that a vegetated area west of the southern abutment was washed away during this period. Mr. Murphy said the erosion is being addressed under a separate project.

Mr. Murphy then explained the purpose and need for the project. He said the bridge is Number 1 on the State's Red List, as well as the Rehabilitation and Replacement Priority List. There are many original mechanical components and an outdated electrical system. In addition, the waterway opening is narrow, there are no shoulders for bicyclists, and the sidewalks are narrow.

Mr. Murphy then moved on to explain the engineering studies and the alternatives being considered. The alternatives include Rehabilitation, Replacement with a Fixed Bridge, and Replacement with a Bascule Bridge. Various alignment options and heights are under consideration. Mr. Murphy explained that rehabilitation of the bridge would require replacement of the superstructure and widening of the piers. He said the bascule pier is a limiting factor. The replacement of the bridge could be undertaken on its current alignment or to the east or west of the existing bridge. He said replacement on the existing alignment would require the bridge be closed for two years with a 12-mile detour. They've investigated the construction of a temporary bridge but that wouldn't mitigate the environmental impacts and it would increase the cost of the project by $20 million. The rehabilitation alternative would also require a lengthy closure and detour or a temporary bridge. Shifting the alignment to the east or the west has the potential to impact a range of features and resources. An eastern alignment has the potential to impact residences, the entrance channel, sensitive habitat and the State Park. A western alignment has the potential to impact businesses, sensitive habitat, conservation land (NHF&G owned), the State Pier and the Hampton and Seabrook Channels.

In addition to different alignments, Mr. Murphy explained the Project Team has evaluated different bridge heights, including 34' (Bascule Bridge), 44' (Low Fixed Bridge) and 59' (High Fixed Bridge) vertical clearance. Navigational clearance and elevation change at the abutments were key factors in the definition of the geometry. He said the heights under consideration account for sea level rise, and that the 59' option is not desired due to the impacts to structures and environmental resources. He shared that they'd heard concerns from the Project Advisory Committee (PAC) and the public about the potential impacts to residences immediately southeast of the bridge with an eastern alignment. Jennifer Reczek said the project team discussed retaining walls with residents and that she thinks they could mitigate the impacts through the use of retaining walls but not eliminate them. Lori Sommer with the New Hampshire Department of Environmental Services (NHDES) asked if retaining walls were employed on the approach of a 59'-high bridge, could they avoid impacts to the residences southeast of the bridge. Ms. Reczek said it would still be tight for the house closest to the bridge. Mr. Murphy clarified that land impacts from a 59'-high bridge on the eastern alignment wouldn't impact the State Park Maintenance Building. He further explained that a western alignment would impact the conservation area southwest of the bridge and could have temporary impacts to the State Park. There could also be impacts to the rented business facilities and access driveway on the State Pier property immediately northwest of the bridge. Ms. Reczek said NHDOT has been coordinating with the State Pier about the potential relocation of these businesses to vacant spots on the property.

Carol Henderson with NH Fish and Game (NHFG) asked if the project team had coordinated with Brendan Clifford with NHFG about the piping plover nest site southwest of the bridge. Stephanie Dyer-Carroll, a member of the HDR consultant team, said Mr. Clifford had attended the agency site walk in August and provided input.

Jim Murphy then explained that both the eastern and western alignments have the potential to impact navigational channels; an eastern alignment would impact the Hampton and Seabrook Channel, while the western alignment would impact the entrance channel. Mr. Murphy said that a Fixed Bridge Alternative could accommodate a widening of the channel through the bridge to 150' horizontal clearance, while a

bascule would widen it to 80'. He said vessel users want a wider channel than currently exists and that NHDOT has initiated discussions with the US Coast Guard, who ultimately has permitting authority.

Dan Hageman concluded the presentation by recognizing that though both eastern and western alignments would impact State-listed plant species, there are viable mitigation options. He explained that once NHDOT has identified a preferred alternative, the project team will seek ways to avoid, minimize and mitigate impacts. He then outlined next steps in the planning process. He said a Public Information Meeting would be held on January 30th and that they anticipate meeting with the NH Division of Historical Resources in late January or early February. The Design Team anticipates completing a Type, Size and Location Study in the spring of 2019.

Mike Hicks with the US Army Corps of Engineers (USACE) said the project will probably require an individual Section 404 Permit. He said that the project team should coordinate with Chris Hatfield and Matt Tessier for the USACE Section 408 Permit. He then asked if the design team anticipated any blasting and Mr. Murphy said it is unlikely. Mr. Hicks said he anticipates hydraulics will be a major issue and that there may be effects to residences near the half-tide jetty. He then asked when they anticipate releasing the Environmental Assessment. Ms. Reczek said they are currently scheduled to release the document in late summer 2019, but that the Section 106 process may dictate the schedule. Mr. Hicks then asked how far the federal channel is from the bridge. Mr. Murphy said they'd need to look at the plans to provide a precise measurement and Mr. Hicks said they should coordinate with Chris Hatfield and Matt Tessier on this. Mr. Hicks asked what the design life would be of a new fixed bridge, and Mr. Murphy said it would be approximately 100 years. Mr. Hicks then asked if there would be any submarine cables. Mr. Murphy said they would need to submerge communication lines if they replaced the bridge with a bascule and that the logistics of this would be difficult. If the bridge were replaced with a fixed bridge the lines could potentially be run on the bridge.

Ms. Sommer asked if the existing bridge would be removed if a new bridge is built. Mr. Murphy said that it would be. Ms. Reczek said the property west of the bridge is owned by the state so NHDOT will coordinate with the other state agencies to determine what requirements they have. Ms. Sommer said DES will need to hold a public hearing . Carol Henderson with New Hampshire Fish and Game (NHFG) said NHDOT should coordinate with Rich Cook, land agent at NHFG, if there will be impacts to the conservation area southwest of the bridge.

Ms. Reczek asked Mr. Hicks what specifically USACE is looking for in a hydraulic study. She said they plan to investigate hydraulics in the vicinity of the bridge but that modeling the whole river system would be challenging. Mr. Hicks said NHDOT should anticipate comments from residents in the vicinity of the jetty and that they should at least examine the pre- and post-construction conditions.

Mr. Jamie Sikora with the Federal Highway Administration (FHWA) asked if there would be future public meetings. Ms. Reczek said a public information meeting would be held on January 30th and then another in the late spring to show the refined alternatives. Ms. Sommer asked when they anticipate identifying a preferred alternative. Mr. Murphy said they hoped to have a preferred alternative by the summer but that the Section 106 process could be a schedule driver. Mr. Hicks said the Section 408 staff at USACE, as well as the USCG, may have comments. Ms. Sommer asked if the project team would be coming back to present at another meeting and Mr. Hageman responded that they would. Ms. Sommer said it is too early to pinpoint mitigation needs but she anticipates impacts will require mitigation. NHDOT should coordinate with both the Towns of Seabrook and Hampton, as well as NHFG. They may also need to coordinate with the NH Department of Justice's Charitable Trust Unit if the project requires the taking of any town's land or conservation lands and then identify replacement property.

Amy Lamb with the New Hampshire Natural Heritage Bureau (NHNHB) asked if the project team had determined the square footage of potential impacts to listed species. Mr. Hageman said that they had not, that the project is still too early in the planning process. Carol Henderson with NHFG asked if they'd determined whether there is any eelgrass in the vicinity of the bridge. Ms. Dyer-Carroll said the team had coordinated with Fred Short at the University of New Hampshire and that there is not any eelgrass. Ms. Sommer asked if NHDOT anticipates retaining the footprint of the existing bridge or if the area could be restored as habitat. Ms. Reczek said they need to continue coordination regarding listed plant species. If they are impacted, it may not make sense to relocate them to the old roadway alignment since it could be used again when the next bridge reaches the end of its life span. Ms. Lamb requested the figures showing the mapped listed plant species.

Chris Williams with NHDES asked if they'd looked into the requirements for the equipment to dredge the harbor. Mr. Murphy said 44' would clear the *Currituck*, the USACE dredge vessel, at low tide. Mr. Williams pointed out that coordination and certification under the Coastal Zone Management Act will be necessary. Mr. Hicks said the USCG will have to permit the bridge.

Mr. Murphy then asked if attendees had specific thoughts on mitigation measures for the listed plant species and habitat that could be impacted under a western alignment, as the west is under serious consideration. Ms. Lamb asked what the distance is from the edge of the roadway to the western edge of a new roadway. Mr. Murphy said approximately 50'. Ms. Sommer said there is an opportunity to address the constant erosion in the area perhaps through a living shoreline. She said there is a model that was developed that shows the suitability of certain areas for a living shoreline. The project team should coordinate with the NHDES Coastal Program and the University of New Hampshire further on this. Ms. Reczek said the project team would look into this as mitigation.

Ms. Lamb said that in terms of rare plants, the western alignment is more of a concern. She asked what ideas the project team had for mitigation. Mr. Hageman suggested relocating some of the individual specimen and also relocating the media. He said the project team would need to identify suitable locations. Ms. Lamb suggested they could look at filling in the paths through the dunes. Mr. Williams said the University of New Hampshire has undertaken a Sea Grant dune restoration effort and that there's a dune grass garden north of the park that could be used as a temporary holding location for plants and media.

Ms. Henderson requested a copy of the slides with the alignments shown.

This project has been previously discussed at the 8/15/2018 Monthly Natural Resource Agency Coordination Meeting.

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: December 18, 2019
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT
Matt Urban
Sarah Large
Ron Crickard
Andrew O'Sullivan
Marc Laurin
Joseph Adams
Meli Dube
Tim Mallette
Michael Licciardi
Jennifer Reczek

ACOE
Mike Hicks

EPA
Mark Kern
Jeannie Brochi
Beth Alafat

US Coast Guard
*Jeffrey Stieb

US Fish & Wildlife Services
Susi von Oettingen

NHDES
Lori Sommer
Karl Benedict
Eben Lewis

NH Fish & Game
Carol Henderson
Brendan Clifford

NH NHB
Amy Lamb

Consultants/Public Participants
Pete Walker
Lindsey Matras
John Byatt
Kristen Hayden
Chris Fournier
Sarah Barnum
John Stockton
Dan Hageman
Stephanie Dyer-Carroll

*Attendee called in for Seabrook-Hampton, #15904

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Seabrook-Hampton, #15904 (X-A001(026))

The third Natural Resources Agency Coordination Meeting for the Hampton Harbor Bridge Project was held on December 18, 2019 at the offices of the New Hampshire Department of Transportation (NHDOT) in Concord, NH. Jennifer Reczek, NHDOT's Project Manager, opened the meeting by welcoming attendees, facilitating introductions, and outlining the agenda for the meeting. Ms. Reczek also discussed the project status, including the major work completed since the last presentation in January 2019. She explained that a Rehabilitation Study, as well as an Alignment and Profile Study, had been undertaken. She said the public expressed a preference for the western alignment at the January Public Information Meeting.

Dan Hageman with Fitzgerald & Halliday (FHI), a member of the HDR consultant team, then provided a summary of the agency coordination that has taken place since the last presentation in January 2019. The NHDOT met with the US Fish and Wildlife Service (USFWS) and New Hampshire Fish and Game (NHFG) on March 21st, 2019 to discuss federally-listed avian species, especially the Piping Plover. The time-of-year (TOY) restriction (April 1- August 31) and buffer (200-meters) was discussed at this meeting, as well as the Section 7 process. The 200-meter buffer restricts a large portion of the bridge structure. Mr. Hageman explained that the TOY and buffer restrictions could potentially increase the project duration from three to seven years. Formal consultation is likely and the Biological Assessment (BA) is underway. Through coordination with the NHFG, it was determined that the potential softshell clam beds, thought to exist to the west of the bridge in shallow waters, no longer exist due to shifting sediments and storm damage.

Mr. Hageman then explained that the NHDOT also conducted coordination with the New Hampshire Natural Heritage Bureau to confirm the listed plant species and population boundaries. Last summer, some of the listed species within the ROW were relocated by Alyson Eberhardt with the New Hampshire Sea Grant to allow the US Army Corps of Engineers (USACE) temporary access to the beach on the west side of the bridge for the dredging project. Coordination is ongoing with NHNHB to determine what species were relocated and to where. Coordination took place with the National Oceanic and Atmospheric Administration (NOAA) regarding listed aquatic species. Due to the potential presence of listed aquatic species and NOAA Trust Resources, in-water work is restricted by NOAA between March 16 and November 14. A Programmatic Biological Assessment is potentially feasible, depending on the construction methodology. It was also determined that a Programmatic Essential Fish Habitat (EFH) Assessment may not be feasible. Mr. Hageman explained that FHI field-delineated a blue mussel bed located near the northern abutment in support of the EFH Assessment. NOAA has indicated that sediment sampling will not be required in support of the BA and EFH, but that benthic sampling will be necessary. This is likely to be undertaken in early 2020.

Stephanie Dyer-Carroll, a member of the HDR consultant team, then discussed the cultural resources coordination that has taken place since the last presentation in January 2019. The NHDOT undertook a site walk with NHDHR and consulting parties in January 2019 and attended a Cultural Resources Coordination Meeting in February 2019. The NHDOT also completed and submitted five Individual Inventory Forms and one District Area Form in the winter 2019. At the request of the New Hampshire Division of Historical Resources (NHDHR), the NHDOT completed an additional three Individual Inventory Forms, an addendum to the Phase 1A Archaeological Assessment, and a Phase 1B Archaeological Survey for features under the south end of the bridge. Effects evaluations for the Neil R. Underwood Bridge (Hampton Harbor Bridge), the Hampton Beach Cottages District, and 54 River Street were submitted to NHDHR and consulting parties for their review and comments have been received. These historic properties are also subject to Section 4(f).

Ms. Dyer-Carroll explained that NHDOT has also coordinated with the New Hampshire Division of Parks & Recreation regarding 6(f) resources, specifically, the Hampton Beach State Park. It was suggested that

the NHDOT minimize 6(f) conversion of the State Park, if feasible, and that the NHDOT further investigate the limits of the right-of-way (ROW). Ms. Dyer-Carroll said that no impacts are anticipated to Harborside Park as a result of any of the alternatives.

John Stockton with HDR then discussed the coordination that has taken place with the US Army Corps of Engineers (USACE) and the US Coast Guard (USCG) since the last presentation. The USACE requested that all bridge alternatives have a vertical under-clearance of 48 feet to facilitate dredge vessels and equipment. Since the last presentation, the western replacement alignments have been shifted closer to the existing bridge to minimize potential impacts to the federal channel to the west. The USCG and NHDOT met with stakeholders to review the proposed navigational clearances. The USCG is currently reviewing the Draft Navigational Study to prepare a Navigational Determination.

Mr. Stockton went on to discuss the four alternatives under consideration. He said the Rehabilitated Bridge (with Widened Bridge) Alternative would widen the bridge to the east in order to maintain the existing operator's house. A temporary bridge would be required to the west to accommodate traffic during construction. Mr. Stockton explained that both the Replacement with Fixed and Replacement with Bascule Alternatives have been pulled in closer to the existing bridge to minimize impacts to the navigational channels, but that there would still be a slight impact to the Hampton Harbor Channel under the Replacement with Bascule Bridge Alternative. Ms. Reczek said that they'd learned through coordination with USACE that the limits of the channel were defined based on an underwater rock ledge. Mr. Stockton said that the Replacement with Bascule Bridge Alternative would increase the vertical under-clearance to 34 feet, and the channel width would be increased to 80 feet. This would allow for passage of the Currituck, the USACE dredge vessel. Mr. Stockton said the increase in profile would reduce the number of lifts required by 50 percent. He explained that the horizontal clearance would be greater with the Replacement with Fixed Bridge because the spans could be longer and that the entrance channel would be widened to 150 feet. He said the vertical under-clearance had been increased from 44 to 48 feet based on input received from USACE. Finally, Mr. Stockton described the Twin Bridge (with Rehabilitated Existing Bridge) Alternative which had been developed since the last meeting. The Twin Bridge Alternative would consist of rehabilitation of the existing bridge to carry only northbound traffic, and the construction of a new bascule bridge to the west which would carry southbound traffic. Ms. Reczek explained that the Twin Bridge Alternative would allow for more of the existing bridge to be maintained. Mr. Stockton said, however, that the superstructure would need to be replaced. Ms. Reczek said that it could be more challenging for boats to pass under the longer channel under the two bridges because of strong cross-currents.

Ms. Dyer-Carroll then began a comparison of the alternatives. She said that all the alternatives would have a potential adverse effect on the National Register-eligible bridge, they all could require the potential use of the Hampton Beach State Park and other Section 4(f) resources, and they could all require the conversion of a portion of the park under Section 6(f). Moreover, all the alternatives could potentially result in a Not Likely to Adversely Affect finding to listed aquatic species and a No Substantial Adverse Effect finding to EFH species if work is undertaken outside the time of year restriction. Finally, all the alternatives could potentially result in an adverse effect to listed avian species if work occurs within the TOY restriction.

Mr. Hageman continued the discussion, focusing on those places where the alternatives differ. He explained that the Rehabilitation (with Widened Bridge) would have the greatest temporary impacts due to the footprint of the temporary bridge, and that the Twin Bridge Alternative would have the least temporary impact because the new bridge would be narrower than the two replacement alternatives. He said the Rehabilitation (with Widened Bridge) would have the smallest overall footprint and the Twin Bridge Alternative would have the greatest overall footprint. Mr. Hageman then discussed the differences in temporary and permanent impacts to different resources including channel bottom habitat, listed plant species/dune habitat, EFH species, and potential impacts to Piping Plover habitat. Regarding navigability, Mr. Stockton stated that the underclearance would stay the same under the two rehabilitation alternatives, but that the vertical clearance would be increased to 34 feet with the Replacement with Bascule Bridge

Alternative, and 48 feet with the Replacement with Fixed Bridge Alternative. Additionally, under the two rehabilitation alternatives, the width of the navigational channel would remain the same. Under the Replacement with Bascule Bridge Alternative, the channel would be widened to 80 feet; under the Replacement with Fixed Bridge Alternative it would be widened to 150 feet.

Ms. Reczek then wrapped up the presentation by discussing the next steps in the project schedule. During the winter of 2019/2020, the NHDOT expects to: undertake benthic sampling and sediment sampling (if required); release the Type, Size and Location (TS&L) Study; hold both a PAC meeting and a public informational meeting; and prepare and submit the BAs and the EFH Assessment. During the Spring/Summer of 2020, the NHDOT expects to execute the Effects Memorandum for cultural resources; release the Draft Environmental Assessment; and hold additional PAC and public meetings.

Mike Hicks with USACE asked when the USCG would complete their Navigational Determination. Jeff Stieb said the USCG plans to have a letter finalized by February 2020. He also said they don't permit submarine cables. Mr. Hicks said USACE will ask the applicant to look at alternatives to the submarine cables. With the activity in the channel, the installation of cables could be very challenging. Mr. Hicks then asked if they'd included the cost of property takings in the estimates. Ms. Reczek said the impacts would primarily be within the ROW or to state lands. Mr. Hicks said that the USACE point-of-contact for Section 408 and navigation items is Wendy Gendron

Carol Henderson with NHFG requested the NHDOT summarize the rational for abandoning the alternative alignments to the east of the existing bridge. Ms. Reczek explained that the western alignment avoids impacts to the homes southeast of the bridge. Susi von Oettingen with the USFWS pointed out that there is no foraging or nesting habitat on the east, only on the west side. Mr. Hageman said the replacement alternatives could allow for the restoration of Piping Plover habitat in the footprint of the existing bridge. Ms. Henderson said it would be beneficial to include an eastern alignment in the alternatives matrix for comparison purposes.

Amy Lamb, with the New Hampshire Natural Heritage Bureau (NHNHB), asked if NHDOT could send the agencies a copy of the alternatives matrix along with any supporting graphics that show the potential impacts of each alternative. NHDOT agreed to send this information. Ms. von Oettingen asked why the NOAA TOY restriction is given more consideration than the USFWS TOY restriction. Ms. Reczek explained that work can often be undertaken during the NOAA TOY restriction with the use of sheet piling. This is not typically the case with the Piping Plover. Lori Sommer with the NH Department of Environmental Services (NHDES) asked if there would be a difference in impact to the Piping Plover between the three-year and seven-year scenarios. Ms. von Oettingen said there would be a loss in productivity and that the USFWS would consider each year of construction within Piping Plover habitat, during the TOY restriction, to constitute the "taking" of one pair of Piping Plover. It may not be a permanent loss, but it would constitute an adverse effect or take. Ms. von Oettingen said there needs to be formal consultation with the USFWS. There must be an inventory of habitat and an assessment of long-term effects to the Piping Plovers. Mr. Hicks asked what the TOY restriction is for the Piping Plover, and Ms. von Oettingen answered from April 1st to August 31st. Ms. von Oettingen then asked if the construction could start at the northern portion of the site, and move south to minimize work near the Plover habitat. Mr. Hicks asked if the birds could be relocated and Ms. von Oettingen answered that they cannot be relocated since they will come right back to the site.

Ms. Sommer asked if the vertical clearance increase is beneficial and how this factors into the project. Would bigger boats be able to enter the harbor? Ms. Reczek responded that the existing channel has an eight-foot design depth, so even if the channel or bridge openings were widened, the channel depth would still be the limiting factor for large vessels. As a result, the NHDOT does not anticipate a substantial change in the size of vessels entering the harbor. She said several party boats dock in the harbor and aren't able to

leave the harbor until high tide. Mr. Stockton said mooring locations also restrict the size of boats entering the harbor.

This project has been previously discussed at the 8/15/2018 and 1/16/2019 Monthly Natural Resource Agency Coordination Meetings.

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: December 16, 2020
LOCATION OF CONFERENCE: Virtual meeting held via Zoom

ATTENDED BY:

NHDOT
Sarah Large
Matt Urban
Andrew O'Sullivan
Ron Crickard
Mark Hemmerlein
Arin Mills
Samantha Fifield
Nancy Spaulding
Jon Evans
Chris Carucci
Meli Dube
Kirk Mudgett
Julius Nemeth
Bill Saffian
David Scott
Don Lyford
Joe Adams
Jennifer Reczek
Marc Laurin
Ron Kleiner
Tobey Reynolds
Mike Mozer
Bob Juliano

ACOE
Richard Kristoff
Mike Walsh

Federal Highway
Jaimie Sikora

EPA
Beth Alafat
Jeanie Brochi

NHDES
Lori Sommer
Karl Benedict
Eben Lewis
Stefanie Giallongo
Christian Williams
Ann Pelonzi

NH Fish & Game
Carol Henderson

NHB
Amy Lamb

The Nature Conservancy
Pete Steckler

US Coast Guard
Jeff Stieb
Donna Fischer

NOAA
Michael Johnson
Roosevelt Mesa

USFWS
Susi von Oettingen

Consultants/ Public Participants
Rich Brereton
Kevin Ryan
Bill McCloy
Sean Sweeney
Bryson Welch
Lee Carbonneau
Ray Hanf
Dave Smith
Josif Bicja
Ed Weingartner
Stephanie Dyer-Carroll
Dan Hageman
John Stockton
Roch Larochelle
Nicholas Caron
Alyson Eberhardt, UNH
Thom Marshall

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Carol Henderson with NHDES suggested that the project team coordinate with Fred Short at the University of New Hampshire regarding eelgrass in the vicinity of the bridge. Stephanie Dyer-Carroll with FHI said that the team had coordinated with him in the past. Mike Johnson with NOAA shared that Fred Short had retired and suggested that the project team contact someone at NH GRANIT. Ms. Henderson also suggested that the project team coordinate with Chris Martin from Audubon closer to construction regarding the Bald Eagle.

Amy Lamb with NHNHB asked that we provide her with the numbers from the project's earlier data requests.

Jeanie Brochi with EPA asked if there had been additional survey of the water flow for increased recreational use impacts to the channel and due to sea level rise. She also asked when the new eelgrass survey would be completed and who would do it. Dan Hageman said that the eelgrass survey would be completed about a year before construction and that the surveyor had not yet been identified.

Ms. Reczek thanked attendees and said that the project team will need to come back to further discuss mitigation and if the bridge type changes in the future.

This project was previously discussed at the 3/20/13, 1/15/14, and 5/17/17 Monthly Natural Resource Agency Coordination Meetings.

Seabrook-Hampton, #15904 (X-A001(026))

The third Natural Resources Agency Coordination Meeting for the Hampton Harbor Bridge Project was held on December 16, 2020. Jennifer Reczek, NHDOT's Project Manager opened the meeting. She explained that the project was initiated in 2018 and that they initially considered three alternatives – Replacement with a Fixed Bridge, Replacement with a Bascule Bridge, and Rehabilitation (with a Widened Bridge). A fourth alternative was added, a Twin Bascule Bridge (with Rehabilitated Bridge), to address cultural resources concerns. In the spring of 2020, NHDOT completed a Type, Size and Location Study which identified the Replacement with Fixed Bridge as the Preferred Alternative. Ms. Reczek said that the Preferred Alternative would provide sufficient vertical clearance for vessels, including the US Army Corps of Engineers' (USACE) dredge vessel, the *Currituck*. It would widen the navigational opening under the bridge to 150 feet, but it would not impact the Hampton Harbor Navigational Channel to the west.

Dan Hageman, a member of the HDR consultant team, explained that the Red Knot, Piping Plover, and Roseate Tern were all identified as potentially occurring within the study area. He said the project team met with the US Fish and Wildlife Service (USFWS) and NH Fish and Game (NHFG) last year to discuss the project. USFWS recommended a 200-meter setback from plover habitat to project related work between April and August when the birds could be on site in order to avoid adverse effects, but that the project team determined that this was not feasible because it could extend the construction period up to seven years. NHDOT initiated formal consultation with USFWS in December 2020 with the submission of a Biological Assessment (BA).

Mr. Hageman explained that the project team had also coordinated with the NH Natural Heritage Bureau (NHNHB) about State-listed plant species present on the site. He said they undertook a survey of the project area in 2018, but that some of the plants were moved in 2019 in advance of the USACE project. The project team also prepared and submitted a Programmatic BA to the National Oceanic and Atmospheric Administration (NOAA) to assess potential impacts to Shortnose Sturgeon, Atlantic Sturgeon, and several species of sea turtles. Mr. Hageman said an Essential Fish Habitat (EFH) Assessment had also been submitted to NOAA.

Stephanie Dyer-Carroll, another member of the HDR consultant team, explained that coordination had also been ongoing regarding effects to cultural resources and Section 6(f) properties. She said the project team met with the NH Division of Historical Resources (NHDHR) and Consulting Parties in October 2020 to discuss potential mitigation measures for the Seabrook-Hampton and New Castle-Rye Bridge projects, and that they are working with NH State Parks to determine if a 6(f) conversion will be required at the Hampton State Pier. Mr. Hageman said NHDOT has received a Preliminary Determination from the US Coast Guard (USCG) concurring with the proposed navigational clearances.

Mr. Hageman then summarized the potential impacts of the project. He said the USFWS BA concluded the project would be Unlikely to Affect the Roseate Tern; it May Affect but is Unlikely to Adversely Affect the Red Knot, and that it May Affect and is Likely to Adversely Affect the Piping Plover due to construction activity and habitat loss. The Programmatic BA submitted to NOAA concluded the project is Not Likely to Adverse Effect the listed aquatic species, while the EFH Assessment found that, while there would be adverse effects, they would not be substantial. He said there would be both temporary and permanent impacts to channel bottom habitat and shellfish beds, but that there will be opportunities for the restoration of habitat once the existing bridge is removed.

Mr. Hageman summarized conservation and mitigation measures to address potential impacts. He said a number of conservation measures were identified in the USFWS BA, including the use of protective fencing, strict housekeeping, and slow starts when pile driving during Piping Plover breeding season. Mitigation to address impacts to aquatic species include restricting in-water work to between November 15th and March 15th, and the use of cofferdams to contain the work activity at the piers. He said NHDOT may use the NH In-Lieu-Fee program in conjunction with the USACE mitigation needs during the permitting phase. He said NHDOT also plans to survey and relocate the listed plant species where necessary prior to construction.

Ms. Reczek concluded the presentation by discussing next steps. She said they will be developing a Memorandum of Agreement with NHDHR and Consulting Parties and moving forward with formal consultation with USFWS under Section 7. They will also be coordinating with NOAA regarding the EFH Assessment and Programmatic BA. NHDOT plans to release the EA and 4(f) Evaluation to the public in March of 2021 and hold a public meeting. Once compliance is complete under the National Environmental Policy Act (NEPA), NHDOT will move forward with the preparation of permits for the project.

Eben Lewis with the NH Department of Environmental Services (NHDES) said the project team will need to quantify the impacts to the sand dunes and prepare a Vulnerability Assessment and Coastal Worksheet. Ms. Reczek asked if the quantification of the dune impacts is required for permitting and Mr. Lewis confirm that it was.

Chris Williams with NHDES asked if the project incorporates sea level rise, including in the design of the path under the north side of the bridge. John Stockton, a member of the HDR consultant team, said the path would be above the water. Mr. Williams said the project team should coordinate with the NHDES Coastal Program Habitat Coordinator on mitigation. He also suggested that Ms. Reczek give a presentation about the project at a future Dredge Management Task Force meeting.

Lori Sommer with NHDES suggested the project team organize a separate meeting to discuss mitigation with Kevin Lucey and Kirsten Howard. This could include salt marsh ditch remediation and the use of signage to restrict access. Chris Williams said they should also include Alyson Eberhardt because she'd been working in the dunes southwest of the bridge. Alyson said she'd happy to share what's been done.

Mike Walsh with USACE said he likes the improvements to the navigational opening and that they will be looking for cross sections for their review as part of the Section 408 review. Rick Kristoff, also with USACE, said the project may require an Individual Section 401 permit.

Susi von Oettingen with USFWS said she'd just begun her review of the BA. She said any deposition of dredge spoil on the beach should be done in the winter to minimize adverse impacts. She also said that if the project can't start in March or earlier, when the Piping Plovers aren't on site, they should identify measures to discourage nesting so as to avoid the loss of a nest.

Mike Johnson with NOAA said he wanted to know what the buffer was between the underside of the bridge and vessels. Ms. Reczek said USACE currently has to use a private contractor to dredge the harbor, as the *Currituck* requires 44 feet of clearance at Mean High Water (MHW). Additionally, it is taller than all any other vessel that has transited the current bridge. An additional four feet of clearance (48' total from MHW) has been provided based upon the guidance in the 2014 STAP report. Mr. Johnson believes that it is worth re-evaluating if four feet is adequate for the life of the bridge project. He also said that removal of the pier won't necessarily result in the restoration of shellfish habitat, as the piers are in deeper water.

Carol Henderson with NHFG suggested Brendan Clifford be included in mitigation discussions related to the Piping Plover.

Amy Lamb with NHNHB asked that the project team continue to coordinate on the development of transplant protocols for the listed plants.

Jeanie Brochi with the Environmental Protection Agency (EPA) asked if an eelgrass survey had been undertaken. Ms. Dyer-Carroll said they'd coordinated with Fred Short at the University of New Hampshire at the outset of the project and he said eelgrass had never been identified in the project area and was not anticipated due to the velocity of the water. Ms. Brochi said they should reach out to the Wetland Bureau Chief, Jackie LeClaire, to coordinate on the Section 401 permit. Mark Hemmerlein with NHDOT said the 401 permit applies to the activity and not the discharge, and that a meeting should occur between NHDOT, USCG and USACE to discuss the requirements.

This project was previously discussed at the 8/15/18, 1/16/19, and 12/18/19 Monthly Natural Resource Agency Coordination Meetings.

Newport, #20006 (LPA)

The proposed project is a NHDOT Municipal Bridge Aid Project which involves replacing an existing 20' clear span bridge which carries Sand Hill Road over Long Pond Brook with a new 32' clear span bridge. The roadway is currently restricted to one lane of traffic due to the deteriorated condition of the superstructure. Kleinfelder, Inc. is the lead engineer and Headwaters Consulting, LLC is the hydraulics and environmental subconsultant. Sean Sweeney presented the project via PowerPoint slides.

The watershed area of Long Pond Brook at Sand Hill Road is 11.4 square miles and the crossing is located within a FEMA Zone A Special Flood Hazard Area (SFHA). Therefore, the crossing is classified as a tier 3 stream crossing under Env-Wt 904.05(a)(1) and (3).

Hydraulic analyses of Long Pond Brook under existing and proposed conditions indicate that the new bridge would pass the 50-year flood with more than one foot of freeboard, thereby meeting NHDOT hydraulic design criteria. In addition, the analyses show that 100-year flood levels upstream from the crossing will decrease by as much as ten inches and will not change downstream from the crossing, thereby

BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: July 20, 2022
LOCATION OF CONFERENCE: Virtual meeting held via Zoom

ATTENDED BY:

NHDOT
Matt Urban
Jon Evans
Mark Hemmerlein
Joshua Brown
Arin Mills
Samantha Fifield
Jennifer Reczek
Marc Laurin

ACOE
Richard Kristoff

EPA
Jean Brochi

NHDES
Karl Benedict
Lori Sommer
Christian Williams

NHB
Amy Lamb

NH Fish & Game
John Magee

Federal Highway
Absent

The Nature Conservancy
Absent

Consultants/ Public Participants
Stephanie Dyer-Carroll
Nick Caron
Laurel Stegina
Keith Cota

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH: *(minutes on subsequent pages)*

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gravel (70%) and cobble (15%), Rosgen type 'C' and compliant size of 14'. Wildlife Action Plan (WAP) showed surrounding highest ranked habitat and wildlife corridor. USFWS determined potential Northern long-eared bat with 4(d) consistency letter generated, no cultural Section 106 concerns and no US Coast Guard concerns.

Karl B confirmed that this project can be permitted under Env-Wt 904.09. A cross section and longitudinal profile was requested to be submitted with the application to better understand the pre and post construction elevations of the crossing. Karl asked if there were any permanent impacts anticipated along the banks for access? Sam stated that most of the work on the wings and extension will be done from behind the wings. However, all areas within the site that is impacted by equipment will be graded and seeded to pre-construction conditions. Karl mentioned limiting the spread of invasive species and Sam acknowledged. Arin noted no invasive plants were observed in the project area. Karl noted the high composition of cobble in the reach and recommended using similar size stone at the outlet to ensure the material stays in place. Sam acknowledges and said that the stone size intended for the outlet, Class B, is similar in size.

Lori S said no mitigation is required, as proposed. John M asked about the water depth after scour protection stone was installed. Sam said the fill would match the downstream and invert elevation. John asked if the mixed size material could be layered as to allow the spaces to be filled throughout the fill depth. Sam said layering of material is planned. John further asked if stone could be placed slightly above the outlet elevation to allow for backwatering through the structure at low flow. Sam said she would look into that and would need to unsure the hydraulic capacity of the structure is not impacted. John lastly discussed timing as to protect eggs that may be lying on the pool substrate from spawning ahead of construction and not allowing potential eggs to dry out with installation of the CWB and cofferdam. Sam said she could install the cofferdam ahead of October 1st as to preclude spawning within the work area.

Amy Lamb, Jean Brochi and Rick Kristoff all had no comment.

Seabrook-Hampton, 15904 (X-A001(026)):

The fourth Natural Resources Agency Coordination Meeting for the Hampton Harbor Bridge Project was held on July 20,2022. Stephanie Dyer-Carroll with FHI Studio, a member of the HDR consultant team, opened the meeting. She provided a brief update on the status of the project, indicating that the NEPA documentation has been completed, and Section 106 of the NHPA, Section 7 of the ESA and EFH consultations have all been completed. The project is in final design and is moving into the permitting phase. She explained that the selected alternative is a fixed bridge located to the west of the existing bridge.

Nick Caron, an engineer on the HDR consultant team, then provided a summary of the key attributes of the new bridge. He said the bridge will have seven spans on six piers and two abutments. He explained that the new abutments would be located further inland in order to minimize impacts to wetland resources. He said the federal navigational channel would be widened at the bridge to match the width of the entrance channel, and that the bridge would have a vertical underclearance of 48 feet. To mitigate impacts to the Hampton State Pier property to the north, a Section 6(f) resource, a pedestrian path would be installed under the bridge on the north side to provide a pedestrian connection between the State Pier and Hampton Beach State

Park. The bridge would have a closed drainage system with stormwater treatment swales to the northeast and southeast of the bridge.

Mr. Caron explained that during construction the approach roadways would be supported by cofferdams, and four temporary work trestles would be erected to facilitate the construction of the new bridge and the demolition of the old one. The bridge abutments would be supported on steel bearing piles and the piers would be supported on drilled shafts. The steel casings for the drilled shafts would be driven into place and vibrated out. To ensure no sediment reaches the water column, cofferdams would be installed at Piers 1, 2, 5 and 6. The footings at Piers 3 and 4 wouldn't contact the channel bottom so the drilled shaft casings would be employed to provide containment. Water and drilled waste would be pumped to a barge for disposal. There would be minimal dredging of sediments required to widen the channel. Utilities would be relocated by others prior to construction.

Ms. Dyer-Carroll summarized the impacts of the project. She explained that there are no vegetated tidal wetlands in the project area and that the project is using a conservative temporary impact envelope of just over seven acres which is intended to give the contractor flexibility for construction access. She said permanent impacts are estimated to be approximately 0.29 acres due to the installation of drilled shafts and pier footings, fill impacts at the north abutment, and dredging. Ms. Dyer-Carroll said that while the area of potential dredging is 0.39 acres, it's only anticipated that 0.11 acres would actually be impacted by the channel widening since portions of the dredge envelope have depths below the required navigation depth of eight feet. She said 0.02 acres of the permanent impact would be to a blue mussel bed on the north side of the channel. She further explained that the removal of the existing piers and rip rap would allow for native material to be restored over time. She said the project would also result in impacts to the Tidal Buffer Zone, Top of Bank, and regulated Shoreland.

Ms. Dyer-Carroll then explained that there would also be impacts to state-listed plants, federally regulated avian and aquatic species, and EFH and Trust resources. She said mitigation measures have been identified through the EFH and Section 7 consultations, and a mitigation plan to address impacts to state-listed plants will be developed in support of the permitting process. NHDOT anticipates that the NH Aquatic Resource Mitigation (ARM) Fund will be used to mitigate wetland impacts. Ms. Dyer-Carroll explained that the Project Team has reached out to the Hampton and Seabrook Conservation Commissions to request recommendations for local mitigation projects as well.

Ms. Dyer-Carroll then shared a list of permits and proposed schedule. She requested that the regulatory agencies let the Project Team know if the assumed review times as presented were not realistic. She presented next steps, including resurvey of the highest observable tide line (HOTL) at the lunar high tide, resurvey of the blue mussel bed, and resurvey of the state-listed plants within the project area. She said that following the plant survey, the Project Team is planning a site walk with NH Natural Heritage Bureau (NHNHB) to discuss mitigation. She said the Project Team plans to return to the Natural Resources Agency Meeting in October and hold individual pre-application meetings with NH Department of Environmental Services (NHDES) and the US Army Corps of Engineers (USACE), as necessary.

Ms. Dyer-Carroll concluded the presentation with a question for the regulatory agencies. She explained that sediment sampling was undertaken in 2018 as part of the maintenance dredging of the Hampton and Seabrook Channels. The grain size analysis indicated that chemical testing was not necessary. She said the Project Team wanted to confirm that the 2018 data could be used for the Seabrook-Hampton Bridge Project and that sediment sampling would not be required. She pointed out that sediment sampling was not required for the permitting of the recent Jetty project adjacent to the project site. Rick Kristoff (USACE) said that it is on a case-by-case basis. He said he will check with their Analysis section regarding the sediment for the past navigation projects in Hampton Harbor. Jean Brochi (EPA) said they also consider it on a case-by-case basis. Karl Benedict (NHDES) suggested that the Project Team follow up with Chris Williams on this question.

Mr. Benedict, speaking on behalf of Eben Lewis who wasn't able to attend, said that the project will be categorized as a "Major Project" and that it will require Governor and Council approval. He said Mr. Lewis wanted to highlight the applicable NHDES Administrative Rules the Project Team should be addressing for this project, including:

- Env-Wt 603.04 – Coastal Functional Assessment
- Env-Wt 603.05 – Vulnerability Assessment
- Env-Wt 603.06 – Project Design Narrative
- Env-Wt 603.08 – Water Depth Supporting Information
- Env-Wt 605.02 – Additional Requirements for Projects In or Adjacent to Tidal Waters/Wetlands and Tidal Buffer Zones as related to Env-Wt 313.04
- Env-Wt 605.03 – Impacts Requiring Compensatory Mitigation

Mr. Benedict said that the Project Team should be mindful of the fact that a new wetland delineation will need to be done after five years; the wetland delineation for the Project was completed in 2018. He then asked what the proposal is for water quality monitoring during construction. Mr. Caron said they are planning for water containment with cofferdams to prevent leakage into the harbor. Mark Hemmerlein (NHDOT) suggested the Project Team review the Best Management Practices (BMPs) from the Water Quality Certifications for the dredging projects. Mr. Caron said protocols would be established with the contractor to ensure compliance. Mr. Benedict recommended a pre-application meeting that includes representatives from each of the NHDES programs, including Coastal staff.

Lori Sommer (NHDES) asked about impacts to the Tidal Buffer Zones. Ms. Dyer-Carroll said they had not been quantified yet. Mr. Caron said the Project Team will quantify the impacts once the HOTL has been resurveyed. Ms. Sommer asked about the proportion of developed to undeveloped areas within this zone. Mr. Caron said that the entire southwest quadrant is undeveloped and that they will need to quantify impacts. The northeast and southeast quadrants include existing roadway and natural bank down to the HOTL. He said the State Pier lies to the northwest and that it is primarily paved. Ms. Sommer then asked how long the temporary trestles would be in place. Mr. Caron said those on the west side would be in place for approximately 1.5 years for the purpose of installing the new substructure and constructing the steel girders. Then the trestles would be removed. The second set of trestles would be in place for less time for demolition of the existing bridge and clean-up of the channel bottom. Ms. Sommer said that she

agrees with the approach to use the ARM Fund for permanent wetland impacts. She noted that any impacts sustained for more than a year are considered permanent and will need to be mitigated as such. Mr. Kristoff agreed.

John Magee (NHFG) asked who from his agency has been involved in early coordination meetings. Ms. Dyer-Carroll said that Brendan Clifford had been involved in the Section 7 consultation regarding impacts to piping plover. Ms. Dyer-Carroll said Carol Henderson had attended the Natural Resources Agency Meetings, but that she believed Cheri Patterson was involved in coordination related to a potential historic clam bed, but that a benthic study was conducted and resulted in a finding of no presence. Ms. Dyer-Carroll said she would confirm and get back to Mr. Magee.

Amy Lamb (NHNHB) asked about the presence of eel grass in the project area. Ms. Dyer-Carroll said that the Project Team communicated with Fred Short early in the project and he indicated there were no records of eel grass in the area. Ms. Reczek said that the flow within this area is high velocity and not conducive to eel grass establishment. Ms. Lamb asked that the Project Team provide her with a copy of the correspondence with Mr. Short. Ms. Lamb noted that the subtidal habitat is considered an "exemplary natural community." She asked how they will proceed with the handling of the dredge spoil. Ms. Dyer-Carroll said that once the team has a greater understanding of the volume, either a disposal or a mitigation plan will be developed. Ms. Lamb then asked for additional details about the fill around the abutments and the path. Mr. Caron explained that a path is planned that would wrap around the abutment; however, the fill around the abutments is necessary to stabilize the slopes and to bring the grade up for connectivity between the two state parcels. The fill footprint is enlarged slightly as a result of the path. Mr. Caron said that dredge material would not be suitable at this location due to the slope. Ms. Reczek added that the path is a mitigation measure for the Section 6(f) impacts. Ms. Lamb asked if, once the existing bridge is removed, there is a plan to relocate listed plants to this location. Mr. Caron said that a vegetated swale is proposed for this area to treat stormwater.

Jean Brochi (EPA) said that the timeline for permitting looked good. She suggested a site visit be coordinated so the agencies can understand what is being reassessed. She said she concurred with USACE that if the trestles were in place for more than one year, they would need to be permitted as permanent impacts. She asked how the temporary trestle had been realigned to avoid the blue mussel bed. Mr. Caron explained that one of trestle fingers was shifted to the south side of the work area to lessen impacts. Mr. Hemmerlein asked if the new bridge could be constructed without the trestles and, instead, use the existing bridge. Mr. Caron said that the existing bridge would be used during construction to maintain traffic flow. Due to the overhead limits of the cranes, four trestles would be required. Construction could not be completed with just two. It would be difficult to access the existing bridge from the opposite side due to overhead clearances from the proposed structure above the trestle and the reaches needed from the proposed bridge work trestles to the existing structure elements. He said that the duration of use of the trestle to remove the existing bridge is anticipated to be six to eight months.

Mr. Benedict asked how the utilities would be permitted. Mr. Caron said they are still coordinating on this but that the utilities adjacent to the bridge will be permitted separately, but there will be coordination. Mr. Caron said the temporary impact envelope includes the location of the utilities.

Ms. Brochi said that she would like to be included in discussions about how the dredged material is disposed of or used as part of the project, such as for beach nourishment. She said that beach nourishment is typically included in the USACE dredging project, and she asked if the USACE project would be amended to include this. Mr. Hemmerlein said the harbor is dredged every nine to ten years and that the material is used for beach nourishment. He said the next maintenance dredge aligns with the end of this project and asked if they had looked at combining with the maintenance dredge. Ms. Reczek added that a portion of the impact area is below the elevation that is maintained by the federal navigation project. A bathymetric survey was just conducted, and the data is still being reviewed. She said there is potential for a small amount of eligible dredge material. It was also noted that traditional dredge equipment, such as hopper dredge, would not be used, but instead smaller-scale equipment.

Ms. Sommer asked if the construction duration could be reduced to less than one year. Ms. Reczek said more than a single construction season would be required due to the size of the bridge. There was additional discussion about disposal sites, including offshore options. It was noted that the name of the disposal site should be included in the permit application. Ms. Sommer asked how impacts would be calculated, specifically whether the entire envelope would be considered permanent impact or whether it would be the footprint of the piles. Marc Laurin (NHDOT) suggested they calculate the permanent impact areas by the square footage of the piling footprints, as they'd discussed on the New Castle-Rye Bridge project. Richard Kristoff (USACE) said they would also need to consider shading impacts, for salt marsh or eelgrass for example, Ms. Brochi asked the duration of the impact for the New Castle project and said this was key. Mr. Laurin said it was just anticipated to be a season. Jennifer Reczek (NHDOT) noted a percentage of the area outside the pier footprints, but within the seven acres, could be considered the area of permanent impact since they aren't exactly sure where the piles would be placed. Ms. Sommer said this is a good approach and suggested another conversation once revised permanent and temporary impacts are estimated.

Mr. Hemmerlein asked about next steps for the agency decision on whether sediment testing is needed. Ms. Brochi said, based on the Environmental Assessment, she understood the dredge spoil would be taken to the Isle of Shoals disposal site. If this has changed, that needs to be provided to the agencies for review. Ms. Reczek said that the recent USACE dredge project used the dredge spoil for beach nourishment. If the spoil is used for beach nourishment, it will need to be determined if this use is an impact (fill) or mitigation. It was suggested that a meeting be scheduled with agency staff who perform "suitability determinations" after the amount of dredge material is quantified. Ms. Dyer-Carroll asked if a letter with supporting documentation should be submitted and then the agencies could provide a written response. Ms. Brochi suggested the Project Team provide a graphic depiction of the proposed approach for the agencies to respond to; for example, showing how the dredged material would be used to mitigate for impacts to plover habitat. It should include the volume of material to be used for mitigation and how much would be otherwise disposed of. Ms. Reczek said the volume of dredge material is anticipated to be small. A precise volume will be developed with the new bathymetric data.

Hampton Harbor Bridge Project
Summary of Meeting
Natural Resources Agency Meeting
November 16, 2022

The sixth Natural Resources Agency Coordination Meeting for the Hampton Harbor Bridge Project was held on November 16, 2022. Dan Hageman with FHI Studio, a member of the HDR consultant team, opened the meeting. He provided a brief update on fieldwork and agency coordination that has occurred since the team last presented in July, including a site walk with the New Hampshire Natural Heritage Bureau (NHNHB) to review the findings of a survey of state-listed plant species and a site walk with regulatory agencies, including NHNHB, New Hampshire Fish and Game (NHFG), and the New Hampshire Department of Environmental Services (NHDES).

Mr. Hageman then summarized the findings of the state-listed plant survey (completed in August 2022). He said the team had identified the areas of impact for each of the species and that the team is now looking at options for mitigation. He said the project team met with representatives from NHNHB, NHDES, NH Sea Grant and the Hampton-Seabrook Estuary Collaborative to discuss mitigation options. He said the current plan is to relocate individual plants of Beach Heather, Wormwood, Dropseed and Sandmat. The Needlegrass and Cyperus species are harder to deal with because they are annuals and are more widely distributed throughout the site. One option for these two species would be dispersal of the top layer of sand material to un-impacted areas of the dune, thereby distributing the existing seed stock out of the impacted areas. He said the project team is looking at pursuing a partnership with NH Sea Grant for the listed plant mitigation which could potentially include seed collection and germination.

Mr. Hageman then turned the discussion to wetlands. He explained that the majority of the wetlands are subtidal, with areas of intertidal rocky shore on the north side and intertidal sand flat on the south side. He shared an impact plan and explained that the project is using a conservative temporary impact envelope of just over seven acres to provide access flexibility for the contractor, but that the entire area will not be impacted. He said permanent impacts will result from the piers and grading at the north abutment. Mr. Hageman then explained that the dunes are a Priority Resource Area (PRA) and impacts to the resource will be reviewed under the NH Dredge and Fill Permit. He said there is a blue mussel bed on the north side of the bridge and small populations adjacent to Piers 5 and 6. He explained that one of the trestles had been relocated to avoid impacts to the mussel bed.

Nick Caron, an Engineer and the HDR team Project Manager, then summarized the leveling that will need to be undertaken in order to widen the navigational channel. He said the channel under the bridge will be widened to 150 feet to match the Entrance Channel east of the bridge. Mr. Caron explained that the leveling will result in the movement of approximately 160 CY of sediment. The relocated sediment will be used to fill in voids created by the removal of the existing bascule pier and rest pier.

Mr. Hageman then summarized the temporary and permanent impacts to wetlands and to the PRA dune habitat, before discussing measures to avoid and minimize wetland impacts. He explained that the phased construction approach will minimize wetland impacts, and that the horizontal alignment was designed to minimize approach work and therefore impacts to the PRA dune habitat. The cofferdams and cased drilled shafts will contain activity at the piers and will be installed during the

in-water work window (November 15-March 15). The cofferdams and trestle piles will also be removed during the in-water work window.

Mr. Hageman explained that NHDOT had contacted the Towns of Seabrook and Hampton about potential mitigation projects. The Town of Hampton proposed the acquisition of certain parcels as mitigation but that was determined by NHDES not to be suitable mitigation for the project. NHDOT is scheduling a meeting with representatives from NHDES, the Town of Hampton, NH Sea Grant, and the Seabrook-Hamptons Estuary Alliance to discuss potential mitigation projects within the estuary. Mr. Hageman said NHDOT anticipates mitigating impacts to wetlands and the PRA dune habitat through the New Hampshire Aquatic Resource Mitigation (ARM) Fund.

Mr. Hageman summarized the anticipated Shoreland impacts, explaining that impacts to the Tidal Buffer Zone (TBZ) and PRA dune habitat would be assessed under the NH Dredge and Fill Permit. Mr. Caron then explained the construction schedule, including the activities that would occur in each of the in-water and warm weather seasons. Mr. Hageman shared the anticipated permitting schedule, pointing out that the 404 Approval is now anticipated through the PGP. He finally discussed next steps, including the preparation of a mitigation plan for the state-listed plants and coordination with NH Sea Grant, the NHDES Coastal Program, and the Seabrook-Hamptons Estuary Alliance regarding mitigation for wetland impacts.

Karl Benedict (NHDES) said the impact calculations are consistent with what was discussed on the September site walk. He asked whether the in-water work on the north and south sides of the channel would be phased. Mr. Caron said that it would, the west trestles would be installed during the in-water work windows of the first and second construction years and removed during the in-water work window of the third year. The east trestles would be installed during the third in-water work window and removed in the fourth in-water work window. Mr. Benedict asked if NHDOT had thoughts on water quality management throughout the project. Jennifer Reczek, NHDOT's Project Manager, said that an Individual Water Quality Certification will not be required because it's covered under other permits, including the MS4 and the PGP. Mark Hemmerlein (NHDOT) said that the project team will need to discuss de-watering areas and develop a plan prior to construction commencement.

Mary Ann Tilton (NHDES) said that the project team should follow Env-Wt 600 and prepare a Coastal Functional Assessment, a Vulnerability Assessment, and a Sand Dune Project Specific Worksheet as part of the application. Ms. Tilton further said that if the project spans more than one year, trestle pile impacts may be considered permanent and may require mitigation. Andy O'Sullivan (NHDOT) said they'd reached out to the US Army Corps of Engineers (USACE) and transmitted plans for their review. Marc Laurin (NHDOT) said in the past USACE had not considered trestle piles to be under their jurisdiction.

Kendall Fioravante (NHDES) said NHDES would like to keep the mitigation within the estuary. She said there's momentum for a restoration project within the area. DES will work with the Corps on appropriate mitigation. The ARM Committee is meeting in December. If impact numbers can be provided, they will be used to help evaluate projects.

Chris Williams (NHDES) acknowledged that NHDOT had submitted a Draft Coastal Zone Consistency Assessment for preliminary review. He said that, though the federal guidance indicates NHDES review can take up to six months, it is generally faster. He further said that the Coastal Consistency review generally doesn't occur in front of the federal permits. He said he would coordinate with the

Corps, New Hampshire Fish and Game (NHFG) and others within NHDES. He thanked NHDOT for reaching out to organizations with interests in the estuary to discuss mitigation.

Kevin Lucey (NHDES) said he wanted to participate in mitigation discussions, as a representative of the Seabrook-Hampton Estuary Collaborative. He referenced salt marsh ditch remediation as something for consideration. He explained that the salt marsh is mowed and then the grass is blown into the ditches over a three-year period. It serves to increase the elevation of the ditch bottoms.

Mike Dionne (NHFG) said that the project team should look at relocating the blue mussels from the impact footprint of the project, and that this was discussed on the site walk in September. Mr. Hageman said they'd discussed leaving a portion of the northernmost pier in place to create a precursor condition so the mussels could reestablish themselves. Ms. Reczek said she didn't recall a discussion about moving mussels. Mr. Dionne said that the mussels should be relocated near the existing bed. Ms. Reczek explained that much of the bed is within the work area. Mr. Dionne asked if the mussels could be moved to the mussel bed to the west. Mr. Hageman said they would need to look to see if there's sufficient space as there is sand encroachment in this area and the shore gets steep. Mr. Dionne said the mussels take a day to reestablish themselves so they should be placed outside the current.

Amy Lamb (NHNHB) asked if the impact area for the Beach Heather included the full area or the number of plants. Mr. Hageman said it was the area, and that the actual area required for relocation of the plants themselves would be smaller, since there are non-vegetated spaces between the existing plants. Ms. Lamb asked how they planned to determine the depth of substrate when collecting the sand for distribution. Mr. Hageman said that it's something they need to explore further. Ms. Lamb said NHNHB could assist and would also consult with Gregg Moore of UNH, and that she would reach out to the Native Plant Trust about seed viability. Ms. Lamb asked when the Mitigation Plan would be available. Ms. Reczek said the project team needs to work steadily if they are going to move the plants in the fall of 2023. This would likely be done separately from the construction contract. Ms. Lamb asked if the mitigation meeting planned in the coming weeks would involve a discussion of listed plants. Ms. Reczek said it would be focused on wetland mitigation but that the project team would loop NHNHB back in in the future.

Jean Brochi (EPA) said the team should look at restoration as a component of mitigation.

Gary Croot (USCG) said he is waiting for the supplemental NEPA documentation to review and approve. Then FHWA can append it to their Finding of No Significant Impact (FONSI) for the project.

Attachment 5

Site Walk Minutes

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

Hampton Harbor Bridge Project
Summary of Site Walk
August 24, 2018

Attendees

James Murphy (HDR)
Mike Hick (USACE)
Amy Lamb (NHNHB)
Brendan Clifford (NHFG)
Cheri Patterson (NHFG)
Eric Feldbaum (NH Parks)
Mike Johnson (NMFS)
Marc Laurin (NHDOT)
Anthony Zemba (FHI)
Daniel Hageman (FHI)

Jim Murphy with HDR began the field walk with an overview of the project. Dan Hageman with FHI presented information regarding the existing natural resources within the project area.

Mike Johnson (NMFS) commented that the NHDOT should consider sea level rise (SLR), storm surge, and scour in the design of the bridge. Mr. Johnson said current SLR projections estimate a rise of 6-8 feet by the year 2100. NMFS is requesting these analyses be conducted as part of the NEPA documentation and include extreme SLR scenarios. He was concerned about the elevation of the bridge deck during an extreme weather event in the future with the expectant SLR. He mentioned that Portsmouth, NH may be the closest tide gauge for use in any analyses.

Cheri Patterson (NHFG) informed the group that the sand bar in the shellfish graphic that is not indicated as Softshell Clam habitat, does provide habitat for this shellfish species (due to recent shifting sandbar habitat) and advised FHI to revise the map. Ms. Patterson said that a typical window allowed for in-water work occurs from end of November to the end of January. She also asked if there were any other bridge projects within the next 25 years in the greater Hampton Harbor area. She is concerned that other bridge projects could affect the hydrology of the Hampton Bridge project and hydraulic modeling. She commented that the US Army Corps of Engineers (USACE) currently has trouble getting maintenance equipment through the bridge opening; this should be considered in the evaluation and design of the bridge. She also advised that NHDOT consult with the local municipalities on other pending road/traffic projects so that the bridge replacement timing and effects do not conflict with other planned road projects that might occur to the north or south. For instance, the Village District Commission and Hampton Bridge Commission were involved with a planning study for Ocean Boulevard.

Ms. Patterson also advised that a navigational survey be conducted to understand the needs of vessels passing through the channel. There are large fishing boats and a need for unique vessels to get in to maintain the harbor. Ms. Patterson also advised that in-water work restrictions may be required due to fish species of conservation concern known or expected to occur in the area.

Mr. Johnson stated that access to the Seabrook Nuclear Plant should be considered in the evaluation of bridge type. Mr. Johnson stated that the USACE Vicksburg has undertaken extensive hydraulic modeling of the Hampton Harbor system and may have a lot of useful information and data to

augment the current study. He stated that the system is very complex and will likely be difficult to model, noting that a change in the abutment in water can change the dynamics of erosion, scour, and other sediment dynamics.

Eric Feldbaum (NH State Parks) was concerned about the length of time for construction if the State Park property was to be used as a construction staging or laydown area. The state owns both sides of the bridge north of the channel the east side is the state park and the west side is the state pier. Mr. Feldbaum was concerned to hear that the construction period is expected to last through "multiple seasons," with the possibility of it extending for three years. He stated that if staging occurs on 6(f) lands for more than 6 months, then a conversion would be required.

Mike Hicks (USACE) asked if there would be any blasting or hoe ramming required for the project. If so, this would have additional implications for in-water work impacts and time-of-year restrictions. Mr. Murphy said that no blasting was anticipated.

The group then walked south over the bridge, stopping to discuss design and condition aspects of the existing bridge. Once to the southern portion of the bridge, Amy Lamb (NHNHB) and Dan Hageman began searching for listed plant species. Others walked down to the harbor, below the bridge.

Brendan Clifford (NHFG) informed the group that the nesting Piping Plover location observed by FHI earlier in the season was a locality known to the NHFG. Piping Plovers have nested here every year since 2013 and have mostly been successful in rearing young, despite the regular threat of human presence during the nesting season. The nest site is protected by an enclosure and a seasonal employee is assigned to monitor the nest. An active predator trapping program is also provided by NHFG. Mr. Clifford said that the plovers return in April and begin establishing territories soon thereafter. Nesting season extends through until early to mid – August. Mr. Clifford said that if active construction was planned during the breeding season, then Susi von Oettingen at the United States Fish and Wildlife Service would need to be consulted (Susi_vonOettingen@fws.gov, 603-227-6418). Mr. Clifford said no Least Terns to date have attempted to nest at that location. Common and Roseate Terns are known to forage in the bay but nest on off-shore islands rather than on the mainland. Mr. Clifford said that NHFG does not have any reports of Peregrine Falcons nesting or attempting to nest under the bridge.

Mr. Johnson mentioned that Winter Flounder likely do not spawn in the channel where in-water work would potentially occur because the channel's water velocity is too high. Regardless, this species will still need to be addressed in an Essential Fish Habitat Assessment along with the other federally managed species designated for the area. Sturgeon may also be present.

During the investigation of the plant community, Ms. Lamb and Mr. Hageman observed seaside sandmat (*Euphorbia polygonifolia*), which is a NH listed species not previously documented for the site. Also observed were seaside three-awn (*Aristida tuberculosa*), Gray's umbrella sedge (*Cyperus grayi*), sand dropseed (*Sporobolus cryptandrus*), hairy hudsonia (*Hudsonia tomentosa*), and what was thought to be field wormwood (*Artemisia campestris ssp. caudata*). Ms. Lamb said she would check several of the plants with Bill Nichols, State Botanist, to ensure they are the listed species of concern. Since some of the suspected listed species were seemingly ubiquitous throughout the dunes (primarily seaside three-awn, Gray's umbrella sedge, and field wormwood), any impacts to the dunes will have impacts to these species, however, if areas of dense populations occur, these should be documented. Listed plant densities appeared to be less in the northeast and southeast quadrants of the bridge. No listed plants were observed in the northwest quadrant. The highest

densities appeared to occur in the southwest quadrant of the bridge, although densities here also varied throughout. NHDOT and NHNHB will need to discuss methods for documenting impacts to listed species and associated mitigation.

Ms. Lamb stressed that any work on the bridge should be designed to avoid and minimize impacts to the dune habitat on the southern end of the bridge to the extent practicable. Ms. Lamb said possible alternatives to consider for mitigation of listed plant species impacts could include pre-construction transplanting of plants to a suitable location and use of any abandoned road ROW for post-construction creation of suitable dune habitat.

Seabrook-Hampton Bridge Project
Field Walk with NHNHB
September 14, 2022

Attendees: Amy Lamb (NHNHB), Nick Caron (HDR), Dan Hageman (FHI Studio)

The purpose of the meeting was to present the results of the recent field survey for listed plant species to the NHNHB, review the listed species boundaries and populations in the field and discuss options for mitigation. The four quadrants of the bridge were reviewed in the field.

Field Survey

- *Northeast Bridge Quadrant*: Listed species were reviewed in this area and population boundaries were agreed upon. Additional measurements and photographs of listed wormwood individuals were taken to confirm the subspecies.
- *Northwest Bridge Quadrant*: Listed species were reviewed in this area and population boundaries were agreed upon.
- *Southeast Bridge Quadrant*: Listed species were reviewed in this area and population boundaries were agreed upon. Areas of dense vs. sparse *Aristida tuberculosa* growth were reviewed. Locations of invasive species, such as Swallowwort, were observed in the field. The approximate location of the proposed underground stormwater BMP was reviewed in the field. Three new individuals of Dropseed (*Sporobolus cryptandrus*) were identified and documented.
- *Southwest Bridge Quadrant*: Listed species were reviewed in this area and population boundaries were agreed upon. The approximate limits of disturbance were traversed through the dune habitat area to get an understanding of what would be impacted by the project. Areas of dense vs. sparse *Aristida tuberculosa* growth were reviewed. Locations with impacts to Hairy Hudsonia (*Hudsonia tomentosa*) were also reviewed.

Mitigation Discussion

Potential mitigation for listed plant species was discussed during the field walk. During previous meetings with the regulatory agencies, it had been discussed that existing walking trails within the dunes could potentially be re-vegetated with transplanted plants prior to construction, therefore, several of these old trails were reviewed in the field. It was determined that many of these abandoned walking trails had already begun to revegetate on their own over the last two years, and that they would not be available for transplant locations since they were already revegetated. It was discussed that since a relatively small area of *H. tomentosa* would be impacted by the project, that these plants could be dug up and replanted in bare spots within the existing non-impacted *H. tomentosa* subpopulations. We proceeded to identify an area which could be used for this purpose. Similarly, it was determined that Wormwood and Seaside Sandmat (*Euphorbia polygonifolia*) individuals were sparse enough and easy enough to dig up and transplant in available open spots within the non-impacted dune areas.
For other listed species within the project area that are smaller herbaceous species more ubiquitous throughout the impact area [Gray's umbrella sedge (*Cyperus grayi*), *S. cryptandrus* and *A. tuberculosa*)], different options were discussed. These included potential stockpiling and replacement of these materials after construction in the vicinity of the southern approach way.

NHNHB asked if the old right-of-way could be used to re-establish listed plants after construction of the new bridge. It was communicated that a discussion with NHDOT would need to occur to determine if the old right-of-way could be a re-establishment area. Replacement could include several methods of physical placement (e.g., placement by construction equipment and placement through aerial disbursement).

Hampton Harbor Bridge Project
Summary of Meeting
Regulatory and Permitting Agency Site Walk
September 30th, 2022

Attendees:

Chris Williams (NHDES Coastal Program)
Mike Dionne (NHFG)
Karl Benedict (NHDES)
Amy Lamb (NHNHB)
Lori Sommer (NHDES)
Jean Brochi (USEPA)
Marc Laurin (NHDOT)
Andy O'Sullivan (NHDOT)
Nick Caron (HDR)
Daniel Hageman (FHI Studio)
David Winslow (FHI Studio)

Introduction

The purpose of the meeting was to orient the regulatory agency representatives to the project site, the existing regulated resources, and the proposed activity within those resources. The meeting was held at the approximate low tide period, so resources could better be seen. Nick Caron, HDR's Project Manager, opened the meeting by welcoming attendees and facilitating introductions. Nick gave an overview of the project including the major elements and construction methodology, with reference to the design and impact plans. Nick explained what work would be occurring, as well as whether the impacts would be temporary or permanent. Nick stated that work trestles would be constructed both west of the proposed bridge and east of the old bridge to facilitate construction of the new bridge. Foundations and pier footings would be isolated from the water column with driven sheet piles or drilled shaft casings depending on the pier. Water from the sealed work areas would be pumped to sedimentation treatment BMPs to construct the new foundations. Barges, if needed, would utilize spuds for anchoring and to keep the barge from resting on the harbor bottom. He further explained that during construction boat traffic would be accommodated, and the channel would only be closed briefly when the existing bascule span is removed. Nick stated the stormwater from the new bridge would be collected and treated prior to discharge to the harbor, which is an improvement over the existing system which does not treat bridge runoff and is drained directly to the harbor through bridge deck scuppers.

Summary of Discussion

- Nick stated the impacts from the construction trestle would be temporary. Karl asked about the timespan of the trestle and stated that the USACE considers any structure in place for over 1 year a permanent impact. Lori added that this guideline was in place because additional shading during the growing season could cause a habitat conversion. Since the western trestles would be in place for over a year, NHDES anticipates these impacts would be classified as permanent. Dan questioned whether these impacts would be permanent, since the trestles are unlikely to convert any habitat over the span of 1.5-2 years. There is

no eel grass or tidal vegetation within the project area, thus the shade would not be impacting photosynthetic organisms. An example was given by Lori that if access mats are left in greater than 1 year, they must be classified as permanent and thus require mitigation. Any discussion about classification of the western trestles as temporary vs. permanent will need to be undertaken with the USACE for a final determination; NHDES would like to be involved in this discussion as well.

- Nick explained how the installation of the new piers would be undertaken in a confined work area through the use of sheet piles. Water would be pumped out of the work space to create dry working conditions, and the water treated as needed. Karl stated that the method of sheet installation makes a big difference in terms of how tight the sheets are; it is important to have a tight seal to reduce/minimize water inflow and associated pumping. Karl provided a comparison of the Newington-Dover and Lebanon bridge projects; he said at Lebanon the sheet pile installation was not done well. He made the point that the way sheets are driven makes a difference in whether they are properly sealed, and if not properly sealed, there could be an excessive amount of seepage water and potential water quality issues.
- Karl stated that the contractor has to ensure that any water pumped out for drilling purposes to upland and treated; it cannot be immediately discharged to the river. He further clarified that any upland discharge site would need to be in a non-jurisdictional area, with the understanding that the site could change, as long as it is still within a non-jurisdictional area. The discharge site must be outside the tidal buffer zone (TBZ) as well.
- Nick stated that appropriate measures to discharge the water would be evaluated as the construction design details are finalized.
- Karl asked about erosion and sedimentation control measures, and he explained that erosion control plans submitted to NHDES are usually generic, with the knowledge that NHDES will get more detail with the construction plans. Karl also asked if a water quality monitoring plan was going to be instituted. With further discussion between NHDOT, HDR, and FHI Studio, Karl agreed that having a boat sampling water using the mixing zone method on a regular schedule was likely a good option, but still questioned how water quality would be maintained and monitored. Discussion around water quality also raised the issue that monitoring may especially be necessary when pulling the sheets, and that a mixing zone is a good idea considering the velocities of the harbor would not be compatible with a turbidity curtain.
- Andy stated that appropriate monitoring would be evaluated by BOE's Water Quality Program Manager.
- Mike asked to see the mussel density next to the existing piers to determine what will be affected. After reviewing the mussel bed, Dan explained that the current plan is to leave a rough surface where the existing northern pier will be removed by scarring the concrete material, or possibly with some existing rip rap around the pier, in order to create pre-cursor conditions for establishment of blue mussel habitat. Mike agreed that this was a good solution.
- It was stated that the dune needs to be called out on the plans, and that the jurisdiction of the dunes should be under the wetland permit, not the shoreland permit. However, it was stated that the dunes do need to be in both sets of permit plans, but can simply be called out and reference the area being permitted under the wetland permit. The dune is a Priority Resource Area (PRA) and would be mitigated by the ARM Fund fee.
- Amy explained that the state botanist confirmed it is likely the state-listed wormwood species is present at the site.

- Chris stated that the coastal program would want NHDOT to undertake mitigation/restoration work within the estuary itself if mitigation options are available. He further explained that he could facilitate communication with local non-profits and other organizations to help find potential mitigation options. This would also place the onus on the coastal program for ideas and connecting funding.
- Chris suggested the state garden, located at the state park, could be a potential site for placing valuable dune vegetation during the construction phase. The group agreed that preserving the vegetation is the best option, as it is high quality vegetation, and it would be wasteful to dispose of it. Subsequently, Amy reviewed the garden area and stated that there is not any available replanting area available as the garden is well vegetated. Karl and Amy both agreed saving the beach grass, stockpiling it, and re-using it to stabilize road banks in the southern portion of the project is a good option if possible.
- Mike raised the issue that the Piping Plover nesting may present issues. Discussion around this included that the plovers had not nested in the area since it was washed out by storms, and beach nourishment placed. NHDOT stated they had a USFWS Biological Opinion for the project, and that as long as plovers did not start nesting again, it was not an issue. Additionally, the mitigation measures developed by the USFWS and outlined in the BO to minimize impacts to the Plover would be in place, as appropriate. Dan stated the BO assumed a take of plovers. Once Mike saw the location of the washout to the southwest of the bridge abutment, he noted that it was re-vegetating well and would not be suitable for Piping Plover nesting.
- It was stated that when putting the project out for bid, the contractors need to be made aware of the need for movement of the utility lines. The water lines running across the Hampton River are on top of the harbor bottom and can move with the currents. Nick stated that once the trestle piles are in place, the pipes will simply hit against them, and not be an issue. Nick also stated that several utilities would now be placing their lines across the new bridge.

Attachment 6

Mitigation Project Worksheet/ ARM Calculator/Coordination

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

PERMITTEE RESPONSIBLE MITIGATION PROJECT WORKSHEET

Water Division/Land Resources Management

Wetlands Bureau

Check the Status of your Application

RSA/Rule: 482-A: / Env-Wt 800

SECTION 1. PROPOSED PERMITTEE RESPONSIBLE MITIGATION PROJECT TYPE		
UPLAND BUFFER PRESERVATION: ☐ AQUATIC RESOURCE RESTORATION: ☐ MITIGATION PAYMENT: ☒		
SECTION 2. PROPOSED MITIGATION PROJECT LOCATION INFORMATION (if applicable)		
STREET/ROAD: NH Route 1A over Hampton Harbor Inlet	TOWN/CITY: Seabrook/Hampton	TAX MAP/LOT #: n/a
SECTION 3. APPLICANT INFORMATION		
APPLICANT NAME: New Hampshire Department of Transportation		
APPLICANT MAILING ADDRESS: 7 Hazen Drive, Concord, NH 03301		
CONTACT INDIVIDUAL: Jennifer E. Reczek, P.E., Project Manager		
DAYTIME TELEPHONE: (603) 271-3401	EMAIL (IF ANY): jennifer.e.reczek@dot.nh.gov	
SECTION 4. RESOURCE WORKSHEET SUMMARY		
AQUATIC RESOURCES INVOLVED IN PROJECT: See Table Below.		
TOTAL PRESERVATION PROPOSED: Upland: n/a Acres Wetland: n/a Acres		
TOTAL LENGTH OF STREAM ON PROPERTY: 216 Linear Feet % having 100-ft wooded zone: n/a in direction % upland: in direction		
# CONFIRMED VERNAL POOLS: none	# POTENTIAL VERNAL POOLS: none	
AREA OF WETLAND RESTORATION PROPOSED: 0.06 acres	AREA OF WETLAND CREATION PROPOSED: n/a acres	
AREA OF WETLAND ENHANCEMENT PROPOSED: n/a acres	AREA OF UPLAND ENHANCEMENT PROPOSED: n/a acres	
SECTION 5. BRIEF NARRATIVE DESCRIBING PROPOSED PERMITTEE RESPONSIBLE MITIGATION		
See attached text.		
SECTION 6. SIGNATURE AND CERTIFICATION		
- I hereby certify that: ▪ The information contained in or otherwise submitted with this application is true, complete, and not misleading to the best of my knowledge and belief; ▪ **I understand that:** - Submitting false, incomplete, or misleading information is grounds for denying the application or revoking any award of ARM Funds that is made based on such information; and - I am subject to the penalties for making unsworn false statements specified RSA 641:3 or any successor New Hampshire statute.		
SIGNATURE: _____	**DATE:** _____ / _____/ _____	

Lori.Sommer@des.nh.gov or (603) 271-4059
NHDES Wetlands Bureau, Concord, NH 03303-0095
www.des.nh.gov

Summary of Aquatic Resource(s) Involved in Project

The following information is required to be provided about the aquatic resources found on the proposed impact site and the mitigation site. New Hampshire RSA 482-A:3 requires a wetland permit for any proposed project that involves dredging and filling wetlands or impacts to the bed or bank surface waters such as rivers and streams. Before NHDES will issue a permit, applicants must demonstrate that their project proposal will avoid adverse impacts to aquatic resources and will minimize and mitigate those impacts that are unavoidable. When impacts to aquatic resources are unavoidable, applicants must identify the wetland and stream(s) resource types that will be lost during the development of the project. Identifying the functions and values of the aquatic resource that will be lost at the project site better ensures that they can be recreated and transferred to the proposed mitigation site. Please use the table formats provided below to document all aquatic resources types on the impact site and the mitigation site. A separate table should be prepared for each site. *Additional rows may be required for projects proposing impacts to multiple resource types.*

Wetland Resources: Wetlands shall be classified by US Fish and Wildlife Service Manual WS/OBS-79/31 Classification of Wetlands and Deepwater Habitats of the United States, Cowardin et al, 1979, reprinted 1992.

Stream Resources: For permittee responsible mitigation projects to restore or improve stream systems, the streams on the project site shall be reviewed and the following information collected to the best extent possible:

Stream order according to New Hampshire Hydrography Dataset (NHHD)	Geomorphology including degradation
Rosgen stream type	Position within the surrounding landscape
Impacts to upstream and downstream flooding	Connectivity improvement for aquatic organism passage
Stream bed materials	Fisheries presence
Sediment Transport capacity	Characterization of the adjacent buffers in terms of vegetative coverage
Channel form	Floodplain connectivity

These general principals are described within the New Hampshire Stream Crossing Guidelines, University of New Hampshire, May 2009.

Wetland Functions & Values: A wetland evaluation is the process of determining the values of a wetland based on an assessment of the functions it performs. The evaluation of wetland functions and values should be determined through use of the *Method for Inventorying and Evaluating Freshwater Wetlands in New Hampshire*, 2015 edition (2015 NH Method) –*OR*– U.S. Army Corps of Engineers (USACE) New England District *Highway Methodology Workbook Supplement*, 1999 edition (1999 US ACE Highway Workbook Supplement). The evaluation should focus on the following:

Ecological Integrity (EI), Wetland-Dependent Wildlife Habitat (WH), Fish and Aquatic Habitat (FH), Scenic Quality (SQ), Educational Potential (EP), Wetland-based Recreation (WR), Flood Storage (FS), Groundwater (GW), Sediment Trapping (ST), Nutrient Trapping/Retention/Transformation (NT), Shoreline Anchoring (SA), Noteworthiness (NW).

Secondary Impacts: The USACE federal mitigation guidance should be consulted if the project involves conversion of forested wetlands to scrub-shrub or emergent wetlands, cutting of riparian buffer and impacts within the buffer to vernal pools.

WETLAND/STREAM RESOURCE SUMMARY

Wetland ID or Stream Number	**Cowardin Wetland Class** (list all that apply) **or Stream Type**	**Principal Functions & Values**	**Project Impacts**						**Vernal Pool Present? ID or Number**	**Other Comments**
			Permanent Wetland (sq.ft.)	**Permanent Stream Bank** (lin.ft.)			**Temporary** (sq.ft.)	**Secondary** (sq.ft.)		
				Bank Left	Bank Right	Channel				
Hampton Harbor	E1UB, E2US1, E2US2, E2RS2	EI, EP, FH, NW, SQ, WR, WH	21,131	216	216	197	322,834	n/a	n/a	
Und TBZ & Dune PRA	n/a	n/a	60,784	n/a	n/a	n/a	0	n/a	n/a	Includes TOB (7,542 sf)

MITIGATION RESOURCE SUMMARY

Wetland ID or Stream Number	**Cowardin Wetland Class** (list all that apply) **or Stream Type**	**Principal Functions & Values**	**Wetland/Stream Resources**			**Vernal Pool Present? ID or Number**	**Other Comments**
			Area of Wetland (sq.ft. or acres)	**Streams** (lin.ft.)			
				Length on Property	% having 100 foot wooded zone		
Hampton Harbor	E1UB, E2US1, E2US2, E2RS2	N/A NH ARM Fund	21,131	629			NH ARM Fund
Und TBZ & Dune PRA							See attached text

Attachment 6: Permittee Responsible Mitigation Project Worksheet

Additional Text

Section 5: Brief Narrative Describing Proposed Permittee Responsible Mitigation

The proposed project will impact tidal wetlands, undeveloped tidal buffer zone (TBZ), and Priority Resource Area (PRA) Dune habitat. As part of the PRA Dune Habitat, six state-listed plant species will also be impacted. These resources are regulated under the NHDES Dredge and Fill application. Impacts are presented in the Coastal Functional Assessment Report (CFA), and on the Permit Plans, attached to this application. As further discussed in the CFA, and in the Avoidance and Minimization Worksheet, impacts to jurisdictional resources have been avoided and minimized to the extent practicable. After the proposed new bridge is constructed, the existing bridge and its pier structures will be removed. The existing bridge piers will be removed to a depth approximately two feet below the existing channel bottom; this will allow for restoration of approximately 0.06 acres of channel bottom.

NHDOT solicited feedback from the Conservation Commissions at the Towns of Seabrook and Hampton regarding potential wetland mitigation. The Town of Hampton suggested land conservation adjacent to the Hampton Town Forest. However, the NHDES Wetlands Bureau instead recommended that mitigation for unavoidable project impacts to the wetland resources would be more appropriate to occur within the Hampton-Seabrook Estuary.

<u>Tidal Wetland and Bank Mitigation</u>

It is the intent of the NHDOT to provide mitigation for tidal wetland and bank impacts by payment into the New Hampshire ARM Fund Program. See proposed payment summary table below and attached NH ARM Fund calculator sheets.

ARM Fund Fee Calculation for Tidal Wetlands and Bank Mitigation

Resource	**Impact (permanent)**	**Mitigation Fee**	**Description**
Tidal Wetlands - SF	21,131 sf	$271,946.26	all permanent impact below the HOTL
Bank/Channel - LF	629 lf	$191,636.17	432 linear feet of bank; 197 linear feet of channel
TOTAL		*$463,582.43*	

TBZ and PRA Dune Habitat Mitigation

Roadway Side Slope Restoration

The southern roadway approach will be constructed with side slopes, rather than retaining walls, so that the slopes can be established with Beach Grass (*Ammophila breviligulata*). Due to the exceedingly droughty nature of the southern project site and prevenance of sand materials, it is anticipated standard turf establishment would fail. To ensure successful stabilization of the roadway slope, and to promote re-establishment of PRA Dune Habitat in the project site, the NHDOT is proposing to construct the roadway side slopes in character with the surrounding dune habitat. It is anticipated that over time, the side slopes, if constructed in this way, would begin to re-establish with dune plant species and provide PRA Dune Habitat. The NHDOT has estimated that approximately 43,402 sf of roadway side slope would be constructed in this way, providing valuable dune habitat into the future.

The roadway slopes will be constructed at a maximum slope of 2:1, but will generally be a gentler slope moving south along the southern approach as the existing roadway is graded to the existing land. As shown on the typical roadway cross section of the attached project plans (see **Attachment 22**), two (2) feet of sand material will be placed on the roadway slope and graded to match the existing dune habitat. It is anticipated that two feet of sand material will be sufficient to support Beach Grass plantings. The project plans show the location of side slope beach grass restoration and a planting plan for Beach Grass.

NH Arm Fund

Based on recent coordination with NHDES, it was determined that, under current regulations, the existing ARM Fund Program could not be utilized for in-lieu payment for upland resource impacts, including impacts to PRA Dune Habitat and TBZ. As a result, there is current legislation (SB 56) pending to add PRA Dune Habitat and TBZ into the ARM Fund Program as resources that can be mitigated through in-lieu payment. This legislation is currently in the legislative process and its earliest potential implementation date, if passed, would be mid-summer of 2023, after the NHDOT's anticipated submittal date for permit applications. Payment into the ARM Fund Program is the preferred mitigation alternative for the NHDOT. Since 43,402 sf of the 53,242 sf of impact to the PRA Dune Habitat and Undeveloped TBZ would be mitigated through the reestablishment of dune habitat on the side slopes south of the bridge, 9,840 sf would be mitigated through the NH ARM Fund.

Dune Restoration Site Option

One additional option discussed during coordination with the regulatory agencies consists of restoration of dune habitat in the southeastern portion of the project area, adjacent to the existing bridge abutment. Currently, there is a gap in the riprap bank protection material between the existing abutment and the existing jetty to the east, a distance of approximately

100 linear feet, where serious erosion has taken place and dune habitat has been lost. In addition, an existing private property has the potential to be impacted by erosion as well.

The proposal would involve placement of riprap stone material between the existing abutment and jetty to form a contiguous protective connection. As part of the overall project, portions of the existing abutment and armoring would remain. Once the riprap material is in place, the area behind (landside) the riprap would be backfilled with a sandy material of similar quality as the existing dune habitat sand material to a point where it is graded to a similar elevation as the existing dune habitat. Once backfilling is complete, this sand area would be planted with beach grass (*A. breviligulata*) to re-establish the lost dune habitat. Based on a conceptual design, shown on **Attachment 8 - Figure 1**, the approximate size of the re-established dune would be 4,136 sf, or 0.1 acres.

During coordination with the regulatory agencies, the NHDOT has established that this mitigation site is an option to be considered, however, it is currently not a formal mitigation site. This mitigation concept will be further developed if it's determined that payment to the NH ARM Fund is not feasible.

State-listed Plant Species On-site Mitigation

The NHDOT intends to mitigate for impacts to state-listed plant species through relocation of existing listed plants from the area footprint of impact. Prior to commencement of construction activities at the southern and northern approaches of the proposed bridge, existing listed plants would be relocated to the portions of the PRA Dune Habitat within the NHDOT ROW which will remain un-impacted by the project. In addition, sand material containing seed stock for these listed plant species will be stripped from dune habitat within the impact footprint and evenly re-dispersed within the existing dune habitat outside of the project limits and inside the NHDOT ROW via aerial dispersal methods.

In addition to relocation of listed plants and soils from the impact footprint, NHDOT is proposing to collect seeds from existing listed plant species prior to the plant relocations described above. Seed stock would be stored at an approved seed storage facility after collection. This seed stock would then be used to propagate seedlings for future transplant onto the site after construction. Like the plant relocations, the planting site would include the portions of the PRA Dune Habitat within the NHDOT ROW which will remain un-impacted by the project. Specifics of this mitigation are provided in the Permittee Responsible Mitigation for State Listed Plant Impacts Memo, also included in Attachment 6 to this Application. Coordination is on-going with NHNHB and the NH Sea Grant Program regarding the mitigation plan.

Map Produced: 3/8/2023

Data Source: FHI, ESRI, NH Granit

Legend

- Project Limits of Disturbance
- Town line
- ROW

Plant Relocation Areas

- Dropseed
- Beach Heather
- Sedge/Threeawn Seed Distribution, Wormwood/Sandmat Transplant
- Dune Grass Transplant
- Potential Dune Restoration
- Proposed Riprap

Seabrook-Hampton 15904
Seabrook and Hampton, New Hampshire

Dune Mitigation Map

FHI studio

2022 VALUES

TOWN	LAND VALUE
Acworth	2015
Albany	1166
Alexandria	3283
Allenstown	11545
Alstead	3107
Alton	28465
Amherst	33150
Andover	5187
Antrim	5186
Ashland	17888
Atkinson	53267
Auburn	25811
Barnstead	10183
Barrington	14071
Bartlett	10785
Bath	2148
Bean's Grant	494
Bean's Purchase	494
Bedford	53267
Belmont	16815
Bennington	5777
Benton	494
Berlin	2091
Bethlehem	1170
Boscawen	8475
Bow	22793
Bradford	5543
Brentwood	25013
Bridgewater	21888
Bristol	19371
Brookfield	3208
Brookline	24118
Cambridge	494
Campton	6327
Canaan	5832
Candia	13335
Canterbury	4856
Carroll	4102
Center Harbor	43396
Chandler's Purchase	494
Charlestown	3287
Chatham	742
Chester	16676
Chesterfield	9817
Chichester	10581
Claremont	5788
Clarksville	681
Colebrook	1771
Columbia	684
Concord	37684
Conway	17622
Cornish	2954
Crawford's Purchase	494
Croydon	1878
Cutt's Grant	494
Dalton	1912
Danbury	2798
Danville	25564
Deerfield	9596
Deering	6106
Derry	53267
Dix's Grant	494
Dixville	494
Dorchester	869
Dover	53267
Dublin	6403
Dummer	494
Dunbarton	7038
Durham	35249
East Kingston	26497
Easton	1943
Eaton	3515
Effingham	4109
Ellsworth	655
Enfield	12084
Epping	22559
Epsom	10218
Errol	1110
Erving's Location	494
Exeter	53267
Farmington	9882
Fitzwilliam	4939
Francestown	5172
Franconia	4017
Franklin	15980
Freedom	16133
Fremont	18506
Gilford	30949
Gilmanton	7638
Gilsum	2184

NHDES AQUATIC RESOURCE MITIGATION FUND
WETLAND PAYMENT CALCULATION
*****INSERT AMOUNTS IN YELLOW CELLS*****

1 Convert square feet of impact to acres:

INSERT SQ FT OF IMPACT	Square feet of impact	21131.00
		43560.00
	Acres of impact =	0.4851

2 Determine acreage of wetland construction:

Forested wetlands:	0.7277
Tidal wetlands:	1.4553
All other areas:	0.7277

3 Wetland construction cost:

Forested wetlands:	$74,551.13
Tidal Wetlands:	$149,102.26
All other areas:	$74,551.13

4 Land acquisition cost (See land value table):

INSERT LAND VALUE FROM TABLE WHICH APPEARS TO THE LEFT. (Insert the amount do not copy and paste.)	
Town land value:	53267
Forested wetlands:	$38,759.81
Tidal wetlands:	$77,519.63
All other areas:	$38,759.81

5 Construction + land costs:

Forested wetland:	$113,310.94
Tidal wetlands:	$226,621.88
All other areas:	$113,310.94

6 NHDES Administrative cost:

Forested wetlands:	$22,662.19
Tidal wetlands:	$45,324.38
All other areas:	$22,662.19

************** TOTAL ARM PAYMENT*************

Forested wetlands:	$135,973.13
Tidal wetlands:	$271,946.26
All other areas:	$135,973.13

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Goffstown	38305
Gorham	3104
Goshen	2880
Grafton	2877
Grantham	8993
Greenfield	4216
Greenland	53267
Green's Grant	943
Greenville	10134
Groton	1227
Hadley's Purchase	494
Hale's Location	23499
Hampstead	53267
Hampton	53267
Hampton Falls	32996
Hancock	5846
Hanover	28501
Harrisville	11395
Hart's Location	620
Haverhill	2736
Hebron	18327
Henniker	7260
Hill	1934
Hillsborough	8718
Hinsdale	6326
Holderness	25070
Hollis	34709
Hooksett	32287
Hopkinton	8902
Hudson	53267
Jackson	4780
Jaffrey	6739
Jefferson	1593
Keene	18604
Kensington	29001
Kilkenny	494
Kingston	23386
Laconia	53267
Lancaster	2667
Landaff	1089
Langdon	2442
Lebanon	28481
Lee	24276
Lempster	2256
Lincoln	3396
Lisbon	2835
Litchfield	51363
Littleton	5516
Livermore	494
Londonderry	53267
Loudon	7592
Low & Burbank's Grant	494
Lyman	1602
Lyme	4970
Lyndeborough	4013
Madbury	15552
Madison	12597
Manchester	53267
Marlborough	5320
Marlow	2072
Martin's Location	494
Mason	5097
Meredith	47392
Merrimack	53267
Middleton	10399
Milan	1410
Milford	29053
Millsfield	494
Milton	11193
Monroe	2249
Mont Vernon	12900
Moultonborough	53267
Nashua	53267
Nelson	5836
New Boston	13552
New Castle	53267
New Durham	14654
New Hampton	6929
New Ipswich	7409
New London	42008
Newbury	23181
Newfields	33302
Newington	32771
Newmarket	50956
Newport	6469
Newton	45645
North Hampton	53267
Northfield	8796
Northumberland	1363
Northwood	21437
Nottingham	14636

Odell	494
Orange	917
Orford	1607
Ossipee	9732
Pelham	48638
Pembroke	19612
Peterborough	8303
Piermont	1847
Pinkham's Grant	494
Pittsburg	877
Pittsfield	8590
Plainfield	3154
Plaistow	53267
Plymouth	7923
Portsmouth	53267
Randolph	954
Raymond	23309
Richmond	1456
Rindge	10261
Rochester	29642
Rollinsford	32458
Roxbury	761
Rumney	4204
Rye	53267
Salem	53267
Salisbury	2413
Sanbornton	11075
Sandown	37557
Sandwich	5002
Sargent's Purchase	494
Seabrook	53267
Second College Grant	494
Sharon	1729
Shelburne	583
Somersworth	43798
South Hampton	15895
Springfield	3452
Stark	789
Stewartstown	1242
Stoddard	4934
Strafford	8396
Stratford	494
Stratham	53267
Success	494
Sugar Hill	8401
Sullivan	1665
Sunapee	53267
Surry	3226
Sutton	7136
Swanzey	8224
Tamworth	4771
Temple	4371
Thompson & Meserve's Purchase	494
Thornton	5115
Tilton	35234
Troy	3430
Tuftonboro	30222
Unity	3136
Wakefield	27165
Walpole	8528
Warner	3312
Warren	852
Washington	5420
Waterville Valley	1737
Weare	11359
Webster	6440
Wentworth	1477
Wentworth's Location	494
Westmoreland	2753
Whitefield	2975
Wilmot	4608
Wilton	11438
Winchester	3171
Windham	53267
Windsor	2522
Wolfeboro	41723
Woodstock	2321

NHDES AQUATIC RESOURCE MITIGATION FUND STREAM PAYMENT CALCULATION

INSERT LINEAR FEET OF IMPACT on BOTH BANKS AND CHANNEL	**Right Bank**	216.00
	Left Bank	216.0000
	Channel	197.0000
	TOTAL IMPACT	629.0000
	Stream Impact Cost:	$159,696.81
	NHDES Administrative cost:	
		$31,939.36
	********** TOTAL ARM FUND STREAM PAYMENT**********	
		$191,636.17

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

SEABROOK-HAMPTON BRIDGE PROJECT

PERMITTEE RESPONSIBLE MITIGATION PLAN

FOR STATE-LISTED PLANT IMPACTS

1.0 Introduction

The project involves the replacement of the Neil R. Underwood Bridge (Bridge No. 235/025) that carries NH Route 1A over the Hampton River at the inlet to Hampton Harbor and links the Towns of Hampton and Seabrook, NH. The proposed bridge consists of a 1,300-foot-long, seven span, structural steel, fixed bridge located approximately 75 feet west of the existing bascule bridge. The proposed roadway typical section consists of two 11-foot travel lanes with eight-foot shoulders flanked by six-foot sidewalks on each side with four pedestrian bump-outs on the bridge. The two abutments will consist of concrete cantilever types with U-back concrete cantilever wings on concrete footings anticipated to be supported by driven steel pile foundations. The approach roadway reconstruction will begin approximately 900 feet south of the new bridge and end approximately 800 feet north of the new bridge at a point approximately 200 feet northerly of the State Park Road. See Figure 1 in **Appendix A - Figures**.

A range of alternatives was evaluated as part of compliance with the National Environmental Policy Act (NEPA). In the initial planning, an eastern alignment was considered, however, this alternative would have impacted residential properties southeast of the bridge, potentially requiring one or more full property acquisitions. Through coordination with stakeholders and the Project Advisory Committee, it was determined that this was not a feasible alternative due to substantial public opposition. Four alternatives on a western alignment were subsequently evaluated, including the selected alternative, Replacement With a Fixed Bridge. No alternative was identified that met the Purpose and Need while also having fewer environmental impacts than replacing the existing bridge with a fixed bridge; this includes temporary and permanent impacts to sensitive dune habitat.

2.0 Existing Conditions

To the south of the bridge, a large area of dune habitat, which is considered a Priority Resource Area (PRA), is located immediately to the west of the existing roadway, and also a narrow area of dune habitat to the east of the road. The dune habitat is characterized by large areas of beach grass (*Ammophila breviligulata*), as well as sparsely-vegetated sandy areas. The TBZ and Dune Habitat south of the bridge are classified as Highest Ranked Habitat in New Hampshire and Highest Ranked Habitat in the Biological Region.

Coordination was conducted early in the project with New Hampshire Natural Heritage Bureau (NHNHB) to determine what potential listed species have been recorded on or near the Project Area. The dune habit was identified by the NHNHB as containing multiple NH listed plant species. NHDOT conducted field work within the project limits of the Hampton Harbor Bridge Project during the 2018 and 2022 field seasons. In addition, site walks were conducted on August 24, 2018, and September 14, 2022 with NHNHB staff to investigate the occurrence of listed plant species within the project area.

Nine plant species were also identified by NHNHB as potentially occurring in the vicinity of the project (see list below). The field survey was conducted on August 29, August 30, and September 14, 2022, and confirmed the presence of six of these species (shown in bold below) within the project area.

- Dwarf glasswort (*Salicornia bigelovii*) (NH endangered)
- **Seaside threeawn (*Aristida tuberculosa*) (NH endangered)**
- **Hairy hudsonia (*Hudsonia tomentosa*) (NH threatened)**
- **Gray's umbrella sedge (*Cyperus grayi*) (NH endangered)**
- Long-spined sandbur (*Cenchrus longispinus*) (NH endangered)
- **Sand dropseed (*Sporobolus cryptandrus*) (NH endangered)**
- **Seaside sandmat (*Euphorbia polygonifolia*) (NH endangered)**
- **Field wormwood (*Artemisia campestris ssp. caudata*) (NH endangered)**
- Seaside-sandwort (*Honckenya peploides* ssp. *robusta*) (NH endangered)

Soils within the existing PRA Dune habitat is consistent with typical dune habitat and is composed of well-sorted sand material, with very little silt, clay, gravel, or larger materials. Existing vegetation within the dune habitat is typical of drought and marine environment conditions and varies in density from discrete dense areas, to sparse vegetation with significant interstitial space between individual plants.

3.0 Proposed Impacts

The proposed project will impact PRA Dune Habitat. As part of the PRA Dune habitat, six state-listed plant species will also be impacted. These resources are regulated under the Native Plant Protection Act of 1987 (RSA 217-A). Impacts to listed plants and their habitats are provided below in Table 1 and shown in **Figure 2 in Appendix A**. The area of impact in the table includes the overall extent ot the population impacts, which consists of individual plants and areas of non-vegeted habitat, or spaces, between the plants. In addition, since multiple species co-exist within much of the PRA Dune Habitat areas, there is overlap between impact areas shown in the table. The total area of PRA Dune Habitat impacted by

the project will be 50,947 sf; however, the impacts areas in Table 1 add up to 68,698 sf, which indicates there is substantial overlap between impact areas of the individual species.

Table 1: Impacts to State-listed Plants and Habitats

Plant Species	Impact Area (sf)
Hairy Hudsonia	1,189
Field Wormwood	15,080
Sand Dropseed	395
Seaside Sandmat	10
Seaside Threeawn	13,758
Gray's Umbrella Sedge	38,266

NHDOT has conducted continuous coordination with NHNHB throughout the planning process, including through the preparation of an Environmental Assessment and Finding of No Significant Impact (FONSI) under NEPA, and into the final design and permitting phase of the project. Impacts to state-listed plant species are based on the current project limits of disturbance, and recent 2022 mapping of existing listed plant populations and individuals within the project area.

Impacts to listed plants and their habitat have been avoided and minimized to the extent practicable. The new bridge has been located as close to the existing bridge as possible to minimize impacts to PRA Dune Habitat. This will allow the approaches to the new bridge to be tapered into the existing roadway as quickly as possible under the proposed roadway design criteria and design speeds. Retaining walls were considered along the south approaches during the identification of alternatives, however, in order to maintain habitat for listed species and provide potential restoration of PRA Dune Habitat, earthen banks were considered preferable.

4.0 Mitigation

Extensive coordination has taken place, and is continuing, with the NHNHB and other specialists from New Hampshire Sea Grant through the University of New Hampshire. To mitigate for project impacts to listed plant species, NHDOT proposes a two phased approach involving both translocation of soil materials and seeding of existing dune habitat. The NHDOT intends to partially mitigate for direct impacts to state-listed plant species and PRA Dune Habitat through relocation of existing plants from the project footprint impact area. Prior to commencement of construction activities at the southern and northern approaches of the proposed bridge, existing listed plants would be relocated from the impact area to the portions of the PRA Dune Habitat area within the NHDOT right-of-way (ROW) which will remain un-impacted by the project. All on-site listed plant mitigation would be protected after construction by installation of a permanent fence, or relocation of the existing rope

fence, to ensure pedestrians do not traverse the listed plant mitigation sites. Several different methods will be utilized to accomplish this, based on plant species, as discussed below.

4.1 Woody and Clumpy Perennial Plants

Woody and clumpy perennial plants will be physically excavated and relocated to specific areas within the existing dune habitat. This plant type typically has woody or semi-woody stems and larger root masses that form clumps. These include the following:

- Hairy hudsonia (*Hudsonia tomentosa*) (NH threatened)
- Field wormwood (*Artemisia campestris ssp. Caudata*) (NH endangered)
- Sand dropseed (*Sporobolus cryptandrus*) (NH endangered)
- Seaside sandmat (*Euphorbia polygonifolia*) (NH endangered)

The plants will be excavated either individually or in matts of dense plants, with soil material, and deposited in a pre-prepared hole within the transplant area. Excavation depths will depend of the species being relocated and its size/maturity. Care will be taken to ensure an adequate percentage of root material is excavated to ensure successful transplant to the relocation area. Plants will be relocted by hand using only hand tools; no heavy equipment will be allowed within the transplant areas to minimize damage to existing habiat. Relocation of plants will be coordinated with the project schedule to ensure plants are relocated before construction begins. **Figure 3 in Appendix A** shows the proposed locations of these transplant areas within NHDOT ROW.

4.2 Annual and Non-clumpy Perennial Plants

Annual plants, by their nature, are typically more herbaceous and have smaller root masses, which make it more difficult to transplant them. Likewise, perennial plants with non-clumpy root masses are also difficult to transplant, especially from sandy soil materials. The listed plant species on the site which fall into this category include the plants below:

- Seaside threeawn (*Aristida tuberculosa*) (NH endangered)
- Gray's umbrella sedge (*Cyperus grayi*) (NH endangered)

To remove these plants from the impact area footprint through transplantation would not be possible, due to their small size and the large numbers of plants. Instead, sand material containing seed stock for these listed plant species will be stripped from dune habitat within the impact footprint and evenly re-dispersed within the existing dune habitat outside of the project limits and inside the NHDOT ROW via aerial dispersal methods. No heavy ground equipment will be allowed within the transplant areas to ensure minimal disturbance of existing dune habitat. Based on coordination with the NHNHB and NH Sea Grant staff, the NHDOT is proposing to remove and re-distribute the top six (6) inches of soil material to

ensure a suitable amount of existing seed stock is obtained. This sand material would also contain any seed stock from the perennial species listed above.

Sand material would not be excavated and re-distributed until all perennial plants, as described above under 4.1, have been removed from the impact area and relocated. Since these species have evolved to thrive in sand dunes, where there is constant relocation of sands via natural forces such as wind, it is anticipated these species will respond well to this method of transplant. Sand redistribution will be coordinated with the project schedule to ensure sand is relocated before construction begins. Filter fabric and/or sand fence will be placed around transplant areas and maintained throughout construction, to ensure sand and seed material does not migrate back into the construction area. Once the roadway is complete, fencing will be removed and natural processes will resume.

All relocation of plants would be within the PRA Dune Habitat in NHDOT ROW. Sand re-dispersal areas would overlap plant transplant areas. Table 2 below provides a summary of impacts and the available area within the NHDOT ROW for plant relocations. There is sufficient space within the proposed relocation areas to accommodate all impacted state-listed plants.

Table 2: Area available for relocation of State-listed Plants

Plant Species	Impact Area (sf)	Transplant Area Available* (sf)	Method of Relocation
Hairy Hudsonia	1,189	1,200	Transplant
Field Wormwood	15,080	62,240	Transplant
Sand Dropseed	395	490	Transplant
Seaside Sandmat	10	62,240	Transplant
Seaside Threeawn	13,758	62,240	Aerial dispersal
Gray's Umbrella Sedge	38,266	62,240	Aerial dispersal

*within NHDOT Right-of-Way

Figure 3 in **Appendix A** shows the proposed locations of sand redistribution areas within NHDOT ROW.

4.3 Listed Plant Propagation and Planting

In addition to relocation of listed plants and soils from the impact footprint, the NHDOT is proposing to collect seeds from existing listed plant species prior to the plant relocations described under Sections 4..1 and 4.2. Seed stock would be stored at an approved seed storage facility after collection. This seed stock would then be used to propagate seedlings for future transplant onto the site after construction. The planting site would include the area of plant relocation, as shown on Figure 3 in **Appendix A**. Coordination of the specifics of this potential mitigation are on-going with NHNHB and the NH Sea Grant Program.

4.4 Roadway Sideslope Restoration

The southern roadway approach will be constructed with side slopes, rather than retaining walls, so that the slopes can be established with Beach Grass. To ensure successful stabilization of the roadway slope, and to promote re-establishment of PRA Dune Habitat in the project site, the NHDOT is proposing to construct the roadway side slopes in character with the surrounding dune habitat. It is anticipated that over time, the side slopes, if constructed in this way, would begin to re-establish with state listed plant species and other dune plant species and provide PRA Dune Habitat. The NHDOT has estimated that approximately 43,402 sf of roadway side slope would be constructed in this way, providing dune habitat into the future.

5.0 Monitoring

A three-year monitoring program will be established by the NHDOT and carried out by a qualified botanist. The program will monitor germination and plant growth. For each of the first three full growing seasons following listed plant mitigation, the relocation site(s) will be monitored and annual monitoring reports submitted. At a minimum, the reports will include the following:

- Introduction
- Methodology
- Results
- Conclusions and Recommendations
- Appendicies and attachments (as needed)
- Figures and graphics (as needed)

The annual report will be submitted to the NHNHB representative prior to December 15th of each year for review.

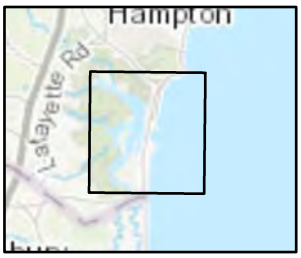
APPENDIX A

Figures

Figure 1 – Project Location

Figure 2 – Listed Plant Impacts

Figure 3 – Plant Relocation Map



Legend

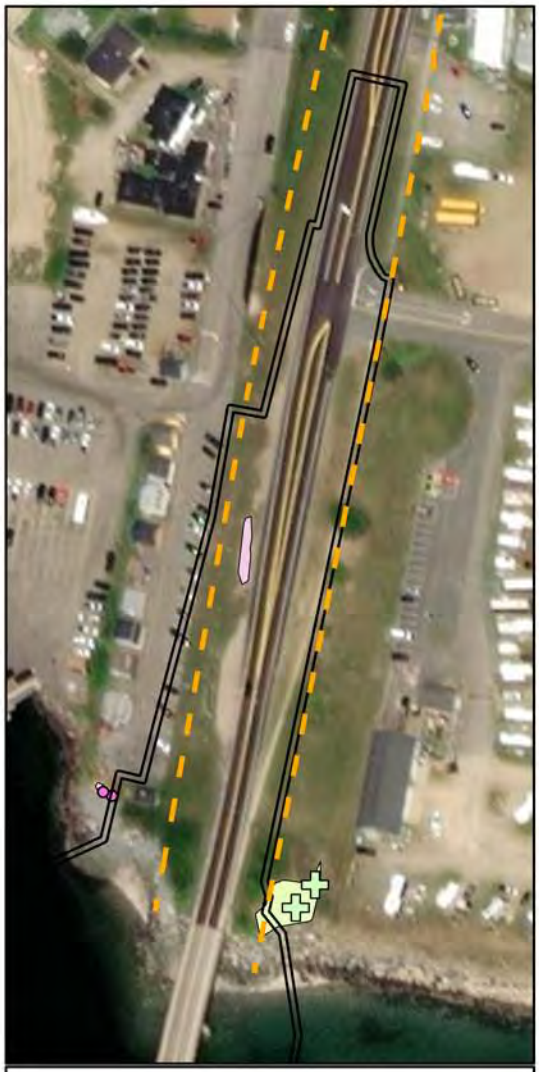
Project Limits of Disturbance

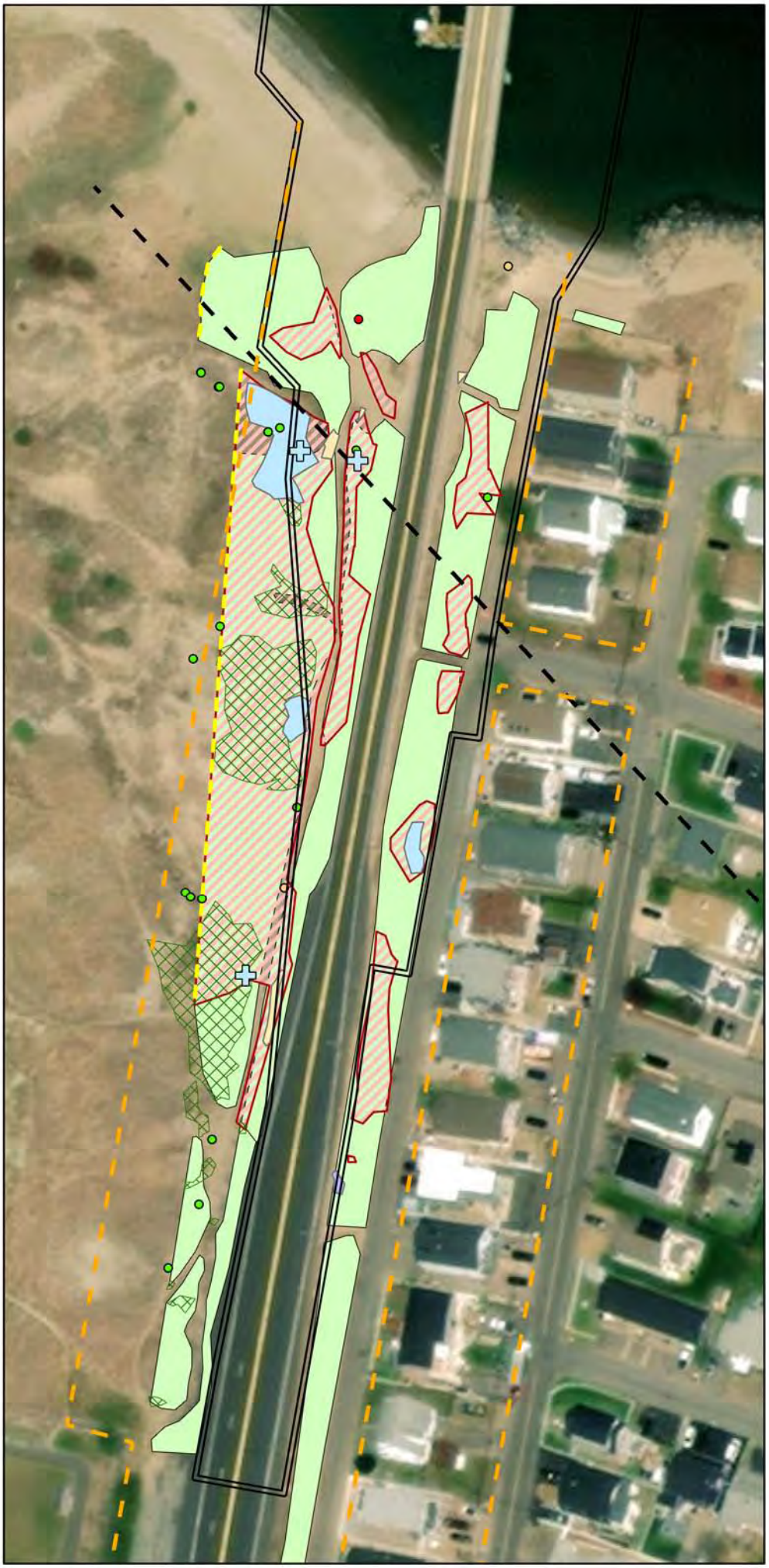
Seabrook-Hampton 15904
Seabrook and Hampton, New Hampshire
Figure 1
Project Location Map

Map Produced: 10/19/2022

Data Source: FHI, USGS, ESRI

FHI studio





State Listed Plant Species

Figure 2

Legend

- Project Limits of Disturbance
- Town Boundary
- ROW
- Open Resource Boundary

Populations

- Beach Heather
- Aristida
- Aristida, dense
- Cyperus
- Sandmat
- Dropseed
- Cyperus/ Wormwood

- Beach Heather Individuals
- Aristida Individual
- Cyperus Individuals
- Dropseed Individual

Sample Plot

- Cyperus Plot
- Aristida Plot

Data Source: FHI 2022; ESRI, Maxar, 2021

0 50 100 200 Feet

N

Map Produced: 3/8/2023

Data Source: FHI, ESRI, NH Granit

Legend

- Project Limits of Disturbance
- Town line
- ROW

Plant Relocation Areas

- Dropseed
- Beach Heather
- Sedge/Threeawn Seed Distribution, Wormwood/Sandmat Transplant
- Dune Grass Transplant

Seabrook-Hampton 15904
Seabrook and Hampton, New Hampshire

Figure 3

Plant Relocation Area Map

FHI studio

Hampton Harbor Bridge Project
Summary of Meeting
Listed Plant Mitigation
November 10, 2022

Attendees
Jennifer Reczek, NHDOT
Bob Juliano, NHDOT
Marc Laurin, NHDOT
Andy O'Sullivan, NHDOT
Mike Dionne, NHFG
Kevin Lucey, NHDES
Amy Lamb, NHNHB
Alyson Eberhardt, NH Sea Grant
Gregg Moore, UNH School of Marine Science
Nick Caron, HDR
Stephanie Dyer-Carroll, FHI Studio
Daniel Hageman, FHI Studio

- Daniel Hageman summarized the work done under Part A, explaining that a listed plant survey was conducted in support of the Environmental Assessment. He explained that a new survey was undertaken in late summer 2022. He said six state-listed plants were identified as occurring within the limit of disturbance, but that the survey extended slightly beyond this area.
- Mr. Hageman then showed NHDOT's relocation concept, explaining that they're keeping work within the right-of-way (ROW). He said the project team had conducted a site walk with Amy Lamb of NH Natural Heritage Bureau to review the survey findings and begin to discuss relocation areas.
- Mr. Hageman said that initially the project team considered transplanting individual plants to sparsely vegetated areas, but not all of the plants are suitable for transplantation. For annual species such as the *Cyperus* and *Aristida* the project team is looking at aerial dispersal of the soil that contains the seed stock of these species so as to not cause damage to the dunes. Mr. Hageman said this could be accomplished in the fall.
- Gregg Moore suggested that the annual species could be germinated in a greenhouse, and then small seedlings could be transplanted in the spring. He suggested potentially collecting seeds from the areas densely populated with *Aristida*.
- Amy Lamb asked why the team was only looking at redistributing the soil within the ROW. Marc Laurin explained that the top six inches of the soil is considered Limited Reuse Soils (LRS). Jennifer Reczek said the soils could contain contaminants, so they are supposed to be reused within the ROW, however there could be the possibility of granting an exemption because it is all state land.
- Ms. Lamb asked if the soils could be tested. Ms. Reczek said they could, but it's likely that some sort of contaminants would be found.
- Mike Dionne asked if the dunes are owned by NHDOT. Jennifer explained that the management of the dunes was transferred to NH Fish and Game, but that NHDOT can take the area outside the ROW back if it's needed for a transportation use. Ms. Reczek said she would share the agreement with Mr. Dionne.

- Ms. Eberhardt said the project team should avoid relocating the *Spirobolus* to the area along the side of ROW (shown in yellow on the relocation concept) as people walk in the area between the path and the road. Mr. Hageman said they could move it further from the roadway behind the rope fence instead.
- Mr. Hageman asked the group how they felt about redistributing the soil. Ms. Lamb said the dunes have become densely vegetated. She asked if the intent was to supplement the existing vegetation. Mr. Hageman said that it was, that they were looking at placing an inch or two of soil and that it would then naturally redistribute. Ms. Lamb asked how far down they would excavate. Mr. Hageman said that hadn't been determined yet, and that some additional research would need to be done.
- Ms. Lamb asked Mr. Hageman to describe the topsoil. Mr. Hageman said it's sand, that it generally doesn't contain organic matter. Dr. Moore explained that it's a mineral sand material but that they may see organic horizons. He said there are annual variations and that there's less organic matter after a drought.
- Dr. Moore said he thought sand dispersal could be beneficial for growth and long-term sustainability of the dune system. He asked if the project team could be sure it would generate the density they want. He suggested potentially gathering seeds and growing them in a greenhouse. Mr. Hageman said collecting seeds in the fall could potentially be beneficial, but that moving seedlings in the spring could be challenging since there would be thousands of individual plants.
- Ms. Reczek said NHDOT is thinking of issuing a separate contract for the relocation effort. Dr. Moore said NH Sea Grant had success using student volunteers and that they would potentially be interested in taking on the work.
- Ms. Lamb asked if there's a facility that could store the seeds. Dr. Moore said they could store them dry or freeze them. He said there are greenhouses at Jackson Labs and on the UNH campus.
- Ms. Lamb asked if the plants could be placed in the old roadbed. Ms. Reczek said the team had discussed this. She said the biggest challenge is timing and how to handle the three-year lag between the beginning and end of construction. She said the project team has concerns about putting listed plants around the proposed stormwater treatment feature southeast of the bridge because future maintenance activities could cause physical impacts. Ms. Lamb said maintenance activities could be compatible and that the seeds could potentially be stored for three years.
- Ms. Lamb stated that there's a lot of beach grass in the area and asked Alyson Eberhardt if it could potentially be relocated. Ms. Eberhardt said there's a plant bank area in Hampton Beach State Park and that Dr. Moore has funding for active dune restoration. She said they could use the plants and that they've been discussing expanding the area with NH State Parks. Dr. Moore said there are plans to move the plants in the plant bank in the future so the plant bank area could accommodate more.
- Mr. Hageman asked Dr. Moore if they would dig up the plants with the roots and relocate them. Dr. Moore said the plants would be harvested, bagged, and planted elsewhere. He said they would shake the soil off the plants so there wouldn't be much left.
- Mr. Hageman said the project team would revise the relocation plan graphic and distribute it to the group along with some bullet points explaining the mitigation framework.
- Ms. Reczek said they would also brainstorm with NH Sea Grant how NHDOT could contract with them to do the work. Ms. Eberhardt said she would confer with Dr. Moore and that they would follow up.

Hampton Harbor Bridge Project
Summary of Meeting
Wetland Mitigation
December 2, 2022

Attendees
Jennifer Reczek, NHDOT
Bob Juliano, NHDOT
Marc Laurin, NHDOT
Andy O'Sullivan, NHDOT
Kevin Lucey, NHDES
Chris Williams, NHDES
Karl Benedict, NHDES
Eben Lewis, NHDES
Kendall Fioravante, NHDES
Emily Nichols, NHDES
Mary Ann Tilton, NHDES
Jean Brochi, EPA
Brianna O'Brien, Conservation Coordinator, Town of Hampton
Alyson Eberhardt, NH Sea Grant
Jay Diener, Seabrook-Hamptons Estuaries Alliance/Town of Hampton Conservation Commission
Debra Wrobel, Town of Hampton Conservation Commission, Chair
Nick Caron, HDR
Susan Bemis, FHI Studio
Daniel Hageman, FHI Studio

- Andy O'Sullivan from NHDOT welcomed everyone and noted that the purpose of the meeting is to discuss the Seabrook Hampton Bridge wetlands mitigation and the ARM fund.
- Nick Caron from HDR presented the project plans to provide an overview. He highlighted the project location, project limits, and adjacent resources including the Dunes WMA, Hampton State Pier, Hampton Beach State Park, and Sun Valley Beach
- Daniel Hageman from FHI Studio presented the impacts to wetlands. He described the temporary impact area, and noted it is a conservative estimate. He said the current estimate of seven acres is intended to provide flexibility for the contractor to move barges around, but NHDOT doesn't anticipate impacting the whole area.
    - There are temporary pile-supported trestles shown on the west side of the proposed bridge to facilitate construction and east side of the existing bridge to facilitate removal of the existing piers.
    - He explained that the project will need to move utilities and that is why there is additional temporary impact to the west of the proposed temporary trestle. The team doesn't anticipate it will have much effect on the channel bottom since the utility lines lay on top of the channel bottom and likely move with the tides.
    - The piers constitute permanent impacts in the channel below the highest observable tide line (HOTL), and the full size of the pier cap is shown as the impact area. Other permanent impacts below the HOTL include the abutment slope on the north side of the harbor to facilitate a walking trail under the bridge. South of the harbor, there are permanent impacts to Priority Resource Area (PRA) dune habitat on both sides of the roadway approach.

  - Prior coordination with NHDES determined the dune habitat would be included in the wetland mitigation.
  - The trestle spur at Pier 6 was moved south to minimize impacts to the mussel bed.
- Mr. Hageman summarized the wetland impacts table (temporary and permanent) breaking out the square footage and linear footage, noting that:
  - The previously developed TBZ includes roadway, lawns, etc.
  - The undeveloped TBZ does not include the dune area
  - Permanent tidal wetland impacts are estimated at 17,472 sf
  - Linear feet of impacts to the banks and channel are approximately 432 lf.
  - Permanent impacts to the dune habitat are anticipated to be approximately 49,026 sf.
  - Mussel bed permanent impacts are estimated to be 1,270 sf
- Mary Ann Tilton asked about the non-developed TBZ PRA, noting that it could be areas above the high tide line and that it can be a PRA even if it is not a sand dune. Mr. Hageman suggested relabeling as "not dune" and Ms. Tilton agreed.
- Mr. Hageman noted that NHDOT has reached out to the Towns of Seabrook and Hampton regarding mitigation. The Town of Hampton suggested parcel acquisition. NHDOT, in coordination with NHDES determined the suggested parcels are not appropriate as mitigation.
- Mr. O'Sullivan stated that they know NHDES prefers mitigation within the estuary. NHDOT anticipates mitigation through the NH ARM Fund. He explained that NHDOT anticipates calculating the cost and then sharing that with NHDES so they can work towards what they might want to propose within the estuary. In talking with the USACE, this would be their preferred process when NHDOT makes the ARM fund payment, and that NHDOT can state that the ARM fund disbursement mitigation is preferred within the estuary.
- Mr. O'Sullivan asked the group to share some of the proposed projects the group had previously discussed on the site walk.
- Chris Williams of NHDES stated they would prefer that mitigation occur within the estuary.
- Kevin Lucey of NHDES stated that much like the Town's effort to identify mitigation, they've also been looking at how they can match restoration efforts. There are a lot of moving parts happening in the estuary now. They've met with restoration partners, including NH Sea Grant, and have a list that could be applicable depending on the impacts and how money flows.
- Mr. Lucey noted a payment into the ARM fund requires an application and there is a cost and timeline associated with that submittal that should be recognized.
- Mr. Lucey shared his screen to show some of the planning that has been underway for three years. The Town of Hampton has been working on a flood mitigation study with NHDES since 2019. It is funded by a coastal resilience grant that required research on nature-based flood solutions. One concept that was advanced was ditch remediation. There is evidence that overly ditched areas result in subsidence and can drive marsh loss. The goal is to try to reverse subsidence by filling the bottoms of existing mosquito ditches with salt grass hay to promote natural conversion of ditches back to saltmarsh habitat.
- Mr. Lucey explained that a consultant was hired to study the idea and they developed high and medium priority sites and a preferred alternative for a demonstration project. Design plans and permit applications have already been submitted to NHDES for the demonstration project.
- Mr. Lucey explained that the goal is to get ditch bottoms to an elevation where they can sustain vegetation on their own and bring marsh plains back together. Because there was very little budget for the pilot project, the project team selected an achievable number of demonstration projects, but it could be scaled based on funding. There is a question about

who owns the work and monitors it. There are 377 miles of ditching in the estuary so there is significant risk of losing many acres of salt march due to subsidence and sea level rise.

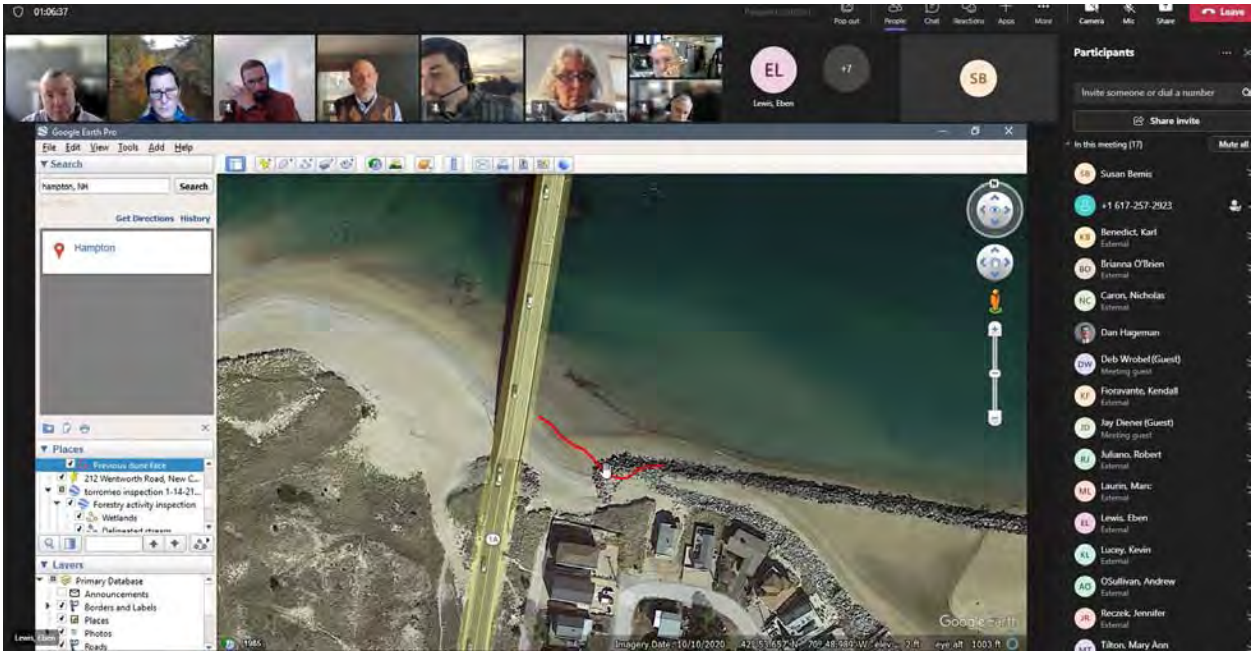
- Mr. O'Sullivan asked Mr. Lucey if there is an order of magnitude cost to hire someone to do all of that. Mr. Lucey replied that there was not, as the team has only focused on a manageable scale for their project team. It is a brand-new practice so it would be developed through the demonstration project.
- Ms. Tilton explained that the state statute doesn't allow NHDES to take ARM funding for PRA dune or TBZ impacts so that would have to be done through permittee responsible mitigation. Alan Brooks could address any questions. Even if USACE requires in lieu fee payment, the state as no authority to take that for non-wetland resources. The RSA prohibits dune and upland mitigation to be paid into the ARM Fund.
- Ms. Tilton asked how marsh restoration would offset functions through this project. She said it sounds like they would look at the resources to understand if they are being offset through the restoration. The goal is to provide in-kind mitigation for functions and values lost.
- Mr. Hageman noted the impacts are sandy bottom and rocky intertidal on the north. On the south it is sandy bottom channel. There are no vegetated tidal wetland impacts.
- Mr. O'Sullivan asked if they have to separate out impacts to dune and tidal upland (the cost for mitigation dollar amount) and then determine if there is permittee responsible mitigation in an upland area.
- Ms. Tilton replied that NHDES does try to align as much as they can with the federal mitigation program. They can't in this instance, but they can look at the watershed approach that looks at high ecological integrity sites and captures the impacts as best they can. An example of that is the Cambridge project, which was a preservation project. It all has to be vetted through the USACE and EPA. They'd have to see where they can align the functions being impacted by the bridge project with other projects. Since there aren't many sand dune and salt marshes, they'd have to align those impacts to local or estuary-wide projects.
- Mr. O'Sullivan asked if the mitigation must be upland. Ms. Tilton said NHDES tries to offset resource type and function, with the function being more important. You need to identify what the functions are and NHDES needs to show how they are being compensated in their findings. NHDES also takes watershed management plans and town plans into consideration for the argument.
- Ms. Tilton noted that NHDES is looking at the ARM issue from a policy and rulemaking perspective, but this is how it stands today.
- Jean Brochi stated that function is an important characteristic of the mitigation. She asked to clarify the project timeline and scope as it relates to what Mr. Lucey presented before discussing functions further. She asked Mr. Lucey if he has any national examples of this type of effort or a reference to a document they could look at where the study has been done. She clarified that she is specifically interested in learning about the success and monitoring and what's been required.
- Mr. Lucey responded that there are local examples in Essex and Ipswich that are led by MA Trustees for Preservation and US Fish and Wildlife Service Palm Island. They have been extensively monitored and initial findings are that they are acting against subsidence.
- Mr. Lucey asked if the temporary impacts to the channels will last three years. Mr. O'Sullivan explained that the timeline includes construction of one trestle to construct the bridge and another one to remove the existing bridge. A lot of the temporary impact is there to be conservative for barge movement. Mr. Caron clarified that the team did assume some penetrating impacts for those barges. The intent is to get to a viable method for construction without tying the contractor down too much.

- Mr. Hageman noted that the impacts are roughly estimated at between 2,000 and 3,000 square feet for the barge spuds and temporary trestle piles. He also noted that the existing bridge piers will be removed about two feet below the channel bottom, which should be considered as restoration in the channel bottom.
- Alyson Eberhardt noted that she is supportive of NHDES's interest in keeping mitigation in the estuary. Most of the dune habitat in NH is in this estuary and there is a lot of loss. The focus should be on mitigation in the estuary.
- Ms. Eberhardt stated the Hampton Harbor wildlife area functions are storm buffering capacity, and wildlife habitat including rare species such as piping plover and rare plants. It is a non-frontal dune so it can support a larger range of vegetation, sand storage, and beach renourishment.
- Ms. Eberhardt suggested that the area on the southern side of the bridge to the east is a very vulnerable area for the home that sits there. It is a breach area now and vulnerable to flooding. Depending on what happens on the east side of the bridge, it could be a restoration area for storm buffering.
- Mr. O'Sullivan asked Ms. Eberhardt if that meant that anything beyond the slope limits to the existing houses would be the opportunity area. Ms. Eberhardt said yes, there is an opportunity to address storm surge there and to the east as well. Dune restoration with a reinforced core is one example.
- Mr. O'Sullivan asked if a dune can be moved from one side to the other. Ms. Eberhardt said that from a system perspective, sand is a coveted and invaluable coastal resource. Sand is rare and expensive, and we want to keep that sediment in the system. They could move it and the plants that stabilize it since they are predominately perennial. They could move the plants, store them, and then put the sand and plants back in place.
- Marc Laurin explained that they've been working with NHNHB on a plan to address the rare vegetation in the dunes, looking to restore dune habitat to the south. They haven't talked about the east since there is a lot of rip rap in the right-of-way. He said he didn't know if any further area is within State jurisdiction. They would need to have a discussion with the owners. NHDOT would need to stay within the ROW.
- Mr. Hageman noted the team is talking about trying to skim the top layer of sand with seed stock to redistribute to other non-impacted dune areas. Existing state-listed perennial plants would be relocated prior to skimming of sand and redistribution. This is currently being considered as a primary mitigation measure. Collecting seeds and plant propagation are also under discussion as a possibility, but conceptual at this point.
- Ms. Eberhardt explained that the dunes are fragmented due to access. One idea would be to establish walk overs to create access to the beach without crushing the plants. These access areas became fracture areas during storms. If material is coming out of the channel and it could be used for beneficial beach nourishment, it could potentially be used to offset storm abatement impacts. Beach dune systems serve as the front-line defense. Walkovers are needed in both Hampton Beach State Park and at the Seabrook foredunes.
- Ms. Eberhardt suggested material removed from the channel could be used for beach renourishment.
- Mr. Laurin clarified that the project isn't dredging, just moving material around to fill in the voids left by removal of the existing piers.
- Ms. Eberhardt also suggested that another form of mitigation could be to conduct work in the Seabrook back dune areas, consisting of rare coastal forest and shrublands. This work could include: survey and removal of invasive species and field surveys of listed plant species populations.

- Ms. Brochi said she supports the need for protecting the sand dune and the value of the sand itself. She proposed having a beneficial use meeting to talk about a separate source of funding that is not ILF.
- Eben Lewis echoed what Ms. Eberhardt said about scour that has happened at Eisenhower Street next to the eastern side of the existing southern abutment. It may be due to the fact that the rip rap doesn't extend from Sun Valley beach towards the abutments. There has been dune and beach erosion due to an obvious lack of rip rap. There is an opportunity to connect the existing bridge abutment with the jetty and restore dune behind the rip rap (to the south). The resident that is closest is very worried about the dune being entirely gone.
- Mr. Lewis believes the jetty was a USACE project. He shared his screen to show how the dune has migrated over 10 years and is now virtually gone.
- Mr. O'Sullivan noted the proposed idea would impact a small beach area, but it would benefit property owners.
- Jennifer Reczek noted that one of the challenges will be how we fund whatever this mitigation looks like and how it is administered. Incorporating elements into the project that were not in the NEPA evaluation (EA), that are not within NHDOT jurisdiction, and that NHDOT doesn't have the ability to take rights will be challenging. Depending on the NEPA challenges, NHDOT could investigate ownership a little bit, but it would have to be a willing owner.
- Ms. Reczek explained that NHDOT and NHDES will have to discuss ownership, management, and oversight. NHDOT isn't set up to administer wetland and upland mitigation projects.
- Mr. O'Sullivan asked Mr. Lewis about jurisdiction. Ms. Reczek noted that if it is a USACE project, they would be engaged as well. Mr. O'Sullivan noted the team can follow up about property lines and what Mr. Lewis drew (see screenshot below).
- Mr. O'Sullivan stated that this idea will require a fair amount of coordination with NHDES, USACE, and EPA related to the impact to the dune PRA and TBZ undeveloped area. They need to have a follow up meeting.
- Ms. Reczek noted that this could increase the project area and could have access impacts as well.
- Chris Williams clarified the ownership of the jetty. It was constructed by USACE and ownership was transferred to the State. Pease Development Authority has maintenance responsibility now.
- Mr. Lewis stated that the impacts would need to be accounted for. It would just be calculated for the restoration effort for that area.
- Ms. Tilton said the banks and tidal waters can be paid into the ARM fund. She agreed it would be good to have another meeting about the functions that would be lost. She noted that the issue of NHDES authority to accept ARM Fund payment for TBZ and Dune impacts has only been raised over the last few months and that this was not a known issue before, which is why the issue wasn't raised until this point in the project development.
- Mr. O'Sullivan asked what would occur if the permittee responsible mitigation cannot physically be done. Do the rules allow another method that isn't physical construction? Ms. Tilton replied that NHDES has accepted preservation. One of the key things they do try is to have a high ecological integrity site and protect the land. An example would be a high-quality dune next to a marsh restoration project that you could protect and put into an easement in perpetuity. USACE wants to see a legally binding protection instrument.
- Ms. Reczek stated that NHDOT received a list of properties for conservation from the Hampton Conservation Commission. NHDOT understands that NHDES determined that the properties are not suitable. There isn't agreement on what is available and suitable.
- Mr. O'Sullivan stated that usually a land trust will get involved to do all the coordination and NHDOT pays for reimbursement of the costs to get to the conservation easement.

- Deb Wrobel clarified that the Hampton Conservation Commission sent two sets of properties. The first set was comprised of wetland sites and the State felt they were already protected. The second set included upland sites, but the Commission just heard back that those weren't accepted either.
- Ms. Tilton put a chart in the Teams chat showing the USACE criteria for preservation. She explained the chart is what NHDES would have used to review the list sent by the Hampton Conservation Commission. The themes for high-quality run throughout federal protection. She also confirmed that USACE is leaning towards preservation now. She noted there are a lot of issues to be addressed through this coordination.
- Brianna O'Brien asked if conservation was limited to single parcels. She explained that when she spoke with Lori Sommer (NHDES) previously, Lori indicated that land preservation mitigation could only be the preservation of one parcel at a time.
- Ms. Tilton said that if the parcels are connected, that could work, but if they are disjointed that is less palatable. Connected, undeveloped parcels with high ecological value can work. The more owners, the more logistically challenging it becomes. If you can't get one owner to agree the whole thing falls apart.
- Mr. O'Sullivan asked about setting funds aside for future projects and conservation easements into a fund that is approved by the Governor and Council. He wanted to know if that is acceptable.
- Ms. Tilton replied that it is not possible because there is no legal mechanism to do that. If someone wanted to set aside money, NHDES would need to have a rationale to issue the permit. NHDES doesn't have the authority or the mechanism to do that. There is also a temporal loss. There has to be a mechanism to ensure there is a timely offset.
- Mr. O'Sullivan asked what happens if there are no projects in the area. Ms. Tilton replied that she's never had that happen. Mr. O'Sullivan asked about unique coastal projects and examples NHDOT could see. Ms. Tilton stated that she has to research this issue.
- Mr. Lucey stated that, with regard to restoration in the tidal environment, all projects are experimental. In addition, there are limited opportunities for tidal habitat restoration in Hampton Seabrook Estuary and NH, in general. Among the available opportunities, there are few projects with readiness (landowner approval, design plans, permitting). Mitigation of subtidal habitats in NH (Oyster/eelgrass) have all failed. If we want to keep the mitigation value in the estuary, there may not be a clean 1:1 tradeoff between impacts and restoration/conservation opportunities.
- Mr. Lucey stated that it seems like the matchmaking is going to be problematic. Tidal restoration is going to be problematic. Restoration for shellfish has failed. He stated that if the coastal program can help, they are happy to do so.
- Ms. Reczek agreed that all the agencies must discuss further.

Screenshot of Mr. Lewis's drawing showing the lack of rip rap between the bridge and Sun Valley:



USACE Compensatory Mitigation list from Ms. Tilton:

Considerations under the General Compensatory Mitigation Requirements (33 CFR 332.3 (h))	**Yes**	**No**
Resources to be preserved provide important physical, chemical, or biological function for the watershed (Yes/No);		
Resources to be preserved contribute significantly to the ecological sustainability of the watershed (Yes/No)		
Preservation is determined by the district engineer to be appropriate and practicable (Yes/No);		
Resources are under threat of destruction or adverse modifications (Yes/No); and		
Site will be permanently protected through an appropriate real estate or other legal instrument (Yes/No).		

Hampton Harbor Bridge Project
Summary of Meeting
Beach Grass Plant Mitigation
February 14, 2023

Attendees
Jennifer Reczek, NHDOT
Marc Laurin, NHDOT
Amy Lamb, NHNHB
Alyson Eberhardt, NH Sea Grant
Gregg Moore, UNH School of Marine Science
Nick Caron, HDR
Daniel Hageman, FHI Studio
David Winslow, FHI Studio

- Daniel Hageman opened the meeting by explaining beach grass mitigation efforts proposed for the project and shared a map of NHDOT's concept plan. He stated the normal NHDOT methods of slope stabilization are ineffective in this ecosystem, and therefore beach grass will be utilized. He explained that the beach grass would be revegetated on the side slopes of the proposed roadway leading to the bridge, as well as over the proposed underground stormwater infiltration system and overflow pipe to be installed beneath the current sand dune on the southeast side of the project.
- Jennifer Reczek said the revegetated slopes and areas are not anticipated to have large or regular impacts as a result of future maintenance of the underground stormwater system. The revegetation and re-creation of dune habitat would allow mitigation of dune impacts from the project. Ms. Reczek said beach grass was chosen as it is a more common species.
- Mr. Hageman explained in addition to beach grass revegetation for the side slopes and stormwater pipe area, a potential dune mitigation site exists on the south side to the east of the project, adjacent to the current bridge. He explained the dune to the east of the bridge has been subjected to wave and storm action, resulting in erosion encroaching on an adjacent property. Mr. Hageman explained that riprap could be installed in the gap between the existing abutment and the existing jetty. Then sand could be used to backfill the area (gap) to re-establish dune habitat and protect the property. Mr. Hageman said a portion of the potential mitigation site is outside of the ROW, but the NHDOT is open to exploring this further as potential mitigation for the dune impacts.
- Ms. Reczek said that current legislation dictates that in order to use ARM funds as in-lieu fee mitigation it must address the impacts to wetland and surface water . She noted that a bill under consideration could make it possible to use ARM funds as mitigation for any priority resource area.
- Mr. Hageman noted that regardless of the bill under consideration, the side slope revegetation with beach grass will proceed. He said that the riprap installation may depend on whether the bill will pass.
- Gregg Moore explained that he has a grant for working in dune ecosystems, and would be able to work with the additional mitigation area under that grant. He also explained that this area has been under discussion before, as the adjacent landowner is concerned about erosional impacts.
- Ms. Reczek said there will not be private property impacts, however, it is uncertain who owns the area, and determining ownership may be difficult, as the land under the high tide line may

be owned and regulated differently (e.g., wetland impacts). Amy Lamb asked what the process would be for figuring out the owner. Ms. Reczek explained that NHDOT normally uses a surveyor on contract to do this work at the beginning of a project. As the mitigation site is now being added, it would be complicated to add the work to the scope of the consultants.

- Mr. Hageman confirmed his field survey never extended to this area, and thus lacks information about it.
- Alyson Eberhardt said NH Fish and Game (NHFG) had investigated the property to the west of the project and may have already done the required research for the mitigation site east of the project.
- Mr. Hageman questioned if NH Sea Grant would be able to use ARM funds for the mitigation if NHDOT was able to put money into the fund. Ms. Eberhardt responded that NH Sea Grant would enter into a competitive application process for the funds, with no guarantee of receiving that money.
- Dr. Moore stated his grant would be able to cover activities related to research, surveys, planting, and monitoring, but would be unable to mobilize construction equipment. Ms. Reczek said she supported the use of Dr. Moore's grant to research the site and that NHDOT would be able to mobilize the construction equipment for the project. She noted the project would go out for bid in September, with the contractor engaged by November 2023, and starting work on the project site in December of 2023 or the spring of 2024.
- Ms. Lamb noted that NHNHB is supportive of the mitigation site as long as there is an established mechanism for getting the work done. She also supported working with Dr. Moore, as there may not be many others who have the specialized expertise to both collect seeds and transplant living plants.
- Ms. Eberhardt explained she has not previously contracted with private entities, but Dr. Moore may have done so in the past and may know how to set up a contract.
- Ms. Lamb reported the Native Plant Trust may be another option for performing transplant and seed work, aside from NH Sea Grant. Ms. Lamb noted it may make more sense to work with UNH and NH Sea Grant, than an out-of-state nonprofit. Ms. Reczek responded that she needs evidence to justify utilizing NH Sea Grant as the sole source of the work.
- Mr. Hageman said there are perennial plants that need to be transplanted, and annual plants that need their seeds collected. The perennial plants should be moved before the contractor arrives on site, but the contractor would likely have to move the sand.
- Ms. Reczek said details of who would be doing what work, and when, would be described in a scope of work with Dr. Moore. She also noted that when the old bridge is removed, pavement will also be removed, and that area will be restored with beach grass.
- Ms. Eberhardt noted plans for dropseed mitigation, shown in yellow on the NHDOT plant mitigation map, are located on a current pathway utilized by pedestrians, and should be relocated behind the rope of the dune management area.
- Ms. Eberhardt questioned if the beach grass used for revegetation will be grown at a nursery or stockpiled from excavated areas. Mr. Hageman responded that the grass would have to survive for three years before being replanted, and he was unsure if it would survive. Ms. Eberhardt said it may be possible to extend the garden at Hampton Beach State Park to store grass stockpiled from the project area. Ms. Reczek said that NHDOT would need to give the dune grass to UNH to store at the State Park, as any use of the park from the NHDOT would cause 6(f) impacts.
- Nick Caron said the underground stormwater infiltration system and overflow pipe that will be installed in the eastern dune has a 75-year life span. The life span is also dependent on the maintenance schedule as well as the soil material below the gallery.

- Ms. Lamb stated that a source of beach grass needs to be found. Ms. Eberhardt said previous large-scale sources (tens of thousands of plants) of dune grass have been through New England Wetland Plants. She noted that several genetic strains of dune grass exist, and that NHDOT should specify that the dune grass used is adapted to New England climates.
- Ms. Lamb said she would reach out to contacts at the Native Plant Trust to see if they can help with growth of the dune grass.
- Ms. Reczek said she would work with Mr. Caron to move the mitigation process forward, and that she will contact Dr. Moore and copy Ms. Eberhardt on further communication about Dr. Moore's grant and the mitigation work that NH Sea Grant could perform. Mr. Caron said he will reach out to Dr. Moore to inquire about contracting with a private entity.

Hampton Harbor Bridge Project
Summary of Meeting
Wetland Mitigation
February 23, 2023

Attendees
Marc Laurin, NHDOT
Andy O'Sullivan, NHDOT
Eben Lewis, NHDES
Mary Ann Tilton, NHDES
Nick Caron, HDR
Stephanie Dyer-Carroll, FHI Studio

- Eben Lewis said that as the legislature allowing an in-lieu fee to the ARM fund for impacts to upland PRAs is still pending, NHDES would like NHDOT to consider restoring the dune southeast of the bridge as mitigation if a payment to the ARM Fund isn't feasible.
- Mr. Lewis stated there has been severe erosion to the dune. He suggested sand displaced on the west side of the project area could be used to restore the dune, and the half-tide jetty could be extended to tie into the bridge abutment. The dune vegetation could also be moved.
- Nick Caron said the plan is to build on top of the sand so it can't be moved to the east side. Instead, sand would need to be brought in if the dune is to be restored.
- Mr. Lewis said Pease Development Authority (PDA) owns the jetty and the property above MHW.
- Mr. Lewis suggested NHDOT reach out to PDA and the property owner immediately southeast of the bridge if they are moving forward with this. But it is not critical at this time.
- Marc Laurin said NHDOT is in the process of getting UNH under contract to move the state-listed plants and collect seeds from within the project area. This area could potentially be added.
- Mr. Caron explained that they planned to reestablish native grasses along the side slopes adjacent to the road.
- Mr. Lewis said NHDOT could include a summary of the mitigation plan in the Dredge and Fill Application and that it could then be further refined in coordination with NHNHB and NHDES.
- Mr. Lewis said he could share specifications that NHDES had used successfully in the past for such an effort.
- Mr. Lewis said they'd need to include a five-year monitoring plan. Andy O'Sullivan asked if NHDOT could develop the monitoring plan after the application has been submitted. Mr. Lewis said they could.
- Mary Ann Tilton said the application would need to include a narrative with means and methods for the dune mitigation, as well as the sequence and timing of construction activities, and who would be in charge. She said there will also need to be a pre-construction meeting.
- Mr. Laurin said NHDOT would submit the Dredge and Fill Application to NHDES by mid-March.
- Mr. Lewis said they will indicate in the application that use of the ARM Fund is an option. If the proposed in-lieu fee is not, he would condition the permit that the restoration area be 75% successful.
- Ms. Tilton said a new press release has been issued about coastal mitigation. She will send it along to NHDOT.
- Mr. Lewis said he's happy to review the mitigation section of the permit once it's complete prior to the package submittal.

THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

Victoria F. Sheehan
Commissioner

William Cass, P.E.
Assistant Commissioner

July 6, 2022

Mike Colin, Acting Chair
Seabrook Conservation Commission
P.O. Box 456
99 Lafayette Road
Seabrook, NH 03874

Mr. Colin: RE: Seabrook-Hampton, 15904

The New Hampshire Department of Transportation (DOT), in cooperation with the Federal Highway Administration (FHWA), proposes to replace the Neil R. Underwood Memorial Bridge in Hampton and Seabrook, NH. The Neil R. Underwood Bridge has been on NHDOT's Red List of deficient bridges since 1999 due to the poor condition of the superstructure and is considered New Hampshire's No. 1 priority Red-Listed bridge. An Environmental Assessment was completed in accordance with the National Environmental Policy Act (NEPA) and a Finding of No Significant Impact (FONSI) was issued by FHWA in March 2022. The DOT has begun the process of final design and environmental permitting for the bridge.

It is anticipated this project will have both temporary and permanent impacts to wetlands, and that compensatory mitigation will be required. In accordance with *Env-Wt 801.03(a)* the DOT is requesting a list of the Town's preferred/priority mitigation efforts that we may evaluate and consider undertaking. Please let us know if the Town of Seabrook has identified such priorities. In the absence of any Town priorities to evaluate, the DOT will pursue a payment into the Aquatic Resource Mitigation Fund (ARM Fund), at which time those funds will become competitively available through the ARM Fund grant process.

In order to continue to advance the permits for the project, we appreciate your response by August 12, 2022. Please contact me should you have any questions or want to discuss the project.

Sincerely,

Marc G. Laurin
Senior Environmental Manager
NH Department of Transportation
Bureau of Environment
marc.g.laurin@dot.nh.gov or 603-271-4044

cc: Andy O'Sullivan, NHDOT Wetland Program Manager
Jennifer Reczek, P.E., NHDOT Project Manager
Stephanie Dyer-Caroll, FHI Studio
Dan Hageman, FHI Studio
Daniel Murdzia, HDR Inc.

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THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

Victoria F. Sheehan
Commissioner

William Cass, P.E.
Assistant Commissioner

July 6, 2022

Deborah Wrobel, Chair
Hampton Conservation Commission
100 Winnacunnet Road
Hampton, NH 03842

Ms. Worbel: RE: Seabrook-Hampton, 15904

The New Hampshire Department of Transportation (DOT), in cooperation with the Federal Highway Administration (FHWA), proposes to replace the Neil R. Underwood Memorial Bridge in Hampton and Seabrook, NH. The Neil R. Underwood Bridge has been on NHDOT's Red List of deficient bridges since 1999 due to the poor condition of the superstructure and is considered New Hampshire's No. 1 priority Red-Listed bridge. An Environmental Assessment was completed in accordance with the National Environmental Policy Act (NEPA) and a Finding of No Significant Impact (FONSI) was issued by FHWA in March 2022. The DOT has begun the process of final design and environmental permitting for the bridge.

It is anticipated this project will have both temporary and permanent impacts to wetlands, and that compensatory mitigation will be required. In accordance with *Env-Wt 801.03(a)* the DOT is requesting a list of the Town's preferred/priority mitigation efforts that we may evaluate and consider undertaking. Please let us know if the Town of Hampton has identified such priorities. In the absence of any Town priorities to evaluate, the DOT will pursue a payment into the Aquatic Resource Mitigation Fund (ARM Fund), at which time those funds will become competitively available through the ARM Fund grant process.

In order to continue to advance the permits for the project, we appreciate your response by August 12, 2022. Please contact me should you have any questions or want to discuss the project.

Sincerely,

Marc G. Laurin
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Daniel Murdzia, HDR Inc.

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From:	Laurin, Marc
To:	Deborah Wrobel; Brianna O"Brien
Cc:	Stephanie Dyer-Carroll; Dan Hageman; Reczek, Jennifer; Murdzia, Daniel
Subject:	RE: Seabrook-Hampton, 15904 - Wetland Mitigation
Date:	Wednesday, July 6, 2022 1:59:32 PM

Deborah,

The Department and our environmental and engineering consultants are in the process of finalizing the design of the new bridge, evaluating minimization and avoidance measures, assessing construction sequencing, and identifying the potential wetland impacts that may occur. DOT does not yet have the final impact number for the project. However, during the NEPA documentation we estimated that approximately 0.29 acres of direct permanent estuarine wetlands impacts would occur due to the installation of the new bridge piers. The project would also dredge about 5,000 square feet of the river bed to widen the existing navigation channel from a 40-ft to a 150-ft width.

Temporary impacts would also occur with the installation of trestles needed to construct the bridge and demolish the old bridge. A conservative envelope was established where some of these impacts could occur that would encompasses an area of approximately 7 acres.

There will also be impacts to about 1.3 acres of dune habitat due to the shifting of the NH Rte. 1A westerly for the southern approach to the new bridge.

Removal of the old piers and some of the existing rip rap could provide areas for restoration of the river bed.

Further details on the impacts are outlined in the *Environmental Assessment – Revised 2/2022* document that can be found on DOT's Project Specific Information | Project Center | NH Department of Transportation web site under the Seabrook Hampton 15904 project link.

Thank you for your interest. The Department will continue coordination with NHDES, the ACOE and other State and Federal Natural Resource Agencies as the Final Design progresses to receive their input on appropriate mitigation measures.

Marc

From: Deborah Wrobel <conservehampton@gmail.com>
Sent: Wednesday, July 6, 2022 12:47 PM
To: Laurin, Marc <marc.g.laurin@dot.nh.gov>; Brianna O'Brien <bobrien@hamptonnh.gov>
Subject: Re: Seabrook-Hampton, 15904 - Wetland Mitigation

Marc,
Thank you for writing. We do have a list of projects that we prepared for opportunities such as this. I am working with the Commission and the Town to identify which of them to forward to you for

consideration. Do you have an estimate of intended impact?
Thanks.
Deborah Wrobel, Chair, Conservation Commission

On Jul 6, 2022, at 11:27 AM, Laurin, Marc <marc.g.laurin@dot.nh.gov> wrote:

Ms. Wrobel,

Attached, in accordance with NHDES's Wetlands rule *ENV-WT 801.03(a)* is NHDOT coordination inquiry on wetland mitigation for the above referenced project.

Thank you,

Marc Laurin
Senior Environmental Manager
Bureau of Environment
NH Department of Transportation
(603) 271-4044

Member: New Hampshire Association
of Conservation Commissions

Hampton Conservation Commission
100 Winnacunnet Road
Hampton, NH 03842
(603) 929-5808

August 11, 2022

Marc G. Laurin
NH Department of Transportation
Bureau of Environment
7 Hazen Drive
Concord, New Hampshire 03302-0483

Dear Mr. Marc Laurin,

The Hampton Conservation Commission appreciates the opportunity to provide input regarding potential mitigation projects for the impacts associated with the replacement of the Hampton-Seabrook Bridge. After reviewing our list of potential projects, the Commission has selected two areas of land protection we believe to be suitable mitigative projects. Please note that the costs associated with protecting these areas could include, but not be limited to, acquisition costs, due diligence costs (legal fees, title search/insurance fees, surveys, appraisals), closing costs, and possibly stewardship costs.

The first area is within the Town Forest. There are five privately owned parcels in that area that would benefit from protection and would help to complete a contiguous area of conservation land. This area was identified as a priority area for the town because it is partially within the Town's Aquifer Protection Zone, it contains both wetlands and uplands and supporting landscapes and this area is recognized as Highest Ranked Habitat in the Region by the 2020 NH Wildlife Action Plan. The Conservation Commission believes that purchasing and protecting one or more of these parcels would be an appropriate use of this mitigation opportunity.

1. Map 59 Lot 6
    a. Acres: 17
    b. 2021 Assessed Value: $700
2. Map 59 Lot 2
    a. Acres: 6
    b. 2021 Assessed Value: $6,600
3. Map 73 Lot 2
    a. Acres: 15
    b. 2021 Assessed Value: $600
4. Map 74 Lot 1
    a. Acres: 11
    b. 2021 Assessed Value: $400

5. Map 60 Lot 6
    a. Acres: 4.71
    b. 2021 Assessed Value: $600

The second area is within the Salt Marsh Complex. The Commission seeks the protection of four parcels that are located south of Lafayette Rd and Route 101 within the Seabrook Hampton Estuary. These undeveloped parcels have been identified as having a high ecological value by several different studies. Protecting them will allow the Commission to ensure proper management, restrict further disturbance, allow for marsh migration as well as allow for restoration or remediation projects in the future should the need or opportunity arise. The Conservation Commission believes that purchasing and protecting one or more of these parcels would be an appropriate use of this mitigation opportunity.

1. Map 228 Lot 1
    a. Acres: 8.2
    b. 2021 Assessed Value: $300
2. Map 216 Lot 2
    a. Acres: 6.2
    b. 2021 Assessed Value: $400
3. Map 229 Lot 1A
    a. Acres: 1.1
    b. 2021 Assessed Value: $100
4. Map 237 Lot 6
    a. Acres: 6.7
    b. 2021 Assessed Value: $100

We hope this serves as a good starting point for consideration and we look forward to hearing from you.

Sincerely,

Deborah R. Wrobel

Deborah R. Wrobel

Hampton Conservation Commission Chair

From:	Laurin, Marc
To:	Deborah Wrobel; Brianna O"Brien; Jay Diener
Cc:	Reczek, Jennifer; OSullivan, Andrew; Stephanie Dyer-Carroll; Dan Hageman; Murdzia, Daniel
Subject:	RE: Seabrook-Hampton, 15904 - Wetland Mitigation
Date:	Monday, August 22, 2022 10:40:53 AM

Ms. Wrobel,

Thank you for your response and potential mitigation recommendations to conserve lands adjacent to the Hampton Town Forest and within the Salt Marsh Complex. I have reviewed your recommendations with Andy O'Sullivan, the Bureau of Environment's Wetlands Program Manager.

NHDOT will need to coordinate on any proposed mitigation package with the NHDES' Wetlands Bureau and the US Army Corps of Engineers for them to concur with any conservation land mitigation. As such, NHDOT will need some further information on these properties to assess these mitigation opportunities you presented.

- Has the Town of Hampton or Conservation Commission been in contact with the owners to determine if they would be agreeable to sell their property? Since these properties were not identified in the Public Hearing for purchase by NHDOT as part of the project, NHDOT would need to be assured that the owners would be willing sellers.
- If the owners were willing to sell, the Department would want to purchase of the properties for the Town of Hampton or directly transfer them to the Town. Would the Town of Hampton agree to ownership, manage the properties with conservation easements and enter into a stewardship agreement with a conservation organization such as the Seacoast Land Trust or Southeast Land Trust of NH? The easements would likely be held by the Department of Environmental Service, with Executory Interest by the NHDOT.
- Would the Town appraise the properties? As NHDOT would be required to compensate the owners with fair market value, not assessed values, for the properties.

Additionally, a review of the properties' tax map information indicates that the Town Forest Property #2, at Map 59 Lot 2, is already owned by the Town.

As for the purchase and conservation of the Salt Marsh properties we have been informed by NHDES in the past that wetland areas cannot be used as compensatory mitigation as they are already protected by State and Federal statutes.

Please contact me or Andy O'Sullivan (603-271-0556, andrew.m.osullivan@dot.nh.gov) if you have any questions or need clarification of NHDOT's procedures to purchase lands.

Thanks,

Marc Laurin
Senior Environmental Manager
Bureau of Environment
NH Department of Transportation

Member: New Hampshire Association
of Conservation Commissions

Hampton Conservation Commission
100 Winnacunnet Road
Hampton, NH 03842
(603) 929-5808

September 22, 2022

Marc G. Laurin
NH Department of Transportation
Bureau of Environment
7 Hazen Drive
Concord, New Hampshire 03302-0483

Dear Mr. Marc Laurin,

Thank you for your thoughtful and informative response. The following information is in response to the questions posed.

The Conservation Commission has reached out to the property owners to gauge their interest. A follow-up letter was sent on September 6, 2022.

The Conservation Commission would be agreeable to the ownership of land and the protection through a conservation easement held by a third-party organization. Please note that the costs associated with protecting these areas could include, but not be limited to, acquisition costs, due diligence costs (legal fees, title search/insurance fees, surveys, appraisals), closing costs, and possibly stewardship costs.

The market value according to the Town appraisals for each parcel are included below. There was a typo in the original letter, the second parcel is Map 59 Lot 9. The correct five parcels are:

1. Map 59 Lot 6
    a. Acres: 17
    b. 2021 Assessed Value: $24,005.13
2. Map 59 Lot 9
    a. Acres: 6
    b. 2021 Assessed Value: $8,472.40
3. Map 73 Lot 2
    a. Acres: 15
    b. 2021 Assessed Value: $21,181.00
4. Map 74 Lot 1
    a. Acres: 11
    b. 2021 Assessed Value: $14,120.66

5. Map 60 Lot 6
    a. Acres: 4.71
    b. 2021 Assessed Value: $300,385

In order to plan and prepare for our next steps and coordinate with the property owners, we will need to know what the process is for formally accepting and moving forward with this mitigation project. We will also need to know when final commitments need to be made from the property owners.

Thank you,

Brianana O'Brien

Conservation Coordinator

From:	Laurin, Marc
To:	Brianna O"Brien; Deborah Wrobel; Jay Diener
Cc:	Reczek, Jennifer; OSullivan, Andrew; Stephanie Dyer-Carroll; Dan Hageman; Murdzia, Daniel; Nick Caron
Subject:	RE: Seabrook-Hampton, 15904 - Wetland Mitigation
Date:	Wednesday, November 23, 2022 11:34:20 AM

Brianna,

I apologize, I had meant to follow up before now to close the loop on the Town of Hampton's Conservation Commission's suggested land conservation, adjacent to the Hampton Town Forest, as mitigation for the wetland impacts associated with the Neil Underwood Memorial bridge (NH Rt 1A over Hampton Harbor Inlet) replacement project.

NHDOT has been in consultation with the NHDES Wetlands Bureau, which has recommended that mitigation for unavoidable project impacts to the wetland resources would be more appropriate to occur within the Hampton-Seabrook Estuary. As such, NHDOT will not pursue the Conservation Commissions initial land conservation proposals, and is looking to get concurrence from NHDES on a project within the Estuary that could be funded through the NHDES Aquatic Resource Mitigation (ARM) fund.

As you know, NHDOT has arranged a meeting next week with the NHDES Wetlands Bureau and Coastal Program, the NH Sea Grant, the Seabrook-Hamptons Estuary Alliance, and the Town of Hampton Conservation Commission to discuss the options available to leverage NHDOT's anticipated ARM fund payment.

Looking forward to continuing our discussions on appropriate wetland mitigation for the project.

Marc Laurin
Senior Environmental Manager
Bureau of Environment
NH Department of Transportation
(603) 271-4044
marc.g.laurin@dot.nh.gov

Attachment 7

Wetland Functional Assessment Worksheet

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

WETLANDS FUNCTIONAL ASSESSMENT WORKSHEET

Water Division/Land Resource Management
Wetlands Bureau

Check the Status of your Application

RSA/Rule: RSA 482-A / Env-Wt 311.03(b)(10); Env-Wt 311.10

APPLICANT LAST NAME, FIRST NAME, M.I.: New Hampshire Department of Transportation

As required by Env-Wt 311.03(b)(10), an application for a standard permit for minor and major projects must include a functional assessment of all wetlands on the project site as specified in Env-Wt 311.10. This worksheet will help you compile data for the functional assessment needed to meet federal (US Army Corps of Engineers (USACE); if applicable) and NHDES requirements. Additional requirements are needed for projects in tidal area; please refer to the Coastal Area Worksheet (NHDES-W-06-079) for more information.

Both a desktop review and a field examination are needed to accurately determine surrounding land use, hydrology, hydroperiod, hydric soils, vegetation, structural complexity of wetland classes, hydrologic connections between wetlands or stream systems or wetland complex, position in the landscape, and physical characteristics of wetlands and associated surface waters. The results of the evaluation are to be used to select the location of the proposed project having the least impact to wetland functions and values (Env-Wt 311.10). This worksheet can be used in conjunction with the Avoidance and Minimization Written Narrative (NHDES-W-06-089) and the Avoidance and Minimization Checklist (NHDES-W-06-050) to address Env-Wt 313.03 (Avoidance and Minimization). If more than one wetland/ stream resource is identified, multiple worksheets can be attached to the application. All wetland, vernal pools, and stream identification (ID) numbers are to be displayed and located on the wetlands delineation of the subject property.

SECTION 1 - LOCATION (USACE HIGHWAY METHODOLOGY)	
ADJACENT LAND USE: Public roadway, beach, dune habitat, state park, residential, commercial property	
CONTIGUOUS UNDEVELOPED BUFFER ZONE PRESENT? ☐ Yes ☒ No	
DISTANCE TO NEAREST ROADWAY OR OTHER DEVELOPMENT (in feet): 0 feet	
SECTION 2 - DELINEATION (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)	
CERTIFIED WETLAND SCIENTIST (if in a non-tidal area) or QUALIFIED COASTAL PROFESSIONAL (if in a tidal area) who prepared this assessment: Daniel A. Hageman NHCWS No. 275	
DATE(S) OF SITE VISIT(S): June 20-21, 2018; Aug. 12-13, 29-30, 2022; Sept. 14, 2022	DELINEATION PER ENV-WT 406 COMPLETED? ☒ Yes ☐ No
CONFIRM THAT THE EVALUATION IS BASED ON: ☒ Office and ☒ Field examination.	
METHOD USED FOR FUNCTIONAL ASSESSMENT (check one and fill in blank if "other"): ☒ USACE Highway Methodology. ☐ Other scientifically supported method (enter name/ title):	

SECTION 3 - WETLAND RESOURCE SUMMARY (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)	
WETLAND ID: Hampton Harbor/Hampton River	LOCATION: (LAT/ LONG) 42.89611/-70.81654
WETLAND AREA: Hampton Harbor/Hampton River	DOMINANT WETLAND SYSTEMS PRESENT: E1UB2, E1UB1, E2US2, E2US1
HOW MANY TRIBUTARIES CONTRIBUTE TO THE WETLAND? 5 watercourses	COWARDIN CLASS: E1UB2, E1UB1, E2US2, E2US1
IS THE WETLAND A SEPARATE HYDRAULIC SYSTEM? ☐ Yes ☒ No if not, where does the wetland lie in the drainage basin? Lower	IS THE WETLAND PART OF: ☒ A wildlife corridor or ☐ A habitat island? IS THE WETLAND HUMAN-MADE? ☐ Yes ☒ No
IS THE WETLAND IN A 100-YEAR FLOODPLAIN? ☒ Yes ☐ No	ARE VERNAL POOLS PRESENT? ☐ Yes ☒ No (If yes, complete the Vernal Pool Table)
ARE ANY WETLANDS PART OF A STREAM OR OPEN-WATER SYSTEM? ☒ Yes ☐ No	ARE ANY PUBLIC OR PRIVATE WELLS DOWNSTREAM/ DOWNGRADIENT? ☐ Yes ☒ No
PROPOSED WETLAND IMPACT TYPE: fill and excavation	PROPOSED WETLAND IMPACT AREA: 420,871 sf

SECTION 4 - WETLANDS FUNCTIONS AND VALUES (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)

The following table can be used to compile data on wetlands functions and values. The reference numbers indicated in the "Functions/ Values" column refer to the following functions and values:

1. Ecological Integrity (from RSA 482-A:2, XI)
2. Educational Potential (from USACE Highway Methodology: Educational/Scientific Value)
3. Fish & Aquatic Life Habitat (from USACE Highway Methodology: Fish & Shellfish Habitat)
4. Flood Storage (from USACE Highway Methodology: Floodflow Alteration)
5. Groundwater Recharge (from USACE Highway Methodology: Groundwater Recharge/Discharge)
6. Noteworthiness (from USACE Highway Methodology: Threatened or Endangered Species Habitat)
7. Nutrient Trapping/Retention & Transformation (from USACE Highway Methodology: Nutrient Removal)
8. Production Export (Nutrient) (from USACE Highway Methodology)
9. Scenic Quality (from USACE Highway Methodology: Visual Quality/Aesthetics)
10. Sediment Trapping (from USACE Highway Methodology: Sediment /Toxicant Retention)
11. Shoreline Anchoring (from USACE Highway Methodology: Sediment/Shoreline Stabilization)
12. Uniqueness/Heritage (from USACE Highway Methodology)
13. Wetland-based Recreation (from USACE Highway Methodology: Recreation)
14. Wetland-dependent Wildlife Habitat (from USACE Highway Methodology: Wildlife Habitat)

First, determine if a wetland is suitable for a particular function and value ("Suitability" column) and indicate the rationale behind your determination ("Rationale" column). Please use the rationale reference numbers listed in Appendix A of USACE *The Highway Methodology Workbook Supplement*. Second, indicate which functions and values are principal ("Principal Function/value?" column). As described in *The Highway Methodology Workbook Supplement*, "functions and values can be principal if they are an important physical component of a wetland ecosystem (function only) and/or are considered of special value to society, from a local, regional, and/or national perspective". "Important Notes" are to include characteristics the evaluator used to determine the principal function and value of the wetland.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE (Reference #)	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	☐ Yes ☒ No		☐ Yes ☐ No	No vegetated wetlands on the site. All resources below the HOTL.
2	☐ Yes ☒ No		☐ Yes ☐ No	No vegetated wetlands on the site. All resources below the HOTL.
3	☐ Yes ☒ No		☐ Yes ☐ No	No vegetated wetlands on the site. All resources below the HOTL.
4	☐ Yes ☒ No		☐ Yes ☐ No	No vegetated wetlands on the site. All resources below the HOTL.
5	☐ Yes ☒ No		☐ Yes ☐ No	No vegetated wetlands on the site. All resources below the HOTL.
6	☐ Yes ☒ No		☐ Yes ☐ No	No vegetated wetlands on the site. All resources below the HOTL.
7	☐ Yes ☒ No		☐ Yes ☐ No	No vegetated wetlands on the site. All resources below the HOTL.
8	☐ Yes ☒ No		☐ Yes ☐ No	No vegetated wetlands on the site. All resources below the HOTL.
9	☐ Yes ☒ No		☐ Yes ☐ No	No vegetated wetlands on the site. All resources below the HOTL.
10	☐ Yes ☒ No		☐ Yes ☐ No	No vegetated wetlands on the site. All resources below the HOTL.
11	☐ Yes ☒ No		☐ Yes ☐ No	No vegetated wetlands on the site. All resources below the HOTL.
12	☐ Yes ☒ No		☐ Yes ☐ No	No vegetated wetlands on the site. All resources below the HOTL.
13	☐ Yes ☒ No		☐ Yes ☐ No	No vegetated wetlands on the site. All resources below the HOTL.
14	☐ Yes ☒ No		☐ Yes ☐ No	No vegetated wetlands on the site. All resources below the HOTL.

SECTION 5 - VERNAL POOL SUMMARY (Env-Wt 311.10)

Delineations of vernal pools shall be based on the characteristics listed in the definition of "vernal pool" in Env-Wt 104.44. To assist in the delineation, individuals may use either of the following references:

- *Identifying and Documenting Vernal Pools in New Hampshire 3rd Ed.*, 2016, published by the New Hampshire Fish and Game Department; or
- The USACE *Vernal Pool Assessment* draft guidance dated 9-10-2013 and form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

All vernal pool ID numbers are to be displayed and located on the wetland delineation of the subject property.

"Important Notes" are to include documented reproductive and wildlife values, landscape context, and relationship to other vernal pools/wetlands.

Note: For projects seeking federal approval from the USACE, please attach a completed copy of The USACE "Vernal Pool Assessment" form dated 9-6-2016, Appendix L of the USACE New England District *Compensatory Mitigation Guidance*.

VERNAL POOL ID NUMBER	DATE(S) OBSERVED	PRIMARY INDICATORS PRESENT (LIST)	SECONDARY INDICATORS PRESENT (LIST)	LENGTH OF HYDROPERIOD	IMPORTANT NOTES
1	N/A				No vernal pools present on or near the site.
2					
3					
4					
5					

SECTION 6 - STREAM RESOURCES SUMMARY

DESCRIPTION OF STREAM: Hampton River/Harbor	STREAM TYPE (ROSGEN): C5
HAVE FISHERIES BEEN DOCUMENTED? ☒ Yes ☐ No	DOES THE STREAM SYSTEM APPEAR STABLE? ☒ Yes ☐ No

OTHER KEY ON-SITE FUNCTIONS OF NOTE: historic structures exist: breakwaters, nav. channel, bank protection, etc.

The following table can be used to compile data on stream resources. "Important Notes" are to include characteristics the evaluator used to determine principal function and value of each stream. The functions and values reference number are defined in Section 4.

FUNCTIONS/ VALUES	SUITABILITY (Y/N)	RATIONALE	PRINCIPAL FUNCTION/VALUE? (Y/N)	IMPORTANT NOTES
1	☒ Yes ☐ No	8 F&Vs	☐ Yes ☒ No	Stream resources have ecological integrity based on presence of 8 F&Vs
2	☒ Yes ☐ No	1, 2, 3, 5, 8, 9, 10, 11, 13, 16	☐ Yes ☒ No	Direct access to tidal estuarine wetlands soft and hard bottom habitats; no vegetated wetlands
3	☒ Yes ☐ No	General: 2,3,4,5,6,7,10,12,14,16,17 Marine: 1,2,3,4	☒ Yes ☐ No	Anadromous occur in harbor; federally-managed species occur; high value for fish species; blue mussel beds occur
4	☐ Yes ☒ No	13	☐ Yes ☒ No	Discharge point of river to harbor in tidal area; no flood storage occurring
5	☐ Yes ☒ No	4,5,7,12	☐ Yes ☒ No	Wetland is a tidal estuarine system; no GW recharge provided
6	☒ Yes ☐ No	1,2	☐ Yes ☒ No	NOAA identified six potentially-occurring federal-species: Shortnose Sturgeon Atlantic Sturgeon Green Sea Turtle Leatherback Sea Turtle Kemp's Ridley Sea Turtle Loggerhead Sea Turtle
7	☐ Yes ☒ No	2,5	☐ Yes ☒ No	No vegetated wetlands within the Project Area
8	☒ Yes ☐ No	1,3,4,5,6,9	☐ Yes ☒ No	Shellfish and invertebrates as food source; detritis likely utilized in wetland, but source is tidal wetlands further to the west outside Project Area
9	☒ Yes ☐ No	1,2,6,8,9,11,12	☐ Yes ☒ No	Wetland is a tidal estuarine wetland with both subtidal and intertidal areas visible from surrounding uplands; dune, beach, sandflat and rocky shoreland all occur
10	☐ Yes ☒ No	1,2,8,9,10	☐ Yes ☒ No	Wetland is a tidal estuarine wetlands with no vegetation
11	☐ Yes ☒ No	1,3,5,7,8,9,10,11	☐ Yes ☒ No	No wetland vegetation present within Project Area; erosion in adjacent dunes occurring
12	☒ Yes ☐ No	3,4,8,9,10,11,12,14,16,17,19, 23,25,26,27,28	☐ Yes ☒ No	Multiple estuarine classes viewable; historic bridge;

				important biological resources to the community
13	☒ Yes ☐ No	1,2,4,5,6,7,8,9,10,11,12	☒ Yes ☐ No	This is a high use area for recreation including: boating, fishing, wildlife observation, swimming, etc.
14	☒ Yes ☐ No	1,2,6,7,8,12,16,17,18,19,21,22	☒ Yes ☐ No	There are no vegetated wetland associated with the harbor in this area; aquatic marine wildlife habitat is high; avian use is high

SECTION 7 - ATTACHMENTS (USACE HIGHWAY METHODOLOGY; Env-Wt 311.10)

☒ Wildlife and vegetation diversity/abundance list.

☒ Photograph of wetland.

☒ Wetland delineation plans showing wetlands, vernal pools, and streams in relation to the impact area and surrounding landscape. Wetland IDs, vernal pool IDs, and stream IDs must be indicated on the plans.

☒ For projects in tidal areas only: additional information required by Env-Wt 603.03/603.04. Please refer to the Coastal Area Worksheet (NHDES-W-06-079) for more information.

Attachment 8

Coastal Functional Assessment

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

Coastal Functional Assessment

Seabrook-Hampton 15904

Seabrook and Hampton, New Hampshire

March 2023

New Hampshire DOT
Department of Transportation

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INTRODUCTION

The proposed project was assessed in accordance with Wt-603.04 (Coastal Functional Assessment), which also incorporates by reference, Env-Wt-306.05 (Required Planning for all Projects), Env-Wt-406 (Delineation and Classification of Jurisdictional Areas), and Env-Wt-603.05 (Vulnerability Assessment). Prepared in accordance with Env-Wt 603.02, the following analysis presents the project Purpose and Need; provides a description of the project; discusses alternatives considered and explains why the selected alternative has the least overall impact; documents existing site conditions and associated coastal assets; and summarizes impacts to jurisdictional resources. Then the analysis demonstrates compliance with applicable regulatory requirements including general conditions, avoidance, minimization and mitigation as outlined in the Coastal Resource Worksheet. The Coastal Resource Worksheet is provided as Appendix A.

PROJECT INFORMATION

Project Purpose and Need

The project Purpose and Need was defined in accordance with Env-Wt 603.02.

The purpose of the project is to provide a safe, reliable, and structurally sound crossing over the Hampton Harbor Inlet, while also improving mobility for the traveling public. This includes drivers, bicyclists and pedestrians, as well as maritime users.

The project is necessary because the existing bridge is structurally deficient and functionally obsolete, and is on NHDOT's "Red-List", which identifies deficient bridge structures that are a priority for the state to address. Since its construction in 1949, the bridge has been repaired or rehabilitated numerous times, including in 1963, 1978, 1984, 1990, 2002, and 2011. In addition, emergency repairs to the bascule span were undertaken in 2017 when the bridge became stuck in the raised position due to deterioration in the gears of the structure's mechanical system and interim repairs were made in 2018 to provide a more permanent repair until this project is constructed.

In addition to structural and mechanical deficiencies, the current roadway width doesn't adequately accommodate the combined use by vehicles, bicyclists and pedestrians. Existing travel lane and shoulder widths at the bridge are inconsistent with roadway approaches, the shoulders are narrow, and the sidewalk is narrow on the east side of the bridge. There is no sidewalk on the west side of the bridge. Due to the width of the shoulders, some bicyclists use the sidewalk, which creates conflicts with pedestrians. In addition, the shoulder is not wide enough to provide safe haven for disabled vehicles. Finally, the narrow shoulders do not allow for the passage of emergency vehicles over the bridge during periods of high traffic which is another safety concern.

Project Description

The following project description was prepared to meet the requirements under Env-Wt 603.06.

The project involves the replacement of the Neil R. Underwood Bridge (Bridge No. 235/025) that carries NH Route 1A over the Hampton River at the inlet to Hampton Harbor. The bridge is a vital transportation link between the Towns of Hampton and Seabrook, NH. The proposed bridge consists of a 1,300-foot-long, seven span, structural steel, fixed bridge located along a 10,592-foot horizontal radius curve on normal crown located approximately 75 feet west of the existing bascule bridge. The proposed bridge will rest on six piers and two abutments with the end spans measuring approximately 162 feet in length and the five central spans measuring approximately 195 feet in length. The proposed roadway typical section consists of two 11-foot travel lanes with eight-foot shoulders flanked by six-foot sidewalks on each side with four pedestrian bump-outs on the bridge located at Piers 2 and 5. The fixed bridge will provide a 150-foot navigational channel opening (inclusive of bridge fenders) and a vertical waterway clearance of 48 feet, which includes the 44 feet of required navigational clearance to accommodate the U.S. Army Corps of Engineers (USACE) Special Purpose (dredge) Vessel (S/P/V) *Currituck*, plus four feet for predicted Sea Level Rise (SLR), the approximate Intermediate-High range estimated by the New Hampshire Coastal Risk and Hazard Commission. The two abutments will consist of concrete cantilever types with U-back concrete cantilever wings on concrete footings anticipated to be supported by driven steel pile foundations. The six piers will consist of reinforced concrete hammerhead pier caps over a concrete column on pier footings supported on deep foundations consisting of drilled shafts. MSE, gravity, or cantilevered retaining walls will extend northward from the north abutment wingwalls to limit slope impacts. The approach roadway reconstruction will begin approximately 900 feet south of the new bridge and end approximately 800 feet north of the new bridge at a point approximately 200 feet northerly of the State Park Road. See Figure 1 in Appendix B. The project will include removal of the existing bridge structure and its piers to a point below the existing channel bottom. The existing abutments and armoring will be partially removed, to approximately two feet below the proposed grade.

A Vulnerability Assessment has been prepared for the proposed project in accordance with Env-Wt-603.05. SLR was considered for all relevant aspects of the project during both project planning and design. The Vulnerability Assessment is provided in Appendix C. It verifies the estimated SLR of four feet used during project planning.

Construction Sequence, E&S Controls and Dewatering Plan

Construction of the new bridge will occur over approximately four years. Prior to initiating ground disturbing activities, erosion and sedimentation (E&S) controls will be installed land side, including silt fences and E&S socks. During the first warm weather season, construction

activities will be limited to "on land" work that has minimal impacts to existing vehicular or pedestrian traffic on the NH Route 1A corridor. This includes construction of temporary access along the west edge of existing Route 1A at the north and south approaches to the proposed bridge. "On land" construction activities related to installation of the temporary work trestle to be installed west of the proposed bridge will be done in the fall of 2024, as will "on land" activities in support of constructing the Pier 1 and Pier 6 cofferdams, which are at or near the water's edge in Hampton and Seabrook. In the first winter construction season, during the in-water work window (November 15-March 15), a work trestle will be constructed extending from the west side of the proposed south abutment north to the proposed location of Pier 3 on the south side of the navigational channel. Similarly, a second work trestle will be constructed on the west side of the proposed bridge north of the navigational channel extending from the proposed location of Pier 4 to the west side of the north abutment. Sheet pile cofferdams will be installed around the limits of the proposed pier caps at Piers 1and 6, and drilled shaft steel outer casings will be installed at Piers 2, 3, 4 and 5. The use of a tremie seal may be needed for Piers 1 and 6 since the pier caps will rest on the bottom of the channel and poured in-place rather than be pre-cast.

During the second warm weather construction season, construction activities will focus on building the structure of Piers 1 – 6, including the drilled shaft foundations, the pier footings, pier stems and pier caps. The Pier 2, 3, 4 and 5 footings are located above the existing bottom of the harbor. Once the Pier 2, 3, 4 and 5 drilled shafts are completed, within their steel casings, prefabricated forms for the pier footings will be lowered into place and secured to the drilled shafts, then dewatered and treated, as necessary, prior to discharge back to surface waters. Similar dewatering will occur for the construction of Piers 1and 6. In addition, Abutments A and B will be fully constructed. As substructures are completed, installation of the proposed bridge superstructure (girders, diaphragms, and deck) will commence. In the second in-water construction season, the bridge girders and framing will be erected and the bridge deck will be installed. As the western temporary work trestle is no longer needed, it will be deconstructed. In order to allow for flexibility in the contractor schedule, full removal of the western temporary work trestle is not programmed until the next winter construction season. In addition, the western portion of the southern and northern approaches will be constructed, along with the northwest retaining wall and sidewalk.

During the third warm weather construction season, roadway approach work will occur and temporary access will be constructed along the eastern side of Route 1A in advance of the removal of the existing bridge. In the third in-water construction season, the northeastern retaining wall will be constructed, the treatment swale and underground infiltration system will be installed, and the finish roadway work will be completed on the north and south approaches. Removal of the western temporary work trestle will be completed and construction of the temporary work trestle east of the existing bridge and the confinement

cofferdams around the existing piers will be completed. With these measures in place, the existing bridge superstructure and substructures will be deconstructed.

During the fourth and final warm weather construction season the new bridge and approach roadways will be paved, the E&S controls at the new roadway and bridge will be removed after soil stabilization, and the portions of the eastern trestle located outside the water will be removed. In the fourth and final in-water construction season, the remaining portions of the eastern trestles and the remaining cofferdams will be removed. Final restoration measures and removal of sediment controls at the east trestle work area and construction access areas will be completed.

Post-construction Project Management and Maintenance

Anticipated maintenance activities during the life of the bridge include cleaning of the bridge deck, waterproofing of exposed concrete surfaces, and navigation lighting and fender system maintenance on an annual basis, as well as routine biannual bridge inspections. A dredge report on the status of the navigable waters of Hampton Harbor is issued annually by the NH Division of Ports and Harbors, and the Federal Navigation Channel is historically dredged approximately every ten years by the USACE to maintain the regulated channel depth.

Anticipated repair activities during the life of the bridge include navigation lighting replacement every ten years; joint and bearing replacement, concrete patching, fender system repairs, and structural steel coating system touch-ups every 20 years; and deck replacement, bridge rail replacement, and structural steel repairs every 60 years.

Alternatives Assessment

A range of alternatives was evaluated as part of compliance with the National Environmental Policy Act (NEPA). In the initial planning, an eastern alignment was considered, however, this alternative would have impacted residential properties southeast of the bridge, potentially requiring one or more full property acquisitions. Through coordination with stakeholders and the Project Advisory Committee, it was determined that this was not a feasible alternative due to substantial public opposition. Four alternatives on a western alignment were subsequently evaluated, including the selected alternative, replacement with a fixed bridge. No alternative was identified that met the purpose and need while also having fewer environmental impacts than replacing the existing bridge with a fixed bridge. This includes temporary and permanent impacts to wetlands, inlet bottom, and sensitive dune habitat. The three alternatives considered, other than the selected alternative, are summarized below.

Replacement with Bascule Bridge

NHDOT evaluated an alternative that would have replaced the existing bridge with a new concrete and steel bridge with a bascule movable span over the Entrance Channel. Like the selected fixed bridge alternative, the bascule bridge would be constructed approximately 75 feet west of the existing alignment. The bascule pier would be located south of the navigational channel to minimize impacts to the Seabrook and Hampton Channels to the west of the bridge. However, due to the presence of a bedrock ledge in the area to be dredged west of the bridge, blasting would likely have been required. Blasting would have the potential to adversely impact aquatic species and their habitat. Moreover, the bascule pier would have resulted in greater permanent wetland impacts, and a new bascule bridge would result in more vehicular delays along NH Route 1A due to bridge openings than a fixed bridge. In addition, it would provide a narrower channel width and more obstructions for small vessels. As such, this alternative was not selected.

Rehabilitation (with Widened Bridge)

The NHDOT considered a rehabilitation alternative that would maintain the overall form of the existing bridge, widening it to the east, and would replace the superstructure to provide necessary structural capacity and roadway width. A temporary bridge with a movable span would be required west of the existing bridge to maintain vehicular and maritime circulation during construction, impacting the dune habitat to the west, as well as the channel bottom. Moreover, this alternative would require in-water work due to the widening of all piers and abutments. Vehicular delays due to the bridge opening would continue. As such, this alternative was not carried forward for further consideration.

Twin Bridge (with Rehabilitated Bridge)

NHDOT also considered building a second bridge to the west of the existing bridge and maintaining both for vehicular travel. This alternative was developed to minimize impacts to the existing historic bridge. The new bridge would be similar in width and include a bascule span configuration comparable to the existing bridge. The two independent bascule spans requiring simultaneous lifts would pose increased challenges for vessels passing under the bridges. Moreover, vehicular delays due to bridge lifts would persist. This alternative would have the greatest physical footprint, and therefore the greatest impact on wetlands and the sensitive dune habitat west of the existing bridge. As such, this alternative was not further considered.

EXISTING CONDITIONS AND NATURAL RESOURCES ASSETS

All required planning has been completed to satisfy Env-Wt-306.05 and Env-Wt 603.03. Screening was undertaken using the Wetland Permit Planning Tool, the National Oceanic and Atmospheric (NOAA) Tides and Currents, and the NOAA Essential Fish Habitat Mapper. On-site field assessments were conducted to verify wetland resources, wetland functions and values, fisheries habitat, blue mussel beds, and other coastal resources.

Wetlands

A field delineation of the jurisdictional areas was conducted by a New Hampshire Certified Wetland Scientist (Dan Hageman, No. 275) in 2018 and 2022 in accordance with Env-Wt-406. Both office and field data were utilized for the delineation. Screening of the NOAA Tides & Currents database was undertaken during the planning phase, and then later verified by a New Hampshire licensed surveyor. Flagging was hung in the field for Top of Bank resources, and the Highest Observable Tide Line (HOTL) was marked during the highest lunar tide (on August 12, 2022, at midnight), as directed by New Hampshire Department of Environmental Services (NHDES). Accurate topographical survey was obtained by a New Hampshire licensed surveyor within the Project Area to ensure accurate location of the HOTL limits. The HOTL was surveyed by Steven Michaud (License 916) on August 16, 2022.

The tidal elevations are shown in Table 1 below (Datum NAVD88).

Table 1: Tidal Elevations

Mean lower low water	-5.17’
Mean low water	-4.83’
Mean high water	3.43’
Mean tide level	-.52
Mean higher high water	4.22’
Highest observable tide line	6.20’

Wetland types were identified according to the Cowardin et. al. (1979) system of wetland classification. No vegetated tidal wetlands or inland wetlands were found within the Project Area during the field investigation. Although large areas of vegetated tidal wetlands do exist in the Hampton River system, they are more than 2,000 feet to the west of the site. Small pockets of tidal vegetated wetlands may occur along the developed shorefront of the inner harbor to the north and south of the bridge, but these are also outside the project limits.

The primary wetland types in the vicinity of the bridge are estuarine intertidal and subtidal wetlands. The deeper portion of the harbor is classified as Estuarine Subtidal Unconsolidated Bottom (E1UB). Intertidal areas consist of Estuarine Intertidal Unconsolidated Bottom Sand (E2US2) and their regularly (N) and irregularly flooded (P) analogs (see Photo 1). Some E2US1 intertidal areas, composed of pebble/gravel, are located near the northern abutment. A field study conducted in the immediate vicinity of the northern and southern abutments in the intertidal zone found all survey samples contained very coarse pebble/gravel, likely due to higher water velocities in these areas (Normandeau Associates, 2020). Smaller areas of E2US2 irregularly exposed (M) sand flats are located to the east of the Project Site. Although existing NWI mapping shows “mud” flats on the south side of the harbor in the Project Area, these areas were found to be sandy rather than muddy, and therefore are classified as ESUS2N. Figure 2 in Appendix B depicts wetland resources.

Photo 1: Sand flats southwest of the bridge abutment looking west

The lower portions of the abutments, although anthropogenic in nature, classify as Estuarine Intertidal Rocky Shore Rubble (E2RS2), since they are armored with large stone material. The upper portion of these abutments would classify similarly, except they are irregularly flooded (E2RS2P). These classifications are generally consistent with the New Hampshire Referenced Analysis and Information Transfer System (NH GRANIT) natural and coastal resources GIS data; however, minor adjustments were made to Figure 2 based on field investigations.

Based on the Env-Wt 311.10, and USACE Highway Methodology Workbook Supplement (USACE, 1999), the following functions and values are associated with the estuarine resources within the Project Area:

1. Ecological Integrity
2. Educational Potential
3. Fish and Aquatic Life Habitat (Principal function)
4. Noteworthiness
5. Production Export
6. Scenic Quality

7. Uniqueness/Heritage
8. Wetland Based Recreation (Principal value)
9. Wetland-dependent Wildlife Habitat (Principal function)

The Wetland Functional Assessment Worksheet (Attachment 7 to the Application) provides additional detailed information relative to the functions and values of water resources on the site.

Data screening was conducted in accordance with Env-Wt-603.03. This included review of existing information for potential shellfish sites, existing salt marsh, salt marsh migration pathways, the 100-year floodplain, and eel grass beds. No salt marsh or saltmarsh migration pathways are within the Project Area. According to the New Hampshire Coastal Resource Mapper, no eelgrass *(Zostera marina*) is located within the project. This was confirmed through correspondence with Frederick Short, a former researcher with the University of New Hampshire's School of Marine Science and Ocean Engineering (personnel communication, September 5, 2018). Initially, soft shell clam beds (*Mya arenaria*) were identified as potentially occurring to the west of the bridge project, but further coordination with New Hampshire Fish and Game (NHFG) determined that these soft-shell clam beds were further to the east and would not be affected by the proposed project. In addition, a field survey conducted by Normandeau (2020) found no soft-shell clams within the Project Area. Two blue mussel beds (*Mytilus edulis*) were field delineated in the vicinity of the northern abutment by a biologist in August 2022 (see Photo 2). Small mussel beds were also noted within narrow rock areas at the base of Piers 1 and 2. Large areas of sandflat exist in the Project Area, as does the 100-year floodplain. During field work, erosion of dune and beach areas were noted to the southwest of the bridge and re-shifting of sand flats seems to be a continuous process in this area, especially resulting from storm events.

Photo 2: Blue mussel bed east of the north abutment looking east

Floodplains

Floodplain resources were investigated through review of Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP) mapping. The Project Area includes Zones AE, AO, VE and X. The Project Site and areas to the west within Hampton Harbor are located within Zone AE. The Base Flood Elevation (BFE) at the bridge and within the harbor to the west is nine feet. Immediately east of the bridge, the Hampton Harbor Inlet is designated as Zone VE with a BFE of 14 feet; moving closer to the Atlantic Ocean, the BFE shifts to 16 and then 18 feet. North of the bridge is designated as Zone X, with the exception of the Hampton State Pier which is classified as Zone AE with a BFE of nine feet. To the south of the bridge, the area along NH Route 1A and the Dunes WMA are classified as Zone X, however a portion of the residential area to the east of NH Route 1A lies within Zone AE with a BFE of eight feet. A small area east of the bridge along the shoreline of the inlet is classified as Zone AO with a two-foot depth. See Figure 3 within Appendix B of this report.

Water Quality

Hampton Harbor, in the vicinity of the proposed bridge project, is an impaired waterway and does not meet water quality standards for certain designated uses. The bridge lies at the boundaries of three water quality assessment units, each with slightly different characteristics. In general, waters in the vicinity of the bridge are considered non-supporting for the following:

- Fish consumption
- Shellfish consumption
- Aquatic life (partial)
- Primary and secondary recreational contact (partial)

The harbor also has total maximum daily load (TMDL) for E. Coli bacteria.

Aquatic Species

Through coordination with NOAA National Marine Fisheries Service (NMFS), it was determined that the project borders on, or may include, areas identified as Essential Fish Habitat (EFH) for the life history stages of several species managed by the New England and Mid-Atlantic Fishery Management Councils and NMFS. Twenty-four federally managed species were identified as occurring in the Project Area; twenty-one fish, two invertebrates (two species of squid) and one shellfish species.

The following EFH occurs within the Project Site:

- Estuarine
- Subtidal
- Intertidal
- Water Column
- Rocky/hardbottom (includes portions colonized by macroalgae)
- Sand
- Diadromous fish (migratory or spawning habitat)

Coordination with NOAA NMFS identified federally listed threatened or endangered aquatic species that could occur in Hampton Harbor. These include:

- Atlantic sturgeon (*Acipenser oxyrhynchus*) - all Distinct Population Segments (DPS) (Threatened/Endangered depending on DPA)
- Shortnose sturgeon (*Acipenser brevirostrum*) (Endangered)
- Green sea turtle (*Chelonia mydas*) - North Atlantic DPS
- Kemp's Ridley sea turtle (*Lepidochelys kempii*)
- Loggerhead sea turtle (*Caretta caretta*) - Northwest Atlantic DPS
- Leatherback sea turtle (*Dermochelys coriacea*)

Based on coordination with NOAA, while it is possible the sturgeon and four sea turtles could be present in Hampton Harbor, it is expected their presence would be limited to rare, transient individuals partaking in migrating and foraging behavior.

Terrestrial Species

Coordination with the United States Fish and Wildlife Service (USFWS) was undertaken as part of agency coordination, and the Federally Threatened Red Knot ("rufa" subspecies) (*Calidris canutus rufa*), Piping Plover (*Charadrius melodus*), Roseate Tern (*Sterna dougallii*), and the Northern Long-eared Bat (*Myotis septentrionalis*) were identified as potential species within the Project Area. The New Hampshire Natural Heritage Bureau (NHNHB) identified the state-listed Piping Plover, Least Tern (*Sterna antillarum*), and Purple Martin (*Progne subis*) as potentially occurring on or near the Project Area. A full list of wildlife noted during fieldwork is included in Appendix D.

Vegetation

The tidal buffer zone (TBZ) consists of a mixture of anthropogenic and natural habitat areas. The upland habitats north of the bridge are dominated by shrub, tree and vine species, including staghorn sumac (*Rhus typhina*), pin cherry (*Prunus pensylvanica*), Oriental bittersweet (*Celastrus orbiculatus*) and rugosa rose (*Rosa rugosa*). Portions of this area are also dominated by maintained lawn areas and sparsely-vegetated soil areas.

To the south of the bridge, a large area of dune habitat, which is considered a Priority Resource Area (PRA), is located immediately to the west of the existing roadway, and also a narrow area of dune habitat to the east of the road. The dune habitat is characterized by large areas of beach grass (*Ammophila breviligulata*), as well as sparsely-vegetated sandy areas (see Photo 3). Coastal habitats in the vicinity of the bridge are shown in Figure 4 in Appendix B. The TBZ and Dune Habitat south of the bridge are classified as Highest Ranked Habitat in New Hampshire and Highest Ranked Habitat in the Biological Region.

The dune habit was identified by the NHNHB as containing multiple NH listed plant species. Field survey conducted in August 2022 confirmed the presence of six state-listed plant species within the Project Area as noted below:

- Seaside threeawn (*Aristida tuberculosa*) (NH endangered)
- Hairy hudsonia (*Hudsonia tomentosa*) (NH threatened)
- Gray's umbrella sedge (*Cyperus grayi*) (NH endangered)
- Sand dropseed (*Sporobolus cryptandrus*) (NH endangered)
- Seaside sandmat (*Euphorbia polygonifolia*) (NH endangered)
- Field wormwood (*Artemisia campestris ssp.* caudata) (NH endangered)

Photo 3: Dune habitat looking north immediately southeast of the bridge

Invasive species documented on the site include swallowwort (*Cynanchum louiseae*), Oriental bittersweet (*Celatrus orbiculatus*), autumn olive (*Elaeagnus umbellata*), Japanese barberry (*Berberis thunbergii*), and bush honeysuckle (*Lonicera* sp.). A full list of plants identified during fieldwork is included in Appendix D.

Stormwater

In the existing (pre-development) condition, the stormwater runoff south of the bridge is conveyed off the roadway approach via sheet flow and to the roadway side slopes which consist of sandy soils and sand dunes. The stormwater runoff from the approach roadway north of the bridge is collected via a closed drainage system and outlets to the harbor by the marina to the west. The stormwater that falls on the bridge structure is conveyed directly to the ocean through scuppers and the open grate bridge deck of the movable span.

IMPACTS TO JURISDICTIONAL RESOURCES

Impacts to regulated resources would occur as a result of the new bridge installation, the existing bridge removal, and temporary access to these structures during construction. Since new drilled shafts, and potentially all the pier caps, would be installed in the channel, the estuarine channel bottom within the footprint of the new drilled shafts and pier caps would be permanently lost. To facilitate the installation of a new pedestrian walkway under the north end of the bridge, a small area of rip rap material would extend below the HOTL.

Based on the current design, the installation of the drilled shafts and pier caps for the bridge piers would permanently impact subtidal E1UBL channel bottom, some of which is soft bottom and some hardbottom materials. Permanent impact to intertidal (E2US2) wetlands in the vicinity of the abutments due to the installation of the northernmost and southernmost piers would also occur. The Blue Mussel bed would be permanently impacted by the northern most new bridge pier as well as by a small area of rip rap placement required to the west of the northern bridge abutment. In addition, leveling of the channel bottom associated with widening of the existing navigation channel would cause permanent impacts to the channel bottom. Approximately 160 cubic yards (cy) of material would need to be graded as part of the leveling. The majority of this material is associated with the existing piers. Although the leveling would permanently impact E1UBL channel bottom, this habitat would not be lost since the benthic habitat would still remain as E1UBL, but at a slightly lower elevation (i.e., at a slightly greater depth).

Construction of the proposed bridge would have temporary impacts on wetland resources due to construction access and work containment for in-water work activities, such as the installation of and construction within cofferdams at Piers 3 and 4, placement of barge spuds, maneuvering of barges, and construction of temporary work trestles. The piles for the trestles would be installed and removed during the in-water work window of November 15th to March 15th.

Cofferdams would be installed at Piers 1 and 6 prior to the installation of the drilled shafts and pier caps to control suspended sediment from the construction reaching the water column. All cofferdams would be installed during the in-water work window and thereafter work inside the cofferdams could take place at any time once installed. The use of a Tremie seal may be needed at Piers 1 and 6, since the pier caps will rest on the bottom of the channel and poured in-place rather than be pre-cast. Since the pier caps must be poured for these caps, the area within the cofferdam must be pumped and in the dry condition. As the sediments in the project area are coarse and sandy, it is anticipated there may be seepage of water under the sheet pile cofferdams into the work area, regardless of sheet pile depth. A Tremie seal is a non-reinforced concrete slab anchored by piles against buoyancy and installed underwater by divers within sheet piling to control water intrusion from the bottom of the work area. Typically, the perimeter sheet piling is installed, followed by anchored

production piles. The tremie is poured and when the concrete slab gets hard enough, the excavation can be dewatered. Since tremie sealant would be left in place and sheet piles cut off at the top of the tremie slab after construction, it would be considered a permanent impact; therefore, permanent impacts extend to the cofferdam limits for Piers 1 and 6, but not Piers 2, 3, 4 and 5 (where no tremie seal would be used). At Piers 2, 3, 4 and 5, containment would be achieved through the temporary drilled shaft casings, since the pier caps will not rest on the channel bottom and will be pre-cast material rather than poured in place. The drilled shaft casings will be removed at these four pier locations.

Since the estimated construction duration is approximately four years, with in-water work dispersed throughout this time, and due to the size and complexity of the construction work, a conservative temporary impact envelope was estimated. For the purposes of this project, the temporary impact envelope includes the area from between the HOTL at both ends of the bridge, and from 100 feet west of the proposed bridge and 80 feet east of the existing bridge.

To help offset the proposed permanent impact from the drilled shafts and pier caps, the piers and piles of the existing bridge would be completely removed to a point two-feet below the federal channel depth in the navigation channel, two-feet below the existing harbor bottom in areas of sandy substrate, and even with the channel bottom in areas of hard-bottom substrate outside the navigation channel, restoring subtidal and intertidal channel bottom habitat. No tidal vegetated wetlands or eelgrass beds occur on the site, so these resources would not be impacted.

Work to be conducted within the tidal buffer zone would consist primarily of roadway approach improvements. Since the new bridge would be on a western alignment, the resulting impacts from this work include an expansion of earthen side-slopes to the west of the existing bridge approach, installation of a new roadbed and pavement, stormwater improvements, and construction of new abutments. Shifting and widening of the roadway approaches would cause impacts to existing vegetation, including the PRA dune habitat to the west and east of the approach, south of the bridge. This PRA dune habitat impact is regulated under this application. The impact to the PRA dune habitat is primarily due to the shift in roadway alignment to the west, but also to some extent the proposed widening of the roadway cross section. Vegetation in the northwest quadrant of the existing bridge would also be impacted, although it is not considered dune habitat. The wider bridge and roadway cross section would require a small increase in pavement area to accommodate the proposed lanes and shoulders, however the increase in pavement has been minimized, and would be only a minor increase relative to the entire tidal buffer zone. In addition, pavement would be removed within the portion of existing roadway approach to be abandoned, helping to offset new pavement areas. Retaining walls were considered along the south approaches during the identification of alternatives, however, in order to maintain habitat for listed species and dune vegetation, earthen banks were considered preferable.

A detailed tabulation of proposed impacts within regulated areas is provided below in Table 2, and also in the Permit Plans in Attachment 22 of the Application. The total temporary impact area encompasses a conservative envelope to allow flexibility during construction. The area of temporary impact resulting from the trestle piles and barge movements is anticipated to be 3,780 sf.

Table 2
Wetland Impacts

Location	Cowardin Classification	Permanent Impact (sf)		Temporary Impact (sf)	Description
		Non-Wetland	Wetland		
A		24,002			Permanent impact to southwestern dune PRA
B		16,282			Permanent impact to southeastern dune PRA
C		4,429			South roadway approach (developed TBZ)
D		3,833			Permanent impact to southeast dunes (undeveloped TBZ)
E		6,830			South roadway approach impacts to southwestern dunes (undeveloped TBZ)
F		3,830			Southern roadway approach (TOB – permanent)
G	E2US2 (Intertidal)	1,911			Abutment A riprap slope impact
H	E2US2 (Intertidal)	1,800			Pier 1 drilled shafts, tremie seal, and footing

Location	Cowardin Classification	Permanent Impact (sf)		Temporary Impact (sf)	Description
		Non-Wetland	Wetland		
I	E2US2 (Intertidal)			51,373	Southern intertidal envelope (trestle piles - 490 SF)
J	E1UBL (Subtidal)		1,800		Pier 2 drilled shafts and footing
K	E1UBL (Subtidal)			246,453	Subtidal envelope (trestle piles and barge spuds – 10,108 SF)
L	E1UBL (Subtidal)		1,800		Pier 3 drilled shafts and footing
M	E1UBL (Subtidal)		813		Channel excavation to achieve federal channel depth
N	E1UBL (Subtidal)		265		Channel excavation to achieve federal channel depth
O	E1UBL (Subtidal)		2,243		Channel excavation to achieve federal channel depth
P	E1UBL (Subtidal)		1,800		Pier 4 drilled shafts and footing
Q	E1UBL (Subtidal)		1,800		Pier 5 drilled shafts and footing
R	E1UBL (Subtidal)		238		Pier 6 drilled shafts, tremie seal and footing
S	E2US2 (Intertidal)		1,562		Pier 6 drilled shafts, tremie seal and footing
T	E2US2 (Intertidal)		5,099		Abutment B riprap slope placement
U	E2US2 (Intertidal)			20,357	Northern intertidal

Location	Cowardin Classification	Permanent Impact (sf)		Temporary Impact (sf)	Description
		Non-Wetland	Wetland		
					envelope (trestle piles – 182 SF)
V		3,712			Northern roadway approach (TOB permanent)
W		11,693			North roadway approach (existing developed TBZ)
X		2,295			North roadway approach (existing undeveloped TBZ)
Y				4,651	North roadway approach (existing developed TBZ)
Total		**76,906**	**21,131**	**322,834**	

REGULATORY REQUIREMENTS

The following discussion explains how the project meets applicable regulatory requirements.

Protection of Natural Resources Assets in accordance with Env-Wt 311.07, Env-Wt 313, and Env-Wt 603.04

Wetlands

To avoid and minimize impacts to wetland resources, the proposed abutments have been moved approximately 50 feet further landward from the HOTL than the existing bridge piers. The four central piers are proposed to be above the existing harbor bottom, thereby minimizing the area of impact for those four piers to only the drilled shaft areas. To help offset the proposed permanent impact from the drilled shafts and pier caps, the piers and piles of the existing bridge would be completely removed to a point two-feet below the federal channel depth in the navigation channel, two-feet below the existing harbor bottom in areas of sandy substrate, and even with the channel bottom in areas of hard-bottom substrate outside the navigation channel, restoring subtidal and intertidal channel bottom habitat. All proposed rip-rap armament at the abutments has been minimized to the extent practicable.

Trestles will be employed to keep construction access out of the wetlands and bank by providing a single point of access throughout the construction period. Trestle access points have been designed to avoid impacts to vegetation and bank by utilizing the minimum access width required for the access points and by using the minimum design radius, while still providing safe construction vehicle access. The trestles have been located to minimize impacts to the blue mussel beds on the north side of the bridge. In addition, if movable hard substrate containing mussels is encountered, it will be pushed off out of the area of active construction, if feasible. The use of temporary trestles, barges, work windows and confinement will minimize impacts to estuarine wetlands.

The approaches to the new bridge have been tapered into the existing roadway as quickly as possible under the proposed roadway design criteria and design speeds. Retaining walls were considered along the south approaches during the identification of alternatives, however, in order to maintain habitat for listed species, earthen banks were considered preferable.

Water Quality

The Project was designed in conformance with *NHDOT Manual on Drainage Design for Highways*, revised April 1998, as well as the New Hampshire Stormwater Manual Volumes 1-3, dated December 2008. The design utilizes curbing, storm drainage pipes, headwalls, stone

outlet protection aprons, overland flow and stormwater Best Management Practices (BMPs) including a treatment swale and an underground infiltration system. As noted in the MS4 Compliance Memorandum prepared by HDR for this Project, "NHDOT follows the NHDES Alteration of Terrain Env-Wq 1500 rules to the maximum extent practicable." To do this NHDOT has developed three criteria for compliance with the requirements:

- The total treated pavement equates to 2x the amount of newly generated pavement plus existing treated pavement, or
- All the newly generated and existing pavement will be treated, or
- The proposed treatment represents the Maximum Extent Practical.

The new bridge will be designed to direct runoff to the roadway approaches, resulting in no direct drainage discharge to the harbor. A concrete bridge deck and closed drainage systems along the proposed NH Route 1A curb line have been designed to capture the bridge stormwater and as much roadway approach stormwater as feasible, while providing an outlet to proposed treatment practices adjacent to the roadway. A 280-foot-long vegetated treatment swale is proposed northeast of the bridge between the roadway and Hampton Beach State Park. This stormwater treatment practice was designed to capture and treat the water quality flow from the northern half of the bridge and approximately 300 feet of approach roadway and sidewalk. The stormwater treatment features will be designed in accordance with the NH Stormwater Manual, which included recommendations for scour protection at the outlets, and requirements of Part 2.3.6 of the MS4 Permit. Southeast of the bridge an underground infiltration system, consisting of plastic chambers surrounded by stone, is proposed between NH Route 1A and Eisenhower Street. This stormwater treatment measure was designed to capture and treat the water quality volume from the southern half of the bridge and approximately 450 feet of the approach roadway and sidewalk. This feature has been designed so that the ambient groundwater quality standards established under RSA 485-C will not be violated.

A pollutant loading analysis was completed to quantitatively show that the proposed project will not result in the additional loading of pollutants to the adjacent surface waters. Post-development flows are less than or equal to predevelopment flows and post-development pollutant loading is less than pre-development pollutant loading for Total Suspended Solids (TSS), Total Phosphorus (TP), and Total Nitrogen (TN) with the proposed treatment practices.

During construction of the bridge, cofferdams will be installed at Piers 1 and 6 prior to the installation of drilled shafts and pier caps to help contain suspended sediment from construction activities and keep it from reaching the water column. All cofferdams will be installed during the in-water work window (November 15th to March 15th), and thereafter, work inside the cofferdams could take place at any time once installed. At Piers 2, 3, 4 and 5, where the pier caps don't touch the bottom, containment will be achieved through the use

of drilled shaft outer casings. All water and drill waste material will be extracted from the casing during drilling and pumped onto a barge or to the temporary work trestle where it will be treated, as necessary, before being discharged back into the harbor. Steel outer casings for the drilled shafts will be driven into place prior to drilling. The casings will provide containment from drilling activities and will either remain in place or be vibrated out once the shafts are installed. There is also potential for seepage of water into the confined sheet pile work areas; this water will be pumped out of the work area as needed, treated accordingly, and then discharged back to surface waters once clean. Likewise, removal of the existing bridge piers will take place inside sheet pile containment. The existing bridge piles will be cut off below the channel bottom and the subgrade portion left in place to reduce the potential for excess turbidity which might occur during full removal.

Leveling of the channel bottom associated with the widening of the Entrance Channel at the bridge will likely cause a temporary, localized adverse impact to water quality during the excavation activity due to increased turbidity. However, the excavation volume will be small, approximately 160 cy. Moreover, based on the results of the 2018 Suitability Determination for the Hampton Harbor Federal Navigation Project, the substrate material in the vicinity of the bridge is composed almost entirely of medium to fine-grained sands, with less than one percent fines, and likely larger riprap stone material near the existing bridge piers. Therefore, the potential turbidity associated with the leveling of the channel bottom is anticipated to be of minimal extent and of short duration. Hydraulic conditions are expected to return to normal upon cessation of the leveling activity as turbidity settles and tidal exchange flushes the water column.

The operation of barges and work vessels within the project area will also likely cause temporary turbidity. The barges will employ spuds to keep them steady and from settling on the bottom in shallow areas. The spuds must be removed each time the barge moves, which causes small amounts of turbidity with each movement. However, the spuds are only two feet in diameter and barge movements would be limited.

All work, including management of soil stockpiles, will be conducted so as to minimize erosion, minimize sediment transfer to surface waters or wetlands, and minimize turbidity in surface waters and wetlands in accordance with Env-Wq 1500. Stockpiles will be located outside of jurisdictional areas or include containment materials that can be completely removed following project completion. Perimeter controls will be installed prior to earth moving operations. All areas of unstabilized soil will be stabilized as soon as practicable.

Soils that are anticipated to meet the definition of Limited Reuse Soils (LRS) will be subject to management through a Soils Management Plan (SMP) developed prior to construction. The design will incorporate materials within the ROW to the extent practicable. Topsoil and humus material will be removed in excavation areas and also in fill areas to such depths as the onsite Engineer may direct. Such material will be used or reserved and stockpiled in

accessible piles that can be measured readily and accurately. Material defined as LRS will be reused on the Project Site within NHDOT ROW unless otherwise stated in the Soils Management Plan.

No activity associated with the project, including during construction, will be conducted in a way that causes or contributes to any violation of water quality standards including surface water quality standards specified in RSA 485-A:8 or Env-Wq 1700; ambient groundwater quality standards established under RSA 485-C; provision of RSA 485-A, Env-Wq 1000, RSA 483-B, or Env-Wq 1400 that protects water quality.

Biological Resources

The detailed design of the bridge has been developed to avoid and minimize potential impacts to listed aquatic and terrestrial species. To minimize direct impacts to benthic resources, the number of piers has been minimized, as compared to the existing bridge, through the lengthening of the bridge spans. In addition, the proposed bridge abutments have been located further inland than the existing abutments, avoiding and minimizing impacts to benthic resources in these areas, especially in the intertidal zone. The sediment displaced through the widening of the channel will be used to fill voids created by the removal of the existing piers, thereby allowing for the reestablishment of benthic habitat in these areas. The proposed temporary trestle on the northwest side of the bridge has also been configured in such a way as to minimize impacts to the blue mussel bed.

To minimize potential water quality impacts to EFH and aquatic species, all unconfined in-water work will be conducted during the in-water work window of November 15th to March 15th. Once sheet piling and outer casings for drilled shafts have been installed, work will commence in these areas outside the in-water work window, since the work will be confined. Any wastewater pumped from the site will be treated outside of jurisdictional areas prior to discharge back to surface waters. These methods will avoid and minimize potential impacts to these species and habitats. The EFH Assessment, which concluded that the adverse effect would not be substantial, is provided in Attachment 16 to the Application.

Although the leveling of the channel bottom would cause temporary impacts to benthic habitat, as well as minor impacts from suspended sediment during in-water work, the listed aquatic species identified by NOAA (the Shortnose Sturgeon, Atlantic Sturgeon, Green Sea Turtle, Kemp's Ridley Sea Turtle, Loggerhead Sea Turtle, and Leatherback Sea Turtle) would not be adversely impacted since they are unlikely to occur within the Project Area and are generally transient in nature if they do occur. An underwater noise analysis determined some types of construction equipment had the capacity to produce high underwater noise levels – primarily pile driving activities, however, since the channel width is 800 feet wide this should allow listed aquatic species to minimize or avoid their exposure to underwater construction noise. NOAA concurred with FHWA/DOT's determination that the action is not

likely to adversely affect listed aquatic species or critical habitat. The Programmatic Biological Assessment (BA) for Section 7 listed species is provided in Attachment 16 to the Application.

Both temporary and permanent impacts are anticipated to the breeding habitat of the Piping Plover. Temporary impacts would occur from the activity around the bridge during construction due to the operation of machinery and equipment, while permanent impacts would occur due to the loss of breeding and foraging habitat. NHDOT investigated phasing the construction to minimize noise impacts between April 1 and August 31, when Plovers might be nesting or foraging on the Dunes WMA or Sun Valley Beaches. However, this was determined not to be feasible. Over 75% of the proposed bridge lies within 660 feet (200 meters) of the Plover habitat. This time-of-year restriction would reduce the allowable construction window to a seven-month period, thereby extending the construction from four years to seven. Use of construction monitors to halt construction if adverse impacts to the receptor species were detected was also considered but dismissed because it depends upon observation and interpretation of animal behaviors and because of the potential for ongoing, unscheduled construction delays. This could result in the need to extend the construction period into additional years which could be detrimental to other species and natural systems.

NHDOT prepared a BA which determined the project "May Affect, and is Likely to Adversely Affect" the Piping Plover. The BA also concluded that the project is unlikely to adversely affect the Red Knot, since there are no documented occurrences of Red Knots foraging in the Project Area, and unlikely to adversely affect the Roseate Tern because loafing Roseate Terns aren't anticipated to occur in the Project Area due to the noise from traffic crossing the bridge. The USFWS concurred with this determination in their Biological Opinion (BO) issued in August 2021 (see Attachment 15 to the Application). The BO presents conservation measures to avoid and minimize impacts to the Piping Plover, which the NHDOT will implement during design and construction. These include the following:

- Information will be provided to construction workers on the potential presence of Piping Plovers in the work area;
- Silt fencing or other protective fencing will be erected around suitable plover habitat within the construction zone to prevent nest establishment and Piping Plover chicks (if present) from accessing construction area;
- The contractor will ensure the construction zone is maintained free of trash to avoid attracting predators;
- Speed limits on construction vessels will be required to prevent boat wake from eroding the beach or impacting foraging plovers and chicks;
- Light shielding during construction will be implemented to avoid disturbing breeding Piping Plovers;

- Slope stabilization measures adjacent to the bridge and roadway on the southwest side of the roadway will be designed and implemented to prevent erosion;
- During the plover breeding season (April 1 to August 30), slow starts when driving cases for drilled shafts will be implemented to avoid disturbing or flushing plovers when present;
- Dredge spoil will be used to enhance plover nesting habitat, if feasible; and
- Stone chinking within the rip rap on the south abutment will be used to prevent void spaces from attracting rodents and other potential predators.

NHDOT will also monitor breeding Piping Plovers at the Hampton-Seabrook Dunes Wildlife Management Area (Dunes WMA) during construction of the bridge, as outlined in the BO.

Populations of all six State-listed plant species would be impacted by the project. However, the new bridge has been located as close to the existing bridge as possible to minimize impacts to these species. Moreover, NHDOT is coordinating with NHNHB in the development of a Rare Plant Mitigation Plan which identifies areas for relocation of species.

Standard Conditions and Approval Criteria in Accordance with Standard Conditions Env-Wt 307

The proposed project has been designed in accordance with the standard conditions under Env-Wt 307.

Protection of Water Quality
- Use of in-water work window time-of-year restriction period
- Use of in-water containment structures (cofferdams and outer casings)
- Collection and treatment of wastewater prior to surface water discharge
- Use of erosion and sedimentation controls and sequencing during construction
- Long-term stormwater management treatment system and BMPs

Protection of Fisheries and Breeding Areas
- Protection of water quality during and post-construction
- Adherence to NOAA time-of-year restriction for in-water work

Protection Against Invasive Species
- Management of invasive species in accordance with NHDOT Specifications

Protection of Rare, Threatened or Endangered Species and Critical Habitat
- Avoidance, minimization, mitigation of impacts to listed plant species and habitat
- Avoidance and minimization of impacts to listed aquatic species and EFH

- Avoidance and minimization of impacts to terrestrial listed species
- Adherence to conservation measures set forth by NOAA and USFWS

Consistency Required with Shoreland Water Quality Protection Act

- Separate application will be made under the Shoreland Protection Act

Protection of Designated Prime Wetlands and Duly-Established 100-Foot Buffers

- These areas will be protected to the extent practicable; potential impacts to these resources have been avoided and minimized to the extent practicable

Shoreline Structures

- Project replaces a bridge for public travel

Dredging Activity Conditions

- Due to the small amount of material within the channel to be managed, the high spots will be leveled and used to fill the voids where the existing piers will be removed, rather than excavated and disposed of.
- Sediment material to be excavated during the in-water work window to minimize potential water quality impacts

Filling Activity Conditions

- Clean fill material will be used
- In-water work will be confined, or take place during in-water work window

Restoring Temporary Impacts; Site Stabilization

- Existing bridge piers will be removed and bottom habitat restored
- Pre-cursor conditions for Blue Mussel establishment will be created in intertidal area
- Landside disturbance of soils will be stabilized

Property Line Setbacks

- NHDOT will adhere to setback requirements

Rock Removal

- No rock removal proposed as part of the project

Use of Heavy Equipment in Wetlands

- The project will primarily be conducted from temporary work trestles, the existing and proposed bridge structures, barges, and landside locations to avoid and minimize direct impact to wetland resources from equipment.

Adherence to Approved Plans

- The NHDOT will adhere to the approved plans; construction inspectors will ensure compliance.

Unpermitted Activities

- The NHDOT will not undertake any unpermitted activities

Avoidance and Minimization Requirements in Accordance with Wt-313.03

Hydraulics within the existing harbor may be slightly affected by the project. However, a Hydraulics Report (HDR, 2022) has been completed for the project which demonstrates that the existing hydrology will not be negatively impacted. Also, a scour report has been prepared which shows the proposed bridge structure would not exacerbate scour within the channel.

Major alterations to currents or wave conditions are not expected. The proposed bridge abutments are landward of the existing abutments and are not expected to increase current speeds. The change in blockage area due to the proposed bridge is not expected to have a significant impact on overall water velocities in the inlet based on preliminary guidance found in HEC-18. Local velocities may increase or decrease near the proposed piers, but changes in the prevailing currents are not expected. Impacts to beach or tidal flat sediment replenishment are also not expected. Local scour is expected at the proposed bridge piers, but the impacts are not likely to affect beach or tidal flat sedimentation. The tidal vegetated wetland approximately 2,000 feet to the west of the proposed bridge is not expected to be impacted by the project.

The impact to overall inlet hydrodynamics is expected to be minimal. The proposed bridge does not include modifications to the jetties and sediment transport along the shore is not expected to change. Local scour at the proposed bridge piers is not expected to impact sediment movement along the shore. The hydraulic opening under proposed condition will be slightly greater than the hydraulic opening under the existing bridge since the new abutments will be constructed further inland than existing conditions. The abutments of the new bridge will be approximately 100 feet further inland than the existing bridge abutments. Therefore, the bridge replacement will not further impede the hydraulic connection but would actually improve it.

Changes to runoff due to the proposed bridge are expected to be minimal and will likely have little or no change to salinity in the tidal environment.

Navigation will be improved by the proposed project since the existing Federal Navigation Channel will be widened from 40 to 150 feet in the post-construction condition. During construction, the channel will remain open for navigation with the exception of a two-day closure for the existing movable bridge span. Both during and following construction, access will be maintained to adjacent recreational resources, including the Dunes WMA to the southwest, Sun Valley Beach to the southeast, the Hampton State Pier to the northwest, and Hampton Beach State Park to the northeast. Moreover, the project includes the provision of

a walkway under the bridge on its north side which would provide a pedestrian connection between the Hampton State Pier and Hampton Beach State Park, improving conditions for recreational users of the facilities. Therefore, the project avoids and minimizes impacts that would impair the navigation, recreation, or commerce of the general public.

An Avoidance and Minimization Checklist is included as Attachment 3 of the Application.

Approval Criteria under Env-Wt-313.01 & Evaluation Criteria in Env-Wt-313.01(c)

The New Hampshire Department of Transportation has met the approval criteria under Env-Wt-313.01, as follows:

The NHDOT has met the requirements under Env-Wt 311.10 regarding functional assessments by preparing the Wetland Functional Assessment Worksheet, and by preparing this Coastal Functional Assessment Report and all appropriate attachments and supporting documentation.

The NHDOT has met the requirements of Env-Wt 800 for all permanent impacts that will remain, after incorporation of avoidance and minimization in the design, through submittal of a proposal for compensatory mitigation (see the ARM Fund Mitigation Report and calculations attached to the application).

All applicable conditions specified in Env-Wt 307 have been met as detailed above in this report.

All resource-specific criteria established in Env-Wt 400, Env-Wt 500, Env-Wt 600, Env-Wt 700, or Env-Wt 900 have been met as detailed in Section 7 of the Standard Dredge and Fill Application form.

All project-specific criteria established in Env-Wt 500, Env-Wt 600, or Env-Wt 900 have been met as detailed in this report, in the Standard Dredge and Fill Application form, and in the Appendix A – Minor and Major Projects form, included as Attachment 2 to the Application.

Although the project would require the short-term use of 12,792 sf of the Hampton State Pier for access during construction, and the acquisition of 2,707 sf of the Hampton State Pier for the new bridge, coordination has been undertaken with the Pease Development Authority, and they concur with the use and transfer of their property. A temporary easement and an acquisition agreement are under development and will be finalized prior to the initiation of construction. Moreover, the project will not unreasonably affect the value or enjoyment of the State Pier property. Rather, the project provides a pedestrian walkway

under the bridge on its north side in order to connect the Hampton State Pier with Hampton Beach State Park, which would enhance the enjoyment of the State Pier.

The requirements under Wt-Env 301(c), to avoid and minimize, will be met by the proposed project. First, there is no practicable alternative that would have a less adverse impact on the Project Area and environments under NHDES jurisdiction. Alternatives have been thoroughly assessed through both Part A and Part B of the NHDOT project development process. During Part A, an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) was prepared and a Finding of No Significant Impact (FONSI) signed by the US Federal Highway Administration. The EA evaluated a large number of alternatives, which included the No Build, as well as multiple bridge types and alignments within the NH Route 1A corridor. Through the evaluation of these alternatives, and with substantial input from area stakeholders and the public as well as regulatory agencies, the construction of a fixed bridge on the alignment to the east of the existing bridge was determined to be the preferred alternative. During Part B, the design, permitting and construction phase of the project, the design was progressed and additional avoidance and minimization measures have been incorporated into the design to reduce and/or avoid resources in the Project Area. See also the Avoidance and Minimization Worksheet attached to this application.

The project will not cause random or unnecessary destruction of wetlands, as shown by the alternatives analysis and avoidance and minimization measures discussed above. Similarly, the project will not cause or contribute to significant degradation of waters of the state or the loss of any PRAs. The project will not cause significant degradation of waters of the state as the proposed impacts to Hampton Harbor are relatively small in comparison to the full extent of resources in the area, and the impacts have been minimized to the extent practicable. Also, there will be restoration of estuarine habitat through removal of the existing bridge piers once the new bridge is complete. Although the project will impact the Dune Habitat PRA, this resource will not be lost, as a significant amount of this resource will be left un-impacted. The NHDOT has included design features which will provide pre-cursor conditions for future dune habitat formation. Listed plant species impacted by the proposed project within the dune areas will be mitigated through relocation of these plants prior to commencement of project construction, thereby minimizing impacts to these listed plant species. The proposed Listed Species Mitigation Plan is included in Attachment 6 – Mitigation Report, however, coordination with the NHNHB is ongoing for specifics of this listed plant mitigation. Mitigation for unavoidable impacts to tidal wetlands will be undertaken through the ARM Fund Program – see Attachment 6 to the Application. As partial mitigation for impacts to the PRA Dune Habitat, the side slopes south of the bridge will be revegetated with native Beach Grass to ensure successful stabilization and provide re-establishment of dune habitat in the project area. In addition, a bill has been introduced in the NH Legislature to allow the use of the NH ARM Fund for impacts to upland resources, such as the PRA Dune Habitat and TBZ areas. The ARM Fund will be used for mitigation, if feasible. In the event that the bill does not pass, and Permittee Responsible Mitigation is required, the dune may be

restored southeast of the bridge. See Attachment 6 – Mitigation Project Worksheet for the proposed mitigation concept.

Requirements Under Env-Wt 904.09

Hampton Harbor is considered a Tier 4 stream by NHDES, since it is tidal. Water depth information was obtained via a recent bathymetric survey conducted by Doucet Survey, LLC. Water elevations are shown on the plan sheets in Attachment 22 to the Application. The proposed replacement of the bridge will be undertaken in existing NHDOT ROW to the west of the existing bridge structure (with the exception of 2,707 sf on the northwest side at the Hampton State Pier property). The existing structure does not have a history of causing or contributing to flooding that damages the crossing or other human infrastructure or protected species habitat. The proposed project meets the design criteria under Env-Wt 904.01, including the criteria for tidal crossings. The project will also enhance the hydraulic capacity of the crossing by moving the proposed abutments further inland, as compared to the existing abutments. The proposed structure will maintain the capacity of the crossing to accommodate aquatic organism passage, maintain the connectivity of the stream reaches upstream or downstream of the crossing, and will not cause or contribute to the increase in the frequency of flooding or overtopping of the banks upstream or downstream of the crossing.

The proposed bridge design will comply with Env-Wt 904.07(d) by accounting for daily fluctuating tides, bidirectional flows, tidal inundation and coastal storm surge. It will also account for tidal channel morphology and potential impacts due to SLR and will not restrict tidal flows. Additional information is provided in Appendix C, the Vulnerability Assessment.

CONCLUSION

As documented above, the project has been designed in consultation with State and Federal regulatory agencies to have the least impact on coastal resources. Where impacts are to wetlands and other coastal resources are unavoidable, impacts to the highest and most valuable functions have been minimized. The project employs on-site minimization and construction management practices to protect coastal resource areas. Unavoidable impacts to jurisdictional resources will be mitigated.

REFERENCES AND LITERATURE CITED

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. Laroe. *Classifications of Wetlands and Deepwater Habitats of the United States*. U.S. Department of the Interior, Office of Biological Services, Fish and Wildlife Services: Washington, DC, 1979.

FEMA. FEMA Flood Map Service Center. Accessed at https://msc.fema.gov/portal/home.

FHI Studio and HDR, Inc. *Hampton Harbor Bridge Project Environmental Assessment*. 2022.

FHI Studio. *Hampton Harbor Bridge Project Wetland Report*. Prepared 2018. Updated 2022.

HDR, Inc. *Hampton Harbor Bridge Project Drainage Report*, 2022.

HDR, Inc. *Hampton Harbor Bridge Project Hydraulic Report*. 2022.

HDR, Inc. *Hampton Harbor Bridge Project MS4/AoT Compliance Memo*. 2022.

NHDES. Wetland Permit Planning Tool. Accessed at https://nhdeswppt.unh.edu/Html5Viewer/index.html?viewer=WPPT.gvh.

NOAA. Tides and Currents. Accessed at https://tidesandcurrents.noaa.gov/.

NOAA Fisheries. Essential Fish Habitat Mapper. Accessed at https://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper.

NOAA Fisheries. The Greater Atlantic Region ESA Section 7 Mapper. Accessed at https://www.fisheries.noaa.gov/resource/map/greater-atlantic-region-esa-section-7-mapper.

Normandeau Associates, Inc. *Hampton Harbor Bridge Benthic Survey Results*. July 2020.

Personal Communication with Fred Short. September 5, 2018.

University of New Hampshire. NH Coastal Viewer. Accessed at https://nhcoastalviewer.unh.edu/Html5Viewer/index.html?viewer=NHCoastalViewer.

USACE. *Highway Methodology Workbook Supplement: Wetland Functions and Values - A Descriptive Approach*. Publication no. NAEEP-360-1-30a. November 1999. 32 pp.

USACE. *Suitability Determination for the Hampton Harbor Federal Navigation Project*. 2018.

Appendix A: Coastal Resources Worksheet

COASTAL RESOURCE WORKSHEET

Water Division/Land Resources Management
Wetlands Bureau

Check the Status of your Application

RSA/Rule: RSA 482-A/ Env-Wt 600

APPLICANT LAST NAME, FIRST NAME, M.I.: **New Hampshire Department of Transportation**

This worksheet may be used to present the information required for projects in coastal areas, in addition to the information required for Lower-Scrutiny Approvals, Expedited Permits, and Standard Permits under Env-Wt 603.01.

Please refer to Env-Wt 605.03 for impacts requiring compensatory mitigation.

SECTION 1 - REQUIRED INFORMATION (Env-Wt 603.02; Env-Wt 603.06; Env-Wt 603.09)

The following information is required for projects in coastal areas.

Describe the purpose of the proposed project, including the overall goal of the project, the core project purpose consisting of a concise description of the facilities and work that could impact jurisdictional areas, and the intended project outcome. Specifically identify all natural resource assets in the area proposed to be impacted and include maps created through a data screening in accordance with Env-Wt 603.03 (refer to Section 2) and Env-Wt 603.04 (refer to Section 3) as attachments.

See Coastal Functional Assessment

For standard permit projects, provide:

☒ A Coastal Functional Assessment (CFA) report in accordance with Env-Wt 603.04 (refer to Section 3).

☒ A vulnerability assessment in accordance with Env-Wt 603.05 (refer to Section 4).

Explain all recommended methods and other considerations to protect the natural resource assets during and as a result of project construction in accordance with Env-Wt 311.07, Env-Wt 313, and Env-Wt 603.04.

See Coastal Functional Assessment

Provide a narrative showing how the project meets the standard conditions in Env-Wt 307 and the approval criteria in Env-Wt 313.01.

See Coastal Functional Assessment

Provide a project design narrative that includes the following:

☒ A discussion of how the proposed project:

- Uses best management practices and standard conditions in Env-Wt 307;
- Meets all avoidance and minimization requirements in Env-Wt 311.07 and Env-Wt 313.03;
- Meets approval criteria in Env-Wt 313.01;
- Meets evaluation criteria in Env-Wt 313.01(c);
- Meets CFA requirements in Env-Wt 603.04; and
- Considers sea-level rise and potential flooding evaluated pursuant to Env-Wt 603.05;

☒ A construction sequence, erosion/siltation control methods to be used, and a dewatering plan; and

☒ A discussion of how the completed project will be maintained and managed.

See Coastal Functional Assessment

☒ Provide design plans that meet the requirements of Env-Wt 603.07 (refer to Section 5);

☒ Provide water depth supporting information required by Env-Wt 603.08 (refer to Section 6); and

☒ For any major project that proposes to construct a structure in tidal waters/wetlands or to extend an existing structure seaward, provide a statement from the Pease Development Authority Division of Ports and Harbors (DP&H) chief harbormaster, or designee, for the subject location relative to the proposed structure's impact on navigation. If the proposed structure might impede existing public passage along the subject shoreline on foot or by non-motorized watercraft, the applicant shall explain how the impediments have been minimized to the greatest extent practicable.

The proposed project will not impede existing public passage along the shoreline. As part of the project, the new abutments on the north and south ends of the proposed bridge would be moved inland, approximately 50-feet further away from the water than the existing abutments, providing more space for shoreline access. In addition, a new pedestrian walkway would be constructed under the first bridge span adjacent to the northern abutment to facilitate public access between the east and west sides of the bridge and minimize at-grade crossing of the roadway by pedestrians and cyclists. These design elements will improve passage along the shoreline at both the north and south ends of the proposed bridge.

A letter dated September 26, 2022 from Pease Development Authority Division of Ports and Harbors is attached.

SECTION 2 - DATA SCREENING (Env-Wt 603.03, in addition to Env-Wt 306.05)

Please use the Wetland Permit Planning Tool, or any other database or source, to indicate the presence of:

☐ Existing salt marsh and salt marsh migration pathways;

☐ Eelgrass beds;

☒ Documented shellfish sites;

☒ Projected sea-level rise; and

☒ 100-year floodplain.

Conduct data screening as described to identify documented essential fish habitat, and tides and currents that may be impacted by the proposed project, by using the following links:

☒ National Oceanic and Atmospheric Administration (NOAA) Tides & Currents; and

☒ NOAA Essential Fish Habitat Mapper.

☒ Verify or correct the information collected from the data screenings by conducting an on-site assessment of the subject property in accordance with Env-Wt 406 and Env-Wt 603.04.

SECTION 3 - COASTAL FUNCTIONAL ASSESSMENT/ AVOIDANCE AND MINIMIZATION (Env-Wt 603.04; Env-Wt 605.01; Env-Wt 605.02; Env-Wt 605.03)

Projects in coastal areas shall:

☒ Not impair the navigation, recreation, or commerce of the general public; and

☒ Minimize alterations in prevailing currents.

An applicant for a permit for work in or adjacent to tidal waters/wetlands or the tidal buffer zone shall demonstrate that the following have been avoided or minimized as required by Env-Wt 313.04:

☒ Adverse impacts to beach or tidal flat sediment replenishment;

☒ Adverse impacts to the movement of sediments along a shore;

☒ Adverse impacts on a tidal wetland's ability to dissipate wave energy and storm surge; and

☒ Adverse impacts of project runoff on salinity levels in tidal environments.

For standard permit applications submitted for minor or major projects:

☒ Attach a CFA based on the data screening information and on-site evaluation required by Env-Wt 603.03. The CFA for tidal wetlands or tidal waters shall be:

- Performed by a qualified coastal professional; and
- Completed using one of the following methods:

  a. The US Army Corps of Engineers (USACE) Highway Methodology Workbook, dated 1993, together with the USACE New England District *Highway Methodology Workbook Supplement*, dated 1999; or

  b. An alternative scientifically-supported method with cited reference and the reasons for the alternative method substantiated.

For any project that would impact tidal wetlands, tidal waters, or associated sand dunes, the applicant shall:

☒ Use the results of the CFA to select the location of the proposed project having the least impact to tidal wetlands, tidal waters, or associated sand dunes;

☒ Design the proposed project to have the least impact to tidal wetlands, tidal waters, or associated sand dunes;

☒ Where impact to wetland and other coastal resource functions is unavoidable, limit the project impacts to the least valuable functions, avoiding and minimizing impact to the highest and most valuable functions; and

☒ Include on-site minimization measures and construction management practices to protect coastal resource areas.

Projects in coastal areas shall use results of this CFA to:

☒ Minimize adverse impacts to finfish, shellfish, crustacean, and wildlife;

☒ Minimize disturbances to groundwater and surface water flow;

☒ Avoid impacts that could adversely affect fish habitat, wildlife habitat, or both; and

☒ Avoid impacts that might cause erosion to shoreline properties.

SECTION 4 - VULNERABILITY ASSESSMENT (Env-Wt 603.05)

Refer to the New Hampshire Coastal Flood Risk Summary Part 1: Science and New Hampshire Coastal Flood Risk Summary Part II: Guidance for Using Scientific Projections or other best available science to:

Determine the time period over which the project is designed to serve.

The proposed structure is designed to have a useful service life of 100 years, or until around 2125 (also see Vulnerability Assessment, Appendix C of Coastal Functional Assessment).

Identify the project's relative risk tolerance to flooding and potential damage or loss likely to result from flooding to buildings, infrastructure, salt marshes, sand dunes and other valuable coastal resource areas.

The project would not increase flooding and therefore there is no potential for additional damage or loss to buildings, infrastrucutre, salt marshes, sand dunes and other valuable coastal resources. See Attachment 2 (Attachment A: Minor and Major Projects) of this application and the Vulnerability Assessment (Appendix C of Coastal Functional Assessment).

Reference the projected sea-level rise (SLR) scenario that most closely matches the end of the project design life and the project's tolerance to risk or loss.

See the Vulnerability Assessment (Appendix C of Coastal Functional Assessment).

Identify areas of the proposed project site subject to flooding from SLR.

The piers, abutments and portions of the approaches are subject to SLR. See the Vulnerability Assessment (Appendix C of Coastal Functional Assessment).

Identify areas currently located within the 100-year floodplain and subject to coastal flood risk.

See Coastal Functional Assessment.

Describe how the project design will consider and address the selected SLR scenario within the project design life, including in the design plans.

The bridge has been designed to accommodate 4' of SLR while still maintaining current vessel navigational clearance requirements, as well as accommodating the USACE dredge vessel Currituck. See the Vulnerability Assessment (Appendix C of Coastal Functional Assessment).

Where there are conflicts between the project's purpose and the vulnerability assessment results, schedule a pre-application meeting with the department to evaluate design alternatives, engineering approaches, and use of the best available science.

☐ Pre-application meeting date held: **N/A**

SECTION 5 - DESIGN PLANS (Env-Wt 603.07, in addition to Env-Wt 311)

Submit design plans for the project in both plan and elevation views that clearly depict and identify all required elements.

The plan view shall depict the following:

☒ The engineering scale used, which shall be no larger than one inch equals 50 feet;

☒ The location of tidal datum lines depicted as lines with the associated elevation noted, based on North American Vertical Datum of 1988 (NAVD 88), derived from https://tidesandcurrents.noaa.gov/datum_options.html, as described in Section 6.

☐ An imaginary extension of property boundary lines into the waterbody and a 20-foot setback from those property line extensions;

☒ The location of all special aquatic sites at or within 100 feet of the subject property;

☒ Existing bank contours;

☒ The name and license number, if applicable, of each individual responsible for the plan, including:

a. The agent for tidal docking structures who determined elevations represented on plans; and

b. The qualified coastal professional who completed the CFA report and located the identified resources on the plan;

☒ The location and dimensions of all existing and proposed structures and landscape features on the property;

☒ Tidal datum(s) with associated elevations noted, based on NAVD 88; and

☒ Location of all special aquatic sites within 100-feet of the property.

The elevation view shall depict the following:

☒ The nature and slope of the shoreline;

☒ The location and dimensions of all proposed structures, including permanent piers, pilings, float stop structures, ramps, floats, and dolphins; and

☒ Water depths depicted as a line with associated elevation at highest observable tide, mean high tide, and mean low tide, and the date and tide height when the depths were measured. Refer to Section 6 for more instructions regarding water depth supporting information.

See specific design and plan requirements for certain types of coastal projects:

- Overwater structures (Env-Wt 606).
- Dredging activities (Env-Wt 607).
- Tidal beach maintenance (Env-Wt 608).
- Tidal shoreline stabilization (Env-Wt 609).
- Protected tidal zone (Env-Wt 610).
- Sand Dunes (Env-Wt 611).

SECTION 6 - WATER DEPTH SUPPORTING INFORMATION REQUIRED (Env-Wt 603.08)

Using current predicted NOAA tidal datum for the location, and tying field measurements to NAVD 88, field observations of at least three tide events, including at least one minus tide event, shall be located to document the range of the tide in the proposed location showing the following levels:

☒ Mean lower low water;

☒ Mean low water;

☒ Mean high water;

☒ Mean tide level;

☒ Mean higher high water;

☒ Highest observable tide line; and

☒ Predicted sea-level rise as identified in the vulnerability assessment in Env-Wt 603.05.

The following data shall be presented in the application project narrative to support how water depths were determined:

☒ The date, time of day, and weather conditions when water depths were recorded; and

☒ The name and license number of the licensed land surveyor who conducted the field measurements.

For tidal stream crossing projects, provide:

☒ Water depth information to show how the tier 4 stream crossing is designed to meet Env-Wt 904.07(c) and (d).

For repair, rehabilitation or replacement of tier 4 stream crossings:

☒ Demonstrate how the requirements of Env-Wt 904.09 are met.

SECTION 7 - GENERAL CRITERIA FOR TIDAL BEACHES, TIDAL SHORELINE, AND SAND DUNES (Env-Wt 604.01)

Any person proposing a project in or on a tidal beach, tidal shoreline, or sand dune, or any combination thereof, shall evaluate the proposed project based on:

☒ The standard conditions in Env-Wt 307;

☒ The avoidance and minimization requirements in Env-Wt 311.07 and Env-Wt 313.03;

☒ The approval criteria in Env-Wt 313.01;

☒ The evaluation criteria in Env-Wt 313.05;

☒ The project specific criteria in Env-Wt 600;

☒ The CFA required by Env-Wt 603.04; and

☒ The vulnerability assessment required by Env-Wt 603.05.

New permanent impacts to sand dunes that provide coastal storm surge protection for protected species or habitat shall not be allowed except:

☒ To protect public safety; and

☒ Only if constructed by a state agency, coastal resiliency project, or for a federal homeland security project.

Projects in or on a tidal beach, tidal shoreline, or sand dune shall support integrated shoreline management that:

☒ Optimizes the natural function of the shoreline, including protection or restoration of habitat, water quality, and self-sustaining stability to flooding and storm surge; and

☒ Protects upland infrastructure from coastal hazards with a preference for living shorelines over hardened shoreline practices.

SECTION 8 - GENERAL CRITERIA FOR TIDAL BUFFER ZONES (Env-Wt 604.02)

The 100-foot statutory limit on the extent of the tidal buffer zone shall be measured horizontally. Any person proposing a project in or on an undeveloped tidal buffer zone shall evaluate the proposed project based on:

☒ The standard conditions in Env-Wt 307;

☒ The avoidance and minimization requirements in Env-Wt 311.07 and Env-Wt 313.03;

☒ The approval criteria in Env-Wt 313.01;

☒ The evaluation criteria in Env-Wt 313.05;

☒ The project specific criteria in Env-Wt 600;

☒ The CFA required by Env-Wt 603.04; and

☒ The vulnerability assessment required by Env-Wt 603.05.

Projects in or on a tidal buffer zone shall preserve the self-sustaining ability of the buffer area to:

☒ Provide habitat values;

☒ Protect tidal environments from potential sources of pollution;

☒ Provide stability of the coastal shoreline; and

☐ Maintain existing buffers intact where the lot has disturbed area defined under RSA 483-B:4, IV.

SECTION 9 - GENERAL CRITERIA FOR TIDAL WATERS/WETLANDS (Env-Wt 604.03)

Except as allowed under Env-Wt 606, permanent new impacts to tidal wetlands shall be allowed only to protect public safety or homeland security. Evaluation of impacts to tidal wetlands and tidal waters shall be based on:

☒ The standard conditions in Env-Wt 307;

☒ The avoidance and minimization requirements in Env-Wt 311.07 and Env-Wt 313.03;

☒ The approval criteria in Env-Wt 313.01;

☒ The evaluation criteria in Env-Wt 313.05;

☒ The project specific criteria in Env-Wt 600;

☒ The CFA required by Env-Wt 603.04; and

☒ The vulnerability assessment required by Env-Wt 603.05.

Projects in tidal surface waters or tidal wetlands shall:

☒ Optimize the natural function of the tidal wetland, including protection or restoration of habitat, water quality, and self-sustaining stability to storm surge;

☒ Be designed with a preference for living shorelines over hardened stabilization practices; and

☒ Be limited to public infrastructure or restoration projects that are in the interest of the general public, including a road, a bridge, energy infrastructure, or a project that addresses predicted sea-level rise and coastal flood risk.

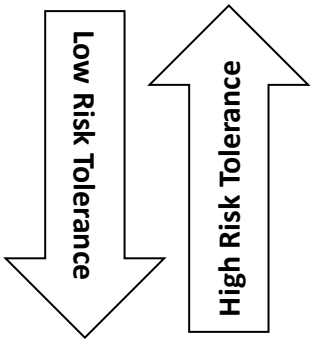
SECTION 10 – GUIDANCE

Your application must follow the New Hampshire Coastal Risk and Hazards Commission's Guiding Principles or other best available science. Below are some of these guidance principles:

- Incorporate science-based coastal flood risk projections into planning;
- Apply risk tolerance* to assessment, planning, design, and construction;
- Protect natural resources and public access;
- Create a bold vision, start immediately, and respond incrementally and opportunistically as projected coastal flood risks increase over time; and
- Consider the full suite of actions including effectiveness and consequences of actions.

*Risk tolerance is a project's willingness to accept a higher or lower probability of flooding impacts. The diagram below gives examples of project with lower and higher risk tolerance:

Critical infrastructures, historic sites, essential ecosystems, and high value assets typically have lower risk tolerance, and thus should be planned, designed, and constructed using higher coastal flood risk projections.



Sheds, pathways, and small docks typically have higher risk tolerance and thus may be planned, designed, and constructed using less protective coastal flood risk projections.

PEASE
INTERNATIONAL
PORTS AND HARBORS

555 Market Street, Suite 1 Portsmouth, NH 03801

September 26, 2022

Jennifer E. Reczek, PE
NHDOT Bridge Consultant Design Chief and Project Manager
PO Box 483
7 Hazen Dr.
Concord, NH 03301

Re: Statement of Project Impact
SEABROOK-HAMPTON 15904
X-A001(026)
NH 1A over Hampton Harbor

Dear Ms. Reczek,

Thank you for the opportunity to comment on the proposed design for the replacement of the Neil R. Underwood Bridge. As you know, the Pease Development Authority Division of Ports and Harbors (Port Authority) has worked cooperatively with New Hampshire Department of Transportation (NHDOT) during the planning phase of the replacement of the Neil R. Underwood Bridge.

The Port Authority has reviewed, and is in full agreement with, the proposed design for the bridge and views the project as an improvement to the safety of navigation for all vessels operating through the entrance channel to Hampton and Seabrook Harbors. Just as important, the new bridge design will not impede existing public passage along the shoreline on foot or by non-motorized watercraft.

Additionally, it is the opinion of the Port Authority that the project will enhance the transit of tugs and barge units carrying oversized equipment and materials that may be required for future projects in the coastal areas of New Hampshire and to service the Seabrook Nuclear Power Plant. The bridge replacement, as proposed, will better facilitate the maintenance dredging of the Federal Navigation project maintained by the U.S. Army Corps of Engineers. Further, the proposed design will eliminate or reduce channel closures due to maintenance and allow for uninterrupted emergency response traffic on the roadway.

Please be assured of the continuing support of the Port Authority for this important project.

Sincerely,

Gene J. Marconi, Port Director

Appendix B: Vulnerability Assessment

Coastal Vulnerability Assessment

15904 Seabrook-Hampton, NH

Reconstruction of the Neil R. Underwood Bridge over Hampton River,

Part B – Final Design

Seabrook-Hampton, New Hampshire
September 9, 2022

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Introduction

HDR Inc. was contracted by the New Hampshire Department of Transportation to provide final design services for the replacement of the Neil R. Underwood Bridge (Bridge No. 235/025) that carries NH Route 1A over the Hampton harbor inlet between the towns of Seabrook, NH and Hampton, NH. The existing bridge is a 13 span plate girder bridge, with a center bascule span allowing for large vessel passage. The proposed design for the replacement bridge consists of a fixed, seven span bridge, that spans 1300' and is 53' wide. The bridge is made up of a structural steel superstructure with a reinforced concrete deck. The proposed substructure of the bridge includes six in water piers, and two abutments sitting on drilled shaft piles, providing a navigable channel opening of 150' horizontally with a minimum vertical clearance of 48' at the mean high water elevation.

According to the New Hampshire Coastal Flood Risk Summary Part 1: Science (NHCRSP1), the preferred Relative Concentration Pathway (RCP), which are a variety of scenarios based on factors and assumptions about population, economic growth, and more, is RCP 4.5. This scenario is an optimistic one, assuming that greenhouse gas emissions will stabilize before slowly decreasing, although it is very plausible (NHCRSP1). The use of RCP 4.5 was also agreed upon at the onset of the project by HDR, the Coast Guard and the New Hampshire Department of Transportation. New Hampshire's coastal regions will likely experience a relative sea level rise (RSLR) by 2100 of between 1.0 to 2.9 feet. There is a 1 in 100 chance of RSLR being 5.3 feet, and a 1 in 1000 chance of an RSLR of 8.7 feet with greenhouse gas emission stabilization. In the worst-case scenario of increasing emission levels, represented by RCP 8.5, there is a 1 in 100 chance of an RSLR of 6.5 feet, and a 1 in 1000 chance it will increase to 10 feet. These RSLR numbers for RCP 4.5 are very similar when comparing to previous estimates from the 2014 *NH Coastal Flood Risk Science and Technology Advisory Panel (STAP) Report, Sea-Level Rise, Storm Surges, and Extreme Precipitation in Coastal New Hampshire: Analysis of Past and Projected Trends*. Under high RSLR estimates, the magnitude of ebb and flow currents could increase by 85% (NHCRSP1) due to sea level rise.

HDR Inc. recognizes the severity of potential effects from climate change and sea level rise on New Hampshire's coastline. With the proposed bridge crossing a tidal waterway, sea level rise has the potential to impact the project as a whole. The proposed structure must be assessed within the context of sea level rise to confirm that it is not at severe risk to impede upon public safety due to these potential adverse effects.

Methodology

This Coastal Vulnerability Assessment was conducted using the seven (7) steps outlined in the *New Hampshire Coastal Flood Risk Summary, Part II: Guidance for Using Scientific Projections* (NHCFRSP2) as a guide on what factors to consider in regard to sea level rise' storm surge and precipitation for the report. Values for RSLR were also taken from NHCFRSP2 as this was the most current data, published in 2020, about the New Hampshire coast in regard to sea level rise. The *NH Coastal Flood Risk Science and Technology Advisory Panel (STAP) Report, Sea-Level Rise, Storm Surges, and Extreme Precipitation in Coastal New Hampshire: Analysis of Past and Projected Trends* was consulted in order to gather more context and information about climate change and historic sea level rise in New Hampshire more generally. In order to evaluate the extent of RSLR impacts, data was taken from NHDOT Borings Logs for borings conducted on 09/2021, as well as from existing survey information including elevation of and depth to the existing water table.

Step 1: Project Goal, Type, Location, and Timeframe

Step 1.1: Define the Project Goal and Project Type

The goal of this state funded site-specific project is to replace the current bridge across the Hampton River in order to meet its modern structural and cultural needs. The beneficiaries of this project include the residents of the towns of Seabrook and Hampton, as well as the numerous tourists that frequent the area in the summer.

Step 1.2: Define and Inventory the Project Area

The project is located over the mouth of the Hampton River at the inlet of Hampton Harbor, carrying NH Route 1A between Seabrook and Hampton NH. There is an existing bridge that is parallel to the alignment of the proposed structure, as well as many smaller structures both public and private adjacent to the project site. The project will have impacts within the Tidal Buffer Zone, as well as within the protected shoreland. The total permanent project impacts are expected to occupy around 7.5 acres.

Step 1.3: Define the Timeframe for the Project

The proposed structure is design to have a useful service life of 100 years, or until around 2125.

Step 2: Determine Tolerance for Flood Risk

Step 2.1: Identify Project Characteristics that Influence Tolerance for Flood Risk

NHCRFSP2 recommends consideration of the importance of the following characteristics in order to determine a projects' risk tolerance for flooding: replacement costs, capacity to adapt, importance for public safety, and sensitivity to inundation. The cost of replacement due to loss is ranked rather low in importance due to the severe improbability of complete failure or loss of the structure occurring. Impact to public safety is ranked of moderate priority as Route 1 is a primary road. Ability to adapt as well as sensitivity to inundation are ranked of moderate to high importance due to the inevitability of sea level rise, as well as the increasing frequency of high yield coastal storms.

Step 2.2: Determine Tolerance for Flood Risk Applicable to Project

Using the *Step 2 Table* from the NHCFRSP2 document, a classification of high, medium, low, or very low tolerance was chosen for each of the project characteristics. As stated previously, the project has a high cost of replacement, due to its sheer size, as well as the short timeline it would have to be rebuilt within. The proposed structure has a very high capacity to adapt to sea level rise since it has a large amount of vertical clearance to accommodate potential rise. A similar statement can be made regarding its ability to withstand inundation through its vertical clearance. The bridge is a very high structure, and the roadway approaches are also very high in elevation compared to the surrounding landscape making the site not very sensitive to inundation in that sense. However, one place where inundation may affect the structure is through the increase of intensity of currents due to the increased storm surge. In general, looking at the inundation effect map for Seabrook-Hampton with the NHCFRSP1, the project site is at an extreme low risk for inundation to happen, making it have low priority in determining flood tolerance. The project has a moderate implication to public safety and functionality. Although the bridge is the primary link between two separate towns, each town has its own emergency services and evacuation routes, as well as access to other nearby towns and areas. Using the tolerances of each characteristic along with its weighted importance from section 2.1, the project's overall tolerance for flood risk was determined to be high.

Figure 2 - 1: Step 2 Table. Framework for Determining Project Tolerance for Flood

	HIGH TOLERANCE FOR FLOOD RISK	MEDIUM TOLERANCE FOR FLOOD RISK	LOW TOLERANCE FOR FLOOD RISK	VERY LOW TOLERANCE FOR FLOOD RISK
DESCRIPTION	Decision makers have a High tolerance for flood risk to the project	Decision makers have a Medium tolerance for flood risk to the project	Decision makers have a Low tolerance for flood risk to the project	Decision makers have a Very Low tolerance for flood risk to the project
POSSIBLE PROJECT CHARACTERISTICS *Tolerance for flood risk will depend on the mix and importance of these project characteristics.*	Low value or cost	Medium value or cost	High value or cost	Very high value or cost
	Easy or likely to adapt	Moderately easy or somewhat likely to adapt	Difficult or unlikely to adapt	Very difficult or very unlikely to adapt
	Little to no implications for public function and/or safety	Moderate implications for public function and/or safety	Substantial implications for public function and/or safety	Critical implications for public function and/or safety
	Low sensitivity to inundation	Moderate sensitivity to inundation	High sensitivity to inundation	Very high sensitivity to inundation

Source: https://scholars.unh.edu/cgi/viewcontent.cgi?article=1210&context=ersc

Step 3: Select and Assess Relative Sea-Level Rise

Step 3.1: Select the RSLR Estimate for the Project

RSLR was determined for the project using RCP 4.5, which is a representative future scenario assuming that greenhouse gas emissions are going to slowly level off and stabilize around 2050 before declining until 2100. RCP 4.5 is a probable scenario that was adopted by the project team and was used to determination of RSLR for this project. Using *Step 3 Table A* from the NHCFRSP2, and the high flood risk determined in step 2, total RSLR will be approximately 3.75' relative to its level in the year 2000. Due to the fact that the measurement is relative to levels in 2000, the RSLR from after time of completion until the end of its service life will be slightly lower.

Figure 3 - 1: Step 3 Table A. Recommended Decadal RSLR Estimates (in Feet Above 2000 Levels) Based on RCP 4.5, Project Timeframe, and Tolerance for Flood Risk

TIMEFRAME	HIGH TOLERANCE FOR FLOOD RISK	MEDIUM TOLERANCE FOR FLOOD RISK	LOW TOLERANCE FOR FLOOD RISK	VERY LOW TOLERANCE FOR FLOOD RISK
	Plan for the following RSLR estimate (ft)* *compared to sea level in the year 2000*			
	Lower magnitude, Higher probability	←	→	Higher magnitude, Lower probability
2030	0.7	0.9	1.0	1.1
2040	1.0	1.2	1.5	1.6
2050	1.3	1.6	2.0	2.3
2060	1.6	2.1	2.6	3.0
2070	2.0	2.5	3.3	3.7
2080	2.3	3.0	3.9	4.5
2090	2.6	3.4	4.6	5.3
2100	2.9	3.8	5.3	6.2
2110	3.3	4.4	6.1	7.3
2120	3.6	4.9	7.0	8.3
2130	3.9	5.4	7.9	9.3
2140	4.3	5.9	8.9	10.5
2150	4.6	6.4	9.9	11.7

Source: https://scholars.unh.edu/cgi/viewcontent.cgi?article=1210&context=ersc

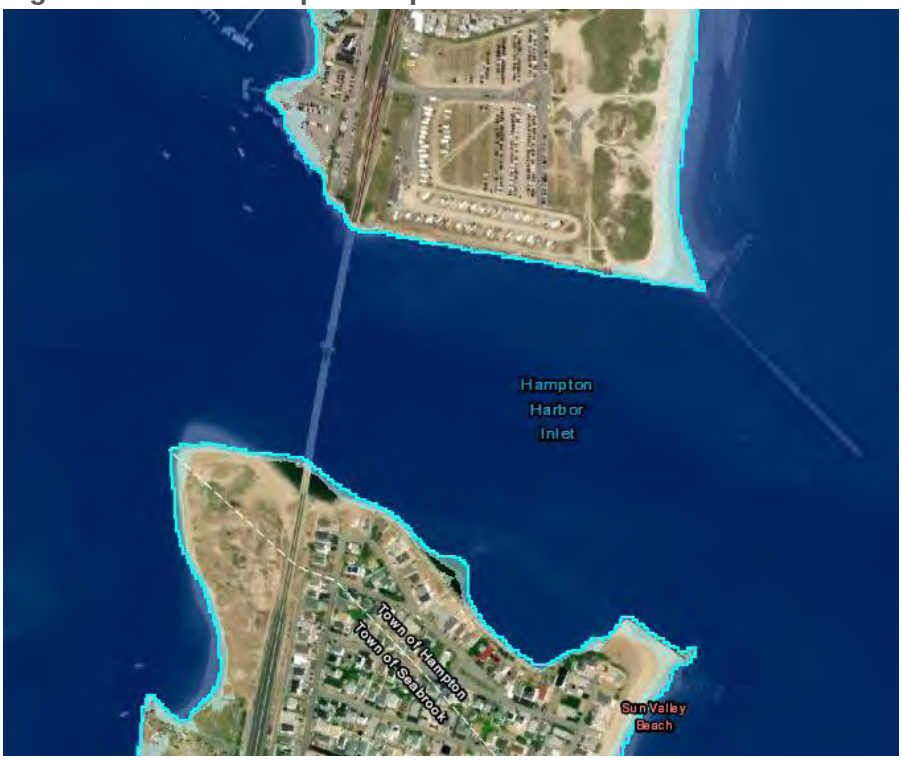
Step 3.2: Assess RSLR Impacts to the Project

Using the *New Hampshire Sea-level Rise, Storm Surge, and Groundwater Rise Mapper (Sea-Level Rise Mapper)*, put out by the NH Department of Environmental Services as well as the approximate estimate of less than 4' of RSLR, Figure 3 - 2 was developed to illustrate the impacts of this RSLR on the project site. As seen in the figure, there won't be

drastic impacts to the land surrounding the abutments and approaches of the proposed bridge.

The proposed structure is being designed with a minimum vertical clearance of 48’ and the largest vertical clearance needed in order to accommodate the USACE Special purpose vessel *Currituck* is 44’. Using this designed vertical clearance, and the calculated RSLR of less than 4’ from step 3.1, Currituck will be able to have passage through the channel throughout the entire service life of the bridge.

Figure 3 - 2: RSLR Impact Map



Source:
https://nhdes.maps.arcgis.com/apps/webappviewer/index.html?id=c231e2f3b1f94d05bc0c8faf0265f569

Step 4: Identify and Assess RSLR-Adjusted Coastal Storms

Step 4.1: Identify RSLR-Adjusted Design Flood Elevation (DFE)

Using the RSLR and the flood risk tolerance selected in step 3, as well as the FEMA Flood Plain Maps from msc.fema.gov effective on 1/29/2021, *Step 4 Table RSLR-Adjusted Design Flood Elevations (DFE) based on Tolerance for Flood Risk* can be utilized in determining DFE for this project. Parts of the project are in zone AE with a Base Flood Elevation (BFE) of 9, with the seaward side of the project in zone VE with a Base Flood Elevation of 14. Step 4 table yields a DFE equal to BFE + RSLR, which results in a DFE between 13' and 18'.

Figure 4 - 1: Step 4 Table. RSLR-Adjusted Design Flood Elevations (DFE) Based on Tolerance for Flood Risk.

	HIGH TOLERANCE FOR FLOOD RISK	MEDIUM TOLERANCE FOR FLOOD RISK	LOW TOLERANCE FOR FLOOD RISK	VERY LOW TOLERANCE FOR FLOOD RISK
IF PROJECT AREA IS LOCATED IN:	RSLR-ADJUSTED DESIGN FLOOD ELEVATION (DFE) =			
A, AO, OR AE ZONE* NOT IDENTIFIED AS COASTAL A ZONE**	[BFE] + RSLR	[BFE + (required freeboard ≥ 1 ft)] + RSLR	[BFE + (required freeboard ≥ 1 ft)] + RSLR	Whichever is greater: [BFE + (required freeboard ≥ 2ft)] + RSLR OR 0.2% annual chance flood elevation + RSLR
VE ZONE*** AND COASTAL A ZONE			[BFE + (required freeboard ≥ 2 ft)] + RSLR	

Source: https://scholars.unh.edu/cgi/viewcontent.cgi?article=1210&context=ersc

Asses Relative Sea Level Rise-Adjusted Coastal Storm Impacts to the Project

Using the DFE from Step 4.1, the bridge would not be overly affected by the accumulation of effects from storm surge and sea level rise. The total surge would still be well below the bottom chord of the bridge, and may only overtop parts of the approach road, not resulting in significant damage to the bridge itself. Using an average BFE of 12 and a DFE of 16, the water level during a surge event would increase by 4' compared to the BFE, still allowing for a 44' vertical clearance under the bridge allowing *Currituck* to pass.

Step 5: Identify and Assess RSLR-Induced Groundwater Rise

Step 5.1: Identify RSLR-Induced Groundwater Rise for the Project

Since Hampton and Seabrook are both mapped communities (NHCFRS, part 2), the Sea-Level Rise Mapper, which is the preferred method, was used to determine groundwater rise. Using the Sea-level Rise Mapper and it was determined that ground water table will increase by approximately four feet using the RSLR for the project.

Step 5.2: Estimate Depth to Present-Day and Future Groundwater for the Project Area

Using Boring Logs from NHDOT conducted on 09/2021, the groundwater table was located at around 18’ below ground surface. Using this depth and the estimate rise due to RSLR, future ground water depth is expected to be at 14’ below the ground surface.

Step 5.3: Assess RSLR-Induced Groundwater Rise Impacts to the Projects

In the year 2100, the groundwater table is predicted to still be well below the ground surface in. This means that the project will not be inundated due to raised groundwater. The project also does not have any crucial underground infrastructure that would be affected by a raised groundwater table. The bridge foundation is a system of deep piles which mitigates the effects of a raised ground water table on the structure’s foundation. The groundwater will not reach any other component of the structure.

Step 6: Identify and Assess Extreme Precipitation Estimates

Step 6.1: Account for Projected Increases in Extreme Precipitation

Due to the assessment of a high flood tolerance, NHCFRS Part II recommends that projects consider 15% increase in extreme precipitation estimates. This 15% increase was added to the precipitation estimates from the *Northeast Regional Climate Center Extreme Precipitation in New York and New England Atlas* for Hampton, NH seen in figure 8-1.

Figure 6 - 1: Hampton, NH Extreme Precipitation Table

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.816 degrees West
Latitude	42.899 degrees North
Elevation	0 feet
Date/Time	Fri, 15 Jul 2022 12:07:45 -0400

Increase in 24hr Storm Precipitation Volume by 15%
1-yr: 2.71" * 1.15 = 3.12"
2-yr: 3.27" * 1.15 = 3.76"
10-yr: 4.99" * 1.15 = 5.74"
50-yr: 7.63" * 1.15 = 8.78"

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.41	0.50	0.66	0.83	1.05	**1yr**	0.71	0.98	1.23	1.59	2.07	2.71	3.01	**1yr**	2.40	2.89	3.32	4.03	4.70	**1yr**
2yr	0.33	0.50	0.63	0.83	1.04	1.32	**2yr**	0.90	1.20	1.54	1.97	2.53	3.27	3.65	**2yr**	2.89	3.51	4.02	4.77	5.44	**2yr**
5yr	0.38	0.60	0.75	1.00	1.28	1.65	**5yr**	1.10	1.50	1.93	2.49	3.21	4.16	4.68	**5yr**	3.68	4.50	5.17	6.09	6.85	**5yr**
10yr	0.43	0.67	0.85	1.15	1.50	1.95	**10yr**	1.29	1.78	2.30	2.98	3.85	4.99	5.66	**10yr**	4.41	5.45	6.27	7.32	8.17	**10yr**
25yr	0.50	0.79	1.01	1.39	1.85	2.43	**25yr**	1.60	2.22	2.89	3.76	4.89	6.35	7.28	**25yr**	5.62	7.00	8.08	9.34	10.31	**25yr**
50yr	0.56	0.91	1.16	1.62	2.18	2.89	**50yr**	1.88	2.64	3.45	4.51	5.87	7.63	8.81	**50yr**	6.75	8.47	9.80	11.24	12.29	**50yr**
100yr	0.63	1.03	1.32	1.88	2.56	3.44	**100yr**	2.21	3.12	4.11	5.40	7.05	9.17	10.67	**100yr**	8.11	10.26	11.88	13.53	14.67	**100yr**
200yr	0.72	1.18	1.53	2.19	3.01	4.07	**200yr**	2.60	3.71	4.89	6.45	8.45	11.02	12.91	**200yr**	9.75	12.41	14.41	16.29	17.50	**200yr**
500yr	0.86	1.41	1.84	2.67	3.74	5.11	**500yr**	3.23	4.65	6.17	8.19	10.76	14.06	16.63	**500yr**	12.45	15.99	18.62	20.84	22.13	**500yr**

Source: **http://precip.eas.cornell.edu/data.php?1658161737646**

Step 6.2: Asses Projected Extreme Precipitation Impacts to the Project

Increased extreme storm events are not likely to severely impact the project. The project was designed to accommodate drainage and has measures in place such as scuppers in order to get water off of the bridge deck quickly.

Step 7: Asses Cumulative Risk and Evaluate Adaptation Options

Step 7.1: Asses Cumulative Risk and Evaluate Adaptation Options

Overall, the cumulative impacts from RSLR, coastal storm surges, RSLR-induced groundwater rise, and extreme precipitation will not cause any extreme adverse effects to the proposed project design. Things such as elevation of the road surface and nautical navigational clearance are designed with enough of a factor of safety where it will still accomplish its needs safely. The project will still be able to accomplish its goal of connectivity between Seabrook and Hampton even with rising sea levels and extreme events for the entirety of its foreseeable service life.

Step 7.2 Identify and Evaluate Adaptation Options to Mitigate Coastal Flood Risk

The project has a very high tolerance for RSLR, and a low risk for extreme coastal flooding. The structure has a minimum designed vertical clearance of slightly greater than 44' accounting for RSLR at the mean high water elevation, and a vertical clearance at current sea level of 48'. No action taken is the recommended alternative to address sea level rise and its effects, as the design naturally avoids the water by being so high above it, and also accommodates the rise by being designed to have more vertical clearance than needed. In addition, the proposed bridge has much more resiliency against RSLR than the current bridge by providing more vertical clearance and being designed to withstand a higher design flood.

Source: Figure Source/Note

References

"Extreme Precipitation in New York & New England." *Cornell*, *compiled by Northeast Regional Climate Center,* http://precip.eas.cornell.edu/data.php?1658161737646.

Kirshen, Paul, and Cameron Wake. *NH Coastal Flood Risk Science and Technology Advisory Panel (STAP) Report, Sea-Level Rise, Storm Surges, and Extreme Precipitation in Coastal New Hampshire: Analysis of Past and Projected Trends - NHCRHC*. NH Coastal Risk and Hazards Commission, 11 Aug. 2014, https://www.nhcrhc.org/wp-content/uploads/2014-STAP-final-report.pdf.

"New Hampshire Coastal Flood Risk Summary, Part II: Guidance for Using Scientific Projections." *University of New Hampshire*, New Hampshire Coastal Flood Risk Science and Technical Advisory Panel , 24 Mar. 2020, https://scholars.unh.edu/cgi/viewcontent.cgi?article=1213&context=ersc.

"New Hampshire Sea-Level Rise, Storm Surge, and Groundwater Rise Mapper." *ArcGIS Web Application*, NHDES Coastal Program, https://nhdes.maps.arcgis.com/apps/webappviewer/index.html?id=c231e2f3b1f94d05bc0c8faf0265f569%5C.

Appendix C: Figures

Legend

Project Limits of Disturbance

Seabrook-Hampton 15904
Seabrook and Hampton,
New Hampshire

Figure 1
Project Site Map

Map Produced: 10/18/2022

Data Source: FHI, ESRI, State of NH

FHI studio

Map Produced: 10/18/2022

Data Source: FHI, ESRI, NWI

Legend

Project Limits of Disturbance

Wetland Type

- E1UBL
- E2EM1P
- E2RSN
- E2RSP
- E2US2M
- E2US2N
- E2US2P
- E2US3N
- M2RSN
- M2US2M
- M2US2N
- M2US2P

Seabrook-Hampton 15904
Seabrook and Hampton, New Hampshire

Figure 2
Wetlands Map

FHI studio

Map Produced: 12/1/2022

Data Source: FHI, ESRI, FEMA

Legend

- Project Limits of Disturbance

Flood Zone Category

- Zone AE
- Zone AO
- Zone VE
- Zone X (0.2% Annual Chance Flood Hazard)
- Zone X (Area of Minimal Flood Hazard)
- Flood Zone Elevation Boundary

Seabrook-Hampton 15904
Seabrook and Hampton, New Hampshire

Figure 3
FEMA Floodplains Map

FHI studio

Map Produced: 12/1/2022

Data Source: FHI, ESRI

Legend

- Project Limits of Disturbance
- Blue Mussel Bed
- Beach Habitat
- Dune Habitat
- Rocky Shore
- Ruderal Habitat
- Sand Flat
- Shrub Habitat
- Shoreline Structure

Seabrook-Hampton 15904
Seabrook and Hampton, New Hampshire

Figure 4
Coastal Habitat Map

FHI studio

Appendix D: Wildlife/Vegetation List

Plants Identified during Field Work for Hampton Harbor Bridge, Seabrook-Hampton, NH (2018, 2022)				
Scientific Name	**Common Name**	**State / Fed. Conservation Status**	**Habit**	**Notes**
Acer pseudoplatanus	Sycamore Maple		Tree	
Achillea millefolium	Yarrow		Forb	
Ammophila breviligulata	American Beachgrass		Grass	
Aristida oligantha	Oldfield threeawn		Forb	
Aristida tuberculosa	**Seaside Threeawn**	**E/ -**	**Gramminoid**	**New Hampshire - Endangered**
Artemisia campestris ssp. caudata	**Field Wormwood**	**E/ -**	**Forb**	**New Hampshire - Endangered**
Artemisia campestris ssp. campestris	Field Wormwood		Forb	Likely occurs; Non-native
Artemisia vulgaris	Common Mugwort		Forb	
Asclepias syriaca	Field Milkweed		Forb	Nectar attracts almost every butterfly spp. Larval food for Monarch
Ascophyllum nodosum	Knotted Wrack		Marine Macro algae	
Berberis thunbergii	**Japanese Barberry**		**Shrub**	**NH Invasive**
Berteroa incana	hoary alyssum, false hoary madwort, hoary berteroa, and hoary alison		Forb	Non-native
Bromus tectorum	Cheatgrass		Grass	
Carex sericea	Beach Sedge		Forb	
Celastrus orbiculatus	**Oriental Bittersweet**		**Liana**	**NH Invasive**
Centaurea stoebe	**Spotted Knapweed**		**Forb**	**NH Invasive**
Comptonia peregrina	Sweetfern		Shrub	
Coronilla coronata	Crown vetch		Forb	
Cynanchum louiseae	**Black swallowwort**		**Liana**	**NH Invasive**
Cyperus grayi	**Gray's umbrella-sedge**	**E/ -**	**Forb**	**New Hampshire - Endangered**
Cyperus lupulinus	Perennial ubbrella-seduge		*Forb*	
Elaeagnus umbellata	**Autumn olive**		**Shrub**	**NH Invasive**
Elymus repens	Quackgrass		Grass	
Euphorbia esula	Leafy Spurge		Forb	
Euphorbia maculata	Spotted Sandmatt		Forb	

Euphorbia polygonifolia	**Seaside Sandmat**	**E/ -**	**Forb**	**New Hampshire - Endangered**
Euonymous alatus	Winged Euonymous		Bush	
Fucus sp.	Rock Weed		Marine Macro algae	
Hudsonia tomentosa	**Hairy Beach Heather**	**T / -**	**shrub**	**New Hampshire - Threatened**
Hypericum perforatum	St. John'swort		Forb	
Jacobaea maritima	Dusty Miller		Forb	
Juncus tenuis	Path Rush		Gramminoid	
Juniperus virginiana	Red Cedar		Tree	
Lathyrus japonicus	Beach Pea		Liana	
Lechea martima	Seabeach pinweed		Forb	
Lespedeeza	Bush Clover		Forb	
Lonicera sp.	**Bush Honeysuckle**		**Shrub**	**NH Invasive**
Lotus corniculatus	Bird'sfoot Trefoil		Forb	
Malus spp.	Apple and crabaple species		shrub/tree	
Matricaria discoidea	Pineappleweed		Forb	
Moerella pensylvanica	Bayberry		Shrub	
Nuttallanthus canadensis	Old Field Toadflax		Forb	
Onothera (biennis?)	Evening Primrose		Forb	
Parthenocissus quinquefolia	Woodbine; Virginia Creeper		Liana	fruits provide food for at least 35 bird species, esp. Mockingbird and Yellow-bellied Sapsucker
Pinus nigra	Austrian Pine		Tree	
Plantago lanceolata	English Plantain		Forb	Host plant for Baltimore checkerspot (*Euphydryas phaeton*)
Plantago major	Common Plantain		Forb	
Plantago aristata	Largebracted Plantain		Forb	
Polygonella articulata	Jointweed		Forb	
Populus tremuloides	Quaking Aspen		Tree	
Potentilla	Cinquefoil		Forb	
Prunus maritima	Beach Plum		Shrub	
Prunus serotina	Black Cherry		Tree	At least 47 bird species consume the fruit. Hostplant of Eastern Tiger Swallowtail (*Papilio glaucus*); and Red-spotted Purple
Rhus copallina	Winged Sumac		Shrub	

Rhus typhina	Staghorn sumac		Shrub	
Robinia psuedacacia	Black Locust		Tree	
Rosa multiflora	**Multiflora Rose**		**Shrub**	**NH Invasive**
Rosa rugosa	Beach Rose		Shrub	
Rubus sp.	Blackberry		Shrub	Fruits eaten by catbirds, cardinals, Pine Grosbeaks, Orchard Oriole and Brown Thrasher
Rudebeckia sp.	Black-eyed Susan		Forb	
Rumex acetosella	Red Sorrel		Forb	
Schizochyrium scoparia	Little Bluestem		Grass	
Sedum acre	Mossy Stonecrop		Forb	non-native
Silene latifolia	White Campion		Forb	
Solanum dulcamara	Nightshade		Forb	
Solidago sempervirens	Seaside Goldenrod		Forb	
Spirea latifolia	Meadowsweet		Forb	
Sporobolus cryptandrus	**Sand Dropseed**	**E/ -**	**Gramminoid**	**New Hampshire - Endangered**
Toxicodendron radicans	Poison Ivy		Liana	Skin irritant but has wildlife value (berries eaten by catbird, chickadees, flicker, and Downy Woodpecker)
Tragopogon dubius	Salsify		Forb	
Trifolium pratense	Red Clover		Forb	Hostplant to Eastern Tailed Blue (*Everes comyntas*); cottontails, Striped Skunk, and Wild Turkey eaten foliage
Trifolium repens	White Clover		Forb	
Verbascum thapsus	Common Mullein		Forb	
Vicia cracca	Cow Vetch		Liana	

** Potentially Invasive = Not listed on NH list, but listed for one or more adjacent states.*

Note: NH Listed species and invasive species in bold text

Wildlife noted during Field Work for Hampton Harbor Bridge, Seabrook-Hampton, NH (2018, 2022)				
Scientific Name	**Common Name**			**Notes**
AVIAN SPECIS				
Gavia immer	Comon Loon			Harbor
Ardea herodias	Great blue Heron			pass-over
Ardea alba	Great Egret			pass-over
Egretta thula	Snowy Egret			pass-over
Branta canadensis	Canada Goose			pass-over

Anas platyrhynchos	Mallard			Harbor
Anas rubripes	American Black Duck			Harbor
Leucophaeus atricilla	Laughing Gull			Harbor
Larus argentatus	Herring Gull			Harbor
Larus delawarensis	Ring-billed Gull			Harbor
Larus marinus	Greater Black-baked Gull			pass-over
Nannopterum auritum	Double-crested Cormorant			Harbor
Sterna hirundo	Common Tern			pass-over
Sterna dougallii	Roseate Tern			pass-over
Sterna antillarum	Least Tern			pass-over
Cathartes aura	Turkey Vulture			pass-over
Buteo jamaicensis	Red-tailed Hawk			pass-over
Pandion haliaetus	Osprey			pass-over
Columba livia	Rock Dove			pass-over
Zenaida macroura	Mourning Dove			Landside
Chaetura pelagica	Chimney Swift			pass-over
Tachycineta bicolor	Tree Swallow			pass-over
Hirundo rustica	Barn Swallow			pass-over
Corvus ossifragus	Fish Crow			pass-over
Corvus brachyrhynchos	American Crow			pass-over
Turdus migratorius	American Robin			Landside
Mimus polyglottos	Northern Mockingbird			Landside
Sturnus vulgaris	European Starling			Landside
Melospiza melodia	Song Sparrow			Landside
Spizella passerina	Chipping Sparrow			Landside
Junco hyemalis	Dark-eyed Junco			Landside
Quiscalus quiscula	Common Grackle			pass-over
Passer domesticus	House Sparrow			Landside
Spinus tristis	American Goldfinch			pass-over
Haemorhous mexicanus	House Finch			Landside
MAMMALIAN SPECIES				
Vulpes vulpes	Red Fox			Landside - tracks
Mephitis mephitis	Eastern Skunk			Landside - road kill
Sylvilagus floridanus	Eastern Cottontail			Landside - visual observation

Attachment 9

Sand Dune Project Specific Worksheet

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

SAND DUNES
PROJECT-SPECIFIC WORKSHEET
FOR STANDARD APPLICATION

Water Division/Land Resources Management
Wetlands Bureau

Check the Status of your Application

RSA/Rule: RSA 482-A/ Env-Wt 604; Env-Wt 611

APPLICANT LAST NAME, FIRST NAME, M.I.: Jennifer E. Reczek, PE

This worksheet summarizes the criteria and requirements for a Standard Permit for projects in "Sand Dunes", as outlined in Chapter Env-Wt 600. In addition to the project-specific criteria and requirements on this worksheet, all Standard Dredge and Fill Applications must meet the criteria and requirements listed in the Standard Dredge and Fill Wetlands Permit Application Form (NHDES-W-06-012) and the Coastal Resource Worksheet (NHDES-W-06-079).

SECTION 1 - GENERAL CRITERIA FOR PROJECTS IN SAND DUNES (Env-Wt 604.01)

☒ New permanent impacts to sand dunes that provide coastal storm surge protection for protected species or habitat shall not be allowed except to protect public safety and only if constructed by a state agency, coastal resiliency project, or for a federal homeland security project.

☒ Projects in or on a sand dune shall support integrated shoreline management that:

- Optimizes the natural function of the shoreline, including protection or restoration of habitat, water quality, and self-sustaining stability to flooding and storm surge.
- Protects upland infrastructure from coastal hazards with a preference for living shorelines over hardened shoreline practices.

SECTION 2 - PRE-APPLICATION ASSESSMENT (Env-Wt 611.03)

The department shall provide a pre-application assessment of any lot of record located in sand dunes upon request of the property owner. The purpose of a pre-application assessment shall be to provide the property owner with information regarding what requirements apply to the property, including reviewing the property for the presence of threatened or endangered dune vegetation or other exemplary natural community features that may require protection, relocation, or mitigation, or any combination thereof.

To request a pre-application assessment, the property owner shall submit to the department a written request for an assessment that includes:

☐ The property owner's name.

☐ The property owner's contact information.

☐ The street address and tax map/lot of the property.

☐ Any questions the property owner has about the applicability of specific requirements.

Date of pre-application assessment, if held:

SECTION 3 - APPLICATION REQUIREMENTS FOR PROJECTS IN SAND DUNES (Env-Wt 611.04)

If any portion of the property is located in the 100-year floodplain, the application for a sand dune project shall include on the plans the location of the:

☒ 100-year floodplain boundary and water elevation as shown on the effective Federal Emergency Management Agency Flood Insurance Rate Map.

☐ The location of the two-foot elevation contour as measured above the Highest Observable Tide Line.

☒ The location, with dimensions, of:

- All impervious areas.
- Areas of existing vegetation, with the vegetation identified on the plan.
- Each rare, threatened, or endangered plant species as reported by the New Hampshire Natural Heritage Bureau (NHB).
- All disturbed areas, including existing lawn, gardens, and paths.
- All areas to remain in an unaltered state.
- All proposed temporary impacts associated with completion of the project, with a description of each temporary impact.
- Proposed methods of erosion and siltation controls indicated graphically and labeled or otherwise annotated as needed for clarity.
- A planting plan to include the plant species, plant spacing location and depth of each planting, time of planned planting, watering, irrigation to monitor and ensure success, any soil requirements or exposure requirements of plantings.
- All other relevant features necessary to clearly define both existing conditions and the proposed project.

The applicant for a permit for a construction project in sand dunes shall submit with the application a completed impervious coverage worksheet that includes:

- The name of the person who completed the worksheet.
  Nicholas D. Caron, PE, SE
- The date of the plan on which the worksheet is based.
  March 9, 2023
- Square feet of the lot within the sand dune.
  167,697 SF
- Square feet and percentage of the lot area constituting existing impervious surface(s) within the sand dune.
  42,791 SF, 26%
- Total percentage of sand dune area within the lot that will be impervious upon completion of the project.
  40,855 SF, 24%

For any project proposing an impervious area on an in-fill lot of at least 15% but not more than 20%, the applicant shall certify in writing that the impervious area is not more than 20%:

"I/we, (name(s) of applicant(s)) _____, certify that the impervious area is not more than 20%."

SIGNATURE (APPLICANT): _____ PRINT NAME LEGIBLY: _____ DATE: _____

☐ For any project proposing an impervious area on an in-fill lot of greater than 20%, the applicant shall submit plans, prepared by a professional engineer, for a stormwater management system that will infiltrate the increased stormwater.

☐ For any project proposing pervious surfaces, the applicant shall submit a plan and specifications for long-term maintenance of the pervious surfaces.

SECTION 4 - APPROVAL CRITERIA FOR PROJECTS IN SAND DUNES (Env-Wt 611.05)

An application for a sand dune project shall meet the following criteria:

☐ Work on or in sand dunes shall be limited to existing developed lots and in-fill lots.

☒ Natural dune sand and dune vegetation shall be removed only for the building footprint and driveway area.

☒ Structures proposed to be constructed in or on sand dunes shall not change wind circulation patterns such that more sand is eroded.

☐ The project shall not disturb any sand dune vegetation listed as a threatened or endangered species by the NHB.

☒ Work shall be done in a time and manner so as to not disturb migratory waterfowl breeding and nesting areas.

☒ Appropriate siltation and erosion controls shall be in place prior to construction, shall be maintained during construction, and shall remain until the area is stabilized.

☒ Temporary siltation and erosion controls shall be removed once the area has been stabilized.

☒ Any American Beachgrass (*Ammophila breviligulata*) that would be disturbed by a project shall be removed and replanted elsewhere on site according to approved plans.

☒ Only indigenous native plant species shall be planted on the property.

☒ No non-native ornamental plants shall be introduced to or used on the property.

☒ The project shall not disturb any sand dune vegetation growing on adjacent properties.

SECTION 5 - DESIGN & PLAN REQUIREMENTS FOR PROJECTS IN SAND DUNES (Env-Wt 611.04)

☐ No structures shall be proposed in sand dunes except for structures on in-fill lots that will be located on the landward side of the fore dune.

Designs for projects in sand dunes shall:

☒ Incorporate mechanisms to limit impacts to existing intact sand dunes.

☐ Use sand fences to capture sand for major projects.

☒ Identify construction practices needed to protect sensitive plant and animal species and water quality.

☒ Identify construction techniques and designs used to address any vulnerability assessment.

SECTION 6 - PROJECT CLASSIFICATIONS FOR PROJECTS IN SAND DUNES (Env-Wt 611.06; Env-Wt 611.07)

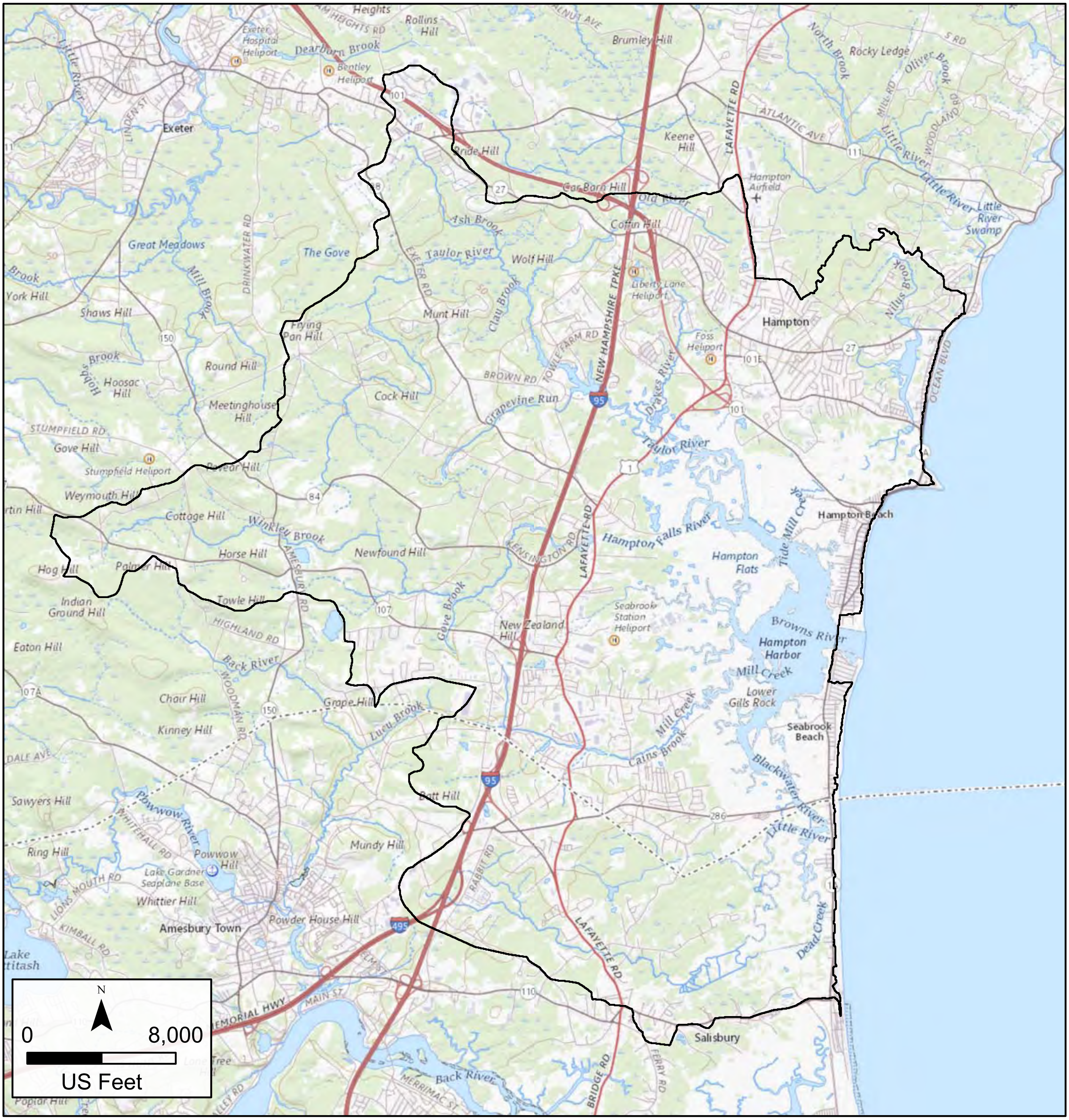
Refer to Env-Wt 611.06 and Env-Wt 611.07 for project classification.

Attachment 10

USGS Watershed Boundary Map

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)


Exeter
Hampton
Hampton Beach
Seabrook Beach
Salisbury
Amesbury Town
Hampton Harbor
Hampton Flats
Taylor River
Hampton Falls River
Browns River
Mill Creek
Cains Brook
Blackwater River
Little River
Winkley Brook
Grapevine Run
Drakes River
Tide Mill Creek
Dead Creek
Powwow River
Back River
NEW HAMPSHIRE TPKE
LAFAYETTE RD
New Zealand Hill
Seabrook Station Heliport
Hampton Airfield
Liberty Lane Heliport
Foss Heliport
Bentley Heliport
Exeter Hospital Heliport
Stumpfield Heliport
Lake Gardner Seaplane Base
Great Meadows
The Gove
Frying Pan Hill
Cock Hill
Munt Hill
Wolf Hill
Coffin Hill
Car Barn Hill
Pride Hill
Keene Hill
Brumley Hill
Rollins Hill
Rocky Ledge
Cottage Hill
Horse Hill
Newfound Hill
Towle Hill
Palmer Hill
Hog Hill
Indian Ground Hill
Eaton Hill
Chair Hill
Kinney Hill
Grape Hill
Batt Hill
Mundy Hill
Powwow Hill
Whittier Hill
Powder House Hill
Sawyers Hill
Ring Hill
Weymouth Hill
Gove Hill
Shaws Hill
Round Hill
Meetinghouse Hill
Hoosac Hill
N
0
8,000
US Feet


Legend

Watershed Boundary

Seabrook-Hampton 15904
Seabrook and Hampton,
New Hampshire

Attachment 10
Watershed Map

FHI studio

Map Produced: 10/26/2022

Data Source: FHI, USGS, ESRI

Attachment 11

Stream Crossing Worksheet

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

WETLANDS PERMIT APPLICATION
STREAM CROSSING WORKSHEET
Water Division/Land Resources Management
Wetlands Bureau

RSA/Rule RSA 482-A/ Env-Wt-900

This worksheet can be used to accompany Wetlands Permit Applications when proposing stream crossings.

SECTION 1 - TIER CLASSIFICATIONS

Determine the contributing watershed size at USGS StreamStats.

Note: Plans for tier 2 and 3 crossings shall be designed and stamped by a professional engineer who is licensed under RSA 310-A to practice in New Hampshire.

Size of contributing watershed at the crossing location: 29,024 acres

☐ **Tier 1**: A tier 1 stream crossing is a crossing located on a watercourse where the contributing watershed size is less than or equal to 200 acres.

☐ **Tier 2**: A tier 2 stream crossing is a crossing located on a watercourse where the contributing watershed size is greater than 200 acres and less than 640 acres.

☐ **Tier 3**: A tier 3 stream crossing is a crossing that meets **any** of the following criteria:

- ☐ On a watercourse where the contributing watershed is more than 640 acres.
- ☐ Within a designated river corridor unless:
  a. The crossing would be a tier 1 stream based on contributing watershed size, or
  b. The structure does not create a direct surface water connection to the designated river as depicted on the national hydrography dataset as found on GRANIT.
- ☐ Within a 100-year floodplain (see Section 2 below).
- ☐ In a jurisdictional area having any protected species or habitat (NHB DataCheck).
- ☐ In a prime wetland or within a duly-established 100-foot buffer, unless a waiver has been granted pursuant to RSA 482-A:11, IV(b) and Env-Wt 706. Review the Wetlands Permit Planning Tool (WPPT) for town prime wetland and prime wetland buffer maps to determine if your project is within these areas.

☒ **Tier 4**: A tier 4 stream crossing is a crossing located on a tidal watercourse.

SECTION 2 - 100-YEAR FLOODPLAIN

Use the FEMA Map Service Center to determine if the crossing is located within a 100-year floodplain. Please answer the questions below:

☐ **No**: The proposed stream crossing *is not* within the FEMA 100-year floodplain.

☒ **Yes**: The proposed project *is* within the FEMA 100-year floodplain. Zone = AE west of bridge, VE east of bridge

Elevation of the 100-year floodplain at the inlet: AE BFE=9',VE BFE=14' feet (FEMA El. or Modeled El.)

SECTION 3 - CALCULATING PEAK DISCHARGE

Existing 100-year peak discharge (Q) calculated in cubic feet per second (CFS): 112,250 CFS	Calculation method: Numerical model
Estimated bankfull discharge at the crossing location: 33,400 CFS	Calculation method: Numerical model

⟶ ***Note: If tier 1, then skip to Section 10*** ⟵

SECTION 4 - PREDICTED CHANNEL GEOMETRY BASED ON REGIONAL HYDRAULIC CURVES *For **tier 2**, **tier 3** and **tier 4** crossings only.*	
Bankfull Width: 1,190 feet	Mean Bankfull Depth: 18.2 feet
Bankfull Cross Sectional Area: 21,950 square feet (SF)	

SECTION 5 - CROSS SECTIONAL CHANNEL GEOMETRY: MEASUREMENTS OF THE EXISTING STREAM WITHIN A REFERENCE REACH *For **tier 2**, **tier 3** and **tier 4** crossings only.*
Describe the reference reach location: Proposed bridge allignment
Reference reach watershed size: 29,024 acres

Parameter	**Cross Section 1** Describe bed form Existing Channel (*e.g. pool, riffle, glide*)	**Cross Section 2** Describe bed form (*e.g. pool, riffle, glide*)	**Cross Section 3** Describe bed form (*e.g. pool, riffle, glide*)	**Range**
Bankfull Width	1,190 feet	feet	feet	feet
Bankfull Cross Sectional Area	21,950 SF	SF	SF	SF
Mean Bankfull Depth	18.2 feet	feet	feet	feet
Width to Depth Ratio	65.4			
Max Bankfull Depth	33.2 feet	feet	feet	feet
Flood Prone Width	N/A feet	feet	feet	feet
Entrenchment Ratio	N/A (2.2+)			

*Use **Figure 1** below to determine the measurements of the Reference Reach Attributes*

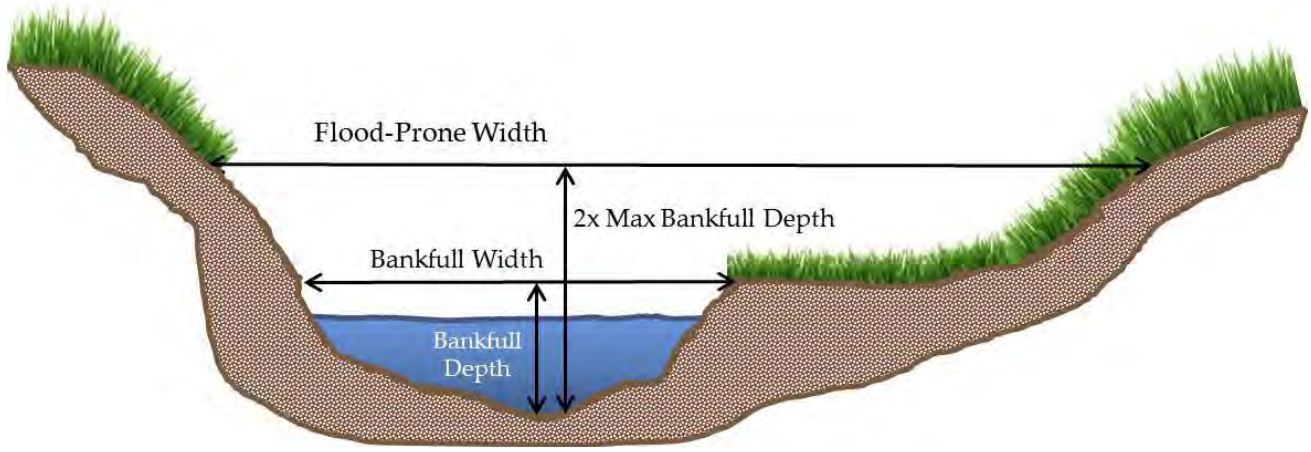


Figure 1: Determining the Reference Reach Attributes.

SECTION 6 - LONGITUDINAL PARAMETERS OF THE REFERENCE REACH AND CROSSING LOCATION *For **tier 2**, **tier 3** and **tier 4** crossings only.*
Average Channel Slope of the Reference Reach: N/A
Average Channel Slope at the Crossing Location: 0.00

SECTION 7 - PLAN VIEW GEOMETRY Note: Sinuosity is measured a distance of at least 20 times bankfull width, or 2 meander belt widths. *For **tier 2**, **tier 3** and **tier 4** crossings only.*
Sinuosity of the Reference Reach: N/A
Sinuosity of the Crossing Location: 1.06

SECTION 8 - SUBSTRATE CLASSIFICATION BASED ON FIELD OBSERVATIONS *For **tier 2, tier 3** and **tier 4** crossings only.*	
% of reach that is bedrock:	%
% of reach that is boulder:	**5** %
% of reach that is cobble:	**10** %
% of reach that is gravel:	%
% of reach that is sand:	**85** %
% of reach that is silt:	%
SECTION 9 - STREAM TYPE OF REFERENCE REACH *For **tier 2, tier 3** and **tier 4** crossings only.*	
Stream Type of Reference Reach:	C5

*Refer to Rosgen Classification Chart (**Figure 2**) below:*

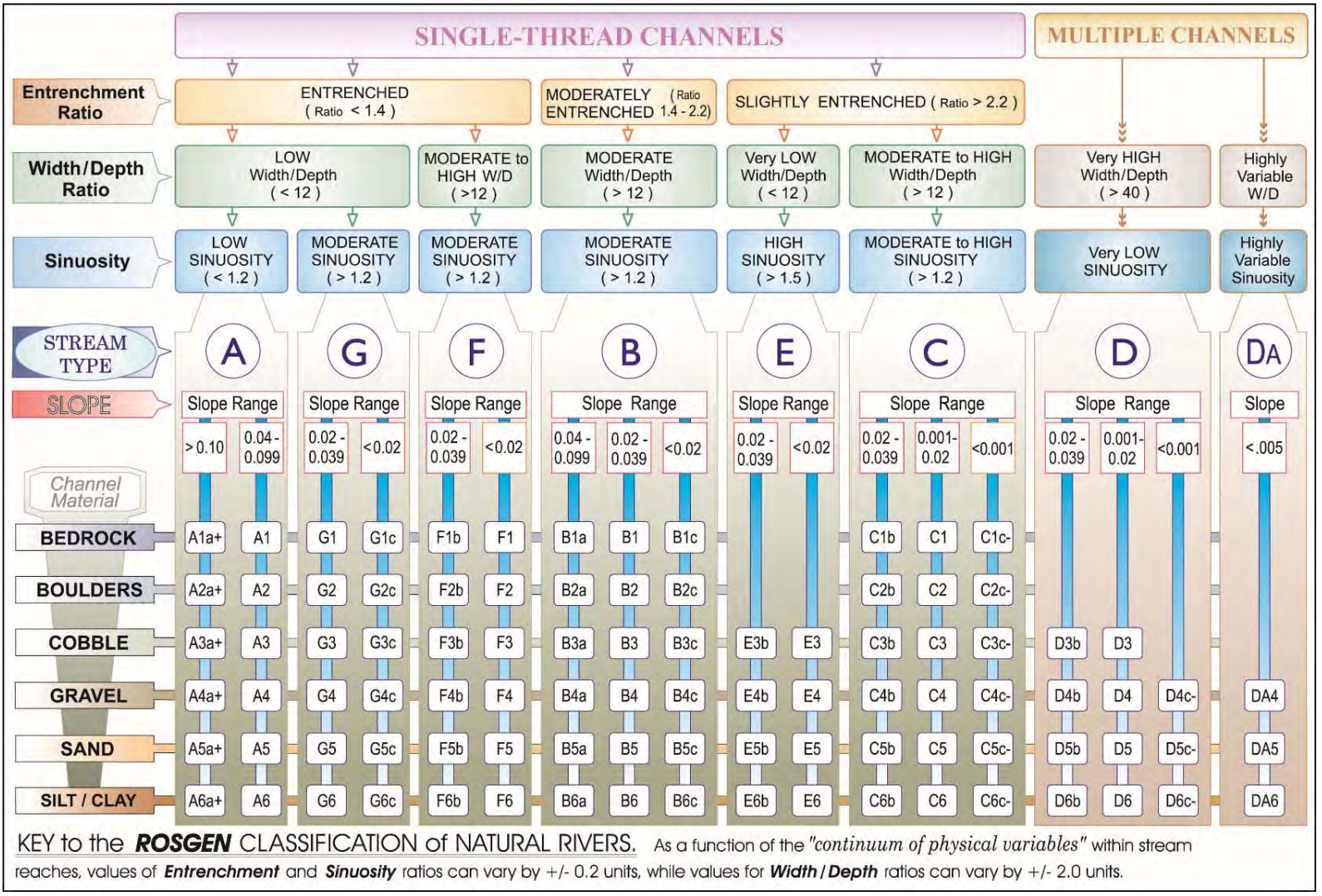


Figure 2: Reference from Applied River Morphology, Rosgen, 1996.

SECTION 10 - CROSSING STRUCTURE METRICS

Existing Conditions

Existing Structure Type:
- ☒ Bridge span
- ☐ Pipe arch
- ☐ Open-bottom culvert
- ☐ Closed-bottom culvert
- ☐ Closed-bottom culvert with stream simulation
- ☐ Other:

Existing Crossing Span: *(perpendicular to flow)* 1,200 feet	**Culvert Diameter:** N/A feet **Inlet Elevation:** El. N/A feet
Existing Crossing Length: *(parallel to flow)* 33 feet	**Outlet Elevation:** El. N/A feet **Culvert Slope:** N/A

Proposed Conditions

Proposed Structure Type:	**Tier 1**	**Tier 2**	**Tier 3**	**Alternative Design**
Bridge Span	☐	☐	☐	☐
Pipe Arch	☐	☐		☐
Closed-bottom Culvert	☐	☐		☐
Open-bottom Culvert	☐	☐	☐	☐
Closed-bottom Culvert with stream simulation	☐	☐	☐	☐

Proposed Structure Span: 1,300 feet *(perpendicular to flow)*	**Culvert Diameter:** N/A feet **Inlet Elevation:** El. N/A feet
Proposed Structure Length: 53 feet *(parallel to flow)*	**Outlet Elevation:** El. N/A feet **Culvert Slope:** N/A

Proposed Entrenchment Ratio:* N/A (2.2+)

*For **Tier 2**, **Tier 3** and **Tier 4** Crossings Only. To accommodate the entrenchment ratio, floodplain drainage structures may be utilized.*

** Note: Proposed Entrenchment Ratio must meet the minimum ratio for each stream type listed in **Figure 3**, otherwise the applicant must address the Alternative Design criteria listed in Env-Wt 904.10.*

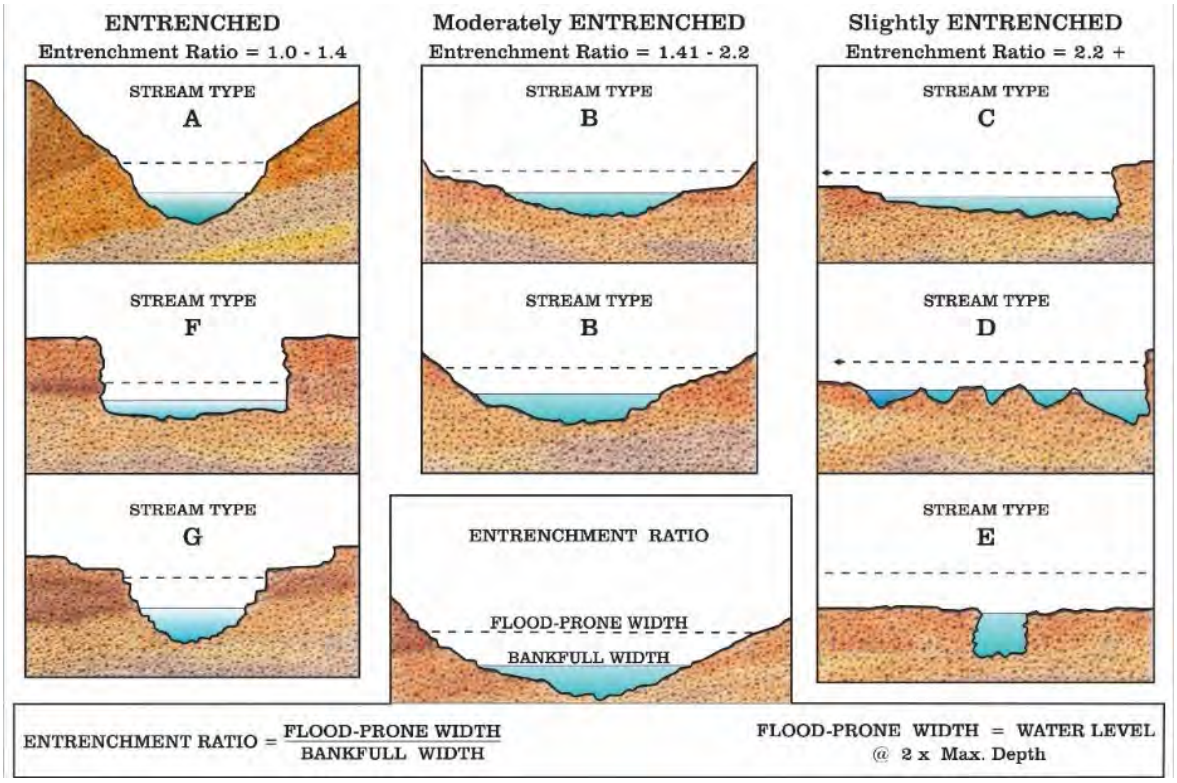


Figure 3: Reference from Applied River Morphology, Rosgen, 1996.

SECTION 11 - CROSSING STRUCTURE HYDRAULICS		
	Existing	**Proposed**
100 year flood stage elevation at inlet:	+8.4 ft NAVD	+8.4 ft NAVD
Flow velocity at outlet in feet per second (FPS):	8.0	8.0
Calculated 100 year peak discharge (Q) for the *proposed* structure in CFS:		112,250
Calculated 50 year peak discharge (Q) for the *proposed* structure in CFS:		109,500

SECTION 12 - CROSSING STRUCTURE OPENNESS RATIO

*For **tier 2**, **tier 3** and **tier 4** crossings only.*

Crossing Structure Openness Ratio* = NA

* Openness box culvert = (height x width)/length
  Openness round culvert = (3.14 x radius^2)/length

SECTION 13 - GENERAL DESIGN CONSIDERATIONS

Env-Wt 904.01 requires all stream crossings to be designed and constructed according to the following requirements. Check each box if the project meets these general design considerations.

All stream crossings shall be designed and constructed so as to:

☒ Not be a barrier to sediment transport.

☒ Prevent the restriction of high flows and maintain existing low flows.

☒ Not obstruct or otherwise substantially disrupt the movement of aquatic life indigenous to the waterbody beyond the actual duration of construction.

☒ Not cause an increase in the frequency of flooding or overtopping of banks.

☒ Maintain or enhance geomorphic compatibility by:

a. Minimizing the potential for inlet obstruction by sediment, wood, or debris, and

b. Preserving the natural alignment of the stream channel.

☒ Preserve watercourse connectivity where it currently exists.

☒ Restore watercourse connectivity where:

a. Connectivity previously was disrupted as a result of human activity(ies), and

b. Restoration of connectivity will benefit aquatic life upstream or downstream of the crossing, or both.

☒ Not cause erosion, aggradation, or scouring upstream or downstream of the crossing.

☒ Not cause water quality degradation.

SECTION 14 - TIER-SPECIFIC DESIGN CRITERIA

Stream crossings must be designed in accordance with the tier specific design criteria listed in Part Env-Wt 904.

☒ The proposed project meets the tier specific design criteria listed in Part Env-Wt 904 and each requirement has been addressed in the plans and as part of the wetland application.

SECTION 15 - ALTERNATIVE DESIGN

NOTE: If the proposed crossing does not meet all of the general design considerations, the tier specific design criteria, or the minimum entrenchment ratio for each given stream type listed in **Figure 3**, then an alternative design plan and associated requirements must be addressed pursuant to Env-Wt 904.10.

☐ I have submitted an alternative design and addressed each requirement listed in Env-Wt 904.10.

Attachment 12

NH Natural Heritage Bureau Response

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

Memo

NH Natural Heritage Bureau
NHB DataCheck Results Letter

Please note: portions of this document are confidential.
Maps and NHB record pages are confidential and should be redacted from public documents.

To: Stephanie Dyer-Carroll, FHI Studio
416 Asylum Street
Hartford, CT 06103

From: NHB Review, NH Natural Heritage Bureau
Date: 8/3/2022 (valid until 08/03/2023)
Re: Review by NH Natural Heritage Bureau
Permits: NHDES - Shoreland Standard Permit, NHDES - Wetland Standard Dredge & Fill - Major, USACE - General Permit, USCEQ - Federal: NEPA Review, USEPA - Stormwater Pollution Prevention

NHB ID: **NHB22-2450** Town: Hampton and Seabrook Location: New Hampshire Route 1A Bridge Over the Hampton River (Neil R. Underwood Bridge)

Description: The project entails the replacement of the Neil R. Underwood Bridge and associated roadway improvements (NHDOT No. 235/025). An environmental assessment has been prepared for the project and permits are underway. The last DataCheck for the project was submitted in December 2020 (NHB20-3664); resubmitting due to the passage of time.

cc: NHFG Review

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments **NHB: Please continue to coordinate with NHB to address rare species and exemplary natural community impacts.**
F&G: Please refer to NHFG consultation requirements below.

Natural Community	State[1]	Federal	Notes
Beach grass grassland	--	--	Dune communities are sensitive to trampling or recreational use that harms the vegetation, since plants growing in the sand serve a critical function in anchoring it in place.
Intertidal flat*	--	--	
Subtidal system	--	--	Threats to these communities are primarily alterations to the hydrology of the wetland (such as alterations that might affect the sheet flow of tidal waters across the intertidal

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Maps and NHB record pages are confidential and should be redacted from public documents.

flat) and increased input of nutrients and pollutants in storm runoff.

Plant species	**State[1]**	**Federal**	**Notes**
field wormwood (*Artemisia campestris ssp. caudata*)	E	--	This species grows in dry dune systems and is sensitive to disturbances that eliminate its habitat or disturb the natural dynamics of the dune area.
Gray's umbrella sedge (*Cyperus grayi*)	E	--	This species grows in sandplains and disturbed openings, and is sensitive to disturbances that eliminate its habitat.
hairy hudsonia (*Hudsonia tomentosa*)	T	--	This species requires periodic disturbance to its habitat (disturbed openings, river and streambanks). However, existing plants are very sensitive to trampling when growing on open sand.
long-spined sandbur (*Cenchrus longispinus*)	E	--	This species grows in sandplains and disturbed openings, and is sensitive to disturbances that eliminate its habitat.
sand dropseed (*Sporobolus cryptandrus*)*	E	--	This species grows in dry dune systems and is sensitive to disturbances that eliminate its habitat or disturb the natural dynamics of the dune area.
seaside threeawn (*Aristida tuberculosa*)	E	--	This species grows in dry dune systems and is sensitive to disturbances that eliminate its habitat or disturb the natural dynamics of the dune area.

Vertebrate species	**State[1]**	**Federal**	**Notes**
Least Tern (*Sterna antillarum*)	E	--	Contact the NH Fish & Game Dept (see below).
Piping Plover (*Charadrius melodus*)	E	T	Contact the NH Fish & Game Dept and the US Fish & Wildlife Service (see below).
Purple Martin (*Progne subis*)	T	--	Contact the NH Fish & Game Dept (see below).

[1]Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

For all animal reviews, refer to 'IMPORTANT: NHFG Consultation' section below.

Disclaimer: A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

IMPORTANT: NHFG Consultation

If this NHB Datacheck letter DOES NOT include ANY wildlife species records, then, based on the information submitted, no further consultation with the NH

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

Memo

NH Natural Heritage Bureau
NHB DataCheck Results Letter

Please note: portions of this document are confidential.
Maps and NHB record pages are confidential and should be redacted from public documents.

Fish and Game Department pursuant to Fis 1004 is required.

If this NHB Datacheck letter includes a record for a threatened (T) or endangered (E) wildlife species, consultation with the New Hampshire Fish and Game Department under Fis 1004 may be required. To review the Fis 1000 rules (effective February 3, 2022), please go to https://wildlife.state.nh.us/wildlife/environmental-review.html. All requests for consultation and submittals should be sent via email to NHFGreview@wildlife.nh.gov or can be sent by mail, and **must include the NHB Datacheck results letter number and "Fis 1004 consultation request" in the subject line.**

If the NHB DataCheck response letter does not include a threatened or endangered wildlife species but includes other wildlife species (e.g., Species of Special Concern), consultation under Fis 1004 is not required; however, some species are protected under other state laws or rules, so coordination with NH Fish & Game is highly recommended or may be required for certain permits. While some permitting processes are exempt from required consultation under Fis 1004 (e.g., *statutory permit by notification, permit by rule, permit by notification, routine roadway registration, docking structure registration, or conditional authorization by rule)*, coordination with NH Fish & Game may still be required under the rules governing those specific permitting processes, and it is recommended you contact the applicable permitting agency. For projects not requiring consultation under Fis 1004, but where additional coordination with NH Fish and Game is requested, please email: Kim Tuttle *kim.tuttle@wildlife.nh.gov* with a copy to NHFGreview@wildlife.nh.gov, and include the NHB Datacheck results letter number and "review request" in the email subject line.

Contact NH Fish & Game at (603) 271-0467 with questions.

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

Attachment 13

NH Natural Heritage Bureau/ NH Fish & Game Correspondence

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

From: Lamb, Amy
To: Stephanie Dyer-Carroll
Cc: Dan Hageman; Laurin, Marc; Reczek, Jennifer
Subject: RE: Seabrook-Hampton -- NR Agency Meeting follow up
Date: Monday, August 8, 2022 1:40:34 PM
Attachments: image001.png

Hi Stephanie,

Thank you for following up and providing this email correspondence from eelgrass expert Fred Short, indicating that there is no eelgrass within the proposed project area, nor has there been any for the many years that Fred has been surveying the species.

NHB has no additional comments or concerns regarding eelgrass for this project.

~Amy

Amy Lamb
Data Manager
Natural Heritage Bureau
Department of Natural and Cultural Resources
172 Pembroke Rd.
Concord, NH 03301

(603) 271-2823

NHB DataCheck Tool

From: Stephanie Dyer-Carroll <sdyer-carroll@fhistudio.com>
Sent: Friday, August 5, 2022 5:25 PM
To: Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>
Cc: Dan Hageman <dhageman@fhistudio.com>; Laurin, Marc <marc.g.laurin@dot.nh.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>
Subject: Seabrook-Hampton -- NR Agency Meeting follow up

Hi Amy,

I'm following up on your request for documentation of our communication with Fred Short regarding the Seabrook-Hampton Bridge project. Fred indicated in the attached email that there wasn't any potential for eelgrass in the project area.

Let us know if you have questions or want to discuss further.

Thanks, and have a good weekend.

Stephanie Dyer-Carroll, AICP
Director of Environmental Services
sdyer-carroll@fhistudio.com | 860-402-6038
fhistudio.com

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From:	SeagrassNet
To:	Dan Hageman
Cc:	Fred Short; Stephanie Dyer-Carroll; Laurin, Marc; Murphy, James F.; Reczek, Jennifer
Subject:	Re: Eelgrass data
Date:	Wednesday, September 5, 2018 10:31:47 AM

Dear Dan,

I have surveyed eelgrass in New Hampshire for 35 years and I can assure you that there is no eelgrass and has not been any eelgrass growing within the Project Area of this Hampton Bridge Project.

Best,
Fred

On Sep 4, 2018, at 12:21 PM, Dan Hageman <DHageman@fhiplan.com> wrote:

Caution - External Email

Good morning Mr. Short,

I am currently working with the NHDOT on the Hampton Bridge Project in Seabrook and Hampton, NH (see attached project location map). We are in the process of preparing an Environmental Assessment under the National Environmental Policy Act to evaluate the rehabilitation or replacement of the bridge. As part of the project, we have been evaluating natural resources in the project area, including aquatic resources. We have reviewed the GIS data on the NH Granite website, which shows no eelgrass populations within the project area. To this end, I am contacting to you to ensure we have the most up-to-date information pertaining to this resource and to verify that no eelgrass populations occur within or near the project area. We would greatly appreciate any information you may have.

Please do not hesitate to contact me with any questions. Thanks in advance for your help.

Daniel Hageman, PSS, NHCWS
Project Manager, Associate
Dhageman@fhiplan.com / (860) 256-4917 / c (860) 383-3652

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<USGS_Overview_Map_AttachmentA-reduced.pdf>

From: Dan Hageman
To: Lamb, Amy
Cc: Stephanie Dyer-Carroll
Subject: RE: State-listed plant forms -- Seabrook-Hampton Bridge project
Date: Friday, September 23, 2022 4:06:55 PM

Hi Amy,

Just wanted to send you a quick note. It seems, based on GoBotany, that the listed ssp is the only one that is biennial. The non-listed ssp does not appear to be biennial. I did note that most of the plants we saw in the field were biennial, so maybe this is the only differentiator we need for now. Let me know what you think. Thanks

Dan

5. *Artemisia campestris* L. nC

Field wormwood. **5a.** *Artemisia campestris* L. var. *caudata* (Michx.) Palmer & Steyermark; *A. caudata* Michx.; *A. caudata* Michx. var. *calvens* Lunell; *Oligosporus campestris* (L.) Cass. ssp. *caudatus* (Michx.) W.A. Weber; *O. caudatus* Poljakov; **5b.** *Artemisia campestris* L. var. *canadensis* (Michx.) Welsh; *A. canadensis* Michx.; **5c.** *Oligosporus campestris* (L.) Cass. • CT, MA, ME, nh, ri, VT. Beaches, dunes, sandy areas on the coastal plain, cliffs, talus, river shore ledges, ridges.

1a. Plants biennial from a taproot, usually with a solitary stem; disk corollas 1.4–2 (–2.2) mm long; native plants of coastal plain sand and gravel (rarely of inland cliffs and outcrops) 1 SEP … **5a. *A. campestris* ssp. *caudata*** (Michx.) Hall & Clements
1b. Plants perennial from a branching caudex, usually with multiple reproductive stems; disk corollas (1.8–) 2–3 mm long; native plants of rocky substrate or introduced plants of the Atlantic coastal plain
2a. Capitula with (21–) 23–45 flowers; involucre 3.5–5 mm wide; native plants of northern New England cliffs, talus, and river shore ledges 1 SEP … **5b. *A. campestris* ssp. *canadensis*** (Michx.) Scoggan
2b. Capitula with 10–22 (–28) flowers; involucre 1.8–2.9 mm wide; rare introduction in southern New England … **5c. *A. campestris* ssp. *campestris***

From: Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>
Sent: Thursday, September 1, 2022 2:57 PM
To: Dan Hageman <dhageman@fhistudio.com>
Cc: Stephanie Dyer-Carroll <sdyer-carroll@fhistudio.com>
Subject: RE: State-listed plant forms -- Seabrook-Hampton Bridge project

Hi Dan,

Thank you for completing the rare plant surveys last week, and thank you for the update about the rare plant population boundary changes.

NHB's environmental reviewer position is currently vacant. We will be interviewing candidates during the week of September 5, and possibly the week of September 12 as well. I will tentatively say yes to an afternoon meeting on September 14, but will let you know next week if that needs to change.

I have not received a response from Alyson Eberhardt to my last email. I requested her input on potential

transplant locations; she had mentioned possibly transplanting into in the unwanted trails that people make in the dune system on the west side of 1A, in order to help deter foot traffic and revegetate those areas. I can call her before the site walk and invite her to join us on the 14th.

~Amy

Amy Lamb
Data Manager
Natural Heritage Bureau
Department of Natural and Cultural Resources
172 Pembroke Rd.
Concord, NH 03301

(603) 271-2823

NHB DataCheck Tool

From: Dan Hageman <dhageman@fhistudio.com>
Sent: Thursday, September 1, 2022 10:06 AM
To: Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>
Cc: Stephanie Dyer-Carroll <sdyer-carroll@fhistudio.com>
Subject: RE: State-listed plant forms -- Seabrook-Hampton Bridge project

---

Hi Amy,

We have completed our field work for the site and would like to schedule a site walk with you to review the populations. Although we did not find any new species, several of the existing listed species sub-population boundaries changed. We are considering the afternoon of September 14th for a site walk; please let us know if this time would work for you.

Also, you had mentioned that Alyson Eberhardt had indicated she had a potential mitigation opportunity for listed plant species transplant areas. Have you had a chance to coordinate with her on this? It may be a good opportunity to ask Alyson to join us on our site walk to discuss potential mitigation; let us know if you'd like to invite her as well. Thanks!

Dan

From: Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>
Sent: Friday, August 26, 2022 2:26 PM
To: Dan Hageman <dhageman@fhistudio.com>
Subject: RE: State-listed plant forms -- Seabrook-Hampton Bridge project

Hi Dan,

Thanks for the call just now.

Attached is a document that contains NHB collecting guidelines, and it does specify pressed and dried material. However, I will say that if you communicate with us and arrange a drop-off of a fresh specimen when someone is

in the office to receive it, that is also fine.

I just wanted to pass on this more formal document for you to have something in writing rather than just verbally. Thank you,

~Amy

Amy Lamb
Data Manager
Natural Heritage Bureau
Department of Natural and Cultural Resources
172 Pembroke Rd.
Concord, NH 03301

(603) 271-2823

NHB DataCheck Tool

From: Dan Hageman <dhageman@fhistudio.com>
Sent: Friday, August 26, 2022 1:38 PM
To: Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>
Cc: Stephanie Dyer-Carroll <sdyer-carroll@fhistudio.com>
Subject: RE: State-listed plant forms -- Seabrook-Hampton Bridge project
Importance: High

Hi Amy,

I left you a voicemail a little while ago. If you are able, please try to call me back today so we can discuss the survey next Monday and Tuesday. We would like to go to the site only once if possible, so if late August is not optimal, then lets try to reschedule to a time that works for you all. Thanks

Dan

From: Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>
Sent: Friday, August 26, 2022 12:34 PM
To: Dan Hageman <dhageman@fhistudio.com>
Cc: Stephanie Dyer-Carroll <sdyer-carroll@fhistudio.com>; Laurin, Marc <marc.g.laurin@dot.nh.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Susan Bemis <sbemis@fhistudio.com>; DNCR: NHB Review <nhbreview@dncr.nh.gov>; Caron, Nicholas <Nicholas.Caron@hdrinc.com>
Subject: RE: State-listed plant forms -- Seabrook-Hampton Bridge project

Hello Dan,

Thank you very much for sending the proposed 2022 rare plant survey protocols for the Seabrook-Hampton Bridge replacement project. NHB comments are as follows.

Pg. 1: "No field investigations will be conducted more than 20 feet beyond the project area limits, since the NHNHB asked that botanists minimize or avoid walking through the sensitive dune

habitat." Comment: On 6/27/22 we discussed that you might map some of the trails and thin/bare spots within the greater dune system to identify transplant areas. Will this still occur?

Pg. 2: "Based on coordination with the NHNHB, field work will be conducted in late August of 2022." Comment: Some of the species to be surveyed may not be mature until early September (*Aristida tuberculosa, Sporobolus cryptandrus)*, so if some species are found to be immature during the first late-August site visit, please postpone the second visit until the first or second week of September.

Pg. 2: Comment on species to be included in survey: Although the project area was previously surveyed in 2018, please remember that the following species have also been documented in the vicinity. NHB recognizes that it is unlikely that most of these species will be found due to the wetland indicator status and/or the age of the records. However, please report to NHB if any of the following species are found in the project area in 2022:

seaside-sandwort (Honckenya peploides ssp. robusta, SX) In NHB18-2036
drum-heads milkwort (Polygala cruciata ssp. aquilonia, SH) [wetland species]
stout dotted smartweed (Persicaria robustior, E) [wetland species]
dwarf glasswort (Salicornia bigelovii, E) In NHB18-2036 [wetland species]
American lyme grass (Leymus mollis ssp. mollis, E)
long-spined sandbur (Cenchrus longispinus, E) In NHB18-2036
saltmarsh agalinis (Agalinis maritima ssp. maritima, T) [wetland species]

Pg. 3: "No voucher specimens of listed plant species will be taken." **Comment: Collecting a voucher specimen is okay if a new species is documented and there are over 100 individuals. For verifying specimens of species previously reported in the area that have difficult ID characteristics (*Cyperus grayi*, *Artemisia campestris* ssp. *caudata)*, please take close-up, high-quality photos of key characteristics (most modern smartphones do this sufficiently).**

Thank you very much for the opportunity to review and comment.

Best,

~Amy

Amy Lamb
Data Manager
Natural Heritage Bureau
Department of Natural and Cultural Resources
172 Pembroke Rd.
Concord, NH 03301

(603) 271-2823

NHB DataCheck Tool

From: Dan Hageman <dhageman@fhistudio.com>
Sent: Wednesday, August 24, 2022 1:34 PM
To: Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>
Subject: FW: State-listed plant forms -- Seabrook-Hampton Bridge project

Hi Amy,

Just checking in to see if you have any comments on the protocols. We are planning to do the field work this coming Monday and Tuesday (August 29-30) and want to be sure you are good with what we are proposing. It generally is very similar to what we did last time. Thanks!

Daniel Hageman, NHCWS
Senior Environmental Scientist/Associate
Dhageman@fhistudio.com | 860-256-4917
fhistudio.com

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From: Dan Hageman
Sent: Thursday, August 18, 2022 2:53 PM
To: 'Lamb, Amy' <Amy.E.Lamb@dncr.nh.gov>; Stephanie Dyer-Carroll <sdyer-carroll@fhistudio.com>
Cc: Laurin, Marc <marc.g.laurin@dot.nh.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Susan Bemis <sbemis@fhistudio.com>; DNCR: NHB Review <nhbreview@dncr.nh.gov>; Caron, Nicholas <Nicholas.Caron@hdrinc.com>
Subject: RE: State-listed plant forms -- Seabrook-Hampton Bridge project

Hi Amy,

As discussed in our meeting, here are the listed plant survey protocols for you review and approval. If there are any questions or comments, just let us know. Thanks!

Daniel Hageman, NHCWS
Senior Environmental Scientist/Associate
Dhageman@fhistudio.com | 860-256-4917
fhistudio.com

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From: Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>
Sent: Tuesday, July 5, 2022 2:12 PM
To: Dan Hageman <dhageman@fhistudio.com>; Stephanie Dyer-Carroll <sdyer-carroll@fhistudio.com>
Cc: Laurin, Marc <marc.g.laurin@dot.nh.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Murdzia, Daniel <Daniel.Murdzia@hdrinc.com>; Susan Bemis <sbemis@fhistudio.com>; DNCR: NHB Review <nhbreview@dncr.nh.gov>
Subject: RE: State-listed plant forms -- Seabrook-Hampton Bridge project

Hello all,

Thank you for the call last week. I would like to report on a couple of my follow-ups from the meeting. I also wanted to follow up with some additional information that NH State Botanist Bill Nichols has requested for the 2022 surveys. He reviewed the 2018 reporting forms that you sent over recently, and provided the following feedback for two species:

Artemisia campestris ssp. *caudata*
Though verified based on Photos, Known EO, Habitat, stem habit, and unlikelihood of either of the other two subspecies occurring in NH, **please confirm in 2022 based on stems being usually solitary and disk corollas being 1.4–2 (–2.2) mm long (vs. usually with multiple reproductive stems and disk corollas (1.8–) 2–3 mm long).**

Cyperus grayi
Though confirmed based on Photos, Known EO, Habitat, smooth or weakly scabrous-margined, ascending to sometimes spreading-ascending involucral bracts, and inflorescence with (2–) 4–10 elongate rays, **please confirm in 2022 that the rachilla are broadly wing-margined (vs. rachilla sharp-edged to narrowly winged).**

The other two follow-ups I wanted to address are:

- **How long before the next NH Rare Plant List revision?**
  - Will not be revised before 2024
- **Amy check for new species in the project vicinity.**
  - No new plants. Old records in the vicinity are as follows. SX = State Extirpated; SH = State Historical (not observed in NH within last 20 years)
    - seaside-sandwort (Honckenya peploides ssp. robusta, SX) **In NHB18-2036**
    - drum-heads milkwort (Polygala cruciata ssp. aquilonia, SH)
    - stout dotted smartweed (Persicaria robustior, E)
    - dwarf glasswort (Salicornia bigelovii, E) **In NHB18-2036**
    - American lyme grass (Leymus mollis ssp. mollis, E)
    - long-spined sandbur (Cenchrus longispinus, E) **In NHB18-2036**
    - saltmarsh agalinis (Agalinis maritima ssp. maritima, T)
  - Wildlife records: new nesting locations (2021) of Least Tern, within previously mapped Piping Plover area northeast of bridge.

I have not touched base yet with Alyson Eberhardt regarding potential transplant areas, but will relay any information from her as soon as I get any feedback.

Please let me know if you have any questions or if there is anything else.

Best,

~Amy

Amy Lamb
Data Manager
Natural Heritage Bureau
Department of Natural and Cultural Resources
172 Pembroke Rd.
Concord, NH 03301

(603) 271-2823

NHB DataCheck Tool

From: Lamb, Amy
Sent: Monday, June 27, 2022 10:57 AM
To: Dan Hageman <dhageman@fhistudio.com>; Stephanie Dyer-Carroll <sdyer-carroll@fhistudio.com>
Cc: Laurin, Marc <marc.g.laurin@dot.nh.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Murdzia, Daniel <Daniel.Murdzia@hdrinc.com>; Bouchard, Jessica <Jessica.R.Bouchard@dncr.nh.gov>; Susan Bemis <sbemis@fhistudio.com>
Subject: RE: State-listed plant forms -- Seabrook-Hampton Bridge project

Hi Dan,

Sounds good, see you then.

Amy Lamb
Data Manager
(603) 271-2823
amy.e.lamb@dncr.nh.gov

Natural Heritage Bureau
Division of Forests & Lands
NH Dept. of Natural & Cultural Resources
172 Pembroke Rd
Concord, NH 03301

NHB DataCheck Tool

From: Dan Hageman <dhageman@fhistudio.com>
Sent: Monday, June 27, 2022 7:19 AM
To: Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>; Stephanie Dyer-Carroll <sdyer-carroll@fhistudio.com>
Cc: Laurin, Marc <marc.g.laurin@dot.nh.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Murdzia, Daniel <Daniel.Murdzia@hdrinc.com>; Bouchard, Jessica <Jessica.R.Bouchard@dncr.nh.gov>; Susan Bemis <sbemis@fhistudio.com>
Subject: RE: State-listed plant forms -- Seabrook-Hampton Bridge project

---

Hi Amy,

Lets meet at 3PM today. I will send an invite.

Dan

From: Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>
Sent: Friday, June 24, 2022 3:53 PM
To: Dan Hageman <dhageman@fhistudio.com>; Stephanie Dyer-Carroll <sdyer-carroll@fhistudio.com>
Cc: Laurin, Marc <marc.g.laurin@dot.nh.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Murdzia, Daniel <Daniel.Murdzia@hdrinc.com>; Bouchard, Jessica <Jessica.R.Bouchard@dncr.nh.gov>; Susan Bemis <sbemis@fhistudio.com>

Subject: RE: State-listed plant forms -- Seabrook-Hampton Bridge project

Hi Dan,

I can do Monday afternoon 2-4.

Amy Lamb
Data Manager
(603) 271-2823
amy.e.lamb@dncr.nh.gov

Natural Heritage Bureau
Division of Forests & Lands
NH Dept. of Natural & Cultural Resources
172 Pembroke Rd
Concord, NH 03301

NHB DataCheck Tool

From: Dan Hageman <dhageman@fhistudio.com>
Sent: Friday, June 24, 2022 10:25 AM
To: Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>; Stephanie Dyer-Carroll <sdyer-carroll@fhistudio.com>
Cc: Laurin, Marc <marc.g.laurin@dot.nh.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Murdzia, Daniel <Daniel.Murdzia@hdrinc.com>; Bouchard, Jessica <Jessica.R.Bouchard@dncr.nh.gov>; Susan Bemis <sbemis@fhistudio.com>
Subject: RE: State-listed plant forms -- Seabrook-Hampton Bridge project

---

Hi Amy,

Do any of these times work for you next week?

- Monday morning 9-12
- Monday afternoon 2-4
- Tuesday afternoon 2-4

Thanks

Daniel Hageman, NHCWS
Senior Environmental Scientist/Associate
Dhageman@fhistudio.com | 860-256-4917
fhistudio.com

From: Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>
Sent: Wednesday, June 22, 2022 9:22 AM
To: Stephanie Dyer-Carroll <sdyer-carroll@fhistudio.com>
Cc: Dan Hageman <dhageman@fhistudio.com>; Laurin, Marc <marc.g.laurin@dot.nh.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Murdzia, Daniel <Daniel.Murdzia@hdrinc.com>; Bouchard, Jessica <Jessica.R.Bouchard@dncr.nh.gov>; Susan Bemis <sbemis@fhistudio.com>
Subject: Re: State-listed plant forms -- Seabrook-Hampton Bridge project

Hi Dan/Stephanie,

I'm sorry but I am not able to make that time tomorrow. I can do later in the day (10-12, 1-4), or 8-9 on Friday, or the following week.

Thank you,
Amy

From: Stephanie Dyer-Carroll <sdyer-carroll@fhistudio.com>
Sent: Sunday, June 19, 2022 7:22:05 AM
To: Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>
Cc: Dan Hageman <dhageman@fhistudio.com>; Laurin, Marc <marc.g.laurin@dot.nh.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Murdzia, Daniel <Daniel.Murdzia@hdrinc.com>; Bouchard, Jessica <Jessica.R.Bouchard@dncr.nh.gov>; Susan Bemis <sbemis@fhistudio.com>
Subject: RE: State-listed plant forms -- Seabrook-Hampton Bridge project

Hi Amy,

I hope you've had a nice vacation!

I will be out on vacation through the 29th. In my absence, you can coordinate with Dan Hageman about scheduling a meeting to discuss the survey. If early on the 23rd doesn't work with your schedule, Dan can provide additional days/times the following week.

Thanks,

Stephanie Dyer-Carroll, AICP
Director of Environmental Services
sdyer-carroll@fhistudio.com | 860-402-6038
fhistudio.com

From: Stephanie Dyer-Carroll
Sent: Monday, June 13, 2022 9:08 AM
To: Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>
Cc: Dan Hageman <dhageman@fhistudio.com>; Laurin, Marc <marc.g.laurin@dot.nh.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Murdzia, Daniel <Daniel.Murdzia@hdrinc.com>; Bouchard, Jessica <Jessica.R.Bouchard@dncr.nh.gov>
Subject: RE: State-listed plant forms -- Seabrook-Hampton Bridge project

Hi Amy,

Would 8:30-9:30 work on June 23rd? If so, we'll send an invite.

Thanks,

Stephanie Dyer-Carroll, AICP
Director of Environmental Services
sdyer-carroll@fhistudio.com | 860-402-6038
fhistudio.com

From: Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>
Sent: Friday, June 10, 2022 10:22 AM
To: Stephanie Dyer-Carroll <sdyer-carroll@fhistudio.com>
Cc: Dan Hageman <dhageman@fhistudio.com>; Laurin, Marc <marc.g.laurin@dot.nh.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Murdzia, Daniel <Daniel.Murdzia@hdrinc.com>; Bouchard, Jessica <Jessica.R.Bouchard@dncr.nh.gov>
Subject: RE: State-listed plant forms -- Seabrook-Hampton Bridge project

Hi Stephanie,

Thank you very much for sending the rare plant forms. They all look great upon first review, and as they go through the data entry process, we will contact you with any follow-up questions as needed.

I am out of the office all of next week, so will not be available to meet until the week of June 20th, and unfortunately that week the only day I am available is Thursday the 23rd. Please let me know if you have any availability that day, and I will be happy to discuss anticipated survey timing, limits, and protocols.

Please let me know if there are any specific questions I should be prepared for ahead of time to facilitate the discussion, or if there are any major design changes that would substantially change the survey area.

Thank you,
Amy

From: Stephanie Dyer-Carroll <sdyer-carroll@fhistudio.com>

Sent: Wednesday, June 8, 2022 5:14 PM
To: Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>
Cc: Dan Hageman <dhageman@fhistudio.com>; Laurin, Marc <marc.g.laurin@dot.nh.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Murdzia, Daniel <Daniel.Murdzia@hdrinc.com>; Bouchard, Jessica <Jessica.R.Bouchard@dncr.nh.gov>
Subject: State-listed plant forms -- Seabrook-Hampton Bridge project

---

Hi Amy,

Please find attached the plant forms you requested. Let us know if you have any questions or edits.

We're now moving forward with the permitting phase of the project. Due to the passage of time, and the fact that some of the plants were relocated, we're planning to survey the site again. We'd like to discuss this effort with you, including anticipated timing, survey limits and protocols. Can you let me know if you have time for a call between 8:30-1:30 on Thursday (6/16) or 12:00-4:00 on Friday (6/17)? If so, I'll send a calendar invite. If you don't have availability within these windows, let me know and we can look at other days/times.

Thanks,

Stephanie Dyer-Carroll, AICP
Director of Environmental Services
sdyer-carroll@fhistudio.com | 860-402-6038
fhistudio.com

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From:	Lamb, Amy
To:	Dan Hageman; Alyson Eberhardt; Gregg.moore@unh.edu; Lucey, Kevin; Dionne, Michael
Cc:	Stephanie Dyer-Carroll; Laurin, Marc; Reczek, Jennifer; OSullivan, Andrew; Caron, Nicholas; Martin, Rebecca; Juliano, Robert; Lucey, Kevin
Subject:	RE: NHDOT Seabrook-Hampton 15904 - Listed Plant Species Mitigation
Date:	Wednesday, January 25, 2023 4:34:05 PM
Attachments:	image001.png

Hi Dan,

Thank you for providing the State Listed Plant Mitigation Framework and 11-10-22 meeting notes.

Overall NHB concurs with the proposed mitigation approach. I do have a few follow-up questions/comments for you.

Please include NHB in any coordination with the Native Plant Trust regarding seed storage. NHB highly encourages exploring seed collection as a contingency plan in addition to the proposed transplant strategy.

Is NHDOT still planning to coordinate with NH Sea Grant on growing out collected seed? NHB encourages exploring this as a contingency plan in addition to the proposed transplant strategy.

Are there further updates regarding excavation and retention of American beach grass? NHB highly recommends reuse of this material, either for NH Sea Grant projects, or for re-establishment on slopes within project area. This species is valuable for restoration, rapidly colonizes sand, and is not a listed species, therefore would not be an issue if it could be subject to future disturbance.

Do you have any updates to share on the wetland / dune impact mitigation strategy?

When may NHB expect to receive a more detailed mitigation plan including sand/substrate harvesting depths, transplanting plans, and additional details such as a seed collection and storage plan?

Thank you very much,

~Amy

Amy Lamb
Data Manager
Natural Heritage Bureau
Department of Natural and Cultural Resources
172 Pembroke Rd.
Concord, NH 03301

(603) 271-2823

NHB DataCheck Tool

From: Dan Hageman <dhageman@fhistudio.com>
Sent: Thursday, January 12, 2023 5:03 PM
To: Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>; Alyson Eberhardt <Alyson.Eberhardt@unh.edu>; Gregg.moore@unh.edu; Lucey, Kevin <kevin.lucey@des.nh.gov>; Dionne, Michael <michael.a.dionne@wildlife.nh.gov>
Cc: Stephanie Dyer-Carroll <sdyer-carroll@fhistudio.com>; Laurin, Marc <marc.g.laurin@dot.nh.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; OSullivan, Andrew <andrew.m.osullivan@dot.nh.gov>; Caron, Nicholas

<Nicholas.Caron@hdrinc.com>; Martin, Rebecca <Rebecca.A.Martin@dot.nh.gov>; Juliano, Robert <Robert.A.Juliano@dot.nh.gov>; Lucey, Kevin <kevin.p.lucey@des.nh.gov>
Subject: NHDOT Seabrook-Hampton 15904 - Listed Plant Species Mitigation

---

Hi All,

As a follow-up to our meeting on November 10, 2022, please find attached the meeting minutes and a proposed Listed Plant Mitigation Framework for your review.

If you should have any questions or comments, please do not hesitate to let us know. Thanks!

Daniel Hageman, NHCWS
Senior Environmental Scientist/Associate
Dhageman@fhistudio.com | 860-256-4917
fhistudio.com

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TELECON

Call From:	Kim Tuttle, NHFG	Project:	Seabrook-Hampton Bridge Project
Call To:	Daniel Hageman	Voice/Fax:	
Date:	7/20/18	Time:	9:30 AM
Subject:	Response to coordination letter		

I received a phone call from Kim Tuttle with New Hampshire Fish and Game (NHFG) regarding the coordination letter recently sent to her office for the Hampton Harbor Bridge project. Ms. Tuttle confirmed she does not need a separate copy of the New Hampshire Natural Heritage Bureau (NHNHB) response, as she is copied internally on this correspondence by NHNHB. Ms. Tuttle had some additional insights to share on the project, as follows:

1. We should contact F&G Marine Fisheries Division separately (Mike Dionne and Cheri Patterson). She said they are already aware of the project.
2. Carol Henderson should be copied on all F&G correspondence – she is the Environmental Coordinator for the department.
3. Check the Wildlife Action Plan on the NHFG website, which will have information on habitats and species in our project area (good for NEPA document level).
4. Ms. Tuttle shared informal comments that their only concerns will be the Piping Plover and the Least Tern, which both are known to nest in the general area.
5. Brendan Clifford will be conducting the review of impact to these two species later on in the project, when impact areas and time of year of construction are better known (we should coordinate through Kim to reach him).
6. Kim Tuttle's phone number is (603)271-6544.

From: Stephanie Dyer-Carroll
To: "Patterson, Cheri"
Cc: Laurin, Marc; Dan Hageman; Murphy, James F.; Reczek, Jennifer
Subject: RE: Seabrook-Hampton Bridge Project -- softshell clam habitat
Date: Wednesday, June 26, 2019 10:34:00 AM

Thanks, Cheri. We appreciate you all taking a look. Hampton Harbor is definitely a very dynamic area.

Kind regards,

Stephanie Dyer-Carroll, AICP
Senior Project Manager / Environmental Service Line Leader
sdyer-carroll@fhiplan.com
D: (860) 256-4922 M: (860) 402-6038

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-----Original Message-----
From: Patterson, Cheri <Cheri.Patterson@wildlife.nh.gov>
Sent: Monday, June 24, 2019 10:49 AM
To: Stephanie Dyer-Carroll <sdyer-carroll@fhiplan.com>
Cc: Laurin, Marc <Marc.Laurin@dot.nh.gov>; Dan Hageman <DHageman@fhiplan.com>; Murphy, James F. <james.murphy@hdrinc.com>; Reczek, Jennifer <Jennifer.Reczek@dot.nh.gov>
Subject: Re: Seabrook-Hampton Bridge Project -- softshell clam habitat

Stephanie,

Good morning, Stephanie, staff went down last week to look at the areas that we once knew where clams were located in the past. It appears they were no longer in the area around the bridge. The only shellfish they found were mussels located on the old pilings extending into the channel from the south end of the bridge.

Thank you for checking with me, Hampton Harbor dynamics has changed dramatically, affecting where natural resources are located.

Have a nice day.

Cheri Patterson
Supervisor of Marine Programs
NH Fish and Game Department
225 Main Street
Durham, NH 03824
(603)868-1095 – office
(603)868-3305 – fax

"NH Fish and Game Department: Connecting you to life outdoors"

From: Stephanie Dyer-Carroll <sdyer-carroll@fhiplan.com>
Sent: Thursday, June 20, 2019 11:23:41 AM
To: Patterson, Cheri
Cc: Laurin, Marc; Dan Hageman; Murphy, James F.; Reczek, Jennifer
Subject: Seabrook-Hampton Bridge Project -- softshell clam habitat

---

Ms. Patterson,

We are continuing our data collection efforts on the Seabrook-Hampton Bridge Project. On the site walk last summer, you mentioned that there's Softshell Clam habitat in the vicinity of the sandbar to the west of the bridge. This data does not show up in NH GRANIT. We're hoping you can assist us by identifying the area on the attached map. This map is primarily made up of GRANIT layers. The one exception is the Blue Mussel bed on the north side of the bridge which we field delineated in April 2019 in support of an Essential Fish Habitat Assessment for the project.

We appreciate any assistance you can provide. Please let us know if you'd like us to send a Shapefile of the Blue Mussel bed we delineated for your records.

Best,

Stephanie Dyer-Carroll, AICP
Senior Project Manager / Environmental Service Line Leader sdyer-carroll@fhiplan.com<mailto:sdyer-carroll@fhiplan.com>
D: (860) 256-4922 M: (860) 402-6038

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From:	Laurin, Marc
To:	Winters, Melissa; Clifford, Brendan; Patterson, Cheri; Magee, John
Cc:	FGC: NHFG review; Martin, Rebecca; Stephanie Dyer-Carroll; Dan Hageman; Brown, Joshua; OSullivan, Andrew; Reczek, Jennifer
Subject:	Seabrook-Hampton, 15904 - NHB 18-2036
Date:	Tuesday, July 12, 2022 12:08:56 PM

Melissa,

The project, the replacement of the NH Route 1A bridge (Neil Underwood Memorial Bridge) over the Hampton Harbor Inlet, has been under environmental review since 2018. Documentation of the anticipated environmental impacts were described in an Environmental Assessment completed by NHDOT on March 2021, with a Public Hearing conducted on April 2021, and a Revised EA completed in February 2022, with a FONSI determination made by FHWA in March 2022. Coordination has occurred with the NH Fish and Game, regarding the Piping Plover, Blue Mussel bed, and potential Softshell Clam habitat located within the project area, throughout this NEPA documentation process.

As such, NHDOT wants to confirm that formal consultation in accordance with the recent MOA between NHDOT and NHF&G is not requires as this project was initiated and prior to the adoption of the FIS 1004 regulations. NHDOT will of course continue to consult with NHF&G and USFWS in regards to the Piping Plover mitigation measures, and any other species of concern that may be identified by NHF&G. NHDOT has also been in contact with the NHNHB and will requesting a up-to-date NHNHB database search in the near future.

Final Design of the project is on-going. NHDOT will be presenting an update on the project during our July 20th Monthly Natural Resource Agency meeting. An invitation will be sent out to NHF&G later this week by the Bureau of Environment's Wetland Program. Let me know if there are other NHF&G personnel that should be invited to this presentation.

Thanks,

Marc Laurin
Senior Environmental Manager
Bureau of Environment
NH Department of Transportation
(603) 271-4044

From:	Laurin, Marc
To:	Stephanie Dyer-Carroll; Dan Hageman; Murdzia, Daniel
Cc:	Reczek, Jennifer; Martin, Rebecca
Subject:	FW: Seabrook-Hampton, 15904 - Piping Plover Information
Date:	Monday, July 18, 2022 7:20:10 AM
Attachments:	2020 NHFG Plover&Tern Report_FINAL.pdf

From: Clifford, Brendan <Brendan.J.Clifford@wildlife.nh.gov>
Sent: Thursday, July 14, 2022 1:01 PM
To: Laurin, Marc <marc.g.laurin@dot.nh.gov>
Subject: RE: Seabrook-Hampton, 15904 - Piping Plover Information

Hi Marc,

I apologize but your email was buried in my inbox. I have attached the 2020 report. We did not have a 2021 report but I can tell you that the numbers and locations were similar. We did not have any birds nesting near the bridge site in either year, and none again this year.

Brendan

From: Laurin, Marc <marc.g.laurin@dot.nh.gov>
Sent: Tuesday, July 5, 2022 1:24 PM
To: Clifford, Brendan <Brendan.J.Clifford@wildlife.nh.gov>
Subject: Seabrook-Hampton, 15904 - Piping Plover Information

Brendan,

Our consultants are working on the final design of the project, the replacement of NH Rte. 1A bridge over the Hampton Harbor Inlet in Hampton. You were able to provide us with the Piping Plover and Least Tern reports for 2018 and 2019 seasons. Our environmental consultants are asking if you would have similar reports for 2020 and 2021 season. This information would be good to have as they develop the construction schedule and measures to provide to the contractor regarding our commitments to protect the species during construction.

Thanks,

Marc

From:	Laurin, Marc
To:	Dionne, Michael; Newton, Kevin
Cc:	Martin, Rebecca; Stephanie Dyer-Carroll; Dan Hageman; Brown, Joshua; OSullivan, Andrew; Reczek, Jennifer; Clifford, Brendan
Subject:	RE: Seabrook-Hampton, 15904 - NHB 22-2450
Date:	Wednesday, December 21, 2022 9:04:10 AM
Attachments:	15904_Ex_Prop_Plans_20221216.pdf

Mike and Kevin,

We submitted an updated DataCheck (NHB22-2450) to your office in October. As requested by Kim Snyder last July, we're now transmitting updated plans for the Seabrook-Hampton Bridge Project (15904). Note that these plans are still in draft form. We will submit the final plan set to you when the Dredge and Fill Permit is submitted to NHDES (anticipated in February 2023).

We also wanted to make you aware of a refinement in the design. During Part A, at the request of the USFWS, we prepared estimates of the volume of excavated material associated with the widening of the channel and the leveling of the channel bottom. At that time, it was estimated to be 5,000 cubic yards (CY). Based on an updated bathymetric survey completed this year as part of the Final Design, the revised volume is just 160 CY. The USFWS had suggested in their Biological Opinion that the excavated material could be used to enhance Piping Plover habitat, if feasible. However, the volume is too small to use it for these purposes. Instead, and consistent with the Essential Fish Habitat Assessment, the material will be used to fill in voids in the channel bottom created by the removal of the existing piers. Using these native materials will facilitate the timely reestablishment of benthic organisms within these voids. This approach was presented at the NHDOT Natural Resources Coordination Meeting last month.

Regarding your suggestion during last month's meeting regarding potentially relocating blue mussels from the impact areas. DOT has concluded that relocation of the mussels would not be feasible as the areas to the east of the mussel bed would be within the work zone to remove the exiting bridge, and to the west of the work area there is sand deposition encroachment and the shore gets steep. DOT has proposed that during removal of the existing northernmost pier, the structure will be removed to the appropriate elevation to create a precursor condition so the mussels could reestablish themselves in this location.

Should you have any questions about the project plans, please let me know. We look forward to ongoing coordination with your office on this project.

Thanks,

Marc

From: Snyder, Kimberly <Kimberly.C.Snyder@wildlife.nh.gov>
Sent: Friday, November 4, 2022 11:45 AM
To: Laurin, Marc <marc.g.laurin@dot.nh.gov>; Winters, Melissa <Melissa.J.Winters@wildlife.nh.gov>; Clifford, Brendan <Brendan.J.Clifford@wildlife.nh.gov>; Patterson, Cheri <Cheri.A.Patterson@wildlife.nh.gov>; Magee, John <john.a.magee@wildlife.nh.gov>; Dionne, Michael <Michael.A.Dionne@wildlife.nh.gov>

Cc: FGC: NHFG review <NHFGreview@wildlife.nh.gov>; Martin, Rebecca <Rebecca.A.Martin@dot.nh.gov>; Stephanie Dyer-Carroll <sdyer-carroll@fhistudio.com>; Dan Hageman <dhageman@fhistudio.com>; Brown, Joshua <Joshua.R.Brown@dot.nh.gov>; OSullivan, Andrew <Andrew.M.OSullivan@dot.nh.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Newton, Kevin <Kevin.M.Newton@wildlife.nh.gov>
Subject: RE: Seabrook-Hampton, 15904 - NHB 18-2036

Marc,
Thank you, please continue to coordinate with Mike Dionne and Kevin Newton under the new NHB number (NHB22-2450) for the Seabrook-Hampton 15904 permit.

Kim S.

From: Laurin, Marc <marc.g.laurin@dot.nh.gov>
Sent: Friday, October 28, 2022 9:05 AM
To: Snyder, Kimberly <Kimberly.C.Snyder@wildlife.nh.gov>; Winters, Melissa <Melissa.J.Winters@wildlife.nh.gov>; Clifford, Brendan <Brendan.J.Clifford@wildlife.nh.gov>; Patterson, Cheri <Cheri.A.Patterson@wildlife.nh.gov>; Magee, John <john.a.magee@wildlife.nh.gov>
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Subject: RE: Seabrook-Hampton, 15904 - NHB 18-2036

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I'm following up on your request for an updated NHB DataCheck for the Seabrook-Hampton Bridge Project. The attached DataCheck, dated August 3, 2022, identifies three vertebrate species: the Least Tern, the Piping Plover and the Purple Martin.

The Least Tern and the Piping Plover were both identified in the December 2020 NHB DataCheck undertaken during the project's NEPA documentation phase. Coordination was undertaken with NHFG regarding these two species during NEPA. Based on monitoring reports provided by NHFG, the Least Tern has not historically nested on the project site, instead nesting to the north in Hampton Beach State Park and to the south on Seabrook Beach. Since the Piping Plover has historically nested in the Dunes Wildlife Management Area to the west of the project site, NHDOT prepared a Biological Assessment (BA) for the Plover. The BA also addressed the Federally-listed Roseate Tern and Red Knot, which have the potential to occur in the project area. The USFWS issued a corresponding Biological Opinion (BO) in May 2021, which included a series of conservation measures that will be incorporated into the design and construction of the new bridge. The BO is attached for your records.

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the project area. There are Purple Martin colonies to the north (approx. 4,800 feet) and to the south (approx. 4,300 feet) of the project area, but none in or immediately adjacent to the project limits. As such, there would be no impact to breeding of this species. In addition, we feel there would be no impact to the feeding activities of Purple Martins, since feeding habitat is generally in open areas, of which there is ample habitat outside the proposed construction area. Purple Martins would likely avoid the construction site and feed in other areas. Please let us know if you concur with our assessment.

Regarding the 2018 permit you reference, is this in regards to the DES Wetlands Permit #2019-01681 that NHDOT received in August 2019, see attached? This permit was for the Bridge Maintenance project (Hampton 42439) to install gabion mattresses to protect the southwest abutment of the existing bridge from further scour. NHDOT coordinated with the NH Sea Grant/UNH Extension to remove and replant the sensitive plant species that were located within the access road into the dune habitat prior to construction.

The proposed Seabrook-Hampton 15904 project is separate from this completed effort. NHDOT will apply for a separate permit for the impacts associated with the construction of the new bridge and removal of the existing bridge. DOT is in the process of completing Preliminary Plans for the project and will provide you with the updated plan set for your review as soon as soon as it's available.

We look forward to ongoing coordination with your office on this project. Let me know if you have any further questions or require more information at this time.

Thanks,

Marc

From: Snyder, Kimberly <Kimberly.C.Snyder@wildlife.nh.gov>
Sent: Monday, July 18, 2022 3:11 PM
To: Laurin, Marc <marc.g.laurin@dot.nh.gov>; Winters, Melissa <Melissa.J.Winters@wildlife.nh.gov>; Clifford, Brendan <Brendan.J.Clifford@wildlife.nh.gov>; Patterson, Cheri <Cheri.A.Patterson@wildlife.nh.gov>; Magee, John <john.a.magee@wildlife.nh.gov>
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Subject: RE: Seabrook-Hampton, 15904 - NHB 18-2036

Hello Marc,
You are correct, since we have previously provided comments on this project, it is not subject to formal consultation unless there are major changes in the project design or any new species are indicated on the NHB letter.

Moving forward on this project, in accordance with the MOA, NHF&G requires the following from

you:

- Provide new NHB letter as soon as it is available
- Provide updated site plan sheets and aerials
- Highlight any changes from the 2018 plans on the new site plans/aerials
- Indicated the bmps from the 2018 permit that you are incorporating into the project from our last review

With this, we will evaluate if our previous recommendations are still sufficient and provide new recommendations if applicable.

Thank you!
Kim S.

From: Laurin, Marc <marc.g.laurin@dot.nh.gov>
Sent: Tuesday, July 12, 2022 12:09 PM
To: Winters, Melissa <Melissa.J.Winters@wildlife.nh.gov>; Clifford, Brendan <Brendan.J.Clifford@wildlife.nh.gov>; Patterson, Cheri <cheri.patterson@wildlife.nh.gov>; Magee, John <john.a.magee@wildlife.nh.gov>
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Subject: Seabrook-Hampton, 15904 - NHB 18-2036

Melissa,

The project, the replacement of the NH Route 1A bridge (Neil Underwood Memorial Bridge) over the Hampton Harbor Inlet, has been under environmental review since 2018. Documentation of the anticipated environmental impacts were described in an Environmental Assessment completed by NHDOT on March 2021, with a Public Hearing conducted on April 2021, and a Revised EA completed in February 2022, with a FONSI determination made by FHWA in March 2022. Coordination has occurred with the NH Fish and Game, regarding the Piping Plover, Blue Mussel bed, and potential Softshell Clam habitat located within the project area, throughout this NEPA documentation process.

As such, NHDOT wants to confirm that formal consultation in accordance with the recent MOA between NHDOT and NHF&G is not requires as this project was initiated and prior to the adoption of the FIS 1004 regulations. NHDOT will of course continue to consult with NHF&G and USFWS in regards to the Piping Plover mitigation measures, and any other species of concern that may be identified by NHF&G. NHDOT has also been in contact with the NHNHB and will requesting a up-to-date NHNHB database search in the near future.

Final Design of the project is on-going. NHDOT will be presenting an update on the project during our July 20th Monthly Natural Resource Agency meeting. An invitation will be sent out to NHF&G later this week by the Bureau of Environment's Wetland Program. Let me know if there are other NHF&G personnel that should be invited to this presentation.

Thanks,

Marc Laurin
Senior Environmental Manager
Bureau of Environment
NH Department of Transportation
(603) 271-4044

From: Dionne, Michael <Michael.A.Dionne@wildlife.nh.gov>
Sent: Thursday, February 23, 2023 10:16 AM
To: Martin, Rebecca <Rebecca.A.Martin@dot.nh.gov>
Cc: FGC: NHFG review <NHFGreview@wildlife.nh.gov>; Winters, Melissa <Melissa.J.Winters@wildlife.nh.gov>; Laurin, Marc <marc.g.laurin@dot.nh.gov>; Newton, Kevin <Kevin.M.Newton@wildlife.nh.gov>; Patterson, Cheri <Cheri.A.Patterson@wildlife.nh.gov>
Subject: Re: NHB22-2450 Seabrook-Hampton 15904 RE: Seabrook-Hampton, 15904 - NHB 18-2036

Hi Rebecca,
We appreciate the adjustment to the design to reduce impacts to blue mussel beds by shifting one of the trestle fingers to the south side of the work area. We also agree that the minimization measures previously coordinated with NHFGD are appropriate for this project. Although there is no appropriate location within project limits to relocate mussels it would be appreciated if movable hard substrate containing mussels is encountered if they could at least be pushed off out of harms way to give them a chance.

Thank you, any further questions feel free to reach out.

Mike Dionne

Environmental Review Coordinator

NH Fish & Game Department

11 Hazen Drive

Concord, NH 03301

(603) 271-1136, michael.dionne@wildlife.nh.gov

NH Fish and Game…*connecting you to life outdoors*

www.wildnh.com, www.facebook.com/nhfishandgame

Did you know? *New Hampshire Fish and Game has been conserving New Hampshire's wildlife and their habitats since 1865.*

From: Martin, Rebecca <Rebecca.A.Martin@dot.nh.gov>
Sent: Monday, February 13, 2023 11:27 AM
To: Dionne, Michael <Michael.A.Dionne@wildlife.nh.gov>
Cc: FGC: NHFG review <NHFGreview@wildlife.nh.gov>; Winters, Melissa <Melissa.J.Winters@wildlife.nh.gov>; Laurin, Marc <marc.g.laurin@dot.nh.gov>; Newton, Kevin <Kevin.M.Newton@wildlife.nh.gov>
Subject: NHB22-2450 Seabrook-Hampton 15904 RE: Seabrook-Hampton, 15904 - NHB 18-2036

Hello Mike,

I hope that this message finds you well. I am writing to follow up on a conversation from the November 16, 2022 Natural Resource meeting. You had commented that the project team should explore potentially relocating the blue mussels outside of the project footprint and I am writing to share a bit about the project background and completed coordination. Following the meeting, the project team shared that coordination with NH Fish and Game had previously taken place for this project and that the project design had been adjusted to reduce potential impacts on the blue mussel bed by shifting one of the trestle fingers to the south side of the work area to lessen impacts as was noted in the July 20, 2022 Resource Meeting: NATURAL RESOURCES COORDINATION MEETING (nh.gov) . Other comments from NHF&G and responses from the Environmental Manager are in the email below and I have attached the wetland plans. The project's design team has shared that there is no appropriate location to relocate mussels within the project limits. Since the NEPA evaluation is complete, we do not intend to expand the project area at this time. Given the previous coordination, we are hopeful that you agree that the minimization measures previously selected and coordinated with NHF&G are appropriate for this project, but please let me know if you would like to discuss further.

We anticipate sending the wetland permit application to NHDES (hopefully) by the beginning of next month.

Best wishes,
Rebecca

Rebecca Martin
Plant and Wildlife Program Manager
NH DOT Bureau of Environment
7 Hazen Drive
Concord, NH 03302
(603)271-6781
Rebecca.A.Martin@dot.nh.gov

From: Laurin, Marc <marc.g.laurin@dot.nh.gov>
Sent: Friday, October 28, 2022 9:05 AM
To: Snyder, Kimberly <Kimberly.C.Snyder@wildlife.nh.gov>; Winters, Melissa <Melissa.J.Winters@wildlife.nh.gov>; Clifford, Brendan <Brendan.J.Clifford@wildlife.nh.gov>; Patterson, Cheri <Cheri.A.Patterson@wildlife.nh.gov>; Magee, John <john.a.magee@wildlife.nh.gov>
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Thanks,

Marc Laurin
Senior Environmental Manager
Bureau of Environment
NH Department of Transportation
(603) 271-4044

Attachment 14

USFWS IPaC Results

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To: September 23, 2022
Project Code: 2022-0088498
Project Name: NH Route 1A Bridge over the Hampton River (Seabrook-Hampton Bridge), NHDOT Project No. 15904

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Please review this letter each time you request an Official Species List, we will continue to update it with additional information and links to websites may change.

About Official Species Lists

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Federal and non-Federal project proponents have responsibilities under the Act to consider effects on listed species.

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested by returning to an existing project's page in IPaC.

Endangered Species Act Project Review

Please visit the "**New England Field Office Endangered Species Project Review and**

Consultation" website for step-by-step instructions on how to consider effects on listed species and prepare and submit a project review package if necessary:

https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review

NOTE Please do not use the **Consultation Package Builder** tool in IPaC except in specific situations following coordination with our office. Please follow the project review guidance on our website instead and reference your **Project Code** in all correspondence.

Northern Long-eared Bat Update - Additionally, please note that on March 23, 2022, the Service published a proposal to reclassify the northern long-eared bat (NLEB) as endangered under the Endangered Species Act. The U.S. District Court for the District of Columbia has ordered the Service to complete a new final listing determination for the NLEB by November 2022 (Case 1:15-cv-00477, March 1, 2021). The bat, currently listed as threatened, faces extinction due to the range-wide impacts of white-nose syndrome (WNS), a deadly fungal disease affecting cave-dwelling bats across the continent. The proposed reclassification, if finalized, would remove the current 4(d) rule for the NLEB, as these rules may be applied only to threatened species. Depending on the type of effects a project has on NLEB, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective (anticipated to occur by December 30, 2022). If your project may result in incidental take of NLEB after the new listing goes into effect this will first need to be addressed in an updated consultation that includes an Incidental Take Statement. If your project may require re-initiation of consultation, please contact our office for additional guidance.

Additional Info About Section 7 of the Act
Under section 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether projects may affect threatened and endangered species and/or designated critical habitat. If a Federal agency, or its non-Federal representative, determines that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Federal agency also may need to consider proposed species and proposed critical habitat in the consultation. 50 CFR 402.14(c)(1) specifies the information required for consultation under the Act regardless of the format of the evaluation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/service/section-7-consultations

In addition to consultation requirements under Section 7(a)(2) of the ESA, please note that under sections 7(a)(1) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Please contact NEFO if you would like more information.

Candidate species that appear on the enclosed species list have no current protections under the ESA. The species' occurrence on an official species list does not convey a requirement to consider impacts to this species as you would a proposed, threatened, or endangered species. The ESA does not provide for interagency consultations on candidate species under section 7, however, the Service recommends that all project proponents incorporate measures into projects to benefit candidate species and their habitats wherever possible.

Migratory Birds

In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see:

https://www.fws.gov/program/migratory-bird-permit

https://www.fws.gov/library/collections/bald-and-golden-eagle-management

Please feel free to contact us at **newengland@fws.gov** with your **Project Code** in the subject line if you need more information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat.

Attachment(s): Official Species List

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Project Code: 2022-0088498

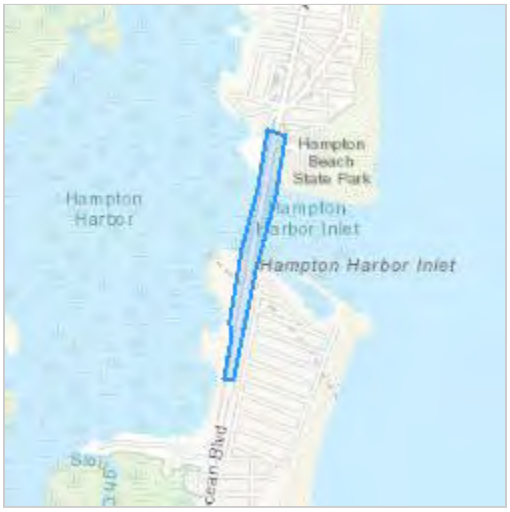
Project Name: NH Route 1A Bridge over the Hampton River (Seabrook-Hampton Bridge), NHDOT Project No. 15904

Project Type: Bridge - New Construction

Project Description: The project entails the replacement of the Neil R. Underwood Bridge (NHDOT No. 235/025) and associated roadway improvements. An Environmental Assessment has been prepared for the project.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.89483705637417,-70.81698462683369,14z



Counties: Rockingham County, New Hampshire

Endangered Species Act Species

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot *Calidris canutus rufa* There is **proposed** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Roseate Tern *Sterna dougallii dougallii* Population: Northeast U.S. nesting population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2083	Endangered

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPaC User Contact Information

Agency: New Hampshire Department of Transportation
Name: Marc Laurin
Address: 7 Hazen Drive
City: Concord
State: NH
Zip: 03302
Email marc.laurin@dot.nh.gov
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United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
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Concord, NH 03301-5094
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http://www.fws.gov/newengland

IPaC Record Locator: 136-15061265 January 30, 2019

Subject: Consistency letter for the 'NH Route 1A Bridge over the Hampton River (Seabrook-Hampton Bridge), NHDOT Project No. 15904' project (TAILS 05E1NE00-2018-R-2211) under the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

To whom it may concern:

The U.S. Fish and Wildlife Service (Service) has received your request dated to verify that the **NH Route 1A Bridge over the Hampton River (Seabrook-Hampton Bridge), NHDOT Project No. 15904** (Proposed Action) may rely on the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) to satisfy requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 *et seq.*).

Based on the information you provided (Project Description shown below), you have determined that the Proposed Action will have no effect on the endangered Indiana bat (*Myotis sodalis*) or the threatened Northern long-eared bat (*Myotis septentrionalis*). If the Proposed Action is not modified, **no consultation is required for these two species.**

For Proposed Actions that include bridge/structure removal, replacement, and/or maintenance activities: If your initial bridge/structure assessments failed to detect Indiana bats, but you later detect bats during construction, please submit the Post Assessment Discovery of Bats at Bridge/Structure Form (User Guide Appendix E) to this Service Office. In these instances, potential incidental take of Indiana bats may be exempted provided that the take is reported to the Service.

If the Proposed Action may affect any other federally-listed or proposed species and/or designated critical habitat, additional consultation between the lead Federal action agency and this Service Office is required. If the proposed action has the potential to take bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act

may also be required. In either of these circumstances, please advise the lead Federal action agency for the Proposed Action accordingly.

The following species may occur in your project area and **are not** covered by this determination:

- Red Knot, *Calidris canutus rufa* (Threatened)

Project Description

The following project name and description was collected in IPaC as part of the endangered species review process.

Name

NH Route 1A Bridge over the Hampton River (Seabrook-Hampton Bridge), NHDOT Project No. 15904

Description

The project entails the rehabilitation or replacement of the Neil R. Underwood Bridge (NHDOT No. 235/025) and associated roadway improvements. An Environmental Assessment is currently being prepared for the project.

Determination Key Result

Based on the information you provided, you have determined that the Proposed Action will have no effect on the endangered Indiana bat and/or the threatened Northern long-eared bat. Therefore, no consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required for these two species.

Qualification Interview

1. Is the project within the range of the Indiana bat[1]?

   [1] See Indiana bat species profile

   Automatically answered
   No

2. Is the project within the range of the Northern long-eared bat[1]?

   [1] See Northern long-eared bat species profile

   Automatically answered
   Yes

3. Which Federal Agency is the lead for the action?

   A) Federal Highway Administration (FHWA)

4. Are *all* project activities limited to non-construction[1] activities only? (examples of non-construction activities include: bridge/abandoned structure assessments, surveys, planning and technical studies, property inspections, and property sales)

   [1] Construction refers to activities involving ground disturbance, percussive noise, and/or lighting.

   No

5. Does the project include *any* activities that are **greater than** 300 feet from existing road/ rail surfaces[1]?

   [1] Road surface is defined as the actively used [e.g. motorized vehicles] driving surface and shoulders [may be pavement, gravel, etc.] and rail surface is defined as the edge of the actively used rail ballast.

   No

6. Does the project include *any* activities **within** 0.5 miles of an Indiana bat and/or NLEB hibernaculum[1]?

   [1] For the purpose of this consultation, a hibernaculum is a site, most often a cave or mine, where bats hibernate during the winter (see suitable habitat), but could also include bridges and structures if bats are found to be hibernating there during the winter.

   No

7. Is the project located **within** a karst area?

   No

8. Is there *any* suitable[1] summer habitat for Indiana Bat or NLEB **within** the project action area[2]? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

   [1] See the Service's summer survey guidance for our current definitions of suitable habitat.

   [2] The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR Section 402.02). Further clarification is provided by the national consultation FAQs.

   No

9. Does the project include maintenance of the surrounding landscape at existing facilities (e.g., rest areas, stormwater detention basins)?

   No

10. Does the project include wetland or stream protection activities associated with compensatory wetland mitigation?

    No

11. Does the project include slash pile burning?

    No

12. Does the project include *any* bridge removal, replacement, and/or maintenance activities (e.g., any bridge repair, retrofit, maintenance, and/or rehabilitation work)?

    Yes

13. Is there *any* suitable habitat[1] for Indiana bat or NLEB **within** 1,000 feet of the bridge? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

    [1] See the Service's current summer survey guidance for our current definitions of suitable habitat.

    No

14. Does the project include the removal, replacement, and/or maintenance of *any* structure other than a bridge? (e.g., rest areas, offices, sheds, outbuildings, barns, parking garages, etc.)

    Yes

15. Is there *any* suitable habitat[1] for Indiana bat or NLEB **within** 1,000 feet of the structure? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

    [1] See the Service's current summer survey guidance for our current definitions of suitable habitat.

    No

16. Will the project involve the use of **temporary** lighting *during* the active season?

    Yes

17. Is there *any* suitable habitat **within** 1,000 feet of the location(s) where **temporary** lighting will be used?

    No

18. Will the project install new or replace existing **permanent** lighting?

    Yes

19. Is there *any* suitable habitat **within** 1,000 feet of the location(s) where **permanent** lighting will be installed or replaced?

    No

20. Are *all* project activities that are **not associated with** habitat removal, tree removal/ trimming, bridge or structure removal, replacement, and/or maintenance, lighting, or use of percussives, limited to actions that DO NOT cause any stressors to the bat species, including as described in the BA/BO (i.e. activities that do not involve ground disturbance, percussive noise, temporary or permanent lighting, tree removal/trimming, nor bridge/ structure activities)?

    Examples: lining roadways, unlighted signage , rail road crossing signals, signal lighting, and minor road repair such as asphalt fill of potholes, etc.

    Yes

21. Will the project raise the road profile **above the tree canopy**?

    No

22. Is the location of this project consistent with a No Effect determination in this key?

    Automatically answered

    Yes, because the project action area is outside of suitable Indiana bat and/or NLEB summer habitat

23. Is the bridge removal, replacement, or maintenance activities portion of this project consistent with a No Effect determination in this key?

    Automatically answered

    Yes, because the bridge is more than 1,000 feet from the nearest suitable habitat and is therefore considered unsuitable for use by bats

24. Is the structure removal, replacement, or maintenance activities portion of this project consistent with a No Effect determination in this key?

    Automatically answered

    Yes, because the structure is more than 1,000 feet from the nearest suitable habitat and is therefore considered unsuitable for use by bats

25. Is the temporary lighting portion of this project consistent with a No Effect determination in this key?

    Automatically answered

    Yes, because the lighting will be more than 1,000 feet from the nearest suitable habitat

26. Is the permanent lighting portion of this project consistent with a No Effect determination in this key?

    Automatically answered

    Yes, because the lighting will be more than 1,000 feet from the nearest suitable habitat

Determination Key Description: FHWA, FRA, FTA Programmatic Consultation For Transportation Projects Affecting NLEB Or Indiana Bat

This key was last updated in IPaC on March 16, 2018. Keys are subject to periodic revision.

This decision key is intended for projects/activities funded or authorized by the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and/or Federal Transit Administration (FTA), which require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act (ESA) for the endangered **Indiana bat** (*Myotis sodalis*) and the threatened **Northern long-eared bat** (NLEB) (*Myotis septentrionalis*).

This decision key should only be used to verify project applicability with the Service's February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects. The programmatic biological opinion covers limited transportation activities that may affect either bat species, and addresses situations that are both likely and not likely to adversely affect either bat species. This decision key will assist in identifying the effect of a specific project/activity and applicability of the programmatic consultation. The programmatic biological opinion is not intended to cover all types of transportation actions. Activities outside the scope of the programmatic biological opinion, or that may affect ESA-listed species other than the Indiana bat or NLEB, or any designated critical habitat, may require additional ESA Section 7 consultation.

Attachment 15

USFWS Meetings/Correspondence

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

From:	Stephanie Dyer-Carroll
To:	Stephanie Dyer-Carroll
Subject:	FW: NH Route 1A bridge over Hampton River - Seabrook-Hampton, 15904
Date:	Friday, March 8, 2019 9:19:41 AM

From: vonOettingen, Susi [mailto:susi_vonoettingen@fws.gov]
Sent: Friday, February 15, 2019 9:43 AM
To: Laurin, Marc
Cc: Clifford, Brendan
Subject: NH Route 1A bridge over Hampton River

Good morning, Marc,

I am writing in response to your January 22, 2019 letter requesting comments and/or information regarding federally listed species that are in the vicinity of the proposed replacement of the Route 1A bridge over the Hampton River in Hampton and Seabrook, New Hampshire (Project). At this time, I understand that the project is in a preliminary design phase and you are asking for general comments regarding listed species.

The New Hampshire Department of Transportation (NHDOT) identified rour federally listed species as potentially being present in the vicinity of the project. I agree, that the northern long-eared bat will not be affected based on the information provided in your letter - specifically a lack of foraging or roosting habitat, including the lack of evidence that bats might have been roosting in the bridge. Therefore, no further consultation will be needed for this species if NHDOT (or Federal Highways) concludes that the species will not be affected.

Red knots and roseate terns could forage within the project area, as stated in your letter. Red knots forage on exposed intertidal mud and sand flats, and roost on beach berms, dunes and in salt marshes. To date, there is little evidence that other than lower numbers of migrating red knots are found in the project area. Roseate terns forage in shallow waters when prey is available and have been observed in the project area, either during the breeding season (since Seavey Island is a known breeding colony) or during the staging season.

Piping plovers periodically nest west of the bridge when sufficient nesting habitat is available. This species could be affected by changes to the habitat during construction, or by noise and vibrations from construction activities. In order to avoid adverse effects, we recommend a time of year restriction for construction. Work involving vibrations, noise, mechanical equipment on the beach or other activities that would prevent plovers from establishing territories and nesting, that would disrupt foraging, or otherwise prevent plovers from feeding, breeding or roosting, should occur outside of the plover season, that being April 1 through August 31. There may be instances when construction may occur into April, if a) plovers have not returned to the site or b) are located at a sufficient distance to avoid being disturbed. We can discuss this situation and monitoring and managing requirements as the project design nears finalization.

If you have any questions, please call me at 603-227-6418 or email me. Thank you for your cooperation.

Sincerely,

Susi von Oettingen

****

Susi von Oettingen
Endangered Species Biologist
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301
(W) 603-227-6418
(Fax) 603-223-0104

www.fws.gov/newengland

Hampton Harbor Bridge Project
Summary of Meeting
ESA Section 7 Coordination
New Hampshire Department of Transportation Offices
March 21, 2019

Attendees:

Susi von Oettingen (USFWS)
Brendan Clifford (NHFG)
Jamie Sikora (FHWA)
Jennifer Reczek (NTDOT)
Marc Laurin (NHDOT)
James Murphy (HDR)
Stephanie Dyer-Carroll (FHI)
Anthony Zemba (FHI) via phone
Daniel Hageman (FHI)

Introduction

Jennifer Reczek, NHDOT's Project Manager, opened the meeting by welcoming attendees, facilitating introductions, and outlining the agenda for the meeting. She explained the purpose and need for the project, and said the bridge is Number 1 on the State's Red List, as well as the Rehabilitation and Replacement Priority List. She then explained that the project team first looked at the Rehabilitation Alternative and that they're now examining replacement options, including different potential alignments. She described the different alternatives by flipping through plan sheets for each. She said they've received good input through the outreach process, especially from local property and business owners.

Summary of Discussion

- Susi asked if NHDOT would need to take any properties by imminent domain on the southeast quadrant of the bridge. Jennifer said they could potentially use retaining walls but that they might purchase houses anyway due to the proximity of the wall to properties immediately southeast of the bridge. The community expressed a preference for a western alignment and a fixed structure. Jamie added that the fixed bridge would have lower life cycle costs.
- Susi asked if the fixed bridge would be higher. Jamie answered yes. Jennifer said the proposed height of the fixed bridge alternative would allow for at least 90% of all traffic currently using the bridge to pass. This number is the minimum, as survey of vessels could not pass all vessels. The bridge could provide passage for all the vessels NHDOT has been able to identify to date.
- Susi said an eastern alignment would be preferable from a natural resource perspective.
- Susi asked if there would be a long-term shadow effect. Jennifer said a retaining wall could have a shadow effect. Susi said retaining walls may create a "predator line."

- Susi asked if the beach had been nourished in the past. Brendan said it will be nourished underneath and on both sides in the beach area with the upcoming dredging project. Brendan said there is typically one pair of Piping Plover every year near the dune area south of the harbor on the point. He said more nesting habitat may be created with the future beach nourishment from the dredging project and it may support a second pair. Susi said the whole southern shoreline is potential habitat for the Piping Plover, including the intertidal area. Nourishment may allow Plovers more access to the southeast shoreline than they currently have. Susi said she is not sure how they would respond if the habitat changes. The stone revetment may be a barrier. Jim added that the proposed abutment would be constructed further back (further south) from the water and asked if this would be a benefit. Susi said it could potentially be beneficial, as long as there isn't additional scour.
- Jim stated a fixed bridge would be 8-10 feet higher at the abutment. Susi asked if it would let in more light under the bridge, and whether the design team could figure out what the shading might be for the different alternatives. Susi said she is not sure if shadow is currently a barrier, but the team should look at shadowing and its potential habitat effects. Dan asked if there was any applicable literature, and Susi said not that she knows of.
- The team should make in-field observations, if possible, to determine if shadow effects Plover behavior and movements. Brendan said they could include these types of observations under their regular monitoring. Susi suggested making 15-minute observations; considering how much time they spend in the shadow if there are two pairs. Susi said she would find out if there are any other bridges that Plovers nest by, for some potential additional observations.
- Susi said noise is another potential issue for the Plovers. She said they can habituate to on-going noise. Generally, noise is less of an issue to Plovers if they are outside a 200-meter setback area. If construction is undertaken during the summer, noise must be actively managed. Jamie asked if the set back is for certain activities. Susi answered it is for any noise beyond ambient noise levels. She suggested the team might want to start in the south and work north to avoid noise impacts. Susi said to determine what the ambient noise is in the summer, and then see what activities exceed it. Susi stated the standard work window for a Not Likely to Adversely Affect finding is ~~April 1 to August 31~~September 1-March 31. Susi said this is a standard condition for USACE Projects that have beach nourishment as an option. Brendan said the Plovers show up in early April. Susi said she has seen projects where they have worked into May (South Jetty in Newburyport), but it is not advisable since there may be Plover activity during that time. Jim asked if there is guidance on decibel levels. Susi said there is no guidance, because each individual Plover may react differently to stressors, such as noise. Susi said if the noise increases slowly, the Plovers may habituate to it. She said a qualified person should monitor ambient noise levels for a baseline. Jennifer suggested they might be able to use the maintenance project as a test case. Susi asked if there is federal involvement in the maintenance project. Jamie said he thought it was just state funds.
- Dan suggested the possibility of using a "soft start" to allow Plovers to acclimate to construction noise, similar to what NOAA requires for some in-water work activities.
- Susi asked if there would be a barge. Jennifer said there could be a barge or a trestle – it has not yet been determined. Susi prefers placement of a barge on the east side.
- Dan asked if the Section 7 coordination could stay informal for this project. Susi said it could if they observe the time of year (TOY) restriction. The team will need to look at potential shadow impacts. The team will also need to show there will be no sediment deposits or erosion caused by the change in bridge dimensions and piers. Susi said that if USFWS has to make a recommendation, it will be a formal process. Jennifer said it will be very challenging,

due to all the TOY restrictions, since the Plover TOY restrictions will overlap the NOAA TOY restrictions. Jim asked if active noise monitoring could be used as a way to work within the TOY restriction. Susi said this would not be practical, since different individual Plovers may react differently to the noise; there is no universal decibel level by which to regulate the noise. Susi said that she is concerned about the abutment area, which is a small area compared to the entire project, so she's hoping there is a way to stage around the TOY restriction. Susi again suggested starting at the abutment outside the TOY restriction, then moving to other areas once in the TOY period.

- Anthony suggested we could reduce some rip-rap in the project as a benefit. Jennifer said there is a small amount around the abutments and wall, but it is needed for protection.
- Anthony said monitoring in Connecticut revealed that Plovers did not show any startle effect from fireworks.
- Brendan said NHFG monitors the Plovers about 30 hours/week from April to August. He could develop a protocol and incorporate shadow studies into the monitoring efforts. Jennifer asked where a wildlife monitor could be found. Susi said they have used MA Audubon and Normandeau in the past. Jim asked if USFWS has ever hired someone to monitor noise. Susi said noise monitoring has been done on Poppenesset Spit every year. Dan asked if Brendan could share any data he obtains regarding the Plovers in or near the project area. Brendan agreed, but said we need to determine what information we want to collect. Jennifer asked if it would be helpful to have a camera on the bridge. It was determined that it would be too difficult to identify the birds and observe behavior.
- Susi asked if Anthony has experience monitoring Plovers. Anthony said yes, and that he used a form for each monitoring session, so no important data was missed. Anthony agreed to try to obtain a copy of the form and send to Brendan.
- Susi said it is very important to stay away from the nest in June and July. It would be good to determine when they show up and how they move in April.
- Susi has no concerns about the Red Knot and Roseate Tern. The Red Knot is primarily feeding during migration and thus the project wouldn't be likely to adversely affect them; the Roseate Tern is not staging or roosting at the project site and thus there's no potential to affect them
- Dan asked if the USACE Plover restriction was in the general permit. Susi said she thought not and would try to track it down.
- Susi asked about the Northern long-eared bat. Dan replied that there is no evidence of bats on the bridge or the pump house located northwest of the bridge. There is no habitat in the vicinity of the project.

Hampton Harbor Bridge Project
Summary of Meeting
ESA Section 7 Coordination
New Hampshire Department of Transportation Offices
December 18, 2019

Attendees:

Susi von Oettingen (USFWS)
Brendan Clifford (NHFG)
Jamie Sikora (FHWA)
Jennifer Reczek (NTDOT)
Marc Laurin (NHDOT)
John Stockton (HDR)
Stephanie Dyer-Carroll (FHI)
Daniel Hageman (FHI)

Introduction

Dan Hageman, a member of the HDR consultant team, explained that the purpose of the meeting was to discuss the potential need for formal consultation under Section 7 of the Endangered Species Act due to construction staging and schedule needs. Mr. Hageman shared a graphic showing Piping Plover habitat and the 200-meter setback. In the meeting between the NH Department of Transportation (NHDOT), the US Fish and Wildlife Service (USFWS), and NH Fish and Game (NHFG) last March, Susi von Oettingen (USFWS) had indicated the setback would be necessary to achieve a determination of Not Likely to Adversely Affect.

Summary of Discussion

- Ms. von Oettingen stated upfront that there is no Piping Plover habitat on the north side in the immediate vicinity of the bridge, either for nesting or foraging.
- Ms. von Oettingen said the project site is already in a very noisy area and the 200-meter setback could potentially be pulled back in certain areas.
- Ms. von Oettingen said NHDOT should make sure they review the revised regulations, as the "baselining" outline has been expanded.
- Ms. von Oettingen said the Effects Analysis needs to evaluate the duration, intensity and location of the activity. The typical construction scenario should be used as a basis for the effects analysis. The analysis should focus the most effort on the areas of significant habitat. Once the Piping Plovers have chicks, they will not move and will stay within the general area of the nest.
- Ms. von Oettingen said one way to potentially avoid impacts to the Piping Plovers would be to start work in the north during the breeding season, and then move south.
- Ms. von Oettingen said vibration impacts will need to be assessed as part of the effects analysis, but that there is no criteria for vibration impacts. She suggested NHDOT review the National Oceanic and Atmospheric Administration's (NOAA's) aquatic criteria to see if those could be adapted. She stated that there are already large trucks and vehicles using the bridge, so this will be a factor. Vibration will likely be *de minimis* if habitat is far enough

away, but the analysis will need to verify this. Mr. Hageman asked if it would be a benefit to stage construction during high tide in the areas close to Piping Plover habitat. Ms. von Oettingen said no, the tide would just push the Piping Plovers up the beach, and not displace them. It might displace recreational users though.

- Ms. von Oettingen said noise impacts will need to be assessed as part of the effects analysis, considering current ambient noise levels. The analysis will also need to look at the duration of the noise. Ms. von Oettingen reiterated that the bridge is already a noisy and busy place, so this will be a factor since the Piping Plovers may already be used to a lot of noise at the site. She said she does not have a noise study or criteria for Piping Plovers; however, she has a report that evaluates the noise from the dredge vessel *Currituck*, and its effects on Piping Plover behavior. She said she will send the report to NHDOT. She said the study shows the *Currituck* has not disturbed the birds in Connecticut. If dredging would occur in the winter, then there would not be an issue for the Piping Plover. She said that any deep channel work would be unlikely to impact the Piping Plover, even if it was undertaken in the 200-meter buffer. She said she didn't think noise would be a big issue. If appropriate, NHDOT can say noise is insignificant and discountable.
- Ms. von Oettingen said shadow impacts will need to be assessed as part of the effects analysis. Generally, short duration shadows are not considered an impact. Ms. von Oettingen stated that the Piping Plovers will not nest next to walls, perhaps due to shadowing. Jennifer Reczek, NHDOT's Project Manager, stated that the current concepts show a slope on either side of the roadway approach which will minimize or eliminate shadow. Ms. von Oettingen said the slope may be considered a conservation measure.
- Ms. von Oettingen stated stormwater and runoff will need to be assessed. Ms. Reczek said that the project will need to be consistent with MS4 stormwater regulations and that there will not be sheet flow. Ms. von Oettingen said she is concerned that runoff that isn't collected might cause erosion along the abutment slope and be detrimental to Piping Plover habitat. She suggested a slope conservation measure to ensure there is no erosion.
- Ms. von Oettingen said boat activity will need to be evaluated to assess the potential for impacts, specifically whether boat activity will be increased under the Preferred Alternative. This could cause additional noise, frequency of trips, and increased wave activity within the Piping Plover habitat. Wake speed would also be an important consideration.
- Ms. von Oettingen said NHDOT will need to discuss the potential impacts of recreational beach users in the Biological Assessment (BA) and whether they will "push" birds towards the bridge construction from the west.
- Ms. von Oettingen said the BA must discuss the potential hydraulic impact to the Piping Plover habitat. Will the hydraulics change? Will this cause more erosion or deposition? Will flooding increase?
- Ms. von Oettingen reviewed the graphic handout showing the Piping Plover habitat and 200-meter buffer area. She acknowledged that the area is very dynamic. Mr. Clifford said some of the areas may not have originally been habitat. Ms. von Oettingen said the graphic should be revised to reduce the buffer area. Ms. von Oettingen and Mr. Clifford said they would revise the graphic if NHDOT sends them the GIS files. NHDOT agreed to do this.
- Ms. von Oettingen said conservation measures should be incorporated into the project as needed. Examples include waste control, avoiding the use of heavy equipment on the beach, and the use of a snow fence.
- Ms. Reczek asked if there would be a benefit to a physical barrier. Ms. von Oettingen said on another project, at Winthrop Beach in Massachusetts, snow fence was installed to keep Piping Plover chicks out of the work area and falling debris. Snow fence is only good for

chicks, since they cannot yet fly. She mentioned that Ann Hecht is the Piping Plover coordinator at USFWS.

- Ms. von Oettingen asked Mr. Clifford if he knew where the Piping Plovers forage. Mr. Clifford said he would need to review the monitoring reports.
- Mr. Hageman asked if mitigation would be required and went on to say that one option for mitigating potential impacts would be to reconstruct habitat in the abandoned alignment of the existing road, or in adjacent locations. Ms. von Oettingen stated that restoration of habitat would not be a good option on the eastern side of the bridge, since there is only poor habitat there now.
- Ms. Reczek asked what the status of the US Army Corps of Engineers (USACE) dredge project is, relative to beach nourishment. Mr. Clifford said the USACE had placed dredge material on the beach area, primarily under the bridge.
- Ms. Reczek stated that the NHDOT is currently leaning towards the fixed bridge alternative due to the analysis provided in the Draft TS&L, but there still needs to be additional evaluation in the Environmental Assessment (EA). Ms. von Oettingen said the EA can reference the BA in many sections to minimize duplication of text.
- Ms. von Oettingen said the formal consultation process would take longer than the informal process. NHDOT should complete the BA and then request formal consultation. Once the request and BA have been submitted to the USFWS, the USFWS will need 90 days to write a Biological Opinion (BO). FHWA/NHDOT will then have 35 days to review the BO and respond, as needed.
- Ms. von Oettingen suggested the NHDOT should not propose mitigation, but instead undertake a detailed evaluation of avoidance and minimization measures coupled with "conservation measures" based on a "normal", or baseline, construction project. She said they need to look at whether the project would potentially jeopardize the species.
- Ms. von Oettingen said she is open to the NHDOT calling her with any questions as they work through the BA and the effects analysis. She suggested there should be regular check-ins to make sure the process and analysis are on the right track.

Action Items:

1. Ms. von Oettingen will send the noise report to NHDOT
2. NHDOT will send GIS files of Piping Plover habitat and the 200-meter buffer to Ms. von Oettingen and Mr. Clifford.

Hampton Harbor Bridge Project
Summary of Meeting
ESA Section 7 Coordination
Teams Virtual Meeting
February 23, 2021

Attendees:

Susi von Oettingen (USFWS)
Brendan Clifford (NHFG)
Jamie Sikora (FHWA)
Jennifer Reczek (NTDOT)
Marc Laurin (NHDOT)
Robert Juliano (NHDOT)
John Stockton (HDR)
Stephanie Dyer-Carroll (FHI)
Daniel Hageman (FHI)
Anthony Zemba (FHI)

Introduction

Susi Von Oettingen said she'd reviewed the Biological Assessment (BA) prepared for the project and is in the process of preparing the Biological Opinion. She requested the meeting to discuss the beach nourishment referenced in the BA.

Summary of Discussion

- Susi von Oettingen said that disposition of sand from dredge activity needs to be considered as part of the project.
- Ms. von Oettingen said that if the dredge material is put on shore in an area of Piping Plover habitat, a management plan will be required for the area.
- Ms. von Oettingen said that if Piping Plover habitat is nourished and if New Hampshire Fish and Game (NHFG) isn't able to maintain the habitat/monitor the species in the future, NHDOT or FHWA would have to manage it.
- Brendan Clifford said NHFG may not be able to conduct their monitoring efforts indefinitely.
- Jamie Sikora asked if there would be a time limit on the management; he suggested five years was reasonable.
- Ms. von Oettingen said there would be no time limit.
- Ms. von Oettingen asked if the US Army Corps of Engineers would conduct the dredging.
- Jennifer Reczek said the dredging would be completed by a private contractor.
- Ms. von Oettingen asked about the volume of dredge material and said this information is required in order to complete the Biological Opinion.
- John Stockton showed the area that would be dredged but pointed out that the bathymetry suggests much of the area is already below the authorized federal navigation channel depth (eight feet); the dredge effort could just consist of scraping off the high points; it would likely result in less than 10,000 cubic yards of material.

- Ms. von Oettingen said NHDOT will need to test the dredge material to confirm it is suitable for beach nourishment.
- Ms. von Oettingen also said any material should not be placed after April 1, because of potential impacts to the Piping Plover and their habitat.
- Ms. Reczek said the dredging would occur in the winter months due to boat traffic and the in-water work window established in consultation with the National Oceanic and Atmospheric Administration (NOAA)
- Ms. von Oettingen said that if the dredge material is placed on the shore in existing Plover habitat, a design will be required.
- Mr. Clifford said it is such a small amount of dredge spoil that it may make sense to place it off-site, outside of Plover habitat.
- Ms. von Oettingen said NHDOT could use nearshore or upland disposal areas.
- Ms. von Oettingen requested that FHWA and NHDOT prepare a brief letter that outlines the amount of dredge material, where it would potentially be deposited, and the time of year the dredging would occur
- Mr. Sikora said, as the lead federal agency, FHWA would transmit the letter to USFWS.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

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August 13, 2021

Jamison S. Sikora
Federal Highway Administration
53 Pleasant Street, Suite 2200
Concord, NH 03301

Re: NHDOT Project # 15904, NH Route 1A Bridge over Hampton Harbor
TAILS: 05E1NE00-2021-F-0724

Dear Mr. Sikora:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion (Opinion) based on our review of the Federal Highway Administration's (FHWA) proposed construction of a new bridge conveying NH Route 1A (Neil Underwood Memorial) over Hampton Harbor in Seabrook and Hampton, New Hampshire (Project), and its effects on the federally threatened piping plover (*Charadrius melodus*). We received your request to initiate formal consultation on December 9, 2020. Your request and our response are made in accordance with section 7 of the Endangered Species Act (16 U.S.C. 1531-1544, 87 Stat. 884), as amended (ESA). The FHWA is the lead Federal agency for the Project and is consulting with the Service on behalf of the U.S. Army Corps of Engineers and the Environmental Protection Agency, the additional Federal agencies with approval or permitting authorities for the Project.

This Opinion is based on (1) information provided in the December 9, 2020, letter to initiate formal consultation; (2) the FHWA's January 2021 Biological Assessment (BA); (3) the FHWA's March 9, 2021 letter providing supplemental information regarding project-associated dredging; and (4) electronic correspondence, telephone conversations, meetings, and other sources of information. Pertinent sections of the BA will be incorporated by reference. The consultation history is located in Appendix A. A complete administrative record of this consultation can be made available at the New England Field Office in Concord, New Hampshire.

- As part of the January 21, 2021, BA, the FHWA requested the Service concur with the FHWA's determination that the Project may affect, but is not likely to adversely affect, the federally endangered roseate tern (*Sterna dougallii dougallii*) and threatened rufa red knot (*Calidris canutus rufa*). Detailed information about the species and species' occurrence in the project area are incorporated by reference from the BA. Small numbers of roseate terns occur in the project area from May through September as transient individuals traveling to forage in Hampton Harbor and Hampton Harbor inlet, loafing during the breeding season, and/or staging during pre-migration on sand flats of Hampton

Harbor and Seabrook Beach (eBird.org, accessed February 2, 2021). Small numbers of red knots primarily forage on sand and mud flats nearby the project area in Hampton Harbor, the Hampton Inlet, and sand flats adjacent to the north and south jetties of the Hampton Inlet (eBird.org, accessed February 10, 2021).

We concur with your determination, because either the level of effects is insignificant and/or the likelihood of adverse effects occurring is discountable. We base our concurrence on the following:

- Loafing roseate terns have not been documented in the project action area and are not anticipated to occur in the project area due to the noise from routine traffic crossing the bridge. Loafing areas are generally away from human activity.
- The Project may temporarily impact roseate terns if they move away from the project area while foraging due to disturbance from construction activity. The temporary loss of access to foraging habitat is insignificant relative to the available foraging habitat in Hampton Harbor and Hampton Inlet.
- There are no documented occurrences of red knots foraging in the project action area, most likely due to lack of accessible foraging habitat.
- The project area is far enough from suitable habitat that construction activity associated with the Project would not disturb foraging or roosting red knots. We anticipate that impacts to transient individuals passing through the project action area from disturbance, lights, and/or vibrations would be negligible.

BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

As defined in the ESA section 7 regulations at 50 CFR 402.02, “action” means “all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas.” The following is a summary of the proposed action. A detailed description can be found on pages 8 through 11 of the BA.

The proposed action is the construction of a new 1,300-foot structural steel bridge approximately 75 feet west of the existing bridge. The bridge will have two 11-foot travel lanes, with 8-foot shoulders and 6-foot sidewalks on each side. The bridge abutments on either side will have U-shaped reinforced concrete wingwalls supported on steel bearing piles vibrated to resistance then driven to final position. Riprap will extend from the face of the abutment and wingwalls to below the high tide line, a 250-foot retaining wall will be installed northwest of the bridge, and a 230-foot retaining wall installed northeast of the bridge. A drainage collection and conveyance system will route drainage discharges through new treatment swales at the northern and southern approaches before flowing into Hampton Harbor. Stormwater flow on the southern approach will be similar to existing conditions, with sheet flow off of the pavement and onto vegetated embankments where buffer areas will treat the stormwater.

Four existing utility lines—two water, one sewer, and one gas—are currently buried below the harbor bed and will be temporarily relocated to the west of the anticipated construction trestle and placed on top of the bed in the navigational channel. Final relocation sites have not been determined.

Approximately 5,000 square feet of channel bottom will be dredged to allow for a consistent 150-foot channel width through the proposed bridge as afforded by the longer bridge spans of the fixed bridge design. Several options are being considered for the disposal of the dredge material, including: (1) re-using the material within the existing channel to fill in holes left by removal of the existing bridge piers; (2) disposal in an approved upland location on or off site; (3) disposal in a nearshore dredge material disposal site, or (4) disposal to augment piping plover habitat in coordination with the New Hampshire Fish and Game Department (NHFG). None of the first 3 options for disposal would affect the piping plover or other listed species. The fourth option would have beneficial effects and would not adversely affect the species. Therefore, we do not consider dredge disposal further in this Opinion.

Construction of the new bridge and demolition of the existing bridge would occur over 36 months and begin in the fall of 2023. Construction would occur in three phases:

1. Phase 1 – access road and work trestle construction, sheet pile cofferdam construction, pile caps, drilled shafts, and pier construction within the cofferdams, and initiation of roadway approaches and abutments construction.
2. Phase 2 – construction of the superstructure, including erection of the central bridge spans and partial construction of the southernmost and northernmost spans. North and south roadway approaches will be completed, and removal of western trestles and cofferdams would be initiated within the in-water window of November 15 to March 15.
3. Phase 3 – roadway traffic will be shifted to the partially completed bridge and roadway approaches, remaining portions of the superstructure at the northernmost and southernmost spans completed, a bridge pier protection fender system will be installed, and the navigational channel dredged to widen the existing channel from 40 feet to 150 feet. The western and eastern trestles, superstructure and substructure of the existing bridge, and existing pier piles will be removed. New roadways will be completed and disturbed areas stabilized.

Only in-water work, including dredging, has a time-of-year restriction of November 15 through March 15. Onshore work may occur at any time as conditions allow throughout the year. The equipment types used in each phase are described on page 11 of the BA.

Conservation Measures
The FHWA would implement conservation measures to avoid and minimize adverse effects to piping plovers prior to and during construction. The measures, fully described on page 46 of the BA, are incorporated by reference and summarized below:

1. Information will be provided to construction workers on the potential presence of piping plovers in the work area.
2. Silt fencing or other protective fencing will be erected around suitable plover habitat within the construction zone to prevent nest establishment and piping plover chicks (if present) from accessing construction area.
3. The contractor will ensure the construction zone is maintained free of trash to avoid attracting predators.
4. Speed limits on construction vessels will be required to prevent boat wake from eroding the beach or impacting foraging plovers and chicks.
5. Light shielding during construction will be implemented to avoid disturbing breeding piping plovers.
6. Slope stabilization measures adjacent to the bridge and roadway on the southwest side of the roadway will be designed and implemented to prevent erosion.
7. During the plover breeding season (April 1 to August 30), slow starts when driving cases for drilled shafts will be implemented to avoid disturbing or flushing plovers when present.
8. Dredge spoil will be used to enhance plover nesting habitat if feasible.
9. Stone chinking within the riprap on the south abutment will be used to prevent void spaces from attracting rodents and other potential predators.

ACTION AREA

The action area is defined (50 CFR 402.02) as "…all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The Service has determined that the action area for this Project consists of the bridge reconstruction footprint and the buffer areas as described and mapped on pages 6 and 7 of the BA. Specifically, the action area includes: a 600-foot buffer to the east side of the bridge footprint to include potential noise impacts from the Project; a 660-foot buffer to the west of the bridge; and docks at the Yankee Fisherman's Co-op, Eastman's Docks, the Hampton State Pier, and the Hampton Marina that may be used for construction staging. The action area contains suitable nesting and foraging habitat for piping plovers at Hampton-Seabrook Dunes State Wildlife Management Area (Hampton-Seabrook Dunes WMA) west of the Route 1A bridge and limited foraging habitat east of the bridge, in the town of Seabrook. Piping plover nesting and foraging habitat does not occur within the action area in the town of Hampton.

STATUS OF THE SPECIES

Per ESA section 7 regulations (50 CFR 402.14(g)(2)), it is the Service's responsibility to "evaluate the current status of the listed species or critical habitat." The Service listed the Atlantic Coast breeding population of the piping plover as threatened on January 10, 1986 (50 FR 50726). Critical habitat in the breeding range of the Atlantic Coast population has not been designated. A complete species description, life history, population dynamics, threats, and conservation needs can be found in the Atlantic Coast Population Revised Recovery Plan (USFWS 1996), the 2009 5-year review (USFWS 2009), the 2020 5-year review (USFWS 2020c), and the Species Profile for Piping Plover (*https://ecos.fws.gov/ecp/species/6039*, accessed March 16, 2021). Continuing threats to Atlantic Coast piping plovers in the breeding portion of their range identified in the 1996 revised recovery plan include habitat loss and degradation, disturbance by humans and pets, increased predation, and oil spills (USFWS 1996). The 2020 5-year review updated information regarding these threats, as well as potential threats of climate change and wind turbine generators (USFWS 2020c). We considered the information in these documents in the evaluation of this project, and they are incorporated by reference into this Opinion. Information provided below describes the current status of the species. We also summarize information about threats most pertinent to the nature and duration of effects of the proposed action (e.g., breeding site fidelity and dispersal, recreation, predation).

To assess the current status of the species, it is helpful to understand the species' conservation needs. The Service frequently describes conservation needs via the conservation principles collectively known as the three Rs: resiliency,[1] redundancy,[2] and representation[3] (Shaffer et al. 2002; Wolf et al. 2015; Smith et al. 2018). The Service can then apply the appropriate regulatory framework and standards to these principals to address a variety of ESA-related decisions (e.g., listing status, recovery criteria, jeopardy and adverse modification analysis). For section 7(a)(2) purposes, the 3 Rs can be translated into the reproduction, numbers, and distribution (RND) of a species.

Recovery criteria and strategy

The objective of the 1996 Atlantic Coast Population Revised Recovery Plan is to assure the long-term viability of the Atlantic Coast piping plover population in the wild, thereby allowing removal of this population from the Federal List of Endangered and Threatened Wildlife and Plants (50 CFR 17.11 and 17.12). The Atlantic Coast piping plover population may be considered for delisting when the following recovery criteria, established in the recovery plan, have been met:

[1] Resiliency is the ability of species/populations to withstand stochastic events, which is measured in metrics such as numbers or growth rates.

[2] Redundancy is the ability of a species to withstand catastrophic events, which is measured in metrics such as number of populations and their distribution.

[3] Representation is the variation/ability of a species to adapt to changing conditions, which may include behavioral, morphological, genetics, or other variation.

- increase and maintain for 5 years a total of 2,000 breeding pairs, distributed among four recovery units;

Recovery Unit	Minimum Subpopulation
Atlantic (Eastern Canada)	400 pairs
New England	625 pairs
New York-New Jersey	575 pairs
Southern (DE-MD-VA-NC)	400 pairs

- verify the adequacy of a 2,000-pair population of piping plovers to maintain heterozygosity and allelic diversity over the long term;
- achieve a 5-year average productivity of 1.5 fledged chicks per pair in each of the four recovery units described in criterion 1, based on data from sites that collectively support at least 90 percent of the recovery unit's population;
- institute long-term agreements to assure protection and management sufficient to maintain the population targets and average productivity in each recovery unit; and
- ensure long-term maintenance of wintering habitat, sufficient in quantity, quality, and distribution to maintain survival rates for a 2,000-pair population.

The subpopulation abundance and distribution targets will ensure representation, redundancy, and resiliency for Atlantic Coast piping plovers in their breeding range (USFWS 2020c). Maintaining geographically well-distributed populations across the four recovery units serves to conserve representation of genetic diversity and adaptations to variable environmental selective pressures as evidenced by the population's genetic structure, variable habitat requirements, differences in vital rates, and morphometric differences (USFWS 2020c). The ability of piping plovers in each recovery unit to rebound from events that depress unit-wide productivity or survival and to colonize newly formed or improved habitat (e.g., after storms or artificial habitat enhancement projects) depends on within-unit redundancy that is measured via progress towards abundance targets. Distribution of robust numbers of breeding pairs across the four recovery units will also provide Atlantic Coast piping plovers with a buffer against stressors (e.g., weather, habitat degradation, disturbance) in their migration and wintering range that may depress survival rates (USFWS 2020c).

Population trends since listing under the ESA

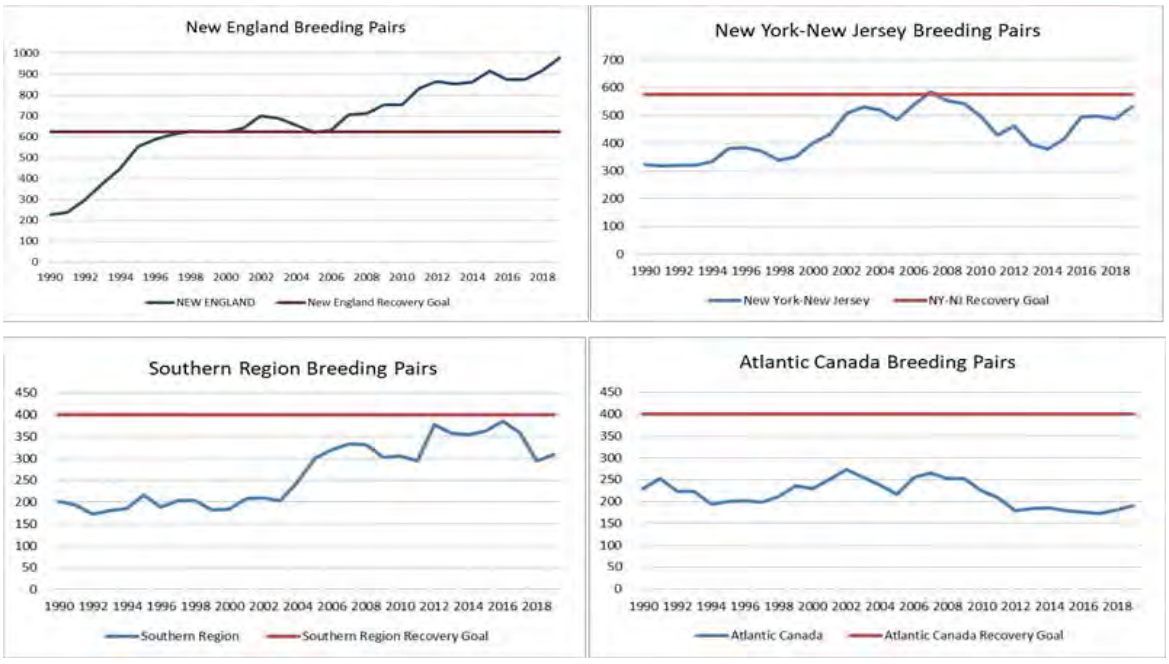
Abundance of Atlantic Coast piping plovers is reported as numbers of breeding pairs (i.e., adult pairs that exhibited sustained (> 2 weeks) territorial or courtship behavior at a site or were observed with nests or unfledged chicks (USFWS 1996)). Annual estimates of breeding pairs of Atlantic Coast piping plovers are based on multiple surveys of almost all breeding habitat, including many currently unoccupied sites. The Service produces annual updates for rangewide abundance and productivity estimates for the Atlantic Coast piping plover. The most current comprehensive update including data through 2018 and final data for 2019 can be found at the Service's Atlantic Coast piping plover website: https://www.fws.gov/northeast/pipingplover/pdf/Abundance-

Productivity-2018-Update_final-with-tables.pdf and https://www.fws.gov/northeast/pipingplover/pdf/2019-Update-Final.pdf (accessed March 31, 2021).

Substantial population growth, from approximately 790 pairs in 1986 to an estimated 2,008 pairs in 2019, has decreased the Atlantic Coast piping plover's vulnerability to extinction since ESA listing, although only the New England recovery unit has been able to reach and sustain its abundance target. Discounting apparent increases in New York, New Jersey, and North Carolina between 1986 and 1989, which likely were due in part to increased census effort (USFWS 1996), the population doubled between 1989 and 2019, reaching the recovery criterion of a population of 2,000 pairs for the first time since the species was listed.

The security of the Atlantic Coast piping plover is fundamentally dependent on an even distribution of population growth to maintain a sparsely-distributed species with strict biological requirements in the face of environmental variation, buffer it against catastrophes, and conserve adaptive capacity. The New England recovery unit, in which the Seashore is located, has exceeded its subpopulation target for many more than the requisite 5 years, but the numbers of breeding pairs in the other three recovery unit populations remain below targets established in recovery criterion 1 (USFWS 2019; USFWS 2020d) (figure 1).

Figure 1. Abundance of Atlantic Coast piping plover breeding pairs by recovery unit, 1990 – 2019.



Productivity remains an important, albeit partial, predictor of trends in future abundance of piping plovers. Furthermore, because small populations may be vulnerable to extirpation due to variability in productivity and survival rates, productivity needed to assure a secure population (that can withstand, for example, catastrophic and stochastic events) may be higher than the rate sufficient for a stationary population. As abundance increases, the productivity rates required for demographic stability and security are likely to converge. Although the Service continues to monitor plover productivity rates and assess their implications for recovery, abundance of breeding pairs has become a more informative indicator of decreased extinction risk in the New England recovery unit than the annual productivity rate.

Thirty years of population growth, although unsteady in large sections of the range, evidences the general efficacy of the ongoing Atlantic Coast piping plover recovery program. However, all of the major threats (habitat loss and degradation, predation, human disturbance) identified in the 1986 ESA listing and 1996 revised recovery plan remain persistent and pervasive (USFWS 2020c). Two threats, climate change (especially sea level rise) and wind turbines, identified in the 2009 5-year review (USFWS 2009) and discussed in detail in the 2020 5-year review (USFWS 2020c), are likely to affect Atlantic Coast piping plovers throughout their annual cycle. Some aspects of climate change remain uncertain, but ongoing acceleration of sea level rise is well-documented. Further increases in sea level rise rates are foreseeable with a high degree of certainty, and effects of sea level rise on Atlantic Coast piping plovers and their habitat will be partially determined by coastal management activities.

Although threats from wind turbine generators are foreseeable, their magnitude remains poorly understood. Currently, the Bureau of Ocean Energy Management (BOEM) has assumed that approximately 22 gigawatts of Atlantic offshore wind development within the North Atlantic Outer Continental Shelf lease area are reasonably foreseeable to occur along the East Coast from New Hampshire to North Carolina. The potential wind energy development includes 17 active wind energy lease areas that could construct about 2,000 wind turbines over a 10-year period. (BOEM 2020). Although some information has become available that will help assess effects of future proposed projects, collision risk for plovers migrating through offshore wind energy projects remains largely unknown.

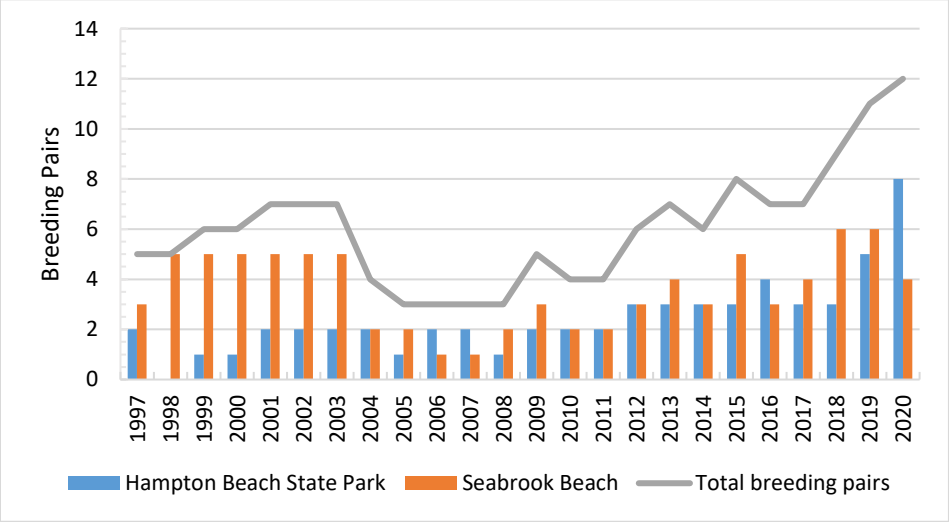
Population trends in New Hampshire

At the time the species was listed in 1986, piping plovers were not known to breed in New Hampshire. Individual piping plovers had been reported from Seabrook and Hampton beaches throughout the 1980s and early 1990s; however, breeding piping plovers were first recorded in the State by the NHFG in 1997 (5 pairs) (NHFG 2020a; NHFG 2020b; eBird.org, accessed April 16, 2021). Currently, piping plovers in New Hampshire are limited to Seabrook Beach (approximately 1.4 miles long), Hampton Beach State Park (approximately 1.4 miles long), and Hampton-Seabrook Dunes WMA (approximately 0.14 miles long). These are the only areas of the coast with sufficient suitable habitat to support breeding piping plovers.

Since 1997, the number of breeding pairs ranged from 3 to 12 pairs and demonstrated an increasing trend in abundance since 2008 (figure 1) (NHFG 2020b; NHFG 2020c). The increase in New Hampshire's plover population is likely due to a combination of generally high productivity and immigration from Massachusetts and Maine, as populations in those States also increased over the last decade. Seabrook Beach[4] generally has more breeding plovers than Hampton Beach State Park (figure 1).

Despite high variability in productivity between years, productivity for New Hampshire averaged 1.3 chicks fledged per breeding pair of piping plovers, slightly above the 1.2 chicks fledged per breeding pair needed to maintain a stable population. Seabrook Beach (including the Hampton-Seabrook Dunes WMA) generally has higher productivity than pairs nesting at Hampton Beach (figure 2).

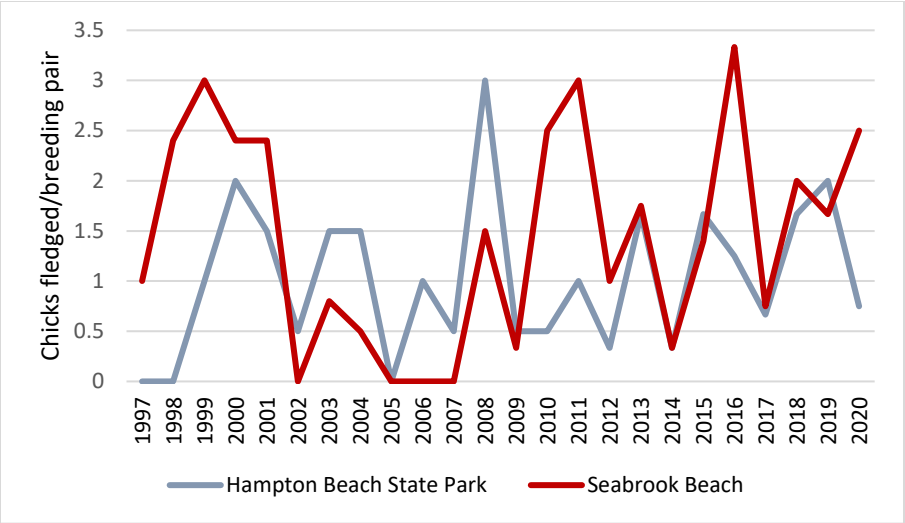
Figure 1. Piping plover abundance in New Hampshire (1997 to 2020).



In addition to climate change and the development of offshore wind energy projects, the following factors may also affect piping plover productivity and abundance rangewide and in New Hampshire.

[4] Includes the single pair nesting in the Hampton-Seabrook Dunes WMA in NHFG annual plover reports.

Figure 2. Annual productivity for Hampton Beach State Park and Seabrook Beach 1997 to 2020.



Breeding site fidelity and dispersal

Adult piping plovers generally demonstrate nest site fidelity, returning to the same breeding beach or a nearby beach in consecutive years. First-time Atlantic Coast breeders are more likely to disperse from their natal sites, but their fidelity to their natal region is very high.

Although long-distance movements between natal and breeding sites (and even between breeding years) have been documented, they are rare. On the Atlantic Coast, almost all observations of inter-year movements of birds have been within the same or adjacent states. Extensive efforts to re-sight more than 1,400 Atlantic Coast piping plovers color-banded in Virginia, Maryland, Massachusetts, and five Eastern Canadian provinces between 1985 and 2003 resulted in only four records of plovers breeding outside the recovery unit in which they were banded (n=86, range=0.01 – 217.33 kilometers) (Rioux *et al*. 2011). Studies in New York, Massachusetts, Maryland, Virginia, and Canada documented that, in general, adults returned to their original nesting beaches or beaches nearby, and males demonstrated greater site fidelity than females (USFWS 2020c). More recent studies provide quantitative estimates of dispersal distances depending on the previous year's hatching failure (greater likelihood of dispersal) or success (likely to return to the vicinity of the breeding beach) (USFWS 2020c).

Genetic evidence is consistent with observed dispersal patterns. Miller et al. (2010) found strong genetic structure, supported by significant correlations between genetic and geographic distances in both mitochondrial and microsatellite data sets for Atlantic Coast piping plovers. Atlantic birds showed evidence of isolation-by-distance patterns, indicating that dispersal, when it occurs, is generally associated with movement to relatively proximal breeding territories.

In summary, piping plovers demonstrate high fidelity to their natal and breeding regions. Established males make smaller inter-annual movements than females, and first-time breeders disperse more than adults. Notwithstanding rare long-distance movements, population growth and stability are heavily dependent on survival and productivity of local populations (USFWS 2020c).

Threats from beach recreation

Threats to piping plovers from human beach users were cited in the final listing rule and described in detail in the 1996 revised Atlantic Coast recovery plan. Threats to breeding piping plovers from both motorized and non-motorized beach recreation activities are relatively well understood, and recommended management options are described in the Federal guidelines for avoiding adverse effects on piping plovers (Federal guidelines; USFWS 1994). Newer threats include the increasing popularity of "extreme sports," such as kite-buggies and surf kites (also called "kite boards"), which accidentally land in and near breeding habitat.

Sufficiency of restrictions on dogs in piping plover nesting areas and consistency of enforcement are continuing concerns of biologists monitoring Atlantic Coast piping plovers. Literature on closely related beach-nesting plover species provides additional evidence of adverse effects on breeding activities from both leashed and unleashed dogs (USFWS 2020c).

Management activities to protect habitat, nests, and unfledged chicks from impacts of pedestrian recreation include symbolic fencing of courtship and nesting habitat, leashing or prohibition of pets during the breeding season, buffers between breeding piping plovers and fireworks, informational and interpretive signing, public education, and law enforcement patrols. On sites where ORVs are allowed to operate during the breeding season, protection requires additional closures of the lower beach and intertidal zone during periods when unfledged chicks are present. These management activities are predicated on frequent monitoring of individual breeding pairs during territory establishment and courtship, nesting, and chick-rearing periods (USFWS 2020c). Effectiveness of management measures to avoid or reduce threats is contingent on skilled monitoring and timely employment and enforcement of adequate buffers to protect piping plover courtship, nesting, and brood-rearing. All of these labor-intensive actions require continued implementation to counter threats that are present every year.

Threats from predation

The final listing rule identified predation by pets, feral dogs and cats, skunks, and raccoons as threats on the plover's Atlantic Coast range. The 1996 revised recovery plan provides a more thorough discussion of predation threats, and recommends specific tasks to be implemented in an integrated approach to predator management that employ a full range of management techniques.

Research and reports indicate that predation poses a continuing (and perhaps intensifying) threat to Atlantic Coast piping plovers (USFWS 2020c). Although predator numbers are undiminished

or increasing, effectiveness of predator exclosures[5] has declined (USFWS 2020c). As effectiveness of exclosures has declined, managers have increased selective predator removal activities at many sites throughout the U.S. Atlantic Coast range (USFWS 2020c). Recent predator removal efforts focused on mammalian predators such as fox, skunks, and coyotes, and avian predators, primarily gulls and crows. Targeted predator management is annually implemented on select Massachusetts beaches because the Massachusetts Division of Fisheries and Wildlife Habitat Conservation Plan For Piping Plover (MADFW 2016) (HCP) requires predator management as the only method of mitigating impacts from activities authorized under the HCP.

Predation is a widespread and continuing threat to breeding Atlantic Coast piping plovers. Implementation of conservation measures for addressing predation threats is time-consuming and costly. Although site-specific predator pressures vary from year to year, predator management is a recurring need in the recovery of piping plovers.

Summary

Thirty-five years of intensive recovery efforts have reduced the near-term extinction risk of the Atlantic Coast piping plover by increasing the population and managing the continuing threats. However, the Atlantic Coast piping plover remains vulnerable to low numbers in three of its four recovery units. Furthermore, the factors that led to the piping plover's 1986 listing remain operative across its Atlantic breeding range, including in New England, and many of these threats have increased. Interruption of labor-intensive efforts to manage these threats would quickly lead to steep population declines.

ENVIRONMENTAL BASELINE

In accordance with 50 CFR 402.02, the environmental baseline refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline.

[5] Exclosures are wire cages placed around nests to exclude predators. They were a key management tool in the early years of the recovery program.

Status of the Species within the Action Area

One pair of piping plovers nested west of the bridge within the action area at Hampton-Seabrook Wildlife Management Area (WMA) during 7 of the last 11 years. No pairs nested within the action area in 2020 (table 1). Piping plovers nested 3 of the last 4 years less than 500 feet west of the existing bridge. No plovers have ever nested on the Hampton side of the action area as there is no suitable habitat.

Productivity of the single pair within the action area at Hampton-Seabrook Dunes WMA is also highly variable, ranging from zero chicks fledged to four chicks fledged per pair (table 1). Average productivity for this location was 2.14 chicks fledged per breeding pair.

Table 1. Hampton-Seabrook Dunes WMA abundance and productivity 2010 to 2020 (NHFG 2020c).

Year	# Nesting Pairs	# Chicks Fledged	Productivity
2010	0	N/A	N/A
2011	0	N/A	N/A
2012	0	N/A	N/A
2013	1	4	4
2014	1	1	1
2015	1	3	3
2016	1	4	4
2017	1	0	0
2018	1	3	3
2019	1	0	0
2020	0	N/A	N/A

Within the action area, the nesting habitat at Hampton-Seabrook Dunes WMA is State-owned and not heavily visited, primarily by pedestrians walking the shoreline. Consistent predation by feral cats, fox, and avian predators, including crows and gulls, affects productivity at all New Hampshire beaches. Unleashed dogs are also a threat to plovers, particularly flightless chicks and can be pervasive at Hampton Beach State Park and Seabrook Beach, but less so at Hampton-Seabrook WMA. The NHFG implements the Federal guidelines on all beaches. In addition to monitoring and managing plover beaches under the Federal guidelines, the NHFG implements predator management and conducts piping plover outreach to beach visitors.

EFFECTS OF THE ACTION

Regulatory Background

In accordance with 50 CFR 402.02, effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action

if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (see § 402.17).

The Service established additional requirements for making the determination of reasonably certain to occur, which must be followed after October 28, 2019, the effective date of new regulations under 50 CFR 402. After determining that the "activity is reasonably certain to occur," based on clear and substantial information,[6] using the best scientific and commercial data available, there must be another conclusion that the consequences of that activity (but not part of the proposed action or activities reviewed under cumulative effects) are reasonably certain to occur. In this context, conclusion of reasonably certain to occur must be based on clear and substantial information, using the best scientific and commercial data available after consideration of three factors in 402.17(b)(1-3).

There is no intent that the 2019 regulatory changes alter how we will analyze the effects of a proposed action or the scope of effects. We will continue to review all relevant effects of a proposed action as we have in past decades, but the Service determined it was not necessary to attach labels to various types of effects through regulatory text. That is, we intend to capture all of those effects (now "consequences") previously listed in the regulatory definition of effects of the action—direct, indirect, and the effects from interrelated and interdependent activities—in the new definition. These effects are captured in the new regulatory definition by the term ''all consequences'' to listed species and critical habitat.

The test for determining effects includes the consequences resulting from actions previously referred to as ''interrelated or interdependent'' activities. In order for consequences of other activities caused by the proposed action, but not part of the proposed action, to be considered effects of the action, both those activities and the consequences of those activities must satisfy the two-part test: they would not occur but for the proposed action and are reasonably certain to occur. As a result, when we discuss effects or effects of the action throughout the Opinion, we are referring only to those effects that satisfy the two-part test. Requiring evaluation of all consequences caused by the proposed action allows the Service to focus on the impact of the proposed action to the listed species and critical habitat, while being less concerned about parsing what label to apply to each consequence.

[6] By clear and substantial, we mean that there must be a firm basis to support a conclusion that a consequence of an action is reasonably certain to occur. This term is not intended to require a certain numerical amount of data; rather, it is simply to illustrate that the determination of a consequence to be reasonably certain to occur must be based on solid information. This added term also does not mean the nature of the information must support that a consequence is guaranteed to occur, but must have a degree of certitude.

Effects of the Action

The BA described potential effects from the Project in detail (pages 31 to 43 and incorporated by reference). Table 2 summarizes potential effects from project components.

Table 2. Summary of potential stressors and effects to piping plovers.

Project Component	Stressor	Exposure	Response
Bridge construction and relocation	Loss of nesting habitat (approximately 0.42 acre)	Yes	Relocation to less suitable habitat or near another plover's territory, delayed nesting.
Vibration - construction	Disturbance during foraging	Not likely	Vibrations limited to a very small foraging area near existing bridge and proposed bridge. Not optimal foraging habitat and not near potential nesting habitat. Effects of disturbance to foraging adults so small as to not be measurable. Optimal foraging habitat not affected.
Noise - construction	Construction equipment exceeding ambient noise level.	Yes	Disturbance, preventing plovers from foraging in areas affected by increased noise levels. Sudden onset of increased noise might cause startle reaction, interrupting courtship or feeding.
Noise - dredging	Noise from dredge within 600 feet	Not likely	Noise from dredge would slightly increase average ambient levels by 1 to 2 decibels (dBA). Effects of disturbance to foraging adults so small as to not be measurable.
Noise – new bridge	Noise from vehicle traffic crossing new bridge	Not likely	Noise level not anticipated to exceed traffic noise at existing bridge.
Shadow – new bridge	Shading adjacent plover nesting habitat	Yes	May reduce available nesting habitat because of extended daytime shadows.
Construction vehicles	Precluding access to potential nesting habitat and chick mortality	Not likely	A small area of beach will be made unavailable for nesting. If beach accretion occurs, additional nesting habitat may be available, reducing the impact of a temporary loss of habitat from fencing and construction. Chicks may run into construction zone and be injured or killed by vehicles in the construction zone. Barriers installed around the active construction zone will preclude chicks from entering the construction area.
Lights – night work, new bridge	Disturbance to foraging plovers	Not likely	Limited duration (one week), will occur outside of plover breeding season. Lighting of the new bridge will be similar to that of the existing bridge.

We anticipate adverse effects from the Project would be limited to approximately 0.42-acre loss of suitable nesting habitat and a lesser amount of foraging habitat, and disturbance to territorial, courting, and/or foraging piping plovers from construction noise. The proposed Project may result in the reduction of some or all productivity for one pair of piping plovers at the Hampton-Seabrook

Dunes WMA when construction activity occurs at the south end of the bridge. We do not anticipate adverse effects to foraging plovers nesting on Seabrook Beach, because they may only sporadically forage in the project area. Foraging plovers are occasionally observed east of the bridge and rarely west of the bridge when there is no nesting pair at the Hampton-Seabrook Dunes WMA.

Adverse effects could result when breeding pairs and their territories, nests, and/or broods are disturbed by construction, particularly noise. Should plovers be startled while on the nest and leave, eggs repeatedly exposed on hot days may overheat, killing the embryos (Bergstrom 1991). Excessive cooling may kill embryos or delay their development, thus delaying hatching dates. Chicks and adults may be disturbed during foraging, primarily impacting chicks as they may experience a slower growth rate, prolonged time to fledging, or mortality. However, some disturbance will be ameliorated by the conservation measure requiring a slow start for drilling activities to reduce the likelihood of startling plovers. The disturbance impacts from noise would last only as long as Project construction and occur only during the years when construction is focused at the southern end of the Project. Because the area of suitable habitat that would be affected by noise is small, we expect no more than one pair would occupy this habitat and experience noise effects from the Project.

There is limited suitable nesting habitat at the Hampton-Seabrook Dunes WMA. The permanent reduction of approximately 0.42 acre of suitable habitat could preclude piping plovers from nesting west of the bridge in years when stochastic events (e.g., erosion) cause a significant reduction in available nesting habitat. Adult piping plovers generally return to the same nesting beach, or a nearby beach (see Status of the Species for discussion on dispersal). If less suitable habitat is available for establishing territories and nests, plovers may be forced to seek out different breeding habitat, possibly increasing energetic demands. This is the case especially for birds arriving later in the breeding season as they seek new nesting options farther from their traditional breeding areas. Plovers forced from their traditional nesting locations may encounter later territory establishment and nesting than previous years when sufficient habitat was available. If the piping plover population in a region approaches the available habitat's carrying capacity, some adults that are displaced may not breed at all and potential new recruits may not find territories. Therefore, we expect the reduction in suitable habitat to force one nesting pair to relocate when the overall nesting habitat is reduced due to stochastic events. If the breeding pair cannot nest at Hampton-Seabrook Dunes WMA, the pair may relocate closer to another occupied territory, causing an increase in agonistic behavior between pairs, delayed nesting of either pair, or competition for resources, especially once chicks have hatched and adults are defending their broods.

Effects on the New England recovery unit and the Atlantic Coast population

In 2019 (the last year plovers nested west of the bridge), 11 pairs of piping plovers nested in New Hampshire with an average productivity of 1.8 chicks fledged per piping plover pair. Given that plovers generally return to the same nesting beach or a nearby beach, and there is available unoccupied habitat at Seabrook Beach and potentially Hampton Beach, we do not anticipate that the Hampton-Seabrook Dunes WMA pair of plovers would abandon the State completely. For

example, no pairs nested at Hampton-Seabrook Dunes WMA due to severe erosion of the nesting habitat in 2020, yet the State documented the most plover breeding pairs (12) since 1997, when breeding plovers were first observed.

We anticipate that at most, there may be a 50 percent reduction in productivity for one pair of piping plovers during the Project's construction. The reduction in productivity would not significantly affect the New Hampshire population, because of the short duration of noise effects from the Project and minimal loss of habitat.

Attainment and maintenance of population abundance targets for the four recovery units provide resiliency, redundancy, and representation that are fundamental to the overall security of the Atlantic Coast piping plover population. Based on data through 2019, the New England population has attained (or been within three pairs of) its abundance goal for 18 years, and it currently exceeds its goal by 69 percent. Given that the breeding plovers affected by project activities would not be lost to the New England population, the New England recovery unit would not be measurably affected by the proposed action. Moreover, we do not anticipate the proposed loss of productivity for up to one pair of piping plovers to cause a reduction in the abundance of New England piping plovers.

We anticipate that the loss of a small area of breeding habitat and loss of productivity for one pair of piping plovers in New Hampshire as a result of the Project would have an insignificant effect on the New Hampshire and New England piping plover populations. Any effect on the Atlantic Coast population would not be measurable.

CUMULATIVE EFFECTS

Cumulative effects are those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area (50 CFR 402.02). We expect historical recreation activities such as walking, jogging, and/or sunbathing will continue at Hampton-Seabrook Dunes WMA. In general, when these activities occur in close proximity to piping plover nesting, it can result in increased disturbance to nesting adults, disruption in foraging, and increased time spent on vigilance or defensive behaviors. However, while plovers may be affected by these recreational activities, the NHFG manages the beach according to the Guidelines, which precludes adverse effects on plovers. We expect these activities to occur at similar levels as in the past, and therefore do not anticipate a change from baseline conditions in the action area or substantial additive effects to the proposed action.

JEOPARDY ANALYSIS

Section 7(a)(2) of the ESA requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat.

Jeopardy Analysis Framework

"Jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR 402.02). In accordance with policy and regulation, the jeopardy analysis in this Opinion relies on four components: (1) Status of the Species, which evaluates the piping plover rangewide condition, the factors responsible for that condition, and its survival and recovery needs; (2) Environmental Baseline, which evaluates the status of the piping plover in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the piping plover; (3) Effects of the Action, which determines impacts of the proposed action; and (4) Cumulative Effects, which evaluates the effects of future, non-Federal activities in the action area on the piping plover. The jeopardy analysis in this Opinion emphasizes the rangewide survival and recovery needs of the listed species and the role of the action area in providing for those needs. It is within this context that we evaluate the significance of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination (see 50 CFR 402.14(g)).

In this section, we add the effects of the action and the cumulative effects to the status of the species and critical habitat and to the environmental baseline to formulate our Opinion as to whether the proposed action is likely to appreciably: (1) reduce the likelihood of both the survival and recovery of a listed species in the wild by reducing the RND of that species; or (2) appreciably diminish the value of critical habitat for both the survival and recovery of a listed species.

Per the Service's consultation handbook (USFWS and NMFS 1998), survival is defined as "the species' persistence as listed or as a recovery unit, beyond the conditions leading to its endangerment, with sufficient resilience to allow for the potential recovery from endangerment. Said another way, survival is the condition in which a species continues to exist into the future while retaining the potential for recovery. This condition is characterized by a species with a sufficient population, represented by all necessary age classes, genetic heterogeneity, and number of sexually mature individuals producing viable offspring, which exists in an environment providing all requirements for completion of the species' entire life cycle, including reproduction, sustenance, and shelter."

Per the Service's consultation handbook (USFWS and NMFS 1998), recovery is defined as "improvement in the status of listed species to the point at which listing is no longer appropriate under the criteria set out in section 4(a)(1) of the ESA." The "criteria set out in Section 4(a)(1)" means determining when a species no longer meets the definition of an "endangered species" or a "threatened species" because of any of the following factors:

(A) present or threatened destruction, modification, or curtailment of habitat or range;
(B) overutilization for commercial, recreational, scientific, or educational purposes;

(C) disease or predation;
(D) inadequate existing regulatory mechanisms; and
(E) other natural or manmade factors affecting the species' continued existence.

An endangered species is "in danger of extinction throughout all or a significant portion of its range" (see ESA Section 3(6)). A threatened species is "likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (see ESA Section 3(20)).

To conduct this analysis, we begin by assessing whether there are effects to any individuals of the species of interest (as discussed in the effects analysis section above). If all effects are insignificant, discountable, or wholly beneficial, no further consultation is required. In other words, if we conclude that individuals are not likely to experience reductions in reproductive success or survival likelihood, fitness consequences for the species rangewide would not be expected as well. In this case, the agency has ensured that their action is not likely to jeopardize the continued existence of the species and our analysis is completed. Conversely, if we are unable to show that individuals are unlikely to experience reductions in their reproductive success or survival likelihood, we are required to assess how those effects are or are not anticipated to result in an appreciable reduction in the likelihood of both the survival and recovery of the species. We do not assess appreciable reduction of reproduction, numbers or distribution at an individual level because we do not assess appreciable reduction of survival and recovery at an individual level.

Because many species are composed of multiple populations and there may be meaningful differences in those populations (e.g., genetics, morphology, size) to the overall species survival and recovery, it is a logical intermediate step to evaluate the effects of impacts to individuals on the population(s) they are associated with. If our analyses indicate that reductions in the fitness of the population(s) are not likely to occur, there can be no appreciable reductions in reproduction, numbers, or distribution at a species level and we conclude that the agency has ensured that their action is not likely to jeopardize the continued existence of the species. If there are reductions in the fitness of the population(s) impacted, we then assess whether those changes affect the overall species survival and recovery rangewide based on the importance of the population(s) for species level representation, resiliency and redundancy, the level of impact, and the status of the species.

CONCLUSION

As discussed in the "Effects of the Action" section, the primary consequence of the Project is the 50 percent reduction in productivity for one pair of piping plovers attempting to breed at the Hampton-Seabrook Dunes WMA. The jeopardy analysis in this Opinion assesses whether the proposed action reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both survival and recovery of the Atlantic Coast piping plover by reducing the species' reproduction, numbers, or distribution in the wild.

The action area for this consultation is located in the New England recovery unit. This and three other recovery units were defined in the final recovery plan for this species (USFWS 1996). Recovery units are special units of a listed entity that are geographically or otherwise identifiable and are essential to the recovery of the entire listed entity. Therefore, we start by considering the effects of the proposed action on the piping plover population in New Hampshire. We then consider those effects in the context of the current status of piping plovers in the New England recovery unit and the environmental baseline in the action area, taking into account any cumulative effects. Finally, we determine whether implementation of the proposed action is likely to appreciably reduce the likelihood of both the survival and recovery of the species in the wild.

In formulating this Opinion, we consider the following points discussed earlier in this document:

1. Although a small amount of nesting habitat may be permanently altered, there is sufficient available, unoccupied habitat at nearby Seabrook Beach such that the single pair that usually nests at the Hampton-Seabrook Dunes WMA is unlikely to abandon the area.
2. There is uncertainty that plovers will attempt to nest at Hampton-Seabrook Dunes WMA in the near future because of limited nesting habitat caused by beach erosion.
3. Impacts on foraging habitat are so small as to not be measurable.
4. Conservation measures, including slow starts to drilling, maintaining a clean work environment to discourage predators, and shielded lighting, will reduce the impacts of disturbance to foraging or nesting piping plovers during construction.
5. Protective fencing erected around suitable plover habitat within the project construction zone will preclude nest establishment and piping plover chicks (if present) from accessing the construction area.
6. The predicted reduction in productivity as a result of noise would be limited to 3 years, the anticipated construction duration of the Project.
7. The proposed action will not significantly affect the numbers and distribution of nesting pairs of piping plovers in New Hampshire.
8. We do not anticipate cumulative effects at levels different from baseline conditions.
9. The proposed action will take place in the New England recovery unit, where the piping plover population has exceeded (or been within three pairs of) its 625-pair abundance goal since 1998, reaching 1,058 pairs in 2020 (A. Hecht, U.S. Fish and Wildlife Service, pers. comm. 2020), 69 percent above the recovery unit goal.

After reviewing the status of the species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, we find that the proposed action is not reasonably expected to reduce appreciably the likelihood of both survival and recovery of piping plovers in the New England recovery unit by reducing their reproduction, numbers, or distribution in the wild. Our analysis indicates that the effects of the covered activities are likely to be minimal and site-specific. Further, the proposed action would have no measurable affect (either negative or positive) on the numbers or distribution of piping plovers in the other recovery units. Therefore,

we conclude that the proposed action is not likely to jeopardize the continued existence of the Atlantic Coast piping plover population as a whole.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without a special exemption. Take is defined in section 3 of the ESA as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns including breeding, feeding, or sheltering (50 CFR § 17.3). Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA, provided that such taking is in compliance with the terms and conditions of this incidental take statement (ITS).

The measures described below are nondiscretionary and must be undertaken by the FHWA for the exemption in section 7(o)(2) to apply. The FHWA has a continuing duty to regulate the activity covered by this ITS. If the FHWA fails to assume and implement the terms and conditions, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, the FHWA must report the progress of the action and its impact on the species to the Service as specified in the ITS [50 CFR 402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE ANTICIPATED

We expect the proposed action would cause take of one pair of piping plovers via harassment and harm, and that the take will result in a 50 percent reduction in productivity for the life of the Project and then subsequent years when stochastic events further reduce available habitat in Hampton-Seabrook Dunes WMA. Take via harassment may occur when noise from nearby construction creates the likelihood of injury to such an extent as to significantly disrupt normal breeding, feeding, and roosting behaviors. Disturbance to nesting plovers may lead to reduced nest attendance by incubating adults if noise or construction activity causes plovers to repeatedly leave the nest. Plover eggs produced by one pair may be killed as a result of cooling, overheating, or predation due to nest abandonment. In a worst-case scenario, take would result in zero productivity for the pair of plovers at Hampton-Seabrook Dunes WMA.

Harm would occur as a reduction in available nesting habitat, which may disrupt normal behavior, including territory establishment, territory abandonment if the plover pair relocates, and a delay or extension of their breeding period if forced to relocate farther away from their preferred nesting habitat or near the territory of another breeding pair.

These take mechanisms may result in sublethal effects to piping plover adults and chicks, and sublethal or lethal effects to eggs. The anticipated impact to piping plovers is a 50 percent reduction in productivity for one breeding pair that attempts to nest at the Hampton-Seabrook Dunes WMA or would have nested there had sufficient habitat been available.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take of piping plovers at Hampton-Seabrook Dunes WMA:

1. the FHWA must use suitable dredge material to enhance piping plover habitat at Hampton-Seabrook Dunes WMA, if feasible;
2. avoid and minimize take of the piping plover to the extent practicable; and
3. monitor breeding piping plovers at Hampton-Seabrook Dunes WMA during construction of the bridge.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the ESA, the FHWA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

1. Coordinate disposal of suitable dredged material with the NHFG to determine the best location for piping plover nesting habitat enhancement.
2. Coordinate installation of fencing around the active construction area at the south end of the bridge with the NHFG to preclude plovers from nesting in the area and chicks from entering the construction zone.
3. Starting 7 days prior to construction activities or March 24, whichever comes first, a qualified monitor should survey the Hampton-Seabrook Dunes WMA daily for plover presence in April and May. If plovers are absent, monitoring may be discontinued after June 15.
4. If a pair of plovers nests at Hampton-Seabrook Dunes WMA, continue daily monitoring to document response to construction activities and productivity until fledging has been verified.
5. The FHWA must employ qualified individuals to monitor piping plovers. Individuals trained and/or approved by NHFG do not need additional approval from the Service. Alternatively, the FHWA can request Service approval of an individual's qualifications to monitor piping plovers. Requests for approval should be sent to newengland@fws.gov and arrive at least 30

days before the activities would occur. Requests should include a resume or other explanation of the individual's qualifications and experience with the piping plover. Experience with a species similar to the piping plover may substitute for direct experience with the piping plover.

MONITORING AND REPORTING REQUIREMENTS

The FHWA shall provide the New England Field Office an annual report by December 31 for the duration of the Project construction describing:

1. the number of nesting piping plover pairs present at Hampton-Seabrook Dunes WMA;
2. productivity of piping plovers nesting at Hampton-Seabrook Dunes WMA;
3. the fate of the nest(s) and/or brood(s) at Hampton-Seabrook Dunes WMA;
4. predator activity noted in the construction zone; and
5. the conservation measures implemented to avoid or minimize adverse impacts.

The contact for these reporting requirements is:

Audrey Mayer
Field Supervisor
New England Field Office
U.S. Fish and Wildlife Service
70 Commercial Street, Suite 300
Concord, NH 03301
Telephone number: 603-496-5181

Care must be taken in handling any dead specimens of listed species to preserve biological material in the best possible state. In conjunction with the preservation of any dead specimens, the finder has the responsibility to ensure that evidence intrinsic to determining the cause of death of the specimen is not unnecessarily disturbed. The finding of dead specimens does not imply enforcement proceedings pursuant to the ESA. The reporting of dead specimens is required to enable the Service to determine if take is reached or exceeded and to ensure that the terms and conditions are appropriate and effective. Upon locating a dead specimen, notify the Service's New England District Office of Law Enforcement at 617-889-6616 and the New England Field Office at 603-223-2541.

REINITIATION NOTICE

This concludes formal consultation on the proposed action. As provided in 50 CFR 402.16, reinitiation of consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of taking specified in the ITS is exceeded; (2) new information reveals effects of the action that may affect

listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, the exemption issued pursuant to section 7(o)(2) may have lapsed and any further take could be a violation of section 4(d) or 9. Consequently, we recommend that any operations causing such take cease pending reinitiation.

If you have any questions regarding this Opinion, please contact Ms. Susi von Oettingen of this office at 603-227-6418, or by e-mail at susi_vonoettingen@fws.gov.

Sincerely yours,

AUDREY MAYER

Digitally signed by AUDREY MAYER
Date: 2021.08.13 08:03:50 -04'00'

Audrey Mayer
Supervisor
New England Field Office

Attachment
Appendix A

cc: Reading file
Jamie Sikora/FHWA via email jamie.sikora@dot.gov
Marc Laurin/NHDOT via email marc.laurin@dot.nh.gov
Jennifer Reczek/NHDOT via email Jennifer.E.Reczek@dot.nh.gov
Robert Juliano/NHDOT via email Robert.A.Juliano@dot.nh.gov
Brendan Clifford/NHFG via email Brendan.J.Clifford@wildlife.nh.gov
Mike Marchand/NHFG via email michael.n.marchand@wildlife.nh.gov
ES: SvonOettingen:jd:8-13-21:603-227-6418

LITERATURE CITED

Bergstrom, P.W. 1991. Incubation temperatures of Wilson's plovers and killdeers. Condor. 91: 634–641.

Bureau of Ocean Energy Management [BOE]. 2020. Vineyard Wind 1 Offshore Wind Energy Project Supplement to the Draft Environmental Impact Statement. U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs. Sterling, Virginia. 420 pp.

[MADFW] Massachusetts Division of Fisheries & Wildlife. 2016. Massachusetts Division of Fisheries & Wildlife (DFW) habitat conservation plan for piping plover. Prepared by MADFW and ICF International. 152 pp.

Miller, M. P., S. M. Haig, C. L. Gratto-Trevor and T. D. Mullins. 2010. Subspecies status and population genetic structure in piping plover (*Charadrius melodus*). Auk 127:57-71.

[NHFG] New Hampshire Fish and Game Department. 2020a. Piping Plover Project – Nongame and Endangered Wildlife Program. Concord, NH. Retrieved from https://www. wildlife.state.nh.us/nongame/project-plover.html.

NHFG. 2020b. New Hampshire 2020 Piping Plover (*Charadrius melodus*) & Least Tern (*Sterna antillarum*) Annual Report.

NHFG. 2020c. *in litt*.

Shaffer, M.L., L.H. Watchman, W.J. Snape and I.K. Latchis. 2002. Population viability analysis and conservation policy. Pp. 123-142 in Population Viability Analysis, S.R. Beissinger and D.R. McCullough, editors. University of Chicago Press, Chicago.

Smith D.R., N.L. Allan, C.P. McGowan, J.A. Szymanski, S.R. Oetker and H.M. Bell. 2018. Development of a species status assessment process for decisions under the U.S. Endangered Species Act. Journal of Fish and Wildlife Management 9(1):xx–xx; e1944-687X. doi:10.3996/052017-JFWM-041

[USFWS] U.S. Fish and Wildlife Service. 1994. Guidelines for managing recreational activities in piping plover breeding habitat on the U. S. Atlantic Coast to avoid take under section 9 of the Endangered Species Act. Northeast Region, Hadley, MA.

USFWS. 1996. Piping Plover (*Charadrius melodus*), Atlantic Coast population, revised recovery plan. Northeast Region, Hadley, MA.

USFWS. 2009. Piping plover (*Charadrius melodus*) 5-year review: summary and evaluation. Northeast Region, Hadley, MA and the Midwest Region's East Lansing Field Office, MI.

USFWS. 2019. Abundance and productivity estimates – 2018 update: Atlantic Coast piping plover population. Hadley, Massachusetts. https://www.fws.gov/northeast/pipingplover/pdf/Abundance-Productivity-2018-Update_final-with-tables.pdf

USFWS. 2020a. Piping plover (*Charadrius melodus*) 5-year review: summary and evaluation. Michigan Field Office, East Lansing, MI and Northeast Region, Hadley, MA.

USFWS. 2020b. 2019 Atlantic Coast piping plover abundance and productivity estimates. Hadley, Massachusetts. https://www.fws.gov/northeast/pipingplover/pdf/2019-Update-Final.pdf

[USFWS and NMFS] U.S. Fish and Wildlife Service and National Marine Fisheries Service. 1998. Endangered Species Consultation Handbook Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act. 51 pp. https://www.fws.gov/endangered/esa- library/pdf/esa_section7_handbook.pdf.

Wolf, S., B. Hartl, C. Carroll, M.C. Neel and D.N. Greenwald. 2015. Beyond PVA: Why recovery under the Endangered Species Act is more than population viability. Bioscience 65:200-207.

Appendix A

CONSULTATION HISTORY

March 11, 2019 – Electronic transmission to NEFO from Fitzgerald and Halliday (consultants) providing background information for the proposed bridge project.

March 21, 2019 – Meeting with NHDOT, FHWA, NEFO and consultants to discuss proposed project and potential Federal- and State-listed species that may be affected by the construction of a new bridge.

December 18, 2019 – Meeting with FHWA, NHDOT, NHFG, NEFO, and consultants to discuss formal consultation on the project.

February 12, 2020 – NEFO electronic transmission to NHDOT and FHWA with information relevant to potential disturbance to piping plovers from construction activities.

April through July 2020 – Electronic transmissions between NEFO, NHFG, and NHDOT, providing information and plover data for BA.

December 9, 2020 – NEFO received the request to initiate formal consultation from the FHWA via electronic transmission.

December 16, 2020 – Virtual meeting with FHWA, NEFO, NH State agencies, and consultants to discuss the proposed project.

January 13, 2021 – NEFO received updated information about the size and location of the project action area from NHDOT via electronic transmission.

January 21, 2021 – NEFO received additional information regarding the FHWA determination of not likely to adversely affect roseate terns and rufa red knots, and an updated BA via electronic transmission.

January 25, 2021 – NEFO acknowledgement of receipt to initiate formal consultation with FHWA.

February 19, 2021 – Electronic transmission between FHWA, NHFG, and NEFO clarifying dredge material disposition and Federal agency lead.

March 9, 2021 –FHWA supplemental letter describing the estimated quantity of dredge material and options for disposal provided in an electronic transmission to NEFO.

U.S. Department of Transportation
Federal Highway Administration

New Hampshire Division

53 Pleasant Street, Suite 2200
Concord, NH 03301
(603) 228-0417

December 28, 2022

In Reply Refer To:
HDA-NH

Mr. Thomas R. Chapman, Supervisor
U.S Fish and Wildlife Service
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087

Attn: Ms. Susi von Oettingen, Endangered Species Biologist

Subject: **Seabrook-Hampton, NH**
NHDOT Project # 15904, Federal-aid # X-A001 (026)
NH Route 1A (Neil Underwood Memorial) Bridge over Hampton Harbor)

Dear Mr. Chapman:

In 2021, FHWA prepared and submitted a Biological Assessment to your office as part of the Section 7 consultation for the subject Bridge Project (NHDOT No. 15904). USFWS issued a Biological Opinion for the project in August of 2021. In the preparation of the Biological Assessment, the construction duration was assumed to be approximately three years. As NHDOT has advanced the design, it has become apparent that the construction duration will need to extend to four years, due primarily to the time-of-year restriction for turbidity producing activities agreed to with NOAA to minimize impacts to federally-listed and federally-managed aquatic species.

In addition, we also wanted to provide your office with an update on the estimated volume of excavated material that will be produced from the channel widening and the plans for its disposition. At the time the BA was prepared, the volume of excavated material was estimated to be 5,000 cubic yards (CY) based on a channel condition bathymetric survey conducted by the US Army Corps of Engineers (USACE) in August of 2017. Updated bathymetric survey was collected this year as part of the NHDOT's Final Design for the bridge project to capture the channel bottom elevations after the 2020 USACE channel maintenance project. Based upon the updated data, the estimated excavation volume is now estimated to be just 160 CY. In the BO, the USFWS recommended that the excavated material be used to enhance Piping Plover habitat, if feasible. Due to the limited volume now anticipated, and the project commitment with NOAA to restore the channel bottom condition after the removal of the existing piers, NHDOT now intends to use the excavated materials to fill the voids created by the removal of the existing piers. Using existing channel materials will facilitate the timely reestablishment of benthic organisms within the footprints of the piers. We have notified the New Hampshire Fish and Game Department of this refinement, both through email and presentation at the November 2022 NHDOT Natural Resources Agency Coordination Meeting.

We believe that these minor changes do not necessitate reinitiating formal Section 7 consultation but are providing you the information for your awareness and project records.

If you have any questions or require further information, you or your staff may contact me at (603) 410-4870 or Jamie.Sikora@gov.dot.

Sincerely yours,

JAMISON S SIKORA

Digitally signed by JAMISON S SIKORA
Date: 2022.12.28 11:48:59 -05'00'

Jamison S. Sikora
Environmental Programs Manager

ecc: M. Laurin, NHDOT
J. Reczek, NHDOT
File: 15904

Attachment 16

NOAA Meetings/Correspondence/BA /EFH Assessment

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

Victoria F. Sheehan
Commissioner

William Cass, P.E.
Assistant Commissioner

July 10, 2018

Mr. Mike Johnson
Marine Habitat Resource Specialist
Habitat Conservation Division, NOAA Fisheries
U.S. Department of Commerce
Northeast Regional Office
55 Great Republic Drive
Gloucester, MA 01930

Subject: Seabrook - Hampton, 15904, X-A001 (026)
Neil R. Underwood Bridge (New Hampshire Route 1A Bridge over the Hampton River)
Seabrook and Hampton, NH

Dear Mr. Johnson:

The New Hampshire Department of Transportation (NHDOT) is undertaking the rehabilitation or replacement of the Neil R. Underwood Bridge (NHDOT No. 235/025) and associated roadway improvements. The project is located in the Towns of Seabrook and Hampton, New Hampshire (see Attachment A). An Environnmental Assessment is currently being prepared for the project.

The Neil R. Underwood Bridge is approximately 1,199 feet long by 33 feet wide (53 feet wide at the barrier gates), and it spans the Hampton River at the inlet to Hampton Harbor. The Hampton and Blackwater Rivers, as well as Hampton Harbor, lie to the west of the bridge. The Atlantic Ocean lies to the east of the bridge. To the north and south are residential, recreational, and tourism-based development, including the Hampton Beach State Park, which is located north of and on the east side of the bridge, and the Former Barge Facility Conservation Area, which is located west of the south side of the bridge. According to the National Wetland Inventory, Estuarine and Marine Wetlands are located east and west of the bridge, on both the north and south sides of the Hampton Harbor Inlet (see Attachment B).

The Neil R. Underwood Bridge carries NH Route 1A, supporting up to 18,000 vehicles per day during peak times. The bridge is structurally deficient and functionally obsolete, and is on the “red-list” for NHDOT, which outlines bridge structures that are a priority for the state to address. There have been numerous efforts to repair and rehabilitate the bridge over its life, with recent repairs including a deck replacement in 2010 and emergency repairs to the bascule span mechanical system in 2018.

The New Hampshire Department of Transportation performs inspections of this bridge at six-month intervals, and a structural analysis of this bridge will be performed as part of this study, as will assessments of the mechanical and electrical systems. These assessments will serve as the basis for developing options for the bridge’s rehabilitation. In the event that rehabilitation is not feasible, the

replacement of the bridge is also under consideration. Since alternatives are still under development, engineering plans and areas of potential excavation are not available, however Attachment A provides a conservative estimate of the cumulative impact area for all potential alternatives for this project. It should be noted that the area shown captures all potential alternatives, and that the project area of any one alternative would be substantially less than that shown in Attachment A.

According to the NOAA EFH Mapper, the project is included in an area mapped by NOAA-National Marine Fisheries Service as Essential Fish Habitat (EFH) for the following species:

- Northern shortfin squid (eggs, larvae, juvenile, adult)
- Longfin inshore squid (eggs, larvae, juvenile, subadult, adult)
- Atlantic mackerel (eggs, larvae, juvenile, adult)
- Bluefish (eggs, larvae, juvenile, adult)
- Atlantic butterfish (eggs, larvae, juvenile, adult)
- Spiny dogfish (subadult, adult)
- Atlantic surfclam (eggs, larvae, juvenile, adult)

The mapping provided within the Final Environmental Impact Statement (EIS) for the Omnibus Essential Fish Habitat Amendment 2 (NOAA 2017) appears to identify the following additional species:

- American plaice (juvenile, adult)
- Atlantic cod (eggs, larvae, juvenile, adult)
- Atlantic wolffish (eggs, larvae, juvenile, adult)
- Haddock (juvenile)
- Ocean pout (eggs, juvenile, adult)
- Pollock (juvenile)
- White hake (juvenile)
- Windowpane flounder (juvenile, adult)
- Winter flounder (eggs, larvae, juvenile, adult)
- Witch flounder (juvenile, adult)
- Yellowtail flounder (juvenile, adult)
- Silver hake (eggs, larvae, juvenile, adult)
- Red hake (eggs, larvae, juvenile)
- Monkfish (eggs, larvae, juvenile, adult)
- Smooth skate (juvenile)
- Little skate (juvenile, adult)
- Winter skate (juvenile, adult)
- Atlantic sea scallop (eggs, larvae, juvenile, adult)
- Atlantic herring (juvenile, adult)

Based on mapping within the Final EIS for the Omnibus Essential Fish Habitat Amendment 2, it appears the Neil Underwood Bridge also falls within or adjacent to a Habitat Area of Particular Concern (HAPC) for the Atlantic salmon and the inshore juvenile cod.

With this documentation, we request that you confirm the above list of species, life stages, and HAPC, and advise us of any additional species of conservation concern related to EFH within the project area. Please contact me at (603) 271-4044 if you have any questions. We look forward to continued coordination with your office on this project.

Sincerely,

Marc G. Laurin
Senior Environmental Manager
Room 109 – Tel (603) 271-4044
E-mail – marc.laurin@dot.nh.gov

Enclosures

Cc: Jamie Sikora (FHWA), Max Tritt (NOAA), Jennifer Reczek (NHDOT), Jim Murphy (HDR), Stephanie Dyer-Carroll (FHI), Dan Hageman (FHI)

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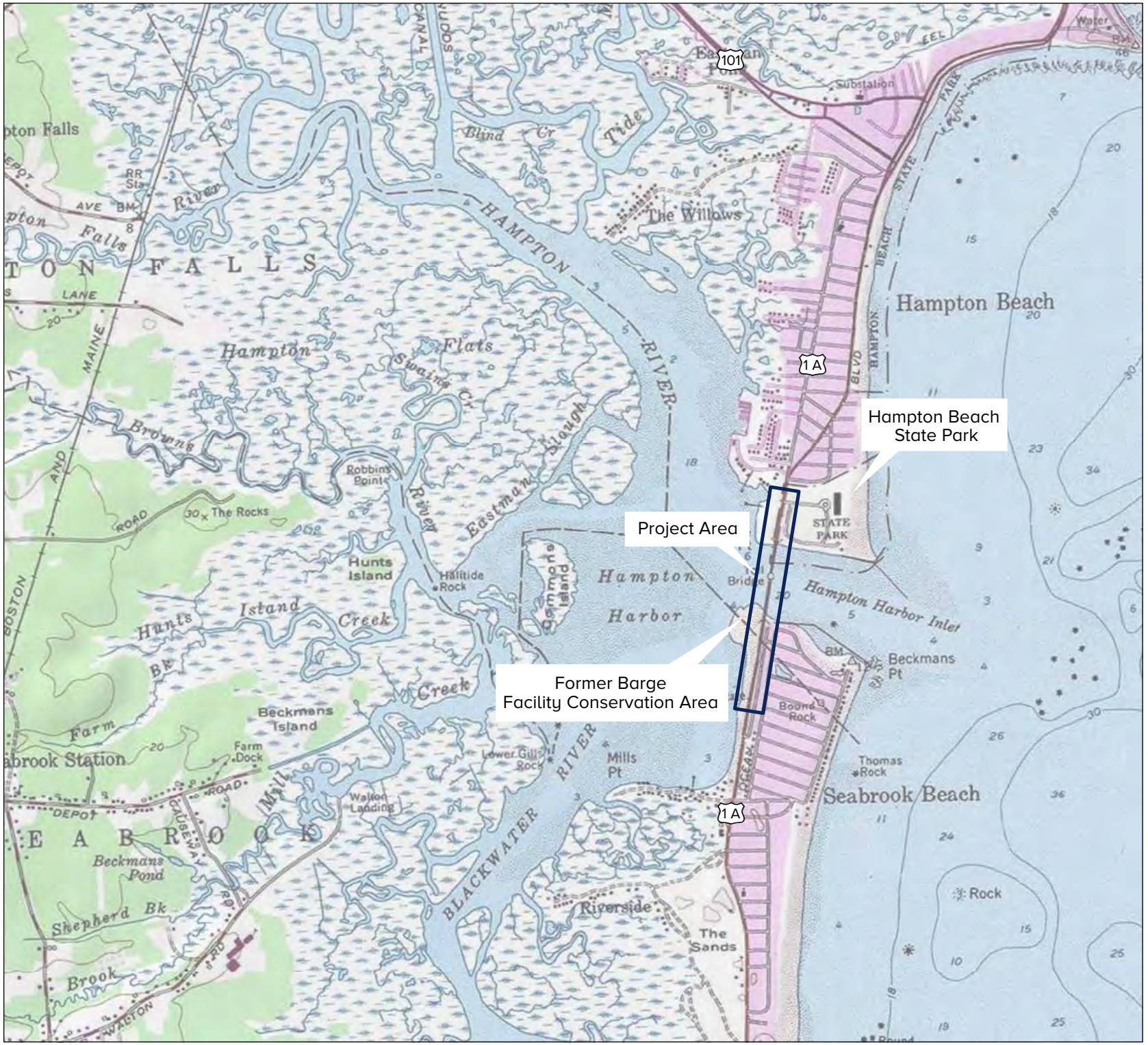

Neil R. Underwood Bridge Project
Project Overview Map

Bridge No. 235/025

Seabrook and Hampton, New Hampshire

Attachment A

Legend

Project Area

Project No. 15904

USGS Quadrangle: Hampton

N

0 1,000 2,000 Feet

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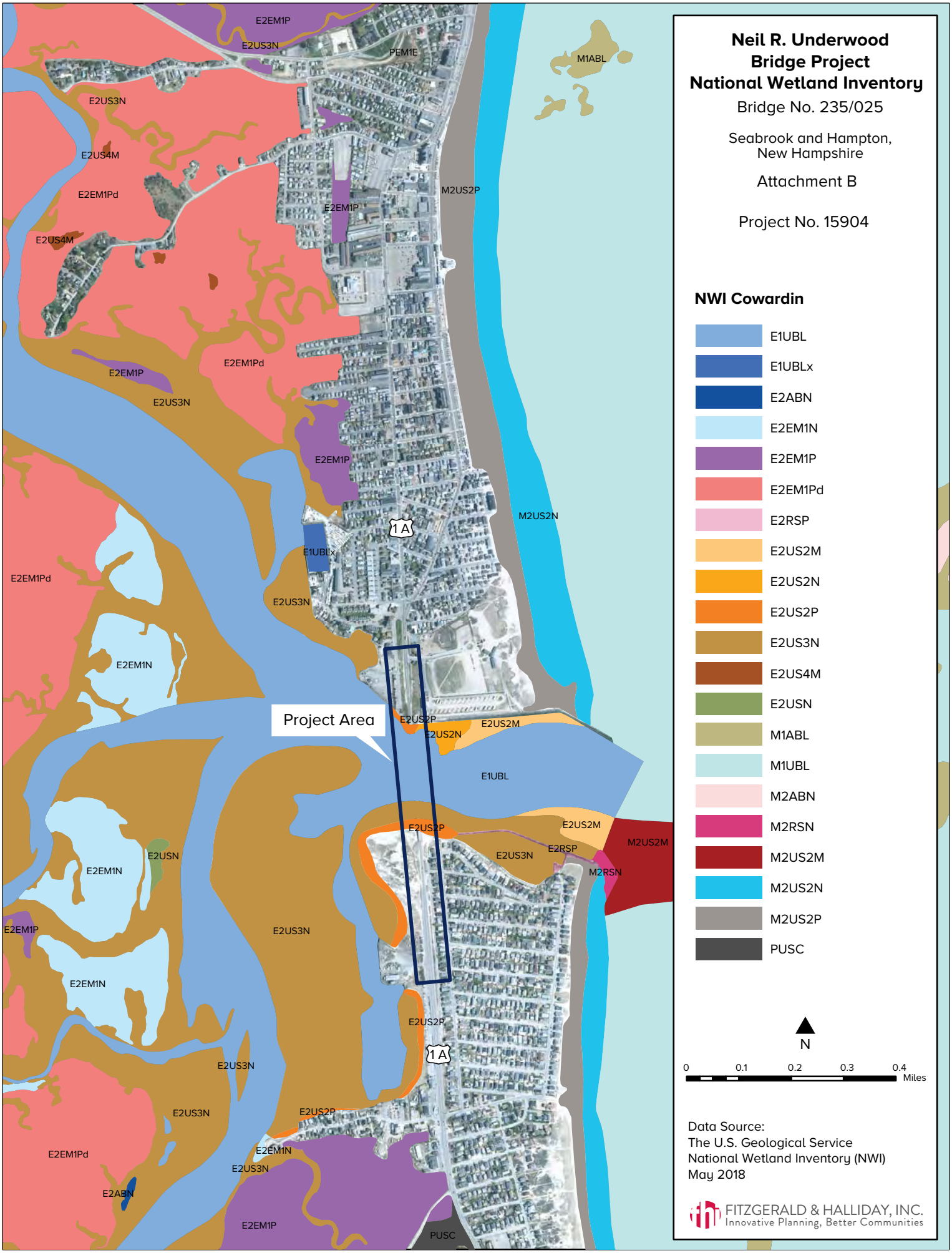
Innovative Planning, Better Communities

Original in Color - FHI - 6/15/2018



Neil R. Underwood Bridge Project National Wetland Inventory

Bridge No. 235/025

Seabrook and Hampton, New Hampshire

Attachment B

Project No. 15904

NWI Cowardin

- E1UBL
- E1UBLx
- E2ABN
- E2EM1N
- E2EM1P
- E2EM1Pd
- E2RSP
- E2US2M
- E2US2N
- E2US2P
- E2US3N
- E2US4M
- E2USN
- M1ABL
- M1UBL
- M2ABN
- M2RSN
- M2US2M
- M2US2N
- M2US2P
- PUSC

N

0 0.1 0.2 0.3 0.4 Miles

Data Source:
The U.S. Geological Service
National Wetland Inventory (NWI)
May 2018

FITZGERALD & HALLIDAY, INC.
Innovative Planning, Better Communities

THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

Victoria F. Sheehan
Commissioner

William Cass, P.E.
Assistant Commissioner

July 10, 2018

H. Max Tritt
Fishery Biologist
National Marine Fisheries Service
Maine Field Station
17 Godfrey Drive, Suite 1
Orono, ME. 04473

Subject: Seabrook - Hampton, 15904, X-A001 (026)
Neil R. Underwood Bridge (New Hampshire Route 1A Bridge over the Hampton River)
Seabrook and Hampton, NH

Dear Mr. Tritt:

The New Hampshire Department of Transportation (NHDOT) is undertaking the rehabilitation or replacement of the Neil R. Underwood Bridge (NHDOT No. 235/025) and associated roadway improvements. The project is located in the Towns of Seabrook and Hampton, New Hampshire (see Attachment A). An Environnmental Assessment is currently being prepared for the project.

The Neil R. Underwood Bridge is approximately 1,199 feet long by 33 feet wide (53 feet wide at the barrier gates), and it spans the Hampton River at the inlet to Hampton Harbor. The Hampton and Blackwater Rivers, as well as Hampton Harbor, lie to the west of the bridge. The Atlantic Ocean lies to the east of the bridge. To the north and south are residential, recreational, and tourism-based development, including the Hampton Beach State Park, which is located north of and on the east side of the bridge, and the Former Barge Facility Conservation Area, which is located west of the south side of the bridge. According to the National Wetland Inventory, Estuarine and Marine Wetlands are located east and west of the bridge, on both the north and south sides of the Hampton Harbor Inlet (see Attachment B).

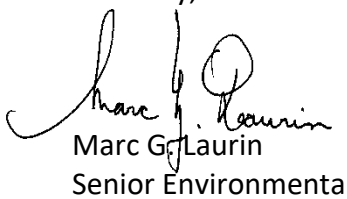
The Neil R. Underwood Bridge carries NH Route 1A, supporting up to 18,000 vehicles per day during peak times. The bridge is structurally deficient and functionally obsolete, and is on the “red-list” for NHDOT, which outlines bridge structures that are a priority for the state to address. There have been numerous efforts to repair and rehabilitate the bridge over its life, with recent repairs including a deck replacement in 2010 and emergency repairs to the bascule span mechanical system in 2018.

The New Hampshire Department of Transportation performs inspections of this bridge at six-month intervals, and a structural analysis of this bridge will be performed as part of this study, as will assessments of the mechanical and electrical systems. These assessments will serve as the basis for developing options for the bridge’s rehabilitation. In the event that rehabilitation is not feasible, the replacement of the bridge is also under consideration. Since alternatives are still under development,

engineering plans and areas of potential excavation are not available, however Attachment A provides a conservative estimate of the cumulative impact area for all potential alternatives for this project. It should be noted that the area shown captures all potential alternatives, and that the project area of any one alternative would be substantially less than that shown in Attachment A.

With this documentation, we request that you provide information you may have on the presence of sturgeon in the project area, as well as any other Threatened or Endangered aquatic species under your jurisdiction. Please contact me at (603) 271-4044 if you have any questions. We look forward to continued coordination with your office on this project.

Sincerely,



Marc G. Laurin
Senior Environmental Manager
Room 109 – Tel (603) 271-4044
E-mail – marc.laurin@dot.nh.gov

Enclosures

Cc: Jamie Sikora (FHWA), Mike Johnson (NOAA), Jennifer Reczek (NHDOT), Jim Murphy (HDR), Stephanie Dyer-Carroll (FHI), Dan Hageman (FHI)

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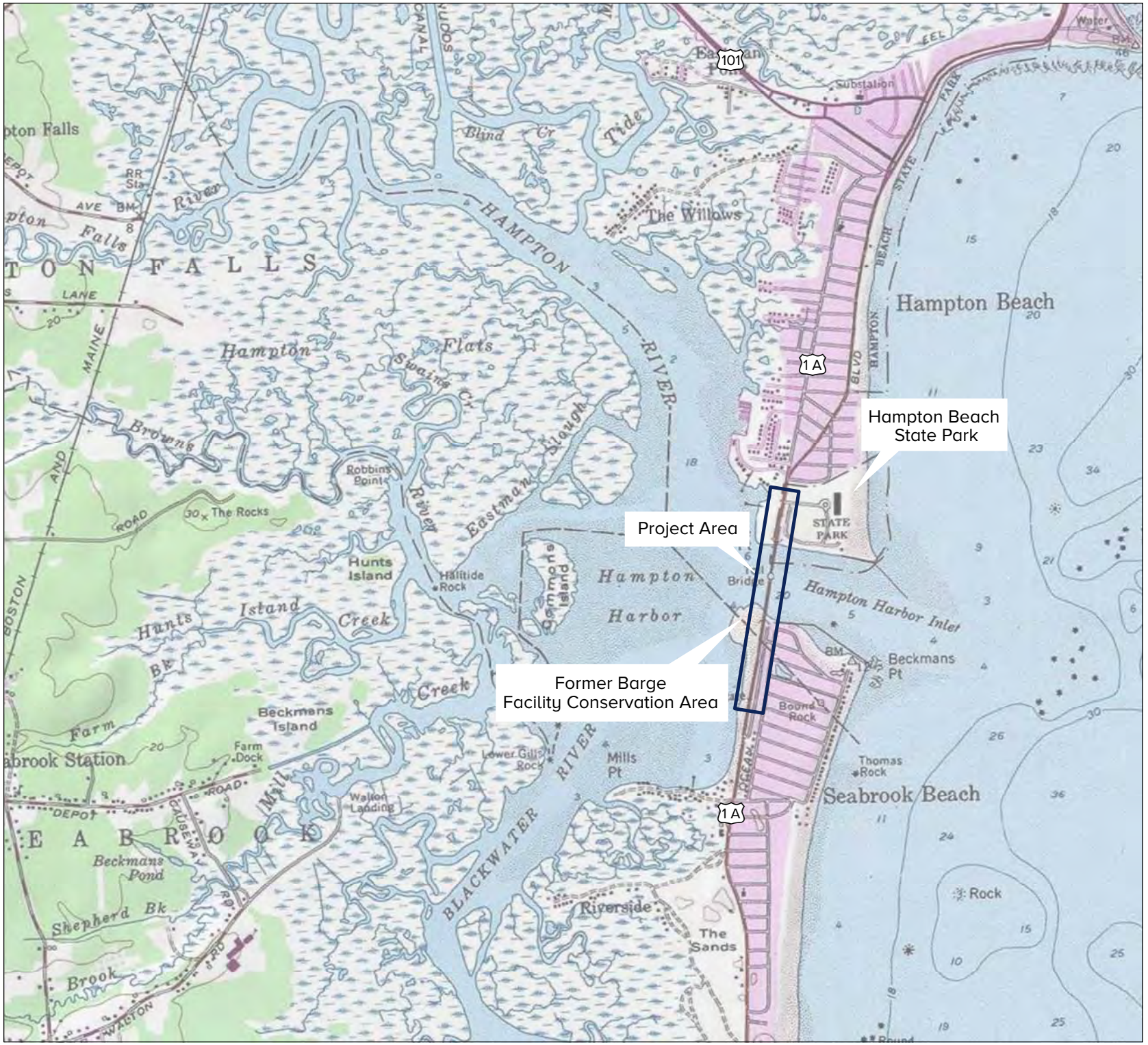

Neil R. Underwood Bridge Project
Project Overview Map

Bridge No. 235/025

Seabrook and Hampton, New Hampshire

Attachment A

Legend

Project Area

Project No. 15904

USGS Quadrangle: Hampton

N

0 1,000 2,000 Feet

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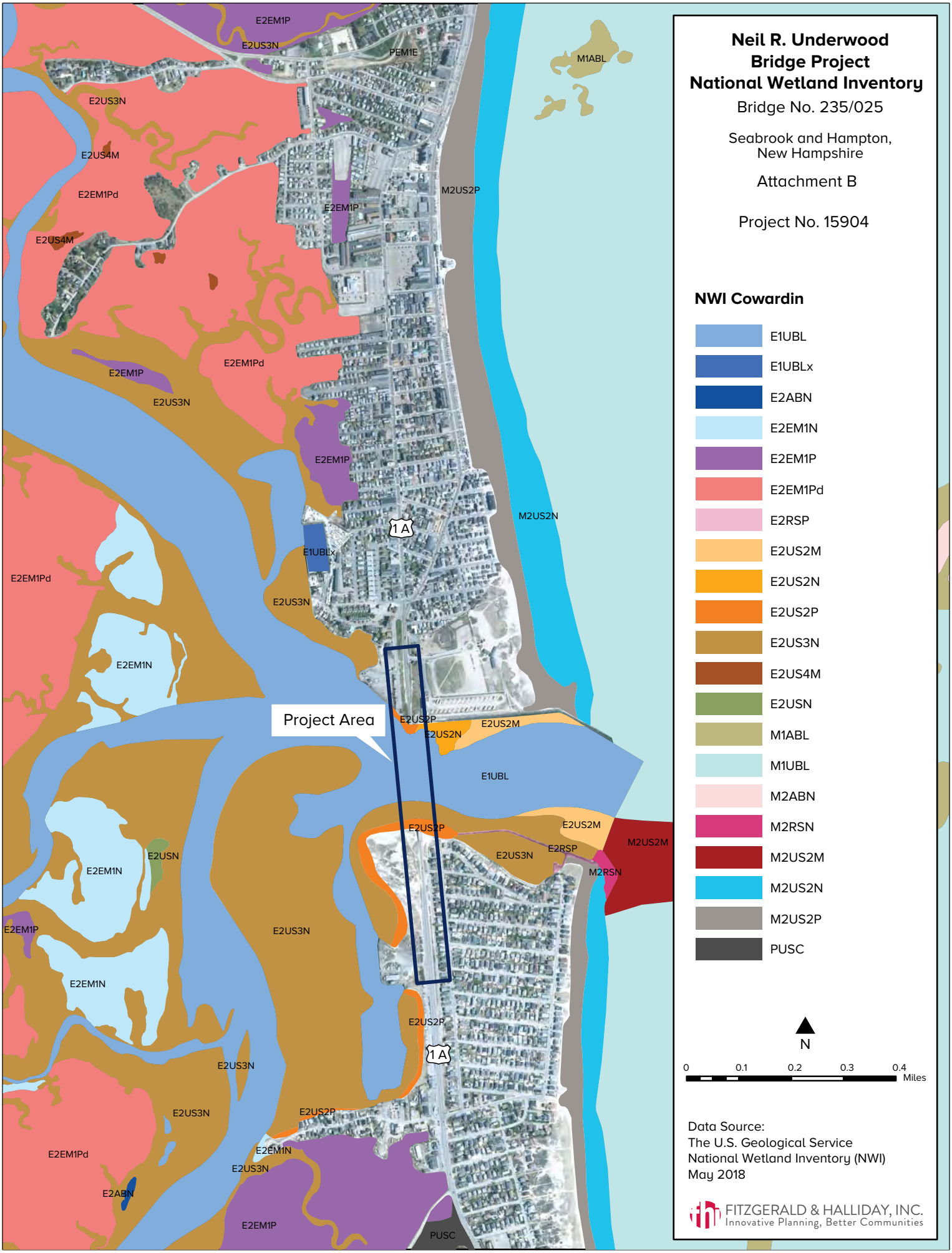
Innovative Planning, Better Communities

Original in Color - FHI - 6/15/2018



Neil R. Underwood Bridge Project National Wetland Inventory

Bridge No. 235/025

Seabrook and Hampton, New Hampshire

Attachment B

Project No. 15904

NWI Cowardin

- E1UBL
- E1UBLx
- E2ABN
- E2EM1N
- E2EM1P
- E2EM1Pd
- E2RSP
- E2US2M
- E2US2N
- E2US2P
- E2US3N
- E2US4M
- E2USN
- M1ABL
- M1UBL
- M2ABN
- M2RSN
- M2US2M
- M2US2N
- M2US2P
- PUSC

N

0 0.1 0.2 0.3 0.4 Miles

Data Source:
The U.S. Geological Service
National Wetland Inventory (NWI)
May 2018

FITZGERALD & HALLIDAY, INC.
Innovative Planning, Better Communities

From:	Edith Carson - NOAA Federal
To:	Marc.Laurin@dot.nh.gov
Cc:	Jamie Sikora; Mike Johnson; Reczek, Jennifer; James Murphy; Stephanie Dyer-Carroll; Dan Hageman
Subject:	Re: Seabrook-Hampton, 15904 - Environmental Assessment
Date:	Friday, July 13, 2018 11:37:00 AM

Mr. Laurin,

We received your email on July 10, 2018, regarding the proposed rehabilitation or replacement of the Neil R. Underwood Bridge (NHDOT No. 235/025) and associated roadway improvements. In your letter, you requested any information on the presence of threatened or endangered aquatic species under our jurisdiction. We offer the following comments.

Endangered Species Act

Sea Turtles
Four species of Endangered Species Act (ESA) listed threatened or endangered sea turtles under our jurisdiction are seasonally present in Hampton Harbor including its bays and tributaries: the threatened Northwest Atlantic Ocean distinct population segment (DPS) of loggerhead, the threatened North Atlantic DPS of green, and the endangered Kemp's ridley and leatherback sea turtles. Sea turtles typically occur along the New Hampshire coast from May to mid-November, with the highest concentration of sea turtles present from June through October.

Atlantic Sturgeon
Atlantic sturgeon are present in the waters of Hampton Harbor and its adjacent bays and tributaries. The New York Bight, Chesapeake Bay, South Atlantic and Carolina DPS of Atlantic sturgeon are endangered; the Gulf of Maine DPS is threatened. Adult and subadult Atlantic sturgeon originating from any of these DPS could occur in the proposed project area. As young remain in their natal river/estuary until approximately age 2, and early life stages are not tolerant of saline waters, no eggs, larvae, or juvenile Atlantic sturgeon will occur within the waters of Hampton Harbor and its adjacent bays and tributaries.

Shortnose Sturgeon
Shortnose sturgeon could be present in the waters of Hampton Harbor and could occur in their adjacent bays and tributaries. Shortnose sturgeon are listed as endangered throughout their range. As early life stages are not tolerant of saline waters, no eggs, larvae, or juvenile shortnose sturgeon will occur within the saline waters of Hampton Harbor and its adjacent bays and tributaries.

As project details develop, we recommend you consider the following effects of the project on sea turtles and sturgeon:

- For any impacts to habitat or conditions that temporarily render affected water bodies unsuitable for the above-mentioned species, consider the use of timing restrictions for in-water work.
- For activities that increase levels of suspended sediment, consider the use of silt management and/or soil erosion best practices (i.e., silt curtains and/or cofferdams).
- For pile driving or other activities that may affect underwater noise levels, consider the use of cushion blocks and other noise attenuating tools to avoid reaching noise levels that will cause injury or behavioral disturbance to sea turtles and sturgeon - see the table below for more information regarding noise criteria for injury/behavioral disturbance in sea turtles and sturgeon.

Organism	Injury	Behavioral Modification
Sturgeon	206 dB re 1 µPaPeak and 187 dB cSEL	150 dB re 1 µPaRMS
Sea Turtles	180 dB re 1 µPaRMS	166 dB re 1 µPaRMS

Depending on the amount and duration of work that takes place in the water, listed species of sea turtles and sturgeon may occur within the vicinity of your proposed project.The federal action agency will be responsible for determining whether the proposed action may affect listed species. If they determine that the proposed action may

affect a listed species, they should submit their determination of effects, along with justification and a request for concurrence to the attention of the Section 7 Coordinator, NMFS, Greater Atlantic Regional Fisheries Office, Protected Resources Division, 55 Great Republic Drive, Gloucester, MA 01930 or nmfs.gar.esa.section7@noaa.gov. Please be aware that we have recently provided on our website guidance and tools to assist action agencies with their description of the action and analysis of effects to support their determination. See - http://www.greateratlantic.fisheries.noaa.gov/section7. After receiving a complete, accurate comprehensive request for consultation, in accordance to the guidance and instructions on our website, we would then be able to conduct a consultation under section 7 of the ESA. Should project plans change or new information become available that changes the basis for this determination, further coordination should be pursued. If you have any questions regarding these comments, please contact me (978-282-8490; Edith.Carson@noaa.gov).

Essential Fish Habitat

In addition, we have received a request for information regarding an Essential Fish Habitat (EFH) consultation under the Magnuson-Stevens Fisheries Conservation and Management Act. The information in your letter for federally-managed species and their EFH appears to be correct. In addition, several other NOAA-trust resources are known to occur in the project area, including American lobster, shellfish (e.g., blue mussel, soft-shell clam), and diadromous fish (e.g., alewife, blueback herring, rainbow smelt, American eel, and striped bass). Some of these species are also prey for federally-managed species, and are therefore considered a component of the EFH for them. Therefore, adverse effects to the species and their habitats should be assessed in the EFH consultation.

An EFH assessment to evaluate the potential adverse effect on EFH for federally-managed species should be prepared and sent to Michael Johnson, Habitat Conservation Division. His contact information is mike.r.johnson@noaa.gov, 978-281-9130.

Thank you,

Edith

Edith Carson-Supino, M.Sc.
Section 7/Shortnose Sturgeon Fish Biologist
NOAA Fisheries
U.S. Department of Commerce
Greater Atlantic Regional Fisheries Office
Phone: 978-282-8490
edith.carson@noaa.gov

For ESA Section 7 guidance please see:
https://www.greateratlantic.fisheries.noaa.gov/section7

On Fri, Jul 13, 2018 at 10:32 AM, Edith Carson - NOAA Federal <edith.carson@noaa.gov> wrote:

> Hi Marc,
>
> Thank you for your request. I will review this and send you my comments shortly.

Thanks!

Edith

Edith Carson-Supino, M.Sc.
Section 7/Shortnose Sturgeon Fish Biologist
NOAA Fisheries
U.S. Department of Commerce
Greater Atlantic Regional Fisheries Office
Phone: 978-282-8490
edith.carson@noaa.gov

For ESA Section 7 guidance please see:
https://www.greateratlantic.fisheries.noaa.gov/section7

---------- Forwarded message ----------
From: **Laurin, Marc** < Marc.Laurin@dot.nh.gov>
Date: Tue, Jul 10, 2018 at 2:37 PM
Subject: Seabrook-Hampton, 15904 - Environmental Assessment
To: Max Tritt <max.tritt@noaa.gov>
Cc: Jamie Sikora <jamie.sikora@dot.gov>, Mike Johnson <Mike.R.Johnson@noaa.gov>, "Reczek, Jennifer" <Jennifer.Reczek@dot.nh.gov>, James Murphy <James.Murphy@hdrinc.com>, Stephanie Dyer-Carroll <sdyer-carroll@fhiplan.com>, Dan Hageman <DHageman@fhiplan.com>

Max,

The NH Department of Transportation is in the process of gathering information on the environmental resources present to prepare an Environmental Assessment on the proposed rehabilitation or replacement of the US Route 1A bridge over Hampton Harbor Inlet in Seabrook and Hampton, NH.

Attached is letter with further details on the project. Your input on the resources of concern is much appreciated.

Please contact me if you have any questions.

Marc

From:	Mike R Johnson - NOAA Federal
To:	Laurin, Marc
Cc:	Zachary Jylkka - NOAA Federal; William Barnhill - NOAA Federal; Stephanie Dyer-Carroll; James Murphy; Dan Hageman; Jamie Sikora; Reczek, Jennifer
Subject:	Re: Seabrook-Hampton, 15904 - Field Review
Date:	Wednesday, August 8, 2018 10:39:08 AM

Marc,

Please evaluate this project for applicability under the EFH programmatic consultation, as well. I'm unsure at this time if I can attend the site meeting on the 24th.

Thanks,

Mike

On Wed, Aug 8, 2018 at 7:18 AM, Laurin, Marc <Marc.Laurin@dot.nh.gov> wrote:

> Zach,
>
> Thanks for your input. Yes, this is an FHWA funded project.
>
> We will evaluate the project to determine if it qualifies for the programmatic review and coordinate with Bill Barnhill if it does.
>
> Marc
>
> **From:** Zachary Jylkka - NOAA Federal [mailto:zachary.jylkka@noaa.gov]
> **Sent:** Tuesday, August 07, 2018 5:13 PM
> **To:** Laurin, Marc
> **Cc:** Mike R Johnson - NOAA Federal; William Barnhill - NOAA Federal
> **Subject:** Re: Seabrook-Hampton, 15904 - Field Review
>
> Hi Marc,
>
> Unfortunately, I won't be able to make this site visit. Is this project funded by FHWA? If yes, it may potentially qualify for our GARFO-FHWA programmatic. I'm Ccing my colleague Bill Barnhill who is the point of contact for projects that fall under that programmatic.

Regards,

Zach

On Fri, Aug 3, 2018 at 2:00 PM, Laurin, Marc <Marc.Laurin@dot.nh.gov> wrote:

Thanks for participating in the doodle pool. This was the best date and time for most.

The site walk is to review and discuss natural resources on the site and other key issues. Specifically, we would like to understand where populations of listed plant species occur in the vicinity of the project area and document their occurrence. We also hope to obtain detailed information on listed avian species nesting areas and habitat, as well as aquatic resources and wetlands.

I will forward more details on where to meet at the site next week.

Marc

--

Zach Jylkka

Fisheries Biologist

Protected Resources Division

Greater Atlantic Regional Fisheries Office
NOAA Fisheries
Gloucester, MA 01930

zachary.jylkka@noaa.gov

office: (978) 282-8467

For additional ESA Section 7 information and Critical Habitat guidance, please see:

> www.greateratlantic.fisheries.noaa.gov/protected/section7

--
Michael R. Johnson
U.S. Department of Commerce
NOAA Fisheries
Greater Atlantic Regional Fisheries Office
Habitat Conservation Division
55 Great Republic Drive
Gloucester, MA 01930
978-281-9130
mike.r.johnson@noaa.gov
http://www.greateratlantic.fisheries.noaa.gov/

Web	www.nmfs.noaa.gov
Facebook	www.facebook.com/usnoaafisheriesgov
Twitter	www.twitter.com/noaafisheries
YouTube	www.youtube.com/usnoaafisheriesgov

Hampton Harbor Bridge Project
Summary of Meeting
NOAA ESA Section 7 Coordination
March 26, 2019

Attendees (via phone):

Mike Johnson (NOAA-NMFS)
Zachary Jylkka (NOAA-NMFS)
Jamie Sikora (FHWA)
Jennifer Reczek (NHDOT)
Robert Juliano (NHDOT)
Marc Laurin (NHDOT)
James Murphy (HDR)
Stephanie Dyer-Carroll (FHI)
Daniel Hageman (FHI)

Introduction

Jennifer Reczek, NHDOT's Project Manager, opened the meeting. She explained the purpose and need for the project, and said the bridge is Number 1 on the State's Red List, as well as the Rehabilitation and Replacement Priority List. She said there are structural and mechanical concerns with the bridge. In addition, it's narrow and doesn't meet current standards. She then explained that the project team first looked at the Rehabilitation Alternative and that they're now examining replacement options, including different potential alignments. She said there are a series of constraints in the area including endangered species in the Hampton Dunes Wildlife Management Area, residences southeast of the bridge, the State Pier, and the Hampton Beach State Park, among others. Jennifer said if the bridge is replaced, the channel would be widened to 150 feet. Jim Murphy, the Project Engineer, said a western alignment could impact both the Seabrook and Hampton channels.

Dan Hageman, a member of the HDR Consultant Team, then gave a summary of water resources in the project area. He said there are no vegetated tidal wetlands within the project area. There is a small area of blue mussels waterward of the north abutment. Jim said in-water work will be required. He said either drilled shafts or pipe piles would be used behind cofferdams, but that this has not determined yet. He said there will be dredging required to widen the channel and that blasting may be necessary.

Summary of Discussion

- Mike asked if sea level rise (SLR) had been taken into consideration in the design and what projections were used. Jennifer said four feet of SLR has been taken into consideration, based on NH Coastal Risk and Hazards Commission 2016 Report, and that the Town is concerned about the height of the bridge. Mike said a more realistic prediction of SLR is 6 to 10 feet.
- Jennifer said NHDOT is clarifying with USACE the clearance needs for their dredging equipment.
- Mike said if there were blasting, it would require more coordination and documentation.

- Zach said this location is not of particular concern for sturgeon. Time of year (TOY) restriction would be April through November for sturgeon and June through November for turtles.
- Dan said we would like to understand the level of coordination required, specifically whether it would be an abbreviated or an expanded Essential Fish Habitat (EFH) Assessment. Mike said it is hard to tell without knowing the extent of dredging and blasting. Any adverse effects that are substantial require an expanded EFH. The only difference between the abbreviated and expanded is the volume of information required. Mike said applicants typically start with the abbreviated, and then get kicked to an expanded if needed. Mike said the abbreviated EFH has a 30-day review by NOAA while the expanded has a 60-day review.
- Mike said the TOY construction window is from November 15th to March 15th. NOAA trust resources TOY is generally March 15th on for spawning. Shellfish spawn in summer (June-Sept.), which is important for turbidity control, if dredging.
- Dan asked if the existing Coastal Viewer data could be used for shellfish, especially the blue mussel bed near the northern abutment. Mike asked if it was commercial bed. It was not known. Mike said it would be a good idea to delineate the blue mussel bed in the field and verify the population boundary. Mike said he agrees with Fred Short that there is no SAV in the project area.
- Dan explained that the team will be conducting sediment sampling in support of the EFH and Section 7 analysis. The team is in the process of obtaining any available data from USACE. Mike asked what the parameters were. Dan said there will be eight samples taken, focusing on grain size, and then moving into chemical testing if needed. It was decided to use USACE data if any near the channel, then fill in gaps with additional eight samples.
- Mike asked if cores would be done to determine if there is bedrock in dredge area. Jennifer said this would be done after a preferred alternative chosen. Mike suggested it might be better to know before then, so it could be part of the alternatives analysis. Jennifer said the biggest concern is on the western side of the bridge, where the channel might be impacted, and might need to be shifted to the west.
- Dan asked if NOAA had any thoughts on BMPs and potential mitigation for impacts at this point. Dan said the team is not sure what the net impact to the harbor bottom will be yet. NOAA asked if the old piers will be removed below the mudline. Jamie said this is a USCG requirement. Jennifer said there are vessels that use the space outside the channel, so the piers would have to be removed. Mike said removal of piers below the mudline would count as restored bottom habitat. Cofferdams should be used for new construction, as it would minimize noise and turbidity. It would also allow construction all year round if needed. Drilled shafts generate less noise than impact or vibratory hammers. The installation and removal of the cofferdams should occur during the in-water work window, but then the dry work can be conducted out of the window. Dredging and blasting should occur within the in-water work window.
- Dan asked whether there are criteria for mitigation if there is a net positive impact area, as the removal of the existing bridge piles might help offset the new ones. Mike said the goal is no net loss. NHDOT might look at mitigation through the In-Lieu Fee Program.
- Dan asked if the Biological Assessment (BA) would qualify as Programmatic. Zach said he would like to keep it Programmatic, but he needs to check the language. Generally, blasting would kick it out of a Programmatic review, but he could make a No Effect determination if the blasting was outside the TOY restriction window. If outside, it would be an informal Individual consultation.

- Zach said a Programmatic review would take one week; Individual review would take 2-3 weeks but would need more documentation.
- Dan asked whether they had concerns about increased boat traffic. Zach said he is generally interested in permanent increases and asked whether any are anticipated. If not, then he doesn't have any concerns.
- Dan said the team does not know where the construction vessels are coming from. Dan asked if vessels pass through critical habitat whether the team would have to consider it. Zach said that if the vessel is already in the area for another project, then it is not included in the action area. Zach mentioned that in North Atlantic Right Whale critical habitat, vessels would need to travel at <10 knots.
- Dan asked if there are thresholds of a minor impact from dredging. Zach said to use two acres.
- Mike asked about next steps. Dan said they would get the sediment sampling data from USACE and line up additional sampling if needed. Jim said the draft design would be complete in late spring or early summer. Marc said he anticipates releasing the Draft EA in late summer, with the EFH being submitted to NOAA before the release of the EA. Jennifer said they anticipate the Public Hearing in early fall and concluding NEPA at the end of the year.

From:	Laurin, Marc
To:	Reczek, Jennifer; Jamie Sikora
Cc:	Stephanie Dyer-Carroll; Dan Hageman; Juliano, Robert; Nick Caron
Subject:	FW: Seabrook-Hampton, 15904 - EFH Consultation
Date:	Wednesday, December 21, 2022 7:38:08 AM

FYI

From: Laurin, Marc
Sent: Monday, December 19, 2022 10:33 AM
To: Kaitlyn Shaw - NOAA Federal <kaitlyn.shaw@noaa.gov>
Subject: RE: Seabrook-Hampton, 15904 - EFH Consultation

Kaitlyn,

Just as an FYI. Thanks for confirming the recommendations still apply.

Marc

From: Kaitlyn Shaw - NOAA Federal <kaitlyn.shaw@noaa.gov>
Sent: Monday, December 19, 2022 10:23 AM
To: Laurin, Marc <marc.g.laurin@dot.nh.gov>
Subject: Re: Seabrook-Hampton, 15904 - EFH Consultation

Hi Marc,
Are you looking to reinitiate consultation, or just sending this as an FYI due to the additional year of construction? The attached interagency form and conservation recommendations provided by Mike Johnson would still apply.
Best,
Kaitlyn Shaw
Marine Habitat Resource Specialist
Habitat and Ecosystem Services Division
NOAA/ National Marine Fisheries Service
Gloucester, MA
Office: 978-282-8457
Pronouns: she/her
kaitlyn.shaw@noaa.gov
www.nmfs.noaa.gov

On Mon, Dec 19, 2022 at 9:58 AM Laurin, Marc <marc.g.laurin@dot.nh.gov> wrote:

> Kaitlyn,
>
> NHDOT completed the EFH consultation for the Seabrook-Hampton Bridge Project in September

2021. The Interagency Comment Form is attached.

A Finding of No Significant Impact (FONSI) was issued for the project by FHWA in March 2022, and NHDOT is currently advancing the Final Design for the project.

During the EFH consultation, the construction duration was assumed to be approximately three years. As we've advanced the design, it has become apparent that the construction duration will need to extend to four years, due primarily to the time-of-year restriction for turbidity producing activities, in particular, the installation and removal of the piles for the temporary trestles. We do not anticipate any new impacts to EFH or federally-managed species as a result of the longer construction duration. As such, the original finding that the adverse effect would not be substantial has not changed.

Please contact me should you have questions or want to discuss the project.

Marc Laurin
Senior Environmental Manager
Bureau of Environment
NH Department of Transportation
(603) 271-4044
marc.g.laurin@dot.nh.gov

From:	Roosevelt Mesa - NOAA Affiliate
To:	Laurin, Marc
Cc:	Jamie Sikora; Reczek, Jennifer; Stephanie Dyer-Carroll; Dan Hageman; Juliano, Robert; Nick Caron
Subject:	Re: Seabrook-Hampton, 15904 - FHWA GARFO NLAA Program
Date:	Tuesday, December 20, 2022 3:37:25 PM
Attachments:	image.png

Hi Marc,

To determine whether or not a consultation should be reinitiated, we consider different triggers that involve project changes or updates on species distributions, among others. If the proposed project modifications do not involve any project components or associated effects that could potentially affect listed species beyond what was already considered in the ESA section 7 consultation, we'd agree that it is not necessary to reinitiate the consultation at this time.

Thank you for the notification.
Best,
Roosevelt

On Mon, Dec 19, 2022 at 10:07 AM Laurin, Marc <marc.g.laurin@dot.nh.gov> wrote:

> Roosevelt,
>
> NHDOT completed consultation on the ESA through the GARFO NLAA Program for the Seabrook-Hampton Bridge Project in December of 2020. The Verification Form is attached.
>
> A Finding of No Significant Impact (FONSI) was issued for the project by FHWA in March 2022, and NHDOT is currently advancing the Final Design for the project.
>
> During the ESA consultation, the construction duration was assumed to be approximately three years. As we've advanced the design, it has become apparent that the construction duration will need to extend to four years, due primarily to the time-of-year restriction for turbidity producing activities, in particular, the installation and removal of the piles for the temporary trestles. We do not anticipate any new impacts to federally-managed species as a result of the longer construction duration. As such, the original finding that the action is not likely to adversely affect listed species or critical habitat has not changed.
>
> Please contact me should you have questions or want to discuss the project.
>
> Marc Laurin
>
> Senior Environmental Manager

Bureau of Environment

NH Department of Transportation

(603) 271-4044

marc.g.laurin@dot.nh.gov

--

Roosevelt Mesa *(he/him/his)*
ESA Section 7 Biologist
Integrated Statistics, Inc. | In support of NOAA Fisheries
Greater Atlantic Regional Fisheries Office
Protected Resources Division
Email: roosevelt.mesa@noaa.gov

THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

Victoria F. Sheehan
Commissioner

William Cass, P.E.
Assistant Commissioner

December 1, 2020

Zachary Jylkka
Fisheries Biologist, Protected Resources Division
Greater Atlantic Regional Fisheries Office
NOAA Fisheries
55 Great Republic Drive
Gloucester, MA 01930

RE: Neil R. Underwood Bridge, NH Route 1A
Seabrook-Hampton, X-A001(026), 15904
Hampton and Seabrook, New Hampshire

Dear Mr. Jylkka:

The New Hampshire Department of Transportation (NHDOT) is planning to replace the Neil R. Underwood Bridge which carries NH Route 1A over the Hampton Harbor Inlet, in Hampton NH. The bridge is located within the ranges for Atlantic sturgeon (*Acipenser oxyrhynchus oxyrhynchus*), shortnose sturgeon (*Acipenser brevirostrum*), loggerhead sea turtle **(***Caretta caretta)*, green sea turtle **(***Chelonia mydas)*, Kemp's ridley sea turtle **(***Lepidochelys kempii)*, and **l**eatherback sea turtle **(***Dermochelys coriacea)*, according to the ESA Section 7 Mapper. The National Oceanic and Atmospheric Administration (NOAA), the National Marine Fisheries Service (NMFS) Greater Atlantic Regional Fisheries Office (GARFO), and the Federal Highway Administration (FHWA) developed the FHWA GARFO 2018 NLAA Program, which is a Programmatic Endangered Species Act (ESA) Section 7 Consultation process designed to ensure the actions covered under the programmatic agreement are not likely to adversely affect ESA-listed species or designated critical habitats. In accordance with the FHWA GARFO 2018 NLAA Program, NHDOT and FHWA completed and have attached an Appendix A Verification Form, with supporting information, for the proposed project and determined that this project is "*not likely to adversely affect*" the listed species. In addition to this coordination regarding ESA-listed species, we have also submitted a NOAA Fisheries Essential Fish Habitat (EFH) Assessment Worksheet for the proposed project to Mike Johnson.

Project Overview

The purpose of the project is to provide a safe, reliable, and structurally sound crossing over the Hampton Harbor Inlet, while also improving mobility for the traveling public. This includes drivers, bicyclists and pedestrians, as well as maritime users. The project is necessary because the existing bridge is structurally deficient and functionally obsolete. It is on NHDOT's "Red-List", which identifies deficient bridge structures that are a priority for the state to address. Recent inspections have indicated the bridge's superstructure is in poor condition and the substructure is just in satisfactory condition. Inspections of the bridge's mechanical system conducted in 2018 found that it is in overall poor condition with a few components in severe condition. The electrical system is also outdated and doesn't meet current standards. In addition to structural and mechanical deficiencies, the current roadway width doesn't adequately accommodate the combined use by vehicles, bicyclists and pedestrians. Existing travel lane and shoulder widths at the bridge are inconsistent with roadway approaches. Additionally, the shoulders are narrow, there is no sidewalk on the west side of the bridge, and the sidewalk on the east side is narrow.

The project would construct a new structural steel bridge approximately 75 feet west of the existing bridge. The existing bridge would be demolished. The bridge would be comprised of seven spans supported on six piers and two abutments. The bridge piers would be supported on drilled shafts which would be cast into a reinforced concrete

pile cap. Steel casings for the shafts would be six feet in diameter and would be driven into place. During construction, temporary access would be required for the new bridge construction. Work trestles would be constructed adjacent to, and west of, the proposed bridge alignment from both the north and south shores, but not across the navigation channel. During the demolition of the existing bridge, temporary trestles would be built adjacent to, and east of, the existing bridge from both the north and south shores. Construction of the new bridge and demolition of the existing bridge would occur over 36 months, anticipated to begin in the fall of 2023.

Appendix A Verification Form

In accordance with the Programmatic ESA Section 7 Consultation provided under the FHWA GARFO 2018 NLAA Program, an Appendix A Verification Form was completed for the proposed project. Upon completion of the Verification Form, the NHDOT and FHWA determined that the project complies with the Programmatic ESA Section 7 Consultation since the project involves bridge rehabilitation/replacement and meets the applicable project design criteria (PDC) included in the Verification Form. Further explanation for the responses to the PDCs listed in the Verification Form are provided in the Supporting Text. Based on the proposed project work, this project is "*not likely to adversely affect*" the listed species.

FHWA and NHDOT respectfully request your concurrence with our finding that the project falls under the determination that the action is "*not likely to adversely affect*" the listed species. Applicable minimization and mitigation measures will be followed during project construction to ensure impacts to these species will be minimized to the greatest extent practicable. Additionally, the project will comply with the NMFS/FHWA Best Management Practices Manual for Transportation Activities in the Greater Atlantic Region (April 2018).

Please contact me at (603) 271-4044 if you have any questions. We look forward to coordinating with you on this project.

Sincerely,

Marc Laurin
Senior Environmental Manager
Room 109 – Tel (603) 271-4044
E-mail – marc.g.laurin@dot.nh.gov

Attachments:
Appendix A – Verification Form
Verification Form Supporting Text
Hampton Bridge, GARFO NLAA Program Verification Form Attachments

cc: Mike Johnson, NOAA
Jamie Sikora, FHWA
Jennifer Reczek, NHDOT
Robert Juliano, NHDOT
Stephanie Dyer-Carrol, FHI
Dan Hageman, FHI
John Stockton, HDR

Appendix A. Verification Form (updated March 27, 2020)

Federal Highway Administration (FHWA) or the applicable state Department of Transportation (DOT) shall submit a signed version of this completed form, together with any project plans, maps, supporting analyses, etc., to NOAA's National Marine Fisheries Service (NMFS), Greater Atlantic Regional Fisheries Office, Protected Resources Division (GARFO PRD) at nmfs.gar.esa.section7@noaa.gov with "FHWA GARFO NLAA Program: [Project Title or Number]" in the subject line. **Note:** project design contractors and/or consultants may assist in preparing the form, but only FHWA/DOT staff shall sign off on it on the final page.

Project Activity Type (check all that apply to the entire action):

☐ 1. Bridge repair, demolition, or replacement project
☐ 2. Culvert repair or replacement project
☐ 3. Dock, pier, or waterway access project (includes construction, demolition, and repairs)
☐ 4. Slope stabilization project

Transportation Project Information

Name of Project:			
Reinitiation (Yes/No):			
State DOT/Program:			
DOT ID Code:			
Contact Person:			
Phone:		Email:	
Project Latitude (e.g., 42.625884):			
Project Longitude (e.g., -70.646114):			
Maximum Water Depth (m)			
Anticipated Project Start Date:		Anticipated Project End Date:	
City/Town:		Water body:	
Project/Action Description and Purpose:			

ESA-listed species and/or critical habitats in the action area (Check all that apply)

☐	Atlantic sturgeon (all DPSs)	☐	Kemp's ridley sea turtle
☐	Atlantic sturgeon critical habitat Indicate which DPS (GOM, NYB, Chesapeake Bay DPSs):	☐	Loggerhead sea turtle (Northwest Atlantic DPS)
☐	Shortnose sturgeon	☐	Leatherback sea turtle
☐	Atlantic salmon (GOM DPS)	☐	North Atlantic right whale
☐	Atlantic salmon critical habitat (GOM DPS)	☐	North Atlantic right whale critical habitat
☐	Green sea turtle (North Atlantic DPS)	☐	Fin whale

* Please consult GARFO PRD's ESA Section 7 Mapper for ESA-listed species and critical habitat information for your action area at: https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-species-critical-habitat-information-maps-greater.

The following stressors are applicable to the action:

☐ Underwater Noise
☐ Impingement/Entrainment and Entanglement
☐ Water Quality/Turbidity
☐ Habitat Alteration
☐ Vessel Traffic

Impacts Table

Habitat Alteration		
	Permanent (acres)	Temporary (acres)
Sand (saline)		
Silt/Mud/Clay (saline)		
Hard bottom (saline)		
Submerged Aquatic Vegetation (SAV) (saline)		
Sand (freshwater)		
Silt/Mud/Clay (freshwater)		
Hard bottom (freshwater)		
Submerged Aquatic Vegetation (SAV) (freshwater)		
Total amount of habitat alteration		
In-water Construction Impacts		
	Amount in meters	
Width of water body in action area (m)		
Stressor category that extends furthest distance into water body (e.g.; underwater noise, turbidity plume)		
Maximum extent of stressor into the water body (m)		

Project Design Criteria (PDC) Checklist
FHWA/DOT shall incorporate all general PDCs and all applicable PDCs in the appropriate stressor categories. For any PDCs that are not incorporated, additional justification is required for a project to be eligible for the NLAA Program. FHWA/DOT shall check the corresponding box for each PDC that is, or will be, incorporated into the project or indicate if not applicable.

GENERAL PDCs			
Yes	N/A	PDC #	PDC Description
☐	☐	1.	Ensure all operators, employees, and contractors are aware of all FHWA environmental commitments, including these PDC, when working in areas where ESA-listed species may be present or in critical habitat.
☐	☐	2.	No portion of the proposed action will individually or cumulatively have an adverse effect on ESA-listed species or critical habitat.
☐	☐	3.	No portion of the proposed action that may affect the GOM DPS of Atlantic salmon will occur in the tidally influenced portion of rivers/streams where their presence is possible from April 10 through November 7. The range of the GOM DPS only occurs in Maine. **Note**: If the project will occur within the geographic range of the GOM DPS Atlantic salmon but their presence is not expected following the best available commercial scientific data, the work window does not need to be applied. Please attach best available information (i.e. local fisheries biologist correspondence).
☐	☐	4.	No portion of the proposed action that may affect shortnose or Atlantic sturgeon will occur in areas identified as spawning grounds as follows: i. Gulf of Maine: Apr 1-Aug 31 ii. Southern New England/New York Bight: Mar 15-Aug 31 iii. Chesapeake Bay: Mar 15-Jul 1 and Sep 15-Nov 1 **Note**: If river specific information exists that provides better or more refined time of year information, those dates may be substituted with NMFS approval.
☐	☐	5.	No portion of the proposed action that may affect shortnose or Atlantic sturgeon will occur in areas identified as overwintering grounds where dense aggregations are known to occur as follows: i. Gulf of Maine: Oct 15-Apr 30 ii. Southern New England/New York Bight: Nov 1-Mar 15 iii. Chesapeake Bay: Nov 1-Mar 15 **Note**: If river specific information exists that provides better or more refined time of year information, those dates may be substituted with NMFS approval.
☐	☐	6.	Within designated critical habitat for Atlantic sturgeon, no work will affect hard bottom substrate (e.g., rock, cobble, gravel, limestone, boulder, etc.) in low salinity waters (i.e., 0.0-0.5 parts per thousand) (PBF 1).
☐	☐	7.	Work will result in no or only temporary/short-term changes in water temperature, water flow, salinity, or dissolved oxygen levels.

Yes	N/A	PDC #	PDC Description
☐	☐	8.	If ESA-listed species are (a) likely to pass through the action area at the time of year when project activities occur; and/or (b) the project will create an obstruction to passage when in-water work is completed, then a zone of passage (~50% of water body) with appropriate habitat for ESA-listed species (e.g., depth, water velocity, etc.) must be maintained (i.e., physical or biological stressors such as turbidity and sound pressure must not create barrier to passage).
☐	☐	9.	The project will not adversely impact any submerged aquatic vegetation (SAV) or oyster reefs.
☐	☐	10.	No blasting or use of explosives will occur.
☐	☐	11.	No in-water work on large dams or tide gates (small dam and tide gate repairs may be permitted with prior review and approval from NMFS).

UNDERWATER NOISE PDCs			
Yes	N/A	PDC #	PDC Description
☐	☐	12.	If pile driving is occurring during a time of year when ESA-listed species may be present, and the anticipated noise is above the behavioral noise threshold, a "soft start" is required to allow animals an opportunity to leave the project vicinity before sound pressure levels increase. *In addition to using a soft start at the beginning of the work day for pile driving, one must also be used at any time following cessation of pile driving for a period of 30 minutes or longer.* <u>For impact pile driving</u>: pile driving will commence with an initial set of three strikes by the hammer at 40% energy, followed by a one minute wait period, then two subsequent three-strike sets at 40% energy, with one-minute waiting periods, before initiating continuous impact driving. <u>For vibratory pile installation</u>: pile driving will be initiated for 15 seconds at reduced energy followed by a one-minute waiting period. This sequence of 15 seconds of reduced energy driving, one-minute waiting period will be repeated two additional times, followed immediately by pile-driving at full rate and energy.

Yes	N/A	PDC #	PDC Description
☐	☐	13.	If the project includes non-timber piles*, please attach your calculation to this verification form showing that the noise is below the injury thresholds of ESA-listed species in the action area. The GARFO Acoustic Tool can be used as a source, should you not have other information: https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-consultation-technical-guidance-greater-atlantic. *Effects from timber and steel sheet piles were analyzed in the NLAA programmatic consultation, so no additional information is necessary.
☐	☐	14.	Any new pile-supported structure must involve the installation of no more than 50 piles (below MHW).

Pile material (e.g., steel pipe, concrete)	Pile diameter/ width (inches)	Number of piles	Installation method (e.g., impact hammer, vibratory start and then impact hammer to depth, drilling)

IMPINGEMENT/ENTRAINMENT AND ENTANGLEMENT PDCs			
Yes	N/A	PDC #	PDC Description
☐	☐	15.	If excavating or dredging, only mechanical buckets, hydraulic cutterheads, or low volume hopper dredges (e.g., CURRITUCK, ≤300 cubic yard maximum bin capacity) may be used. **Note**: We consider excavating a smaller scale form of mechanical dredging.
☐	☐	16.	No new excavation or dredging in Atlantic sturgeon or salmon critical habitat (excavation in a prior construction footprint or maintenance dredging is permitted, but still must meet all other PDCs). New excavation or dredging outside Atlantic sturgeon or salmon critical habitat is limited to one-time events (e.g., burying a cable or utility line) and minor (≤2 acres) expansions of areas already subject to prior excavation or maintenance dredging. Locating a replacement bridge within 250 feet (centerline to centerline) of an existing bridge and excavation of sediment around bridge piers are considered work in a previous construction footprint. **Note**: We consider excavating a smaller scale form of mechanical dredging.

Yes	N/A	PDC #	PDC Description
☐	☐	17.	Temporary intakes related to construction are prohibited in sturgeon and salmon spawning, rearing, or overwintering habitat during the time of year windows identified in General PDCs 3-5. If utilized outside those areas and times of year and in an area with anticipated sturgeon and salmon presence, temporary intakes must be equipped with 2-millimeter wedge wire mesh screening and must not have greater than 0.5 feet per second intake velocities, to prevent impingement or entrainment of juvenile and early life stages of these species.
☐	☐	18.	Work behind cofferdams, turbidity curtains, or other instruments that prevent access of animals to the project area is required when ESA-listed species are likely to be present (if presence is limited to rare, transient individuals, access control measures are not necessary). Once constructed, work inside a cofferdam at any time of year may be permitted with NMFS approval, provided the cofferdam is installed/removed outside the time-restricted period.
☐	☐	19.	No new permanent surface water withdrawal, water intakes, or water diversions.
☐	☐	20.	Turbidity control measures, including cofferdams, must be designed to not entangle or entrap ESA-listed species.
☐	☐	21.	Any in-water lines, ropes, or chains must be made of materials and installed in a manner to minimize or avoid the risk of entanglement by using thick, heavy, and taut lines that do not loop or entangle. Lines can be enclosed in a rigid sleeve.

WATER QUALITY/TURBIDITY PDCs			
Yes	N/A	PDC #	PDC Description
☐	☐	22.	In-water offshore disposal may only occur at designated disposal sites that have already been the subject of ESA section 7 consultation with NMFS and where a valid consultation is in place.
☐	☐	23.	Any temporary discharges must meet state water quality standards (e.g., no discharges of substances in concentrations that may cause acute or chronic adverse reactions, as defined by EPA water quality standards criteria).
☐	☐	24.	Only repair, upgrades, relocations, and improvements of existing discharge pipes or replacement in-kind are allowed; no new construction of untreated discharges.
☐	☐	25.	Work behind cofferdams, turbidity curtains, or other instruments to control turbidity is required when operationally feasible and ESA-listed species are likely to be present (if presence is limited to rare, transient individuals, turbidity control methods are not necessary).

HABITAT ALTERATION PDCs			
Yes	N/A	PDC #	PDC Description
☐	☐	26.	Minimize all new waterward encroachment and permanent fill.
☐	☐	27.	In Atlantic salmon critical habitat, stream simulation design with a minimum span of 1.2 bankfull width will be used in areas with minimal tidal influence. In tidal areas, a design that allows for unimpeded flow will be used (no delay in water entering or exiting the area upstream of the crossing).
☐	☐	28.	In Atlantic salmon critical habitat, no culvert end extensions, invert line culvert rehabilitation, or slipline culvert rehabilitation may occur.

VESSEL TRAFFIC PDCs			
Yes	N/A	PDC #	PDC Description
☐	☐	29.	Maintain project (i.e., construction) vessels operating within the action area to speed limits below 10 knots and dredge vessels to speeds of 4 knots maximum, while dredging.
☐	☐	30.	Maintain a 1,500-foot buffer between project (i.e., construction) vessels and ESA-listed whales and a 300-foot buffer between project vessels and sea turtles. This also applies to dredge vessels.
☐	☐	31.	The number of project (construction) vessels must be limited to the greatest extent possible, as appropriate to size and scale of project.
☐	☐	32.	The project must not result in the permanent net increase of commercial vessels.

Justification for NLAA Determination if not Incorporating All PDC

If the project is not in compliance with all of the general and stressor-based PDCs, but you can provide justification and/or special conditions to demonstrate why the project still meets the NLAA determination and is consistent with the aggregate effects considered in the programmatic consultation, you may still certify your project through the NLAA program using this verification form. Please identify which PDCs your project does not meet (e.g., PDC 9, PDC 15, PDC 22, etc.) and provide your rationale and justification for why the project is still eligible for the verification form. Project modifications must not result in different effects not already considered.

To demonstrate that the project is still NLAA, you must explain why the effects on ESA-listed species or critical habitat are **insignificant** (i.e., too small to be meaningfully measured or detected) or **discountable** (i.e., extremely unlikely to occur). **Please use this language in your justification.**

PDC#	Justification

FHWA/DOT Verification of Determination (To be filled out by FHWA/DOT staff only)
By submitting this Verification Form, FHWA, or the state DOT as FHWA's designated non-federal representative, indicates that they determined that the proposed activity described above is not likely to adversely affect (NLAA) ESA-listed species or designated critical habitat under NMFS jurisdiction in accordance with the Program, and all effects (direct, indirect, interrelated, and interdependent) are either insignificant (so small they cannot meaningfully be measured, detected, or evaluated) or discountable (extremely unlikely to occur).

☐	In accordance with the FHWA GARFO NLAA Program, we have determined that the action complies with all applicable PDCs and is not likely to adversely affect listed species.
☑	In accordance with the FHWA GARFO NLAA Program, we have determined that the action is not likely to adversely affect listed species per the justifications and/or special conditions provided above.

FHWA/DOT Signature:	Date:
Marc G. Laurin Digitally signed by Marc G. Laurin Date: 2020.12.11 11:33:41 -05'00'	12/09/2020

By providing your determination and signature, you are certifying that to the best of your knowledge the information provided in this form is accurate and based upon the best available scientific information. This form must be filled out and signed by FHWA or state DOT staff, as an officially designated non-federal representative.

GARFO PRD Concurrence (To be filled out by GARFO PRD)
After receiving the Verification Form, GARFO PRD will contact FHWA/DOT with any concerns and indicate whether GARFO PRD concurs with FHWA/DOT's determination.

☐	In accordance with the FHWA GARFO NLAA Program, GARFO PRD concurs with FHWA/DOT's determination that the action complies with all applicable PDCs and is not likely to adversely affect listed species or critical habitat.
☑	In accordance with the FHWA GARFO NLAA Program, GARFO PRD concurs with FHWA/DOT's determination that the action is not likely to adversely affect listed species or critical habitat per the justifications and/or special conditions provided above.
☐	GARFO PRD does not concur with FHWA/DOT's determination that the action complies with the applicable PDCs (with or without justifications), and recommends an individual Section 7 consultation to be completed independent from the FHWA GARFO NLAA Program.

GARFO PRD Signature:		Date:
MESA GUTIERREZ.ROOSEVELT.ANDRES.1586982881	Digitally signed by MESA GUTIERREZ.ROOSEVELT.ANDRES.1586982881 Date: 2020.12.16 16:13:05 -05'00'	12/16/2020

New Hampshire Department of Transportation

Hampton Harbor Bridge Project

NOAA Programmatic Biological Assessment

Supporting Text

Project History

The Neil R. Underwood Bridge carries NH Route 1A over the Hampton River at the inlet to Hampton Harbor (see Figure 1). The Hampton and Blackwater Rivers, as well as Hampton Harbor, lie to the west of the bridge (see Figure 2). The Atlantic Ocean lies to the east of the bridge. To the north and south are residential, recreational, and tourism-based development, including the Hampton Beach State Park, which is located north of and on the east side of the bridge, and the Hampton-Seabrook Dunes Wildlife Management Area (Dunes WMA), which is located southwest of the bridge. The bridge is approximately 1,199-feet (365 meters) long by approximately 33 feet (10 meters) wide (53 feet [16 meters] wide at the barrier gates), and it carries up to 18,000 vehicles per day during peak times. Constructed in 1949, it is one of two remaining bascule bridges in the State of New Hampshire. It replaced an earlier bridge at the crossing, the "Mile-Long Bridge", the alignment of which was located west of the existing structure in what is now the Dunes WMA.

A Rehabilitation Study was undertaken in November 2018 and updated in 2019. The study assessed various options for rehabilitating the existing bridge and improving the existing roadway. An Alignment and Profile Study was also undertaken to assess various options for roadway typical sections, alignments and profiles. It was determined that an eastern alignment was not feasible due to the potential impact to properties southeast of the bridge. Finally, a Type, Size and Location Study (TS&L) was completed in March 2020 which recommended Replacement with a non-movable Fixed Bridge as the Preferred Alternative. NHDOT has identified the Replacement with a Fixed Bridge as their preferred alternative.

Project Purpose and Need

The purpose of the project is to provide a safe, reliable, and structurally sound crossing over the Hampton Harbor Inlet, while also improving mobility for the traveling public. This includes drivers, bicyclists and pedestrians, as well as maritime users.

The project is necessary because the existing bridge is structurally deficient and functionally obsolete. It is on NHDOT's "Red-List", which identifies deficient bridge structures that are a priority for the state to address. Since its construction in 1949, the bridge has been repaired or rehabiliated numerous times over its 70-year life, including in 1963, 1978, 1984, 1990, 2002, and 2011. In addition, emergency repairs to the bascule span were undertaken in 2018 when the bridge became stuck in the raised positition due to deterioration in the gears of the structure's mechanical system.

Despite the efforts to repair and maintain the bridge, several recent inspections have indicated the bridge's superstructure is in poor condition and the substructure is just in satisfactory condition. The bridge's superstructure exhibits extensive paint failure and surface rust, and pack rust is evident between

the girder plates in numerous areas on the bridge. The floor beams and bracing also exhibit corrosion, the deck joints show damage, and the bridge's bearings display severe corrosion. One of the piers is slightly out of alignment and has substantial spalling and cracking at its cap, while a second pier has substantial scour pockets below the waterline. Finally, there's corrosion on the stairway supports.

Inspections of the bridge's mechanical system conducted in 2018 found that it is in overall poor condition with a few components in severe condition. The main operating machinery, much of it original to the structure, is in fair to poor condition. There are no machinery brakes and the bridge has no redundant means of operation. The emergency drive system is in severe condition and inoperable due to physical deterioration of the motor, brakes and bearings. Severe section loss is evident in the machinery support and bearing fasteners, and the live load bearings are in poor condition. Moreover, the instrumentation machinery and limit switches are generally outdated and in poor condition due to damaged linkages, physical deterioration, and poor maintenance. This deteriorated machinery led to the 2018 malfunction.

The electrical system is also outdated and doesn't meet current standards. The motor control center and control system are in poor condition due to deterioration, periodic tripping of motor overloads, and a lack of working clearances to meet National Electrical Code requirements. The control desk is also in poor condition due to several inoperable components.

In addition to structural and mechanical deficiencies, the current roadway width doesn't adequately accommodate the combined use by vehicles, bicyclists and pedestrians. Existing travel lane and shoulder widths at the bridge are inconsistent with roadway approaches. Moreover, the shoulders are narrow and there is no sidewalk on the west side of the bridge; the sidewalk on the east side is narrow, at just 4'-7". Due to the width of the shoulders, some bicyclists use the sidewalk, which creates conflicts between bicyclists and pedestrians. In addition, the shoulder is not wide enough to provide safe haven for disabled vehicles. Video recorded in 2018 for the project's traffic analysis revealed pedestrians and bicylists crossing the roadway to get to and from the eastern sidewalk. The roadway and bridge do not safely accommodate such crossings. Finally, the narrow shoulders do not allow for the passage of emergency vehicles over the bridge during periods of high traffic which is another safety concern.

Project Description

The project would construct a new structural steel bridge approximately 75 feet (23 meters) west of the existing bridge. The existing bridge would then be demolished. The total length of the bridge would be 1,300 feet (396 meters) and the approaches would be curved slightly to allow the new bridge alignment to tie into NH Route 1A north and south of the existing bridge. At its peak, the deck of the new fixed bridge would be approximately 30 feet (9 meters) higher than that of the existing bascule bridge. The bridge would have two 11-foot (3.3 meter) travel lanes, with eight-foot (2.4 meter) shoulders and six-foot (1.8 meter) sidewalks on each side, resulting in a 50-foot (15 meter) inside width.

The bridge would be comprised of seven spans supported on six piers and two abutments. The end spans would measure approximately 162 feet (49.4 meters) in length, while the five central spans would each measure approximately 195 feet (59.4 meters) in length. Scenic overlooks would be installed at Piers 2 and 5 on both sides of the bridge. The increased clearance between the piers would allow for the widening of the channel under the bridge from the current 40 feet (12.2 meters) to 150 feet (45.7 meters). This would match the full width of the entrance channel approaching the bridge.

The vertical under clearance on the new bridge would be 48 feet (14.6 meters), which would accommodate all regular users of Hampton Harbor, as well as the USACE Special Purpose (dredge) Vessel (S/P/V) Currituck. The elevation would also accommodate four feet (1.2 meters) of sea level rise by 2100, the approximate Intermediate-High range estimated in the New Hampshire Coastal Risk and Hazard Commission.

The bridge piers would be supported on drilled shafts which would be cast into a reinforced concrete pile cap. Steel casings for the shafts would be six feet (1.83 meters) in diameter and would be driven into place. The casings would either remain in place or be vibrated out. Cofferdams would be installed at each of the pier locations prior to the installation of the drilled shafts and pier caps to ensure that no suspended sediment from the construction reaches the water column. All cofferdams would be installed during the in-water work window (November 15th and March 15th), and thereafter, work inside the cofferdams could take place at any time. All water and drill waste material would be extracted from the casing during drilling and pumped onto a barge for removal of suspended particulates and proper disposal. The existing piles would likely be cut off below the channel bottom and left in place.

The abutments would have U-shaped reinforced concrete wingwalls supported on approximately 124 steel bearing piles (62 piles per abutment). The piles would likely be vibrated to resistance and then driven the rest of the way. Riprap would extend from the face of the abutment and wingwalls to below the high tide line, to provide armoring for the abutment. A 250-foot (76 meter) retaining wall would be installed northwest of the bridge to minimize impacts in this area.

A new drainage collection and conveyance system would replace the existing scuppers on the bridge in order to eliminate direct discharge into the harbor. Drainage discharges would be routed through new treatment swales at the northern and southern approaches before flowing into the harbor. It is anticipated that stormwater flow on the southern approach would be similar to existing conditions, with sheet flow off of the pavement and onto embankments where buffer areas will treat the stormwater; however, the final design for stormwater management has not yet been completed for this area. Flow from the northern approach roadway would be channeled to new catch basins with sumps north of the bridge. Stormwater would be diverted to the proposed treatment swale located north of the bridge.

During construction, temporary access would be required for the new bridge construction. As part of this, work trestles would be constructed adjacent to, and west of, the proposed bridge alignment from both the north and south shores, but not across the navigation channel. Likewise, during the demolition of the existing bridge, temporary trestles would be built adjacent to, and east of, the existing bridge from both the north and south shores. The temporary trestles would be supported on 12” steel pipe piles. It is estimated that a total of approximately 450 piles would be required for all the proposed temporary trestles. All piles for the trestles would be installed during the in-water work window of November 15th and March 15th. The proposed bridge and existing bridge trestles would likely not be in place at the same time. It is assumed the trestles would be 30-ft wide, with a leg extending perpendicular to each proposed pier in order to place the cofferdams and to be able to reach all six drilled shafts at each pier; a similar configuration would be used for demolition of the existing bridge. During construction of the new bridge, the existing bridge would be functional and open to vehicular traffic; the navigation channel would also be maintained.

The water, sewer, and gas lines below the harbor would need to be relocated prior to beginning work on the bridge. The gas and sewer lines are directly under the proposed location of the new bridge, so the

utility relocation would have to take place prior to construction. Construction access would probably be considered in the relocation so at this stage of design/planning all utility lines are anticipated to be relocated to the west of the trestle since it would be at the shortest move. The water lines are clear of the new bridge, but they are under the west side of the north end of the trestle. The final location of where the water lines will be moved has not yet been determined at this stage of design, but the relocated utilities would be placed in the navigational channel at least temporarily. It has not yet been determined if the water and gas will be relocated to the bridge superstructure. The sewer, likely being gravity-fed, would thus not be raised to the bridge without a pump station. The abandoned water pump station located northwest of the bridge would also be removed.

Construction of the new bridge and demolition of the existing bridge would occur over 36 months, beginning in the fall of 2023. In-water work for the relocation of utilities, placement of the sheet piles, and installation of the trestles would occur between November 15th and March 15th to minimize impacts to listed aquatic species and EFH. Due to the proposed construction schedule and complexity of the work activities associated with the bridge construction, the temporary sheet piles and trestle piles could potentially be removed outside of the in-water work window.

Action Area

For the purposes of this Biological Assessment, the "Project Area" is defined as the footprint of the proposed bridge construction including associated utility appurtenances and construction staging area(s). NOAA generally defines the Action Area associated with a project as all areas directly or indirectly affected by the proposed action regardless of whether those areas are found on land or in the water (50 CFR § 402.02). Therefore, the "Action Area" is defined herein as the extent of potential adverse impacts associated with the bridge construction such as noise, vibration, sediment disturbance, and other effects that may travel beyond the footprint of the construction (see Figure 3). The Action Area is defined by the area of construction activity for the new bridge construction, existing bridge removal, temporary access for these activities, as well as travel routes for workers and materials via waterborne vessels. The locations of four docks that may be used for staging are also shown on Figure 3: the Yankee Fisherman's Coop, Eastman's Docks, the Hampton State Pier, and the Hampton Marina. There are no vegetated wetlands within the Action Area, only sandy intertidal estuarine wetlands (see Figure 4). No eel grass beds are present within the Action Area. Benthic sampling was conducted within the vicinity of the bridge to determine what benthic habitat and species are present where piles would be installed. The *Hampton Harbor Bridge Benthic Survey Report*, provided in Attachment A, summarizes the resources found; these include primarily hardbottom habitat and softbottom habitat.

According to correspondence from NOAA Fisheries, Greater Atlantic Regional Fisheries Office, Protected Resources Division (email coordination, dated 9/22/2019), presence in Hampton Harbor is possible for both sturgeon species and four sea turtle species, however, NOAA expects their presence to be limited to rare, transient individuals partaking in migrating and foraging behavior. The Mapper indicates the possible presence of Atlantic salmon, but NOAA does not expect them to occur in the Action Area.

Project Phasing

Construction would occur in three phases, each lasting approximately one year. In Phase 1, an access road would be established west of the proposed bridge alignment and a work trestle would be constructed extending from the west side of the proposed south abutment north to the proposed location of Pier 3

on the south side of the navigational channel. Similarly, a second work trestle would be constructed on the west side of the proposed bridge north of the navigational channel extending from the proposed location of Pier 4 to the west side of the north abutment. Construction of the temporary trestles would help to minimize the use of barges and ultimately reduce the amount of temporary sediment disturbance resulting from barge spud use. Sediment and erosion control measures would be put in place in all upland areas prior to ground disturbance and would be maintained for the duration of the project. Sheet pile cofferdams would be installed around the limits of the proposed pier pile caps and their respective drilled shafts, as well as the proposed abutments. This work would all be undertaken within the in-water work window between November 15th and March 15th. Use of sheet pile cofferdams would prevent suspended sediments and drill waste from getting into the water column during installation of the drilled shafts. It would also ensure that any concrete waste does not enter the water column during pier forming and pouring. Following the installation of the cofferdams, the drilled shafts would be installed, the pile caps and piers would be constructed within the cofferdams, abutment walls would be constructed behind cofferdams, and the construction of the north and south roadway approaches and abutments would be initiated. Cofferdams would allow for dewatering of the work area, which would provide a reduction in underwater noise levels due to vibratory/impact hammering of the outer casings. During this phase, vehicular traffic would be maintained over the existing bridge and marine traffic within the navigational channel. The types of equipment used for this phase of the construction would include bulldozers, front-end loaders, dump trucks, and vibratory rollers for the earthen access road, and barges, cranes, trucks, drilling equipment (both vibratory and ram), cement trucks, concrete pumps, and loaders for installation of the sheet piles, drilled shafts and pier caps.

In Phase 2, work would begin on the superstructure. This would include the complete erection of the central five bridge spans, and the partial construction of the southernmost and northernmost spans. This would be completed from the western work trestles. The north and south roadway approaches would also be completed. The removal of the western trestles and the cofferdams would begin within the in-water work window defined above. Throughout this phase, vehicular traffic would be maintained over the existing bridge and marine traffic within the navigational channel. The types of equipment used for this phase of the superstructure construction would include barges, cranes, trucks, cement trucks and loaders.

In Phase 3, the roadway traffic would be shifted to the partially completed bridge and roadway approaches. Marine traffic would be maintained within the existing navigational channel. The remaining portions of the superstructure at the northernmost and southernmost spans would be completed; and a new fender system would be constructed to protect the bridge piers on either side of the channel. The western trestles would be fully removed. An access road would be constructed on the east side of the existing south approach, and new work trestles would be constructed from the east side of the north and south approaches to the navigational channel. The superstructure of the existing bridge would be removed, and then the substructure would be removed within the in-water work window. Finally, the eastern trestles would be removed; the roadway would be graded, and the disturbed areas would be stabilized; the navigational channel would be widened from 40 feet (12.2 meters) to 150 feet (45.7 meters) through dredging; vehicular traffic would be fully shifted to the final roadway layout; and the widened navigational channel would be opened to marine traffic. Dredging would be completed in accordance with U.S. Army Corps of Engineers permitting requirements under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, and through the New Hampshire Department of Environmental Services permitting process for Section 401 Water Quality Certification. As part of the permitting process,

coordination with NOAA would continue to further determine any potential restrictions or conditions for this dredging work.

Project Design Criteria (PDC) Checklist Justification Discussion

PDC # 13(continued)

The design calls for the installation of 36 concrete drilled shafts for the in-water piers. The outer steel casings required for drilling of the shafts would be approximately 6-feet in diameter and would likely be vibrated to a certain depth or resistance, then driven with a diesel or hydraulic impact hammer, causing underwater noise. Each drilled shaft would have a rock socket into the bedrock, which are a means of setting the drilled shaft into secure bedrock for structural integrity. The rock sockets would have a diameter six inches less than the drilled shaft and would likely extend 3 – 4.6 meters (10-15 feet) into bedrock.

Based on the proposed design specifications for the new bridge, the *GARFO Acoustics Tool* (version dated 9/14/2020) was used to estimate underwater noise levels associated with the new piers and the temporary work trestle piles. As a nearshore water, the Simplified Attenuation Formula (SAF) criteria were used for the analysis. Table 1 provides a list of the proxy projects used by the Acoustics Tool to ultimately determine the underwater noise from the project. Table 2 summarizes the estimated underwater noise results of this analysis, based on the project-specific criteria input into the Acoustic Tool.

Table 1: Proxy Projects for Estimating Underwater Noise

Project Location	Water Depth (m)	Pile Size (inches)	Pile Type	Hammer Type	Attenuation rate (dB/10m)
Not Available	0	72"	Steel Pipe	Impact	5
Sausalito, CA - Richardson Bay	2	12"	Steel Pipe	Cushioned Impact	5
Sausalito, CA - Richardson Bay	2	12"	Steel Pipe	Impact	5

Table 2: Proxy-Based Estimates for Underwater Noise

Type of Pile	Hammer Type	Estimated Peak Noise Level (dB_{Peak})	Estimated Pressure Level (dB_{RMS})	Estimated Single Strike Sound Exposure Level (dB_{sSEL})
72" Steel Pipe	Impact	204	189	175
12" Steel Pipe	Cushioned Impact	177	165	152
12" Steel Pipe	Impact	203	191	178

As previously discussed, the 12-inch steel piles for the temporary work trestles and the sheet pile cofferdams for the piers would be installed during the approved in-water work period between November 15th and March 15th. Since both sturgeon species tend to migrate during the month of April, in-water work would not coincide with these typical migration times. Although sturgeon tend to spend time at the mouths of large rivers during the winter season, they would not likely utilize the action area during the

proposed seasonal work window since they either leave the geographical area or they occupy sites of much deeper water than is found at the project site during winter months. Any occurrences within the action area would likely be associated with feeding during warmer months when no in-water work is proposed. Thus, in-water construction would not coincide with the potential occurrence times of the listed species.

Likewise, the proposed seasonal work window between November 15th and March 15th would also avoid much of the potential periods of activity for all four sea turtles, although there is potential for overlap of sea turtle occurrence in November. Therefore, the time of year restrictions placed on the project largely avoids direct impact to these turtle species.

The outer steel casings for the drilled shaft piers could be driven during any time of the year since they would be installed behind the cofferdams. Tables 3 and 4 provide the results of the underwater noise assessment for the 72-inch outer casings for the sturgeon and turtle species. The results show a potential Behavioral Disturbance Threshold (150 dB_{RMS}) for sturgeon of 88 meters from the source, which includes no noise abatement measures. Similarly, the results show a potential Behavioral Disturbance Threshold (150 dB_{RMS}) for turtles of 38 meters, also with no noise abatement measures.

Table 3: Estimated Distances to Sturgeon Injury and Behavioral Thresholds

Type of Pile	Hammer Type	Distance (m) to 206dB_{Peak} (injury)	Distance (m) to 150 dB_{sSEL} (surrogate for 187 dBcSEL injury)	Distance (m) to Behavioral Disturbance Threshold (150 dB_{RMS})
72" Steel Pipe	Impact	6.0	60.0	88.0
12" Steel Pipe	Cushioned Impact	NA	14.0	40.0
12" Steel Pipe	Impact	4.0	66.0	92.0

Table 4: Estimated Distances to Sea Turtle Injury and Behavioral Thresholds

Type Pile	Hammer Type	Distance (m) to Sea Turtle TTS (SEL weighted) 189 dB_{RMS}	Distance (m) to Sea Turtle TTS (Peak SPL) 226 dB_{Peak}	Distance (m) to Sea Turtle PTS (SEL weighted) 204 dB_{SEL}	Distance (m) to Sea Turtle PTS (Peak SPL) 232 dB_{Peak}	Distance (m) to Sea Turtle Behavioral Threshold 175 dB_{RMS}
72" Steel Pipe	Impact	NA	NA	NA	NA	38.0
12" Steel Pipe	Cushioned Impact	NA	NA	NA	NA	NA
12" Steel Pipe	Impact	NA	NA	NA	NA	42.0

Since Hampton Harbor is approximately 244 meters (800 feet) in width (during low tide) at the bridge site, and since the sturgeon behavioral distance is 88 meters (289 feet), even without any attenuation mitigation measures, approximately 500 feet of the horizontal extent of the harbor would be below the

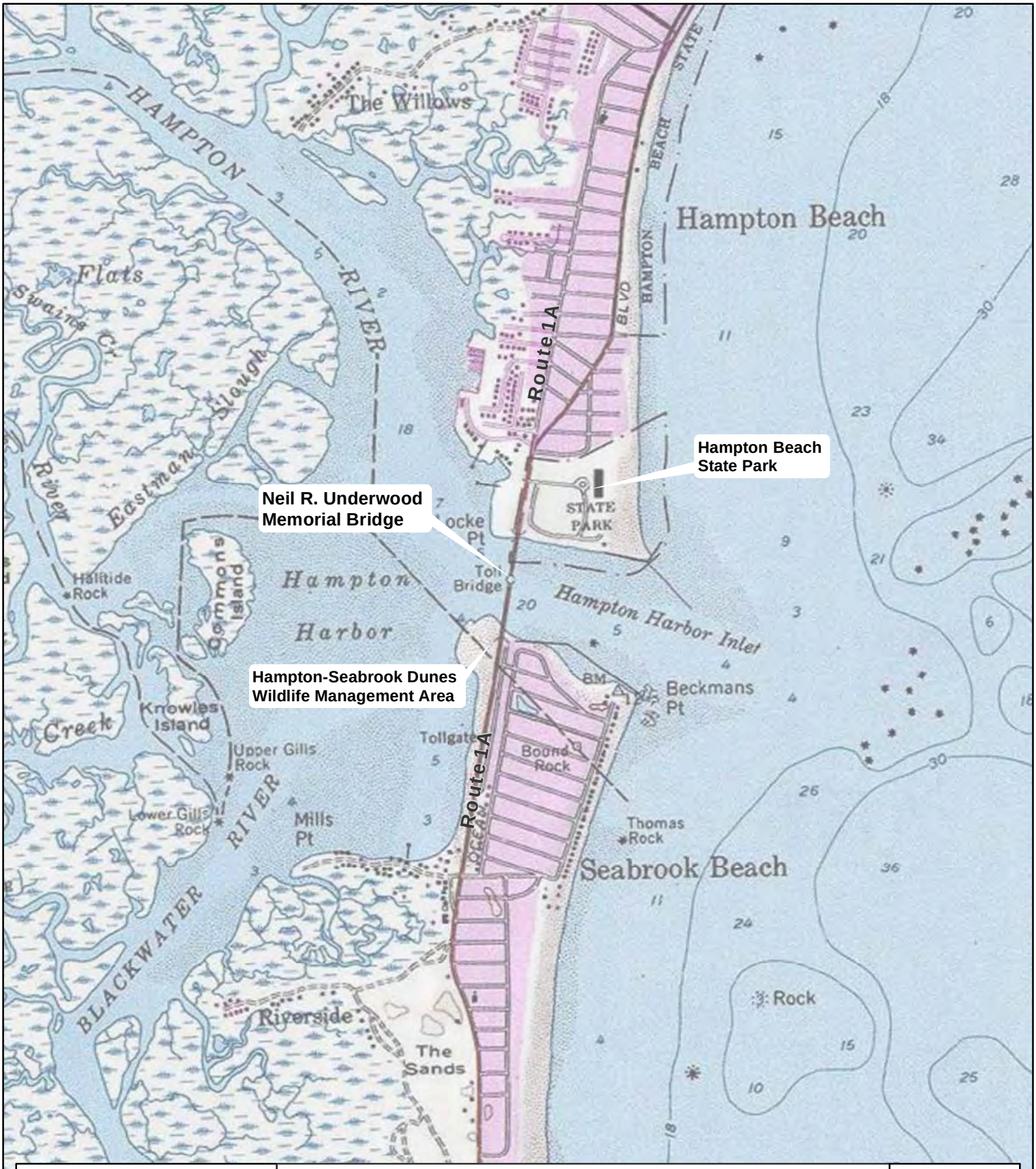
behavioral noise level, providing space for sturgeon to avoid higher noise levels. Since the behavioral distance for sea turtles is even less, at 38 meters (125 feet), there would be even more horizontal space for turtles to traverse around the noise center. This would provide any ESA species ample space to maneuver around /avoid high underwater noise areas. Because of the use of best management practices and the time of year restrictions, it is extremely unlikely that the intermittent and temporary acoustic effects would create a barrier to migration or otherwise alter the conservation function of the harbor, and therefore the effect is considered to be discountable.

Based on the noise attenuation information provided in the *GARFO Acoustics Tool*, underwater noise decibels (dB) created by pile driving may be reduced by 20 dB for steel piles greater than 49" diameter if installed behind dewatered cofferdams. The potential for dewatering cofferdams was evaluated as part of this BA, however, based on engineering reasons it was determined that it would not be practicable to dewater the cofferdams during driving of the outer casing for the drilled shafts. If the cofferdams are not dewatered, the water pressure on each side of the sheet piles will be equal, and the cofferdam does not need to be over-designed for the higher hydrostatic pressure which would occur if they were dewatered (which typically exceeds the force of soil pressure). This is a tremendous savings in materials, effort and cost. Once dewatered, keeping cofferdams dewatered is also more difficult under conditions with tidal flow. Therefore, fully dewatered cofferdams are not proposed for this project.

Based on the underwater noise assessment above, the use of "slow starts" for pile driving, and the fact that the presence of sturgeon and sea turtles are thought to be limited to rare, transient individuals partaking in migrating and foraging behavior, the applicant believes this activity still meets the NLAA determination and is consistent with the aggregate effects considered in the programmatic consultation.

PDC # 14 (continued)

Since the majority of in-water work would take place within the in-water work window, with the potential exception of temporary pile removal, and since ESA-listed species presence in the Action Area is expected to be extremely rare and limited to transient individuals opportunistically foraging, potential impacts due to driving and removal of temporary piles are considered discountable. In addition, since the substrate material in the location of the proposed temporary pile installation/removal is composed almost entirely of sand, with less than one percent fines (based on 2018 sediment test results from the USACE prior to recent dredging), potential turbidity associated with the pile removal is anticipated to be minimal and potential effects on ESA species insignificant.



Hampton Harbor Bridge Project
Project Location - Figure 1

Project No. 15904
Bridge No. 235/025

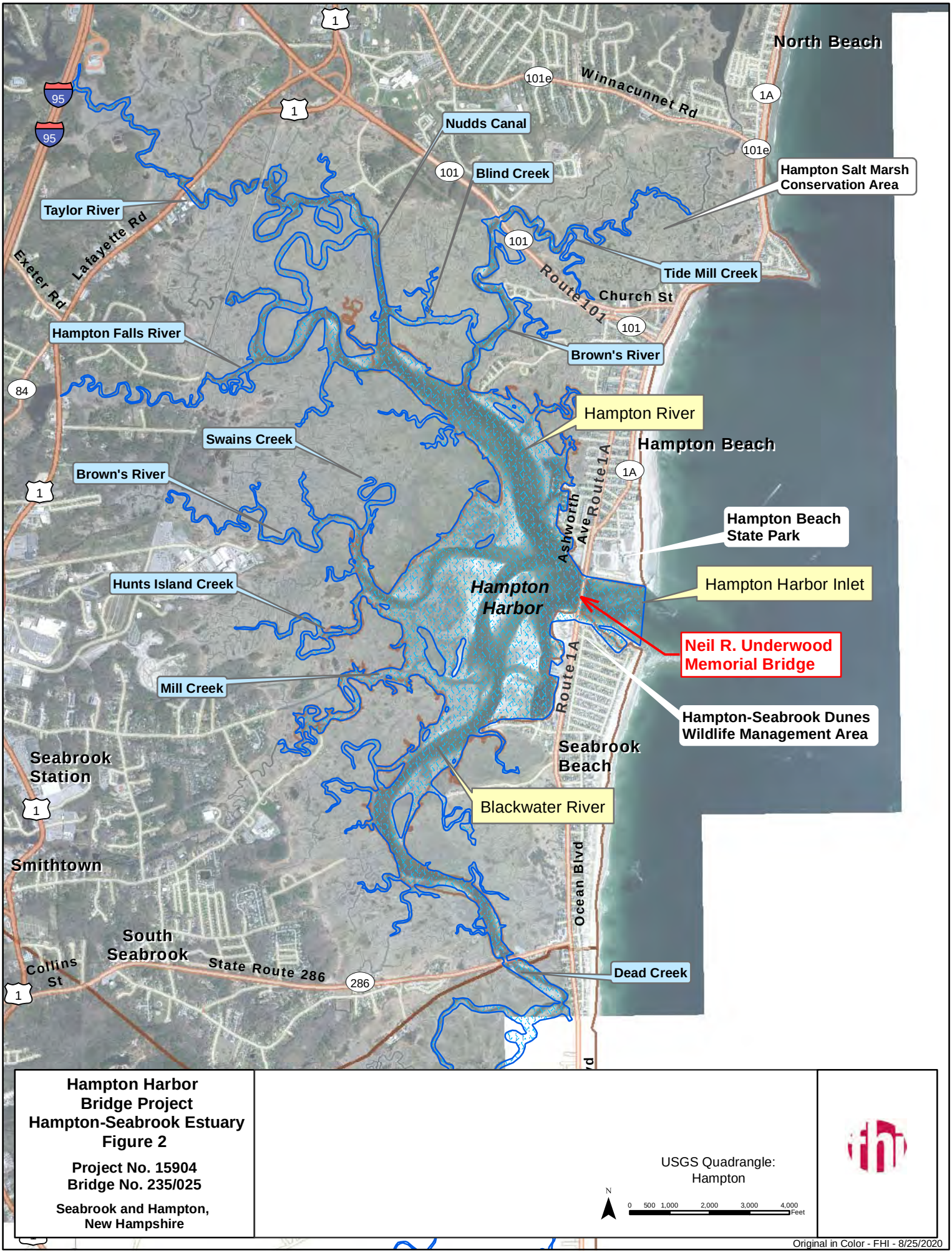
Seabrook and Hampton, New Hampshire

USGS Quadrangle: Hampton

N

0 250 500 1,000 1,500 2,000 Feet

Original in Color - FHI - 8/7/2020



Hampton Harbor Bridge Project
Hampton-Seabrook Estuary
Figure 2

Project No. 15904
Bridge No. 235/025

Seabrook and Hampton, New Hampshire

USGS Quadrangle: Hampton

N

0 500 1,000 2,000 3,000 4,000 Feet

Original in Color - FHI - 8/25/2020

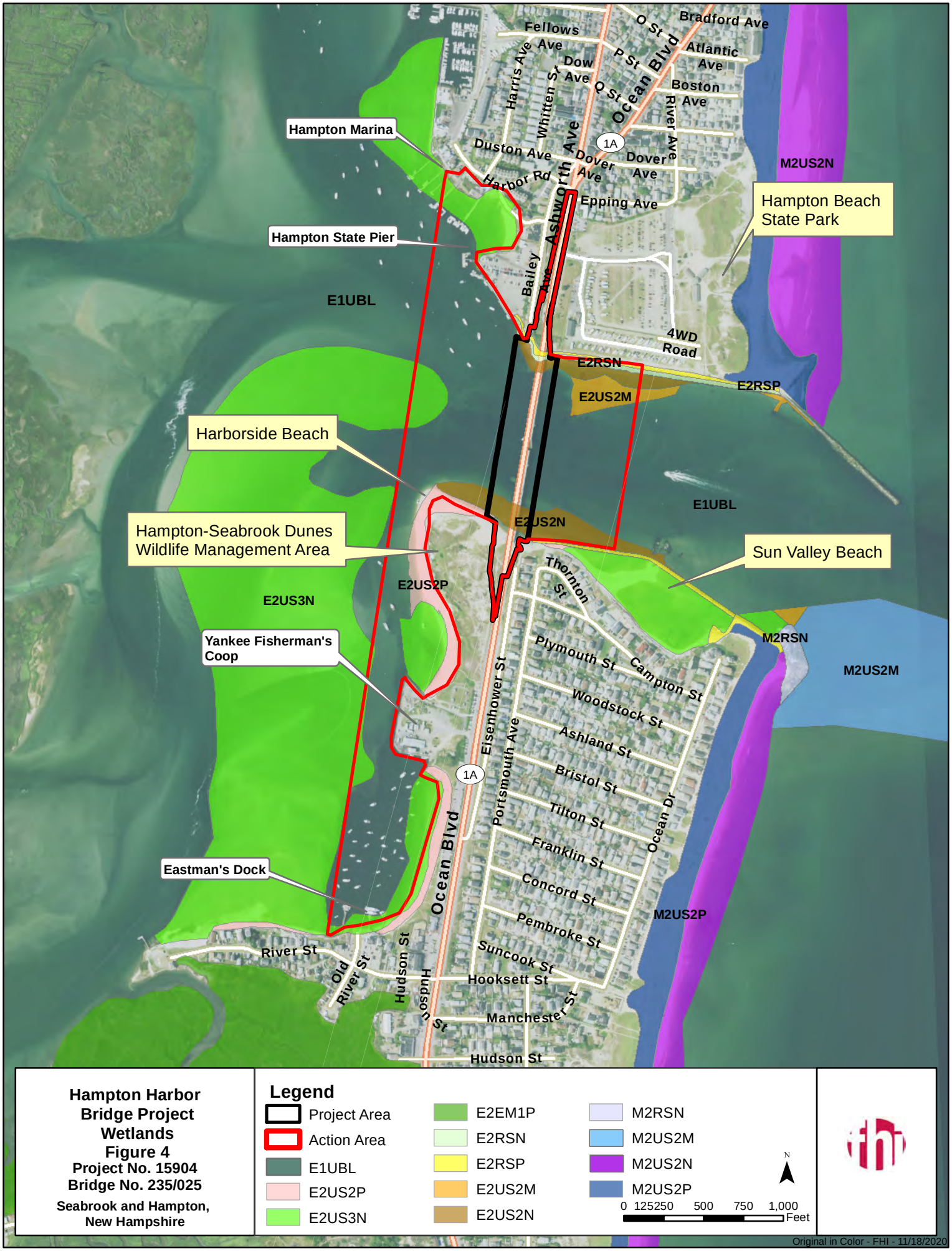
Hampton Harbor Bridge Project
Action Area
Figure 3
Project No. 15904
Bridge No. 235/025
Seabrook and Hampton, New Hampshire

Legend

- Project Area
- Action Area

0 95 190 380 570 760 Feet

Original in Color - FHI - 8/31/2020



Hampton Harbor Bridge Project
Wetlands
Figure 4
Project No. 15904
Bridge No. 235/025
Seabrook and Hampton, New Hampshire

Legend

- Project Area
- Action Area
- E1UBL
- E2US2P
- E2US3N
- E2EM1P
- E2RSN
- E2RSP
- E2US2M
- E2US2N
- M2RSN
- M2US2M
- M2US2N
- M2US2P

N

0 125250 500 750 1,000 Feet

Original in Color - FHI - 11/18/2020

From:	Stephanie Dyer-Carroll
To:	"Zachary Jylkka - NOAA Federal"
Cc:	Murphy, James F.; Reczek, Jennifer; Laurin, Marc; Dan Hageman
Subject:	RE: Seabrook-Hampton Bridge project
Date:	Friday, February 22, 2019 1:28:00 PM

Hi Zach,

This is very helpful. Based on prior correspondence with your office on this project, we'd anticipated the sea turtles and sturgeon, however we were surprised when we consulted the mapper to see Atlantic salmon identified. It's good to know your thoughts on their presence.

Best,

Stephanie Dyer-Carroll, AICP
Senior Project Manager / Cultural Resources Specialist
sdyer-carroll@fhiplan.com
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From: Zachary Jylkka - NOAA Federal <zachary.jylkka@noaa.gov>
Sent: Friday, February 22, 2019 12:26 PM
To: Stephanie Dyer-Carroll <sdyer-carroll@fhiplan.com>
Cc: Murphy, James F. <james.murphy@hdrinc.com>; Reczek, Jennifer <Jennifer.Reczek@dot.nh.gov>; Laurin, Marc <Marc.Laurin@dot.nh.gov>
Subject: Re: Seabrook-Hampton Bridge project

Hi Stephanie,

I don't have any data points on the use of Hampton Harbor by ESA-listed species under our jurisdiction. You can get some information on the general anticipated distribution of our species using the Section 7 Mapper (also see attached). While presence in Hampton Harbor is possible for both sturgeon species and four sea turtle species, we expect their presence to be limited to rare, transient individuals partaking in migrating and foraging behavior. The Mapper indicates the possible presence of Atlantic salmon, but we really only expect Atlantic salmon to be present between the waters encompassed by Atlantic salmon critical habitat and the Gulf of St. Lawrence and Grand Bank, and the Labrador Sea.

See also:
http://seaturtlesightings.org/maps.html

Hope this helps.

Zach

On Fri, Feb 22, 2019 at 12:12 PM Stephanie Dyer-Carroll <sdyer-carroll@fhiplan.com> wrote:

> Hi Zachary,
>
> We are working with the New Hampshire Department of Transportation (NHDOT) on the Seabrook-Hampton Bridge Project in Hampton, NH. Last year, Max Tritt provided us with information on sturgeon movement in the Piscataqua River for the Biological Assessment for the New Castle-Rye Bridge Project. We wanted to inquire whether your office has similar information for Hampton Harbor. We'd also appreciate you sharing any information you may have on sea turtle movements in the area.
>
> Thanks for your assistance.
>
> **Stephanie Dyer-Carroll, AICP**
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Zach Jylkka
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Protected Resources Division
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Gloucester, MA 01930
zachary.jylkka@noaa.gov
office: (978) 282-8467

For additional ESA Section 7 information and Critical Habitat guidance, please see:
www.greateratlantic.fisheries.noaa.gov/protected/section7

ATTACHMENT A

Hampton Harbor Bridge Benthic Survey

NORMANDEAU ASSOCIATES
Environmental Consultants

Hampton Harbor Bridge
Benthic Survey Results

Prepared by:
Normandeau Associates, Inc.
25 Nashua Road
Bedford, NH 03110

July 2020
www.normandeau.com

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APPENDIX

Appendix Table: Macroinvertebrate Data

1.0 Introduction

Normandeau Associates, Inc. (Normandeau), as a subcontractor to Fitzgerald and Halliday, Inc. (FHI), was contracted to collect and process benthic samples as part of a benthic survey to provide data for use in the Essential Fish Habitat (EFH) and Biological Assessments for the Hampton Harbor Bridge replacement project. The Hampton Harbor Bridge is a bascule bridge over Hampton Harbor Inlet that connects Hampton and Seabrook, NH. The proposed work scope for this project included a soft-bottom macrofauna survey, a hard-bottom intertidal survey, and a soft-shell clam survey. These surveys characterized the macrofauna community found within the direct vicinity of the Hampton Harbor Bridge to provide requisite data for understanding potential impacts to the system throughout the permitting processes.

This report summarizes processing methods, and presents the macroinvertebrate data that were collected from the samples and from the intertidal survey. Field methods, laboratory processing methods, and data handling procedures are described in Section 2.0. Laboratory processing results and the intertidal survey summary results are provided in Section 3.0, and a listing of the macroinvertebrate data are provided in Appendix A.

2.0 Methods

2.1 Field Methods

Six soft-shell clam (*Mya arenaria*) survey samples were proposed for this project (Figure 1-1). Four of these samples were collected at the Seabrook end of the bridge and the remaining two were collected at the Hampton end. Adult clams (>25mm) were surveyed using a 12" x 24" frame sampled to 18" depth, with clam spat (1-25mm) to be sub-sampled within the frame using a 4" diameter core sampled to 4" depth. All six proposed soft-shell clam samples were successful, however these samples were devoid of all Myidae, including adult clams and *Mya* spat. Therefore there are no reportable result tables or figures for this portion of the survey.

Five benthic samples in total were proposed under the soft-bottom macrofauna survey (Figure 1-1). Of these five samples, two samples were to be collected from the proposed dredge areas located underneath the center of the bridge and three samples from the proposed dredge area to the west (inshore) of the bridge. All field sample procedures were followed as outlined in the sampling plan (Fitzgerald & Haliday, Inc. 2020). Samples could not be collected at the two stations that were located under the bridge due to the lack of soft-substrate resulting from strong tidal currents and a scoured seafloor. The remaining three samples were collected at slightly altered locations, based on availability of soft-substrate. The three samples were collected at the following locations given as latitude and longitude in decimal degrees: Station 3 (42.89583°, -70.8170°), Station 4 (42.8960°, -70.8180°), and Station 5 (42.8973°,-70.8175°). All samples were collected using a 0.04 m^2 Van Veen Grab. Collected grabs were rinsed in the field usng a 500 micron mesh screen, bottled and preserved in 10% buffered formalin, and stained with rose Bengal prior to transport. All collected samples were safely transported and delivered to Normandeau's laboratory in Bedford, NH.

Figure 1-1. Proposed sampling locations for soft-shell clam survey and soft-bottom macrofauna survey from Fitzgerald and Halliday (2020).

An intertidal hard-bottom survey consisting of three transects (Figure 1-2) for this project was located on the north side of the channel as originally planned. The first transect was located 5 meters west of the bridge, the second transect was located under the center of the bridge, and the third transect was located 5 meters east of the bridge. The hard-bottom substrate was generally composed of bedrock outcrops, rip-rap boulders, and components of the bridge sub-structure. All three transects were successfully conducted, with minor adjustments. The original field plan was to utilize a 0.25 m^2 frame which would be placed at meter intervals to count the density of present organisms. However, this spatial frequency was modified to account for the long length of the mussel and barnacle zones and the high density of the organisms found. Field crews reported that small barnacles (1-2 mm) covered 90% of all surfaces, including the mussels. As a result, three representative frame (0.25m^2) counts were collected along each transect within the mussel and barnacle zones and one frame sample was collected along each transect within the Irish Moss Zone (which was less than 2 meters wide for all transects).

Figure 1-2. Mapped transect locations with highlighted intertidal zones from the hard-bottom survey

2.2 Laboratory Methods and Quality Control

Soft-bottom macroinvertebrate samples and soft-shell clam samples were processed by Normandeau's Bedford, NH laboratory following standard processing protocols. Upon arrival at the laboratory, all macroinvertebrate samples were gently rinsed with fresh water through a 0.5 mm mesh screen. To facilitate sorting, samples were elutriated to separate heavy and light materials and those with heterogeneously sized debris or organisms were washed through a series of graduated sieves down to a 0.5 mm mesh. Homogeneous sized sand greater than 0.5 mm was pan sorted with an overhead magnifier light. Macroinvertebrates were sorted into major taxonomic groups using a dissecting microscope and placed in vials with 70% ethanol for preservation. All organisms were identified to the lowest practical taxon (usually species) and enumerated, with the following exceptions: oligochaetes were identified to class; platyhelminthes, nemerteans, and nematodes to phylum; and meiofauna (e.g., benthic copepods, ostracods) were not enumerated. Immature or damaged specimens that were missing

the necessary diagnostic features for identification to the target taxonomic level were identified to the lowest practical taxon. Soft-shell clam samples were rinsed through a 1.0 mm sieve and pan sorted for spat and adults. Due to the small sample size, the entirety of each sample was sorted and enumerated, and no subsampling was employed.

Quality control protocols for sorting and identification included reanalysis of a minimum of 10% of the samples completed by each sorter or taxonomist. Due to the small number of samples, only the first sorted sample underwent Quality Control. Communication between taxonomists and spot checking ensured accurate identifications for the three samples. Identified specimens were inventoried and prepared for storage; all sorted samples were re-preserved and prepared for disposal following federal regulations, pending authorization by FHI. Normandeau's internal quality control for sorting and taxonomy follows the National Coastal Condition Assessment 2015 Laboratory Operations Manual (Version 2.1 May 2016; USEPA 2016) guidelines.

2.3 Data Handling and Reduction Methods

Data handling was conducted by Normandeau's Data Center in Bedford, NH. All data were double keypunched using Normandeau's keypunch verification software. All electronic formatted data was checked for 100% accuracy against the original recorded laboratory results.

Data preparation, reduction, and computation of summary statistics were run in SAS system software (version 9.4). Macroinvertebrate community structure parameters were calculated based on the biotic abundance estimates for each sample. Summary statistics for the macroinvertebrate community included: total abundance, number of species, Shannon-Wiener diversity index (H' per sample, log base e), and Pielou's evenness index (J' per sample) (Magurran 1988). Abundance was reported as counts per 0.04 m^2 grab sample and taxonomic group. All taxa identified to a taxanomic level higher than genus were removed before calulcating diversity indices. The PRIMER 6 package of statistical routines (Clarke & Gorley, 2006) was used to calculate Shannon-Wiener diversity (H') and Pielou's evenness value J'. Both H' and J' indices are based on the proportional abundances of species (Magurran 1988). Evenness (J') is entirely a function of proportional abundance; J' values are unaffected by the number of species in a sample. Values for J' can range between 0 and 1, with J' = 1 when all species in a sample have equal abundances. Diversity (H') is a function of both proportional abundance and the number of species in the sample. The maximum possible H' diversity (Hmax) for a given number of species occurs where all species have equal abundances. Any log base can be used to calculate H'; $\log_e$ is used most commonly (Magurran 1988). H' values calculated using different log bases are not comparable and must be converted to a common base prior to comparison. J' values are not affected by log base. H' increases both with increasing numbers of species, and with increasingly even distributions of the total abundance among those species. Thus, H' values depend on the log base used and on the numbers of taxa per sample, in addition to proportional abundance. H' can range from 0 (with only one species in a sample) to a typical maximum of around 4.5 (Magurran 1988).

The contents of this report provide the raw data and a brief data summary as delineated in the project work scope, which includes tables presenting the following parameters:

- Number of Samples

- Mean Taxa Richness (±1 SD)
- Total Number of Taxa
- Number of Taxa Observed by Taxonomic Group
- Percent of Total Abundance by Taxonomic Group
- Relative Abundance of Taxa Recovered, and
- Intertidal Survey Results

3.0 Results

All six of the soft-shell clam survey samples contained very coarse pebble/gravel material. No adult clams or spat (juveniles) were found. Laboratory taxonomists noted the lack of any living organisms found within the samples. These samples were not only devoid of *Mya*, but of other bivalve spat typically found in nearby mud flats. This may be a result of the strong tidal current and coarse substrate found in the sampling area.

Three soft-bottom samples were collected at the stations west of the bridge and yielded a total of 40 macroinvertebrate families (and higher taxonomic-level organisms including Oligochaeta, Archannelida, Nematoda, and Turbellaria) from six phyla. Ninety percent of the macroinvertebrates were from three phyla: Annelida (contributing 46%), Mollusca (33%), and Arthropoda (11%, Table 3-1; and Figure 3-1). The other phyla recorded in the samples: Nemertea, Platyhelminthes, and Nematoda together contributed 10 percent to the total abundance. Annelida had the highest number of taxa (n=19); followed by Mollusca and Arthropoda (for each n=9), and the remaining three phyla had only one taxa each (Table 3-1). Annelida were also the most abundant organisms with a total of 303 individuals among all samples, followed by Mollusca with 215 individuals, and Arthropoda (70 individuals; Table 3-1). Total abundances of Nemertea, Platyhelminthes, and Nematoda were relatively low ranging from 37 nemerteans to 5 nematodes.

Overall, the mean abundance was 219 individuals per sample (5,475 organisms per m^2) with station 5 having the highest number of individuals at 7,200 per m^2 (n=288 individuals per 0.04m^2; Table 3-2). The mean number of taxa among all samples was 19 with station 4 having the highest taxa count (n=29). The mean Shannon diversity index for all samples was 1.71, and the average Pielou's evenness for all three samples was 0.58 (Table 3-2).

Intertidal survey results are presented separately for each transect (Tables 3-3 to 3-5). Four identifiable zones were found in each transect: a thin Irish moss zone (~2 meters), a broad blue mussel zone (~12 meters), a large barnacle zone (~21 meters), and a thin black zone characterized by algal growth (~5 meters). Although a black zone was identifiable, field crews noted that the algae was very sparse at each transect location. Subsample area invertebrate counts were done for each zone, except the black zone as outlined in the sampling plan (Fitzgerald & Haliday, Inc. 2020). For each zone, a characteristic organism was given as a visual percent cover. The organism used for each zone is described as follows: 1) the Irish moss zone used *Chondrus crispus*, 2) the blue mussel zone used *Mytilus edulis* (Figure 3-2a), 3) the barnacle zone used *Balanus* sp. (Figure 3-2b), and 4) the black zone used blue-green algae presence. Transects 1, 2, and 3 were all dominated by the barnacle zone, and while some other small invertebrates were noted, barnacles consistently made up the majority of the macroinvertebrate

community surveyed. In summary, this is an area that experiences strong tidal currents, and contains large coarse substrate ranging from cobble to boulders resulting in a faunal assemblage in this intertidal zone that reflects these hydrodynamic conditions.

Table 3-1. Phyla represented in the macroinvertebrate samples collected during the Hampton Harbor soft-bottom survey in May 2020.

Phylum	Number of Taxa[1]	Total abundance (number of individuals across all samples)	Percentage
Annelida	19	303	46.12
Mollusca	9	215	32.72
Arthropoda	9	70	10.65
Nemertea	1	37	5.63
Platyhelminthes	1	27	4.11
Nematoda	1	5	0.76

[1]Identified to the family-level with the exception of Oligochaeta, Nematoda, Nemertea, and Platyhelminthes.

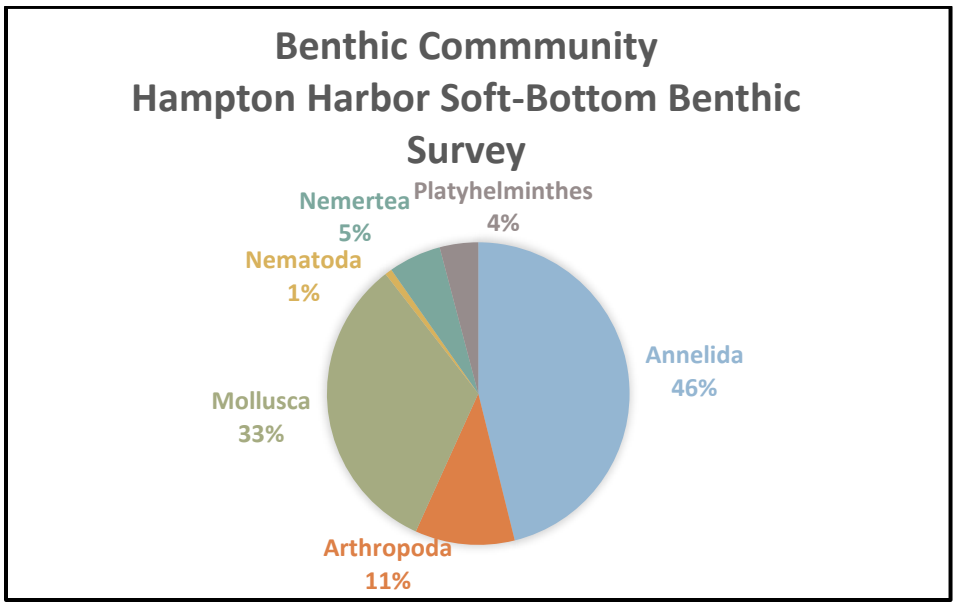


Figure 3-2. Percent contribution to total abundance by phyla in benthic samples collected during the Hampton Harbor soft-bottom macroinvertebrate survey in May 2020.

Table 3-2. Community parameters for samples collected during the Hampton Harbor soft-bottom survey in May 2020.

Station (Sample ID)	Total Number of Taxa	Total Count (no. per 0.04 m²)	Diversity (H')	Evenness (J')
3	14	90	0.90	0.38
4	29	279	1.47	0.61
5	15	288	2.07	0.64
Mean	19.3	219.0	1.48	0.54

Table 3-3. Hampton Bridge Intertidal Survey Results from Transect 1, west of bridge.

Transect Zone	Length of Zone (m)	% Cover	Frame	Counts of Invertebrates per 0.25 m² Quadrat					
				Periwinkle	Blue Mussel	Barnacle[a]	Slipper Shell	Hermit Crab	Dog Whelk
Irish Moss Zone	1.5	*Chondrus crispus*	1	21	4	0	0	1	0
		50	N/A						
			N/A						
Blue Mussel Zone	12	*Mytilus edulis*	1	33	165	20,000+	0	0	0
		60	2	121	178	20,000+	0	0	0
			3	31	62	20,000+	0	0	0
Barnacle Zone	27.5	*Balanus* sp.	1	56	0	20,000+	0	0	0
		90	2	72	0	20,000+	0	0	0
			3	57	0	20,000+	0	0	0
Black Zone	5	Blue-green Algae	1						
		5	2						
			3						

[a] **All transect survey barnacle counts are based on visual estimates as recorded by field staff.**

Table 3-4. Hampton Bridge Intertidal Survey Results from Transect 2, under the bridge.

Transect Zone	Length of Zone (m)	% Cover	Frame	Counts of Invertebrates per 0.25 m² Quadrat					
				Periwinkle	Blue Mussel	Barnacle[a]	Slipper Shell	Hermit Crab	Dog Whelk
Irish Moss Zone	1.5	*Chondrus crispus*	1	44	56	10,000+	3	1	0
		20	N/A						
			N/A						
Blue Mussel Zone	9.7	*Mytilus edulis*	1	13	146	20,000+	0	0	0
		80	2	46	113	20,000+	0	0	14
			3	38	243	20,000+	0	0	0
Barnacle Zone	18.5	*Balanus* sp.	1	64	12	20,000+	0	0	0
		90	2	67	2	20,000+	0	0	0
			3	29	6	20,000+	0	0	0
Black Zone	6	Blue-green Algae	1						
		5	2						
			3						

[a] **All transect survey barnacle counts are based on visual estimates as recorded by field staff.**

Table 3-5. Hampton Bridge Intertidal Survey Results from Transect 3, east of the bridge.

Transect Zone	Length of Zone (m)	% Cover	Frame	Counts of Invertebrates per 0.25 m² Quadrat					
				Periwinkle	Blue Mussel	Barnacle[a]	Slipper Shell	Hermit Crab	Dog Whelk
Irish Moss Zone	0.6	*Chondrus crispus*	1	18	3	0	4	0	0
		60	N/A						
			N/A						
Blue Mussel Zone	14.5	*Mytilus edulis*	1	26	269	20,000+	0	0	0
		40	2	27	136	20,000+	0	0	1
			3	28	89	20,000+	0	0	0
Barnacle Zone	16.7	*Balanus* sp.	1	121	2	10,000+	0	0	0
		50	2	38	1	10,000+	0	0	1
			3	0	0	10,000+	0	0	0
Black Zone	3.6	Blue-green Algae	1						
		5	2						
			3						

[a] **All transect survey barnacle counts are based on visual estimates as recorded by field staff.**

a.

b.

Figure 3-2. Representative field photos from hard-bottom transects: a.) blue mussel zone and b.) barnacle zone.

4.0 References

Clarke, KR and RN Gorley. 2006. Primer V6: User Manual-Tutorial. Plymouth Marine Laboratory.

Fitzgerald & Haliday, Inc. 2020. Benthic Sampling Plan: 15904 Seabrook-Hampton, Bridge No. 235/025.

Magurran, AE. 1988. Ecological Diversity and Its Measurement. Princeton University Press. Princeton, NJ. 179 pp.

USEPA 2016. National Coastal Condition Assessment 2015: Laboratory Operations Manual. EPA- 841-R-14-008. U.S. Environmental Protection Agency, Office of Water, Washington, DC.

Appendix

Macroinvertebrate Data

Appendix Table. Benthic macroinvertebrate counts (per 0.04 m²) collected during the Hampton Harbor soft-bottom survey; May 2020.

Phylum	Taxa	Station 3	Station 4	Station 5
		Individuals per sample (count/0.04m²)		
Annelida	*Aricidea (Acmira) catherinae*		3	
	Capitella capitata		31	
	Capitellidae		1	
	Eteone longa		1	
	Gyptis vittata		1	
	Levinsenia gracilis		1	
	Microphthalmus sp.			1
	Oligochaeta		3	149
	Opisthodonta longocirrata			1
	Parexogone hebes		1	60
	Parougia caeca	1		3
	Pholoe tecta		1	
	Polygordius jouinae	1	12	5
	Polynoidae			1
	Pygospio elegans		2	
	Streptosyllis arenae		1	1
	Streptosyllis websteri			8
	Tharyx acutus		1	
	Typosyllis sp.	2	6	5
Arthropoda	*Balanus crenatus*	2	27	
	Calliopius laeviusculus		16	
	Caprella mutica		1	
	Gammarellus angulosus		1	
	Gammarus lawrencianus		5	
	Gammarus mucronatus		1	
	Ischyrocerus minutus	2	4	
	Jassa marmorata		10	
	Metopa sp.	1		
Mollusca	*Ameritella agilis*		7	2
	Doto coronata		1	
	Gemma gemma		1	
	Lacuna vincta		1	
	Modiolus modiolus	1		
	Mytilus edulis	60	111	23
	Onchidoris sp.	1		
	Petricolaria pholadiformis	2		
	Spisula solidissima	1	3	1

Appendix Table A continued.

Phylum	*Taxa*	*Station 3*	*Station 4*	*Station 5*
		Individuals per sample (count/0.04m^2)		
Nematoda	Nematoda	1		4
Nemertea	Nemertea	12	25	
Platyhelminthes	Platyhelminthes	3		24

EFH ASSESSMENT WORKSHEET

General Project Information

Date Submitted: **Revised: Aug.13, 2021**

Project/Application Number:

Project Name:

Project Sponsor/Applicant:

Federal Action Agency (if state agency acting as delegated):

Fast-41 or One Federal Decision Project: Yes No

Action Agency Contact Name:

Contact Phone: Contact Email:

Latitude: Longitude:

Address, City/Town, State:

Body of Water:

Project Purpose:

Project Description:

Anticipated Duration of In-Water Work or Start/End Dates:

Habitat Description

EFH includes the biological, chemical, and physical components of the habitat. This includes the substrate and associated biological resources (e.g., benthic organisms, submerged aquatic vegetation, shellfish beds, salt marsh wetlands), the water column, and prey species.

Is the project in designated EFH[2]? Yes No

Is the project in designated HAPC[2]? Yes No

Is this coordination under FWCA only? Yes No

Total area of impact to EFH (indicate sq ft or acres):

Total area of impact to HAPC (indicate sq ft or acres):

Current water depths: Salinity: Water temperature range:

Sediment characteristics[3]:

What habitat types are in or adjacent to the project area and will they be permanently impacted? Select all that apply. Indicate if impacts will be temporary, if site will be restored, or if permanent conversion of habitat will occur. A project may occur in overlapping habitat types.

	Habitat Type	**Total impact (sq ft/acres)**	**Impacts are temporary**	**Restored to pre-existing conditions**	**Permanent conversion of all or part of habitat**
	Marine				
	Estuarine				
	Riverine (tidal)				
	Riverine (non-tidal)				
	Intertidal				
	Subtidal				
	Water column				
	Salt marsh/ Wetland (tidal)				
	Wetland (non-tidal)				

[2] Use the tables on pages 7-9 to list species with designated EFH or the type of designated HAPC present.
[3] The level of detail is dependent on your project – e.g., a grain size analysis may be necessary for dredging.

	Habitat Type	Total impact (sq ft/acres)	Impacts are temporary	Restored to pre-existing conditions	Permanent conversion of all or part of habitat
	Rocky/hard bottom[4]:				
	Sand				
	Shellfish beds or oyster reefs				
	Mudflats				
	Submerged aquatic vegetation (SAV)[5], macroalgae, epifauna				
	Diadromous fish (migratory or spawning habitat)				

Indicate type(s) of rocky/hard bottom habitat (pebble, cobble, boulder, bedrock outcrop/ledge) and species of SAV:

Bedrock outcrop & boulder rip-rap north side of the channel. Rocky intertidal areas are colonized by Fucus, Ascophyllum, and *Condrus crispus*.

Project Effects

Select all that apply	Project Type/Category
	Hatchery or Aquaculture
	Agriculture
	Forestry
	Military (e.g., acoustic testing, training exercises)
	Mining (e.g., sand, gravel)
	Restoration or fish/wildlife enhancement (e.g., fish passage, wetlands, beach renourishment, mitigation bank/ILF creation)

[4] Indicate type(s). The type(s) of rocky habitat will help you determine if the area is cod HAPC.
[5] Indicate species. Provide a copy of the SAV report and survey conducted at the site, if applicable.

Select all that apply	Project Type/Category
	Infrastructure/transportation (e.g., culvert construction, bridge repair, highway, port)
	Energy development/use
	Water quality (e.g., TMDL, wastewater, sediment remediation)
	Dredging/excavation and disposal
	Piers, ramps, floats, and other structures
	Bank/shoreline stabilization (e.g., living shoreline, groin, breakwater, bulkhead)
	Survey (e.g., geotechnical, geophysical, habitat, fisheries)
	Other

Select all that apply	Potential Stressors Caused by the Activity	Select all that apply and if temporary or permanent		Habitat alterations caused by the activity
	Underwater noise	Temp	Perm	
	Water quality/turbidity/ contaminant release			Water depth change
	Vessel traffic/barge grounding			Tidal flow change
	Impingement/entrainment[6]			Fill
	Prevent fish passage/spawning			Habitat type conversion
	Benthic community disturbance			Other:
	Impacts to prey species			Other:

[6] Entrainment is the voluntary or involuntary movement of aquatic organisms from a water body into a surface diversion or through, under, or around screens and results in the loss of the organisms from the population. Impingement is the involuntary contact and entrapment of aquatic organisms on the surface of intake screens caused when the approach velocity exceeds the swimming capability of the organism.

Details: project impacts and mitigation

The level of detail that you provide should be commensurate with the magnitude of impacts associated with the proposed project. Attach supplemental information if necessary.

Describe how the project would impact each of the habitat types selected above. Include temporary and permanent impact descriptions and direct and indirect impacts.

What specific measures will be used to avoid impacts, including project design, turbidity controls, acoustic controls, and time of year restrictions? If impacts cannot be avoided, why not?

What specific measures will be used to minimize impacts?

Is compensatory mitigation proposed? Yes No

If no, why not? If yes, describe plans for mitigation and how this will offset impacts to EFH. Include a conceptual compensatory mitigation and monitoring plan, if applicable.

Federal Action Agency's EFH determination (select one)	
	There is no adverse effect[7] on EFH or EFH is not designated at the project site. EFH Consultation is not required. This is a FWCA-only request.
	The adverse effect[7] on EFH is not substantial. This means that the adverse effects are no more than minimal, temporary, or can be alleviated with minor project modifications or conservation recommendations. This is a request for an abbreviated EFH consultation.
	The adverse effect[7] on EFH is substantial. This is a request for an expanded EFH consultation. We will provide more detailed information, including an alternatives analysis and NEPA document, if applicable.

EFH and HAPC designations[8]

Use the EFH mapper to determine if EFH may be present in the project area and enter all species and lifestages that have designated EFH. Optionally, you may review the EFH text descriptions linked to each species in the EFH mapper and use them to determine if the described habitat is present. We recommend this for larger projects to help you determine what your impacts are.

Species	EFH is designated/mapped for:				Habitat present based on text description (optional)
	EFH: eggs	EFH: larvae	EFH: juvenile	EFH: adults/ spawning adults	

[7] An **adverse effect** is any impact that reduces the quality and/or quantity of EFH. Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components. Adverse effects to EFH may result from actions occurring within EFH or outside of EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

[8] Within the Greater Atlantic Region, EFH has been designated by the New England, Mid-Atlantic, and South Atlantic Fisheries Management Councils and NOAA Fisheries.

Species	EFH is designated/mapped for:				Habitat present based on text description (optional)
	EFH: eggs	EFH: larvae	EFH: juvenile	EFH: adults/ spawning adults	

HAPCs

Select all that are in your action area.

	Summer flounder: SAV[9]		Alvin & Atlantis Canyons
	Sandbar shark		Baltimore Canyon
	Sand Tiger Shark (Delaware Bay)		Bear Seamount
	Sand Tiger Shark (Plymouth-Duxbury-Kingston Bay)		Heezen Canyon
	Inshore 20m Juvenile Cod		Hudson Canyon
	Great South Channel Juvenile Cod		Hydrographer Canyon
	Northern Edge Juvenile Cod		Jeffreys & Stellwagen
	Lydonia Canyon		Lydonia, Gilbert & Oceanographer Canyons
	Norfolk Canyon (Mid-Atlantic)		Norfolk Canyon (New England)
	Oceanographer Canyon		Retriever Seamount
	Veatch Canyon (Mid-Atlantic)		Toms, Middle Toms & Hendrickson Canyons
	Veatch Canyon (New England)		Washington Canyon
	Cashes Ledge		Wilmington Canyon

[9] Summer flounder HAPC is defined as all native species of macroalgae, seagrasses, and freshwater and tidal macrophytes in any size bed, as well as loose aggregations, within adult and juvenile summer flounder EFH. In locations where native species have been eliminated from an area, then exotic species are included. Use local information to determine the locations of HAPC.

Project Purpose (Continued from Worksheet)

The project is necessary because the existing bridge is structurally deficient and functionally obsolete. It is on NHDOT's "Red-List", which identifies deficient bridge structures that are a priority for the state to address. Since its construction in 1949, the bridge has been repaired or rehabilitated numerous times over its 70-year life, including in 1963, 1978, 1984, 1990, 2002, and 2011. In addition, emergency repairs to the bascule span were undertaken in 2018 when the bridge became stuck in the raised position due to deterioration in the gears of the structure's mechanical system.

Despite the efforts to repair and maintain the bridge, several recent inspections have indicated the bridge's superstructure is in poor condition and the substructure is just in satisfactory condition. The bridge's superstructure exhibits extensive paint failure and surface rust, and pack rust is evident between the girder plates in numerous areas on the bridge. The floor beams and bracing also exhibit corrosion, the deck joins show damage, and the bridge's bearings display severe corrosion. One of the piers is slightly out of alignment and has substantial spalling and cracking at its cap, while a second pier has substantial scour pockets below the waterline. Finally, there's corrosion on the stairway supports.

Inspections of the bridge's mechanical system conducted in 2018 found that it is in overall poor condition with a few components in severe condition. The main operating machinery, much of it original to the structure, is in fair to poor condition. There are no machinery brakes and the bridge has no redundant means of operations. The emergency drive system is in severe condition and inoperable due to physical deterioration of the motor, brakes and bearings. Severe section loss is evident in the machinery support and bearing fasteners, and the live load bearings are in poor condition. Moreover, the instrumentation machinery and limit switches are generally outdated and in poor condition due to damaged linkages, physical deterioration, and poor maintenance. This deteriorated machinery led to the 2018 malfunction.

The electrical system is also outdated and doesn't meet current standards. The motor control center and control system are in poor condition due to deterioration, periodic tripping of motor overloads, and a lack of working clearances to meet National Electrical Code requirements. The control desk is also in poor condition due to several inoperable components.

In addition to structural and mechanical deficiencies, the current roadway profile doesn't adequately accommodate the combined use by vehicles, bicyclists and pedestrians. Existing travel lane and shoulder widths at the bridge are inconsistent with roadway approaches. Moreover, the shoulders are narrow and there is no sidewalk on the west side of the bridge; the sidewalk on the east side is narrow, at just 4'-7". Due to the width of the shoulders, some bicyclists use the sidewalk, which creates conflicts between bicyclists and pedestrians. In addition, the shoulder is not wide enough to provide safe haven for disabled vehicles. Video recorded in 2018 for the project's traffic analysis revealed pedestrians and bicyclists crossing the roadway to get to and from the eastern sidewalk. The roadway and bridge do not safely accommodate such crossings. Finally, the narrow shoulders do not allow for the passage of emergency vehicles over the bridge during periods of high traffic which is another safety concern.

A project location map is provided as **Attachment A.**

Project Description (Continued from Worksheet):

The new bridge would be a fixed bridge comprised of seven spans supported on six piers and two abutments. The end spans would measure approximately 162 feet (49.4 meters) in length, while the five central spans would each measure approximately 195 feet (59.4 meters) in length. Scenic overlooks would be installed at Piers 2 and 5 on both sides of the bridge. The increased clearance between the piers would allow for the widening of the navigational channel under the bridge from the current 40 feet (12.2 meters) to 150 feet (45.7 meters). This would match the full width of the entrance channel approaching the bridge.

The vertical under clearance on the new fixed bridge would be 48 feet (14.6 meters) at Mean High Water (MHW), which would accommodate all regular users of Hampton Harbor, as well as the USACE Special Purpose (dredge) Vessel (SPV) *Currituck.* The *Currituck* has an air draft of 44 feet. The elevation would also accommodate four feet (1.2 meters) of sea level rise by 2100, the approximate Intermediate-High range estimated in the New Hampshire Coastal Risk and Hazard Commission.

The bridge piers would be supported on drilled shafts which would be cast into a reinforced concrete pile cap. Steel casings for the drilled shafts would be approximately six feet (1.83 meters) in diameter and would be driven into place. It is assumed each pier would be constructed on six drilled shafts, for a total of 36 drilled shafts for the overall project. The casings would either remain in place or be vibrated out. Cofferdams would be installed at each of the pier locations prior to the installation of the drilled shafts and pier caps to ensure that no suspended sediment from the construction reaches the water column outside of the project area. All water and drill waste material would be extracted from the casing during drilling and pumped onto a barge for removal of suspended particulates and proper disposal. The existing bridge piles would likely be cut off below the channel bottom and left in place. The piles installed as part of the temporary trestles would be fully removed.

The abutments would have U-shaped reinforced concrete wingwalls supported on approximately 124 steel bearing piles (62 piles per abutment). The piles would likely be vibrated to resistance and then driven the rest of the way. Rip rap placement varies between the north and south abutments. The south abutment would be constructed back from the water since there are fewer constraints. Therefore, rip rap scour protection along the southern abutment would be located above the highest observable tide line (HOTL) and the MHW elevation. The rip rap material would be "toed in" to the beach to provide a secure footing and lock it into place. In the north, the intertidal zone already has large amounts of rip rap within the new bridge alignment. The new abutment would be constructed slightly in from the top of bank, but a proposed pedestrian walkway would be constructed under the bridge, which would require some fill material and rip rap within the intertidal zone (already dominated by existing rip rap) to a point 11 feet south of the MHW line; the area of rip rap placement below the MHW elevation would be approximately 340 square feet (sf) (**see Attachment B**). A 250-foot (76 meter) retaining wall would be installed northwest of the bridge abutment to minimize impacts to the adjacent Hampton State Pier property. This retaining wall would be constructed completely above the HOTL elevation on terrestrial land. The wall would be located parallel to the approach roadway on the western side. A similar retaining wall would be constructed on the east side of the roadway to allow for a stormwater treatment swale. As these walls will be constructed completely above the HOTL they would have no impacts to EFH.

A new drainage collection and conveyance system would replace the existing scuppers on the bridge in order to eliminate direct discharge into the harbor. Drainage discharges would be routed through new treatment swales at the northern and southern approaches before flowing into the harbor. It is anticipated that stormwater flow on the southern approach would be similar to existing conditions, with sheet flow off of the pavement and onto embankments where buffer areas would treat the stormwater; however, the final design for stormwater management has not yet been completed for this area. Flow from the northern approach roadway would be channeled to new catch basins with sumps north of the bridge. Stormwater would be diverted to the proposed treatment swale located north of the bridge.

During construction, temporary access would be required for the new bridge construction. As part of this, temporary work trestles would be constructed adjacent to, and west of, the proposed bridge alignment from both the north and south shores, but not across the navigation channel. Likewise, during the demolition of the existing bridge, temporary trestles would be built adjacent to, and east of, the existing bridge from both the north and south shores. The temporary trestles are anticipated to be supported on 12" steel pipe piles. It is estimated that a total of approximately 450 piles would be required for all the proposed temporary trestles. All piles for the trestles would be installed during the in-water work window of November 15th to March 15th. The trestles for the proposed bridge and for the existing bridge would likely not be in place at the same time. It is assumed the trestles would be 30-ft wide, with a leg extending perpendicular to each proposed pier in order to place the cofferdams and to be able to reach all six drilled shafts at each pier; a similar configuration would be used for demolition of the existing bridge. The piles for the existing piers would be removed below the channel bottom, and bottom habitat restored as described below. In addition, the historic wooden piles left in place from the previous bridge construction would be removed below the channel bottom. During construction of the new bridge, the existing bridge would be functional and open to vehicular traffic and the existing navigation channel would be open to boat traffic.

The existing utility lines (two water, one sewer, and one gas) buried below the harbor bed would need to be relocated prior to beginning work on the bridge. The existing utility lines lie on the bottom of the channel. A water line runs from the south into the harbor, approximately 100 feet west of the bridge, crosses NH Route 1A to the Hampton Beach State Park and then continues north on the east side of the road. A second water line runs parallel to the first line across the Hampton Harbor Inlet but continues north along the west side of NH Route 1A. A sewer line runs across the Hampton Harbor Inlet approximately 150 feet west of the bridge. A gas line crosses the Hampton Harbor Inlet between 20 and 50 feet west of the existing bridge; documentation indicates the gas line has been abandoned. The abandoned gas line lies under the proposed alignment of the new bridge. During final design it would be determined whether the line needs to be wholly or partially removed or relocated. The two water lines and one sewer line would be relocated to allow for the installation of the temporary work trestles required for bridge construction. These relocations would be coordinated in advance with utility providers and would not result in lengthy disruption of service. Once relocated, the utility lines could be placed atop the bed in the navigational channel, at least temporarily. The bridge could be designed to allow for the water, sewer and gas lines to be attached to the bridge in the future, however, this has not yet been determined by the utility companies and NHDOT. Directional drilling would not be considered an option if the new utility lines were to be installed in the harbor, since there is too much bedrock in the northern portion of

the harbor. Coordination with utility providers would be undertaken to plan any required utility relocations before other project construction commences to ensure that the proposed bridge construction activities will not disturb existing lines. The abandoned water pump station located northwest of the bridge would also require removal.

Anticipated Duration of In-Water Work or Start/End Dates:

Construction of the new bridge and demolition of the existing bridge would occur over 36 months, anticipated to begin in the fall of 2023. In-water work for the relocation of utilities, placement of the sheet pile containment systems, and installation and removal of the trestle piles would occur between November 15th and March 15th to minimize impacts to EFH and listed aquatic species.

Details: project impacts and mitigation (Continued from Worksheet)

Describe how the project would impact each of the habitat types selected above.

Note: All habitats in the project area are Estuarine resources.

Benthic Habitats (Subtidal and Intertidal – includes soft bottom and hard bottom habitats as discussed below):

Bridge Construction: Both temporary and permanent impacts are anticipated within the limits of benthic habitat. Temporary impacts would occur from the installation of and construction within cofferdams, placement of barge spuds, maneuvering of barges, and construction of a temporary work trestle. This work would occur in both the intertidal and subtidal portions of both soft bottom (sand) and hard bottom (gravel or rock) habitat. These temporarily impacted areas would eventually become available for recolonization of benthic organisms, and thus would return as foraging habitat for benthic-dwelling and benthic-foraging fish species (e.g., flounders, cod, etc.). Soft Bottom (sand) habitat spans both intertidal and subtidal zones of the Hampton Harbor channel on the south side of the project area, while hard bottom (rocky) habitat spans both intertidal and subtidal zones on the north side of the project area.

Permanent, direct impact would occur from construction of the new bridge piers within these habitats, a portion of which would impact Rocky Intertidal Zone colonized by Blue Mussel. Blue Mussels would be impacted by the northern most new bridge pier (695 sf), as well as by a small area of rip rap placement required to the west of the northern bridge abutment (170 sf), for a total impact of 865 sf. In addition, there would also be temporary, direct impacts to this habitat. However, the removal of the existing bridge piers would allow the area to be recolonized by benthic organisms. Areas temporarily impacted during construction could also be recolonized. The impact table on Page 3 of the EFH Worksheet identifies in the "Restored to pre-existing conditions" column a total of 0.06 acres (2,592 sf) of estuarine bottom habitat restoration as a result of removal of the existing piers. Of this 2,592 sf, 901 sf (0.02 ac) is rocky/hard bottom habitat and 1,691 sf (0.039 ac) is sand habitat. Within the 901 sf of hardbottom habitat restoration, 176 sf of this would be restored in a different manner, as identified below, to encourage future establishment of Blue Mussel.

The potential restoration of Blue Mussel habitat in the location of the existing northern pier removal area would consist of providing pre-cursor conditions for potential future Blue Mussel establishment and growth. The NHDOT intends to remove the bridge piers but leave the hard concrete material at an elevation level with the existing channel bottom within the intertidal zone. During the final design phase, specific elevations would be determined to ensure the concrete top of the former pier is at an elevation suitable for potential future establishment by Blue Mussel. Since the existing pier (Pier 6N) is currently surrounded by existing Blue Mussel beds, sufficient information exists to determine what elevation is optimal. In addition, sufficient sources of Blue Mussel larval stages are presumed to be available from the existing Blue Mussel bed. The top of the pier left in place would consist of a rough surface, due to the process used for removal of the concrete (likely a hoe ram), encouraging settlement of larvae. Since the time required for, and efficacy of, the reestablishment of the Blue Mussels is not known, the 176 sf has not been included in the restoration to pre-existing conditions in the table on page 3 of the EFH Worksheet.

Depending on what habitat types the existing piers are located in (i.e., hard bottom or sand bottom habitat), the restoration method would vary. In the areas where existing piers are removed from within sand habitat areas (Pier Nos. 1S-6S), the existing piers would be removed to a point two feet below the existing channel elevation. The "voids" left by removal of the piers would be backfilled with a clean sandy material of similar texture and composition to closely match the surrounding bottom conditions and facilitate similar habitat development. This sand material may either be obtained through on-site dredging activities, which are part of the project, or through off-site sources. In the areas where existing piers are removed from within hardbottom habitat areas (Pier Nos. 1N-6N), the existing piers would be removed to the same elevation as the existing channel elevation, so that the top of the pier could be utilized as stable hardbottom material for attachment by macrofauna. The top of the concrete pier would be left rough, and not smooth, to increase surface area and facilitate benthic colonization. The natural recolonization of these areas could take several years, but two of the most important factors favoring recolonization (i.e., substrate type and elevation in relation to tidal range) can be incorporated into final design plans to promote successful recolonization.

In addition to removal of the pier structures, based plans from a project undertaken in 1983, it is assumed existing rip rap material currently exists around each pier structure (**see Attachment C**). As part of removing the existing piers, the existing rip rap would also be removed to a distance of approximately 10 feet around each pier. This amounts to a total of approximately 12,813 sf of rip rap removal. As with the pier structures, the "voids" left by removal of the rip rap would be backfilled with a clean material of similar texture and composition to closely match the surrounding bottom conditions and facilitate similar habitat development. Since the actual extent of the rip rap is not known at this time, the 12,813 sf has not been included as restoration to pre-existing conditions in the table on page 3 of the EFH Worksheet. The feasibility and extent of this restoration would be further evaluated during the final design and permitting phase of the project.

Federal Channel Dredging: Dredging related to this proposed action would result in the disturbance of benthic substrate (habitat) to widen the existing navigational channel under and through the bridge locations (both existing and proposed reaches). Although the footprint of the widened Federal channel

totals to 17,166 sf, much of the existing channel bottom is well below the proposed federal channel depth of eight-feet, even considering a two-foot overdredge. Therefore, based on recent 2019 bathymetric surveys conducted by the USACE, only approximately 5,000 sf of channel would need to be dredged, for a total of approximately 1,500 cubic yards of dredge material. Channel dredging would result in both temporary and permanent impacts to benthic habitats. Temporary direct impact caused by physical disturbance of the benthic substrate would occur, and direct impact from localized turbidity plumes could occur from operation of the dredge vessel (also see discussion of water column impacts below). This temporary reduction in benthic habitat quality could cause a temporary decrease in foraging potential for bottom-foraging fish species but would return to normal conditions once benthic materials are recolonized as described above. Indirect impacts to filter-feeding trust resources (e.g., Blue Mussels) could occur through turbidity and suspended sediment plumes during dredging activities, however, these are expected to be minimal due to the predominantly sandy sediment and lack of fines in the project area. Permanent, direct impact would occur due to widening a portion of the existing navigational channel in the vicinity of the bridge from a 40-foot (12.2 meters) width to a 150-foot (45.7 meters) width (see **Attachment D**). This new channel width would match the full width of the entrance channel to the east of the bridge. Depth would increase in some areas from the existing MLLW depths of three to seven feet, to approximately eight feet MLLW, however this depth change is localized (only about 5,000 sf) (see **Attachment E**), and is within the depth preference of the species for which EFH has been designated at the site and therefore would not adversely affect these species. Locations where dredging occurs would not be a loss or conversion of EFH since the resulting new bottom would be of similar materials and similar depth. The newly dredged area would then be subject to the same periodic maintenance dredging cycle to which the current navigation channel is subject.

Scour: Some initial indirect impact in the form of localized scour to the existing channel bed may occur in the vicinity of the new bridge piers constructed in sand habitat, causing a change in substrate type from existing sands to coarse sand or gravel. The new piers have been designed in such a way that no scour countermeasures would be required, so none are currently proposed. Either way, a change from fine or medium sands to coarse sand or gravel or to a rocky substrate may occur, favoring those species that prefer pebble, gravel, or rocky habitat type (e.g., juvenile and adult Atlantic Cod, Ocean Pout) over those that prefer more finer-grained sand and mud (e.g., juvenile and adult Atlantic Butterfish, adult Winter Flounder, juvenile and adult Yellowtail Flounder, Windowpane). The distribution of subtidal and intertidal habitats, and soft bottom and hard bottom habitats are depicted on the map provided in **Attachment F**. A Benthic Study, conducted by Normandeau Associates, Inc., was conducted at the bridge site in 2020 and is provided in **Attachment G**.

Water Column Habitat (includes "Diadromous Fish Habitat")

Note: It is presumed that diadromous fish species could theoretically use the entire portion of the water column habitat, so this discussion pertains to both "water column habitat" and "diadromous fish habitat".

Noise: Construction equipment would emit noise levels that could result in adverse behavioral and physiological impact to receptor organisms in the water column if left un-mitigated. The noise generated by the equipment required to construct the bridge and remove the existing bridge cannot be avoided and could result in direct impact (fish avoiding the area) or indirect impact (unquantifiable or unmeasurable physiological stress) to both baitfish and predatory fish. These impacts are expected to occur regardless of habitat type.

Pursuant to the Federal Endangered Species Act (ESA), an underwater noise analysis was conducted as part of a separate Biological Assessment to address potential adverse impacts to the Atlantic and Shortnose Sturgeon, which may occur in the project area. NOAA's *GARFO Acoustics Tool: Analyzing the effects of pile driving on ESA-listed species in the Greater Atlantic Region* (version 8/8/2019) was used to conduct the noise analysis. As a result of this analysis, it was determined that construction equipment had the capacity to emit 204 dB at peak operation. This noise source, if located behind a coffer dam, would be dampened by 20 dB to 184 dB. It was determined that this sound pressure would be further attenuated as it travelled through the water column, with potential adverse impacts (e.g., undesirable behavioral responses) extending out to 88 meters along the trajectory from the coffer dam (for Atlantic Sturgeon and Shortnose Sturgeon). Different fish species respond differently to underwater noise levels based on their tolerance of this factor. It is expected fish would react accordingly to their specific noise tolerance, and some fish would swim through the noise zone, while others may swim around it. At 244 meters wide, the full channel width should allow fish species that are most sensitive to underwater noise to minimize or avoid their exposure. It is not expected the contractor would undertake pile driving or drilling simultaneously at either end of the bridge alignment. Generally, it is expected the contractor would start at one end of the bridge (either north or south) and work to the opposite end, but not both ends at the same time. If pile driving were being conducted in the center of the bridge, approximately 34 meters (111 feet), of passable waterway would be left to either side of the 184 dB sound line.

Hydraulics: The typical flood velocity at the Hampton Harbor Inlet is reportedly 1.5 to 2.2 knots and the ebb velocity is 2.0 to 3.2 knots (The Cecil Group Inc. 2001). This relatively fast current is due to the large tidal variation in the region (approximately nine feet (2.74 meters) between mean lower low water [MLLW] and mean higher high water [MHHW]) in combination with the relatively small cross-sectional area of the inlet in the vicinity of the bridge. The change in blockage (flow obstruction) area due to the proposed bridge is not expected to have a significant effect on the net water velocities across the entire inlet based on preliminary guidance found in HEC-18 (FHWA 2012); net blockage would be similar to the existing bridge. Net flows in and out of the harbor mouth would not result in a measurable change and is therefore considered insignificant and would have no impacts on EFH or trust species. However, local velocities may increase near the proposed piers, causing localized scour, and resultant change in benthic sediment type from fine to medium sands, to coarser sand and gravel in the soft bottom sediment portion of the project area. In contrast, removal of the old piers would result in decreased local velocity in the area of the former pier, allowing for the accumulation of smaller grain sizes on the benthic surface, thus providing habitat for benthic fish preferring smaller grain size (e.g., juvenile and adult Atlantic Butterfish, adult Winter Flounder, juvenile and adult Yellowtail Flounder, Windowpane).

Operation of Barges and Work Vessels: The operation of barges and work vessels within the project area is likely to cause temporary turbidity and noise impacts to the water column habitat that would effectively repel finfish from the immediate area of the disturbance. Vessel traffic is expected to increase temporarily during construction. Various marine vessels would be used during construction including material barges, tugs, crane/drill/equipment bridge vessels, skiffs and other access vessels, and waste removal barges traveling from the four area docks (Eastman's Docks, the Fisherman's Co-Op, the Hampton State Pier, and the Hampton Marina). Collectively, all these anticipated vessels would generate approximately 2,400 additional round trips to the bridge construction site over existing conditions based upon an average 6.5 trips per day over a five-day work week over the course of the three-year construction duration. These additional boat trips could cause additional noise over the baseline and would increase the frequency of boat trips past the bridge. Increased vessel noise and traffic would likely repel resident fish (both EFH-designated species and their prey) from the immediate areas of the navigation channel proximal to the bridge and in the shallower areas of the channel while boats were in transit or operation (direct impact) or could cause indirect impact in the form of physiological stress. Both benthic and water column habitats would be temporarily impacted by these disturbances. Thus, both demersal and water column fish species would presumably move away from the noise source to areas elsewhere within the harbor away from the disturbance. These impacts are expected to be temporary and would return to baseline conditions upon completion of the bridge construction activities. In addition, since boat trips would average 6.5 trips per day, this is also considered insignificant and not expected to have adverse impacts on EFH or EFH-designated species or other trust species.

Boat Traffic: Long-term changes to boat traffic are not anticipated as a result of the replacement of the bridge. The existing bridge has not been a limiting factor for boat use within or access to Hampton Harbor, and the proposed new bridge and widened channel would not change this. Boat traffic is limited by channel depth, berthing/mooring capacity, and other factors unrelated to the proposed project. The proposed project would not significantly increase the Hampton Harbor channel depth; however, a small portion of the existing navigational channel would be widened as discussed above. The widened portions would be deepened to meet the authorized navigational channel depth. The modification to the navigational channel limits would not increase the capacity for boat usage within the harbor, so boating use would be similar to current conditions once the new bridge was constructed. Therefore, long-term changes to boat activity would not be a consequence of the proposed bridge construction.

Dredging: This activity would cause temporary, direct impact to the water column habitat during the dredging activity. The temporary direct impact to water column habitat is associated with increased turbidity and would impact species residing in the water column within the project area during the time period when dredging is allowed to occur (winter months). Since the substate material in the location of the proposed construction area is composed almost entirely of medium to fine-grained sands, with less than one percent fines (based on USACE 2018 sediment test results of samples immediately to the west of the bridge taken prior to recent dredging [USACE, 2018]), potential turbidity associated with the dredging is anticipated to be of minimal extent and of short duration. Dredging could also result in the release of sulfides which can temporarily discourage settlement of benthic invertebrate organisms. Most hydraulic conditions would be expected to return to normal upon cessation of the dredging as turbidity settles and tidal exchange flushes the water column.

Impacts Related to Stormwater: The drainage system on the new bridge would eliminate direct discharge into the Hampton Harbor Inlet. Drainage discharges would be routed through new stormwater treatment swales at the northern and southern approaches before flowing into the Hampton Harbor Inlet. Stormwater flow on the southern approach would be diverted to a proposed treatment swale southeast of the bridge between NH Route 1A and Eisenhower Avenue, but still within the ROW. Flow from the northern approach roadway would be channeled to new catch basins with sumps north of the bridge. Stormwater would then be diverted to the proposed treatment swale located north of the bridge within the ROW. As a result, the replacement of the bridge would improve water quality by treating stormwater prior to it being discharged into the Hampton Harbor Inlet. The improvement occurs since some of the stormwater generated atop of the existing bridge is discharged directly without treatment to the harbor inlet via bridge scuppers. This is a direct pathway for contaminants to enter the aquatic environment untreated and in various forms (e.g., as separate, adsorbed, absorbed or dissolved phases). The presence of a contaminant plus a pathway plus a receptor can result in adverse indirect impacts to receptor organisms due to exposure of the contaminant to receptor organisms. Exposure can occur in both the water column and benthic sediment environments. The proposed new bridge would collect stormwater from the bridge deck and direct it through stormwater pre-treatment systems such as deep sump catch basins, vegetated swales, or other appurtenances.

What specific measures will be used to avoid impacts, including project design, turbidity controls, acoustic controls, and time of year restrictions? If impacts cannot be avoided, why not?

The NHDOT has sought to avoid adverse impacts to EFH to the extent practicable. Regardless, there are still unavoidable impacts associated with the proposed project. Permanent impacts to benthic habitat or water column habitat (through water displacement by structures) cannot be further minimized or avoided since the structural components of the new bridge need to meet a specific structural integrity and design life to ensure a safe structure for the travelling public. Temporary impacts due to the temporary work trestles and barge activity cannot be fully avoided since the contractor needs access within the harbor for both new bridge construction and existing bridge removal. The proposed temporary access, temporary work trestles and barges, would be used in unison to provide contractor access. The use of the work trestles, once installed, would help to minimize potential impacts to harbor resources since the temporary piles would be stable, and would remain in place until work is complete and they are removed, thereby reducing dependency on barges. Barges would require the use of spuds, which are installed and removed each time the barge moves, which causes small amounts of turbidity with each movement. If barges were used for all construction access, it is likely there would be more overall temporary turbidity created. A large, very conservative temporary impact area has been assumed to account for potential temporary impacts to the channel bottom due to the use of barge spuds. No barges would be grounded during construction activities. Barges used in intertidal areas would only be used during high tide conditions, and moved to deeper water prior to low tide conditions to ensure no barge grounding would occur. Measures to avoid impacts are further discussed below.

Temporary impacts due to underwater noise generation would be minimized by conducting in-water work activities during the winter in-water work period from November 15th and March 15th. These activities

would include driving of temporary trestle piles, driving of sheet pile cofferdams around new and existing pier locations, and dredging. Once sheet piles were installed around pier work areas, work could be conducted during any time of year. Cofferdams are expected to dampen underwater noise levels by 20 dB, which would minimize potential impacts outside of the in-water work window. Also, noise would only occur during regular work hours, providing daily periods of down time when no underwater noise would be generated. The installation of cofferdams would also provide effective control of potential turbidity in the water column during both new pier installation and old pier removal.

Project Design: According to the TS&L Study (HDR 2020), most of the existing piers have steel sheet pilings and/or riprap installed, and the abutments have riprap placed around them. The proposed bridge would include scour countermeasures at the south and north abutments. Rip rap scour protection would extend down the bridge embankment to meet the existing ground. The rip rap at the south abutment would be designed to protect against scour at the base of the embankment, therefore, local scour is not anticipated at the abutment due to these countermeasures. Rip rap would also be installed around the northern abutment and would be placed over existing rip rap to provide scour protection. The new abutment would be constructed slightly in from the top of bank, but a proposed pedestrian walkway would be constructed under the bridge, which would require some fill material and rip rap within the intertidal zone (already dominated by existing rip rap) to a point 11 feet south of the MHW line; the area of rip rap placement below the MHW elevation would be approximately 340 sf. Based on the current proposed design, countermeasures (rip rap) at the bridge piers are not anticipated to be needed due to the use of deep drilled shafts. Although rip rap would not provide "equal" habitat to natural rocky material, it would over time gain some habitat value of its own and not be fully devoid of habitat value for some federally-managed species (no rip rap is being counted as habitat restoration). In fact, most of the rocky habitat that exists at the site today is not natural and is composed of rip rap resulting from bank stabilization efforts over the years and a project in 1983 which "blanketed" a large area of the harbor bottom from the existing channel north to the harbor bank. Some areas of natural bedrock are intermingled with this existing rip rap material.

Turbidity Controls: The bridge piers would be supported on drilled shafts which would be cast into a reinforced concrete pile cap. Steel casings for the shafts would be six feet (1.83 meters) in diameter and would be driven into place. The casings would either remain in place or be vibrated out. Cofferdams would be installed at each of the pier locations prior to the installation of the drilled shafts and pier caps to ensure that no suspended sediment from the construction reaches the water column. All water and drill waste material would be extracted from the casing during drilling and pumped onto a barge for removal of suspended particulates and proper disposal. The existing piles would likely be cut off below the channel bottom and the subgrade portion left in place to reduce the potential for excess turbidity which might occur during full removal. Turbidity control measures, including cofferdams, would be designed to not entangle or entrap finfish species.

Time of Year Restriction: Construction of the new bridge and demolition of the existing bridge would occur over 36 months, beginning in 2024. Sheet piling coffer dams would be installed around work areas for the new piers of the proposed bridge and the temporary piles of the work trestle. The coffer dam would be installed during the time period between November 15th and March 15th. Once the coffer sheet

piling is installed, work would be separated from water column contact and thus could continue unimpeded through the rest of the construction duration.

Construction sequencing has been phased in order for in-water work related to the relocation of utilities, placement of the sheet piles, and installation and removal of the trestles would occur between November 15th and March 15th to minimize impacts EFH-designated and other trust species. By conducting the in-water work during this work window, direct impacts from noise and turbidity to listed species and life stages that have designated EFH are greatly reduced. As stated previously, the installation of coffer dams around work areas would also help to reduce and minimize potential noise and turbidity impacts to listed species outside of the work window through containment of the work activity.

What specific measures will be used to minimize impacts?

Water Quality Impact Minimization: Any temporary discharges would be designed to provide the requisite measures needed to meet state and federal guidelines for the protection of receiving waters.

The drainage system on the new bridge would eliminate direct discharge into the harbor. Drainage discharges would be routed through new stormwater treatment swales at the northern and southern approaches before flowing into the harbor. Stormwater flow on the southern approach would be diverted to a proposed treatment swale southeast of the bridge between NH Route 1A and Eisenhower Avenue, but still within the ROW. Flow from the northern approach roadway would be channeled to new catch basins with sumps north of the bridge. Stormwater would then be diverted to the proposed treatment swale located north of the bridge within the ROW. As a result, the new bridge would improve water quality by treating stormwater prior to it being discharged into the Hampton Harbor Inlet.

Acoustic Control: When anticipated noise is above the relevant behavioral noise threshold of finfish, a "soft start" would be required to allow organisms an opportunity to leave the project vicinity before sound pressure increases. In addition to using a soft start at the beginning of the workday for pile driving, it would also be required of the contractor at any time following cessation of pile driving for a period of 30 minutes or longer.

Time of Year Restrictions: In-water work would be conducted between November 15th and March 15th (see above in "Avoidance Measures").

Other Measures: Barge and work boat speed limits would be set so as not to create wave energy and wakes which can produce erosion of beach sediment, displacement of juvenile and larval fish and can cause juvenile strandings when waves over-wash rocks, jetties and beach areas. Dredging activity would be conducted by mechanical or hydraulic low volume hopper dredges.

Is Compensatory Mitigation being proposed?

Of the total permanent impact of 0.29 acres to EFH, 0.11 acres (5,000 sf) of that impact is due to widening of the existing navigation channel by dredging. As discussed previously, the actual area requiring dredging is much less than the full dredge envelope (0.39 acres) since water depth already exceeds the eight-foot channel depth in much of the area. Although the dredging would cause a permanent change of

bathymetry in the widened area, as previously discussed, the newly exposed benthic materials would recolonize and be productive EFH. Also, this depth change is within the depth preference of the species for which EFH has been designated at the site and therefore would still be available to these species.

The remaining permanent impact (0.18 acres) is associated with installation of the new piers and would be permanently lost habitat. As a result of the removal of the existing bridge, and its underwater piers, approximately 0.06 acres of benthic EFH would likely be restored within the channel. This restored habitat would partially off-set the impacts from the new bridge piers (0.18 acres), so that the total net permanent loss of benthic and water column EFH, after restoration, would be 0.12 acres. The existing piers do have rip rap scour protection. Each existing pier is 6-ft by 30-ft in size (174 sf), with the exception of the bascule pier which is 13-ft by 50-ft. (650 sf), for a total of 0.06 acres. The calculation provided in the EFH Assessment of restored habitat by removal of the piers (totaling 2,592 sf [0.06 ac]) is based solely on the existing concrete pier structures, and does not include removal of rip rap materials beyond the pier face. If the removal of this rip rap material were undertaken, and the areas restored to match the surrounding channel bottom, it would provide additional restoration beyond the 2,592 sf currently proposed. It is suspected that rip rap material is "piled" up against each of the existing piers, based on the 1983 bridge plan. Assuming rip rap exists at all existing piers, and it would be removed to a distance of ten feet out from the edge of pier, approximately 12,813 sf of rip rap material would be removed and the bottom habitat restored to match the surrounding bottom conditions. As with the pier structures, the "voids" left by removal of the rip rap would be backfilled with a clean material of similar texture and composition to closely match the surrounding bottom conditions and facilitate similar habitat development. Since the actual extent of the rip rap is not known at this time, the 12,813 sf has not been included as restoration to pre-existing conditions in the table on page 3 of the EFH Worksheet. The feasibility and extent of this restoration would be further evaluated during the final design and permitting phase of the project.

During the final design phase of the project, the NHDOT would undertake coordination with the U.S. Army Corps of Engineers (USACE) and the NH Department of Environmental Services (NHDES) to determine mitigation needs for the project. Since the USACE and NHDES regulate all work below the HOTL (which includes benthic habitat and shellfish beds), it is anticipated all impacts to EFH as a result of this project would be fully mitigated through utilization of the New Hampshire Aquatic Resource Mitigation (ARM) In-lieu Fee Program and no additional mitigation would be needed. The FHWA and NHDOT are committed to integrate potential compensation for impacts to EFH into the Section 404 process to ensure a comprehensive mitigation plan which is inclusive and compatible across different resource needs. This is important since detailed design information has currently not yet been developed and will not be developed until the final design phase, which has not yet begun. FHWA and NHDOT will continue to coordinate with NOAA through final design regarding detailed design items which may affect EFH resources and their restoration.

EFH and HAPC designations

Habitat Not Present Based upon Text Description

One or more EFH attributes do not appear to be present for the life stages indicated in four out of the 20 species for which EFH is designated/mapped at the project location using the location query function of the online EFH Mapper. These four species are as follows:

- Atlantic Wolffish (*Anarhichas lupus*)- The depth of the project area ranges from 0 to 12.5m (0 to approximately 41 ft) MLLW. In the Gulf of Maine (GOM), Atlantic Wolffish reportedly occur in waters 40-240m but are concentrated between 80-120m (Rountree, 2002). Therefore, water depth at the project site does not appear to meet the depth preference for this species.
- Haddock (*Melanogrammus aeglefinus*) – The project area is designated as occurring in EFH for Juvenile Haddock. Cargnelli et al., (1999a) reported the depth preference for juvenile haddock to be from 50 to 100 meters. In the 2018 EFH Omnibus Amendment, the habitat description for juvenile haddock, includes areas as shallow as 20 meters along the coast of New Hampshire (https://s3.amazonaws.corn/nefmc.org/OA2-FEIS Vol 2 FINAL 171025.pdf). However, the project area is shallower than 20m and thus it does not appear to meet the depth preference of juvenile haddock.
- Monkfish (*Lophius americanus*) - The project area is designated as occurring in EFH for all life stages of Monkfish. However, Monkfish eggs are reportedly not found in estuaries; and the site location is not deep enough to meet the range of known depth occurrences for larvae (15 - >1000m), juveniles (>20m, with a peak between 40-75m), and adults in the GOM (reportedly from 130-206m).
- Witch Flounder (*Glyptocephalus cynoglossus*) - The project area is designated as occurring in EFH for adult Witch Flounder. However, in the GOM, Witch Flounder adults occur from 90-300m with a mean of 147m. This depth preference far exceeds the depth of the project area.

A copy of the EFH Mapper Query Report is provided as **Attachment H.**

References and Literate Cited:

Cargnelli, L. M., S. J. Griesbach, P. L. Berrien, W. W. Morse, and D. L. Johnson. 1999a. Haddock, (*Melanogrammus aeglefinus*) Life History and Habitat Characteristics. September 1999 V+ 31 p.

Cargnelli, Luca M., S. J. Griesbach, D. B. Packer, P. L. Berrien, W. W. Morse, and D. L. Johnson. 1999b. Witch Flounder, (*Glyptocephalus cynoglossus*) Life History and Habitat Characteristics. September 1999.

Cecil Group, Inc. (2001). Hampton Beach Area Master Plan.

Chang, S., P. L. Berrien, D. L. Johnson, and W. W. Morse. 1999d. Windowpane, (*Scophthalmus aquosus*) Life History and Habitat Characteristics. September 1999. V+ 32 p.

FHWA (Federal Highway Administration) (2012). Publication No. FHWA-HIF-12-003 Hydraulic Engineering Circular No. 18 Evaluating Scour at Bridges. Fifth Edition April 2012. Springfield, VA: National Technical Information Service,

HDR Engineering, Inc. (2020). Type, Size, and Location Study for the Hampton Harbor Bridge Project.

Normandeau Associates, Inc. (2020). Hampton Harbor Bridge Benthic Survey Results Prepared by: Normandeau Associates, Inc. July 2020

Rountree, 2002. Atlantic Wollfish. In: Bigelow, A.F., Schroeder, W.C., Collette, B.B. and Klein-MacPhee, G., 2002. *Bigelow and Schroeder's Fishes of the Gulf of Maine*. Smithsonian Institution Press.

Steimle, F. W., W. W. Morse, and D. L. Johnson. 1999. Goosefish (Lophius americanus) Life History and Habitat Characteristics. September 1999. V +31 p.

U.S. Army Corps of Engineers, CENAE–PDE Memorandum: *FINAL Suitability Determination for the Hampton Harbor Federal Navigation Project, Hampton and Seabrook, New Hampshire*. November 8, 2018

Attachment A: Project Location

Hampton Harbor Bridge Project
EFH Project Area
Attachment A
Project No. 15904
Bridge No. 235/025
Seabrook and Hampton, New Hampshire

Legend

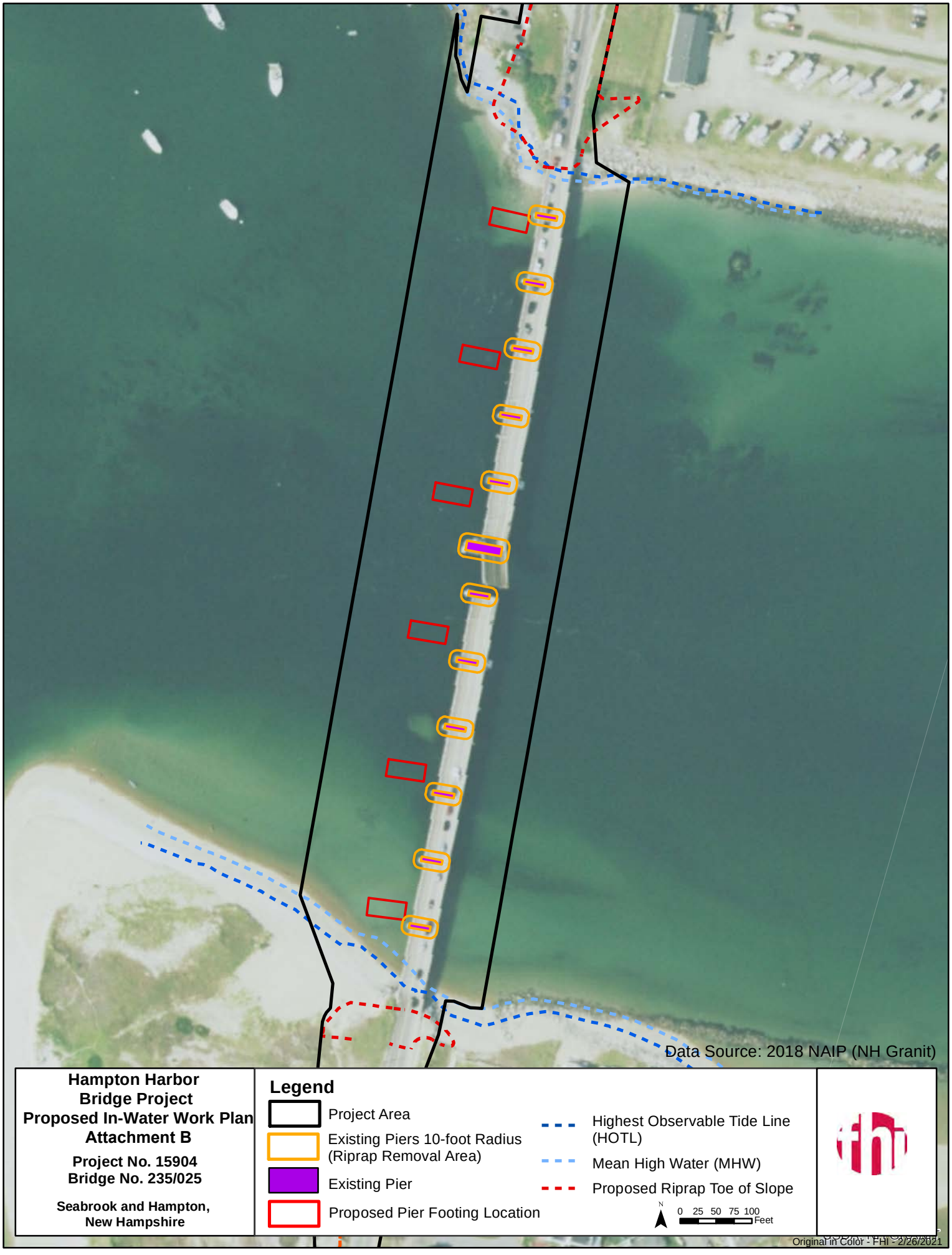
- Impact Area
- Permanent Channel Dredging Area
- Existing Channel

N W E S

0 250 500 750 1,000 Feet

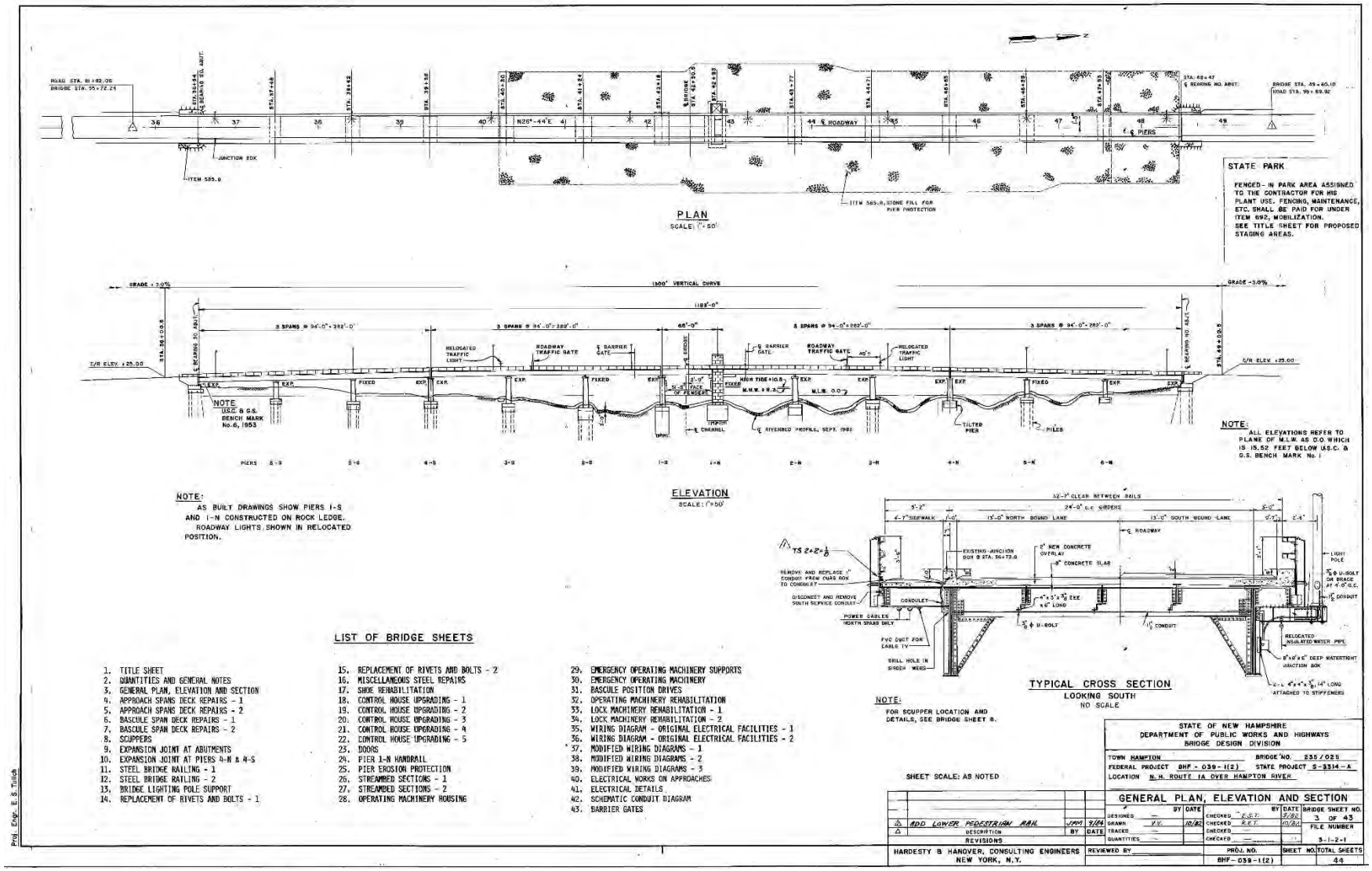
Original in Color - FHI - 3/18/2021

Attachment B: In-Water Work Plan


Data Source: 2018 NAIP (NH Granit)
Hampton Harbor
Bridge Project
Proposed In-Water Work Plan
Attachment B
Project No. 15904
Bridge No. 235/025
Seabrook and Hampton,
New Hampshire
Legend
Project Area
Existing Piers 10-foot Radius
(Riprap Removal Area)
Existing Pier
Proposed Pier Footing Location
Highest Observable Tide Line
(HOTL)
Mean High Water (MHW)
Proposed Riprap Toe of Slope
N
0 25 50 75 100
Feet
Original in Color - FHI - 2/26/2021

Attachment C: 1983 Bridge Plan

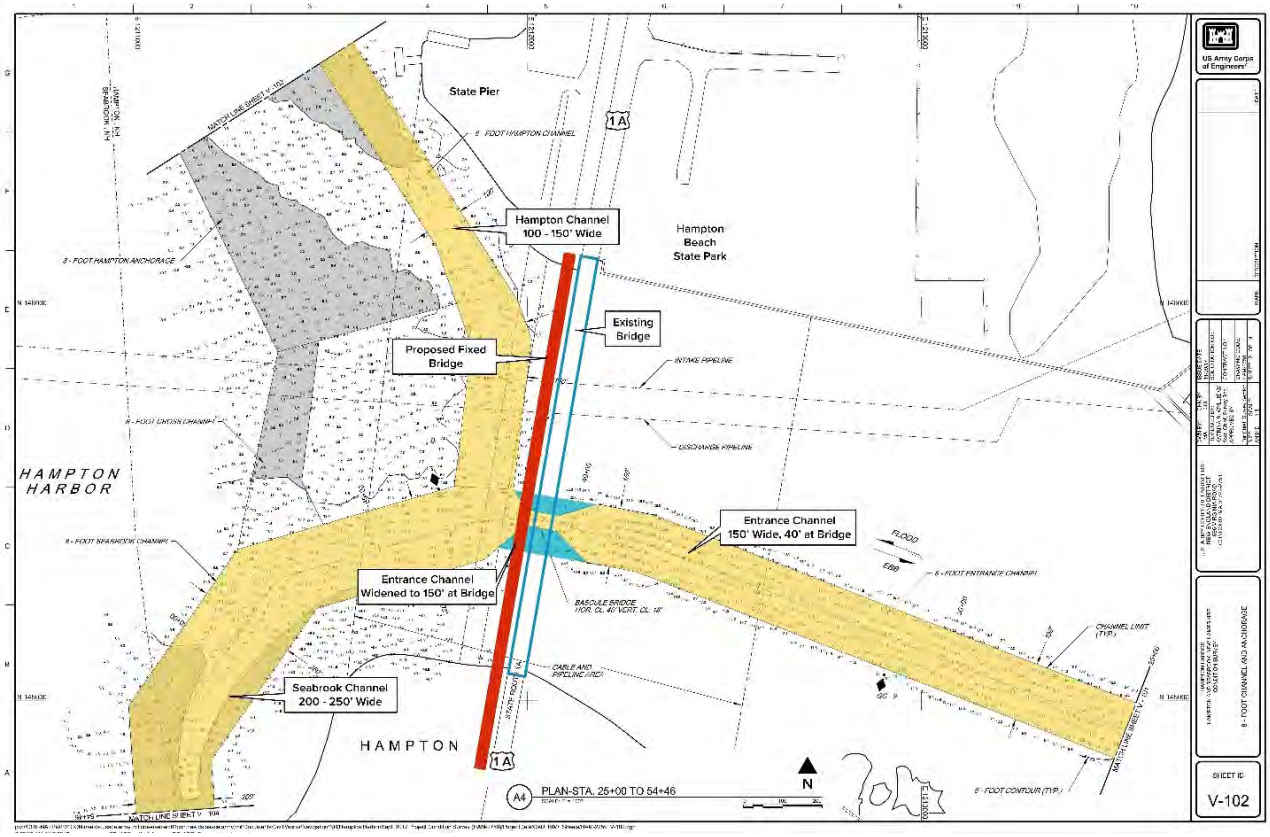
Attachment C – 1983 Bridge Plan



Source: NHDOT

Attachment D: Dredge Limits

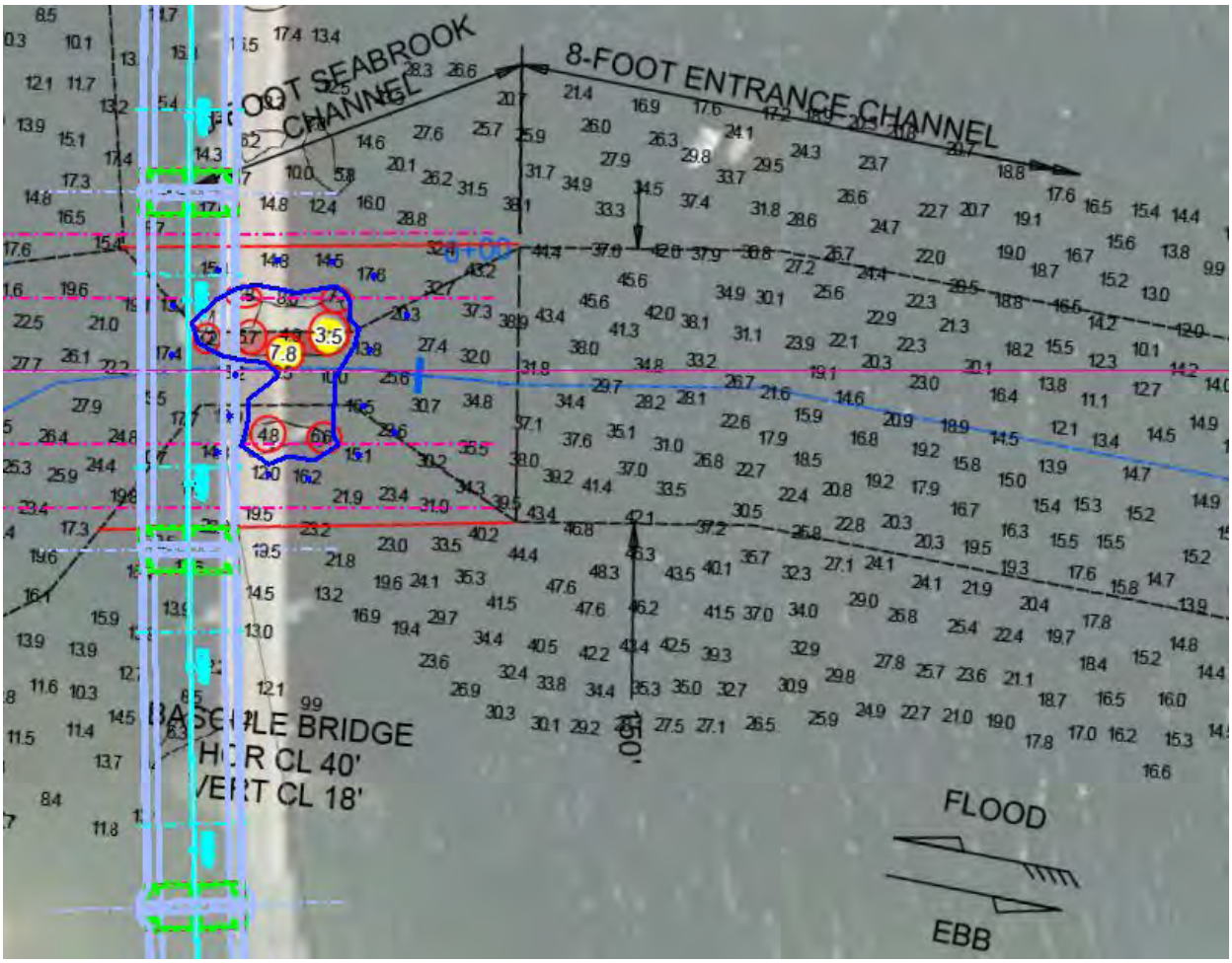
Attachment D – Dredge Limits



Source: USACE, HDR, Inc. and FHI

Attachment E: Estimated Dredge Area

Attachment E – Estimated Dredge Area



Source: USACE and HDR, Inc.

Attachment F: EFH Resources

Hampton Harbor Bridge Project
EFH Resources Attachment F
Project No. 15904
Bridge No. 235/025
Seabrook and Hampton, New Hampshire

- Impact Area
- Subtidal Deep Water Habitat
- Intertidal Habitat Area
- Substrate Change Boundary
- Existing Navigational
- Blue Mussel Area

N W E S

0 100 200 300 400 500 Feet

Original in Color - FHI - 11/13/2020

Attachment G: Benthic Study

(see Attachment A of NOAA BA)

THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

Victoria F. Sheehan
Commissioner

William Cass, P.E.
Assistant Commissioner

August 17, 2021

Mike Johnson
Greater Atlantic Regional Fisheries Office
NOAA Fisheries
55 Great Republic Drive
Gloucester, MA 01930

RE: Neil R. Underwood Bridge, NH Route 1A
Essential Fish Habitat Assessment Worksheet
Seabrook-Hampton, X-A001(026), 15904
Hampton and Seabrook, New Hampshire

Mike,

In response to your additional questions and comments provided to me in your June 25, 2021 email on the EFH Assessment Worksheet, we provide the following clarifications:

Page 12 of the supplemental EFH information (dated 3/17/21) states "During the final design phase of the project, the NHDOT would undertake coordination with the U.S. Army Corps of Engineers (USACE) and the NH Department of Environmental Services (NHDES) to determine mitigation needs for the project." As I understand it, for the purposes of the EFH consultation the federal action agency for this project is the Federal Highway Administration (FWHA). Furthermore, we are being asked to consult with FHWA now based on the information provided to us in the EFH assessment. We are not able to consult with the USACE later, so our EFH determination and the conservation recommendations we issue are going to be based on the current information provided in the EFH assessment. We cannot consult a second time with the USACE after additional information is gathered.

You are correct that the federal action agency is FHWA. FHWA and NHDOT understand that NOAA cannot consult later with USACE regarding EFH.

Additional questions and comments:

1. *According to a 2018 EA from the Corps, the federal channel was authorized at 150 feet "from deep water in the Gulf of Maine to the State Route 1A Bridge over the inlet." It's unclear if this includes areas under and west of the bridge, however. Please clarify if the authorized 150-foot federal channel includes areas under and west of the 1A Bridge. In addition, a document provided (attached) shows additional areas west of the 1A Bridge marked as "Proposed New Dredging". These areas are shown to be 26,800 sf, in addition to the area around the bridge of 16,500 sf. It's unclear to me if "new dredging" proposed in these areas is a part of the existing authorized federal channel, or if this is actually an expansion of it. Typically, the USACE is responsible for*

designating and maintaining federal channels (by Congress, actually), so I need to clarify what these "new dredging" areas represent. If these proposed dredge areas are not included in the authorized federal channel, this would be considered improvement dredging, which I believe requires state and federal permits. If this is the case, I'd like to know what the status of that is (e.g., requiring compensatory mitigation).

The authorized federal navigational channel is 150' east of the bridge. At the bridge, the channel narrows to 40'. It then widens again west of the bridge to 150' before splitting into the Seabrook Channel to the south and Hampton Channel to the north. The channel limits are shown in yellow in Attachment D of the EFH Assessment.

Under the Fixed Bridge Alternative (the Preferred Alternative in the EA and the alternative evaluated in the EFH Assessment), the navigational channel under the bridge would be widened to 150'. The dredge envelope is shown in blue in Attachment D of the EFH Assessment. Since the bridge piers would be spaced further apart under the Preferred Alternative, the USACE has requested that the channel be widened under the bridge to 150', to match the existing channel width to either side of the bridge. Please note that the map you attached to your email is an older map and was intended to show the dredging that could occur under all the alternatives considered, both bascule and fixed. The area to the west of the bridge does not require dredging under the Preferred Alternative evaluated in the EFH Assessment (Fixed Bridge).

The new dredging under the bridge would constitute improvement dredging. FHWA and NHDOT have not begun the preparation of the necessary permits because the project has not advanced beyond conceptual design and NEPA has not been concluded. FHWA and NHDOT will prepare these permits during the final design phase in consultation with NHDES and USACE. FHWA and NHDOT intend to use the New Hampshire Aquatic Resource Mitigation (ARM) Fund for compensatory mitigation.

2. *Page 3 of the supplemental information states "It is estimated that a total of approximately 450 piles would be required for all the proposed temporary trestles. All piles for the trestles would be installed during the in-water work window of November 15th to March 15th." I'm pleased that the trestle piles will be installed during the dredge window, but I couldn't find any reference to whether the piles will be driven or vibrated in, or drill shafts will be used. Pile driving 450 piles, even during the dredge window will expose fish to high noise levels for a protracted time. Please explain how the piles will be installed and how noise will be attenuated. If pile driving is proposed, what measures will be taken to attenuate the underwater noise over what I assume will be many months.*

As indicated on page 10 of the Continuation Sheet, the piles for the temporary trestles would be driven, however they would not be driven continuously. Two hundred and fifty piles would be installed between November 15th and March 15th of the first construction year for the trestles west of the current bridge. An additional 200 piles would be driven between November 15th and March 15th of the third construction year for the trestles east of the existing bridge. The contractor would conduct soft starts to allow organisms an opportunity to leave the project vicinity before sound pressure increases. In addition to using a soft start at the beginning of the workday for pile driving, it would also be required of the contractor at any time following cessation of pile driving for a period of 30 minutes or longer. Moreover, since the full channel width is 244 meters wide, the fish should still be able to pass through the project area during pile driving while avoiding the highest noise levels.

3. *Also on page 3 is a discussion about removal of existing utility lines and the replacement of utility lines. This section states that the NHDOT has not yet determined how the existing utilities will be removed or new ones will be installed (e.g., excavation). Information on this needs to be provided to us before the consultation can be completed. Excavation for removal or installation is considered dredging and has the potential to generate excessive suspended sediments. Therefore a TOY restriction will likely be needed. Please provide information on how utility lines will be removed and installed.*

Although necessary for the replacement of the bridge, the relocation or removal of the utilities is not the purview of FHWA or NHDOT, but rather the utility owners. FHWA and NHDOT will begin coordination with the utility owners during final design. The relocation or removal of the utilities, and the preparation of the permits for this work, will be undertaken by the utility owners.

4. *Page 4 of the supplemental information states that "Blue Mussels would be impacted by the northernmost new bridge pier (695 sf), as well as by a small area of rip rap placement required to the west of the northern bridge abutment (170 sf), for a total impact of 865 sf." and "However, the removal of the existing bridge piers would allow the area to be recolonized by benthic organisms." I think I indicated previously that blue mussel habitat is generally restricted to intertidal and shallow subtidal, and requires rocky substrates to attach. They do not grow in sand or mud. Therefore, blue mussel recolonization is only likely in areas where existing bridge pier removal is at the appropriate depth, and only over rocky or gravely substrates. Furthermore, in reference to recolonization of blue mussels, page 5 of the supplemental information states "The natural recolonization of these areas could take several years, but two of the most important factors favoring recolonization (i.e., substrate type and elevation in relation to tidal range) can be incorporated into final design plans to promote successful recolonization." and "Since the time required for, and efficacy of, the reestablishment of the Blue Mussels is not known, the 176 sf has not been included in the restoration to pre-existing conditions in the table on page 3 of the EFH Worksheet." I'm unclear if FHWA is proposing natural recruitment to offset impacts to blue mussels, but as I noted above we are being asked to consult with the FHWA now and with the information provided to us in this EFH assessment. Based on the information in the EFH assessment I do not see a clear and convincing method to offset the impacts to blue mussel habitat. Therefore, we will likely be recommending compensatory mitigation for approximately 865 sf of habitat loss using the NH In-lieu Fee program. If I am missing something, please clarify how FHWA proposes to offset the impact to blue mussel habitat.*

FHWA and NHDOT are not seeking to offset the impact to blue mussel habitat. FHWA and NHDOT anticipate that the approximately 865 sf of habitat loss would be mitigated through the use of the NH ARM Fund. FHWA and NHDOT are proposing making a “good will” effort to create precursor conditions favoring future blue mussel colonization, if practicable.

5. *On page 5 of the supplemental information (and in other sections), there is a reference of "backfilling" voids left from the removal of the existing piers (e.g., "The “voids” left by removal of the piers would be backfilled with a clean sandy material of similar texture and composition to closely match the surrounding bottom conditions and facilitate similar habitat development. This sand material may either be obtained through on-site dredging activities, which are part of the project, or through off-site sources." However, the methodology used to "backfill" the voids is not*

provided. Typically, "backfilling" is an active process using a mechanical or hydraulic dredge, but it's not clear if the FHWA is proposing natural filling through sediment migration (which is not "backfilling"). Holes left in the channel bottom can fill with debris and fine sediments, and become poor quality habitat. Please clarify how the voids left from existing pier removal will be filled.

FHWA and NHDOT are not proposing natural filling through sediment migration, however the methodology for the backfilling (whether hydraulic or mechanical) is not known at this time. The extent of the riprap may make the use of a hydraulic dredge infeasible. FHWA and NHDOT are committed to restoring these voids to the surrounding bottom condition.

6. *In reference to removal of existing bridge piers, page 12 of the supplemental information states that "This restored habitat would partially off-set the impacts from the new bridge piers (0.18 acres), so that the total net permanent loss of benthic and water column EFH, after restoration, would be 0.12 acres." (5,227 sf). The text goes into some detail about potential benthic habitat restoration from the removal of existing riprap that is believed to be present based on the 1983 bridge plan. However, the actual amount of existing riprap is unknown at this time. As I stated above, since we are being asked to consult with the FHWA now, based on the information in the EFH assessment, we must base our EFH conservation recommendations on the information provided to us now. We cannot issue new conservation recommendations based on information provided to us later.*

FHWA and NHDOT are proposing an offset for the pier removal only (i.e., the areal extent of the pier structure). While FHWA and NHDOT anticipate additional habitat restoration beyond the pier footprint through the removal of the riprap, a credit for this is not being requested because the extent of the area is unknown at this time.

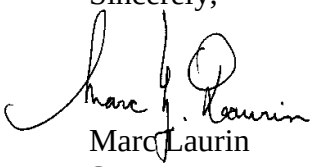
7. *Lastly, the supplemental information refers to Attachments A through H, which was not provided to us as far as I can tell. Please provide these attachments to us so we can complete our EFH consultation.*

It appears the Attachments didn't come through when the last batch of files were transmitted to you in March, 2021. I resent the Attachments in an email to you dated July 8, 2021. Let me know if you need me to send them again.

Additionally, I am also submitting a revised EFH Assessment Worksheet dated August 13, 2021. As you may recall, the impact calculations changed between the December 1, 2020 and the March 17, 2021 submissions as our consultants had a better understanding of the limits of dredging. While preparing these latest responses to your questions, our consultants determined that the summary impact numbers provided on Page 3 of the Worksheet under the Habitat Description section for "Total area of impact to EFH" and "Total area of impact to HAPC" had not been updated between the December and March submissions. My apologies that this was not caught in the QA/QC of the March 2021 version. Note that the detail numbers in the table were correct and did not change.

Please contact me if you have any questions. We look forward to receiving your conservation recommendations.

Sincerely,



Marc Laurin
Senior Environmental Manager
Room 109 – Tel (603) 271-4044
E-mail – marc.g.laurin@dot.nh.gov

Attachments:
EFH Assessment Worksheet – Revised August 13, 2021

cc: Jamie Sikora, FHWA
Roosevelt Mesa, NOAA
Jennifer Reczek, NHDOT
Robert Juliano, NHDOT
Stephanie Dyer-Carrol, FHI
Dan Hageman, FHI
Roch Larochelle, HDR
John Stockton, HDR
Keith Cota, HDR

Federal Interagency Comment Form

Date: Sept. 15, 2021
Project: Seabrook-Hampton 15904, Neil R. Underwood Bridge
Appl No.:
Commenting Agency: NOAA/NMFS/GARFO/HCD
Action Agency Project Manager: Marc Laurin (NH DOT, on behalf of Jamie Sikora, FHWA)
Waterway: Atlantic Ocean and Hampton-Seabrook Harbor
Activity: Bridge replacement/construction and dredging

ESSENTIAL FISH HABITAT (EFH)
Project may adversely affect EFH.

ESSENTIAL FISH HABITAT CONSERVATION RECOMMENDATIONS: (Note: EFH CRs require a response from the federal action agency within 30 days of receipt or 10 days before a permit is issued if CRs are not included as a special condition of the permit. In addition, a distinct and further EFH consultation must be reinitiated pursuant to 50 CFR 600.920 (j) if new information becomes available, or if the project is revised in such a manner that affects the basis for the above EFH determination or EFH conservation recommendations.)

1. Compensatory mitigation for unavoidable adverse effects to EFH and HAPC, including juvenile Atlantic cod, should be provided through the NH In-lieu Fee Program for the following impacts:
    a. Hard bottom (gravel, cobble, pebble; ~5,800 sf) and blue mussel (870 sf) habitat at the north and south ends of the bridge impacted by engineered stone (riprap)
    b. Shallow subtidal habitat (~16,500 sf) permanently impacted by improvement dredging
2. A time-of-year restriction for all turbidity producing activity from March 16-Nov. 14 to protect spawning winter flounder that migrate into sheltered areas of Hampton Harbor. This includes all dredging, trenching, and excavation.

FISH AND WILDLIFE COORDINATION ACT COMMENTS

1. A time-of-year restriction for all turbidity producing activity from March 16-Nov. 14 to protect spawning migrations of diadromous fish

ENDANGERED SPECIES
Threatened or endangered species under the jurisdiction of NMFS may be present in the project area. The federal action agency will be responsible for determining whether the proposed action may affect listed species. If they determine that the proposed action may affect a listed species, they should submit their determination of effects, along with justification and a request for concurrence to the attention of the Section 7 Coordinator, NMFS, Greater Atlantic Regional Fisheries Office, Protected Resources Division, 55 Great Republic Drive, Gloucester, MA 01930 or nmfs.gar.esa.section7@noaa.gov. If you have any questions regarding these comments, please contact Roosevelt Mesa.

OTHER:
Provide a copy of the permit when issued.

Prepared by: __Michael Johnson_____ date: __Sept. 15, 2021_____

From:	Sikora, Jamie (FHWA)
To:	Mike R Johnson - NOAA Federal; Laurin, Marc
Cc:	christopher.boelke@noaa.gov; Reczek, Jennifer; Stephanie Dyer-Carroll; Dan Hageman; Murdzia, Daniel; Keith Cota; Juliano, Robert; Roosevelt Mesa - NOAA Affiliate
Subject:	RE: Seabrook-Hampton, 15094 - EFH Worksheet
Date:	Wednesday, October 6, 2021 10:51:08 AM

Hi Mike, FHWA agrees with the EFH Conservation Recommendations. Available to discuss further if needed.

Jamie

Jamison S. Sikora
NH Division Environmental Program Manager
Federal Highway Administration
53 Pleasant Street, Suite 2200
Concord, NH 03301
Jamie.sikora@dot.gov
(603) 410-4870

From: Mike R Johnson - NOAA Federal <mike.r.johnson@noaa.gov>
Sent: Wednesday, October 6, 2021 10:21 AM
To: Laurin, Marc <marc.g.laurin@dot.nh.gov>
Cc: Sikora, Jamie (FHWA) <Jamie.Sikora@dot.gov>; christopher.boelke@noaa.gov; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Stephanie Dyer-Carroll <sdyer-carroll@fhistudio.com>; Dan Hageman <dhageman@fhistudio.com>; Murdzia, Daniel <Daniel.Murdzia@hdrinc.com>; Keith Cota <Keith.Cota@hdrinc.com>; Juliano, Robert <Robert.A.Juliano@dot.nh.gov>; Roosevelt Mesa - NOAA Affiliate <roosevelt.mesa@noaa.gov>
Subject: Re: Seabrook-Hampton, 15094 - EFH Worksheet

Thanks, Marc. By "accepted the correct revisions", are you indicating the FHWA is accepting the EFH CRs?
Mike

On Wed, Oct 6, 2021 at 9:40 AM Laurin, Marc <marc.g.laurin@dot.nh.gov> wrote:

> Mike,
>
> I have accepted the correct revisions in the form based on our correspondence below.
>
> Attached is a clean pdf version of the form for your files stating that the time of year restriction period is from March 16 through November 14, and that Roosevelt is the ESA contact.

Thanks,

Marc

From: Mike R Johnson - NOAA Federal <mike.r.johnson@noaa.gov>
Sent: Wednesday, October 6, 2021 9:04 AM
To: Laurin, Marc <marc.g.laurin@dot.nh.gov>
Subject: Re: Seabrook-Hampton, 15094 - EFH Worksheet

Yes, that is correct. Sorry for the confusion. These TOY window dates have a tendency to be confusing.
MJ

On Wed, Oct 6, 2021 at 8:42 AM Laurin, Marc <marc.g.laurin@dot.nh.gov> wrote:

> Mike,
>
> Sorry to still be confused, but should the restricted period be described as March 16th through November **14th** (not Nov 15 as you mention below)? As the standard work window for dredging and silt producing activities in NH is Nov. 15-March 15.
>
> Thanks,
>
> Marc
>
> **From:** Laurin, Marc
> **Sent:** Tuesday, September 28, 2021 10:04 AM
> **To:** Mike R Johnson - NOAA Federal <mike.r.johnson@noaa.gov>
> **Subject:** RE: Seabrook-Hampton, 15094 - EFH Worksheet
>
> Mike,
>
> Wouldn't the restricted period be designated as November 14th though? The contractor could be in the water on the 15th.
>
> Marc
>
> **From:** Mike R Johnson - NOAA Federal <mike.r.johnson@noaa.gov>
> **Sent:** Tuesday, September 28, 2021 8:32 AM
> **To:** Laurin, Marc <marc.g.laurin@dot.nh.gov>
> **Cc:** Jamie Sikora <jamie.sikora@dot.gov>; christopher.boelke@noaa.gov; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Stephanie Dyer-Carroll <sdyer-carroll@fhistudio.com>; Dan Hageman <dhageman@fhistudio.com>; Murdzia, Daniel <Daniel.Murdzia@hdrinc.com>; Keith Cota <Keith.Cota@hdrinc.com>; Juliano, Robert <Robert.A.Juliano@dot.nh.gov>; Roosevelt

Mesa - NOAA Affiliate <roosevelt.mesa@noaa.gov>
Subject: Re: Seabrook-Hampton, 15094 - EFH Worksheet

Marc,
Yes, the standard work window for dredging and silt producing activities in NH is Nov. 15-March 15. So the restricted period is March 16-Nov. 15 (not Nov. 14-March 16, as described in your email).
Regarding the ESA contact, yes I believe it is Roosevelt Mesa. I've copied him on this email so he can confirm.
Sorry for the confusion.
Mike

On Tue, Sep 28, 2021 at 8:14 AM Laurin, Marc <marc.g.laurin@dot.nh.gov> wrote:

> Mike,
>
> Thank you for transmitting NOAA's Conservation Recommendations for the Seabrook-Hampton Bridge Project. However, we'd like to request one minor adjustment.
>
> I believe that there is a typo as recommendation #2 indicates an **in-water work restriction** between March 15th and November 15th. Our agency consultation to date has referenced an **in-water work window** of November 15th to March 15th, resulting in a restricted period from November 14th to March 16th. This is consistent with the conservation recommendations on the Sarah Mildred Long Bridge project and the Memorial Bridge project. Please confirm you are in agreement with this change. We've edited the attached file to reflect this adjustment.
>
> Also, I noticed that you inadvertently left out the Endangered Species contact information in the last paragraph. I assume it would be Roosevelt Mesa.
>
> Let me know if you are okay with these changes. I could just accept them for our files and for use as an exhibit in the final NEPA document. Or you could resend a corrected version.
>
> Thanks,
>
> Marc
>
> **From:** Mike R Johnson - NOAA Federal <mike.r.johnson@noaa.gov>
> **Sent:** Wednesday, September 15, 2021 2:59 PM
> **To:** Laurin, Marc <marc.g.laurin@dot.nh.gov>
> **Cc:** Jamie Sikora <jamie.sikora@dot.gov>; christopher.boelke@noaa.gov; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Stephanie Dyer-Carroll <sdyer-carroll@fhistudio.com>; Dan

Hageman <dhageman@fhistudio.com>; Murdzia, Daniel <Daniel.Murdzia@hdrinc.com>; Keith Cota <Keith.Cota@hdrinc.com>; Juliano, Robert <Robert.A.Juliano@dot.nh.gov>
Subject: Re: Seabrook-Hampton, 15094 - EFH Worksheet

Marc,
Thank you for providing the additional, requested information for our EFH consultation.
Attached are our EFH Conservation Recommendations for the proposed project.
Please let me know if you have any questions.
Thanks,
Mike

On Tue, Sep 14, 2021 at 10:32 AM Laurin, Marc <marc.g.laurin@dot.nh.gov> wrote:

> Mike,
>
> Have you had a chance to review NHDOT's responses to your earlier comments on the EFH Worksheet for the project? We are in the process of finalizing the Environmental Assessment and would like to ensure that conservation recommendations from the NMFS are discussed.
>
> Thanks,
>
> Marc
>
> **From:** Laurin, Marc
> **Sent:** Tuesday, August 17, 2021 2:21 PM
> **To:** Mike R Johnson - NOAA Federal <mike.r.johnson@noaa.gov>
> **Cc:** Jamie Sikora <jamie.sikora@dot.gov>; Roosevelt Mesa <roosevelt.mesa@noaa.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Juliano, Robert <Robert.A.Juliano@dot.nh.gov>; Stephanie Dyer-Carroll (sdyer-carroll@fhistudio.com) <sdyer-carroll@fhistudio.com>; Dan Hageman <dhageman@fhistudio.com>; Roch Larochelle <Roch.Larochelle@hdrinc.com>; John Stockton <john.stockton@hdrinc.com>; Keith Cota <Keith.Cota@hdrinc.com>
> **Subject:** RE: Seabrook-Hampton, 15094 - EFH Worksheet
>
> Mike,
>
> Attached is a response to your June 25, 2021 email questions and comments on the EFH Worksheet for the Seabrook-Hampton project.
>
> I have also attached a revision to the Worksheet as our consultants noted that the summary impact numbers provided on Page 3 of the Worksheet were not changed in our March 17, 2021 submission as they should have been.

Let me know if you need more information or if you feel we need to discuss further.

Thanks,

Marc

From: Mike R Johnson - NOAA Federal <mike.r.johnson@noaa.gov>
Sent: Tuesday, July 27, 2021 10:11 AM
To: Laurin, Marc <marc.g.laurin@dot.nh.gov>
Subject: Re: Seabrook-Hampton, 15094 - EFH Worksheet

I'm interested in getting this consultation completed as much as you are, I'm sure. However, I think the most efficient path forward is for you and/or the consultants to provide a response to my questions by email, and if we need to schedule a call to discuss any clarifications or questions we can do that later.
Thanks,
Mike

On Tue, Jul 27, 2021 at 8:59 AM Laurin, Marc <marc.g.laurin@dot.nh.gov> wrote:

> Mike,
> Sorry, I should have contacted you sooner.
> Would it make sense for me to set up a meeting with our consultants to address your questions? What is you availability over the next couple of weeks?
> (I assume that you are still the EFH Consultation contact for this project and not Kaitlyn Shaw?)
> Thanks,
> Marc
>
> ---
>
> **From:** Mike R Johnson - NOAA Federal <mike.r.johnson@noaa.gov>
> **Sent:** Friday, July 9, 2021 9:33 AM
> **To:** Laurin, Marc <marc.g.laurin@dot.nh.gov>
> **Subject:** Re: Seabrook-Hampton, 15094 - EFH Worksheet
>
>
>
> ---
>
> OK. Thanks, Marc.
> On Thu, Jul 8, 2021 at 12:10 PM Laurin, Marc <marc.g.laurin@dot.nh.gov> wrote:
>
> > Mike,
> > I am sending the Attachments. I recall that I got an Outlook notice that there was an email issue when I sent it to you, along with the Worksheet and Continuation Sheet, in my March email. It could have been dropped somehow, maybe due to me working remotely. Anyways, here they are.

Regarding you issues, I am coordinating with the engineers and environmental consultants to address these and will provide responses in the near future.
Marc

From: Mike R Johnson - NOAA Federal <mike.r.johnson@noaa.gov>
Sent: Friday, June 25, 2021 9:54 AM
To: Laurin, Marc <marc.g.laurin@dot.nh.gov>
Cc: Jamie Sikora <jamie.sikora@dot.gov>; Roosevelt Mesa <roosevelt.mesa@noaa.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Juliano, Robert <Robert.A.Juliano@dot.nh.gov>; Stephanie Dyer-Carroll <sdyer-carroll@fhiplan.com>; Dan Hageman <DHageman@fhiplan.com>; John Stockton <john.stockton@hdrinc.com>
Subject: Re: Seabrook-Hampton, 15094 - EFH Worksheet

Marc,
Thanks for your response on the channel width. However, my question is about the dimensions of the existing federal channel. See my comments in #1 below.
I also flagged some issues that I need to clarify before I can issue my EFH conservation recommendations (see my questions and comments below). However, there is one overarching issue that needs to be resolved. Page 12 of the supplemental EFH information (dated 3/17/21) states "During the final design phase of the project, the NHDOT would undertake coordination with the U.S. Army Corps of Engineers (USACE) and the NH Department of Environmental Services (NHDES) to determine mitigation needs for the project." As I understand it, for the purposes of the EFH consultation the federal action agency for this project is the Federal Highway Administration (FWHA). Furthermore, we are being asked to consult with FHWA now based on the information provided to us in the EFH assessment. We are not able to consult with the USACE later, so our EFH determination and the conservation recommendations we issue are going to be based on the current information provided in the EFH assessment. We cannot consult a second time with the USACE after additional information is gathered.
Additional questions:

1. According to a 2018 EA from the Corps, the federal channel was authorized at 150 feet "from deep water in the Gulf of Maine to the State Route 1A Bridge over the inlet." It's unclear if this includes areas under and west of the bridge, however. Please clarify if the authorized 150-foot federal channel includes areas under and west of the 1A Bridge. In addition, a document provided (attached) shows additional areas west of the 1A Bridge marked as "Proposed New Dredging". These areas are shown to be 26,800 sf, in addition to the area around the bridge of 16,500 sf. It's unclear to me if "new dredging" proposed in these areas is a part of the existing authorized federal channel, or if this is actually an expansion of it. Typically, the USACE is responsible for designating and maintaining federal channels (by Congress, actually), so I need to clarify

what these "new dredging" areas represent. If these proposed dredge areas are not included in the authorized federal channel, this would be considered improvement dredging, which I believe requires state and federal permits. If this is the case, I'd like to know what the status of that is (e.g., requiring compensatory mitigation).

2. Page 3 of the supplemental information states "It is estimated that a total of approximately 450 piles would be required for all the proposed temporary trestles. All piles for the trestles would be installed during the in-water work window of November 15th to March 15th." I'm pleased that the trestle piles will be installed during the dredge window, but I couldn't find any reference to whether the piles will be driven or vibrated in, or drill shafts will be used. Pile driving 450 piles, even during the dredge window will expose fish to high noise levels for a protracted time. Please explain how the piles will be installed and how noise will be attenuated. If pile driving is proposed, what measures will be taken to attenuate the underwater noise over what I assume will be many months.
3. Also on page 3 is a discussion about removal of existing utility lines and the replacement of utility lines. This section states that the NHDOT has not yet determined how the existing utilities will be removed or new ones will be installed (e.g., excavation). Information on this needs to be provided to us before the consultation can be completed. Excavation for removal or installation is considered dredging and has the potential to generate excessive suspended sediments. Therefore a TOY restriction will likely be needed. Please provide information on how utility lines will be removed and installed.
4. Page 4 of the supplemental information states that "Blue Mussels would be impacted by the northernmost new bridge pier (695 sf), as well as by a small area of rip rap placement required to the west of the northern bridge abutment (170 sf), for a total impact of 865 sf." and "However, the removal of the existing bridge piers would allow the area to be recolonized by benthic organisms." I think I indicated previously that blue mussel habitat is generally restricted to intertidal and shallow subtidal, and requires rocky substrates to attach. They do not grow in sand or mud. Therefore, blue mussel recolonization is only likely in areas where existing bridge pier removal is at the appropriate depth, and only over rocky or gravely substrates. Furthermore, in reference to recolonization of blue mussels, page 5 of the supplemental information states "The natural recolonization of these areas could take several years, but two of the most important factors favoring recolonization (i.e., substrate type and elevation in relation to tidal range) can be incorporated into final design plans to promote successful recolonization." and "Since the time required for, and efficacy of, the reestablishment of the Blue Mussels is not known, the 176 sf has not been included in the restoration to pre-existing conditions in the table on page 3 of the EFH Worksheet." I'm unclear if FHWA is proposing natural recruitment to offset impacts to blue mussels, but as I noted above we are being asked to consult with the FHWA now and with the information provided to us in this EFH assessment. Based on

the information in the EFH assessment I do not see a clear and convincing method to offset the impacts to blue mussel habitat. Therefore, we will likely be recommending compensatory mitigation for approximately 865 sf of habitat loss using the NH In-lieu Fee program. If I am missing something, please clarify how FHWA proposes to offset the impact to blue mussel habitat.

5. On page 5 of the supplemental information (and in other sections), there is a reference of "backfilling" voids left from the removal of the existing piers (e.g., "The “voids” left by removal of the piers would be backfilled with a clean sandy material of similar texture and composition to closely match the surrounding bottom conditions and facilitate similar habitat development. This sand material may either be obtained through on-site dredging activities, which are part of the project, or through off-site sources." However, the methodology used to "backfill" the voids is not provided. Typically, "backfilling" is an active process using a mechanical or hydraulic dredge, but it's not clear if the FHWA is proposing natural filling through sediment migration (which is not "backfilling"). Holes left in the channel bottom can fill with debris and fine sediments, and become poor quality habitat. Please clarify how the voids left from existing pier removal will be filled.
6. In reference to removal of existing bridge piers, page 12 of the supplemental information states that "This restored habitat would partially off-set the impacts from the new bridge piers (0.18 acres), so that the total net permanent loss of benthic and water column EFH, after restoration, would be 0.12 acres." (5,227 sf). The text goes into some detail about potential benthic habitat restoration from the removal of existing riprap that is believed to be present based on the 1983 bridge plan. However, the actual amount of existing riprap is unknown at this time. As I stated above, since we are being asked to consult with the FHWA now, based on the information in the EFH assessment, we must base our EFH conservation recommendations on the information provided to us now. We cannot issue new conservation recommendations based on information provided to us later.
7. Lastly, the supplemental information refers to Attachments A through H, which was not provided to us as far as I can tell. Please provide these attachments to us so we can complete our EFH consultation.

Thanks,
Mike

On Mon, Jun 21, 2021 at 11:26 AM Mike R Johnson - NOAA Federal <mike.r.johnson@noaa.gov> wrote:

> Marc,
> I expect to finish my review on the IA bridge project sometime today. Sorry about the delay, but we were notified Friday that the day was designated as a federal holiday, so I wasn't able to complete it.
> I have one clarifying question regarding the expansion of the federal channel at the bridge from 40 feet to 150 feet wide. According to a 2018 EA from the Corps, the federal channel was authorized at 150 feet "from deep water in the Gulf of Maine to the State Route 1A Bridge over the inlet." It's unclear if this includes areas under

and west of the bridge, however. Can someone clarify if the authorized 150-foot federal channel includes areas under and west of the 1A Bridge?
Thanks,
Mike

On Tue, Jun 15, 2021 at 9:34 AM Mike R Johnson - NOAA Federal <mike.r.johnson@noaa.gov> wrote:

> Marc,
> I am working on it now, and should have a response to you by the end of this week or sooner.
> Thanks,
> Mike
>
> On Mon, Jun 14, 2021 at 8:48 AM Laurin, Marc <marc.g.laurin@dot.nh.gov> wrote:
>
> > Mike,
> > The Department published a draft Environmental Assessment in March and conducted at Public Hearing on April 8, 2021. We are now in the process of finalizing the Environmental Assessment and addressing comments on the EA. We hope to finalize the document by the end of June.
> > Have you been able to complete your review of the Revised EFH Worksheet and will be providing EFH conservation recommendations for the project?
> > Please let me know if you need further information.
> > Thanks,
> > Marc
> >
> > **From:** Laurin, Marc
> > **Sent:** Thursday, March 18, 2021 3:22 PM
> > **To:** 'Mike R Johnson - NOAA Federal' <mike.r.johnson@noaa.gov>
> > **Cc:** nmfs.gar.efh.consultation@noaa.gov; Jamie Sikora <jamie.sikora@dot.gov>; Roosevelt Mesa <roosevelt.mesa@noaa.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Juliano, Robert <Robert.A.Juliano@dot.nh.gov>; Stephanie Dyer-Carroll <sdyer-carroll@fhiplan.com>; Dan Hageman <DHageman@fhiplan.com>; John Stockton <john.stockton@hdrinc.com>
> > **Subject:** RE: Seabrook-Hampton, 15094 - EFH Worksheet
> > Mike,
> > Attached is a Revised EFH Worksheet. I have included the revised Worksheet, Continuation Sheets and Attachments addressing the comments and concerns you noted in your review.
> > I have also included the version of the Worksheet and Continuation Sheets that contain your comments and which include a brief response to these comments. These responses are generally incorporated in the revisions to the Worksheet.
> > Contact me if you have further questions or need clarification on how your comments were addressed. I could include a track changes document if that would be beneficial to your review.

Thanks,
Marc

From: Mike R Johnson - NOAA Federal <mike.r.johnson@noaa.gov>
Sent: Tuesday, January 19, 2021 4:35 PM
To: Laurin, Marc <marc.g.laurin@dot.nh.gov>
Cc: nmfs.gar.efh.consultation@noaa.gov; Jamie Sikora <jamie.sikora@dot.gov>; Roosevelt Mesa <roosevelt.mesa@noaa.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Juliano, Robert <Robert.A.Juliano@dot.nh.gov>; Stephanie Dyer-Carroll <sdyer-carroll@fhiplan.com>; Dan Hageman <DHageman@fhiplan.com>; John Stockton <john.stockton@hdrinc.com>
Subject: Re: Seabrook-Hampton, 15094 - EFH Worksheet

Marc,
I have a number of questions on the EFH assessment you provided, which I will need to provide appropriate conservation recommendations (see attached with comments).
One of the issues is it was impossible to determine how and how much habitat (e.g., shellfish, rocky and sandy bottom) would be "restored" by the removal of the existing piers. In the case of blue mussels, just removing the pier(s) in the intertidal zone doesn't necessarily mean impacts from the new piers are "zeroed-out". The bottom must be of a substrate that mussels will recolonize and the tidal elevation must be conducive for mussel growth. Even if both of those conditions are met, it will take several years for the mussel beds to be restored. Similarly, the assessment seems to suggest that areas of natural rocky habitat impacted by the project will be offset by placement of riprap. Engineered stoned riprap does not provide the same ecological functions as natural rocky habitats, like pebble, gravel, and cobble. In fact, there is evidence that riprap can increase the prevalence of exotic invasive species.
Regarding compensatory mitigation, the last page of the assessment seems to suggest that any compensatory mitigation for impacts will be discussed during a USACE EFH consultation with NOAA Fisheries. We do not conduct EFH consultations with two separate federal action agencies. I was under the impression that there is FHWA funding for this project and FHWA is the lead federal action agency. If that is not correct, please advise.
If these questions and comments can be resolved, I can complete the EFH consultation and send my conservation recommendations to you.
Thanks,
Mike
On Tue, Jan 12, 2021 at 11:07 AM Laurin, Marc <marc.g.laurin@dot.nh.gov> wrote:

> Mike,

Here it is.
Marc
From: Mike R Johnson - NOAA Federal <mike.r.johnson@noaa.gov>
Sent: Tuesday, January 12, 2021 10:49 AM
To: Laurin, Marc <marc.g.laurin@dot.nh.gov>
Cc: nmfs.gar.efh.consultation@noaa.gov; Jamie Sikora <jamie.sikora@dot.gov>; Roosevelt Mesa <roosevelt.mesa@noaa.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Juliano, Robert <Robert.A.Juliano@dot.nh.gov>; Stephanie Dyer-Carroll <sdyer-carroll@fhiplan.com>; Dan Hageman <DHageman@fhiplan.com>; John Stockton <john.stockton@hdrinc.com>
Subject: Re: Seabrook-Hampton, 15094 - EFH Worksheet

Marc,
Was there supposed to be an attachment?
Thanks,
MJ
On Tue, Jan 12, 2021 at 10:35 AM Laurin, Marc <marc.g.laurin@dot.nh.gov> wrote:

> Mike,
>
> We also recently identified some minor miscalculation on the impacts. As such we have updated page 9 of the continuation sheet (see under "Is Compensation Mitigation being proposed?" section).
>
> Please swap out this page for the original.
>
> Thanks,
>
> Marc
> From: Laurin, Marc
> Sent: Friday, December 11, 2020 9:53 AM
> To: 'Mike Johnson' <Mike.R.Johnson@noaa.gov>; 'nmfs.gar.efh.consultation@noaa.gov' <nmfs.gar.efh.consultation@noaa.gov>
> Cc: 'Jamie Sikora' <jamie.sikora@dot.gov>; 'Zach Jylkka' <zachary.jylkka@noaa.gov>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov>; Juliano, Robert <Robert.A.Juliano@dot.nh.gov>; 'Stephanie Dyer-Carroll' <sdyer-carroll@fhiplan.com>; 'Dan Hageman' <DHageman@fhiplan.com>; 'John Stockton' <john.stockton@hdrinc.com>
> Subject: RE: Seabrook-Hampton, 15094 - EFH Worksheet

Mike,

We noticed that we made a typo in the TOY restriction times. We will modify the worksheet submission for it to state that in-water work will occur from November 15th through March 15th (not November 16th through March 14th). I assume that you will provide us with some modifications or clarifications on our submittal, so we will change this when we address any of your comments.

Thanks,

Marc
From: Laurin, Marc
Sent: Tuesday, December 01, 2020 2:57 PM
To: Mike Johnson <Mike.R.Johnson@noaa.gov<mailto:Mike.R.Johnson@noaa.gov>>; 'nmfs.gar.efh.consultation@noaa.gov' <nmfs.gar.efh.consultation@noaa.gov<mailto:nmfs.gar.efh.consultation@noaa.gov>>
Cc: Jamie Sikora <jamie.sikora@dot.gov<mailto:jamie.sikora@dot.gov>>; Zach Jylkka <zachary.jylkka@noaa.gov<mailto:zachary.jylkka@noaa.gov>>; Reczek, Jennifer <Jennifer.E.Reczek@dot.nh.gov<mailto:Jennifer.E.Reczek@dot.nh.gov>>; Juliano, Robert <Robert.A.Juliano@dot.nh.gov<mailto:Robert.A.Juliano@dot.nh.gov>>; Stephanie Dyer-Carroll <sdyer-carroll@fhiplan.com<mailto:sdyer-carroll@fhiplan.com>>; Dan Hageman <DHageman@fhiplan.com<mailto:DHageman@fhiplan.com>>; John Stockton <john.stockton@hdrinc.com<mailto:john.stockton@hdrinc.com>>
Subject: Seabrook-Hampton, 15094 - EFH Worksheet

Mike,

Attached for you concurrence, is the EFH Assessment Worksheet and supporting information for the potential EFH impacts associated with the replacement of the Neil R. Underwood Bridge which carries NH Route 1A over Hampton Harbor Inlet in Hampton, NH.

Please contact me if you have any questions or require further information.

Thanks,

Marc Laurin
Senior Environmental Manager
Bureau of Environment
NH Department of Transportation
(603) 271-4044

Michael R. Johnson
NOAA Fisheries
Greater Atlantic Regional Fisheries Office
Habitat and Ecosystems Services Division
55 Great Republic Drive
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978-281-9130
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Attachment 17

NHDHR Effects Memo

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

Victoria F. Sheehan
Commissioner

William Cass, P.E.
Assistant Commissioner

Seabrook-Hampton
15904
X-A001(026)
RPR 9859

Adverse Effect Memo

Pursuant to the meetings and discussions on July 12, 2018, February 14, 2019, and March 12, 2020, and for the purpose of compliance with regulations of the National Historic Preservation Act, as amended, and the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the NH Division of Historical Resources and the NH Division of the Federal Highway Administration have coordinated the identification and evaluation of historic and archaeological properties with plans to replace the Neil R. Underwood Memorial Bridge (the Seabrook-Hampton Bridge) (235/025). The structure will be replaced with a fixed span.

Project Description

This project consists of the replacement of the existing bascule bridge that carries NH 1A over the Hampton Harbor Inlet (Bridge No. 235/025). This alternative replaces the existing bridge with a new high-level fixed structure on an alignment located to the west of the existing bridge. The design would provide a 150' wide navigational channel through the bridge with a vertical underclearance of 48'. The Area of Potential Effect includes properties north of the bridge along Ashworth Avenue; portions of the Hampton Beach State Park and adjacent residential streets; properties adjacent to Ocean Boulevard south of bridge; properties along River Street; and properties west across Hampton Harbor in both Seabrook and Hampton, NH.

Identification

Above-Ground Resources

In July 2018 a Request for Project review was submitted to NHDHR for the Seabrook-Hampton bridge project. Following the RPR review and a Cultural Resources Meeting at NHDOT on July 12, 2018 a Project Area Form was completed and reviewed by NHDHR in March 2019; the following inventories were completed:

- Seabrook-Hampton Bridge (235/025) (HAM0103) – determined eligible
- Hampton Beach Cottages Historic District (HAM-HBHD) – determined eligible
- 177-179 Ashworth Avenue (HAM0108) –determined not eligible
- 197 Ashworth Avenue (HAM0109) – determined eligible
- Hampton Beach Salt Water Pump House (HAM 0110) –determined not eligible
- 16 Portsmouth Avenue (HAM0111) – determined not eligible
- 20 Portsmouth Avenue (HAM0112) – determined not eligible
- Eastern Railroad Historic District (ZMT-ERLD) – was previously determined eligible in 2002

The New Hampshire Department of Transportation found 54 River Street (SEA0025) and 266 Portsmouth Avenue (SEA0024) in Seabrook, also located within the Area of Potential Effect, to be ineligible for the National Register. However, the New Hampshire Division of Historical Resources did not agree with this determination.

Below-Ground Resources
A Phase IA Archaeological Assessment and an addendum were completed to address both nautical and archaeological sensitivity. The addendum thoroughly researched the maritime history of the area, however review of the project area identified that there is low sensitivity for the occurrence of submerged resources and determined that no additional survey was necessary. A subsequent Phase 1B survey was also undertaken to document wooden piles under the south side of the bridge, remnants of a temporary trestle used during the bridge's construction, as well as an unidentified iron pin.

Project Consultation

Public Information Meetings were held in September 2018 and January 2019. A Project Advisory Committee (PAC) was formed in July 2018 consisting of the Hampton and Seabrook Town Managers, adjacent property owners, the Hampton and Seabrook Harbormasters, a member of Hampton Historical Society, and area businesses, among others. The PAC has met four times to date. Consulting parties have been identified as Kitty Henderson (Historic Bridge Foundation), Gary Bashline (resident), and Kate Bashline (resident).

The Advisory Council on Historic Preservation (ACHP) was contacted by SHPO in February 2014, to weigh in on FHWA's Section 106 review regarding the 1994 Memorandum of Agreement between FHWA, NHDOT and SHPO regarding the Dover, BRF-012-1(40), 11657 project. That project specified the Seabrook-Hampton bascule bridge and the New Castle-Rye bascule bridge should not be demolished except in the case of an extreme emergency or public safety concern. The ACHP advised FHWA to continue the consultation process with SHPO and other consulting parties and to follow current templates for developing MOA's in the future. FHWA will continue to consult with ACHP throughout this project and the New Castle-Rye project (16127).

Determination of Effect

Seabrook-Hampton Bridge (HAM0103)
The Seabrook-Hampton Bridge, or Hampton Harbor Bridge as it is known locally, is significant under C as a rare example of a bascule bridge in New Hampshire. Removal of the bridge is an adverse effect.

Hampton Beach Cottages Historic District (HAM-HBHD)
The HBHD is eligible for listing under A for its association with seaside tourism and under C as a representative example of seasonal dwellings. Replacing the bascule bridge with a fixed span would have no adverse effect on the district, as it will not physically alter the district and the limited nature of the visual changes would not diminish the integrity of the district's setting.

197 Ashworth Avenue (HAM0109)
The Madaline Cottage/Harris Inn is eligible for history and architecture as an upper-class seasonal home. Due to distance and viewshed, the project will either be minimally seen or not seen at all and will therefore not alter characteristics of the house that qualify it for inclusion in the National Register, therefore no historic properties would be affected.

Eastern Railroad Historic District (ZMT-ERLD)
The resource is eligible for its historic and engineering significance. Due to distance, the project will be largely indistinguishable from the railroad alignment and will therefore not alter characteristics of the railroad that qualify it for inclusion in the National Register, therefore no historic properties would be affected.

54 River Street (SEA0025)
The replacement of the existing bridge with a new fixed bridge would not diminish 54 River Street's integrity of location, design, materials, setting, workmanship, feeling or association, therefore no historic properties would be affected.

> Note: NHDOT found this property not eligible and NHDHR disagreed. In consultation with the FHWA Historic Preservation Officer, if the effect finding was anything other than no effect or no historic properties affected, the eligibility would be brought to the Keeper for their review. Because the undertaking will not affect the property, the dispute can remain unresolved.

266 Portsmouth Avenue (SEA0024)
The resource is eligible for history and architecture as a seasonal cottage. Due to distance and viewshed, the project will either be minimally seen or not seen at all and will therefore not alter characteristics of the cottage that qualify it for inclusion in the National Register, therefore no historic properties would be affected.

> Note: NHDOT found this property not eligible and NHDHR disagreed. In consultation with the FHWA Historic Preservation Officer, if the effect finding was anything other than no effect or no historic properties affected, the eligibility would be brought to the Keeper for their review. Because the undertaking will not affect the property, the dispute can remain unresolved.

Additional information regarding the effects to each of the above resources is outlined in the Effect Tables, which are on file at the NHDOT.

Applying the criteria of effect at 36 CFR 800.5, we have determined that the overall project results in an **Adverse Effect**, due to the removal and replacement of the Seabrook-Hampton Bridge.

Section 4(f) *(to be completed by FHWA)*	*There Will Be:*	☐ **No 4(f);**	☒ **Programmatic 4(f);**	☐ **Full 4 (f);** or
	☐ **A finding of *de minimis* 4(f) impact as stated:** In addition, with NHDHR concurrence of no adverse effect for the above undertaking, and in accordance with 23 CFR 774.3, FHWA intends to, and by signature below, does make a finding of *de minimis* impact. NHDHR's signature represents concurrence with both the no adverse effect determination and the *de minimis* findings. Parties to the Section 106 process have been consulted and their concerns have been taken into account. Therefore, the requirements of Section 4(f) have been satisfied.			

Mitigation Measures
Mitigation for the loss of the bridge will be determined and documented in a Memorandum of Agreement prior to the removal of the bridge.

In accordance with the Advisory Council's regulations, consultation will continue, as appropriate, as this project proceeds.

for Patrick Bauer, Administrator
Federal Highway Administrator — 3/25/2020 Date

Jill Edelmann
Cultural Resources Manager — 3/25/2020 Date

Concurred with by the NH State Historic Preservation Officer:

Nadine Miller — 3/26/2020 Date
Deputy State Historic Preservation Officer
NH Division of Historical Resources

c.c. Jamie Sikora, FHWA
Marika Labash, NHDHR
Jennifer Reczek, NHDOT
Jim Murphy, HDR
Loretta Girard Doughty, NHDOT
Stephanie Dyer-Carroll, FHI

Attachment 18

USACE Appendix B Checklist

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

US Army Corps of Engineers ®
New England District

Appendix B
New Hampshire General Permits
Required Information and USACE Section 404 Checklist

Required Information

In order for USACE to properly evaluate your application, applicants must submit the following information for all projects along with the NHDES Wetlands Bureau application or permit notification forms. Some projects may require more information. Check with USACE at (978) 318-8832 for project-specific requirements. For your convenience, this Appendix B is also attached to the NHDES Wetlands Bureau application and Permit by Notification forms.

- NHDES Wetlands Permit Application.
- Request for Project Review Form by the NH DHR: https://www.nh.gov/nhdhr/review/rpr.htm.
- Photographs of wetland/waterway to be impacted.
- Purpose of the project.
- Legible, reproducible plans no larger than 11”x17” with bar scale. Provide locus map and plan views of the entire property.
- Typical cross-section views of all wetland and waterway fill areas and wetland replication areas.
- In navigable waters, show MLW and MHW elevations. Show the HTL elevations when fill is involved. In other waters, show the OHW elevation.
- On each plan, show the following for the project:
  - o Vertical datum and the NAVD 1988 equivalent with the vertical units as U.S. feet. In coastal waters this may be mean higher high water (MHHW), MHW, MLW, mean lower low water (MLLW) or other tidal datum with the vertical units as U.S. feet. MLLW and MHHW are preferred. Provide the correction factor detailing how the vertical datum (e.g., MLLW) was derived using the latest National Tidal Datum Epoch for that area, typically 1983 - 2001.
  - o Horizontal state plane coordinates in U.S. survey feet based on the Traverse Mercator Grid system for the State of New Hampshire (Zone 2800) NAD 83.
  - o Project limits with existing and proposed conditions.
  - o Limits of any FNP in the vicinity of the project area and horizontal State Plane Coordinates in U.S. survey feet for the limits of the proposed work closest to the FNP.
  - o Volume, type, and source of fill material to be discharged into waters and wetlands, including the area(s) (in square feet or acres) of fill in wetlands, below the OHW in inland waters and below the HTL in coastal waters.
  - o Delineation of all waterways and wetlands on the project site.
- Use Federal delineation methods and include USACE wetland delineation data sheets (GC 2).
- For activities involving discharges of dredged or fill material into waters of the U.S., include a statement describing how impacts to waters of the U.S. are to be avoided and minimized, and either a statement describing how impacts to waters of the U.S. are to be compensated for (or a conceptual or detailed mitigation plan) or a statement explaining why compensatory mitigation should not be required for the proposed impacts. Please contact USACE for guidance.

US Army Corps of Engineers ®
New England District

Appendix B
New Hampshire General Permits
Required Information and USACE Section 404Checklist

USACE Section 404 Checklist

1. Attach any explanations to this checklist. Lack of information could delay a USACE permit determination.
2. All references to "work" include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See GC 3 for information on single and complete projects.
4. Contact USACE at (978) 318-8832 with any questions.
5. The information requested below is generally required in the NHDES Wetland Application. See page 61 for NHDES references and Admin Rules as they relate to the information below.

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See the following to determine if there is an impaired water in the vicinity of your work area. * https://nhdes-surface-water-quality-assessment-site-nhdes.hub.arcgis.com/ https://www.des.nh.gov/water/rivers-and-lakes/water-quality-assessment https://www4.des.state.nh.us/onestopdatamapper/onestopmapper.aspx	Y	
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	Y	
2.2 Are there proposed impacts to tidal SAS, prime wetlands, or priority resource areas? Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) DataCheck Tool for information about resources located on the property at https://www4.des.state.nh.us/NHB-DataCheck/. See Coastal Functional Assessment	Y	
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	Y	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)	Y	
2.5 The overall project site is more than 40 acres?		N
2.6 What is the area of the previously filled wetlands?	n/a*	
2.7 What is the area of the proposed fill in wetlands?	0.49 ac.**	
2.8 What % of the overall project site will be previously and proposed filled wetlands?	n/a	
3. Wildlife	Yes	No
3.1 Has the NHB & USFWS determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require an NHB ID number & a USFWS IPAC determination.) NHB DataCheck Tool: https://www4.des.state.nh.us/NHB-DataCheck/. USFWS IPAC website: https://ipac.ecosphere.fws.gov/	Y	

* Hampton Harbor too large to estimate total acreage

** denotes USACE jurisdictional impacts only

3.2 Would work occur in any area identified as either "Highest Ranked Habitat in N.H." or "Highest Ranked Habitat in Ecological Region"? (These areas are colored magenta and green, respectively, on NH Fish and Game's map, "2010 Highest Ranked Wildlife Habitat by Ecological Condition.") Map information can be found at: • PDF: https://wildlife.state.nh.us/wildlife/wap-high-rank.html. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html.	Y	
3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?		N
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		N
3.5 Are stream crossings designed in accordance with the GC 31?	Y	
4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?	Y	
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?		N
5. Historic/Archaeological Resources		
For a minimum, minor or major impact project - a copy of the RPR Form (www.nh.gov/nhdhr/review) with your DES file number shall be sent to the NH Division of Historical Resources as required on Page 37 GC 14(d) of the GP document**	Y	
6. Minimal Impact Determination (for projects that exceed 1 acre of permanent impact)	Yes	No
Projects with greater than 1 acre of permanent impact must include the following: • Functional assessment for aquatic resources in the project area. • On and off-site alternative analysis. • Provide additional information and description for how the below criteria are met.	N/A Permanent impacts less than one acre	
6.1 Will there be complete loss of aquatic resources on site?		
6.2 Have the impacts to the aquatic resources been avoided and minimized to the greatest extent practicable?		
6.3 Will all aquatic resource function be lost?		
6.4 Does the aquatic resource (s) have regional significance (watershed or ecoregion)?		
6.5 Is there an on-site alternative with less impact?		
6.6 Is there an off-site alternative with less impact?		
6.7 Will there be a loss to a resource dependent species?		
6.8 Are indirect impacts greater than 1 acre within and adjacent to the project area?		
6.9 Does the proposed mitigation replace aquatic resource function for direct, indirect, and cumulative impacts?		

*Although this checklist utilizes state information, its submittal to USACE is a federal requirement.

** If your project is not within Federal jurisdiction, coordination with NH DHR is not required under Federal law.

US Army Corps of Engineers ®
New England District

Appendix B
New Hampshire General Permits
Required Information and USACE Section 404 Checklist

NHDES Rule Citations

Appendix B Requirements	NHDES Citation	NHDES Resource, Form & BMP
1. Impaired Waters		
1.1	See Env-Wt 307.03 Protection of Water Quality Required & Env-Wt 306.05 a) 7	https://nhdes-surface-water-quality-assessment-site-nhdes.hub.arcgis.com/ https://www.des.nh.gov/water/rivers-and-lakes/water-quality-assessment https://www4.des.state.nh.us/onestopdatamapper/onestopmapper.aspx
2. Wetlands		
2.1	N/A	N/A
2.2	Env 307.06; Env- Wt 311.01(a)(b) (c)	NH Online Forms System - Coastal Resource Worksheet. Version 2.0 Wetlands Permitting: Protected Species and Habitat (nh.gov) Wetlands Permitting: Priority Resource Area (nh.gov) https://www4.des.state.nh.us/NHB-DataCheck/.
2.3	Env-Wt 313.03(b)(3); Env-Wt 313.03(b)4)(7); Env-Wt 307.06	See Chapter 7, Stream & Wetland Crossings: *Wetlands Best Management Practice Techniques for Avoidance and Minimiz* Wetlands-BMP-Manual-2019.pdf (neiwpcc.org) (& Env-Wt 900 for Stream Crossings)
2.4	Env-Wt 604.02 (Tidal buffer zone); Env-Wt 704 (prime buffers)	
2.5	N/A	N/A
2.6	N/A	N/A
2.7	Env-Wt 311.04(g)	Standard application Section 11- NH Online Forms System - Standard Dredge and Fill Wetlands Permit Application . Version 3.5
2.8	N/A	N/A
3. Wildlife		
3.1	Env-Wt 103.69 “Protected species or habitat”; Env-Wt 307.06, 311.01	NHB DataCheck Tool: https://www4.des.state.nh.us/NHB-DataCheck/. Wetlands Permitting: Protected Species and Habitat (nh.gov) Wetlands Permitting: Priority Resource Area (nh.gov)
3.2	Env-Wt 311.02; 313.03(b)(2), (4), (7)(16); Env-Wt 313.03(b)(6) & See Env-Wt 808.19(g), Env-Wt 808.20	Wetlands Permitting: Protected Species and Habitat (nh.gov) Wetlands Permitting: Priority Resource Area (nh.gov)
3.3	N/A	N/A
3.4	NA	N/A
3.5	(Env-Wt 900) Microsoft Word - Env-Wt 900 as of 10-2020.docx (nh.gov)	New Hampshire Stream Crossing Guidelines (nh.gov) (2009 UNH) _ NH Online Forms System - Wetland Permit Application Stream Crossing Worksheet. Version 1.8 Stream Crossing Design (nh.gov) : https://www.nh.gov/dot/org/projectdevelopment/environment/units/program-management/documents/RR_V.9_FINAL_3-14-19.pdf Best Management Practices for Routine Roadway Maintenance Activities in New Hampshire. 2019. New Hampshire Department of Transportation.
4. Flooding/Floodplain Values		
4.1	Env-Wt 311.05; Env-Wt 103.66 517.03(b); 517.06(a)(6);	Wetlands Permitting: Priority Resource Area (nh.gov) NH Online Forms System - Coastal Resource Worksheet. Version 2.0 New Hampshire Coastal Flood Risk Summary | NH Department of

	527.02(e); 527.04(d); Env-Wt 600 Env-Wt 900	Environmental Services (cited in Env-Wt 603.05) NH Online Forms System - Wetland Permit Application Stream Crossing Worksheet. Version 1.8 hydraulic-vulnerability-handout.pdf (nh.gov)
4.2	Env-Wt 527.02 & 527.04 & 313.04 & Env-Wt 800; Wt 605.03 & 605.04	Yes, for permanent impacts to a PRA, impacts from public highway projects, & those projects where flood storage functions are lost when the mitigation threshold is reached. Wetlands Mitigation | NH Department of Environmental Services
5. Historical/Archeological Resources		
5.0	Env-Wt 311.02(f)(6)	
6. Minimal Impact Determination		
6.0	F/V assessment: (Env-Wt 311.10); Env-Wt 603.04 (Coastal Functional Assessment) Alternatives: (Env-Wt 311.07(b)(2))	NH Online Forms System - Wetlands Functional Assessment Worksheet. Version 1.3 NH Online Forms System - Coastal Resource Worksheet. Version 2.0
6.1		Wetlands Permitting: Avoidance, Minimization, and Mitigation (nh.gov)
6.2	Env-Wt 102.12 (“Avoidance”), Env-Wt 102.13 (“Avoidance, minimization, mitigation”), Env-Wt 102.14 (“Avoid and minimize”), Env-Wt 311.01, Env-Wt 313.03 (“Avoidance & Minimization") Env-Wt 311.07	See *Wetlands Best Management Practice Techniques for Avoidance and Minimization* - Wetlands-BMP-Manual-2019.pdf (neiwpcc.org)referenced in Env-Wt 313.03(a); A/M written narrative (NH Online Forms System - Avoidance and Minimization Written Narrative. Version 2.0); Avoidance and Minimization Checklist: NH Online Forms System - Avoidance and Minimization Checklist. Version 3.1
6.3	Env-Wt 311.10, 603.04	See Functional Assessment worksheets above
6.4	Env-Wt 311.02, Env-Wt 312.04. Env-Wt 306.05, 307.06, 311.01	See Protected Species or Habitat (including exemplary natural communities)
6.5	Env-Wt 311.01, Env-Wt 311.07, Env-Wt 311.10 & 313.01 c)1)	See Avoidance & Minimization cites above & BMPs
6.6	(Env-Wt 313.01c) (1) & Env-Wt 311.07(b)(2))	
6.7	Env-Wt 311.10, Env-Wt 103.69, Env-307.06, see Avoidance & minimization cites	NH Online Forms System - Wetlands Functional Assessment Worksheet. Version 1.3; Wetlands Permitting: Priority Resource Area (nh.gov) NH Online Forms System - Coastal Resource Worksheet. Version 2.0
6.8	Env-Wt 102.05 (Water quality BMPs)	Practices to minimize or prevent direct or indirect discharge of sediment or other pollutants into surface waters and wetlands, listed in Env-Wt 307
6.9	Env-Wt 800	

Section 404 Checklist

2.2 Wetlands

There are no Special Aquatic Sites (SAS) located within the project area. By definition, SAS include: inland and saltmarsh wetlands, mud flats, vegetated shallows (SAV), sanctuaries and refuges, coral reefs, and riffle and pool complexes. There are no inland wetlands on the site. Vegetated saltmarsh wetlands occur approximately 2,000 feet to the west, but none are located on or near the site. There are no mud flats on the site, only sand flats due to the higher water velocities in the Project Area. There are no SAV areas, including eel grass populations. There are no sanctuaries, refuges, coral reefs, or riffle and pool complexes. Therefore, there will be impacts to SAS as a result of the proposed work.

Work is proposed within tidal wetlands and a New Hampshire Priority Resource Area (PRA). Impacts to tidal wetlands are provided in *2.7 – Area of Proposed Fill in Wetlands* below. A discussion of impacts to New Hampshire PRA Dune Habitat is provided in Attachment 8 – Coastal Functional Assessment of this Standard Dredge and Fill Wetland Permit Application.

2.7 Area of Proposed Fill in Wetlands

Permanent impacts to federal jurisdictional resources would occur as a result of the new bridge installation, the existing bridge removal, and the installation of a new pedestrian walkway under the north end of the bridge. These impacts would be less than one acre in area.

There will also be impacts to resources which are regulated only by the State of New Hampshire, which include: Priority Resource Area Dune Habitat, Top of Bank, and area within the Coastal Buffer Zone. Since these resources are not under federal jurisdiction, they are not included in the impacts presented as part of this Appendix B document. They are, however, discussed in other portions of the overall NH Dredge and Fill Application.

A detailed tabulation of permanent and temporary impacts to federal jurisdictional resources are provided below in Tables 1 and 2 and shown on the plans in Attachment 22 of the Standard Dredge and Fill Wetlands Permit Application. Table 3 tabulates the volume of fill within jurisdictional areas.

Table 1
Permanent Federal Impacts

Location	Wetland Classification	Permanent Impact (sf)	Description
G	E2US2 (Intertidal)	1,911	Abutment A riprap slope impact
H	E2US2 (Intertidal)	1,800	Pier 1 drilled shafts, footing and tremie
J	E1UBL (Subtidal)	1,800	Pier 2 drilled shafts and footing
L	E1UBL (Subtidal)	1,800	Pier 3 drilled shafts and footing
M	E1UBL (Subtidal)	813	Channel excavation to achieve federal channel depth
N	E1UBL (Subtidal)	265	Channel excavation to achieve federal channel depth
O	E1UBL (Subtidal)	2,243	Channel excavation to achieve federal channel depth
P	E1UBL (Subtidal)	1,800	Pier 4 drilled shafts and footing
Q	E1UBL (Subtidal)	1,800	Pier 5 drilled shafts and footing
R	E1UBL (Subtidal)	238	Pier 6 footing and tremie
S	E2US2 (Intertidal)	1,562	Pier 6 footing and tremie
T	E2US2 (Intertidal)	5,099	Abutment B riprap slope placement
Total		**21,131**	

Construction of the proposed bridge would have temporary impacts on wetland resources due to construction access and work containment for in-water work activities, such as the installation of and construction within cofferdams at proposed Piers 3 and 4, placement of barge spuds, maneuvering of barges, and construction of temporary work trestles. The piles for the trestles would be installed and removed during the in-water work window of November 15th to March 15th. Temporary impacts are estimated below.

Table 2
Temporary Federal Impacts

Description	Area of Impact (SF)
Temporary Impacts – Spuds (barge movements)	1,010
Temporary Impacts - Trestle Piles	2,800
Temporary Impacts – Water Lines	7,000
Total	**10,810**

Table 3
Permanent Federal Fill Volumes

Location	**HOTL to E.G. (CY)**	**Below E.G (CY)***
G	97	1,013
H	434	714
J	798	398
L	855	315
M		20
N		15
O		125
P	855	175
Q	811	219
R	57	63
S	377	416
T	391	2,049
Total	**4,675**	**5,522**

*Note: No net fill because new material would replace existing

Appendix B

Required Information

Documentation	Location
Standard Dredge and Fill Wetlands Permit Application	Attached.
Request for Project Review Form	Attached. *Note: NHDHR Effects Memorandum included as Attachment 17 to Standard Dredge and Fill Wetland Permit Application.*
Photographs of Wetlands to be Impacted	Attachment 20, Standard Dredge and Fill Wetland Permit Application.
Purpose of the Project	Standard Dredge and Fill Wetlands Permit Application.
Location Map	Attachment 1, Standard Dredge and Fill Wetland Permit Application.
Permit Plans	Attachment 22, Standard Dredge and Fill Wetland Permit Application.
Wetland Delineation	Attachment 19, Standard Dredge and Fill Wetland Permit Application.
Avoidance and Minimization	Attachment 8, Standard Dredge and Fill Wetland Permit Application.
Mitigation Plan	Attachment 6, Standard Dredge and Fill Wetland Permit Application.

Checklist

Number	Question	Location of Documentation
1.1	Any impaired waters within one mile?	Yes. See Section 3.0 of Attachment 8, Standard Dredge and Fill Wetland Permit Application.
2.1	Any streams, brooks, rivers, ponds or lakes within 200 feet?	Yes. See Section 3.0 of Attachment 8, Standard Dredge and Fill Wetland Permit Application.
2.2	Any impacts to SAS, prime wetlands, or PRAs?	Yes. See Section 3.0 of Attachment 8, Standard Dredge and Fill Wetland Permit Application. Also see attached text.
2.3	Are wetland crossings adequately designed to maintain hydrology,	Yes. See Section I.III and I.XIV of Attachment 2: Attachment A – Minor and Major Project; Section 5.0 of Attachment 8,

	sediment transport, and wildlife passage?	Standard Dredge and Fill Wetland Permit Application.
2.4	Will the project remove all or part of riparian buffer?	The project will conduct work within the tidal buffer zone. See Sections 3.0, 4.0 and 5.0 of Attachment 8, Standard Dredge and Fill Wetland Permit Application.
3.1	Are there rare species, T&E species, or exemplary natural communities in the vicinity of the project?	Yes. See Section 3.0 of Attachment 8, Standard Dredge and Fill Wetland Permit Application.
3.2	Would work occur within "Highest Ranked Habitat in NH" or "Highest Ranked Habitat in Ecological Region"?	Yes. See Section 3.0 of Attachment 8, Standard Dredge and Fill Wetland Permit Application.
3.5	Are stream crossings designed in accordance with the GC 31?	Yes, the proposed project is designed in accordance with GC 31; also see Section 5.0 of Attachment 8, Standard Dredge and Fill Wetland Permit Application.
4.1	Is the project in the 100-year floodplain of an adjacent river or stream?	Yes. See Section 3.0 of Attachment 8, Standard Dredge and Fill Wetland Permit Application.
4.2	Will compensatory flood storage be provided if the project results in a loss of flood storage?	The project would not increase flooding and therefore there is no potential for additional damage or loss to buildings, infrastructure, salt marshes, sand dunes and other valuable coastal resources.
6.0	Does the project have greater than 1 acre of permanent impact?	No, the project will impact less than one acre of regulated area - see attached text. Also see Attachments 6, 8 and 22 of Standard Dredge and Fill Wetland Permit Application.

Please mail 2 copies of the completed form and required material to:

Cultural Resources Staff
Bureau of Environment
NH Department of Transportation
7 Hazen Drive
Concord, NH 03302

RECEIVED
JUN 28 2018

DHR Use Only	
R&C #	9859
Log In Date	___/___/___
Response Date	___/___/___
Sent Date	___/___/___

Request for Project Review by the New Hampshire Division of Historical Resources for Transportation Projects

☒ This is a new submittal.
☐ This is additional information relating to DHR Review and Compliance (R&C)#:

GENERAL PROJECT INFORMATION

DOT Project Name & Number Seabrook-Hampton 15904

Brief Descriptive Project Title Neil R. Underwood Bridge Project

Project Location NH Route 1A

City/Town Seabrook and Hampton, Rockingham Co.

Lead Federal Agency and Contact *(if applicable)* Federal Highway Administration
(Agency providing funds, licenses, or permits)

Permit Type and Permit or Job Reference # X-A001(026)

DOT Environmental Manager *(if applicable)* Marc Laurin

PROJECT SPONSOR INFORMATION

Project Sponsor Name New Hampshire Department of Transportation

Mailing Address PO Box 483/ 7 Hazen Drive Phone Number 603-271-7968

City Concord State NH Zip 03302-048 Email marc.laurin@dot.nh.gov

CONTACT PERSON TO RECEIVE RESPONSE

Name/Company Marc Laurin, NHDOT

Mailing Address PO Box 483/ 7 Hazen Drive Phone Number 603-271-7968

City Concord State NH Zip 03302-048 Email marc.laurin@dot.nh.gov

This form is updated periodically. Please download the current form at http://www.nh.gov/nhdhr/review. *Please refer to the Request for Project Review for Transportation Projects Instructions for direction on completing this form.* Submit 2 copies of this project review form for each project for which review is requested. Include 1 self-addressed stamped envelope to expedite review response. Project submissions will not be accepted via facsimile or e-mail. This form is required. Review request form must be complete for review to begin. Incomplete forms will be sent back to the applicant without comment. Please be aware that this form may only initiate consultation. For some projects, additional information will be needed to complete the Section 106 review. All items and supporting documentation submitted with a review request, including photographs and publications, will be retained by the DOT and the DHR as part of its review records. Items to be kept confidential should be clearly identified. For questions regarding the DHR review process and the DHR's role in it, please visit our website at: http://www.nh.gov/nhdhr/review or contact the R&C Specialist at christina.st.louis@nh.gov or 603.271.3558.

PROJECTS CANNOT BE PROCESSED WITHOUT THIS INFORMATION 9859

Project Boundaries and Description

- ☒ Attach the relevant portion of a 7.5' USGS Map (photocopied or computer-generated) ***indicating the proposed area of potential effect (APE).*** *(See RPR for Transportation Projects Instructions and R&C FAQs for guidance. Note that the APE is subject to approval by lead federal agency and SHPO.)*
- ☒ Attach a detailed narrative description of the proposed project.
- ☒ Attach current engineering plans with tax parcel, landscape, and building references, and areas of proposed excavation, if available.
- ☒ Attach photos of the project area/APE with mapped photo key (overview of project location and area adjacent to project location, and specific areas of proposed impacts and disturbances.) *(Blank photo logs are available on the DHR website. Informative photo captions can be used in place of a photo log.)*
- ☒ A DHR file review must be conducted to identify properties within or adjacent to the APE. Provide file review results in **Table 1.** *(Blank table forms are available on the DHR website.)*
  File review conducted on 06/16/2018.*

  **The DHR recommends that all survey/National Register nomination forms and their Determination of Eligibility (green) sheets are copied for your use in project development.*

Architecture

Are there any buildings, structures (bridges, walls, culverts, etc.) objects, districts or landscapes within the APE? ☒ Yes ☐ No
If no, skip to Archaeology section. If yes, submit all of the following information:

- ☒ Attach completed **Table 2.**
- ☒ Photographs of ***each*** resource or streetscape located within the APE. Add to the mapped photo key and photo log noted above. (Digital photographs are accepted. All photographs must be clear, crisp and focused.)
- ☒ Copies of National Register boundary (listed *or* eligible) mapping, and add National Register boundaries for listed and eligible properties to the 7.5' USGS project map *(if applicable).*

Archaeology

Does the proposed undertaking involve ground-disturbing activity? ☒ Yes ☐ No
If yes, submit all of the following information:

- ☒ Description of current and previous land use and disturbances.
- ☒ Available information concerning known or suspected archaeological resources within the project area (such as cellar holes, wells, foundations, dams, etc.)

Please note that for many projects an architectural and/or archaeological survey or other additional information may be needed to complete the Section 106 process.

AGENCY COMMENT *This Space for DOT and Division of Historical Resources Use Only*

Sent to DHR; Authorized DOT Signature: Jill Edes Date: 6/28/2018

☐ Insufficient information to initiate review.

☒ Additional information is needed in order to complete review.

Comments: More information, particularly on proposed ground disturbance (including river bottom) should be provided for each alternative. Has any remote sensing of Hampton River been completed?
Above-ground: Note that the Hampton Beach Area Form (2009) is a Prop. Area Form w/recommendations for survey, not NR Eligibility determinations. Concurs w/ DOT per conversation w/ Jill E. on 6/28 that a Prop Area Form be prepared for the current project's APE, encompassing visual & direct effects. Suggest preparing a NH Individual Inventory Form for the Underwood Bridge concurrent w/ PAF.

If plans change or resources are discovered in the course of this project, you must contact the Division of Historical Resources as required by federal law and regulation. Commence reaching out to potential Sect. 106 Consulting Parties, which may result in add'l participants aside from PAC.

Authorized DHR Signature: Laura A Black Date: July 11, 2018

Attachment 19

Wetland Report

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

Wetland Field Investigation and Delineation

Rehabilitation or Replacement of Seabrook-Hampton Bridge (No. 235/025)
Seabrook and Hampton, NH

NHDOT Project Number 15904

December 2018, Revised August 2022

FITZGERALD & HALLIDAY, INC.
Innovative Planning, Better Communities

New Hampshire DOT
Department of Transportation

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Appendix A: Figures

Appendix B: Photographs

Appendix C: Function and Value Form

1 INTRODUCTION AND METHODOLOGY

Fitzgerald & Halliday, Inc. (FHI) was retained by HDR Engineering, Inc. (HDR) to identify and delineate tidal wetlands in the vicinity of the proposed project. on the above referenced New Hampshire Department of Transportation (NHDOT) project in the Towns of Seabrook and Hampton, New Hampshire (see Figure 1 in Appendix A). The project entails the rehabilitation or replacement of the Neil R. Underwood Bridge and associated roadway improvements (NHDOT No. 235/025). An Environmental Assessment has been prepared for the project.

The Neil R. Underwood Bridge is approximately 1,199 feet long by 33 feet wide (53 feet wide at the barrier gates), and it spans the Hampton River at the inlet to Hampton Harbor. The Hampton and Blackwater Rivers, as well as Hampton Harbor, lie to the west of the bridge. The Atlantic Ocean lies to the east of the bridge. To the north and south are residential, recreational, and tourism-based development, including the Hampton Beach State Park, which is located north of and on the east side of the bridge, and the Hampton-Seabrook Dunes Wildlife Management Area, which is located west of the south side of the bridge. Figure 1 shows the anticipated limit of disturbance. On June 20-21, 2018, wetland and soil scientists field-investigated the project area for potential wetlands. Since the specific areas of construction were not fully developed at that time, the limits of the field investigation extended beyond the immediate areas adjacent to the bridge to be sure all areas of potential disturbance were investigated. Additional fieldwork was conducted on August 12, 2022 to update the tidal elevations and survey the top-of-bank. The report was then revised with new tidal elevations and updated status regarding agency coordination for listed species.

The wetland delineation was conducted according to both the federal and State of New Hampshire definitions. Documents used to support the inland wetland boundary determinations included: Natural Resources Conservation Service (NRCS) soils mapping; *Field Indicators of Hydric Soils in the United States – Version 8.1* (NRCS, 2017); *Field Indicators for Identifying Hydric Soils in New England – Version 4* (New England Hydric Soils Technical Committee, 2018); and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: North Central and Northeastern Supplement* (U.S. Army Corps of Engineers [USACE], 2012). Additionally, wetland resources were delineated in accordance with State of New Hampshire regulations and guidelines Env-Wt-400 by a New Hampshire Certified Wetland Scientist (NHCWS). Tidal wetland delineations were conducted based on the extent of tidal wetland vegetation, soils and hydrology in accordance with State of New Hampshire Code of Administrative Rules (CAR) Chapter Env-Wt 400 and USACE definitions and requirements.

Based on information obtained from the National Oceanic and Atmospheric Administration's (NOAA's) Fort Point, NH monitoring station, tidal elevations are as follows:

Mean Low Water: -4.83 feet NAVD88

Mean High Water: 3.80 feet NAVD88

According to the State of New Hampshire Env-Wt 101.48, the Highest Observable Tide Line (HOTL) is "a line defining the farthest landward limit of tidal flow, not including storm events, that can be

recognized by indicators such as the presence of a strand line of flotsam and debris, the landward margin of salt tolerant vegetation, or a physical barrier that blocks farther flow of the tide." On June 20-21, 2018, FHI field determined the HOTL elevation at the bridge site, denoting it with green spray paint on the rip rap stone armoring of the northwestern abutment. The HOTL elevation was then surveyed for use in design development. At the request of NHDES, the HOTL was field marked again a single time on August 12, 2022 at 11:30 pm (the lunar tide) by a NH Certified Wetland Scientist in support of the NH Dredge and Fill Permit Application. At the time of the marking the weather was clear and calm. The HOTL was then surveyed by a licensed surveyor (Doucet Survey) on August 16, 2022. The HOTL recorded was 6.20 feet NAVD88.

Wetland functions and values were assessed for the delineated wetlands. The assessment followed the USACE Highway Methodology Workbook Supplement (1999) as well NH Env-Wt 311.10. USACE (1999) is a descriptive approach, documenting 13 potential functions and values, listed below, which may or may not be present within the wetland area being studied. Wetland functions are self-sustaining properties of a wetland ecosystem which exist in the absence of society. Wetland values are societal benefits derived from one or more wetland functions and the physical characteristics associated with the wetland.

USACE (1999) Wetland Functions and Values

1) Groundwater Recharge/Discharge
2) Floodflow Alteration
3) Fish and Shellfish
4) Sediment/Toxicant/Pathogen Retention
5) Nutrient Removal, Retention and Transformation
6) Production Export
7) Sediment/Shoreline Stabilization
8) Wildlife Habitat
9) Recreation Value (Consumptive and Non-consumptive)
10) Educational and/or Scientific Value
11) Uniqueness/Heritage Value
12) Visual Quality/Aesthetic Value
13) Threatened or Endangered Species Habitat Value

In order to understand the context of the wetlands, the function-value assessment referred to the overall complex of surrounding natural resources.

2 SOILS

According to the NRCS soil mapping, soils at and around the bridge site are dominated by Urban land-Hoosic complex and Udorthents (see Figure 2 in Appendix A).

Urban Land-Hoosic Complex

Urban land consists of areas dominated by urban development and infrastructure, with very little soil. The Hoosic soil series consists of very deep, nearly level to very steep, somewhat excessively drained soils formed in glacial outwash with bedrock deeper than 60 inches. These soils occur on outwash plains, terraces, kames, eskers, and moraines. Rock fragments constitute a high percentage in this soil, with cobblestones and flagstones making up as much as 15 percent of the solum and up to 20 percent of the substratum. These soils formed in water-sorted sandy and gravelly material containing varying proportions of sandstone, shale, phyllite and slate.

Udorthents

This soil consists of areas that have been altered by cutting or filling. Slopes are mainly 0 to 25 percent. The material in these areas is mostly loamy, and in the filled areas it is more than 20 inches thick. Some of the filled areas are on flood plains, in tidal marshes, and on areas of poorly drained and very poorly drained soils. Included with this unit in mapping are small areas of soils that have not been cut or filled. Also included are a few larger urbanized areas and a few small areas containing material such as logs, tree stumps, concrete, and industrial debris. The properties and characteristics of this unit are variable, and the unit requires on-site investigation and evaluation for most uses.

3 WETLANDS

Wetland types were identified according to the Cowardin et. al. (1979) system of wetland classification. According to the National Wetland Inventory, Estuarine and Marine Wetlands are located east and west of the bridge, on both the north and south sides of the Hampton Harbor Inlet (see Figure 3 in Appendix A). No vegetated tidal wetlands or inland wetlands were found within the site limits during the field investigation. Although large areas of vegetated tidal wetlands do exist in the Hampton River system, they are more than 2,000 feet to the west of the project area. Small pockets of tidal vegetated wetlands may occur along the developed shorefront of the inner harbor to the north and south of the bridge, but these are also outside the project area.

The primary wetland type within the vicinity of the bridge is estuarine intertidal and subtidal wetlands. The deeper portion of the harbor is classified as Estuarine subtidal unconsolidated bottom subtidal (E1UBL). Intertidal areas consist of Estuarine intertidal unconsolidated bottom sand (E2US2) and their regularly (N) and irregularly flooded (P) analogs. Some of these E2US2 sand flats have interspersed cobble/gravel but are still dominated by sand. Smaller areas of E2US2 irregularly exposed (M) sand flats are located to the east of the project area. Although existing NWI mapping shows “mud” flats on the south side of the harbor in the project area, these areas were found to be sandy rather than muddy, and therefore are classified as ESUS2N on Figure 3.

The lower portions of the abutments, although anthropogenic in nature, would classify as estuarine intertidal rocky shore rubble regularly flooded (E2RS2N), since they are armored with large stone material. The upper portion of these abutments would classify similarly, except they are irregularly flooded (E2RS2P). These classifications are generally consistent with the New Hampshire Referenced

Analysis and Information Transfer System (NH GRANIT) natural and coastal resources GIS data; however, minor adjustments were made to Figure 3 based on field investigations. Representative photographs of the wetlands in the vicinity of the bridge are provided in Appendix B.

3.1 Functions and Values

Based on Env-Wt 311.10, and the USACE Highway Methodology Workbook Supplement (USACE, 1999), the following functions and values are associated with the estuarine resources within the project area:

1. Ecological Integrity
2. Educational Potential
3. Fish and Aquatic Life Habitat (Principal function)
4. Noteworthiness
5. Production Export
6. Scenic Quality
7. Uniqueness/Heritage
8. Wetland Based Recreation (Principal value)
9. Wetland-dependent wildlife habitat (Principal function)

The USACE Function and Value Form has been prepared and can be found in Appendix C.

4 NATURAL AND COASTAL RESOURCES

The natural and coastal resources that dominate the immediate project vicinity are Hampton Harbor and adjacent sand dune systems. A blue mussel bed, relatively small in size, is mapped in the vicinity of the northern abutment by the State of New Hampshire. The boundaries of the bed were delineated in April 2019 and again in August 2022. In August 2022, small mussel beds were also noted within narrow rocky areas at the base of Piers 1 and 2. According to the New Hampshire Coastal Resource Mapper, no eelgrass (*Zostera marina*) is located within the project. This was confirmed through correspondence with Frederick Short, a researcher with the University of New Hampshire's School of Marine Science and Ocean Engineering. Large areas of sandflat exist in the project area; these areas are shown on Figure 3 in Appendix A. During field work, sandflats on the southern portion of the harbor were mapped during low tide with a sub-meter GPS unit. Also noted during field work was substantial erosion of dune and beach areas, and re-shifting of sand flats, resulting from storm events early in the year. The upland habitats are dominated by shrub, tree, and vine species, including staghorn sumac (*Rhus typhina*), pin cherry (*Prunus pensylvanica*), oriental bittersweet (*Celastrus orbiculatus*), and rugosa rose (*Rosa rugosa*). A small patch of invasive swallowwort (*Cynanchum sp.*) was also discovered on the southeastern approach slope of the road. Other invasive species documented on the site include oriental bittersweet, autumn olive (*Elaeagnus umbellata*), Japanese barberry (*Berberis thunbergii*), bush honeysuckle (*Lonicera* sp.), multiflora rose (*Rosa multiflora*), and spotted knapweed (*Centarea stoebe*). Discrete stands of invasive species infestations were mapped with a sub-meter GPS unit during the field work.

4.1 Hampton Harbor

Hampton Harbor is a tidal harbor that receives flow from the Hampton and Blackwater Rivers to the west. The Atlantic Ocean lies to the east of the bridge.

According to the NOAA EFH Mapper, the project is included in an area mapped by NOAA-National Marine Fisheries Service as Essential Fish Habitat (EFH). The NOAA EFH Mapper identified the following species and life stages:

- Northern shortfin squid (*Illex illecebrosus*) for adults
- Longfin inshore squid (*Loligo pealeii*) for juveniles, and adults
- Atlantic mackerel (*Scomber scombrus*) for eggs, larvae, and juveniles
- Bluefish (*Pomatomus saltatrix*) for eggs, larvae, juveniles, and adults
- Atlantic butterfish (*Peprilus triacanthus*) for juveniles, and adults
- Spiny dogfish (*Squalus acanthias*) for subadults and adults
- Atlantic surfclam (*Spisula solidissima*) for juveniles, and adults
- American plaice (*Hippoglossoides platessoides*) for juveniles and adults
- Atlantic cod (*Gadus morhua*) for eggs, larvae, juveniles and adults
- Atlantic wolffish (*Anarhichas lupus*) eggs, larvae, juveniles and adults
- Haddock (*Melanogrammus aeglefinus*) for juveniles
- Ocean pout (*Zoarces americanus*) for eggs, juveniles, and adults
- Pollock (*Pollachius virens*) for eggs, larvae, and juveniles
- White hake (*Urophycis tenuis*) for eggs, larvae, juveniles and adults
- Windowpane flounder (*Scophthalmus aquosus*) for eggs, larvae, juveniles and adults
- Winter flounder (*Pseudopleuronectes americanus*) for eggs, larvae, juveniles, and adults
- Witch flounder (*Glyptocephalus cynoglossus*) for adults
- Yellowtail flounder (*Pleuronectes ferrugineus*) for juveniles and adults
- Silver hake (*Merluccius bilinearis*) for eggs, larvae, and adults
- Red hake (*Urophycis chuss*) for eggs, larvae, juveniles and adults
- Monkfish (*Lophius americanus*) for eggs, larvae, juveniles and adults
- Smooth skate (*Malacoraja senta*) for juveniles
- Little skate (*Leucoraja erinacea*) for juveniles and adults
- Winter skate (*Leucoraja ocellata*) for juveniles and adults
- Atlantic herring (*Clupea harengus*) for larvae, juveniles and adults

In addition, according to NOAA, several NOAA-Trust resources are known to occur in the project area, including American lobster (*Homarus americanus*), and various shellfish, and diadromous fish species, all of which are prey for federally-managed species, and are therefore considered a component of the EFH for them. An EFH Assessment was completed for these species in August 2021.

4.2 Threatened and Endangered Species

Based on a DataCheck response from the New Hampshire Natural Heritage Bureau (NHNHB) received on July 2, 2018 (see Appendix D), three critical community types occur within or adjacent to the project area, including: Beach Grass Grassland, Intertidal Flat, and Subtidal System. Two listed avian species were identified as potentially occurring within the project area: Least Tern (*Sternula antillarum*) [NH endangered] and Piping Plover (*Charadrius melodus*) [NH endangered/Federal threatened]. An updated DataCheck was submitted in July 2022, and a response received on August 3, 2022, identified a third avian species, the Purple Martin (*Progne subis*) (see Appendix D). Nine plant species were also identified by NHNHB as potentially occurring in the vicinity of the project (see list below). Field survey conducted on June 21, 2018 and August 24, 2018 confirmed the presence of six of these species within the project area (shown in bold):

- Dwarf glasswort (*Salicornia bigelovii*) (NH endangered)
- **Field wormwood** (*Artemisia campestris* ssp. *caudata*) (NH endangered)
- **Gray's umbrella sedge** (*Cyperus grayi*) (NH endangered)
- **Hairy hudsonia** (*Hudsonia tomentosa*) (NH threatened)
- Long-spined sandbur (*Cenchrus longispinus*) (NH endangered)
- **Sand dropseed** (*Sporobolus cryptandrus*) (NH endangered)
- **Seaside sandmat** (*Euphorbia polygonifolia*) (NH endangered)
- **Seaside threeawn** (*Aristida tuberculosa*) (NH endangered)
- Seaside-sandwort (*Honckenya peploides* ssp. *robusta*) (NH endangered)

These species were again confirmed on the site and populations re-mapped through field survey in August 2022.

Email correspondence with NOAA dated July 13, 2018 identified four species of Endangered Species Act (ESA)-listed threatened or endangered sea turtles that are seasonally present in Hampton Harbor including its bays and tributaries: the threatened Northwest Atlantic Ocean distinct population segment (DPS) of loggerhead sea turtle (*Caretta caretta*), the threatened North Atlantic Distinct Population Segment (DPS) of green sea turtle (*Chelonia mydas*), the endangered Kemp's ridley sea turtle (*Lepidochelys kempii*) and leatherback sea turtle (*Dermochelys coriacea*). In addition, NOAA indicated the presence of the New York Bight, Chesapeake Bay, South Atlantic and Carolina DPS of Atlantic sturgeon (*Acipenser oxyrinchus*) (endangered); the Gulf of Maine DPS of Atlantic sturgeon (threatened); and the shortnose sturgeon (*Acipenser brevirostrum*) (endangered). A Programmatic Biological Assessment (BA) was prepared for these species in December 2020.

Based on an IPaC (Information for Planning and Consultation) query on June 27, 2018, the US Fish and Wildlife Service (USFWS) identified two potential listed species which may occur in the project area: the Red Knot (*Calidris canutus*) [Federally Threatened] and Northern Long-eared Bat (*Myotis septentrionalis*) [Federally Threatened]. During field work on June 21, a Roseate Tern (*Sterna dougallii*) [Federally Endangered] was also observed in the southwest vicinity of the bridge and an exclosure surrounding a Piping Plover (*Charadrius melodus*) nesting site was documented southwest of the bridge. Following coordination with USFWS, a BA was prepared for three avian species, the Red Knot, Roseate Tern, and Piping Plover.

The IPaC also identified the potential presence of the federally Threatened Northern Long-Eared Bat (*Miotis septentrionalis*). Inspections of the bridge and an adjacent small abandoned pumphouse located to the northwest of the bridge were undertaken for the Northern Long-eared Bat , but no evidence of the species was found on or within either structure. An IPaC dated September 23, 2022 identified the same species.

REFERENCES and LITERATURE CITED

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. Laroe. Classifications of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Office of Biological Services, Fish and Wildlife Services: Washington, DC, 1979.

Kollmorgen Instruments Corp. Munsell Soil Color Charts, 1992 Revised Edition. Newburgh, New York: 1992.

Lichvar, R.W. The National Wetland Plant List, ERDC/CRREL TR-12-11. U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory: Hanover, NH, 2012.

National Oceanographic and Atmospheric Administration (NOAA). Summary of Essential Fish Habitat Designations (EFH), accessed June 2018 at https://www.greateratlantic.fisheries.noaa.gov/hcd/nh1.html.

National Technical Committee for Hydric Soils. Hydric Soils of the United States. U.S. Department of Agriculture: Washington, DC, 1991.

New England Fishery Management Council. Omnibus Essential Fish Habitat Amendment 2 Final Environmental Impact Statement (EIS). October 2016.

New Hampshire Coastal Viewer, accessed August 2018 at: http://nhcoastalviewer.unh.edu/Html5Viewer/index.html?viewer=NHCoastalViewer.

Society of Soil Scientists of Northern New England, New England Hydric Soils Technical Committee. Field Indicators for Identifying Hydric Soils in New England – Version 4. 2018.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions, accessed August 2018 at http://soils.usda.gov/technical/classification/osd/index.html.

Tiner, Ralph W. A Field Guide to the Coastal Wetland Plants of the Northeastern United States. 1987.

USACE. Highway Methodology Workbook Supplement: Wetland Functions and Values - A Descriptive Approach. Publication no. NAEEP-360-1-30a. November 1995. 32 pp.

USACE Engineer Research Development Center. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region. January 2012.

USDA, NRCS. The PLANTS Database accessed June 2018 at http://plants.usda.gov.

USDA. Field Indicators of Hydric Soils in the United States – Version 8.1. NRCS: 2017.

USFWS. IPaC Report. June 27, 2018.

ATTACHMENTS

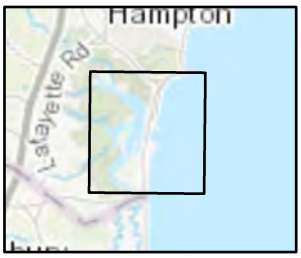
Attached to this report are the following supporting materials:

- Figures 1-3 (Appendix A)
- Photographs of the wetland system (Appendix B)
- Function and Value Form (Appendix C)

Respectfully submitted,

Daniel A. Hageman
New Hampshire Certified Wetland Scientist No. 275
Professional Soil Scientist
Fitzgerald & Halliday, Inc.

APPENDIX A: FIGURES



Legend

Project Limits of Disturbance

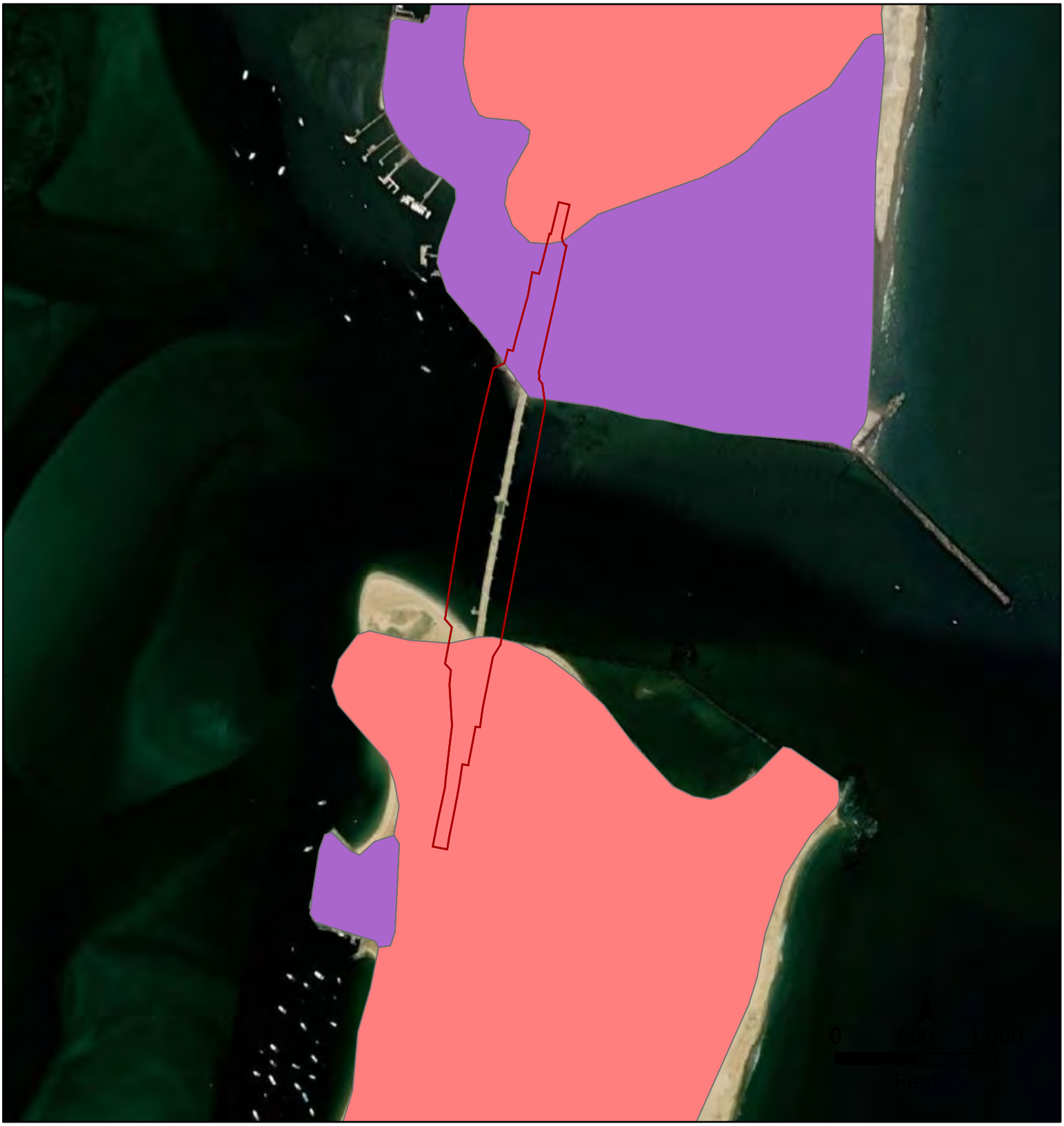
Seabrook-Hampton 15904
Seabrook and Hampton,
New Hampshire

Figure 1
Project Overview Map

Map Produced: 10/19/2022

Data Source: FHI, USGS, ESRI

FHI studio



Legend

Project Limits of Disturbance

Soil Series

Udorthents, smoothed

Urban land-Hoosic complex, 3 to 15 percent slopes

Map Produced: 10/19/2022

Data Source: FHI, ESRI, NRCS, NH Granit

Seabrook-Hampton 15904
Seabrook and Hampton, New Hampshire

Figure 2
Soils Map

FHI studio

Map Produced: 11/10/2022

Data Source: FHI, ESRI, NWI

Legend

- Project Limits of Disturbance

Wetland Type

- E1UBL
- E2EM1P
- E2RSN
- E2RSP
- E2US2M
- E2US2N
- E2US2P
- E2US3N
- M2RSN
- M2US2M
- M2US2N
- M2US2P

Seabrook-Hampton 15904
Seabrook and Hampton, New Hampshire

Figure 3

Wetlands Map

FHI studio

APPENDIX B: PHOTOGRAPHS

Photo 1: Rocky shoreline looking west at northern abutment

Photo 2: Rocky shoreline, sand flats and dune habitat looking southeast at southern abutment; note erosion from spring storms

Photo 3: Sand flats looking east from southern abutment

Photo 4: Rocky shoreline, estuarine subtidal wetlands, and field-marked HOTL elevation looking south from northern abutment

APPENDIX C: FUNCTION AND VALUE FORM

Wetland Function-Value Evaluation Form

Total area of wetland_____ Human made?_____ Is wetland part of a wildlife corridor?_____ or a "habitat island"?_____

Adjacent land use_____ Distance to nearest roadway or other development_____

Dominant wetland systems present_____ Contiguous undeveloped buffer zone present_____

Is the wetland a separate hydraulic system?_____ If not, where does the wetland lie in the drainage basin?_____

How many tributaries contribute to the wetland?_____Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D._____

Latitude_____ Longitude_____

Prepared by:_____ Date_____

Wetland Impact:
Type_____Area_____

Evaluation based on:
Office_____ Field_____

Corps manual wetland delineation completed? Y_____ N_____

Function/Value	Suitability Y	Suitability N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
 Groundwater Recharge/Discharge					
 Floodflow Alteration					
Fish and Shellfish Habitat					
 Sediment/Toxicant Retention					
 Nutrient Removal					
 Production Export					
 Sediment/Shoreline Stabilization					
 Wildlife Habitat					
 Recreation					
 Educational/Scientific Value					
 Uniqueness/Heritage					
 Visual Quality/Aesthetics					
ES Endangered Species Habitat					
Other					

Notes:

* Refer to backup list of numbered considerations.

Attachment 20

Photographs

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

Northeast Quadrant: Looking southwest at bridge and Blue Mussel beds

Northeast Quadrant: Looking northeast at Hampton Beach State Park with Blue Mussel beds

Northeast Quadrant: Looking south along east side of bridge in tidal buffer zone (TBZ)

Northeast Quadrant: Looking southwest at bridge

Northwest Quadrant: Looking southeast at bridge in TBZ showing shrub vegetation

Northwest Quadrant: Looking southeast at bridge in TBZ showing rocky shoreline

Northwest Quadrant: Looking northeast at bridge abutment in intertidal area

Northwest Quadrant: Looking southeast at bridge in intertidal area

Southeast Quadrant: Looking northwest at bridge in TBZ

Southeast Quadrant: Looking west at bridge in TBZ and Intertidal area

Southeast Quadrant: Looking north along east side of bridge in TBZ

Southeast Quadrant: Looking southeast from TBZ and dune habitat east of roadway

Southwest Quadrant: Looking southeast at bridge in TBZ and intertidal area

Southwest Quadrant: Looking east at bridge in TBZ and intertidal area

Southwest Quadrant: Looking west from bridge in intertidal zone

Southwest Quadrant: Looking north towards bridge across dune habitat

Southwest Quadrant: Looking north over dune habitat towards bridge from just outside TBZ

Attachment 21

Construction Sequence Narrative

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

CONSTRUCTION SCHEDULE/SEQUENCE NARRATIVE

Introduction

The following is a preliminary construction sequence and schedule of the major activities of Project Seabrook-Hampton 15904, the Replacement of the Hampton Harbor Bridge, NH 1A over Hampton River. It is based on an anticipated project advertising date of 9/23/2023 and receipt of Governor and Council approval in November of 2023. The estimated Notice to Proceed is January 15, 2024.

The following construction schedule and sequence is controlled by making every effort to limit "in-water work" to between November 15 and March 15. "In-Water Work" is defined as work which would cause potential soil disturbance/turbidity, noise or other impacts to marine life and aquatic vegetation.

A table showing four milestones for the project and 30 construction activities has been prepared. Each activity has an accompanying duration, early start date and early finish date, as applicable.

Project Startup and Warm Weather Construction Season 2024

Receipt of Notice to Proceed in January of 2024 will not allow sufficient time for the contractor to prepare and get approved construction submittals for in-water work in the window that ends March 15, 2024. Construction activities will be limited to "on land" work that has minimal impacts to existing vehicular or pedestrian traffic on the Route 1A corridor. This includes construction of temporary access along the west edge of Existing Route 1A at the north and south approaches to the proposed bridge "On land" construction activities related to installation of the temporary work trestle to be installed west of the proposed bridge can be done in the fall of 2024, as can "on land" activities in support of constructing the Pier 1 and Pier 6 cofferdams, which are at/near the water's edge in Hampton and Seabrook.

Winter Construction Season and In-Water Construction Season (11/15/2024 – 3/15/2025)

Installation of the temporary work trestle west of the proposed bridge will be the main construction activity. Work should progress from both shorelines using barges to drive temporary steel piling and install the temporary work platforms. Other "in-water" activities to be completed in this window are completion of the steel-sheeting cofferdams at Piers

1,2,5 and 6 and installation of the drilled shaft steel casings at Piers 3 and 4. Once again, this should have minimal impacts to existing pedestrian or vehicular traffic on Route 1A.

Warm Weather Construction Season 2025

Construction activities will focus on building the structure of Piers 1 – 6, including the drilled shaft foundations, the pier footings, pier stems and pier caps. The Pier 3 and 4 footings are located above the existing sandy bottom of the harbor. Once the Pier 3 and 4 drilled shafts are completed, within their steel casings, prefabricated forms for the pier footings will be lowered into place and secured to the drilled shafts, then dewatered to a filter bag or sedimentation basin located out of the Tidal Buffer Zone. None of this pier work is considered "in-water" work as the work is confined by the cofferdams, drilled shaft casings, and prefabricated tub forms. In mid-July, Traffic Control Phase 2 will be implemented to move Route 1A traffic on the approaches to the existing bridge eastward. With a minor lane shift on existing Route 1A, Abutments A and B can be fully constructed, allowing construction of the full width of the proposed deck along the entire length of the new bridge. As structures are completed, installation of the proposed bridge superstructure (girders, diaphragms, and deck) can commence.

Winter Construction Season and In-Water Construction Season (11/15/2025 – 3/15/2026)

The primary construction activity will be erection of the proposed bridge steel girders and framing and installation of the bridge deck. It is expected that the bridge steel will be completed prior to the onset of winter, and that the concrete bridge deck will be constructed based on the contractor pouring sequence, in the winter and early spring. As the western temporary work trestle is no longer needed, it will be deconstructed. In order to allow for flexibility in the contractor schedule, full removal of the western temporary work trestle is not programmed until the next winter construction season.

Construction of the westerly portion of the southern and northern approaches to binder grade will occur during this season. In addition, the northwest retaining wall and sidewalk along Old Ocean Boulevard will be constructed. This will be done to allow for moving traffic to the proposed bridge.

Warm Weather Construction Season 2026

In the spring of 2026, Traffic Control Phase 3 will be implemented, which will move southbound Route 1A traffic onto the new bridge. Northbound Route 1A traffic will stay on the current Route 1A alignment, including the existing bridge.

The remaining roadway approach work will be completed between Station 4073 and Station 4080 south of the bridge and between Station 4098+50 and Station 4103 north of the bridge.

By the summer, Traffic Control Phase 4 will be implemented, which will move northbound Route 1A traffic onto the partially-constructed new bridge. This will allow for construction of temporary access along the eastern side of Route 1A in advance of removal of the existing bridge.

Winter Construction Season and In-Water Construction Season (11/15/2026 – 3/15/2027)

Traffic Control Phase 4 will remain in effect, with NB and SB traffic on the new alignment and new full-width deck of the new bridge. The northeastern retaining wall on the north approach will be constructed. The treatment swale and underground infiltration system will be constructed. The remaining finish roadway work on the north and south approaches will be completed.

Removal of the western temporary work trestle will be completed and construction of the temporary work trestle east of the existing bridge and the confinement cofferdams around the existing piers will be completed in the "in-water" work window. With these measures in place the existing bridge superstructure and substructures will be deconstructed.

Warm Weather Construction Season 2027

The new bridge and approach roadways will be paved by early May of 2027. That will allow for pedestrian and vehicular traffic to be in the final configuration on the new bridge by mid-May 2027.

Final restoration measures and removal of sediment controls at the new roadway and bridge will be completed in late spring of 2027.

Portions of the temporary work trestle east of the existing bridge will be deconstructed as much as allowed outside the "in-water" work window of the project.

In-Water Construction Season (11/15/2027 – 3/15/2028)

The remaining sections of the temporary work trestle east of the existing bridge and the remaining cofferdams from substruction demolition activities will be deconstructed. Final restoration measures and removal of sediment controls at the east trestle work area and construction access areas will be completed. Final project completion will be 3/15/2028.

NH 1A over Hampton River - Summary Schedule

Activity ID	Activity Description	Calendar ID	Duration	Early Start	Early Finish
Milestones					
1	Notice to Proceed	Days	0	1/15/2024	
2	New bridge partially open to Phase 3 traffic				5/8/2026
3	New bridge fully open to traffic final condition				5/17/2027
4	Project completion				3/15/2028
Construction					
C1	Mobilize to site	Days	30	2/15/2024	3/14/2024
C2	Construct temp. access along west edge of existing Route 1A on north and south approaches	Days	260	2/14/2024	9/11/2024
C3	Construct temporary bridge trestle west of proposed bridge (In-water limited to 11/15-3/15)	Days	150	9/15/2024	3/15/2025
C4	Construct cofferdams at Piers 1, 2, 5, & 6 (In-water limited to 11/15-3/15)	Days	90	9/15/2024	3/15/2025
C5	Construct drilled shafts at Piers 1, 2, 5, & 6 (inside cofferdams; not in-water work)	Days	180	3/17/2025	9/25/2025
C6	Construct Piers 1, 2, 5, & 6 footings stem and cap	Days	180	4/7/2025	11/14/2025
C7	Construct cased drilled shafts at Piers 3 & 4 (installation of casing in-water work, rest done inside casing)	Days	90	1/15/2025	4/15/2025
C8	Construct formwork enclosure for Piers 3 & 4 footing and dewater (lower into place on shafts)	Days	20	3/17/2025	4/29/2025
C9	Construct Piers 3 & 4 footing stem and cap	Days	90	4/1/2025	7/15/2025
C10	Implement TCP Phase 2 to shift traffic eastward on existing alignment at approaches	Days	10	7/16/2025	7/26/2025
C11	Construct Abutments A and B (no in-water work). This will require a lane shift on Route 1A near both abutments.	Days	120	7/27/2025	11/24/2025
C12	Construct full width of the proposed bridge superstructure from Abutment A to Abutment B	Days	180	9/15/2025	5/8/2026
C13	Construct westerly portion of southern and northern approaches to binder grade to support TCP Phase 3	Days	60	9/29/2025	4/15/2026
C14	Construct northwest retaining wall and sidewalk along Old Ocean Boulevard	Days	30	1/19/2026	4/15/2026
C15	Implement TCP Phase 3 and shift SB traffic onto new bridge	Days	10	5/8/2026	5/18/2026
C16	Perform remaining roadway approach work (Sta 4073 to Sta 4080 and Sta 4098+50 to Sta 4103)	Days	60	5/18/2026	7/24/2026
C17	Implement TCP Phase 4 and shift NB traffic onto new bridge	Days	10	7/24/2026	8/3/2026
C18	Construct temporary construction access along eastern edge of existing Route 1A	Days	45	8/3/2026	9/25/2026
C19	Deconstruct temporary bridge trestle west of proposed bridge	Days	90	11/15/2026	3/15/2027
C20	Construct temporary bridge trestle along eastern side of existing bridge (in-water starts 11/15)	Days	90	9/28/2026	2/15/2027
C21	Deconstruct existing bridge out of water	Days	60	9/28/2026	12/18/2026
C22	Deconstruct existing bridge in water	Days	60	1/11/2027	3/15/2027
C23	Construct easterly wingwalls at abutments A and B	Days	90	8/3/2026	11/6/2026
C24	Construct northeastern retaining wall	Days	30	2/22/2027	3/26/2027
C25	Construct treatment swale and underground infiltration system	Days	30	3/29/2027	4/30/2027
C26	Finish remaining roadway approach work (drainage structures, final wearing course, striping)	Days	45	3/8/2027	4/30/2027
C27	Establish final traffic configuration on proposed bridge and approaches	Days	14	5/3/2027	5/17/2027
C28	Provide final restoration measures and remove sediment controls except around eastern trestle	Days	30	5/17/2027	6/14/2027
C29	Deconstruct temporary bridge trestle on eastern side of existing bridge	Days	60	11/15/2027	1/21/2028
C30	Provide final restoration measures and remove sediment controls around eastern trestle	Days	50	1/25/2028	3/15/2028

Attachment 22

Permit Plans

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

WETLAND PERMITTING PLANS
FEDERAL AID PROJECT

FEDERAL PROJECT NO. X-A001(026)
N.H. PROJECT NO. 15904
NH ROUTE 1A (OCEAN BOULEVARD)

DESIGN DATA

AVERAGE DAILY TRAFFIC 20 20	9300
AVERAGE DAILY TRAFFIC 20 42	13764
PERCENT OF TRUCKS	7%
DESIGN SPEED	40 MPH
LENGTH OF PROJECT	3000 FT.

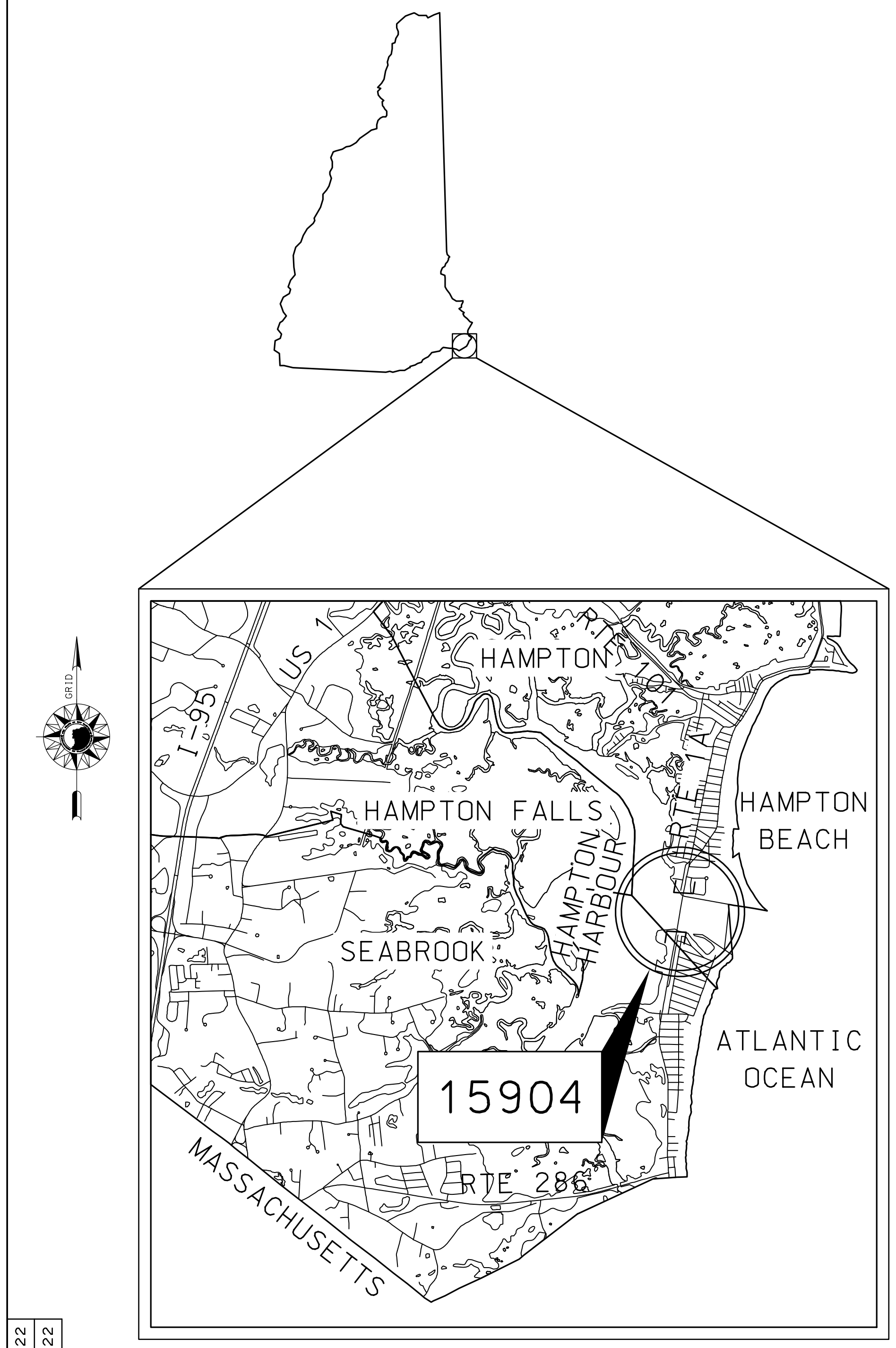
PROJECT DATUMS

HORIZONTAL DATUM	STATE OF NH (ZONE 2800) NAD83
VERTICAL DATUM	NAVD88

THE MLLW TO NAVD88 CORRECTION USED FOR THIS PROJECT IS 5.17 FEET. THIS CORRECTION IS REFERENCE FROM NOAA'S V-DATUM MODEL VERSION 3.9, MA/NH REGION VERSION 1.3, IN THE VICINITY OF HAMPTON HARBOR, NEW HAMPSHIRE. NAVD88 IS ABOVE MLLW; THEREFORE THE CORRECTION SHOULD BE SUBTRACTED FROM MLLW TO CONVERT TO NAVD88 (I.E. USING NAVD88 DATUM, MLLW = -5.17 FT.)

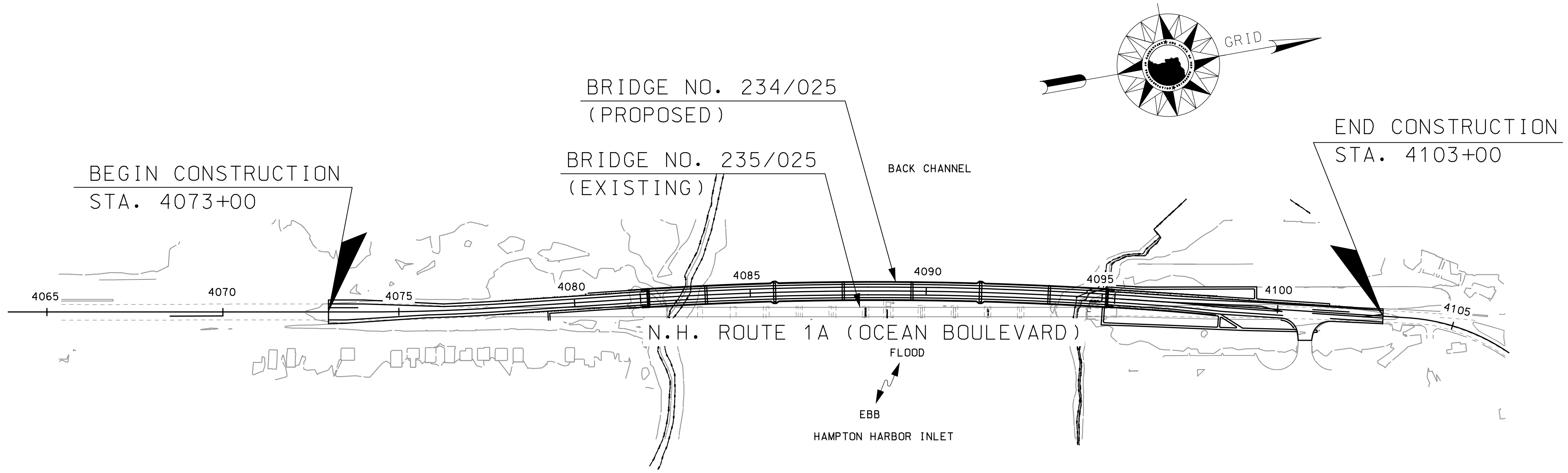
PROJECT ELEVATIONS (NAVD88)

MEAN LOWER LOW WATER (MLLW)	-5.17 FT
MEAN LOW WATER (MLW)	-4.83 FT.
MEAN HIGH WATER (MHW)	3.80 FT.
HIGHEST OBSERVABLE TIDE LINE (HOTL)	6.20 FT.
100 YEAR FLOOD PLAIN (FP100)	8.00 FT.



LOCATION MAP

GRAPHIC SCALE



TOWNS OF SEABROOK & HAMPTON

COUNTY OF ROCKINGHAM

SCALE: 1" = 200'

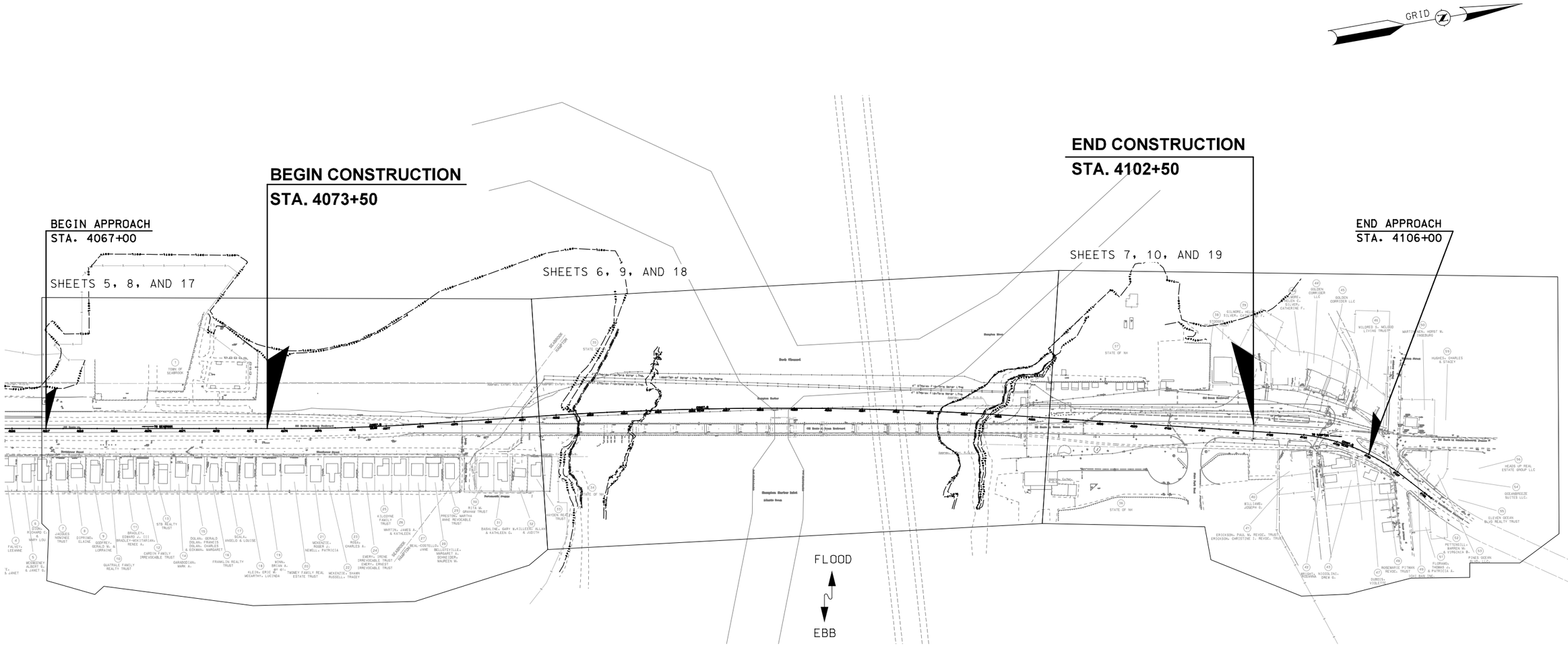
MARCH 9, 2023

DRAWN BY LHS DATE 08/2022
CHECKED BY PJL DATE 08/2022

HDR

NHDOT THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
X-A001(026)	15904	1	21



GENERAL NOTES

1. REFERENCE: HAMPTON SEABROOK BRIDGE D.S. PROJECT NO. 4827

2. FIELD SURVEY PERFORMED BY S.N.F. & J.P.E. (DOUCET SURVEY) DURING MAY & JULY 2022 USING A TRIMBLE S6 TOTAL STATION WITH A TRIMBLE TSC3 DATA COLLECTOR AND A TRIMBLE DINI DIGITAL AUTO LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.

3. HORIZONTAL ORIENTATION BASED ON NH STATE PLANE COORDINATES NAD83/86 HOLDING DISKS 197-0450 & 197-0440.

4. VERTICAL DATUM IS NAVD88 HOLDING DISKS 197-0450 (ELEVATION=20.38') AND 197-0440 (ELEVATION=20.43').

5. PROPER FIELD PROCEDURES WERE FOLLOWED IN ORDER TO GENERATE CONTOURS AT 2' INTERVALS. ANY MODIFICATION OF THIS INTERVAL WILL DIMINISH THE INTEGRITY OF THE DATA, AND DOUCET SURVEY. WILL NOT BE RESPONSIBLE FOR ANY SUCH ALTERATION PERFORMED BY THE USER.

6. A MULTIBEAM BATHYMETRIC SURVEY WAS PERFORMED BY CR ENVIRONMENTAL, INC. BETWEEN MAY 16-18, 2022. A STRONG WESTERLY WIND (20 KNOTS WITH GUSTS NEAR 40 KNOTS) AND ASSOCIATED WAVES IMPEDED NAVIGATION DURING THE SURVEY AND PLANNED TRANSECT ORIENTATIONS WERE MODIFIED IN REAL TIME TO ADDRESS SAFETY CONCERNS. STATISTICAL ANALYSIS OF MULTIBEAM BATHYMETRIC DATA AT TRANSECT INTERSECTIONS SHOWS A MEAN VERTICAL UNCERTAINTY OF 0.85 FEET. A COMPLETE REPORT OF CR ENVIRONMENTAL'S WORK WILL BE PROVIDED TO THE CLIENT.

7. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON OBSERVED PHYSICAL EVIDENCE AND PAINT MARKS FOUND ON-SITE.

8. THE ACCURACY OF MEASURED UTILITY INVERTS AND PIPE SIZES/TYPES IS SUBJECT TO NUMEROUS FIELD CONDITIONS, INCLUDING: THE ABILITY TO MAKE VISUAL OBSERVATIONS, DIRECT ACCESS TO THE VARIOUS ELEMENTS, MANHOLE CONFIGURATION, ETC.

9. ALL UNDERGROUND UTILITIES (ELECTRIC, GAS, TEL. WATER, SEWER DRAIN SERVICES) ARE SHOWN IN SCHEMATIC FASHION. THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK WHATSOEVER SHALL BE UNDERTAKEN USING THIS PLAN TO LOCATE THE ABOVE SERVICES. CONSULT WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATIONS FOR INFORMATION REGARDING SUCH. CALL DIG-SAFE AT 1-888-DIG-SAFE.

10. COORDINATES AND DISTANCES SHOWN HEREON ARE GROUND IN US SURVEY FEET. TO CONVERT THESE GROUND DISTANCES TO GRID DISTANCES, MULTIPLY BY A COMBINED FACTOR OF 1.00002910 (AS CALCULATED BY TRIMBLE BUSINESS CENTER OFFICE SOFTWARE, USING DISK 197-0450 AS THE BASE POINT). ACCORDING TO NHDOT SURVEY, THE PUBLISHED COORDINATES ON DISK 197-0450 ARE INCORRECT. THE COORDINATES THEY PROVIDED (AND WHICH WERE USED) ARE: NORTHING=144835.79, EASTING=1211947.93.

11. DANIEL A. HAGEMAN, CERTIFIED WETLAND SCIENTIST NO. 275, OF FHI STUDIO, HARTFORD, CONNECTICUT, PERFORMED THE WETLAND MAPPING ON AUGUST 12, 2022 ACCORDING TO THE USACE WETLAND DELINEATION MANUAL AND THE REGIONAL SUPPLEMENT TO THE USACE WETLAND MANUAL: NORTHCENTRAL AND NORTHEAST REGION, VERSION 2.0, JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.

12. PER DANIEL A. HAGEMAN (NHCWS), "THERE ARE NO INLAND WETLANDS AND NO VEGETATED TIDAL WETLANDS IN THE SURVEY AREA." FOR PERMITTING PURPOSES, THE FEDERAL AND STATE JURISDICTIONAL "HIGHEST OBSERVABLE TIDE LINE (HOTL)" WILL BE THE SURVEYED ELEVATION OF THE WATER AS SHOWN, AND AS MARKED IN THE FIELD BY MR. HAGEMAN ON AUGUST 12, 2022 AT 11:30 PM DURING THE LUNAR HIGH TIDE.

REVISIONS AFTER PROPOSAL

NUMBER	DESCRIPTION	STATION	STATION	DATE

SDR PROCESSED	NHDOT	DATE -
NEW DESIGN	LHS	DATE 08/2022
SHEET CHECKED	PJL	DATE 09/2022
AS BUILT DETAILS		DATE

STATE OF NEW HAMPSHIRE

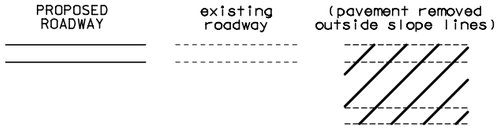
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

KEY PLAN

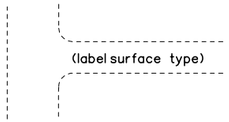
MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
KEY001	15904Wet_Loc	15904	2	21

GENERAL

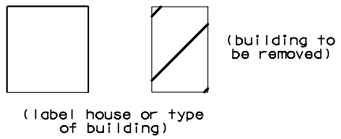
EDGE OF PAVEMENT
TRAVELED WAY



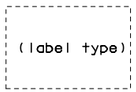
DRIVEWAYS



BUILDINGS

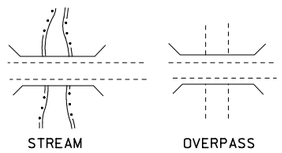


FOUNDATION



LEACH FIELD

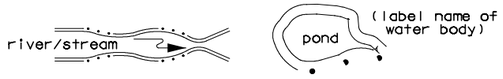
BRIDGE CROSSINGS



STEPS AND WALK

INTERMITTENT WATER COURSE

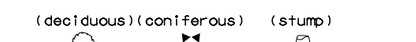
SHORE LINE



POTENTIAL WET AREA SYMBOL

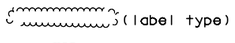
BRUSH OR WOODS LINE

TREES (PLANS)



TREE OR STUMP (CROSS-SECTIONS)

HEDGE



MONITORING WELL

WELL

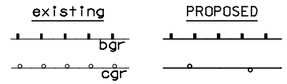
FLAG POLE

ORIGINAL GROUND (TYPICALS)

ROCK OUTCROP

ROCK LINE (TYPICALS & SECTIONS ONLY)

GUARDRAIL (label type)



JERSEY BARRIER

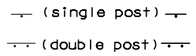
CURB (LABEL TYPE)

STONE WALL

RETAINING WALL (LABEL TYPE)

FENCE (LABEL TYPE)

SIGNS



GAS PUMP

FUEL TANK (ABOVE GROUND)

STORAGE TANK FILLER CAP

SEPTIC TANK

GRAVE

MAILBOX

VENT PIPE

SATELLITE DISH ANTENNA

PHONE

GROUND LIGHT/LAMP POST

BORING LOCATION

TEST PIT

INTERSTATE NUMBERED HIGHWAY

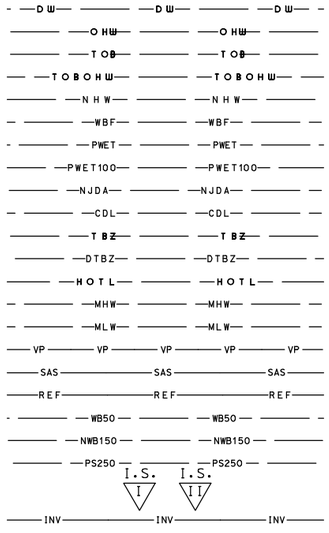
UNITED STATES NUMBERED HIGHWAY

STATE NUMBERED HIGHWAY

SHORELAND - WETLAND

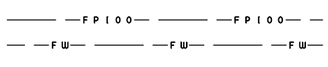
WETLAND DESIGNATION AND TYPE

DELINEATED WETLAND
ORDINARY HIGH WATER
TOP OF BANK
TOP OF BANK & ORDINARY HIGH WATER
NORMAL HIGH WATER
WIDTH AT BANK FULL
PRIME WETLAND
PRIME WETLAND 100' BUFFER
NON-JURISDICTIONAL DRAINAGE AREA
COWARDIN DISTINCTION LINE
TIDAL BUFFER ZONE
DEVELOPED TIDAL BUFFER ZONE
HIGHEST OBSERVABLE TIDE LINE
MEAN HIGH WATER
MEAN LOW WATER
VERNAL POOL
SPECIAL AQUATIC SITE
REFERENCE LINE
WATER FRONT BUFFER
NATURAL WOODLAND BUFFER
PROTECTED SHORELAND
INVASIVE SPECIES LABEL
INVASIVE SPECIES



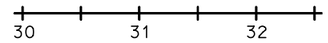
FLOODPLAIN / FLOODWAY

500 YEAR FLOODPLAIN BOUNDARY
100 YEAR FLOODPLAIN BOUNDARY
FLOODWAY



ENGINEERING

CONSTRUCTION BASELINE



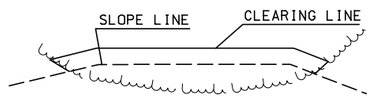
PC, PT, POT (ON CONST BASELINE)

PI (IN CONSTRUCTION BASELINES)

INTERSECTION OR EQUATION OF TWO LINES

ORIGINAL GROUND LINE (PROFILES AND CROSS-SECTIONS)

PROFILE GRADE LINE (PROFILES AND CROSS-SECTIONS)



CLEARING LINE
SLOPE LINE
SLOPE LINE (FILL)

SLOPE LINE (CUT)

PROFILES AND CROSS SECTIONS:
ORIGINAL GROUND ELEVATION (LEFT)
FINISHED GRADE ELEVATION (RIGHT)

STATE OF NEW HAMPSHIRE
SEABROOK-HAMPTON
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

STANDARD SYMBOLS

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
11-21-2014	stdsymb1-2	15904	3	21

DRAINAGE

MANHOLE
CATCH BASIN (cb)
DROP INLET (di)
(existing) (PROPOSED)

DRAINAGE PIPE (existing) (label size & type)
DRAINAGE PIPE (PROPOSED)
UNDERDRAIN (existing) W/ FLUSHING BASIN (fb) (label size & type)
UNDERDRAIN (PROPOSED) W/ FLUSHING BASIN
show direction of flow
HEADER (existing & PROPOSED) (with stone outlet protection)
END SECTION (existing & PROPOSED) METAL or PLASTIC, RCP
OPEN DITCH (PROPOSED)
EROSION CONTROL/ STONE SLOPE PROTECTION

BOUNDARIES / RIGHT-OF-WAY

RIGHT-OF-WAY LINE (label type)
RR RIGHT-OF-WAY LINE
PROPERTY LINE
PROPERTY LINE (COMMON OWNER)
TOWN LINE — BOW / CONCORD
COUNTY LINE — COOS / GRAFTON
STATE LINE — MAINE / NEW HAMPSHIRE
NATIONAL FOREST
CONSERVATION LAND
BENCH MARK / SURVEY DISK
BOUND (bnd) (PROPOSED)
STATE LINE/ TOWN LINE MONUMENT S/L T/L
NHDOT PROJECT MARKER
IRON PIPE OR PIN (ip)
DRILL HOLE IN ROCK (dh)
TAX MAP AND LOT NUMBER (156 / 14) 1642/341 6.80 Ac.±
PROPERTY PARCEL NUMBER (12)
HISTORIC PROPERTY (H)

UTILITIES

existing PROPOSED

TELEPHONE POLE
POWER POLE
JOINT OCCUPANCY
MISCELLANEOUS/UNKNOWN POLE
GUY POLE OR PUSH BRACE
(plot point at face not center of symbol)
LIGHT POLE
LIGHT ON POWER POLE
LIGHT ON JOINT POLE

POLE STATUS:
REMOVE, LEAVE, PROPOSED, OR TEMPORARY AS APPLICABLE e.g.:
R L P+04 25.0' T+04 25.0'

RAILROAD (label ownership)
RAILROAD SIGN
RAILROAD SIGNAL
UTILITY JUNCTION BOX (jb) (JB)
OVERHEAD WIRE (OW) (label type)

UNDERGROUND UTILITIES
WATER (on existing lines label size, type and note if abandoned) (W) (PW)
SEWER (S) (PS)
TELEPHONE (T) (PT)
ELECTRIC (E) (PE)
GAS (G) (PG)
LIGHTING (L) (PL)
INTELLIGENT TRANSPORTATION SYSTEM (ITS)
FIBER OPTIC (FO) (PFO)
WATER SHUT OFF
GAS SHUT OFF
HYDRANT

MANHOLES
SEWER (MHS)
TELEPHONE (MHT)
ELECTRICAL (MHE)
GAS (MHG)
UNKNOWN

TRAFFIC SIGNALS / ITS

existing PROPOSED

MAST ARM (existing) 30' MA (NOTE ANGLE FROM ℄)
OPTICOM RECEIVER
OPTICOM STROBE
TRAFFIC SIGNAL
PEDESTAL WITH PEDESTRIAN SIGNAL HEADS AND PUSH BUTTON UNIT
SIGNAL CONDUIT (C) (PC)
CONTROLLER CABINET (cc) (CC)
METER PEDESTAL (mp) (MP)
PULL BOX (pb) (PB)
LOOP DETECTOR (QUADRUPOLE) (label size)
LOOP DETECTOR (RECTANGULAR) (label size)
CAMERA POLE (CCTV)
FIBER OPTIC DELINEATOR (fod) (FOD)
FIBER OPTIC SPLICE VAULT (SVF)
ITS EQUIPMENT CABINET (its) (ITS)
VARIABLE SPEED LIMIT SIGN
DYNAMIC MESSAGE SIGN
ROAD AND WEATHER INFO SYSTEM

CONSTRUCTION NOTES

CURB MARK NUMBER – BITUMINOUS B-1
CURB MARK NUMBER – GRANITE G-1
CLEARING AND GRUBBING AREA (A)
DRAINAGE NOTE (1)
EROSION CONTROL NOTE (A)
FENCING NOTE (A)
GUARDRAIL NOTE (1)
ITS NOTE (1)
LIGHTING NOTE (A)
TRAFFIC SIGNAL NOTE (1)

SHEET 2 OF 2

STATE OF NEW HAMPSHIRE
SEABROOK-HAMPTON
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

STANDARD SYMBOLS

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
9-1-2016	stdsymb1-2	15904	4	21

REVISIONS AFTER PROPOSAL

NUMBER	DATE	DESCRIPTION	STATION

SDR PROCESSED	NHDOT	DATE	-
NEW DESIGN	LHS	DATE	08/2022
SHEET CHECKED	PJL	DATE	09/2022
AS BUILT DETAILS		DATE	

GRID N

BEGIN APPROACH
STA. 4067+00

BEGIN CONSTRUCTION
STA. 4073+50

MATCH TO SHEET EXG002

Yankee Fisherman's Cooperative

TOWN OF SEABROOK

Harborside Park

Approx. Exist. R.O.W.

EXISTING EDGE OF PAVEMENT

EXISTING EDGE OF TRAVELWAY

NH Route 1A

NH Route 1A Ocean Boulevard

CONST. & MCAM

4067 4068 4069 4070 4071 4072 4073 4074 4075 4076 4077 4078 4079 4080 4081

Eisenhower Street

Approx. Exist. R.O.W.

Compton Street

SEWER EASEMENT

Portsmouth Avenue

SEABROOK

HAMPTON

7 JACQUES NOMINEE TRUST

8 DIPRIMO, ELAINE

9 GODFREY, GERALD M. & LORRAINE

10 QUATRALE FAMILY REALTY TRUST

11 BRADLEY, EDWARD J. III BRADLEY-MIKITARIAN, RENEE A.

12 CARDIN FAMILY IRREVOCABLE TRUST

13 STB REALTY TRUST

14 GARABODIAN, MARK A.

15 DOLAN, GERALD DOLAN, FRANCIS DOLAN, CHARLES & ECKMAN, MARGARET

16 FRANKLIN REALTY TRUST

17 SCALA, ANGELO & LOUISE

18 KLEIN, ERIC M. MCCARTHY, LUCINDA

19 WINN, BRIAN A. et al.

20 TWOMEY FAMILY REAL ESTATE TRUST

21 MCKENZIE, ROGER J. NEWELL, PATRICIA

22 MCKENZIE, SHAWN RUSSELL, TRACEY

23 ROSA, CHARLES A.

24 EMERY, IRENE IRREVOCABLE TRUST EMERY, ERNEST IRREVOCABLE TRUST

25 KILCOYNE FAMILY TRUST

26 MARTIN, JAMES A. & KATHLEEN

27 BEAL-COSTELLO, JANE

28 BELLEFEVILLE, MARGARET A. SCHNEIDER, MAUREEN M.

29 PRESTON, MARTHA ANNE REVOCABLE TRUST

30 RITA M. GRAHAM TRUST

31 BASHLINE, GARY W. & KATHLEEN G.

32 KILLEEN, ALLAN & JUDITH

50 0 50 100
SCALE IN FEET

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

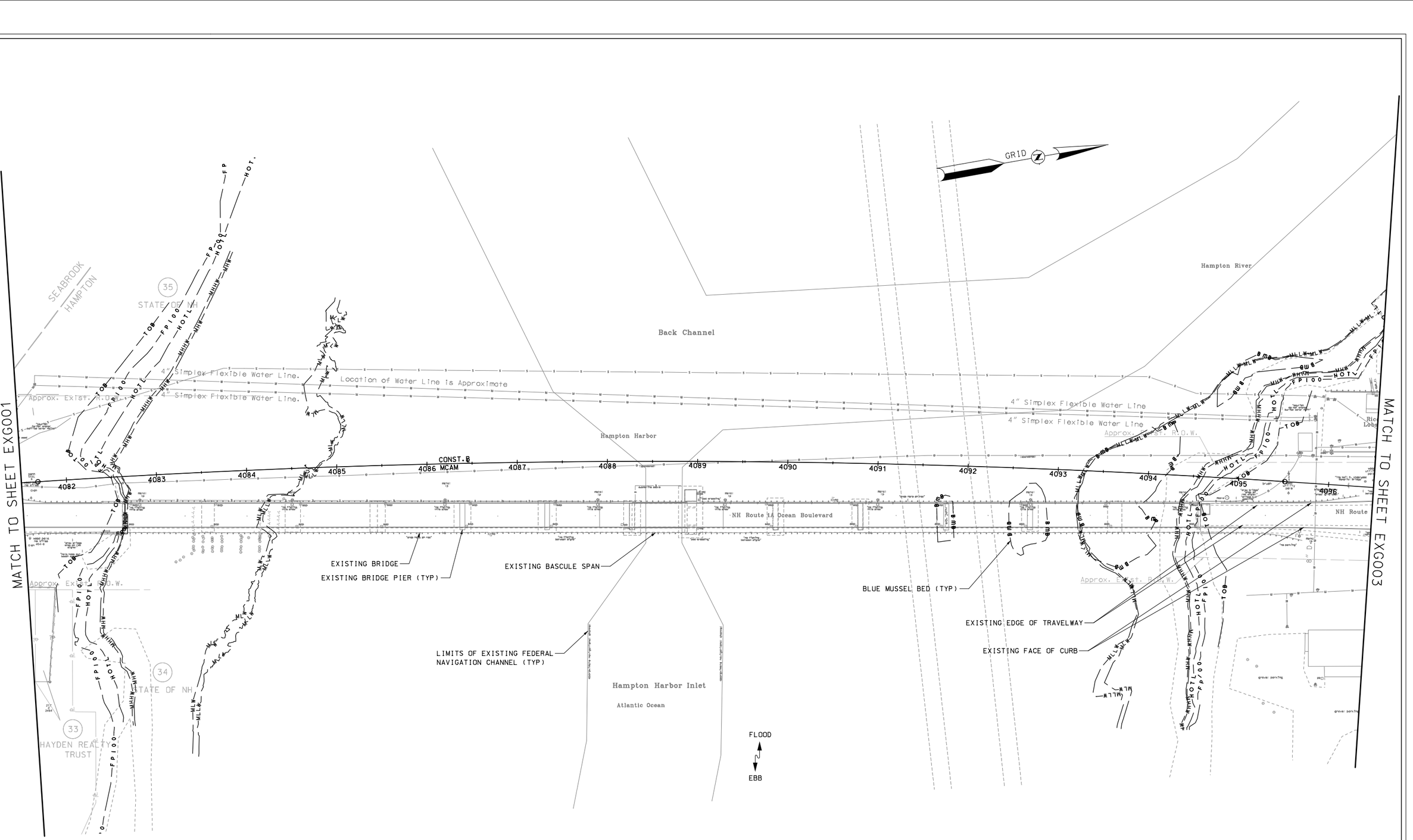
EXISTING CONDITION PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
EXG001	15904Wet_Exist	15904	5	21

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	DESCRIPTION

SDR PROCESSED	NHDOT	DATE -
NEW DESIGN	LHS	DATE 08/2022
SHEET CHECKED	PJL	DATE 09/2022
AS BUILT DETAILS		DATE



50 0 50 100
SCALE IN FEET

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

EXISTING CONDITION PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
EXG002	15904Wet_Exist	15904	6	21

REVISIONS AFTER PROPOSAL

NUMBER	DESCRIPTION	DATE	STATION

SDR PROCESSED	NHDOT	DATE -
NEW DESIGN	LHS	DATE 08/2022
SHEET CHECKED	PJL	DATE 09/2022
AS BUILT DETAILS		DATE

MATCH TO SHEET EXG002

END CONSTRUCTION
STA. 4103+50

END APPROACH
STA. 4106+00

EXISTING EDGE OF TRAVELWAY

EXISTING FACE OF CURB

STATEPARK ENTRANCE

GRID N

37 STATE OF NH

38 STOOGES REALTY TRUST

39 GILMORE, HELEN C.
SILVER, CATHERINE F.

39A GILMORE, HELEN C.
SILVER, CATHERINE F.

44 GOLDEN CORRIDER LLC

45 GOLDEN CORRIDER LLC

46 MILDRED S. MCLEOD LIVING TRUST

50 MARTININEN, HORST W. & INGEBURG

59 HUGHES, CHARLES & STACEY

56 HEADS UP REAL ESTATE GROUP LLC

54 OCEANBREEZE SUITES LLC.

55 ELEVEN OCEAN BLVD REALTY TRUST

52 PETTENGILL, WARREN M. & VIRGINIA B.

53 PINES OCEAN BLVD. LLC.

51 FLORAMO, THOMAS J. & PATRICIA A.

48 ROSEMARIE PITMAN REVOC. TRUST

49

47

36 STATE OF NH

40 WILLIAMS, JOSEPH G.

41 ERICKSON, PAUL M. REVOC. TRUST
ERICKSON, CHRISTINE I. REVOC. TRUST

42 WRIGHT, ROSANNA

43 NICCOLINI, DREW G.

Captain Bob's Lobster Tours

Three Buoys parasail Charters

Hampton Beach Bay Charters

Yellow Bird Deep Sea Fishing

Old Ocean Boulevard

Bailey Avenue

Harbor Road

Dustin Avenue

Whitten Street

Epping Avenue

Dover Avenue

State Park Road

NH Route 1A (south) Ashworth Avenue

NH Route 1A (north) Ocean Boulevard

To Hampton Beach

4097 4098 4099 4100 4101 4102 4103 4104 4105 4106 4107 4108

CONST. B
MCAM

50 0 50 100
SCALE IN FEET

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

EXISTING CONDITION PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
EXG003	15904Wet_Exist	15904	7	21

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	DESCRIPTION

SDR PROCESSED	NHDOT	DATE -
NEW DESIGN	LHS	DATE 08/2022
SHEET CHECKED	PJL	DATE 09/2022
AS BUILT DETAILS		DATE

BEGIN APPROACH
STA. 4067+00

BEGIN CONSTRUCTION
STA. 4073+50

GRID N

MATCH TO SHEET PR0002

Yankee Fisherman's Cooperative

TOWN OF SEABROOK

Harborside Park

Approx. Exist. R.O.W.

NH Route 1A

NH Route 1A Ocean Boulevard

4067 4068 4069 4070 4071 4072 4073 4074 4075 4076 4077 4078 4079 4080 4081

EXISTING EDGE OF PAVEMENT (TYP.)

EXISTING EDGE OF TRAVELWAY (TYP.)

REMOVE EXISTING PAVEMENT, SEED/REPLANT WITH ITEM 644.823

PROPOSED EDGE OF PAVEMENT (TYP.)

PROPOSED EDGE OF TRAVELED WAY (TYP.)

MAINTENANCE ACCESS (SEE DETAIL)

CONST. & MCAM

SLOPE LIMIT (TYP.)

PROPOSED DRAINAGE STRUCTURE (TYP.)

PROPOSED SIDEWALK

PROPOSED UNDERGROUND INFILTRATION SYSTEM

PROPOSED WALKWAY RAMP

Eisenhower Street

Campton Street

SEWER EASEMENT

Portsmouth Avenue

SLOPE LIMIT (TYP.)

SEABROOK

HAMPTON

7 JACQUES NOMINEE TRUST

8 DIPRIMO, ELAINE

9 GODFREY, GERALD M. & LORRAINE

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29 PRESTON, MARTHA ANNE REVOCABLE TRUST

30 RITA M. GRAHAM TRUST

31 BASHLINE, GARY W. & KATHLEEN G.

32 KILLEEN, ALLAN & JUDITH

50 0 50 100
SCALE IN FEET

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

PROPOSED CONDITION PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
PR0001	15904Wet_Prop	15904	8	21

REVISIONS AFTER PROPOSAL

NUMBER	DESCRIPTION	DATE	STATION

SDR PROCESSED	NHDOT	DATE -
NEW DESIGN	LHS	DATE 08/2022
SHEET CHECKED	PJL	DATE 09/2022
AS BUILT DETAILS		DATE

MATCH TO SHEET PR0001

MATCH TO SHEET PR0003

GRID N

SEABROOK
HAMPTON

35
STATE OF NH

34
STATE OF NH

33
HAYDEN REALTY TRUST

Approx. Exist. R.O.W.

LIMIT OF PROPOSED RIPRAP CLASS III (TYP)

PROPOSED ABUTMENT (TYP)

PROPOSED OUTLOOK (TYP)

PROPOSED PIER (TYP)

PROPOSED BRIDGE (TYP)

PROPOSED FACE OF CURB/SIDEWALK (TYP)

PROPOSED EDGE OF TRAVELED WAY (TYP)

CONST. @ 4086 MCAM

4" Simplex Flexible Water Line.

Location of Water Line is Approximate

Back Channel

Hampton River

Hampton Harbor

NH Route 1A Ocean Boulevard

PROPOSED RETAINING WALL

ITEM 202.201 - REMOVE BUILDING

SLOPE LIMIT (TYP)

SLOPE LIMIT (TYP)

PROPOSED 18" PE PIPE END SECTION WITH STONE OUTLET PROTECTION

PROPOSED 15" PE PIPE END SECTION WITH STONE OUTLET PROTECTION

LIMIT OF PROPOSED RIPRAP CLASS III (TYP)

PROPOSED SIDEWALK UNDER BRIDGE

BLUE MUSSEL BED BOUNDARY (TYP)

PROPOSED TREATMENT SWALE (SEE BMP DETAIL SHEETS)

MAINTENANCE ACCESS (SEE DETAIL)

PROPOSED RETAINING WALL

PROPOSED FEDERAL NAVIGATION CHANNEL (TYP)

EXISTING FEDERAL NAVIGATION CHANNEL (TYP)

Hampton Harbor Inlet

Atlantic Ocean

FLOOD

EBB

50 0 50 100

SCALE IN FEET

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

PROPOSED CONDITION PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
PR0002	15904Wet_Prop	15904	9	21

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	DESCRIPTION

SDR PROCESSED	NHDOT	DATE -
NEW DESIGN	LHS	DATE 08/2022
SHEET CHECKED	PJL	DATE 09/2022
AS BUILT DETAILS		DATE

MATCH TO SHEET PR0002

END CONSTRUCTION
STA. 4103+50

END APPROACH
STA. 4106+00

PROPOSED RETAINING WALL
PROPOSED SIDEWALK
PROPOSED CATCH BASIN (TYP)
PROPOSED FACE OF CURB/SIDEWALK (TYP)
SLOPE LIMIT (TYP)
PROPOSED EDGE OF TRAVELED WAY (TYP)
PROPOSED TREATMENT SWALE (SEE BMP DETAIL SHEETS)
MAINTENANCE ACCESS (SEE DETAIL)
STATE PARK ROAD (SEE STATE PARK ROAD GRADING SHEET)
PROPOSED RETAINING WALL

Captain Bob's Lobster Tours
Three Buoys parasail
Hampton Beach Charters
Yellow Bird Deep Sea Fishing

Old Ocean Boulevard
Bailey Avenue
Harbor Road
Dustin Avenue
Whitten Street
Epping Avenue
Dover Avenue
State Park Road
NH Route 1A (south) Ashworth Avenue
NH Route 1A (north) Ocean Boulevard
to Hampton Beach

4097 4098 4099 4100 4101 4102 4103 4104 4105 4106 4107 4108

CONST. ℄
MCAM

GRID N

37 STATE OF NH
38 STOOGES REALTY TRUST
39 GILMORE, HELEN C. SILVER, CATHERINE F.
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45 GOLDEN CORRIDER LLC
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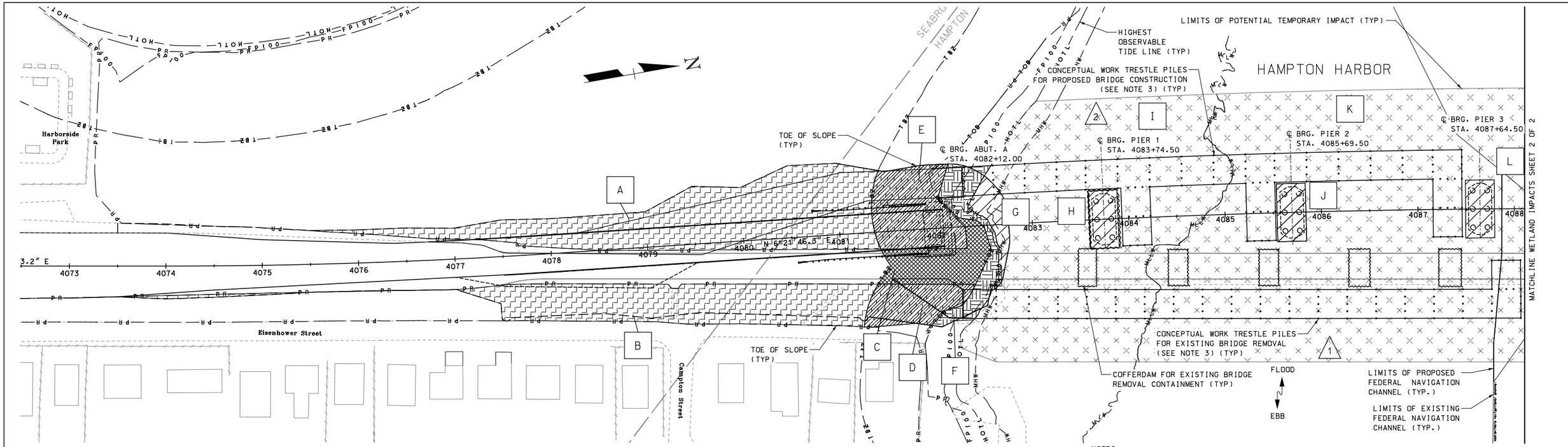
53 PINES OCEAN BLVD. LLC.
51 FLORAMO, THOMAS J. & PATRICIA A.
48 ROSEMARIE PITMAN REVOC. TRUST
49 ICHI BAN INC.
47 DUBOIS, VIOLETTE
36 STATE OF NH
40 WILLIAMS, JOSEPH G.
41 ERICKSON, PAUL M. REVOC. TRUST ERICKSON, CHRISTINE I. REVOC. TRUST
42 WRIGHT, ROSANNA
43 NICCOLINI, DREW G.

50 0 50 100
SCALE IN FEET

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

PROPOSED CONDITION PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
PR0003	15904Wet_Prop	15904	10	21



PLAN

SCALE: 1" = 50'-0"

WETLAND IMPACT SUMMARY

WETLAND NUMBER	WETLAND CLASSIFICATION	LOCATION	AREA IMPACTS								DESCRIPTION
			PERMANENT				TEMPORARY		RESTORATIVE		
			N.H.W.B. (NON-WETLAND)		N.H.W.B. & A.C.O.E. (WETLAND)						
			SF	LF	SF	LF	SF	LF	SF	LF	
		A	24002								PERMANENT IMPACTS TO SOUTHWESTERN DUNES
		B	16282								PERMANENT IMPACTS TO SOUTHEASTERN DUNES
		C	4429								SOUTH ROADWAY APPROACH (EXISTING DEVELOPED TBZ)
		D	3833								PERMANENT IMPACTS TO SE DUNES (EXISTING UNDEVELOPED TBZ)
		E	6830								SOUTH ROADWAY APPROACH IMPACTS TO SOUTHWESTERN DUNES (EXISTING UNDEVELOPED TBZ)
		F	3830								SOUTHERN ROADWAY APPROACH (TOB - PERMANENT)
2	E2US2 (INTERTIDAL)	G			1911						ABUTMENT A RIPRAP SLOPE IMPACT
2	E2US2 (INTERTIDAL)	H			1800						PIER 1 DRILLED SHAFTS, FOOTING, AND TREMIE SEAL
2	E2US2 (INTERTIDAL)	I					51373				SOUTHERN INTERTIDAL ENVELOPE (TRESTLE PILES - 490 SF)
1	E1UBL (SUBTIDAL)	J			1800						PIER 2 DRILLED SHAFTS AND FOOTING
1	E1UBL (SUBTIDAL)	K					246453				SUBTIDAL ENVELOPE (TRESTLE PILES AND BARGE SPUDS - 10108 SF)
1	E1UBL (SUBTIDAL)	L			1800						PIER 3 DRILLED SHAFTS AND FOOTING
1	E1UBL (SUBTIDAL)	M			813						CHANNEL EXCAVATION TO ACHIEVE FEDERAL CHANNEL DEPTH
1	E1UBL (SUBTIDAL)	N			265						CHANNEL EXCAVATION TO ACHIEVE FEDERAL CHANNEL DEPTH
1	E1UBL (SUBTIDAL)	O			2243						CHANNEL EXCAVATION TO ACHIEVE FEDERAL CHANNEL DEPTH
1	E1UBL (SUBTIDAL)	P			1800						PIER 4 DRILLED SHAFTS AND FOOTING
1	E1UBL (SUBTIDAL)	Q			1800						PIER 5 DRILLED SHAFTS AND FOOTING
1	E1UBL (SUBTIDAL)	R			238						PIER 6 DRILLED SHAFTS, FOOTING, AND TREMIE SEAL
2	E2US2 (INTERTIDAL)	S			1562						PIER 6 DRILLED SHAFTS, FOOTING, AND TREMIE SEAL
2	E2US2 (INTERTIDAL)	T			5099						ABUTMENT B RIPRAP SLOPE PLACEMENT
2	E2US2 (INTERTIDAL)	U					20357				NORTHERN INTERTIDAL ENVELOPE (TRESTLE PILES - 182 SF)
		V	3712								NORTH ROADWAY APPROACH (TOB - PERMANENT)
		W	11693								NORTH ROADWAY APPROACH (EXISTING DEVELOPED TBZ)
		X	2295								NORTH ROADWAY APPROACH (EXISTING UNDEVELOPED TBZ)
		Y					4651				NORTH ROADWAY APPROACH (EXISTING DEVELOPED TBZ)
		TOTAL	76906		21131		322834				

PERMANENT IMPACTS: 98037 SF
TEMPORARY IMPACTS: 322834 SF
TOTAL IMPACTS: 420871 SF

LINEAR STREAM IMPACTS FOR MITIGATION

PERMANENT		
BANK LEFT	BANK RIGHT	CHANNEL
LF	LF	LF
216	216	197

VOLUMES

IMPACT	FILL (HOTL EL. TO E.G.)	DREDGE (BELOW E.G.)	
G	97 CY	1013 CY	
H	434 CY	714 CY	
I			
J	798 CY	398 CY	
K			
L	855 CY	315 CY	
M		20 CY	
N		15 CY	
O		125 CY	
P	855 CY	175 CY	
Q	811 CY	219 CY	
R	57 CY	63 CY	
S	377 CY	416 CY	
T	391 CY	2049 CY	
TOTAL	4675 CY	5522 CY	10197 CY

SCALE IN FEET
50 0 50 100

NOTES:

1. THE LOCATIONS OF TRESTLE AND BARGE CONSTRUCTION ARE APPROXIMATE AND WILL BE DESIGNED BY CONTRACTOR. ALL TEMPORARY IMPACTS SHALL BE WITHIN THE LIMITS OF POTENTIAL TEMPORARY IMPACTS DELINEATED ON THE PLAN.
2. INTERTIDAL IMPACT AREAS EXTEND FROM HOTL TO MLLW. SUBTIDAL IMPACT AREAS ARE BELOW MLLW.
3. TEMPORARY IMPACT AREAS WILL BE LIMITED TO TRESTLE PILES. IMPACT AREAS FOR PILES SUPPORTING ACCESS TRESTLES ARE ESTIMATED ASSUMING (5) 2'-0" DIAMETER PIPE PILES EVERY 30'-0" AND THEN FACTORED BY 2 TO ALLOW FOR CONTRACTOR FLEXIBILITY(APPROXIMATELY 2800 SF)
4. TEMPORARY IMPACT AREAS FOR CONSTRUCTION ACCESS BARGES ARE ESTIMATED ASSUMING (4) 2'-0" DIAMETER SPUDS PER BARGE. 3.14SF/SPUD * 4 SPUDS/BARGE * 5 RE-ANCHORS/BARGE = 62.8 SF IMPACTS PER BARGE * 8 BARGES THEN FACTORED BY 2 TO ALLOW FOR CONTRACTOR FLEXIBILITY (APPROXIMATELY 1010 SF)
5. TWO EXISTING WATERLINES LIE WEST OF THE BRIDGE. THE EXPOSED LENGTH OF THE WATERLINES IN THE CHANNEL SUBJECT TO TIDAL INFLUENCE IS 700 FT. TEMPORARY RESTRAINT TO KEEP THE WATERLINES OUT OF THE WORKZONE IS NEEDED TO CONSTRUCT THE TRESTLES. TEMPORARY IMPACTS ARE ASSUMED TO BE 5 FT FOR EACH WATERLINE. (2 LINES x 700 FT x 5 FT = APPROXIMATELY 7,000 SF)
6. FILL VOLUMES PRESENTED IN THE TABLE ARE MEASURED FROM THE HOTL ELEVATION DOWN TO EXISTING GRADE. DREDGE VOLUMES PRESENTED IN THE TABLE ARE FROM EXISTING GRADE DOWN TO THE BOTTOM OF EXCAVATION. THE SUM OF THE VOLUMES EQUALS TO TOTAL NON-NATIVE MATERIAL PLACED WITHIN THE HOTL LIMITS.

LEGEND

TYPE OF WETLAND IMPACT	SHADING/ HATCHING
NEW HAMPSHIRE WETLANDS BUREAU & ARMY CORP OF ENGINEERS (PERMANENT WETLAND)	
TEMPORARY IMPACTS	
PERMANENT TOB IMPACTS	
PERMANENT TBZ IMPACTS - UNDEVELOPED	
PERMANENT TBZ IMPACTS - DEVELOPED	
TEMPORARY TBZ IMPACTS - DEVELOPED	
PRIORITY RESOURCE AREA - PERMANENT DUNE IMPACTS	

△ # WETLAND CLASSIFICATION NUMBER

WETLAND IMPACT LOCATION

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN SEABROOK-HAMPTON BRIDGE NO. 234/025 STATE PROJECT 15904
LOCATION NH 1A OVER HAMPTON RIVER

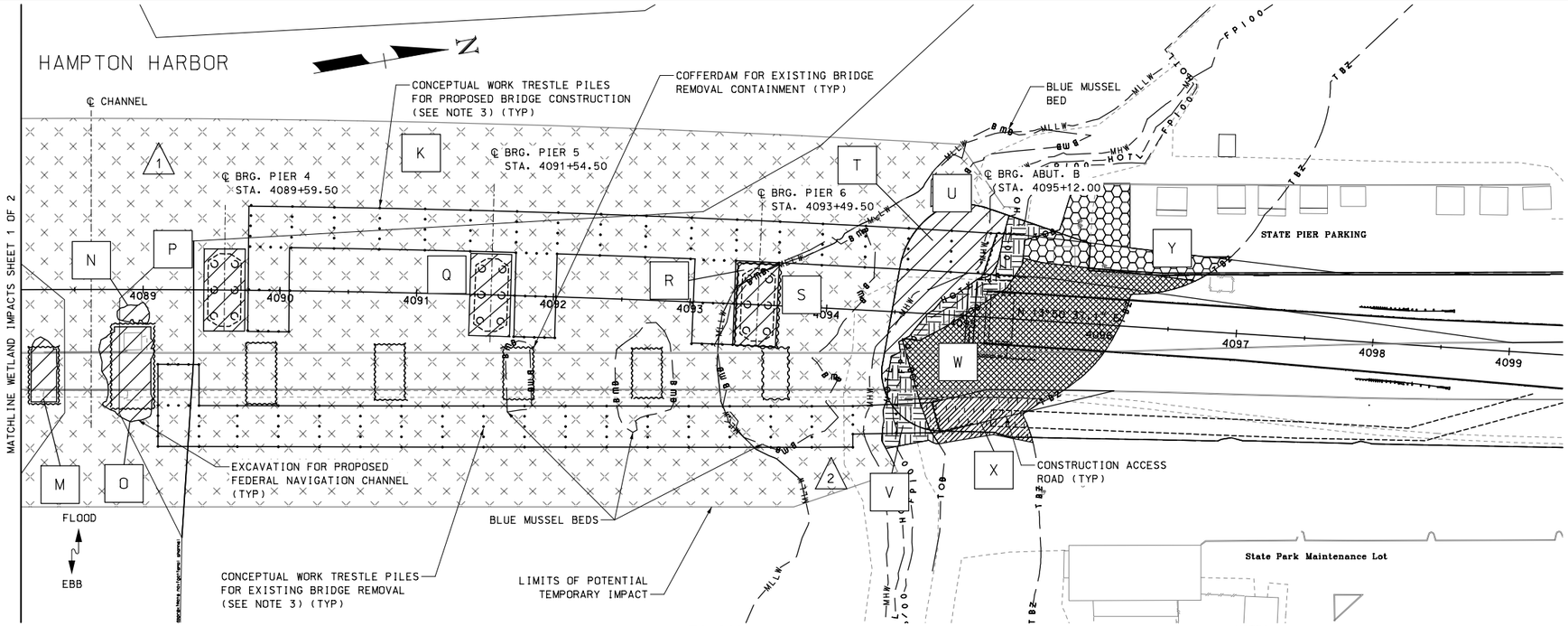
WETLAND IMPACTS PLAN (SHEET 1 OF 2)

BRIDGE SHEET 11 OF 21

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	LHS	08/22	CHECKED	PJL	09/22
	DRAWN	LHS	08/22	CHECKED	NDC	09/22
	QUANTITIES			CHECKED		
	ISSUE DATE		FEDERAL PROJECT NO.		SHEET NO.	TOTAL SHEETS
	REV. DATE		X-A001(026)		11	21

FILE NUMBER 144-1-1

PLOT DATE	.DGN LOCATOR	SHEET SCALE
3/9/2023	15904Wet_Imp	AS NOTED



PLAN

SCALE: 1" = 50'-0"

NOTES:

1. THE LOCATIONS OF TRESTLE AND BARGE CONSTRUCTION ARE APPROXIMATE AND WILL BE DESIGNED BY CONTRACTOR. ALL TEMPORARY IMPACTS SHALL BE WITHIN THE LIMITS OF POTENTIAL TEMPORARY IMPACTS DELINEATED ON THE PLAN.
2. INTERTIDAL IMPACT AREAS EXTEND FROM HOTL TO MLLW. SUBTIDAL IMPACT AREAS ARE BELOW MLLW.
3. TEMPORARY IMPACT AREAS WILL BE LIMITED TO TRESTLE PILES. IMPACT AREAS FOR PILES SUPPORTING ACCESS TRESTLES ARE ESTIMATED ASSUMING (5) 2'-0" DIAMETER PIPE PILES EVERY 30'-0" AND THEN FACTORED BY 2 TO ALLOW FOR CONTRACTOR FLEXIBILITY(APPROXIMATELY 2800 SF)
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6. FILL VOLUMES PRESENTED IN THE TABLE ARE MEASURED FROM THE HOTL ELEVATION DOWN TO EXISTING GRADE. DREDGE VOLUMES PRESENTED IN THE TABLE ARE FROM EXISTING GRADE DOWN TO THE BOTTOM OF EXCAVATION. THE SUM OF THE VOLUMES EQUALS TO TOTAL NON-NATIVE MATERIAL PLACED WITHIN THE HOTL LIMITS.

LEGEND

TYPE OF WETLAND IMPACT	SHADING/ HATCHING
NEW HAMPSHIRE WETLANDS BUREAU & ARMY CORP OF ENGINEERS (PERMANENT WETLAND)	
TEMPORARY IMPACTS	
PERMANENT TOB IMPACTS	
PERMANENT TBZ IMPACTS - UNDEVELOPED	
PERMANENT TBZ IMPACTS - DEVELOPED	
TEMPORARY TBZ IMPACTS - DEVELOPED	
PRIORITY RESOURCE AREA - PERMANENT DUNE IMPACTS	

(#) WETLAND CLASSIFICATION NUMBER

[#] WETLAND IMPACT LOCATION

WETLAND IMPACT SUMMARY

WETLAND NUMBER	WETLAND CLASSIFICATION	LOCATION	AREA IMPACTS								DESCRIPTION
			PERMANENT				TEMPORARY		RESTORATIVE		
			N.H.W.B. (NON-WETLAND)		N.H.W.B. & A.C.O.E. (WETLAND)						
			SF	LF	SF	LF	SF	LF	SF	LF	
		A	24002								PERMANENT IMPACTS TO SOUTHWESTERN DUNES
		B	16282								PERMANENT IMPACTS TO SOUTHEASTERN DUNES
		C	4429								SOUTH ROADWAY APPROACH (EXISTING DEVELOPED TBZ)
		D	3833								PERMANENT IMPACTS TO SE DUNES (EXISTING UNDEVELOPED TBZ)
		E	6830								SOUTH ROADWAY APPROACH IMPACTS TO SOUTHWESTERN DUNES (EXISTING UNDEVELOPED TBZ)
		F	3830								SOUTHERN ROADWAY APPROACH (TOB - PERMANENT)
2	E2US2 (INTERTIDAL)	G			1911						ABUTMENT A RIPRAP SLOPE IMPACT
2	E2US2 (INTERTIDAL)	H			1800						PIER 1 DRILLED SHAFTS, FOOTING, AND TREMIE SEAL
2	E2US2 (INTERTIDAL)	I					51373				SOUTHERN INTERTIDAL ENVELOPE (TRESTLE PILES - 490 SF)
1	E1UBL (SUBTIDAL)	J			1800						PIER 2 DRILLED SHAFTS AND FOOTING
1	E1UBL (SUBTIDAL)	K					246453				SUBTIDAL ENVELOPE (TRESTLE PILES AND BARGE SPUDS - 10108 SF)
1	E1UBL (SUBTIDAL)	L			1800						PIER 3 DRILLED SHAFTS AND FOOTING
1	E1UBL (SUBTIDAL)	M			813						CHANNEL EXCAVATION TO ACHIEVE FEDERAL CHANNEL DEPTH
1	E1UBL (SUBTIDAL)	N			265						CHANNEL EXCAVATION TO ACHIEVE FEDERAL CHANNEL DEPTH
1	E1UBL (SUBTIDAL)	O			2243						CHANNEL EXCAVATION TO ACHIEVE FEDERAL CHANNEL DEPTH
1	E1UBL (SUBTIDAL)	P			1800						PIER 4 DRILLED SHAFTS AND FOOTING
1	E1UBL (SUBTIDAL)	Q			1800						PIER 5 DRILLED SHAFTS AND FOOTING
1	E1UBL (SUBTIDAL)	R			238						PIER 6 DRILLED SHAFTS, FOOTING, AND TREMIE SEAL
2	E2US2 (INTERTIDAL)	S			1562						PIER 6 DRILLED SHAFTS, FOOTING, AND TREMIE SEAL
2	E2US2 (INTERTIDAL)	T			5099						ABUTMENT B RIPRAP SLOPE PLACEMENT
2	E2US2 (INTERTIDAL)	U					20357				NORTHERN INTERTIDAL ENVELOPE (TRESTLE PILES - 182 SF)
		V	3712								NORTH ROADWAY APPROACH (TOB - PERMANENT)
		W	11693								NORTH ROADWAY APPROACH (EXISTING DEVELOPED TBZ)
		X	2295								NORTH ROADWAY APPROACH (EXISTING UNDEVELOPED TBZ)
		Y					4651				NORTH ROADWAY APPROACH (EXISTING DEVELOPED TBZ)
		TOTAL	76906		21131		322834				

PERMANENT IMPACTS: 98037 SF
TEMPORARY IMPACTS: 322834 SF
TOTAL IMPACTS: 420871 SF

LINEAR STREAM IMPACTS FOR MITIGATION		
PERMANENT		
BANK LEFT	BANK RIGHT	CHANNEL
LF	LF	LF
216	216	197

VOLUMES			
IMPACT	FILL (HOTL EL. TO E.G.)	DREDGE (BELOW E.G.)	
G	97 CY	1013 CY	
H	434 CY	714 CY	
I			
J	798 CY	398 CY	
K			
L	855 CY	315 CY	
M		20 CY	
N		15 CY	
O		125 CY	
P	855 CY	175 CY	
Q	811 CY	219 CY	
R	57 CY	63 CY	
S	377 CY	416 CY	
T	391 CY	2049 CY	
TOTAL	4675 CY	5522 CY	10197 CY

50 0 50 100
SCALE IN FEET

PLOT DATE	.DGN LOCATOR	SHEET SCALE
3/9/2023	15904Wet_Imp	AS NOTED

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN SEABROOK-HAMPTON BRIDGE NO. 234/025 STATE PROJECT 15904
LOCATION NH 1A OVER HAMPTON RIVER

WETLAND IMPACTS PLAN (SHEET 2 OF 2)

BRIDGE SHEET 12 OF 21

REVISIONS AFTER PROPOSAL	BY	DATE

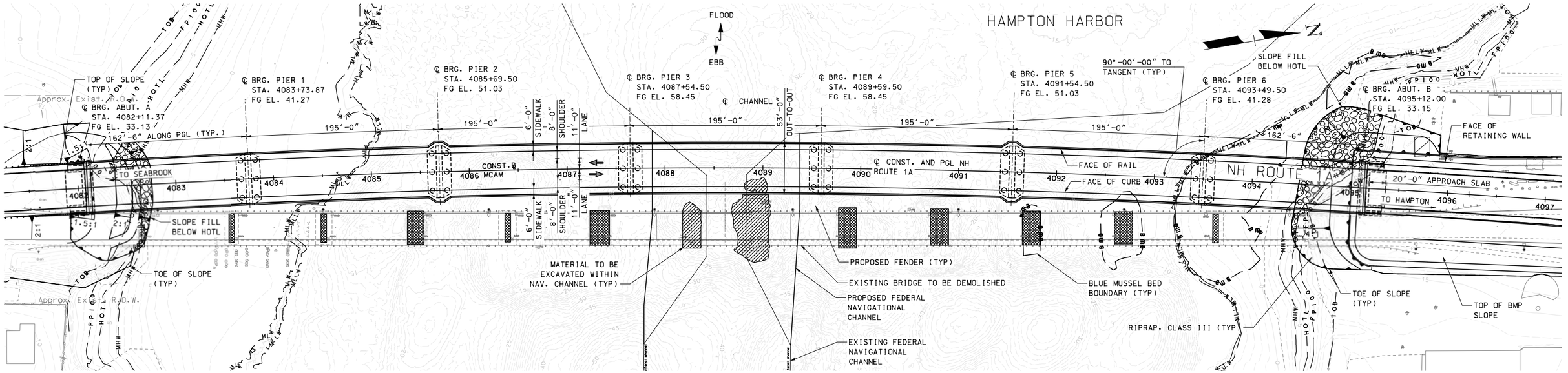
	BY	DATE		BY	DATE
DESIGNED	LHS	08/22	CHECKED	PJL	09/22
DRAWN	LHS	08/22	CHECKED	NDC	09/22
QUANTITIES			CHECKED		
ISSUE DATE					
REV. DATE					

FILE NUMBER 144-1-1

FEDERAL PROJECT NO. X-A001(026)

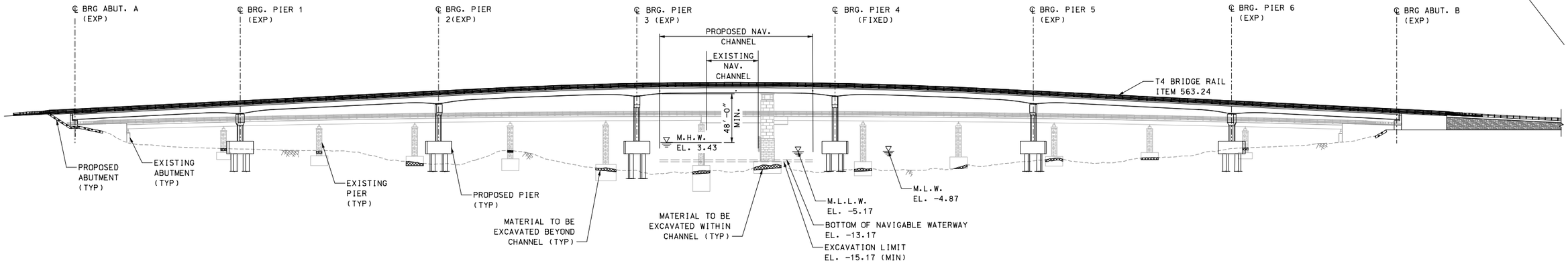
SHEET NO. 12

TOTAL SHEETS 21



PLAN

SCALE: 1" = 50'-0"



ELEVATION

SCALE: 1" = 50'-0"

PLOT DATE	.DGN LOCATOR	SHEET SCALE
3/9/2023	15904Channel_Ex	AS NOTED

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN SEABROOK-HAMPTON BRIDGE NO. 234/025 STATE PROJECT 15904

LOCATION NH 1A OVER HAMPTON RIVER

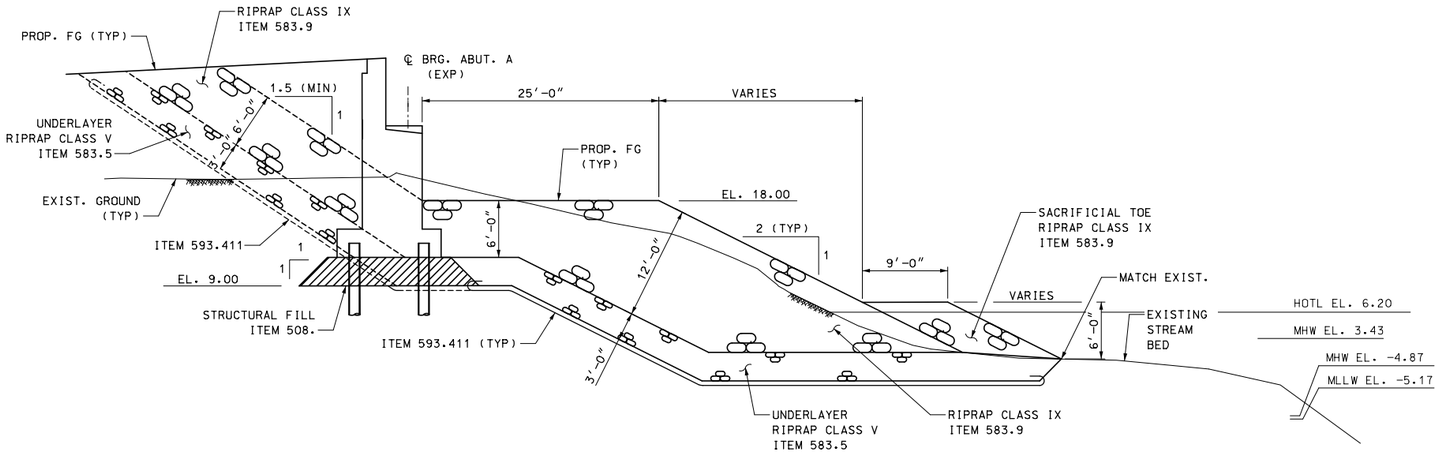
CHANNEL EXCAVATION PLAN AND ELEVATION

BRIDGE SHEET: 13 OF 21

REVISIONS AFTER PROPOSAL		BY	DATE		BY	DATE
	DESIGNED	LHS	08/22	CHECKED	PJL	09/22
	DRAWN	LHS	08/22	CHECKED	PJL	09/22
	QUANTITIES			CHECKED		

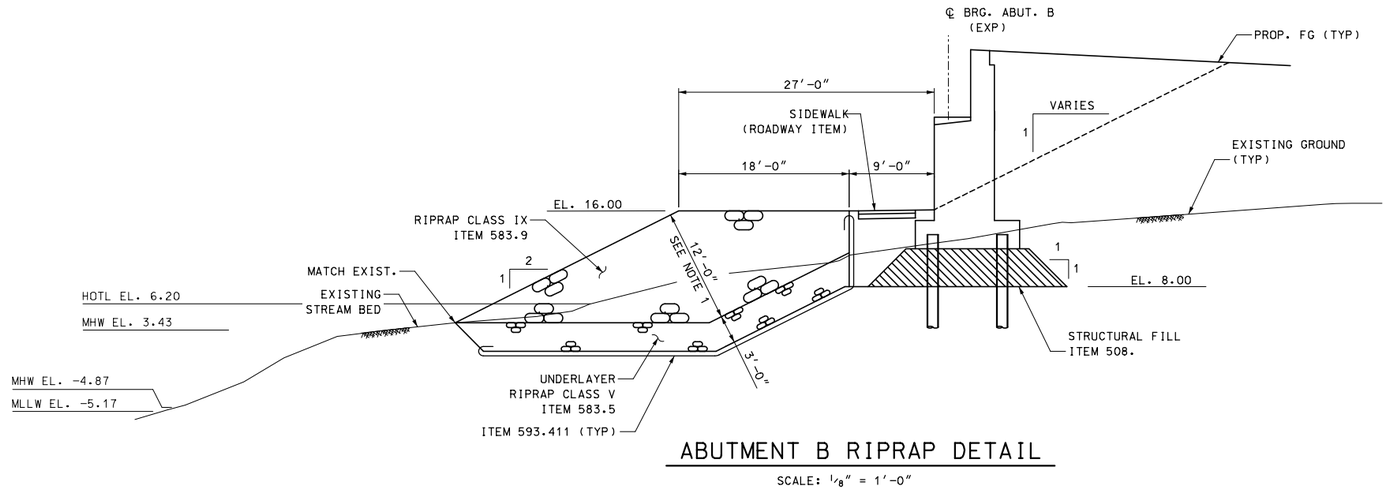
ISSUE DATE	FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
REV. DATE	X-A001(026)	13	21

FILE NUMBER: 144-1-1



ABUTMENT A RIPRAP DETAIL

SCALE: 1/8″ = 1′-0″



ABUTMENT B RIPRAP DETAIL

SCALE: 1/8″ = 1′-0″

NOTES

1. ITEM 583.9 CLASS IX RIPRAP SHALL BE 12′-0″ THICK LEFT OF ℄ CONST. AND 6′-0″ THICK RIGHT OF ℄ CONST.

PLOT DATE	.DGN LOCATOR	SHEET SCALE
3/9/2023	15904Channel_Ex	AS NOTED

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN SEABROOK-HAMPTON BRIDGE NO. 234/025 STATE PROJECT 15904

LOCATION NH 1A OVER HAMPTON RIVER

TYPICAL CHANNEL RIPRAP PROTECTION

BRIDGE SHEET 14 OF 21

REVISIONS AFTER PROPOSAL		BY	DATE

	BY	DATE		BY	DATE
DESIGNED	LHS	08/22	CHECKED	PJL	09/22
DRAWN	LHS	08/22	CHECKED	PJL	09/22
QUANTITIES			CHECKED		
ISSUE DATE					
REV. DATE					

FILE NUMBER 144-1-1

FEDERAL PROJECT NO. X-A001(026)

SHEET NO. 14

TOTAL SHEETS 21

EROSION CONTROL STRATEGIES

1. ENVIRONMENTAL COMMITMENTS:
   1.1. THESE GUIDELINES DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH ANY CONTRACT PROVISIONS, OR APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
   1.2. THIS PROJECT WILL BE SUBJECT TO THE US EPA'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER CONSTRUCTION GENERAL PERMIT AS ADMINISTERED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THIS PROJECT IS SUBJECT TO REQUIREMENTS IN THE MOST RECENT CONSTRUCTION GENERAL PERMIT (CGP).
   1.3. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE NHDES WETLAND PERMIT, THE US ARMY CORPS OF ENGINEERS PERMIT, WATER QUALITY CERTIFICATION AND THE SPECIAL ATTENTION ITEMS INCLUDED IN THE CONTRACT DOCUMENTS.
   1.4. ALL STORM WATER, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION (DECEMBER 2008) (BMP MANUAL) AVAILABLE FROM THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NHDES).
   1.5. THE CONTRACTOR SHALL COMPLY WITH RSA 485-A:17, AND ALL, PUBLISHED NHDES ALTERATION OF TERRAIN ENV-WQ 1500 REQUIREMENTS (HTTP://DES.NH.GOV/ORGANIZATION/COMMISSIONER/LEGAL/RULES/INDEX.HTM)
   1.6. THE CONTRACTOR IS DIRECTED TO REVIEW AND COMPLY WITH SECTION 107.1 OF THE CONTRACT AS IT REFERS TO SPILLAGE, AND ALSO WITH REGARDS TO EROSION, POLLUTION, AND TURBIDITY PRECAUTIONS.

2. STANDARD EROSION CONTROL SEQUENCING APPLICABLE TO ALL CONSTRUCTION PROJECTS:
   2.1. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH DISTURBING ACTIVITIES. PERIMETER CONTROLS AND STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AS SHOWN IN THE BMP MANUAL AND AS DIRECTED BY THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARER.
   2.2. EROSION, SEDIMENTATION CONTROL MEASURES AND INFILTRATION BASINS SHALL BE CLEANED, REPLACED AND AUGMENTED AS NECESSARY TO PREVENT SEDIMENTATION BEYOND PROJECT LIMITS THROUGHOUT THE PROJECT DURATION.
   2.3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT AND SECTION 645 OF THE NHDOT SPECIFICATIONS FOR ROAD AND BRIDGES CONSTRUCTION.
   2.4. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
      (A) BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
      (B) A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
      (C) A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP-RAP HAS BEEN INSTALLED;
      (D) TEMPORARY SLOPE STABILIZATION CONFORMING TO TABLE 1 HAS BEEN PROPERLY INSTALLED
   2.5. ALL STOCKPILES SHALL BE CONTAINED WITH A PERIMETER CONTROL. IF THE STOCKPILE IS TO REMAIN UNDISTURBED FOR MORE THAN 14 DAYS, MULCHING WILL BE REQUIRED.
   2.6. A WATER TRUCK SHALL BE AVAILABLE TO CONTROL EXCESSIVE DUST AT THE DIRECTION OF THE CONTRACT ADMINISTRATOR.
   2.7. TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL REMAIN UNTIL THE AREA HAS BEEN PERMANENTLY STABILIZED.
   2.8. CONSTRUCTION PERFORMED ANY TIME BETWEEN NOVEMBER 30" AND MAY 1" OF ANY YEAR SHALL BE CONSIDERED WINTER CONSTRUCTION AND SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.
      (A) ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15", OR WHICH ARE DISTURBED AFTER OCTOBER 15", SHALL BE STABILIZED IN ACCORDANCE WITH TABLE 1.
      (B) ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15", OR WHICH ARE DISTURBED AFTER OCTOBER 15", SHALL BE STABILIZED TEMPORARILY WITH STONE OR IN ACCORDANCE WITH TABLE 1.
      (C) AFTER NOVEMBER 30" INCOMPLETE ROAD SURFACES, WHERE WORK HAS STOPPED FOR THE SEASON, SHALL BE PROTECTED IN ACCORDANCE WITH TABLE 1.
      (D) WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE PROJECT IS WITHOUT STABILIZATION AT ONE TIME, UNLESS A WINTER CONSTRUCTION PLAN HAS BEEN APPROVED BY NHDOT THAT MEETS THE REQUIREMENTS OF ENV-WQ 1505.02 AND ENV-WQ 1505.05.
      (E) A SWPPP AMENDMENT SHALL BE SUBMITTED TO THE DEPARTMENT, FOR APPROVAL, ADDRESSING COLD WEATHER STABILIZATION (ENV-WQ 1505.05) AND INCLUDING THE REQUIREMENTS OF NO LESS THAN 30 DAYS PRIOR TO THE COMMENCEMENT OF WORK SCHEDULED AFTER NOVEMBER 30".

GENERAL CONSTRUCTION PLANNING AND SELECTION OF STRATEGIES TO CONTROL EROSION AND SEDIMENT ON HIGHWAY CONSTRUCTION PROJECTS

3. PLAN ACTIVITIES TO ACCOUNT FOR SENSITIVE SITE CONDITIONS:
   3.1. CLEARLY FLAG AREAS TO BE PROTECTED IN THE FIELD AND PROVIDE CONSTRUCTION BARRIERS TO PREVENT TRAFFICKING OUTSIDE OF WORK AREAS.
   3.2. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS.
   3.3. PROTECT AND MAXIMIZE EXISTING NATIVE VEGETATION AND NATURAL FOREST BUFFERS BETWEEN CONSTRUCTION ACTIVITY AND SENSITIVE AREAS.
   3.4. WHEN WORK IS PERFORMED IN AND NEAR WATER COURSES, STREAM FLOW DIVERSION METHODS SHALL BE IMPLEMENTED PRIOR TO ANY EXCAVATION OR FILLING.
   3.5. WHEN WORK IS PERFORMED WITHIN 50 FEET OF SURFACE WATERS (WETLAND, OPEN WATER OR FLOWING WATER), PERIMETER CONTROL SHALL BE ENHANCED CONSISTENT WITH SECTION 2.1.2.1. OF THE 2012 NPDES CONSTRUCTION GENERAL PERMIT.

4. MINIMIZE THE AMOUNT OF EXPOSED SOIL:
   4.1. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS. MINIMIZE THE AREA OF EXPOSED SOIL AT ANY ONE TIME. PHASING SHALL BE USED TO REDUCE THE AMOUNT AND DURATION OF SOIL EXPOSED TO THE ELEMENTS AND VEHICLE TRACKING.
   4.2. UTILIZE TEMPORARY MULCHING OR PROVIDE ALTERNATE TEMPORARY STABILIZATION ON EXPOSED SOILS IN ACCORDANCE WITH TABLE 1.
   4.3. THE MAXIMUM AMOUNT OF DISTURBED EARTH SHALL NOT EXCEED A TOTAL OF 5 ACRES FROM MAY 1" THROUGH NOVEMBER 30", OR EXCEED ONE ACRE DURING WINTER MONTHS, UNLESS THE CONTRACTOR DEMONSTRATES TO THE DEPARTMENT THAT THE ADDITIONAL AREA OF DISTURBANCE IS NECESSARY TO MEET THE CONTRACTORS CRITICAL PATH METHOD SCHEDULE (CPM), AND THE CONTRACTOR HAS ADEQUATE RESOURCES AVAILABLE TO ENSURE THAT ENVIRONMENTAL COMMITMENTS WILL BE MET.

5. CONTROL STORMWATER FLOWING ONTO AND THROUGH THE PROJECT:
   5.1. DIVERT OFF SITE RUNOFF OR CLEAN WATER AWAY FROM THE CONSTRUCTION ACTIVITY TO REDUCE THE VOLUME THAT NEEDS TO BE TREATED ON SITE.
   5.2. DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM DISTURBED AREAS, SLOPES, AND AROUND ACTIVE WORK AREAS AND TO A STABILIZED OUTLET LOCATION.
   5.3. CONSTRUCT IMPERMEABLE BARRIERS AS NECESSARY TO COLLECT OR DIVERT CONCENTRATED FLOWS FROM WORK OR DISTURBED AREAS.
   5.4. STABILIZE, TO APPROPRIATE ANTICIPATED VELOCITIES, CONVEYANCE CHANNELS OR PUMPING SYSTEMS NEEDED TO CONVEY CONSTRUCTION STORMWATER TO BASINS AND DISCHARGE LOCATIONS PRIOR TO USE.
   5.5. DIVERT OFF-SITE WATER THROUGH THE PROJECT IN AN APPROPRIATE MANNER SO NOT TO DISTURB THE UPSTREAM OR DOWNSTREAM SOILS, VEGETATION OR HYDROLOGY BEYOND THE PERMITTED AREA.

6. PROTECT SLOPES:
   6.1. INTERCEPT AND DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM UNPROTECTED AND NEWLY ESTABLISHED AREAS AND SLOPES TO A STABILIZED OUTLET OR CONVEYANCE.
   6.2. CONSIDER HOW GROUNDWATER SEEPAGE ON CUT SLOPES MAY IMPACT SLOPE STABILITY AND INCORPORATE APPROPRIATE MEASURES TO MINIMIZE EROSION.
   6.3. CONVEY STORMWATER DOWN THE SLOPE IN A STABILIZED CHANNEL OR SLOPE DRAIN.
   6.4. THE OUTER FACE OF THE FILL SLOPE SHOULD BE IN A LOOSE RUFFLED CONDITION PRIOR TO TURF ESTABLISHMENT. TOPSOIL OR HUMUS LAYERS SHALL BE TRACKED UP AND DOWN THE SLOPE, DISKED, HARROWED, DRAGGED WITH A CHAIN OR MAT, MACHINE-RAKED, OR HAND-WORKED TO PRODUCE A RUFFLED SURFACE.

7. ESTABLISH STABILIZED CONSTRUCTION EXITS:
   7.1. INSTALL AND MAINTAIN CONSTRUCTION EXITS, ANYWHERE TRAFFIC LEAVES A CONSTRUCTION SITE ONTO A PUBLIC RIGHT-OF-WAY.
   7.2. SWEEP ALL CONSTRUCTION RELATED DEBRIS AND SOIL FROM THE ADJACENT PAVED ROADWAYS AS NECESSARY.

8. PROTECT STORM DRAIN INLETS:
   8.1. DIVERT SEDIMENT LADEN WATER AWAY FROM INLET STRUCTURES TO THE EXTENT POSSIBLE.
   8.2. INSTALL SEDIMENT BARRIERS AND SEDIMENT TRAPS AT INLETS TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM.
   8.3. CLEAN CATCH BASINS, DRAINAGE PIPES, AND CULVERTS IF SIGNIFICANT SEDIMENT IS DEPOSITED.
   8.4. DROP INLET SEDIMENT BARRIERS SHOULD NEVER BE USED AS THE PRIMARY MEANS OF SEDIMENT CONTROL AND SHOULD ONLY BE USED TO PROVIDE AN ADDITIONAL LEVEL OF PROTECTION TO STRUCTURES AND DOWN-GRADIENT SENSITIVE RECEPTORS.

9. SOIL STABILIZATION:
   9.1. WITHIN THREE DAYS OF THE LAST ACTIVITY IN AN AREA, ALL EXPOSED SOIL AREAS, WHERE CONSTRUCTION ACTIVITIES ARE COMPLETE, SHALL BE STABILIZED.
   9.2. IN ALL AREAS, TEMPORARY SOIL STABILIZATION MEASURES SHALL BE APPLIED IN ACCORDANCE WITH THE STABILIZATION REQUIREMENTS (SECTION 2.2) OF THE 2012 CGP. (SEE TABLE 1 FOR GUIDANCE ON THE SELECTION OF TEMPORARY SOIL STABILIZATION MEASURES.)
   9.3. EROSION CONTROL SEED MIX SHALL BE SOWN IN ALL INACTIVE CONSTRUCTION AREAS THAT WILL NOT BE PERMANENTLY SEEDED WITHIN TWO WEEKS OF DISTURBANCE AND PRIOR TO SEPTEMBER 15, OF ANY GIVEN YEAR, IN ORDER TO ACHIEVE VEGETATIVE STABILIZATION PRIOR TO THE END OF THE GROWING SEASON.
   9.4. SOIL TACKIFIERS MAY BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND REAPPLIED AS NECESSARY TO MINIMIZE SOIL AND MULCH LOSS UNTIL PERMANENT VEGETATION IS ESTABLISHED.

10. RETAIN SEDIMENT ON-SITE AND CONTROL DEWATERING PRACTICES:
   10.1. TEMPORARY SEDIMENT BASINS (CGP-SECTION 2.1.3.2) OR SEDIMENT TRAPS (ENV-WQ 1506.10) SHALL BE SIZED TO RETAIN, ON SITE, THE VOLUME OF A 2-YEAR 24-HOUR STORM EVENT FOR ANY AREA OF DISTURBANCE OR 3,600 CUBIC FEET OF STORMWATER RUNOFF PER ACRE OF DISTURBANCE, WHICHEVER IS GREATER. TEMPORARY SEDIMENT BASINS USED TO TREAT STORMWATER RUNOFF FROM AREAS GREATER THAN 5-ACRES OF DISTURBANCE SHALL BE SIZED TO ALSO CONTROL STORMWATER RUNOFF FROM A 10-YEAR 24 HOUR STORM EVENT. ON-SITE RETENTION OF THE 10-YEAR 24-HOUR EVENT IS NOT REQUIRED.
   10.2. CONSTRUCT AND STABILIZE DEWATERING INFILTRATION BASINS PRIOR TO ANY EXCAVATION THAT MAY REQUIRE DEWATERING.
   10.3. TEMPORARY SEDIMENT BASINS OR TRAPS SHALL BE PLACED AND STABILIZED AT LOCATIONS WHERE CONCENTRATED FLOW (CHANNELS AND PIPES) DISCHARGE TO THE SURROUNDING ENVIRONMENT FROM AREAS OF UNSTABILIZED EARTH DISTURBING ACTIVITIES.

11. ADDITIONAL EROSION AND SEDIMENT CONTROL GENERAL PRACTICES:
   11.1. USE TEMPORARY MULCHING, PERMANENT MULCHING, TEMPORARY VEGETATIVE COVER, AND PERMANENT VEGETATIVE COVER TO REDUCE THE NEED FOR DUST CONTROL. USE MECHANICAL SWEEPERS ON PAVED SURFACES WHERE NECESSARY TO PREVENT DUST BUILDUP. APPLY WATER, OR OTHER DUST INHIBITING AGENTS OR TACKIFIERS, AS APPROVED BY THE NHDES.
   11.2. ALL STOCKPILES SHALL BE CONTAINED WITH TEMPORARY PERIMETER CONTROLS. INACTIVE SOIL STOCKPILES SHOULD BE PROTECTED WITH SOIL STABILIZATION MEASURES (TEMPORARY EROSION CONTROL SEED MIX AND MULCH, SOIL BINDER) OR COVERED WITH ANCHORED TARPS.
   11.3. EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSPECTED IN ACCORDANCE WITH SECTION 645 OF NHDOT SPECIFICATIONS, WEEKLY AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.25 IN. OF RAIN PER 24-HOUR PERIOD. EROSION AND SEDIMENT CONTROL MEASURES WILL ALSO BE INSPECTED IN ACCORDANCE WITH THE GUIDANCE MEMO FROM THE NHDES CONTAINED WITHIN THE CONTRACT PROPOSAL AND THE EPA CONSTRUCTION GENERAL PERMIT.
   11.4. THE CONTRACTOR SHOULD UTILIZE STORM DRAIN INLET PROTECTION TO PREVENT SEDIMENT FROM ENTERING A STORM DRAINAGE SYSTEM PRIOR TO THE PERMANENT STABILIZATION OF THE CONTRIBUTING DISTURBED AREA.
   11.5. PERMANENT STABILIZATION MEASURES WILL BE CONSTRUCTED AND MAINTAINED IN LOCATIONS AS SHOWN ON THE CONSTRUCTION PLANS TO STABILIZE AREAS. VEGETATIVE STABILIZATION SHALL NOT BE CONSIDERED PERMANENTLY STABILIZED UNTIL VEGETATIVE GROWTH COVERS AT LEAST 85% OF THE DISTURBED AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL FOR ONE YEAR AFTER PROJECT COMPLETION.
   11.6. CATCH BASINS: CARE SHALL BE TAKEN TO ENSURE THAT SEDIMENTS DO NOT ENTER ANY EXISTING CATCH BASINS DURING CONSTRUCTION. THE CONTRACTOR SHALL PLACE TEMPORARY STONE INLET PROTECTION OVER INLETS IN AREAS OF SOIL DISTURBANCE THAT ARE SUBJECT TO SEDIMENT CONTAMINATION.
   11.7. TEMPORARY AND PERMANENT DITCHES SHALL BE CONSTRUCTED, STABILIZED AND MAINTAINED IN A MANNER THAT WILL MINIMIZE SCOUR. TEMPORARY AND PERMANENT DITCHES SHALL BE DIRECTED TO DRAIN TO SEDIMENT BASINS OR STORM WATER COLLECTION AREAS.
   11.8. WINTER EXCAVATION AND EARTHWORK ACTIVITIES NEED TO BE LIMITED IN EXTENT AND DURATION, TO MINIMIZE POTENTIAL EROSION AND SEDIMENTATION IMPACTS. THE AREA OF EXPOSED SOIL SHALL BE LIMITED TO ONE ACRE, OR THAT WHICH CAN BE STABILIZED AT THE END OF EACH DAY UNLESS A WINTER CONSTRUCTION PLAN, DEVELOPED BY A QUALIFIED ENGINEER OR A CPESC SPECIALIST, IS REVIEWED AND APPROVED BY THE DEPARTMENT.
   11.9. CHANNEL PROTECTION MEASURES SHALL BE SUPPLEMENTED WITH PERIMETER CONTROL MEASURES WHEN THE DITCH LINES OCCUR AT THE BOTTOM OF LONG FILL SLOPES. THE PERIMETER CONTROLS SHALL BE INSTALLED ON THE FILL SLOPE TO MINIMIZE THE POTENTIAL FOR FILL SLOPE SEDIMENT DEPOSITS IN THE DITCH LINE.

BEST MANAGEMENT PRACTICES (BMP) BASED ON AMOUNT OF OPEN CONSTRUCTION AREA

12. STRATEGIES SPECIFIC TO OPEN AREAS LESS THAN 5 ACRES:
   12.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WQ 1500; ALTERATION OF TERRAIN FOR CONSTRUCTION AND USE ALL CONVENTIONAL BMP STRATEGIES.
   12.2. SLOPES STEEPER THAN 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING.
   12.3. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT ALONE.
   12.4. AREAS WHERE HAUL ROADS ARE CONSTRUCTED AND STORMWATER CANNOT BE TREATED THE DEPARTMENT WILL CONSIDER INFILTRATION.
   12.5. FOR HAUL ROADS ADJACENT TO SENSITIVE ENVIRONMENTAL AREAS OR STEEPER THAN 5%, THE DEPARTMENT WILL CONSIDER USING EROSION STONE, CRUSHED GRAVEL, OR CRUSHED STONE BASE TO HELP MINIMIZE EROSION ISSUES.
   12.6. ALL AREAS THAT CAN BE STABILIZED SHALL BE STABILIZED PRIOR TO OPENING UP NEW TERRITORY.
   12.7. DETENTION BASINS SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE A 2 YEAR STORM EVENT.

13. STRATEGIES SPECIFIC TO OPEN AREAS BETWEEN 5 AND 10 ACRES:
   13.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WQ 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES WILL BE UTILIZED.
   13.2. DETENTION BASINS WILL BE CONSTRUCTED TO ACCOMMODATE THE 2-YEAR 24-HOUR STORM EVENT AND CONTROL A 10-YEAR 24-HOUR STORM EVENT.
   13.3. SLOPES STEEPER THAN A 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS. OTHER ALTERNATIVE MEASURES, SUCH AS BONDED FIBER MATRIXES (BFMS) OR FLEXIBLE GROWTH MEDIUMS (FGMS) MAY BE UTILIZED, IF MEETING THE NHDES APPROVALS AND REGULATIONS.
   13.4. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS.

14. STRATEGIES SPECIFIC TO OPEN AREAS OVER 10 ACRES:
   14.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WQ 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES AND BETWEEN 5 AND 10 ACRES WILL BE UTILIZED.
   14.2. THE DEPARTMENT ANTICIPATES THAT SOIL BINDERS WILL BE NEEDED ON ALL SLOPES STEEPER THAN 3:1, IN ORDER TO MINIMIZE EROSION AND REDUCE THE AMOUNT OF SEDIMENT IN THE STORMWATER TREATMENT BASINS.
   14.3. THE CONTRACTOR WILL BE REQUIRED TO HAVE AN APPROVED DESIGN IN ACCORDANCE WITH ENV-WQ 1506.12 FOR AN ACTIVE FLOCCULANT TREATMENT SYSTEM TO TREAT AND RELEASE WATER CAPTURED IN STORM WATER BASINS. THE CONTRACTOR SHALL ALSO RETAIN THE SERVICES OF AN ENVIRONMENTAL CONSULTANT WHO HAS DEMONSTRATED EXPERIENCE IN THE DESIGN OF FLOCCULANT TREATMENT SYSTEMS. THE CONSULTANT WILL ALSO BE RESPONSIBLE FOR THE IMPLEMENTATION AND MONITORING OF THE SYSTEM.

TABLE 1

GUIDANCE ON SELECTING TEMPORARY SOIL STABILIZATION MEASURES

APPLICATION AREAS	DRY MULCH METHODS				HYDRAULICALLY APPLIED MULCHES[2]				ROLLED EROSION CONTROL BLANKETS[3]			
	HMT	WC	SG	CB	HM	SMM	BFM	FRM	SNSB	DNSB	DNSCB	DNCB
SLOPES[1]												
STEEPER THAN 2:1	NO	NO	YES	NO	NO	NO	NO	YES	NO	NO	NO	YES
2:1 SLOPE	YES'	YES'	YES	YES	NO	NO	YES	YES	NO	YES	YES	YES
3:1 SLOPE	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	NO
4:1 SLOPE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO
WINTER STABILIZATION	4T/AC	YES	YES	YES	NO	NO	YES	YES	YES	YES	YES	YES
CHANNELS												
LOW FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES
HIGH FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES

ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE
HMT	HAY MULCH & TACK	HM	HYDRAULIC MULCH	SNSB	SINGLE NET STRAW BLANKET
WC	WOOD CHIPS	SMM	STABILIZED MULCH MATRIX	DNSB	DOUBLE NET STRAW BLANKET
SG	STUMP GRINDINGS	BFM	BONDED FIBER MATRIX	DNSCB	2 NET STRAW-COCONUT BLANKET
CB	COMPOST BLANKET	FRM	FIBER REINFORCED MEDIUM	DNCB	2 NET COCONUT BLANKET

NOTES:
1. ALL SLOPE STABILIZATION OPTIONS ASSUME A SLOPE LENGTH ≤10 TIMES THE HORIZONTAL DISTANCE COMPONENT OF THE SLOPE, IN FEET.
2. PRODUCTS CONTAINING POLYACRYLAMIDE (PAM) SHALL NOT BE APPLIED DIRECTLY TO OR WITHIN 100 FEET OF ANY SURFACE WATER WITHOUT PRIOR WRITTEN APPROVAL FROM THE NH DEPARTMENT OF ENVIRONMENTAL SERVICES.
3. ALL EROSION CONTROL BLANKETS SHALL BE MADE WITH WILDLIFE FRIENDLY BIODEGRADABLE NETTING.

STATE OF NEW HAMPSHIRE
SEABROOK-HAMPTON
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

EROSION CONTROL STRATEGIES

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
12-21-2015	erosstrat	15904	15	21

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	DESCRIPTION

SDR PROCESSED NHDOT DATE -
NEW DESIGN PJL DATE 09/22
SHEET CHECKED DATE
AS BUILT DETAILS DATE

BEGIN APPROACH
STA. 4067+00

BEGIN CONSTRUCTION
STA. 4073+50

GRID

Yankee Fisherman's Cooperative

TOWN OF SEABROOK

Harborside Park

Approx. Exist. R.O.W.

SLOPE LIMIT (TYP)

CONSTRUCTION ACCESS (TYP)

PROPOSED DRAINAGE STRUCTURE (TYP)

CONST. & MCAM

PROPOSED EDGE OF PAVEMENT (TYP)

PROPOSED EDGE OF TRAVELED WAY (TYP)

PROPOSED UNDERGROUND INFILTRATION SYSTEM

PROPOSED WALKWAY RAMP

SEWER EASEMENT

SEABROOK

HAMPTON

MATCH TO SHEET ER0002

4067 4068 4069 4070 4071 4072 4073 4074 4075 4076 4077 4078 4079 4080 4081

7 JACQUES NOMINEE TRUST
8 DIPRIMO, ELAINE
9 GODFREY, GERALD M. & LORRAINE
10 QUATRALE FAMILY REALTY TRUST
11 BRADLEY, EDWARD J. III BRADLEY-MIKITARIAN, RENEE A.
12 CARDIN FAMILY IRREVOCABLE TRUST
13 STB REALTY TRUST
14 GARABODIAN, MARK A.
15 DOLAN, GERALD DOLAN, FRANCIS DOLAN, CHARLES & ECKMAN, MARGARET
16 FRANKLIN REALTY TRUST
17 SCALA, ANGELO & LOUISE
18 KLEIN, ERIC M. MCCARTHY, LUCINDA
19 WINN, BRIAN A. et al.
20 TWOMEY FAMILY REAL ESTATE TRUST
21 MCKENZIE, ROGER J. NEWELL, PATRICIA
22 MCKENZIE, SHAWN RUSSELL, TRACEY
23 ROSA, CHARLES A.
24 EMERY, IRENE IRREVOCABLE TRUST EMERY, ERNEST IRREVOCABLE TRUST
25 KILCOYNE FAMILY TRUST
26 MARTIN, JAMES A. & KATHLEEN
27 BEAL-COSTELLO, JANE
28 BELLEFEVILLE, MARGARET A. SCHNEIDER, MAUREEN M.
29 PRESTON, MARTHA ANNE REVOCABLE TRUST
30 RITA M. GRAHAM TRUST
31 BASHLINE, GARY W. & KATHLEEN G.
32 KILLEEN, ALLAN & JUDITH

EROSION CONTROL PLAN LEGEND

PC — PERIMETER CONTROL
- SILT FENCE
- EROSION CONTROL MIX BERM
- EROSION CONTROL MIX SOX
- TURBIDITY CURTAIN
- SHEET PILE
- COFFER DAM

NB/PC — NATURAL BUFFER/PERIMETER CONTROL
- SILT FENCE
- EROSION CONTROL MIX BERM
- EROSION CONTROL MIX SOX
- TURBIDITY CURTAIN
- SHEET PILE
- COFFER DAM

CP — CHANNEL PROTECTION
- STONE CHECK DAMS
- STRAW WATTLES
- CHANNEL MATTING
- CLASS D EROSION STONE
- CLASS C STONE

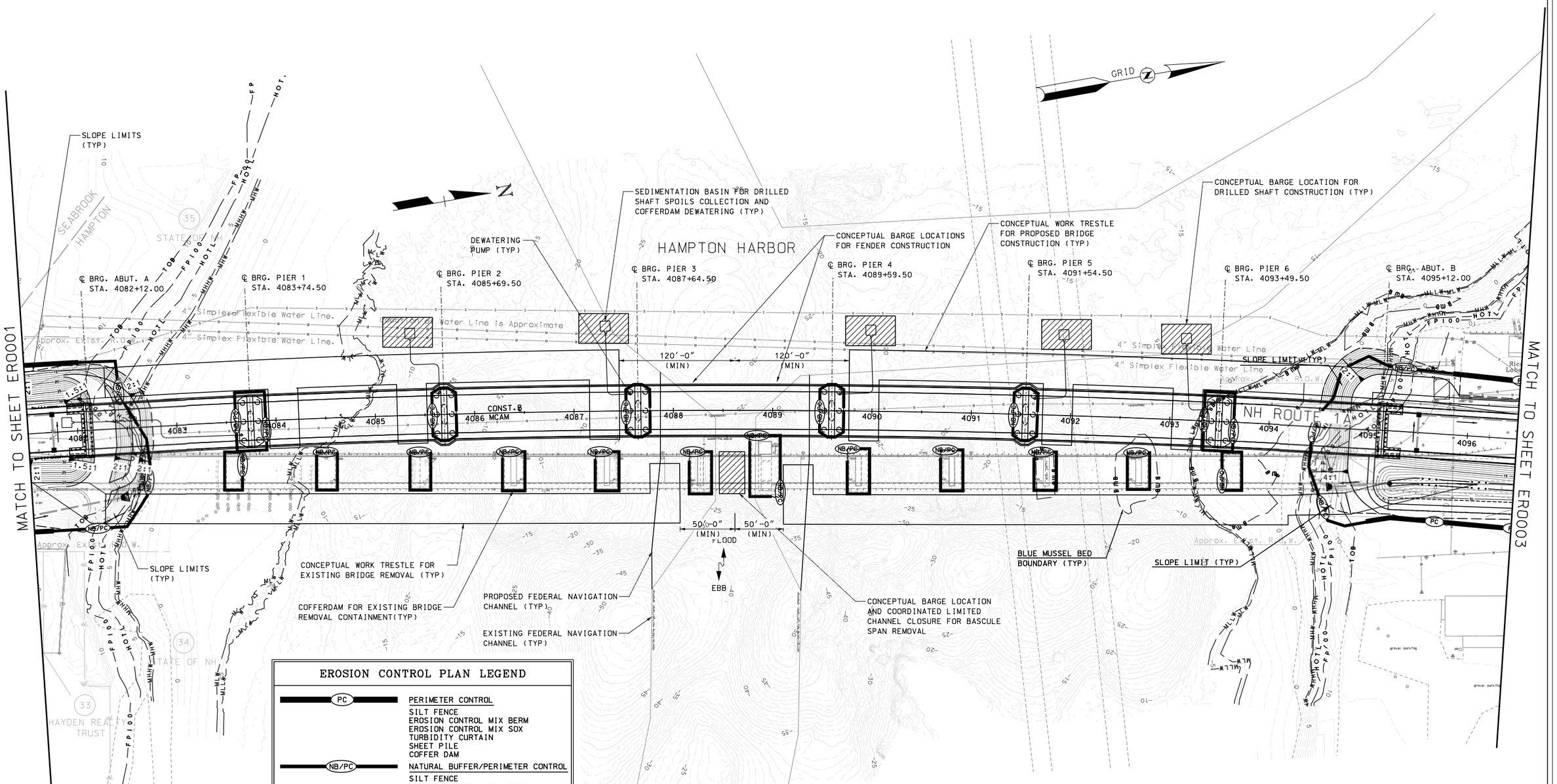
CWB — CLEAN WATER BYPASS
- PUMP THROUGH PIPE
- DRAIN THROUGH PIPE OR CHANNEL

50 0 50 100
SCALE IN FEET

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

EROSION CONTROL PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ER0001	15904Wet_Ero	15904	16	21



EROSION CONTROL PLAN LEGEND

PC — PERIMETER CONTROL
- SILT FENCE
- EROSION CONTROL MIX BERM
- EROSION CONTROL MIX SOX
- TURBIDITY CURTAIN
- SHEET PILE
- COFFER DAM

NB/PC — NATURAL BUFFER/PERIMETER CONTROL
- SILT FENCE
- EROSION CONTROL MIX BERM
- EROSION CONTROL MIX SOX
- TURBIDITY CURTAIN
- SHEET PILE
- COFFER DAM

CP — CHANNEL PROTECTION
- STONE CHECK DAMS
- STRAW WATTLES
- CHANNEL MATTING
- CLASS D EROSION STONE
- CLASS C STONE

CWB — CLEAN WATER BYPASS
- PUMP THROUGH PIPE
- DRAIN THROUGH PIPE OR CHANNEL

50 0 50 100
SCALE IN FEET

REVISIONS AFTER PROPOSAL

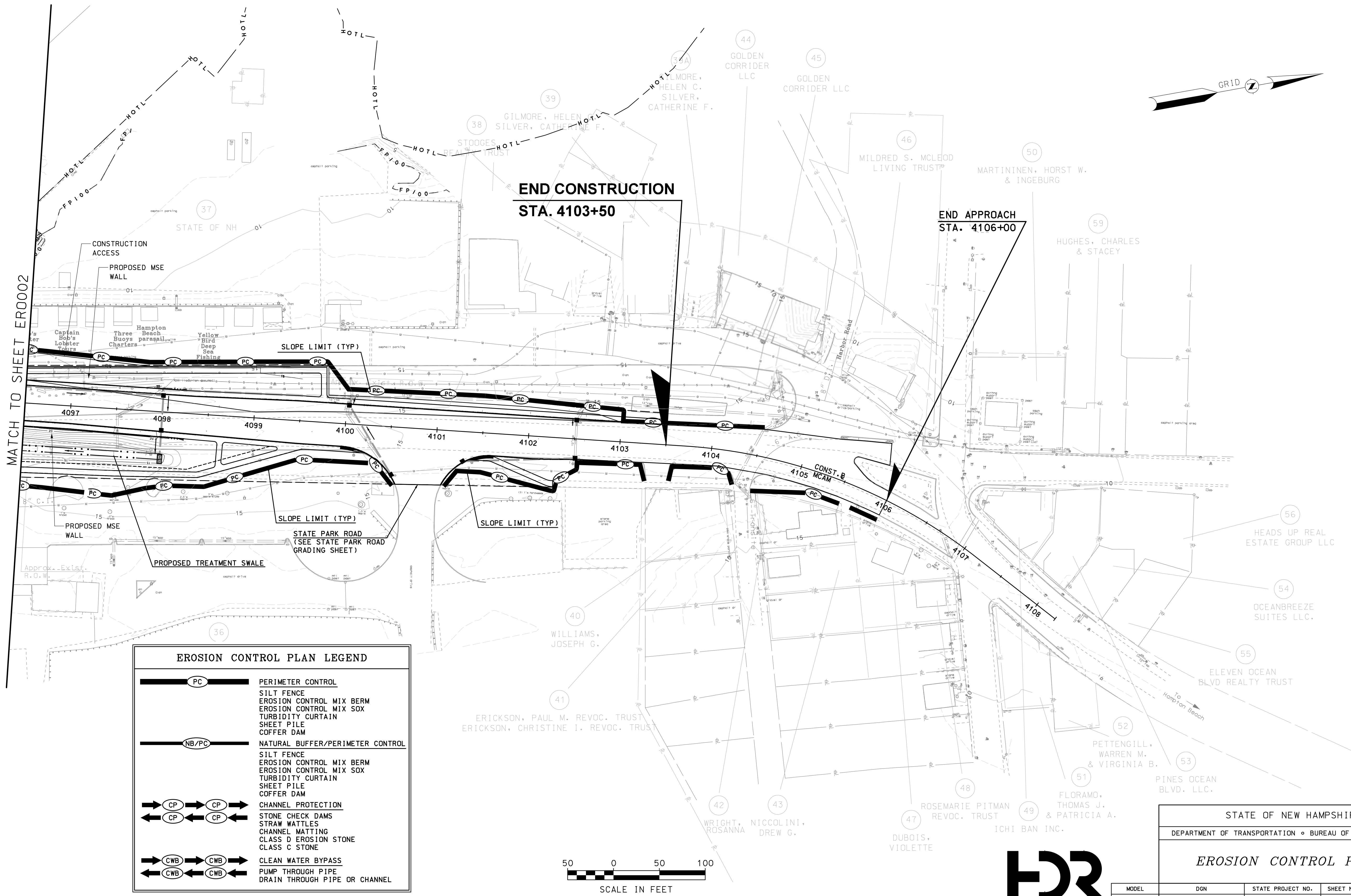
NUMBER	DESCRIPTION	STATION	STATION	DATE

SDR PROCESSED	NHDOT	DATE	-
NEW DESIGN	PJL	DATE	09/22
SHEET CHECKED		DATE	
AS BUILT DETAILS		DATE	

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

EROSION CONTROL PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ER0002	15904Wet_Ero	15904	17	21



EROSION CONTROL PLAN LEGEND

Symbol	Description
PC	PERIMETER CONTROL SILT FENCE EROSION CONTROL MIX BERM EROSION CONTROL MIX SOX TURBIDITY CURTAIN SHEET PILE COFFER DAM
NB/PC	NATURAL BUFFER/PERIMETER CONTROL SILT FENCE EROSION CONTROL MIX BERM EROSION CONTROL MIX SOX TURBIDITY CURTAIN SHEET PILE COFFER DAM
CP	CHANNEL PROTECTION STONE CHECK DAMS STRAW WATTLES CHANNEL MATTING CLASS D EROSION STONE CLASS C STONE
CWB	CLEAN WATER BYPASS PUMP THROUGH PIPE DRAIN THROUGH PIPE OR CHANNEL

REVISIONS AFTER PROPOSAL				
NUMBER	DATE	STATION	STATION	DESCRIPTION

SDR PROCESSED	NHDOT	DATE -
NEW DESIGN	PJL	DATE 09/22
SHEET CHECKED		DATE
AS BUILT DETAILS		DATE

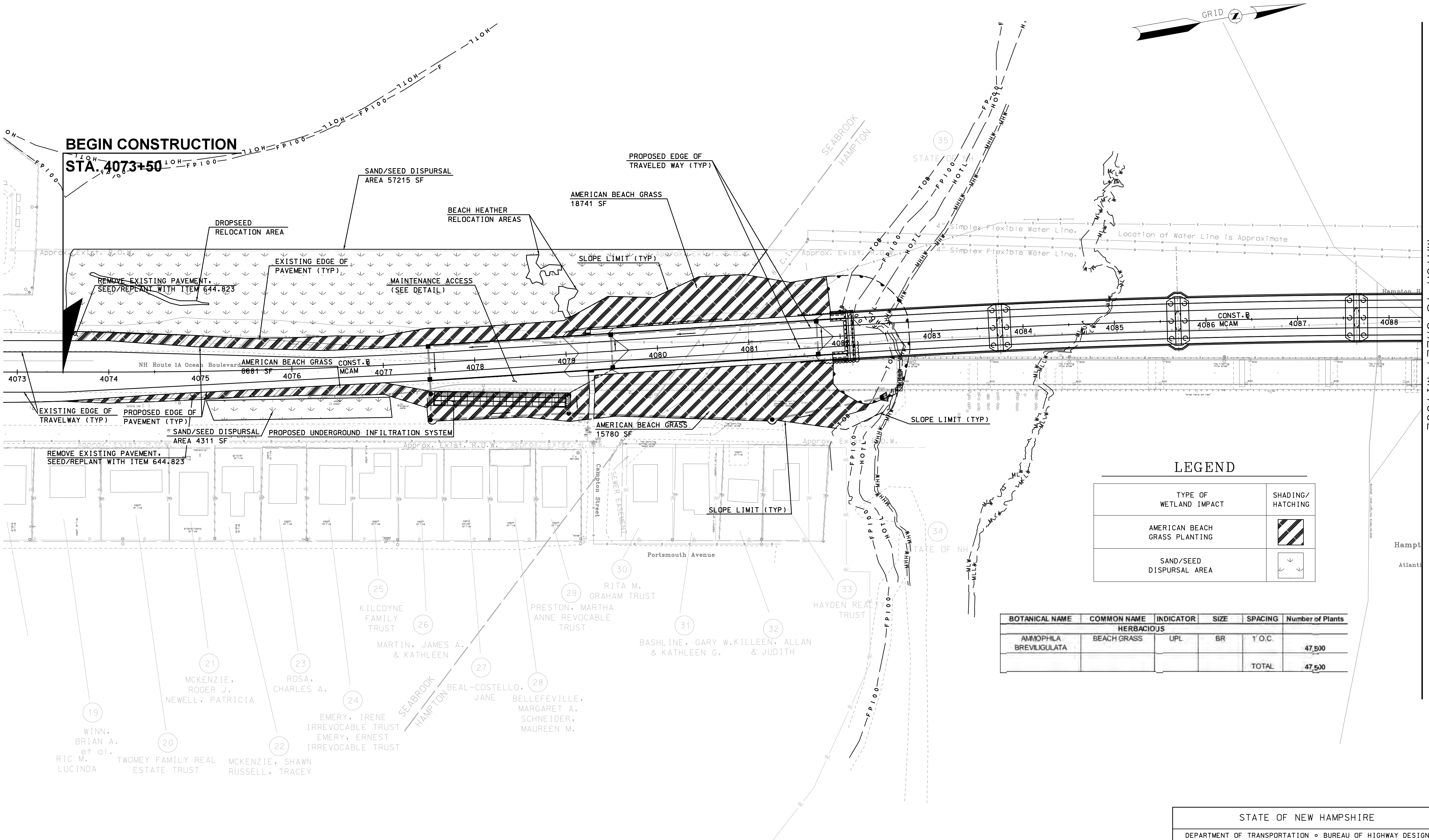
HDR

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

EROSION CONTROL PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ER0003	15904Wet_Ero	15904	18	21


BEGIN CONSTRUCTION
STA. 4073+50
SAND/SEED DISPURSAL AREA 57215 SF
PROPOSED EDGE OF TRAVELED WAY (TYP)
AMERICAN BEACH GRASS 18741 SF
BEACH HEATHER RELOCATION AREAS
DROPSEED RELOCATION AREA
EXISTING EDGE OF PAVEMENT (TYP)
SLOPE LIMIT (TYP)
REMOVE EXISTING PAVEMENT, SEED/REPLANT WITH ITEM 644.823
MAINTENANCE ACCESS (SEE DETAIL)
AMERICAN BEACH GRASS 8681 SF
CONST. B MCAM
NH Route 1A Ocean Boulevard
EXISTING EDGE OF TRAVELWAY (TYP)
PROPOSED EDGE OF PAVEMENT (TYP)
SAND/SEED DISPURSAL AREA 4311 SF
PROPOSED UNDERGROUND INFILTRATION SYSTEM
AMERICAN BEACH GRASS 15780 SF
SLOPE LIMIT (TYP)
REMOVE EXISTING PAVEMENT, SEED/REPLANT WITH ITEM 644.823
4073
4074
4075
4076
4077
4078
4079
4080
4081
4083
4084
4085
4086 MCAM
4087
4088
SEABROOK
HAMPTON
STATE OF NH
4" Simplex Flexible Water Line.
Location of Water Line is Approximate
Approx. Exist. R.O.W.
Campton Street
SEWER EASEMENT
Portsmouth Avenue
GRID
MATCH TO SHEET MIT002
19 WINN, BRIAN A. et al.
RIC M. LUCINDA
20 TWOMEY FAMILY REAL ESTATE TRUST
21 MCKENZIE, ROGER J. NEWELL, PATRICIA
22 MCKENZIE, SHAWN RUSSELL, TRACEY
23 ROSA, CHARLES A.
24 EMERY, IRENE IRREVOCABLE TRUST EMERY, ERNEST IRREVOCABLE TRUST
25 KILCOYNE FAMILY TRUST
26 MARTIN, JAMES A. & KATHLEEN
27 BEAL-COSTELLO, JANE
28 BELLEFEVILLE, MARGARET A. SCHNEIDER, MAUREEN M.
29 PRESTON, MARTHA ANNE REVOCABLE TRUST
30 RITA M. GRAHAM TRUST
31 BASHLINE, GARY W. & KATHLEEN G.
32 KILLEEN, ALLAN & JUDITH
33 HAYDEN REALTY TRUST
34 STATE OF NH
35 STATE OF NH
50 0 50 100
SCALE IN FEET

LEGEND

TYPE OF WETLAND IMPACT	SHADING/ HATCHING
AMERICAN BEACH GRASS PLANTING	(hatched)
SAND/SEED DISPURSAL AREA	(symbol)

BOTANICAL NAME	COMMON NAME	INDICATOR	SIZE	SPACING	Number of Plants
	HERBACIOUS				
AMMOPHILA BREVILIGULATA	BEACH GRASS	UPL	BR	1' O.C.	47,500
				TOTAL	47,500

REVISIONS AFTER PROPOSAL			
NUMBER	DATE	STATION	DESCRIPTION

SDR PROCESSED NHDOT DATE -
NEW DESIGN DATE
SHEET CHECKED DATE
AS BUILT DETAILS DATE

HDR

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

MITIGATION PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
MIT001	15904Wet_Mitign	15904	19	21

GRID N

MATCH TO SHEET MIT001

Back Channel

Hampton River

ITEM 202.201 - REMOVE BUILDING

SLOPE LIMIT (TYP)

4" Simplex Flexible Water Line

Approx. Exist. R.O.W.

NH Route 1A Ocean Boulevard

Rico's Lobster

Captain Bob's Lobster Tours

Three Buoys Charters

Hampton Beach parasail

Yellow Bird Deep Sea Fishing

Old Ocean Boulevard

Bailey Avenue

STATE OF NH

GILMORE, HELEN C SILVER, CATHERINE F.

STOOGES BEACH TRUST

WILLIAMS, JOSEPH G.

State Park Road

PROPOSED TREATMENT SWALE (SEE BMP DETAIL SHEETS) MAINTENANCE ACCESS (SEE DETAIL)

STATE PARK ROAD (SEE STATE PARK ROAD GRADING SHEET)

END CONSTRUCTION
STA. 4103+50

4089 4090 4091 4092 4093 4094 4095 4096 4097 4098 4099 4100 4101 4102 4103

50 0 50 100
SCALE IN FEET

REVISIONS AFTER PROPOSAL

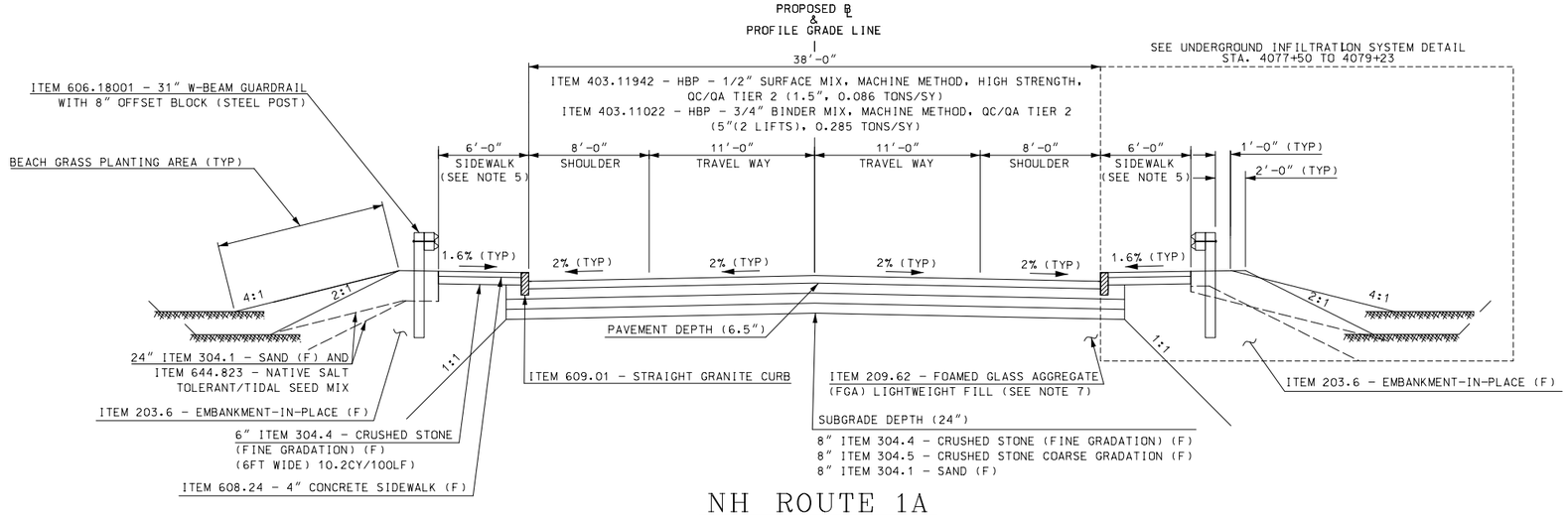
NUMBER	DATE	STATION	DESCRIPTION

SDR PROCESSED NHDOT DATE –
NEW DESIGN DATE
SHEET CHECKED DATE
AS BUILT DETAILS DATE

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION ◦ BUREAU OF HIGHWAY DESIGN

MITIGATION PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
MIT002	15904Wet_Mitign	15904	20	21



NH ROUTE 1A

STA. 4077+50 TO 4082+07.67 (BRIDGE)

NOT TO SCALE

50 0 50 100

SCALE IN FEET

REVISIONS AFTER PROPOSAL

NUMBER	DATE	STATION	STATION	DESCRIPTION

SDR PROCESSED NHDOT DATE -
NEW DESIGN DATE
SHEET CHECKED DATE
AS BUILT DETAILS DATE

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

MITIGATION PLANS

MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
MIT003	15904Wet_Mitign	15904	21	21

Attachment 23

Deeds

NH Dredge and Fill Application

Seabrook-Hampton Bridge Project (15904)

Recorded Deed

(Hampton State Pier)

KNOW ALL MEN BY THESE PRESENTS.

THAT, the Town of Hampton, a body corporate and politic, County of Rockingham, State of New Hampshire, in accordance with Chapter 159, Session Laws of 1933 and pursuant to a resolution passed in a duly authorized Town Meeting on the 25th day of July, 1933, for and in consideration of the sum of one dollar and other valuable consideration to it in hand before the delivery thereof, well and truly paid by the State of New Hampshire, have remised, released and forever Quitclaimed, and by these presents, do remise, release and forever quitclaim unto the said State of New Hampshire, it and its successors and assigns forever:

Certain beach and highway land lying in said Town of Hampton, County and State as aforesaid, and shown on a Plan recorded as Plat No. 23, Page 1 in the records of the Rockingham County Registry of Deeds, and recorded as Plan No. 3,431 in the Records of the New Hampshire State Highway Department, described as follows:

Beginning at a concrete bound situated on the westerly side of the Ocean Road, so-called, said bound being on a course N. 47° 08' 10" W. and distant 90.92 feet from the southwest corner of property of the United States, known as the Hampton Beach Coast Guard Station; thence S. 29° 43' 20" W. a distance of 778.02 feet across High Street, so-called, and by property of the Town of Hampton to a concrete bound; thence S. 15° 56' 40" W. a distance of 1,734.50 feet by property of the Town of Hampton to a concrete bound; thence S. 13° 56' 20" W., a distance of 802.29 feet by property of the Town of Hampton to a concrete bound; thence S. 12° 13' 50" W. a distance of 723.31 feet by property of the Town of Hampton to a concrete bound; thence S. 8° 07' 40" W. a distance of 1,364.47 feet by property of the Town of Hampton to a concrete bound; thence S. 12° 20' 10" W., a distance of 523.91 feet by property of the Town of Hampton, through the Winnicummet Road, so-called, and by property now or formerly of Marvin Ranlett, A. A. Lamoreaux, and others to a concrete bound; thence S. 0° 44' 00" E. a distance of 381.14 feet by property now or formerly of A. A. Lamoreaux, Jennie R. French, Celia F. Shields, Harry Welch, E. Cloch, J. Bowen, Celia F. Shields, Hannah Lehan and others to a concrete bound; thence S. 4° 56' 20" E. a distance of 439.97 feet by property now or formerly of Exeter Co-operative Bank, Mrs. Nellie L. Johnson, Mrs. Arthur Wheat, Mary Day, Estate of Lizzie N. Day and others to a concrete bound; thence S. 7° 46' 40" E. a distance of 460.44 feet by property now or formerly of Estate of Lizzie N. Day, S. D. Prince, Fannie Giddings, Mrs. Arthur Wheat, John F. Kelleher, George C. Healy, John P. Proctor and others to a concrete bound with steel bolt in center; thence S. 6° 21' 40" E. a distance of 345.15 feet by the property now or formerly of John P. Proctor, Minnie G. Andrews, William J. and Patrick O'Connell, Estate of Joseph F. Williams and others to a concrete bound; thence curving to the right with the arc of a circle having a radius of 685.0 feet, a distance of 316.02 feet by property now or formerly of Estate of Joseph F. Williams, George S. Ryan and others to a concrete bound; thence S. 20° 04' 20" W. a distance of 551.72 feet by property now or formerly of Richard F. Englehardt, Alice Marsden, Charles L. Gillis, Mary Travers, L. C. Ring, Estate of Joseph Nudd, Eugene Nudd, and others to a concrete bound; thence S. 29° 25' 30" W. a distance of 217.19 feet by property now or formerly of Mabel Guyon and others to a concrete bound; thence curving to the right with the arc of a circle having a radius of 206.0 feet, a distance of 198.71 feet by property now or formerly of Mabel Guyon and others to a concrete bound; thence S. 84° 41' 40" W., a distance of 526.11 feet by property now or formerly of Mabel Guyon, Carol J. and Lida Tilton, Basil M. Comeau, Estate of Edward G. Towle,

Nellie Thurston, Moses W. Brown, Catherine E. Wrinn, Alberta Smithson, Catherine E. Minehan, and others to a concrete bound; thence S. 74° 50' 20" W. a distance of 325.52 feet by property now or formerly of Catherine E. Minehan, Power River National Bank, Hannah A. Savage, William Kennedy, Dr. A. D. Golding, Susannah Watson and others to a concrete bound; thence S. 70° 14' 10" W. a distance of 520.37 feet by property now or formerly of Susannah Watson, William Keefe, J. Everett Towle, Charles Boardman, J. J. Mahoney and Peter McCalligat, Estate of John H. Moran, Ella M. and Lillian S. Horne, John A. Janvrin and others, across Janvrin Avenue, so-called; and by property now or formerly of Fred R. Pillsbury and others to a concrete bound; thence curving to the left with the arc of a circle having a radius of 550.0 feet, a distance of 372.69 feet by property now or formerly of Fred R. Pillsbury, Ethel B. Woodbury, J. F. James, National Mechanic and Traders Bank, William H. Sleeper, Sarah H. Gookin, Frank Fellows and others, to a concrete bound; thence S. 31° 24' 40" W., a distance of 124.92 feet by property now or formerly of Frank Fellows, Estate of Ashton Lee and others to a concrete bound; thence S. 22° 47' 30" W., a distance of 216.18 feet by property now or formerly of Estate of Ashton Lee, William D. Fitzgerald and others, to a concrete bound; thence S. 20° 19' 30" W., a distance of 80.41 feet by property now or formerly of William D. Fitzgerald and others, across Glade Path, so-called, and by property now or formerly of J. J. O'Donnell and others to a concrete bound; thence curving to the right with the arc of a circle having a radius of 1.145 feet, a distance of 206.0 feet by property now or formerly of J. J. O'Donnell, Estate of Irving Beach, John S. Mason and others to a concrete bound; thence S. 30° 38' 00" W., a distance of 284.12 feet by property now or formerly of Estate of Irving Beach, Patrick J. Dorgan, Heirs of Patrick Kearns, Frank H. P. Clement, Charles E. Austin, Blanche A. Richardson, and others to a concrete bound, thence S. 31° 23' 50" W., a distance of 269.30 feet by property now or formerly of Charles E. Austin, Blanche A. Richardson, Nora K. Jones, Bessie F. Jones and others, across Ross Avenue, so-called, and by property now or formerly of Kenneth N. Ross, Mrs. C. W. Ross and others, to a concrete bound, thence S. 35° 49' 50" W., a distance of 231.41 feet by property now or formerly of Mrs. C. W. Ross, Raymond L. Geding, Edith L. Gilman and others, across Highland Avenue, so-called, and by property now or formerly of James S. DeLancy and others, to a concrete bound; thence S. 34° 42' 50" W. a distance of 120.29 feet by property now or formerly of James S. DeLaney, George Ashworth and others to a concrete bound; thence S. 36° 25' 00" W., a distance of 64.62 feet by property now or formerly of George Ashworth and across a portion of Nudd Avenue, so-called, to a concrete bound; thence S. 15° 14' 10" W., a distance of 95.35 feet across the remaining portion of Nudd Avenue and across Marsh Avenue, so-called, and by property now or formerly of the Hampton Beach Improvement Company to a concrete bound; thence S. 18° 48' 40" W., a distance of 403.29 feet by property now or formerly of the Hampton Beach Improvement Company and across A Street, so-called, to a concrete bound; thence S. 15° 10' 40" W., a distance of 138.99 feet by property now or formerly of the Hampton Beach Improvement Company and across a portion of B Street, so-called, to a concrete bound; thence S. 12° 48' 50" W., a distance of 439.37 feet across the remaining portion of B Street, so-called, by property now or formerly of the Hampton Beach Improvement Company, across C Street, so-called, and by property now or formerly of the Hampton Beach Improvement Company to a concrete bound; thence S. 11° 29' 20" W., a distance of 520.79 feet across D Street, so-called, by property now or formerly of the Hampton Beach Improvement Company, and across F Street, so-called, to a concrete bound; thence S. 10° 44' 50" W. a distance of 548.06 feet by property now or formerly of Hampton Beach Improvement Company, across G Street, so-called, by property now or formerly of the Hampton Beach Improvement Company, across H Street, so-called, and by property now or formerly of the Hampton Beach Improvement Company to a concrete bound; thence S. 5° 55' 50" W., a distance of 758.89 feet by property now or formerly of the Hampton Beach Improvement Company, across I Street, so-called, by property of

the Hampton Beach Improvement Company, across J Street, so-called, by property now or formerly of the Hampton Beach Improvement Company, across K Street, so-called, and by property now or formerly of the Hampton Beach Improvement Company to a concrete bound; thence S. 5° 09' 10" W., a distance of 333.10 feet by property now or formerly of the Hampton Beach Improvement Company, across L Street, so-called, by property now or formerly of the Hampton Beach Improvement Company, and across a portion of M Street, so-called, to a concrete bound; thence S. 6° 17' 40" W. a distance of 181.72 feet across the remaining portion of M Street, so-called, by property now or formerly of the Hampton Beach Improvement Company to a concrete bound; thence S. 9° 52' 30" W. a distance of 58.33 feet by property now or formerly of the Hampton Beach Improvement Company to a concrete bound; thence S. 34° 03' 40" W., a distance of 243.67 feet across N Street, so-called, by property now or formerly of the Hampton Beach Improvement Company to a concrete bound; thence S. 35° 10' 00" W., a distance of 724.93 feet by property now or formerly of the Hampton Beach Improvement Company, across O Street, so-called, by property now or formerly of the Hampton Beach Improvement Company, across P Street, so-called, by property now or formerly of the Hampton Beach Improvement Company, across Q Street, so-called, and by property now or formerly of the Hampton Beach Improvement Company to a concrete bound; thence curving to the right with the arc of a circle having a radius of 790.0 feet, a distance of 291.35 feet by property now or formerly of the Hampton Beach Improvement Company and the Town of Hampton to a concrete bound; thence S. 56° 17' 50" W. a distance of 184.73 feet by property now or formerly of the Town of Hampton, across Marsh Avenue, so-called, by property now or formerly of E. W. Bailey and others to a concrete bound; thence curving to the left with the arc of a circle having a radius of 390 feet, a distance of 310.57 feet by property now or formerly of E. W. Bailey, A. N. Gagnon, Frank Locke, E. W. Bailey and others to a concrete bound; thence S. 10° 40' 15" W., a distance of 14.40 feet by property now or formerly of E. W. Bailey and others to a bound, said bound being a T rail set in concrete; thence S. 10° 40' 15" W. by property now or formerly of E. W. Bailey and others to the extreme low water line of the Hampton River; thence in an easterly and southeasterly direction along the said extreme low water line of the Hampton River and thence in a northerly direction with the extreme low water line of the Atlantic Ocean as it is now, or at any future time may run, to a point in a line bearing S. 47° 08' 10" E. from the first mentioned concrete bound; thence N. 47° 08' 10" W. by property now or formerly of the Town of Hampton and the property of the United States, known as the Hampton Beach Coast Guard Station, and across the Ocean Road, so-called, to the bound first mentioned.

Saving and reserving from the above all of that portion of the head land known as Great Boar's Head which lies easterly or southeasterly from the following described line:

> Beginning at a concrete bound at the northeasterly corner of the parcel designated as Parcel B on the plan referred to above; and running thence S. 20° 04' 20" W. 557.12 feet to a concrete bound; thence S. 29° 25' 30" W. 222.59 feet to a concrete bound, said bound being at the southeasterly corner of the aforesaid Parcel B; thence continuing with the course last mentioned to the extreme low water line of the Atlantic Ocean; thence running easterly, northerly and northwesterly with the extreme low water line of the Atlantic Ocean to a point in a line bearing N. 26° 59' 50" E. from a concrete bound; thence S. 26° 59' 50" W. to said concrete bound; thence N. 63° 00' 10" W. 165.16 feet to a concrete bound; thence S. 64° 07' 20" W. 136.77 feet to a concrete bound; thence S. 20° 04' 20" W. 43.84 feet to the concrete bound begun at.

Saving and reserving such other land, if any, lying within the limits of the tract shown as Parcel B on said plan, as may be held by certain individuals under private ownership.

Saving and reserving from the above all of the land shown as White Island on said plan; and being bounded northerly by Parcel C, westerly by Parcel D, southerly and southeasterly by Parcel E, and easterly by the Atlantic Ocean, according to the following description:

Beginning at a concrete bound at the northeasterly corner of the parcel designated as Parcel D on the plan referred to above, said concrete bound being on a line running N. 84° 11' 20" E. a distance of 85.71 feet from the southwest corner of the parcel designated as Parcel C on plan referred to aforesaid; thence running S. 35° 10' 00" W. 1024.76 feet by land of the Town of Hampton to a concrete bound; thence curving to the right with the arc of a circle having a radius of 850 feet a distance of 271.69 feet by land of the Town of Hampton to a concrete bound; thence curving to the left with the arc of a circle having a radius of 480 feet a distance of 349.51 feet by land of the Town of Hampton to a concrete bound; thence S. 11° 45' 40" W. 72.14 feet by land of the Town of Hampton to a concrete bound in a line running N. 81° 04' 40" W; thence running S. 78° 14' 20" E. 237.09 feet by land of the Town of Hampton to a concrete bound; thence running N. 72° 18' 55" E. 512.37 feet by land of the Town of Hampton to a concrete bound; thence running N. 52° 52' 45" E. to the extreme low water line of the Atlantic Ocean; thence in a northerly direction with the extreme low water line of the Atlantic Ocean as it now or at any future time may run to a point in a line bearing N. 84° 48' 50" W; thence along said line bearing N. 84° 48' 50" W. by land of the Town of Hampton to the concrete bound first begun at. The courses mentioned above relate to the True Meridian; the distances being given in feet and decimals thereof. The extreme low water line hereinbefore mentioned in this instrument is intended to be a line which lies Easterly from the Westerly line of the Ocean Boulevard as described herein.

Saving and reserving such other land, if any, lying within the limits of the parcel shown as Parcel D on said plan, as may be held by certain individuals under private ownership.

"Meaning and intending hereby convey

(1) All the right, title and interest of the Town of Hampton in and to land in said Hampton included within the layout of the state highway and situated between the main traveled portion of said highway and the Atlantic Ocean, and extending from the Coast Guard Station to Great Boar's Head and from Great Boar's Head to Haverhill Avenue, so-called, as provided by vote of the Town of Hampton at a meeting duly called for the purpose, held .....1933, and in accordance with and subject to the provisions of Chapter 159 of the Laws of ~~1934~~ 1933 as to maintenance by the state and the Town of Hampton and otherwise.

(2) All the right, title and interest in such land, rights or easements of the Town of Hampton in the Town of Hampton as may be necessary for the construction and maintenance of jetties, sea walls or other structures as authorized by vote of the Town of Hampton at a meeting duly called for the purpose, held ..... 1933, and in accordance with and subject to the provisions of Chapter 159 of the Laws of 1933.

It is hereby understood that this conveyance does not release the Town of Hampton from its obligation to convey other land, rights or easements than that hereinabove specifically described for jetties, sea walls or other structures if the necessities of the situation require, for an additional purchase price or upon eminent domain procedure as provided by Chapter 159 of the Laws of 1933; but that the land specifically conveyed for that purpose is in accordance with plans prepared by engineers of the federal government and approved by the governor and council.

It is hereby made a condition to this instrument that the land described above shall not be subject to the provisions of Chapter 105, Laws of 1931, and shall be held by the state for public highway, park and recreational purposes forever, and that no concession shall be granted thereon, provided, however, that the Town of Hampton, so long as the Governor and Council shall approve, may maintain the band stand, comfort station, chamber of commerce building or similar structures, and the parking place and play grounds now thereon; and as this deed is given for the purpose of complying with the provisions of Chapter 159, Laws of 1933 this deed is given conditional to the construction within reasonable time of such jetties, sea walls or other structures as may be deemed necessary or desirable by the Governor and Council, otherwise this deed is void and of no effect.

TO HAVE AND TO HOLD the said premises, with all the privileges and appurtenances thereunto belonging, to it the said State of New Hampshire, it and its successors and assigns forever; and the said Town of Hampton does hereby covenant with the said State of New Hampshire that the said Town of Hampton will warrant and defend the said premises to it the said State of New Hampshire, it and its successors and assigns, against the lawful claims and demands of any person or persons claiming by, from or under the Town of Hampton.

IN WITNESS WHEREOF the said Town of Hampton has caused its corporate seal to be hereto affixed and these presents to be signed, acknowledged and delivered in its name and behalf by Harry D. Munsey, Edwin L. Batchelder, and Elroy G. Shaw, Selectmen of the Town of Hampton, duly authorized, this 26th day of October, in the year of our Lord, one thousand nine hundred and thirty-three.

Signed, sealed and delivered
in the presence of us:

s/ Frederic E. Everett
as to all

s/ Harry D. Munsey SELECTMEN
s/ Edwin L. Batchelder TOWN OF HAMPTON
s/ Elroy G. Shaw DULY AUTHORIZED

STATE OF NEW HAMPSHIRE, Rockingham SS. October 26th, A. D. 1933

Personally appeared the above named Harry D. Munsey, Edwin L. Batchelder and Elroy G. Shaw, Selectmen of the Town of Hampton and acknowledged the foregoing instrument to be their voluntary act and deed. Before me:

s/ John W. Perkins
Justice of the Peace

Quitclaim Deed - Town of Hampton to State of New Hampshire
Recorded Rockingham County Records
Received November 3, 1933, 10 Hour 10 Minute A. M.
Recorded Lib. 894, Fol. 44

Examined by: s/ John W. A. Green, Register

HAMPTON BEACH

STATE LAND RECORD Tract No. ~~110~~ Card 1

GRANTOR Town of Hampton, New Hampshire

DATE OF DEED October 26, 1933

DATE OF RECORD November 3, 1933

GRANTEE State of New Hampshire

CHARACTER Quitclaim

BOOK 894 PAGE 44

CONSIDERATION $1.00

COUNTY Rockingham

DESCRIPTION TREAS. OFFICE, Vol. 7, Page 22

KNOW ALL MEN BY THESE PRESENTS

THAT, the Town of Hampton, a body corporate and politic, County of Rockingham, State of New Hampshire, in accordance with Chapter 159, Session Laws of 1933, and pursuant to a resolution passed in a duly authorized Town Meeting on the 25th day of July 1933, for and in consideration of the sum of one dollar and other valuable consideration to it in hand before the delivery thereof, well and truly paid by the State of New Hampshire, have remised, released and forever quitclaimed, and by these presents do remise, release and forever quitclaim unto the said State of New Hampshire it and its successors and assigns forever:

Certain beach and highway land lying in said Town of Hampton, County and State aforesaid, and shown on a plan recorded as Plat No. 23, Page 1, in the records of the Rockingham County Registry of Deeds, and recorded as Plan No. 3431 in the records of the New Hampshire State Highway Department, described as follows:

Beginning at a concrete bound situated on the westerly side of the Ocean Road, so-called, said bound being on a course N. 47° 08' 10" W. and distant 90.92 feet from the southwest corner of property of the United States known as Hampton Beach Coast Guard Station; thence S. 20° 43' 20" W. a distance of 778.02 feet across High Street, so-called, and by property of the Town of Hampton to a concrete bound; thence S. 15° 56' 40" W. a distance of 1,784.50 feet by property of the Town of Hampton to a concrete bound; thence S. 13° 56' 20" W. a distance of 802.29 feet by property of the Town of Hampton to a concrete bound; thence S. 12° 13' 50" W. a distance of 723.81 feet by property of the Town of Hampton to a concrete bound; thence S. 8° 07' 40" W. a distance of 1,364.47 feet by property of the Town of Hampton to a concrete bound; thence S. 12° 20' 10" W. a distance of 523.91 feet by property of the Town of Hampton, through the Winnicummet Road, so-called, and by property now or formerly of Marvin Hanlett, A. A. Lamoreaux and others to a concrete bound; thence S. 0° 44' 00" E. a distance of 381.14 feet by property now or formerly of A. A. Lamoreaux, Jennie R. French, Celia F. Shields, Harry Veleh, E. Cloch, J. Bowen, Celia F. Shields, Hannah Lehan and others to a concrete bound; thence S. 4° 56' 20" E. a distance of 439.97 feet by property now or formerly of Exeter Co-operative Bank, Mrs. Nellie L. Johnson, Mrs. Arthur Wheat, Mary Day, Estate of Lizzie N. Day and others to a concrete bound; thence S. 7° 46' 40" E. a distance of 460.44 feet by property now or formerly of Estate of Lizzie N. Day, S. D. Prince, Fannie Giddings, Mrs. Arthur Wheat, John F. Kelleher, George C. Healy, John P. Proctor and others to a concrete bound with a steel bolt in the center; thence S. 6° 21' 40" E. a distance of 345.15 feet by the property now or formerly of John P. Proctor, Minnie G. Andrews, William J. and Patrick O' Connell, Estate of Joseph F. Williams and others to a concrete bound; thence curving to the right with the arc of a circle having a

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radius of 685.0 feet, a distance of 316.02 feet by property now or formerly of Estate of Joseph F. Williams, George S. Ryan and others to a concrete bound; thence S. 20° 04' 20" W. a distance of 551.72 feet by property now or formerly of Richard F. Englehardt, Alice Larsden, Charles L. Gillis, Mary Travers, L. C. Ring, Estate of Joseph Nudd, Eugene Nudd and others to a concrete bound; thence S. 29° 25' 30" W. a distance of 217.19 feet by property now or formerly of Mabel Guyon and others to a concrete bound; thence curving to the right with the arc of a circle having a radius of 206.0 feet, a distance of 198.71 feet by property now or formerly of Mable Guyon and others to a concrete bound; thence S. 84° 41' 40" W. a distance of 526.11 feet by property now or formerly of Mable Guyon, Carol J. and Lida Tilton, Basil M. Comeau, Estate of Edward G. Towle, Nellie Thurston, Moses W. Brown, Catherine J. Grinn, Alberta Smithson, Catherine M. Minghan and others to a concrete bound; thence S. 74° 50' 20" W. a distance of 325.52 feet by property now or formerly of Catherine T. Linehan, Power River National Bank, Hannah A. Savage, William Kennedy, Dr. A. D. Golding, Susannah Watson and others to a concrete bound; thence S. 70° 14' 10" W. a distance of 520.37 feet by property now or formerly of Susannah Watson, William Keefe, J. Everett Towle, Charles Boardman, J. J. Mahoney and Peter McGalligat Estate of John H. Moran, Ella M. and Lillian S. Horne, John A. Janvrin and others across Janvrin Avenue, so-called, and by property now or formerly of Fred R. Fillsbury and others to a concrete bound; thence curving to the left with the arc of a circle having a radius of 550.0 feet to a distance of 372.6' feet by property now or formerly of Fred R. Fillsbury, Ethel B. Woodbury, J. F. James, National Mechanic and Traders Bank, William H. Sleeper, Sarah H. Gookin, Frank Fellows and others, to a concrete bound; thence S. 31° 24' 40" W. a distance of 124.92 feet by property now or formerly of Frank Fellows, Estate of Ashton Lee and others to a concrete bound; thence S. 22° 47' 30" W. a distance of 216.18 feet by property now or formerly of Estate of Ashton Lee, William D. Fitzgerald and others, to a concrete bound; thence S. 20° 19' 30" W. a distance of 80.41 feet by property now or formerly of William D. Fitzgerald and others, across Glade Path, so-called, and by property now or formerly of J. J. O'Connell and others to a concrete bound; thence curving to the right with the arc of a circle having a radius of 1,145 feet, a distance of 206.0 feet by property now or formerly of J. J. O'Connell, Estate of Irving Beach, John S. Mason and others to a concrete bound; thence S. 30° 38' 00" W. a distance of 284.12 feet by property now or formerly of Estate of Irving Beach, Patrick J. Dorgan, Heirs of Patrick Kearns, Frank H. F. Clement, Charles E. Austin, Blance A. Richardson and others to a concrete bound; thence S. 31° 23' 50" W. a distance of 269.30 feet by property now or formerly of Charles E. Austin, Blance A. Richardson, Nora L. Jones, Bessie F. Jones and others, across Ross Avenue, so-called, and by property now or formerly of Kenneth N. Ross, Mrs. C. W. Ross and others, to a concrete bound; thence S. 35° 49' 50" W. a distance of 231.41 feet by property now or formerly of Mrs. C. W. Ross, Raymond L. Goding, Edith L. Gilman and others, across Highland Avenue, so-called, and by property now or formerly of James S. De Lancy and others, to a concrete bound; thence S. 34° 42' 50" W. a distance

HAMPTON BEACH
STATE LAND RECORD

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of 120.29 feet by property now or formerly of James S. DeLancy, George Ashworth and others to a concrete bound; thence S. 36° 25' 00" W. a distance of 64.62 feet by property now or formerly of George Ashworth and across a portion of Nudd Avenue, so-called, to a concrete bound; thence S. 15° 14' 10" W. a distance of 95.35 feet across the remaining portion of Nudd Avenue and across Marsh Avenue, so-called, and by property now or formerly of the Hampton Beach Improvement Company to a concrete bound; thence S. 18° 48' 40" W. a distance of 403.29 feet by property now or formerly of the Hampton Beach Improvement Company and across A. Street, so-called, to a concrete bound; thence S. 15° 10' 40" W. a distance of 138.99 feet by property now or formerly of the Hampton Beach Improvement Company and across a portion of B. Street, so-called, to a concrete bound; thence S. 12° 48' 50" W. a distance of 439.37 feet across the remaining portion of B. Street, so-called, by property now or formerly of the Hampton Beach Improvement Company, across C. Street, so-called, and by property now or formerly of the Hampton Beach Improvement Company to a concrete bound; thence S. 11° 29' 20" W. a distance of 520.79 feet across D. Street, so-called, by property now or formerly of the Hampton Beach Improvement Company, and across F. Street, so-called, to a concrete bound; thence S. 10° 44' 50" W. a distance of 548.06 feet by property now or formerly of Hampton Beach Improvement Company, across G. Street, so-called, by property now or formerly of the Hampton Beach Improvement Company, across H. Street, so-called and by property now or formerly of the Hampton Beach Improvement Company to a concrete bound; thence S. 5° 55' 50" W. a distance of 758.89 feet by property now or formerly of the Hampton Beach Improvement Company, across I. Street, so-called, by property of the Hampton Beach Improvement Company, across J. Street, so-called, by property now or formerly of the Hampton Beach Improvement Company, across K Street so-called, and by property now or formerly of the Hampton Beach Improvement Company to a concrete bound; thence S. 5° 09' 10" W. a distance of 333.10 feet by property now or formerly of the Hampton Beach Improvement Company, across L. Street, so-called, by property now or formerly of the Hampton Beach Improvement Company and across a portion of M. Street, so-called to a concrete bound; thence S. 6° 17' 40" W. a distance of 181.72 feet, across the remaining portion of M. Street, so-called, by property now or formerly by the Hampton Beach Improvement Company to a concrete bound; thence S. 9° 52' 30" W. a distance of 58.33 feet by property now or formerly of the Hampton Beach Improvement Company to a concrete bound; thence S. 34° 03' 40" W. a distance of 243.67 feet, across N. Street so-called, by property now or formerly of the Hampton Beach Improvement Company to a concrete bound; thence S. 35° 10' 00". W. a distance of 724.93 feet by property now or formerly of the Hampton Beach Improvement Company, across O. Street, so-called, by property now or formerly of the Hampton Beach Improvement Company, across P. Street, so-called, by property now or formerly of the Hampton Beach Improvement Company, across Q street, so-called, and by property now or formerly of the Hampton Beach Improvement

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Company to a concrete bound; thence curving to the right with the arc of a circle having a radius of 790.0 feet, a distance of 291.35 feet by property now or formerly of the Hampton Beach Improvement Company and the Town of Hampton to a concrete bound; thence S. 56° 17' 50" W. a distance of 184.73 feet by property now or formerly of the Town of Hampton, across Marsh Ave. so-called, by property now or formerly of E. W. Bailey and others to a concrete bound; thence curving to the left with the arc of a circle having a radius of 390 feet, a distance of 310.57 feet by property now or formerly of E. W. Bailey , A. N. Gagnon, Frank Locke, E. W. Bailey and others to a concrete bound; thence S. 10° 40' 15" W. a distance of 14.40 feet by property now or formerly of E. W. Bailey and others to a bound; said bound being a T-rail set in concrete; thence S. 10° 40' 15" W. by property now or formerly of E. W. Bailey and others to the extreme low water line of Hampton River; thence in an esterly and southeasterly direction along the said extreme low water line to the Hampton River and thence in a northerly direction with the extreme low water line of the Atlantic Ocean as it is now, or at any future time may run, to a point in a line bearing S. 47° 08' 10" E. from the first mentioned concrete bound; thence N. 47° 08' 10" W. by property now or formerly of the Town of Hampton and the property of the United States, known as the Hampton Beach Coast Guard Station, and across the Ocean Road, so-called to the bound first mentioned.

Saving and reserving from the above all of that portion of the head land known as Great Boar's Head which lies easterly and southeasterly from the following described line:

Beginning at a concrete bound at the northeasterly corner of the parcel designated as Parcel B. on the Plan referred to above; and running thence S. 20° 4' 20" W. 557.12 feet to a concrete bound; thence S. 29° 25' 30" W. 222.59 feet to a concrete bound, said bound being at the southeasterly corner of the aforesaid Parcel B; thence continuing with the course last mentioned to the extreme low water line of the Atlantic Ocean; thence running easterly, northerly and northwesterly with the extreme low water line of the Atlantic Ocean to a point in aline bearing N. 26° 59' 50" E. from a concrete bound; thence S. 26° 59' 50" W. to said concrete bound; thence N. 63° 00' 10" W. 165.16 feet to a concrete bound; thence S. 64° 07' 20". W. 136.77 feet to a concrete bound; thence S. 20° 04' 20" W. 43.84 feet to the concrete bound begun at.

Saving and reserving such other land, if any, lying within the limits of the tract shown as Parcel B. on said Plan, as may be held by certain individuals under private ownership.

Saving and reserving from the above all of the land shown as White Island on said plan; and being bounded northerly by Parcel C; westerly by Parcel D. southerly and southeasterly by Parcel E. and easterly by the Atlantic

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Ocean, according to the following description:

Beginning at a concrete bound at the northeasterly corner of the parcel designated as Parcel D. on the plan referred to above, said concrete bound being on a line running N. 84° 11' 20" E. a distance of 85.71 feet from the southwest corner of the parcel designated as Parcel C. on plan referred to aforesaid; thence running S. 35° 10' 00" W. 1024.76 feet by land of the Town of Hampton to a concrete bound; thence curving to the right with the arc of a circle having a radius of 850 feet, a distance of 271.69 feet by land of the Town of Hampton to a concrete bound; thence curving to the left with the arc of a circle having a radius of 480 feet a distance of 349.51 feet by land of the Town of Hampton to a concrete bound; thence S. 11° 45' 40" W. 72.14 feet by land of the Town of Hampton to a concrete bound ina line running N. 81° 04' 40" W; thence running S. 78° 14' 20" E. 237.09 feet by land of the Town of Hampton to a concrete bound; thence running N. 72° 18' 55" E. 512.37 feet by land of the Town of Hampton to a concrete bound ;thence running N. 52° 52' 45" E. to the extreme low water line of the Atlantic Ocean; thence in a northerly direction with the extreme low water line of the Atlantic Ocean as it now or at any future time may run to apoint in a line bearing N. 84° 48' 50" W; thence along said line bearing N. 84° 48' 50" W. by land of the Town of Hampton to the concrete bound first began at. The courses mentioned above relate to the True Meridan; the distance being given in feet and decimals thereof. The extreme low water line hereinbefore mentioned in this instrument is intended to be a line which lies Easterly from the westerly line of the Ocean Boulevard as described herein.

Saving and reserving such other land, if any, lying within the limits of the parcel shown as Parcel D. on said plan, as maybe held by certain individuals under private ownership.

"Meaning and intending hereby to convey
(1) All the right, title and interest of the Town of Hampton in and to land in said Hampton included within the layout of the State Highway and situated between the main travelled portion of said highway and the Atlantic Ocean, and extending from the Coast Guard Station to Great Boar's Head and from Great Boar's Head to Haverhill Avenue, so-called, as provided by vote of the Town of Hampton at a meeting duly called for the purpose, held on 1933, and in accordance with and subject to the provision of Chapter 159 of the Laws of 1933, as to maintainance by the State and the Town of Hampton and otherwise.

(2) All the right, title and interest in such land, rights or easements of the Town of Hampton in the Town of Hampton as may be necessary for the construction and maintainance of jetties, sea walls or other structures as authorized by vote of the Town of Hampton at a meeting duly called for the

STATE LAND RECORD Tract No. ~~130~~ 99 Card 1

GRANTOR Town of Hampton DATE OF DEED October 26, 1933

DATE OF RECORD November 3, 1933

GRANTEE State of New Hampshire CHARACTER Quitclaim

BOOK 894 PAGE 44

CONSIDERATION $1.00 COUNTY Rockingham

DESCRIPTION

purpose, held 1933, and in accordance with and subject to the provision of Chapter 159 of the Laws of 1933.

It is hereby understood that this conveyance does not release the Town of Hampton from its obligation to convey other land, rights or easement than that hereinabove specifically designated for jetties, sea walls or other structures if the necessities of the situation require for an addition purchase price or upon eminent domain procedure as provided by Chapter 159 of the Laws of 1933, but that the land specifically conveyed for that purpose is in accordance with plans prepared by engineers of the Federal Government and approved by the Governor and Council.

It is hereby made a provision of this instrument that the land described above shall not be subject to the provision of Chapter 105, Laws of 1931 and shall be held by the State for public highway, park and recreational purposes forever, and that no concession shall be granted thereon, provided however, that the Town of Hampton, so long as the Governor and Council shall approve, may maintain the bandstand, comfort station, Chamber of Commerce building or similar structures, and the parking place and play grounds now thereon; and as this deed is given for the purpose of complying with the provisions of Chapter 159, Laws of 1933 this deed is given conditional to the construction within reasonable time of such jetties, sea walls or other structures as may be deemed necesary or desirable by the Governor and Council, otherwise this deed is void and of no affect.

Harry D. Munsey, Edwin L. Batchelder, and Elroy G. Shaw, Selectmen.

CARD 1A

HAMPTON BEACH STATE PARK

STATE LAND RECORD

GRANTOR

GRANTEE

CONSIDERATION

DATE OF DEED

DATE OF RECORD

CHARACTER

BOOK PAGE

COUNTY

TREAS. BOOK PAGE

DESCRIPTION

AGGREEMENT RELATIVE TO THE TRANSFER OF

ADMINISTRATION OF CERTAIN STATE LAND
IN THE TOWN OF HAMPTON

Comformably with authority granted by the Governor and Council assembled in Executive Session on May 29, 1953 there is transferred from the administration of the Department of Public Works and Highways to the Forestry and Recreation Commission the following premises:

All of the land adjacent to the northerly approach of the Hampton River Toll Bridge in the Town of Hampton owned by The State of New Hampshire and heretofore under the administration of the Department of Public Works and Highways which lies westerly of a line described as follows, to wit: commencing at the approximate high tide line as the same appears on Sheet No. 45, Federal Aid Project F 318 (1) at a point which is sixty (60) feet westerly of the center line of construction of Ocean Boulevard as shown on said Sheet No. 45, thence running northeasterly and parallel with said center line of construction a distance of approximately one thousand twenty (1020) feet to its terminus as shown in red on copies of said Sheet No. 45 on file in the office of the Commissioner of the Department of Public Works and Highways and in the office of the Director of Recreation.

Frank D. Merrill, Commissioner
Department of Public Works and Highways

June 9th ,1953

Russell B. Tobey, Director
Recreation Division
Forestry & Recreation Commission

AGREEMENT RELATIVE TO THE TRANSFER OF
ADMINISTRATION OF CERTAIN STATE LAND
IN THE TOWN OF HAMPTON.

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Frank D. Merrill, Commissioner
Department of Public Works and Highways

June 9th 1953.

Russell B. Tobey, Director
Recreation Division,
Forestry & Recreation Commission

Zoning Summary/Acreage Change Form

Property: Hampton Beach State Park Date: 08/05/2005

Purpose: Inventory-zoning change, Acquisition, Disposal, Survey Correction
Other Disposal (Select appropriate category)

The following to be filled in by the Survey Office:

In the Town of Hampton 46.5 Acres Formerly 50.00 Acres

In the Town of _____ _____ Acres Formerly _____ Acres

In the Town of _____ _____ Acres Formerly _____ Acre

In the Town of _____ _____ Acres Formerly _____ Acres

Total: New 46.50 Acres Formerly 50.00 Acres

Notes:
Harbor area transferred to PDA-Division of Ports and Harbors by HB617-FN Local; 55-8; 200(

The following land-use zoning information to be filled in by the Regional Forester:

Use	Zone	Town	County	Previous Acreage	New Acreage	Date
				0.00	0.00	

Use categories: Forest Management, Park Management, Agriculture
Zones: Timber, Scenic, Recreation, Park, Water Resources, Wildlife, Natural Reserve, Historic, Agricultural Lease, Open, Other

Ron Duddy
Signed

CHAPTER 55

HB 617-FN-A-LOCAL - FINAL VERSION

5jan00.....2058h

2000 SESSION

99-0423

03/09

HOUSE BILL ***617-FN-A-LOCAL***

AN ACT relative to funding and monitoring seacoast harbor issues.

SPONSORS: Rep. Leber, Merr 1; Rep. Vaughn, Rock 35; Rep. Calawa, Hills 17; Rep. Winston McCarty, Hills 38; Rep. Alukonis, Hills 23; Sen. Gordon, Dist 2; Sen. F. King, Dist 1; Sen. D'Allesandro, Dist 20

COMMITTEE: Public Works and Highways

AMENDED ANALYSIS

This bill:

I. Changes the dredging projects fund to the harbor dredging and pier maintenance fund.

II. Establishes a surcharge for boats registered for tidal and coastal waters to be paid into the harbor dredging and pier maintenance fund.

III. Requires the port authority to set slip fees equal to mooring fees.

IV. Transfers the commercial fish piers in Portsmouth, Rye Harbor, and Hampton Harbor from the department of resources and economic development to the port authority.

V. Establishes a committee to study unrefunded road bills.

- -

Explanation: Matter added to current law appears in ***bold italics.***

Matter removed from current law appears [~~in brackets and struckthrough.~~]

Matter which is either (a) all new or (b) repealed and reenacted appears in regular type.

5jan00.....2058h

99-0423

03/09

STATE OF NEW HAMPSHIRE

In the Year of Our Lord Two Thousand

AN ACT relative to funding and monitoring seacoast harbor issues.

Be it Enacted by the Senate and House of Representatives in General Court convened:

55:1 State Treasurer and State Accounts; Application of Receipts; General Revenue Exceptions; Reference Changed. Amend RSA 6:12, I(vvv) to read as follows:

(vvv) Moneys deposited in the ***harbor*** dredging [~~projects~~] ***and pier maintenance*** fund established in RSA 271-A:21.

55:2 Department of Resources and Economic Development; Bureau of Marine Services; Exception Added. Amend RSA 12-A:7-a to read as follows:

12-A:7-a Bureau of Marine Services. There is hereby established in the division of parks and recreation of the department of resources and economic development, a bureau of marine services, which shall have the responsibility for and jurisdiction over ***recreational activities at*** state-owned [~~commercial~~] fishing piers and facilities.

55:3 Navigation; Vessel Registration and Numbering; Registration Required; Application; Tidal and Coastal Waters. Amend the introductory paragraph of RSA 270-E:3, III to read as follows:

III. Application for registration shall be in such form and contain such information as the commissioner shall determine. The fees required by RSA 270-E:5 shall accompany the application. The application shall request the principal use of the vessel ***and ask whether the vessel is to be registered for tidal and coastal waters***. The application shall also contain the following statements:

55:4 New Subparagraph; Navigation; Vessel Registration and Numbering; Registration Fees; Surcharge for Vessels Registered for Tidal or Coastal Waters. Amend RSA 270-E:5, II by inserting after subparagraph (d) the following new subparagraph:

(e) $2 for each registration for tidal or coastal waters. The surcharge collected under this subparagraph shall be paid into the harbor dredging and pier maintenance fund established under RSA 271-A:21.

55:5 Navigation; New Hampshire State Port Authority; Powers and Duties; Fees for Mooring and Slip Permits. Amend RSA 271-A:3, V(a) to read as follows:

> (a) Be authorized to set and collect fees for mooring and slip permits and waiting lists for such permits. ***The authority shall establish fees for slips in harbors and tidal rivers that are equal to or proportional to the fees for moorings in harbors. Fees shall not be charged for slips at industrial piers along the Piscataqua River or at state-owned piers in harbors. The fees for slips shall be paid into the harbor dredging and pier maintenance fund established under RSA 271-A:21.***

55:6 New Paragraph; Navigation; New Hampshire State Port Authority; Powers and Duties; Piers in Portsmouth, Rye Harbor, and Hampton Harbor. Amend RSA 271-A:3 by inserting after paragraph VI the following new paragraph:

> VII. Have the responsibility for and jurisdiction over the state-owned commercial fishing piers and facilities at Portsmouth, Rye Harbor, and Hampton Harbor except as provided in RSA 12-A:7-a.

55:7 Navigation; New Hampshire State Port Authority; Dredging Projects Fund Changed to Harbor Dredging and Pier Maintenance Fund. Amend RSA 271-A:21 to read as follows:

271-A:21 ***Harbor*** Dredging [~~Projects~~] ***and Pier Maintenance*** Fund Established.

> I. There is hereby established a ***harbor*** dredging [~~projects~~] ***and pier maintenance*** fund to be used by the New Hampshire state port authority to meet its obligation to initiate and implement dredging projects to maintain channels and harbors***, and to initiate projects to maintain public piers in safe and efficient condition.***
>
> II. The fund shall be nonlapsing and continually appropriated for the purposes of initiating and implementing ***harbor*** dredging projects ***and maintaining public piers***. The New Hampshire state port authority shall, in each biennium, request annual appropriations to the fund in an amount sufficient to provide for the funding of the authority's periodic ***harbor*** dredging ***and pier maintenance*** efforts. The state treasurer shall invest the moneys deposited in the fund as provided by law. Interest earned on moneys deposited in the fund shall be deposited into the fund.
>
> III. The New Hampshire state port authority shall not encumber, obligate, or expend any funds from the ***harbor*** dredging [~~projects~~] ***and pier maintenance*** fund without the prior approval of the capital budget overview committee.

55:8 Commercial Fish Piers in Portsmouth, Rye Harbor, and Hampton Harbor; Transfer from Department of Resources and Economic Development to New

Hampshire State Port Authority. The department of resources and economic development shall transfer the commercial fish piers in Portsmouth, Rye Harbor, and Hampton Harbor to the New Hampshire state port authority. Upon such transfer, the port authority shall have responsibility for and jurisdiction over each such pier and shall assume control of the management, operation, and maintenance of each respective pier. The transfer of the commercial fish pier in Portsmouth shall be completed within 60 days of the effective date of this section and after proper coordination with the city of Portsmouth and the commercial fishing industry lessees of the pier. The transfer of the commercial fish piers in Rye Harbor and Hampton Harbor shall be completed by June 30, 2001 and after a plan is developed by the port authority, the department of resources and economic development, and the long range capital planning and utilization committee to separate the recreational and commercial elements in the use of these facilities. The port authority shall certify to the secretary of state the date that each transfer is completed pursuant to this section.

55:9 Applicability. The provisions of RSA 271-A:3, VII, as inserted by section 6 of this act shall take effect with respect to each of the commercial fish piers in Portsmouth, Rye Harbor, and Hampton Harbor as the New Hampshire state port authority assumes control of the management, operation, and maintenance of each respective pier pursuant to the provisions of section 8 of this act.

55:10 Committee to Study Unrefunded Road Tolls.

I. Committee Established. There is established a committee to study unrefunded road tolls.

II. Membership and Compensation.

(a) The members of the committee shall be as follows:

(1) Three members of the house of representatives, appointed by the speaker of the house of representatives.

(2) Three members of the senate, appointed by the president of the senate.

(b) Members of the committee shall receive mileage at the legislative rate when attending to the duties of the committee.

III. Duties. The committee shall study unrefunded road tolls, including, but not limited to, the calculation, distribution, and uses of unrefunded road toll balances.

IV. Chairperson; Quorum. The members of the study committee shall elect a chairperson from among the members. The first meeting of the committee shall be called by the first-named house member. The first meeting of the committee shall be held within 45 days of the effective date of this section. Four members of the committee shall constitute a

quorum.

V. Report. The committee shall report its findings and any recommendations for proposed legislation to the speaker of the house of representatives, the senate president, the house clerk, the senate clerk, the governor, and the state library on or before November 1, 2000.

55:11 Effective Date.

I. Sections 1 and 4 of this act shall take effect July 1, 2000.

II. Section 10 of this act shall take effect upon its passage.

III. The remainder of this act shall take effect 60 days after its passage.

(Approved: April 17, 2000)

(Effective Date: I. Sections 1 and 4 take effect July 1, 2000.

II. Section 10 takes effect April 17, 2000.

III. Remainder of act takes effect June 16, 2000)

LBAO

99-0423

2/10/99

HB 617-FN-A-LOCAL - FISCAL NOTE

AN ACT relative to funding and monitoring seacoast harbor issues.

FISCAL IMPACT:

The N.H. Port Authority and Department of Resources and Economic Development stated this bill will increase state expenditures, reduce state general fund revenue and increase state restricted revenue by an indeterminable amount in FY 2000 and each year thereafter. There will be no fiscal impact on county and local revenue or expenditures.

METHODOLOGY:

The Authority assumes this bill will take effect July 1, 1999. Section 3 of the bill will cause approximately $740,000 of unrefunded road toll revenue that is currently deposited into the general fund, to be deposited into the dedicated harbor dredging and pier maintenance fund. Section 4 and 5 of the bill establishes a new surcharge of $2 on boats registered (3,557) for tidal and coastal waters. This will result in $7,114 being deposited into the harbor dredging and pier maintenance fund. Section 6 of the bill requires the Authority to establish slip fees equal to mooring fees. The Authority estimates

13,000 feet of pier and dock space at $4 per foot will result in $52,000 being deposited into the harbor dredging and pier maintenance fund. Section 8 and 10 calls for a complete transfer of the Portsmouth Commercial Fish Pier, and a transfer of commercial fishing operations from Rye and Hampton. Recreational boating operations at Rye and Hampton piers would remain under the jurisdiction of the Department of Resources and Economic Development (DRED). DRED and the Authority stated the net effect of the transfer would result in no fiscal impact on the state. The Authority, however, indicated this bill requires the Authority to assume control of the management, operation and maintenance of each pier. The Authority is unable to determine the fiscal impact of this requirement.

STATE OF NEW HAMPSHIRE
DEPARTMENT OF RESOURCES & ECONOMIC DEV.

33-00138

LOCATION SKETCH

Inset Map

Atlantic Ocean

Shaded Area=34 Acres±

Hampton River

Note: Location of Roads/Buildings etc taken from aerial photography and should be considered approximate

Hampton South Beach
Hampton, New Hampshire

Scale: 1"=100'

Date :See original: 5/19/1963 Redraft in ACAD 4/2011
Area=See Inset Map Revised: 6/2013

Recorded Deed (Hampton ROW)

Bridge

ledged the foregoing to be their voluntary act and deed. Before me,

Francis L. Moran

Notary Public (———)

My Commission expires 12/12/37

Received and Recorded December 29, 9 A. M. 1933.

John W. A. Green Register

Vote

Mass. North-St. R.R. Co.

Del. to

McLane, Davis & Carleton

Massachusetts Northeastern Street Railway Company

Certified Vote

Voted, that the vote adopted by the Directors of this Company at its meeting held November 8, 1933, authorizing and directing J. F. McKenna, President and C. A. Dougherty, Assistant Secretary of this Company to execute a confirmatory or other deed or deeds to the State of New Hampshire conveying to it the Hampton River Bridge, its approaches and appurtenances; and the rights, privileges, franchises and immunities connected therewith, be and it hereby is amended to provide that said deed or deeds shall be executed in the name of and on behalf of this Company by J. F. McKenna, President and H. M. Wetherell, Assistant Secretary.

This is to Certify that the undersigned is Assistant Secretary of Massachusetts Northeastern Street Railway Company, a corporation of the State of Massachusetts; that the above and foregoing is a true and correct copy of a certain vote duly and regularly adopted by the Board of Directors of said Company at a meeting thereof duly convened and held on the 26th day of December 1933, at which meeting a quorum was present and voted, and that said vote has not been annulled, revoked or amended in any way whatsoever but is in full force and effect.

Witness the signature of the undersigned as such officer of the Company and its corporate seal hereunto affixed this 26 day of December 1933.

H. M. Wetherell (Corp. Seal)

Assistant Secretary

Received and Recorded December 29, 10:40 A. M. 1933.

John W. A. Green Register

DEED 1/7

Mass. Northeastern S.RR.

to

State of N.H.

Del. to

Whereas by indenture of mortgage or deed of trust dated as of July 1, 1914, and recorded with Rockingham County Records, Volume 696, Page 15 et seq., hereinafter referred to as the mortgage, Massachusetts Northeastern Street Railway Company conveyed the property therein described to American Trust Company, Trustee, to secure an issue of bonds; and Whereas the said mortgage gave a power of sale to the Trustee, and also provided in Division 23 (e) thereof as follows:

"(e) That, in the event of any sale of the trust property or of any part thereof under any power or trust herein contained, the Railway Company will, if and when required by the Trustee or the purchaser, execute a formal conveyance or assurance of the trust property so sold, including assignments of all policies of insurance, to the Trustee or as the Trustee may direct"; and

Whereas Old Colony Trust Company, of Boston, Massachusetts, as successor trustee under said mortgage has made a sale of the property hereinafter described to the State of New Hampshire for $140,000.;

Now, Therefore, in accordance with said Division 23 (e) of the mortgage above quoted, Massachusetts Northeastern Street Railway Company, in consideration of the premises and one dollar and other valuable considerations, including the One Hundred Forty Thousand (140,000) Dollars paid by the State of New Hampshire to Old Colony Trust Company, successor Trustee under the mortgage, hereby gives, grants, bargains, sell, remises,

releases, conveys, confirms and sets over to the State of New Hampshire, its successors and assigns, to its own use and behoof forever;

"The bridge across the Hampton River in New Hampshire formerly owned by Granite State Land Company, together with its approaches and the property appurtenant thereto including, without restricting the generality of the foregoing, the following described parcels of land situated in the town of Seabrook and County of Rockingham in said State, and bounded and described as follows:-

"One parcel bounded and described as follows: Beginning at the Southeast corner of the Hampton River Bridge, thence South 65° 26' East 50 feet; thence South 24° 34' West a distance of 173.67 feet to a point; thence North 65° 26' East a distance of 130 feet; thence North 24° 34' East, a distance of 173.67 feet; this line crossing lot leased to George L. True; thence South 65° 26' East a distance of 50 feet, to the Southwest corner of the Hampton River Bridge; thence continuing in the same line South 65° 26' East a distance of 30 feet to the point first mentioned, meaning and intending hereby to describe such land, owned by the said Granite State Land Company as may lie within 65 feet of the center line of the Hampton River Bridge, prolonged from its Southerly extremity a distance of 173.67 feet;

"Such portions of Lots Numbered 1, 54, 55, 56 and 57 on a plan of Seabrook Beach recorded with the records of Rockingham County, Book 586, Page 482, as may lie within sixteen feet of the westerly line of said lots: excepting and reserving from the operation hereof the land conveyed by the Seabrook & Hampton Beach Street Railway Company and said Granite State Land Company to the State of New Hampshire by their deeds dated January 7, 1908, and recorded with Rockingham County Registry of Deeds, Book 638, Page 297, and Book 638, Page 266, respectively.

"A portion of the parcel first hereinabefore described as formerly owned by said Granite State Land Company is subject to a certain lease from said Granite State Land Company to George L. True dated June 16, 1900, and is conveyed subject to said lease."

Together with all rights and privileges in and upon said Bridge, its approaches and property appurtenant thereto, derived under an Act of the State of New Hampshire, approved March 21, 1901, entitled "An act to Authorize the Granite State Land Company to Construct and Maintain a Bridge across Hampton River and for other purposes". In the second paragraph of the above-quoted description, the third course described as "North 65° 26' East a distance of 130 feet" may be in error for North 65° 26' West.

And the recital of Book 638, Page 297 may be in error for Book 638, Page 276. But this deed is intended to convey said property however is should be described.

Without restricting the generality of the foregoing description, it is intended to convey all real estate in the towns of Hampton and Seabrook now owned by the grantor constituting the approaches to said bridge or lying contiguous thereto.

To Have and to Hold the same to the State of New Hampshire, its successors and assigns, to their own use and behoof forever.

Massachusetts Northeastern Street Railway Company admits that Old Colony Trust Company, Trustee, in its above referred to sale to the State of New Hampshire has complied with all the requirements of the mortgage and the Statutes of New Hampshire.

In Witness Whereof Massachusetts Northeastern Street Railway Company has caused this instrument to be executed in its name and on its behalf by J. F. McKenna, its President, and H. M. Wetherell, its Assistant-Secretary, its agents thereunto duly authorized, and its corporate seal to be affixed this 26 day of December 1933.

Signed and sealed in the presence of:

J. H. Mackenzie
R. J. Dean

Massachusetts Northeastern Street Railway Company By (Corp. Seal)
J. F. McKenna
President

H. M. Wetherell
Assistant Secretary

State of New York, County of New York SS.

On this 26th day of December 1933, personally appeared the above named J. F. McKenna and H. M. Wetherell, President and Assistant-Secretary of Massachusetts Northeastern Street Railway Company, duly authorized agents of Massachusetts Northeastern Street Railway Company, and acknowledged the foregoing instrument to be the voluntary act and deed of said Massachusetts Northeastern Street Railway Company.

A. P. Ringressy
Notary Public (N.P.Seal)
Notary Public
Kings County Clk's. No.434 Register's No.5113
New York Co. Clk's No. 227 Reg. No. 5-R-129
Commission Expires March 30, 1935.

Received and Recorded December 29, 9 A. M. 1933.

John W. A. Green Register

$20.00 rev.

DEED

Newmarket Realty Cor. to Newmarket Indus. Asso. Del. to Grantee by mail

Know All Men By These Presents,

That Newmarket Realty Corporation, a corporation organized under the laws of the Commonwealth of Massachusetts and having a principal place of business in Lowell, Middlesex County, Massachusetts, for and in consideration of the sum of one dollar ($1.00) to it before the delivery hereof well and truly paid by Newmarket Industrial Associates, Inc., a corporation organized under the laws of the State of New Hampshire and having a principal place of business in Newmarket, Rockingham County, New Hampshire, and for other considerations valuable and sufficient it hereto moving, the receipt whereof it does hereby acknowledge, does hereby remise, release, and forever quitclaim unto the said Newmarket Industrial Associates, Inc. all its right, title and interest in a certain parcel of land shown on a plan entitled, "Land in Newmarket, New Hampshire, Newmarket Realty Corp. to Newmarket Industrial Associates, Inc." dated December 1933, by John W. Durgin, C.E. to be filed herewith, being bounded and described according to said plan as follows:

Beginning at the northwesterly corner of the building situate on the lot conveyed, known as Mill No. 4 and thence running by the northerly wall thereof S 54° 01' E. 60.35 feet to the northeast corner of said mill building; thence turning and running S. 9° 53' E. 36.2 feet; thence turning and running S. 36° 01' W., 147.1 feet on a line parallel to and 26 feet distant from the line of the easterly wall of said mill; thence turning and running S. 51° 50' W. 58.7 feet; thence turning and running S 36° 01'W, 143.8 feet on a line parallel to and 10 feet distant from said line of the easterly wall of said mill to Mill No. 5; thence turning and running N. 54° 01'W through the center of the brick basement partition wall between Mill No. 4 and Mill No. 5, 71 feet to the westerly sideline of said Mill No. 5; thence turning at rights angles southwesterly 1.6 feet; thence turning and running N54° 01'W on the southwesterly side of the stair tower, and the same line continued 21 feet, more or less, to Main Street; thence turning and running in a northeasterly direction along said Main Street about 328 feet to the sub station lot; thence turning and running S 60° 01'E 20.2 feet; thence N 35° 59' E. 37.7 feet; thence N. 50° 42' W. 29 feet to said Main Street; thence turning and running northeast 40 feet, more or less, by said street to a point at other land of the grantor; thence turning and running S. 69° 43' E on a line parallel to and 10 feet southwesterly from the building known as the office 38 feet, more or less; thence turning and running S 13° 22' W 44.3 feet to the point of beginning, or however otherwise said parcel may be bounded and described.

The Grantor reserves the following rights in respect of the parcel hereby conveyed;

(1) The right to maintain overhead and underground wires and cables on so much of the parcel of land bounded and described as follows as is included in the land conveyed;