



**Pease Development Authority  
Division of Ports and Harbors**

**Market Street  
Marine Terminal  
Functional Replacement Project  
Portsmouth, NH**

**USACE Individual Permit  
Application**



**NHDOT Project 15731  
Federal Project A000(909)**

**April 2023**

**Market Street Marine Terminal  
Functional Replacement Project  
15731  
A000(909)**

**Individual Permit Application**

**Prepared by:**



**53 Regional Drive • Concord, NH 03301**



**600 State Street • Portsmouth, NH 03801**

**April 2023**



## Table of Contents

Attachment A:	USACE 4345 Application Form
Attachment B:	Figure 1 - USGS Location Map
Attachment C:	Figure 2 - Tax Map
Attachment D:	Supplemental Narrative
Attachment E:	Construction Sequence
Attachment F:	Impact Plans
Attachment G:	Draft Dredging Specifications
Attachment H:	Sampling and Analysis Plan
Attachment I:	Draft Blasting Specifications
Attachment J:	Turbidity Control and Monitoring Plan
Attachment K:	NH NHD DataCheck Results Letter
Attachment L:	NHFG Coordination
Attachment M:	USFWS Official Species List
Attachment N:	USFWS Northeast Determination Key No Effect Determination – Roseate Tern
Attachment O:	USFWS NLEB Rangewide Determination Key No Effect Determination
Attachment P:	Section 7 Biological Assessment and Essential Fish Habitat Consultations
Attachment Q:	Section 106 No Adverse Effect Memp
Attachment R:	Mitigation Narrative

---

## **Attachment A: USACE 4345 Application Form**

**U.S. Army Corps of Engineers (USACE)**  
**APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT**  
 33 CFR 325. The proponent agency is CECW-CO-R.

*Form Approved -*  
**OMB No. 0710-0003**  
**Expires: 02-28-2022**

The public reporting burden for this collection of information, OMB Control Number 0710-0003, is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at [whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil](mailto:whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR APPLICATION TO THE ABOVE EMAIL.

**PRIVACY ACT STATEMENT**

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned. System of Record Notice (SORN). The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) and may be accessed at the following website: <http://dpcl.dod.mil/Privacy/SORNsIndex/DOD-wide-SORN-Article-View/Article/570115/a1145b-ce.aspx>

**(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)**

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE
--------------------	----------------------	------------------	------------------------------

**(ITEMS BELOW TO BE FILLED BY APPLICANT)**

5. APPLICANT'S NAME First - Tracy                      Middle -                      Last - Shattuck Company - NH Division of Ports and Harbors E-mail Address - t.shattuck@peasedev.org	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required) First - Christine                      Middle -                      Last - Perron Company - McFarland-Johnson, Inc. E-mail Address - cperron@mjinc.com
---	---

6. APPLICANT'S ADDRESS: Address- 555 Market Street, Suite 1 City - Portsmouth                      State - NH                      Zip - 03801                      Country -	9. AGENT'S ADDRESS: Address- 53 Regional Drive City - Concord                      State - NH                      Zip - 03301                      Country -
---	---

7. APPLICANT'S PHONE NOS. w/AREA CODE a. Residence                      b. Business                      c. Fax 603-365-0505	10. AGENTS PHONE NOS. w/AREA CODE a. Residence                      b. Business                      c. Fax 603-225-2978
--	--

**STATEMENT OF AUTHORIZATION**

11. I hereby authorize, Christine Perron to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

  
 \_\_\_\_\_                      4-14-23  
 SIGNATURE OF APPLICANT                      DATE

**NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY**

12. PROJECT NAME OR TITLE (see instructions) Portsmouth Wharf Functional Replacement	
13. NAME OF WATERBODY, IF KNOWN (if applicable) Piscataqua River	14. PROJECT STREET ADDRESS (if applicable) Address Market Street Marine Terminal
15. LOCATION OF PROJECT Latitude: °N 43.084373                      Longitude: °W -70.761500	City - Portsmouth                      State- NH                      Zip- 03801

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)  
 State Tax Parcel ID 0119-0005                      Municipality Portsmouth  
 Section -                      Township -                      Range -

17. DIRECTIONS TO THE SITE

The proposed project is located off Market Street, in Portsmouth, NH, immediately south of the Sarah Mildred Long Bridge (US Route 1 Bypass).

18. Nature of Activity (Description of project, include all features)

The proposed project includes construction of a new dock structure approximately 60x120 feet to extend the south end of the existing wharf, construction of a new dock structure approximately 145x80 feet to extend the north end of the existing wharf, installation of a new fender system along the length of the main wharf, dredging of approximately 61,450 square feet of the river bed adjacent to the north end of the extended wharf, relocation of the floating dock currently located off the north end of the wharf, and shoreside alterations including soil and rock removal, grading, drainage, and paving within an 80,000 square foot area.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

The purpose of this project is to replace the lost functionality of the barge wharf by incorporating that functionality into the main wharf. This project is part of, and necessitated by, the replacement of the Sarah Mildred Long (SML) Bridge carrying the US Route 1 Bypass over the Piscataqua River. The Market Street Marine Terminal is adjacent to the SML Bridge. Until recently, the bridge divided the port between the main wharf and the barge wharf. The bridge was recently replaced and a new alignment was selected to better accommodate current and future marine navigation. The new bridge now passes through the northwestern end of the barge wharf. The new alignment required partial demolition of the wharf, blocked access to the boat ramp, and substantially reduced the berthing length along the barge wharf. The Federal Highway Administration (FHWA) is funding the functional replacement of the barge wharf to compensate for impacts caused by the new alignment of the SML Bridge.

**USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED**

20. Reason(s) for Discharge

Riprap is required in the vicinity of the north and south wharf extensions in order to armor the shoreline and protect the existing and proposed wharf infrastructure. The proposed riprap will be installed overtop and within the footprint of existing riprap. Riprap is required due to the high water velocities within the Piscataqua River, turbulence from vessels, limited/restricted space, and the presence of the critical infrastructure.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
Class V/VII Riprap = 700 CY	Dredge Volume = 17,800 CY	Bedrock Removal = 1,000 CY

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres 600 SF  
or  
Linear Feet 18

23. Description of Avoidance, Minimization, and Compensation (see instructions)

Impacts to the Piscataqua River have been minimized and avoided to the maximum extent practicable. The location of proposed riprap was limited to within the footprint of existing riprap. Mitigation for unavoidable impacts will be provided through the Aquatic Resource Mitigation (ARM) Fund via an in-lieu fee payment.

24. Is Any Portion of the Work Already Complete?  Yes  No IF YES, DESCRIBE THE COMPLETED WORK

N/A

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address- 500 Market Street (C/O Wilson Holdings)

City - Portsmouth State - NH Zip - 03801

b. Address- 446-452 Market Street (C/O Piscataqua Community NH Charitable Foundation)

City - Portsmouth State - NH Zip - 03801

c. Address- Boston and Maine Railroad, Market Street

City - Portsmouth State - NH Zip - 03801

d. Address- 227 Market Street

City - Portsmouth State - NH Zip - 03801

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
NHDES	Wetlands / Shoreland	TBD	TBD		
NHDES	Alteration of Terrain	TBD	TBD		
NOAA	CZM Consistency	TBD	TBD		
USACE	Section 408	TBD	TBD		

\* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

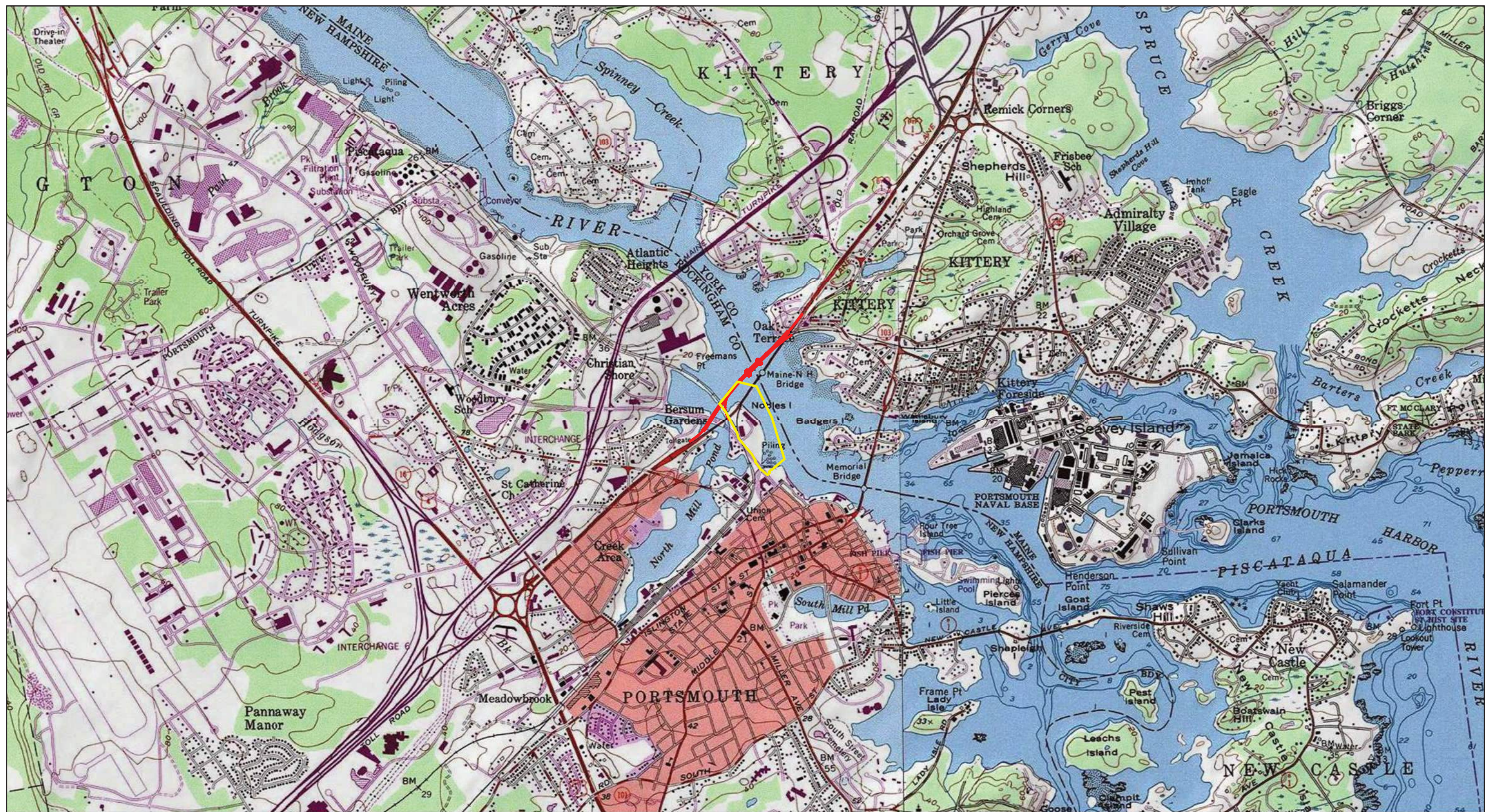
\_\_\_\_\_ *Christine Perron* \_\_\_\_\_ 4/14/23  
 SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE



The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

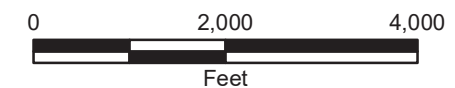
18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

## **Attachment B: Figure 1 - USGS Location Map**





 Barge Wharf Functional Replacement Project Area  
 New Sarah Mildred Long Bridge Alignment



PEASE DEVELOPMENT AUTHORITY  
 MAIN PIER FUNCTIONAL REPLACEMENT PROJECT  
 PORTSMOUTH, NEW HAMPSHIRE

**USGS LOCATION MAP**





SCALE: 1 inch = 2,000 feet	DATE: FEBRUARY 2023	FIGURE: 1
-------------------------------	------------------------	--------------



 **McFarland Johnson**

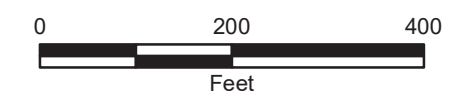
## **Attachment C: Figure 2 - Tax Map**




**Barge Wharf Functional Replacement Project**

-  Proposed Dredge Area
-  Proposed Wharf Extension
-  Proposed Shoreside Improvements
-  Proposed Floating Dock

-  Rockingham County Tax Parcels
-  New Hampshire Railroads



<b>PEASE DEVELOPMENT AUTHORITY</b> MAIN PIER FUNCTIONAL REPLACEMENT		
<b>TAX MAP</b>		
SCALE: 1 inch = 200 feet	DATE: APRIL 2023	FIGURE: 2
 <b>McFarland Johnson</b>		

## **Attachment D: Supplemental Narrative**

**MARKET STREET MARINE TERMINAL (PORT OF NH)  
FUNCTIONAL REPLACEMENT PROJECT  
PORTSMOUTH 15731**

**SUPPLEMENTAL NARRATIVE**

**Introduction**

---

The project involves the following:

- ***Dredging*** – The proposed project involves dredging approximately 61,450 square feet / 325 linear feet of the river bottom of the Piscataqua River. The proposed dredging will remove approximately 16,000 cubic yards of sediments from the Piscataqua River with a maximum allowable overdredge volume of 1,800 cubic yards. The project also requires blasting and the removal of approximately 1,000 cubic yards of bedrock. A Turbidity Control and Monitoring Plan (**Attachment J**) has been developed and will be implemented during construction to further ensure the protection of water quality and minimize impacts to fish and wildlife.
- ***Wharf Extensions and Floating Dock*** – The proposed north and south wharf extensions and floating dock will involve 8,770 square feet, 7,810 square feet, and 820 square feet of new pile-supported structures within the Piscataqua River respectively, for a total of 17,400 square feet. The proposed structures are not located within submerged aquatic vegetation, special aquatic sites, or shellfish beds.
- ***Placement of Fill in Waters of the US*** – The proposed project requires the placement of approximately 5,830 square feet of riprap (Class V/VII) along the shoreline in the vicinity of the north and south wharf extensions (only 600 square feet of riprap is located outside the limits of the proposed wharf extensions). The proposed riprap will be installed overtop and within the footprint of existing riprap. Riprap will not be placed in special aquatic sites, submerged aquatic vegetation, or shellfish beds.
- ***Ocean Disposal of Dredged Material*** – The proposed project is currently proposing the offshore disposal of a maximum of 18,800 cubic yards of dredged material at the Isle of Shoals North Disposal Site, located approximately 15 nautical miles east of Portsmouth, NH. A Sampling and Analysis Plan has been developed through prior coordination with the USACE. Sediment sampling is anticipated to occur in April 2023. Coordination with the USACE regarding the results of the sampling and analysis will continue as the project progresses.

The USACE Eng Form 4345 (**Attachment A**) has been prepared for and is included in this application for coverage under Section 10, Section 404, and Section 103. Additional details regarding the proposed project, existing conditions, and impacts are provided in the following sections.

## Project Setting

---

The Pease Development Authority (PDA) Division of Ports and Harbors (DPH) oversees the management, maintenance, operation, and maritime security of the ports, harbors, and navigable tidal rivers of the State of New Hampshire. Included in this charge is the Market Street Marine Terminal located on the Piscataqua River (**Attachment B**). The site is also known as the Port of New Hampshire and is the state's only deep water, public access, general cargo marine terminal. Tax parcels and abutters are depicted on the attached Tax Map (**Attachment C**).

The Market Street Marine Terminal is located along the southern shore of the Piscataqua River in Portsmouth, New Hampshire. The Piscataqua River is an estuarine river with a Cowardin classification of estuarine subtidal unconsolidated bottom (E1UBL). It originates northwest of the project area at the confluence of Salmon Falls River and Cocheco River between Dover, New Hampshire and Eliot, Maine and flows primarily in a southeasterly direction between Maine and New Hampshire to its confluence with the Portsmouth Harbor approximately four miles downstream from the Marine Terminal. The overall length of the river is approximately 12 miles. River depths in the project area range from approximately 24 to 34 feet. The tidal range is 9.6 feet upstream at Dover Point to 13.2 feet downstream at Kittery Point. The river is approximately 1,300 feet across at the location of the project.

According to the NH Coastal Viewer (2019), the project area is not located within mapped shellfish habitat. The shoreline within the project consists of stone riprap. There is no salt marsh or other vegetated wetlands in the project area.

According to the NH Coastal Viewer (2019) eelgrass mapping, eelgrass has occurred in the vicinity of the project area in the past (mapped in 1996), with historic eelgrass beds located approximately 400 feet northwest of the wharf and approximately 1,200 feet to the northeast. However, as part of the Sarah Mildred Long (SML) Bridge replacement project, eelgrass surveys were performed on July 17, 2013, by MaineDOT dive crews in the vicinity of the proposed bridge, located just upstream of the project area. A two square foot patch of eelgrass was found on the Kittery, Maine side of the bridge and sporadic eelgrass shoots were identified on the Portsmouth side. In addition, a second eelgrass survey was completed using a ROV camera on September 11, 2013, in the area of the proposed dredge. This survey found sporadic eelgrass shoots but no collections of plants forming any beds. The 2017 eelgrass mapping does not show any eelgrass beds in or near the action area. Based on the 2017 mapping, the nearest eelgrass bed is located approximately 4,400 feet downstream of the action area along the north side of Peirce Island. Coordination regarding the proposed project has occurred with the appropriate resource agencies and eelgrass beds were not identified as a potential concern for the proposed project. The proposed project was submitted to the NH NHB and the DataCheck Results Letter did not identify any eelgrass concerns or documented beds in the vicinity. The project was also discussed at the April 2019 NHDOT Natural Resource Agency Meeting, and no eelgrass concerns were brought up. A field review with agency staff was conducted on April 2, 2019, and Mike Johnson (NOAA NMFS) confirmed that the proposed project is not located within historic eelgrass beds.

A 6.2-mile federal navigational channel, approximately 35 feet deep (-35 MLLW) and 400 to 600 feet wide, extends northwesterly from deep water between New Castle and Seavey islands to a turning basin in Newington, NH/Eliot, ME. The channel is maintained by the USACE. According to the USACE, Portsmouth Harbor handles approximately 3.5 million tons of shipping a year for New Hampshire, eastern Vermont, and southern Maine. It is also used by submarines from the Portsmouth Naval Shipyard in Kittery, and is used extensively by a large lobstering fleet, local fishermen, excursion boats to the Isles of Shoals (five miles offshore), and local and transient boats.

## **Project Purpose and Need**

---

The proposed project is part of, and necessitated by, the replacement of the SML Bridge carrying US Route 1 Bypass over the Piscataqua River. The Market Street Marine Terminal is adjacent to the SML Bridge. Until recently, the bridge divided the port between the main wharf and the barge wharf. The bridge was recently replaced, and a new alignment was selected to better accommodate current and future marine navigation. The new bridge now passes through the western end of the barge wharf. The new alignment required partial demolition of the wharf, blocked access to the boat ramp, and substantially reduced the berthing length along the barge wharf. The Federal Highway Administration (FHWA) is funding the functional replacement of the barge wharf to compensate for impacts caused by the new alignment of the SML Bridge. Functional replacement is a federally authorized method of right of way compensation for public facilities (23 CFR 710.509).

The purpose of this project is to replace the lost functionality of the barge wharf by incorporating that functionality into the main wharf. With the new bridge alignment, the barge wharf can no longer be used to moor barges and the available laydown area has been reduced.

The need for this project is evidenced by the following factors that prevent the main wharf in its current configuration from fully replacing the lost operational capacity of the barge wharf.

1. The new bridge alignment required the partial demolition of the barge wharf, which reduced the berthing length along the barge wharf. This, combined with the proximity of the new bridge structure, prevents the use of the barge wharf for mooring barges.
2. A 75-foot section of the north end of the main wharf is too shallow for some vessels since it has never been dredged to the necessary -36 foot Mean Lower Low Water (MLLW) dredge depth due to its proximity to the former bridge.
3. The existing fender system is not designed to accommodate barges through all tidal ranges. Due to the loss of space at the barge wharf, barges must now use the main wharf and they cannot safely do so during all tide ranges with the current fender system.
4. The new bridge alignment reduced the available laydown area at the barge wharf.

## **Project Description**

---

This project will consist of the following components:

- Construction of a new dock structure approximately 60 x 120 feet to extend the south end of the existing wharf.
- Construction of a new dock structure approximately 145 x 80 feet to extend the north end of the existing wharf.
- Installation of a new fender system along the length of the main wharf.
- Dredging of approximately 61,450 square feet of the riverbed adjacent to the north end of the extended wharf.
- Relocation of the floating dock currently located off the north end of the wharf.
- Shoreside alterations, including soil and rock removal, grading, drainage, and paving within a 80,000-square foot area.

The proposed construction methods and sequence are described in greater detail below as well as the attached Construction Sequence included with this application (**Attachment E**). Detailed plan sheets depicting the proposed work are also included with this application (**Attachment F**).

## Wharf Extension

The two sections of proposed wharf will consist of concrete filled steel pipe piles with a reinforced concrete deck structure. 42-inch temporary steel casings will be installed, and sockets will be drilled into bedrock for the pile installation. 30-inch diameter steel piles will then be installed in the drilled holes, and the piles will then be filled with concrete. The south extension will require a total of 30 piles, with 30-inch diameter sockets, and the north extension will require a total of 44 piles of the same diameter. The estimated area of direct impacts from the socketed piles is approximately 363 square feet.

Metal debris and other obstructions including steel and timber from remnant structures and large boulders that are partially or entirely buried in the sediment of the Piscataqua River have been identified in the vicinity of the northern and southern wharf extensions. These obstructions could potentially pose a barrier to the installation of the casings and piles. Obstructions will be identified during the installation of the proposed piles and will be removed as necessary using an excavator or auger type drill mounted on the existing wharf and/or a barge. The obstruction removal is located within the footprint of permanent impacts associated with the pile and deck installation and will not result in additional impact areas. Turbidity releases will be minimized through the sequential nature of the work.

The pile installation process will consist of rotary and percussion drilling contained within a steel casing. A 42-inch diameter steel casing would be installed through the overburden to the top of bedrock. The typical process would be to vibrate the casing down using a vibratory hammer with a short period with the impact hammer to assure firm bearing on bedrock. Depending on the depth of overburden, the casing may be installed with an impact hammer the entire depth. At locations with difficult geotechnical or hard driving conditions, an impact hammer may be required to progress the casing. The typical duration of casing installation is approximately 60 minutes. It is anticipated that one to two piles will be installed per day depending on production and challenges encountered.

Once the temporary casing is installed to bedrock, a drilling bucket will be used within the casing to remove the remaining sediments and overburden soils. Sediment removed from the casing with the drilling bucket will be placed into containers and transferred to stockpiles on shore. After the overburden material is removed, an air hammer or other drilling equipment determined by the contractor will be used to advance a socket into bedrock. Once the bedrock is drilled, the permanent casing is installed in the rock socket. Concrete is placed within the rock socket and permanent casing using the tremie method and displacing standing water. The temporary casing is then removed using a vibratory hammer.

Drilling water released from the top of the casing from the beginning of the drilling process through installation of the piles will contain some sediment and rock fragments. Turbidity generated from these activities will be monitored per the Turbidity Control and Monitoring Plan (**Attachment J**).

The proposed Class V or VII riprap will be installed overtop and within the footprint of existing riprap. The majority of riprap will be installed underneath the proposed pier extensions. Approximately 600 square feet / 18 linear feet of riprap will be required outside the footprint of the proposed south wharf extension. The proposed riprap at this location will still be installed within the footprint of existing stone fill.

Once the piles are in place, the cast-in-place pile caps, edge beams, and pre-cast deck planks will be installed. The south wharf extension will be approximately 7,810 square feet and the north extension approximately 8,770 square feet.

The existing fender system will be removed and replaced with a system that can accommodate all required uses of the facility. The proposed fender system will extend to +2 feet MLLW and be designed for both barges and larger vessels. The new fender system will be installed along the entire length of the extended



wharf. The fender elements will consist of rubber fender units, with a steel panel and ultra-high molecular weight polyethylene facing.

The deck elevation of the north and south extension will be +15.1 feet MLLW. This is approximately 1 foot higher than the existing main wharf and barge wharf, which will keep the pile caps out of the water at Mean Higher High Water (MHHW) and accommodate a possible rise in the sea level over the design life of the structure. Concrete ramps will be constructed between the existing wharf and the extensions.

## **Dredging & Blasting**

Dredging will occur within a 61,450 square foot area directly adjacent to the proposed northern wharf extension to a depth of -36 feet MLLW. The duration of dredging is anticipated to be approximately 3 months. Within the dredge area, an approximately 10,000 square foot area will require blasting to remove approximately 1,000 cubic yards of rock. Blasting will occur to depths of up to eight feet. The duration of blasting is anticipated to be approximately 2 to 4 weeks. The draft Dredging Specifications are provided with this application (**Attachment G**).

A total of approximately 16,000 cubic yards of sediment (plus a maximum overdredge of 1,800 cubic yards) and 1,000 cubic yards of rock will be removed from the dredge area, with sediment consisting primarily of sand and gravel. The total maximum dredge volume of sediment and bedrock is 18,800 cubic yards. The Contractor will use an excavator or heavy clamshell bucket for removing sediment and debris and the material will be transported by a dredge scow.

A Sampling and Analysis Plan (**Attachment H**) was developed through coordination with the USACE, and sediment sampling is scheduled to be completed in April 2023 to test the sediments within the dredging area for potential contamination. The sediment sampling and analysis will be completed prior to the start of dredging and coordination with the USACE will continue regarding the results of the sampling.

The proposed disposal site for the dredged materials is the Isle of Shoals North Disposal Site. The dredged material will be transported to the disposal site by barge, following an approximately 15 nautical mile haul route from the Project location to the mouth of the Piscataqua River, east to the Isle of Shoals North Disposal Site. The material will be transported by a dredge scow, with the number of trips determined by the size of the equipment used by the contractor. Coordination with the USACE is ongoing and a Section 103 permit for Ocean Disposal of Dredged Materials will be obtained from the USACE prior to any dredging or disposal activities.

During blasting and dredging activities, the partial demolition of the former SML Bridge abutment and the complete removal of Pier 14 will be carried out in the area of the northern wharf extension. These structures are concrete and will be demolished using a hydraulic breaker or similar equipment to break apart the concrete. Pier 14 will be removed in its entirety. The top of the bridge abutment as well as 1 foot of the exposed facing will also be removed. The remaining abutment will be left in place. All concrete debris will be removed and disposed of in an upland location.

Dredging, blasting, and the majority of concrete demolition will occur between November 15 and March 15. To minimize or avoid impacts to aquatic species, a blasting plan will be submitted by the Contractor for approval by the National Marine Fisheries Service and NHDES prior to detonation of explosives. The following measures will be included in the blasting plan and implemented during blasting:

- Stemming and decking of individual charges;
- Staggered detonation of charges in a sequential blasting circuit;

- Blasting during periods of slack tide;
- Use of a fish detecting and startle system to avoid blasting when fish are present or transiting through the area;
- Use of sonar and the presence of a fisheries and marine mammal observer; and
- Prohibiting blasting during the passage of schools of fish or in the presence of marine mammals.
- Dredging and blasting specifications will be included in contract documents and are included with this application.

The Draft Blasting Specifications are included with this application (**Attachment I**).

### **Floating Dock**

An existing floating dock is located in the area of the northern wharf extension and will be relocated off the barge wharf. The existing dock is approximately 80 feet long and 10 feet wide and will require a gangway platform approximately 5 feet wide by 18 feet long. The proposed floating dock and gangway platform will result in approximately 820 square feet of impacts within the Piscataqua River. The floating dock and gangway platform will require six rock socketed guide piles with 22-inch diameter temporary steel casings. The proposed piles for the floating dock and gangway platform will consist of 14-inch diameter, concrete filled steel pipe piles. The pile installation for the floating dock will follow a similar installation procedure as described in the Wharf Extension section above. External guide pile assemblies will be attached to either end of the floating dock. The floating dock configuration will allow for berthing on the outboard side only.

### **Shoreside Work**

The shoreside alterations will consist of the removal of approximately 6,000 cubic yards of soil and rock, grading, and paving the area under the former location of the SML Bridge to increase laydown area by approximately 34,000 square feet, improve access to the barge wharf and small boat facilities, and provide shoreside access to the northern wharf extension. Two shoreside bollards will be installed to secure the forward lines of vessels. All shoreside work will be located above the Highest Observable Tide Line (HOTL) and will not require in-water work. All appropriate sedimentation and erosion control measures, including silt socks, inlet filters, and sediment traps, will be installed during construction to avoid impacts to the river.

Shoreside work will include grading and paving to direct stormwater to catch basins. The proposed stormwater system is designed to match the existing stormwater treatment devices located on the site. The northern area will be graded to direct stormwater to two new catch basins with double inlet grates for collection. The catch basins will drain to two new offline 6-foot diameter hydrodynamic vortex separators to provide stormwater treatment before discharging through headwalls into the Piscataqua River. The existing drainage on the barge wharf and surrounding areas will remain. The southern area will reestablish drainage directing stormwater into the existing hydrodynamic vortex separator. Stormwater treatment areas are not proposed given the limited space available and also due to concerns with contaminated soils.

### **Additional Environmental Resources**

---

#### ***Water Quality***

All appropriate sedimentation and erosion control measures, including silt socks, inlet filters, and sediment traps, will be installed during construction to avoid impacts to the river.

Shoreside work will include grading and paving to direct stormwater to catch basins. The proposed stormwater system is designed to match the existing stormwater treatment devices located on the site. The northern area will be graded to direct stormwater to two new catch basins with double inlet grates for collection. The catch basins will drain to two new offline 6-foot diameter hydrodynamic vortex separators to provide stormwater treatment before discharging through headwalls into the Piscataqua River. The existing drainage on the barge wharf and surrounding areas will remain. The southern area will reestablish drainage directing stormwater into the existing hydrodynamic vortex separator. Stormwater treatment areas are not proposed given the limited space available and due to concerns with contaminated soils.

The Port of NH is authorized under an EPA Industrial Multi-Sector General Permit. The facility has a robust maintenance program for stormwater structures.

No in-water controls area proposed due to the water velocities of the Piscataqua River in the vicinity of the proposed project. In order to minimize sedimentation and turbidity releases, the proposed in-water work will be completed sequentially. A Turbidity Control and Monitoring Plan has been developed and will be implemented during construction to further minimize potential water quality impacts (**Attachment J**).

### ***Contamination***

A site investigation was conducted by Ransom Consulting, Inc. and summarized in a report dated January 2014 in response to preliminary sampling during the planning stages of the project. The preliminary sampling indicated levels of metals, polynuclear aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs). The site was then designated as NHDES HAZWASTE site #200205008. History of the property indicates the potential for contamination to exist based on use as a railyard, a timber-treatment plant, and a coal-power plant among other similar uses. The site became a marine terminal in 1960. Five Areas of Concern (AOCs) were identified during this investigation. A subsequent investigation further sampled areas for PCBs and found concentrations were as expected based on the 2014 report. A Materials Management Plan (MMP), dated June 2012, has been developed and approved by the NHDES for guidance on proper on-site and off-site management of oil or hazardous material impacted soils, asphalt and concrete pavement, and/or groundwater that may be disturbed. A new MMP will be developed specifically for the functional replacement project.

A Sampling and Analysis Plan (**Attachment H**) has also been developed for the proposed dredge area through coordination with the USACE. Sediment sampling is anticipated to occur in April 2023, and coordination with the USACE regarding the results of the sampling and analysis.

### ***Floodplains***

Portions of the project are located within the FEMA mapped 100-year floodplain of the Piscataqua River. The proposed dredging of 61,450 square feet / 18,800 +/- cubic yards will more than compensate for the proposed fills within the floodplain including the wharf piles, floating dock piles, and riprap. Therefore, the project is not expected to result in an increase in base flood elevation within the floodplain of the Piscataqua River. The base flood elevation is 12.86 feet MLLW according to the FEMA Flood Insurance Rate Map. Existing and proposed grades along the top of the main wharf vary in elevation from approximately +15.1 feet MLLW; therefore, the base flood elevation is below existing grades.

### ***Rare Species, Section 7 ESA, Fish and Wildlife***

The New Hampshire Natural Heritage Bureau (NHB) DataCheck Results Letter dated February 7, 2023, reported known records of Atlantic sturgeon (State and Federally threatened), and shortnose sturgeon (State and Federally endangered) in the Piscataqua River (**Attachment K**). NH Fish & Game was contacted for

input on potential concerns regarding fish and wildlife in the project are and recommended the following avoidance and minimization measures during pile driving activities:

- In-water pile driving will be completed outside of the window of anadromous fish spawning (April through June).
- A 'startle noise' will be implemented each day before any pile driving. This will consist of hitting the piles a couple times and then waiting 5-10 minutes prior to production driving.
- Piles will be installed using a vibratory hammer as much as possible and then impact driven using a cushion block.
- A safe unimpacted zone of passage of approximately 1,000 feet in width will be available for any sensitive species that may be foraging or migrating in the river during construction.

The email correspondence with NHFG is included with the application materials (**Attachment L**).

Section 7 was coordinated through the FHWA. The FHWA in turn coordinated with the U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration (NOAA) to complete a determination regarding the listed species: the endangered northern long-eared bat (*Myotis septentrionalis*), the endangered roseate tern (*Sterna dougallii dougallii*) and various marine species including the Atlantic sturgeon (*Acipenser oxyrinchus*) and shortnose sturgeon (*Acipenser brevirostrum*) (**Attachment M**). The USFWS Northeast Determination Key was completed and a determination of no effect was made for the roseate tern (**Attachment N**). A programmatic consistency letter determining No Effect was received from the USFWS regarding the northern long-eared bat on March 30, 2023 (**Attachment O**).

The roseate tern is a seabird that inhabits the coast from Nova Scotia to Florida, with the highest concentration occurring around Long Island, NY and Massachusetts. Populations in the northeast typically nest in colonies on smaller barrier islands often with the common tern (*Sterna hirundo*). Cover such as rocky areas or dense vegetation are required to protect against depredation. The roseate tern is highly sensitive to human activity or any nest disturbance and will abandon entire colonies if provoked. No barrier island or habitat that would provide cover exist within the project's footprint or impact area; the wharf and surrounding areas are highly developed and subject to human disturbance. It is recommended that a No Effect determination be issued for this species.

The NOAA Section 7 Web Mapper was accessed most recently on May 14, 2019 to determine if the potential Action Area overlapped with federally listed species under the jurisdiction of the National Oceanic and Atmospheric Administration. The mapper confirmed that the project is within the range of Atlantic and shortnose sturgeon. The project is also located within federally designated critical habitat for Atlantic sturgeon. The anticipated offshore route that will be taken to transport dredged material to the Isle of Shoals North Disposal Site is located within the range of four listed sea turtles, fin whale, and North Atlantic right whale, and within designated critical habitat for North Atlantic right whale.

Shortnose sturgeon occur in rivers and estuaries along the east coast of the U.S. and Canada. In the U.S., they are listed as endangered throughout their range. There are five Distinct Population Segments (DPSs) of Atlantic sturgeon listed as threatened or endangered. Atlantic sturgeon originating from the New York Bight, Chesapeake Bay, South Atlantic and Carolina DPSs are listed as endangered; the Gulf of Maine DPS is listed as threatened. The marine range of all five DPSs extends along the Atlantic coast from Canada to Cape Canaveral, Florida. Atlantic sturgeon from any of the five DPSs may occur in the action area.

As part of a cooperative research program, the Department of the Navy has been maintaining an acoustic receiver array focused on the waters surrounding the Portsmouth Naval Shipyard, the mouth of the Piscataqua River, and the Great Bay Watershed since 2014. This data has demonstrated that shortnose

sturgeon show a predictable annual use of the Piscataqua River. Overall, the telemetry data collected to date suggest that shortnose sturgeon are largely absent from the Piscataqua River during the winter months and that only adult shortnose sturgeon may be present from April through November of any given year. A total of 16 tagged adult/subadult Atlantic sturgeon have been documented within the system since 2010. Seasonal visits spanned late-April to early November, with most observations occurring in summer and typically inhabiting the waters near the mouth of the Piscataqua River. No evidence of spawning currently exists within the Piscataqua River for either species.

In summary, there are no spawning sites within the action area based on existing habitat conditions and available data and overwintering is very unlikely. Potentially suitable foraging habitat may be present in the action area. Therefore, adult and sub-adult Atlantic and shortnose sturgeon may use the project area for foraging and are most likely to occur between April and November. With the implementation of minimization measures, including a time of year restriction that limits dredging and blasting activities to November 15 to March 15, it was determined that the proposed project is not likely to adversely affect shortnose sturgeon, Atlantic sturgeon, or Atlantic sturgeon critical habitat. Findings were described in detail in a Biological Assessment and NOAA concurred with the findings (**Attachment P**). A blasting plan will be prepared prior to construction. A Section 7 reevaluation was submitted to NOAA in March 2023 to account for minor design changes and modifications to anticipated construction sequence and techniques that were not fully described in the original consultation. Final concurrence on the reevaluation from NOAA is pending.

Four species of federally listed threatened or endangered sea turtles are found seasonally in the coastal waters of New Hampshire and Maine, including in the vicinity of the Isle of Shoals North Disposal Site and proposed transit route. In general, listed sea turtles are seasonally distributed in coastal U.S. Atlantic waters, migrating to and from habitats extending from Florida to New England, with overwintering concentrations in southern waters. As water temperatures rise in the spring, these turtles begin to migrate northward. As temperatures decline rapidly in the fall, turtles in northern waters begin their southward migration. Sea turtles are expected to be in the vicinity of the Isle of Shoals North Disposal Site in warmer months, typically June through October. The only portion of the action area within the range of listed sea turtles is the offshore transport and disposal of dredged material. Transport of dredged material will be completed by April, before sea turtles would be expected to be present. Further, the disposal site is at a depth that is deeper than what benthic foraging sea turtles would be expected to use. For these reasons, the proposed project will not impact listed sea turtles.

The North Atlantic right whale (*Eubalaena glacialis*) and fin whale (*Balaenoptera physalus*) are found seasonally in Gulf of Maine waters. These species may be present at the Isle of Shoals North Disposal Site and along the transit route. North Atlantic right whales have been documented in the Gulf of Maine from December through June, with relatively high numbers in January through May. The seasonal presence of right whales is thought to be closely associated to the seasonal presence of dense patches of their preferred copepod prey. Fin whales found off the eastern United States are centered along the 100-meter (328-foot) isobaths; however, sightings are spread out over shallower and deeper water, with their summer feeding range occurring mainly between 41°N and 51°N, from shore seaward to the 1,000-fathom (6,000 feet) contour.

Based on available information, foraging and overwintering adult and juvenile North Atlantic right whale and fin whale could occur in the vicinity of the transport route to the Isle of Shoals North Disposal Site. The only project activity that will be located within the range of Atlantic right whale and fin whale, and within right whale critical habitat, is the transport of dredged material via a dredge scow. It is not anticipated that vessel traffic resulting from the proposed dredging will result in a meaningful increase in the number of vessels above background levels, nor is it anticipated that the dredge scow will be meaningfully different in speed, draft, or noise as compared with existing shipping traffic. For these reasons, it was determined

that the proposed project is not likely to adversely affect Atlantic right whale, fin whale, or right whale critical habitat. Findings were described in detail in a Biological Assessment and NOAA concurred with the findings (**Attachment P**). A Section 7 reevaluation was submitted to NOAA in March 2023 to account for minor design changes and modifications to anticipated construction sequence and techniques that were not fully described in the original consultation. Final concurrence on the reevaluation from NOAA is pending.

### ***Section 106***

Section 106 was coordinated through the Federal Highway Administration (FHWA). Phase IA and IB archaeological surveys identified one area, Area 3, as being archaeologically sensitive. As such, archaeological monitoring will be required in this area during construction activities. A letter was received on February 20, 2019 (**Attachment Q**), stating that given these measures, the FHWA determined that there will be no adverse impact on historic or archaeological properties.

### ***Mitigation***

Impacts to jurisdictional areas have been minimized and avoided to the maximum extent practicable while still accomplishing the purpose and need of the project. The project requires compensatory mitigation for unavoidable permanent impacts to the Piscataqua River associated with replacing the lost functionality of the barge wharf at the Port of NH.

Proposed impacts have been discussed with State and Federal resource agencies at four NHDOT Natural Resource Agency Coordination Meetings (June 20, 2018, September 19, 2018, August 21, 2019, and February 15, 2023), as well as at a field review on April 2, 2019.

The proposed mitigation approach is summarized in the attached Mitigation Narrative (**Attachment R**).

## **Attachment E: Construction Sequence**

**MARKET STREET MARINE TERMINAL (PORT OF NH)  
FUNCTIONAL REPLACEMENT PROJECT  
PORTSMOUTH 15731**

**Construction Sequence**

The total duration of construction is anticipated to be approximately 18 months. The construction start date is not yet known, and final construction sequencing will be determined by the Contractor. The following is an outline of the likely construction sequence. This sequence may vary slightly depending on the selected contractor. Work along the shoreline will be completed during lower tides when possible.

- Provide blasting plan to the US Army Corps of Engineers, National Marine Fisheries Service, NH Fish & Game, NHDOT, and NHDES at least 21 days prior to anticipated start of blasting.
- Complete dredging and blasting between November 15 and March 15. The duration of dredging is anticipated to be approximately 3 months. The duration of blasting is anticipated to be approximately 2 to 4 weeks. All material from dredging and blasting will be loaded on a dredge scow and transported to the Isle of Shoals North Disposal Site located approximately 15 nautical miles east of Portsmouth, New Hampshire. Due to the water velocities in the Piscataqua River no sedimentation or turbidity controls are proposed during the blasting or dredging. A Turbidity Control and Monitoring Plan has been developed and will be followed during construction.
- Remove Pier 14 and bridge abutment to limits depicted on plans. Remove concrete debris from water. No sedimentation or turbidity controls are proposed during the bridge pier and abutment removal due to the water velocities in the Piscataqua River.
- Remove existing floating dock; cut existing guide piles 5 feet below the river bottom.
- Drill sockets for piles for wharf extensions and floating dock. No sedimentation or turbidity controls are proposed during the drilling and pile driving due to the water velocities in the Piscataqua River. This work will be sequential in nature. Metal debris has been identified in the sediment of the Piscataqua River in the vicinity of the proposed wharf extensions. Some of these obstructions may need to be removed as needed using an excavator mounted on the existing wharf and/or a barge in order to install the proposed piles. A Turbidity Control and Monitoring Plan has been developed and will be followed during construction.
- Install piles; fill with concrete.
- Install floating dock.
- Install additional riprap at south and north wharf extensions. Riprap will be placed with a clamshell bucket and not dumped into place. Riprap will be free of mud, debris, or other materials when it is installed.
- Install cast-in-place grade beam, pile caps, pre-cast deck planks, and cast-in-place deck topping.
- Remove existing fender system.



**MARKET STREET MARINE TERMINAL (PORT OF NH)  
FUNCTIONAL REPLACEMENT PROJECT  
PORTSMOUTH 15731**

**Construction Sequence**

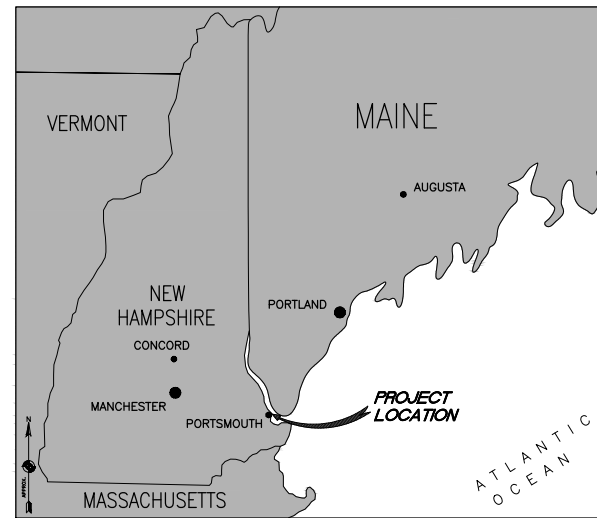
- Install new fender system.
- Install silt socks, inlet filters, and sediment traps for shoreside work. These sediment and erosion controls will be maintained throughout the duration of construction.
- Construct temporary sedimentation traps.
- Complete shoreside construction (drainage, grading, paving). All work will be carried out according to the Self-Implementing Plan and Materials Management Plan for the proper management of materials generated from each category of impacted soils.
- Remove all erosion and sediment control measures.

## **Attachment F: Impact Plans**

# PEASE DEVELOPMENT AUTHORITY

## Division of Ports and Harbors Portsmouth, New Hampshire

# MARKET STREET MARINE TERMINAL FUNCTIONAL REPLACEMENT BARGE DOCK ENVIRONMENTAL IMPACT PLANS

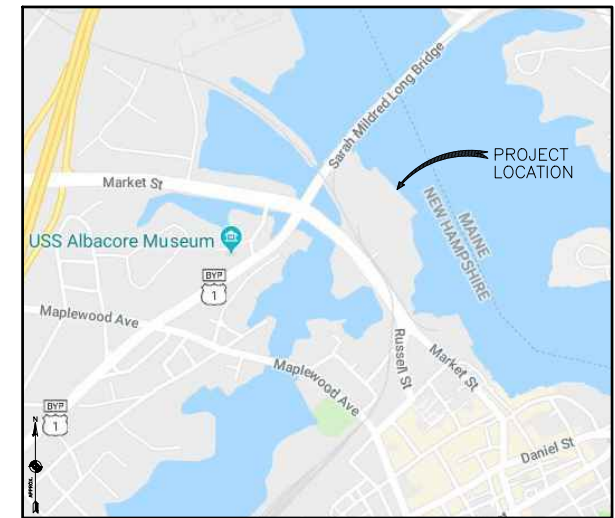


VICINITY MAP  
N.T.S.

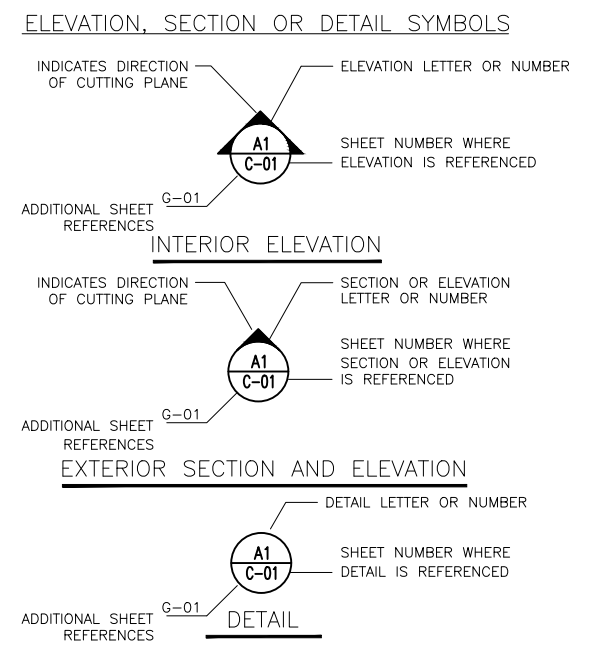
APRIL 2023

### LIST OF DRAWINGS

NUMBER	NAME	TITLE
<u>GENERAL</u>		
1	G-001	TITLE SHEET
2	G-002	GENERAL NOTES
3	G-003	SITE PHOTOS - 01
4	G-004	SITE PHOTOS - 02
5	G-005	SITE PHOTOS - 03
6	G-101	EXISTING CONDITIONS PLAN
7	G-102	PROJECT OVERVIEW PLAN
<u>CIVIL</u>		
8	C-101	WETLAND IMPACT PLAN
9	C-102	SHORELAND IMPACT PLAN
10	C-103	GENERAL SECTIONS
11	C-104	DREDGING PLAN
12	C-105	DREDGE SECTIONS
13	C-106	RIPRAP PLAN
14	C-107	RIPRAP SECTIONS
<u>STRUCTURAL</u>		
15	S-101	PILE PLAN
16	S-102	PILE SECTION AND DETAILS
17	S-103	FRAMING PLAN
18	S-104	FLOATING DOCK PLAN AND DETAILS



LOCATION MAP  
N.T.S.



603.786.1870  
inquiry@appledoremarine.com

**Appledore Marine Engineering, LLC**  
600 State St, Suite E  
Portsmouth New Hampshire 03801

DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_  
DRAWN BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_

PEASE DEVELOPMENT AUTHORITY  
DIVISION OF PORTS AND HARBORS, 555 MARKET STREET, PORTSMOUTH, NH  
MARKET STREET MARINE TERMINAL  
**FUNCTIONAL REPLACEMENT BARGE DOCK**

TITLE SHEET

PROJECT No.:	5213
CAD DWG FILE:	S213_permit_01_G-001.dwg
DESIGNED BY:	SND
DRAWN BY:	KMV
CHECKED BY:	NJIE
SCALE:	AS SHOWN

G-001
SHEET 1 OF 18

**GENERAL NOTES:**

1. THE DRAWINGS AND SPECIFICATIONS FORM A PART OF THE CONTRACT DOCUMENTS. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. IN THE EVENT OF A CONFLICT BETWEEN THE SPECIFICATIONS AND THE DRAWINGS, THE SPECIFICATIONS SHALL TAKE PRECEDENCE. A COPY OF THE DRAWINGS AND SPECIFICATIONS MUST BE KEPT ONSITE AT ALL TIMES DURING THE PROJECT.
2. COORDINATE ALL WORK WITH FACILITY PERSONNEL AND PORT OPERATIONS ON A DAILY BASIS. THE CONSTRUCTION WORK SHALL NOT INTERFERE WITH ONGOING OPERATIONS. SCHEDULE AND COORDINATE ALL WORK, INCLUDING ALLOWABLE WORK WINDOWS, WITH THE OWNER. MAINTAIN THE WORK SITE TO THE SATISFACTION OF THE OWNER.
3. COORDINATE MATERIAL STORAGE AND LAYDOWN AREAS WITH THE OWNER.
4. COORDINATE ALL BARGE ACCESS AND MOORING LOCATIONS WITH THE OWNER.
5. DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR JOB SITE SAFETY. DETERMINE CONSTRUCTION PROCEDURES AND SEQUENCE TO ENSURE THE SAFETY OF THE FACILITIES AND THEIR COMPONENTS DURING ALL PHASES OF CONSTRUCTION. THIS INCLUDES THE ADDITION OF NECESSARY SHORING, SHEETING, TEMPORARY BRACING, GUYS OR TIEDOWNS. SUCH MATERIAL SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AND BE REMOVED FROM THE OWNER'S PROPERTY AFTER COMPLETION OF THE PROJECT. ALL PROPOSED STAGING AREAS SHALL BE COORDINATED WITH THE OWNER BEFORE STARTING WORK. TEMPORARY CONSTRUCTION STAGING/STORAGE AREA SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION UPON COMPLETION OF THE PROJECT.
6. DIMENSIONS AND DETAILS OF THE EXISTING CONSTRUCTION ARE FROM LIMITED ARCHIVE DRAWINGS AND FIELD INVESTIGATIONS. CHECK AND VERIFY ALL DIMENSIONS AND DETAILS OF THE EXISTING CONSTRUCTION PRIOR TO COMMENCING CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER BEFORE ORDERING MATERIALS AND PROCEEDING WITH THE AFFECTED PART OF THE WORK.
7. EXISTING CONDITIONS DRAWINGS ARE INTENDED TO PROVIDE GENERAL OVERVIEW OF STRUCTURES BUT DO NOT INCLUDE ALL APPURTENANCES AND CONDITIONS.
8. METHODS OF DEMOLITION, CONSTRUCTION, AND ERECTION ARE THE CONTRACTOR'S RESPONSIBILITY UNLESS OTHERWISE SPECIFIED.
9. PREVENT ANY DISTURBANCE OR DAMAGE TO EXISTING STRUCTURES.
10. CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE DONE TO EXISTING STRUCTURES AND VESSELS AS A RESULT OF PERFORMING THE WORK.
11. AT THE END OF EACH WORKING DAY, THE CONSTRUCTION SITE MUST BE LEFT IN A NEAT AND CLEAN CONDITION.
12. COMPLY WITH ALL APPLICABLE O.S.H.A REGULATIONS AND SAFETY REQUIREMENTS.
13. REPORT SPILLS AND LEAKS OR OIL OR OTHER HAZARDOUS SUBSTANCES (IE OIL, ANTIFREEZE, CHEMICALS, ETC.) OCCURRING DURING THE PERFORMANCE OF THIS CONTRACT IMMEDIATELY UPON DISCOVERY, REGARDLESS OF THE QUANTITY.
14. THE OWNER WILL CHARGE TO THE CONTRACTOR ANY ADDITIONAL COSTS OF INSPECTION OR TESTING WHEN PRIOR REJECTION MAKES REINSPECTION OR RETESTING NECESSARY.

**REFERENCES AND STANDARDS:**

1. AMERICAN CONCRETE INSTITUTE (ACI) BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, 2019 (ACI 318-19)
2. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, 16TH EDITION, 2022 (AISC-16)
3. AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES, 2022 (ASCE 7-22)
4. ASCE SEISMIC DESIGN OF PIERS & WHARVES, 2014 (ASCE 61-14)
5. DEPARTMENT OF DEFENSE UNIFIED FACILITIES CRITERIA (UFC) DESIGN: PIERS AND WHARVES, 2017 (UFC 4-152-01)

**DESIGN CRITERIA:**

THE NORTH AND SOUTH WHARF EXTENSIONS HAVE BEEN DESIGNED AND ANALYZED FOR THE FOLLOWING LOADS:

DEAD LOAD: ACTUAL WEIGHT OF THE STRUCTURE

LIVE LOAD:

1. VEHICLE AND EQUIPMENT
  - a. 1,000 PSF UNIFORM LIVE LOAD
  - b. 250 TON CRAWLER CRANE (MAX PICK 55 TONS)
2. DESIGN VESSEL
  - a. 750 FOOT LOA
  - b. 35 FOOT DRAFT
  - c. 63,000 TON DISPLACEMENT
3. MOORING FITTINGS
  - a. 100 TON BOLLARD
  - b. 42" CLEAT (25 TON)

**UTILITIES NOTES:**

1. THE EXACT SIZE & LOCATION OF ALL EXISTING UTILITIES IMPACTED BY THE WORK SHALL BE FIELD VERIFIED PRIOR TO START OF CONSTRUCTION. NOTIFY "DIG SAFE" (1-888-344-7233) AT LEAST 14 CALENDAR DAYS PRIOR TO COMMENCEMENT OF GROUND PENETRATING ACTIVITY.
2. TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE OWNER AT THE CONTRACTOR'S EXPENSE. NOTIFY THE OWNER A MINIMUM OF 5 DAYS IN ADVANCE OF ANY OUTAGES.

**ENVIRONMENTAL CONTROL NOTES:**

1. THIS PROJECT REQUIRES THE IMPLEMENTATION OF A BEST MANAGEMENT PRACTICES PLAN (BMP) DURING ALL CONSTRUCTION WORK TO PREVENT/MINIMIZE ENVIRONMENTAL IMPACTS DURING THE CONSTRUCTION ACTIVITY.
2. ENVIRONMENTAL CONTROLS MUST CONFORM TO ALL STATE, LOCAL, AND FEDERAL REGULATIONS AND PERMITS. ENVIRONMENTAL CONTROLS SHALL INCLUDE BUT NOT BE LIMITED TO MEASURES TO CONTROL TURBIDITY, PH, AND DUST.
3. A COPY OF ALL PERMITS MUST BE POSTED ON SITE DURING CONSTRUCTION IN A PROMINENT LOCATION VISIBLE TO INSPECTING PERSONNEL.
4. USE NETS, TARPS, WORK PLATFORMS, OR OTHER APPROVED EQUIVALENT MEANS TO PREVENT DEBRIS FROM FALLING INTO THE RIVER. REMOVE DEBRIS THAT HAS FALLEN INTO THE RIVER. THE OWNER MAY CONDUCT UNDERWATER INSPECTIONS TO ENSURE THAT ALL DEMOLITION AND CONSTRUCTION DEBRIS HAS BEEN REMOVED PRIOR TO DEMOBILIZING.
5. STORAGE, FUELING AND LUBRICATION OF EQUIPMENT AND MOTOR VEHICLES MUST BE CONDUCTED IN A MANNER THAT AFFORDS THE MAXIMUM PROTECTION AGAINST SPILL AND EVAPORATION. FUEL, LUBRICANTS AND OIL MUST BE MANAGED AND STORED IN ACCORDANCE WITH ALL FEDERAL, STATE, REGIONAL, AND LOCAL LAWS AND REGULATIONS. THERE SHALL BE NO STORAGE OF FUEL ON THE PROJECT SITE. FUEL MUST BE BROUGHT TO THE PROJECT SITE AS NEEDED. EQUIPMENT OPERATION, ACTIVITIES, OR PROCESSES PERFORMED BY THE CONTRACTOR SHALL BE IN ACCORDANCE WITH ALL FEDERAL AND STATE AIR EMISSION AND PERFORMANCE LAWS AND STANDARDS.
6. ALL PILE DRIVING MUST OCCUR DURING DAYLIGHT HOURS AND MUST FOLLOW ALL RESTRICTIONS REQUIRED BY THE APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS. PILE DRIVING IS NOT PERMITTED FROM APRIL 1 THROUGH JUNE 30.
7. DREDGING MUST OCCUR BETWEEN NOVEMBER 15 AND MARCH 15.

**SURVEY CONTROL NOTES:**

1. MAINTAIN ADEQUATE SURVEY CONTROL AT ALL TIMES TO ESTABLISH AND MAINTAIN ALL LINES AND ELEVATIONS.
2. HORIZONTAL DATUM BASED ON NAD 1983, NEW HAMPSHIRE STATE PLANE (CONUS) ZONE-NH 2800.
3. ELEVATIONS ARE IN FEET BASED ON MEAN LOWER LOW WATER (MLLW) PROJECT DATUM. TIDAL ELEVATIONS ARE BASED ON THE 1983-2001 TIDAL EPOCH AND NOAA TIDE STATION 8419870 SEAVEY ISLAND, MAINE.
4. TOPOGRAPHIC SURVEY PERFORMED BY DOUCET SURVEY. IN MAY AND JULY 2018 USING VARIOUS SURVEY METHODS. FEATURES SHOWN CAN ONLY BE CONSIDERED INDICATIVE OF CONDITIONS EXISTING AT THAT TIME.
5. HYDROGRAPHIC SURVEY PERFORMED BY STEELE ASSOCIATES IN DECEMBER 2022 USING VARIOUS SURVEY METHODS. FEATURES SHOWN CAN ONLY BE CONSIDERED INDICATIVE OF CONDITIONS EXISTING AT THAT TIME.

**ABBREVIATIONS**

APPROX	APPROXIMATE
DIA, Ø	DIAMETER
℄	BASELINE
EA	EACH
EL	ELEVATION IN FEET
EQ	EQUAL(LY)
HOTL	HIGHEST OBSERVABLE TIDE LINE
IN	INCH(S)
MHW	MEAN HIGH WATER
MHHW	MEAN HIGHER HIGH WATER
MIN	MINIMUM
MLLW	MEAN LOWER LOW WATER
MLW	MEAN LOW WATER
NAVD88	NATIONAL VERTICAL DATUM 1988
NTS	NOT TO SCALE
OC	ON CENTER
PSF	POUNDS PER SQUARE FOOT
SQ	SQUARE
SSP	STEEL SHEET PILE
TYP	TYPICAL

BY	-	-	-	-	-	-	-
DESCRIPTION	-	-	-	-	-	-	-
REVISIONS	-	-	-	-	-	-	-
DATE	-	-	-	-	-	-	-
REVISION	-	-	-	-	-	-	-
Appledore Marine Engineering, LLC 600 State St, Suite E Portsmouth New Hampshire 03801 603.786.1970 inquiry@appledoremarine.com							
SUBMITTED BY: _____ DATE: _____ TITLE: _____ (SIGNED) _____							
(SEAL) _____							
PEASE DEVELOPMENT AUTHORITY DIVISION OF PORTS AND HARBORS, 555 MARKET STREET, PORTSMOUTH, NH MARKET STREET MARINE TERMINAL PORTSMOUTH, NH <b>FUNCTIONAL REPLACEMENT BARGE DOCK</b> GENERAL NOTES							
PROJECT No.: 5213							
CAD DWG FILE: S213_peritl_01_G-001.dwg							
DESIGNED BY: SNID							
DRAWN BY: KVM							
CHECKED BY: NJE							
SCALE: AS SHOWN							
<b>G-002</b>							
SHEET 2 OF 18							

1

2

3

4

5

D

C

B

A



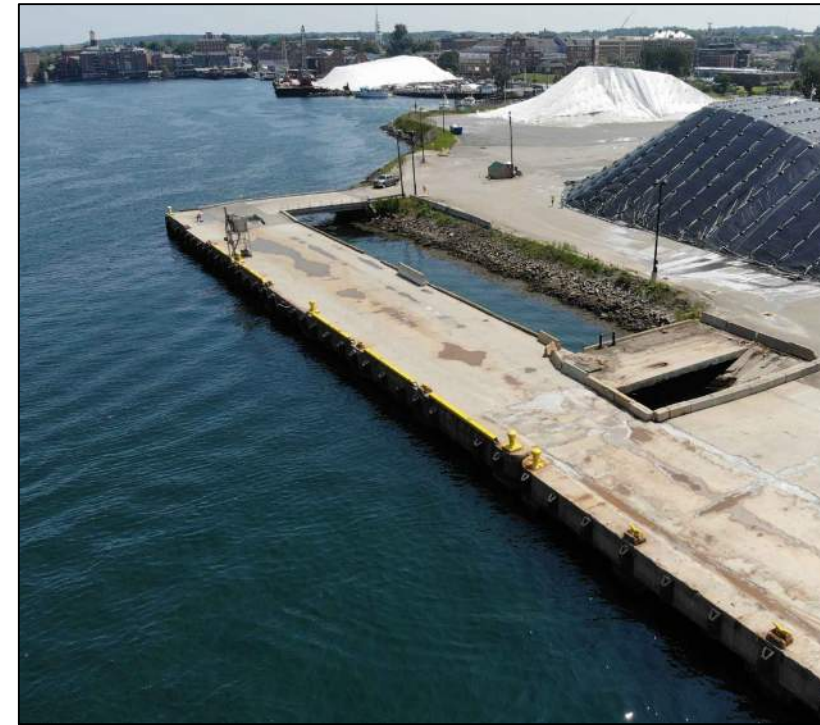
OVERALL SITE  
LOOKING SOUTH

C1



OVERALL SITE  
LOOKING SOUTHEAST

C3



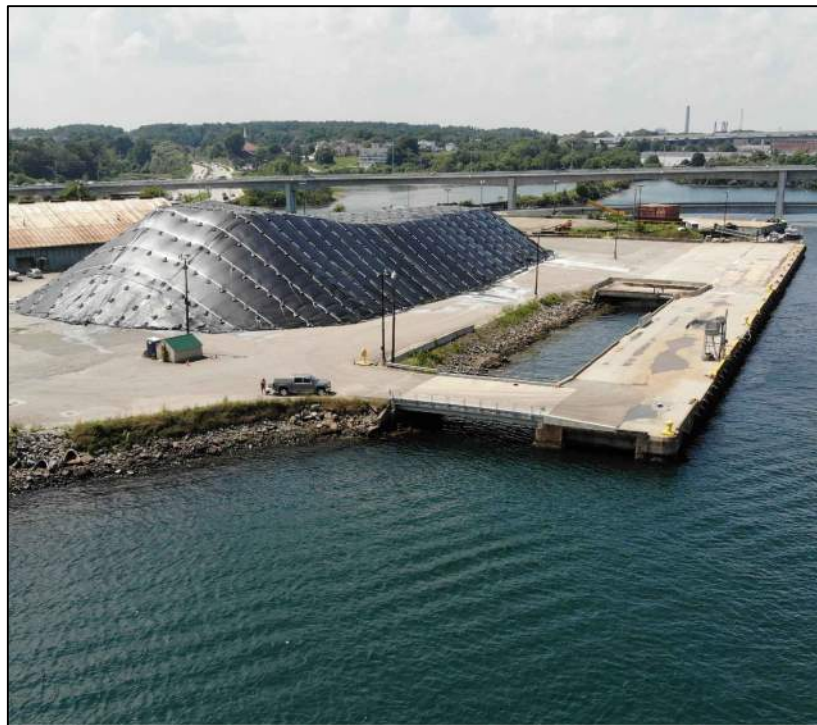
MAIN WHARF (1964 VINTAGE)  
LOOKING SOUTHEAST

C4



MAIN WHARF (1977 VINTAGE)  
LOOKING WEST

A1



SOUTH WHARF EXTENSION LOCATION  
LOOKING WEST

A3



NORTH WHARF EXTENSION LOCATION  
LOOKING SOUTH

A4

REVISION	DATE	DESCRIPTION	BY

603.786.1870  
inquiry@applecoremarine.com  
**Applecore Marine Engineering, LLC**  
600 State St., Suite E  
Portsmouth New Hampshire 03801  
SUBMITTED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

(SEAL)

PEASE DEVELOPMENT AUTHORITY  
DIVISION OF PORTS AND HARBORS, 555 MARKET STREET, PORTSMOUTH, NH  
MARKET STREET MARINE TERMINAL  
**FUNCTIONAL REPLACEMENT BARGE DOCK**  
SITE PHOTOS - 01

PROJECT No.:	5213
CAD DWG FILE:	S213_permit_02_G-003.dwg
DESIGNED BY:	SND
DRAWN BY:	KMV
CHECKED BY:	NJE
SCALE:	AS SHOWN

G-003

SHEET 3 OF 18

1

2

3

4

5

CHECK GRAPHIC SCALE BEFORE USING.

1

2

3

4

5

D

C

B

A



**NORTH WHARF EXTENSION LOCATION**  
LOOKING SOUTHWEST (C1)



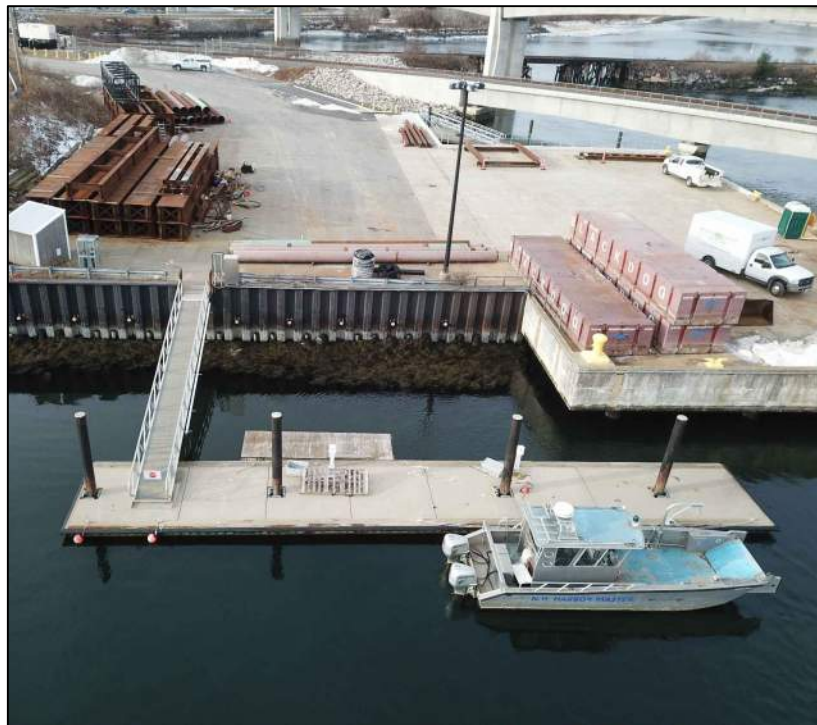
**BRIDGE PIER 14**  
LOOKING SOUTHWEST (C3)



**BRIDGE ABUTMENT 13**  
LOOKING SOUTHWEST (C4)



**BARGE WHARF BULKHEAD**  
LOOKING WEST (A1)



**FLOATING DOCK**  
LOOKING SOUTHWEST (A3)



**FLOATING DOCK - NEW LOCATION**  
LOOKING SOUTHWEST (A4)

1

2

3

4

5

REVISION	DATE	DESCRIPTION	BY

603.766.1870  
inquiry@appledoremarine.com  
**Appledore Marine Engineering, LLC**  
600 State St., Suite E  
Portsmouth New Hampshire 03801  
SUBMITTED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

(SEAL)

PEASE DEVELOPMENT AUTHORITY  
DIVISION OF PORTS AND HARBORS, 555 MARKET STREET, PORTSMOUTH, NH  
MARKET STREET MARINE TERMINAL  
**FUNCTIONAL REPLACEMENT BARGE DOCK**  
SITE PHOTOS - 02

PROJECT No.:	5213
CAD DWG FILE:	S213_permit_02_G-003.dwg
DESIGNED BY:	SND
DRAWN BY:	KMV
CHECKED BY:	NJE
SCALE:	AS SHOWN

G-004  
SHEET 4 OF 18



MAIN WHARF - END SECTION  
LOOKING NORTHWEST

C1



MAIN WHARF - SOUTH ACCESS BRIDGE  
LOOKING SOUTHWEST

C3



MAIN WHARF - BRIDGE ABUTMENT  
LOOKING WEST

C4



SOUTH WHARF EXTENSION REVETMENT  
LOOKING WEST

A1



MAIN WHARF - FENDER SYSTEM  
LOOKING SOUTHWEST

A3



BARGE WHARF - FENDER SYSTEM  
LOOKING SOUTH

A4

REVISION	DATE	DESCRIPTION	BY

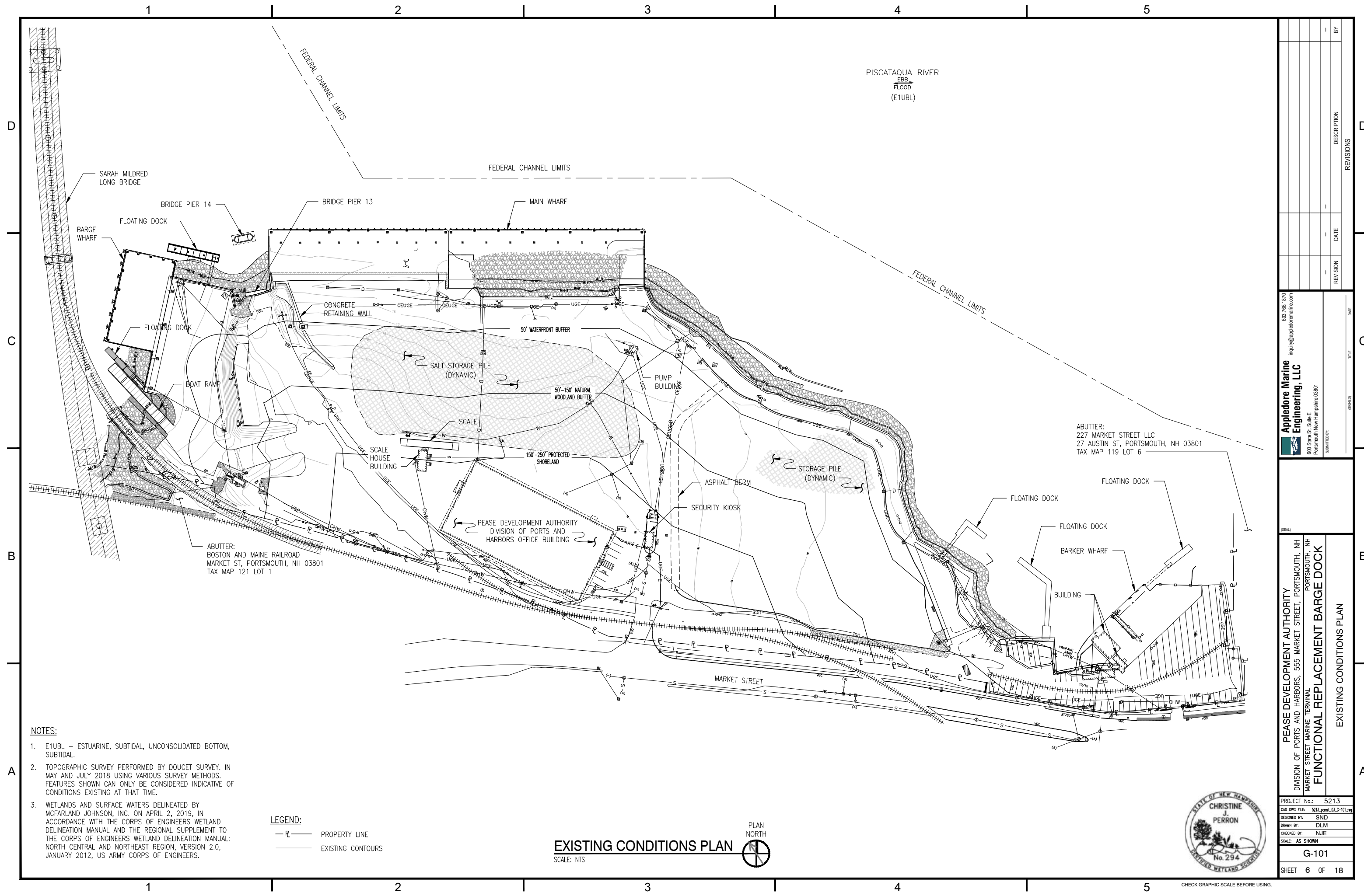
603.766.1870  
inquiry@applecoremarine.com  
**Applecore Marine Engineering, LLC**  
600 State St., Suite E  
Portsmouth New Hampshire 03801  
SUBMITTED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

(SEAL)

PEASE DEVELOPMENT AUTHORITY  
DIVISION OF PORTS AND HARBORS, 555 MARKET STREET, PORTSMOUTH, NH  
MARKET STREET MARINE TERMINAL  
**FUNCTIONAL REPLACEMENT BARGE DOCK**  
SITE PHOTOS - 03

PROJECT No.: 5213  
CAD DWG FILE: 5213\_permit\_02\_G-003.dwg  
DESIGNED BY: SIND  
DRAWN BY: KMV  
CHECKED BY: SIND  
SCALE: AS SHOWN

G-005  
SHEET 5 OF 18



**NOTES:**

1. E1UBL - ESTUARINE, SUBTIDAL, UNCONSOLIDATED BOTTOM, SUBTIDAL.
2. TOPOGRAPHIC SURVEY PERFORMED BY DOUCET SURVEY, IN MAY AND JULY 2018 USING VARIOUS SURVEY METHODS. FEATURES SHOWN CAN ONLY BE CONSIDERED INDICATIVE OF CONDITIONS EXISTING AT THAT TIME.
3. WETLANDS AND SURFACE WATERS DELINEATED BY MCFARLAND JOHNSON, INC. ON APRIL 2, 2019, IN ACCORDANCE WITH THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL AND THE REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTH CENTRAL AND NORTHEAST REGION, VERSION 2.0, JANUARY 2012, US ARMY CORPS OF ENGINEERS.

**LEGEND:**

- P - PROPERTY LINE
- - - - - EXISTING CONTOURS

**EXISTING CONDITIONS PLAN**

SCALE: NTS



REVISION	DATE	DESCRIPTION	BY

603.766.1870  
 inquiry@appliedmarine.com  
**Applied Marine Engineering, LLC**  
 600 State St, Suite E  
 Portsmouth New Hampshire 03801  
 SUBMITTED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

(SEAL)

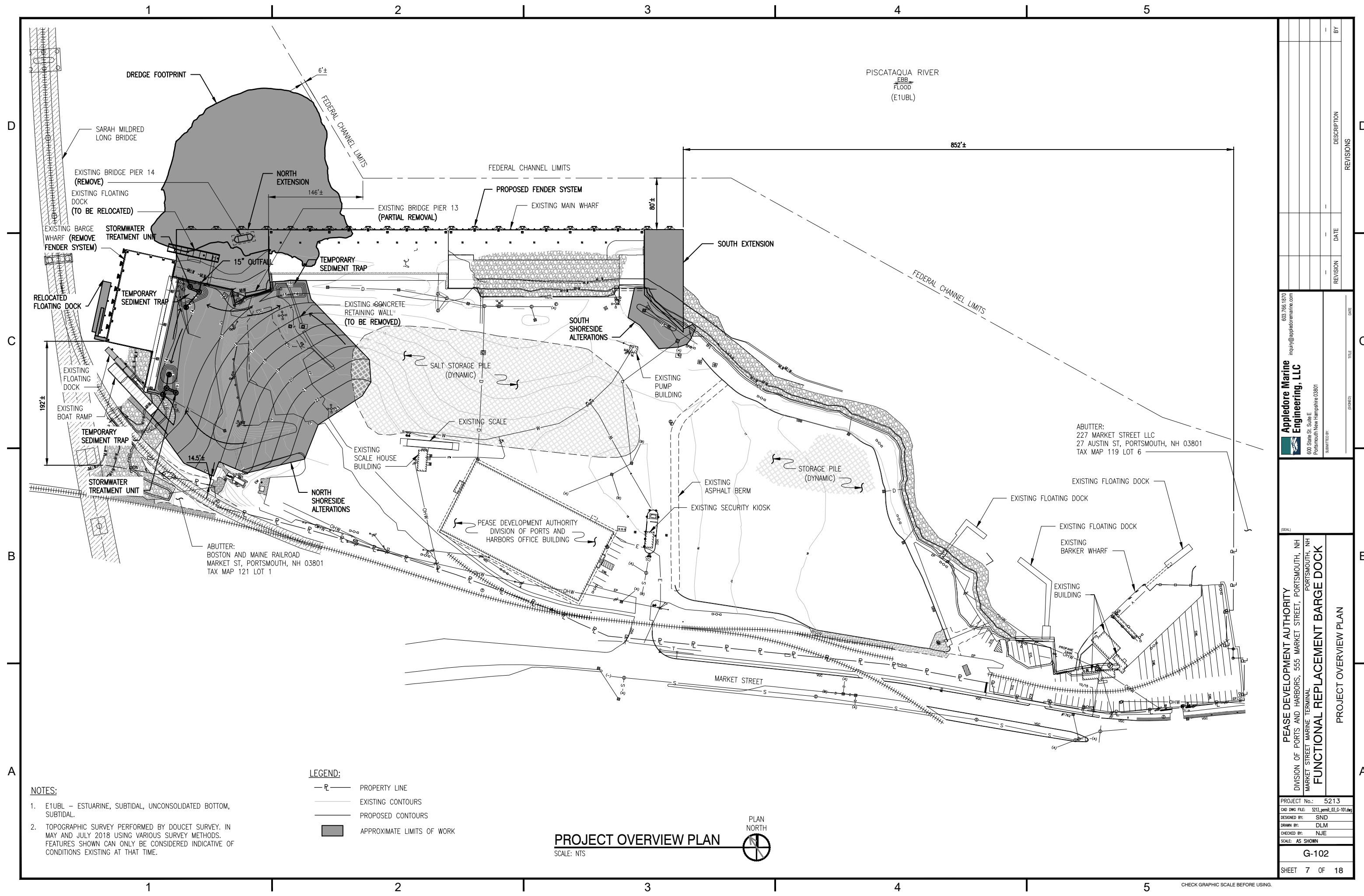
**PEASE DEVELOPMENT AUTHORITY**  
 DIVISION OF PORTS AND HARBORS, 555 MARKET STREET, PORTSMOUTH, NH  
 MARKET STREET MARINE TERMINAL  
**FUNCTIONAL REPLACEMENT BARGE DOCK**  
 EXISTING CONDITIONS PLAN

PROJECT No.:	5213
CAD DWG FILE:	S213_permit_03_G-101.dwg
DESIGNED BY:	SND
DRAWN BY:	DLM
CHECKED BY:	NJE
SCALE:	AS SHOWN

G-101  
 SHEET 6 OF 18

CHECK GRAPHIC SCALE BEFORE USING.





- NOTES:**
1. E1UBL - ESTUARINE, SUBTIDAL, UNCONSOLIDATED BOTTOM, SUBTIDAL.
  2. TOPOGRAPHIC SURVEY PERFORMED BY DOUCET SURVEY. IN MAY AND JULY 2018 USING VARIOUS SURVEY METHODS. FEATURES SHOWN CAN ONLY BE CONSIDERED INDICATIVE OF CONDITIONS EXISTING AT THAT TIME.

- LEGEND:**
- P - PROPERTY LINE
  - - - - - EXISTING CONTOURS
  - - - - - PROPOSED CONTOURS
  - - APPROXIMATE LIMITS OF WORK

**PROJECT OVERVIEW PLAN**  
SCALE: NTS



<p>603.766.1970 inquiry@applecoremarine.com</p> <p><b>Applecore Marine Engineering, LLC</b> 600 State St, Suite E Portsmouth New Hampshire 03801</p> <p>DATE: _____</p> <p>TITLE: _____</p> <p>DATE: _____</p>	<p>ABUTTER: 227 MARKET STREET LLC 27 AUSTIN ST, PORTSMOUTH, NH 03801 TAX MAP 119 LOT 6</p>
<p>PEASE DEVELOPMENT AUTHORITY DIVISION OF PORTS AND HARBORS, 555 MARKET STREET, PORTSMOUTH, NH</p> <p>MARKET STREET MARINE TERMINAL <b>FUNCTIONAL REPLACEMENT BARGE DOCK</b></p> <p>PROJECT OVERVIEW PLAN</p>	<p>PROJECT No.: 5213 CAD DWG FILE: S213_permit_03_G-101.dwg DESIGNED BY: SND DRAWN BY: DLM CHECKED BY: NJE SCALE: AS SHOWN</p>
<p>G-102</p>	
<p>SHEET 7 OF 18</p>	

1

2

3

4

5

D

C

B

A

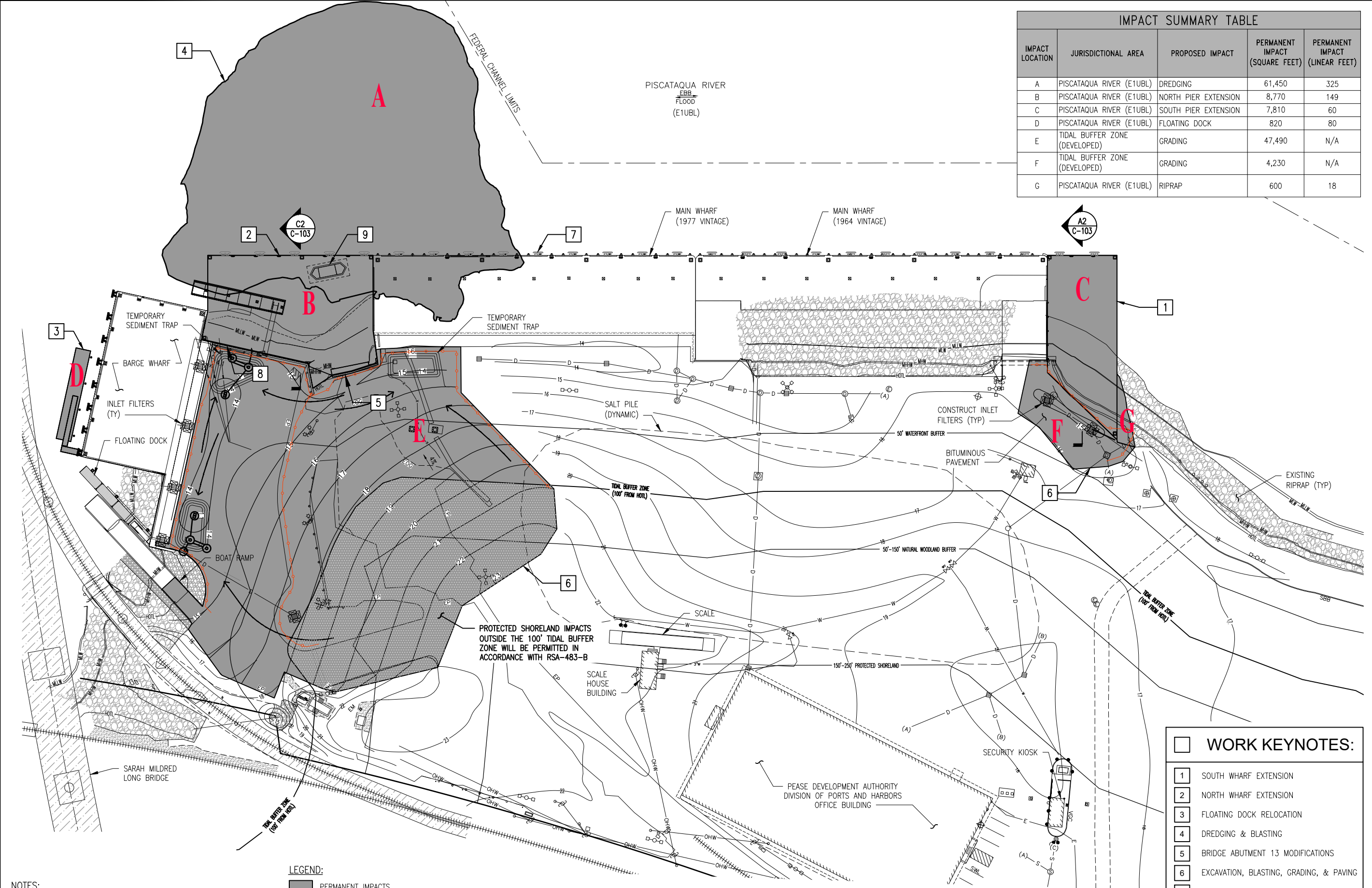
D

C

B

A

IMPACT SUMMARY TABLE				
IMPACT LOCATION	JURISDICTIONAL AREA	PROPOSED IMPACT	PERMANENT IMPACT (SQ. FEET)	PERMANENT IMPACT (LINEAR FEET)
A	PISCATAQUA RIVER (E1UBL)	DREDGING	61,450	325
B	PISCATAQUA RIVER (E1UBL)	NORTH PIER EXTENSION	8,770	149
C	PISCATAQUA RIVER (E1UBL)	SOUTH PIER EXTENSION	7,810	60
D	PISCATAQUA RIVER (E1UBL)	FLOATING DOCK	820	80
E	TIDAL BUFFER ZONE (DEVELOPED)	GRADING	47,490	N/A
F	TIDAL BUFFER ZONE (DEVELOPED)	GRADING	4,230	N/A
G	PISCATAQUA RIVER (E1UBL)	RIPRAP	600	18



**NOTES:**  
 1. TOPOGRAPHIC SURVEY PERFORMED BY DOUCET SURVEY, IN MAY AND JULY 2018 USING VARIOUS SURVEY METHODS. FEATURES SHOWN CAN ONLY BE CONSIDERED INDICATIVE OF CONDITIONS EXISTING AT THAT TIME.

**LEGEND:**  
 [Solid Grey] PERMANENT IMPACTS  
 [Hatched Grey] SHORELAND IMPACTS  
 [Dashed Line] EXISTING CONTOURS  
 [Solid Line] PROPOSED CONTOURS

**WETLAND IMPACT PLAN**  
 SCALE: 1"=40'-0"



- WORK KEYNOTES:**
- 1 SOUTH WHARF EXTENSION
  - 2 NORTH WHARF EXTENSION
  - 3 FLOATING DOCK RELOCATION
  - 4 DREDGING & BLASTING
  - 5 BRIDGE ABUTMENT 13 MODIFICATIONS
  - 6 EXCAVATION, BLASTING, GRADING, & PAVING
  - 7 FENDER SYSTEM REPLACEMENT
  - 8 SHEET PILE WALL MODIFICATIONS
  - 9 REMOVE BRIDGE PIER 14

603.766.1870  
 inquiry@applodremarine.com  
**Applodore Marine Engineering, LLC**  
 600 State St, Suite E  
 Portsmouth New Hampshire 03801  
 SUBMITTED BY: [Signature]  
 DATE: [Blank]  
 TITLE: [Blank]  
 (DATE)

PEASE DEVELOPMENT AUTHORITY  
 DIVISION OF PORTS AND HARBORS, 555 MARKET STREET, PORTSMOUTH, NH  
 MARKET STREET MARINE TERMINAL  
**FUNCTIONAL REPLACEMENT BARGE DOCK**  
 WETLAND IMPACT PLAN

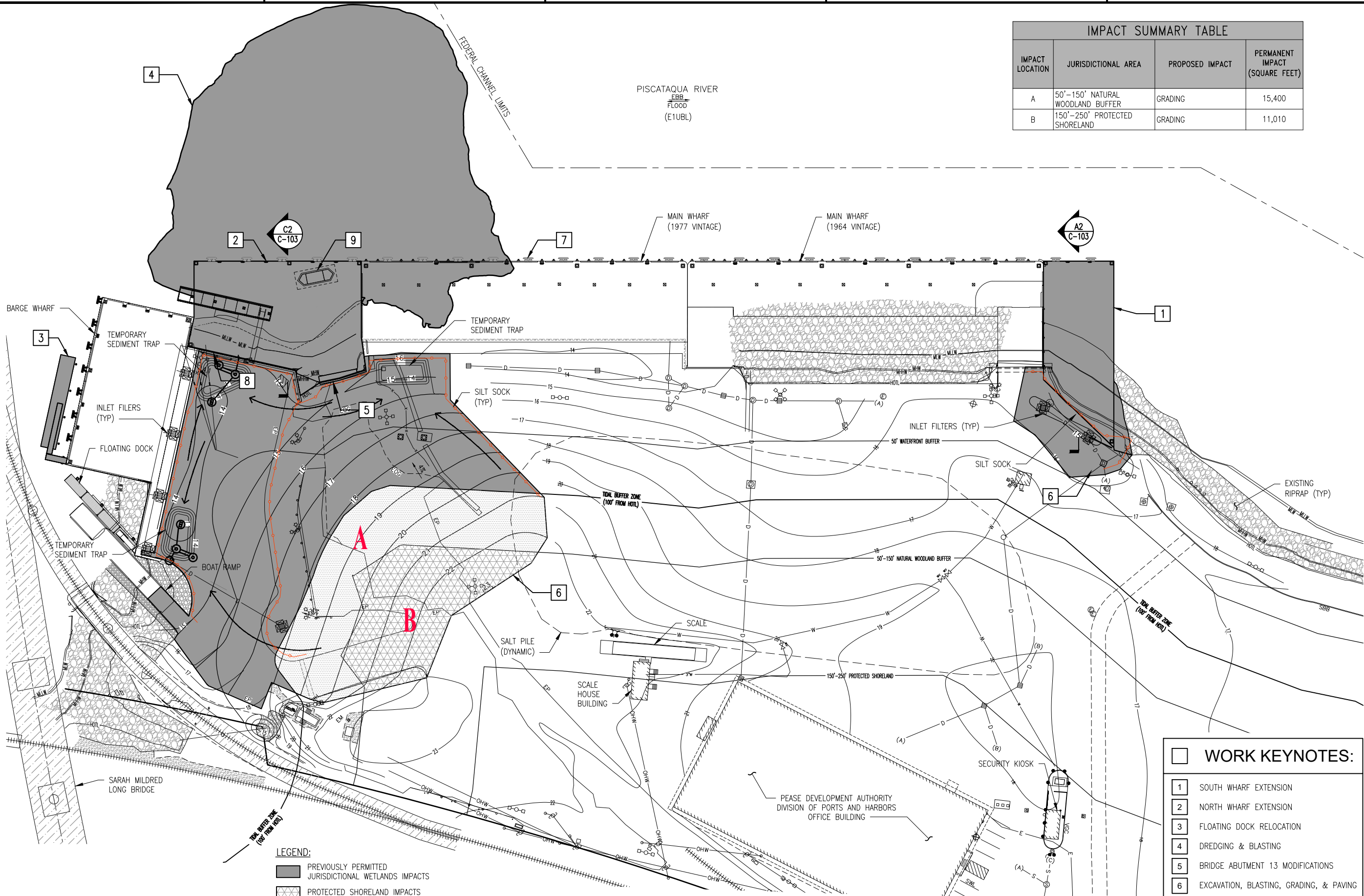
PROJECT No.: 5213  
 CAD DWG FILE: S213\_permit\_M\_C-101.dwg  
 DESIGNED BY: SND  
 DRAWN BY: DLM  
 CHECKED BY: NJE  
 SCALE: AS SHOWN  
**C-101**  
 SHEET 8 OF 18

CHECK GRAPHIC SCALE BEFORE USING.

1 2 3 4 5

IMPACT SUMMARY TABLE			
IMPACT LOCATION	JURISDICTIONAL AREA	PROPOSED IMPACT	PERMANENT IMPACT (SQ. FEET)
A	50'-150' NATURAL WOODLAND BUFFER	GRADING	15,400
B	150'-250' PROTECTED SHORELAND	GRADING	11,010

D  
C  
B  
A



**SHORELAND IMPACT PLAN**  
SCALE: 1"=40'-0"



**NOTES:**  
1. TOPOGRAPHIC SURVEY PERFORMED BY DOUCET SURVEY, IN MAY AND JULY 2018 USING VARIOUS SURVEY METHODS. FEATURES SHOWN CAN ONLY BE CONSIDERED INDICATIVE OF CONDITIONS EXISTING AT THAT TIME.

- LEGEND:**
- PREVIOUSLY PERMITTED JURISDICTIONAL WETLANDS IMPACTS
  - PROTECTED SHORELAND IMPACTS
  - NATURAL WOODLAND BUFFER IMPACTS
  - EXISTING CONTOURS
  - PROPOSED CONTOURS

- WORK KEYNOTES:**
- SOUTH WHARF EXTENSION
  - NORTH WHARF EXTENSION
  - FLOATING DOCK RELOCATION
  - DREDGING & BLASTING
  - BRIDGE ABUTMENT 13 MODIFICATIONS
  - EXCAVATION, BLASTING, GRADING, & PAVING
  - FENDER SYSTEM REPLACEMENT
  - SHEET PILE WALL MODIFICATIONS
  - REMOVE BRIDGE PIER 14

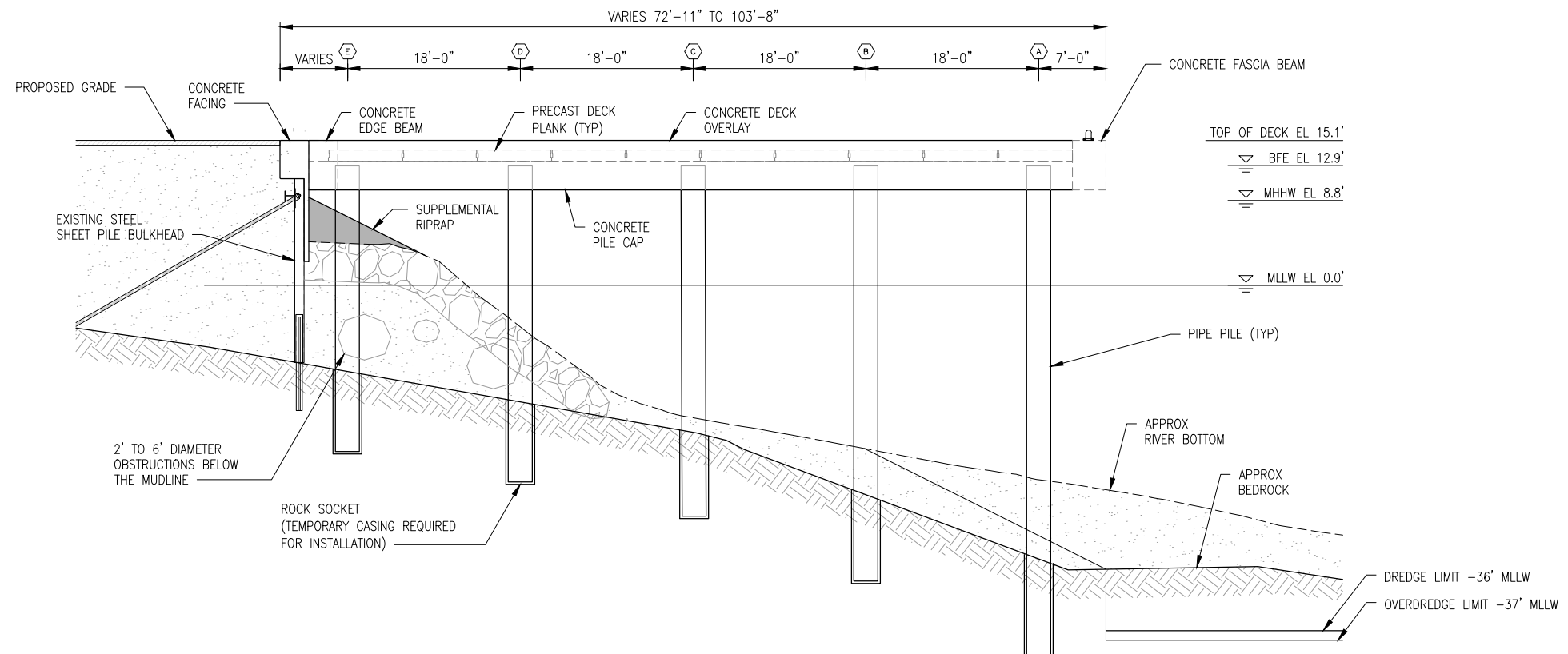
<p>603.766.1870 inquiry@applodoremarine.com</p> <p><b>Applodore Marine Engineering, LLC</b> 600 State St, Suite E Portsmouth New Hampshire 03801</p> <p>603.766.1870 inquiry@applodoremarine.com</p> <p><b>PEASE DEVELOPMENT AUTHORITY</b> DIVISION OF PORTS AND HARBORS, 555 MARKET STREET, PORTSMOUTH, NH MARKET STREET MARINE TERMINAL <b>FUNCTIONAL REPLACEMENT BARGE DOCK</b></p> <p>PROJECT No.: 5213 CAD DWG FILE: S213_permit_M_C-101.dwg DESIGNED BY: SND DRAWN BY: DLM CHECKED BY: NJE SCALE: AS SHOWN</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISION</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p style="text-align: center;">SHORELAND IMPACT PLAN</p> <p style="text-align: center;"><b>C-102</b></p> <p style="text-align: center;">SHEET 9 OF 18</p>	REVISION	DATE	DESCRIPTION	BY				
REVISION	DATE	DESCRIPTION	BY						

CHECK GRAPHIC SCALE BEFORE USING.

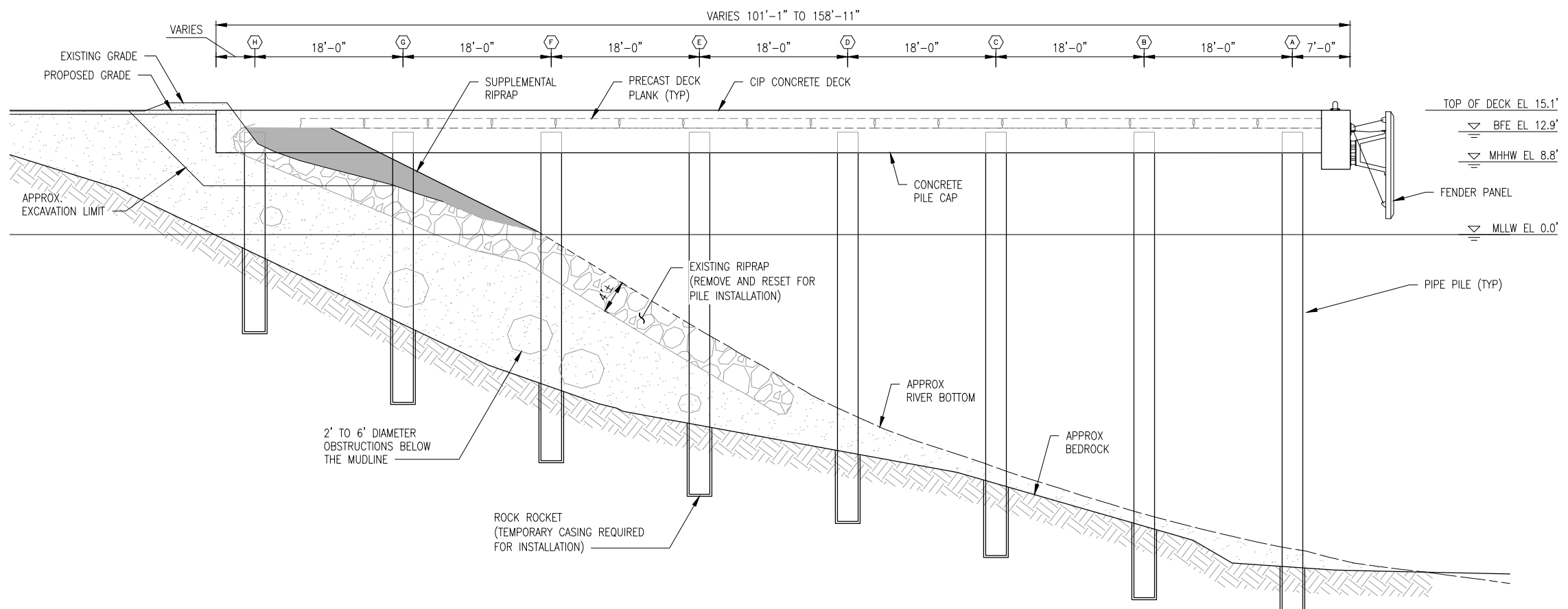
**ELEVATION REFERENCE TABLE**

REFERENCE	MLLW
DECK ELEVATION	15.10
BASE FLOOD ELEVATION (BFE)	12.86
HIGHEST OBSERVED TIDE (02/07/1978)	12.52
HIGHEST ASTRONOMICAL TIDE (HAT) (06/15/1995)	10.52
MEAN HIGHER HIGH WATER (MHHW)	8.84
MEAN HIGH WATER (MHW)	8.43
NORTH AMERICAN VERTICAL DATUM (NAVD88)	4.62
MEAN SEA LEVEL (MSL)	4.43
MEAN TIDE LEVEL (MTL)	4.38
NATIONAL GEODETIC VERTICAL DATUM (NGVD29)	3.86
MEAN LOW WATER (MLW)	0.32
MEAN LOWER LOW WATER (MLLW)	0.00
LOWEST ASTRONOMICAL TIDE (LAT)	-1.67
LOWEST OBSERVED WATER LEVEL (11/30/1955)	-3.35

THE LOCAL TIDAL DATUM INFORMATION AND THE RELATIONSHIP BETWEEN LOCAL TIDE AND NAVD88 IS BASED ON DATA PUBLISHED BY THE U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SERVICE FOR STATION "SEAVEY ISLAND, PORTSMOUTH HARBOR", STATION ID: 8419870, TIDAL EPOCH 1983-2001.



**NORTH WHARF EXTENSION GENERAL SECTION** C2  
 SCALE: 1/8"=1'-0"  
 0 4' 8' 16' C-101 C-102



**SOUTH WHARF EXTENSION GENERAL SECTION** A2  
 SCALE: 1/8"=1'-0"  
 0 4' 8' 16' C-101 C-102

NO.	REVISION	DATE	DESCRIPTION	BY

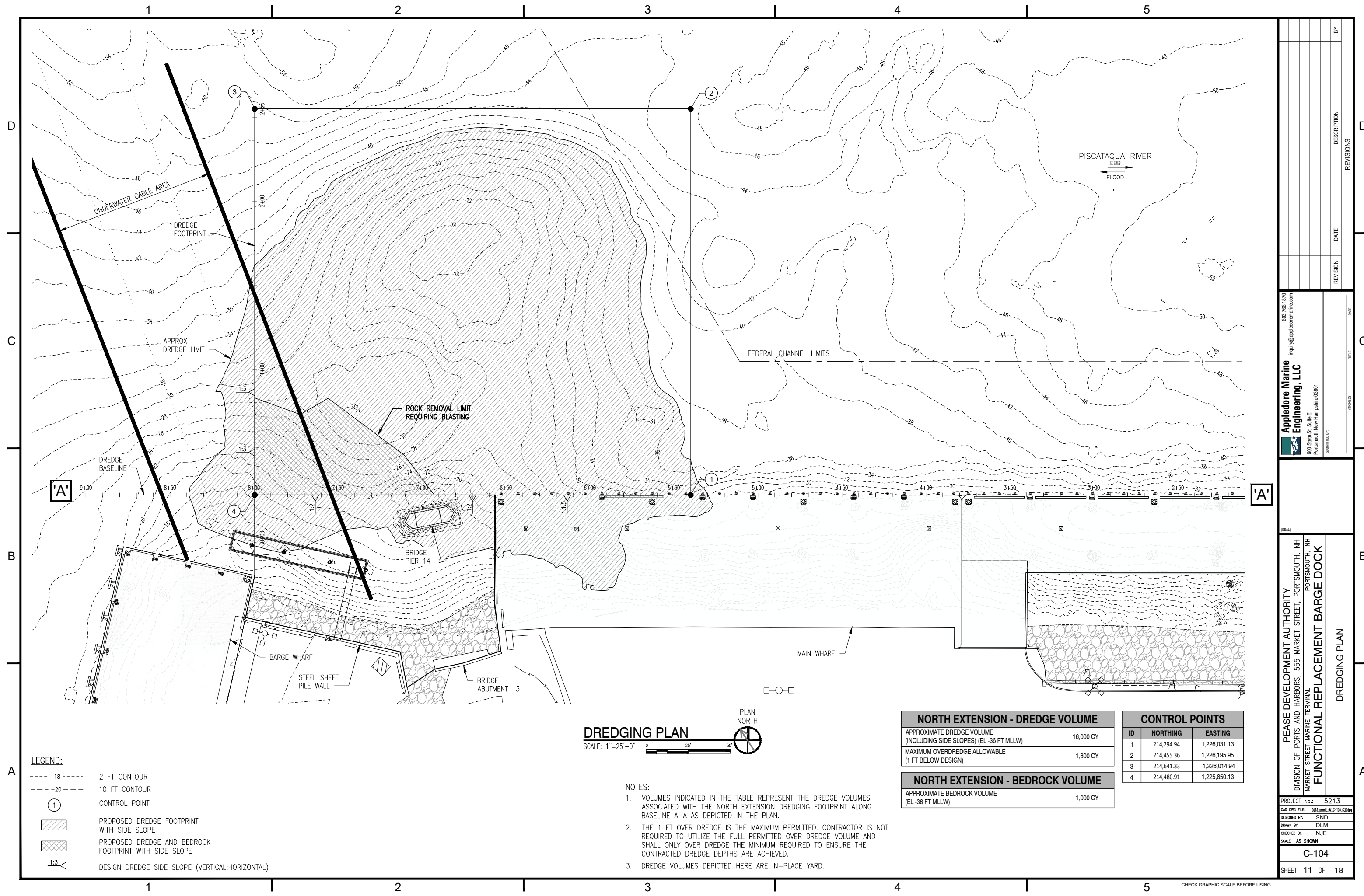
603.766.1870  
 inquiry@appledoremarine.com  
**Appledore Marine Engineering, LLC**  
 600 State St, Suite E  
 Portsmouth New Hampshire 03801  
 SUBMITTED BY: [ ]  
 (DATE)

PEASE DEVELOPMENT AUTHORITY  
 DIVISION OF PORTS AND HARBORS, 555 MARKET STREET, PORTSMOUTH, NH  
 MARKET STREET MARINE TERMINAL  
**FUNCTIONAL REPLACEMENT BARGE DOCK**

GENERAL SECTIONS

PROJECT No.:	5213
CAD DWG FILE:	S213_permit_06_S-101.dwg
DESIGNED BY:	SND
DRAWN BY:	KMV
CHECKED BY:	NJE
SCALE:	AS SHOWN

CHECK GRAPHIC SCALE BEFORE USING.



PISCATAQUA RIVER  
 EBB  
 FLOOD

FEDERAL CHANNEL LIMITS

**DREDGING PLAN**

SCALE: 1"=25'-0"



- LEGEND:**
- 2 FT CONTOUR
  - 10 FT CONTOUR
  - CONTROL POINT
  - PROPOSED DREDGE FOOTPRINT WITH SIDE SLOPE
  - PROPOSED DREDGE AND BEDROCK FOOTPRINT WITH SIDE SLOPE
  - DESIGN DREDGE SIDE SLOPE (VERTICAL:HORIZONTAL)

- NOTES:**
- VOLUMES INDICATED IN THE TABLE REPRESENT THE DREDGE VOLUMES ASSOCIATED WITH THE NORTH EXTENSION DREDGING FOOTPRINT ALONG BASELINE A-A AS DEPICTED IN THE PLAN.
  - THE 1 FT OVER DREDGE IS THE MAXIMUM PERMITTED. CONTRACTOR IS NOT REQUIRED TO UTILIZE THE FULL PERMITTED OVER DREDGE VOLUME AND SHALL ONLY OVER DREDGE THE MINIMUM REQUIRED TO ENSURE THE CONTRACTED DREDGE DEPTHS ARE ACHIEVED.
  - DREDGE VOLUMES DEPICTED HERE ARE IN-PLACE YARD.

**NORTH EXTENSION - DREDGE VOLUME**

APPROXIMATE DREDGE VOLUME (INCLUDING SIDE SLOPES) (EL -36 FT MLLW)	16,000 CY
MAXIMUM OVERDREDGE ALLOWABLE (1 FT BELOW DESIGN)	1,800 CY

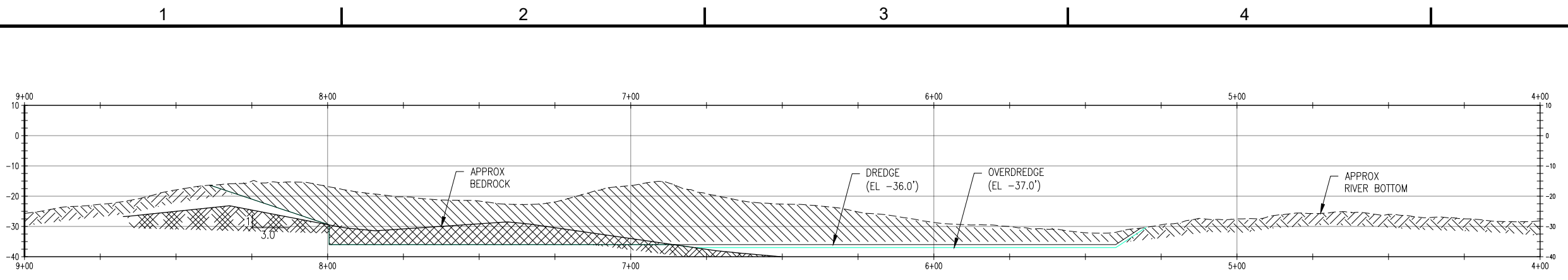
**NORTH EXTENSION - BEDROCK VOLUME**

APPROXIMATE BEDROCK VOLUME (EL -36 FT MLLW)	1,000 CY
---	----------

**CONTROL POINTS**

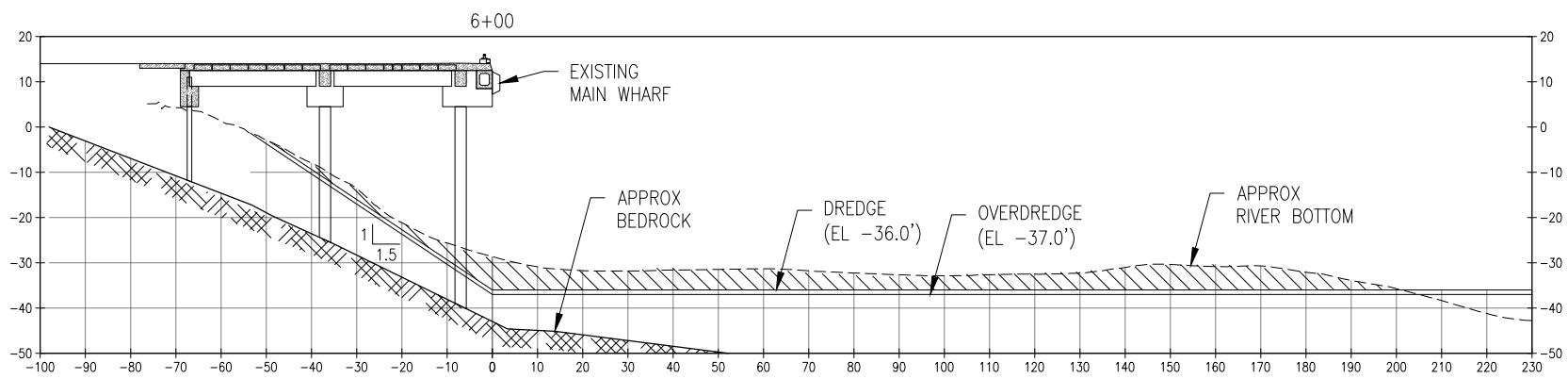
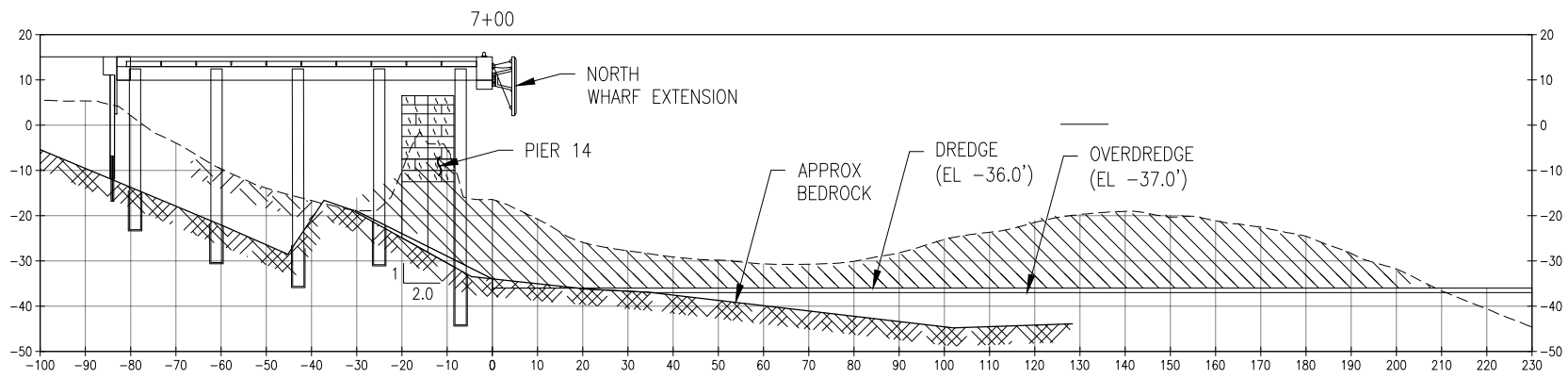
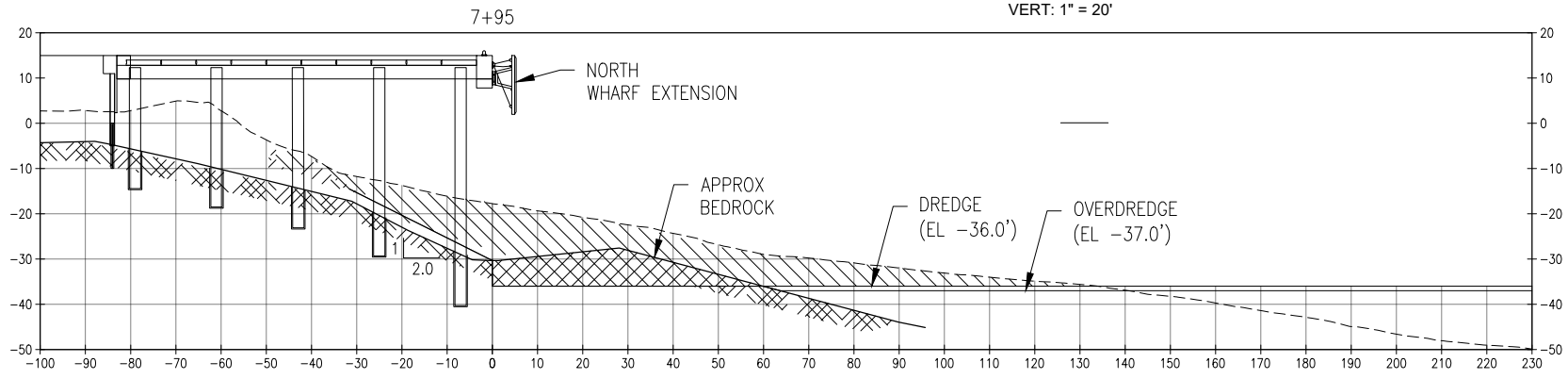
ID	NORTHING	EASTING
1	214,294.94	1,226,031.13
2	214,455.36	1,226,195.95
3	214,641.33	1,226,014.94
4	214,480.91	1,225,850.13

<p>603.786.1870          inquiry@appledoremarine.com</p> <p><b>Appledore Marine Engineering, LLC</b>          600 State St, Suite E          Portsmouth New Hampshire 03801</p> <p>DATE: _____          DRAWN BY: _____          CHECKED BY: _____          SCALE: AS SHOWN</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISION</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISION	DATE	DESCRIPTION	BY				
REVISION	DATE	DESCRIPTION	BY						
<p>PEASE DEVELOPMENT AUTHORITY          DIVISION OF PORTS AND HARBORS, 555 MARKET STREET, PORTSMOUTH, NH          MARKET STREET MARINE TERMINAL  <b>FUNCTIONAL REPLACEMENT BARGE DOCK</b></p>									
<p>DREDGING PLAN</p>									
<p>PROJECT No.: 5213          CAD DWG FILE: 5213_pdm_07_C-104.dwg          DESIGNED BY: SND          DRAWN BY: DLM          CHECKED BY: NJE          SCALE: AS SHOWN</p>									
<p>C-104</p>									
<p>SHEET 11 OF 18</p>									



**DREDGING PROFILE A-A**

HORIZ: 1" = 20'  
VERT: 1" = 20'



**DREDGING SECTIONS A-A**

HORIZ: 1" = 20'  
VERT: 1" = 20'

- LEGEND:**
- DREDGE REMOVAL
  - BEDROCK REMOVAL
  - APPROXIMATE MUDLINE
  - APPROXIMATE BEDROCK

REVISION	DATE	DESCRIPTION	BY

603.766.1870  
inquiry@appledoremaine.com

**Appledore Marine Engineering, LLC**  
600 State St, Suite E  
Portsmouth New Hampshire 03801

DATE: \_\_\_\_\_  
TITLE: \_\_\_\_\_  
DRAWN BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_

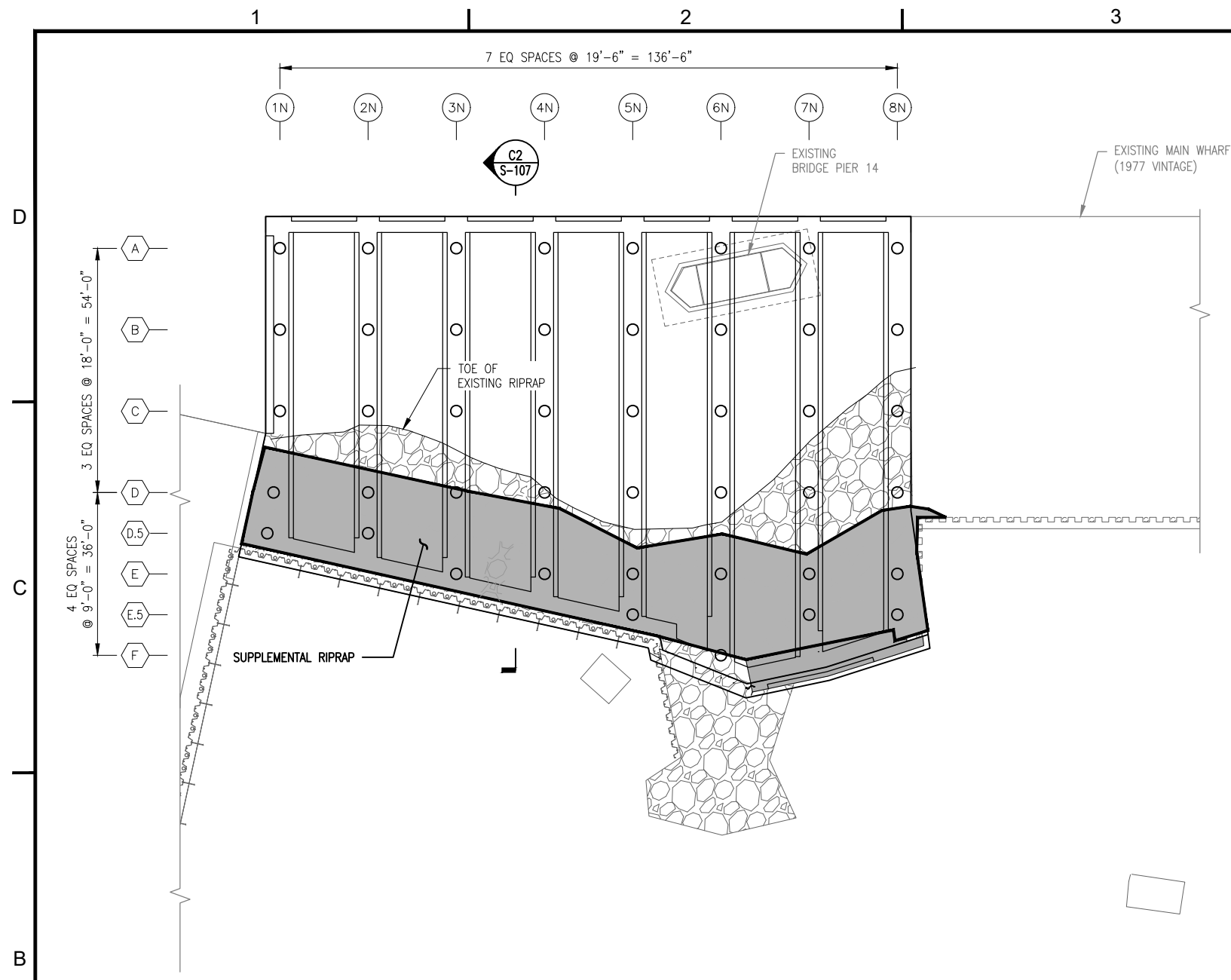
PEASE DEVELOPMENT AUTHORITY  
DIVISION OF PORTS AND HARBORS, 555 MARKET STREET, PORTSMOUTH, NH  
MARKET STREET MARINE TERMINAL  
PORTSMOUTH, NH

**FUNCTIONAL REPLACEMENT BARGE DOCK**

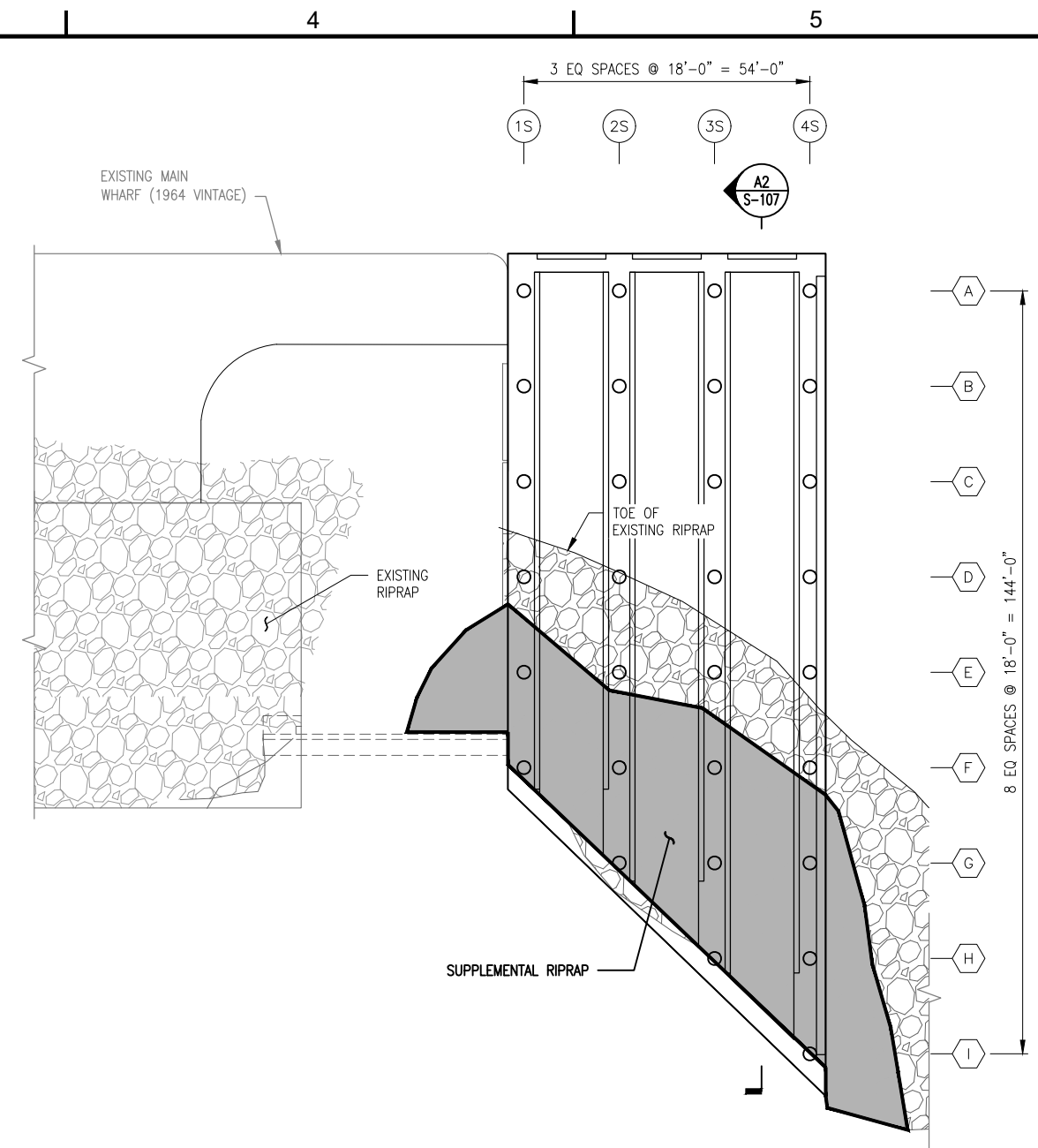
DREDGE SECTIONS

PROJECT No.: 5213  
CAD DWG FILE: 0213\_pand\_01\_C-105.dwg  
DESIGNED BY: SND  
DRAWN BY: DLM  
CHECKED BY: NJE  
SCALE: AS SHOWN

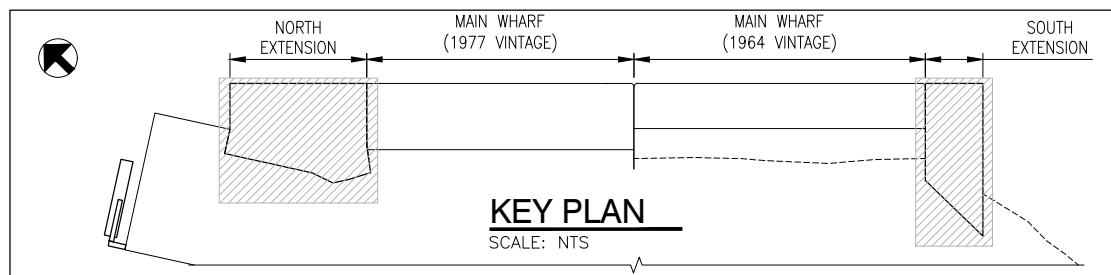
C-105  
SHEET 12 OF 18



**NORTH WHARF EXTENSION RIPRAP PLAN**  
 SCALE: 1/16" = 1'-0"  
 PLAN NORTH



**SOUTH WHARF EXTENSION RIPRAP PLAN**  
 SCALE: 1/16" = 1'-0"  
 PLAN NORTH



**KEY PLAN**  
 SCALE: NTS

603.766.1870 inquiry@appledoremarine.com <b>Appledore Marine Engineering, LLC</b> 600 State St, Suite E Portsmouth New Hampshire 03801 <small>ISSUED BY: (DATE)</small>		REVISION DATE DESCRIPTION
PEASE DEVELOPMENT AUTHORITY DIVISION OF PORTS AND HARBORS, 555 MARKET STREET, PORTSMOUTH, NH MARKET STREET MARINE TERMINAL <b>FUNCTIONAL REPLACEMENT BARGE DOCK</b>		TITLE DATE
PROJECT No.: 5213 CAD DWG FILE: S213_permit_06_S-101.dwg DESIGNED BY: SND DRAWN BY: MDM CHECKED BY: NJE SCALE: AS SHOWN		SHEET 13 OF 18
RIPRAP PLAN		C-106

CHECK GRAPHIC SCALE BEFORE USING.

1

2

3

4

5

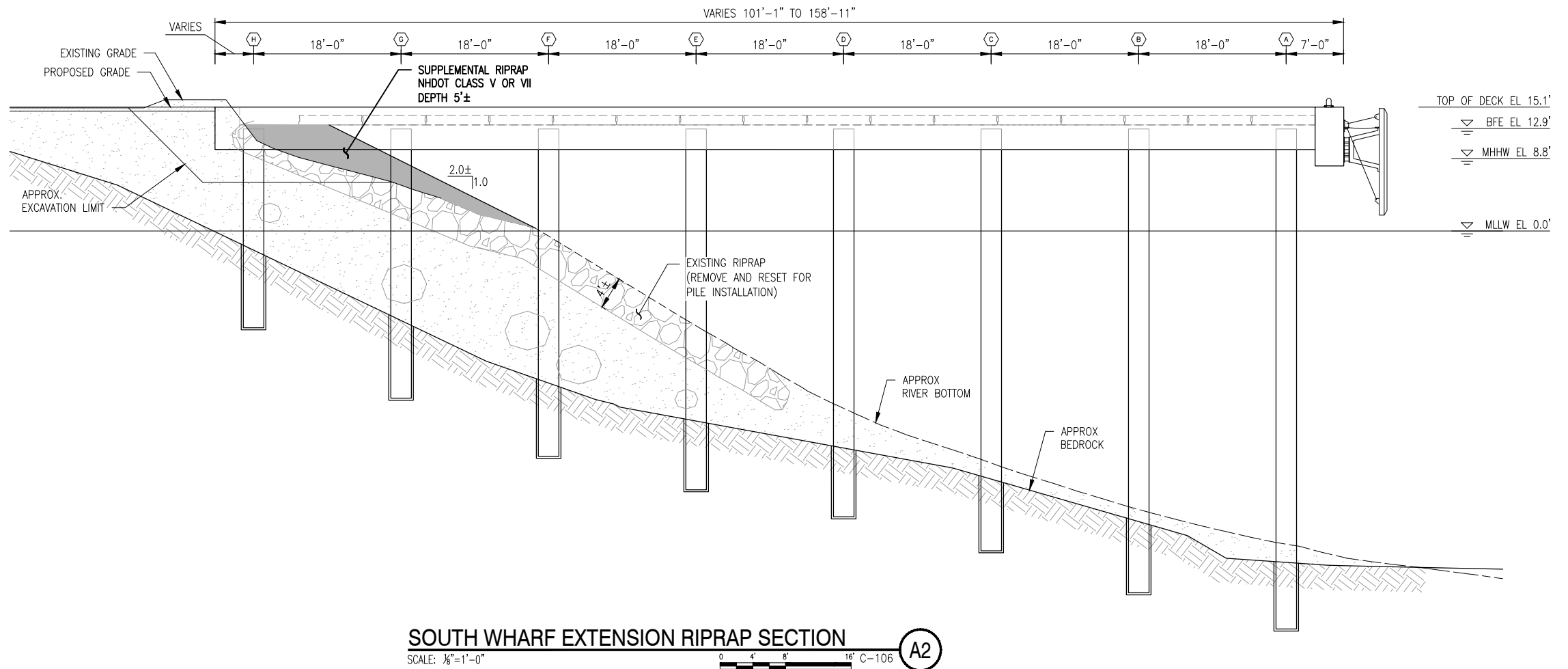
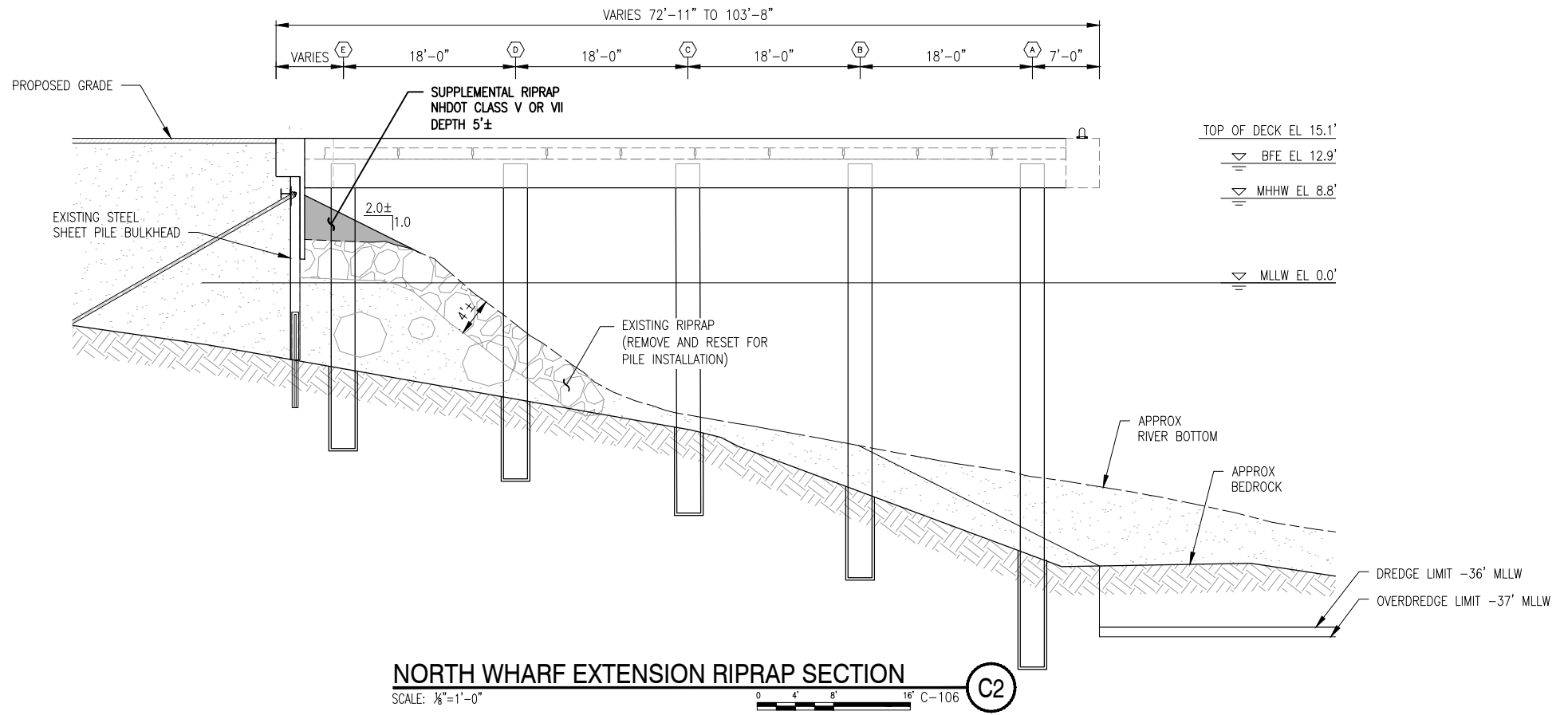
D

C

B

A

RIPRAP SUMMARY TABLE						
RIPRAP CLASSES AND SIZES			PERCENT DISTRIBUTION OF PARTICLE SIZE BY VOLUME (CF)			
NHDOT CLASS	NOMINAL SIZE (IN)	MAXIMUM SIZE (IN.)	<15%	15%-85%	>85%	MAXIMUM
V	18	36	1.3	3.5	8.5	22
VII	24	48	3	8	19	53



REVISION	DATE	DESCRIPTION	BY

603.766.1870  
inquiry@appledoremarine.com

**Appledore Marine Engineering, LLC**

600 State St, Suite E  
Portsmouth New Hampshire 03801

DATE

TITLE

DATE

PEASE DEVELOPMENT AUTHORITY  
DIVISION OF PORTS AND HARBORS, 555 MARKET STREET, PORTSMOUTH, NH

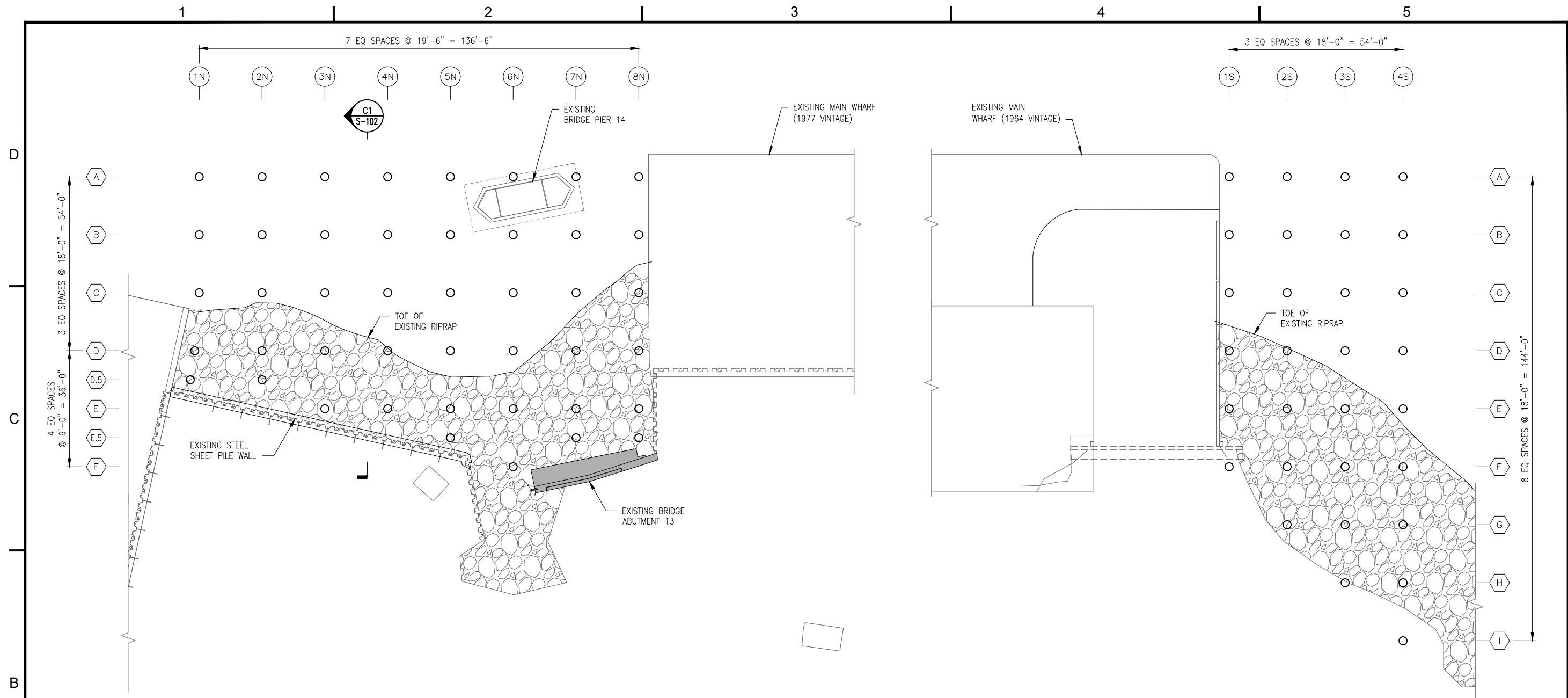
MARKET STREET MARINE TERMINAL  
PORTSMOUTH, NH

**FUNCTIONAL REPLACEMENT BARGE DOCK**

RIPRAP SECTIONS

PROJECT No.:	5213
CAD DWG FILE:	S213_permit_06_S-101.dwg
DESIGNED BY:	SND
DRAWN BY:	KMV
CHECKED BY:	NJE
SCALE:	AS SHOWN

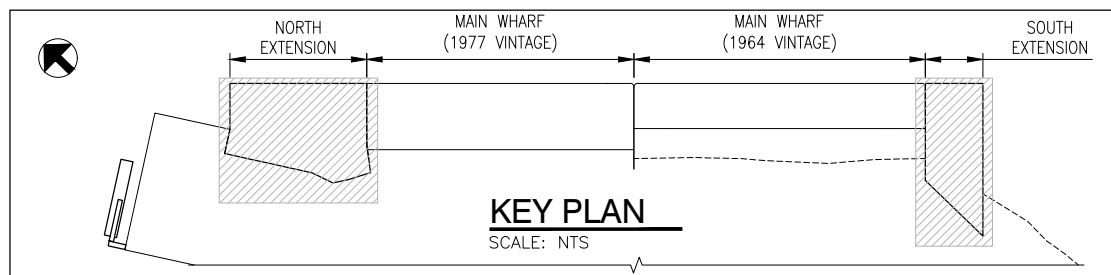




**NORTH WHARF EXTENSION PILE PLAN**  
 SCALE: 1/8"=1'-0"  
 PLAN NORTH

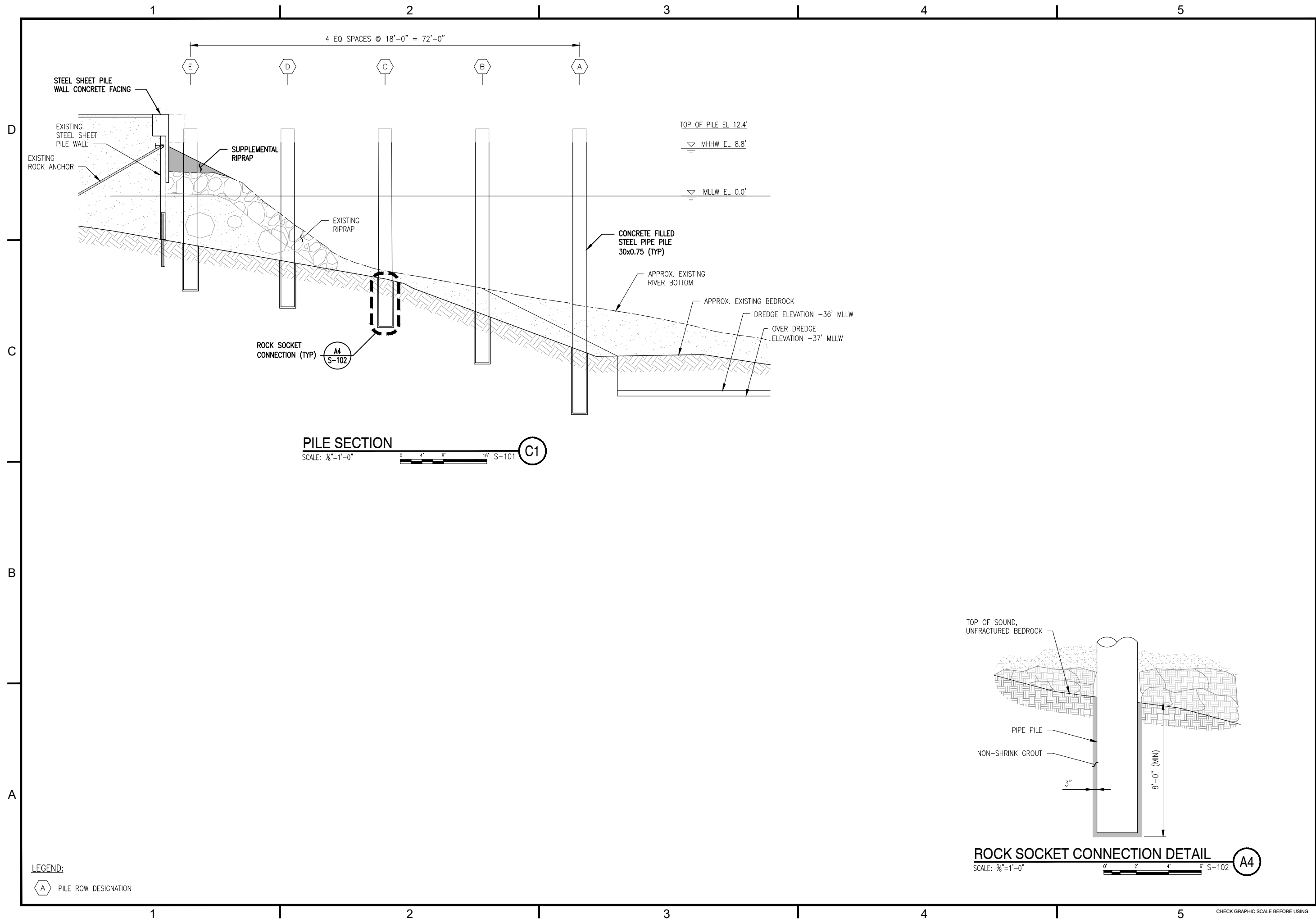
**SOUTH WHARF EXTENSION PILE PLAN**  
 SCALE: 1/8"=1'-0"  
 PLAN NORTH

- LEGEND:**
- ① PILE BENT DESIGNATION
  - Ⓐ PILE ROW DESIGNATION
  - CONCRETE FILLED 30" DIA STEEL PIPE PILE

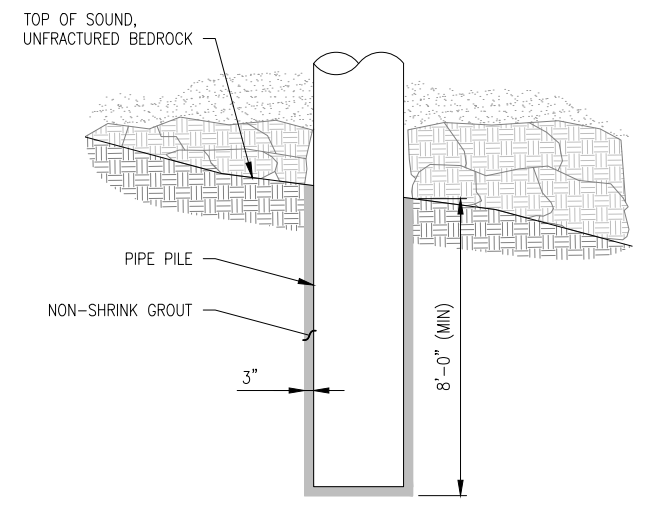


PROJECT No.: 5213		SHEET 15 OF 18	
CAD DWG FILE: S113_permit_06_S-101.dwg		DESIGNED BY: SMD	
DRAWN BY: MDM		CHECKED BY: NJE	
SCALE: AS SHOWN		S-101	
PEASE DEVELOPMENT AUTHORITY DIVISION OF PORTS AND HARBORS, 555 MARKET STREET, PORTSMOUTH, NH MARKET STREET MARINE TERMINAL		FUNCTIONAL REPLACEMENT BARGE DOCK	
Appledore Marine Engineering, LLC 600 State St, Suite E Portsmouth New Hampshire 03801 603.766.1970 inquiry@appledoremarine.com		REVISIONS	
DATE	DESCRIPTION	DATE	BY

CHECK GRAPHIC SCALE BEFORE USING.



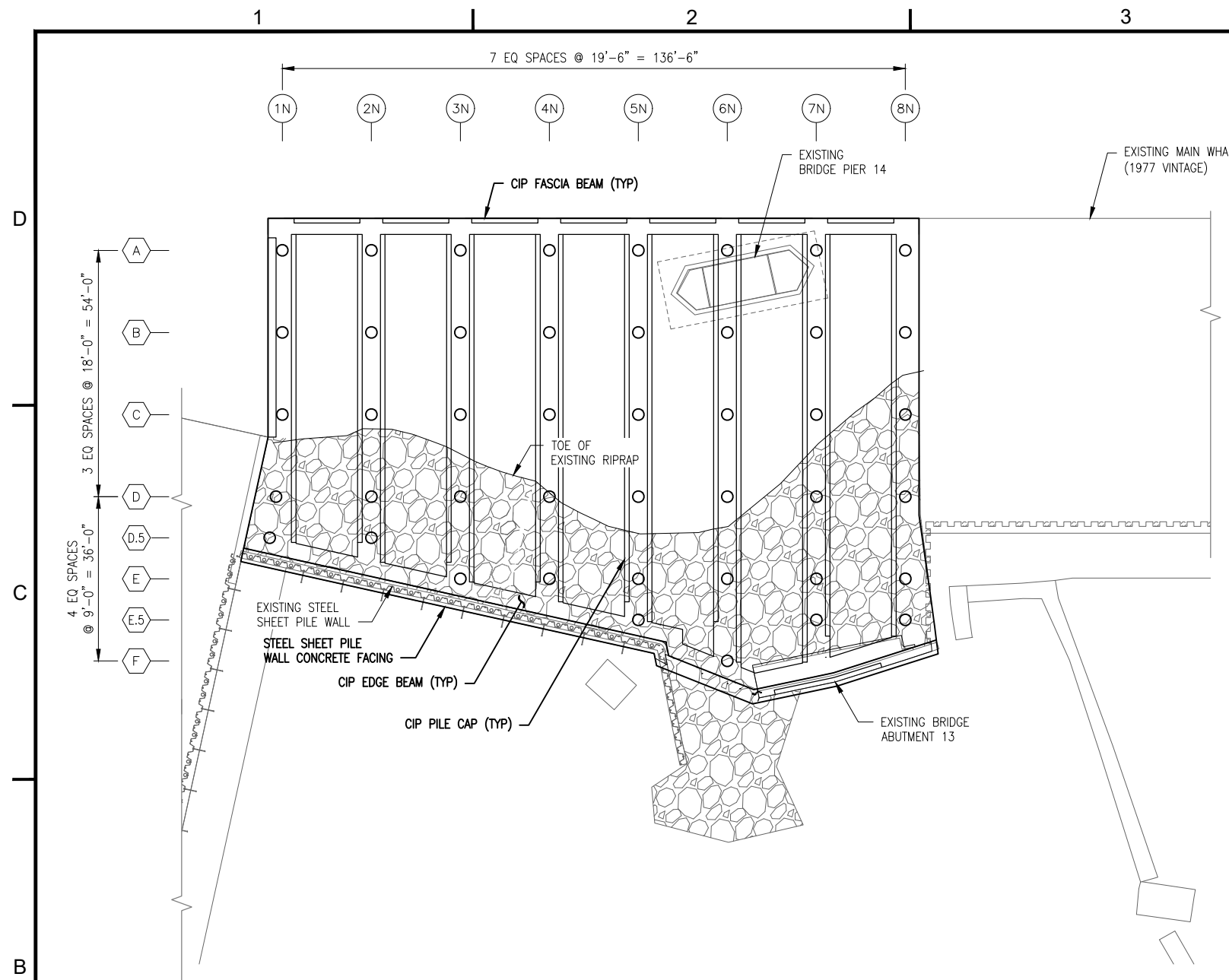
**PILE SECTION**  
SCALE: 3/8"=1'-0" C1



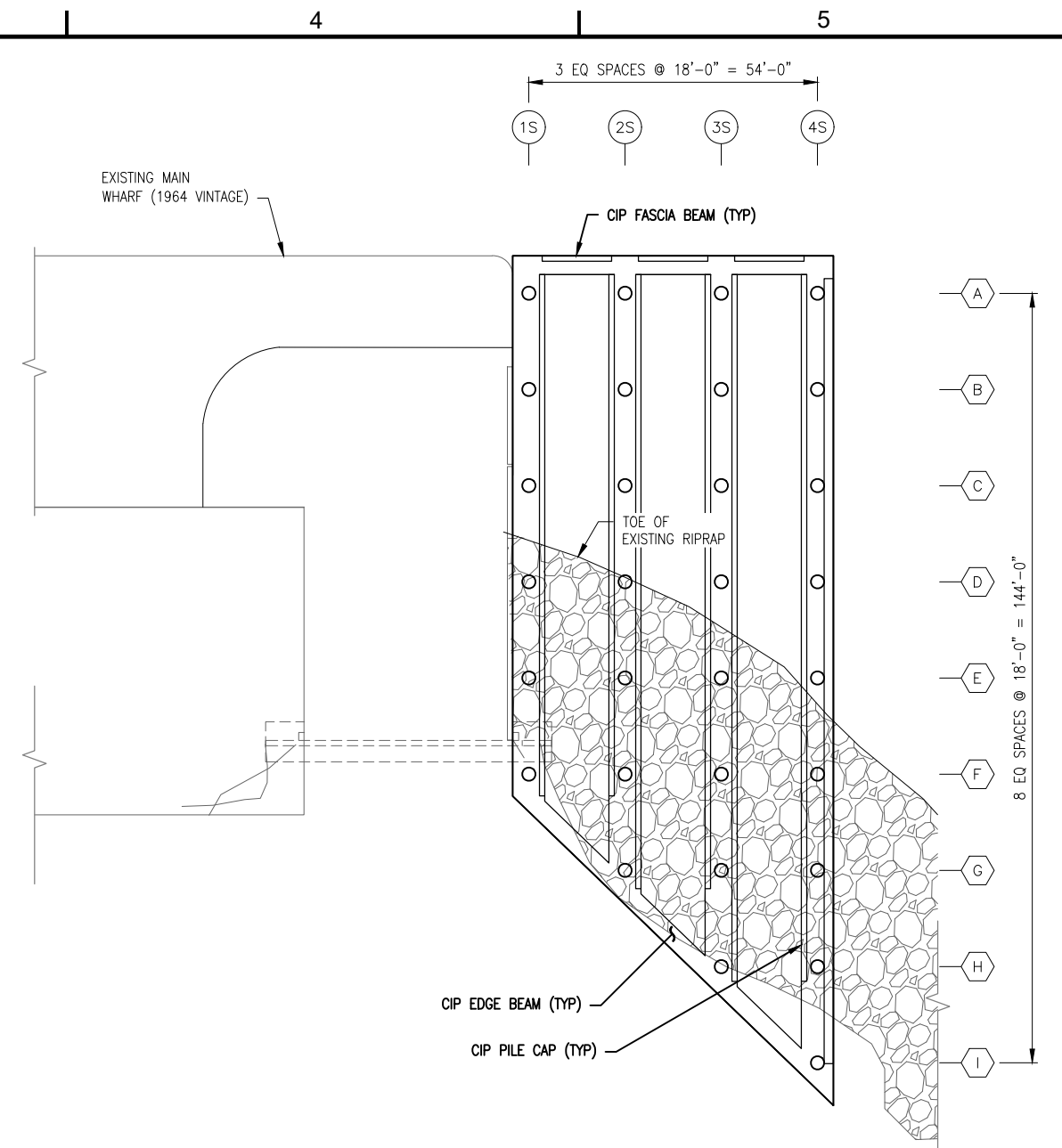
**ROCK SOCKET CONNECTION DETAIL**  
SCALE: 3/8"=1'-0" A4

LEGEND:  
A PILE ROW DESIGNATION

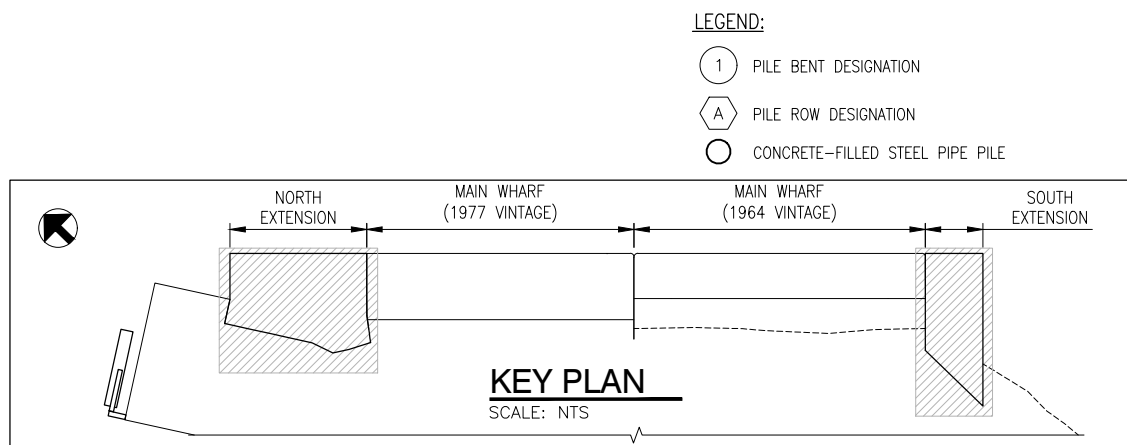
603.766.1870 inquiry@appledoremarine.com		REVISION	DATE	DESCRIPTION	BY
<b>Appledore Marine Engineering, LLC</b> 600 State St., Suite E Portsmouth New Hampshire 03801 <small>SUBMITTED BY:</small>		REVISION	DATE	DESCRIPTION	BY
		REVISION	DATE	DESCRIPTION	BY
PEASE DEVELOPMENT AUTHORITY DIVISION OF PORTS AND HARBORS, 555 MARKET STREET, PORTSMOUTH, NH MARKET STREET MARINE TERMINAL <b>FUNCTIONAL REPLACEMENT BARGE DOCK</b>		PILE SECTION AND DETAILS			
PROJECT No.: 5213 CAD DWG FILE: S113_permit_06_S-101.dwg DESIGNED BY: SND DRAWN BY: MDM CHECKED BY: NJE SCALE: AS SHOWN		S-102			
SHEET 16 OF 18					



**NORTH WHARF EXTENSION FRAMING PLAN**  
 SCALE: 1/16"=1'-0"  
 PLAN NORTH



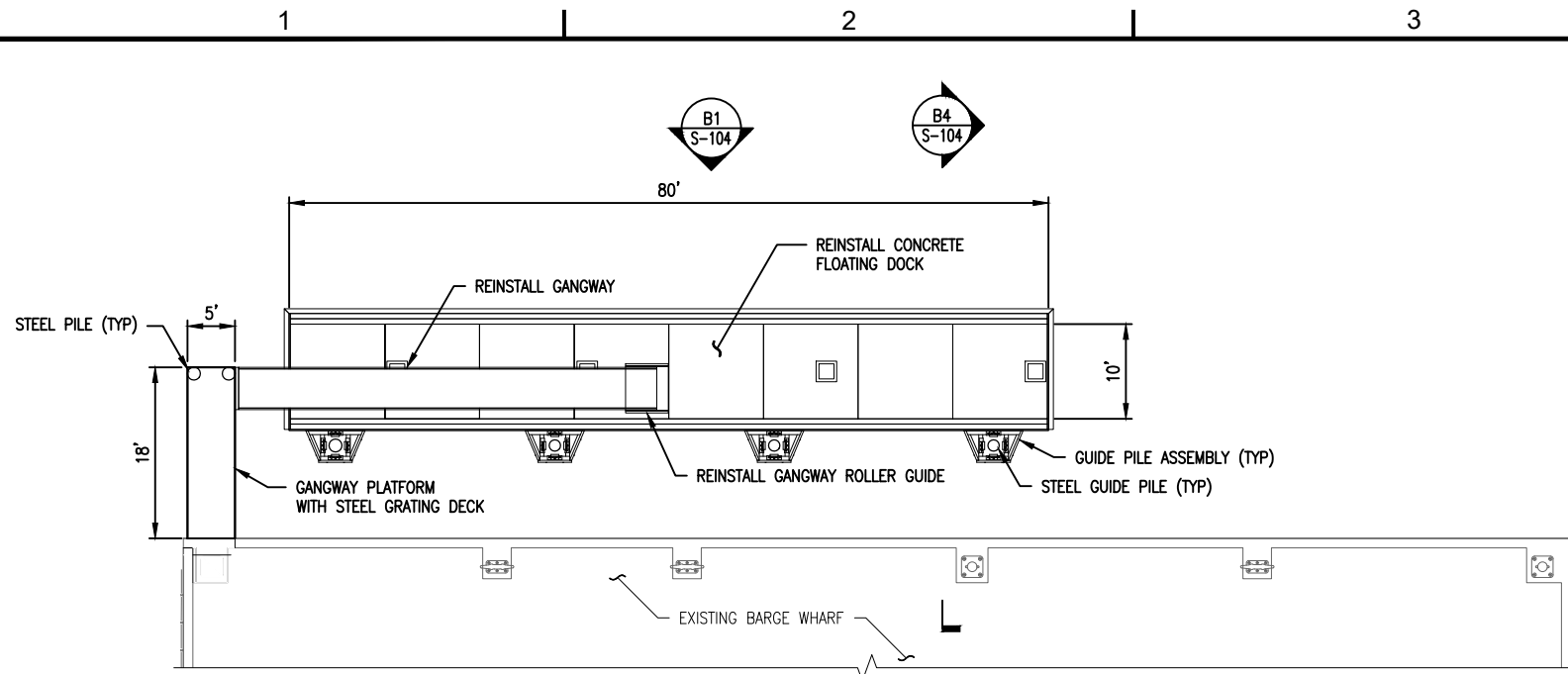
**SOUTH WHARF EXTENSION FRAMING PLAN**  
 SCALE: 1/16"=1'-0"  
 PLAN NORTH



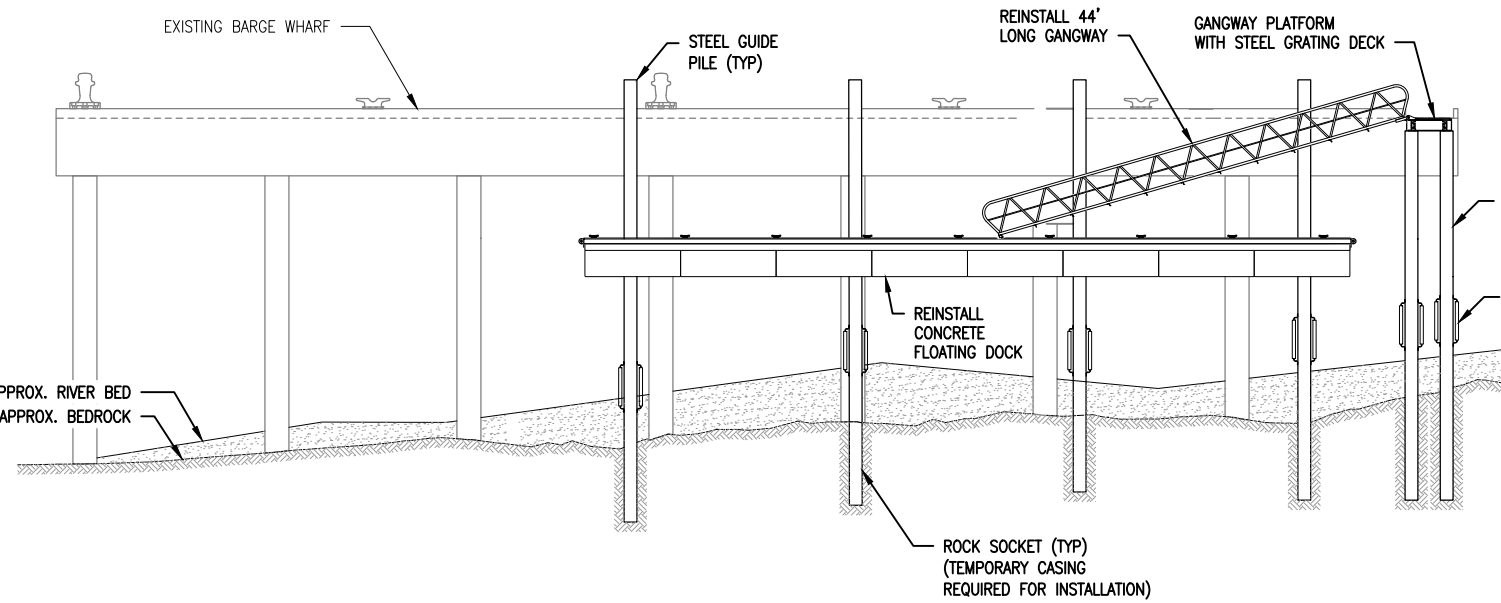
- LEGEND:**
- ① PILE BENT DESIGNATION
  - Ⓐ PILE ROW DESIGNATION
  - CONCRETE-FILLED STEEL PIPE PILE

<p>603.766.1870          inquiry@appledoremarine.com  <b>Appledore Marine Engineering, LLC</b>          600 State St, Suite E          Portsmouth New Hampshire 03801</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISION</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISION	DATE	DESCRIPTION	BY				
REVISION	DATE	DESCRIPTION	BY						
<p>PEASE DEVELOPMENT AUTHORITY          DIVISION OF PORTS AND HARBORS, 555 MARKET STREET, PORTSMOUTH, NH          MARKET STREET MARINE TERMINAL  <b>FUNCTIONAL REPLACEMENT BARGE DOCK</b></p>									
<p>PROJECT No.: 5213          CAD DWG FILE: S213_permit_06_S-101.dwg          DESIGNED BY: SND          DRAWN BY: MDM          CHECKED BY: NJE          SCALE: AS SHOWN</p>									
<p><b>S-103</b></p>									
<p>SHEET 17 OF 18</p>									

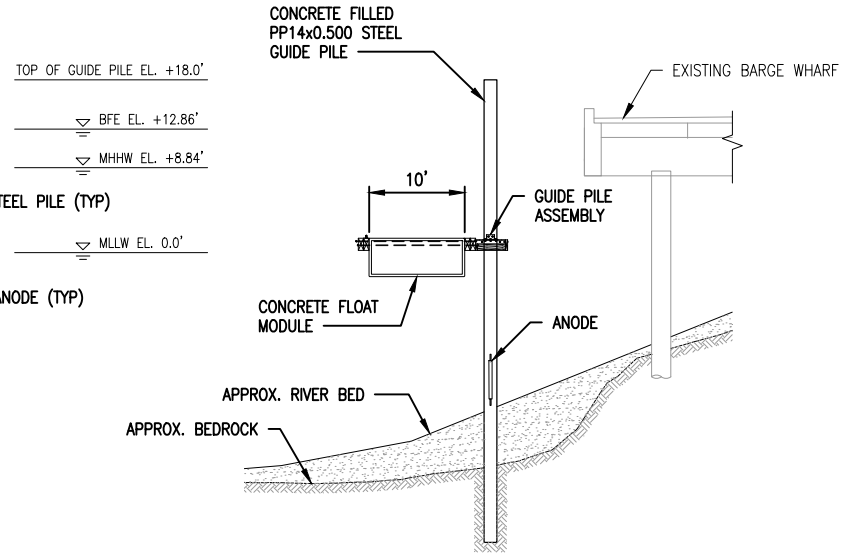
CHECK GRAPHIC SCALE BEFORE USING.



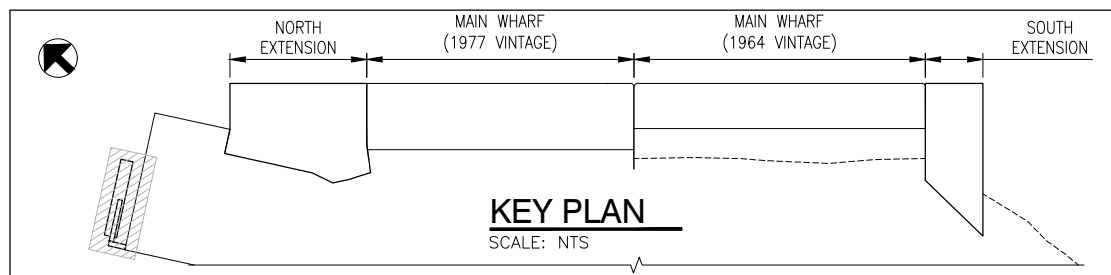
**FLOATING DOCK PLAN**  
 SCALE: 1"=10'-0"  
 PLAN NORTH



**FLOATING DOCK ELEVATION** (B1)  
 SCALE: 1"=10'-0"



**FLOATING DOCK SECTION** (B4)  
 SCALE: 1"=10'-0"



**KEY PLAN**  
 SCALE: NTS

REVISION	DATE	DESCRIPTION	BY

603.766.1870  
 inquiry@appledoremarine.com  
**Appledore Marine Engineering, LLC**  
 600 State St., Suite E  
 Portsmouth New Hampshire 03801  
 SUBMITTED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

(SEAL)

PEASE DEVELOPMENT AUTHORITY  
 DIVISION OF PORTS AND HARBORS, 555 MARKET STREET, PORTSMOUTH, NH  
 MARKET STREET MARINE TERMINAL  
**FUNCTIONAL REPLACEMENT BARGE DOCK**  
 FLOATING DOCK PLAN AND DETAILS

PROJECT No.: 5213  
 CAD DWG FILE: S113\_permit\_06\_S-101.dwg  
 DESIGNED BY: SND  
 DRAWN BY: MDM  
 CHECKED BY: NJE  
 SCALE: AS SHOWN

**S-104**  
 SHEET 18 OF 18

CHECK GRAPHIC SCALE BEFORE USING.

## **Attachment G: Draft Dredging Specifications**

## SECTION 35 20 23

DREDGING  
08/20

## PART 1 GENERAL

## 1.1 GENERAL INFORMATION

The work under this section includes Contractor's operations for dredging at the Market Street Marine Terminal and offshore disposal at Isles of Shoals Dredge Disposal Site. Work under this section also includes quality control of dredging operations through pre, post, and periodic check hydrographic surveys.

The Contractor is responsible for making their own investigation of submerged, surface, and overhead structures in the work areas and other locations they find necessary to traverse. The exact location, depths, and heights of various structures including, but not limited to submarine cables, pipes, highlines, docks, piers, bulkheads, and bridges (as applicable), are not known and it will be necessary for the Contractor to ascertain interference problems and notify the respective owners in advance of dredging operations. The Contractor is responsible for making necessary arrangements with the respective owners of the structure(s) to assure satisfactory completion of dredging in the vicinity with a minimum interruption of service, and shall perform their operations in such a manner as will avoid damage to these facilities.

Dredging must occur between November 15 and March 15.

## 1.2 DEFINITIONS

## 1.2.1 Maintenance Material

Maintenance material is defined as that comprising shoaling which has occurred since the channel areas were last dredged.

## 1.2.2 New Work Material

New work material is defined as previously undredged material.

## 1.2.3 Hard Material

Hard material is defined as material requiring blasting or the use of special equipment for economical removal, and includes boulders or fragments too large to be removed in one piece by the dredge.

## 1.2.4 Specified Limits

Specified limit is defined as the dredge depth, including side slopes.

## 1.2.5 Overdredge Depth

Overdredge depth is that depth that may be necessary in order to achieve the specified limit. It is dependent on the contractors, means, methods, equipment, and operator experience.

### 1.3 REFERENCES

The publications listed below form a part of this section to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2014) Safety -- Safety and Health Requirements Manual

EM 1110-2-1003 (2013) Hydrographic Surveying

### 1.4 SUBMITTALS

Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

#### SD-01 Preconstruction Submittals

Letter Of Acceptance Of Owner's Pre-Dredge Hydrographic Survey And Associated Dredge Volumes

Pre-Dredge Hydrographic Survey

Method For Computing Dredge Quantities

Dredging Operations Plan

Schedule Of Plant And Equipment

Contractor Quality Control Survey Plan

Charts

Survey Personnel

Scow Cards

#### SD-05 Design Data

Contractor Quality Control Surveys

#### SD-07 Certificates

USACE Notification

#### SD-11 Closeout Submittals

Post-Dredge Hydrographic Survey

Approved Manifest

### 1.5 MATERIAL TO BE REMOVED

The material to be removed is silt, sand, gravel, and debris that may be present from historical operations at the facility.

### 1.5.1 Debris

It is anticipated that debris of various size/composition will be encountered and may include items such as rocks and construction debris.

### 1.5.2 Submerged Cables

There are six known steel cables located within the dredge area that require removal. Approximate location is shown on the Contract Drawings.

### 1.5.3 Hard Material

Removal of hard material must be in accordance with Section 31 23 01 UNDERWATER BLASTING.

## 1.6 ARTIFICIAL OBSTRUCTIONS

The Owner has knowledge of debris of various size/composition such as, but not limited to, rocks and construction debris. The Owner has no knowledge of existing wrecks, wreckage, or other material of such size or character as to require the use of explosives or special or additional equipment for its economical removal.

Prior to dredging, rake the dredge areas and remove debris encountered. Debris removed from the dredged area must be removed from the water and placed in the dewatering area separate from the dredge material, and must be rinsed for review by the Owner. All artificial obstructions shall become the property of the Contractor unless otherwise directed or indicated, and must be properly disposed of off the Owner's property at the end of the project, at no additional cost to the Owner.

## 1.7 QUANTITY OF MATERIAL

The total estimated amount of material to be removed from within the specified limits, including side slopes, but excluding overdepths, is shown on the Contract Drawings. The dredge slope shown is the maximum permissible slope and basis for permitted sediment removal quantity. Complete the work specified whether the quantities involved are greater or less than those estimated.

## 1.8 OVERDEPTH DREDGING

To cover unavoidable inaccuracies of dredging processes, material removed to a depth of one foot below the depth specified and within the dredging limits will be measured and paid for at full contract price. The one foot overdepth is the maximum permitted. The Contractor is not required to utilize the full permitted overdepth volume and shall only over dredge the minimum required to ensure the contracted dredge depths are achieved.

## 1.9 SIDE SLOPES

Dredging on side slopes shall follow, as closely as practicable, the lines indicated or specified. Side slopes depicted on the Contract Drawings are maximum permissible slope and are the basis of the permitted sediment removal quantity. Contractor is not required to dredge the slope limits depicted as long as the design dredge depth elevations can be achieved and the slopes remain stable.

Dredging is not permitted under marine structures.



#### 1.10 EXCESSIVE DREDGING

Material removed beyond the limits stated in paragraph entitled OVERDEPTH DREDGING and SIDE SLOPES and on the Contract Drawings will be deducted from the total amount dredged as excessive overdepth dredging, and payment will not be made for this additional quantity.

#### 1.11 USACE NOTIFICATION

Notify the USACE of dredge operations and disposal plan. Notification must include confirmation of disposal site location. Do not proceed with disposal operations until USACE issues a letter of authorizing disposal.

#### 1.12 ENVIRONMENTAL COMPLIANCE AND PROTECTION

Comply with conditions and requirements of State or Federal permits. The Owner will secure the permit for dredging and placement of material as indicated. Permits are included in Appendix D.

During the life of the contract, provide and maintain environmental protective measures. Also, environmental protective measures required to correct conditions, such as oil spills or debris, that occur during the dredging operations, must be provided. Comply with Federal, State, and local regulations pertaining to water, air, and noise pollution.

#### 1.13 CHARGES

The Contractor must pay all costs associated with dredging, transportation, and disposal of the dredge materials.

#### 1.14 BASIS FOR BIDS

Base bids on the quantity of dredging indicated. Should the total quantity of dredging vary from that specified as the basis for bidding, the contract price will be adjusted. The dredging conditions specified and indicated describe conditions which are known. However, the Contractor is responsible for other conditions encountered which are not unusual when compared to the conditions recognized in the dredging business as usual in dredging activities such as those required under this contract.

#### 1.15 SCHEDULE OF PLANT AND EQUIPMENT

Submit a schedule of the plant and equipment the Contractor will employ in the performance of the work on this contract. Submit copies of all applicable inspections and certifications for all floating plant and equipment.

#### 1.16 DREDGING OPERATIONS PLAN

Submit a Dredging Operations Plan indicating the proposed method by which the dredge work will be conducted. Describe in detail the operations, equipment, personnel, and processes to complete the work. The plan must include discussion of the following items:

- a. Implementation and compliance with State and Federal Permit requirements
- b. Type of dredge equipment to be used throughout the project

- c. Coordination and communication efforts between site personnel to minimize impact to facility operations
- d. Horizontal and vertical survey control
- e. Means to avoid damage to adjacent structures, vessels, and moorings
- f. Means to avoid dredging beyond the limits
- g. Methods to dispose of all dredge materials
- h. Methods to prevent spillage from barges when transporting, loading, and unloading material
- i. Provide name and resume of contractor's third party hydrographic surveyor as well as details explaining how survey will be incorporated into dredge quality control

#### 1.17 LAYOUT WORK AND SURVEYS

Employ a licensed surveyor to layout the limits of the work, establish vertical control, and perform surveys. Provide all buoys, ranges, and other controls necessary to accomplish the work and facilitate inspection.

Hydrographic surveys must use multi-beam sonar transducers and must provide 100 percent bottom coverage including a method to correct for side slope and beam angle error. Survey methodology must conform to the US Army Corps of Engineers specification EM 1110-2-1003. Survey accuracy shall be as follows: horizontal positioning: less than 1 meter; NADIR (vertical): plus or minus 0.15 feet.

The surveys must be corrected to Mean Lower Low Water (MLLW) and must be in an Owner approved format. Submit the hydrographic surveys to the Owner within five days after completion. Survey plans must be stamped by a licensed surveyor.

Submit the information electronically, together with hard copies of the information. Drawings shall be accessible with AutoCAD 2015 by AutoDesk, Inc. Software.

##### 1.17.1 Contractor Quality Control Survey Plan

Submit a detailed plan describing the survey methods to be used during the work. Include the equipment to be utilized, tidal data, general site plan map, line designation map, any corrections to the MLLW datum used, calibration procedures to be used, expected horizontal and vertical accuracies, and pertinent information to describe the methods, and results to be obtained. Do not begin field surveys until these plans are approved.

##### 1.17.2 Charts

Submit current and tide charts to be used for the areas being dredged.

##### 1.17.3 Survey Personnel

Furnish a listing of the personnel who will perform the survey work required by this contract.

#### 1.17.4 Horizontal Positioning Procedures and Accuracies

Vessel positioning systems utilized on this contract must conform to the allowable horizontal positioning criteria in EM 1110-2-1003. The positioning system used shall be capable of meeting or exceeding the accuracy requirements and must not exceed the allowable ranges where indicated. The Contractor may be required to demonstrate to the Owner's Representative that its positioning system is capable of meeting or exceeding the accuracy requirements in EM 1110-2-1003.

#### 1.17.5 Vertical Reference Datums

Depth measurements must be reduced to the specified datum using RTK GPS or staff/gage readings, as described in EM 1110-2-1003. Recording tides using RTK GPS is recommended and can be used in lieu of tide staffs/gages. RTK tide data must be referenced and documented to an existing tide gage daily. When needed, tide staffs/gages must be constructed, referenced, maintained, stilled, and read in accordance with the criteria in EM 1110-2-1003.

#### 1.17.6 Field Data Recording, Reductions, and Plotting Requirements

The data format fields for submitting reduced hydrographic data to the Owner is x y (+)z. Digital data must be emailed, unless the data set is too large for email. In such cases, data must be sent via CD-ROM or file transfer site as established by the Owner.

#### 1.17.7 Volume Computations by the Contractor

The Contractor must have the capability to compute excavation quantities from work performed under this contract. Compute volumes using any of the techniques given in Chapter 15 of EM 1110-2-1003. Section drawings must be made at the horizontal and vertical scales given in EM 1110-2-1003.

#### 1.17.8 Automated System Synchronization Checks

The Owner's Representative reserves the right to check each automated hydrographic survey system to insure adequacy of correlation between position and depth. Methods for performing this check are given in EM 1110-2-1003.

#### 1.17.9 Contractor Quality Control Surveys

Examine the dredge work by conducting hydrographic surveys at the following interval: monthly. Additionally, conduct a hydrographic survey prior to any request for a Owner survey for final acceptance. Submit Contractor Quality Control Surveys to the Owner and when a progress payment request is submitted.

#### 1.17.10 Pre-Dredge Hydrographic Survey

Prior to commencing work, complete a Pre-Dredge Hydrographic Survey to confirm that the Owner's pre-dredge Hydrographic Survey and associated dredge volumes accurately reflect conditions prior to dredging. Submit a Pre-Dredge Hydrographic Survey indicating the original depth of the river bottom prior to dredging. Survey must be conducted by a Licensed Professional Land Surveyor.

Submit a Letter of Acceptance of Owner's Pre-Dredge Hydrographic Survey and associated dredge volumes shown in the Contract Drawings.

## 1.17.11 Post-Dredge Hydrographic Survey

After completion of all work, perform a post-dredge hydrographic survey throughout the dredge area. The survey must be taken within five days after completion of the dredging. Notify the Owner seven days in advance of the scheduled survey. The submitted survey must clearly depict any areas that are within the specified limits that are shallower than the designed dredge elevation depicted.

## 1.17.12 Data Submission Requirements for All Contractor Surveys

All Contractor Quality Control Surveys submissions shall include the following:

## a. Field Data

- (1) Raw multibeam data zipped by day
- (2) Sound velocity casts zipped by day
- (3) Daily tide tables and/or files
- (4) Depth sounder rolls (if used) corrected for tide and corresponding boat plot
- (5) Reduced hydrographic 3x3 average and 3x3 minimum XY(+)Z files. The 3x3 average file shall have the average sounding in the center of the cell and the 3x3 minimum file shall have the minimum sounding in its actual location
- (6) Field notes, daily logs, and quantity computations

## b. 3x3 Minimum Plot

- (1) Noted Information
  - (a) Name of project
  - (b) Name of surveying/contract company
  - (c) Date(s) of survey
  - (d) Horizontal Datum
  - (e) Distance units
  - (f) Vertical Datum
  - (g) Sonar system
  - (h) Sounding frequency
  - (i) GPS System
  - (j) Software used
  - (k) Sounding sort distance and confirmation that soundings shown

- (l) represent shoalest values
- (m) V-Datum version used (if applicable)
- (2) Plotted Information
  - (a) dredge area
  - (b) Minimum sorted soundings
  - (c) 3x3 minimum contour at design depth
  - (d) 3x3 minimum contour at design depth
  - (e) Scale bar
  - (f) North arrow
  - (g) Grid
  - (h) Stationing
  - (i) Navigation aids
  - (j) Sheet setup
  - (k) The scale of the plot shall match that of the contract drawings and the soundings shall be sorted as appropriate (e.g., 20 feet for 100 scale plot, 40 feet for 200 scale plot, etc). The font size shall be the appropriate size to prevent soundings from being overwritten on the plot

The above data will be used by the Owner's Representative to verify achievement of contract depth, and compare actual progress and in-place quantities dredged with scheduled progress.

#### 1.17.13 Contractor Progress Payment

Submit Contractor Quality Control Survey data for any periods for which progress payments are requested. Furnish the data listed above in subpart "Data Submission Requirements for Contractor Surveys", to the Owner, who will use the data as necessary to determine the amount of progress payments. The owner does not conduct progress surveys.

#### 1.18 METHOD FOR COMPUTING DREDGE QUANTITIES

Submit Method for Computing Dredge Quantities. Method must be a generally recognized technique using TIN subtraction or average end area method of calculation and must be compatible with AutoCAD Civil 3D 2010 software.

#### 1.19 MATERIALS TRANSPORTATION

Contractor must transport materials to disposal site and submit Approved Manifest.

## 1.20 WORK AREA

### 1.20.1 Protection of Existing Waterways

Conduct operations in such a manner that the material or other debris are not pushed outside of dredging limits or otherwise deposited in existing side channels, basins, docking areas, or other areas being utilized by vessels or moored boats. The Contractor will be required to change his method of operations to comply with the above requirements. Should any bottom material or other debris be pushed into areas described above as a result of the Contractor's operations, the material must be promptly removed.

### 1.20.2 Adjacent Property and Structures

Conduct dredging operations such that it does not undermine, weaken, or otherwise impair existing structures located in or near the areas to be dredged.

Damage to private or public property or structures resulting from disposal or dredging operations must be repaired promptly by the Contractor at his expense. Damage to structures resulting from the Contractor's negligence will require prompt repair at the Contractor's expense.

## PART 2 PRODUCTS

Not Used.

## PART 3 EXECUTION

### 3.1 INSPECTION

Inspect the work, keep records of work performed, and ensure that gages, targets, ranges, and other markers are in place and usable for the intended purpose. Provide, at the request of the Owner, boats, boatmen, laborers, and materials necessary for inspecting, supervising, and surveying the work. When required, provide transportation for the Owner and inspectors to and from the placement area and between the dredging plant and adjacent points on shore.

Before any machinery or mechanized equipment is placed in service, it must be inspected and tested by the Contractor and certified to be in safe operating condition.

### 3.2 DREDGING

#### 3.2.1 Order of Work

The Owner will direct the Contractor on the order of work. The Owner reserves the right to change the order of work at any time.

#### 3.2.2 Interference with Navigation

Coordinate all marine vessel movements with the Owner. Submit a weekly updated schedule showing proposed dredge locations and vessel movements.

Minimize interference with facility operations and the use of channels and passages. The Contractor is responsible for shifting or moving of dredges or the interruption of dredging operations to accommodate the movement of

vessels and floating equipment, if necessary. Adhere to Coast Guard Regulations for passing vessels.

### 3.2.3 Lights

Each night, between sunset and sunrise and during periods of restricted visibility, provide lights for floating plants, pipelines, ranges, and markers. Also, provide lights for buoys that could endanger or obstruct navigation. When night work is in progress, maintain lights from sunset to sunrise for the observation of dredging operations. Lighting must conform to United States Coast Guard requirements for visibility and color.

### 3.2.4 Ranges, Gages, and Lines

Provide, set, and maintain ranges, buoys, and markers needed to define the work and to facilitate inspection. Establish and maintain gages in locations observable from each part of the work so that the depth may be determined. Suspend dredging when the gages or ranges cannot be seen or followed.

### 3.2.5 Dredge Plant and Equipment

Maintain all dredge plant and associated equipment such as, but not limited to, scows, coamings, barges, and pipelines, to meet the requirements of the work.

#### 3.2.5.1 Location Data Collection for Dredge Bucket

The dredge plant must be equipped to record real time location data for the position of the bucket, to include horizontal and vertical positioning (xyz data). This data must be available on a continuous basis.

#### 3.2.5.2 Sufficient Capacity

Keep on the job sufficient plant and equipment to meet the requirements of the work. The plant and equipment must be in satisfactory operating condition and be capable of safely and efficiently performing the work.

#### 3.2.5.3 Reduction in Capacity

No reduction in the capacity of the plant and equipment employed on the work shall be made except by written permission of the Owner. The measure of the capacity of the plant and equipment must be its actual performance on the work covered by this contract.

#### 3.2.5.4 Inspections and Certifications

Prior to commencement of work at the site provide copies of all applicable inspections and certifications of floating plant and equipment as required by Federal, State and local laws and regulations. See also EM 385-1-1, Sections 16, 18, 19, and 20. Such inspections and certifications must be current and maintained in force for the duration of this contract. Each item of floating plant and equipment must have on board a waste oil management plan which details the intended disposal method for waste oil.

Each vessel exceeding twenty-six feet in length, excluding sheer, which is used for pushing, hauling alongside, or any other method of towing must adhere to the requirements set forth in 46 CFR Subchapter M.

The plant and equipment shall be subject to the inspection of the Owner at all times. The responsibility for actual supervision and direction of dredging operations including the safe and efficient operation of dredge plant and equipment lies with the Contractor.

#### 3.2.5.5 License Requirements

Each vessel exceeding twenty-six feet in length, excluding sheer, which is used for pushing, hauling alongside, or any other method of towing, and not required by law to have a valid Certificate of Inspection by the U.S. Coast Guard, must be under the actual direction and control of a person licensed for towing in the geographic area of the work by the U.S. Coast Guard. Licensed persons shall not perform command or other duties in excess of twelve hours in any consecutive twenty-four hour period except in an emergency.

#### 3.2.5.6 Automatic Identification System Requirements

All dredge and plant equipment, including scows, must be registered with the AUTOMATIC IDENTIFICATION SYSTEM (AIS) in order to ensure that the entire footprint of the Contract's working vessels and scows are available on marine trafficker's electronic chart displays.

#### 3.2.5.7 Tow Boats

All tow boats used for towing to disposal areas must be equipped with DGPS navigational equipment, radar, corrected compass, marine radio, and depth sounding equipment which is to be maintained in operating condition during each tow. The tow boats utilized by the Contractor for this purpose must be a size adequate for towing in heavy seas and must have necessary reserve power for maneuvering with scows in rough seas and under emergency conditions as well as for control of scows at the disposal site.

#### 3.2.5.8 Scows

Provide and maintain markings on all scows clearly indicating the draft of the scow and provide scow cards for each scow used on the contract work. Submit scow cards for each scow to be used for contract work. The scow cards must show dimensions and volumes of individual pockets of scows and total volumes for varying depths below coaming or top of pockets. This is to enable the Owner to make a determination of scow volume and corresponding drafts under partial and full load conditions. These measurements are to be made at the time of initial use of each scow. This information will then be furnished to disposal inspectors to enable them to estimate scow volume from draft of scows for each scow being towed to the disposal area. The scow volume estimates are for use in connection with disposal area monitoring studies and are not intended to be used in determining quantities dredged. At the beginning of the work and as additional scows arrive on the project, sufficient time shall be allowed by the Contractor and assistance of Contractor personnel shall be made available by the Contractor for the purpose of obtaining the measurements of each scow under various partial and full load conditions's. During the entire period of contract work, the Contractor must provide and maintain sufficient spot of floodlights to permit the reading of the draft on the sides of scows at bow and stern from the tow boat at night and when visibility is impaired. The draft readings and each pocket/compartments measurement are required for each scow towed to the disposal area and will be made by the disposal inspector. Measurements are to be taken and recorded prior to departure from the dredge site and upon arrival at the



immediate disposal location. Ensure that adequate time is allowed by the tow boat captain for these readings to be obtained.

#### 3.2.5.9 Scow Pocket Doors

Due to the fine nature of some of the dredged material, the Contractor must achieve proper closure and watertightness of the bottom-dumping scow pocket doors to eliminate seepage or leakage of material. The use of plastic material to cover cracks in scow pockets is not be allowed.

#### 3.2.6 Dredging

Dredging is limited to mechanical methods.

#### 3.2.7 Disposal of Excavated Material

Provide for safe transportation of dredged materials to the designated disposal site. Transportation must include measures to prevent loss of material during movement. Contractor is responsible to follow all haul restrictions and requirements imposed by the permits. The deposit of dredged materials in unauthorized places is forbidden. Comply with rules and regulations of local port and harbor governing authorities.

#### 3.2.8 Dredging Requirements

Dredge area and depth is shown on the Contract Drawings.

#### 3.2.9 Method Of Communication

Provide a system of communication between the dredge crew and the crew at the disposal area. A portable two-way radio is acceptable.

#### 3.2.10 Quality Control

Establish and maintain quality control for operations to assure compliance with contractual requirements and maintain records of this quality control for dredging operations.

While performing all dredging work control the horizontal positioning of the dredge with electronic positioning.

#### 3.2.11 Salvaged Material

Anchors, chains, firearms, and other articles of value, which are brought to the surface during dredging operations, must remain or become the property of the Owner and will be placed on shore at a convenient location near the site of the work, as directed by the Owner.

#### 3.2.12 Safety of Structures

The prosecution of work must ensure the stability of piers, bulkheads, and other structures lying on or adjacent to the site of the work, insofar as structures may be jeopardized by dredging operations. Repair damage resulting from dredging operations is the responsibility of the Contractor, insofar as such damage may be caused by variation in locations or depth of dredging, or both, from that indicated or permitted under the contract. The Contractor is responsible for coordinating with the owner of the structure for any necessary repairs.

### 3.2.13 Plant Storage

When not in use, plant equipment must be stored at an approved location. Stored plant equipment must not interfere with Facility operations.

### 3.2.14 Plant Removal

Upon completion of the work, promptly remove plant, including ranges, buoys, piles, and other markers or obstructions.

### 3.2.15 Blasting

Hard material is expected. Blasting must be completed in accordance with Section 31 23 01 UNDERWATER BLASTING.

## 3.3 PLACEMENT OPERATIONS

### 3.3.1 Misplaced Dredged Material

Any dredged materials deposited at locations other than in areas designated or approved by the Owner's Representative will be considered misplaced material and will not be paid for until the Contractor, at his own expense, removes and deposits such misplaced material where directed. This required removal and redeposit of the misplaced material and any necessary placement site restoration work is not the basis for a time extension or additional compensation under this contract.

## 3.4 MEASUREMENT

Complete a pre-dredge hydrographic survey before dredging and a post-dredge hydrographic survey after dredging and submit a plan showing the results of each survey(s) to the Owner for review. Total dredge volume measurement shall be determined based on the differences between the pre and post dredge survey.

### 3.4.1 Method of Measurement

The material removed will be measured by cubic yard in place, by means of surveys taken before and after dredging. The drawings represent existing conditions based on current available information, but will be verified and corrected, if necessary, by surveys taken before dredging. Surveys must be taken by multibeam sonar methods, as determined by the Owner; results of survey will be the basis for payment. Areas surveyed more than 30 days prior to dredging will be re-surveyed when requested by the Owner.

### 3.4.2 Periodic Estimates

Periodic estimates of work completed will be based on the result of soundings taken during the progress of the work. Deductions will be made for dredging and placement not in accordance with the specifications.

## 3.5 FINAL EXAMINATION AND ACCEPTANCE

As soon as practicable after the completion of areas, which in the opinion of the Owner, will not be affected by further dredging operations, each area will be examined by the Owner by sounding or sweeping, or both. Remove shoals and lumps as required by methods approved by the Owner. Notify the Owner when soundings or sweepings are to be made and will be

permitted to accompany the sounding or sweeping party and to inspect the data and methods used in preparing the final estimate. When areas are found to be in a satisfactory condition, the work therein will be accepted as complete. Final estimates will be subject to deductions or correction of deductions previously made because of excessive overdepth, dredging outside or authorized areas, or disposal of material in an unauthorized manner.

-- End of Section --

DRAFT

## **Attachment H: Sampling and Analysis Plan**

**FINAL** Sampling and Analysis Plan for Pease Development Authority Market Street Marine Terminal, Portsmouth, New Hampshire, File Number NAE-2018-1619

1. **Project Description:** The applicant is proposing to mechanically dredge approximately 26,300 cubic yards (CY) of material from shoaled areas totaling 3 acres within the property's vessel berth, located in the town of Portsmouth, NH (Figure 1). This area will be dredged to the proposed depth of -36 feet at mean lower low water (MLLW) plus one foot of allowable overdepth (Figure 2). The applicant proposes to dispose of this material at the Isles of Shoals North Disposal Site (IOSN).

This sampling and analysis plan (SAP) has been developed by the New England District (NAE) U.S. Army Corps of Engineers (USACE) to gather information to support a dredged material suitability determination for the open water disposal alternative associated with this project. The first phase of sampling will include sampling and testing of dredge site sediment for grain size in order to confirm exclusionary criteria. If necessary, a second phase of testing will be completed for bulk chemistry in order to identify contaminants of concern and create a biological testing compositing plan. A secondary sampling plan describing sampling of dredge site sediment and water for elutriate and biological testing will be provided if necessary. The results of testing will be evaluated against the most recent NAE dataset for the IOSN reference area. All sampling and analysis activities described in this plan shall follow the requirements set forth in the "*Regional Implementation Manual for the Evaluation of Dredged Material Proposed for Disposal in New England Waters*" (RIM) dated May 6, 2004. A copy of the RIM may be downloaded from the NAE website: <http://www.nae.usace.army.mil/Missions/Regulatory/DredgedMaterialProgram/RegionalImplementationManual.aspx>

2. **Conceptual Site Model:** NAE reviewed historic testing data, water quality data, spill records, and adjacent land use information to develop a conceptual site model (CSM) for the proposed project. The CSM was used to characterize the system and identify potential sources of contamination, site-specific contaminants of concern, exposure pathways, and biological receptors in order to inform this sampling and analysis plan.

Project Setting: The property is associated with the Pease Development Authority Market Street Marine Terminal on the Piscataqua River. The Market Street Terminal is the state's only deep water, public access, general cargo marine terminal. It has 8 acres of paved surface and a 50,000 square foot warehouse. The project site historically started as a railyard for the Boston and Maine Railroad. In the late 1800's, a wood preservative plant was built that used mercuric chloride for the kyanizing process. Starting in this time frame and

**FINAL** Sampling and Analysis Plan for Pease Development Authority Market Street Marine Terminal, Portsmouth, New Hampshire, File Number NAE-2018-1619

continuing to the 1930's and 1940's, an oil company was resident there and established operations along with a scrap metal export company, a road salt storage facility and transfer station for commercial dry cargo. The facility was converted to a marine terminal in 1961. The current configuration was constructed in 1963 and 1977.

The terminal is adjacent to the southwestern side of the Sarah Mildred Long Bridge which carries the US Route 1 Bypass over the Piscataqua River and is located by the tidal outlet for Inner Cutts Cove and North Mill Pond which drains the inner parts of Portsmouth Harbor. The port is less than a mile downriver from Interstate 95, two miles from Pease International Tradeport's airport and business parks, and four miles from the open ocean. Onsite rail access via the Pan Am Railway is also available at the port. Across the river from the Marine Terminal is the Portsmouth Navy Yard. In addition, the Pease Airforce Base is located approximately 2 miles inland of the project site. The Piscataqua Federal Navigation Project (FNP) -35 foot MLLW channel is located adjacent to the project area, to the north.

Water Quality: Water quality in the project area is dictated by tidal exchange with the Gulf of Maine and with freshwater input from the Piscataqua River and its tributaries to the north, North Mill Pond, and overland runoff (Figure 1). In addition, the Peirce Island Wastewater Treatment Facility discharges approximately 1.5 million gallons of effluent into the Piscataqua River each day from a point approximately 1.3 miles southeast of the project area (<https://www.cityofportsmouth.com/publicworks/wastewater/peirce-island-wastewater-facility>). The State of New Hampshire classifies the waters of the lower Piscataqua River as Category 5-P (NHDES, 2020 [https://www4.des.state.nh.us/onestoppub/SWQA/010600031001\\_2020.pdf](https://www4.des.state.nh.us/onestoppub/SWQA/010600031001_2020.pdf)). Category 5-P waters are impaired or threatened for one or more designated uses by a pollutant(s), and requires a total maximum daily load (TMDL).

Dredge History and Existing Testing Data: There is no known dredging that has occurred at the site since its construction in 1963 and 1977. Sampling and testing of the surface material for grain size analysis in 2018 documented sediments as predominately gravel with sand. Historic geotechnical borings within the dredge footprint from 1975, 2013, and 2018 document the entire interval of material to be dredged as predominantly coarse sand and/or gravel.

Spill Data: Based on information provided by the applicant and a review of the New Hampshire Department of Environmental Services (NHDES) One Stop Document Online Search Portal (<https://www4.des.state.nh.us/DESONestop/BasicSearch.aspx>), NAE determined that there have been several spill incidents over the years since the project was last permitted to be dredged. In the last ten years there have been

**FINAL** Sampling and Analysis Plan for Pease Development Authority Market Street Marine Terminal, Portsmouth, New Hampshire, File Number NAE-2018-1619

several small gasoline, diesel, and oil spills in the general area as well as a release of 50,000 gallons of sewage from the Peirce Island Wastewater Treatment Facility. The former Pease International Air Force Base Superfund site is located approximately 2 miles north and inland of the project area. The Superfund site has documented the presence of metals, volatile organic compounds (VOCs), polyaromatic hydrocarbons (PAHs), and pesticides throughout the property in the soil and groundwater. Remedy optimization, operation and maintenance, and long-term monitoring work are ongoing until all cleanup goals have been met at the site.

The adjacent Barge Wharf was used for marine fabrication projects. Soil testing was conducted in 2005 and 2010 at the Barge Wharf site and the 2012 report documented the presence of metals (arsenic, lead, mercury, zinc), PAHs, and polychlorinated biphenyls (PCBs) on land.

Risk Ranking: Following the tier one review of the site, the harbor was given a **moderate** risk ranking according to the following matrix due to historical and current industrial uses. However, the project area was given a **low-moderate** risk ranking due to site characteristics, location, and the available historical data which all suggest a low potential for contamination because of the coarse nature of the sediments and the high energy environment of the project area.

**Table 1: Project Risk Ranking**

<b>Rank</b>	<b>Guidelines</b>
Low	Few or no sources of contamination. Data available to verify no significant potential for adverse biological effects.
Low-Moderate	Few or no sources of contamination but existing data is insufficient to confirm ranking.
Moderate	Contamination sources exist within the vicinity of the project with the potential to produce chemical concentrations that may cause adverse biological effects.
High	Known sources of contamination within the project area and historical data exists that has previously failed biological testing.

3. **Sample Collection:** In the first phase of testing the applicant shall collect sediment cores from four locations within the proposed dredge area as specified in Table 2 (also see Figure 3). These locations were selected based on information from the CSM described above, the low to moderate risk ranking for the project, and shoaled areas identified in the project conditions survey submitted by the applicant. All core samples shall be collected to the proposed dredge depth plus overdredge amount using inert core liners. Estimated core lengths based on the bathymetry provided by the applicant are provided in Table 2, but the actual required core lengths shall be determined at the time of the sampling effort using measured water depths at each location corrected to MLLW. In order to ensure

**FINAL** Sampling and Analysis Plan for Pease Development Authority Market Street Marine Terminal, Portsmouth, New Hampshire, File Number NAE-2018-1619

that the core samples adequately represent the dredge interval at each location, all cores to be used for this project shall have a recovered length that is within 75% of the core penetration depth. In addition, any cores that display significant disturbance such as compaction or wash out shall be disregarded. If the cores from any location do not meet the acceptability criteria after six attempts, then the applicant should retain the best core from that location and contact NAE for further guidance. The penetration and recovery for the core used for the grain size sample should be recorded on the sample log.

Upon collection, all cores shall be measured and maintained in an upright position for a minimum of 15 minutes to allow any fine-grained material to settle. After a core has settled, it shall be re-measured before any overlying water is drained, taking care to not include overlying water with sediment flocculant in the measurement. All cores shall be split lengthwise, photographed with a stadia rod for scale, and described in accordance with ASTM D 2488 (Standard Practice for Description and Identification of Soils). Samples shall be collected from the dredge interval (dredge depth + overdepth) within each core for grain size as described in the sections below. It is recommended that bulk chemistry samples be collected and archived for possible future analysis in case the results of the grain size analysis show that the project is not exclusionary. If the dredge interval within a core is homogenous then the entire length may be composited as a single sample with the grain size/archive chemistry sample interval noted on the sampling log. If any core shows significant stratification or obvious signs of contamination, then subsamples shall be collected from each layer and noted on the sampling log and the applicant shall consult NAE for guidance prior to the start of analysis. The term “significant stratification” includes any distinct change in sediment composition that could represent a change in depositional history or waterway usage such as a change in color or lithology. Compositing of dissimilar sediment layers without prior approval from NAE will result in the rejection of any resulting data products.

All sediments held for testing shall be stored in accordance with the requirements in Table 3 (from Table 8-2 in *Evaluation of Dredged Material Proposed for Ocean Disposal, Testing Manual, 1991*). Sample chain of custody forms shall be maintained by the applicant and submitted to NAE with the data package described in section 5 of this SAP.

Based on the results of the grain size sediment testing, NAE will decide whether the project meets exclusionary criteria. If it does not, then bulk chemistry analysis will be required. Based on the results of that bulk chemistry analysis, NAE will provide the applicant with a biological testing sampling plan.

Vessel positioning shall be achieved using a Global Positioning System (GPS) that has been calibrated on site using a known reference point. The required



**FINAL** Sampling and Analysis Plan for Pease Development Authority Market Street Marine Terminal, Portsmouth, New Hampshire, File Number NAE-2018-1619

horizontal accuracy at each sample location shall be 10 feet or less. All coordinate data shall be reported in geographic NAD 83 decimal degree format. All depth data shall be reported in tenths of feet. Water depths at each location are to be determined with an accuracy of  $\pm 0.1$  feet (relative to MLLW). All depth data shall be reported in tenths of feet.

Sample data including date, time, latitude, longitude, GPS accuracy at each sample station, measured water depth, tidal correction, core penetration, recovery, and grain size/archive chemistry sample intervals(s) shall be recorded in a sampling log (Figure 4 or equivalent) and provided to NAE with the applicant's core descriptions and photographs.

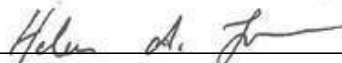
4. **Sample Analysis:** Sediment and water samples from the dredge area shall undergo physical, chemical, and biological analysis as described in the sections below. All laboratories used for this project shall have an approved Laboratory Quality Assurance Plan (LQAP) on file with NAE. Any data produced by a lab without an approved LQAP will not be accepted. The RIM, a list of laboratories with approved LQAPs, and the reporting format and requirements for electronic submission of data are available for download through the NAE website: <http://www.nae.usace.army.mil/Missions/Regulatory/Dredged-Material-Program/>.

Grain Size and Bulk Sediment Chemistry: All samples from the proposed dredge footprint shall be individually analyzed for grain size. If necessary, based on the results of grain size analysis, samples will also need to be analyzed for bulk sediment chemistry. Testing parameters, analytical methods, and reporting limits to be used are outlined in Table 4. The listed analytical methods are recommended but can be replaced by other methods that will provide the required reporting limits. Additional guidance on the physical and chemical analysis of sediments can be found in chapter 5 of the RIM. If necessary, NAE will provide the applicant with a sampling plan for biological testing based on sample proximity, physical characteristics recorded during the core description process, and the results of grain size and bulk chemistry analysis.

5. **Reporting requirements:** All sediment testing data is required to be submitted electronically in the electronic data deliverable (EDD) format available on the NAE website (<http://www.nae.usace.army.mil/Missions/Disposal-Area-Monitoring-System-DAMOS/Electronic-Data-Deliverables.aspx>). Hard copy data submission is also required but may be substituted with a printer friendly, easy-to-read format (e.g., PDF, MS Word). Any analytes not detected shall be reported as half the method detection limit (MDL) and qualified with a "U". RIM quality control summary tables are required to be submitted with each project dataset. These tables are found in Appendix II of the RIM.

**FINAL** Sampling and Analysis Plan for Pease Development Authority Market Street Marine Terminal, Portsmouth, New Hampshire, File Number NAE-2018-1619

6. **Contact Information:** Questions about this plan should be directed to Helen Jones (phone: 978-318-8241 e-mail: [Helen.A.Jones@usace.army.mil](mailto:Helen.A.Jones@usace.army.mil))



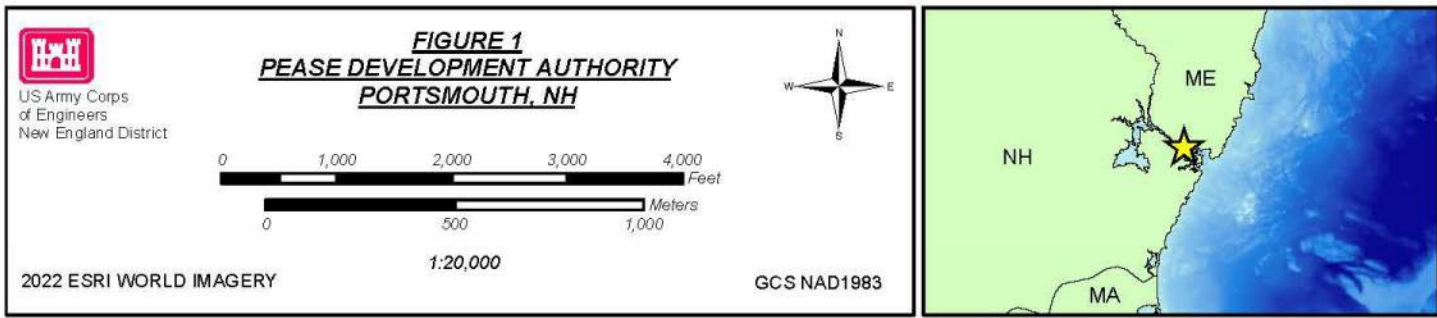
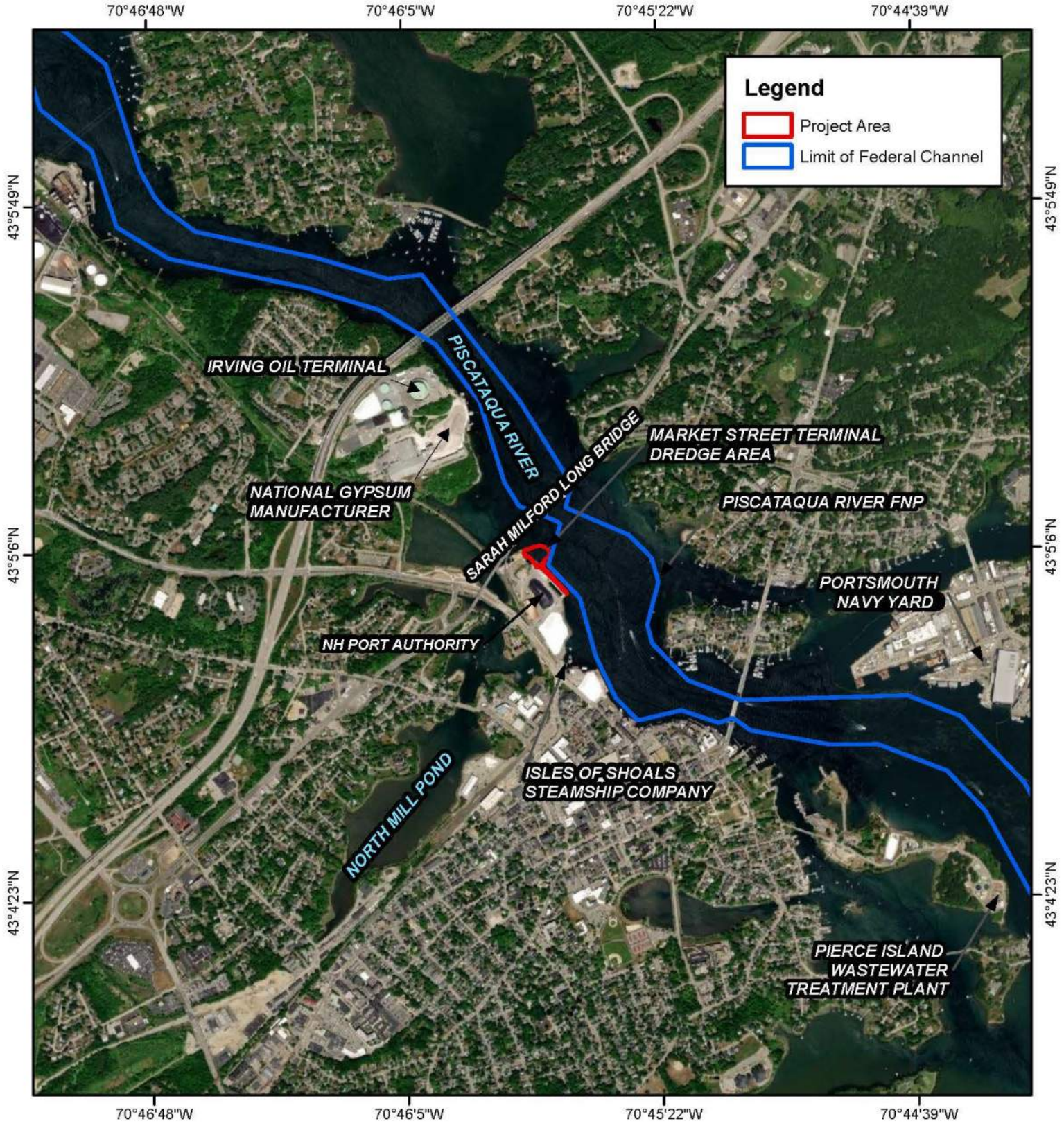
---

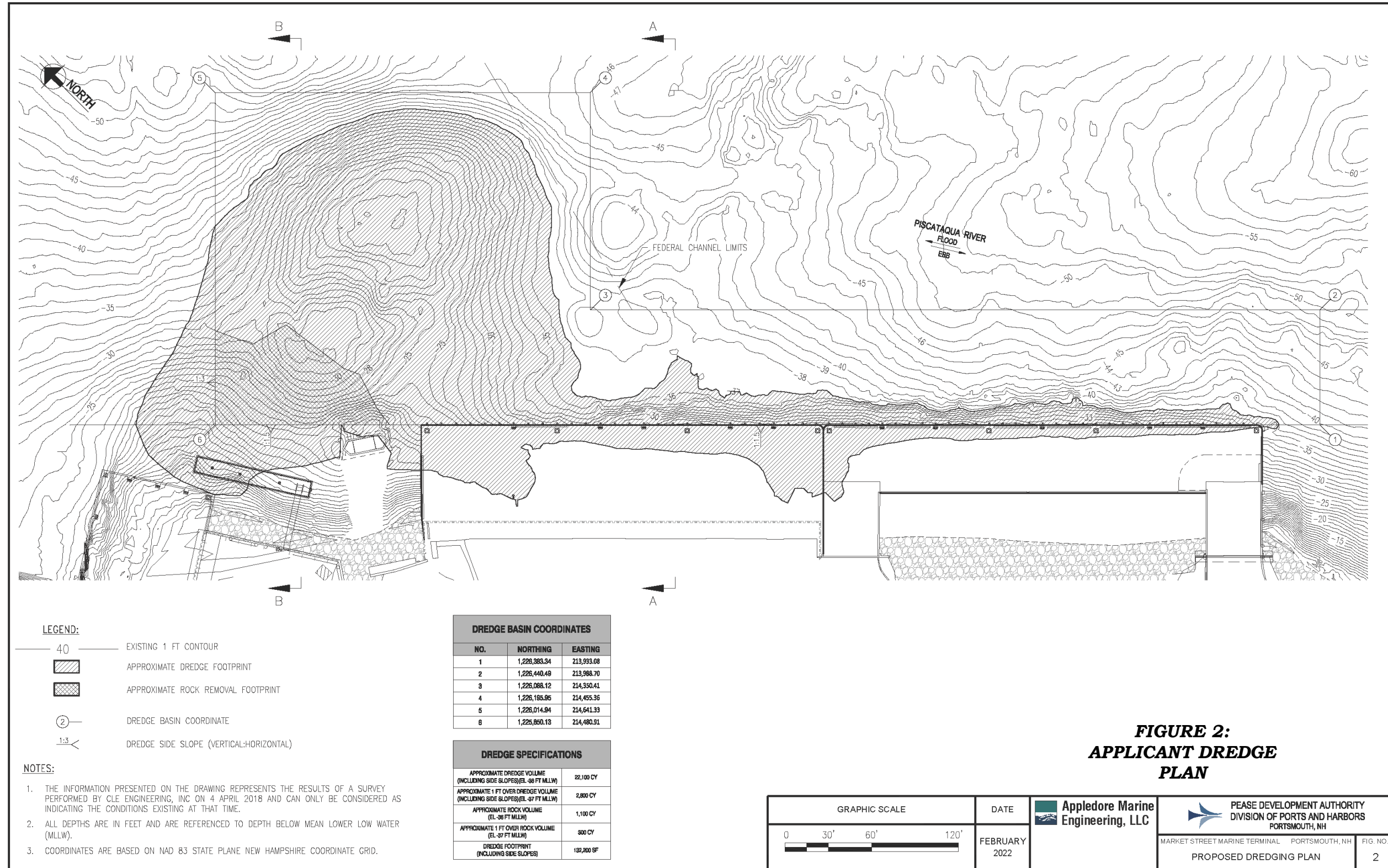
Helen A. Jones  
Technical Specialist  
Dredged Material Management Team  
New England District  
U.S. Army Corps of Engineers

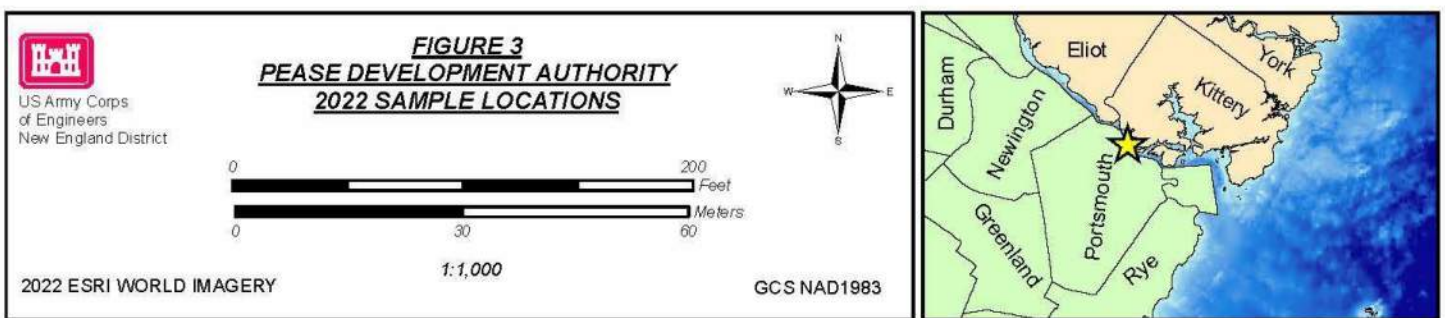
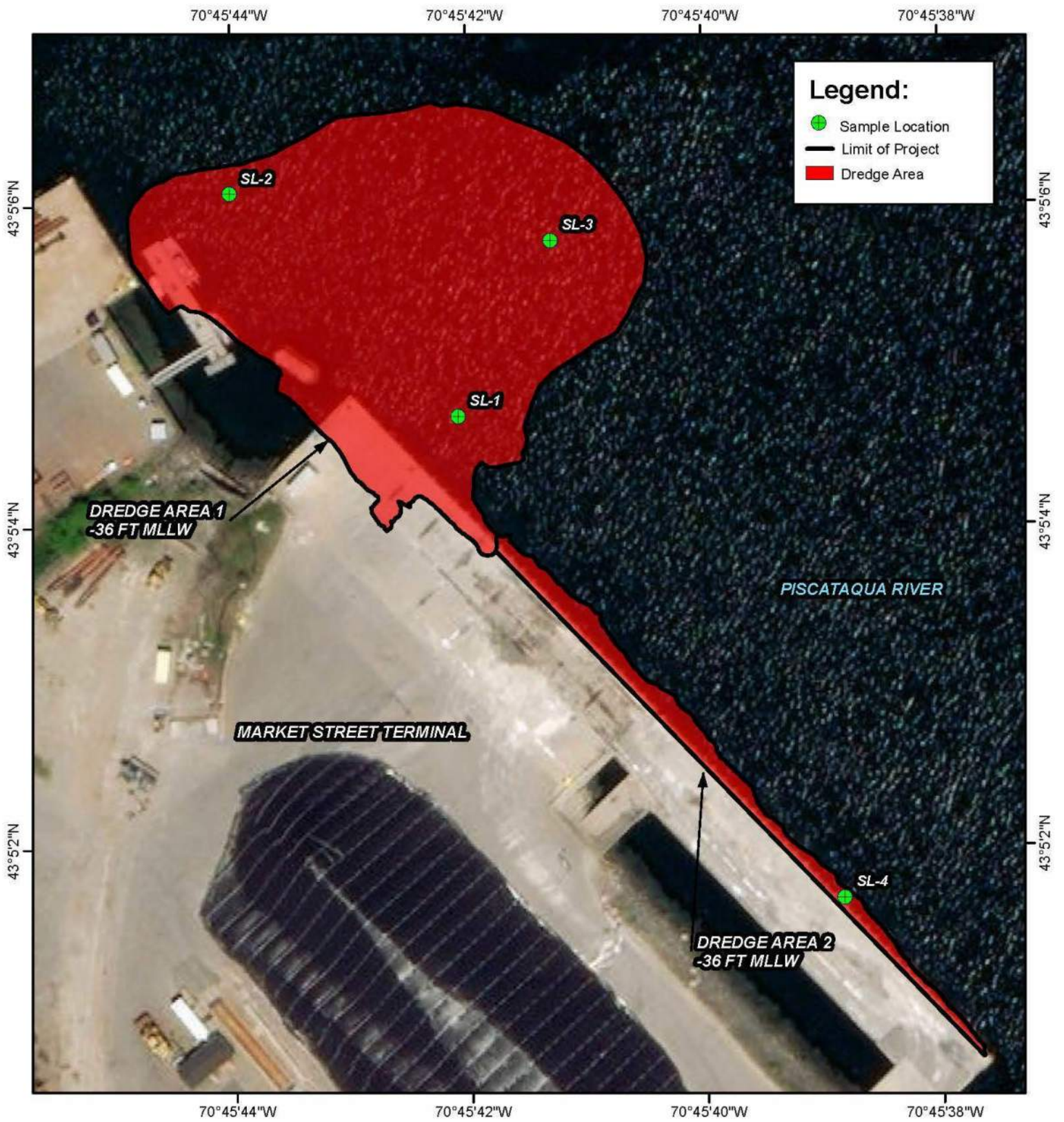
**FINAL** Sampling and Analysis Plan for Pease Development Authority Market Street Marine Terminal, Portsmouth, New Hampshire, File Number NAE-2018-1619

**Table 2: Market Street Marine Terminal Sample Locations**

<b>Station</b>	<b>Latitude (NAD 83)</b>	<b>Longitude (NAD 83)</b>	<b>Survey Depth (Feet MLLW)</b>	<b>Project Depth (Feet MLLW)</b>	<b>Overdepth (Feet)</b>	<b>Estimated Core length (Feet)</b>
SL-1	-70.761688	43.084633	-30.1	-36.0	1.0	6.9
SL-2	-70.762224	43.085020	-23.3	-36.0	1.0	13.7
SL-3	-70.761469	43.084937	-20.8	-36.0	1.0	16.2
SL-4	-70.760787	43.083798	-33.1	-36.0	1.0	3.9







**FINAL** Sampling and Analysis Plan for Pease Development Authority Market Street Marine Terminal, Portsmouth, New Hampshire, File Number NAE-2018-1619

**TABLE 3: RECOMMENDED PROCEDURES FOR SAMPLE COLLECTION, PRESERVATION, AND STORAGE**

<u>Analyses</u>	<u>Collection Method</u>	<u>Sample Volume</u>	<u>Container</u>	<u>Preservation Technique</u>	<u>Storage Conditions</u>	<u>Holding Time<sup>d</sup></u>
<b>Sediment</b>						
<b>Chemical/Physical Analyses</b>						
Metals	Grab/corer	200 mL	Precleaned polyethylene jar <sup>e</sup>	Refrigerate. Dry ice <sup>b</sup> or freezer storage is recommended for extended holding times.	≤ 4° C <sup>c</sup>	Hg - 30 days Others - 6 Months <sup>d</sup>
Organic Compounds	Grab/corer	475 mL	Solvent-rinsed glass jar with Teflon lid <sup>e</sup>	Refrigerate. Dry ice <sup>b</sup> or freezer storage is recommended for extended holding times.	≤ 4° C/dark <sup>d</sup>	14 days <sup>d</sup>
Particle Size	Grab/corer	75 mL	Whirl-pac bag <sup>c</sup>	Refrigerate	≤ 4° C <sup>c</sup>	Undetermined
Total Organic Carbon	Grab/corer	3 L	Heat treated glass vial with Teflon lined lid <sup>e</sup>	Refrigerate. Dry ice <sup>c</sup> or freezer storage is recommended for extended holding times.	≤ 4° C <sup>c</sup>	14 days

<sup>a</sup> This table contains only a summary of collection, preservation, and storage procedures for samples. The cited references should be consulted for a more detailed description of these procedures.

<sup>b</sup> These holding times are for sediment, water, and tissue based on guidance that is sometimes administrative rather than technical in nature. There are no promulgated, scientifically based holding time criteria for sediments, tissues, or elutriates. References should be consulted if holding times for sample extracts are desired. Holding times are from the time of sample collection.

<sup>c</sup> NOAA (1989).

<sup>d</sup> Tetra Tech (1986a)

<sup>e</sup> Sample may be held for up to one year if maintained ≤ -20° C

**FINAL** Sampling and Analysis Plan for Pease Development Authority Market Street Marine Terminal, Portsmouth, New Hampshire, File Number NAE-2018-1619

**TABLE 4: BULK SEDIMENT TESTING PARAMETERS**

<u>Parameter</u>	<u>Analytical Method</u>	<u>Reporting Limit (ppm)</u>
<b>Metals</b>		
Arsenic	6010B, 6020, 7060, 7061	0.4
Cadmium	6010B, 6020, 7130, 7131	0.07
Chromium	6010B, 6020, 7190, 7191	0.5
Copper	6010B, 6020, 7210	0.5
Lead	6010B, 6020, 7420, 7421	0.5
Mercury	7471	0.02
Nickel	6010B, 6020, 7520	0.5
Zinc	6010B, 6020, 7950	1.0
<b>PCBs (total by NOAA summation of congeners)</b>		
See next page	8082A	0.001
<b>Pesticides</b>		
Aldrin	NOAA (1993), 8081B	0.001
cis- & trans-Chlordane	Heptachlor epoxide	
4,4'-DDT, DDD, DDE	Hexachlorobenzene	
Dieldrin	Lindane	
$\alpha$ & $\beta$ Endosulfan	Methoxychlor	
Endrin	cis- & trans-Nonachlor	
Heptachlor	Oxychlordane	
	Toxaphene	0.025
<b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>		
Acenaphthene	8270C-SIM	0.01
Acenaphthylene	Chrysene	
Anthracene	Dibenzo(a,h)anthracene	
Benzo(a)anthracene	Fluoranthene	
Benzo(a)pyrene	Fluorene	
Benzo(b)fluoranthene	Indeno(1, 2, 3-cd)pyrene	
Benzo(k)fluoranthene	Naphthalene	
Benzo(g, h, i)perylene	Phenanthrene	
	Pyrene	
Total Organic Carbon	Plumb (1981), APHA (1995)	0.1%
Percent Moisture	Plumb (1981), EPA (1992), PSEP (1986)	1.0%
Grain Size	Wet Sieve (#4, 10, 40, 200)	



**FINAL** Sampling and Analysis Plan for Pease Development Authority Market Street Marine Terminal, Portsmouth, New Hampshire, File Number NAE-2018-1619

**TABLE 4: BULK SEDIMENT TESTING PARAMETERS (CONTINUED)**

PCB CONGENERS

Analytical Method: NOAA (1993), 8082A

Reporting Limit: 1 ppb

Congeners:

8*	2,4' diCB
18*	2,2',5 triCB
28*	2,4,4' triCB
44*	2,2',3,5' tetraCB
49	2,2',4',5 tetraCB
52*	2,2',5,5' tetraCB
66*	2,3',4,4' tetraCB
87	2,2',3,4,5' pentaCB
101*	2,2',4,5,5' pentaCB
105*	2,3,3',4,4' pentaCB
118*	2,3',4,4',5 pentaCB
128*	2,3,3',4,4' hexaCB
138*	2,2',3,4,4',5' hexaCB
153*	2,2',4,4',5,5' hexaCB
170*	2,2',3,3',4,4',5 heptaCB
180*	2,2',3,4,4',5,5' heptaCB
183	2,2',3,4,4',5',6 heptaCB
184	2,2',3,4,4',6,6' heptaCB
187*	2,2',3,4',5,5',6 heptaCB
195*	2,2',3,3',4,4',5,6 octaCB
206*	2,2',3,3',4,4',5,5',6 nonaCB
209*	2,2',3,3',4,4',5,5',6,6' decaCB

\* denotes a congener to be used in estimating Total PCB. To calculate Total PCB, sum the concentrations of all eighteen congeners marked with a "\*" and multiply by 2.

The specified methods are recommendations only. Other acceptable methodologies capable of meeting the Reporting Limits can be used. Sample preparation methodologies (e.g. extraction and cleanup) and sample size may need to be modified to achieve the required Reporting Limits.

**FIGURE 4: EXAMPLE CORE LOG DATA SHEET**

PROJECT NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

PROJECT LOCATION: \_\_\_\_\_ SEA STATE: \_\_\_\_\_

VESSEL: \_\_\_\_\_ POSITIONING EQUIPMENT: \_\_\_\_\_

SAMPLING EQUIPMENT: \_\_\_\_\_

SAMPLING PERSONNEL: \_\_\_\_\_ LOGGED BY: \_\_\_\_\_

CORE ID: \_\_\_\_\_ TIME: \_\_\_\_\_

LATITUDE: \_\_\_\_\_ LONGITUDE: \_\_\_\_\_ POSITION ACCURACY: \_\_\_\_\_

MEASURED WATER DEPTH: \_\_\_\_\_ CORRECTED WATER DEPTH: \_\_\_\_\_

TARGET PENETRATION: \_\_\_\_\_ ACTUAL PENETRATION: \_\_\_\_\_ RECOVERY: \_\_\_\_\_

COMMENTS: \_\_\_\_\_

SAMPLE INTERVAL(S): \_\_\_\_\_

CORE PHOTO:	CORE DESCRIPTION:
<p><i>Insert core photograph with scale</i></p>	<p><i>Insert field notes and ASTM description of core</i></p>

## **Attachment I: Draft Blasting Specifications**

## SECTION 31 23 01

UNDERWATER BLASTING  
02/21; CHG 1: 11/21

## PART 1 GENERAL

Work under this section covers the removal of underwater bedrock. Blasting operations outlined in this specification are only intended for removal of bedrock as depicted in the drawings and not general overburden excavation.

Blasting must occur between November 15 and March 15.

## 1.1 SCOPE

The breakage of rock and hard/unyielding materials may be conducted by any means, unless otherwise stated herein. If the contractor elects to use drilling and blasting for breakage or displacement of any units, this entire section is applicable and covers activities associated with drilling and blasting for rock excavation at the surface. Contained herein are procedures for all activities relating to drilling; blasting and the transportation, storage and use of explosives; breakage and displacement of rock. The Contractor's blasting program and methods are those necessary to accomplish the excavation shown on the Contract drawings in accordance with the provisions specified herein. Control the quantity of explosives fired in all blasting to prevent injuries to persons and to avoid damage to all structures, properties, governmental and nonprofit entities, commerce and businesses, and natural resources and their habitat.

## 1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

## ACOUSTICAL SOCIETY OF AMERICA (ASA)

ASA S1.13 (2005; R 2010) Methods for the Measurement of Sound Pressure Levels in Air (ASA 118)

## AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI/ASSE A10.12 (1998; R 2005) Safety Requirements for Excavation

ANSI/ASSE A10.7 (1997; R 2005) Commercial Explosives and Blasting Agents - Safety Requirements for Transportation, Storage, Handling and Use

ANSI S2.2 (1959; R 2006) American National Standard Methods for the Calibration of Shock and Vibration Pickups

## AMERICAN SOCIETY OF SAFETY ENGINEERS (ASSE/SAFE)

ASSE/SAFE A10.6 (2006) Safety Requirements for Demolition Operations

## BUREAU OF ALCOHOL, TOBACCO, FIREARMS AND EXPLOSIVES (ATF)

ATF P 5400.7 Federal Explosives Law and Regulations (ACC).

## INTERNATIONAL SOCIETY OF EXPLOSIVE ENGINEERS (ISEE)

Blaster's Handbook 18th Edition, 2014. Hardcover, 742pp., 7th Printing, 2014.

EE Handbook 4 (1989) Explosives Eng. Handbook Paper #4 - Blasting for Underwater Rock Excavation. IEE, by R.D.G Roberts, Summer

## INTERNATIONAL SOCIETY OF AUTOMATION (ISA)

ISEE PSBS (2017) ISEE Performance Specification for Blasting Seismographs

## NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 495 (2018) Explosives Materials Code

## U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2014) Safety -- Safety and Health Requirements Manual

EM 1110-2-3800 (2018) Engineering and Design -- Blasting for Rock Excavations

ER 385-1-95 (2014) Safety -- Safety and Health Requirements for Operations and Activities Involving Munitions and Explosives of Concern

ETL 1110-1-142 (1989) Blasting Vibration Damage and Noise Prediction and Control

## 1.3 DEFINITIONS

## 1.3.1 Controlled Blasting

Controlled blasting refers to blasting techniques used to better distribute the explosive charge to minimize adverse impacts. For underwater blasting, adverse impacts may be cited for the public's and contracted personnel's safety, lessening the fracturing of the rock being blasted, surrounding facilities' protection, and the avoidance of impacting natural resources or their habitats. Controlled blasting techniques must be deployed, such as careful loading to the pattern's design using the drilling log for each shot hole, stemming effectively the top of firm rock and any soft zones or voids, carefully observing maximum charge weight per delay, using delays between holes and rows of 25 milliseconds or greater, and avoiding rifling plumes by proper blasting techniques.

## 1.3.2 Flyrock

Flyrock is one of the three primary adverse impacts from blasting. Flyrock

is defined as any airborne projectile flying the lesser distance of either 200 ft horizontally from the shot pattern or one-half the distance between the shot pattern and the Contractor work limits, whichever distance is the lesser.

#### 1.3.3 Green Concrete

Green concrete is recently placed concrete that has initiated setting but may have substantial strength reduction from strong vibrations before the concrete has fully cured. Green concrete also includes the materials of shotcrete or cementitious grouts. Each Individual Shot Plan is required to consider vibrations emanating from its blast pattern reaching the location of the reported newly placed concrete to remain below allowable vibration levels depending upon the age of the concrete. Note the paragraph GREEN CONCRETE.

#### 1.3.4 Pressure Waves

Pressure Waves, both Airblast (or noise) and Underwater Pressure Waves, are one of the three, primary adverse impacts from blasting. Airblast and Underwater Pressure Waves are solely compression waves passing through the air or water, respectively. Their units of measure may be in terms of pressure, Pascals (Pa) or pounds per square inch (psi), or in terms of the logarithmic scale, Decibels (dB). Note that pressures in dB have different reference values for Airblast and Underwater Pressure Waves, so the pressure waves through air are of a lower magnitude than pressure waves through water with the same numeric dB value.

#### 1.3.5 Rock, Hard/Unyielding Material, Weathered Rock, Voids (Bit Drops), Sediment

##### 1.3.5.1 Rock

Rock is natural solid, interlocking material with firmly cemented, laminated, and crystalline fabric, foliated masses or conglomerate deposits, none of which can be removed without systematic drilling and blasting, drilling and the use of expansion jacks or feather wedges, or the use of high-energy mechanical devices; and, so classified for this project as submerged large boulders, which may be the minimum volume of 0.50 cubic yard.

##### 1.3.5.2 Hard/Unyielding Material

Hard/Unyielding materials comprise weathered rock, dense consolidated deposits, or conglomerate materials which are not included in the definition of "rock" with stones greater than 1.0 inch in any dimension. These materials usually require the use of heavy excavation equipment or high-energy mechanical devices for breakage or displacement to remove the materials .

##### 1.3.5.3 Weathered Rock

Weathered rock, for underwater percussion-drilling logging, is any original rock unit that has been altered to a weaker state that will not retain stemming when explosives are loaded into that material.

##### 1.3.5.4 Voids

Voids, for underwater percussion-drilling logging, is any rapid bit drop

with little or no resistance to the downward drilling pressure. Voids may be water or sediment filled, which may possibly determine that the original rock unit has been altered to a weaker state that will not retain the gaseous detonation products when the explosives are shot.

#### 1.3.5.5 Sediment

Sediment is both: the loose to firm material that may be dredged above the surface of weathered or firm rock, which cannot be easily dredged; and the infill of voids as solid particles.

#### 1.3.6 Unstable Material

Unstable materials are loose, submerged sediment that are easily displaced by water flow or turbulence and by vibrations or incidental impact.

#### 1.3.7 Vibrations

Vibrations are one of the three, primary adverse impacts from blasting. Vibrations are the result of various wave forms emanating from the detonation or deflagration of ignited materials from a shot pattern. Peak particle velocity (PPV) is defined as the maximum absolute value among the three ground vibration velocities measured in the vertical, longitudinal, and transverse directions over a time of a record. Peak, total vector-sum particle velocity is the peak value over the full, time history of each time-unit's value of the square-root sum of the squared, component velocities. Velocity units are expressed in centimeters per second (cps) or inches per second (ips).

### 1.4 SYSTEM DESCRIPTION

Boring logs are shown on the Contract Drawings.

#### 1.4.1 Blasting

Perform blasting in accordance with EM 385-1-1 and in conformance with all Federal, State, and local laws, regulations, and ordinances. Submit notice 30 days prior to starting work. Submit a Master Blasting Plan for approval, prepared and signed by the Blasting Specialist that includes: a listing of all federal, state and local regulations and ordinances to conduct blasting at the project; the support documentation and certifications for all proposed blasting personnel; information and data sheets for all the explosives to be used at the project; the design approach to blasting; outlines of all required reports and formats for all the forms of the respective reports; and, the procedures to control all the adverse effects of blasting. Use the non-electric blasting caps for all underwater blasting. Obtain written approval prior to performing any blasting and notify the Owner 24 hours prior to blasting. Include provisions for storing, handling, and transporting explosives as well as for the blasting operations in the plan.

### 1.5 QUALITY ASSURANCE

When the nature of the material to be dredged requires blasting, the Contractor's blasting processes and methods shall be in accordance with the applicable rules, regulations and standards established by the Regulatory Agencies, codes and professional societies listed herein, including rules and regulations for storage, transportation, and use of explosives. In case of conflict between codes and regulations, the more stringent shall apply.

Comply with ASA S1.13, ANSI/ASSE A10.12, ANSI/ASSE A10.7, ANSI S2.2, ASSE/SAFE A10.6, ATF P 5400.7, Blaster's Handbook, EE Handbook 3, EE Handbook 4, EM 385-1-1, ER 385-1-95, ETL 1110-1-142, EM 1110-2-3800 and local regulations.

Regulatory Agencies: All operations with explosives shall be conducted in accordance with controlling transportation, storage, and use are listed below:

a. U.S. Code of Federal Regulations (CFR)

(1) TITLE 27 CFR, PART 555, subparts D, G, and K - Commerce in Explosives, Bureau of Alcohol, Tobacco, and Firearms (ATF), U.S. Government Printing Office, Washington, D.C. 20402

(2) TITLE 29 CFR, SUBPARTS H 1910.109 AND 1926.900 - Occupational Health and Safety Organization (OSHA) U.S. Government Printing Office, Washington, D.C. 20402.

(3) TITLE 30 CFR, PART 55 - Mine Safety and Health Administration (MSHA), U.S. Department of Labor, Washington, D.C., 20402.

(4) TITLE 33 CFR, PART 126 - Handling of Dangerous Cargo at Waterfront Facilities, United States Coast Guard, Washington, D.C. 20593.

(5) TITLE 49, CFR, Chapter 1, PARTS 106, 107, 171-77 AND Chapter III, PARTS 383 and 390-394 - Transportation of Explosives on Highways, Rail, Air, or Water, Department of Transportation, (DOT), U.S. Government Printing Office, Wilmington, Delaware, 19899.

(6) TITLE 27, CFR, PART 55 Internal Revenue Service regulations Commerce in Explosives.

b. State Statute and Administrative Code

c. Non-regulating Industry Support Organizations:

(1) Vibration Subcommittee of the International Society of Explosive Engineers (ISEE), blast monitoring equipment operation standards (1999).

(2) IME (Institute of Makers of Explosives) Safety Library Publications (SLPs).

Legal Requirements: Comply with all applicable federal, state, and local laws pertaining to the purchase, transportation, storage, handling, and use of explosives. Obtain all required permits and licenses.

## 1.6 SUBMITTALS

Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Master Blasting Plan



Blasting Safety Plan  
Navigation Control Plan  
Test-Blast Plan  
Certified Marine Survey  
Pre-Blast Surveys  
Blasting Consultant's Qualifications  
Blasting Specialist's Qualifications  
Blaster-In-Charge Qualifications  
Blaster Qualifications  
Blasting Administrator's Qualifications  
Vibration Monitoring Specialty Firm  
Public Notice Of Blasting Operations  
Structural Inspection/Evaluation Specialist  
Fisheries Observer  
Marine Mammal Observer

SD-03 Product Data  
Explosives and Blasting Equipment  
Lightning Detection Device  
Seismographs  
Explosives, Boosters And Initiation System  
Blast Initiators  
Explosives And Blasting Agents  
Delay Device

SD-05 Design Data  
Individual Shot Plan

SD-06 Test Reports  
Test-Blast Evaluation Report  
Individual Shot Reports  
Drilling Logs

Individual Shot Vibration Monitoring Report

Individual Shot Videos

Daily Blasting And Removal Log

Blasting Consultant's Report

Post-Blast Surveys

Reports of Required Safety, Protective, and Natural Resource Programs

Post-Test Blast Evaluation Report

#### SD-07 Certificates

Blasting Licenses and Credentials

Seismic Specialist

Seismograph Technicians

Magazine Keeper

#### SD-11 Closeout Submittals

Summary Report

### 1.7 COORDINATION

A coordination plan, with the appropriate authorities that mitigates navigation and traffic delays must be included in the Master Blasting Plan.

Coordinate, through the Owner, with other Contractors working onsite to minimize work stoppages during blasting.

### 1.8 LIABILITY

Compliance with provisions in the contract will not relieve the Contractor of their responsibility for any damages or injuries caused by, related to, or arising out of blasting or associated blasting activities. Notwithstanding federal, state, and local laws, regulations and ordinances, the Contractor assumes all liability and hold and save the Owner, its agents, officers, and employees harmless for any and all claims for personal injuries, property damage, or other claims arising out of or in connection with the handling of explosives or blasting under this contract.

### 1.9 CLOSEOUT SUBMITTALS

On completion of the work, furnish a Summary Report, countersigned by the Blasting Specialist, certifying that:

- a. All blasting is complete and all explosives materials, including detonators, detonating cord, explosives, and any unmixed components of a two-component explosive system, have been removed from the PNSY project limits.
- b. All boreholes loaded with explosives and any other sets of

explosive charges have either been detonated or unloaded and explosives have been properly disposed.

## PART 2 PRODUCTS

### 2.1 MATERIALS

All project blasting will take place underwater. Only water-resistant explosives, boosters and initiation system are to be used. Furnished materials and equipment required for underwater blasting operations, monitoring, protection to structures and the environment, material usage, including transportation and storage, shall conform to all applicable regulatory agency and permit requirements.

A. Blast Initiators: Non-electric (NONEL) or electronic blast initiators shall be used. Cap and fuse method and electric detonators shall not be used.

B. Explosives and Blasting Agents: Type recommended by Blasting Consultant and explosive manufacturer, and as allowed by authorities having jurisdiction. All explosives must be contained in cartridges or other manufacturer's semi-rigid container and/or loose granular, free flowing, pourable or pumpable explosives.

C. Delay Device and Timing: As recommended by Contractor. Delay timing shall be no less than 17 ms.

### 2.2 TRANSPORTATION, STORAGE AND USE OF EXPLOSIVES

#### 2.2.1 General

Store, transport, handle, use, and otherwise secure explosives in accordance with best practices as approved by the Owner and in accordance with all Federal, State and Local laws and regulations. Comply with all special rules and regulations that may be made by the authorities having jurisdiction, or by the Owner, regarding construction of, and storage in magazines and precautions in blasting. Times and imposed restrictions concerning the use of explosives must be conducted in accordance with local, State, and Federal regulations. The Owner reserves the right to establish restrictions or time windows when blasting will not be allowed.

#### 2.2.2 Blasting Products

##### 2.2.2.1 Requirements

All explosive materials to be used on site must be proposed for approval in the Master Blasting Plan. Cartridged and bulk explosives may be used in different sections of the project. All explosive materials used on the project must be six months or less of age or no older than one half the shelf life shown on the explosives manufacturer's technical data sheet for that product. Millisecond delay, shock-tube initiators, must be used as the initiation system. To ensure the accuracy of firing times of blasting caps, it is required that each cap period come from one lot number. Mixing of lot numbers for any single cap delay period within a shot pattern is strictly prohibited. For underwater blasting's ability to displace rock against the water load, the minimum delay both between shot holes and shot rows will be 25 milliseconds.

#### 2.2.2.2 Prohibited Explosive Materials

Explosives that do not meet the manufacturer's specifications must not be used. Blasting products without date batch codes will not be permitted on site.

Bulk explosives, which are water sensitive, are strictly prohibited.

Detonation Cord is strictly prohibited for initiation transmission through the air and water to the shot holes. An approved non-electric shock tubing, proposed in the Master Blasting Plan, must be used to transmit the firing initiation to each shot hole. Detonation cord may be used within the shot hole by proper connection to the shock tubing beneath the highest elevation of firm-rock stemming.

#### 2.2.3 Magazines

No explosives will be stored onsite. There must be no permanent explosive storage or overnight explosive storage onsite. The Contractor will either obtain daily deliveries of the explosives to the site from a manufacturer or supplier or secure offsite explosive magazines.

The Contractor must have two temporary magazines on board the drilling and loading barge of sufficient volume to hold the largest day's use of explosives and initiators separately. These temporary magazines must meet all ATF requirements and all regulations and ordinances of state and local government. No explosives may remain overnight in the temporary magazines. A daily-use log of explosives delivered, loaded by shot hole through the day, and removed at the last shift must account for the use of all explosives.

#### 2.2.4 Magazine Keeper

Each magazine keeper must be experienced and familiar with the laws and general practices concerning the handling, care, use, and storage of explosives and detonators. The magazine keeper is responsible for maintaining a cleared area around each magazine. The magazine keeper will not be required to perform any duties that will in any way interfere with their duties as magazine keeper and being physically present at the magazines for every entry to the magazines for delivery, disbursement, and review of explosives at the magazines.

If explosives are delivered and returned daily from the manufacturer or supplier to the project, the driver of the truck will serve as the magazine keeper.

### PART 3 EXECUTION

#### 3.1 GENERAL EXCAVATION AND REMOVAL

Perform the excavation of every type of material encountered within the limits of the project to the lines, grades, and elevations indicated and as specified. Dredging, breakage, displacement, and excavation of all the materials will be accomplished by appropriate techniques and with special care, such that no individuals, cited natural resources, structures, navigation and other sensitive features, and activities suffer any adverse effects from blasting. Perform the submerged removal in accordance with the typical sections shown and the tolerances specified in paragraph SUBMERGED MATERIAL DISPOSAL.

The Contractor's blasting program and methods will be those controlled blasting techniques necessary to accomplish the excavation shown on the contract drawings in accordance with the procedures specified in this section. Make necessary plans, examinations, surveys, and test blasts to determine the quantity of explosives that can be fired to accomplish the breakage (or displacement) and removal of materials without injuries to persons, and aquatic wildlife (or other natural resources), or damage to personal or public property. Test blasts will be performed to slowly build to acceptable loading and timing of production shot patterns, to verify that the monitoring network performs as designed, to begin to assemble monitoring data collection, and to resolve that the submerged material is adequately broken or displaced for removal. Use the test blasting results to optimize remainder of work. The blasting program must abide by all applicable Federal, state, and local laws, regulations, and ordinances established for the project's location.

Process any and all claims of public entities, companies and private citizens arising from the transportation, storage, and use of explosives promptly in an acceptable time period set by the Owner; in particular, all injury and property damage claims must be acknowledged by the Contractor, or their representative, and be submitted immediately as directed by the Owner providing name of claimant, location, time and description of alleged injury, and damage, and estimated value. The claimed injury or damage will be evaluated and inspected by an appropriate specialist within 48 hours following initial notification, and processed to a conclusion (honored, denied, or compromised) within 90 days after cessation of all blasting on the contract; but, in no case will the claims remain unresolved for a period exceeding 6 months (180 calendar days). Submit evaluation and inspection results and actions taken to the Owner on a weekly basis.

### 3.1.1 Removal of Submerged Materials

#### 3.1.1.1 Sediment Within the Project Limits for Removal Displacement

Sediment vertically above the project rock limits must be removed by dredging, prior to action upon deeper materials.

#### 3.1.1.2 Breakage of Rock and Hard/Unyielding Materials for Excavation and Disposal

Blasting may be conducted to break or displace the rock and hard/underlying materials into sizes that may be removed by dredging or excavation equipment. Test blasting will be conducted to determine the parameters for the following production blasting. Care must be taken to prevent damage to any of the remaining specified materials, features or structures noted in the drawings; and avoid adverse effects from blasting to personnel, the public, natural resources, structures, and features. The Contractor must curtail blasting activities in designated areas when, in the opinion of the Owner, damage to in-place units or adverse impacts may have occurred. Blasting will be curtailed in these designated areas until both remediation, as directed by the Owner, has been completed, and the Contractor has resolved a means to conduct the blasting without the damage or adverse impacts.

#### 3.1.2 Disposal of Materials Within the Project Limits

Transport and place all dredged, displaced, or excavated materials within the limits of the disposal zones below the specified elevations, according

to the requirements specified in paragraph SUBMERGED MATERIAL DISPOSAL.

### 3.2 SAFETY PROCEDURES

#### 3.2.1 General

Ensure all work completed under this Contract is executed safely. Follow the safety procedures outlined in EM 385-1-1. EM 385-1-1 will govern all activity unless more stringent safety requirements are specified in other applicable Federal, State, and local laws, regulations, and ordinances.

#### 3.2.2 Weekly Coordination Meeting

Coordinate all blasting schedules with the Owner at least one week in advance and hold a weekly blasting coordination meeting with the Owner. Provide an agenda for the blasting coordination meeting that lists project's prior week's shots, the forecasted shot schedule, and displays a scale site plan showing the locations of the schedule shots. The Blasting Specialist, Blaster in Charge, and Seismic Specialist are required to participate in discussion of agenda items and lessons learned.

#### 3.2.3 Public Notice of Blasting Operations

Thirty days, prior to any blasting operations, prepare and submit to the Owner a public notification letter of the proposed blasting activities. The Owner will distribute copies of this notification letter by certified mail to local governments, law enforcement, public utilities, public users of project recreational facilities, and residents and commercial interests located within one half mile of the blast site. This notification letter must contain at minimum:

- a. Name, address, telephone number and e-mail address of the Contractor;
- b. Plan maps identifying the specific areas in which blasting will take place, and major and secondary roads, geographic features and auxiliary features;
- c. Duration of blasting activities, and on which days of the week and hours of the day that blasts can be expected to occur;
- d. Vehicular and pedestrian traffic control measures to be taken;
- e. Methods to limit access to the blasting area; and,
- f. Types, patterns and duration of audible warning and all-clear signals to be used before and after blasting.

#### 3.2.4 Public Meetings

Fifteen calendar days prior to any blasting operations, provide the approved Blasting Specialist, Blasting Consultant, and Seismic Specialist to attend a public-relations meeting to be conducted on an evening to be determined by the Owner. This meeting will inform the public about the anticipated blasting operations. The Blasting Specialist, Blasting Consultant, and Seismic Specialist must each make a short presentation of blasting operations and answer any questions pertaining to public concerns dealing with the blasting operations, the magnitude of vibrations, airblast and potential for flyrock that may impact the public, and the project's required natural resource activities. Distribute points of contact should

the public and local entities have an event of concern related to the blasting program.

### 3.2.5 Warnings and Signals

Establish a method of warning all employees on the job site of an impending blast following the guidance of EM 385-1-1. The signals must consist of a five-minute warning signal to notify all in the area that a blast will be initiated in five minutes. A second warning signal must be sounded one-minute before the blast. After the blast is over, sound an all-clear signal, once the blast site has been inspected for misfires by the Blaster in Charge to notify all in the area that the blasting operation is finished. No personnel other than the Blaster in Charge must enter the blast area, until it has been determined to be all clear.

### 3.2.6 Notification to Navigation

Notify the NHDOT a minimum of 14 calendar days prior to the commencement of blasting operations to allow for sufficient time to send out navigation notices. The information to be supplied will include the dates and time window of blasting operations.

### 3.2.7 Navigation Control During Drilling, Loading, and Blasting Operations

Notify the Coast Guard 24 hours prior to a scheduled blast and 2 hours prior to the actual blast's initiation. Contact should be made with: US Coast Guard's contact, whose name and an alternate's name will be provided at time of contract award.

Provide the number of patrol vessels as required by the U.S. Coast Guard and local harbormaster. Operate patrol vessel during blasting operations equipped with a visible yellow flashing light, audible horn, and radio with a hailer, whose sole function will be to monitor and maintain security in the blast area. Use patrol vessels during all blasting operations. Inspect and insure there is no vessel traffic within the work area prior to the firing of the blasting caps and until such time as the Contractor has sounded the "All-Clear Signal".

Establish and maintain a warning system as required by EM 385-1-1 and as stated in paragraph WARNINGS AND SIGNALS. Equip and maintain the floating plant with radio equipment capable of communications with the Coast Guard. The Contractor, after each blast, upon inspecting the area, notify the Coast Guard and the Owner if all clear or misfire is noted. Buoy the area with warning signs. The warning signs are to be legible at a distance required by the U.S. Coast Guard and local harbormaster and contain the message "DANGER - EXPLOSIVES IN USE" visible on either side of the sign. Station patrol vessels at the drill barge and remain in the blasting area during all blasting operations.

### 3.2.8 Lightning Detection Device

Furnish, maintain, and operate lightning detection equipment during the entire period of blasting operations and during the periods that explosives are used at the site. Equipment must provide real time audio and visual alarm/signal and detection based on combined detection of electromagnetic, electrostatic, light wave spectral and audio disturbances, or a commercial service based on these, as a minimum for approved. Equipment must be capable of detecting lightning within 25 miles as a minimum of the blast area. Provide the equipment after approval. When and where the lightning

detection device indicates a blasting hazard potential, immediately evacuate personnel from all areas where drilling is being conducted or explosives are present. When a lightning detector indicates a blasting hazard, perform the following actions.

- a. Clear the blasting area of all personnel. Place guards at all access points to the blast area.
- b. Immediately notify the Owner of the potential hazards and precautions being taken.
- c. Terminate the loading of holes and secure the unused explosives to an approved location.
- d. When the hazard dissipates, inform the Owner that the drilling and loading of holes will continue.

### 3.2.9 Drill-Boat or Barge Safety

All onboard day magazines must be permanently secured to the deck as required by the Coast Guard. No high explosives will be stored on the boat or barge deck in the open except for the one case that is to be loaded immediately into the shot holes. Any explosives remaining on deck must be returned to the day magazine prior to the firing of any blast. The firing line reel or spool will be mounted on the rig in a manner that it cannot be lost overboard. An approved blasting machine will be used for detonation regardless of the number of caps used. No electric blasting system can be used. The amount of explosives permitted aboard the drill boat or barge at any one time will be subject to the approval of the Owner, but in no case will such amount exceed the amount permitted by appropriate codes and regulations.

Make necessary arrangements to prevent damage to any vessel, moored or underway, building or structure and to preserve the crew or occupants thereon from exposure to injury because of the Contractor's operations. Automatic fire extinguishers of an appropriate type must be installed on air compressors and in all engine compartments aboard vessels (drill boats, barges) where explosives are stored, handled, and used. The Owner may require additional arrangements. Have a Certified Marine Survey of all floating plant proposed for underwater blasting work on this contract performed prior to starting any work and provide the results to the Owner. Remote fuel shut-offs and fire-signaling devices must be provided aboard the drill boat.

### 3.2.10 Inspection for the All-Clear Signal

The Blaster in Charge must thoroughly inspect the entire blast area for a minimum of five minutes following a blast. The five-minute delay between blasting and commencing work is needed to ensure that no misfires have occurred. Details of the misfire procedures were provided in the Blasting Safety Plan, including the distance of the restricted area when a misfire is discovered.

#### 3.2.10.1 Check for Misfires

During the five-minute delay, it is the responsibility of the Blaster in Charge to enter and inspect the shot-pattern area and verify for all loaded shot holes that all explosives have been detonated.



### 3.2.10.2 Misfire-Handling Procedures

Should an inspection indicate that complete detonation of all charges did not occur, only critical personnel involved in the blasting operation or excavation of the unexploded material are allowed within the established shot-pattern area. Restrict the site until the Blaster in Charge or the Blasting Specialist indicate the site is safe. If the misfire poses problems that cannot be safely corrected by the Blaster in Charge or the Blasting Specialist, a consultant, or an explosives company representative skilled in correcting misfires must be called to resolve the problem. Provide within 60 minutes of the recognition of a misfire, a notice to the Owner and all applicable agencies and offices for public safety. Compliance with this or any other provision in the Contract will not relieve the Contractor of responsibility for any damages or injuries caused by, related to, or arising out of blasting or associated blasting activities.

Provide the details of the misfire and the correction measures in the Individual Shot Report for shot with the misfire to the Owner and the emailed addressees the next business day.

### 3.2.11 Natural Resource Protection (Environmental Resource Protection)

The Contractor is required to utilize the following to avoid and minimize techniques designed to mitigate the impacts of underwater blasting that have been developed, in coordination with other Federal agencies, in compliance with the federal, state, and local environmental laws and regulations and with applicable regulations and requirements of Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS. All activities requiring the Contractors' action or coordination are included in paragraph NATURAL RESOURCE ASSESSMENTS, Mitigation and Monitoring. The Contractor has full responsibility for not violating all the mitigation requirements. Associated fines for violations will be borne by the Contractor.

## 3.3 OPERATIONAL REQUIREMENTS

### 3.3.1 Coordination

#### 3.3.1.1 Schedules

Coordinate schedules for blasting with the proper authorities, federal, state, local. No blasting will be conducted unless the Contractor is notified by the appropriate parties that blasting may proceed. In addition, if channel restrictions of navigable waters are required for drilling and blasting, the Contractor must coordinate with the U.S. Coast Guard.

#### 3.3.1.2 Permits

Obtain all necessary permits from the state and local authorities to transport explosives and all blasting agents necessary. The Owner will be notified in writing that all permits have been obtained and will be furnished copies of all permits. All work must be in accordance with the issued permits.

### 3.3.2 Work Restrictions

#### 3.3.2.1 Confined Detonations

The rock excavation after blasting will be more effective if each loaded drill hole is well confined by stemming within sound rock. The intent is to confine the gaseous detonation products of each shot hole, such that no rifling plumes, the visual result, are produced in any shot patterns. The premature release of the gaseous products reduces or eliminates effective fracturing and displacement and causes large water-borne pressures potentially damaging to natural resources. Drill-hole logging is required to recognize the depth of firm rock and voids, and to adjust the designed Individual Shot Plan loading of each shot hole with explosives and stemming according to the position of sound rock relative to the paid elevation of removal. Video recording of each blast will detail the effectiveness of avoiding rifling plumes.

#### 3.3.2.2 Temporal, Weekly and Seasonal Restrictions for Blasting

Blasting must occur between November 15 and March 15. Blast initiation is only permitted, during the period from one-hour after sunrise to one-hour before sunset. The Contractor will not be constrained by weather conditions, except for lightning, for underwater blasting in depths of water greater than 3.0 ft for which airblast is often negligible. Drilling and blasting must take place between November 15 and March 15.

#### 3.3.2.3 Allowable Vibration

Conduct all the required monitoring as noted in paragraph IMPACT MONITORING. Conduct all blasting by controlled blasting methods to avoid exceeding the allowable vibration in applicable federal, state, and local laws, regulations and ordinances at all structures and facilities, as monitored by blast seismographs.

The allowable vibration at any structure or facility must not exceed the maximum PPV of 2.0 inches/second (ips), nor exceed the PPV amplitude in the Frequency versus Particle Velocity Graph Figure in NFPA 495 (Figure 11.2.1) for the frequency of the half-cycle amplitude.

#### 3.3.2.4 Limiting Blast-Induced Vibrations at Green Concrete

During the performance period, other construction activities may be placing concrete at varied locations on or near the project. Coordinate with other project contractors.

- a. Assuree that a seismograph is monitoring vibrations from blasting at a location, which is closer to the blast pattern than the Green Concrete. Seismic monitoring must be conducted near the concrete placement from prior to placement until 72 hours after placement.
- b. The table below indicates that maximum allowable peak particle velocity (PPV) permitted, relative to the age of the recently-place concrete, as measured at an acceptable location or within 50 ft of the most recently placed concrete on the side of closest approach to the blast.

Age of Concrete (hours)	less than 12	12 to 24	24 to 72
PPV (inch/second)	0.1	1.0	2.0

- c. Adjust all blasting to conform to the table's maximum allowable PPV at the seismograph near the Green Concrete. See paragraph BLAST-EFFECTS MONITORING.

3.3.2.5 Allowable Airblast

Conduct all the required monitoring as noted in paragraph IMPACT MONITORING. Conduct all blasting by controlled blasting methods to avoid exceeding the allowable airblast in applicable federal, state, and local laws, regulations and ordinances at all structures and facilities, as monitored by blast seismographs. Peak airblast overpressure must be held below 133 dB (linear peak scale), 0.015 pounds/square inch (psi) at the nearest residential or inhabited structure or other designated location.

3.4 BLASTING PERSONNEL

3.4.1 Blasting Consultant

The Blasting Consultant, Blasting Specialist, Blasting Administrator, Blaster in Charge, and Vibration Specialist cannot be the same person. Retain a recognized Blasting Consultant to assist both with the project's blast design and with the resolution of any blasting issues for the project. Submit the Blasting Consultant's expertise submission within 15 days of the Notice to Proceed. The Blasting Consultant must be approved by the Owner two weeks prior to the submission of the Master Blasting Plan.

3.4.1.1 Blasting Consultant's Responsibilities

The Contractor's Blasting Consultant must be available to review the Master Blasting Plan, assist with controlled blasting techniques, and resolve difficult or complex issues with blasting for the project. The Blasting Consultant will recommend controlled blasting methods, as necessary, to meet safety and natural resource requirements, retain airblast and vibration within the allowable limits, and protect the rock foundation. Proposed controlled blasting methods must be submitted in the Master Blasting Plan.

The Blasting Consultant must provide advice for, and review, the Master Blasting Plan, attend the public meeting(s), and be available for consultation on an "as needed" basis, as determined separately by the Contractor or by the Owner. The Blasting Consultant is not required to be at the project site for review of the Master Blasting Plan or of any specific shot plans or records. The Blasting Consultant must be present at the project site for any required shot issue or, if requested, for the subsequent shot following a misfire or significant exceedance of any onsite blasting issues.

The Blasting Consultant must provide a written summary of all site visits and special assignments within 2 business days of performing such actions to both the Contractor and the Owner.

The Blasting Consultant must submit a short, signed Blasting Consultant's Report each month stating that he/she has briefly reviewed the individual shot documents, including blast videos, and has collaborated with the

Contractor on all issues, concerns, or errors in the individual shot documents. This report is due within 3 business days after the end of the month.

If problems with vibration, airblast, rifling of a shot hole producing a water column plume, or production blasting occur, the Owner will require the Contractor to immediately summon the approved Blasting Consultant and have their presence on site within 10 days after the problem develops to:

- a. Approve each Individual Shot Plan;
- b. Observe in person shot-hole drilling, logging, revision to that hole's plan, and loading with the full authority to stop or delay any blast he/she considers unsafe;
- c. Review and sign each Individual Shot Record at no additional cost to the Owner; and,
- d. Submit and sign a written checklist that all necessary precautions were reviewed and followed by the drilling and blasting crews.

The checklist must be as defined under the section on Individual Shot Reports. The signed checklist must be attached to each Individual Shot Report.

#### 3.4.1.2 Blasting Consultant's Expertise

The consultant must be able to demonstrate involvement in at least 15 projects with controlled blasting. The consultant must provide, as a minimum, the credentials and experience for each outlined following items:

- a. The consultant must have at least 10 years of experience in construction blasting within 250 ft of protected structures, and had consultation on three underwater blasting programs;
- b. The consultant must be able to demonstrate that he has attended at least 15 short courses, seminars, or conferences on blasting technology, or university engineering class studies on blast design during the past 20 years, including a complete understanding of blasting seismology with emphasis on vibration frequency, acceleration, and displacement (ground strain);
- c. For the past 10 years the consultant must have derived their primary source of income from providing specialized blasting consulting services;
- d. A list of recent projects containing a description of the projects' details, summarize the blasting plans, and any modifications made during the projects from your consulting;
- e. Provide the names and telephone numbers of contacts, who have sufficient stature with, and knowledge of, their individual project to verify the submitted information in competency and ability, for at least three recent projects;
- f. Hands-on experience as a blaster for at least 3 years; and,
- g. The Blasting Consultant, Blasting Specialist, Blaster in Charge, and Seismic Specialist cannot be the same person.

### 3.4.1.3 Blasting Consultant's Qualifications Submissions

Submit the resume, education, experience, current blasting licenses and credentials, and training of the proposed Blasting Consultant, and a formal letter of commitment from the consultant verifying their availability on an "as needed" basis for the duration of the Contract. The consultant must be a drilling and blasting expert, who has derived their primary source of income by providing specialized blasting and blasting consulting services. The provided consultation must have included at least three, large underwater blasting projects. The consultant must not be an employee of the Contractor, an explosives manufacturer, an explosives distributor, or any other sub-contractor. There must be no additional cost to the Owner for the Blasting Consultant's duties, even when required by the Owner.

### 3.4.2 Blasting Specialist

The Blasting Specialist is the Contractor's employee most responsible for the project's blasting and conducting all coordination and providing all documentation for the underwater blasting. The Blasting Specialist must coordinate with the Owner on all issues dealing with blasting. The Blasting Specialist must be on the job site each day. The Contractor must submit the Blasting Specialist's expertise submission within 15 days of the Notice to Proceed. The Blasting Specialist must be approved by the Owner two weeks prior to the submission of the Master Blasting Plan.

#### 3.4.2.1 Blasting Specialist's Responsibilities

The Blasting Specialist is responsible for the project's blast design, preparing and submitting all necessary blasting documentation, and conducting quality control. The Contractor may employ a documentation assistant to aid the Blasting Specialist with all the blasting documentation creation and submissions. The Blasting Specialist is solely responsible for the accuracy and timely submission of all blast documentation.

#### 3.4.2.2 Blasting Specialist's Expertise

The Blasting Specialist must be able to demonstrate involvement in at least three projects with underwater blasting. The Blasting Specialist must provide, as a minimum, the credentials and experience for each outlined following items:

- a. The proposed individual must have at least 10 years of verifiable experience utilizing controlled blasting techniques and have had conducted controlled blasting on three underwater projects;
- b. Within the last five years, the proposed individual must have completed at least five days of classroom training that has familiarized the person with the most current drilling and controlled blasting methods;
- c. The proposed individual must be a licensed blaster in the State of New Hampshire and hold all credentials that may be required by local jurisdictions;
- d. In the last five years the proposed individual must have been responsible for the blast design or execution of underwater rock excavation projects, similar in scope and complexity as this project;

- e. The names and telephone numbers of contacts, who have sufficient stature with, and knowledge of, their individual project to verify the submitted information in competency and ability, for at least three underwater blasting projects; and,
- f. The Blasting Consultant, Blasting Specialist, Blaster in Charge, and Seismic Specialist cannot be the same person.

#### 3.4.2.3 Blasting Specialist's Qualifications Submission

Submit the resume, education, experience, current blasting licenses and credentials, and training of the proposed Blasting Specialist. Their credentials must include a list of the projects, including the location, duration, scope, description, geologic conditions, and the challenges that developed through the course of the projects and how the challenges were resolved.

#### 3.4.3 Blaster in Charge

The Blaster in Charge may create the Individual Shot Plan for approval by the Blasting Specialist. The Blaster in Charge, in the absence of the Blasting Specialist, is the Contractor's employee responsible for on-deck supervision of all underwater blasting activities and its documentation. The Contractor must submit the Blaster-in-Charge's expertise submission within 15 days of the Notice to Proceed. The Blaster in Charge must be approved by the Owner two weeks prior to the submission of the Master Blasting Plan.

##### 3.4.3.1 Blaster-in-Charge's Responsibilities

The Blaster in Charge, in the absence of the Blasting Specialist, is responsible for on-deck supervision of the drilling, shot-hole logging, possible revisions of the Individual Shot Plan, loading or abandoning of individual shot holes, and firing the blast. The Blaster in Charge is responsible for: the accurate placement of the shot holes' locations for drilling; conducting the drilling and shot-hole logging accurately; accounting for the relevant geology within each shot-hole's log; assuring the careful recording of every shot-hole's log and their submission with the Individual Shot Report; loading the blastholes according to the Individual Shot Plan or the revision thereto based on the shot-hole's log; coordinating the likely time of the blast pattern's initiation; coordinating all notices of imminent blasting and providing the signaling before and after the shot; initiating the blast; performing the post-blast inspection; providing the All-Clear signal or instituting the notices and actions for a misfire; and, providing the documentation for, and signing, the Individual Shot Report.

##### 3.4.3.2 Blaster-in-Charge's Expertise

The Blaster in Charge must be able to demonstrate involvement in at least two projects with underwater blasting. The Blaster in Charge must provide, as a minimum, the credentials and experience for each outlined following items:

- a. The proposed individual must have verifiable experience in equivalently responsible roles for controlled blasting projects for at least 3 years and with underwater projects;
- b. Within the last 5 years, the proposed individual must have completed at

least five days of classroom training that has familiarized the person with the most current drilling and controlled blasting methods;

- c. The proposed individual must be a licensed blaster in the State of New Hampshire and hold all credentials that may be required by local jurisdictions; and,
- d. The Blasting Consultant, Blasting Specialist, Blaster-in-Charge, and Seismic Specialist cannot be the same person.

#### 3.4.3.3 Blaster-in-Charge Qualifications Submission

Submit the resume, experience, current blasting licenses and credentials, and training of the proposed Blaster-in-Charge. Their credentials must include a list of the projects, including the location, duration, scope, description, geologic conditions, and the challenges that developed though the course of the projects and how the challenges were resolved.

#### 3.4.4 Blasters

The Contractor may elect to employ multiple Blasters. Each Blaster is a Contractor's employee responsible for on-deck, underwater drilling and blasting activities under the supervision of the on-deck, Blasting Specialist or Blaster in Charge, whoever is present. The Blaster in Charge or a Blaster will log each shot hole, as the hole is being drilled. Each Blaster must be approved by the Owner after the submission of the Master Blasting Plan.

Blaster qualifications require each Blaster must be able to demonstrate prior experience with drilling and blasting. The proposed individuals must be a licensed or certified blaster in the State of New Hampshire and hold all credentials that may be required by local jurisdictions. Submit the resume, experience, current blasting licenses and credentials, and training of each proposed Blaster with the Master Blasting Plan.

#### 3.4.5 Blasting Administrator

The duties of the Blasting Administrator are to be the direct assistant of the Blasting Specialist in preparing all necessary paperwork, and in performing quality control on all issues dealing with blasting. The primary function is to assist the Blasting Specialist in the preparation and completion of submittals, prepare the detailed post blast report, and the individual shot videos for submittal to the Owner, and submit the drilling logs with the post blast report. The Blasting Administrator cannot sign any paperwork. The Blasting Administrator must be approved by the Owner.

Blasting Administrator's qualifications require the Blasting Administrator to possess the following minimum qualifications and experience:

- a. Holds a current Blaster's license;
- b. Have prior experience in underwater blasting;
- c. Must have completed at least five days of classroom training within the last five years that has equipped the person with the most current knowledge in blasting procedures; and the software to be used on the project; and,

- d. Have proven proficiency with blasting software and spreadsheets.

#### 3.4.6 Vibration Monitoring Specialty Firm

Retain the services of a vibration monitoring specialty firm that specializes in the prediction, monitoring, and control of ground vibration and airblasts. The firm must have experience conducting installation of seismographs for vibration monitoring, communicating vibration and airblast results, and developing and maintaining a site attenuation curve. The firm must have on staff at least two Seismic Specialists that specialize in vibration monitoring and analysis. The firm must have on staff at least four Seismograph Technicians that have five years or more experience with seismograph installation and vibration monitoring. Submit resumes for all personnel and for the firm for approval citing, in addition to other pertinent data, experience, training, and education, at least 60 days prior to the commencement of blasting. The Seismograph Technicians must be persons capable of setting up the seismographs at designated locations, effectively recording the blast, and appropriately interpreting results. The Seismic Specialists must interpret the seismograph records to ensure that the seismic data must be effectively utilized in the control of the blasting operations with respect to the existing structures. The Seismograph Technicians must supervise the placement, operation, and maintenance of the seismographs. The Seismic Specialists must conduct the airblast and particle velocity regression analysis as described in this Section. The Owner may require the Seismic Specialists and Seismograph Technicians to be present during the test blast program, production blasting, or both.

#### 3.4.7 Seismic Specialist

The Contractor will retain the services of an independent, seismic-monitoring firm with employees capable of monitoring, assessing, and predicting vibrations and airblast due to blasting. The Seismic Specialist must be an employee of the independent, seismic-monitoring firm, and must not be an employee of the Contractor. The Seismic Specialist will conduct, or assure the actions are being taken to obtain, the required blast seismograph monitoring for the project. The Seismic Specialist will supervise all Seismograph Technicians deployed to the project to deploy and maintain all the seismographs for recording vibrations and airblast, and to properly retain, store and submit all seismic records of the blasting. The Contractor must submit the independent, seismic-monitoring firm's, Seismic Specialist's expertise submission within 15 days of the Notice to Proceed. The firm and Seismic Specialist must be approved by the Owner two weeks prior to the submission of the Master Blasting Plan.

##### 3.4.7.1 Seismic Specialist's Responsibilities

The Seismic Specialist must be a person able to deploy blast seismographs, effectively record and transmit the seismic data, comprehensively assess, and interpret seismic data regarding the monitored blast's parameters, and remotely supervise the firm's Seismograph Technicians. The Seismic Specialist must also interpret the seismic records to ensure that the seismic data will be effectively utilized in the control of the blasting operations with respect to the existing structures and conduct of an optimized blasting program.

##### 3.4.7.2 Seismic Specialist's Expertise

The Seismic Specialist must be able to demonstrate monitoring deployment,



seismic data assessment and interpretation, prediction of vibration and airblast from blasting, and remote supervision of field personnel for five blasting projects. The Seismic Specialist must provide, as a minimum, the credentials and experience for each outlined following items:

- a. The proposed individual must have verifiable experience in equivalently responsible roles for controlled blasting projects for at least 3 years;
- b. Within the last five years, the proposed individual must have completed at least five days of classroom training concerning seismic monitoring equipment, data telemetry, and seismic data interpretation;
- c. The Blasting Consultant, Blasting Specialist, Blaster in Charge, and Seismic Specialist cannot be the same person. The proposed Seismic Specialist and Structural Inspection/Evaluation Specialist may be the same person.

#### 3.4.7.3 Seismic Specialist Qualifications' Submission

Submit the credentials of the proposed seismic-monitoring firm with documentation for the Seismic Specialist. Submit the firm's history for this office, if there are multiple offices, years under the present office's leadership, the regional extent of clients, the approximate number of projects in the past year, and the number of present employees at this office. Submit the resume, education, experience, credentials, and training of the proposed Seismic Specialist. Their credentials must include a list of the projects, including the location, duration, scope, description, and the monitoring challenges that developed through the course of the projects and how the challenges were resolved. The documentation must provide experience and capability for the proposed Seismic Specialist to provide remote blast monitoring and supervision of support personnel while the individual is not on site.

#### 3.4.8 Seismograph Technicians

The approved, independent, seismic-monitoring firm may provide Seismograph Technicians to assist the Seismic Specialist with the project's vibration and airblast monitoring. Each Seismograph Technician must be approved by the Owner after the submission of the Master Blasting Plan.

Each Seismograph Technician must be able to demonstrate prior experience with blast seismic monitoring on a prior project of equivalent size and similar telemetry requirements. The proposed individuals must have the required training and hold all credentials that may be required by local jurisdictions. Submit the resume, experience, credentials, and training of each proposed Seismograph Technician with the Master Blasting Plan.

#### 3.4.9 Structural Inspection/Evaluation Specialist

Pre- and Post-Blast structural inspections must be performed by specialists with at least five years' experience in pre-blast and post-blast surveys. Submit the resume, education, experience, credentials, and training of the proposed Structural Inspection/Evaluation Specialist to the Owner with the Master Blasting Plan. The proposed Seismic Specialist and Structural Inspection/Evaluation Specialist may be the same person.

#### 3.4.10 Magazine Keeper

The Magazine Keeper and an Alternate are the Contractor's employees

responsible for explosive magazines and its record keeping. The position of Magazine Keeper is required only if the Contractor elects to have explosives' magazines under his control. The Magazine Keeper must be approved by the Owner after the submission of the Master Blasting Plan.

The Magazine Keeper must be familiar with the laws and general practices concerning the handling, care, use, and storage of explosives and detonators. The Magazine Keeper must be responsible for maintaining a cleared area around each magazine, and accounting for by record the throughput of explosives and detonators. The Magazine Keeper must be present for any transfer of explosives and detonators into or out of the magazines. The Magazine Keeper must not be required to perform any duties that will in any way interfere with his or her duties as Magazine Keeper.

The Magazine Keeper must be able to demonstrate prior experience explosives' magazines. The proposed individual must hold all credentials that may be required by the State of New Hampshire and local jurisdictions. Submit the resume, experience, credentials, and training of the proposed Magazine Keeper with the Master Blasting Plan.

### 3.5 RECORD KEEPING

#### 3.5.1 Pre-Blast Surveys

Prior to the commencement of blasting, conduct a pre-blast survey of nearest buildings, structures, and utilities within 1,000 ft from the blast area by azimuth about the blasting zone to document pre-existing conditions. The pre-blast surveys will be conducted by, or under the supervision of, the Structural Inspection/Evaluation Specialist, who will also sign and date each survey. The survey extent and method used must be acceptable to both the Contractor's insurance company and the Owner. Submit a copy of all pre-blast surveys at least two weeks prior to the first Test Blast. Provide owners of surveyed structures a copy of their Pre-Blast Survey before, or with the notice of, blasting commencement. Notify owners and occupants of local buildings 10 days prior to the commencement of blasting.

Perform the following when conducting pre-blast survey.

- a. Provide methodology to be used in conducting the pre-blast survey and listing of structures, determined from the survey to be sensitive, with reasons for these structures being sensitive.
- b. Each structure must be documented (including photography and video recordings) as to its construction, foundation type, condition, and closest distance to excavation blasting. The general condition and all observable defects of each structure must be documented.
- c. The Commodity storage facilities that may be impacted by blasting must be addressed by the Contractor for safety and continued operation during the blasting program.
- d. Freestanding structures (such as retaining walls) must be inspected on the exterior and on the interior as a room. All concrete walks, driveways, etc. must be inspected for cracks, level condition, holes, and defects.
- e. Industrial structures, silo/elevators and special facilities, and office space must be described relative to their present conditions and

tolerance to vibration. Besides the inspection of walls, columns and stairwells, the Contractor must survey the work areas and structures for distress.

- f. An inspection of accessible structures must be made and a list of all structures, which could not be surveyed or refused to allow survey, must be completed. The dates of possible subsequent surveys and physical constraints prohibiting the survey must be documented.
- g. Certify that the survey was prepared prior to the start of any blasting under this Contract.

### 3.5.2 Post-Blast Surveys

Post-blast surveys must be conducted at any location, where a reasonable notice of damage from blasting has been provided. Post-blast surveys will be conducted by, or under the supervision of, the Structural Inspection/Evaluation Specialist, who will also sign and date each survey. The survey extent and method used must be acceptable to both the Contractor's insurance company and the Owner. The post-blast surveys must be conducted within a week of the notice of damage from blasting. Submit a copy of all post-blast surveys within two business days of the on-premises surveys to both the structure's owner and the Owner.

### 3.5.3 Daily Explosives' Magazine Inventory and Daily Explosives' Accounting

Accurate daily records must be kept by the Magazine Keeper, who must account for each piece of explosive, detonator, and equipment from the time of delivery at the magazine until its discharge in use or return to the magazine. If explosive products will be delivered and returned daily, the records of the driver must agree with the amount used in the day and a copy of each driver's record must be provided with the Daily Blasting and Removal Log submission. No explosive can be accepted until it has been plainly labeled and delivered as new stock in sound condition. Dates of manufacture and lot numbers will be recorded for all explosives delivered to the site. No explosive material older than 1 year will be used. Containers for explosives must be approved in advance by the Owner. Remaining inventory must be checked each day and any discrepancies must be immediately reported, regardless of the potential of accounting error, loss, or theft of explosive material.

Should a loss or theft of explosives occur, all circumstances and details of the loss or theft must be immediately reported to the nearest office of Alcohol, Tobacco and Firearms, as well as to the local law enforcement authorities and the Owner.

## 3.6 BLASTING DOCUMENTS

### 3.6.1 Master Blasting Plan

The Master Blasting Plan must be submitted for approval by the Owner and by the environmental agencies before the first anticipated Test Blast. No blasting may be conducted prior to the approval of the Master Blasting Plan. No deviation from the Master Blasting Plan will be conducted by the Contractor. Any request for change or revision to the Master Blasting Plan must be provided in writing and approved by the Owner and environmental agencies before such change or revision can be performed. The Owner's Representative will have a minimum of 30 calendar days to review prior to submitting to the environmental agencies. The agencies will have a minimum

of 21 calendar days to review.

Submit a Test Blasting Plan within the Master Blasting Plan that includes calculations for all noted adverse impacts. Non-electric blasting caps must be used for all underwater shots. The Master Blasting Plan must contain provisions for storing, handling, and transporting explosives, as well as for the blasting operations. The means of surveying and locating the shot-hole positions horizontally and vertically must be described in detail within the Master Blasting Plan. Provide a signed statement by the Blasting Consultant that the plan represents a safe and efficient set of means and methods with which to achieve the goals of the work. The Master Blasting Plan must be submitted with the signature and date of the Blasting Specialist.

#### 3.6.1.1 Proposed Blasting Personnel

Submit all the approved and proposed blasting personnel and their required information from paragraph BLASTING PERSONNEL. List and copies of licenses, permits, and clearances required, including permit numbers, when applied for, and date of approval or anticipated approval by Federal, State, and local concerns. Provide their police records for every approved and proposed blasting individual. Submit the complete Project Team Organization with duties, responsibilities and authorities clearly defined. Identify the on-site Safety Officer and include a listing of all personnel authorized to sign for, receive and use explosives on this contract.

#### 3.6.1.2 Explosives and Blasting Equipment

Submit all the explosives, their use, and their data sheets for the project. Data sheets, which include the products' specific gravity and water resistance, for all explosives and blasting agents that may be used.

#### 3.6.1.3 Blasting Safety Plan

Submit Blasting Safety Plan, that is in accordance with EM 385-1-1, Section 29, and all other Federal, state, and local regulations. Implement all other applicable safety requirements in addition to that required below. Include, as a minimum, the following items.

- a. Permanently secure all onboard magazines to the deck as required by all applicable Code of Federal Regulations.
- b. Do not store explosives on the boat or barge deck in the open except for the one case that is to be loaded immediately into the shot holes. Return explosives remaining on deck to the day magazine prior to the firing of any blast. Clearly identify the location of the day magazine in the 'Blasting Safety Plan'.
- c. Mount the non-electric, shock tubing spool on the rig in a manner that it cannot be lost overboard. Use an approved blasting machine for detonation regardless of the number of caps used. Do not use an electric blasting system.
- d. Limit the amount of explosives aboard the drill boat at any one time to be in accordance with the amount permitted by appropriate codes and regulations. Do not exceed the amount permitted.
- e. Make arrangements to prevent damage to any vessel, moored or underway,

building or structure and preserve the crew or occupants thereon from exposure to injury as a result of the Contractor's operations. The Owner may require additional arrangements.

- f. Perform a certified marine survey of all floating plant proposed for underwater blasting work on this contract prior to starting any work.
- g. Install automatic fire extinguishers of an appropriate type on air compressors and in all engine compartments aboard vessels including but not limited to (drill boats, barges) where explosives are stored, handled, and used.
- h. Provide remote fuel shut-offs and fire signaling devices aboard the drill boats.
- i. Coordination Plans with the local Coast Guard office to provide notice of blasting and for vessel traffic control.
- j. Alert sequence signals and public notice of blasting and all clear. See paragraph PUBLIC NOTICE OF BLASTING OPERATIONS in this section.

#### 3.6.1.4 Navigation Control Plan

Submit the Navigation Control Plan in accordance with EM 385-1-1, Section 29, and all other Federal, state, and local laws and regulations. Implement all other applicable safety requirements in addition to that are required below.

Develop a Navigation Control Plan, which is incorporated into the Master Blasting Plan, that will provide the procedures required to maintain safe passage of all vessels during the project.

The Contractor will buoy the area with floating warning signs. The warning signs will be legible from a distance of 200 ft and must contain the message "DANGER - EXPLOSIVES IN USE" visible on either side of the sign.

Operate two or more patrol vessels during blasting operations equipped with a visible yellow flashing light, audible horn, and radio with a hailer, whose sole function will be to monitor and maintain security in the blast area. A patrol vessel will be stationed at the drill barge and remain in the blasting area during all blasting operations. Land oriented access control and visual observation locations should be determined and approved by the Owner. Inspect and insure there is no vessel traffic within the buoyed work area prior to providing the Shot's Warning Signals and until such time as the "All Clear Signal" has sounded. Establish and maintain a warning system as required by the Corps of Engineers Safety Manual. Equip and maintain floating plant with radio equipment capable of communications with the Coast Guard. After each blast, upon inspecting the area, immediately notify the U.S. Coast Guard and the Owner of the all clear or of a misfire.

#### 3.6.1.5 Production Blasting Design

No blasting, including the Test Blasting, may differ from the approved Master Blasting Plan. Shot-hole drilling must not begin until the Master Blasting Plan is approved in writing. Reflect changes to the blasting or monitoring procedures, equipment, plant, products or personnel in a revised Master Blasting Plan or portion thereof. Obtain approval from the Owner, in writing, prior to implementation of any Master Blasting Plan changes or

revisions.

Confine the loaded charge with angular, granular stemming materials, placed within competent rock, to perform the most work and to avoid a rifling plume from occurring within any shot hole. See paragraph STEMMING. The shortest delay period both between two adjacent shot holes and between two adjacent shot rows in the shot pattern is 25 milliseconds (ms). The maximum charge weight per delay may not exceed (to be determined) pounds of all combined explosives and blasting agents in each 25-ms delay period.

Include in the Production Blasting Design Section, as a minimum, the following items.

- a. Proposed method of transportation, storage, and handling of explosives.
- b. Procedure for monitoring the blast operations and handling misfires.
- c. Plan showing the intended layout of the shot-hole patterns, timing and sequence, anticipated burden dimensions and depth of sub-drilling for a specified maximum charge weight per delay. Identify each drill hole by a unique, sequential identifier.
- d. Typical size, depth, and spacing of blast holes; methodology to assure loading of explosives is only within sound rock; the maximum load density (in pounds per foot of drill hole length) and the maximum powder factor (in pounds of explosive per cubic yard of rock shot); type of explosive and method of loading and detonating; procedure to confine the charge with stemming; and maximum number of holes to be detonated for a production shot pattern. Initiation system to be deployed and the means to assure each shot hole fires on its own delay.
- e. Sequencing of delays for each shot hole that will be employed during blasting and the maximum explosive loading in pounds of explosive per delay.
- f. Indication as to whether decking or boosters will be used.
- g. Type and number of drill frames, including drill hole diameter, and expected production rates/day.
- h. Type of blast seismographs to be used, manufacturer, and when last calibrated or certified, and types of video cameras.
- i. The formats of all logs and reports to be used throughout the life of the project designed to record pertinent data before, during, and after the blasting operation. Pertinent information includes, but not be limited to, those items specified in paragraphs detailing the submittals.
- j. Names, office mailing addresses and phone numbers of Contractor's representatives (Blasting Consultant, Blasting Specialist, Blaster in Charge, and Seismic Specialist) to which any informational inquiries may be addressed.
- k. Location plan, manufacturer's literature, and parameters to be used in site selection for the blast seismographs and video cameras. The location of any other monitoring equipment, when used.
- l. The methods that will be used to prevent all cited adverse impacts

during the blasting activities, including protection of natural resources.

- m. Complete list of floating plant involved in production blasting operations.
- n. Within the blasting plan consider the multiple types of commercial vessels that will be on the water over the period of the excavation and removal program. Notify the sail/yacht clubs, etc., of plans to blast in advance and what traffic control and proximity restrictions will be implemented.
- o. Cite the methods to be used to recover and dispose of all shock cord/tubing and initiation transmission-line debris immediately following each shot.

#### 3.6.1.6 Test-Blast Plan

In conjunction with the Master Blasting Plan, submit a copy of the Test Blast Plan for review. The Contractor may be required to revise and resubmit the plan. Concurrence with the revised plan will not relieve the Contractor of responsibility to produce safe and satisfactory results as set forth by these specifications.

The test blast program must be conducted by the Contractor consisting of at least 3 test blasts, consisting of 5 to 10 blast holes, for underwater excavation. Demonstrate that the test blasting program complies with all requirements described within the specifications and meets the needs of the Contractor in determining the amount of rock breakage for the equipment being used. If the results of the test blast are determined to be unsatisfactory by the Owner's Representative, revise methods as necessary to achieve required results. All costs incurred by the Contractor in adopting revised blasting methods necessary to produce an acceptable test shot shall be considered incidental to the contract unit prices for controlled blasting. The test blast plan shall be conducted and reported in strict accordance with procedures outlined in the sections of these specifications covering Vibration and Air Blast Control and the following:

- a. The Contractor will not be allowed to drill ahead of the test shot area until the test section has been evaluated and approved by the Owner's Representative.
- b. Notify the Owner's Representative sufficiently in advance of each test blast in order for Owner representatives to be present during the test blasts.
- c. Each test blast program shall involve all drill boats that will be used for any portion of the contract. No drill boat shall be used for the contract that has not participated in a test blast program.
- d. After the test blasts, the examine the representative structures of the pre-blast survey as previously specified. All new damage resulting from the test blasting shall be reported in detail to the Owner's Representative, including photographs.
- e. Upon evidence of any damage to test structures, test blasting shall cease until the Owner's Representative has been notified, and adjustments made.

f. The test events must begin with a small number of charges and extend upward to the maximum yield to be used. The final test event shall simulate as close as practicable to the explosive charge type, size, overlying water depth, charge configuration, charge separation, initiation methods, and emplacement conditions anticipated for the production blasting. One copy of the record for the test blasts shall be submitted in tabular form to the Owner's Representative daily.

g. At the conclusion of the test blast program, the Contractor shall produce a Post-Test Blast Evaluation Report which examines all reports, surveys, test data, and other pertinent information and conclusions reached to produce a complete Operational Blasting procedure. Submit a copy of the Post-Test Blast Evaluation Report for review. In no event shall operational blasting plan proceed until review of the report's proposed blasting procedure has been completed. If the report's proposed blasting procedure is not acceptable, revise and resubmit the report. The report shall include sketches showing blasting patterns, weights of explosives, wiring, charge emplacement, and determination of the safe peak particle velocity (PPV) for all structures identified in the pre-blasting surveys. Four copies of the Post-Test Blast Evaluation Report shall be submitted for review to the Owner's Representative and upon completion of the review and acceptance; it shall be appended to and become a part of the Operational Blasting Plan.

#### 3.6.1.7 Marine Species Minimization Measures

The following minimization measures are required to protect marine species and must be included in the Master Blasting Plan.

- a. Stemming and decking of individual charges;
- b. Staggered detonation of charges in a sequential blasting circuit;
- c. Blasting during periods of slack tide
- d. Use of a fish detecting and startle system to avoid blasting when fish are present or transiting through the area;
- e. Require the use of sonar and the presence of a fisheries and marine mammal observer;
- f. Prohibiting blasting during the passage of schools of fish, or in the presence of marine mammals, unless human safety is a concern.

#### 3.6.2 Individual Shot Plans

Submit an Individual Shot Plan 24 hours prior to any subsequent drilling and blasting for that shot pattern. The format may utilize a spreadsheet for ease data entry but requires an actual signature and handwritten date for its submission.

Prior to each blast, including Test Blasts, the Contractor must submit for the Owner's documentation a plan detailing all the data required in the Individual Shot Plan's format of the approved Master Blasting Plan. The plan will provide all the pertinent aspects of the blast design including, but not limited to, the loading, firing, delay sequence, and special considerations. The Individual Shot Plan will provide the location and depth of holes, inclination of all holes that will not be vertical, the proposed depth and the spacing of the blast holes, amount, and strength of



explosives per hole and per pattern, the proposed sequence of firing and time delays, and estimated time and day for the pattern's initiation. Each proposed shot pattern will be designed by the Contractor's Blasting Specialist with changes being determined by observation of the way the rock breaks as the operations progress. The Contractor must take such precautions as are necessary to prevent displacement, cracking or damaging the rock outside the prescribed limits of dredging or excavation. The rock outside the limits of the dredging must be left in as sound and undamaged a condition as possible.

- a. Submit an Individual Shot Plan to the Owner, with the anticipated plan for the next shot pattern prior to drilling the shot holes. Furnish each submitted Individual Shot Plan as a signed paper copy and in digital form to the e-mail listing required by the Owner. The Individual Shot Plan may be developed in a format that easily provides data that remains the same for the actual shot information in the Daily Blasting and Removal Log and the Individual Shot Report with its included reports.
- b. The Individual Shot Plan includes, as a minimum, the following items:
  - (1) The shot pattern's name/number, coordinate locations of the outermost holes of the shot pattern, any specific purpose for the shot, the anticipated time, date, weather conditions, and the water conditions and its elevation at the anticipated time of the shot;
  - (2) The total number of holes to be shot, the shot-hole diameter, the total weight of explosives, number of delays, load density and powder factor for the shot, the maximum charge weight per delay, the closest approach, scaled distance and estimated PPV and airblast overpressures at each monitoring location;
  - (3) A large-scale plan map depicting the proposed layout of shot hole pattern, timing and delay sequence;
  - (4) An elevation sketch showing a typical hole's loading from the water surface to the bottom of the drill hole with an elevation scale, including the elevation of the removal grade, the top of sound rock, the top and bottom elevation of stemming, the top and bottom position of explosive materials, and the position of all detonators, boosters and primers in the hole;
  - (5) A tabular listing, which may be a printed spreadsheet page, by hole in the ascending total delay time order by the describing: row and number within the row of the shot hole, total delay time, the total charge weight of explosive materials for the entire hole, the largest charge weight of any deck within a hole on a separate 25-ms delay if any, top of sound rock elevation, bottom hole elevation or the top of stemming elevation at the bottom of a shot hole that was over-drilled in depth and backfilled, stemming elevations, and detonator, primer and booster elevations in the hole;
  - (6) The estimated PPV and airblast overpressure at each seismograph location and the lateral close approach distance from the shot pattern to each seismograph;
  - (7) the means to remove and dispose of all shock cord/tubing and/or

initiation transmission-line debris immediately following the shot;

- (8) The name, title, and signature of the Blasting Specialist providing the form with the date of the signature.

### 3.6.3 Test-Blast Evaluation Report

Provide a report summarizing the Test Blasting and submit the report with the Individual Shot Report of the first apparently successful production shot.

### 3.6.4 Individual Shot Reports

Submit an Individual Shot Reports, both in writing to the Owner and by e-mail distribution to the required e-mail addresses, on the next business day and prior to any subsequent drilling and blasting for the next shot pattern. The supporting reports related to each shot pattern, which was not included with the Individual Shot Report, must be provided with their required data by the submission date of each supporting submission. The Individual Shot Report may utilize the spreadsheets, maps, and sketches of that shot's Individual Shot Plan, which have been corrected or revised for the actual shot-hole use, loading, timing firing, and observed or recorded impacts.

Submit for the Area Office's documentation a specific set of reports of all the actual information from an initiated shot pattern, including Test Blasts, required in the Individual Shot Report's format of the approved Master Blasting Plan. The record will provide all the pertinent aspects of the blast design including, but not limited to: the time, date and weather conditions at the blast's initiation; proposed shot holes that were abandoned; the actual shot holes' positions and elevations of stemming, loading, decking, its delay and firing sequence, and special considerations; the total weight of explosives and the maximum charge weight per delay for the pattern; all pertinent factors about signaling and providing the all-clear signal; the peak particle velocity of all seismographs; and, any delays to shot initiation and all blast impediments, including by not limited to, shot-hole rifling plumes, observed impacts from blasting, misfiring, and reports of damage from blasting. The Individual Shot Report will include or be followed with all the supporting reports from the shot pattern. Each Individual Shot Report will be signed by the Contractor's Blasting Specialist or Blaster in Charge, whoever initiated the shot pattern's firing. Take such precautions as are necessary to prevent displacement, cracking or damaging the rock outside the prescribed limits of dredging or excavation. The rock outside the limits of the dredging must be left in as sound and undamaged a condition as possible.

- a. The Individual Shot Report may be developed in a format that easily provides data that remains the same from the proposed design of the Individual Shot Plan and the actual shot information for the shot's supporting reports and in the Daily Blasting.
- b. The Individual Shot Record includes, as a minimum, the following items:
  - (1) The shot pattern's name/number, coordinate locations of the outermost holes of the shot pattern, any specific purpose for the shot, the anticipated time, date, weather conditions, water conditions and its elevation at the time of the shot;

- (2) The total number of holes to be shot, the shot-hole diameter, the total weight of explosives, number of delays, load density and powder factor for the shot, the maximum charge weight per delay, the closest approach, scaled distance and recorded PPV and airblast overpressures at each monitoring location;
- (3) A large-scale plan map depicting the layout of shot hole pattern, timing, and delay sequence;
- (4) A tabular listing, which may be a printed spreadsheet page, by the loaded shot hole in the ascending total delay time order by the describing: row and number within the row of the shot hole, total delay time, the total charge weight of explosive materials for the entire hole, the largest charge weight of any deck within a hole on a separate 25-ms delay if any, top of sound rock elevation, bottom hole elevation or the top of stemming elevation at the bottom of a shot hole that was over-drilled in depth and backfilled, stemming elevations, and detonator, primer and booster elevations in the hole;
- (5) The recorded PPV and airblast overpressure at each seismograph location and the lateral close approach distance from the shot pattern to each seismograph;
- (6) The removal and disposal of all shock cord/tubing and initiation transmission-line debris immediately following the shot;
- (7) A short narrative of any peculiarities or impediments or adverse impacts or accident/misfire with the shot, if any;
- (8) The name, title, and signature of the Blasting Specialist providing the form with the date of the signature.

#### 3.6.4.1 Drilling Logs

The Blaster in Charge or a Blaster with the assistance of the driller will log each shot hole, as the hole is being advanced. No drilling will be initiated without the Blaster in Charge or a Blaster to log the hole by a measurement means of drill bit's depth, the downward rig pressure, advancement rate of drilling, and air-water return of cutting with the driller's full assistance. The log must record the material encountered at the drill bit's depth to a precision of 0.1 ft. The drilling for each shot hole must be assessed to determine, and the log must record, the vertical depth/elevation of encountering sediment, weathered rock, the Top of Firm Rock, and voids to the total drilled depth. The shot-hole logs for all the shot holes in a shot pattern must be provided at the same time as the Individual Shot Report. An acceptable sample drilling log is provided in EM 1110-2-3800.

#### 3.6.4.2 Individual Shot Vibration Monitoring Report

After each shot, submit an Individual Shot Vibration Monitoring Report, which will require the use of blast seismographs, to measure the vibration created from the blasting activities. Submit the Individual Shot Vibration Report to the Owner by or before Noon of the second business day following the shot, which is being reported. Submit each Individual Shot Vibration Report as a signed paper copy and in digital form to the e-mail listing required by the Owner. This will be provided at the pre-construction meeting.

Direct the specialty firm providing the seismic specialist, with approval of the Owner, to place blast seismographs, consisting of three component seismographs, (1) at important structures, and (2) other locations designated by the Owner. At least three seismograph locations will be required for every blast during this project.

Samples of possible Individual Shot Vibration Report formats are in EM 1110-2-3800, pp B-9 and B-10. The minimum required information to be submitted in the Individual Shot Vibration Report includes:

- a. Date and time of recording from each seismograph;
- b. Type (brand and model) of three-component seismographs used, serial #, and position name;
- c. Who performed, and the date of, the most recent calibration of each seismograph, and its sensitivity;
- d. The firm and employee who placed the blast seismograph;
- e. Seismograph installation procedures to prevent disturbance during monitoring, vandalism, and damage, and whether the seismic data is being telemetered or downloaded individually;
- f. Set trigger levels;
- g. Maximum for each of the three, component PPV in units of pounds per square inch (psi), the maximum total vector-sum peak particle velocity in units of pounds per square inch (psi), and a log-log graph of all maximum total vector-sum peak particle velocity versus square-root scaled distance in units of sq ft/lb for all seismic records of all prior shots for this project;
- h. A graph of the PPV versus frequency for each seismograph location that triggered;
- i. The maximum airblast overpressures in units of pounds per square inch (psi) at any triggered monitoring location and the results from noise tests before blasting in the first report;
- j. A narrative description of any peculiarities or impediments or adverse impacts or accident/misfire for the shot; and,
- k. The name, title, and signature of the Seismic Specialist processing and interpreting the data and providing the report with the date of the signature.

#### 3.6.4.3 Individual Shot Videos

The Contractor will make a video recording of each shot pattern in a clear and consistent manner. Video recording must include date, time, and location. The digital video file must be furnished with the Individual Shot Report in a format noted within the Master Blasting Plan and approved by the Owner. The submission must be made to the Project Office and to all on the e-mail address listing. A library of blast videos will be maintained for all blasts and will be readily cross referenced with individual blast plans and post blast evaluations.

#### 3.6.4.4 Reports of Required Safety, Protective, and Natural Resource Programs

Specify the data submission for required safety, protective, and natural-resource actions. A summary report must be submitted by noon 2 business days after the shot of the special monitoring of a critical or essential facility or commercial structure, an avian or mammalian watch program for assurance that a shot is not initiated at a time when the cited species is present, underwater pressure wave monitoring, or other agreed/negotiated program.

#### 3.6.5 Daily Blasting and Removal Log

The Contractor must submit a Daily Blasting and Removal Log, both in writing to the Owner and by e-mail distribution to the required e-mail addresses, on the next business day. The Daily Blasting and Removal Log summaries all the drilling and blasting activities, surveying, dredging or removal of spoils, and disposal operations for any day that one or more of those operations were conducted. The Daily Blasting and Removal Log will be signed by the designated representative of the Contractor, approved in the Master Blasting Plan.

### 3.7 DRILLING AND BLASTING

#### 3.7.1 Underwater Shot Holes

No drilling will be initiated without the Blaster in Charge or a Blaster to log the hole and confirm the proper positioning of the shot hole. For underwater blasting, the Contractor must be prepared to: drill; log the hole; resolve the units encountered in drilling; reassess the Shot Plan's intent for that particular shot hole; load explosives, boosters, initiators and delays, place stemming in sound rock; and raise the firing line. If a shot hole cannot be drilled or cleaned out, the Contractor will be required to re-drill that shot hole or properly correct the shot design to delete that hole.

#### 3.7.2 Shot Hole Logging

The Blaster in Charge or a Blaster will log each drilled hole, as the hole is being drilled. The Blaster in Charge or a Blaster will log the shot hole by a measurement means of drill bit's elevation, the downward rig pressure, advancement rate of drilling, and air-water return of cutting with the driller's full assistance. The shot holes must be logged during drilling and measured upon completion with a weighted tape for its full depth before any explosives are loaded into any of the holes.

If any holes are too deep, then these holes will be filled to the proper depth with stemming. Repeated, significant voids, 0.5 ft or larger, must be reported to the Owner. The Blasting Consultant may need to assess the issue of voids. Should voids become confinement issue blasting will be delayed until the Contracting Office is satisfied that potential problems related to blasting around the void have been properly addressed.

#### 3.7.3 Stemming

All shot holes must have appropriately sized stemming material of the proper vertical placement length to optimize the blast design. Loss of explosive confinement can be due to improper stemming material type and poorly placed stemming. Tamped stemming must be placed from the top of

firm rock (or hard material), as determined from the drilling log, to the top of the explosive charge. Stemming must also be used to fill voids, if any, as noted on the drilling log of that shot hole.

#### 3.7.3.1 Stemming Material

Stemming must consist of well-graded, crushed, angular stone without fines. The gradation of the crushed, angular stone is between 1/8 inch and 3/8 inch in diameter. No soil or drill cuttings or rounded particles of the noted grading may be used as stemming material.

#### 3.7.3.2 Length of Stemming

The minimum vertical length of tamped stemming within rock, or hard materials, of a shot hole must be the greater of 2.0 ft or eight times the shot hole's diameter. This minimum length of stemming must be placed in firm rock, or hard materials, to contain the gaseous products of detonation both below the top of firm rock and on either side of (above or below) voids, if any, with an explosive charge.

#### 3.7.4 Loading Shot Holes

Stemming, decking, shot hole explosives' loading, and shot plan revisions for each shot hole must be made upon completion of drilling to the total depth from the logging of that underwater shot hole. Resolve whether to abandon the shot hole or load the hole from the Shot Plan's intent and the information resolved by the shot hole's log.

### 3.8 IMPACT MONITORING

Monitoring of the blasting may be required for public safety or natural-resource protection. The Contractor will be responsible for the payment and services of one or more, independent, third-party firms to conduct the required monitoring. The Contractor will make available the schedule and blasting documents to coordinate with other specialists monitoring issues for: the public's safety; environmental concerns for air, water, and property; natural resource protection; and the safety of structures and features.

#### 3.8.1 Public-Use Area Effects

The Contractor will provide personnel, patrolling vessels or vehicles, and the signage necessary to assure safe distances from all shot patterns are maintained and physically monitored at public-use areas on land or on water, and at occupied structures or highways or other features requiring control.

#### 3.8.2 Airblast and Seismic Monitoring

Airblast and vibration monitoring must conform to current industry standards and use equipment developed for blast monitoring. The Contractor will hire a subcontracted specialty firm, independent of the Contractor's firm and other sub-contractors to locate, maintain, and record the airblast and vibrations from every shot. The subcontracted seismic firm through their employee, the Seismic Specialist, will monitor the three seismic positions shown on the plans or accepted by the Owner. Additional seismographs may be required temporarily for (green) concrete placement or other temporary considerations or as required by the Owner for specific airblast or vibration issues due to blasting suspected at locations without

seismographs. The seismic records and the Individual Shot Vibration Monitoring Reports will inform the Contractor of the actual airblast and vibration parameters from every shot and assure the Owner that the blasting has remained within the allowable airblast and vibration levels.

Provide 3 blast Seismographs capable of sampling rates of 15,000 samples per second or higher that meets ISEE PSBS. The 15,000 samples per second accuracy is required to acquire reproducible vibration readings. Each seismograph provided to the project must have been calibrated by the manufacturer within six months of its installation. No seismograph may be used at the project may have manufacturer's calibration longer than eleven months prior to its date of use. The units must be self-contained except for external geophones and microphones. The seismographs without erasing the stored data must be capable of telemetering the digital data or downloading the digital data to a portable device. The units must be programmed with specific data for each site of seismograph placement, which includes seismograph location, geophone burial or mounting method, calibration signal, date, and time of the record. The seismographs must be housed in protective enclosures, if vandalism or high-traffic concerns or weather or other conditions could limit the continuous, proper recording by the seismographs.

The blast seismographs must not be placed inside of a structure, unless required for the designated purpose and authorized by the Owner. The seismographs should not be placed near a structure unless the intent is to measure that particular structure's specific response to the blast. The microphone must be positioned to avoid wave reflections of the airblast from the vertical, front or side of a structure, wall or rock face. The microphone should be placed at a height of 3.0 ft. The geophone for each seismograph must appropriate for buried in soil or for being physically secured to rock or sidewalk or pavement or a concrete foundation.

The seismographs must be operated continuously beginning seven days before the first anticipated Test Blast. All The airblast and vibration amplitudes' maximal, frequencies of those amplitudes, repeated occurrences, and other parameters for the first period of operation before the first Test Blast will be reported as the project's background conditions in the first Individual Shot Vibration Monitoring Report.

The seismographs must be operated continuously until the excavation has been approved by the Owner. The seismograph may be removed from the project and replaced after their initial deployment, if there will be no blasting for a period of seven days or longer and if there will be no explosives stored onsite during that period.

### 3.8.3 Individual Shot Videos

Record every shot pattern's blast with Full High Definition, 1080p, digital video recordings with a minimum of 30 frames per second from two designated locations, approximately perpendicular to one another, that provide side and front or rear views of the blast and area above it. The video images must not contain any other text than the shot number. Include metadata consisting of the blast ID, date, and time of the blast. Index the two video recordings to properly identify each blast. Submit the proposed locations of the two video recorders on a map with the Individual Shot Plan. Furnish electronic file copies of video recordings on the sFTP within 24 hours of a blast. If the Owner requests that a copy of the video be submitted earlier, then deliver a copy within one hour of the request. Maintain a digital video library of all blasts.

#### 3.8.4 Air, Water or Land Protections

Assure that all escaping or released gases, fluids, and solids are within applicable limits of all federal, state, and local laws, regulations, ordinances, and guidelines. Any releases of fluids or solids that are not such limits will be immediately reported, mitigated, retained, and removed from the project.

Remove all shock cord/tubing and initiation transmission-line debris immediately following each shot.

#### 3.8.5 Natural Resource Assessments, Mitigation and Monitoring

Conduct blasting during periods of slack tide. Blasting will be prohibited during the passage of schools of fish or in the presence of marine mammals. Include the following sections in the Master Blasting Plan.

##### 3.8.5.1 Fish-Repelling Noise

Use a fish detecting and startly system to avoid blasting when fish are present or transitioning through the area.

##### 3.8.5.2 Watch Program

A fisheries observer and marine mammal observer must be present during blasting operations. Sonar will be used to detect fish and mammals. Submit name and qualifications of the fisheries observer and marine mammal observer for approval by approved by the Owner. Qualifications acceptable to the National marine Fisheries services.

##### 3.8.5.3 Post-Blast Fish Surveys

Submit a plan to count, collect, ID, and report on any fish kills that occur during blasting. This report will be reviewed by National Marine Fisheries Services (NMFS) within seven days of blasting. If fish kills exceed 100, notify NMFS within 24 hours and before the next scheduled blast. Alternate measures may be required to reduce fish kills.

#### 3.8.6 Sub Title

Text

#### 3.9 SUBMERGED MATERIAL DISPOSAL

Transport and place all dredged, displaced, or excavated materials within the limits of the disposal zones below the specified elevations, as specified in Section 35 20 23 DREDGING.

-- End of Section --



## **Attachment J: Turbidity Control and Monitoring Plan**

**MARKET STREET MARINE TERMINAL (PORT OF NH)  
FUNCTIONAL REPLACEMENT PROJECT  
PORTSMOUTH 15731  
NHDES File Number: 2022-00429**

## **Turbidity Control and Monitoring Plan**

The Pease Development Authority Division of Ports and Harbors (PDA-DPH) is proposing a 2,000-foot defined mixing zone (approximately 1,000 feet downstream and 1,000 feet upstream from the proposed project) to control discharges from the proposed dredging and pile installation associated with the Functional Replacement Project at the Market Street Marine Terminal (NHDES File Number: 2022-00429).

The river depths in the main channel to the east of the Port are about 35 to 45 feet, with a maximum tidal range of 9.6 feet upstream at Dover Point to 13.2 feet downstream at Kittery Point. The river depths in the vicinity of the wharf are 24 to 34 feet. Currents in the Piscataqua River can reach speeds that exceed 5 knots. The NOAA-predicted tidal currents for this section of the river show a typical flood tide velocity of around 2 knots and ebb flows of about 4 knots. The Piscataqua River bottom is primarily a hard substrate, consisting largely of rock ledge, gravel, and cobble. Fine sediments generally do not settle on the substrate due to the high tidal currents in the lower estuary. The river is between 1,300 feet and 1,600 feet wide in the vicinity of the Port.

The Functional Replacement Project will consist of in-water work, with the following activities expected to have the greatest potential for generating turbidity in the river:

- Dredging

Dredging of the riverbed adjacent to the north end of the extended wharf is proposed. The dredge area consists of approximately 61,450 sq ft, removing approximately 16,000 CY of sediment and 800 CY of rock to a depth of -36' MLLW.

- Removal of Buried Debris

Metal debris and other obstructions including steel and timber from remnant structures and large boulders that are partially or entirely buried in the sediment of the Piscataqua River have been identified in the vicinity of the northern and southern wharf extensions. These obstructions could potentially pose a barrier to the installation of the casings and piles. Obstructions will be identified during the installation of the proposed piles and will be removed as necessary using an excavator or auger type drill mounted on the existing wharf and/or a barge.

- Pile Installation

The pile installation process consists of rotary and percussion drilling contained within a steel casing. The casing will be installed through the overburden to the top of bedrock. The typical process would be to vibrate the casing down using a vibratory hammer, with a short period using

an impact hammer to assure firm bearing on bedrock. Depending on the depth of overburden, the casing may be installed with an impact hammer the entire depth. The typical duration of casing installation is approximately 60 minutes. Typically, 1- 2 piles may be installed per day depending on production and challenges encountered.

Once the temporary casing is installed to bedrock, a drilling bucket will be used within the casing to remove the remaining sediments and overburden soils. Sediment removed from the casing with the drilling bucket will be placed into containers and transferred to stockpiles on shore. After the overburden material is removed, an air hammer is used to advance a socket into bedrock. Once the bedrock is drilled, the permanent casing is installed in the rock socket. Concrete is placed within the rock socket and permanent casing using the tremie method and displacing standing water. The temporary casing is then removed using a vibratory hammer.

Drilling water released from the top of the casing from the beginning of the drilling process through installation of the piles will contain some sediment and rock fragments. Turbidity generated from the pile driving activities will be monitored as outlined below.

Cofferdams are not a viable option in the project location due to water depths, substantial cost, as well as the proximity to the Federal Navigation Channel. Additional turbidity control BMPs such as turbidity curtains would not be effective due to the high current velocity in the river.

The Army Corps Piscataqua River turning basin project located upstream of the proposed project assumed that the majority of the sand and gravel to be dredged for that project would settle out within 1,000 feet of dredging. This assumption was based on prior monitoring conducted during Boston Harbor and other dredging operations while dredging silty material, which showed that the majority of resuspended material settled within 1,000 feet from the dredge. Other projects in the river that have been completed, including the replacement of the Sarah Mildred Long Bridge (2014-01053) and the Maine DOT underwater cable project (2021-01126), did not generate large turbidity plumes during sediment-generating construction activities. Given the coarse substrate in the project area and the high water velocities, it is reasonable to assume that any turbidity plume would be less than 1,000 ft. Based on the strong currents (1.7 to 2 feet per second on average) and what has been observed during past construction projects in this area of the river, any turbidity is expected to dissipate sooner than 1,000 feet and would not extend across the river, which is between 1,300 and 1,600 feet wide.

There is potential for turbidity to exceed effluent limitations during construction. Therefore, the Department is proposing a defined mixing zone to ensure compliance with the CGP effluent limitations during the construction activities described above.

Water quality sampling during construction to meet New Hampshire specific effluent limitations as published in Part 9.1.1.c of the 2017 Construction General Permit (CGP) is considered too hazardous due to river velocities and boat traffic in the river. Turbidity will instead be monitored visually as described below.

**The Turbidity Control and Monitoring Plan will entail the following:**

1. All turbidity monitoring during dredging, debris removal, and pile installation will be completed by a qualified Contractor.

2. Visual monitoring is proposed due to potential safety concerns associated with obtaining water samples upstream and downstream from the wharf. Visual monitoring will take place from a consistent location as determined by the Contractor. The vantage point is anticipated to be from the Sarah Mildred Long Bridge, from the Contractor's barge, or with a drone.
3. Visual monitoring will start within 30 minutes after the start of work, once every two hours that work is underway, and end 30 minutes after the in-water work ends.
4. Visible turbidity will be allowed during in-water work under the parameters outlined below. Visible turbidity is assumed to be approximately 25 NTUs or greater.
5. Visual markers will be established in the river at four (4) locations (two (2) upstream and two (2) downstream). Due to the presence of the Federal Navigation Channel, it is not feasible to place permanent markers (i.e. buoys or similar devices) in the Piscataqua River. Visual markers will be established by the Contractor using landmarks along the banks of the river as well as using the width of the existing lift span as a reference for estimating the width of a potential plume. Location of the markers will be based on distance from the work being monitored – it is assumed that pile installation or debris removal at the south end of the wharf will not be carried out concurrently with dredging, pile installation, or debris removal at the north end.

A marker will be established 500' and 1,000' upstream of the work being monitored, and 500' and 1,000' downstream of the work being monitored. The purpose of the 500' marker is to evaluate aquatic organism passage within the mixing zone. It is assumed that if turbidity is visible but does not extend more than halfway across the width of the river, then there is adequate aquatic organism passage through the mixing zone. The approximate middle of the river channel is the lift span of the Sarah Mildred Long Bridge.

6. Action:
  - a. If turbidity is visible at either of the 500' markers and extends more than halfway across the river, work will stop temporarily until there is no visible turbid discharge. It is assumed that if a turbidity plume extending more than halfway across the river is visible at either of the 500' markers, the turbid discharge could potentially be impacting aquatic organism passage.
  - b. If turbidity is visible at either of the 1,000' markers, there is potential that turbidity at the end of the mixing zone will be greater than 10 NTUs above background or the CGP effluent limitation has been exceeded. Work will be temporarily stopped until there is no visible turbid discharge seen at the 1,000 markers and the NHDES Wetlands Bureau will be notified within 24 hours of stopping work.
  - c. Work will be allowed to continue only if and once turbidity is not visible at the 500' markers.
  - d. During dredging operations, monitoring will take place as specified in Item 3 above for the entire duration of dredging activity.

- e. Monitoring will take place during the first three days of debris removal and pile installation as specified in Item 3 above. Monitoring may be reduced to no less than twice a day (at least once within 30 minutes after the start of work and once after 4 hours) for the remaining duration of debris removal and pile installation provided there are no temporary work stoppages. If temporary work stoppages occur, daily monitoring will be resumed until there are no temporary work stoppages for at least two consecutive days of in-water work.
- f. Photographs will be taken during each monitoring event.

7. Reporting:

- a. A report will be submitted to the NHDES Wetlands Bureau every two weeks of monitoring or following a temporary work stoppage.
- b. Each report will summarize observations, timing, and status of work, and provide photo documentation.

**Attachment K: NH NHD DataCheck Results Letter**

---

# 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:** Stephen Hoffmann  
53 Regional Drive  
Concord, NH 03301

**From:** NHB Review, NH Natural Heritage Bureau

**Date:** 2/7/2023 (valid until 02/07/2024)

**Re:** Review by NH Natural Heritage Bureau

**Permits:** NHDES - Alteration of Terrain Permit, NHDES - Shoreland Standard Permit, NHDES - Wetland Standard Dredge & Fill - Major, USACE - General Permit, USCEQ - Federal: NEPA Review, USEPA - Stormwater Pollution Prevention

**NHB ID:** NHB23-0281

Town: Portsmouth

Location: 555 Market Street

**Description:** This DataCheck request is to update NHB21-3815. This project will consist of the following components: 1) Construction of a new dock structure approximately 60 x 120 feet to extend the south end of the existing wharf; 2) Construction of a new dock structure approximately 145 x 80 feet to extend the north end of the existing wharf; 3) Installation of a new fender system along the length of the main wharf; 4) Dredging of approximately 55,000 square feet of the river bed adjacent to the north end of the extended wharf; 4) Shoreside alterations, including soil and rock removal, grading, drainage, and paving within a 80,000-square foot area. Dredging, blasting, and the majority of concrete demolition will occur between November 15 and March 15. A blasting plan will be prepared by the contractor.

**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: No comments at this time.

**F&G:** Please continue coordination with Mike Dionne NHFG Environmental Review Coordinator.

### Vertebrate species

	State <sup>1</sup>	Federal	Notes
Atlantic Sturgeon ( <i>Acipenser oxyrinchus oxyrinchus</i> )	T	T	Contact the NH Fish & Game Dept and the US Fish & Wildlife Service (see below).
Shortnose Sturgeon ( <i>Acipenser brevirostrum</i> )	E	E	Contact the NH Fish & Game Dept and the US Fish & Wildlife Service (see below).

<sup>1</sup>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.

## 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.

*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 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](mailto: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](mailto:kim.tuttle@wildlife.nh.gov) with a copy to [NHFGreview@wildlife.nh.gov](mailto:NHFGreview@wildlife.nh.gov), and include the NHB Datacheck results letter number and “review request” in the email subject line.

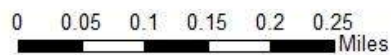
Contact NH Fish & Game at (603) 271-0467 with questions.



**CONFIDENTIAL – NH Dept. of Environmental Services review**

**NHB23-0281**

**REDACTED**



## New Hampshire Natural Heritage Bureau - Animal Record

**Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*)****Legal Status**

Federal: Listed Threatened  
State: Listed Threatened

**Conservation Status**

Global: Rare or uncommon  
State: Critically imperiled due to rarity or vulnerability

**Description at this Location**

Conservation Rank: Not ranked  
Comments on Rank: --

Detailed Description: 2016: 1 individual, sex unknown, detected in the lower Piscataqua River. 2015: 1 individual, sex unknown, detected in Portsmouth Harbor. 2012: 1 individual, sex unknown, detected in Little Bay.

General Area: 2016: Tidal waters in Portsmouth Harbor, Little Bay, and the Piscataqua River.  
General Comments: --  
Management: --  
Comments:

**Location**

Survey Site Name: Piscataqua River  
Managed By:

County:  
Town(s): Out-Of-State  
Size: 7749.3 acres Elevation:

Precision: Within 1.5 miles of the area indicated on the map (location information is vague or uncertain).

Directions: 2016: Tidal waters of Portsmouth Harbor, Little Bay, and the Piscataqua River.

**Dates documented**

First reported: 2012-06-02 Last reported: 2016-05-27

The U.S. Fish & Wildlife Service has jurisdiction over Federally listed species. Please contact them at 70 Commercial Street, Suite 300, Concord NH 03301 or at (603) 223-2541.

## New Hampshire Natural Heritage Bureau - Animal Record

### Shortnose Sturgeon (*Acipenser brevirostrum*)

Legal Status	Conservation Status
Federal: Listed Endangered	Global: Rare or uncommon
State: Listed Endangered	State: Critically imperiled due to rarity or vulnerability

Description at this Location	
Conservation Rank:	Not ranked
Comments on Rank:	--
Detailed Description:	2016: 2 individuals, 1 female and 1 sex unknown, detected in Portsmouth Harbor and the lower Piscataqua River. 2015: 3 females and 2 other individuals, sex unknown detected in Portsmouth Harbor. 2014: 1 female detected moving from Portsmouth Harbor up the Piscataqua River to the mouth of the Cocheco River. 2012: 1 female detected in Little Bay. 2011: 1 female detected in Little Bay. 2010: 1 female detected in Little Bay.
General Area:	2016: Tidal waters in Portsmouth Harbor, Little Bay, and the Piscataqua River.
General Comments:	--
Management	--
Comments:	

Location	
Survey Site Name:	Piscataqua River
Managed By:	
County:	
Town(s):	Out-Of-State
Size:	7749.3 acres
Elevation:	
Precision:	Within 1.5 miles of the area indicated on the map (location information is vague or uncertain).
Directions:	2016: Tidal waters of Portsmouth Harbor, Little Bay, and the Piscataqua River.

Dates documented			
First reported:	2010-11-03	Last reported:	2016-10-20

The U.S. Fish & Wildlife Service has jurisdiction over Federally listed species. Please contact them at 70 Commercial Street, Suite 300, Concord NH 03301 or at (603) 223-2541.

## **Attachment L: NHFG Coordination**

## Stephen Hoffmann

---

**From:** Dionne, Michael <Michael.A.Dionne@wildlife.nh.gov>  
**Sent:** Wednesday, February 8, 2023 11:10 AM  
**To:** Christine J. Perron  
**Cc:** Tuttle, Kim; Stephen Hoffmann; Patterson, Cheri  
**Subject:** Re: NH Port Authority, Functional Replacement Project - updated NHB memo (NHB23-0281)

Hi Christine,  
Yes I can confirm the comments submitted on 12/20/22 are still applicable to the NH Port Authority, Functional Replacement Project (NHB23-0281).

Thank you.

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](http://www.wildnh.com), [www.facebook.com/nhfishandgame](https://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:** Christine J. Perron <CPerron@mjinc.com>  
**Sent:** Wednesday, February 8, 2023 8:25 AM  
**To:** Dionne, Michael <Michael.A.Dionne@wildlife.nh.gov>  
**Cc:** Tuttle, Kim <Kim.A.Tuttle@wildlife.nh.gov>; Stephen Hoffmann <SHoffmann@mjinc.com>; Patterson, Cheri <Cheri.A.Patterson@wildlife.nh.gov>  
**Subject:** NH Port Authority, Functional Replacement Project - updated NHB memo (NHB23-0281)

**EXTERNAL:** Do not open attachments or click on links unless you recognize and trust the sender.

---

Good morning Mike,

The previous NHB review memo (NHB21-3815) for the subject project expired and we requested an updated memo in anticipation of submitting permit applications next month. The updated memo (NHB23-0281) is attached. There are no changes in species of concern.

The NHDES reviewer has requested that comments from NHFG should reference the current NHB memo. Could you please confirm that the comments you provided below in December are still applicable to the project?

Thank you,  
Christine



Christine J. Perron, CWS | Regional Environmental Manager

603-931-3327

Visit our [website](#) to see how MJ employee owners are innovating to improve our world.



---

**From:** Dionne, Michael <Michael.A.Dionne@wildlife.nh.gov>  
**Sent:** Tuesday, December 20, 2022 9:55 AM  
**To:** Christine J. Perron <CPerron@mjinc.com>; Patterson, Cheri <Cheri.A.Patterson@wildlife.nh.gov>  
**Cc:** Tuttle, Kim <Kim.A.Tuttle@wildlife.nh.gov>  
**Subject:** Re: NH Port Authority, Functional Replacement Project (NHB21-3815)

Hi Christine,

We have reviewed the minimal design changes to the NH Port Authority, Functional Replacement Project (NHB21-3815) and have no new comments and will not require further consultation prior to submitting permit applications. The following avoidance and minimization measures should be followed during any pile driving:

- In-water pile driving will be completed outside of the window of anadromous fish spawning (April through June).
- A 'startle noise' will be implemented each day before any pile driving. This will consist of hitting the piles a couple times and then waiting 5-10 minutes prior to production driving.
- Piles will be installed using a vibratory hammer as much as possible and then impact driven using a cushion block.
- A safe unimpacted zone of passage of approximately 1,000 feet in width will be available for any sensitive species that may be foraging or migrating in the river during construction.

If you have any further questions or concerns please reach out.

Thanks

Mike Dionne  
Environmental Review Coordinator

NH Fish & Game Department  
11 Hazen Drive  
Concord, NH 03301  
(603) 271-1136, [michael.dionne@wildlife.nh.gov](mailto:michael.dionne@wildlife.nh.gov)

NH Fish and Game...connecting you to life outdoors

[www.wildnh.com](http://www.wildnh.com), [www.facebook.com/nhfishandgame](https://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:** Christine J. Perron <[CPerron@mjinc.com](mailto:CPerron@mjinc.com)>  
**Sent:** Thursday, December 8, 2022 10:52 AM  
**To:** Patterson, Cheri <[Cheri.A.Patterson@wildlife.nh.gov](mailto:Cheri.A.Patterson@wildlife.nh.gov)>  
**Cc:** Tuttle, Kim <[Kim.A.Tuttle@wildlife.nh.gov](mailto:Kim.A.Tuttle@wildlife.nh.gov)>; Dionne, Michael <[Michael.A.Dionne@wildlife.nh.gov](mailto:Michael.A.Dionne@wildlife.nh.gov)>  
**Subject:** RE: NH Port Authority, Functional Replacement Project (NHB21-3815)

**EXTERNAL: Do not open attachments or click on links unless you recognize and trust the sender.**

---

Good morning,

Just checking in to see if you've had a chance to discuss this project.

Thanks,

Christine



Christine J. Perron, CWS | Regional Environmental Manager

603-931-3327

Visit our [website](#) to see how MJ employee owners are innovating to improve our world.



---

**From:** Patterson, Cheri <[Cheri.A.Patterson@wildlife.nh.gov](mailto:Cheri.A.Patterson@wildlife.nh.gov)>  
**Sent:** Wednesday, November 23, 2022 12:01 PM  
**To:** Christine J. Perron <[CPerron@mjinc.com](mailto:CPerron@mjinc.com)>  
**Cc:** Tuttle, Kim <[Kim.A.Tuttle@wildlife.nh.gov](mailto:Kim.A.Tuttle@wildlife.nh.gov)>; Dionne, Michael <[Michael.A.Dionne@wildlife.nh.gov](mailto:Michael.A.Dionne@wildlife.nh.gov)>  
**Subject:** RE: NH Port Authority, Functional Replacement Project (NHB21-3815)

Good morning, Christine.

Mike and I will confer on Monday morning and one of us will get back to you. Thank you for checking back in.

Happy Thanksgiving.

Cheri Patterson

Chief, Marine Division

NH Fish and Game Department

225 Main Street

Durham, NH 03824

(603)868-1095 – office

(603)868-3305 – fax

*Did you know? New Hampshire Fish and Game is the steward for New Hampshire's marine resources, from lobsters and clams to stripers and bluefish, and also manages the Great Bay National Estuarine Research Reserve.*

---

**From:** Christine J. Perron <[CPerron@mjinc.com](mailto:CPerron@mjinc.com)>

**Sent:** Wednesday, November 23, 2022 9:55 AM

**To:** Patterson, Cheri <[Cheri.A.Patterson@wildlife.nh.gov](mailto:Cheri.A.Patterson@wildlife.nh.gov)>

**Cc:** Tuttle, Kim <[Kim.A.Tuttle@wildlife.nh.gov](mailto:Kim.A.Tuttle@wildlife.nh.gov)>; Dionne, Michael <[michael.dionne@wildlife.nh.gov](mailto:michael.dionne@wildlife.nh.gov)>

**Subject:** RE: NH Port Authority, Functional Replacement Project (NHB21-3815)

**EXTERNAL: Do not open attachments or click on links unless you recognize and trust the sender.**

---

Good morning Cheri,

Have you had a chance to consider the email below? I have attached responses from NOAA on EFH and Section 7. We will likely be reinitiating consultation under Section 7 though don't expect any concerns with the avoidance and minimization measures listed below. I will keep you in the loop as that reinitiation is carried out; however, it would be helpful to have your comments at this stage so that we can start finalizing permit applications.



Thanks Cheri. Happy Thanksgiving.

Christine



Christine J. Perron, CWS | Regional Environmental Manager

603-931-3327

Visit our [website](#) to see how MJ employee owners are innovating to improve our world.



---

**From:** Christine J. Perron

**Sent:** Wednesday, October 19, 2022 4:14 PM

**To:** Patterson, Cheri <[Cheri.A.Patterson@wildlife.nh.gov](mailto:Cheri.A.Patterson@wildlife.nh.gov)>; Michael R. Johnson <[mike.r.johnson@noaa.gov](mailto:mike.r.johnson@noaa.gov)>; 'zachary.jylkka@noaa.gov' <[zachary.jylkka@noaa.gov](mailto:zachary.jylkka@noaa.gov)>

**Cc:** Dionne, Michael <[Michael.A.Dionne@wildlife.nh.gov](mailto:Michael.A.Dionne@wildlife.nh.gov)>; 'Tuttle, Kim' <[Kim.A.Tuttle@wildlife.nh.gov](mailto:Kim.A.Tuttle@wildlife.nh.gov)>; Stephanie Desing <[sdesing@appledoremarine.com](mailto:sdesing@appledoremarine.com)>

**Subject:** NH Port Authority, Functional Replacement Project (NHB21-3815)

Good afternoon,

The subject project was originally reviewed back in 2019 but stalled for a few years due to funding issues. Final design and permitting is now getting underway again. This is a FHWA funded project that has gone through NEPA, EFH, and ESA review. The following OneDrive folder includes copies of the original BA and EFHA:

[Consultation](#)

The project requires wetland, shoreland, and alteration of terrain permits from NHDES. It will also require an Individual Permit from the Corps and Water Quality Certification.

The key components of the project have not changed:

- Construction of a new dock structure approximately 60 x 120 feet to extend the south end of the existing wharf.
- Construction of a new dock structure approximately 145 x 80 feet to extend the north end of the existing wharf.
- Dredging of approximately 55,000 square feet of the river bed adjacent to the north end of the extended wharf.
- Relocation of the floating dock currently located off the north end of the wharf.
- Shoreside alterations, including soil and rock removal, grading, drainage, and paving within a 80,000-square foot area.

A few design changes are anticipated to be finalized over the next few months prior to permitting. These changes were not included in original consultation with NH Fish & Game and NOAA:

- A Sampling and Analysis Plan will be implemented for the dredged material and it is still assumed that material will be approved for off-shore disposal. The Cape Arundel disposal site noted in consultation has since closed. The alternative disposal site will be the Isle of Shoals North Disposal Site.
- The dredging depth may change from -35' mllw to -36' mllw, which would slightly expand the footprint. The avoidance and minimization measures outlined in the original consultation have not changed.
- The south wharf extension may not have a steel sheet pile wall along the shoreline, but instead have a grade beam with additional riprap. New riprap is anticipated to be under the extension footprint or added to existing riprap.
- The proposed 40" steel piles for the north and south wharf extensions will be rock socketed into bedrock. Casing will be spun to the top of bedrock and the bedrock drilled to create the socket. The rock socket method reduces the amount of pile driving required and reduces underwater noise impacts. However, this method does require some pile driving that was not clearly defined in the original consultation. The following avoidance and minimization measures are proposed for pile driving:
  - In-water pile driving will be completed outside of the window of anadromous fish spawning (April through June).
  - A 'startle noise' will be implemented each day before any pile driving. This will consist of hitting the piles a couple times and then waiting 5-10 minutes prior to production driving.
  - Piles will be installed using a vibratory hammer as much as possible and then impact driven using a cushion block.
  - A safe unimpacted zone of passage of approximately 1,000 feet in width will be available for any sensitive species that may be foraging or migrating in the river during construction.

We are reaching out now to determine if additional consultation is required prior to submitting permit applications. Please let me know if a Teams meeting would be helpful.

Thanks,  
Christine



Christine J. Perron, CWS | Regional Environmental Manager

603-931-3327

Visit our [website](#) to see how MJ employee owners are innovating to improve our world.



## **Attachment M: USFWS Official Species List**



# 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:  
Project Code: 2022-0056613  
Project Name: Barge Wharf Functional Replacement

March 30, 2023

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:

*Updated 3/8/2023 - 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 - (Updated 3/8/2023)** The Service published a final rule to reclassify the northern long-eared bat (NLEB) as endangered on November 30, 2022. The final rule will go into effect on **March 31, 2023**. After that date, the current 4(d) rule for NLEB will be invalid, and the 4(d) determination key will no longer be available. New compliance tools will be available in March 2023, and information will be posted in this section on our website and on the northern long-eared bat species page, so please check this site often for updates.

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. If your project may result in incidental take of NLEB after the new listing goes into effect, this will need to be addressed in an updated consultation that includes an Incidental Take Statement. Many of these situations will be addressed through the new compliance tools. If your project may require re-initiation of consultation, please wait for information on the new tools to appear on this site or 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: 2022-0056613

Project Name: Barge Wharf Functional Replacement

Project Type: Marina - New Construction

Project Description: The Federal Highway Administration is funding the functional replacement of the barge wharf at the Market Street Marine Terminal to compensate for impacts caused by the new alignment of the Sarah Mildred Long Bridge. The SML Bridge once bisected the Port, with the main wharf to the east of the bridge and the barge wharf to the west. To accommodate the new bridge alignment, a large portion of the barge wharf was removed. The subject project involves replacing the lost functionality of the barge wharf by incorporating that functionality into the main wharf, which will involve extending each end of the main wharf, dredging, installing a new fender system, relocating an existing floating dock system, and providing shoreside alterations.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@43.08372929643439,-70.76096079300885,14z>



Counties: Rockingham County, New Hampshire

---



## ENDANGERED SPECIES ACT SPECIES

There is a total of 2 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<sup>1</sup>, 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 <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Threatened

## BIRDS

NAME	STATUS
Roseate Tern <i>Sterna dougallii dougallii</i> Population: Northeast U.S. nesting population No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/2083">https://ecos.fws.gov/ecp/species/2083</a>	Endangered

## CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

---

## **IPAC USER CONTACT INFORMATION**

Agency: McFarland Johnson  
Name: Christine Perron  
Address: 53 Regional Drive  
City: Concord  
State: NH  
Zip: 03301  
Email: cperron@mjinc.com  
Phone: 6032252978

## **LEAD AGENCY CONTACT INFORMATION**

Lead Agency: Federal Highway Administration

---

**Attachment N: USFWS Northeast Determination Key  
No Effect Determination – Roseate Tern**



## 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:  
Project code: 2022-0056613  
Project Name: Barge Wharf Functional Replacement  
IPaC Record Locator: 735-124413278

March 30, 2023

Federal Nexus: yes  
Federal Action Agency (if applicable): Federal Highway Administration

Subject: Federal agency coordination under the Endangered Species Act, Section 7 for 'Barge Wharf Functional Replacement'

Dear Christine Perron:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on March 30, 2023, for "Barge Wharf Functional Replacement" (here forward, Project). This project has been assigned Project Code 2022-0056613 and all future correspondence should clearly reference this number.

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into the IPaC must accurately represent the full scope and details of the Project. Failure to accurately represent or implement the Project as detailed in IPaC or the Northeast Determination Key (DKey), invalidates this letter. To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative effect(s)), to a federally listed species or designated critical habitat.

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). Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no further consultation with, or concurrence from, the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required (except when the Service concurs, in writing, that a proposed action "is

not likely to adversely affect" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13]).

The IPaC results indicated the following species is (are) potentially present in your project area and, based on your responses to the Service's Northeast DKey, you determined the proposed Project will have the following effect determinations:

<b>Species</b>	<b>Listing Status</b>	<b>Determination</b>
Roseate Tern ( <i>Sterna dougallii dougallii</i> )	Endangered	No effect

**Conclusion** If there are no updates on listed species, no further consultation/coordination for this project is required for the species identified above. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional consultation with the Service should take place before project implements any changes which are final or commits additional resources.

In addition to the species listed above, the following species and/or critical habitats may also occur in your project area and are not covered by this conclusion:

- Northern Long-eared Bat *Myotis septentrionalis* Threatened

To complete consultation for species that have reached a "May Affect" determination and/or species may occur in your project area and are not covered by this conclusion, 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 these listed species and/or critical habitats, avoid and minimize potential adverse effects, and prepare and submit a project review package if necessary: <https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review>

Please Note: If the Action may impact bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d) by the prospective permittee may be required. Please contact the Migratory Birds Permit Office, (413) 253-8643, or [PermitsR5MB@fws.gov](mailto:PermitsR5MB@fws.gov), with any questions regarding potential impacts to Eagles.

If you have any questions regarding this letter or need further assistance, please contact the New England Ecological Services Field Office and reference the Project Code associated with this Project.

## Action Description

You provided to IPaC the following name and description for the subject Action.

### 1. Name

Barge Wharf Functional Replacement

### 2. Description

The following description was provided for the project 'Barge Wharf Functional Replacement':

The Federal Highway Administration is funding the functional replacement of the barge wharf at the Market Street Marine Terminal to compensate for impacts caused by the new alignment of the Sarah Mildred Long Bridge. The SML Bridge once bisected the Port, with the main wharf to the east of the bridge and the barge wharf to the west. To accommodate the new bridge alignment, a large portion of the barge wharf was removed. The subject project involves replacing the lost functionality of the barge wharf by incorporating that functionality into the main wharf, which will involve extending each end of the main wharf, dredging, installing a new fender system, relocating an existing floating dock system, and providing shoreside alterations.

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@43.08372929643439,-70.76096079300885,14z>



## QUALIFICATION INTERVIEW

1. As a representative of this project, do you agree that all items submitted represent the complete scope of the project details and you will answer questions truthfully?

*Yes*

2. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed species?

**Note:** This question could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered, or proposed species.

*No*

3. Is the action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

*Yes*

4. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) the lead agency for this project?

*Yes*

5. FHWA, FRA, and FTA have completed a rangewide [programmatic biological opinion](#) for transportation projects within the range of the Indiana bat and northern long-eared bat. Does your proposed project fall within the scope of this programmatic consultation?

**Note:** If you are using the Northeast Key to satisfy consultation requirements for species not covered by the FHWA programmatic (e.g., species other than Indiana bat or northern long-eared bat), select "No" and continue through the key. If you are unsure whether your project qualifies for the FHWA programmatic, please select "Yes" and use the FHWA, FRA, FTA Assisted Determination Key to determine if the programmatic biological opinion is applicable to your project. If it is not applicable, you can return to this key.

*No*

6. Are you including in this analysis all impacts to federally listed species that may result from the entirety of the project (not just the activities under federal jurisdiction)?

**Note:** If there are project activities that will impact listed species that are considered to be outside of the jurisdiction of the federal action agency submitting this key, contact your local Ecological Services Field Office to determine whether it is appropriate to use this key. If your Ecological Services Field Office agrees that impacts to listed species that are outside the federal action agency's jurisdiction will be addressed through a separate process, you can answer yes to this question and continue through the key.

*Yes*

7. Are you the lead federal action agency or designated non-federal representative requesting concurrence on behalf of the lead Federal Action Agency?

*Yes*

---

8. Will the proposed project involve the use of herbicide?

*No*

9. Are there any caves or anthropogenic features suitable for hibernating or roosting bats within the area expected to be impacted by the project?

*No*

10. Does any component of the project associated with this action include structures that may pose a collision risk to birds or bats (e.g., wind turbines, communication towers, transmission lines, any type of towers with or without guy wires)?

**Note** For federal actions, answer 'yes' if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

*No*

11. Will the proposed project result in permanent changes to water quantity in a stream or temporary changes that would be sufficient to result in impacts to listed species?

For example, will the proposed project include any activities that would alter stream flow, such as water withdrawal, hydropower energy production, impoundments, intake structures, diversion structures, and/or turbines? Projects that include temporary and limited water reductions that will not displace listed species or appreciably change water availability for listed species (e.g. listed species will experience no changes to feeding, breeding or sheltering) can answer "No". Note: This question refers only to the amount of water present in a stream, other water quality factors, including sedimentation and turbidity, will be addressed in following questions.

*No*

12. Will the proposed project affect wetlands?

This includes, for example, project activities within wetlands, project activities within 300 feet of wetlands that may have impacts on wetlands, water withdrawals and/or discharge of contaminants (even with a NPDES).

*No*

13. Will the proposed project activities (including upland project activities) occur within 0.5 miles of the water's edge of a stream or tributary of a stream where listed species may be present?

*Yes*

14. Will the proposed project directly affect a streambed (below ordinary high water mark (OHWM)) of the stream or tributary?

*Yes*

15. Will the proposed project bore underneath (directional bore or horizontal directional drill) a stream?

*No*

---



16. Will the proposed project involve a new point source discharge into a stream or change an existing point source discharge (e.g., outfalls; leachate ponds)?

*No*

17. Will the proposed project involve the removal of excess sediment or debris, dredging or in-stream gravel mining?

*Yes*

18. Will the proposed project involve the creation of a new water-borne contaminant source?

**Note** New water-borne contaminant sources occur through improper storage, usage, or creation of chemicals. For example: leachate ponds and pits containing chemicals that are not NSF/ANSI 60 compliant have contaminated waterways. Sedimentation will be addressed in a separate question.

*No*

19. Will the proposed project involve perennial stream loss that would require an individual permit under 404 of the Clean Water Act?

*Yes*

20. Will the proposed project involve blasting?

*Yes*

21. Will the proposed project include activities that could result in an increase to recreational fishing or potentially affect fish movement temporarily or permanently (including fish stocking, harvesting, or creation of barriers to fish passage)?

*No*

22. Will the proposed project involve earth moving that could cause erosion and sedimentation, and/or contamination along a stream?

**Note** Answer "Yes" to this question if erosion and sediment control measures will be used to protect the stream.

*Yes*

23. Will the proposed project involve vegetation removal within 200 feet of a perennial stream bank?

*No*

24. Will erosion and sedimentation control Best Management Practices (BMPs) associated with applicable state and/or Federal permits, be applied to the project? If BMPs have been provided by and/or coordinated with and approved by the appropriate Ecological Services Field Office, answer "Yes" to this question.

*Yes*

---

25. Will the proposed project result in changes to beach dynamics that may modify formation of habitat over time?

**Note:** Examples of projects that result in changes to beach dynamics include 1) construction of offshore breakwaters and groins; 2) mining of sand from an updrift ebb tidal delta; 3) removing or adding beach sands; and 4) projects that stabilize dunes (including placement of sand fences or planting vegetation).

*No*

26. [Hidden Semantic] Is the project area located within the roseate tern AOI?

**Automatically answered**

*Yes*

27. If you have determined that the roseate tern is unlikely to occur within your project's action area or that your project is unlikely to have any potential effects on the roseate tern, you may wish to make a "no effect" determination for the roseate tern. Additional guidance on how to make this decision can be found in the project review section of your local Ecological Services Field Office's website. CBFO: <https://www.fws.gov/office/chesapeake-bay-ecological-services/project-review> ; MEFO: <https://www.fws.gov/office/maine-ecological-services> ; NJFO: <https://www.fws.gov/office/new-jersey-ecological-services/new-jersey-field-office-project-review-guide> ; NEFO: <https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review#Step5> ; WVFO: <https://www.fws.gov/office/west-virginia-ecological-services/project-planning>. If you are unsure, answer "No" and continue through the key.

Would you like to make a no effect determination for the roseate tern?

*Yes*

28. [Semantic] Does the project intersect the Virginia big-eared bat critical habitat?

**Automatically answered**

*No*

29. [Semantic] Does the project intersect the Indiana bat critical habitat?

**Automatically answered**

*No*

30. [Semantic] Does the project intersect the candy darter critical habitat?

**Automatically answered**

*No*

31. [Semantic] Does the project intersect the diamond darter critical habitat?

**Automatically answered**

*No*

32. [Semantic] Does the project intersect the Big Sandy crayfish critical habitat?

**Automatically answered**

*No*

---

33. [Hidden Semantic] Does the project intersect the Guyandotte River crayfish critical habitat?

**Automatically answered**

*No*

34. Do you have any other documents that you want to include with this submission?

*No*

---

## PROJECT QUESTIONNAIRE

1. Approximately how many acres of trees would the proposed project remove?  
*0*
  2. Approximately how many total acres of disturbance are within the disturbance/  
construction limits of the proposed project?  
*1.5*
  3. Briefly describe the habitat within the construction/disturbance limits of the project site.  
*Fully developed/paved industrial wharf (Market Street Marine Terminal) and the  
Piscataqua River*
-

## **IPAC USER CONTACT INFORMATION**

Agency: McFarland Johnson  
Name: Christine Perron  
Address: 53 Regional Drive  
City: Concord  
State: NH  
Zip: 03301  
Email: cperron@mjinc.com  
Phone: 6032252978

## **LEAD AGENCY CONTACT INFORMATION**

Lead Agency: Federal Highway Administration

---

**Attachment O: USFWS NLEB Rangewide  
Determination Key No Effect Determination**



## 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:  
Project code: 2022-0056613  
Project Name: Barge Wharf Functional Replacement  
IPaC Record Locator: 735-124419662

March 30, 2023

Federal Nexus: yes  
Federal Action Agency (if applicable): Federal Highway Administration

**Subject:** Record of project representative's no effect determination for 'Barge Wharf Functional Replacement'

Dear Christine Perron:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on March 30, 2023, for 'Barge Wharf Functional Replacement' (here forward, Project). This project has been assigned Project Code 2022-0056613 and all future correspondence should clearly reference this number. **Please carefully review this letter.**

### **Ensuring Accurate Determinations When Using IPaC**

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into the IPaC must accurately represent the full scope and details of the Project. Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat Rangewide Determination Key (Dkey), invalidates this letter.

### **Determination for the Northern Long-Eared Bat**

Based upon your IPaC submission and a standing analysis, your project has reached the determination of "No Effect" on the northern long-eared bat. To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative), to a federally listed species or designated critical habitat. 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).

Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no consultation with the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required except when the Service concurs, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13].

### **Other Species and Critical Habitat that May be Present in the Action Area**

The IPaC-assisted determination for the northern long-eared bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Roseate Tern *Sterna dougallii dougallii* Endangered

You may coordinate with our Office to determine whether the Action may affect the animal species listed above and, if so, how they may be affected.

### **Next Steps**

Based upon your IPaC submission, your project has reached the determination of “No Effect” on the northern long-eared bat. If there are no updates on listed species, no further consultation/coordination for this project is required with respect to the northern long-eared bat. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place to ensure compliance with the Act.

If you have any questions regarding this letter or need further assistance, please contact the New England Ecological Services Field Office and reference Project Code 2022-0056613 associated with this Project.

---



## Action Description

You provided to IPaC the following name and description for the subject Action.

### 1. Name

Barge Wharf Functional Replacement

### 2. Description

The following description was provided for the project 'Barge Wharf Functional Replacement':

The Federal Highway Administration is funding the functional replacement of the barge wharf at the Market Street Marine Terminal to compensate for impacts caused by the new alignment of the Sarah Mildred Long Bridge. The SML Bridge once bisected the Port, with the main wharf to the east of the bridge and the barge wharf to the west. To accommodate the new bridge alignment, a large portion of the barge wharf was removed. The subject project involves replacing the lost functionality of the barge wharf by incorporating that functionality into the main wharf, which will involve extending each end of the main wharf, dredging, installing a new fender system, relocating an existing floating dock system, and providing shoreside alterations.

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@43.08372929643439,-70.76096079300885,14z>



## DETERMINATION KEY RESULT

Based on the information you provided, you have determined that the Proposed Action will have no effect on the Endangered northern long-eared bat (*Myotis septentrionalis*). Therefore, no consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required for those species.

## QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of the northern long-eared bat or any other listed species?

**Note:** Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

No

2. Do you have post-white nose syndrome occurrence data that indicates that northern long-eared bats (NLEB) present in the action area? Bat occurrence data may include identification of NLEBs in hibernacula, capture of NLEBs, tracking of NLEBs to roost trees, or confirmed acoustic detections.

No

3. Does any component of the action involve construction or operation of wind turbines?

**Note:** For federal actions, answer 'yes' if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

No

4. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

Yes

5. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

Yes

---

6. FHWA, FRA, and FTA have completed a range-wide programmatic consultation for transportation- related actions within the range of the Indiana bat and northern long-eared bat.

Does your proposed action fall within the scope of this programmatic consultation?

**Note:**If you have **previously consulted** on your proposed action with the Service under the NLEB 4dRule, answer 'no' to this question and proceed with using this key. If you have **not yet consulted** with the Service on your proposed action and are unsure whether your proposed action falls within the scope of the FHWA, FRA, FTA range-wide programmatic consultation, please select "Yes" and use the FHWA, FRA, FTA Assisted Determination Key in IPaC to determine if the programmatic consultation is applicable to your action. Return to this key and answer 'no' to this question if it is not.

*No*

7. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

**Note:** This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

*Yes*

8. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

*No*

---

9. Have you determined that your proposed action will have no effect on the northern long-eared bat? Remember to consider the [effects of any activities](#) that would not occur but for the proposed action.

If you think that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, answer “No” below and continue through the key. If you have determined that the northern long-eared bat does not occur in your project’s action area and/or that your project will have no effects whatsoever on the species despite the potential for it to occur in the action area, you may make a “no effect” determination for the northern long-eared bat.

**Note:** Federal agencies (or their designated non-federal representatives) must consult with USFWS on federal agency actions that may affect listed species [50 CFR 402.14(a)]. Consultation is not required for actions that will not affect listed species or critical habitat. Therefore, this determination key will not provide a consistency or verification letter for actions that will not affect listed species. If you believe that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, please answer “No” and continue through the key. Remember that this key addresses only effects to the northern long-eared bat. Consultation with USFWS would be required if your action may affect another listed species or critical habitat. The definition of [Effects of the Action](#) can be found here: <https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions>

Yes

---

## **PROJECT QUESTIONNAIRE**

Will all project activities be completed by April 1, 2024?

*No*

---

## **IPAC USER CONTACT INFORMATION**

Agency: McFarland Johnson  
Name: Christine Perron  
Address: 53 Regional Drive  
City: Concord  
State: NH  
Zip: 03301  
Email: cperron@mjinc.com  
Phone: 6032252978

## **LEAD AGENCY CONTACT INFORMATION**

Lead Agency: Federal Highway Administration

---

## **Attachment P: Section 7 Biological Assessment and Essential Fish Habitat Consultations**



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
GREATER ATLANTIC REGIONAL FISHERIES OFFICE  
55 Great Republic Drive  
Gloucester, MA 01930-2276

Jamison S. Sikora  
Federal Highway Administration  
U.S. Department of Transportation  
New Hampshire Division  
53 Pleasant Street, Suite 2200  
Concord, NH 03301

JUN 14 2019

**Re: Pease Development Authority, Port of NH Functional Replacement Project  
Portsmouth 15731, Piscataqua River**

Dear Mr. Sikora:

We have completed our consultation under section 7 of the Endangered Species Act (ESA) in response to your email received on June 11, 2019, regarding the above-referenced proposed project. We reviewed your consultation request document and related materials. Based on our knowledge, expertise, and your materials, we concur with your conclusion that the proposed action is not likely to adversely affect any National Marine Fisheries Service ESA-listed species or designated critical habitat. Therefore, no further consultation pursuant to section 7 of the ESA is required.

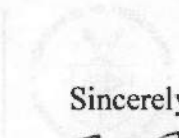
While we agree with your rationale for your not likely to adversely affect determination, one clarification is necessary as described here. In your effects analysis for water quality, you conclude the analysis for whales by saying that the effects on sturgeon will be insignificant. Based on the information that you provided (the turbidity plume will be temporary and whales will have ample space in the Atlantic Ocean to swim around the plume to avoid it), turbidity effects on whales will be too small to be meaningfully measured or detected, and are insignificant.

Reinitiation of consultation is required and shall be requested by the lead federal agency or by us, where discretionary federal involvement or control over the action has been retained or is authorized by law and: (a) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in the consultation; (b) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this consultation; or, (c) If a new species is listed or critical habitat designated that may be affected by the identified action. No take is anticipated or exempted. If there is any incidental take of a listed species, reinitiation would be required. Should you have any questions about this correspondence please contact Edith Carson-Supino at (978) 282-8490 or by email (Edith.Carson-Supino@noaa.gov). For questions related to Essential Fish Habitat, please contact Mike Johnson with our Habitat Conservation Division at (978)-281-9130 or at mike.r.johnson@noaa.gov.





UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
OCEANIC AND FISHERY RESOURCES DIVISION  
1315 EAST-WASHINGTON AVENUE  
WASHINGTON, DC 20541



Sincerely,

Michael J. Asaro, PhD  
Acting Assistant Regional Administrator  
for Protected Resources

JUN 1 2019

ec: Johnson, NMFS/HCD; Perron, McFarland Johnson  
ECO: GARFO-2019-01025  
File Code: H:\Section 7 Team\Section 7\Non-Fisheries\FHWA\_State DOTs\Informals\NH DOT\FHWA  
Portsmouth Wharf Replacement

## Christine J. Perron

---

**From:** Mike R Johnson - NOAA Federal <mike.r.johnson@noaa.gov>  
**Sent:** Thursday, August 22, 2019 11:10 AM  
**To:** Sikora, Jamie (FHWA)  
**Cc:** Christine J. Perron; Vanessa Swasey; Noah Elwood (Appledore); Marc Laurin; Patterson, Cheri; Mike Dionne; Wendy Johnson; Edith Carson; Zachary Jylkka - NOAA Affiliate  
**Subject:** Re: Pease Development Authority - Main wharf functional replacement project - BA, EFHA

Jamie,

Thank you for the response to our EFH conservation recommendations. Your response fulfills the requirements of the Magnuson-Stevens Act.

Thanks,

Mike

On Thu, Aug 22, 2019 at 9:13 AM Sikora, Jamie (FHWA) <[Jamie.Sikora@dot.gov](mailto:Jamie.Sikora@dot.gov)> wrote:

Good Morning Mike,

Thank you for providing conservation recommendations for this project and for participating in the NHDOT Natural Resource Agency meeting to discuss mitigation.

FHWA has reviewed your conservation recommendations with the project team and we are providing the following responses:

1. **Blasting plan:** Providing the blasting plan to you for review at least 1.5 months prior to blasting could be problematic with the construction schedule. We would like to recommend that NMFS be provided a copy of the blasting plan a minimum of 21 days prior to blasting.
2. **Measures to minimize fish kills during blasting:** As listed in your recommendations, we agree to a) require the use of a small, mobile vessel for the fish detection and startle system; sonar; and fisheries and marine mammal observer; b) require the preparation of a plan to enumerate, collect, ID, and report on any fish kills that occur during blasting. This report will be sent to NMFS as soon as possible after each day of blasting (and no more than 7 days). If fish kills exceed 100 fish, approximately, NMFS will be notified within 24 hours and before the next scheduled blasting so that alternative measures can be assessed to reduce future fish kills, as necessary.

3. Time of year restriction: All efforts will be made to adhere to a work window from November 15 to February 15 for underwater blasting, and to conduct in water work in December and January to the extent possible.

4. Mitigation: As discussed at the August 21<sup>st</sup> resource agency meeting, mitigation will be provided for impacts resulting from the wharf extensions and dredging. Everyone in attendance at this meeting agreed that funding the Cutts Cove living shoreline project could be used as permittee responsible mitigation.

I appreciate the reminder yesterday that we still needed to close out the EFH consultation process. Please advise as to whether the responses are considered sufficient or whether you might have any further questions or need clarification.

Jamie

Jamison S. Sikora

NH Division Environmental Program Manager

Federal Highway Administration

53 Pleasant Street, Suite 2200

Concord, NH 03301

[Jamie.sikora@dot.gov](mailto:Jamie.sikora@dot.gov)

(603) 410-4870

**From:** Mike R Johnson - NOAA Federal [mailto:[mike.r.johnson@noaa.gov](mailto:mike.r.johnson@noaa.gov)]

**Sent:** Friday, June 28, 2019 1:45 PM

**To:** Christine J. Perron <[CPerron@mjinc.com](mailto:CPerron@mjinc.com)>; Sikora, Jamie (FHWA) <[Jamie.Sikora@dot.gov](mailto:Jamie.Sikora@dot.gov)>

**Cc:** Vanessa Swasey <[VSwasey@appledoremachine.com](mailto:VSwasey@appledoremachine.com)>; Noah Elwood (Appledore)

<[NElwood@appledoremachine.com](mailto:NElwood@appledoremachine.com)>; Marc Laurin <[marc.laurin@dot.nh.gov](mailto:marc.laurin@dot.nh.gov)>; Patterson, Cheri

<[Cheri.Patterson@wildlife.nh.gov](mailto:Cheri.Patterson@wildlife.nh.gov)>; Mike Dionne <[MICHAEL.DIONNE@wildlife.nh.gov](mailto:MICHAEL.DIONNE@wildlife.nh.gov)>; Wendy Johnson

<[Wendy.Johnson@dot.nh.gov](mailto:Wendy.Johnson@dot.nh.gov)>; Edith Carson <[edith.carson-supino@noaa.gov](mailto:edith.carson-supino@noaa.gov)>; Zachary Jylkka - NOAA Affiliate

<[zachary.jylkka@noaa.gov](mailto:zachary.jylkka@noaa.gov)>

**Subject:** Re: Pease Development Authority - Main wharf functional replacement project - BA, EFHA

Christine,

I have copied Jamie Sikora on this response, even though I didn't see anyone from FHWA on your original email. As you know, our EFH consultation is with the federal action agency. If Jamie is not the lead project manager, I will leave it to one of you to forward it to the proper person.

These are NMFS' EFH conservation recommendations. These recommendations are intended to protect spawning, egg, and larvae habitat for winter flounder, as well as diadromous fish that use the Piscataqua River for migrating to spawning habitat in the watershed.

Blasting Plan: The assessment indicates the contractor will provide a copy of the blasting plan prior to detonation. I am recommending the FHWA provide us with a copy as soon as possible, but not less than 1.5 months prior to blasting to allow time for us to review and provide comments.

Also, the assessment indicates the use of a fish detecting and startle system, and sonar to avoid blasting when fish are present, and the presence of a fisheries and marine mammal observer. I am recommending these systems be mounting on a small, mobile vessel, rather than on the "blast barge". This allows them to activate these systems up until a few minutes prior to detonation. A "blast barge" is typically towed off site at least 30 minutes or more before the blast, allowing fish to move back into the area. The Corps has implemented this BMP into their blasting plans as it was found to reduce fish kills.

Lastly, as we did for the SML Bridge project, I am recommending a plan to enumerate, collect, ID, and report on any fish kills that occur during blasting be developed. This report should be sent to us as soon as possible after each day of blasting (and no more than 7 days). In the meantime, if there are significant fish kills (~> 100 fish), we should be notified within 24 hours and before the next scheduled blasting so that alternative measures may be assessed to reduce future fish kills, as necessary. These measures were implemented in the SML Bridge project.

Time-of-year restriction of March 15-November 15: While we concur with this TOY restriction for overall in-water work that produces turbidity and noise, we have some further restrictions to provide. For underwater blasting, we recommend a work window from Nov. 15 to Feb. 15 to protect winter flounder spawning and rainbow smelt. For all other turbidity and noise producing activities, a work window from Nov. 15-March 15 is acceptable but we request that all efforts be made to conduct the work in December and January to the extent possible. Avoiding the work in the latter half of November will protect other diadromous species that may be using this section of the river.

Compensatory Mitigation: To offset the permanent loss of 1,720 sf of habitat from the proposed piles for the wharf extensions and floating dock, as well as shading impacts to approximately 25,000 sf from the proposed wharf, we recommend compensatory mitigation be provided via the NH ILF program.

If you have any questions, please let me know. However, please be aware that I will be on vacation beginning this afternoon (6/28) through July 5. I will be available to answer any questions the week of July 8.

Thanks,

Mike

On Tue, Jun 4, 2019 at 1:17 PM Christine J. Perron <[CPerron@mjinc.com](mailto:CPerron@mjinc.com)> wrote:

Good afternoon,

The BA and EFH Assessment have been updated to address the comments you provided. Both documents have been saved at our FTP site. Please let me know if you need log in information to access the site.

Thank you,  
Christine

**Christine Perron, CWS**

Project Manager • Senior Environmental Analyst

McFarland Johnson

53 Regional Drive • Concord, NH 03301  
OFFICE: 603-225-2978 ext. 1280

[www.mjinc.com](http://www.mjinc.com)

--

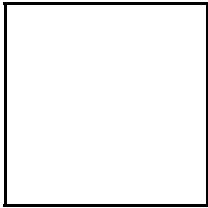
Michael R. Johnson

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](mailto:mike.r.johnson@noaa.gov)

<http://www.greateratlantic.fisheries.noaa.gov/>



Web [www.nmfs.noaa.gov](http://www.nmfs.noaa.gov)  
Facebook [www.facebook.com/usnoaafisheriesgov](http://www.facebook.com/usnoaafisheriesgov)  
Twitter [www.twitter.com/noaafisheries](http://www.twitter.com/noaafisheries)  
YouTube [www.youtube.com/usnoaafisheriesgov](http://www.youtube.com/usnoaafisheriesgov)

--

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](mailto:mike.r.johnson@noaa.gov)  
<http://www.greateratlantic.fisheries.noaa.gov/>



Web [www.nmfs.noaa.gov](http://www.nmfs.noaa.gov)  
Facebook [www.facebook.com/usnoaafisheriesgov](http://www.facebook.com/usnoaafisheriesgov)  
Twitter [www.twitter.com/noaafisheries](http://www.twitter.com/noaafisheries)  
YouTube [www.youtube.com/usnoaafisheriesgov](http://www.youtube.com/usnoaafisheriesgov)

## **Attachment Q: Section 106 No Adverse Effect Memp**

Section 106 Cultural Resources Effect Memo  
(Project NOT directly managed by NHDOT)

Project Town: Portsmouth

Date: 2/20/2019

State No.: 15731 RPR 9871

Federal No. (as applicable): N/A

Lead Federal Agency: Federal Highway Administration

Submitted by: Christine Perron, McFarland Johnson, Inc.

Email address: cperron@mjinc.com

(Project Manager/Sponsor)

Pursuant to the Request for Project Review signed on 8/6/2018, and for the purpose of compliance with the regulations of National Historic Preservation Act and the Advisory Council on Historic Preservation's *procedures for the Protection of Historic Properties* (36 CFR 800), and NH RSA 227-C the NH Division of Historical Resources and, when applicable, the NH Division of the Federal Highway Administration or the US Army Corps of Engineers have coordinated the identification and evaluation of cultural resources relative to:

**The functional replacement of the barge wharf at the Market Street Marine Terminal (Port of New Hampshire) to compensate for impacts caused by the new alignment of the Sarah Mildred Long Bridge.**

This project is an addition to the Sarah Mildred Long Bridge replacement project, which resulted in an adverse effect determination for the overall project. Functional replacement is a federally authorized method of right of way compensation for public facilities (23 CFR 710.509). The functional replacement project will consist of the following components:

- Construction of a new dock structure approximately 60 x 120 feet at the south end of the existing main wharf.
- Construction of a new dock structure approximately 145 x 80 feet at the north end of the existing main wharf.
- Modification of the fender system along the length of the expanded main wharf.
- Shoreside improvements, including soil and rock removal, grading, drainage, and paving within a 70,000-square foot area.
- Dredging approximately 55,000 square feet of the river bed adjacent to the north end of the extended main wharf.
- Relocation of the floating dock located to the north of the main wharf.

Several previous archaeological studies have been conducted, including a Phase IA Archaeological Sensitivity Assessment and Phase IB Intensive Archaeological Investigation conducted for the New Hampshire side of the Sarah Mildred Long Bridge (Marlatt 2013), and several previous archaeological investigations completed for the Maine-New Hampshire Connections Study (Marlatt 2009, 2010). The functional replacement project will include shoreside improvements within the archaeologically sensitive location identified as Area 3. Archaeological monitoring will be required during construction activities in this area.

Please describe all public outreach efforts (see 36 CFR 800.2-3) that have been done to-date. Identify Consulting Parties and include any public feedback (if applicable, attached pages if necessary):

Impacts to the Port of New Hampshire were reviewed at public meetings and with the Pease Development Authority as part of the Sarah Mildred Long Bridge Replacement project.

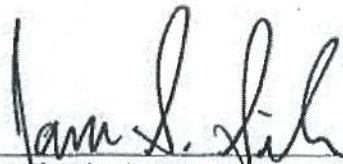


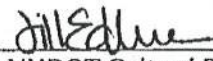
Based on a review of the project, as presented to date, it has been determined that:

Section 106 Effect Determination	<input type="checkbox"/> No Historic or Archaeological Properties will be Affected
	<input checked="" type="checkbox"/> There will be No Adverse Effect on Historic or Archaeological Properties
	<input type="checkbox"/> There will be an Adverse Effect on Historic or Archaeological Properties or Resources
	Additional comments, please explain <i>why</i> the undertaking has resulted in the above effect: At DHR's request, archaeological monitoring will be conducted during construction of shoreline improvements in the archaeologically sensitive location known as "Area 3."

In accordance with the Advisory Council's regulations, we will continue to consult, as appropriate, as this project proceeds.

Section 4(f) (in the completed by FHWA)	There Will Be:	<input checked="" type="checkbox"/> No 4(f);	<input type="checkbox"/> Programmatic 4(f);	<input type="checkbox"/> Full 4 (f); or
	<input type="checkbox"/> A finding of <i>de minimis</i> 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 <i>de minimis</i> impact. NHDHR's signature represents concurrence with both the no adverse effect determination and the <i>de minimis</i> 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.			

 2/20/19  
 Lead Federal Agency (date)  
 Federal Highway Administration

 2/20/19  
 NHDOT Cultural Resources Program

The NH State Historic Preservation Officer concurs with these findings:

 DSHPD  
 NH Division of Historical Resources 3/4/19

cc: FHWA      NHDHR      ACOE ( ← as applicable )

## **Attachment R: Mitigation Narrative**

---

**MARKET STREET MARINE TERMINAL (PORT OF NH)  
FUNCTIONAL REPLACEMENT PROJECT  
PORTSMOUTH 15731**

**MITIGATION NARRATIVE**

Impacts to jurisdictional areas have been minimized to the extent practicable while still accomplishing the purpose and need of the project. The project requires compensatory mitigation for unavoidable permanent impacts to the Piscataqua River associated with replacing the lost functionality of the barge wharf at the Port of NH.

Proposed impacts and mitigation have been discussed with State and Federal resource agencies at three NHDOT Natural Resource Agency Coordination Meetings (June 20, 2018, September 19, 2018, August 21, 2019, and February 15, 2023), as well as at a field review on April 2, 2019, at a virtual meeting on March 20, 2023, and via email correspondence.

Based on coordination noted above, impacts that will require mitigation are as follows:

Dredging (325 linear feet) – required by the Army Corps and NHDES

North Extension, South Extension, Floating Dock (289 linear feet) – required by NHDES

When coordinating on mitigation during preliminary design, there was agreement on providing funding for the completion of the Cutts Cove living shoreline restoration project. However, over the last two years, there have been concerns raised about the condition of what has been completed to date at Cutts Cove. For this reason, mitigation for the functional replacement project will instead be via an in-lieu fee.

The Army Corps confirmed that mitigation for the proposed dredging should be calculated based on linear feet of impact to the channel. NHDES previously confirmed that mitigation for the wharf extensions and floating dock should also be based on linear feet of impact. The NHDES Aquatic Resource Mitigation Fund Stream Payment Calculator was utilized to calculate the in-lieu fee payment as follows:

Dredging (325 linear feet) – \$99,017.10

North Extension, South Extension, Floating Dock (289 linear feet) – \$88,049.05

Based on the above calculations, the total in-lieu fee that will be provided for impacts associated with the functional replacement project will be **\$187,066.15**.

**NHDES AQUATIC RESOURCE MITIGATION FUND  
STREAM PAYMENT CALCULATION**

<b>INSERT LINEAR FEET OF IMPACT on BOTH BANKS AND CHANNEL</b>	<b>Right Bank</b>	
	<b>Left Bank</b>	
	<b>Channel</b>	325.0000
	<b>TOTAL IMPACT</b>	325.0000
	<b>Stream Impact Cost:</b>	\$82,514.25
	<b>NHDES Administrative cost:</b>	
		\$16,502.85
<b>***** TOTAL ARM FUND STREAM PAYMENT*****</b>		
		\$99,017.10





NEW HAMPSHIRE  
DEPARTMENT OF  
**Environmental  
Services**

**NHDES AQUATIC RESOURCE MITIGATION FUND  
STREAM PAYMENT CALCULATION**

<b>INSERT LINEAR FEET OF IMPACT on BOTH BANKS AND CHANNEL</b>	<b>Right Bank</b>	
	<b>Left Bank</b>	
	<b>Channel</b>	289.0000
	<b>TOTAL IMPACT</b>	289.0000
	<b>Stream Impact Cost:</b>	\$73,374.21
	<b>NHDES Administrative cost:</b>	
		\$14,674.84
<b>***** TOTAL ARM FUND STREAM PAYMENT*****</b>		
		\$88,049.05





NEW HAMPSHIRE  
DEPARTMENT OF  
**Environmental  
Services**

## Christine J. Perron

---

**From:** Bell, Taylor M CIV USARMY CENAE (USA) <Taylor.M.Bell@usace.army.mil>  
**Sent:** Monday, April 10, 2023 8:04 AM  
**To:** Christine J. Perron; Lefebvre, Lindsey E CIV USARMY CENAE (USA)  
**Cc:** Farris, Charles N CIV USARMY CENAE (USA); Hicks, Michael C CIV USARMY CENAE (USA)  
**Subject:** RE: Portsmouth 15731, DES File 2022-00429 - Market St Marine Terminal Functional Replacement Project

Hi Christine,

Mitigation for streams(Bed/Bank/OHWM) is measured in linear feet. All other resources are measured in square feet.

Thanks,

Taylor

---

**From:** Christine J. Perron <CPerron@mjinc.com>  
**Sent:** Friday, April 7, 2023 11:33 AM  
**To:** Lefebvre, Lindsey E CIV USARMY CENAE (USA) <Lindsey.E.Lefebvre@usace.army.mil>; Bell, Taylor M CIV USARMY CENAE (USA) <Taylor.M.Bell@usace.army.mil>  
**Cc:** Farris, Charles N CIV USARMY CENAE (USA) <Charles.N.Farris@usace.army.mil>; Hicks, Michael C CIV USARMY CENAE (USA) <Michael.C.Hicks@usace.army.mil>  
**Subject:** [URL Verdict: Neutral][Non-DoD Source] RE: Portsmouth 15731, DES File 2022-00429 - Market St Marine Terminal Functional Replacement Project

Good morning,

Permit applications for the subject project will be submitted by Monday and we are still looking for input on mitigation. Mitigation will be via an in lieu fee. An updated impact plan is attached. Based on prior coordination with the Corps, mitigation will not be required for the proposed wharf extensions or for riprap added within the footprint of existing riprap. The area of proposed dredging in the Piscataqua River is 61,450 sq ft (325 linear feet of channel).

Mitigation for impacts to a watercourse are typically based on linear feet of impact in accordance with NHDES rules. Prior coordination with the Corps seemed to indicate that mitigation should be based on square feet of impact from dredging. Table C3 of the Corps' mitigation SOP indicates that the impact should be based on linear feet. Could we get confirmation on which approach will be required?

Also, dredging will not permanently eliminate the resource. The work is in Section 10 waters adjacent to an industrial docking facility and the federal navigation channel. Could a multiplier of 0.5 be used to calculate the in lieu fee?

Please let me know if any additional information is needed.

Thanks,  
Christine



Christine J. Perron, CWS | Regional Environmental Manager



603-931-3327

Visit our [website](#) to see how MJ employee owners are innovating to improve our world.



---

**From:** Lefebvre, Lindsey E CIV USARMY CENAE (USA) <[Lindsey.E.Lefebvre@usace.army.mil](mailto:Lindsey.E.Lefebvre@usace.army.mil)>  
**Sent:** Thursday, March 23, 2023 9:32 AM  
**To:** Christine J. Perron <[CPerron@mjinc.com](mailto:CPerron@mjinc.com)>  
**Cc:** Farris, Charles N CIV USARMY CENAE (USA) <[Charles.N.Farris@usace.army.mil](mailto:Charles.N.Farris@usace.army.mil)>; Hicks, Michael C CIV USARMY CENAE (USA) <[Michael.C.Hicks@usace.army.mil](mailto:Michael.C.Hicks@usace.army.mil)>  
**Subject:** RE: Portsmouth 15731, DES File 2022-00429 - Market St Marine Terminal Functional Replacement Project

Hi Christine,

Thank you for sending this information. Unfortunately Taylor is out until early next week.

Lindsey Lefebvre  
US Army Corps of Engineers  
New England District  
Regulatory Division  
696 Virginia Rd  
Concord, MA 01742  
(o) (978)-318-8295  
(c) (978)-471-0741

---

**From:** Christine J. Perron <[CPerron@mjinc.com](mailto:CPerron@mjinc.com)>  
**Sent:** Thursday, March 23, 2023 9:18 AM  
**To:** Lefebvre, Lindsey E CIV USARMY CENAE (USA) <[Lindsey.E.Lefebvre@usace.army.mil](mailto:Lindsey.E.Lefebvre@usace.army.mil)>  
**Cc:** Farris, Charles N CIV USARMY CENAE (USA) <[Charles.N.Farris@usace.army.mil](mailto:Charles.N.Farris@usace.army.mil)>; Hicks, Michael C CIV USARMY CENAE (USA) <[Michael.C.Hicks@usace.army.mil](mailto:Michael.C.Hicks@usace.army.mil)>  
**Subject:** [URL Verdict: Neutral][Non-DoD Source] RE: Portsmouth 15731, DES File 2022-00429 - Market St Marine Terminal Functional Replacement Project

Good morning Lindsey,  
I am attached the updated wetland impact plan with the final impact totals. Will it be possible to get Taylor's input on mitigation by tomorrow morning?  
Thanks,  
Christine



Christine J. Perron, CWS | Regional Environmental Manager