

North Mill Pond Greenway – Area 1  
Vaughan Street, Portsmouth, New Hampshire

## Conditional Use Permit Application

City of Portsmouth

September 28, 2021

**Tighe&Bond**

P-0766-006  
September 28, 2021

Ms. Barbara McMillan, Chair  
City of Portsmouth Conservation Commission  
1 Junkins Avenue  
Portsmouth, New Hampshire 03801

Re: **Wetland Conditional Use Permit Application**  
North Mill Pond Greenway  
Vaughan Street  
Portsmouth, New Hampshire

Dear Barbara,

On behalf of The City of Portsmouth, we are pleased to submit the following information to support this request for a Wetland Conditional Use Permit for the above referenced project:

- One (1) full size and nine (9) half size copies of the Site Plan Set, dated July 21, 2021.
- Ten (10) copies of the Restoration and Buffer Impact Exhibit, dated June 14, 2021.
- Ten (10) copies of the Invasive Species Inventory Figure, dated November 5, 2018.
- Ten (10) copies of the Owner's Letter of Authorization.

## **Project Summary**

The proposed project involves mitigating an existing neglected urban shoreline parcel with a public multi-use path and boardwalk. As a valuable open space and wildlife habitat, the proposed greenway is envisioned to create an ecologically healthy, socially vibrant and educational destination for residents and visitors alike. The approximately 1.1 acre parcel is located along Vaughan Street and is identified on the City of Portsmouth Tax Map 123 as Lot 15. Invasive plant species have occupied the area over a long period of neglect and abandonment. The site presents an opportunity to holistically restore the shoreline and adjacent upland areas. The proposed restoration will include invasive species control, adjacent upland native plantings, community engagement, and living shoreline restoration.

The Jurisdictional wetland boundaries were delineated by Marc Jacobs, Certified Wetlands Scientist, Number 090, in December of 2015 according to the Standard of The US Army Corps of Engineers – Wetland Delineation Manual, Technical Report T-87-1, January 1987; The Regional Supplement to the Corps of Engineers Wetland Delineation Manual; Northcentral and Northeast Region, Version 2.0, January 2012; NH RSA 482-A; The Code of Administrative Rules, NH Department of Environmental Services – Wetlands Bureau – Chapter Env-Wt 100-900; as well as the City of Portsmouth Zoning – Article 10, Section 10.1010, Wetlands Conservation District. Predominant Hydric Soils were identified utilizing the Field Indicators for Identifying Hydric Soils in New England, Version 3, April 2004 and The Field Indicators of Hydric Soils in the United States, Version 7. The indicator status of Hydrophytic Vegetation was determined according to the National List of Plant Species that Occur in Wetlands; Northeast Region, U.S. Fish and Wildlife Service.

Proposed permanent impacts associated with this project include the upland buffer restoration area, the reclaimed salt marsh area, the subtidal oyster bed, a porous pavement multi-use trail and a boardwalk. By nature of the restoration project type, the entirety of the parcel is



identified as permanent impacts and are summarized in the table below. These impacts are depicted on the Restoration and Buffer Impact Exhibit, enclosed herein.

<b>TABLE 1.1 - Project Buffer Impact and Marsh Restoration Comparison</b>			
<b>Wetland and Buffer Setback Area</b>	<b>Proposed Restoration</b>	<b>Proposed Impacts</b>	
		<b>Boardwalk</b>	<b>Porous Pave</b>
Mudflat	3,922 SF	0 SF	0 SF
Jurisdictional Wetland	28,872 SF	561 SF	0 SF
0 - 100 FT*	22,631 SF	146 SF	5,420 SF
<b>Sub Totals</b>	<b>55,425 SF</b>	<b>707 SF</b>	<b>5,420 SF</b>
<b>Totals</b>	<b>55,425 SF</b>	<b>6,127 SF</b>	

\*Tidal Buffer Zone per RSA 482-A:4

## Living Shoreline

As the science and art of coastal zone protection and restoration advances in the wake of climate change and sea level rise, the accumulated tools that develop will make up a set of resilient strategies to assist communities during these changing times. Based on the current literature, constructed living shorelines should be included in this set of tools. Coastal shorelines are increasingly susceptible to storm damage and flooding from rising seas. Coastal New Hampshire is an area that has become dramatically impacted by these changing conditions. Specifically, the infilling of tidal rivers with sediment from eroded marsh habitats, loss of shellfish habitat, and the loss of associated ecological services such as diminished flood storage and storm damage prevention. Furthermore, the loss of portions of these resources have resulted in significant impairment of local estuaries and the loss of ecological services provided by these unique ecosystems. Utilizing green technology such as living shorelines in concert with thin layer deposition, eel grass beds, oyster and blue mussel beds, among other strategies, could serve to reduce the impacts of the adverse impacts of climate change and sea level rise.

The existing coastal bank at the project site presents various stages of erosion and impairment of the seaward mudflat. The existing bulkhead is damaged and in various states of decay. The intent of the project is to create a living shoreline that will replace the bulkhead and create approximately 4000 square feet of low marsh dominated by Salt Marsh Cordgrass (*Spartina alterniflora*) plantings. Additionally, a coastal bluff planting area is proposed landward of the river-walk which will not only provide a visual barrier to the developed spaces of the site but also provide wildlife habitat benefits in the



**1. View of eroded shoreline that is part of the North Mill Pond shoreline restoration project.**



form of food, shelter, and overwintering habitat for wildlife.

The project has elected to install a living shoreline in an effort to stabilize the existing eroding shoreline at the site. The options of more "gray" infrastructure in this area was rejected given that we do not expect severe scour or storm damage directly on the shoreline given its location within the riparian system associated with North Mill Pond. The benefits of a green infrastructure solution would provide additional ecological services and assist with ameliorating impacts from sea level rise and climate change.

The lower sill will be created by using salvaged rock and granite as well as living rock from the site to create a rocky intertidal shoreline. This structural shoreline will mimic the rocky coast of New Hampshire and Maine and create tide pool habitats for a multitude of vertebrate and invertebrate species including blue mussels, oysters, and nursery habitat for fisheries. The landward side of the rocky intertidal shoreline will be infilled with a blended soil of 2 parts sand and 1 part organic compost to create a growing media for the lower marsh consisting of salt marsh cordgrass *Spartina alterniflora*.

By using dense coir logs at the toe of the upper sill, a blended soil consisting of sand and organic compost can be utilized to stabilize on the landward side of the coil logs to support the growth of salt meadow grass (*Spartina patens*).

Additional plantings located on the up-gradient side of the shoreline, including seaside goldenrod, marsh elder and sea lavender will add additional ecological services to the shoreline system including flowering plants for pollinators and additional root structure for stability of the shoreline. Duck bill anchors will be utilized to hold the coir log in place and further maintain its stability.



*View of coir log installation on Neponset River held fast with Duck Bill Anchors. Photo taken after two growing seasons. *Spartina alterniflora* well established.*

## Construction Sequence

The proposed living shoreline will be constructed in a specific sequence that will terminate with the installation of salt marsh plantings that will stabilize the entire living shoreline and establish a densely vegetated salt marsh consisting principally of low marsh grass (*Spartina alterniflora*) and high marsh plant community dominated by salt meadow grass (*Spartina patens*). The following sequence outlines the principal construction elements of the project. Oversight by a restoration ecologist or professional wetland scientist would improve the success of the outcome. The establishment of accurate elevations of the planting shelves are important to improve the success of plant establishment.

1. Salvaged rock and existing living rock from the project site will be used to create a rocky intertidal shore consistent with the elevations on the design plans.
2. The created rocky intertidal shoreline will be created between approximately Elevation -2.0 to Elevation 2.0 (NGVD 1929).
3. The blended soil mix (2 parts sand, 1-part organic compost) will be used to infill the area landward of the installed salvaged rock and granite to create a planting shelf for the low marsh.
4. The low marsh shelf will be planted with plugs of salt marsh cord grass (*Spartina alterniflora*) on an 18 inch on center, configuration at approximately Elevation 2.0 (NGVD 1929).
5. The remaining bulkhead will be left in place and act as perches for birds and other wildlife.
6. The coir logs (24-inch Cocologix, or equal) will be installed along the proposed contour at approximately Elevation 2.0 to approximately Elevation 6.0 and secured with timber stakes or other suitable constraints (Duckbill Anchors, or equal).
7. The slope from approximately Elevation 6.0 to approximately Elevation 9.0 will be stabilized with coir mat and salt tolerant plantings (see plant list) to transition to the coastal bluff and North Mill Pond Greenway Trail.
8. Irrigation will be provided through the first growing season or until new plantings are established.
9. Monitoring will be conducted by faculty and graduate students of the Marine Science Center at Northeastern University and the University of New Hampshire.

## Community Engagement

A main objective of the proposed project is to provide a desirable shoreline space that was once inaccessible for public recreational use. Providing this public area along the once degraded shoreline will provide educational opportunities. The site will feature interpretive signage with the goal to educate users on the importance of responsible shoreline rehabilitation and habitat restoration. Also, the community will be able to use the space as an outdoor classroom to give educators a visual tool for positive environmental restoration projects.

## Invasive Species Control

We have identified the dominant invasive species within and adjacent to the project site including Norway maple (*Acer platanoides*), black locust (*Robinia pseudoacacia*), autumn olive (*Elaeagnus umbellata*), Japanese knotweed (*Polygonum cuspidatum*), Phragmites (*Phragmites australis*), and Asiatic bittersweet (*Celastrus orbiculatus*) (See Invasive Species Inventory figure). These species are the targeted plants for removal at the North Mill Pond Greenway site. The presence of invasive species has been identified throughout the understory and canopy of the site. The following is a description of the proposed methodology to remove the invasive plant species to substantially improve the function and value of the landscape.

## Whole Plant Removal

The techniques of whole plant removal intend to remove the entire invasive plant including standing plant material as well as the roots and rhizomes of the invasive species. In this way,

the entire plant is removed, and re-colonization of the treatment area is substantially reduced. Simply cutting the standing vegetation will only stimulate recovery growth and a dense re-growth of the invasive species intended to be removed.

However, 100% removal is rarely achievable, even in an excavation effort with machinery and labor. Accordingly, professional judgment is necessary to determine when to cease removal activities in any particular project area. Typically, this work is conducted in the fall and winter, before the ground freezes, or in early spring. During the following spring and summer months additional hand pulling of newly sprouted seed material is required. Summer work can also be effective especially when the season is dry and reduced impact to soils is achievable.

### **Initial Removal with Equipment or Weed Wrench**

Standing vegetation will be cut, removed, and stockpiled for burning or chipping for compost. A mini excavator will be used to remove the root balls of the targeted species. This will leave the exposed roots and stumps of the invasive species accessible for removal. The area can be cut with a machine as well during this phase of work. If heavy machinery is used for removal of root material, mats will be placed to minimize the disturbance of the soils by dispersing the weight of the equipment over a larger surface area, decreasing the compression of the soils. The entire restoration area will be cleared of the invasive woody species and maintained from the re-invasion of the targeted invasive plant species.

### **Removal of Root Ball and Trailing Roots and Rhizomes**

Care must be used in pulling the root balls of invasive shrub species. The use of a mini excavator, described above, may facilitate the removal of the root balls of these species. Carefully lifting and shaking the root ball as it is extracted from the soil facilitates the removal of the trailing roots and rhizomes. The soil is then released from the root ball by gentle shaking of the bucket by the machine operator. In areas that are inaccessible by machine, the work will be completed with weed wrenches and by hand. If root balls are too large for extraction by weed wrenches, chains and straps will be lead out to the mini excavator, or in some cases we will use "come-alongs" and manually pull the root ball out of the soil. These root balls can be stockpiled and burned during the burning season. Ashes are a good amendment for fields and planting areas as they contain phosphorous and other nutrients. Alternatively, the root balls can be transported to an off-site facility for grinding and chipping and/or composting. Standing plant material is chipped separately for wood chips. This work is usually completed on site to reduce the volume of material that will need to be transported from the site.

### **Hand Clearing and Grubbing of Broken Roots and Rhizomes**

Hand clearing and removal of broken root parts is important for invasive species management, as these shoots will re-sprout if any viable rootlets remain at the site. These collected roots can be stockpiled and burned during the local brush-burning season or composted off site for later use as a soil amendment. Our staff will follow the excavator operator and clear the restoration area of root fragments and rhizomes by hand. All collected roots are removed along with the collected root balls for off-site composting.

### **Stump Grinding**

An arborist will come to the Site and mark the invasive, dead, and hazardous trees. The trees will be clearly marked by professional scientist and removed by appropriate machinery. The cut trees will be stump ground to prevent coppicing and re-growth.

### **Final Disposition of Removed Plant Material**

Once the invasive plant material is harvested, we plan to either burn the material on site or to chip it and remove it from the site for composting. If the harvest occurs during the burning season there are several reasons to burn the majority of the material on site. Firstly, burning on site reduces costs of chipping and off-site transport of harvested material. Secondly, the



burning of woody material returns valuable nutrients to the soil structure, principally phosphorous, which in many systems has been depleted by plant growth and microbial activity. If possible, we prefer to burn the harvested material in small manageable brush piles to facilitate these benefits to the local ecosystem.

If the work is conducted out of the burning season the harvested material will be chipped on site and removed to an off-site composting operation for composting and subsequent use as a soil amendment. Chipping the plant material before it develops seeds or flowers renders the plant unviable, especially once the material has completely dried. Then, composting the chipped woody plants becomes a sustainable use for the harvested material. Once composted, this material will return valuable nutrients to the soil, which will eventually be used by other plants for growth.

### **Soil Augmentation, Grading, Seeding and Hay Mulch**

The existing landscape will be augmented with compost and duff (decaying leaf mold) as needed, then re-graded to match the contours of the adjacent upland areas and gently sloped upward across the buffer zone. Of most importance is establishing a native plant community within the treated area, as discussed under the "Native Species Planting Plan" section below. Accordingly, any disturbed soils will be seeded, then hay mulched with salt marsh hay to quickly stabilize the disturbed soils. The areas will be maintained until native species have established.

### **Native Species Planting Plan**

Subsequent planting of various plant species adapted to the local habitat will be installed according to the proposed Restoration Planting Plan (see attached). This planting palette includes native trees, shrubs, and herbaceous species that will create habitat value, as well as increase plant and wildlife diversity within the general area. Specific locations of these plantings will be chosen on site at the time of installation, but all will be within the designated restoration area. All plantings are to be installed by hand within the existing landscape to maintain soil stability unless otherwise noted. Plantings will be interspersed across the restoration area and not in a uniform "on-center" planting schedule (see attached). The following is a description of the proposed methodology to install native plant species to substantially improve the function and value of the landscape.

#### **Canopy and Shrub Plantings**

Red maple (*Acer rubrum*), will be installed as the canopy species within the restoration planting area and the buffer zone between the living shoreline and the North Mill Pond Greenway (see Site Plan, attached). Gator Bags or equivalent will be placed around the newly planted trees to ensure watering and establishment, as needed. A native shrub layer consisting of red cedar (*Juniperus virginiana*), beach plum (*Prunus maritima*), witch hazel (*Hamamelis virginiana*) and gray dogwood (*Cornus racemosa*) will be installed according to the proposed Restoration Planting Plan (see attached). These species will substantially improve the function and value of the landscape to provide wildlife habitat and ecological services to this degraded coastal ecosystem. These shrub species will be installed by hand in with at least three (3) gallon containerized nursery stock.

#### **Herbaceous Plantings**

The herbaceous plant community consists of a diversity of native grasses and flowering perennial plantings (see Restoration Planting Plan). These native plant species are adapted to wetland conditions and will add to the existing landscape. These species will be installed as one-gallon, containerized nursery stock. In addition, an herbaceous seed mix will be used in the wetland plant community. The ground plain seed mix that will be spread in the buffer zone includes coastal red fescue (*Festuca rubra*), switchgrass (*Panicum virgatum*), and little



bluestem (*Schizachyrium scoparium*). Seeding will occur after plantings have been installed, and the entire restoration area will be lightly raked to cover the seeds with soil.

This planting plan will improve the area's capacity to provide ecosystem functions including food, cover, and nest sites for wildlife species. All species to be installed are native to this region and are adapted to the surrounding soils and hydrology.

### **Aftercare and Maintenance**

After the initial removal of the woody shrub and tree species, the restoration areas will be surveyed monthly to remove sprouting invasive species, since seed material is still present in the thatch and surface soils of the disturbed areas. Some of these seeds will germinate and sprout. It is very important to conduct these monthly surveys and to harvest by hand any sprouting invasive materials. During the first growing season, the majority of this material is handpicked. We typically use 5-gallon pails and fill them with new invasive seedlings for disposal. Each month there are fewer and fewer seedlings to harvest, and by the end of the first season the seeded area has become dense with new growth of desirable native species, and the invasive seedlings are practically eliminated. The second growing season will typically only require three (3) surveys, in the early spring, mid-summer, and mid-fall.

The living shoreline will be monitored for a minimum of two (2) years to maximum of five (5) years to ensure the grow in and establishment of the low marsh plantings (principally, *Spartina alterniflora*) and high marsh plantings (principally *Spartina patens*). The site will be visited quarterly and assessed for plant vigor, establishment, percent cover, and recommendations for replacement of plantings or substitutions for failed plantings. The salt marsh, living shoreline, and the coastal bluff plantings will be monitored in accordance with the requirements of the restoration planting plan. Annual reports will summarize the results of the monitoring efforts including photographs and lists of interventions that were undertaken, as needed. Annual reports will be submitted to the NH Department of Environmental Services and other applicable agencies.

### **Construction Oversight, Follow-up Observation, & Maintenance**

Construction oversight, follow-up observations, and all plant installation work will be overseen in accordance with the NHDES monitoring protocol requirements. It is proposed that the restoration areas be reviewed prior to the issuance of a Certificate of Compliance and within the regulatory provision to ensure that wetland plant material has established itself as required by NHDES rules and regulations.

## Conditional Use Permit

Jurisdictional wetland areas were delineated by Marc Jacobs, Certified Wetlands Scientist Number 090, in December of 2015. The functions and values associated with this parcel have been identified in Section 1 of the enclosed Wetland Application.

Based on the above described and enclosed materials, the following addresses how the proposed project warrants the granting of a Wetland Conditional Use Permit by satisfying the following six (6) criteria for approval in Section 10.1017.50 of the Zoning Ordinance:

- (1) The land is reasonably suited to the use, activity or alteration;**  
This land exhibits an eroding tidal shoreline adjacent to a buffer area impaired with invasive species and neglect. The proposed alterations intend to restore the shoreline and improve the function and value of the intertidal zone. Additionally, the project will provide public access to a desirable shoreline space that was once inaccessible for public recreational use.
- (2) There is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use, activity or alteration;**  
The placement of the impervious path and boardwalk provides enhanced functions and values to the site which offers opportunities for the public to responsibly interact with the delicate resource area and provide educational opportunities with interpretive signage along the proposed path and boardwalk. This site does not provide an alternative location outside of the wetland buffer that provides the same enhancements as described.
- (3) There will be no adverse impact on the wetland functional values of the site or surrounding properties;**  
The proposed project is intended as a restoration project and will enhance the wetland functional values.
- (4) Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals; and**  
The proposed project will restore the area to a natural vegetative state with native plantings and invasive species control.
- (5) The proposal is the alternative with the least adverse impact to areas and environments under the jurisdiction of this Section.**  
The permanent impacts, including the impervious pathway and boardwalk have been minimized to the maximum extent practical to be able to provide the proposed enhanced wetland functional values to the site.
- (6) Any area within the vegetated buffer strip will be returned to a natural state to the extent feasible.**  
Proposed impacts to the vegetated buffer strip have been minimized to the maximum extent feasible. Additionally, the vegetated buffer strip will be restored from the existing neglect and abandonment to a proposed living shoreline and marsh area to enhance resiliency to the effect of sea level rise and provide desirable ecological services.

## Conclusion

The proposed improvements intend to restore the impaired shoreline and improve the function and value of the intertidal zone. Moreover, the project will create greater coastal resiliency by creating a stable, living habitat to act as storm damage prevention to the upgradient buffer zone and developed areas. Habitat quality for wildlife will be significantly improved by providing food, cover, and overwintering areas for wildlife. The landward migration of salt

marsh as a result of sea level rise will be able to progress into the buffer zone at the site given the gradual rise in elevation in these areas.

We respectfully request to be placed on the Conservation Committee meeting agenda for October 13, 2021. If you have any questions or need any additional information, please contact Patrick Crimmins by phone at (603) 433-8818 or by email at [pmcrimmins@tighebond.com](mailto:pmcrimmins@tighebond.com).

Sincerely,  
**TIGHE & BOND, INC.**



Patrick M. Crimmins, PE  
Senior Project Manager

Enclosures

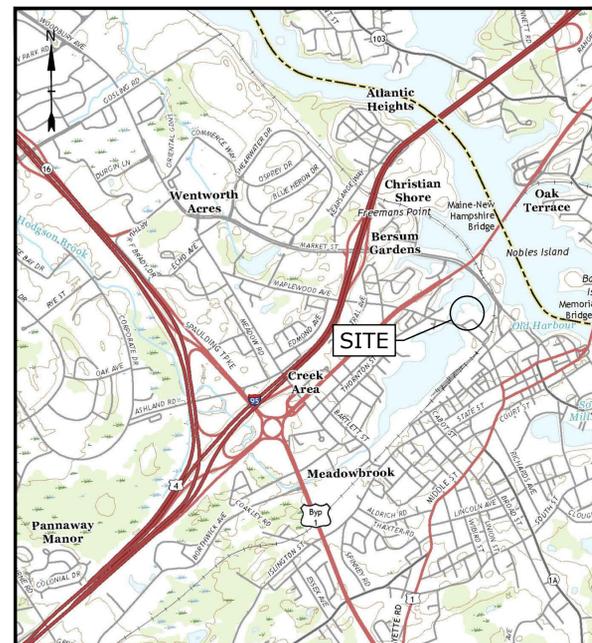
Cc: City of Portsmouth

# NORTH MILL POND GREENWAY AND COMMUNITY PARK - AREA 1

VAUGHAN STREET  
PORTSMOUTH, NEW HAMPSHIRE  
JULY 21, 2021



LIST OF DRAWINGS		
SHEET NO.	SHEET TITLE	LAST REVISED
	COVER SHEET	7/21/2021
C-101	EXISTING CONDITIONS AND DEMOLITION PLAN	7/21/2021
C-102	SITE PLAN	7/21/2021
C-103	GRADING AND DRAINAGE PLAN	7/21/2021
C-501	EROSION CONTROL NOTES AND DETAILS SHEET	7/21/2021
C-502	DETAILS SHEET	7/21/2021
C-503	BOARDWALK DETAILS SHEET	7/21/2021
C-504	RESTORATION SECTION PLAN	7/21/2021
L-101	RESTORATION PLANTING PLAN	6/14/2021



LOCATION MAP  
SCALE: 1" = 2,000'

PREPARED BY:  
**HALVORSON**  
Tighe&Bond STUDIO  
25 KINGSTON STREET  
BOSTON, MASSACHUSETTS 02111-2200  
617-536-0380

APPLICANT/OWNER:  
CITY OF PORTSMOUTH  
1 JUNKINS AVENUE, 3RD FLOOR  
PORTSMOUTH, NEW HAMPSHIRE 03801

ENVIRONMENTAL CONSULTANT:  
**DEROSA ENVIRONMENTAL CONSULTING, INC.**  
167 MAIN STREET, PO BOX 716  
ROWLEY, MASSACHUSETTS 01969

SURVEYOR:  
**DOUCET SURVEY, LLC**  
192 KENT PLACE  
NEWMARKET, NEW HAMPSHIRE 30857

CIVIL CONSULTANT:  
**Tighe&Bond**  
177 CORPORATE DRIVE  
PORTSMOUTH, NEW HAMPSHIRE 03801  
603-433-8818

Last Saved: 7/21/2021 9:23am By: ASeller  
 Project: Oct 11, 2021  
 Tighe & Bond: J:\P\0766 Portsmouth, NH General Proposal\0766-006 (North Mill Pond Trail)\Drawings - Figures\AutoCAD\Sheet\0766-006\_C-COVER.dwg

- EXISTING CONDITIONS PLAN NOTES:**
- EXISTING CONDITIONS ARE BASED ON A FIELD SURVEY BY DOUCET SURVEY INC., DATED FEBRUARY 3, 2016.
  - JURISDICTIONAL WETLANDS DELINEATED BY MARC JACOBS, IN DECEMBER 2015.
  - VERTICAL DATUM IS BASED ON NGVD29 PER DISK B2 1923
  - HORIZONTAL DATUM IS BASED ON NEW HAMPSHIRE STATE PLANE(2800) NAD83(2011) DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.

- REFERENCE PLANS:**
- "EXISTING CONDITIONS PLAN OF TAX MAP 123, LOT 15 & TAX MAP 124, LOTS 10 & 11" PREPARED BY DOUCET SURVEY INC., DATED FEBRUARY 3, 2016.
  - "EXISTING CONDITIONS PLAN FOR TIGHE & BOND OF STONE CREEK REALTY" PREPARED BY DOUCET SURVEY LLC, DATED NOVEMBER 2019.

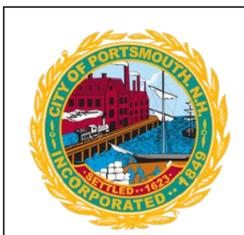
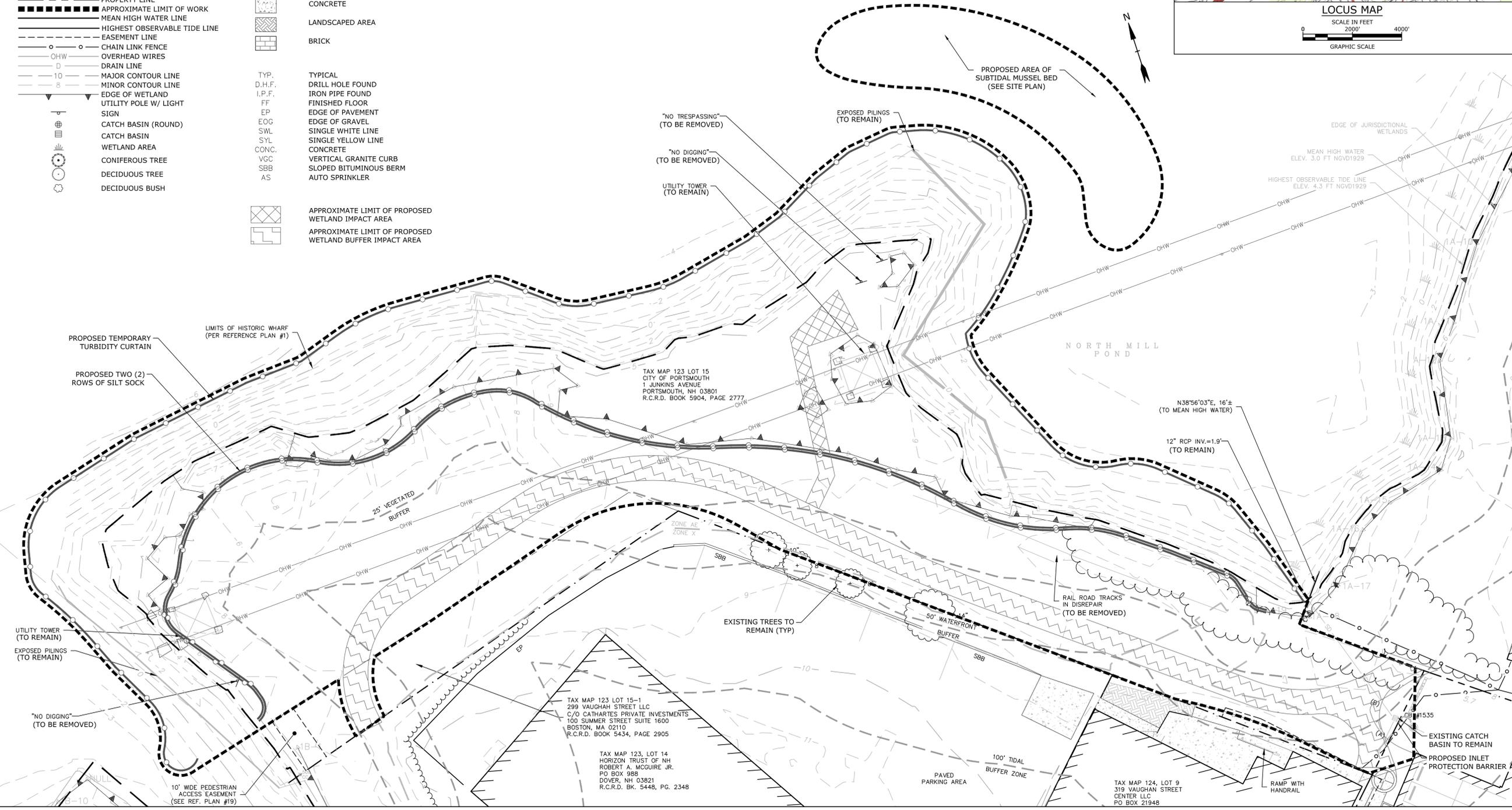
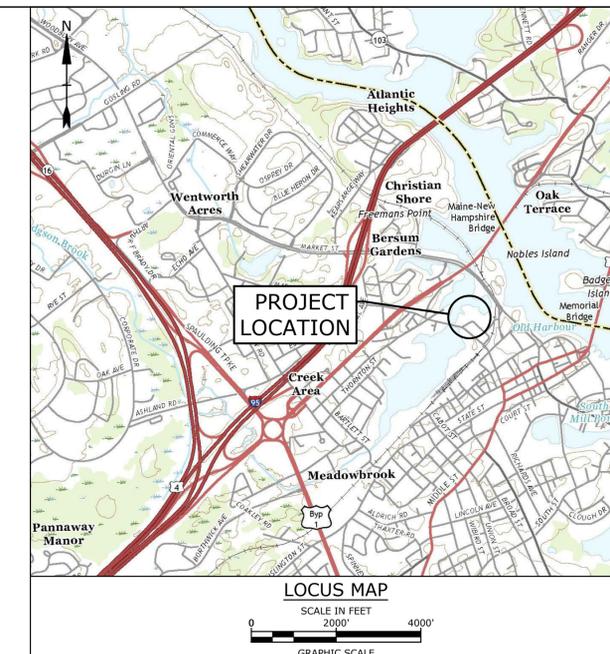
- DEMOLITION NOTES:**
- THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK.
  - THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES. CALL DIG SAFE AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITIES.
  - ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES AND CODES.

- COORDINATE REMOVAL, RELOCATION, DISPOSAL OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.
- ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/ DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO MATCH ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH THE CONDITIONS OF ALL OF THE PERMIT APPROVALS.
- THE CONTRACTOR SHALL OBTAIN AND PAY FOR ADDITIONAL PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK AND ARRANGE FOR AND PAY FOR NECESSARY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK.
- CONTRACTOR SHALL VERIFY ORIGIN OF ALL DRAINS AND UTILITIES PRIOR TO REMOVAL/TERMINATION TO DETERMINE IF DRAINS OR UTILITY IS ACTIVE, AND SERVICES ANY ON OR OFF-SITE STRUCTURE TO REMAIN. THE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY OF ANY SUCH UTILITY FOUND AND SHALL MAINTAIN THESE UTILITIES UNTIL PERMANENT SOLUTION IS IN PLACE.
- THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, CONCRETE PADS, UTILITIES AND PAVEMENT WITHIN THE WORK LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN. ITEMS TO BE REMOVED INCLUDE BUT ARE NOT LIMITED TO: ABANDONED RAIL ROAD TRACKS, CONCRETE, PAVEMENT, CURBS, UNDER GROUND PIPING, POLES, SIGNS, FENCES, TREES, LANDSCAPING AND DEBRIS.
- REMOVE TREES AND BRUSH AS REQUIRED FOR COMPLETION OF WORK. CONTRACTOR SHALL GRUB AND REMOVE ALL STUMPS WITHIN LIMITS OF WORK AND DISPOSE OF OFF SITE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.
- CONTRACTOR SHALL PROTECT ALL PROPERTY MONUMENTATION THROUGHOUT DEMOLITION AND CONSTRUCTION OPERATIONS. SHOULD ANY MONUMENTATION BE DISTURBED BY THE CONTRACTOR, THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED SURVEYOR TO REPLACE DISTURBED MONUMENTS.

- PROVIDE INLET PROTECTION BARRIERS AT ALL CATCH BASINS/CURB INLETS WITHIN CONSTRUCTION LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. INLET PROTECTION BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT. INLET PROTECTION BARRIERS SHALL BE "HIGH FLOW SILT SACK" BY ACF ENVIRONMENTAL OR EQUAL. INSPECT BARRIERS WEEKLY AND AFTER EACH RAIN EVENT OF 0.25 INCHES OR GREATER. CONTRACTOR SHALL COMPLETE A MAINTENANCE INSPECTION REPORT AFTER EACH INSPECTION. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED OR SEDIMENT HAS ACCUMULATED TO 1/3 THE DESIGN DEPTH OF THE BARRIER.
- EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF ANY CLEARING OR DEMOLITION ACTIVITIES.
- THE CONTRACTOR SHALL PAY ALL COSTS NECESSARY FOR TEMPORARY PARTITIONING, BARRICADING, FENCING, SECURITY AND SAFETY DEVICES REQUIRED FOR THE MAINTENANCE OF A CLEAN AND SAFE CONSTRUCTION SITE.
- WATER BOUNDARIES ARE DYNAMIC IN NATURE AND ARE SUBJECT TO CHANGE DUE TO NATURAL CAUSES SUCH AS EROSION OR ACCRETION.
- MEAN HIGH WATER (EL. 3.0' NGVD1929) AND HIGHEST OBSERVABLE TIDE (EL. 4.3' NGVD1929) ELEVATIONS PER "MAPLEWOOD AVENUE CULVERT REPLACEMENT AND NORTH MILL POND RESTORATION, WATERFRONT/STRUCTURAL BASIS OF DESIGN, BY WATERFRONT ENGINEERS, LLC, DATED DECEMBER 30, 2009".
- MANMADE AND NATURAL JURISDICTIONAL BOUNDARIES WERE DELINEATED BY MARC JACOBS, CERTIFIED WETLAND SCIENTIST NUMBER 090, IN 12/15 ACCORDING TO THE STANDARD OF THE US ARMY CORPS OF ENGINEERS - WETLAND DELINEATION MANUAL, TECHNICAL REPORT T-87-1, JANUARY 1987; THE REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, VERSION 2.0, JANUARY 2012; NH RSA 482-A; THE CODE OF ADMINISTRATIVE RULES, NH DEPARTMENT OF ENVIRONMENTAL SERVICES-WETLANDS BUREAU - CHAPTER ENV-W 100-900; AS WELL AS THE CITY OF PORTSMOUTH ZONING - ARTICAL 10, SECTION 10.1010, WETLANDS CONSERVATION DISTRICT. PREDOMINANT HYDRIC SOILS WERE IDENTIFIED UTILIZING THE FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 3, APRIL 2004 AND THE FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 7. THE INDICATOR STATUS OF HYDROPHYTIC VEGETATION WAS DETERMINED ACCORDING TO THE NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS: NORTHEAST REGION, U.S. FISH AND WILDLIFE SERVICE.

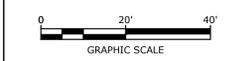
**LEGEND**

--- PROPERTY LINE	--- CONCRETE
--- APPROXIMATE LIMIT OF WORK	--- LANDSCAPED AREA
--- MEAN HIGH WATER LINE	--- BRICK
--- HIGHEST OBSERVABLE TIDE LINE	
--- EASEMENT LINE	TYP. TYPICAL
o--- CHAIN LINK FENCE	o--- DRILL HOLE FOUND
OHW--- OVERHEAD WIRES	o--- IRON PIPE FOUND
D--- DRAIN LINE	o--- FINISHED FLOOR
10--- MAJOR CONTOUR LINE	o--- EDGE OF PAVEMENT
8--- MINOR CONTOUR LINE	o--- EDGE OF GRAVEL
--- EDGE OF WETLAND	o--- SINGLE WHITE LINE
--- UTILITY POLE W/ LIGHT SIGN	o--- SINGLE YELLOW LINE
o--- CATCH BASIN (ROUND)	o--- CONC. CONCRETE
o--- CATCH BASIN	o--- VERTICAL GRANITE CURB
o--- WETLAND AREA	o--- SLOPED BITUMINOUS BERM
o--- CONIFEROUS TREE	o--- AUTO SPRINKLER
o--- DECIDUOUS TREE	
o--- DECIDUOUS BUSH	
	--- APPROXIMATE LIMIT OF PROPOSED WETLAND IMPACT AREA
	--- APPROXIMATE LIMIT OF PROPOSED WETLAND BUFFER IMPACT AREA



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NORTH MILL POND GREENWAY AND  
COMMUNITY PARK - AREA 1  
PORTSMOUTH, NEW HAMPSHIRE



REVISIONS

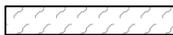
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SCALE:	AS SHOWN

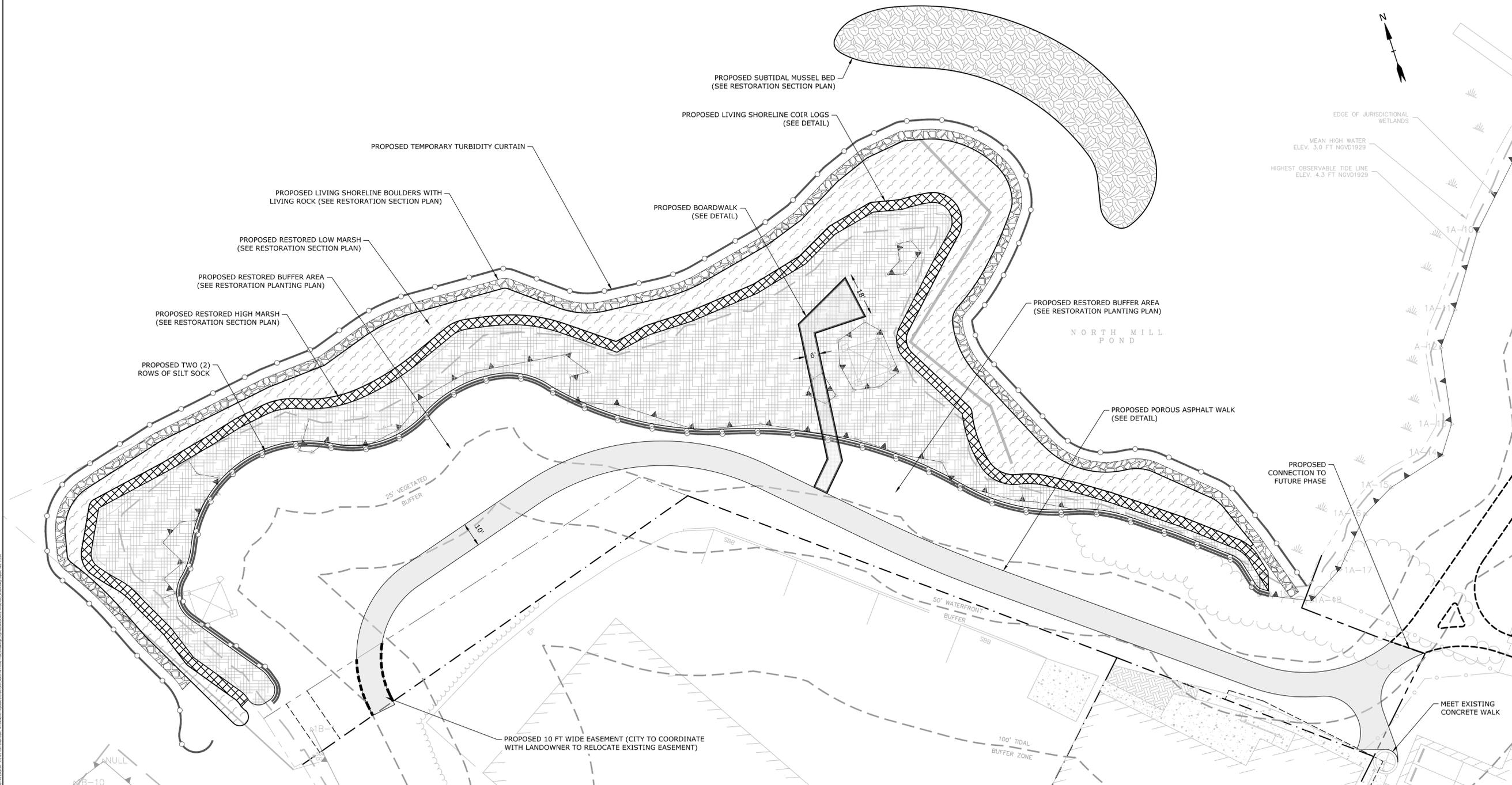
**PERMIT SET**  
NOT FOR CONSTRUCTION  
July 21, 2021  
**EXISTING CONDITIONS AND DEMOLITION PLAN**  
**C-101**

**SITE NOTES:**

1. THE CONTRACTOR SHALL EMPLOY A NEW HAMPSHIRE LICENSED LAND SURVEYOR TO DETERMINE ALL LINES AND GRADES.
2. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAW CUT LINE WITH RS-1 EMULSION IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
3. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES & SPECIFICATIONS.
4. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAY WITH THE CITY OF PORTSMOUTH.
5. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR.
6. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITION.
7. SEE LANDSCAPE PLANS FOR LANDSCAPING MATERIALS AND NOTES.

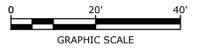
**LEGEND**

	PROPERTY LINE
	APPROXIMATE PROPERTY LINE
	EXISTING EASEMENT LINE
	PROPOSED EASEMENT LINE
	PROPOSED POROUS ASPHALT WALK
	PROPOSED BOARDWALK
	PROPOSED RESTORED HIGH MARSH
	PROPOSED RESTORED LOW MARSH
	PROPOSED LIVING SHORELINE BOULDERS WITH LIVING ROCK
	PROPOSED LIVING SHORELINE BOULDERS WITH LIVING ROCK
	PROPOSED SUBTIDAL OYSTER BED
TYP COORD	TYPICAL COORDINATE



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NORTH MILL POND GREENWAY AND  
 COMMUNITY PARK - AREA 1  
 PORTSMOUTH, NEW HAMPSHIRE



REVISIONS

PROJECT NO: P0766-006  
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 SCALE: AS SHOWN

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 NOT FOR CONSTRUCTION

July 21, 2021

SITE PLAN

C-102

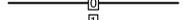
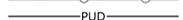
**GRADING AND DRAINAGE NOTES:**

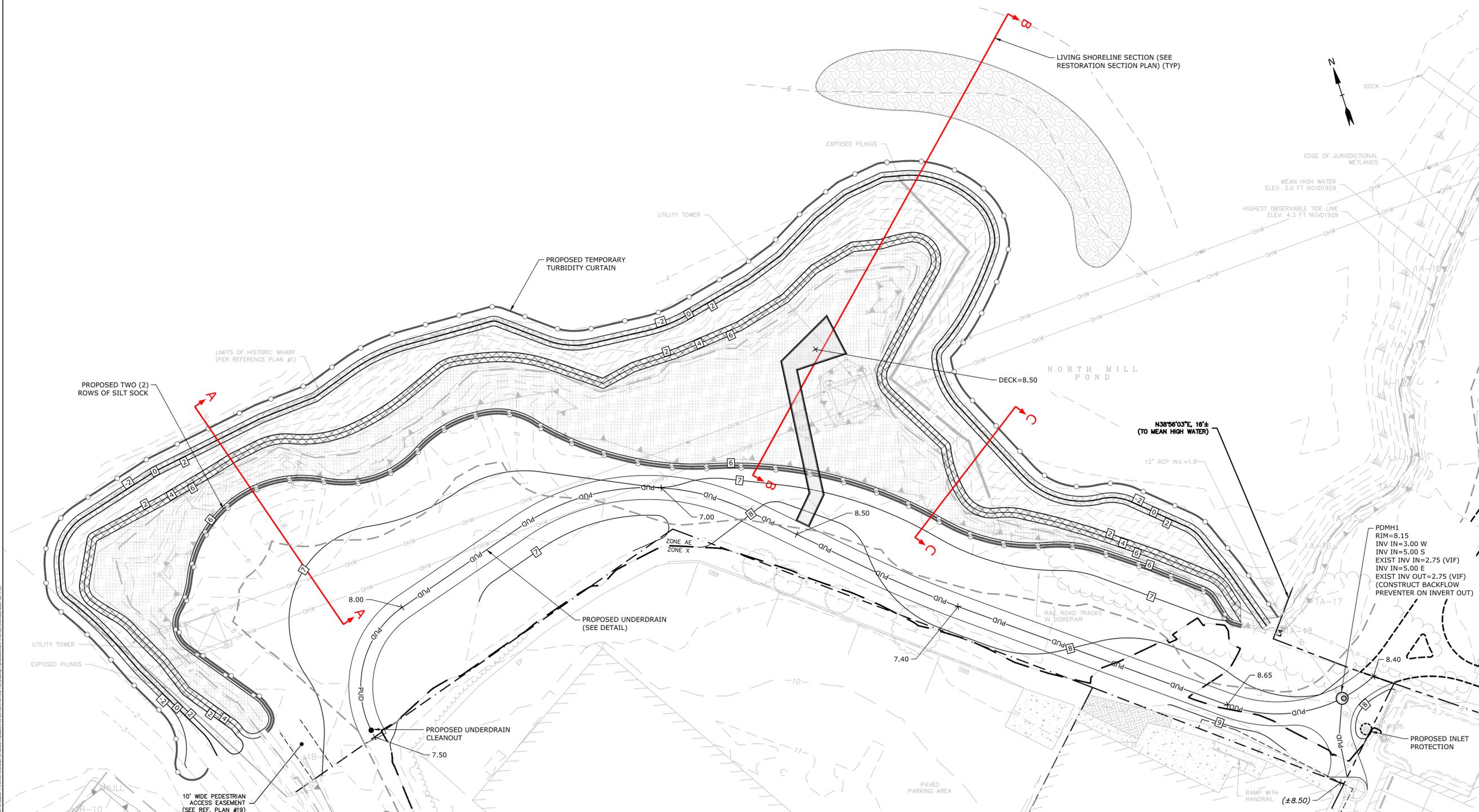
1. COMPACTION REQUIREMENTS:  
 BELOW PAVED OR CONCRETE AREAS 95%  
 TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL 95%  
 BELOW LOAM AND SEED AREAS 90%  
 \* ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557, METHOD C FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM D-1556 OR ASTM-2922.
2. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE AND LAWN AREAS FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCES, EXITS, RAMPS AND LOADING DOCK AREAS ADJACENT TO THE BUILDING.
3. CONTRACTOR SHALL THOROUGHLY CLEAN ALL CATCH BASINS AND DRAIN LINES, WITHIN THE LIMIT OF WORK, OF SEDIMENT IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.
4. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES.
5. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED FERTILIZER AND MULCH.
6. ALL WORK SHALL CONFORM TO THE CITY OF PORTSMOUTH DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS OF ROAD AND BRIDGE CONSTRUCTION", CURRENT EDITION.
7. SEE EXISTING CONDITIONS PLAN FOR BENCH MARK INFORMATION.

**EROSION CONTROL NOTES:**

1. INSTALL EROSION CONTROL BARRIERS AS SHOWN AS FIRST ORDER OF WORK.
2. SEE GENERAL EROSION CONTROL NOTES ON "EROSION CONTROL NOTES & DETAILS SHEET".
3. PROVIDE INLET PROTECTION AROUND ALL EXISTING CATCH BASIN INLETS WITHIN THE WORK LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. MAINTAIN FOR THE DURATION OF THE PROJECT.
4. INSTALL STABILIZED CONSTRUCTION EXIT(S).
5. INSPECT INLET PROTECTION AND PERIMETER EROSION CONTROL MEASURES DAILY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.
6. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED, FERTILIZER AND MULCH.
7. CONSTRUCT EROSION CONTROL BLANKET ON ALL SLOPES STEEPER THAN 3:1.
8. PRIOR TO ANY WORK OR SOIL DISTURBANCE COMMENCING ON THE SUBJECT PROPERTY, INCLUDING MOVING OF EARTH, THE APPLICANT SHALL INSTALL ALL EROSION AND SILTATION MITIGATION AND CONTROL MEASURES AS REQUIRED BY STATE AND LOCAL PERMITS AND APPROVALS.
9. CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST AND WIND EROSION THROUGHOUT THE CONSTRUCTION PERIOD. DUST CONTROL MEASURES SHALL INCLUDE, BUT ARE NOT LIMITED TO, SPRINKLING WATER ON UNSTABLE SOILS SUBJECT TO ARID CONDITIONS.
10. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
11. ALL CATCH BASIN SUMPS AND PIPING SHALL BE THOROUGHLY CLEANED TO REMOVE ALL SEDIMENT AND DEBRIS AFTER THE PROJECT HAS BEEN FULLY PAVED.
12. TEMPORARY SOIL STOCKPILE SHALL BE SURROUNDED WITH PERIMETER CONTROLS AND SHALL BE STABILIZED BY TEMPORARY EROSION CONTROL SEEDING. STOCKPILE AREAS TO BE LOCATED AS FAR AS POSSIBLE FROM THE DELINEATED EDGE OF WETLANDS.
13. SAFETY FENCING SHALL BE PROVIDED AROUND STOCKPILES OVER 10 FT.

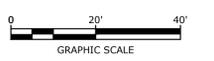
**LEGEND**

-  PROPOSED MAJOR CONTOUR LINE
-  PROPOSED MINOR CONTOUR LINE
-  PROPOSED TEMPORARY EROSION CONTROL DEVICE
-  PROPOSED UNDERDRAIN LINE
-  INLET PROTECTION SILT SACK
-  PROPOSED SPOT ELEVATION
-  EXISTING SPOT ELEVATION
-  PROPOSED SLOPE AND DIRECTION
-  PROPOSED DRAIN MANHOLE



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NORTH MILL POND GREENWAY AND  
 COMMUNITY PARK - AREA 1  
 PORTSMOUTH, NEW HAMPSHIRE



REVISIONS

PROJECT NO:	P0766-006
DRAWN BY:	AFS
CHECKED BY:	PMC
SCALE:	AS SHOWN

**PERMIT SET**  
 NOT FOR CONSTRUCTION  
 July 21, 2021  
 GRADING, DRAINAGE  
 AND EROSION  
 CONTROL PLAN  
**C-103**

**GENERAL PROJECT INFORMATION**

PROJECT OWNER: CITY OF PORTSMOUTH  
1 JUNKINS AVENUE  
PORTSMOUTH, NH 03801  
PROJECT NAME: NORTH MILL POND GREENWAY AND COMMUNITY PARK - AREA 1  
PROJECT ADDRESS: VAUGHAN STREET  
PORTSMOUTH, NH 03801  
PROJECT MAP / LOT: MAP 123 / LOT 15  
PROJECT LATITUDE: 43°-04'-49.95"N  
PROJECT LONGITUDE: 70°-45'-49.31"W

**PROJECT DESCRIPTION**

THE PROJECT CONSISTS OF CONSTRUCTION OF A PROPOSED GREENWAY PATH AND BOARDWALK ALONG THE NORTH MILL POND WATERFRONT INCLUDING WETLAND RESTORATION, INVASIVE SPECIES CONTROL, PROPOSED LIVING SHORELINE AND ADDITIONAL DRAINAGE IMPROVEMENTS.

**DISTURBED AREA**

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY 1.25 ACRES.

**SOIL CHARACTERISTICS**

BASED ON THE NRCS WEB SOIL SURVEY FOR ROCKINGHAM COUNTY - NEW HAMPSHIRE, THE SOILS ON SITE CONSIST OF URBAN LAND SOILS WITH NO HYDROLOGIC SOIL GROUP RATING PROVIDED.

**NAME OF RECEIVING WATERS**

THE STORMWATER RUNOFF FROM THE SITE WILL BE DISCHARGED VIA OVERLAND FLOW OR COLLECTED THROUGH THE POROUS PAVEMENT UNDERDRAIN AND DISCHARGED TO THE NORTH MILL POND.

**CONSTRUCTION SEQUENCE OF MAJOR ACTIVITIES:**

- 1. CUT AND CLEAR VEGETATION.
- 2. CONSTRUCT TEMPORARY AND PERMANENT SEDIMENT, EROSION AND DETENTION CONTROL FACILITIES. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING OPERATIONS THAT WILL INFLUENCE STORMWATER RUNOFF SUCH AS:
  - NEW CONSTRUCTION
  - DEVELOPMENT OF BORROW PIT AREAS
  - DISPOSAL OF SEDIMENT SPOIL, STUMP AND OTHER SOLID WASTE
  - EXCAVATION WORK
  - WETLAND MODIFICATIONS
  - CONTROL OF DUST
  - CONSTRUCTION OF ACCESS AND HAUL ROAD
  - NEARNESS OF CONSTRUCTION SITE TO RECEIVING WATERS
  - CONSTRUCTION DURING LATE WINTER AND EARLY SPRING
- 3. ALL PERMANENT DITCHES, SWALES, DETENTION, RETENTION AND SEDIMENTATION BASINS TO BE STABILIZED USING THE VEGETATIVE AND NON-STRUCTURAL BMPs PRIOR TO DIRECTING RUNOFF TO THEM.
- 4. CLEAR AND DISPOSE OF DEBRIS.
- 5. CONSTRUCT TEMPORARY CULVERTS AND DIVERSION CHANNELS AS REQUIRED.
- 6. CONSTRUCT AND STABILIZE LIVING SHORELINE AND HELICAL PILES FOR PROPOSED BOARDWALK.
- 7. GRADE AND GRAVEL PATH - AREA SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
- 8. FINALIZE BOARDWALK CONSTRUCTION.
- 9. BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
- 10. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, PERIMETER EROSION CONTROL MEASURES, SEDIMENT TRAPS, ETC., MULCH AND SEED AS REQUIRED.
- 11. SEDIMENT TRAPS AND/OR BASINS SHALL BE USED AS NECESSARY TO CONTAIN RUNOFF UNTIL SOILS ARE STABILIZED.
- 12. FINISH PAVING PATH.
- 13. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES.
- 14. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
- 15. REMOVE TRAPPED SEDIMENTS FROM COLLECTOR DEVICES AS APPROPRIATE AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES.

**SPECIAL CONSTRUCTION NOTES:**

- 1. THE CONSTRUCTION SEQUENCE MUST LIMIT THE DURATION AND AREA OF DISTURBANCE.
- 2. THE PROJECT IS TO BE MANAGED IN A MANNER THAT MEETS THE REQUIREMENTS AND INTENT OF RSA 430:53 AND CHAPTER AGR 3800 RELATIVE TO INVASIVE SPECIES.

**EROSION CONTROL NOTES:**

- 1. ALL EROSION CONTROL MEASURES AND PRACTICES SHALL CONFORM TO THE "NEW HAMPSHIRE STORMWATER MANUAL VOLUME 3: EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION" PREPARED BY THE NHDES.
- 3. THE PROJECT MUST BE CONDUCTED IN ACCORDANCE WITH THE "NEW HAMPSHIRE BEST MANAGEMENT PRACTICES FOR EROSION CONTROL DURING TRAIL MAINTENANCE AND CONSTRUCTION (TRAIL BMPs)" PREPARED BY THE NEW HAMPSHIRE BUREAU OF TRAILS.
- 4. PRIOR TO ANY WORK OR SOIL DISTURBANCE, CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR EROSION CONTROL MEASURES AS REQUIRED IN THE PROJECT MANUAL.
- 5. CONTRACTOR SHALL INSTALL TEMPORARY EROSION CONTROL BARRIERS, INCLUDING TURBIDITY CURTAINS, HAY BALES, SILT FENCES, MULCH BERMS, SILT SACKS AND SILT SOCKS AS SHOWN IN THESE DRAWINGS AS THE FIRST ORDER OF WORK.
- 6. SILT SACK INLET PROTECTION SHALL BE INSTALLED IN ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS AND BE MAINTAINED FOR THE DURATION OF THE PROJECT.
- 7. PERIMETER CONTROLS INCLUDING TURBIDITY CURTAINS, SILT FENCES, MULCH BERM, SILT SOCK, AND/OR HAY BALE BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL NON-PAVED AREAS HAVE BEEN STABILIZED.
- 8. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
- 9. ALL DISTURBED AREAS NOT OTHERWISE BEING TREATED SHALL RECEIVE 6" LOAM, SEED AND FERTILIZER.
- 10. INSPECT ALL INLET PROTECTION AND PERIMETER CONTROLS WEEKLY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.

**STABILIZATION:**

- 1. AN AREA SHALL BE CONSIDERED STABLE WHEN ONE OF THE FOLLOWING HAS OCCURRED:
  - A. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
  - B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
  - C. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED;
  - D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.;
  - E. IN AREAS TO BE PAVED, "STABLE" MEANS THAT BASE COURSE GRAVELS MEETING THE REQUIREMENTS OF NHDOT STANDARD FOR ROAD AND BRIDGE CONSTRUCTION, 2016, ITEM 304.2 HAVE BEEN INSTALLED.
- 2. WINTER STABILIZATION PRACTICES:
  - A. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS;
  - B. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;
  - C. AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;
- 3. STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY-ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA. STABILIZATION MEASURES TO BE USED INCLUDE:
  - A. TEMPORARY SEEDING;
  - B. MULCHING;
- 4. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
- 5. WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF NEARBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN THESE AREAS, SILT FENCES, MULCH BERMS, HAY BALE BARRIERS AND ANY EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.
- 6. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED

THROUGH SILT FENCES, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY OCTOBER 15.

**DUST CONTROL:**

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST THROUGHOUT THE CONSTRUCTION PERIOD.
- 2. DUST CONTROL METHODS SHALL INCLUDE, BUT BE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING.
- 3. DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.

**STOCKPILES:**

- 1. LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM SURFACE WATERS, CATCH BASINS, SWALES, AND CULVERTS.
- 2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES PRIOR TO THE ONSET OF PRECIPITATION.
- 3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
- 4. PROTECT ALL STOCKPILES FROM STORMWATER RUN-OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

**OFF SITE VEHICLE TRACKING:**

- 1. THE CONTRACTOR SHALL CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE(S) PRIOR TO ANY EXCAVATION ACTIVITIES.

**VEGETATION:**

- 1. TEMPORARY GRASS COVER:
  - A. SEEDBED PREPARATION:
    - a. APPLY FERTILIZER AT THE RATE OF 600 POUNDS PER ACRE OF 10-10-10. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF THREE (3) TONS PER ACRE;
  - B. SEEDING:
    - a. UTILIZE ANNUAL RYE GRASS AT A RATE OF 40 LBS/ACRE;
    - b. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF TWO (2) INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED;
    - c. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). HYDROSEEDINGS, WHICH INCLUDE MULCH, MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING;
  - C. MAINTENANCE:
    - a. TEMPORARY SEEDING SHALL BE PERIODICALLY INSPECTED. AT A MINIMUM, 95% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHALL BE MADE AND OTHER TEMPORARY MEASURES USED IN THE INTERIM (MULCH, FILTER BARRIERS, CHECK DAMS, ETC.).
- 2. PERMANENT MEASURES AND PLANTINGS:
  - A. SEE RESTORATION PLANTING PLAN (SHEET L-101).

**ALLOWABLE NON-STORMWATER DISCHARGES:**

- 1. FIRE-FIGHTING ACTIVITIES;
- 2. FIRE HYDRANT FLUSHING;
- 3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
- 4. WATER USED TO CONTROL DUST;
- 5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
- 6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
- 7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED;
- 8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
- 9. UNCONTAMINATED GROUND WATER OR SPRING WATER;
- 10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;
- 11. UNCONTAMINATED EXCAVATION DEWATERING;
- 12. LANDSCAPE IRRIGATION.

**WASTE DISPOSAL:**

- 1. WASTE MATERIAL:
  - A. ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A DUMPSTER;
  - B. NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
  - C. ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
- 2. HAZARDOUS WASTE:
  - A. ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER;
  - B. SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
- 3. SANITARY WASTE:
  - A. ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

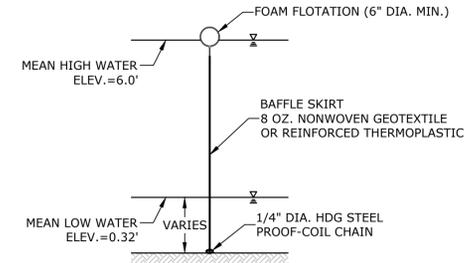
**SPILL PREVENTION:**

- 1. CONTRACTOR SHALL BE FAMILIAR WITH SPILL PREVENTION MEASURES REQUIRED BY LOCAL, STATE AND FEDERAL AGENCIES. AT A MINIMUM, CONTRACTOR SHALL FOLLOW THE BEST MANAGEMENT SPILL PREVENTION PRACTICES OUTLINED BELOW.
- 2. THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES DURING CONSTRUCTION TO STORMWATER RUNOFF:
  - A. GOOD HOUSEKEEPING - THE FOLLOWING GOOD HOUSEKEEPING PRACTICE SHALL BE FOLLOWED ON SITE DURING CONSTRUCTION:
    - a. ONLY SUFFICIENT AMOUNTS OF PRODUCTS TO DO THE JOB SHALL BE STORED ON SITE;
    - b. ALL REGULATED MATERIALS STORED ON SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR PROPER (ORIGINAL IF POSSIBLE) CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE, ON AN IMPERVIOUS SURFACE;
    - c. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED;
    - d. THE SITE SUPERINTENDENT SHALL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS;
    - e. SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER;
    - f. WHENEVER POSSIBLE ALL OF A PRODUCT SHALL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
    - g. THE TRAINING OF ON-SITE EMPLOYEES AND THE ON-SITE POSTING OF RELEASE RESPONSE INFORMATION DESCRIBING WHAT TO DO IN THE EVENT OF A SPILL OF REGULATED SUBSTANCES.
  - B. HAZARDOUS PRODUCTS - THE FOLLOWING PRACTICES SHALL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:
    - a. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE;
    - b. ORIGINAL LABELS AND MATERIAL SAFETY DATA SHALL BE RETAINED FOR IMPORTANT PRODUCT INFORMATION;
    - c. SURPLUS PRODUCT THAT MUST BE DISPOSED OF SHALL BE DISCARDED ACCORDING TO THE MANUFACTURER'S RECOMMENDED METHODS OF DISPOSAL.
  - C. PRODUCT SPECIFIC PRACTICES - THE FOLLOWING PRODUCT SPECIFIC PRACTICES SHALL BE FOLLOWED ON SITE:
    - i. PETROLEUM PRODUCTS:
      - a. ALL ON SITE VEHICLES SHALL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE LEAKAGE;
      - ii. PETROLEUM PRODUCTS SHALL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT BASED SUBSTANCES USED ON SITE SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
      - iii. SECURE FUEL STORAGE AREAS AGAINST UNAUTHORIZED ENTRY;
      - iv. INSPECT FUEL STORAGE AREAS WEEKLY;
      - v. WHEREVER POSSIBLE, KEEP REGULATED CONTAINERS THAT ARE STORED OUTSIDE MORE THAN 50 FEET FROM SURFACE WATER AND STORM DRAINS, 75 FEET FROM PRIVATE WELLS, AND 400 FEET FROM PUBLIC WELLS;
      - vi. COVER REGULATED CONTAINERS IN OUTSIDE STORAGE AREAS;
      - vii. SECONDARY CONTAINMENT IS REQUIRED FOR CONTAINERS CONTAINING REGULATED SUBSTANCES STORED OUTSIDE, EXCEPT FOR ON PREMISE USE HEATING FUEL TANKS, OR ABOVEGROUND OR UNDERGROUND STORAGE TANKS OTHERWISE REGULATED.
      - viii. THE FUEL HANDLING REQUIREMENTS SHALL INCLUDE:
        - (1) EXCEPT WHEN IN USE, KEEP CONTAINERS CONTAINING REGULATED SUBSTANCES CLOSED AND SEALED;

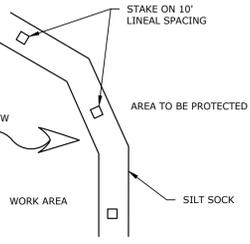
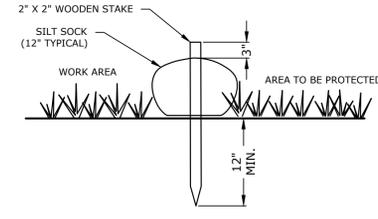
- (2) PLACE DRIP PANS UNDER SPIGOTS, VALVES, AND PUMPS;
  - (3) HAVE SPILL CONTROL AND CONTAINMENT EQUIPMENT READILY AVAILABLE IN ALL WORK AREAS;
  - (4) USE FUNNELS AND DRIP PANS WHEN TRANSFERRING REGULATED SUBSTANCES;
  - (5) PERFORM TRANSFERS OF REGULATED SUBSTANCES OVER AN IMPERVIOUS SURFACE.
- ix. FUELING AND MAINTENANCE OF EXCAVATION, EARTHMOVING AND OTHER CONSTRUCTION RELATED EQUIPMENT SHALL COMPLY WITH THE REGULATIONS OF THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES THESE REQUIREMENTS ARE SUMMARIZED IN WD-DWGB-22-6 BEST MANAGEMENT PRACTICES FOR FUELING AND MAINTENANCE OF EXCAVATION AND EARTHMOVING EQUIPMENT, OR ITS SUCCESSOR DOCUMENT. [HTTPS://WWW.DES.NH.GOV/ORGANIZATION/COMMISSIONER/PIP/FACTSHEETS/DWGB/DOCUMENTS/DWGB-22-6.PDF](https://www.des.nh.gov/organization/commissioner/pip/factsheets/dwgb/documents/dwgb-22-6.pdf)
  - b. FERTILIZERS
    - i. FERTILIZERS USED SHALL BE APPLIED ONLY IN THE MINIMUM AMOUNTS DIRECTED BY THE SPECIFICATIONS;
    - ii. ONCE APPLIED FERTILIZER SHALL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORMWATER;
    - iii. STORAGE SHALL BE IN A COVERED SHED OR ENCLOSED TRAILERS. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER SHALL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
  - c. PAINTS:
    - i. ALL CONTAINERS SHALL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE;
    - ii. EXCESS PAINT SHALL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM;
    - iii. EXCESS PAINT SHALL BE DISPOSED OF PROPERLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.
  - d. SPILL CONTROL PRACTICES - IN ADDITION TO GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTION, THE FOLLOWING PRACTICES SHALL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:
    - a. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE CLEARLY POSTED AND SITE PERSONNEL SHALL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES;
    - b. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP SHALL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE. EQUIPMENT AND MATERIALS SHALL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST AND PLASTIC OR METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE;
    - c. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY;
    - d. THE SPILL AREA SHALL BE KEPT WELL VENTILATED AND PERSONNEL SHALL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE;
    - e. SPILLS OF TOXIC OR HAZARDOUS MATERIAL SHALL BE REPORTED TO THE APPROPRIATE LOCAL, STATE OR FEDERAL AGENCIES AS REQUIRED;
    - f. THE SITE SUPERINTENDENT RESPONSIBLE FOR DAY-TO-DAY SITE OPERATIONS SHALL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR.
  - e. VEHICLE FUELING AND MAINTENANCE PRACTICE:
    - a. CONTRACTOR SHALL MAKE AN EFFORT TO PERFORM EQUIPMENT/VEHICLE FUELING AND MAINTENANCE AT AN OFF-SITE FACILITY;
    - b. CONTRACTOR SHALL PROVIDE AN ON-SITE FUELING AND MAINTENANCE AREA THAT IS CLEAN AND DRY;
    - c. IF POSSIBLE THE CONTRACTOR SHALL KEEP AREA COVERED;
    - d. CONTRACTOR SHALL KEEP A SPILL KIT AT THE FUELING AND MAINTENANCE AREA;
    - e. CONTRACTOR SHALL REGULARLY INSPECT VEHICLES FOR LEAKS AND DAMAGE;
    - f. CONTRACTOR SHALL USE DRIP PANS, DRIP CLOTHS, OR ABSORBENT PADS WHEN REPLACING SPENT FLUID.

**EROSION CONTROL OBSERVATIONS AND MAINTENANCE PRACTICES**

- 1. THIS PROJECT EXCEEDS ONE (1) ACRE OF DISTURBANCE AND THUS REQUIRE A SWPPP. THE SWPPP SHALL BE PREPARED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE FAMILIAR WITH THE SWPPP AND KEEP AN UPDATED COPY OF THE SWPPP ON SITE AT ALL TIMES.
- 2. THE FOLLOWING REPRESENTS THE GENERAL OBSERVATION AND REPORTING PRACTICES THAT SHALL BE FOLLOWED AS PART OF THIS PROJECT:
  - A. OBSERVATIONS OF THE PROJECT FOR COMPLIANCE WITH THE SWPPP SHALL BE MADE BY THE CONTRACTOR AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF A STORM 0.25 INCHES OR GREATER;
  - B. AN OBSERVATION REPORT SHALL BE MADE AFTER EACH OBSERVATION AND DISTRIBUTED TO THE ENGINEER, THE OWNER, AND THE CONTRACTOR;
  - C. A REPRESENTATIVE OF THE SITE CONTRACTOR, SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR ACTIVITIES;
  - D. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT.

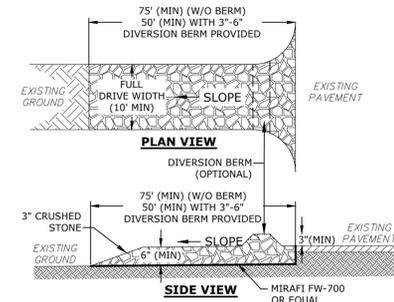


**FULL-DEPTH TURBIDITY CURTAIN**  
NO SCALE



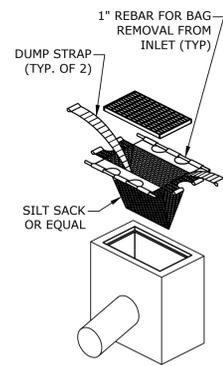
- NOTES:
  - 1. SILT SOCK SHALL BE SILT SOCK BY FILTREXX OR APPROVED EQUAL.
  - 2. SILT SOCK SHALL BE FILLED WITH FILTERMEDIA BY FILTREXX OR APPROVED EQUAL.
  - 3. WHERE TWO SILT SOCKS ARE JOINED, A MINIMUM OF 2 FEET OF OVERLAP SHALL BE MAINTAINED.
  - 4. SILT SOCKS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
  - 5. CONTRACTOR TO INSTALL SILT SOCK IN J-HOOK OR SMILE CONFIGURATION TO LIMIT CONCENTRATION OF STORMWATER RUNOFF AT A SINGLE DISCHARGE POINT.

**SILT SOCK**  
NO SCALE

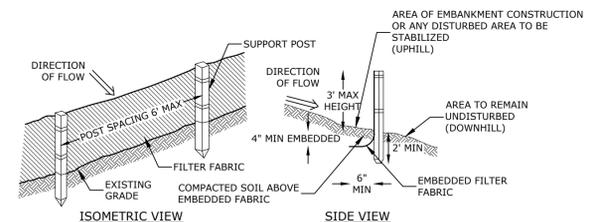


- NOTES:
  - 1. THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT FROM THE SITE. WHEN WASHING IS REQUIRED, IT SHALL BE DONE SO RUNOFF DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS

**STABILIZED CONSTRUCTION EXIT**  
NO SCALE



**SILT SACK**  
NO SCALE



- NOTES:
  - 1. SILT FENCE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
  - 2. ADJOINING SECTIONS OF THE FENCE SHALL BE OVERLAPPED BY 6 INCHES, FOLDED AND STAPLED TO A SUPPORT POST.
  - 3. SILT FENCING SHOULD NOT BE STAPLED OR NAILED TO TREES.
  - 4. THE FILTER FABRIC SHOULD BE A PERVIOUS SHEET OF PROPYLENE, NYLON, POLYESTER OR ETHYLENE YARN AND SHOULD BE CERTIFIED BY THE MANUFACTURER OR SUPPLIER.
  - 5. THE FILTER FABRIC SHOULD CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF 6 MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0 DEGREES FAHRENHEIT TO 120 DEGREES FAHRENHEIT.

**SILT FENCE**  
NO SCALE



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NORTH MILL POND GREENWAY AND  
COMMUNITY PARK - AREA 1

PORTSMOUTH, NEW HAMPSHIRE



REVISIONS

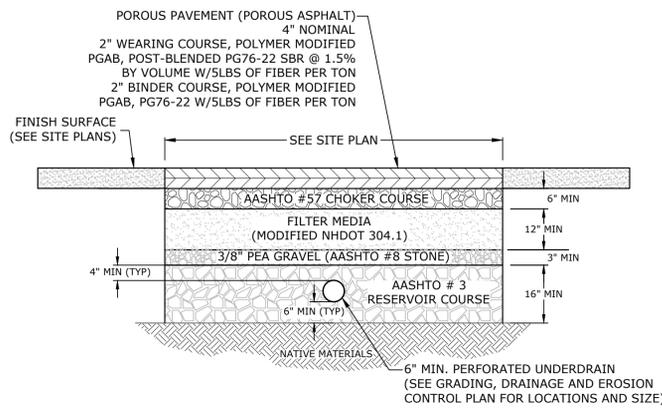
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CHECKED BY: PMC  
SCALE: AS SHOWN

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NOT FOR CONSTRUCTION

July 21, 2021

**EROSION CONTROL**  
NOTES AND  
DETAILS SHEET

**C-501**

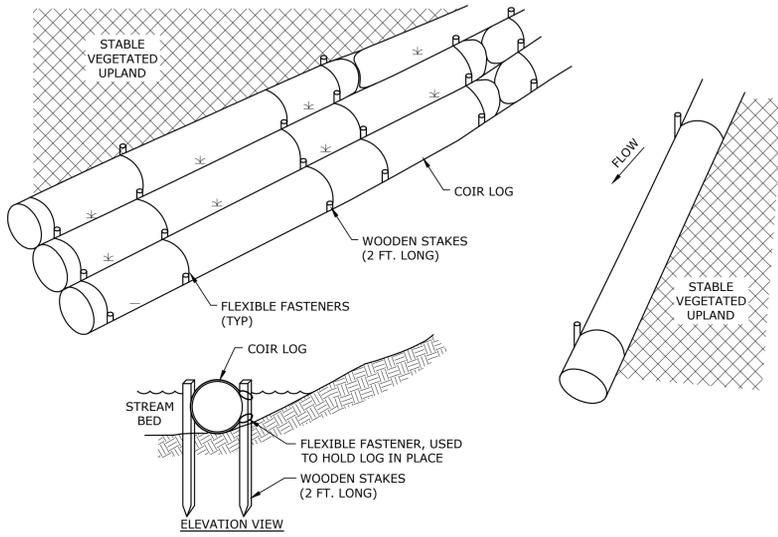


AASHTO #3 STONE (RESERVOIR COURSE)	
SIEVE SIZE	% PASSING
2 1/4"	100
2"	90-100
1 1/2"	35-70
1"	0-15
3/4"	0-5

AASHTO #8 STONE (PEA GRAVEL)	
SIEVE SIZE	% PASSING
1/2"	100
3/4"	85-100
#4	10-30
#8	0-10
#16	0-5

MODIFIED NHDOT 304.1	
SIEVE SIZE	% PASSING
6"	100
#4	70-100
#200	0-6*

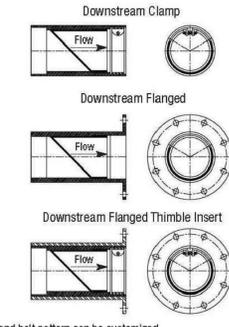
NHDOT ITEM No. 304.3 (CRUSHED GRAVEL)	
SIEVE SIZE	% PASSING
3"	100
2"	95-100
1"	55-85
#4	27-52
#200	0-12



**TYPICAL COIR LOG USE FOR BANK STABILIZATION**  
NO SCALE

NOMINAL PIPE SIZE I.D.*		OVERALL LENGTH**		NUMBER OF CLAMPS	CUFF DEPTH		BACK PRESSURE RATING	
Inches	Millimeters	Inches	Millimeters		Inches	Millimeters	Feet	Meters
12	300	23	584	1	2	51	40	12

**Mounting Styles and Configurations**

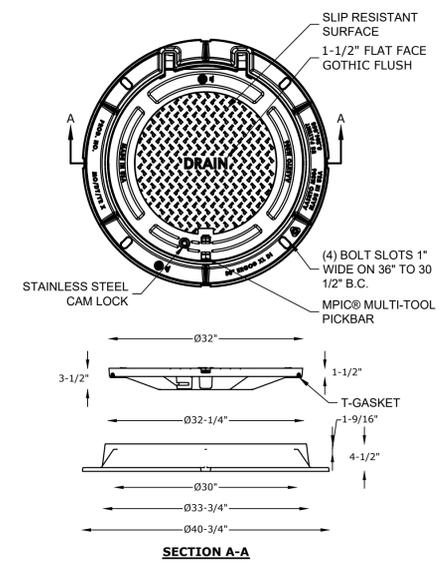


Flange shape and bolt pattern can be customized. Flangeless thimble inserts are available.

**TYPICAL BACK FLOW PREVENTER**  
NO SCALE

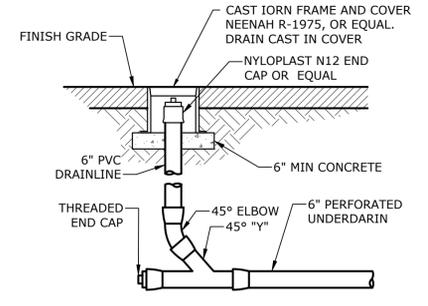
- NOTES:**
- SEE GRADING AND DRAINAGE PLAN FOR SLOPE AND CROSS-SLOPE.
  - GRAVEL SECTION SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST SPECIFICATIONS FROM THE UNH STORMWATER CENTER FOR POROUS ASPHALT.
  - FILTER COURSE TO BE INCREASED AS NECESSARY TO MEET PROPOSED GRADES.
  - INSTALL FILTER COURSE AGGREGATE IN 8-INCH MAXIMUM LIFTS TO A MAXIMUM OF 95% STANDARD PROCTOR COMPACTION (ASTM D698 / AASHTO T99). INSTALL AGGREGATE TO GRADES INDICATED ON THE DRAWINGS.
  - INSTALL CHOKER, GRAVEL, AND STONE BASE COURSE AGGREGATE TO A MAXIMUM OF 95% COMPACTION STANDARD PROCTOR (ASTM D698 / AASHTO T99). CHOKER SHOULD BE PLACED EVENLY OVER SURFACE OF FILTER COURSE BED, SUFFICIENT TO ALLOW PLACEMENT OF PAVEMENT, AND NOTIFY ENGINEER FOR APPROVAL. CHOKER BASE COURSE THICKNESS SHALL BE SUFFICIENT TO ALLOW FOR EVEN PLACEMENT OF THE POROUS ASPHALT BUT NO LESS THAN 6-INCHES IN DEPTH.
  - THE DENSITY OF SUBBASE COURSES SHALL BE DETERMINED BY AASHTO T 191 (SAND-CONE METHOD), AASHTO T 204 (DRIVE CYLINDER METHOD), OR AASHTO T 238 (NUCLEAR METHODS), OR OTHER APPROVED METHODS AT THE DISCRETION OF THE SUPERVISING ENGINEER.

**POROUS PAVEMENT SECTION**  
NO SCALE

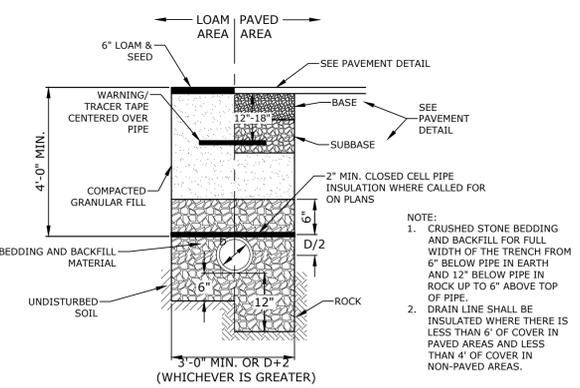


- NOTES:**
- MANHOLE FRAME AND COVER SHALL BE 32\"/>

**DRAIN MANHOLE FRAME & COVER**  
NO SCALE

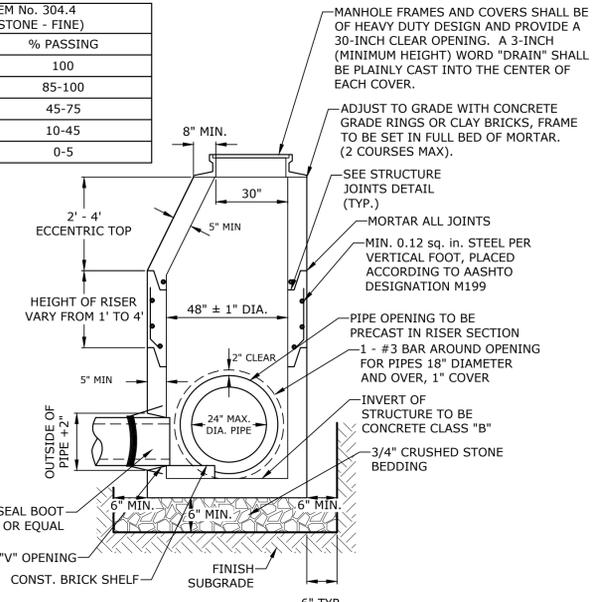


**DRAIN CLEAN-OUT**  
NO SCALE



**STORM DRAIN TRENCH**  
NO SCALE

NHDOT ITEM No. 304.4 (CRUSHED STONE - FINE)	
SIEVE SIZE	% PASSING
2"	100
1-1/2"	85-100
3/4"	45-75
#4	10-45
#200	0-5



- NOTES:**
- ALL SECTIONS SHALL BE 4,000 PSI CONCRETE.
  - CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
  - THE TONGUE AND THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
  - THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
  - CONSTRUCT CRUSHED STONE BEDDING AND BACKFILL UNDER (6\"/>

**4\"/>**



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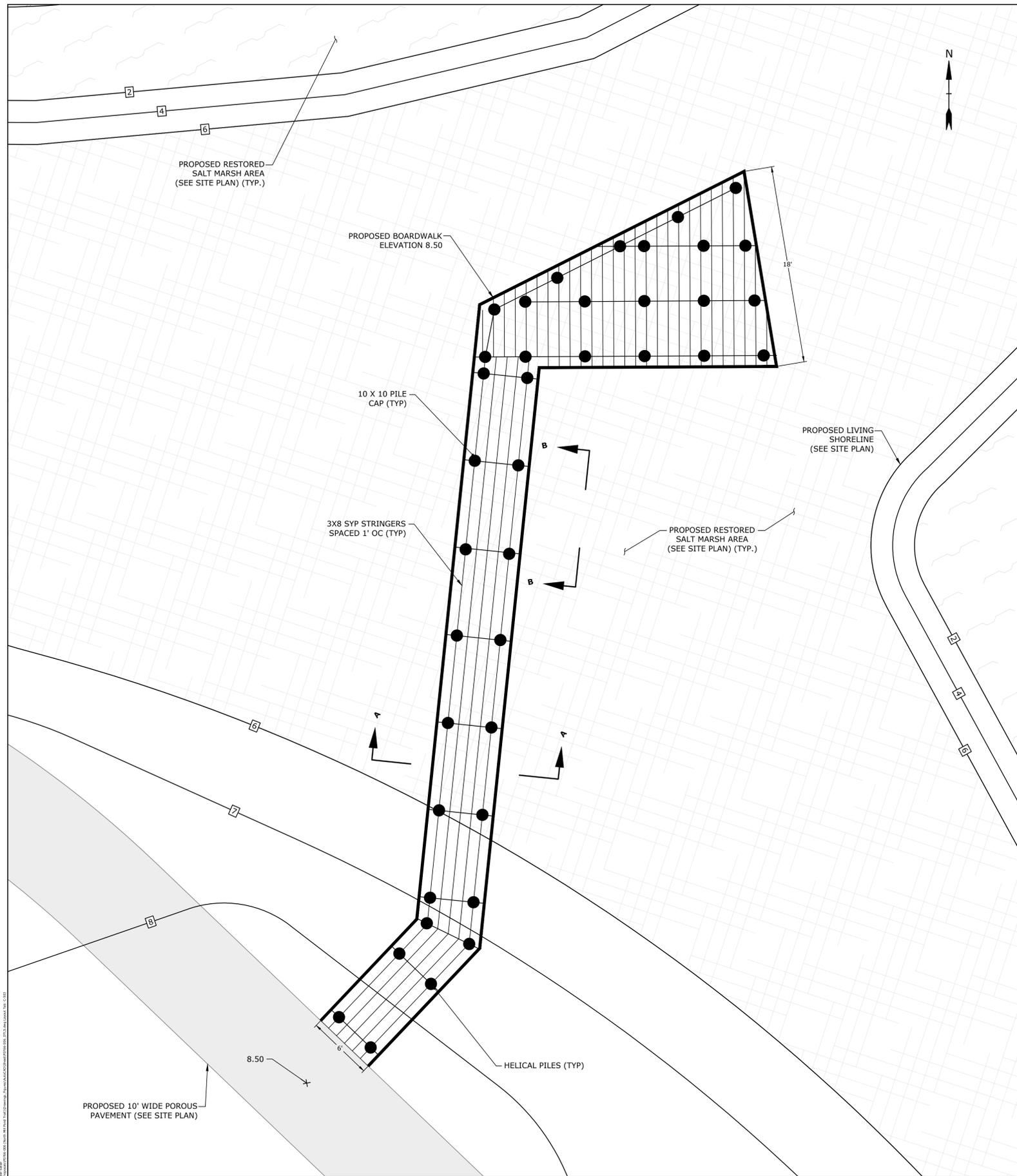
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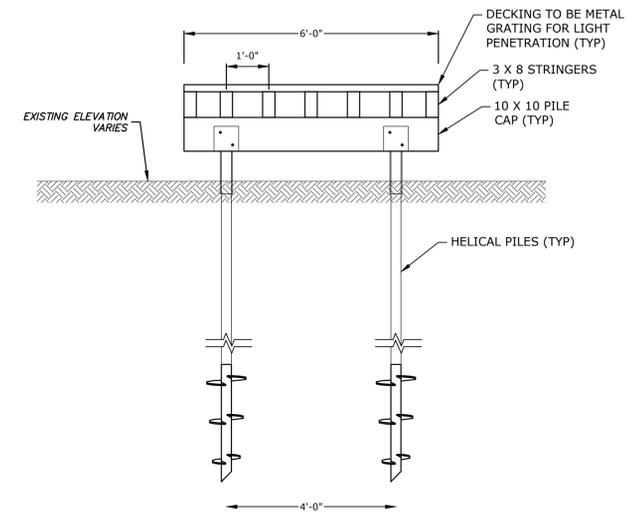
July 21, 2021

DETAILS SHEET

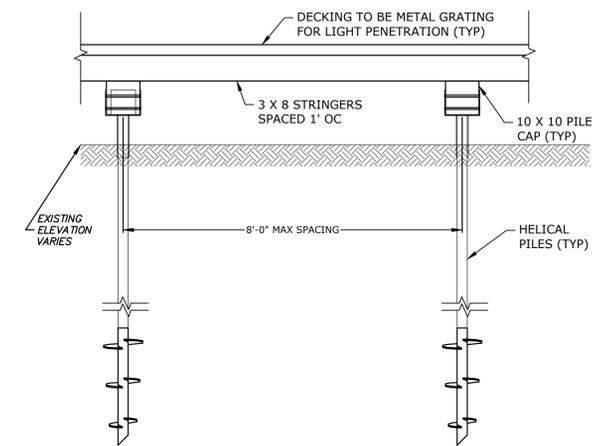
**C-502**



**BOARDWALK PLAN VIEW**  
1" = 5'



**BOARDWALK SECTION A-A**  
1/2" = 1'



**BOARDWALK SECTION B-B**  
1/2" = 1'



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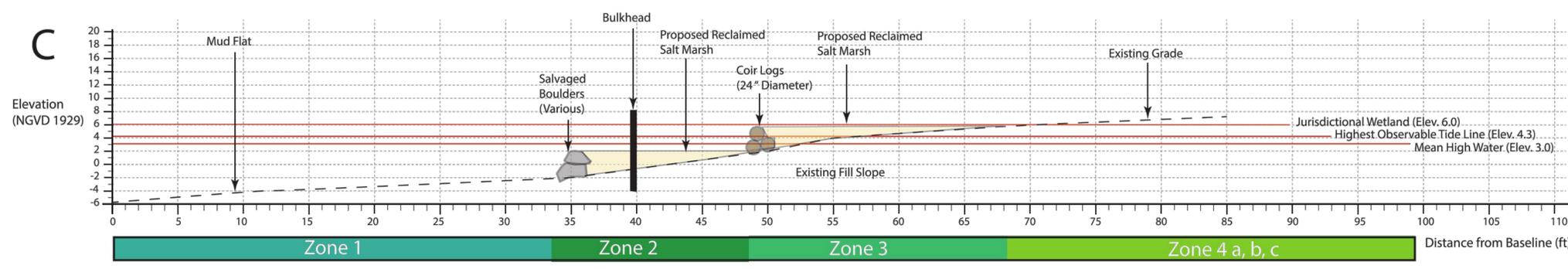
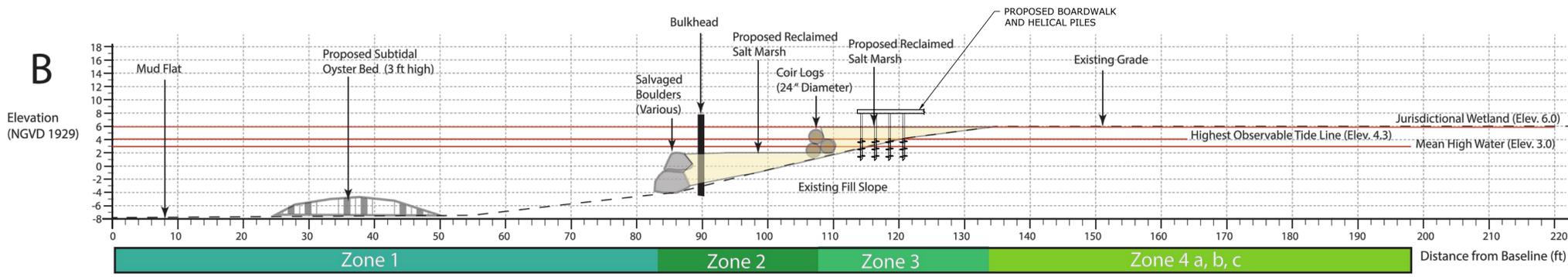
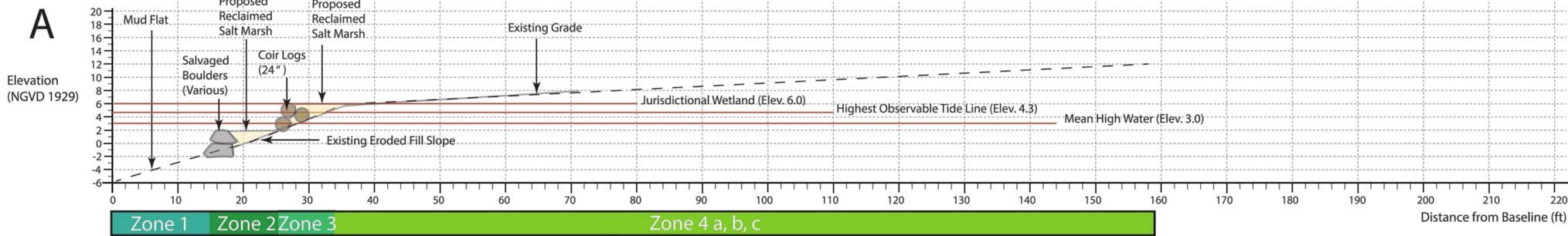
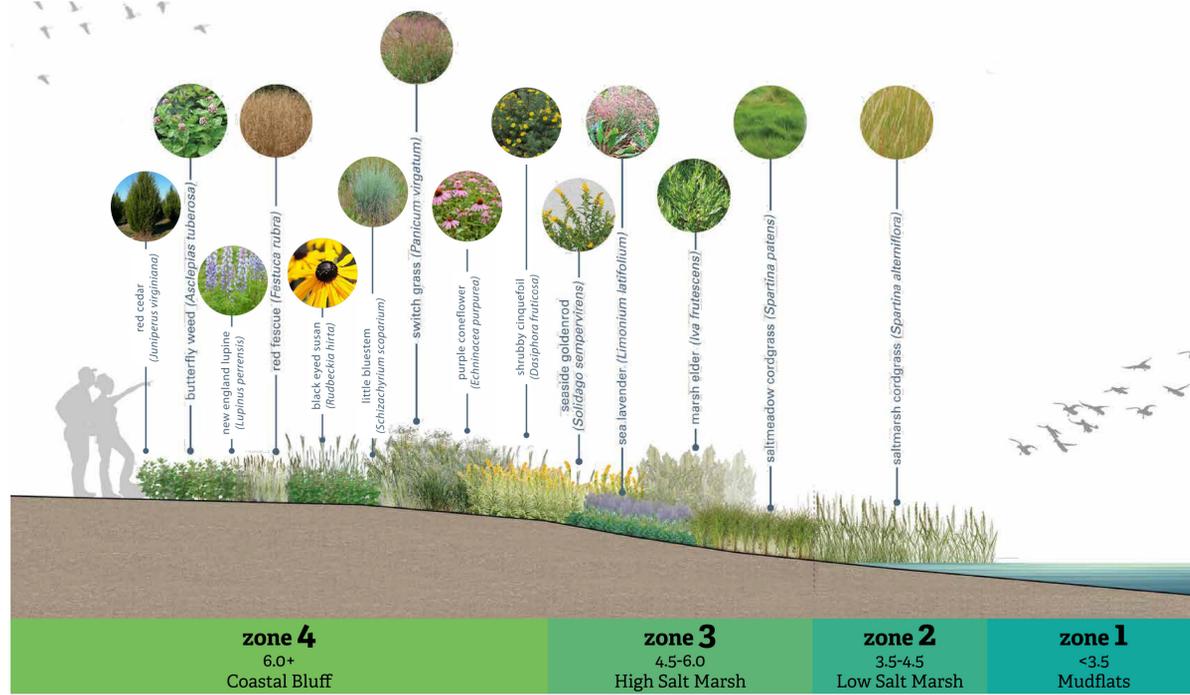
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BOARDWALK DETAILS  
SHEET

C-503



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NORTH MILL POND GREENWAY AND  
COMMUNITY PARK - AREA 1

PORTSMOUTH, NEW HAMPSHIRE



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July 21, 2021

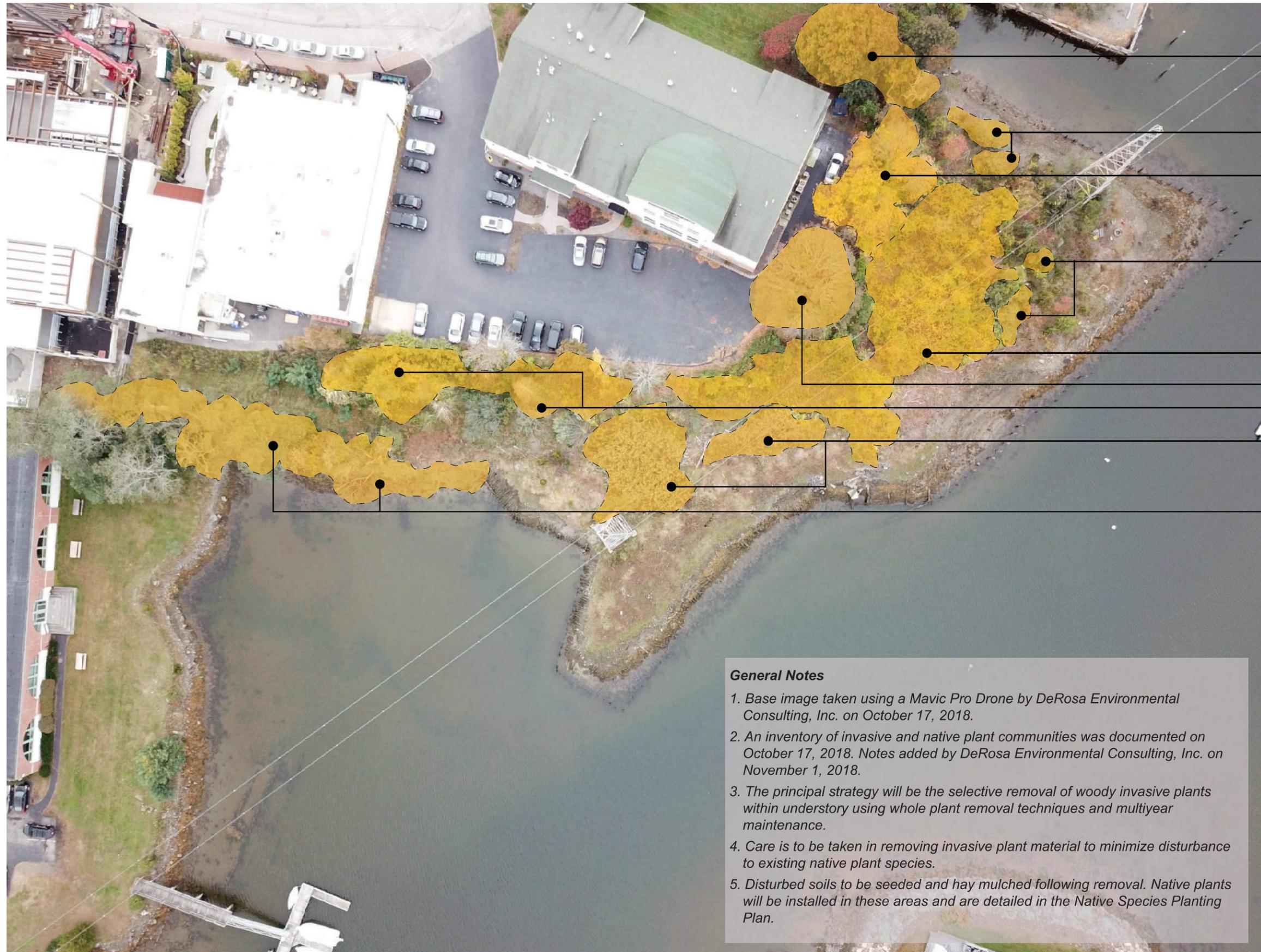
RESTORATION  
SECTION PLAN

**C-504**

1/2" = 1' (VERTICAL) 1/8" = 10' (HORIZONTAL)  
 DATE: 07/21/21 10:58 AM  
 PROJECT: NORTH MILL POND GREENWAY AND COMMUNITY PARK - AREA 1  
 DRAWING: C-504







- Asiatic Bittersweet
- Autumn Olive
- Norway Maple (canopy and saplings)
- Autumn Olive
- Asiatic Bittersweet
- Norway Maple
- Japanese Knotweed
- Phragmites
- Black Locust (canopy and saplings)

**General Notes**

1. Base image taken using a Mavic Pro Drone by DeRosa Environmental Consulting, Inc. on October 17, 2018.
2. An inventory of invasive and native plant communities was documented on October 17, 2018. Notes added by DeRosa Environmental Consulting, Inc. on November 1, 2018.
3. The principal strategy will be the selective removal of woody invasive plants within understory using whole plant removal techniques and multiyear maintenance.
4. Care is to be taken in removing invasive plant material to minimize disturbance to existing native plant species.
5. Disturbed soils to be seeded and hay mulched following removal. Native plants will be installed in these areas and are detailed in the Native Species Planting Plan.

Michael J. DeRosa  
PWS No. 2250

MJD/aem  
November 5, 2018



*Michael J. DeRosa*



**DEROSA**  
Environmental  
CONSULTING, INC.

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Riverton Massachusetts  
USA

978.948.7177 Office

derosaevironmental.com

**Owner's Letter of Authorization**

I, **Peter Britz**, of The City of Portsmouth (Owner) hereby give Tighe & Bond, Inc. (site/civil Engineer) permission to be my agent in all site design and permitting matters for the proposed project located at 0 Vaughan Street in Portsmouth, New Hampshire on the parcel of land identified as Tax Map 123 Lot 15. This authorization shall include any required signatures for local, state and federal permit applications.

  
Signature

Peter Britz  
Print Name

9-21-21  
Date

  
Witness

IZAK Gilbo  
Print Name

9-21-21  
Date