

July 23, 2021
W-P Project No. 14202A

Ms. Stefanie M. Giallongo
NHDES Wetland Bureau
29 Hazen Drive, PO Box 95
Portsmouth, NH 03301

Subject: NHDES File No. 2020-02959
Response to Request for More Information
City of Portsmouth Little Bay Water Line Replacement
Durham and Newington, NH

Dear Ms. Giallongo:

On behalf of the City of Portsmouth, we have prepared the following response to the Request for More Information Letter regarding NHDES File Number: 2020-02959. Response to NHDES comments are included below but first we'd like to note that there have been a few design updates since the original application was submitted. A revised drawing set is provided as Attachment A.

The original application called for the installation of turbidity curtains to contain sediment while in-water excavation occurs for the pipeline. The design now calls for installation of a temporary sheet pile cofferdam to contain sediment during excavation. The proposed coffer dam will be 25 ft wide and extend into the Little Bay to the limits of the previously proposed turbidity curtain. A 24 ft wide temporary trestle is also proposed to be installed adjacent to the proposed coffer dam. The trestle will require the installation of a temporary ramp so that equipment can access the trestle from the bank. The trestle will provide equipment access to the coffer dam including excavators needed for the in-water excavation and cranes for water main installation. Providing equipment access by trestle will reduce the need for barges and improve the efficiency of trench excavation since work will not be subject to tidal limitations experienced by barges. The trestle will be constructed of steel pipe piles and steel frame with a timber deck. Upon installation of the water line, all components of the trestle and coffer dam will be removed. The attached revised plan set shows the proposed location of the proposed coffer dam and trestle. The proposed coffer dam and trestle will require a minor increase in temporary impacts to tidal waters than previously proposed. Installation of the trestle and cofferdam system will require some additional temporary impacts to the bank on the Newington side in order to provide construction vehicle access to the coffer dam ramp.

Coordination with the Town of Newington resulted in some changes to the proposed construction area. The construction staging area is now proposed in the field to the north of the existing water line alignment. This will eliminate the need for temporary impacts within the Tidal Buffer Zone south of the existing alignment. The Town of Newington Conservation Commission also requested some shrubs be planted where clearing is



necessary for construction access to the water. A proposed planting plan is shown on C-18 depicting the plantings proposed adjacent to the easement.

Ongoing coordination with the property owners in Durham have resulted in some revisions to the Durham site plan. The property owner at 186 Piscataqua Road has requested several construction considerations be incorporated into the project including use of timber mats for surfacing the temporary construction access drive, use of timber mats to avoid contaminating existing lawn areas with gravel, and upon installation of the pipeline, regrading the lawn area adjacent to the existing valve vaults to correct settlement that has reportedly occurred as a result of the original pipeline installation. Refer to sheet C-17 of the enclosed revised plan set for proposed grading.

The driveway of 184 Piscataqua Road will be used to access the project Durham site from Piscataqua Road (Route 4). Marc Jacobs identified wetlands along the proposed access drive route. Temporary impacts will be necessary to accommodate the proposed stabilized access drive. Refer to drawing C-6.

The revised impact areas are as follows:

Activity	Wetlands (sq ft)	Tidal Waters (sq ft)	Tidal Marsh (sq ft)	Tidal Buffer Zone (sq ft)
Trench excavation and construction access - Durham		25,470	2,120	22,570
Trench excavation and construction access - Newington		21,280	-	9,130
Temporary Access Drive	2,340			
Total	2,340	46,750	2,120	31,700

The total quantity of proposed temporary impacts is 80,570 sq ft. This is 8,940 sq ft more area than indicated in the original application. There are no proposed changes to the permanent impact quantity. The City of Portsmouth will submit a check for \$3,576 to cover the application fee for these additional impacts.

The following responses are provided to address NHDES comments included in the RFMI. The NHDES numbered comments are in *italics* followed by the W-P response in plain text:

1. Avoidance, Minimization, Restoration and Monitoring of Impacts to Salt Marsh:

a. In accordance with Env-Wt 313.03 and 605.01 the project shall avoid and minimize impacts to tidal marshes and finfish, shellfish, crustacea and wildlife habitat to the maximum practicable extent. Has the applicant considered a hybrid approach in the Alternatives Analysis, which could incorporate a trenchless installation method through the most highly-sensitive resource area (the salt marsh) combined with the proposed methods along the rest of the alignment? Please demonstrate whether or not this is practicable and revise the proposal accordingly.



Many alternatives were reviewed to minimize impacts to the tidal marshes and finfish, shellfish, crustacea and wildlife habitat to the maximum practicable extent. Trenchless installation was considered for the overall pipeline as the preferred alternative. However, due to subsurface soil and bedrock profiles, installation of the new pipeline by trenchless methods was not practical or feasible. With regards to a hybrid approach utilizing a trenchless method across the salt marsh resource area, combining trenchless methods with the proposed cut and cover method offers significant construction challenges and potentially greater impacts than the proposed installation method.

Trenchless pipeline installation for pipes of this size is generally performed by one of two methods; horizontal directional drilling (HDD), or jacking and boring. Jacking and boring is not constructable for this type of installation due to the tidal submerged conditions of the salt marsh segment of the pipeline route. Jacking and boring would require dewatering of jacking and boring pits on either side of the bore, creating much more significant disturbance along the pipeline route than the proposed narrow pipeline trench. The jacking pits would also require constant dewatering, increasing the risk of water quality violations.

The second and more common trenchless technology used to install pipelines of this size, HDD, also introduces concerns with installing high density polyethylene water main. HDD, similar to jack and bore, is usually constructed utilizing dry dewatered drilling and receiving pits. This allows access for the drilling machine on one end of the trenchless installation and room for the long fused pipeline on the other end of the excavation. For most installations, the drilling machine bores a hole through the soil (or rock), generally with several reaming passes to enlarge the hole to the diameter of the proposed pipe, until the pipe can be connected to the far end and pulled back towards the drilling machine, completing the trenchless installation. A slurry is used during the drilling process to maintain the opening until the pipeline is pulled back to make sure there is enough annular space in the bore and to reduce the friction of pulling the pipe back.

The Little Bay subaqueous crossing installation offers several significant construction hurdles if trying to install by HDD. The first concern is trying to drill out towards the bay and underwater. The drilling machine would need to be set up on the shore, drilling out toward the bay. This would require the receiving pit, where the pipe would get connected to the drill rods to pull the pipe back toward shore, to be underwater. This would likely cause problems with maintaining the bore as the slurry would tend to dissolve and wash away, not allowing the bore hole to stay open sufficiently to successfully pull the pipe back.

The second big concern is the pipe. We have selected high density polyethylene pipe as the most corrosion resistant and longest life pipe for the salt water application. We know from the current pipes that ferrous pipes are prone to corrosion in the saline environment. HDPE pipe is neutrally buoyant, so we need to install weights to the pipe to assure the pipe remains buried over the design life of the pipe. Installing a pipeline utilizing HDD precludes the ability to install weights on the pipe. This is not a concern if the bore is deep (>20-feet) as the weight of the soil over the pipe keeps the pipe from floating. In this case, the soils over the pipe need to be shallow (6-12-feet) to make the connection to the existing



pipeline. A pipeline installed by HDD in this location would have the potential to rise out of the soils in the future potentially causing more environmental impact than the short-term salt marsh crossing.

Utilizing the cofferdam and trestle method of pipeline installation, as presented in the revised design, we will be reducing the temporary impacts to the salt marsh zone. The total salt marsh disturbance will be the area within the cofferdam and possibly up to two 24-inch pipe piles within the salt marsh area. The constructed trestle will be suspended above the salt marsh minimizing the disturbance. The cofferdam will stabilize the trench excavation eliminating the possibility of sloughing of the sides of the trench that could possibly cause a wider disturbance to the salt marsh. This construction method will allow for a more controlled excavation and disturbance of the shore area.

b. If impacts to salt marsh are truly unavoidable, please provide a more comprehensive salt marsh protection, restoration and monitoring plan for that affected area. To optimize restoration potential, the plan should be designed and overseen by an on-site qualified coastal professional with expertise and demonstrated success in the field of salt marsh restoration. The monitoring plan should include a more detailed qualitative/characteristic description of depth and dimensions of extracted peat blocks, the location and monitoring/maintenance schedule for temporarily-relocated peat blocks, specification and verification of precise elevation for backfilling, plus long-term monitoring with targeted performance criteria to assess the restoration effort and to plan for remedial actions that may be necessary such as adjusting elevations or supplementing with appropriate vegetation. Additionally, NHDES would recommend adopting an adaptive management strategy, to provide for coordination between NHDES and the qualified professional monitoring the project, in order to facilitate necessary remedial actions and optimize restoration potential.

Please be advised that, pursuant to Env-Wt 307.12, 313.01 and 604.03, the permit issued for this project will be conditioned on the temporary nature of the proposed impacts to salt marsh. Inability to adequately restore impacts to salt marsh may result in additional permittee responsible mitigation requirements.

As noted above, temporary impacts to salt marsh are unavoidable since installation of the new water main must be installed by trench excavation at the Durham shore. The proposed coffer dam will allow for a reduction in the amount of salt marsh that will be impacted by the project. The coffer dam will allow for a 6-ft reduction in the width of the salt marsh impacted for excavation for pipeline installation. Addition of the trestle will also reduce the impacts to the salt marsh. The original application proposed installing timber matting on the salt marsh to prevent the construction equipment from damaging the salt marsh. The trestle eliminates the need for the matting since construction equipment will access the site from the elevated trestle deck. There will be minimal impacts to the salt marsh for installation of the steel pipe piles used to support the trestle.

Wright-Pierce worked with Marc Jacobs, CWS to develop a more comprehensive salt marsh restoration plan. The plan enclosed as Attachment B, includes more detailed construction requirements, monitoring requirements.



The recommendation to adopt an adaptive management strategy for the restoration components of this project is well received. We would like to request that an adaptive management strategy be allowed for this project. We anticipate significant coordination between the qualified professional monitoring the project, the Engineer, the City, landowners, and NHDES in order to complete this project successfully.

2. Application Preparation: In accordance with New Hampshire Administrative Rule Env-Wt 311.01(b)(2) and Env-Wt 311.06(g), please continue coordinating with the NH Natural Heritage Bureau (NHB) and NH Fish & Game Department (NHFG) and submit final written follow-up communication from NHB and NHFG related to the potential impact to exemplary natural communities and threatened and endangered species located within the vicinity of the project (NHB identification number: NHB20-2107).

Coordination with NHB and NHFG is ongoing. Final written follow-up communication will be forwarded under separate cover. Coordination correspondence is included as Attachment C.

3. Navigation: In accordance with Env-Wt 313.03(b)(5) and Env-Wt 603.02(f)(4), please demonstrate that the project avoids and minimizes impacts that eliminate, depreciate, or obstruct public commerce, navigation, or recreation. Please provide a statement from the Pease Development Authority Division of Ports and Harbors (PDA DP&H) chief harbormaster, or designee, regarding impact of the proposed project on navigation and passage, as required by Env-Wt 603.09. Additionally, it may be beneficial to also provide early notification of the project to the US Coast Guard.

The PDA DP&H Harbormaster was contacted and provided a copy of the project plans. Please see attached statement indicating that the Harbormaster does not anticipate that the project will impact navigation included as Attachment D.

4. Project Plans: In accordance with Env-Wt 311.05(a)(13), please revise the plans to depict the location of all jurisdictional areas delineated per Env-Wt 406. Based on the location of the tidal buffer zone boundary, please verify whether or not impacts are being proposed for construction staging and access outside of the pipeline easement in Newington, as shown on sheet C-5. Is this resource area classified as previously-developed or undeveloped tidal buffer zone? What is the scope and extent of impacts proposed to accomplish the necessary access and staging area (i.e., limited to clearing or maintaining permanent infrastructure)?

The revised project plans now show the proposed location of the construction staging area on the Newington side will be located in the grass field to the north of the existing water main easement. The proposed limits of the construction staging area are shown on the revised plan C-5. The staging area will be located outside of the 100 ft TBZ. The 100 ft offset from the HOTL is shown on the revised Wetland Impact plan. Please note that 1,730 sq ft of additional impacts to the previously-developed TBZ are proposed to provide access to the proposed trestle. This area will be cleared of trees and an earthen ramp will be constructed so that equipment can access the trestle. This ramp will be supported by sheet pile walls to limit its footprint. Upon completion of the water main installation, removal of the coffer dam and trestle, and removal of the ramp, the impacted areas will be restored. The toe of the slope impacted by the proposed water main installation and ramp construction will be reinforced with large



boulders to prevent undercutting of the restored slope. Above the toe reinforcement, the slope will be restored to existing grade and the surface treatment will be 6 inches of loam planted with a salt tolerant coastal grass mix interplanted with juniper. Erosion control blankets will be used to stabilize the slope until vegetation is established.

In consultation with the property owner of 186 Piscataqua Road, the access drive location has been revised as shown on sheet C-6. The access drive will be constructed of timber mat set on geotextile fabric, as requested by the property owner. Timber matting placed on geotextile will also be placed within the construction staging area on 186 Piscataqua, as requested by the property owner. The access drive on 184 Piscataqua Road will be constructed of gravel placed on geotextile. All access drive materials will be removed upon completion of the project. The access drive and staging area will require 3,870 sq ft of additional temporary impacts to the tidal buffer zone and 2,340 sq ft of temporary impacts to inland wetlands.

5. Administrative Provisions: In accordance with RSA 482-A:11 II., please demonstrate right of access or easement from the owner(s) of affected properties on which easement or access is proposed outside of the existing right of way. Additionally, due to the potential impact to waterfront activities, navigational hazard and/or potential interference with access or use, please provide a verification of notification to the owners of affected aquaculture farms within the proposed project area as well as to Jason Domke, Planning and Preparedness Manager, NHDES Spill Response and Complaint Investigation Section (603-559-1506; jason.domke@des.nh.gov).

The City of Portsmouth has been coordinating with all affected property owners to obtain permission to impact their property for construction of the project. The City has executed a construction access agreement with the Town of Newington for use of the Fox Point land for construction staging. The agreement is included in Appendix E.

The City is negotiating an agreement to access the project site on the Durham side with the property owners of 184 and 186 Piscataqua Road. The executed agreements will be forwarded to NHDES when available. If the signed agreements are not available when the permit is ready for issuance, it is requested that the permit include a condition requiring the executed agreements be provided to NHDES prior to work occurring.

Initial coordination has been completed with Krystin Ward of Choice Oysters which maintains an oyster bed in close proximity to the project. A recent notification about the project was sent to Krystin regarding the proposed project and is included as Attachment F. Ongoing coordination with Krystin is anticipated as the project nears construction to minimize impacts to her operation.

A notification of the project was sent to NHDES Planning and Preparedness Manager Jason Domke as requested. A copy of the notification is included as Attachment G.



6. Compensatory Mitigation: In accordance with Env-Wt 801.03(a), please demonstrate that appropriate consideration has been made for potential permittee-responsible mitigation opportunities by obtaining a list of local mitigation projects from the conservation commissions of the affected municipalities. If on-site mitigation is not practicable for permanent wetland impacts and the conservation commission(s) do not have a list of local projects or if none of the projects on the list are appropriate mitigation for the proposed impacts, then please provide an explanation and documentation pursuant to Env-Wt 801.03(b). If permittee-responsible mitigation is not practicable, then please contact Lori Sommer from the NHDES Wetlands Bureau Mitigation Program (603-271-4059; Lori.Sommer@des.nh.gov) to confirm the appropriate in-lieu mitigation payment amount.

In response to this comment, a request was made to the conservation commissions of Durham and Newington for a list of local mitigation projects. Each community identified potential projects. Several meetings were held with representatives from the City, the Town of Durham, NHDES Mitigation coordinator Lori Sommer, and Lindsey Lefebvre (ACOE). The City was supportive of contributing to these important projects. However, it was determined in consultation with Lori Sommer and Lindsey Lefebvre that payment into the Aquatic Resource Mitigation fund was the best method to provide mitigation for this project since in lieu fee payment is the ACOE's preferred method for mitigation. The lieu fee calculations included in the original application will be sent to Lori Sommer to confirm the payment amount.

7. Protection of Water Quality - Turbidity: In accordance with Env-Wt 307.03, please provide a more comprehensive turbidity control and monitoring plan. While certain methods of implementation may be left to a contractor's own management plan, the site-specific challenges and limitations of effectively implementing a turbidity control barrier in the proposed locations should be more fully described along with a monitoring plan to minimize the potential for uncontrolled turbidity and sedimentation, provide for timely detection and appropriate notifications if a turbidity event occurs, and to ensure a timely, organized, response to protect water quality and adjacent high value habitat during excavation and installation of the pipeline.

As noted above, the project has been revised to require a sheet pile cofferdam to support excavation for the pipe installation. A primary reason for selecting this approach was the coffer dam's ability to limit the discharge of sediment. However, a plan to manage and monitor will still be required of the Contractor selected to complete the project work. The Contractor's will detail their approach to controlling and monitoring turbidity in accordance with the requirement included in the Turbidity Control and Monitoring Plan included as Attachment H.

8. Coordination with Other Agencies: Based on the scope of the proposed impacts and pre-application coordination, and because the U.S. Army Corps of Engineers (ACOE) has determined that this project will require an Individual Section 404 Permit, a 401 Water Quality Certification (WQC) determination from the NHDES will be required. Please contact Gregg Comstock from the NHDES Watershed Management Bureau (603-271-2983; Gregg.Comstock@des.nh.gov) for assistance regarding the WQC requirements and Lindsey Lefebvre from the ACOE (978-318-8295; Lindsey.E.Lefebvre@usace.army.mil) for assistance

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regarding the Individual Section 404 Permit. Additionally, the project will be subject to Coastal Zone Management Act (CZMA) federal-consistency review by the NHDES Coastal Program. Please contact Chris Williams from the NHDES Coastal Program (603-559-0025; Christian.Williams@des.nh.gov).

Coordination with other agencies has been ongoing. Gregg Comstock has been consulted regarding the Water Quality Certification. A draft of the Water Quality Certification is slated for submittal to the Watershed Management Bureau next week. Lindsey Lefebvre has been consulted regarding the ACOE requirements. Submission of the Coastal Zone Management Act federal-consistency request is planned within the next two weeks.

We appreciate your assistance with this project to date. Should you need any additional information to complete your review of the permit application please feel free to contact me by email or phone (603-570-7126).

Sincerely,
WRIGHT-PIERCE

Britt Eckstrom
Project Engineer
Britt.eckstrom@wright-pierce.com

*Enclosures Attachment A – Revised Drawings
Attachment B – Salt Marsh Restoration Plan
Attachment C – NHB and NHFG Correspondence
Attachment D – Harbormaster Correspondence
Attachment E – Landowner Authorization
Attachment F – Choice Oyster Correspondence
Attachment G – NHDES Spill Response Correspondence
Attachment H – Turbidity Control and Monitoring Plan*

cc: *Brian Goetz, City of Portsmouth
Town of Durham Conservation Commission
Town of Newington Conservation Commission*



Attachment A

CITY OF PORTSMOUTH

CONTRACT DRAWINGS FOR

LITTLE BAY

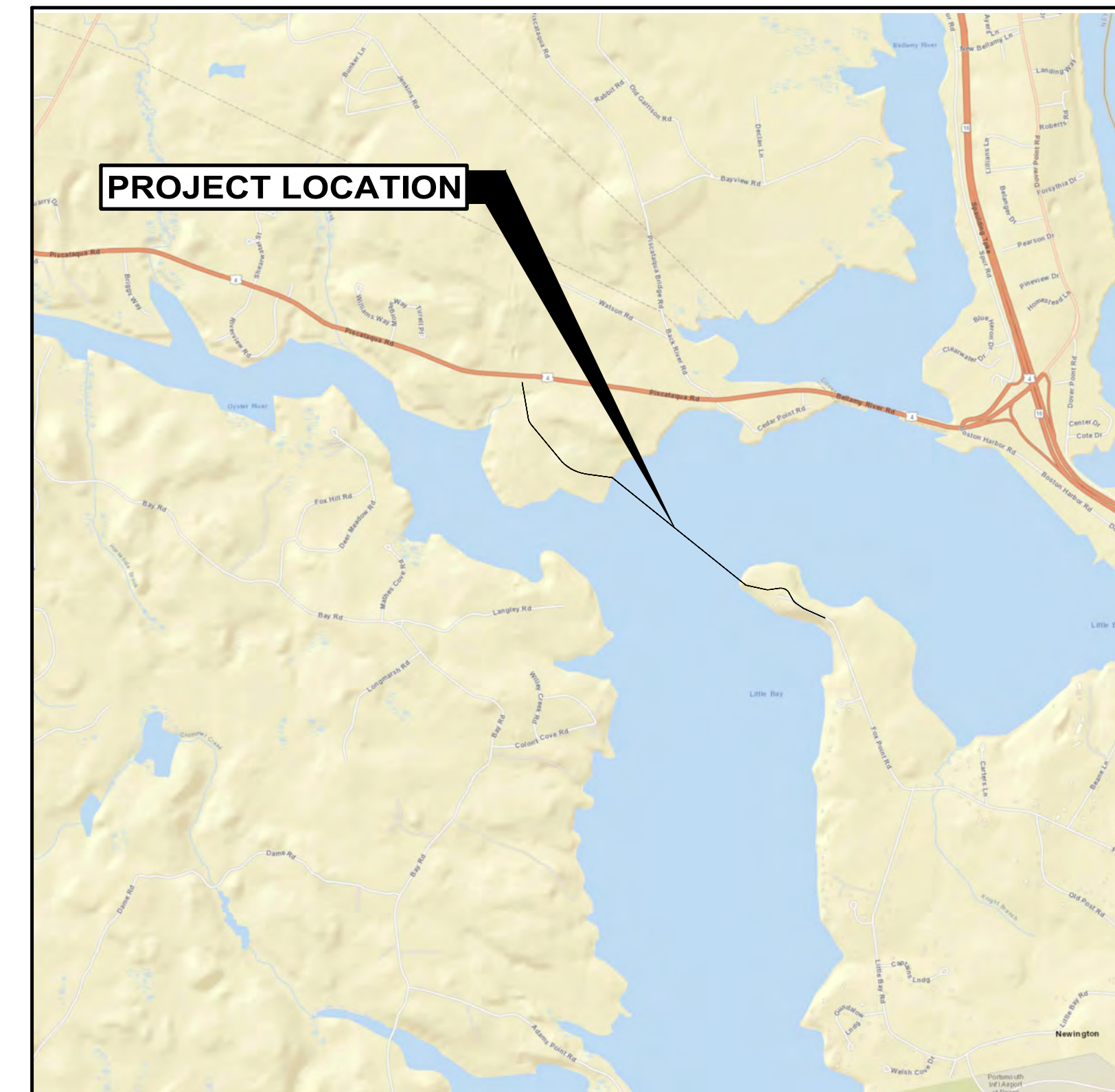
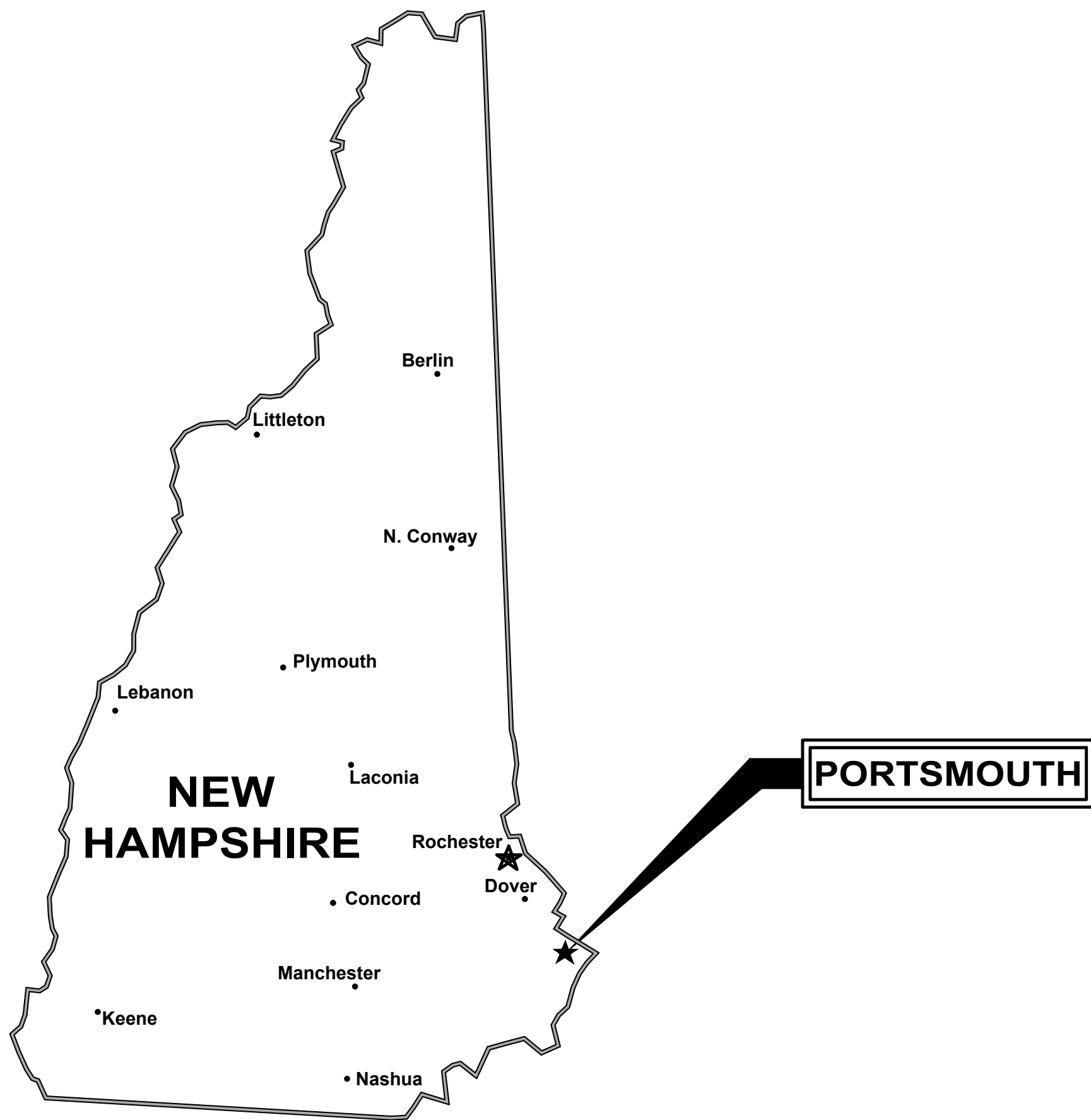
SUBAQUEOUS WATER TRANSMISSION MAIN

DURHAM & NEWINGTON, NH

JULY 2021

DRAWING INDEX

<u>GENERAL</u>	
----	COVER SHEET
<u>CIVIL</u>	
C-1	SHEET INDEX
C-2	GENERAL NOTES, ABBREVIATIONS AND LEGEND
C-3	EXISTING CONDITIONS-DURHAM
C-4	EXISTING CONDITIONS-NEWINGTON
C-5	CONSTRUCTION STAGING PLAN - NEWINGTON
C-6	CONSTRUCTION STAGING PLAN - DURHAM
C-7	PLAN & PROFILE I - STA 100+00 TO 106+00
C-8	PLAN & PROFILE II - STA 106+00 TO 112+00
C-9	PLAN & PROFILE III - STA 112+00 TO 118+00
C-10	PLAN & PROFILE IV - STA 118+00 TO 124+00
C-11	PLAN & PROFILE V - STA 124+00 TO 130+00
C-12	PLAN & PROFILE VI - STA 130+00 TO 133+00
C-13	WATER MAIN CONNECTION DETAIL - DURHAM
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C-15	RESTORATION PLAN - DURHAM
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C-17	DETAILS I
C-18	EROSION CONTROL NOTES & DETAILS - DURHAM
C-19	EROSION CONTROL NOTES & DETAILS - NEWINGTON



LOCATION PLAN

PERMITTING PLANS
JULY 23, 2021



Offices Throughout New England
888.621.8156 | www.wright-pierce.com

FOR REVIEW _____

FOR BIDDING _____

WP PROJECT No. 14202A



SHEET INDEX
SCALE: 1"=150'

<p>WRIGHT-PIERCE Engineering a Better Environment 888.621.8156 www.wright-pierce.com</p>									
<p>CITY OF PORTSMOUTH SUBAQUEOUS WATER TRANSMISSION MAIN LITTLE BAY, DURHAM-NEWINGTON NEW HAMPSHIRE</p>									
<p>PROJECT EXTENTS</p>									
<p>DRAWING C-1</p>									
<p>DESIGNED BY: W.EDG CAD CORP.: W.EDG CHECKED BY: DATE: APPROVED BY: DATE: PROJECT NO.: 14202A</p>	<p>NO. PERMITTING PLANS - NOT FOR CONSTRUCTION</p> <table border="1"> <tr><td>1</td><td>Δ</td></tr> <tr><td>2</td><td>Δ</td></tr> <tr><td>3</td><td>Δ</td></tr> <tr><td>4</td><td>Δ</td></tr> </table>	1	Δ	2	Δ	3	Δ	4	Δ
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<p>APP'D</p>	<p>DATE 07/21</p>								
<p>SUBMISSIONS/REVISIONS</p>									

GENERAL NOTES

- 1. THE CONTRACTOR IS REFERRED TO SECTION 01050 OF THE SPECIFICATIONS REGARDING COORDINATION WITH OTHERS, INCLUDING RESPONSIBILITIES AND RELATED COSTS.
2. BELOW GRADE UTILITY INFORMATION IS BASED ON INFORMATION PROVIDED BY EACH UTILITY. LOCATION OF PUBLIC UTILITIES SHOWN IS ONLY APPROXIMATE AND MAY NOT BE COMPLETE.

Table with 3 columns: ELECTRIC, WATER/SEWER/STORM DRAIN, GAS. Lists contact information for various utility providers like City of Portsmouth, UNILIT CORPORATION, and Cable Television.

ADJUSTMENT OF WATER, SEWER, AND DRAINAGE, COVERS OR SIMILAR STRUCTURES TO MATCH THE NEW PAVEMENT GRADE AND THE RELOCATION OF UTILITY POLES WILL BE PERFORMED BY THE APPROPRIATE UTILITY OR ITS AUTHORIZED REPRESENTATIVE.

- 3. THE LOCATION AND LIMITS OF ALL ON SITE WORK AND STORAGE AREAS SHALL BE REVIEWED/COORDINATED WITH, AND ACCEPTABLE TO THE OWNER AND ENGINEER.
4. ALL STRUCTURES AND PIPELINES LOCATED ADJACENT TO THE TRENCH EXCAVATION SHALL BE PROTECTED AND FIRMLY SUPPORTED BY THE CONTRACTOR UNTIL THE TRENCH IS BACKFILLED.

- 7. CONTRACTOR SHALL INSTALL AND MAINTAIN TRAFFIC CONTROL DEVICES AS NECESSARY AND IN A MANNER CONSISTENT WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.).
8. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TRAFFIC FLOW AT ALL TIMES. THE CONTRACTOR IS REQUIRED TO SUBMIT A TRAFFIC CONTROL PLAN TO THE OWNER PRIOR TO COMMENCING CONSTRUCTION.

- 9. THE OWNER SHALL BE RESPONSIBLE FOR OBTAINING NECESSARY RIGHTS OF WAY AND PERMANENT EASEMENTS. THE CONTRACTOR SHALL VERIFY THAT THE NECESSARY EASEMENTS HAVE BEEN SECURED BY THE OWNER.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREVENTION OF EROSION. ALL DISTURBED EARTH SURFACES ARE TO BE STABILIZED IN THE SHORTEST PRACTICAL TIME AND TEMPORARY EROSION CONTROL DEVICES SHALL BE EMPLOYED UNTIL SUCH TIME AS ADEQUATE SOIL STABILIZATION HAS BEEN ACHIEVED.

- 12. OPEN TRENCHES IN THE ROADWAY MUST BE BACKFILLED AT THE END OF THE WORKDAY, UNLESS PERMISSION IS GIVEN IN WRITING BY THE OWNER.
13. CONTRACTOR SHALL CONTROL DUST TO A TOLERABLE LIMIT AS OUTLINED IN SPECIFICATION SECTION 01562.

- 14. ALL AREAS (EXCEPT GRAVEL DRIVEWAYS) THAT ARE EXCAVATED, FILLED OR OTHERWISE DISTURBED BY THE CONTRACTOR AND ARE NOT TO BE PAVED OR FILLED WITH RIPRAP, SHALL BE LOAMED, GRADED, LIMED, FERTILIZED, SEEDED AND MULCHED.

- 15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESETTling ALL EXISTING PROPERTY MONUMENTATION THAT IS DISTURBED BY HIS OPERATIONS AT NO EXPENSE TO THE OWNER. THIS WORK IS TO BE DONE BY A LAND SURVEYOR REGISTERED IN THE STATE OF NEW HAMPSHIRE.

- 16. THE CONTRACTOR SHALL NOT HAVE ANY RIGHT OF PROPERTY IN ANY MATERIALS TAKEN FROM ANY EXCAVATION. SUITABLE EXCAVATED MATERIAL MAY BE INCORPORATED IN THE PROJECT. THE OWNER AND THE ROCHESTER DEPARTMENT OF PUBLIC WORKS SHALL HAVE FIRST REFUSAL TO ALL EXCESS SOIL MATERIAL.

- 18. THE ENGINEER WILL PROVIDE CONTRACTOR WITH HORIZONTAL CONTROL POINTS TO ASSIST CONTRACTOR IN LAYING OUT THE CONSTRUCTION BASELINE. THE CONTRACTOR SHALL ESTABLISH HORIZONTAL AND VERTICAL ROADWAY LAYOUT CONTROL POINTS BEYOND THE LIMITS OF ROADWAY WORK AND PROTECT THESE POINTS FOR THE DURATION OF THE PROJECT.

- 19. THE CONTRACTOR IS TO TAKE SPECIAL CARE NOT TO DAMAGE TREES WITHIN THE CONSTRUCTION AREA UNLESS THEY ARE NOTED TO BE REMOVED.
20. LIMITS OF WORK IN EXISTING DRIVES AS SHOWN ON THE PLANS ARE APPROXIMATE. ACTUAL LIMITS OF WORK ARE TO BE DETERMINED IN THE FIELD BASED ON THESE DRAWINGS AND AS APPROVED BY THE ENGINEER.

- 21. PAVEMENT IS TO BE SAWCUT AT ALL SIDE ROADS, PAVED DRIVES, PAVED SIDEWALKS, AS WELL AS THE BEGINNING AND END OF THE PROJECT.
22. SAWCUT LINES FOR PAVED DRIVEWAY MATCHES ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY SAWCUT LOCATION FOR DRIVEWAY MATCHES WITH THE ENGINEER.

- 23. EXISTING SIGNS IMPACTED BY THIS PROJECT SHALL BE RESET AT NO ADDITIONAL COST TO THE OWNER. PLACEMENT SHALL CONFORM TO THE REQUIREMENTS OF THE MUTCD.
24. ALL DUCTILE IRON WATER MAIN, VALVES AND FITTINGS SHALL BE WRAPPED WITH POLYETHYLENE ENCASEMENT PROTECTION WRAP (POLY WRAP). REFER TO SPEC. SECTION 02616.

PIPELINE GENERAL NOTES

- 1. PROVIDE 2 INCH RIGID INSULATION WHERE DIRECTED BY OWNER OR ENGINEER. TYPICAL INSULATION INSTALLATION IS OVER SEWER AND WATER MAINS WHEN COVER IS LESS THAN 5'-0".
2. MINIMUM DEPTH OF COVER FOR WATER MAIN SHALL BE 5'-0"
3. PIPE RESTRAINT FOR WATER MAINS: ALL BENDS, TEES, REDUCERS, HYDRANTS, AND PLUGS SHALL BE RESTRAINED BY USING MEGA-LUGS AND "GRIP RINGS" OR OTHER METHOD AS SHOWN ON THE DRAWINGS.

PIPELINE GENERAL NOTES (CONTINUED)

- 8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT OF THE NEW WATER MAIN. LAYOUT SHALL BE REVIEWED AND ACCEPTED BY THE WATER DISTRICT AND ENGINEER. THE NEW WATER MAIN MUST BE LOCATED WITHIN THE RIGHTS-OF-WAY SHOWN ON THE DRAWINGS.
9. TEST PRESSURES FOR THE COMBINATION PRESSURE AND LEAKAGE TESTS SHALL BE 150 PSI. TEST DURATION SHALL BE TWO HOURS.
10. BELOW GRADE UTILITY INFORMATION IS BASED ON RECORD DRAWINGS. LOCATION OF PUBLIC UTILITIES SHOWN IS ONLY APPROXIMATE AND MAY NOT BE COMPLETE.

CIVIL DEMOLITION NOTES

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND DISPOSING OF ALL DEMOLISHED PIPING, EQUIPMENT AND MATERIALS. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL STATE AND LOCAL REGULATIONS. THE OWNER RESERVES THE RIGHT TO RETAIN ANY SUCH PIPING, EQUIPMENT AND MATERIALS DESIGNATED FOR DEMOLITION FOR HIS USE. SUCH MATERIALS TO BE RETAINED SHALL BE PROPERLY STORED IN AN ON-SITE LOCATION.
2. THE CONTRACTOR SHALL KEEP A RECORD OF DEMOLITION AS PART OF THE PROJECT RECORD DOCUMENTS IN ACCORDANCE WITH SPECIFICATION SECTION 01720.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE APPROPRIATE DISPOSAL OF FLOWS RESULTING FROM PRECIPITATION AND HIS DEWATERING OPERATIONS.

SITE GRADING NOTES

- 1. ALL ROAD AND PARKING AREA SURFACES SHALL PITCH 1/4 INCH PER FOOT MINIMUM UNLESS OTHERWISE NOTED.
2. ALL AREAS THAT ARE EXCAVATED, FILLED, OR OTHERWISE DISTURBED BY THE CONTRACTOR SHALL BE LOAMED, GRADED, LIMED, FERTILIZED, SEEDED AND MULCHED, UNLESS OTHERWISE NOTED. THE TOP 4 INCHES OF SOIL SHALL BE LOAM. REFER TO SPECIFICATION SECTION 02485, LANDSCAPING/LOAM AND SEED.
3. CONTRACTOR SHALL CONTROL DUST ON THE CONSTRUCTION SITE TO A REASONABLE LIMIT, AS DETERMINED BY THE ENGINEER, AND AS OUTLINED IN SPECIFICATION SECTION 01562.

SITE LAYOUT NOTES

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT OF ALL PROPOSED WORK AS SHOWN ON THE DRAWINGS. THE ENGINEER WILL PROVIDE TWO POINTS THAT DEFINE THE HORIZONTAL CONTROL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THIS PROVIDED LAYOUT INFORMATION THROUGHOUT THE COURSE OF CONSTRUCTION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RE-ESTABLISHING AND RESETTling ALL EXISTING PROPERTY MONUMENTATION DISTURBED BY HIS OPERATIONS. THIS WORK SHALL BE DONE BY A LAND SURVEYOR REGISTERED IN THE STATE OF MAINE, AT NO ADDITIONAL COST TO THE OWNER.
3. WRITTEN DIMENSIONS SHALL PREVAIL. DO NOT SCALE DISTANCES FROM THE DRAWINGS. REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.

SURVEY NOTES

- 1. EXISTING CONDITION INFORMATION AND WETLAND INFORMATION IS BASED ON A GROUND SURVEY CONDUCTED BY DOUCET SURVEY, INC., OF NEWMARKET, NEW HAMPSHIRE. SURVEY CONDUCTED DURING NOVEMBER 2018, AUGUST & SEPTEMBER 2019, AND DECEMBER 2019 USING A TRIMBLE S7 TOTAL STATION AND A TRIMBLE R10 SURVEY GRADE GPS WITH A TRIMBLE TSC3 DATA COLLECTOR AND A SOKKIA B21 AUTO LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.
2. JURISDICTIONAL RESOURCES INCLUDING HIGHEST OBSERVABLE TIDE LINE WERE DELINEATED ON MAY 29, 2019 BY MARC JACOBS, CERTIFIED WETLAND SCIENTIST NUMBER 090, ACCORDING TO THE STANDARDS OF THE US ARMY CORPS OF ENGINEERS - WETLANDS DELINEATION MANUAL; THE 2012 REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL; NORTH-CENTRAL AND NORTHEAST REGION; AND THE CODE OF ADMINISTRATIVE RULES, NH DEPARTMENT OF ENVIRONMENTAL SERVICES - WETLANDS BUREAU - ENV WT 100-900. SOILS WERE EVALUATED UTILIZING THE FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 4, APRIL 2019 AND THE FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 8, 2016. THE INDICATOR STATUS OF VEGETATION AS HYDROPHYTIC WAS DETERMINED ACCORDING TO THE U.S. ARMY CORPS OF ENGINEERS - NORTH-CENTRAL AND NORTHEAST 2016 REGIONAL WETLAND PLANT LIST. COPIES OF SITE PLANS WHICH HAVE BEEN REVIEWED BY THE WETLAND SCIENTIST ARE INDIVIDUALLY STAMPED, SIGNED AND DATED. THIS NOTE HAS BEEN CUSTOMIZED FOR THIS PROJECT.
3. HORIZONTAL DATUM BASED ON NEW HAMPSHIRE STATE PLANE(2800) NAD83(2011) DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.
4. VERTICAL DATUM IS BASED ON APPROXIMATE MLLW (MEAN LOWER LOW WATER) PER CONVERSION FROM NAVD88 TO MLLW, ELEVATION CHANGE -2.27' PROVIDED BY OCEANS SURVEY, INC. AND VERIFIED USING THE NOAA ONLINE VERTICAL DATUM TRANSFORMATION (VDATUM) WEBSITE. NAVD88(GEIOD12A) ELEVATIONS DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK (±.2').
5. THE LOCATION OF THE WATER LINE EASEMENT SHOWN IS BASED ON THE LISTED REFERENCE PLAN AND IS ALIGNED USING THE NGS COORDINATE AND TRANSFORMATION TOOL (NCAT) TO CONVERT FROM NAD27 TO NAD83(2011).

LEGEND section containing symbols and descriptions for EXISTING and PROPOSED features. Includes PROPERTY/ROW LINE, SETBACK LINE, EASEMENT LINE, EDGE OF PAVEMENT, CURBING, EDGE OF GRAVEL, EDGE OF CONCRETE, CONTOUR, BUILDING, STONEWALL, TREE LINE, CHAIN LINK FENCE, STOCKADE FENCE, BARB WIRE FENCE, RETAINING WALL, GUARDRAIL, SEWER, SEWER FORCE MAIN, GAS, WATER, STORM DRAIN, UNDERDRAIN, CULVERT, UNDERGROUND ELECTRIC, OVERHEAD ELECTRIC, IRON PIPE/REBAR, DRILLHOLE, MONUMENT, SURVEY CONTROL POINT, SPOT ELEVATION, SEWER MANHOLE, DRAINAGE MANHOLE, CATCH BASIN, ELECTRIC MANHOLE, TELEPHONE MANHOLE, GATE VALVE, CURB STOP, YARD HYDRANT, HYDRANT, UTILITY POLE, UTILITY POLE W/ GUY, UTILITY POLE W/ LIGHT, LIGHT POLE, BOLLARD, FLAGPOLE, CONIFEROUS TREE, DECIDUOUS TREE, SHRUB, EDGE OF WATER, STREAM, EDGE OF WETLANDS, FLOODPLAIN, WETLANDS, DRAINAGE FLOW, PAVEMENT MARKINGS, SIGN, MAILBOX, TEMPORARY BENCH MARK, TEST BORING, TEST PROBE, LIMIT OF WORK, SILT FENCE, RIPRAP, MATCHLINE, ROCK OUTCROP, and PROPOSED WETLAND IMPACTS.

CIVIL ABBREVIATIONS

Table listing various abbreviations and their full names, such as & DIA (DIAMETER), #, NO (NUMBER), APP'D (APPROVED), BLDG (BUILDING), CB (CATCH BASIN), CEN (CENTER), CFS (CUBIC FEET PER SECOND), CI (CAST IRON), CL (CENTERLINE), CMP (CORRUGATED METAL PIPE), CO (CLEANOUT), CONC (CONCRETE), COR (CORNER), CY (CUBIC YARD), DEMO (DEMOLITION), DMH (DRAIN MANHOLE), DI (DUCTILE IRON), DR (DRAIN), DWG (DRAWING), EL (ELEVATION), EMH (ELECTRIC MANHOLE), FM (FORCE MAIN), FT (FEET), G (GAS), HYD (HYDRANT), IN (INCH), INF (INFLENT), INV (INVERT), LBS (POUNDS), MAX (MAXIMUM), MH (MANHOLE), MIN (MINIMUM), MW (MONITORING WELL), N (NORTH), NGVD (NATIONAL GEODETIC VERTICAL DATUM), N/A (NOT AVAILABLE/APPLICABLE), NTS (NOT TO SCALE), OD (OUTSIDE DIAMETER), PC (PERFORATED CLAY), PSF (POUNDS PER SQUARE FOOT), PSI (POUNDS PER SQUARE INCH), PS (PRIMARY SLUDGE), PT (POINT OF TANGENCY), PVC (POLYVINYL CHLORIDE), RCP (REINFORCED CONCRETE PIPE), RD (ROOF DRAIN), REQ'D (REQUIRED), S (SLOPE, SEWER), SD (STORM DRAIN), SF (SQUARE FEET), SMH (SANITARY SEWER MANHOLE), SQ (SQUARE), STA (STATION), T, XFMR (TRANSFORMER), TBM (TEMPORARY BENCH MARK), THK (THICKNESS), TOS (TOP OF STRUCTURE), TYP (TYPICAL), UD (UNDERDRAIN), UG (UNDERGROUND), UGE (UNDERGROUND ELECTRIC), VC (VITRIFIED CLAY), W (WITH), W (POTABLE WATER).

Project information and title block. Includes: CITY OF PORTSMOUTH, SUBAQUEOUS WATER TRANSMISSION MAIN, LITTLE BAY, DURHAM-NEWINGTON, NEW HAMPSHIRE. Designated by: W.EDG, W.EDG, W.EDG. Checked by: W.EDG. Approved by: W.EDG. Project No: 14202A. Includes Wright-Pierce logo and contact information: 888.621.8156 | www.wright-pierce.com. Title: DRAWING C-2.

NOTES

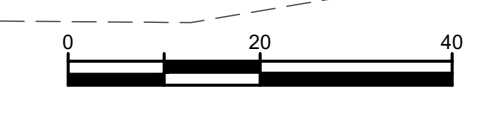
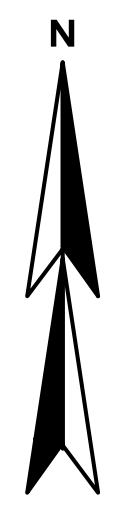
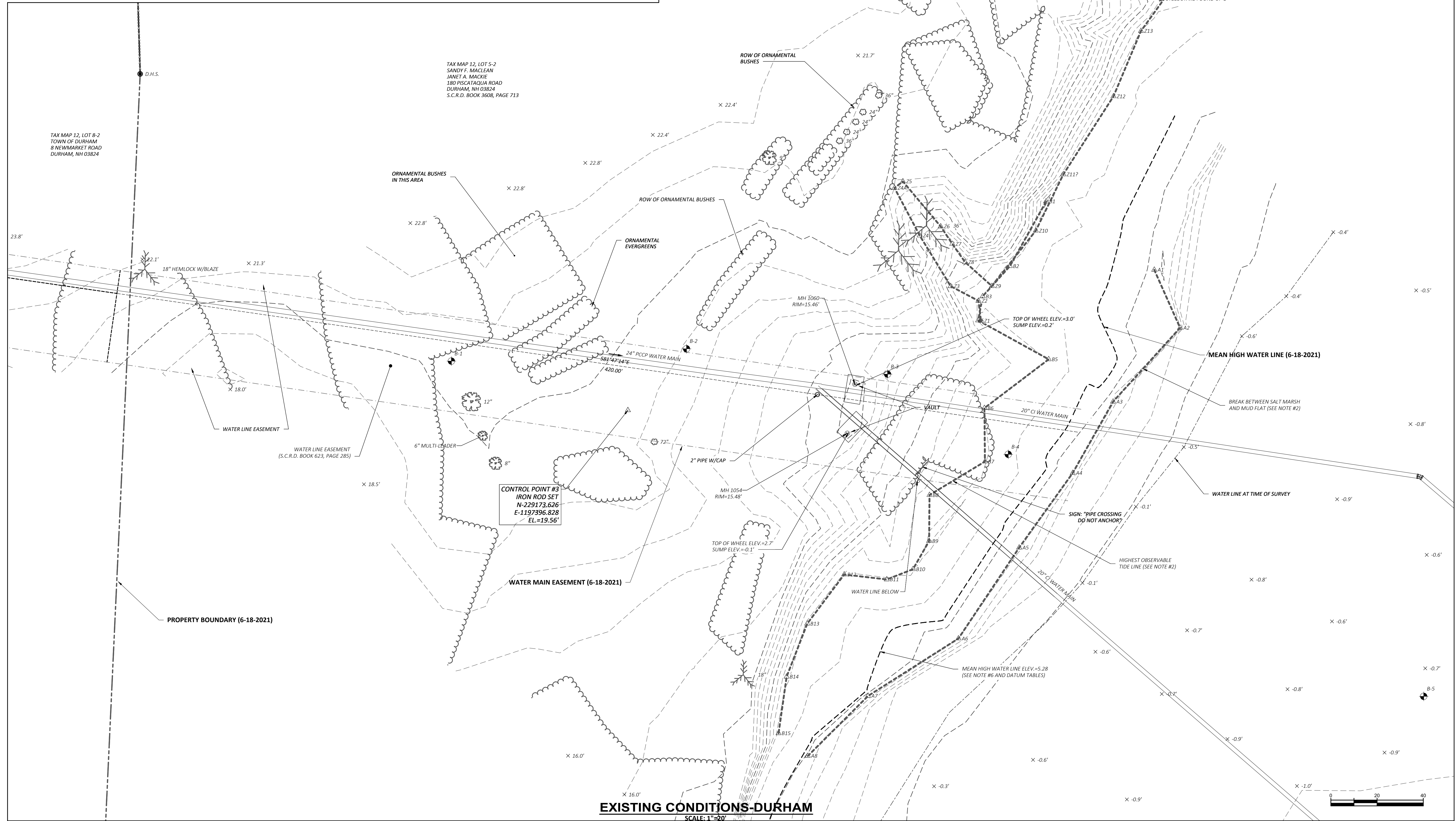
REFERENCE: DURHAM TAX MAP 12, LOTS 5-2 & 8-2
NEWINGTON TAX MAP 1, LOT 1-1
D.S. PROJECT NO. 5951

OWNER OF RECORD: DURHAM TAX MAP 12, LOT 5-2
SANDY F. MACLEAN & JANET A. MACKIE
180 PISCATAQUA ROAD
DURHAM, NH 03824
S.C.R.D. BOOK 3608, PAGE 713

DURHAM TAX MAP 12, LOT 8-2
TOWN OF DURHAM
8 NEWMARKET ROAD
DURHAM, NH 03824

NEWINGTON TAX MAP 1, LOT 1-1
TOWN OF NEWINGTON - TOWN OFFICE
205 NIMBLE HILL ROAD
NEWINGTON, NH 03801

- FIELD SURVEY PERFORMED BY DOUCET SURVEY, INC., DURING MAY & JUNE 2019 USING A TRIMBLE S7 TOTAL STATION AND A TRIMBLE R10 SURVEY GRADE GPS WITH A TRIMBLE TSC3 DATA COLLECTOR AND A SOKKIA B21 AUTO LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.
- JURISDICTIONAL RESOURCES INCLUDING HIGHEST OBSERVABLE TIDE LINE WERE DELINEATED ON MAY 29, 2019 AND MAY 18, 2021 BY MARC JACOBS, CERTIFIED WETLAND SCIENTIST NUMBER 090, ACCORDING TO THE STANDARDS OF THE US ARMY CORPS OF ENGINEERS - WETLANDS DELINEATION MANUAL; THE 2012 REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION; AND THE CODE OF ADMINISTRATIVE RULES, NH DEPARTMENT OF ENVIRONMENTAL SERVICES - WETLANDS BUREAU - ENV WT 100-900. SOILS WERE EVALUATED UTILIZING THE FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 4, APRIL 2019 AND THE FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 8, 2016. THE INDICATOR STATUS OF VEGETATION AS HYDROPHYTIC WAS DETERMINED ACCORDING TO THE U.S. ARMY CORPS OF ENGINEERS - NORTHCENTRAL AND NORTHEAST 2016 REGIONAL WETLAND PLANT LIST. COPIES OF SITE PLANS WHICH HAVE BEEN REVIEWED BY THE WETLAND SCIENTIST ARE INDIVIDUALLY STAMPED, SIGNED AND DATED. THIS NOTE HAS BEEN CUSTOMIZED FOR THIS PROJECT.
- FULL BOUNDARY SURVEY SAW NOT COMPLETED AS PART OF THIS PROJECT. THE COMMON LOT LINE BETWEEN TAX MAP 12, LOTS 5-2 & 8-2 WAS DETERMINED IN AN EFFORT TO DETERMINE THE LIMITS OF THE WATERLINE EASEMENT ON LOT 5-2.



NO	DATE	DESCRIPTION
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DESIGNED BY: W. LEDG	APPROVED BY: W. LEDG
CAD CORP: W. LEDG	DATE: 07/21
CD: W. LEDG	PROJECT NO: 14202A
CHECKED BY:	
DATE:	
DATE:	

CITY OF PORTSMOUTH	ENGINEERING CONDITIONS
SUBAQUEOUS WATER TRANSMISSION MAIN	DURHAM SITE
LITTLE BAY, DURHAM-NEWINGTON	
NEW HAMPSHIRE	

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DRAWING
C-3

NOTES

1. FIELD SURVEY PERFORMED BY DOUCET SURVEY, INC., DURING MAY & JUNE 2019 USING A TRIMBLE S7 TOTAL STATION AND A TRIMBLE R10 SURVEY GRADE GPS WITH A TRIMBLE TSC3 DATA COLLECTOR AND A SOKKIA B21 AUTO LEVEL. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS.
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CONTROL POINT #101
IRON ROD SET
N=227114.336
E=1200093.886
EL.=27.58'

EXISTING CONDITIONS-NEWINGTON
SCALE: 1"=20'



NO	PERMITTING PLANS - NOT FOR CONSTRUCTION	APP'D	DATE
1			07/21
SUBMISSIONS/REVISIONS			
DESIGNED BY:	W. EDG		
CAD CORP:	W. EDG		
CD:	W. EDG		
CHECKED BY:			
DATE:			
APPROVED BY:			
DATE:			
PROJECT NO.:	1402A		
CITY OF PORTSMOUTH SUBAQUEOUS WATER TRANSMISSION MAIN LITTLE BAY, DURHAM-NEWINGTON NEW HAMPSHIRE EXISTING CONDITIONS NEWINGTON SITE			
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DRAWING			
C-4			



CONSTRUCTION STAGING PLAN-NEWINGTON SITE

SCALE: 1"=40'

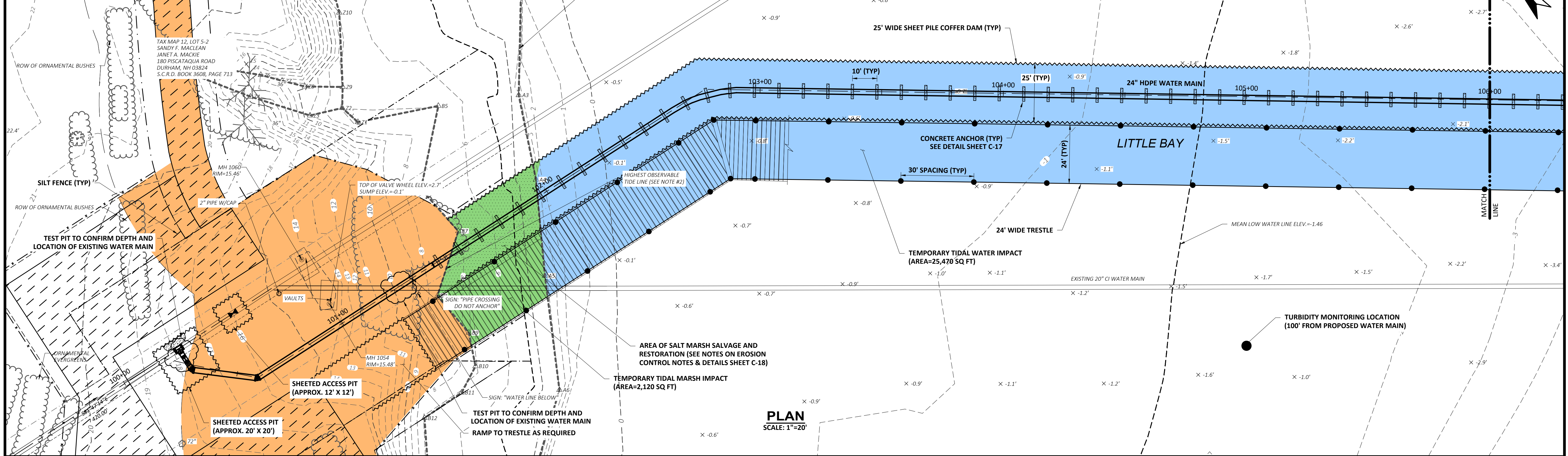


SUBMISSIONS/REVISIONS		APP'D	DATE
NO	PERMITTING PLANS - NOT FOR CONSTRUCTION		01/21
DESIGNED BY:	W. EDG		
CAD CORP.:	W. EDG		
CHECKED BY:			
DATE:			
APPROVED BY:			
DATE:			
PROJECT NO.:	14202A		
CITY OF PORTSMOUTH SUBAQUEOUS WATER TRANSMISSION MAIN LITTLE BAY, DURHAM-NEWINGTON NEW HAMPSHIRE		CONSTRUCTION STAGING PLAN - NEWINGTON	
DRAWING		C-5	
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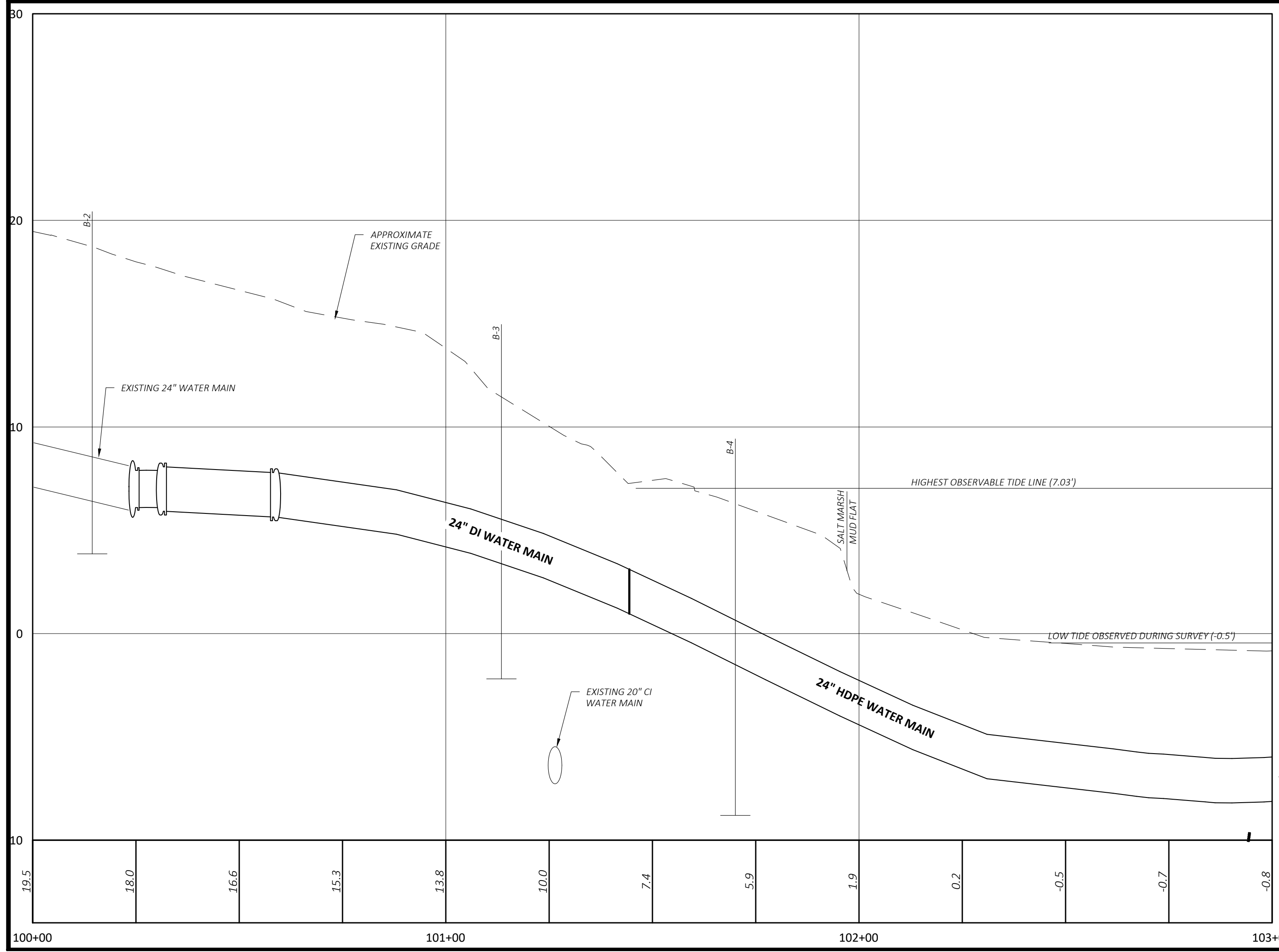
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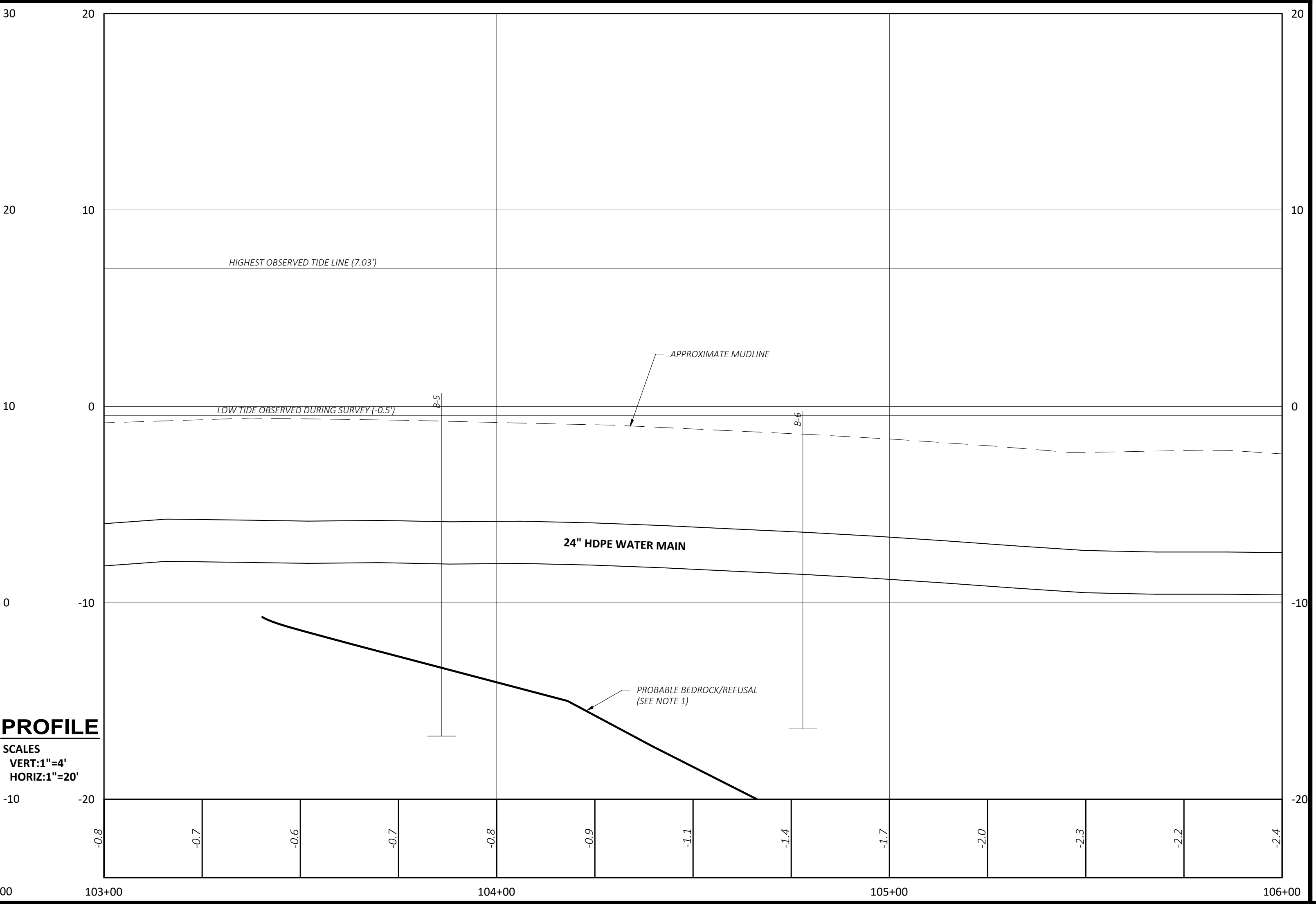
1. PROBABLE BEDROCK/REFUSAL SURFACE INFORMATION SHOWN IN PROFILE VIEW IS BASED ON SIDE SCAN SONAR SURVEY INFORMATION COLLECTED BY OCEAN SURVEYS, INC. (OSI) DURING A GEOPHYSICAL SURVEY OF THE LITTLE BAY AREA CONDUCTED IN OCTOBER 2018.
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PLAN
SCALE: 1"=20'



PROFILE
SCALES
VERT: 1"=4'
HORIZ: 1"=20'



J:\ENGIN\PORTSMOUTH\14202-SUBAQUEOUSWATERMAIN\DRAWINGS\CIV\14202-CS-P&P\DWG | P&P | 7/23/2021 1:32:44 PM | WILLIAM.EDGAR

NO	DATE	DESCRIPTION
1	07/21	PERMITTING PLANS - NOT FOR CONSTRUCTION

DESIGNED BY: W.EDG
 CAD CORP.: W.EDG
 CHECKED BY: W.EDG
 DATE: 7/21/21
 APPROVED BY: W.EDG
 DATE: 7/21/21
 PROJECT NO.: 14202A

CITY OF PORTSMOUTH
 SUBAQUEOUS WATER TRANSMISSION MAIN
 LITTLE BAY, DURHAM-NEWINGTON
 NEW HAMPSHIRE

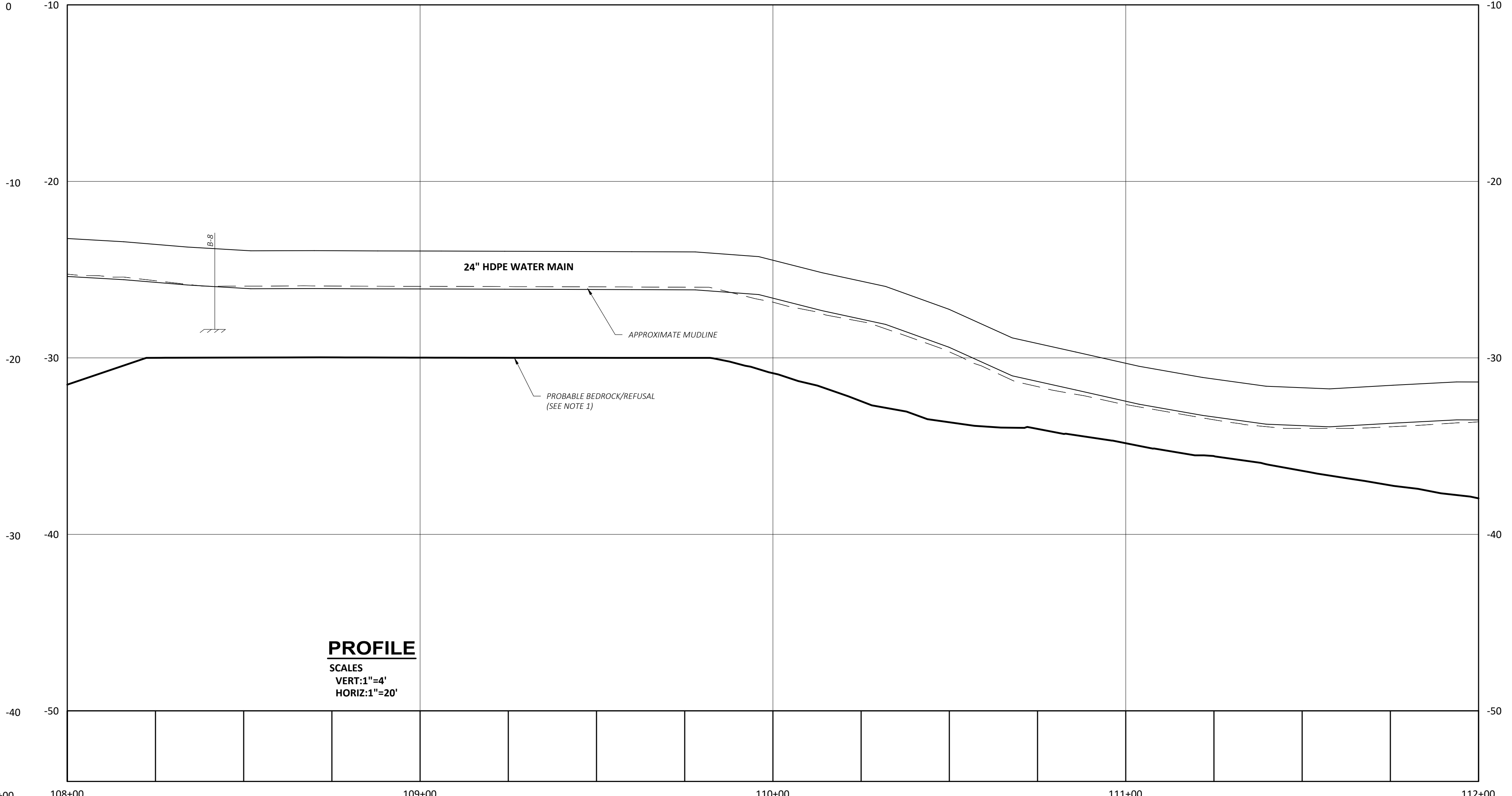
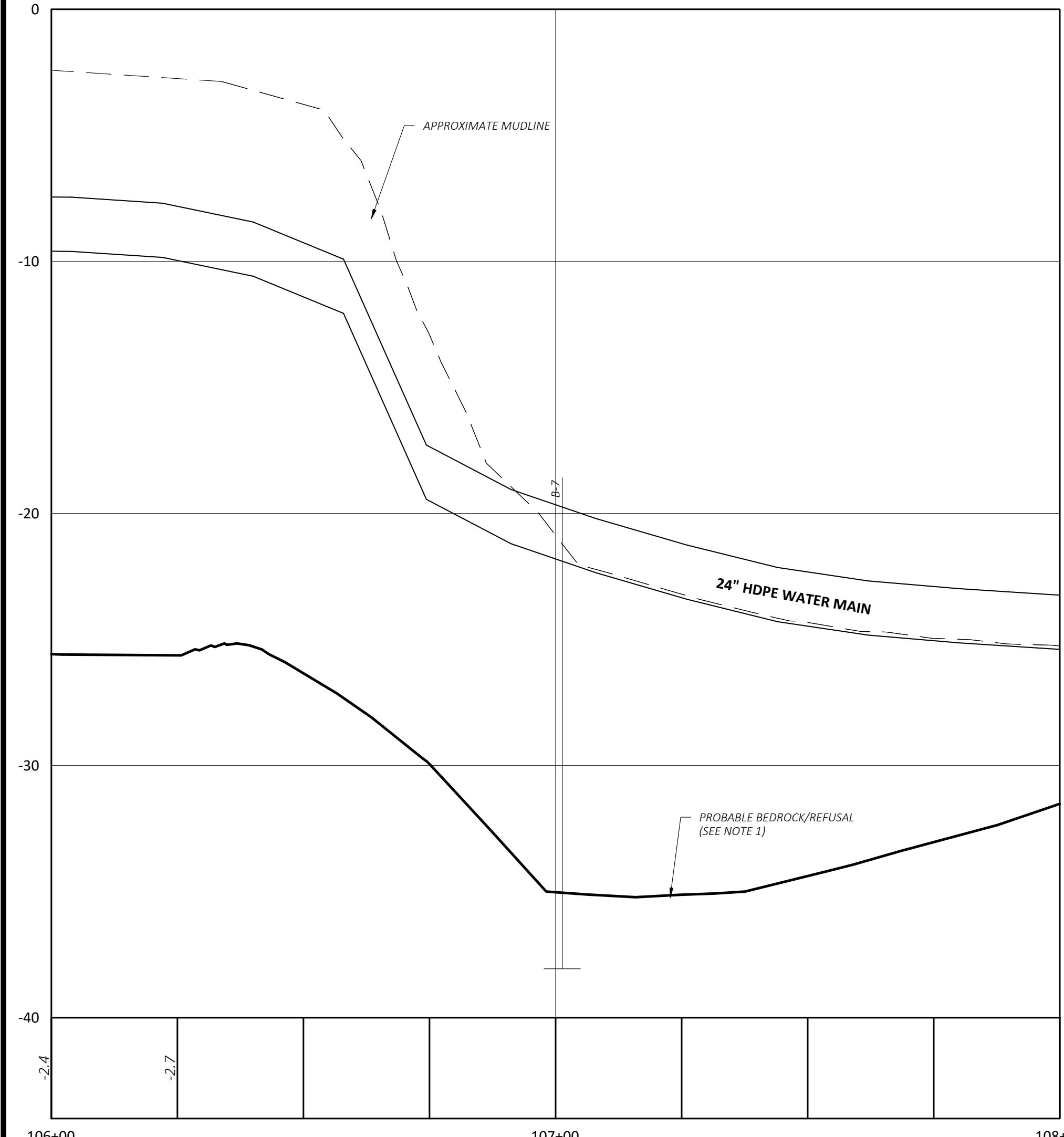
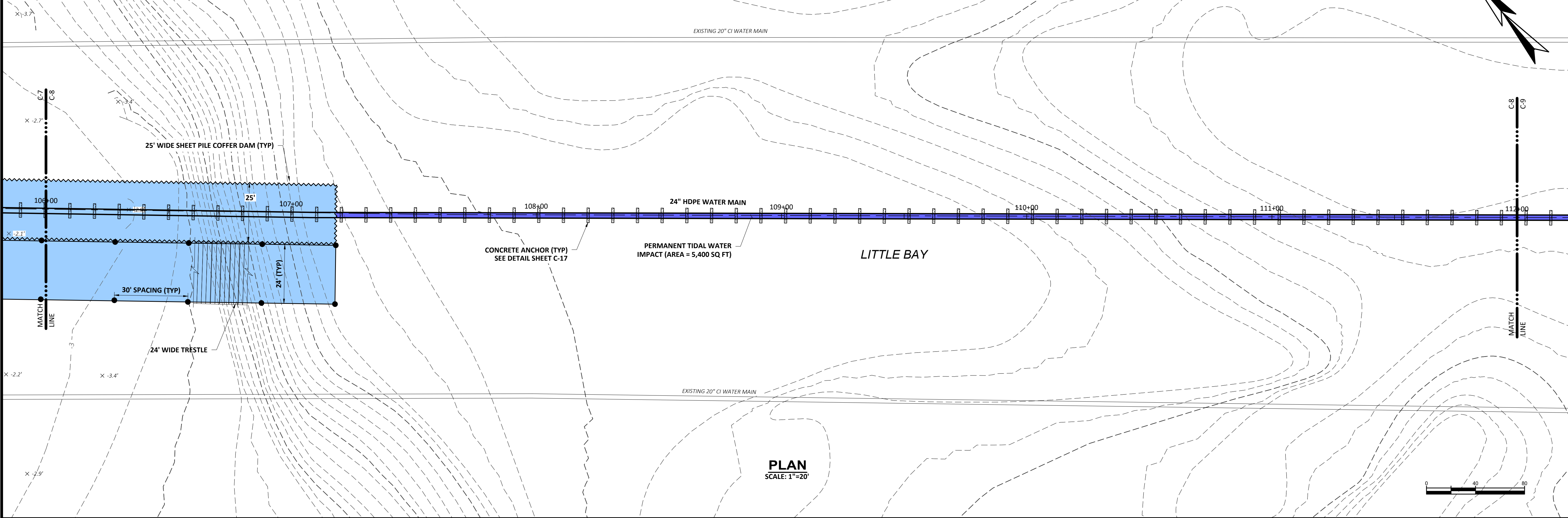
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WATER MAIN REPLACEMENT PLAN & PROFILE I
 STA. 100+00 TO STA. 106+00
DRAWING
 C-7

LAST SAVED BY: WILLIAM.EDGAR 7/22/2021 4:03 PM

NOTES

1. PROBABLE BEDROCK/REFUSAL SURFACE INFORMATION SHOWN IN PROFILE VIEW IS BASED ON SIDE SCAN SONAR SURVEY INFORMATION COLLECTED BY OCEAN SURVEYS, INC. (OSI) DURING A GEOPHYSICAL SURVEY OF THE LITTLE BAY AREA CONDUCTED IN OCTOBER 2018.



NO	DATE	DESCRIPTION
1	07/21	PERMITTING PLANS - NOT FOR CONSTRUCTION

DESIGNED BY: W.EDG
 CAD CORP.: W.EDG
 CHECKED BY: W.EDG
 DATE: 7/22/2021
 APPROVED BY: W.EDG
 DATE: 7/22/2021
 PROJECT NO.: 14302A

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CITY OF PORTSMOUTH
 SUBAQUEOUS WATER TRANSMISSION MAIN
 LITTLE BAY, DURHAM-NEWINGTON
 NEW HAMPSHIRE
 WATER MAIN REPLACEMENT PLAN & PROFILE II
 STA. 106+00 TO STA. 112+00

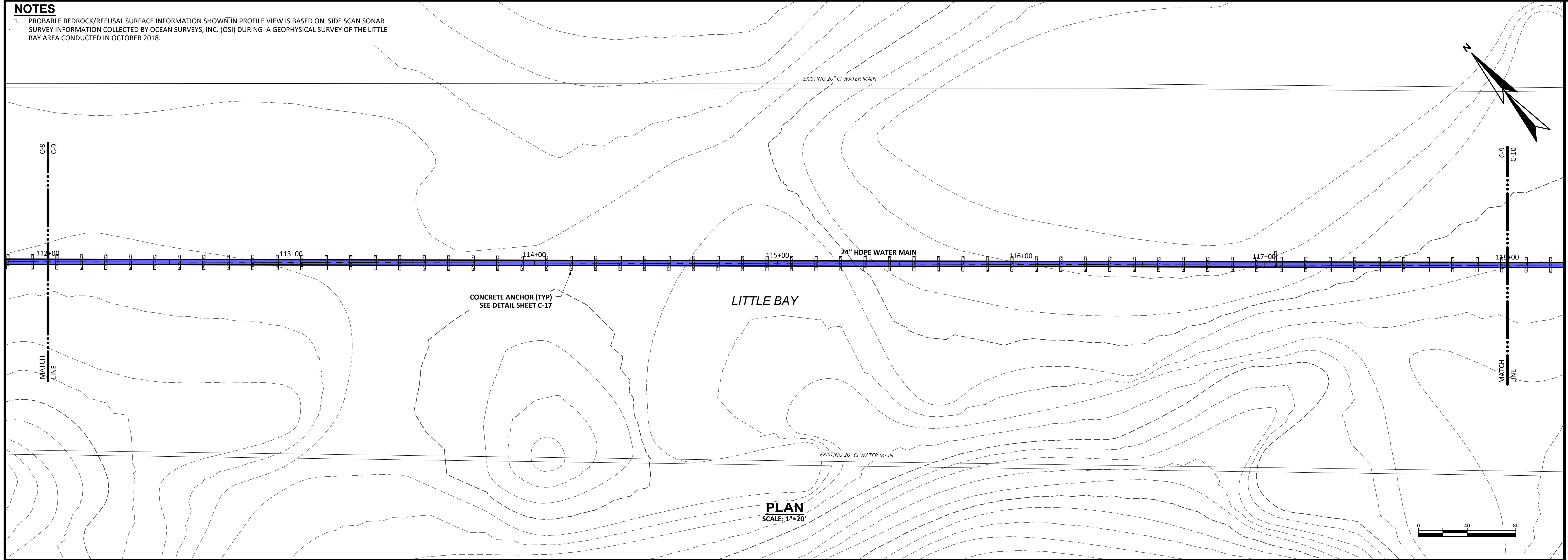
DRAWING
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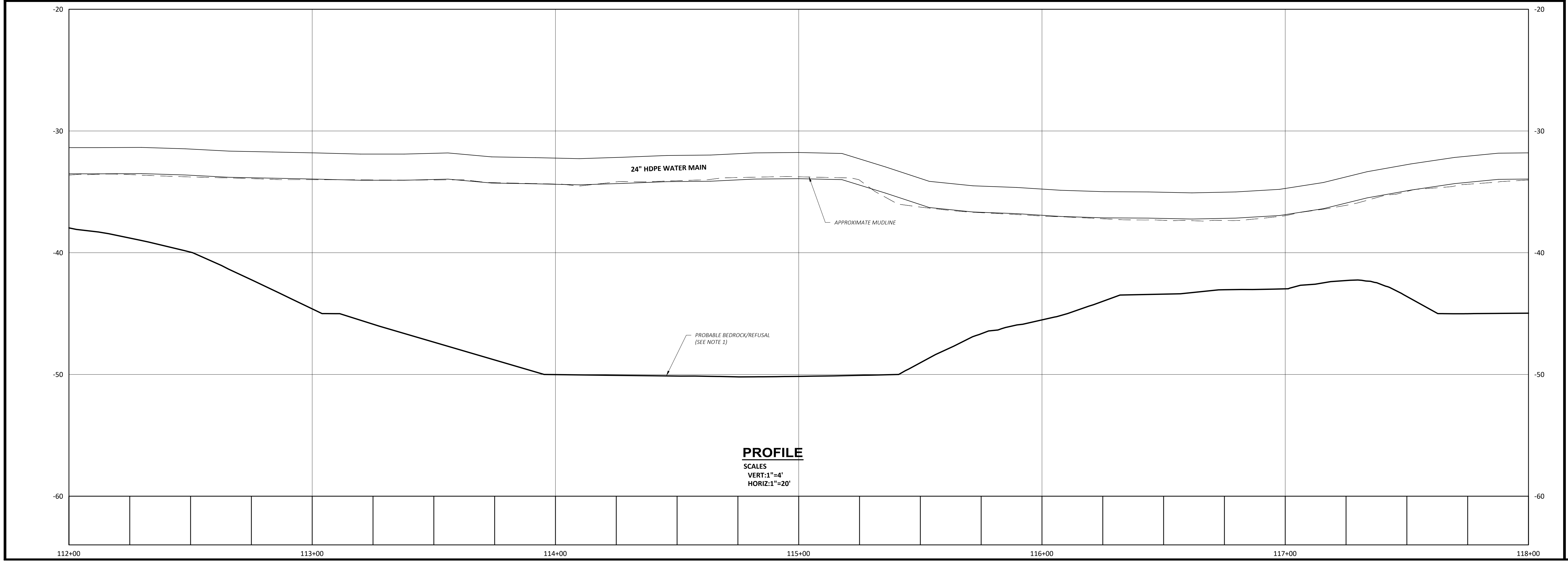
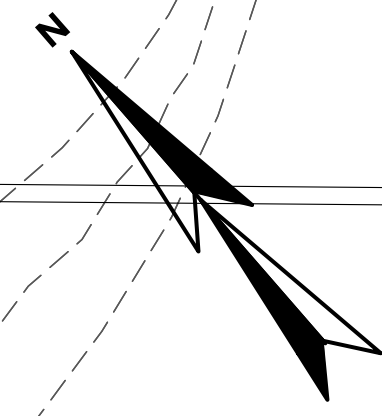
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NOTES

1. PROBABLE BEDROCK/REFUSAL SURFACE INFORMATION SHOWN IN PROFILE VIEW IS BASED ON SIDE SCAN SONAR SURVEY INFORMATION COLLECTED BY OCEAN SURVEYS, INC. (OSI) DURING A GEOPHYSICAL SURVEY OF THE LITTLE BAY AREA CONDUCTED IN OCTOBER 2018.



PLAN
SCALE: 1"=20'



PROFILE
SCALES
VERT: 1"=4'
HORIZ: 1"=20'

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NO	DESCRIPTION	DATE
1	PERMITTING PLANS - NOT FOR CONSTRUCTION	07/21

DESIGNED BY: W.EDG
 CAD CORP.: W.EDG
 CD: W.EDG
 CHECKED BY:
 DATE:
 APPROVED BY:
 DATE: 14202A
 PROJECT NO: 14202A

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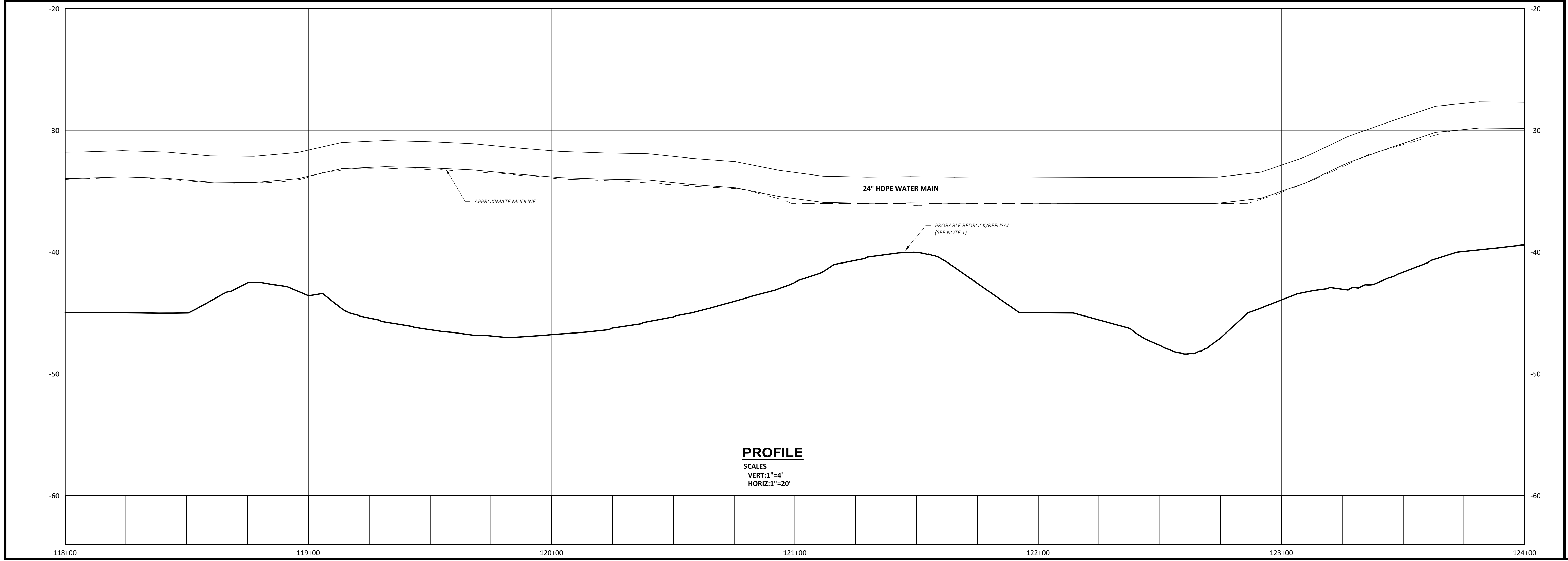
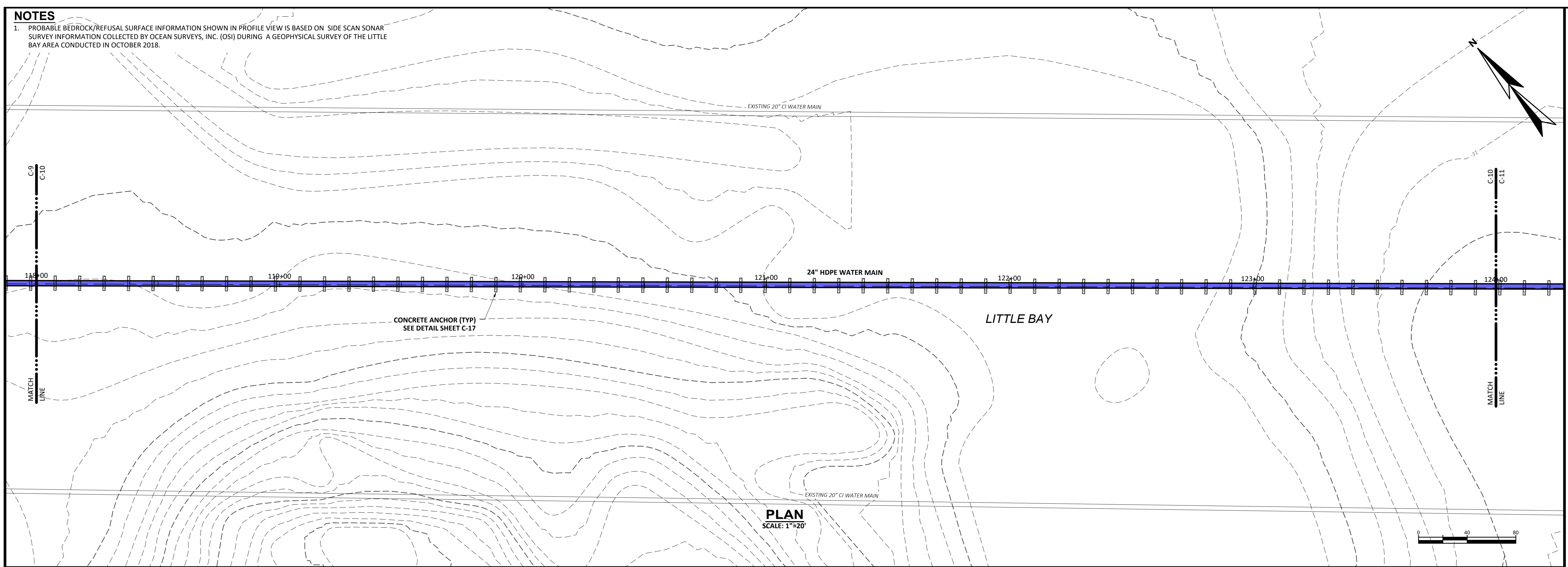
CITY OF PORTSMOUTH
 SUBAQUEOUS WATER TRANSMISSION MAIN
 LITTLE BAY, DURHAM-NEWINGTON
 NEW HAMPSHIRE
 WATER MAIN REPLACEMENT PLAN & PROFILE III
 STA. 112+00 TO STA. 118+00

DRAWING
 C-9

LAST SAVED BY: REMOTECAD 7/19/2021 1:55 PM

NOTES

1. PROBABLE BEDROCK/REFUSAL SURFACE INFORMATION SHOWN IN PROFILE VIEW IS BASED ON SIDE SCAN SONAR SURVEY INFORMATION COLLECTED BY OCEAN SURVEYS, INC. (OSI) DURING A GEOPHYSICAL SURVEY OF THE LITTLE BAY AREA CONDUCTED IN OCTOBER 2018.



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NO	DESCRIPTION	DATE
1	PERMITTING PLANS - NOT FOR CONSTRUCTION	07/21

DESIGNED BY: W.EDG
 CAD CORP.: W.EDG
 CHECKED BY: W.EDG
 DATE: 07/21/21
 APPROVED BY: W.EDG
 DATE: 07/21/21
 PROJECT NO.: 14202A

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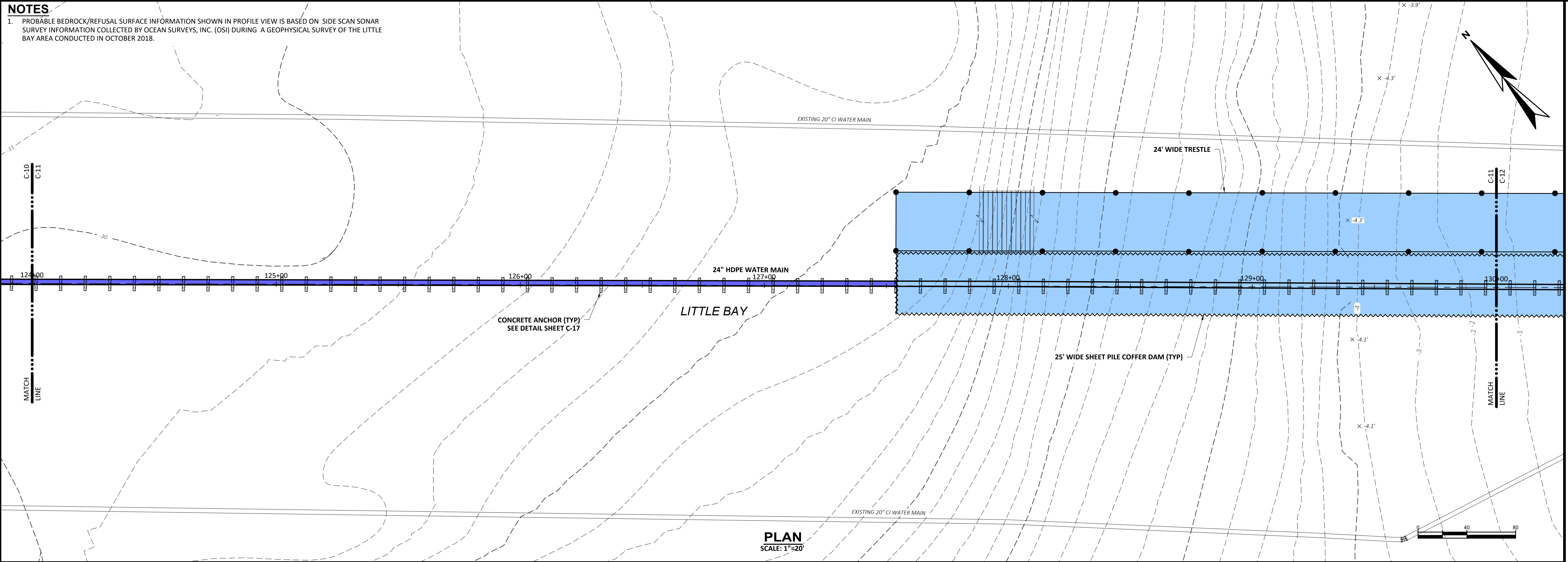
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CITY OF PORTSMOUTH
 SUBAQUEOUS WATER TRANSMISSION MAIN
 LITTLE BAY, DURHAM-NEWINGTON
 NEW HAMPSHIRE
 WATER MAIN REPLACEMENT PLAN & PROFILE IV
 STA. 118+00 TO STA. 124+00

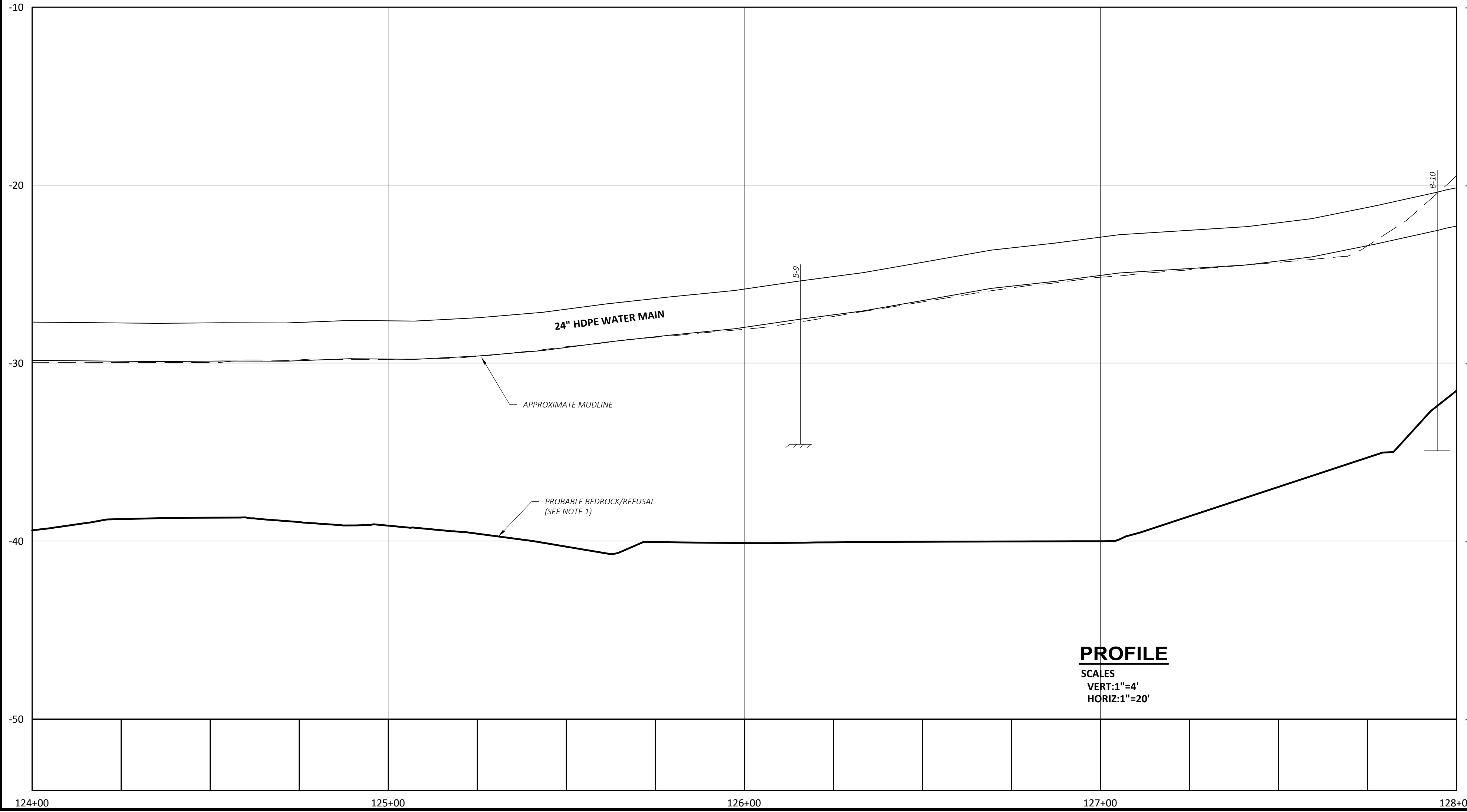
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NOTES

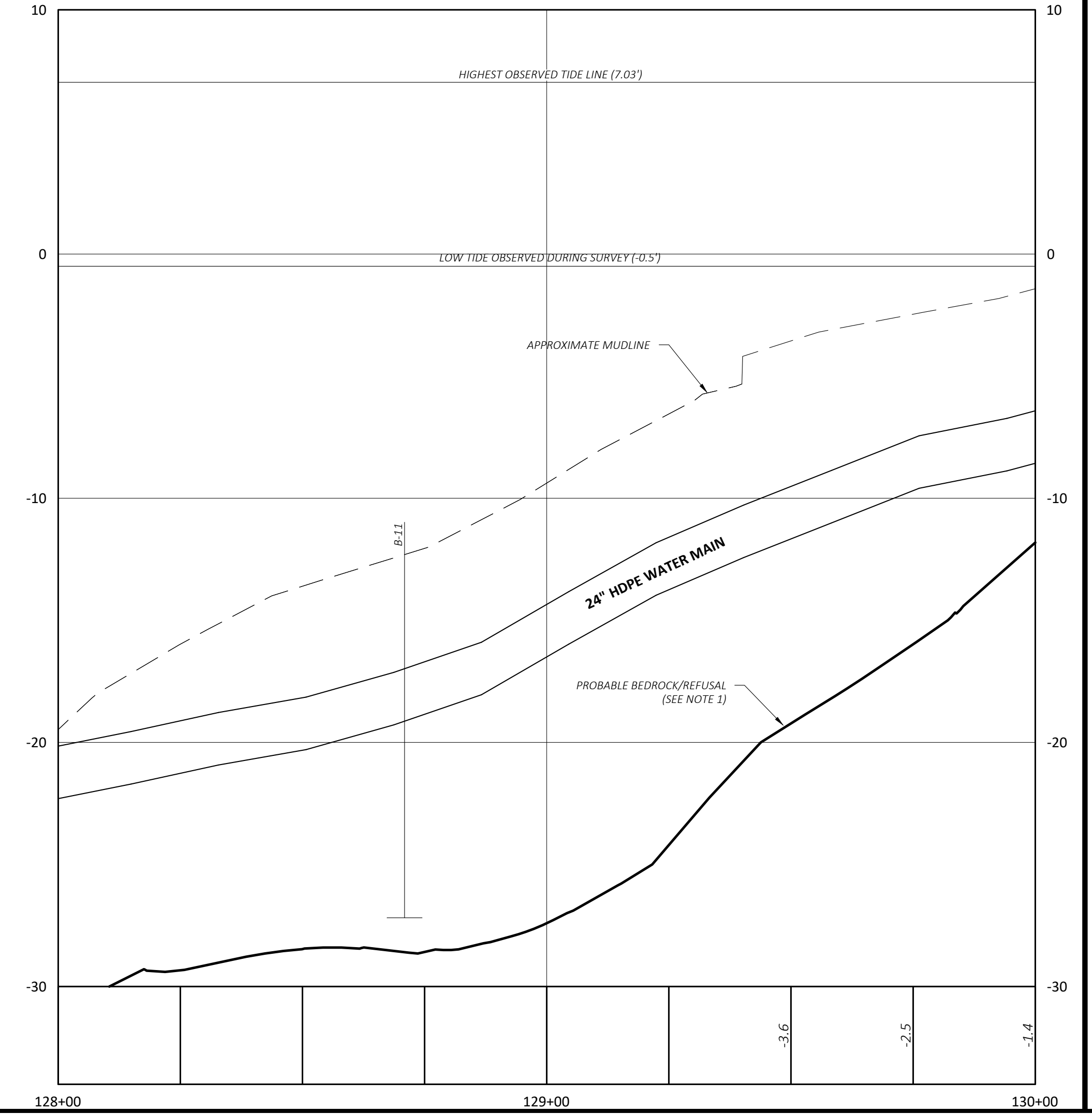
1. PROBABLE BEDROCK/REFUSAL SURFACE INFORMATION SHOWN IN PROFILE VIEW IS BASED ON SIDE SCAN SONAR SURVEY INFORMATION COLLECTED BY OCEAN SURVEYS, INC. (OSI) DURING A GEOPHYSICAL SURVEY OF THE LITTLE BAY AREA CONDUCTED IN OCTOBER 2018.



PLAN
SCALE: 1"=20'



PROFILE
SCALES
VERT: 1"=4'
HORIZ: 1"=20'



NO	DESCRIPTION	DATE
1	PERMITTING PLANS - NOT FOR CONSTRUCTION	07/21

DESIGNED BY: W.EDG
 CAD CORP.: W.EDG
 CHECKED BY: W.EDG
 DATE: 07/21/2021
 APPROVED BY: W.EDG
 DATE: 07/21/2021
 PROJECT NO.: 14302A

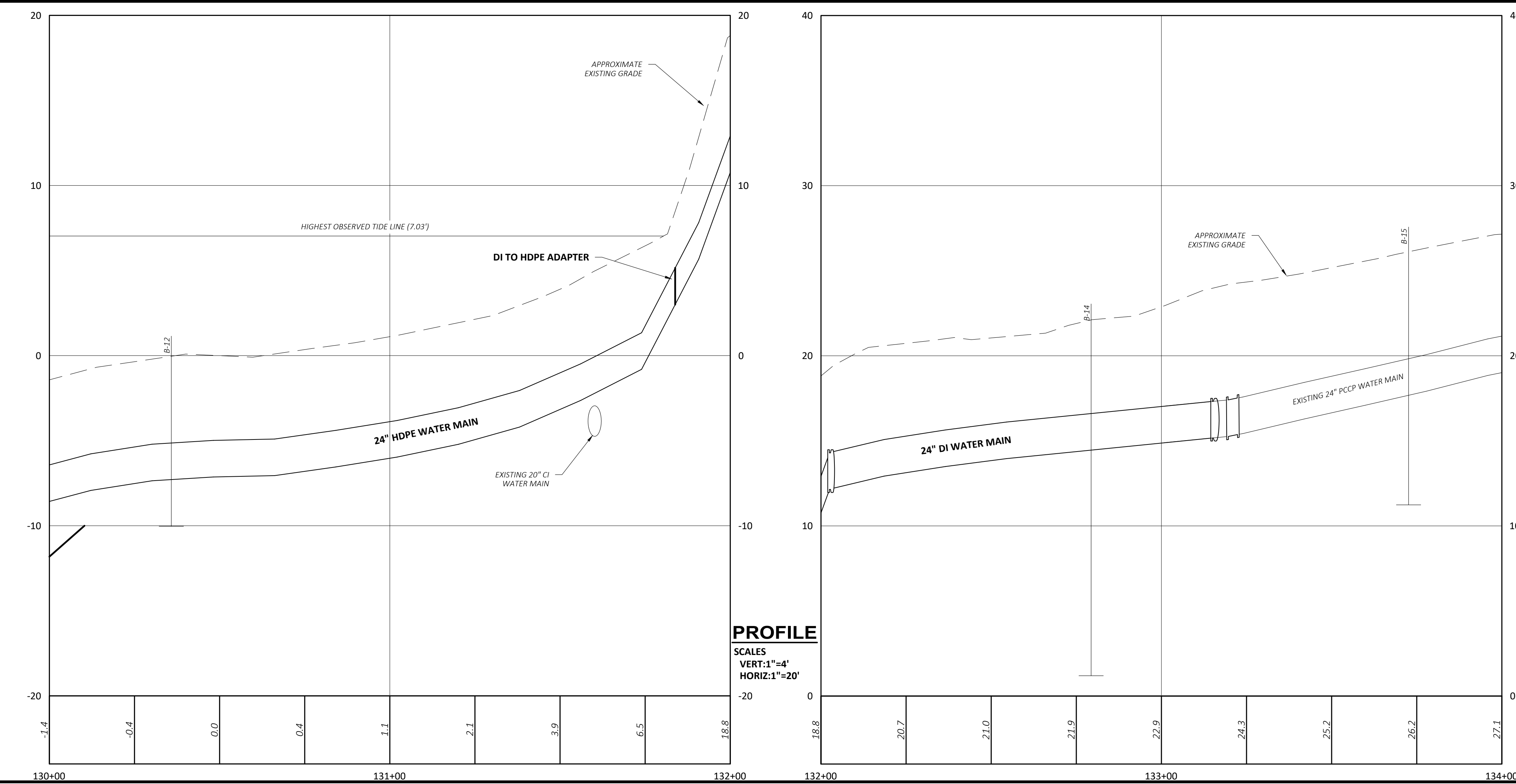
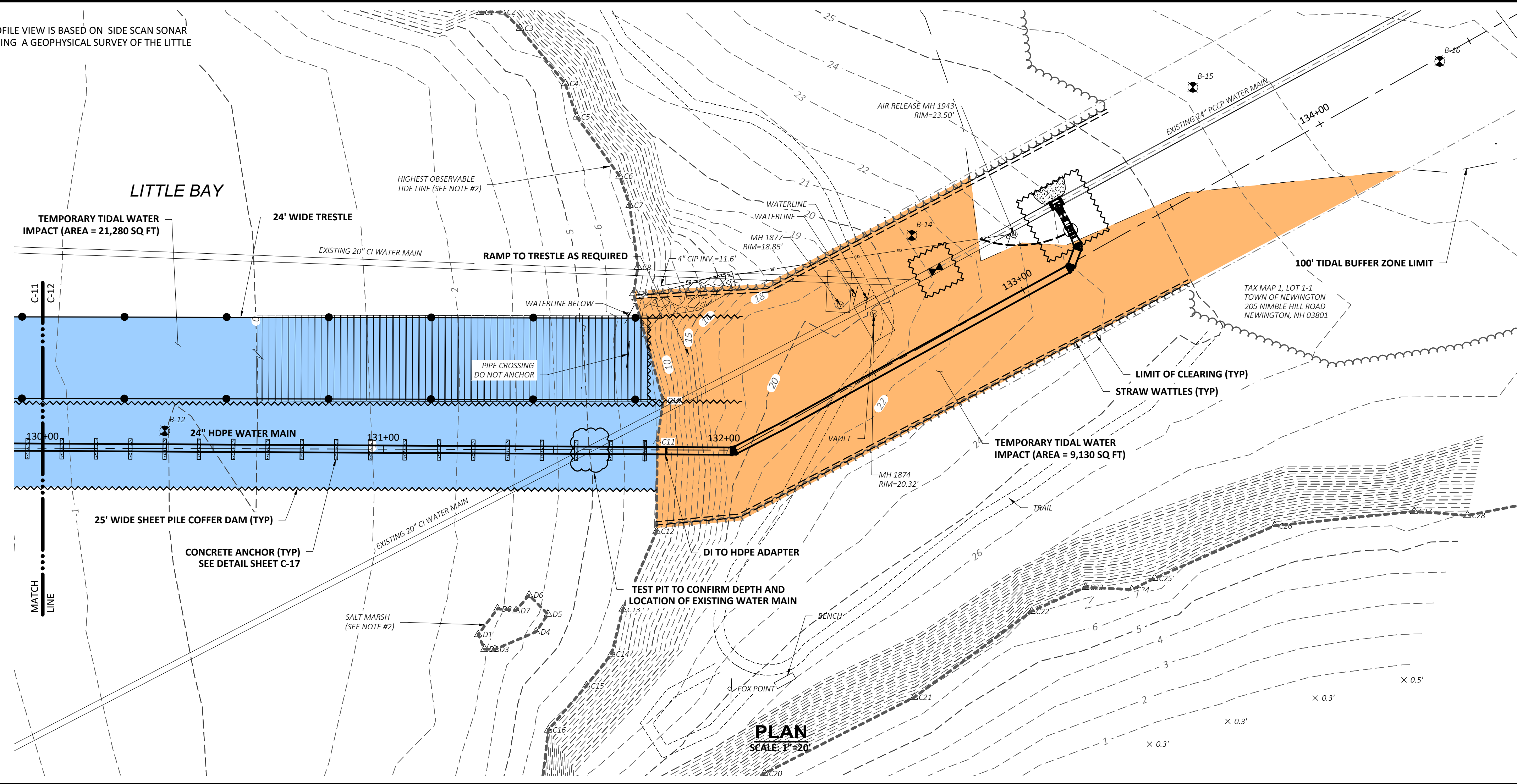
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CITY OF PORTSMOUTH
 SUBAQUEOUS WATER TRANSMISSION MAIN
 LITTLE BAY, DURHAM-NEWINGTON
 NEW HAMPSHIRE
 WATER MAIN REPLACEMENT PLAN & PROFILE V
 STA. 124+00 TO STA. 130+00

DRAWING
 C-11

NOTES

1. PROBABLE BEDROCK/REFUSAL SURFACE INFORMATION SHOWN IN PROFILE VIEW IS BASED ON SIDE SCAN SONAR SURVEY INFORMATION COLLECTED BY OCEAN SURVEYS, INC. (OSI) DURING A GEOPHYSICAL SURVEY OF THE LITTLE BAY AREA CONDUCTED IN OCTOBER 2018.



NO	PERMITTING PLANS - NOT FOR CONSTRUCTION	DATE
1		07/21

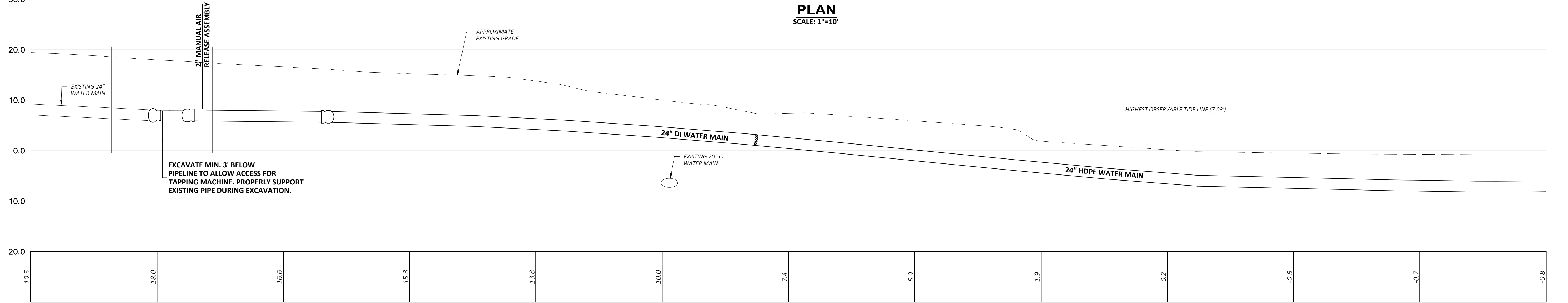
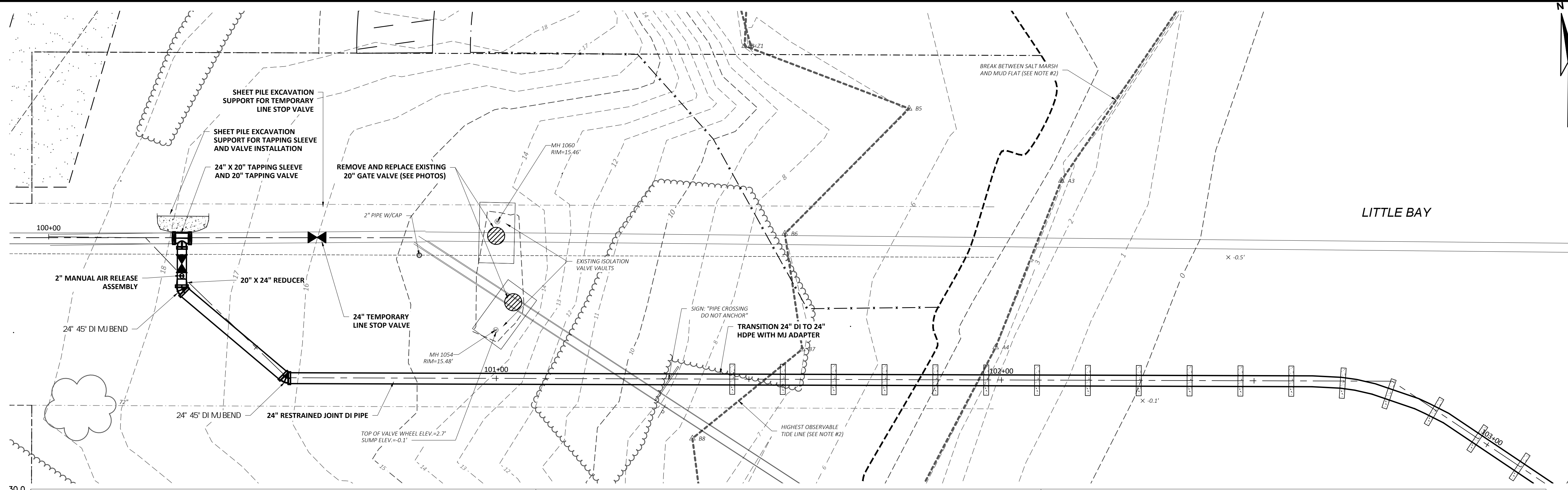
DESIGNED BY:	W.EDG
CAD CORP:	W.EDG
CD:	W.EDG
CHECKED BY:	
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DATE:	
PROJECT NO.:	14202A

DESIGNED BY: W.EDG
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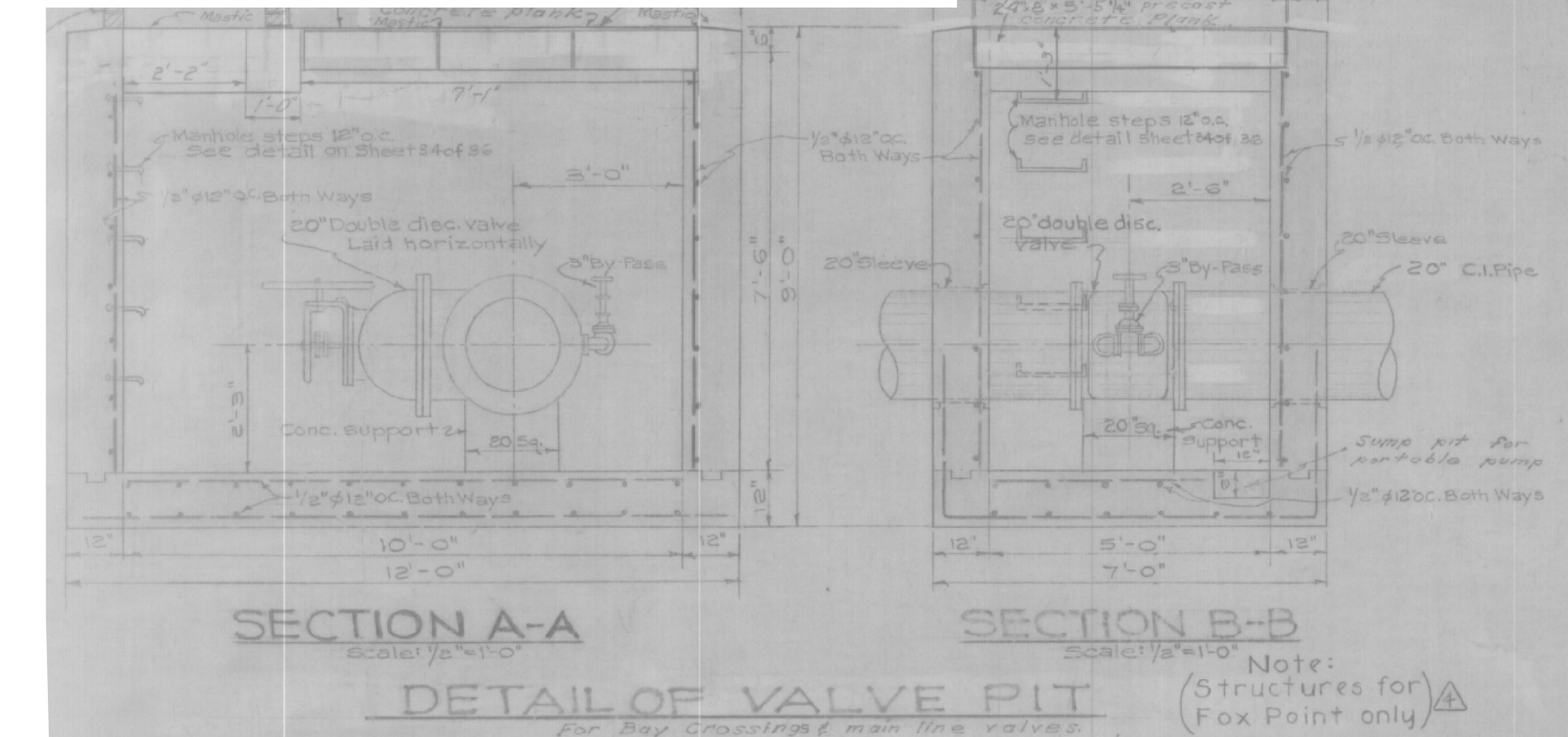
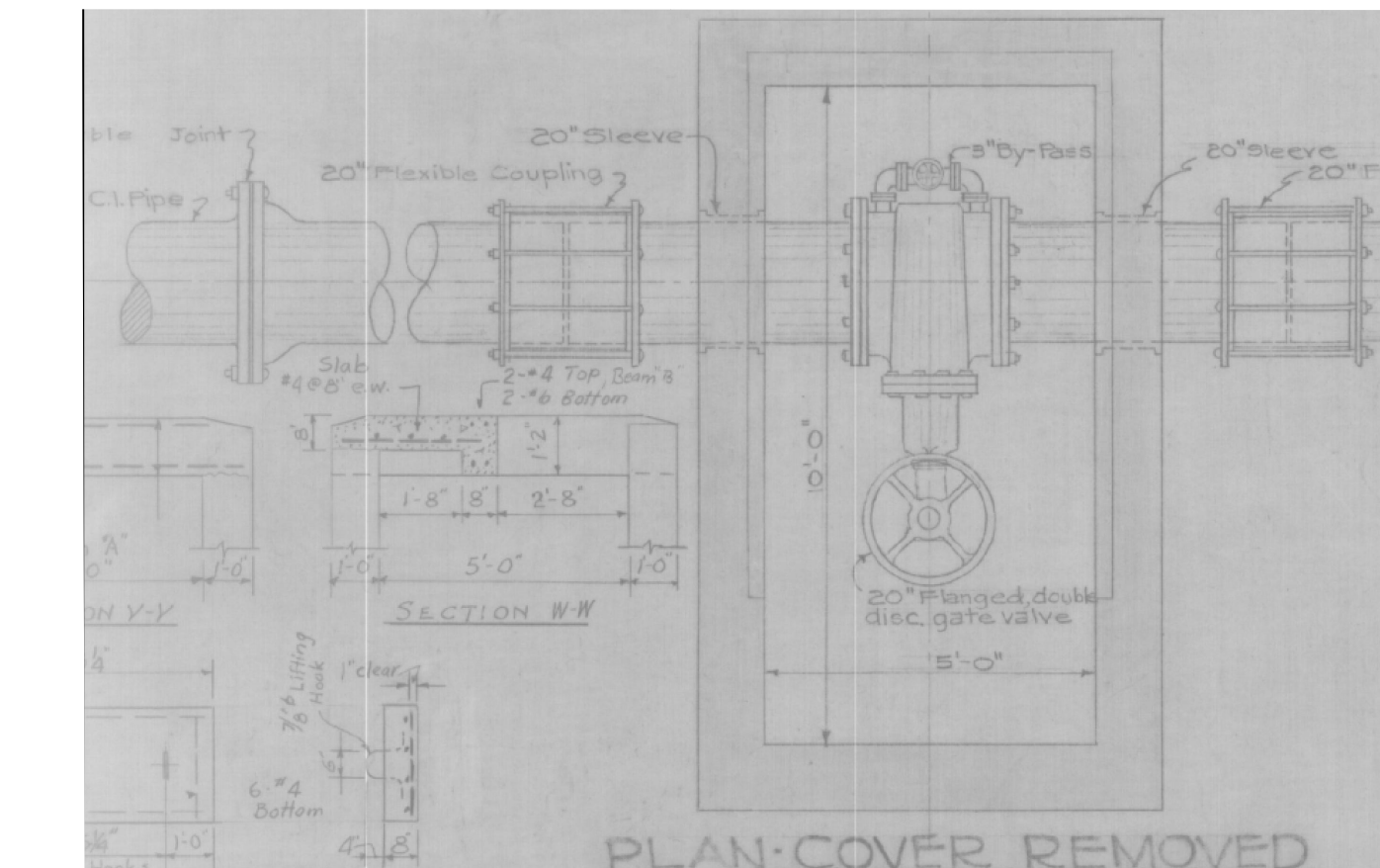
CITY OF PORTSMOUTH
 SUBAQUEOUS WATER TRANSMISSION MAIN
 LITTLE BAY, DURHAM-NEWINGTON
 NEW HAMPSHIRE
 WATER MAIN REPLACEMENT PLAN & PROFILE VI
 STA. 130+00 TO STA. 133+00

DRAWING
 C-12

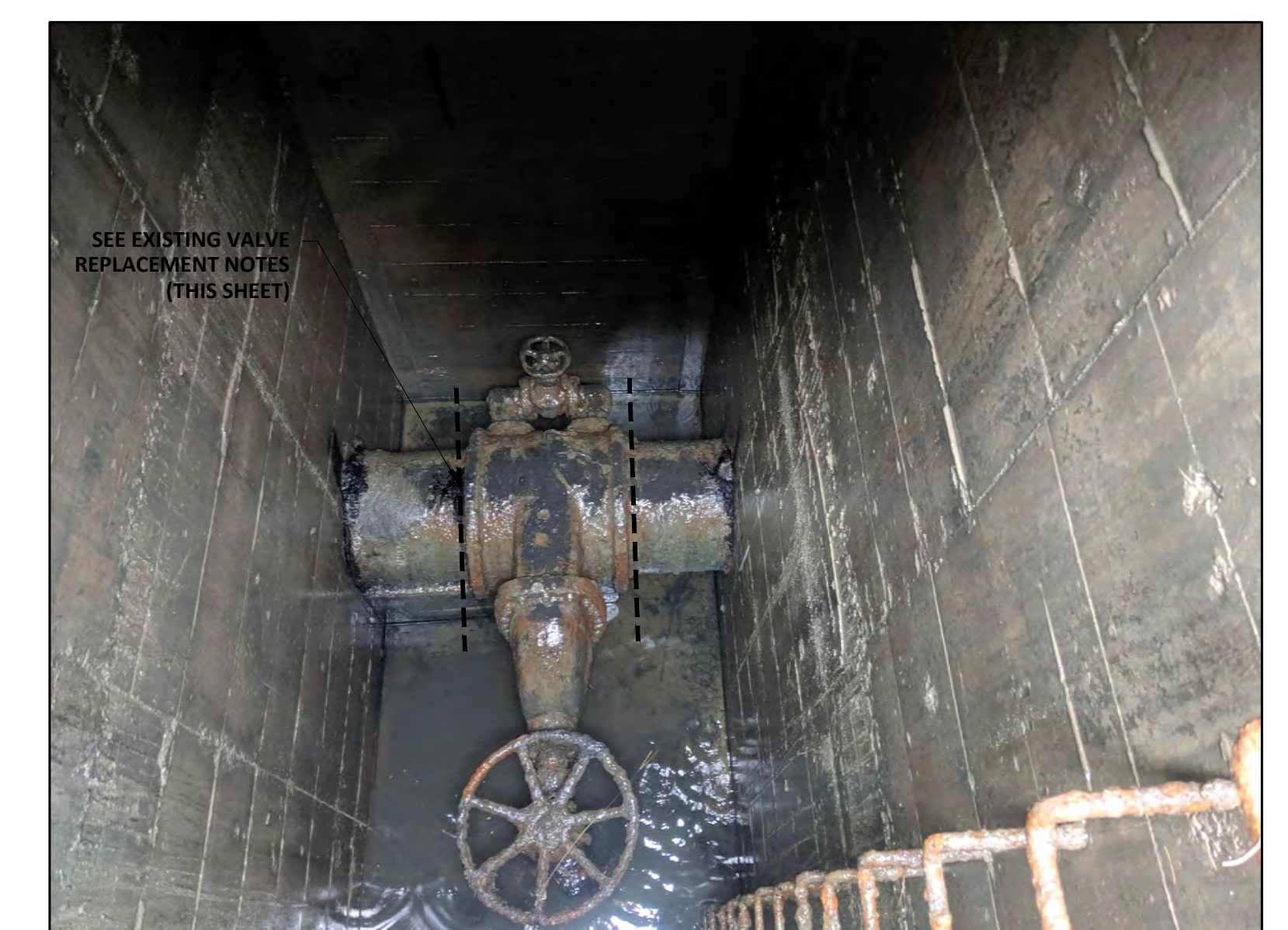
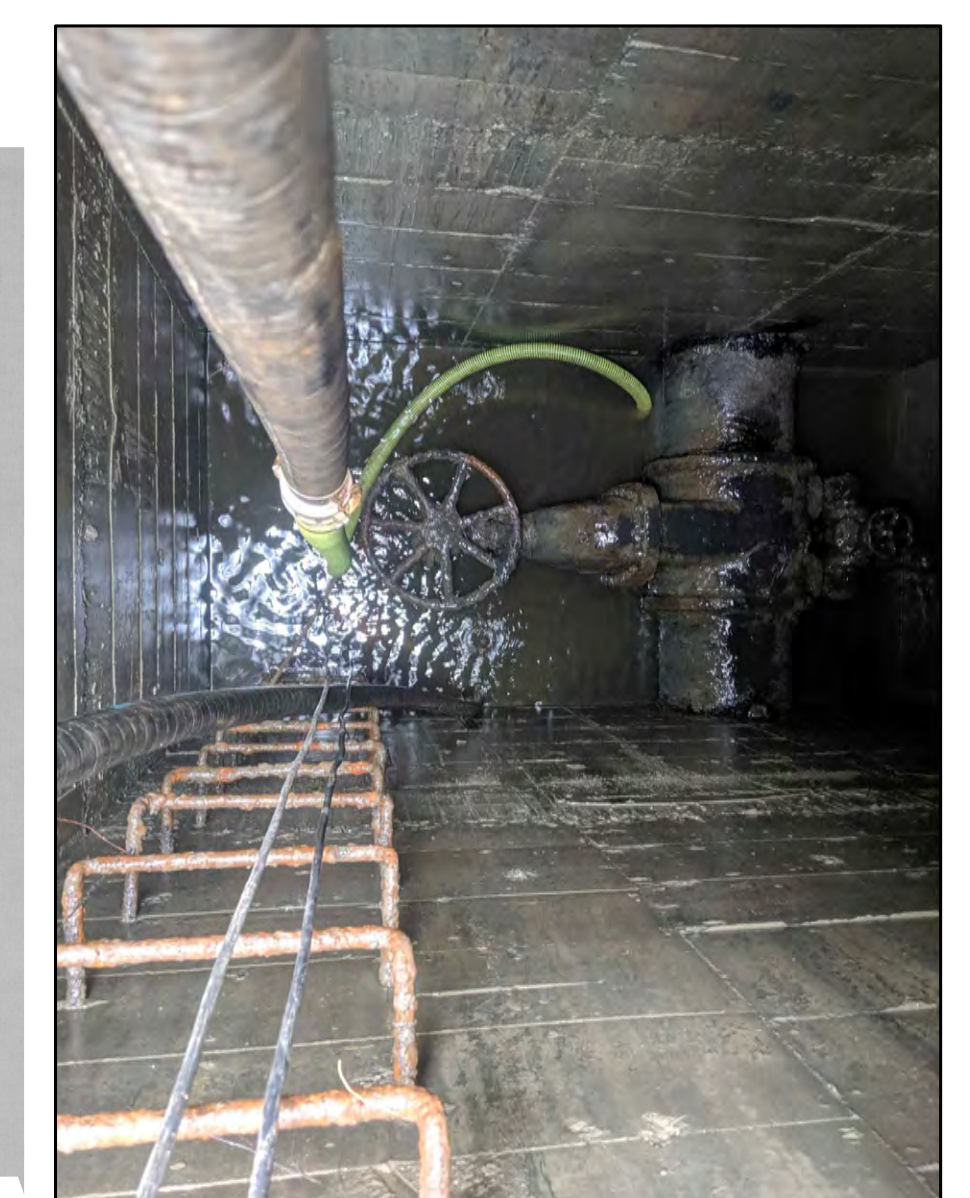


- EXISTING VALVE REPLACEMENT**
- CAREFULLY CUT OUT AND REMOVE EXISTING 20-INCH BELL END GATE VALVES.
 - CLEAN AND PREPARE ENDS OF EXISTING 20-INCH CAST IRON PIPE.
 - INSTALL NEW FLXFL 20-INCH RESILIENT WEDGE STYLE GATE VALVE. MOUNT GATE VALVE VERTICALLY. INSTALL VALVE WITH TWO RESTRAINED STYLE FLANGE ADAPTERS EBAA IRON SERIES 2100 MEGAFLANGE OR EQUAL.
 - CORE EXISTING VAULT COVER AND INSTALL CAST IRON FLOOR BOX ABOVE VALVE BONNET. INSTALL OPERATOR EXTENSION FROM OPERATING NUT TO FLOOR BOX. PROVIDE 316 STAINLESS STEEL GUIDE SUPPORTS AT 5-FOOT INTERVALS ON OPERATOR EXTENSION.
 - WRAP PIPE AND VALVE IN V-BIO POLYETHYLENE ENCASEMENT.
 - INFILL VAULT CHAMBER WITH CLEAN 3/4" CRUSHED STONE TO 1-FOOT BELOW MANHOLE FRAME AND COVER.

PROFILE
 SCALES
 VERT: 1"=10'
 HORIZ: 1"=10'



EXISTING VALVE PITS - DURHAM
 NTS

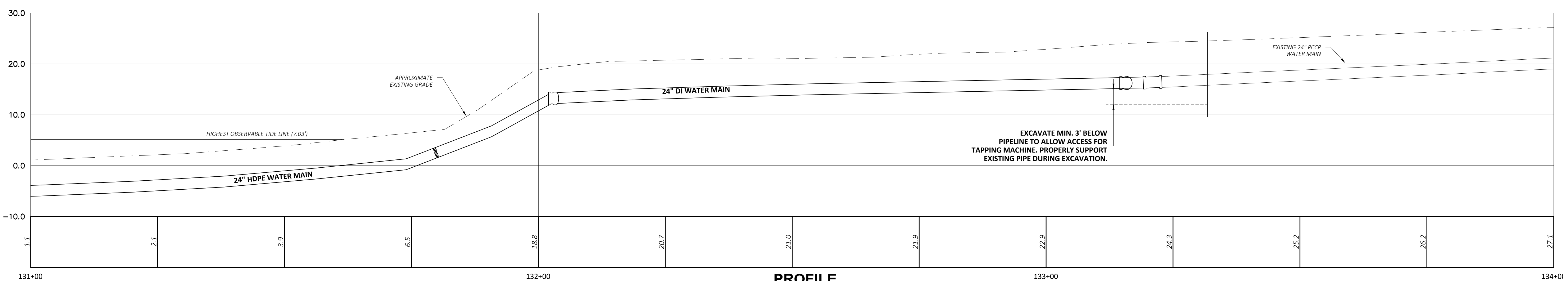
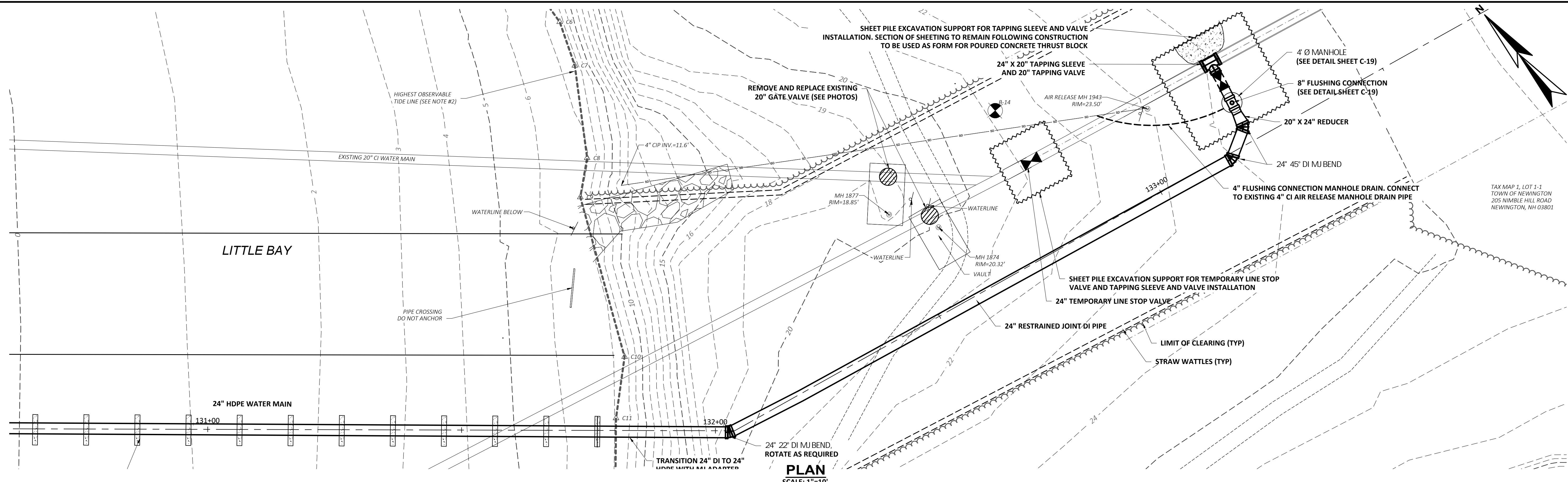


NO	PERMITTING PLANS - NOT FOR CONSTRUCTION	DATE
1		07/21

DESIGNED BY:	W. EDG
CAD COORD.: <td>W. EDG</td>	W. EDG
CHECKED BY: <td></td>	
DATE: <td></td>	
APPROVED BY: <td></td>	
DATE: <td></td>	
PROJECT NO.: <td>14302A</td>	14302A

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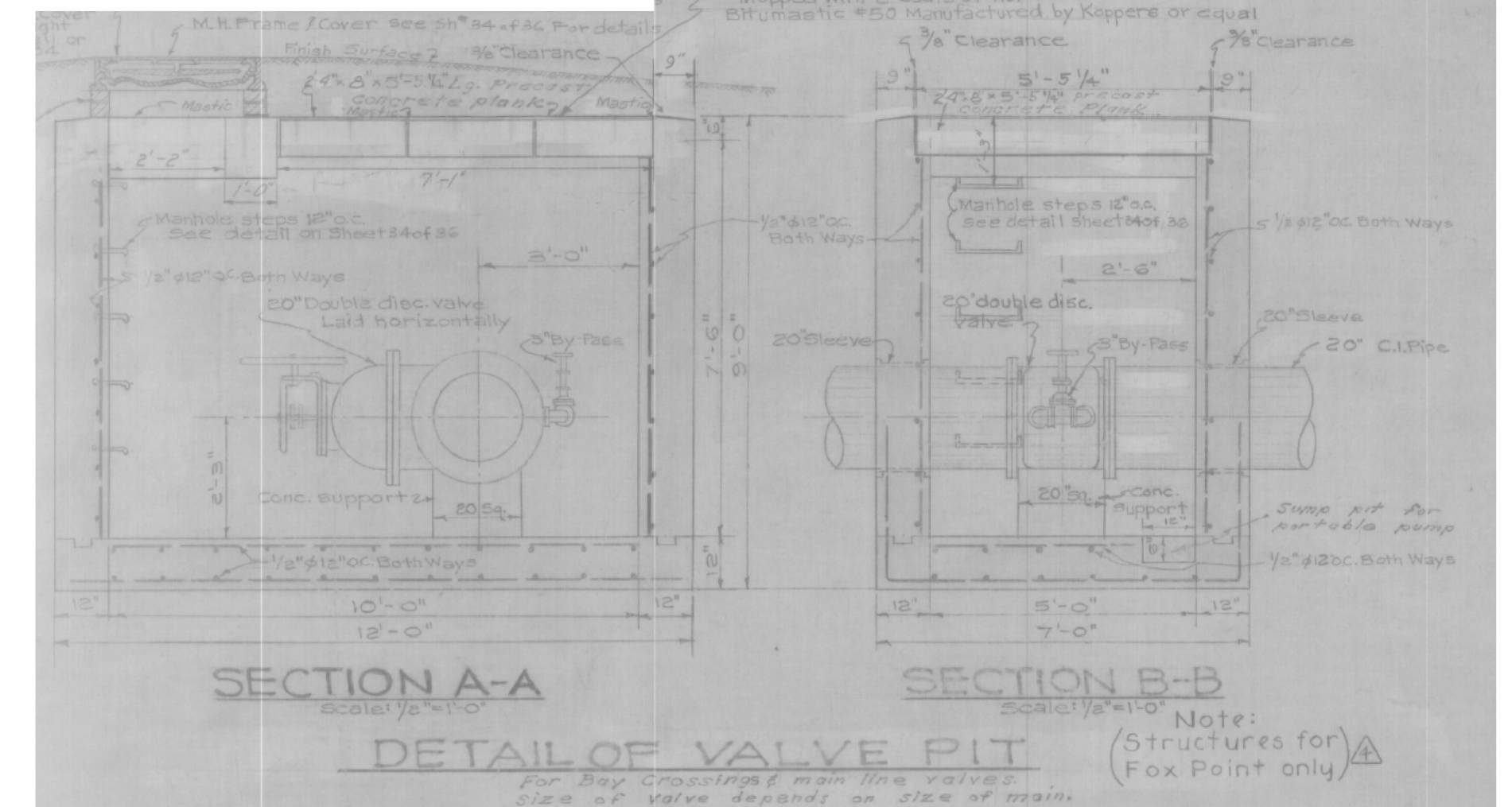
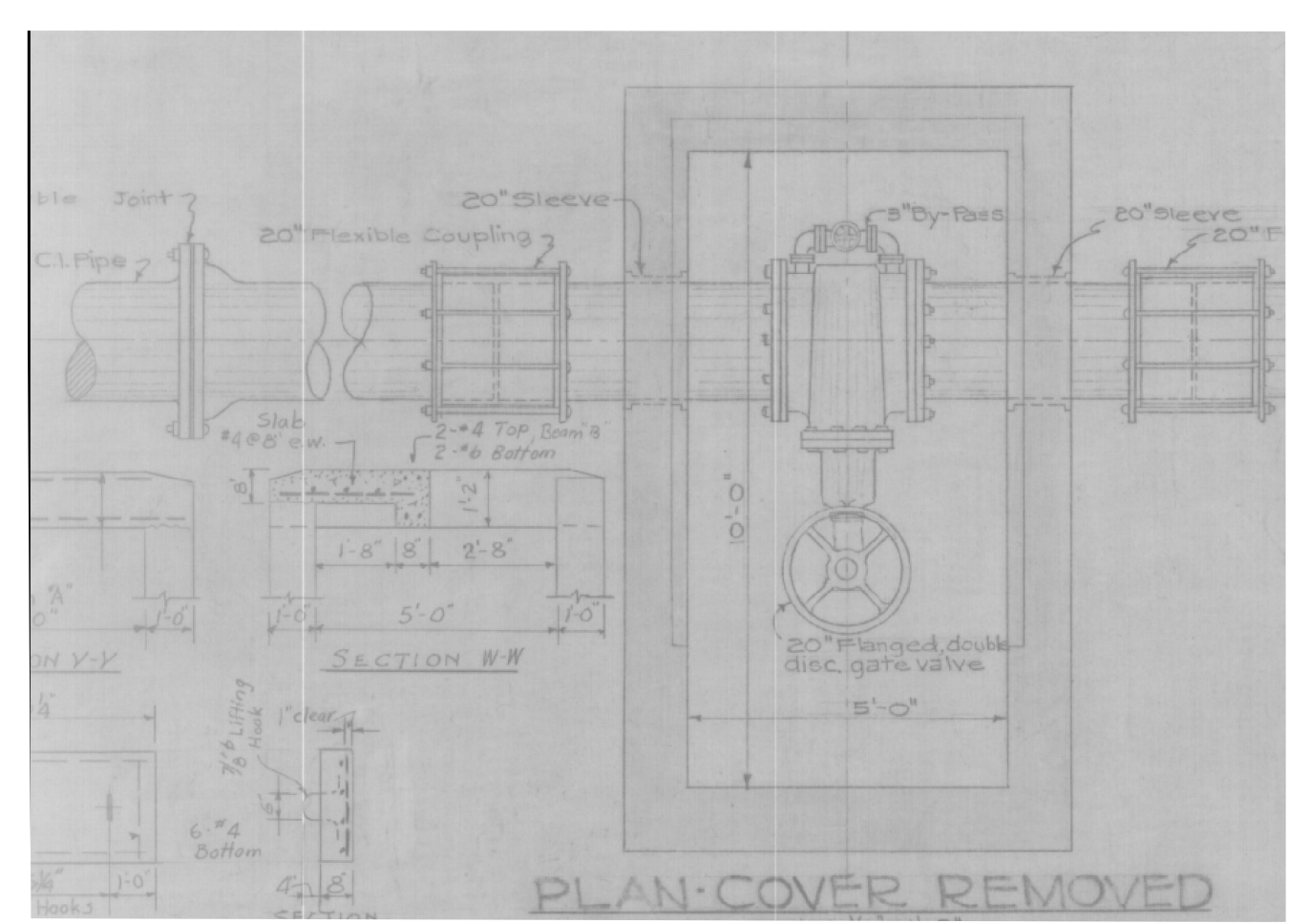
CITY OF PORTSMOUTH
 SUBAQUEOUS WATER TRANSMISSION MAIN
 LITTLE BAY, DURHAM-NEWINGTON
 NEW HAMPSHIRE
 WATER MAIN CONNECTION DETAIL - DURHAM
DRAWING
 C-13



PROFILE
 SCALES
 VERT: 1"=10'
 HORIZ: 1"=10'

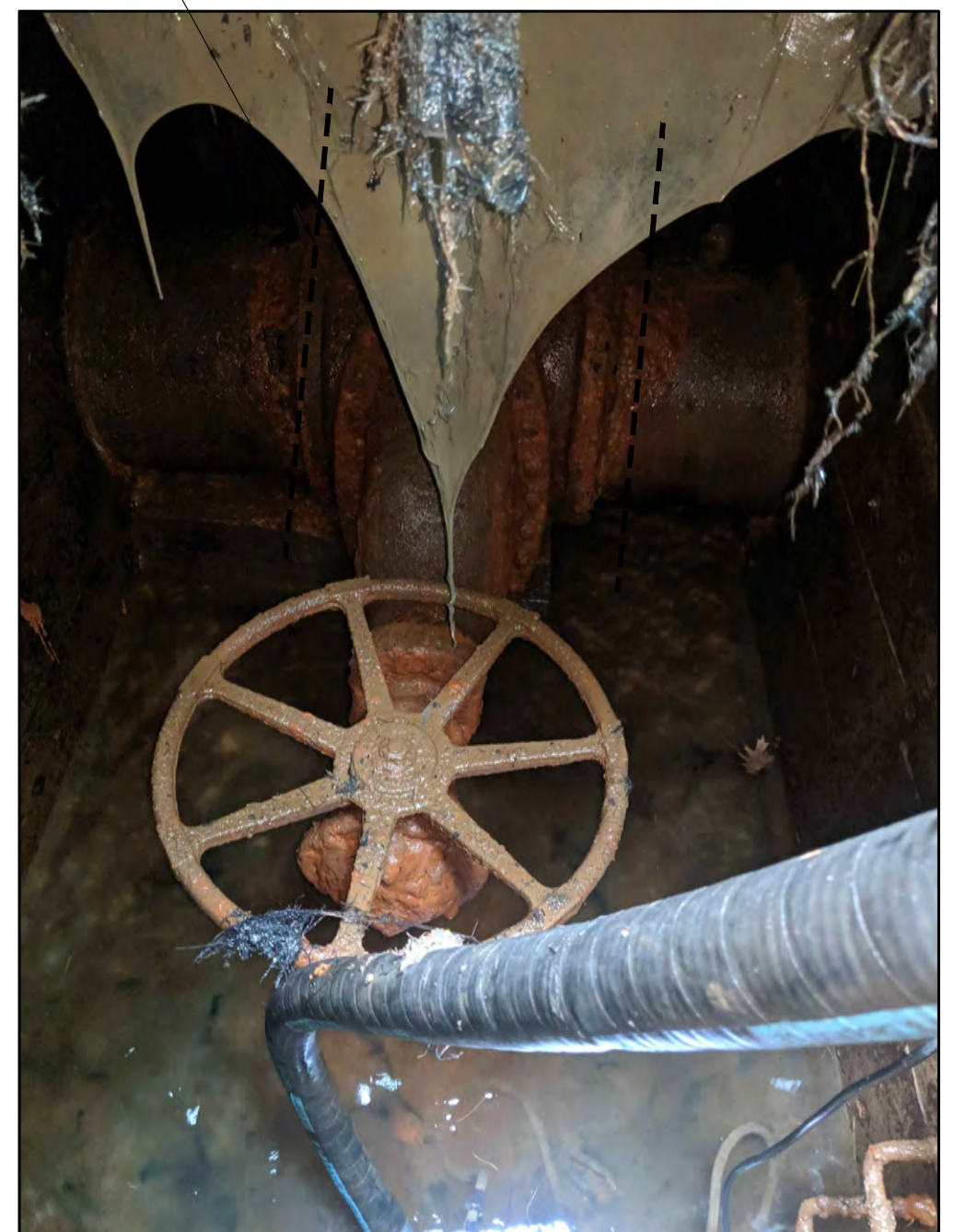
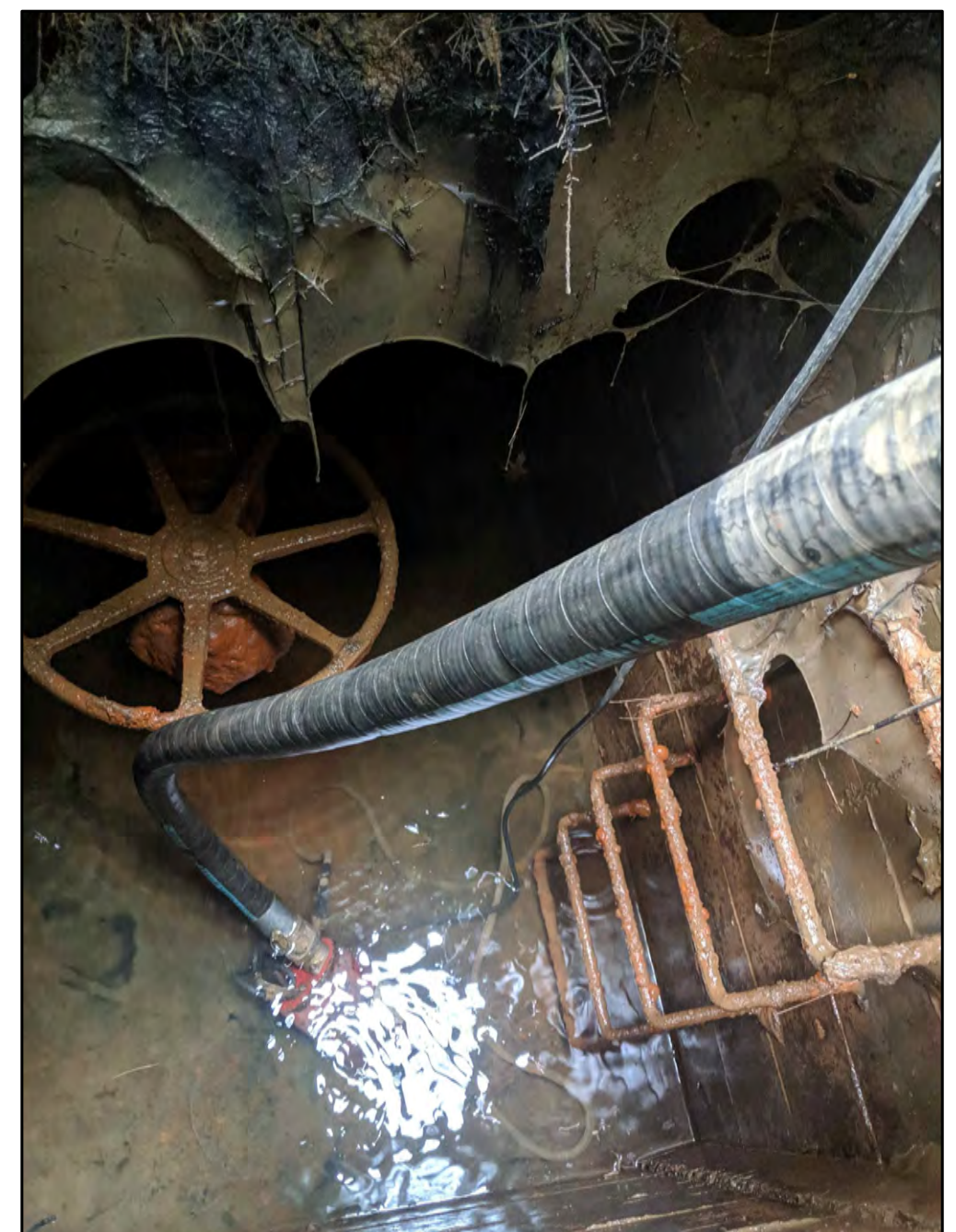
EXISTING VALVE REPLACEMENT NOTES

- CAREFULLY CUT OUT AND REMOVE EXISTING 20-INCH BELL END GATE VALVES.
- CLEAN AND PREPARE ENDS OF EXISTING 20-INCH CAST IRON PIPE.
- INSTALL NEW FL X FL 20-INCH RESILIENT WEDGE STYLE GATE VALVE. MOUNT GATE VALVE HORIZONTALLY WITH BEVEL GEAR OPERATOR NUT TO FLOOR BOX. INSTALL VALVE WITH TWO RESTRAINED STYLE FLANGE ADAPTERS EBAA IRON SERIES 2100 MEGAFANGE OR EQUAL.
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- WRAP PIPE AND VALVE IN V-BIO POLYETHYLENE ENCASEMENT.
- INFILL VAULT CHAMBER WITH CLEAN 3/4" CRUSHED STONE TO 1-FOOT BELOW MANHOLE FRAME AND COVER.



EXISTING VALVE PITS - NEWINGTON

SEE EXISTING VALVE REPLACEMENT NOTES (THIS SHEET)



NO.	DATE	APPROVED BY	PROJECT NO.
1	07/21	W. EDG	14202A
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DESIGNED BY: W. EDG
 CAD CORP.: W. EDG
 CHECKED BY:
 DATE:
 APPROVED BY:
 DATE:
 PROJECT NO.: 14202A

TAX MAP 1, LOT 1-1
 TOWN OF NEWINGTON
 205 NIMBLE HILL ROAD
 NEWINGTON, NH 03801

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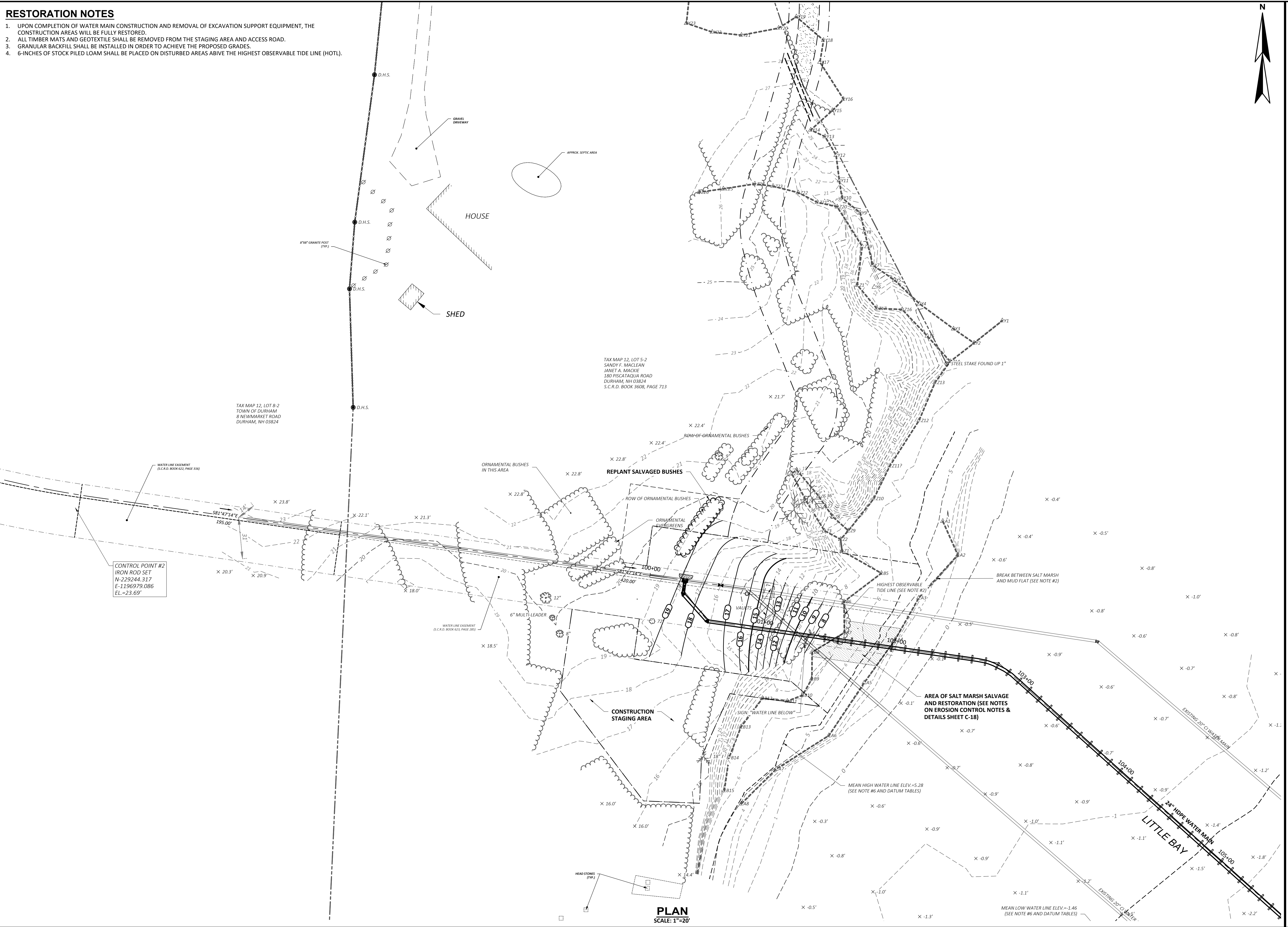
CITY OF PORTSMOUTH
 SUBAQUEOUS WATER TRANSMISSION MAIN
 LITTLE BAY, DURHAM-NEWINGTON
 NEW HAMPSHIRE

WATER MAIN CONNECTION DETAIL - NEWINGTON

DRAWING
 C-14

RESTORATION NOTES

1. UPON COMPLETION OF WATER MAIN CONSTRUCTION AND REMOVAL OF EXCAVATION SUPPORT EQUIPMENT, THE CONSTRUCTION AREAS WILL BE FULLY RESTORED.
2. ALL TIMBER MATS AND GEOTEXTILE SHALL BE REMOVED FROM THE STAGING AREA AND ACCESS ROAD.
3. GRANULAR BACKFILL SHALL BE INSTALLED IN ORDER TO ACHIEVE THE PROPOSED GRADES.
4. 6-INCHES OF STOCK PILED LOAM SHALL BE PLACED ON DISTURBED AREAS ABOVE THE HIGHEST OBSERVABLE TIDE LINE (HOTL).



PLAN
SCALE: 1"=20'



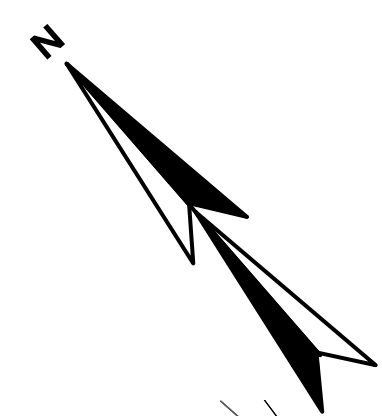
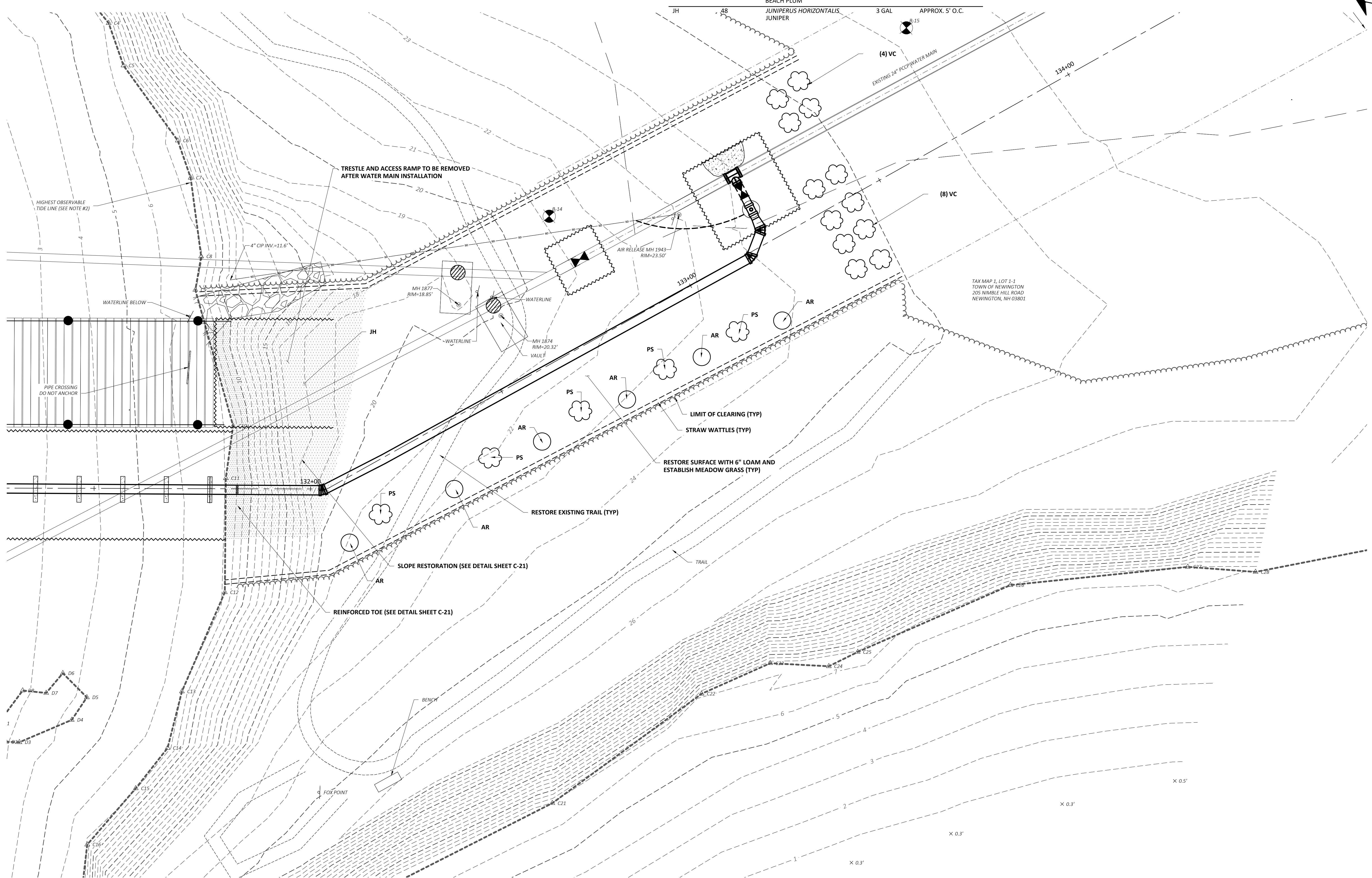
SUBMISSIONS/REVISIONS	
NO	DATE
	07/21
PERMITTING PLANS - NOT FOR CONSTRUCTION	
DESIGNED BY: W.EDG	CAD CORP.: W.EDG
CHECKED BY: W.EDG	DATE:
APPROVED BY:	DATE:
PROJECT NO.: 14202A	
<p>WRIGHT-PIERCE Engineering a Better Environment 888.621.8156 www.wright-pierce.com</p>	
<p>CITY OF PORTSMOUTH SUBAQUEOUS WATER TRANSMISSION MAIN LITTLE BAY, DURHAM-NEWINGTON NEW HAMPSHIRE</p>	
<p>DRAWING C-15</p>	

RESTORATION NOTES

1. UPON COMPLETION OF WATER MAIN CONSTRUCTION AND REMOVAL OF EXCAVATION SUPPORT EQUIPMENT, THE CONSTRUCTION AREAS WILL BE FULLY RESTORED.
2. ANY RUTTING IN STAGING AREAS SHALL BE RE-GRADED AND EXISTING GRADES RESTORED.
3. LOAM SHALL BE PLACED AS NEEDED TO ENSURE GRASS ESTABLISHMENT.
4. UNLESS OTHER PLANTINGS ARE INDICATED, AREAS IMPACTED BY CONSTRUCTION SHALL BE SEEDED WITH GRASS IN ACCORDANCE WITH SPECIFICATION 02485.

PLANTING SCHEDULE

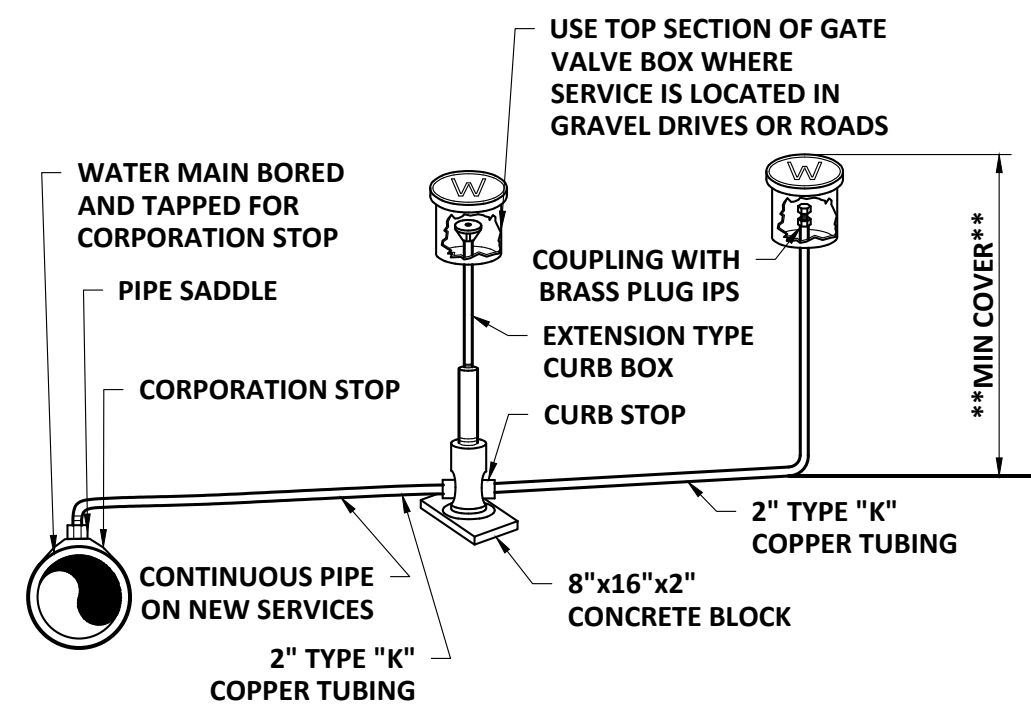
KEY	QTY	SCIENTIFIC NAME COMMON NAME	SIZE	SPACING
VC	12	VACCINIUM CORYMBOSUM (NORTHLAND) BLUEBERRY	3-4 FT	8' O.C.
AR	6	AMELANCHIER SPP SERVICEBERRY	3-4 FT	APPROX. 20' O.C.
SP	5	PRUNUS MARITIMA BEACH PLUM	3-4 FT	APPROX. 16' O.C.
JH	48	JUNIPERUS HORIZONTALIS JUNIPER	3 GAL	APPROX. 5' O.C.



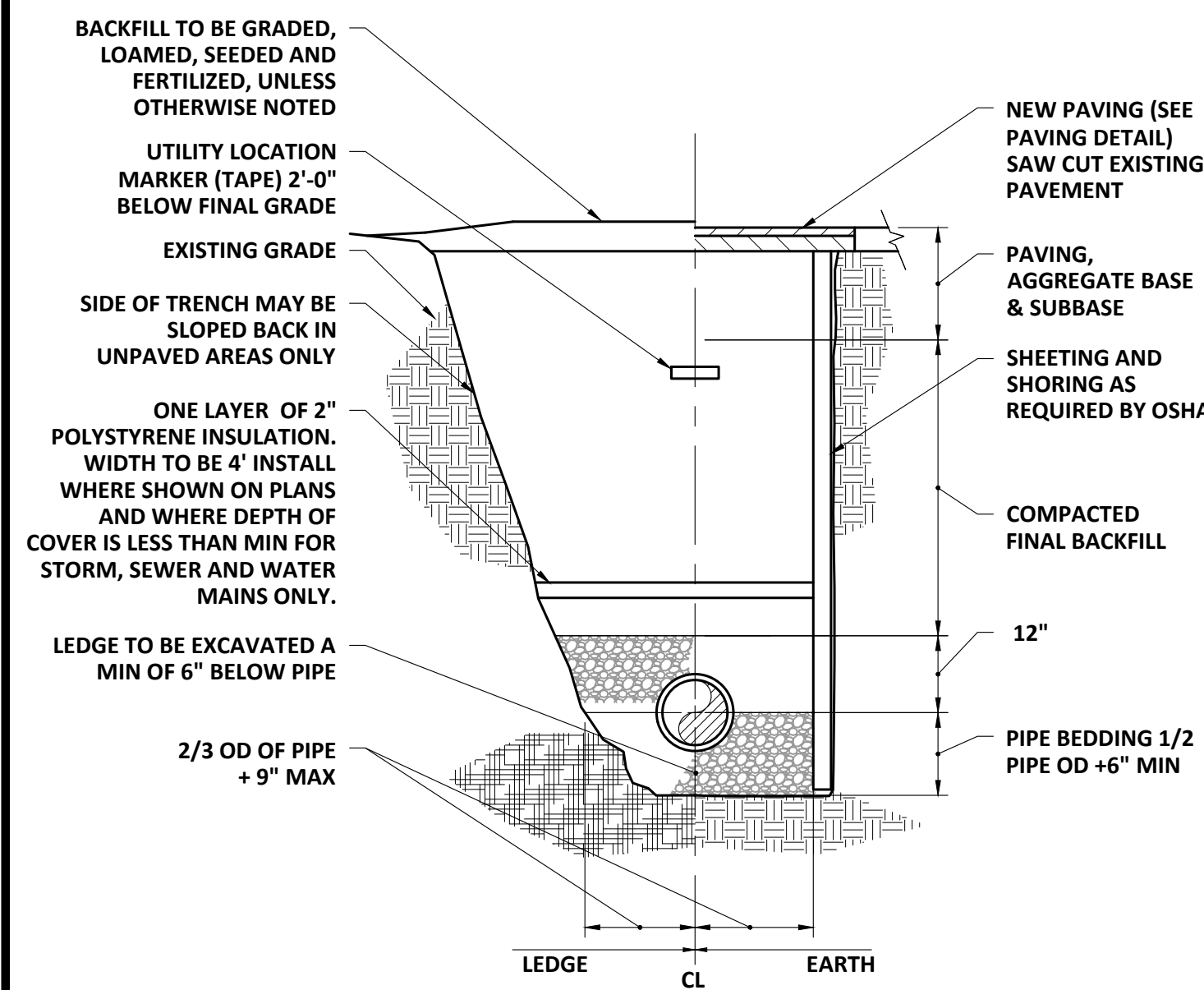
PLAN
SCALE: 1"=10'

NO	DESIGNED BY:	W. LEDG
	CAD CORP.:	W. LEDG
APP'D	CHECKED BY:	
	DATE:	
DATE	APPROVED BY:	
	PROJECT NO.:	14202A
SUBMISSIONS/REVISIONS		
PERMITTING PLANS - NOT FOR CONSTRUCTION		
DATE: 07/21		
CITY OF PORTSMOUTH		
SUBAQUEOUS WATER TRANSMISSION MAIN		
LITTLE BAY, DURHAM-NEWINGTON		
NEW HAMPSHIRE		
RESTORATION PLAN - NEWINGTON		
DRAWING		
C-16		

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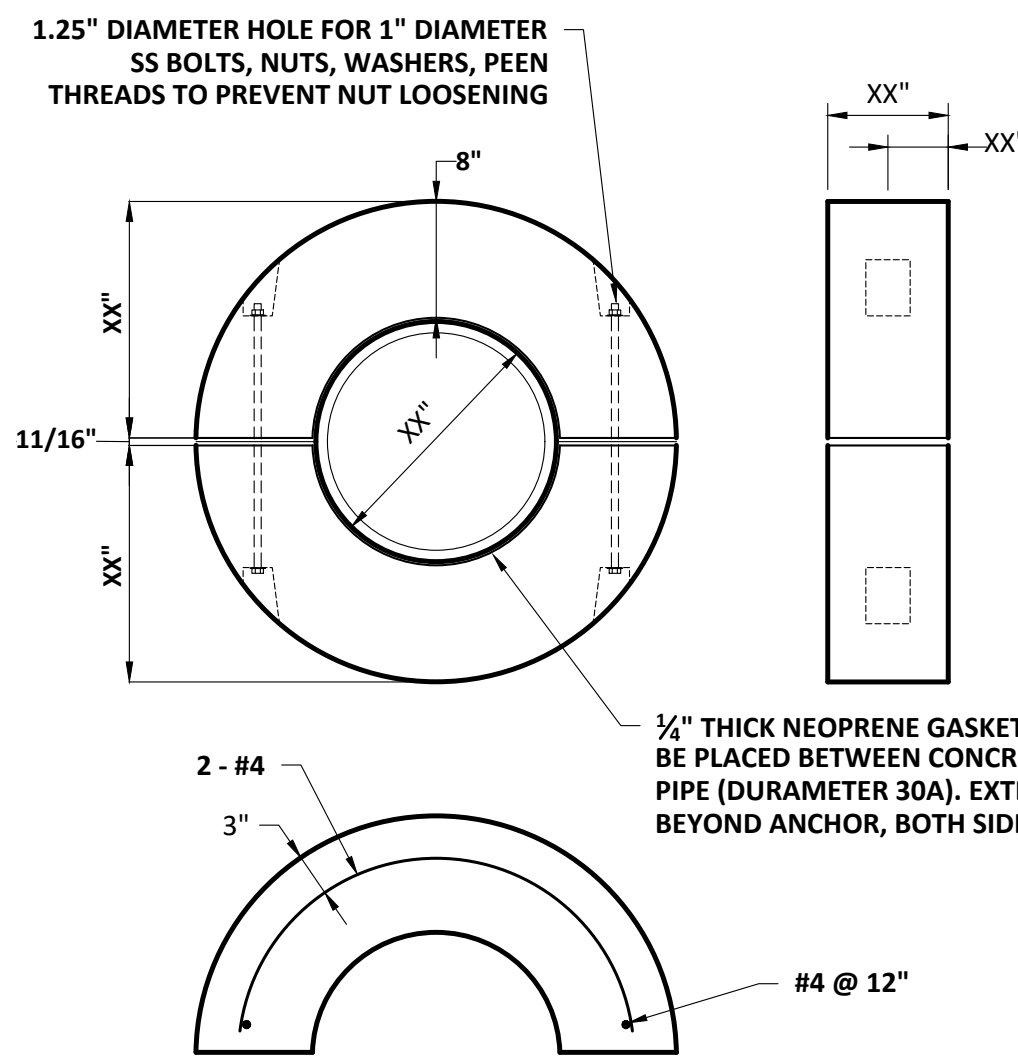


MANUAL AIR RELEASE ASSEMBLY
SCALE: NTS



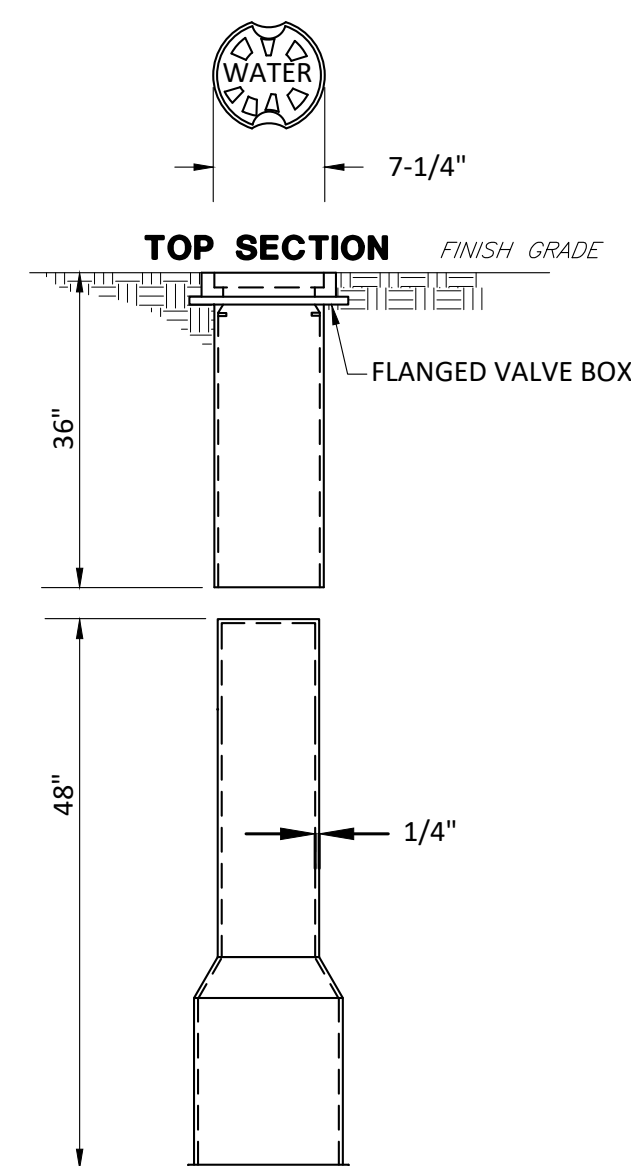
- NOTES:
1. ALL EXCAVATION MUST MEET OSHA STANDARDS.
2. INSTALL 3 FOOT LONG IMPERVIOUS MATERIAL DAM IN BEDDING/INITIAL BACKFILL MATERIAL EVERY 100' AND WHERE SHOWN ON PLANS TO PREVENT TRENCH GROUNDWATER FROM BEING CHANNLED ALONG BEDDING/INITIAL BACKFILL.
3. SEE SPECIFICATIONS FOR BEDDING AND BACKFILL REQUIREMENTS.

PIPE TRENCH
SCALE: "NTS"

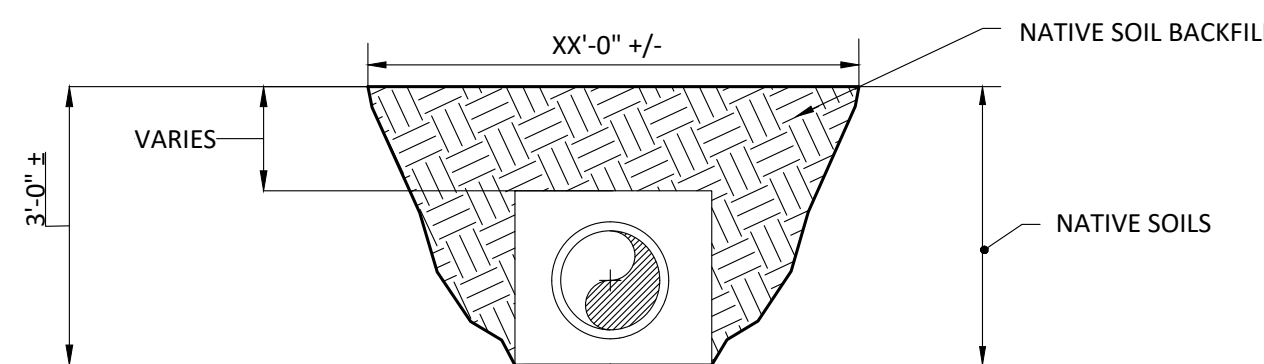


- CONCRETE SHALL HAVE A MINIMUM 28 DAY STRENGTH OF 4500 PSI.
- REINFORCING STEEL SHALL BE ASTM A615 GRADE 60 DEFORMED BARS.
- ANCHOR BOLTS, NUTS, WASHERS, BARS, PLATES SHALL BE STAINLESS STEEL TYPE 316.
- CONCRETE ANCHORS SHALL BE SECURELY FASTENED TO THE PIPE TO PREVENT MOVEMENT.
- CONCRETE ANCHORS TO BE SPACED AT 10'-0" O.C. BASED ON 24" SDR 11 PIPE WITH XX-INCHES O.D. AND PIPE WEIGHT 34.44 LBS PER LINEAR FOOT.
- CONTRACTOR SHALL VERIFY THE ABOVE CONCRETE ANCHOR DIMENSIONS WITH PIPE.
- PROVIDE LIFTING INSERT ON EACH ANCHOR SECTION.

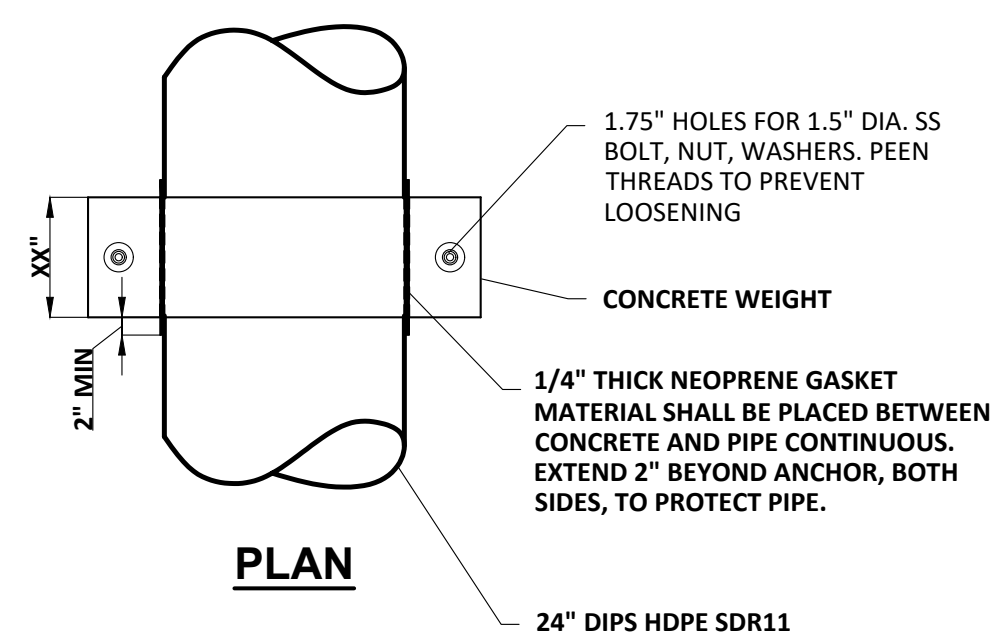
CONCRETE ANCHOR DETAIL
NTS



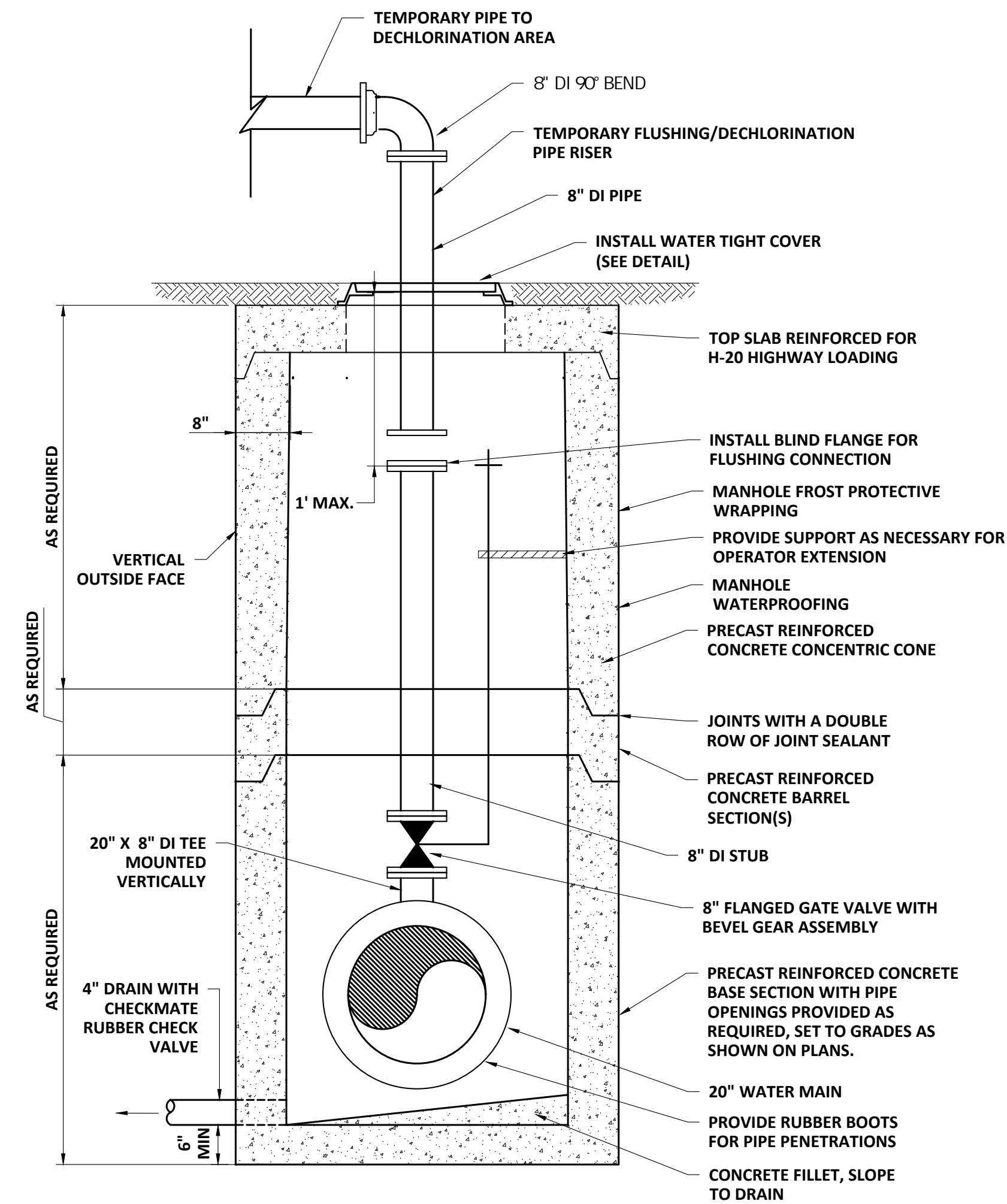
2-PIECE SLIDING VALVE BOX
NTS



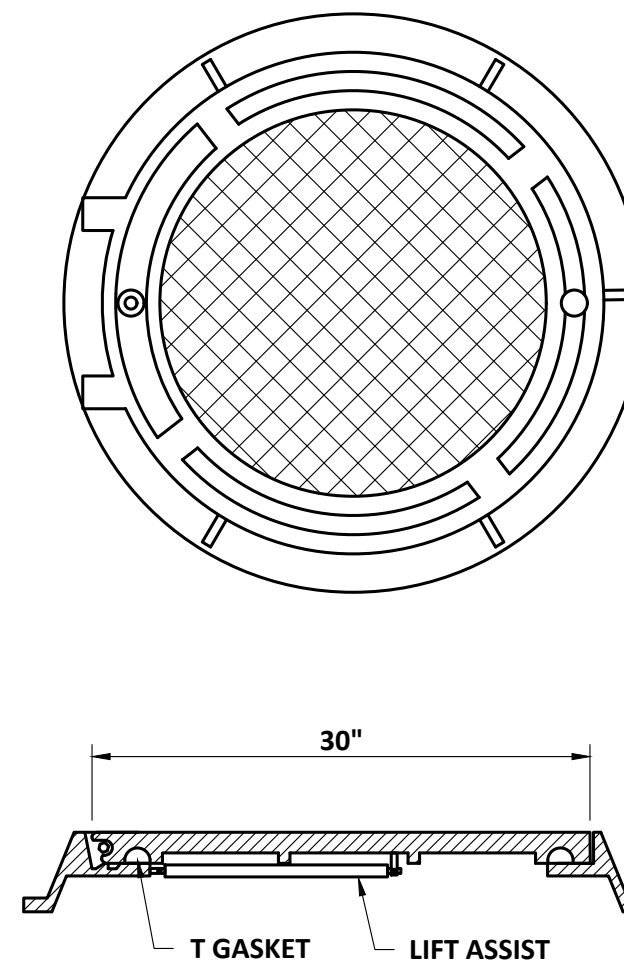
MARINE WATER MAIN TRENCH DETAIL
NTS



PLAN

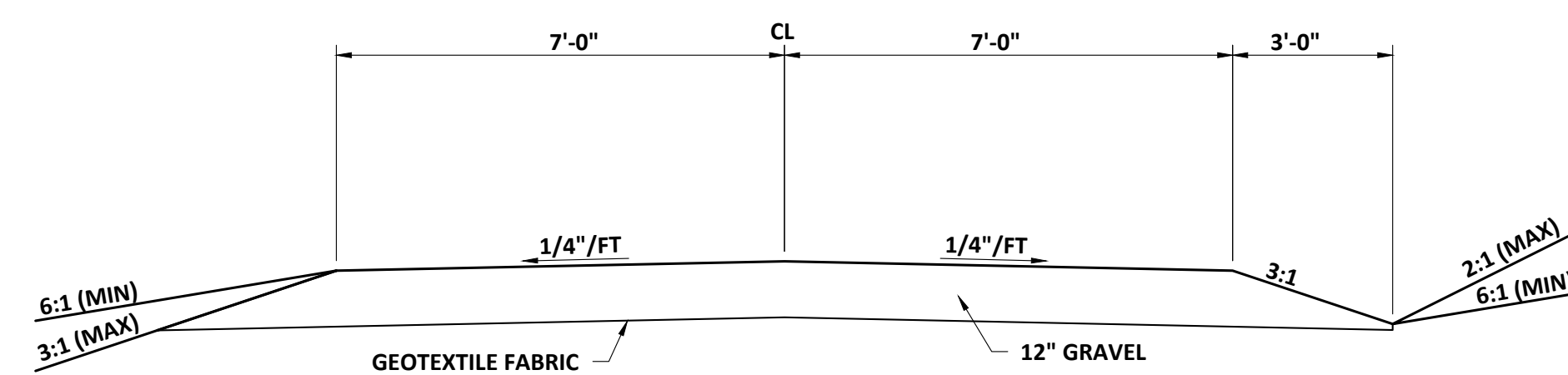


FLUSHING CONNECTION WITH 4-FT MANHOLE
SCALE: "NTS"

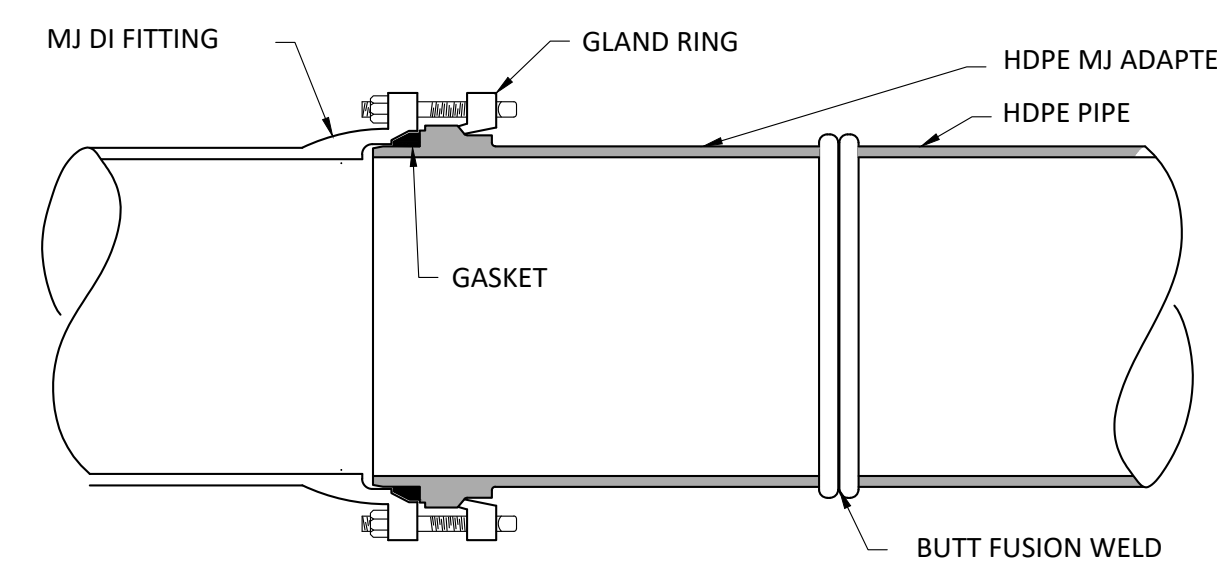


- NOTES:
1. BEARING SURFACES OF FRAME AND COVER MACHINED

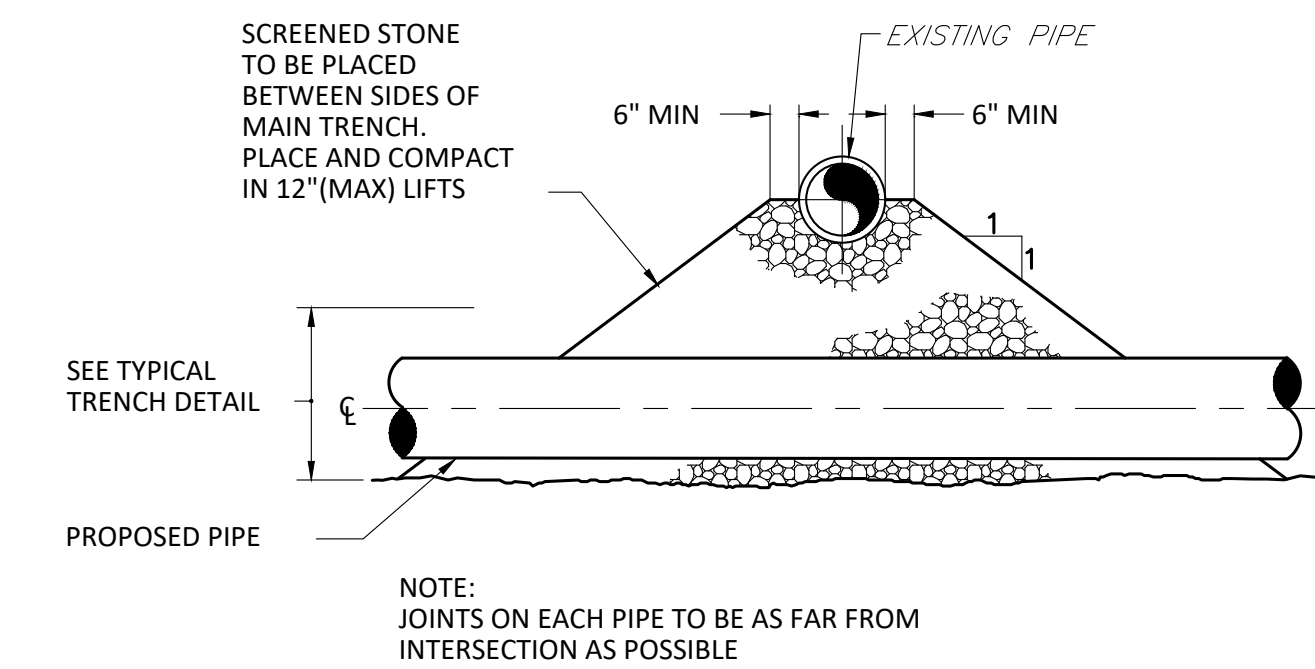
30" HINGED COVER AND FRAME
SCALE: NTS



TEMPORARY STABILIZED CONSTRUCTION ACCESS DRIVE
SCALE: "NTS"



HIGH DENSITY POLYETHYLENE PIPE TO MECHANICAL JOINT CONNECTION DETAIL
SCALE: NTS



PIPE CROSSING DETAIL
NTS

NO	DATE	DESCRIPTION
1	07/21	PERMITTING PLANS - NOT FOR CONSTRUCTION

DESIGNED BY: W.EDG	APP'D
CAD CORP.: W.EDG	DATE
CHECKED BY: W.EDG	PROJECT NO.: 14202A
APPROVED BY:	

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CITY OF PORTSMOUTH
SUBAQUEOUS WATER TRANSMISSION MAIN
LITTLE BAY, DURHAM-NEWINGTON
NEW HAMPSHIRE
DRAWING
C-17

EROSION AND SEDIMENTATION CONTROL NOTES

- THIS PLAN HAS BEEN DEVELOPED AS A STRATEGY TO CONTROL SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION. THIS PLAN IS BASED ON THE NEW HAMPSHIRE STORMWATER MANUAL BY THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES, TERRAIN ALTERATION BUREAU, DATED DECEMBER 2008
- THE PROPOSED LOCATIONS OF SILTATION AND EROSION CONTROL STRUCTURES REQUIRED ARE SHOWN ON THE DRAWINGS. PROVIDE SILT FENCE, STONE CHECK DAMS AND OTHER EROSION CONTROL MEASURES AS REQUIRED TO ADEQUATELY PREVENT SEDIMENT TRANSPORT AS NOTED IN THE BMP.
- ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE IN ACCORDANCE WITH THE NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL AND THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES, ENV-Wq 1500: ALTERATION OF TERRAIN AND THE NHDES BEST MANAGEMENT PRACTICES MANUAL FOR THE UTILITY MAINTENANCE IN AND ADJACENT TO WETLANDS AND WATERBODIES.
 - THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE MAINTAINED IN AN UNTREATED OR UNVEGETATED CONDITION FOR THE MINIMUM TIME REQUIRED. IN GENERAL AREAS TO BE VEGETATED SHALL BE PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL.
 - SEDIMENT BARRIERS (SILT FENCE, STONE CHECK DAMS, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF UPGRADIENT DRAINAGE AREAS.
 - INSTALL SILT FENCE AT TOE OF SLOPES TO FILTER SILT FROM RUNOFF. SEE SILT FENCE DETAIL FOR PROPER INSTALLATION. SILT FENCE WILL REMAIN IN PLACE PER NOTE #5.
 - ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSITION. SEDIMENT DEPOSITS MUST BE REMOVED WHEN THEY REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE PERMANENTLY STABILIZED.
 - NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2 TO 1) UNLESS STABILIZED WITH RIPRAP OR OTHER STRUCTURAL MEANS.
 - IF FINAL SEEDING AND SODDING IS NOT EXPECTED PRIOR TO THE ANTICIPATED DATE OF THE FIRST KILLING FROST, USE TEMPORARY ANNUAL REYGRASS SEEDING AND MULCHING ON ROUGH GRADED SUBSOIL TO PROTECT THE SITE AND DELAY PERMANENT LOAMING, FINE GRADING, AND SEEDING OR SODDING UNTIL SPRING.
 - WHEN FEASIBLE, TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINISH GRADED SHALL BE COMPLETED 30 DAYS PRIOR TO THE FIRST KILLING FROST.
 - DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND REGRADED ONTO OPEN AREAS. POST SEEDING SEDIMENT, IF ANY, WILL BE DISPOSED OF IN AN ACCEPTABLE MANNER.
 - REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND REVEGETATED.
 - ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE IS STABILIZED.
 - STABILIZATION SCHEDULE BEFORE WINTER:
 - SEPTEMBER 15** ALL DISTURBED AREAS MUST BE SEEDED AND MULCHED. ALL SLOPES MUST BE STABILIZED, SEEDED AND MULCHED. SLOPES 3:1 OR GREATER TO BE STABILIZED WITH EROSION CONTROL MATTING AND SEEDED. ALL DISTURBED AREAS TO BE PROTECTED WITH AN ANNUAL GRASS MUST BE SEEDED AT A SEEDING RATE OF 3 POUNDS PER 1,000 SQUARE FEET AND MULCHED.
 - OCTOBER 1** ALL GRASS-LINED DITCHES AND CHANNELS MUST BE STABILIZED WITH MULCH OR EROSION CONTROL BLANKET.
 - NOVEMBER 15** ALL STONE-LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED. SLOPES THAT ARE COVERED WITH RIPRAP MUST BE CONSTRUCTED BY THAT DATE.
 - DECEMBER 1** ALL DISTURBED AREAS WHERE THE GROWTH OF VEGETATION FAILS TO BE AT LEAST THREE INCHES TALL OR AT LEAST 75% OF THE DISTURBED SOIL IS COVERED BY VEGETATION, MUST BE PROTECTED FOR OVER-WINTER.

EROSION CONTROL - WINTER CONSTRUCTION

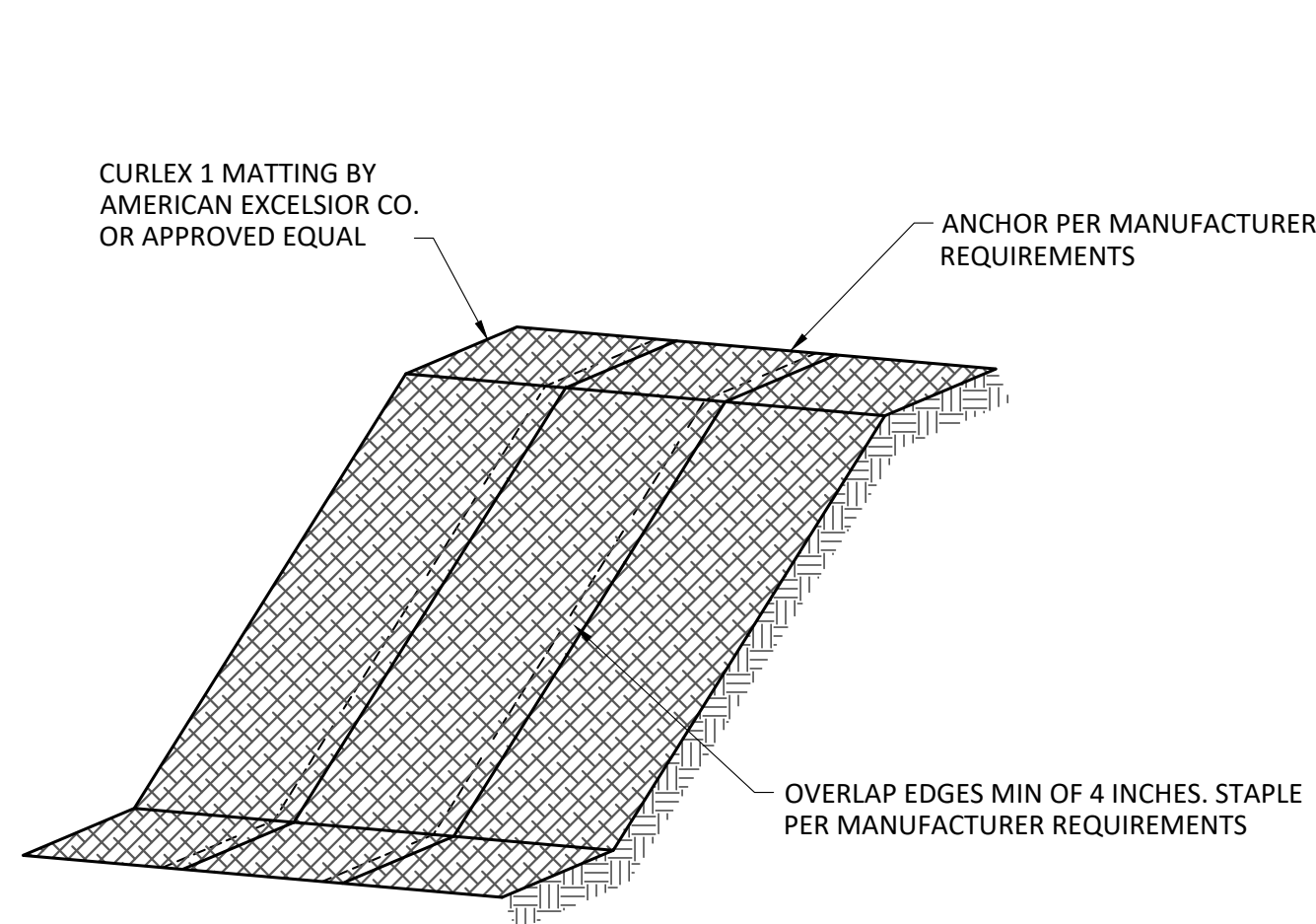
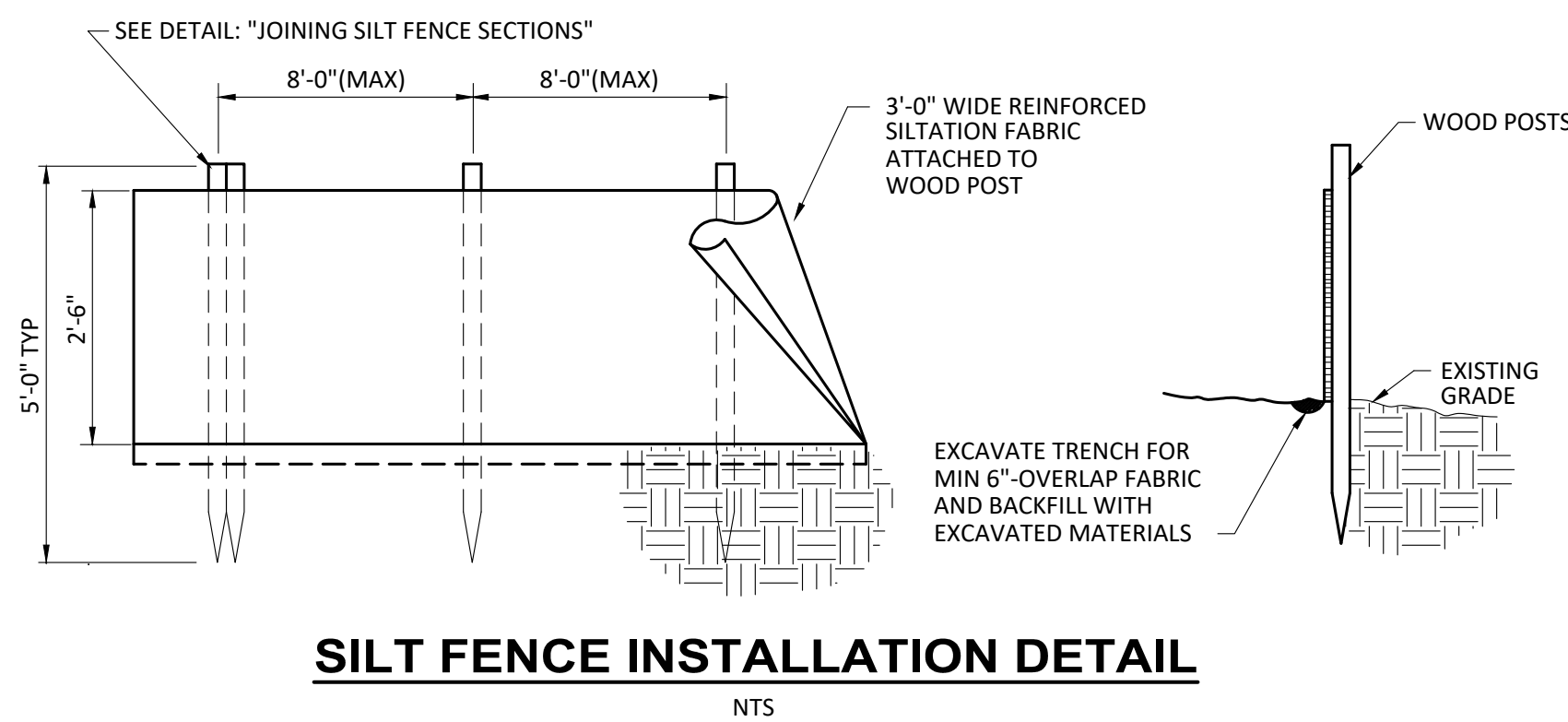
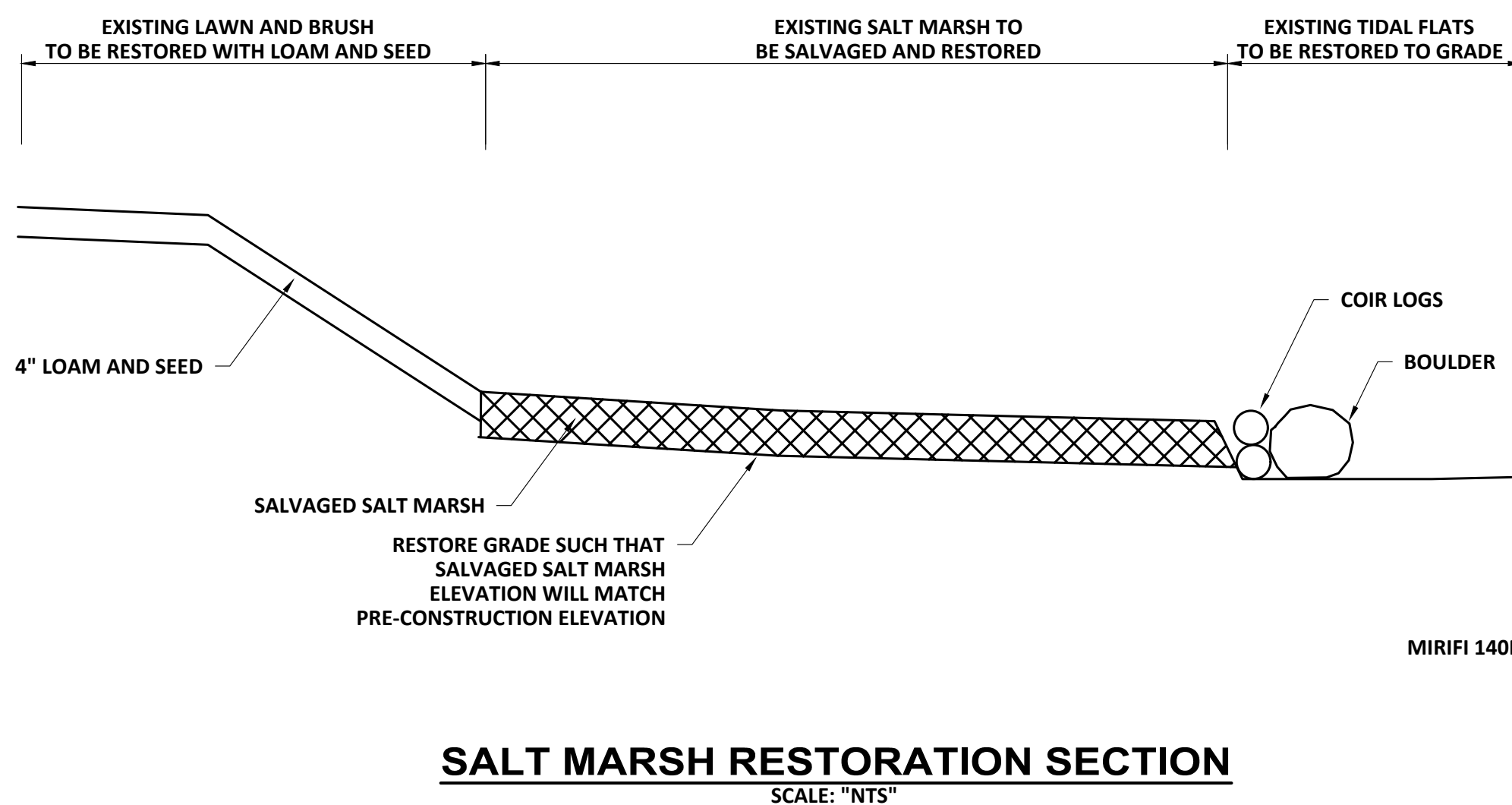
- WINTER CONSTRUCTION PERIOD DEFINED: NOVEMBER 1 THROUGH APRIL 15
- WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
- EXPOSED AREA SHOULD BE LIMITED SUCH THAT THE AREA CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT.
- CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED SUCH THAT NO LARGER AREA OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION AS LISTED IN ITEM 2 ABOVE.
- AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW AT A RATE OF 100 LB. PER 1,000 SQUARE FEET (WITH OR WITHOUT SEEDING) OR DORMANT SEEDED, MULCHED AND ADEQUATELY ANCHORED BY AN APPROVED ANCHORING TECHNIQUE. IN ALL CASES, MULCH SHALL BE APPLIED SUCH THAT SOIL SURFACE IS NOT VISIBLE THROUGH THE MULCH.
- BETWEEN THE DATES OF OCTOBER 15 AND APRIL 15, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE-FREEZING TEMPERATURES, THE SLOPES SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED AND IS SMOOTH, THEN THE AREA MUST BE STABILIZED WITH MULCH. IF CONSTRUCTION CONTINUES DURING FREEZING WEATHER, ALL EXPOSED AREAS SHALL BE GRADED BEFORE FREEZING AND THE SURFACE TEMPORARILY PROTECTED FROM EROSION BY THE APPLICATION OF MULCH. SLOPES SHALL NOT BE LEFT EXPOSED OVER THE WINTER OR ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS TREATED IN THE ABOVE MANNER. UNTIL SUCH TIME AS WEATHER CONDITIONS ALLOW DITCHES TO BE FINISHED WITH THE PERMANENT SURFACE TREATMENT, EROSION SHALL BE CONTROLLED BY THE INSTALLATION OF BALES OF HAY OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS.
- THE APPLICATION OF MULCH TO FINE GRADED AREAS WILL BE STABILIZED AS FOLLOWS:
 - BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 15TH ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING, ASPHALT EMULSION, CHEMICAL TACK OR WOOD CELLULOSE FIBER.
 - MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GRATER THAN 8%.
 - MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15%. AFTER OCTOBER 1ST, THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
- AFTER NOVEMBER 1ST THE CONTRACTOR SHALL APPLY MULCH AND ANCHORING ON ALL BARE EARTH AT THE END OF EACH WORKING DAY.
- DURING WINTER CONSTRUCTION PERIODS ALL SNOW SHALL BE REMOVED FROM AREAS OF MULCHING PRIOR TO PLACEMENT.

EROSION CONTROL - WETLAND NOTES

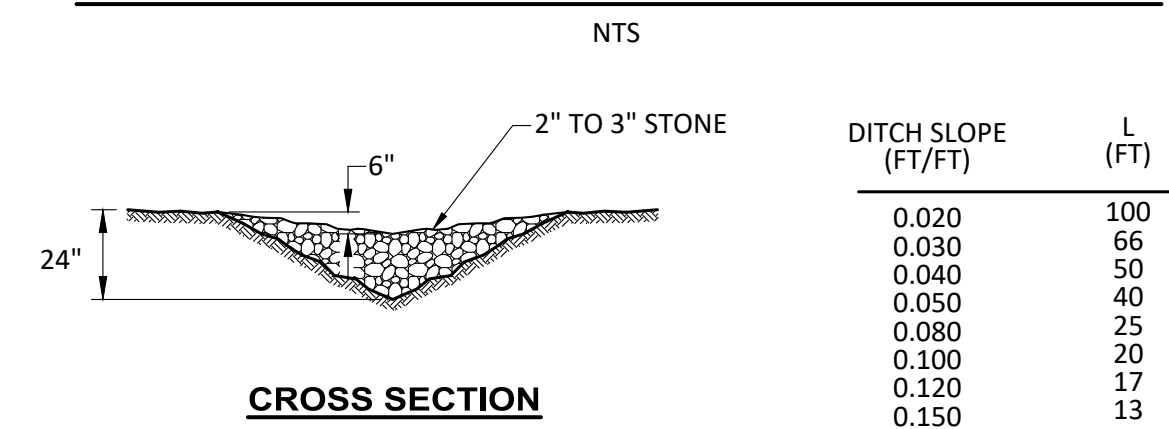
- WETLANDS AND SURFACE WATERS (EXCEPTING THOSE WHICH ARE TO BE FILLED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS) WILL BE PROTECTED WITH SILT FENCE INSTALLED AT THE EDGE OF THE WETLAND OR THE BOUNDARY OF WETLAND DISTURBANCE.
- IF THE WORK INCLUDES CROSSING OF WETLANDS AND/OR STREAMS, THE CONTRACTOR SHALL TAKE SPECIAL PRECAUTIONS WORKING IN THESE AREAS. CONTRACTOR IS TO PLAN EARTH DISTURBANCE AND GRADING ACTIVITIES TO MINIMIZE THE AREA OF SOIL EXPOSED AT ONE TIME, AS WELL AS THE LENGTH OF TIME BETWEEN INITIAL SOIL EXPOSURE AND FINAL GRADING.
- ANY WETLAND CROSSING WORK SHALL BE COMPLETED BETWEEN THE PERIOD OF MAY 1 AND SEPTEMBER 30
- ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO COMMENCING CONSTRUCTION WITHIN OR ADJACENT TO WETLAND AREAS.
- WETLAND VEGETATIVE LAYERS SHALL BE REMOVED AND SALVAGED FOR RESTORATION OF THE DISTURBED AREAS.
- SOIL EXCAVATED FROM WETLANDS SHALL BE TEMPORARILY STOCKPILED IN UPLAND AREAS SEPARATED FROM OTHER MATERIALS AND SOILS. ALL STOCKPILED WETLAND SOILS SHALL BE PUT BACK IN THE SAME TRENCH THEY WERE EXCAVATED FROM. STORAGE AREAS FOR WETLAND MATERIALS SHALL BE PROPERLY PROTECTED AGAINST EROSION.
- DISPERSE CLEAN STORMWATER AWAY FROM ALL WETLANDS TO UNDISTURBED, VEGETATED, FLAT OR MODERATE-SLOPED, SURFACES WHEREVER POSSIBLE, RATHER THAN CONCENTRATED INTO CHANNELS.
- ANY SIGN OF RILL OR GULLY EROSION SHALL BE IMMEDIATELY INVESTIGATED AND REPAIRED AS NEEDED BASED ON THE DISCRETION OF THE ENGINEER AND OR OWNER.
- ONLY DISTURB, CLEAR OR GRADE AREAS NECESSARY FOR CONSTRUCTION. FLAG OR OTHERWISE DELINEATE IDENTIFIED WETLAND AREAS NOT TO BE DISTURBED. EXCLUDE VEHICLES AND CONSTRUCTION EQUIPMENT FROM THESE AREAS TO PRESERVE NATURAL VEGETATION. CONTRACTOR TO AVOID GRADING IN WETLANDS CROSSING AREAS.
- FALL AND WINTER EROSION CONTROL MEASURES MUST BE UPGRADED AND REFINED TO PROTECT THE DISTURBED WETLAND AREAS FROM SPRING RUNOFF AND SNOWMELT
- SEEDING OF THE DISTURBED AREAS WITHIN WETLAND AREAS SHALL UTILIZE MIXTURES APPROPRIATE FOR WETLAND AREAS AS OUTLINED IN SECTION 02270 OF THE SPECIFICATIONS.
- TRENCH DEWATERING RUNOFF MUST BE DIRECTED AWAY FROM WETLANDS AREAS USING THE APPLICABLE EROSION CONTROL PRACTICES. DEWATERING WILL NOT BE PERMITTED FOR TRENCH EXCAVATION IN WETLANDS.

SALT MARSH SALVAGE AND RESTORATION NOTES

- ALL CONSTRUCTION AND RESTORATION SHALL BE DONE UNDER THE SUPERVISION OF THE ENGINEER AND AN ENVIRONMENTAL MONITOR.
- INSTALL EROSION CONTROLS ALONG THE EDGE OF WORK TO PREVENT DISTURBED SOIL FROM MIGRATING INTO THE SALT MARSH DURING THE WORK PERIOD.
- EXCAVATION WITHIN THE SALT MARSH SHALL BE LIMITED TO ONLY THE AREA NECESSARY FOR INSTALLATION OF THE NEW PIPE LINE.
- MATTING AND EXCAVATION WITHIN THE SALT MARSH SHALL BE LIMITED TO THE SHORTEST AMOUNT OF TIME PRACTICABLE.
- IN THE EXCAVATION AREAS, ALL SUITABLE SALT MARSH PEAT WILL BE SALVAGED AND STOCKPILED FOR REPLACEMENT DURING RESTORATION. SUITABLE PEAT WILL BE DEFINED IN THE FIELD BY THE ENVIRONMENTAL MONITOR, BUT WILL BE PROTECTED FROM SUN, WIND, DEHYDRATION AND FREEZING IN A SUITABLE UPLAND AREA AND MAINTAINED FOR THE DURATION OF THE PROJECT. THE PEAT BLOCKS SHALL BE KEPT MOIST WITH FRESH WATER.
- OUTSIDE THE EXCAVATION AREAS, TIMBER MATS SHALL BE USED TO PROTECT THE MARSH FROM EQUIPMENT AND FOOT TRAFFIC.
- CONSTRUCTION IN THE SALVAGE AREA SHALL BE COMPLETED SUCH THAT THE SALVAGED BLOCKS ARE REPLACED NO LATER THAN NOVEMBER 1. IF THE CONSTRUCTION EXTENDS BEYOND NOVEMBER 1, THE PEAT BLOCKS WILL BE MAINTAINED THROUGH THE WINTER AND REPLACED IN APRIL OF THE FOLLOWING YEAR.
- UPON COMPLETION OF THE WATER MAIN INSTALLATION AND BACKFILLING, THE UNDERLYING SUBSTRATES WILL BE RESTORED TO APPROPRIATE SUBGRADES TO SUPPORT THE PEAT BLOCKS. FINAL ELEVATION OF THE TOP OF PEAT SHALL BE EQUAL TO OR UP TO 2 INCHES HIGHER THAN THE PRE-CONSTRUCTION CONDITION.
- THE PEAT BLOCKS SHALL BE REPLACED TO MATCH THE ORIGINAL SALT MARSH LIMITS. PEAT BLOCKS SHALL BE ANCHORED WITH 3/8 INCH REBAR STAKES DRIVEN INTO THE SUBSTRATES AND/OR ADJACENT PEAT. ANY OPENING BETWEEN THE PEAT BLOCKS WILL BE FILLED WITH SAND TO COVER EXPOSED ROOTS AND MAINTAIN GRADES. ADDITIONAL SALT MARSH CORDGRASS (SPARTINA ALTERNIFLORA) SEEDLINGS SHALL BE PLANTED IN THE GAP BETWEEN THE PEAT BLOCKS IF IT EXCEEDS 4 INCHES.
- IF THE SALVAGED PEAT BLOCKS DO NOT FULLY COVER THE DISTURBED MARSH AREA, CORDGRASS SEEDLINGS SHALL BE PLANTED AT 1 SQ. FT INTERVALS IN THE AREAS THAT WERE PREVIOUSLY MARSH AREAS.
- IN THE REPLANTING AREAS, THE SUBSTRATES SHALL BE RESTORED WITH SAND, CONTAINED WITHIN SANDBAGS OR OTHERWISE PROTECTED, TO STABILIZE THE SEDIMENTS, SURFACE ELEVATIONS SHALL MATCH PRE-CONSTRUCTION CONDITIONS OR AS DIRECTED BY THE ENVIRONMENTAL MONITOR. THE SEAWARD FACE OF THE RESTORED MARSH WILL BE PROTECTED FROM ICE AND WAVE ACTION WITH COIR LOGS AND/OR BOULDERS, AS COORDINATED WITH THE ENVIRONMENTAL MONITOR.

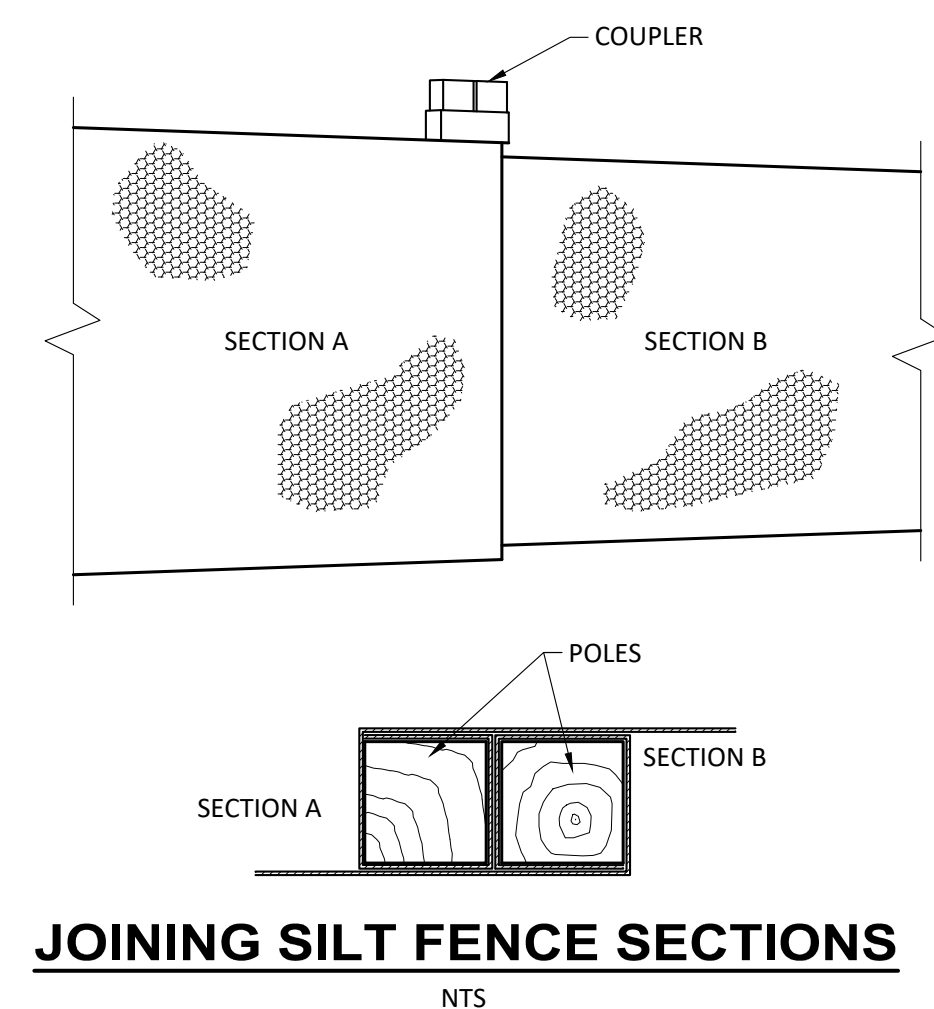
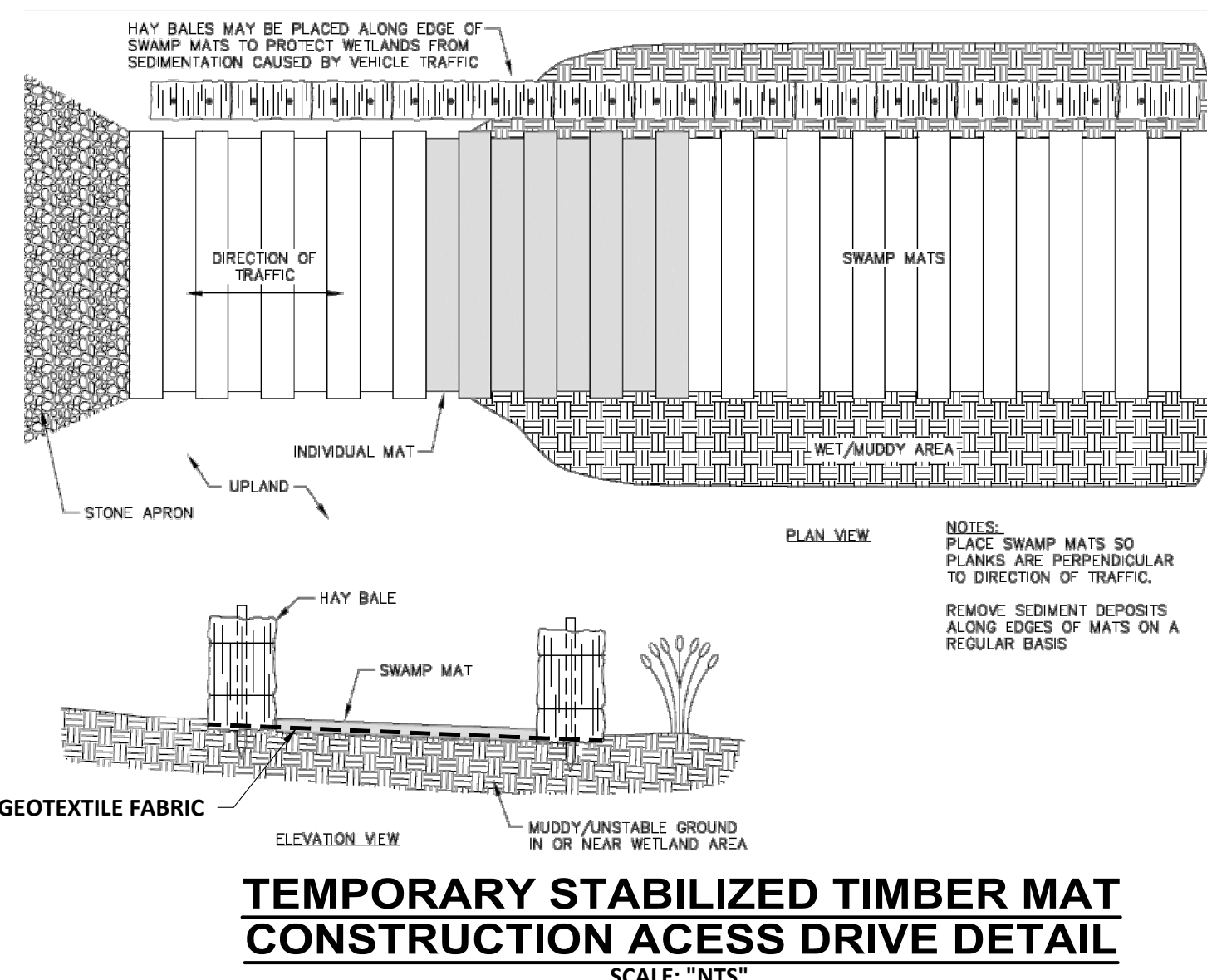


EROSION CONTROL MATTING - SLOPES



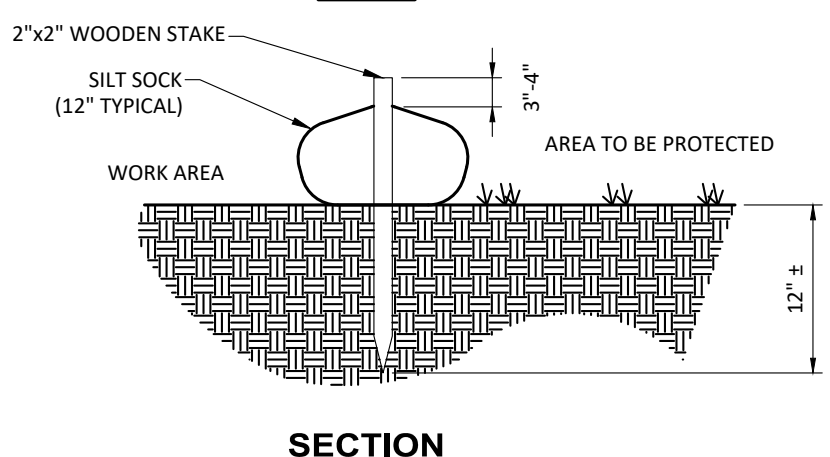
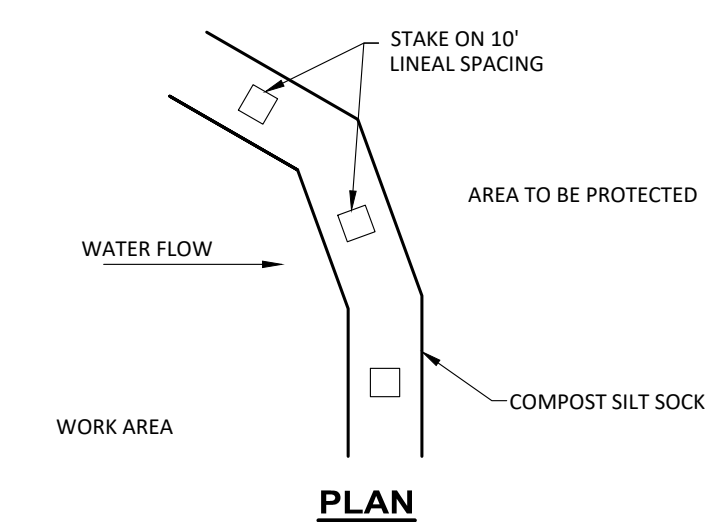
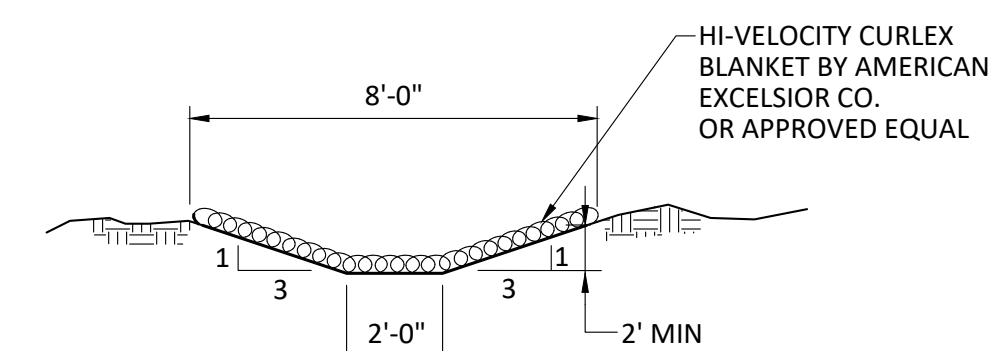
STONE CHECK DAM DETAIL

NTS



EROSION CONTROL MATTING - DITCHES

NTS



- NOTES:**
- ALL MATERIAL TO MEET SPECIFICATIONS
 - SILT SOCK COMPOST/SOIL/ROCK/SEED FILL TO MEET APPLICATION REQUIREMENTS
 - SILT SOCK DEPICTED IS FOR MINIMUM SLOPES. GREATER SLOPES MAY REQUIRE LARGER SOCKS PER THE ENGINEER
 - COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

COMPOST SILT SOCK

NTS

NO	DATE	DESCRIPTION
1	07/21	PERMITTING PLANS - NOT FOR CONSTRUCTION

DESIGNED BY: BLECK	APPROVED BY:
CAD CORP.: W.EDG	DATE:
CHKD.: W.EDG	PROJECT NO.: 14202A

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SUBAQUEOUS WATER TRANSMISSION MAIN
LITTLE BAY, DURHAM-NEWINGTON
NEW HAMPSHIRE

EROSION CONTROL NOTES & DETAILS - DURHAM SITE

DRAWING
C-18

EROSION AND SEDIMENTATION CONTROL NOTES

THIS PLAN HAS BEEN DEVELOPED AS A STRATEGY TO CONTROL SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION. THIS PLAN IS BASED ON THE NEW HAMPSHIRE STORMWATER MANUAL BY THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES, TERRAIN ALTERATION BUREAU, DATED DECEMBER 2008

THE PROPOSED LOCATIONS OF SILTATION AND EROSION CONTROL STRUCTURES REQUIRED ARE SHOWN ON THE DRAWINGS. PROVIDE SILT FENCE, STONE CHECK DAMS AND OTHER EROSION CONTROL MEASURES AS REQUIRED TO ADEQUATELY PREVENT SEDIMENT TRANSPORT AS NOTED IN THE BMP.

- ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE IN ACCORDANCE WITH THE NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL AND THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES, ENV-Wq 1500: ALTERATION OF TERRAIN AND THE NHDES BEST MANAGEMENT PRACTICES MANUAL FOR THE UTILITY MAINTENANCE IN AND ADJACENT TO WETLANDS AND WATERBODIES.
- THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE MAINTAINED IN AN UNTREATED OR UNVEGETATED CONDITION FOR THE MINIMUM TIME REQUIRED. IN GENERAL AREAS TO BE VEGETATED SHALL BE PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL.
- SEDIMENT BARRIERS (SILT FENCE, STONE CHECK DAMS, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF UPGRADIENT DRAINAGE AREAS.
- INSTALL SILT FENCE AT TOE OF SLOPES TO FILTER SILT FROM RUNOFF. SEE SILT FENCE DETAIL FOR PROPER INSTALLATION. SILT FENCE WILL REMAIN IN PLACE PER NOTE #5.
- ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSITION. SEDIMENT DEPOSITS MUST BE REMOVED WHEN THEY REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE PERMANENTLY STABILIZED.
- NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2 TO 1) UNLESS STABILIZED WITH RIPRAP OR OTHER STRUCTURAL MEANS.
- IF FINAL SEEDING AND SODDING IS NOT EXPECTED PRIOR TO THE ANTICIPATED DATE OF THE FIRST KILLING FROST, USE TEMPORARY ANNUAL REYGRASS SEEDING AND MULCHING ON ROUGH GRADED SUBSOIL TO PROTECT THE SITE AND DELAY PERMANENT LOAMING, FINE GRADING, AND SEEDING OR SODDING UNTIL SPRING.
- WHEN FEASIBLE, TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINISH GRADED SHALL BE COMPLETED 30 DAYS PRIOR TO THE FIRST KILLING FROST.
- DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND REGRADED ONTO OPEN AREAS. POST SEEDING SEDIMENT, IF ANY, WILL BE DISPOSED OF IN AN ACCEPTABLE MANNER.
- REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND REVEGETATED.
- ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE IS STABILIZED.

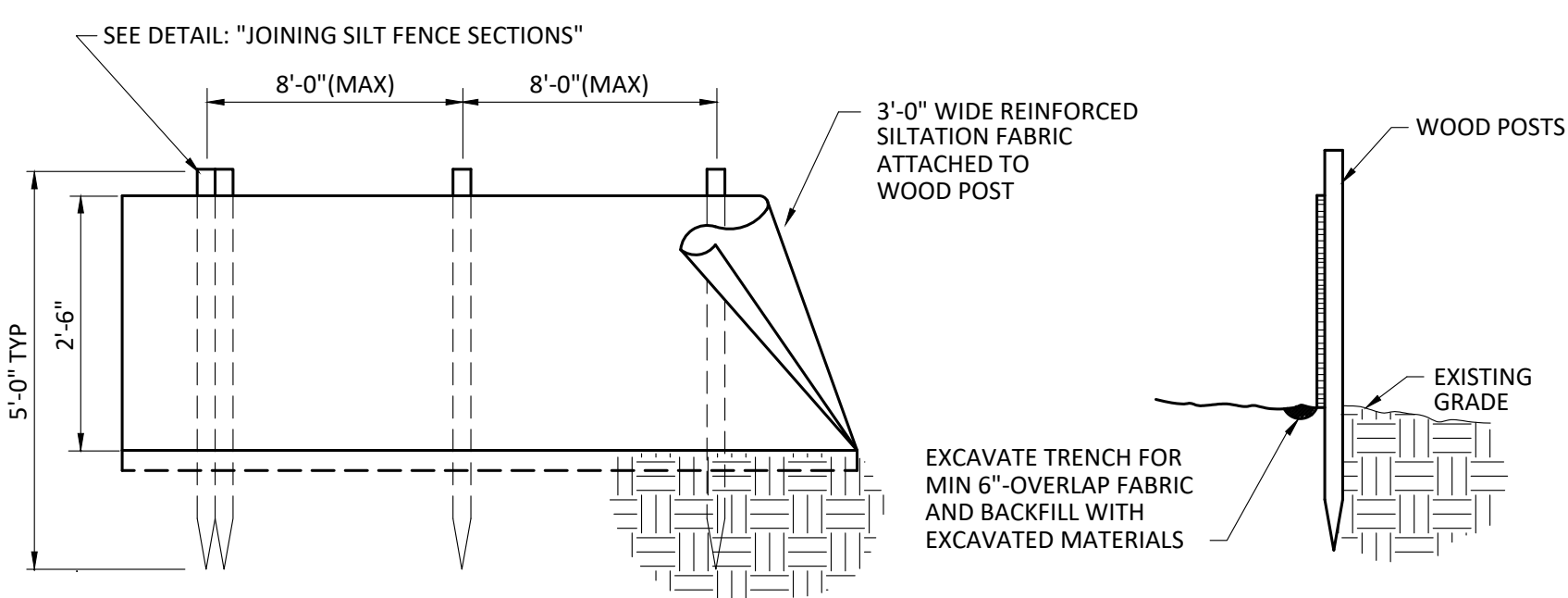
12. STABILIZATION SCHEDULE BEFORE WINTER:
- SEPTEMBER 15** ALL DISTURBED AREAS MUST BE SEEDED AND MULCHED. ALL SLOPES MUST BE STABILIZED, SEEDED AND MULCHED. SLOPES 3:1 OR GREATER TO BE STABILIZED WITH EROSION CONTROL MATTING AND SEEDED. ALL DISTURBED AREAS TO BE PROTECTED WITH AN ANNUAL GRASS MUST BE SEEDED AT A SEEDING RATE OF 3 POUNDS PER 1,000 SQUARE FEET AND MULCHED.
- OCTOBER 1** ALL GRASS-LINED DITCHES AND CHANNELS MUST BE STABILIZED WITH MULCH OR EROSION CONTROL BLANKET.
- NOVEMBER 15** ALL STONE-LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED. SLOPES THAT ARE COVERED WITH RIPRAP MUST BE CONSTRUCTED BY THAT DATE.
- DECEMBER 1** ALL DISTURBED AREAS WHERE THE GROWTH OF VEGETATION FAILS TO BE AT LEAST THREE INCHES TALL OR AT LEAST 75% OF THE DISTURBED SOIL IS COVERED BY VEGETATION, MUST BE PROTECTED FOR OVER-WINTER.

EROSION CONTROL - WINTER CONSTRUCTION

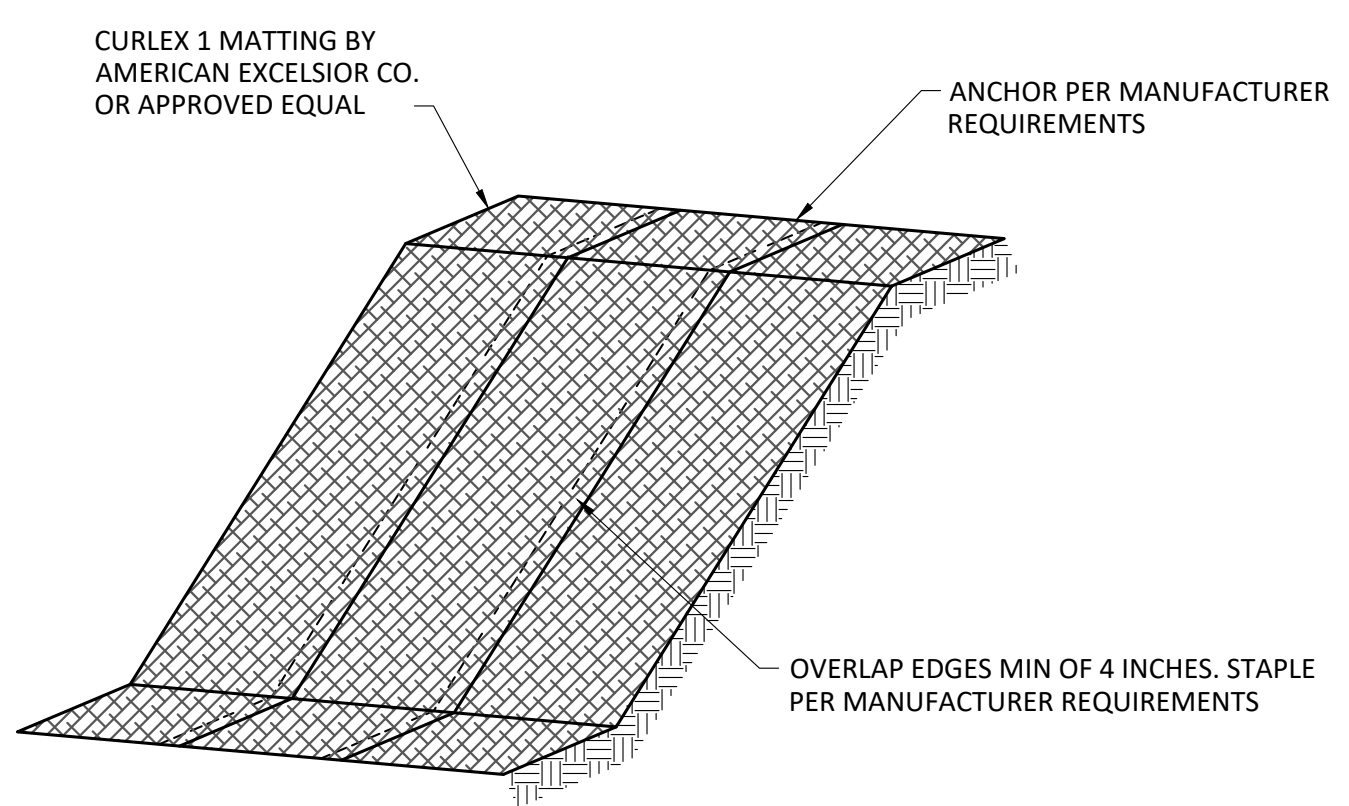
- WINTER CONSTRUCTION PERIOD DEFINED: NOVEMBER 1 THROUGH APRIL 15
- WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
- EXPOSED AREA SHOULD BE LIMITED SUCH THAT THE AREA CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT.
- CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED SUCH THAT NO LARGER AREA OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION AS LISTED IN ITEM 2 ABOVE.
- AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW AT A RATE OF 100 LB. PER 1,000 SQUARE FEET (WITH OR WITHOUT SEEDING) OR DORMANT SEEDED, MULCHED AND ADEQUATELY ANCHORED BY AN APPROVED ANCHORING TECHNIQUE. IN ALL CASES, MULCH SHALL BE APPLIED SUCH THAT SOIL SURFACE IS NOT VISIBLE THROUGH THE MULCH.
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- DURING WINTER CONSTRUCTION PERIODS ALL SNOW SHALL BE REMOVED FROM AREAS OF MULCHING PRIOR TO PLACEMENT.

EROSION CONTROL - WETLAND NOTES

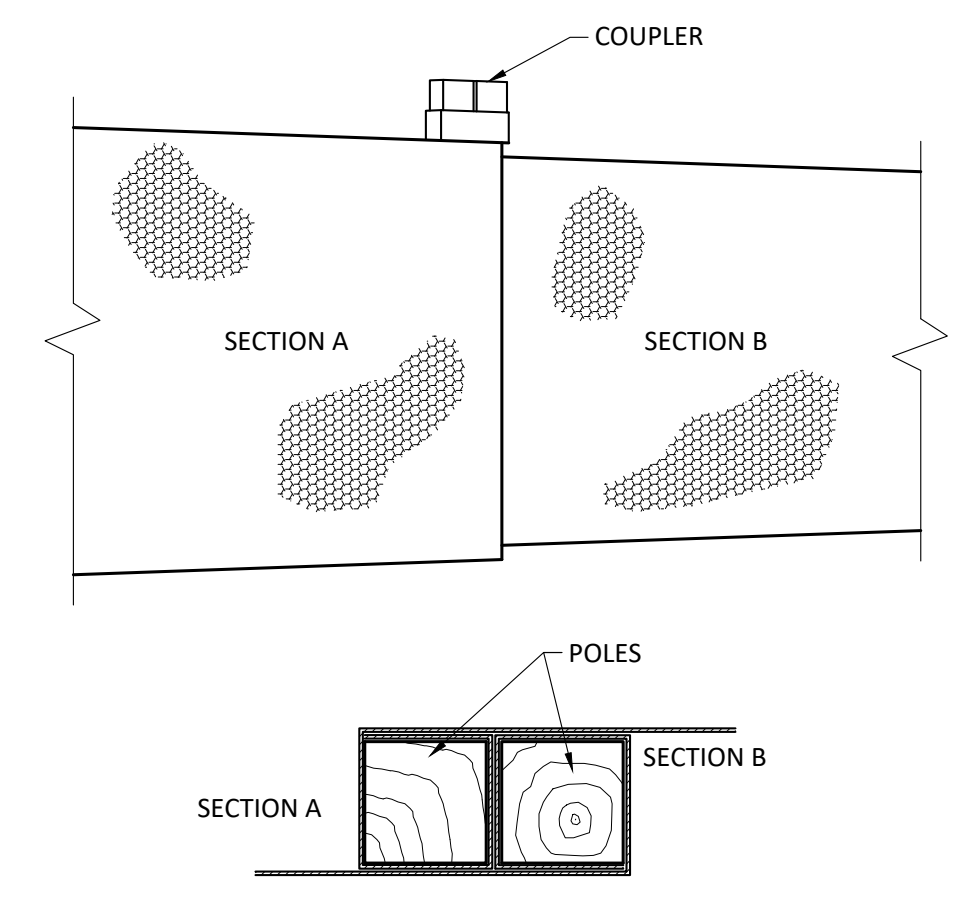
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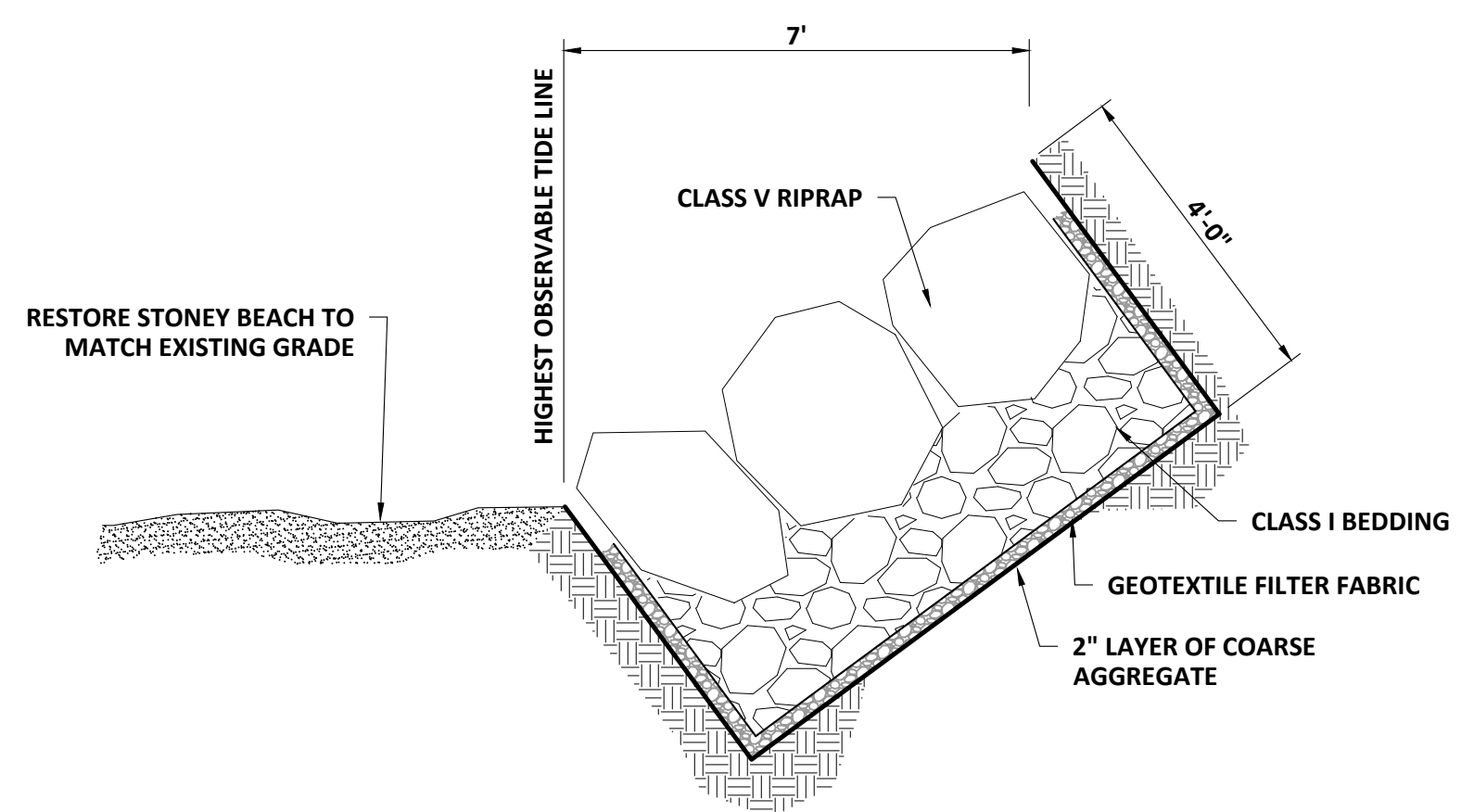
SILT FENCE INSTALLATION DETAIL
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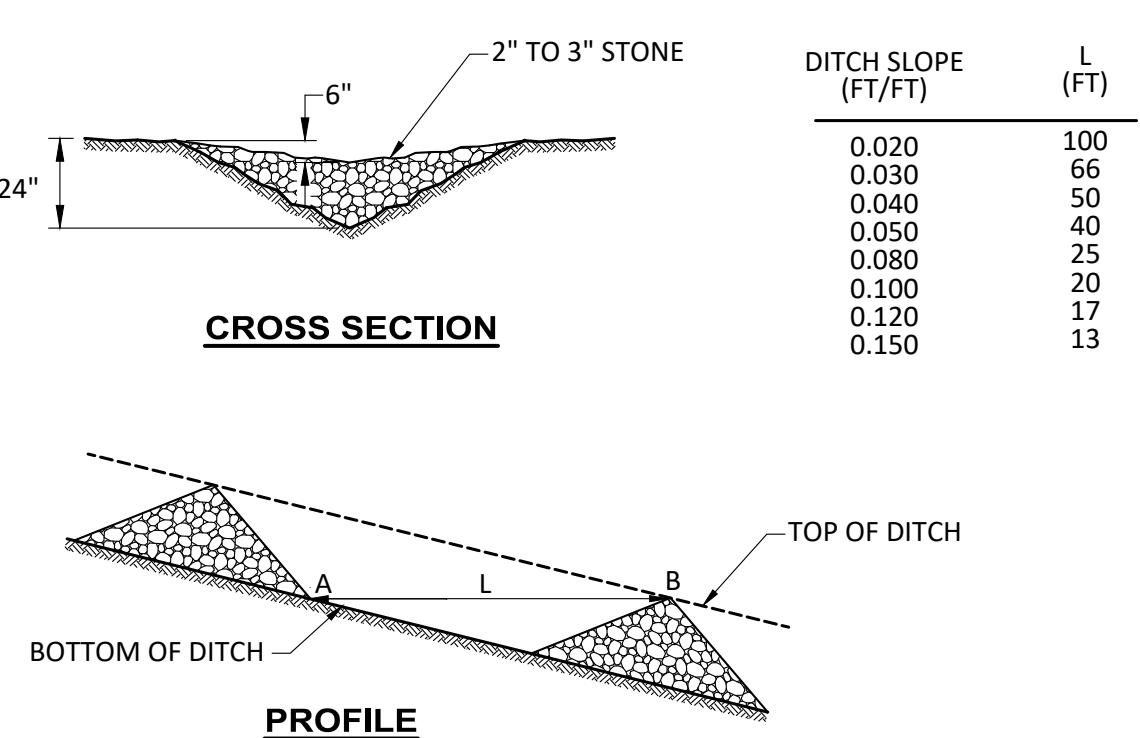
EROSION CONTROL MATTING - SLOPES
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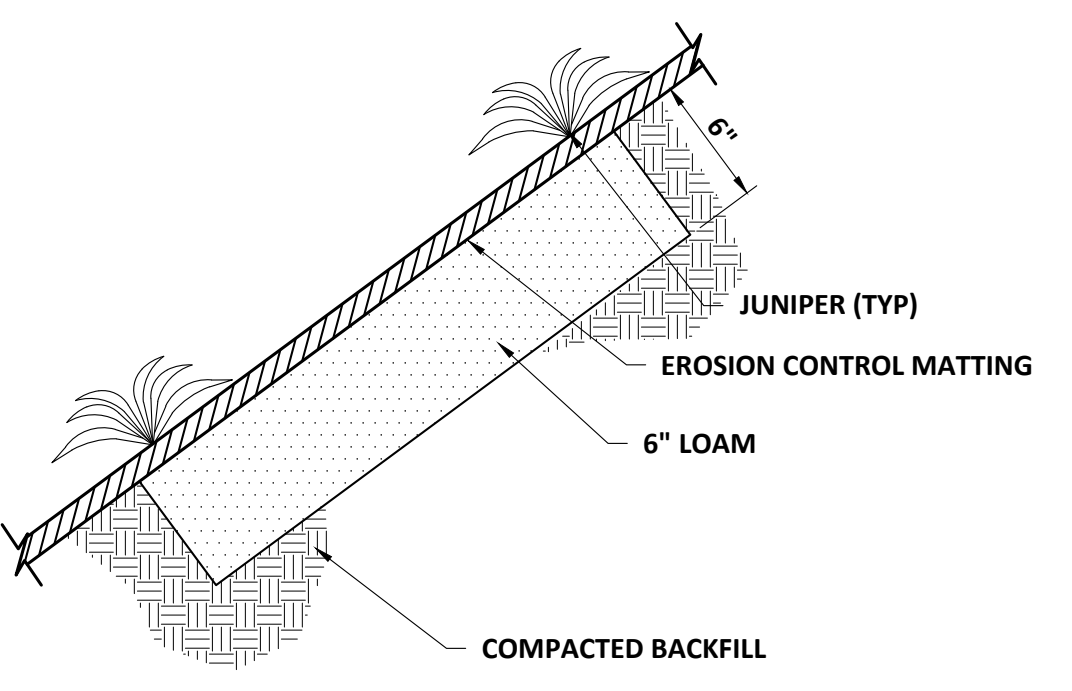
JOINING SILT FENCE SECTIONS
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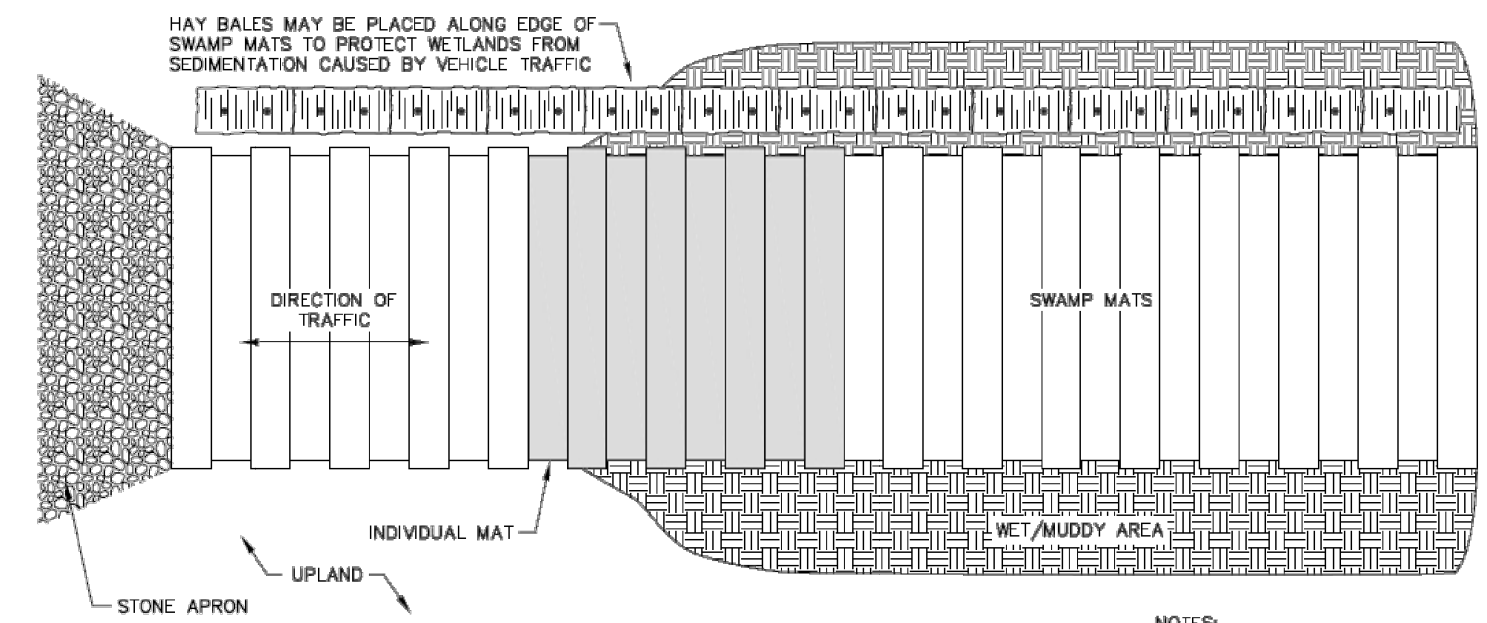
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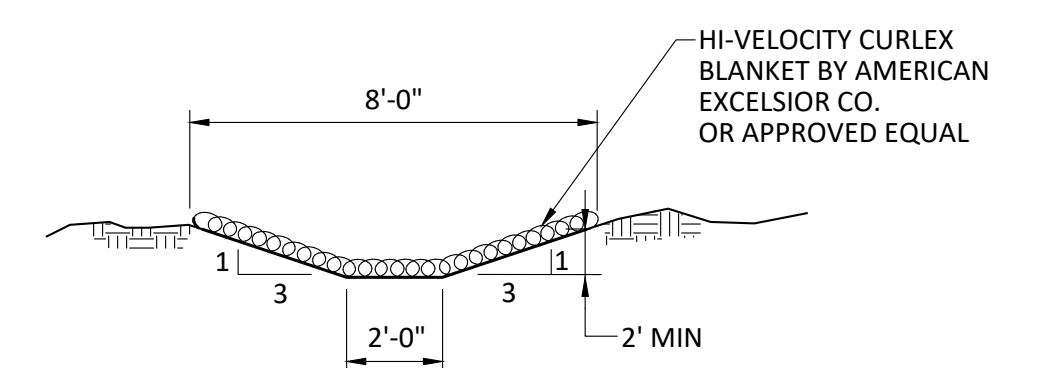
STONE CHECK DAM DETAIL
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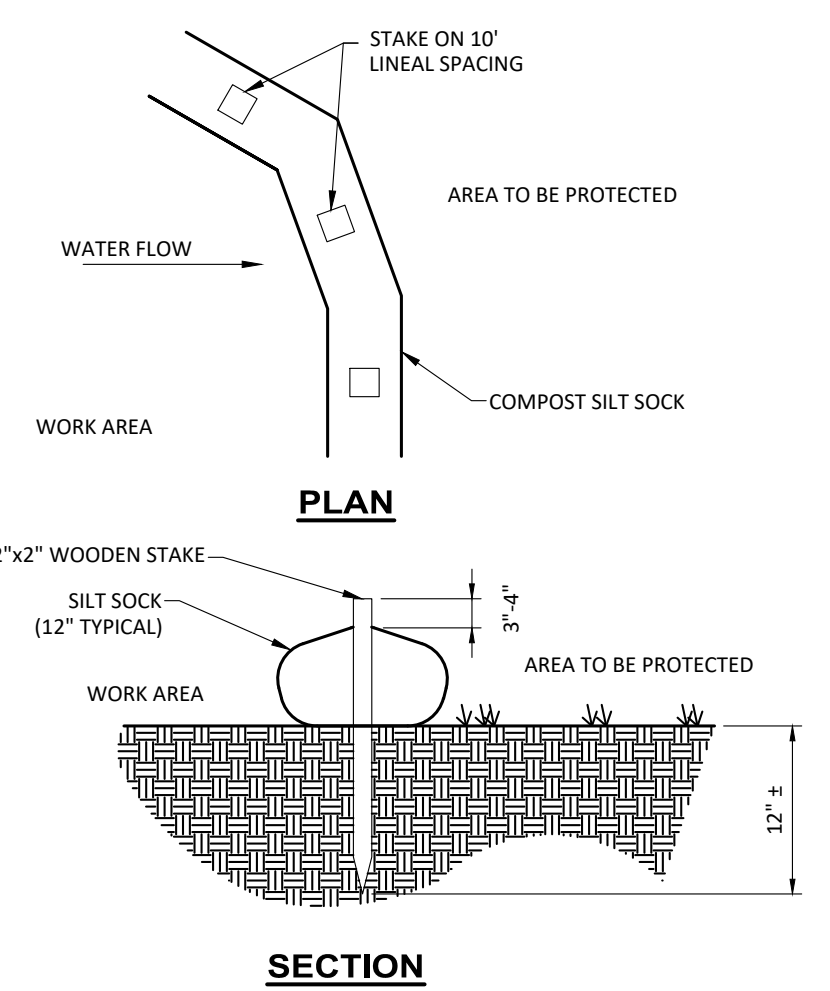
SLOPE RESTORATION DETAIL
SCALE: NTS



TEMPORARY STABILIZED TIMBER MAT CONSTRUCTION ACCESS DRIVE DETAIL
SCALE: "NTS"



EROSION CONTROL MATTING - DITCHES
NTS



COMPOST SILT SOCK
NTS

NO	DATE	APP'D	REVISIONS
	07/21		PERMITTING PLANS - NOT FOR CONSTRUCTION

DESIGNED BY: BLECK	CAD CORP.: W.EDG	CHECKED BY: W.EDG	DATE: 07/21
APPROVED BY: 14202A	PROJECT NO: 14202A		

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SUBAQUEOUS WATER TRANSMISSION MAIN
LITTLE BAY, DURHAM-NEWINGTON
NEW HAMPSHIRE
EROSION CONTROL NOTES & DETAILS - NEWINGTON SITE
DRAWING
C-19



Attachment B

DRAFT

Salt Marsh Restoration Plan

July 2021

Prepared by:
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Salt Marsh Restoration Plan

Introduction

The City of Portsmouth is proposing to install a replacement drinking water line between two existing mains that cross Little Bay between Durham and Newington. The crossing is part of a 6-mile cross-country drinking water transmission main that brings treated drinking water from the Madbury Water Treatment Plant to Portsmouth. The transmission main carries approximately 60% of the water serving the City's regional water system that includes Portsmouth, Newington, Greenland, New Castle and portions of Madbury, Dover, Durham and Rye. The proposed replacement project is needed since significant corrosion of the existing cast iron water mains that cross Little Bay was observed.

A 24-inch HDPE pipe with concrete anchors is proposed to be installed on the bay floor between the existing cast iron pipes. At the intertidal zone and within portions of the tidal buffer zone, the proposed pipeline will be buried to protect the pipe from freezing, anchor drag, and tidal currents. At the Durham shore, there is existing salt marsh that will be impacted by installation of the pipe. The project has been designed to minimize environmental impacts to the greatest extent practical. There is not practical alternative to avoid impacts to salt marsh and the following plan has been prepared to describe how the impacted salt marsh will be restored following installation of the proposed water line. All construction and site restoration will be overseen by the Engineer and an Environmental Monitor, a qualified professional experienced with wetland restoration. The restoration work will be completed by a contractor experienced in salt marsh restoration.

Preserving Existing Salt Marsh

The limits of salt marsh and the HOTL were identified by certified wetland scientist, Marc Jacobs. The salt marsh located at the Durham site is identified as the area between the 'A' and 'B' flag series shown on Figure 1. Mud flats are present to the east of the salt marsh. A small pocket of salt marsh was identified on the Newington shore, but it is located outside of the proposed project area and impacts are not anticipated. Refer to the Project Plan set for more existing condition information.

A 25-ft wide sheet pile coffer dam is proposed to be installed from the Durham shore to approximately 105 ft offshore, where the channel is deep enough to install the water main on the channel floor. The coffer dam will protect the trench being excavated for the new pipeline and prevent the discharge of suspended sediment during construction. A 24-ft wide trestle is proposed to extend parallel to the coffer dam to support equipment during water main installation. Existing salt marsh located within the limits of the coffer dam and where piles will be installed will be removed and preserved during construction. The following steps are proposed for salt marsh removal and storage:

- Work area will be delineated with perimeter erosion controls (straw wattles) to confine work to the proposed impact area and prevent sediment from leaving the work area.
- Timber mats will be installed on the salt marsh on the southern side of the proposed coffer dam location. The timber mats will be used for equipment needed to install the coffer dam and pile supports for the trestle.
- Salt marsh peat will be removed from the areas within the coffer dam and pile locations in intact sections (minimum 4 square feet) and minimum 6-inch thick and stockpiled during the completion of the work.
- The salt marsh blocks will be stored in the salt marsh storage area indicated on the plans. The salt marsh storage area will be constructed of timber matting with an impermeable layer on the timber matting. The matting will be installed such that any run off from the salt marsh will be directed toward the water. The

property owner has requested that salt water from the stored salt marsh be prevented from draining onto lawn areas.

- Upon installation of the coffer dam and trestle, the timber matting will be removed from the salt marsh area.
- The salt marsh blocks will be kept moist with fresh water.
- The peat blocks will be monitored weekly to confirm they are hydrated and protected from the elements.

Once the salt marsh blocks have been removed from the coffer dam, a trench for the water main will be excavated. The water main will be installed with 5 ft of cover over the pipe. Upon installation of the water main, the trench will be backfilled with soil excavated from the trench.

Salt Marsh Restoration

Upon completion of the water main installation, the coffer dam and trestle will be removed. Timber matting may need to be placed on the intact salt marsh to provide access for equipment necessary to remove the coffer dam and trestle. The subgrade will be reestablished with excavated materials to match the existing grade. If supplemental substrate is needed, sand will be added. It is anticipated that installation of the water main will be completed in January/February. Proposed construction notes that will appear in the project plan set are included as Figure 2. Since the salt marsh grasses will likely be dormant at this time, a temporary measure is proposed to protect the salt marsh restoration area until April. The following steps are proposed for the salt marsh restoration:

- Upon removal of the coffer dam and trestle, reestablish subgrade using excavated soil. Supplement with sand, if needed.
- Place coir logs at the salt marsh mud flat interface, as shown on Figure 1 and Figure 3. Stake coir logs with rebar
- Place protection boulders as shown of Figure 1 and Figure 3.
- Place geotextile in salt marsh restoration area and place 12 inches of rip rap on top of geotextile area. This is a temporary measure to be used to protect the substrate until April.
- In April, remove the rip rap and geotextile fabric and place the stockpiled peat blocks in the restoration area. Anchor the peat blocks with rebar stakes driven into the substrate and adjacent peat. Any gaps between the peat blocks and surrounding peat will be filled with sand. If the salvaged peat blocks do not fully cover the disturbed marsh area, cordgrass seedlings (*spartina alterniflora*) will be planted in gaps that exceed 4 inches. If large areas of salt marsh peat were not able to be salvaged, cordgrass seedlings shall be planted at 1 sq. ft. intervals.

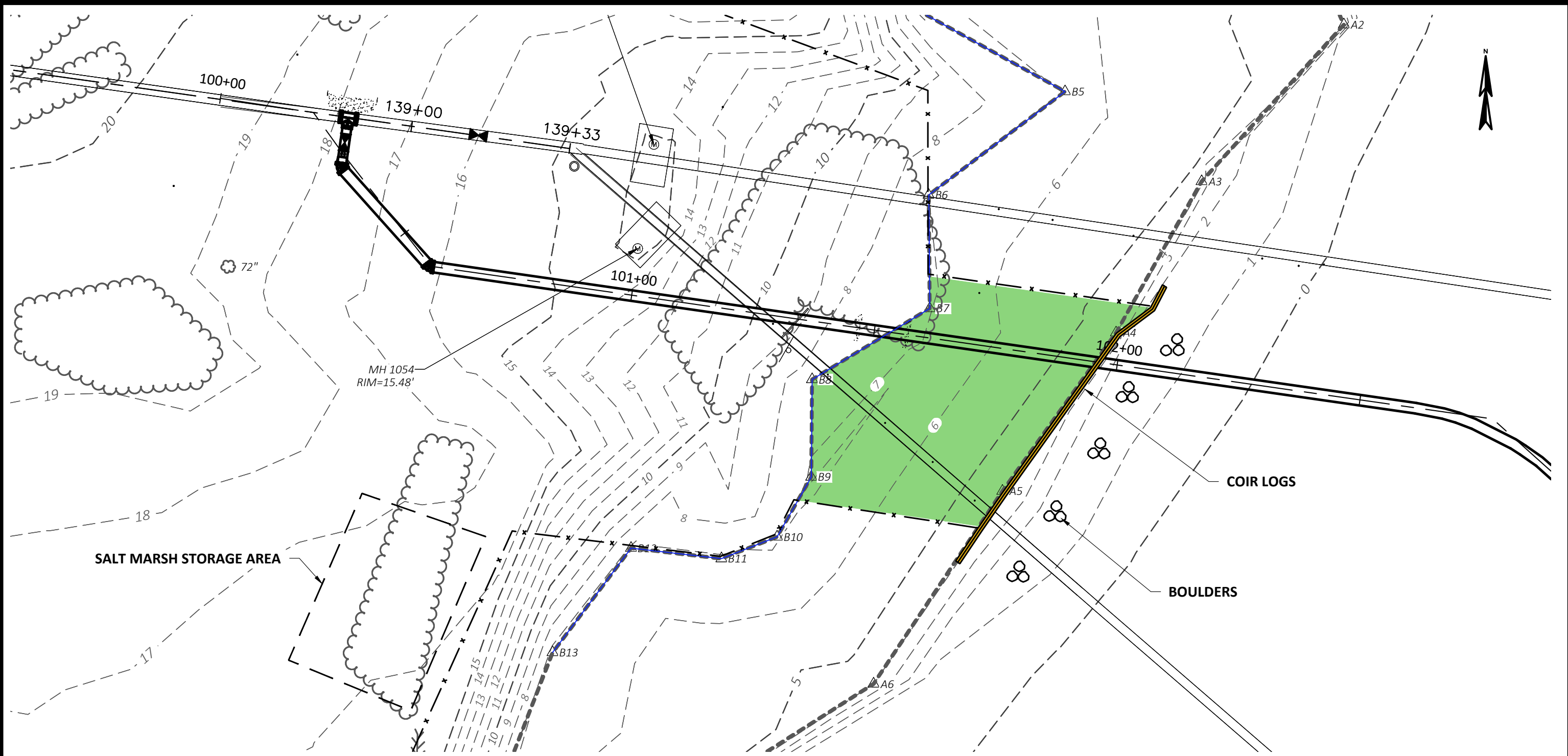
Monitoring

A qualified professional will monitor all work related to salt marsh restoration during construction of the project to confirm compliance with permit requirements. The following post-construction monitoring plan is proposed:






- Mid-summer inspection following salt marsh block replanting to confirm reestablishment and new cordgrass growth and to confirm coir logs are intact.
- Late summer inspection to document vegetation growth. Document growth with pictures and report. Areas with less than 80% vegetation cover in late summer will require additional plantings as determined by the Environmental Monitor.

- The restored area will be monitored for a total of five years to confirm compliance with the permit conditions and successful restoration of the salt marsh. Monitoring will occur in spring and late summer. Compliance reports will be submitted to NHDES as required by permit conditions.

J:\ENG\NH\PORTSMOUTH\14202-SUBAQUEOUSWATERMAIN\DRAWINGS\CIV\FIGURES\14202A-CS-SALTMARSHRESTORATION-FIG1.DWG




LEGEND

-  HIGHEST OBSERVABLE TIDE LINE
-  WETLAND
-  WETLAND FLAG
-  SALT MARSH RESTORATION AREA
-  STRAW WATTLE

NOTES

1. THE PROPOSED SALT MARSH RESTORATION AREA IS LOCATED ON AND ADJACENT TO 186 PISCATAQUA ROAD. REFER TO PROJECT PLAN SET.

CITY OF PORTSMOUTH, NH SUBAQUEOUS WATER MAIN LITTLE BAY, DURHAM-NEWINGTON NEW HAMPSHIRE		
SALT MARSH RESTORATION AREA		
PROJ NO:	14202A	DATE: JULY 2021
WRIGHT-PIERCE 		1
<i>Engineering a Better Environment</i>		

SALT MARSH SALVAGE AND RESTORATION NOTES

1. ALL CONSTRUCTION AND RESTORATION SHALL BE DONE UNDER THE SUPERVISION OF THE ENGINEER AND AN ENVIRONMENTAL MONITOR.
2. INSTALL EROSION CONTROLS ALONG THE EDGE OF WORK TO PREVENT DISTURBED SOIL FROM MIGRATING INTO THE SALT MARSH DURING THE WORK PERIOD.
3. EXCAVATION WITHIN THE SALT MARSH SHALL BE LIMITED TO ONLY THE AREA NECESSARY FOR INSTALLATION OF THE NEW PIPE LINE.
4. MATTING AND EXCAVATION WITHIN THE SALT MARSH SHALL BE LIMITED TO THE SHORTEST AMOUNT OF TIME PRACTICABLE.
5. IN THE EXCAVATION AREAS, ALL SUITABLE SALT MARSH PEAT WILL BE SALVAGED AND STOCKPILED FOR REPLACEMENT DURING RESTORATION. SUITABLE PEAT WILL BE DEFINED IN THE FIELD BY THE ENVIRONMENTAL MONITOR, BUT WILL BE PROTECTED FROM SUN, WIND, DEHYDRATION AND FREEZING IN A SUITABLE UPLAND AREA AND MAINTAINED FOR THE DURATION OF THE PROJECT. THE PEAT BLOCKS SHALL BE KEPT MOIST WITH FRESH WATER.
6. OUTSIDE THE EXCAVATION AREAS, TIMBER MATS SHALL BE USED TO PROTECT THE MARSH FROM EQUIPMENT AND FOOT TRAFFIC.
7. CONSTRUCTION IN THE SALVAGE AREA SHALL BE COMPLETED SUCH THAT THE SALVAGED BLOCKS ARE REPLACED NO LATER THAN NOVEMBER 1. IF THE CONSTRUCTION EXTENDS BEYOND NOVEMBER 1, THE PEAT BLOCKS WILL BE MAINTAINED THROUGH THE WINTER AND REPLACED IN APRIL OF THE FOLLOWING YEAR.
8. UPON COMPLETION OF THE WATER MAIN INSTALLATION AND BACKFILLING, THE UNDERLYING SUBSTRATES WILL BE RESTORED TO APPROPRIATE SUBGRADES TO SUPPORT THE PEAT BLOCKS. FINAL ELEVATION OF THE TOP OF PEAT SHALL BE EQUAL TO OR UP TO 2 INCHES HIGHER THAN THE PRE-CONSTRUCTION CONDITION.
9. THE PEAT BLOCKS SHALL BE REPLACED TO MATCH THE ORIGINAL SALT MARSH LIMITS. PEAT BLOCKS SHALL BE ANCHORED WITH $\frac{5}{8}$ INCH REBAR STAKES DRIVEN INTO THE SUBSTRATES AND/OR ADJACENT PEAT. ANY OPENING BETWEEN THE PEAT BLOCKS WILL BE FILLED WITH SAND TO COVER EXPOSED ROOTS AND MAINTAIN GRADES. ADDITIONAL SALT MARSH CORDGRASS (SPARTINA ALTERNIFLORA) SEEDLINGS SHALL BE PLANTED IN THE GAP BETWEEN THE PEAT BLOCKS IF IT EXCEEDS 4 INCHES.
10. IF THE SALVAGED PEAT BLOCKS DO NOT FULLY COVER THE DISTURBED MARSH AREA, CORDGRASS SEEDLINGS SHALL BE PLANTED AT 1 SQ. FT INTERVALS IN THE AREAS THAT WERE PREVIOUSLY MARSH AREAS.
11. IN THE REPLANTING AREAS, THE SUBSTRATES SHALL BE RESTORED WITH SAND, CONTAINED WITHIN SANDBAGS OR OTHERWISE PROTECTED, TO STABILIZE THE SEDIMENTS, SURFACE ELEVATIONS SHALL MATCH PRE-CONSTRUCTION CONDITIONS OR AS DIRECTED BY THE ENVIRONMENTAL MONITOR. THE SEAWARD FACE OF THE RESTORED MARSH WILL BE PROTECTED FROM ICE AND WAVE ACTION WITH COIR LOGS AND/OR BOULDERS, AS COORDINATED WITH THE ENGINEER AND ENVIRONMENTAL MONITOR.

CITY OF PORTSMOUTH, NH
SUBAQUEOUS WATER MAIN
LITTLE BAY, DURHAM-NEWINGTON
NEW HAMPSHIRE

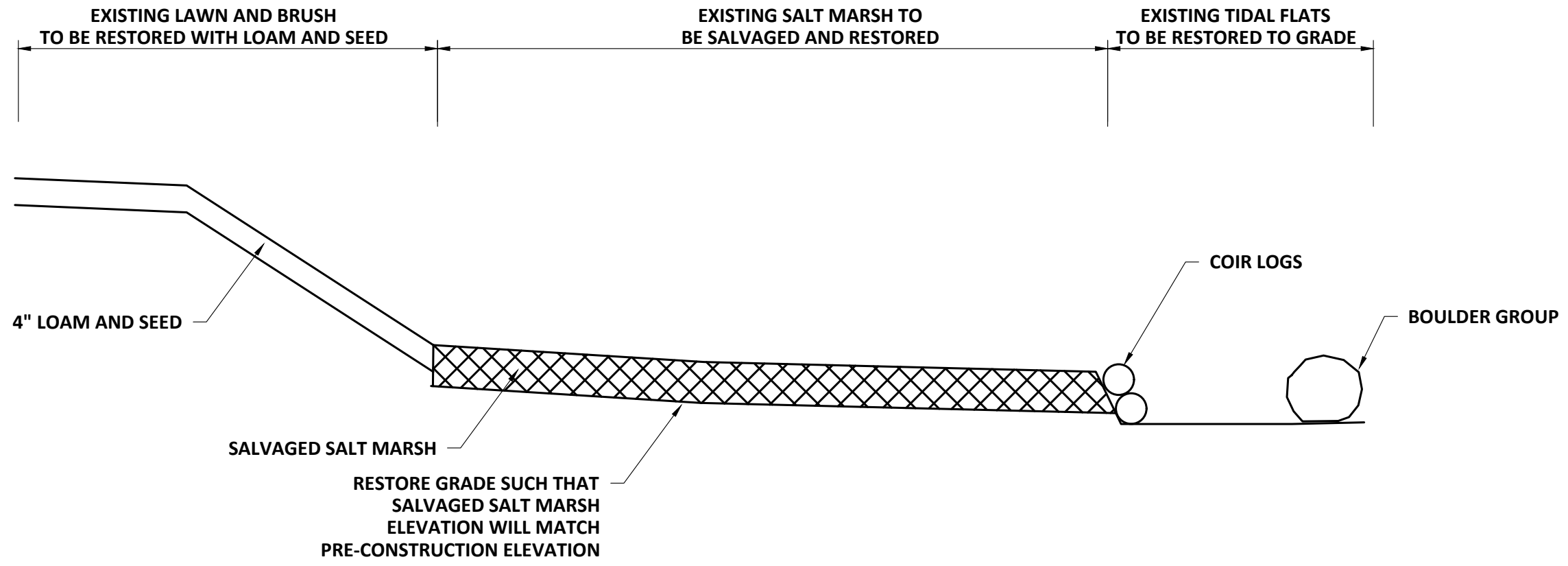
SALT MARSH RESTORATION NOTES

PROJ NO:	14202A	DATE:	JULY 2021	FIGURE:
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WRIGHT-PIERCE 
Engineering a Better Environment

2

J:\ENG\NH\PORTSMOUTH\14202-SUBAQUEOUSWATERMAIN\DRAWINGS\CIV\FIGURES\14202A-CS-SALTMARSHRESTORATION-FIG3.DWG



SALT MARSH RESTORATION SECTION
SCALE: "NTS"

CITY OF PORTSMOUTH, NH SUBAQUEOUS WATER MAIN LITTLE BAY, DURHAM-NEWINGTON NEW HAMPSHIRE		
SALT MARSH RESTORATION SECTION		
PROJ NO: 14202A	DATE: JULY 2021	FIGURE: 3
WRIGHT-PIERCE  Engineering a Better Environment		



Attachment C

Britt Eckstrom

From: Britt Eckstrom
Sent: Friday, July 23, 2021 5:49 PM
To: Bouchard, Jessica
Cc: Lamb, Amy
Subject: RE: NHDES Wetlands Bureau RFMI - 2020-02959; Portsmouth Subaqueous Water Main NHB20-2107
Attachments: NHB20-2107_Shactman.pdf; 14202A-SubaqueousWMReplacement_July2021.pdf

Good afternoon Jessica,

I am contacting you regarding a proposed project in Little Bay between Durham and Newington. On behalf of the City of Portsmouth, we have filed an NHDES wetland application File No. 2020-02959. An NHB review was completed (NHB20-2107, attached) prior to submitting the permit application. Two natural communities were identified within the project area: sparsely vegetated intertidal system and subtidal vegetated system. We are requesting your input on the proposed project and its potential to impact these exemplary natural communities. I have provided a brief summary of the proposed project below and have also attached the proposed project plans.

The City of Portsmouth (the City) owns and maintains a cross-country drinking water transmission main that brings treated drinking water from the Madbury Water Treatment Plant to Portsmouth. The 24-inch reinforced concrete main carries approximately 60% of the water serving the City's regional water system that includes Portsmouth, Newington, Greenland, New Castle and portions of Madbury, Dover, Durham and Rye. The main crosses the Little Bay, approximately 4,000 ft to the southwest of the Scammell Bridge (US Route 4). At the crossing, the main transitions to two 20-inch cast iron pipes from the Durham shore to Fox Point shore in Newington. The two parallel transmission mains, installed in the 1950s, are approximately 3,200 feet in length across the bay. A dive inspection completed in 2016 observed that portions of the two cast iron pipes have become exposed to salt water and have experienced significant corrosion, with pits greater than 50% of the pipe wall thickness in some instances. This critical water main requires replacement in order for the City to maintain a safe, reliable supply of drinking water to the regional water system.

The proposed project involves installing one 24-inch high density polyethylene main (HDPE) on the ocean floor between the existing cast iron mains crossing Little Bay with connections to the existing reinforced concrete mains on either shore. The proposed installation method involves assembling the new pipeline on land and floating the pipeline into Little Bay. Since the HDPE pipe is buoyant, concrete collars are required to sink and anchor the pipeline along the river bottom. The concrete anchors are designed to be installed while the pipeline is floating and full of air. Upon the evacuation of the air from the pipe, the pipe sinks to the bottom at the proposed location. At the intertidal zone and within portions of the tidal buffer zone, the proposed pipeline will be buried to protect the pipe from freezing, anchor drag, and tidal currents. We are proposing the use a temporary steel cofferdam to support the excavation in the water and as a means to control sediment in Little Bay during construction. The coffer dam will extend approximately 400 ft from each shore and will be removed upon installation of the pipeline.

The anticipated construction schedule includes construction staging starting in November 2021, in-water work occurring January to March 2022, and site restoration March to April 2022.

The attached plan set includes details and notes regarding proposed restoration of all areas impacted by the project including a small section of salt marsh.

Thank you for reviewing the attached project information. Please advise the best way to complete consultation regarding this project. I am happy to set up a phone call or Teams meeting to discuss the project and answer any questions.

Thank you,
Britt

Britt Eckstrom, PE

Wright-Pierce | Project Manager
direct 603.570.7126 | cell 603.674.0874



From: Giallongo, Stefanie <Stefanie.M.Giallongo@des.nh.gov>
Sent: Thursday, January 7, 2021 2:17 PM
To: Brian F. Goetz <bfgoetz@cityofportsmouth.com>; Britt Eckstrom <britt.eckstrom@wright-pierce.com>
Cc: 'mbehrendt@ci.durham.nh.us' <mbehrendt@ci.durham.nh.us>; 'sneedelltc@gmail.com' <sneedelltc@gmail.com>; 'mroy@townofnewingtonnh.com' <mroy@townofnewingtonnh.com>; 'jane.hislop@usda.gov' <jane.hislop@usda.gov>; Price, David <DAVID.A.PRICE@des.nh.gov>; Tilton, Mary Ann <mary.a.tilton@des.nh.gov>; Comstock, Gregg <WILLIAM.G.COMSTOCK@des.nh.gov>; 'Lefebvre, Lindsey E CIV USARMY CENAE (US)' <Lindsey.E.Lefebvre@usace.army.mil>; 'T.Shattuck@peasedev.org' <T.Shattuck@peasedev.org>; 'G.Marconi@peasedev.org' <G.Marconi@peasedev.org>; Nash, Chris <WILLIAM.C.NASH@des.nh.gov>; Sommer, Lori <LORI.L.SOMMER@des.nh.gov>; Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>; Patterson, Cheri <Cheri.A.Patterson@wildlife.nh.gov>; Domke, Jason <Jason.Domke@des.nh.gov>; Williams, Chris <CHRISTIAN.P.WILLIAMS@des.nh.gov>
Subject: NHDES Wetlands Bureau RFMI - 2020-02959; Portsmouth Subaqueous Water Main

Good afternoon and Happy New Year,

Please see the attached NHDES Wetlands Bureau request for more information related to the City of Portsmouth's Subaqueous Water Main Replacement project (DES file #2020-02959). As always, please don't hesitate to reach out for any questions or clarifications.

Kindly,
Stefanie

Stefanie M. Giallongo, Wetland Specialist
Wetlands Bureau, Land Resources Management
Water Division, NH Department of Environmental Services
222 International Drive, Suite 175
Portsmouth, NH 03801
Phone: (603) 559-1516
Email: Stefanie.Giallongo@des.nh.gov



We greatly appreciate your feedback, please take a moment to fill out our NHDES-LRM [customer satisfaction survey](#).

Britt Eckstrom

From: Britt Eckstrom
Sent: Friday, July 23, 2021 6:04 PM
To: cheri.a.patterson@wildlife.nh.gov
Subject: RE: NHDES Wetlands Bureau RFMI - 2020-02959; Portsmouth Subaqueous Water Main NHB20-2107
Attachments: NHB20-2107_Shactman.pdf; 14202A-SubaqueousWMReplacement_July2021.pdf

Good afternoon Cheri,

I am contacting you regarding a proposed project in Little Bay between Durham and Newington. On behalf of the City of Portsmouth, we have filed an NHDES wetland application File No. 2020-02959. An NHB review was completed (NHB20-2107, attached) prior to submitting the permit application. Several rare and endangered species were identified on the NHB result. We are requesting your input on the proposed project and its potential to impact these species. I have provided a brief summary of the proposed project below and have also attached the proposed project plans.

The City of Portsmouth (the City) owns and maintains a cross-country drinking water transmission main that brings treated drinking water from the Madbury Water Treatment Plant to Portsmouth. The 24-inch reinforced concrete main carries approximately 60% of the water serving the City's regional water system that includes Portsmouth, Newington, Greenland, New Castle and portions of Madbury, Dover, Durham and Rye. The main crosses the Little Bay, approximately 4,000 ft to the southwest of the Scammell Bridge (US Route 4). At the crossing, the main transitions to two 20-inch cast iron pipes from the Durham shore to Fox Point shore in Newington. The two parallel transmission mains, installed in the 1950s, are approximately 3,200 feet in length across the bay. A dive inspection completed in 2016 observed that portions of the two cast iron pipes have become exposed to salt water and have experienced significant corrosion, with pits greater than 50% of the pipe wall thickness in some instances. This critical water main requires replacement in order for the City to maintain a safe, reliable supply of drinking water to the regional water system.

The proposed project involves installing one 24-inch high density polyethylene main (HDPE) on the ocean floor between the existing cast iron mains crossing Little Bay with connections to the existing reinforced concrete mains on either shore. The proposed installation method involves assembling the new pipeline on land and floating the pipeline into Little Bay. Since the HDPE pipe is buoyant, concrete collars are required to sink and anchor the pipeline along the river bottom. The concrete anchors are designed to be installed while the pipeline is floating and full of air. Upon the evacuation of the air from the pipe, the pipe sinks to the bottom at the proposed location. At the intertidal zone and within portions of the tidal buffer zone, the proposed pipeline will be buried to protect the pipe from freezing, anchor drag, and tidal currents. We are proposing the use a temporary steel cofferdam to support the excavation in the water and as a means to control sediment in Little Bay during construction. The coffer dam will extend approximately 400 ft from each shore and will be removed upon installation of the pipeline.

The anticipated construction schedule includes construction staging starting in November 2021, in-water work occurring January to March 2022, and site restoration March to April 2022. The in-water work is proposed during the winter months to minimize impacts to aquatic resources.

Thank you for reviewing the attached project information. Please advise the best way to complete consultation regarding this project. I am happy to set up a phone call or Teams meeting to discuss the project and answer any questions.

Thank you,
Britt

Britt Eckstrom, PE

Wright-Pierce | Project Manager
direct 603.570.7126 | cell 603.674.0874



From: Giallongo, Stefanie <Stefanie.M.Giallongo@des.nh.gov>

Sent: Thursday, January 7, 2021 2:17 PM

To: Brian F. Goetz <bfgoetz@cityofportsmouth.com>; Britt Eckstrom <britt.eckstrom@wright-pierce.com>

Cc: 'mbehrendt@ci.durham.nh.us' <mbehrendt@ci.durham.nh.us>; 'sneedelltc@gmail.com' <sneedelltc@gmail.com>; 'mroy@townofnewingtonnh.com' <mroy@townofnewingtonnh.com>; 'jane.hislop@usda.gov' <jane.hislop@usda.gov>; Price, David <DAVID.A.PRICE@des.nh.gov>; Tilton, Mary Ann <mary.a.tilton@des.nh.gov>; Comstock, Gregg <WILLIAM.G.COMSTOCK@des.nh.gov>; 'Lefebvre, Lindsey E CIV USARMY CENAE (US)' <Lindsey.E.Lefebvre@usace.army.mil>; 'T.Shattuck@peasedev.org' <T.Shattuck@peasedev.org>; 'G.Marconi@peasedev.org' <G.Marconi@peasedev.org>; Nash, Chris <WILLIAM.C.NASH@des.nh.gov>; Sommer, Lori <LORI.L.SOMMER@des.nh.gov>; Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>; Patterson, Cheri <Cheri.A.Patterson@wildlife.nh.gov>; Domke, Jason <Jason.Domke@des.nh.gov>; Williams, Chris <CHRISTIAN.P.WILLIAMS@des.nh.gov>

Subject: NHDES Wetlands Bureau RFMI - 2020-02959; Portsmouth Subaqueous Water Main

Good afternoon and Happy New Year,

Please see the attached NHDES Wetlands Bureau request for more information related to the City of Portsmouth's Subaqueous Water Main Replacement project (DES file #2020-02959). As always, please don't hesitate to reach out for any questions or clarifications.

Kindly,
Stefanie

Stefanie M. Giallongo, Wetland Specialist
Wetlands Bureau, Land Resources Management
Water Division, NH Department of Environmental Services
222 International Drive, Suite 175
Portsmouth, NH 03801
Phone: (603) 559-1516
Email: Stefanie.Giallongo@des.nh.gov



We greatly appreciate your feedback, please take a moment to fill out our NHDES-LRM [customer satisfaction survey](#).



Attachment D

January 15, 2021

NH Department of Environmental Service
Coastal Division
Pease Field Office
222 International Drive, Suite 175
Portsmouth, NH 03801

Attn: Stefanie Giallongo

Re: Wetlands Application 2020-02959

Dear Stefanie,

We reviewed plans for the replacement of an existing water main servicing the City of Portsmouth. The project involves placing a 24" pipeline across Little Bay between Fox Point in Newington and Durham Point in Durham.

We examined the proposed site and found that the structure will have no negative effect on navigation in the channel.

Sincerely,



Tracy R. Shattuck
Chief Harbor Master

Cc: Britt Eckstrom, PE
Wright-Pierce



Attachment E

After recording return to:
City of Portsmouth
Planning Department
1 Junkins Ave
Portsmouth, NH 03801

TEMPORARY ACCESS AND CONSTRUCTION EASEMENT DEED

NOW COMES **the Town of Newington**, a New Hampshire municipality, with an address of 205 Nimble Hill Road, Newington, Rockingham County, State of New Hampshire, (the "Grantor"), and, for consideration paid, grants to **the City of Portsmouth**, a municipal corporation with an address of 1 Junkins Avenue, Portsmouth, New Hampshire 03801 (the "Grantee"), with Quitclaim Covenants, an easement over, below, along and across the premises described herein, known as Fox Point in the Town of Newington, State of New Hampshire, located at Tax Map 1, Lot 1-1 (the "Property").

Meaning and intending to convey an easement over the premises conveyed to Grantor by **Strafford National Bank of Dover**, as executor of the will of **Marjorie Mott**, dated December 19, 1980, and recorded at the Rockingham County Registry of Deeds at Book 2380, Page 235.

1. **A TEMPORARY ACCESS EASEMENT** (the "Temporary Access Easement") over a portion only of the Property for the purposes of accessing a certain easement held by the City of Portsmouth, described in a Notice of Condemnation recorded at the Rockingham County Registry of Deeds at Book 1413, Page 227 (the "Existing Easement"). This Temporary Access Easement shall be thirty (30) feet wide, and shall pass over the Property centered along a twenty (20) foot wide stabilized construction access drive as constructed. The Temporary Access Easement area is depicted as the "30' wide temporary construction easement" on a plan entitled "Construction Staging Plans Newington 8/28/2020" on file at the City of Portsmouth Department of Public Works, located at 680 Peverly Hill Road, Portsmouth, New Hampshire 03801 (the "Plan").
2. **A TEMPORARY CONSTRUCTION EASEMENT** (the "Temporary Construction Easement") over a portion only of the Property for the purposes of staging, constructing, replacing and repairing a replacement water pipe within the Existing Easement. The Temporary Construction Easement shall include an area extending to the south of the Existing Easement, as bounded to the south by silt fences as installed on the Property on the south and west, and extending to a building now existing on the property to the east. The Temporary Construction Easement is depicted as the "Construction Staging Area" on the Plan.
3. **Retained Rights:** Grantor retains the right to freely use and enjoy its interest in the easement area insofar as the exercise thereof does not interfere with the

purpose of this instrument.

4. The term of the Temporary Access Easement and the Temporary Construction Easement (collectively, the "Easements") shall begin upon the date of mutual execution hereof and shall extend until December 31, 2022 or until the Project has been completed, whichever first occurs.
5. If the Project has not been completed by December 31, 2022, the Grantee may, with thirty (30) days' written notice to the Grantee, extend the term of this Easement by six (6) months.
6. Upon expiration of the Easements, the Grantee, at its sole cost and expense, shall restore the Easement Areas to substantially the same condition it was in prior to the Grantee's use, subject to any conditions imposed by the New Hampshire Department of Environmental Services as a part of permitting for the project. Grantee shall not leave any rubbish or debris on or about the Temporary Easement Property.
7. Grantee shall indemnify and hold harmless Grantor from any and all actions, causes of actions, suits, demands and claims resulting from any damage, injury, loss, expense, fee or cost arising out of or in connection with Grantee's use of the Easement Area, including the use of the Easement Area by Grantee's agents, employees, representatives, tenants, guests, invitees, successors and assigns, unless such damage, injuries, losses, expenses, fees and costs were caused by the negligent, reckless, or willful conduct of Grantor.
8. This easement shall run with the land and shall be binding upon the Grantor and the Grantee and their respective heirs, successors and assigns.

THIS IS A CONVEYANCE EXEMPT FROM TRANSFER TAX PURSUANT TO NH RSA 78-B:2,I.

(Signature pages to follow)

Signed this 31st day of March, 2021.

TOWN OF NEWINGTON


By: 

Timothy "Ted" Connors,
Chair, Board of Selectmen
Per vote of the Newington Board of Selectmen
dated 3-16, 2021.

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM, SS.

On this 31st day of March, 2021, before me, Martha S. Roy, the undersigned officer, personally appeared Timothy "Ted" Connors, who acknowledged himself to be the Chairman of the Board of Selectmen, of the Town of Newington, a municipal corporation, and that he, as such Selectmen Chair, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the municipal corporation by himself as the Board of Selectmen Chair.

(Seal, if any)


(Signature of notarial officer)
Notary Public/Justice of the Peace

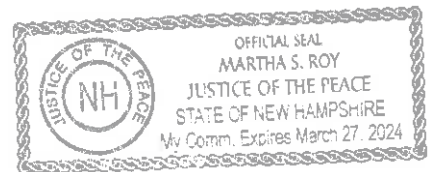
Notary Public Justice of the Peace

Printed Name:

Martha S. Roy

My Commission Expires:

3-27-24



Signed this ___ day of _____, 2021.

CITY OF PORTSMOUTH

By: _____
Karen Sawyer Conard, City Manager
Per vote of the City of Portsmouth City
Council dated _____, 2021.

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM, SS.

On this _____ day of _____, 2021, before me, _____, the undersigned officer, personally appeared Karen Sawyer Conard, who acknowledged herself to be the City Manager, of the City of Portsmouth, a municipal corporation, and that she, as such City Manager, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the municipal corporation by herself as the City Manager.

In witness whereof I hereunto set my hand and official seal.

Notary Public
Printed Name:

My Commission Expires:



Attachment F

Britt Eckstrom

From: Britt Eckstrom
Sent: Wednesday, July 21, 2021 6:06 PM
To: choiceoysters@gmail.com
Subject: City of Portsmouth - Little Bay Water Line Replacement
Attachments: LittleBay-AquaCultureFarms-2021.pdf

Good afternoon Krystin,

I am contacting you regarding the City of Portsmouth proposed Little Bay Water Line Replacement project between Durham and Newington. I had been in touch regarding this project previously when we were applying for a wetland permit necessary to complete the geotechnical excavation needed for the design of the project. That work was completed and now we are working to permit the actual construction of the replacement water main. We wanted to provide you with an update on the project, the proposed construction methods and construction schedule. We also would like to know if you have any questions about the project, would like to provide any comments on how the work could be completed to minimize impacts to your oyster farm, and the best way to coordinate with you leading up to and during construction.

On behalf of the City of Portsmouth, we have filed an NHDES wetland application File No. 2020-02959. The NHDES Wetlands Bureau required that we notify you of the project as you have a licensed aquaculture farm within the proposed project area. I have attached a locus map of the approximate project area, the location of licensed aquaculture sites (per NHDES shape), and included a brief description of the project as follows.

The City of Portsmouth (the City) owns and maintains a cross-country drinking water transmission main that brings treated drinking water from the Madbury Water Treatment Plant to Portsmouth. The 24-inch reinforced concrete main carries approximately 60% of the water serving the City's regional water system that includes Portsmouth, Newington, Greenland, New Castle and portions of Madbury, Dover, Durham and Rye. The main crosses the Little Bay, approximately 4,000 ft to the southwest of the Scammell Bridge (US Route 4). At the crossing, the main transitions to two 20-inch cast iron pipes from the Durham shore to Fox Point shore in Newington. The two parallel transmission mains, installed in the 1950s, are approximately 3,200 feet in length across the bay. A dive inspection completed in 2016 observed that portions of the two cast iron pipes have become exposed to salt water and have experienced significant corrosion, with pits greater than 50% of the pipe wall thickness in some instances. This critical water main requires replacement in order for the City to maintain a safe, reliable supply of drinking water to the regional water system.

The proposed project involves installing one 24-inch high density polyethylene main (HDPE) on the channel floor between the existing cast iron mains crossing Little Bay with connections to the existing reinforced concrete mains on either shore. The proposed installation method involves assembling the new pipeline on land and floating the pipeline into Little Bay. Since the HDPE pipe is buoyant, concrete collars are required to sink and anchor the pipeline along the channel floor. The concrete anchors are designed to be installed while the pipeline is floating and full of air. Upon the evacuation of the air from the pipe, the pipe sinks to the bottom at the proposed location. At the intertidal zone and within portions of the tidal buffer zone, the proposed pipeline will be buried to protect the pipe from freezing, anchor drag, and tidal currents. We are proposing the use a temporary steel coffer dam to support the excavation in the water and as a means to control sediment in Little Bay during construction. The coffer dam will extend approximately 400 ft from each shore and will be removed upon installation of the pipeline. We are also permitting the construction of a pile supported temporary trestle to be constructed parallel to the coffer dam, to support equipment during construction. The trestle will be removed upon installation of the pipeline.

The anticipated construction schedule includes construction staging starting in November 2021, in-water work occurring January to March 2022, and site restoration March to April 2022. This is subject to change pending bidding result, permit conditions and weather.

Please be in touch if you have any questions about the project or would like additional information.

Thank you,
Britt

Britt Eckstrom, PE

Wright-Pierce | Project Manager

230 Commerce Way | Suite 302 | Portsmouth, NH 03801

direct 603.570.7126 | cell 603.674.0874





Attachment G

Britt Eckstrom

From: Britt Eckstrom
Sent: Wednesday, July 14, 2021 7:06 AM
To: jason.domke@des.nh.gov
Subject: RE: NHDES Wetlands Bureau RFMI - 2020-02959; Portsmouth Subaqueous Water Main
Attachments: USGS Locus LittleBay Water Line.pdf

Good morning Jason,

I am contacting you regarding a proposed project in Little Bay between Durham and Newington. On behalf of the City of Portsmouth, we have filed an NHDES wetland application File No. 2020-02959. The NHDES Wetlands Bureau requested that we notify you of the project as it has the potential to impact waterfront activities and uses. I have attached a locus map of the approximate project area and included a brief description of the project as follows.

The City of Portsmouth (the City) owns and maintains a cross-country drinking water transmission main that brings treated drinking water from the Madbury Water Treatment Plant to Portsmouth. The 24-inch reinforced concrete main carries approximately 60% of the water serving the City's regional water system that includes Portsmouth, Newington, Greenland, New Castle and portions of Madbury, Dover, Durham and Rye. The main crosses the Little Bay, approximately 4,000 ft to the southwest of the Scammell Bridge (US Route 4). At the crossing, the main transitions to two 20-inch cast iron pipes from the Durham shore to Fox Point shore in Newington. The two parallel transmission mains, installed in the 1950s, are approximately 3,200 feet in length across the bay. A dive inspection completed in 2016 observed that portions of the two cast iron pipes have become exposed to salt water and have experienced significant corrosion, with pits greater than 50% of the pipe wall thickness in some instances. This critical water main requires replacement in order for the City to maintain a safe, reliable supply of drinking water to the regional water system.

The proposed project involves installing one 24-inch high density polyethylene main (HDPE) on the ocean floor between the existing cast iron mains crossing Little Bay with connections to the existing reinforced concrete mains on either shore. The proposed installation method involves assembling the new pipeline on land and floating the pipeline into Little Bay. Since the HDPE pipe is buoyant, concrete collars are required to sink and anchor the pipeline along the river bottom. The concrete anchors are designed to be installed while the pipeline is floating and full of air. Upon the evacuation of the air from the pipe, the pipe sinks to the bottom at the proposed location. At the intertidal zone and within portions of the tidal buffer zone, the proposed pipeline will be buried to protect the pipe from freezing, anchor drag, and tidal currents. We are proposing the use a temporary steel cofferdam to support the excavation in the water and as a means to control sediment in Little Bay during construction. The coffer dam will extend approximately 400 ft from each shore and will be removed upon installation of the pipeline.

The anticipated construction schedule includes construction staging starting in November 2021, in-water work occurring January to March 2022, and site restoration March to April 2022.

Please be in touch if you have any questions about the project or would like additional information.

Thank you,
Britt

Britt Eckstrom, PE

Wright-Pierce | Project Manager
230 Commerce Way | Suite 302 | Portsmouth, NH 03801
direct 603.570.7126 | **cell** 603.674.0874

From: Giallongo, Stefanie <Stefanie.M.Giallongo@des.nh.gov>

Sent: Thursday, January 7, 2021 2:17 PM

To: Brian F. Goetz <bfgoetz@cityofportsmouth.com>; Britt Eckstrom <britt.eckstrom@wright-pierce.com>

Cc: 'mbehrendt@ci.durham.nh.us' <mbehrendt@ci.durham.nh.us>; 'sneedelltc@gmail.com' <sneedelltc@gmail.com>; 'mroy@townofnewingtonnh.com' <mroy@townofnewingtonnh.com>; 'jane.hislop@usda.gov' <jane.hislop@usda.gov>; Price, David <DAVID.A.PRICE@des.nh.gov>; Tilton, Mary Ann <mary.a.tilton@des.nh.gov>; Comstock, Gregg <WILLIAM.G.COMSTOCK@des.nh.gov>; 'Lefebvre, Lindsey E CIV USARMY CENAE (US)' <Lindsey.E.Lefebvre@usace.army.mil>; 'T.Shattuck@peasedev.org' <T.Shattuck@peasedev.org>; 'G.Marconi@peasedev.org' <G.Marconi@peasedev.org>; Nash, Chris <WILLIAM.C.NASH@des.nh.gov>; Sommer, Lori <LORI.L.SOMMER@des.nh.gov>; Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>; Patterson, Cheri <Cheri.A.Patterson@wildlife.nh.gov>; Domke, Jason <Jason.Domke@des.nh.gov>; Williams, Chris <CHRISTIAN.P.WILLIAMS@des.nh.gov>

Subject: NHDES Wetlands Bureau RFMI - 2020-02959; Portsmouth Subaqueous Water Main

Good afternoon and Happy New Year,

Please see the attached NHDES Wetlands Bureau request for more information related to the City of Portsmouth's Subaqueous Water Main Replacement project (DES file #2020-02959). As always, please don't hesitate to reach out for any questions or clarifications.

Kindly,
Stefanie

Stefanie M. Giallongo, Wetland Specialist
Wetlands Bureau, Land Resources Management
Water Division, NH Department of Environmental Services
222 International Drive, Suite 175
Portsmouth, NH 03801
Phone: (603) 559-1516
Email: Stefanie.Giallongo@des.nh.gov



We greatly appreciate your feedback, please take a moment to fill out our NHDES-LRM [customer satisfaction survey](#).



Attachment H

Turbidity Monitoring Plan

July 2021

Prepared by:
Wright-Pierce
230 Commerce Way, Suite 302
Portsmouth, NH 03801

Turbidity Monitoring Plan

Introduction

Installation of the proposed replacement 24-inch HDPE water main across Little Bay will require excavation within the intertidal zone and within portions of the tidal buffer zone to bury the pipe to protect the pipe from freezing, anchor drag, and tidal currents. The use of a temporary steel cofferdam is proposed to support the excavation in the water and as a means to control sediment in Little Bay during construction. The project has been designed to minimize environmental impacts to the greatest extent practical. However, there is the potential for construction activities to result in exceedance of allowable turbidity increases during construction. The following plan describes how turbidity will be monitored during construction to confirm the compliance with surface water quality standards.

Surface Water Quality Regulations

New Hampshire Surface Water Quality Regulation Env-Wq 1703.11, stipulates that turbidity in Class B waters shall not exceed natural occurring conditions by more than 10 NTUs. The Little Bay is considered a Class B water.

Turbidity Monitoring Locations

Turbidity monitoring shall occur at four locations: 100 ft downcurrent and 100 ft upcurrent from project station 105+00 (on the Durham side) and project station 129+00 (on the Newington side). At each location, turbidity will be measured using a turbidity probe at the near-surface (within 1 foot of the surface), mid-depth, and near-bottom (within 1 foot of the channel floor). The turbidity probe shall be maintained and calibrated according to manufacturer's specifications.

Turbidity Monitoring Procedures

Turbidity monitoring will be the responsibility of the contractor selected to construct the project. Turbidity monitoring will be required when the contractor is working in the waters of Little Bay. The construction contract documents will require the Contractor to comply with the following monitoring program:

- On a daily basis, prior to starting in-water activities, measure turbidity at each of the designated monitoring locations to establish pre-construction turbidity levels.
- Measure upcurrent and downcurrent turbidity at four-hour intervals at each monitoring location during in-water work.
- Average the three turbidity measurements at each location.
- If the average turbidity readings during in-water work is greater than 10 NTUs higher than the average pre-construction turbidity at that location for that day, modify work procedures and inspect, repair, or implement best management practices (BMPs).
- If at the next 4-hour reading, average turbidity readings are greater than 10 NTUs higher than the pre-construction average level, stop all in-water work and repair or implement additional BMPs. Resume in-water only after the reading average at the monitoring locations are less the 5 NTU above the pre-construction average.
- If in-water activities are not occurring on one end of the project, monitoring will not be required at the monitoring locations on that end of the project.

Reporting

The contractor will be required to submit a daily turbidity monitoring report to the Engineer with the following information:

- Date
- Time
- Water depth
- Tide stage
- Weather conditions
- Pre-construction turbidity readings at each monitoring location
- Turbidity measurements taken at the monitoring locations during in-water activities
- If the average reading at a station exceeded 10 NTUs above the pre-construction reading at the station, the actions taken to investigate and remediate the reason for the turbidity exceedance.

Monitoring reports will be reviewed daily by the Engineer. Frequent turbidity exceedances may require an assessment of construction and monitoring practices.