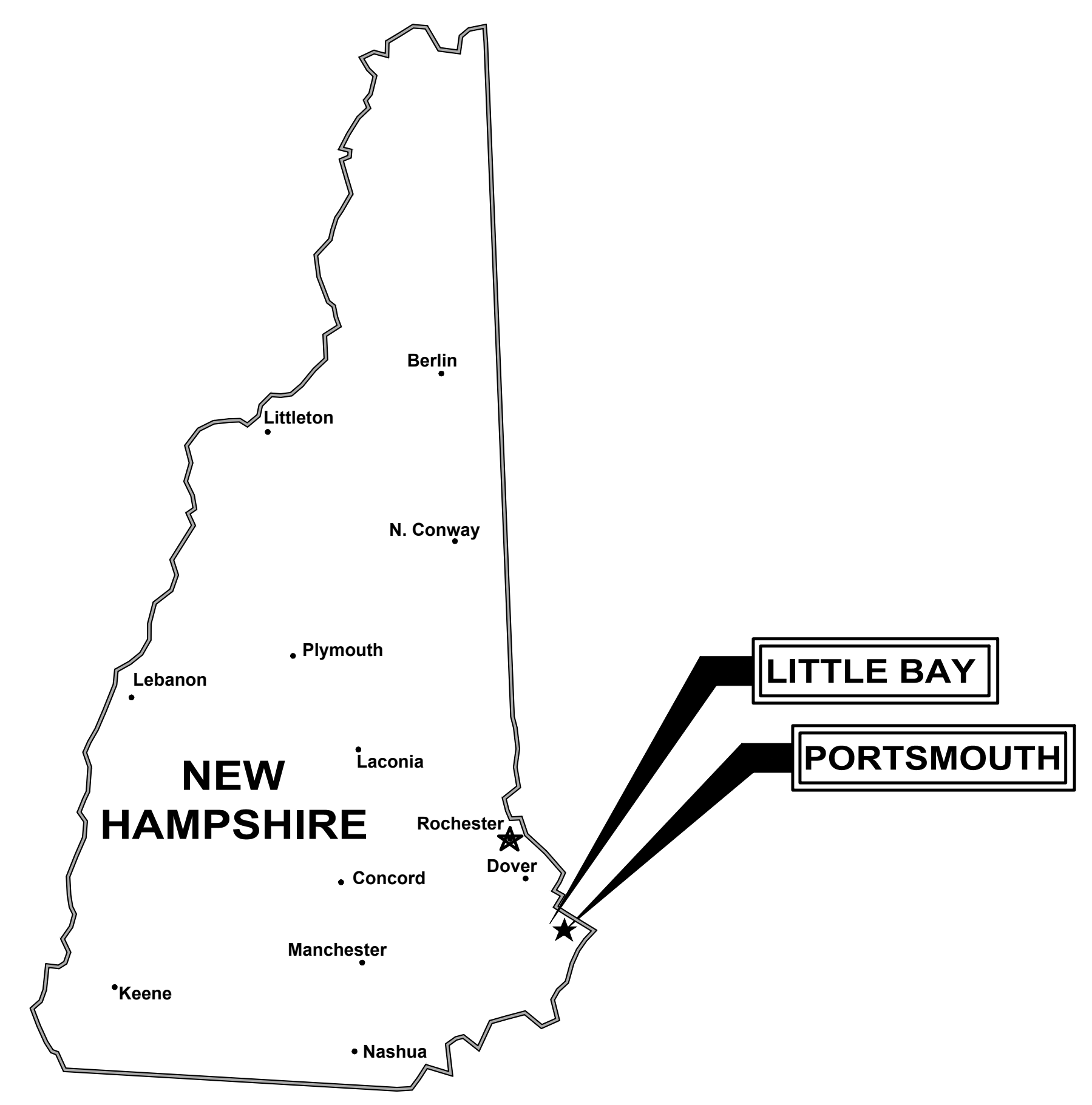
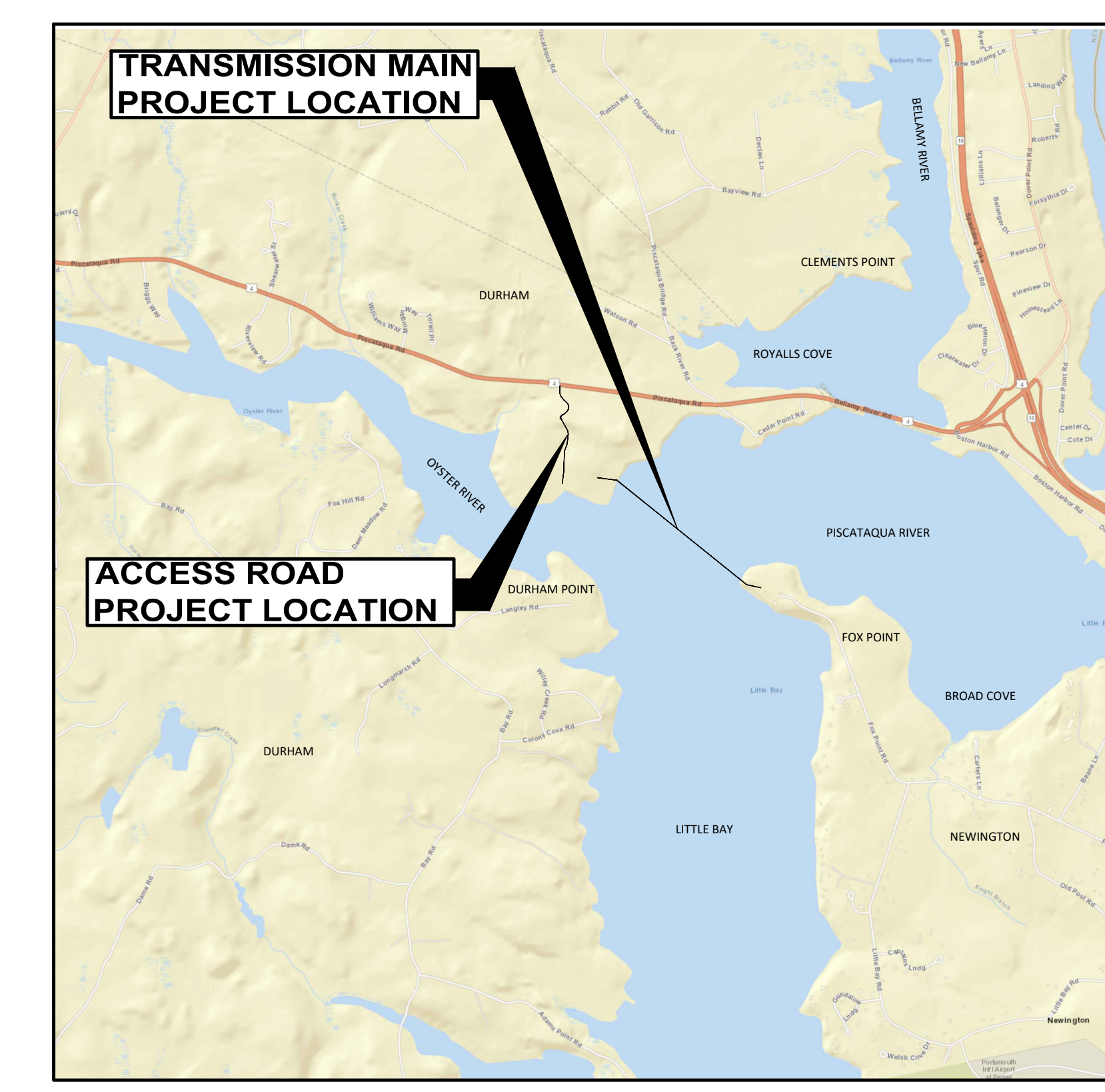


# CITY OF PORTSMOUTH LITTLE BAY SUBAQUEOUS WATER TRANSMISSION MAIN DURHAM & NEWINGTON, NH JULY 2023 CONTRACT DRAWINGS



### DRAWING INDEX

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AR-3	ACCESS ROAD - PLAN VIEW I - STA. 100+00 TO STA. 112+00
AR-4	ACCESS ROAD - PLAN VIEW II - STA. 112+00 TO STA. 118+00

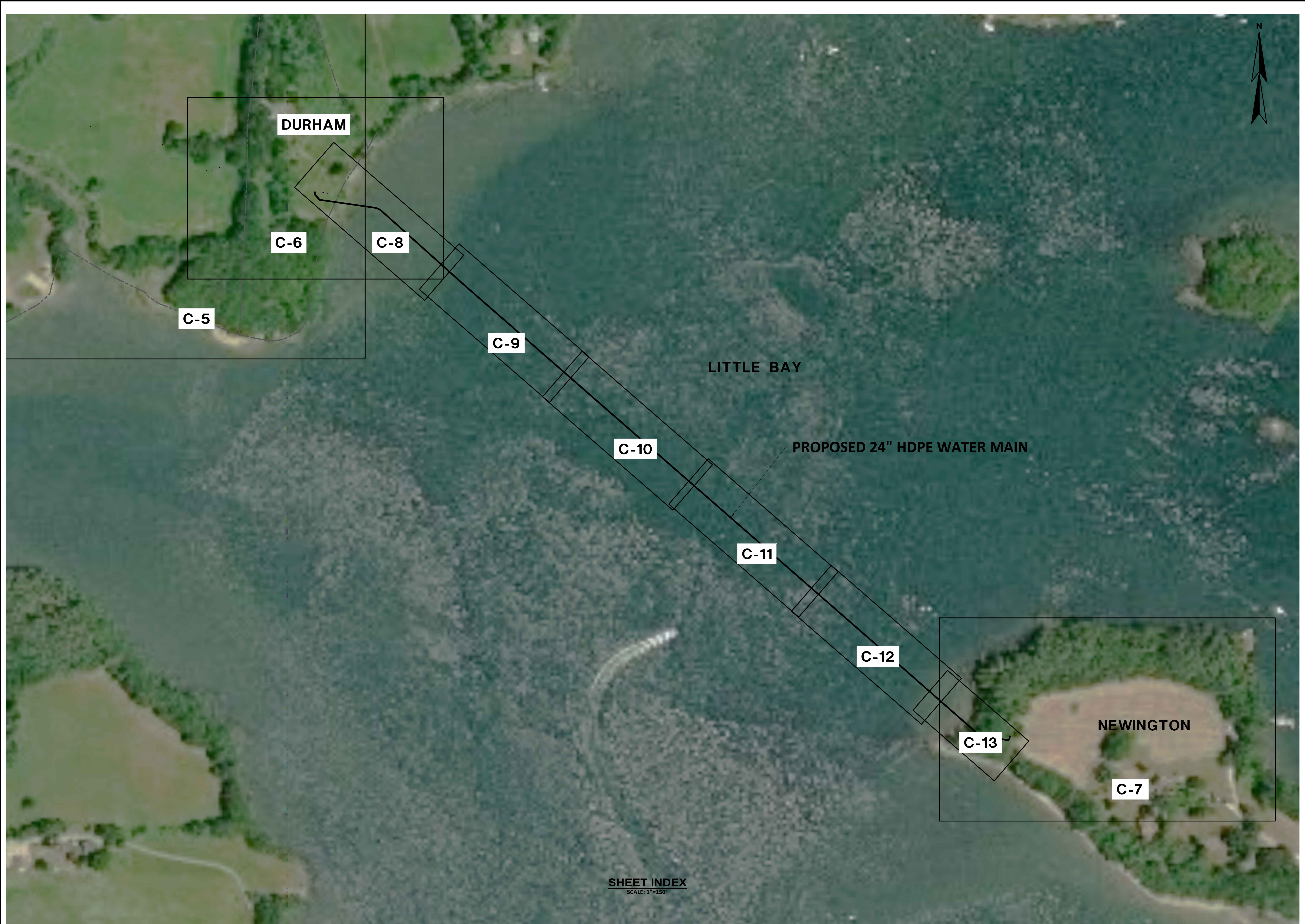


**LOCATION PLAN**



Offices Throughout New England  
888.621.8156 | [www.wright-pierce.com](http://www.wright-pierce.com)

FOR REVIEW 07/14/2023  
FOR BIDDING 07/19/2023  
WP PROJECT No. 14202A



**SHEET INDEX**  
SCALE: 1"=150'

<b>CITY OF PORTSMOUTH</b> SUBAQUEOUS WATER TRANSMISSION MAIN LITTLE BAY, DURHAM-NEWINGTON NEW HAMPSHIRE		<b>WRIGHT-PIERCE</b> Engineering a Better Environment 888.621.8156   www.wright-pierce.com		SHEET INDEX C-1	
DESIGNED BY: D.LARY CAD CORP.: W.EDGAR CD: W.EDGAR CHECKED BY: R.DAVEE DATE: 07/14/2023 APPROVED BY: B.ECKSTROM DATE: 07/19/2023 PROJECT NO.: 34202A		STATE OF MAINE DARRIN D. LARY No. 10749 PROFESSIONAL ENGINEER		STATE OF NEW HAMPSHIRE BRITT ECKSTROM No. 1254 PROFESSIONAL ENGINEER	
SUBMISSIONS/REVISIONS CONTRACT DRAWINGS		NO. 1 DATE: 07/19/2023 BY: B.ECKSTROM		NO. 2 DATE: 07/19/2023 BY: B.ECKSTROM	
APP'D DATE B.ECK 07/23					

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, TOWN OF DURHAM, 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.
5. IN THOSE INSTANCES WHERE POWER OR TELEPHONE POLE SUPPORT IS REQUIRED, THE CONTRACTOR SHALL PROVIDE A MINIMUM 48-HOUR NOTIFICATION TO EVERSOURCE OR FAIRPOINT, RESPECTIVELY.

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"

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 OWNER AND ENGINEER.
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.
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.
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.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RE-ESTABLISHING AND RESETING ALL EXISTING PROPERTY MONUMENTATION DISTURBED BY HIS OPERATIONS.
3. WRITTEN DIMENSIONS SHALL PREVAIL. DO NOT SCALE DISTANCES FROM THE DRAWINGS.
4. THE ENGINEER SHALL PROVIDE THE NECESSARY HORIZONTAL CONTROL POINTS FOR THE CONTRACTOR AND THE CONTRACTOR IS RESPONSIBLE TO VERIFY ALL ELEVATION REFERENCE INFORMATION PRIOR TO USE IN CONSTRUCTION.

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.
2. EXISTING CONDITION INFORMATION IS ALSO BASED ON LIDAR FIELD SURVEY, REFERENCE DRAWINGS, AND AERIAL IMAGERY.
3. 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; NORTHCENTRAL AND NORTHEAST REGION; AND THE CODE OF ADMINISTRATIVE RULES, NH DEPARTMENT OF ENVIRONMENTAL SERVICES - WETLANDS BUREAU - ENV WT 100-900.

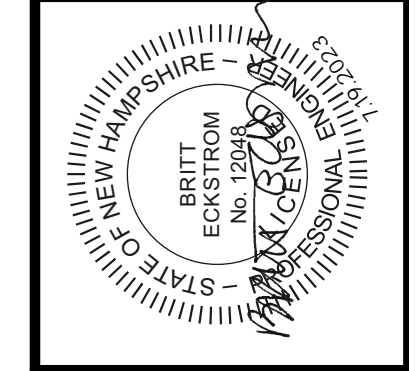
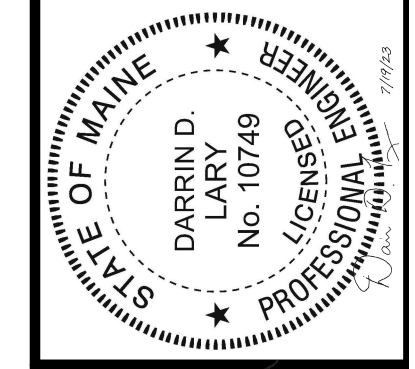
LEGEND table with columns: EXISTING, LEGEND, PROPOSED. Lists symbols for various features like PROPERTY/ROW LINE, SEWAGE LINE, CURBING, STONEWALL, TREE LINE, CHAIN LINK FENCE, STOCKADE FENCE, BARB WIRE FENCE, RETAINING WALL, GUARDRAIL, SEWER, GAS, WATER, STORM DRAIN, UNDERDRAIN, CULVERT, UNDERGROUND 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, SHEETPILE, TIMBER MATTING, CONSTRUCTION STAGING AREA.

CIVIL ABBREVIATIONS

Table with 2 columns: Symbol, AND. Lists abbreviations for various civil engineering features like DIAMETER, NUMBER, APPROVED, BUILDING, CATCH BASIN, CENTER, CUBIC FEET PER SECOND, CAST IRON, CENTERLINE, CORRUGATED METAL PIPE, CLEANOUT, CONCRETE, CORNER, CUBIC YARD, DEMOLITION, DRAIN MANHOLE, DUCTILE IRON, DRAIN, DRAWING, ELEVATION, ELECTRIC MANHOLE, FORCE MAIN, FEET, GAS, HYDRANT, INCH, INFILTRANT, INVERT, POUNDS, MAXIMUM, MANHOLE, MINIMUM, MONITORING WELL, NORTH, NATIONAL GEODETIC VERTICAL DATUM, NOT AVAILABLE/APPLICABLE, NOT TO SCALE, OUTSIDE DIAMETER, PERFORATED CLAY, POUNDS PER SQUARE FOOT, POUNDS PER SQUARE INCH, PRIMARY SLUDGE, POINT OF TANGENCY, POLYVINYL CHLORIDE, REINFORCED CONCRETE PIPE, ROOF DRAIN, REQUIRED, SLOPE, SEWER, STORM DRAIN, SQUARE FEET, SANITARY SEWER MANHOLE, SQUARE, STATION, TRANSFORMER, TEMPORARY BENCH MARK, THICKNESS, TOP OF STRUCTURE, TYPICAL, UNDERDRAIN, UNDERGROUND, UNDERGROUND ELECTRIC, VITRIFIED CLAY, WITH, POTABLE WATER.

Table with columns: APP'D, DATE, B/E/C/K, 07/23. Includes a grid for contract drawings and revisions.

Table with columns: DESIGNED BY, D.LARY; CAB CORP., W.EDGAR; CHG., W.EDGAR; CHECKED BY, P.DAVEE; DATE, 07/14/2023; APPROVED BY, B.ECKSTROM; DATE, 07/19/2023; PROJECT NO., 14202A.



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CITY OF PORTSMOUTH SUBAQUEOUS WATER TRANSMISSION MAIN LITTLE BAY, DURHAM-NEWINGTON NEW HAMPSHIRE DRAWING C-2

**NOTES**

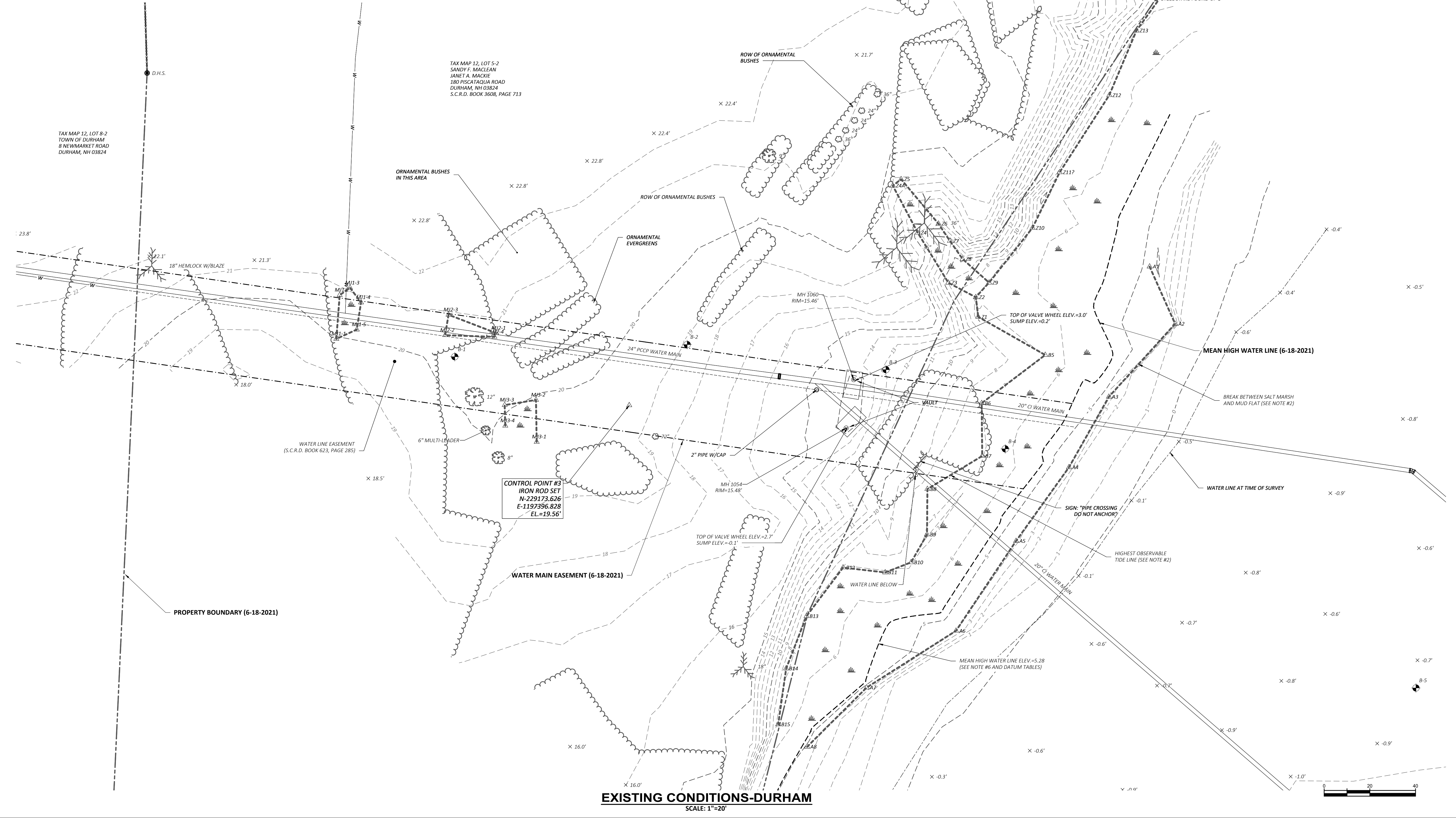
**REFERENCE:** DURHAM TAX MAP 12, LOTS 5-2 & 8-2  
NEWINGTON TAX MAP 1, LOT 1-1  
D.S. PROJECT NO. 5951

**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

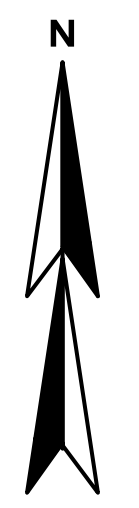
DURHAM TAX MAP 12, LOT 8-2  
TOWN OF DURHAM  
8 NEWMARKET ROAD  
DURHAM, NH 03824

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

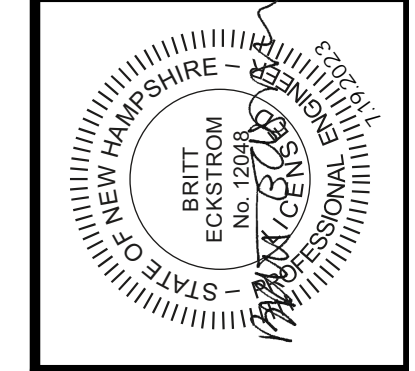
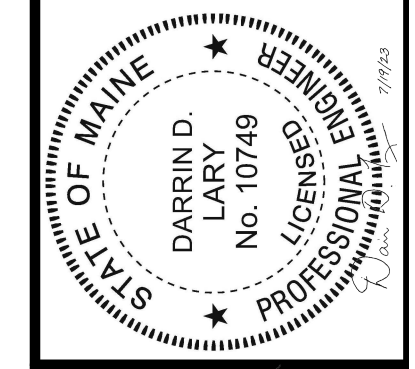
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3. FULL BOUNDARY SURVEY SAW NOT COMPLETED AS PART OF THIS PROJECT. THE COMMON LOT LINE BETWEEN TAX MAP 12, LOTS 5-2 & 8-2 WAS DETERMINED IN AN EFFORT TO DETERMINE THE LIMITS OF THE WATERLINE EASEMENT ON LOT 5-2.



**EXISTING CONDITIONS-DURHAM**  
SCALE: 1"=20'



NO	CONTRACT DRAWINGS	DESIGNED BY: D.LARY	APPD DATE
1		W. EDGAR	B.ECK 07/23
2		W. EDGAR	
3		R.DAVEE	
4		B.ECKSTRON	
5			
6			
7			
8			
9			
10			



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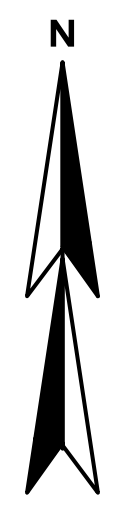
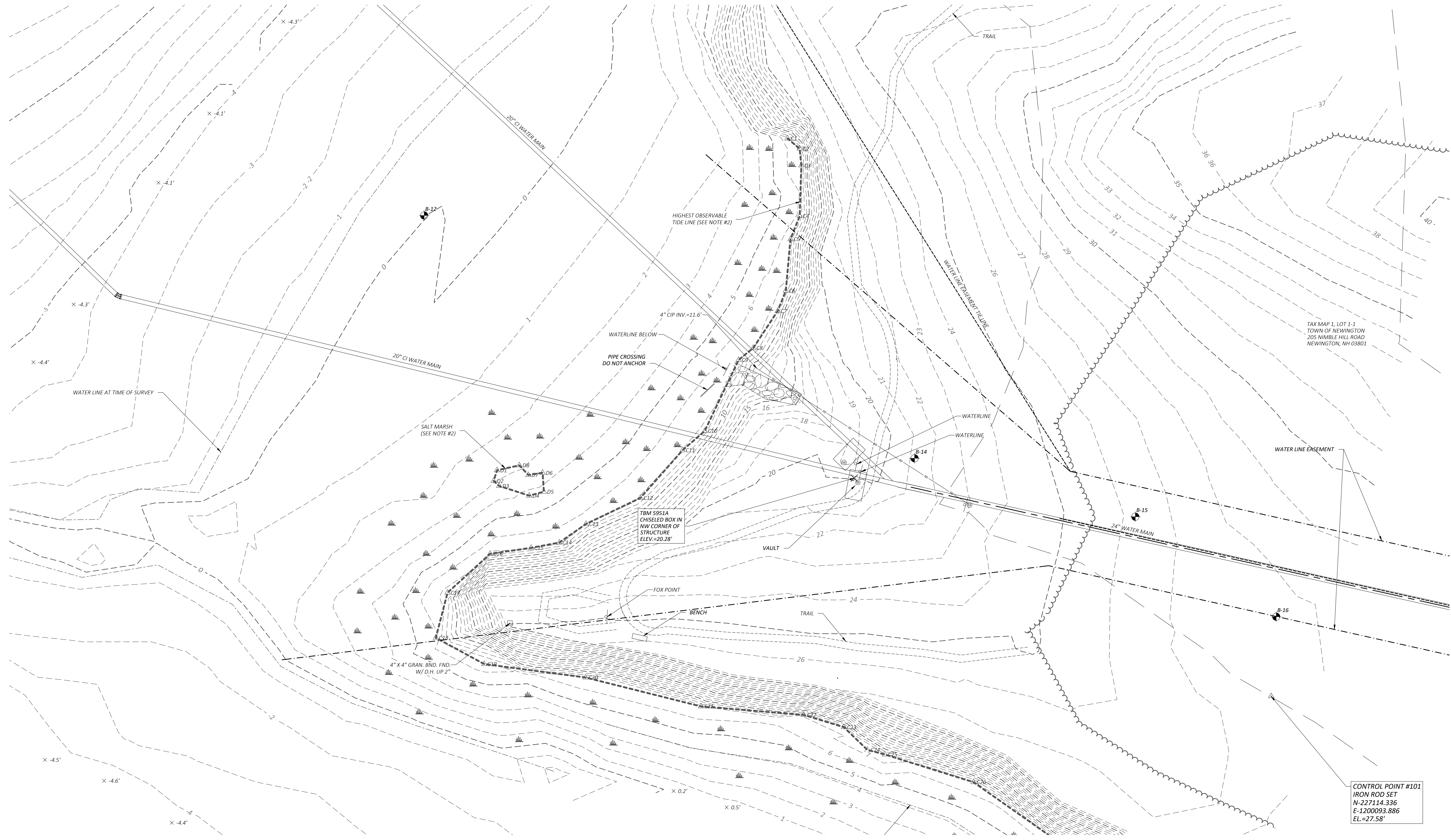
CITY OF PORTSMOUTH  
SUBAQUEOUS WATER TRANSMISSION MAIN  
LITTLE BAY, DURHAM-NEWINGTON  
NEW HAMPSHIRE

EXISTING CONDITIONS  
DURHAM SITE

**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'



APP'D DATE B. BECK 07/23	
SUBMISSIONS/REVISIONS CONTRACT DRAWINGS	
NO	DATE
DESIGNED BY: D. LARY	W. EDGAR
CAD CORP: W. EDGAR	W. EDGAR
CHECKED BY: R. DAVEE	R. DAVEE
DATE: 07/14/2023	07/14/2023
APPROVED BY: B. BECKSTROM	B. BECKSTROM
DATE: 07/19/2023	07/19/2023
PROJECT NO: 34602A	

STATE OF MAINE DARRIN D. LARY No. 10749 PROFESSIONAL ENGINEER	
STATE OF NEW HAMPSHIRE BRETT ECKSTROM No. 2591 PROFESSIONAL SURVEYOR	

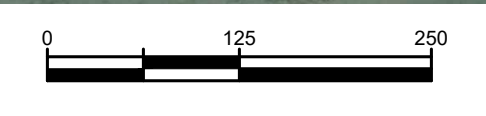
  

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CITY OF PORTSMOUTH SUBAQUEOUS WATER TRANSMISSION MAIN LITTLE BAY, DURHAM-NEWINGTON NEW HAMPSHIRE EXISTING CONDITIONS NEWINGTON SITE	
<b>DRAWING</b> C-4	

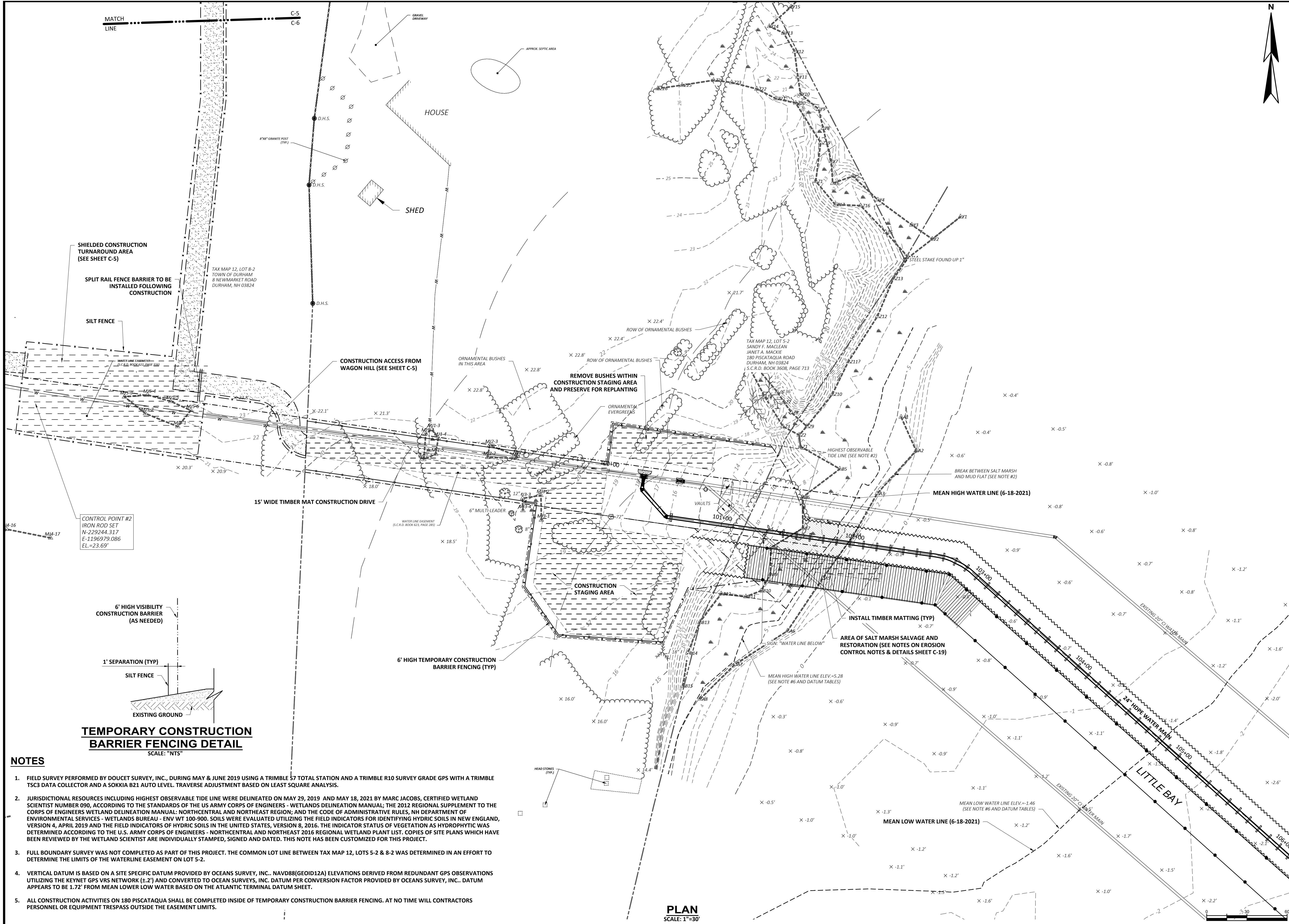


EXISTING		PROPOSED	
---	PROPERTY/ROW LINE	---	PROPERTY/ROW LINE
- - -	PERM. EASEMENT LINE	---	PERM. EASEMENT LINE
---	EDGE OF PAVEMENT	---	EDGE OF PAVEMENT
---	EDGE OF GRAVEL	---	EDGE OF GRAVEL
▨	BUILDING	▨	BUILDING
○	STONEWALL	○	STONEWALL
4" W	WATER	8" W	WATER
---	EDGE OF WETLANDS	---	EDGE OF WETLANDS
△	WETLAND FLAG	---	WETLAND FLAG
---	SILT FENCE	---	SILT FENCE
---	CONS. STAGING AREA	---	CONS. STAGING AREA
---	TIMBER MAT AREA	---	TIMBER MAT AREA
---	TEMP. STABILIZED CONST. GRAVEL ROAD	---	TEMP. STABILIZED CONST. GRAVEL ROAD

**CONSTRUCTION ACCESS PLAN - DURHAM**  
SCALE: 1"=125'



APP'D DATE B. BECK 07/23	SUBMISSIONS/REVISIONS NO. CONTRACT DRAWINGS	DESIGNED BY: W. EDGAR CAD CORP.: W. EDGAR CHECKED BY: R. DAVEE DATE: 07/14/2023 APPROVED BY: B. BECKSTROM DATE: 07/19/2023 PROJECT NO.: 34602A	 	<p><b>WRIGHT-PIERCE</b> Engineering a Better Environment 888.621.8156   www.wright-pierce.com</p>	CITY OF PORTSMOUTH SUBAQUEOUS WATER TRANSMISSION MAIN LITTLE BAY, DURHAM-NEWINGTON NEW HAMPSHIRE CONSTRUCTION ACCESS PLAN - DURHAM
DRAWING		C-5			



SHIELDED CONSTRUCTION TURNAROUND AREA (SEE SHEET C-5)

SPLIT RAIL FENCE BARRIER TO BE INSTALLED FOLLOWING CONSTRUCTION

SILT FENCE

REMOVE BUSHES WITHIN CONSTRUCTION STAGING AREA AND PRESERVE FOR REPLANTING

ROW OF ORNAMENTAL BUSHES

ORNAMENTAL BUSHES IN THIS AREA

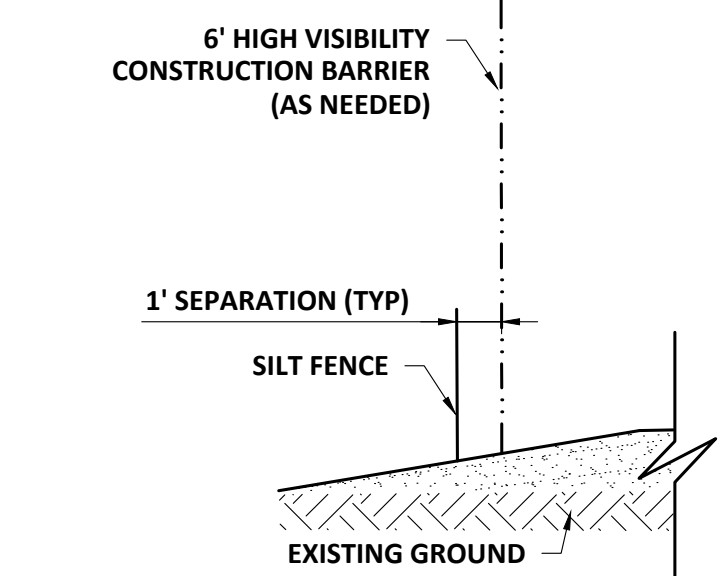
ORNAMENTAL EVERGREENS

CONSTRUCTION STAGING AREA

INSTALL TIMBER MATTING (TYP)

AREA OF SALT MARSH SALVAGE AND RESTORATION (SEE NOTES ON EROSION CONTROL NOTES & DETAILS SHEET C-19)

CONTROL POINT #2  
IRON ROD SET  
N=229244.317  
E=1196979.086  
EL.=23.69'

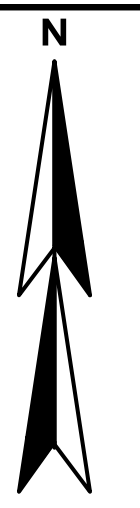


**TEMPORARY CONSTRUCTION BARRIER FENCING DETAIL**  
SCALE: "NTS"

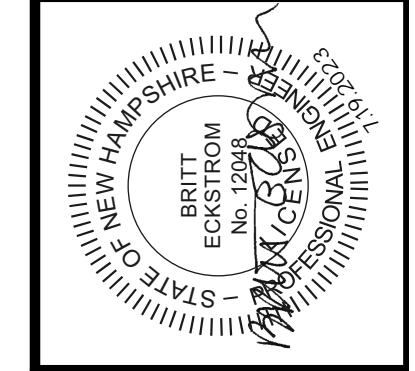
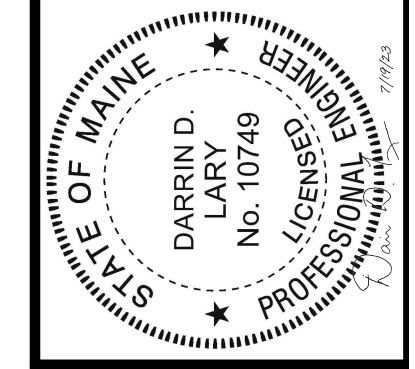
**NOTES**

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- 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 WAS 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.
- VERTICAL DATUM IS BASED ON A SITE SPECIFIC DATUM PROVIDED BY OCEANS SURVEY, INC., NAVD88(GE01D12A) ELEVATIONS DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK (±.2') AND CONVERTED TO OCEAN SURVEYS, INC. DATUM PER CONVERSION FACTOR PROVIDED BY OCEANS SURVEY, INC. DATUM APPEARS TO BE 1.72' FROM MEAN LOWER LOW WATER BASED ON THE ATLANTIC TERMINAL DATUM SHEET.
- ALL CONSTRUCTION ACTIVITIES ON 180 PISCATAQUA SHALL BE COMPLETED INSIDE OF TEMPORARY CONSTRUCTION BARRIER FENCING. AT NO TIME WILL CONTRACTORS PERSONNEL OR EQUIPMENT TRESPASS OUTSIDE THE EASEMENT LIMITS.

**PLAN**  
SCALE: 1"=30'



NO	DATE	DESCRIPTION
1	07/23	CONTRACT DRAWINGS



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

CONSTRUCTION STAGING PLAN - 380 PISCATAQUA ROAD

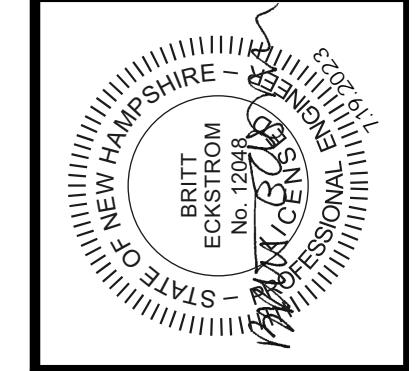
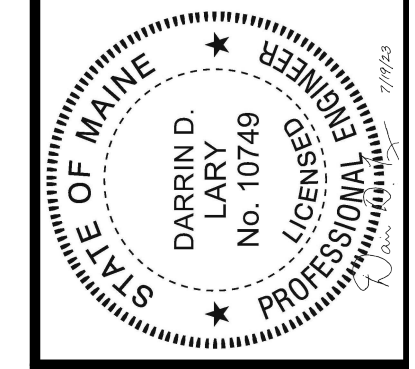
**DRAWING**  
C-6



**CONSTRUCTION STAGING PLAN-NEWINGTON SITE**  
 SCALE: 1"=40'



NO	CONTRACT DRAWINGS	DESIGNED BY: D.LARY	APP'D DATE
1		W.EDGAR	B.ECK 03/21
2		W.EDGAR	
3		R.DAVEE	
4		B.ECKSTRON	
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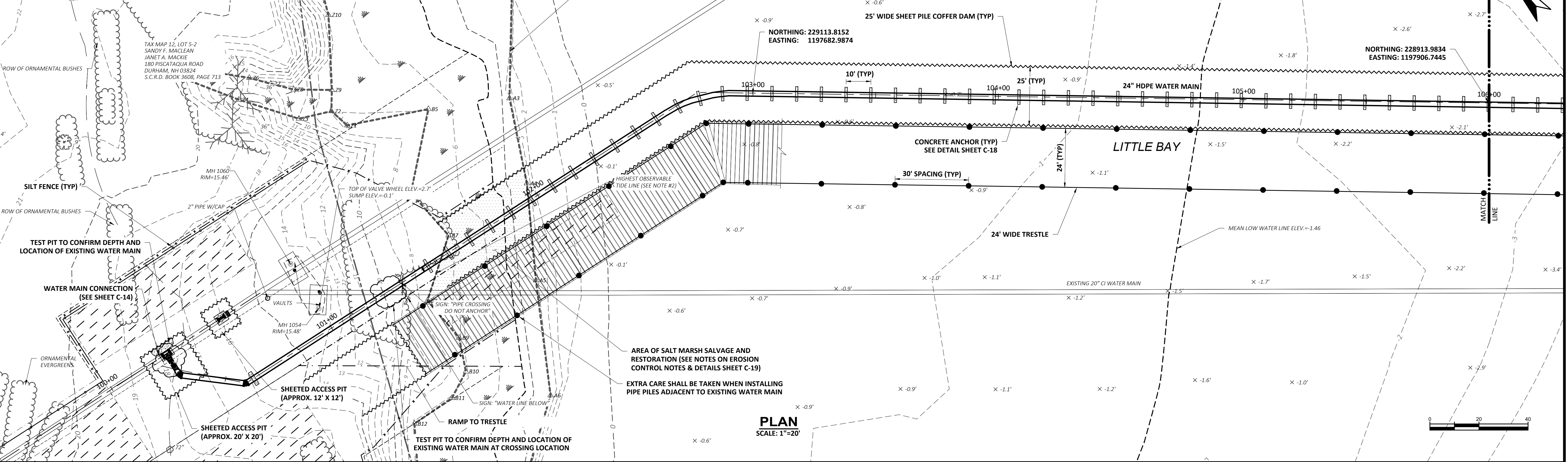
CITY OF PORTSMOUTH  
 SUBAQUEOUS WATER TRANSMISSION MAIN  
 LITTLE BAY, DURHAM-NEWINGTON  
 NEW HAMPSHIRE

CONSTRUCTION STAGING PLAN - NEWINGTON  
 DRAWING  
 C-7

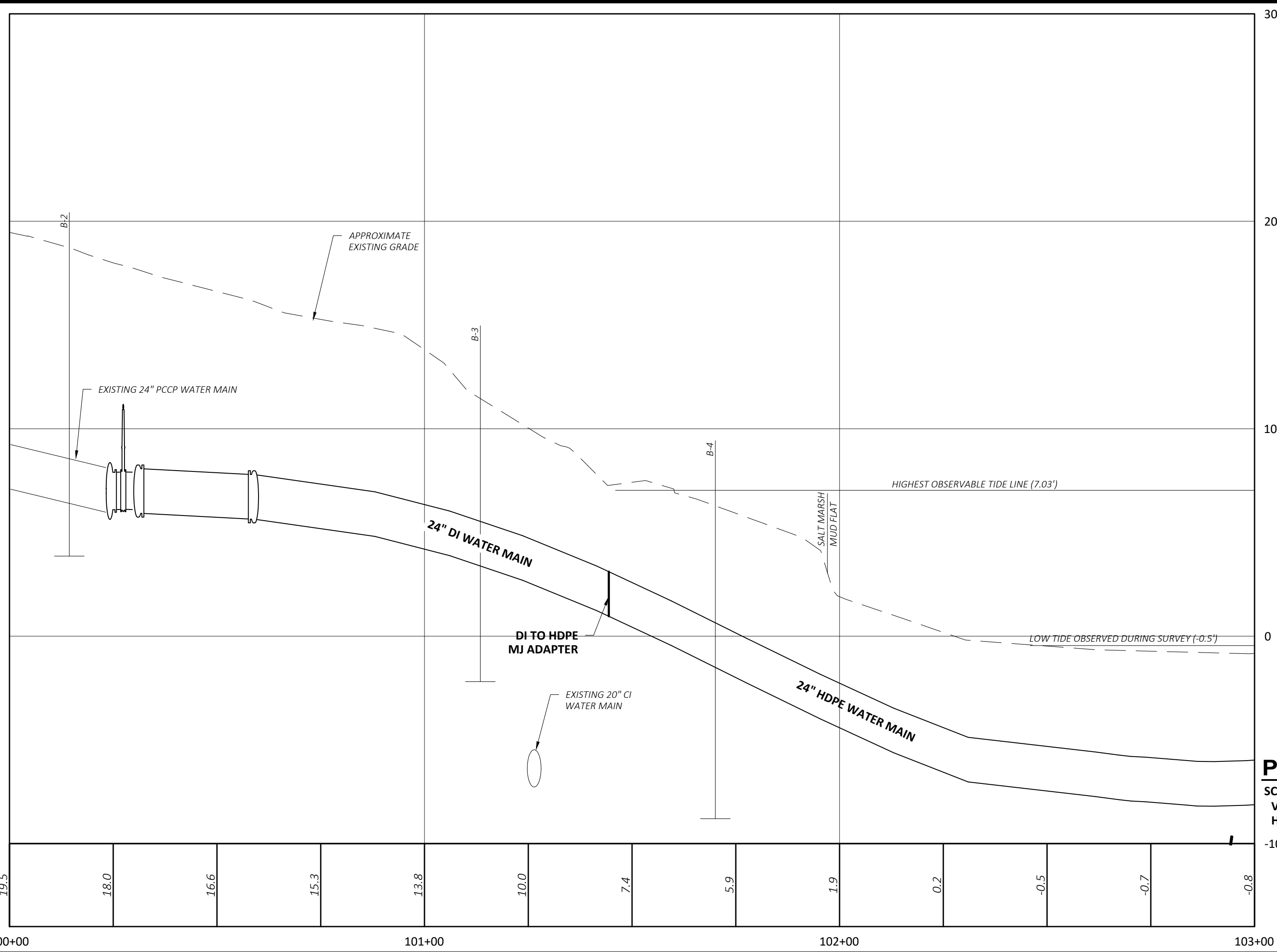


**NOTES**

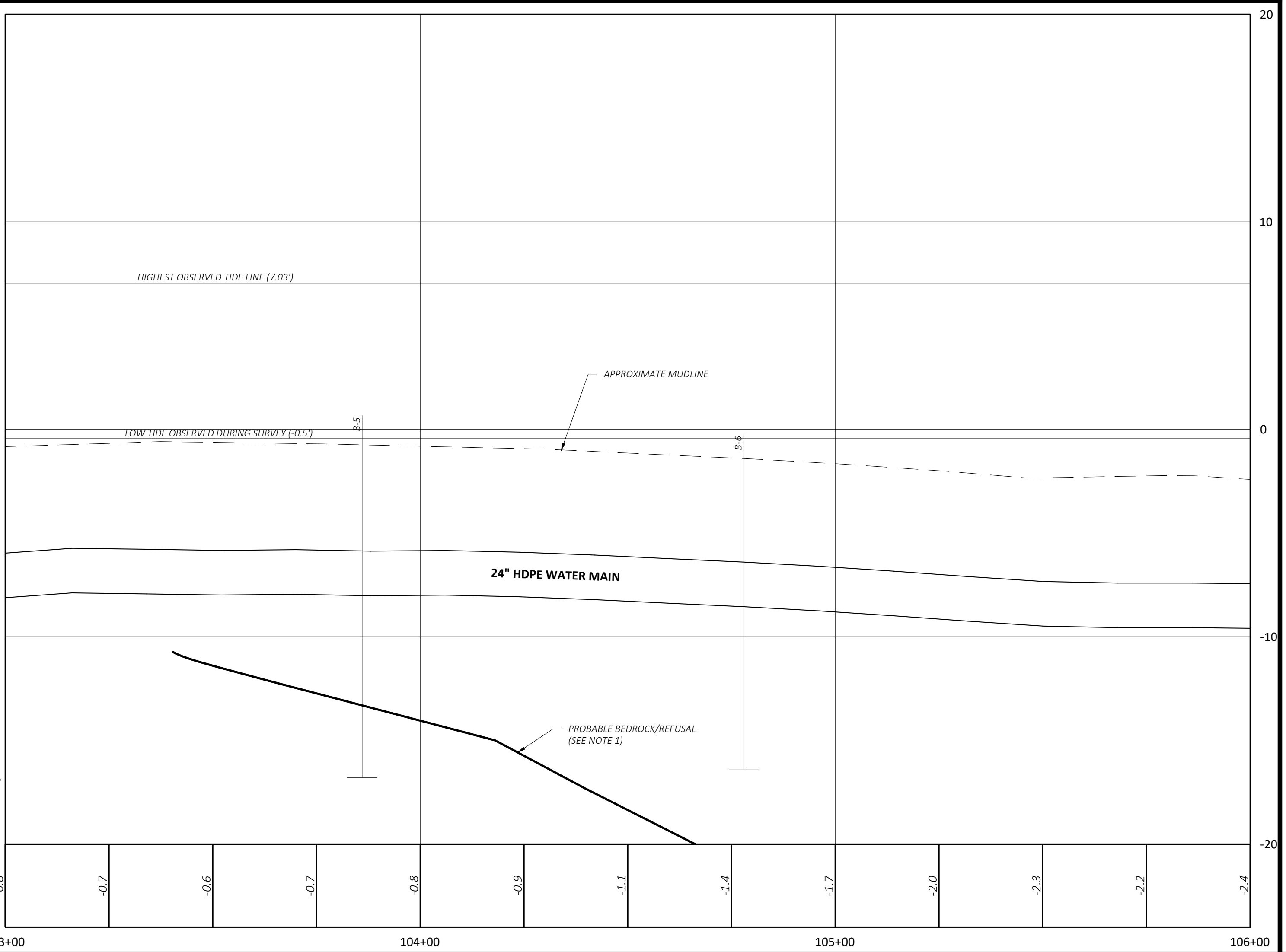
1. PROBABLE BEDROCK/REFUSAL SURFACE INFORMATION SHOWN IN PROFILE VIEW IS BASED ON SIDE SCAN SONAR SURVEY INFORMATION COLLECTED BY OCEAN SURVEYS, INC. (OSI) DURING A GEOPHYSICAL SURVEY OF THE LITTLE BAY AREA CONDUCTED IN OCTOBER 2018.
2. JURISDICTIONAL RESOURCES INCLUDING HIGHEST OBSERVABLE TIDE LINE WERE DELINEATED ON MAY 29, 2019 BY MARC JACOBS, CERTIFIED WETLAND SCIENTIST NUMBER 090, ACCORDING TO THE STANDARDS OF THE U.S. 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.



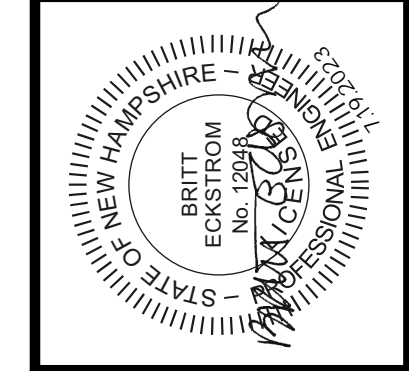
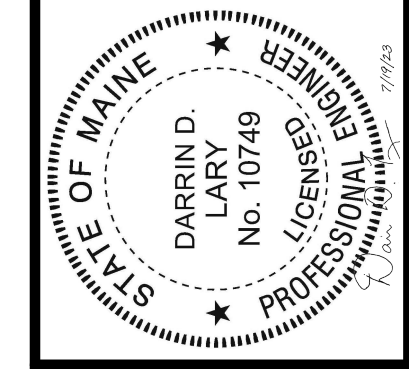
**PLAN**  
SCALE: 1"=20'



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



NO	CONTRACT DRAWINGS	DATE	REVISIONS
1	DESIGNED BY: D. LARY	07/23	
2	CAD CORP: W. EDGAR		
3	CHKD BY: W. EDGAR		
4	APP'D BY: R. DAVEE		
5	DATE: 07/14/2023		
6	APPROVED BY: B. ECOSTROM		
7	DATE: 07/19/2023		
8	PROJECT NO: 34602A		



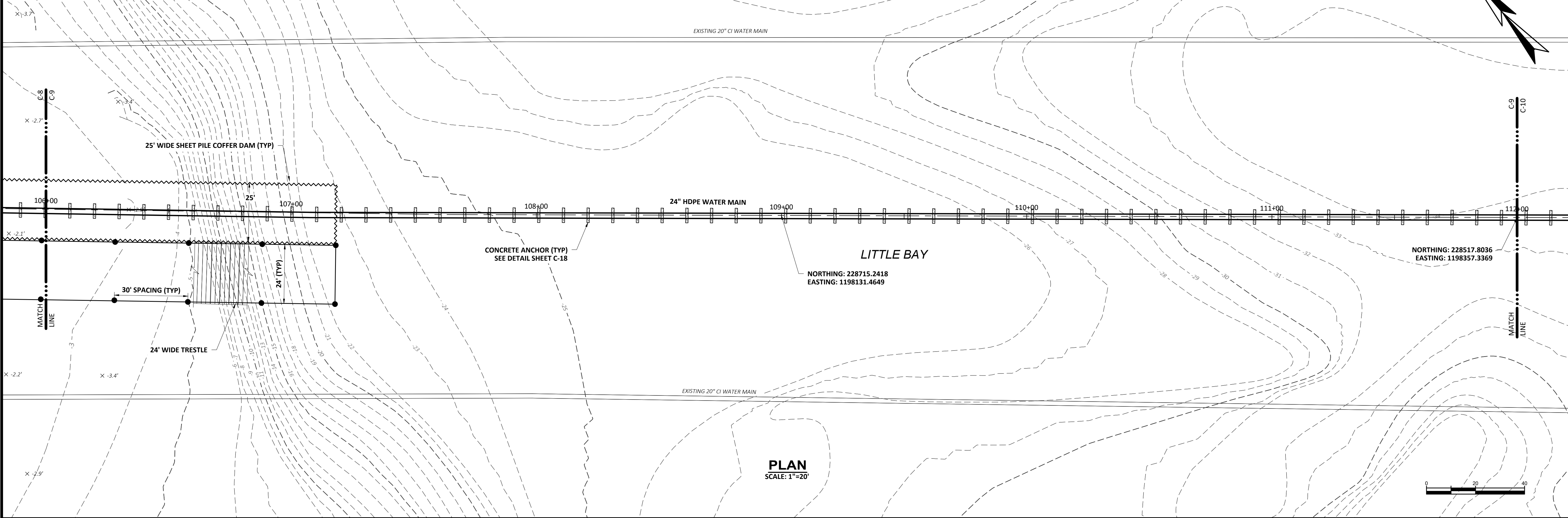
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**CITY OF PORTSMOUTH**  
SUBAQUEOUS WATER TRANSMISSION MAIN  
LITTLE BAY, DURHAM-NEWINGTON  
NEW HAMPSHIRE  
WATER MAIN REPLACEMENT PLAN & PROFILE I  
STA. 100+00 TO STA. 106+00  
**DRAWING**  
C-8

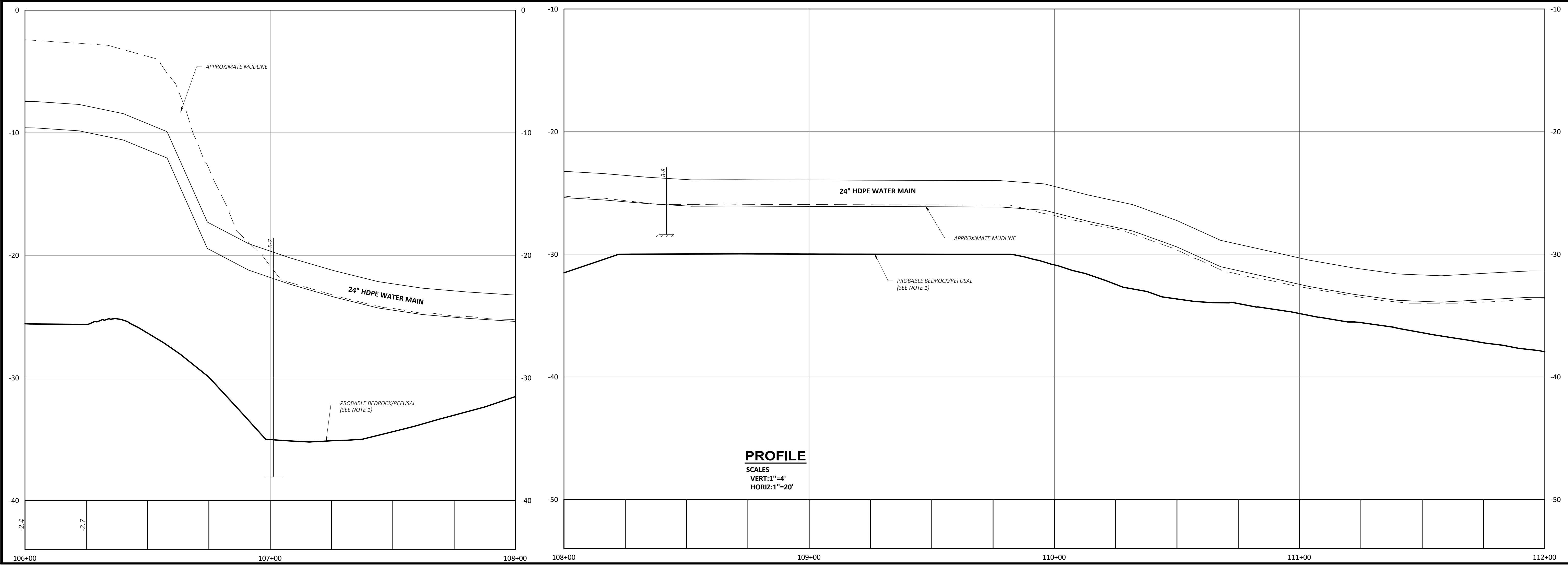
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**NOTES**

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'



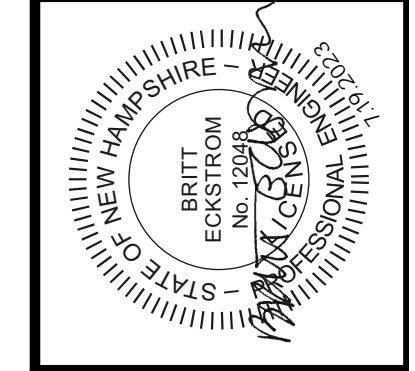
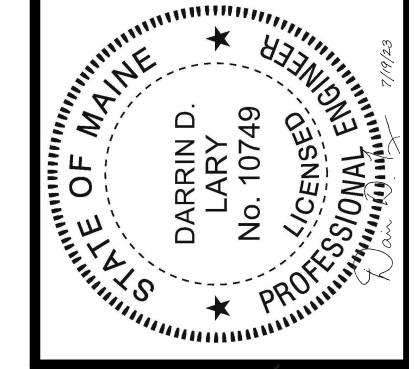
**PROFILE**  
SCALES  
VERT: 1"=4'  
HORIZ: 1"=20'

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NO	CONTRACT DRAWINGS	NO	DATE
			07/23

DESIGNED BY:	D.LARY
CD CORP.:	W.EDGAR
CD:	W.EDGAR
CHECKED BY:	R.DAVEE
DATE:	07/14/2023
APPROVED BY:	B.ECKSTROM
DATE:	07/19/2023
PROJECT NO.:	34502A



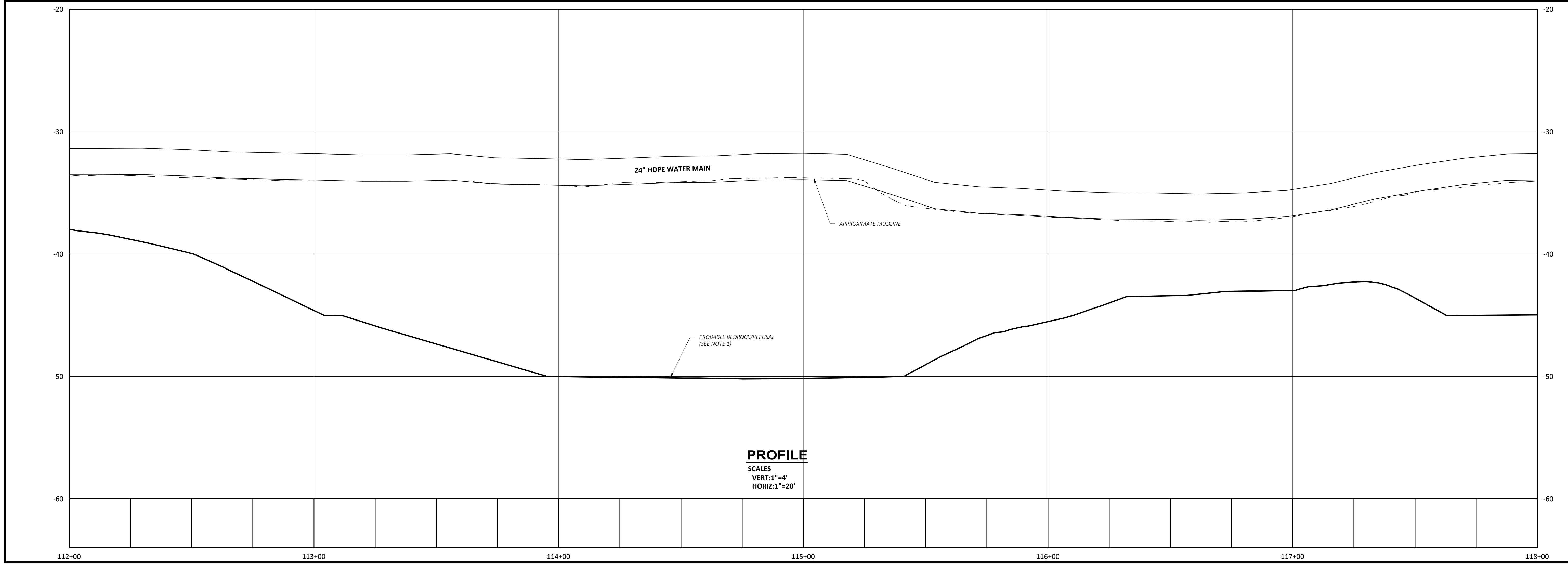
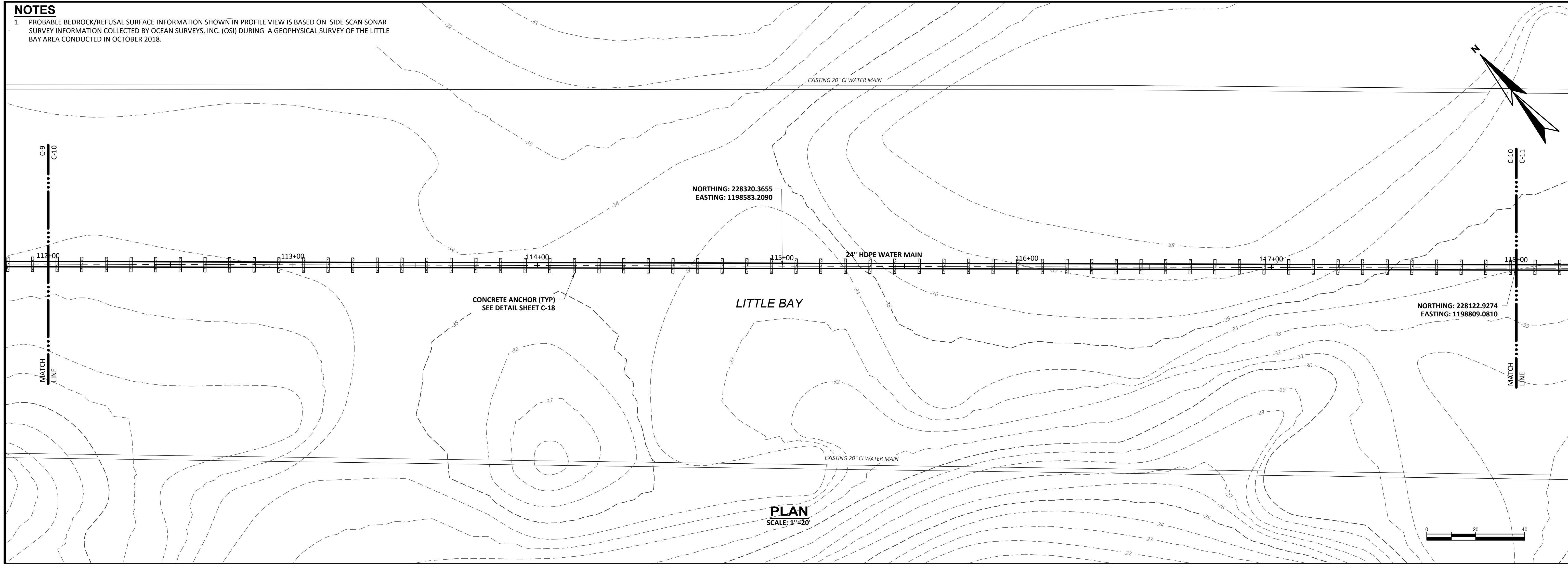
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SUBAQUEOUS WATER TRANSMISSION MAIN  
LITTLE BAY, DURHAM-NEWINGTON  
NEW HAMPSHIRE  
WATER MAIN REPLACEMENT PLAN & PROFILE II  
STA. 106+00 TO STA. 112+00

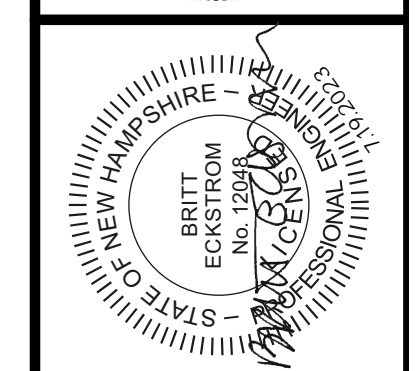
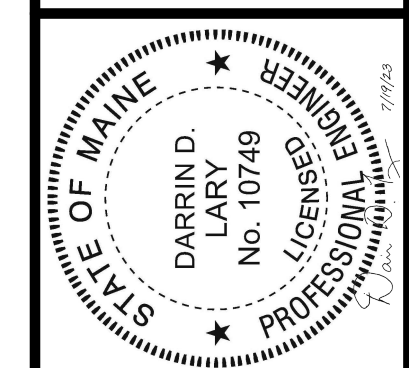
**DRAWING**  
C-9

**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	CONTRACT DRAWINGS	DESIGNED BY: D. LARY	APP'D DATE
1		W. EDGAR	B. BECK 07/23
2		W. EDGAR	
3		R. DAVEE	
4		B. BECKSTROM	
5		B. BECKSTROM	
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CITY OF PORTSMOUTH  
SUBAQUEOUS WATER TRANSMISSION MAIN  
LITTLE BAY, DURHAM-NEWINGTON  
NEW HAMPSHIRE

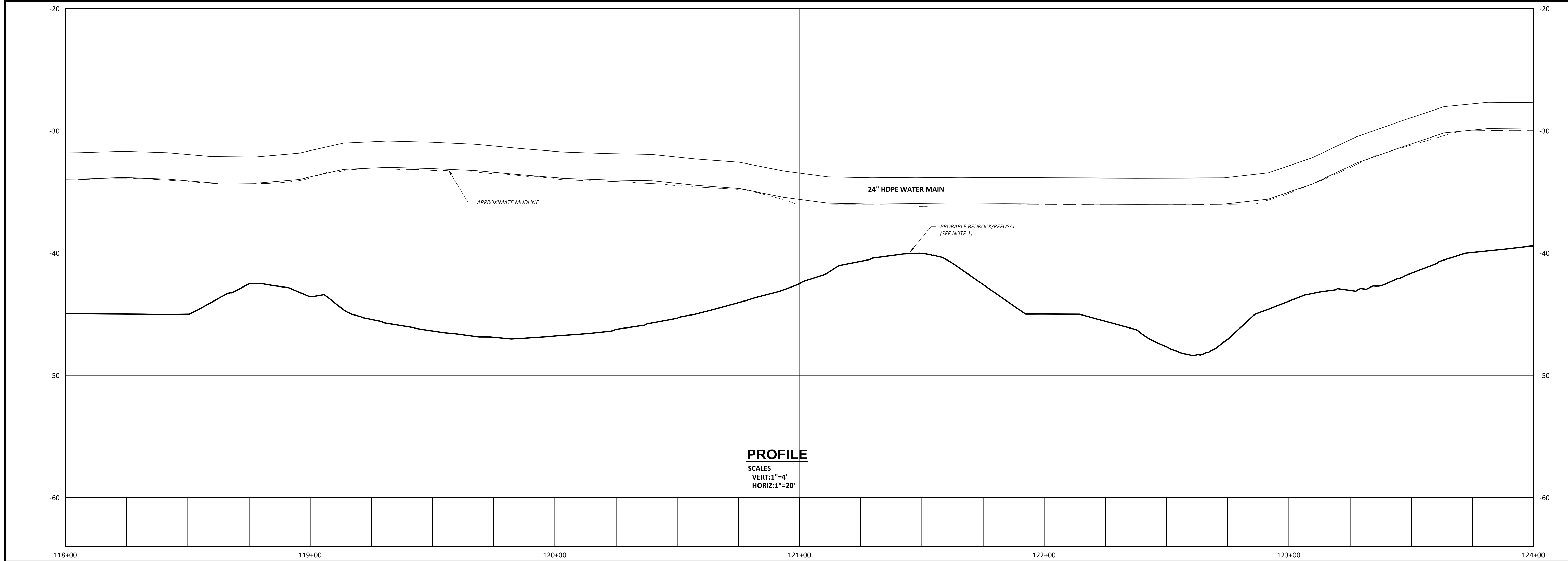
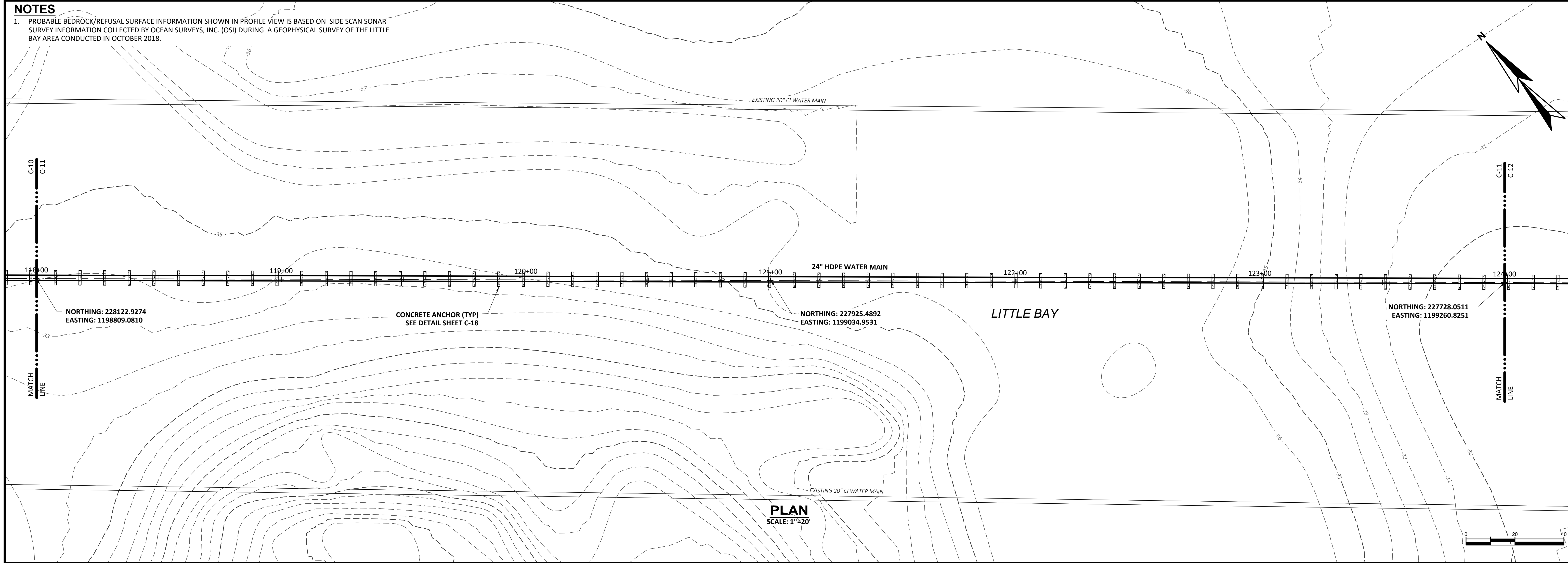
WATER MAIN REPLACEMENT PLAN & PROFILE III  
STA. 112+00 TO STA. 118+00

**DRAWING**  
C-10

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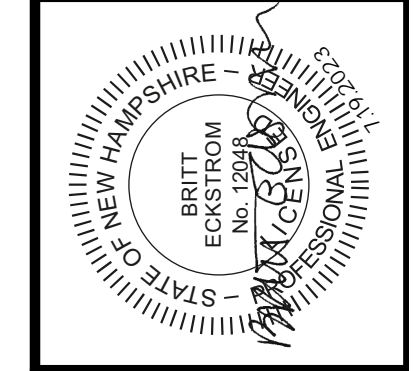
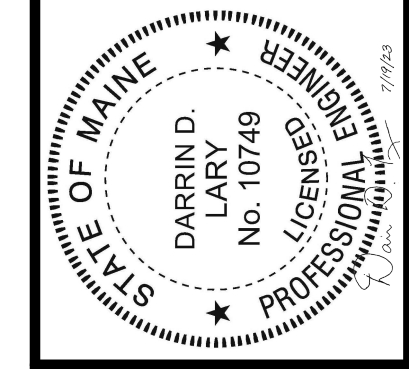
**NOTES**

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.



J:\ENGINEERING\PORTSMOUTH\4202-SUBAQUEOUSWATERMAIN\DRAWINGS\CIV\4202-CS-P&P\DWG | Plan&Profile IV | 7/19/2023 11:04:18 AM | WILLIAM EDGAR

NO	CONTRACT DRAWINGS	DESIGNED BY: D. LARY	APP'D DATE
1		W. EDGAR	B. BECK 07/23
2		W. EDGAR	
3		R. DAVEE	
4		B. BECKSTRÖM	
5		B. BECKSTRÖM	
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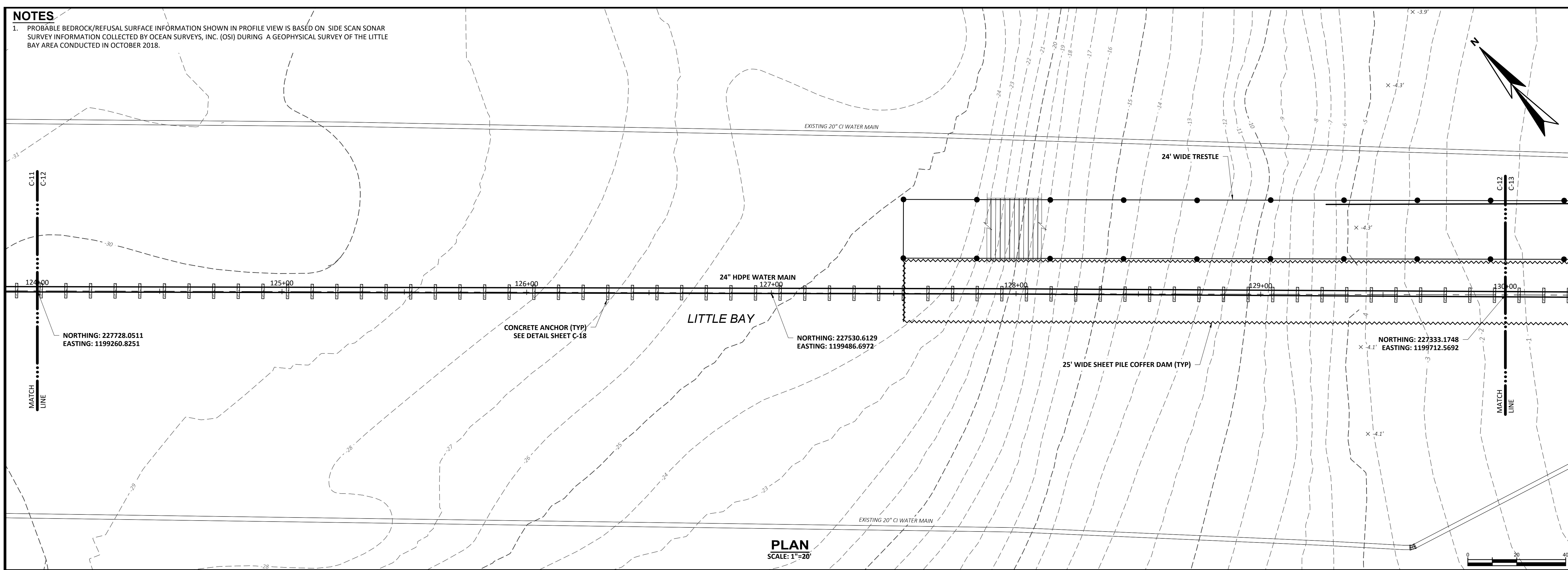
**CITY OF PORTSMOUTH**  
SUBAQUEOUS WATER TRANSMISSION MAIN  
LITTLE BAY, DURHAM-NEWINGTON  
NEW HAMPSHIRE  
WATER MAIN REPLACEMENT PLAN & PROFILE IV  
STA. 118+00 TO STA. 124+00

**DRAWING**  
C-11

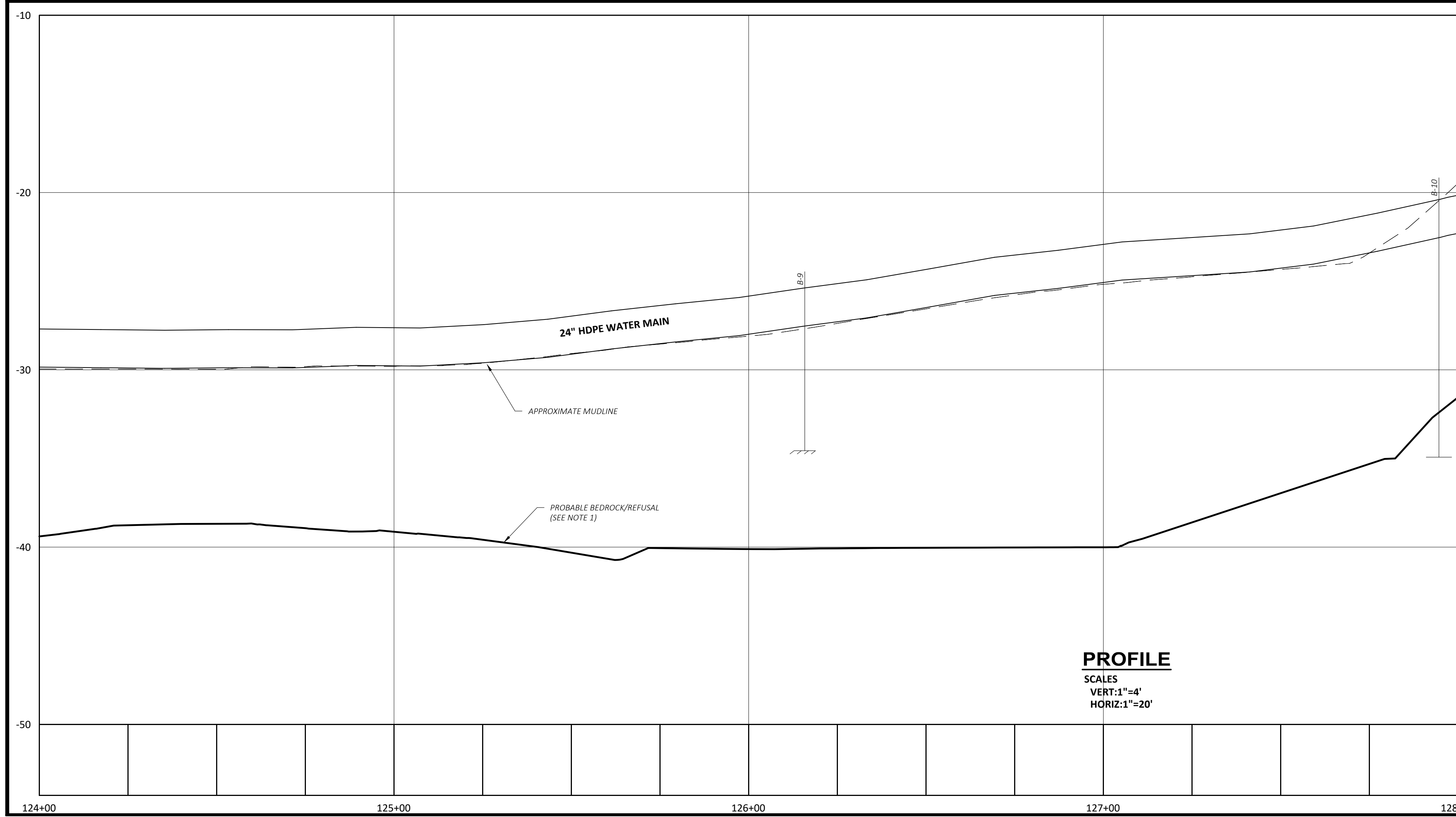
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**NOTES**

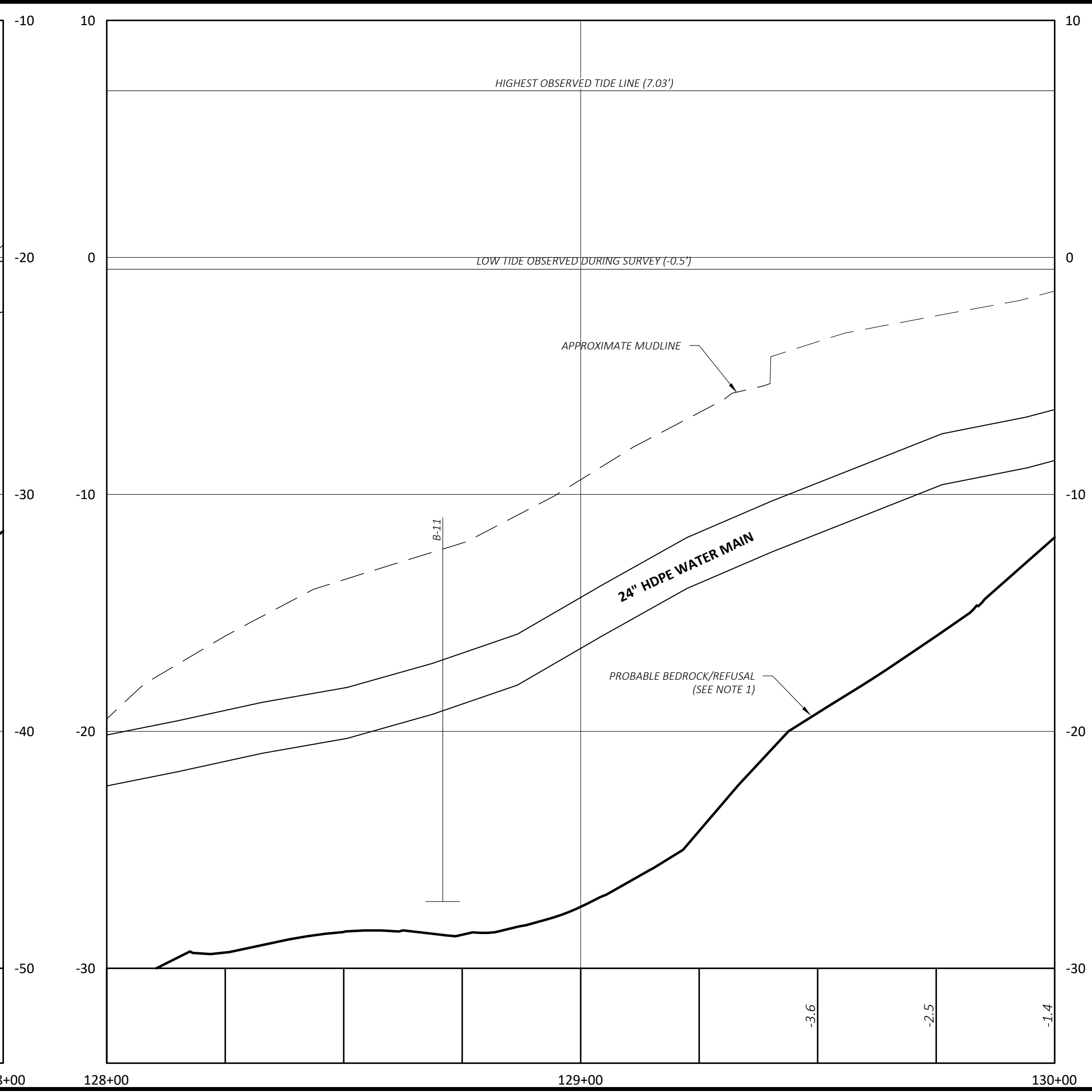
1. PROBABLE BEDROCK/REFUSAL SURFACE INFORMATION SHOWN IN PROFILE VIEW IS BASED ON SIDE SCAN SONAR SURVEY INFORMATION COLLECTED BY OCEAN SURVEYS, INC. (OSI) DURING A GEOPHYSICAL SURVEY OF THE LITTLE BAY AREA CONDUCTED IN OCTOBER 2018.



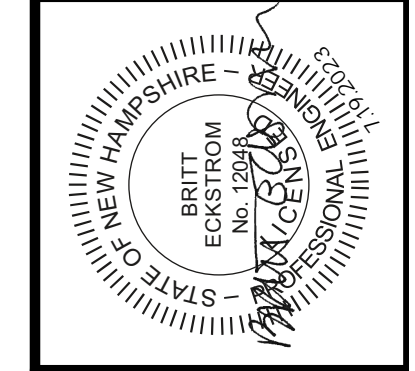
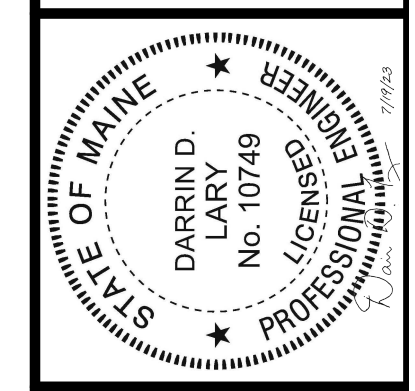
**PLAN**  
SCALE: 1"=20'



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



NO	CONTRACT DRAWINGS	DESIGNED BY: D. LARY	DATE
1		W. EDGAR	07/23
2		W. EDGAR	
3		R. DAVEE	
4		B. ECOSTROM	
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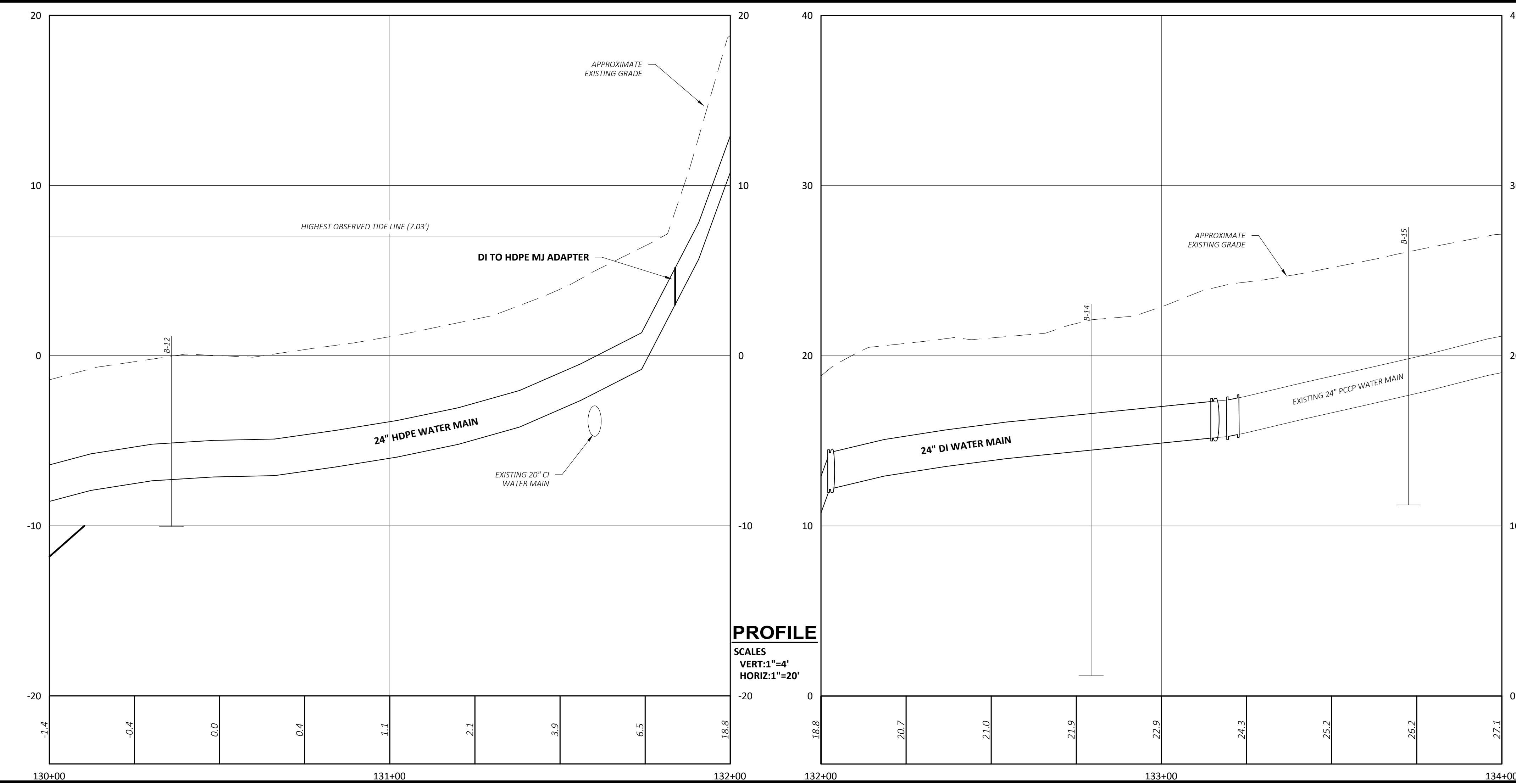
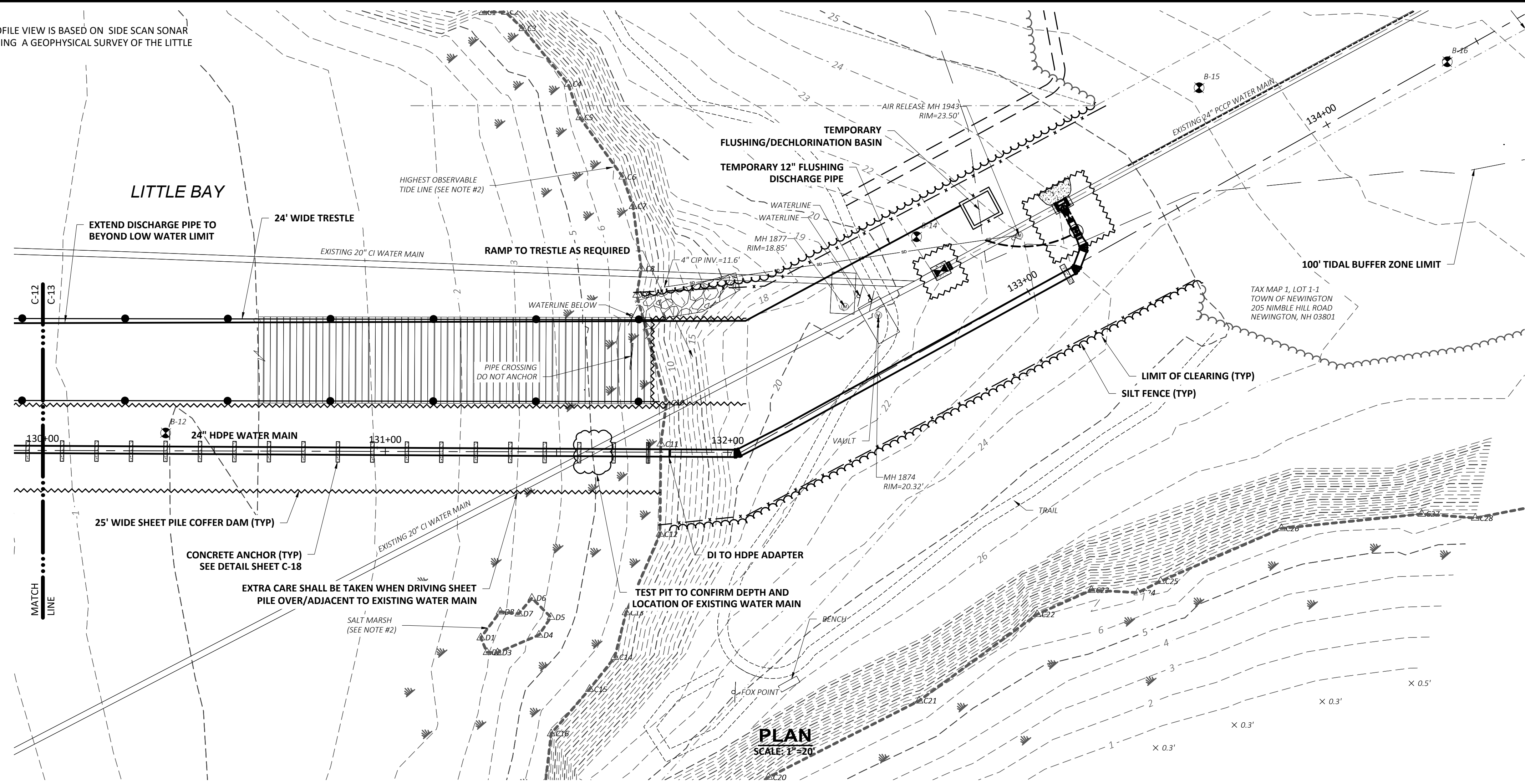
**CITY OF PORTSMOUTH**  
SUBAQUEOUS WATER TRANSMISSION MAIN  
LITTLE BAY, DURHAM-NEWINGTON  
NEW HAMPSHIRE  
WATER MAIN REPLACEMENT PLAN & PROFILE V  
STA. 124+00 TO STA. 130+00

**DRAWING**  
C-12

J:\ENGINEERING\PORTSMOUTH\4202-SUBAQUEOUSWATERTRANSMISSION\DRAWINGS\CIVIL\4202-CS-28\01-DWG | Plan & Profile V | 1:10.123864677 | 7/19/2023 11:07:07 AM | WILLIAM EDGAR

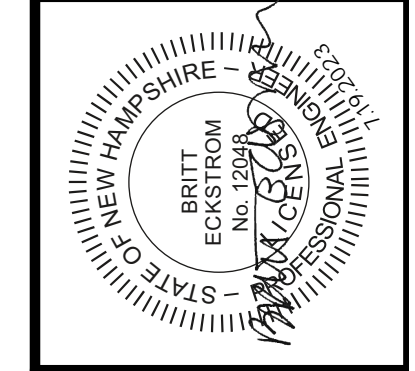
**NOTES**

- 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	CONTRACT DRAWINGS	DATE
1	B.ECK	07/23

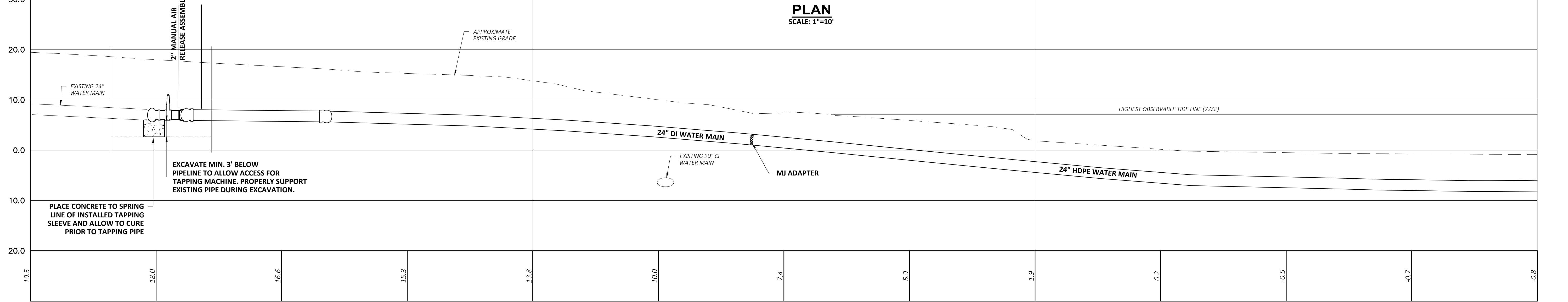
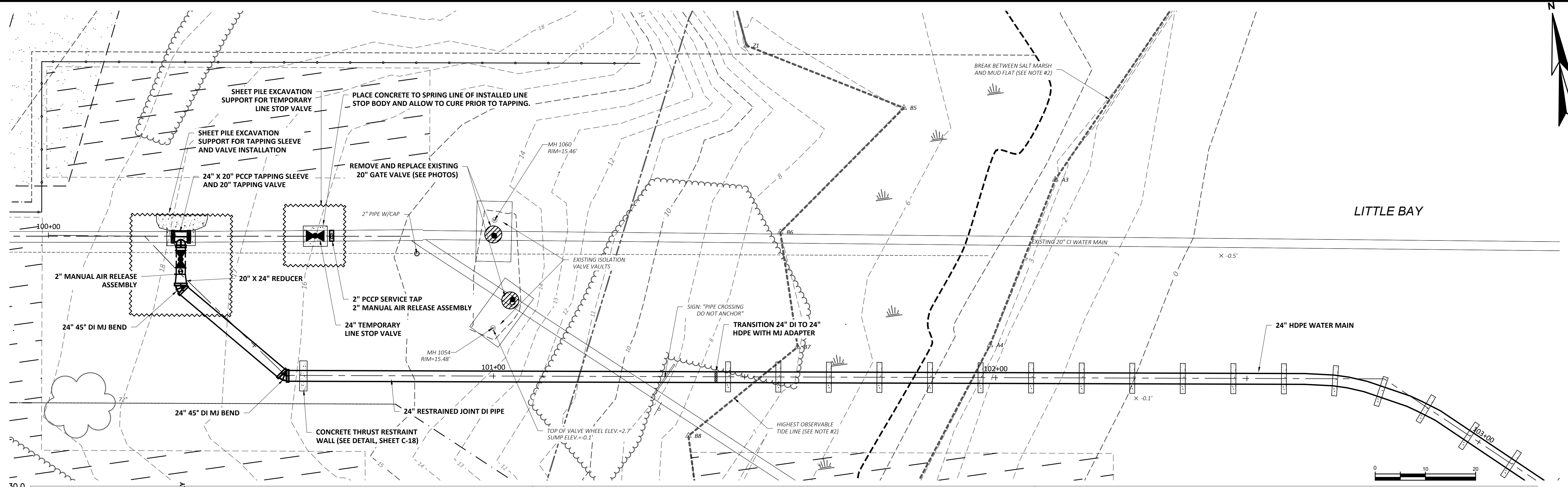
DESIGNED BY: D.LARY  
 CAD CORP: W.EDGAR  
 CHECKED BY: R.DAVEE  
 DATE: 07/14/2023  
 APPROVED BY: B.ECKSTROM  
 DATE: 07/19/2023  
 PROJECT NO.: 34802A



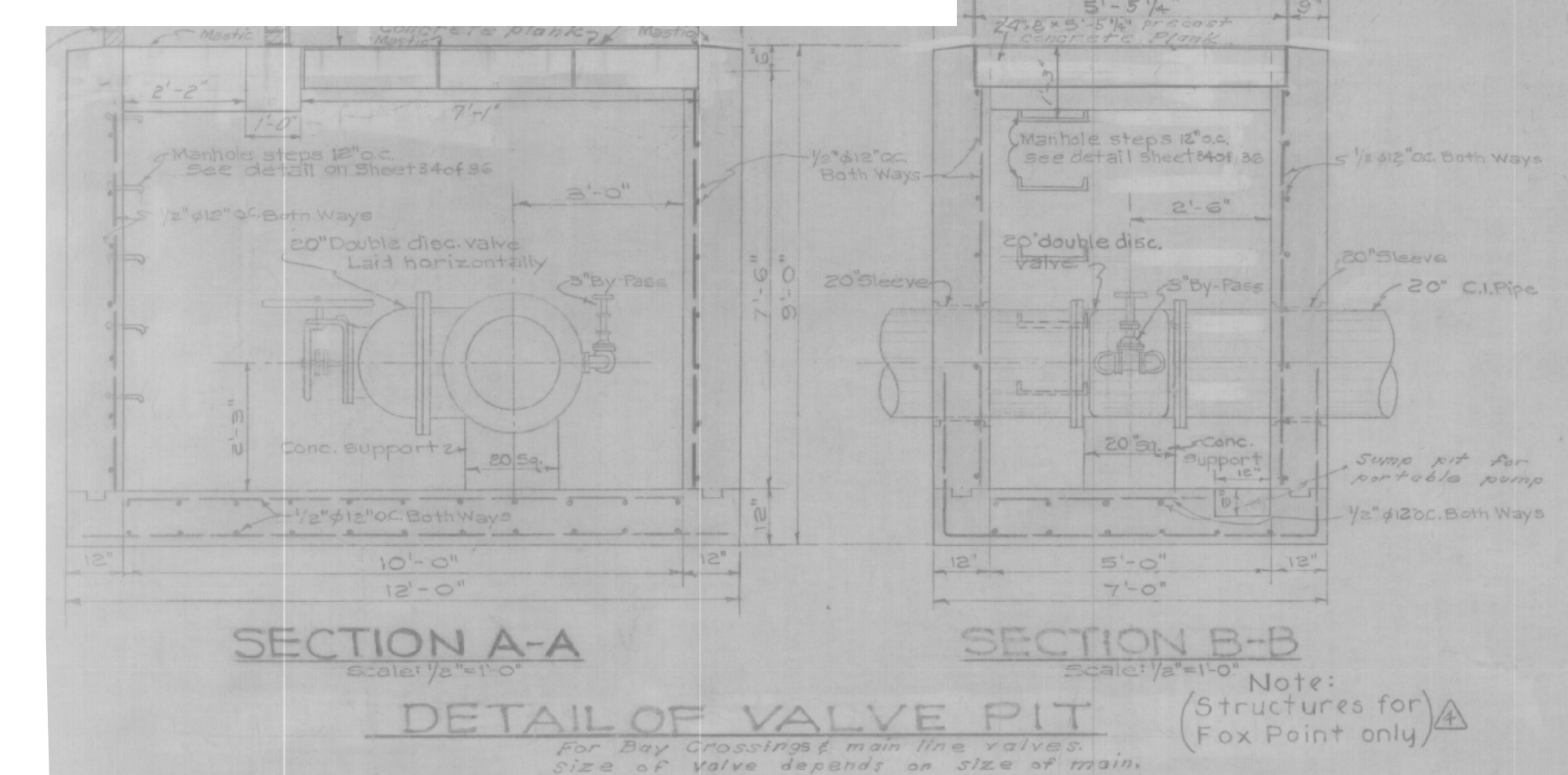
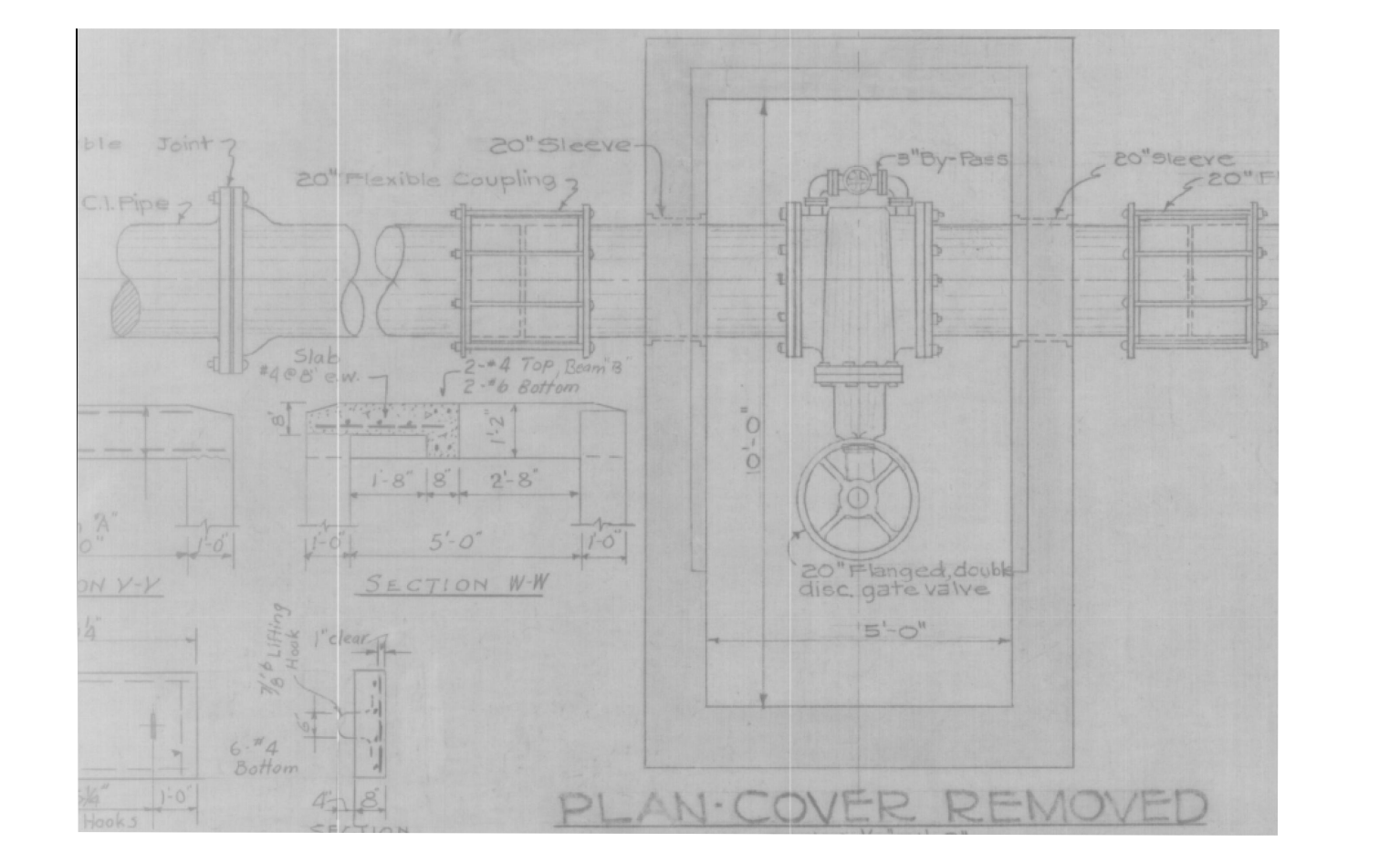
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CITY OF PORTSMOUTH  
 SUBAQUEOUS WATER TRANSMISSION MAIN  
 LITTLE BAY, DURHAM-NEWINGTON  
 NEW HAMPSHIRE  
 WATER MAIN REPLACEMENT PLAN & PROFILE VI  
 STA. 130+00 TO STA 134+00

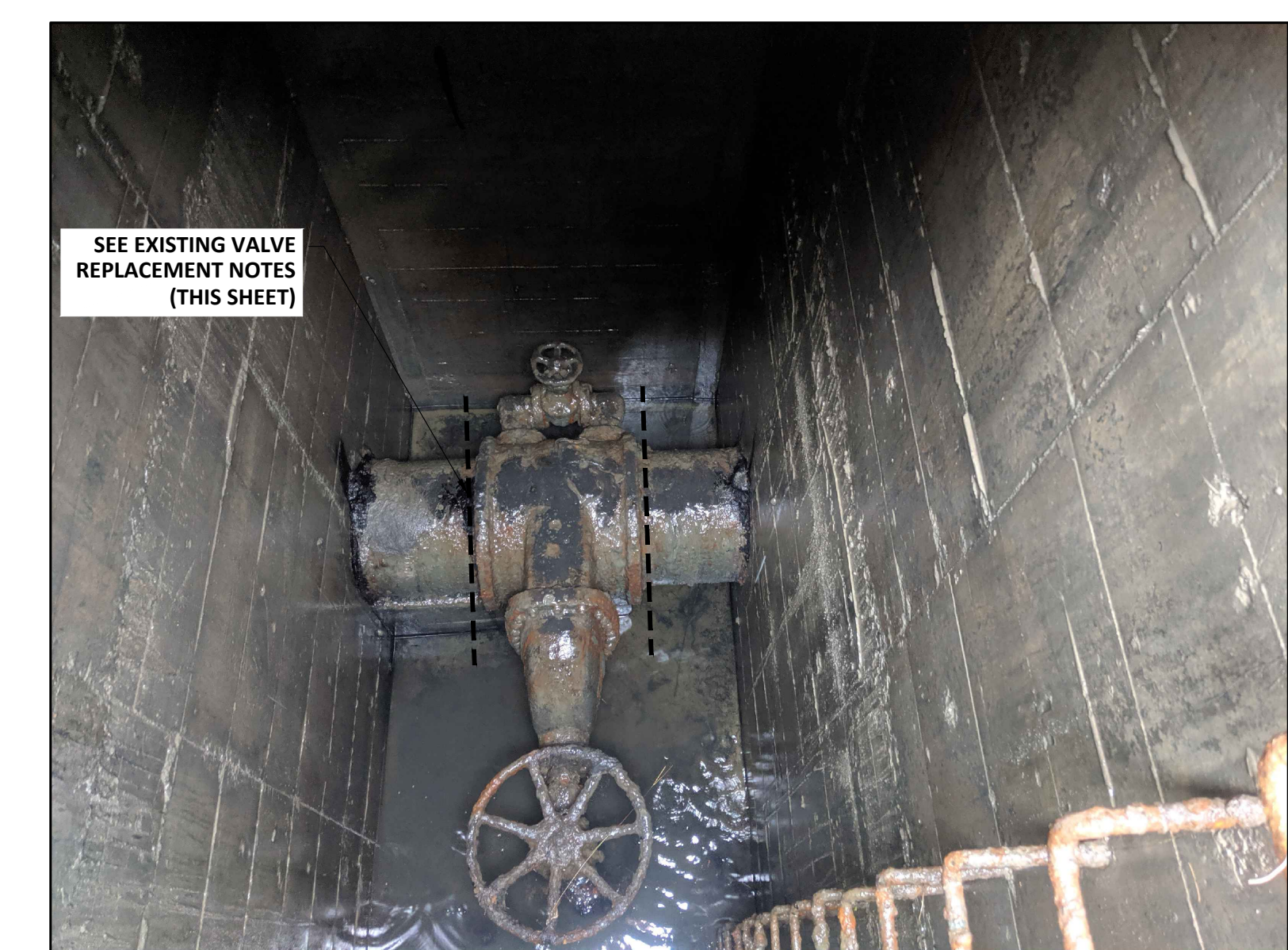
**DRAWING**  
 C-13



- 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. POUR CONCRETE SUPPORT UNDER NEW VALVE.
  - 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 3/8" CRUSHED STONE TO 1-FOOT BELOW MANHOLE FRAME AND COVER.



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



**EXISTING VALVE PITS - DURHAM**  
NTS

APP'D	DATE
B.ECK	07/23
SUBMISSIONS/REVISIONS	
NO	CONTRACT DRAWINGS
DESIGNED BY: D.LARY	W.EDGAR
CAD CORP: W.EDGAR	W.EDGAR
CHECKED BY: R.DAVEE	R.DAVEE
DATE: 07/14/2023	
APPROVED BY: B.ECKSTRON	B.ECKSTRON
DATE: 07/19/2023	
PROJECT NO.:	44802A

DARRIN D. LARY  
No. 10749  
PROFESSIONAL ENGINEER  
STATE OF MAINE

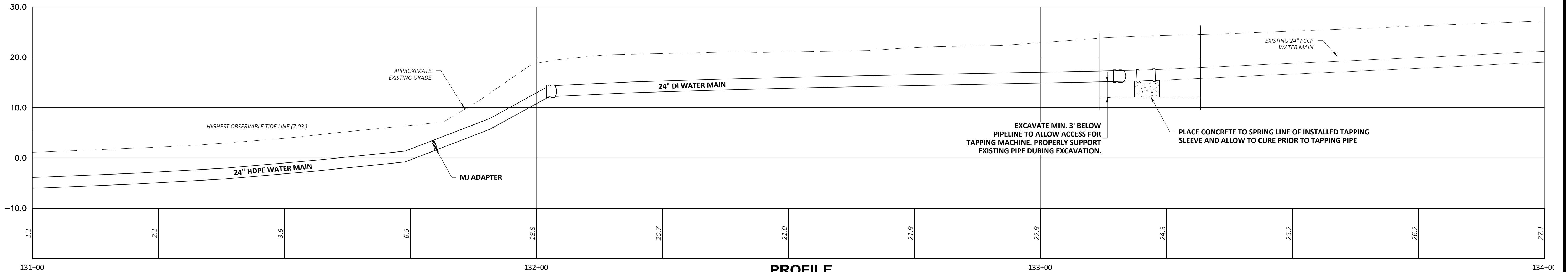
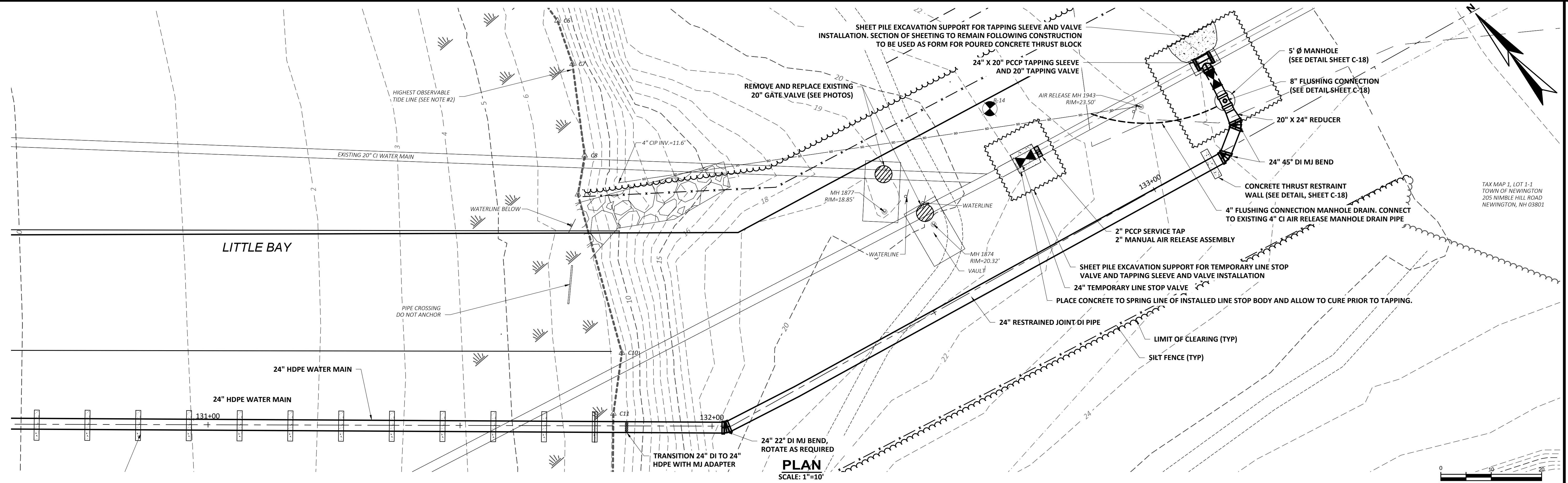
BRITT ECKSTRON  
No. 10749  
PROFESSIONAL ENGINEER  
STATE OF NEW HAMPSHIRE

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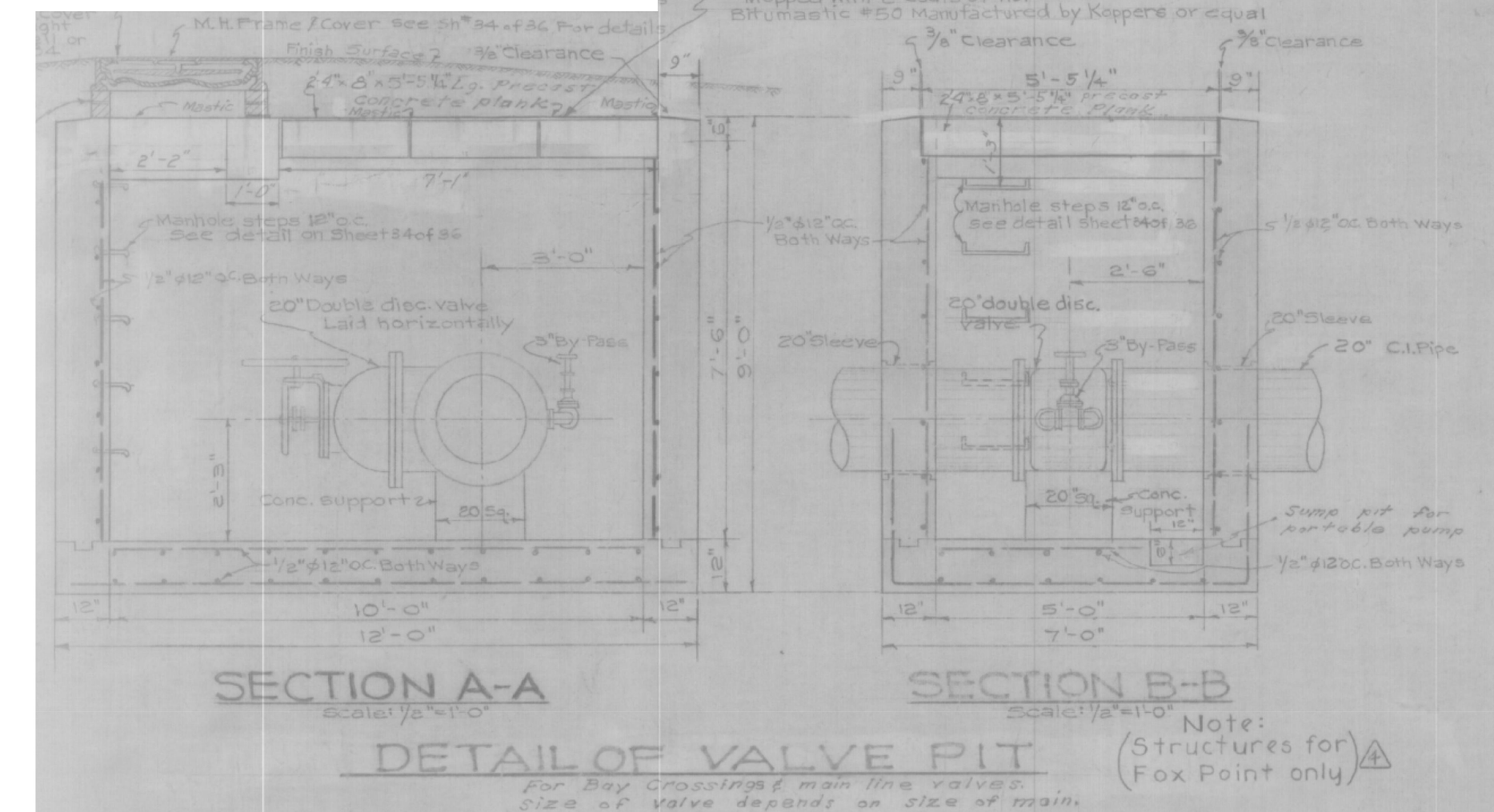
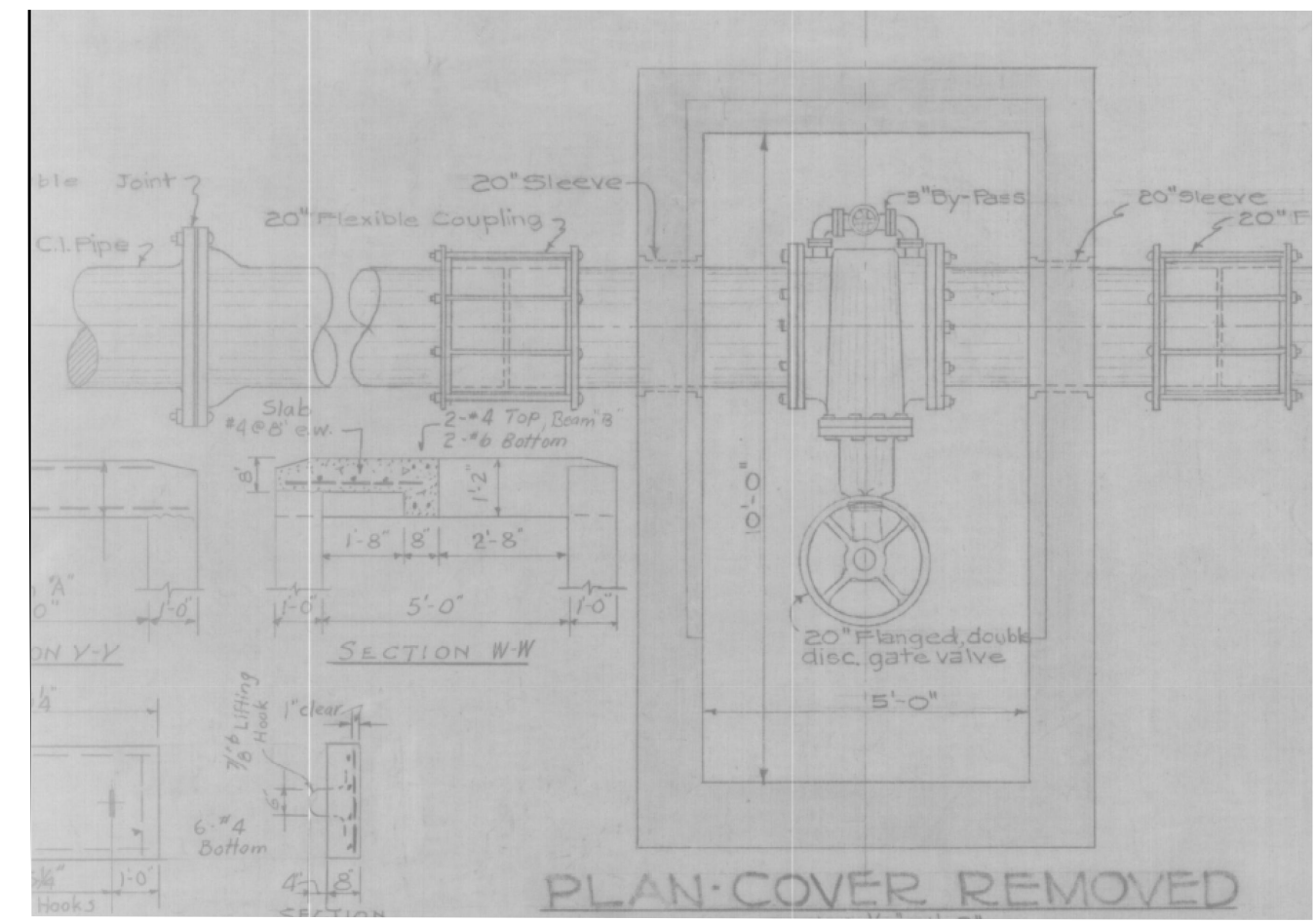
WATER MAIN CONNECTION DETAIL - DURHAM SITE

**DRAWING**  
C-14



**EXISTING VALVE REPLACEMENT NOTES**

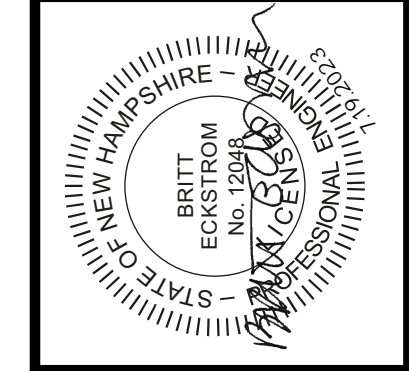
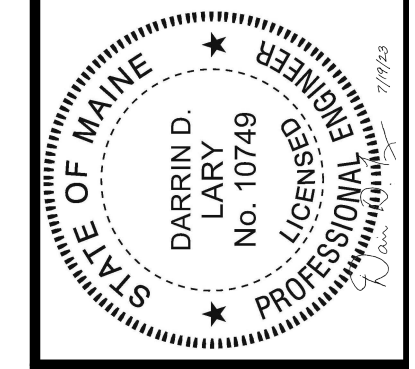
- CAREFULLY CUT OUT AND REMOVE EXISTING 20-INCH BELL END GATE VALVES.
- CLEAN AND PREPARE ENDS OF EXISTING 20-INCH CAST IRON PIPE.
- INSTALL NEW FL X FL 20-INCH RESILIENT WEDGE STYLE GATE VALVE. MOUNT GATE VALVE HORIZONTALLY WITH BEVEL GEAR OPERATOR NUT TO FLOOR BOX. INSTALL VALVE WITH TWO RESTRAINED STYLE FLANGE ADAPTERS EBAA IRON SERIES 2100 MEGAFANGE OR EQUAL. POUR CONCRETE SUPPORT UNDER NEW VALVE.
- 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 3/8" CRUSHED STONE TO 1-FOOT BELOW MANHOLE FRAME AND COVER.



**EXISTING VALVE PITS - NEWINGTON**



NO.	CONTRACT DRAWINGS	DATE
1	B.ECK	07/23



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SUBAQUEOUS WATER TRANSMISSION MAIN  
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NEW HAMPSHIRE

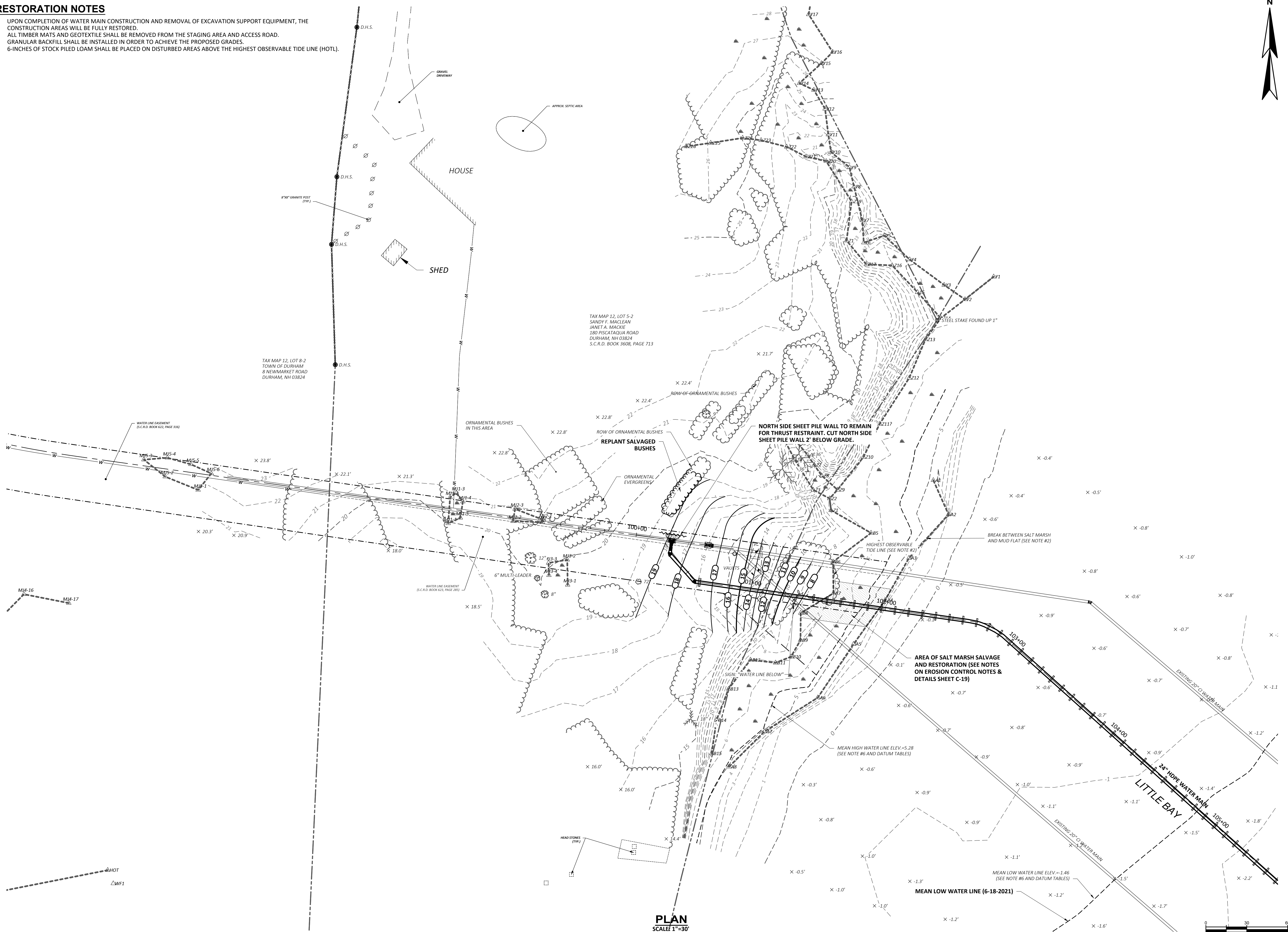
WATER MAIN CONNECTION DETAIL - NEWINGTON SITE

**DRAWING**  
C-15



**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).

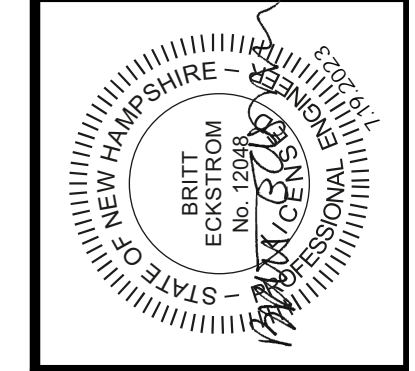


**PLAN**  
SCALE 1"=30'



NO	DATE	DESCRIPTION
1	07/23	CONTRACT DRAWINGS

DESIGNED BY: D.LARY  
 CAD CORP.: W.EDGAR  
 CHECKED BY: R.DAVEE  
 DATE: 07/14/2023  
 APPROVED BY: B.ECKSTROM  
 DATE: 07/19/2023  
 PROJECT NO.: 34602A



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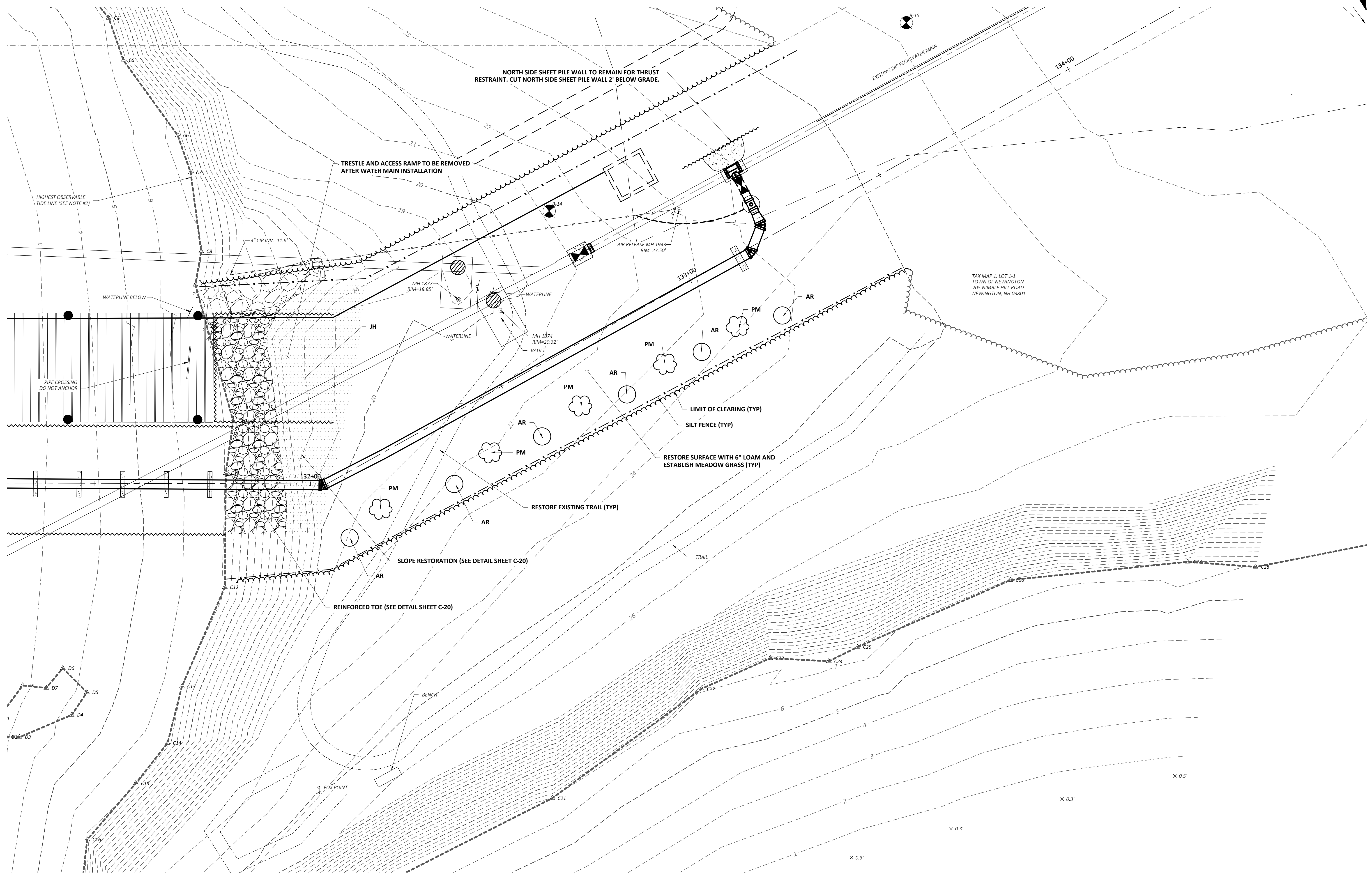
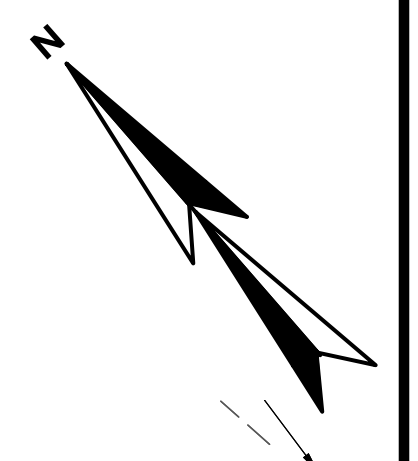
CITY OF PORTSMOUTH  
 SUBAQUEOUS WATER TRANSMISSION MAIN  
 LITTLE BAY, DURHAM-NEWINGTON  
 NEW HAMPSHIRE  
 RESTORATION PLAN - DURHAM  
**DRAWING**  
 C-16

**RESTORATION NOTES**

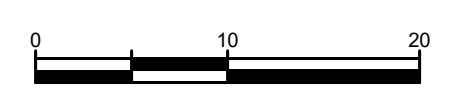
1. UPON COMPLETION OF WATER MAIN CONSTRUCTION AND REMOVAL OF EXCAVATION SUPPORT EQUIPMENT, THE CONSTRUCTION AREAS WILL BE FULLY RESTORED.
2. ALL CONSTRUCTION AREAS THAT ARE EXCAVATED, FILLED, OR OTHERWISE DISTURBED BY THE CONTRACTOR SHALL BE TILLED, HARROWED, LIMED, FERTILIZED, SEEDED, AND MULCHED, UNLESS OTHERWISE NOTED. REFER TO SPECIFICATION SECTION 02480.
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 02480.

**PLANTING SCHEDULE**

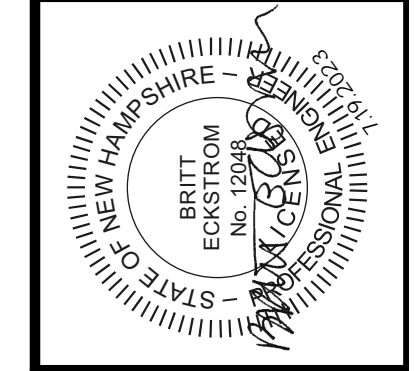
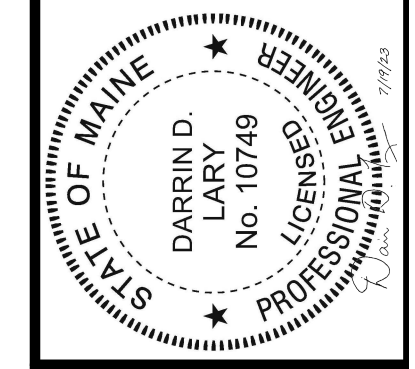
KEY	QTY	SCIENTIFIC NAME COMMON NAME	SIZE	SPACING
AR	6	AMELANCHIER SPP SERVICEBERRY	3-4 FT	APPROX. 20' O.C.
PM	5	PRUNUS MARITIMA BEACH PLUM	3-4 FT	APPROX. 16' O.C.
JH	48	JUNIPERUS HORIZONTALIS JUNIPER	3 GAL	APPROX. 5' O.C.



**PLAN**  
SCALE: 1"=10'

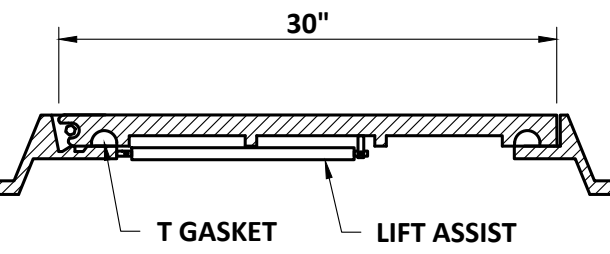
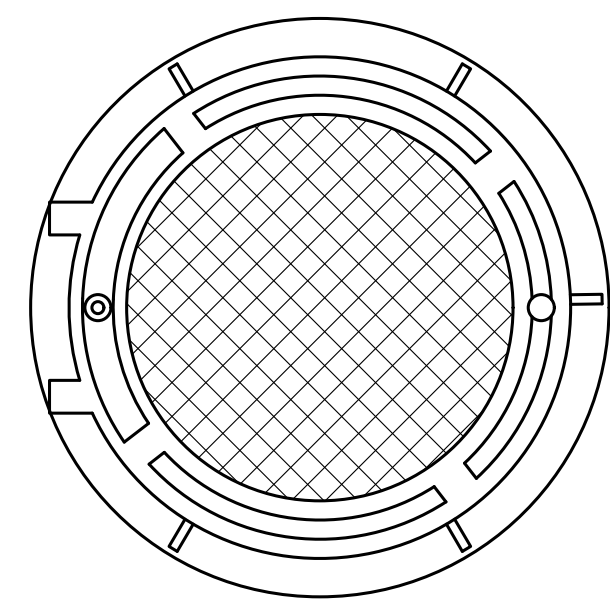


NO	CONTRACT DRAWINGS	DESIGNED BY:	APP'D DATE
1		D. LARY	B. ECK 07/23
2		W. EDGAR	
3		W. EDGAR	
4		W. EDGAR	
5		W. EDGAR	
6		W. EDGAR	
7		W. EDGAR	
8		W. EDGAR	
9		W. EDGAR	
10		W. EDGAR	



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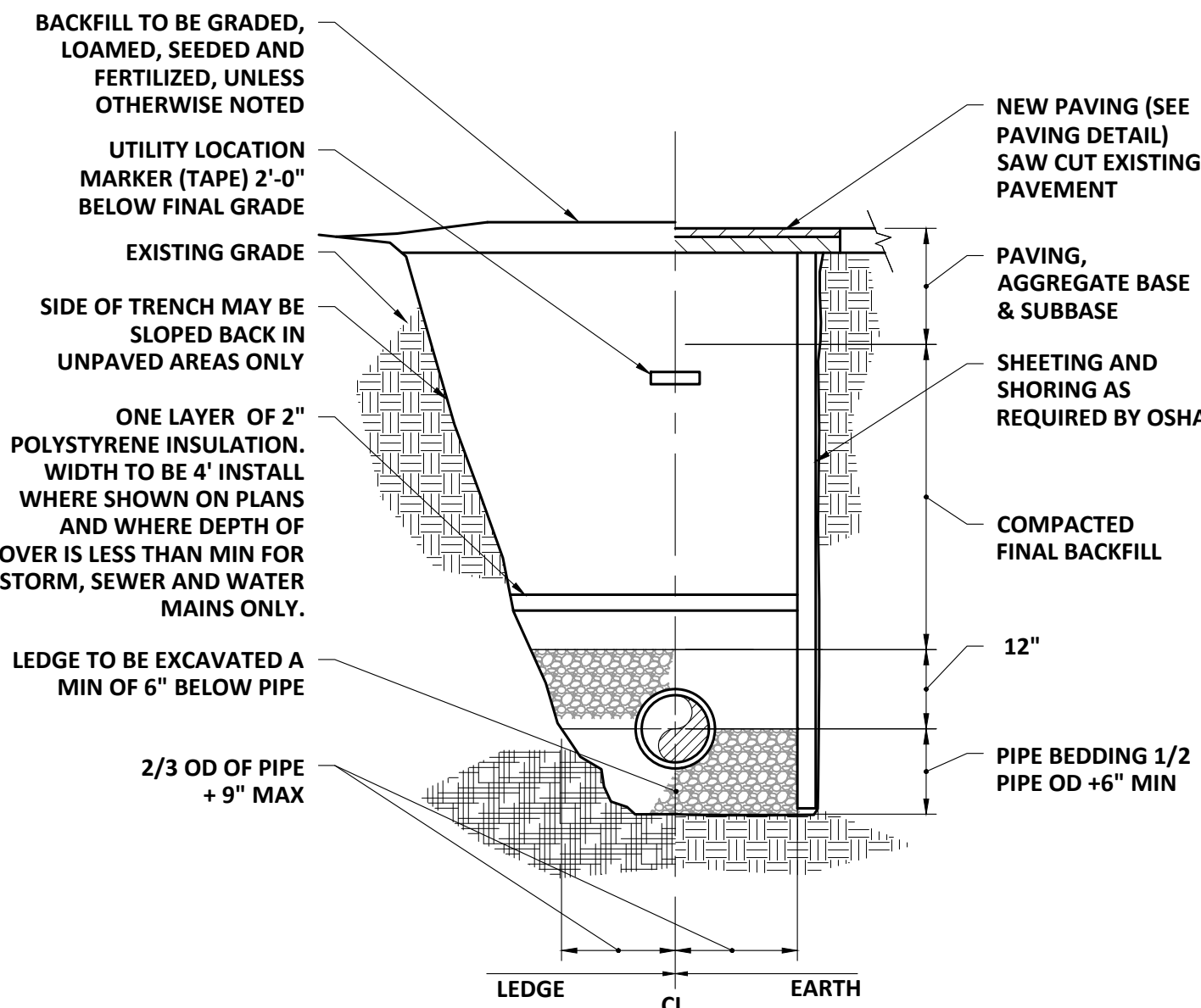
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NEW HAMPSHIRE



NOTES:  
1. BEARING SURFACES OF FRAME AND COVER MACHINED

### 30" HINGED COVER AND FRAME

SCALE: NTS

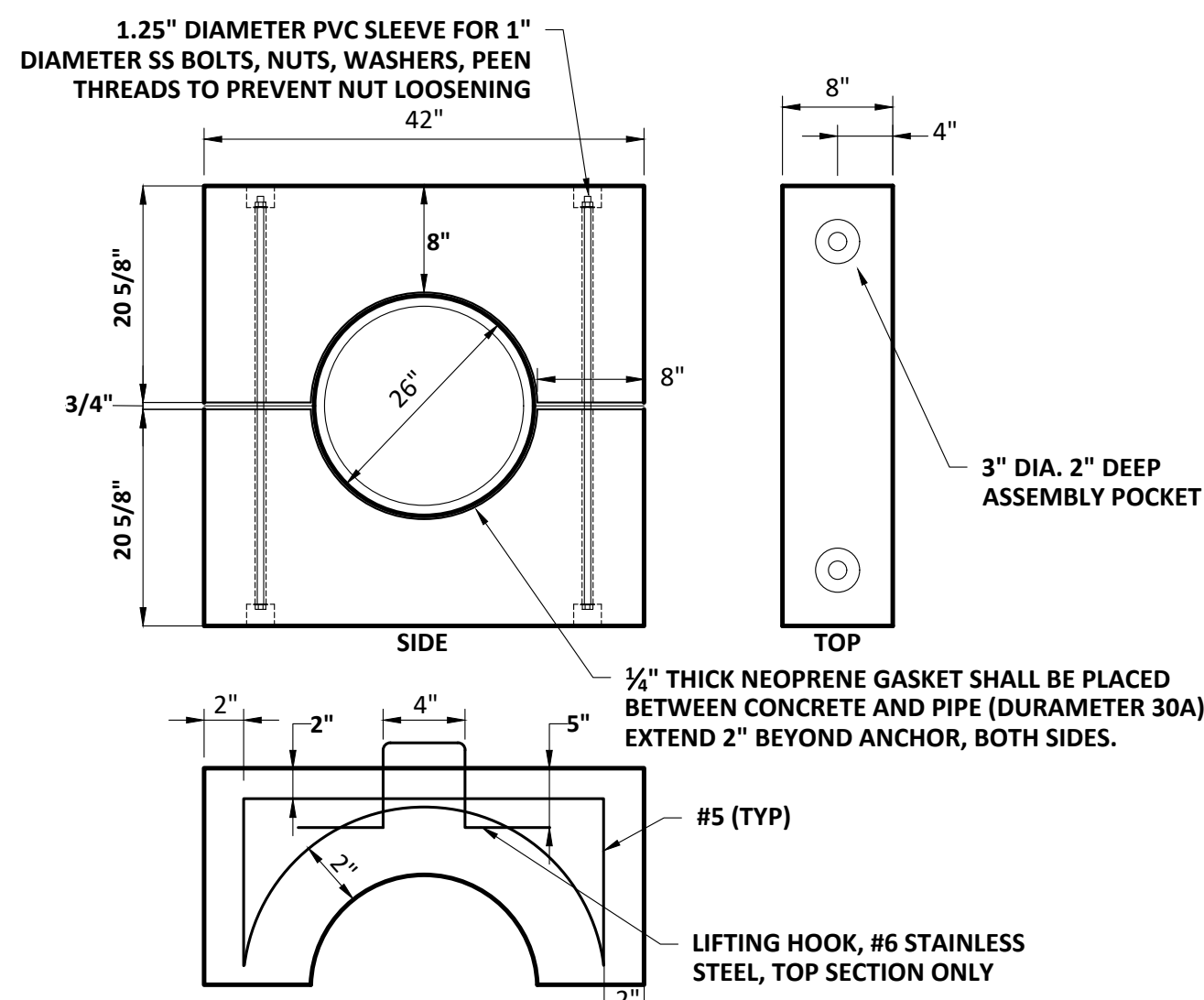


NOTES:  
1. ALL EXCAVATION MUST MEET OSHA STANDARDS.

- 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

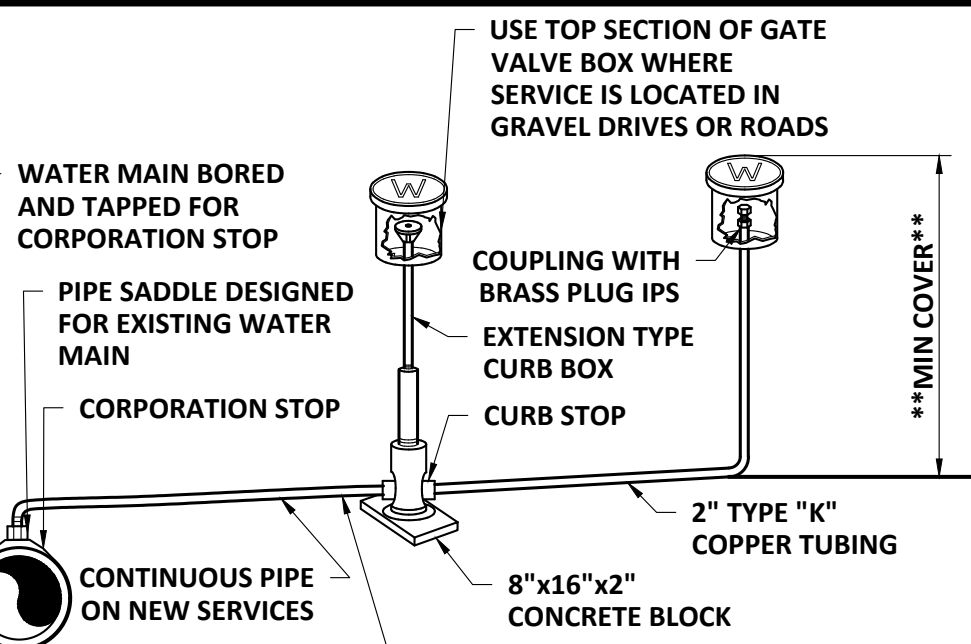
SCALE: "NTS"



- 1. CONCRETE SHALL HAVE A MINIMUM 28 DAY STRENGTH OF 4500 PSI.
- 2. REINFORCING STEEL SHALL BE ASTM A615 GRADE 60 DEFORMED BARS, EPOXY COATED.
- 3. ANCHOR BOLTS, NUTS, WASHERS, BARS, PLATES SHALL BE STAINLESS STEEL TYPE 316.
- 4. CONCRETE ANCHORS SHALL BE SECURELY FASTENED TO THE PIPE TO PREVENT MOVEMENT.
- 5. CONCRETE ANCHORS TO BE SPACED AT 10'-0" O.C. BASED ON 24" SDR 11 PIPE WITH 25.51-INCHES O.D. AND PIPE WEIGHT PER LINEAR FOOT.
- 6. CONTRACTOR SHALL VERIFY THE ABOVE CONCRETE ANCHOR DIMENSIONS WITH PIPE.
- 7. PROVIDE LIFTING INSERT ON EACH ANCHOR SECTION.

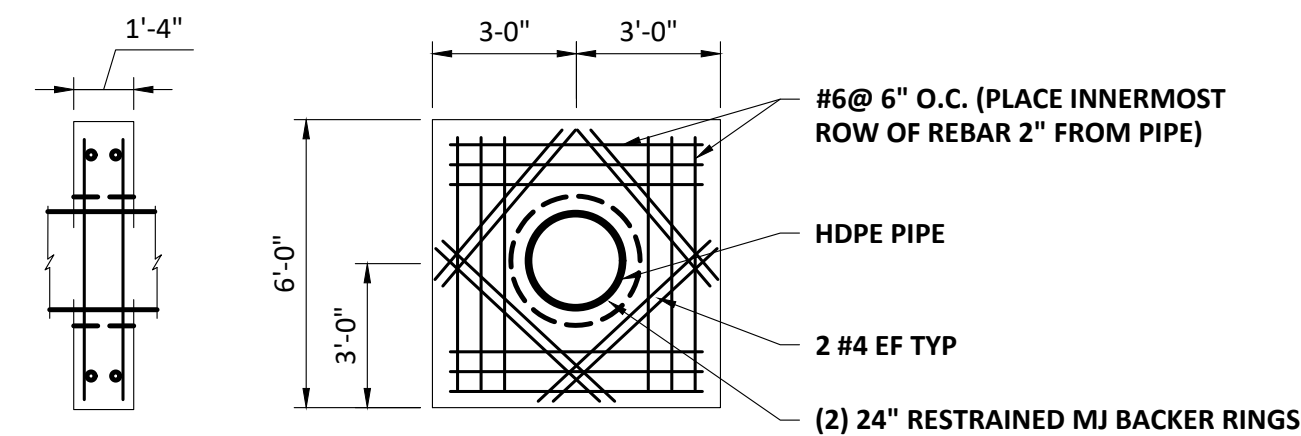
### CONCRETE PIPE ANCHOR DETAIL

SCALE: NTS



### MANUAL AIR RELEASE ASSEMBLY

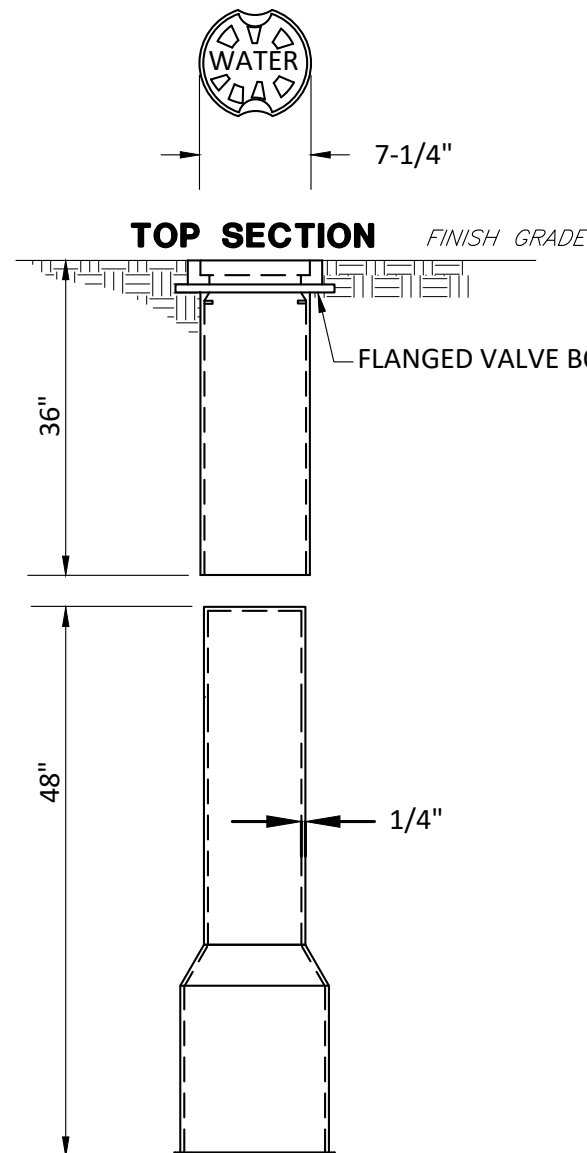
SCALE: NTS



### ELEVATION PLAN

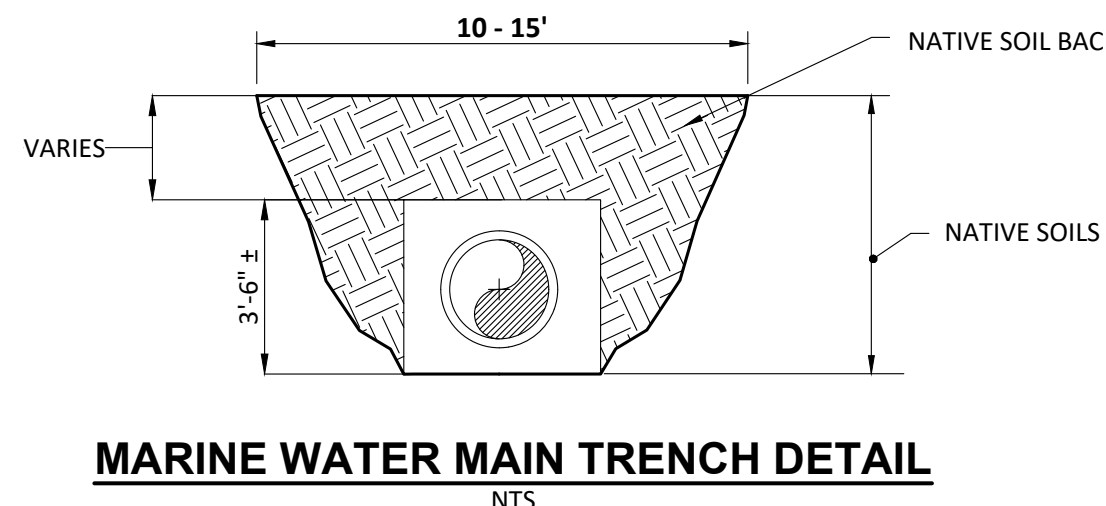
#### PIPE RESTRAINT ANCHOR WALL

SCALE: NTS



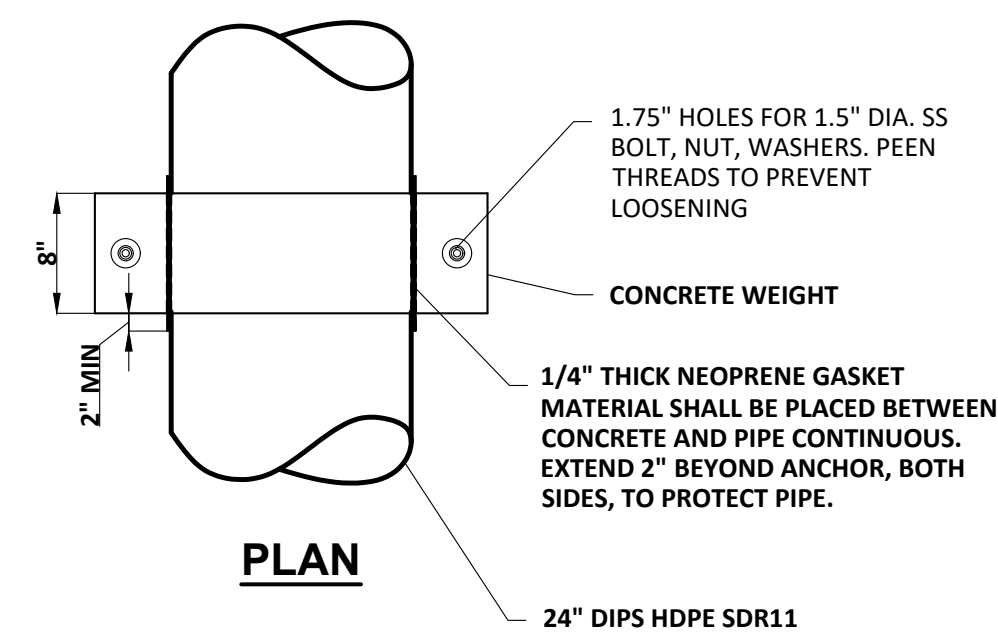
### 2-PIECE SLIDING VALVE BOX

SCALE: NTS

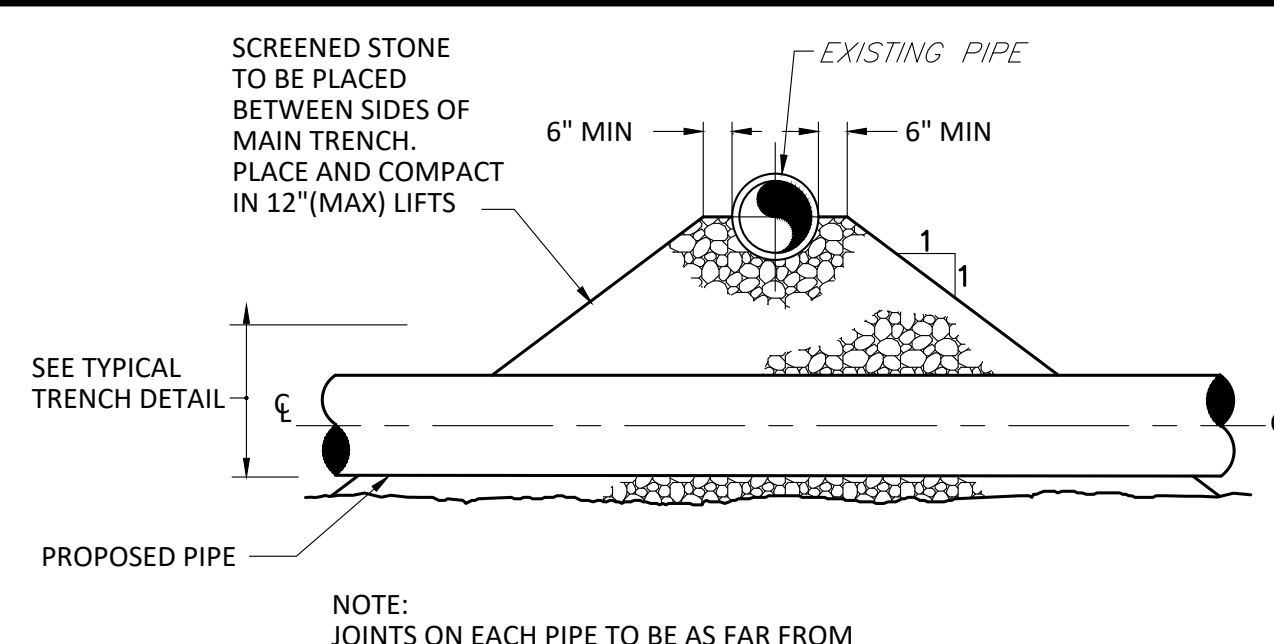


### MARINE WATER MAIN TRENCH DETAIL

SCALE: NTS

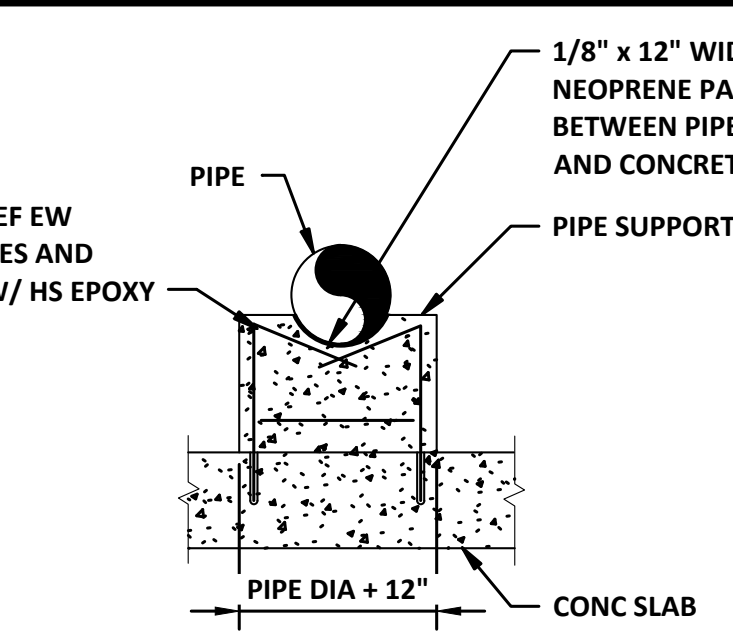


### PLAN

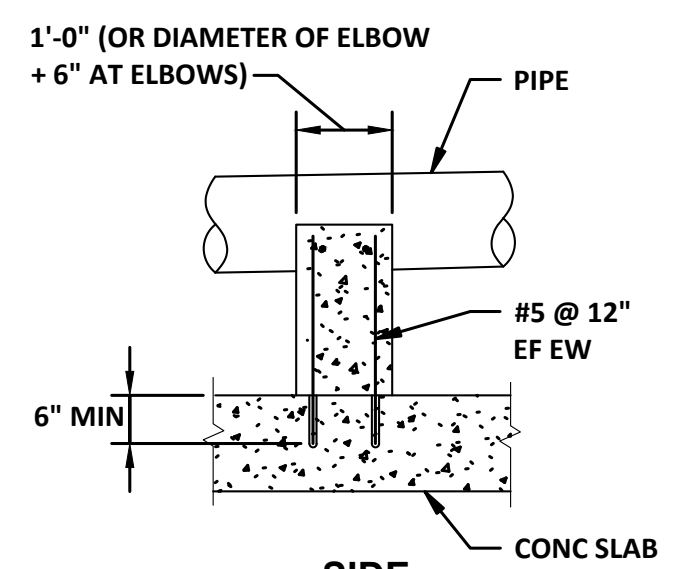


### PIPE CROSSING DETAIL

SCALE: NTS



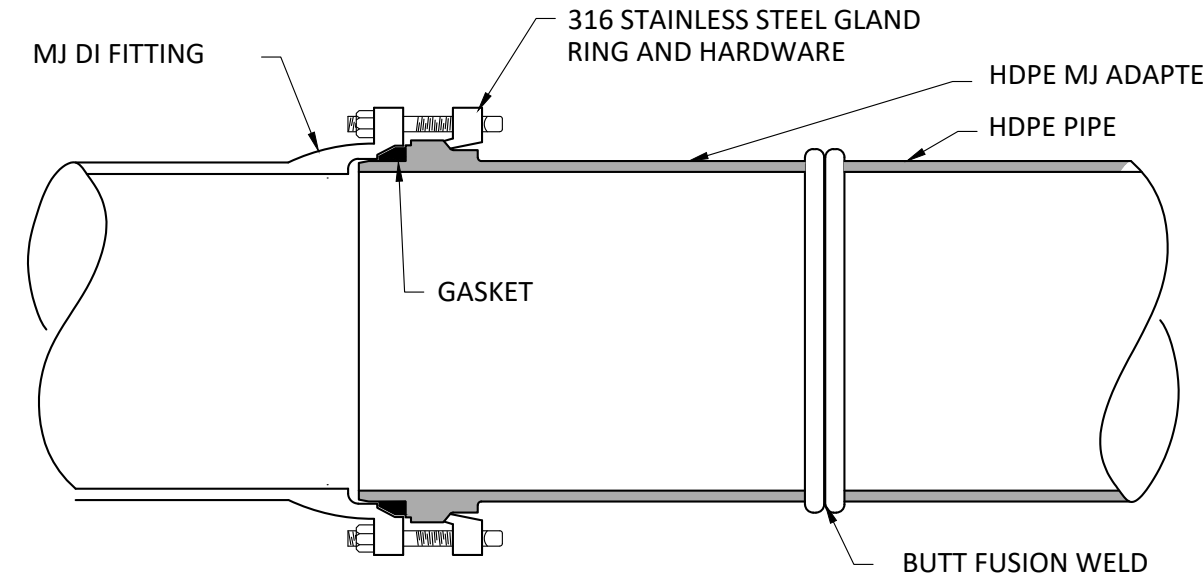
### FRONT



### SIDE

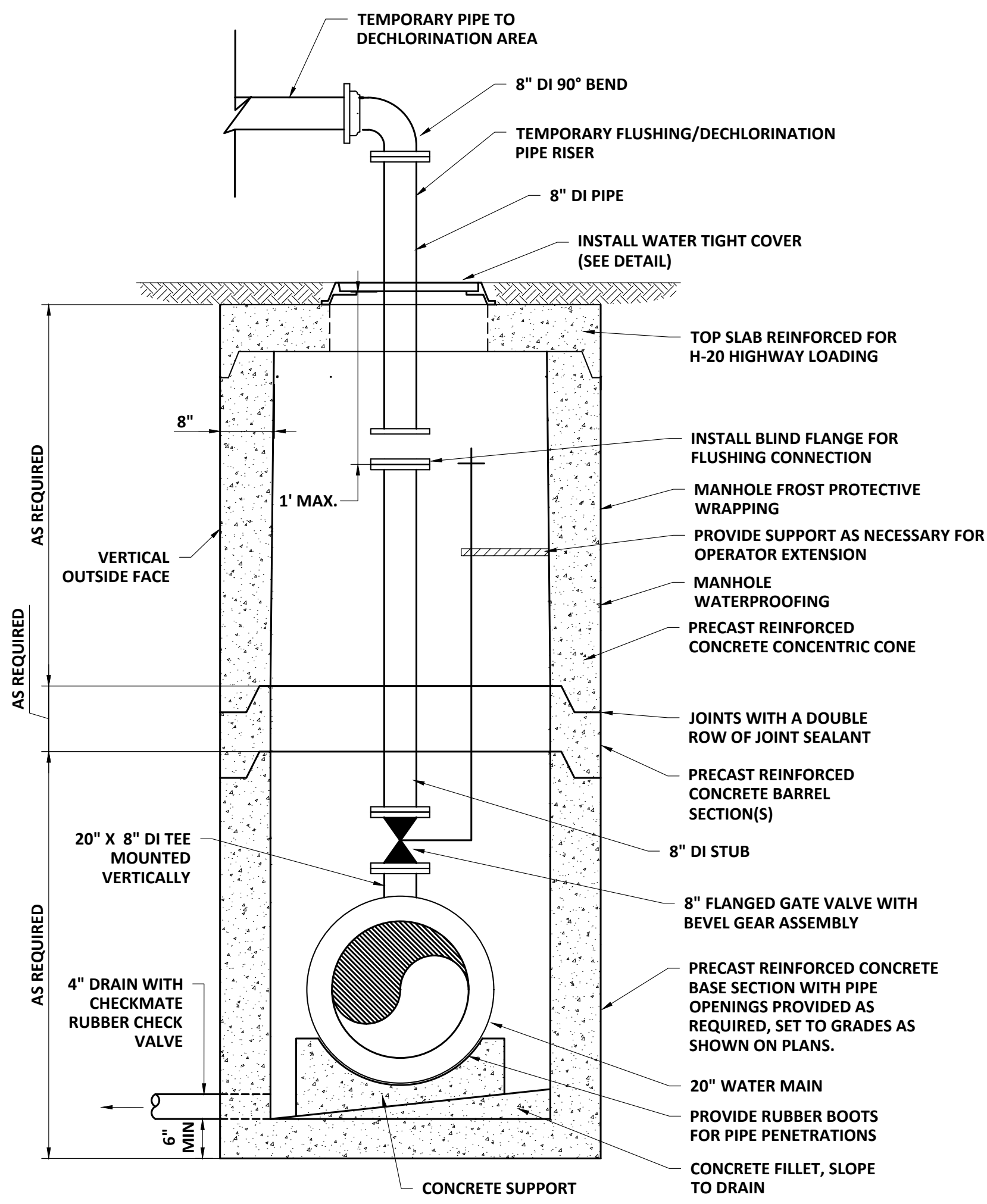
### CONCRETE SUPPORT

SCALE: NTS



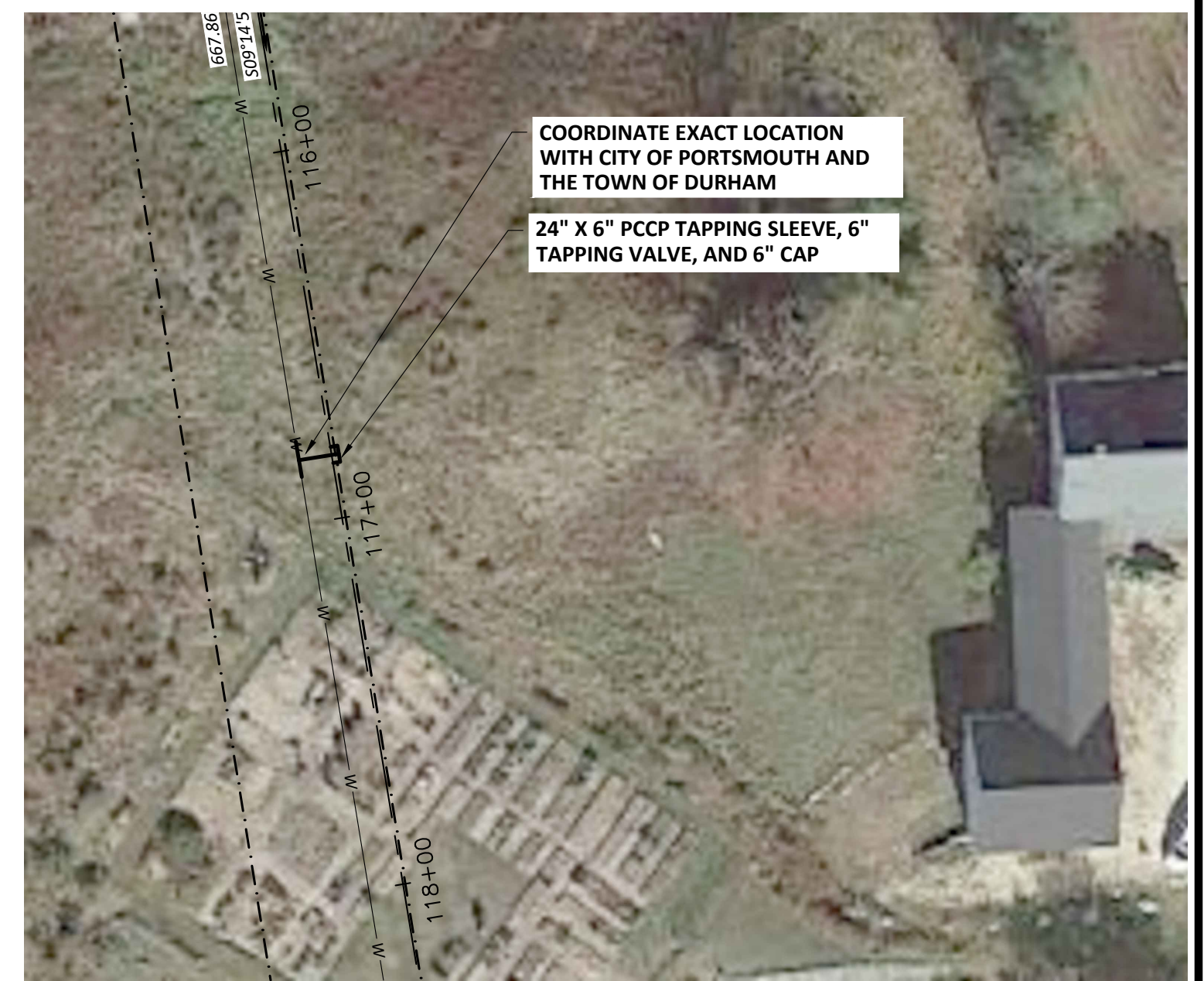
### HIGH DENSITY POLYETHYLENE PIPE TO MECHANICAL JOINT CONNECTION DETAIL

SCALE: NTS



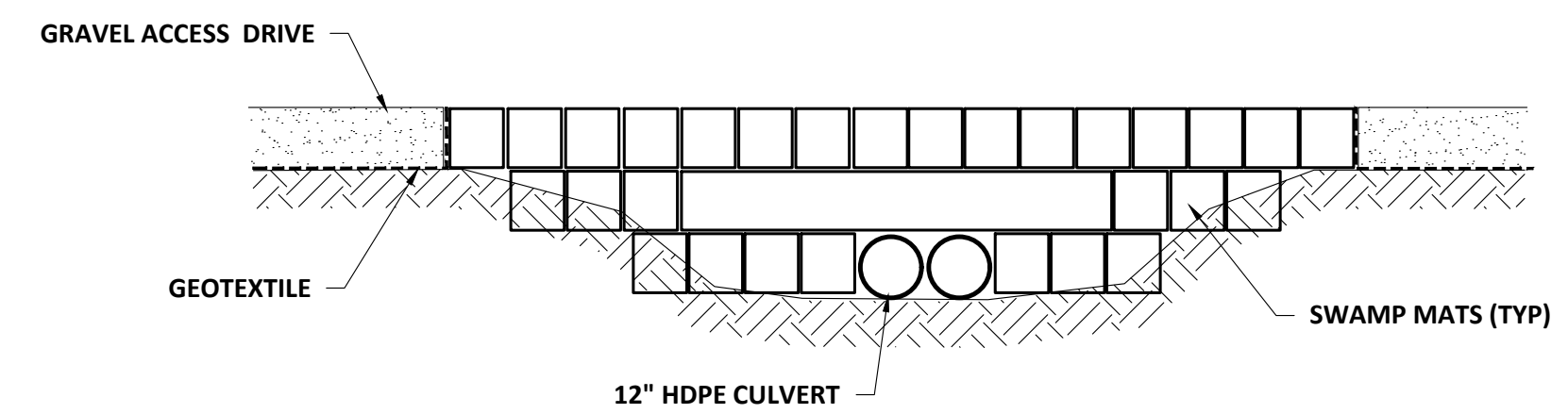
### FLUSHING CONNECTION WITH 5-FT MANHOLE

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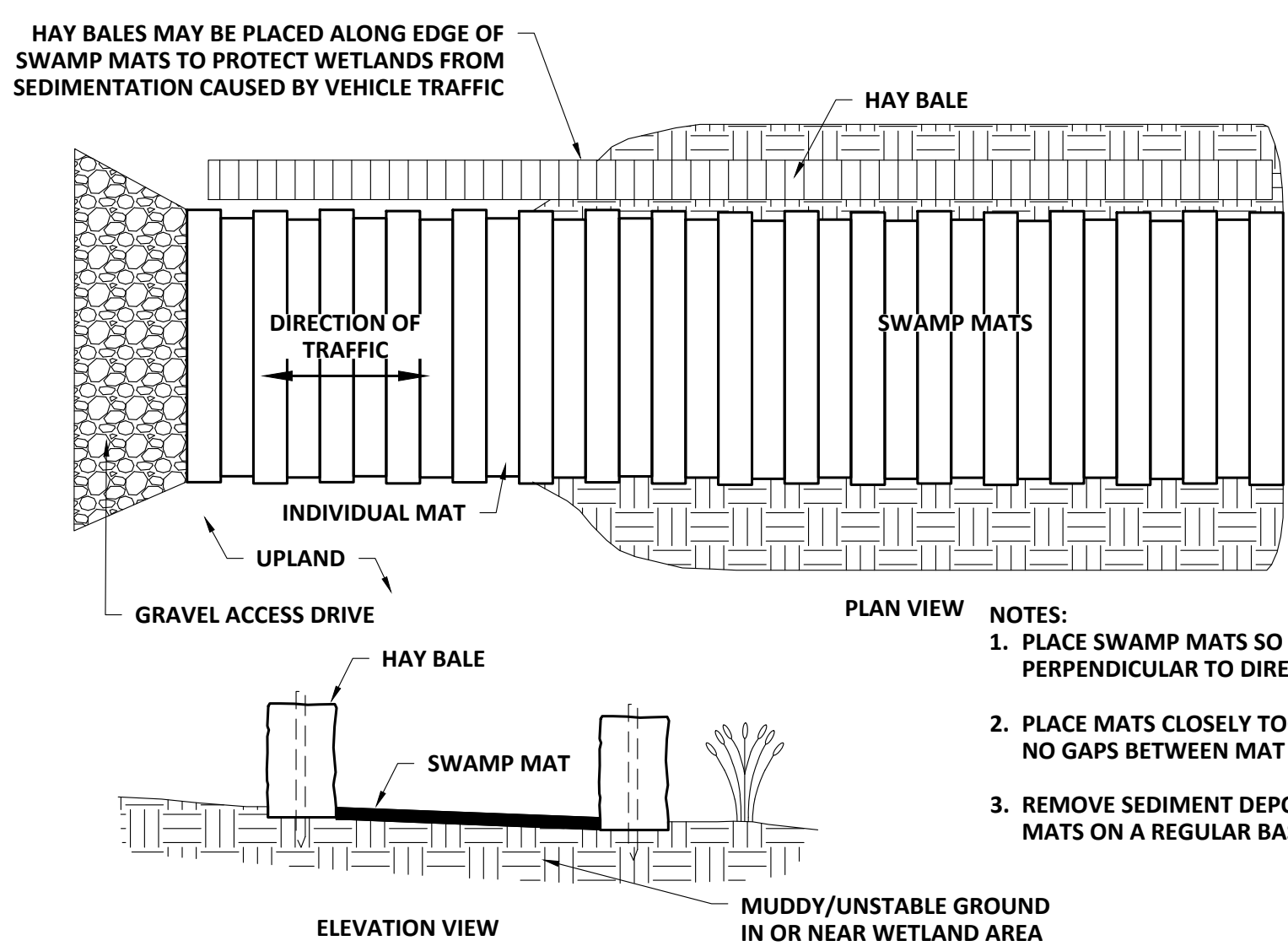
### WAGON HILL FARM WATER SERVICE

SCALE: 1"=40'



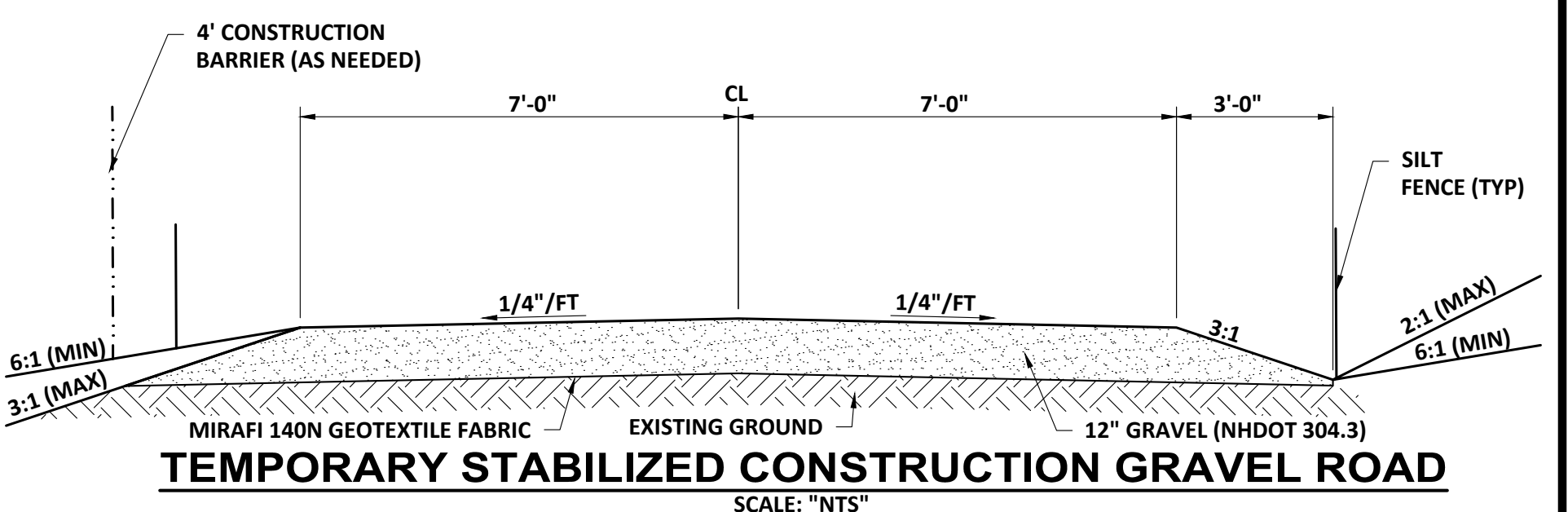
### TEMPORARY CULVERT CROSSING

SCALE: "NTS"



### TEMPORARY STABILIZED TIMBER MAT CONSTRUCTION ACCESS DRIVE DETAIL

SCALE: "NTS"

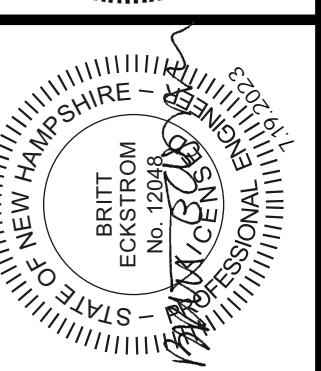


### TEMPORARY STABILIZED CONSTRUCTION GRAVEL ROAD

SCALE: "NTS"

NO	CONTRACT DRAWINGS	DATE
1	B.ECK	07/23

DESIGNED BY: D.LARY  
CAD CORP: W.EDGAR  
CHECKED BY: R.DAVEE  
DATE: 07/14/2023  
APPROVED BY: B.ECKSTROM  
DATE: 07/19/2023  
PROJECT NO.: 34202A



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NEW HAMPSHIRE

DETAILS 1

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 UPGRADE 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**

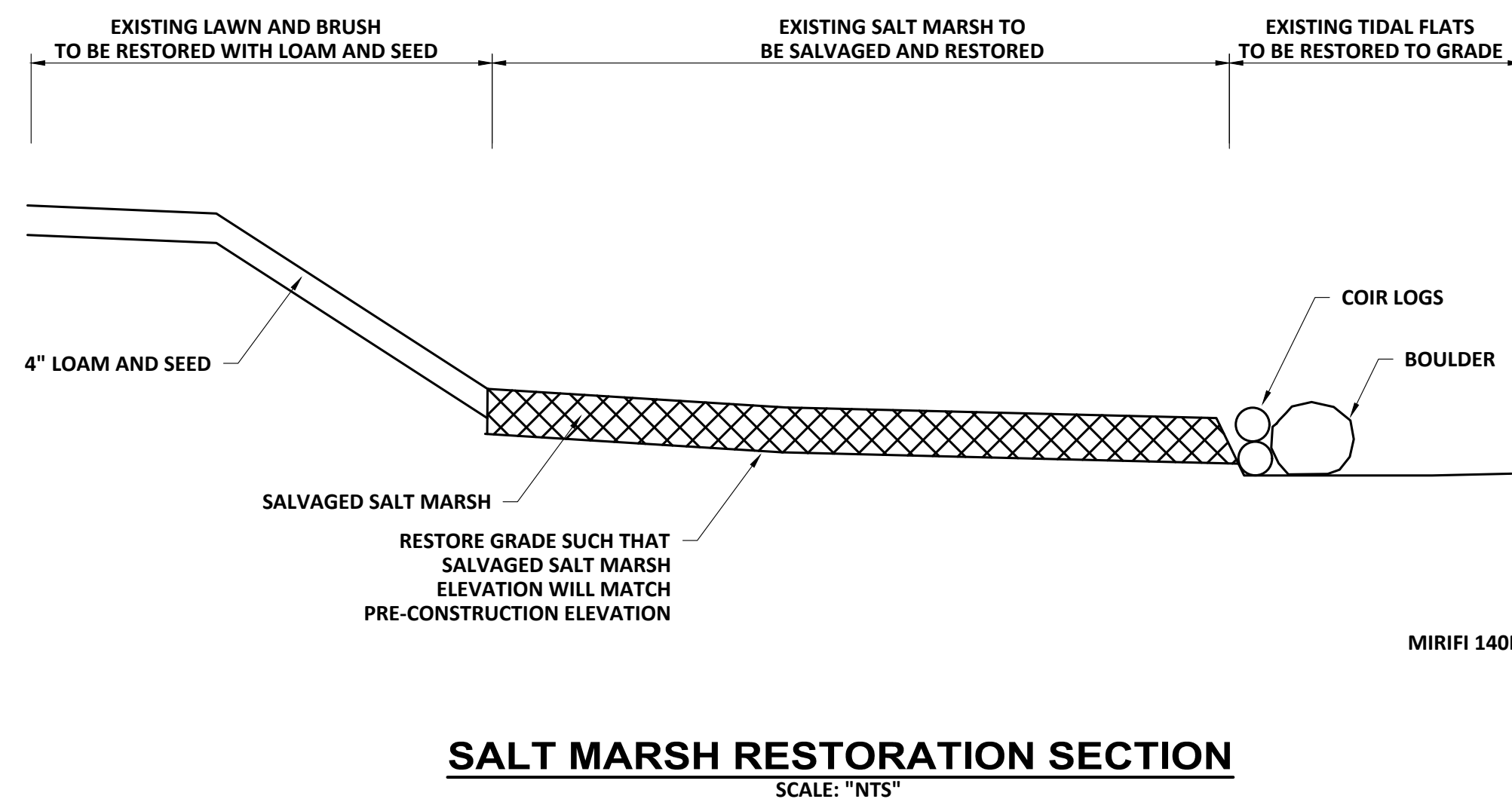
- WINTER CONSTRUCTION PERIOD DEFINED: NOVEMBER 1 THROUGH APRIL 15
- WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
- EXPOSED AREA SHOULD BE LIMITED SUCH THAT THE AREA CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT.
- 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%.

**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.

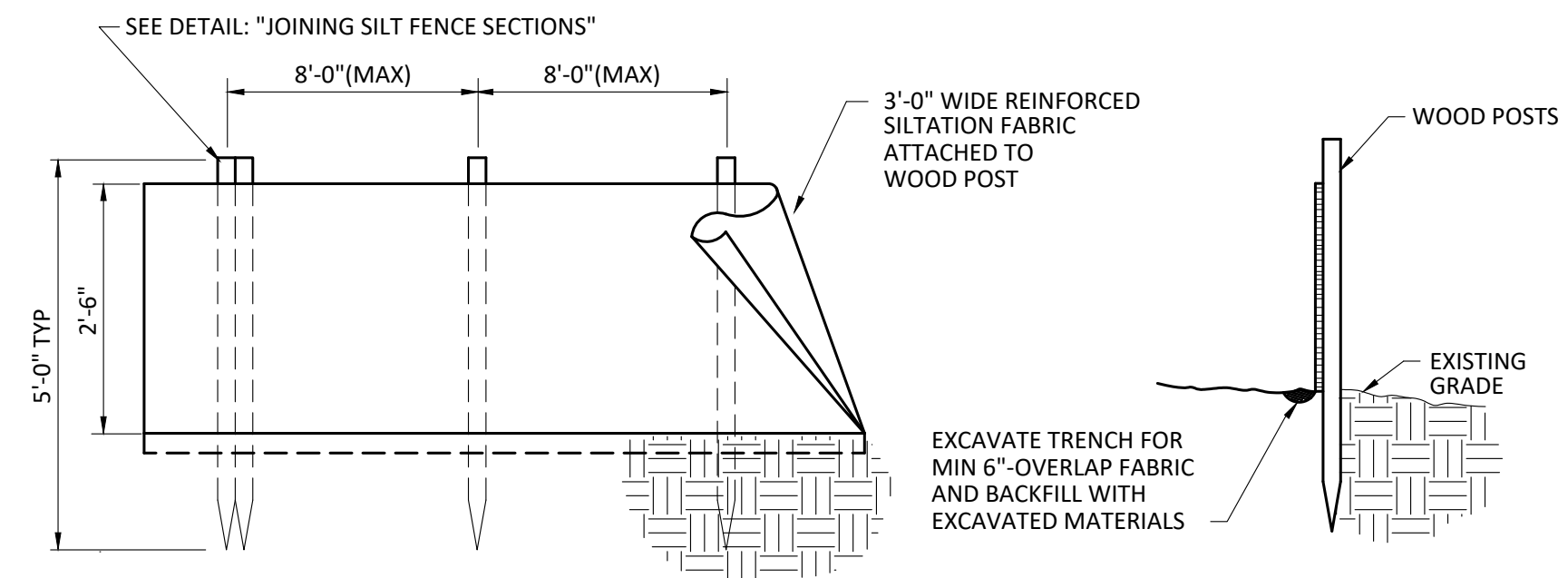
**SALT MARSH SALVAGE AND RESTORATION NOTES**

- 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.



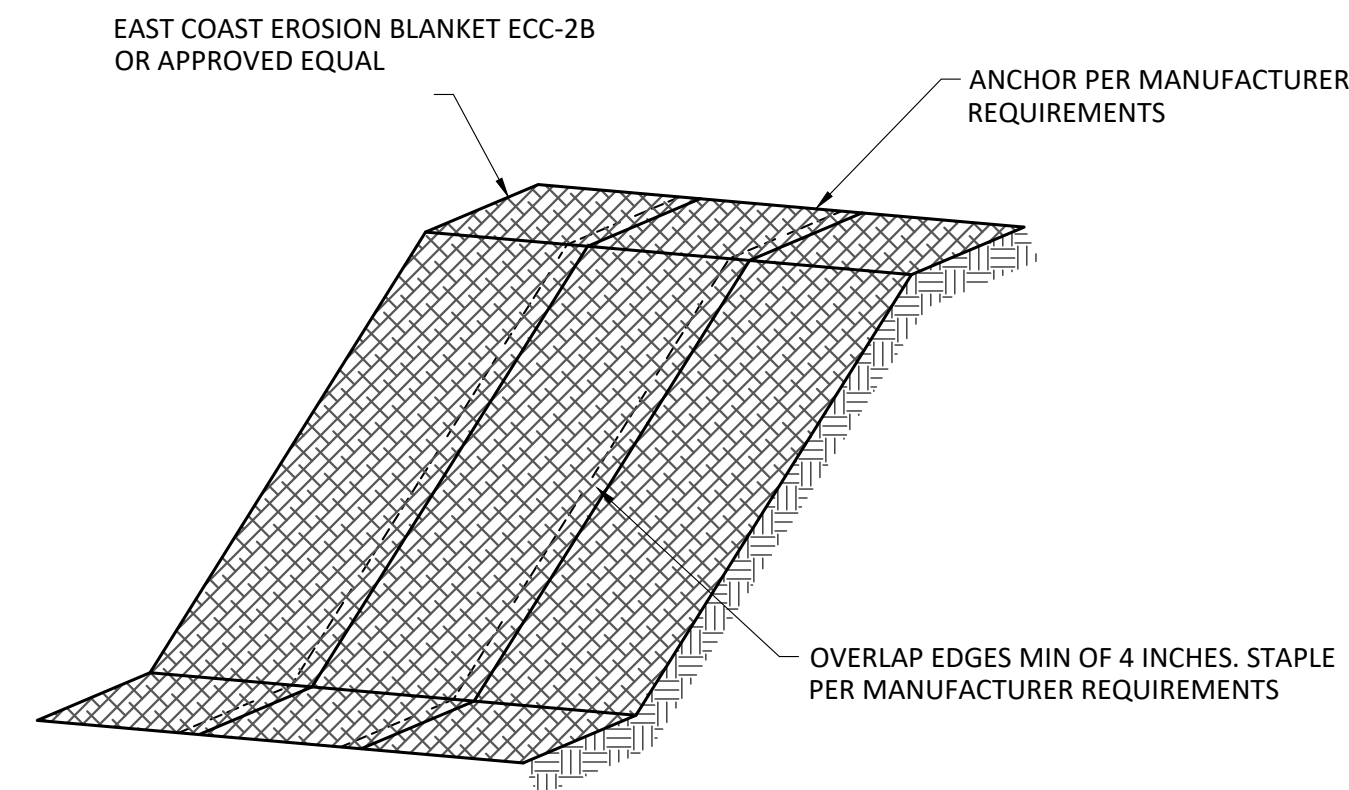
**SALT MARSH RESTORATION SECTION**

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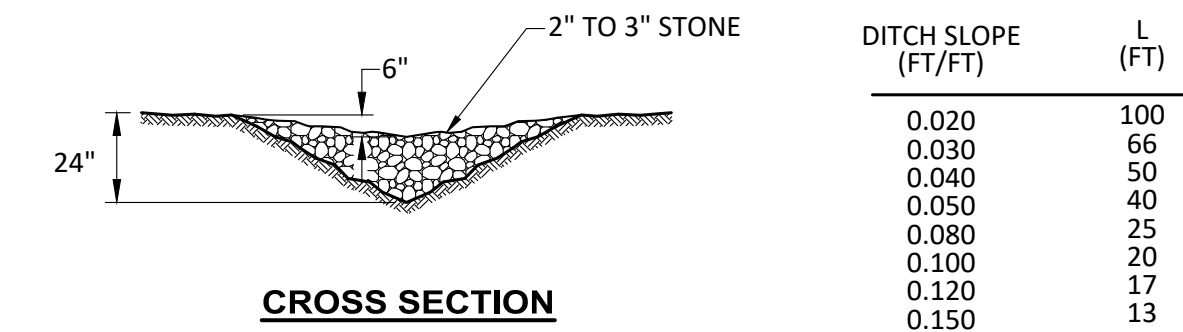
**SILT FENCE INSTALLATION DETAIL**

NTS

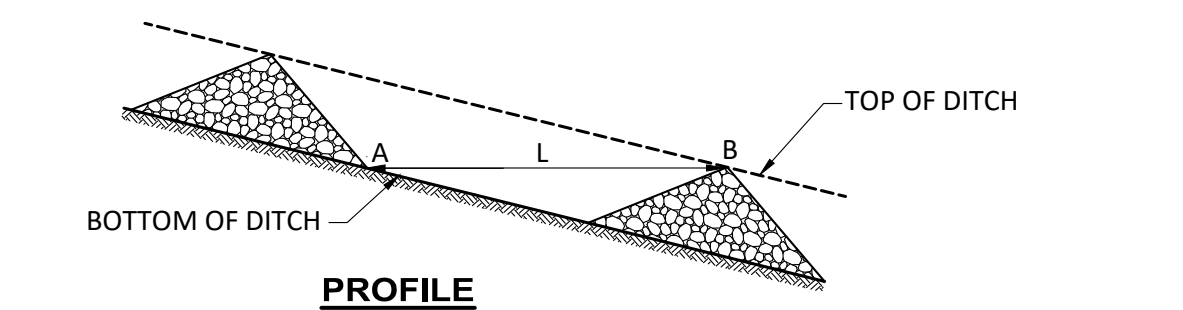


**EROSION CONTROL MATTING - SLOPES**

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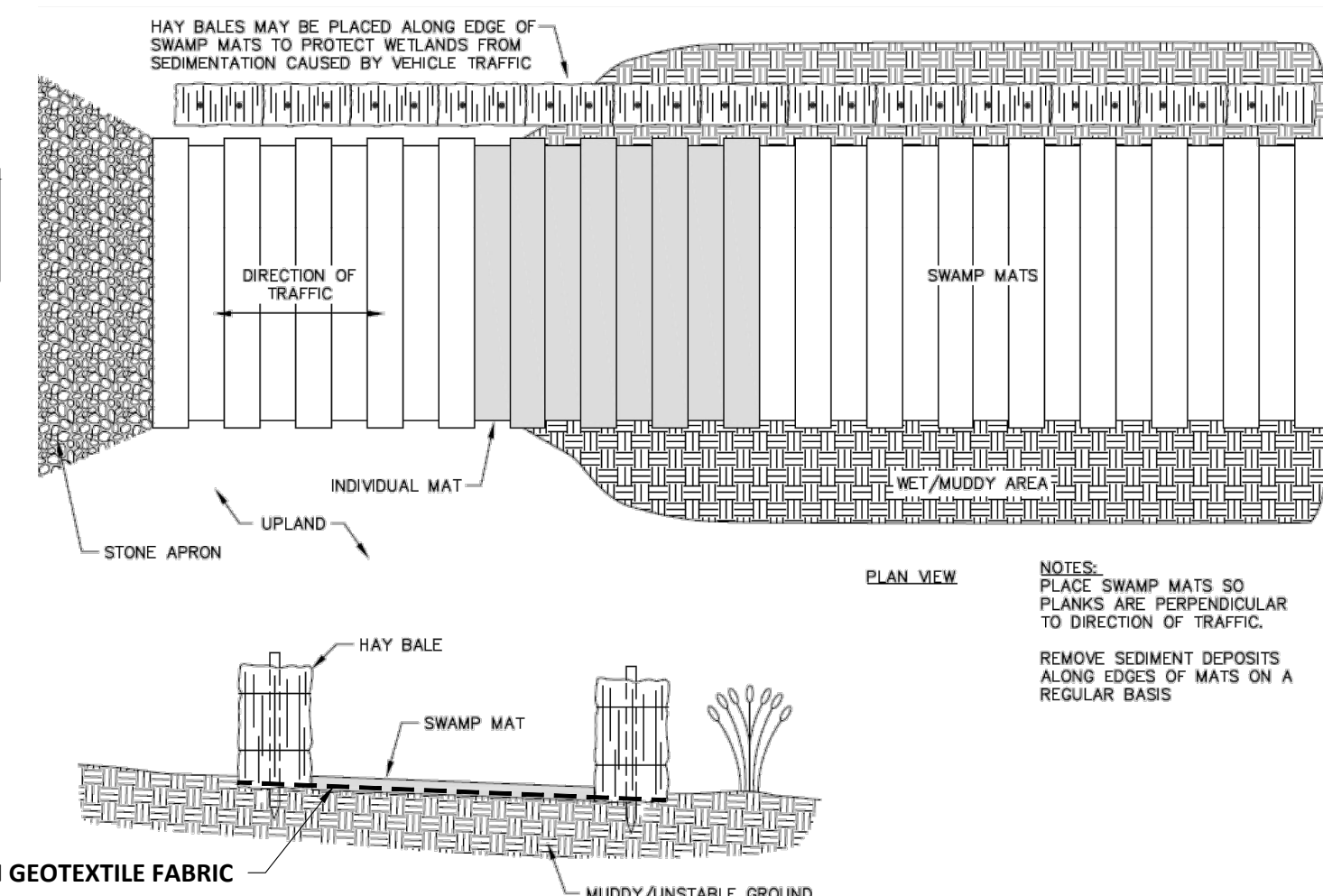
**CROSS SECTION**



**PROFILE**

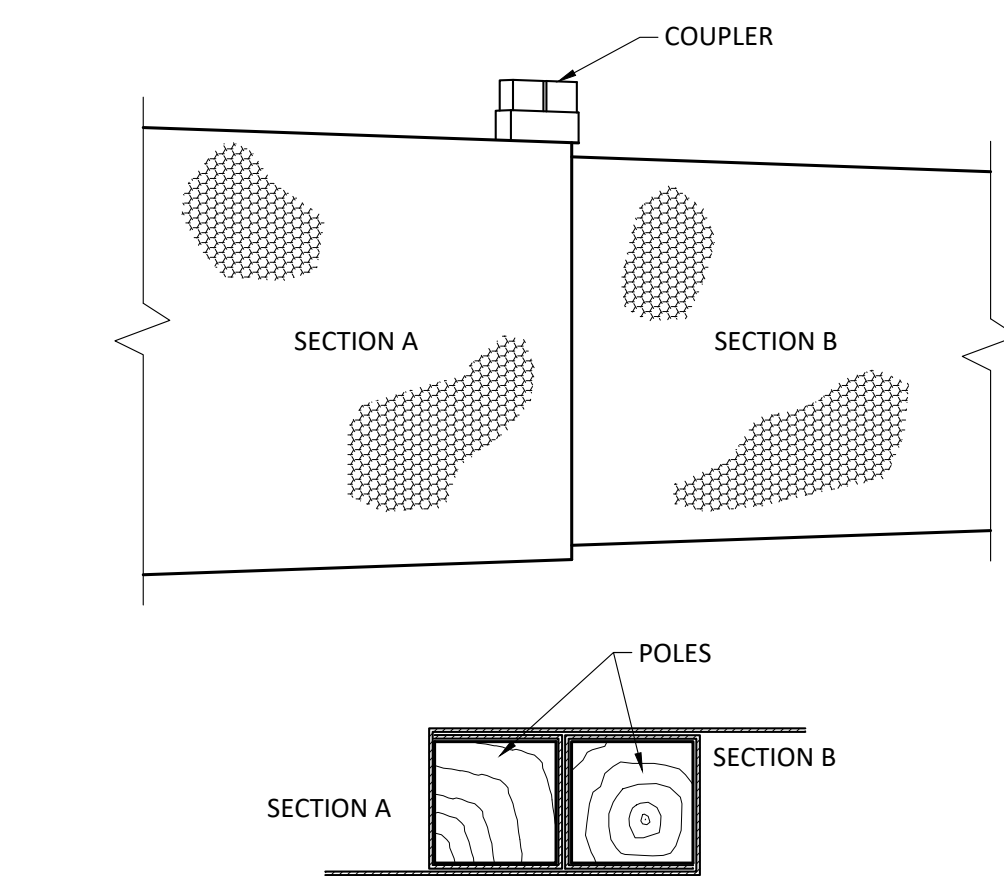
**STONE CHECK DAM DETAIL**

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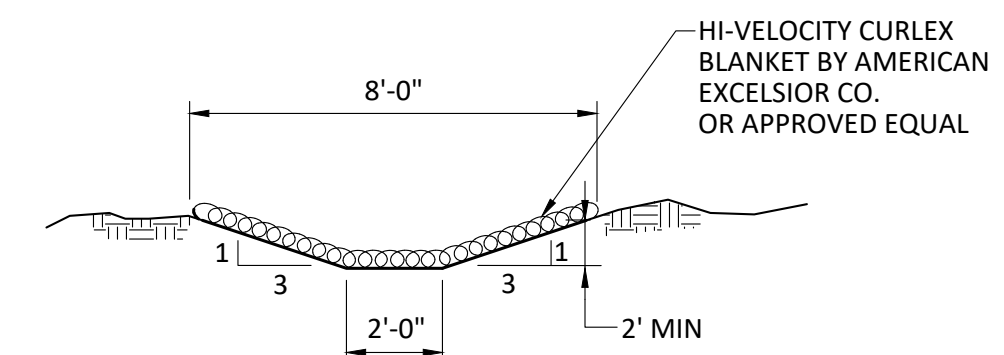
**TEMPORARY STABILIZED TIMBER MAT CONSTRUCTION ACCESS DRIVE DETAIL**

SCALE: "NTS"



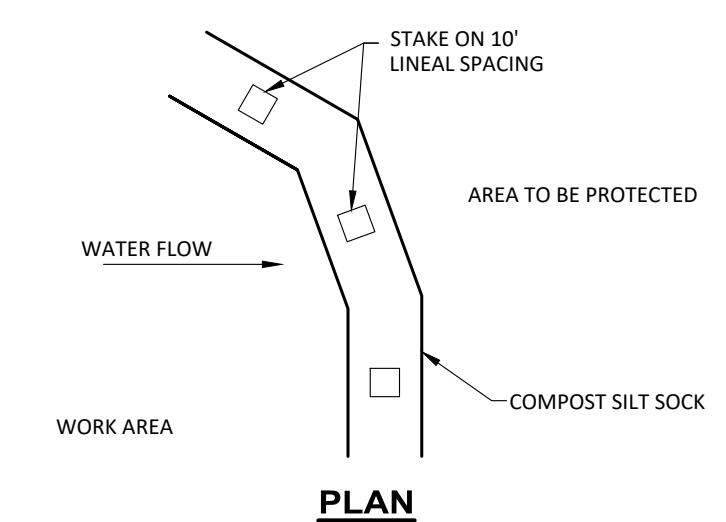
**JOINING SILT FENCE SECTIONS**

NTS

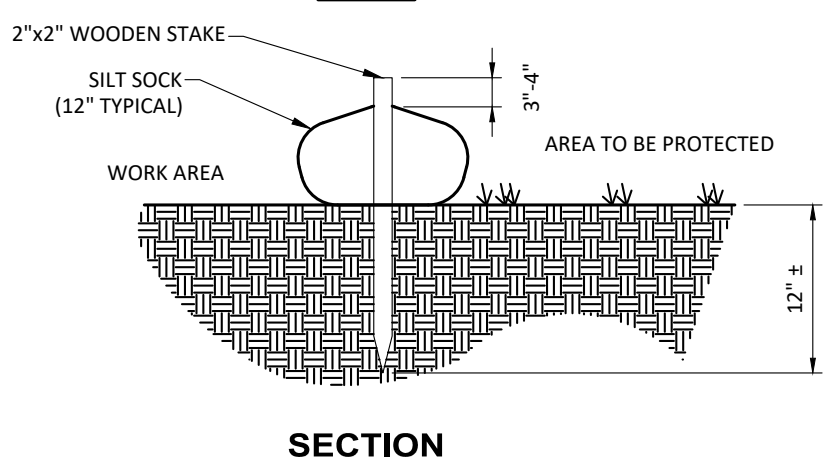


**EROSION CONTROL MATTING - DITCHES**

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**PLAN**



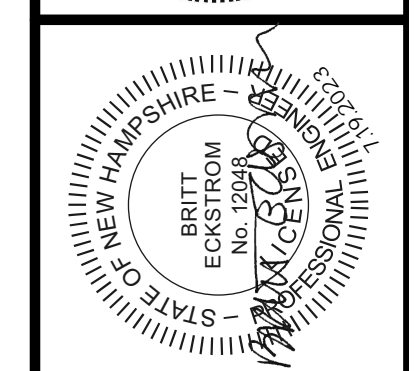
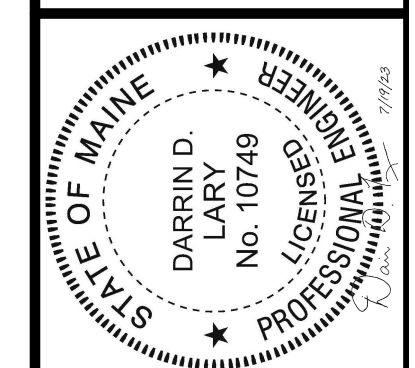
**SECTION**

- 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

APP'D	DATE
BECK	07/23
SUBMISSIONS/REVISIONS	
NO	CONTRACT DRAWINGS
DESIGNED BY: BECKSTROM	
CAD CORP: W. EDGAR	
CHKD: W. EDGAR	
CHECKED BY: R. DAVEE	
DATE: 07/14/2023	
APPROVED BY: B. BECKSTROM	
DATE: 07/19/2023	
PROJECT NO: 34602A	



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EROSION CONTROL NOTES & DETAILS - DURHAM SITE

**DRAWING**  
C-19

**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.

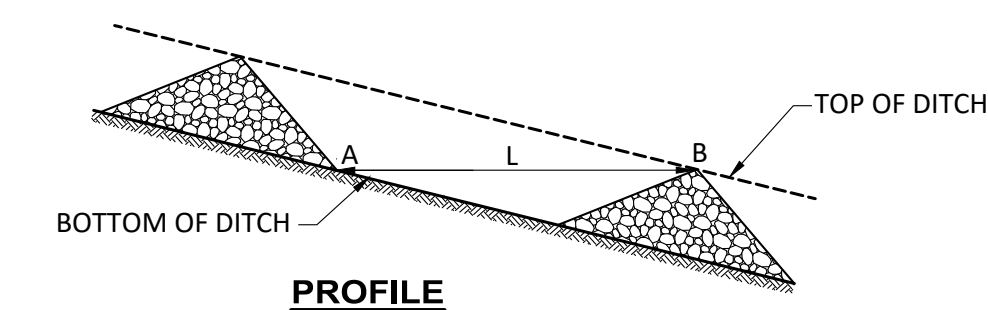
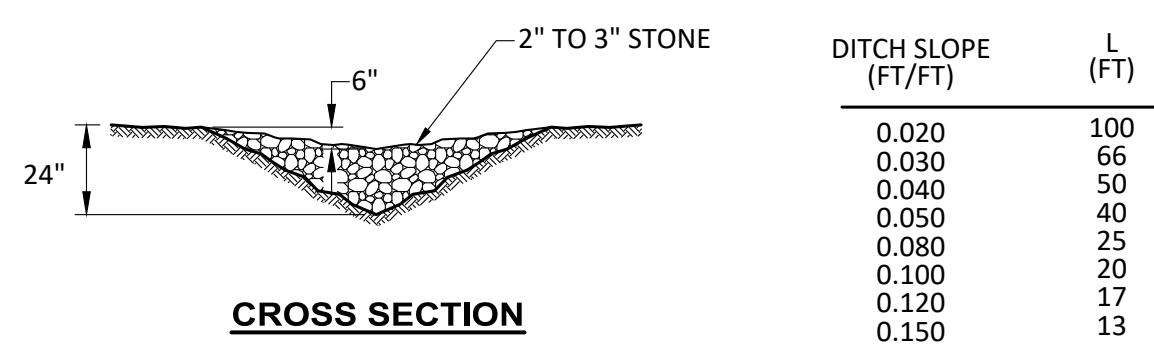
- STABILIZATION SCHEDULE BEFORE WINTER:**
- SEPTEMBER 15** ALL DISTURBED AREAS MUST BE SEEDED AND MULCHED. ALL SLOPES MUST BE STABILIZED, SEEDED AND MULCHED. SLOPES 3:1 OR GREATER TO BE STABILIZED WITH EROSION CONTROL MATTING AND SEEDED. ALL DISTURBED AREAS TO BE PROTECTED WITH AN ANNUAL GRASS MUST BE 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.

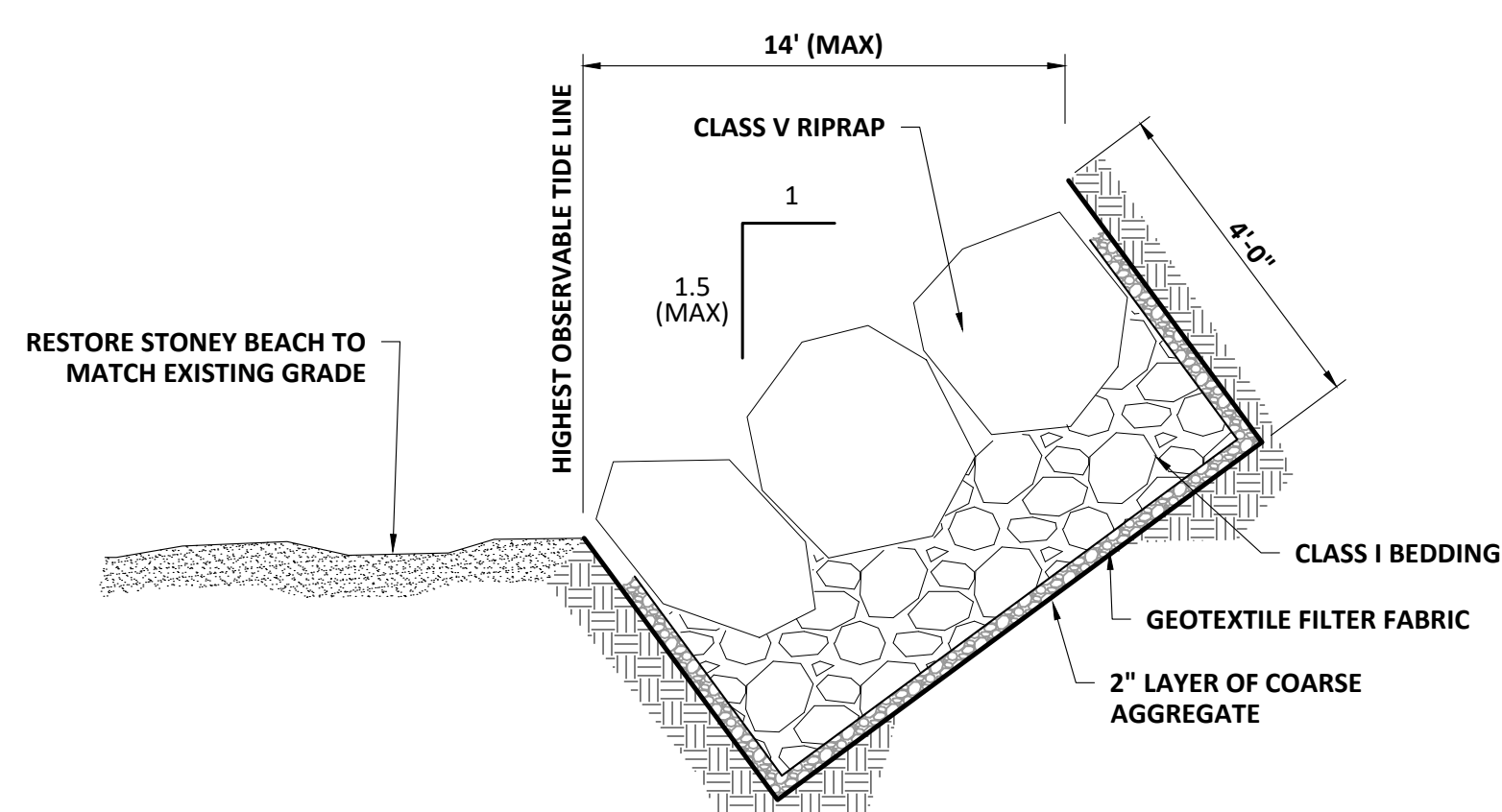
**EROSION CONTROL - WETLAND NOTES**

- 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.



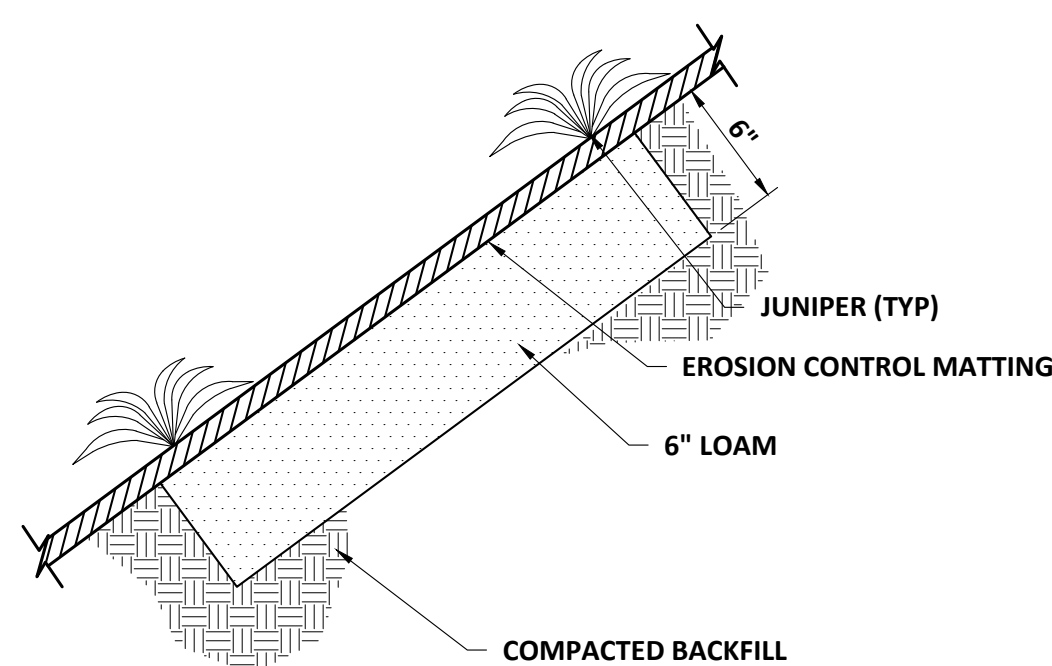
**STONE CHECK DAM DETAIL**

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**REINFORCED TOE DETAIL**

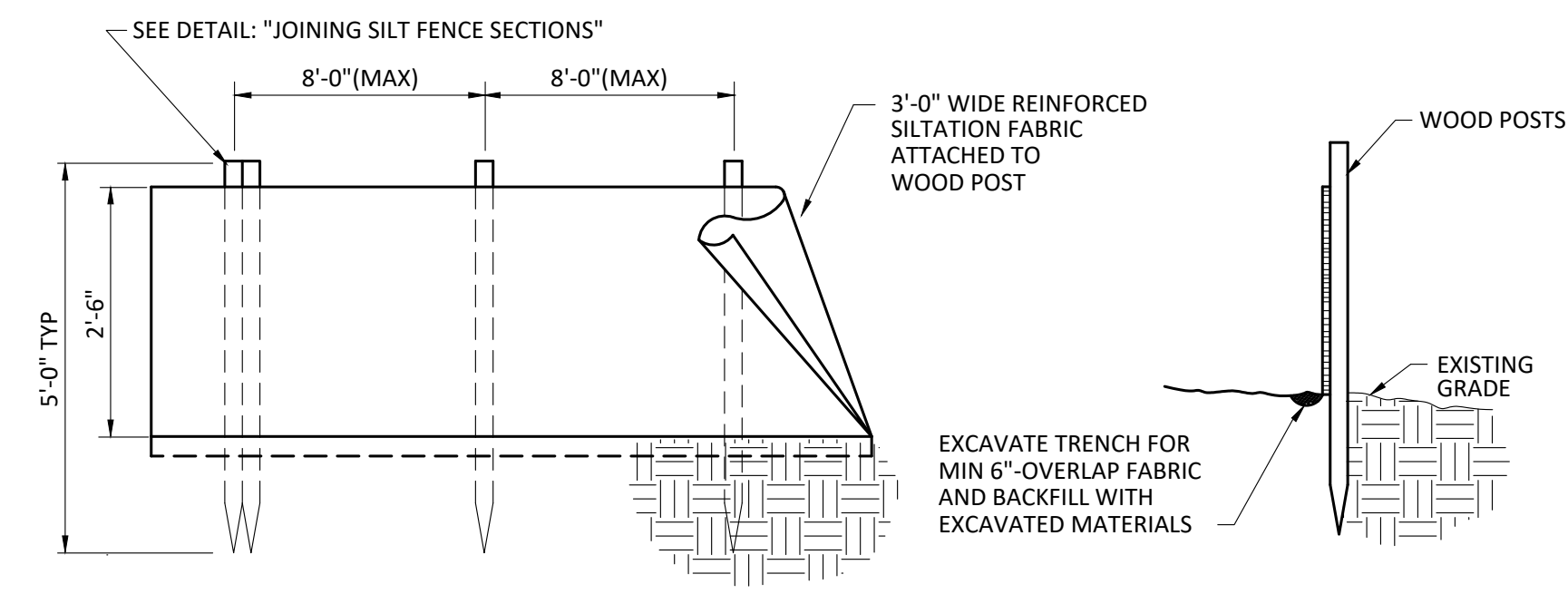
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**SLOPE RESTORATION DETAIL**

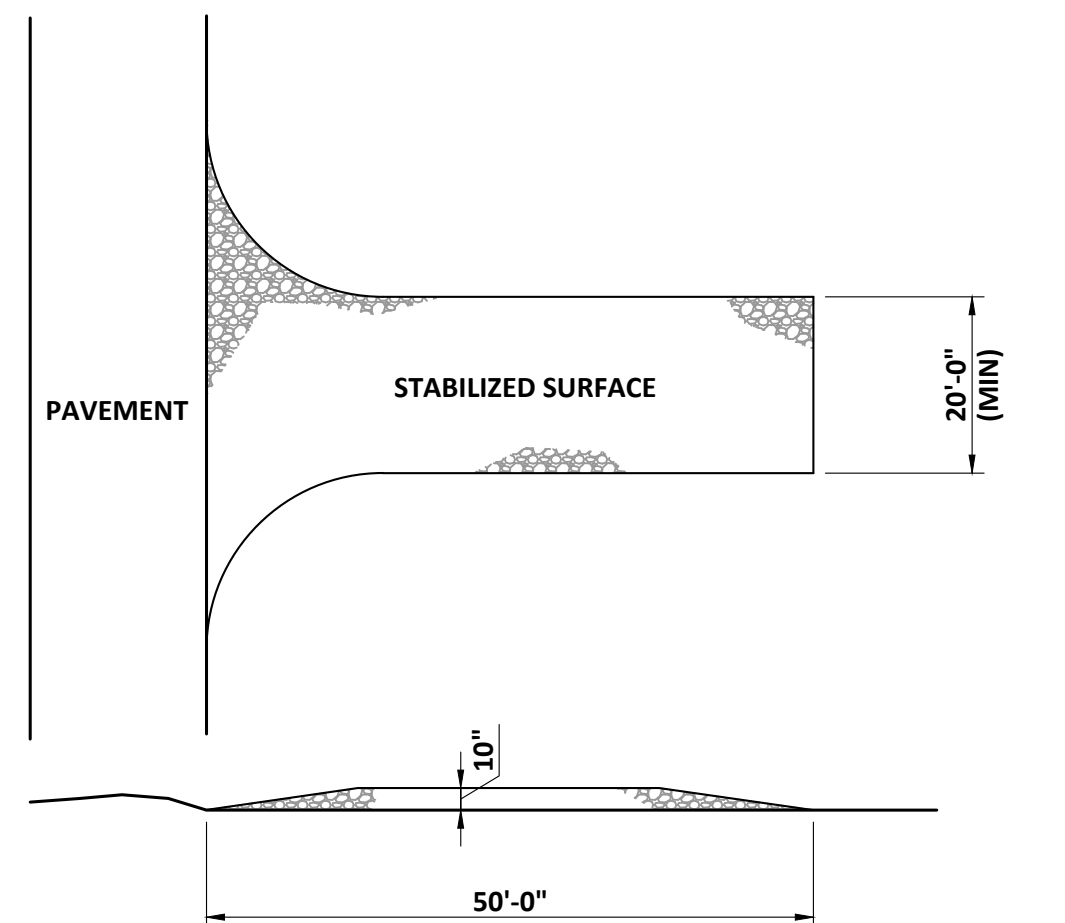
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- NOTES:
- SLOPE SHALL BE SEEDED WITH COASTAL SALT TOLERANT GRASS MIX INTERPLANTED WITH JUNIPER. REFER TO SPECIFICATION 02485.



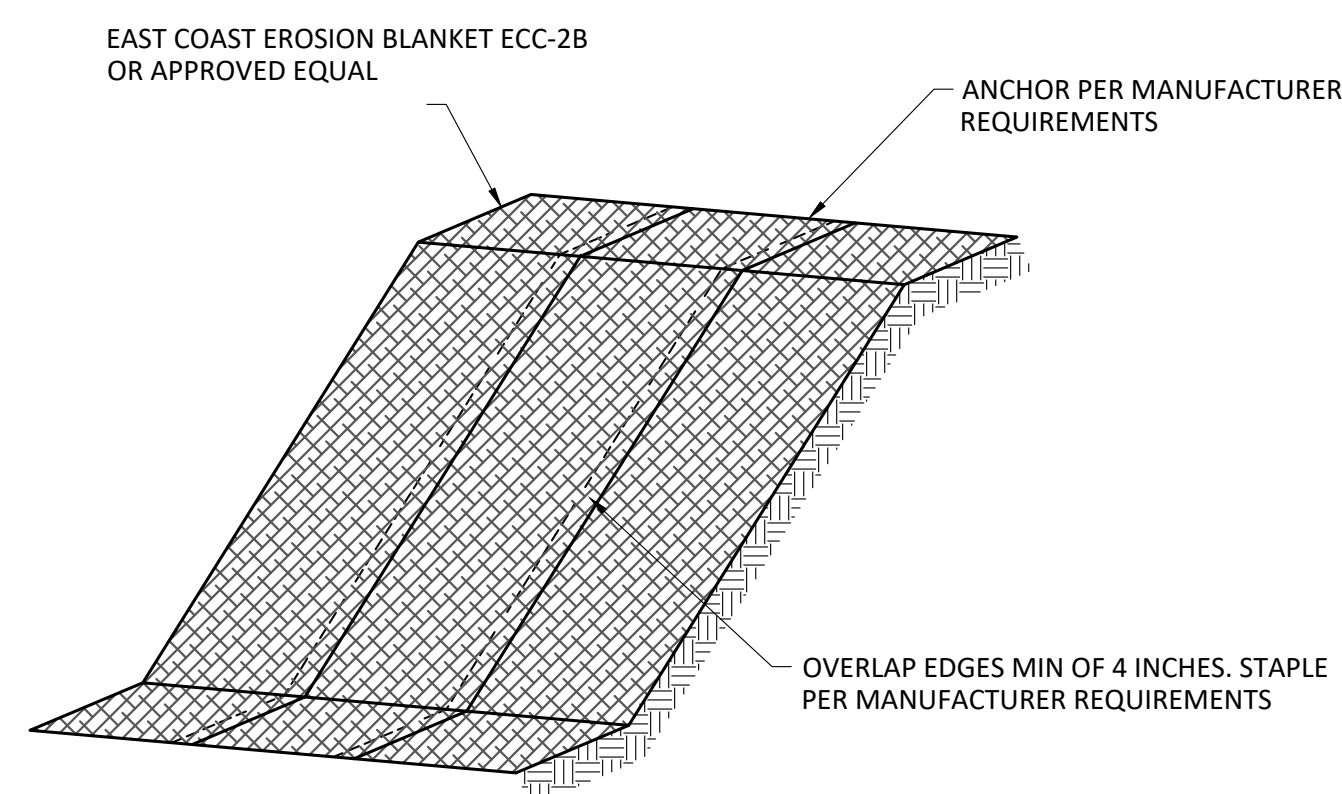
**SILT FENCE INSTALLATION DETAIL**

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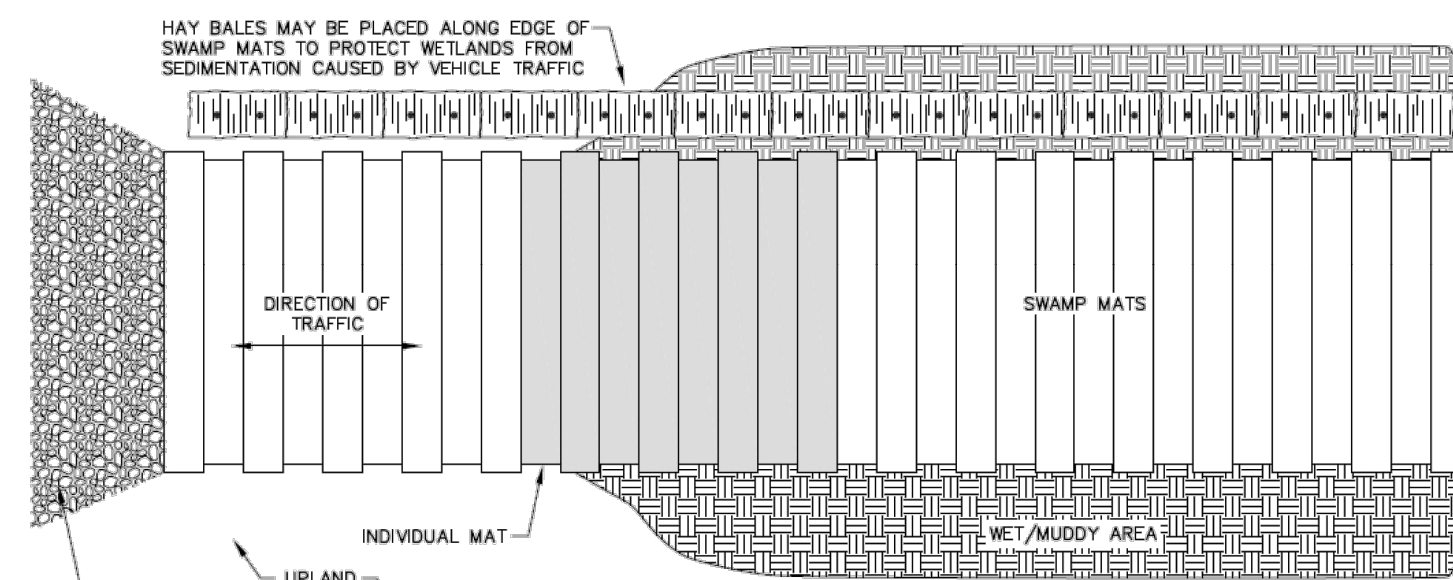
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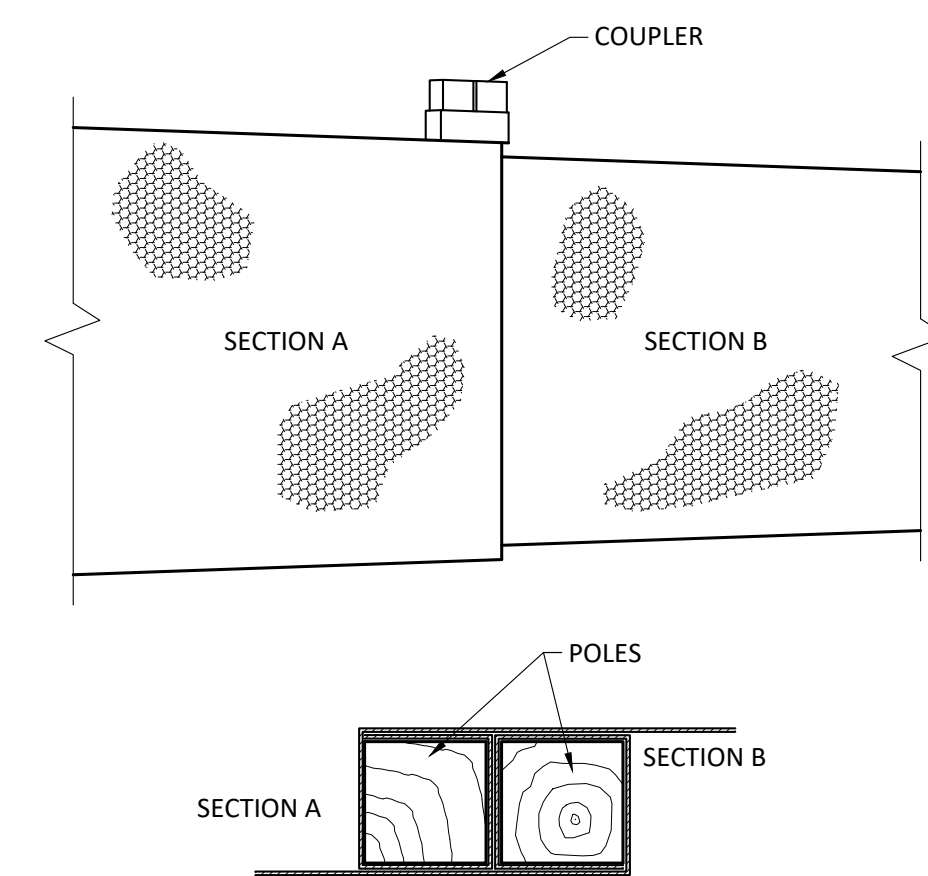
**EROSION CONTROL MATTING - SLOPES**

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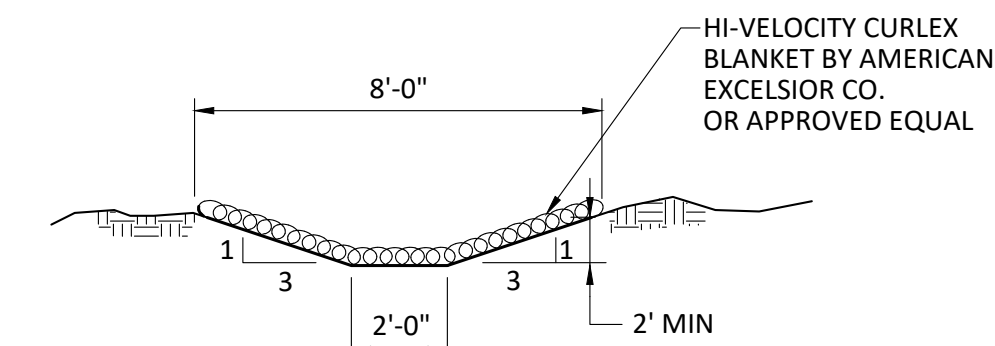
**TEMPORARY STABILIZED TIMBER MAT CONSTRUCTION ACCESS DRIVE DETAIL**

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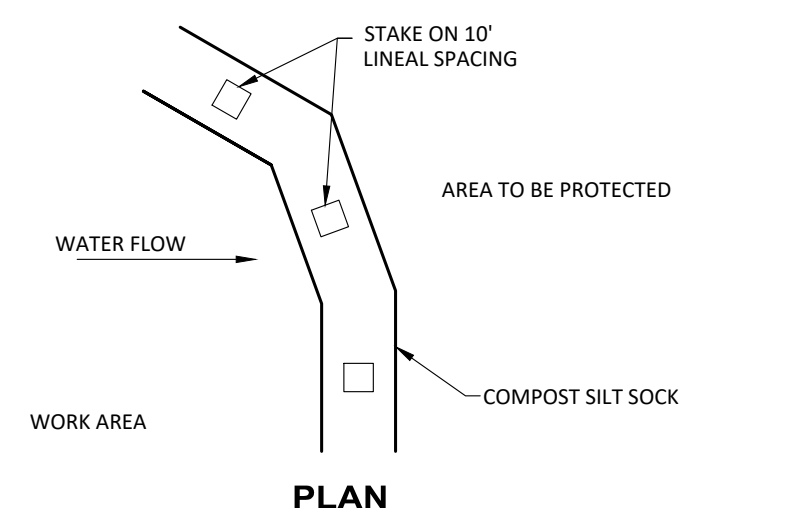
**JOINING SILT FENCE SECTIONS**

NTS



**EROSION CONTROL MATTING - DITCHES**

NTS



**COMPOST SILT SOCK**

NTS

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

APP'D	DATE
BECK	07/23

NO	CONTRACT DRAWINGS	SUBMISSIONS/REVISIONS
1		
2		
3		
4		

DESIGNED BY: BECKSTROM  
 CAD CORP: W. EDGAR  
 CHD: W. EDGAR  
 CHECKED BY: P. DAVEE  
 DATE: 07/14/2023  
 APPROVED BY: B. BECKSTROM  
 DATE: 07/19/2023  
 PROJECT NO.: 34602A

STATE OF MAINE  
 DARRIN D. LARRY  
 No. 10749  
 LICENSED PROFESSIONAL ENGINEER

STATE OF NEW HAMPSHIRE  
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 No. 2087  
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EROSION CONTROL NOTES & DETAILS - NEWINGTON SITE

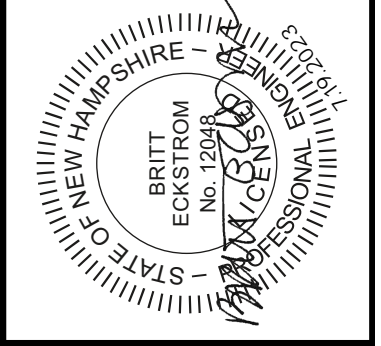
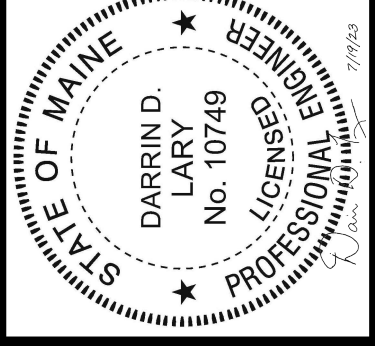
**DRAWING**  
 C-20



**SHEET INDEX**  
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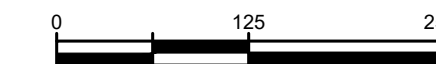


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<b>SUBAQUEOUS WATER TRANSMISSION MAIN</b>		<b>ACCESS ROAD - SHEET INDEX</b>	
<b>LITTLE BAY, DURHAM-NEWINGTON</b>			
<b>NEW HAMPSHIRE</b>			
<b>DRAWING</b>	<b>AR-1</b>	<b>DESIGNED BY:</b> BECKSTROM	<b>NO.</b>
		<b>CAD CORP.:</b> W. EDGAR	<b>CONTRACT DRAWINGS</b>
		<b>CHKD. BY:</b> W. EDGAR	<b>APP'D. DATE:</b> B. BECK 07/23
		<b>CREATED BY:</b> R. DAVEE	
		<b>DATE:</b> 07/14/2023	
		<b>APPROVED BY:</b> B. BECKSTROM	
		<b>DATE:</b> 07/19/2023	
		<b>PROJECT NO.:</b> 34202A	

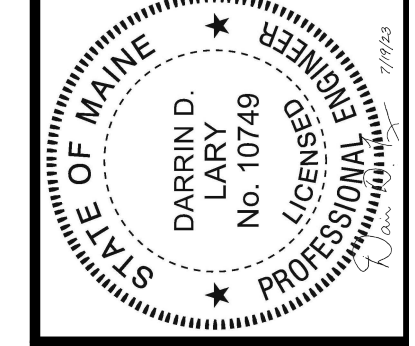


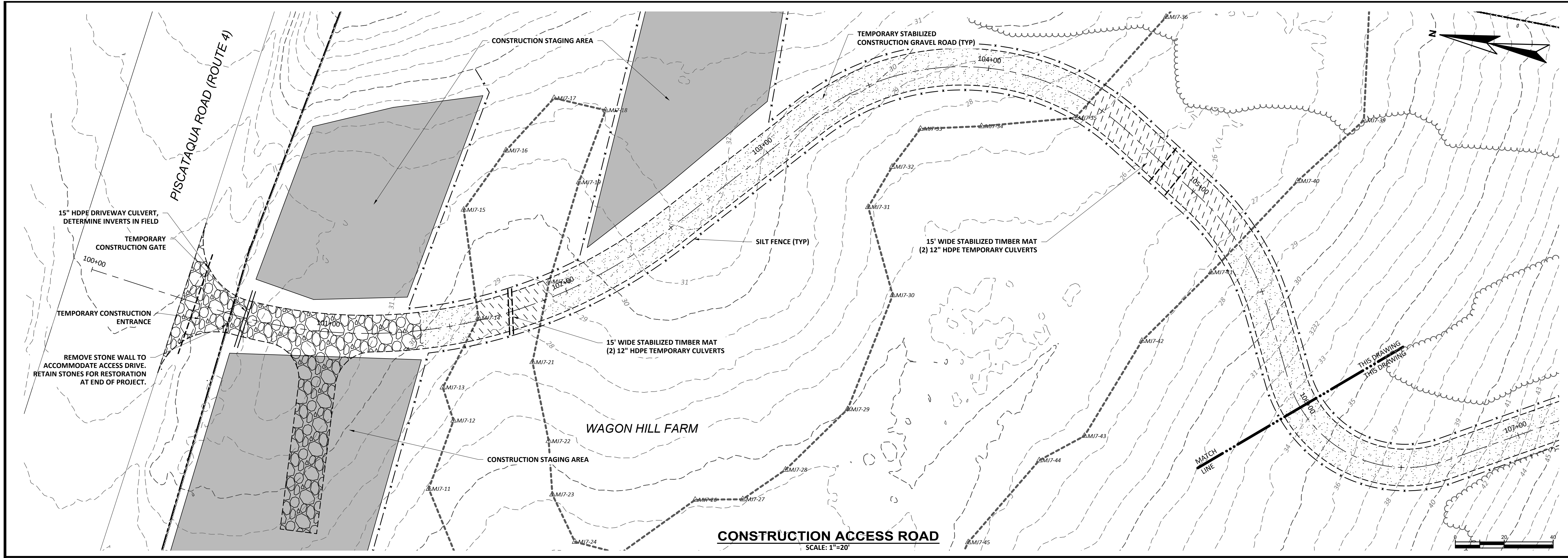


**EXISTING CONDITIONS PLAN - WAGON HILL FARM**  
 SCALE: 1"=125'

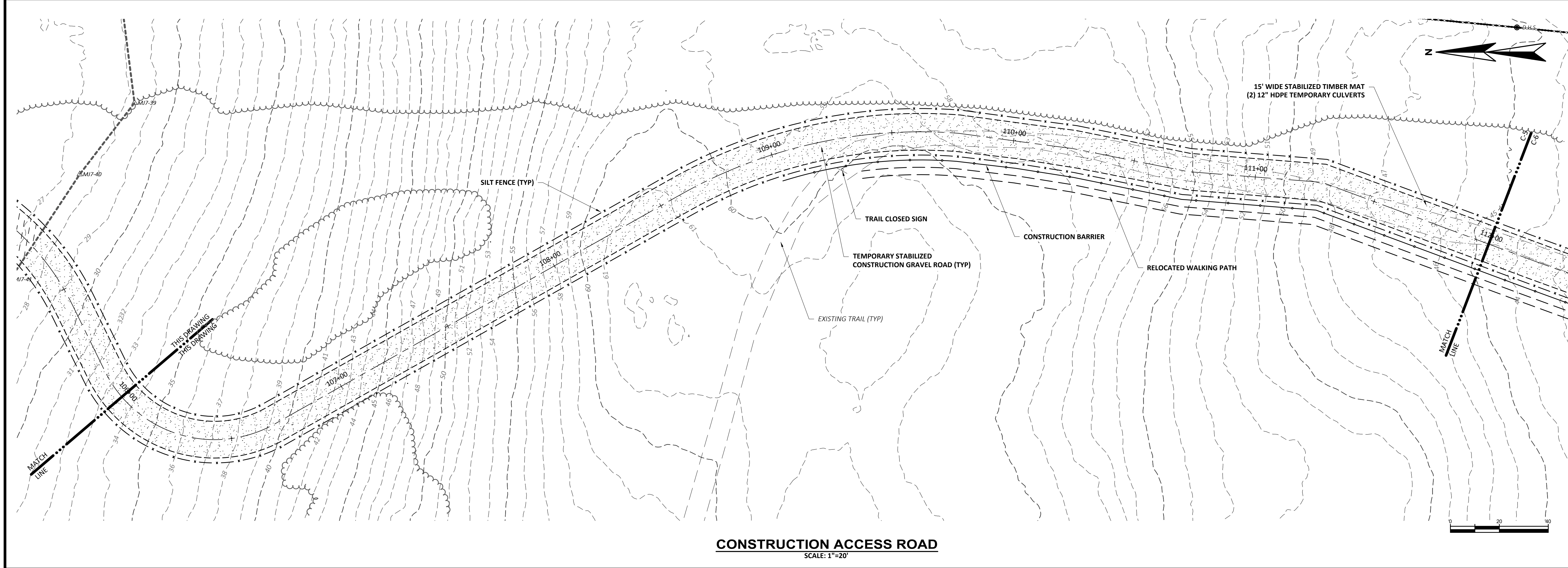


<b>CITY OF PORTSMOUTH</b>		<b>WRIGHT-PIERCE</b>	
<b>SUBAQUEOUS WATER TRANSMISSION MAIN</b>		<b>Engineering a Better Environment</b>	
<b>LITTLE BAY, DURHAM-NEWINGTON</b>		888.621.8156   www.wright-pierce.com	
<b>NEW HAMPSHIRE</b>		<b>ACCESS ROAD - EXISTING CONDITIONS</b>	
<b>DRAWING</b>		<b>AR-2</b>	
DESIGNED BY: BECKSTROM	NO	CONTRACT DRAWINGS	APP'D DATE
CAD CORP: W. EDGAR	NO		B. BECK 07/23
CD: W. EDGAR	NO		
CHECKED BY: R. DAVEE	NO		
DATE: 07/14/2023	NO		
APPROVED BY: B. BECKSTROM	NO		
DATE: 07/19/2023	NO		
PROJECT NO: 34602A	NO		





**CONSTRUCTION ACCESS ROAD**  
SCALE: 1"=20'



**CONSTRUCTION ACCESS ROAD**  
SCALE: 1"=20'

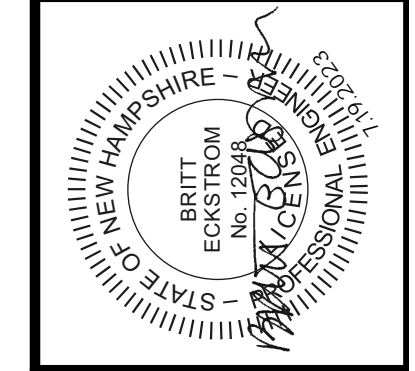
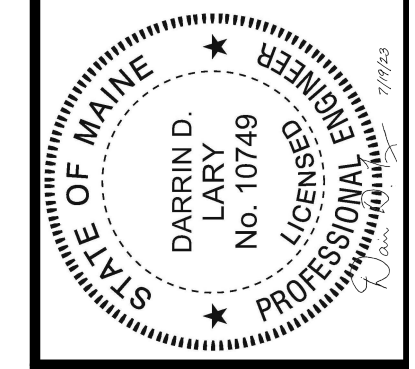
APPD	DATE
B.ECK	07/23

NO	CONTRACT DRAWINGS	SUBMISSIONS/REVISIONS
1		

DESIGNED BY:	BECKSTROM
CD CORP:	W. EDGAR
CD:	W. EDGAR
CHECKED BY:	R. DAVEE
DATE:	07/14/2023
APPROVED BY:	B. BECKSTROM
DATE:	07/19/2023
PROJECT NO.:	34202A



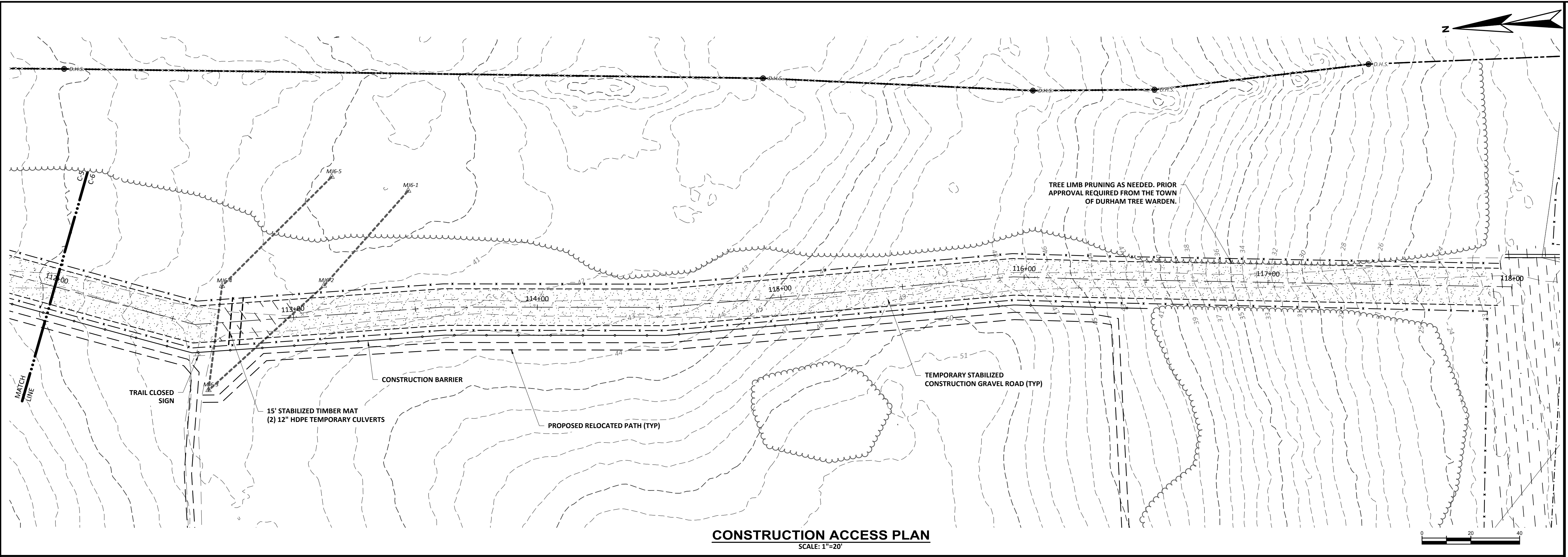
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CITY OF PORTSMOUTH  
SUBAQUEOUS WATER TRANSMISSION MAIN  
LITTLE BAY, DURHAM-NEWINGTON  
NEW HAMPSHIRE

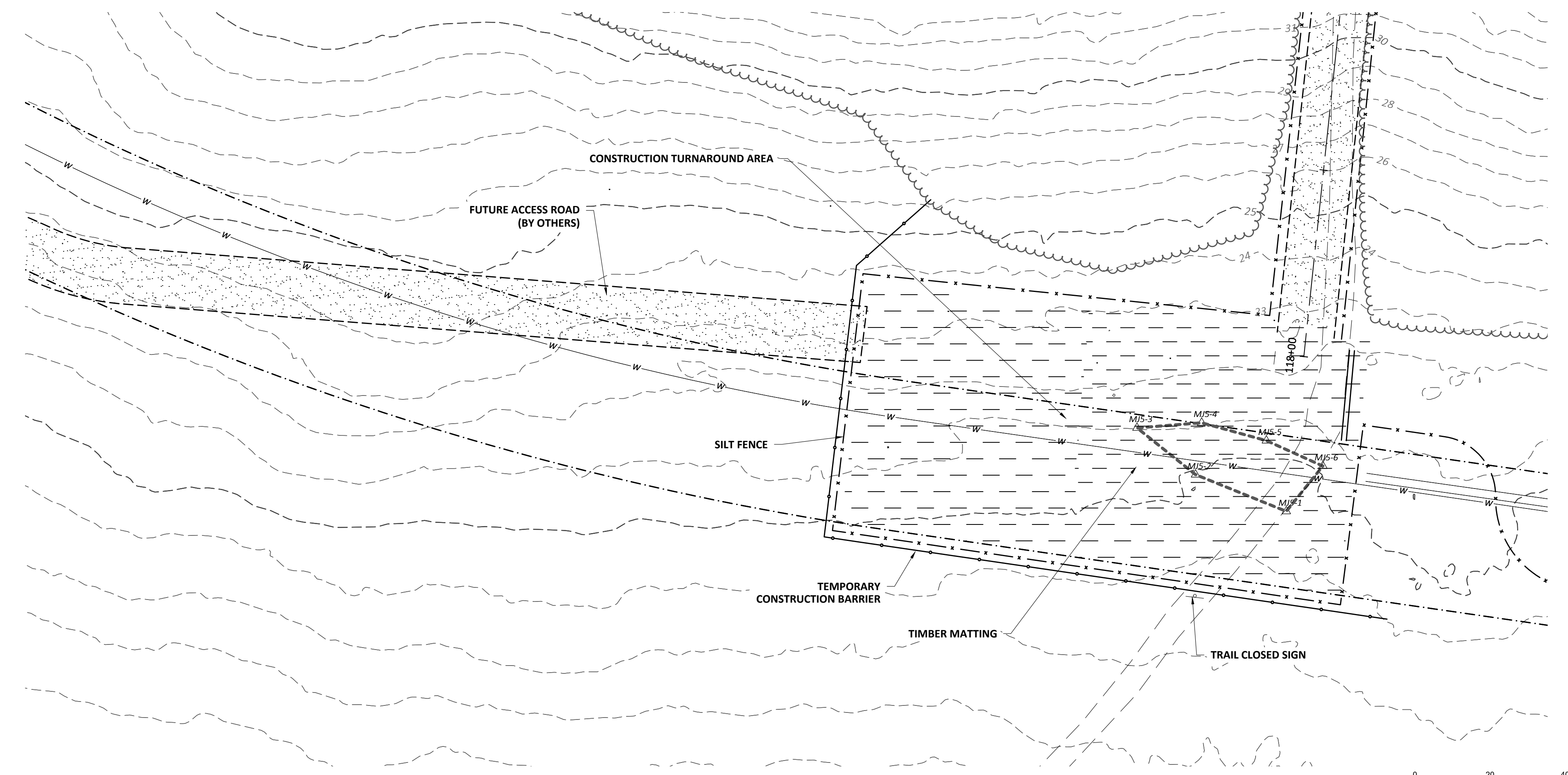
ACCESS ROAD - PLAN VIEW  
STA. 100+00 TO STA. 112+00

**DRAWING**  
AR-3



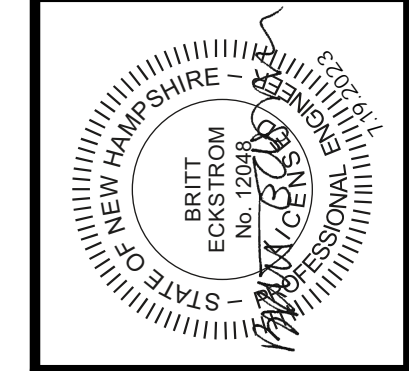
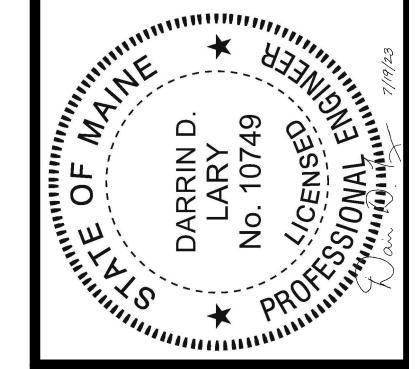


**CONSTRUCTION ACCESS PLAN**  
SCALE: 1"=20'



**CONSTRUCTION ACCESS PLAN**  
SCALE: 1"=20'

NO	CONTRACT DRAWINGS	DATE
1	DESIGNED BY: BECKSTROM CAD CORP: W EDGAR CHK: W EDGAR	07/23
2	CHECKED BY: P DAVEE DATE: 07/14/2023	
3	APPROVED BY: B BECKSTROM DATE: 07/19/2023	
4	PROJECT NO: 44602A	



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CITY OF PORTSMOUTH  
SUBAQUEOUS WATER TRANSMISSION MAIN  
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NEW HAMPSHIRE

ACCESS ROAD - PLAN VIEW II  
STA. 112+00 TO STA. 118+00

**DRAWING**  
AR-4