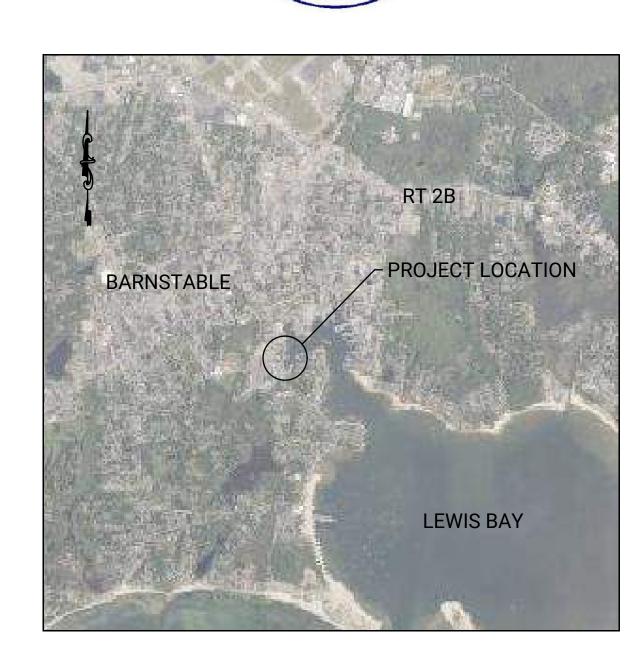
### ISSUED FOR BID PURPOSES ONLY NOT FOR CONSTRUCTION

# TOWN OF BARNSTABLE, MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS BISMORE PARK MARINA BULKHEAD REHABILITATION AND WATER LINE REPLACEMENT ISSUED FOR BID (REV 1 - 2/14/2025)

## 180 OCEAN STREET HYANNIS HARBOR BARNSTABLE, MASSACHUSETTS

Prepared for: TOWN OF BARNSTABLE, MA

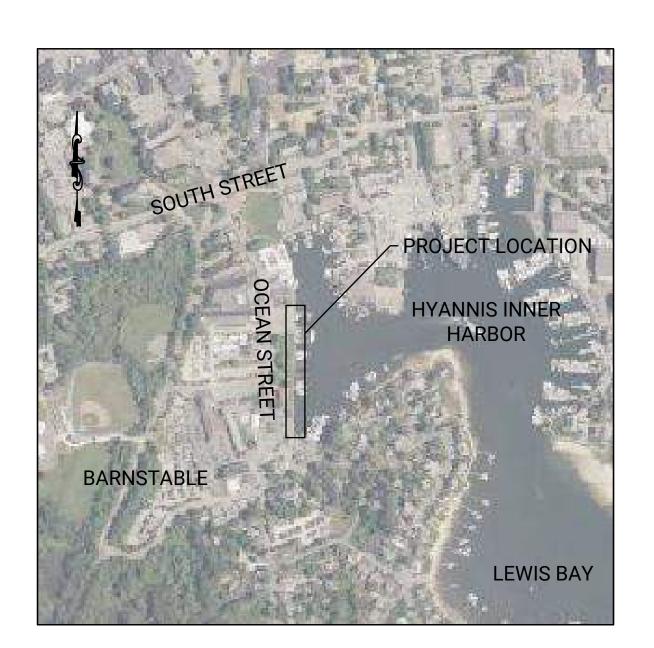
\* BARNSTABLE, \*
MASS.
1639.



**VICINITY MAP** 

Prepared by: Foth Infrastructure & Environment, LLC





**LOCATION MAP** 

#### **DRAWING INDEX**

SHEET NUMBER	TITLE
1	COVER SHEET
2	BULKHEAD REHABILITATION SITE PLAN
3	BULKHEAD REHABILITATION PROFILE & DETAILS
4	DETAILS

TOWN MANAGER MARK S. ELLS

TOWN ENGINEER
GRIFFIN BEAUDOIN, P.E.



SHEET TITLE

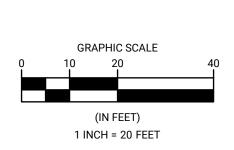
COVER

SHEET

SHEET NUMBER

1

ASSESSORS PARCEL ID No.326070 220 OCEAN STREET N/F HYANNIS HARBOR TOURS, INC. LAND COURT CERTIFICATE No.57076 FERRY **TERMINAL** 



#### ASSESSORS PARCEL ID No.326067 138 OCEAN STREET NIF HYANNIS HARBOR TOURS, INC. EX. TIMBER BULKHEAD AREA TOW=7.0± -EX. TIMBER PILE (TYP.) LIMIT OF 12' WIDE STAGING AND DIVE SUPPORT AREA. CONTRACTOR TO MINIMIZE DISRUPTION TO PEDESTRIAN TRAFFIC AND ONLY PROTECT AREAS NECESSARY TO PERFORM THE DAILY WORK TASKS. CONTRACTOR TO INSTALL TEMPORARY FENCING AROUND THE PERIMETER OF WORKING AREA. HAND HOLE 7. BULKHEAD FACE REHABILITATION (SEE SHEET 3 FOR PROFILE): 1. INSTALLATION OF SACRIFICIAL ANODES BETWEEN MLW AND MUDLINE AS DIRECTED. CONC. CAP 2. STEEL PLATING OVER AREAS WITH GREATER THAN 0.125" OF SECTION LOSS. 3. TOUCH-UP CORROSION-RESISTANT EPOXY COATING FROM TOP OF BULKHEAD TO 6" BELOW MLW AS DIRECTED. HYANNIS INNER HARBOR |A| |A| PARKING X. PIER EL. 6.4 EX. BERTHS 30' = 2CONST. BASELINE -35' = 8STA (TYP.) EX. WATER SERVICE TO BE RESTORED (TYP. OF 14) **BISMORE PARK** UTILITY TRENCH FOR WATER SERVICE REPLACEMENT 1. 4' WIDE x 5.5' DEEP UTILITY TRENCH, PER TOWN OF BARNSTABLE DPW WATER SUPPLY DIVISION DETAIL #02 (SEE DETAILS SHEET 4) 2. EX. WATERLINE TO BE REPLACED BETWEEN PUMP HOUSE AND BULKHEAD 3. EMPTY ELECTRICAL CONDUIT TO BE PLACED IN TRENCH FOR FUTURE SERVICE CONNECTION AREA 4. DISTURBED LAWN AREAS TO BE RESTORED VIA SEEDING ASSESSORS PARCEL 5. CONCRETE WALKWAY TO BE REPLACED IN-KIND FOLLOWING ID No.326068 COMPLETION OF WORK (6" REINFORCED CONC. SLAB) 180 OCEAN STREET 6. PEDESTRIAN WALKWAY TO BE REPAVED WITHIN PROJECT AREA N/F TOWN OF BARNSTABLE DEED BOOK 464 PAGE 57 FOLLOWING COMPLETION OF THE WORK (1.5" SURFACE COURSE OVER 2.5" BINDER COURSE OVER COMPACTED 6" PROCESSED STONE/GRAVEL SUB-BASE) . EROSION CONTROLS TO BE INSTALLED AND MAINTAINED AROUND ELECTRICAL TRENCH EXCAVATION STOCKPILES TOW=5.9±\ $\sim$ TOW=7.0±

MATCHLINE - SEE LEFT

#### SHEETPILE BULKHEAD **REPAIR TABLE**

ORDER	REPAIR	DESCRIPTION
1	SHEETPILE 3" INTERLOCK WELD	<ol> <li>CLEAN INTERLOCK AREA TO BE WELDED FROM MARINE GROWTH AND COATING USING A WIRE BRUSH WITH VACUUM SYSTEM OR SIMILAR.</li> <li>APPLY 5/16" FILLET WELD FROM THE TOP OF THE SHEET 3" DOWN AS SHOWN IN DETAIL 2 ON SHEET 3.</li> <li>COAT THE COMPLETED WELD AND SURROUNDING CLEANED AREAS WITH BAR RUST 235 OR SIMILAR.</li> </ol>
2	ANODE INSTALLATION	<ol> <li>CONTRACTOR SHALL INSTALL ANODES FOLLOWING MANUFACTURER INSTALLATION RECOMMENDATIONS.</li> <li>ANODE STRAPS TO BE WELDED TO THE FACE OF THE BULKHEAD USING A 5/16" WELD ON 3 SIDES. SEE DETAIL 1 ON SHEET 3.</li> <li>UNDERWATER WELDING SHALL FOLLOW THE APPLICABLE SECTIONS OF AWS D3.6M, SPECIFICATION FOR UNDERWATER WELDING.</li> <li>ALL STRAPS AND CLEANED AREAS TO BE COATED WITH CARBOLINE A788 HIGH BUILD EPOXY OR SIMILAR FOLLOWING INSTALLATION.</li> </ol>
3	BULKHEAD THICKNESS IDENTIFICATION	1. ULTRASONIC THICKNESS READINGS TO BE COLLECTED ALONG EACH SHEET AT THE MUDLINE, AT MIDWATER, IN THE SPLASH ZONE, AND ABOVE HIGH TIDE LINE TO DETERMINE SHEET PILE THICKNESS AT EACH MONITORING LOCATION.  2. CONTRACTOR TO PROVIDE ALL READINGS IN TABLE FORMAT FOR IDENTIFICATION OF AREAS OF THE BULKHEAD WITH GREATER THAN 1/8" AND 1/16" OF SECTION LOSS REQUIRING STEEL PLATING AND RECOATING REPAIRS.
4	STEEL PLATE REPAIRS TO BULKHEAD	1. CLEAN AROUND AREA TO BE PATCHED FROM MARINE GROWTH AND UNSOUND COATING USING A WIRE BRUSH WITH VACUUM SYSTEM OR SIMILAR.  2. CUT THE 1/4" THICK ASTM A588 GR. 50 PLATE 6" LARGER THAN FIELD MEASURED SIZE AND BEND PLATE TO FIT OVER SHEET PILE.  3. COAT THE PLATE WITH BAR RUST 235 OR SIMILAR ALL REPAIRS.  4. CENTER THE PLATE ON THE REPAIR AREA AND APPLY 3/16" WELD ALL AROUND.  5. COAT THE WELD AND EXPOSED AREAS WITH CARBOLINE A788 OR SIMILAR FOR ALL REPAIR AREAS.  6. UNDERWATER WELDING SHALL FOLLOW THE APPLICABLE SECTIONS OF AWS D3.6M, SPECIFICATION FOR UNDERWATER WELDING.
5	SHEETPILE BULKHEAD RECOATING	<ol> <li>CLEAN AREAS OF THE EXISTING STEEL BULKHEAD BETWEEN THE TOP OF THE BULKHEAD (±5.5' NAVD88) TO 6" BELOW MLW (±-2.5' NAVD88) FROM MARINE GROWTH AND UNSOUND COATING USING A WIRE BRUSH WITH VACUUM SYSTEM OR SIMILAR TO EXPOSE BARE STEEL, AS DIRECTED BY OWNER OR ENGINEER AND RECOAT WITH APPLICABLE PRODUCT.</li> <li>STANDARD STEEL RECOATING TREATMENT SHALL BE APPLIED BETWEEN THE TOP OF THE BULKHEAD (±5.5' NAVD88) AND 2' ABOVE MLW (±0' NAVD88) AS DIRECTED USING BAR RUST 235 OR SIMILAR FOR COATING BY DIVERS ALONG THE ENTIRE LENGTH OF THE BULKHEAD.</li> <li>SPLASH ZONE STEEL RECOATING TREATMENT SHALL BE APPLIED BETWEEN 2' ABOVE MLW (±0' NAVD88) AND 6" BELOW MLW (±-2.5' NAVD88) AS DIRECTED USING CARBOLINE A788 HIGH BUILD EPOXY OR SIMILAR FOR COATING BY DIVERS.</li> </ol>

DATUM

OFFSETS MLLW NAVD88 4.79 — 2.54 AHTL 3.84 + 1.59 MHHW 1.25 MHW 2.25 + 0.00 NAVD 88 0.26 + -1.99 MLW 

OFFSETS TAKEN FROM VDATUM 4.4 ONLINE ON 03/25/2022 FOR 41.6496N, -70.2789W

M. PACKARD

REPAIR

- 1. CONTRACTOR TO INSTALL EPOXY COATINGS AND CATHODIC PROTECTION SYSTEMS PER THE MANUFACTURERS INSTALLATION RECOMMENDATIONS.
- 2. CONTRACTOR REQUIRED TO USE A WIRE BRUSH WITH VACUUM SYSTEM FOR MARINE GROWTH AND COATING REMOVAL, PROPOSED EQUIPMENT MUST BE SUBMITTED TO THE BARNSTABLE CONSERVATION COMMISSION 4 WEEKS PRIOR TO THE WORK FOR DETERMINATION IF A DEBRIS BOOM
- CONTRACTOR TO FOLLOW ALL CONDITIONS OUTLINED IN THE BARNSTABLE CONSERVATION COMMISSION ORDER OF CONDITIONS, FILE NO. SE 003-6206.
- CONTRACTOR IS REQUIRED TO NOTIFY DIGSAFE AT LEAST 72 HOURS PRIOR TO THE START OF ANY EXCAVATION OR TRENCHING WORK. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE REPLACEMENT OF ANY DAMAGES TO EXISTING UTILITIES.
- FOLLOWING FIELD VERIFICATION, CONTRACTOR TO SUBMIT UTILITY SERVICE REPLACEMENT PLAN FROM PUMP HOUSE TO PIER FOR ENGINEERS REVIEW. CONTRACTOR TO VERIFY, LOCATE, AND PROTECT EXISTING UTILITIES AND SITE FEATURES TO

CONTRACTOR TO FIELD VERIFY EXISTING UTILITY CONNECTION AT THE PUMP HOUSE AND PIERS.

- REMAIN. DAMAGE TO EXISTING UTILITIES AND SITE FEATURES TO REMAIN SHALL BE REPLACED TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE TOWN. 7. THE PRELIMINARY DATA SHOWN IS FROM FOTH SURVEYS ON 4/14/2022 (MULTIBEAM) AND 5/3/2022
- (TOPO AND LEAD LINES). 8. GROUND SURVEY PERFORMED BY MERRILL ENGINEERS AND LAND SURVEYORS DURING JUNE OF 2022.
- 9. SOUNDINGS SHOWN ARE FROM THE 10X10 AVG DATA SET FOR MAPPING AND REFER TO DEPTHS BELOW THE MLLW DATUM.
- 10. CONTOURS SHOWN ARE FROM THE 1X1 AVG DATA SET. 11. PROJECT SITE IS LOCATED WITHIN FEMA FLOOD ZONE AE (EL. 11), ZONE AE (EL. 12), AND ZONE AE (EL. 13) OF THE FLOOD INSURANCE RATE MAP, AS SHOWN ON COMMUNITY MAP No. 25001C0569J,
- WHICH BEARS AN EFFECTIVE DATE OF JULY 16, 2014. 12. THE INFORMATION DEPICTED ON THIS PLAN REPRESENTS THE RESULTS OF HYDROGRAPHIC AND TOPOGRAPHIC SURVEYS PERFORMED ON THE DATES SHOWN, AND CAN ONLY BE CONSIDERED AS INDICATING THE SEABED CONDITIONS AT THAT TIME. INTERPOLATED INFORMATION FROM BETWEEN SOUNDING RUNS IS NOT GUARANTEED. SHOALS, OBSTRUCTIONS OR OTHER DIFFERING CONDITIONS MAY EXIST BETWEEN THESE RUNS. NO SURVEYS WERE CONDUCTED TO LOCATE PROPERTY LINES, CHANNEL LIMITS, EASEMENTS, UTILITIES, GEOTECHNICAL FEATURES, SHORELINES, STRUCTURES, HABITATS OR ANY OTHER PHYSICAL FEATURES RELATING TO THE PROJECT SITE, NOR DOES FOTH
- WARRANT THE EXISTENCE OR LOCATION OF SAID PHYSICAL FEATURES. 13. ALL WORK ACTIVITIES TO BE COORDINATED WITH TOWN OF BARNSTABLE HARBORMASTER.

POSSESSION AND USE OF THE MATERIAL CONTAINED ON THESE DRAWINGS IS GRANTED ONLY IN CONNECTION WITH ITS USE AS IT RELATES TO THE TITLED PROJECT, ANY OTHER USE, REPRODUCTION OR DISCLOSURE OF THE INFORMATION CONTAINED HEREON IS EXPRESSLY PROHIBITED WITHOUT THE WRITTEN CONSENT OF FOTH.



A O

DATE OF PREPARATION URVEYED JAH/ MEC 4/14/2022 11/21/2024 BPF

DRAWN JMP DESIGNED 11/2024

11/2024

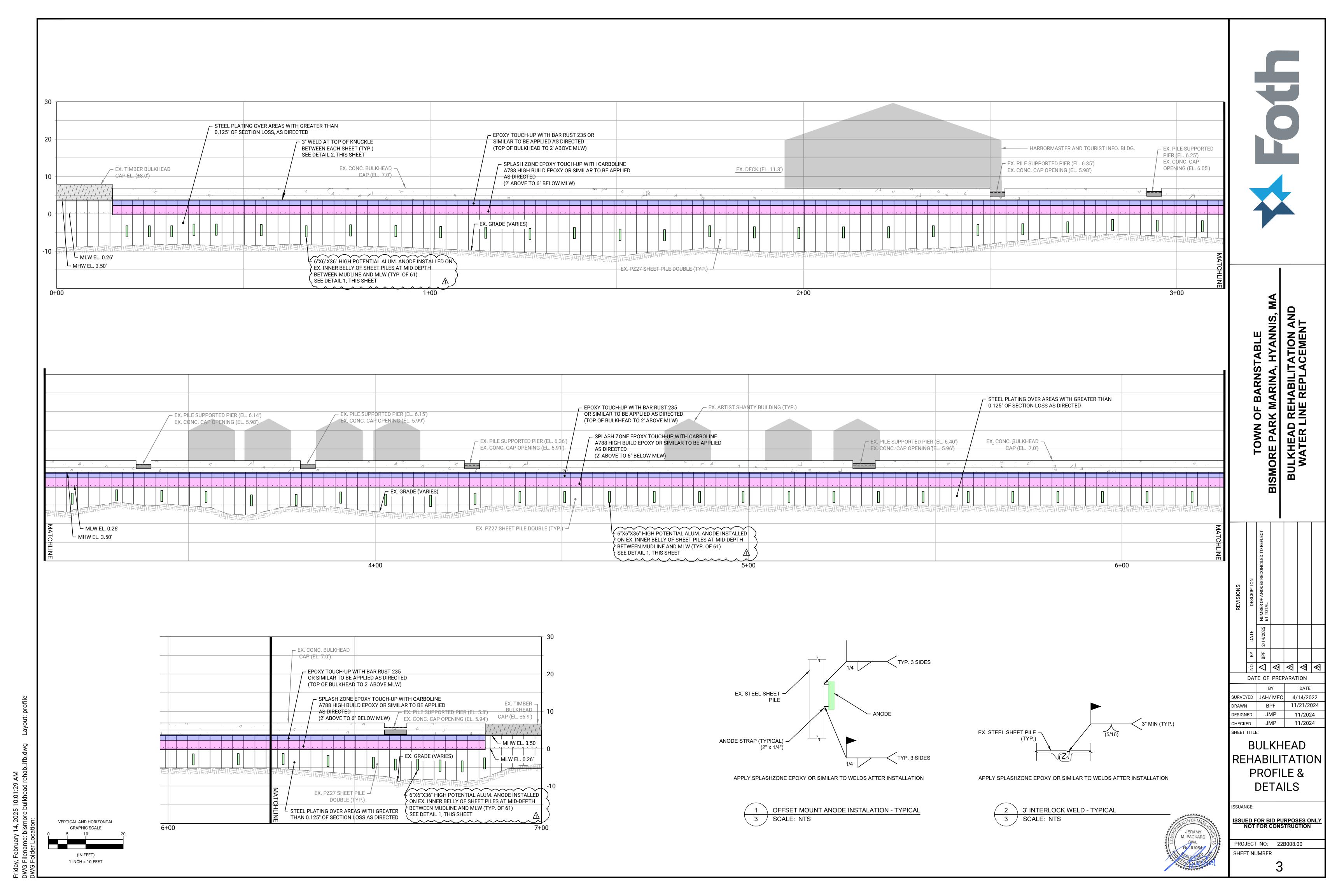
CHECKED JMP SHEET TITLE:

BULKHEAD **REHABILITATION** SITE PLAN

SSUANCE:

ISSUED FOR BID PURPOSES ONLY NOT FOR CONSTRUCTION

PROJECT NO: 22B008.00 SHEET NUMBER



DATE OF PREPARATION

**DETAILS** 

**JERAMY** 

ISSUED FOR BID PURPOSES ONLY NOT FOR CONSTRUCTION

PROJECT NO: 22B008.00 SHEET NUMBER

- MATCH TO EX. GRADE SURFACE COURSE (1.5") - BINDER COURSE (2.5") - UNDISTURBED EARTH (TYP.) EX. SUB-BASE (TYP.) - 6" PROCESSED STONE/GRAVEL (SUB-BASE) 3" WIDE PRINTED 🛩 - 12" BANK-RUN GRAVEL UNDERGROUND WARNING TAPE WITH METAL CORE. APPROX. 9" BELOW GRADE DEPTH OF COVER 5' MINIMUM COMMON FILL -SUBGRADE - COMPACTED BACKFILL CONSISTING OF APPROVED EXCAVATED MATERIAL (2) EMPTY 2" Ø ELEC. CONDUIT FOR FUTURE SERVICE CONNECTION. 3.5' MIN. BELOW GRADE SELECT FILL -THOROUGHLY COMPACTED MANUALLY 2" Ø PEX -WATERLINE PIPE 3.5' WIDE

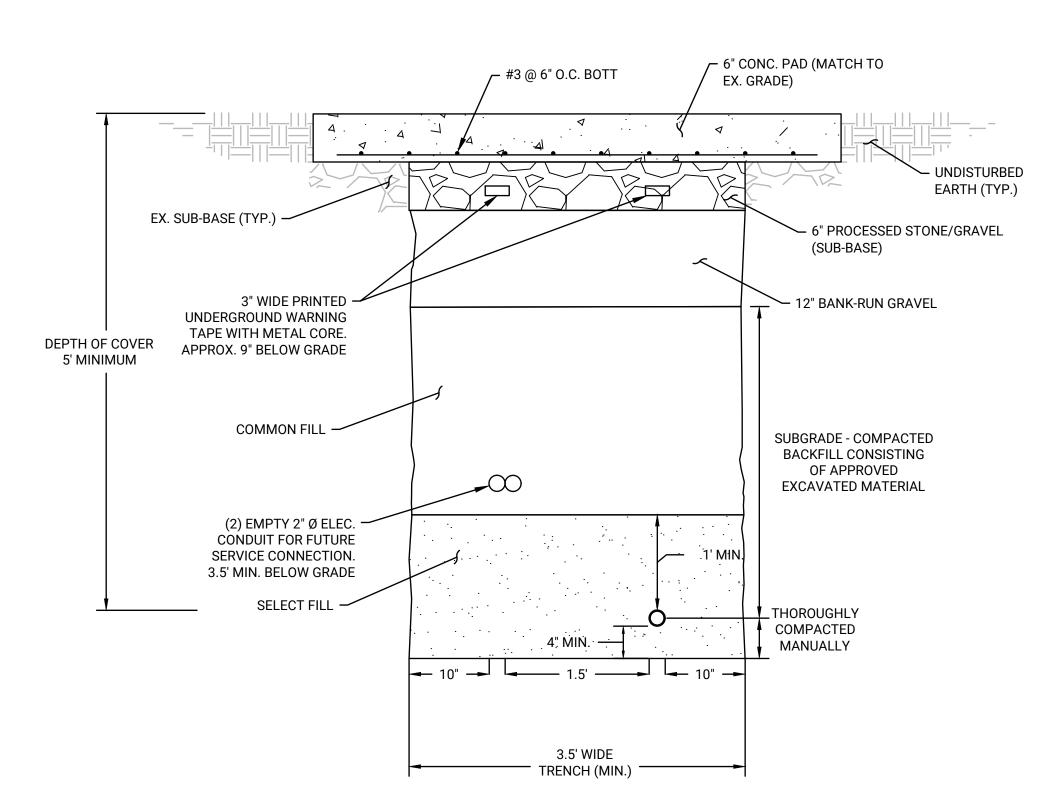
#### WATER SYSTEM UTILITY TRENCH W/ REPAVEMENT DETAIL

SCALE: 1"=1'

1. 2" Ø PEX IS TO BE INSTALLED USING VIEGA PURE FLOW PEX OR EQUAL

TRENCH (MIN.)

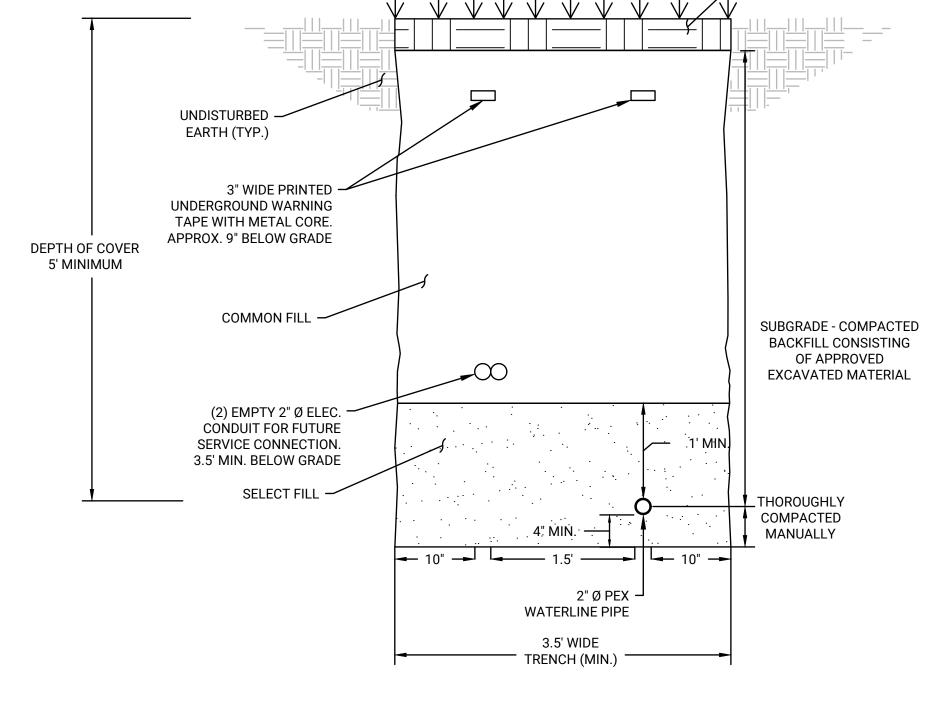
APPROVED BT THE ENGINEER 2. EMPTY 2" Ø ELEC. CONDUIT IS TO BE INSTALLED USING CANTEX PVC SCH 40 CONDUIT OR EQUAL APPROVED BY ENGINEER



#### WATER SYSTEM UTILITY TRENCH W/ CONCRETE PAD DETAIL SCALE: 1"=1'

1. 2" Ø PEX IS TO BE INSTALLED USING VIEGA PURE FLOW PEX OR EQUAL

2. EMPTY 2" Ø ELEC. CONDUIT IS TO BE INSTALLED USING CANTEX PVC SCH 40



#### WATER SYSTEM UTILITY TRENCH W/ LOAM & SEEDING DETAIL

- LOAM AND SEEDING

(MATCH TO EX. GRADE)

SCALE: 1"=1'

1. 2" Ø PEX IS TO BE INSTALLED USING VIEGA PURE FLOW PEX OR EQUAL APPROVED BT THE ENGINEER

2. EMPTY 2" Ø ELEC. CONDUIT IS TO BE INSTALLED USING CANTEX PVC SCH 40 CONDUIT OR EQUAL APPROVED BY ENGINEER

 COMPOST FILTER TUBE: MINIMUM 12 INCHES (300mm) IN DIAMETER WITH AN EFFECTIVE HEIGHT OF 9.5 INCHES (240mm). TUBES FOR COMPOST FILTERS SHALL BE JUTE MESH OR APPROVED BIODEGRADABLE MATERIAL HOWEVER PHOTO-BIODEGRADABLE FABRIC SHALL BE REMOVED AT END OF CONTRACT. TAMP TUBES IN PLACE TO ENSURE GOOD CONTACT WITH SOIL SURFACE. IT IS NOT NECESSARY TO TRENCH TUBES INTO EXISTING GRADE. DIRECTION OF - UNDISTURBED SOIL & VEGETATION. TUBES SHALL BE PLACED AS CLOSE TO LIMITS OF SOIL DISTURBANCE AS POSSIBLE.

> COMPOST TUBES SHALL BE STAKED OR LEANED AGAINST SUPPORTS (TREES, CINDER BLOCKS) ON LOCATIONS SHOWN ON THE PLANS. INSTALL SEDIMENTATION FENCE ON THE UPSIDE OF THE SLOPE. WHERE NECESSARY, STAKING SHALL BE MIN. 1 INCH X 1 INCH X 3 FEET UNTREATED HARDWOOD STAKES, UP TO 5 FT. (1.5m) APART OR AS REQUIRED TO SECURE TUBES IN PLACE. TUBES SHALL BE STAKED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.

#### TEMPORARY COMPOST FILTER TUBE DETAIL SCALE: NTS

1. PROVIDE A MINIMUM TUBE DIAMETER OF 12 INCHES (300mm) FOR SLOPES UP TO 50 FEET (15.24m) IN LENGTH WITH A SLOPE RATIO OF 3H:1V OR STEEPER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER TUBE DIAMETER OR ADDITIONAL COURSING OF FILTER TUBES TO CREATE A FILTER BERM. REFER TO MANUFACTURER'S RECOMMENDATIONS

FOR SITUATIONS WITH LONGER OR STEEPER SLOPES. 2. INSTALL TUBES/SILT FENCE ALONG CONTOURS AND PERPENDICULAR TO SHEET OR CONCENTRATED FLOW.

3. TUBE LOCATION MAY BE SHIFTED TO ADJUST TO LANDSCAPE FEATURES, BUT SHALL PROTECT UNDISTURBED AREA AND VEGETATION TO MAXIMUM EXTENT POSSIBLE.

4. FASTEN SEDIMENTATION FENCE FABRIC AND SUPPORT WIRE SECURELY TO THE UPSLOPE SIDE OF THE FENCE POST WITH WIRE TIES OR STAPLES. EXTEND WIRE 6 INCHES INTO THE TRENCH.

5. DO NOT INSTALL IN PERENNIAL, EPHEMERAL OR INTERMITTENT STREAMS.

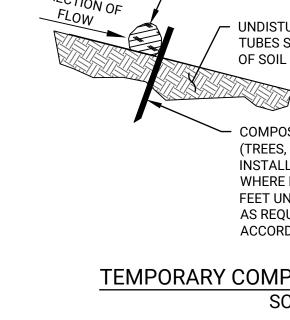
ADDITIONAL TUBES SHALL BE USED AT THE DIRECTION OF THE ENGINEER. ADDITIONAL STAKING SHALL BE USED AT THE DIRECTION OF THE ENGINEER

8. CONTRACTOR MAY SUBMIT FOR APPROVAL AN ALTERNATIVE SEDIMENT CONTROL

APPROVED BT THE ENGINEER CONDUIT OR EQUAL APPROVED BY ENGINEER

**GRAPHIC SCALE** 

(IN FEET) 1 INCH = 1 FEET



BARRIER FOR CONSTRUCTION USE