

December 5, 2023



Kittery Port Authority
Town of Kittery
200 Rogers Road
Kittery, Maine 03904

Re: Additional Submittal Documents – Shoreline Stabilization
15 Bowen Road (Tax Map 17 Lot 4) – Reference No. 23-114

To Whom It May Concern:

Enclosed are additional submittal documents regarding the stabilization of approximately 86 linear feet of existing eroding shoreline along the owner's property at 15 Bowen Road. Review by the Kittery Port Authority pertains to the impact located below the highest annual tide line. An Individual NRPA application was submitted for the pier replacement and shoreline stabilization to Maine DEP (MDEP) and the U.S. Army Corps of Engineers on October 6, 2023 and is currently being reviewed. The Planning Board will subsequently review this application for the impact located above the HAT line.

Please also see enclosed, as Attachment 4, an updated plan set. On the Shoreline Stabilization Plan the riprap was adjusted behind the existing masonry wall to minimize additional riprap impacts above the HAT line.

Thank you for considering these additional documents when reviewing the application. Should you have any questions while reviewing the enclosed, do not hesitate to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ryan M. McCarthy".

Ryan M. McCarthy, P.E., P.L.S.

President
Tidewater Engineering & Surveying, Inc.
(207) 439-2222
ryan@tidewatercivil.com
RM/ns

Enclosures

KITTERY PORT AUTHORITY SHORELINE STABILIZATION PERMIT
APPLICANT: ERIC DYER
LOCATION: 15 BOWEN ROAD, KITTERY, ME 03904



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ATTACHMENT #1- PROJECT DESCRIPTION:

A. Introduction/Purpose:

Major weather events have accelerated the erosion process along the shoreline of the property exposing root systems and washing away soil. If the shoreline along the property is left in its current state, the slope will continue to deteriorate putting the vegetation and uplands at risk, therefore the owner is seeking to stabilize the shoreline to help prevent future erosion and protect their property.

B. Project Summary:

The owners of the property have witnessed their shoreline erode and degrade over time putting the existing vegetation at risk and exposing root systems. To protect the embankments and uplands along Spruce Creek, approximately 86 linear feet of shoreline will be reconstructed with riprap and vegetative stabilization measures. The riprap will consist of 24" to 36" sized rocks built up at a 1:1 slope from the toe, up to an elevation of 13 feet before transitioning to a vegetated slope. All riprap will be supported by a crushed stone base located 2' below existing grade and underlain with a geo-textile fabric. The vegetative slope will be stabilized with native plants, promoting healthy growth along the shoreline, supporting existing root systems, and preventing further upland soil from eroding into the coastal habitat. The proposed impact below the HAT is approximately 446 sf. See attached plans for additional details.

C. Historical Knowledge:

The property was purchased by the applicant in 2018. The previous owners installed the existing pier, gangway, and float in 1995.

D. Impact Calculations:

The total permanent impacts below the H.A.T. is estimated as follows...

Total area of rip-rap impact = 446 sf +/- (Below HAT)

Disturbance area of the adjacent uplands are as follows...

Area of rip-rap impact = 597 sf +/-

Graded vegetative slope = 1622 sf +/-

Total Disturbance Area = 2219 sf +/- (Uplands: Above HAT)

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E. Location-Based Impact Mitigation:

After thoroughly evaluating the shoreline and intertidal zones along this property, we are recommending the shoreline stabilization location shown on the enclosed plans for the following reasons:

- 1) Reestablishes and re-enforces the existing shape of the edge of shoreline.
- 2) The elevation of the top of the proposed riprap slope will be above the current 100-year flood elevation designated by FEMA to improve protection from erosion during major storm events and wave action.
- 3) The uplands adjacent to the shoreline are developed as shrubs and lawn area and will not require the unnecessary removal of any trees for construction access.

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ATTACHMENT #2- ALTERNATIVES ANALYSIS:

- 1) Vertical Bulkhead: This alternative would provide structural retaining walls between the coastal resource and the uplands. This alternative was not pursued for following reasons:
 - a. Bulkheads reflect wave energy, which can cause unintended impacts to nearby shorelines.
 - b. A timber bulkhead would be built using a pressure treated wood which is treated with chemicals that are harmful to the environment. Riprap stabilization in a marine environment typically has a longer lifespan than timber. The shorter lifespan would increase the impact to the resource by shortening the time span between replacements of the structure.

- 2) Do Nothing: This alternative would be for the applicant to continue to allow the shoreline on their property to erode into the coastal resource, further undermining existing root systems and vegetation. This option was not pursued for the following reasons:
 - a. Storm events and tide fluctuations will continue to erode the shoreline.
 - b. Existing vegetation and root systems will continue to be undermined, exposing soils, and causing additional vegetation and upland soils to fall into the intertidal zone.
 - c. The shoreline will become increasingly unstable, posing a hazard to the owners and the uplands on the property.

- 3) Vegetative Stabilization: This alternative would attempt to utilize solely vegetative measures to stabilize the slope. This alternative was not pursued for the following reasons:
 - a. The existing slope is too steep for vegetation to be used for stabilization.
 - b. The underlying soils will continue to erode and fail under the root systems.
 - c. Vegetative measures are not appropriate for this location due to its direct exposure to wind, wave, and ocean swells. Vegetative measures would not be able to withstand this exposure level.

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ATTACHMENT #3- PROJECT SITE PHOTOS:

Photo 1: View showing slope failure, exposed soils, eroding vegetation, and exposed root systems (01/18/2023)



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Photo 2: View showing exposed soils and root systems, shifted riprap, and a broken pipe
(07/13/2023)



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ATTACHMENT #4- SHORELINE STABILIZATION PLAN:

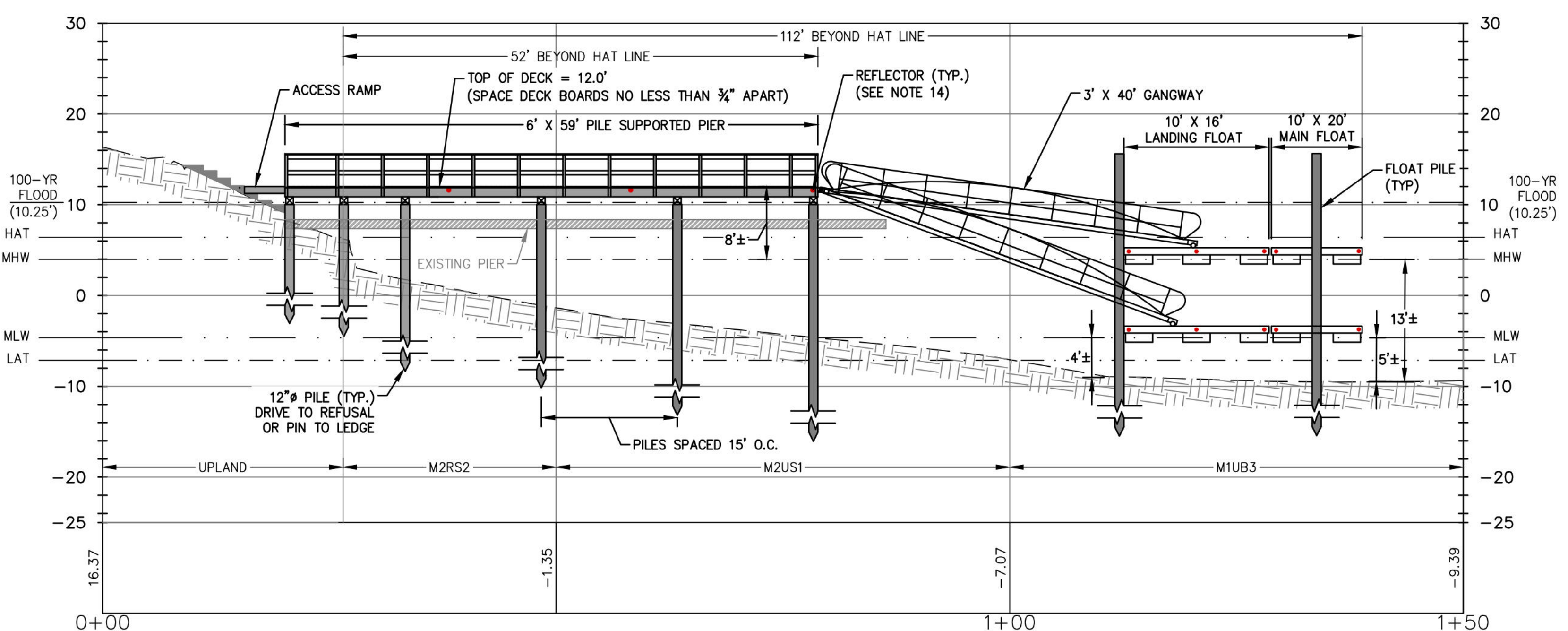
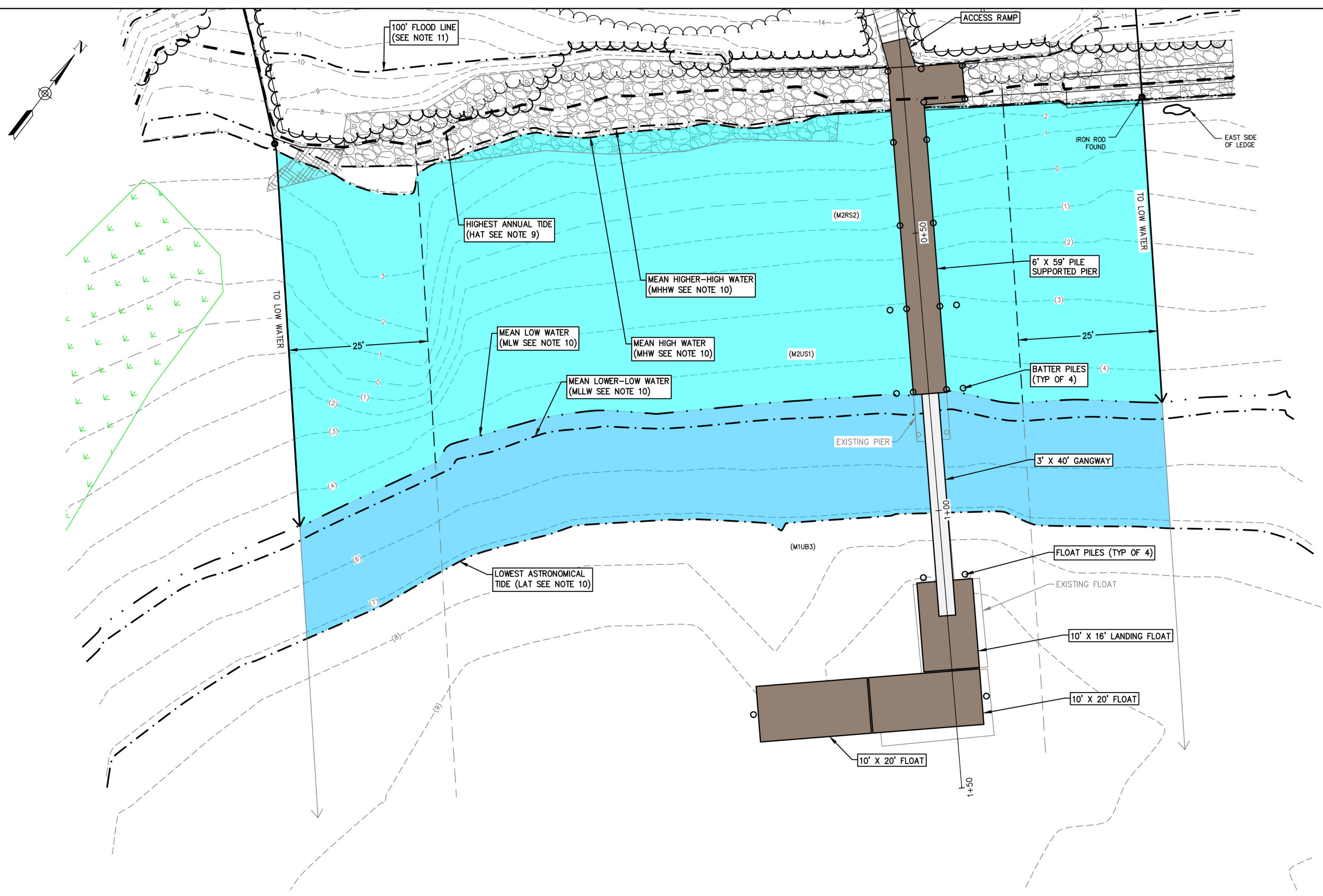
LEGEND

- SUBJECT PARCEL BOUNDARY LINE
- EDGE OF PAVEMENT
- EXISTING STONE WALL
- EXISTING SEWER LINE
- 10 — CONTOUR: POSITIVE ELEVATION
- (10) — CONTOUR: NEGATIVE ELEVATION
- IRON PIPE, ROD, OR DISK FOUND
- DRILL HOLE FOUND
- GRANITE/CONCRETE BOUND
- UTILITY POLE

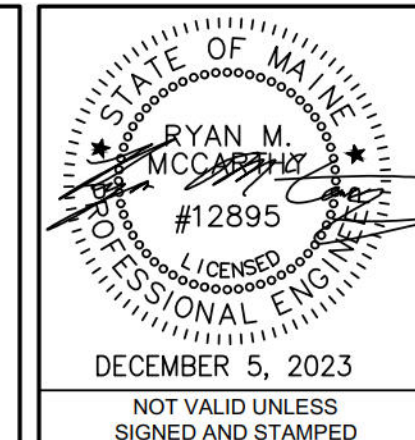
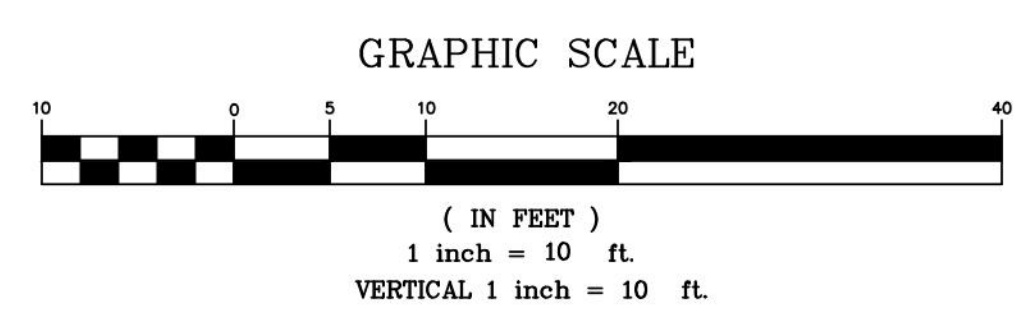
- GENERAL NOTES:**
- THE PURPOSE OF THIS PLAN IS TO DEPICT THE LOCATION OF A PROPOSED FIXED PIER, SEASONAL GANGWAY, SEASONAL MAIN FLOAT AND ASSOCIATED ACCESS RAMP TO BE LOCATED ON MAP 17 LOT 4 IN KITTERY, ME. THE EXISTING PIER STRUCTURE IS BEING FULLY REPLACED AND THE MAIN FLOAT IS BEING EXPANDED. SAID PLAN SHALL BE USED FOR APPLYING FOR PERMITS FROM THE TOWN OF KITTERY, MAINE DEPT. OF ENVIRONMENTAL PROTECTION AND U.S. ARMY CORPS OF ENGINEERS.
 - OWNER OF RECORD:
TAX MAP 17 LOT 4
ERIC DYER
15 BOWEN ROAD
KITTERY, MAINE 03904
Y.C.R.D. BOOK 17735 PAGE 0077
 - THE PROPERTY IS LOCATED WITHIN THE TOWN OF KITTERY RESIDENTIAL-URBAN ZONING DISTRICT AND SHORELAND PROTECTION OVERLAY 250' DISTRICT. ZONING REGULATIONS ARE SUBJECT TO CHANGE. OWNER SHALL CONFIRM ALL ZONING REGULATIONS WITH THE TOWN OF KITTERY PRIOR TO ANY DEVELOPMENT.
 - BASIS OF BEARING IS MAINE STATE PLANE (NAD83) WEST ZONE, US FOOT.
 - ELEVATIONS AND TOPOGRAPHY SHOWN HEREON CORRESPOND TO NAVD88.
 - THE BOUNDARY SHOWN HEREON IS BASED ON REFERENCE PLAN 1.
 - THE RIPARIAN LIMITS SHOWN HEREON WERE CALCULATED USING THE COLONIAL METHOD.
 - ABUTTER LINES SHOWN HEREON SHALL BE CONSIDERED APPROXIMATE AND ARE FOR REFERENCE PURPOSES ONLY. ABUTTER LINES SHALL NOT BE RELIED UPON AS BOUNDARY INFORMATION.
 - THE 2018 HIGHEST ANNUAL TIDE (H.A.T.) ELEVATION PUBLISHED BY MAINE DEP FOR TIDAL STATION 8423898 FORT POINT IS ELEV. = 6.4' (NAVD88). THE H.A.T. ELEVATION IS USED TO DELINEATE THE UPLAND EDGE OF THE COASTAL RESOURCE FOR REGULATORY PURPOSES UNDER THE MANDATORY SHORELAND ZONING ACT.
 - TIDAL ELEVATIONS: THE FOLLOWING TIDAL ELEVATIONS WERE OBTAINED FROM DATA PUBLISHED BY N.O.A.A. FOR TIDE STATION 8423898, FORT POINT. ALL ELEVATIONS CORRESPOND TO NAVD88.

MEAN HIGHER-HIGH WATER (MHHW)	4.39'
MEAN HIGH WATER (MHW)	3.97'
MEAN LOW WATER (MLW)	-4.66'
MEAN LOWER-LOW WATER (MLLW)	-5.00'
LOWEST ASTRONOMICAL TIDE (LAT)	-7.14'
 - THE 100-YEAR FLOOD ELEVATION OF THE PISCATAQUA RIVER IS ELEVATION 11.0' (NGVD29) PER FEMA FIRM MAP 230171 0005D. THIS ELEVATION CONVERTED TO THE DATUM SHOWN HEREON IS 10.25' (NAVD88).
 - UTILITY LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE AND MAY NOT BE ENTIRELY ACCURATE OR COMPLETE.
 - THE PROPOSED DEVELOPMENT SHOWN HEREON IS SUBJECT TO REVIEW AND APPROVAL BY THE TOWN OF KITTERY, MAINE DEP AND U.S. ARMY CORPS OF ENGINEERS. OWNER/CONTRACTOR SHALL OBTAIN ALL PERMITS NECESSARY PRIOR TO ANY CONSTRUCTION AND IS RESPONSIBLE FOR COMPLYING WITH ALL CONDITIONS OF SAID PERMITS.
 - REFLECTOR SHALL BE NO LESS THAN 3 INCH DIAMETER AND SHALL BE INSTALLED AS FOLLOWS:
 - PIER: EVERY 20 FEET FROM END OF PIER, BOTH SIDES
 - FLOATS: WITHIN 12 INCHES OF EACH CORNER

- REFERENCE PLANS:**
- "TOPOGRAPHIC SITE PLAN" PREPARED BY EASTERLY SURVEYING, INC. DATED JUNE 22, 2005 AND RECORDED IN THE YORK COUNTY REGISTRY OF DEEDS PLAN BOOK 17735 PAGE 0077.



NERRSCS CLASSIFICATION	
M2RS2	MARINE - INTERTIDAL - ROCKY SHORE - RUBBLE
M2US1	MARINE - INTERTIDAL - UNCONSOLIDATED SHORE - COBBLE
M1UB3	MARINE - SUBTIDAL - UNCONSOLIDATED BOTTOM - MUD



NOT VALID UNLESS SIGNED AND STAMPED
EXTENDED RIPARIAN LIMITS PAST MLW
DATE: 12/05/2023
NO. 1
SUBMISSION/REVISION DESCRIPTION

TIDEWATER
ENGINEERING & SURVEYING, INC.
1021 Goodwin Rd Unit 1, Eliot, ME 03903
(207)459-2222 • www.tidewatercivil.com

PIER STRUCTURE REPLACEMENT PLAN
ON LAND LOCATED AT
15 BOWEN ROAD
KITTERY, YORK COUNTY, MAINE

PREPARED FOR:
RIVERSIDE & PICKERING MARINE CONTRACTORS
34 PATTERSON LANE
NEWINGTON, NH 03801

JOB #:	23-114
DATE:	SEPT. 11, 2023
SCALE:	1" = 10'
SHEET:	1 OF 2

LEGEND

- SUBJECT PARCEL BOUNDARY LINE
- EDGE OF PAVEMENT
- EXISTING STONE WALL
- EXISTING SEWER LINE
- CONTOUR: POSITIVE ELEVATION
- CONTOUR: NEGATIVE ELEVATION
- IRON PIPE, ROD, OR DISK FOUND
- DRILL HOLE FOUND
- GRANITE/CONCRETE BOUND
- UTILITY POLE
- RIPRAP ABOVE H.A.T LINE
- RIPRAP BELOW H.A.T LINE
- UPPER BANK EXTENTS

GENERAL NOTES:

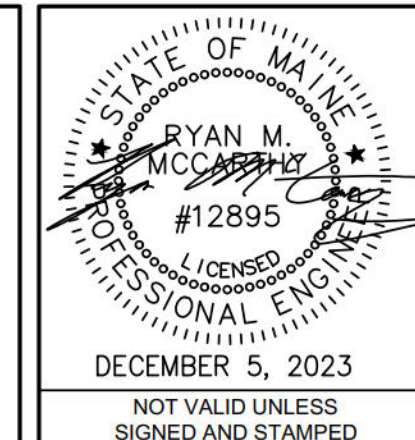
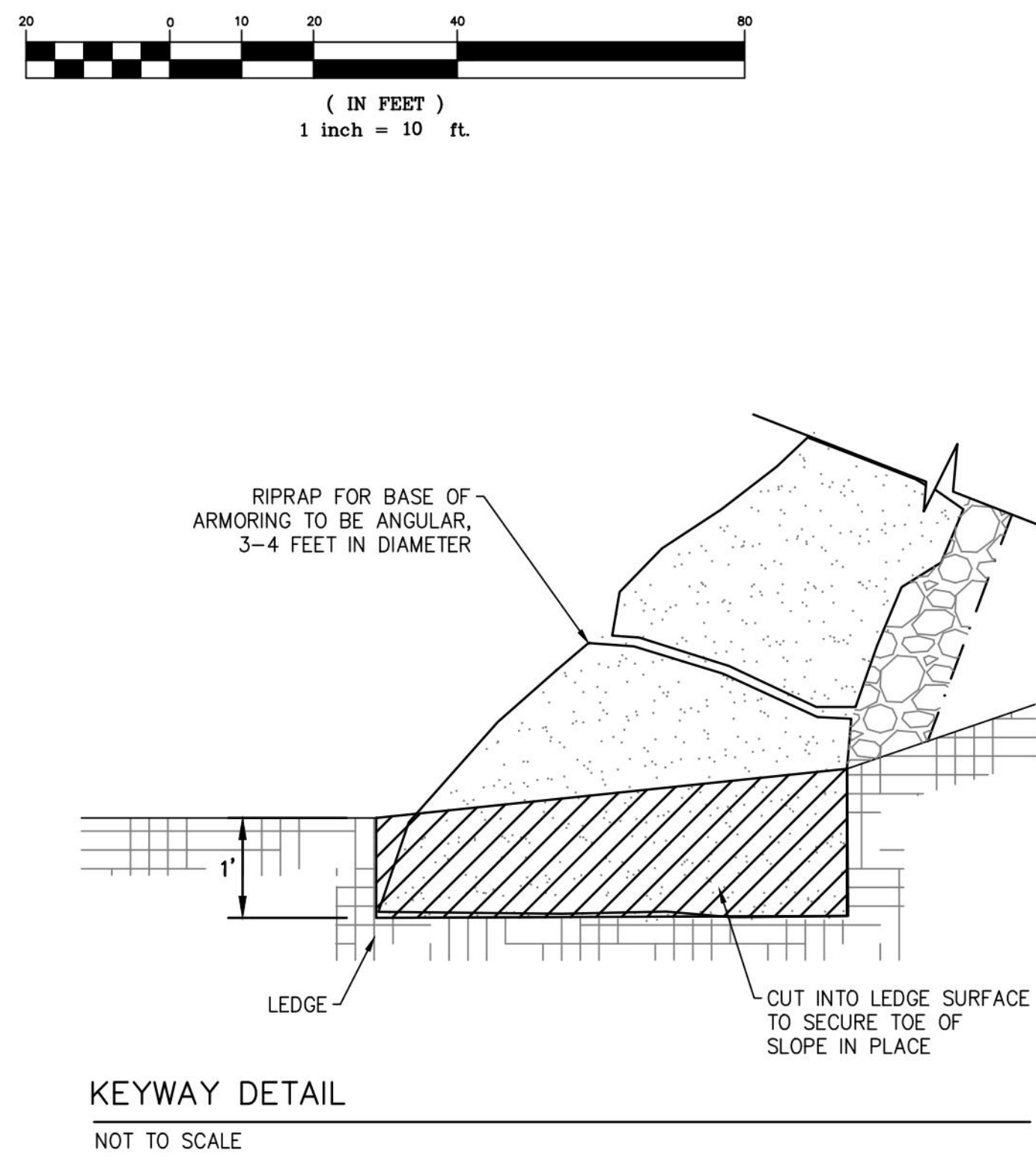
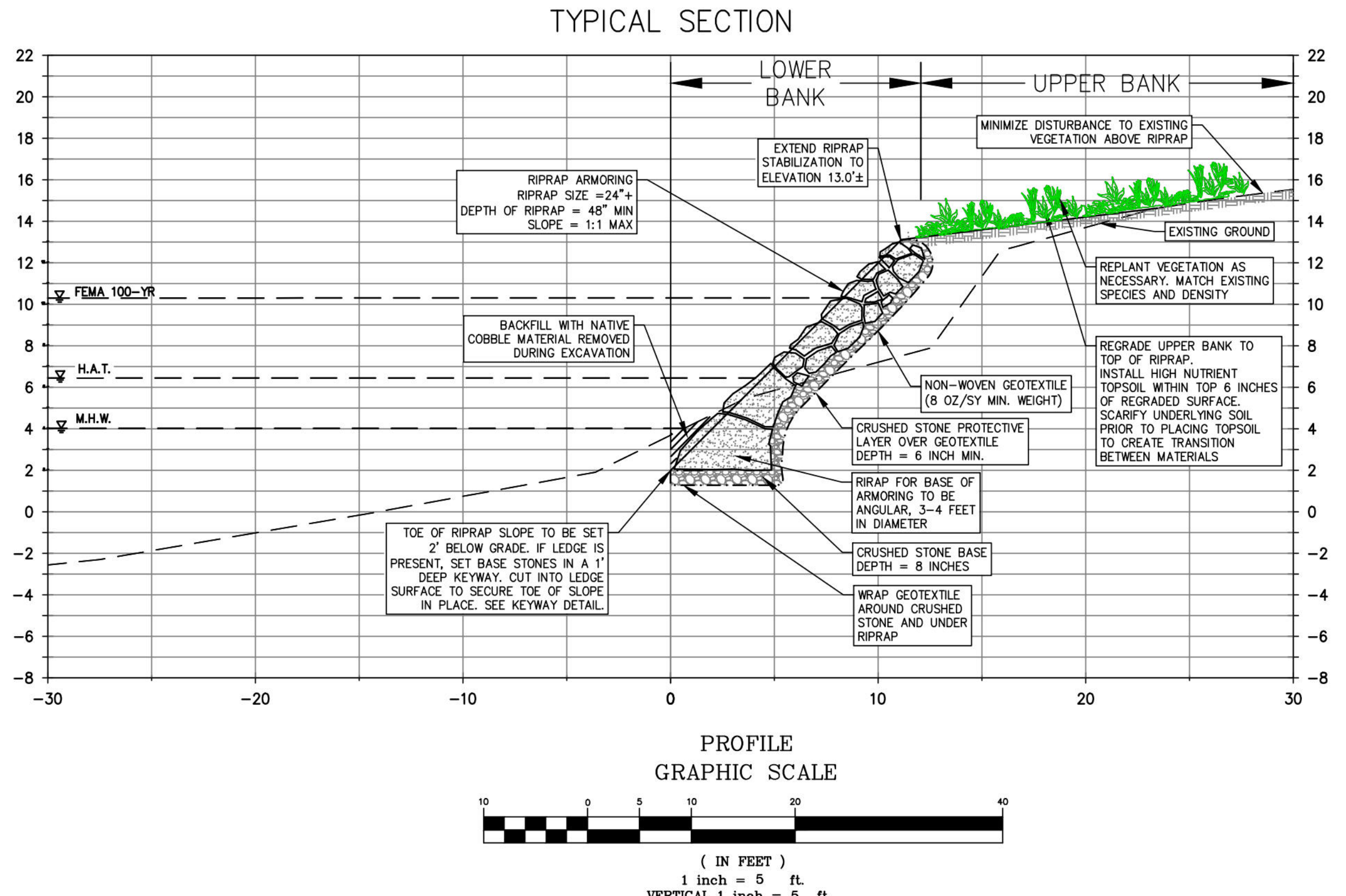
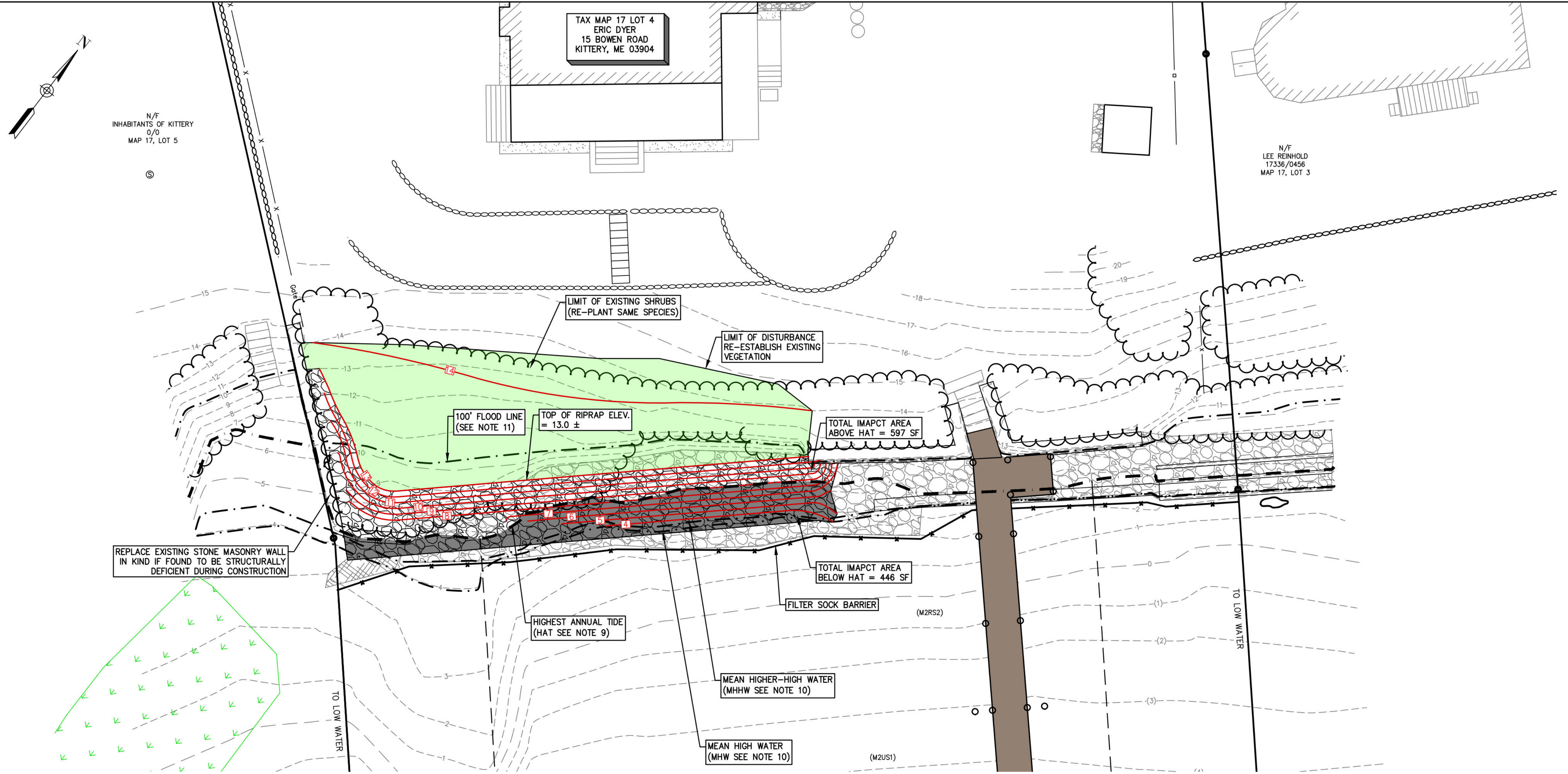
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2. OWNER OF RECORD:
TAX MAP 17 LOT 4
ERIC DYER
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5. ELEVATIONS AND TOPOGRAPHY SHOWN HEREON CORRESPOND TO NAVD88.
6. THE BOUNDARY SHOWN HEREON IS BASED ON REFERENCE PLAN 1.
7. THE RIPARIAN LIMITS SHOWN HEREON WERE CALCULATED USING THE COLONIAL METHOD.
8. UTILITY LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE AND MAY NOT BE ENTIRELY ACCURATE OR COMPLETE.
9. THE 2018 HIGHEST ANNUAL TIDE (H.A.T.) ELEVATION PUBLISHED BY MAINE DEP FOR TIDAL STATION 8423898 FORT POINT IS ELEV. = 6.4' (NAVD88). THE H.A.T. ELEVATION IS USED TO DELINEATE THE UPLAND EDGE OF THE COASTAL RESOURCE FOR REGULATORY PURPOSES UNDER THE MANDATORY SHORELAND ZONING ACT.
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LOWEST ASTRONOMICAL TIDE (LAT)	-7.14'

11. THE 100-YEAR FLOOD ELEVATION OF THE PISCATAQUA RIVER IS ELEVATION 11.0' (NGVD29) PER FEMA FIRM MAP 230171 00050. THIS ELEVATION CONVERTED TO THE DATUM SHOWN HEREON IS 10.25' (NAVD88).
12. THE CONTRACTOR IS RESPONSIBLE FOR ALL MEANS AND METHODS OF CONSTRUCTION, INSTALLING AND MAINTAINING PROPER EROSION AND SEDIMENT CONTROL MEASURES, IMPLEMENTATION OF A CONSTRUCTION SAFETY PLAN, COMPLYING WITH ALL PERMITTING CONDITIONS.
13. THE EXPANSION OF RIPRAP FOR SHORELINE STABILIZATION IS EXCLUDED FROM DEVEGETATED CALCULATIONS, PER MDEP RULING.

REFERENCE PLANS:

1. "TOPOGRAPHIC SITE PLAN" PREPARED BY EASTERLY SURVEYING, INC. DATED JUNE 22, 2005 AND RECORDED IN THE YORK COUNTY REGISTRY OF DEEDS PLAN BOOK 17735 PAGE 0077.



DECEMBER 5, 2023
NOT VALID UNLESS SIGNED AND STAMPED

NO.	1	DATE:	11/27/2023	ADJUSTED LIMITS OF RIPRAP, AND ADDED IMPACT VALUES
SUBMISSION/REVISION DESCRIPTION				

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1021 Goodwin Rd Unit 1, Eliot, ME 03903
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SHORELINE STABILIZATION PLAN
ON LAND LOCATED AT
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KITTERY PORT AUTHORITY SHORELINE STABILIZATION PERMIT
APPLICANT: ERIC DYER
LOCATION: 15 BOWEN ROAD, KITTERY, ME 03904



ATTACHMENT #5- CONSTRUCTION PLAN:

Approximately 86 linear feet of riprap armoring will be installed along the existing embankment to mitigate further erosion. Prior to any soil disturbing activities, the Contractor shall install all erosion and sediment control measures which includes a filter sock barrier just seaward of the toe of the slope. The Contractor will then proceed with excavating the existing rubble/rocks to dig out a keyway for the toe of the riprap. If ledge is encountered, the keyway shall be cut into the ledge as shown on the plans. The toe of the riprap will then be established using a base of 24"-36" stone that is 3-4 feet wide, supported by an 8" gravel base. When the excavator digs out a keyway toe for the riprap, a non-woven, geo-textile filter fabric will be installed between the exposed soil and the riprap to help prevent erosion of fine particulates from the upland and promote healthy drainage. Once the toe is established, riprap of various sizes will be built up at a 1:1 slope up to an approximate elevation of 13.0'. From there, the slope will transition to a maximum 3:1 graded vegetative slope. After the work is completed and the site is established, the filter sock shall be removed in its entirety. The total time of the site work will be completed from the uplands in approximately three weeks.

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ATTACHMENT #6- EROSION CONTROL PLAN:

Throughout the entire construction period for the slope stabilization a silt sock will be placed seaward of the proposed riprap toe location. This will be in place to reduce sedimentation of the resource during high tide when bare soil may be exposed to the river. After completion of the project the silt sock will be removed completely.